

# PIKE SOLAR LLC



Appendix AD- Lighting Plan

# Pike Solar Lighting Plan

The Pike Solar project (“Project”) will bring 175 megawatts (MW) of solar energy onto the Colorado Springs Utilities electrical grid with the operational benefits provided by up to 75 MW of AC-coupled battery energy storage system (“BESS”). The principal purpose for outdoor lighting on site is for the safety of construction, operations, and maintenance personnel. During both the construction and operational periods of the facilities, lighting will be required. Accordingly, this Lighting Plan addresses construction and operations, and applicability of the El Paso County Land Development Code to the proposed development.

### *Construction*

Project construction will largely take place during daylight hours and consequently, will not require substantial lighting on site. Weather conditions and time of the year may necessitate the use of temporary lighting to illuminate work stations until daylight allows for safe working conditions. Construction lighting may also be installed at construction trailers to ensure safety.

Construction lighting would be limited to gas/diesel generated systems that are temporary and mobile; common to most construction sites. While the El Paso County Code does not put height limitations on construction lighting, temporary lighting poles would generally not exceed 24 feet. All lighting would be directed downward and shielded. Individual light sources would not exceed 150,000 lumens per light source. At all times, construction lighting would be less than 0.1 lumen at property lines. Additionally, generators used to power light sources would not exceed sound thresholds laid out in the El Paso County Noise Ordinance (75 db(A) at property line).

### *Operations*

The layout proposed in the WSEO includes 45 power stations (housing power infrastructure such as inverters and transformers), the BESS, the substation, and an operations and maintenance (“O&M”) building. Project lighting will be limited to interior-located power stations, BESS area, substation, and O&M building (as put forward by national electrical standards) and will not include exterior lighting. Lighting will be manually activated and will be set on a motion detector to limit events where there is unnecessary lighting at the facility. The use of lighting on the site will be limited to instances of O&M at the facility during nighttime hours. Operations and maintenance activities at solar facilities during the evening is rare. Maintenance personnel will specifically target work during daylight hours to best ensure safety on-site. El Paso County Land Development Code states that light levels at residential property lines may not exceed 0.1 foot candles because of on-site lighting. A photometric study was completed for a prior El Paso County project (Palmer Solar) to demonstrate lighting compliance. The same design criteria will be used for the Pike Solar, and nowhere on the site will the proposed lighting exceed this threshold. The results of the photometric study are included with the Lighting Plan showing the maximum extent of 0.1 foot candle based on the proposed lighting technology at both the Pike Solar. Project lighting will be downcast and will be fixed to permanent structures on site; exclusively power stations, structures within the BESS area, the substation, and the O&M building.

REVISION NOTES  
 REV. # DRAWN BY CHECKED BY DATE  
 1 A DGD/12/26/21 XOX/10/20/21

DRAWN BY: DGD LATEST REV: A

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

DESCRIPTION: SITE LIGHTING PLAN

SCALE: 1"=350'

DATE: 10/20/21

PROJECT: PIKE SOLAR

**GENERAL NOTES**

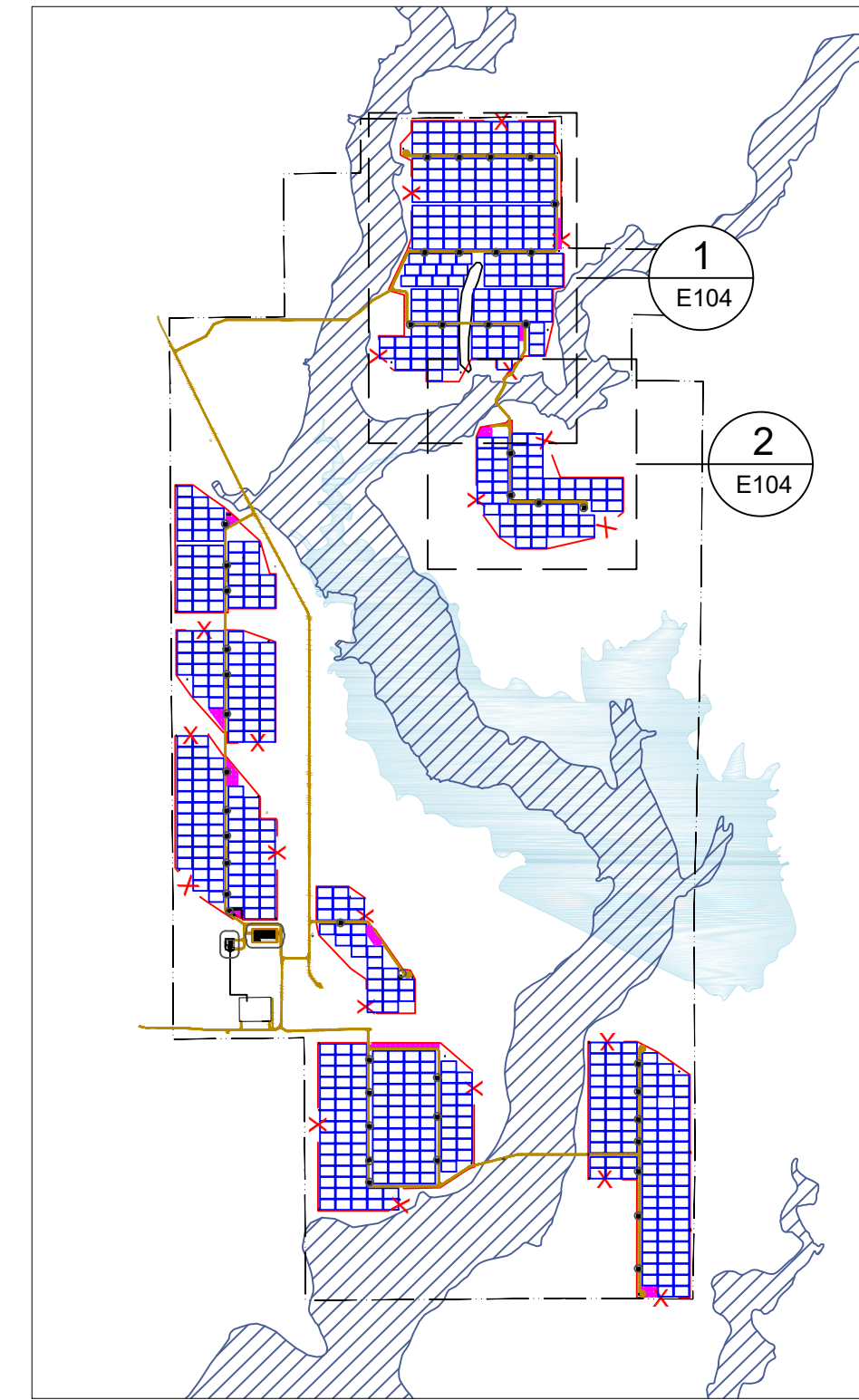
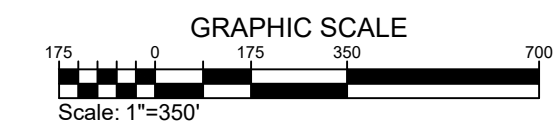
- 1 THE PROJECT DOES NOT INCLUDE ANY REGULARLY SCHEDULED DAYTIME LIGHTING.
- 2 TEMPORARY LIGHTING IS LIMITED TO LOCATIONS IDENTIFIED HERE WITHIN AND WILL ONLY BE ALLOWED FOR MAINTENANCE OF THE FACILITY.
- 3 DURING OPERATION, THE PROJECT WILL ABIDE BY EL PASO COUNTY LIGHTING ORDINANCE AT ALL TIMES INCLUDING LUMEN LIMITATIONS AT PROPERTY LINES.
- 4 NO LIGHTING IS PROPOSED FOR CONSTRUCTION.
- 5 LIGHTING SHALL NOT EXCEED 0.2 FOOT CANDLES AT PROPERTY BOUNDARY

