REQUEST FOR PROPOSAL

NEW CASTLE, DE

66KW PHOTOVOLTAIC ARRAY

MSC
Municipal Services Commission
of the City of New Castle

Revision Log

No.	Date	Issue
0.	7/17/2026	Issued for Publication
1.		
2.		

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1. NOTICE OF REQUEST FOR PROPOSALS

The Municipal Services Commission (MSC) of the City of New Castle, Delaware (the "City") is soliciting sealed proposals from qualified firms for the engineering, procurement, and construction (EPC) of an MSC-owned, ground-mounted solar photovoltaic (PV) system to be installed at Penn Farm, adjacent to the City's Water Treatment Plant.

Proposals will be received in accordance with the requirements set forth in this Request for Proposals (RFP). MSC will award a contract using a best-value selection process.

This RFP does not commit MSC to award a contract, to pay any costs incurred in the preparation of a proposal, or to procure or contract for services or supplies. MSC reserves the right to reject any or all proposals, waive informalities or irregularities, request clarifications, and award the contract in the best interest of MSC.

Nothing contained in this RFP shall be construed to create a contractual relationship between MSC and any proposer until a written contract has been fully executed and approved by MSC.

Proposed Project schedule:

Event	**Approx Date**
Invitation to Bid	July 17, 2026
Pre-bid Site Visit	Available By Appointment
Proposals Due	August 21, 2026
Contract Execution	August 28, 2026
Permits Obtained / Construction Start	October 30, 2026
Mechanical Completion	November 20, 2026
Final Commissioning	December 11, 2026
Substantial Completion and commercial operation of the system shall be no later than December 31, 2026 unless otherwise approved by the Owner.	

2. PROJECT BACKGROUND AND OBJECTIVES

MSC seeks to expand its renewable energy infrastructure through the installation of a new ground-mounted solar PV system. The system shall be designed and constructed as a turnkey installation, providing long-term, reliable electrical production while meeting all applicable federal, state, and local requirements.

Primary objectives include:

- Delivery of a fully functional, code-compliant PV system
- Achievement of minimum annual energy production requirements
- Minimization of operational burden on MSC staff
- Compliance with all applicable public funding and labor regulations

3. PROJECT DESCRIPTION

3.1 GENERAL

The project consists of the design, engineering, procurement, construction, testing, and commissioning of a ground-mounted solar PV system located at Penn Farm, adjacent to the City's Water Treatment Plant.

The Contractor shall provide all labor, materials, equipment, tools, permits, inspections, and services necessary to deliver a complete and operational system.

The existing site hosts a 25kW ground-mounted solar array. Two new solar arrays are to be installed on the site. The minimum kW value for new solar arrays is to be 60kW (AC), and additional consideration will be given to proposals which max out the kW within the available footprint.

The new solar panels shall feed new inverters located on grade (provided by the contractor as part of this project). The contractor shall provide all foundations, racking, etc. in order to accommodate the new equipment. Each of the new inverters will homerun back to a new panelboard (panel PP2, to be provided by the contractor as part of this project) located on grade adjacent to existing panelboard PP1. Panelboard PP2 shall be fed directly from the existing utility meter.

The site is assumed to require minor grading only (there is no mass excavation anticipated). The Contractor shall include up to ±6 inches of grading tolerance.

Initial example drawings have been laid out using Solar4America panels and SolarEdge inverters. These drawings are generic, and the equipment referenced within these drawings represents a base level of performance and quality. The successful solar bidder shall utilize their preferred panel and inverter brand so long as materials and equipment are of equal quality (equipment efficiency, reliability, warranty terms, and performance characteristics as laid out in the Worksheets in Appendix C). The drawings have been provided as an example of the documentation required to support a ground-mount photovoltaic system to satisfy MSC's performance requirements. The drawings are not intended to represent a final or prescriptive design, and they shall not be interpreted as defining the exact equipment selections and corresponding electrical configurations required for construction. The contractor shall be fully responsible for the final system design as part of the turn-key project.

The project shall be turn-key. That is, all equipment, safety training, a complete and functional installation, all regulatory paperwork, utility interconnection fees, setup of all monitoring software, software training, etc. shall be provided by the successful bidder. The contractor shall apply and have the project receive a Certification as an Eligible Energy Resource designation from the Delaware Public Service Commission so that the project can generate SRECs that MSC can sell if it so chooses.

3.2 SYSTEM CONFIGURATION

- Total System Size: 66 kW DC, 60kW AC (nominal)
- Array Configuration:
  - Two (2) ground-mounted arrays
  - Each array: five (5) modules high by twelve (12) modules long
- Site Area
  - Approximately one-third (1/3) acre
  - Grass field cleared of forestry
  - Site is assumed to require minor grading only (no mass excavation anticipated). Contractor shall include up to ±6 inches grading tolerance
- Annual Energy Production Requirement:
  - First-year production shall meet or exceed 90,000 kWh, normalized using accepted PV industry modeling methods. Contractor shall guarantee 95% of modeled annual energy production.

3.3 ENERGY PRODUCTION GUARANTEE

The Contractor shall provide an energy production guarantee such that the installed system shall produce not less than 90,000 kilowatt-hours (kWh) during the first full year of operation, adjusted for actual measured weather conditions using a nationally recognized solar performance modeling methodology.

The Contractor shall guarantee that the installed photovoltaic system will achieve an Annual Energy Production of not less than ninety-five percent (95%) of the Expected Annual Energy Production (EAEP) during the first twelve (12) months following Substantial Completion. The EAEP shall be based on the approved production model provided by Contractor prior to construction and shall assume Typical Meteorological Year (TMY) irradiance data for the project location.

If the system produces less than ninety-five percent (95%) of the EAEP during the measurement period, Contractor shall, at its option, either (a) correct the deficiency through repair, replacement, or system modification, or (b) pay Owner liquidated damages at the kilowatt-hour (kWh) rate for the verified production shortfall below the guaranteed threshold.

Energy production shall be normalized for actual measured solar irradiance relative to the irradiance assumptions used in the approved production model. Production calculations shall exclude losses resulting from factors outside the reasonable control of Contractor, including but not limited to:

- Abnormal weather or irradiance conditions
- Snow cover, soiling, or lack of routine cleaning
- Shading caused by new obstructions not existing at the time of installation
- Utility curtailment, grid outages, or delays in permission to operate
- Equipment damage caused by third parties
- Owner failure to properly operate or maintain the system
- Force majeure events

3.4 ELECTRICAL INTEGRATION

- Existing electrical service: 200A, 480/277V, currently serving an existing 25 kW PV system
- The new system shall interconnect with and be supported by this existing service
- Contractor shall coordinate all interconnection requirements with the serving utility

4. BASIS OF DESIGN (INFORMATIONAL)

The basis of design includes:

- Two solar arrays consisting of sixty (60) 550W STC modules each.
  - Provide commercially available high-efficiency panels typically in the range of 525 W to 600 W STC.
  - Modules shall be Tier-1 manufacturer listed by BloombergNEF
  - Minimum module efficiency of 20%
  - 25-year product warranty.
- Two (2) grid-tied inverters, nominally 30 kW each at 480V, with a web-based monitoring and data acquisition system
  - Minimum of 60kW (AC inverter output) worth of inverters is required. The contractor can utilize two 30kW inverters, four 15kW inverters, etc. in order to meet this constraint.

This basis of design is informational only. Contractors are encouraged to propose alternative equipment and configurations, provided that:

- All equipment is UL listed and suitable for grid-tied operation
- Performance, reliability, and monitoring capabilities are equivalent or superior (see Worksheets in Appendix C)
- Proposed equipment complies with all applicable codes and standards

5. SCOPE OF WORK

The Contractor's scope of work shall include, but not be limited to:

- A historical review to mitigate any historical issues of working on the site
    - The Owner is not aware of any known environmental, archaeological, or historical restrictions associated with the project site.
    - No separate review by the Penn Farm Trustees is anticipated for this project.
    - Proposers shall be responsible for conducting reasonable due diligence and coordinating all required local approvals.
- Site investigation and verification
- System design and engineering
- Structural foundations and racking systems
- PV modules, inverters, combiner equipment, and balance of system
- Trenching, conduit, wiring, backfill, and restoration
- Grounding and bonding systems
- Electrical integration with existing service
- Utility coordination and interconnection approval
- Permitting, inspections, and approvals
- Testing, commissioning, and startup
- As-built drawings and documentation
- Training for MSC personnel

6. SCHEDULE REQUIREMENTS

- All required permits shall be obtained, and construction shall commence no later than October 30, 2026.
- Proposers shall submit a detailed project schedule identifying key milestones including engineering completion, equipment procurement, installation, and commissioning.
- Progress payments will be made based on mutually agreed milestones. The Owner reserves the right to retain a portion of each payment until final project acceptance.
- Reasonable schedule extensions may be granted for delays beyond the Contractor's control, including severe weather, permitting delays, supply chain issues, or force majeure events.
- The Owner reserves the right to retain a portion of each payment until final project acceptance in accordance with municipal contracting practices.
- The payment schedule is as follows:

Milestone	**Payment**
Contract execution	10%
Permits Obtained/Construction Commenced	10%
Equipment delivered	30%
Mechanical completion	25%
Final commissioning	20%
Retainage	5%

7. OPERATIONS AND MAINTENANCE

This RFP is for EPC services only. However, Proposers shall include, as a separate priced option, a five (5) year Operations and Maintenance (O&M) plan, which MSC may elect to execute at its sole discretion.

The O&M plan shall describe:

- Scope of preventive maintenance
- Monitoring and reporting approach
- Corrective maintenance response times
- Vegetation management assumptions
- Warranty administration
- Annual pricing and escalation, if any

Regardless of whether the contractor elects to submit a bid on the five (5) year Operations and Maintenance (O&M) services, the contractor shall provide the following as part of the base project:

- Training for MSC personnel
    - The Contractor shall provide a minimum of one (1) on-site training session for MSC staff and shall furnish complete written training documentation
    - Training shall occur following system commissioning and prior to final acceptance.
    - Training shall include, at a minimum:
        - System overview and design intent
        - Normal system operation
        - Monitoring platform configuration and use
        - Recommended inspection and preventive maintenance procedures
        - Inverter operation and fault troubleshooting
        - Emergency shutdown procedures
        - Safety considerations
        - Vegetation management expectations
        - Warranty coverage and procedures for warranty claims
        - Recommended long-term maintenance practices
- Documentation
    - The Contractor shall furnish complete written O&M documentation which shall include, at a minimum, the following:
        - Equipment manuals
        - System one-line diagrams
        - Inverter operating instructions
        - Monitoring instructions
        - Warranty documentation
        - Recommended maintenance schedules
        - Contact information for equipment manufacturers and service support.

8. CODES, STANDARDS, AND REGULATORY REQUIREMENTS

The project shall comply with all applicable federal, state, and local laws, regulations, codes, and standards, including but not limited to:

- National Electrical Code (NEC)
- Applicable International Building Codes
- Utility interconnection requirements
- City of New Castle permitting requirements
- Build America, Buy America Act (BABA), 2 CFR Part 184
- DOE Energy Efficiency and Conservation Block Grant (EECBG) Special Terms and Conditions
- Davis-Bacon Act and/or Delaware Prevailing Wage requirements, whichever is more stringent

8.1 BUILD AMERICA, BUY AMERICA (BABA) COMPLIANCE

This project is funded in whole or in part with federal financial assistance under the U.S. Department of Energy's Energy Efficiency and Conservation Block Grant (EECBG) Program and is therefore subject to the Build America, Buy America Act (BABA).

The Contractor shall ensure that all iron, steel, manufactured products, and construction materials used in the Project are produced in the United States, in accordance with 2 CFR Part 184.

All equipment, including but not limited to photovoltaic panels, inverters, racking, structural components, foundations, conduit, wiring, and balance-of-system equipment, shall be domestic unless otherwise permitted by law.

The Contractor shall provide all certifications, documentation, and records required to demonstrate compliance with BABA and any applicable waivers.

8.2 LABOR STANDARDS

All construction, alteration, and repair work performed under this Contract shall comply with the Davis-Bacon Act (40 U.S.C. §§ 3141–3148) and all applicable U.S. Department of Labor wage determinations. Where Delaware Prevailing Wage requirements exceed federal Davis-Bacon wage rates, the higher wage rate shall apply.

The Contractor shall submit certified payrolls and comply with all labor reporting, posting, and recordkeeping requirements.

For the construction and/or installation of the Project, Seller shall utilize a minimum of 75% in-state workforce consistent with the requirements to obtain an additional 10% credit toward meeting the renewable energy portfolio standards in Del. Code tit. 26, Section 356(e), as may be amended or modified, and the Contract Price shall include direct savings to Buyer equal to such credit amount. Seller shall take the risk of meeting the requirements of Del. Code tit. 26, Section 356(e)."

8.3 NEPA

This Project is subject to the National Environmental Policy Act (NEPA) as administered by the U.S. Department of Energy under the EECBG Program. The Contractor acknowledges that federal funding is contingent upon compliance with all applicable NEPA determinations and conditions.

8.4 FEDERAL ELIGIBILITY AND REGISTRATION

All Contractors and subcontractors shall be active and in good standing in the System for Award Management (SAM.gov) at the time of proposal submission and shall maintain such registration for the duration of the Project. Debarred or suspended entities are not eligible to participate.

8.5 FEDERAL REPORTING AND RECORD RETENTION

The Contractor shall support all federal reporting obligations associated with EECBG funding, including but not limited to energy production reporting, labor compliance documentation, and BABA compliance records.

All Project records shall be retained for a minimum of five (5) years following final payment.

8.6 SITE CONDITIONS

The Contractor shall be responsible for understanding site conditions and shall perform any necessary site investigations prior to construction. MSC makes no guarantee regarding subsurface conditions. Any additional NEPA review or mitigation required due to Contractor-selected means, methods, or design changes shall be the responsibility of the Contractor.

Based on similar projects in the surrounding area, MSC does not anticipate significant rock or abnormal subsurface conditions at the project site. Proposers shall prepare their proposals assuming typical soil conditions suitable for installation of ground-mounted solar foundations such as helical piers or driven posts.

In the event that unforeseen subsurface conditions are encountered during construction, including rock or other obstructions that materially impede installation of the proposed foundation system and that could not reasonably have been anticipated through a site visit, the Contractor shall promptly notify MSC prior to performing additional work associated with such conditions. Such conditions may be addressed through a mutually agreed change order consistent with standard differing site condition practices. The Contractor shall take reasonable steps to verify and document such conditions prior to requesting additional compensation.

Minor obstructions, cobbles, and localized variations in soil conditions commonly encountered in the region shall be considered part of normal installation conditions.

The Contractor shall be responsible for selecting and designing the solar racking foundation system appropriate for the anticipated site conditions. Adjustments to the Contractor’s selected foundation type, installation method, or installation equipment required to complete the work shall be considered part of the Contractor’s means and methods and shall not be grounds for additional compensation unless a legitimate differing site condition is verified by MSC.

9. PROPOSAL SUBMISSION REQUIREMENTS

Proposals shall include, at a minimum:

1. Firm qualifications and relevant project experience
    a. Minimum three references from similar size and scope jobs.
2. Proposed system description and equipment selections
   (Fully detailed design not required for proposal – sketches and/or a narrative verifying these requirements will be met is acceptable.)
    a. Proposed panel layout
    b. Proposed service tie-in description
    c. Basis of design solar equipment to meet or exceed performance parameters.
        i. First-year production shall meet or exceed 90,000 kWh
        ii. 66kW (DC) worth of modules
        iii. 60kW (AC) worth of inverters
        iv. Ground-Mount solar panels:
            1. Provide commercially available high-efficiency panels typically in the range of 525 W to 600 W STC.
            2. Provide minimum 25 year manufacturer warranty
            3. Modules shall be Tier-1 manufacturer listed by BloombergNEF
            4. Minimum module efficiency of 20%
            5. Provide solar foundations for ground-mount racking (helical piers and racking support structure).
            6. Mount modules on fixed pitched racking with integrated bonding clips complying with UL2703 for bonding and grounding.
        v. Inverters
            1. Provide minimum of 60kW worth of inverter(s)
            2. Inverters shall comply with UL1741, UL1741 SA, UL1699B, UL1998, CSA 2.22, IEEE 1547 (RULE 21, RULE 14 (HI)), AND FCC PART15 CLASS A
            3. Provide with integrated arc fault protection and rapid shutdown per 70:690.11 and 70:690.12.
            4. Provide with integrated DC safety switch.
            5. Provide with built in surge suppression.
            6. Provide web-based monitoring system.
            7. If 208V inverters are proposed, provide corresponding transformer(s).
            8. Provide all required racking for exterior mounting of inverters and all other equipment.
            9. Provide with DNP3 over IP or Modbus TCP/IP communication for future connection to utility SCADA infrastructure.
        vi. Electrical Distribution:
            1. Provide a NEMA 3R, 250A panelboard with a 100A SUSE-rated main breaker.
            2. Provide all required racking for exterior mounting of panelboards.
            3. Provide AC distribution complying with MSC/City of New Castle requirements.
            4. Provide new lug kits for existing meter base as required.

            5. Coordinate a shutdown to install new equipment.
    d. Warranties:
        i. 5 Year Workmanship warranty on the full installation.
        ii. 10 Year Workmanship and 25 Year Linear Power Output Warranty on Solar Modules.
            1. Modules guaranteed to produce 83.68% or more of initial wattage rating come year 25.
        iii. 10 Year Inverter Warranty
    e. Provide all necessary structural, civil, and electrical engineering.
3. Energy production modeling and assumptions
    a. 30-year estimated payback with estimated kWh production, estimated net cash flow, rebates, tax credits, and annualized effective rate of return.
        i. MSC intends to evaluate potential eligibility for federal incentives available to tax-exempt entities, including direct-pay provisions under the Inflation Reduction Act. Proposers shall structure the project and provide documentation necessary to support eligibility for such incentives to the extent practicable, including compliance with applicable prevailing wage, domestic content, and other federal requirements.
        ii. The Contractor shall provide assistance to MSC in documenting project costs, equipment sourcing, and labor compliance necessary to support any federal incentive application. MSC makes no guarantee that such incentives will be pursued or obtained.
    b. Models for estimating energy production should be generated resources made available through the National Renewable Energy Laboratory (NREL), which is operated by the Alliance for Sustainable Energy, LLC for the US Department of Energy (DoE). The energy output range should be based on analysis of 30 years of historical weather data and intended to provide an indicated of possible interannual variability in generation for a fixed photovoltaic system.
4. Project schedule
5. EPC lump-sum price
6. Separate pricing for optional five-year O&M
7. Exceptions or deviations from the RFP
8. Required bonding and insurance acknowledgments

10. EVALUATION CRITERIA

Proposals will be evaluated using a best-value selection process. Award will be made to the proposer whose submission is determined to be most advantageous to MSC, considering price and non-price factors.

