

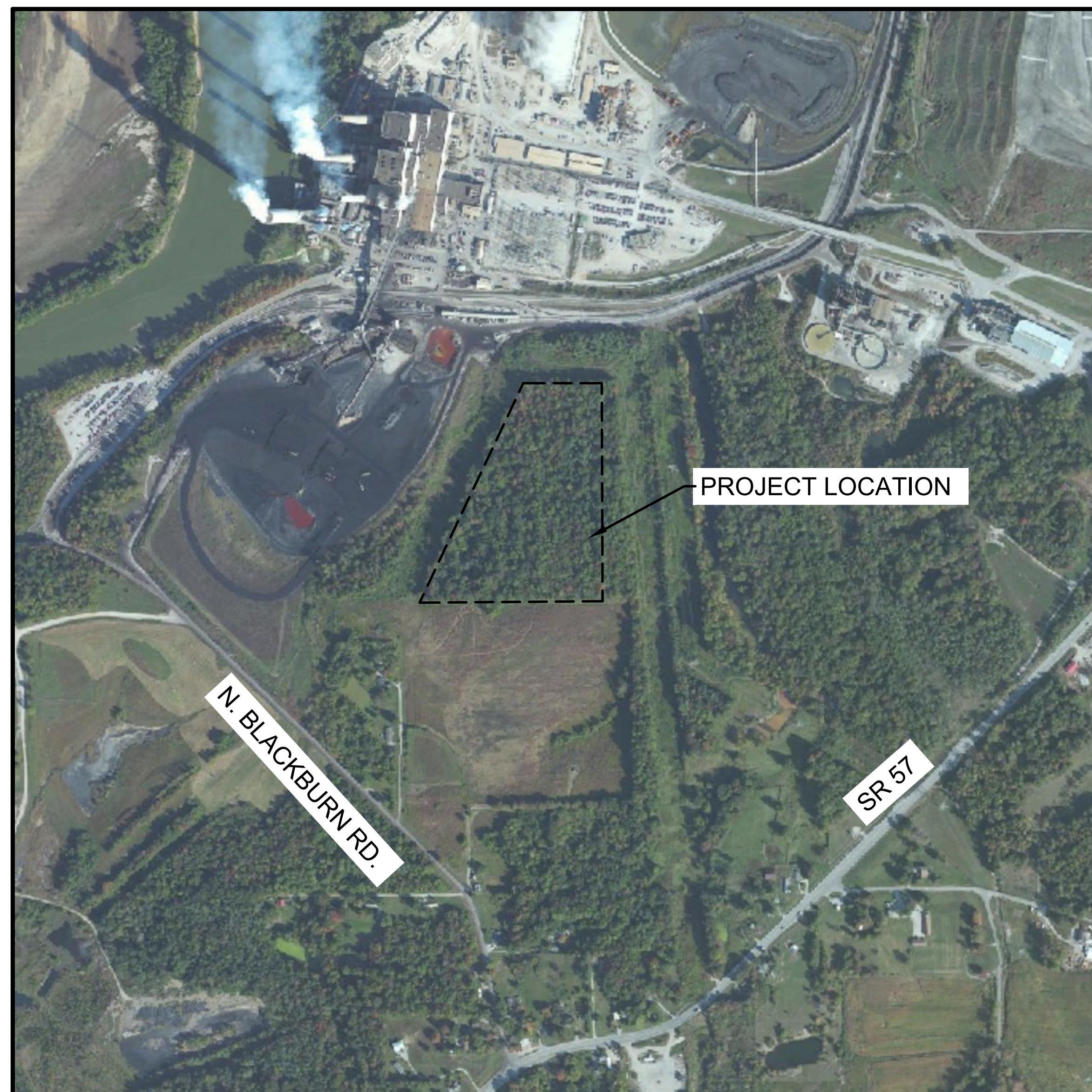
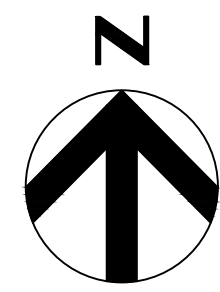
Contract Drawings For

AES INDIANA 200 MW UNIT 2 - REPLACEMENT BATTERY ENERGY STORAGE SYSTEM

30% BESS DESIGN DEVELOPMENT

INDEX OF DRAWINGS

BES-G000	COVER PAGE
BES-G001	GENERAL NOTES AND LEGEND
BES-C100	SITE CLEARING OWNERSHIP AND CONTROL
BES-C101	OVERALL SITE PLAN
BES-C102	OVERALL GRADING AND DRAINAGE PLAN
BES-C103	OVERALL EROSION CONTROL
BES-C104	CIVIL DETAILS
BES-C105	OVERALL SITE PLAN - ROAD DETAIL
BES-C106A	AUTOTURN 142' LOWBOY SITE PLAN
BES-C106B	AUTOTURN WB-67 (SEMI) SITE PLAN
BES-C106C	AUTOTURN 100 TON CRANE SITE PLAN
BES-E100	ELECTRICAL OVERALL SITE PLAN
BES-E101A	SUBSTATION ONE-LINE DIAGRAM - UNIT 1
BES-E101B	SUBSTATION ONE-LINE DIAGRAM - UNIT 2
BES-E102	BESS DC ONE-LINE
BES-E103A	AC ONE-LINE DIAGRAM (MV) - UNIT 1
BES-E103B	AC ONE-LINE DIAGRAM (MV) - UNIT 2
BES-E104	AUX AC ONE-LINE DIAGRAM
BES-E105A	SUBSTATION GENERAL ARRANGEMENT - UNIT 1
BES-E105B	SUBSTATION GENERAL ARRANGEMENT - UNIT 2
BES-E106	OVERHEAD LINE ROUTE
BES-F100	FIRE AND LIFE SAFETY
BES-F101	AUTOTURN FIRE TRUCK SITE PLAN
BES-E1000	EQUIPMENT DATASHEET



LAT: 38° 30' 53.339" N

LONG: 87° 14' 51.293" W

Project No.
10360992

PETERSBURG 6925 IN-57
PETERSBURG, INDIANA 47567
JANUARY, 2023

SCOPE OF WORK

IN THE RETIREMENT OF THE REMAINING INTERCONNECTION RIGHTS FOR PETERSBURG UNIT 2, DEVELOPMENT OF A 200 MW BATTERY INSTALLATION IS PLANNED. THIS BATTERY INSTALLATION WILL BE LOCATED ON EXISTING PLANT PROPERTY AND INTERCONNECT WITH THE EXISTING 345 kV SWITCHYARD.

PROJECT TEAM

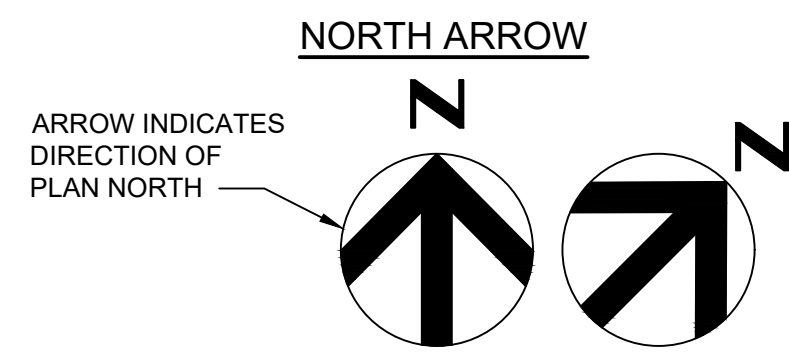
PROJECT OWNER/DEVELOPER AES INDIANA ONE MONUMENT CIRCLE INDIANAPOLIS, IN 46204 CONTACT: MATTHEW FIELDS (317) 261-3421	SUBSTATION ENGINEER MATTHEW LIEBERMANN HDR (816) 347-1388
PROJECT MANAGER KURT LYELL HDR (512) 685-2942	CIVIL ENGINEER ROBERT MOORE HDR (970) 416-4431
ELECTRICAL ENGINEER LUKAS ROWLAND HDR (503) 727-3929	CIVIL ENGINEER MATT BRAWLEY HDR (270) 444-9091
ELECTRICAL DESIGNER HANNA WOLF HDR (714) 730-2372	TRANSMISSION ENGINEER MIKE HUPKO HDR (919) 232-6607

SYSTEM SUMMARY

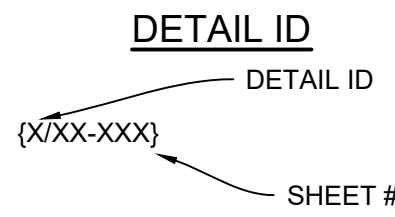
BATTERY (INDICATIVE)	FLUENCE GRIDSTACK
NO. OF BESS* CONTAINERS	1,334 (BOL) / 1,418 (EOL)
TOTAL DURATION	4 HOURS
MV COLLECTION VOLTAGE	34.5 kV
AUX SYSTEM VOLTAGE	480 V & 240/120 V
AC SYSTEM CAPACITY @ POI*	200 MW (@40 C)
POWER FACTOR @ POI*	0.855
POWER CONVERSION SYSTEM (INDICATIVE)	POWER ELECTRONICS FP2865K
AC OUTPUT POWER PER PCS*	2,865 kVA/kW(@40C)

*FOR ABBREVIATIONS REFER TO DWG BES-G001

GENERAL SYMBOLOGY



PLAN TITLE
PLAN
1/4" = 1'-0"



DETAIL MARKER
FOR REFERENCING DETAILS INCLUDED IN DRAWING SET.

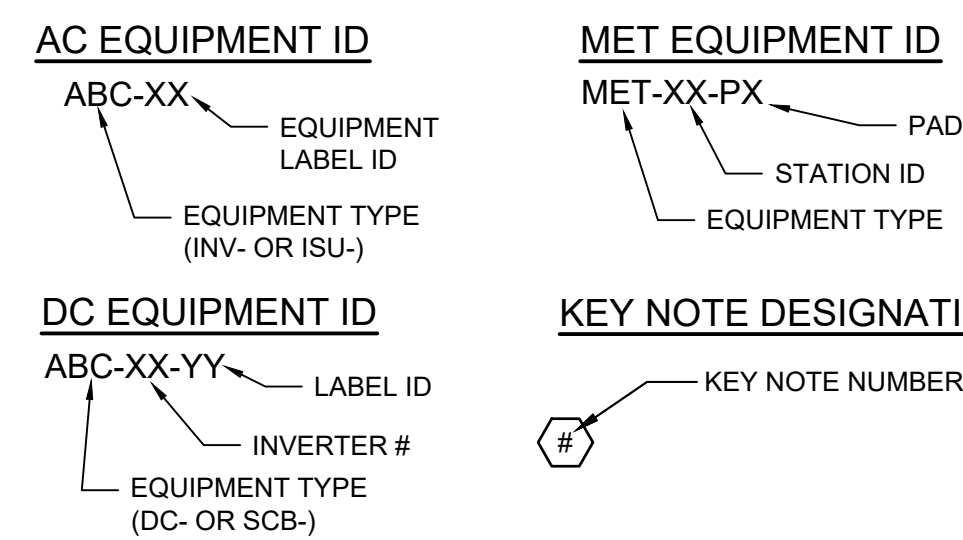
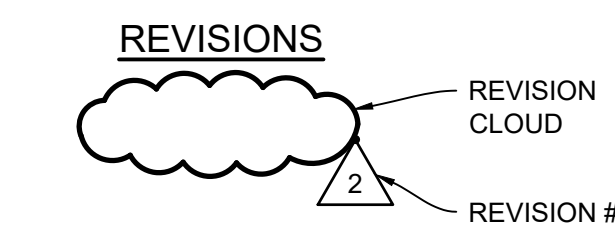
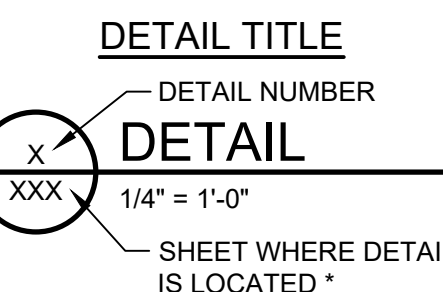
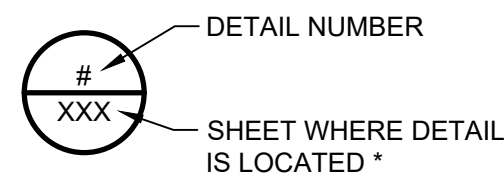
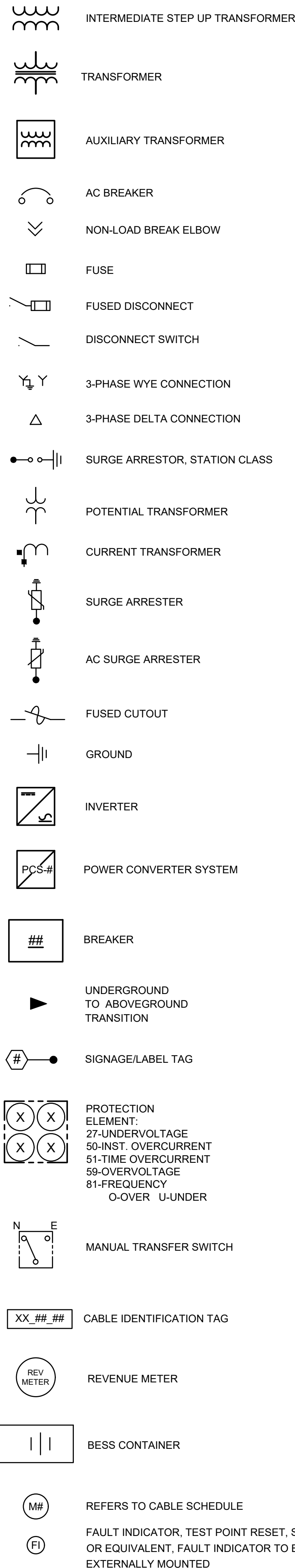


FIGURE 1: CONDUCTOR COLOR TABLE

DESCRIPTION	PHASE/CODE LETTER	FIELD WIRE COLOR
VOLTAGE GREATER THAN 2KV, 3φ	PHASE A	RED
	PHASE B	YELLOW
	PHASE C	BLUE
600V/346Y, 3φ	PHASE A	BROWN
	PHASE B	ORANGE
	PHASE C	YELLOW
480V/277Y, 3φ	PHASE A	BROWN
	PHASE B	ORANGE
	PHASE C	YELLOW
208V/120Y, 3φ	PHASE A	BLACK
	PHASE B	RED
	PHASE C	BLUE
240/120V, 1φ	L1	BLACK
	L2	RED
AC NEUTRAL	N	WHITE OR GRAY
GROUND	G	GREEN, BLACK WITH GREEN STRIPE, OR BARE
FUNCTIONALLY GROUNDED SYSTEM	POSITIVE	BLUE
	NEGATIVE	BLACK

NOTE: PV SYSTEMS UNREFERENCED TO GROUND (NEITHER POSITIVE NOR NEGATIVE DC CONDUCTORS ARE GROUNDED AT THE INVERTER DURING NORMAL OPERATION) MUST COMPLY WITH THE REQUIREMENTS OF NEC [690.41]. BATTERY ENERGY STORAGE SYSTEMS, WHETHER REFERENCED OR UNREFERENCED TO GROUND, MUST COMPLY WITH THE REQUIREMENTS OF NEC ARTICLES 480 AND 706. GROUNDED CONDUCTORS SHALL BE MARKED IN ACCORDANCE WITH NEC [200.6].

ELECTRICAL SYMBOLOGY



ABBREVIATIONS

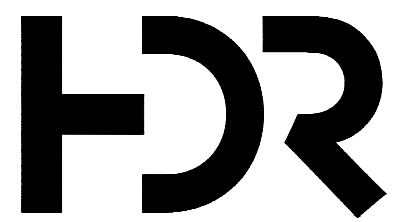
AC ALTERNATING CURRENT
ACD AC DISCONNECT
AC-FT ACRE-FOOT
ADJ ADJUSTABLE
AHJ AUTHORITY HAVING JURISDICTION
ALT ALTERNATE
AL ALUMINUM
APPROX APPROXIMATE
AUX AUXILIARY
AWG AMERICAN WIRE GAUGE
AZ AZIMUTH
BESS BUILDING ENERGY STORAGE SYSTEM
BOL BEGINNING OF LIFE
BIL BASIC INSULATION LEVEL
BLDG BUILDING
BOC BACK OF CELL
C CELSIUS
CL CENTER LINE
CB COMBINER BOX
CLR CLEAR
CN CONCENTRIC NEUTRAL
CONT CONTINUOUS
CONFIG CONFIGURATION
CT CURRENT TRANSFORMER
CU COPPER
DAS DATA ACQUISITION SYSTEM
DC DIRECT CURRENT
DIA DIAMETER
DISC DISCONNECT
DWG DRAWING
(E) EXISTING
EGC EQUIPMENT GROUNDING CONDUCTOR
EMT ELECTRICAL METALLIC TUBING
EOL END OF LIFE
EOR ENGINEER OF RECORD
EQUA EQUAL
F FAHRENHEIT
FCI FAULT CURRENT INDICATOR
FO FIBER OPTIC
FT FIXED TILT
GALV GALVANIZED
GEC GROUNDING ELECTRODE CONDUCTOR
GFDI GROUND FAULT DETECTOR INTERRUPTER
GHI GLOBAL HORIZONTAL IRRADIANCE
GOAB GANG OPERATED AIR BREAK
GND GROUND
GSU GENERATOR STEP-UP TRANSFORMER
HV HIGH VOLTAGE
ID INSIDE DIAMETER
INV INVERTER
IMC INTERMEDIATE METAL CONDUIT
IMP IMPEDANCE
ISU INVERTER STEP-UP TRANSFORMER
JB JUNCTION BOX
KV KILOVOLT, KILOVOLTS
KW KILOWATT, KILOWATTS
LBOR LOAD BREAK OIL IMMERSER ROTARY
LFNC LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT
LV LOW VOLTAGE
MCB MAIN CIRCUIT BREAKER
MCOV MAXIMUM CONTINUOUS OPERATING VOLTAGE
MIN MINIMUM
MET METEOROLOGICAL STATION
MOV METAL OXIDE VARIATOR
MV MEDIUM VOLTAGE
MVA MEGA VOLT-AMP, MEGA VOLT-AMPS
MW MEGAWATT, MEGAWATTS
NEC NATIONAL ELECTRIC CODE
NEG NEGATIVE
NTRL NEUTRAL
OAE OR APPROVED EQUAL
OC ON CENTER
OCPD OVERCURRENT PROTECTIVE DEVICE
OCTE OUTDOOR CORE TELCO ENCLOSURE
OD OUTSIDE DIAMETER
OH OVERHEAD
OTDR OPTICAL TIME DOMAIN REFLECTOMETER
PCS POWER CONVERTER SYSTEM
PH/P PHASE
POA PLANE OF ARRAY
POCC POINT OF COMMON COUPLING
POI POINT OF INTERCONNECTION
POS POSITIVE
PRCLF PARTIAL RANGE CURRENT LIMITING
PT POTENTIAL TRANSFORMER
PV PHOTOVOLTAIC
PVC POLYVINYL CHLORIDE
RFI REQUEST FOR INFORMATION
RMC RIGID METAL CONDUIT
SAT SINGLE AXIS TRACKING
SCADA SUPERVISORY CONTROL AND DATA ACQUISITION
SCB STRING COMBINER BOX
SCH SCHEDULE
SF SQUARE FOOT/FEET
SIM SIMILAR
STC STANDARD TEST CONDITIONS
TBD TO BE DETERMINED
TOF TOP OF FOOTING
TW TEST WELL
TYP TYPICAL
UGPB UNDERGROUND PULL BOX
(UON) UNLESS OTHERWISE NOTED
UPS UNINTERRUPTIBLE POWER SUPPLY
V VOLT, VOLTS
VA VOLT AMP, VOLT AMPS
VAC VOLTS ALTERNATING CURRENT
VDC VOLTS DIRECT CURRENT
VIF VERIFY IN FIELD
WP WEATHERPROOF
WS WEATHER STATION
XFMR TRANSFORMER

GENERAL NOTES

DESIGN (GENERAL)

THIS DRAWING PACKAGE INDICATED THE INTENT OF THE DESIGN AND SHALL BE CONSIDERED AS DIAGRAMMATIC ONLY. DESIGN SHALL MEET REQUIREMENTS DETAILED WITHIN THE REQUEST FOR PROPOSALS AND TECHNICAL SPECIFICATIONS. EXACT EQUIPMENT LOCATIONS AND CONDITIONS MAY VARY. EXACT INSTALLATION MEANS AND METHODS SHALL BE DETERMINED BY THE EPC AND SUBCONTRACTOR AT THE SITE DEVIATION FROM THE DRAWING SET REQUIRES NOTIFICATION AND APPROVAL FROM HDR, INC ENGINEERING AND THE SYSTEM OWNER.

