

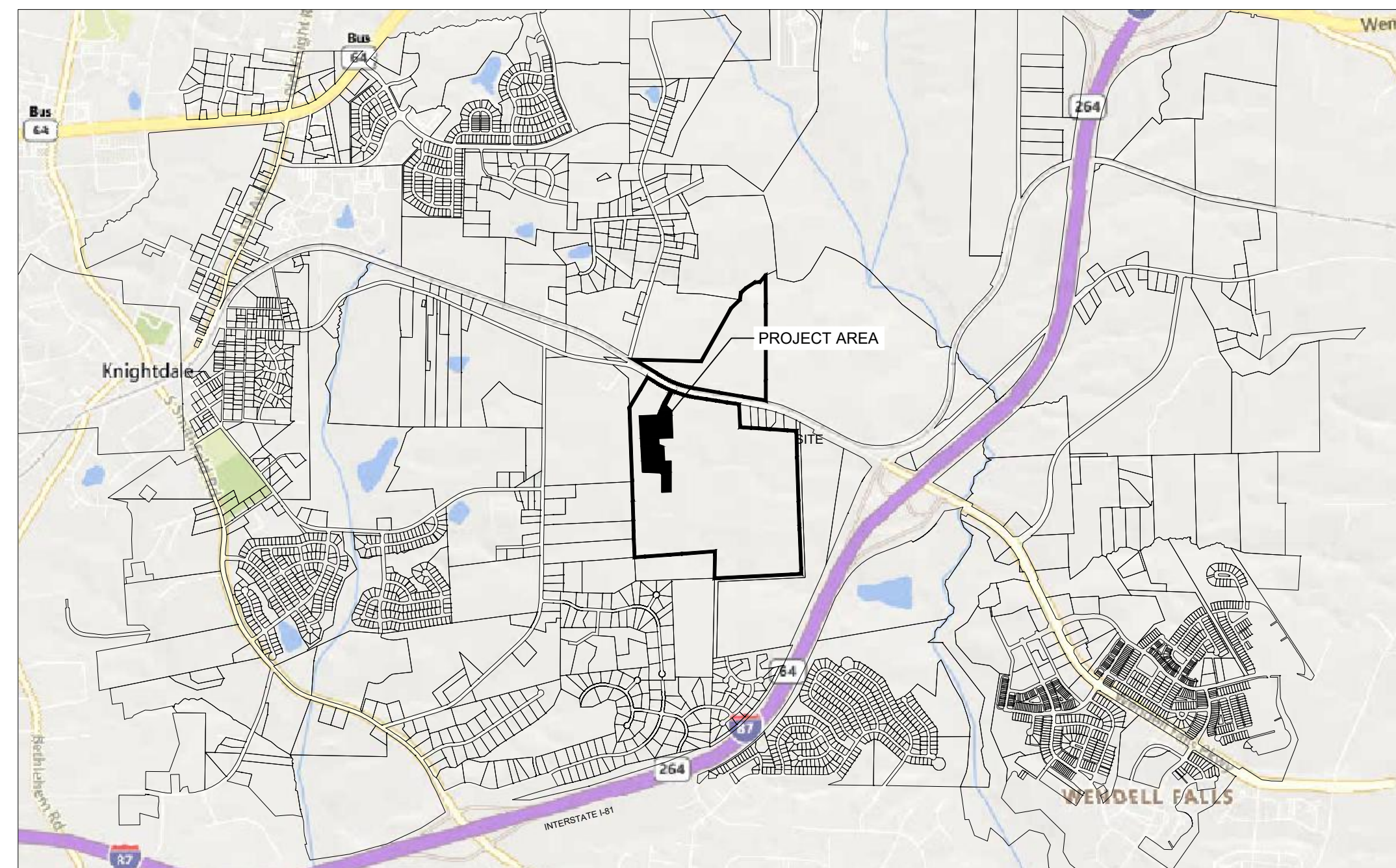
KNIGHTDALE PROPOSED BATTERY ENERGY STORAGE FACILITY

5201 KNIGHTDALE EAGLE ROCK ROAD

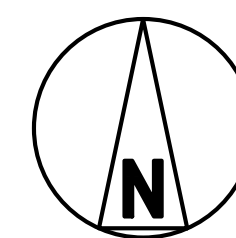
KNIGHTDALE, NC 27545

SITE DATA TABLE	
TOTAL SITE AREA	201.3 ACRES
PROJECT LOCATION	5201 KNIGHTDALE EAGLE ROCK ROAD, MARKS CREEK, WAKE COUNTY, NORTH CAROLINA
KNIGHTDALE ZONING	DUKE ENERGY PROGRESS; ZONING: MI
PROPOSED ZONING	MI
EXISTING LAND USE	UTILITIES - CLASS 1 & 2 (SUBSTATION)
PROPOSED LAND USES	UTILITIES - CLASS 1 & 2 (BATTERY STORAGE FACILITY)
WATERSHED CLASSIFICATION	MARKS CREEK
PROPOSED UNITS	60
INFRASTRUCTURE	TOTAL 201.3 ACRES, BESS FACILITY 11.3 ACRES
IMPERVIOUS AREA	4.7 ACRES
PROPERTY OWNER 1	DUKE ENERGY PROGRESS INC.
SITE PARKING	SUBSTATION YARD OR OUTSIDE THE GATE

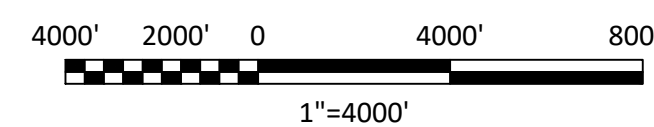
PHASING AND TIMETABLE	
TREE CUTTING START DATE	01-NOV-24
SITE CIVIL WORK START DATE	02-DEC-24
PLANNED STATE OF COMPLETION	30-SEP-25



CONTACT LIST		
CONTACTS	NAME	ADDRESS
OWNER	DUKE ENERGY PROGRESS, LLC	7804 FAIRVIEW ROAD, SUITE C BOX 214, CHARLOTTE, NC 28226 ATTN: GREG MCELMURRY, PHONE: 704-264-9879
ELECTRICAL ENGINEER (SUBSTATION)	ETHAN BROWN	175 REGENCY WOODS PLACE, SUITE 300, CARY, NC 24515-0000
ELECTRICAL ENGINEER (BESS)	OLUFEMI OYEBANJO	920 MEMORIAL CITY WAY, SUITE 600, HOUSTON, TX 77024
STRUCTURAL ENGINEER	DIVYA SRI LAKSHIMI DINAVAHU	2880 ZANKER RD STE 203, SAN JOSE, CA 95134
CIVIL ENGINEER	HANNAH ULRICH	11401 LAMAR AVENUE, OVERLAND PARK, KS 66211



SITE VICINITY MAP



NOTE: THE INFORMATION ON THIS SHEET WAS PREPARED BY ERM NC, INC. ON 05/09/2023 AND MODIFIED BY BLACK & VEATCH

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Civil 3D 2022 Imperial
ANSI D 34x22
9/23/2024 3:14 PM

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
A	23/AUG/2024	ISSUED FOR PERMITTING	CLC	MJM	HGU	SLD	

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DESIGNER	MJM
DRAWN	CLC
CHECKED	HGU
DATE	22/AUG/24






DUKE ENERGY	DUKE ENERGY
KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM	
COVER SHEET	
5201 KNIGHTDALE EAGLE ROCK ROAD	
KNIGHTDALE, NC 27545	

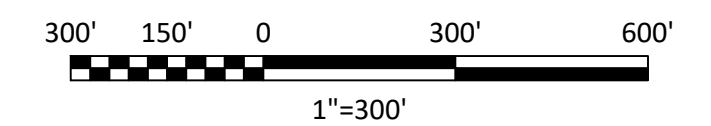
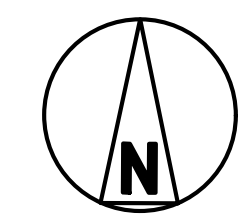
PROJECT	DRAWING NUMBER	REV
419596	KND01-CV-C-SI-CS-01	A
CODE	AREA	

NOTES

1. THE INFORMATION ON THIS SHEET WAS PREPARED BY ERM NC, INCL. ON 05/09/2023 AND MODIFIED BY BLACK & VEATCH.
2. ENTIRE SITE AND WORK AREA IS WITHIN THE EXTRA-TERRITORIAL JURISDICTION OF THE TOWN OF KNIGHTDALE, WAKE COUNTY.

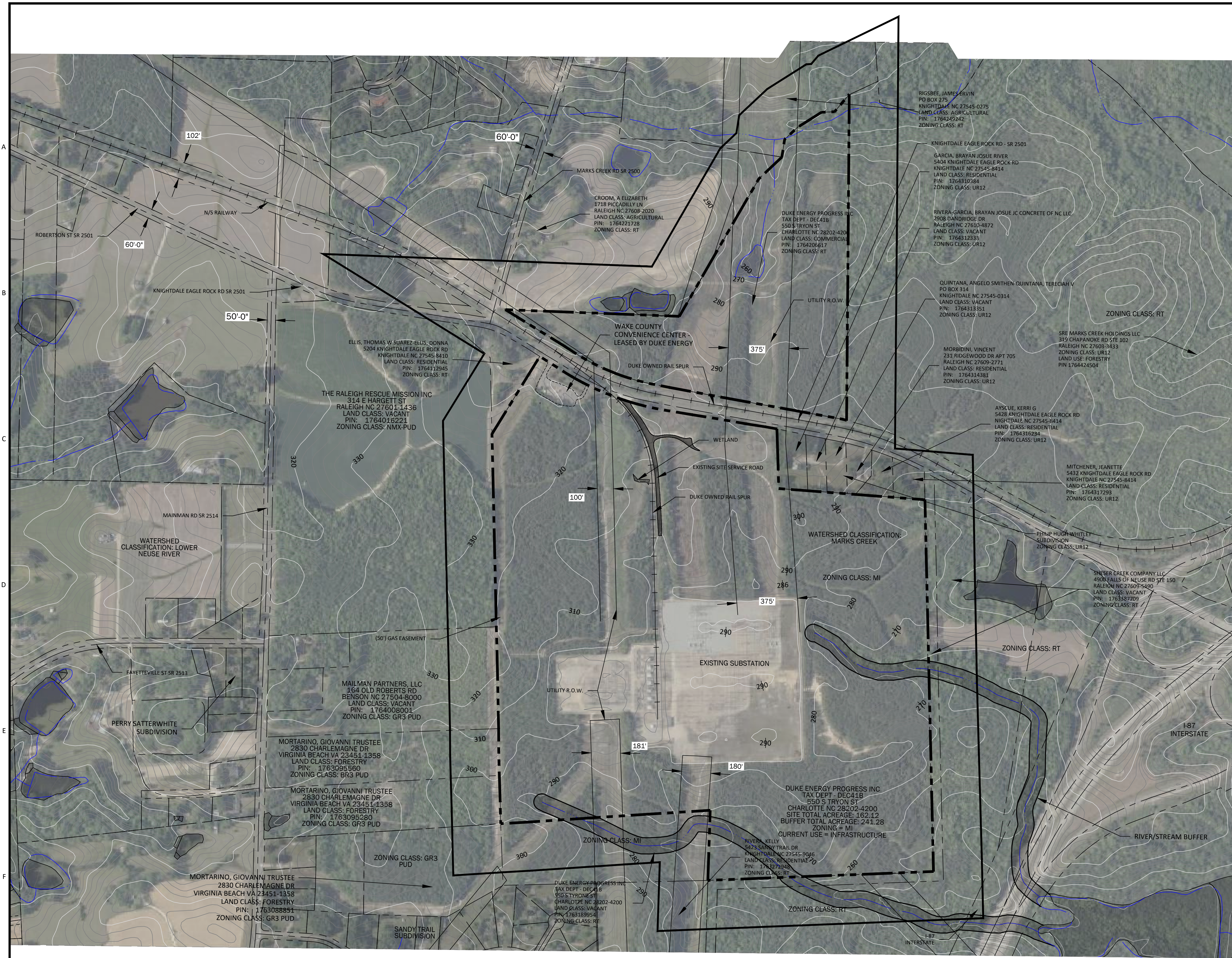
LEGEND

-  RIVER AND STREAMS
-  PARCELS
-  SUBJECT PROPERTY
-  300FT PROPERTY BUFFER
-  SUBDIVISION



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Civil 3D 2022 Imperial
 ANS/D 34x22
 8/22/2024 4:07 PM

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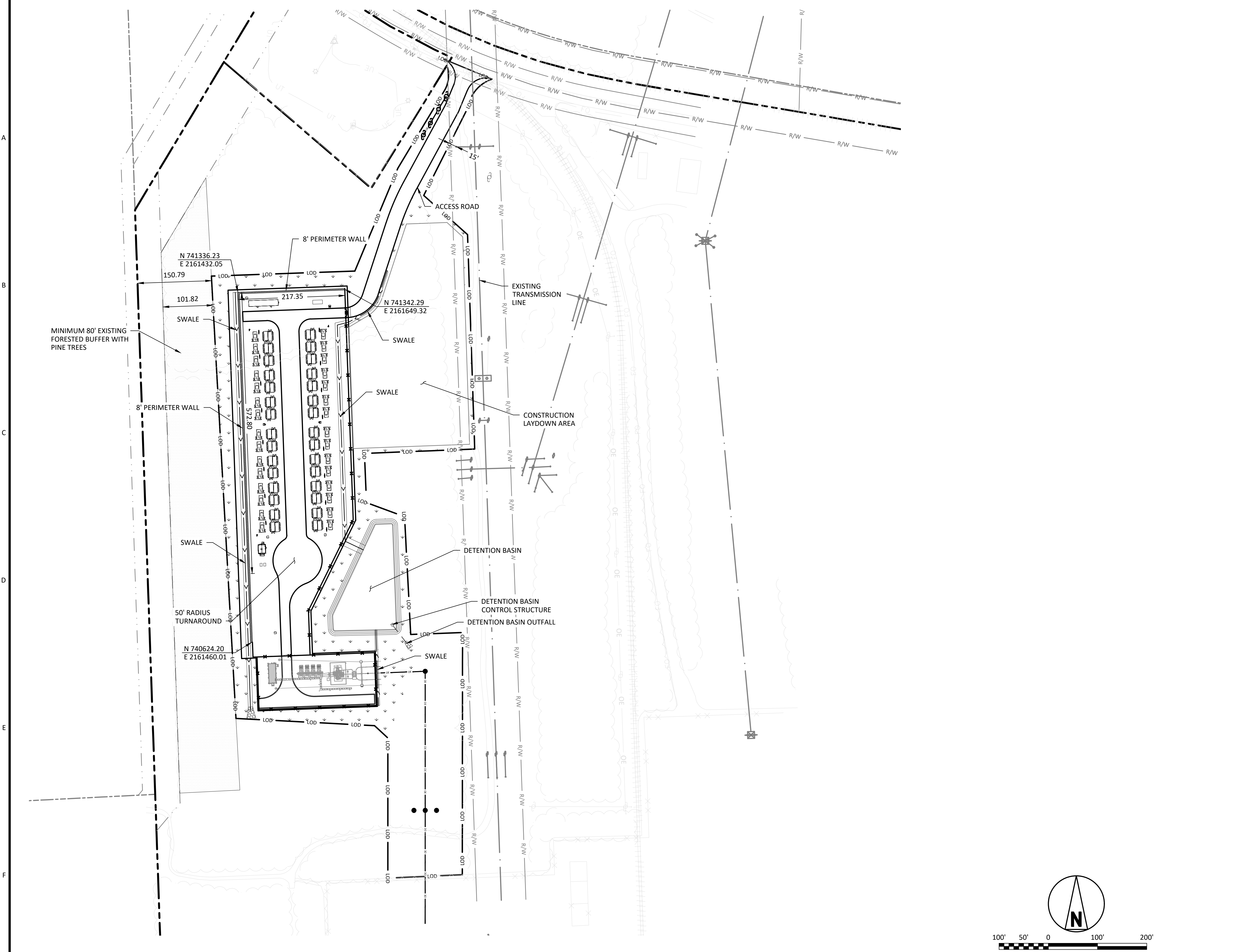
BLACK & VEATCH
Building a world of difference®

DESIGNER: MJM DRAWN: CLC
CHECKED: HGU DATE: 22/AUG/24

DUKE ENERGY
KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM

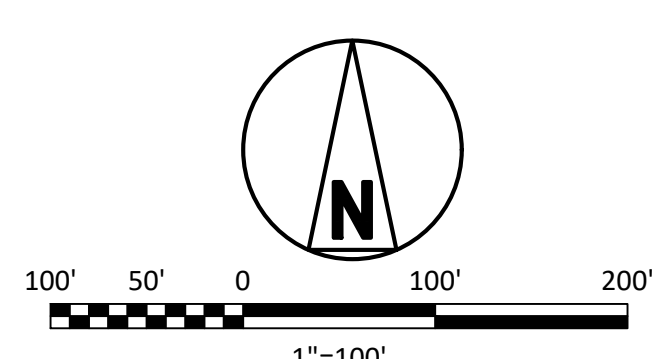
ENVIRONMENTAL SURVEY
5201 KNIGHTDALE EAGLE ROCK ROAD
KNIGHTDALE, NC 27545

PROJECT	DRAWING NUMBER	REV
419596 KND01-CV-C-SI.PL-02	A	
CODE	AREA	



LEGEND

	ADJACENT PARCEL BOUNDARY
	PROPOSED SECURITY FENCE
	EXISTING FENCE
	PROPOSED ROAD
	EXISTING TREE LIMITS
	EXISTING RAILROAD
	EXISTING OVERHEAD LINE
	PROPERTY BOUNDARY
	PROPOSED OVERHEAD ELECTRIC LINES
	EXISTING RIGHT-OF-WAY
	EXISTING FIBER OPTIC CABLE
	LIMITS OF DISTURBANCE
	EXISTING TREE LINE
	PROPOSED PERIMETER WALL
	PROPOSED VEGETATED SWALE
	RIP RAP
	BUFFER AREA



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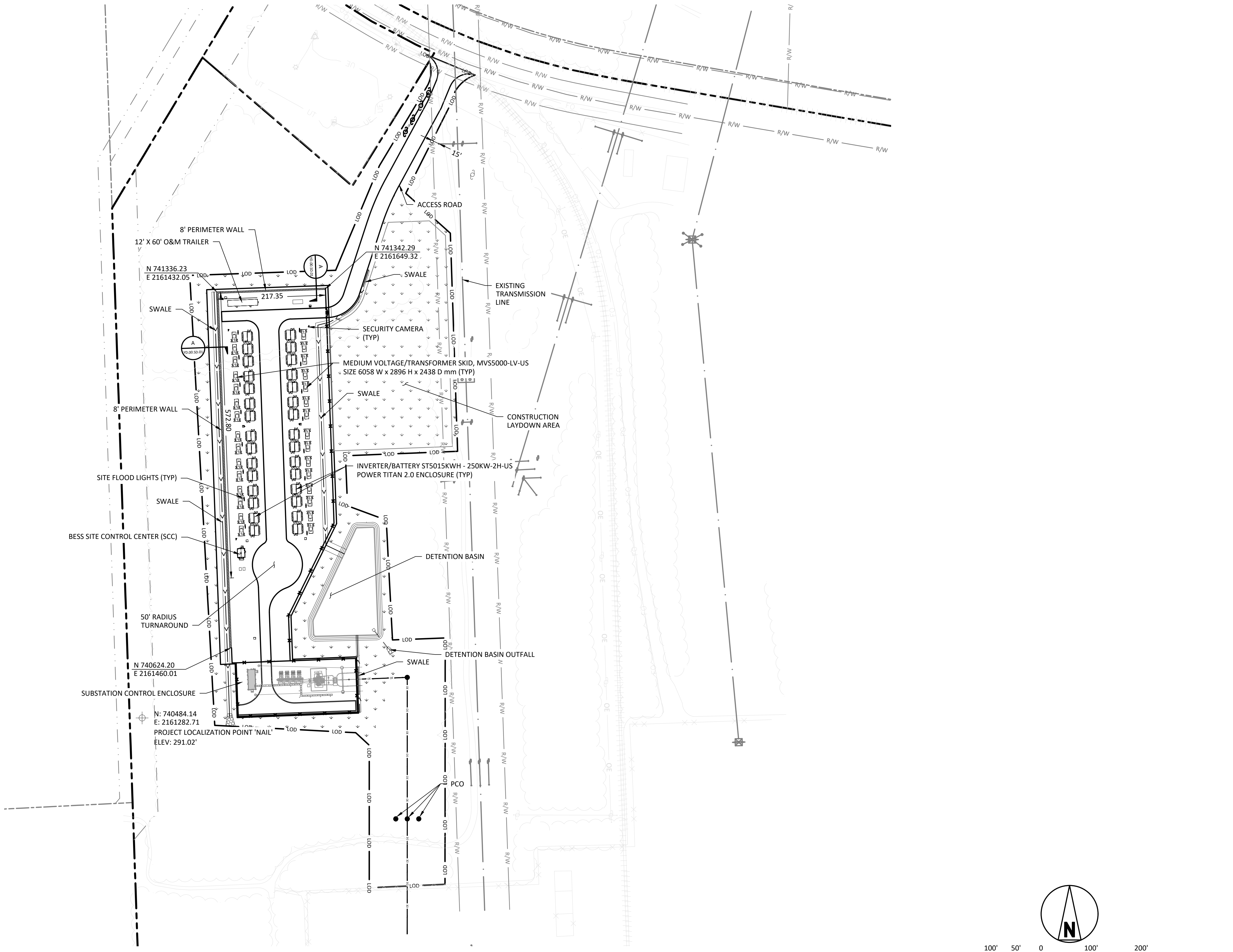
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A	22/AUG/2024	ISSUED FOR PERMIT	CLC	MJM	HGU	DSL	-

BLACK & VEATCH Building a world of difference®		DUKE ENERGY KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM	
DESIGNER	MJM	DRAWN	CLC
CHECKED	HGU	DATE	22/AUG/24

DUKE ENERGY
 KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM

LANDSCAPE PLAN
 5201 KNIGHTDALE EAGLE ROCK ROAD
 KNIGHTDALE, NC 27545

PROJECT	DRAWING NUMBER	REV
419596 KND01-AD-A-YD.00.PL-02		A
CODE		
AREA		



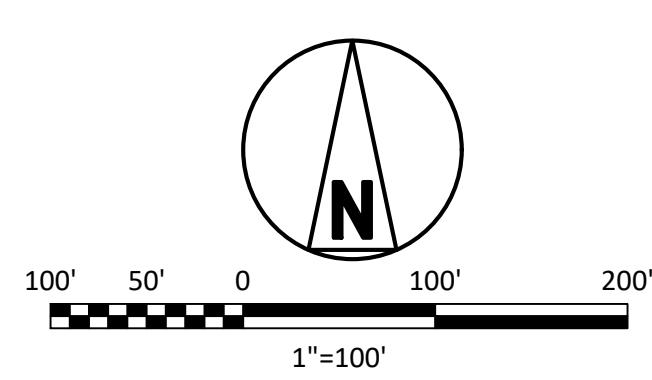
LEGEND

- ADJACENT PARCEL BOUNDARY
- PROPOSED SECURITY FENCE
- EXISTING FENCE
- PROPOSED ROAD
- EXISTING TREE LIMITS
- EXISTING RAILROAD
- EXISTING OVERHEAD LINE
- PROPOSED OVERHEAD ELECTRIC LINES
- EXISTING RIGHT-OF-WAY
- EXISTING FIBER OPTIC CABLE
- LIMITS OF DISTURBANCE
- EXISTING TREE LINE
- PROPOSED PERIMETER WALL
- PROPOSED VEGETATED SWALE
- RIP RAP

HORIZONTAL DATUM: NAD83 NORTH CAROLINA STATE PLANES, US FOOT
 *STATE PLANE COORDINATES WERE ESTABLISHED BASED IN NGS MONUMENTS "ROSE" AND "TOMB".

VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988

BENCHMARK: PROJECT LOCALIZATION POINT 'NAIL'
 N: 740,484.141'
 E: 2,163,003.135'
 ELV: 291.02'



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A	22/AUG/2024	ISSUED FOR PERMIT	CLC	MJM	HGU	SLD	-

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DESIGNER: MJM
 DRAWN: CLC
 CHECKED: HGU
 DATE: 22/AUG/24

DUKE ENERGY
 KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM

SITE PLAN
 5201 KNIGHTDALE EAGLE ROCK ROAD
 KNIGHTDALE, NC 27545

PROJECT	DRAWING NUMBER	REV
419596 KND01-CV-C-SI.PL-01		A
CODE		
AREA		

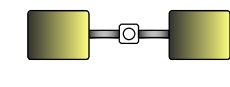


SUBSTATION AREA SEE DWG. KND00-LT-E-SY.00.PL-01

PHOTOMETRIC CALCULATION DISCLAIMER:
 LIGHTING CALCULATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH IES RECOMMENDED PROCEDURES USING AGI32-V20.1. DIFFERENCES BETWEEN CALCULATED VALUES AND POST INSTALLATION VALUES MAY OCCUR DUE TO VARIATIONS WITH FINAL INSTALLATION, PHYSICAL AND/OR ENVIRONMENTAL FACTORS.

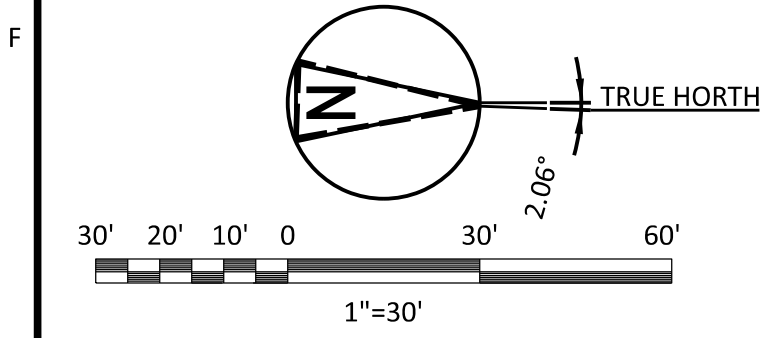
LIGHT FIXTURE LIST NOTES:

- POLE SHALL BE ROUND TAPERED ALUMINUM 25' TO BE MOUNTED ON SITE BUILT CONC. FOUNDATIONS. NAFCO# VA-RTAA-25-7040-F-AB-FP-BK-PD-NECHH-FST OR ENGINEER APPROVED SIMILAR. POLES REQUIRE A FESTOON BOX LOCATED ON THE SAME SIDE AS THE HAND HOLE, AND 36" ABOVE BASE. PROVIDE GFCI RECEPTACLE AND WATERPROOF IN USE COVER TO FIT HUBBELL #GFRTW20W WITH TAYMAC #HBLSS26WIS COVER OR ENGINEER APPROVED ALTERNATE.
 SEE STRUCTURAL DRAWING KND01-CV-C-FD-XX FOR POLE BASE DETAIL.
 WIND LOADING SHALL BE CONFIRMED BY MANUFACTURER BEFORE SHIPPING TO SUPPORT LIGHT FIXTURES IN 125 MPH WIND (2) 55 LB 1.2 SQ FT FIXTURES INSTALLED.
- CONTRACTOR SHALL ORDER BACK PLATES FOR EACH FIXTURE BUT SHALL NOT INSTALL THEM UNTIL RESIDENTIAL NEIGHBORS HAVE ACCEPTED INSTALLATION WITHOUT THEM. IF NOT USED AT CLOSE OF PROJECT TURN OVER ACCESSORIES TO OWNER.
- PHOTOMETRIC CALCULATION NUMBERS (WHERE SHOWN, ARE IN FOOTCANDLES (FC) SPACED AT 10' X 10'.
 CALCULATION STATISTICS, WITHIN FENCED AREA:
 ILLUMINANCE (FC)
 AVERAGE = 1.92
 MAXIMUM = 4.4
 MINIMUM = 0.1
 MIN/AVG RATIO = 0.05
 MIN/MAX RATIO = 0.02

LIGHTING FIXTURE LIST								
SYMBOL	TYPE	FIXTURE DESCRIPTION / PART NUMBER	INPUT WATTS	VOLTAGE	TOTAL LUMENS	TOTAL LLF	MOUNTING	QTY
	LP1	(2) HOLOPHANE MCLEDLM-P1-30K-MVOLT-AR-HSS-LT-VT-GRSD-US-SH	105 (ea)	120V THRU 277	9275 (ea)	0.83 (ea)	POLE MOUNTED SEE NOTES	34 FIXTURES 17 POLES

PHOTOMETRIC CALCULATION DISCLAIMER:
 LIGHTING CALCULATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH IES RECOMMENDED PROCEDURES USING AGI32-V20.1. DIFFERENCES BETWEEN CALCULATED VALUES AND POST INSTALLATION VALUES MAY OCCUR DUE TO VARIATIONS WITH FINAL INSTALLATION, PHYSICAL AND/OR ENVIRONMENTAL FACTORS.