Proposals must meet all mandatory requirements of this RFP. Only proposals determined to be responsive and compliant with the minimum requirements will be evaluated and scored according to the criteria below.

Evaluation Category	Maximum Points
Project Cost and Overall Value	30
Energy Production and System Performance	25
Technical Approach and System Design	20
Project Experience and Qualifications	15
Schedule and Implementation Plan	10
Total Possible Score	**100**

Project Cost and Overall Value (30 Points)

Evaluation of the overall cost effectiveness of the proposed system. Considerations may include:

- Total EPC contract price
- Cost per installed kilowatt ($/kW)
- Cost per unit of expected lifetime energy production ($/kWh)
- Transparency and reasonableness of pricing assumptions
- Overall value relative to expected system performance and reliability

Lowest price will not necessarily receive the highest score. MSC may evaluate proposals using normalized cost metrics to compare overall value.

Energy Production and System Performance (25 Points)

Evaluation of the expected energy output and long-term system performance. Considerations may include:

- Estimated first-year energy production
- Modeling methodology and tools utilized (e.g., NREL PVWatts, SAM, or equivalent)
- Transparency and reasonableness of modeling assumptions
- Expected system losses, degradation rates, and long-term performance

MSC reserves the right to independently review or verify production estimates using industry-standard modeling tools.

Technical Approach and System Design (20 Points)

Evaluation of the quality and completeness of the proposed photovoltaic system. Considerations may include:

- Proposed system configuration and array layout
- Quality and reliability of major equipment (modules, inverters, racking systems)
- Monitoring and data acquisition capabilities
- Electrical integration approach and constructability

- Compliance with applicable codes, standards, and RFP requirements
- Equipment warranties and expected service life

Project Experience and Qualifications (15 Points)

Evaluation of the proposer's experience and ability to successfully deliver the project. Considerations may include:

- Experience completing solar photovoltaic projects of similar size and scope
- Experience working with municipalities, utilities, or other public-sector entities
- Experience complying with federal program requirements such as Davis-Bacon and Build America, Buy America provisions
- Quality and relevance of project references

Schedule and Implementation Plan (10 Points)

Evaluation of the proposer's ability to deliver the project within the required timeframe. Considerations may include:

- Proposed project schedule and major milestones
- Equipment procurement timelines
- Construction sequencing and commissioning plan
- Ability to meet MSC's desired completion timeline

Scoring Method

Each proposal will be evaluated by the selection committee using the criteria described above. Scores for each category will be assigned based on the following general scale:

Rating	**Description**	**Scoring Guidance**
Excellent	Proposal exceeds the requirements in a way that provides significant added value or reduced risk to MSC.	90–100% of available points
Good	Proposal fully meets the requirements and demonstrates a solid approach with minimal risk.	75–89% of available points
Acceptable	Proposal generally meets the requirements but contains minor weaknesses or uncertainties.	50–74% of available points
Marginal	Proposal partially meets the requirements but contains notable weaknesses or risks.	25–49% of available points
Poor	Proposal fails to meet requirements or lacks sufficient detail to evaluate.	0–24% of available points

Final scores will be calculated by summing the points awarded across all evaluation categories.

MSC reserves the right to request clarifications, conduct interviews, and request best and final offers prior to final award if deemed in the best interest of MSC. MSC reserves the right to reject proposals containing unrealistic energy production assumptions or incomplete technical information. MSC also reserves the right to reject any or all proposals and to waive informalities or irregularities in the procurement process.

11. BONDING AND INSURANCE REQUIREMENTS

The selected Contractor shall be required to provide:

- **Bid Bond:** Five percent (5%) of the total EPC proposal price
- **Performance Bond:** One hundred percent (100%) of the contract amount
- **Payment Bond:** One hundred percent (100%) of the contract amount

Insurance coverage shall be provided in accordance with MSC's requirements and applicable law.

12. RESERVATION OF RIGHTS

MSC reserves the right to:

- Reject any or all proposals
- Request clarifications or additional information
- Negotiate with the selected proposer
- Cancel this RFP at any time
- Conduct interviews with one or more proposers
- Request best and final offers prior to final award if deemed to be in the best interest of MSC

13. CONTRACT TERMS

The selected Contractor will be required to enter into a written agreement with MSC prior to commencing work. The contractor shall submit their standard contract to MSC for review.

The contract shall include standard provisions typically included in municipal construction agreements, which may include, but are not limited to:

- Conditions for termination for cause or convenience
- Schedule requirements and remedies for failure to meet contractual milestones
- Conditions precedent to commencement of construction
- Progress reporting requirements
- Payment and invoicing procedures
- Force majeure provisions
- Confidentiality and public communications requirements
- Governing law and dispute resolution procedures
- Procedures for contract amendments or modifications

The Contractor's proposal, including all commitments and representations made therein, may be incorporated into the final agreement by reference.

MSC reserves the right to negotiate final contract terms with the selected proposer prior to contract execution.

14. POINT OF CONTACT

All communications regarding this RFP shall be directed to:

Art Granger 302-221-4520

grangera@newcastlemsc.delaware.gov

Dave Bennett 302-221-4514

dbennett@newcastlemsc.delaware.gov

Ken Natale 302-221-4517

knatale@newcastlemsc.delaware.gov

Municipal Services Commission
City of New Castle, Delaware

APPENDIX A: EXAMPLE DRAWINGS

709 SCHOOL LN - 66KW SOLAR ARRAY

FOR

MUNICIPAL SERVICE COMMISSION

216 CHESTNUT STREET
NEW CASTLE, DE 19720-0208

MSC
Municipal Services Commission
of the City of New Castle

CITY OF NEW CASTLE
1875
DELAWARE

EXAMPLE DRAWING PACKAGE

THIS DRAWING IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY AND REPRESENTS A CONCEPTUAL EXAMPLE OF A GROUND-MOUNTED SOLAR PHOTOVOLTAIC SYSTEM THAT SATISFIES THE TOWN'S PERFORMANCE REQUIREMENTS. THE DRAWING IS NOT INTENDED TO REPRESENT A FINAL OR PRESCRIPTIVE DESIGN, AND IT SHALL NOT BE INTERPRETED AS DEFINING EXACT EQUIPMENT SELECTIONS, ELECTRICAL CONFIGURATIONS, PHYSICAL LAYOUTS, CONDUCTOR SIZING, STRUCTURAL DETAILS, OR MEANS AND METHODS OF CONSTRUCTION.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE FINAL SYSTEM DESIGN, INCLUDING ENGINEERING, EQUIPMENT SELECTION, LAYOUT, ELECTRICAL INTEGRATION, AND CODE COMPLIANCE, AS PART OF A TURNKEY DELIVERABLE. FINAL DESIGN MAY VARY BASED ON THE CONTRACTOR'S PROPOSED INVERTER EQUIPMENT, MODULE SELECTION, AND RACKING SYSTEM, PROVIDED THAT ALL PERFORMANCE, CAPACITY, SAFETY, AND REGULATORY REQUIREMENTS OF THE RFP ARE MET OR EXCEEDED.

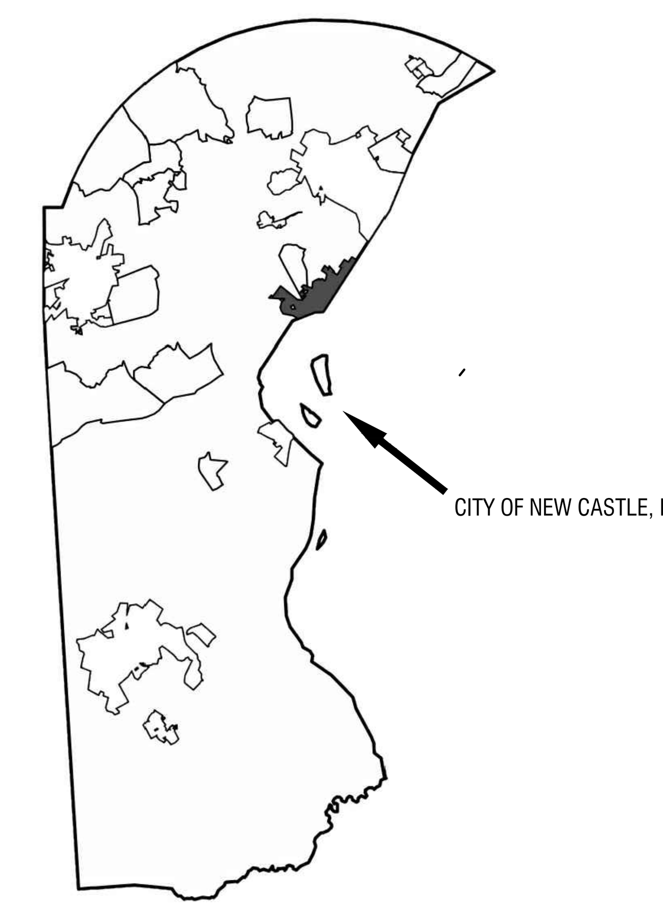
ANY DEVIATIONS FROM THE ILLUSTRATIVE EXAMPLE THAT ARE NECESSARY TO ACHIEVE COMPLIANCE WITH APPLICABLE CODES, STANDARDS, INTERCONNECTION REQUIREMENTS, OR EQUIPMENT MANUFACTURER REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE TURNKEY CONTRACTOR.

CITY OF NEW CASTLE, DELAWARE
N SCALE: NONE

LIST OF DRAWINGS

CS001	PROJECT COVER SHEET
E001	ELECTRICAL NOTES, LEGENDS, & ABBREVIATIONS
E201	SITE EQUIPMENT LAYOUT
E601	ELECTRICAL DETAILS
E602	ELECTRICAL DETAILS

STATE OF DELAWARE
N SCALE: NONE



COUNTY OF NEW CASTLE
N SCALE: NONE

NO.	DATE	REVISION

UTILITY ENGINEERS, PC
62 WEST UNION STREET, KINGSTON, PA 18704
TELE: (570) 788-2211

MUNICIPAL SERVICES COMMISSION
TOWN OF NEW CASTLE, DE
216 CHESTNUT STREET, NEW CASTLE, DE 19720

709 SCHOOL LN – 66KW SOLAR ARRAY

PROJECT COVER SHEET

JOB NO.:	25001
DATE:	7/17/26
ENG.:	R.G.
DRAWN:	I.W.
SCALE:	AS NOTED
FILE:	SP-25001
DRAWING NO.:	CS001

SHEET 1 OF 5

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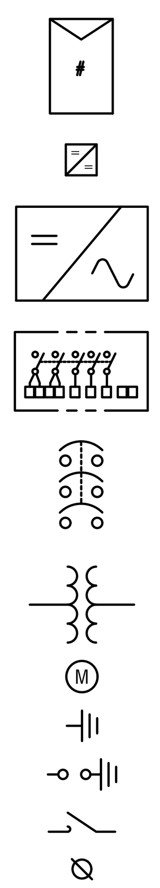
THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE FINAL SYSTEM DESIGN, INCLUDING ENGINEERING, EQUIPMENT SELECTION, LAYOUT, ELECTRICAL INTEGRATION, AND CODE COMPLIANCE, AS PART OF A TURNKEY DELIVERABLE. FINAL DESIGN MAY VARY BASED ON THE CONTRACTOR'S PROPOSED INVERTER EQUIPMENT, MODULE SELECTION, AND RACKING SYSTEM, PROVIDED THAT ALL PERFORMANCE, CAPACITY, SAFETY, AND REGULATORY REQUIREMENTS OF THE RFP ARE MET OR EXCEEDED.

ANY DEVIATIONS FROM THE ILLUSTRATIVE EXAMPLE THAT ARE NECESSARY TO ACHIEVE COMPLIANCE WITH APPLICABLE CODES, STANDARDS, INTERCONNECTION REQUIREMENTS, OR EQUIPMENT MANUFACTURER REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE TURNKEY CONTRACTOR.

TURNKEY CONTRACTOR SHALL PROVIDE AN ENGINEERED COVER SHEET DEFINING SYMBOLS, ABBREVIATIONS, CODE REVIEW INFORMATION, PROJECT-SPECIFIC NOTES AND SCHEDULES/CALCULATIONS SHOWING BASIC SOLAR DESIGN PARAMETERS.

ELECTRICAL SYMBOLS LEGEND



PHOTOVOLTAIC MODULE

POWER OPTIMIZER WITH RAPID SHUTDOWN COMPLIANCE

UL1741 LISTED THREE PHASE 480/277V INVERTER WITH UTILITY MONITORING, ISLANDING PROTECTION, CONFIGURABLE POWER FACTOR, INTEGRATED ARC FAULT PROTECTION AND RAPID SHUTDOWN PER 70:690.11 AND 70:690.12

THREE PHASE 480/277V INVERTER DC/AC SAFETY SWITCH PER NEC 630.95 WITH RAPID SHUTDOWN

THREE PHASE AC CIRCUIT BREAKER

TRANSFORMER

METER

SYSTEM OR EQUIPMENT GROUND

LIGHTNING ARRESTOR AND GROUNDING

GROUP OPERATED AIR BREAK SWITCH

UTILITY POLE

SOLAR DESIGN PARAMETERS

SYSTEM DATA
INSTALLED DC POWER: 66 kWp
MAXIMUM ACHIEVED AC POWER: 60 kW

PV ARRAYS

TILT	AZIMUTH	MOUNTING
25°	172°	RACK-MTD ON GRADE

INVERTER DESIGN

30KW SE30KUS
INVERTER 1 -- 2 STRINGS OF 30 PV MODULES, 60 MOD/INV = 33000 WATTS STC
STRING 1: PV ARRAY NO. 1: 30 MODULES X 15 P1101 (1 PARALLEL / 2 SERIES)
STRING 2: PV ARRAY NO. 1: 30 MODULES X 15 P1101 (1 PARALLEL / 2 SERIES)

30KW SE30KUS
INVERTER 2 -- 2 STRINGS OF 30 PV MODULES, 60 MOD/INV = 33000 WATTS STC
STRING 1: PV ARRAY NO. 1: 30 MODULES X 15 P1101 (1 PARALLEL / 2 SERIES)
STRING 2: PV ARRAY NO. 1: 30 MODULES X 15 P1101 (1 PARALLEL / 2 SERIES)

WIRING DIAGRAM NOTES

1. PROVIDE #8 EGC TO BOND TO EQUIPMENT FRAME, PHOTOVOLTAIC MODULES, AND POWER OPTIMIZERS VIA LISTED CONNECTORS.
2. THE TRANSFORMER-LESS INVERTERS SHALL DISCONNECT THE INVERTER AND CEASE POWER EXPORT AS SOON AS LEAKAGE CURRENT TO GROUND IS DETECTED.
3. THE INVERTERS SHALL AUTOMATICALLY SHUTDOWN THE PHOTOVOLTAIC SYSTEM UPON LOSS OF UTILITY AC POWER.
4. COORDINATE UTILITY REVENUE METER/GRID-TIE DISCONNECT/RECLOSER/PROTECTIVE RELAYING REQUIREMENTS WITH UTILITY PROVIDER.

ELECTRICAL PLAN NOTES

1. EACH PV SYSTEM DISCONNECTING MEANS SHALL PLAINLY INDICATE WHETHER IN THE OPEN (OFF) OR CLOSED (ON) POSITION, BE LOCKABLE, AND BE PERMANENTLY MARKED "PV SYSTEM DISCONNECT" OR EQUIVALENT. ADDITIONAL MARKINGS SHALL BE PERMITTED BASED UPON THE SPECIFIC SYSTEM CONFIGURATION. FOR PV SYSTEM DISCONNECTING MEANS WHERE THE LINE AND LOAD TERMINALS MAY BE ENERGIZED IN THE OPEN POSITION, THE DEVICE SHALL BE MARKED WITH THE FOLLOWING WORDS OR EQUIVALENT:

   WARNING
   ELECTRIC SHOCK HAZARD
   DO NOT TOUCH TERMINALS
   TERMINALS ON THE LINE AND LOAD
   SIDES MAY BE
   ENERGIZED IN THE OPEN POSITION

   THE WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH 110.21(B).
2. PROVIDE RAPID SHUTDOWN LABELING PER NEC 2017 690.56(C)(1).
3. SYSTEM IS TRANSFORMER-LESS (UNGROUNDED). ALL POSITIVE AND NEGATIVE DC CONDUCTORS SHALL BE DISCONNECTED.
4. THE SOLAR EDGE TRANSFORMER-LESS INVERTERS SHALL UTILIZE A BUILT-IN ISOLATION MONITOR INTERRUPTER (IMI) CIRCUIT, WHICH DISCONNECTS THE INVERTER AND CEASES POWER EXPORT AS SOON AS LEAKAGE CURRENT TO GROUND IS DETECTED.
5. THE SOLAR EDGE INVERTERS SHALL AUTOMATICALLY SHUTDOWN THE PHOTOVOLTAIC SYSTEM UPON LOSS OF UTILITY POWER.
6. COORDINATE WITH ALL OWNER REQUIREMENTS PRIOR TO CONSTRUCTION.
7. EXPOSED NON-CURRENT CARRYING METAL PARTS OF MODULE FRAMES, EQUIPMENT, AND ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.134 AND 250.136(A). PHOTOVOLTAIC MODULES TO BE GROUNDED USING FACTORY GROUND POINT ONLY.
8. COORDINATE INSTALLATION WITH ALL TRADES TO VERIFY CLEARANCES AROUND EXISTING EQUIPMENT WILL BE MAINTAINED.
9. VERIFY FINAL LAYOUT WITH STRUCTURAL REQUIREMENTS.
10. INSTALLATION SHALL COMPLY WITH STRUCTURAL ENGINEER'S RACK LAYOUT DETAILING CONFORMANCE WITH STRUCTURAL DESIGN LOADS, DESIGN CRITERIA & IMPORTANCE FACTORS.