- THIS DOCUMENT DETAILS THE MINIMUM CRITERIA FOR THE BATTERY STORAGE SYSTEM INSTALLATION.
- LOCAL AUTHORITY HAVING JURISDICTION REQUIREMENTS, INDIANA ELECTRICAL CODE (675-IAC-17 IEC), AND OSHA INSTALLATION METHODS SHALL BE FOLLOWED BY ALL CONTRACTORS ON SITE.
- ALL EXISTING DIMENSIONS AND SITE CONDITIONS SHALL BE VERIFIED ON SITE BEFORE COMMENCING CONSTRUCTION. IF DISCREPANCIES ARE DISCOVERED, THE ENGINEER OF RECORD (EOR) SHALL BE NOTIFIED BEFORE PROCEEDING WITH WORK.
- ALL EQUIPMENT SUBMITTALS AND PROPOSED EQUIPMENT ALTERNATIVES TO BE SUBMITTED TO HDR, INC ENGINEERING FOR REVIEW AND APPROVAL PRIOR TO PROCUREMENT.
- CONTRACTOR IS RESPONSIBLE FOR READING AND UNDERSTANDING ALL RELEVANT EQUIPMENT MANUFACTURER'S DRAWINGS AND MANUALS PRIOR TO INSTALLATION.
- ALL FURNISHED ELECTRICAL COMPONENTS, DEVICES, EQUIPMENT, AND ACCESSORIES MUST BE LABELED AND LISTED FOR THE INTENDED USE.
- INSTALLATION SPECIFICATIONS ON THESE PLANS WHICH READ "ISSUED FOR CONSTRUCTION" (IFC) SHALL SUPERSEDE WRITTEN DOCUMENTATION WHICH MAY DESCRIBE THE PROJECT.
- ALL WORK TO BE COMPLETED IN ACCORDANCE WITH NEC 2020 OR NEWER.



aes Indiana
2102 N. ILLIONIS ST.
INDIANAPOLIS, IN 46202

PROJECT FOR

**AES INDIANA
200 MW UNIT 2 -
REPLACEMENT
BESS DESIGN**

PETERSBURG, INDIANA

MARK	DATE	DESCRIPTION
A	01/25/2023	CONCEPTUAL DESIGN

PROJECT NUMBER 10343872
ORIGINAL ISSUE

PROJECT MANAGER	KURT LYELL
PROJECT DESIGNER	HANNA WOLF
PROJECT ARCHITECT	
LANDSCAPE ARCHITECT	
CIVIL ENGINEER	MATTHEW BRAWLEY
STRUCTURAL ENGINEER	
MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

**CONCEPTUAL
NOT FOR CONSTRUCTION**

SHEET NAME

**GENERAL NOTES
& LEGEND**

SCALE N.T.S.

SHEET NUMBER

BES-G001

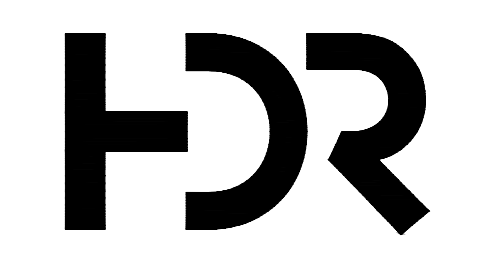
FILE NAME MISO-BES-G001.dwg

CONCEPTUAL



LEGEND:
 - - - - - PROPERTY LINE
 - - - - - PROJECT BOUNDARY

GENERAL NOTES:
 1. ESTIMATED TREE CLEARING QUANTITY TO LIMIT OF CONSTRUCTION.
 a. 27.37 ACRES



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EQUIPMENT PLANNER	
WAYFINDING	
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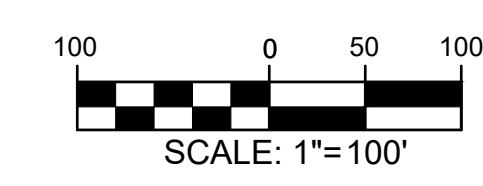
SHEET NAME
**SITE CLEARING
 OWNERSHIP
 AND CONTROL**

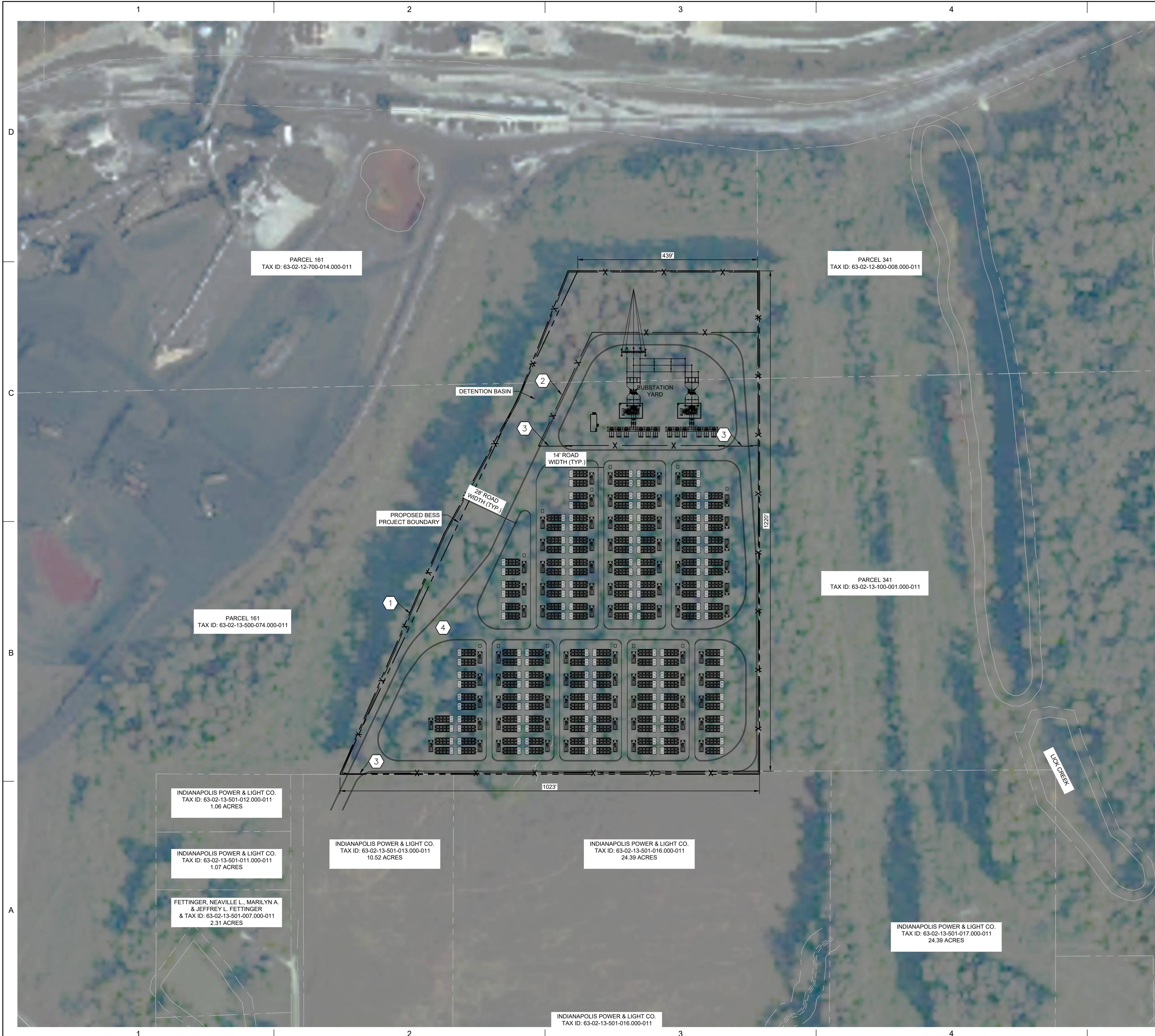
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SHEET NUMBER
BES-C100

FILE NAME MISO-BES-C100.dwg

CONCEPTUAL

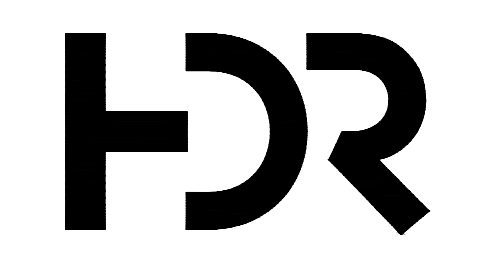




LEGEND:
 - - - - - PROPERTY LINE
 - - - - - PROJECT BOUNDARY

- KEY NOTES:**
- 1 INSTALL 3,970 LF OF PERIMETER FENCE. SEE FENCE DETAIL ON BES-C104.
 - 2 INSTALL 730 LF OF SUBSTATION YARD FENCE. SEE FENCE DETAIL ON BES-C104.
 - 3 INSTALL SWING GATE (TYP). SWING GATE QUANTITY = 3
 - 4 INSTALL ACCESS ROADS. ACCESS ROADS SHALL BE 12" THICKNESS (TYP). SEE GEOTECHNICAL REPORT FOR FINAL DESIGN. ESTIMATED AGGREGATE SURFACING QUANTITY = 6500 CY. SEE DETAIL ON BES-C104.

- GENERAL NOTES:**
- 1. SEE GENERAL NOTES ON SHEET BES-F100 FOR FIRE FLOW RETENTION REQUIREMENTS.



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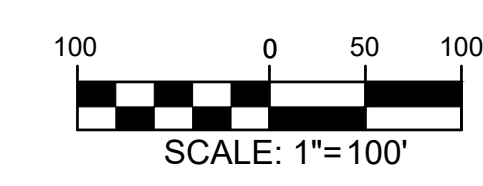
SHEET NAME
**OVERALL
 SITE PLAN**

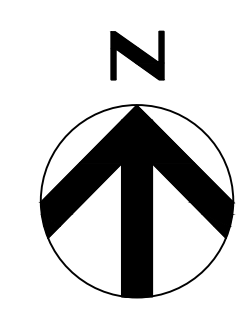
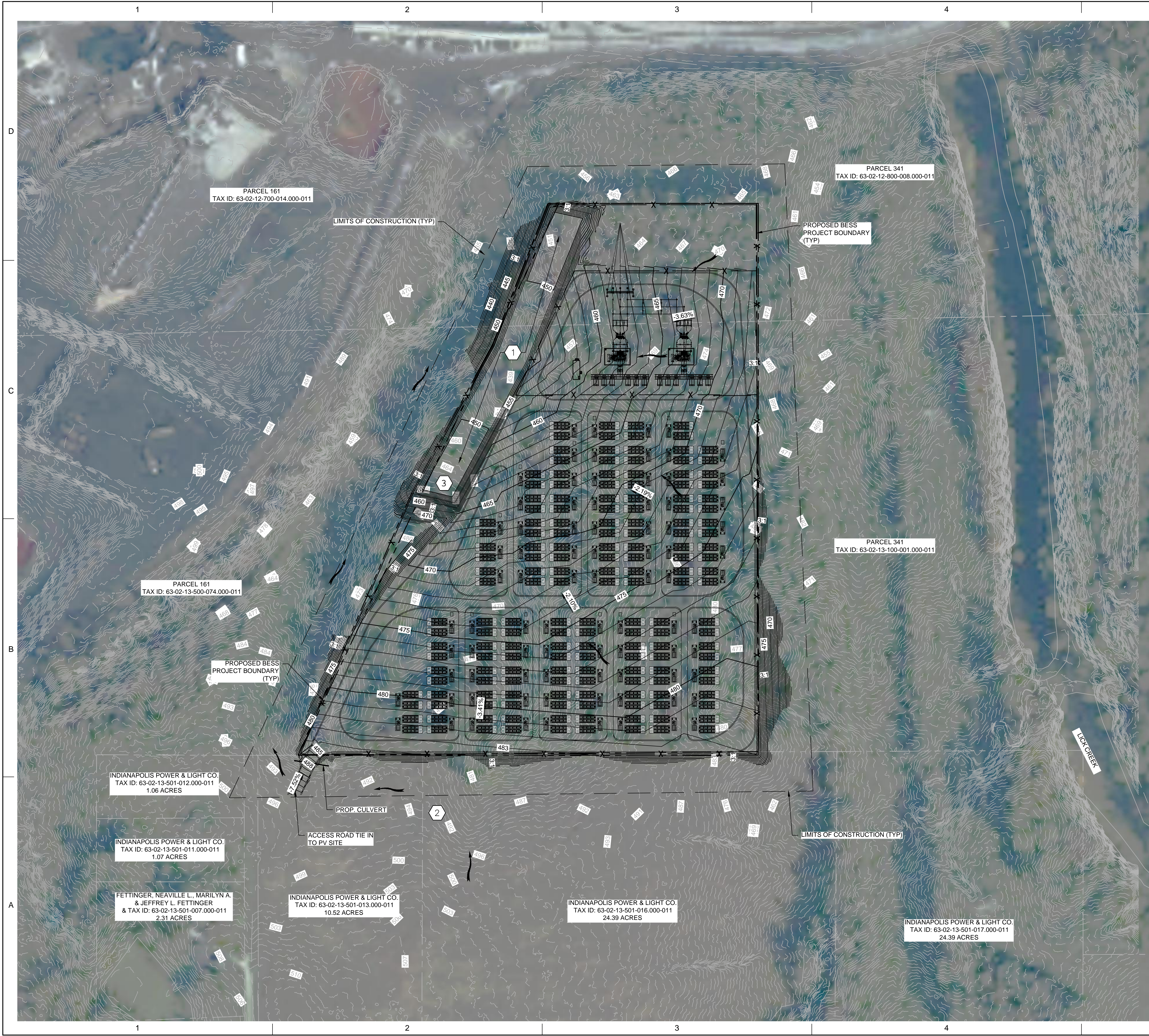
SCALE 1" = 100'

SHEET NUMBER
BES-C101

FILE NAME MISO-BES-C101.dwg

CONCEPTUAL





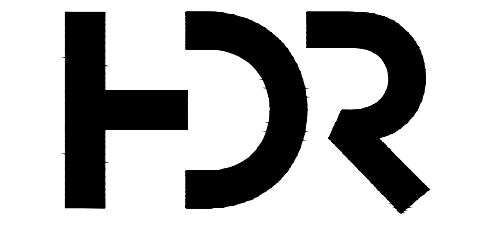
LEGEND:
 DRAINAGE FLOW DIRECTION
 PROJECT BOUNDARY

GENERAL NOTES:

- ESTIMATED EARTHWORK QUANTITIES (ADJUSTMENT FACTORS FOR SHINK/SWELL ARE NOT INCLUDED):
 - CUT = 91,712 CY
 - FILL = 121,088 CY
 - NET = -29,376 (CUT)
- STORMWATER DETENTION BASIN VOLUME:
 - DETENTION VOLUME = 2.90 AC-FT
 - WQ VOLUME = 1.10 AC-FT
 - REQUIRED VOLUME = 4.00 AC-FT
 - AVAILABLE VOLUME = 4.15 AC-FT
 - NET ADDITIONAL STORAGE = 0.15 AC-FT

KEY NOTES:

- TEMPORARY SEDIMENT BASIN TO BE CONVERTED TO PERMANENT STORMWATER DETENTION BASIN UPON COMPLETION OF CONSTRUCTION.
- DIVERT OFFSITE DRAINAGE TO THE WEST AROUND THE SITE.
- FOR ADDITIONAL BASIN REQUIREMENTS, SEE DWG BES-F100 NOTE 1.



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LANDSCAPE ARCHITECT	
CIVIL ENGINEER	MATTHEW BRAWLEY
STRUCTURAL ENGINEER	
MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

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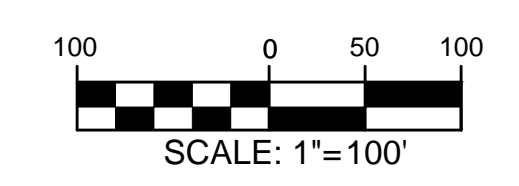
SHEET NAME
**OVERALL GRADING
 AND DRAINAGE PLAN**

SCALE 1" = 100'

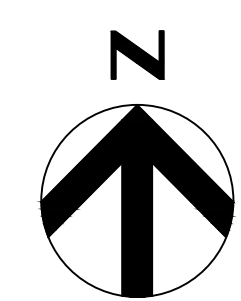
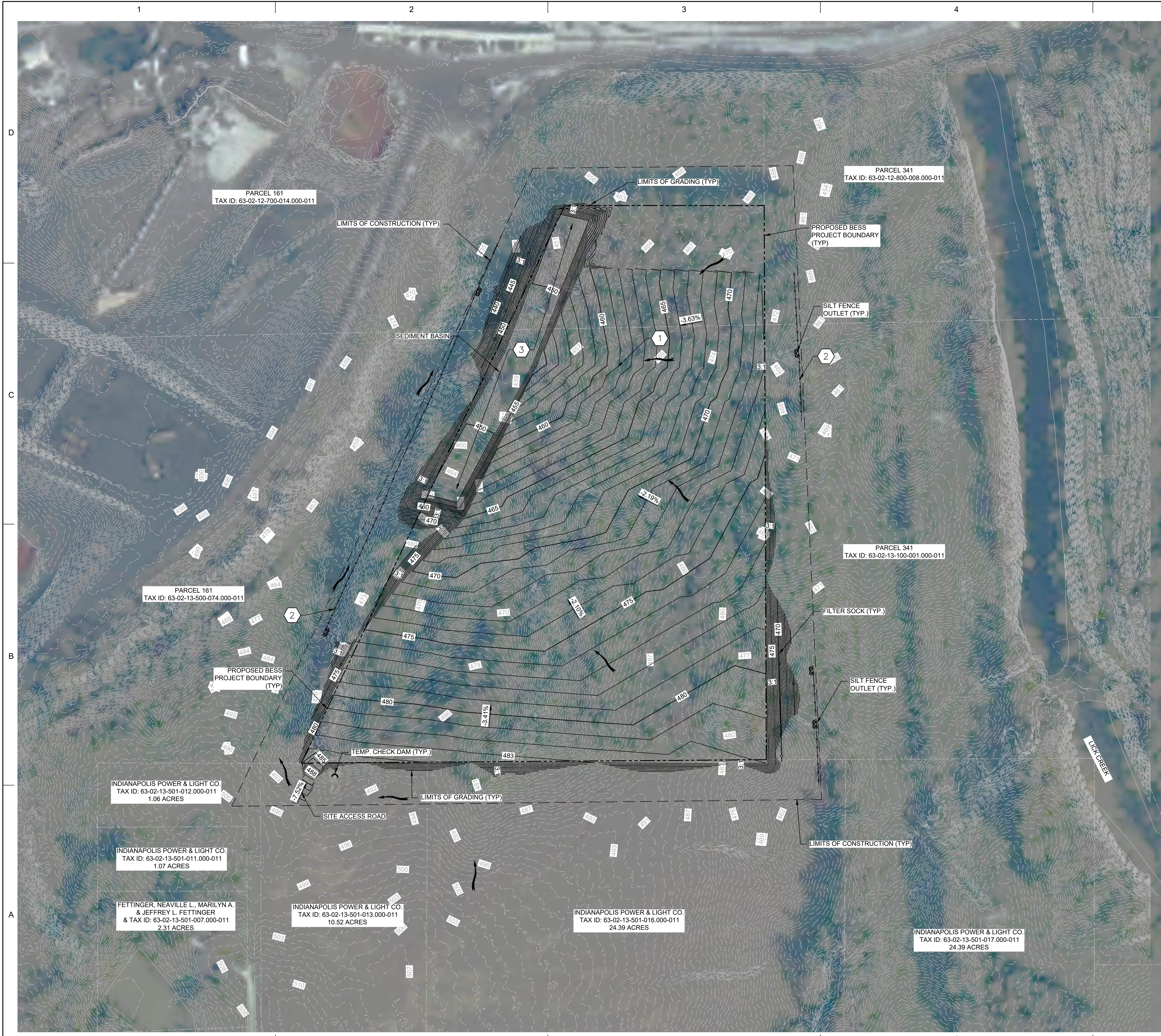
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BES-C102

FILE NAME MISO-BES-C102.dwg

CONCEPTUAL



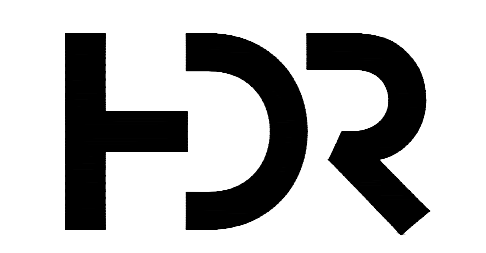
C:\powering\miso\10343872\MISO-BES-C102.dwg, Layer1, 1/25/2023 5:44:52 PM, KARENYOL



- LEGEND:**
- DRAINAGE FLOW DIRECTION
 - PROJECT BOUNDARY
 - SILT FENCE
 - FILTER SOCK
 - SILT FENCE ROCK OUTLET
 - TEMPORARY CHECK DAM

- GENERAL NOTES:**
1. ESTIMATED EARTHWORK QUANTITIES (ADJUSTMENT FACTORS FOR SHINK/SWELL ARE NOT INCLUDED):
 - 1.1. CUT = 91,712 CY
 - 1.2. FILL = 121,088 CY
 - 1.3. NET = -29,376 (CUT)
 2. STORMWATER DETENTION BASIN VOLUME:
 - 2.1. DETENTION VOLUME = 2.90 AC-FT
 - 2.2. WQ VOLUME = 1.10 AC-FT
 - 2.3. REQUIRED VOLUME = 4.00 AC-FT
 - 2.4. AVAILABLE VOLUME = 4.15 AC-FT
 - 2.5. NET ADDITIONAL STORAGE = 0.15 AC-FT

- KEY NOTES:**
1. INSTALL STRAW WATTLES PER LOCAL JURISDICTION'S STORM WATER PERMIT.
 2. INSTALL ESTIMATED 1,700 LF OF SILT FENCE.
 3. TEMPORARY SEDIMENT BASIN TO BE CONVERTED TO PERMANENT STORMWATER DETENTION BASIN UPON COMPLETION OF CONSTRUCTION.



