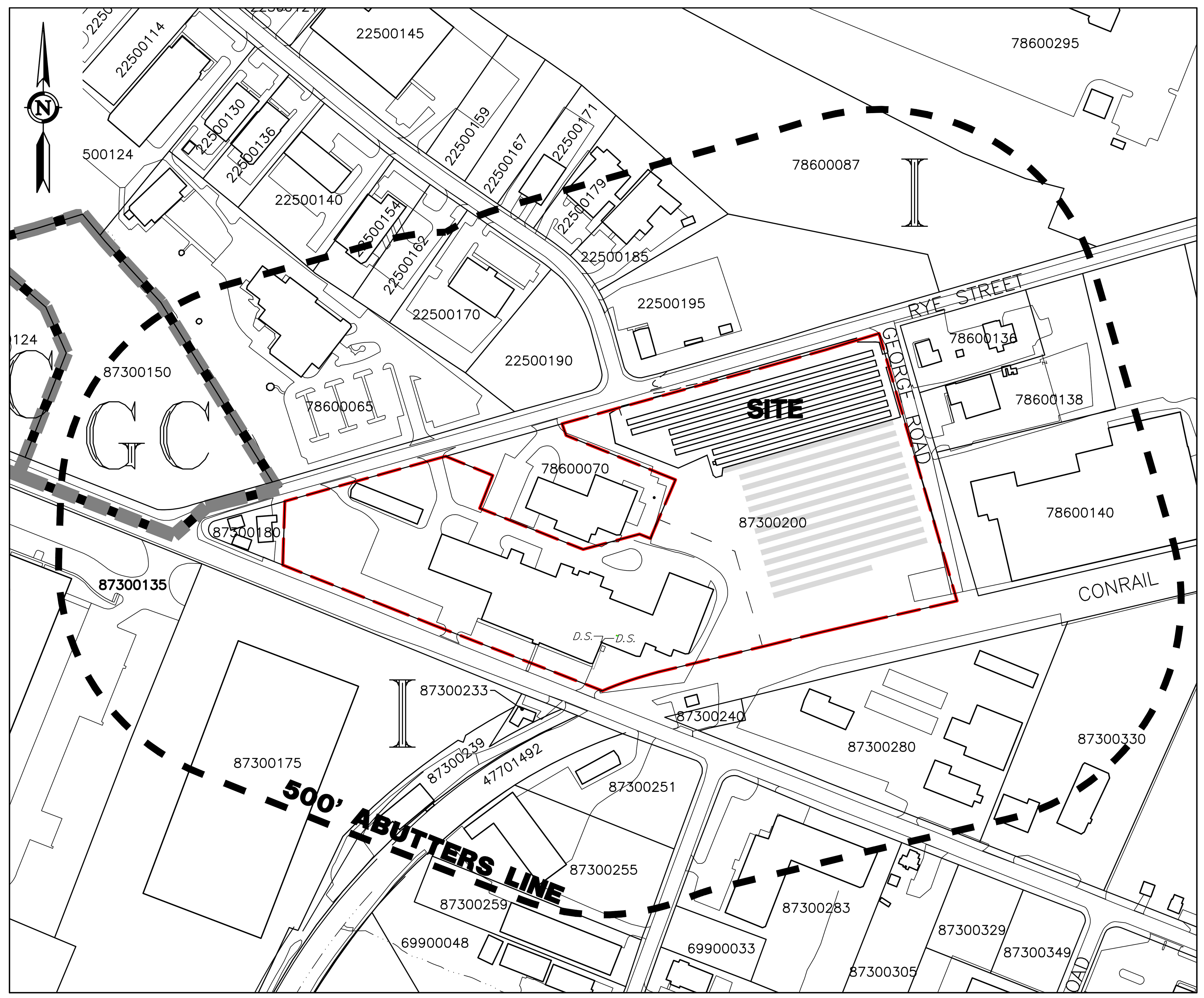
NUWAY TOBACCO CO.

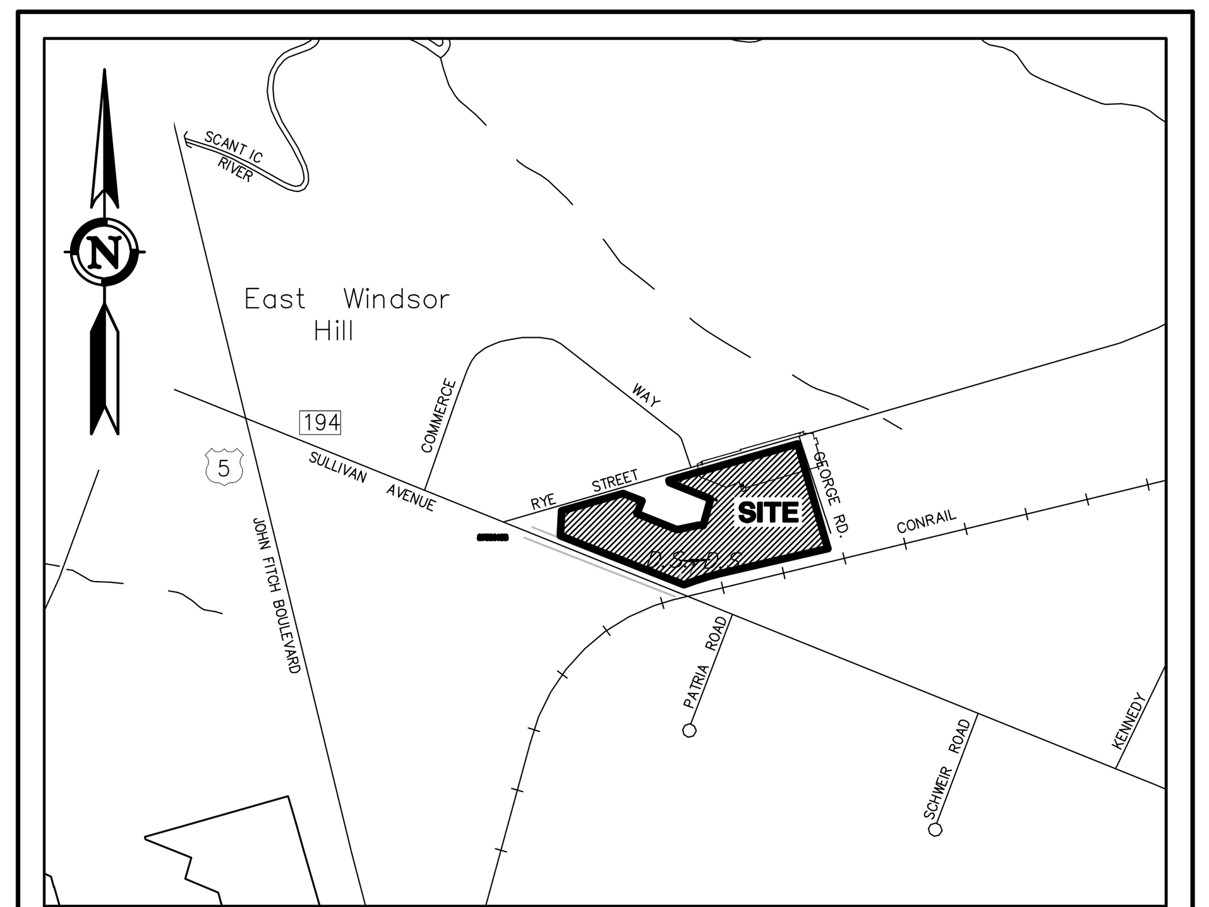
SOLAR FARM PHASE 2

200 SULLIVAN AVENUE ~ SOUTH WINDSOR ~ CONNECTICUT
MAP 121, LOT 41

N/F 500' ABUTTERS		
Parcel ID	Site Address	Owner Name
22500140	140 COMMERCE WAY	ZITO PROPERTIES LLC
22500154	154 COMMERCE WAY	GOLTECH LLC
22500162	162 COMMERCE WAY	GOLTECH LLC
22500170	170 COMMERCE WAY	MOUNTFORD INDUSTRIES LLC
22500171	171 COMMERCE WAY	REAL GROUP LLC THE
22500179	179 COMMERCE WAY	LUKASIK LLC
22500185	185 COMMERCE WAY	LUKASIK LLC
22500190	190 COMMERCE WAY	MOUNTFORD INDUSTRIES LLC
22500195	195 COMMERCE WAY	COMMERCE 195 LLC
47701492	1492 JOHN FITCH BLVD	SOUTH WINDSOR TOWN OF
69900048	48 PATRIA ROAD	ERS RE HOLDINGS LLC
78600065	65 RYE STREET	TOP OF THE NINTH LLC
78600070	70 RYE STREET	JE SHEPARD COMPANY THE
78600087	87 RYE STREET	CONN STATE OF
78600136	136 RYE STREET	136 RYE STREET LLC
78600138	138 RYE STREET	SHEPARD POLA INC
78600140	140 RYE STREET	SHEPARD POLA INC
78600295	295 RYE STREET	ALDI INC
87300135	135 SULLIVAN AVENUE	MOBIS PARTS AMERICA LLC
87300150	150 SULLIVAN AVENUE	150 SULLIVAN LLC
87300175	175 SULLIVAN AVENUE	PPF WE 175 SULLIVAN AVENUE LLC
87300180	180 SULLIVAN AVENUE	ZAMMX LLC
87300233	233 SULLIVAN AVENUE	OLIVIERI HOLDINGS LLC
87300239	239 SULLIVAN AVENUE	NEYCO LLC
87300240	240 SULLIVAN AVENUE	CONN LIGHT & POWER CO
87300251	251 SULLIVAN AVENUE	LAVEY ROBERT W & BARBARA E
87300255	255 SULLIVAN AVENUE	LAVEY ROBERT W & BARBARA E
87300259	259 SULLIVAN AVENUE	LAVEY ROBERT W & BARBARA E
87300280	280 SULLIVAN AVENUE	280 SULLIVAN AVENUE LLC
87300283	283 SULLIVAN AVENUE	DELLA N LLC/LEGACY VENTURES LLC
87300305	305 SULLIVAN AVENUE	WOLF HELMAR
87300330	330 SULLIVAN AVENUE	JKLN LLC



KEY MAP
SCALE: 1"=200'



LOCATION MAP
SCALE: 1"=1,000'

SHEET INDEX		
C-T1	TITLE	1 OF 3
C-SP1	SITE PLAN	2 OF 3
C-D1	NOTES, LEGEND, & DETAILS	3 OF 3
V-1 & V-2	IMPROVEMENT LOCATION SURVEY - RECORD	2 OF 2
	SOLBID PLAN SET	

ZONING TABLE

ZONE: I (INDUSTRIAL)

ITEM	REQUIRED/ ALLOWED	PROPOSED
LOT AREA	30,000 S.F.	15.144 ACRES
LOT FRONTAGE	100'	768'
LOT DEPTH	150'	890'
FRONT YARD	35'	8.60'*
SIDE YARD	10'	24.5'
REAR YARD	25'	N/A
BUILDING HEIGHT	40' / 2 STORIES	27'±
LOT COVERAGE	50%	13%
IMPERVIOUS COVERAGE	65%	42.7%

NOTES:
* EXISTING BUILDING IS NON-CONFORMING TO FRONT YARD SETBACK REQUIREMENTS ALONG RYE STREET

PROPERTY OWNERS:

200 SULLIVAN AVENUE, LLC
200 SULLIVAN AVENUE
SOUTH WINDSOR, CT 06074

APPLICANT:

NUWAY TOBACCO CO.
200 SULLIVAN AVENUE
SOUTH WINDSOR, CT 06074
860-289-6414

PRELIMINARY
NOT FOR CONSTRUCTION
THESE PLANS ARE FOR PLANNING PURPOSES ONLY INTENDED TO SECURE REGULATORY APPROVALS. ONLY FINAL PLANS STAMPED APPROVED BY THE TOWN SHALL BE USED FOR CONSTRUCTION PURPOSES.

GENERAL NOTES:

- THESE PLANS ARE INVALID UNLESS THEY BEAR THE SEAL OR STAMP, AND ORIGINAL SIGNATURE OF THE PROFESSIONAL ENGINEER, LAND SURVEYOR, OR LANDSCAPE ARCHITECT.
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CIVIL ENGINEER & LAND SURVEYOR:

design professionals INC
CIVIL & TRAFFIC ENGINEERS / PLANNERS / SURVEYORS
GIS ANALYSTS / LANDSCAPE ARCHITECTS

21 Jeffrey Drive
P.O. Box 1167
South Windsor, CT 06074

Phone: 860-291-8755
Fax: 860-291-8757
www.designprofessionalsinc.com

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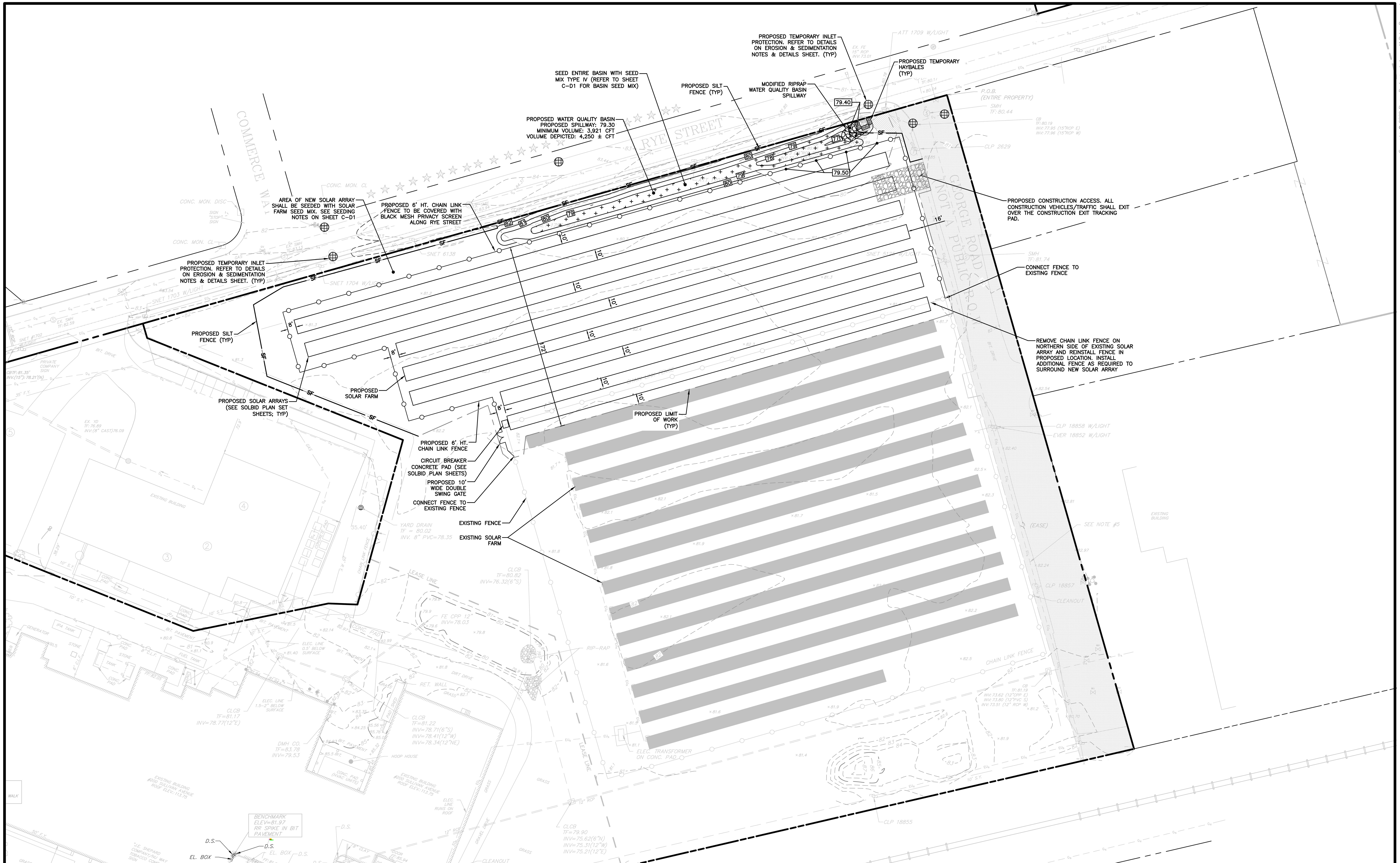
PREPARED FOR:
SolBid, Inc.
116 John Street, Suite #400
Lowell, MA 01852

NUWAY TOBACCO CO.
SOLAR FARM
200 SULLIVAN AVENUE
SOUTH WINDSOR, CONNECTICUT 06074

NO.	DATE	REVISIONS	BY
1	11/9/2022	TOWN COMMENTS	BKM

TITLE

SHEET
C-T1
SHEET 1 OF 3


PROPOSED TEMPORARY INLET PROTECTION. REFER TO DETAILS ON EROSION & SEDIMENTATION NOTES & DETAILS SHEET. (TYP)
PROPOSED TEMPORARY HAYBALES (TYP)
SEED ENTIRE BASIN WITH SEED MIX TYPE IV (REFER TO SHEET C-D1 FOR BASIN SEED MIX)
PROPOSED SILT FENCE (TYP)
MODIFIED RIPRAP WATER QUALITY BASIN SPILLWAY
PROPOSED WATER QUALITY BASIN
PROPOSED SPILLWAY: 79.30
MINIMUM VOLUME: 3,921 CFT
VOLUME DEPICTED: 4,250 ± CFT
79.40
79.50
RYE STREET
COMMERCE WAY
GEORGE ROAD NOT A PUBLIC R.O.W.
AREA OF NEW SOLAR ARRAY SHALL BE SEEDED WITH SOLAR FARM SEED MIX. SEE SEEDING NOTES ON SHEET C-D1
PROPOSED 6' HT. CHAIN LINK FENCE TO BE COVERED WITH BLACK MESH PRIVACY SCREEN ALONG RYE STREET
PROPOSED CONSTRUCTION ACCESS. ALL CONSTRUCTION VEHICLES/TRAFFIC SHALL EXIT OVER THE CONSTRUCTION EXIT TRACKING PAD.
CONNECT FENCE TO EXISTING FENCE
REMOVE CHAIN LINK FENCE ON NORTHERN SIDE OF EXISTING SOLAR ARRAY AND REINSTALL FENCE IN PROPOSED LOCATION. INSTALL ADDITIONAL FENCE AS REQUIRED TO SURROUND NEW SOLAR ARRAY
PROPOSED TEMPORARY INLET PROTECTION. REFER TO DETAILS ON EROSION & SEDIMENTATION NOTES & DETAILS SHEET. (TYP)
PROPOSED SILT FENCE (TYP)
PROPOSED SOLAR FARM
PROPOSED SOLAR ARRAYS (SEE SOLBID PLAN SET SHEETS; TYP)
PROPOSED LIMIT OF WORK (TYP)
PROPOSED 6' HT. CHAIN LINK FENCE
CIRCUIT BREAKER CONCRETE PAD (SEE SOLBID PLAN SHEETS)
PROPOSED 10' WIDE DOUBLE SWING GATE
CONNECT FENCE TO EXISTING FENCE
EXISTING FENCE
EXISTING SOLAR FARM
EXISTING BUILDING
BENCHMARK ELEV=81.97 RR SPIKE IN BIT PAVEMENT
D.S.
EL. BOX
CONC. PAD
CHAIN LINK FENCE
ELEC. TRANSFORMER ON CONC. PAD
LEASE LINE
CLP 18855
CLP 18857
SEE NOTE #5

PROPERTY OWNER:
200 SULLIVAN AVENUE, LLC
200 SULLIVAN AVENUE
SOUTH WINDSOR, CT 06074

APPLICANT:
NUWAY TOBACCO CO.
200 SULLIVAN AVENUE
SOUTH WINDSOR, CT 06074
860-289-6414

REFERENCES:
THIS PLAN REFERS TO THE FOLLOWING:
1. PLAN ENTITLED "IMPROVEMENT LOCATION SURVEY – RECORD, 200 SULLIVAN AVENUE, LLC STREET, 200 SULLIVAN AVENUE, SOUTH WINDSOR, CONNECTICUT" DATED 9/26/2022 PREPARED BY DESIGN PROFESSIONALS, INC.

GRADING PLAN NOTES:
1. 'CALL BEFORE YOU DIG' – CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF PENDING EXCAVATION BY CALLING 811 AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING EXCAVATION.
2. ALL PROPOSED PAVEMENT SPOT ELEVATIONS INDICATE TOP OF PAVEMENT. TOP OF CURB ELEVATIONS SHALL BE SIX INCHES ABOVE THE ADJACENT PAVEMENT ELEVATION UNLESS NOTED OTHERWISE.
3. THIS PLAN SHALL BE USED FOR GRADING & DRAINAGE PURPOSES ONLY
4. REFER TO NOTES SHEET FOR GRADING & DRAINAGE NOTES

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Design Professionals INC
CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS
PLANNERS / LANDSCAPE ARCHITECTS
21 JEFFREY DRIVE
P.O. BOX 1167
SOUTH WINDSOR, CT 06074
860-291-8755 – T
860-291-8757 – F
www.designprofessionalsinc.com

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PREPARED FOR:
SolBid, Inc.
116 John Street, Suite #400
Lowell, MA 01852

PROJECT NO.: 2829.S
DATE: 10/03/22
DESIGN BY: DHJ
DRAWN BY: GMM/DHJ
CHECKED BY: SPC/DHJ

NUWAY TOBACCO CO. SOLAR FARM
200 SULLIVAN AVENUE
SOUTH WINDSOR, CONNECTICUT 06074

REVISIONS

NO.	DATE	REVISIONS	BY
1	11/9/2022	TOWN COMMENTS	BKM

SITE PLAN
SCALE: 1" = 40'
0 20' 40' 80'

SHEET
C-SP1
SHEET 2 OF 3

File: C:\jobs\2829\2829.S\Engineering\AutoCAD\2829 Site Plan.dwg Layout: 02 C-SP1 – SITE PLAN Plotted: 11/9/2022 10:48 AM Last Saved: 11/9/2022 4:51 PM Last Saved By: BernieMurillo

CONSTRUCTION NOTES:

1. At least two full business days prior to starting any site activity or demolition, the contractor shall contact the applicable state utility location service by dialing 811 or submitting an online ticket request. The utilities shall be marked in all areas of proposed disturbance.

2. It is the contractor's responsibility to review all construction contract documents associated with the project scope of work, including, but not limited to, all drawings and specifications, architectural plans, boundary and topographic survey, wetlands assessment and reports, geotechnical reports, environmental reports, and approval conditions, prior to the commencement of construction. Should the contractor find conflict and/or discrepancy between the documents relative to the plans, specifications, reports, or the relative or applicable codes, regulations, laws, rules, statutes and/or ordinances, it is the contractor's sole responsibility to notify the Engineer, in writing, of said conflict and/or discrepancy prior to the start of construction.

3. The contractor shall be responsible for adhering to any conditions of approval placed on the project by the authorities having jurisdiction.

4. The contractor must comply, to the fullest extent, with the latest Occupational Health and Safety (OSHA) standards and regulations, and/or any other agency with jurisdiction for construction activities. The contractor is solely responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with work on the Project. The Engineer will not be responsible for the contractor's safety, schedules, or failure to carry out its work in accordance with the contract documents. The Engineer will not have control over or charge of acts or omissions of the contractor, subcontractors, or their agents or employees, or of any persons performing portions of work on the Project.

5. Contractor must notify the Engineer in writing if there are any questions concerning the accuracy or intent of these plans or related specifications. If such notification is given, no demolition or site activity may begin until such time that the Engineer provides a written response to same.

6. Contractor shall adhere to and is responsible for compliance with all details, notes, plans and specifications contained herein. It is the responsibility of the contractor to ensure that all work performed by their subcontractors is in full compliance with these requirements.

7. The contractor shall confirm that they are in receipt of the current version of the referenced documents prior to the commencement of any work.

8. Prior to commencing work, the contractor shall review and correlate all consultants plans and specifications including the entire site plan and the latest architectural plans (including, but not limited to, structural, mechanical, electrical, plumbing, and fire suppression plans, where applicable), in particular for building utility connection locations, grease trap requirements/details, door access, and exterior grading. Contractor must immediately notify the Architect and the Engineer, in writing, of any conflicts, discrepancies or ambiguities which exist, and receive a written resolution prior to commencing construction.

9. Prior to commencing work, contractor is required to secure all necessary and/or required permits and approvals for the construction of the project, including, but not limited to, demolition work, and all off site material sources and disposal facilities. Copies of all permits and approvals shall be maintained on site throughout the duration of the project. The contractor shall thoroughly review and understand all permits and permit conditions prior to fabrication of any materials or products to be used as part of the project.

10. The contractor is responsible for independently verifying all existing onsite utilities within and adjacent to the limits of the project activities. Underground utility, structure and facility locations depicted and noted on the plans have been compiled, in part, from record mapping supplied by the respective utility companies or governmental agencies, from parol testimony, and from other sources. These locations must be considered as approximate in nature. Additionally, other such features may exist on the site, the existence of which are unknown to the Engineer.

11. The contractor is responsible for ensuring the installation of all improvements comply with all requirements of utility companies with jurisdiction and/or control of the site.

12. Locations of all existing and proposed services are approximate. Final utility service sizes and locations, including, but not limited to, the relocation and/or installation of utility poles, or the relocation and/or installation of transformers, are at the sole discretion of the respective utility companies.