REQUIREMENTS FOR PV DISCONNECT IDENTIFICATION

PROVIDE SIGNAGE PER THE NEC 110.22, 690.14, 690.17, 690.56, AND 705.10G AT ANY SERVICE ENTRANCE EQUIPMENT AND THE PV DISCONNECT DEVICES. IN GENERAL THE SIGNAGE MUST COMPLY WITH THE FOLLOWING:

1. MUST BE PERMANENT IN NATURE AND CAPABLE OF WITHSTANDING THE CONDITIONS OF ITS LOCATION INCLUDING:
   a. ADVERSE WEATHER (WIND, SNOW, ICE, RAIN, ETC.)
   b. SUNLIGHT (UV TOLERANT)
   c. NOT SUBJECT TO CONCEALMENT (PAINTING, FOLIAGE, CONSTRUCTION, ETC.)

   THE PREFERRED MATERIAL IS HI-CONTRAST ENGRAVED LAMINATED PLASTIC, EITHER SCREWED OR PERMANENTLY BONDED TO THE DEVICE OR WALL IMMEDIATELY ADJACENT TO THE DEVICE.
2. MUST BE CLEARLY LEGIBLE
   a. TITLE LETTERING MUST BE OF SUFFICIENT SIZE AND CONTENT TO ADEQUATELY CONVEY ITS PURPOSE FROM A DISTANCE OF NOT LESS THAN 15 FEET.
   b. BODY LETTERING MUST BE LEGIBLE FROM NOT LESS THAN 3 FEET.
3. MUST CONTAIN ADEQUATE CONTENT TO CONVEY IT'S PURPOSE
   a. DISCONNECTING MEANS SHALL BE ADEQUATELY LABELED TO IDENTIFY ITS FUNCTION AND ALSO INCLUDE ANY NECESSARY PRECAUTIONARY INSTRUCTIONS.
   b. PLACARDS INDICATING THE LOCATION OF OTHER DEVICES SHALL INCLUDE THE NAME AND FUNCTION OF THE DEVICE AS WELL AS CLEAR DIRECTIONS TO ITS LOCATION.
   c. THE SIGN SHALL BE CLEARLY LEGIBLE AND HAVE THE FOLLOWING WORDS OR EQUIVALENT:
      WARNING
      ELECTRIC SHOCK HAZARD.
      DO NOT TOUCH TERMINALS.
      TERMINALS ON BOTH THE LINE
      AND LOAD SIDES MAY BE ENERGIZED
      IN THE OPEN POSITION.
4. A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES ON OR IN THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED.

PHOTOVOLTAIC MODULE SCHEDULE

TAG No.	BASIS OF DESIGN		TECH.	CELL/MOD.	WATT STC	WEIGHT	Vmpp	Impp	Vmax	SER. FUSE	EFF.	CNCT.
	MANUFACTURER	MODEL										
PV-1	SOLAR4AMERICA	S4AU-144S	MONO	144	550	62 lb	41.96V	13.11A	1500V	20A	21.3%	MC4 PV WIRE

NOTES:
1. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. COMPLY WITH ISO 9001, ISO 14001, ISO 50001, IEC 61215-1/-1-1/2:2016, IEC 61730-1/2:2016, UL1703, OHSAS 18001, IEC 61701:2012 SEVERITY 6, IEC 62716:2013, UL 1703,UL 790, ULC/ORD C 1703.
3. PROVIDE PANEL WITH 25 YEAR MANUFACTURER WARRANTY. (1ST YEAR: 98%, AFTER 1ST YEAR: 0.33% ANNUAL DEGRADATION, 90.08% FOR 25 YEARS)
4. MOUNT ON RACKS WITH INTEGRATED BONDING BLIPS COMPLYING WITH UL2703 FOR BONDING AND GROUNDING.

INVERTER SCHEDULE

TAG No.	BASIS OF DESIGN		AC OUTPUT POWER	AC OUTPUT VOLTAGE	GFDI THRESHOLD	DC INPUT POWER	DC INPUT VOLTAGE	DC INPUT CURRENT	GF ISO. DET.	PM POWER CONSUMPT.	DC SAFETY SWITCH	POWER OPTIMIZER
	MANUFACTURER	MODEL										
INV 1	SOLAR EDGE	SE30KUS	30KW	480/277V-3Ø-4W	1A	52.5KW	1000V (DC- DC+)	36.25A	167KΩ/UNIT	<4W	INTEGRATED	GROUND MOUNT
INV 2	SOLAR EDGE	SE30KUS	30KW	480/277V-3Ø-4W	1A	52.5KW	1000V (DC- DC+)	36.25A	167KΩ/UNIT	<4W	INTEGRATED	GROUND MOUNT

NOTES:
1. PROVIDE TRANSFORMER-LESS UNGROUNDED SYSTEM.
2. PROVIDE WITH UL1741, UL1741 SA, UL1699B, UL1998, CSA 2.22, IEEE 1547 (RULE 21, RULE 14 (HI)), AND FCC PART15 CLASS A COMPLIANCE.
3. PROVIDE WITH INTEGRATED ARC FAULT PROTECTION AND RAPID SHUTDOWN PER 70:690.11 AND 70:690.12.
4. PROVIDE WITH BUILT-IN MODULE LEVEL MONITORING VIA ETHERNET.
5. PROVIDE WITH FIXED VOLTAGE INVERTER FOR LONGER STRINGS.
6. PROVIDE WITH INTEGRATED DC SAFETY SWITCH.
7. PROVIDE WITH BUILT-IN RS485 SURGE SUPPRESSION.
8. PROVIDE WITH UTILITY MONITORING, ISLANDING PROTECTION, CONFIGURABLE POWER FACTOR, COUNTRY CONFIGURABLE THRESHOLDS.

NO.	DATE	REVISION

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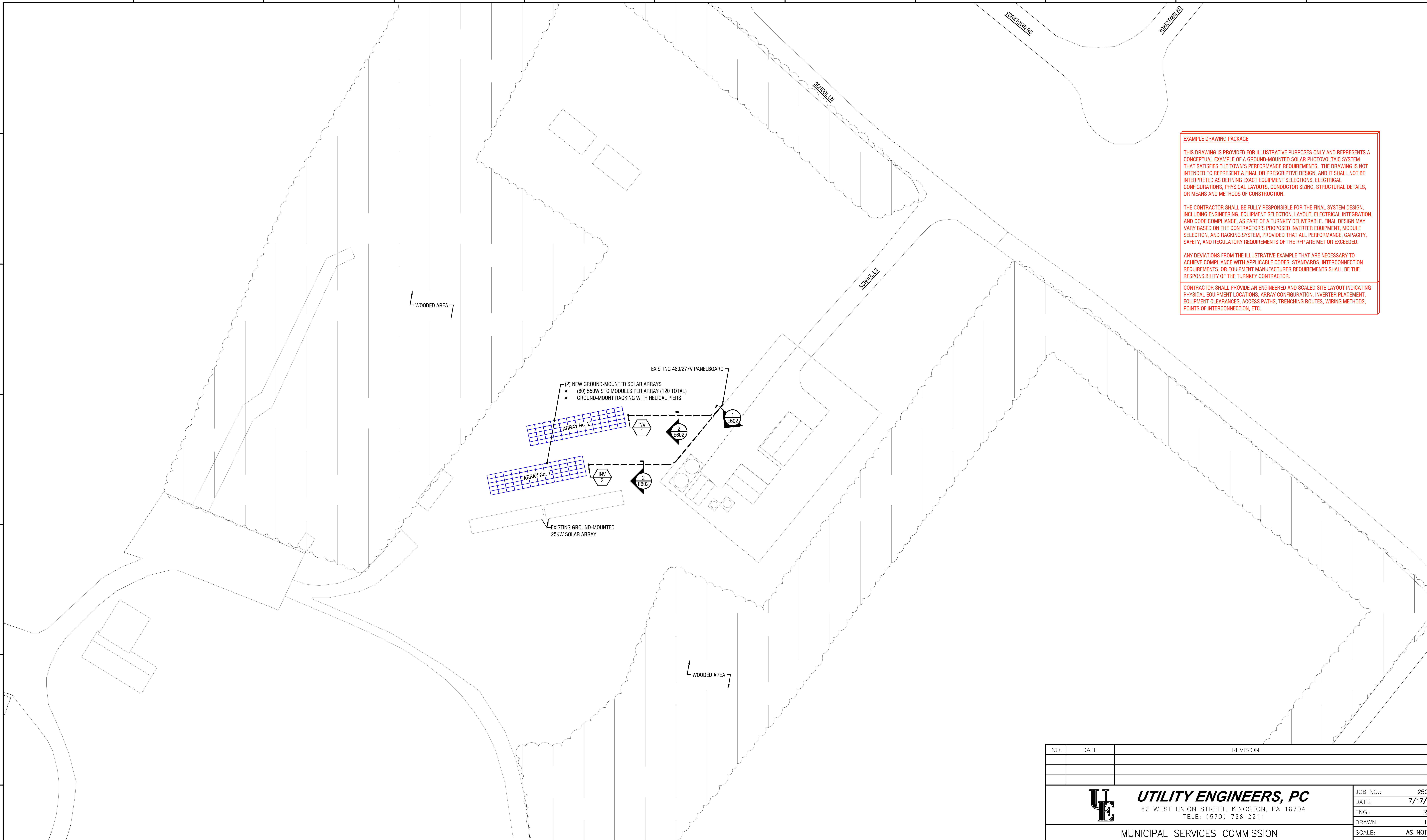
MUNICIPAL SERVICES COMMISSION
TOWN OF NEW CASTLE, DE
216 CHESTNUT STREET, NEW CASTLE, DE 19720

709 SCHOOL LN – 66KW SOLAR ARRAY

ELECTRICAL NOTES, LEGENDS, & ABBREVIATIONS

JOB NO.:	25001
DATE:	7/17/26
ENG.:	R.G.
DRAWN:	I.W.
SCALE:	AS NOTED
FILE:	SP–25001
DRAWING NO.:	E001



1 / E201 SITE LAYOUT
SCALE: 1" = 40'-0"

EXAMPLE DRAWING PACKAGE

THIS DRAWING IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY AND REPRESENTS A CONCEPTUAL EXAMPLE OF A GROUND-MOUNTED SOLAR PHOTOVOLTAIC SYSTEM THAT SATISFIES THE TOWN'S PERFORMANCE REQUIREMENTS. THE DRAWING IS NOT INTENDED TO REPRESENT A FINAL OR PRESCRIPTIVE DESIGN, AND IT SHALL NOT BE INTERPRETED AS DEFINING EXACT EQUIPMENT SELECTIONS, ELECTRICAL CONFIGURATIONS, PHYSICAL LAYOUTS, CONDUCTOR SIZING, STRUCTURAL DETAILS, OR MEANS AND METHODS OF CONSTRUCTION.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE FINAL SYSTEM DESIGN, INCLUDING ENGINEERING, EQUIPMENT SELECTION, LAYOUT, ELECTRICAL INTEGRATION, AND CODE COMPLIANCE, AS PART OF A TURNKEY DELIVERABLE. FINAL DESIGN MAY VARY BASED ON THE CONTRACTOR'S PROPOSED INVERTER EQUIPMENT, MODULE SELECTION, AND RACKING SYSTEM, PROVIDED THAT ALL PERFORMANCE, CAPACITY, SAFETY, AND REGULATORY REQUIREMENTS OF THE RFP ARE MET OR EXCEEDED.

ANY DEVIATIONS FROM THE ILLUSTRATIVE EXAMPLE THAT ARE NECESSARY TO ACHIEVE COMPLIANCE WITH APPLICABLE CODES, STANDARDS, INTERCONNECTION REQUIREMENTS, OR EQUIPMENT MANUFACTURER REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE TURNKEY CONTRACTOR.

CONTRACTOR SHALL PROVIDE AN ENGINEERED AND SCALED SITE LAYOUT INDICATING PHYSICAL EQUIPMENT LOCATIONS, ARRAY CONFIGURATION, INVERTER PLACEMENT, EQUIPMENT CLEARANCES, ACCESS PATHS, TRENCHING ROUTES, WIRING METHODS, POINTS OF INTERCONNECTION, ETC.

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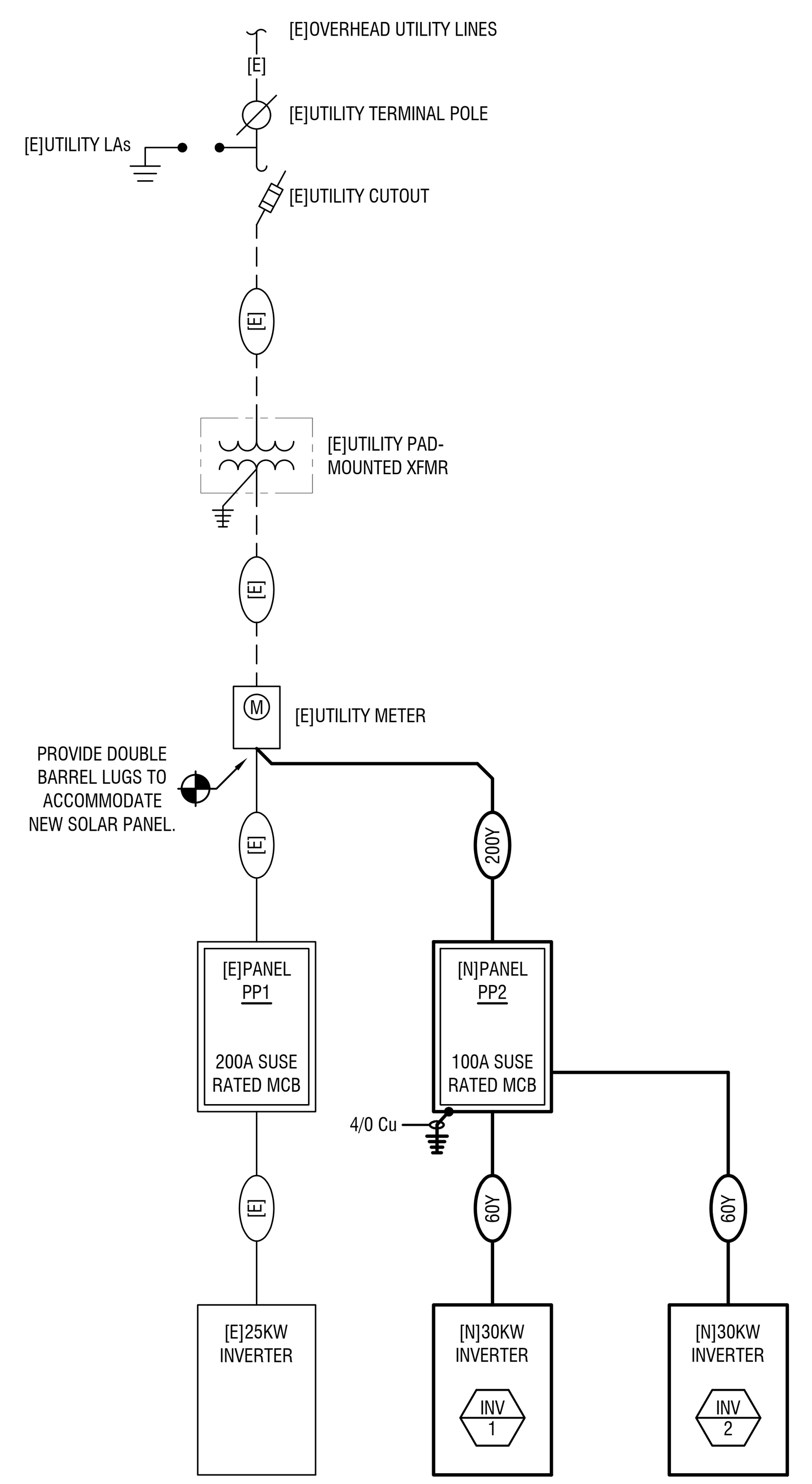
SITE EQUIPMENT LAYOUT

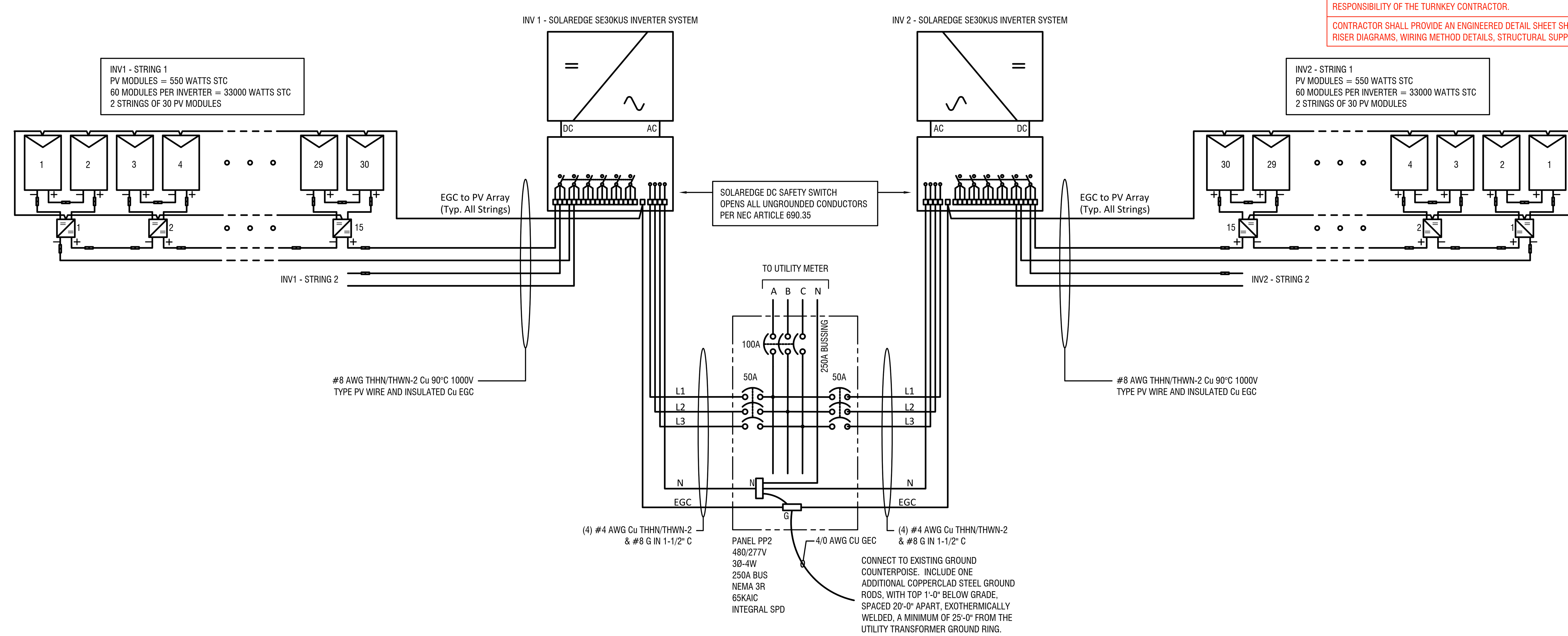
JOB NO.:	25001
DATE:	7/17/26
ENG.:	R.G.
DRAWN:	I.W.
SCALE:	AS NOTED
FILE:	SP-25001
DRAWING NO.:	E201

TURNKEY CONTRACTOR SHALL PROVIDE A SINGLE LINE DIAGRAM SHOWING NEC COMPLIANCE OF THE OVERALL AC SYSTEM.