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EQUIPMENT PLANNER		
WAYFINDING		
DRAWN BY	MEAGEN MELBY	

**CONCEPTUAL
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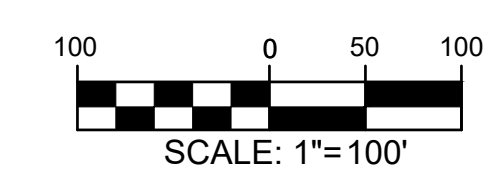
SHEET NAME
**OVERALL
 EROSION CONTROL**

SCALE 1" = 100'

SHEET NUMBER
BES-C103

FILE NAME MISO-BES-C103.dwg

CONCEPTUAL



PROJECT FOR

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PETERSBURG, INDIANA

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EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

**CONCEPTUAL
NOT FOR CONSTRUCTION**

SHEET NAME

**CIVIL
DETAILS**

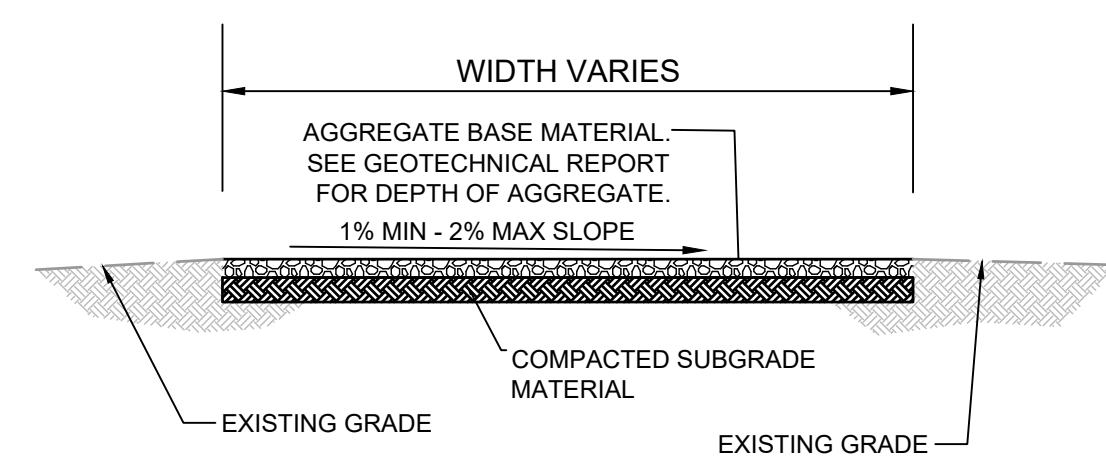
SCALE 1" = 100'

SHEET NUMBER

BES-C104

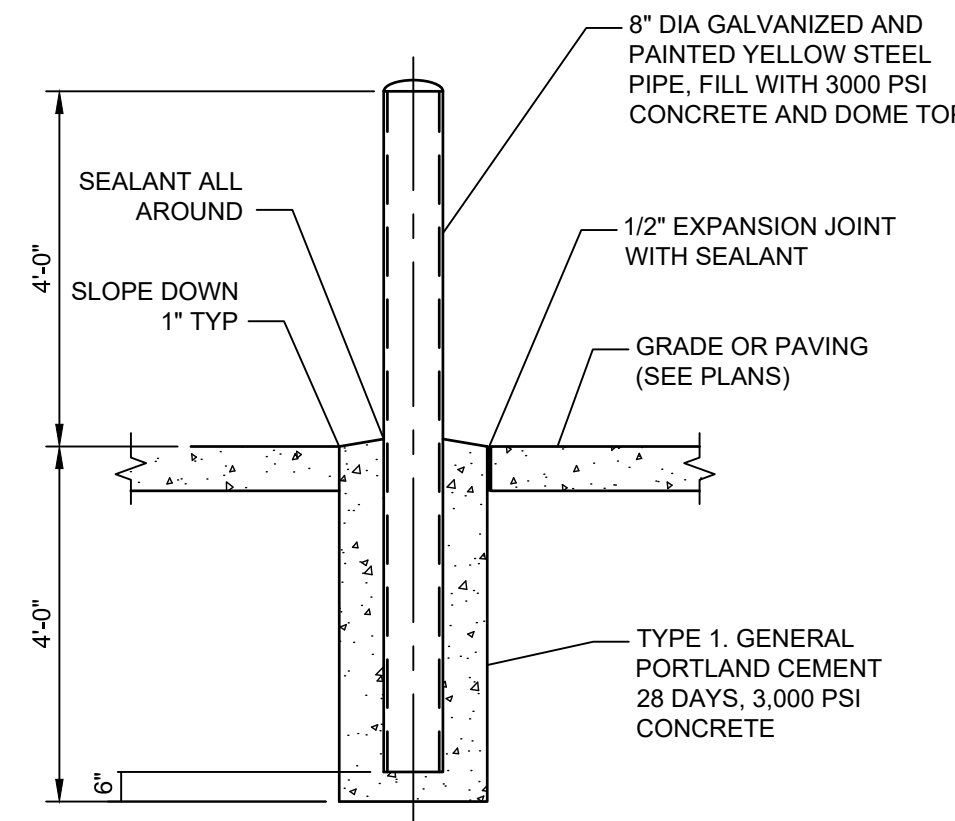
FILE NAME MISO-BES-C104.dwg

CONCEPTUAL

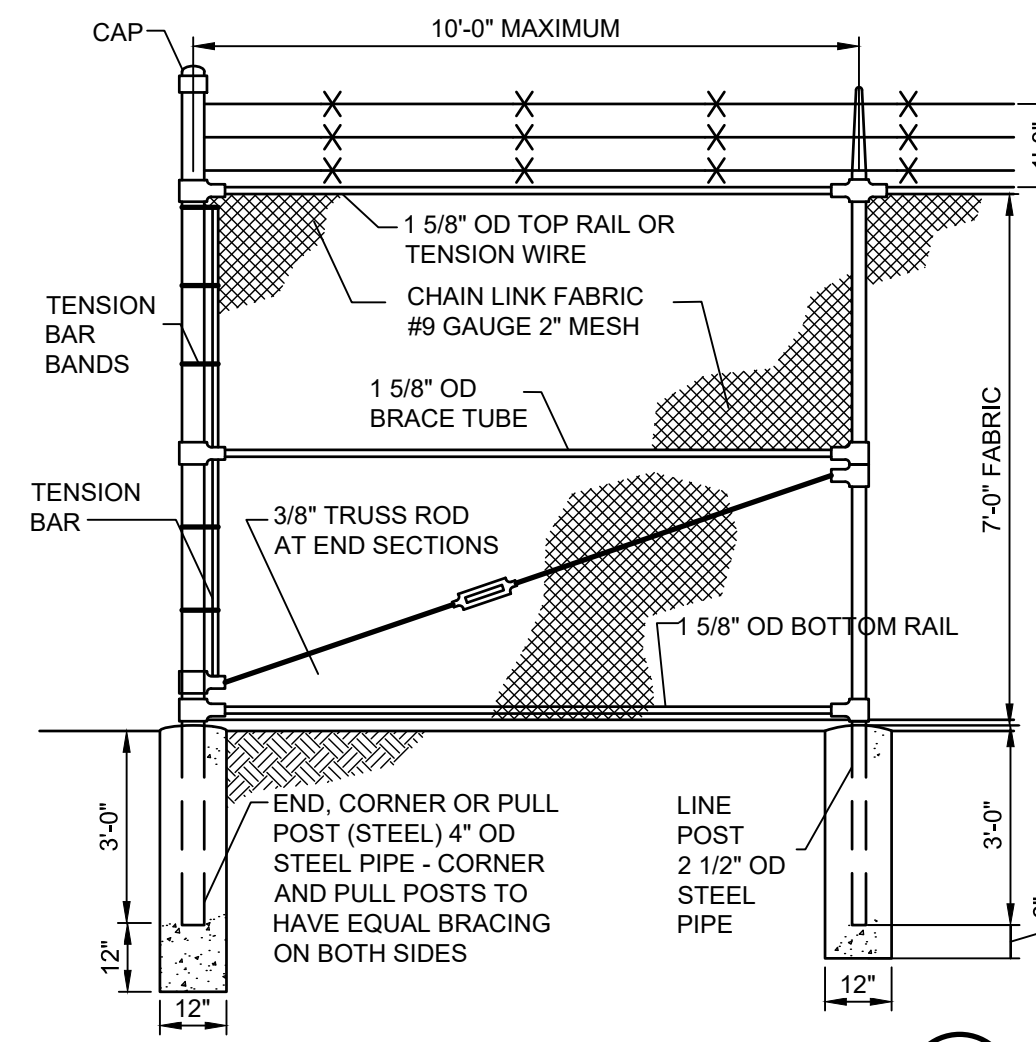


PROPOSED AGGREGATE ACCESS ROAD
NOT TO SCALE

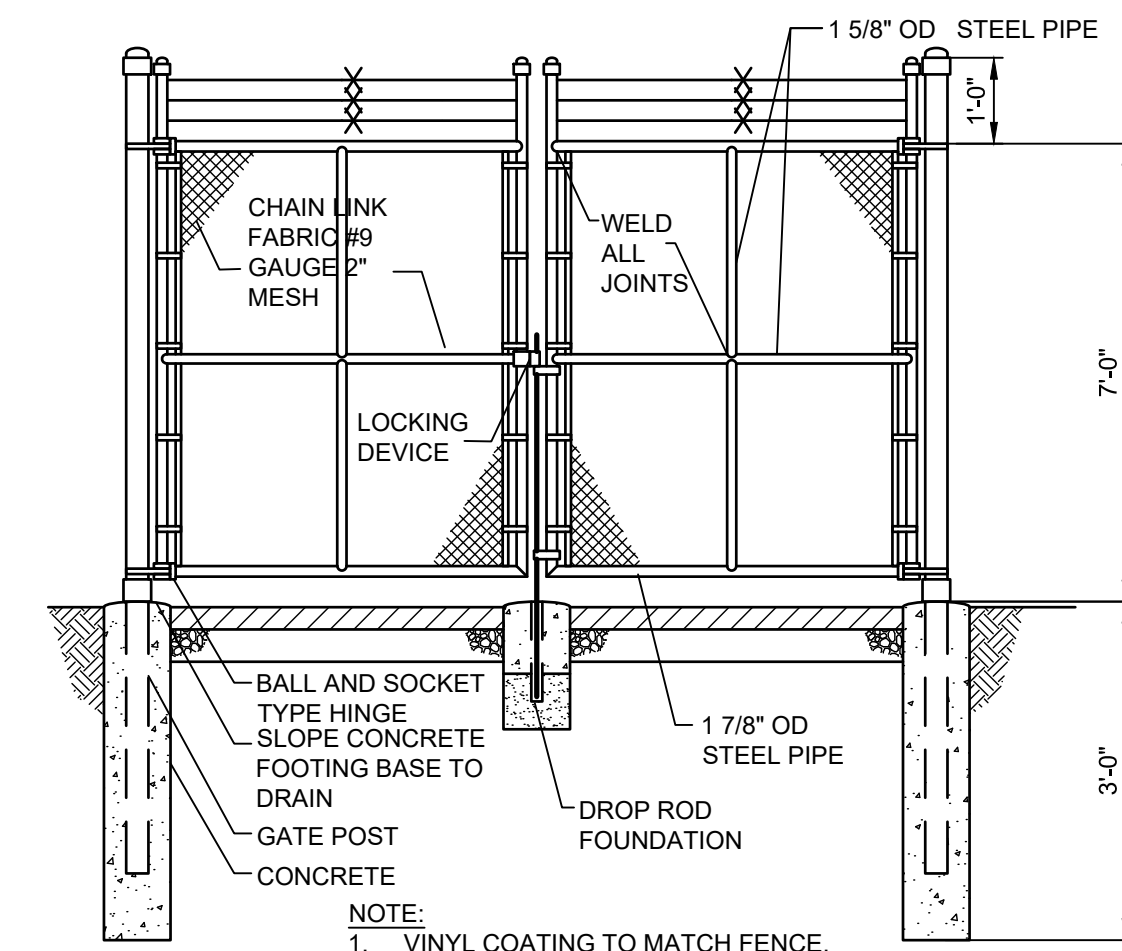
- NOTES:
- SITE ACCESS ROADS VARY IN WIDTH, SEE SITE PLAN FOR WIDTHS.



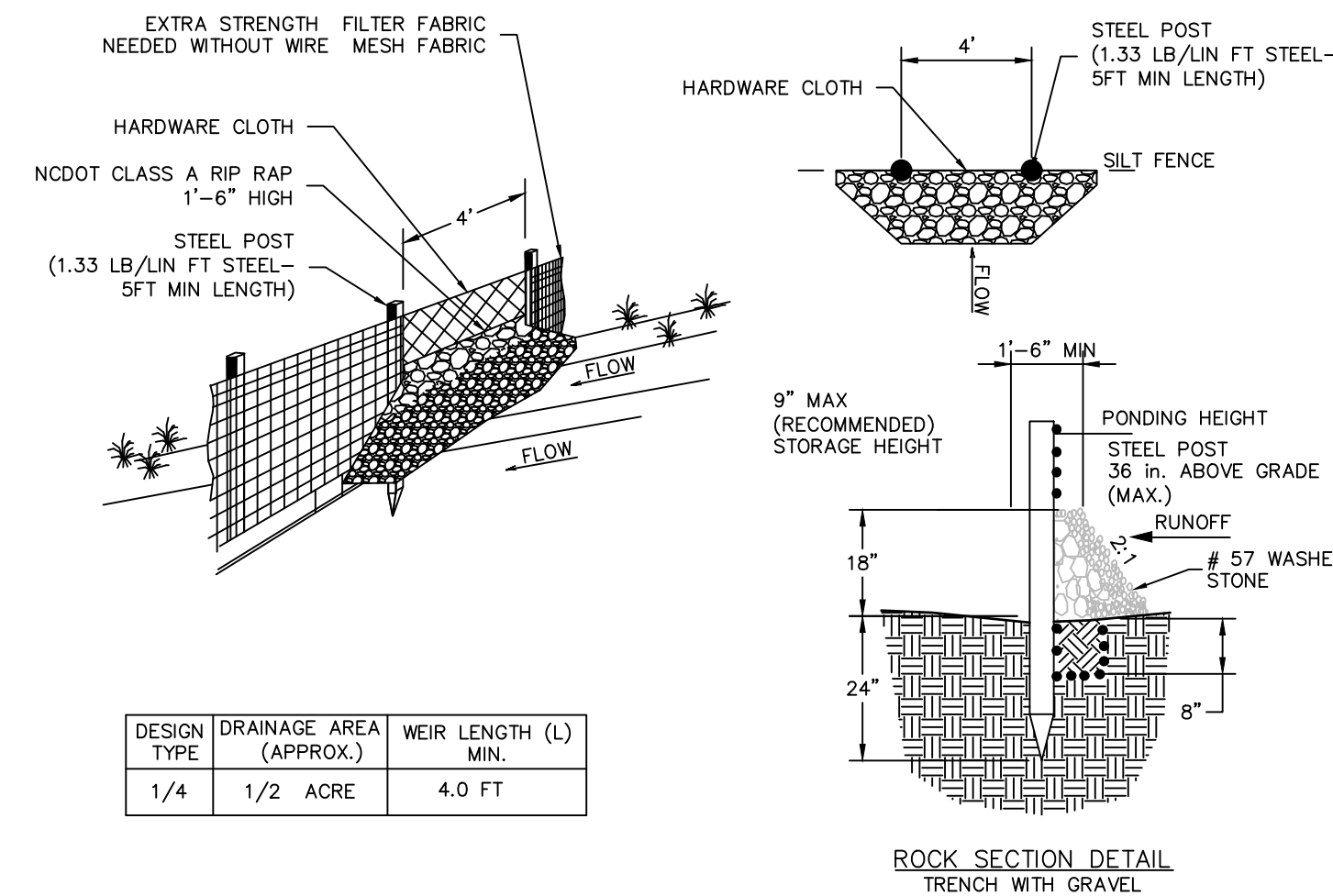
BOLLARD DETAIL
NOT TO SCALE



SECURITY FENCE DETAIL
NOT TO SCALE

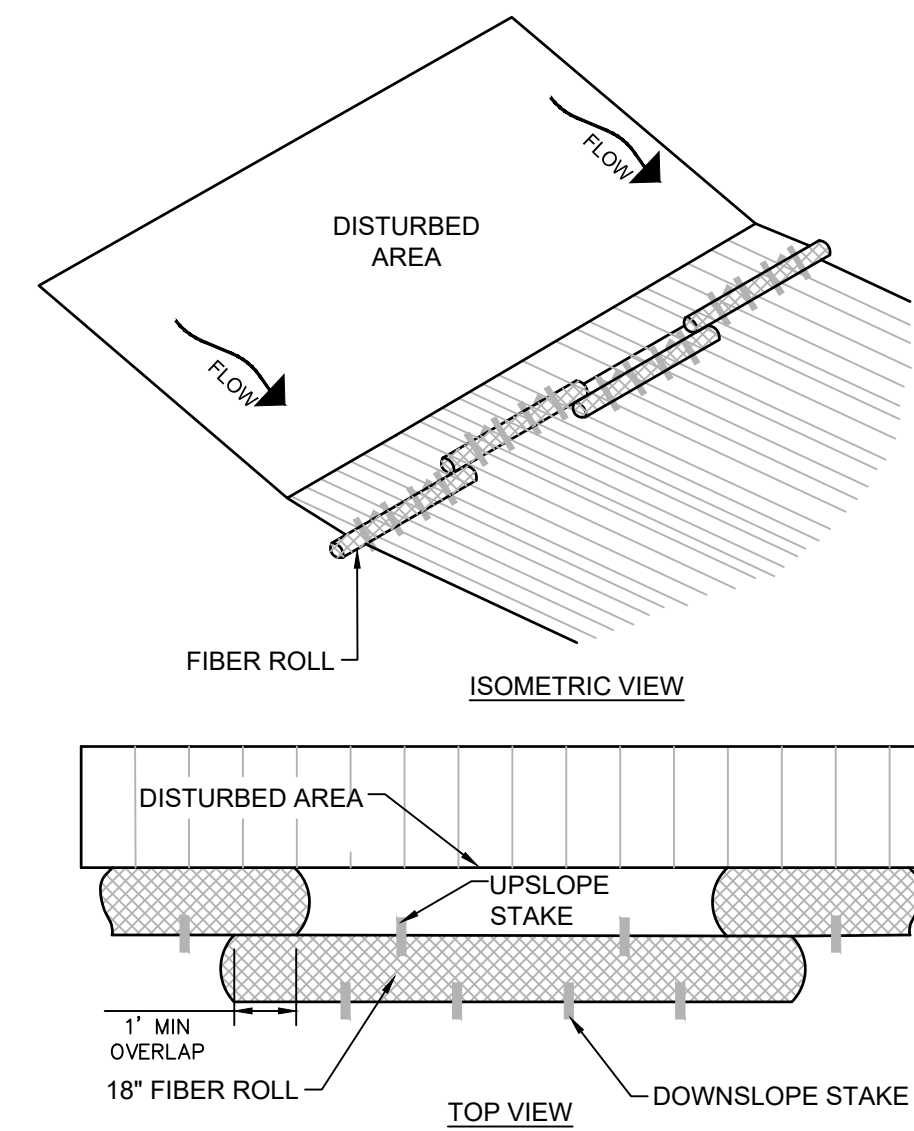


SWING GATE DETAIL
NOT TO SCALE



SILT FENCE ROCK OUTLET
NOT TO SCALE

DESIGN TYPE	DRAINAGE AREA (APPROX.)	WEIR LENGTH (L) MIN.
1/4	1/2 ACRE	4.0 FT



FILTER SOCK
NOT TO SCALE

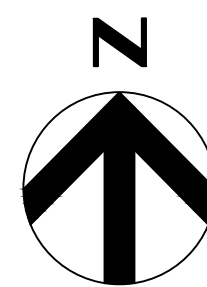
INSPECTION:

- INSPECT WEEKLY AND WITHIN 24 HOURS AFTER A 1/2" OR MORE RAIN EVENT.
- MONITOR SEDIMENT ACCUMULATION AND REMOVE ONCE IT REACHES 1/4 OF THE HEIGHT OF THE FILTER BERM.
- LOOK FOR AREAS THAT HAVE BEEN DAMAGED BY STORM WATER OR EQUIPMENT.

