CONSTRUCTION COMPLETION REPORT

RER ENERGY GROUP, LLC
TOWN OF DEWITT LANDFILL
2.6MW SOLAR PV ARRAY
TOWN OF DEWITT, ONONDAGA COUNTY, NEW YORK

October 2020

Prepared by

C&S Engineers, Inc.
499 Col. Eileen Collins Blvd.
Syracuse, New York 13212

with

RER Energy Group, LLC
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Reading, Pennsylvania 19605-9708

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October 1, 2020

Mr. Andrew Biederman, Project Assistant
RER Energy Group
4700 Pottsville Pike
Reading, PA 19605

RE: Town of DeWitt 2661 KW DC Solar PV System
6330 Fisher Road
Town of DeWitt,
East Syracuse, NY 13057

Dear Andrew:

I, John T. Camp, certify that I am currently a NYS Registered Professional Engineer and that the Construction Completion Report is prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Sincerely,

C&S ENGINEERS, INC.

John T. Camp, P.E.
Service Group Manager

Spotts, Stevens and McCoy
1047 N. Park Road > Reading PA 19610
610.621.2000 > F. 610.621.2001 > SSMGROUP.COM

SSM

September 28, 2020

Mr. Andrew Biederman, Project Assistant
RER Energy Group
4700 Pottsville Pike
Reading, PA 19605
[abiederman@rerenergygroup.com]

RE: Town of DeWitt 2661 KW DC Solar PV System
6330 Fisher Road
Town of DeWitt,
East Syracuse, NY 13057
SSM File 101644.0035

Dear Andrew:

The Ground Mounted 2661 KW DC Solar Photovoltaic System for the Town of DeWitt, located at 6330 Fisher Road, East Syracuse, NY 13057 has been completed in accordance with the plans and equipment specifications.

The DC system includes 7290, 365 Watt PV Modules, with 18 modules connected in series as a string, for a total of 405 Strings connected to 33, 60 KW Inverters. The AC system includes: an Aerial 15 KV Load-Break Switch; Fused Cutouts with 140 Amp Type K Fuses; 15 KV Fused Switch with 100E Fuses; 2000 KVA, 13.2/7.6 KV Wye to 480.277 Volt Wye, Pad Mounted Transformer; 3000 Amp, 480/277 Volt Switchboard, MSB-1, with a 2500 Amp Main Circuit Breaker and 800 and 600 Amp Feeder Breaker to supply the five (5) Inverter Combiner Panels MDP-1 thru 5 for the 33 Inverters; and a 150 KVA Grounding Transformer.

I, Emerick V. Martin, certify that I am currently a NYS Registered Professional Engineer and that the project as outlined above was completed, the engineering drawings provided herein were prepared, and the project was constructed in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Please advise if you have any questions and/or comments.

Sincerely,
Spotts, Stevens and McCoy

Emerick V. Martin, PE
Senior Electrical Engineer
emerick.martin@ssmgroup.com

STATE OF NEW YORK · EMERICK V. MARTIN · 069170 · LICENSED PROFESSIONAL ENGINEER

09-28-2020

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APPENDICES

1.0 INTRODUCTION

RER Energy Group, LLC (RER or Project Owner) has completed development of the Town of Dewitt Landfill – 2.6 megawatt (MW) Solar Photovoltaic (PV) Array (Project). The Project specifically involved installation of a grid-connected ballasted solar array atop of the closed landfill at 6330 Fisher Road in the Town of DeWitt, Onondaga County, New York (See Figure 1). The installation involved the use of non-penetrating ballast foundations to preserve the integrity of the membrane cap, which resides below the existing grade as a component of an engineered landfill-closure solution.

The project footprint covers an overall area of 11.15 acres, occurring in a repeating-row formation, alternating with 24 feet between each row. Solar panels occupy 3.3 acres within the 11.15-acre footprint. Rows encroach upon existing vent pipes at a distance not less than 30-feet in radius from each vent stack. The array is connected to the local electrical grid by extension of an electrical cable to an interconnect location along Fisher Road. A 15kV cable is placed in a buried conduit within the limits of the landfill cap system, and upon exiting the landfill limits, the electrical cable extends along the Fisher Road easement to the interconnect location as depicted in the site plan drawings provided as Appendix A.

The Town of DeWitt has entered into a Power Purchase Agreement (PPA) with RER whereby the Town will purchase energy credits derived from the generation of solar energy at the site pursuant to New York State's Net Metering Law PSL §66-j . This action by the Town provides opportunity for further implementation of clean energy initiatives identified in the Town of DeWitt's Sustainability Plan adopted August 11, 2014. This use of closed landfill space leverages the limited development potential of NYS's closed, capped landfills and brownfields in accordance with strategies identified to support NYS's attainment of 70% renewable energy by 2030 as outlined in Governor Cuomo's Reforming the Energy Vision Initiative (REV).

2.0 LANDFILL DISTURBANCE CONSIDERATIONS

The project design incorporates measures to avoid disturbance to the landfill cap system. The following describes these considerations and accompanying measures observed during construction:

- The system involves use of ballasted racking system designed by GameChange (See Appendix A), which does not require typical below ground structural supports that would require penetration of the cap system.
- Geotechnical investigation completed concludes the weight of the ballasted racking system will not result in significant impacts to the landfill cap system.
- The solar array may provide shaded areas and shelter for unwanted wildlife species. Invariably some shaded areas are created by the installation of solar panels or any other planar structure. Prior experience indicates incidental increases of wildlife occupation may occur within the array. Observed occurrences are limited primarily to bird nests being constructed in the racking structure.

Source: Google Maps

Not to Scale

RER ENERGY GROUP, LLC
TOWN OF DEWITT LANDFILL
2.6MW SOLAR PV ARRAY
TOWN OF DEWITT, ONONDAGA COUNTY, NEW YORK

C&S COMPANIES®

Figure 1
Project Location Map

Future maintenance will include removal of nests on structure. Existing maintenance activities include review of the site for the presence of burrowing animals; this activity will continue post construction. The landfill observes limited mowing activities, and grass is typically at heights that provide shade and shelter for small mammals. The shade provided by the solar arrays is not anticipated to significantly increase small mammal (including burrowing animals) populations on site.

- Maintenance requirements are limited for this project. The limited maintenance requirements are preferred to avoid issues such as rutting or disturbance to the cap. The facility will be continuously monitored remotely throughout the life of the project. This will limit the number of physical visits to the site to likely 1-2 times per year. This excludes unanticipated truck-rolls dispatched in response to fault notifications from the data-acquisition system. The timing of planned maintenance intervals will be scheduled in coordination with the Town. Mowing activities are not expected to increase significantly beyond those currently observed on site.

3.0 GEOTECHNICAL INVESTIGATION

CME Associates, Inc. (CME) conducted a geotechnical evaluation for the project. Static load testing was performed in accordance with ASTM D1194-94 "Standard Test Method for Bearing Capacity of Soil for Static Load and Spread Footings" (See Appendix B). Three test locations were selected based on the project layout. At each test location, grass and topsoil were removed to expose undisturbed subgrade. The test load was applied in 200-pound increments and held for 15 minutes. Deflection was recorded at each interval. Upon completion of the test, the removed topsoil and sod were replaced and compacted. The GameChange design requires existing soil have a bearing capacity of at least 1,000 pounds per square foot with minimal soil deflection. The CME analysis indicates that on-site soils exceed this capacity.

4.0 CONSTRUCTION SEQUENCING

The following depicts the project's general construction activities:

1. Mobilization
2. Install Stabilized Construction Entrance
3. Install compost filter sock
4. Prepare concrete washout area, staging area, and equipment storage
5. Deliver materials on site:
    a. Material delivery on landfill cap to be completed with low ground pressure equipment
    b. Equipment traversing landfill required to avoid re-use of travel access points/paths to minimize risk of compromising the landfill cap and avoiding tire rutting.
6. Erect racking system per GameChange Pour-In-Place™ design drawings (Appendix A).
7. Pour concrete in Pour-in-Place ballast tubs
    a. Concrete pump trucks and/or skid-steers will fill ballasted structure components
8. Install solar racking onto ballasted system
9. Install solar panels onto racking
10. Electrical equipment and wiring is installed (including grounding)

11. The primary electrical feed is installed down the slope of the landfill and placed in a 4" conduit. Fill is placed over the conduit, seeded, and mulched. Upon exiting the landfill cap, the electrical line will be connected to the Utility via placement of utility poles
12. Site restoration occurs upon completion of construction activities

5.0 CONSTRUCTION PHASING

Protection of the existing landfill cap and liner system during installation of the solar components is paramount. In order to protect the integrity of the landfill cap, access to the overall site is controlled with implementation of a controlled phasing/work plan. The following measures are incorporated into the project drawings and occurred during construction:

- As affirmed from the geotechnical investigation, all equipment traversing the landfill cap was designated as low ground pressure equipment; specifically, no equipment that exceeds 10 pounds per square inch (PSI) per axle weight was allowed on the landfill cap (excluding access ring road). Equipment that exceeds this threshold (i.e., concrete delivery trucks, concrete pumping equipment and other construction equipment) was limited to the existing perimeter road.
- Pre-manufactured High Molecular Weight Polyethylene (HMWPE) containers were filled with poured in place concrete ballasts for the foundation system. The preferred method for delivering concrete to pour-in-place tubs was via concrete pumper trucks. The drawings depict designated locations for concrete pumper trucks (labeled 1 through 4). These areas have been designated based on distances from the solar array and capability of concrete pumping equipment. Each designated location covers a quadrant of the proposed array.
- In the event concrete must be hauled onto the landfill to fill tubs, this shall be completed by low ground pressure equipment; no equipment that exceeds 10 pounds per square inch (PSI) per axle weight is allowed on the landfill cap (excluding access ring road).
- All other low ground pressure equipment used shall traverse the site in such a manner as to not cause surface rutting and erosion.
- Excavation for the electrical concrete pads and equipment will be the only excavation to occur onsite. This work will involve the removal of approximately six inches of topsoil. The excavation will not encroach the liner or landfill cap.
- Prior to construction, the Contractor shall submit for review and approval shop drawings describing their operation, equipment to be used, proposed method of installation of all components at a minimum, and all technical supporting documentation. No work occurred until submittals were reviewed by RER and approved based on performance standards depicted herein and on drawings provided in Appendix A.
- C&S provided environmental inspection during construction. General construction oversight was provided by RER personnel. Copies of daily inspection logs and construction photographs are provided as Appendix C.