1 E601 ONE-LINE DIAGRAM
SCALE: NONE

TURNKEY CONTRACTOR SHALL PROVIDE A SINGLE LINE DIAGRAM SHOWING NEC COMPLIANCE OF THE OVERALL SOLAR SYSTEM.



2 E601 SOLAR WIRING DIAGRAM
SCALE: NONE

EXAMPLE DRAWING PACKAGE

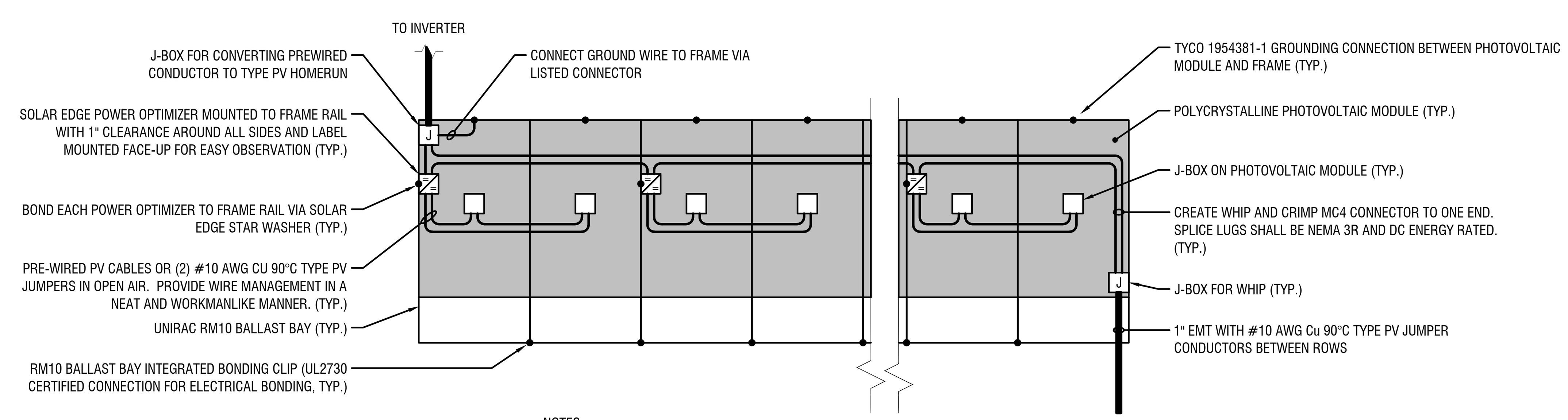
THIS DRAWING IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY AND REPRESENTS A CONCEPTUAL EXAMPLE OF A GROUND-MOUNTED SOLAR PHOTOVOLTAIC SYSTEM THAT SATISFIES THE TOWN'S PERFORMANCE REQUIREMENTS. THE DRAWING IS NOT INTENDED TO REPRESENT A FINAL OR PRESCRIPTIVE DESIGN, AND IT SHALL NOT BE INTERPRETED AS DEFINING EXACT EQUIPMENT SELECTIONS, ELECTRICAL CONFIGURATIONS, PHYSICAL LAYOUTS, CONDUCTOR SIZING, STRUCTURAL DETAILS, OR MEANS AND METHODS OF CONSTRUCTION.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE FINAL SYSTEM DESIGN, INCLUDING ENGINEERING, EQUIPMENT SELECTION, LAYOUT, ELECTRICAL INTEGRATION, AND CODE COMPLIANCE, AS PART OF A TURNKEY DELIVERABLE. FINAL DESIGN MAY VARY BASED ON THE CONTRACTOR'S PROPOSED INVERTER EQUIPMENT, MODULE SELECTION, AND RACKING SYSTEM, PROVIDED THAT ALL PERFORMANCE, CAPACITY, SAFETY, AND REGULATORY REQUIREMENTS OF THE RFP ARE MET OR EXCEEDED.

ANY DEVIATIONS FROM THE ILLUSTRATIVE EXAMPLE THAT ARE NECESSARY TO ACHIEVE COMPLIANCE WITH APPLICABLE CODES, STANDARDS, INTERCONNECTION REQUIREMENTS, OR EQUIPMENT MANUFACTURER REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE TURNKEY CONTRACTOR.

CONTRACTOR SHALL PROVIDE AN ENGINEERED DETAIL SHEET SHOWING ELECTRICAL RISER DIAGRAMS, WIRING METHOD DETAILS, STRUCTURAL SUPPORT DETAILS, ETC.

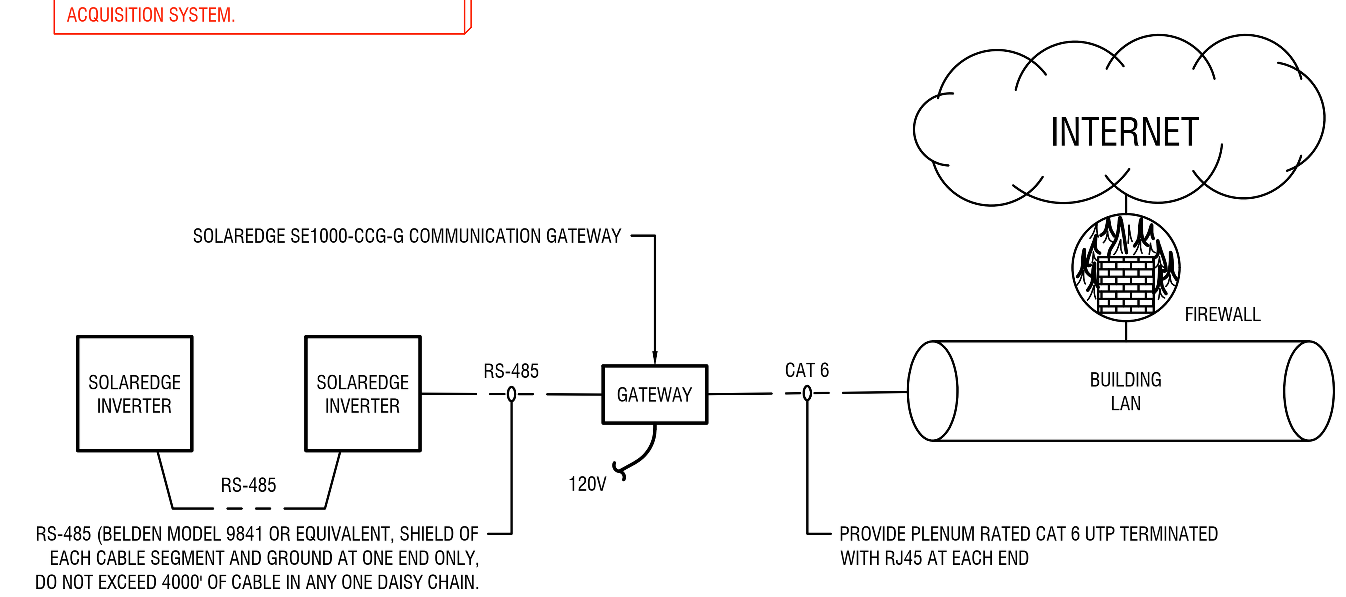
WIRING DIAGRAM NOTES:
1. PROVIDE #8 EGC TO BOND TO EQUIPMENT FRAME, PHOTOVOLTAIC MODULES, AND POWER OPTIMIZERS VIA LISTED CONNECTORS.
2. THE TRANSFORMER-LESS INVERTERS SHALL DISCONNECT THE INVERTER AND CEASE POWER EXPORT AS SOON AS LEAKAGE CURRENT TO GROUND IS DETECTED.
3. THE INVERTERS SHALL AUTOMATICALLY SHUTDOWN THE PHOTOVOLTAIC SYSTEM UPON LOSS OF UTILITY AC POWER.
4. COORDINATE UTILITY REVENUE METER/GRID-TIE DISCONNECT/RECLOSER/PROTECTIVE RELAYING REQUIREMENTS WITH OWNER.



NOTES:
1. BOND FRAME TO EGC VIA LISTED CONNECTOR.
2. CREATE QR CODE SERIAL NUMBER PLAN FOR SUBMISSION TO SOLAR EDGE FOR MONITORING SOFTWARE.
3. CABLE MANAGEMENT SHALL BE INSTALLED SO THAT ALL OPEN AIR PV CABLING IS NEAT AND ORDERLY AND SUPPORTED VIA THE RACKING.

3 E601 TYPICAL MODULE WIRING DIAGRAM
SCALE: NONE

TURNKEY CONTRACTOR SHALL PROVIDE SYSTEM WITH WEB-BASED MONITORING AND DATA ACQUISITION SYSTEM.



4 E601 COMMUNICATION CABLE DIAGRAM
SCALE: NONE

NO.	DATE	REVISION

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62 WEST UNION STREET, KINGSTON, PA 18704
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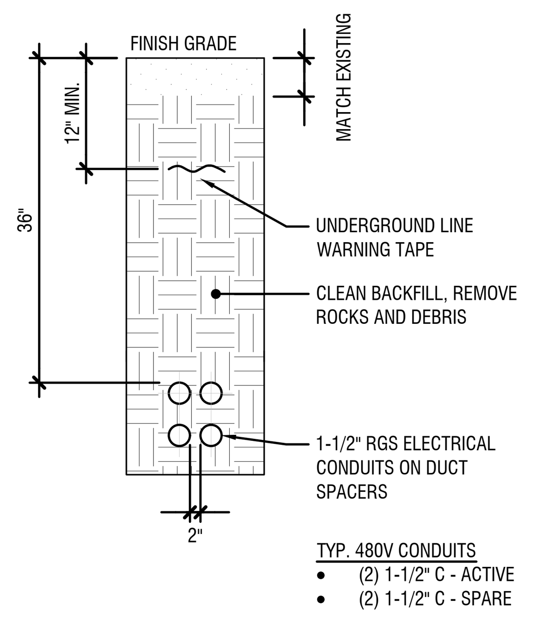
709 SCHOOL LN – 66KW SOLAR ARRAY

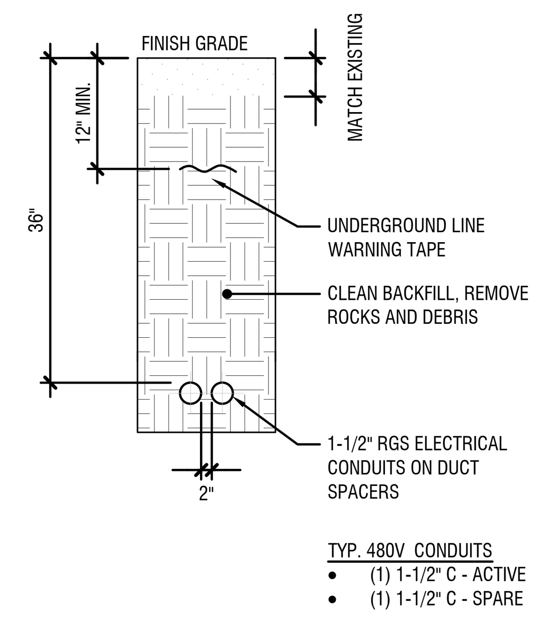
ELECTRICAL DETAILS

JOB NO.:	25001
DATE:	7/17/26
ENG.:	R.G.
DRAWN:	I.W.
SCALE:	AS NOTED
FILE:	SP-25001
DRAWING NO.:	E601

SHEET 4 OF 5



1 / E602 DIRECT BURIAL CONDUIT RUN A-A
SCALE: NONE



2 / E602 DIRECT BURIAL CONDUIT RUN B-B
SCALE: NONE

TURNKEY CONTRACTOR SHALL PROVIDE TRENCHING DETAILS.

DUCTBANK NOTES

GENERAL PLAN NOTES - COORDINATE WITH SITE UTILITY CONDITIONS AND BUILDING DESIGNS FOR EXACT LOCATION OF SERVICE TIE-IN POINTS AND REQUIREMENTS. COORDINATE WITH CIVIL ENGINEER FOR EXACT LOCATION OF EXISTING UTILITIES AND NEW SITE LAYOUTS.

GENERAL DUCTBANK NOTES - DUCTBANK SHALL BE CONSTRUCTED AS FOLLOWS
- FURNISH AND INSTALL ALL CONDUITS, DUCTBANKS, HANDHOLES, ETC. SHOWN ON THE DRAWINGS.
- DUCTBANKS SHALL BE INSTALLED TO SLOPE TOWARD MANHOLES AND NOT ENTRANCES INTO BUILDINGS. VALLEYS IN CONDUIT SYSTEM ARE NOT ACCEPTABLE.
- WHERE CONCRETE IS REQUIRED, PROVIDE 4000 PSI, 60 KSI CONCRETE AT 28 DAYS. PROVIDE THREE INCHES OF CONCRETE BETWEEN CONDUITS AND TOP, BOTTOM, AND SIDES OF DUCTBANK ENVELOPE.
- DUCTBANK WIDTH AND HEIGHT NOT TO BE LESS THAN 12".
- PROVIDE MINIMUM SPACING INDICATED BETWEEN ADJACENT CONDUITS.
- DUCTBANK SHALL BE FORMED UPON UNDISTURBED EARTH.
- PROVIDE STONE FREE, CLEAN, DRY BACKFILL MECHANICALLY TAMPERED IN LAYERS NOT EXCEEDING 6" IN DEPTH.
- PROVIDE ALL EARTHWORK EXCAVATION, CUTTING, AND PATCHING NECESSARY FOR DUCTBANK INSTALLATION. ALL AFFECTED ASPHALT PAVING AND CONCRETE WORK SHALL BE RESTORED.
- ALL CONDUIT SWEEPS MUST BE RIGID GALVANIZED STEEL.

CONSTRUCTION PLAN - PROVIDE THE TOWN'S ENGINEER WITH A CONSTRUCTION PLAN SHOWING ALL PROPOSED LOCATION OF UNDERGROUND DUCT SYSTEMS. ANY DEVIATIONS FROM THE PROPOSED DUCT ROUTE ON THE DRAWINGS, DUE TO ON-SITE OBSTRUCTIONS, MUST BE APPROVED BY THE CIVIL ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ANY NECESSARY CROSSING PERMITS.

DEPTH OF BURIAL - ROUGH GRADING TO WITHIN 6 INCHES OF FINAL GRADE SHOULD BE ESTABLISHED BEFORE TRENCH IS DUG. TRENCH MUST BE FREE OF HIGH SPOTS, ROCK PROJECTIONS, AND DEBRIS.

CLEARANCE FROM EXISTING UNDERGROUND FACILITIES - THE CLEARANCE BETWEEN DUCT SYSTEMS AND EXISTING UNDERGROUND FACILITIES (TELECOM, GAS, WATER, ETC.) PARALLELING SHALL IN NO CASE BE LESS THAN 24 INCHES. DUCT SYSTEMS WHICH PARALLEL A STEAM LINE SHALL HAVE A MINIMUM 6 FOOT SEPARATION (CAN BE REDUCED IF DUCTS ARE PROPERLY INSULATED). A DUCT SYSTEM WHICH CROSSES OVER OR UNDER EXISTING UNDERGROUND FACILITIES MUST HAVE THE FOLLOWING MINIMUM CLEARANCE:
TELEPHONE -- 3 INCHES OF CONCRETE OR 12 INCHES OF EARTH
GAS AND WATER MAINS -------------------------- 12 INCHES OF EARTH
SEWERS -- 12 INCHES OF EARTH
STEAM LINES -------------------------------------- 6 FEET OF EARTH (CAN BE REDUCED IF DUCT SYSTEM PROPERLY INSULATED)

IF THESE CLEARANCES CANNOT BE OBTAINED, INFORM THE CIVIL ENGINEER PRIOR TO CONSTRUCTION.