MAINTENANCE:

- SECURE OR REPLACE DAMAGED FILTER SOCKS.
- REPLACE WITH A STRONGER MEASURE, SUCH AS ROCK, IF DAMAGE IS SEVERE OR REOCCURRING.
- REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/4 THE HEIGHT OF THE FILTER SOCK.

SLOPE	Maximum Distance Above Filter Sock (linear feet) for Minimum Filter Sock Sizes (diameter of sock)				
	8 inch	12 inch	18 inch	24 inch	
0% - 2%	< 50:1	125	250	300	350
2% - 10%	50:1 to 10:1	100	125	200	250
10% - 20%	10:1 to 5:1	75	100	150	200
20% - 33%	5:1 to 3:1	25	50	75	100
> 33%	> 3:1	10	25	50	75

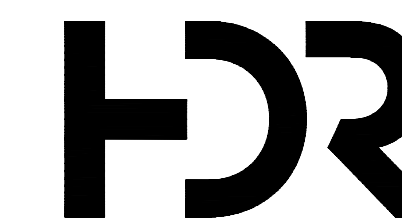


GENERAL NOTES

1. PLEASE ACCOUNT FOR LIMITATIONS TO THE ACCURACY OF THE SCALE DUE TO A SITE CIVIL SURVEY NOT HAVING BEEN CONDUCTED.
2. FINAL ROAD ACCESS POINT TO BE VERIFIED. ROAD TO MATCH CONNECTION TO SOLAR YARD.
3. FINAL ROAD DESIGN TO COMPLY WITH SITE ROAD REQUIREMENTS FOR SUBSTATION, BESS, AND FIRE ACCESS.

KEY NOTES

- ① SUBSTATION ACCESS ROAD (TYP.).
- ② BESS ACCESS ROAD (TYP.).
- ③ MAINTENANCE ACCESS ROAD (TYP.).
- ④ FIRE ACCESS ROAD (TYP.).



PROJECT FOR

**AES INDIANA
200 MW UNIT 2 -
REPLACEMENT
BESS DESIGN**

PETERSBURG, INDIANA

MARK	DATE	DESCRIPTION
A	01/25/2023	CONCEPTUAL DESIGN

PROJECT NUMBER 10343872
ORIGINAL ISSUE

PROJECT MANAGER	KURT LYELL
PROJECT DESIGNER	HANNA WOLF
PROJECT ARCHITECT	
LANDSCAPE ARCHITECT	
CIVIL ENGINEER	MATTHEW BRAWLEY
STRUCTURAL ENGINEER	
MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
NOT FOR CONSTRUCTION

SHEET NAME

**OVERALL SITE PLAN -
ROAD DETAIL**

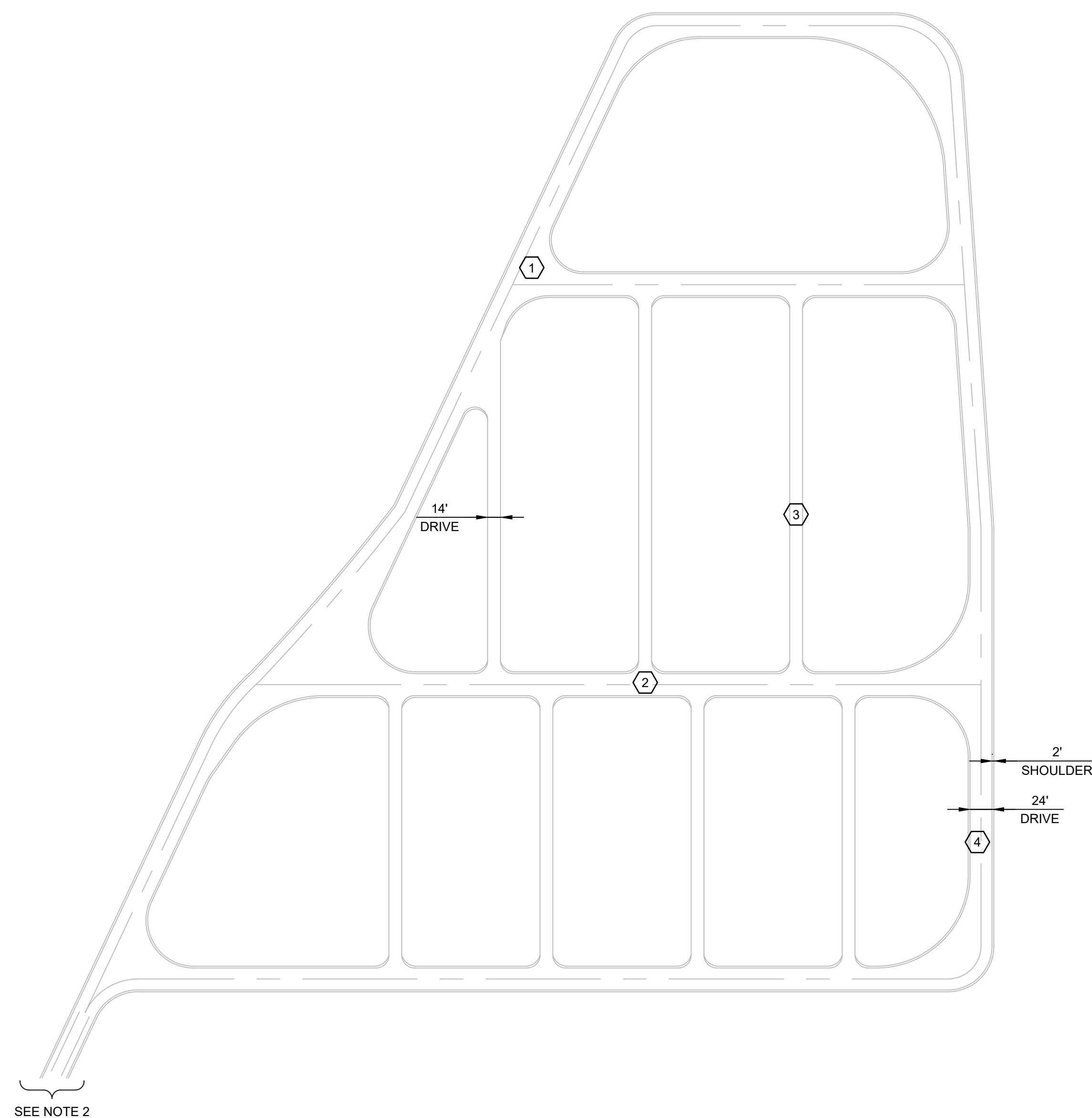
SCALE 1" = 100'

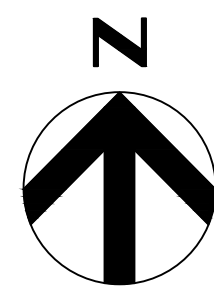
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BES-C105

FILE NAME MISO-BES-C105.dwg

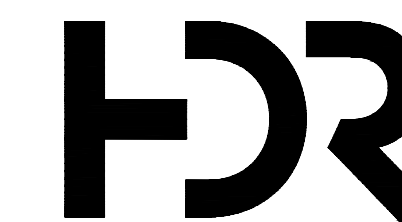
CONCEPTUAL





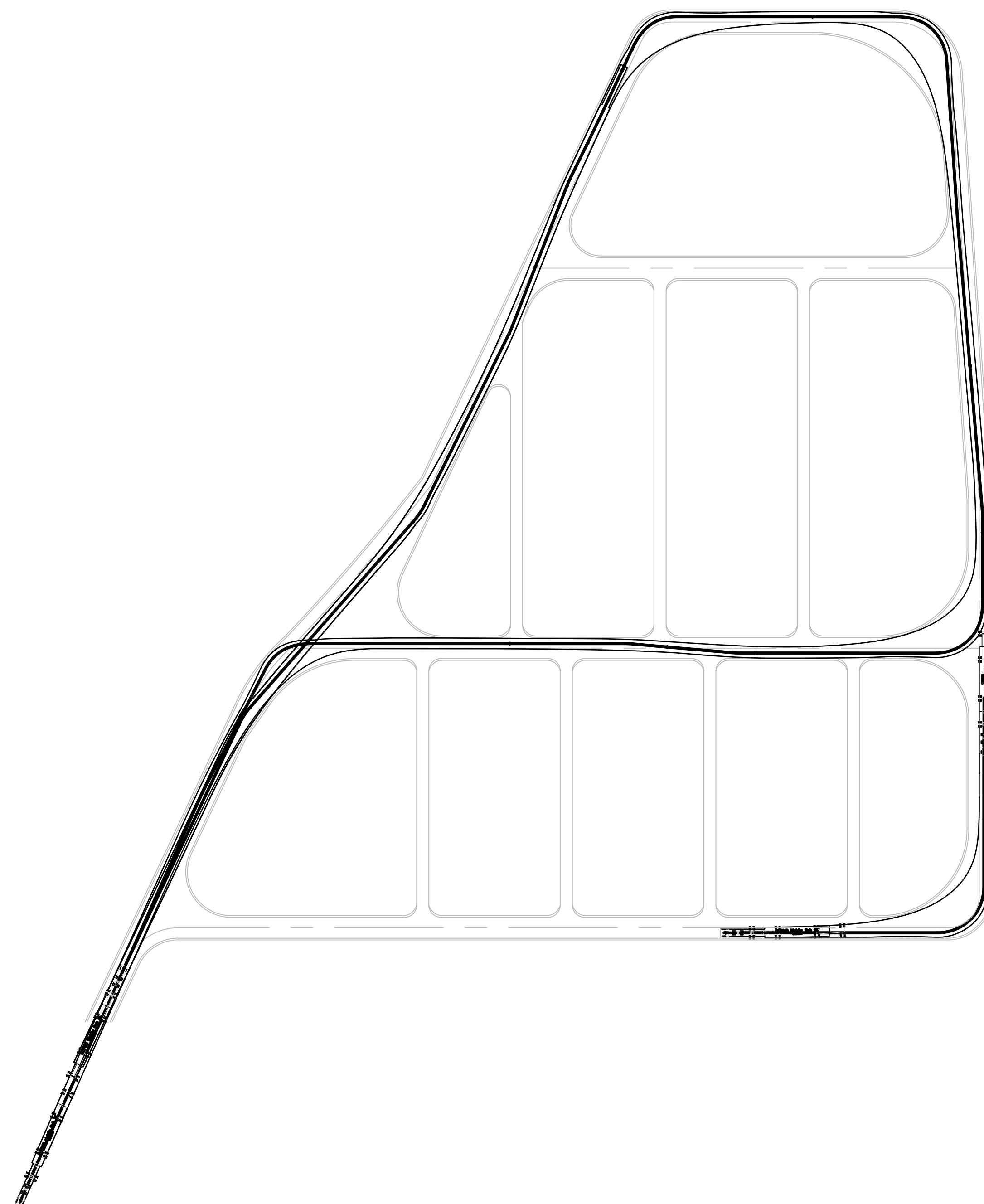
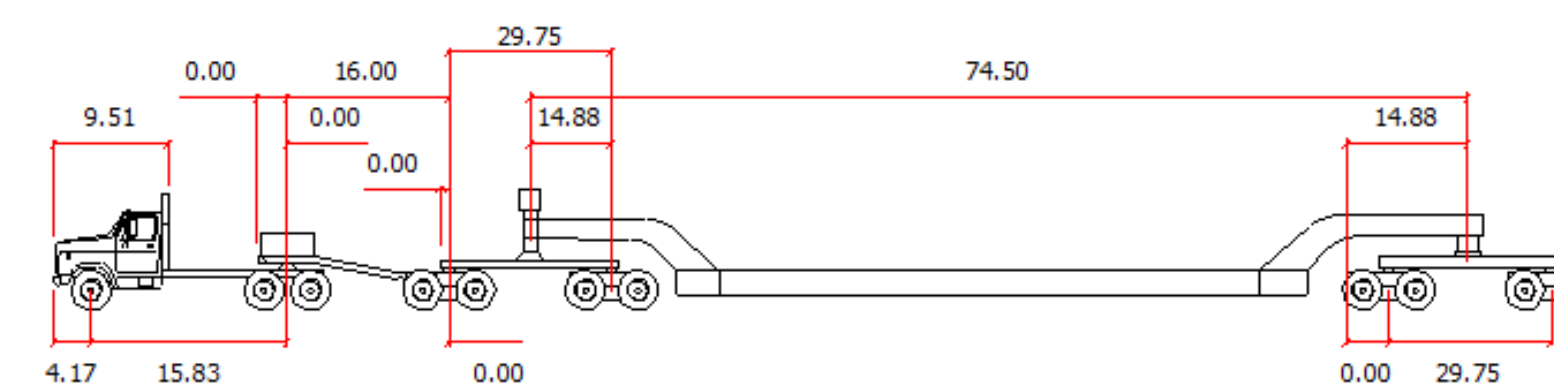
GENERAL NOTES

1. PLEASE ACCOUNT FOR LIMITATIONS TO THE ACCURACY OF THE SCALE DUE TO A SITE CIVIL SURVEY NOT HAVING BEEN CONDUCTED.
2. FINAL ROAD ACCESS POINT TO BE VERIFIED. ROAD TO MATCH CONNECTION TO SOLAR YARD.
3. FINAL VEHICLE SELECTION TO BE DETERMINED BY EPC BASED ON FINAL EQUIPMENT.



VEHICLE:

Units: feet



PROJECT FOR

**AES INDIANA
200 MW UNIT 2 -
REPLACEMENT
BESS DESIGN**

PETERSBURG, INDIANA

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MECHANICAL ENGINEER	
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SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
NOT FOR CONSTRUCTION

SHEET NAME

**AUTOTURN
142' LOWBOY
SITE PLAN**

SCALE 1" = 100'

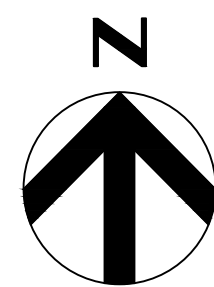
SHEET NUMBER

BES-C106A

FILE NAME MISO-BES-C106A.dwg

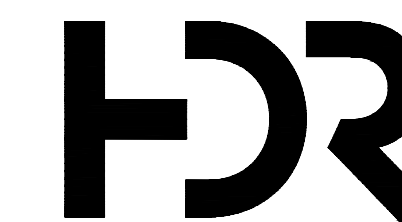
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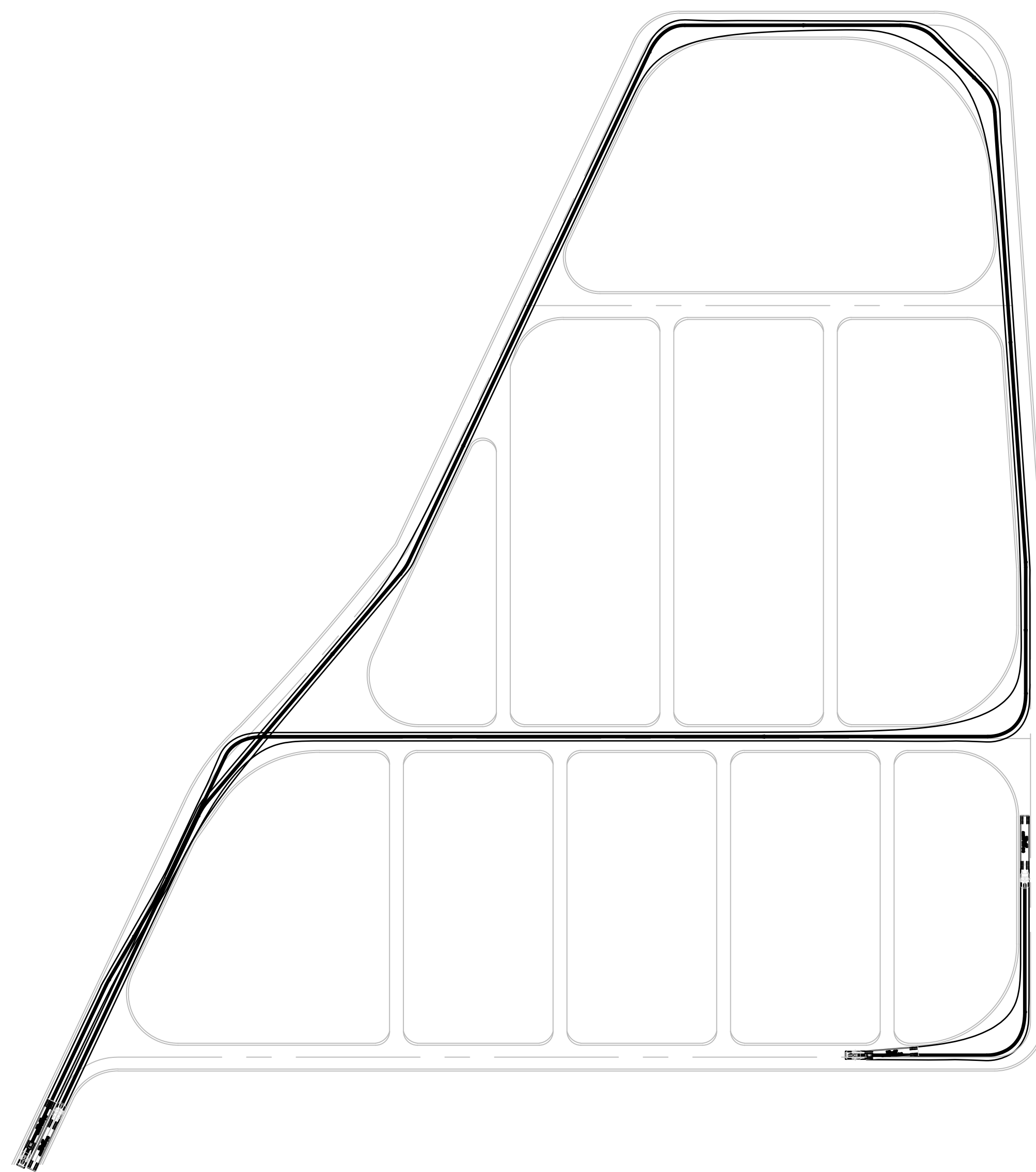
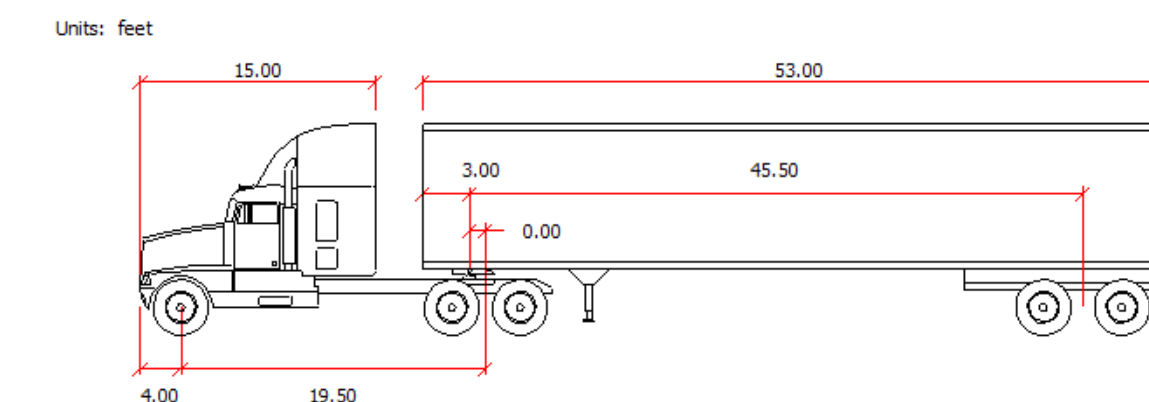


