

**ATTORNEY**

MARK S. BELLIN, ESQ.  
54 BROAD STREET, SUITE 303  
RED BANK, NJ 07701

**ENGINEER**

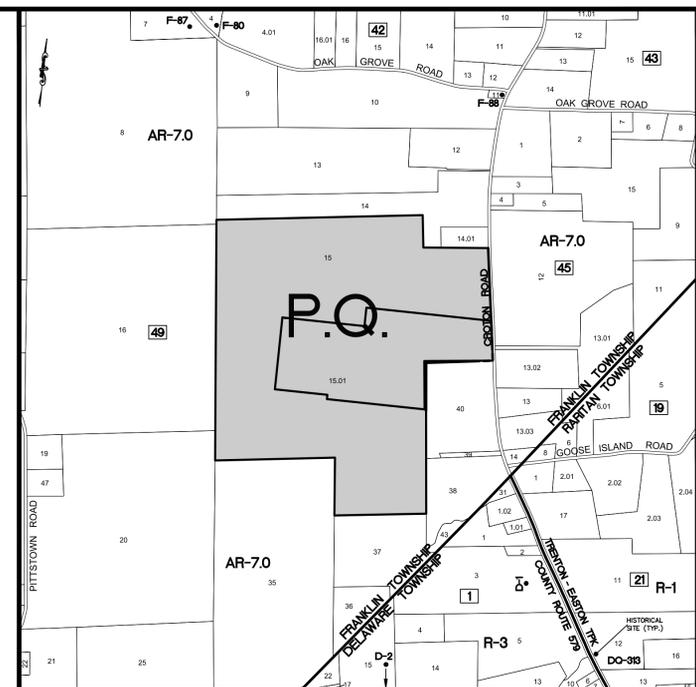
IAN L. HILL, P.E.  
VAN CLEEF ENGINEERING ASSOCIATES  
1128 ROUTE 31  
LEBANON, NJ 08833

**APPLICANT**

QUAKERTOWN SOLAR FARM II, LLC  
c/o STEVEN P. GOJIN, ESQ.  
125 HALF MILE ROAD, SUITE 300  
RED BANK, NJ 07701

**OWNER**

QUAKERTOWN FARMS, LLC  
967 CROTON ROAD  
QUAKERTOWN, NJ 08867



TAX MAP SHEETS: 13, 14 & 15  
FRANKLIN TOWNSHIP TAX MAP SHEET: 1  
DELAWARE TOWNSHIP TAX MAP SHEET: 7  
RARITAN TOWNSHIP

**KEY MAP**  
SCALE: 1"=1000'

**ZONING SCHEDULE REQUIREMENTS**

Zone: AR-7.0 Agricultural Residential Zone  
Permitted Use: Agricultural Uses

CRITERIA	REQUIRED	EXISTING LOT 15	EXISTING LOT 15	PROPOSED LOT 15
Minimum Lot Area	304,520 S.F.	2,066,817 S.F.	6,640,600 S.F.	8,707,417 S.F.
Minimum Improvable Area	7.0 ACRES	47,447.5 ACRES	152,447.3 ACRES	199,894.8 ACRES
Minimum Lot Width	80,000 S.F.	>80,000 s.f.	>80,000 s.f.	>80,000 s.f.
Minimum Building Setbacks				
Front Yard	400 FT	471 FT	854 FT	1,325 FT
Side Yard	400 FT	498 FT	837 FT	1,323 FT
Rear Yard	400 FT	> 400 FT	> 400 FT	> 400 FT
Side Yard	150 FT	150 FT	998 FT	N/A
Rear Yard	50 FT	50 FT	51 FT	N/A
Maximum Height of Structure	35 FT	7.5 FT*	< 35 FT (EX. BARN)	7.5-15**
Maximum Impervious Coverage	10%	3.9%	< 10%	< 10%
Maximum Floor Area Ratio	N/A	N/A	N/A	N/A

\* - Height of Solar Panels / Inverters  
\*\* - Height dependent upon conventional versus "dual use agricultural" installation

**GENERAL NOTES**

- BOUNDARY INFORMATION SHOWN IS BASED UPON AN ON GROUND BOUNDARY SURVEY PREPARED BY VAN CLEEF ENGINEERING ASSOCIATES FIELD PERSONNEL DURING MAY 2016 AND JUNE 2016 AND REFERENCE MATERIAL LISTED BELOW.
- TOPOGRAPHY SHOWN IS BASED UPON AERIAL PHOTOGRAPHY PERFORMED BY MID-ATLANTIC PHOTOGRAMMETRIC SERVICES, INC. FROM PHOTOGRAPHY DATED MARCH 25, 1998. AS AMENDED BY A GROUND SURVEY PREPARED BY VAN CLEEF ENGINEERING ASSOCIATES. VERTICAL DATUM IS NAVD 88.
- THE FRESHWATER WETLANDS/WATERS BOUNDARY LINE AND WETLANDS TRANSITION AREAS SHOWN ARE IN ACCORDANCE WITH A LETTER OF INTERPRETATION ISSUED BY NJDEP ON MAY 3, 2017, LOI FILE NO. 1010-05-0006.1 (FWW160001).
- THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE MAPPING FOR FRANKLIN TOWNSHIP, HUNTERDON COUNTY, NEW JERSEY (PANEL NUMBER 3401902049, EFFECTIVE DATE SEPTEMBER 25, 2009) INDICATES THAT NO FLOOD HAZARD AREAS EXTEND TO THE PROPERTY LIMITS.
- HISTORIC STRUCTURES LOCATED IN THE VICINITY OF THE PROJECT AS IDENTIFIED BY "SITES OF HISTORIC INTEREST," HUNTERDON COUNTY MASTER PLAN, 1979, AND AS SHOWN ON THE KEY MAP INCLUDE THE FOLLOWING:  

D-1	BLOCK 1,	LOT 3	CLARK FARMSTEAD
D-2	BLOCK 1,	LOT 15	BARN
DO-313	CROTON ROAD		SINGLE ARCH MASONRY BRIDGE
F-80	BLOCK 42,	LOT 4	FRAME DWELLING
F-87	BLOCK 49,	LOT 7	FRAME DWELLING
F-88	BLOCK 49,	LOT 11	FRAME CHURCH
- NO VARIANCES FROM THE LAND DEVELOPMENT ORDINANCE ARE REQUIRED.
- ALL IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS AND WITH THE NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.
- ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE CURRENT U.S. DEPARTMENT OF TRANSPORTATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
- IF DRILLING IS REQUIRED TO INSTALL THE RACKING SYSTEMS, THE HOURS OF OPERATION SHALL BE LIMITED TO 7:00 AM TO 7:00 PM Monday through Friday, WITH NO DRILLING OCCURRING ON SATURDAYS, SUNDAYS OR HOLIDAYS.
- NO CONSTRUCTION ACTIVITIES SHALL OCCUR ON SUNDAY.
- NO LAND DISTURBANCE OF GRASSLAND HABITAT SHALL OCCUR BETWEEN APRIL 1ST AND JULY 15TH PER NJDEP RESTRICTIONS FOR THE NESTING PERIOD OF THE VESPER SPARROW AND BOBOLINK SPECIES.

**ADJOINING PROPERTY OWNERS WITHIN 200'**

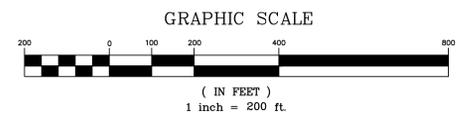
Block 45, Lot 12 Karl Zschack & Linda Pearce 25 Goose Island Road Pittstown, N.J. 08867-4044	Block 49, Lot 14,01 Bill Enea 975 Croton Road Pittstown, N.J. 08867-4020	Block 49, Lot 38 Hulon & Permelia McCalin 953 Croton Road Pittstown, N.J. 08867-4020
Block 45, Lot 13,01 Karl D. Zschack 25 Goose Island Road Pittstown, N.J. 08867-4044	Block 49, Lot 16 Whitebirch Farm Est 1950, LLC 675-679 Pittstown Road Frenchtown, N.J. 08825-4148	Block 49, Lot 39 Susan M. Carler 955 Croton Road Pittstown, N.J. 08867-4020
Block 45, Lot 13,02 Vincent Nicoletti 960 Croton Road Pittstown, N.J. 08867-4018	Block 49, Lot 20 County of Hunterdon 200 Old Croton Road Flemington, N.J. 08822-2900	Block 49, Lot 40 Benjamin & Kendra Richardson 200 Old Croton Road Pittstown, N.J. 08867-4020
Block 49, Lot 8 Margarita Amorico Lopes 241 Oak Grove Road Pittstown NJ 08867	Block 49, Lot 35 County of Hunterdon PO Box 2900 Flemington, N.J. 08822	
Block 49, Lot 14 Bill Enea 975 Croton Road Pittstown, N.J. 08867	Block 49, Lot 37 Featherbed Farms LLC 12850 Carmel Country #116 San Diego, CA 92130	

Amended Preliminary and Final Site Plan of  
Block 49, Lot 15 - Zone AR-7.0  
Date  
Applicant: Quakertown Solar Farm II, LLC  
Mailing Address: c/o Steven Gojin, Esq. 125 Half Mile Road, Suite 300, Red Bank, NJ 07701  
Owner: Quakertown Farms, LLC  
Mailing Address: 967 Croton Road, Quakertown, NJ 08867

I consent to the filing of this Site Plan with the  
Land Use Board of Township of Franklin.

Owner \_\_\_\_\_ Date \_\_\_\_\_  
I hereby certify that I have prepared this Site Plan and that all dimensions and information are correct and plans for all improvements are based upon topographic data that has been instrument verified in the field.

Ian L. Hill, NJ Professional Engineer #46679 Date 12/17/2021



**MUNICIPAL APPROVAL BLOCK**

\_\_\_\_\_  
LAND USE BOARD CHAIRMAN

\_\_\_\_\_  
LAND USE BOARD SECRETARY

\_\_\_\_\_  
LAND USE BOARD ENGINEER

DATE: DECEMBER 17, 2021  
SCALE: 1"= 200'  
DESIGNED BY: I.L.H.  
DRAWN BY: I.L.H.  
CHECKED BY: R.J.C.  
JOB NO. 1806-PH  
REVISIONS  
AUTH. DATE

BY:

Consulting Civil Engineering  
Environmental Engineering  
Professional Engineering  
Professional Planning  
Landscape Architecture

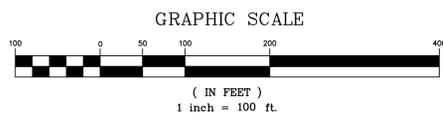
**VanCleaf**  
ENGINEERING ASSOCIATES

1128 ROUTE 31 NORTH, LEBANON, NJ 08833  
EMAIL: VAN@VANCL.EOR.G WEB: WWW.VANCL.EOR.G  
PHONE: (908) 755-9500 FAX: (908) 755-0504

OFFICES THROUGHOUT  
NJ, EASTERN PA AND DE

PRELIMINARY AND FINAL SITE PLAN - PHASE 2  
FOR  
QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49, LOT 15,01  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY

FILE B / L



DATE:	DECEMBER 17, 2021
SCALE:	1" = 100'
DESIGNED BY:	ILLH
DRAWN BY:	V.Z.
CHECKED BY:	ILLH
JOB NO.:	8006-FH
REVISIONS:	
AUTH.:	
DATE:	

BY:  IAN L. HILL, P.E. N.J. LIC. No. 0E46679

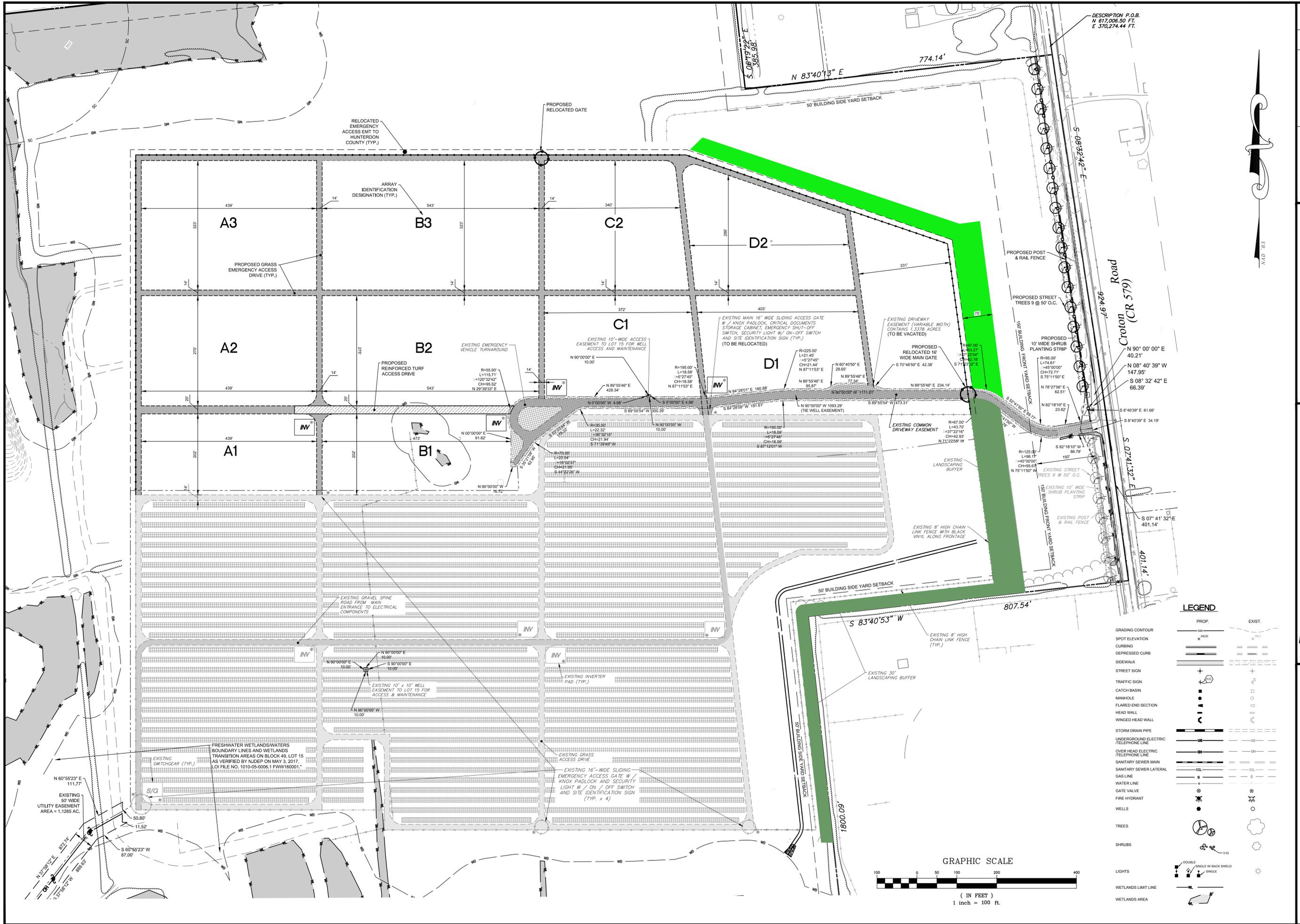
**VanCleaf**  
ENGINEERING ASSOCIATES

Consulting Civil Engineering  
Municipal Engineering  
Land Surveying  
Landscape Architecture

1128 ROUTE 31 NORTH, LEBANON, N.J. 08833  
PHONE (609) 753-5900 FAX (609) 753-5944

N.J. LIC. CERT. No. 246A28132300  
OFFICES THROUGHOUT N.J. EASTERN PA AND DE

EXISTING CONDITIONS AND DEMOLITION PLAN  
FOR  
QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49, LOTS 15 AND 15.01  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY

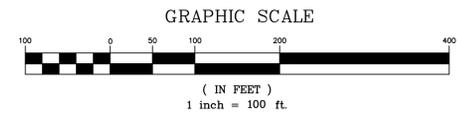


DESCRIPTION P.O.B.  
 N 617,006.50 FT.  
 E 370,274.44 FT.