REFERENCE DRAWINGS:
 KND00-LT-E-SY.00.PL-01 34.5KV - 230KV SUBSTATION LIGHTING PLAN

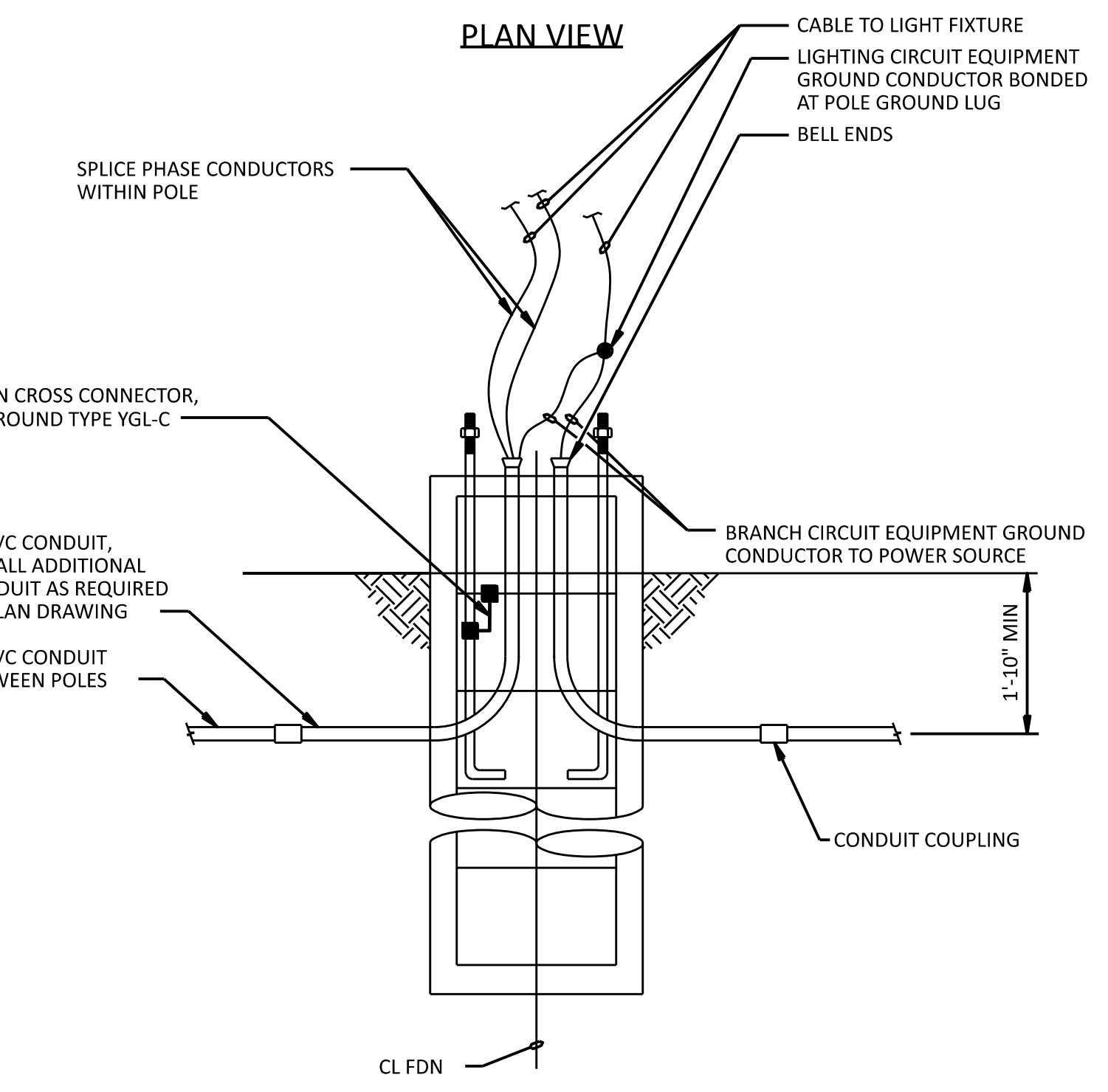
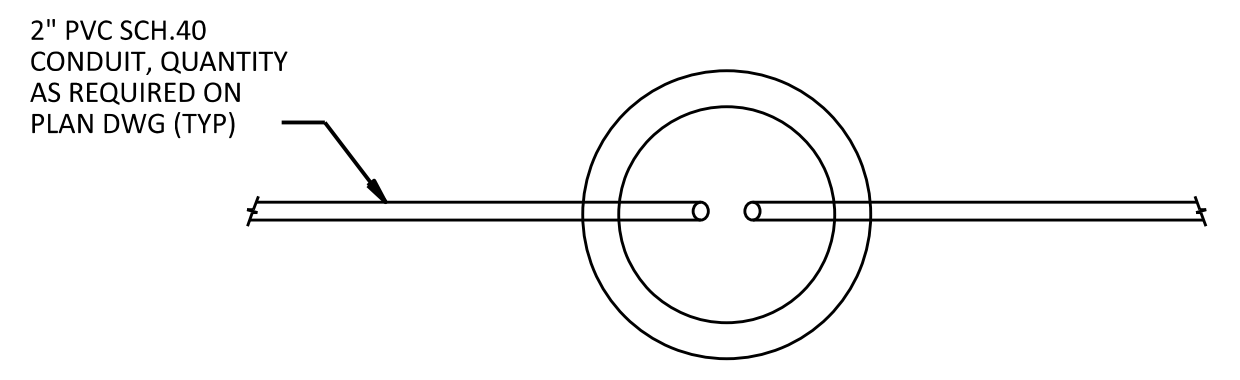


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B&V PROJECT NUMBER: 419596

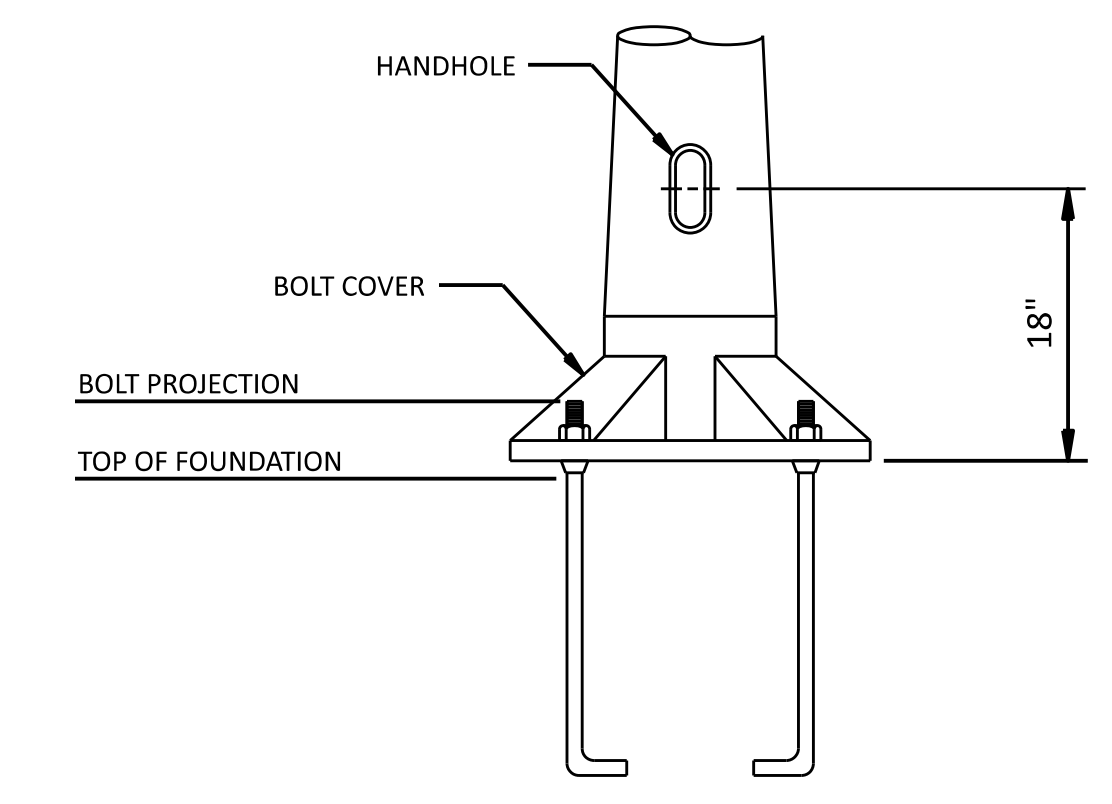
MicroStation v23.00.01.44
 ANS/D 34622
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				DUKE ENERGY 5201 KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM 5201 KNIGHTDALE EAGLE ROCK ROAD KNIGHTDALE, NC 27545		PROJECT: KND01-LT-E-PL-01 DRAWING NUMBER: KND01-LT-E-PL-01 CODE: AREA		REV: A
DESIGNER	JB	DRAWN	RSN	CHECKED	OOO	DATE	23/AUG/24	
REVISIONS AND RECORD OF ISSUE				DRN	DES	CHK	PDE	APP
NO	DATE	ISSUED FOR PERMIT		RSN	JB	OOO	OOO	BC

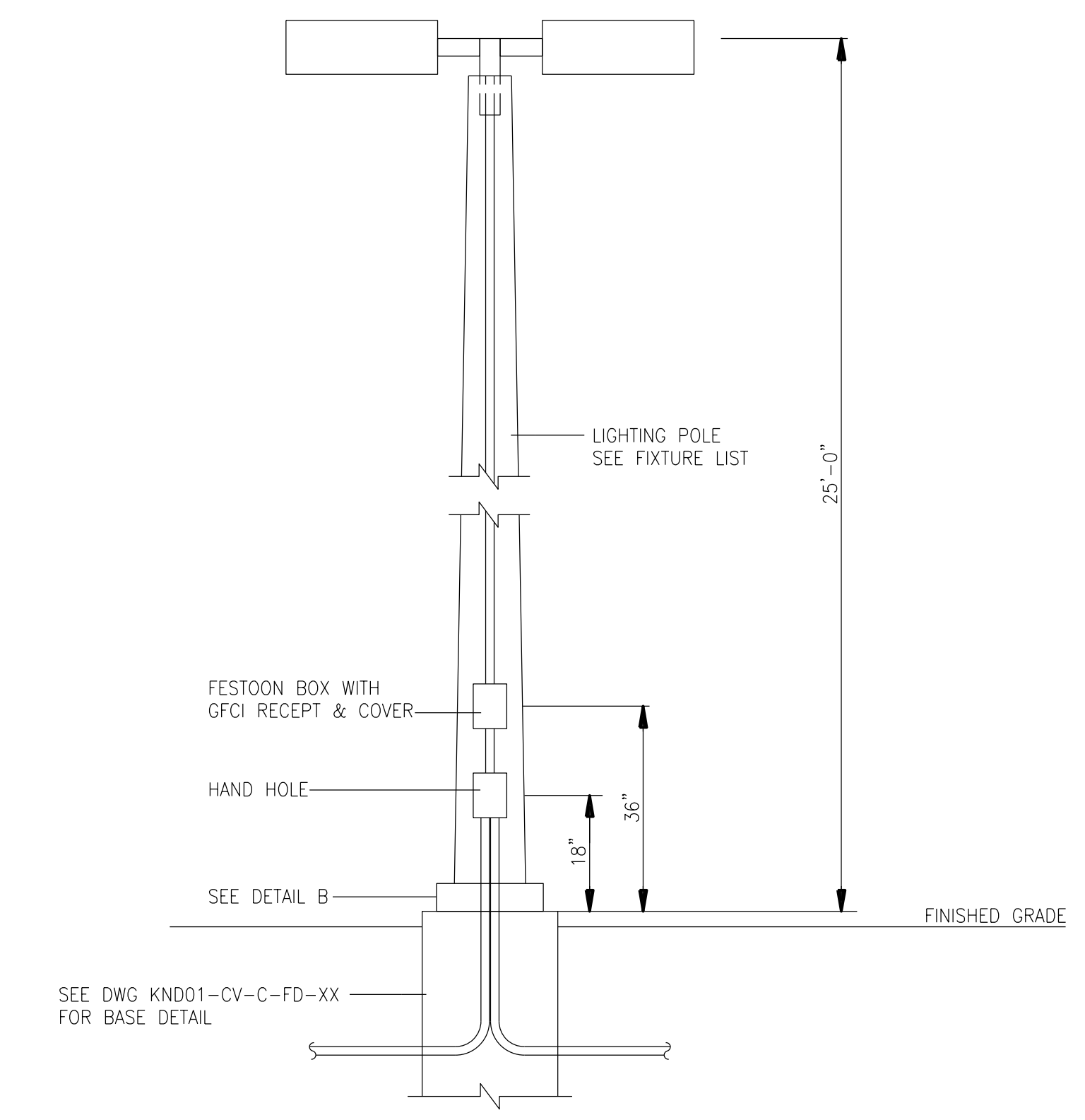


DETAIL A
TYPICAL SITE LIGHTING POLE CONCRETE FOUNDATION
NO SCALE

NOTES:
1. FOR FOUNDATION INSTALLATION SEE CIVIL DRAWING KND01-CV-C-FD-XX.



DETAIL B
TYPICAL SITE LIGHTING POLE - HANDHOLE
NO SCALE



DETAIL C
TAPERED ALUMINUM POLE FOR LIGHTING
NO SCALE

- NOTES:
- FOR ELECTRICAL GRAPHIC SYMBOLS, SEE DRAWING KND01-EN-E-EG-01.
 - ALL ELEVATIONS REFER TO THE BOTTOM OF THE LIGHTING FIXTURE.
 - ALL LIGHTING SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 - ALL ABOVE GRADE CONDUITS SHALL BE RIGID GALVANIZED STEEL. ALL BELOW GRADE CONDUITS SHALL BE PVC SCHEDULE 40.
 - ALL ABOVE GRADE LIGHTING CONDUITS SHALL BE FIELD ROUTED BY THE CONTRACTOR. ALL BELOW GRADE LIGHTING CONDUITS WERE INSTALLED UNDER THE UNDERGROUND RACEWAY DRAWING AND ARE LABELED IN LIGHTING PLAN DRAWING.
 - ALL SL FIXTURE BRANCH CIRCUIT CONDUCTORS SHALL BE SIZE #10 AWG, UNLESS OTHERWISE NOTED.
 - ALL SWL FIXTURE CONDUCTORS BETWEEN POLES AND CONTACTOR SHALL BE #10 AWG MINIMUM, UNLESS OTHERWISE NOTED. ALL LIGHTING CIRCUIT CONDUCTORS WITHIN THE LIGHTING POLES SHALL BE #12 AWG MINIMUM, UNLESS OTHERWISE NOTED.
 - CONNECTIONS BETWEEN THE UNDERGROUND LIGHTING CONDUCTORS AND THE LIGHTING CONDUCTORS WITHIN THE LIGHTING POLES SHALL BE INSTALLED, SIZE AS RECOMMENDED BY THE FIXTURE MANUFACTURER.
 - ALL GROUNDING CONDUCTORS SHALL BE GREEN.
 - ONLY HOME RUNS TO PANEL ARE SHOWN ON THE DRAWING. THE CONTRACTOR SHALL INSTALL ALL LIGHTING CIRCUITING TO LIGHTING FIXTURES AND RECEPTACLES FOR AN OPERATING SYSTEM. ALL AC CIRCUITS SHALL HAVE A GROUND CONDUCTOR.

REFERENCE DRAWINGS:
KND01-LT-E-PL-01 SITE LIGHTING PLAN

MicroStation v23.00.01.44
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NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
A	23/AUG/24	ISSUED FOR PERMIT	RSN	BCA	OOO	OOO	BC

DESIGNER	BCA	DRAWN	RSN
CHECKED	OOO	DATE	23/AUG/24

BLACK & VEATCH
17401 LAMAR AVENUE
OVERLAND PARK, KANSAS 66211

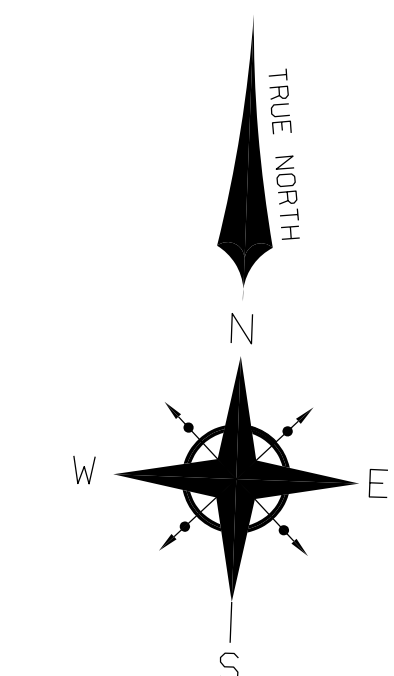
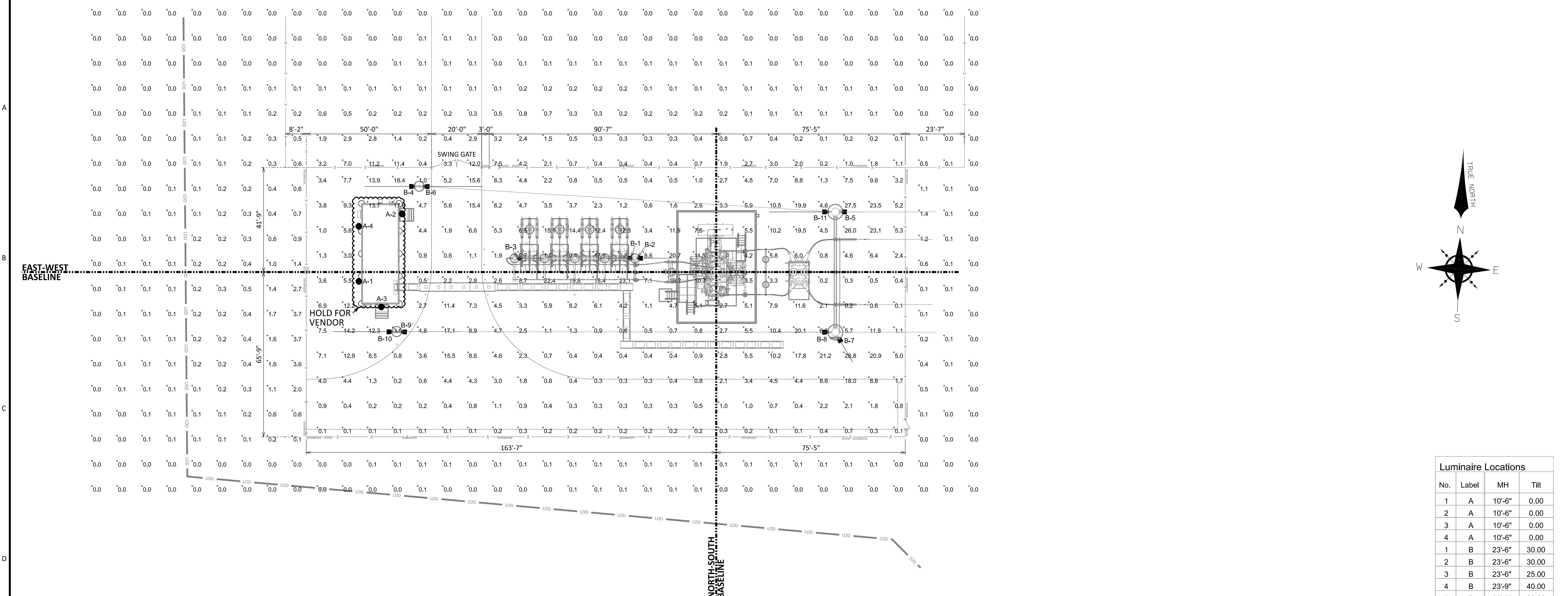
DUKE ENERGY
11401 LAMAR AVENUE
OVERLAND PARK, KANSAS 66211

KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM
 ELECTRICAL LIGHTING DETAILS
 5201 KNIGHTDALE EAGLE ROCK ROAD
 KNIGHTDALE, NC 27545

PROJECT	DRAWING NUMBER	REV
KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM	KND01-LT-E-SD-01	A
CODE	AREA	

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B&V PROJECT NUMBER: 419596

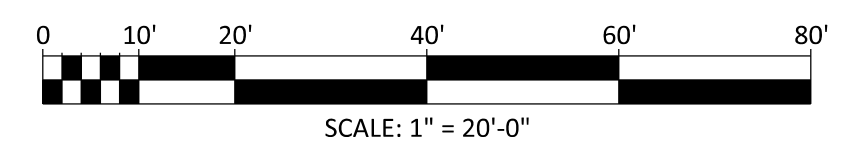


Luminaire Locations			
No.	Label	MH	Tilt
1	A	10'-6"	0.00
2	A	10'-6"	0.00
3	A	10'-6"	0.00
4	A	10'-6"	0.00
1	B	23'-6"	30.00
2	B	23'-6"	30.00
3	B	23'-6"	25.00
4	B	23'-9"	40.00
5	B	23'-0"	20.00
6	B	23'-9"	45.00
7	B	23'-0"	25.00
8	B	23'-0"	45.00
9	B	23'-9"	45.00
10	B	23'-9"	45.00
11	B	23'-0"	45.00

Schedule													
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Filename	Lumens Per Lamp	Lumen Multiplier	Light Loss Factor	Efficiency	Wattage	Distribution
	A	4	COOPER LIGHTING SOLUTIONS - LUMARK (FORMERLY EATON)	XTOR3B-W	CROSSTOUR 26W WALL MOUNT LED	1	XTOR3B-W.ies	2709	1	0.85	100%	25.5	
	B	11	American Electric Lighting	ACPOLED P40 XXXXX 55 ACPOLEDFV	ACP Small LED Floodlight with P40 Performance Package, Flood (5x5) (formally FL), 4000K CCT, 70CRI with Full Visor	1	ACPOLED P40 XXXXX 55 ACPOLEDFV.ies	Absolute	1	0.85	100%	154	5 X 5

Statistics					
Description	Symbol	Max	Min	Avg	AVERAGE TO MINIMUM FC RATIO
Substation	+	28.8 fc	0.1 fc	5.3 fc	53
Perimeter	+	12.0 fc	0.0 fc	0.4 fc	-

NOTE:
1. FIELD TO CONFIRM SUFFICIENT LIGHT ORIENTATION AND ILLUMINATION LEVELS WITH DUKE PERSONNEL.

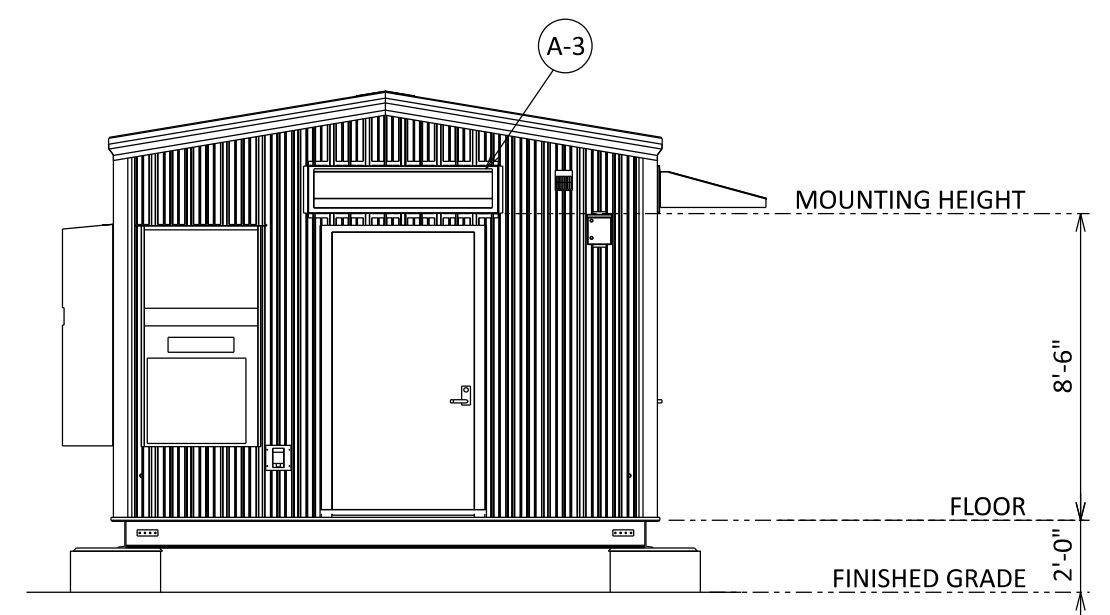


ISSUED FOR PERMITTING

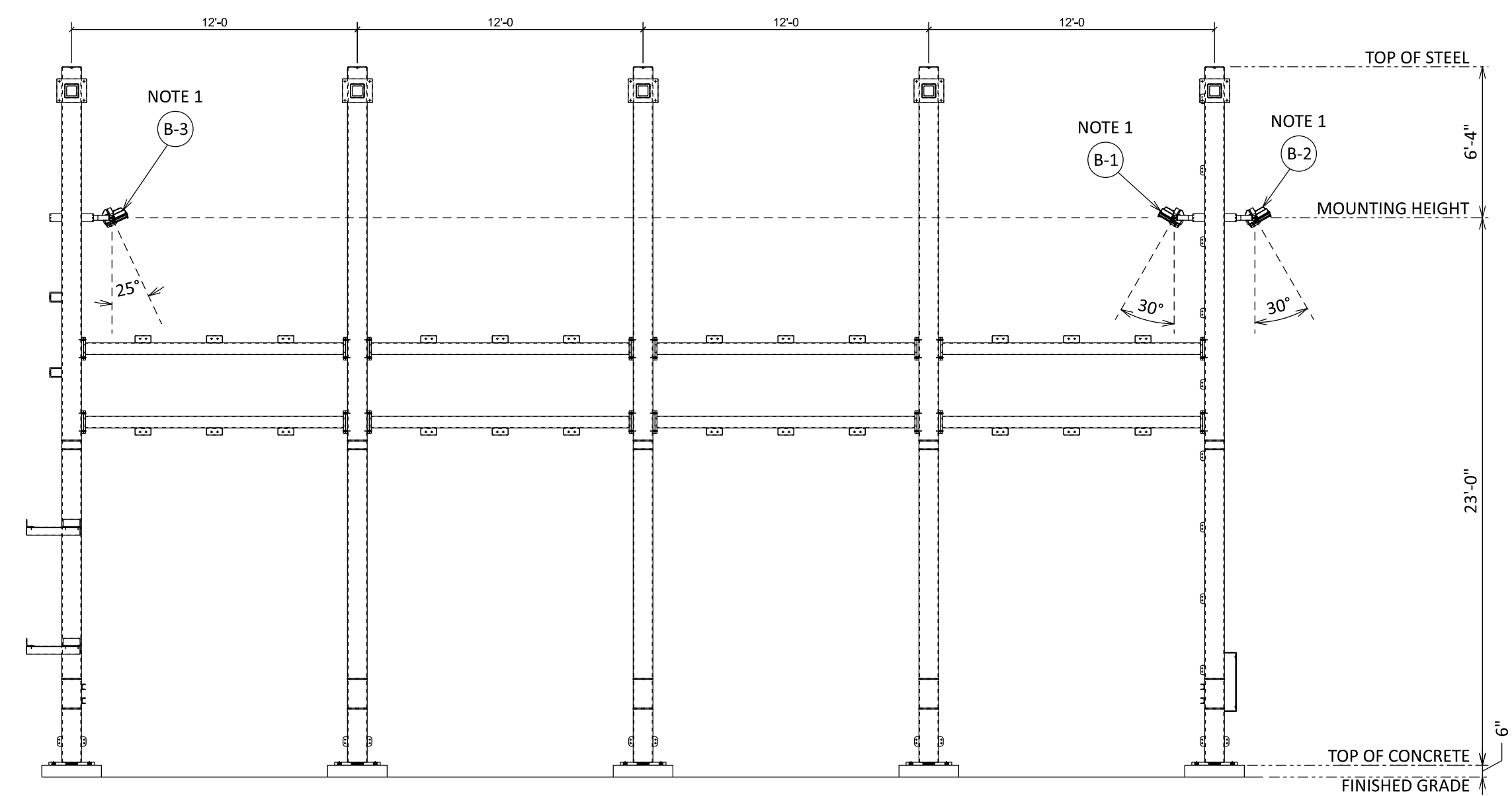
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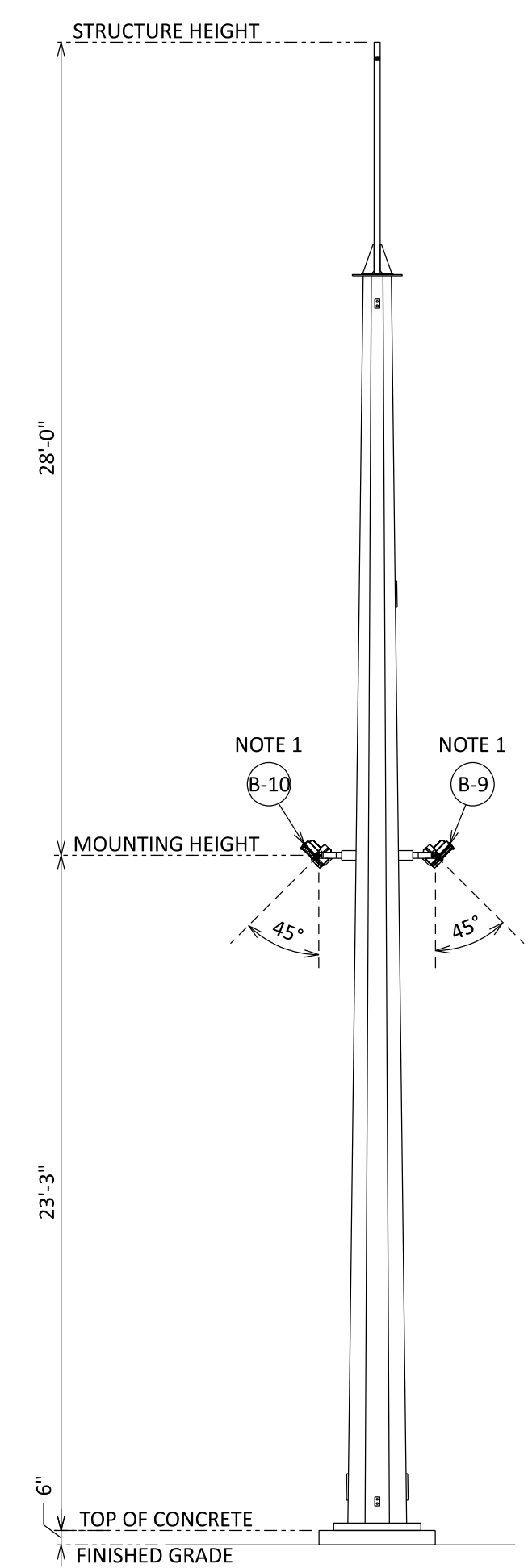
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DESIGNER: BCA	DRAWN: BCA	ELECTRICAL LIGHTING PLAN 5201 KNIGHTDALE EAGLE ROCK ROAD KNIGHTDALE, NC 27545		CODE:	AREA:		
CHECKED: VC	DATE: 23/AUG/24						
A 23/AUG/24 ISSUED FOR PERMIT		REVISIONS AND RECORD OF ISSUE		BCA	BCA	VC	BCA
NO	DATE	DRN	DES	CHK	PDE	APP	



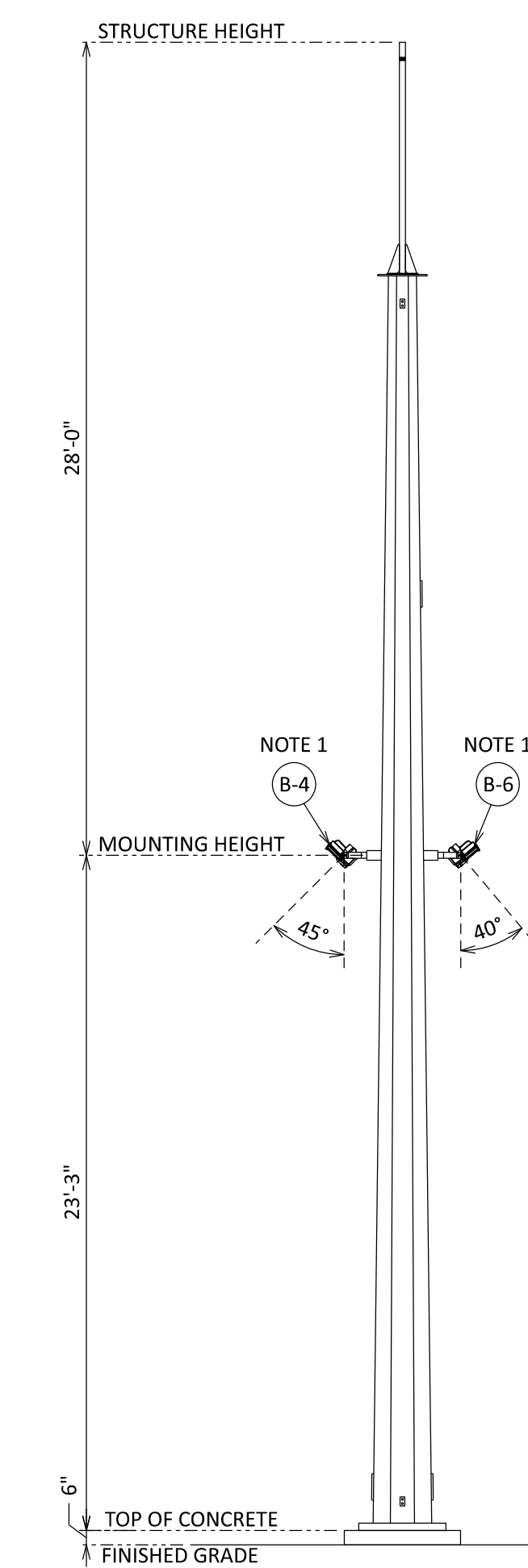
CONTROL HOUSE DETAIL
REF. DWG. KND00-LT-E-SY.00.PL-01



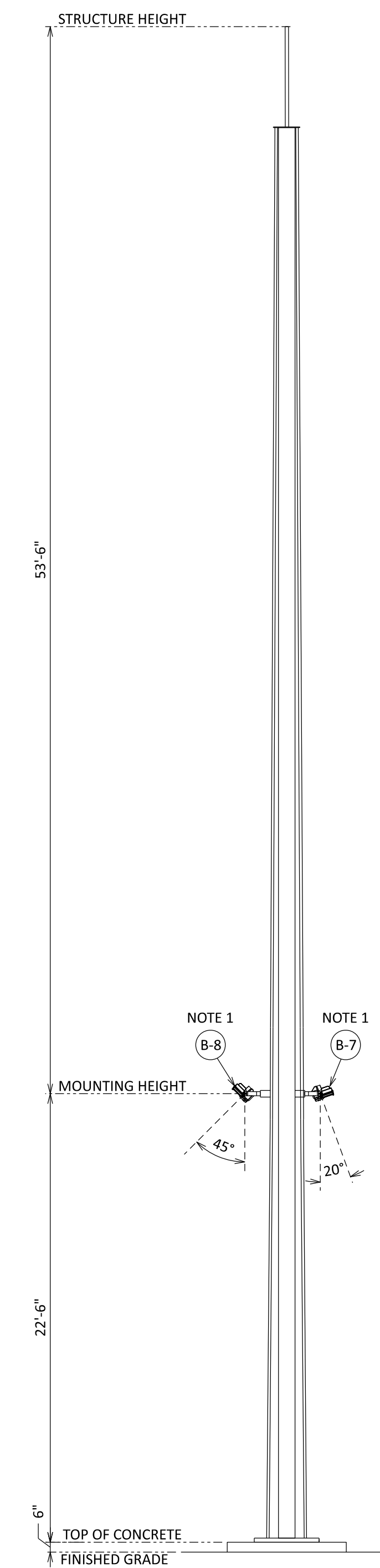
34.5kV BAY DETAIL
REF. DWG. KND00-LT-E-SY.00.PL-01