GENERAL NOTES

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VEHICLE:



D

PROJECT FOR

aes Indiana
 2102 N. ILLIONIS ST.
 INDIANAPOLIS, IN 46202

**AES INDIANA
 200 MW UNIT 2 -
 REPLACEMENT
 BESS DESIGN**

PETERSBURG, INDIANA

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MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
 NOT FOR CONSTRUCTION

SHEET NAME

**AUTOTURN
 WB-67 (SEMI)
 SITE PLAN**

SCALE 1" = 100'

SHEET NUMBER

BES-C106B

FILE NAME MISO-BES-C106B.dwg

CONCEPTUAL



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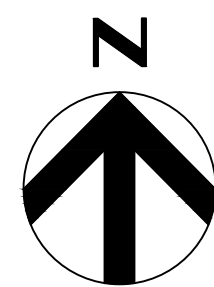
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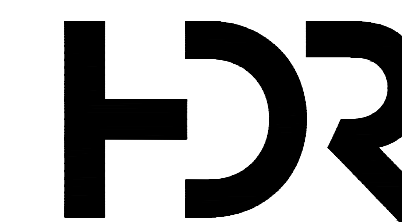
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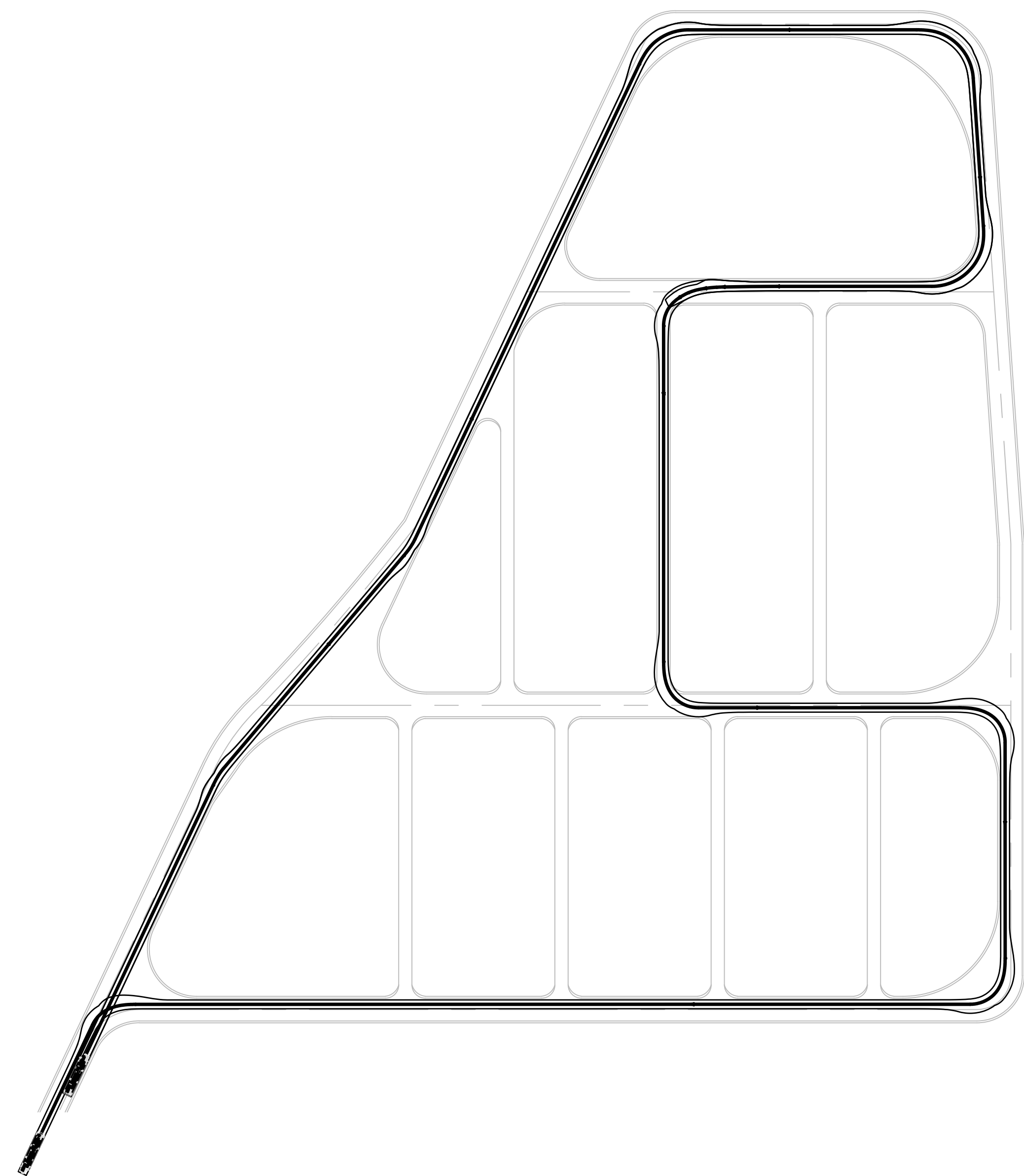
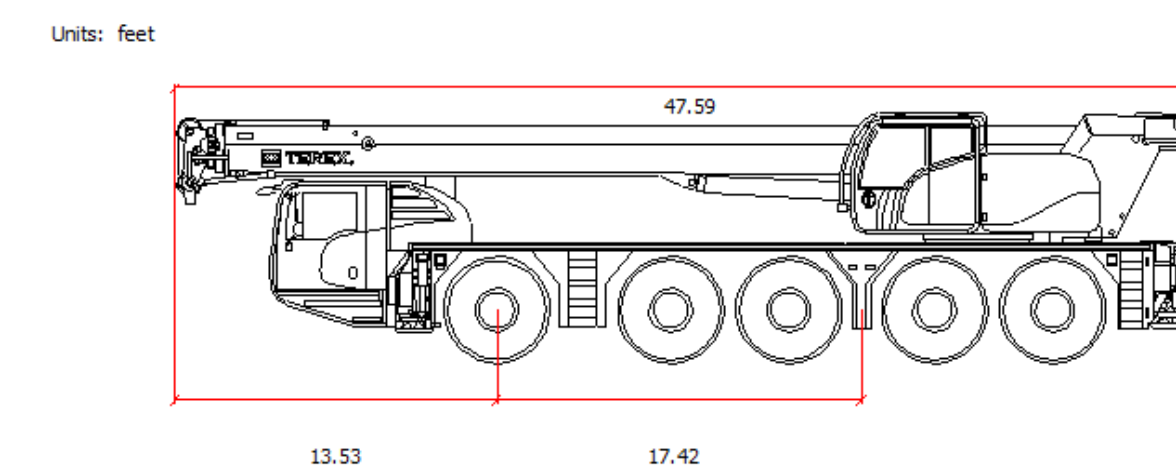


GENERAL NOTES

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2. FINAL ROAD ACCESS POINT TO BE VERIFIED. ROAD TO MATCH CONNECTION TO SOLAR YARD.
3. FINAL VEHICLE SELECTION TO BE DETERMINED BY EPC BASED ON FINAL EQUIPMENT.



VEHICLE:



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 INDIANAPOLIS, IN 46202

PROJECT FOR

**AES INDIANA
 200 MW UNIT 2 -
 REPLACEMENT
 BESS DESIGN**

PETERSBURG, INDIANA

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 PROJECT DESIGNER HANNA WOLF
 PROJECT ARCHITECT
 LANDSCAPE ARCHITECT
 CIVIL ENGINEER MATTHEW BRAWLEY
 STRUCTURAL ENGINEER
 MECHANICAL ENGINEER
 ELECTRICAL ENGINEER LUKAS ROWLAND
 SUBSTATION ENGINEER MATTHEW LIEBERMANN
 EQUIPMENT PLANNER
 WAYFINDING
 DRAWN BY MEAGEN MELBY

CONCEPTUAL
 NOT FOR CONSTRUCTION

SHEET NAME

**AUTOTURN
 100 TON CRANE
 SITE PLAN**

SCALE 1" = 100'

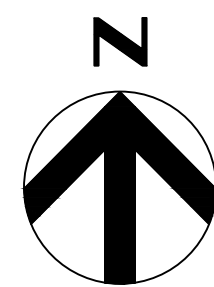
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BES-C106C

FILE NAME MISO-BES-C106C.dwg

CONCEPTUAL






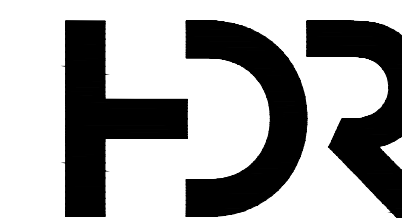


GENERAL NOTES

1. PLEASE ACCOUNT FOR LIMITATIONS TO THE ACCURACY OF THE SCALE DUE TO A SITE CIVIL SURVEY NOT HAVING BEEN CONDUCTED.
2. FINAL EQUIPMENT TO BE DETERMINED BY EPC. SIZING SPECIFICATION OF FINAL EQUIPMENT MAY DIFFER THAN THOSE SHOWN WITHIN THE DETAILED SITE PLAN.
3. FINAL ROAD ACCESS POINT TO BE VERIFIED. ROAD TO MATCH CONNECTION TO SOLAR YARD.
4. BATTERY AND PCS EQUIPMENT ARE INDICATIVE ONLY. FINAL EQUIPMENT SELECTION BY EPC.

LEGEND:

-  POWER CONVERSION SYSTEM
-  INDICATIVE BESS ENCLOSURE (FLUENCE CUBES)
-  AUX TRANSFORMER



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 INDIANAPOLIS, IN 46202

PROJECT FOR

**AES INDIANA
 200 MW UNIT 2 -
 REPLACEMENT
 BESS DESIGN**

PETERSBURG, INDIANA

MARK	DATE	DESCRIPTION
A	01/25/2023	CONCEPTUAL DESIGN

PROJECT NUMBER 10343872
 ORIGINAL ISSUE

PROJECT MANAGER	KURT LYLELL
PROJECT DESIGNER	HANNA WOLF
PROJECT ARCHITECT	
LANDSCAPE ARCHITECT	
CIVIL ENGINEER	MATTHEW BRAWLEY
STRUCTURAL ENGINEER	
MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

**CONCEPTUAL
 NOT FOR CONSTRUCTION**

SHEET NAME

**ELECTRICAL
 OVERALL
 SITE PLAN**

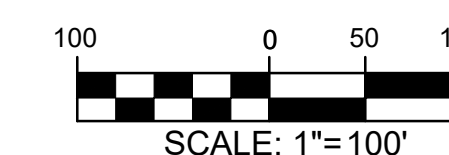
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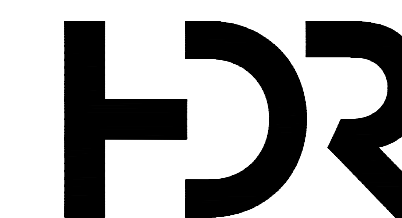
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BES-E100

FILE NAME MISO-BES-E100.dwg

CONCEPTUAL





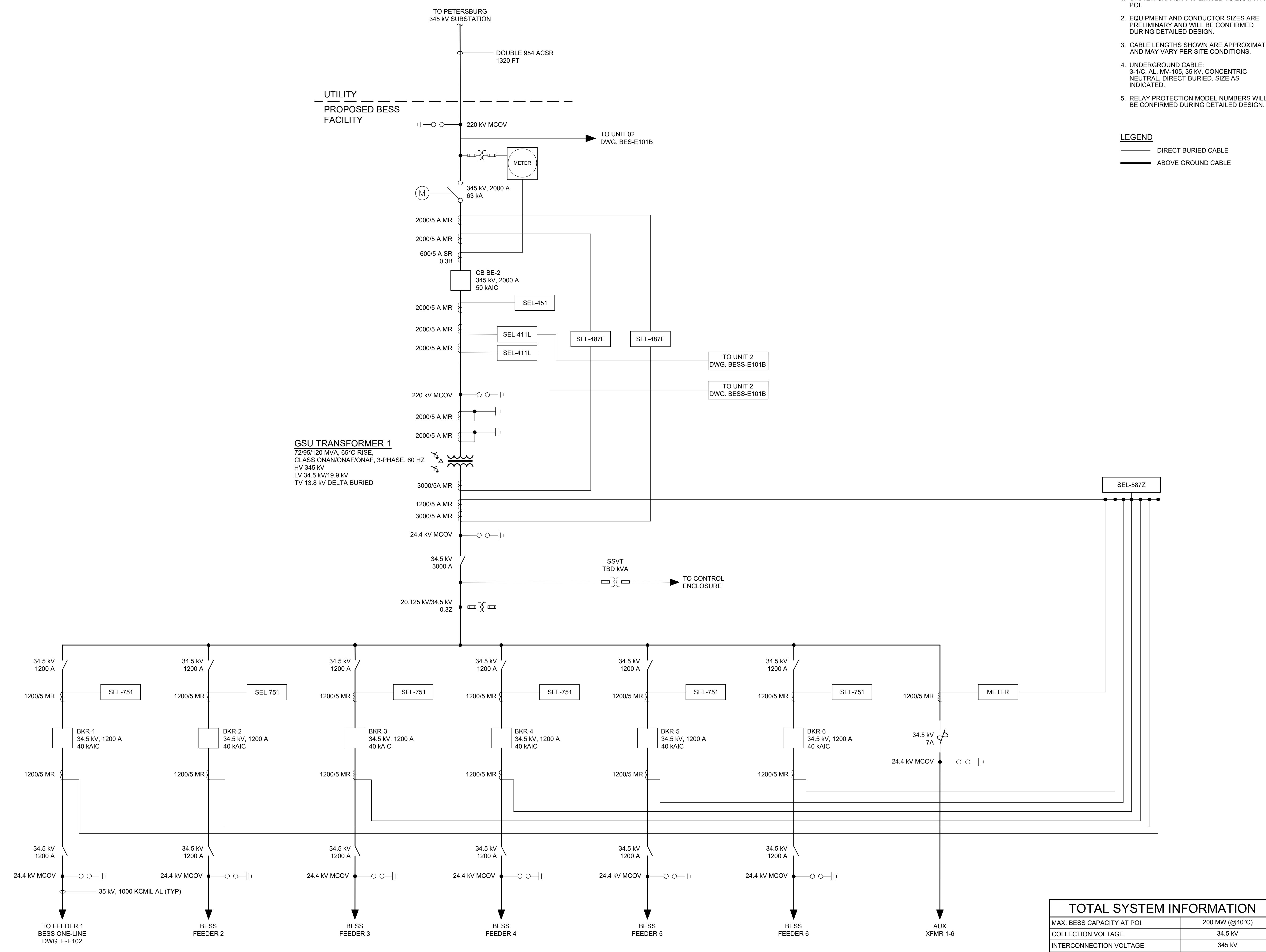
PROJECT FOR

**AES INDIANA
200 MW UNIT 2 -
REPLACEMENT
BESS DESIGN**

PETERSBURG, INDIANA

- GENERAL NOTES**
1. SYSTEM CAPACITY IS LIMITED TO 200 MW AT POI.
 2. EQUIPMENT AND CONDUCTOR SIZES ARE PRELIMINARY AND WILL BE CONFIRMED DURING DETAILED DESIGN.
 3. CABLE LENGTHS SHOWN ARE APPROXIMATE AND MAY VARY PER SITE CONDITIONS.
 4. UNDERGROUND CABLE: 3-1/C, AL, MV-105, 35 KV, CONCENTRIC NEUTRAL, DIRECT-BURIED, SIZE AS INDICATED.
 5. RELAY PROTECTION MODEL NUMBERS WILL BE CONFIRMED DURING DETAILED DESIGN.

- LEGEND**
- DIRECT BURIED CABLE
 - ABOVE GROUND CABLE



GSU TRANSFORMER 1
 72/95/120 MVA, 65°C RISE,
 CLASS ONAN/ONAF/ONAF, 3-PHASE, 60 HZ
 HV 345 KV
 LV 34.5 KV/19.9 KV
 TV 13.8 KV DELTA BURIED

TOTAL SYSTEM INFORMATION	
MAX. BESS CAPACITY AT POI	200 MW (@40°C)
COLLECTION VOLTAGE	34.5 KV
INTERCONNECTION VOLTAGE	345 KV
BESS INVERTER QTY (INDICATIVE)	84
BESS INVERTER CAPACITY (INDICATIVE)	235.2 MVA (@40°C)

MARK	DATE	DESCRIPTION
A	01/25/2023	CONCEPTUAL DESIGN

PROJECT NUMBER	10343872
ORIGINAL ISSUE	

PROJECT MANAGER	KURT LYELL
PROJECT DESIGNER	HANNA WOLF
PROJECT ARCHITECT	
LANDSCAPE ARCHITECT	
CIVIL ENGINEER	MATTHEW BRAWLEY
STRUCTURAL ENGINEER	
MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
NOT FOR CONSTRUCTION

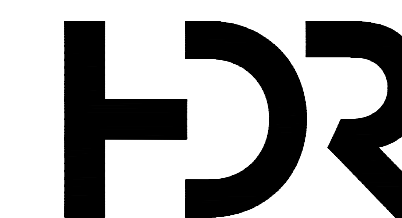
SHEET NAME
**SUBSTATION
ONE-LINE
(UNIT 1)**

SCALE N.T.S.