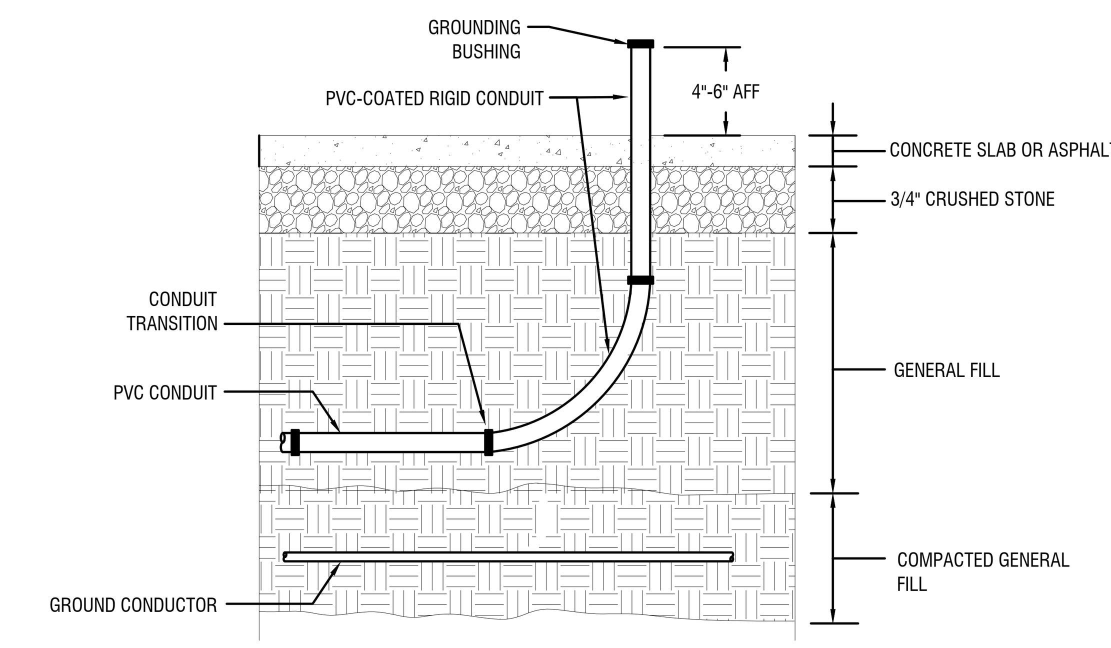
CONDUIT BENDS - BENDS IN POWER CONDUIT SYSTEMS SHALL BE MINIMUM 48 INCH RADIUS. THE CONTRACTOR MAY USE PREFORMED BENDS OF CONDUITS AT THE JOB SITE AS REQUIRED. ALL 90° BENDS MUST BE RIGID GALVANIZED STEEL.

COUPLINGS - ALL PVC CONDUIT COUPLINGS MUST BE SOLIDLY CEMENTED. THREADED JOINTS IN STEEL CONDUIT MUST BE SEALED USING MATERIAL RATED FOR ELECTRICAL INSTALLATION.

BELL ENDS - ALL PVC DUCTS ENTERING MANHOLE, VAULTS, HANDHOLES OR TRANSFORMER FOUNDATIONS SHALL HAVE BELL-ENDS. STEEL CONDUITS REQUIRE GROUNDING BUSHINGS.

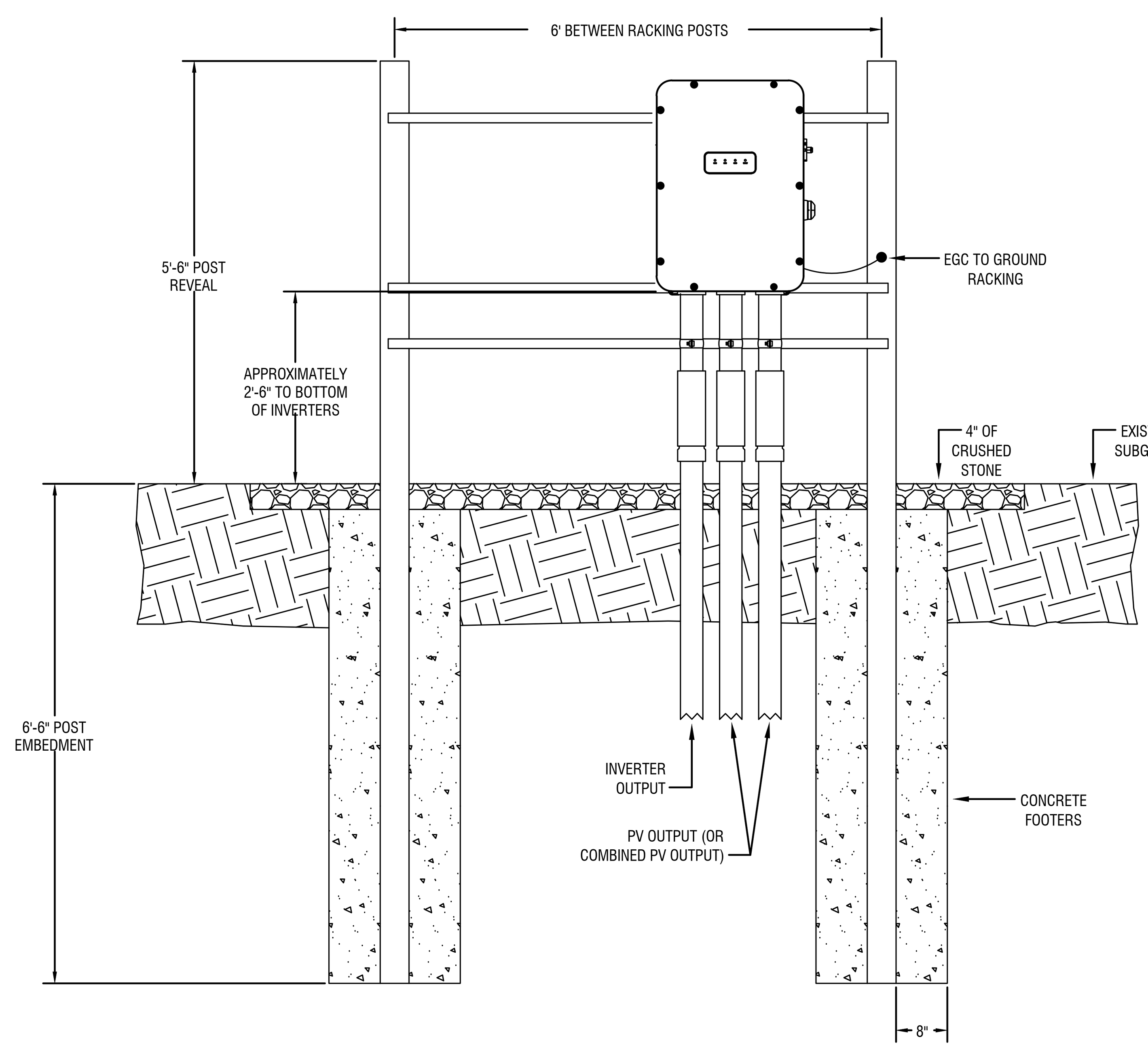
CLEAN DUCTS - ALL DUCTS SHALL BE CLEANED BY PULLING A MANDREL OR STIFF BRISTLED BRUSH, FOLLOWED BY A BALL OF CLEAN RAGS. THIS PROCEDURE WILL REMOVE EARTH, SAND, STONES OR WATER LEFT IN DUCTS. SEAL ENDS AFTER CLEANING. CAP AND PROTECT ALL SPARE CONDUITS WITH PLUGS RATED FOR INSTALLATION.

PULL WIRE (FISH) - PROVIDE EMPTY CONDUITS WITH A PLASTIC ROPE WITH A BREAKING STRENGTH OF AT LEAST 200 LBS. ALLOW A MINIMUM OF 24 INCHES OF SPARE AT EACH END OF THE CONDUIT RUN.



2 / E602 TYPICAL CONDUIT STUB-UP DETAIL
SCALE: NONE

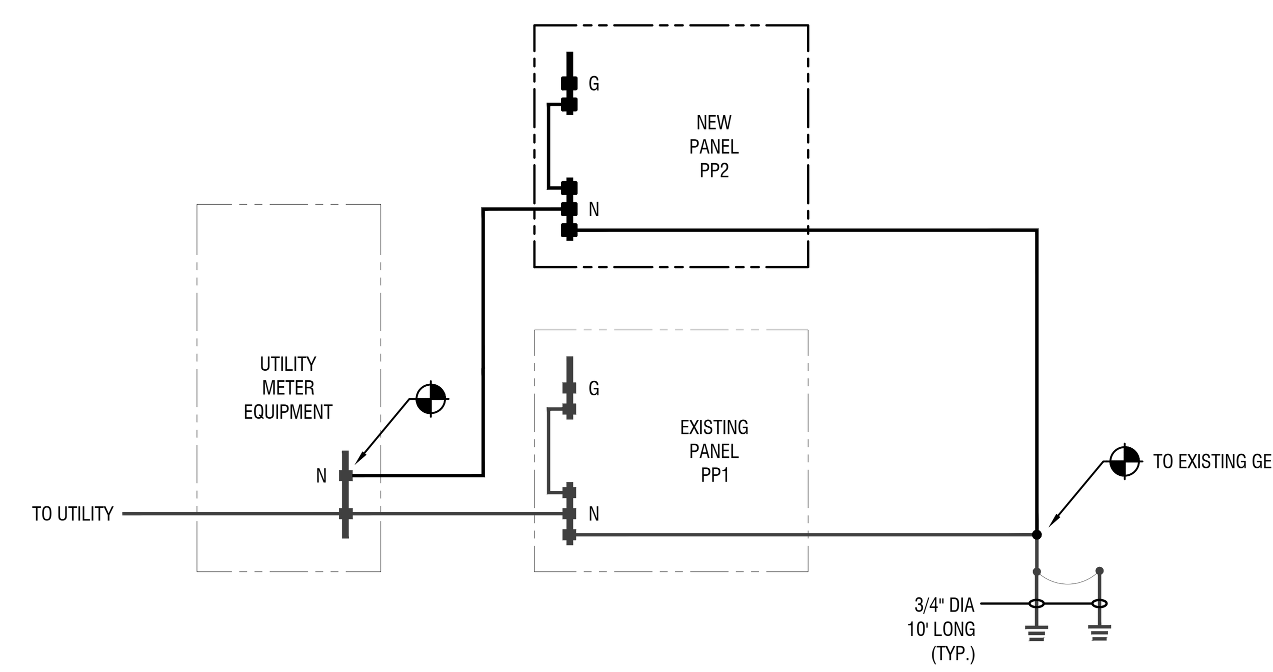
TURNKEY CONTRACTOR SHALL PROVIDE EQUIPMENT RACKING DETAILS.



INSTALLATION NOTES:
1. SCH40 PVC USED BELOW GRADE. SCH80 PVC USED ABOVE GRADE.
2. EXPANSION FITTINGS USED FOR ALL CONDUIT ENTERING STRUT-MOUNTED ENCLOSURES WHERE TERRAIN MOVEMENT MAY OCCUR.
3. GALVANIZED STRUT USED TO SECURE INVERTERS, COMMS EQUIPMENT, CONDUIT, ETC. TO MAIN STRUCTURAL POSTS. CONDUIT STRAPS USED TO FASTEN CONDUIT TO STRUT. SPACERS USED WHEN NEEDED.
4. INVERTERS TO BE SEPARATED BY A MINIMUM OF 24" WHEN RACKED SIDE BY SIDE. AIR BAFFLES TO BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. INVERTER KOS CAN BE ENLARGED UP TO 3". CONTRACTOR TO FOLLOW CPS REQUIREMENTS WHEN ENLARGING.
6. SEALING RINGS USED AT CONDUIT ENTRANCE INTO EQUIPMENT.

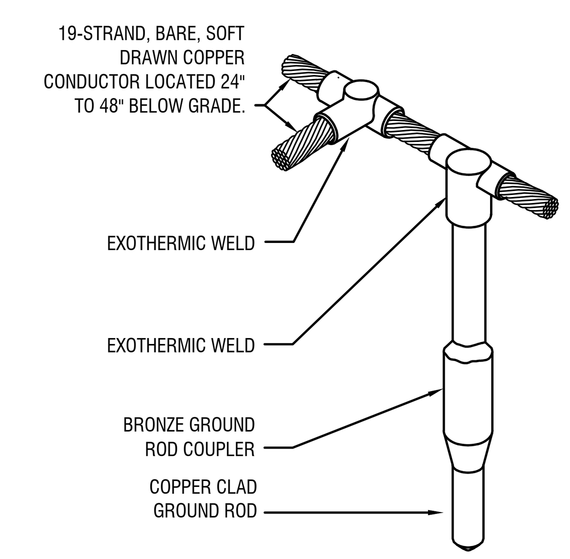
4 / E602 TYPICAL EQUIPMENT RACKING DETAIL
SCALE: NONE

TURNKEY CONTRACTOR SHALL PROVIDE EQUIPMENT RACKING DETAILS.



PROVIDE NEW GROUNDING ELECTRODE SYSTEM
- GROUNDING ELECTRODE SYSTEM SHALL BE MINIMAL REQUIREMENT PER 70:250.
- PER 70:250.50, IF, AND ONLY IF, GROUNDING ELECTRODES SUCH AS A CONCRETE ENCASED ELECTRODE OR AN UNDERGROUND WATER PIPE ARE PRESENT AT THE SERVICE, THEY SHALL BE INCORPORATED INTO THE GROUNDING ELECTRODE SYSTEM.
- CONNECT TO EXISTING GROUND COUNTERPOISE. INCLUDE ONE ADDITIONAL COPPERCLAD STEEL GROUND RODS, WITH TOP 1'-0" BELOW GRADE, SPACED 20'-0" APART, EXOTHERMICALLY WELDED, A MINIMUM OF 25'-0" FROM THE UTILITY TRANSFORMER GROUND RING.

5 / E602 SERVICE GROUNDING DETAIL
SCALE: NONE



6 / E602 GROUND ROD CONNECTION DETAIL
SCALE: NONE

NO.	DATE	REVISION

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709 SCHOOL LN – 66KW SOLAR ARRAY

ELECTRICAL DETAILS

JOB NO.:	25001
DATE:	7/17/26
ENG.:	R.G.
DRAWN:	I.W.
SCALE:	AS NOTED
FILE:	SP–25001
DRAWING NO.:	E602

SHEET 5 OF 5

APPENDIX B: EXAMPLE SIMPLE PAYBACK TABLE

An example table showing simple payback is available below. This table includes an estimated upfront system cost, yearly kWh production, and incentives (SRECs [Solar Renewable Energy Certificates], IRA credits, etc.).

Year	Estimated kWh Production	Electric Utility Rate	Value of Electricity	Estimated SREC Production	Value per SREC	Value of SRECs	Investment Tax Credit (Fed = 30%)	Net Cash Flow Estimate
0								$250,000.00
1	90,000.00	$0.10	$9,000.00	90	$35.00	$3,150.00	$75,000.00	$166,000.00
2	89,100.00	$0.10	$8,910.00	80	$35.00	$2,800.00		$157,090.00
3	88,209.00	$0.10	$8,820.90	80	$35.00	$2,800.00		$148,269.10
4	87,326.91	$0.11	$9,605.96	80	$25.00	$2,000.00		$138,663.14
5	86,453.64	$0.11	$9,509.90	80	$15.00	$1,200.00		$129,153.24
6	85,589.10	$0.11	$9,414.80	80	$10.00	$800.00		$119,738.44
7	84,733.21	$0.11	$9,320.65	80	$5.00	$400.00		$110,417.78
8	83,885.88	$0.11	$9,227.45	80	$5.00	$400.00		$101,190.34
9	83,047.02	$0.12	$9,965.64	80	$5.00	$400.00		$91,224.69
10	82,216.55	$0.12	$9,865.99	80	$5.00	$400.00		$81,358.71
11	81,394.39	$0.12	$9,767.33	80				$71,591.38
12	80,580.44	$0.12	$9,669.65	80				$61,921.73
1	79,774.64	$0.13	$10,370.70	70				$51,551.03
13	78,976.89	$0.13	$10,267.00	70				$41,284.03
14	78,187.12	$0.13	$10,164.33	70				$31,119.70
15	77,405.25	$0.13	$10,062.68	70				$21,057.02
16	76,631.20	$0.14	$10,728.37	70				$10,328.65
17	75,864.89	$0.14	$10,621.08	70				($292.43)
18	75,106.24	$0.14	$10,514.87	70				($10,807.30)
19	74,355.18	$0.15	$11,153.28	70				($21,960.58)
20	73,611.62	$0.15	$11,041.74	70				($33,002.32)
21	72,875.51	$0.15	$10,931.33	70				($43,933.65)
22	72,146.75	$0.15	$10,822.01	70				($54,755.66)
23	71,425.29	$0.16	$11,428.05	70				($66,183.71)
24	70,711.03	$0.16	$11,313.77	70				($77,497.47)
25	70,003.92	$0.16	$11,200.63	70				($88,698.10)
26	69,303.88	$0.17	$11,781.66	60				($100,479.76)
27	68,610.84	$0.17	$11,663.84	60				($112,143.61)
28	67,924.74	$0.17	$11,547.21	60				($123,690.81)
29	67,245.49	$0.18	$12,104.19	60				($135,795.00)
30	66,573.03	$0.18	$11,983.15	60				($147,778.14)
	2,409,269.67		$322,778.14			$14,350.00		**($147,778.14)**

APPENDIX C: PRICING FORM/BID SCHEDULE

Proposers shall complete and submit the following pricing information:

Base EPC Lump Sum Price: $____________________

Includes all engineering, procurement, construction, permitting, testing, and commissioning required for a complete, turnkey solar PV system.

Alternate Price – Optional Five (5) Year Operations & Maintenance Plan:

Annual O&M Price: $____________________ per year
Escalation (if any): _______% per year

MSC reserves the right to accept or reject the O&M alternate at its sole discretion.

Additional deliverables are required with this proposal. The contractor shall utilize the following check list to verify all items have been submitted:

Yes/No	Item
	Firm qualifications and relevant project experience
	Proposed system description and equipment selections • Proposed panel layout • Proposed service tie-in description • Basis of design solar equipment to meet or exceed performance parameters. • Warranties • Verification that all necessary structural, civil, and electrical engineering are to be provided.
	Project schedule
	Exceptions or deviations from the RFP
	Required bonding and insurance acknowledgments
	Energy production modeling and assumptions
	EPC lump-sum price
	Separate pricing for optional five-year O&M

MAJOR SYSTEM COMPONENTS WORKSHEET

Worksheet listing the system's major components:

Photovoltaic Modules	
Item	**Vendor Response**
Manufacturer	
Model Number	
Module Wattage (STC)	
Module Efficiency	
Temperature Coefficient	
Annual Degradation Rate	
Module Technology (e.g., monocrystalline, bifacial, etc.)	
Product Warranty	
Performance Warranty	
Country of Manufacture / BABA Compliance	

Inverters	
Item	**Vendor Response**
Manufacturer	
Model Number	
Rated AC Output	
Peak Efficiency	
Monitoring Platform	
Warranty Term	
Country of Manufacture / BABA Compliance	

Description of Proposed AC System Tie-in

____

____

____

____

____

SIMPLE PAYBACK WORKSHEET

Worksheet listing the system's simple payback:

Year	Estimated kWh Production	Electric Utility Rate	Value of Electricity	Estimated SREC Production	Value per SREC	Value of SRECs	Investment Tax Credit (Fed = 30%)	Net Cash Flow Estimate
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1								
13								
14								
15								
16								
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22								
23								
24								
25								
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APPENDIX D: US DoE SPECIAL TERMS AND CONDITIONS

Special Terms and Conditions

State of Delaware, DNREC ("Recipient"), which is identified in Block 5 of the Assistance Agreement, and the Office of State and Community Energy Programs ("SCEP"), and Energy Efficiency and Conservation Block Grant Program ("EECBG"), an office within the United States Department of Energy ("DOE"), enter into this Award, referenced above, to achieve the project objectives and the technical milestones and deliverables stated in Attachment 1 to this Award.