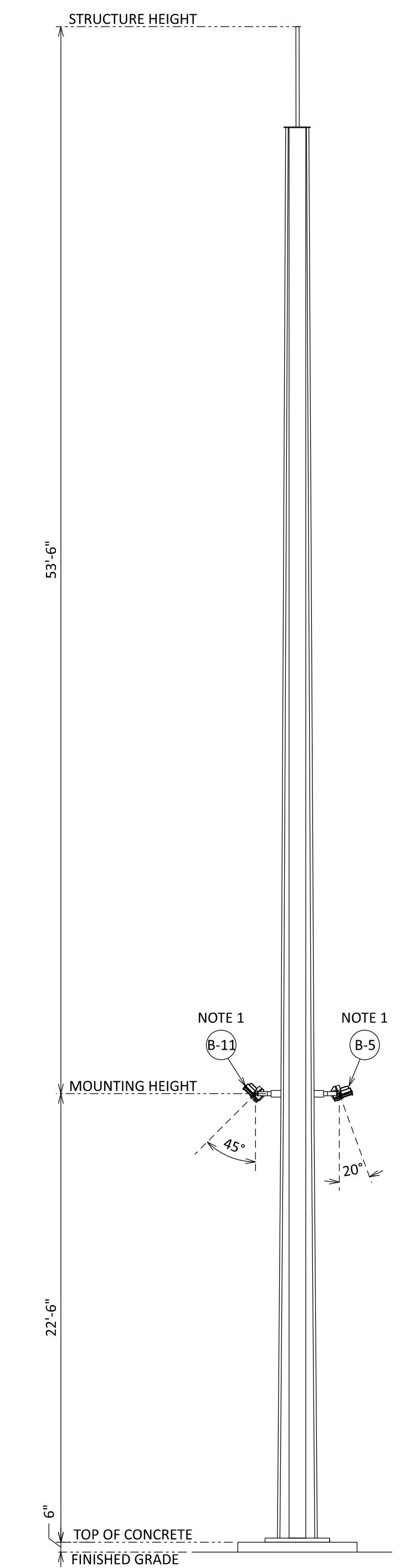
SOUTH STATIC MAST DETAIL
REF. DWG. KND00-LT-E-SY.00.PL-01



NORTH STATIC MAST DETAIL
REF. DWG. KND00-LT-E-SY.00.PL-01



SOUTH H-FRAME LEG DETAIL
REF. DWG. KND00-LT-E-SY.00.PL-01



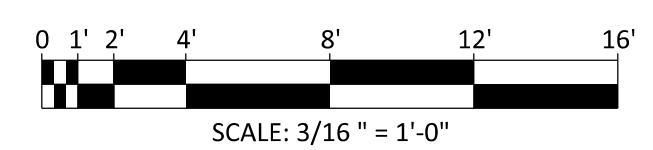
NORTH H-FRAME LEG DETAIL
REF. DWG. KND00-LT-E-SY.00.PL-01

LEGEND:

XX LIGHT NO. SEE DWG KND00-LT-E-SY.00.PL-01

NOTES:

1. FLOODLIGHTS TO BE INSTALLED WITH FULL VISORS



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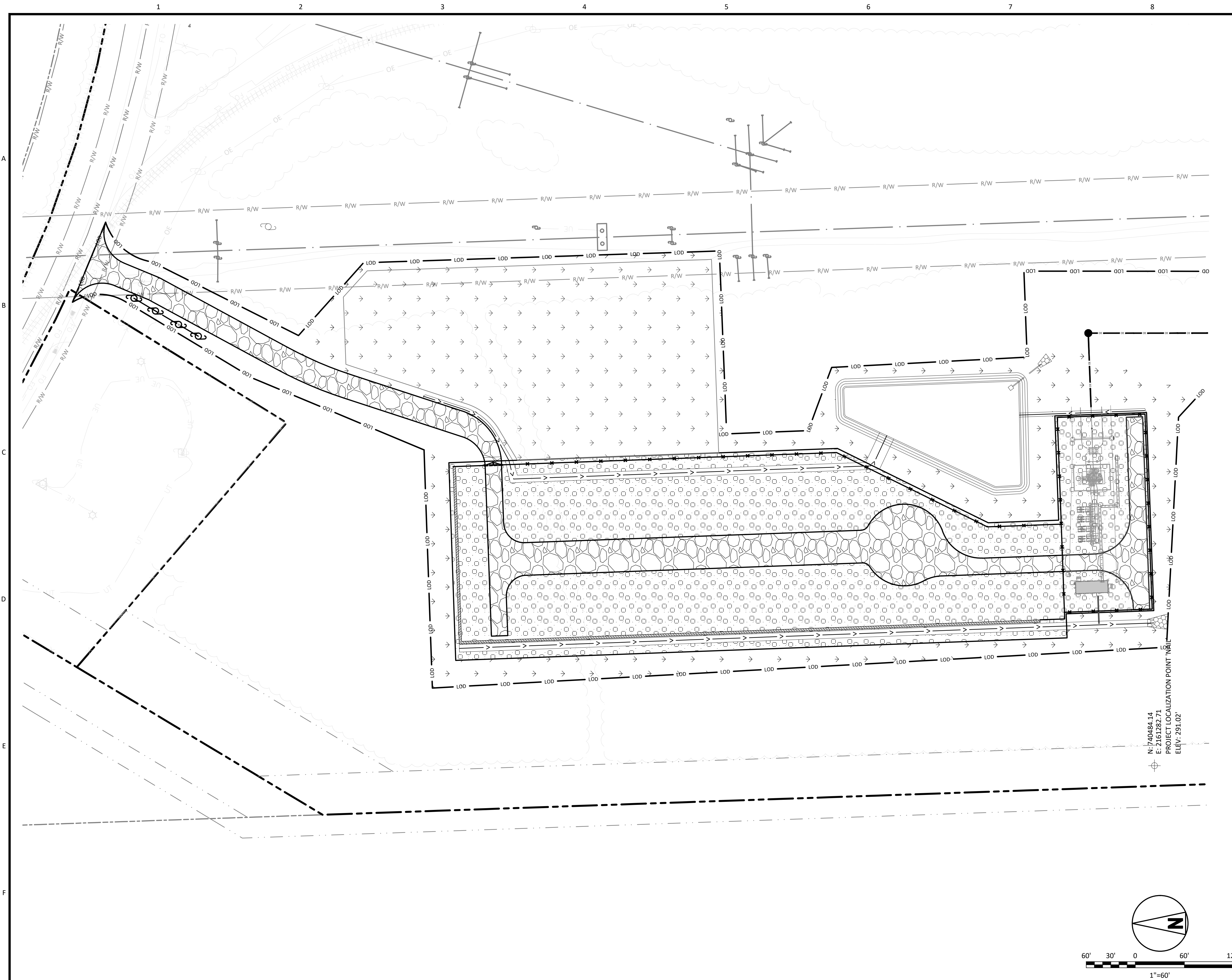
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ANSI D 3422
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NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
A	23/AUG/24	ISSUED FOR PERMIT	BCA	BCA	FSA	BCA	ERB

BLACK & VEATCH	
DESIGNER BCA	DRAWN BCA
CHECKED FSA	DATE 23/AUG/24

DUKE ENERGY
KNIGHTDALE BESS
ELECTRICAL LIGHTING DETAILS
5201 KNIGHTDALE EAGLE ROCK ROAD
KNIGHTDALE, NC 27545

PROJECT 419596 KND00-LT-E-SY.00.SD-01	DRAWING NUMBER A
CODE	REV
AREA	

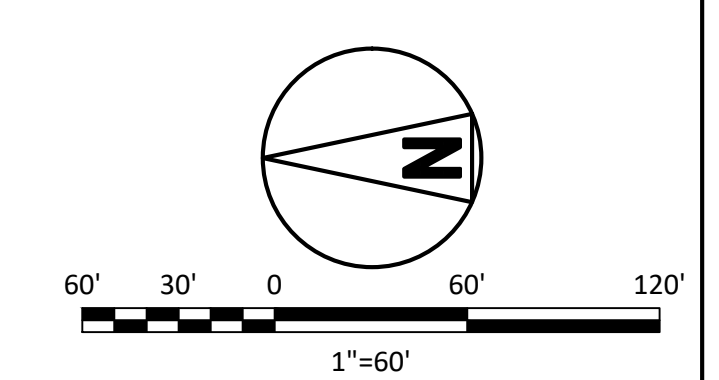


NOTES

LEGEND

	ADJACENT PARCEL BOUNDARY
	PROPOSED SECURITY FENCE
	EXISTING FENCE
	PROPOSED ROAD
	EXISTING TREE LIMITS
	EXISTING RAILROAD
	EXISTING OVERHEAD LINE
	PROPERTY BOUNDARY
	PROPOSED OVERHEAD ELECTRIC LINES
	EXISTING RIGHT-OF-WAY
	EXISTING FIBER OPTIC CABLE
	LIMITS OF DISTURBANCE
	EXISTING TREE LINE
	PROPOSED PERIMETER WALL
	PROPOSED VEGETATED SWALE
	EXISTING MINOR CONTOUR LINES
	EXISTING MAJOR CONTOUR LINES
	MINOR CONTOUR LINES
	MAJOR CONTOUR LINES
	RIP RAP
	GRASS SURFACING
	ABC PER NCDOT SPECIFICATIONS (2018)
	#57 STONE PER NCDOT SPECIFICATIONS (2018)

N: 740484.14
 E: 2161282.71
 PROJECT LOCALIZATION POINT NAD83
 ELEV: 291.02'



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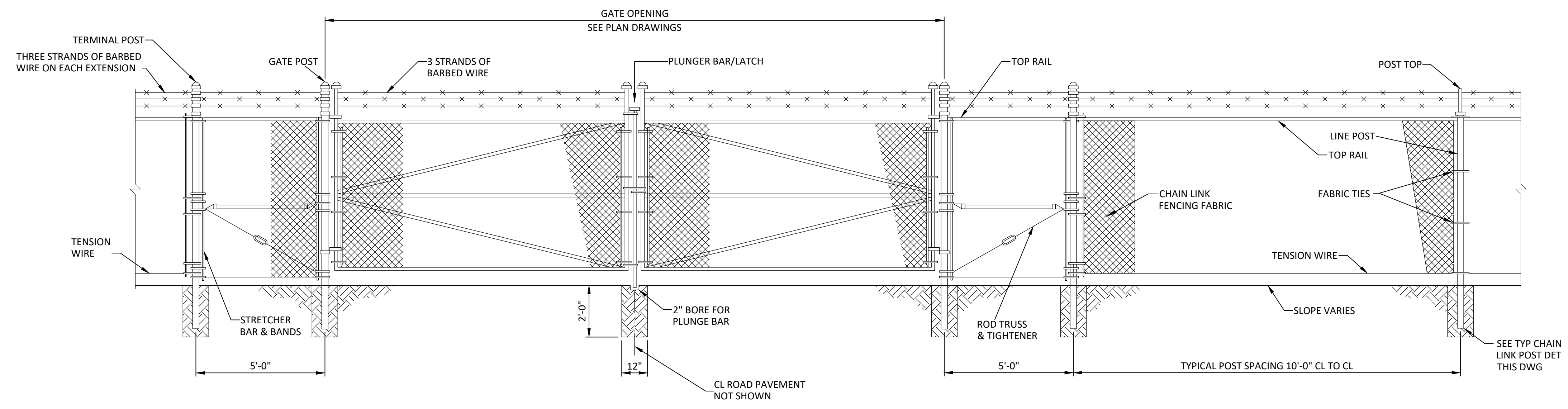
BLACK & VEATCH
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DESIGNER: MJM DRAWN: CLC
 CHECKED: HGU DATE: 22/AUG/24

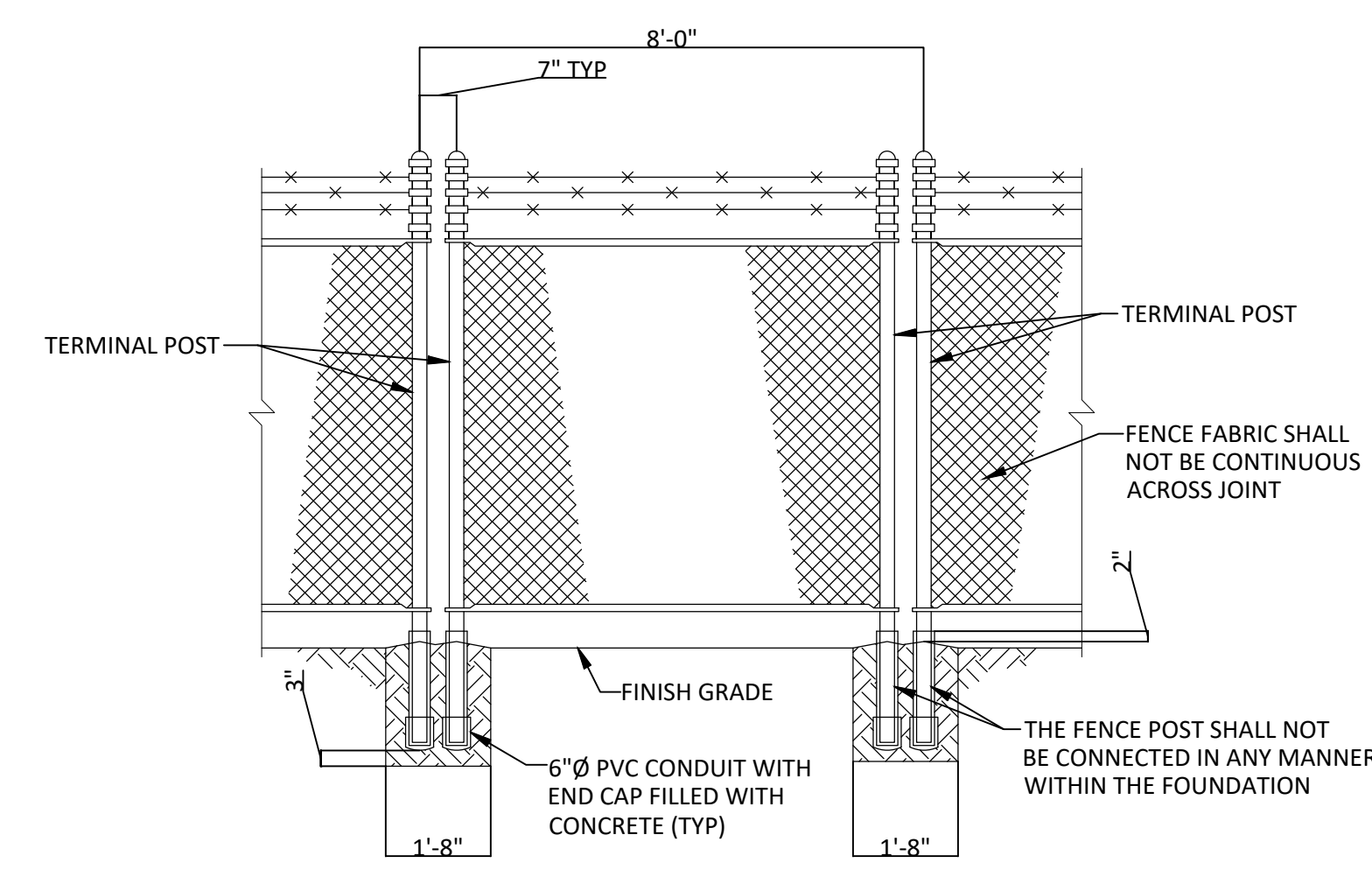
DUKE ENERGY
 KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM

SURFACING AND FENCING PLAN
 5201 KNIGHTDALE EAGLE ROCK ROAD
 KNIGHTDALE, NC 27545

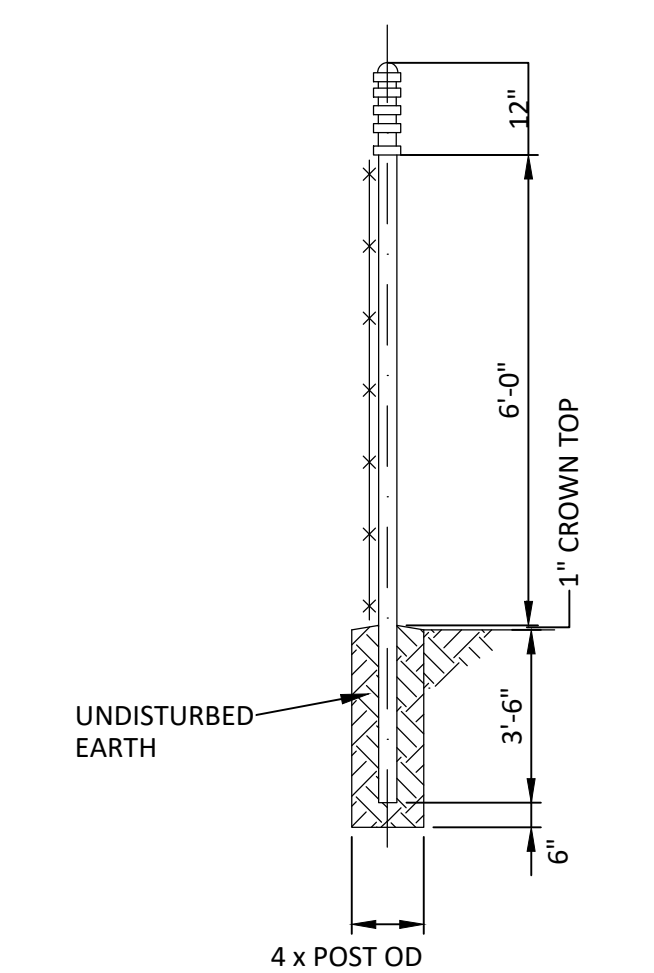
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CODE	AREA	



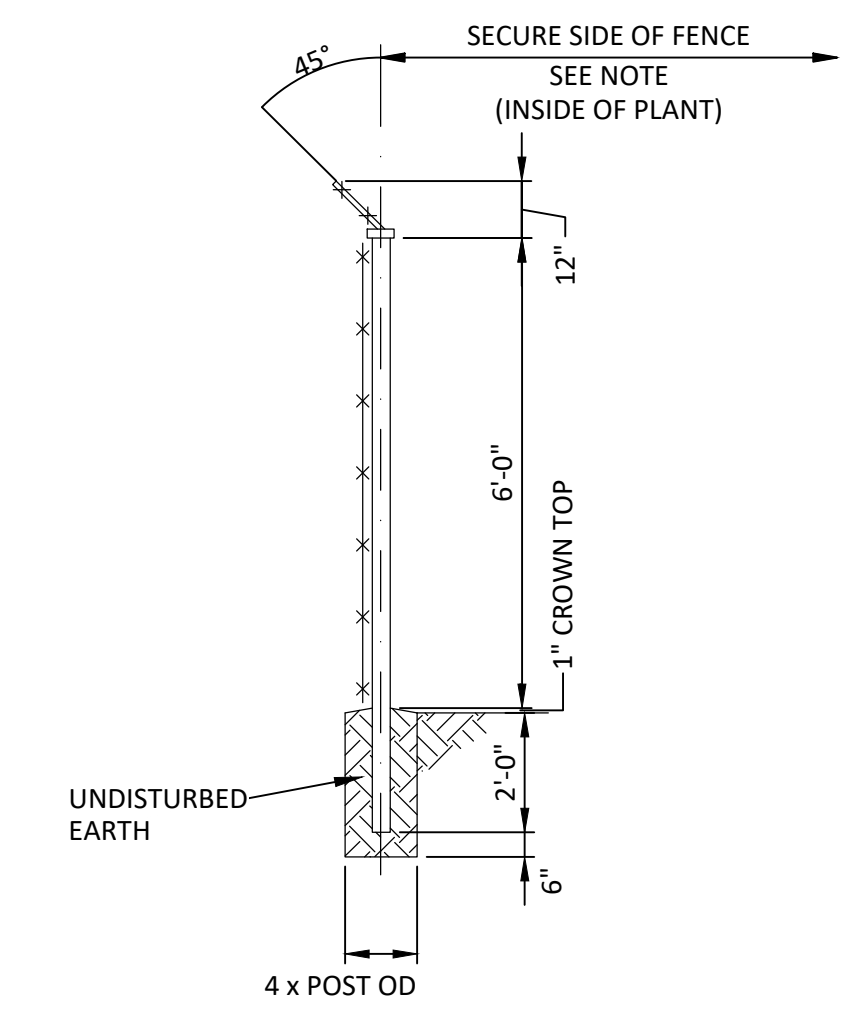
TYPICAL CHAIN LINK SECURITY FENCE WITH SWING GATE
NO SCALE



TYPICAL FENCE ISOLATION JOINT
NO SCALE



TYPICAL CHAIN LINK TERMINAL, GATE, END AND CORNER POST
NO SCALE



TYPICAL CHAIN LINK LINE POST
NO SCALE

NOTE: WIRE TIES, RAILS, POSTS AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN LINK FABRIC SHALL BE CONSTRUCTED ON THE UNSECURE SIDE OF THE FENCE ALIGNMENT.

NOTE: WIRE TIES, RAILS, POSTS AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN LINK FABRIC SHALL BE CONSTRUCTED ON THE UNSECURE SIDE OF THE FENCE ALIGNMENT.

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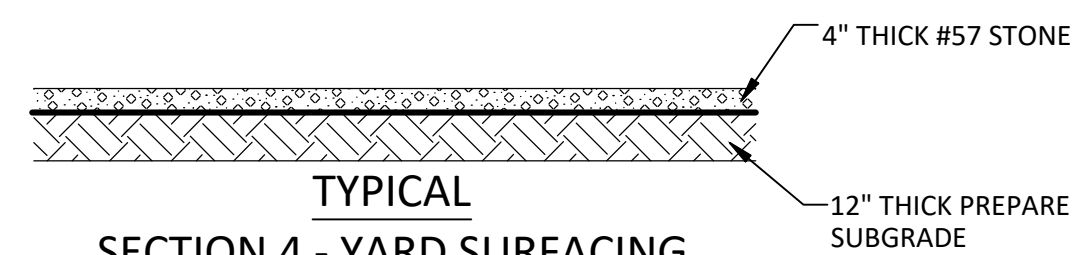
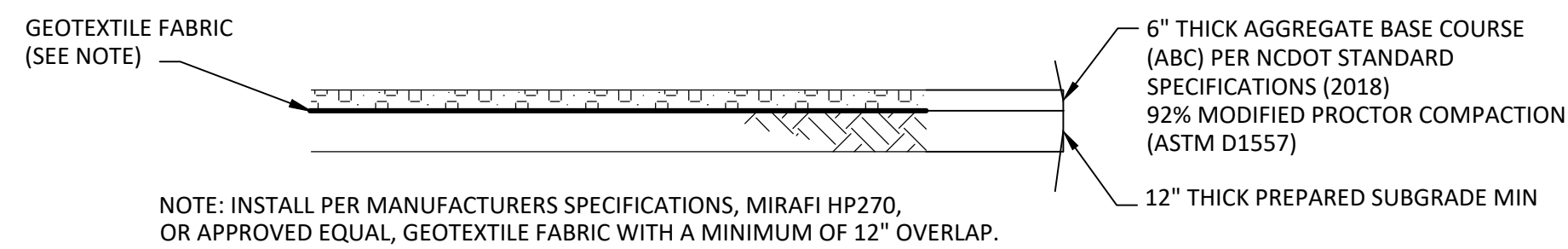
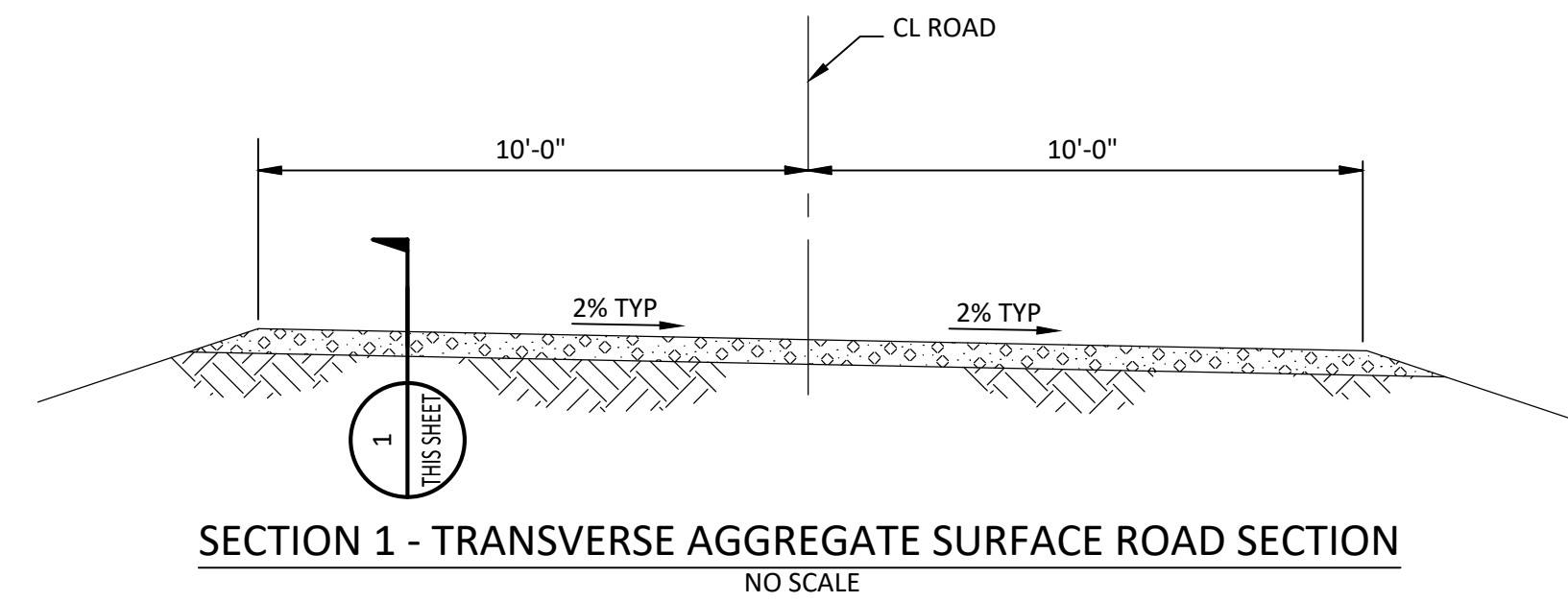
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DESIGNER MJM	DRAWN CLC
CHECKED HGU	DATE 22/AUG/2024

DUKE ENERGY KIGHTDALE BATTERY ENERGY STORAGE SYSTEM	
FENCING DETAILS 5201 KNIGHTDALE EAGLE ROCK ROAD KNIGHTDALE, NC 27545	

PROJECT DRAWING NUMBER 419596 KND01-CV-C-ECDS-01	REV A
CODE -	AREA -



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ANSI D 34x22
2/14/2022 4:09 PM

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A	22/AUG/2024	ISSUED FOR PERMIT	CLC	MJM	HUG	SLD	-

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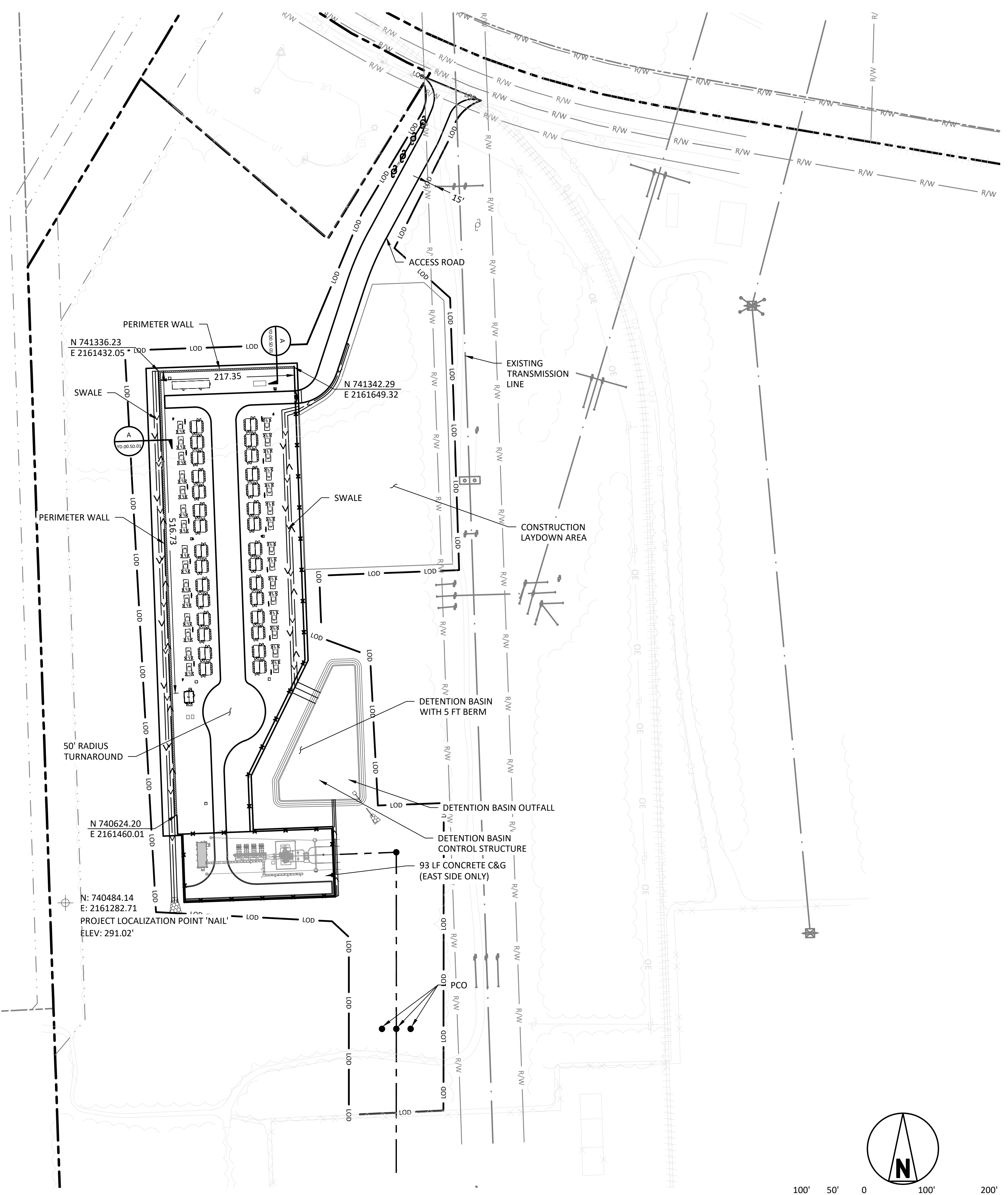
DESIGNER: MJM
DRAWN: CLC
CHECKED: HGU
DATE: 22/AUG/2024

DUKE ENERGY
KNIGHTDALE BATTERY ENERGY STORAGE FACILITY

SURFACING DETAILS
5201 KNIGHTDALE EAGLE ROCK ROAD
KNIGHTDALE, NC 27545

PROJECT	DRAWING NUMBER	REV
KND01-CV-C-GR.SD-01		A
CODE	AREA	
-	-	

A
B
C
D
E
F



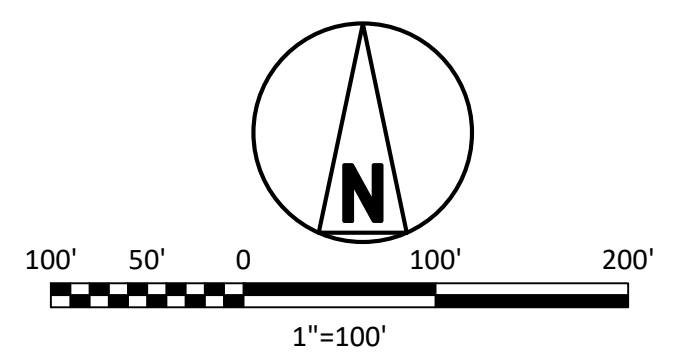
LEGEND

	ADJACENT PARCEL BOUNDARY
	PROPOSED SECURITY FENCE
	EXISTING FENCE
	PROPOSED ROAD
	EXISTING TREE LIMITS
	EXISTING RAILROAD
	EXISTING OVERHEAD LINE
	PROPERTY BOUNDARY
	PROPOSED OVERHEAD ELECTRIC LINES
	EXISTING RIGHT-OF-WAY
	EXISTING FIBER OPTIC CABLE
	LIMITS OF DISTURBANCE
	EXISTING TREE LINE
	PERIMETER WALL
	PROPOSED UNDERGROUND ELECTRIC LINES
	RIGHT OF WAY

HORIZONTAL DATUM: NAD83 NORTH CAROLINA STATE PLANES, US FOOT
 *STATE PLANE COORDINATES WERE ESTABLISHED BASED IN NGS MONUMENTS "ROSE" AND "TOMB".

VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988

BENCHMARK: PROJECT LOCALIZATION POINT 'NAIL'
 N: 740,484.141'
 E: 2,163,003.135'
 ELV: 291.02'



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Civil 3D 2022 Imperial
 ANS I D 344-2
 8/15/2024 7:29 AM

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
A	08/26/2024	ISSUE FOR PERMITTING	CLC	-	DSD	DSD	-

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SIGNED _____ DATE _____ REG. NO. _____

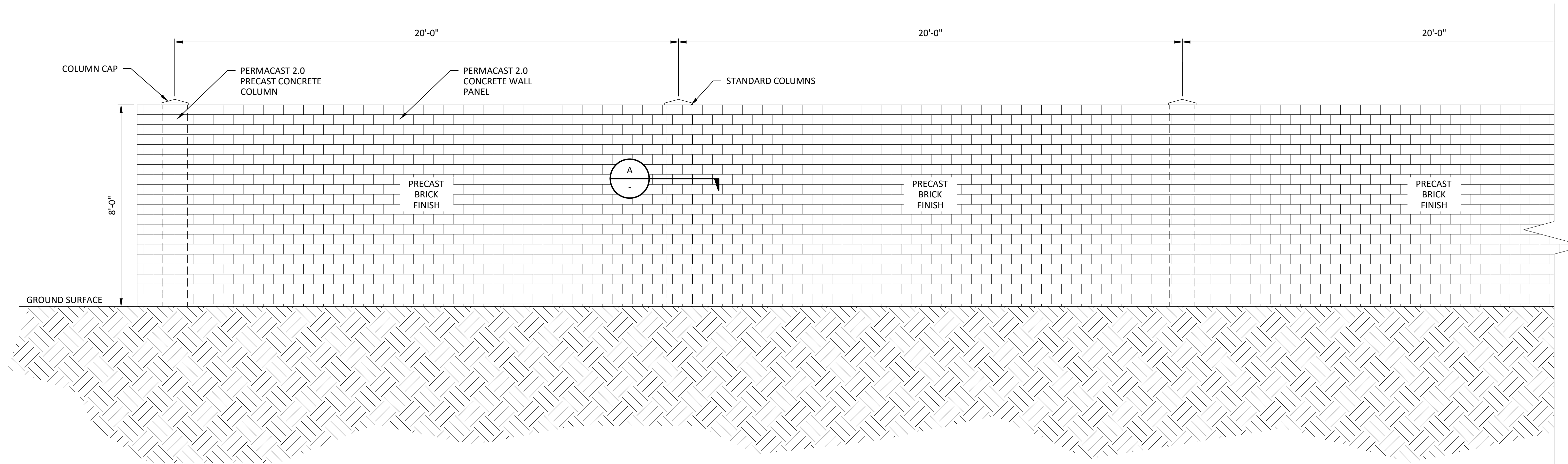
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DESIGNER: _____ DRAWN: CLC
 CHECKED: DSD DATE: 26/AUGUST/24

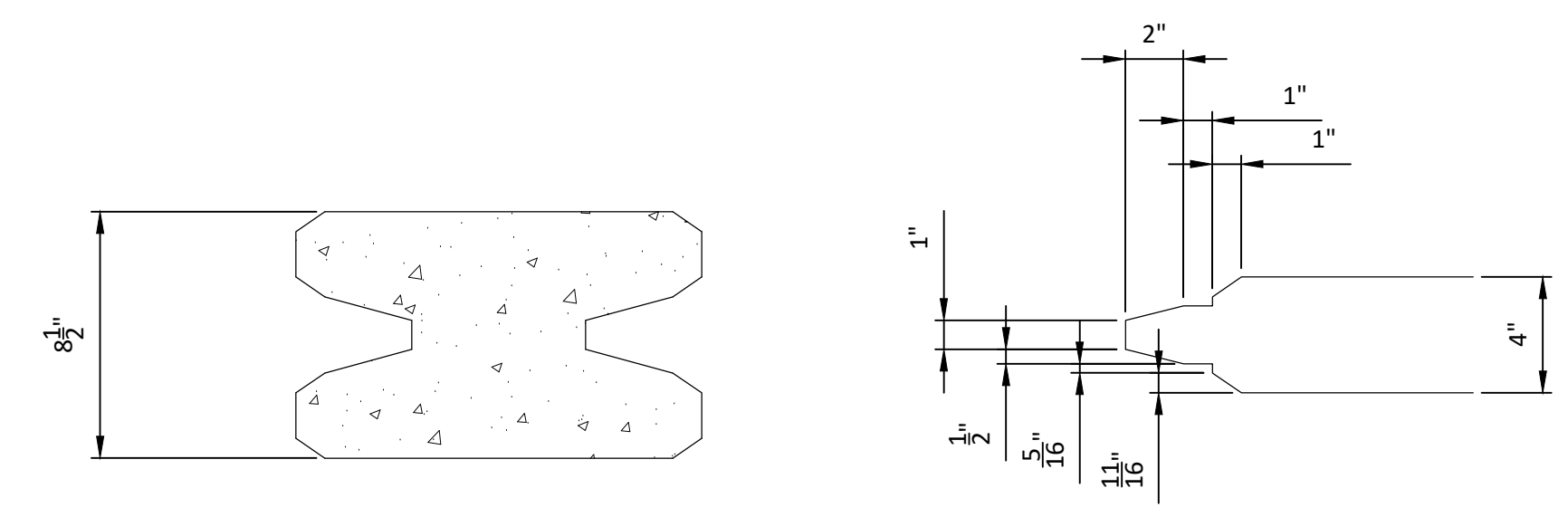
DUKE ENERGY
 KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM

ARCHITECTURAL PLAN
 5201 KNIGHTDALE EAGLE ROCK ROAD
 KNIGHTDALE, NC 27545

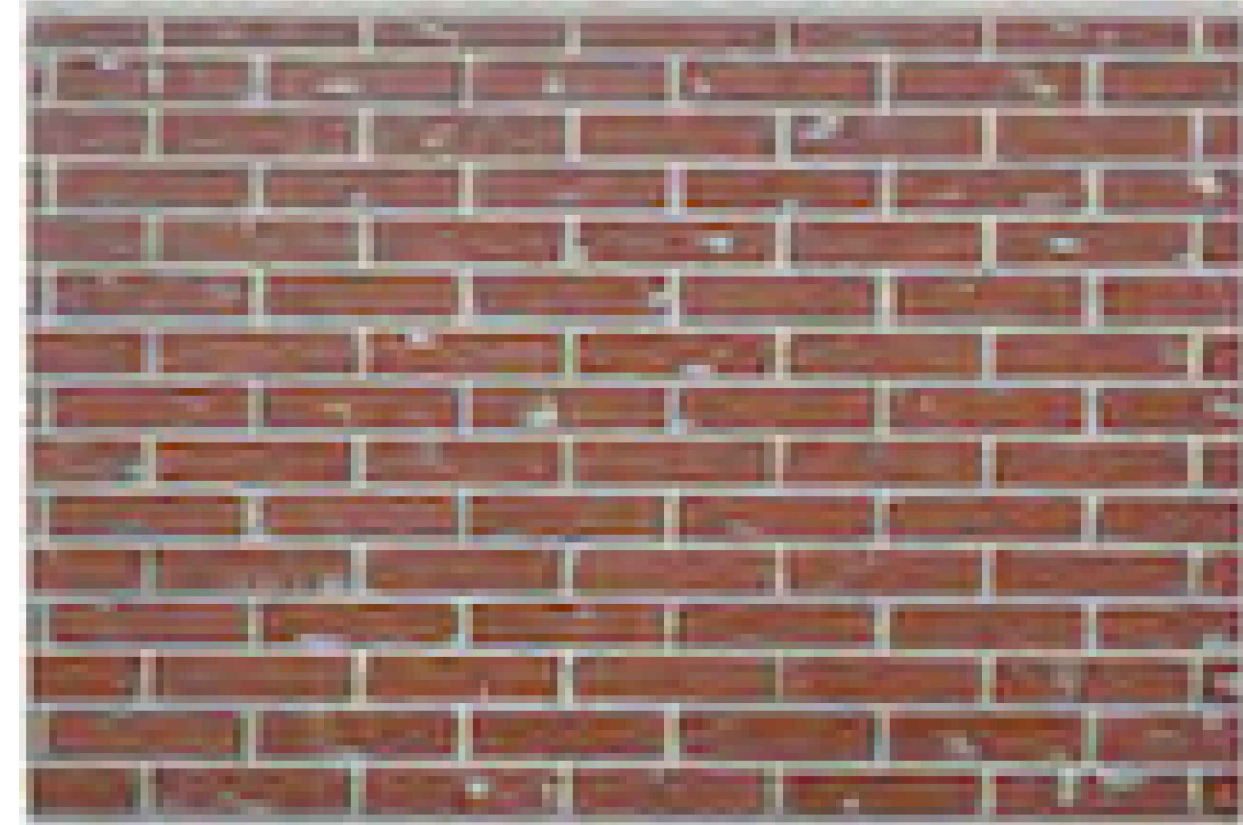
PROJECT	DRAWING NUMBER	REV
419596 KND01-AD-A-YD.00.PL-01	A	
CODE	AREA	



ELEVATION A - TYPICAL 8 FT. X 20 FT WALL ELEVATION
SCALE: 1" = 30'-0"



SECTION A
TYPICAL PANEL / POST CONNECTION
SCALE: 1" = 6"



BRICK FINISH

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Vas68718 Civil 3D 2022 Imperial ANSISD 34x22 8/15/2024 7:29 AM Full Size 1=1

										I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF - SIGNED _____ DATE _____ REG. NO. _____		BLACK & VEATCH Building a world of difference®		DUKE ENERGY DUKE ENERGY KNIGHTDALE EPC		PROJECT: 419596 KND01-AD-A-YD.00.SD-01 DRAWING NUMBER: A	
		A		08/26/2024		ISSUE FOR PERMITTING		DCV		DSD		DSD		ARCHITECTURAL ELEVATION AND SECTIONS 5201 KNIGHTDALE EAGLE ROCK ROAD KNIGHTDALE, NC 27545		CODE: _____ AREA: _____	
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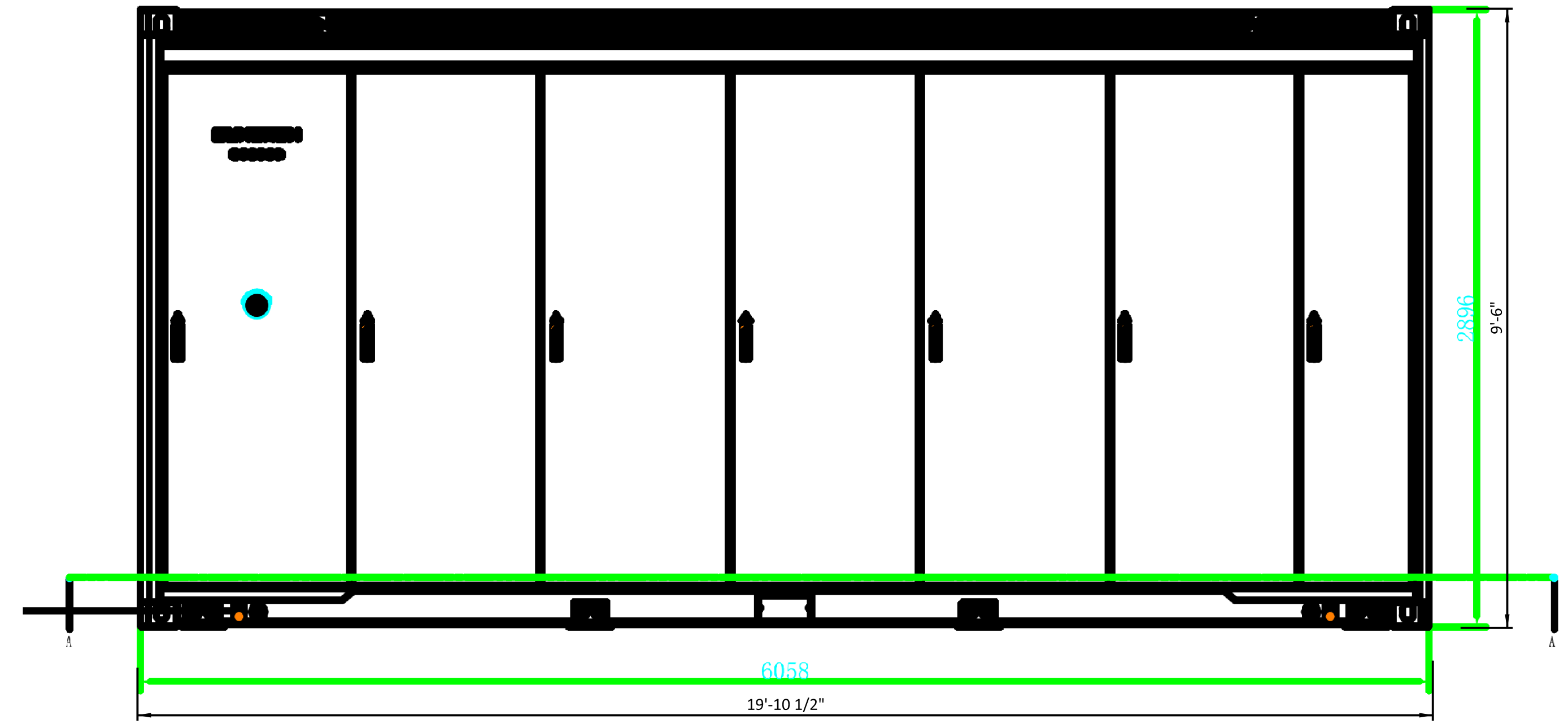
ST5015UX-2H-US ST5015UX-4H-US

PowerTitan 2.0 Liquid Cooled Energy Storage System

NEW



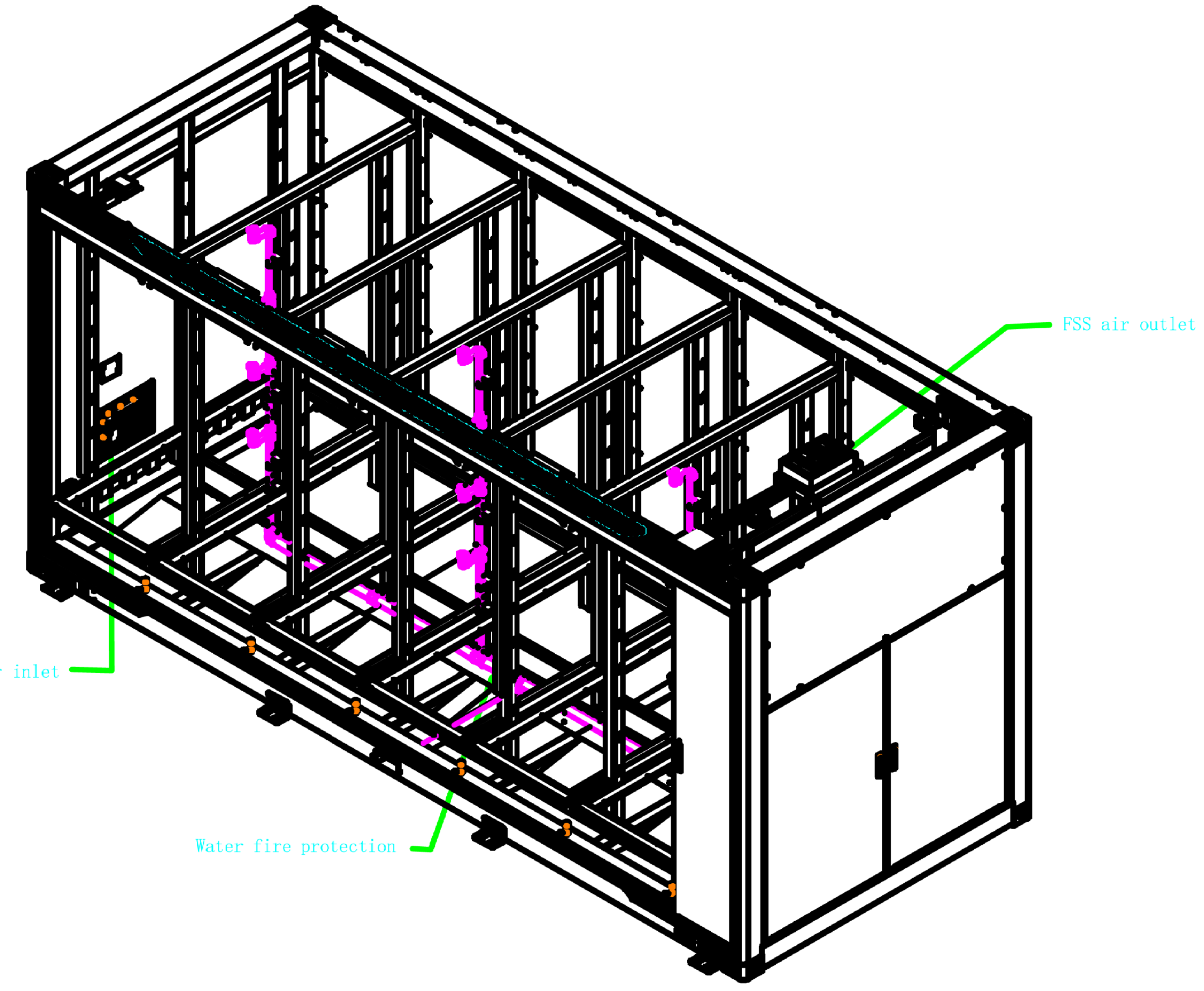
Product name	ST5015UX-2H-US	ST5015UX-4H-US
DC side		
Cell type	LFP	
Battery configuration	3.2 V / 314 AH	
Nominal capacity	46812P	
Nominal voltage range	501S kWh	
AC side		
Nominal AC power	210 kVA * 12	210 kVA * 6
DC current distortion rate	< 3% (Nominal Power)	
DC component	< 0.5%	
Nominal AC voltage	690 V	
AC voltage range	607 V ~ 759 V	
Termination (LV)	352 A * 3 Phase * 6	352 A * 3 Phase * 3
Power factor	> 0.99 (Nominal Power)	
Adjustable range of reactive power	-100% ~ 100%	
Nominal frequency	60 Hz	
Isolation method	Transformerless	
System parameter		
Dimension (W * H * D)	6058 mm * 2896 mm * 2438 mm	
Weight	42500 kg / 93696.5 lbs	42000 kg / 92594.0 lbs
Degree of protection	Type 3S	
Anti-corrosion degree	C4	
Operation temperature range	-30 °C ~ 50 °C (> 45 °C Derating)	
Operation humidity range	-22 °F ~ 122 °F (> 113 °F Derating)	
Max. operation altitude	3000 m / 9842.5 ft	
Temperature control method	Intelligent Liquid Cooling	
Fire suppression system	Default: NFPA 68 compliance vent panel, smoke and heat, detectors, Mini FACP Optional: Sprinkler, sound beacon, NFPA 69, compliance ventilation system, Flammable gas detector	
Communication	Ethernet	
Standard	UL 9540A, NFPA 855, NFPA 68, NFPA 69 (optional) IEEE 1547, UL 1973, UL 1741SB, UL 9540	



Front View

- OPTIMAL COST**
 - Intelligent liquid-cooled temperature control system to optimize the auxiliary power consumption
 - Pre-assembled, no battery module handling on site, transportation of complete system
- EFFICIENT AND FLEXIBLE**
 - High-efficiency heat dissipation, increase battery life and system discharge capacity
 - Front single-door-open design, supporting back to back layout drawing
 - Function test in factory, limited on-site work, accelerate commissioning process
- SAFE AND RELIABLE**
 - Electrical safety management, overcurrent fast breaking and arc extinguishing protection
 - The electrical cabinet and battery cabinet are separated to prevent thermal runaway
- CONVENIENT O&M**
 - One-click system upgrade
 - Automatic coolant refilling design
 - Online intelligent monitoring

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B&V PROJECT NUMBER: 419596

MicroStation v23.00.01.44
ANSI D 3422
Full Size 1 = 1
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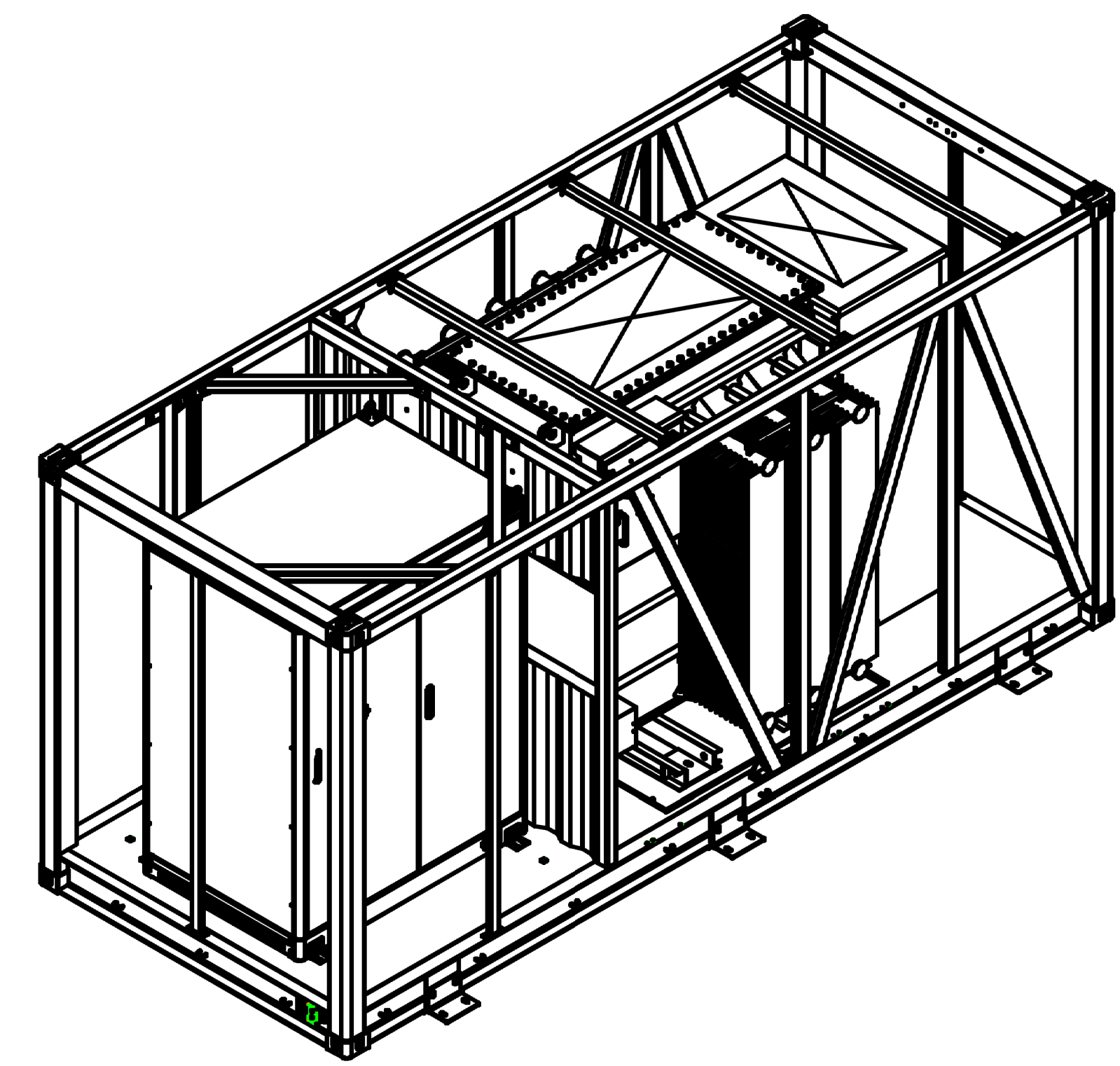
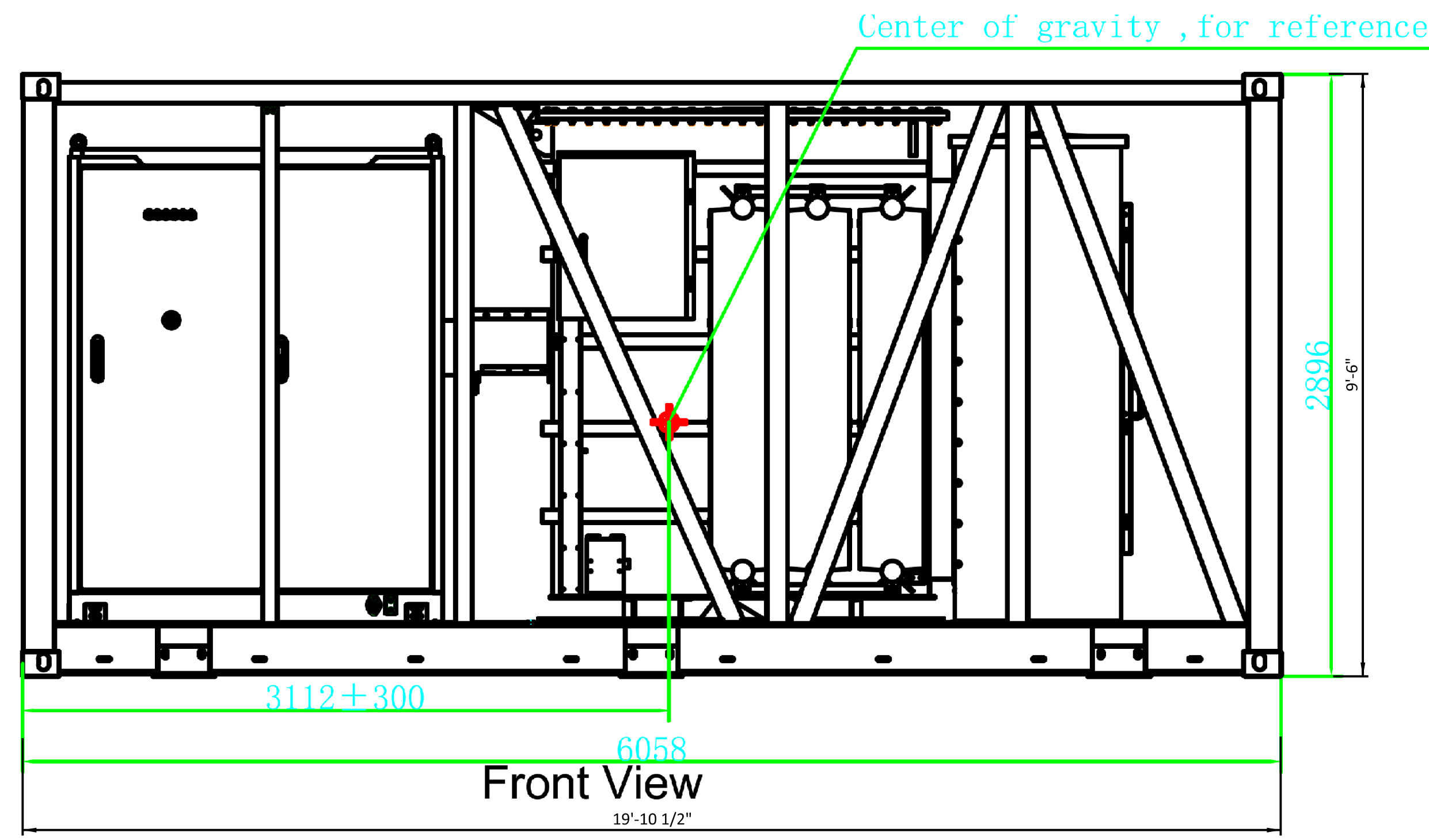
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CHECKED	OOO	DATE	23/AUG/24

BLACK & VEATCH
11401 LAMAR AVENUE
OVERLAND PARK, KANSAS 66211

DUKE ENERGY
KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM

BESS CONTAINER ARCHITECTURAL PLAN
5201 KNIGHTDALE EAGLE ROCK ROAD
KNIGHTDALE, NC 27545

PROJECT	DRAWING NUMBER	REV
KN0D1-VEN-LG-E-SD-01		A
CODE	AREA	



SUNGROW
Clean power for all

MVS5140-LS-US

MV Turnkey Solution for **PowerTitan 2.0** MVS Liquid Cooling Energy Storage System

NEW

Product Name	MVS5140-LS-US
MV transformer	
Rated power	5140 kVA
MV / LV voltage	34.5 kV / 0.69 kV
Transformer vector	Dy1
Windings	2 windings
Rated frequency	60 Hz
Impedance	9 % (± 7.5 % , IEEE tolerance)
Efficiency standard	99 % @ 100 % load
Material of winding (MV / LV)	Aluminum / Aluminum
Legged core design	3 Legged core Design
High voltage configuration	Loop-feed, Dead Front
Overcurrent protection	Expulsion fuses in series with Partial-Range Current-Limiting Fuses
Cooling method	KNAN
Insulation fluid	Degradable oil
Smart control cabinet	
Protection	AC Breaker
Surge protection	Type II
AC Insulation detection	Support
Cooling Method	Air cooling and HVAC
UPS	
	15 min (Default)
	2 / 3 / 4 h (Optional)
General data	
Dimensions (W * H * D)	6058 mm * 2896 mm * 2438 mm 238.5" * 114.0" * 96.0"
Weight	15300 kg 33730 lbs
Cable entry	Bottom entry
Degree of protection	Type 3S
Anti-corrosion degree	C4
Operation temperature range	-40 °C ~ 60 °C -40 °F ~ 140 °F
	> 40 °C (104 °F) derating (Default)
	> 45 °C (113 °F) derating (Optional)
Operation humidity range	0 % ~ 100 %
Max. operating altitude	3000 m 9842.5 ft
Communication	Ethernet, Optical fiber, RS485
Standard	UL 891, IEEE C57.12.00, IEEE C57.12.80, IEEE C57.12.90

* 15min UPS only supplies power for the control and communication devices in the MVS
 ** 2/3/4 h UPS supplies power for the control and communication devices in the the MVS, and the ventilation system in the battery container