SHEET NUMBER
BES-E101A

FILE NAME MISO-BES-E101A.dwg

CONCEPTUAL



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 2102 N. ILLIONIS ST.
 INDIANAPOLIS, IN 46202

PROJECT FOR

**AES INDIANA
 200 MW UNIT 2 -
 REPLACEMENT
 BESS DESIGN**

PETERSBURG, INDIANA

MARK	DATE	DESCRIPTION
A	01/25/2023	CONCEPTUAL DESIGN
PROJECT NUMBER 10343872		
ORIGINAL ISSUE		
PROJECT MANAGER	KURT LYELL	
PROJECT DESIGNER	HANNA WOLF	
PROJECT ARCHITECT	LANDSCAPE ARCHITECT	
CIVIL ENGINEER	MATTHEW BRAWLEY	
MECHANICAL ENGINEER		
ELECTRICAL ENGINEER	LUKAS ROWLAND	
SUBSTATION ENGINEER	MATTHEW LIEBERMANN	
EQUIPMENT PLANNER		
WAYFINDING		
DRAWN BY	MEAGEN MELBY	

**CONCEPTUAL
 NOT FOR CONSTRUCTION**

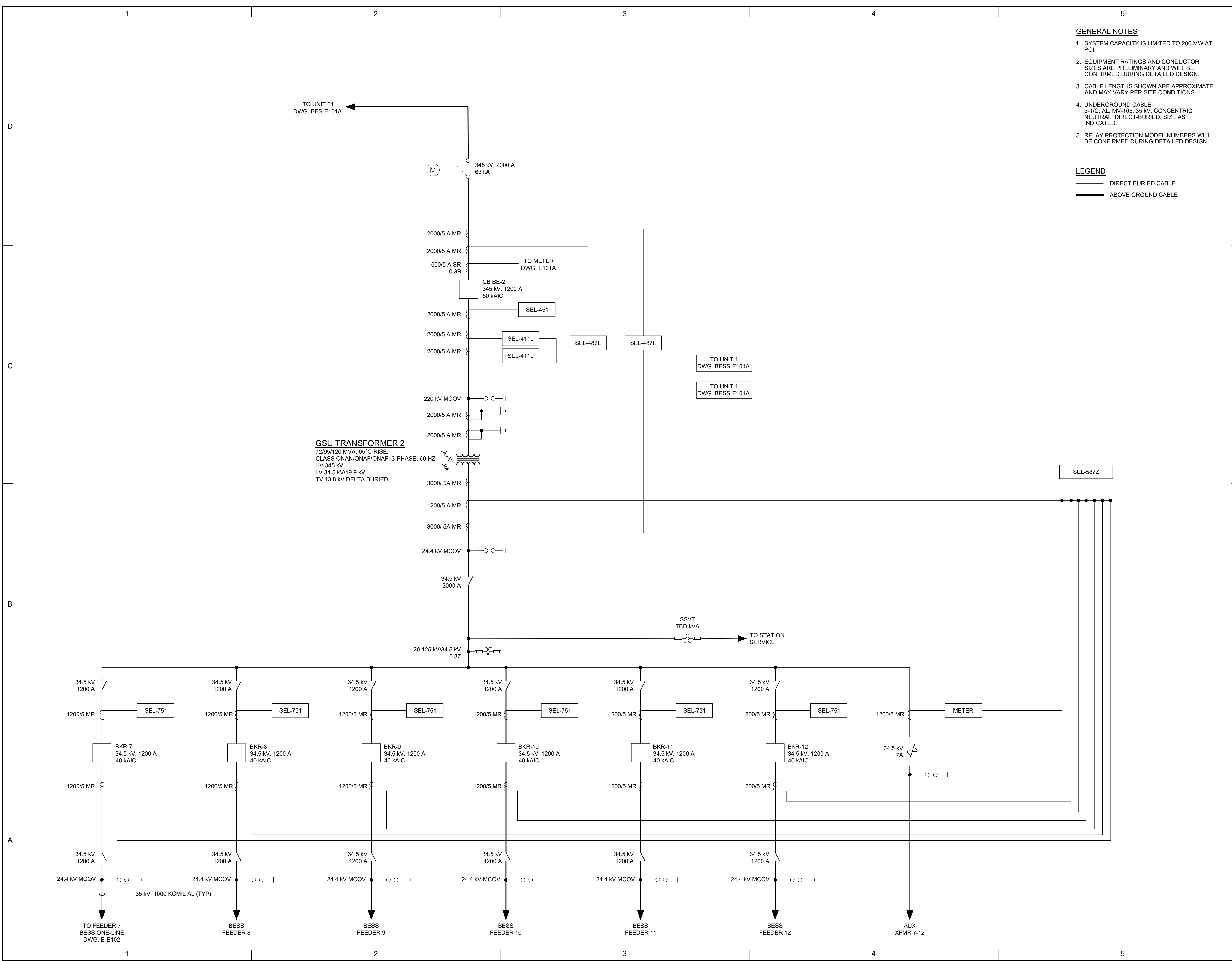
SHEET NAME	SUBSTATION ONE-LINE (UNIT 2)
SCALE	N.T.S.
SHEET NUMBER	BES-E101B
FILE NAME	MISO-BES-E101B.dwg
CONCEPTUAL	

GENERAL NOTES

1. SYSTEM CAPACITY IS LIMITED TO 200 MW AT POI.
2. EQUIPMENT RATINGS AND CONDUCTOR SIZES ARE PRELIMINARY AND WILL BE CONFIRMED DURING DETAILED DESIGN.
3. CABLE LENGTHS SHOWN ARE APPROXIMATE AND MAY VARY PER SITE CONDITIONS.
4. UNDERGROUND CABLE: 3-1/C, AL, MV-105, 35 KV, CONCENTRIC NEUTRAL, DIRECT-BURIED. SIZE AS INDICATED.
5. RELAY PROTECTION MODEL NUMBERS WILL BE CONFIRMED DURING DETAILED DESIGN.

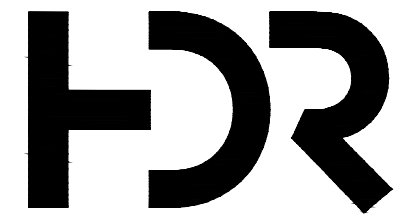
LEGEND

- DIRECT BURIED CABLE
- ABOVE GROUND CABLE



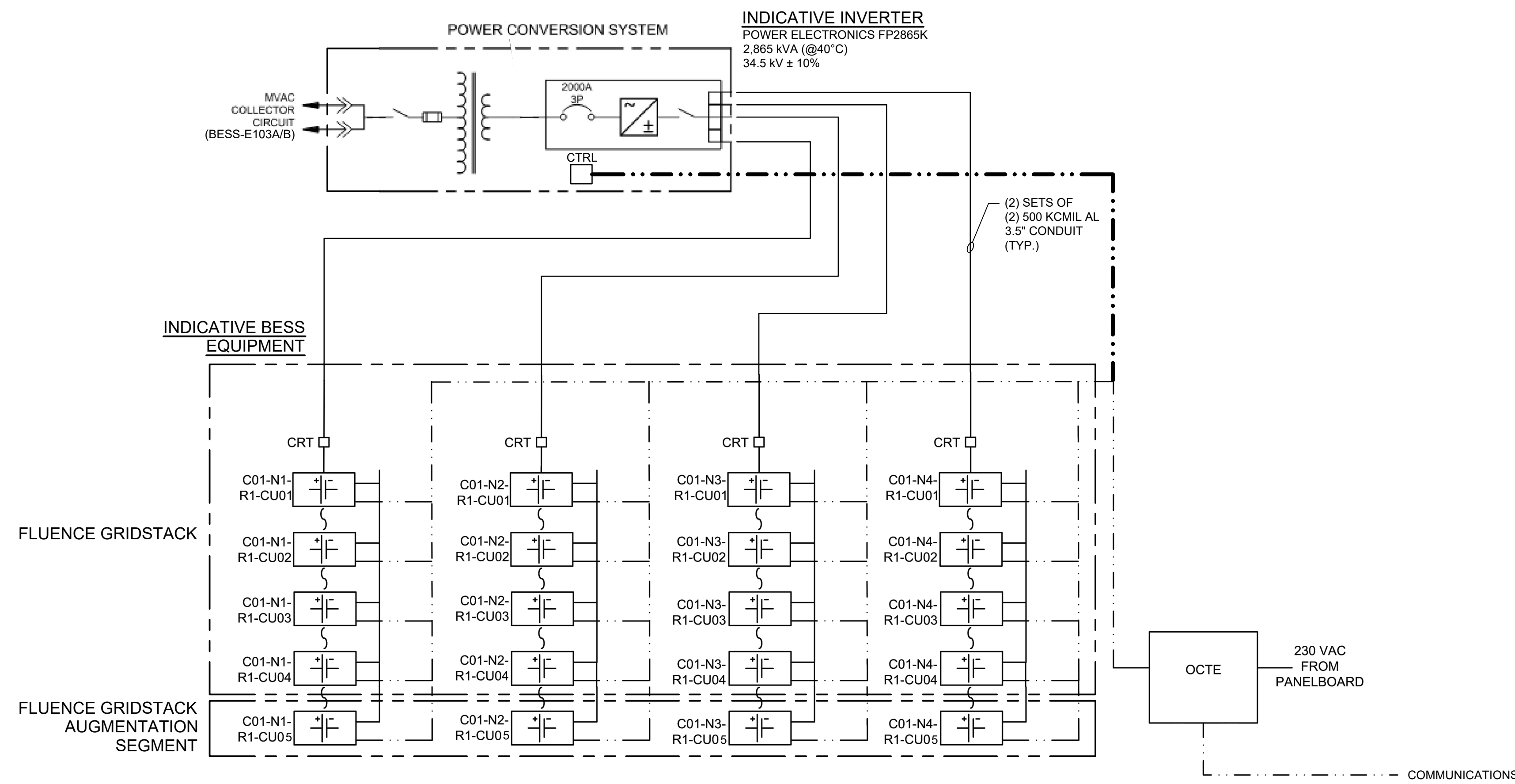
GENERAL NOTES

1. EQUIPMENT AND CONDUCTOR SIZES ARE PRELIMINARY AND WILL BE CONFIRMED DURING DETAILED DESIGN.



LEGEND

— POWER CABLE
- - - COMMUNICATIONS



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aes Indiana
2102 N. ILLIONIS ST.
INDIANAPOLIS, IN 46202

PROJECT FOR
**AES INDIANA
200 MW UNIT 2 -
REPLACEMENT
BESS DESIGN**
PETERSBURG, INDIANA

MARK	DATE	DESCRIPTION
A	01/25/2023	CONCEPTUAL DESIGN

PROJECT NUMBER 10343872
ORIGINAL ISSUE

PROJECT MANAGER	KURT LYLELL
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SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
NOT FOR CONSTRUCTION

SHEET NAME
**BESS DC
ONE-LINE**

SCALE N.T.S.

SHEET NUMBER
BES-E102

FILE NAME MISO-BES-E102.dwg

CONCEPTUAL

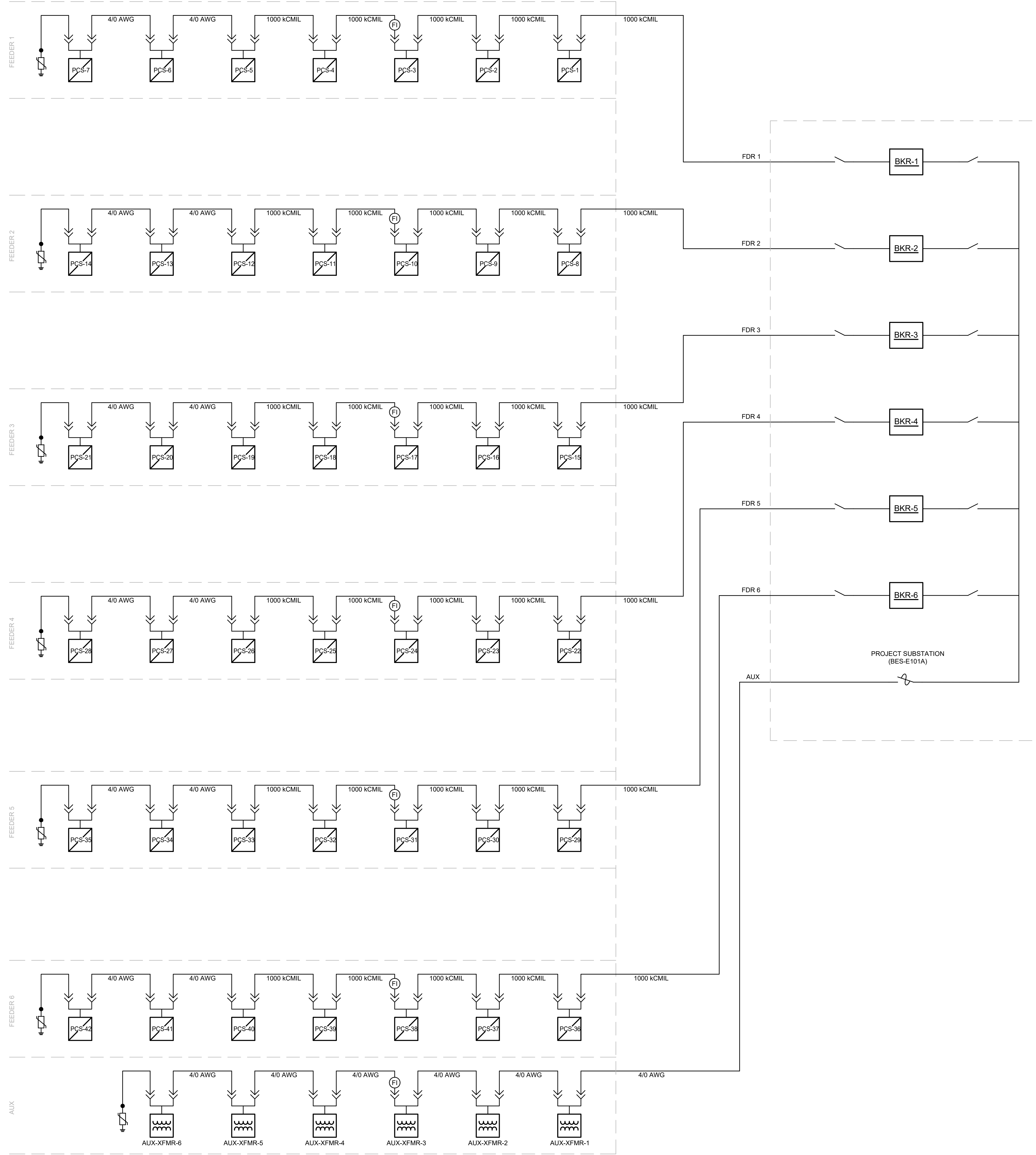
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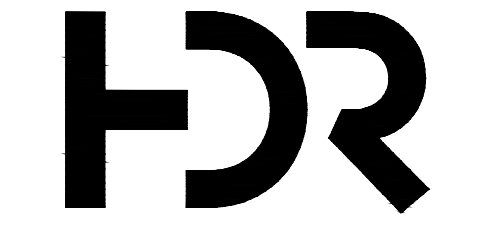
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GENERAL NOTES

- 1. EQUIPMENT AND CONDUCTOR SIZES ARE PRELIMINARY AND WILL BE CONFIRMED DURING DETAILED DESIGN.
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PROJECT FOR

**AES INDIANA
200 MW UNIT 2 -
REPLACEMENT
BESS DESIGN**

PETERSBURG, INDIANA

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PROJECT NUMBER 10343872
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MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

**CONCEPTUAL
NOT FOR CONSTRUCTION**

SHEET NAME

**AC ONE-LINE
DIAGRAM (MV)
UNIT 1**

SCALE N.T.S.

SHEET NUMBER

BES-E103A

FILE NAME MISO-BES-E103A.dwg

CONCEPTUAL

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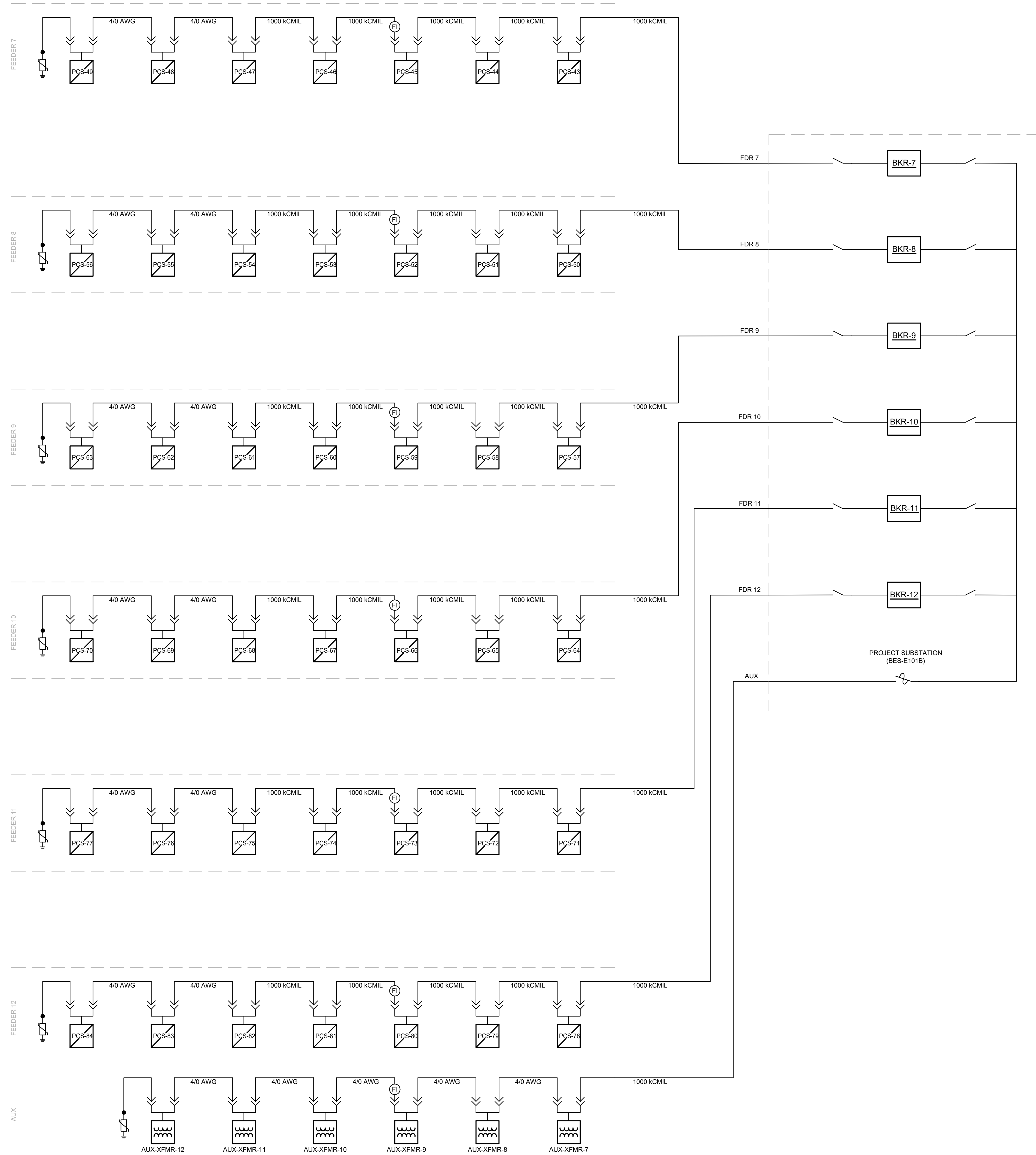
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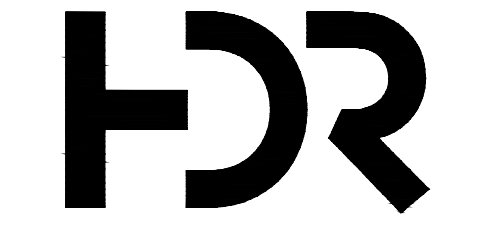
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- GENERAL NOTES**
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 2. CABLE LENGTHS SHOWN ARE APPROXIMATE AND MAY VARY PER SITE CONDITIONS.



aes Indiana
 2102 N. ILLIONIS ST.
 INDIANAPOLIS, IN 46202

PROJECT FOR
**AES INDIANA
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PETERSBURG, INDIANA

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CIVIL ENGINEER	MATTHEW BRAWLEY
STRUCTURAL ENGINEER	
MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
 NOT FOR CONSTRUCTION

SHEET NAME
**AC ONE-LINE
 DIAGRAM (MV)
 UNIT 2**

SCALE N.T.S.

SHEET NUMBER
BES-E103B

FILE NAME MISO-BES-E103B.dwg

CONCEPTUAL

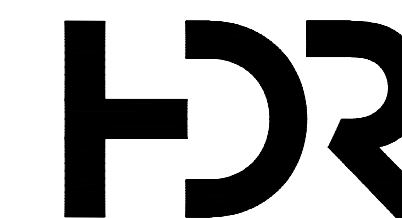
1

2

3

4

5



aes Indiana
 2102 N. ILLIONIS ST.
 INDIANAPOLIS, IN 46202

GENERAL NOTES

- EQUIPMENT AND CONDUCTOR SIZES ARE PRELIMINARY AND WILL BE CONFIRMED DURING DETAILED DESIGN.
- CABLE LENGTHS SHOWN ARE APPROXIMATE AND MAY VARY PER SITE CONDITIONS.

