

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD ON ELECTRIC
GENERATION AND TRANSMISSION SITING

In the Matter of:

<i>Electronic</i> Application of Golden Solar, LLC)	
for Certificate of Construction for an)	
Approximately 100 Megawatt Merchant)	Case No.
Electric Solar Generating Facility in Golden)	2020-00243
County, Kentucky)	

Response to Siting Board Staff's Second Request for Information

Applicant, Golden Solar, LLC, herewith submits responses to the Siting Board Staff's Second Request for Information. A signed certification of this Response on behalf of Golden Solar, LLC appears on the following page.

Respectfully submitted,

/s/ Kathryn A. Eckert

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COMMONWEALTH OF KENTUCKY
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GENERATION AND TRANSMISSION SITING

In the Matter of:

Electronic Application of Golden Solar, LLC)
for Certificate of Construction for an)
Approximately 100 Megawatt Merchant)
Electric Solar Generating Facility in Golden)
County, Kentucky

Case No.
2020-00243

Certification of Response to Information Requests

This is to certify that I have supervised the preparation of the response to the Siting Board Staff's Second Request for Information to Golden Solar, LLC on behalf of the corporate respondent and that the responses are true and accurate to the best of my knowledge, information and belief after reasonable inquiry.

Courtney Pelissero

Courtney Pelissero, Permitting Specialist

Request

1. Refer to Golden Solar's response to Siting Board Staff's First Request for Information (Response to Staff's First Request), Item 13. Explain how the 150 direct jobs for the construction phase was estimated.
-

Response

The estimate is based upon experience with similar sized projects and Golden Solar's JEDI and IMPLAN models.

Request

2. Refer to the Response to Staff's First Request, Item 13a. Explain how the JEDI and IMPLAN models are able to omit impacts from non-local workers.
-

Response

These models can be (and were) made to run in a manner that omits impacts that do not occur within the area of interest. In order to run the model conservatively, it has been assumed that workers who move to the area only temporarily will not spend their earnings locally and will therefore not create economic impacts in the area with those earnings. Therefore, the aggregate wages earned by the share of non-local (i.e., temporary) workers was set to zero as a model input for the purpose of estimating local economic impacts.

Request

3. Refer to the Response to Staff's First Request, Item 13a. Explain how 79.2 was chosen as the number of workers domiciled in Kentucky.
-

Response

The estimate of 79.2 full-time equivalent jobs was not chosen but was instead an output of the JEDI model.

Request

4. Explain what skills or jobs are necessary in the construction phase that approximately half of the estimated 150 construction jobs would need to come from outside of Kentucky.
-

Response

The necessary jobs and skills include; electricians, carpenters, operators, laborers, contractor management staff, and various specialized subcontractors. The industry of large capital project construction generally relies on a workforce that is, in part, filled by individuals following temporary work across state lines. It is likely, for example, that many citizens of Kentucky are currently employed on temporary assignments on construction projects in other US states. This model is not predicting what will happen, but rather what is statistically likely to happen given conservative model inputs.

Request

5. Refer to the Application, Exhibit F, Golden Solar Facility Economic Impact Analysis, page 4. Explain why scaling the statewide results was necessary as opposed to running the model at the regional level. Include in the response how the scaling results compare to the developer's prior solar development experience.
-

Response

Scaling results from the statewide level to estimate regional level impacts was deemed a prudent analytical methodology. This approach is less reliant on subjective and inherently uncertain assumptions of future purchasing decisions at highly local scales (eg. the materials/equipment types purchased within the region and their associated values) that are necessary when independently running the regional level. The statewide is less inherently uncertain because it makes assumptions about purchasing decisions at a far more aggregated level. By running JEDI at the level of Kentucky, and scaling down to the regional level, estimates of regional impacts are produced with lower levels of subjectivity and higher levels of conservatism in results. The scaling results generally align with NG Renewables' prior solar development experience.

Request

6. Refer to the Response to Staff's First Request, Items 15. Explain the job titles and duties of the four estimated operational jobs.
-

Response

The job titles created during the operational phase typically include Plant Manager and Plant Technician. Operational activities typically include inspection and maintenance of electrical equipment, ground vegetation, buffer vegetation, and access drives.

Request

7. Refer to the Response to Staff's First Request, Item 16e.
 - a. Explain how the model underestimates local hires for the operational phase.
 - b. Explain why none of the operational jobs can be hired from within Caldwell County.
-

Response

- a. Golden Solar believes the model underestimates local hires for the operational phase because based on previous experience on projects 0.1 is an underestimate of typical local hires.
- b. Operational jobs can be hired from within Caldwell County if there are qualified candidates.

Request

8. Refer to the Application, Exhibit C, Public Information Materials, page 24; Exhibit F, Golden Solar Facility Economic Impact Analysis, page 4, Table 2; Golden Solar Facility Economic Impact Analysis, page 5, Table 3; and the Response to Staff's First Request, Items 13 and 16.
 - a. Confirm that Golden Solar's published public statement is that an estimated 150 direct construction jobs will be created by the project.
 - b. Confirm that 79.2 direct statewide construction jobs will be created, and four direct construction jobs will come from Caldwell and surrounding counties.
 - c. Confirm that only four statewide direct operation jobs will be created, and none will come from Caldwell or the surrounding counties.
-

Response

- a. Golden Solar anticipates an estimated 150 direct construction jobs will be created by the project, which was stated in the economic impact sheet provided at the March 2022 Public Information Meeting.
- b. These numbers derive from the model used in Application Exhibit F. This model is not predicting what will happen, but rather what is statistically likely to happen given conservative model inputs. The model does estimate 79.2 direct statewide construction jobs will be created. Golden Solar is unclear where the reference to four direct *construction* jobs from Caldwell and surrounding counties is derived from.
- c. Golden Solar does anticipate four operational jobs will be created. It is possible that the operation jobs may come from Caldwell or the surrounding counties. As noted in the Economic Impact Analysis (Exhibit F, page 5), "the four long-term direct jobs that are anticipated during operation are likely to be preferentially filled by individuals who live nearby (or will obtain resident status nearby) the Project." While Golden Solar routinely

works to identify and hire local or regional qualified operators, the qualifications for these jobs must first be satisfied.

Request

9. Refer to the Response to Staff's First Request for Information, Item 7(c). Provide an updated estimate of full-time equivalent jobs and the anticipated hourly wage range for each job category.
-

Response

The estimated number of jobs has not changed. An estimated 150 full time equivalent construction jobs are anticipated to be created by the Golden Solar project. The hourly wage range is difficult to determine at this stage when the project is not planned to begin construction for approximately 2 years. The Engineering Procurement Construction (EPC) Contractor will typically hire all the construction jobs and an EPC Contractor has not been selected yet. An EPC Contractor is anticipated to be selected in Q4 2023.

Request

10. Refer to the Response to Staff's First Request, Item 23. Explain why restricting construction activity within 1,500 feet of non-participating noise receptors to sound levels to 55 A-Weighted Decibels (dBA) during daylight hours is overly restrictive and not feasible.
-

Response

Restricting construction activity within 1,500 feet of non-participating noise receptors to sound levels to 55 A-Weighted Decibels (dBA) during daylight hours is overly restrictive and not feasible for the following reasons. Unlike sound created by inverters and substation transformers (i.e. operational sound emissions), construction sound is highly variable and dependent on construction conditions. Approximately 50 percent of the proposed panel area (i.e. where pile driving would occur) is within 1,500 feet of a non-participating residence. Pile driving in these areas would possibly exceed 55 dBA at distance of 1,500 ft during construction activity. There is no known effective mitigation or dampening approach that is available for pile driving activity. As a result, restricting pile driving activity to 55 dBA would eliminate half of the buildable area from development. Please see the attachment labeled Figure ESB-02-10. As noted in Response to Staff's First Request, Item 23, Golden Solar has committed to not exceeding 55 dBA during daylight hours for generation equipment (e.g. inverters, substation) during operation.

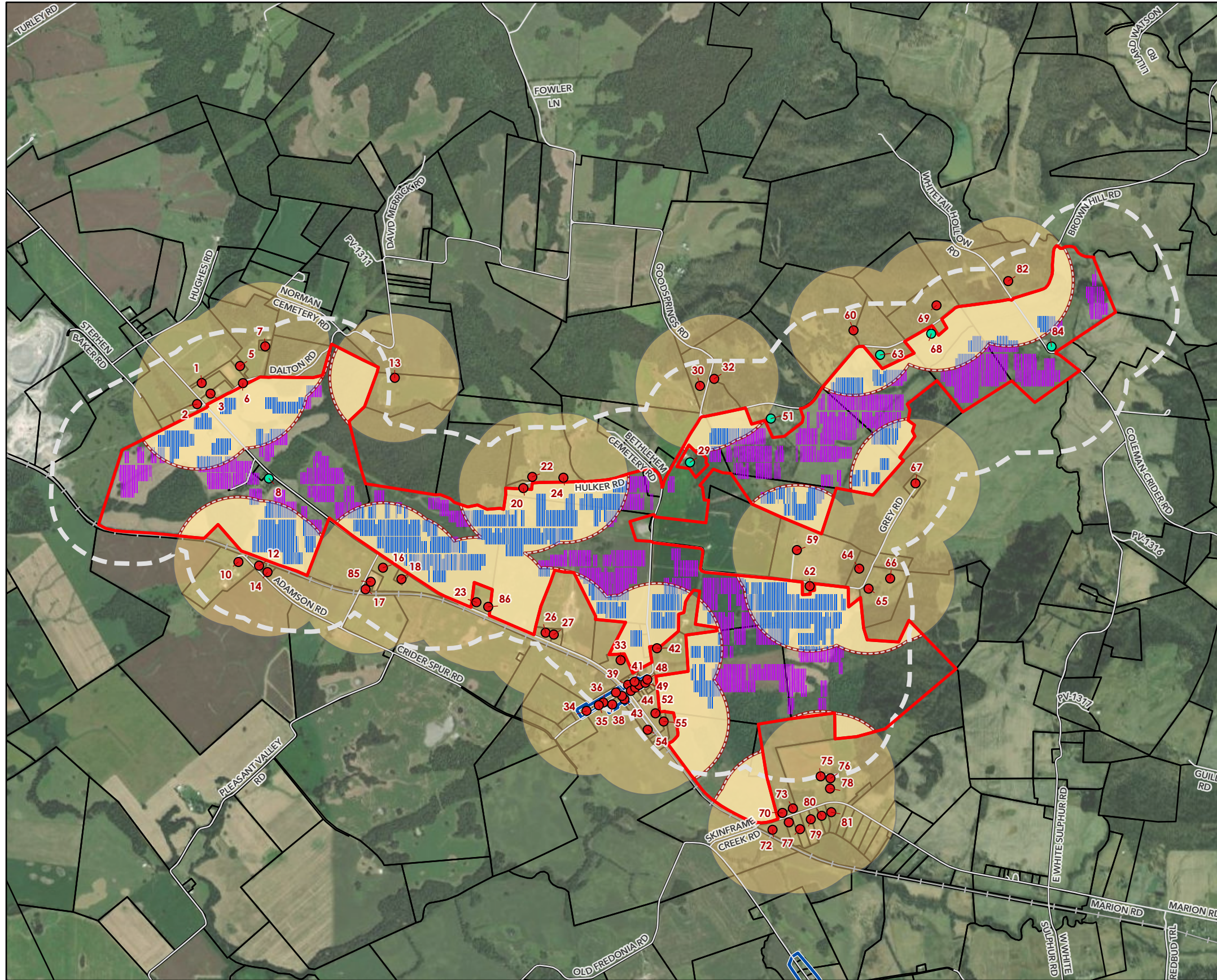


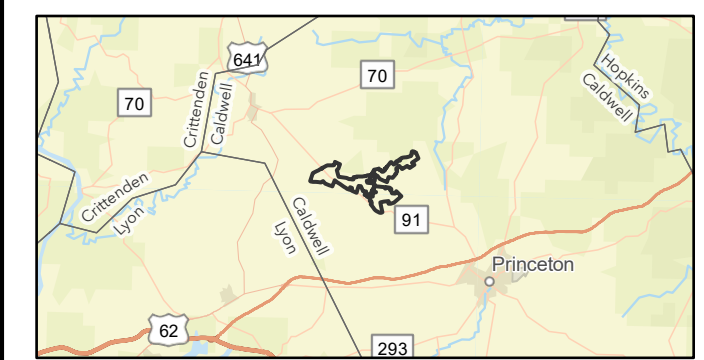
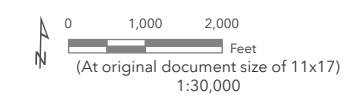
Figure No.
ESB-02-10

Title
Project Layout

Client/Project
Golden Solar Project

Project Location
Caldwell County, Kentucky

- Non-Participating
- Participating
- Roads
- Railroad
- Project Area
- Estimated Pile Driving 55 dBA Buffer
- 1500-ft Receptors Buffer
- Panels Inside the 1500-ft Receptor Buffer
- Panels Outside the 1500-ft Receptor Buffer
- Residential Communities
- Buffer Inside Project Area
- Property Boundary



Notes
 1. Coordinate System: NAD 1983 2011 StatePlane Kentucky FIPS 1600 Ft US
 2. Background Source: Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, Maxar



Path: K:\Project_Data\Geronimo\Golden\Project\Mxd\Golden.aprx Revised: 11/22/2022 By: leonard.luz

Request

11. Refer to the Response to Staff's First Request, Item 24. Use the following assumption and provide a sound contour line at 55 dBA: 3 pile drivers operating simultaneously in close proximity adding 5 dBA to maximum pile driver sound levels and that the sound would be continuous rather than intermittent.
-

Response

For the reasons described in the Response to 2 ESB 10, this hypothetical is based on an assumption that is overly focused on the temporary impact of construction activities and the variability of sound and conditions, with no proven dampening approach. Notwithstanding the above, please see the attachment labeled ESB-02-10 Layout.