13. Prior to commencement of any work, the contractor shall independently coordinate and confirm with the appropriate utility companies to finalize all utility services and/or relocations to ensure no conflict with the design plans and that proper depths can be achieved. All discrepancies must immediately be reported to the Engineer in writing. Should a conflict arise due to the final designs of the utility company, the contractor shall notify the Engineer in writing and await a written resolution prior to proceeding with further utility installations.

14. Prior to commencing construction, the contractor shall field verify all existing conditions, topographic information, utility invert elevations, and proposed layout dimensions, and must immediately notify the Engineer in writing if actual site conditions differ or are in conflict with the proposed work. No extra compensation will be paid to the contractor for work which has to be redone or repaired due to dimensions or grades shown incorrectly on these plans unless the contractor receives written permission from Owner/developer giving authorization to proceed with such additional work.

15. Where utilities are proposed to cross/traverse existing underground utilities, the elevations of the existing utilities shall be verified in the field prior to construction by excavating a test pit at the proposed utility crossing point. Should the field verified existing utility be in conflict with the proposed site designs, the contractor shall notify the Engineer in writing and shall not proceed with said utility construction until further direction is given from the Engineer.

16. At least 72 hours prior to starting any site activity or demolition, the contractor shall notify, at a minimum, the building official, municipal engineer, department of public works, planning and zoning commission, the Engineer, and local inland wetland commission, as applicable. The contractor shall also attend a pre-construction meeting with the local municipality, if required, prior to commencing any site activity or demolition.

17. Prior to starting any site activity or demolition, the contractor shall implement the soil erosion and sediment control measures as noted on the plans. Refer to the Erosion and Sedimentation Control Notes.

18. The demolition plan or existing features designated to be removed are intended to provide only general information regarding items to be demolished and/or removed. The contractor shall review all site plans (and architectural drawings as applicable) to assure that all demolition activities and incidental work necessary for the construction of the new site improvements are completed.

19. The contractor shall protect and maintain the operation and service of all active utilities and systems that are not being removed during all construction activities. Should a temporary interruption of utility services be required as part of the proposed construction activities, the contractor shall coordinate with appropriate utility companies and the affected end users to minimize impact and service interruption.

20. The contractor shall arrange for and coordinate with the appropriate utility companies for all services that require temporary or permanent termination for the project, whether shown on the site plans or not. Termination of utilities shall be performed in compliance with all local, state and/or federal regulations.

21. Contractor must prepare record drawings depicting the location of existing utilities that are capped, abandoned in place, or relocated and provide to the Owner and the Engineer of record.

22. Should hazardous material be discovered/encountered, which was not anticipated/addressed in the project plans and specifications, cease all work immediately and notify Owner and Engineer regarding the discovery of same. Do not continue work in the area until written instructions are received from an environmental professional.

23. The contractor is responsible for preventing movement, settlement, damage, or collapse of existing structures, and any other improvements that are to remain. If any existing structures that are to remain are damaged during construction, repairs shall be made using new product/materials resulting in a pre-damage condition, or better. Contractor is responsible for all repair costs. Contractor shall document all existing damage and to notify the Owner prior to the start of construction.

24. The use of explosives, if required, must comply with all local, state and federal regulations. The contractor shall obtain all permits that are required by the federal, state and local governments, and shall also responsible for all notification, inspection, monitoring or testing as may be required.

25. All debris from removal operations must be removed from the site at the time of excavation. Stockpiling of demolition debris will not be permitted. Debris shall not be burned or buried on site. All demolition materials to be disposed of, including, but not limited to, stumps, limbs, and brush, shall be done in accordance with all municipal, county, state, and federal laws and applicable codes. The contractor must maintain records of all disposal activities.

26. The contractor is responsible for repairing all damage to any existing utilities during construction, at its own expense.

27. All new utilities/services, including electric, telephone, cable tv, etc. are to be installed underground unless noted otherwise on the plans. The Contractor shall be responsible for installing all new utilities/services in accordance with the utility/service provider's written installation specifications and standards.

28. All earthwork activities must be performed in accordance with these plans and specifications and the recommendations set forth in the geotechnical report completed for this project. In the absence of a geotechnical report, all earthwork activities must comply with the standard state Department of Transportation (DOT) specifications (latest edition) and any amendments or revisions thereto. All earthwork activities must comply all applicable requirements, rules, statutes, laws, ordinances and codes for the jurisdictions where the work is being performed.

29. All materials and work shall conform to the state Department of Transportation standard specifications (latest edition, and any amendments or revisions thereto), unless otherwise specified in these plans.

30. The contractor is responsible for removing and replacing unsuitable materials with suitable materials. All excavated or filled areas must be properly compacted. Moisture content at time of placement must be submitted in a compaction report prepared by a qualified geotechnical engineer, licensed in the state where the work is performed, verifying that all filled areas and subgrade areas within the building pad area and areas to be paved have been compacted in accordance with these plans, specifications and the recommendations. Subbase material for building pads, sidewalks, curb, or asphalt must be free of organics and other unsuitable materials. Should subbase be deemed unsuitable by Owner/developer or Owner/developer's representative, subbase is to be removed and filled with suitable material and properly compacted at the contractor's expense. All fill, compaction, and backfill materials required for utility installation must be coordinated with the applicable utility company specifications. The Engineer shall have no liability or responsibility for or as related to fill, compaction, backfill, or the balancing of earthwork.

31. Pavement must be saw cut into straight lines and must extend to the full depth of the existing pavement, except for edge of butt joints.

32. The tops of existing manholes, inlet structures, and sanitary cleanout tops must be adjusted as necessary, to match proposed grades.

33. Where retaining walls (whether or not they meet the jurisdictional definition) are identified on plans, elevations identified herein are for the exposed portion of the wall. Wall footing/foundation elevations are not identified herein and are to be set/determined by the contractor based on final structural design shop drawings prepared by an appropriate professional licensed in the state where the construction occurs.

34. The contractor shall ensure that all work located in existing pavement be repaired in accordance with municipal, county and/or DOT details as applicable. Contractor is responsible to coordinate the permitting, inspection and approval of completed work with the agency having jurisdiction over the proposed work.

35. Where sump pumps are installed, all discharges must be connected to the storm sewer or discharged to an approved location.

36. Contractor shall maintain and control traffic on and offsite in conformance with the current Federal Highway Administration (FHWA) "Manual on Uniform Traffic Control Devices" (MUTCD), and the federal, state, and local regulations for all aspects of demolition and site work. If a Maintenance of Traffic Plan is required for work that affects public travel either on or offsite, the contractor shall be responsible for the cost and implementation of said plan.

37. All temporary and permanent onsite and offsite signage and pavement markings shall conform to MUTCD, ADA, state DOT, and/or local approval requirements.

38. Contractor shall prevent the emission of dust, sediment, and debris from the site, and shall be responsible for corrective measures such as street sweeping, and clean-up work as deemed necessary by the Engineer orthe authority having jurisdiction.

39. All concrete must be air entrained with a minimum compressive strength of 4,000 psi at 28 days unless otherwise specified on the plans, details and/or geotechnical report.

40. The Engineer will review contractor submittals which the contractor is required to submit, but only for the sole purpose of checking for general conformance with the intent of the design and contract documents. The Engineer is not responsible for any deviations from the construction documents unless contractor received explicit direction to do so, in writing, from the Engineer. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, and for techniques of assembly and/or fabrication processes.

41. All dimensions are to face of curb, edge of pavement, or edge of building, unless noted otherwise.

42. The contractor shall install and/or construct all aspects of the project in strict compliance with and accordance with manufacturer's written installation standards, recommendations and specifications.

CONSTRUCTION SEQUENCE:

1. STAKE-OUT THE LIMITS OF CLEARING AND GRUBBING, INCLUDING EXISTING CROP LAND TO BE AFFECTED BY ARRAY LIMITS. INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES AT LIMITS OF CLEARING AND GRUBBING. CONTRACTOR TO CONDUCT ALL CONSTRUCTION ACTIVITIES WITHIN LIMITS SHOWN ON PLAN.
2. OVERSEED EXISTING MOWED LAWN AREA TO ENHANCE ESTABLISHED VEGETATION. ESTABLISH NEW VEGETATION ON AREA OF REMOVED CROP LAND WITH BROADCAST SEEDING. SEE SEEDING NOTES FOR SEED MIX AND APPLICATION RATES.
3. INSTALL SOLAR ARRAY RACKING.
4. APPLY POLYPROPELENE TURF REINFORCEMENT MATTING, PER MANUFACTURER'S INSTRUCTIONS, UNDER THE DRIP LINE OF RACKING LOCATED WITHIN THE EXTENTS OF THE BROADCAST SEEDING AREA.
5. INSTALL REMAINDER OF PANELS AND ELECTRICAL LINES FOR SOLAR ARRAY.
6. RE-STABILIZE AREAS OF SEEDING DISTURBED BY ARRAY INSTALLATION.
7. MINOR ADJUSTMENTS TO THE EXCAVATION LIMITS MAY BE WARRANTED WITH APPROVAL OF LOCAL AUTHORITY HAVING JURISDICTION TO ALLOW FOR PRESERVATION OF EXISTING VEGETATION.
8. ALL EROSION CONTROL DEVICES SHALL REMAIN FUNCTIONAL AND IN PLACE THROUGHOUT THE CONSTRUCTION EFFORT UNTIL THE SITE IS FULLY STABILIZED WITH VEGETATION.

SEEDING NOTES:

1. SOLAR FARM SEED MIX (ERNMX-186) TO BE USED FOR FULL EXTENTS OF FENCING UNLESS OTHERWISE NOTED ON SITE PLAN:

CREEPING RED FESCUE	45.5% OF MIXTURE
HARD FESCUE, 'BEACON'	15.0% OF MIXTURE
HARD FESCUE, 'HARPOON'	15.0% OF MIXTURE
CHEWINGS FESCUE	10.0% OF MIXTURE
KENTUCKY BLUEGRASS, 'VOLT'	5.0% OF MIXTURE
KENTUCKY BLUEGRASS, 'SHAMROCK'	5.0% OF MIXTURE
WHITE CLOVER, DUTCH	4.5% OF MIXTURE

BROADCAST SEEDING APPLICATION RATE: 6.00LBS. PER 1000 S.F.
OVERSEEDING APPLICATION RATE: 3.00LBS. PER 1000 S.F.

2. SEEDING MIXTURE TYPE IV (BASIN)

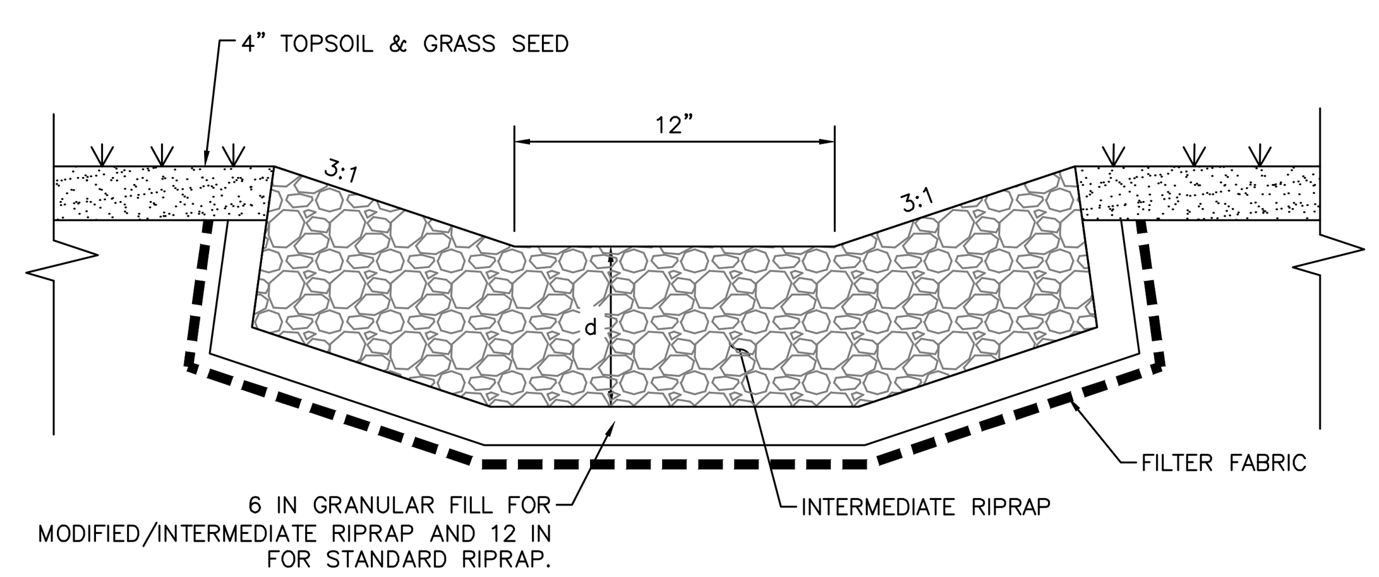
PERENNIAL RYEGRASS	10% OF MIXTURE
CREEPING RED FESCUE	10% OF MIXTURE
ALSIKE CLOVER	5% OF MIXTURE
RED TOP	5% OF MIXTURE
TURF-TYPE TALL FESCUE	70% OF MIXTURE

APPLICATION RATE: 5.00 LBS PER 1,000 S.F.

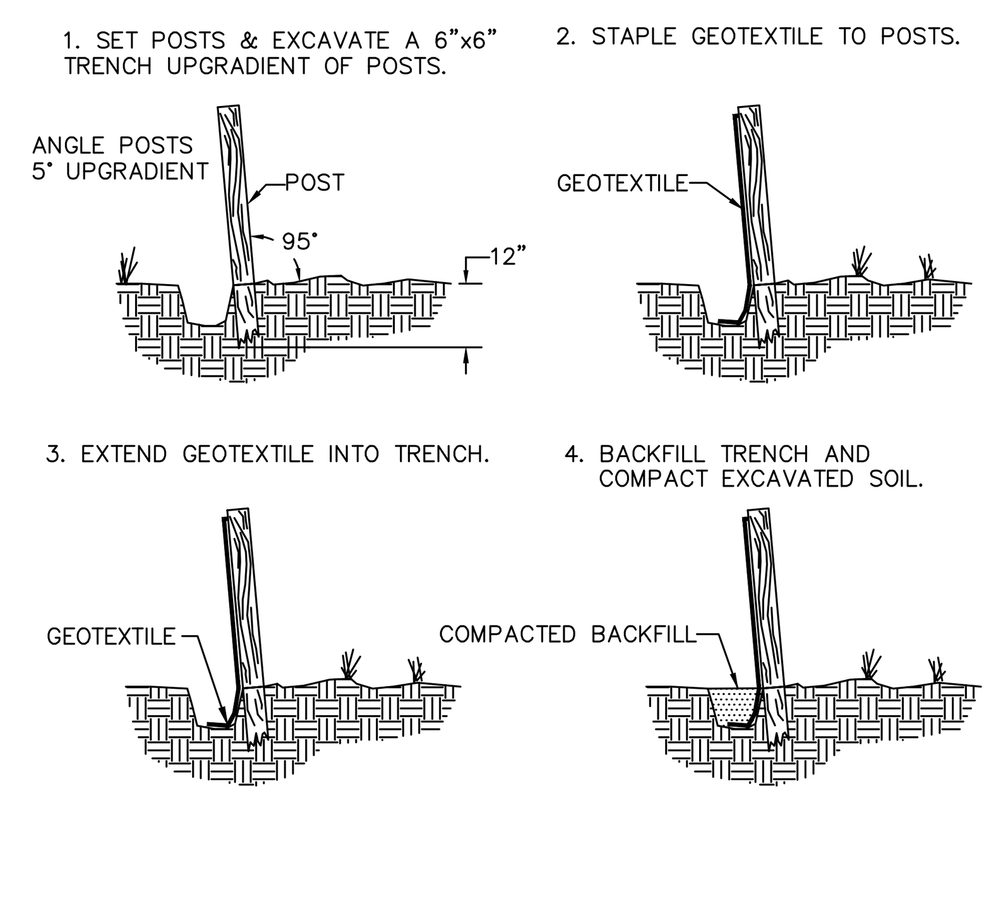
3. CONTRACTOR RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SEEDED AREAS UNTIL SATISFACTORY GROWTH AS DETERMINED BY THE OWNER. REPLANT BARE AND REPAIR ERODED AREAS UNTIL END OF MAINTENANCE PERIOD.

NOTES:

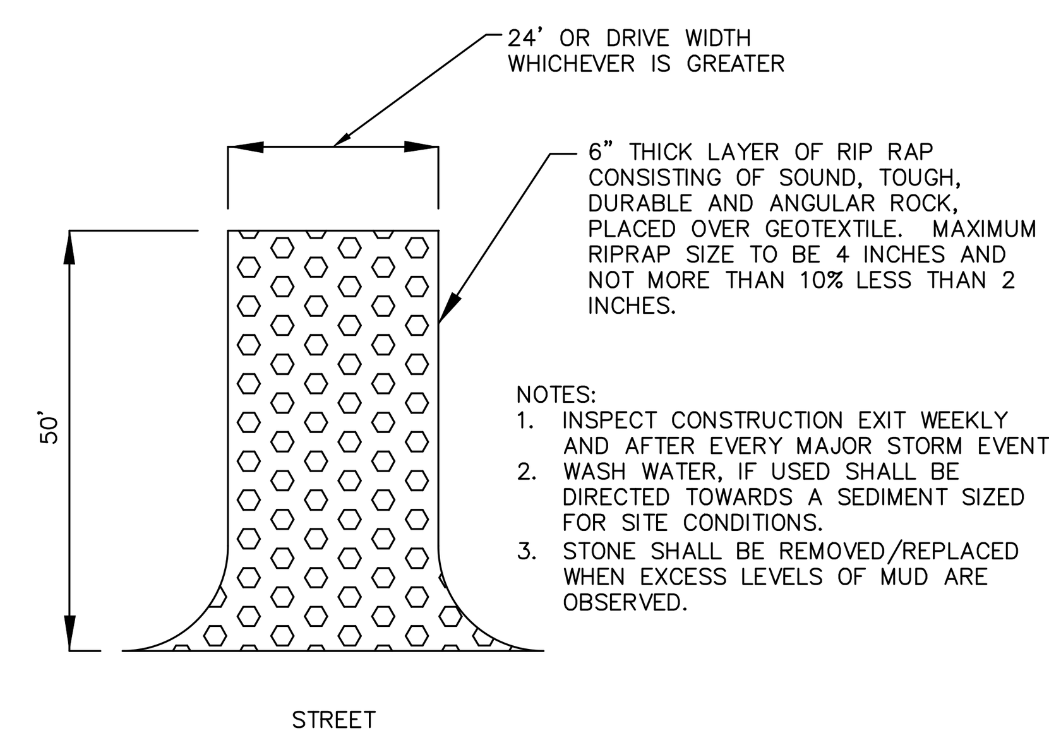
1) d = 12 IN (WHEN MODIFIED RIPRAP SPECIFIED)
18 IN (WHEN INTERMEDIATE RIPRAP SPECIFIED)
36 IN (WHEN STANDARD RIPRAP SPECIFIED)
2) RIPRAP GRADATIONS SHALL MEET CT DOT FORM 816 SECTION M.12.02
3) FILTER FABRIC SHALL BE NONWOVEN AND SHALL MEET AASHTO M288-00, CLASS 2



1 RIPRAP APRON SECTION VIEW
Not to Scale

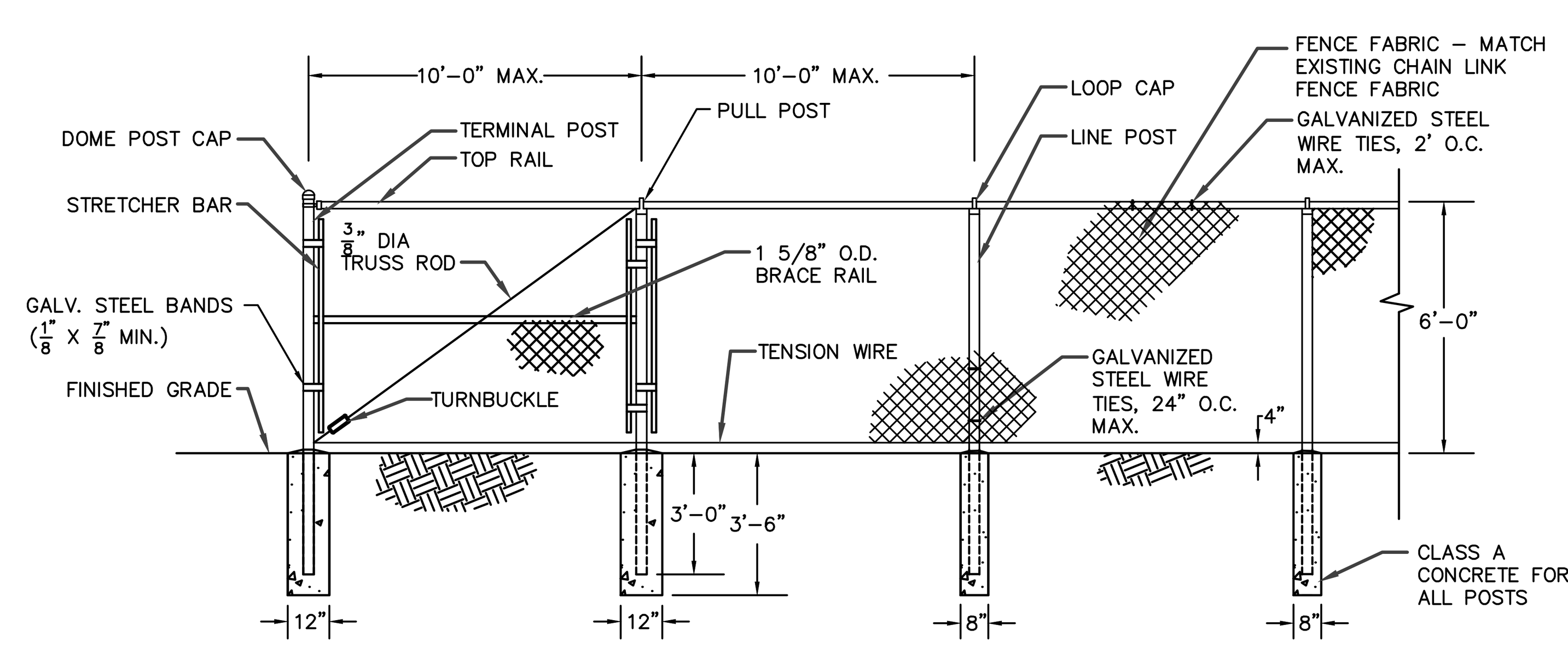


2 SILT FENCE
Not to Scale



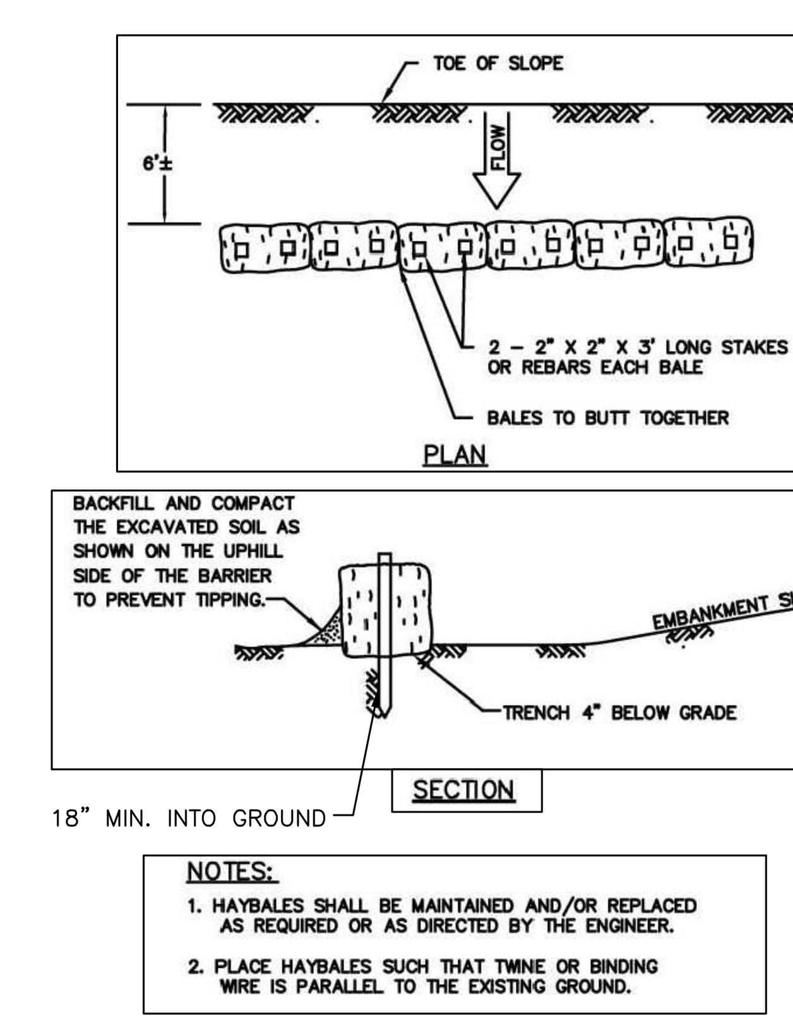
NOTES:
1. INSPECT CONSTRUCTION EXIT WEEKLY AND AFTER EVERY MAJOR STORM EVENT
2. WASH WATER, IF USED SHALL BE DIRECTED TOWARDS A SEDIMENT SIZED FOR SITE CONDITIONS.
3. STONE SHALL BE REMOVED/REPLACED WHEN EXCESS LEVELS OF MUD ARE OBSERVED.