7.0 CONSTRUCTION ACTIVITIES

Construction of the solar array commenced in August 2020. Construction included the installation of the racking system and panels, construction of the transformer pad, installation of electrical components, and associated site work. Final electrical and site work activities was completed in July 2020. Work was suspended for several weeks in April 2020 due to an executive order limiting the type of construction work that was allowed to occur within the state of New York.

Equipment used to traverse the site were Kubota Compact Track Loader models SVL75-2 and SVL95-2s. This equipment was used for transporting material, traversing the landfill, and all grading activities. Both models of the track loader met the requirements for equipment on site in that they did not exceed a ground pressure of 10psi. Equipment specifications can be found in Appendix D of this report.

7.1 Description of Construction Activities

Final construction activities consisted of the following work:

- Assemble Game Change racking system
- Pour in place concrete
- Install electrical wiring and connect to invertors
- Grade transformer pad site area
- Affix solar panels to racking systems
- Regrade disturbed areas
- Topsoil and seed disturbed areas
- Test electrical
- Berm conduit piping

7.2 Changes to Work Plan

In the initial design, concrete pumping areas were identified that could pump concrete throughout the solar array. Due to difficulty navigating the perimeter road surrounding the landfill, concrete trucks remained at the base of the access road, and concrete was pumped up to the top of the site to a holding tank. From a pumping location at the top of the landfill, buckets on the skid steer were filled with concrete and driven to the tubs where the concrete was poured into the tubs. This slight deviation is not considered significant, and is generally consistent with the approved work plan.

On March 3rd, 2020 it was noticed that the 2000kVA main transformer was leaking oil due to improper assembly of the bolts. The oil leaking from the transformer was FR3 oil, a biodegradable, vegetable based oil. NYSDEC was notified of the incident, and established a NYSDEC SPILL record (Spill No. 1911243). Remediation efforts occurred on site that included removal of impacted soils, and disposing of them at a landfill facility. Clean soils were brought on site, and the excavated area was backfilled, seeded and mulched. NYSDEC closed the SPILL on June 2, 2020. Copies of the NYSDEC correspondence are provided as Appendix E.

The initial plan for electrical line conduit within the solar array and the 15 kV interconnect conduit was to run these above grade. During construction, it was determined that placing fill overtop the conduit was preferred. This design change was discussed and approved with NYSDEC.

The "alternate" equipment pad was chosen as the preferred location shown in the drawings provided in Appendix A. This results in a change in location of the 15kV interconnect cable. The cable now follows parallel with the back row of panels before turning to follow the access road within the landfill.

8.0 ADDITIONAL CONSIDERATIONS

8.1 New York State Environmental Quality Review

The New York State Environmental Quality Review Act (SEQR), 6 NYCRR 617, effective August 1, 1975, is a process that introduces the consideration of environmental factors into actions that are directly undertaken, funded or approved by local, regional and state agencies. An action defined under SEQR may be one or a combination of activities that an agency may have jurisdiction over. Upon review of the above referenced project, it is our understanding that the project can be classified as a Type II Action under SEQR 6 NYCRR 617, 617.5 (c)(14) which states the following:

> (14) installation of solar energy arrays where such installation involves 25 acres or less of physical alteration on the following sites:
>
> (i) closed landfills…

The proposed project (i.e., action) does not exceed the thresholds for a Type I action established in 6 NYCRR 617.4. The project is therefore not subject to review consistent with SEQR regulations. There is no further review required with a Type II action.

8.2 Emergency Response Plan

Coordination with emergency services was conducted prior to construction. Local emergency services were provided with notification of the Project start date, and estimated duration of construction. The Project area is served by a number of emergency service providers including: Dewitt Fire Department, Dewitt Police Department, and East Area Volunteer Emergency Services, Inc. Equipment specifications was provided to local emergency health providers as part of the notification process. In addition, signage warning of the risks associated with entry and the presence of electrical generation equipment, as required by the National Electrical Code (NEC) will be installed on-site.

8.3 Solar Array Project Security

The site is currently managed in collaboration with NYSDEC under an existing Operations, Maintenance, and Monitoring Plan. As such, public access is already restricted by the Town's previous installation and continued maintenance of locked gates on both the north and south points of entry, continuous fencing along the Old Erie Canal Trail, and signage informing the

public of the restricted nature of this site. These measures will be supplemented by additional efforts including signage warning of the risks associated with entry and the presence of electrical generation equipment, as required by the National Electrical Code (NEC). High-voltage electrical equipment installed within this restricted space will be secured by the installation of fencing and other protective methods in accordance with the National Electrical Code and with the approval of NYSDEC.

8.4 Decommission Plan

The Town of Dewitt and RER have entered into an agreement for a term of 25 years. Upon termination or expiration of the agreement, RER (or the subsequent Project Owner), within 180 days after the date of expiration, remove the system, and restore the site to its pre-existing condition (normal wear and tear excepted). The decommissioning involves recycling equipment and materials to the extent allowable at the time of removal. In the event the Town of Dewitt obtains ownership of the system, RER (or the subsequent Project Owner) will be relieved of the decommissioning obligation.

8.5 Vegetative Maintenance Plan

The Town of Dewitt will continue to provide maintenance for the landfill parcel in accordance with the terms of the Operations, Maintenance, and Monitoring Plan that is in effect for this site. The specific maintenance includes, at a minimum, mowing at an interval which insures that the maximum height attained by vegetation is less than the minimum height of the leading (lowest) edge of the solar modules at all points within the solar array. Training for personnel involved in mowing and maintenance activities adjacent to the solar facility shall be provided by RER at the request of the Town.

In addition, an operation and maintenance checklist has been prepared for future use relative to the solar array itself. This checklist is provided as Appendix F. The site inspection schedule is provided in the plan.

8.6 Stormwater Treatment

New York state stormwater regulations mandate that the owner or operator of a construction project that will involve soil disturbance of one or more acres must obtain coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity. The Project is designed to avoid soil disturbance, and therefore coverage under NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, General Permit Number GP-0-15-002, effective January 29, 2015 through January 28, 2020 was not required.

In addition to the requirements set forth in the NYSDEC SPDES General Permit GP-0-15-002, the NYSDEC issued a solar specific technical memorandum titled “Solar Panel Construction Stormwater Permitting/SWPPP Guidance” on April 5th, 2018. This memorandum outlines criteria that solar panels need to meet in order to be considered pervious area. If the solar panel design does not meet the criteria outlined within the memorandum, the solar panels are to be considered impervious area and treated for water quality and peak flow rate mitigation. This

project is designed to construct the solar panels in a manner that will meet the criteria outlined within this memo and therefore negate the requirement to provide water quality volume treatment and peak flow rate mitigation.

8.7 Traffic Impact

Among the aspects that made this site nearly optimal for a solar array is its remote location and isolated access. Fisher Road is a dead-end road within an industrially-zoned area of the Town, with the majority of its length being a seasonally-maintained roadway. Transportation engineers "rule of thumb" for projects requiring a traffic impact study is when a development generates 100 new trips to the adjacent street network during peak-hour. The operation of the solar facility will require infrequent maintenance activities (i.e., mowing, technical support, etc.) estimated at a few times per year. Traffic generated from maintenance is far below the 100 trip per hour threshold; the project will not result in significant traffic related impacts. Traffic levels increased during the anticipated construction window. These temporary increases in observed traffic were temporary in nature, and are not considered significant.

8.8 NYSDEC Article 24

C&S Engineers, Inc. (C&S) completed a site investigation of the project area, and there are no wetlands within the anticipated project limits. However, NYSDEC wetland SYE-22 is located adjacent the site. This wetland is classified as both palustrine forested (PFO) and palustrine emergent (PEM) as defined by the *United States Fish and Wildlife Service's Classification of Wetlands and Deepwater Habitats* of the United States publication. C&S provided the approximately wetland boundary limits of the wetland in the plans provided in Appendix A.

NYSDEC regulated wetlands are provided a 100-foot regulated adjacent area that extends from the boundary of the wetland. Permits are required for certain activities within the adjacent area. The proposed project involves placement of the electrical distribution line within the adjacent area. In this instance, the regulated buffer area within the limits of disturbance consists of both capped landfill, and access road fill material. Regardless, work within the regulated adjacent area requires a permit from the NYSDEC. Permits were received prior to construction; work is completed consistent with permit requirements. A copy of the NYSDEC Article 24 permit is provided as Appendix G.

9.0 NYSDEC WORK PLAN APPROVAL

C&S submitted a draft Change of Use – Work Plan document March 7, 2019 for review and comment. On April 29, 2019, NYSDEC provided a request for additional information letter provided as Appendix H. C&S provided a response to comments on June 5, 2019 that is also included as Appendix H. NYSDEC issued final approval of the Change of Use – Work Plan on June 14, 2019 Appendix H). These letters, and information contained therein, are incorporated into the Final Change of Use – Work Plan.

10.0 AS-BUILT SURVEY DRAWINGS

RER retained Ianuzi & Romans Land Surveying PC and Spotts Stevens Mccoy Engineers and Consultants to prepare As-Built Drawings as required by NYSDEC. As-built drawings are provided as Appendix I.