Request

12. Using the assumption in Request 11, provide an update to the Response to Staff's First Request Item 25.

Response

The fundamental problem with developing a sound contour map of solar piling activities is that the sound level is not known with any real certainty or reliability. The best estimate at this time based on indirect information and general acoustical engineering experience is a sound level of roughly 84 dBA at 50 ft. If three units were operating (very) close to one another the total sound level, in theory, would increase by about 5 dBA to 89 dBA at 50 ft. This sound level would diminish with increasing distance due primarily to the distance itself and the associated expanding wave front area and consequent loss of energy. Other propagation losses, such as ground and air absorption would also be factors. The overall total loss in sound level with distance specifically for construction noise has been calculated and published in the "Power Plant Construction Noise Guide", which was developed by the acoustical consulting firm BBN on behalf of the Empire State Electric Research Corporation many years ago (1977). The change in sound level from 89 to 55 dBA, according to Table C.3 of the above reference, would occur, coincidentally, at 1500 ft. Consequently, a circle with a radius of 1500 ft. could be plotted anywhere within the site area to represent the sound contour from three pile drivers operating simultaneously in close proximity (see ESB-02-10 Layout). It is important to add, however, that this distance depends on the accuracy of the initial sound level assumption, which is somewhat speculative.

Request

13. Refer to the Site Assessment Report, Section 5 Effect on Road, Railways, and Dust stating that Golden Solar may use the Fredonia Valley Railway along the project boundaries for deliveries during construction. Provide any communication with the Fredonia Valley Railway related to crossing agreements or planning for deliveries during construction.
-

Response

Golden Solar has not had any communication with Fredonia Valley Railway related to crossing agreements or planning for deliveries during construction. Communication will commence prior to construction.

Request

14. Refer to the Application, Exhibit J, Preliminary Site Plan Set, page 2. Explain what the “surfacing dumping area” referenced in the site layout will be used for.

Response

Amended Exhibit J- Golden Preliminary Plan Set has been updated to more accurately reflect the surface dumping areas and is attached hereto. These existing dumping areas were identified during the Phase I ESA and are described in detail in the Phase I ESA report. The dumping area on Sheet C-200 is described on Page 13 and appears on Figure 2 of the June 2020 Phase I ESA (Application Exhibit H Attachment H). This area was considered a Recognized Environmental Condition (REC). The dumping area on Sheet C-201 is described on Page 11 and appears on Figure 2 of the Aug 2021 Phase I ESA (Additional Areas) (Application Exhibit H Attachment H). This area was not considered a REC. These dumping areas were included in the site plans to show the avoidance areas and are not proposed to be used for the Golden Solar project.

Golden Solar

Caldwell County, Kentucky

Preliminary Plan Set

PREPARED FOR:

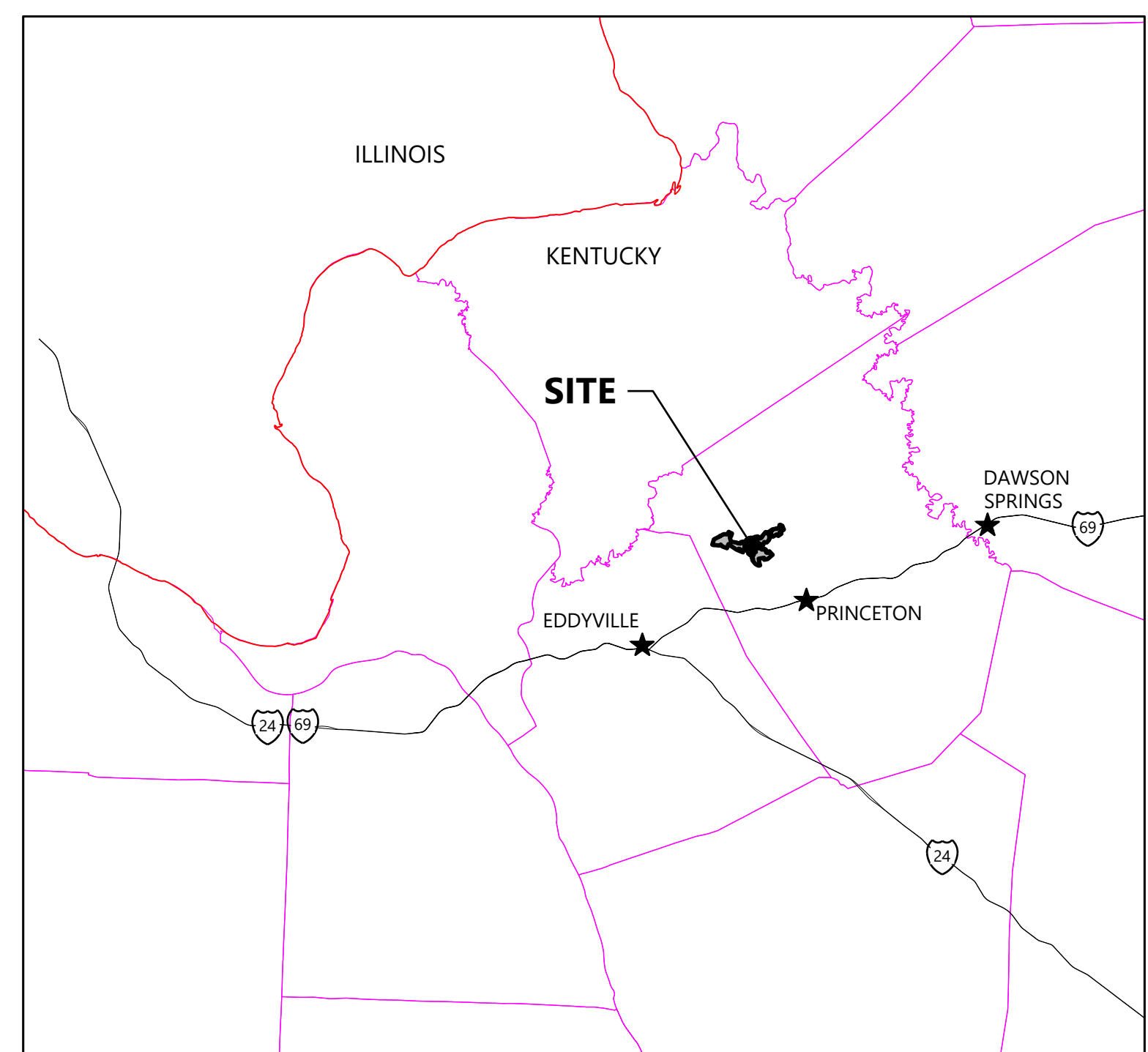


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 Bloomington, MN 55347

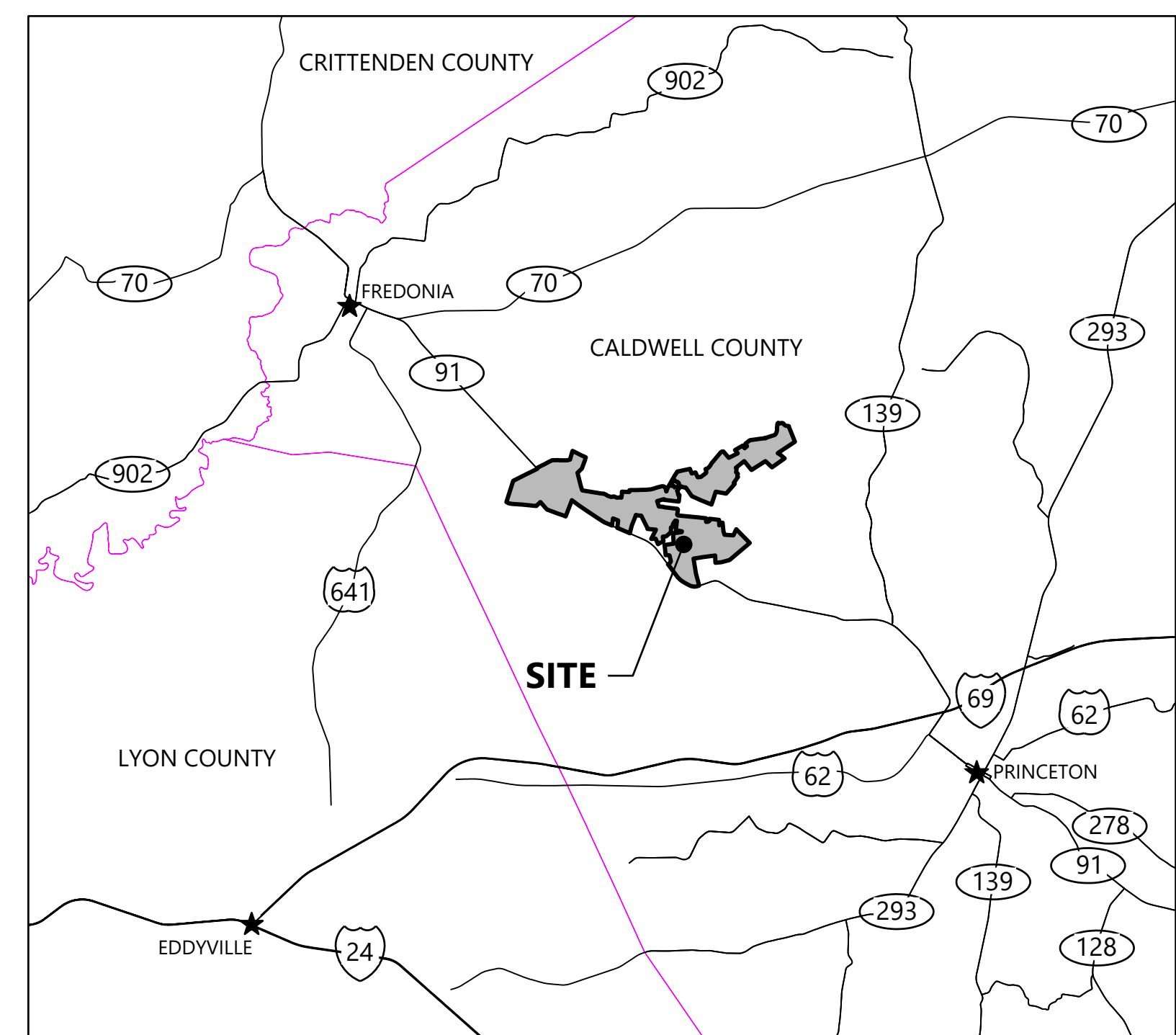
REVISIONS:

#	DATE	COMMENT

REGIONAL MAP



VICINITY MAP



SHEET NUMBER	SHEET TITLE
C.100	Cover
C.200	Overall Site Plan - 1
C.201	Overall Site Plan - 2
C.700	Construction Details - 1
L.100	Buffer Screening Notes & Details

Golden Solar Project
 Caldwell County, Kentucky

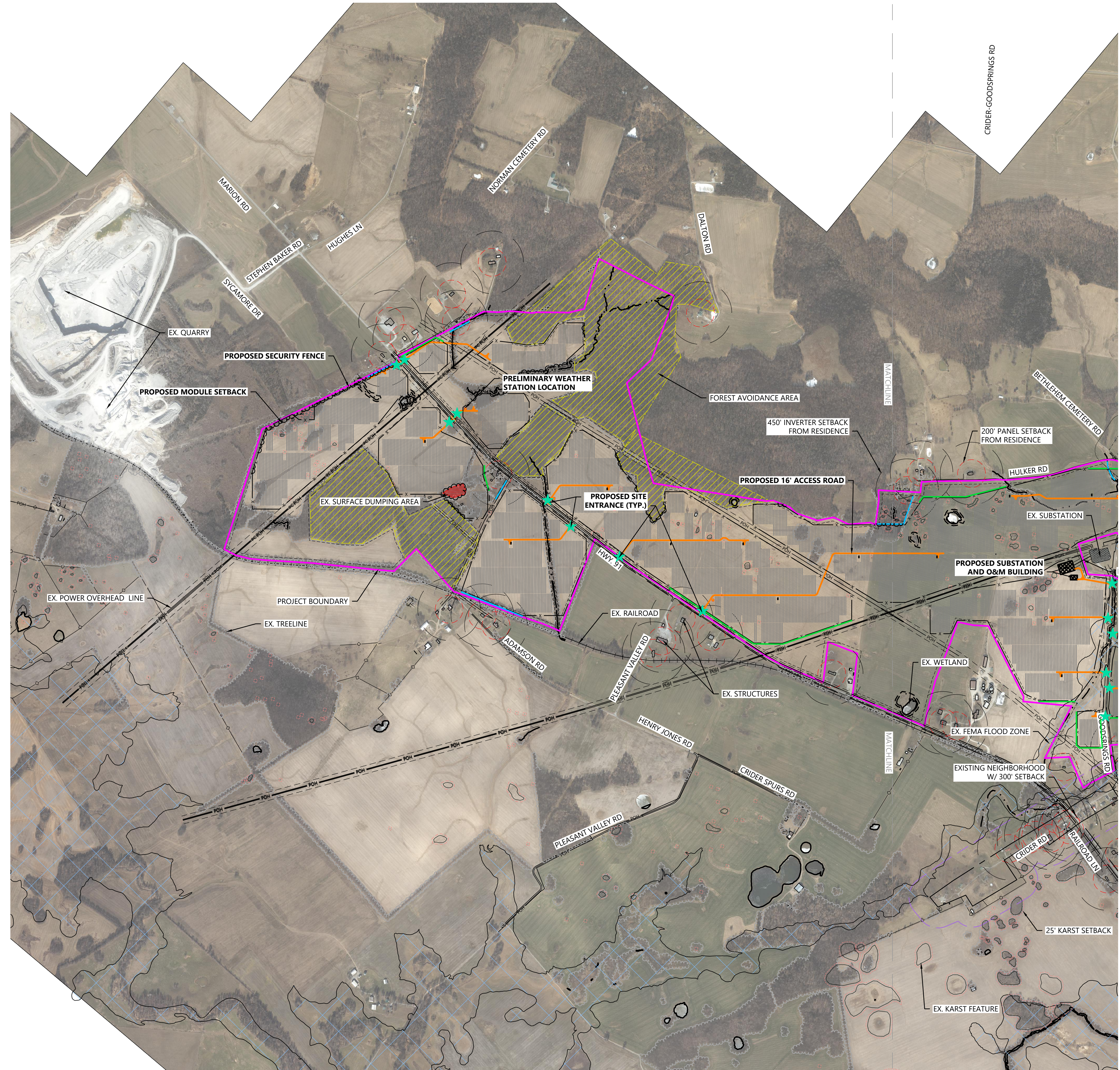
Cover

Not for Construction

DATE: 11/17/2022

SHEET: C.100

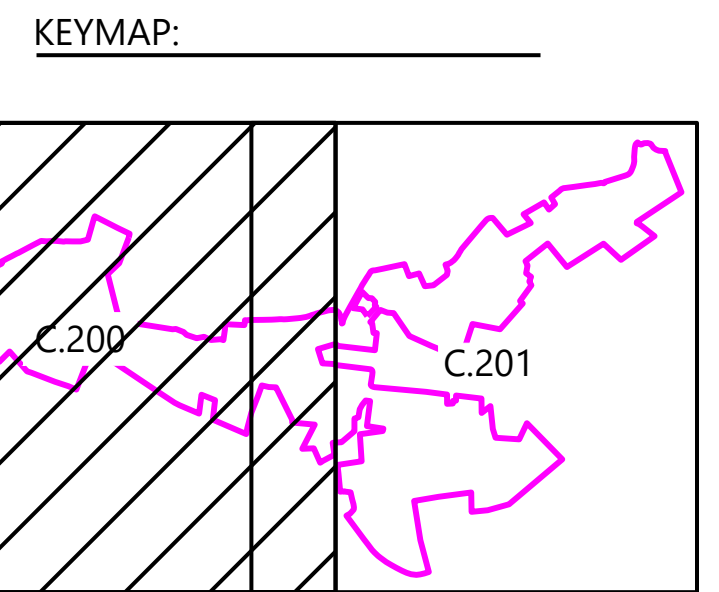
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LEGEND:

	PROJECT BOUNDARY
	EASEMENT LINES
	EX. TREELINE
	EX. PAVED ROAD
	EX. GRAVEL ROAD
	EX. FENCE
	EX. RAILROAD
	EX. CULVERT
	200' PANEL SETBACK FROM RESIDENCE
	450' INVERTER SETBACK FROM RESIDENCE
	FOREST AVOIDANCE
	EX. OVERHEAD POWER
	EX. STREAM CHANNEL
	EX. WETLAND
	EX. VEGETATIVE BUFFER
	WETLAND SETBACK
	FEMA FLOOD ZONE
	EX. KARST FEATURE
	EX. SURFACE DUMPING AREA
	25' KARST SETBACK / AVOIDANCE
	PROPOSED SOLAR ARRAY
	PROPOSED INVERTER AND TRANSFORMER SKID
	PROPOSED MODULE SETBACK FROM PROPERTY LINE AND AVOIDANCE AREAS
	PROPOSED VEGETATIVE BUFFER TYPE 1
	PROPOSED VEGETATIVE BUFFER TYPE 2
	PROPOSED ACCESS ROAD
	PROPOSED SECURITY FENCE
	PRELIMINARY WEATHER STATION LOCATION
	PROPOSED TREE LINE
	PROPOSED SITE ENTRANCE

- NOTES:**
1. FURTHER FIELD INVESTIGATION FOR POTENTIAL KARST LOCATIONS TO BE COMPLETED PRIOR TO CONSTRUCTION.
 2. WEATHER STATION LOCATIONS ARE PRELIMINARY AND SUBJECT TO CHANGE WITH FURTHER DESIGN.
 3. PROPOSED GENTLE ROUTE IS PRELIMINARY AND SUBJECT TO CHANGE WITH FURTHER DESIGN.

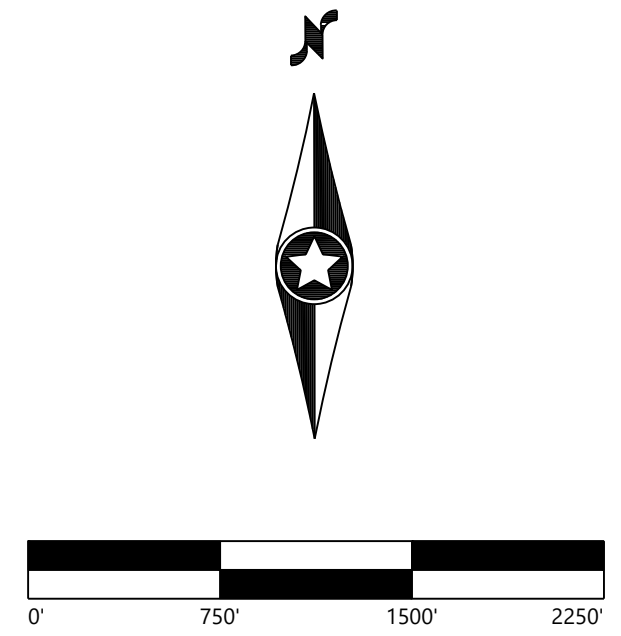


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REVISIONS:

#	DATE	COMMENT



Golden Solar Project
 Caldwell County, Kentucky

Overall Site Plan - 1

Not for Construction

DATE: 11/17/2022
 SHEET: C.200

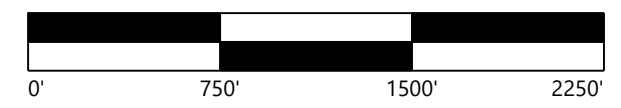
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REVISIONS:

#	DATE	COMMENT



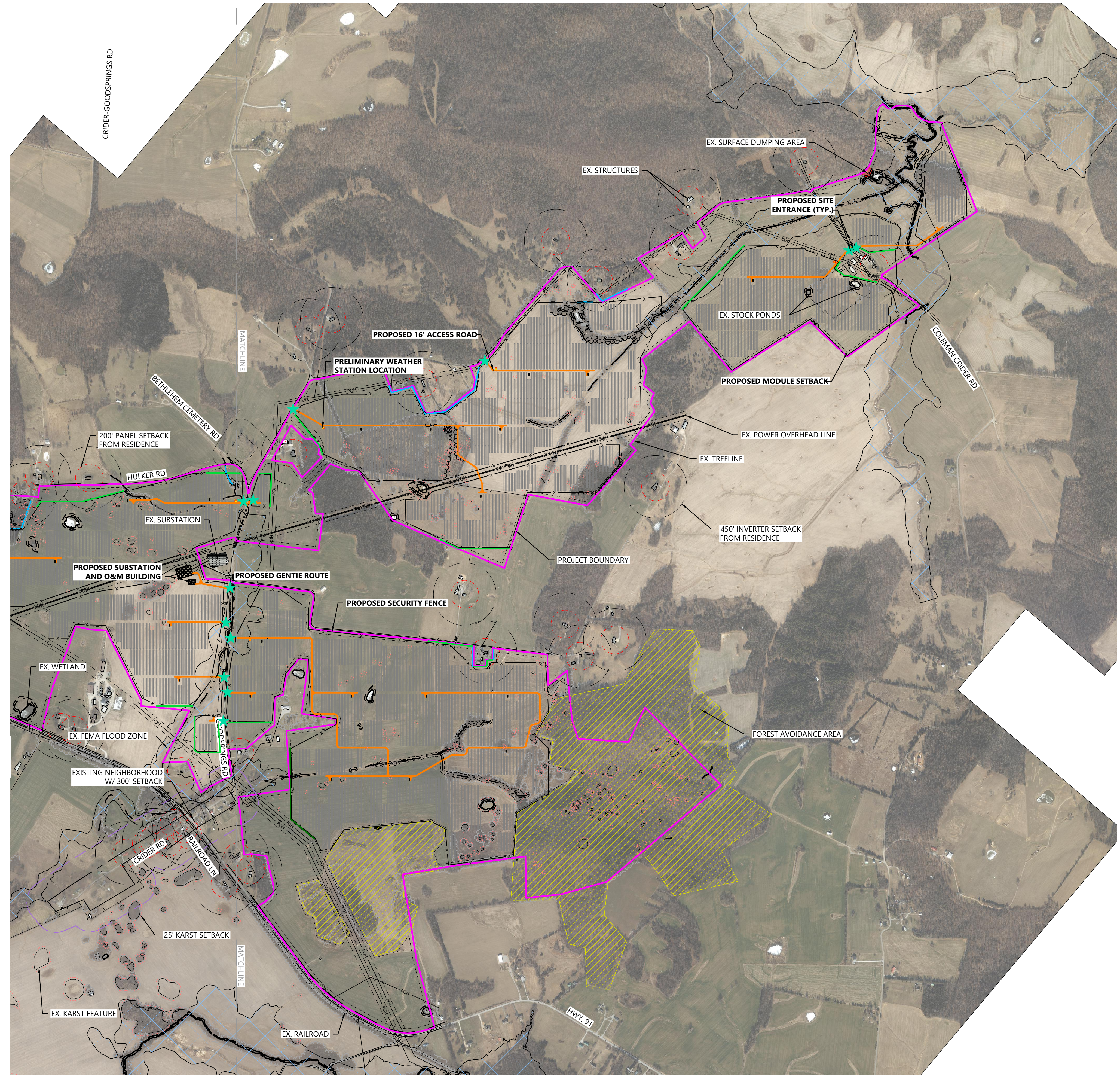
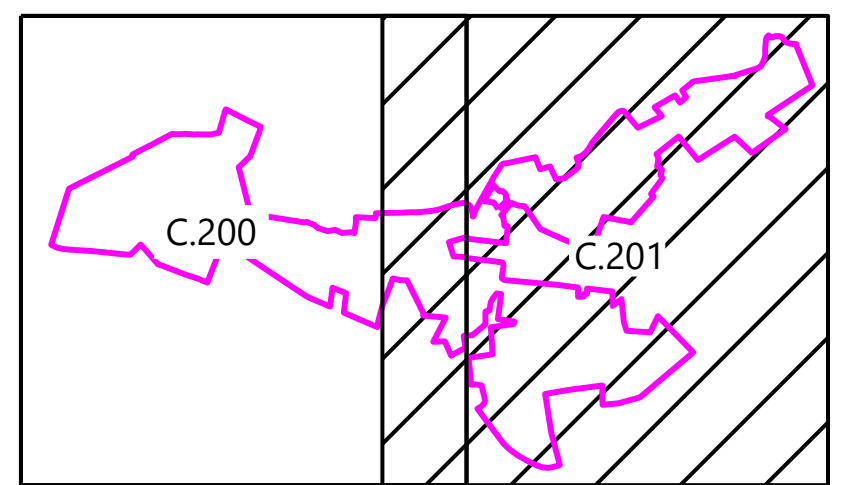
LEGEND:

- PROJECT BOUNDARY
- EASEMENT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. FENCE
- EX. RAILROAD
- EX. CULVERT
- 200' PANEL SETBACK FROM RESIDENCE
- 450' INVERTER SETBACK FROM RESIDENCE
- FOREST AVOIDANCE
- EX. OVERHEAD POWER
- EX. STREAM CHANNEL
- EX. WETLAND
- EX. VEGETATIVE BUFFER
- WETLAND SETBACK
- FEMA FLOOD ZONE
- EX. KARST FEATURE
- EX. SURFACE DUMPING AREA
- 25' KARST SETBACK / AVOIDANCE
- PROPOSED SOLAR ARRAY
- PROPOSED INVERTER AND TRANSFORMER SKID
- PROPOSED MODULE SETBACK FROM PROPERTY LINE AND AVOIDANCE AREAS
- PROPOSED VEGETATIVE BUFFER TYPE 1
- PROPOSED VEGETATIVE BUFFER TYPE 2
- PROPOSED ACCESS ROAD
- PROPOSED SECURITY FENCE
- PRELIMINARY WEATHER STATION LOCATION
- PROPOSED TREE LINE
- PROPOSED SITE ENTRANCE

NOTES:

1. FURTHER FIELD INVESTIGATION FOR POTENTIAL KARST LOCATIONS TO BE COMPLETED PRIOR TO CONSTRUCTION
2. WEATHER STATION LOCATIONS ARE PRELIMINARY AND SUBJECT TO CHANGE WITH FURTHER DESIGN.

KEYMAP:



Golden Solar Project

Caldwell County, Kentucky

Overall Site Plan - 2

Not for Construction

DATE: 11/17/2022

SHEET: C.201

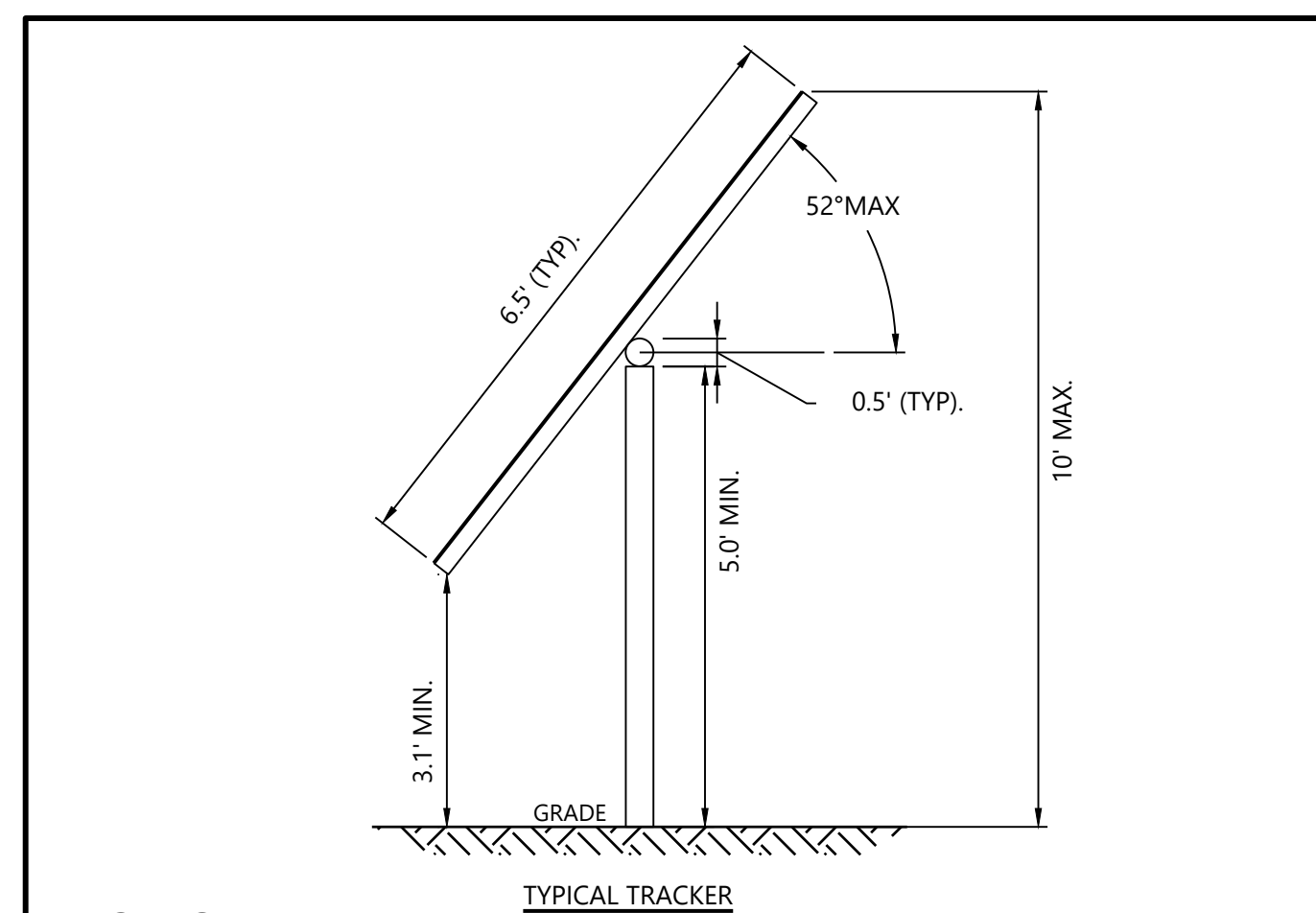
PREPARED FOR:



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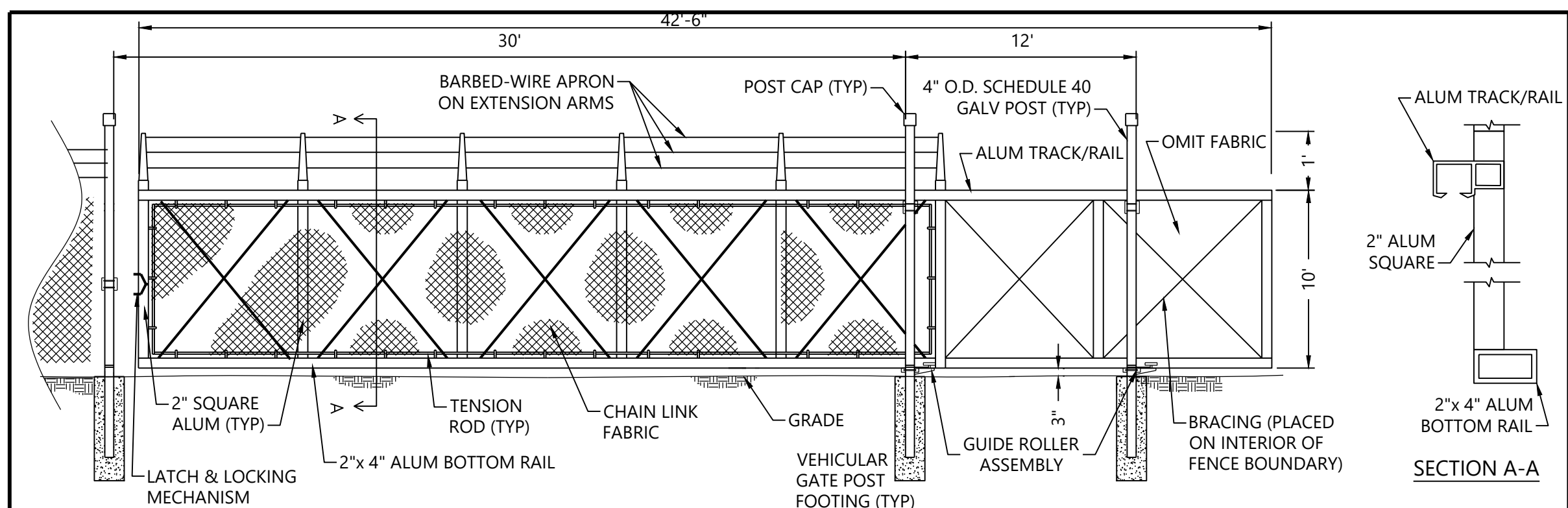
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#	DATE	COMMENT



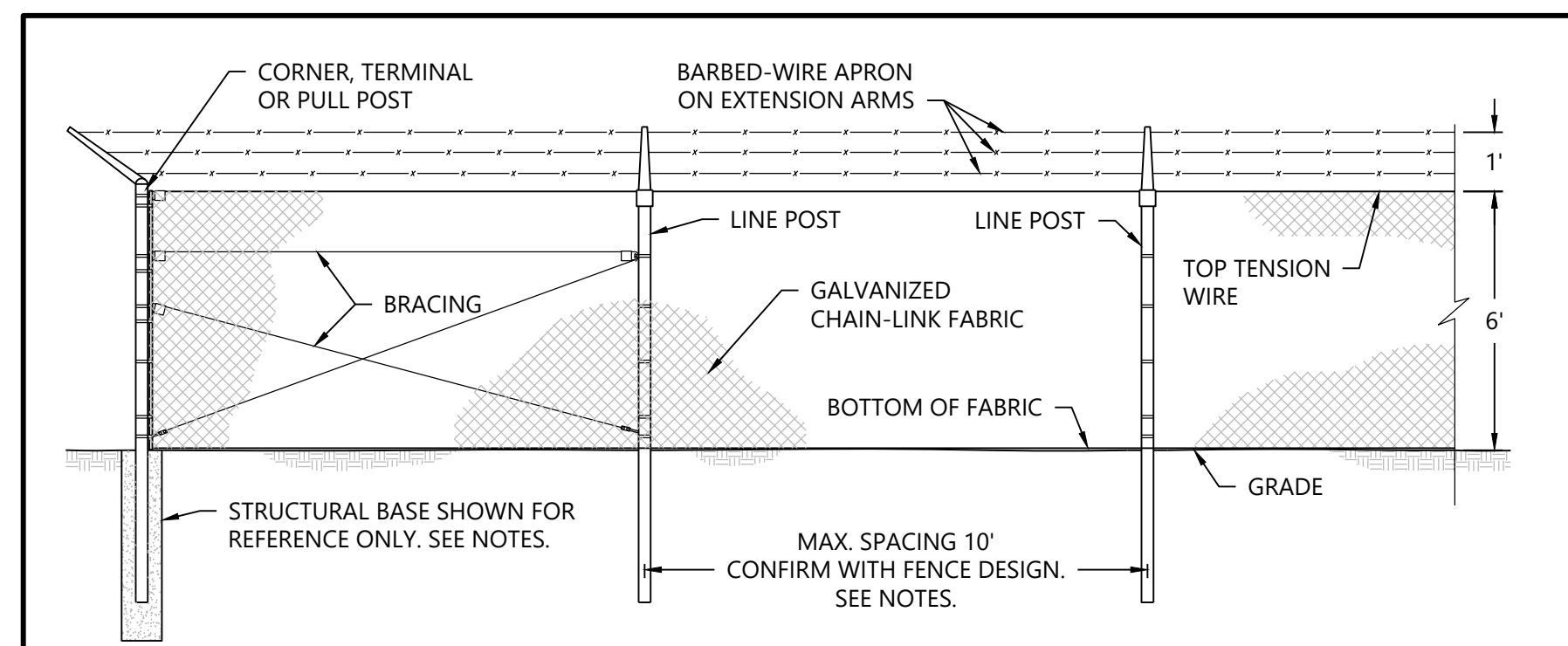
NOTES:
 1. ALL DIMENSION ARE APPROXIMATE AND SUBJECT TO CHANGE UPON FURTHER DESIGN.

Westwood TYPICAL SOLAR TRACKER PROFILE PR01



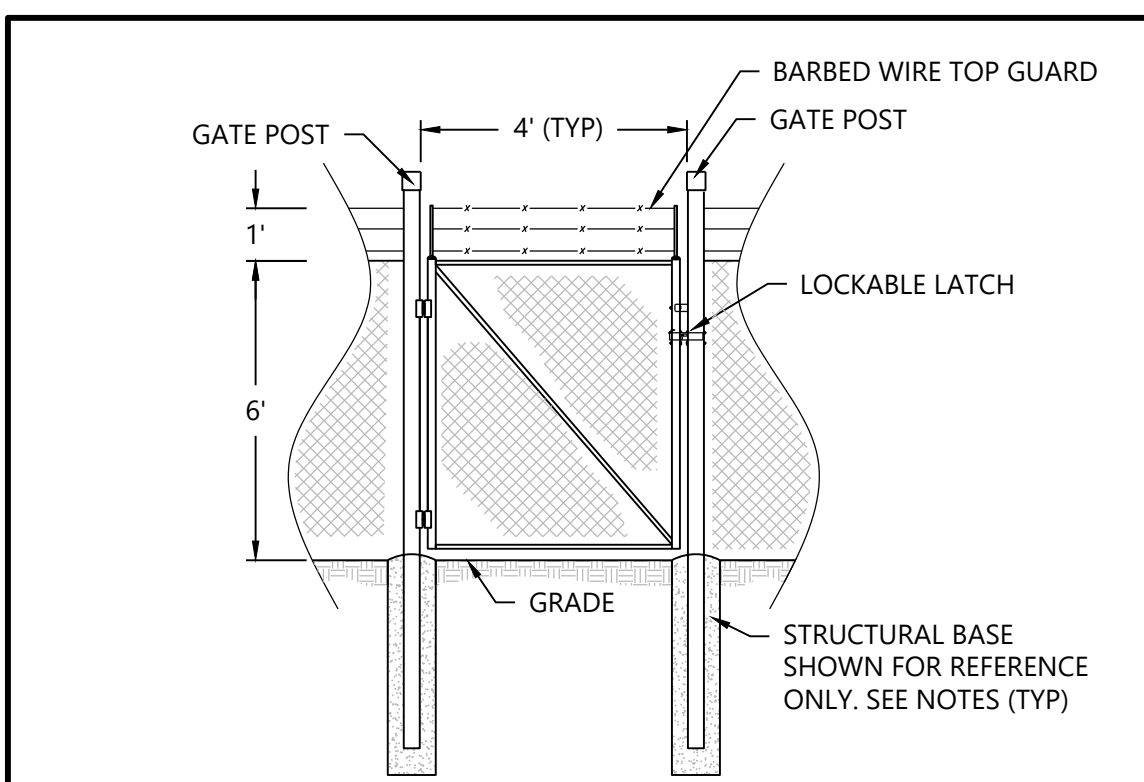
NOTES:
 1. DESIGN OF GATE AND STRUCTURAL DESIGN OF FOOTINGS TO BE APPROVED BY OWNER PRIOR TO CONSTRUCTION
 2. STRUCTURAL DESIGN FOR CONCRETE FOOTINGS TO BE PROVIDED BY FENCE SUPPLIER
 3. MOUNT KNOX BOX WITH GATE ACCESS KEYS ON CHAIN-LINK FENCE DIRECTLY ADJACENT TO GATE, MOUNTED AT 4 FT HEIGHT FOR FIRE DEPARTMENT ACCESS.
 4. REFER TO ELECTRICAL PLANS FOR GROUNDING DETAILS.

Westwood CHAIN-LINK CANTILEVERED SECURITY MANUAL SLIDING GATE (NOT TO SCALE) 06



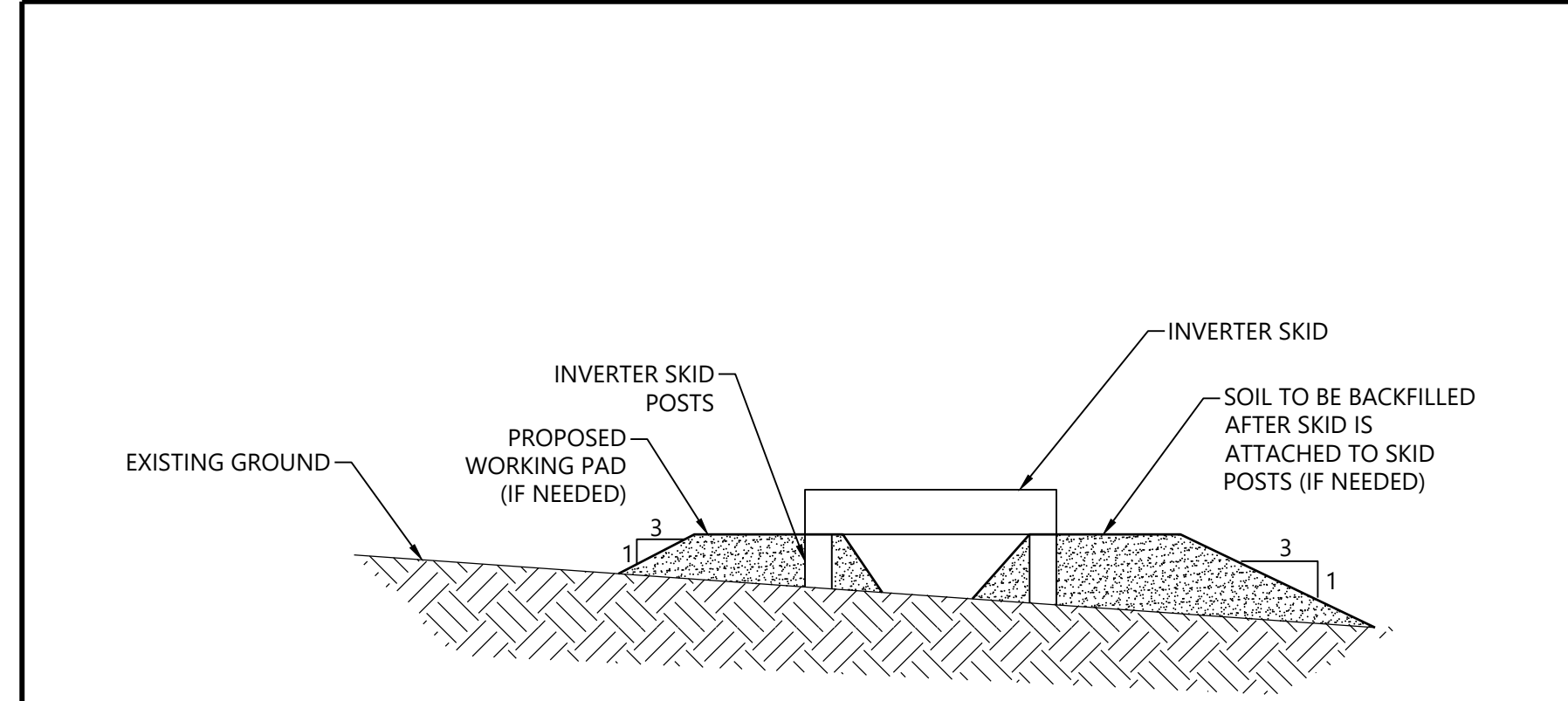
NOTES:
 1. TYPICAL FENCE AND GATE INFORMATION SHOWN IS INTENDED FOR PLANNING PURPOSES. ACTUAL DIMENSIONS AND INFORMATION TO BE PROVIDED BY FENCE SUPPLIER.
 2. REFER TO FENCE SUPPLIER SPECIFICATIONS AND DETAILS.
 3. STRUCTURAL DESIGN OF FENCE POSTS AND FOUNDATIONS TO BE PROVIDED BY FENCE SUPPLIER.
 4. STRUCTURAL PLANS AND FENCE SUPPLIER DRAWINGS SHALL SUPERSEDE THIS DETAIL IF CONFLICTS ARE PRESENT.
 5. FENCE AND GATE TYPE TO BE APPROVED BY OWNER PRIOR TO CONSTRUCTION.