**LEGEND**

PROF.	EXIST.
GRADING CONTOUR	GRADING CONTOUR
SPOT ELEVATION	SPOT ELEVATION
CURB	CURB
DEPRESSED CURB	DEPRESSED CURB
SIDEWALK	SIDEWALK
STREET SIGN	STREET SIGN
TRAFFIC SIGN	TRAFFIC SIGN
CATCH BASIN	CATCH BASIN
MANHOLE	MANHOLE
FLARED END SECTION	FLARED END SECTION
HEAD WALL	HEAD WALL
WINGED HEAD WALL	WINGED HEAD WALL
STORM DRAIN PIPE	STORM DRAIN PIPE
UNDERGROUND ELECTRIC / TELEPHONE LINE	UNDERGROUND ELECTRIC / TELEPHONE LINE
OVER HEAD ELECTRIC / TELEPHONE LINE	OVER HEAD ELECTRIC / TELEPHONE LINE
SANITARY SEWER MAIN	SANITARY SEWER MAIN
SANITARY SEWER LATERAL	SANITARY SEWER LATERAL
GAS LINE	GAS LINE
WATER LINE	WATER LINE
GATE VALVE	GATE VALVE
FIRE HYDRANT	FIRE HYDRANT
WELLS	WELLS
TREES	TREES
SHRUBS	SHRUBS
LIGHTS	LIGHTS
WETLANDS LIMIT LINE	WETLANDS LIMIT LINE
WETLANDS AREA	WETLANDS AREA



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BY: 

IAN L. HILL, P.E. N.J. LIC. NO. GE46679

**Van Cleef**  
 ENGINEERING ASSOCIATES

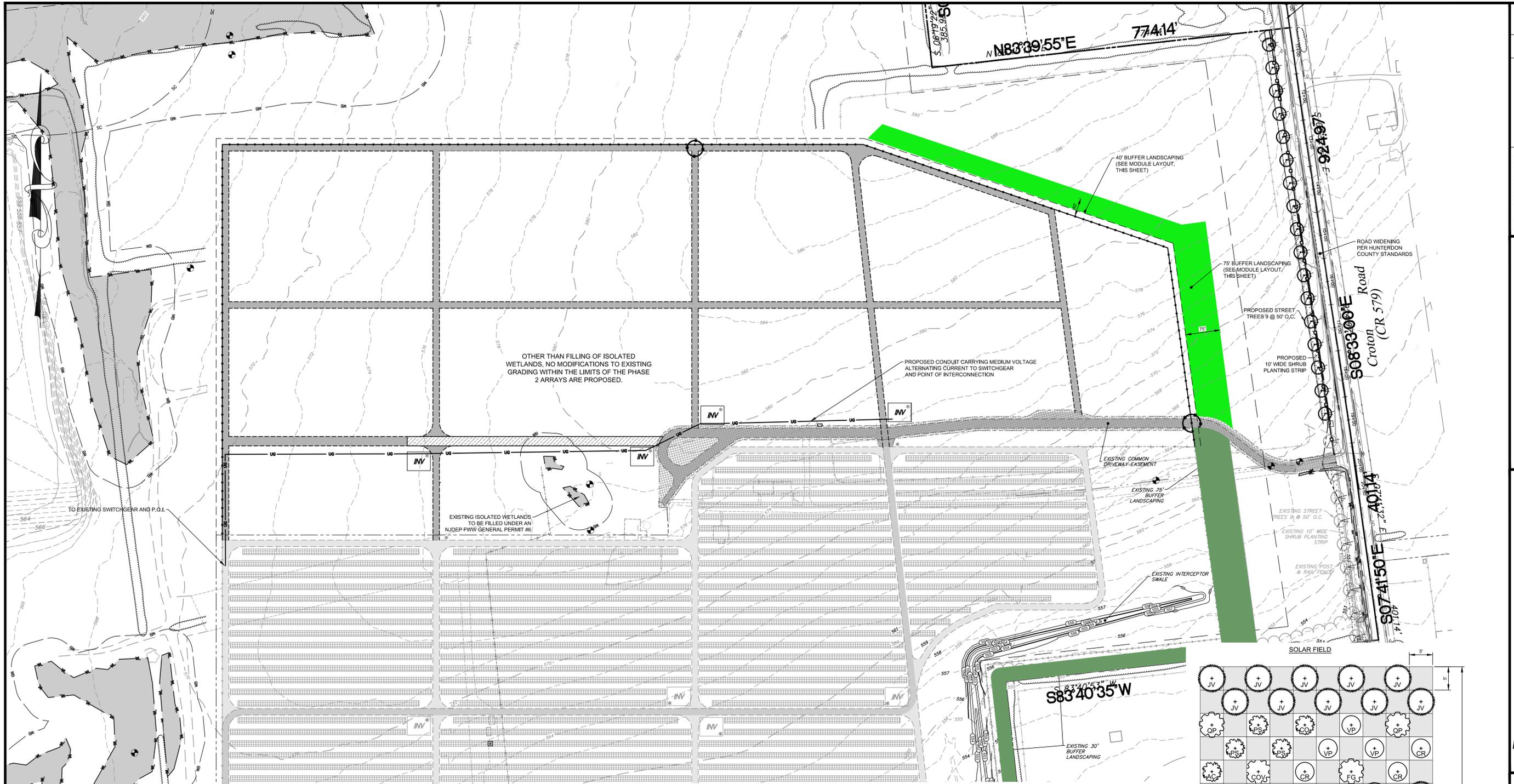
Consulting Civil Engineering  
 Municipal Engineering  
 Land Surveying  
 Landscape Architecture

1128 ROUTE 31 NORTH, LEBANON, N.J. 08833  
 OFFICE: (908) 752-5000 FAX: (908) 752-5034  
 NJ L.L.C. CERT. NO. 24G0812300  
 NJ EASTERN PA. AND DE.

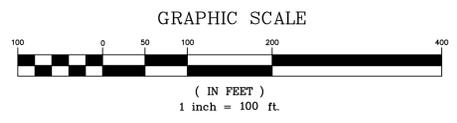
**SITE PLAN**  
 FOR  
**QUAKERTOWN SOLAR FARM II, LLC**  
 BLOCK 49, LOTS 15 AND 1501  
 TOWNSHIP OF FRANKLIN  
 HUNTERDON COUNTY, NEW JERSEY

3/13

FILE B / L



SEE SHEET 6 FOR ADD'L LANDSCAPING NOTES AND DETAILS

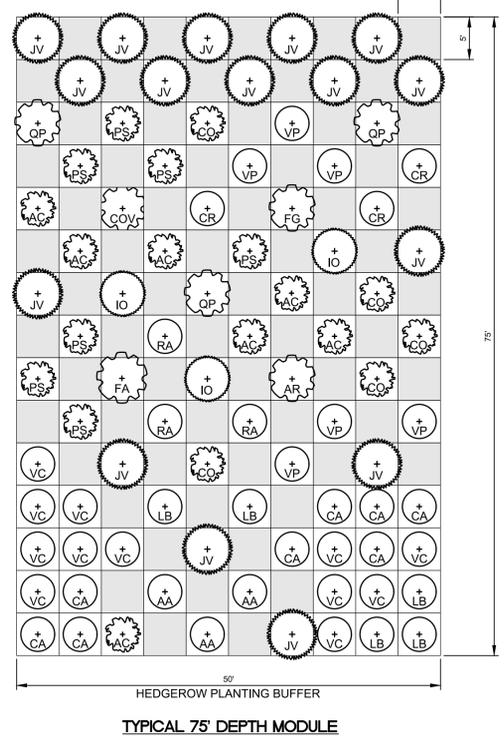
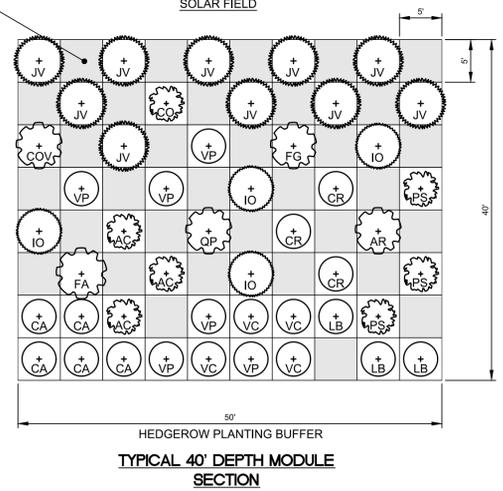


PLANTING SCHEDULE										
	KEY	QTY (PER 75'x50' GRID)	QTY (PER 40'x50' GRID)	QTY (PER 30'x50' GRID)	TOTAL QTY	BOTANICAL NAME	COMMON NAME	AT TIME OF PLANTING SIZE	ROOT CONDITION	COMMENTS
CANOPY TREES 7'-8'	AR	1	1	0	18	<i>Acer rubrum</i>	Red Maple	7'-8"	B&B	
	FG	1	0	0	9	<i>Fagus grandifolia</i>	American Beech	7'-8"	B&B	Wet-site (FACW)
	COV	1	1	0	20	<i>Carya ovata</i>	Shagbark Hickory	7'-8"	B&B	
	FA	1	1	0	20	<i>Fraxinus americana</i>	White Ash	7'-8"	B&B	
	QP	3	1	0	39	<i>Quercus palustris</i>	Pin Oak	7'-8"	B&B	
UNDERSTORY TREES 5'-6'	AC	7	3	1	119	<i>Amelanchier canadensis</i>	Canadian Serviceberry	5'-6"	B&B	
	CO	5	1	1	55	<i>Celtis occidentalis</i>	Hackberry	5'-6"	B&B	
	PS	7	3	3	165	<i>Prunus serotina</i>	Black Cherry	5'-6"	B&B	
	JV	16	10	6	362	<i>Juniperus virginiana</i>	Eastern Red Cedar	6'-10"	B&B	Dry tolerant (FACU) FB
	IO	3	4	4	141	<i>Ilex opaca</i>	American Holly	6'-8"	B&B	Dry tolerant (FACU) FB
EVERGREEN TREES	AA	3	0	10	234	<i>Aronia arbutifolia</i>	Red Chokeberry	3'-4"	Container	Grows to 3', FB wet-site (FACW)
	CA	8	5	0	125	<i>Clethra alnifolia</i>	Sweetgum Clethra	3'-4"	Container	Grows to 9', FB wet-site (FAC)
	CR	3	3	2	99	<i>Cornus racemosa</i>	Gray Dogwood	3'-4"	Container	Grows to 7', wet-site (FACW) FB
	LB	5	3	9	265	<i>Lindera benzoin</i>	Northern Spicebush	3'-4"	Container	
	RA	3	0	3	67	<i>Rhus aromatica</i> ssp. <i>altissima</i>	Fragrant Sumac	3'-4"	Container	
LARGE SHRUBS	VC	12	4	0	166	<i>Vaccinium corymbosum</i>	Highbush Blueberry	3'-4"	Container	
	VP	6	6	5	218	<i>Viburnum prunifolium</i>	Blackhaw Viburnum	3'-4"	Container	
	LS	6	PER 5'x5' GRID	3 PER 5'x5' GRID	218	<i>Lonicera sempervirens</i>	Coral Honeysuckle	1 pt.	Container	
PERENNIALS	MIX				XX lb	N/A	Perennial Mix by Ernst Conservation Seeds (ERNSM15)		Seed Mix	Biodiverse Polyculture Mix for Biomass Production and Wildlife Habitat
	PVHM	1 PER 5'x5' GRID	1 PER 5'x5' GRID	1 PER 5'x5' GRID	1290	<i>Panicum virgatum</i> 'Heavy Metal'	Heavy Metal Switch Grass	1 pt.	Container	
	SCS	1 PER 5'x5' GRID	1 PER 5'x5' GRID	1 PER 5'x5' GRID	1290	<i>Schizachyrium scoparium</i>	Little Bluestem	1 pt.	Container	
	SR	1 PER 5'x5' GRID	1 PER 5'x5' GRID	1 PER 5'x5' GRID	1290	<i>Solidago rigida</i>	Stiff Goldenrod	1 pt.	Container	
	SN	1 PER 5'x5' GRID	1 PER 5'x5' GRID	1 PER 5'x5' GRID	1290	<i>Sorghastrum nutans</i>	Indian Grass	1 pt.	Container	

NOTE: PROPOSED BUFFER PLANTING MODULES AS DEVELOPED BY THE FRANKLIN TOWNSHIP BOARD PLANNER CLARK CATON HINTZ DURING THE SITE PLAN APPROVAL PROCESS FOR THE PREVIOUSLY PROPOSED 20 MW SOLAR FACILITY.

NOTE: SPECIES OF STREET TREES AND SHRUBS ALONG THE PROPERTY FRONTAGE TO BE COORDINATED WITH THE BOARD PLANNER.

GREY-HATCHED GRID AREAS TO BE LANDSCAPED WITH VINES AND PERENNIALS PER PLANTING SCHEDULE



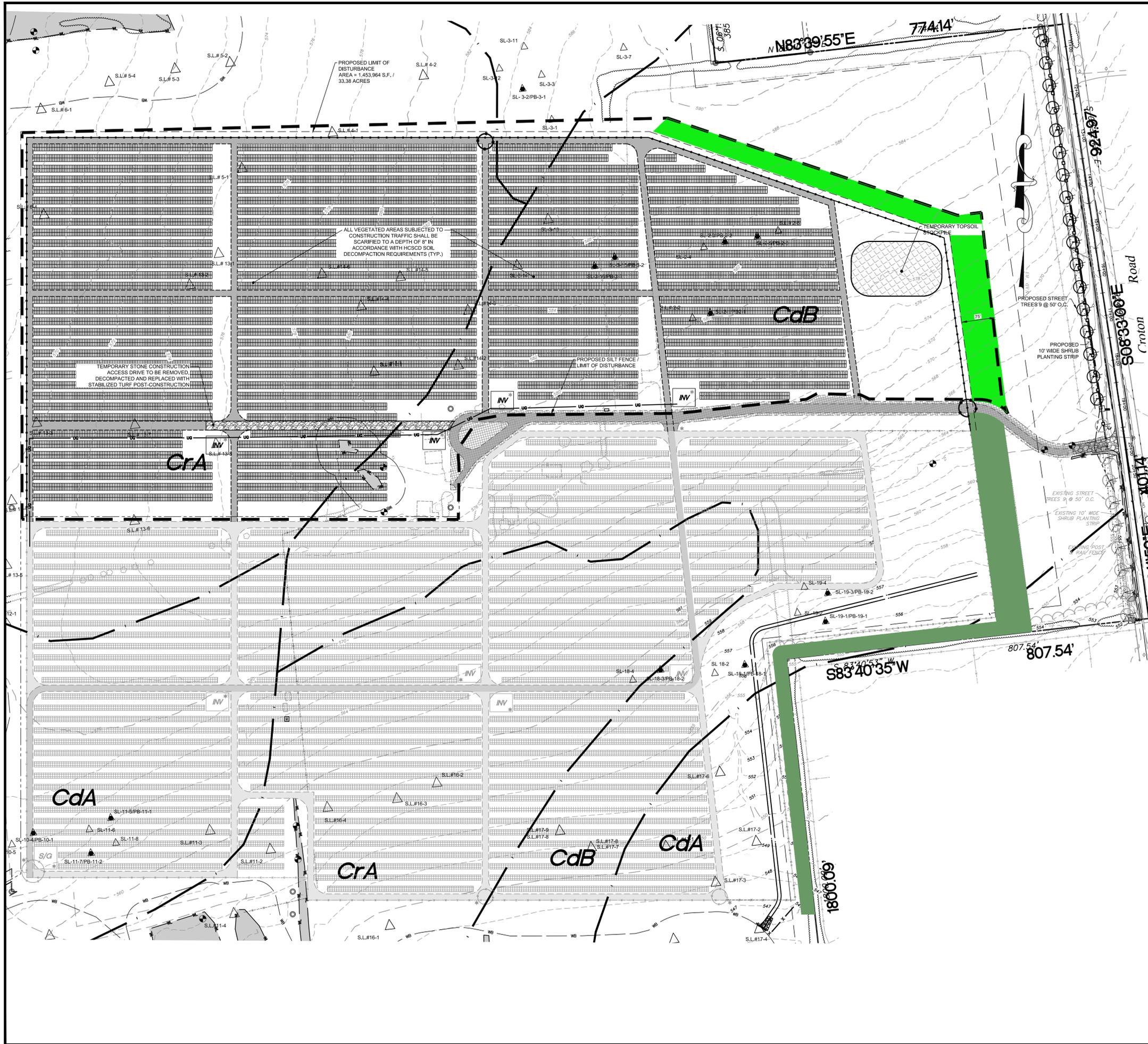
**Van Cleef**  
ENGINEERING ASSOCIATES

1128 ROUTE 51 NORTH, LEBANON, N.J. 08833  
PHONE (908) 732-5500 FAX (908) 732-5334  
OFFICES THROUGHOUT NJ, EASTERN PA AND DE  
No. 240A0102300

GRADING, UTILITY AND LANDSCAPING PLAN  
FOR  
QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49 - LOTS 45 AND 1501  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY

BY: IAN L. HILL, PE, N.J. LIC. NO. GE46679

DATE: DECEMBER 17, 2021	SCALE: 1" = 100'	DESIGNED BY: I.L.H.	DRAWN BY: V.Z.
CHECKED BY: I.L.H.	JOB NO.: 1806-FH	REVISIONS:	AUTH.: DATE:



**Soil De-compaction and Testing Requirements**

- Soil Compaction Testing Requirements**
- Subgrade soils prior to the application of topsoil (see permanent seeding and stabilization notes for topsoil requirements) shall be free of excessive compaction to a depth of 6.0 inches to enhance the establishment of permanent vegetative cover.
  - Areas of the site which are subject to compaction testing and/or mitigation are graphically denoted on the certified soil erosion control plan.
  - Compaction testing locations are denoted on the plan. A copy of the plan or portion of the plan shall be used to mark locations of tests, and attached to the compaction remediation form, available from the local soil conservation district. This form must be filled out and submitted prior to receiving a certificate of compliance from the district.
  - In the event that testing indicates compaction in excess of the maximum thresholds indicated for the simplified testing methods (see details below), the contractor/owner shall have the option to perform either (1) compaction mitigation over the entire mitigation area denoted on the plan (excluding exempt areas), or (2) perform additional, more detailed testing to establish the limits of excessive compaction whereupon only the excessively compacted areas would require compaction mitigation. Additional detailed testing shall be performed by a trained, licensed professional.

