ENVIRONMENTAL AND LAND USE CRITERIA FOR TRANSMISSION LINE EVALUATION

Land Use

Length of alternative route
Number of habitable structures[1] within 300 feet of the right-of-way (ROW) centerline
Number of newly affected habitable structures[1] within 300 feet of ROW centerline
Length of ROW using existing transmission line ROW
Length of ROW parallel to existing transmission line ROW
Length of ROW parallel to other existing ROW (roadways, pipelines, railway, etc.)
Length of ROW parallel to apparent property lines[2]
Length of ROW through parks/recreational areas[3]
Number of additional parks/recreational areas[3] within 1,000 feet of the ROW centerline
Length of ROW through cropland
Length of ROW through pasture/rangeland
Length of ROW through land irrigated by traveling systems (rolling or pivot type)
Number of pipeline crossings
Number of transmission line crossings
Number of U S and state highway crossings
Number of farm-to-market road (FM) crossings
Number of cemeteries within 1,000 feet of the ROW centerline
Number of FAA registered airports with at least one runway more than 3,200 feet in length located within 20,000 feet of the ROW centerline
Number of FAA registered airports having no runway more than 3,200 feet in length located within 10,000 feet of the ROW centerline
Number of private airstrips within 10,000 feet of the ROW centerline
Number of heliports within 5,000 feet of the ROW centerline
Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline
Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of the ROW centerline

Aesthetics

Estimated length of ROW within foreground visual zone[4] of U S and state highways
Estimated length of ROW within foreground visual zone[4] of FM roads
Estimated length of ROW within foreground visual zone[5] of park/recreational areas[3]

Ecology

Length of ROW through upland woodlands/brushland
Length of ROW through bottomland/riparian woodlands
Length of ROW across National Wetlands Inventory mapped wetlands
Length of ROW across known habitat of federally listed endangered or threatened species
Length of ROW through modeled potentially suitable habitat for Golden-cheeked Warbler
Length of ROW across open water (lakes, ponds)
Number of stream crossings
Number of river crossings
Length of ROW parallel (within 100 feet) to streams or rivers
Length of ROW across 100-year floodplains
Area of ROW across Edwards Aquifer drainage zone (acres)

Cultural Resources

Number of recorded historic or prehistoric sites crossed by ROW
Number of additional recorded historic or prehistoric sites within 1,000 feet of ROW centerline
Number of National Register listed or determined eligible sites crossed by ROW
Number of additional National Register listed or determined eligible sites within 1,000 feet of ROW centerline
Length of ROW through areas of high archaeological/historic site potential

[1] Single-family and multi-family dwellings, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, and schools or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 300 feet of the centerline of a transmission project of 230-kV or less.
[2] Property lines created by existing roads, highway, or railroad ROW are not "double-counted" in the length of ROW parallel to property lines criteria.
[3] Defined as parks and recreational areas owned by a governmental body or an organized group, club, or church located within 1,000 feet of the centerline of the project.
[4] One-half mile, unobstructed. Lengths of ROW within the visual foreground zone of Interstates, U.S. and State Highways criteria are not "double-counted" in the length of ROW within the visual foreground zone of FM Roads criteria.
[5] One-half mile, unobstructed. Lengths of ROW within the visual foreground zone of parks/recreational areas may overlap with the total length of ROW within the visual foreground zone of Interstates, U.S. and State Highways criteria and/or with the total length of ROW within the visual foreground zone of FM Roads criteria.

LCRA ENERGY • WATER • COMMUNITY SERVICES

POWER ENGINEERS

AGENCIES and OFFICIALS CONTACTED

FEDERAL

- Federal Aviation Administration
- Federal Emergency Management Agency
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish & Wildlife Service
- U.S. National Parks Service
- U.S. Senators and Congressional Representatives

STATE

- Railroad Commission of Texas
- Texas Commission on Environmental Quality
- Texas Department of Transportation
  - ➢Aviation Division
  - ➢Environmental Affairs Division
  - ➢Planning and Programming
- Texas General Land Office
- Texas Historical Commission
- Texas Parks & Wildlife Department
- Texas Water Development Board
- State Senators and Representatives

LOCAL

- County Officials (Blanco, Gillespie, and Kendall)
- City Officials (Fredericksburg)
- School ISDs (Blanco, Comfort, Fredericksburg, and Johnson City)
- Blanco, Gillespie, and Kendall Counties Economic Development Corporation
- Blanco, Gillespie, and Kendall Counties Historical Commission
- Alamo Area Council of Governments
- Capitol Area Council of Governments
- Fredericksburg Chamber of Commerce
- Stonewall Chamber of Commerce
- Utilities

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Appendix C

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

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Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-3 Primary Alternative Route 1			
Segment Combination: A-B-D-E-F-G-G3-H-L2-I2-I3-J-J2-L-B2			
Substation Alternative: 1 and Tap Point Alternative: 4b			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
1	159	Commercial	A
2	166	Commercial	A
3	242	Single-family residence	A
7	161	Single-family residence	G3
8	187	Single-family residence	L2
11	222	Single-family residence	L2
12	242	Single-family residence	I2
13	175	Single-family residence	I3
15	264	Single-family residence	J2
17	158	Playhouse	L
18	136	Office	L
19	207	Single-family residence	L
--	426	41KE18	I3
--	495	41KE19	J
--	945	41KE20	J

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-4 Primary Alternative Route 2			
Segment Combination: A-B-D-R-R2-S-Q1-Z-Z1-Z3-C1-C2-E2-G2			
Substation Alternative: 1 and Tap Point Alternative: 1			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
1	159	Commercial	A
2	166	Commercial	A
3	242	Single-family residence	A
4	215	Single-family residence	R
5	230	Single-family residence	R
6	185	Single-family residence	R
40	132	Single-family residence	R2
41	254	Single-family residence	R2
44	224	Single-family residence	Z
45	205	Single-family residence	Z1
46	94	Single-family residence	Z1
49	87	Single-family residence	C2
50	197	Commercial	C2
51	162	Commercial	C2
52	286	School	C2
53	195	Single-family residence	E2
54	276	Single-family residence	E2
55	220	Single-family residence	E2
56	276	Single-family residence	E2
101	928	Williams Creek School	C2
401	8,468	BurgAERO	Z1
402	0	Otte	Z1
403	4,985	Kennedy Ranch	G2
--	535	41GL143	C1

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-5 Primary Alternative Route 3			
Segment Combination: B-D-E-F-G-G3-H-L1-I-I3-K-K1-K2-L			
Substation Alternative: 2 and Tap Point Alternative: 4a			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
7	161	Single-family residence	G3
9	132	Single-family residence	L1
10	274	Single-family residence	L1
13	175	Single-family residence	I3
14	110	Single-family residence	K1
15	221	Single-family residence	K1
17	158	Playhouse	L
18	136	Office	L
19	207	Single-family residence	L
--	426	41KE18	I3