APPENDIX A
ENGINEERING DRAWINGS

2664.09 KW GROUND MOUNTED SOLAR ARRAY
TOWN OF DEWITT

PREPARED FOR

RER ENERGY GROUP

BY

READING
1047 North Park Road
PO Box 6307
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INDEX TO DRAWINGS

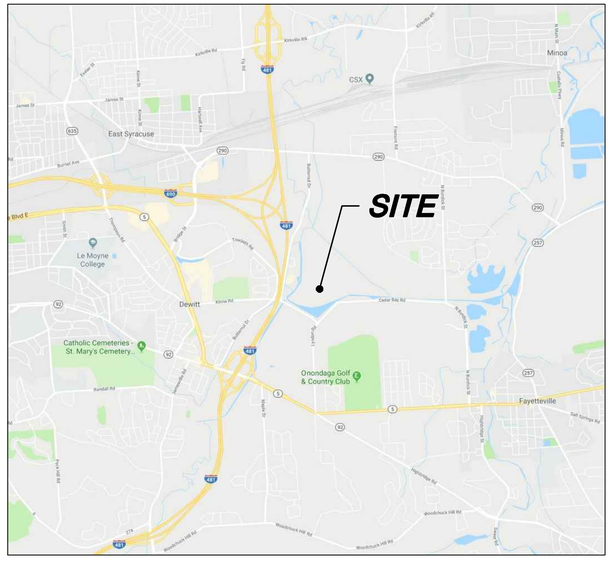
DWG NO.	DESCRIPTION
G.0-00	COVER SHEET
E.1-01	SITE PLAN
E.5-01	SINGLE LINE DIAGRAM
E.5-02	THREE LINE DIAGRAM
E.5-03	DETAILS

"I CERTIFY THAT I AM CURRENTLY A NYS REGISTERED PROFESSIONAL ENGINEER AS DEFINED IN 6 NYCRR PART 375 AND THAT THIS WORK PLAN WAS PREPARED IN ACCORDANCE WITH ALL APPLICABLE STATUTES AND REGULATIONS AND IN SUBSTANTIAL CONFORMANCE WITH THE DER TECHNICAL GUIDANCE FOR SITE INVESTIGATION AND REMEDIATION (DER-10)"

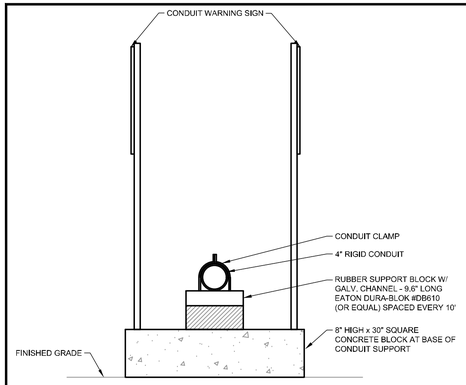
STATE OF NEW YORK
EMMICK V. MARTIN
069170
LICENSED PROFESSIONAL ENGINEER

05-31-2019

LOCATION MAP



101644.0035/G.0-00



CONDUIT INSTALLATION DETAIL

SCALE: 1"=1'-0"

1' 0' 1' 2'

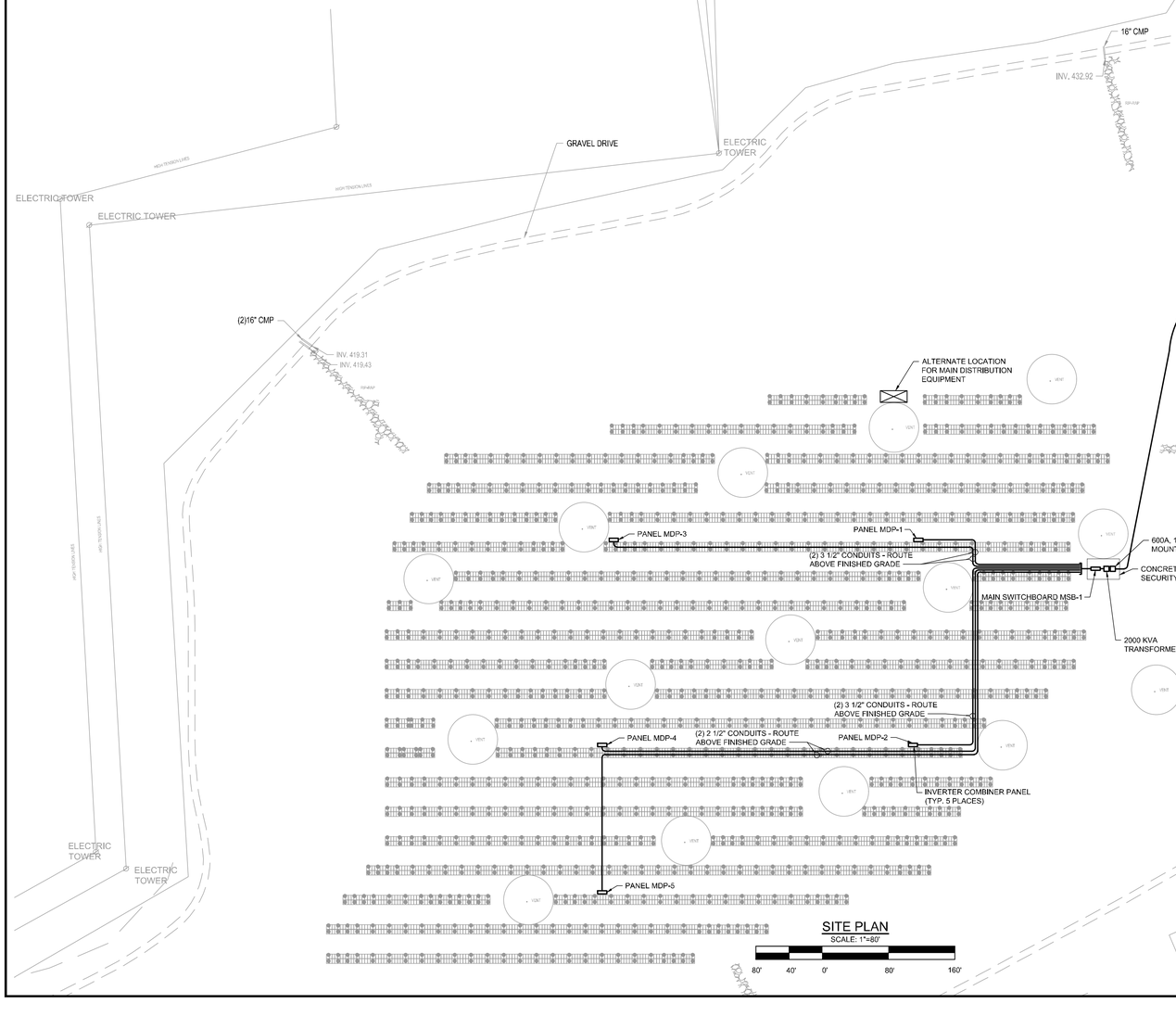
NOTE:
INSTALLATION OF CONDUIT RUNS CONTAINING TWO OR MORE CONDUITS SHALL BE INSTALLED IN A SIMILAR MANNER. COORDINATE LENGTH OF SUPPORT BLOCK REQUIRED IN THE FIELD.

CONDUIT WARNING SIGNS SHALL BE INSTALLED EVERY 50'.

CONDUIT WARNING SIGN DETAIL

SCALE: 1"=1'-0"

1' 0' 1' 2'



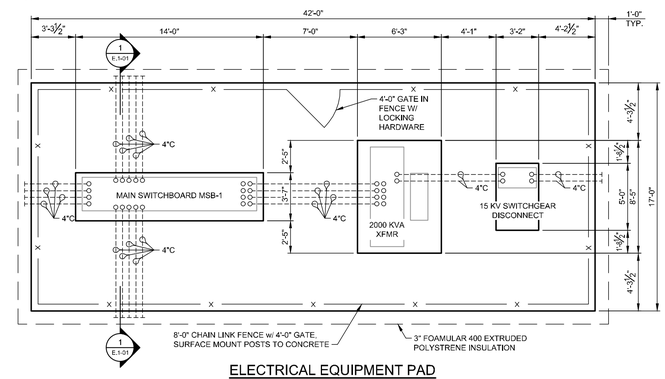
SITE PLAN

SCALE: 1"=80'

80' 40' 0' 80' 160'

NOTES:

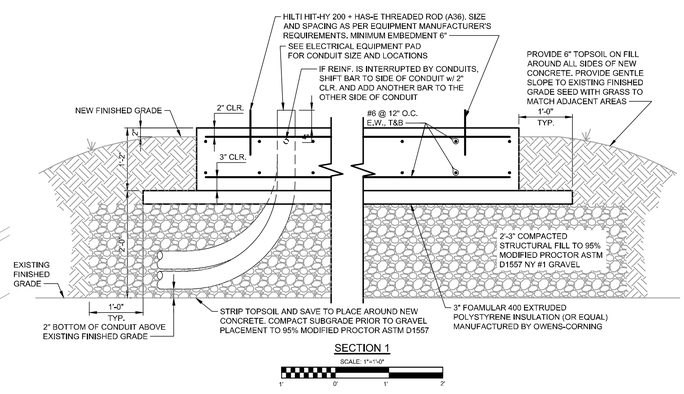
1. NO EQUIPMENT SHALL BE LOCATED WITHIN THE 30' RADIUS OF THE VENTS TO PREVENT ANY RISK OF LAND FILL GAS ACCUMULATION.