- Compaction Testing Methods**
- Probing Wire Test (see detail)
  - Hand-held Penetrometer Test (see detail)
  - Tube Bulk Density Test (licensed professional engineer required)
  - Nuclear Density Test (licensed professional engineer required)

Note: Additional testing methods which conform to ASTM standards and specifications, and which produce a dry weight, soil bulk density measurement may be allowed subject to District approval.

Soil compaction testing is not required if/when subsoil compaction remediation (scarification/tillage (6" minimum depth) or similar) is proposed as part of the sequence of construction.

**Procedures for Soil Compaction Mitigation**

Procedures shall be used to mitigate excessive soil compaction prior to placement of topsoil and establishment of permanent vegetative cover.

Restoration of compacted soils shall be through deep scarification/tillage (6" minimum depth) where there is no danger to underground utilities (cables, irrigation systems, etc.). In the alternative, another method as specified by a New Jersey Licensed Professional Engineer may be substituted subject to District Approval.

**Simplified Testing Methods**

**Probing Wire Test- 15.5 ga steel wire (survey flag)**

Note: soil should be moist but not saturated. Do not test when soil is excessively dry or subject to freezing temperatures. Slow, steady downward pressure used to advance the wire.

18-21"

6.0" min. visible mark on wire at depth

Wire must penetrate a minimum of 6" without deformation.

Hold Wire here:

Wire may be re-inserted if/when an obstruction (rock, root, debris) is encountered.

**Handheld Soil Penetrometer Test**

Note: soil should be moist but not saturated. Do not test when soil is excessively dry or subject to freezing temperatures. Slow, steady downward pressure used to advance the probe. Probe must penetrate at least 6" with less than 300 psi reading on the gage.

Gage reading 300 psi or less at 6"

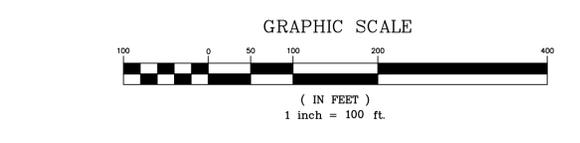
6.0" min. visible mark on shaft at depth

Penetrometer may be re-inserted if/when an obstruction (rock, root, debris) is encountered.

\*Use correct size tip for soil type

**LEGEND**

- CHECK DAM
- PROTECTED INLET
- TEMP. TOPSOIL STOCKPILE
- LIMIT OF DISTURBANCE
- SILT FENCE / LIMIT OF DISTURBANCE
- DIVERSION BERM
- SOIL BOUNDARY



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 SCALE: 1" = 100'  
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SOIL EROSION AND SEDIMENT CONTROL PLAN FOR QUAKERTOWN SOLAR FARM II, LLC BLOCK 49, LOTS 15 AND 1501 TOWNSHIP OF FRANKLIN HUNTERDON COUNTY, NEW JERSEY

REVISIONS

NO.	DATE	DESCRIPTION	AUTH.

**SOIL EROSION AND SEDIMENT CONTROL NOTES**

- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY GRADING OPERATIONS AND INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES.
- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETED AND/OR THE AREA IS ESTABLISHED.
- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY"
- ALL DISTURBED AREAS, INCLUDING STOCKPILES, THAT ARE NOT GRADED, CONSTRUCTED ON, OR PERMANENTLY SEEDING WITHIN 30 DAYS SHALL BE TEMPORARILY STABILIZED BY SEEDING AND/OR MULCHING UNTIL PROPER WEATHER CONDITIONS EXIST FOR ESTABLISHMENT OF A PERMANENT VEGETATIVE COVER.
- GRADING SHALL BE LIMITED TO THOSE AREAS ISOLATED BY SOIL EROSION AND SEDIMENT CONTROL PRACTICES AND/OR AS INDICATED ON THE PLANS.
- CLEARING SHALL BE LIMITED TO 10 FEET BEYOND THE LIMIT OF GRADING DESCRIBED IN #5, EXCEPT THAT REMAINING SHALL NOT ENCRUMB ON ADJACENT PROPERTIES, UNLESS INDICATED OTHERWISE ON THE PLANS. TREES TO CLEAR SHALL BE PROTECTED FROM DAMAGE.
- TEMPORARY DRAINAGE DIVERSIONS AND EROSION CONTROL MEASURES, NOT SHOWN ON THE PLANS, SUCH AS TEMPORARY INTERCEPTOR BERMS, SWALES, TRAPS AND FILTERS, SHALL BE EMPLOYED AS REQUIRED TO ASSURE THAT DRAINAGE OF DISTURBED AREAS IS DIRECTED TO AND INTERCEPTED BY THE CONTROL MEASURES. THESE PRACTICES SHALL BE SUBJECT TO APPROVAL BY THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT AND ADJUSTED PERIODICALLY TO ACCOMMODATE CONSTRUCTION ACTIVITIES.
- UNLESS NOTED OTHERWISE, CUT AND FILL SLOPES ARE NOT INTENDED TO BE STEEPER THAN 3 (HORIZONTAL) TO 1 (VERTICAL). IF THE PLANS NOTE STEEPER SLOPES, OR IF REQUIRED BY FIELD CONDITIONS, SLOPES BETWEEN 2:1 AND 3:1 MAY BE USED PROVIDED A TEMPORARY SOIL EROSION CONTROL MATTING (SUCH AS JUTE, CURLEX, ETC.) IS INSTALLED OVER SEED AND MULCH IMMEDIATELY FOLLOWING GRADING. NO CUT OR FILL SLOPES ARE TO BE STEEPER THAN 2:1.
- IF WET WEATHER SEEPS OCCUR UPON CONSTRUCTION OF GRASS-LINED SWALES, A DECISION WILL BE MADE AT THAT TIME BY A HUNTERDON COUNTY SOIL CONSERVATION DISTRICT REPRESENTATIVE AS TO WHETHER OR NOT RIP-RAP SHALL BE DESIGNED AND PROVIDED.
- NO TREE STUMPS ARE TO BE BURIED ON SITE.
- PERMANENT STABILIZATION IS TO INCLUDE ALL FORMER AGRICULTURAL FIELDS THAT ARE NOW ANNUAL WEED COVERED AND ALL FIELDS OF ANNUAL CROPS.
- ALL EXISTING FIELD ROADS NOTED ON THE PLANS AS "TO BE ABANDONED" MUST BE TOPSOILED, SEEDING, AND MULCHED.
- NO EXCESS CUT MATERIAL IS TO BE REMOVED FROM THE SITE. IF EXCESS FILL OR ANY OTHER MATERIAL IS TO BE REMOVED FROM THE SITE, THE PROJECT OWNER/APPLICANT SHALL BE RESPONSIBLE FOR ITS PROPER DISPOSAL AND WILL NOTIFY THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT AS TO THE PLANNED DISPOSAL SITE LOCATION. IF APPLICABLE, A SOIL EROSION AND SEDIMENT CONTROL PLAN MUST BE SUBMITTED TO, REVIEWED AND CERTIFIED BY THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT PRIOR TO ANY MATERIAL REMOVAL FROM THE SITE.
- STOCKPILED FINES (SAND, QUARRY-PROCESS-BLEND, ETC) ARE NOT ALLOWED ON PAVED AREAS, ROADWAYS, OR NEAR DRAINAGE INLETS.
- THE STANDARDS FOR DUST CONTROL ARE TO BE EMPLOYED DURING EXTENDED PERIODS OF DRY CONDITIONS, AS DIRECTED BY THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT OR THE OWNER. APPROVED DUST CONTROL MATERIALS INCLUDE THE FOLLOWING:

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLICATION RATE
ANIONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1,200 GALLONS/ACRE
LATEX EMULSION	12.5:1	FINE SPRAY	236 GALLONS/ACRE
RESIN IN WATER	4:1	FINE SPRAY	300 GALLONS/ACRE
ACIDULATED SOAP SOAP STICK	NONE	COARSE SPRAY	1,200 GALLONS/ACRE
POLYACRYLAMIDE (PAM) - SPRAY ON OR DRY SPREAD			APPLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS. MAY ALSO BE USED AS AN ADDITIVE TO SEDIMENT BASINS TO FLOCCULATE AND PRECIPITATE SUSPENDED COLLOIDS (SEE SEDIMENT BASIN STANDARD, PAGE 28 - IN STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY) SEDIMENT CONTROL IN NEW JERSEY.)

- THE STANDARDS FOR DEWATERING ARE TO BE EMPLOYED WHENEVER ACCUMULATED STORMWATER MUST BE REMOVED FROM EXCAVATIONS.

**CONSTRUCTION SEQUENCE**

- A PRECONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE MUNICIPAL ENGINEER, THE HUNTERDON COUNTY ENGINEER, PLANNER, ALL CONTRACT UTILITIES, POLICE, AND THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS.
- A CONSTRUCTION SCHEDULE, INCLUDING ANTICIPATED DURATIONS OF ALL ACTIVITIES, IS TO BE PROVIDED TO THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT PRIOR TO THE PRECONSTRUCTION MEETING. ALL CONSTRUCTION IS TO BE COORDINATED WITH THE MUNICIPAL ENGINEER AND THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT, AND SHALL FOLLOW PROPER TIME-OF-YEAR PROCEDURES.
- THE CONTRACTOR SHALL NOTIFY BOTH THE MUNICIPAL ENGINEER AND THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT, IN WRITING, 48 HOURS PRIOR TO ANY LAND DISTURBANCE.
- THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES THAT HAVE OR MAY HAVE UNDERGROUND FACILITIES IN THE AREA OF THE CONSTRUCTION AND REQUEST THAT ANY UNDERGROUND FACILITIES BE MARKED OUT PRIOR TO ANY EXCAVATION. IN ADDITION TO ANY DIRECT CONTACT WITH UTILITY COMPANIES, THE UNDERGROUND LINE LOCATING SERVICE (1-800-272-1000) MUST BE CALLED.
- INSTALL SILT FENCE AND ANTI-TRACKING PADS AS INDICATED ON THE PLANS.
- CLEAR REMAINDER OF THE SITE (AS INDICATED ON THE PLANS), RESPREAD STOCKPILES AND STABILIZE IN ACCORDANCE WITH TEMPORARY STABILIZED SPECIFICATION.
- COMPLETE SITE IMPROVEMENTS (SEE BELOW). SPREAD TOPSOIL AND SEED EXPOSED AREAS. MAINTAIN SILT FENCE AND SEDIMENTATION PROTECTION UNTIL SUFFICIENT VEGETATIVE COVER IS ESTABLISHED.

- INSTALL CHAIN LINK FENCE.
- INSTALL STAGING AREA.
- CONSTRUCT ITEMS 3-5 IN THE FOLLOWING ORDER:  
A1, A2, A3, B1, C1, C2, D1, D2, B2, B3
- INSTALL POST FOUNDATIONS (IF NECESSARY) AND CONCRETE SLABS.
- INSTALL RACKING.
- INSTALL SOLAR MODULES.
- INSTALL ELECTRICAL CONDUIT.
- INSTALL GROUNDING.
- INSTALL INVERTERS.
- INSTALL TRANSFORMERS.
- INSTALL SWITCHERS.
- INSTALL COMBINER.
- INSTALL DISCONNECT.
- INSTALL CABLE.
- INSTALL LANDSCAPING.
- REMOVE STAGING AREA AND REVEGETATE.
- COMPLETE LANDSCAPING, PERMANENT STABILIZATION.
- FINAL CLEAN-UP.

**SITE IMPROVEMENTS, CONSTRUCTION SEQUENCE**

- INSTALL CHAIN LINK FENCE.
- INSTALL STAGING AREA.
- CONSTRUCT ITEMS 3-5 IN THE FOLLOWING ORDER:  
A1, A2, A3, B1, C1, C2, D1, D2, B2, B3
- INSTALL POST FOUNDATIONS (IF NECESSARY) AND CONCRETE SLABS.
- INSTALL RACKING.
- INSTALL SOLAR MODULES.
- INSTALL ELECTRICAL CONDUIT.
- INSTALL GROUNDING.
- INSTALL INVERTERS.
- INSTALL TRANSFORMERS.
- INSTALL SWITCHERS.
- INSTALL COMBINER.
- INSTALL DISCONNECT.
- INSTALL CABLE.
- INSTALL LANDSCAPING.
- REMOVE STAGING AREA AND REVEGETATE.
- COMPLETE LANDSCAPING, PERMANENT STABILIZATION.
- FINAL CLEAN-UP.

**AGRONOMIC SPECIFICATIONS FOR LAWNS AND CONSTRUCTION SITES**

**GENERAL NOTES**

- ALL DISTURBED AREAS THAT ARE NOT BEING GRADED, NOT UNDER ACTIVE CONSTRUCTION, OR NOT SCHEDULED TO BE PERMANENTLY SEEDING WITHIN 30 DAYS MUST BE TEMPORARILY STABILIZED AS PER SPECIFICATIONS BELOW.
- ALL EXPOSED AREAS WHICH ARE TO BE PERMANENTLY VEGETATED ARE TO BE SEEDING AND MULCHED WITHIN 10 DAYS OF FINAL GRADING.
- STRAW MULCH (HAY MULCH MAY BE SUBSTITUTED IF APPROVED BY THE DISTRICT) IS TO BE APPLIED TO ALL SEEDLINGS AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (APPROXIMATELY 100 TO 130 BALES PER ACRE).
- MULCH ANCHORING IS REQUIRED AFTER MULCHING TO MINIMIZE LOSS BY WIND OR WATER. THIS IS TO BE DONE USING ONE OF THE METHODS (CRIMPING, LIQUID MULCH BINDERS, NETTINGS, ETC.) IN THE "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY".
- EXISTING WEEDY AND POORLY-VEGETATED AREAS WITH LESS THAN 75 PERCENT PERENNIAL GRASS COVER MUST RECEIVE PERMANENT STABILIZATION (AS SPECIFIED BELOW).
- ALL BAGS NEED TO BE SAVED FOR LIME, FERTILIZER, SEED, AND LIQUID MULCH BINDER (IF USED AS MULCH ANCHORING METHOD). SUCH PROOFS NEED TO BE SUBMITTED TO THE DISTRICT INSPECTOR FOR VERIFICATION OF MATERIALS AND QUANTITIES USED FOR ALL SEEDLINGS.