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B&V PROJECT NUMBER: 419596

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DESIGNER	BCA	DRAWN	RSN
CHECKED	OOO	DATE	23/AUG/24

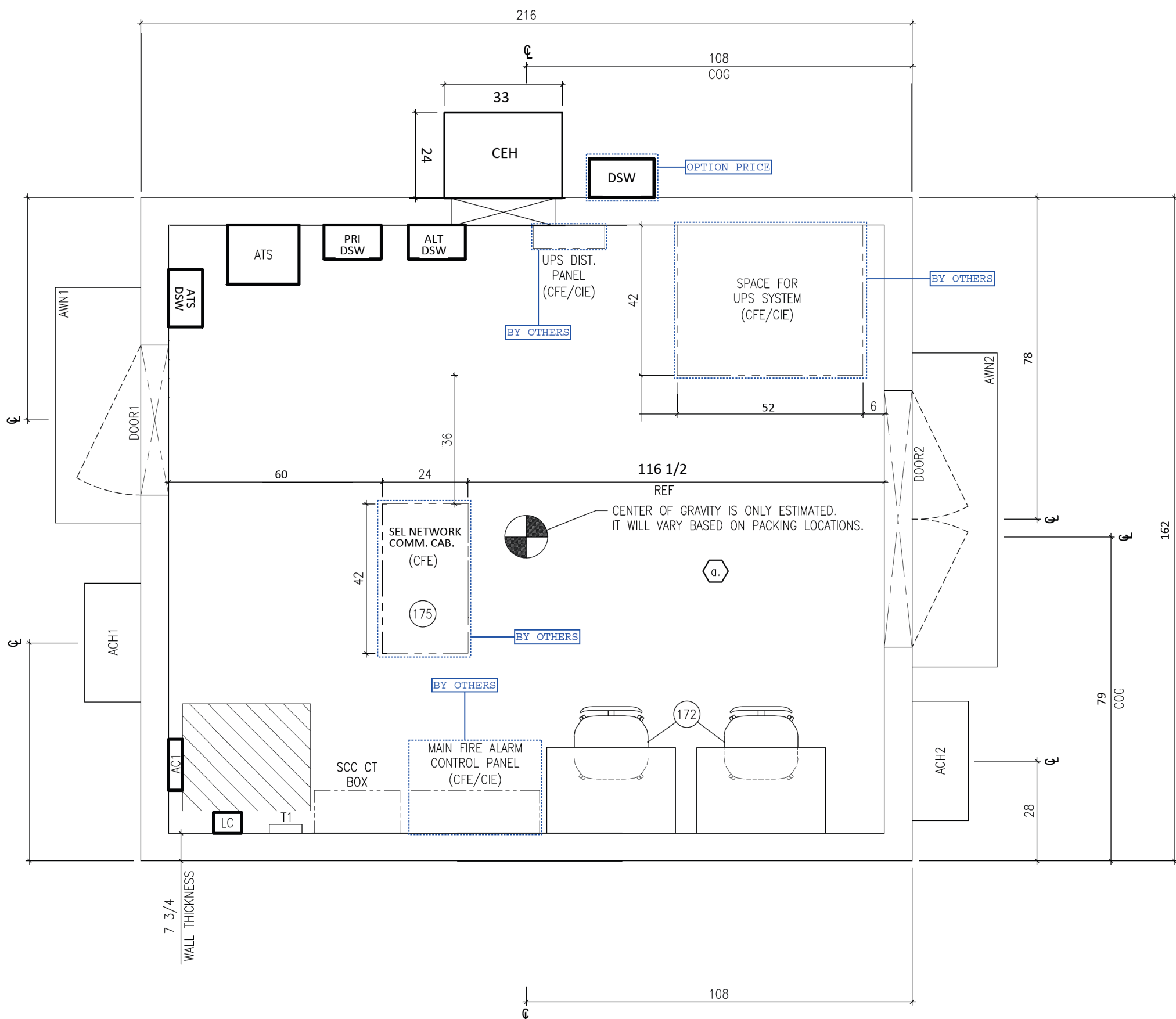
BLACK & VEATCH
 17401 LAMAR AVENUE
 OVERLAND PARK, KANSAS 66211

DUKE ENERGY

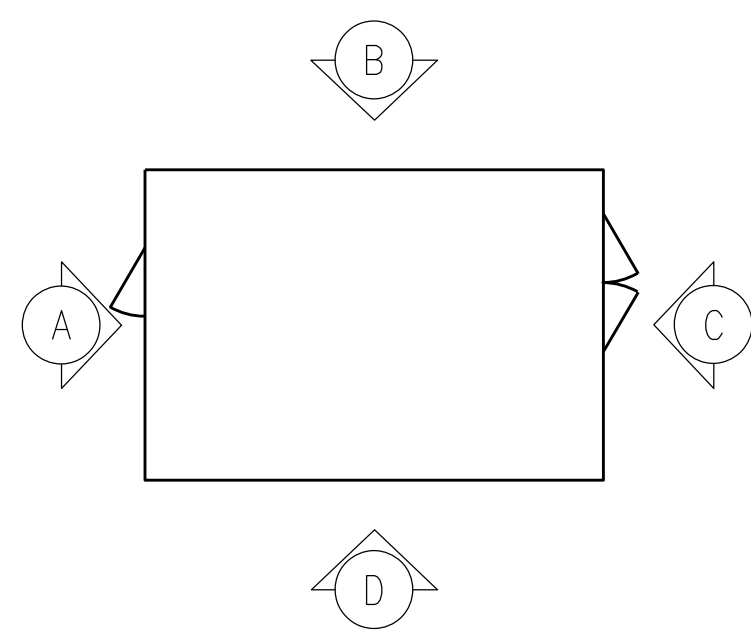
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 MVT SKID LAYOUT

MVT SKID ARCHITECTURAL PLAN
 5201 KNIGHTDALE EAGLE ROCK ROAD
 KNIGHTDALE, NC 27545

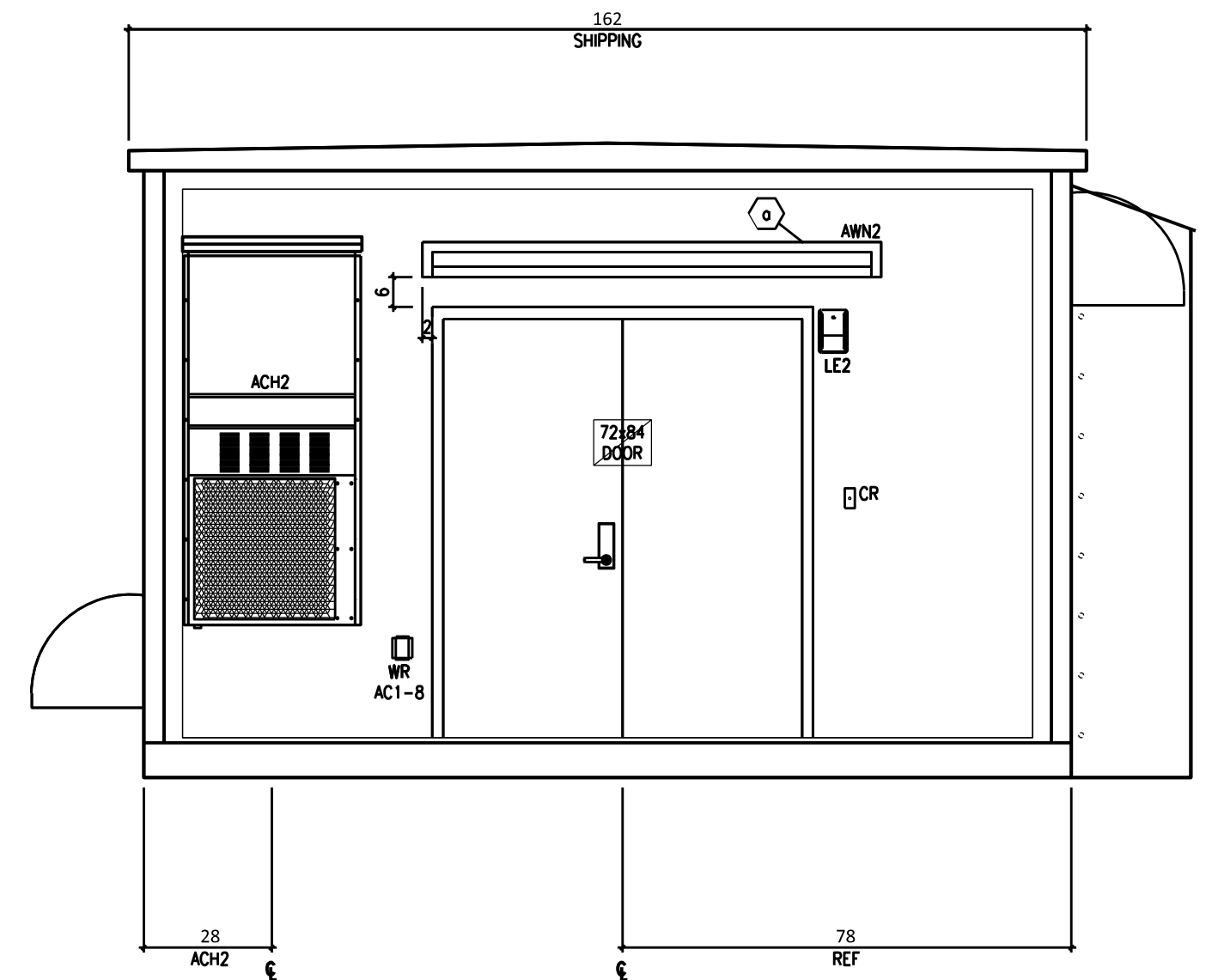
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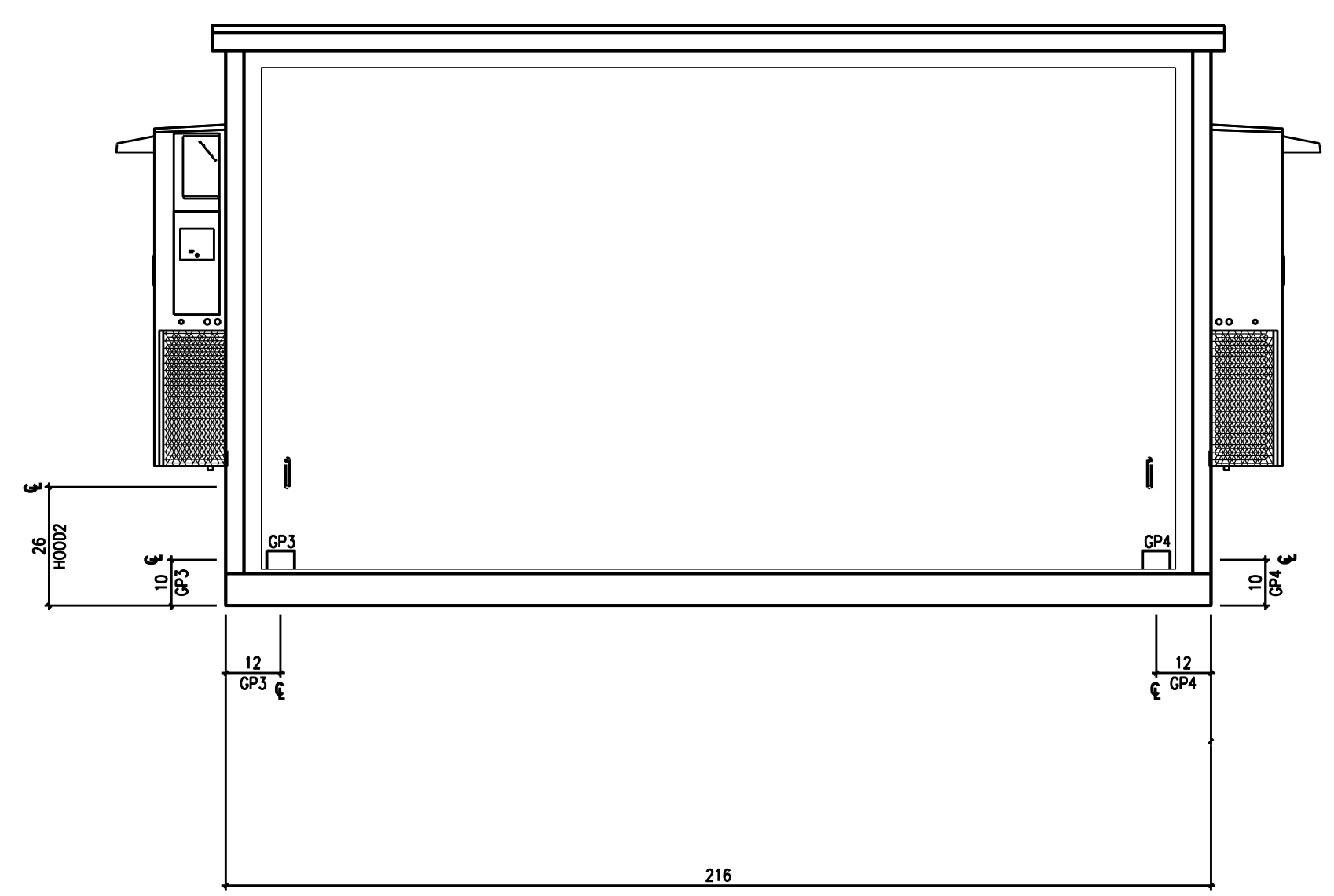
PLAN VIEW



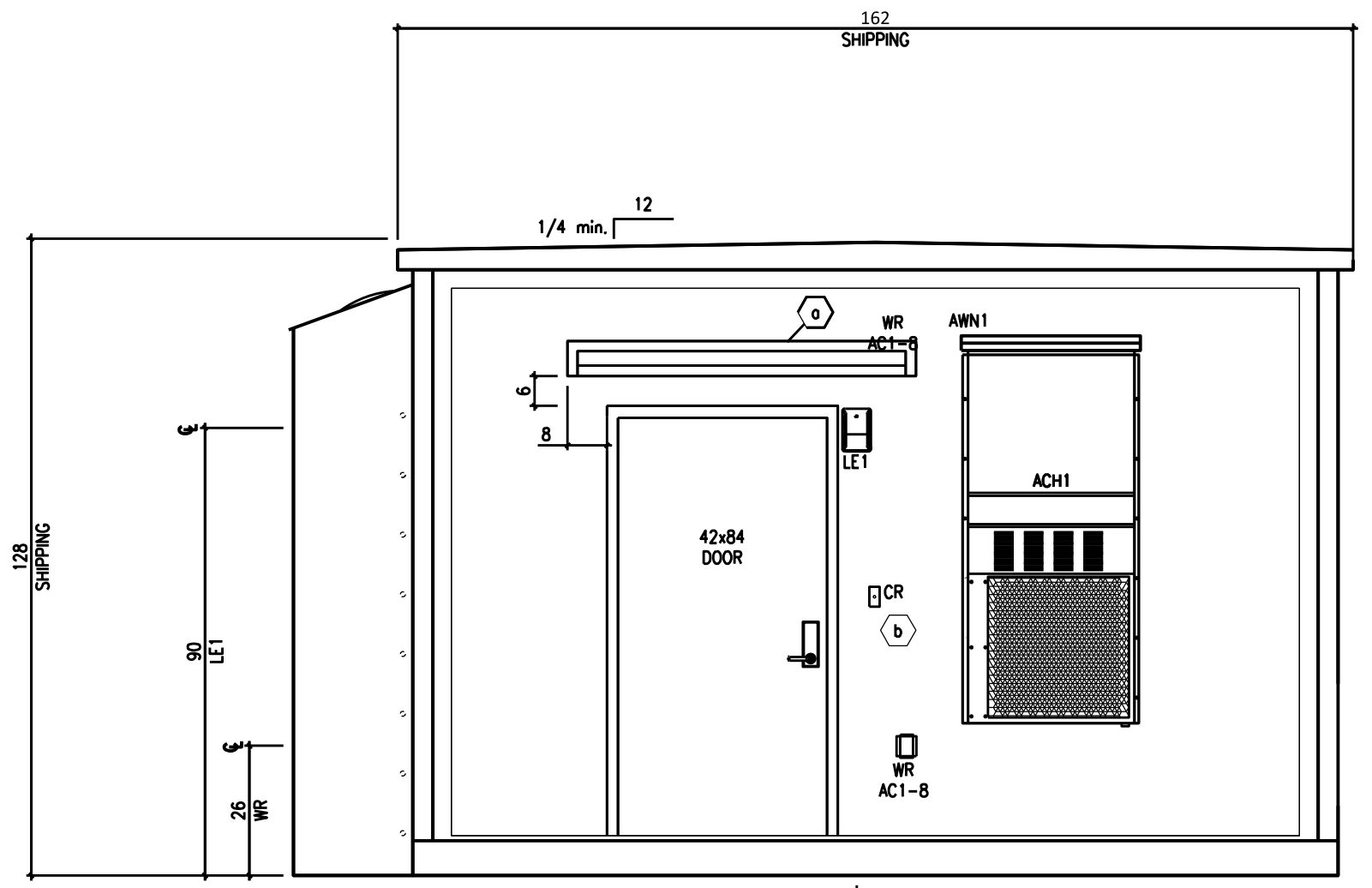
ELEVATION KEY



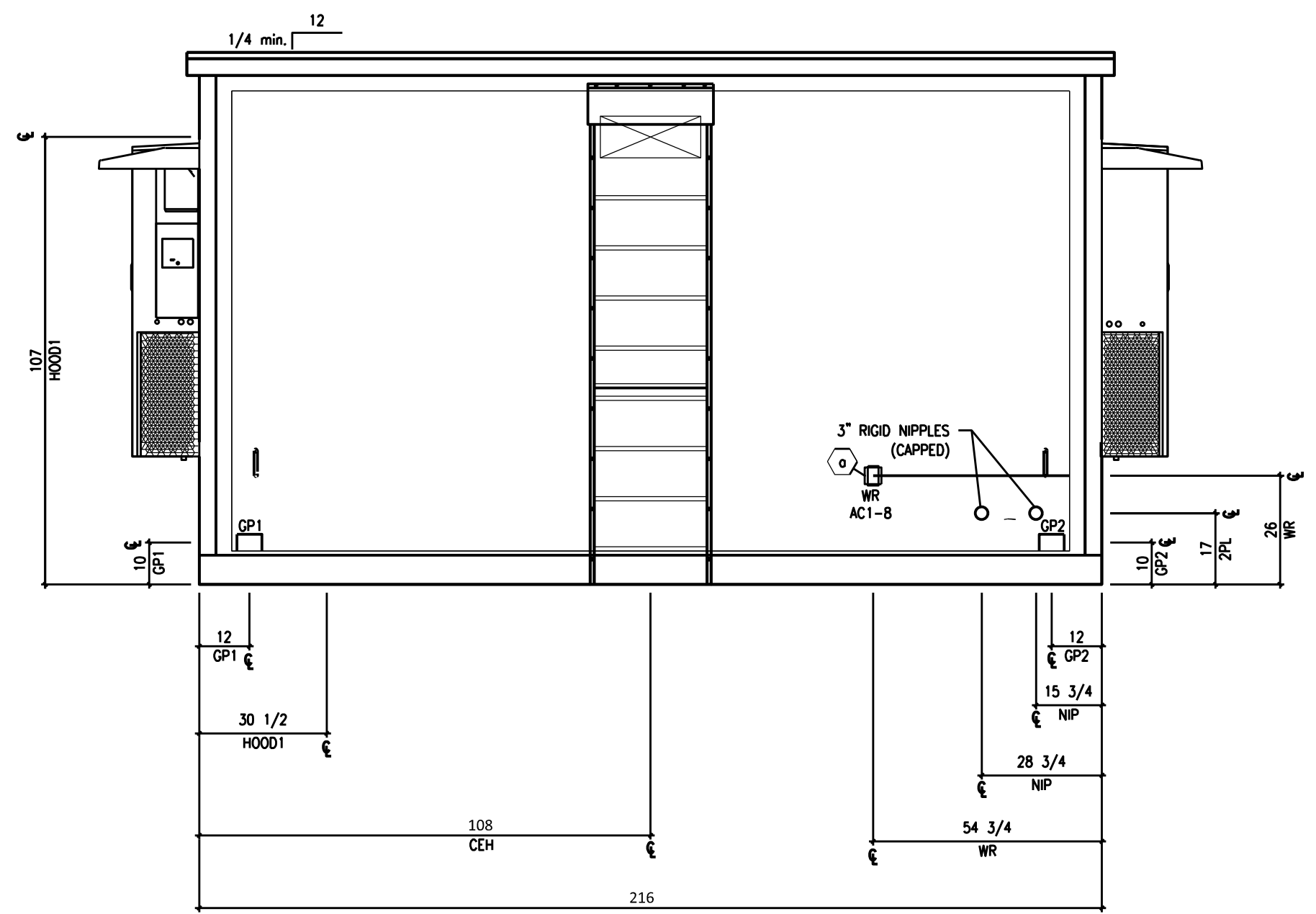
ELEVATION C



ELEVATION D



ELEVATION A



ELEVATION B

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B&V PROJECT NUMBER: 419596

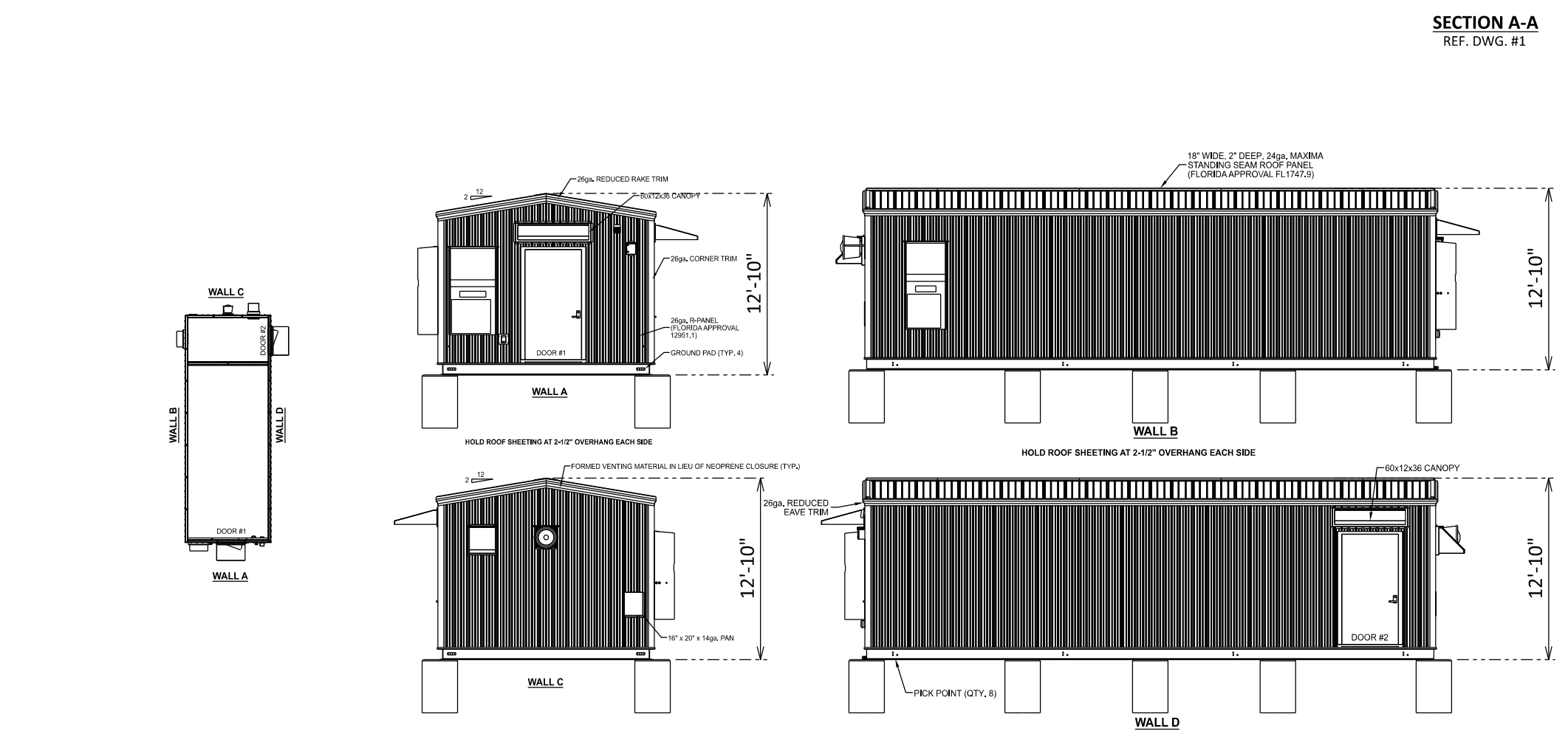
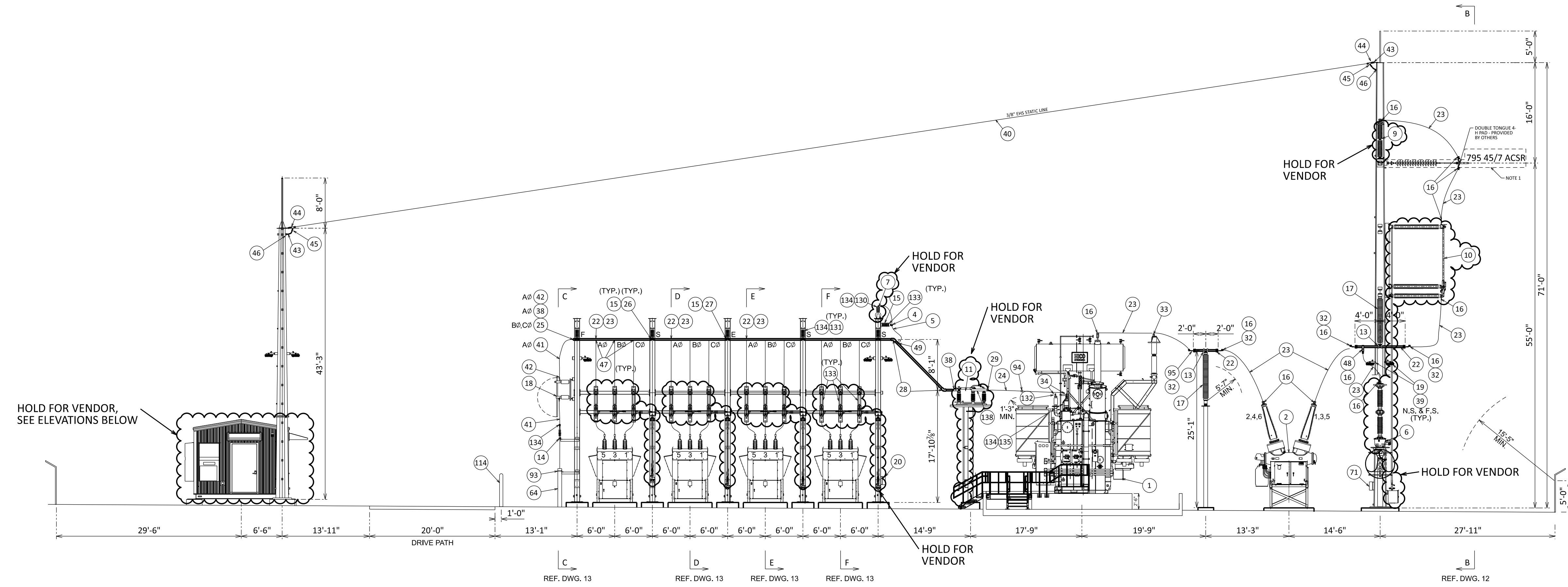
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A	23/AUG/24	ISSUED FOR PERMIT	RSN	BCA	OOO	OOO	BC

DESIGNER	BCA	DRAWN	RSN
CHECKED	OOO	DATE	23/AUG/24

BLACK & VEATCH
11401 LAMAR AVENUE
OVERLAND PARK, KANSAS 66211
DUKE ENERGY
 KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM
 SITE CONTROL CENTER ARCHITECTURAL PLAN
 5201 KNIGHTDALE EAGLE ROCK ROAD
 KNIGHTDALE, NC 27545

PROJECT	DRAWING NUMBER	REV
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CODE	AREA	

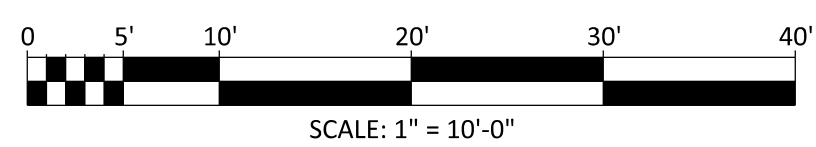


LEGEND:

- (XX) BOM ITEM NO. SEE REFERENCE DWG #7, #8 AND #9
- F FIXED BUS SUPPORT
- S SLIP BUS SUPPORT
- E EXPANSION BUS SUPPORT
- N.S. NEAR SIDED
- F.S. FAR SIDED

NOTES:

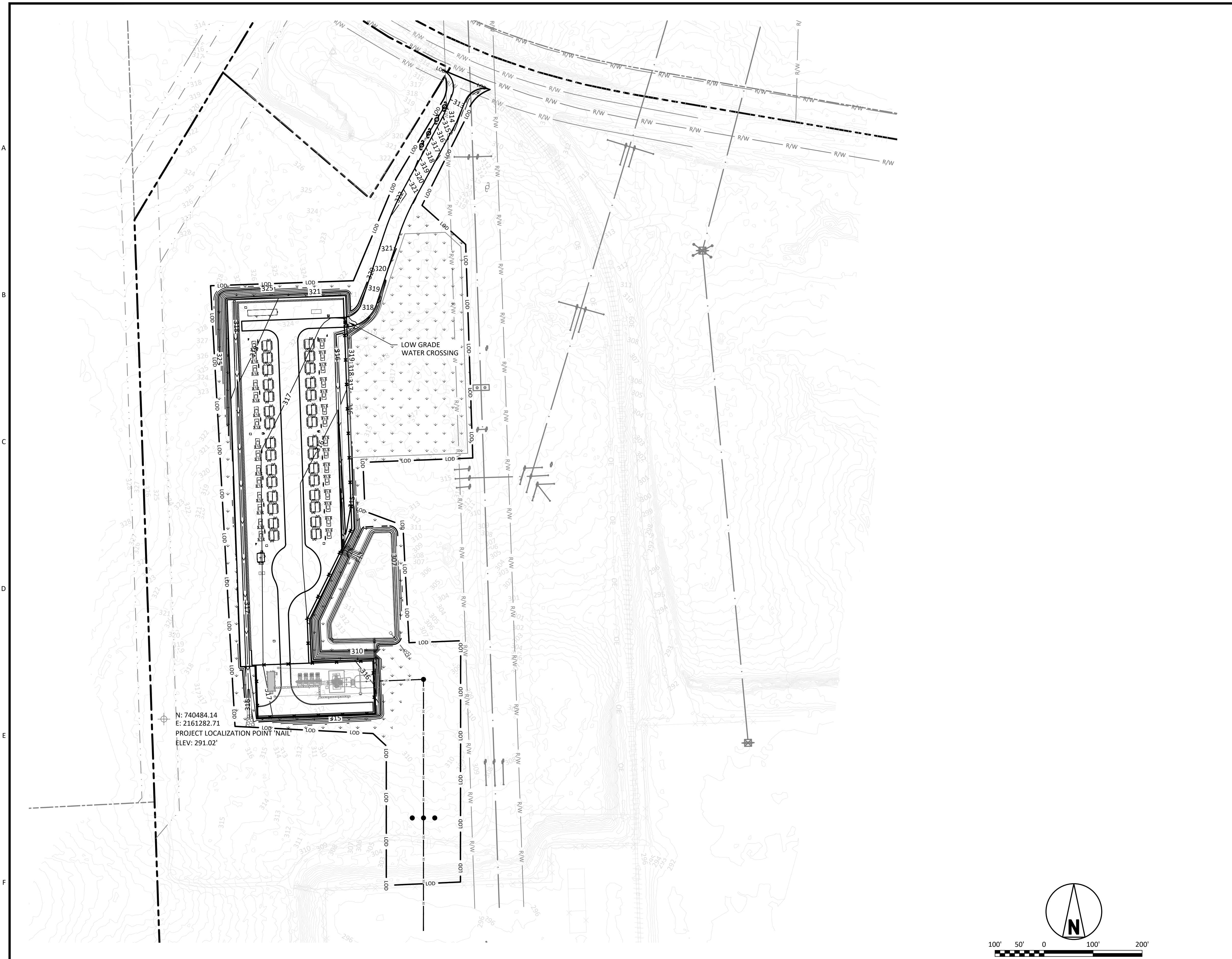
1. INCOMING LINE AND DEAD END EQUIPMENT PROCURED AND INSTALLED BY OTHERS.
2. ALL VERTICAL DIMENSIONS ARE FROM BOTTOM OF STEEL.
3. MAINTAIN 8'-6" CLEARANCE FROM THE BOTTOM OF BREAKER BUSHING TO THE TOP OF CONCRETE.