**LEGEND**

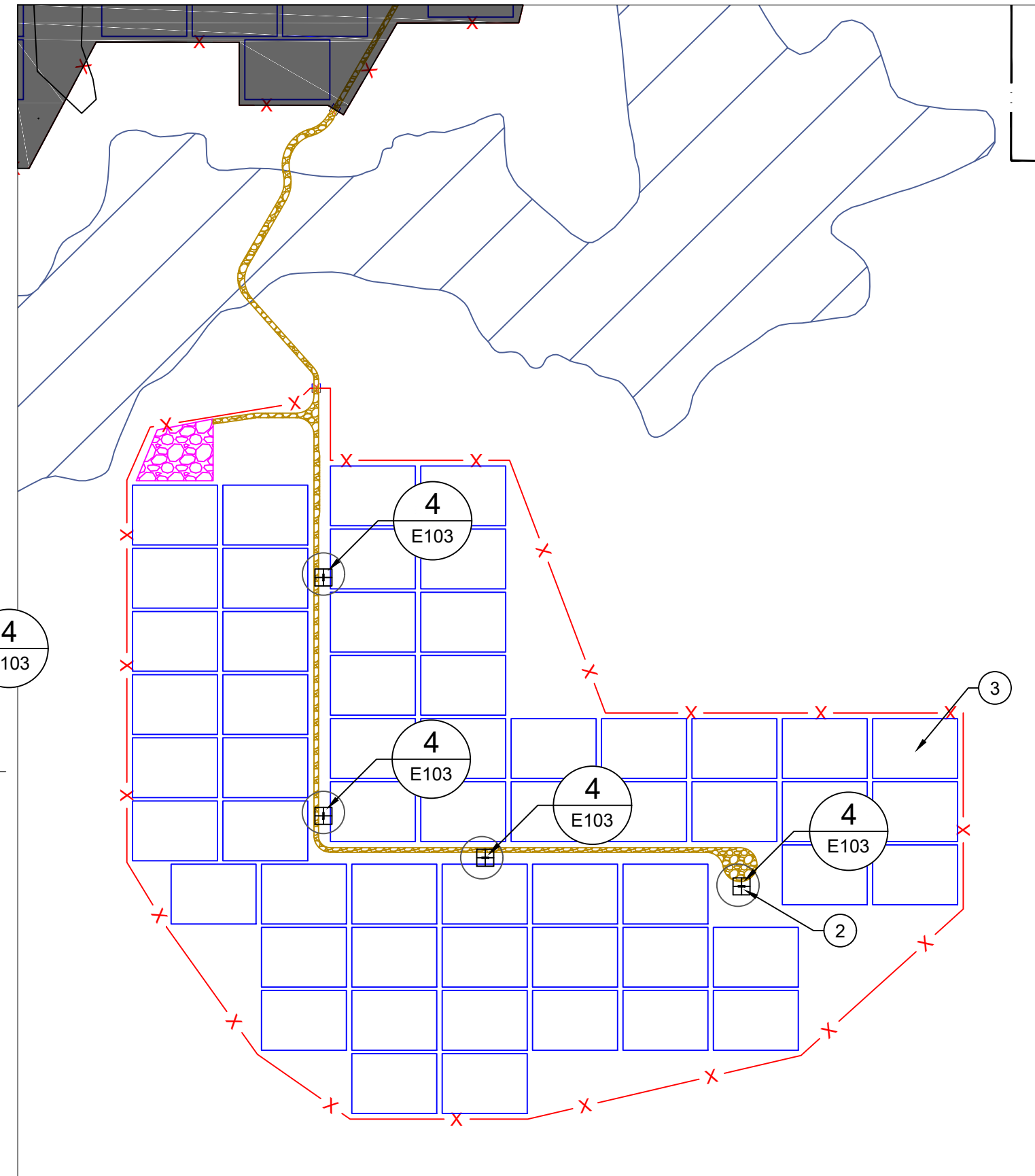
- PROJECT FENCE
- PROPERTY BOUNDARY
- SITE ACCESS ROAD
- EXISTING CSU ROAD
- STAGING/PARKING AREA
- TRACKER ARRAY OUTLINE
- POWER STATION
- O&M SHED

**KEYNOTES**

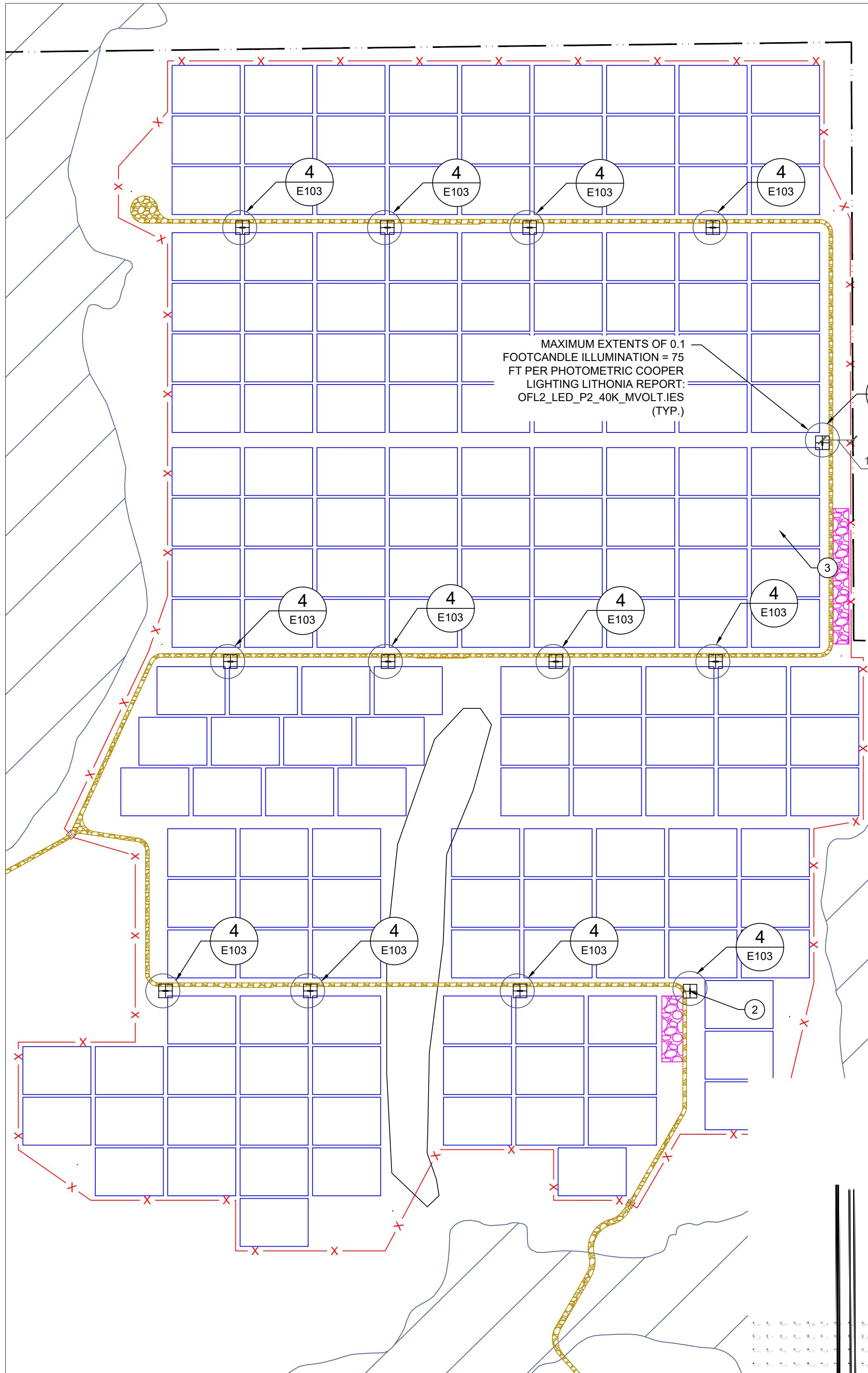
- 1 SUBSTATION CONTROL BUILDING
- 2 POWER STATION (TYPICAL)
- 3 TRACKER BLOCK (TYPICAL)
- 4 O&M SHED
- 5 40'x8' BATTERY ENERGY STORAGE CONTAINER (TYPICAL)



**3 REFERENCE MAP**  
 E103 SCALE: NTS



**2 SECTION 1 - PLAN VIEW**  
 E103 SCALE: 1"=350'



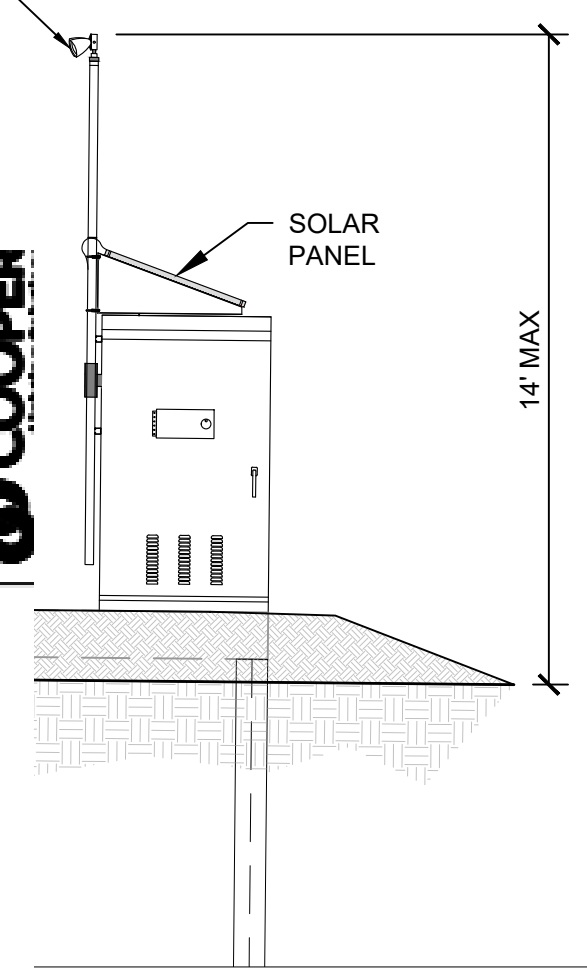
**1 SECTION 2 - PLAN VIEW**  
 E103 SCALE: 1"=350'

MAXIMUM EXTENTS OF 0.1 FOOTCANDLE ILLUMINATION = 75 FT PER PHOTOMETRIC COOPER LIGHTING LITHONIA REPORT: OFL2\_LED\_P2\_40K\_MVOLT.IES (TYP.)