SEED-BED PREPARATION FOR ALL SEEDLINGS  
SUB-SOIL PREPARATION: IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION, THE SURFACE SHOULD BE SCARIFIED TO A DEPTH OF 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION (E.G. AREAS OF HEAVY CONSTRUCTION TRAFFIC). THIS PRACTICE IS TO BE APPLIED TO ALL COMPACTED AREAS WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).

TOPSOILING: AREAS TO BE SEEDING SHOULD HAVE A MINIMUM OF 5" OF FRIABLE, LOAMY, TOPSOIL FREE OF OBJECTIONABLE STONES AND DEBRIS.  
FINAL GRADING: GRADING IS TO BE SMOOTH OF RUTS AND FREE OF OBJECTIONABLE STONES, DEPRESSIONS, VEHICLE TRACKS, AND ROUGH EDGES. THERE IS TO BE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS AND DWELLINGS. REFUSE FROM SEEDBED PREPARATION (ROOTS, STICKS, STONES, CONSTRUCTION DEBRIS) MUST BE DISPOSED OF PROPERLY.

LIMING/FERTILIZING: APPLY LIMESTONE AND FERTILIZER TO SOIL TEST RECOMMENDATIONS OR AS FOLLOWS:

- LIME TO BE APPLIED AT THE RATE OF 2 TONS (4,000 LBS.) PER ACRE. LIME MAY BE ANY PRODUCT TYPE AS LONG AS THE CCE (CALCIUM CARBONATE EQUIVALENT) EQUALS 2 TONS PER ACRE. PELLETIZED AND LIQUID PRODUCTS MAY BE PREFERRED BECAUSE OF THEIR LACK OF DUST AND EASE OF HANDLING, BUT MUST MEET THE AFOREMENTIONED CRITERIA.
- STARTER FERTILIZER, SPECIFIED AS 10-20-10, IS TO BE APPLIED AT 500 LBS. PER ACRE.
- LIME AND FERTILIZER ARE TO WORKED INTO THE SOIL TO A DEPTH OF 4 INCHES.

**TEMPORARY STABILIZATION WITH MULCH ONLY**

STRAW MULCH (HAY MULCH MAY BE SUBSTITUTED IF APPROVED BY THE DISTRICT) IS TO BE SPREAD UNIFORMLY AT THE RATE OF 2 TO 2-1/2 TONS PER ACRE (TOTAL GROUND SURFACE COVERAGE). THIS PRACTICE IS LIMITED TO PERIODS WHEN VEGETATIVE COVER CANNOT BE ESTABLISHED DUE TO THE SEASON OR OTHER CONDITIONS. MULCH MUST BE ANCHORED IN ACCORDANCE WITH NEW JERSEY STANDARD FOR SOIL EROSION AND SEDIMENT CONTROL. MULCH ALONE CAN ONLY BE USED FOR SHORT PERIODS AND WILL REQUIRE MAINTENANCE AND RENEWAL. OTHER MULCH MATERIALS MAY BE UTILIZED IF APPROVED BY THE DISTRICT.

**TEMPORARY SEEDING**

TEMPORARY SEEDING WILL BE USED ON ALL DISTURBED AREAS WHERE PERMANENT STABILIZATION WILL NOT BE ACCOMPLISHED FOR A PERIOD UP TO 6 MONTHS.

PRODUCT	RATE	RECOMMENDED OPTIMUM SEEDING DATES
PERENNIAL RYEGRASS	100 LBS. PER ACRE	MARCH 15 TO MAY 15 AND AUGUST 15 TO OCTOBER 1
SPRING OATS	86 LBS. PER ACRE	MARCH 15 TO JUNE 1 AND AUGUST 1 TO OCTOBER 1
WINTER CEREAL RYE	112 LBS. PER ACRE	AUGUST 1 TO NOVEMBER 15
WINTER BARLEY	96 LBS. PER ACRE	AUGUST 15 TO OCTOBER 1
PEARL MILLET	20 LBS. PER ACRE	MAY 15 TO AUGUST 15
GERMAN OR HUNGARIAN MILLET	30 LBS. PER ACRE	MAY 15 TO AUGUST 15

**STABILIZATION WITH SOD**

STABILIZATION WITH SOD IS PERMITTED IN AREAS WHERE MAINTENANCE AND IRRIGATION ARE ADEQUATE TO INSURE PROPER ESTABLISHMENT AND LONGEVITY. SEEDING PREPARATION IS TO BE CONSISTENT WITH ANY OTHER STABILIZATION REQUIREMENTS (LIME AND FERTILIZER BAGS ARE TO BE RETAINED FOR DISTRICT INSPECTION). ON SLOPES GREATER THAN 3 TO 1, SOD MUST BE PROPERLY ANCHORED TO THE SLOPE IN ACCORDANCE WITH THE NEW JERSEY STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL.

**PERMANENT SEEDING**

- SEED IS TO BE INCORPORATED INTO THE SOIL 1/4" TO 1/2".
- LAWN SEEDLINGS ARE TO BE A MIXTURE OF BLUEGRASSES, TURF-TYPE FESCUES, AND TURF-TYPE PERENNIAL RYEGRASSES TO INSURE LONGEVITY, TOLERANCE, AND DURABILITY. NO SEED SHALL BE ACCEPTED WITH A GERMINATION TEST DATE OF MORE THAN 12 MONTHS OLD UNLESS RETESTED.
- PROFESSIONAL SEED MIXTURES ARE RECOMMENDED RATHER THAN MIXING SEEDS YOURSELF.
- SEED MIXTURE (AS SPECIFIED BELOW) IS TO APPLIED AT A MINIMUM RATE OF 200 LBS. OF PERENNIAL SEED PER ACRE.
- OPTIMUM SEEDING PERIOD FOR HUNTERDON COUNTY IS FROM MARCH 1 TO MAY 15 AND AUGUST 15 TO OCTOBER 1. OUTSIDE OF THOSE PERIODS, THE SEEDING RATES ARE TO BE INCREASED BY 50% (I.E., 300 LBS. OF PERENNIAL SEED PER ACRE INSTEAD OF THE REQUIRED 200 LBS. PER ACRE DURING OPTIMUM PERIODS).
- SEEDLINGS SHOULD RECEIVE AN APPLICATION OF FERTILIZER SUCH AS 10-10-10 OR EQUIVALENT AT 400 LBS. PER ACRE APPROXIMATELY SIX MONTHS AFTER FIRST APPLICATION.

SEEDING MIXTURE FOR GENERAL SEEDING (EXAMPLE: LAWNS)  
40% TURF-TYPE TALL FESCUE  
10% CREEPING RED FESCUE  
10% CHEWINGS FESCUE  
10% KENTUCKY BLUEGRASS  
30% TURF-TYPE PERENNIAL RYEGRASS  
OR  
20% KENTUCKY BLUEGRASS  
20% TURF-TYPE PERENNIAL RYEGRASS  
20% CHEWINGS FESCUE

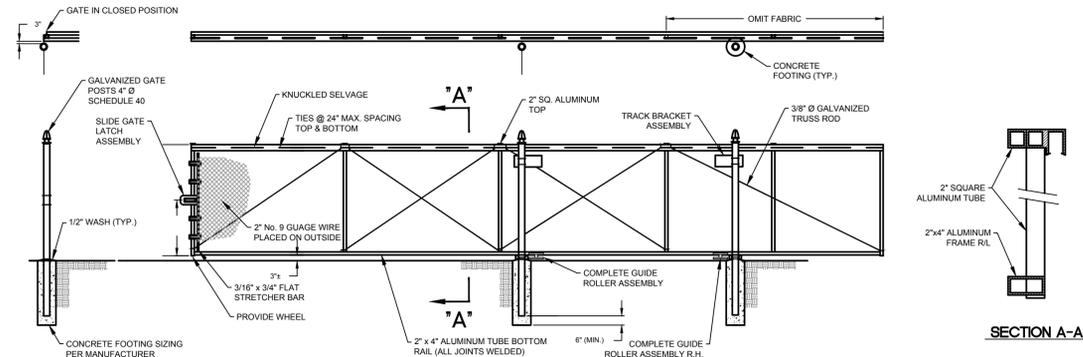
SEEDING RATE & MIXTURE FOR HIGH TRAFFIC & CRITICAL AREAS (EXAMPLE: ATHLETIC FIELDS, WATERWAYS, DIVERSIONS, ETC.)  
80% TURF-TYPE TALL FESCUE  
10% KENTUCKY BLUEGRASS  
10% TURF-TYPE PERENNIAL RYEGRASS

OTHER SEED MIXTURES, SUCH AS BLENDED VARIETIES OF PERENNIAL TURF-TYPE RYEGRASSES, TURF-TYPE TALL FESCUES, OR BLUEGRASSES MAY ALSO BE ACCEPTABLE IF APPROVED BY THE DISTRICT.  
(EXAMPLE: CUT AND FILL SLOPES NOT GOING TO BE MOWED)

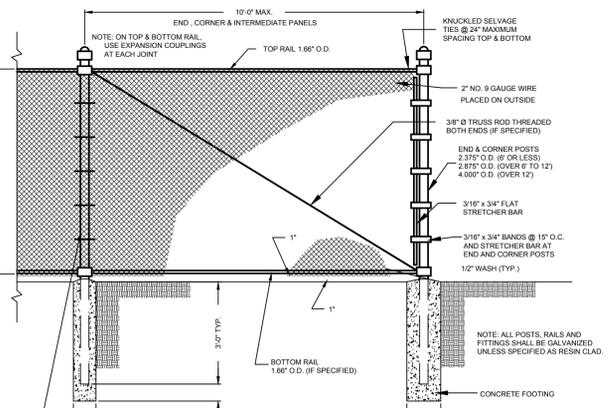
KENTUCKY 31 FESCUE - 50 LBS./ACRE  
CROWN VETCH - 10 LBS./ACRE

SEEDING RATE FOR WILDFLOWER MEADOWS AND OTHER AREAS WHERE MOWING IS TO BE LIMITED  
HARD OR SHEEP FESCUE - 55 LBS./ACRE  
PRE-PACKAGES WILDFLOWER MIX - APPLIED PER MANUFACTURER'S RECOMMENDATIONS

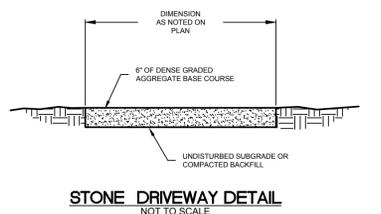
SEEDING RATE AND MIXTURE FOR DETENTION BASINS  
PRE-PACKAGES, SUCH AS FACULTATIVE WETLAND MEADOW MIX, MANUFACTURED BY ERNST CONSERVATION SEEDS (800)-873-3231 OR OTHER EQUIVALENT SOURCE - APPLIED PER MANUFACTURER'S RECOMMENDATIONS. USE TEMPORARY SEEDLINGS OF NON-COMPETITIVE SPECIES FOR STABILIZATION DURING CONSTRUCTION.



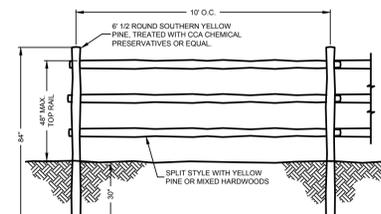
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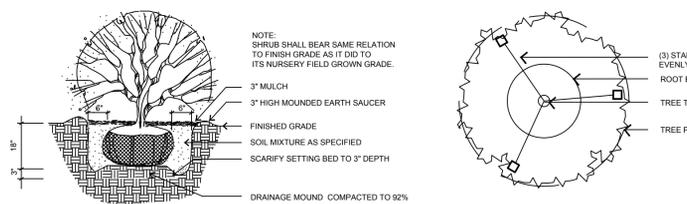
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NOT TO SCALE



**STONE DRIVEWAY DETAIL**  
NOT TO SCALE



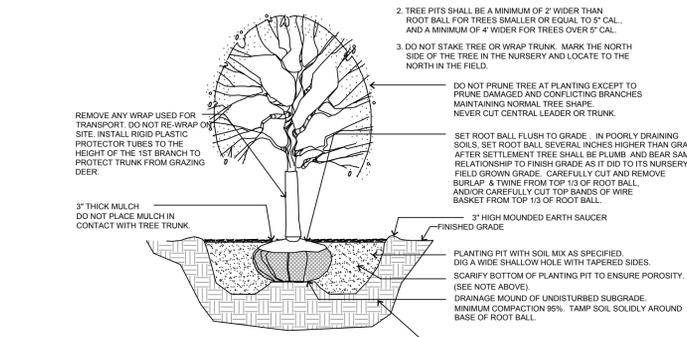
**POST AND RAIL FENCE DETAIL**  
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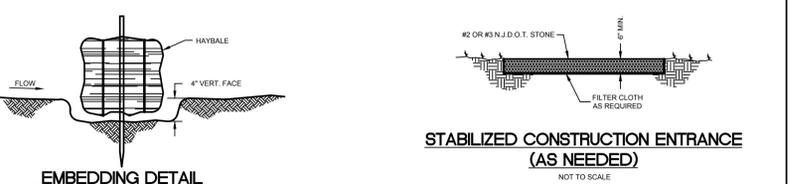
**SHRUB PLANTING DETAIL**  
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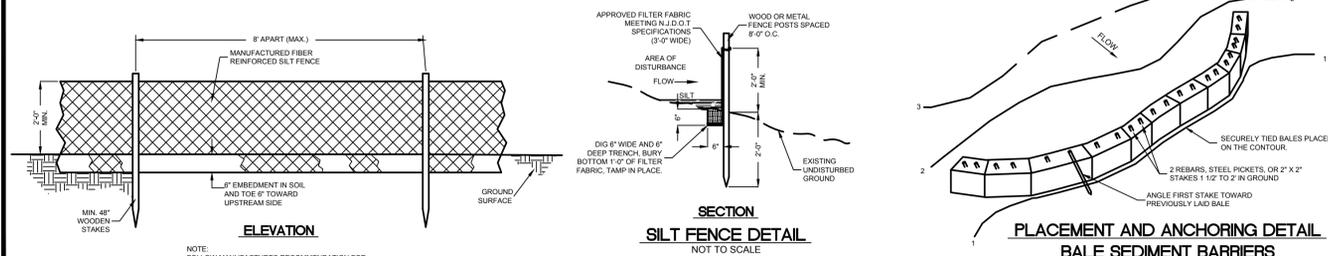
**PLAN VIEW**



**PLANTING DETAIL DECIDUOUS TREES < 4.0\"/>**



**STABILIZED CONSTRUCTION ENTRANCE (AS NEEDED)**  
NOT TO SCALE



**SILT FENCE DETAIL**  
NOT TO SCALE



**BALE SEDIMENT BARRIERS**  
NOT TO SCALE

DATE: DECEMBER 17, 2021  
SCALE: AS SHOWN  
DESIGNED BY: I.L.H.  
DRAWN BY: V.Z.  
CHECKED BY: I.L.H.  
JOB NO.: 1806-FH

REVISIONS

DATE

AUTH.

BY: IAN L. HILL, P.E. N.J. LIC. No. GE46679

Consulting Civil Engineering  
Municipal Engineering  
Land Surveying  
Landscape Architecture

N.J. LIC. CERT. No. 24608102300

**Van Cleef ENGINEERING ASSOCIATES**

1728 ROUTE 31 NORTH, LEBANON, N.J. 08833  
PHONE (609) 732-5600 FAX (609) 732-5634

OFFICE THROUGHOUT N.J. EASTERN PA. AND DE.

SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FOR QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49, LOTS 15 AND 1501  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY



**SOLAR FACILITY NOTES**

1. PROPOSED FACILITY TO GENERATE 12.93 MW DC POWER (8.8 MW AC).
2. EXISTING POINT OF INTERCONNECTION IS ON PITTSBURY ROAD COUNTY "DRAGSTRIP" PROPERTY.
3. ON-SITE WIRING OF SOLAR FACILITY TO BE UNDERGROUND.
4. PHASE II SYSTEM CONSISTS OF 665 STRINGS OF 540W MODULES AT 10° TILT AND 8' ROW SPACING (36 MODULES PER STRING).
5. A REPORT OF COMPLIANCE MUST BE ISSUED FROM THE HUNTERDON COUNTY SOIL CONSERVATION DISTRICT PRIOR TO THE GENERATION OF ELECTRICITY.