3 CONSTRUCTION ENTRANCE
Not to Scale



NOTES
1. THE EXISTING FENCE SHALL BE REMOVED AND RELOCATED AS NOTED ON THE SITE PLAN. PROPOSED FENCE SHALL MATCH SIZE AND COMPONENTS OF THE EXISTING CHAIN LINK FENCE AROUND THE EXISTING SOLAR ARRAY. INSTALL ADDITIONAL FENCE AS NEEDED TO SURROUND ENTIRE SOLAR ARRAY.
2. BLACK MESH PRIVACY SCREEN SHALL BE INSTALLED ON FENCE ON THE NORTH SIDE AS NOTED ON THE SITE PLAN.

4 CHAIN LINK FENCE
Not to Scale



NOTES:
1. HAYBALES SHALL BE MAINTAINED AND/OR REPLACED AS REQUIRED OR AS DIRECTED BY THE ENGINEER.
2. PLACE HAYBALES SUCH THAT TWINE OR BINDING WIRE IS PARALLEL TO THE EXISTING GROUND.

5 STRAW BALES FOR EROSION CONTROL
Not to Scale

LEGEND

EXISTING	DESCRIPTION	PROPOSED
BORINGS		
TP	BORING / TEST PIT LOCATION	TP
COMMUNICATION		
— — — Cx — — — Cx —	UNDERGROUND COMMUNICATION LINES	—— C ——
DOMESTIC WATER		
— — — Wx — — — Wx —	WATER MAIN	—— W ——
—— — — WSx ——	WATER SERVICE	—— WS ——
— — — Fx — — — Fx —	FIRE SERVICE LINE	—— F ——
—— — — NPWx ——	NON-POTABLE WATER LINE	—— NPW ——
W W	WATER VALVE / FIXTURES	WV
	FIRE HYDRANT	
LIQUID FUEL		
—— — — LFx ——	MAIN LIQUID FUEL LINE	—— LF ——
—— — — LFSx ——	LIQUID FUEL SERVICE LINE	—— LFS ——
—— — — LFa ——	LIQUID FUEL LINE, ABANDONED	
IRRIGATION		
— — — Ix — — — Ix —	IRRIGATION LINES	—— I ——
LIGHTING		
/	POLE / GROUND MOUNTED LIGHT	/
NATURAL GAS		
— — — Gx — — — Gx —	GAS MAIN	—— G ——
—— — — GSx ——	GAS SERVICE LINE	—— GS ——
POWER		
—— EOx ——	ELECTRICAL LINES, OVERHEAD	—— EO ——
—— — — EUx ——	ELECTRICAL LINES, UNDERGROUND	—— EU ——
	UTILITY POLE	
PROPERTY		
	PROPERTY LINE	
	EASEMENT LINE	
	IRON PIPE	
	IRON ROD	
	MONUMENT	
ROADS		
	GUARD RAIL	
EROSION CONTROL		
	SILT FENCE	—— SF ——
SITE FEATURES		
	4" DOUBLE SOLID YELLOW LINE	DSYL
	4" SINGLE SOLID WHITE LINE	SSWL
	BIT. CONC. LIP CURB	BCLC
	PRECAST CONCRETE CURB	PCC
SANITARY SEWER		
— — — Sx — — — Sx —	SANITARY SEWER MAIN	—— S ——
— — — SSx — — — SSx —	SANITARY SEWER SERVICE LINE	—— SS ——
S	SANITARY SEWER MANHOLE	S
STORM SEWER		
	STORM DRAIN PIPE	
— — — RLx — — — RLx —	ROOF LEADER	—— RL ——
— — — UD — — — UD —	UNDERDRAIN	— — — UD — — — UD —
D	STORM DRAIN MANHOLE	D
	CURB INLET	
	CATCH BASIN	
	YARD DRAIN	
TOPOGRAPHY		
— — — — 95— — — —	CONTOUR	—— 95 ——
X61.95	SPOT ELEVATION	95
OTHER		
	RAMP	R
	LANDSCAPE AREA	LSA

PROPERTY OWNER:
200 SULLIVAN AVENUE, LLC
200 SULLIVAN AVENUE
SOUTH WINDSOR, CT 06074

APPLICANT:
NUWAY TOBACCO CO.
200 SULLIVAN AVENUE
SOUTH WINDSOR, CT 06074
860-289-6414

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Design Professionals INC
21 JEFFREY DRIVE
P.O. BOX 1167
SOUTH WINDSOR, CT 06074
860-291-8755 – T
860-291-8757 – F
www.designprofessionalsinc.com
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PREPARED FOR:
SolBid, Inc.
116 John Street, Suite #400
Lowell, MA 01852

PROJECT NO.: 2829.S
DATE: 10/03/22
DESIGN BY: DHI
DRAWN BY: GMM/DHI
CHECKED BY: SPC/DHI

NUWAY TOBACCO CO.
SOLAR FARM
200 SULLIVAN AVENUE
SOUTH WINDSOR, CONNECTICUT 06074

REVISIONS

NO.	DATE		BY
1	11/9/2022	TOWN COMMENTS	BKM

NOTES, LEGEND, & DETAILS

SHEET
C-D1
SHEET 3 OF 3

File: C:\jobs\2829\2829S\Engineering\AutoCAD\2829S Details.dwg Layout: 03 C-D1 Plotted: 11/9/2022 10:49 AM Last Saved: 11/9/2022 4:08 PM Last Saved By: BernieMurillo

ZONING TABLE

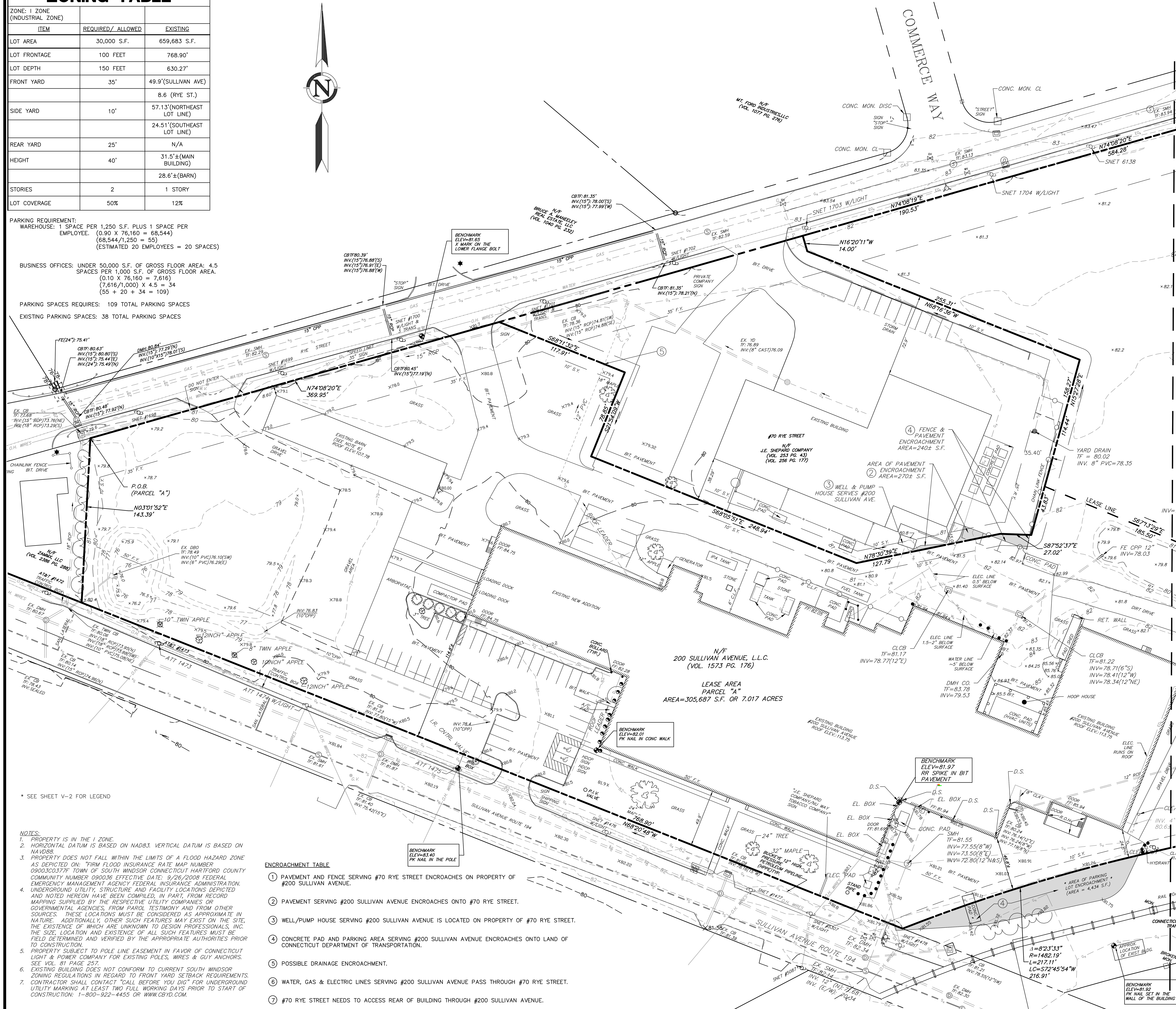
ZONE: I ZONE (INDUSTRIAL ZONE)		
ITEM	REQUIRED/ ALLOWED	EXISTING
LOT AREA	30,000 S.F.	659,683 S.F.
LOT FRONTAGE	100 FEET	768.90'
LOT DEPTH	150 FEET	630.27'
FRONT YARD	35'	49.9'(SULLIVAN AVE)
		8.6 (RYE ST.)
SIDE YARD	10'	57.13'(NORTHEAST LOT LINE)
		24.51'(SOUTHEAST LOT LINE)
REAR YARD	25'	N/A
HEIGHT	40'	31.5'±(MAIN BUILDING)
		28.6'±(BARN)
STORIES	2	1 STORY
LOT COVERAGE	50%	12%

PARKING REQUIREMENT:
WAREHOUSE: 1 SPACE PER 1,250 S.F. PLUS 1 SPACE PER EMPLOYEE. (0.90 X 76,160 = 68,544)
(68,544/1,250 = 55)
(ESTIMATED 20 EMPLOYEES = 20 SPACES)

BUSINESS OFFICES: UNDER 50,000 S.F. OF GROSS FLOOR AREA: 4.5 SPACES PER 1,000 S.F. OF GROSS FLOOR AREA.
(0.10 X 76,160 = 7,616)
(7,616/1,000) X 4.5 = 34
(55 + 20 + 34 = 109)

PARKING SPACES REQUIRES: 109 TOTAL PARKING SPACES

EXISTING PARKING SPACES: 38 TOTAL PARKING SPACES



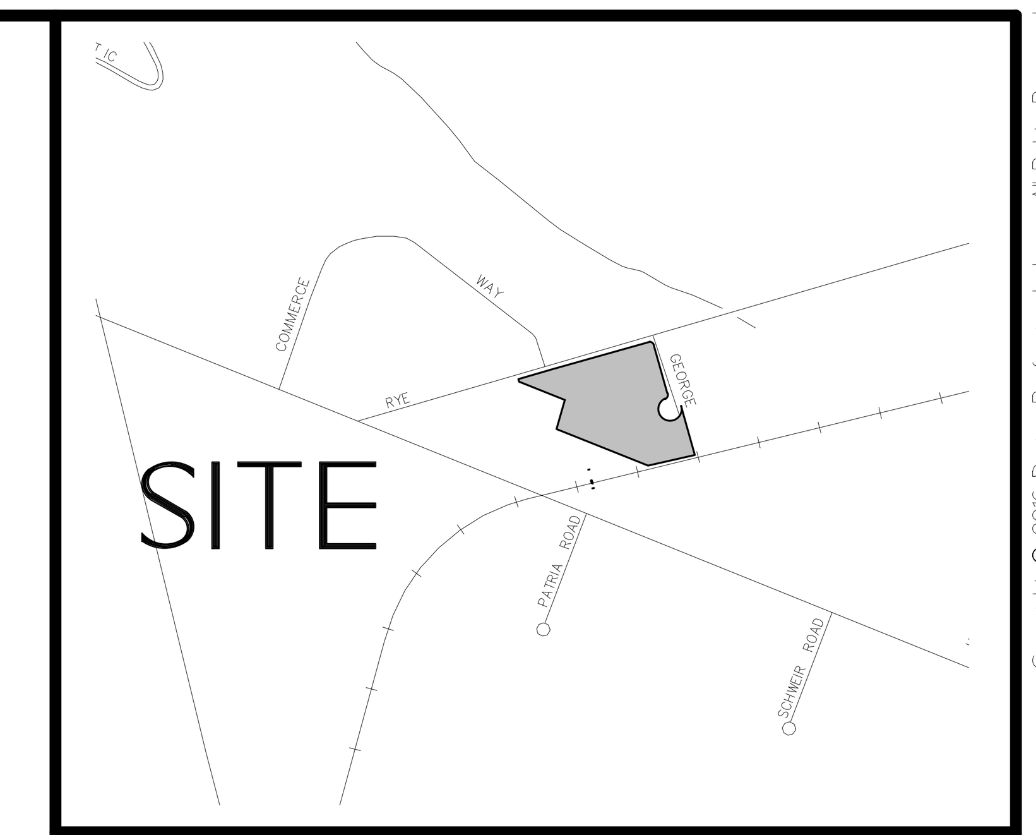
* SEE SHEET V-2 FOR LEGEND

NOTES:

1. PROPERTY IS IN THE I ZONE.
2. HORIZONTAL DATUM IS BASED ON NAD83. VERTICAL DATUM IS BASED ON NAVD88.
3. PROPERTY DOES NOT FALL WITHIN THE LIMITS OF A FLOOD HAZARD ZONE AS DEPICTED ON: "FIRM FLOOD INSURANCE RATE MAP NUMBER 09003C0377F TOWN OF SOUTH WINDSOR CONNECTICUT HARTFORD COUNTY COMMUNITY NUMBER 090036 EFFECTIVE DATE: 9/26/2008 FEDERAL EMERGENCY MANAGEMENT AGENCY FEDERAL INSURANCE ADMINISTRATION.
4. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROL TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO DESIGN PROFESSIONALS, INC. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION.
5. PROPERTY SUBJECT TO POLE LINE EASEMENT IN FAVOR OF CONNECTICUT LIGHT & POWER COMPANY FOR EXISTING POLES, WIRES & GUY ANCHORS. SEE VOL. 81 PAGE 257.
6. EXISTING BUILDING DOES NOT CONFORM TO CURRENT SOUTH WINDSOR ZONING REGULATIONS IN REGARD TO FRONT YARD SETBACK REQUIREMENTS.
7. CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" FOR UNDERGROUND UTILITY MARKING AT LEAST TWO FULL WORKING DAYS PRIOR TO START OF CONSTRUCTION: 1-800-922-4455 OR WWW.CBYD.COM.

ENCROACHMENT TABLE

1. PAVEMENT AND FENCE SERVING #70 RYE STREET ENCROACHES ON PROPERTY OF #200 SULLIVAN AVENUE.
2. PAVEMENT SERVING #200 SULLIVAN AVENUE ENCROACHES ONTO #70 RYE STREET.
3. WELL/PUMP HOUSE SERVING #200 SULLIVAN AVENUE IS LOCATED ON PROPERTY OF #70 RYE STREET.
4. CONCRETE PAD AND PARKING AREA SERVING #200 SULLIVAN AVENUE ENCROACHES ONTO LAND OF CONNECTICUT DEPARTMENT OF TRANSPORTATION.
5. POSSIBLE DRAINAGE ENCROACHMENT.
6. WATER, GAS & ELECTRIC LINES SERVING #200 SULLIVAN AVENUE PASS THROUGH #70 RYE STREET.
7. #70 RYE STREET NEEDS TO ACCESS REAR OF BUILDING THROUGH #200 SULLIVAN AVENUE.



LOCATION PLAN
1"=1000'

MAP REFERENCES:

1. IMPROVEMENT LOCATION SURVEY-RECORD PREPARED FOR: 200 SULLIVAN AVENUE, LLC 200 SULLIVAN AVENUE SOUTH WINDSOR, CONNECTICUT SHEET 2 OF 6 DATE: 9/16/09 REVISED TO 01/07/2019 BY DESIGN PROFESSIONALS, INC.

SURVEY NOTES:

1. THIS SURVEY AND MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THRU 20-300b-20 AND THE "MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996 AND REVISED ON OCTOBER 26, 2018.
   - TYPE OF SURVEY IS A PROPERTY SURVEY AND IS INTENDED TO DEPICT THE LOCATION OF EXISTING CONDITIONS RELATIVE TO PROPERTY LINES.
   - THIS IS A RESURVEY BASED ON MAPS REFERENCED HEREON.
   - HORIZONTAL ACCURACY MEETS CLASS A-2 STANDARDS. VERTICAL ACCURACY MEETS CLASS V-2 STANDARDS.

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

LAWRENCE R. GEISSLER, JR., L.S. — 12327 LIC. NO.

design professionals INC
CIVIL & TRAFFIC ENGINEERS / PLANNERS / SURVEYORS
GIS ANALYSTS / LANDSCAPE ARCHITECTS
21 JEFFREY DRIVE
P.O. BOX 1167
SOUTH WINDSOR, CT 06074
860-291-8755 - T
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www.designprofessionalsinc.com

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PREPARED FOR:
Dufort Holdings, LLC
c/o Scott Whittaker
Stone Pigman Walther Wittmann, llc
909 Poydras Street, Suite 3150
New Orleans, LA 70112

PROJECT NO:	2829
DATE:	11/4/21
DESIGN BY:	---
DRAWN BY:	MHA
CHECKED BY:	LRG

200 SULLIVAN AVENUE, LLC
200 SULLIVAN AVENUE
SOUTH WINDSOR, CONNECTICUT

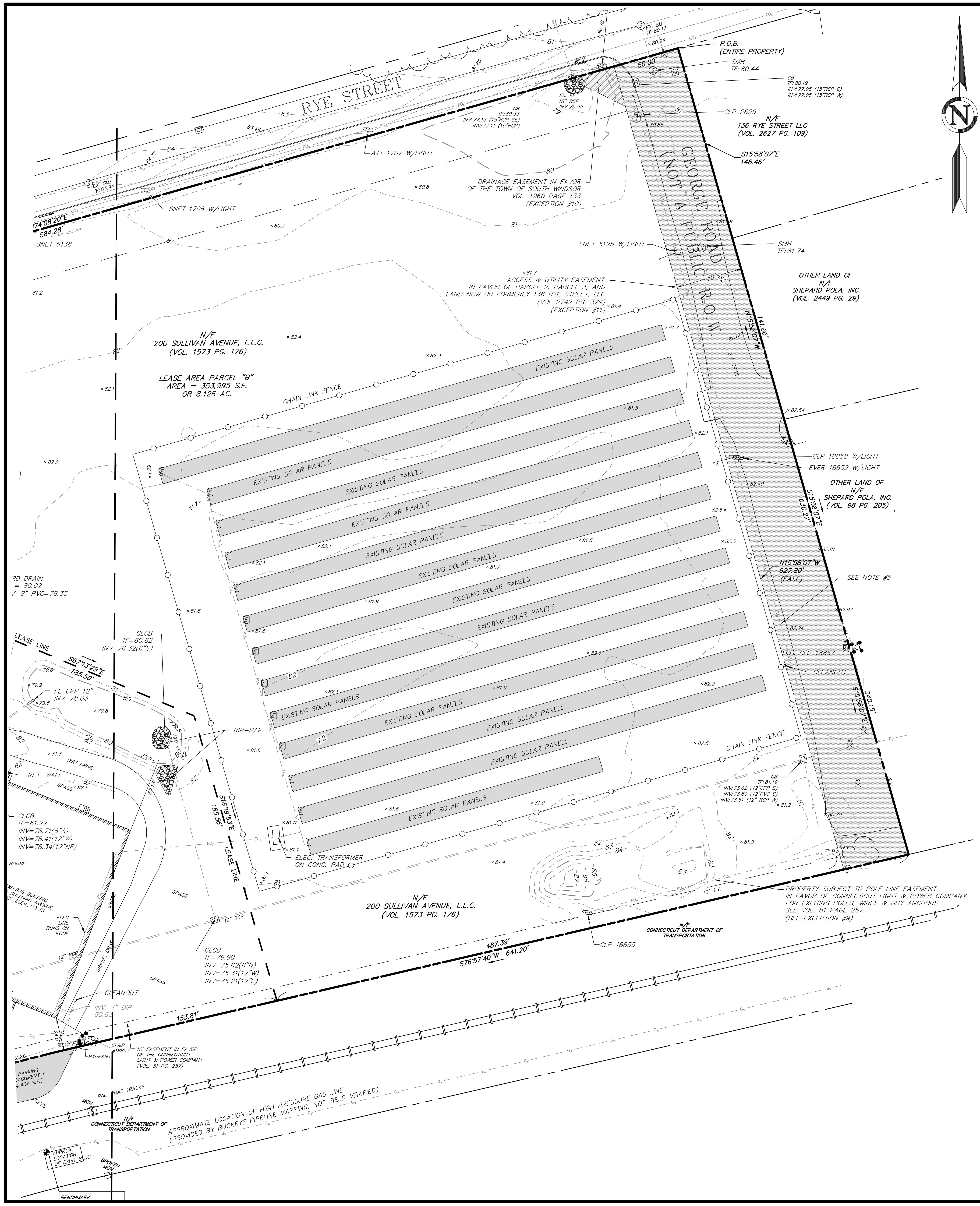
REVISIONS

NO.	DATE	REVISIONS	BY
1	9/26/22	UPDATE MAPPING LIMITS	LRG
2	10/12/22	UPDATE UTILITIES	SK

IMPROVEMENT LOCATION SURVEY-RECORD

SCALE: 1" = 40' (0 20' 40' 80')

SHEET V-1

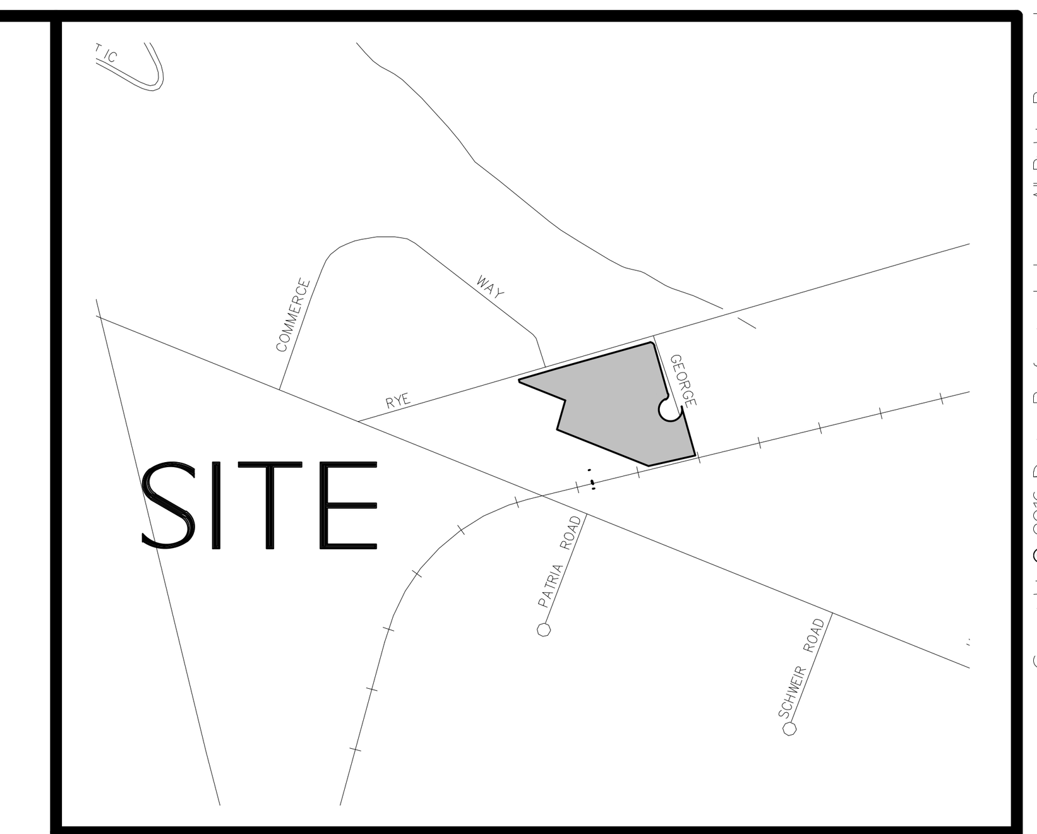


LEGEND

EXISTING	DESCRIPTION
COMMUNICATION	
	OVERHEAD COMM. LINES (CABLE, TEL, ETC.)
	UNDERGROUND COMMUNICATION LINES
DOMESTIC WATER	
	WATER MAIN
	WATER SERVICE
	WATER VALVE
	FIRE HYDRANT
LIGHTING	
	POLE MOUNTED LIGHT
NATURAL GAS	
	GAS MAIN
	GAS SERVICE LINE
POWER	
	ELECTRICAL LINES, OVERHEAD
	ELECTRICAL LINES, UNDERGROUND
	UTILITY POLE
PROPERTY	
	PROPERTY LINE
	EASEMENT LINE
	IRON PIPE
	IRON ROD
	MONUMENT
ROADS	
	GUARD RAIL
OR	SIGN
SITE FEATURES	
	EDGE OF WATER
	BARBED WIRE FENCE
	CHAIN LINK FENCE
	RAIL FENCE
	STOCKADE FENCE
	WIRE FENCE
	STONE WALL
OR	TREE
	TREE LINE
SANITARY SEWER	
	SANITARY SEWER MAIN
	SANITARY SEWER SERVICE LINE
	SANITARY SEWER MANHOLE
STORM SEWER	
	STORM DRAIN PIPE
	STORM DRAIN MANHOLE
	CURB INLET
	CATCH BASIN
TOPOGRAPHY	
95	CONTOUR
X61.95	SPOT ELEVATION

ABBREVIATIONS

RCP	REINFORCED CONCRETE PIPE
EX. CLCB OR CLCB	CURBLESS CATCH BASIN
EX. CB OR CB	EXISTING CURBED CATCH BASIN
EX. DMH OR DMH	EXISTING DRAINAGE MANHOLE
FE	FLARED END
CPP	CORRUGATED PLASTIC PIPE
DIP	DUCTILE IRON PIPE
EX. SMH OR SMH	SANITARY MANHOLE
TF	TOP OF FRAME
INV	INVERT
O.H.	OVER HEAD
S.Y.	SIDE YARD
R.Y.	REAR YARD
F.Y.	FRONT YARD
SNET	SOUTHERN NEW ENGLAND TELEPHONE
CL&P	CONNECTICUT LIGHT & POWER
EVER	EVERSOURCE
FF	FINISHED FLOOR
CO	CLEAN OUT
ATT	AT&T TELEPHONE
R.O.H.	ROOF OVER HANG
MON.	MONUMENT (SURVEY MARKER)



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ZONING TABLE

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		8.6 (RYE ST.)
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		24.51'(SOUTHEAST LOT LINE)
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		28.6'±(BARN)
STORIES	2	1 STORY
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(68,544/1,250 = 55)
(ESTIMATED 20 EMPLOYEES = 20 SPACES)

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(0.10 X 76,160 = 7,616)
(7,616/1,000) X 4.5 = 34
(55 + 20 + 34 = 109)

PARKING SPACES REQUIRES: 109 TOTAL PARKING SPACES

EXISTING PARKING SPACES: 38 TOTAL PARKING SPACES

MAP REFERENCES:

1. IMPROVEMENT LOCATION SURVEY-RECORD PREPARED FOR: 200 SULLIVAN AVENUE, LLC 200 SULLIVAN AVENUE SOUTH WINDSOR, CONNECTICUT SHEET 2 OF 6 DATE: 9/16/09 REVISED TO 01/07/2019 BY DESIGN PROFESSIONALS, INC.