This Award consists of the following documents, including all terms and conditions therein:

	Assistance Agreement
	Special Terms and Conditions
Attachment 1	Activity File
Attachment 2	Federal Assistance Reporting Checklist and Instructions
Attachment 3	Budget Information SF-424A
Attachment 4	Intellectual Property Provisions
Attachment 5	Energy Efficiency and Conservation Strategy

The following are incorporated into this Award by reference:

- DOE Assistance Regulations, 2 CFR part 200 as amended by 2 CFR part 910 at http://www.eCFR.gov.
- National Policy Requirements (November 12, 2020) at http://www.nsf.gov/awards/managing/rtc.jsp.
- The Recipient's application/proposal as approved by SCEP.
- Public Law 117-58, also known as the Bipartisan Infrastructure Law (BIL).

Table of Contents

Subpart A. General Provisions

Term 1. Legal Authority and Effect

A DOE financial assistance award is valid only if it is in writing and is signed, either in writing or electronically, by a DOE Contracting Officer.

The Recipient may accept or reject the Award. A request to draw down DOE funds or acknowledgement of award documents by the Recipient's authorized representative through electronic systems used by DOE, specifically FedConnect, constitutes the Recipient's acceptance of the terms and conditions of this Award. Acknowledgement via FedConnect by the Recipient's authorized representative constitutes the Recipient's electronic signature.

Term 2. Flow Down Requirement

The Recipient agrees to apply the terms and conditions of this Award, as applicable, including the Intellectual Property Provisions, to all subrecipients (and subcontractors, as appropriate), as required by 2 CFR 200.101, and to require their strict compliance therewith. Further, the Recipient must apply the Award terms as required by 2 CFR 200.327 to all subrecipients (and subcontractors, as appropriate), and to require their strict compliance therewith.

Term 3. Compliance with Federal, State, and Municipal Law

The Recipient is required to comply with applicable Federal, state, and local laws and regulations for all work performed under this Award. The Recipient is required to obtain all necessary Federal, state, and local permits, authorizations, and approvals for all work performed under this Award.

Term 4. Inconsistency with Federal Law

Any apparent inconsistency between Federal statutes and regulations and the terms and conditions contained in this Award must be referred to the DOE Award Administrator for guidance.

Term 5. Federal Stewardship

SCEP will exercise normal Federal stewardship in overseeing the project activities performed under this Award. Stewardship activities include, but are not limited to, conducting site visits; reviewing performance and financial reports; providing technical assistance and/or temporary intervention in unusual circumstances to address deficiencies that develop during the project; assuring compliance with terms and conditions; and reviewing technical performance after project completion to ensure that the project objectives have been accomplished.

Term 6. NEPA Requirements

DOE must comply with the National Environmental Policy Act (NEPA) prior to authorizing the use of Federal funds. Based on all information provided by the Recipient, SCEP has made a NEPA determination by issuing a categorical exclusion (CX) for all activities listed in the Activity

File approved by the Contracting Officer and the DOE NEPA Determination. The Recipient is thereby authorized to use Federal funds for the defined project activities, subject the Recipient's compliance with the conditions stated below and except where such activity is subject to a restriction set forth elsewhere in this Award.

Condition(s):

1. This NEPA Determination only applies to activities funded by the Administrative and Legal Requirements Document (ALRD) for the EECBG Program Formula Infrastructure Investment and Jobs Act (EECBG Formula - IIJA) awarded to non-tribal recipients proposing non-ground disturbing activities within states that have a DOE executed Historic Preservation Programmatic Agreement.
2. Activities not listed under "Blueprints and additional activities" within this NEPA determination are subject to additional NEPA review and approval by DOE. For activities requiring additional NEPA review, Recipients must complete the environmental questionnaire (EQ-1) found at https: //www.eere-pmc.energy.gov/NEPA.aspx and receive notification from DOE that the NEPA review has been completed and approved by the Contracting Officer prior to initiating the project or activities.
3. Activities proposed on tribal lands or tribal properties would be restricted to homes/buildings less than forty-five (45) years old and without ground disturbance. Recipients must contact the DOE Project Officer for a Historic Preservation Worksheet to request a review of activities that are listed below on tribal homes/buildings forty-five (45) years and older and/or ground disturbing activities. The DOE NEPA team must review the Historic Preservation Worksheet and notify the Recipient's DOE Project Officer before activities listed on the Historic Preservation Worksheet may begin.
4. This authorization does not include activities where the following elements exist: extraordinary circumstances; cumulative impacts or connected actions that may lead to significant effects on the human environment; or any inconsistency with the "integral elements" (as contained in 10 CFR Part 1021, Appendix B) as they relate to a particular project.
5. The Recipient must identify and promptly notify DOE of extraordinary circumstances, cumulative impacts or connected actions that may lead to significant effects on the human environment, or any inconsistency with the "integral elements" (as contained in 10 CFR Part 1021, Appendix B) as they relate to project activities.
6. Recipients must have a DOE executed Historic Preservation Programmatic Agreement and adhere to the terms and restrictions of its DOE executed Historic Preservation Programmatic Agreement. DOE executed Historic Preservation Programmatic Agreements are available at https://www.energy.gov/node/812599.
7. Recipients are responsible for reviewing the online NEPA and Historic preservation training at www.energy.gov/node/4816816 and contacting EECBG.NEPA@ee.doe.gov with any EECBG NEPA or historic preservation questions.
8. Recipients are required to submit an annual Historic Preservation Report in the Performance and Accountability for Grants in Energy system (PAGE) at

https://www.page.energy.gov/default.aspx.

9. Most activities listed under "Blueprints and additional activities" within this NEPA determination are more restrictive than the Categorical Exclusion. The restrictions included in the "Blueprints and additional activities" must be followed.
10. This authorization excludes any activities that are otherwise subject to a restriction set forth elsewhere in the award.

This authorization is specific to the project activities and locations as described in the Activity File approved by the Contracting Officer and the DOE NEPA Determination.

If the Recipient later intends to add to or modify the activities or locations as described in the approved Activity File and the DOE NEPA Determination, those new activities/locations or modified activities/locations are subject to additional NEPA review and are not authorized for Federal funding until the Contracting Officer provides written authorization on those additions or modifications. Should the Recipient elect to undertake activities or change locations prior to written authorization from the Contracting Officer, the Recipient does so at risk of not receiving Federal funding for those activities, and such costs may not be recognized as allowable cost share.

Term 7. Notice Regarding the Purchase of American-Made Equipment and Products – Sense of Congress

It is the sense of the Congress that, to the greatest extent practicable, all equipment and products purchased with funds made available under this Award should be American-made.

Term 8. Reporting Requirements

The reporting requirements for this Award are identified on the Federal Assistance Reporting Checklist, attached to this Award. Failure to comply with these reporting requirements is considered a material noncompliance with the terms of the Award. Noncompliance may result in withholding of future payments, suspension, or termination of the current award, and withholding of future awards. A willful failure to perform, a history of failure to perform, or unsatisfactory performance of this and/or other financial assistance awards, may also result in a debarment action to preclude future awards by Federal agencies.

Term 9. Lobbying

By accepting funds under this Award, the Recipient agrees that none of the funds obligated on the Award shall be expended, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. § 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

Term 10. Publications

The Recipient is required to include the following acknowledgement in publications arising out of, or relating to, work performed under this Award, whether copyrighted or not:

- *Acknowledgment:* "This material is based upon work supported by the U.S. Department of Energy's Office of State and Community Energy Programs (SCEP) under the Energy Efficiency and Conservation Block Grant Program (EECBG) Award Number DE-SE0000473."

- *Full Legal Disclaimer:* "This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof."

  Abridged Legal Disclaimer: "The views expressed herein do not necessarily represent the views of the U.S. Department of Energy or the United States Government."

  Recipients should make every effort to include the full Legal Disclaimer. However, in the event that recipients are constrained by formatting and/or page limitations set by the publisher, the abridged Legal Disclaimer is an acceptable alternative.

Term 11. No-Cost Extension

As provided in 2 CFR 200.308, the Recipient must provide the Contracting Officer with notice in advance if it intends to utilize a one-time, no-cost extension of this Award. The notification must include the supporting reasons and the revised period of performance. The Recipient must submit this notification in writing to the Contracting Officer and DOE Technology Manager/ Project Officer at least 30 days before the end of the current budget period.

Any no-cost extension will not alter the project scope, milestones, deliverables, or budget of this Award.

Term 12. Property Standards

The complete text of the Property Standards can be found at 2 CFR 200.310 through 200.316. Also see 2 CFR 910.360 for additional requirements for real property and equipment for For-Profit recipients.

Term 13. Insurance Coverage

See 2 CFR 200.310 for insurance requirements for real property and equipment acquired or improved with Federal funds. Also see 2 CFR 910.360(d) for additional requirements for real property and equipment for For-Profit recipients.

Term 14. Real Property

Subject to the conditions set forth in 2 CFR 200.311, title to real property acquired or improved under a Federal award will conditionally vest upon acquisition in the non-Federal entity. The non-Federal entity cannot encumber this property and must follow the requirements of 2 CFR 200.311 before disposing of the property.

Except as otherwise provided by Federal statutes or by the Federal awarding agency, real property will be used for the originally authorized purpose as long as needed for that purpose. When real property is no longer needed for the originally authorized purpose, the non-Federal entity must obtain disposition instructions from DOE or pass-through entity. The instructions must provide for one of the following alternatives: (1) retain title after compensating DOE as described in 2 CFR 200.311(c)(1); (2) Sell the property and compensate DOE as specified in 2 CFR 200.311(c)(2); or (3) transfer title to DOE or to a third party designated/approved by DOE as specified in 2 CFR 200.311(c)(3).

See 2 CFR 200.311 for additional requirements pertaining to real property acquired or improved under a Federal award. Also see 2 CFR 910.360 for additional requirements for real property for For-Profit recipients.

Term 15. Equipment

Subject to the conditions provided in 2 CFR 200.313, title to equipment (property) acquired under a Federal award will conditionally vest upon acquisition with the non-Federal entity. The non-Federal entity cannot encumber this property and must follow the requirements of 2 CFR 200.313 before disposing of the property.

A state must use equipment acquired under a Federal award by the state in accordance with state laws and procedures.

Equipment must be used by the non-Federal entity in the program or project for which it was acquired as long as it is needed, whether or not the project or program continues to be supported by the Federal award. When no longer needed for the originally authorized purpose, the equipment may be used by programs supported by DOE in the priority order specified in 2 CFR 200.313(c)(1)(i) and (ii).

Management requirements, including inventory and control systems, for equipment are provided in 2 CFR 200.313(d).

When equipment acquired under a Federal award is no longer needed, the non-Federal entity must obtain disposition instructions from DOE or pass-through entity.

Disposition will be made as follows: (1) items of equipment with a current fair market value of $5,000 or less may be retained, sold, or otherwise disposed of with no further obligation to DOE; (2) Non-Federal entity may retain title or sell the equipment after compensating DOE as described in 2 CFR 200.313(e)(2); or (3) transfer title to DOE or to an eligible third party as specified in 2 CFR 200.313(e)(3).

See 2 CFR 200.313 for additional requirements pertaining to equipment acquired under a Federal award. Also see 2 CFR 910.360 for additional requirements for equipment for For-Profit recipients. See also 2 CFR 200.439 Equipment and other capital expenditures.

Term 16. Supplies

See 2 CFR 200.314 for requirements pertaining to supplies acquired under a Federal award. See also 2 CFR 200.453 Materials and supplies costs, including costs of computing devices.

Term 17. Property Trust Relationship

Real property, equipment, and intangible property, that are acquired or improved with a Federal award must be held in trust by the non-Federal entity as trustee for the beneficiaries of the project or program under which the property was acquired or improved. See 2 CFR 200.316 for additional requirements pertaining to real property, equipment, and intangible property acquired or improved under a Federal award.

Term 18. Record Retention

Consistent with 2 CFR 200.334 through 200.338, the Recipient is required to retain records relating to this Award.

Term 19. Audits

A. Government-Initiated Audits

The Recipient must provide any information, documents, site access, or other assistance requested by SCEP, DOE or Federal auditing agencies (e.g., DOE Inspector General, Government Accountability Office) for the purpose of audits and investigations. Such assistance may include, but is not limited to, reasonable access to the Recipient's records relating to this Award.

Consistent with 2 CFR part 200 as amended by 2 CFR part 910, DOE may audit the Recipient's financial records or administrative records relating to this Award at any time. Government-initiated audits are generally paid for by DOE.

DOE may conduct a final audit at the end of the project period (or the termination of the Award, if applicable). Upon completion of the audit, the Recipient is required to refund to DOE any payments for costs that were determined to be unallowable. If the audit has not been performed or completed prior to the closeout of the award, DOE retains the right to recover an appropriate amount after fully considering the recommendations on disallowed costs resulting from the final audit.

DOE will provide reasonable advance notice of audits and will minimize interference with ongoing work, to the maximum extent practicable.

B. Annual Independent Audits (Single Audit or Compliance Audit)
The Recipient must comply with the annual independent audit requirements in 2 CFR 200.500 through .521 for institutions of higher education, nonprofit organizations, and state and local governments (Single audit), and 2 CFR 910.500 through .521 for for-profit entities (Compliance audit).

The annual independent audits are separate from Government-initiated audits discussed in part A. of this Term and must be paid for by the Recipient. To minimize expense, the Recipient may have a Compliance audit in conjunction with its annual audit of financial statements. The financial statement audit is **not** a substitute for the Compliance audit. If the audit (Single audit or Compliance audit, depending on Recipient entity type) has not been performed or completed prior to the closeout of the award, DOE may impose one or more of the actions outlined in 2 CFR 200.339, Remedies for Noncompliance.

Term 20. Indemnity

The Recipient shall indemnify DOE and its officers, agents, or employees for any and all liability, including litigation expenses and attorneys' fees, arising from suits, actions, or claims of any character for death, bodily injury, or loss of or damage to property or to the environment, resulting from the project, except to the extent that such liability results from the direct fault or negligence of DOE officers, agents or employees, or to the extent such liability may be covered by applicable allowable costs provisions.

Term 21. Foreign National Participation

If the Recipient (including any of its subrecipients and contractors) anticipates involving foreign nationals in the performance of the Award, the Recipient must, upon DOE’s request, provide DOE with specific information about each foreign national to ensure compliance with the requirements for participation and access approval. The volume and type of information required may depend on various factors associated with the Award. The DOE Contracting Officer will notify the Recipient if this information is required.

DOE may elect to deny a foreign national’s participation in the Award. Likewise, DOE may elect to deny a foreign national’s access to a DOE sites, information, technologies, equipment, programs or personnel.

Term 22. Post-Award Due Diligence Reviews

During the life of the Award, DOE may conduct ongoing due diligence reviews, through Government resources, to identify potential risks of undue foreign influence. In the event, a risk is identified, DOE may require risk mitigation measures, including but not limited to, requiring an individual or entity not participate in the Award.

Subpart B. Financial Provisions

Term 23. Maximum Obligation

The maximum obligation of DOE for this Award is the total "Funds Obligated" stated in Block 13 of the Assistance Agreement to this Award.

Term 24. Refund Obligation

The Recipient must refund any excess payments received from SCEP, including any costs determined unallowable by the Contracting Officer. Upon the end of the project period (or the termination of the Award, if applicable), the Recipient must refund to SCEP the difference between (1) the total payments received from SCEP, and (2) the Federal share of the costs incurred. Refund obligations under this Term do not supersede the annual reconciliation or true up process if specified under the Indirect Cost Term.

Term 25. Allowable Costs

SCEP determines the allowability of costs through reference to 2 CFR part 200 as amended by 2 CFR part 910. All project costs must be allowable, allocable, and reasonable. The Recipient must document and maintain records of all project costs, including, but not limited to, the costs paid by Federal funds, costs claimed by its subrecipients and project costs that the Recipient claims as cost sharing, including in-kind contributions. The Recipient is responsible for maintaining records adequate to demonstrate that costs claimed have been incurred, are reasonable, allowable and allocable, and comply with the cost principles. Upon request, the Recipient is required to provide such records to SCEP. Such records are subject to audit. Failure to provide SCEP adequate supporting documentation may result in a determination by the Contracting Officer that those costs are unallowable.

The Recipient is required to obtain the prior written approval of the Contracting Officer for any foreign travel costs.

Term 26. Indirect Costs

A. **Indirect Cost Allocation:**
   The budget for this Award does not include an allocation of segregated indirect billing rates. Therefore, indirect charges shall not be charged under allocated billing rates, nor shall reimbursement be requested for this project for segregated indirect cost billing rates, nor shall any indirect charges for this

project be allocated to any other Federally sponsored project. The Recipient cannot claim indirect costs separately as cost share.

B. Fringe Cost Allocation:
The budget for this award does not include an allocation of segregated fringe billing rates. Fringe benefit costs have been found reasonable as incorporated in the Recipient's burdened labor rate or under an allocated indirect cost billing rate. Therefore, fringe benefit costs shall not be charged as a separate rate allocation to this Award. SCEP will not reimburse fringe benefit costs as a separate budget item. Fringe benefit costs for this Award cannot be allocated as a separate rate allocation to any other Federally sponsored project.

C. Subrecipient Indirect Costs (If Applicable):
The Recipient must ensure its subrecipient's indirect costs are appropriately managed, have been found to be allowable, and comply with the requirements of this Award and 2 CFR Part 200 as amended by 2 CFR Part 910.