ELECTRICAL EQUIPMENT PAD

SCALE: 3/16"=1'-0"

4' 0' 4' 8' 12'



SECTION 1

SCALE: 1"=1'-0"

1' 0' 1' 2'

NO.	DATE	DESCRIPTION	MADE	CHKD	APVD
I	06/21/19	ISSUED FOR NATIONAL GRID INTER. APPL.	C/C	EVM	EVM
H	04/24/19	ISSUED FOR NATIONAL GRID INTER. APPL.	C/C	EVM	EVM
G	04/10/19	ISSUED FOR NATIONAL GRID INTER. APPL.	C/C	EVM	EVM
F	3/15/19	ISSUED FOR NATIONAL GRID INTER. APPL.	C/C	EVM	EVM
E	2/5/19	ISSUED FOR CLIENT REVIEW		TWF	EVM
D	2/1/19	ISSUED FOR CLIENT REVIEW	GLB	EVM	EVM
C	2/1/19	ISSUED FOR CLIENT REVIEW	GLB	EVM	EVM
B	1/29/19	ISSUED FOR CLIENT REVIEW	C/C	EVM	EVM
A	1/16/19	ISSUED FOR CLIENT REVIEW	GLB	EVM	EVM

RELEASED FOR:
NATIONAL GRID INTER.
NOT FOR CONSTRUCTION

PROJECT MANAGER: EVM | DATE: 4/25/17
BASE BY: N/A | N.B.: N/A
DRAWN BY: GLB | DESIGNED BY: GLB | CHKD: EVM

SSM
SPOTTS | STEVENS | McCOY
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RER ENERGY GROUP
GES SOLAR PROJECT
6330 FISHER ROAD, TOWN OF DEWITT, EAST SYRACUSE STATE OF NEW YORK
2664.09 KW DC GROUND MOUNTED SOLAR ARRAY
ELECTRICAL
SITE PLAN

RER Energy Group
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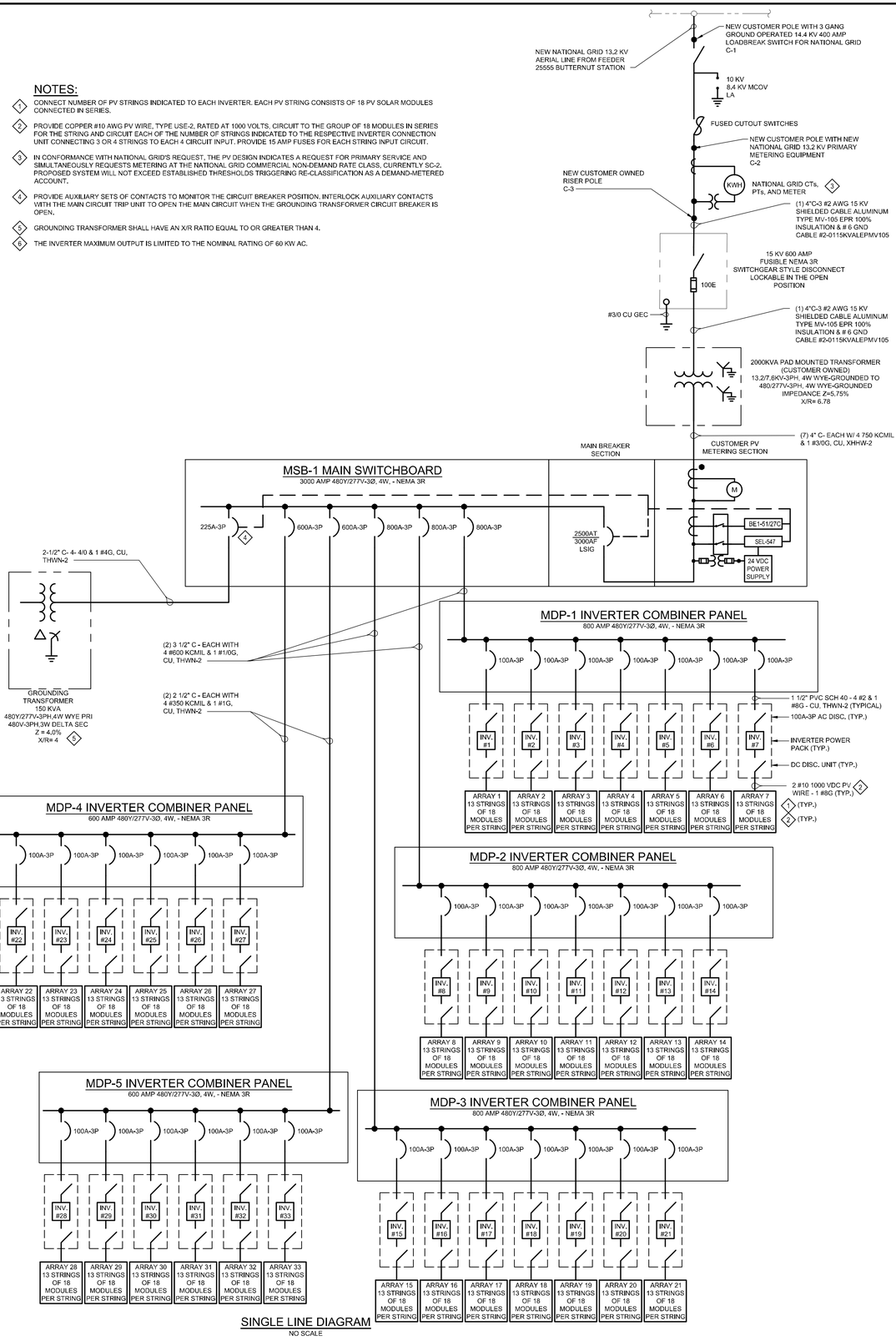
DATE	DIGITAL FILENAME
01/16/19	101644.0035 E.1-01

WORK ORDER NUMBER
101644.0035

DRAWING NUMBER
E.1-01

NOTES:

1. CONNECT NUMBER OF PV STRINGS INDICATED TO EACH INVERTER. EACH PV STRING CONSISTS OF 18 PV SOLAR MODULES CONNECTED IN SERIES.
2. PROVIDE COPPER #10 AWG PV WIRE, TYPE USE-2, RATED AT 1000 VOLTS. CIRCUIT TO THE GROUP OF 18 MODULES IN SERIES FOR THE STRING AND CIRCUIT EACH OF THE NUMBER OF STRINGS INDICATED TO THE RESPECTIVE INVERTER CONNECTION UNIT CONNECTING 3 OR 4 STRINGS TO EACH 4 CIRCUIT INPUT. PROVIDE 15 AMP FUSES FOR EACH STRING INPUT CIRCUIT.
3. IN CONFORMANCE WITH NATIONAL GRID'S REQUEST, THE PV DESIGN INDICATES A REQUEST FOR PRIMARY SERVICE AND SIMULTANEOUSLY REQUESTS METERING AT THE NATIONAL GRID COMMERCIAL NON-DEMAND RATE CLASS, CURRENTLY SC-2. PROPOSED SYSTEM WILL NOT EXCEED ESTABLISHED THRESHOLDS TRIGGERING RE-CLASSIFICATION AS A DEMAND-METERED ACCOUNT.
4. PROVIDE AUXILIARY SETS OF CONTACTS TO MONITOR THE CIRCUIT BREAKER POSITION. INTERLOCK AUXILIARY CONTACTS WITH THE MAIN CIRCUIT TRIP UNIT TO OPEN THE MAIN CIRCUIT WHEN THE GROUNDING TRANSFORMER CIRCUIT BREAKER IS OPEN.
5. GROUNDING TRANSFORMER SHALL HAVE AN X/R RATIO EQUAL TO OR GREATER THAN 4.
6. THE INVERTER MAXIMUM OUTPUT IS LIMITED TO THE NOMINAL RATING OF 60 KW AC.



SINGLE LINE DIAGRAM
NO SCALE

NATIONAL GRID CONTACT INFORMATION:

CENTRAL REGION

JOB NUMBER:
10019644738

ELECTRICAL LEGEND

- FUSE
- CIRCUIT BREAKER
- PV MODULE OR PANEL
- INVERTER
- SWITCH OR DISCONNECT
- VOLTAGE TRANSFORMER

PV SYSTEM SUMMARY

SYSTEM	BALLASTED GROUND MOUNTED
PV MODULE MODEL	CSUN 345-72M
PV MODULE STC DC RATING	345 W
PV MODULES PER SOURCE CIRCUIT (STRING)	18
TOTAL PV MODULE COUNT	7722
TOTAL STC DC SYSTEM SIZE	2664.09
TOTAL AC SYSTEM SIZE	1980
DC/AC RATIO	1.35
INVERTER MODEL	SUNGROW SG 60KU-M
NUMBER OF INVERTERS	33

LABELS

AC SYSTEM RATING - 690.54

ALL INTERACTIVE SYSTEM(S) POINTS OF CONNECTION WITH OTHER SOURCES - INVERTER OUTPUT CONNECTION AT AC DISCONNECTS AND SERVICE PANEL DOOR

WARNING THIS PANEL HAS SECONDARY POWER SOURCE FROM PHOTOVOLTAIC SYSTEM. TURN-OFF PHOTOVOLTAIC SYSTEM BREAKER PRIOR TO SERVICING PANEL. MAX AC OUTPUT CURRENT: XXX.X AMPS OPERATING AC VOLTAGE XXV

OPEN CIRCUIT VOLTAGE

DC DISCONNECTS - 690.17

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

GENERAL NOTES:

1. ALL CONDUCTORS WILL ENTER ENCLOSURES PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. WIRE DERATES ARE CALCULATED BASED ON NEC CONDUIT FILL PER NEC TABLE 310.15(B)(3)(a) MULTIPLIED BY AMBIENT TEMPERATURE CORRECTION OF NEC TABLE 310.15(B)(2)(a). CONDUITS MUST BE DERATED FOR EXPOSURE TO SUNLIGHT.
3. CONDUCTORS NOT TO EXCEED 90 DEGREE C AND ARE THEREFORE DERATED PER NEC TABLE 310.15(B)(2)(a).
4. MAXIMUM AND MINIMUM AMBIENT TEMPERATURES ARE 93 AND 0 DEGREE F RESPECTIVELY.
5. MAXIMUM SYSTEM OPEN CIRCUIT VOLTAGE IS NOT ANTICIPATED TO EXCEED 1000 VDC UNDER ANY CONDITIONS.
6. PV CONDUCTORS NOT ANTICIPATED TO OPERATE AT TEMPERATURES GREATER THAN 90 DEGREE C.
7. ALL ELECTRICAL CONDUCTORS AND FITTINGS SHALL BE INSTALLED BY AN APPROPRIATELY LICENSED AND INSURED MASTER ELECTRICIAN REGISTER TO PERFORM THE WORK ACCORDANCE WITH THE AHJ'S REGULATIONS