**GRAPHIC SCALE**



( IN FEET )  
1 inch = 100 ft.

DATE:	DECEMBER 17, 2021
SCALE:	1" = 100'
DESIGNED BY:	ILLH
DRAWN BY:	V.Z.
CHECKED BY:	ILLH
JOB NO.:	8008-PH

BY:   
IAN L. HILL, P.E., N.J. LIC. NO. CE-46679

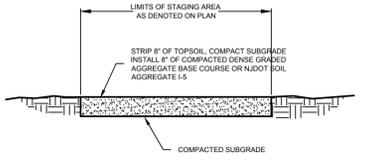
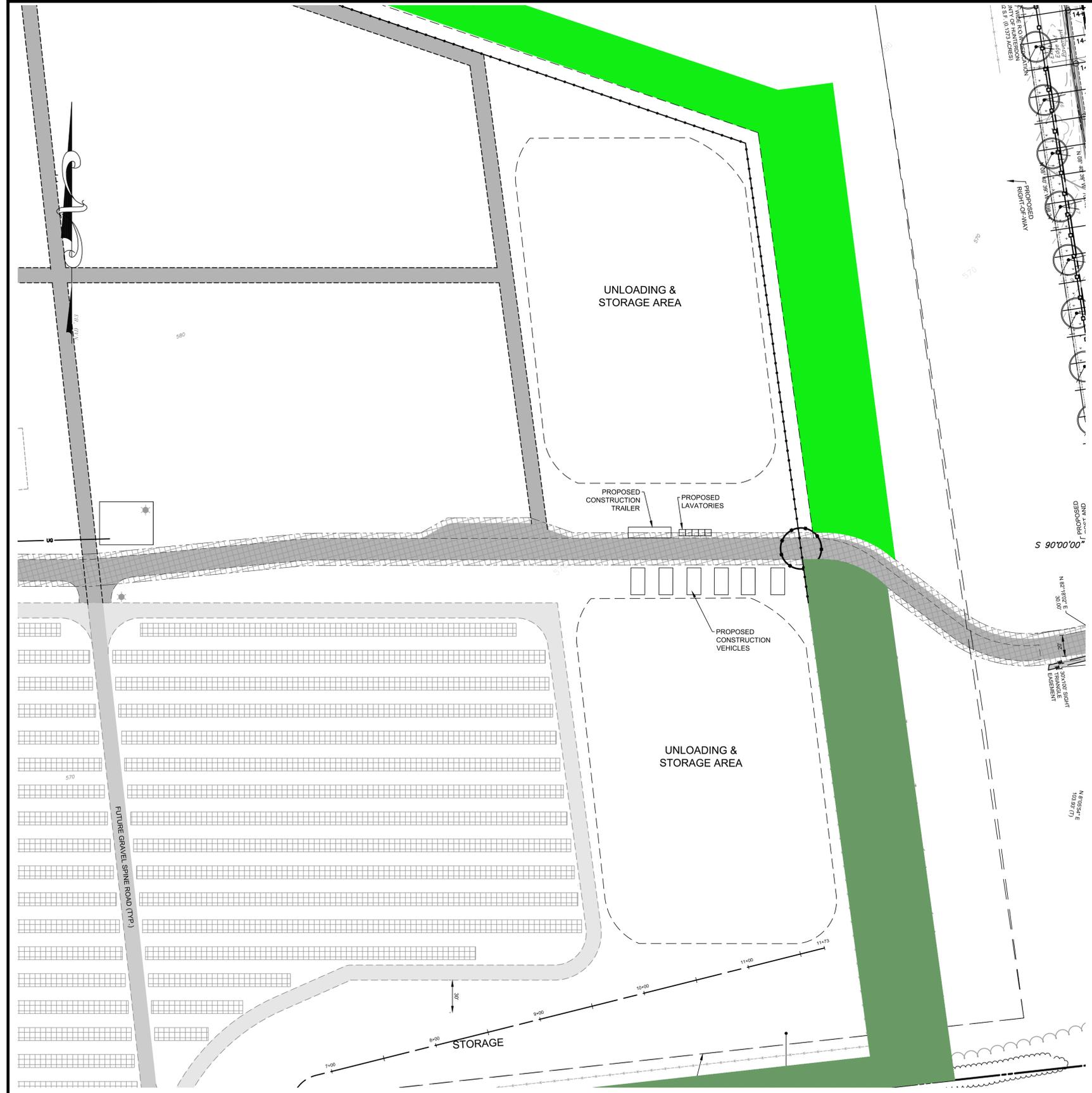
**Van Cleef**  
ENGINEERING ASSOCIATES

1138 ROUTE 31 NORTH, LEBANON, N.J. 08833  
EMAIL: VCLEEF@VCEA.ORG WEB: WWW.VCEA.ORG  
PHONE: (908) 755-9000 FAX: (908) 755-0304

N.J. LIC. CERT. NO. 24503123200

Consulting Civil Engineering  
Environmental Engineering  
Managerial Engineering  
Professional Planning  
Landscape Architecture

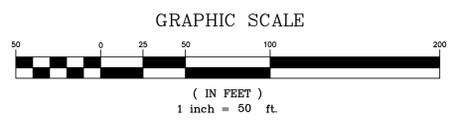
**SOLAR LAYOUT PLAN**  
FOR  
**QUAKERTOWN SOLAR FARM II, LLC**  
BLOCK 49, LOTS 15 AND 15.01  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY



TEMPORARY STAGING AREA STRUCTURAL SURFACE  
NOT TO SCALE

**NOTES**

1. PROPOSED LAYOUT IS CONCEPTUAL ONLY. FINAL CONSTRUCTION STAGING AND STORAGE AREA LAYOUT TO BE SUBMITTED TO TOWNSHIP ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION BASED ON INPUT BY THE CONSTRUCTION MANAGER.
2. TEMPORARY STAGING / STORAGE AREA STRUCTURAL SURFACE TO BE REMOVED POST CONSTRUCTION. THE SUBGRADE SCARIFIED TO A DEPTH OF 8", AND STABILIZED WITH 8" OF TOPSOIL. SEEDING IN ACCORDANCE WITH HCSD PERMANENT STABILIZED STANDARDS AND STRAW MULCH.



DATE:	DECEMBER 17, 2021
SCALE:	1" = 50'
DESIGNED BY:	ILLH
DRAWN BY:	V.Z.
CHECKED BY:	ILLH
JOB NO.:	1808-PH
REVISIONS	
AUTH.	DATE

BY:   
IAN L. HILL, P.E., N.J. LIC. NO. CE46679

**Van Cleef**  
ENGINEERING ASSOCIATES

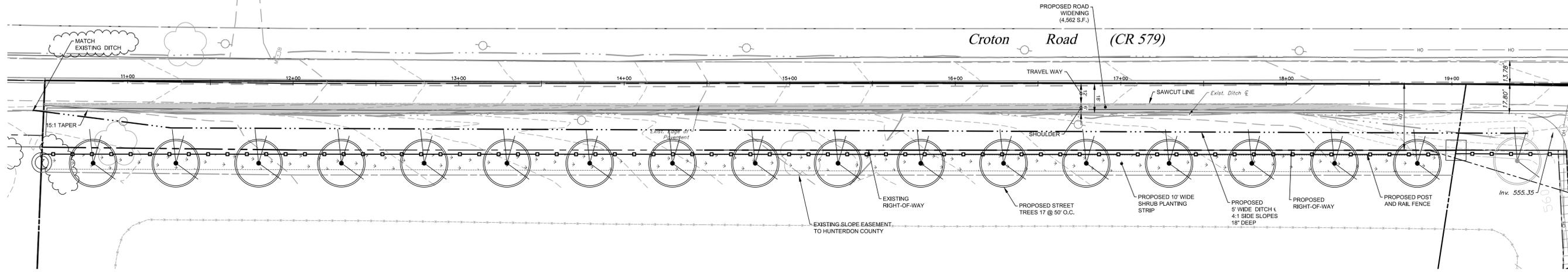
Consulting Civil Engineering  
Environmental Engineering  
Mechanical Engineering  
Professional Planning  
Landscape Architecture

1128 ROUTE 34 NORTH, LEBANON, N.J. 08833  
EMAIL: VOW@VANCLEEF.ORG WEB: WWW.VANCLEEF.ORG  
PHONE: (908) 752-8000 FAX: (908) 752-0304

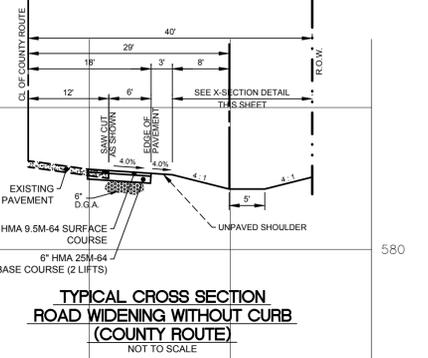
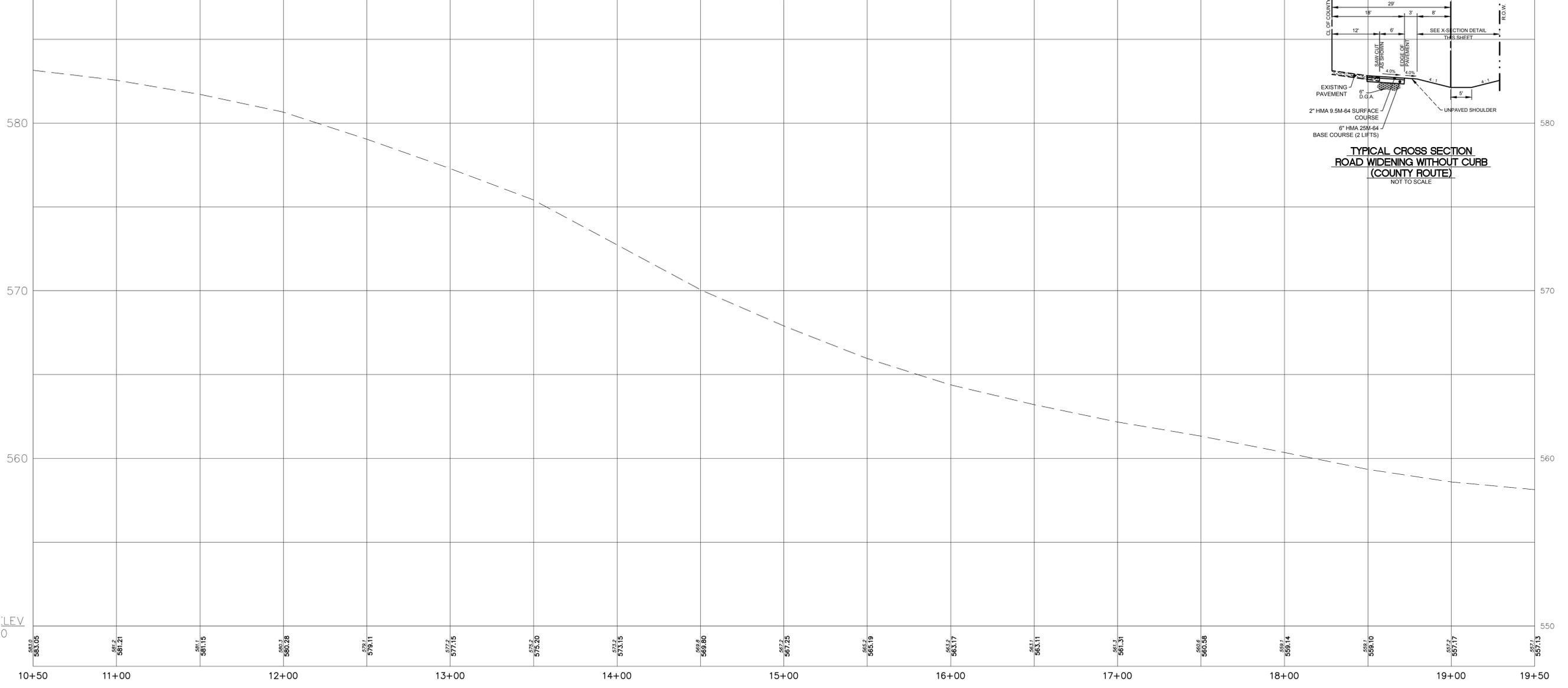
N.J. LLC CERT. NO. 24502812300  
OFFICES THROUGHOUT NJ, EASTERN PA AND DE

CONSTRUCTION STAGING AREA LAYOUT PLAN  
FOR  
QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49, LOTS 15 AND 1501  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY

NOTE: ADEQUATE PROTECTION SHOULD BE PROVIDED FOR THE PLANTINGS IF THEY ARE INSTALLED PRIOR TO THE ROAD WIDENING IMPROVEMENTS. ANY PLANTINGS (STREET TREES OR SHRUBS) THAT DIE AND / OR ARE STRESSED DUE TO THE ROADWAY IMPROVEMENT PROJECT OCCURRING AFTER THEY ARE PLANTING SHOULD BE REPLACED



**PLAN VIEW**  
SCALE: 1"=30'



DATE: DECEMBER 17, 2021	SCALE: AS SHOWN	DESIGNED BY: I.L.H.	DRAWN BY: V.Z.	CHECKED BY: I.L.H.	JOB NO. 800-PH	REVISIONS	AUTH. DATE
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BY: 