KEY NOTES

- PADMOUNT TRANSFORMER, THREE PHASE, OIL FILLED, PRIMARY SIDE DISCONNECTING MEANS, PROTECTIVE FUSING, EXTERNAL GAUGE CABINET, EXTERNALLY OPERABLE LOAD BREAK DISCONNECT, TEMPERATURE AND PRESSURE ALARM CONTACTS.
 TRANSFORMER IMPEDANCE TO BE CONFIRMED.
- 600 A NON-LOAD BREAK ELBOWS, 35 kV, 150 kV BIL.
- CONFIRM FINAL LOAD REQUIREMENT. CONTRACTOR TO FURNISH AND INSTALL CABLES AND CONDUITS AS REQUIRED PER 2022 NEC. CABLES TO BE RATED AT 600 V. XHHW-2, CU, AND IN SCH. 40 PVC CONDUITS.
- EXTERNAL BREAKER IN NEMA 3R ENCLOSURE.
-

PROJECT FOR

**AES INDIANA
 200 MW UNIT 2 -
 REPLACEMENT
 BESS DESIGN**

PETERSBURG, INDIANA

MARK	DATE	DESCRIPTION
A	01/25/2023	CONCEPTUAL DESIGN

PROJECT NUMBER 10343872
 ORIGINAL ISSUE

PROJECT MANAGER	KURT LYELL
PROJECT DESIGNER	HANNA WOLF
PROJECT ARCHITECT	
LANDSCAPE ARCHITECT	
CIVIL ENGINEER	MATTHEW BRAWLEY
STRUCTURAL ENGINEER	
MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	LUKAS ROWLAND
SUBSTATION ENGINEER	MATTHEW LIEBERMANN
EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

**CONCEPTUAL
 NOT FOR CONSTRUCTION**

SHEET NAME

**AC ONE-LINE
 DIAGRAM
 (AUX)**

SCALE N.T.S.

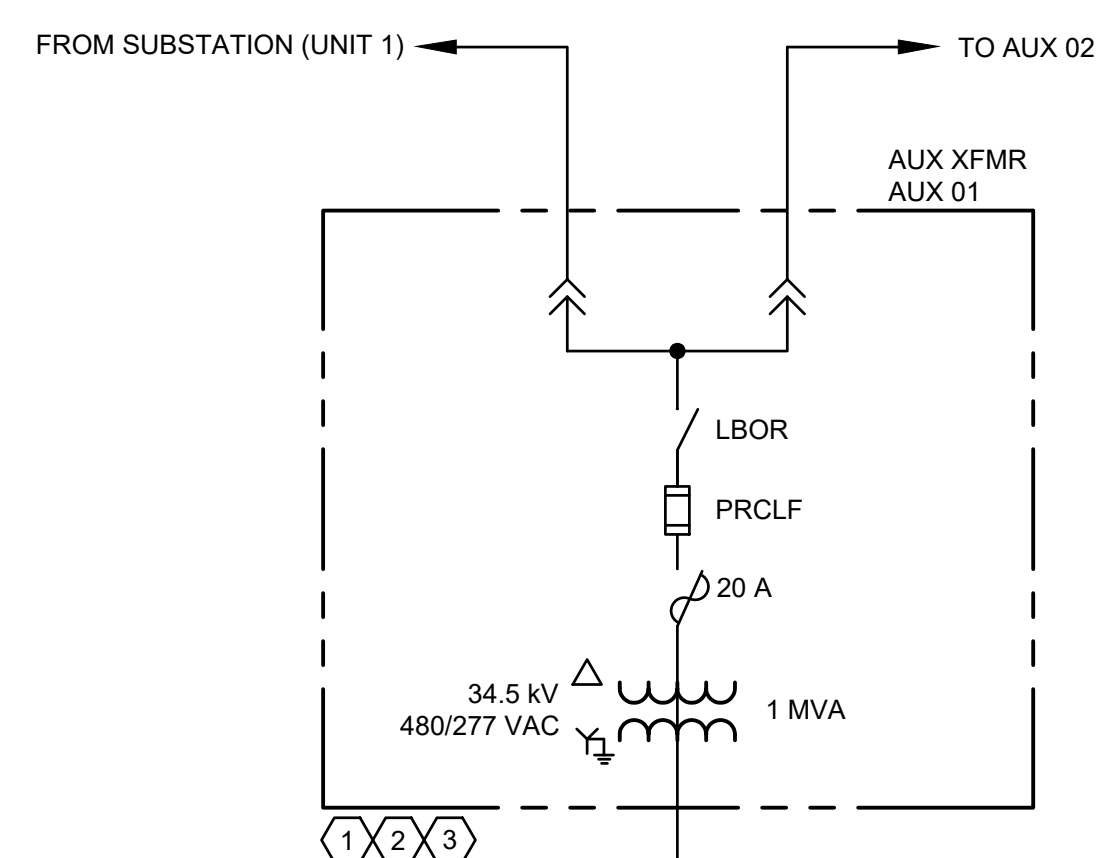
SHEET NUMBER

BES-E104

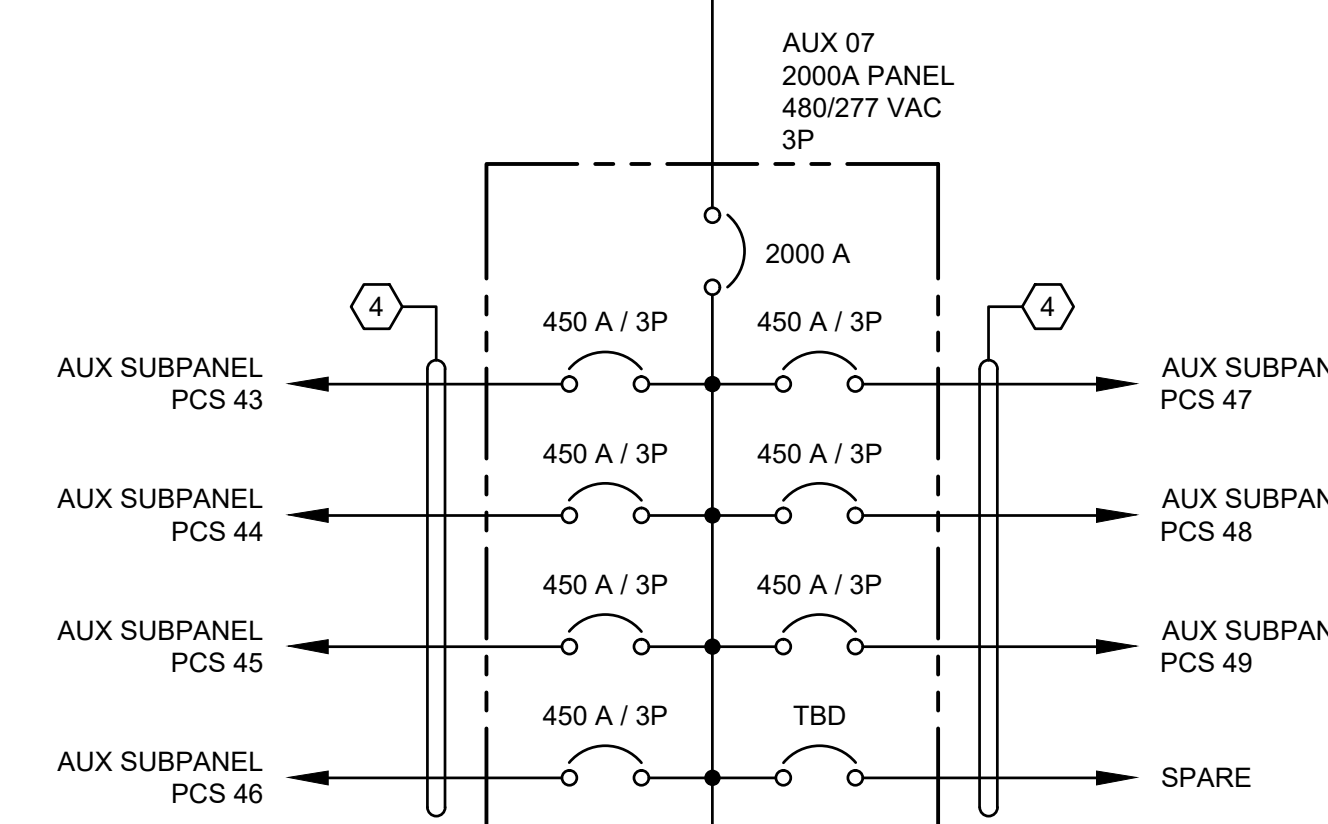
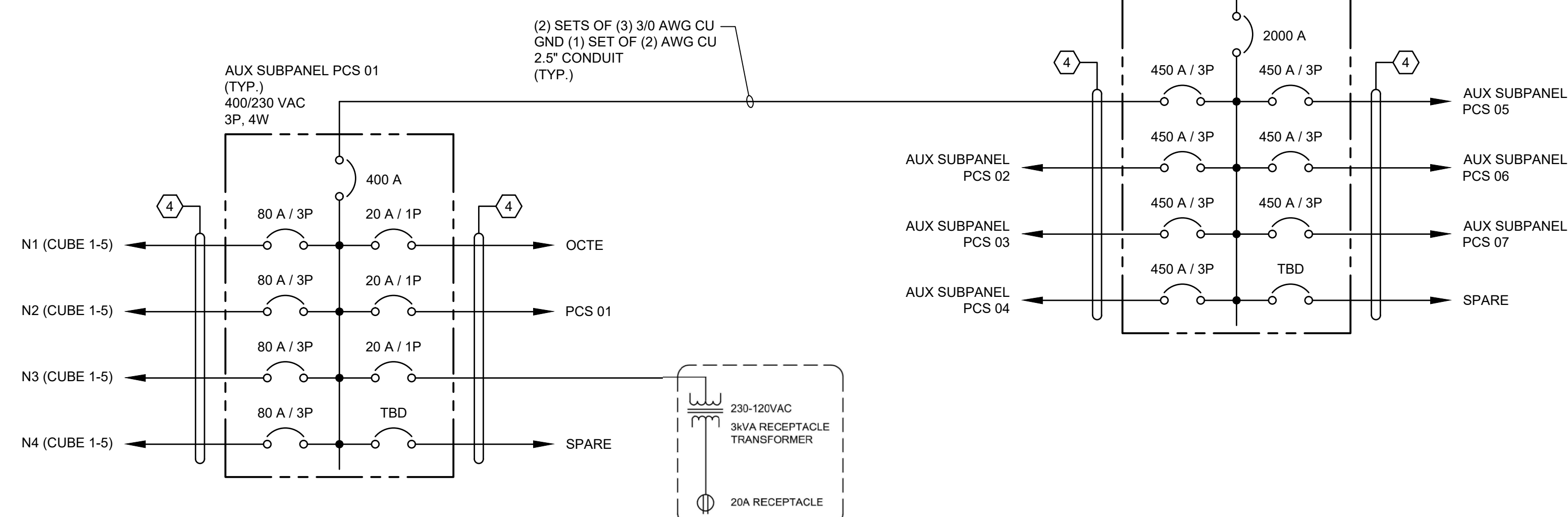
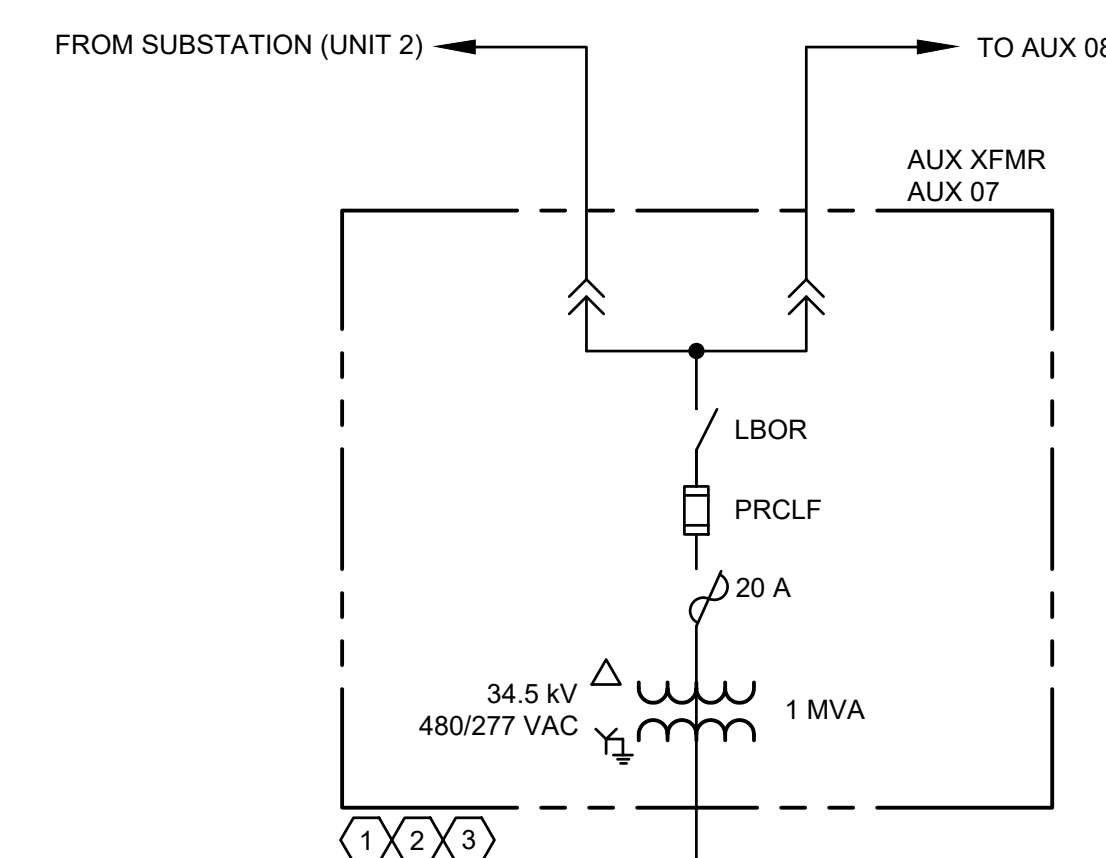
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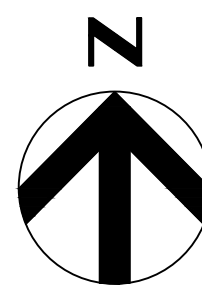
CONCEPTUAL

**TYPICAL AUX TRANSFORMER
 (AUX 01, 02, 03, 04, 05, 06)**



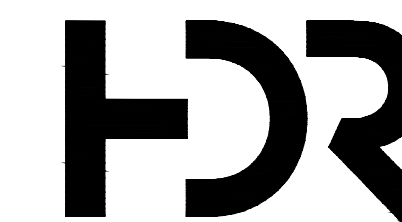
**TYPICAL AUX TRANSFORMER
 (AUX 07, 08, 09, 10, 11, 12)**





GENERAL NOTES

1. EQUIPMENT AND LAYOUT IS CONCEPTUAL AND WILL BE CONFIRMED DURING DETAILED DESIGN.



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PROJECT FOR

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EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

**CONCEPTUAL
NOT FOR CONSTRUCTION**

SHEET NAME

**SUBSTATION
GENERAL
ARRANGEMENT
(UNIT 1)**

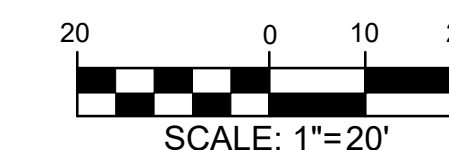
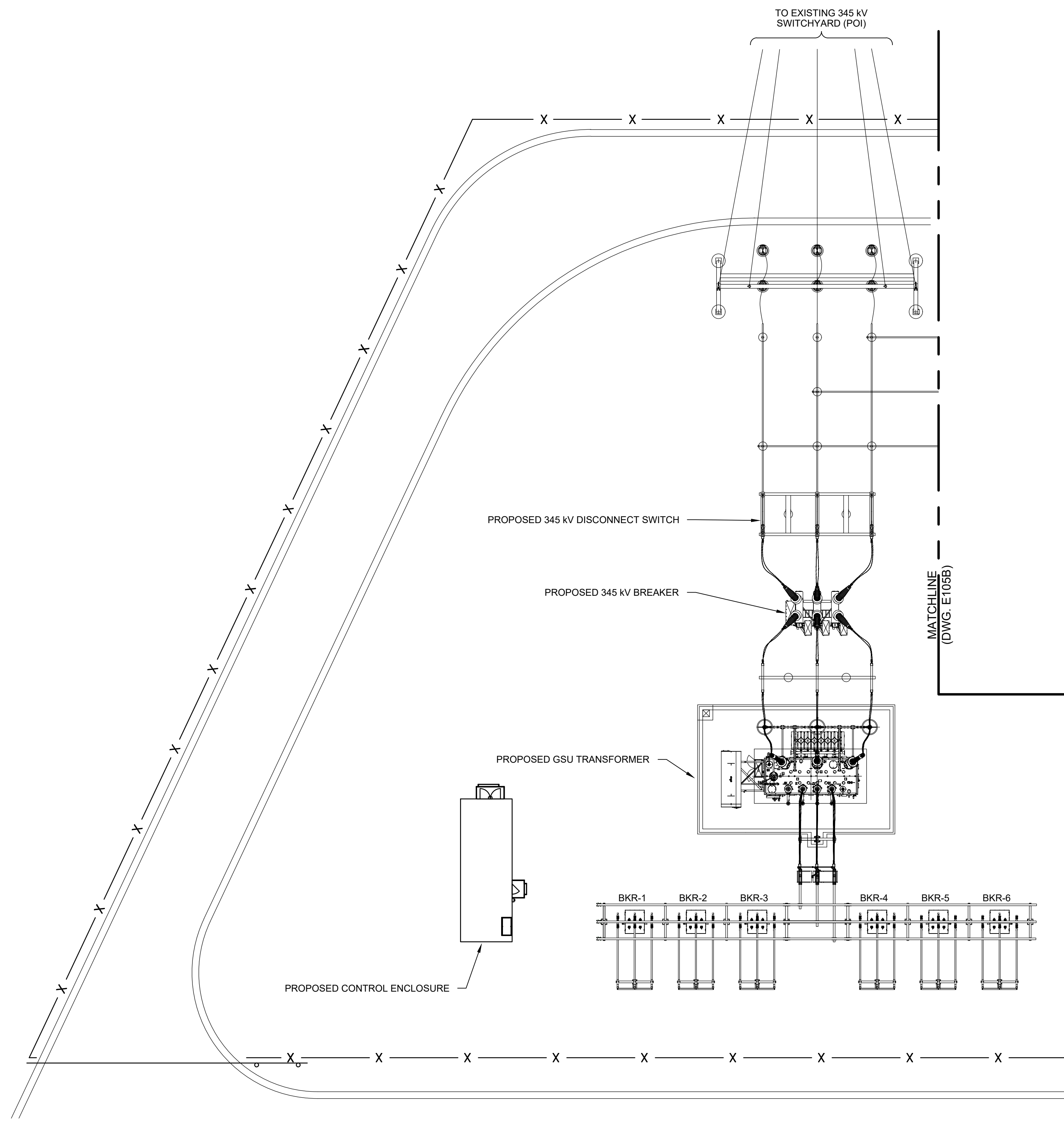
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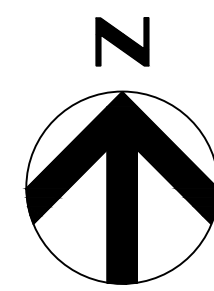
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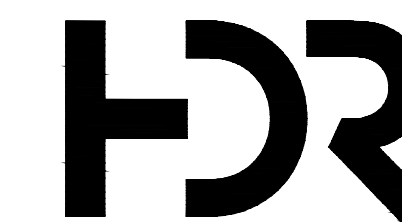
CONCEPTUAL





GENERAL NOTES

1. EQUIPMENT AND LAYOUT IS CONCEPTUAL AND WILL BE CONFIRMED DURING DETAILED DESIGN.



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EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