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-6 Primary Alternative Route 4			
Segment Combination: B-D-E-F-G-R1-R2-S-Q1-Z-Z2-Z3-B1-F2-E1-V1-S1-P1			
Substation Alternative: 2 and Tap Point Alternative: 3			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
37	188	Single-family residence	P1
38	285	Single-family residence	P1
40	132	Single-family residence	R2
41	254	Single-family residence	R2
44	224	Single-family residence	Z
47	215	Single-family residence	E1
303	472	FM radio transmitter and ASR Tower	B1
401	9,599	BurgAERO	Z2
402	1,001	Otte	Z2

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-7 Primary Alternative Route 5			
Segment Combination: C-D-E-F-G-G3-H-L1-M1-I2-I3-K-H2-J2-L-B2			
Substation Alternative: 3 and Tap Point Alternative: 4b			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
7	161	Single-family residence	G3
9	132	Single-family residence	L1
10	274	Single-family residence	L1
11	296	Single-family residence	M1
12	242	Single-family residence	I2
13	175	Single-family residence	I3
15	264	Single-family residence	J2
17	158	Playhouse	L
18	136	Office	L
19	207	Single-family residence	L
--	426	41KE18	I3

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-8 Primary Alternative Route 6			
Segment Combination: C-D-E-F-G-G3-U-Y2-N-G1-V1-H1-I1-G2-			
Substation Alternative: 3 and Tap Point Alternative: 1			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
7	161	Single-family residence	G3
26	76	Single-family residence	Y2
27	155	Single-family residence	N
28	56	Single-family residence	N
48	139	Single-family residence	H1
57	68	Single-family residence	I1
403	4,985	Kennedy Ranch	G2

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-9 Primary Alternative Route 7			
Segment Combination: F-G-G3-H-L1-I-I3-K-K1-U1-N1-B2			
Substation Alternative: 4 and Tap Point Alternative: 4b			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
7	161	Single-family residence	G3
9	132	Single-family residence	L1
10	274	Single-family residence	L1
13	175	Single-family residence	I3
14	110	Single-family residence	K1
15	221	Single-family residence	K1
16	239	Guest house	N1
--	426	41KE18	I3

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-10 Primary Alternative Route 8			
Segment Combination: F-G-R1-R2-S-T-A1-F2-D1-F1-E2-G2			
Substation Alternative: 4 and Tap Point Alternative: 1			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
40	132	Single-family residence	R2
41	254	Single-family residence	R2
53	195	Single-family residence	E2
54	276	Single-family residence	E2
55	220	Single-family residence	E2
56	276	Single-family residence	E2
402	3,738	Otte	A1
403	4,985	Kennedy Ranch	G2
--	124	41GL140	A1
--	105	41GL397	D1
--	470	41GL396	D1

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-11 Primary Alternative Route 9			
Segment Combination: A-Q1-C-M-N-P-B2-F2-B1-F1-J1-O1-N1-L1			
Substation Alternative: 5 and Tap Point Alternative: 3			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
7	161	Single-family residence	G3
9	132	Single-family residence	L1
10	274	Single-family residence	L1
20	56	Single-family residence	W1
21	151	Single-family residence	W1
22	222	Commercial	W1
23	226	Single-family residence	Y1
24	309	Single-family residence	Y1
25	273	Single-family residence	Y1
26	76	Single-family residence	Y2
27	155	Single-family residence	N
28	56	Single-family residence	N
29	145	Hunting Cabin	W
30	74	Single-family residence	W
31	186	Single-family residence	W
32	147	Single-family residence	X
33	115	Single-family residence	X
36	194	Single-family residence	X
304	1,399	Microwave and ASR Tower	W
305	446	ASR Tower	W

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-12 Primary Alternative Route 10			
Segment Combination: G-R1-R2-S-Q1-Z-Z2-Z3-C1-D2-F1-E2-G2			
Substation Alternative: 5 and Tap Point Alternative: 1			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
40	132	Single-family residence	R2
41	254	Single-family residence	R2
44	224	Single-family residence	Z
53	195	Single-family residence	E2
54	276	Single-family residence	E2
55	220	Single-family residence	E2
56	276	Single-family residence	E2
401	9,599	BurgAERO	Z2
402	1,001	Otte	Z2
403	4,985	Kennedy Ranch	G2
--	252	41GL56	D2
--	366	41GL142	D2
--	269	41GL143	D2

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-13 Primary Alternative Route 11			
Segment Combination: G3-H-L1-I-I3-K-K1-K2-L			
Substation Alternative: 8 and Tap Point Alternative: 4a			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
7	161	Single-family residence	G3
9	132	Single-family residence	L1
10	274	Single-family residence	L1
13	175	Single-family residence	I3
14	110	Single-family residence	K1
15	221	Single-family residence	K1
17	158	Playhouse	L
18	136	Office	L
19	207	Single-family residence	L
--	426	41KE18	I3

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-14 Primary Alternative Route 12			
Segment Combination: R1-R2-S-T-A1-F2-E1-V1-H1-J1			
Substation Alternative: 8 and Tap Point Alternative: 2			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
40	132	Single-family residence	R2
41	254	Single-family residence	R2
47	215	Single-family residence	E1
48	139	Single-family residence	H1
402	3,738	Otte	A1
--	124	41GL140	A1

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-15 Primary Alternative Route 13			
Segment Combination: P-O1-Q-S-T-V-N-W-Y-X2			
Substation Alternative: 6 and Tap Point Alternative: 3			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
27	155	Single-family residence	N
28	56	Single-family residence	N
29	145	Single-family residence	W
30	74	Hunting Cabin	W
31	186	Single-family residence	W
32	217	Single-family residence	Y
33	266	Single-family residence	Y
34	306	Single-family residence	Y
35	283	Single-family residence	Y
39	250	Commercial	P
304	1,399	Microwave and ASR Tower	W
305	446	ASR Tower	W
402	6,310	Otte	T

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-16 Primary Alternative Route 14			
Segment Combination: P-O1-T1-Z-Z1-Z3-C1-C2-E2-G2			
Substation Alternative: 6 and Tap Point Alternative: 1			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
39	250	Commercial	P
42	199	Single-family residence	T1
43	151	Commercial	T1
44	224	Single-family residence	Z
45	205	Single-family residence	Z1
46	94	Single-family residence	Z1
49	87	Single-family residence	C2
50	197	Commercial	C2
51	162	Commercial	C2
52	286	School	C2
53	195	Single-family residence	E2
54	276	Single-family residence	E2
55	220	Single-family residence	E2
56	276	Single-family residence	E2
301	1,666	ASR Tower	T1
302	1,868	ASR Tower	T1
401	8,468	BurgAERO	Z1
402	0	Otte	Z1
403	4,985	Kennedy Ranch	G2
--	535	41GL143	C1