IAN L. HILL, P.E., N.J. LIC. NO. CE46679

**Van Cleef**  
ENGINEERING ASSOCIATES

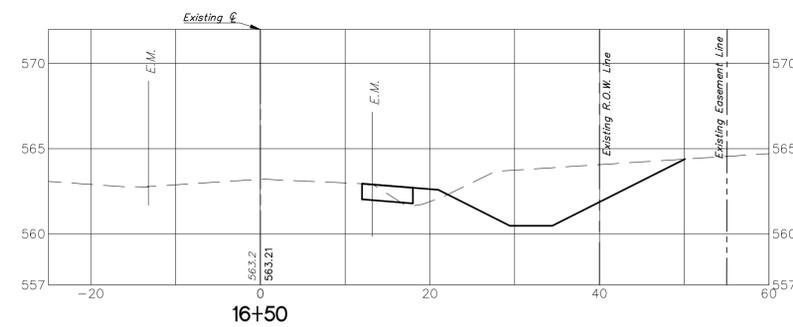
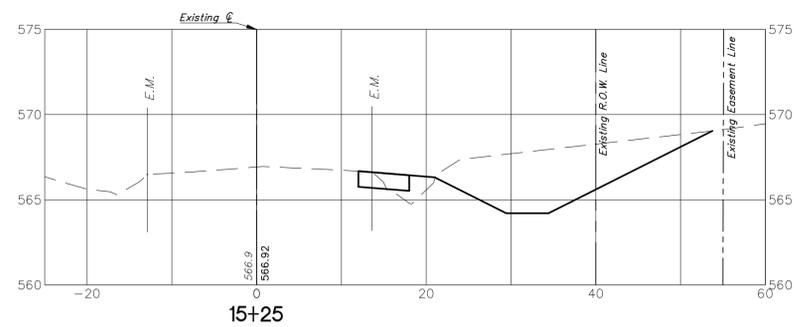
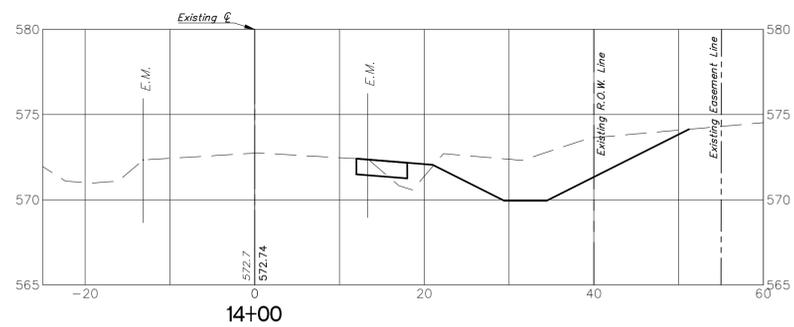
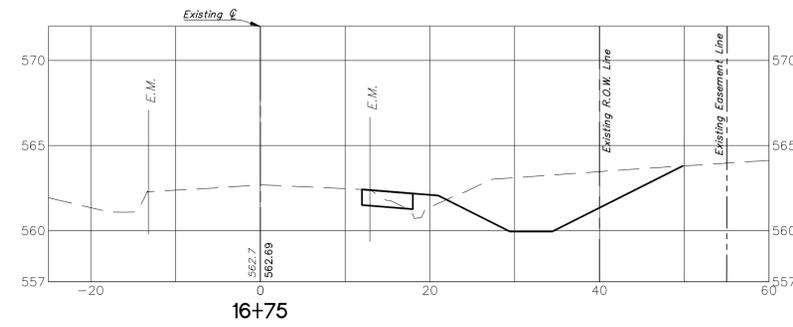
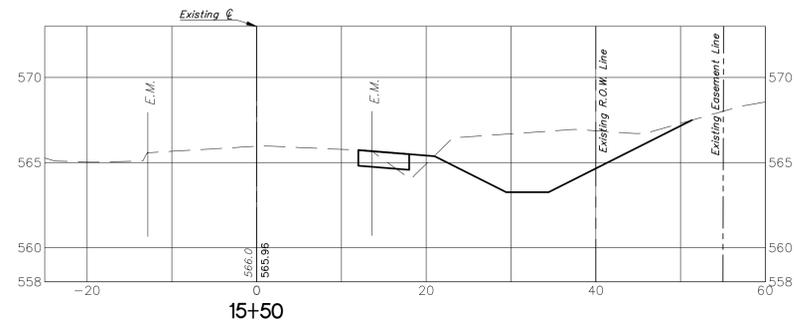
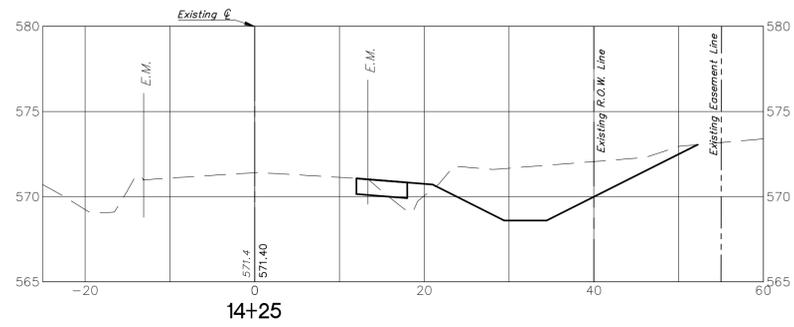
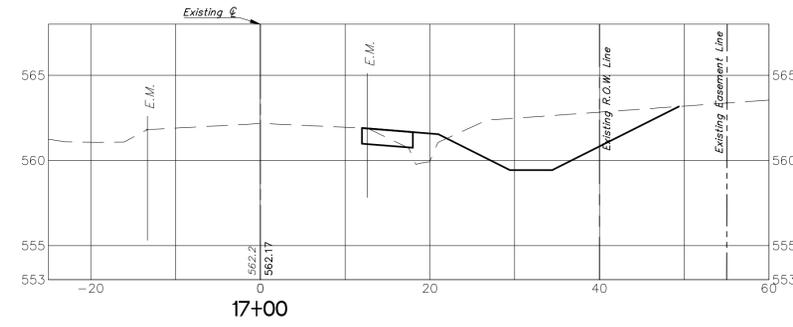
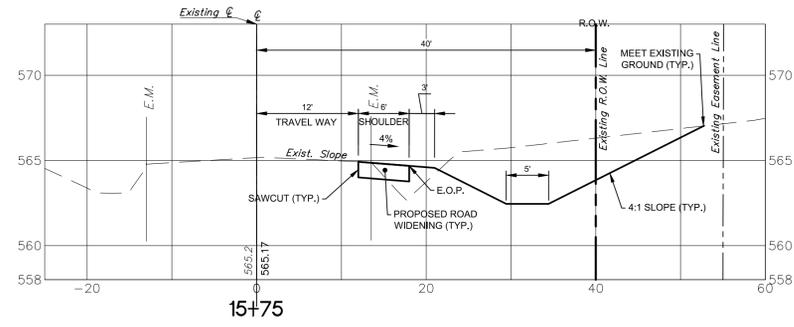
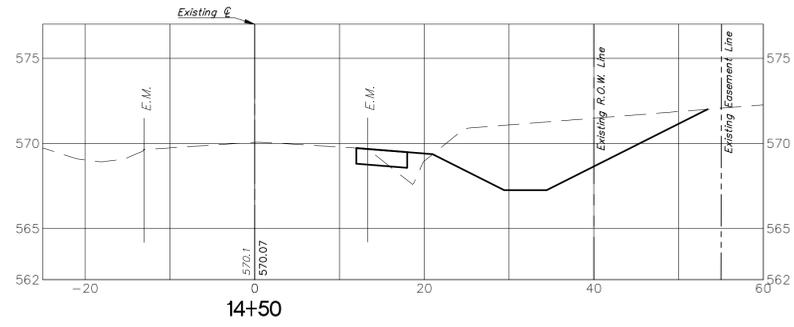
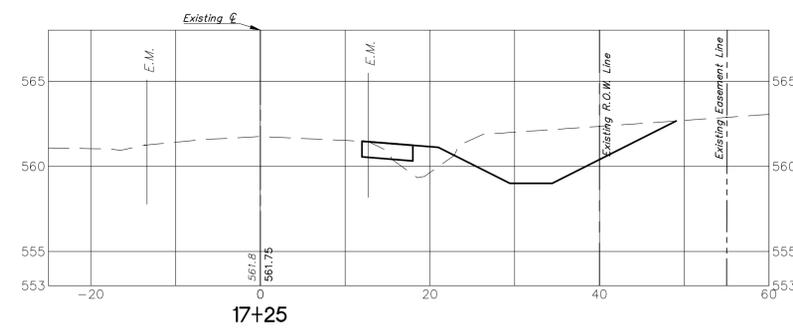
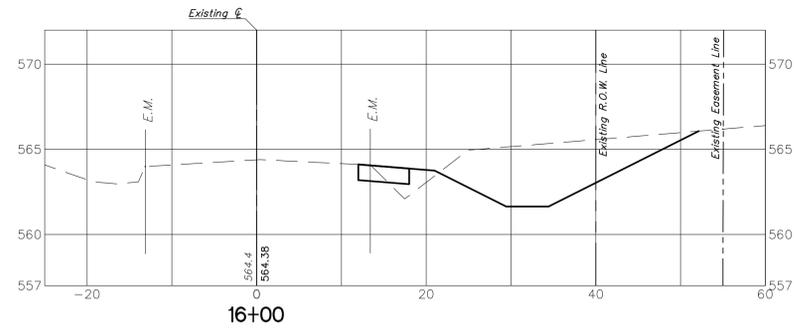
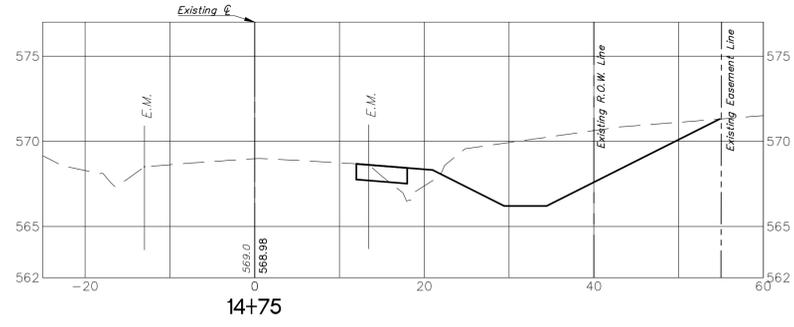
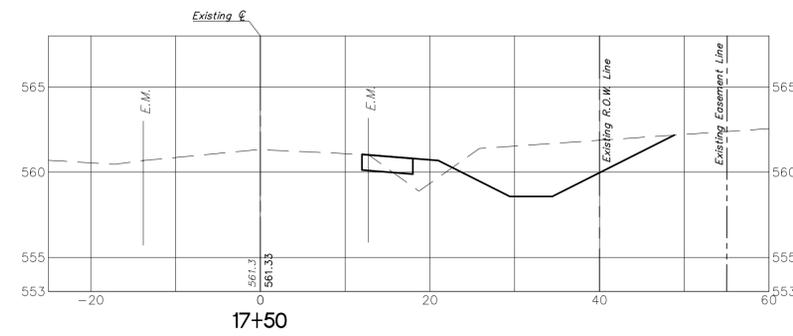
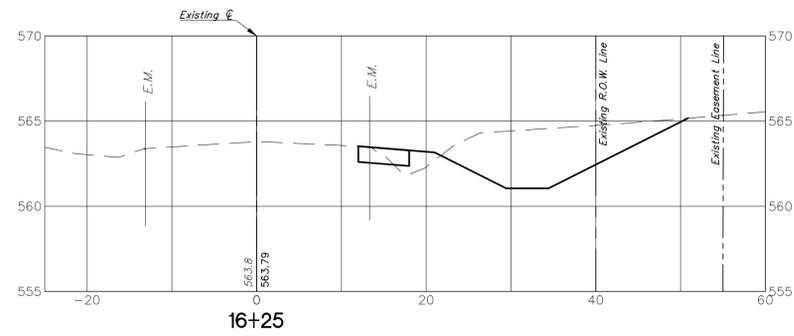
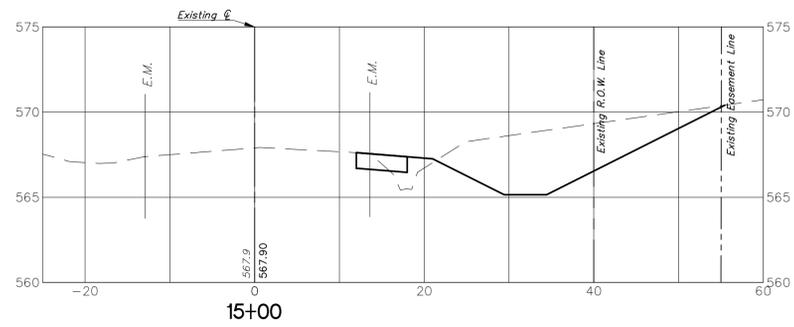
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Environmental Engineering  
Planning  
Professional Planning  
Landscape Architecture

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EMAIL: VOW@VANCLEEF.ORG WEB: WWW.VANCLEEF.ORG  
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N.J. LIC. CERT. NO. 24503123200

OFFICES THROUGHOUT NJ, EASTERN PA AND DE

**CROTON ROAD PLAN AND PROFILE**  
FOR  
**QUAKERTOWN SOLAR FARM II, LLC**  
BLOCK 49, LOTS 15 AND 15.01  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY



**SECTION VIEW**  
SCALE: 1"=10' H  
1"= 5' V

DATE: DECEMBER 17, 2021	SCALE: AS SHOWN	DESIGNED BY: I.L.H.	DRAWN BY: V.Z.	CHECKED BY: I.L.H.	JOB NO. 1808-PH	REVISIONS	AUTH.	DATE
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BY:   
IAN L. HILL, P.E., N.J. LIC. NO. CE46679

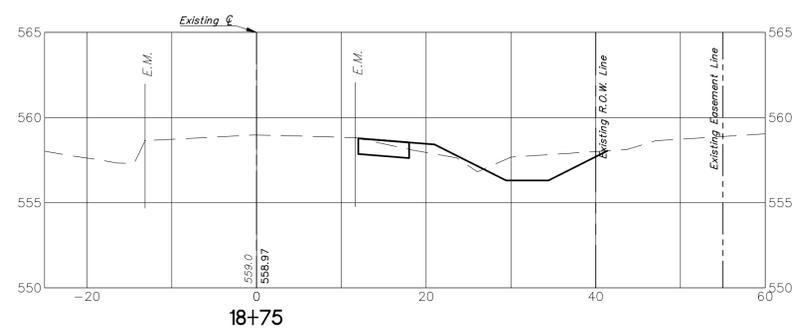
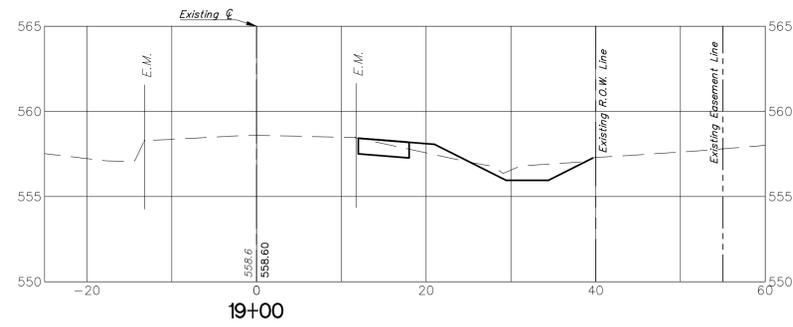
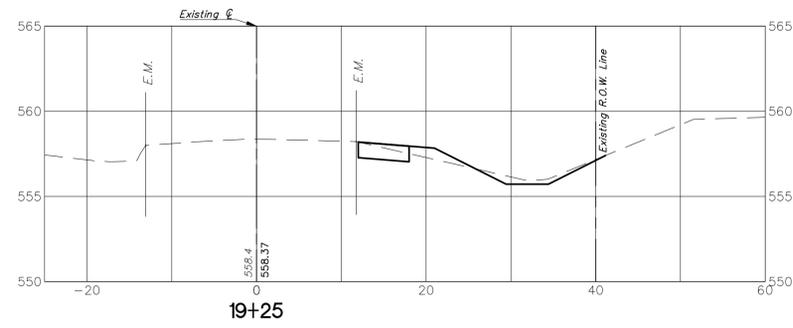
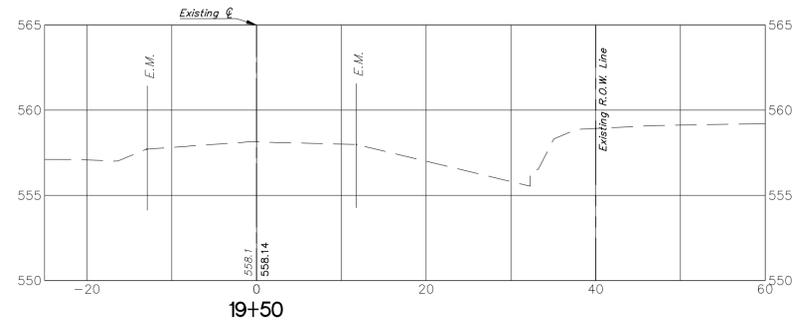
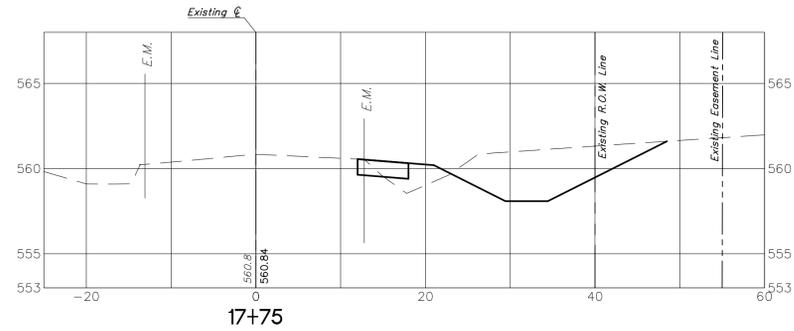
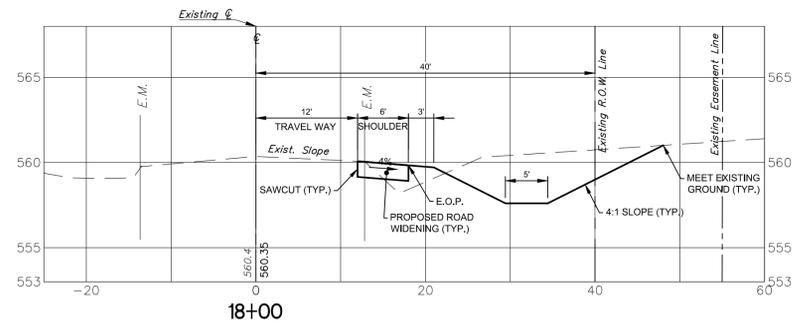
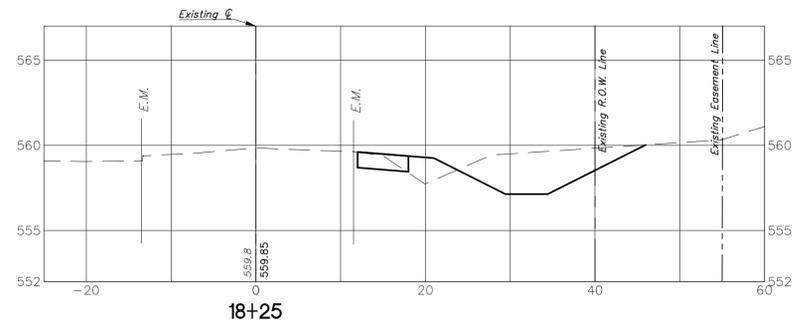
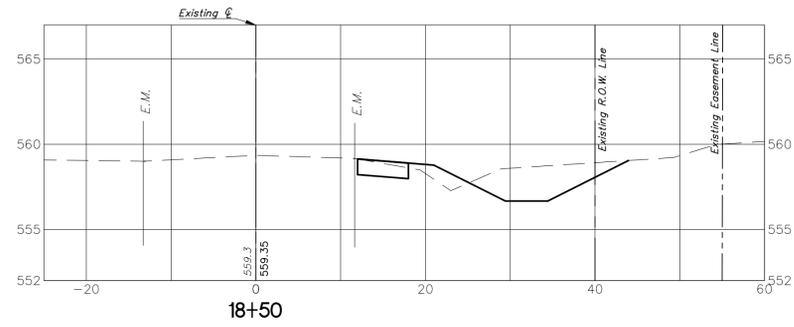
**vanCleeef**  
ENGINEERING ASSOCIATES