EQUIPMENT SCHEDULE

PART NO.	NAME	QUANTITY	DESCRIPTION
1	PV MODULE	7722	345 W MODULES 1000VDC
2	60 KW INVERTER	33	60 KW INVERTER @ 480/277VAC 1000VDC
3	AC MAIN DISTRIBUTION PANEL	5	480/277 VAC, 3ϕ, 4W, 600A MLO DISTRIBUTION PANEL, NEMA 3R, WITH 6 TO 7 100A-3 POLE BREAKERS
4	AC MAIN SWITCHBOARD	1	480/277 VAC, 3ϕ, 4W, 3000A SWITCHBOARD, NEMA 3R, 2500AT/3000AF ELECTRICALLY OPERATED MAIN CIRCUIT BREAKER
5	PV REVENUE METER	1	480 VAC, 3ϕ, 2500:5 CTS IN SWITCHBOARD SECTION
6	TRANSFORMER	1	2000 KVA PAD MOUNTED 13.2/7.6 KV - 3 PH, 4W WYE-GROUNDED TO 480/277 V - 3 PH, 4W WYE GROUNDED
7	UTILITY ACCESSIBLE MAIN AC DISCONNECT	1	15 KV, 600A, FUSED SWITCHGEAR STYLE LOADBREAK RATED SWITCH, 100E FUSE
8	PRIMARY CONDUIT AND CABLE	-	15 KV SHIELDED CABLE ALUMINUM TYPE MV-105 EPR 100% INSULATION & # 6 GND CABLE #2-015KVALEPMV105
9	UTILITY PRIMARY METER	1	NATIONAL GRID PRIMARY METER, CT & PT METERING EQUIPMENT, MOUNTED ON METERING POLE

EQUIPMENT SPECIFICATIONS

PHOTOVOLTAIC SOLAR MODULE (PANEL) - CSUN 345-72M	345 W	
MAXIMUM POWER	P_max	345 W
MAXIMUM POWER CURRENT	I_mp	8.99 A
SHORT CIRCUIT CURRENT	I_sc	9.46 A
OPEN CIRCUIT VOLTAGE	V_oc	47.28 V

INVERTER - SUNGROW SG 60KU-M	60 KW
MAXIMUM POWER OUTPUT	66,000 W
PEAK POWER TRACKING (MPPT)	550-850 VDC
DC MAXIMUM VOLTAGE	1000 VDC
OUTPUT VOLTAGE RANGE	422-528 VAC
OUTPUT VOLTAGE	480/277 VAC
AC MAXIMUM AMPERAGE	80 A
CEC EFFICIENCY	98.5%

6

TRIP SETTINGS TABLE

PROTECTIVE ELEMENT	EVENT	TYPICAL SETTINGS	THRESHOLD	TIME (SEC)
27	UNDER-VOLTAGE	27-1	0.50 pu V (240 VOLTS)	0.16
		27-2	0.88 pu V (423 VOLTS)	2.00
59	OVER-VOLTAGE	59-1	1.20 pu V (576 VOLTS)	0.16
		59-2	1.10 pu V (520 VOLTS)	1.00
81o	OVER-FREQUENCY	81O-1	60.5 Hz	0.16
81u	UNDER-FREQUENCY	81U-1	57.0 Hz	0.16
51C	VOLTAGE CONTROLLED OVER CURRENT			

NO.	DATE	DESCRIPTION	MADE	CHKD	APVD
F.	3/15/19	ISSUED FOR NATIONAL GRID INTER. APPL.	CJC	EVM	EVM
E.	07/11/18	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM	EVM
D.	10/05/18	ISSUED FOR NATIONAL GRID CESIR	TMF	EVM	EVM
C.	09/14/18	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM	EVM
B.	6/11/17	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM	EVM
A.	5/17/17	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM	EVM

RELEASED FOR:
NATIONAL GRID INTER.
NOT FOR CONSTRUCTION

PROJECT MANAGER: E.M. | DATE: 4/25/17
BASE BY: N/A | N.B.: N/A
DRAWN BY: G.B. | DESIGNED BY: G.B. | CHKD: E.M.

STATE OF NEW YORK
EMERICH V. MAY
069176
LICENSED PROFESSIONAL ENGINEER
05-31-2019

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RER ENERGY GROUP
GES SOLAR PROJECT
6330 FISHER ROAD, TOWN OF DEWITT, EAST SYRACUSE,STATE OF NEW YORK
2664.09 KW DC GROUND MOUNTED SOLAR ARRAY
ELECTRICAL
THREE LINE DIAGRAM

RER Energy Group
Corporate: 4700 Pottsville Pike, Reading, PA 19605
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4/25/17 — DATE
101644.0035 E.5-01 — DIGITAL FILENAME
101644.0035 — WORK ORDER NUMBER
E.5-01 — DRAWING NUMBER

SOLAR PV SYSTEM
2,664.09 KW STC DC
1980 KW AC
(7722) 345W MODULES
BALLASTED GROUND MOUNTED ARRAY
PRIMARY SERVICE WITH PRIMARY NATIONAL GRID METERING

INVERTER COMBINER PANEL MDP-1
INVERTER COMBINER PANEL MDP-2
INVERTER COMBINER PANEL MDP-3
INVERTER COMBINER PANEL MDP-4
INVERTER COMBINER PANEL MDP-5

EXTERIOR ELECTRICAL PAD MOUNTED EQUIPMENT

PV METER 5

ABB FT-1 TEST SWITCH

BE1-51/27C
SEL-547
24V DC POWER SUPPLY

CUSTOMER PV METER

2500AT
3000AF
LSIG

600A TYP, OF 5

100A TYP, OF 7

100A TYP, OF 6

2500:5
2500:5
2500:5

225A 2

CUSTOMER OWNED AC EQUIPMENT

(7) 4" C- EACH W/ 4 750 KCMIL & 1 #3/0G, CU, XHHW-2

8 (2) 4" SCH 40 PVC 3 #2 AL, 15 KV CABLE & 1 SPARE

2000 KVA PAD MOUNTED TRANSFORMER
Z= 5.75%
X/R= 6.78 6

15 KV 600A MAIN DISCONNECT 7

CUSTOMER OWNED POLES

RISER POLE C-3
10 KV 8.4 KV MCOV

UTILITY METER & POLE C-2
10 KV 8.4 KV MCOV

UTILITY ACCESSIBLE DISCONNECT CUSTOMER OWNED 3 GANG GROUND OPERATED 14,4 KV 400 AMP LOADBREAK SWITCH

GANG-OPERATED LOAD BREAK SWITCH POLE C-1

POINT OF COMMON COUPLING (PCC)

TO NEW NATIONAL GRID 13,2 KV AERIAL LINE FROM FEEDER 25555 BUTTERNUT STATION POINT OF INTERCONNECTION (POI)

1 9 NATIONAL GRID PRIMARY METER

150 KVA

GROUNDING TRANSFORMER
480Y/277V, 3ϕ4W, WYE-GROUNDED TO 480V, 3ϕ3W, DELTA
150 KVA
Z=4.0%
X/R= 4 3

NATIONAL GRID CONTACT INFORMATION:

CENTRAL REGION

JOB NUMBER:
10019644738

ARRAY 1 13 STRINGS OF 18 MODULES
ARRAY 7 13 STRINGS OF 18 MODULES
ARRAY 14 13 STRINGS OF 18 MODULES
ARRAY 15 13 STRINGS OF 18 MODULES
ARRAY 21 13 STRINGS OF 18 MODULES
ARRAY 22 13 STRINGS OF 18 MODULES
ARRAY 27 13 STRINGS OF 18 MODULES
ARRAY 28 13 STRINGS OF 18 MODULES
ARRAY 33 13 STRINGS OF 18 MODULES

GROUND MOUNTED PV ARRAY
INVERTER
PV NEG
15A
GFPI
GRD
NEUTRAL

PV SYSTEM SUMMARY

SYSTEM	BALLASTED GROUND MOUNTED
PV MODULE MODEL	CSUN 345-72M
PV MODULE STC DC RATING	345 W
PV MODULES PER SOURCE CIRCUIT (STRING)	18
TOTAL PV MODULE COUNT	7722
TOTAL STC DC SYSTEM SIZE	2664.09
TOTAL AC SYSTEM SIZE	1980
DC/AC RATIO	1.35
INVERTER MODEL	SUNGROW SG 60KU-M
NUMBER OF INVERTERS	33

ELECTRICAL LEGEND

- FUSE
- CIRCUIT BREAKER
- PV MODULE OR PANEL
- INVERTER
- SWITCH OR DISCONNECT
- VOLTAGE TRANSFORMER

GENERAL NOTES:

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NOTES:

1. IN CONFORMANCE WITH NATIONAL GRID'S REQUEST, THE PV DESIGN INDICATES A REQUEST FOR PRIMARY SERVICE AND SIMULTANEOUSLY REQUESTS METERING AT THE NATIONAL GRID COMMERCIAL NON-DEMAND RATE CLASS, CURRENTLY SC-2. PROPOSED SYSTEM WILL NOT EXCEED ESTABLISHED THRESHOLDS TRIGGERING RE-CLASSIFICATION AS A DEMAND-METERED ACCOUNT.
2. PROVIDE AUXILIARY SETS OF CONTACTS TO MONITOR THE CIRCUIT BREAKER POSITION. INTERLOCK AUXILIARY CONTACTS WITH THE MAIN CIRCUIT TRIP UNIT TO OPEN THE MAIN CIRCUIT WHEN THE GROUNDING TRANSFORMER CIRCUIT BREAKER IS OPEN.
3. GROUNDING TRANSFORMER SHALL HAVE AN X/R RATIO EQUAL TO OR GREATER THAN 4.
4. THE INVERTER MAXIMUM OUTPUT IS LIMITED TO THE NOMINAL RATING OF 60 KW AC.