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-17 Primary Alternative Route 15			
Segment Combination: O1-Q-S-T-V-N-O-N1			
Substation Alternative: 7 and Tap Point Alternative: 4a			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
16	239	Guest house	N1
27	155	Single-family residence	N
28	56	Single-family residence	N
402	6,310	Otte	T
404	1,952	Headwaters	O

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-18 Primary Alternative Route 16			
Segment Combination: O1-Q-S-T-A1-F2-E1-V1-H1-J1			
Substation Alternative: 7 and Tap Point Alternative: 2			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
47	215	Single-family residence	E1
48	139	Single-family residence	H1
402	3,738	Otte	A1
--	124	41GL140	A1

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-19 Primary Alternative Route 17			
Segment Combination: S-T-V-N-W-X-X2			
Substation Alternative: 9 and Tap Point Alternative: 3			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
27	155	Single-family residence	N
28	56	Single-family residence	N
29	145	Single-family residence	W
30	74	Hunting Cabin	W
31	186	Single-family residence	W
32	147	Single-family residence	X
33	115	Single-family residence	X
36	194	Single-family residence	X
304	1,399	Microwave and ASR Tower	W
305	446	ASR Tower	W
402	6,310	Otte	T

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-20 Primary Alternative Route 18			
Segment Combination: S-Q1-Z-Z2-Z3-B1-F2-D1-F1-E2-G2			
Substation Alternative: 9 and Tap Point Alternative: 1			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
44	224	Single-family residence	Z
53	195	Single-family residence	E2
54	276	Single-family residence	E2
55	220	Single-family residence	E2
56	276	Single-family residence	E2
303	472	FM radio transmitter and ASR Tower	B1
401	9,599	BurgAERO	Z2
402	1,001	Otte	Z2
403	4,985	Kennedy Ranch	G2
--	470	41GL396	D1
--	105	41GL397	D1

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-21 Primary Alternative Route 19			
Segment Combination: G3-U-Y2-N-W-Y-X2			
Substation Alternative: 8 and Tap Point Alternative: 3			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
7	161	Single-family residence	G3
26	76	Single-family residence	Y2
27	155	Single-family residence	N
28	56	Single-family residence	N
29	145	Single-family residence	W
30	74	Hunting Cabin	W
31	186	Single-family residence	W
32	217	Single-family residence	Y
33	266	Single-family residence	Y
34	306	Single-family residence	Y
35	283	Single-family residence	Y
304	1,399	Microwave and ASR Tower	W
305	446	ASR Tower	W

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

Table 5-22 Primary Alternative Route 20			
Segment Combination: R2-R1-G3-H-L1-I-I3-K-K2-L-B2			
Substation Alternative: 9 and Tap Point Alternative: 4b			
Map Number	**Approximate Distance from Route Centerline (feet)**	**Structure or Feature**	**Nearest Alternative Route Segment**
7	161	Single-family residence	G3
9	132	Single-family residence	L1
10	274	Single-family residence	L1
13	175	Single-family residence	I3
14	110	Single-family residence	K1
15	221	Single-family residence	K1
17	158	Playhouse	L
18	136	Office	L
19	207	Single-family residence	L
40	132	Single-family residence	R2
41	254	Single-family residence	R2
402	9,761	Otte	R2
--	426	41KE18	I3

*Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

Appendix D

Figure 4-8

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THIS PAGE CONTAINS COLOR MAPS OR DRAWINGS AND CAN BE VIEWED IN CENTRAL RECORDS

(PUBLIC UTILITY COMMISSION OF TEXAS
1701 N. CONGRESS AVENUE
AUSTIN, TX 78701)

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Appendix E

Figure 5-1

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Appendix F

LCRA TSC's Oak Wilt Policy

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LCRA EMPLOYEE POLICY MANUAL: 400 SAFETY AND ENVIRONMENTAL			
Requirement 402R2: Oak Wilt Prevention			
Approval Date	October 2014	Owner	Manager, Environmental Affairs
Effective Date	October 2014	Policy Owner Review	Every Three Years
Review Date	October 2014	Next Executive Team or Designee Review	2016

402R2.1 Oak Wilt Defined

Oak wilt is a tree disease caused by the fungus *Ceratocystis fagacearum*. The fungus infects the conductive tissue (xylem) that contains vessels to transport moisture throughout the tree. The oak wilt fungus causes the infected tree to produce tylosis, which becomes so significant the tree can no longer transport water through its vascular system. The end result, in most cases, is a dead tree.

402R2.2 Prevention of Oak Wilt

- Any person representing LCRA involved in field work where oak trees are trimmed, removed, or could be potentially wounded shall receive oak wilt training. LCRA representatives required to have training include, but are not limited to, project managers, construction managers, environmental staff, equipment operators, contractors, subcontractors, and volunteers. Training must occur before field work may begin in areas with oak trees. Those working with oak trees shall complete the LCRA Oak Wilt Prevention Report as well. When possible, oak trees should not be trimmed or pruned between February and June.
- At all times, sterilizing equipment and dressing wounds are mandatory when trimming or pruning susceptible species.
- Sterilizing tree removal and trimming equipment will occur before leaving the project area or between property boundaries, and will involve using either 1) aerosol disinfectant; 2) 10 percent bleach-water solution; or 3) isopropyl alcohol (minimum 70 percent). In addition, tree-trimming equipment must be sterilized thoroughly before it is used again.
- Irrespective of limb size, all cuts and wounds must be painted with a wound or latex-based paint, a product approved by a certified arborist who has obtained an Oak Wilt Specialist Certification, or one recommended by the Texas Forest Service. Such painting will include stump cuts and damaged roots (regardless if the stumps are to remain in place or are to be grubbed), both above and below ground. Damaged roots located in a trench or excavations that a safety supervisor says cannot be accessed safely do not have to be painted. It takes only a few minutes for an open tree wound to attract insects, so painting cannot wait until all pruning is accomplished. Wound protection must be applied immediately. At a minimum, LCRA representatives will seal all wounds of any size on all oak trees. However, LCRA representatives may elect to seal cuts of other hardwood trees on a case-by-case basis.