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Environmental Engineering  
Municipal Engineering  
Professional Planning  
Landscape Architecture

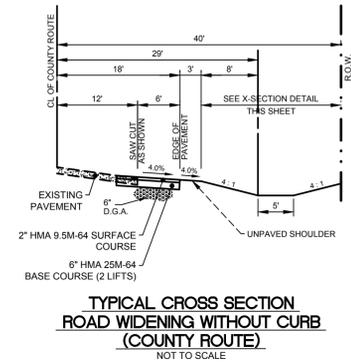
1128 ROUTE 31 NORTH, LEBANON, N.J. 08833  
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CROTTON ROAD CROSS SECTIONS  
FOR  
QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49, LOTS 15 AND 1501  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY



SECTION VIEW  
SCALE: 1"=10' H  
1"=5' V



DATE	REVISIONS	AUTH.	DATE
DECEMBER 17, 2021			

SCALE: AS SHOWN  
DESIGNED BY: I.L.H.  
DRAWN BY: V.Z.  
CHECKED BY: I.L.H.  
JOB NO. 1808-FH

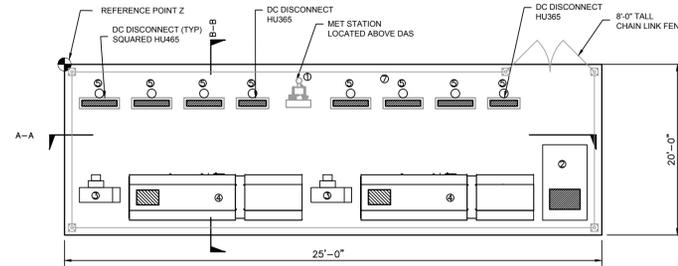
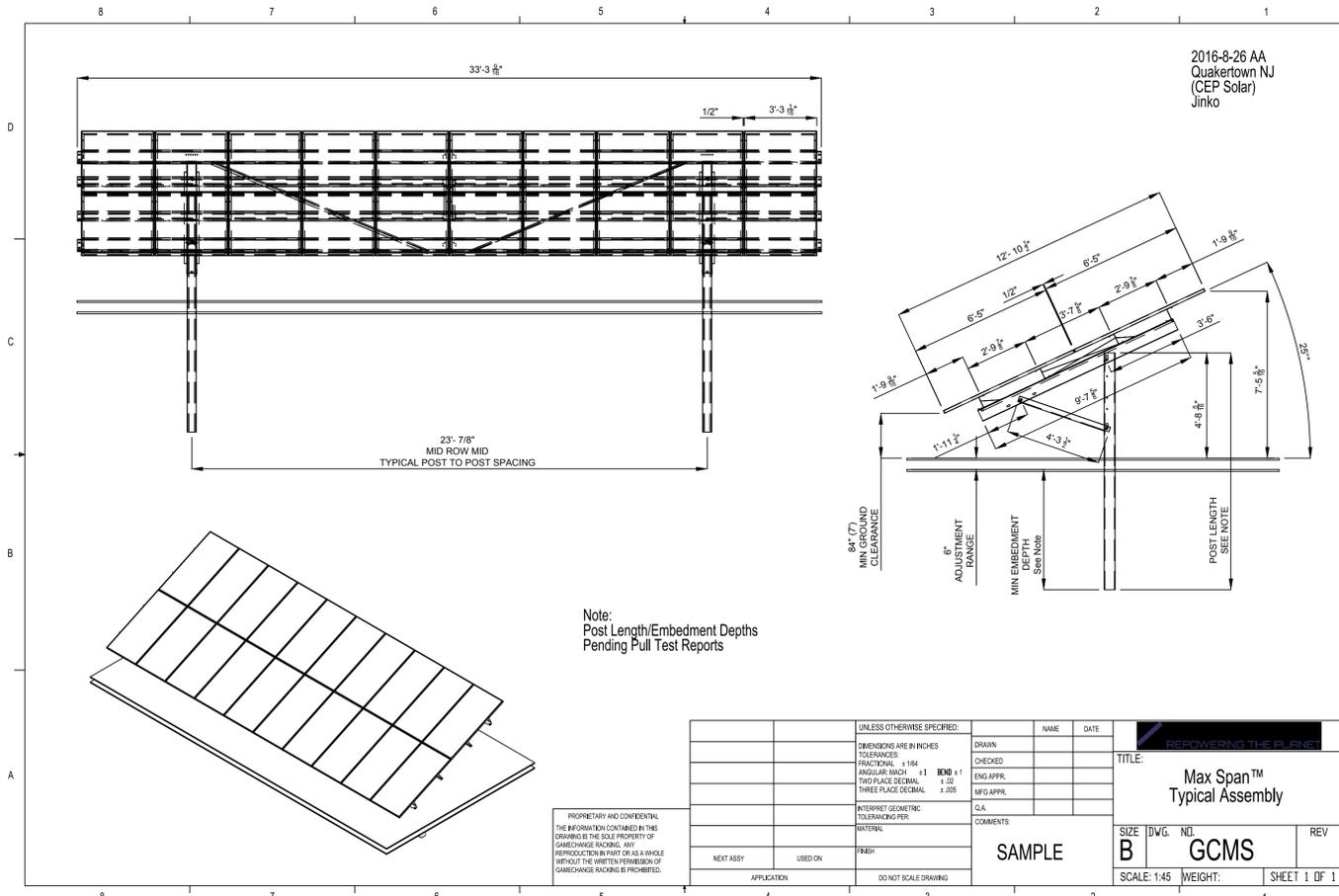
BY: IAN L. HILL, P.E., N.J. LIC. NO. CE46679

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1128 ROUTE 34 NORTH, LEBANON, N.J. 08833  
EMAIL: VON@VANCLEEF.ORG WEB: WWW.VANCLEEF.ORG  
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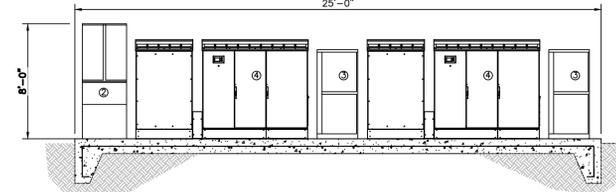
CROTON ROAD CROSS SECTIONS  
FOR  
QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49, LOTS 15 AND 1501  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY



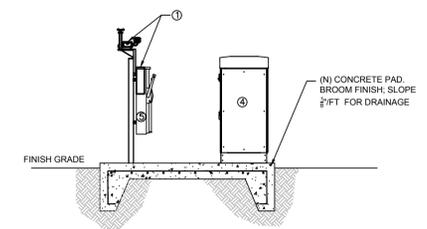
2016-8-26 AA  
Quakertown NJ  
(CEP Solar)  
Jinko



EQUIPMENT PAD PLAN AND CONDUIT STUB-UP LOCATIONS  
N.T.S.



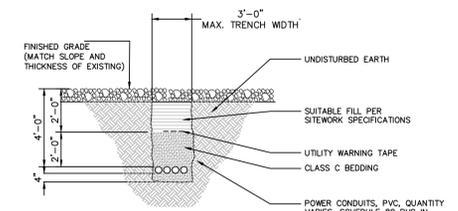
EQUIPMENT PAD SECTION A-A  
N.T.S.



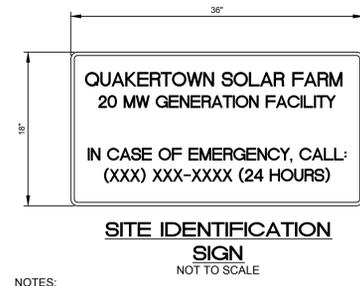
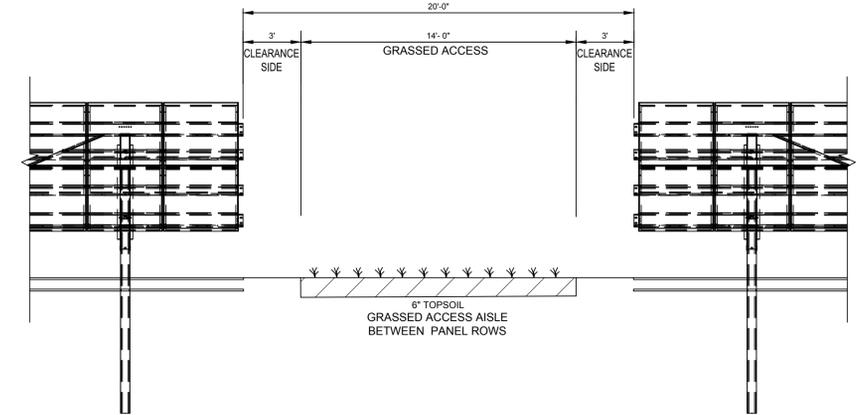
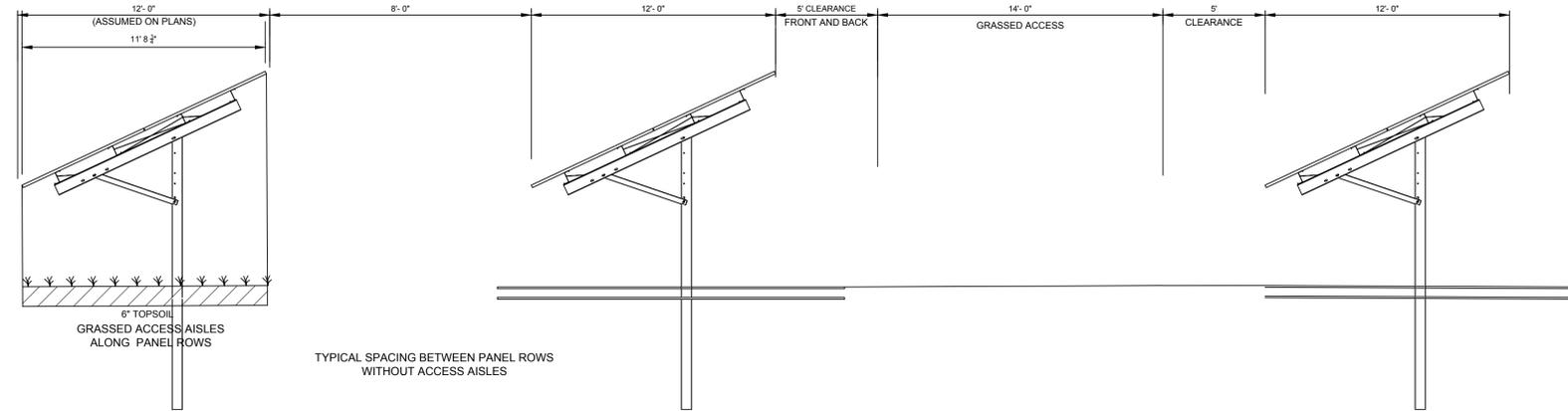
EQUIPMENT PAD SECTION B-B  
N.T.S.

- EQUIPMENT KEY:
- ① DAS AND MET STATION
  - ② AUXILIARY POWER SWITCHBOARD
  - ③ AC DISCONNECT & METER
  - ④ INVERTER
  - ⑤ DC DISCONNECT

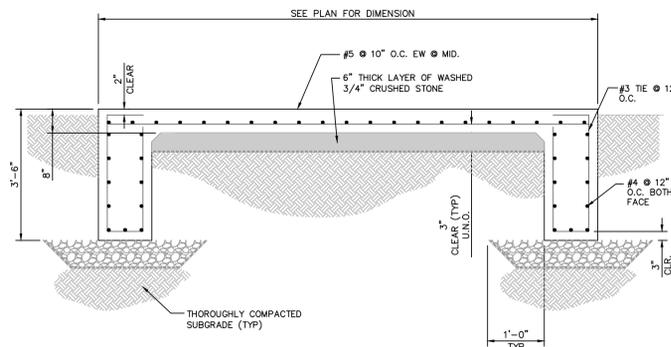
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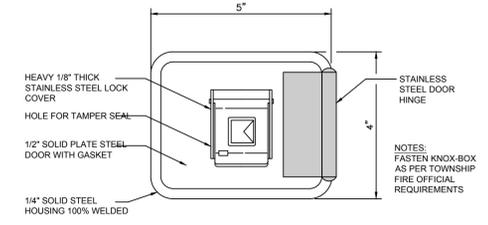
UNDERGROUND CONDUIT TRENCH DETAIL IN GRASSED/LANDSCAPED AREAS  
N.T.S.



- NOTES:
- SIGN TO CONSIST OF BLACK LETTERING ON WHITE BACKGROUND.
  - SIGNS TO BE MOUNTED ON SLIDING GATES AT MAIN ENTRANCE AND EACH EMERGENCY ACCESS (5 TOTAL).



SWITCH GEAR AND INVERTER PAD DETAIL  
N.T.S.



KNOX-BOX 3200 SERIES (SURFACE MOUNT DETAIL)  
NOT TO SCALE

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DECEMBER 17, 2021	AS SHOWN	ILL.H.	V.Z.	ILL.H.			

BY:

IAN L. HILL, P.E., N.J. LIC. NO. CE46679

Consulting Civil Engineering  
Environmental Engineering  
Mechanical Engineering  
Professional Planning  
Landscape Architecture

N.J. LLC CERT. No. 24503123200

**Van Cleef**  
ENGINEERING ASSOCIATES

1138 ROUTE 34 NORTH, LEANON, N.J. 08833  
EMAIL: VON@VANCLEEF.COM WEB: WWW.VANCLEEF.COM  
PHONE: (908) 755-9000 FAX: (908) 755-0044

OFFICES THROUGHOUT NJ, EASTERN PA AND DE

SOLAR DETAILS FOR

QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49, LOTS 15 AND 1501  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY

DATE: 12/17/21

SCALE: AS SHOWN

DESIGNED BY: ILL.H.

DRAWN BY: V.Z.

CHECKED BY: ILL.H.

JOB NO.: 8008-PH

REVISIONS:

AUTH.:

DATE:

# eSHINE Area

## Solar LED Area System

The eSHINE Area is the only solar lighting system designed and engineered by a single manufacturer. It is ideal for the illumination of sites, parking lots, and other large outdoor spaces. The eSHINE Area is a stand-alone system that will operate independently of the grid with minimal installation costs and low maintenance costs.