SURVEY NOTES:

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TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

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PREPARED FOR:
Dufort Holdings, LLC
c/o Scott Whittaker
Stone Pigman Walther Wittmann, llc
909 Poydras Street, Suite 3150
New Orleans, LA 70112

PROJECT NO.: 2829
DATE: 11/4/21
DESIGN BY: ---
DRAWN BY: MHA
CHECKED BY: LRG

200 SULLIVAN AVENUE, LLC
200 SULLIVAN AVENUE
SOUTH WINDSOR, CONNECTICUT

REVISIONS

NO.	DATE	REVISIONS	BY
1	10/3/22	UPDATE MAPPING LIMITS	LRG

IMPROVEMENT LOCATION SURVEY-RECORD
SCALE: 1" = 40' 0 20' 40' 80'

SHEET
V-2

File: C:\jobs\2829\Survey-AsBuilt\2829-base asb 2021.dwg Layout: Updated AsBuilt (2) Plotted: 11/9/2022 12:39 PM Last Saved: 11/4/2022 2:54 PM Last Saved By: Barry.Danke

Know what's below. Call before you dig.

NUWAY
GROUND MOUNTED PHOTOVOLTAIC SYSTEM
937.99 KWDC / 700.00 KWAC
200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

LOCATION MAP
SCALE: NTS

SATELLITE MAP
SCALE: NTS

PROJECT SUMMARY:

PROJECT OBJECTIVES: INSTALLATION OF SOLAR PANEL ARRAYS ON ROOF MOUNTED STRUCTURE AND ASSOCIATED EQUIPMENT TO PROVIDE A TOTAL OF 700 KWAC OF ELECTRICAL POWER TO THE EXISTING SERVICE

SCOPE OF WORK:

- INSTALLATION OF SOLAR ARRAYS ON GROUND MOUNT STRUCTURE.
- INSTALLATION OF (7) 100 KW DC/AC INVERTERS.
- ELECTRICAL CONDUIT & CABLES INSTALLED FROM SOLAR ARRAY TO THE INVERTERS.
- ELECTRICAL CONDUIT AND CABLES FROM INVERTERS TO THE ELECTRICAL EQUIPMENT.

APPLICABLE CODES

2020 NEC (NFPA-70)
9TH EDITION OF MA STATE BUILDING CODE 780 CMR
UL 1703 - SOLAR MODULES
UL 1741 - INVERTERS

THIS PHOTOVOLTAIC INSTALLATION SHALL BE INSTALLED IN ACCORDANCE WITH THE 9TH EDITION OF MA STATE BUILDING CODE 780 CMR, THE NATIONAL ELECTRICAL CODE (NEC), AND ANY LOCAL BUILDING CODES CURRENTLY BEING ENFORCED BY THE AUTHORITY HAVING JURISDICTION (AHJ).

SYSTEM SUMMARY:

INVERTER NUMBER	INVERTER MODEL	INVERTER SIZE (KWAC)	# STRINGS	MODULE TYPE	MODULE SIZE (W)	NUMBER OF MODULES PER STRING	NUMBER OF MODULES	TILT	AZIMUTH	SYSTEM SIZE (KWDC)	DC:AC
INV-1	CHINT CPS SCH100KTL-DO/US-480	100	2	QCELLS Q.PEAK DUO XL-G10.2 485W	485	24	48	25°	175°	134.83	1.35
			10			23	230				
INV-2	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-3	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-4	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-5	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-6	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-7	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
TOTAL:	-	**700**					1,934			937.99	1.34

		ISSUES AND REVISIONS					
ID	DRAWING TITLE	90% DESIGN ISSUED FOR REVIEW 07.29.22	REVISED 90% DESIGN 09.08.22				
PV-001	COVER SHEET	X	X				
PV-002	NOTES AND SYMBOLS	X	X				
PV-100	PHOTOVOLTAIC SYSTEM LAYOUT	X	X				
PV-200	PHOTOVOLTAIC SYSTEM ONE-LINE DIAGRAM	X	X				
PV-300	PV SYSTEM CIRCUITING SHEET 1	X	X				
PV-301	PV SYSTEM CIRCUITING SHEET 2	X	X				
PV-302	PV SYSTEM CIRCUITING SHEET 3	X	X				
PV-400	PHOTOVOLTAIC SYSTEM DETAILS SHEET 1	X	X				
PV-401	PHOTOVOLTAIC SYSTEM DETAILS SHEET 2	X	X				
PV-402	PHOTOVOLTAIC SYSTEM DETAILS SHEET 3	X	X				
PV-403	PHOTOVOLTAIC SYSTEM LABEL SHEET 1	X	X				
PV-404	PHOTOVOLTAIC SYSTEM LABEL SHEET 2	X	X				
PV-500	PHOTOVOLTAIC SYSTEM DATA SHEETS	X	X				

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REV	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
	09.08.22	REVISED 90% DESIGN	JL	ADK
	07.29.22	90% DESIGN ISSUED FOR REVIEW	JL	ADK
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KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5633

Allison D. Kimball
PROFESSIONAL ENGINEER
MA LICENSE: 49826 9/8/22

NUWAY
GROUND MOUNTED PHOTOVOLTAIC SYSTEM
700.00 KW AC / 937.99 KW DC
200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No: **732.1002**

DRAWING TITLE: COVER SHEET

DRAWING SCALE: NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.: **PV-001**

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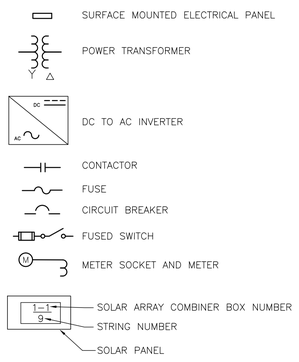
ABBREVIATIONS:

A	AMPERE
AC	ALTERNATING CURRENT
AL	ALUMINUM
AF	AMP. FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AWG	AMERICAN WIRE GAUGE
C	CONDUIT (GENERIC TERM FOR RACEWAY, PROVIDE AS SPECIFIED)
CB	COMBINER BOX
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DISC	DISCONNECT SWITCH
DWG	DRAWING
EC	ELECTRICAL SYSTEM INSTALLER
EMT	ELECTRICAL METALLIC TUBING
FS	FUSIBLE SWITCH
FU	FUSE
GND	GROUND
GFI	GROUND FAULT INTERRUPTER
HZ	FREQUENCY (CYCLES PER SECOND)
JB	JUNCTION BOX
kCMIL	THOUSAND CIRCULAR MILS
kVA	KILO-VOLT AMPERE
kW	KILO-WATT
kWH	KILO-WATT HOUR
L	LINE
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NO #	NUMBER
NTS	NOT TO SCALE
OCP	OVERCURRENT PROTECTION
P	POLE
PB	PULL BOX
PH ø	PHASE
PVC	POLY-VINYL CHLORIDE CONDUIT
PWR	POWER
RGS	RIGID GALVANIZED STEEL
SN	SOLID NEUTRAL
SWBD	SWITCHBOARD
TYP	TYPICAL
U.O.I.	UNLESS OTHERWISE INDICATED
WP	WEATHERPROOF
XFMR	TRANSFORMER
+72	MOUNT 72 INCHES TO BOTTOM ABOVE FINISHED FLOOR OR GRADE

SYMBOLS:



PV HANDLING NOTES:

1. PANELS ARE WRAPPED AND SECURED IN THE CRATE BY A MEANS THAT WILL ALLOW THE INSTALLER TO REMOVE ONE PANEL AT A TIME WITHOUT COMPROMISING THE STABILITY OF THE REMAINING PANELS. (IF THE CRATE IS OPENED AND PANELS ARE REMOVED FROM THE WRONG END, PANEL STABILITY WILL BE COMPROMISED AND WILL CREATE A DANGEROUS SITUATION)
2. EACH INDIVIDUAL PHOTOVOLTAIC MODULE WEIGHS 58.4 LBS. FOR THE EASE AND SAFETY OF LIFTING, IT IS RECOMMENDED BY THE MANUFACTURER THAT THIS OPERATION BE PERFORMED BY NO LESS THAN TWO INSTALLERS. EACH INSTALLER SHALL USE THE CORRECT METHOD OF LIFTING AND PLACING.
3. ONCE A MODULE IS REMOVED FROM THE CRATE, NEVER LEAVE THE MODULE STANDING UNSUPPORTED OR UNSECURED. REMEMBER THAT DURING DAYLIGHT HOURS THE MODULE WILL BE PRODUCING 53.6 VDC. IF THE MODULE IS DAMAGED THERE IS A CHANCE THAT YOU COULD BE EXPOSED TO THE FULL VOLTAGE AND CURRENT BEING GENERATED. IF A MODULE IS SHIPPED DAMAGED OR BECOMES DAMAGED AT THE JOBSITE, CAREFULLY HANDLE THE MODULE AND PLACE IT OUT OF THE SUNLIGHT.
4. EVEN IF THE MODULE IS NOT DAMAGED, KEEP IN MIND THAT WHENEVER MODULES ARE EXPOSED TO SUNLIGHT THE MODULES AND BALANCE OF SYSTEM COMPONENTS CAN GENERATE UP TO 1,000 VDC. WHEN WORKING WITH THIS EQUIPMENT, MAKE SURE THAT YOU TAKE EVERY PRECAUTION TO AVOID CONTACT WITH ANY ELECTRICAL TERMINAL OR WIRE UNLESS SYSTEM VOLTAGE IS TESTED, LOCKED OUT, AND DEEMED SAFE FOR WORK.
5. IF YOU HAVE ANY QUESTIONS PERTAINING TO THE INSTALLATION, OPERATION OR FUNCTION OF ANY COMPONENTS THAT MAKE UP THIS PHOTOVOLTAIC SYSTEM, CONTACT THE PROJECT MANAGER AND THEY WILL ASSIST YOU IN EFFECTING A SAFE AND EFFICIENT INSTALLATION.
6. WHEN LIFTING THE CRATES OF PHOTOVOLTAIC MODULES ONTO THE ROOF, BE SURE THAT THE ROOF IS CAPABLE OF SUPPORTING THE ADDITIONAL DEAD WEIGHT OF THESE CRATES AND THAT THE LOAD IS DISTRIBUTED EVENLY.
7. BE SURE THAT THE CRANE OPERATOR IS IN CONTINUOUS COMMUNICATION WITH THE REPRESENTATIVES ON THE ROOF WHEN PLACING THE CRATES. DURING THIS OPERATION ALL WORKERS MUST BE WEARING OSHA APPROVED HEAD PROTECTION AND STEEL TOED SHOES.
8. WHEN LANDING THE CRATES ON THE ROOF, BE SURE THAT THE CRATE IS FACING THE CORRECT DIRECTION FOR PANEL REMOVAL. THE END THAT IS MARKED "OPEN THIS END" SHOULD BE ACCESSIBLE SO THAT THE PANELS CAN BE REMOVED SAFELY.

ELECTRICAL NOTES:

1. IN EVERY PULL BOX AND IN ALL PLACES WHERE WIRES MAY NOT BE READILY IDENTIFIED BY NAMEPLATE MARKINGS ON THE EQUIPMENT TO WHICH THEY CONNECT, THE INSTALLATION CONTRACTOR WILL BE RESPONSIBLE FOR IDENTIFYING EACH CIRCUIT WITH A PLASTIC LABEL OR TAG.
2. THE LAYOUT OF THE CONDUIT SHOWN IN THIS DRAWING PACKAGE IS INDICATIVE ONLY. THE INSTALLATION CONTRACTOR WILL BE RESPONSIBLE FOR FIELD ROUTING AND LOCATING ALL CONDUITS AND ACCESSORIES TO SUIT SPECIFIC SITE CONDITIONS. THE INSTALLATION CONTRACTOR WILL COORDINATE ALL LOCATIONS WITH THE OWNER/GENERAL CONTRACTOR.
3. WHERE THE WIRING AND CABLE ROUTING IS NOT SHOWN AND THE DESTINATION IS ONLY INDICATED, THE INSTALLATION CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT ROUTING AND LENGTHS REQUIRED.
4. ALL CALCULATIONS FOR WIRING SIZE ARE BASED ON THE ESTIMATED CONDUIT ROUTING THAT MAY OR MAY NOT BE SHOWN ON THESE DRAWINGS. SHOULD THE CONDUIT LENGTHS INCREASE DUE TO RELOCATION OF THE SOURCE OR REROUTING OF THE CONDUITS, THE WIRING SIZES MAY NEED TO BE INCREASED. INCREASE WIRING SIZES WHERE REQUIRED TO MEET MINIMUM VOLTAGE DROP ALLOWANCES DEPENDENT UPON FINAL CONDUIT ROUTING. WHERE LENGTH OF WIRE INCREASES FROM ESTIMATES SHOWN IN SCHEDULE ON SHEET PV-200, KMB SHALL BE CONSULTED TO CONFIRM WIRE SIZES ARE ACCEPTABLE.
5. ALL WIRING SHALL BE RUN IN SPECIFIED CONDUIT. THE CONTRACTOR WILL BE REQUIRED TO SEEK APPROVAL BY THE GENERAL CONTRACTOR/DESIGN AGENCY PRIOR TO CHANGING ANY MATERIAL SPECIFICATIONS.
6. ANY BENDS IN THE CONDUIT OR RACEWAY SHALL NOT DAMAGE OR SIGNIFICANTLY CHANGE THE INTERNAL DIAMETER (NO KINKS).
7. ANY CONDUCTORS RUN IN A VERTICAL CONDUIT WILL BE SUPPORTED IN ACCORDANCE WITH NEC REQUIREMENTS.
8. THE INSTALLATION CONTRACTOR WILL INSTALL ALL WIRING MATERIALS IN A NEAT AND WORKMANLIKE MANNER. USE OF GOOD TRADE PRACTICES WILL BE ENFORCED AS REQUIRED BY CHAPTER 3 OF THE NEC.
9. WHERE APPLICABLE, THE INSTALLATION CONTRACTOR WILL ARRANGE CONDUIT IN SUCH A MANNER THAT WILL MAINTAIN HEADROOM AND IN A NEAT, INCONSPICUOUS MANNER. RUN PARALLEL AND AT RIGHT ANGLES TO STRUCTURAL MEMBERS, PROVIDE BOXES, FITTINGS, AND BENDS FOR CHANGE OF DIRECTION. INSTALLATION CONTRACTOR IS TO FASTEN ALL CONDUITS SECURELY IN PLACE.
10. THE INSTALLATION CONTRACTOR WILL SUPPORT CONDUIT USING STEEL OR MALLEABLE IRON STRAPS, LAY-IN ADJUSTABLE HANGERS, CLEVIS HANGERS AND SPLIT-HANGERS. HANGER SPACING SHALL BE 5'-0" MAXIMUM. THE CONTRACTOR WILL BE RESPONSIBLE FOR USING APPROVED BEAM CLAMPS FOR CONNECTION TO ANY STRUCTURAL MEMBERS.
11. THE INSTALLATION CONTRACTOR WILL PROVIDE PULL AND JUNCTION BOXES WHERE REQUIRED TO FACILITATE THE INSTALLATION OF WIRING, IN ADDITION TO THOSE THAT MAY BE SHOWN ON THE DRAWINGS. BENDS IN THE CONDUITS BETWEEN THE PULL BOXES SHALL NOT EXCEED THE EQUIVALENT OF FOUR 90 DEGREE BENDS.
12. ANY BENDS IN THE CONDUIT RUNS SHALL UTILIZE MANUFACTURER'S STANDARD ELBOWS WHERE PRACTICAL.
13. WHERE FIELD CUTTING IS REQUIRED, THE CONDUIT SHALL BE CUT SQUARE AND REAMED OR OTHERWISE FINISHED TO REMOVE ROUGH EDGES. . WHEN COMPLETE, ALL METAL FILINGS WILL BE DISPOSED OF PROPERLY.
14. WHERE CONDUIT SIZES ARE NOT SPECIFIED THE INSTALLATION CONTRACTOR WILL BE REQUIRED TO CONFORM TO THE NEC SPECIFICATIONS. THE MINIMUM ALLOWABLE CONDUIT SIZE SHALL BE 3/4".
15. THE MINIMUM ALLOWABLE WIRING SIZE WILL BE #12 AWG. THE ONLY EXCEPTION WILL BE FOR SIGNAL AND/OR CONTROL WIRING.
16. SAFETY REGULATIONS INCLUDING BUT NOT LIMITED TO THE INFORMATION CONTAINED IN THE SAFETY MANUAL MUST BE OBSERVED BY THE INSTALLATION CONTRACTOR DURING THE CONSTRUCTION OF THIS PROJECT IN ACCORDANCE WITH THE SAME ESTABLISHED BY OWNER AND/OR GENERAL CONTRACTOR.
17. ALL ENCLOSURES SHALL BE NEMA 3R.
18. NO PENETRATIONS ARE PERMITTED ON THE TOP OF EQUIPMENT BOXES OR ENCLOSURES.
19. ALL EQUIPMENT AND WIREWAYS SHALL BE INSTALLED SUCH THAT THEY ARE ARRANGED TO DRAIN AND CABLES OR CONDUITS CANNOT COLLECT AND DRAIN WATER INTO EQUIPMENT.
20. WHERE CONDUIT IS INSTALLED ON ROOFTOP, THE CONDUIT SHALL BE RMC, RGS, EMT AND ASSOCIATED FITTINGS SHALL BE LISTED FOR USE OUTDOORS. CONDUIT SHALL BE MOUNTED WITH A MINIMUM OF 4" BETWEEN ROOFTOP AND BOTTOM OF CONDUIT.
21. ALL WIRING SHALL BE 90° RATED COPPER UNLESS OTHERWISE SPECIFIED.

GENERAL CONSTRUCTION NOTES:

1. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL DRAWINGS HAVE BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION." CONTRACTOR SHALL ENSURE THAT THEY HAVE THE LATEST SET OF CONSTRUCTION DRAWINGS PRIOR TO COMMENCING ANY WORK WHATSOEVER.
3. THESE PLANS ARE INTENDED TO BE USED TO DIRECT THE PROPOSED LAYOUT. DRAWINGS SHOULD NOT BE SCALED UNLESS OTHERWISE NOTED. PLANS, ELEVATIONS AND DETAILS ARE INTENDED TO SHOW THE END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS.
4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AND NOTIFY THE PROJECT MANAGER OF ANY DISCREPANCIES BEFORE STARTING ANY WORK.
5. THESE PLANS ARE DESIGNED TO REFLECT OBSERVED FIELD CONDITIONS. CERTAIN CONDITIONS ARE ASSUMED TO COMPLY WITH GENERAL STANDARD CONSTRUCTION DESIGN METHODS AND PRINCIPLES, AND THE CONTRACTOR SHALL NOTE THAT NOT ALL AREAS OF STRUCTURAL ATTACHMENT HAVE BEEN OPENED OR SPECIFICALLY VERIFIED. THE CONTRACTOR IS THEREFORE REQUESTED TO NOTIFY THE ENGINEER IMMEDIATELY SHOULD ENCOUNTERED FIELD CONDITIONS VARY FROM THOSE DEPICTED ON THE DRAWINGS. KMB DESIGN GROUP, LLC WILL ISSUE FIELD CHANGE DIRECTION IF REQUIRED.
6. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE NOTED BY THE ENGINEER OF RECORD.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK PERFORMED AND MATERIALS INSTALLED TO BE IN STRICT CONFORMANCE, AS A MINIMUM STANDARD, WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES HAVING JURISDICTION. ELECTRICAL SYSTEMS SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE, AND ALL OTHER LOCAL AND STATE JURISDICTIONAL CODES, ORDINANCES, AND WITH LOCAL UTILITY COMPANY SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
8. THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DIRT, STUMPS, STONES, RUBBISH OR DEBRIS IN ACCORDANCE WITH ALL LOCAL AND ENVIRONMENTAL LAWS. NO MATERIALS OR EQUIPMENT SHALL BE PLACED ANYWHERE ON OR IN THE STRUCTURE WITHOUT MAKING ADEQUATE PROVISIONS TO PROTECT EXISTING PROPERTY. UPON COMPLETION, REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DURING CONSTRUCTION. REPAIR ALL EXISTING WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
9. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AND HAVE CONTROL OVER CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR THEIR WORK AND ALL SUBCONTRACTORS.

SITE WORK GENERAL NOTES:

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO:
   - FALL PROTECTION
   - CONFINED SPACE
   - ELECTRICAL SAFETY
   - TRENCHING & EXCAVATION
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWING.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREIN SHALL BE IN ACCORDANCE WITH:
   A. CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
   B. CURRENT PREVAILING UTILITY COMPANY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.