402R2.3 Disposal

- Chipping or shredding the wood from infected trees to use as mulch is an acceptable means of recycling it. Chipping or shredding dries the wood quickly and kills the fungus.
- Burning diseased wood is an acceptable means of disposal. Burning diseased logs kills the oak wilt fungus, and it cannot be spread by smoke.
- Firewood from diseased trees should not be stored near healthy trees because fungal spores or insects that carry the spores can spread the fungus. If the brush or logs are to be left for firewood, the LCRA representative must explain to the landowner or landowner's representative that the brush or logs may be infected and warn them of storage hazards.
- LCRA representatives may fulfill this landowner notification obligation by providing pertinent information regarding burning and firewood to the landowner or landowner's representative. Logs over 4 inches, or 10

centimeters, in diameter at breast height must be girdled (have the bark removed), as fungal mats have been found on logs this size and larger after the tree was felled.

- It is recommended that oak firewood be stored under a sheet of clear plastic, and edges tightly sealed with soil or bricks. That should prevent any spore-carrying beetles from escaping. Use clear plastic because black plastic will reveal any escape holes to the beetles.
- Unused disinfectants and paints must be recycled or disposed of properly.
- Material Safety Data Sheets (MSDS) are required for each paint and disinfectant used.

See Also:

LCRA Oak Wilt Prevention Report

LCRA Oak Wilt Prevention Report

Oak wilt is a tree disease caused by a fungus which in most cases kills the tree. To help prevent the spread of oak wilt LCRA's Oak Wilt Policy states that **all wounds made to oak trees must be painted as soon as the wound is created** with a wound or latex-based paint or a product approved by a Certified Arborist who has obtained an Oak Wilt Specialist Certification or as directed by the Texas Forest Service. Sterilization of tree removal and trimming equipment must occur before leaving the project area or between property boundaries and must involve using an aerosol disinfectant, ten (10) percent bleach-water solution, or isopropyl alcohol (minimum 70%). **Tools must be disinfected between trees if pruning adjacent to oak wilt infested areas.** In addition, trimming equipment must be sterilized thoroughly before it is used again. If mechanical clearing occurs using a device such as a flail mower, one must ensure that stumps are painted.

Please fill out the following report to ensure compliance with LCRA's Oak Wilt policy.

Date	**Project Location** *(e.g. TL #, Substation, Park, etc.)*	**County**	**Land Parcel #** *(if known)*	**Structures** *(if applicable)*	**Type of Paint used** *(attach MSDS)*	**Color of Paint***	**# of Oak Trees Painted**	**Type of Disinfectant Used** *(circle one)*
								Aerosol / Bleach / Alcohol
								Aerosol / Bleach / Alcohol
								Aerosol / Bleach / Alcohol
								Aerosol / Bleach / Alcohol
								Aerosol / Bleach / Alcohol
								Aerosol / Bleach / Alcohol
								Aerosol / Bleach / Alcohol
								Aerosol / Bleach / Alcohol
								Aerosol / Bleach / Alcohol

**It is highly recommended that a dark-colored paint (black or brown) be used. Marking and other types of paints that fade easily are not recommended.*

Workers Name (printed):_____ Company: _____

Workers Signature: _____ Date: _____

Please return to your LCRA Environmental Representative

Revision Date: October 15, 2014

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Central Texas Electric Co-op
P.O.BOX 553 · FREDERICKSBURG, TEXAS 78624-0553
A Touchstone Energy® Cooperative
The power of human connections®

February 13, 2013

Mr. Ross Phillips
Vice-President and Chief Operating Officer
LCRA Transmission Services Corporation
PO Box 220
Austin, Texas 78767

Dear Mr. Phillips:

For several years now, CTEC staff has been working with LCRA TSC staff on projects that improve service for its members in the CTEC service area around Fredericksburg and provides a solution to a violation of planning criteria at CTEC's Goehmann Lane substation. These projects include:

1) The construction of a new distribution substation at the LCRA TSC Gillespie Substation.
2) The construction of a new Hollmig 138 kV/24.9 kV transmission and distribution substation.
3) The refurbishing and construction of a distribution substation at the existing LCRA Nebo substation.
4) The construction of a new 138 kV/24.9 kV substation in or near Blumenthal, located between Fredericksburg and Stonewall.

The first two projects are complete and the Nebo project is scheduled to be completed by late May of this year. The Blumenthal project remains to be completed and is the primary focus of this letter.

CTEC staff has worked with LCRA TSC staff to investigate distribution alternatives and CTEC has delivered its findings to LCRA TSC staff for review and comment. CTEC is of the opinion that, based on its findings for distribution alternatives, the Blumenthal project should be pursued and constructed. This project would involve a new radial 138 kV transmission line to serve a new 138 kV/24.9 kV distribution substation in the vicinity of Blumenthal. In support of CTEC's planning efforts, CTEC has previously included a new substation in the Blumenthal area in its Board approved 2008-2027 Twenty Year Long Range Study and has included this project in its current Board approved 2013-2016 System Improvements Work Plan.

CTEC recognizes that the construction of a new 138 kV transmission line by LCRA TSC will require a filing with the Public Utility Commission of Texas for an amendment to its Certificate of Convenience and Necessity and is prepared to assist LCRA TSC in this effort with whatever resources are necessary to accomplish the filing.

Based on existing reliability concerns and anticipated continued electric load growth for the CTEC service area east of Fredericksburg, CTEC needs the Blumenthal substation project with its related LCRA TSC 138 kV transmission line and would like to ensure plans are timely completed by LCRA TSC to meet the continued need for reliable electric service to CTEC customers.

Sincerely,

Robert Loth III
Chief Executive Officer

Cc: CTEC Board of Directors

LCRA ENERGY • WATER • COMMUNITY SERVICES

LCRA TRANSMISSION SERVICES CORPORATION

February 28, 2013

Mr. Robert A. Loth III
Chief Executive Officer
Central Texas Electric Cooperative, Inc.
P.O. Box 553
Fredericksburg, Texas 78624-0553

Dear Bob:

Thank you for your letter of February 13 outlining the collaborative efforts of Central Texas Electric Cooperative, Inc. (CTEC) and LCRA Transmission Services Corporation (LCRA TSC) to address electric service reliability in Central Texas. CTEC and LCRA TSC have worked well together through our joint planning and project execution processes, and we look forward to working with CTEC staff to continue with the project's post planning phase.

As the next major milestone associated with this project, LCRA TSC will request a review by the Electric Reliability Council of Texas (ERCOT) Regional Planning Group. We plan to submit this request to ERCOT in April. Typically it takes about four weeks for ERCOT to complete this type of project review. Sergio Garza, Manager of System Planning and Protection, will work with David Peterson of your staff to communicate specific post planning project related activities and related schedules.

Should you have questions, please feel free to contact me at 1-800-776-5272, ext. 3360, or Sergio Garza at ext. 4149.