SWITCH-ACTIVATED LED FLOODLIGHT, OLF-2RH-40K-120-BS-M, 2 LED FIXTURE, MAXIMUM OF 2159 LUMENS OUTPUT, NON REFLECTIVE PAINT COATING, FIXTURES TO BE DOWNCAST AND ANGLED LESS THAN 45 DEGREES TOWARD THE GROUND

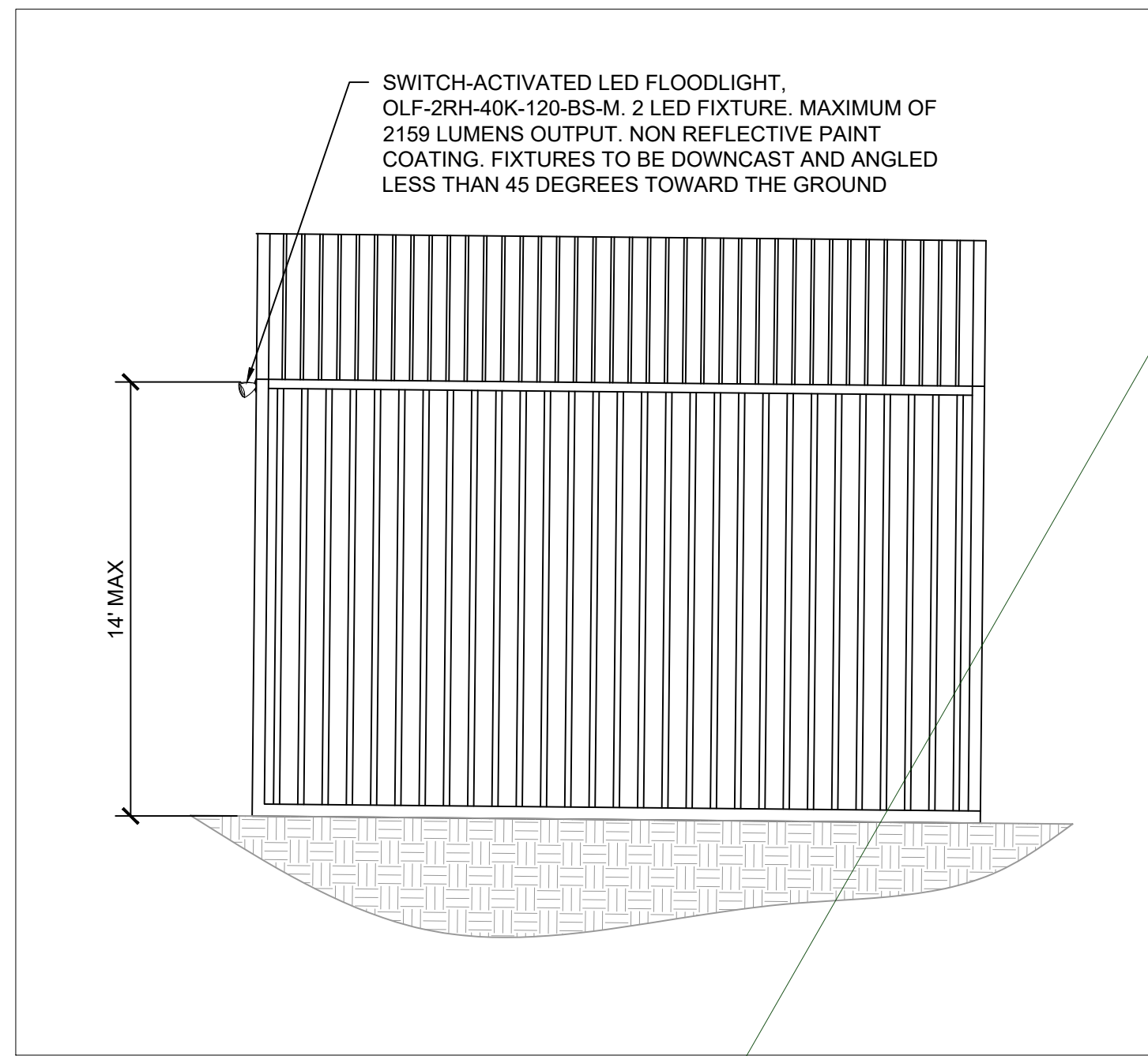
Calculation Summary	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CANOPY	Illuminance	Fc	30.26	45.1	11.2	2.78	4.10
PROPERTY LINE	Illuminance	Fc	0.04	0.1	0.0	N/A	N/A
BUILDING REAR	Illuminance	Fc	2.21	9.1	0.1	22.10	91.00
CLICK-BET	Illuminance	Fc	0.68	11.6	3.0	2.22	3.87
ENTRANCE (BOTTOM)	Illuminance	Fc	3.45	6.0	3.0	1.50	2.01
ENTRANCE (RIGHT)	Illuminance	Fc	1.60	3.0	0.7	3.29	4.29
FRONT DRIVE	Illuminance	Fc	4.15	8.2	1.4	2.96	3.88
FUEL CENTER	Illuminance	Fc	4.51	10.7	1.0	4.51	10.70
MAIN PARKING	Illuminance	Fc	4.30	8.8	1.5	3.87	5.87
ROADWAY	Illuminance	Fc	1.98	6.0	0.3	6.53	20.67
SIDE PARKING (LEFT)	Illuminance	Fc	4.34	8.6	1.7	2.55	3.89
SIDE PARKING (RIGHT)	Illuminance	Fc	4.55	9.7	1.5	3.04	6.40

Luminaire Location Summary	Luminaire Label	X	Y	Z	Onset	TI
1	COOPER	89025	111623	38	076293	0
2	COOPER	134215	100275	38	101546	0
3	COOPER	139104	112123	38	147289	0
4	COOPER	825289	1176451	38	14242	0
5	COOPER	130128	117104	38	0	0
6	COOPER	116162	117423	38	180	0
7	COOPER	139104	119424	13	0	0
8	COOPER	110104	119542	13	0	0
9	COOPER	110104	119542	13	0	0
10	COOPER	139104	119424	13	0	0
11	COOPER	110104	119542	13	0	0
12	COOPER	110104	119424	13	0	0
13	COOPER	89025	114542	38	14242	0
14	COOPER	139104	119424	13	0	0
15	COOPER	110104	119542	13	0	0
16	COOPER	110104	119542	13	0	0
17	COOPER	139104	119424	13	0	0
18	COOPER	110104	119424	13	0	0



**LIGHT**

where is the sheet that has the lumen measurements at the property boundary? Sample to the left



**5 O&M SHED FLOODLIGHT**  
 E103 SCALE: NTS

Remove draft this is a active submittal...

**90% DRAFT**

PROPRIETARY AND CONFIDENTIAL  
 TO BE REPRODUCED IN COLOR  
 PRINT SIZE: ARCH-D  
 SUBMITTAL: 20  
 SCALE: AS SHOWN  
 DATE: 10/20/21

**E104**

DWG TITLE:  
**SITE LIGHTING PLAN - SECTIONS 1, 2**

REV.	DATE	DESCRIPTION	BY	CHKD.
A	08/21/2024	ISSUE FOR PERMIT	DGD	...