CONSTRUCTION SPECIFICATIONS:

1. THE CONTRACTOR SHALL REVIEW AND BECOME FAMILIAR WITH SPECIFICATIONS CONTAINED IN THE BID PACKAGE PREPARED BY KMB DESIGN GROUP, LLC AND THE CLIENT. CONTRACTOR SHALL ENSURE THAT THEY HAVE THE LATEST SET OF CONSTRUCTION DRAWINGS PRIOR TO COMMENCING ANY WORK WHATSOEVER.
2. IN THE EVENT OF A CONFLICT BETWEEN THE BID PACKAGE SPECIFICATIONS AND THESE NOTES, THE PROVISIONS OF THE CLIENTS SPECIFICATIONS SHALL TAKE PRECEDENCE.
3. THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED WORK AND FULLY ACQUAINT THEMSELVES WITH THE CONDITIONS AS THEY EXIST IN ORDER THAT ANY RESTRICTIONS PERTAINING TO THE WORK ARE UNDERSTOOD. ALL AREAS AND DIMENSIONS ARE INDICATED ON THE DRAWINGS AS ACCURATELY AS POSSIBLE, BUT ALL CONDITIONS SHALL BE VERIFIED BY EACH CONTRACTOR AND/OR SUBCONTRACTOR AT THE SITE. THE FAILURE OF THE CONTRACTOR TO EXAMINE OR RECEIVE ANY FORM, INSTRUMENT OR DOCUMENT, OR TO VISIT THE SITE, SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION WITH RESPECT TO THEIR QUOTED PRICE. THE SUBMISSION OF A QUOTATION SHALL ACKNOWLEDGE THAT THE CONTRACTOR AND THEIR SUBCONTRACTORS HAVE FULLY EXAMINED THE SITE AND KNOW THE EXISTING CONDITIONS AND HAVE MADE PROVISIONS FOR OPERATING UNDER THE CONDITIONS AS THEY EXIST AT THE SITE AND HAVE INCLUDED ALL NECESSARY ITEMS.
4. THE CONTRACTORS SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH THE OWNER IN ORDER TO AVOID CONFLICTS WITH CURRENT USE OF THE SITE.
5. THE OWNER MAY HAVE WORK PERFORMED UNDER SEPARATE CONTRACTS, CONCURRENTLY, WITH THE WORK OF THIS CONTRACT.
6. THE GENERAL CONTRACTOR SHALL PERMIT ACCESS TO THE PROJECT TO THESE CONTRACTORS TO PERFORM THEIR WORK.
7. CONTRACTOR SHALL CONFORM TO ALL APPLICABLE LOCAL, COUNTY, STATE, AND FEDERAL CODES, LAWS AND REQUIREMENTS, INCLUDING OSHA.
8. THE CONTRACTOR SHALL APPLY AND PAY FOR THE CONSTRUCTION PERMIT, AND ALL OTHER REQUIRED PERMITS OR LICENSES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL INSPECTIONS.
9. CARE SHALL BE EXERCISED IN PROTECTING THE SITE OCCUPANTS DURING THE DEMOLITION AND CONSTRUCTION PERIODS OF THIS PROJECT. EVERY EFFORT SHALL BE MADE TO MAINTAIN A CLEAN OPERATION. DEBRIS SHALL NOT ACCUMULATE. ALL DEBRIS WILL BE DEPOSITED IN A SUITABLE CONTAINER ON A DAILY BASIS AND SHALL BE EMPTIED ON A REGULAR SCHEDULE. THE LOCATION OF THE CONTAINER SHALL BE COORDINATED WITH THE BUILDING MANAGER.
10. SAFETY PROCEDURES: ATTENTION IS DIRECTED TO FEDERAL, STATE, AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH STANDARDS. THE CONSTRUCTION COMPANY AWARDED THIS PROJECT SHALL ENSURE ALL WORKING SURROUNDINGS AND CONDITIONS ARE SANITARY, AND ARE NOT HAZARDOUS OR DANGEROUS TO THE HEALTH OR SAFETY OF THE WORK CREWS OR BUILDING OCCUPANTS. PRECAUTION SHALL BE EXERCISED AT ALL TIMES FOR THE PROTECTION OF PERSONS AND PROPERTY. IT IS MANDATORY THAT THE SAFETY PROVISIONS OF APPLICABLE LOCAL LAWS, OSHA REGULATIONS AND BUILDING AND CONSTRUCTION CODES, BE OBSERVED FOR ALL CONTRACTORS.
11. THE GENERAL CONTRACTOR MUST COORDINATE ALL ROOF RELATED WORK WITH THE BUILDING OWNER'S PRE-- APPROVED ROOFER. THE GENERAL CONTRACTOR MUST CONFIRM THE COMPATIBILITY OF ALL MATERIALS AND ENSURE THAT ALL EXISTING ROOF WARRANTIES, IF ANY, REMAIN IN EFFECT.
12. THE GENERAL CONTRACTOR WILL BE SOLELY RESPONSIBLE AND HAVE CONTROL OVER ALL PROJECT MANAGEMENT, SITE COORDINATION, AND CONSTRUCTION SCHEDULE TO BE DIRECTLY SUBMITTED TO THE OWNER FOR APPROVAL AND COORDINATION.
13. THE GENERAL CONTRACTOR WILL BE SOLELY RESPONSIBLE AND HAVE CONTROL OVER ALL SITE COMMISSIONING, AS-BUILTS, STARTUP, AND UTILITY REQUIRED TESTING AND COORDINATION.
14. THE INSTALLATION CONTRACTOR SHALL CONFIRM AND VERIFY ALL INTERCONNECTION POINTS AND METERING REQUIREMENTS BY THE LOCAL UTILITY AND AHJ PRIOR TO CONSTRUCTION COMPLETION AND WILL BE RESPONSIBLE FOR ANY MODIFICATIONS, COSTS, OR DELAYS FOR NONCOMPLIANCE LISTED OR NOT LISTED ON THIS DOCUMENT. IF ANY ISSUES OR DISCREPANCIES ARE OBSERVED WITH RESPECT TO WHAT IS SHOWN ON THE DRAWINGS AND THE DESIGN INTENT, THE CONTRACTOR SHALL NOTIFY THE CLIENT AND THE ENGINEER OF RECORD. INSTALLATION CONTRACTOR SHALL PROVIDE DETAIL ON THE POTENTIAL ISSUE AND INCLUDE AN ALTERNATIVE APPROACH / SUGGESTION.

DELIVERY, STORAGE AND HANDLING:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROCEDURES AND SCHEDULING ASSOCIATED WITH HOISTING, STAGING, ERECTING OF MATERIALS AND EQUIPMENT TO AND/OR UPON THE SITE.
2. ALL ELEMENTS OF THE EXISTING SITE, I.E. STRUCTURES, SITE PLANTINGS, ETC. SHALL BE PROTECTED AS NECESSARY FROM SAID ACTIONS. THIS WORK MUST BE DONE IN A SAFE, SECURE NONDESTRUCTIVE MANNER FOR PROTECTING PERSONNEL AND PROPERTY.

GENERAL PV INSTALLATION NOTES:

1. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTIONS CONTAINED IN THIS DRAWING PACKAGE, IN ANY INFORMATION RECEIVED FROM THE CLIENT AND OTHERS AND ANY INFORMATION CONTAINED IN EQUIPMENT INSTALLATION MANUALS.
2. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR READING AND UNDERSTANDING ALL DRAWINGS, COMPONENT AND INVERTER MANUALS PRIOR TO INSTALLATION. THE INSTALLATION CONTRACTOR IS ALSO REQUIRED TO HAVE ALL COMPONENT SWITCHES IN THE OFF POSITION AND FUSES REMOVED PRIOR TO THE INSTALLATION OF ALL FUSE BEARING SYSTEM COMPONENTS.
3. ONCE THE PHOTOVOLTAIC MODULES ARE MOUNTED, THE INSTALLATION CONTRACTOR SHOULD HAVE A MINIMUM OF ONE ELECTRICIAN WHO HAS ATTENDED A SOLAR PHOTOVOLTAIC INSTALLATION COURSE.
4. FOR SAFETY IT IS RECOMMENDED BY THE MANUFACTURER THAT THE INSTALLATION CREW ALWAYS HAVE A MINIMUM OF TWO PERSONS WORKING TOGETHER AND THAT EACH OF THE INSTALLATION CREW MEMBERS BE TRAINED IN FIRST AID AND CPR.
5. THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRIC CODE. ANY LOCAL CODE WHICH MAY SUPERSEDE THE NEC SHALL GOVERN.
6. ALL SYSTEM COMPONENTS TO BE INSTALLED WITH THIS SYSTEM ARE TO BE "UL" LISTED. ALL OUTDOOR EQUIPMENT WILL BE NEMA 3R OR NEMA 4 AS INDICATED ON THE PLANS.
7. THE DC VOLTAGE FROM THE ARRAY IS ALWAYS PRESENT AT THE DC DISCONNECT ENCLOSURE AND THE DC TERMINALS OF THE INVERTER DURING DAYLIGHT HOURS. ALL PERSONS WORKING ON OR INVOLVED WITH THIS PHOTOVOLTAIC SYSTEM ARE WARNED THAT THE SOLAR MODULES ARE ENERGIZED WHENEVER THEY ARE EXPOSED TO LIGHT.
8. ALL PORTIONS OF THIS SOLAR PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ARTICLE 690.
9. PRIOR TO SYSTEM START-UP, THE INSTALLATION CONTRACTOR SHALL PERFORM ALL INITIAL HARDWARE CHECKS AND DC WIRING CONDUCTIVITY CHECKS.
10. FOR THE PROPER MAINTENANCE AND ISOLATION OF THE INVERTERS REFER TO THE ISOLATION PROCEDURES IN THE OPERATIONS MANUAL.
11. ALL ELECTRICAL TERMINATIONS AND MECHANICAL CONNECTIONS OF THE SOLAR INSTALLATION MUST BE TORQUED TO FACTORY SPECIFICATIONS AND MARKED WITH A PERMANENT TAMPER PROOF MEANS.

RACKING SYSTEM:

THE DESIGN OF THE RACKING SYSTEM, BALLASTING AND/OR ATTACHMENT DESIGN, AND ALL ASSOCIATED CALCULATIONS ARE NOT INCLUDED IN THE SCOPE OF WORK PERFORMED BY KMB DESIGN GROUP, LLC(KMB), ARE NOT PART OF THESE DRAWINGS AND KMB MAKES NO REPRESENTATION WHATSOEVER WITH REGARD TO SAID RACKING, BALLASTING AND/OR ATTACHMENT DESIGN. ALL PARTIES ARE INSTRUCTED TO OBTAIN AND REFER TO THE RACKING DESIGN PLANS, PROVIDED BY OTHERS, FOR INFORMATION REGARDING THE RACKING SYSTEM AND METHOD OF SECURING/ATTACHMENT OF THE PHOTOVOLTAIC SYSTEM TO THE GROUND MOUNT.

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1	08.08.22	REVISED 90% DESIGN	JL	ADK
2	07.29.22	90% DESIGN ISSUED FOR REVIEW	JL	ADK
3	07.13.22	ISSUED FOR REVIEW	JL	ADK

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

Allison D. Kimball
PROFESSIONAL ENGINEER
MA LICENSE: 49626 9/8/22

SolBid

NUWAY
GROUND MOUNTED PHOTOVOLTAIC SYSTEM
700.00 KW AC / 937.99 KW DC
200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No.: 732.1002

DRAWING TITLE: NOTES AND SYMBOLS

DRAWING SCALE: NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.: PV-002

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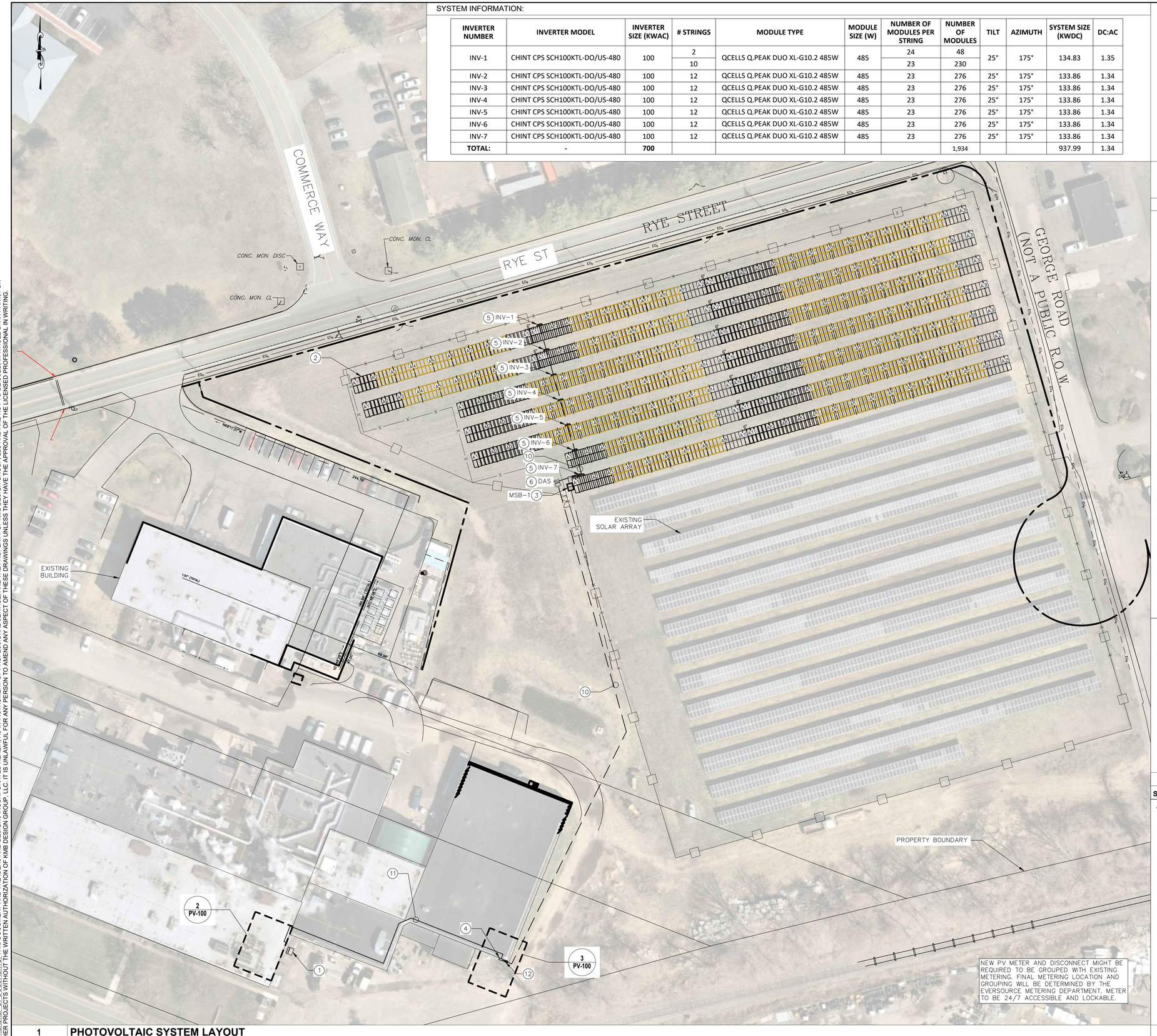
SYSTEM INFORMATION:

INVERTER NUMBER	INVERTER MODEL	INVERTER SIZE (KWAC)	# STRINGS	MODULE TYPE	MODULE SIZE (W)	NUMBER OF MODULES PER STRING	NUMBER OF MODULES	TILT	AZIMUTH	SYSTEM SIZE (KWDC)	DC:AC
INV-1	CHINT CPS SCH100KTL-DO/US-480	100	2	QCELLS Q.PEAK DUO XL-G10.2 485W	485	24	48	25°	175°	134.83	1.35
			10			23	230				
INV-2	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-3	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-4	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-5	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-6	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-7	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
TOTAL:	-	**700**					1,934			937.99	1.34



1 **PHOTOVOLTAIC SYSTEM LAYOUT**

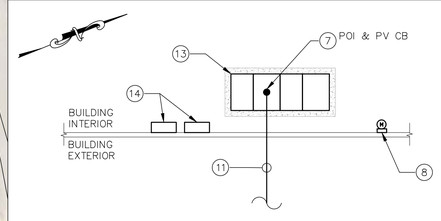
SCALE: 1" = 40'-0"

SYSTEM PLAN GENERAL NOTES:

1. PHOTOVOLTAIC INSTALLATION SHALL BE INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE 2020 EDITION & 9TH EDITION OF MA STATE BUILDING CODE 780 CMR.
2. THE CONTRACTOR SHALL VERIFY EXISTING SITE CONDITIONS AND MAKE ANY ADJUSTMENTS NECESSARY TO AVOID INTERFERENCE.
3. CONTRACTOR SHALL MAINTAIN ALL SITE SAFETY REGULATIONS AS OUTLINED BY ONSITE MANAGEMENT. CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS OF SAFETY AND RIGGING. THESE PLANS SHOULD NOT BE UTILIZED AS VERIFICATION FOR POINTS OF ATTACHMENT OF SAFETY EQUIPMENT AND/OR PLACEMENT OF VERTICAL EQUIPMENT LIFTS.
4. CONTRACTOR SHALL MINIMIZE DISRUPTION OF OWNER'S ONSITE ACTIVITIES. VERIFY SCHEDULE AND ALL STAGING AND STORAGE AREAS WITH THE OWNER PRIOR TO BEGINNING WORK.
5. THE DESIGN OF THE RACKING SYSTEM, BALLASTING AND/OR ATTACHMENT DESIGN, AND ALL ASSOCIATED CALCULATIONS ARE NOT INCLUDED IN THE SCOPE OF WORK PERFORMED BY KMB DESIGN GROUP, LLC(KMB), ARE NOT PART OF THESE DRAWINGS AND KMB MAKES NO REPRESENTATION WHATSOEVER WITH REGARD TO SAID RACKING, BALLASTING AND/OR ATTACHMENT DESIGN. ALL PARTIES ARE INSTRUCTED TO OBTAIN AND REFER TO THE RACKING DESIGN PLANS, PROVIDED BY OTHERS, FOR INFORMATION REGARDING THE RACKING SYSTEM AND METHOD OF SECURING/ATTACHMENT OF THE PHOTOVOLTAIC SYSTEM TO THE GROUND MOUNT.

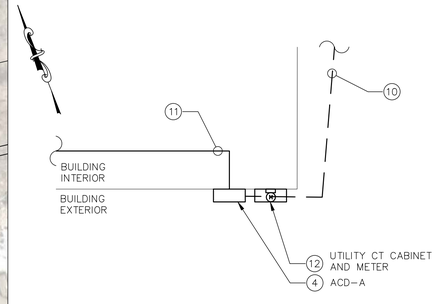
SYSTEM PLAN KEY NOTES:

1. EXISTING PAD MOUNTED UTILITY TRANSFORMER WITH 480/277V 3PH SECONDARIES.
2. NEW PV ARRAY ON GROUND MOUNTED STRUCTURE. QCELLS Q.PEAK DUO XL-G10.2 485W MODULES. SEE SINGLE LINE DIAGRAM ON PV-200 FOR ADDITIONAL INFORMATION.
3. NEW 1200A, 480/277V, 3ø, 4W, NEMA 3R PV MAIN SWITCHBOARD MSB-1, WITH 1200A MAIN CIRCUIT BREAKER MOUNTED ON CONCRETE PAD AT SOLAR ARRAY.
4. NEW PV MAIN DISCONNECT, ACD-A, 1200A, 480/277V, 3ø, 4W, NEMA 3R. NEW UNFUSED UTILITY DISCONNECT SWITCH, ACD-A. SWITCH SHALL BE LOCKABLE IN THE OPEN POSITION AND ACCESSIBLE TO UTILITY 24/7.
5. NEW CHINT CPS SCH100KTL STRING INVERTER, 480V, 3PH, 4W INVERTER MOUNTED ON UNISTRUT FRAME. SEE PV-200 FOR DETAILS.
6. NEW DAS IN NEMA 3R ENCLOSURE. MOUNTED ON UNISTRUT WITH INV-7. COORDINATE EXACT REQUIREMENTS WITH DAS MANUFACTURER.
7. INTERCONNECTION FOR NEW PV SERVICE IN EXISTING CUSTOMER OWNED MAIN SWITCHGEAR. SEE PV-200 FOR ADDITIONAL DETAILS.
8. EXISTING EVERSOURCE UTILITY METER. METER NUMBER TO BE CONFIRMED.
9. APPROXIMATE ROUTE OF NEW AC CONDUCTORS FROM THE PV ARRAY TO PAD MOUNTED MAIN SWITCHBOARD, MSB-1, BY PV ARRAY.
10. APPROXIMATE ROUTE OF NEW AC CONDUCTORS FROM THE PAD MOUNTED MAIN SWITCHBOARD AT THE ARRAY, MSB-1, TO MAIN PV DISCONNECT, ACD-A, AT THE BUILDING EXTERIOR.
11. APPROXIMATE ROUTE OF NEW AC CONDUCTORS FROM THE MAIN PV DISCONNECT AT THE BUILDING EXTERIOR, ACD-A, TO THE POINT OF INTERCONNECTION IN EXISTING BUILDING MAIN SWITCHBOARD. CONDUITS TO RUN ON BUILDING ROOF.
12. PROVIDE NEW UTILITY APPROVED GENERATION METER SOCKET AND CT CABINET. CONTRACTOR SHALL VERIFY COMPLIANCE WITH CURRENT UTILITY SERVICE REQUIREMENTS AT TIME OF INSTALL. CONTRACTOR SHALL SUPPLY, TO THE METER, WIRELESS SERVICE FOR COMMUNICATION. METER TO SERVE AS UTILITY REVENUE METER FOR MA SMART PROGRAM COMPLIANCE. METER SHALL BE OUTSIDE ACCESSIBLE AND BE WITHIN CLOSE PROXIMITY TO THE EXISTING UTILITY METER.
13. EXISTING MAIN SWITCHBOARD, 3000A, 480/277V, 3ø, 4W. CONFIGURATION TO BE CONFIRMED.
14. NEW SEL-751 ENCLOSURE. SEE PV-200 FOR DETAILS.



2 **ENLARGED EXISTING EQUIPMENT PLAN**

SCALE: 1/8" = 1'-0"



3 **ENLARGED PV EQUIPMENT PLAN**

SCALE: 1/8" = 1'-0"

REV	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
1	08.08.22	REVISED 90% DESIGN	JL	ADK
0	07.29.22	90% DESIGN ISSUED FOR REVIEW	JL	ADK
	07.13.22	ISSUED FOR REVIEW	JL	ADK

KMB DESIGN GROUP
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5633
kmbdg.com

Allison D. Kimball
PROFESSIONAL ENGINEER
MA LICENSE: 49626 9/8/22

SolBid

NUWAY
GROUND MOUNTED PHOTOVOLTAIC SYSTEM
700.00 KW AC / 937.99 KW DC
200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No.: **732.1002**

DRAWING TITLE: PHOTOVOLTAIC SYSTEM LAYOUT

DRAWING SCALE: AS NOTED

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.: **PV-100**

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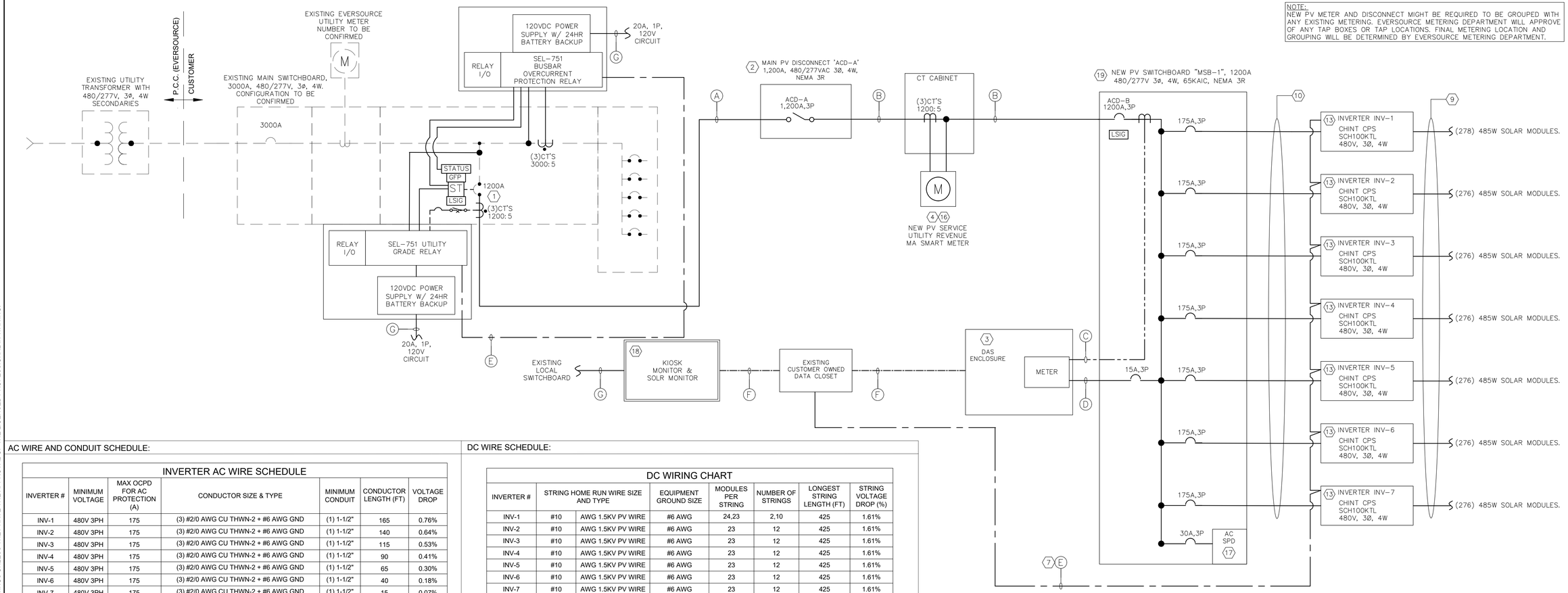
NOTE:
NEW PV METER AND DISCONNECT MIGHT BE REQUIRED TO BE GROUPED WITH ANY EXISTING METERING. EVERSOURCE METERING DEPARTMENT WILL APPROVE OF ANY TAP BOXES OR TAP LOCATIONS. FINAL METERING LOCATION AND GROUPING WILL BE DETERMINED BY EVERSOURCE METERING DEPARTMENT.