Sincerely,

Ross Phillips
Executive Manager, Transmission Services

Blumenthal CCN Application, Attachment 3
Estimated Costs for Transmission Line, Tap Point (Switching Substation) and Substation Facilities

Table 1: Transmission, Tap Point (Switching Substation) and Substation Facilities Total Estimated Costs- Poles (Recommended Structure Type)

Route	Sub	Tap	Length (miles)	Estimated Total Cost	Right-of-Way & Land Acquisition	Engineering & Design (Utility)	Engineering & Design (Contract)	Procurement of Material & Equipment	Construction of Facilities (Utility)	Construction of Facilities (Contract)	Other
1-Pole	1	4b	13.44	**$34,779,000**	$7,662,000	$4,046,000	$1,080,000	$6,722,000	$817,000	$10,819,000	$3,633,000
2-Pole*	1	1	15.17	**$37,509,000**	$8,490,000	$4,382,000	$1,126,000	$8,013,000	$1,050,000	$12,275,000	$2,173,000
3-Pole	2	4a	11.21	**$28,661,000**	$5,416,000	$3,828,000	$1,019,000	$5,602,000	$955,000	$8,363,000	$3,478,000
4-Pole*	2	3	16.19	**$35,474,000**	$7,857,000	$4,277,000	$1,154,000	$6,526,000	$797,000	$11,494,000	$3,369,000
5-Pole	3	4b	11.98	**$31,009,000**	$6,069,000	$3,891,000	$1,041,000	$6,088,000	$817,000	$9,253,000	$3,850,000
6-Pole*	3	1	16.97	**$37,132,000**	$7,583,000	$4,563,000	$1,174,000	$7,802,000	$1,050,000	$10,968,000	$3,992,000
7-Pole	4	4b	11.56	**$29,695,000**	$5,562,000	$3,847,000	$1,028,000	$5,837,000	$817,000	$8,731,000	$3,873,000
8-Pole*	4	1	15.83	**$36,098,000**	$8,395,000	$4,449,000	$1,142,000	$7,661,000	$1,050,000	$11,172,000	$2,229,000
9-Pole	5	3	11.62	**$28,510,000**	$5,863,000	$3,812,000	$1,029,000	$5,599,000	$797,000	$9,179,000	$2,231,000
10-Pole*	5	1	16.56	**$40,098,000**	$9,099,000	$4,521,000	$1,162,000	$8,295,000	$1,050,000	$13,068,000	$2,903,000
11-Pole	8	4a	10.40	**$27,167,000**	$4,529,000	$3,745,000	$995,000	$5,324,000	$955,000	$7,575,000	$4,044,000
12-Pole*	8	2	14.96	**$31,174,000**	$6,760,000	$4,164,000	$1,118,000	$5,974,000	$833,000	$9,568,000	$2,757,000
13-Pole*	6	3	10.91	**$25,381,000**	$4,842,000	$3,749,000	$1,010,000	$5,238,000	$797,000	$8,224,000	$1,521,000
14-Pole	6	1	12.87	**$32,789,000**	$6,804,000	$4,153,000	$1,062,000	$7,260,000	$1,050,000	$10,037,000	$2,423,000
15-Pole*	7	4a	13.26	**$30,676,000**	$5,326,000	$4,040,000	$1,072,000	$5,988,000	$955,000	$9,711,000	$3,584,000
16-Pole*	7	2	12.81	**$27,106,000**	$5,374,000	$3,951,000	$1,060,000	$5,452,000	$833,000	$8,155,000	$2,281,000
17-Pole*	9	3	10.36	**$24,458,000**	$4,427,000	$3,694,000	$993,000	$5,096,000	$797,000	$7,916,000	$1,535,000
18-Pole*	9	1	14.65	**$35,176,000**	$7,269,000	$4,332,000	$1,109,000	$7,603,000	$1,050,000	$10,950,000	$2,863,000
19-Pole	8	3	11.23	**$27,051,000**	$4,820,000	$3,780,000	$1,016,000	$5,459,000	$797,000	$8,695,000	$2,484,000
20-Pole	9	4b	13.27	**$32,190,000**	$6,374,000	$4,017,000	$1,075,000	$6,254,000	$817,000	$9,588,000	$4,065,000

*Segment Q1,S,T,U and V may require low-profile structures. Therefore, routes that utilize Segment Q1,S,T,U and V are partially estimated with H-frames.

Table 2: Transmission, Tap Point (Switching Substation) and Substation Facilities Total Estimated Costs- Poles (Sorted Least to Most Expensive)

Route	Sub	Tap	Length (miles)	Estimated Total Cost	Right-of-Way & Land Acquisition	Engineering & Design (Utility)	Engineering & Design (Contract)	Procurement of Material & Equipment	Construction of Facilities (Utility)	Construction of Facilities (Contract)	Other
17-Pole*	9	3	10.36	**$24,458,000**	$4,427,000	$3,694,000	$993,000	$5,096,000	$797,000	$7,916,000	$1,535,000
13-Pole*	6	3	10.91	**$25,381,000**	$4,842,000	$3,749,000	$1,010,000	$5,238,000	$797,000	$8,224,000	$1,521,000
19-Pole	8	3	11.23	**$27,051,000**	$4,820,000	$3,780,000	$1,016,000	$5,459,000	$797,000	$8,695,000	$2,484,000
16-Pole*	7	2	12.81	**$27,106,000**	$5,374,000	$3,951,000	$1,060,000	$5,452,000	$833,000	$8,155,000	$2,281,000
11-Pole	8	4a	10.40	**$27,167,000**	$4,529,000	$3,745,000	$995,000	$5,324,000	$955,000	$7,575,000	$4,044,000
9-Pole	5	3	11.62	**$28,510,000**	$5,863,000	$3,812,000	$1,029,000	$5,599,000	$797,000	$9,179,000	$2,231,000
3-Pole	2	4a	11.21	**$28,661,000**	$5,416,000	$3,828,000	$1,019,000	$5,602,000	$955,000	$8,363,000	$3,478,000
7-Pole	4	4b	11.56	**$29,695,000**	$5,562,000	$3,847,000	$1,028,000	$5,837,000	$817,000	$8,731,000	$3,873,000
15-Pole*	7	4a	13.26	**$30,676,000**	$5,326,000	$4,040,000	$1,072,000	$5,988,000	$955,000	$9,711,000	$3,584,000
5-Pole	3	4b	11.98	**$31,009,000**	$6,069,000	$3,891,000	$1,041,000	$6,088,000	$817,000	$9,253,000	$3,850,000
12-Pole*	8	2	14.96	**$31,174,000**	$6,760,000	$4,164,000	$1,118,000	$5,974,000	$833,000	$9,568,000	$2,757,000
20-Pole	9	4b	13.27	**$32,190,000**	$6,374,000	$4,017,000	$1,075,000	$6,254,000	$817,000	$9,588,000	$4,065,000
14-Pole	6	1	12.87	**$32,789,000**	$6,804,000	$4,153,000	$1,062,000	$7,260,000	$1,050,000	$10,037,000	$2,423,000
1-Pole	1	4b	13.44	**$34,779,000**	$7,662,000	$4,046,000	$1,080,000	$6,722,000	$817,000	$10,819,000	$3,633,000
18-Pole*	9	1	14.65	**$35,176,000**	$7,269,000	$4,332,000	$1,109,000	$7,603,000	$1,050,000	$10,950,000	$2,863,000
4-Pole*	2	3	16.19	**$35,474,000**	$7,857,000	$4,277,000	$1,154,000	$6,526,000	$797,000	$11,494,000	$3,369,000
8-Pole*	4	1	15.83	**$36,098,000**	$8,395,000	$4,449,000	$1,142,000	$7,661,000	$1,050,000	$11,172,000	$2,229,000
6-Pole*	3	1	16.97	**$37,132,000**	$7,583,000	$4,563,000	$1,174,000	$7,802,000	$1,050,000	$10,968,000	$3,992,000
2-Pole*	1	1	15.17	**$37,509,000**	$8,490,000	$4,382,000	$1,126,000	$8,013,000	$1,050,000	$12,275,000	$2,173,000
10-Pole*	5	1	16.56	**$40,098,000**	$9,099,000	$4,521,000	$1,162,000	$8,295,000	$1,050,000	$13,068,000	$2,903,000