EQUIPMENT SCHEDULE

PART NO.	NAME	QUANTITY	DESCRIPTION
1	PV MODULE	7722	345 W MODULES 1000VDC
2	60 KW INVERTER	33	60 KW INVERTER @ 480/277VAC 1000VDC
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9	UTILITY PRIMARY METER	1	NATIONAL GRID PRIMARY METER, CT & PT METERING EQUIPMENT, MOUNTED ON METERING POLE

EQUIPMENT SPECIFICATIONS

PHOTOVOLTAIC SOLAR MODULE (PANEL) - CSUN 345-72M	345 W	
MAXIMUM POWER	P_max	345 W
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MAXIMUM POWER OUTPUT	66,000 W
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DC MAXIMUM VOLTAGE	1000 VDC
OUTPUT VOLTAGE RANGE	422-528 VAC
OUTPUT VOLTAGE	480/277 VAC
AC MAXIMUM AMPERAGE	80 A
CEC EFFICIENCY	98.5%

4

LABELS

AC SYSTEM RATING - 690.54

ALL INTERACTIVE SYSTEM(S) POINTS OF CONNECTION WITH OTHER SOURCES - INVERTER OUTPUT CONNECTION AT AC DISCONNECTS AND SERVICE PANEL DOOR

WARNING THIS PANEL HAS SECONDARY POWER SOURCE FROM PHOTOVOLTAIC SYSTEM. TURN-OFF PHOTOVOLTAIC SYSTEM BREAKER PRIOR TO SERVICING PANEL. MAX AC OUTPUT CURRENT: XXX.X AMPS OPERATING AC VOLTAGE XXXV

OPEN CIRCUIT VOLTAGE

DC DISCONNECTS - 690.17

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

THREE LINE DIAGRAM
NO SCALE

NO.	DATE	DESCRIPTION	MADE	CHKD
F	3/15/19	ISSUED FOR NATIONAL GRID INTER. APPL.	CJC	EVM
E	10/26/18	ISSUED FOR NATIONAL GRID CSSR	CJC	EVM
D	10/05/18	ISSUED FOR NATIONAL GRID CSSR	TMF	EVM
C	09/14/18	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM
B	6/1/17	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM
A	5/17/17	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM

RELEASED FOR:
NATIONAL GRID INTER.
NOT FOR CONSTRUCTION

PROJECT MANAGER: EVM | DATE: 4/25/17
BASE BY: N/A | N.B.: N/A | CHKD: EVM
DRAWN BY: GLB | DESIGNED BY: GLB

STATE OF NEW YORK
ERIC V. MARTIN
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LICENSED PROFESSIONAL ENGINEER
05-31-2019

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RER ENERGY GROUP
GES SOLAR PROJECT
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2664.09 KW DC GROUND MOUNTED SOLAR ARRAY
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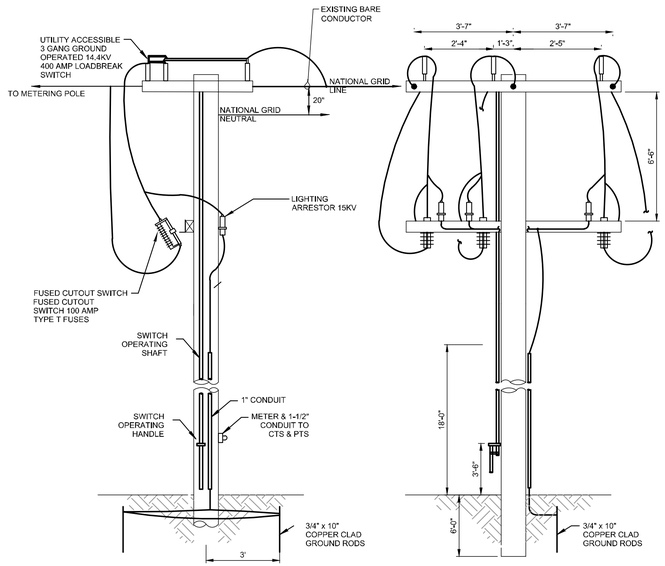
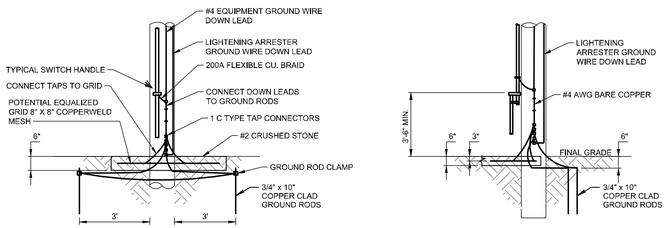
4/25/17	101644.0035
DATE	DIGITAL FILENAME

101644.0035
WORK ORDER NUMBER

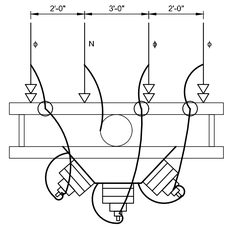
E.5-02
DRAWING NUMBER



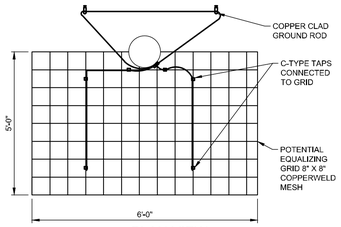
GANG-OPERATED LOAD BREAK SWITCH
NO SCALE



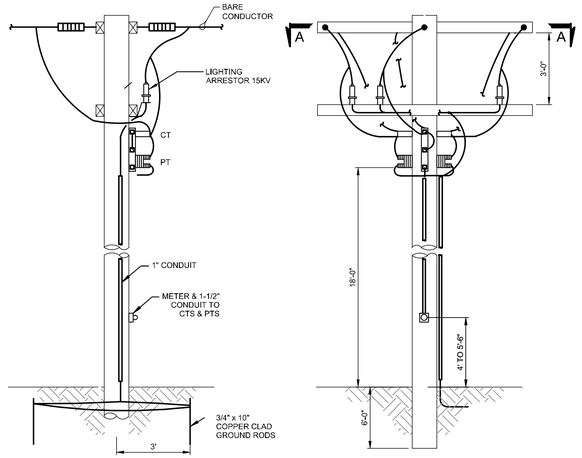
GROUND GRID AND SWITCH HANDLE GROUNDING
NO SCALE



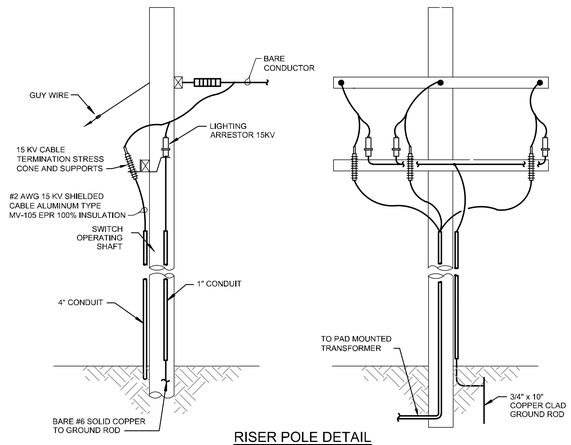
METERING POLE DETAIL
SECTION A-A
NO SCALE



PLAN VIEW
GROUNDING
NO SCALE



METERING POLE DETAIL
NO SCALE



RISER POLE DETAIL
NO SCALE

NO.	DATE	DESCRIPTION	MADE	CHKD
F.	3/15/19	ISSUED FOR NATIONAL GRID INTER. APPL.	CJC	EVM
E.	01/11/18	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM
D.	10/05/18	ISSUED FOR NATIONAL GRID CESIR	TMF	EVM
C.	09/14/18	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM
B.	6/11/17	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM
A.	5/17/17	ISSUED FOR NATIONAL GRID CESIR	CJC	EVM

RELEASED FOR:
NATIONAL GRID INTER.
NOT FOR CONSTRUCTION

PROJECT MANAGER: EVM | DATE: 4/25/17
BASE BY: N/A | N.B.: N/A
DRAWN BY: GLB | DESIGNED BY: GLB | CHKD: EVM

STATE OF NEW YORK
ERETRIA V. MARRA
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REGISTERED PROFESSIONAL ENGINEER
05-31-2019

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4/25/17	101644.0035
DATE	DIGITAL FILENAME