AC WIRE AND CONDUIT SCHEDULE:

INVERTER AC WIRE SCHEDULE

INVERTER #	MINIMUM VOLTAGE	MAX OCPD FOR AC PROTECTION (A)	CONDUCTOR SIZE & TYPE	MINIMUM CONDUIT	CONDUCTOR LENGTH (FT)	VOLTAGE DROP
INV-1	480V 3PH	175	(3) #2/0 AWG CU THWN-2 + #6 AWG GND	(1) 1-1/2"	165	0.76%
INV-2	480V 3PH	175	(3) #2/0 AWG CU THWN-2 + #6 AWG GND	(1) 1-1/2"	140	0.64%
INV-3	480V 3PH	175	(3) #2/0 AWG CU THWN-2 + #6 AWG GND	(1) 1-1/2"	115	0.53%
INV-4	480V 3PH	175	(3) #2/0 AWG CU THWN-2 + #6 AWG GND	(1) 1-1/2"	90	0.41%
INV-5	480V 3PH	175	(3) #2/0 AWG CU THWN-2 + #6 AWG GND	(1) 1-1/2"	65	0.30%
INV-6	480V 3PH	175	(3) #2/0 AWG CU THWN-2 + #6 AWG GND	(1) 1-1/2"	40	0.18%
INV-7	480V 3PH	175	(3) #2/0 AWG CU THWN-2 + #6 AWG GND	(1) 1-1/2"	15	0.07%

DC WIRE SCHEDULE:

DC WIRING CHART

INVERTER #	STRING HOME RUN WIRE SIZE AND TYPE		EQUIPMENT GROUND SIZE	MODULES PER STRING	NUMBER OF STRINGS	LONGEST STRING LENGTH (FT)	STRING VOLTAGE DROP (%)
INV-1	#10	AWG 1.5KV PV WIRE	#6 AWG	24,23	2,10	425	1.61%
INV-2	#10	AWG 1.5KV PV WIRE	#6 AWG	23	12	425	1.61%
INV-3	#10	AWG 1.5KV PV WIRE	#6 AWG	23	12	425	1.61%
INV-4	#10	AWG 1.5KV PV WIRE	#6 AWG	23	12	425	1.61%
INV-5	#10	AWG 1.5KV PV WIRE	#6 AWG	23	12	425	1.61%
INV-6	#10	AWG 1.5KV PV WIRE	#6 AWG	23	12	425	1.61%
INV-7	#10	AWG 1.5KV PV WIRE	#6 AWG	23	12	425	1.61%

SYSTEM SUMMARY

INVERTER NUMBER	INVERTER MODEL	INVERTER SIZE (KWAC)	# STRINGS	MODULE TYPE	MODULE SIZE (W)	NUMBER OF MODULES PER STRING	NUMBER OF MODULES	TILT	AZIMUTH	SYSTEM SIZE (KWDC)	DC:AC
INV-1	CHINT CPS SCH100KTL-DO/US-480	100	2	QCELLS Q.PEAK DUO XL-G10.2 485W	485	24	48	25°	175°	134.83	1.35
			10			23	230				
INV-2	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-3	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-4	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-5	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-6	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
INV-7	CHINT CPS SCH100KTL-DO/US-480	100	12	QCELLS Q.PEAK DUO XL-G10.2 485W	485	23	276	25°	175°	133.86	1.34
TOTAL:	-	**700**					1,934			937.99	1.34

INVERTER AC WIRING SCHEDULE:

AC WIRE AND CONDUIT SCHEDULE

	MINIMUM VOLTAGE	WIRE SIZE & TYPE	MINIMUM CONDUIT	CONDUCTOR LENGTH (FT)	VOLTAGE DROP
A	480V 3PH	4 SETS OF: (3) 600 KCMIL AL THWN-2 +#4/0 AWG N + #4/0 AWG GND	(4) 4"	300	0.60%
B	480V 3PH	4 SETS OF: (3) 600 KCMIL AL THWN-2 +#4/0 AWG N + #4/0 AWG GND	(4) 4"	500	1.00%
C	-	18 AWG SHIELDED TWISTED PAIR - CT EXTENSION CABLE	-	-	-
D	480V 3PH	(3) #12 THWN-2 + #12AWG CU GROUND	3/4"	-	-
E	-	RS485 MODBUS COMMUNICATIONS CABLE	-	-	-
F	-	RS485 MODBUS COMMUNICATIONS CABLE OR CAT-5 EQUIVALENT	-	-	-
G	120V 1PH	(2) #12 THWN-2 + #12AWG CU GROUND	3/4"	-	-

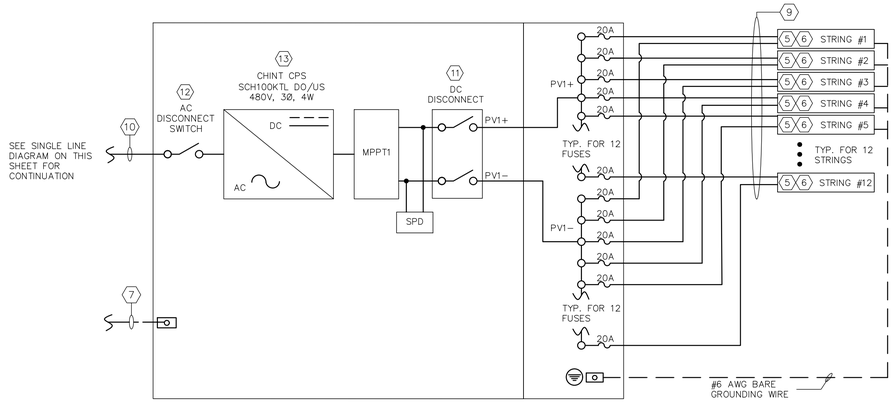
GENERAL NOTES:

1. THE INSTALLATION CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF THE NEMA RATING OF ALL INVERTER AND COMBINER BOX ENCLOSURES. ALL CONDUIT MUST ENTER THE EQUIPMENT AND BE PROPERLY GASKETED.
2. PROVIDE COMPRESSION LUGS AT BUS TERMINATIONS.
3. WITHIN 10 DAYS OF PROJECT COMMENCEMENT THE ELECTRICAL CONTRACTOR SHALL OPEN AND VISUALLY INSPECT EXISTING ELECTRICAL EQUIPMENT WHERE PV TIE-IN IS TO TAKE PLACE. IF ANY ISSUES OR DISCREPANCIES ARE OBSERVED WITH RESPECT TO WHAT IS SHOWN ON THE DRAWINGS AND THE DESIGN INTENT, THE CONTRACTOR SHALL NOTIFY THE CLIENT AND ENGINEER. ELECTRICAL CONTRACTOR SHALL PROVIDE DETAIL ON THE POTENTIAL ISSUE, AND INDICATE ALTERNATE APPROACH/ SUGGESTIONS FOR NEW TIE-IN.
4. ALL EQUIPMENT AND PANELS SHALL BE MARKED IN ACCORDANCE WITH ARTICLE 690 & 705 OF THE NEC. SEE PV-403 & PV-404 FOR SIGNAGE AND LABELING REQUIREMENTS.
5. LISTED PIN ADAPTERS OR COMPRESSION LUGS SHALL BE PERMITTED BE USED WITH ALUMINUM CONDUCTORS. CONDUCTOR SHALL BE PREPARED AND TERMINATED PER MANUFACTURERS GUIDELINES.

KEY NOTES:

1. NEW PV INTERCONNECTION TO BE MADE ON LOAD SIDE OF EXISTING OWNERS MAIN SERVICE SWITCHBOARD ON EXISTING CIRCUIT BREAKER. EVERSOURCE METERING DEPARTMENT WILL APPROVE OF ANY TAP BOXES OR TAP LOCATIONS. FINAL METERING LOCATION AND GROUPING WILL BE DETERMINED BY THE EVERSOURCE METERING DEPARTMENT. IF THE EXISTING SERVICE IS FOUND TO BE DIFFERENT THAN SHOWN CONTRACTOR TO CONTACT ENGINEER OF RECORD FOR A REVISED POINT OF INTERCONNECTION.
2. NEW PV MAIN DISCONNECT, ACD-A, 1200A, 480/277V, 3ø, 4W, NEMA 3R. NEW UNFUSED UTILITY DISCONNECT SWITCH, ACD-A. SWITCH SHALL BE LOCKABLE IN THE OPEN POSITION AND ACCESSIBLE TO UTILITY 24/7.
3. NEW REVENUE GRADE ZREC METER AND DAS IN NEMA 3R ENCLOSURE. COORDINATE EXACT REQUIREMENTS WITH DAS MANUFACTURER.
4. PROVIDE NEW UTILITY APPROVED GENERATION METER SOCKET AND CT CABINET. CONTRACTOR SHALL VERIFY COMPLIANCE WITH CURRENT UTILITY SERVICE REQUIREMENTS AT TIME OF INSTALL. CONTRACTOR SHALL SUPPLY, TO THE METER, WIRELESS SERVICE FOR COMMUNICATION. METER TO SERVE AS UTILITY REVENUE METER FOR MA SMART PROGRAM COMPLIANCE. METER SHALL BE OUTSIDE ACCESSIBLE AND BE WITHIN CLOSE PROXIMITY TO THE EXISTING UTILITY METER. NEW PV METER MIGHT BE REQUIRED TO BE GROUPED WITH ANY EXISTING METERING. EVERSOURCE METERING DEPARTMENT WILL APPROVE OF ANY TAP BOXES OR TAP LOCATIONS. FINAL METERING LOCATION AND GROUPING WILL BE DETERMINED BY THE EVERSOURCE METERING DEPARTMENT.
5. Q.PEAK DUO XL-G10.2, 485W SOLAR MODULES. SEE SYSTEM SUMMARY FOR FURTHER INFORMATION. EACH MODULE INCLUDES 1 #10 AWG OUTDOOR RATED QUICK CONNECTS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED. QUICK CONNECTS SHALL COMPLY WITH NEC 690.33(C).
6. INDIVIDUAL MODULES SHALL BE BONDED TO THE RACKING SYSTEM USING APPROVED RACKING GROUNDING LUG.
7. COMMUNICATIONS CABLE BETWEEN INVERTER AND CUSTOMER OWNED DATA CLOSET.
8. REFER TO TYPICAL INVERTER SCHEMATIC ON THIS SHEET. SEE SYSTEM SUMMARY ON THIS SHEET FOR NUMBER OF STRINGS FOR EACH INVERTER.
9. SEE INVERTER DC WIRING SCHEDULE ON THIS SHEET FOR WIRING INFORMATION.
10. SEE INVERTER AC WIRING SCHEDULE ON THIS SHEET FOR WIRING INFORMATION.
11. DC DISCONNECT SWITCH, SUPPLIED INTEGRAL WITH THE INVERTER.
12. AC DISCONNECT SWITCH, SUPPLIED INTEGRAL WITH THE INVERTER.
13. NEW CHINT CPS SCH100KTL 480V, 3Ø INVERTER. SEE SYSTEM SUMMARY ON THIS SHEET FOR FURTHER INFORMATION. THE POSITIVE AND NEGATIVE DC CONDUCTORS FROM THE PV SYSTEM ARE UNGROUNDED.
14. NEW PV MAIN SWITCHBOARD, MSB-2, 1200A, 480/277V, 3ø, 4W, NEMA 3R WITH CIRCUIT BREAKERS SIZED AS SHOWN FOR INTERCONNECTION OF PV INVERTERS. CIRCUIT BREAKERS SHALL BE LABELED AS PV EQUIPMENT DISCONNECTS.
16. NEW PV METER AND DISCONNECT MIGHT BE REQUIRED TO BE GROUPED WITH ANY EXISTING METERING. EVERSOURCE METERING DEPARTMENT WILL APPROVE OF ANY TAP BOXES OR TAP LOCATIONS. FINAL METERING LOCATION AND GROUPING WILL BE DETERMINED BY EVERSOURCE METERING DEPARTMENT.
17. PANEL MOUNTED 480/277V, 3Ø AC SURGE PROTECTIVE DEVICE.
18. NEW KIOSK MONITOR AND SOLAR MONITOR TO BE INSTALLED BY CONTRACTOR. CONTRACTOR TO SUPPLY A 120V, 1PH, 20A OUTLET FOR THE MONITOR. SEE SOLR MONITOR GUIDE FOR ADDITIONAL DETAILS. CONTRACTOR TO COORDINATE WITH CUSTOMER FOR FINAL LOCATION OF KIOSK.
19. NEW PV MAIN SWITCHBOARD, MSB-1, 1200A, 480/277V, 3ø, 4W, NEMA 3R WITH 1200A MAIN CIRCUIT BREAKER AND CIRCUIT BREAKERS SIZED AS SHOWN FOR INTERCONNECTION OF PV INVERTERS. CIRCUIT BREAKERS SHALL BE LABELED AS PV EQUIPMENT DISCONNECTS.

TYPICAL INVERTER SCHEMATIC:



KMB DESIGN GROUP
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623
kmbdg.com

REV	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
1	09.08.22	REVISED 90% DESIGN	JL	ADK
0	07.29.22	90% DESIGN ISSUED FOR REVIEW	JL	ADK
0	07.13.22	ISSUED FOR REVIEW	JL	ADK

Allison D. Kimball
PROFESSIONAL ENGINEER
MA LICENSE 49626 9/8/22

SolBid

NUWAY
GROUND MOUNTED PHOTOVOLTAIC SYSTEM
700.00 KW AC / 937.99 KW DC
200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No: **732.1002**

DRAWING TITLE: PHOTOVOLTAIC ONE-LINE DIAGRAM

DRAWING SCALE: NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.: **PV-200**

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SEL-751 RELAY SETTINGS						
ANSI #	PICKUP VPHASE, A, HZ			DEFAULT TIME DELAY (SEC)	DEFAULT TIME DELAY (CYCLES)	DELAY PER TCC TIME DELAY AND TCC
	Percentage	Actual				
59-1	110%	305	V L-N(PRIMARY)	2.00	120.00	-
59-2	120%	333	V L-N(PRIMARY)	0.16	9.60	-
27-1	50%	139	V L-N(PRIMARY)	1.10	66.00	-
27-2	88%	244	V L-N(PRIMARY)	2.00	120.00	-
81/U-1	56.5Hz			0.16	9.60	-
81/U-2	58.5Hz			300.00	18000.00	-
81/O-1	61.2Hz			300.00	18000.00	-
81/O-2	62.0Hz			0.16	9.60	-
59N-1	(86.52% OF VNOM)	415.30	V (PRIMARY)	0.10	6.00	-
59N-2	(27.01% OF VNOM)	129.65	V (PRIMARY)	1.00	60.00	-

NOTE: MAX TOTAL CLEARING TIME SETTINGS DO NOT TAKE INTO ACCOUNT SWITCH OPERATING TIMES. ACTUAL SETTINGS INPUT INTO THE SEL RELAY VIA RDB FILE SHALL BE ADJUSTED TO ACCOUNT FOR OPENING TIME OF THE SELECTED BREAKER AND BE PRESENTED TO EVERSOURCE FOR REVIEW PRIOR TO WITNESS TEST.

SEL-751 RELAY SETTINGS FOR BUSBAR OVERCURRENT PROTECTION				
ANSI #	PICKUP VPHASE, A, HZ	TOTAL CLEARING TIME (SEC)	TOTAL CLEARING TIME (CYCLES)	DELAY PER TCC
51P	2999A (4.99A) PRIMARY	-	-	2.0TD U4 CURVE

PROPOSED INVERTER GRID PROTECTION SETTINGS (L-N)					
DEVICE SETTING	PICKUP	VALUE	CLEARING TIME (SEC)	CLEARING TIME (CYCLES)	DESCRIPTION
27-1	50%	139 V	1.10	66.00	UNDERVOLTAGE
27-2	88%	244 V	2.00	120.00	
59-1	110%	305 V	2.00	120.00	OVERVOLTAGE
59-2	120%	333 V	0.16	9.60	
81U-2	56.5Hz		0.16	9.60	UNDERFREQUENCY
81U-1	58.5Hz		300.00	18000.00	
81O-1	61.2Hz		300.00	18000.00	OVERFREQUENCY
81O-2	62.0Hz		0.16	9.60	

REV	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
4	09.08.22	REVISED 90% DESIGN	JL	ADK
3	07.29.22	90% DESIGN ISSUED FOR REVIEW	JL	ADK
2	07.13.22	ISSUED FOR REVIEW	JL	ADK
1				
0				

KMB DESIGN GROUP
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
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Allison D. Kimball
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SOUTH WINDSOR, CT 06074

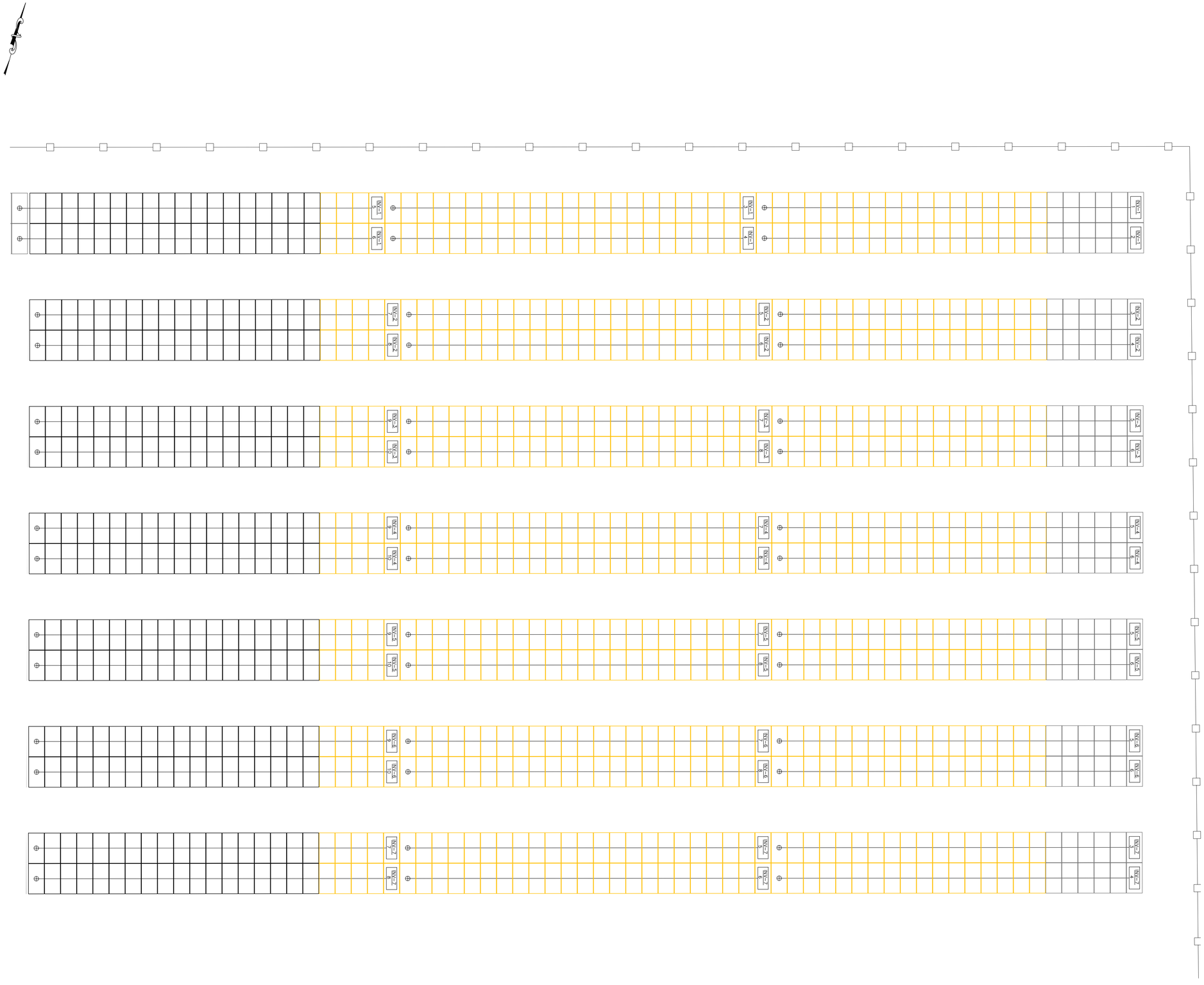
KMB PROJECT NO.
732.1002

DRAWING TITLE
PHOTOVOLTAIC TABLES AND SCHEDULES

DRAWING SCALE:
NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

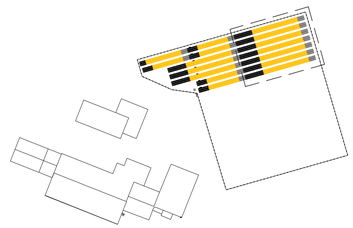
DWG No.:
PV-201



1 **PHOTOVOLTAIC SYSTEM CIRCUITING LAYOUT**

SCALE:1" = 10'-0"

KEY PLAN:



SERVICE PLAN GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE WIRING IDENTIFICATION AS FOLLOWS:

   DC WIRING
   POSITIVE: RED
   NEGATIVE: BLACK
   GROUND: GREEN

   AC WIRING 120V/208V/240V
   PHASE A BLACK
   PHASE B RED
   PHASE C BLUE
   NEUTRAL WHITE
   GROUND GREEN

   AC WIRING 277V/480V
   PHASE A BROWN
   PHASE B ORANGE
   PHASE C YELLOW
   NEUTRAL GRAY
   GROUND GREEN

2. INSTALLATION CONTRACTOR SHALL INSTALL HOME RUN DC WIRING TO INVERTERS. THIS SHALL CONSIST OF #10 AWG 1.5KV PV SUNLIGHT RESISTANT CABLE WITH LOCKING MC CONNECTOR. JUMPER CABLES BETWEEN OPTIMIZERS SHALL CONSIST OF #10 AWG 1.5KV PV SUNLIGHT RESISTANT CABLE.

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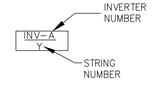
4. THE DESIGN OF THE RACKING SYSTEM AND/OR ATTACHMENT DESIGN, AND ALL ASSOCIATED CALCULATIONS ARE NOT INCLUDED IN THE SCOPE OF WORK PERFORMED BY KMB DESIGN GROUP, LLC(KMB), ARE NOT PART OF THESE DRAWINGS AND KMB MAKES NO REPRESENTATION WHATSOEVER WITH REGARD TO SAID RACKING, AND/OR ATTACHMENT DESIGN. ALL PARTIES ARE INSTRUCTED TO OBTAIN AND REFER TO THE RACKING DESIGN PLANS, PROVIDED BY OTHERS, FOR INFORMATION REGARDING THE RACKING SYSTEM AND METHOD OF SECURING/ATTACHMENT OF THE PHOTOVOLTAIC SYSTEM.