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DESIGNER: BCA CHECKED: FSA		DRAWN: BCA DATE: 10/JUN/24		BLACK & VEATCH		DUKE ENERGY		PROJECT: 419596 KND00-GA-M-SY.00.EV-01 DRAWING NUMBER: B		REV: B	
NO. DATE B 23/AUG/24 A 10/JUN/24		ISSUED FOR PERMIT ISSUED FOR 30% REVIEW		REVISIONS AND RECORD OF ISSUE		DRN DES CHK PDE APP		DUKE ENERGY KNIGHTDALE BESS ELECTRICAL ELEVATION VIEW 5201 KNIGHTDALE EAGLE ROCK ROAD KNIGHTDALE, NC 27545		CODE AREA	



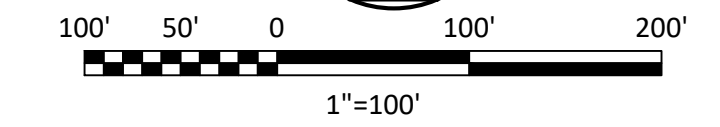
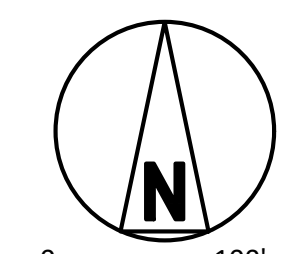
NOTES

LEGEND

- ADJACENT PARCEL BOUNDARY
- PROPOSED SECURITY FENCE
- EXISTING FENCE
- PROPOSED ROAD
- EXISTING TREE LIMITS
- EXISTING RAILROAD
- EXISTING OVERHEAD LINE
- PROPERTY BOUNDARY
- PROPOSED OVERHEAD ELECTRIC LINES
- EXISTING RIGHT-OF-WAY
- EXISTING FIBER OPTIC CABLE
- LIMITS OF DISTURBANCE
- EXISTING TREE LINE
- PROPOSED PERIMETER WALL
- PROPOSED VEGETATED SWALE
- EXISTING MINOR CONTOUR LINES
- EXISTING MAJOR CONTOUR LINES
- MINOR CONTOUR LINES
- MAJOR CONTOUR LINES
- RIP RAP

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NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN/DES/CHK/PDE/APP
A	22/AUG/2024	ISSUED FOR PERMIT	CLC/MJM/HG/USLD -

BLACK & VEATCH
 Building a world of difference®

DESIGNER: MJM DRAWN: CLC
 CHECKED: HGU DATE: 22/AUG/24

DUKE ENERGY DUKE KNIGHTDALE EPC
 KNIGHTDALE BATTERY ENERGY STORAGE SYSTEM

STORMWATER MANAGEMENT PLAN
 5201 KNIGHTALE EAGLE ROCK ROAD
 KNIGHTDALE, NC 27545

PROJECT	DRAWING NUMBER	REV
	419596 KND01-CV-C-GR.PL-01	A
CODE	AREA	

TIMBER MANAGEMENT DETAILS FOR DUKE ENERGY
5201 Knightdale Eagle Rock Rd, Knightdale, NC 27545

Prepared by:
Duke Energy
Derek Ware, RF
Timber Management
700 East Ritchie Road (0120-40)
Salisbury, NC 28146

The Knightdale timber stand was harvested in 2008, site prep sprayed in 2010, and replanted with genetically improved loblolly pine in 2011 making this timber stand 13 years old. Loblolly pines that are 13 years old will have a 6-to-9-inch diameter at breast height (DBH) range and be 27 to 33 feet tall. At age 15 to 17, trees should be 7-to-10-inch DBH and 30 to 40 feet in height. The first thinning should occur in the 15-to-17-year range. After thinning the remaining trees will have space, water, and nutrients needed to grow in diameter and height. At age 26, we will look to conduct a second thinning or final harvest depending on the timber market. At age 26, these trees should be in the 10-to-14-inch DBH and 45 to 60 feet tall.

The only trees over 12 inches in diameter on this entire site will be any trees that were left along the stream buffers during the original harvest. The project site is not along any streams. There should be no trees over 12 inches in the project area.

Figure 1: Year 1 – 10 Diameter Growth of Longleaf and Loblolly Pine

Age	Longleaf				Loblolly			
	DBH (in.)	Longleaf HGHT (ft)	LL Height PAI	LL Height PAI (3 yr inter)	DBH (in.)	Loblolly Height (ft)	Lob Height PAI	Lob Hght PAI (3 yr inter)
2	na	1.1	0.6		na	1.4	0.7	
3	na	3.1	2	1	na	3.6	2.2	1.2
5	1.9	8.8	2.9		1.8	9.6	3	
6	2.7	12.4	3.6		2.2	13.4	3.8	
7	2.9	16.8	4.4	3.3	3	18.7	5.3	3.6
8	3.2	18.7	1.9		3.4	20.4	1.7	
9	3.6	22.2	3.5		4	24.3	3.9	
10	4	25.2	3	2.8	4.5	27	2.7	2.8

Figure 2: Duke Timber Harvest Schedule

RESPONSIBLE FOREST MANAGEMENT– LIFE OF A TIMBER STAND

- Year 0 – Harvest
- Year 1 – Natural regeneration and weed growth
- Year 2 – Site Preparation and Planting – **Plant 545 Tree Per Acre (TPA)**
- Year 3 – Survival Check – **95% is 517 TPA**
- Year 4-14 – Grow – Some natural mortality
- Year 15 – 1st Thinning – Remove 20-30% of trees – **388 TPA**
- Year 17 – Understory Release or Prescribed Burn
- Year 17-25 – Grow
- Year 26 – Possible 2nd Thinning 30-35% or Final Harvest – **375 TPA**
- Year 27 – Thinning **250 – 275 TPA**
- Year 28-35 – Grow – Release or Prescribed Burn
- Year 36 – Final Harvest **240 – 260 TPA**

Reference Pictures

2-Year-Old Pine Tree



Reference Pictures Continued

**5-Year-Old Pine Tree
1-2 Inch DBH**



Reference Pictures Continued

**23-Year-Old Loblolly Pines
9-13 Inch DBH**



Timber Management Documents



AMERICAN FOREST
MANAGEMENT

8-20-2024

Wake 500 Management Plan				
Year	Activity	Stand(s)	Acres	Comment
2008	Clearcut	1	131	Completed
2009	Logging Checks	1	131	Completed
2010	Chemical Site Prep	1	131	Completed
2010	Chemical Site Prep final inspection	1	131	Completed
2011	Reforest with loblolly pine	1	130	Completed
2011	Reforestation Supervisions	1	130	Completed
2015	Monitor Stand Health	1	130	Completed
2019	Monitor Stand Health	1	130	Completed
2024-2025	5th row and between thin	1	130	
2025-2026	Mid-Rotation Woody Control	1	130	
2026	Ingrowth Inventory	1	130	

Question Please call

Eric S. Clark
NC Registered Forester #1019

WE'RE IN THIS
TOGETHER

TIMBER SALE AGREEMENT

Timber Sale No. 3- 2007
Wake 500KV Substation

NORTH CAROLINA

WAKE COUNY

THIS TIMBER SALE AGREEMENT (“Agreement”), made and entered into this 30th day of October, 2008, by and between CAROLINA POWER & LIGHT COMPANY, a North Carolina public service corporation d/b/a PROGRESS ENERGY CAROLINAS, INC., hereinafter referred to as “PEC” and “Seller”, and TRIANGLE FOREST PRODUCTS, INC. hereinafter referred to as “Buyer” (each, individually, a “Party,” and collectively, the “Parties”).

W I T N E S S E T H:

WHEREAS, PEC is the owner of certain land located in Marks Creek Township, Wake County, North Carolina, and being a portion of the land described in the following deed(s) to Carolina Power & Light Company:

GRANTOR	BOOK	PAGE	DATE
Phillip R. Whitley	1961	367	12/29/1970
Phillip R. Whitley	1966	134	1/15/1971
Milton M. Croom	2711	542	3/12/1979
Alma G. Smith	1900	1	10/20/1969
Wiley L. Robertson, et al.	1900	469	11/6/1969

WHEREAS, PEC desires to sell to Buyer all merchantable Timber (as defined hereunder) on portions of PEC’s Land as hereinafter described and Buyer agrees to cut and remove the same.

NOW THEREFORE, for and in consideration of the prices to be paid by Buyer to PEC as hereinafter provided, PEC has bargained and sold, and by these presents does bargain, sell, and grant unto Buyer the right to cut, remove, and own the Timber encompassing a **130.6 +/- acre** portion of the above-described Land as shown on the attached drawing labeled Exhibit “A”.

PEC and Buyer agree that this Agreement is subject to the following conditions:

1. All merchantable Timber to be cut and removed under this Agreement shall be located within **130.6 +/- acre**, the boundaries of which have been marked by PEC with red and orange paint and shown on Exhibit “A” (the

“Timber”). The trees marked to identify the sale boundaries are excluded from this Agreement. Old interior property line trees may be cut as directed by PEC.

2. PEC covenants with Buyer, its successors and assigns, that it is seized of the above-described Land and Timber thereon and has the right to sell the Timber.
3. Throughout the term of this Agreement the risk of loss of any or all of the Timber due to any cause shall be on the Buyer, except to the extent that such loss is proximately caused by the gross negligence of PEC, its employees or agents. PEC shall have no obligation to protect or maintain the Timber against any loss and shall not be required to perform, without limitation, such activities as constructing firebreaks, or protecting against trespass or theft.
4. The Buyer shall notify the PEC’s Designated Representative of the date and time of any Timber harvesting commencement or termination. The Buyer shall attend any meetings called by the Seller for the purpose of: i) pre-timber harvesting conference/information session; and/or ii) post-Timber harvesting inspection.
5. The period during which Buyer may remove the Timber from PEC's Land shall begin on the date of this Agreement and continue until and terminate on September 30, 2009. At all times during the performance of this Agreement, PEC reserves the right to enter the Land at any time and for any reason PEC deems necessary.
6. The Buyer shall abide by N.C.G.S. 113A-52.1 and 15 NCAC 11.0101 - .0209; Forest Practice Guidelines related to Water Quality as well as the North Carolina Division of Forest Resources Best Management Practices Manual as amended September, 2006.
7. All loading decks and delimiting devices shall be located at the direction of PEC. Severe rutting of the Land by logging equipment shall not be allowed. For clarity in interpretation, examples of severe rutting include: i) 10 inch ruts for a distance greater than 50 feet; or ii) 18 inch ruts for a distance greater than 30 feet; and iii) as the depth of the rut increases, the tolerable distance of the rut is reduced. Skidding of trees shall not be allowed on any access roads or fire lanes. Buyer’s obligations under this Agreement shall also include all slash removal from any right-of-way, adjoining land or property and any access roads.
8. PEC specifically classifies only the orange marked trees in the Stream Management Zone (“SMZ”) as Timber, and those orange marked trees (labeled SMZ/Sale on the Timber Sale Map) can be harvested by the Buyer. No logging equipment shall be allowed in the SMZ except where required to provide access to the sale area. Any felled trees that fall into an SMZ shall be immediately removed from the area. No loading decks shall be allowed in any SMZ area nor shall skidding of logs be allowed in any SMZ area.
9. The Buyer shall use the utmost care to minimize damage to trees that are not to be harvested in the SMZs or other designated areas including adjoining plantations and timber stands. If excessive damage occurs that could result in mortality to given trees, the Buyer shall be required to pay PEC a fee of \$25 /inch based on stump diameter at ground level for the damaged trees.
10. Upon execution of this Agreement, Buyer shall pay PEC for the Timber cut and removed from PEC’s Land based on the lump sum price of **two hundred thirty one thousand seven hundred and 00/100 dollars (\$ 231,700.00)**. To ensure compliance with the terms and conditions of this Agreement, Buyer shall provide a performance deposit in the amount of **five thousand dollars (\$ 5,000)** to be held by *American Forest Management, Inc.* until the completion of the harvest. Penalties for noncompliance with the terms and conditions of this Agreement shall not be limited to the amount of the performance deposit. Buyer shall protect PEC’s interests if the Access Road and/or the PEC Property is not satisfactorily repaired and returned to PEC as set forth herein. If Buyer fails to perform and complete its repair and restoration obligations hereunder, then PEC may (but is not required to) perform and complete such repair and restoration of the PEC Property or Access Road and may invoice Buyer accordingly to cover all reasonable costs incurred. Penalties for noncompliance with the conditions of this Agreement shall not be limited to the term of this Agreement.
11. Buyer shall at all times exercise the greatest possible care to minimize or reduce the fire hazard from any dry

brush, dead limbs, or laps that are left on the Land as well as from any other cause, and at the termination of the harvest operation shall leave PEC's Land in as good a condition as practicable in this and all respects. Buyer agrees to suppress immediately any fires originating from the acts or omissions of its employees, agents, or assigns and to reimburse PEC for any damage to the Timber or other property of PEC caused by such fires.

12. Buyer shall not contaminate soil with petroleum products or litter the area with petroleum cans, tire carcasses, food containers, etc. and shall drop all lodged trees and tops to the ground.
13. Buyer agrees to settle all timber or trespass claims involving other property owners in the event buyer crosses or otherwise makes use of property other than the timber sale area in conducting his operations or in the event buyer cuts beyond the timber sale boundary.
14. Buyer assumes all risks incident to the Timber harvesting and shall indemnify, defend, and save harmless PEC, its parent and affiliates, and their respective officers, members, managers, directors, shareholders, employees, contractors and agents, from and against any and all claims, damages, demands, legal or administrative actions (formal or informal), expenses (including reasonable attorneys' fees and court costs), and liabilities (whether or not such liability has been judicially determined) for loss of or damage to property (including environmental damages and hazardous or toxic waste clean up) of Buyer, PEC, or others, and injuries to or death of all persons, howsoever resulting, by reason of Buyer's Timber harvesting; provided, however, that if the loss of or damage to property, or injury to or death of persons, results solely from the gross negligence of PEC, then Buyer shall not be liable.
15. Before entry upon any PEC Land (and for the duration of the Agreement and at no additional cost to Owner), Buyer shall provide to PEC, upon its request, written proof that the following types of insurance coverage covering personal injury and property damage are in full force and effect insuring the persons and/or entity making the entry:
 - (a) Commercial general liability insurance or comprehensive general liability insurance with a minimum limit of \$1,000,000 per occurrence for bodily injury and damage to property including contractual liability, premises/operations, products/completed operations, independent contractors, broad form property damage, and personal injury and a minimum aggregate amount of \$2,000,000 or commercial/comprehensive general liability insurance plus additional excess umbrella liability insurance to meet these limits.
 - (b) Comprehensive automobile liability insurance with a minimum combined single limit of \$1,000,000 per accident for bodily injury and damage to property, or covering bodily injuries or death in a sum not less than \$500,000 per person and \$1,000,000 per accident and covering damages to property in a sum of at least \$250,000 per accident or comprehensive automobile liability insurance plus additional excess umbrella liability insurance to meet these limits. This insurance shall apply to any auto, whether owned or non-owned.
 - (c) Workers' compensation insurance as specified by state law in each state where work is to be performed; when workers' compensation is required, Contractor shall also provide employer's liability insurance in the minimum amount of \$500,000 each accident and \$500,000 per employee for bodily injury by disease with a disease policy aggregate of \$1,000,000, or employer's liability insurance plus additional excess umbrella liability insurance to meet these limits.

All such coverages shall be primary. Buyer agrees that: i) it shall add PEC, its officers, employees, agents and shareholders on Buyer's liability insurance policies as additional insureds; and ii) Buyer shall require its insurance carrier or agent to certify that the coverage will not be canceled or changed until thirty (30) days after written notice is given PEC. If any mechanics' lien, materialmen's lien, or similar lien, is asserted or filed against PEC property as a result of any activities by Buyer or its employees, agents, or contractors, Buyer shall immediately satisfy, defend, or obtain the release of such lien, all at Buyer's expense. Buyer shall indemnify, defend, and hold harmless PEC from any claims or losses arising out of or connected with any such lien. Buyer's indemnity

obligations under this Section shall survive the expiration or sooner termination of this Agreement.

16. Buyer shall have the right of ingress and egress over the Land for the purpose of cutting and removing the Timber. Access roads constructed by PEC must at all times remain passable, both during and following Buyer's operation. Buyer shall take all necessary measures to leave access roads in as good or better condition than prior to the Timber harvest. All additional access roads constructed must be approved in advance by PEC. The Buyer shall place "Caution" signs along both sides of any access road to warn oncoming traffic that vehicles are using an access road entrance.
17. It is the intent of the Parties to create between them the relationship of owner and independent contractor. It is agreed that nothing shall operate to change or alter such relationship, except a further agreement in writing between the Parties.
18. Buyer and its subcontractors, if any, shall observe and abide by all applicable laws, federal, state and local, and the rules and regulations of any lawful regulatory body acting thereunder in connection with the Work. Without limiting the foregoing, Carrier agrees to comply with applicable provisions of: The Americans with Disabilities Act, Fair Labor Standards Act of 1938, Executive Order No. 11246, the Rehabilitation Act of 1973, the Vietnam Veterans Readjustment Act of 1974, as amended, the Immigration Reform and Control Act of 1986, the Occupational Safety and Health act of 1970 and the regulations and standards issued thereunder, the Unemployment Compensation Act, and the Social Security Acts.
19. If Buyer should fail to comply with any of the provisions of this Agreement and PEC has informed Buyer of such non-compliance, then Buyer shall have three (3) days in which to correct the same; provided, however, if correction of such non-compliance is not accomplished by Buyer within the three (3) days, then PEC, in PEC's sole discretion, reserves the right to suspend all of the Timber harvesting under this Agreement until the non-compliance has been corrected by the Buyer to PEC's satisfaction. Should Buyer fail to remedy its non-compliance after any suspension, immediately, PEC, in its sole discretion, may: i) where Buyer's non-compliance is due to weather related or other factors outside of Buyer's reasonable control ("Force Majeure") and Buyer provides written justification to PEC within three (3) days of any Force Majeure, extend the Agreement for a reasonable amount of time to allow Buyer the opportunity to cure the non-compliance; ii) correct the non-conformity itself or hire others to do so, and all costs incurred by PEC shall be paid by Buyer; or iii) in the absence of any Force Majeure, immediately terminate the Agreement with no further notice to Buyer. In the event PEC terminates the Agreement under this Section, Buyer's performance deposit or surety bond provided under Section 9 of this Agreement shall, at PEC's sole discretion, be liquidated to compensate PEC for any direct, indirect or consequential damages incurred as a result of Buyer's non-compliance and subsequent termination.
20. Neither Party may assign or subcontract any portion of this Agreement without first submitting the proposed subcontract or assignment to PEC's Designated Representative and receiving written consent from PEC's Designated Representative to assign or subcontract. Any assignment without the consent of PEC shall be void. A request to assign or subcontract must contain the name and location of individuals or firms to whom performance obligations will be subcontracted or to whom the Agreement is to be assigned, and information on the qualifications and experience of those individuals or firms to perform the obligations. Any consent to assignment or subcontracting will not relieve Buyer of responsibility for Buyer's performance in accordance with the terms and conditions of this Agreement.
21. The Parties shall designate and provide to each other from time to time the names and contact information for their designated representatives to be the liaisons in connection with this Agreement (each, a "Designated Representative"). No agreement with PEC's Designated Representative shall affect or modify any of the terms or obligations contained in this Agreement except as set forth in the form of written changes approved by both Parties. The Parties, upon due notice per the terms of this Agreement, may change their Designated Representative.

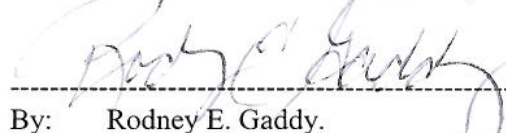
22. All notices or other communications permitted or required pursuant to this Agreement shall be in writing and mailed by certified mail, return receipt requested, sent by receipted overnight courier, or sent by electronic mail or facsimile (receipt of which is confirmed) to the Party at the address and to the attention as set forth below. Notices shall be deemed given three (3) days after deposit in the U.S. mail postage prepaid, if sent by certified mail, or when received or receipt is refused if sent by receipted overnight courier. Notices given by electronic mail or facsimile shall be deemed given on the date sent provided that such notice is given on a business day prior to 5:00 p.m., recipient's local time; otherwise such notice shall be deemed given on the next business day. The foregoing delivery addresses, facsimile information and recipients may be changed by either Party by notice pursuant to this Section.

If to Buyer:
Triangle Forest Products, Inc.
1708 Petty Farm Rd.
Cary, NC 27519
Attn: Harry Scott
Facsimile #: (919) 469-4910

If to PEC:
Progress Energy Carolinas, Inc.
P.O. Box 1551, PEB 3A
Raleigh, NC 27602
Attn: Forester, Corporate Services
Facsimile: (919) 546-4612

IN WITNESS WHEREOF, PEC and Buyer have caused this Agreement to be executed by their officers hereunto duly authorized, all as of the day and year first above written.


PROGRESS ENERGY CAROLINAS, INC



By: Rodney E. Gaddy.
Vice President-Corporate Services

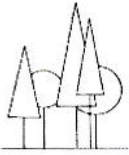
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TRIANGLE FOREST PRODUCTS, INC.



By: Teresa E. Phillips

Title: Corp Sec.



Progress Energy
 Wake 500 Substation Timber Sale
 Wake County, NC
 Scale: 1 inch = 10 chains

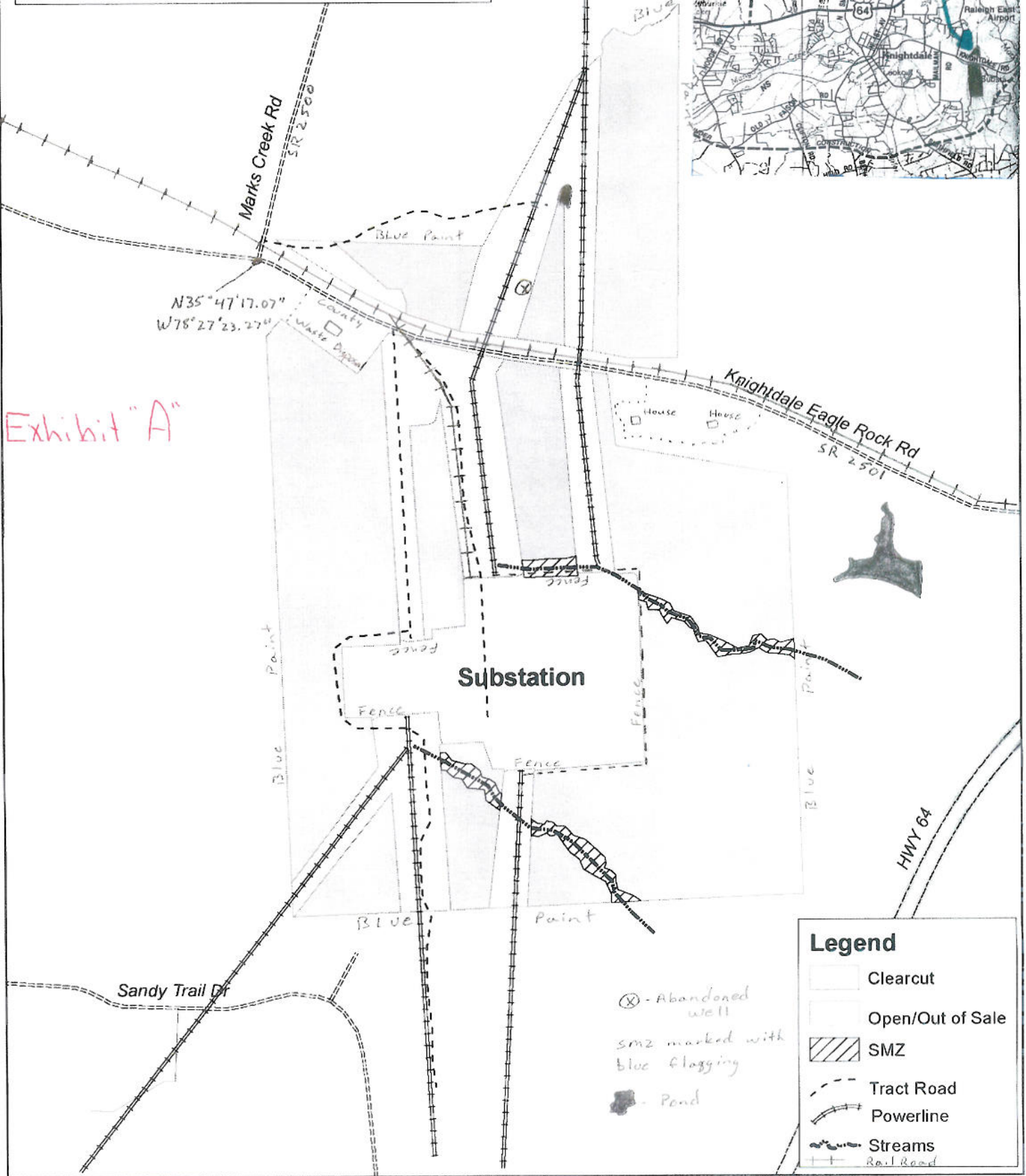


Exhibit "A"

Legend	
	Clearcut
	Open/Out of Sale
	SMZ
	Tract Road
	Powerline
	Streams
	Rail Road
	Abandoned well
	SMZ marked with blue flagging
	Pond

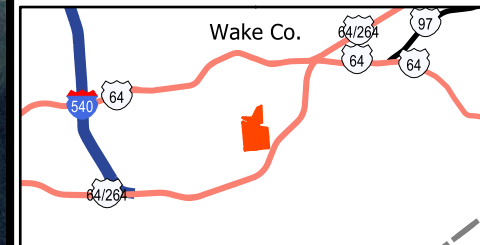
WAKE 500 SUBSTATION

COUNTY: WAKE

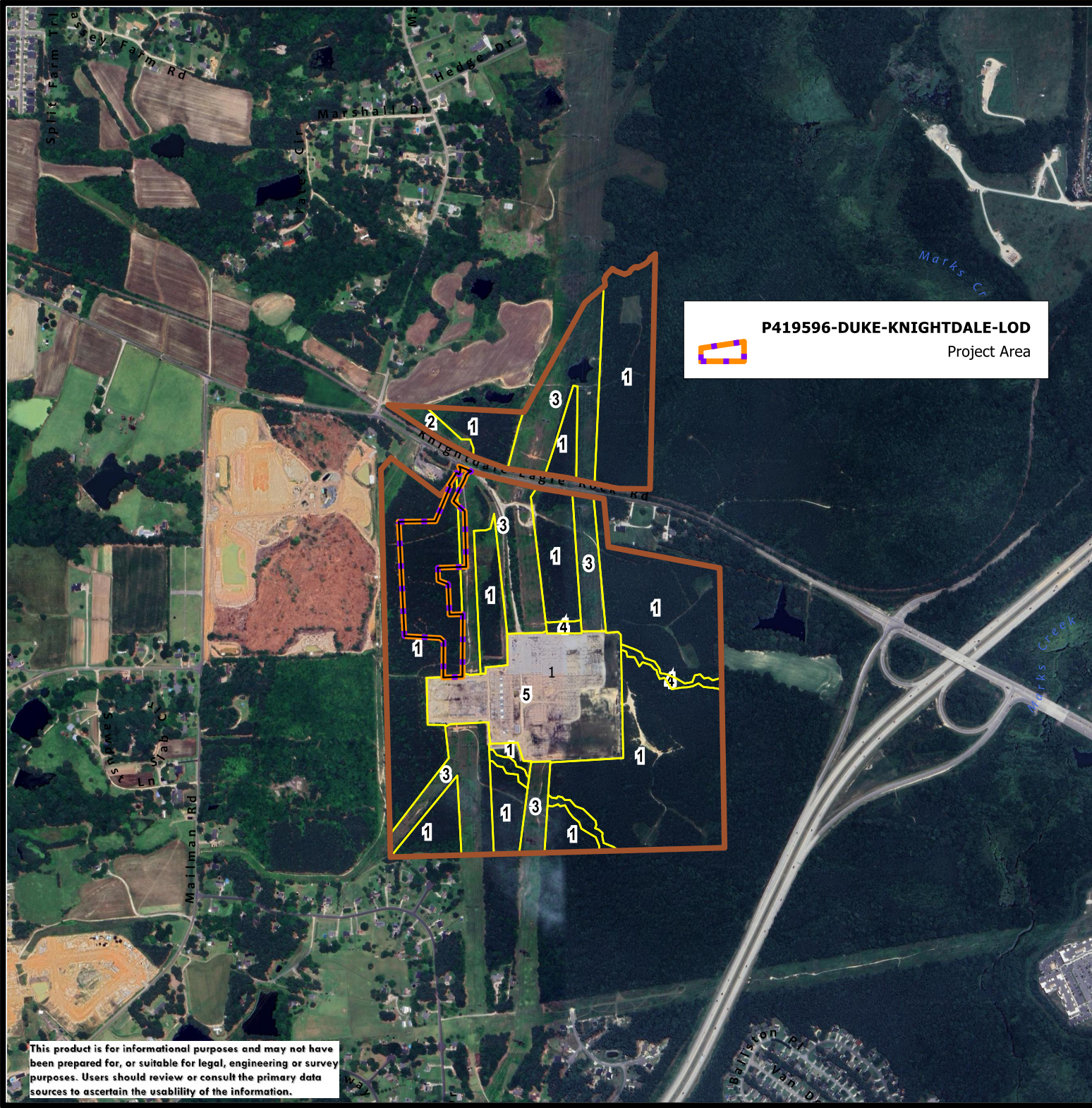
STATE: NC

ACRES: 203.3

American Forest Management, Inc.
www.americanforestmanagement.com



P419596-DUKE-KNIGHTDALE-LOD
Project Area



STAND	DOM_S_NAME	YEAR_EST	ACRES
1	LOBLOLLY PINE	2011	127.7
2	UNDEFINED	0	1.7
3	UNDEFINED	0	43.4
4	PINE/HARDWOOD	1950	3.6
5	UNDEFINED	0	26.9
			TOTAL ACRES = 203.3

This product is for informational purposes and may not have been prepared for, or suitable for legal, engineering or survey purposes. Users should review or consult the primary data sources to ascertain the usability of the information.



American Forest Management, Inc.
Cypress™ Timber Management Software
Stand Volume Summary

MON 28-SEP-2015 03:17 PM

As of: 09/28/2015

Page 2 of 2

All volume in US TONS

Data Source: Live (PROD2)

Client: DUKE ENERGY

Fund: DUKE ENERGY PROGRESS

Property: FAYT 500KV SUBSTATIONS

Tract Code: 20000027

Tract Name: WAKE 500 SUBSTATION

Comp	Std Desc	Acres	Year			Pine						Hardwood			Cypress						
			Est	SQ	Ht	TPA	BA	Pulp	CNS	Saw	Tot	TPA	BA	Pulp	Saw	Tot	TPA	BA	Pulp	Saw	Tot
1	1 LBURPY2P	127.71	2011	63	0.0	536.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2 UDOPOYNP	1.70	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3 UDPLONNP	43.42	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	4 PHBLNN5P	3.62	1950	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5 UDSSONNP	26.94	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grand Total:		203.39																			

Note: TPA, BA, Pulp, CNS, Saw and Tot are per area values for the stand. The Pulp column may include topwood volume.