Westwood CHAIN-LINK SECURITY FENCE (NOT TO SCALE) FN-01



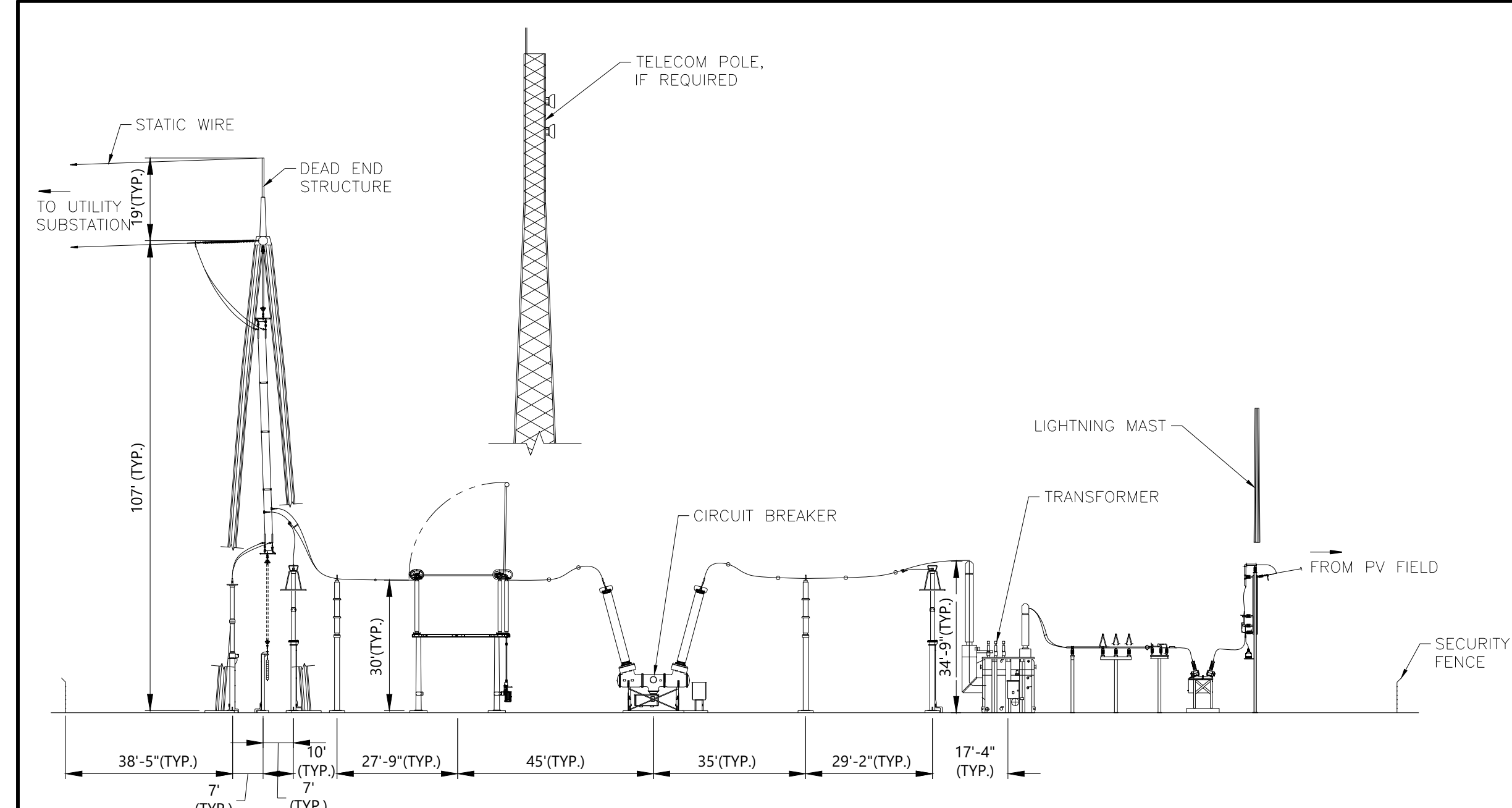
NOTES:
 1. SEE NOTES ON DETAIL FN-01.

Westwood CHAIN-LINK SECURITY PERSONNEL GATE (NOT TO SCALE) FN-03



NOTES:
 1. SOIL SHALL BE BACKFILLED AROUND INVERTER PAD IF A WORKING SURFACE IS NEEDED FOR ELECTRICAL EQUIPMENT HEIGHT REQUIREMENTS

Westwood TYPICAL SOLAR INVERTER ON DRIVEN PILES INV01



Westwood TYPICAL SUBSTATION PROFILE (NOT TO SCALE) PR02

Golden Solar Project
 Caldwell County, Kentucky

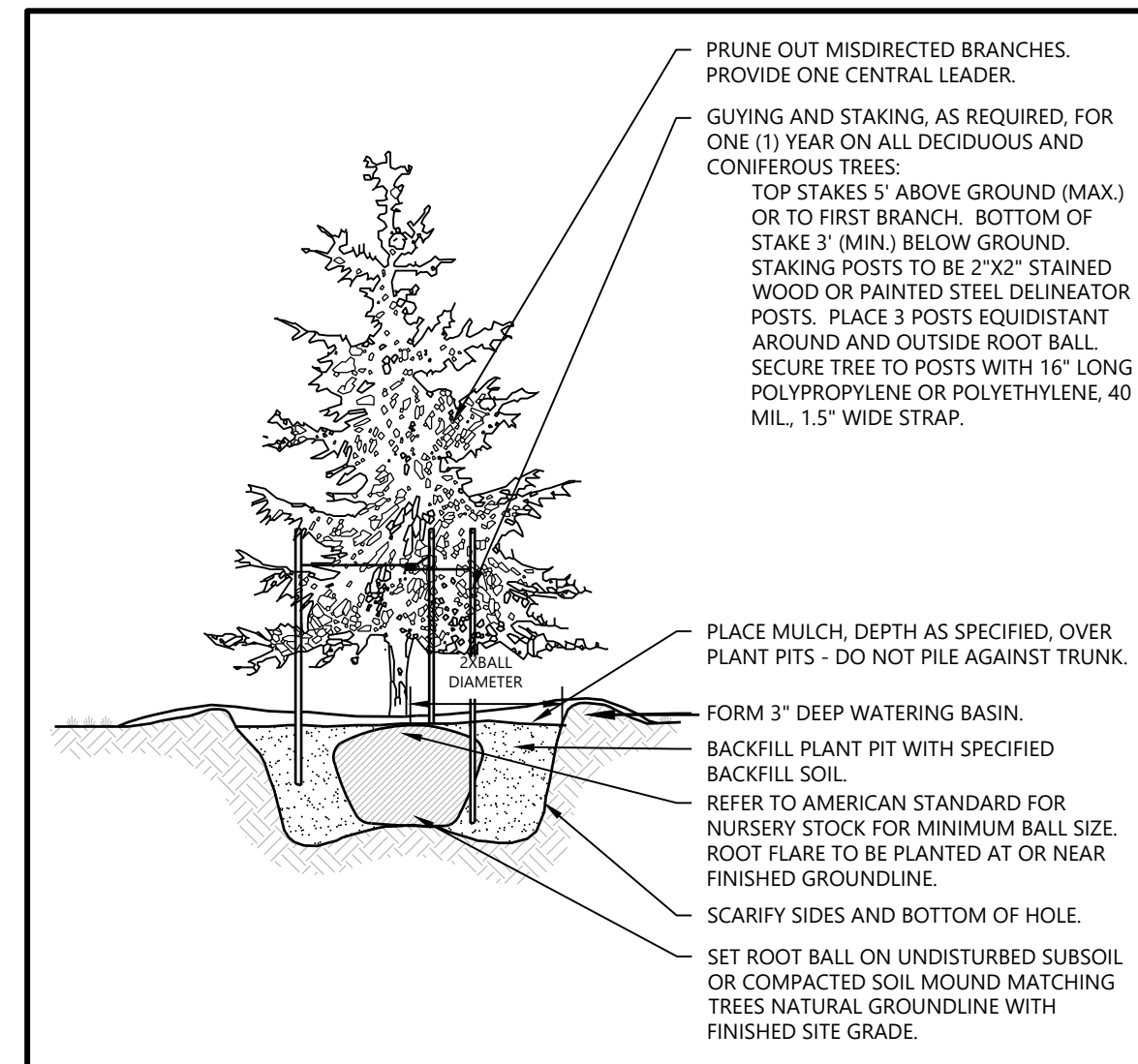
Construction Details - 1

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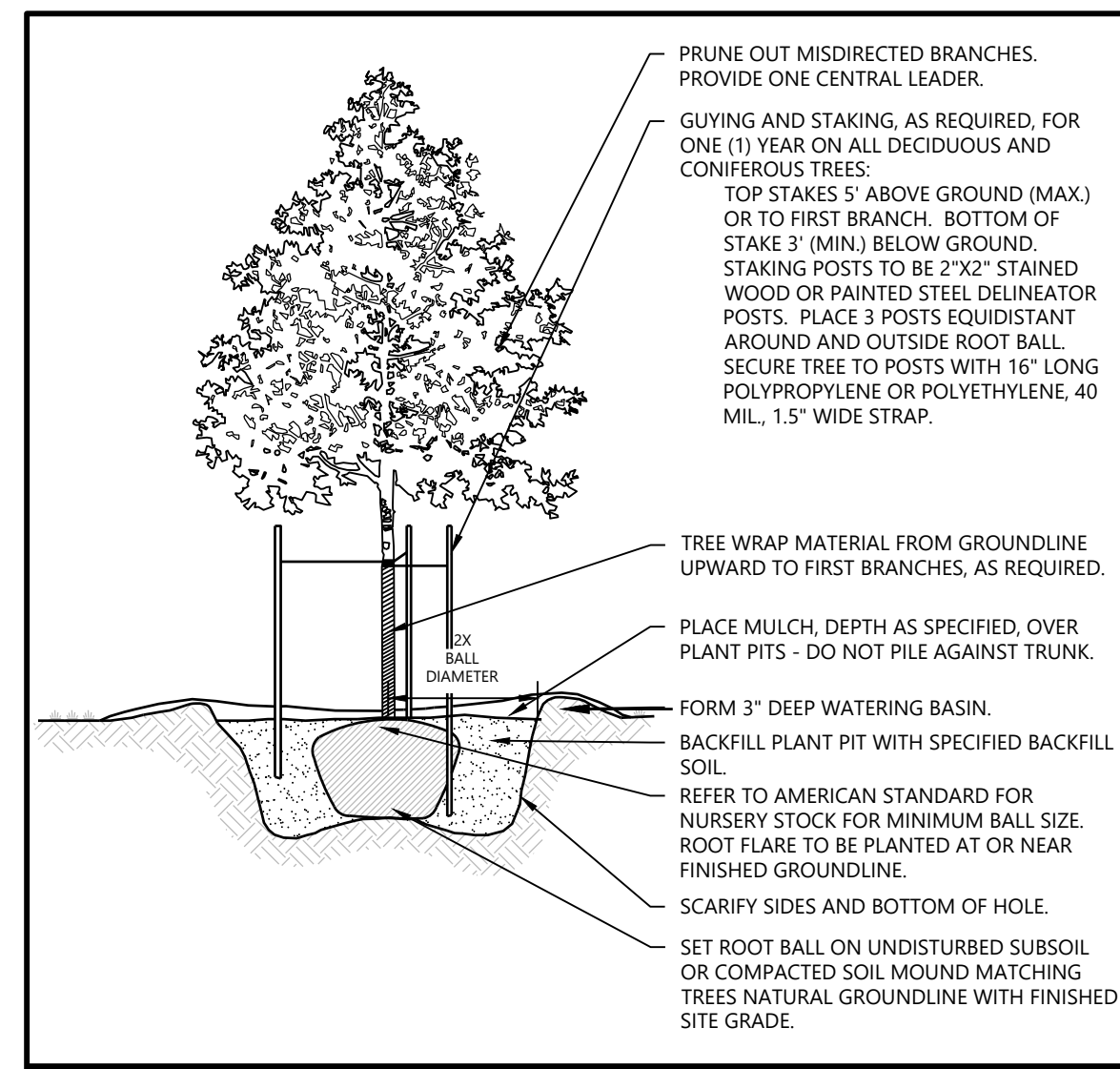
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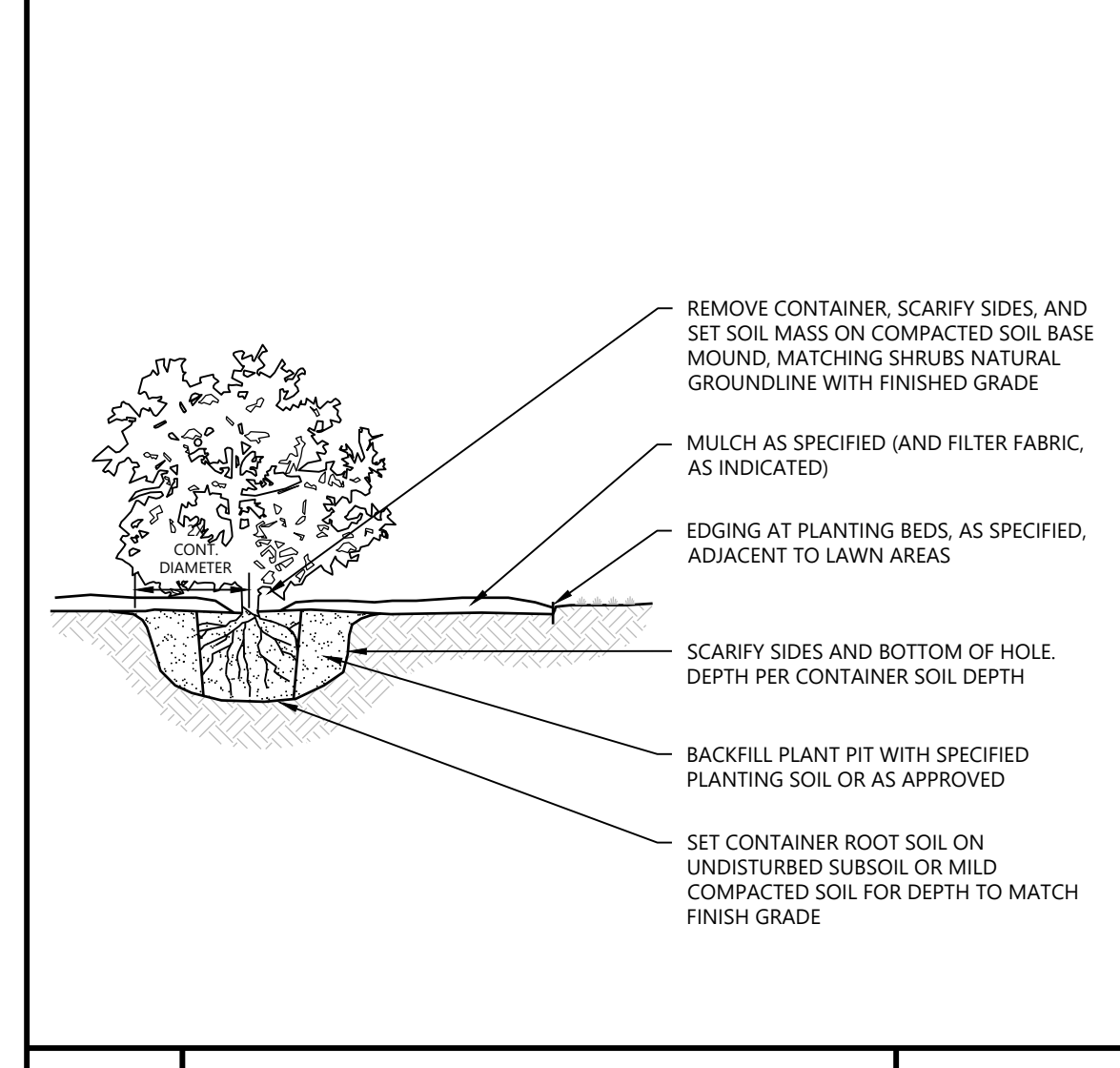
PLANTING DETAILS