*Segment Q1,S,T,U and V may require low-profile structures. Therefore, routes that utilize Segment Q1,S,T,U and V are partially estimated with H-frames.

Table 3: Transmission Facilities Estimated Total Costs - Poles

Route	Sub	Tap	Length (miles)	Estimated Total Cost	Right-of-Way & Land Acquisition	Engineering & Design (Utility)	Engineering & Design (Contract)	Procurement of Material & Equipment	Construction of Facilities (Utility)	Construction of Facilities (Contract)	Other[1]
1-Pole	1	4b	13.44	**$29,269,000**	$7,465,000	$3,446,000	$767,000	$3,818,000	$0	$10,364,000	$3,409,000
2-Pole*	1	1	15.17	**$30,838,000**	$8,240,000	$3,615,000	$813,000	$4,401,000	$0	$11,820,000	$1,949,000
3-Pole	2	4a	11.21	**$22,908,000**	$5,219,000	$3,213,000	$706,000	$2,877,000	$0	$7,908,000	$2,985,000
4-Pole*	2	3	16.19	**$30,324,000**	$7,668,000	$3,720,000	$841,000	$4,180,000	$0	$11,039,000	$2,876,000
5-Pole	3	4b	11.98	**$25,201,000**	$5,872,000	$3,291,000	$728,000	$3,184,000	$0	$8,798,000	$3,328,000
6-Pole*	3	1	16.97	**$30,163,000**	$7,333,000	$3,796,000	$861,000	$4,190,000	$0	$10,513,000	$3,470,000
7-Pole	4	4b	11.56	**$23,726,000**	$5,365,000	$3,247,000	$715,000	$2,933,000	$0	$8,276,000	$3,190,000
8-Pole*	4	1	15.83	**$28,968,000**	$8,145,000	$3,682,000	$829,000	$4,049,000	$0	$10,717,000	$1,546,000
9-Pole	5	3	11.62	**$23,147,000**	$5,674,000	$3,255,000	$716,000	$3,253,000	$0	$8,724,000	$1,525,000
10-Pole*	5	1	16.56	**$32,945,000**	$8,849,000	$3,754,000	$849,000	$4,683,000	$0	$12,613,000	$2,197,000
11-Pole	8	4a	10.40	**$20,848,000**	$4,332,000	$3,130,000	$682,000	$2,599,000	$0	$7,120,000	$2,985,000
12-Pole*	8	2	14.96	**$25,318,000**	$6,563,000	$3,594,000	$805,000	$3,545,000	$0	$9,113,000	$1,698,000
13-Pole*	6	3	10.91	**$19,906,000**	$4,653,000	$3,192,000	$697,000	$2,892,000	$0	$7,769,000	$703,000
14-Pole	6	1	12.87	**$25,524,000**	$6,554,000	$3,386,000	$749,000	$3,648,000	$0	$9,582,000	$1,605,000
15-Pole*	7	4a	13.26	**$24,643,000**	$5,129,000	$3,425,000	$759,000	$3,263,000	$0	$9,256,000	$2,811,000
16-Pole*	7	2	12.81	**$21,536,000**	$5,177,000	$3,381,000	$747,000	$3,023,000	$0	$7,700,000	$1,508,000
17-Pole*	9	3	10.36	**$18,917,000**	$4,238,000	$3,137,000	$680,000	$2,750,000	$0	$7,461,000	$651,000
18-Pole*	9	1	14.65	**$27,845,000**	$7,019,000	$3,565,000	$796,000	$3,991,000	$0	$10,495,000	$1,979,000
19-Pole	8	3	11.23	**$21,335,000**	$4,631,000	$3,223,000	$703,000	$3,113,000	$0	$8,240,000	$1,425,000
20-Pole	9	4b	13.27	**$26,020,000**	$6,177,000	$3,417,000	$762,000	$3,350,000	$0	$9,133,000	$3,181,000

*Segment Q1,S,T,U and V may require low-profile structures. Therefore, routes that utilize Segment Q1,S,T,U and V are partially estimated with H-frames.