101644.0035
WORK ORDER NUMBER

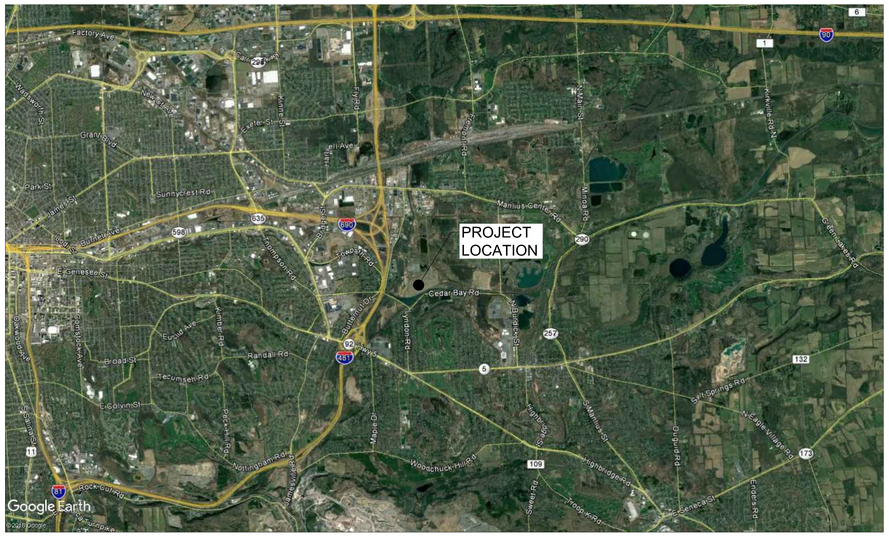
E.5-03
DRAWING NUMBER

CONTRACT DRAWINGS
FOR THE CONSTRUCTION OF

TOWN OF DEWITT LANDFILL SOLAR GROUND ARRAY

RER ENERGY GROUP

6330 FISHER ROAD
EAST SYRACUSE, NY 13057



NORTH

LOCATION MAP

DRAWING LIST	
SHEET NO.	**SHEET NAME**
G-001	TITLE SHEET
G-002	GENERAL NOTES AND LEGEND
CIVIL	
C-100	EXISTING CONDITIONS PLAN
C-101	SITE, EROSION AND SEDIMENTATION CONTROL PLAN
C-501	DETAILS

C&S PROJECT: V34.001.001

MARCH 2019

STATE OF NEW YORK
JOHN T. CAMP
LICENSED PROFESSIONAL ENGINEER
NO. 082375

I CERTIFY THAT I AM CURRENTLY A NYS REGISTERED PROFESSIONAL ENGINEER AS DEFINED IN 6 NYCRR PART 375 AND THAT THIS WORK PLAN WAS PREPARED IN ACCORDANCE WITH ALL APPLICABLE STATUTES AND REGULATIONS AND IN SUBSTANTIAL CONFORMANCE WITH THE DER TECHNICAL GUIDANCE FOR SITE INVESTIGATION AND REMEDIATION (DER-10)

TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF THE PLANS AND SPECIFICATIONS FOR THIS PROJECT ARE IN COMPLIANCE WITH THE NEW YORK STATE ENERGY CONSERVATION CONSTRUCTION CODE AND THE BUILDING CODE OF NEW YORK STATE

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

G-001

GENERAL NOTES:

1. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE HIS ACTIVITIES, WHERE NECESSARY, TO INTERFACE SMOOTHLY WITH WORK BEING PERFORMED ON SITE BY OTHER CONTRACTORS AND UTILITY COMPANIES.

2. THE CONTRACTOR'S STAGING AREA SHALL BE COORDINATED WITH THE OWNER PRIOR TO THE START OF WORK.

3. IT WILL BE THE CONTRACTOR'S OBLIGATION AND RESPONSIBILITY TO USE METHODS AND EQUIPMENT WHICH WILL INSURE THE SATISFACTORY COMPLETION OF THE REQUIRED WORK WITHIN THE CONTRACT TIME ALLOWED.

4. THE CONTRACTOR SHALL PROTECT HIS WORKERS AND OTHERS OCCUPYING THE SITE AT ALL TIMES IN CONFORMANCE WITH APPLICABLE OSHA REGULATIONS.

5. WHERE CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF THE WORK, DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.

6. UNLESS DETAILS, SPECIFIED OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS OR IN SPECIFIC DRAWINGS.

7. CONTRACTOR IS RESPONSIBLE FOR SECURITY AND FOR THE SECURE STORAGE OF GOODS AND MATERIALS ONSITE.

UNDERGROUND UTILITIES:

1. THE APPROXIMATE LOCATION OF THE KNOWN UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE TRUE LOCATION AND ELEVATIONS OF ALL SHOWN UTILITIES BEFORE COMMENCING WORK. BEFORE ANY PIPE IS PLACED THE CONTRACTOR SHALL UNCOVER ALL UTILITIES AT PIPE CROSSINGS TO ENABLE THE ENGINEER TO VERIFY THAT THE PROPOSED PIPE WITH GRADES SHOWN ON THE PLANS IS NOT OBSTRUCTED BY EXISTING UTILITIES. IN ADDITION, THE CONTRACTOR SHALL PERFORM UTILITY TEST PIT EXCAVATIONS AT UTILITY CROSSINGS.

2. AS PART OF THIS PROJECT, CONTRACTOR SHALL RETAIN THE SERVICES OF AN ON-SITE UTILITY LOCATOR SERVICE. REFER TO SECTION 310100. CONTRACTOR SHALL NOTIFY DIG SAFELY NEW YORK AND ON-SITE UTILITY LOCATOR AT LEAST 72 HOURS PRIOR TO START OF WORK.

3. CONTRACTOR SHALL COORDINATE ALL UTILITY WORK WITH UTILITY COMPANIES AND THE TOWN OF DEWITT.

4. IN THE EVENT THAT THE CONTRACTOR DAMAGES ANY EXISTING UTILITIES, HE SHALL IMMEDIATELY NOTIFY THE OWNER AND THE AFFECTED UTILITIES REPRESENTATIVE OF SUCH DAMAGE. ANY DAMAGE SHALL PROMPTLY AND SATISFACTORILY BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES ENCOUNTERED IN THIS WORK. WHERE NECESSARY, THE CONTRACTOR SHALL PROVIDE TIMBER, PLANK OR OTHER APPROVED MATERIALS AND SECURELY BRACE AND PROTECT THESE UTILITIES

DRAINAGE:

6. THE CONTRACTOR MUST BE ACQUAINTED WITH THE DRAINAGE CHARACTERISTICS OF THE AREA SO THAT HE WILL PROGRESS HIS WORK EFFICIENTLY WITH FULL KNOWLEDGE OF AND MITIGATION OF THE POTENTIAL DRAINAGE PROBLEMS.

7. ALL EXISTING DRAINAGE SYSTEMS, INCLUDING DITCHES AND CULVERTS, WITHIN THE CONTRACT LIMITS SHALL BE CLEANED AND KEPT CLEAN AND FREE FLOWING FOR THE DURATION OF THE CONTRACT.

8. ROADSIDE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES.

9. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SUPPORTS, BRACING AND OTHER DEVICES AS REQUIRED BY THE CONTRACTOR OR AS DIRECTED BY THE ENGINEER TO PROTECT ADJACENT STRUCTURES, ROADWAY AND UTILITIES.

LAWS, PERMITS AND LICENSES:

10. THE CONTRACTOR SHALL CONDUCT ITS OPERATIONS IN COMPLIANCE WITH ALL THE LAWS AND REGULATIONS OF THE UNITED STATES, STATE OF NEW YORK AND PUBLIC AUTHORITIES AND THE APPLICABLE ORDINANCES OF ONONDAGA COUNTY, AND THE TOWN OF DEWITT.
THE NYSDEC ARTICLE 24 FRESHWATER WETLANDS PERMIT OUTLINES RULE, REGULATIONS, AND CONDITIONS THAT MUST BE COMPLIED WITH THAT MAY EFFECT THE CONTRACTORS OPERATIONS ON THIS PROJECT.
THIS INFORMATION IS PROVIDED AS A CONVENIENCE TO BIDDERS. IT IS NOT INTENDED TO BE ALL INCLUSIVE AND DOES NOT RELIEVE THE CONTRACTORS OF THEIR RESPONSIBILITY TO DETERMINE WHICH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS APPLY TO THEIR OPERATIONS ON THIS CONTRACT, AND TO COMPLY WITH THEM.

WETLANDS AND EROSION CONTROL:

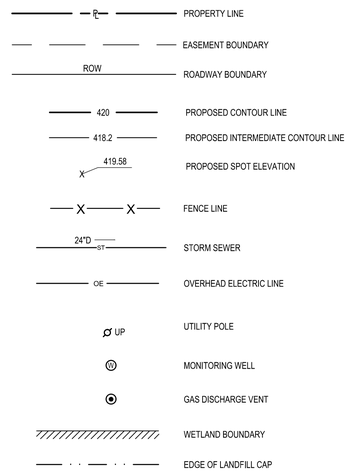
11. WETLANDS SHALL BE PROTECTED BY THE CONTRACTOR. HEAVY EQUIPMENT OPERATION IN THE WETLANDS IS PROHIBITED WITH BACKHOES, EXCAVATORS, OR OTHER SIMILAR EQUIPMENT.

12. ALL STORM DRAINAGE OUTLETS SHALL BE STABILIZED, AS REQUIRED, BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.

13. DURING CONSTRUCTION, NO WET OR FRESH CONCRETE OR LEACHATE SHALL BE ALLOWED TO ESCAPE TO ANY WATERS NOR SHALL WASHINGS FROM CONCRETE TRUCKS, MIXERS, OR OTHER DEVICES BE ALLOWED TO ENTER ANY WATERS.

14. ALL ROADS SHALL BE KEPT CLEAN OF MUD, SEDIMENT AND DEBRIS AT ALL TIMES.

15. CONTRACTOR SHALL TOPSOIL (4" MIN.), SEED, FERTILIZE AND MULCH ALL DISTURBED AREAS.



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RER Energy Group

RER ENERGY GROUP
TOWN OF DEWITT LANDFILL
SOLAR GROUND ARRAY
6330 FISHER ROAD
EAST SYRACUSE, NY 13057

MARK	DATE	DESCRIPTION
		REVISIONS

PROJECT NO:	V34.001.001
DATE:	MARCH 2019
DRAWN BY:	B. BUCKINGHAM
DESIGNED BY:	M. FRATESCHI
CHECKED BY:	

GENERAL NOTES AND LEGEND

G-002

Jun 04, 2019 - 3:11pm
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A1 NOTES AND LEGEND
NOT TO SCALE

NOTE:
COORDINATES ARE BASED ON NAD83 AND ELEVATIONS ARE BASED ON NAV88, OBTAINED BY REAL TIME KINEMATIC GPS PROCESSED THROUGH OPUS.