LEGEND:



ELECTRICAL SPECIFICATIONS:

PV MODULE	
QCELLS Q.PEAK DUO XL-G10.2 485W	
MAX POWER (W)	485.00
MAX POWER VOLTAGE (Vmp)	45.07
OPEN CIRCUIT VOLTAGE (Voc)	53.64
MAX POWER CURRENT (Imp)	10.76
SHORT CIRCUIT CURRENT (Isc)	11.29
STRING SIZING CALCULATIONS-23	
# PANELS PER STRING	23.00
MIN TEMPERATURE (°C)	-19.7
TEMP. COEFF. OF VOLT(%/°C)	-.27
TEMPERATURE CORR. FAC.	12.07%
MAX SYSTEM VOLTAGE (NEC 690.7)	1388.1
PV SOURCE CIRCUIT CURRENT (NEC 690.8 (A)(A))	15.53
STRING SIZING CALCULATIONS-24	
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TEMPERATURE CORR. FAC.	12.07%
MAX SYSTEM VOLTAGE (NEC 690.7)	1442.7
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REV	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
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2	07.13.22	ISSUED FOR REVIEW	JL	ADK
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KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5633

Allison D. Kimball
PROFESSIONAL ENGINEER
MA LICENSE: 49826 9/8/22

SolBid

NUWAY
GROUND MOUNTED PHOTOVOLTAIC SYSTEM
700.00 KW AC / 937.99 KW DC
200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No: **732.1002**

DRAWING TITLE: PV SYSTEM CIRCUITING SHEET 1

DRAWING SCALE: NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No: **PV-300**

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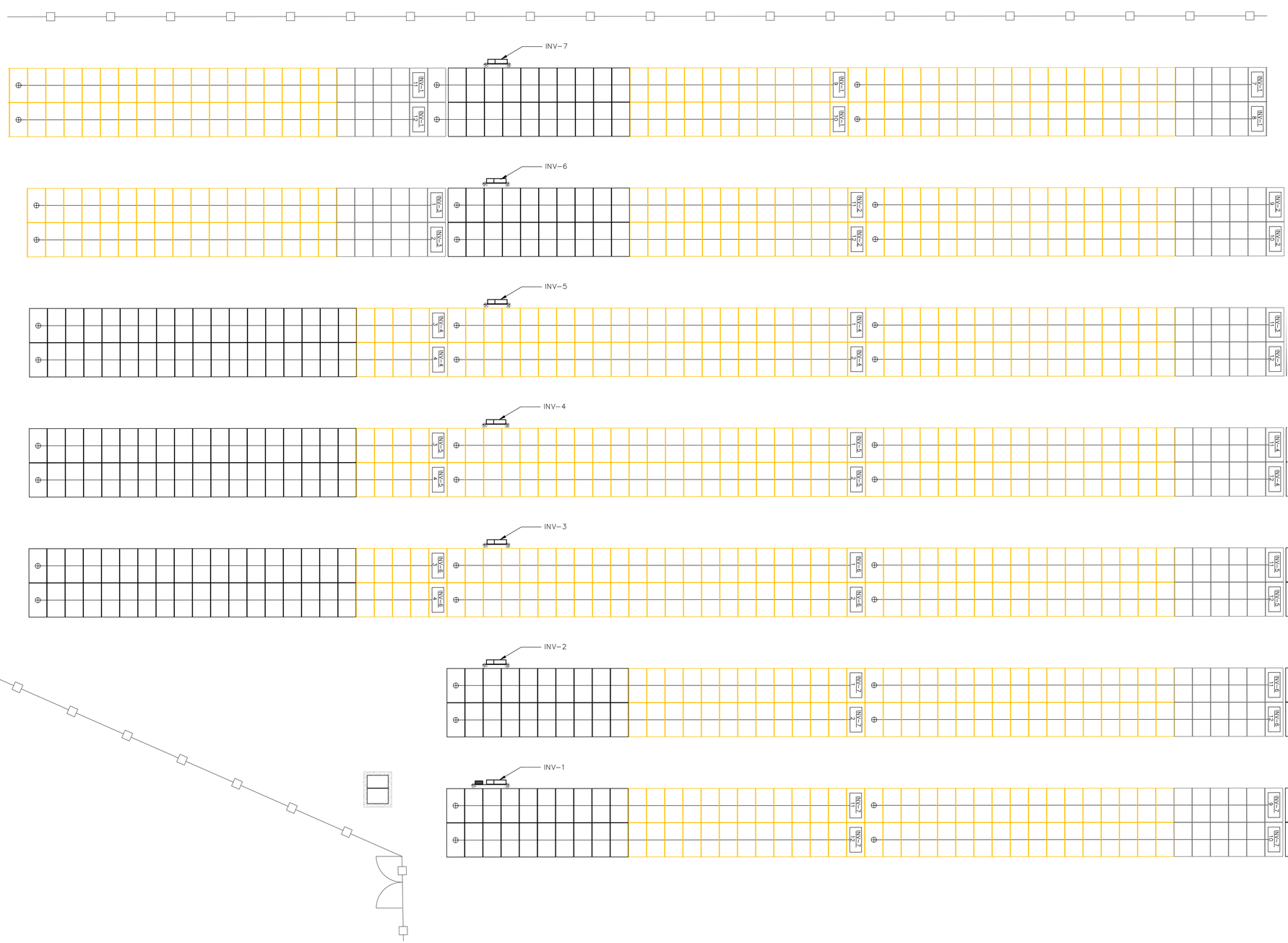
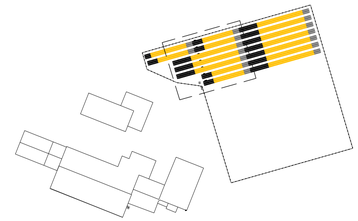


1 **PHOTOVOLTAIC SYSTEM CIRCUITING LAYOUT**

SCALE:1" = 10'-0"

KEY PLAN:



SERVICE PLAN GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE WIRING IDENTIFICATION AS FOLLOWS:

   DC WIRING
   POSITIVE: RED
   NEGATIVE: BLACK
   GROUND: GREEN

   AC WIRING 120V/208V/240V
   PHASE A BLACK
   PHASE B RED
   PHASE C BLUE
   NEUTRAL WHITE
   GROUND GREEN

   AC WIRING 277V/480V
   PHASE A BROWN
   PHASE B ORANGE
   PHASE C YELLOW
   NEUTRAL GRAY
   GROUND GREEN

2. INSTALLATION CONTRACTOR SHALL INSTALL HOME RUN DC WIRING TO INVERTERS. THIS SHALL CONSIST OF #10 AWG 1.5KV PV SUNLIGHT RESISTANT CABLE WITH LOCKING MC CONNECTOR. JUMPER CABLES BETWEEN OPTIMIZERS SHALL CONSIST OF #10 AWG 1.5KV PV SUNLIGHT RESISTANT CABLE.

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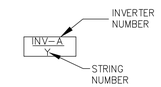

ELECTRICAL SPECIFICATIONS:

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KMB PROJECT No.
732.1002

DRAWING TITLE
PV SYSTEM CIRCUITING SHEET 2

DRAWING SCALE:
NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.:
PV-301

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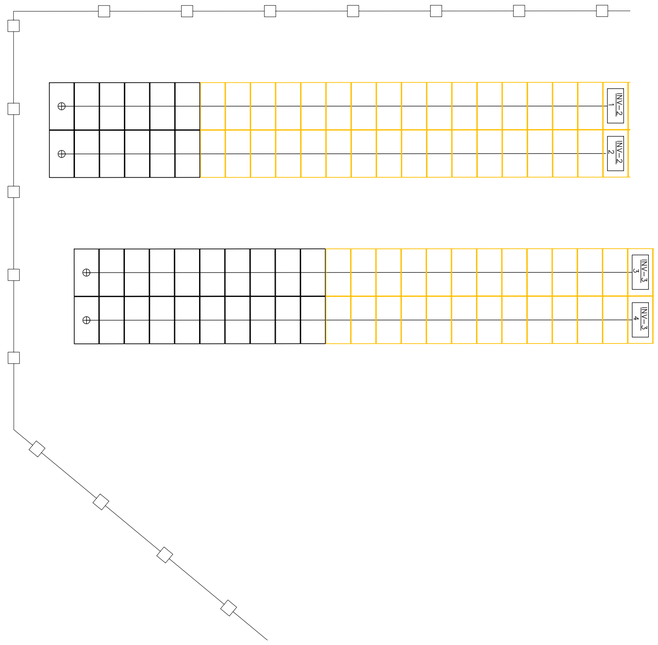
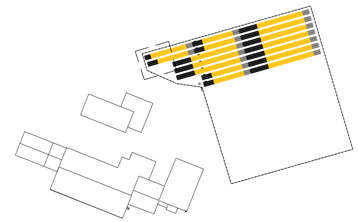


1 **PHOTOVOLTAIC SYSTEM CIRCUITING LAYOUT**

SCALE:1" = 10'-0"

KEY PLAN:



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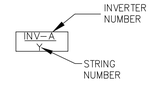

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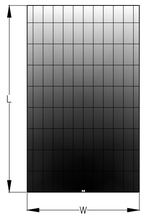
KMB PROJECT No: **732.1002**

DRAWING TITLE: PV SYSTEM CIRCUITING SHEET 2

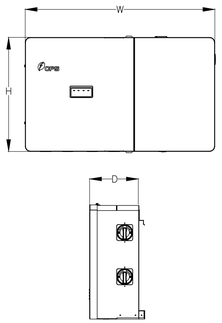
DRAWING SCALE: NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No: **PV-301**



MODULE SPECIFICATIONS		
QCELLS Q.PEAK DUO XL-G10.2 485W		
MAX POWER OUTPUT	(WATTS)	485
MAX VOLTAGE	(VOLTS)	45.07
MAX CURRENT	(AMPS)	10.76
OPEN CIRCUIT VOLTAGE	(VOLTS)	53.64
SHORT CIRCUIT CURRENT	(AMPS)	11.29
MODULE LENGTH	L (IN)	87.2
MODULE WIDTH	W (IN)	41.1
MODULE DEPTH	D (IN)	1.38
MODULE WEIGHT	WT (LBS)	58.43

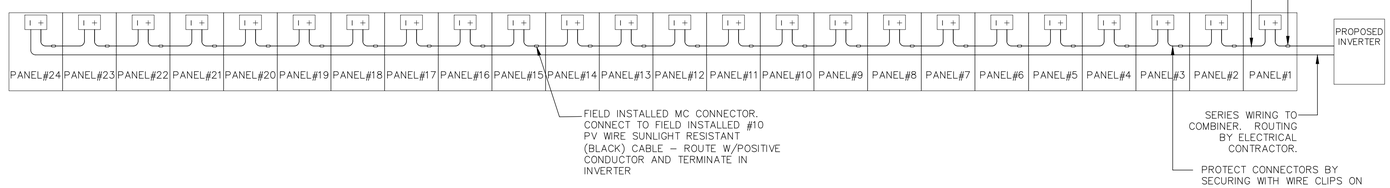


INVERTER SPECIFICATIONS		
CHINT CPS SCH100KTL-DO/US-480		
RATED OUTPUT	(KW)	100
AC RATED OUTPUT	(VOLTS)	480
AC RATED CURRENT	(AMPS)	126.7
POWER FACTOR	-	>0.99
PEAK EFFICIENCY	EFF%	97.5%
WIDTH	W (IN)	45.28
DEPTH	D (IN)	9.84
HEIGHT	H (IN)	24.25
WEIGHT	WT (LBS)	176

1 INVERTERS & SOLAR PANEL SPECS

SCALE: NTS

NOTES:
1. WIRING OF THE SOLAR MODULES WILL BE ACCOMPLISHED USING THE PRE-ATTACHED #12 AWG/USE-2 MC CABLES. THE INSTALLATION CONTRACTOR MUST PAY SPECIAL ATTENTION TO PROTECTING THESE CABLES WHEN MOVING AND INSTALLING THE MODULES.
2. RETURN STRING WIRING WILL BE #10 PV WIRE SUNLIGHT RESISTING CABLES. THESE CABLES WILL BE CONSTRUCTED TO LENGTH BY THE ELECTRICAL CONTRACTOR AND BE INSTALLED USING GOOD ASSEMBLY PRACTICES.
3. MATING CONNECTORS TO BE OF THE SAME MANUFACTURER, MODEL, AND TYPE.



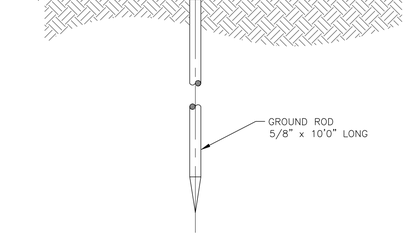
2 TYPICAL MODULE STRINGING

SCALE: NTS

1. ALL GROUNDING/BONDING CONNECTIONS NOT TERMINATED INSIDE EQUIPMENT SHALL BE MADE USING IRREVERSIBLE COMPRESSION OR EXOTHERMIC CONNECTIONS.
2. ALL AC & DC MADE GROUNDING ELECTRODES SHALL CONSIST OF COPPER OR COPPERCLAD DRIVEN GROUND RODS NO SMALLER THAN 5/8"X10' AND HAVE RESISTANCE TO EARTH OF 25 OHMS OR LESS. IF RESISTANCE OF 25 OHMS OR LESS TO EARTH CANNOT BE ACHEEIVED THAN A SUPPLEMENTAL ELECTRODE SHALL BE DRIVEN AS PER NEC 50.53. IF MULTIPLE GROUND RODS ARE DRIVEN THEY SHALL BE SPACED NOT LESS THAN 6FT APART.
3. ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, ETC SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
4. ALL EXTERIOR METALLIC CONDUIT WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF HANDHOLES, NON-METALLIC JUNCTION BOXES, DIRECT BURIAL TRANSITIONS, CABLE TRAY TRANSITIONS, ETC SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE RUN. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE WHERE THERE IS NOT CONTINUITY BETWEEN THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT.
5. PROPERLY SIZED EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED WITH ALL RACEWAYS AND CABLE CONVEYANCES. METALLIC RACEWAY AND CONDUIT CONNECTORS SHALL NOT BE CONSIDERED ADEQUATE GROUNDING.

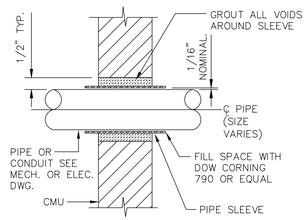
8 GROUNDING NOTES

SCALE: NTS



9 AC GROUNDING ELECTRODE DETAIL

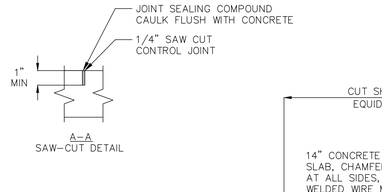
SCALE: NTS



NOTES: (FOR FIRE-RATED WALL ONLY)
1. PIPE ANCHORAGE IS REQUIRED NEARBY TO PREVENT PIPE MOVEMENT THROUGH PENETRATION.
2. CABLES WITHIN CONDUIT PENETRATION SHALL BE FIRE SEALED AFTER INSTALLATION

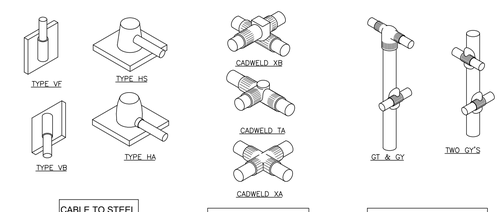
6 CONDUIT WALL PENETRATION DETAIL

SCALE: NTS



3 TYPICAL CONCRETE PAD DETAIL

SCALE: NTS



5 EXOTHERMIC WELD CONNECTIONS

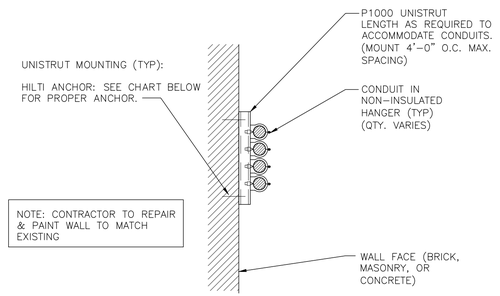
SCALE: NTS

ILSCO GBL-4DBT GROUND LUG

NOTES:
1. MODULE MOUNTING SYSTEM SHALL BE BONDED TOGETHER USING SOLID WIRE GROUNDING ASSEMBLY OR OTHER RACKING APPROVED GROUNDING ASSEMBLY. SEE PV-200 FOR EQUIPMENT GROUNDING CONDUCTOR SIZE.
2. INDIVIDUAL MODULES SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR AS PER THE DETAIL.

4 TYPICAL LAY-IN GROUNDING LUG

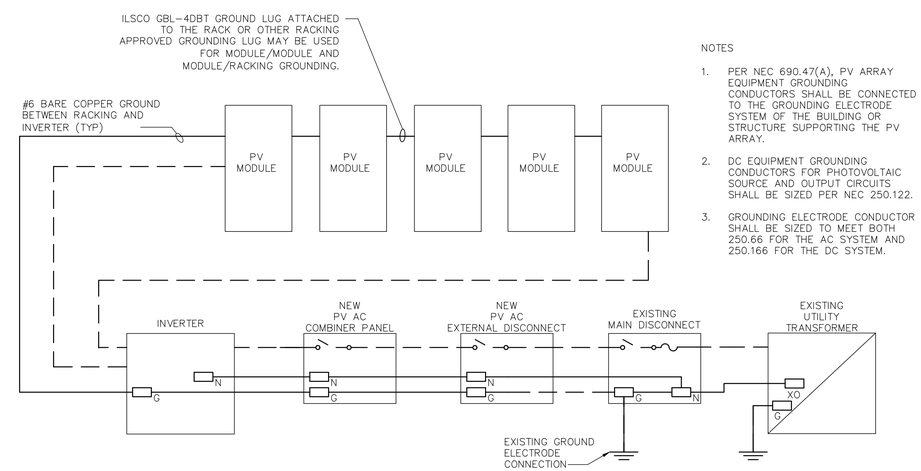
SCALE: NTS



MOUNTING METHODS CHART	
WALL TYPE	METHOD OF ATTACHMENT
CONCRETE BLOCK (HOLLOW)	3/8"Ø HILTI HIT HY70 WITH SCREEN. MINIMUM EMBEDMENT 6" SPACED 24" O. C. OR 1/4"Ø HILTI KWIK-CON II+ 3 1/2" MINIMUM EMBEDMENT SPACED 16" O.C.
CONCRETE /BRICK	3/8"Ø HILTI HIT HY150. MINIMUM EMBEDMENT 3 1/2" SPACED 24" O.C. OR 1/4"Ø HILTI KWIK-CON II+ 3 1/2" MINIMUM EMBEDMENT SPACED 16" O.C.

3 CONDUIT VERTICAL SUPPORT DETAIL

SCALE: NTS



NOTES
1. PER NEC 690.47(A), PV ARRAY EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO THE GROUNDING ELECTRODE SYSTEM OF THE BUILDING OR STRUCTURE SUPPORTING THE PV ARRAY.
2. DC EQUIPMENT GROUNDING CONDUCTORS FOR PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUITS SHALL BE SIZED PER NEC 250.122.
3. GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZED TO MEET BOTH 250.66 FOR THE AC SYSTEM AND 250.166 FOR THE DC SYSTEM.

10 TYPICAL GROUNDING DETAIL

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KMB PROJECT No.
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DRAWING TITLE
PHOTOVOLTAIC SYSTEM DETAILS SHEET 1

DRAWING SCALE:
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DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.
PV-400

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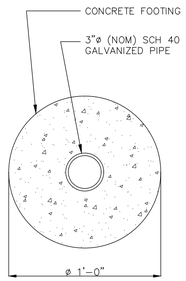
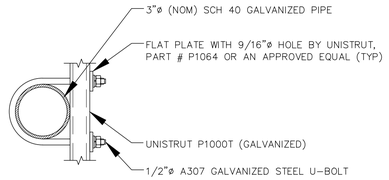


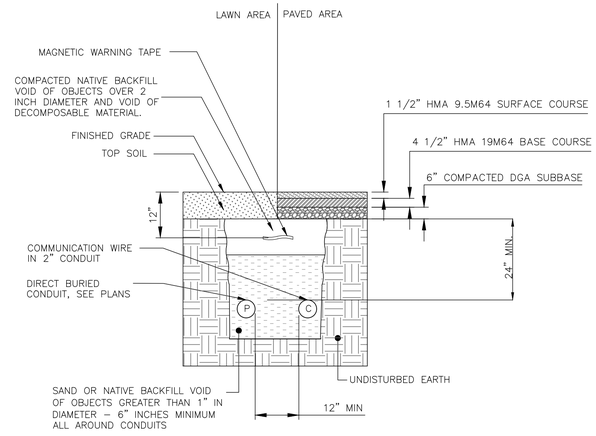
CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318 AND THE SPECIFICATION CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE.
3. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER.....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL.....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.
4. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE.

1 EQUIPMENT POST DETAIL
SCALE: NTS

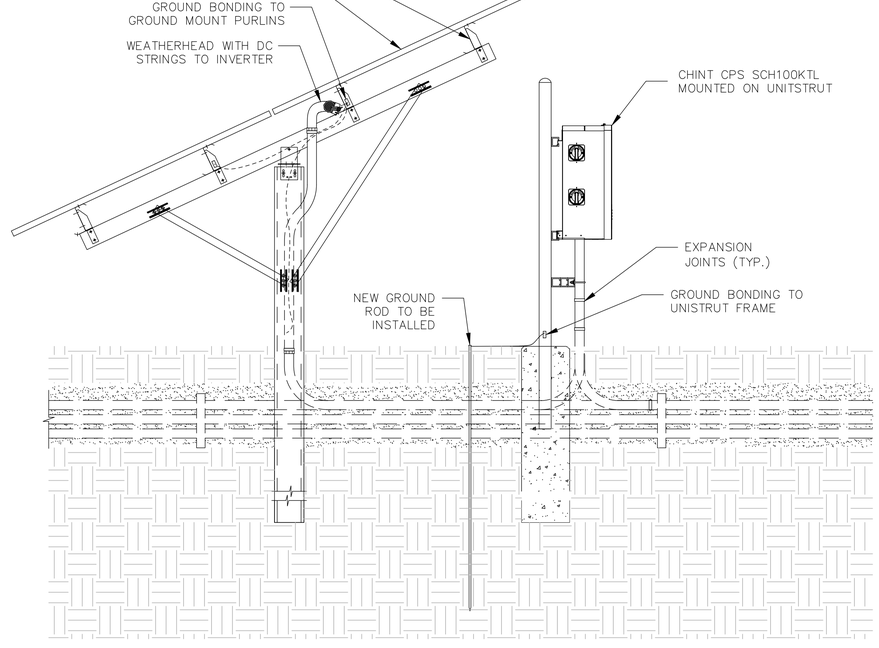


2 UNISTRUT CONNECTION DETAIL
SCALE: NTS



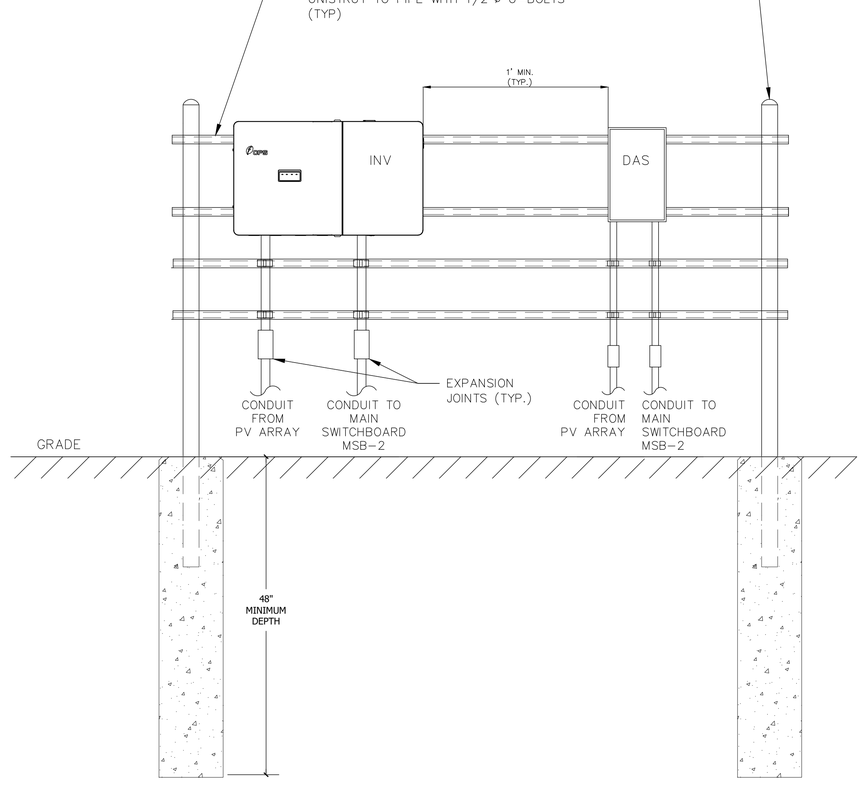
NOTE:
1. MAGNETIC DETECTABLE WARNING TAPE – "CAUTION ELECTRIC LINE BELOW" TO BE INSTALLED IN TRENCH AT NO DEEPER THAN 12" BELOW FINISHED GRADE.
2. THIS DETAIL IS GENERAL, TO SHOW THE REQUIRED DEPTH'S AND COVER. ADJUST AS NECESSARY FOR MORE THEN ONE CONDUIT.
3. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING SUITABILITY OF NATIVE SOIL FOR BACKFILL AROUND DIRECT BURIED CABLES.
4. PAVEMENT DETAIL IS FOR ROADS WITH A CALIFORNIA BEARING RATIO CBR ≥ 2.
5. ASPHALT PAVEMENT MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH NJDOT SPECIFICATIONS.
6. PAVEMENT DESIGN HAS BEEN MADE MADE IN ACCORDANCE WITH THE NEW JERSEY RESIDENTIAL SITE IMPROVEMENT STANDARDS (RSIS–NJAC TITLE 5, CHAPTER 21).
7. COMPACTION LEVEL DESIGN HAS BEEN MADE IN ACCORDANCE WITH THE NJDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 902.02.01.
8. COMPACTED SUB BASE: NJDOT 1–3 AGGREGATE SIZE.
9. EXPOSED VERTICAL AND HORIZONTAL SURFACES, IN PAVED AREAS, SHALL BE PREPARED AS PER STATE DOT SPECIFICATIONS.

2 DIRECT BURIED CONDUIT DETAIL
SCALE: NTS



4 SIDE VIEW OF GROUND MOUNT AND INVERTER ELEVATION DETAIL
SCALE: NTS

NOTE:
DETAILS ARE INTENDED TO CONVEY DESIGN INTENT ONLY.
CONTRACTOR SHALL MODIFY AS NECESSARY TO SUIT FIELD CONDITIONS. CLEARANCES SHALL BE MAINTAINED PER NEC AND OTHER APPLICABLE LOCAL CODES.