DRAWN BY: DGD LATEST REV: A

**GENERAL NOTES**

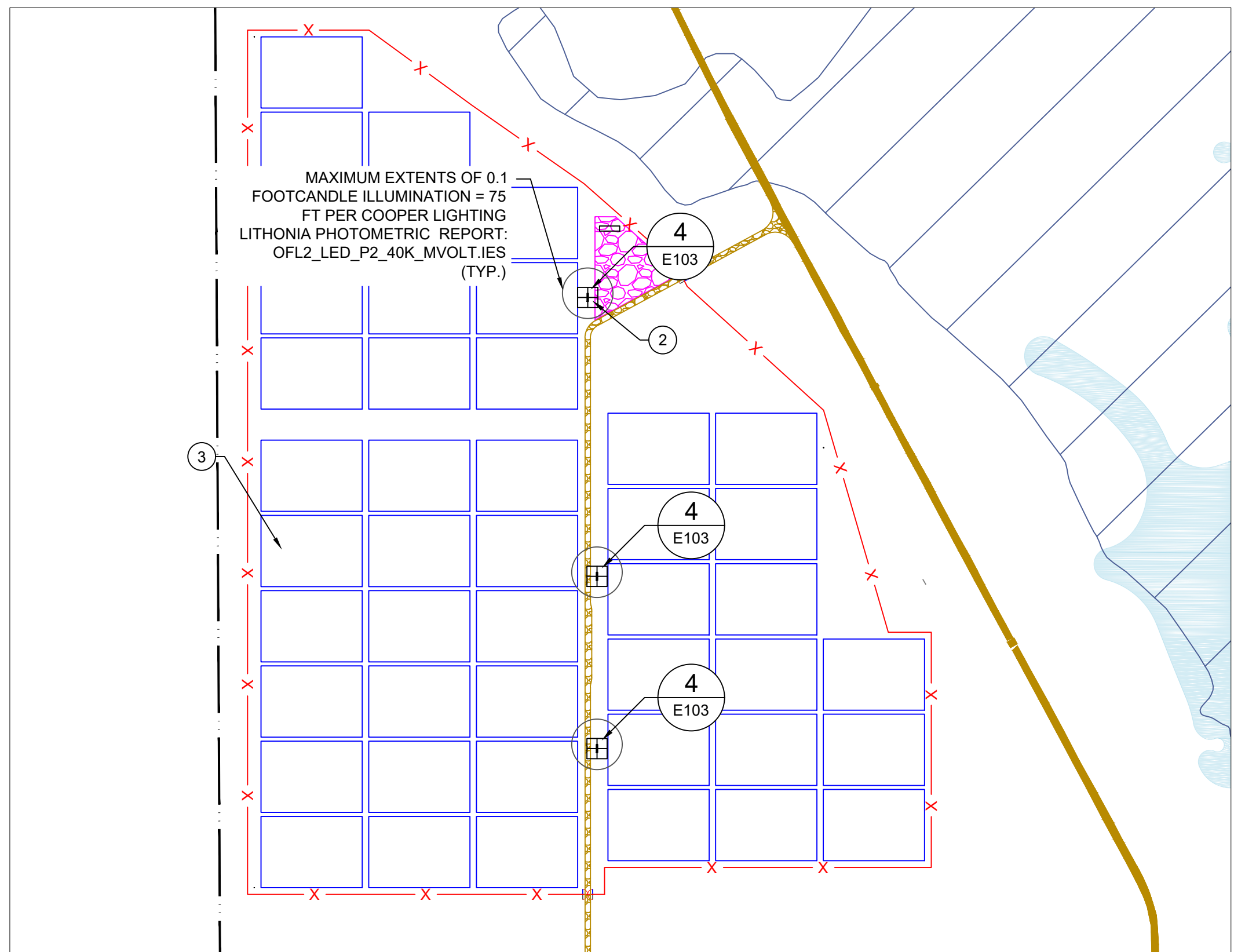
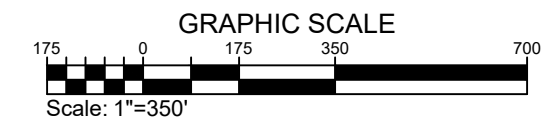
- 1 THE PROJECT DOES NOT INCLUDE ANY REGULARLY SCHEDULED DAYTIME LIGHTING.
- 2 TEMPORARY LIGHTING IS LIMITED TO LOCATIONS IDENTIFIED HERE WITHIN AND WILL ONLY BE ALLOWED FOR MAINTENANCE OF THE FACILITY.
- 3 DURING OPERATION, THE PROJECT WILL ABIDE BY EL PASO COUNTY LIGHTING ORDINANCE AT ALL TIMES INCLUDING LUMEN LIMITATIONS AT PROPERTY LINES.
- 4 NO LIGHTING IS PROPOSED FOR CONSTRUCTION.
- 5 LIGHTING SHALL NOT EXCEED 0.2 FOOT CANDLES AT PROPERTY BOUNDARY

**LEGEND**

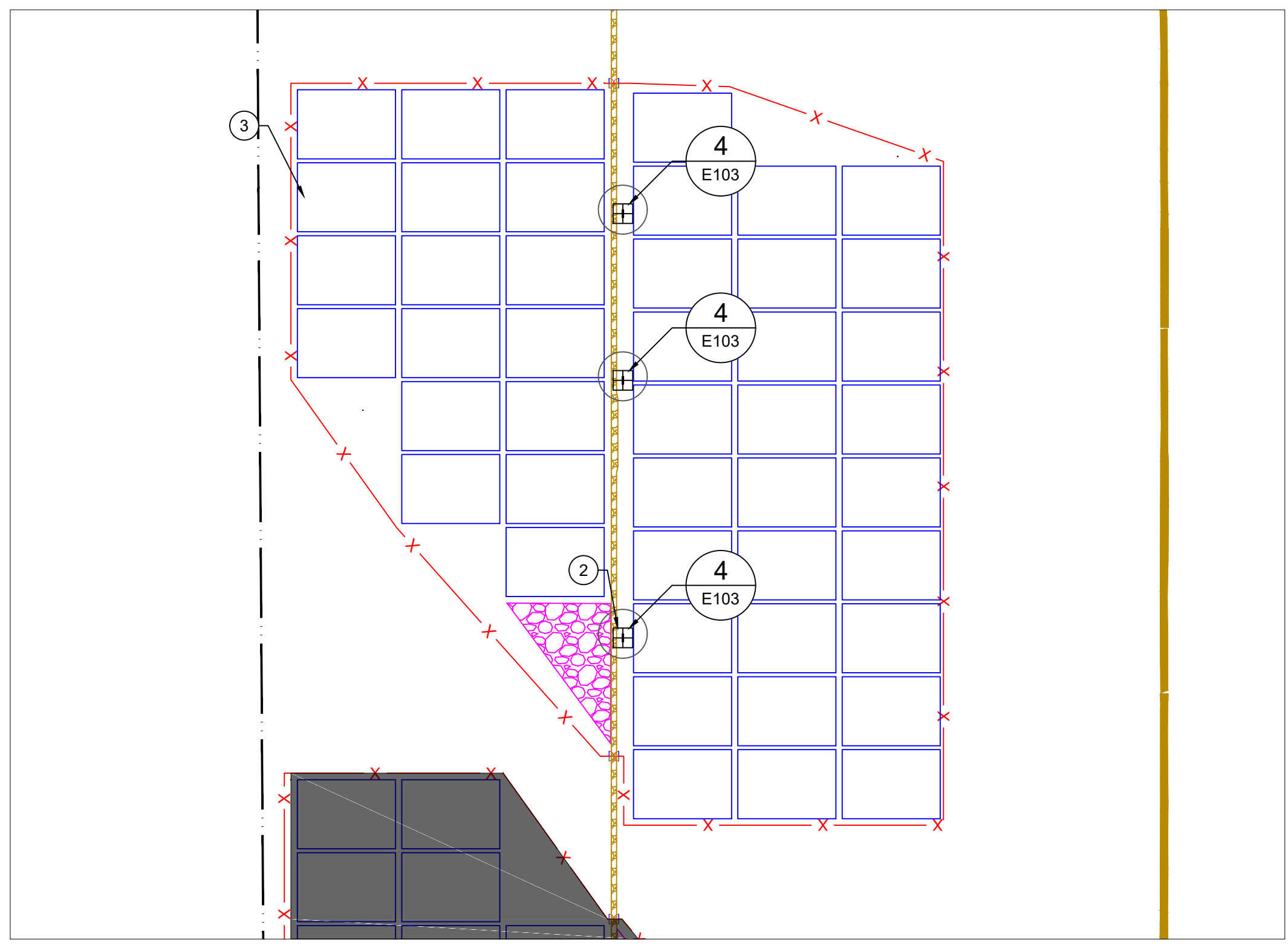
- PROJECT FENCE
- PROPERTY BOUNDARY
- SITE ACCESS ROAD
- EXISTING CSU ROAD
- STAGING/PARKING AREA
- TRACKER ARRAY OUTLINE
- POWER STATION
- O&M SHED