**CONCEPTUAL
NOT FOR CONSTRUCTION**

SHEET NAME

**SUBSTATION
GENERAL
ARRANGEMENT
(UNIT 2)**

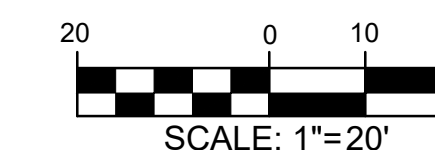
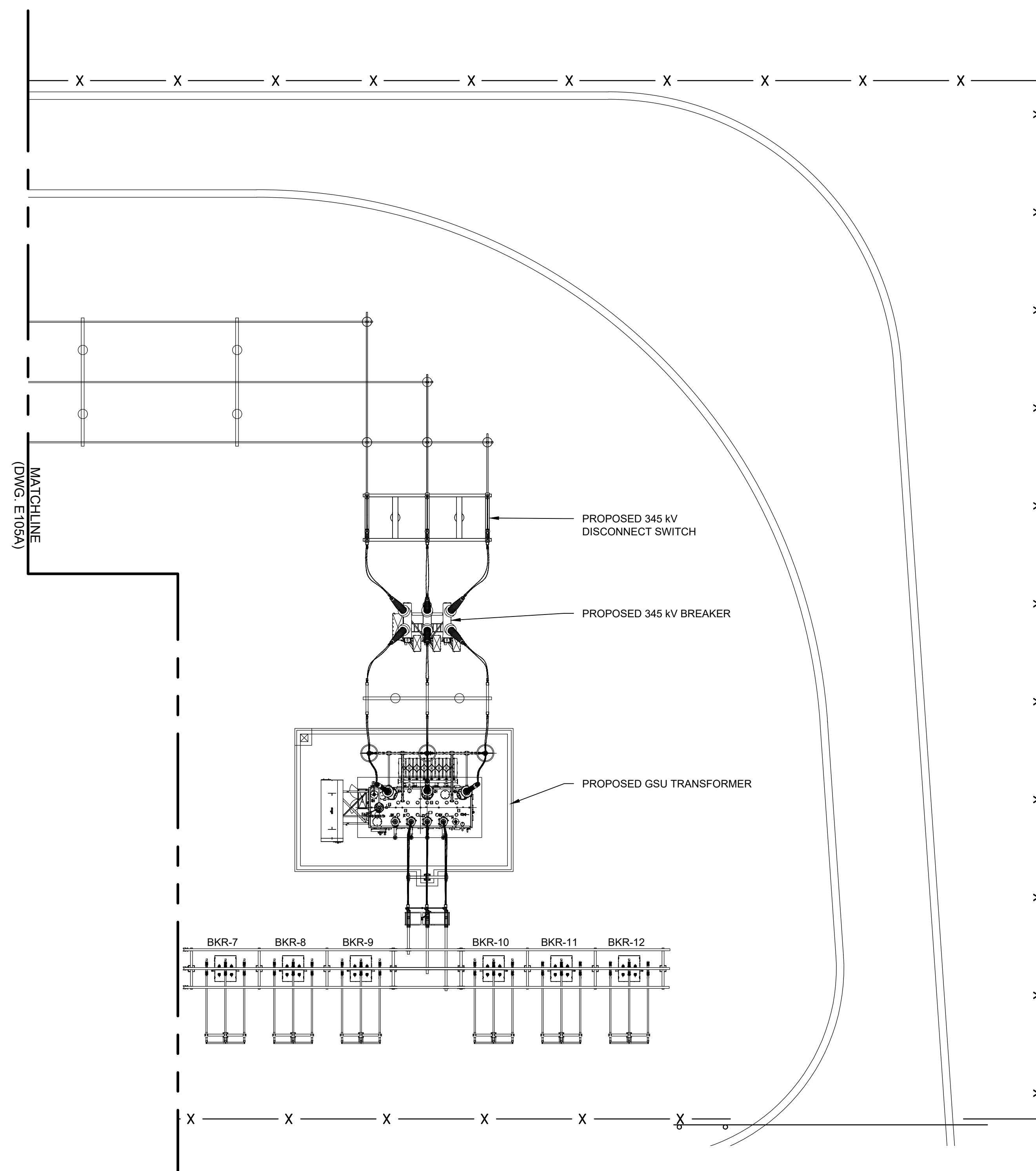
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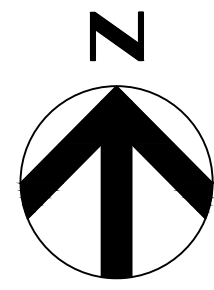
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BES-E105B

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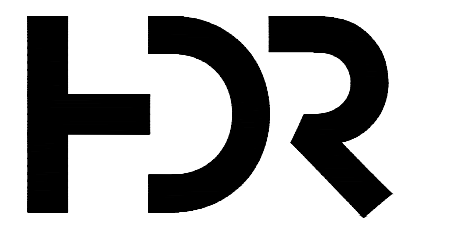
CONCEPTUAL





LEGEND

- EXISTING TRANSMISSION POLE
- EXISTING OVERHEAD LINE
- PROPOSED TRANSMISSION POLE
- PROPOSED OVERHEAD LINE
- UNDERGROUND TRANSMISSION



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PROJECT FOR

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EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
 NOT FOR CONSTRUCTION

SHEET NAME

**OVERHEAD LINE
 ROUTE**

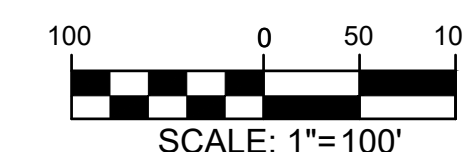
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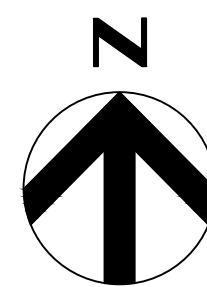
SHEET NUMBER

BES-E106

FILE NAME MISO-BES-E106.dwg

CONCEPTUAL

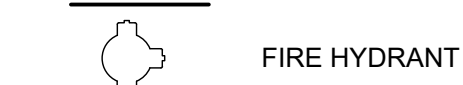




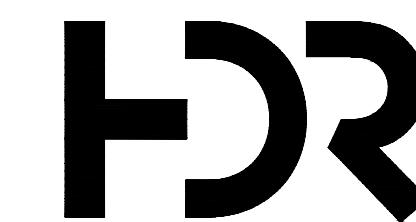
GENERAL NOTES

1. THIS SITE SHALL BE PROVIDED WITH A LINED BASIN TO CAPTURE AT LEAST 120,000 GALLONS OF FIRE FLOW RUNOFF. DURING A FIRE EVENT, AES SHALL OPERATE THE POST INDICATOR VALVE (PIV) TO ISOLATE FLOW TO THE OUTFLOW STRUCTURE.
2. THE TURNING RADIUS PROVIDED FOR THE FIRE DEPARTMENT APPARATUS SHALL BE COORDINATED WITH THE FIRE MARSHAL.
3. PROVIDE A LOCK BOX (KNOX BOX) AT THE MAIN GATE FOR FIRE DEPARTMENT APPARATUS ACCESS.
4. CLEAR 10 FEET ON EACH SIDE OF BATTERY ENCLOSURES FOR VEGETATION AND OTHER COMBUSTIBLE GROWTH.
5. EACH ENERGY STORAGE SYSTEM IS PROVIDED WITH AUTOMATIC FIRE DETECTION, AN AUTOMATIC SOLID AEROSOL SUPPRESSION SYSTEM, AND DEFLAGRATION VENTING.
6. THE ESS FIRE PROTECTION DESIGN SHALL COMPLY WITH AES BESS FIRE PROTECTION GUIDANCE DOCUMENT REVISION 3.
7. FIRE HYDRANTS SHALL BE LOCATED AT LEAST 40 FEET AWAY FROM THE ESS THEY PROTECT. ALL EXTERIOR PORTIONS OF THE ESS SHALL BE WITHIN 300 FEET OF A FIRE HYDRANT.
8. THE ESS SHALL BE LOCATED AT LEAST 10 FEET AWAY FROM LOT LINES, PUBLIC WAYS, HAZARDOUS MATERIALS, AND OTHER EXPOSURE HAZARDS.
9. AES SHALL MONITOR THE ESS FIRE ALARM SYSTEM FROM A REMOTE STATION THAT IS UL-LISTED.

LEGEND



FIRE HYDRANT



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PROJECT FOR

**AES INDIANA
200 MW UNIT 2 -
REPLACEMENT
BESS DESIGN**

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EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
NOT FOR CONSTRUCTION

SHEET NAME

**FIRE AND
LIFE SAFETY
SITE PLAN**

SCALE 1" = 100'

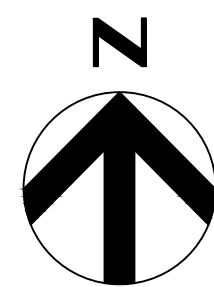
SHEET NUMBER

BES-F100

FILE NAME MISO-BES-F100.dwg

CONCEPTUAL

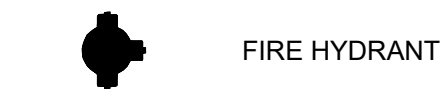




GENERAL NOTES

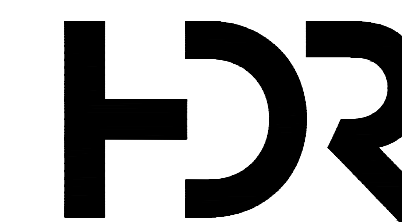
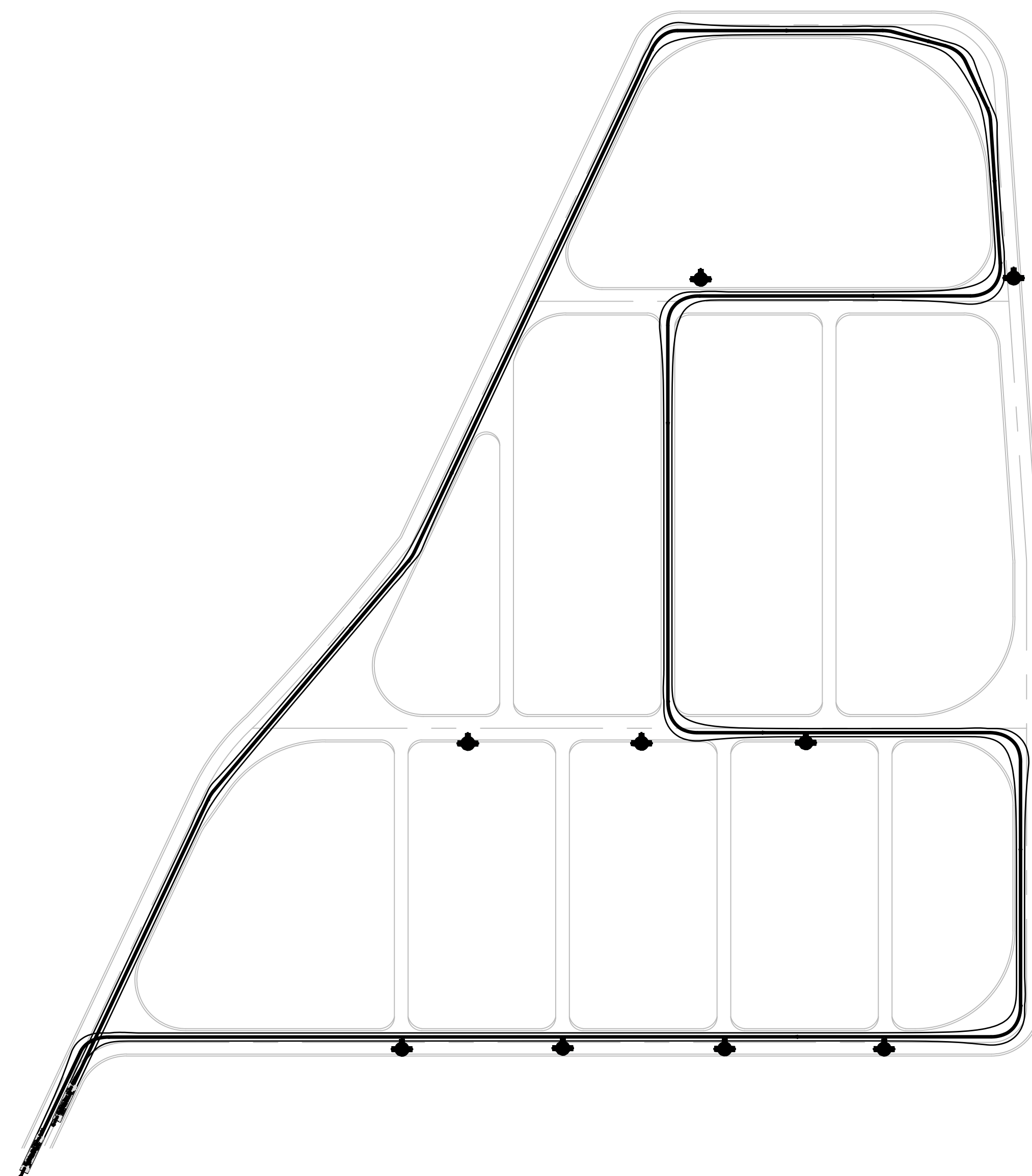
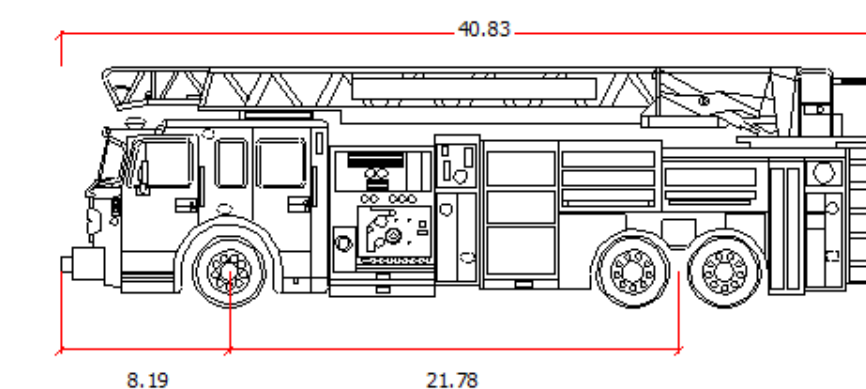
1. PLEASE ACCOUNT FOR LIMITATIONS TO THE ACCURACY OF THE SCALE DUE TO A SITE CIVIL SURVEY NOT HAVING BEEN CONDUCTED.
2. FINAL ROAD ACCESS POINT TO BE VERIFIED. ROAD TO MATCH CONNECTION TO SOLAR YARD.
3. FINAL VEHICLE SELECTION TO BE DETERMINED BY EPC BASED ON FINAL EQUIPMENT.

LEGEND



VEHICLE:

Units: feet



aes Indiana
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PROJECT FOR

**AES INDIANA
 200 MW UNIT 2 -
 REPLACEMENT
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WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
 NOT FOR CONSTRUCTION

SHEET NAME

**AUTOTURN
 FIRE TRUCK
 SITE PLAN**

SCALE 1" = 100'

SHEET NUMBER

BES-F101

FILE NAME MISO-BES-F101.dwg

CONCEPTUAL



PROJECT FOR

**AES INDIANA
200 MW UNIT 2 -
REPLACEMENT
BESS DESIGN**

PETERSBURG, INDIANA

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EQUIPMENT PLANNER	
WAYFINDING	
DRAWN BY	MEAGEN MELBY

CONCEPTUAL
NOT FOR CONSTRUCTION

SHEET NAME

EQUIPMENT DATASHEET

SCALE N.T.S.

SHEET NUMBER

BES-E1000

FILE NAME MISO-BES-E1000.dwg

CONCEPTUAL

Gridstack™ Specifications

Gridstack System

Rated AC Power (50°C)	2 MW – 500+ MW	Availability	>97.0%
Discharge Duration	1 – 6+ hours	Altitude	De-rated over 1,000 meters
Grid Frequency	50Hz and 60Hz	Seismic Rating	Seismic options available
Reactive Power	Four-quadrant control, 0.9 leading to 0.9 lagging at rated power (reactive capability available over full real power range)	System Response Time	Max capacity change in 1,000 ms
		Standard Temperature Range	-30°C to 45°C **

Fluence Cube

Cube Dimensions (H x W x D)
Long Duration: 2,549 x 2,578 x 2,160 mm
Short Duration: 2,549 x 2,578 x 2,257 mm

Cube Weight (total) lb/kg
Long Duration: 18,078 / 8,200
Short Duration: 18,850 / 8,550

Enclosure Rating
NEMA Type 3R

IP Rating
IP55

Cooling
Liquid Cooled

Battery Supplier / Module
CATL / LFP-280LC

Fluence OS

Fully-integrated operating system for comprehensive control, asset management, and system visibility.

Operation Modes

Automatic Resource Control, Manual Dispatch, Idle, Disconnect, Reset

System KPIs

Real and reactive power dispatch, state of charge, cell voltage and temperature, auxiliary system details, core and node status, fire system and F-Stop status, and more

External Control Interface

SCADA and EMS integration available via common protocols including DNP3 and Native Modbus TCP/IP

Market Dispatch Applications

Primary and secondary frequency control, peak shaving, power factor regulation, AGC, SOC management, and more

Fluence IQ

The Fluence IQ Bidding Application automates wholesale market participation to maximize asset value in the NEM and CAISO markets.

Forecasting

Analyze thousands of variables to predict future market prices

Optimization

Automatically generate optimal bids for wind, solar, and storage assets

Bidding

Incorporate organizational risk tolerance levels into bidding strategy

About Gridstack

Gridstack's industrial-strength design is built for the most demanding applications including Flexible Peaking Capacity, Frequency Regulation, Renewable Integration, T&D Enhancement, and more. The system is highly configurable to meet your specific operational requirements and can be cost-effectively augmented over time to maximize asset value.

Gridstack is built using our 6th generation technology stack, which incorporates more than 3 years of design and deployment experience.

Features



Easily Configurable: Gridstack's flexible architecture lets you configure key components from pre-qualified Tier 1 suppliers to best meet your deployment requirements. Enhance your system for specific market applications with a range of optimized dispatch algorithms.



Highly Scalable: Gridstack brings repeatability to large energy storage deployments. The scale-out design drives efficiencies in project permitting and delivery to reduce your implementation risk, while consistency across project locations simplifies training, operations, and maintenance.



Total System Safety: Gridstack comes equipped with comprehensive safety features throughout the integrated technology stack. The factory-built design brings consistent quality control to your storage system for the highest level of safety.

The Fluence Cube is a factory built, modular storage building block for safe, cost-effective systems configurable with the latest component technologies, delivering:

- Cost-effective systems with maximum quality control
- Fast procurement and contracting process
- Simple system design, engineering, and permitting
- Rapid delivery, construction, and commissioning
- Latest safety features and storage components



Fluence Cube is your building block for better energy storage.

OUR PRODUCTS

Freemaq PCSK

500 V	FRAME 2	FRAME 3	FRAME 4
REFERENCES	FP1910K	FP2865K	FP3820K
AC			
AC Output Power (kVA/kW) @40°C ⁽¹⁾	1910	2865	3820
AC Output Power (kVA/kW) @50°C ⁽¹⁾	1775	2660	3545
Operating Grid Voltage (VAC)	600V ±10%		
DC			
DC Voltage Range ⁽²⁾	849V - 1500V		
Maximum DC Voltage	1500V		
EFFICIENCY			
Efficiency (Max) (η)	98.76%	98.78%	98.84%
Euroeta (η)	98.37%	98.39%	98.56%
530 V	FRAME 2	FRAME 3	FRAME 4
REFERENCES	FP1685K	FP2530K	FP3370K
AC			
AC Output Power (kVA/kW) @40°C ⁽¹⁾	1685	2530	3370
AC Output Power (kVA/kW) @50°C ⁽¹⁾	1565	2350	3130
Operating Grid Voltage (VAC)	530V ±10%		
DC			
DC Voltage Range ⁽²⁾	750V - 1300V		
Maximum DC Voltage	1300V		
EFFICIENCY			
Efficiency (Max) (η)	98.76%	98.78%	98.84%
Euroeta (η)	98.37%	98.39%	98.56%
500 V	FRAME 2	FRAME 3	FRAME 4
REFERENCES	FP1590K	FP2385K	FP3180K
AC			
AC Output Power (kVA/kW) @40°C ⁽¹⁾	1590	2385	3180
AC Output Power (kVA/kW) @50°C ⁽¹⁾	1475	2215	2955
Operating Grid Voltage (VAC)	500V ±10%		
DC			
DC Voltage Range ⁽²⁾	708V - 1250V		
Maximum DC Voltage	1250V		
EFFICIENCY			
Efficiency (Max) (η)	98.76%	98.78%	98.84%
Euroeta (η)	98.37%	98.39%	98.56%
480 V	FRAME 2	FRAME 3	FRAME 4
REFERENCES	FP1525K	FP2290K	FP3055K
AC			
AC Output Power (kVA/kW) @40°C ⁽¹⁾	1525	2290	3055
AC Output Power (kVA/kW) @50°C ⁽¹⁾	1415	2125	2840
Operating Grid Voltage (VAC)	480V ±10%		
DC			
DC Voltage Range ⁽²⁾	679V - 1200V		
Maximum DC Voltage	1200V		
EFFICIENCY			
Efficiency (Max) (η)	98.76%	98.78%	98.84%
Euroeta (η)	98.37%	98.39%	98.56%

Freemaq PCSK

One system, one battery

Maximum power up to 1500 Vdc

3 frames of power

Maximum power up to 40 °C

Up to 4390 kVA in a single unit

18