Westwood EVERGREEN TREE PLANTING LA01



Westwood DECIDUOUS TREE PLANTING LA02



Westwood SHRUB & PERENNIAL CONTAINER PLANTING LA03

PRELIMINARY BUFFER & SCREENING PLANT SPECIES LIST

SYMBOL	COMMON/BOTANICAL NAME	SIZE (AT INSTALLATION)	SPACING O.C.	MATURE SIZE
EVERGREEN TREES (MEV)	Virginia Pine / <i>Pinus virginiana</i>	3' H.T., BB	15' O.C.	H 20'-60' W 10'-30'
	Eastern Red Cedar / <i>Juniperus virginiana</i>	3' H.T., BB	15' O.C.	H 30'-60' W 8'-25'
	American Holly / <i>Ilex opaca</i>	3' H.T., BB	15' O.C.	H 15'-30' W 10'-20'
DECIDUOUS TREES (DEC)	Shadblow Serviceberry / <i>Amalanchier canadensis</i>	3' H.T., BB, CLUMP	100' O.C.	H 20' W 20'
	Eastern Redbud / <i>Cercis canadensis</i>	3' H.T., BB, CLUMP	100' O.C.	H 20'-30' W 8'-25'
	Flowering Dogwood / <i>Cornus florida</i>	3' H.T., BB, CLUMP	100' O.C.	H 20' W 25'-35'
DECIDUOUS SHRUBS (SHB)	Winter Red Winterberry / <i>Ilex verticillata</i>	#5 CONT.	10' O.C.	H 6'-8' W 6'-8'
	Schipka Laurel / <i>Prunus laurocerasus</i> 'Schipkadensis'	#5 CONT.	10' O.C.	H 10'-18' W 5'-7'
	Prague Viburnum / <i>Viburnum x pragnense</i>	#5 CONT.	10' O.C.	H 8'-12' W 8'-12'

- NOTES:
1. QUANTITIES ON PLAN SUPERSEDE LIST QUANTITIES IN THE EVENT OF A DISCREPANCY.
 2. B.B. SPECIFIES ROOT TYPE AS BALLED AND BURLAPPED.
 3. H.T. SPECIFIES MINIMUM SPECIMEN HEIGHT UPON INSTALLATION.
 4. #5 CONT. TO MEET MINIMUM SIZE REQUIREMENT OF 24"H OR 30"W FOR DECIDUOUS SHRUBS UPON INSTALLATION. IF PLANT SIZE UNAVAILABLE AT #5 CONT. UPSIZE CONTAINER UNTIL MINIMUM PLANT SIZE REQUIREMENT IS MET.
 5. PLANT SPECIES SUBJECT TO CHANGE BASED UPON AVAILABILITY AT TIME OF PLANTING

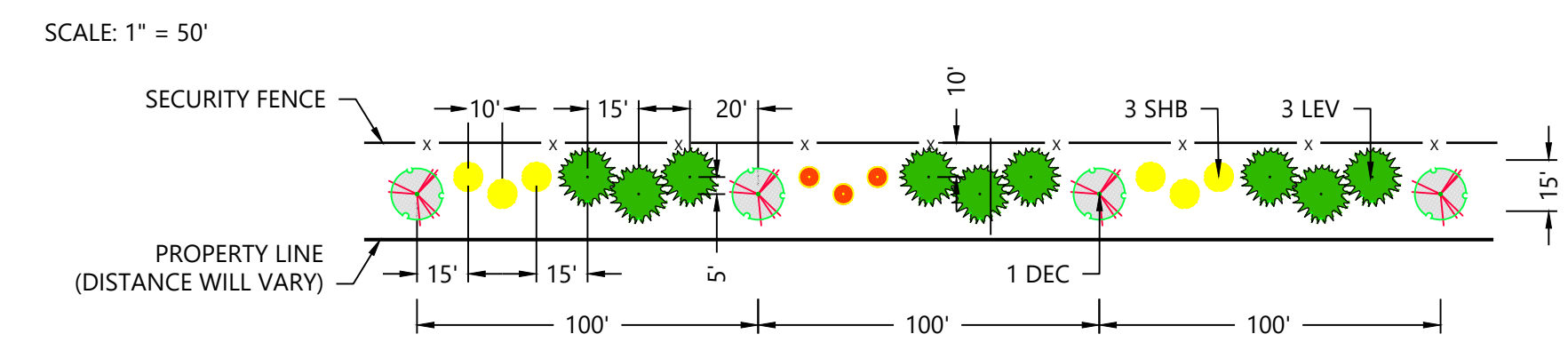
PRELIMINARY BUFFER & SCREENING PLANT MATERIAL



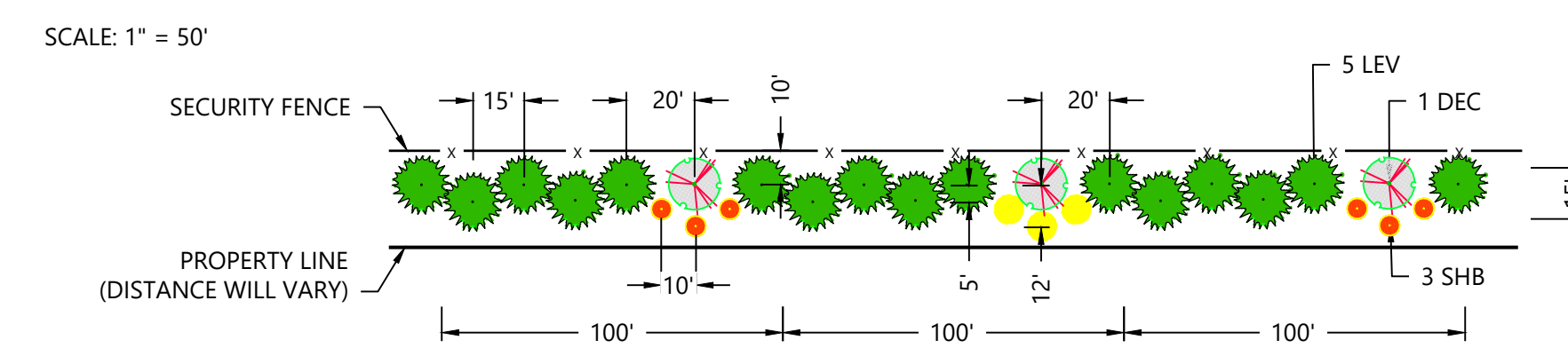
VEGETATIVE SCREENING SELECTION & INTENT

THE PROPOSED PLANS INCLUDE INSTALLING VEGETATIVE LANDSCAPE BUFFERS WHICH UTILIZE, TO THE EXTENT COMMERCIALY PRACTICABLE, NATIVE TREES AND SHRUBS OR OTHER SPECIES THAT GROW WELL IN THIS CLIMATE AT STRATEGIC LOCATIONS ACROSS THE PROJECT SITE TO LIMIT DIRECT VIEWS OF THE ARRAY. ONE BENEFIT TO USING NATIVE PLANTS OR OTHER REGIONALLY APPROPRIATE SPECIES IS THAT THEY ARE ACCLIMATED TO THE PARTICULAR CLIMATE AND ENVIRONMENTAL CONDITIONS, THUS ALLOWING FOR A QUICKER ESTABLISHMENT AND INCREASED SURVIVAL RATES. THE PROPOSED VEGETATIVE LANDSCAPE BUFFERS ARE COMPOSED OF EVERGREEN TREES THAT CAN PROVIDE LUSH GREEN YEAR ROUND SCREENING AND DECIDUOUS SHRUBS THAT CAN HELP PROVIDE ADDITIONAL SCREENING AND BE VISUALLY APPEALING ACROSS MULTIPLE SEASONS. SOME OF THE CHARACTERISTICS THAT THESE NATIVE SHRUBS HAVE BEEN SELECTED FOR INCLUDE FOLIAGE AND STEM COLOR, FLOWERS AND FRUIT PRODUCTION. THE SHRUBS PROPOSED TO BE PLANTED IN SMALL MASSES SO THAT AT ANY ONE TIME IN THE YEAR ONE SPECIES MIGHT DISPLAY SOME OF THESE AESTHETIC CHARACTERISTICS. BEYOND THE AESTHETIC VALUE, THE PROPOSED PLANTS CAN PROVIDE ADDITIONAL WILDLIFE BENEFITS THAT INCLUDE A SOURCE FOR POLLINATORS, SHELTER, FORAGE AND WINTER HABITAT. AS THE PLANTS MATURE THEY WILL GROW CLOSER TOGETHER CREATING A TYPE OF NATURAL HEDGE.

LANDSCAPE BUFFER TYPE 1:



LANDSCAPE BUFFER TYPE 2:

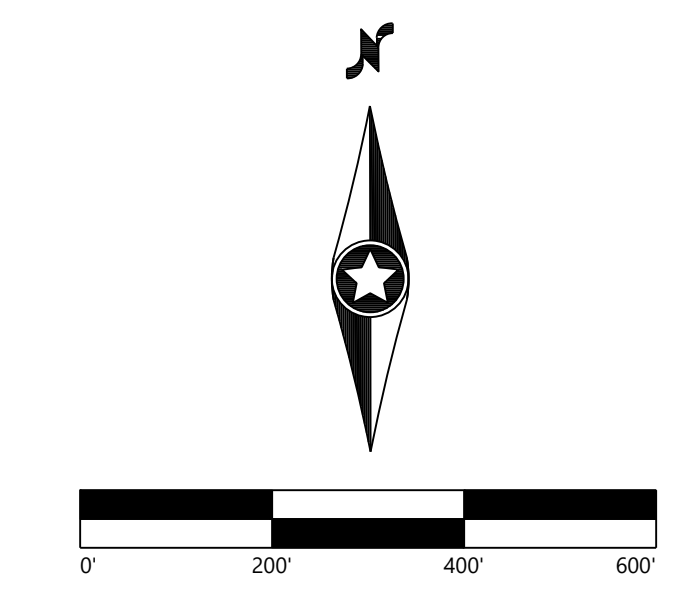


PLANTING NOTES

1. CONTRACTOR SHALL CONTACT KENTUCKY "ONE CALL" 811 OR 1-800-752-6007 TO VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY PLANTS OR LANDSCAPE MATERIAL.
2. ACTUAL LOCATION OF PLANT MATERIAL IS SUBJECT TO FIELD AND SITE CONDITIONS.
3. NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
4. ALL SUBSTITUTIONS MUST BE APPROVED BY THE OWNER PRIOR TO SUBMISSION OF ANY BID AND/OR QUOTE BY THE LANDSCAPE CONTRACTOR.
5. CONTRACTOR SHALL PROVIDE ONE YEAR GUARANTEE OF ALL PLANT MATERIALS. THE GUARANTEE BEGINS ON THE DATE OF THE OWNER'S WRITTEN ACCEPTANCE OF THE INITIAL PLANTING. REPLACEMENT PLANT MATERIAL SHALL HAVE A ONE YEAR GUARANTEE COMMENCING UPON PLANTING.
6. ALL PLANTS TO BE SPECIMEN GRADE, KENTUCKY-GROWN AND/OR HARDY. SPECIMEN GRADE SHALL ADHERE TO, BUT IS NOT LIMITED BY, THE FOLLOWING STANDARDS:
ALL PLANTS SHALL BE FREE FROM DISEASE, PESTS, WOUNDS, SCARS, ETC.
ALL PLANTS SHALL BE FREE FROM NOTICEABLE GAPS, HOLES, OR DEFORMITIES.
ALL PLANTS SHALL BE FREE FROM BROKEN OR DEAD BRANCHES.
ALL PLANTS SHALL HAVE HEAVY, HEALTHY BRANCHING AND LEAFING.
CONIFEROUS TREES SHALL HAVE AN ESTABLISHED MAIN LEADER AND A HEIGHT TO WIDTH RATIO OF NO LESS THAN 5:3.
7. PLANTS TO MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004 OR MOST CURRENT VERSION) REQUIREMENTS FOR SIZE AND TYPE SPECIFIED.
8. PLANTS TO BE INSTALLED AS PER KNLA & ANSI STANDARD PLANTING PRACTICES.
9. PLANTS SHALL BE IMMEDIATELY PLANTED UPON ARRIVAL AT SITE. PROPERLY HEEL-IN MATERIALS IF NECESSARY; TEMPORARY ONLY.
10. PRIOR TO PLANTING, FIELD VERIFY THAT THE ROOT COLLAR/ROOT FLAIR IS LOCATED AT THE TOP OF THE BALLED & BURLAP TREE. IF THIS IS NOT THE CASE, SOIL SHALL BE REMOVED DOWN TO THE ROOT COLLAR/ROOT FLAIR. WHEN THE BALLED & BURLAP TREE IS PLANTED, THE ROOT COLLAR/ROOT FLAIR SHALL BE EVEN OR SLIGHTLY ABOVE FINISHED GRADE.
11. REMOVE POT ON POTTED PLANTS; SPLIT AND BREAK APART PEAT POTS.
12. PRUNE PLANTS AS NECESSARY - PER STANDARD NURSERY PRACTICE AND TO CORRECT POOR BRANCHING OF EXISTING AND PROPOSED TREES.
13. THE NEED FOR SOIL AMENDMENTS SHALL BE DETERMINED UPON SITE SOIL CONDITIONS PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL NOTIFY OWNER FOR THE NEED OF ANY SOIL AMENDMENTS.
14. BACKFILL SOIL AND TOPSOIL TO BE EXISTING TOP SOIL FROM SITE FREE OF ROOTS, ROCKS LARGER THAN ONE INCH, SUBSOIL DEBRIS, AND LARGE WEEDS UNLESS SPECIFIED OTHERWISE. MINIMUM 12" DEPTH TOPSOIL FOR TREE, SHRUBS, AND PERENNIALS.
15. PROVIDE MULCH FOR ALL TREE AND SHRUB PLANTINGS PER DETAIL. MULCH TO BE SHREDDED HARDWOOD AND FREE OF DELETERIOUS MATERIAL. MULCH 3" DIAMETER RING AROUND ALL TREES AND SHRUBS TO A DEPTH OF 4". KEEP MULCH OFF TRUNK.
16. CONTRACTOR SHALL PROVIDE NECESSARY WATERING OF PLANT MATERIALS UNTIL THE PLANT IS FULLY ESTABLISHED OR IRRIGATION SYSTEM IS OPERATIONAL. OWNER WILL NOT PROVIDE WATER FOR CONTRACTOR.

REVISIONS:

#	DATE	COMMENT



Golden Solar Project

Caldwell County, Kentucky

Buffer Screening Notes & Details

Not for Construction
 DATE: 11/17/2022
 SHEET: L.100

Request

15. Refer to the Response to Staff's First Request, Item 26. Identify the utilities that will be providing electrical and water service during construction and operation of the project.

Response

Golden Solar anticipates Kenergy will provide electric services and Caldwell Water District will provide water services.

Request

16. Refer to the Response to Staff's First Request, Item 29. Provide the One- line diagram that includes the Main Substation of the Project and the existing utility substation.

Response

See attached diagram. The point of interconnection at the existing utility substation is shown at the top of Sheet EE101. Golden Solar does not have a one-line diagram of the existing utility substation at this time.

Golden Solar Project

Caldwell County, Kentucky

Substation Protection & Control Plans

PREPARED FOR:



8400 Normandale Lake Blvd, Suite 1200
Bloomington, MN 55437

REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
A	11/18/2022	CONCEPTUAL REVIEW	EJK	AET	JLM

P&C DRAWING LIST

SHEET NUMBER	SHEET TITLE	SHEET REVISION	SHEET DATE
EE001	Cover Sheet	A	11/18/2022
EE002	Legend	A	11/18/2022
EE101	Relay One-Line	A	11/18/2022

Golden Solar Project

Caldwell County, Kentucky

Cover Sheet

NOT FOR CONSTRUCTION

DATE: 11/18/2022 REV:
SHEET: EE001 A

PREPARED FOR:

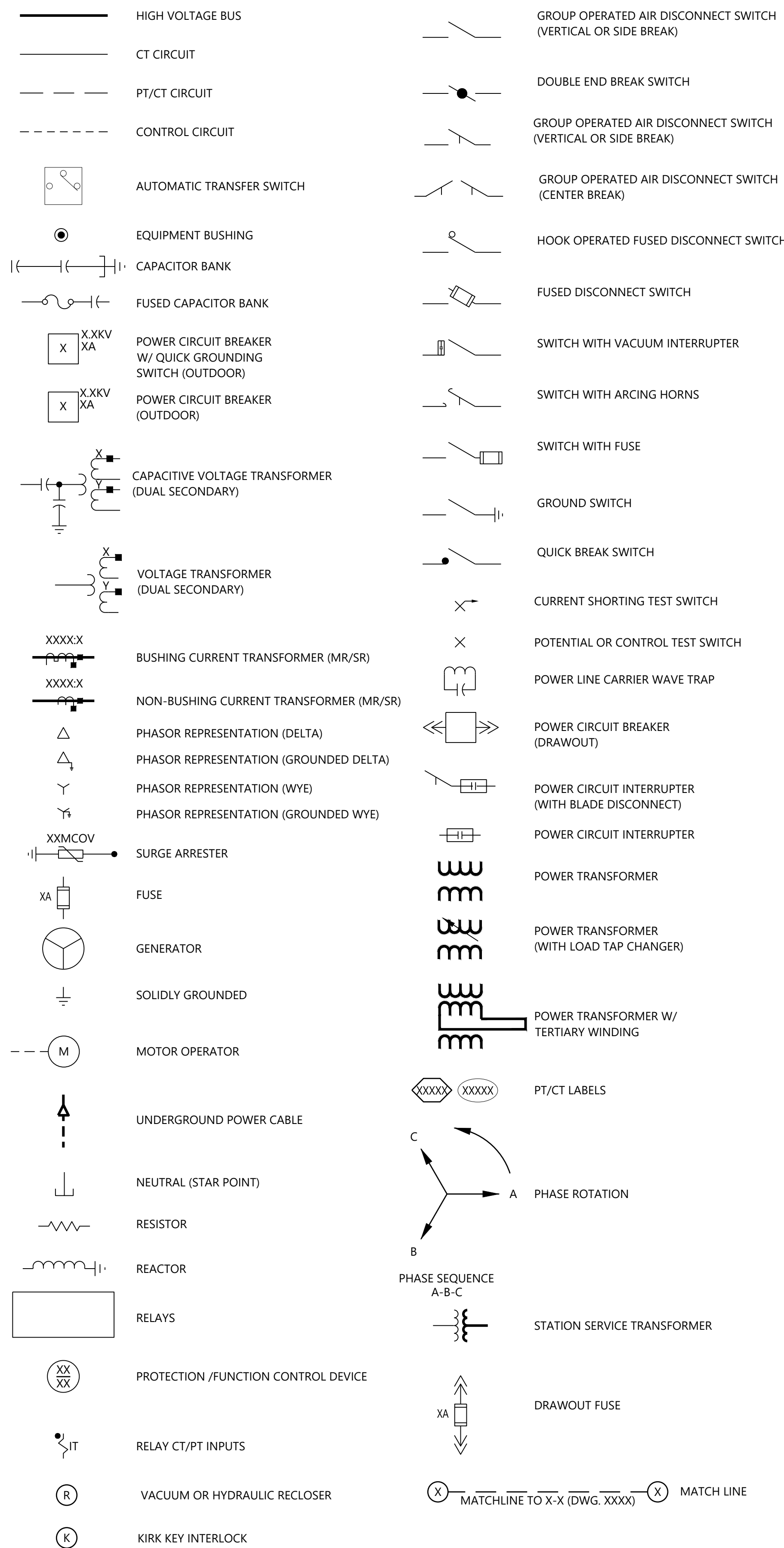


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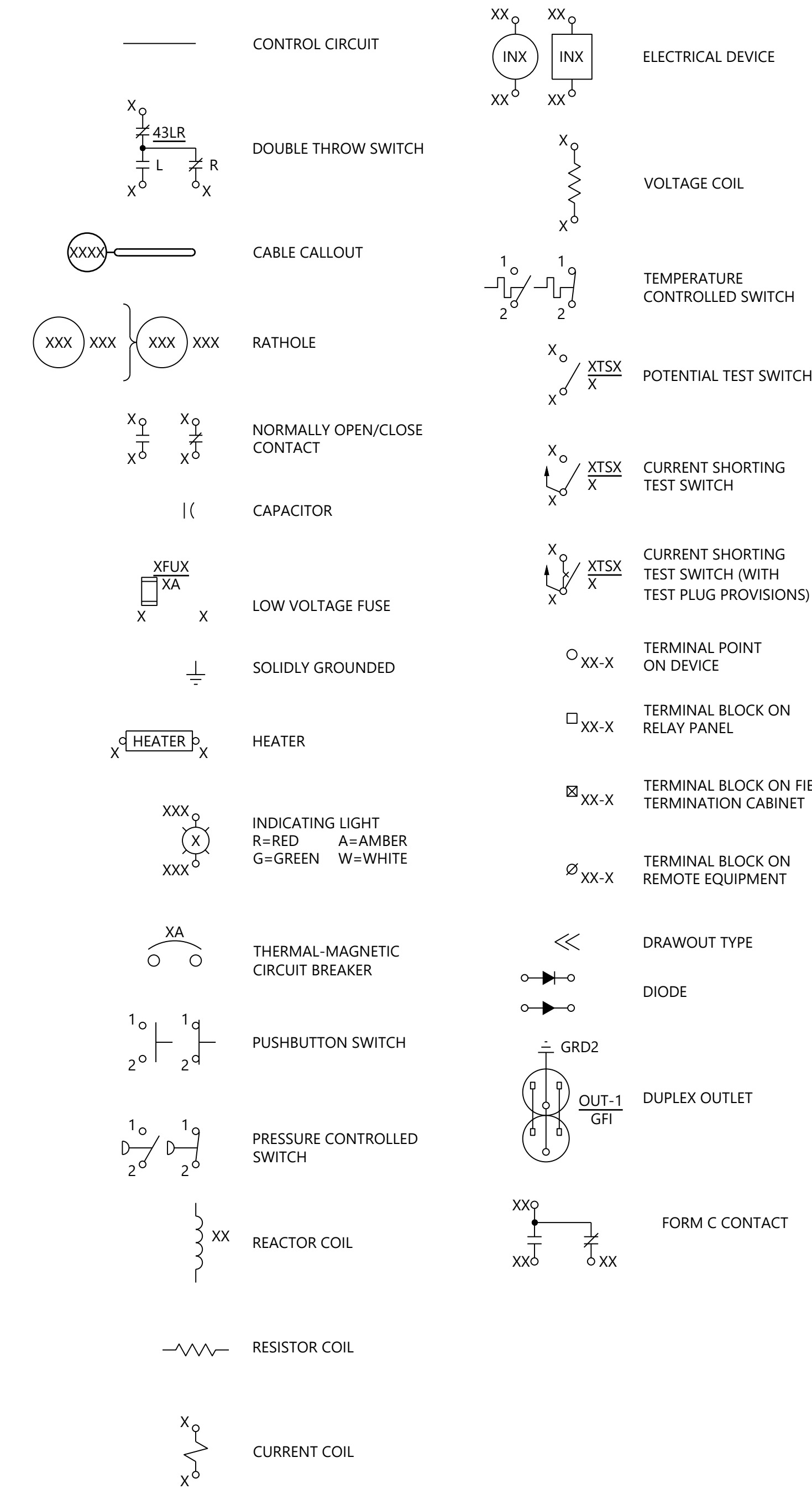
REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
A	11/18/2022	CONCEPTUAL REVIEW	EJK	AET	JLM