D. Indirect Cost Stipulations:

i. Modification to Indirect Cost Billing Rates
SCEP will not modify this Award solely to provide additional funds to cover increases in the Recipient's indirect cost billing rate(s). Adjustments to the indirect cost billing rates must be approved by the Recipient's Cognizant Agency or Cognizant Federal Agency Official.

The Recipient must provide a copy of an updated NICRA or indirect rate proposal to the DOE Award Administrator in order to increase indirect cost billing rates. If the Contracting Officer provides prior written approval, the Recipient may incur an increase in the indirect cost billing rates. Reimbursement will be limited by the budgeted dollar amount for indirect costs for each budget period as shown in Attachment 3 to this Award.

ii. Award Closeout
The closeout of the DOE award does not affect (1) the right of the DOE to disallow costs and recover funds on the basis of a later audit or other review; (2) the requirement for the Recipient to return any funds due as a result of later refunds, corrections or other transactions including final indirect cost billing rate adjustments; and (3) the ability of the DOE to make financial adjustments to a previously closed award resolving indirect cost payments and making final payments.

Term 27. Decontamination and/or Decommissioning (D&D) Costs

Notwithstanding any other provisions of this Award, the Government shall not be responsible for or have any obligation to the Recipient for (1) Decontamination and/or Decommissioning (D&D) of any of the Recipient's facilities, or (2) any costs which may be incurred by the Recipient in connection with the D&D of any of its facilities due to the performance of the work under this Award, whether said work was performed prior to or subsequent to the effective date of the Award.

Term 28. Use of Program Income

If the Recipient earns program income during the project period as a result of this Award, the Recipient must add the program income to the funds committed to the Award and used to further eligible project objectives.

Term 29. Payment Procedures

A. Method of Payment

Payment will be made by advances through the Department of Treasury's ASAP system.

B. Requesting Advances

Requests for advances must be made through the ASAP system. The Recipient may submit requests as frequently as required to meet its needs to disburse funds for the Federal share of project costs. If feasible, the Recipient should time each request so that the Recipient receives payment on the same day that the Recipient disburses funds for direct project costs and the proportionate share of any allowable indirect costs. If same-day transfers are not feasible, advance payments must be as close to actual disbursements as administratively feasible.

C. Adjusting Payment Requests for Available Cash

The Recipient must disburse any funds that are available from repayments to and interest earned on a revolving fund, program income, rebates, refunds, contract settlements, audit recoveries, credits, discounts, and interest earned on any of those funds before requesting additional cash payments from SCEP.

D. Payments

All payments are made by electronic funds transfer to the bank account identified on the Bank Information Form that the Recipient filed with the U.S. Department of Treasury.

E. Unauthorized Drawdown of Federal Funds

For each budget period, the Recipient may not spend more than the Federal share authorized to that particular budget period, without specific written approval from the Contracting Officer. The Recipient must immediately refund SCEP any amounts spent or drawn down in excess of the authorized amount for a budget period. The Recipient and subrecipients shall promptly, but at least quarterly, remit to DOE interest earned on advances drawn in excess of disbursement needs, and shall comply with the procedure for remitting interest earned to the Federal government per 2 CFR 200.305, as applicable.

Term 30. Budget Changes

A. Budget Changes Generally

The Contracting Officer has reviewed and approved the SF-424A in Attachment 3 to this Award.

Any increase in the total project cost, whether DOE share or Cost Share, which is stated as "Total" in Block 12 to the Assistance Agreement of this Award, must be approved in advance and in writing by the Contracting Officer.

Any change that alters the project scope, milestones or deliverables requires prior written approval of the Contracting Officer. SCEP may deny reimbursement for any failure to comply with the requirements in this term.

B. Transfers of Funds Among Direct Cost Categories

The Recipient is required to obtain the prior written approval of the Contracting Officer for any transfer of funds among direct cost categories where the cumulative amount of such transfers exceeds or is expected to exceed 10 percent of the total project cost, which is stated as "Total" in Block 12 to the Assistance Agreement of this Award.

The Recipient is required to <u>notify</u> the DOE Technology Manager/Project Officer of any transfer of funds among direct cost categories where the cumulative amount of such transfers is equal to or below 10 percent of the total project cost, which is stated as "Total" in Block 12 to the Assistance Agreement of this Award.

C. Transfer of Funds Between Direct and Indirect Cost Categories

The Recipient is required to obtain the prior written approval of the Contracting Officer for any transfer of funds between direct and indirect cost categories. If the Recipient's actual allowable indirect costs are less than those budgeted in Attachment 3 to this Award, the Recipient may use the difference to pay additional allowable direct costs during the project period so long as the total difference is less than 10% of total project costs and the difference is reflected in actual requests for reimbursement to DOE.

Subpart C. Miscellaneous Provisions

Term 31. Environmental, Safety and Health Performance of Work at DOE Facilities

With respect to the performance of any portion of the work under this Award which is performed at a DOE -owned or controlled site, the Recipient agrees to comply with all State and Federal Environmental, Safety and Health (ES&H) regulations and with all other ES&H requirements of the operator of such site.

Prior to the performance on any work at a DOE-owned or controlled site, the Recipient shall contact the site facility manager for information on DOE and site-specific ES&H requirements.

The Recipient is required apply this provision to its subrecipients and contractors.

Term 32. System for Award Management and Universal Identifier Requirements

A. Requirement for Registration in the System for Award Management (SAM)
Unless the Recipient is exempted from this requirement under 2 CFR 25.110, the Recipient must maintain the currency of its information in SAM until the Recipient submits the final financial report required under this Award or receive the final payment, whichever is later. This requires that the Recipient reviews and updates the information at least annually after the initial registration, and more frequently if required by changes in its information or another award term.

B. Unique Entity Identifier (UEI)
SAM automatically assigns a UEI to all active SAM.gov registered entities. Entities no longer have to go to a third-party website to obtain their identifier. This information is displayed on SAM.gov.

If the Recipient is authorized to make subawards under this Award, the Recipient:

i. Must notify potential subrecipients that no entity (see definition in paragraph C of this award term) may receive a subaward from the Recipient unless the entity has provided its UEI number to the Recipient.

ii. May not make a subaward to an entity unless the entity has provided its UEI number to the Recipient.

C. Definitions
For purposes of this award term:

i. System for Award Management (SAM) means the Federal repository into which an entity must provide information required for the conduct of business as a recipient. Additional information about registration procedures may be found at the SAM Internet site (currently at https://www.sam.gov).

ii. Unique Entity Identifier (UEI) is the 12-character, alpha-numeric identifier that will be assigned by SAM.gov upon registration.

iii. Entity, as it is used in this award term, means all of the following, as defined at 2 CFR Part 25, subpart C:

1. A Governmental organization, which is a State, local government, or Indian Tribe.
2. A foreign public entity.
3. A domestic or foreign nonprofit organization.
4. A domestic or foreign for-profit organization.
5. A Federal agency, but only as a subrecipient under an award or subaward to a non-Federal entity.

iv. Subaward:

1. This term means a legal instrument to provide support for the performance of any portion of the substantive project or program for which the Recipient received this Award and that the Recipient awards to an eligible subrecipient.

2. The term does not include the Recipient's procurement of property and services needed to carry out the project or program (for further explanation, see 2 CFR 200.501 Audit requirements, (f) *Subrecipients and Contractors* and/or 2 CFR 910.501 Audit requirements, (f) *Subrecipients and Contractors*).

3. A subaward may be provided through any legal agreement, including an agreement that the Recipient considers a contract.

v. Subrecipient means an entity that:

1. Receives a subaward from the Recipient under this Award; and
2. Is accountable to the Recipient for the use of the Federal funds provided by the subaward.

Term 33. Nondisclosure and Confidentiality Agreements Assurances

A. By entering into this agreement, the Recipient attests that it **does not and will not** require its employees or contractors to sign internal nondisclosure or confidentiality agreements or statements prohibiting or otherwise restricting its employees or contactors from lawfully reporting waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

B. The Recipient further attests that it **does not and will not** use any Federal funds to implement or enforce any nondisclosure and/or confidentiality policy, form, or agreement it uses unless it contains the following provisions:

i. *''These provisions are consistent with and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by existing statute or Executive order relating to (1) classified information, (2) communications to Congress, (3) the reporting to an Inspector General of a violation of any law, rule, or regulation, or mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, or (4) any other whistleblower protection. The definitions, requirements, obligations, rights, sanctions, and liabilities created by controlling Executive orders and statutory provisions are incorporated into this agreement and are controlling.''*

ii. The limitation above shall not contravene requirements applicable to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

iii. Notwithstanding provision listed in paragraph (a), a nondisclosure or confidentiality policy form or agreement that is to be executed by a person connected with the conduct of an intelligence or intelligence-related activity, other than an employee or officer of the United States Government, may contain provisions appropriate to the particular activity for which such document is to be used. Such form or agreement shall, at a minimum, require that the person will not disclose any classified information received in the course of such activity unless specifically authorized to do so by the United States Government. Such nondisclosure or confidentiality forms shall also make it clear that they do not bar disclosures to Congress, or to an authorized official of an executive agency or the Department of Justice, that are essential to reporting a substantial violation of law.

Term 34. Subrecipient Change Notification

Except for subrecipients specifically proposed as part of the Recipient's Application for award, the Recipient must notify the Contracting Officer and Project Manager in writing 30 days prior to the execution of new or modified subrecipient agreements, including naming any To Be Determined subrecipients. This notification does not constitute a waiver of the prior approval requirements outlined in 2 CFR part 200 as amended by 2 CFR part 910, nor does it relieve the Recipient from its obligation to comply with applicable Federal statutes, regulations, and executive orders.

In order to satisfy this notification requirement, the Recipient documentation must, as a minimum, include the following:

- A description of the research to be performed, the service to be provided, or the equipment to be purchased.
- Cost share commitment letter if the subrecipient is providing cost share to the Award.
- An assurance that the process undertaken by the Recipient to solicit the subrecipient complies with their written procurement procedures as outlined in 2 CFR 200.317 through 200.327.
- An assurance that no planned, actual or apparent conflict of interest exists between the Recipient and the selected subrecipient and that the Recipient's written standards of conduct were followed.[1]
- A completed Environmental Questionnaire, if applicable.
- An assurance that the subrecipient is not a debarred or suspended entity.
- An assurance that all required award provisions will be flowed down in the resulting subrecipient agreement.

The Recipient is responsible for making a final determination to award or modify subrecipient agreements under this agreement, but the Recipient may not proceed with the subrecipient agreement until the Contracting Officer determines, and provides the Recipient written notification, that the information provided is adequate.

Should the Recipient not receive a written notification of adequacy from the Contracting Officer within 30 days of the submission of the subrecipient documentation stipulated above, the Recipient may proceed to award or modify the proposed subrecipient agreement.

Term 35. Conference Spending

The Recipient shall not expend any funds on a conference not directly and programmatically related to the purpose for which the grant was awarded that would defray the cost to the United States Government of a conference held by any Executive branch department, agency, board, commission, or office for which the cost to the United States Government would otherwise exceed $20,000, thereby circumventing the required notification by the head of any such Executive Branch department, agency, board, commission, or office to the Inspector General (or senior ethics official for any entity without an Inspector General), of the date, location, and number of employees attending such conference.

[1] It is DOE's position that the existence of a "covered relationship" as defined in 5 CFR 2635.502(a)&(b) between a member of the Recipient's owners or senior management and a member of a subrecipient's owners or senior management creates at a minimum an apparent conflict of interest that would require the Recipient to notify the Contracting Officer and provide detailed information and justification (including, for example, mitigation measures) as to why the subrecipient agreement does not create an actual conflict of interest. The Recipient must also notify the Contracting Officer of any new subrecipient agreement with: (1) an entity that is owned or otherwise controlled by the Recipient; or (2) an entity that is owned or otherwise controlled by another entity that also owns or otherwise controls the Recipient, as it is DOE's position that these situations also create at a minimum an apparent conflict of interest.

Term 36. Recipient Integrity and Performance Matters

A. General Reporting Requirement

If the total value of your currently active Financial Assistance awards, grants, and procurement contracts from all Federal awarding agencies exceeds $10,000,000 for any period of time during the period of performance of this Federal award, then you as the recipient during that period of time must maintain the currency of information reported to the System for Award Management (SAM) that is made available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)) about civil, criminal, or administrative proceedings described in paragraph 2 of this term. This is a statutory requirement under section 872 of Public Law 110-417, as amended (41 U.S.C. 2313). As required by section 3010 of Public Law 111-212, all information posted in the designated integrity and performance system on or after April 15, 2011, except past performance reviews required for Federal procurement contracts, will be publicly available.

B. Proceedings About Which You Must Report

Submit the information required about each proceeding that:

i. Is in connection with the award or performance of a Financial Assistance, cooperative agreement, or procurement contract from the Federal Government;

ii. Reached its final disposition during the most recent five-year period; and

iii. Is one of the following:

1. A criminal proceeding that resulted in a conviction, as defined in paragraph E of this award term and condition;
2. A civil proceeding that resulted in a finding of fault and liability and payment of a monetary fine, penalty, reimbursement, restitution, or damages of $5,000 or more;
3. An administrative proceeding, as defined in paragraph E of this term, that resulted in a finding of fault and liability and your payment of either a monetary fine or penalty of $5,000 or more or reimbursement, restitution, or damages in excess of $100,000; or
4. Any other criminal, civil, or administrative proceeding if:
    a. It could have led to an outcome described in paragraph B.iii.1, 2, or 3 of this term;
    b. It had a different disposition arrived at by consent or compromise with an acknowledgment of fault on your part; and
    c. The requirement in this term to disclose information about the proceeding does not conflict with applicable laws and regulations.

C. Reporting Procedures

Enter in the SAM Entity Management area the information that SAM requires about each proceeding described in paragraph B of this term. You do not need to submit the information a second time under assistance awards that you received if you already provided the information through SAM because you were required to do so under Federal procurement contracts that you were awarded.

D. Reporting Frequency

During any period of time when you are subject to the requirement in paragraph A of this term, you must report proceedings information through SAM for the most recent five-year period, either to report new information about any proceeding(s) that you have not reported previously or affirm that there is no new information to report. Recipients that have Federal contract, Financial Assistance awards, (including cooperative agreement awards) with a cumulative total value greater than $10,000,000, must disclose semiannually any information about the criminal, civil, and administrative proceedings.

E. Definitions

For purposes of this term:

i. Administrative proceeding means a non-judicial process that is adjudicatory in nature in order to make a determination of fault or liability (e.g., Securities and Exchange Commission Administrative proceedings, Civilian Board of Contract Appeals proceedings, and Armed Services Board of Contract Appeals proceedings). This includes proceedings at the Federal and State level but only in connection with performance of a Federal contract or Financial Assistance awards. It does not include audits, site visits, corrective plans, or inspection of deliverables.

ii. Conviction means a judgment or conviction of a criminal offense by any court of competent jurisdiction, whether entered upon a verdict or a plea, and includes a conviction entered upon a plea of *nolo contendere*.

iii. Total value of currently active Financial Assistance awards, cooperative agreements and procurement contracts includes—

   1. Only the Federal share of the funding under any Federal award with a recipient cost share or match; and
   2. The value of all expected funding increments under a Federal award and options, even if not yet exercised.

Term 37. Export Control

The United States government regulates the transfer of information, commodities, technology, and software considered to be strategically important to the U.S. to protect national security, foreign policy, and economic interests without imposing undue regulatory burdens on legitimate international trade. There is a network of Federal agencies and regulations that govern exports that are collectively referred to as “Export Controls.” The Recipient is

responsible for ensuring compliance with all applicable United States Export Control laws and regulations relating to any work performed under a resulting award.
The Recipient must immediately report to DOE any export control violations related to the project funded under this award, at the recipient or subrecipient level, and provide the corrective action(s) to prevent future violations.

Term 38. Interim Conflict of Interest Policy for Financial Assistance

The DOE interim Conflict of Interest Policy for Financial Assistance (COI Policy) can be found at https://www.energy.gov/management/department-energy-interim-conflict-interest-policy-requirements-financial-assistance. This policy is applicable to all non-Federal entities applying for, or that receive, DOE funding by means of a financial assistance award (e.g., a grant, cooperative agreement, or technology investment agreement) and, through the implementation of this policy by the entity, to each Investigator who is planning to participate in, or is participating in, the project funded wholly or in part under this Award. The term "Investigator" means the PI and any other person, regardless of title or position, who is responsible for the purpose, design, conduct, or reporting of a project funded by DOE or proposed for funding by DOE. The Recipient must flow down the requirements of the interim COI Policy to any subrecipient non-Federal entities, with the exception of DOE National Laboratories. Further, the Recipient must identify all financial conflicts of interests (FCOI), i.e., managed and unmanaged/ unmanageable, in its initial and ongoing FCOI reports.

Prior to award, the Recipient was required to: 1) ensure all Investigators on this Award completed their significant financial disclosures; 2) review the disclosures; 3) determine whether a FCOI exists; 4) develop and implement a management plan for FCOIs; and 5) provide DOE with an initial FCOI report that includes all FCOIs (i.e., managed and unmanaged/unmanageable). Within 180 days of the date of the Award, the Recipient must be in full compliance with the other requirements set forth in DOE's interim COI Policy.

Term 39. Organizational Conflict of Interest

Organizational conflicts of interest are those where, because of relationships with a parent company, affiliate, or subsidiary organization, the Recipient is unable or appears to be unable to be impartial in conducting procurement action involving a related organization (2 CFR 200.318(c)(2)).

The Recipient must disclose in writing any potential or actual organizational conflict of interest to the DOE Contracting Officer. The Recipient must provide the disclosure prior to engaging in a procurement or transaction using project funds with a parent, affiliate, or subsidiary organization that is not a state, local government, or Indian tribe. For a list of the information that must be included the disclosure, see Section VI. of the DOE interim Conflict of Interest Policy for Financial Assistance at https://www.energy.gov/management/department-energy-interim-conflict-interest-policy-requirements-financial-assistance.

If the effects of the potential or actual organizational conflict of interest cannot be avoided, neutralized, or mitigated, the Recipient must procure goods and services from other sources when using project funds. Otherwise, DOE may terminate the Award in accordance with 2 CFR 200.340 unless continued performance is determined to be in the best interest of the Federal government.