**KEYNOTES**

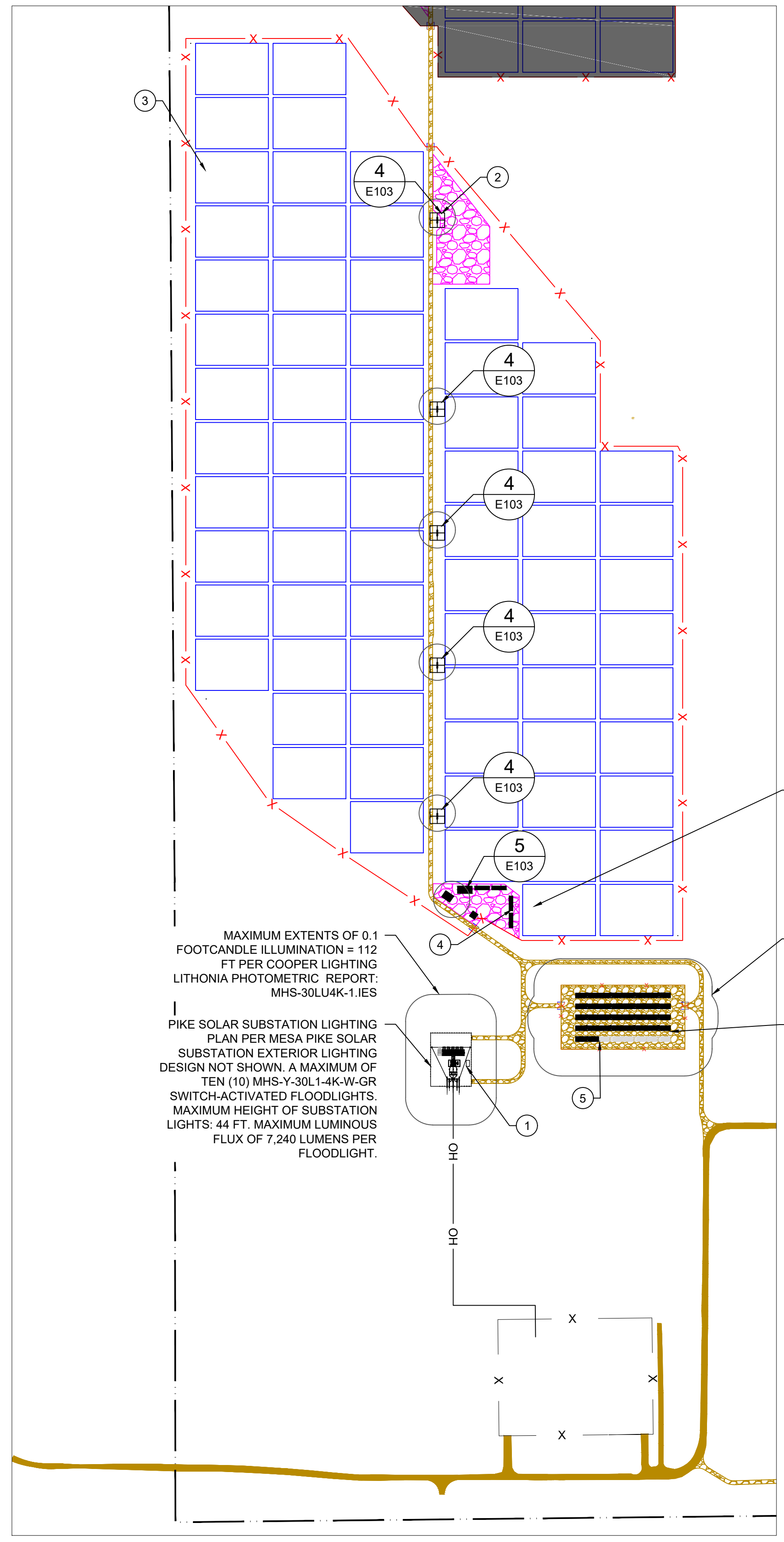
- 1 SUBSTATION CONTROL BUILDING
- 2 POWER STATION (TYPICAL)
- 3 TRACKER BLOCK (TYPICAL)
- 4 O&M SHED
- 5 40'x8' BATTERY ENERGY STORAGE CONTAINER (TYPICAL)



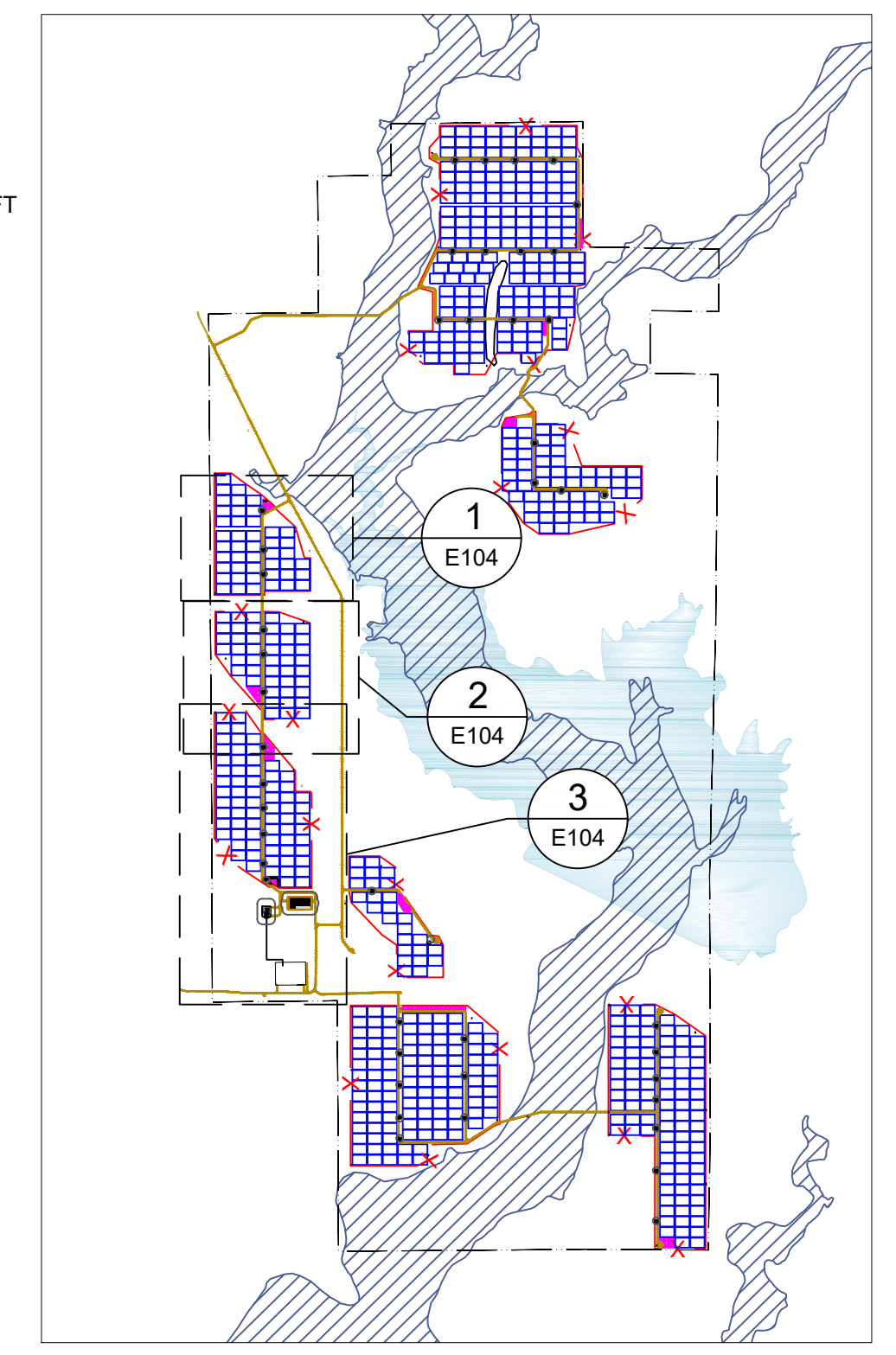
**1 SECTION 3 - PLAN VIEW**  
 E104 SCALE: 1"=325'