### How to Build Your eSHINE Solar Lighting System

Each eSHINE Area solar lighting system is custom built to match your location's solar potential and project requirements. To build a specification for the eSHINE Area, simply complete the following four steps. Once completed, the last page of this document will contain all of the information that you need to specify the solar lighting system.

- Step 1: Project Details
- Step 2: Select Luminaire
- Step 3: Select eSHINE Solar Pole
- Step 4: Submit Your Specification

## Step 1

### Step 1. Project Details

Provide information about the project location and requirements.

#### City

Choose the city that is closest in proximity to your location.

State:  City:

#### Operating Profile Requirement

Choose one of the options from Table A that best represents the run time and dimming mode for your light fixture.

#### Wind Speed

Select the wind speed requirement for your project.

Table A. eSHINE Series Operating Profile Options

Mode	Dusk	14 hours	Dawn	Total Run Time
Full	14 hours - 100% (All Night Operation)			14 hours
9-1	9 hours - 100%		5 hours - OFF	9 hours
9-2	6 hours - 100%		5 hours - OFF	9 hours
9-3	6 hours - 100%		9 hours - 50%	9 hours
9-4	6 hours - 100%		9 hours - 50%	9 hours
6-1	6 hours - 100%		8 hours - OFF	6 hours
6-2	6 hours - 100%		8 hours - OFF	6 hours
6-3	6 hours - 100%		10 hours - 20%	6 hours
6-4	6 hours - 100%		10 hours - 20%	6 hours
3-1	3 hours - 100%		11 hours - OFF	3 hours
3-2	3 hours - 100%		11 hours - OFF	3 hours
3-3	3 hours - 100%		12 hours - 10%	3 hours
3-4	3 hours - 100%		12 hours - 10%	3 hours

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Suite 39  
West Nyack, NY 10994

T 201.228.0880  
E info@emberled.com  
www.emberled.com

## Step 2



The vSHINE Area is the ideal fixture for solar lighting applications. Designed with cutting edge LED, it strikes the perfect balance of energy efficiency and high output, providing the highest value solar lighting system on the market. The vSHINE Area's applications range from industrial and commercial parking lot and site security lighting to residential area illumination.

### Step 2. Select Luminaire

Select the vSHINE Area luminaire for your solar powered lighting system using the Performance Table below.

#### Fixture Selection

Choose the desired fixture.

#### Fixture Color

Choose the desired fixture color.

#### Performance Data

##### Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, with the tolerances allowed by Lighting Facts. Actual performance may vary as a result of end-user environment and application.

Model	LEDs	Drive	System Watts	Lumens	3000   4000   5000		
					B	U	G
VA-L16-525-T4	16	525	26	2523	1	0	1
VA-L32-525-T4	32		51	5047	2	0	1
VA-L40-525-T4	40		64	6187	2	0	2
VA-L64-525-T4	64		103	10093	3	0	2
VA-L80-525-T4	80	700	128	12374	3	0	3
VA-L120-525-T4	120		192	18420	4	0	3
VA-L16-700-T4	16		35	3107	1	0	1
VA-L32-700-T4	32		69	6214	2	0	2
VA-L40-700-T4	40	87	7618	2	0	2	
VA-L64-700-T4	64	139	12428	3	0	3	
VA-L80-700-T4	80	173	15236	3	0	3	
VA-L120-700-T4	120	260	22680	4	0	3	

#### Notes

- All lamps are configured to 4500K, 5000K, 5000K, 6000K available on request. Consult with your agent for lead times.
- BLC Back light control is an optional extra. Please add this code next to the end of the model number.
- The adjustable knuckle bracket can be added to the fixture to make it rotate up to 130 degrees and can be used in conjunction with other splitters / tenons.
- External motion sensors are available. Consult your representative for more information.
- The 1050 mA model is available with up to 80 LEDs.
- Other body colors available upon request.
- Standard splitter is 2" x 2.4" OD Splitter with +/- 5 degree leveling adjustment.

Ember LED reserves the right to make changes at any time in order to supply the best product possible.

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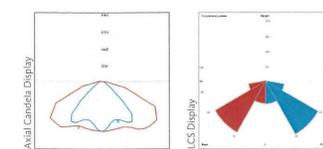
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Suite 39  
West Nyack, NY 10994

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## Step 2 (continued)

### Photometric Diagrams

See complete photometric reports and download .ies files [here](#).

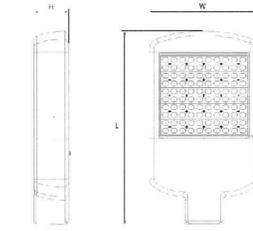


### Temperature Multipliers

Ambient Temperature	Lumen Multipliers
0°C	1.05
10°C	1.03
20°C	1.01
25°C	1.00
30°C	0.99
40°C	0.97

### Dimensions

Model No.	Length (in)	Width (in)	Height (in)	Weight (lb)	EPA
VA-L16-525/700	20.98	14.96	4.80	28.86	0.9
VA-L32-525/700	27.13	14.96	4.80	31.08	0.9
VA-L40-525/700	20.98	14.96	4.80	31.08	1.1
VA-L64-525/700	31.22	14.96	4.80	35.52	1.1
VA-L80-525/700	27.13	14.96	4.80	31.08	1.2
VA-L120-525/700	27.13	14.96	4.80	31.08	1.1



### Features & Characteristics

- APPLICATIONS:** The vSHINE Area is ideal for commercial, industrial and residential site lighting applications, including parking lots, building areas, walkways, and minor roadways. The powerful lighting fixture offers powerful, low-maintenance nighttime illuminations.
- CONSTRUCTION:** Die-cast aluminum bottom and top sections are mechanically joined to the extruded heat sink section. Our unique construction allows for passive cooling and natural cleaning of the extruded heat sink, ensuring thermal control with reliable operation at 45-50°C high ambient conditions. Stainless steel fasteners and hinged base section allow access to electrical components for installation and maintenance. Tool-less access is standard for ease of entry into electrical chamber and driver.
- OPTICS:** vSHINE optics are precisely designed to shape the distribution, thereby maximizing efficiency through precise spacing. The vSHINE optics are engineered from Poly-methyl-acrylic-optical grade (PMMA) PC, which optimizes light transmission. The average transmittance in the visible spectrum is 400nm-700nm-90%. Meets global roadway standards and glare index.
- LEDs:** Manufactured with the Cree XLamp XP-G2 LED, the vSHINE Area is capable of up to 429 lumens per 143 lumens per watt when driven at 1.5 A. Calculated L70 value of 250,000 hours based on 40-80 testing, LM-79 data and LM-80 data. Flux Characteristics (Tj = 85 degrees Celsius).

- ELECTRICAL:** Valen Light Unique Solar LED Drive Engine offers up to 95% efficiency with a power factor of 0.99. Optional dimming and occupation sensor functions maximize energy efficiency and user control.
- FINISH:** Cast components and arm are finished in polyester powder coat paint for superior weather, wear, and fade protection. Standard colors are Black, RA, and custom color matches are available.
- WARRANTY:** Five year limited warranty on LEDs and driver. Ten year warranty on mold and extrusion.

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## Knox Document Cabinet

### High Security Key & Document Storage

Knox Document Cabinet securely stores facility access keys and vital emergency information. On site availability of hazardous material documents, key control, Aor plans and evacuation data can also be included.

The cabinet is constructed of 10 gauge plate steel and is UL listed against physical attack. It is available in either a 5" or 7" depth. This versatile, 100% welded cabinet stores documents, up to 231 keys, or a combination of keys and documents.

Several lock options are available including a single lock, a sub-mastered lock or dual lock that can be keyed to work with other Knox Rapid Entry devices.

The Knox Document Cabinet is ideal for on site availability of emergency information and master keys at high-rise buildings and large complexes. The cabinet meets government requirements for storage of SDSs (Safety Data Sheets), formerly knox as MSDS (Material Safety Data Sheets), pre Aor plans, Aor plans and building evacuation instructions.

#### Features and Benefits

- Immediate access to vital documents
- Secure building key storage
- Drill and attack resistant construction
- High security locking system
- Optional tamper alert
- Dual lock configuration



#### Ordering Specifications

In order to ensure procurement and delivery of the Document Cabinet, it is suggested that the following specification paragraph to be used:

Knox Document Cabinet, heavy-duty UL listed, surface mount with/without UL listed alarm tamper switches. 10 gauge plate steel housing, 100% welded. Door: 10 gauge steel with added 1/4" steel front guard plate, lock protecting hardplate, 1" security overlap, all welded deadbar protected full length hinge, 7-point latchbar interlock. Lock shall be UL listed. Lock shall have 1/8" stainless steel dust cover with tamper seal mounting capability.

Exterior Dimensions: 18" H x 14-1/2" W x 5" or 7" D.  
Lock: UL Listed. Double-action rotating tumblers and hardened steel pins, accessed by a bias cut key  
Finish: Light grey weather resistant TGIC polyester powder coat with zinc phosphate undercoat.  
P/N: 1900 Series Knox Cabinet, (mfr's cat. ID).  
Mfr's Name: KNOX COMPANY



## Knox Padlocks

### Fire/Law Enforcement Rapid Entry System

#### Exterior Padlock Features and Benefits

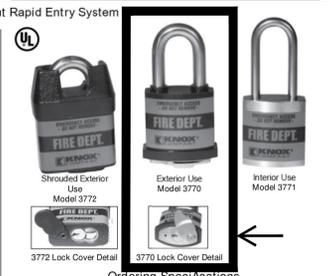
Knox Padlocks are operated with the same Knox Master Key used for other Knox Rapid Entry System devices. The exterior, heavy duty Knox Padlock (Model 3770) with a stainless steel shackle is designed for securing perimeter or Aor access gates, industrial equipment yards and residential storage areas. The shrouded all weather padlock (Model 3772) provides additional security against pry and cut attacks.

- Rust free, all-weather stainless steel shackle
- Heavy-duty lock design and solid brass body resists pull attacks
- Lock and body cover protects padlocks from harsh weather conditions and outdoor sprinkler systems
- Medeco® cylinder has a UL 437 rating not offered by most padlock manufacturers
- Choice of ID label (Fire/red, EMS/white, Police/blue, Sheri/gold, Security/white)

#### Interior Padlock Features and Benefits

The Knox interior padlock (Model 3771) is designed to secure Aor sprinkler control systems, hazardous chemical supplies, restricted utility areas and equipment lockers. The UL® listed padlock resists pull attacks.

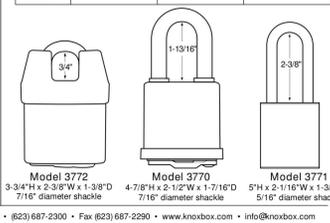
- Hardened steel shackle; 5/16" diameter shackle fits on a wider range of interior hasps
- Heavy-duty lock design and steel body resists pull attacks
- Medeco cylinder has a UL 437 rating not offered by most padlock manufacturers
- Choice of ID label (Fire/red, EMS/white, Police/blue, Sheri/gold, Security/white)



#### Ordering Specifications

To ensure procurement and delivery of the Knox® Exterior and Interior Padlocks, it is suggested that the following specification paragraph be used:

	SHROUDED EXTERIOR Model 3772	EXTERIOR Model 3770	INTERIOR Model 3771
Padlock:	Heavy-duty UL Listed cylinder.	Heavy-duty UL Listed cylinder.	Heavy-duty UL Listed cylinder.
Lock:	Double-action rotating tumblers and hardened steel pins accessed by a biased cut key.	Double-action rotating tumblers and hardened steel pins accessed by a biased cut key.	Double-action rotating tumblers and hardened steel pins accessed by a biased cut key.
Finish:	Solid brass body and cylinder with EPDM rubber seal and body cover, stainless steel shackle.	Solid brass body and cylinder with brass lock cover, EPDM body cover and stainless steel shackle.	Hardened steel body and shackle with a brass cylinder.
P/N:	Knox Padlock 3772	Knox Padlock 3770	Knox Padlock 3771
Mfr's Name:	KNOX COMPANY	KNOX COMPANY	KNOX COMPANY



Typical application showing the Knox padlock daisy chained with the property owner's padlock allowing entry by either party.

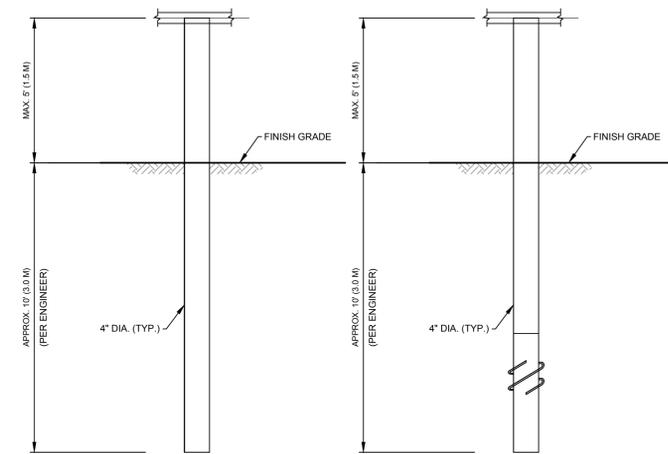
Knox® Rapid Entry System  
The Knox Company manufactures a complete line of high security products including KnoxBox key boxes, key vaults, cabinets, key switches, padlocks, locking FDC caps, plugs and electronic master key security systems. For more information or technical assistance, please call Customer Service at 1-800-552-5669.

Model 3772  
3-3/4" H x 2-3/8" W x 1-3/8" D  
7/16" diameter shackle

Model 3770  
4-7/8" H x 2-1/2" W x 1-7/16" D  
7/16" diameter shackle

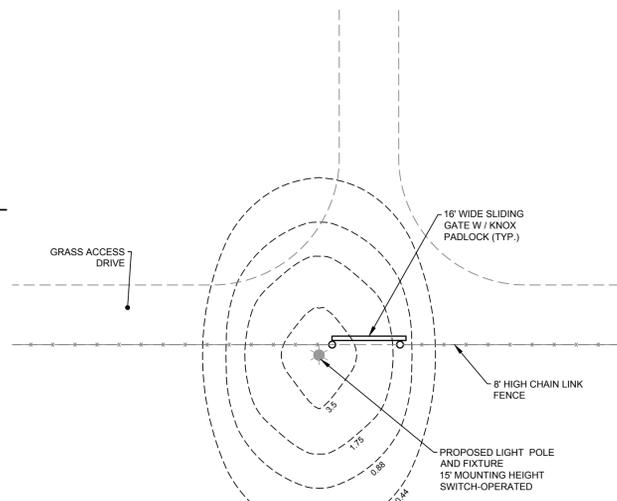
Model 3771  
5" H x 2-1/16" W x 1-3/16" D  
5/16" diameter shackle

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TYPICAL DRIVEN PIER FOUNDATION NOT TO SCALE

TYPICAL HELICAL PIER FOUNDATION NOT TO SCALE



TYPICAL LIGHTING AT ACCESS GATES SCALE: 1" = 20'

DATE: DECEMBER 17, 2021	SCALE: AS SHOWN	DESIGNED BY: I.L.H.	DRAWN BY: V.Z.	CHECKED BY: I.L.H.	JOB NO: 1808-FH	REVISIONS	AUTH: DATE
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IAN L. HILL, P.E., N.J. LIC. NO. CE46679

By: [Signature]

Consulting Civil Engineering  
Environmental Engineering  
Mechanical Engineering  
Professional Planning  
Landscape Architecture

N.J. LIC. CERT. NO. 24603123200

**Van Cleef**  
ENGINEERING ASSOCIATES

1138 ROUTE 34 NORTH, LEBANON, N.J. 08833  
EMAIL: VANCLEEF@GMAIL.COM WEB: WWW.VANCLEEF.COM  
PHONE: (908) 755-0304 FAX: (908) 755-0304

OFFICES THROUGHOUT NJ, EASTERN PA AND DE

SOLAR DETAILS FOR  
QUAKERTOWN SOLAR FARM II, LLC  
BLOCK 49, LOTS 15 AND 1501  
TOWNSHIP OF FRANKLIN  
HUNTERDON COUNTY, NEW JERSEY