The Recipient must flow down the requirements of the interim COI Policy to any subrecipient non-Federal entities, with the exception of DOE National Laboratories. The Recipient is responsible for ensuring subrecipient compliance with this term.

If the Recipient has a parent, affiliate, or subsidiary organization that is not a state, local government, or Indian tribe, the Recipient must maintain written standards of conduct covering organizational conflicts of interest.

Term 40. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment

As set forth in 2 CFR 200.216, recipients and subrecipients are prohibited from obligating or expending project funds (Federal and non-Federal funds) to:

(1) Procure or obtain;

(2) Extend or renew a contract to procure or obtain; or

(3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

See Public Law 115-232, section 889 for additional information.

Term 41. Human Subjects Research

Research involving human subjects, biospecimens, or identifiable private information conducted with Department of Energy (DOE) funding is subject to the requirements of DOE Order 443.1C, *Protection of Human Research Subjects*, 45 CFR Part 46, *Protection of Human Subjects* (*subpart A which is referred to as the "Common Rule"),* and 10 CFR Part 745, *Protection of Human Subjects*.

Federal regulation and the DOE Order require review by an Institutional Review Board (IRB) of all proposed human subjects research projects. The IRB is an interdisciplinary ethics board responsible for ensuring that the proposed research is sound and justifies the use of human subjects or their data; the potential risks to human subjects have been minimized; participation is voluntary; and clear and accurate information about the study, the benefits and risks of participating, and how individuals' data/specimens will be protected/used, is provided to potential participants for their use in determining whether or not to participate.

The Recipient shall provide the Federal Wide Assurance number identified in item 1 below and the certification identified in item 2 below to DOE prior to initiation of any project that will involve interactions with humans in some way (e.g., through surveys); analysis of their identifiable data (e.g., demographic data and energy use over time); asking individuals to test devices, products, or materials developed through research; and/or testing of commercially available devices in buildings/homes in which humans will be present. *Note:* This list of examples is illustrative and not all inclusive.

No DOE funded research activity involving human subjects, biospecimens, or identifiable private information shall be conducted without:

1) A registration and a Federal Wide Assurance of compliance accepted by the Office of Human Research Protection (OHRP) in the Department of Health and Human Services; and
2) Certification that the research has been reviewed and approved by an Institutional Review Board (IRB) provided for in the assurance. IRB review may be accomplished by the awardee's institutional IRB; by the Central DOE IRB; or if collaborating with one of the DOE national laboratories, by the DOE national laboratory IRB.

The Recipient is responsible for ensuring all subrecipients comply and for reporting information on the project annually to the DOE Human Subjects Research Database (HSRD) at https://science.osti.gov/HumanSubjects/Human-Subjects-Database/home. *Note:* If a DOE IRB is used, no end of year reporting will be needed.

Additional information on the DOE Human Subjects Research Program can be found at: https://science.osti.gov/ber/human-subjects

Term 42. Fraud, Waste and Abuse

The mission of the DOE Office of Inspector General (OIG) is to strengthen the integrity, economy and efficiency of DOE's programs and operations including deterring and detecting fraud, waste, abuse and mismanagement. The OIG accomplishes this mission primarily through investigations, audits, and inspections of Department of Energy activities to include grants, cooperative agreements, loans, and contracts. The OIG maintains a Hotline for reporting allegations of fraud, waste, abuse, or mismanagement. To report such allegations, please visit https://www.energy.gov/ig/ig-hotline.

Additionally, the Recipient must be cognizant of the requirements of 2 CFR § 200.113 Mandatory disclosures, which states:

> The non-Federal entity or applicant for a Federal award must disclose, in a timely manner, in writing to the Federal awarding agency or pass-through entity all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the Federal award. Non-Federal entities that have received a Federal award including the term and condition outlined in appendix XII of 2 CFR Part 200 are required to report certain civil, criminal, or administrative proceedings to SAM (currently FAPIIS). Failure to make required disclosures can result in any of the remedies described in § 200.339. (See also 2 CFR part 180, 31 U.S.C. 3321, and 41 U.S.C. 2313.)

Subpart D. Bipartisan Infrastructure Law (BIL)-specific requirements

Term 43. Reporting, Tracking and Segregation of Incurred Costs

BIL funds can be used in conjunction with other funding, as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the BIL and related Office of Management and Budget (OMB) Guidance. The Recipient must keep separate records for BIL funds and must ensure those records comply with the requirements of the BIL. Funding provided through the BIL that is supplemental to an existing grant or cooperative agreement is one-time funding.

Term 44. Davis-Bacon Requirements

This award is funded under Division D of the Bipartisan Infrastructure Law (BIL). All laborers and mechanics employed by the recipient, subrecipients, contractors or subcontractors in the performance of construction, alteration, or repair work in excess of $2000 on an award funded directly by or assisted in whole or in part by funds made available under this award shall be paid wages at rates not less than those prevailing on similar projects in the locality, as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code commonly referred to as the "Davis-Bacon Act" (DBA).

Recipients shall provide written assurance acknowledging the DBA requirements for the award or project and confirming that all of the laborers and mechanics performing construction, alteration, or repair, through funding under the award are paid or will be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by Subchapter IV of Chapter 31 of Title 40, United States Code (Davis-Bacon Act).

The Recipient must comply with all of the Davis-Bacon Act requirements, including but not limited to:

(1) ensuring that the wage determination(s) and appropriate Davis-Bacon clauses and requirements are flowed down to and incorporated into any applicable subcontracts or subrecipient awards.

(2) being responsible for compliance by any subcontractor or subrecipient with the Davis-Bacon labor standards.

(3) receiving and reviewing certified weekly payrolls submitted by all subcontractors and subrecipients for accuracy and to identify potential compliance issues.

(4) maintaining original certified weekly payrolls for 3 years after the completion of the project and must make those payrolls available to the DOE or the Department of Labor upon request, as required by 29 CFR 5.6(a)(2).

(5) conducting payroll and job-site reviews for construction work, including interviews with employees, with such frequency as may be necessary to assure compliance by its subcontractors and subrecipients and as requested or directed by the DOE.

(6) cooperating with any authorized representative of the Department of Labor in their inspection of records, interviews with employees, and other actions undertaken as part of a Department of Labor investigation.

(7) posting in a prominent and accessible place the wage determination(s) and Department of Labor Publication: WH-1321, Notice to Employees Working on Federal or Federally Assisted Construction Projects.

(8) notifying the Contracting Officer of all labor standards issues, including all complaints regarding incorrect payment of prevailing wages and/or fringe benefits, received from the recipient, subrecipient, contractor, or subcontractor employees; significant labor standards violations, as defined in 29 CFR 5.7; disputes concerning labor standards pursuant to 29 CFR parts 4, 6, and 8 and as defined in FAR 52.222-14; disputed labor standards determinations; Department of Labor investigations; or legal or judicial proceedings related to the labor standards under this Contract, a subcontract, or subrecipient award.

(9) preparing and submitting to the Contracting Officer, the Office of Management and Budget Control Number 1910-5165, Davis Bacon Semi-Annual Labor Compliance Report, by April 21 and October 21 of each year. Form submittal will be administered through the iBenefits system (https://doeibenefits2.energy.gov) or its successor system.

The Recipient must undergo Davis-Bacon Act compliance training and must maintain competency in Davis-Bacon Act compliance. The Contracting Officer will notify the Recipient of any DOE sponsored Davis-Bacon Act compliance trainings. The Department of Labor offers free Prevailing Wage Seminars several times a year that meet this requirement, at https://www.dol.gov/agencies/whd/government-contracts/construction/seminars/events.

The Department of Energy has contracted with, a third-party DBA electronic payroll compliance software application. The Recipient must ensure the timely electronic submission of weekly certified payrolls as part of its compliance with the Davis-Bacon Act unless a waiver is granted to a particular contractor or subcontractor because they are unable or limited in their ability to use or access the software.

Davis Bacon Act Electronic Certified Payroll Submission Waiver
A waiver must be granted before the award starts. The applicant does not have the right to appeal SCEP's decision concerning a waiver request.

For additional guidance on how to comply with the Davis-Bacon provisions and clauses, see https://www.dol.gov/agencies/whd/government-contracts/construction and https://www.dol.gov/agencies/whd/government-contracts/protections-for-workers-in-construction.

Term 45. Buy American Requirement for Infrastructure Projects

A. Definitions

Components are defined as the articles, materials, or supplies incorporated directly into the end manufactured product(s).

Construction Materials are an article, material, or supply—other than an item primarily of iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is used in an infrastructure project and is or consists primarily of non-ferrous metals, plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables), glass (including optic glass), lumber, drywall, coatings (paints and stains), optical fiber, clay brick; composite building materials; or engineered wood products.

Domestic Content Procurement Preference Requirement- means a requirement that no amounts made available through a program for federal financial assistance may be obligated for an infrastructure project unless—
(A) all iron and steel used in the project are produced in the United States;
(B) the manufactured products used in the project are produced in the United States; or
(C) the construction materials used in the project are produced in the United States.
Also referred to as the **Buy America Requirement**.

Infrastructure includes, at a minimum, the structures, facilities, and equipment located in the United States, for: roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property; and generation, transportation, and distribution of energy - including electric vehicle (EV) charging.
The term "infrastructure" should be interpreted broadly, and the definition provided above should be considered as illustrative and not exhaustive.

Manufactured Products are items used for an infrastructure project made up of components that are not primarily of iron or steel; construction materials; cement and cementitious materials' aggregates such as stone, sand, or gravel; or aggregate binding agents or additives.

Primarily of iron or steel means greater than 50% iron or steel, measured by cost.

Project- means the construction, alteration, maintenance, or repair of infrastructure in the United States.

Public- The Buy America Requirement does not apply to non-public infrastructure. For purposes of this guidance, infrastructure should be considered "public" if it is: (1) publicly owned or (2) privately owned but utilized primarily for a public purpose. Infrastructure should be considered to be "utilized primarily for a public purpose" if it is privately operated on behalf of the public or is a place of public accommodation.

B. Buy America Requirement

None of the funds provided under this award (federal share or recipient cost-share) may be used for a project for infrastructure unless:

1. All iron and steel used in the project is produced in the United States—this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;

2. All manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and

3. All construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America Requirement only applies to articles, materials, and supplies that are consumed in, incorporated into, or permanently affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought into the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America Requirement apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

Recipients are responsible for administering their award in accordance with the terms and conditions, including the Buy America

Requirement. The recipient must ensure that the Buy America Requirement flows down to all subawards and that the subawardees and subrecipients comply with the Buy America Requirement. The Buy America Requirement term and condition must be included all sub-awards, contracts, subcontracts, and purchase orders for work performed under the infrastructure project.

C. Certification of Compliance

The Recipient must certify or provide equivalent documentation for proof of compliance that a good faith effort was made to solicit bids for domestic products used in the infrastructure project under this Award.

The Recipient must also maintain certifications or equivalent documentation for proof of compliance that those articles, materials, and supplies that are consumed in, incorporated into, affixed to, or otherwise used in the infrastructure project, not covered by a waiver or exemption, are produced in the United States. The certification or proof of compliance must be provided by the suppliers or manufacturers of the iron, steel, manufactured products and construction materials and flow up from all subawardees, contractors and vendors to the Recipient. The Recipient must keep these certifications with the award/project files and be able to produce them upon request from DOE, auditors or Office of Inspector General.

D. Waivers

When necessary, the Recipient may apply for, and DOE may grant, a waiver from the Buy America Requirement. Requests to waive the application of the Buy America Requirement must be in writing to the Contracting Officer. Waiver requests are subject to review by DOE and the Office of Management and Budget, as well as a public comment period of no less than 15 calendar days.

Waivers must be based on one of the following justifications:

1. Public Interest- Applying the Buy America Requirement would be inconsistent with the public interest;

2. Non-Availability- The types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality; or

3. Unreasonable Cost- The inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.

Requests to waive the Buy America Requirement must include the following:

- Waiver type (Public Interest, Non-Availability, or Unreasonable Cost);
- Recipient name and Unique Entity Identifier (UEI);
- Award information (Federal Award Identification Number, Assistance Listing number);
- A brief description of the project, its location, and the specific infrastructure involved;
- Total estimated project cost, with estimated federal share and recipient cost share breakdowns;
- Total estimated infrastructure costs, with estimated federal share and recipient cost share breakdowns;
- List and description of iron or steel item(s), manufactured goods, and/or construction material(s) the recipient seeks to waive from the Buy America Preference, including name, cost, quantity(ies), country(ies) of origin, and relevant Product Service Codes (PSC) and North American Industry Classification System (NAICS) codes for each;
- A detailed justification as to how the non-domestic item(s) is/are essential the project;
- A certification that the recipient made a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and non-proprietary communications with potential suppliers;
- A justification statement—based on one of the applicable justifications outlined above—as to why the listed items cannot be procured domestically, including the due diligence performed (e.g., market research, industry outreach, cost analysis, cost-benefit analysis) by the recipient to attempt to avoid the need for a waiver. This justification may cite, if applicable, the absence of any Buy America-compliant bids received for domestic products in response to a solicitation; and
- Anticipated impact to the project if no waiver is issued.

The Recipient should consider using the following principles as minimum requirements contained in their waiver request:

- Time-limited: Consider a waiver constrained principally by a length of time, rather than by the specific project/award to which it applies. Waivers of this type may be appropriate, for example, when an item that is "non-available" is widely used in the project. When requesting such a waiver, the Recipient should identify a reasonable, definite time frame (e.g., no more than one to two years) designed so that the waiver is reviewed to ensure the condition for the waiver ("non-availability") has not changed (e.g., domestic supplies have become more available).

- Targeted: Waiver requests should apply only to the item(s), product(s), or material(s) or category(ies) of item(s), product(s), or material(s) as necessary and justified. Waivers should not be overly broad as this will undermine domestic preference policies.

- Conditional: The Recipient may request a waiver with specific conditions that support the policies of IIJA/BABA and Executive Order 14017.

DOE may request, and the Recipient must provide, additional information for consideration of this wavier. DOE may reject or grant waivers in whole or in part depending on its review, analysis, and/or feedback from OMB or the public. DOEs final determination regarding approval or rejection of the waiver request may not be appealed. Waiver requests may take up to 90 calendar days to process.

Term 46. Affirmative Action and Pay Transparency Requirements

All federally assisted construction contracts exceeding $10,000 annually will be subject to the requirements of Executive Order 11246:

(1) Recipients, subrecipients, and contractors are prohibited from discriminating in employment decisions on the basis of race, color, religion, sex, sexual orientation, gender identity or national origin.

(2) Recipients and Contractors are required to take affirmative action to ensure that equal opportunity is provided in all aspects of their employment. This includes flowing down the appropriate language to all subrecipients, contractors and subcontractors.

(3) Recipients, subrecipients, contractors and subcontractors are prohibited from taking adverse employment actions against applicants and employees for asking about, discussing, or sharing information about their pay or, under certain circumstances, the pay of their co-workers.

The Department of Labor's (DOL) Office of Federal Contractor Compliance Programs (OFCCP) uses a neutral process to schedule contractors for compliance evaluations. OFCCP's Technical Assistance Guide[2] should be consulted to gain an understanding of the requirements and possible actions the recipients, subrecipients, contractors and subcontractors must take.

Term 47. Potentially Duplicative Funding Notice

If the Recipient or subrecipients have or receive any other award of federal funds for activities that potentially overlap with the activities funded under this Award, the Recipient must promptly notify DOE in writing of the potential overlap and state whether project funds (i.e., recipient cost share and federal funds) from any of those other federal awards have been, are being, or are to be used (in whole or in part) for one or more of the identical cost items under this Award. If there are identical cost items, the Recipient must promptly notify the DOE Contracting Officer in writing of the potential duplication and eliminate any inappropriate duplication of funding.

Term 48. Transparency of Foreign Connections

During the term of the Award, the Recipient must notify the DOE Contracting Officer within fifteen (15) business days of learning of the following circumstances in relation to the Recipient or subrecipients:

1. The existence of any joint venture or subsidiary that is based in, funded by, or has a foreign affiliation with any foreign country of risk;
2. Any current or pending contractual or financial obligation or other agreement specific to a business arrangement, or joint venture-like arrangement with an enterprise owned by a country of risk or foreign entity based in a country of risk;
3. Any current or pending change in ownership structure of the Recipient or subrecipients that increases foreign ownership related to a country of risk;
4. Any current or pending venture capital or institutional investment by an entity that has a general partner or individual holding a leadership role in such entity who has a foreign affiliation with any foreign country of risk;
5. Any current or pending technology licensing or intellectual property sales to a foreign country of risk; and

[2] See OFCCP's Technical Assistance Guide at: https://www.dol.gov/sites/dolgov/files/ofccp/Construction/files/ConstructionTAG.pdf?msclkid=9e397d68c4b111ec9d8e6fecb6c710ec Also see the National Policy Assurances http://www.nsf.gov/awards/managing/rtc.jsp

6. Any current or pending foreign business entity, offshore entity, or entity outside the United States related to the Recipient or subrecipient.

Term 49. Foreign Collaboration Considerations

a. Consideration of new collaborations with foreign organizations and governments. The Recipient must provide DOE with advanced written notification of any potential collaboration with foreign entities, organizations or governments in connection with its DOE-funded award scope. The Recipient must await further guidance from DOE prior to contacting the proposed foreign entity, organization or government regarding the potential collaboration or negotiating the terms of any potential agreement.

b. Existing collaborations with foreign entities, organizations and governments. The Recipient must provide DOE with a written list of all existing foreign collaborations in which has entered in connection with its DOE-funded award scope.

c. Description of collaborations that should be reported: In general, a collaboration will involve some provision of a thing of value to, or from, the Recipient. A thing of value includes but may not be limited to all resources made available to, or from, the recipient in support of and/or related to the Award, regardless of whether or not they have monetary value. Things of value also may include in-kind contributions (such as office/laboratory space, data, equipment, supplies, employees, students). In-kind contributions not intended for direct use on the Award but resulting in provision of a thing of value from or to the Award must also be reported. Collaborations do not include routine workshops, conferences, use of the Recipient's services and facilities by foreign investigators resulting from its standard published process for evaluating requests for access, or the routine use of foreign facilities by awardee staff in accordance with the Recipient's standard policies and procedures.