ONE LINE & THREE LINE DIAGRAM SYMBOLS



SCHEMATIC DIAGRAM SYMBOLS



ANSI CODES AND ABBREVIATIONS

CODE/ ABBREV	DESCRIPTIONS	CODE/ ABBREV	DESCRIPTIONS
2	TIME-DELAY CLOSING RELAY	101	SUPERVISORY CONTROL
12	OVERSPEED DEVICE	a	OPEN CONTACT (OPEN WHEN DEVICE IS DE-ENERGIZED)
13	SYNCHRONOUS-SPEED DEVICE	b	CLOSED CONTACT (CLOSED WHEN DEVICE IS DE-ENERGIZED)
14	UNDERSPEED DEVICE	AM	AMMETER
21	DISTANCE RELAY	AS	AMPERE SWITCH
23	TEMPERATURE CONTROLLED DEVICE	BF	BREAKER FAILURE
25	SYNCHRONOUS-CHECK RELAY	BFI	BREAKER FAILURE INITIATE
26	THERMAL DEVICE	CC	CLOSE COIL
27	UNDERVOLTAGE RELAY	CS	CONTROL SWITCH
30	ANNUNCIATOR	DPM	DIGITAL PANEL METER
32	DIRECTIONAL POWER RELAY	DTA	DISPLAY TRANSDUCER ADAPTER
40	FIELD RELAY	DTR	DIRECT TRIP RECEIVE
43	SELECTOR SWITCH OR RELAY	DTS	DIRECT TRIP SEND
46	PHASE-BALANCE CURRENT RELAY	EC	ELECTRONIC CONTROL
47	PHASE-SEQUENCE VOLTAGE RELAY	FU	FUSE
48	INCOMPLETE SEQUENCE RELAY	GFI	GROUND FAULT INTERRUPTER
49	THERMAL RELAY	HBI	HOT BUS INDICATION
50	INSTANTANEOUS OVERCURRENT RELAY	HLI	HOT LINE INDICATION
51	TIME OVERCURRENT RELAY	LCS	LATCH CHECK SWITCH
52	CIRCUIT BREAKER	LR	LOCAL REMOTE
53	EXCITER OR DC GENERATOR RELAY	LS	LOCAL-SUPERVISORY
55	POWER FACTOR RELAY	M	METER
56	FIELD APPLICATION RELAY	OC	OC OPEN CONTACTOR
59	OVERVOLTAGE RELAY	PF	POWER FACTOR
60	VOLTAGE OR CURRENT BALANCE RELAY	PTR	PERMISSIVE TRIP RECEIVE
62	TIME DELAY OPENING RELAY	PTS	PERMISSIVE TRIP SEND
63	PRESSURE SWITCH	RC	RECLOSER CONTROL
64	GROUND DETECTOR RELAY	RCV	RECORDING VOLTMETER
67	DIRECTIONAL OVERCURRENT RELAY	RVM	REVENUE METER
68	BLOCKING DEVICE	SCDA	SCADA CONTROL
69	PERMISSIVE CONTROL DEVICE	TC	TRIP COIL
71	LIQUID LEVEL DEVICE	TS	TEST SWITCH
74	ALARM DEVICE	VS	VOLTAGE SWITCH
77	PULSE TRANSMITTER	VM	VOLTMETER
78	OUT-OF-STEP RELAY	XD	TRANSDUCER
79	RECLOSING RELAY	X	MAJOR EQUIPMENT BOM #
81	FREQUENCY RELAY		
84	MOTOR MECHANISM		
86	LOCKOUT RELAY		
87	DIFFERENTIAL RELAY		
88	MOTOR		
89	LINE SWITCH		
90	VOLTAGE REGULATING RELAY (LTC)		
94	AUXILIARY TRIPPING RELAY		

CONTROL CABLE COLOR CODE (ICEA METHOD 1)

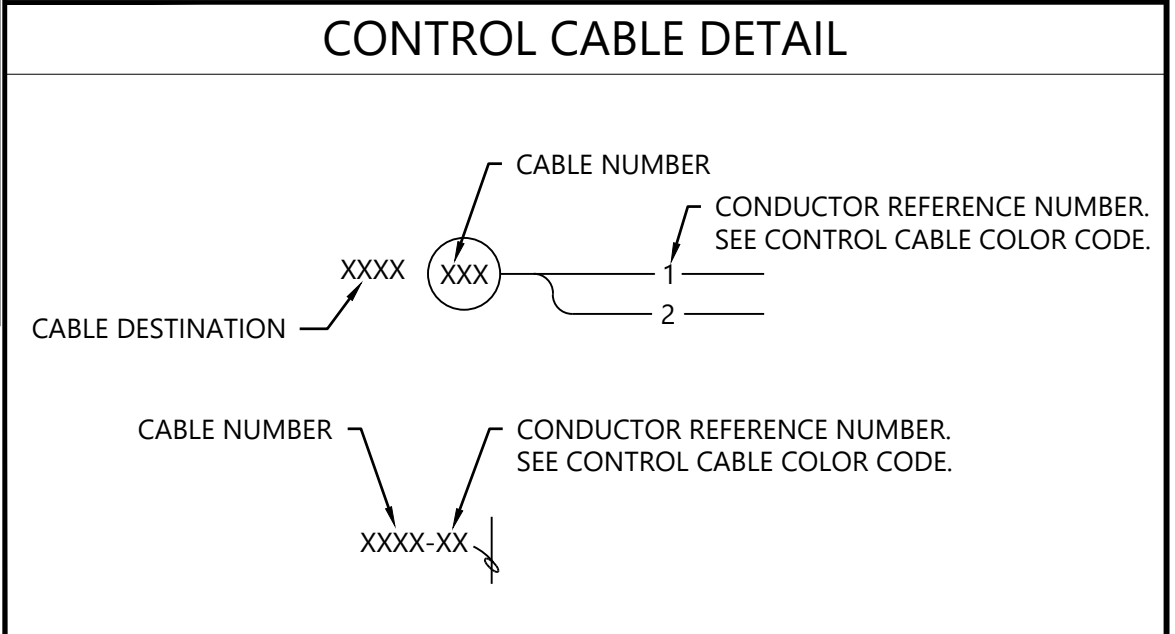
CONDUCTOR NO.	TABLE E-1	ABBREV	PHASING
1	BLACK	BK	AØ
2	WHITE	W	BØ
3	RED	R	CØ
4	GREEN	G	NEUTRAL
5	ORANGE	O	
6	BLUE	BU	
7	WHITE BLACK	WB	
8	RED BLACK	RB	
9	GREEN BLACK	GB	
10	ORANGE BLACK	OB	
11	BLUE BLACK	BUB	
12	BLACK WHITE	BW	

FIBER OPTIC COLOR CODE

CONDUCTOR NO.	TABLE	ABBREV.
1	BLUE	BU
2	ORANGE	O
3	GREEN	G
4	BROWN	BR
5	SLATE	SL
6	WHITE	W
7	RED	R
8	BLACK	BK
9	YELLOW	Y
10	VIOLET	VI
11	ROSE	RO
12	AQUA	AQ

CABLE NUMBERS

RANGE	CONTAINS
1000-1999	AC CABLES
2000-2999	DC CABLES
3000-3999	PT CABLES
4000-4999	CT CABLES
5000-6999	CONTROL CABLES
6000-6999	PANEL TO PANEL CABLES
7000-7999	COMMUNICATION CABLES



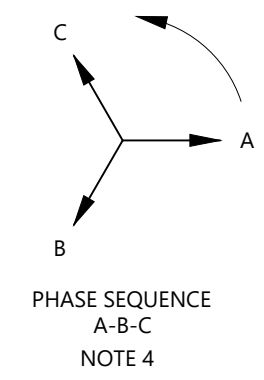
Golden Solar Project

Caldwell County, Kentucky

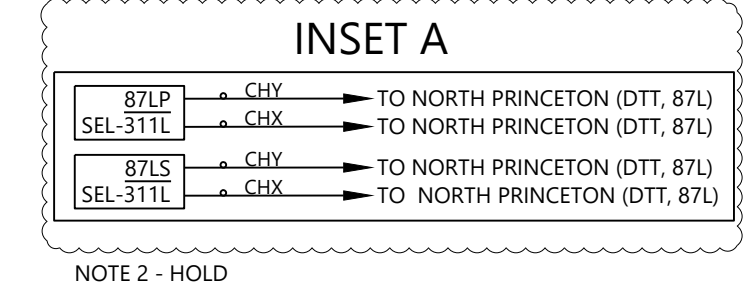
Legend

DATE: 11/18/2022 REV: A
 SHEET: EE002

11/18/2022 10:00 AM 1301 Substation 1 - Design - Design 1.DWG - 11/18/2022 10:00 AM EJK



- NOTES
1. FIBER VIA OPGW FOR COMMUNICATION TO NORTH PRINCETON.
 2. LINE RELAYING WILL BE COORDINATED TO NORTH PRINCETON S/S.
 3. IMPEDANCE TO BE PROVIDED BY NATIONAL GRID AFTER MPT FACTORY TEST RESULTS.
 4. NATIONAL GRID TO CONFIRM PHASE SEQUENCE ROTATION IN ORDER TO MATCH THE MPT.
 5. POWER PLANT CONTROLLER (PPC)
 6. MCOV OF LINE ARRESTER TO BE FINALIZED BASED ON NORTH PRINCETON'S SYSTEM.
 7. NUMBER OF FEEDERS, CAP BANK AND ITS REACTOR ARE PRELIMINARY. RATINGS ARE TBD AFTER REACTIVE AND SHORT CIRCUIT STUDIES HAVE BEEN COMPLETED.



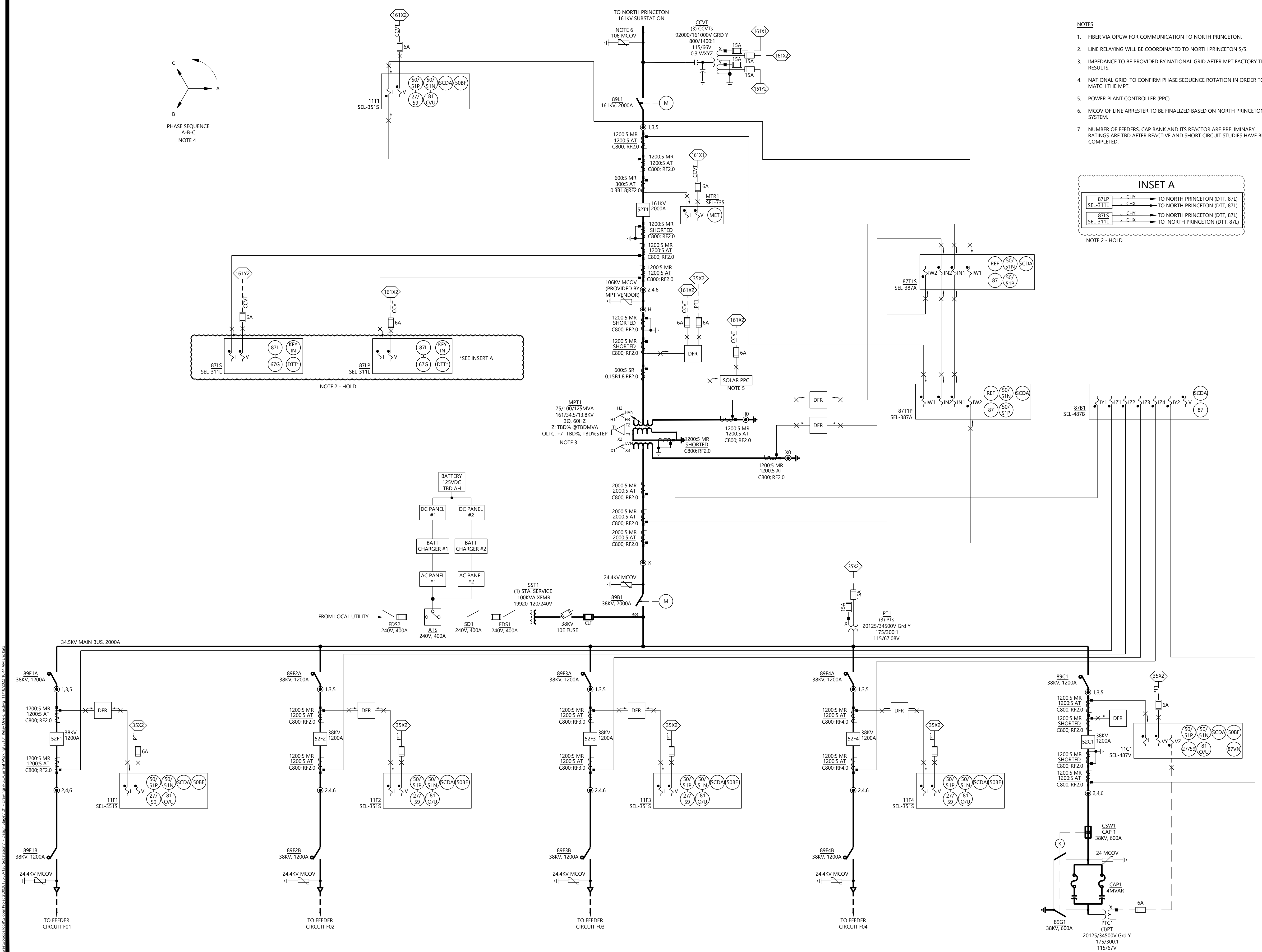
PREPARED FOR:



8400 Normandale Lake Blvd, Suite 1200
 Bloomington, MN 55437

REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
A	11/18/2022	CONCEPTUAL REVIEW	EJK	AET	JLM



Golden Solar Project

Caldwell County, Kentucky

Relay One-Line

NOT FOR CONSTRUCTION

DATE: 11/18/2022 REV:
 SHEET: EE101 A

www.northerngrid.com/... 11/18/2022 10:44 AM EJK

Request

17. Refer to the Response to Staff's First Request, Item 18. Explain if the Industrial Revenue Bond or Payment in Lieu of Taxes agreements will change anticipated government revenue.
-

Response

Golden Solar has not negotiated an Industrial Revenue Bond or entered into a Payment in Lieu of Tax agreement with the local taxing authority. Any changes to government revenue will depend on the final terms of any such agreement.

Request

18. Refer to the Response to Staff's First Request, Item 17(c). Provide an estimate of sales and income taxes based upon current costs and taxes.

Response

State income taxes for directly hired workers are estimated at approximately \$251,000 during construction and approximately \$13,000 annually during operation. This is estimated using the value of earnings for direct hires as presented in Exhibit F, Table 2 multiplied by the Kentucky's flat personal income tax rate of 4.5% that will be in effect beginning January 1, 2023. This is down from the 5.0% rate levied currently. State income taxes associated with total number of jobs created during construction are approximately \$492,000 and approximately \$36,000 per year during operation.

In addition to state income tax, local income taxes are also levied in certain jurisdictions. For example, Caldwell County, KY imposes an additional 1.0% tax rate on income, while several other surrounding counties do not impose local income taxes. Local income taxes would be additional to those estimated above.

Most material purchases for utility scale solar farms are classified as sales tax exempt in Kentucky. Therefore, sales tax paid during construction and operation are anticipated to be low in magnitude. Sales tax payments are estimated to be under \$10,000 during construction and under \$5,000 per year during operation.

Request

19. Explain the basis for the price estimates of electrical units for the project used to calculate the economics of the project.

Response

Golden Solar is unclear what is meant by the term “electrical units.” The economic impact analysis of the project was based partly on an estimated construction spend over 150 million dollars.

Request

20. Identify all proposed project access points on the site plan.

Response

See Amended Exhibit J- Golden Preliminary Plan Set. Preliminary access points are identified with a star. These access points are subject to change during final design.

Request

21. Provide projected annual property taxes occurring in the operational phase.

Response

Projected annual property taxes during operations equal \$132,000 per year.