**2 SECTION 4 - PLAN VIEW**  
 E104 SCALE: 1"=325'



**3 SECTION 5 - PLAN VIEW**  
 E104 SCALE: 1"=325'



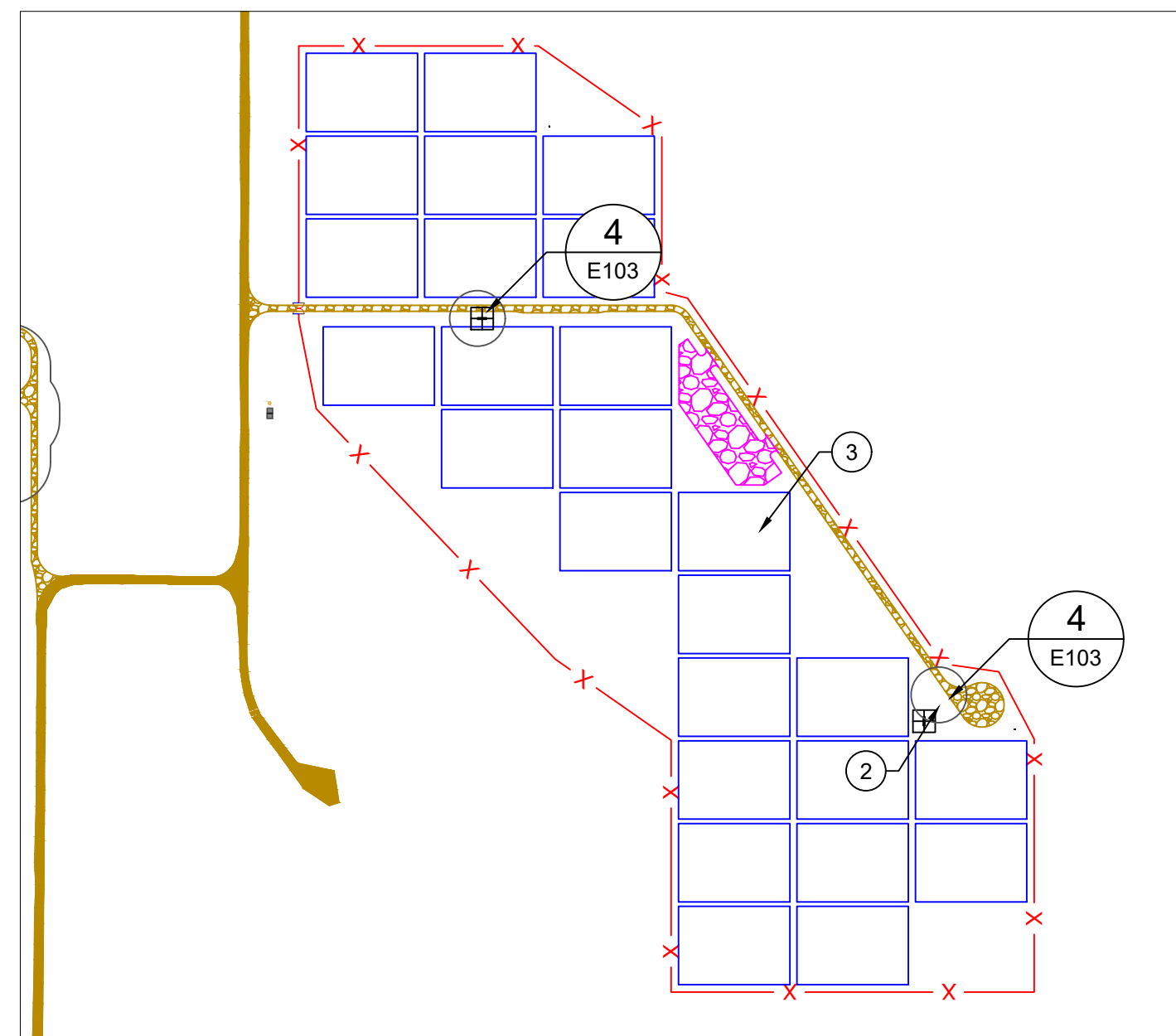
**4 REFERENCE MAP**  
 E104 SCALE: NTS

**50% DRAFT**

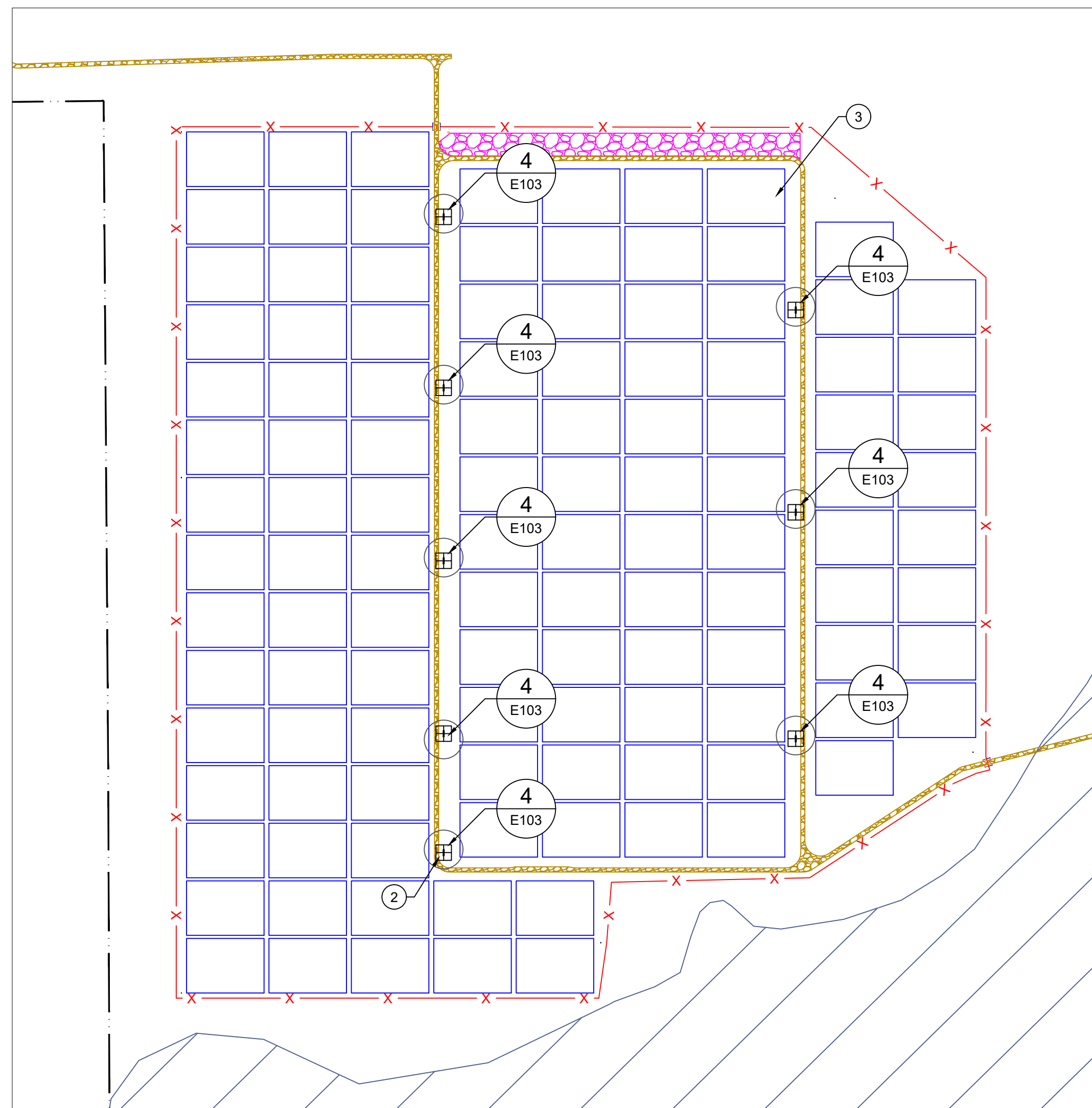
PROPRIETARY AND CONFIDENTIAL  
 NOT TO BE REPRODUCED OR COPIED  
 PRINT SIZE: ARCH-D  
 SUBMITTED BY: JWB  
 SCALE: 1/8"=1'-0"  
 DATE: 08/21/2024  
 DWG #

**E104**

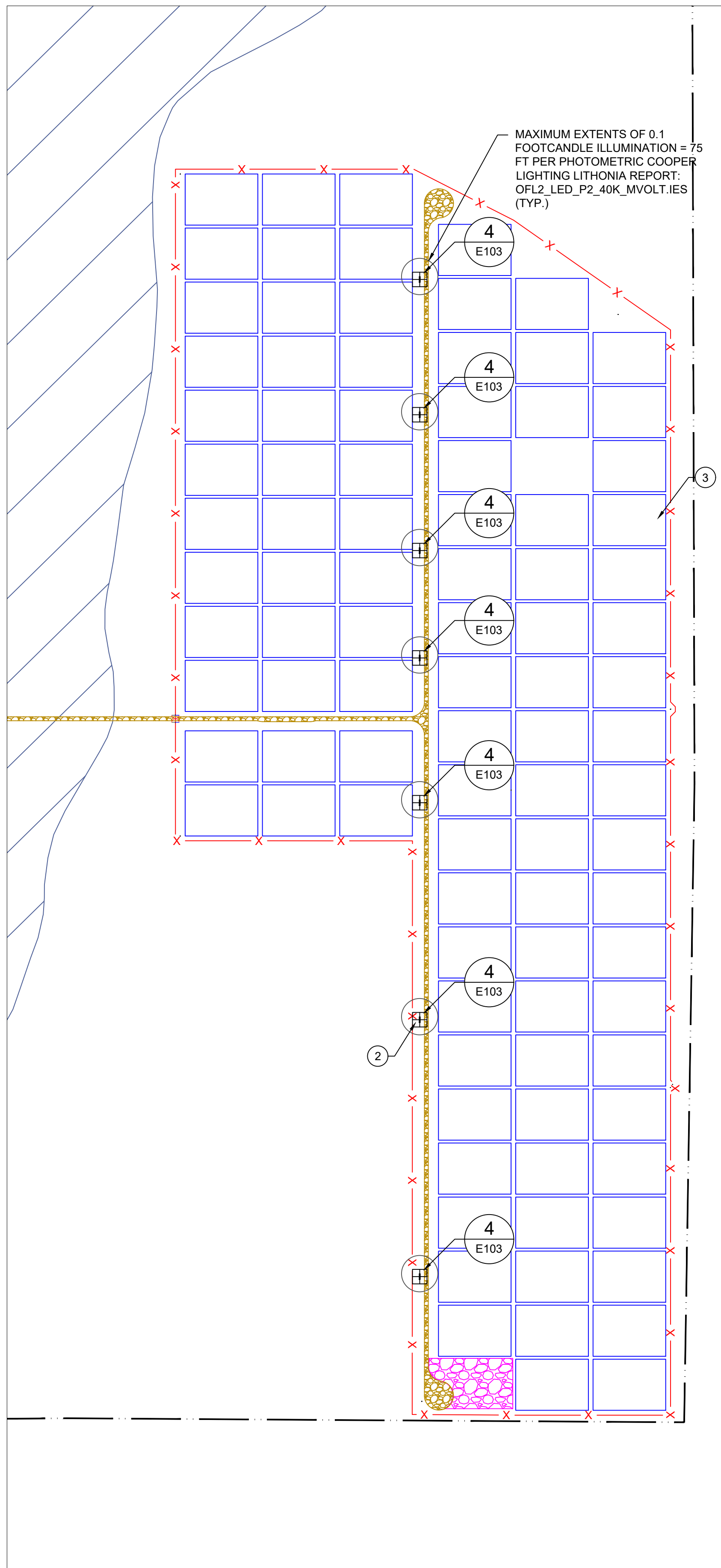
DWG TITLE:  
**SITE LIGHTING PLAN - SECTIONS 3, 4, 5**