1. Endangered species mitigation costs

Table 4: Substation Facilities Estimated Total Costs*

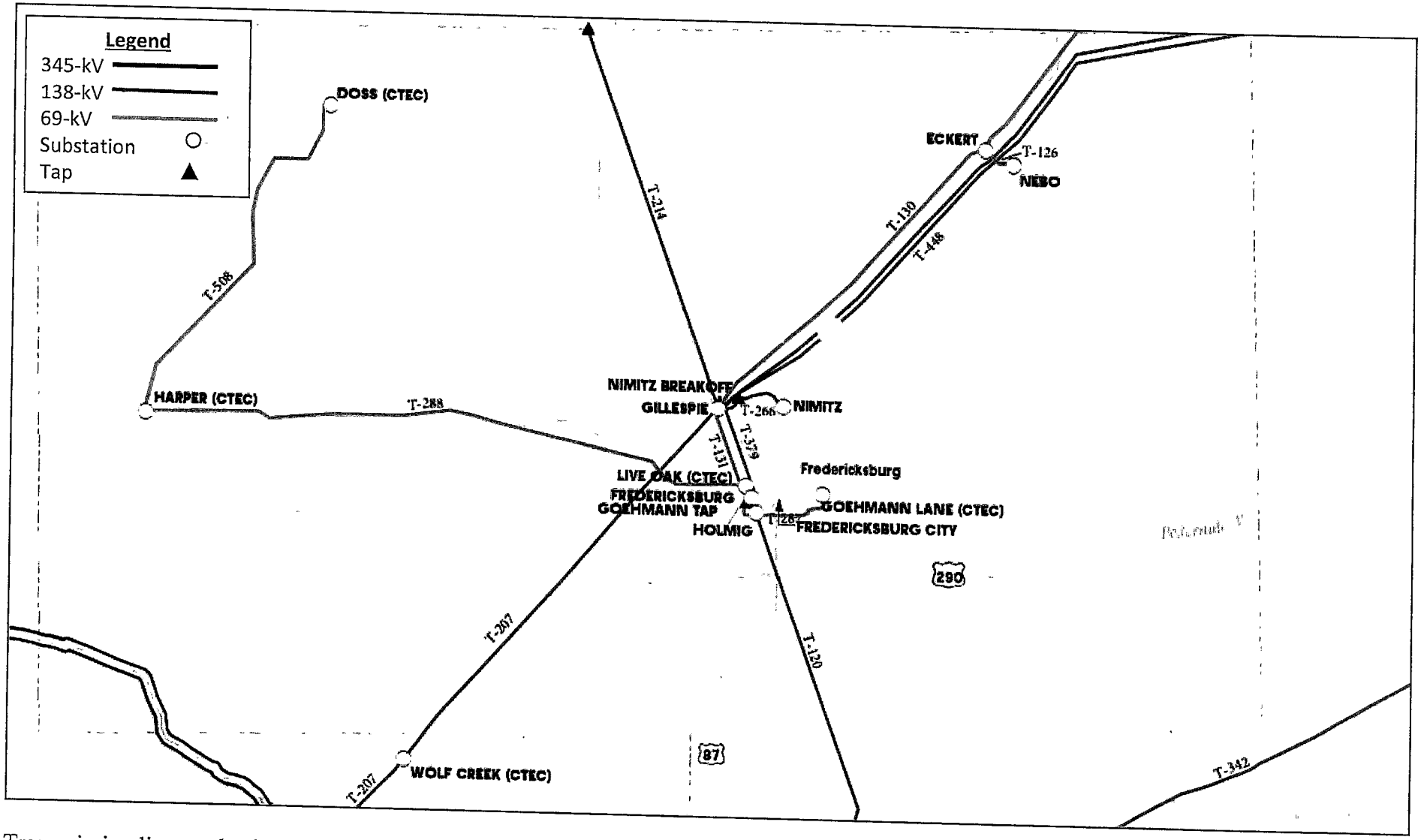
Sub Site	Estimated Total Cost	Right-of-Way & Land Acquisition	Engineering & Design (Utility)	Engineering & Design (Contract)	Procurement of Material & Equipment	Construction of Facilities (Utility)	Construction of Facilities (Contract)	Other[1]
1	**$3,387,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$224,000
2	**$3,656,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$493,000
3	**$3,685,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$522,000
4	**$3,846,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$683,000
5	**$3,869,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$706,000
6	**$3,981,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$818,000
7	**$3,936,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$773,000
8	**$4,222,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$1,059,000
9	**$4,047,000**	$100,000	$304,000	$313,000	$1,768,000	$223,000	$455,000	$884,000

*Includes both CTEC and LCRA Costs

1. CTEC's distribution circuit costs to build out the planned four circuits out of each sub site. Each site has a mixture of re-building existing lines and new line.

Table 5: Tap Point (Switching Substation) Facilities Estimated Total Costs

Tap Site	Estimated Total Cost	Right-of-Way & Land Acquisition	Engineering & Design (Utility)	Engineering & Design (Contract)	Procurement of Material & Equipment	Construction of Facilities (Utility)	Construction of Facilities (Contract)	Other
1	**$3,284,000**	$150,000	$463,000	$0	$1,844,000	$827,000	$0	$0
2	**$1,634,000**	$97,000	$266,000	$0	$661,000	$610,000	$0	$0
3	**$1,494,000**	$89,000	$253,000	$0	$578,000	$574,000	$0	$0
4a	**$2,097,000**	$97,000	$311,000	$0	$957,000	$732,000	$0	$0
4b	**$2,123,000**	$97,000	$296,000	$0	$1,136,000	$594,000	$0	$0



Transmission lines and substations located in Gillespie County near the vicinity of the Proposed Project area.

BLUMENTHAL

Substation and Transmission Line Addition

RECOMMENDATION

This is a joint project plan developed by LCRA TSC and Central Texas Electric Cooperative (CTEC).

The project consists of constructing a new 138-kV transmission line from a new distribution substation (Blumenthal Substation) to a tap point on the existing Kendall – Mountain Top 138-kV transmission line.

The recommended project completion year is 2018. The total project cost is estimated at $24,915,000.

This project will require certification by the Public Utility Commission (CCN).

PROJECT SCOPE

CTEC will construct the Blumenthal Substation consisting of a 12/16/20 MVA power transformer and associated low voltage delivery facilties. LCRA TSC will provide the 138-kV facilties.

LCRA TSC will construct a new 11.5-mile (approximate) 336 ACSR 138-kV transmission line (rated 129 MVA) from the new Blumenthal Substation to a switched tap point on the existing LCRA TSC's Kendall – Mountain Top 138-kV transmission line.

NEED FOR PROJECT

The need for this new load-serving substation and related new transmission line is driven by local load growth that is:

- located over a broad area that spans portions of three counties;
- located generally southeast of the City of Fredericksburg remote from the nearest available transmission source (Goehmann Lane Substation);
- served by a single 69-kV line;
- connected as part of a broader 69-kV system that has limited 138-kV support; and,
- anticipated to exceed the area's distribution capacity and reliability standards.

The area in southeastern Gillespie County, western Blanco County, and northern Kendall County is served by the Goehmann Lane Substation (see Figure 1). The load in this area has been growing at a high rate over the last few years and coupled with existing need for service in the area of southeastern Gillespie County and the remoteness to the Goehmann Lane Substation, the present delivery system's capability

to reliably and adequately serve the load will be soon exceeded. The peak load in this winter peaking area grew approximately 11 percent between 2006 and 2011. The area consists of several small communities located generally south of State Highway 290 between Fredericksburg and Johnson City. Significant commercial development in the form of wineries is also located in this area. In terms of meter growth (new end-use customers), over the last 12 years this specific area has grown at a rate that is three times the overall CTEC system meter growth rate and projected to continue.

Commercial developments, many in the form of wineries, have been attracted to this area in part due to the area's climate and soil required for this industry as well as proximity to a major thoroughfare. Much of the recent load growth has occurred in the southeastern area of Gillespie County generally along and south of State Highway 290. The expansion of this highway, by the Texas Highway Department, is already underway within this growth area.