STATE OF NORTH CAROLINA)
)
COUNTIES OF CARTERET, CHATHAM,)
CRAVEN, HOKE, LENOIR, PENDER,)
SAMPSON, WAKE)

AN AGREEMENT entered into this _____ day of January, 2011, by and between American Forest Management, Incorporated, Consulting Foresters, hereinafter called FORESTERS, and Carolina Timberland Services, Inc., hereinafter called INDEPENDENT CONTRACTOR,

WITNESSETH:

1. That on the terms and conditions hereinafter set forth, the INDEPENDENT CONTRACTOR contracts and agrees to perform certain work for landowners at the request of FORESTERS, which work shall consist of the following:

(1) Flat plant Loblolly Pine on a 8 foot by 10 foot spacing, (2) Plant Loblolly Pine 5' to 6.5' feet apart along beds (depending on the widths of beds) (3) Flat plant Longleaf Pine on a 10 foot by 10 foot spacing; and as described in more detail on the Addendum and plant maps.

2. It is agreed between the parties hereto that the above described work shall take place on real property as designated by FORESTERS. Said real property shall be land belonging to clients of FORESTERS on which FORESTERS have been authorized by the landowner to act as agent. No work shall be performed on land belonging to FORESTERS. INDEPENDENT CONTRACTOR shall be provided with a work order prior to each job.

3. It is agreed between the parties hereto that FORESTERS shall determine and mark, if necessary, the boundaries of the above described property beyond which the within described work to be performed by INDEPENDENT CONTRACTOR

shall not extend, and it will be the responsibility of the INDEPENDENT CONTRACTOR to inspect such marking prior to commencing work and to notify FORESTERS if, in the opinion of INDEPENDENT CONTRACTOR, the marking is not adequate. It is further agreed between the parties hereto that should INDEPENDENT CONTRACTOR perform work beyond said boundaries, either intentionally or unintentionally, the INDEPENDENT CONTRACTOR shall then, in that case, be liable to the landowner, adjacent property owners or third parties for any and all damages, including but not limited to personal injury and property damage to both real and personal property (including fixtures attached thereto) which might arise from the aforementioned traversal of marked boundary lines by INDEPENDENT CONTRACTOR.

4. It is agreed between the parties hereto that no relationship of master and servant nor agency shall exist as a result of the Agreement. It is further agreed between the parties hereto that should INDEPENDENT CONTRACTOR cause any damage to any third parties, either intentionally or unintentionally, the INDEPENDENT CONTRACTOR shall then, in that case, be solely responsible for same and shall hold FORESTERS and landowner harmless from any such liability or damages so arising.

5. It is understood and agreed upon by the parties hereto that all work is done for the landowner client of FORESTERS and that the landowner is responsible for payment to the INDEPENDENT CONTRACTOR. The FORESTERS shall submit all bills to the landowner for the INDEPENDENT CONTRACTOR. The INDEPENDENT CONTRACTOR hereby agrees not to submit bills directly to the

landowner client of FORESTERS unless authorized in writing by FORESTERS. Billings shall be made for identifiable contiguous work areas and shall generally be made only for completion of significant phases of the entire planned project. Payment of bills to the landowner clients of FORESTERS shall be made payable to American Forest Management, Inc. Services Trust Account. Upon receipt of payment for billing, funds will be held by FORESTERS in escrow. FORESTERS will authorize payment of escrowed funds to INDEPENDENT CONTRACTOR as significant phases of the planned project are completed. It is agreed between the parties that if the INDEPENDENT CONTRACTOR does not complete the described work, the FORESTERS' client landowner shall pay the INDEPENDENT CONTRACTOR sixty-five percent (65%) of the value of those phases completed unless other arrangements are made in writing. The FORESTERS may, at their discretion, pay a greater amount depending on the utility of the work area. The remaining thirty-five percent (35%) shall be paid upon completion of the entire planned project.

6. It is agreed between parties hereto that INDEPENDENT CONTRACTOR shall use any and all equipment necessary to effectuate the performance of his work, unless otherwise agreed between the parties in writing by Addendum to this Agreement.

7. It is agreed between the parties hereto that INDEPENDENT CONTRACTOR shall be compensated for his work as set forth on attached Addendum.

8. It is agreed between the parties hereto that INDEPENDENT CONTRACTOR shall use his own tools and equipment or those the INDEPENDENT CONTRACTOR rents or leases to perform the within described work.

9. It is agreed between the parties hereto that INDEPENDENT CONTRACTOR shall use his best judgment, based on his professional experience, in performing the within described work and shall not be under the direct day-to-day supervision of FORESTERS.

10 . It is understood between the parties hereto that INDEPENDENT CONTRACTOR operates a distinct line of business from that of FORESTERS, that being the reason and purpose of this Agreement.

11. It is agreed between the parties hereto that it is the intent of the parties to herein create the relationship of Employer's Agent-Independent Contractor, any provisions of this Agreement and/or any oral or tacit understanding between the parties to the contrary notwithstanding.

12. It is agreed between the parties hereto that any work, whether funded or not funded by any cost share program, must comply with the North Carolina Forest Service Site Preparation Guidelines and Best Management Practices (BMP) unless specifically directed otherwise in writing by FORESTERS.

13. It is agreed between the parties hereto that INDEPENDENT CONTRACTOR will maintain, at his own expense, insurance in such amounts as follows:

A. General liability insurance coverage (\$1,000,000 limits of liability as to each occurrence and the aggregate to cover both bodily injury and property damage):

- (1) Comprehensive
- (2) Premises - Operations
- (3) Products/Completed Operational Hazard
- (4) Contractual Insurance
- (5) Personal Injury

B. Automobile insurance coverage (\$50,000 limits of liability as to bodily injury/each person and \$100,000 bodily injury/each occurrence, and \$10,000 property damage):

- (1) General Liability
- (2) Uninsured Motorist
- (3) Under-insured Motorist
- (4) Hired/Non-owned Liability

C. Worker's compensation and Employer's liability insurance in the amount of \$100,000 each accident.

14. In the event of lapse or cancellation of the above insurance coverage, the INDEPENDENT CONTRACTOR must notify FORESTERS immediately and all work will cease immediately.

15. Terms of the agreement will automatically renew for the next year and subsequent years unless terminated by either party, FORESTERS or INDEPENDENT CONTRACTOR, in writing.

GIVEN under the hands and seals of the parties hereto, the day and year first above written.

SIGNED, SEALED AND DELIVERED
IN THE PRESENCE OF:

Witness:

_____ AMERICAN FOREST MANAGEMENT, INC.

_____ By _____
FORESTERS

Witness:

_____ CAROLINA TIMBERLAND SERVICES, INC.

_____ By _____
INDEPENDENT CONTRACTOR

ADDENDUM Page 1

1. Contractor shall complete tree planting within specified schedule and rates:

Flat plant loblolly pine 01/6/11-3/31/11 \$41.00/Acre ±1,160 Total Acres
Plant Beds loblolly pine 01/6/11-3/31/11 \$41.00/Acre ± 81 Total Acres
Flat plant Longleaf pine 01/6/11-3/31/11 \$41.00/Acre + 104 Total Acres

Owner	Tract	Estimated Acres	Species to Plant	Trees per Acre	County
AMB-LLC	Weyco	100	Longleaf (FDP Cost Share)	436	Sampson
David Carlson	Rockfish Tract	4 to 6	Longleaf (FDP Cost Share)	436	Hoke
Progress Energy-Harris Plant Lands	Brick Plant	72	Loblolly	545	Wake
Progress Energy-Harris Plant Lands	West Auxillary Lake	136	Loblolly	545	Wake
Progress Energy-Harris Plant Lands	North Christian Chapel Road	220	Loblolly	545	Chatham
Progress Energy-Harris Plant Lands & Harris Power Agency	Christian Chapel	271	Loblolly	545	Chatham
Progress Energy-Harris Plant Lands & Harris Power Agency	Boat Ramp B	168	Loblolly	545	Wake
Progress Energy-500Kv	Wake 500	130	Loblolly	545	Wake
Progress Energy-Non 500 Kv	Kinston Sub	19	Loblolly	19	Lenoir
Progress Energy-Non 500 Kv	Craven Sub	117	Loblolly	545	Craven
Progress Energy-Non 500 Kv	Wildwood	27	Loblolly	545	Carteret
FIA-Brunswick Timber Co-Tarheel Mgt Unit	Coffey Complex	81	Loblolly	545	Sampson/ Pender

2. Contractor will pick up and handle seedlings from the nursery to the planting site. Contractor will provide cold storage. Contractor will provide covered van storage on site during planting operations.
3. Contractor shall only transport and store seedlings to be planted in one day.
4. Contractor shall provide for proper treatment of seedlings on the site to protect from heating and drying of seedlings.

- Contractor shall plant the entire area shown as Indicated on the Tract Maps in Exhibit "A", except Contractor shall not plant any roads shown on the Tract Map or the outer 10 feet width of any fire lanes on the perimeter of the Property.

ADDENDUM Page 2

6. Flat Plant Loblolly

Contractor shall plant all seedlings at a spacing of 10 feet between rows of seedlings and 8 feet between seedlings in rows. Contractor shall plant 545 trees/acre and guarantee at least 517 correctly planted trees per acre and not more than 571 trees per acre. If the number of planted trees falls outside of the above range the tract will be considered unsatisfactorily planted and a percentage deduction to the invoice will be equal to the percent the number of correctly planted seedlings deviates from 545.

$$\{(Number\ of\ correctly\ planted\ seedlings - 545)/545\} \times 100 = \text{percent deduction, or}$$
$$\{(545 - Number\ of\ correctly\ planted)\}/545 \times 100 = \text{percent deduction}$$

Bed Plant Loblolly

Contractor shall plant 545 trees/acre and guarantee at least 517 correctly planted trees per acre and not more than 571 trees per acre. If the number of planted trees falls outside of the above range the tract will be considered unsatisfactorily planted and a percentage deduction to the invoice will be equal to the percent the number of correctly planted seedlings deviates from 545.

$$\{(Number\ of\ correctly\ planted\ seedlings - 545)/545\} \times 100 = \text{percent deduction, or}$$
$$\{(545 - Number\ of\ correctly\ planted)/545\} \times 100 = \text{percent deduction}$$

Flat Plant Longleaf

Contractor shall plant 436 trees/acre and guarantee at least 414 correctly planted trees per acre and not more than 458 trees per acre. If the number of planted trees falls outside of the above range the tract will be considered unsatisfactorily planted and a percentage deduction to the invoice will be equal to the percent the number of correctly planted seedlings deviates from 436.

$$\{(Number\ of\ correctly\ planted\ seedlings - 436)/436\} \times 100 = \text{percent deduction, or}$$
$$\{(436 - Number\ of\ correctly\ planted)/436\} \times 100 = \text{percent deduction}$$

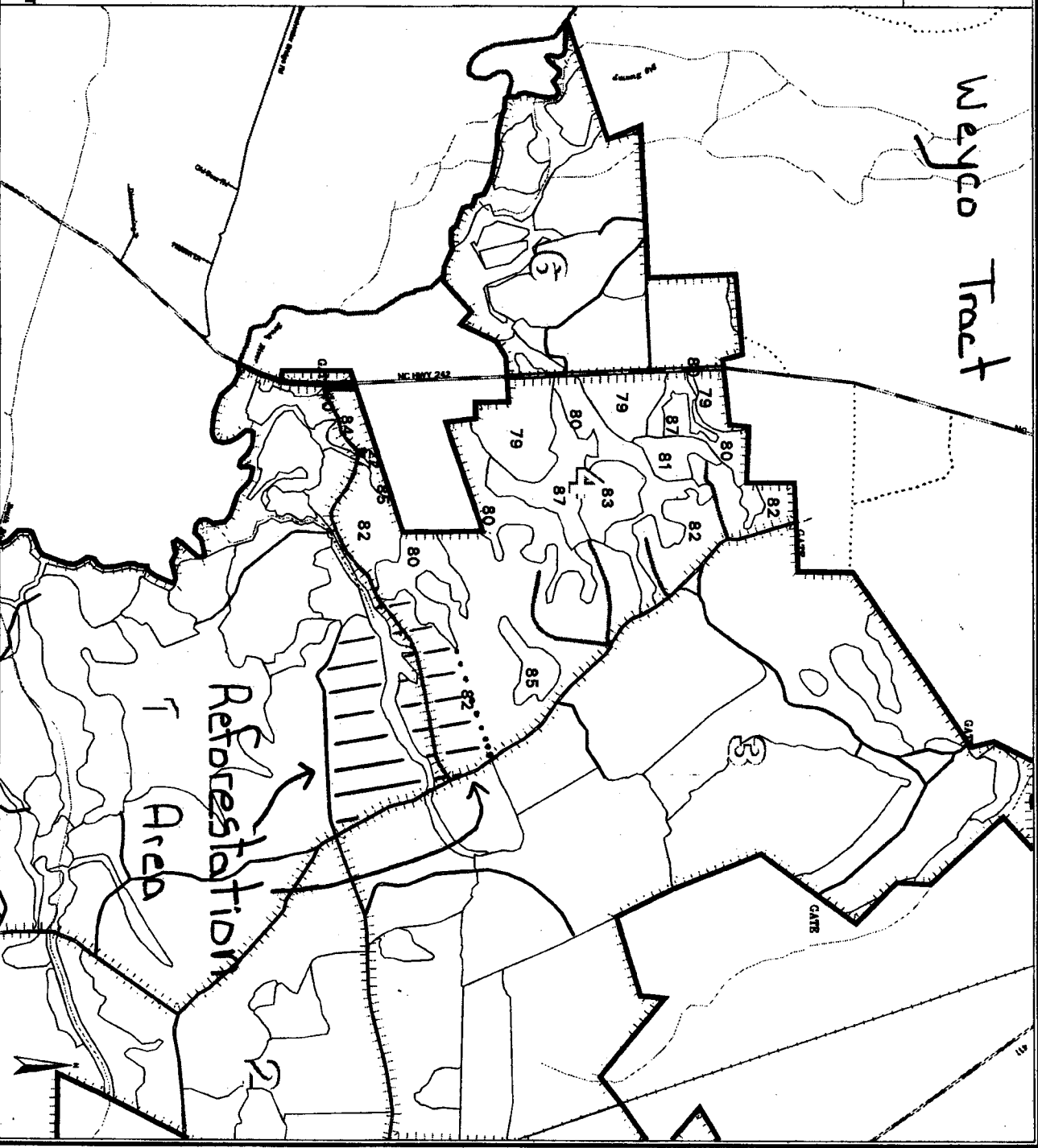
- Contractor shall plant only healthy trees.
- Contractor shall not plant-frozen seedlings, seedlings that have been frozen, nor frozen ground.
- Contractor shall plant the seedlings in such a manner that all parts of the seedlings inserted into the ground will be directed downward (avoid leaning). Contractor shall plant seedlings in the ground in their natural positions at or slightly below the depth at which they were grown at the nursery.
- Contractor shall close the earth around all seedlings tightly and in a manner to ensure that the soil around each seedling is level with the ground level of the terrain surrounding that seedling.
- Contractor shall plant the seedling in the soil, not in root mats or other such debris.

BDM - BOARDMAN-AND, LLC
 Date: 24-Jun-10
 Tract No: 50005077
 Compartment: 4
 County: SAMPSON
 State: NC
 Scale: 1 in = 30 chains

STAND INFORMATION

Comp	Std	Description Est Yr	Acres
4	22	UDPCONNU	0.2
4	79	LBURPVU 1988	53.6
4	80	PHIRVNAU 1980	88.5
4	81	LBURPVU 1986	10.2
4	82	LBURPVU 1988	203.1
4	83	HVWVNNH1986	16.9
4	84	LLURPVU 2008	7.9
4	85	HVBYNMA1980	12.6
4	87	PHBYNNAU 2007	32.1
4	140	LBURPVU 1988	3.9
4	887	UDPLONNU	0.7
4	888	UDPCONNU	0.7
Total			447.6

Flat Plant
 Longleaf Pine
 +/- 436 Trees per Acre
 +/- 100 Acres



AMERICAN FOREST MANAGEMENT
 Charlotte, NC Phone: 770-632-7478
www.americanforestmanagement.com

This map is for planning purposes only.
 Date is in Albers Equal Area projection.

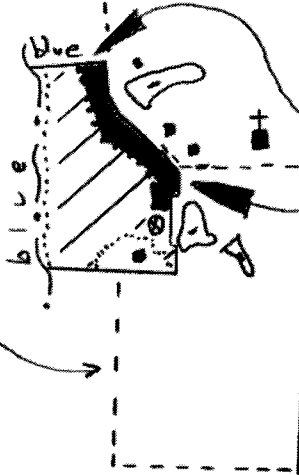
- Interstate Highway
- State Highway
- County Road
- County Grade Road
- Wood Trail
- Parental Stream
- Intermittent Stream
- Railroad
- Utility RW
- County Boundary
- Component Boundary
- Component
- Undeveloped Area
- Outcrop
- Water Body

Exhibit "A"

S.R. 1425



Not an access
Shown for reference



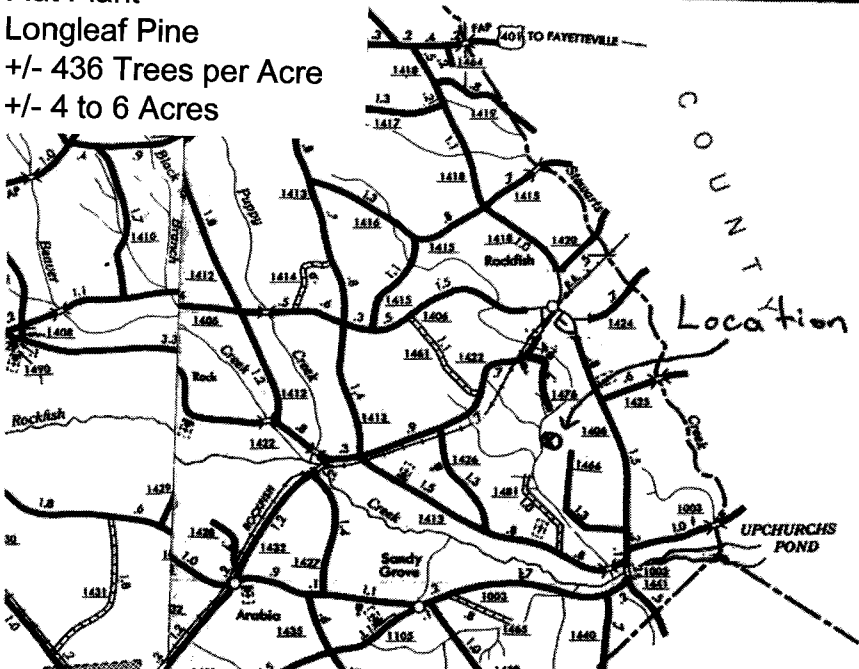
+6 Acres
Reforestation

S.R. 1466

S.R. 1406

⊗ Trees with blue "X"
are not in Sale Area

Flat Plant
Longleaf Pine
+/- 436 Trees per Acre
+/- 4 to 6 Acres



Property of
David Carlson
TRACT MAP
County Hoke State NC
SCALE: 1 inch = 1,320 feet

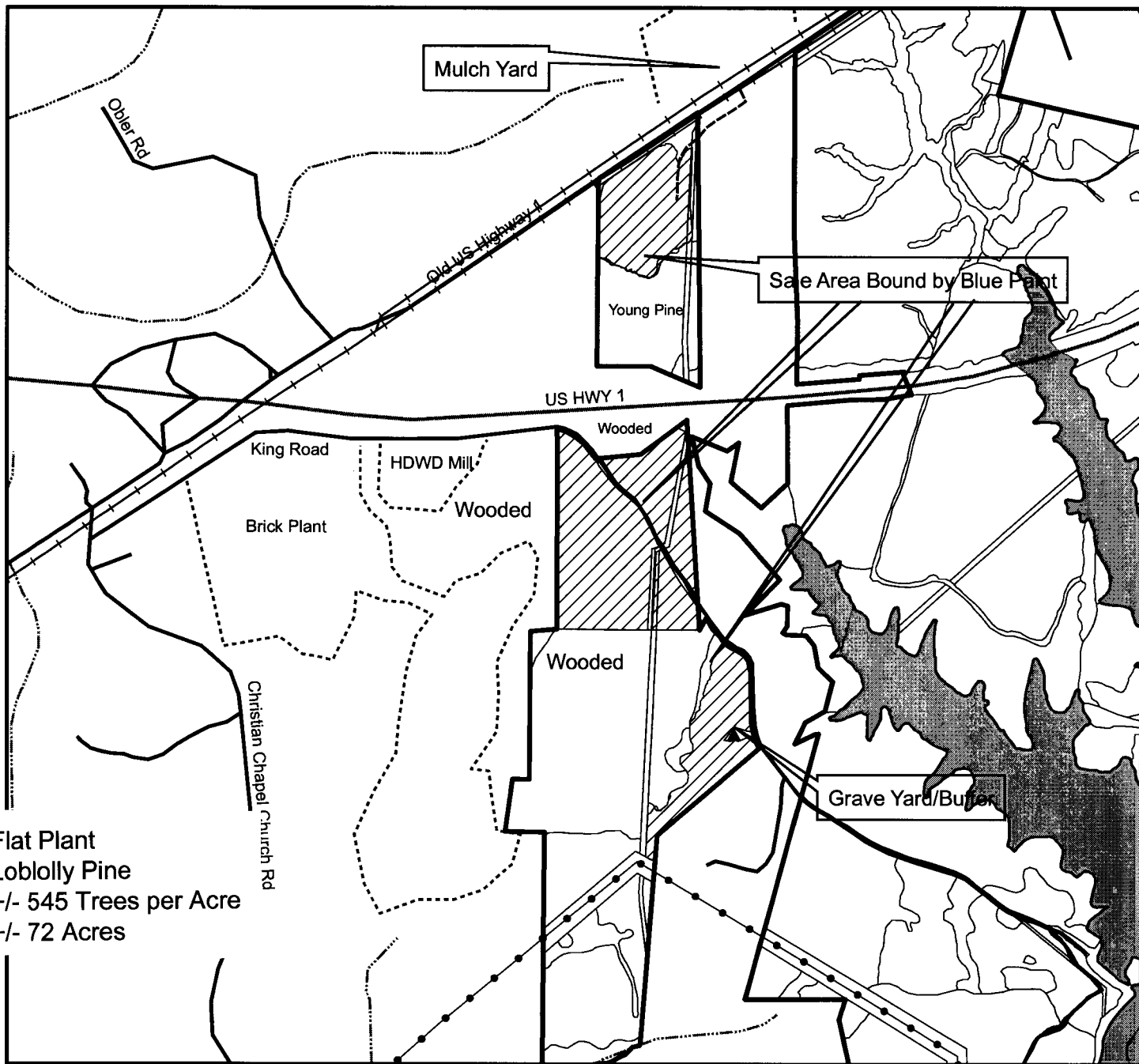
LEGEND

- Sale/Cutting Area(s)
- Property Boundary
- General Type Boundary
- Primary Paved Highway
- Secondary Paved Highway
- County or Improved Road
- Unimproved or Old Road
- Access Lane
- Ditch, Canal, or Stream
- Bridge or Pipe
- Fences
- Railroad
- Power Line Right-of-Way
- Landmark Buildings
- Irrigation Pond
- Stand Acreage
- Stand Designation

AMERICAN FOREST MANAGEMENT, INC.

By [Signature]
NC Reg. For. Lic. No. 1019
 Date 2/20/09

Harris Plant Lands Comp 1 Sale 7 - 2009



Legend

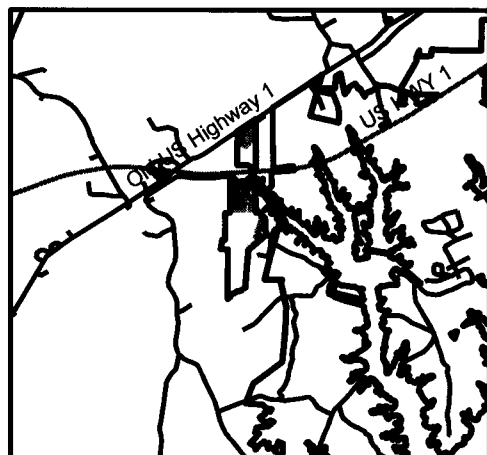
- Grave Yard
- Hydrology
- Railroad
- Utility
- Lake
- Timber Sale 7 Harris Comp1
- Property Boundary

N

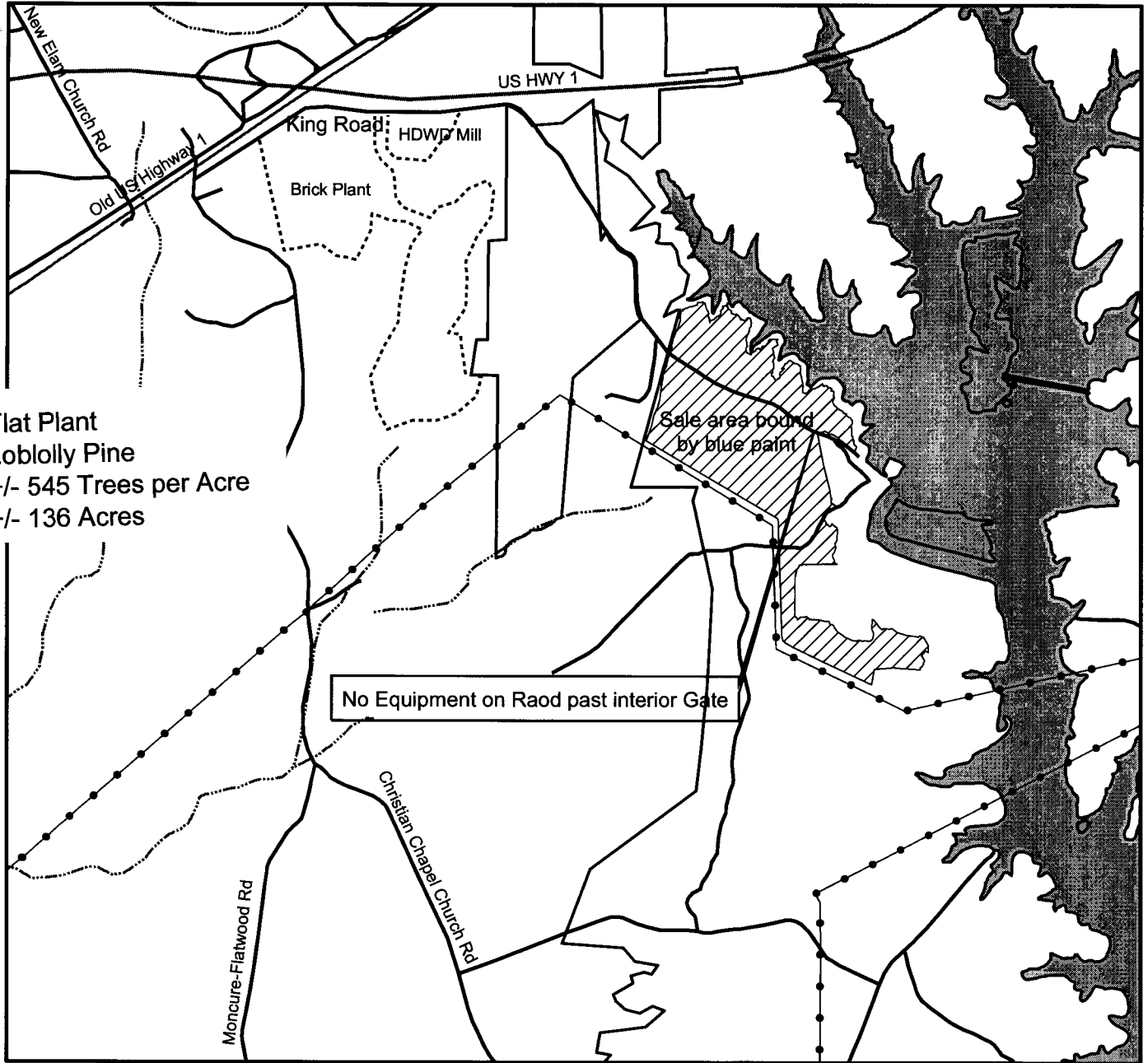
0 1,320 Feet

1 inch equals 1,320 feet

Progress Energy Carolinas
Sale 7 - 2009 Brick Plant Comp 1
Chatham County, NC
72 +/- Acres
Clear Cut



Progress Energy Sale 8-09 West Aux Lake, Harris Lands Comp. 6



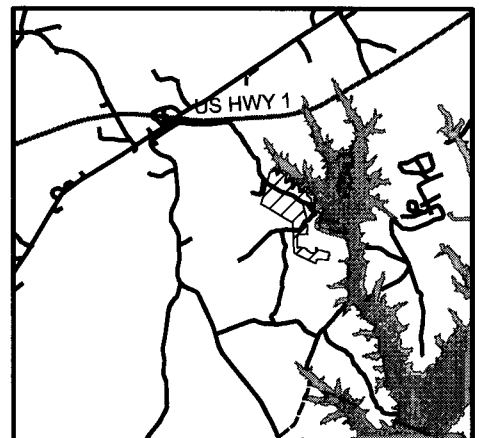
Legend

- Aux. Lake Timber Sale
- Hydrology
- Rail Roads
- Utilities
- Property Boundary
- Lake



0 1,960
 Feet
 1 inch equals 1,980 feet

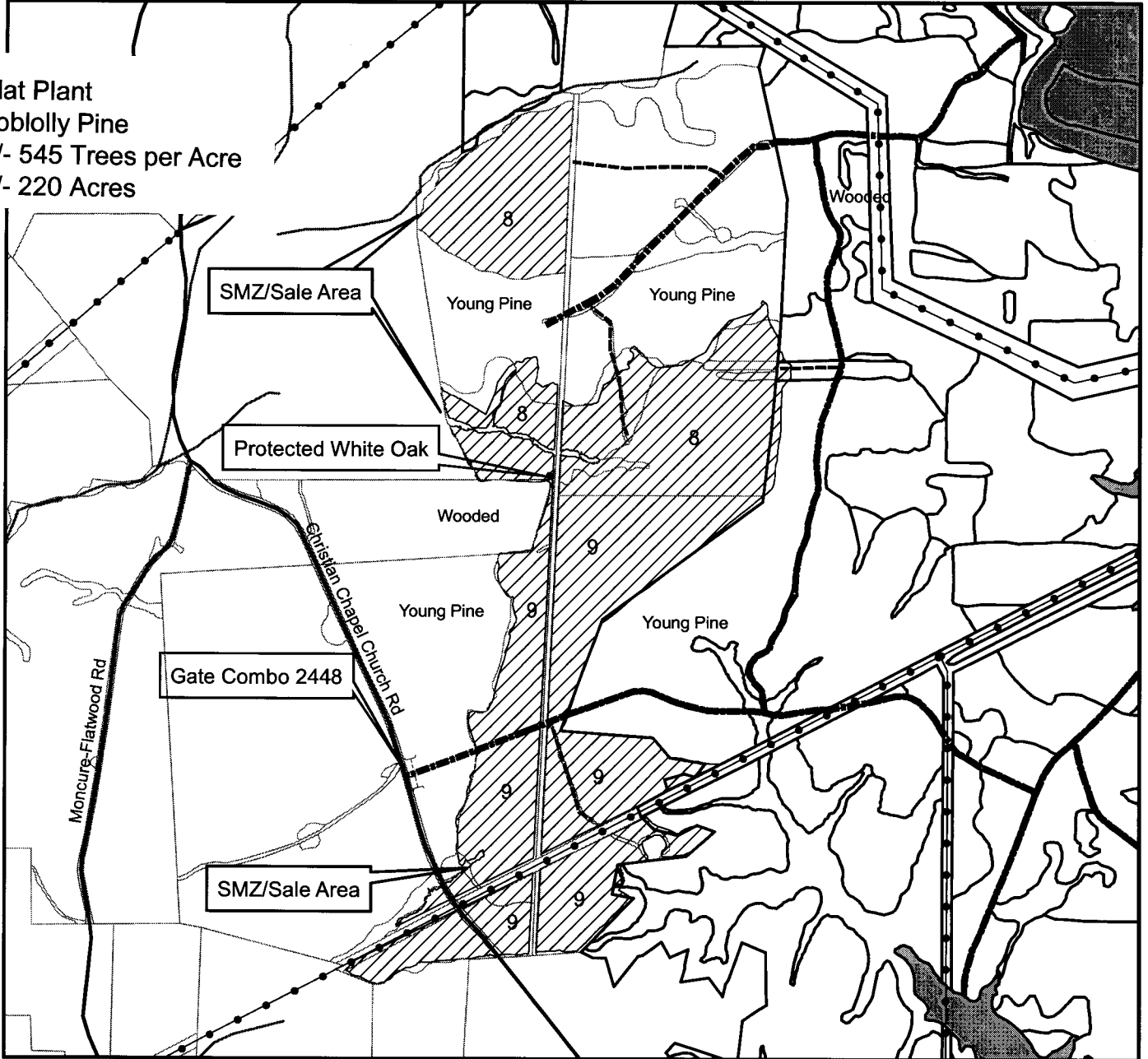
Progress Energy Carolinas
 West Aux. Lake Timber Sale
 136 +/- GPS Acres
 Wake County, NC










This map is for planning purposes only.
 Broker does not guarantee title to the property or timber, buyer should conduct a routine title exam.