**1 SECTION 6 - PLAN VIEW**  
E105 SCALE: 1"=400'



**2 SECTION 7 - PLAN VIEW**  
E105 SCALE: 1"=350'



**3 SECTION 8 - PLAN VIEW**  
E105 SCALE: 1"=300'

**GENERAL NOTES**

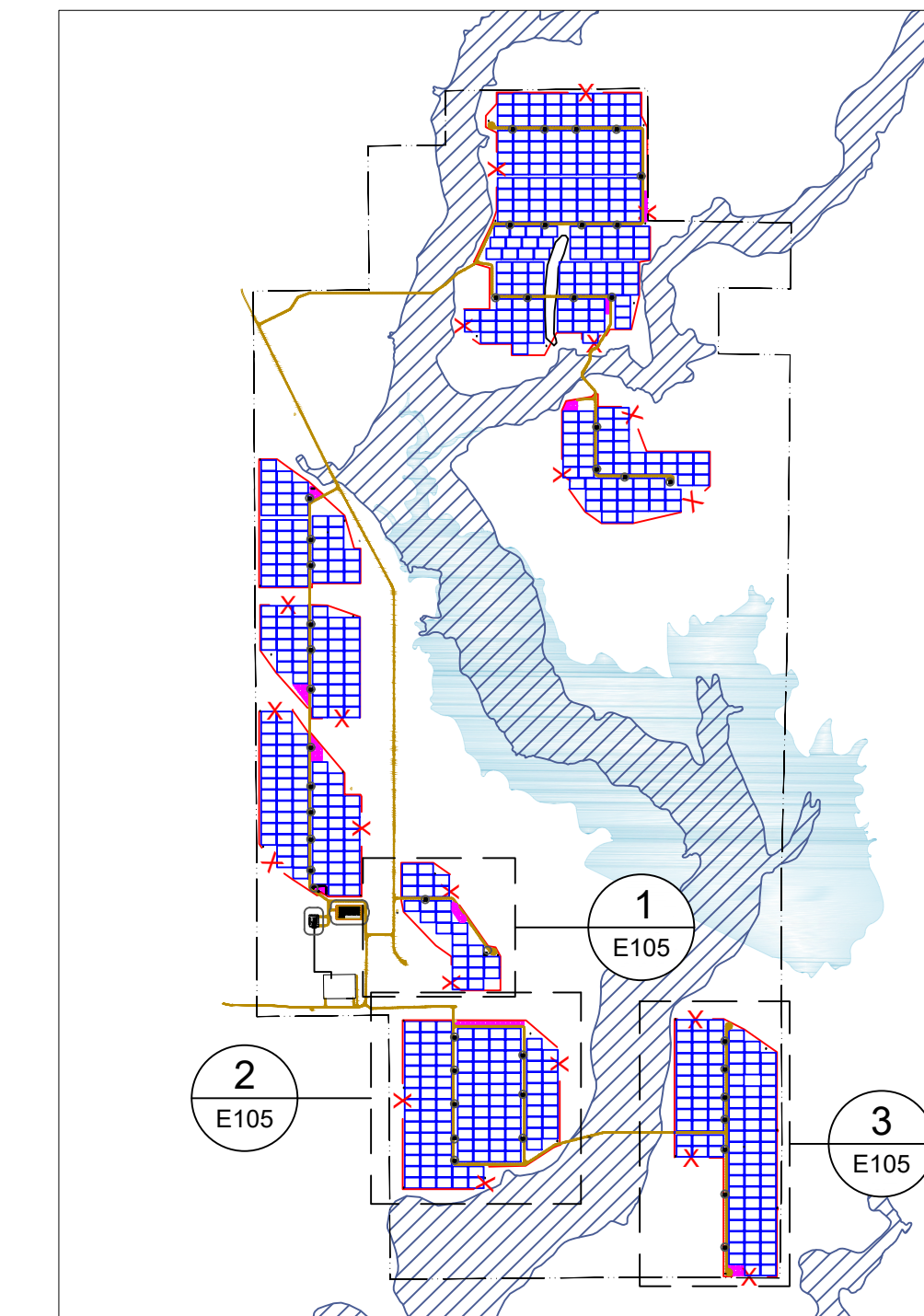
- 1 THE PROJECT DOES NOT INCLUDE ANY REGULARLY SCHEDULED DAYTIME LIGHTING.
- 2 TEMPORARY LIGHTING IS LIMITED TO LOCATIONS IDENTIFIED HERE WITHIN AND WILL ONLY BE ALLOWED FOR MAINTENANCE OF THE FACILITY.
- 3 DURING OPERATION, THE PROJECT WILL ABIDE BY EL PASO COUNTY LIGHTING ORDINANCE AT ALL TIMES INCLUDING LUMEN LIMITATIONS AT PROPERTY LINES.
- 4 NO LIGHTING IS PROPOSED FOR CONSTRUCTION.
- 5 LIGHTING SHALL NOT EXCEED 0.2 FOOT CANDLES AT PROPERTY BOUNDARY

**LEGEND**

- PROJECT FENCE
- PROPERTY BOUNDARY
- SITE ACCESS ROAD
- EXISTING CSU ROAD
- STAGING/PARKING AREA
- TRACKER ARRAY OUTLINE
- POWER STATION
- O&M SHED

**KEYNOTES**

- ##
- 1 SUBSTATION CONTROL BUILDING
- 2 POWER STATION (TYPICAL)
- 3 TRACKER BLOCK (TYPICAL)
- 4 O&M SHED
- 5 40'x8' BATTERY ENERGY STORAGE CONTAINER (TYPICAL)



**4 REFERENCE MAP**  
E105 SCALE: NTS

REV.	DATE	DESCRIPTION	BY	CHKD.
1	08/12/2021	ISSUE FOR PERMIT	DGD	A

DRAWN BY: DGD LATEST REV: A

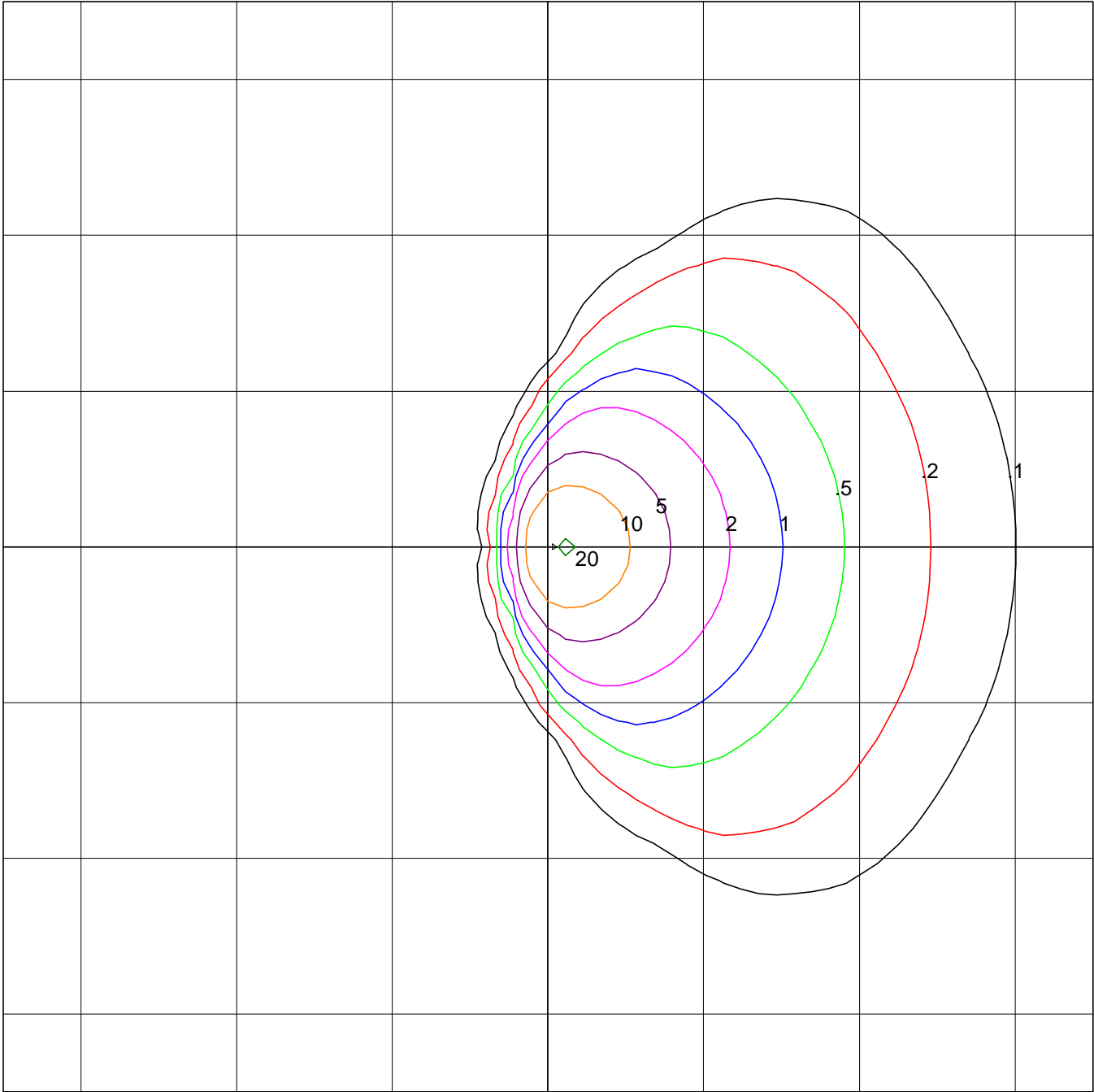
**50% DRAFT**

PROPRIETARY AND CONFIDENTIAL  
NOT TO BE REPRODUCED OR COPIED  
PRINT SIZE: ARCH-D  
ISSUED BY: JBL  
SCALE: AS SHOWN  
DWG.#