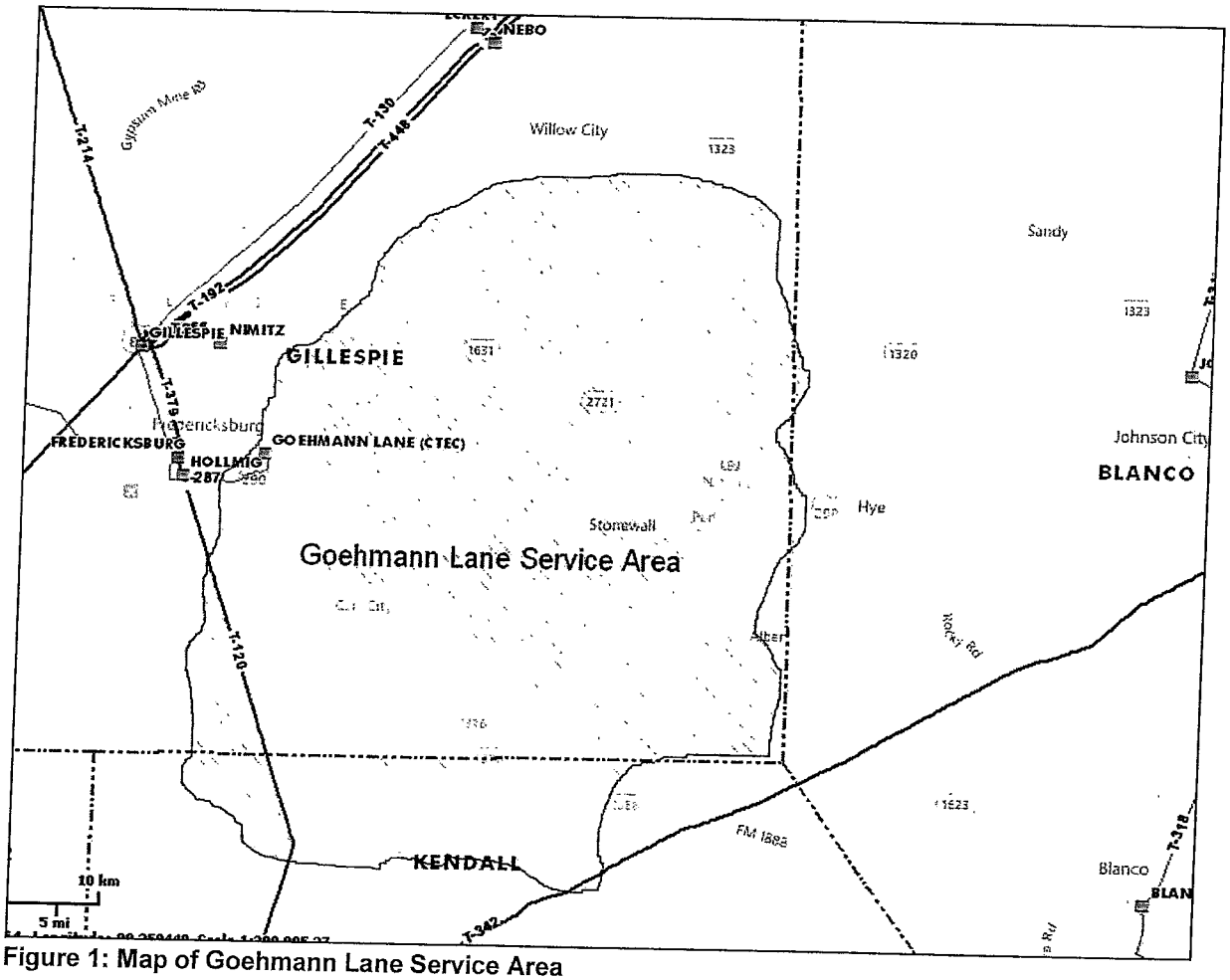


Figure 1: Map of Goehmann Lane Service Area

The Goehmann Lane Substation, located in Fredericksburg, contains two load-serving transformers with a combined winter capacity rating of 37.8 MVA. The total peak load supplied by the Goehmann Lane Substation reached 22.8 MW in winter 2011, and its

overall peak load reached 31.5 MW in winter 2010. This substation is radial-supplied by a 4-mile 69-kV transmission line tapped to the 0.8-mile Fredericksburg to Live Oak 69-kV transmission line.

Presently, approximately 43 percent of the total load served out of the Goehmann Lane Substation is located in the remote area to the southeast of Fredericksburg. There are no other substations immediately to the east of this area to provide back-up service (see Figure 1). The distance between the Goehmann Lane Substation and the most remote load, located in the southeastern most portion of CTEC's service area, is approximately 24 miles. As the load continues to increase, a corresponding decrease in reliability of service will impact a larger number of end-use customers due to the remoteness of the load to the source for transmission service to the area (existing Goehmann Lane Substation).

Transmission service to this broad area is limited to the CTEC 69-kV Goehmann Lane Substation. Over the last five years, CTEC and LCRA TSC have been working together to defer this type of project by shifting load to area substations. This includes the addition of load-serving transformers at the Gillespie, Hollmig and Nebo substations. In 2012, the Hollmig Substation, located west of the Goehmann Lane Substation, was placed in service to allow a permanent transfer of load from the Goehmann Lane Substation. This assisted in lowering the amount of load (end-use customers) that would lose electric service upon the loss of transmission service to the Goehmann Lane Substation. By 2016, the ability to defer the need for this type of project will be exhausted.

In terms of transmission service reliability, the total peak load supplied by Goehmann Lane Substation is projected to exceed 20 MW in 2019. This load level is reached after exhausting block load transfer opportunities by CTEC to the area substations (Hollmig and Nebo). This demand level of 20 MW exceeds the planning criteria thresholds used by LCRA TSC and CTEC for radial supplied load-serving substations.

The Fredericksburg-Live Oak-Goehmann Lane 69-kV transmission line, Goehmann Lane's sole transmission line source, has experienced 17 outages over the past nine years for a total outage time of over 24 hours. More recently, in February 2013 and April 2013, a failure in this sole transmission line source to the Goehmann Lane Substation resulted in the loss of electric service to 4000 end-use customers for more than two hours.

In terms of distribution service reliability, distribution system studies performed by CTEC revealed that the load of the two distribution feeders (Feeder #3 and #4) out of the Goehmann Lane Substation, which now supply the remote area load, will each exceed 6 MW in winter of 2013-2014. Continued load growth on the CTEC distribution system in this area, will exhaust available feeder capacities to such extremes that normal condition system performance will be threatened and reserve feeder capacity will not be available to respond to contingency conditions.