Progress Energy Clear Cut Sale Sale 4-2009 North Christian Chapel Road


Flat Plant
Loblolly Pine
+/- 545 Trees per Acre
+/- 220 Acres



Legend

-  Gate
-  Protected White Oak
-  Powerline
-  salearea42009
-  hyd
-  rrs
-  utl



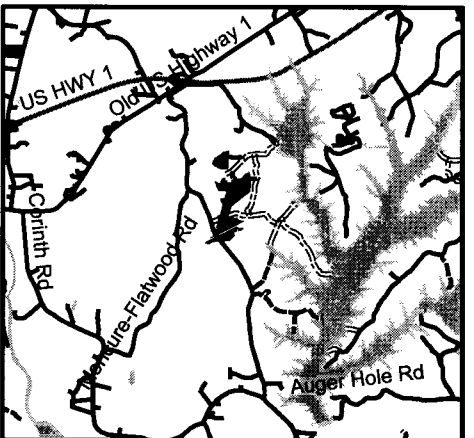
N



0 1,360
Feet

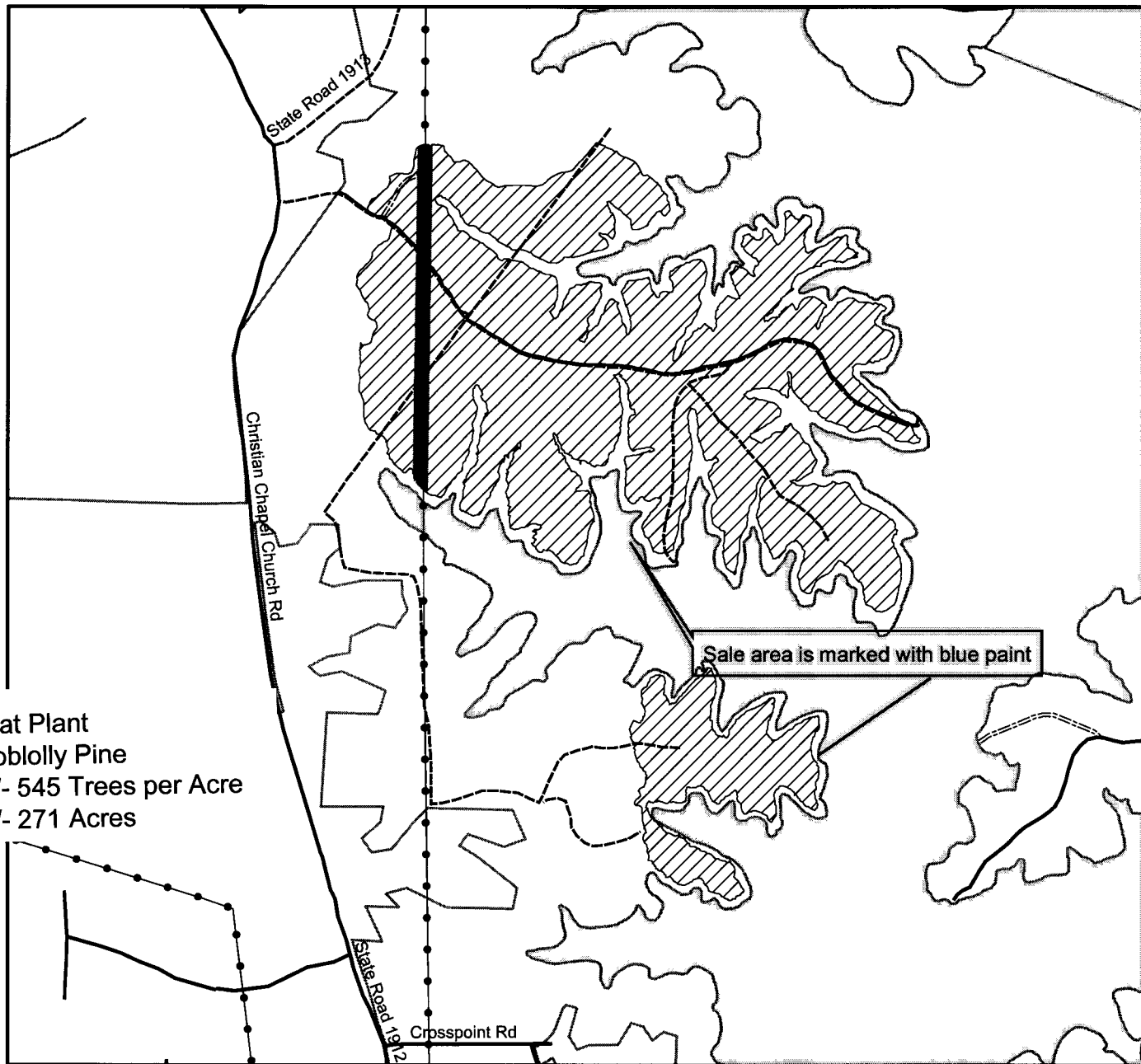
1 inch equals 1,320 feet

Progress Energy Carolinas
Chatham County, NC
220 +/- GPS Acres
Sale Area Marked with Blue Paint
Cape Fear Comp. 6 Std(s) 8, 9

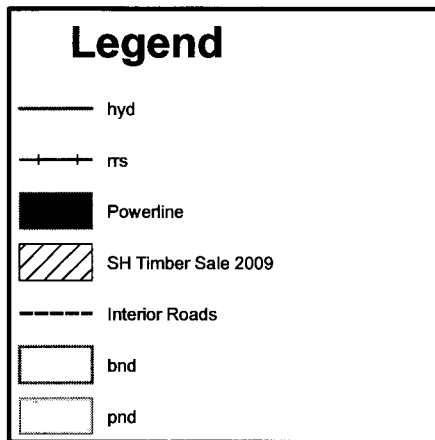




Broker does not guarantee title to the property or timber; buyer should perform a routine title exam.

Progress Energy Clear Cut Sale 2-09 Christian Chapel Church COM 8,9

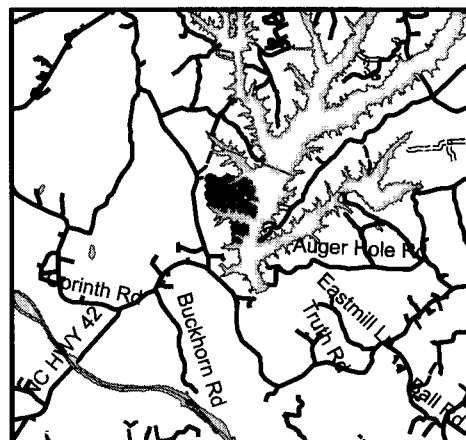


Flat Plant
Loblolly Pine
+/- 545 Trees per Acre
+/- 271 Acres



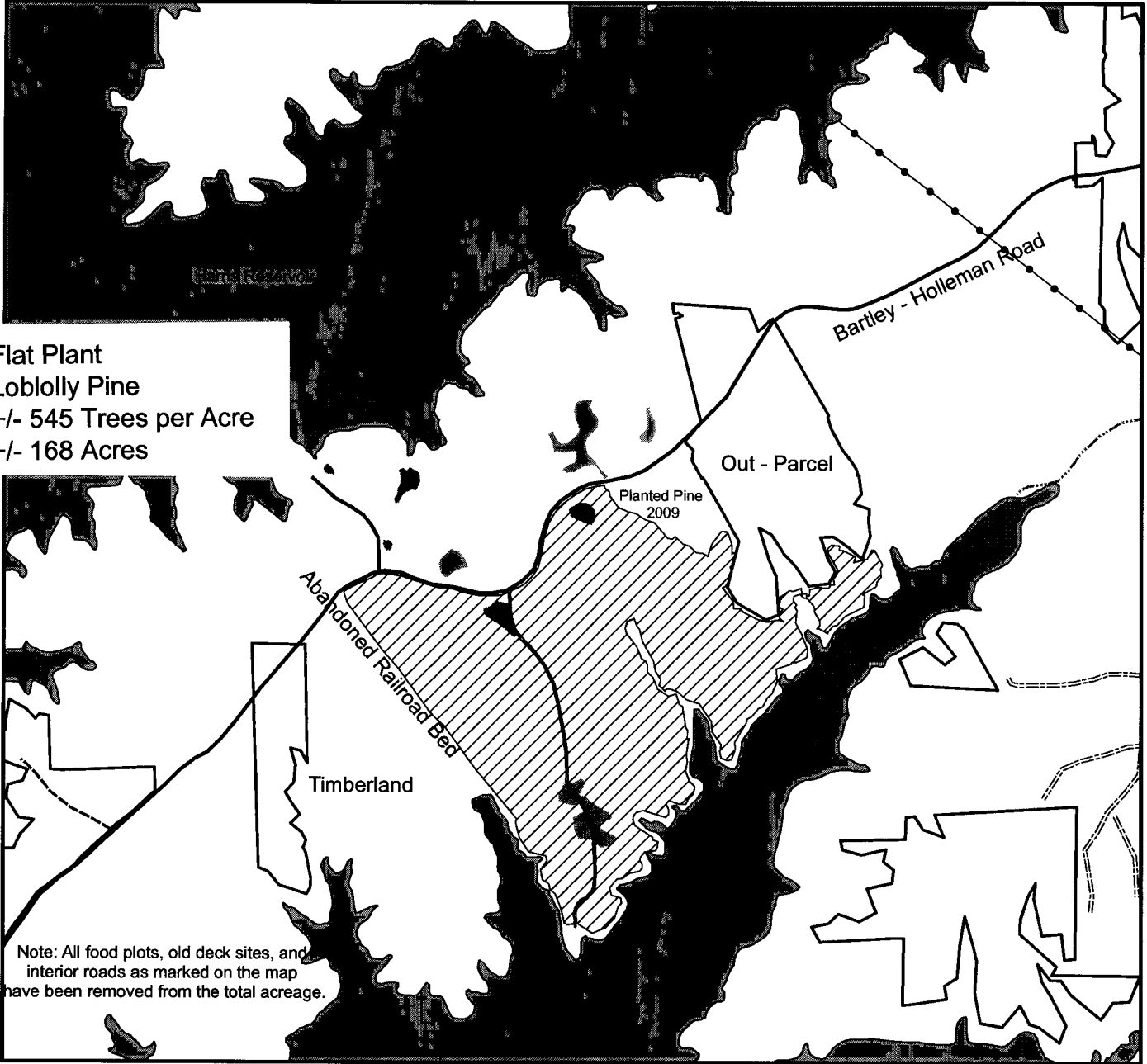
0 1,320
 Feet
 1 inch equals 1,320 feet

Progress Energy Carolinas
Chatham County, NC
271 +/- GPS Acres



Broker does not guarantee title to the property or timber; buyer should perform a routine title exam.

Sale 14 – 09 Holleman Road Boat Ramp Block B



Flat Plant
Loblolly Pine
+/- 545 Trees per Acre
+/- 168 Acres

Note: All food plots, old deck sites, and interior roads as marked on the map have been removed from the total acreage.

Legend

- Food Plots
- Lake
- Old Deck Sites
- Utilities
- Streams
- Ponds

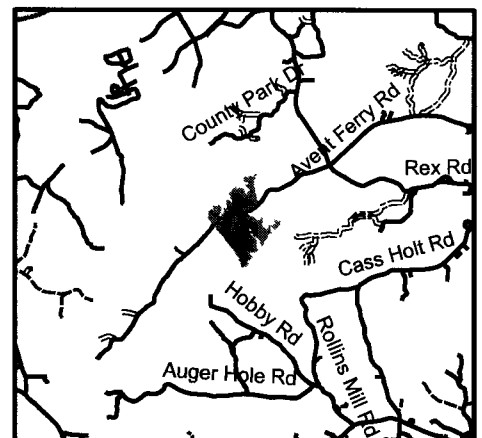
N

0 1,320 Feet

1 inch equals 1,320 feet

Progress Energy

Progress Energy Carolinas
Harris Plant Lands
Wake County, NC
Block "B" - 168.16 GPS Acres

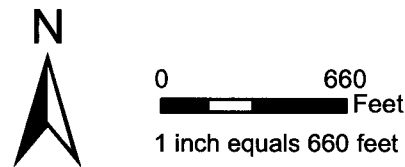
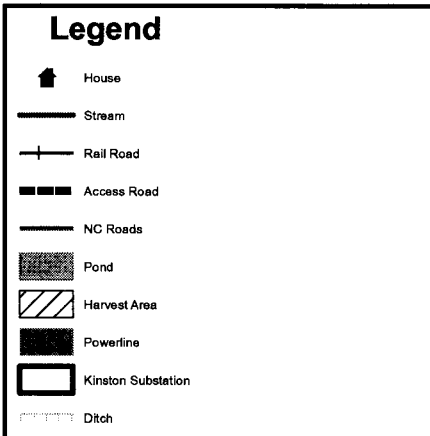
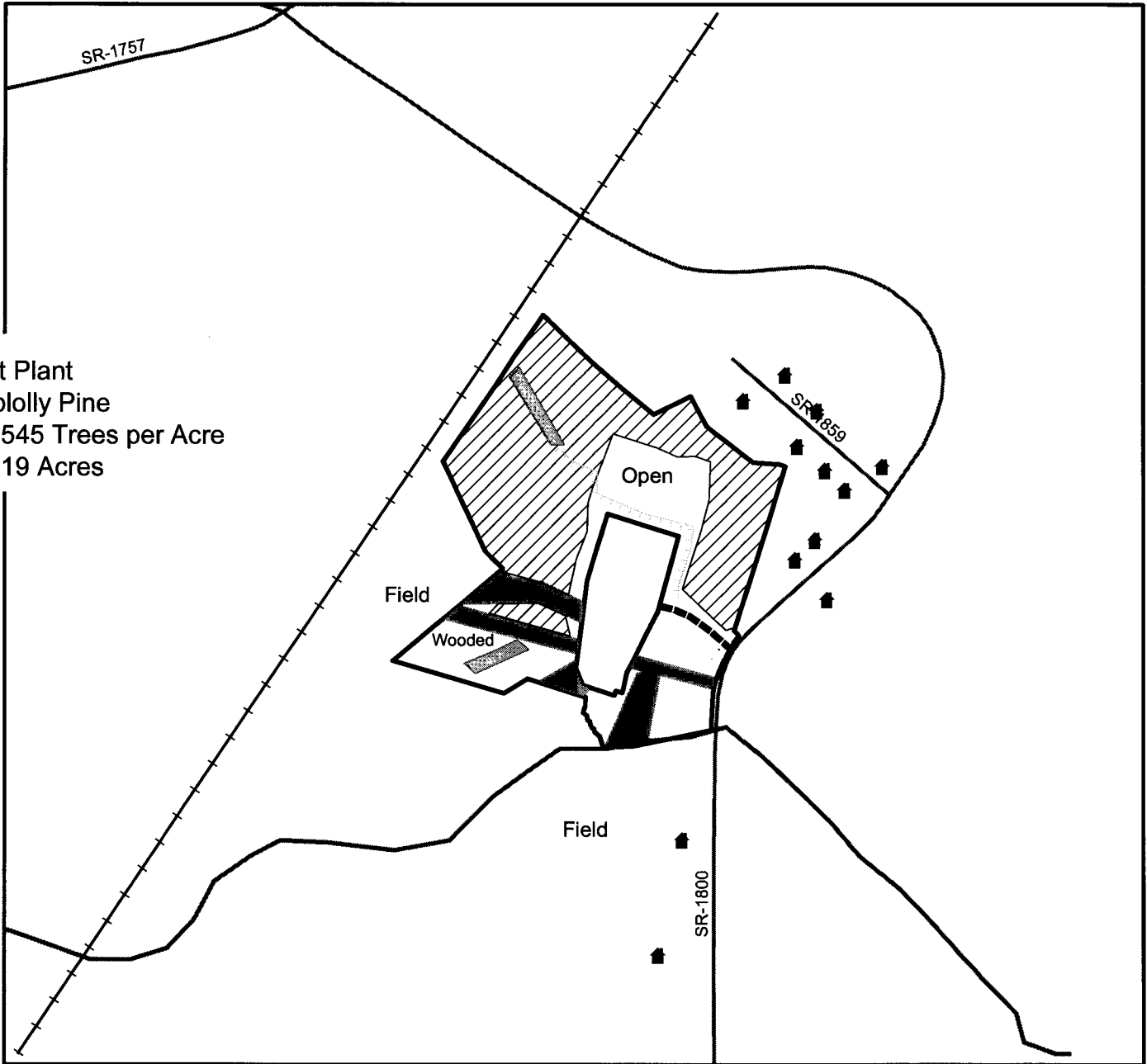


Broker does not guarantee title to the property or timber.
Buyer should perform a routine title exam.

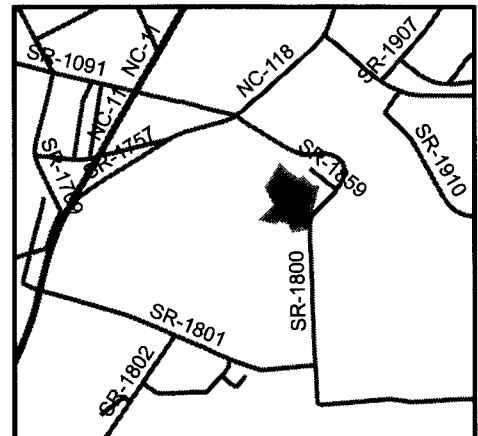
Exhibit "A" 1 of 1

Kinston Substation - Timber Sale Map

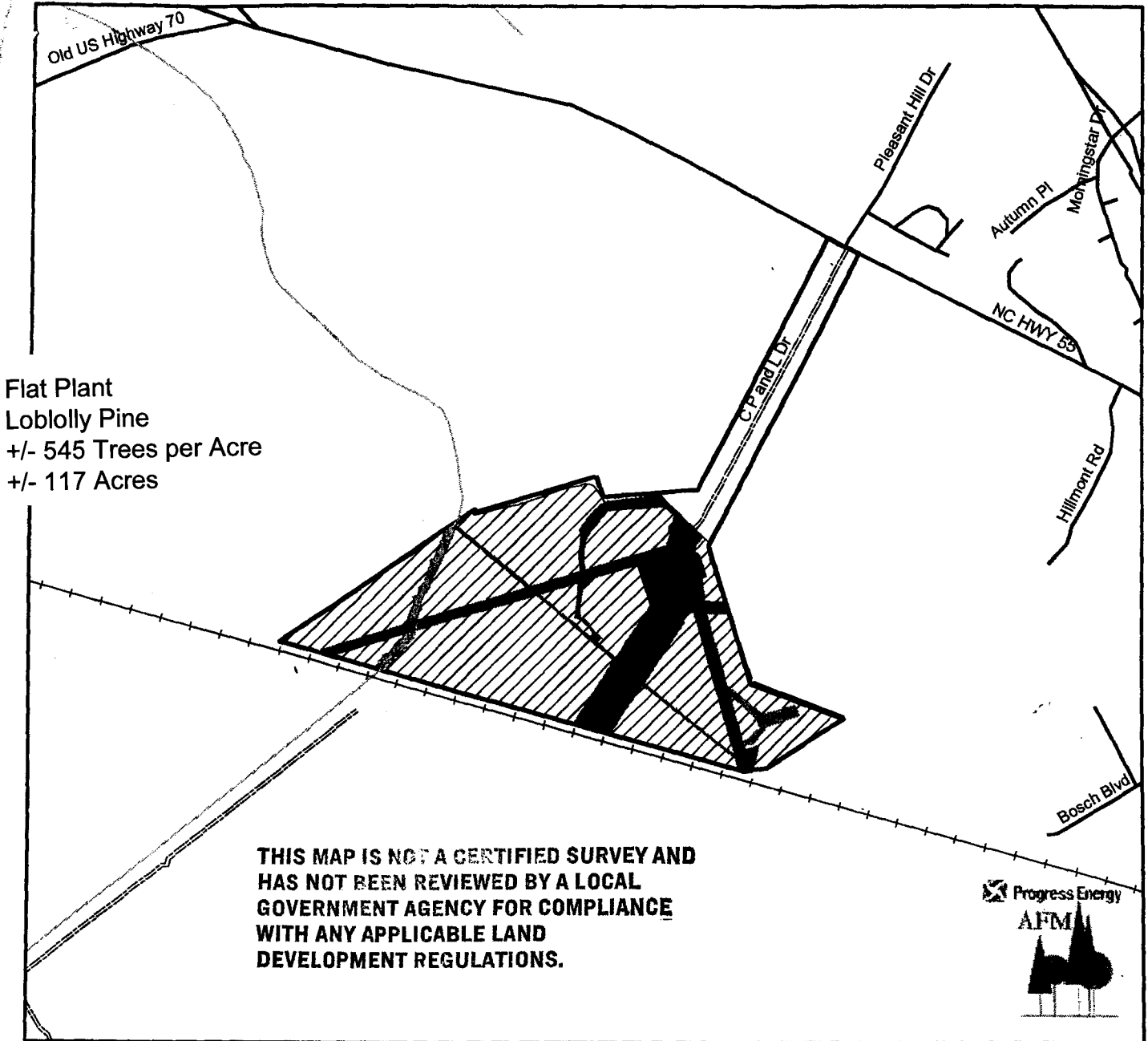
Flat Plant
Loblolly Pine
+/- 545 Trees per Acre
+/- 19 Acres



Progress Energy Carolinas
Kinston Substation
Lenoir County, NC
Sale Area - 19 +/- Acres



Craven County, NC Substation Sale 10, 2007 Progress Energy



Legend

	Rail_Road
	Communication_Tower
	SMZ
	Power_Lines
	Gas_Line
	Craven_Substation
	Property_Boundary
	Craven_Sale_Area

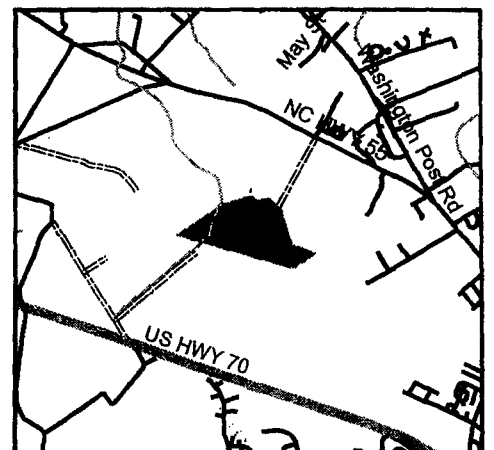
EXHIBIT A

0 1,320

 Feet
 1 inch equals 1,320 feet

**Harvest Area
117 Acres**

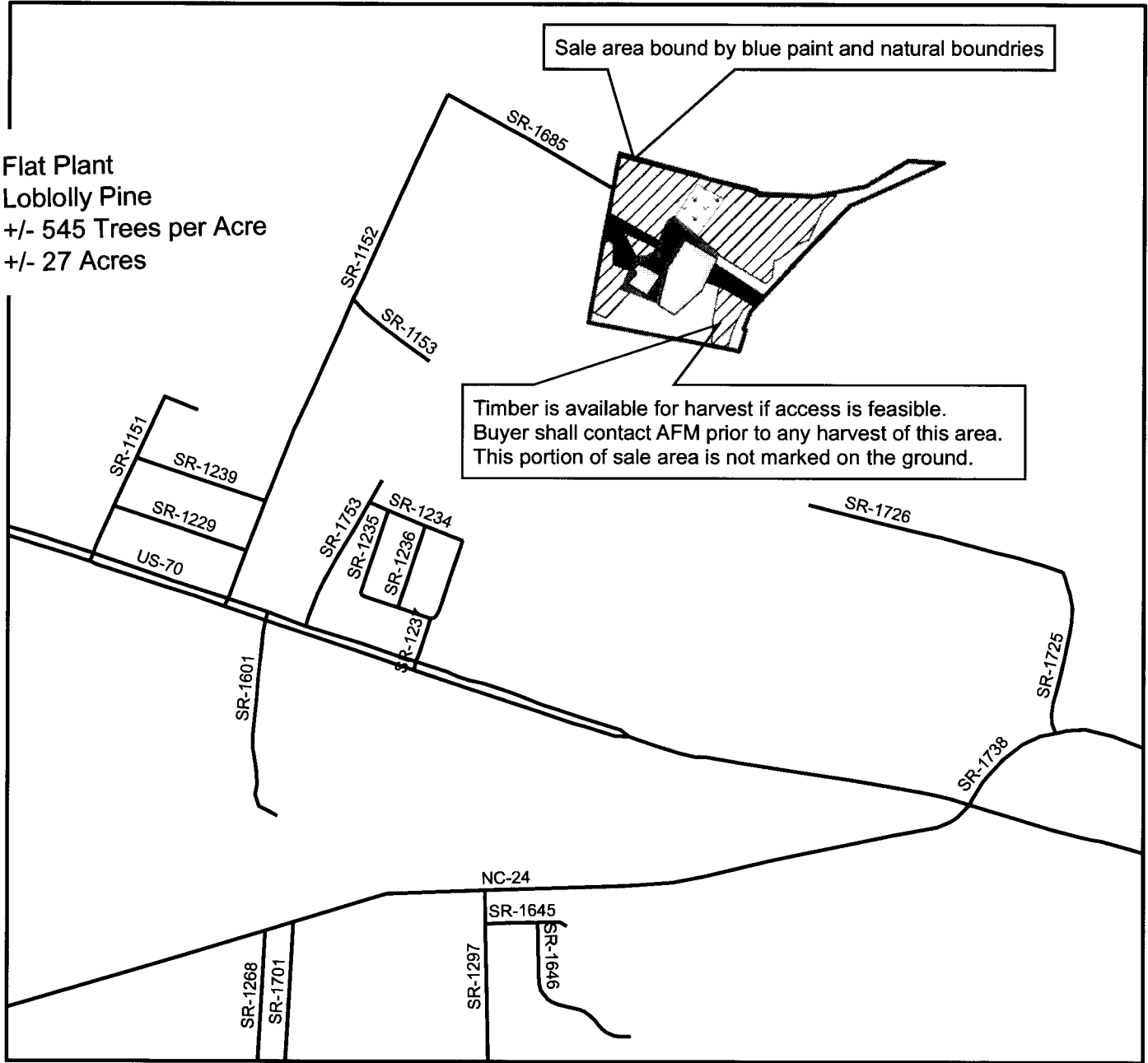
Sale Area Is Bound
By Blue Paint



This map is for planning purposes only.
 Broker does not guarantee title, buyer should have an attorney verify title.

Progress Energy Carteret County Substation

Flat Plant
Loblolly Pine
+/- 545 Trees per Acre
+/- 27 Acres





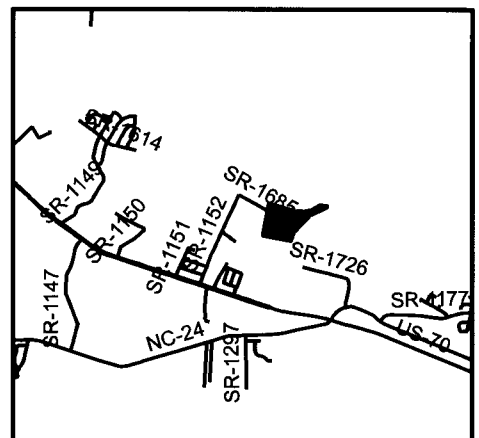
Legend

- NC Roads
- Young Pines
- Substation
- Grass Area
- Powerlines
- Harvest Area
- Wildwood Substation



0 1,320 Feet
1 inch equals 1,320 feet

Progress Energy Carolinas
Carteret County, NC
"Wildwood Substation"
27 +/- Acres

This map is for planning purposes only.

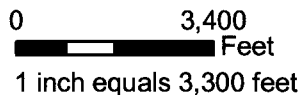
Broker does not guarantee title to the property or timber. Buyer should conduct a routine title exam.

Coffey Complex Planting 2011



Legend

- Hydrology
- Rail Road
- Utilities
- Water Body
- Tract
- Planting



MASSPRIM
 Tarheel Management Unit
 Coffey Complex
 TH 5 and TH 6
 Plant Beds - Loblolly Pine
 545 +/- TPA
 81 Planting Acres



PLANTING QUALITY INSPECTION REPORT

REGION/AREA/UNIT: <u>Piedmont</u>	COMP/STD: <u>Wake 500</u>
CONTRACTOR: <u>Carolina Timberlands</u>	SOIL: <u>Sandy clay</u>
CONTRACTOR REP: <u>Daniel</u>	FAMILY: <u>AG 306 S, AG 295 L, AG 105 S</u>
INSPECTOR: <u>Carlton D.</u>	CONTRACT TPA: <u>545</u>

** 1/40th ac*

		CHECK PLOT SIZE:		PLANTING QUALITY EVALUATION (5 trees per 1/20 th acre plot, or 2 trees per 1/50 th acre plot)											
		-1/20 th ac <input type="checkbox"/> 1/50 th ac <input type="checkbox"/>		TREE TALLY	PROPERLY PLANTED	IMPROPERLY PLANTED	REASONS FOR IMPROPER PLANTING								
PLOT	DATE	ROW SPACING	DRILL SPACING				CUL ¹	BAD SPOT	LEAN > 45°	LOOSE PACKING	SHALLOW PLANT	ROOTS EXPOSED	"J" or "L" ROOT	DAMAGED TREE	
1	7/16/11	10'	8'	13	26	5				3				2	
2				12											
3				12											
4				14											
5				12											
6				15											
7				16											
8				12											
9				15											
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26															
27															
28															
29															
30															
TOTAL:															

CONTRACT TPA	$\times 1.1 =$	571																		
545	$\times 0.9 =$	517	TOTAL TREE TALLY	134	TOTAL # OF PLOTS	10	$\times 20$ (for 1/20 ac plots)	$\times 50$ (for 1/50 ac plots)	TOTAL PROPERLY PLANTED	26	TOTAL TREES SAMPLED	31	% PROPERLY PLANTED	84	TOTAL TPA PLANTED	536	% PROPERLY PLANTED	84	TOTAL TPA PROPERLY PLANTED	450
REMARKS: <u>3/16/11 @ 74 bags planted (7 bags left + over)</u>																				

INSTRUCTIONS: Tally all trees on the plot. This tally will form the basis for the total planted trees/acre. Randomly select trees from different rows within the plot for a total of 5 trees/plot for 1/20th acre plots, or 2 trees for 1/50th acre plots. Evaluate planting quality above and below ground (dig) and tally that tree as either properly or improperly planted. If tallied as "improperly planted" indicate all the planting problems associated with that tree (e.g. a tree may have more than one reason for being tallied as improperly planted). Only the sum of properly and improperly planted trees will be used to calculate contract compliance.

¹Seedlings are considered cul if they do not meet the following specifications: 1) 4 mm minimum root collar; 2) 6" shoot height or greater; 3) not forked at ground line; 4) not diseased or damaged; 5) shoot/root ratio > 1:1 and < 2.4:1.