**E105**

DWG TITLE:  
**SITE LIGHTING PLAN - SECTIONS 6, 7, 8**

**Photometric Toolbox**



Lithonia Lighting  
 OFL2 LED P2 40K MVOLT  
 General Purpose Flood size 2 w/6 COBs  
 LED

Horizontal Footcandles  
 Scale: 1 Inch = 25 Ft.  
 Light Loss Factor = 1.00  
 Lumens Per Lamp = N.A. (absolute photometry)  
 Luminaire Lumens = 12422  
 Mounting Height = 14.00 Ft, Tilt = 45 Degrees  
 Maximum Calculated Value = 20.77 Fc  
 Arrangement: Single

PHOTOMETRIC FILENAME : OFL2\_LED\_P2\_40K\_MVOLT.IES

**DESCRIPTIVE INFORMATION (From Photometric File)**

Lithonia Lighting  
OFL2 LED P2 40K MVOLT  
General Purpose Flood size 2 w/6 COBs  
LED

**TEMPLATE SPECIFICATION**

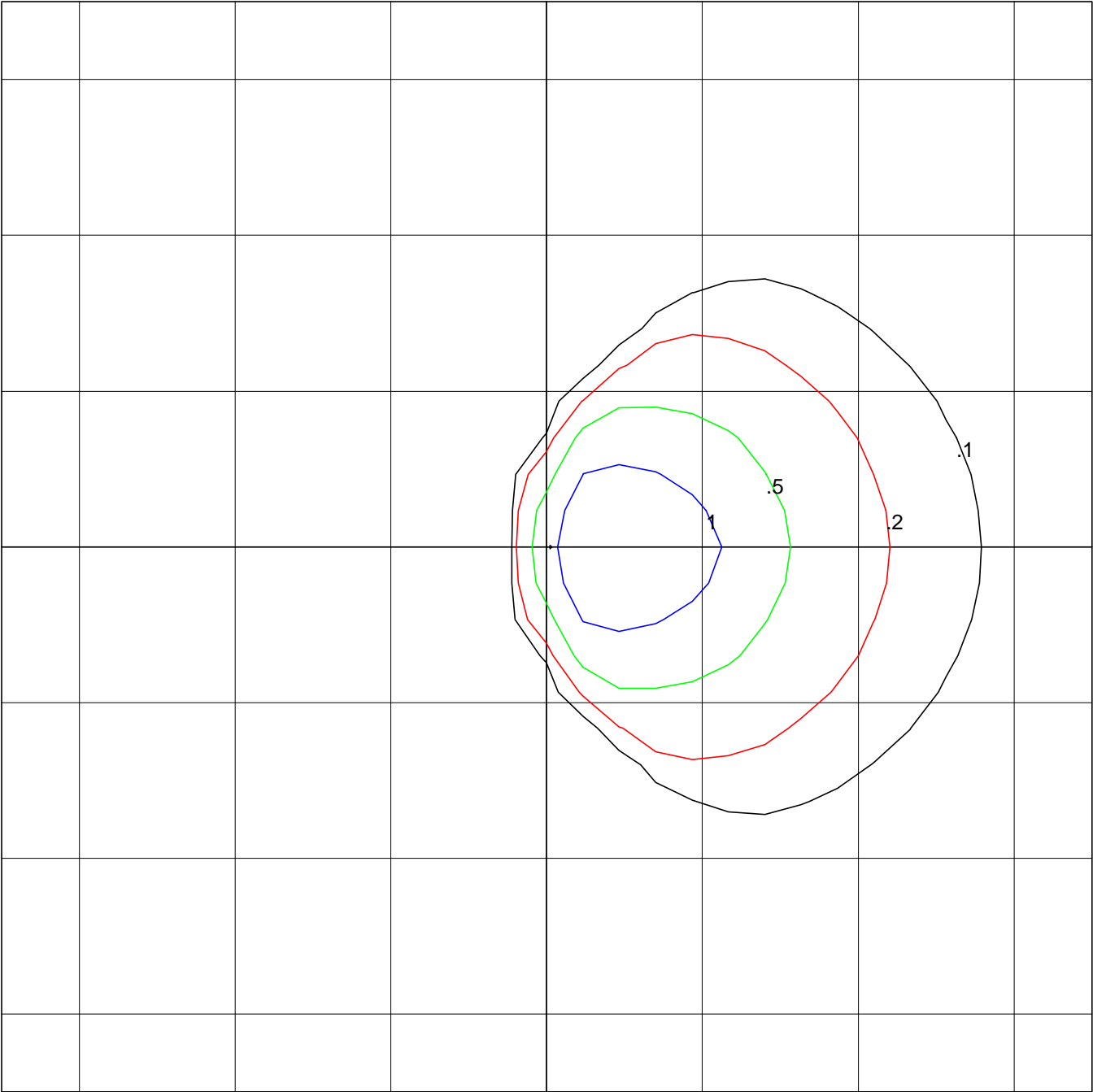
Horizontal Footcandles  
Scale: 1 Inch = 25 Ft.  
Light Loss Factor = 1.00  
Lumens Per Lamp = N.A. (absolute photometry)  
Luminaire Lumens = 12422  
Mounting Height = 14.00 Ft, Tilt = 45 Degrees  
Maximum Calculated Value = 20.77 Fc  
Arrangement: Single

**LUMINAIRE LAYOUT INFORMATION**

<u>#</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Orient</u>	<u>Tilt</u>	<u>Roll</u>	<u>Spin</u>	<u>Tilt Correction</u>
1	0.00	0.00	14.00	0.00	45.00	0.00	0.00	1.00



**Photometric Toolbox**



Hubbell Outdoor  
 MHS-30LU-4K-W  
 MINILITER 5 MHS, 30 LED, 4000K, WIDE 6X6  
 30- NICHIA 4K LEDS

Horizontal Footcandles  
 Scale: 1 Inch = 40 Ft.  
 Light Loss Factor = 1.00  
 Lumens Per Lamp = N.A. (absolute photometry)  
 Luminaire Lumens = 7240  
 Mounting Height = 44.00 Ft, Tilt = 45 Degrees  
 Maximum Calculated Value = 1.65 Fc  
 Arrangement: Single

**PHOTOMETRIC FILENAME : MHS-30LU-4K-W.IES**

**DESCRIPTIVE INFORMATION (From Photometric File)**

Hubbell Outdoor  
MHS-30LU-4K-W  
MINILITER 5 MHS, 30 LED, 4000K, WIDE 6X6  
30- NICHIA 4K LEDS

**TEMPLATE SPECIFICATION**

Horizontal Footcandles  
Scale: 1 Inch = 40 Ft.  
Light Loss Factor = 1.00  
Lumens Per Lamp = N.A. (absolute photometry)  
Luminaire Lumens = 7240  
Mounting Height = 44.00 Ft, Tilt = 45 Degrees  
Maximum Calculated Value = 1.65 Fc  
Arrangement: Single

**LUMINAIRE LAYOUT INFORMATION**

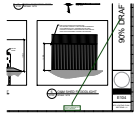
<u>#</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Orient</u>	<u>Tilt</u>	<u>Roll</u>	<u>Spin</u>	<u>Tilt Correction</u>
1	0.00	0.00	44.00	0.00	45.00	0.00	0.00	1.00

# lighting V\_1 Redlines.pdf Markup Summary 10-6-2021

---

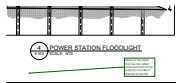
dsdparsons (3)

---



**Subject:** Callout  
**Page Label:** [1] E104 Site Lighting Plan-E104 Site Lighting Plan  
**Author:** dsdparsons  
**Date:** 9/29/2021 4:24:17 PM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

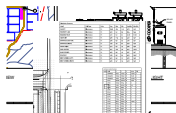
Remove draft this is a active submittal...



---

**Subject:** Callout  
**Page Label:** [1] E104 Site Lighting Plan-E104 Site Lighting Plan  
**Author:** dsdparsons  
**Date:** 9/29/2021 4:27:26 PM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

where is the sheet that has the lumen measurements at the property boundary? Sample to the left



---

**Subject:** Image  
**Page Label:** [1] E104 Site Lighting Plan-E104 Site Lighting Plan  
**Author:** dsdparsons  
**Date:** 9/29/2021 4:27:01 PM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**