5 TYPICAL UNISTRUT INVERTER ELEVATION DETAIL
SCALE: NTS

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1	09.08.22	REVISED 90% DESIGN	JL	ADK
0	07.29.22	90% DESIGN ISSUED FOR REVIEW	JL	ADK
0	07.13.22	ISSUED FOR REVIEW	JL	ADK

KMB DESIGN GROUP
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623
kmbdg.com

Allison D. Kimball
PROFESSIONAL ENGINEER
MA LICENSE: 49826 9/8/22

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NUWAY
GROUND MOUNTED PHOTOVOLTAIC SYSTEM
700.00 KW AC / 937.99 KW DC
200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No.: 732.1002
DRAWING TITLE: PHOTOVOLTAIC SYSTEM DETAILS SHEET 2
DRAWING SCALE: NONE
DRAWN BY: JL | CHECKED BY: ADK | DATE: 07.11.22
DWG No.: PV-401

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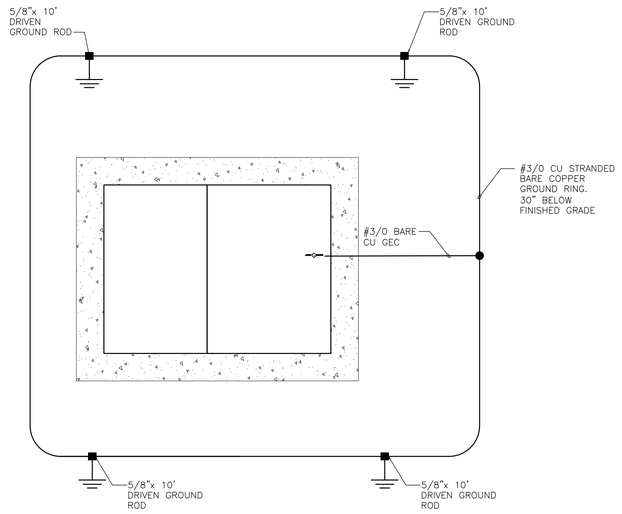

1 **TYPICAL SWITCHGEAR GROUNDING DETAIL**

SCALE: NTS

2 **TYPICAL SWITCHGEAR GROUNDING DETAIL**

SCALE: NTS

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KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

Allison D. Kimball
PROFESSIONAL ENGINEER
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200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No.
732.1002

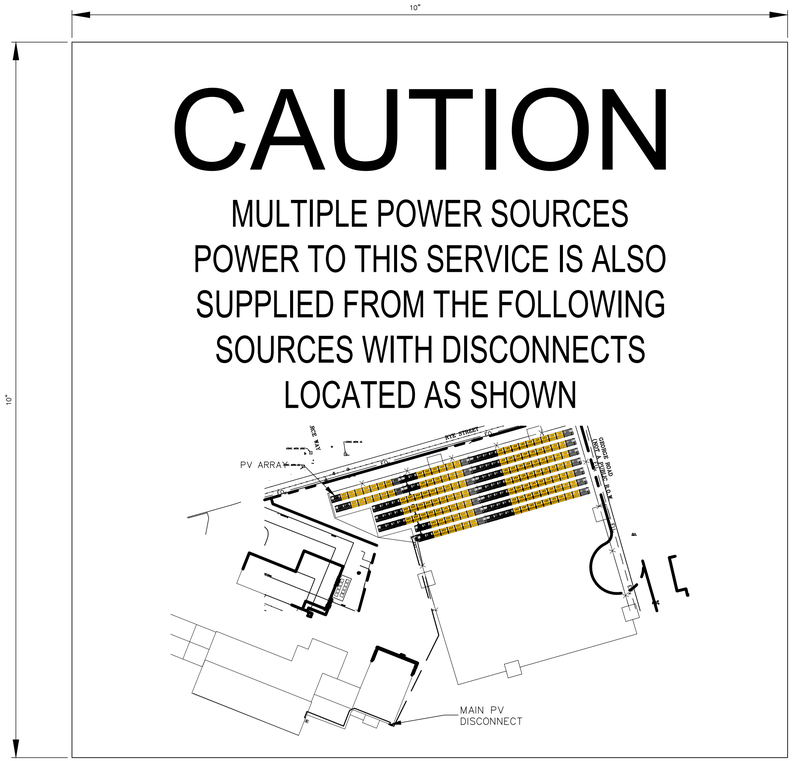
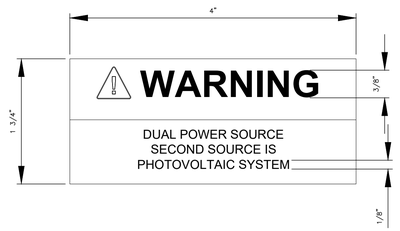
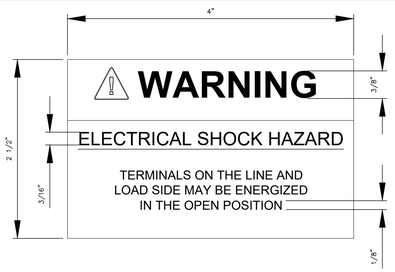
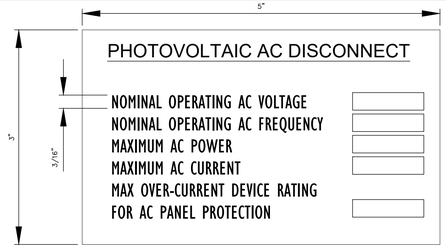
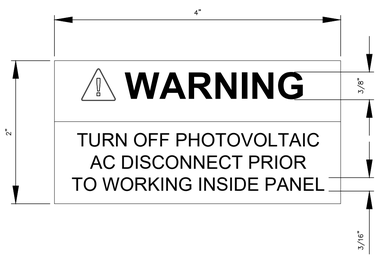
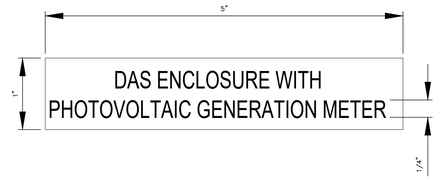
DRAWING TITLE
PHOTOVOLTAIC SYSTEM DETAILS SHEET 3

DRAWING SCALE:
NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.:
PV-402

EQUIPMENT LABEL SCHEDULE

LABEL NUMBER	A	LABEL NUMBER	B	C
LABEL LOCATION	EXISTING MAIN SERVICE DISCONNECT	LABEL LOCATION	ACD-A AND EXISTING MAIN SERVICE DISCONNECT	ACD-A
LABEL QUANTITY	1	LABEL QUANTITY	2	1
LABEL FIGURE		LABEL FIGURE		
LABEL NUMBER		LABEL NUMBER	D	G
LABEL LOCATION		LABEL LOCATION	ACD-A, ACD-B	ACD-A, ACD-B
LABEL QUANTITY		LABEL QUANTITY	2	2
LABEL FIGURE		LABEL FIGURE		
LABEL NUMBER		LABEL NUMBER	H	I
LABEL LOCATION		LABEL LOCATION	EXISTING SERVICE MSB	DAS ENCLOSURE
LABEL QUANTITY		LABEL QUANTITY	1	1
LABEL FIGURE		LABEL FIGURE		
LABEL NUMBER		LABEL NUMBER		
LABEL LOCATION		LABEL LOCATION		
LABEL QUANTITY		LABEL QUANTITY		
LABEL FIGURE		LABEL FIGURE		

TO COMPLY WITH NEC 705.10 & NEC 690.56(B)

NOTE: PLEASE SEE THE AC LABELING CHART ON THIS SHEET FOR IDENTIFICATION RATING.

GENERAL NOTES

1. LABELS AND MARKINGS SHALL BE APPLIED TO THE APPROPRIATE COMPONENTS IN ACCORDANCE WITH NEC.
2. SOLAR MODULES ARE SUPPLIED FROM THE MANUFACTURER WITH MARKINGS PRE-APPLIED TO MEET THE REQUIREMENTS OF NEC.
3. THE INVERTERS ARE SUPPLIED FROM THE MANUFACTURER WITH THE APPROPRIATE LABELS AND MARKINGS.
4. TEXT LABELS WILL BE ENGRAVED WITH WHITE GRAPHICS ONTO 1/16" RED MELAMINE PLASTIC PLACARDS. THE LABEL WILL BE ATTACHED TO THE APPROPRIATE COMPONENT ENCLOSURES IN CONSPICUOUS PLACES USING TWO PART EPOXY.
5. LABEL 'D' WILL BE ETCHED WITH WHITE GRAPHICS ONTO 1/16" RED PLASTIC PLACARD. THE LABEL WILL BE EFFECTIVELY ATTACHED TO THE EXISTING FACILITY SWITCHBOARD AND THE NEW PHOTOVOLTAIC SYSTEM DISCONNECT.
6. EACH INVERTER SHALL BE LABELED WITH IT'S INVERTER IDENTIFICATION NUMBER, ETCHED WITH WHITE GRAPHICS ONTO 1/16" RED PLASTIC PLACARDS.

AC DISCONNECT LABELING CHART

AC DISCONNECT LABELING CHART					
ACD NUMBER	NOMINAL OPERATING AC VOLTAGE (VAC)	NOMINAL OPERATING AC FREQUENCY (HZ)	MAX AC POWER (KW)	MAX AC CURRENT (A)	MAX OCPD FOR AC PROTECTION (A)
ACD-1	480	60	100	126.70	175
ACD-2	480	60	100	126.70	175
ACD-3	480	60	100	126.70	175
ACD-4	480	60	100	126.70	175
ACD-5	480	60	100	126.70	175
ACD-6	480	60	100	126.70	175
ACD-7	480	60	100	126.70	175
ACD-B	480	60	700	886.90	1200
ACD-A	480	60	700	886.90	1200

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	07.13.22	ISSUED FOR REVIEW	JL	ADK

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

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200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No.
732.1002

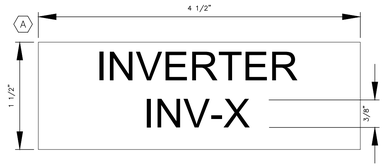
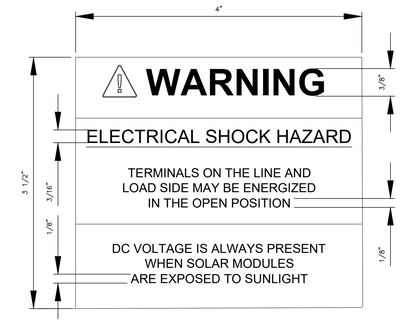
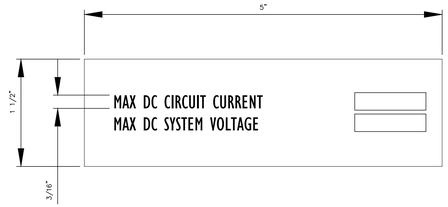
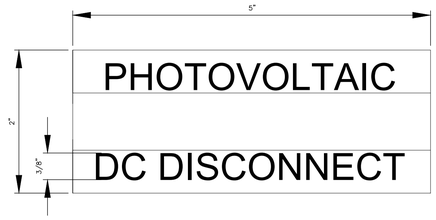
DRAWING TITLE
PHOTOVOLTAIC SYSTEM
LABEL SHEET 1

DRAWING SCALE:
NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.
PV-403

EQUIPMENT LABEL SCHEDULE

LABEL NUMBER	A	B
LABEL LOCATION	ALL INVERTERS	ALL INVERTERS
LABEL QUANTITY	7	7
LABEL FIGURE	 NOTE: PLEASE SEE THE DC LABELING CHART ON THIS SHEET FOR INVERTER IDENTIFICATION NUMBER.	
LABEL NUMBER	C	D
LABEL LOCATION	ALL INVERTERS	ALL INVERTERS
LABEL QUANTITY	7	7
LABEL FIGURE	 NOTE: PLEASE SEE THE DC LABELING CHART ON THIS SHEET FOR INVERTER DC DISCONNECT RATING.	

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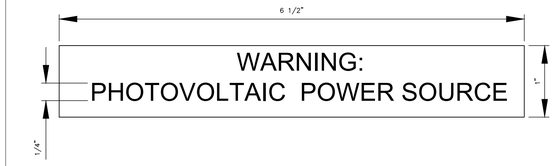
5. LABEL 'B' WILL BE ETCHED WITH WHITE GRAPHICS ONTO 1/16" RED PLASTIC PLACARD. THE LABEL WILL BE EFFECTIVELY ATTACHED TO THE EXISTING FACILITY SWITCHBOARD AND THE NEW PHOTOVOLTAIC SYSTEM DISCONNECT.
6. EACH INVERTER SHALL BE LABELED WITH IT'S INVERTER IDENTIFICATION NUMBER, ETCHED WITH WHITE GRAPHICS ONTO 1/16" RED PLASTIC PLACARDS.

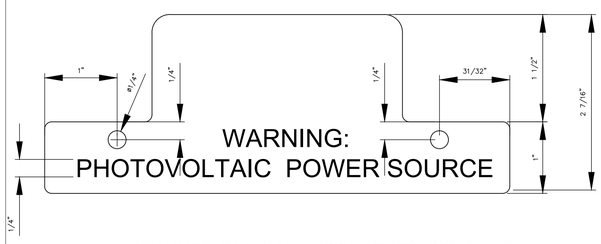
DC DISCONNECT LABELING CHART

DC DISCONNECT LABELING CHART		
IDENTIFICATION	MAX DC CIRCUIT CURRENT	MAX DC SYSTEM VOLTAGE
INV-1	135.48	1442.70
INV-2	135.48	1388.10
INV-3	135.48	1388.10
INV-4	135.48	1388.10
INV-5	135.48	1388.10
INV-6	135.48	1388.10
INV-7	135.48	1388.10

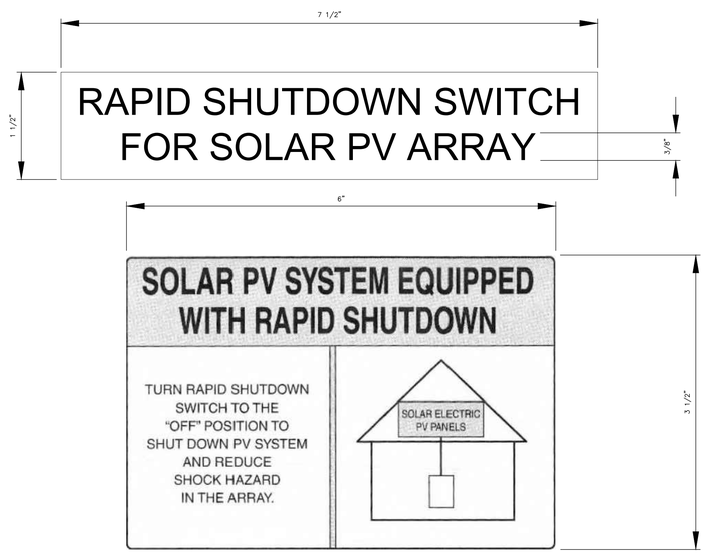
LABEL NUMBER	E	F
LABEL LOCATION	CONDUITS (SEE MORE DETAIL IN THE NOTE BELOW)	ACD-A
LABEL QUANTITY	N/A	1 OF EACH

LABEL FIGURE





NOTE: PV DC SYSTEM CIRCUIT LABELS SHALL APPEAR ON EVERY SECTION OF THE WIRING SYSTEM THAT IS SEPARATED BY ENCLOSURES, PULL BOXES, JUNCTION BOXES, CONDUIT BOXES, EXPOSED RACEWAYS, CONDUIT BODIES IN WHICH ANY OF AVAILABLE CONDUIT OPENINGS ARE UNUSED, WALLS, PARTITIONS, CEILING, OR FLOORS, SPACING BETWEEN LABELS OR MARKING, OR BETWEEN A LABEL AND A MARKING, SHALL NOT BE MORE THAN 3M (10FT). LABELS SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE THEY ARE INSTALLED AND BE OF REFLECTIVE MATERIAL.



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1800 ROUTE 34, SUITE 209
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KMB PROJECT No: 732.1002

DRAWING TITLE: PHOTOVOLTAIC SYSTEM LABEL SHEET 2

DRAWING SCALE: NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No: PV-404

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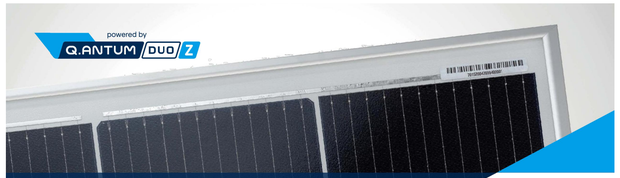
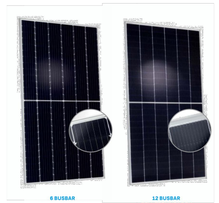


Q.PEAK DUO XL-G10.2
470-495
ENDURING HIGH PERFORMANCE

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2021

Q CELLS Yield Security



6 BUSBAR CELL TECHNOLOGY

12 BUSBAR CELL TECHNOLOGY

BREAKING THE 21% EFFICIENCY BARRIER
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 21.6%.

LOW ELECTRICITY GENERATION COSTS
Higher yield per surface area, lower BOS costs and up to 80 watts more module power than standard 144 half-cell modules.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (3000 Pa).

A RELIABLE INVESTMENT
Inclusive 12-year product warranty and 25-year linear performance warranty[2].

STATE OF THE ART MODULE TECHNOLOGY
Q.ANTUM DUO combines cutting edge cell separation and innovative 12-busbar design with Q.ANTUM Technology.

[1] APT test conditions according to IEC / TS 62804-1:2015, method A (−1500 V, 96 h)
[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:

Ground-mounted solar power plants

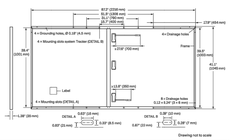
Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	67.2 in × 41.1 in × 1.38 in (including frame) (1224 mm × 1045 mm × 35 mm)
Weight	58.4 lbs (26.5 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Anodized aluminum
Cell	6 × 26 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09–3.98 in × 1.26–2.36 in × 0.59–0.71 in (53–101 mm × 32–60 mm × 15–18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥ 27.6 in (700 mm), (−) ≥ 13.8 in (350 mm)*
Connector	Stäubli MC4, Stäubli MC4-Evo2, Hanwha Q CELLS HQC4; IP68

*Long cables (+) ≥ 57.1 in (1450 mm), (−) ≥ 57.1 in (1450 mm) for landscape installation are available upon request.

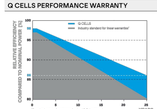


ELECTRICAL CHARACTERISTICS

POWER CLASS			470	475	480	485	490	495
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)								
Minimum	Power at MPP[3]	P_{MPP} [W]	470	475	480	485	490	495
	Short Circuit Current[3]	I_{SC} [A]	11.21	11.24	11.26	11.29	11.31	11.34
	Open Circuit Voltage[3]	V_{OC} [V]	53.54	53.58	53.61	53.64	53.68	53.71
	Current at MPP	I_{MPP} [A]	10.62	10.66	10.71	10.76	10.81	10.86
	Voltage at MPP	V_{MPP} [V]	44.27	44.54	44.81	45.07	45.33	45.59
	Efficiency[4]	η [%]	≥20.3	≥20.5	≥20.7	≥20.9	≥21.2	≥21.4
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP} [W]	352.6	356.4	360.1	363.9	367.6	371.4
	Short Circuit Current	I_{SC} [A]	9.03	9.05	9.07	9.09	9.12	9.14
	Open Circuit Voltage	V_{OC} [V]	50.49	50.53	50.56	50.59	50.62	50.65
	Current at MPP	I_{MPP} [A]	8.34	8.39	8.43	8.47	8.52	8.56
	Voltage at MPP	V_{MPP} [V]	42.26	42.49	42.72	42.94	43.17	43.39

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25 ±2 °C, AM 1.5 according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5

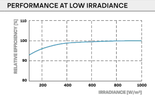
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°F]	109 ± 5.4 (43 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1500 (IEC) / 1500 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 1
Max. Design Load, Push / Pull[2]	[lbs/ft²]	75 (3600 Pa) / 42 (2000 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull[2]	[lbs/ft²]	113 (5400 Pa) / 63 (3000 Pa)		

[1] See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells).

PACKAGING INFORMATION

Horizontal packaging	89.4 in 2270 mm	43.3 in 1100 mm	47.6 in 1210 mm	1809 lbs 821 kg	22 pallets	20 pallets	29 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | **TEL** +1 949 748 59 96 | **EMAIL** inquiry@us.q-cells.com | **WEB** www.q-cells.us

Specifications subject to technical changes © **Q CELLS** Q.PEAK DUO XL-G10.2_470-495_2022-01_Rev03_NA

CPS

Datasheet

100kW, 1500Vdc/480Vac String Inverters for North America

CPS SCH100KTL-DO/US-480

The 100kW high power CPS three phase string inverters are designed for ground mount applications with 480Vac service voltage. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiencies, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100kW products ship with the Standard or Centralized Wire-box, each fully integrated and separable with AC and DC disconnect switches. The Standard Wire-box inlcudes touch safe fusing for up to 20 strings. The CPS FlexOM solution enables communication, controls and remote product upgrades.

Key Features

- NFPA 70, NEC 2017 compliant
- Touch safe DC Fuse holders adds convenience and safety
- CPS FlexOM Gateway enables remote FW upgrades
- Integrated AC & DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Advanced Smart-Grid features
- Full power capacity up to 45°C
- Generous DC/AC Inverter Load Ratios
- Separable wire-box design for fast service
- Standard 5 year warranty with extensions to 20 years

100KTL Standard Wire-box

100KTL Centralized Wire-box

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Chint Power Systems America
6800 Koll Center Parkway, Suite 235 Pleasanton, CA 94566
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

CPS

Technical Data

Model Name	CPS SCH100KTL-DO/US-480
DC Input	
Max. DC Input Voltage	1500Vdc
Operating DC Input Voltage Range	750-1450Vdc
Start-up DC Input Voltage / Power	900Vdc / 200W
Number of MPP Trackers	1
MPPT Voltage Range @ PF>0.99[1]	760-1300Vdc
Max. PV Input Current (Isc x1.25)	275A
Number of DC Inputs	20 PV source circuits, pos. & neg. fused (Standard Wire-box) 1 PV output circuit, 1-2 terminations per pole, non-fused (Centralized Wire-box)
DC Disconnection Type	Load-rated DC switch
DC Surge Protection	Type II MOV (with indicator/remote signaling), up=2.5kV, In=20kA (8/20uS)
AC Output	
Rated AC Output Power @ PF>0.99	100kW
Max. AC Apparent Power[2]	100kVA (105.3kVA @ PF>0.95)
Rated Output Voltage	480Vac
Output Voltage Range[3]	423-528Vac
Grid Connection Type[4]	3-Phase / PE / N (Neutral Optional)
Max. AC Output Current @480Vac	120.3A/126.7A
Rated Output Frequency	60Hz
Output Frequency Range[3]	57 - 63Hz
Power Factor	>0.99 (±0.8 adjustable)
Current THD @ Rated Load	<3%
Max. Fault Current Contribution (1 Cycle RMS)	41.47A
Max. OCPD Rating	200A
AC Disconnection Type	Load-rated AC switch
AC Surge Protection	Type II MOV (with indicator/remote signaling), up=2.5kV, In=20kA (8/20uS)
System and Performance	
Topology	Transformerless
Max. Efficiency	98.9%
CEC Efficiency	98.0%
Stand-by / Night Consumption	<4W
Environment	
Enclosure Protection Degree	NEMA Type 4X
Cooling Method	Variable speed cooling fans
Operating Temperature Range	-22°F to +140°F / -30°C to +60°C (derating from +113°F / +45°C)
Non-Operating Temperature Range[5]	No low temp minimum to +158°F / +70°C maximum
Operating Humidity	0 to 100%
Operating Altitude	8202ft / 2500m (no derating)
Audible Noise	<65dBA @ 1m and 25°C
Display and Communication	
User Interface and Display	LED indicators, WiFi + APP
Inverter Monitoring	Modbus RS485
Site Level Monitoring	CPS FlexOM (1 per 32 inverters)
Modbus Data Mapping	SunSpec / CPS
Remote Diagnostics / FW Upgrade Functions	Standard / (with FlexOM Gateway)
Mechanical	
Dimensions (WxHxD)	45.28x24.25x9.84in (1150x616x250mm) with Standard Wire-box 39.37x24.25x9.84in (1000x616x250mm) with Centralized Wire-box
Weight	Inverter: 121lbs / 55kg; Wire-box: 55lbs / 25kg (Standard Wire-box) 33lbs / 15kg (Centralized Wire-box)
Mounting / Installation Angle	15 - 90 degrees from horizontal (vertical or angled)
AC Termination	M10 Stud Type Terminal [3Φ] (Wire range:1/0AWG - 500kcmil CU/AL, Lugs not supplied) Screw Clamp Terminal Block [N] (#12 - 1/0AWG CU/AL)
DC Termination	Screw Clamp Fuse Holder (Wire range: #12 - #6AWG CU) - Standard Wire-box Busbar, M10 Bolts (Wire range: #1AWG - 500kcmil CU/AL, [1 termination per pole], #1AWG - 300kcmil CU/AL, [2 terminations per pole], Lugs not supplied) - Centralized Wire-box
Fused String Inputs	20A fuses provided (Fuse values of 15A or 20A acceptable)
Safety	
Certifications and Standards	UL1741-SA-2016, CSA-22.2 NO.107.1-01, IEEE1547a-2014, FCC PART15
Selectable Grid Standard	IEEE 1547a-2014, CA Rule 21, ISO-NE, HECO Rule 14H
Smart-Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-Var, Freq-Watt, Volt-Watt
Warranty	
Standard	5 Years
Extended Terms	10, 15, and 20 Years

1) See user manual for further information regarding MPPT Voltage Range when operating at non-unity PF
2) "Max. AC Apparent Power" rating valid within MPPT voltage range and temperature range of -30°C to +60°C (-22°F to +104°F) for 100kW @ PF >0.95
3) The "Output Voltage Range" and "Output Frequency Range" may differ according to the specific grid standard.
4) Wye neutral-grounded, Delta may not be corner-grounded.
5) See user manual for further requirements regarding non-operating conditions.

REV	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
1	09.08.22	REVISED 90% DESIGN	JL	ADK
0	07.29.22	90% DESIGN ISSUED FOR REVIEW	JL	ADK
0	07.13.22	ISSUED FOR REVIEW	JL	ADK

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

Allison D. Kimball
PROFESSIONAL ENGINEER
MA LICENSE: 49826 9/8/22

SolBid

NUWAY
GROUND MOUNTED PHOTOVOLTAIC SYSTEM
700.00 KW AC / 937.99 KW DC
200 SULLIVAN AVE
SOUTH WINDSOR, CT 06074

KMB PROJECT No.
732.1002

DRAWING TITLE
PHOTOVOLTAIC SYSTEM DATA SHEETS

DRAWING SCALE:
NONE

DRAWN BY:	CHECKED BY:	DATE:
JL	ADK	07.11.22

DWG No.
PV-500