ALTA SURVEY DONE BY IANUZI & ROMANS LAND SURVEYING DATED 1-17-19

MANLIUS CENTER ROAD CORPORATION, N/F
BOOK 1888, PAGE 15
TAX MAP No. 53.-04-03.1

MANLIUS CENTER ROAD CORPORATION, N/F
BOOK 1888, PAGE 15
TAX MAP No. 53.-04-03.1

378 ELEC OH

FISHER ROAD

ROAD BOUNDARY

ROAD BOUNDARY

TOWN OF DEWITT, N/F
BOOK 3264, PAGE 82
TAX MAP No. 53.-04-03.3

NATIONAL GRID, N/F
BOOK 2361, PAGE 286x
TAX MAP No. 53.-04-02.1

NIAGARA MOHAWK
POWER CORPORATION, FORMERLY
(BOOK 2212, PAGE 626)

APPROXIMATE LIMITS OF LANDFILL CAP

S71° 35'W
849.84'

N3° 16'W
189.6'

TOWN OF DEWITT, N/F
BOOK 3264, PAGE 82
TAX MAP No. 53.-04-03.4

MANLIUS CENTER
ROAD CORPORATION, N/F
BOOK 2299, PAGE 313
TAX MAP No. 74.-01-04

S86° 44'W
202.2'

TOWN OF DEWITT
TOWN OF MANLIUS

ACCESS ROAD

PEARL KELLOGG, FORMERLY

628.24' Deed
623.07' Meas.
N3°-09' 56"W

LAUREL C. JOINES, N/F
BOOK 5265, PAGE 356
TAX MAP No. 74.-01-11

OVERHEAD UTILITIES (TYP.)

S53° 42' 16"E
75.36'

S86° 17' 54"W
1052.59'

PARCEL 1

P.O.B. PARCEL 1

GAS DISCHARGE VENT (TYP.)

E.M.L. 52
W.L.M.L. 53

TOWN OF DEWITT, N/F
BOOK 1554, PAGE 581x
TAX MAP No. 53.-04-04.1

S2° 30' 16"E
833.67'

P.O.B. PARCEL 2

157.24' Deed
140.44' Meas.
S70° 21' 28"W

BLUE LINE

6" MONITORING WELL (TYP.)

GRAVEL DRIVE

GRAVEL WALK

198.80'
S64° 54' 28"W

TOWN OF DEWITT, FORMERLY
(BOOK 1554, PAGE 581)

*PARCEL 2

510.90'
S60° 28' 08"W

92.76'
S56° 20' 08"W

ASPHALT WALKER

696.73'
S66° 59' 38"W

STATE OF NEW YORK CANAL LANDS

S71° 34' 34"W
293.50'

S2° 54' 39"E
213.09'

WEST LINE OF NOTO, FORMERLY

855.86'
N87° 06' 06"E

S.M.L. 52
N.L.M.L. 63

TOWN OF DEWITT, N/F
BOOK 3348, PAGE 286

A1 EXISTING CONDITIONS PLAN
SCALE: 1" = 100'

0 100' 200'

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STATE OF NEW YORK JOHN T. CAMP LICENSED PROFESSIONAL ENGINEER No. 092777

RER Energy Group

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TOWN OF DEWITT LANDFILL
SOLAR GROUND ARRAY
6330 FISHER ROAD
EAST SYRACUSE, NY 13057

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		REVISIONS

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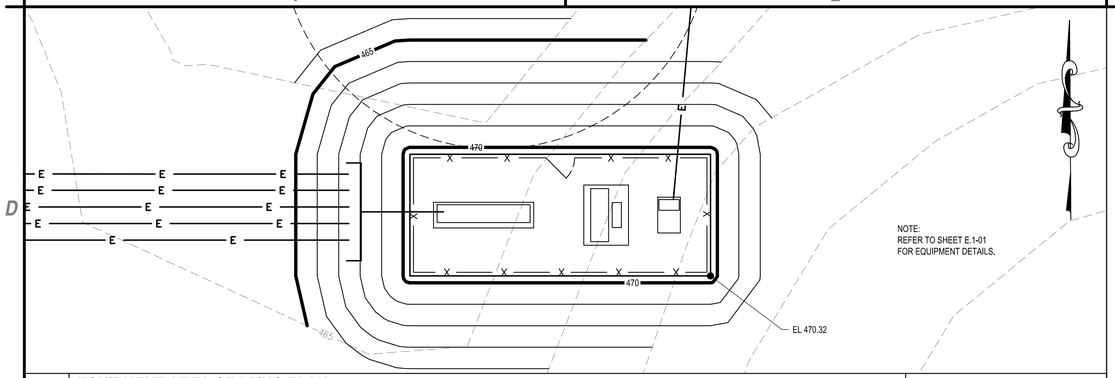
DRAWN BY:	B. BUCKINGHAM
DESIGNED BY:	M. FRATESCHI, P.E.
CHECKED BY:	J. CAMP, P.E.

EXISTING CONDITIONS PLAN

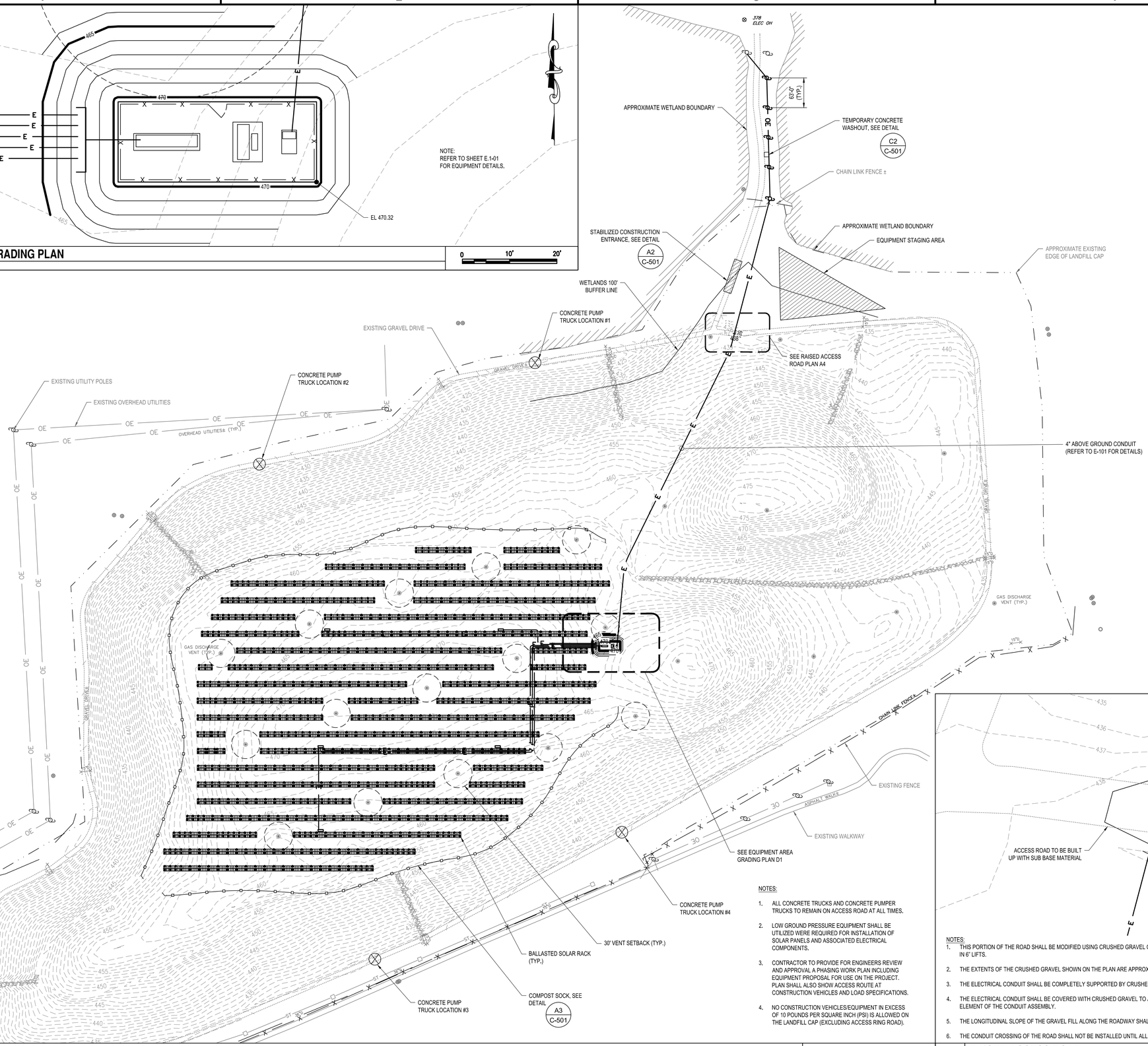
C-100



NOTE:
REFER TO SHEET E.1-01
FOR EQUIPMENT DETAILS.

D1 EQUIPMENT AREA GRADING PLAN
SCALE: 1" = 10'

0 10' 20'

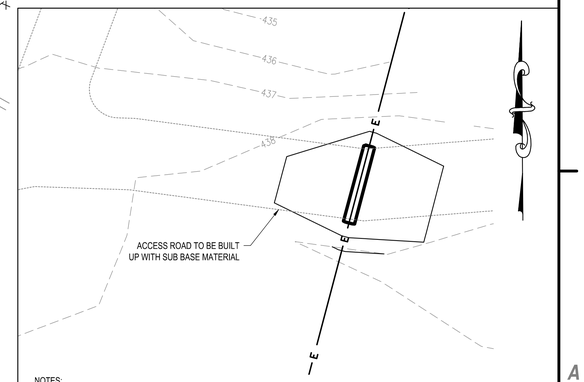


NOTES:

1. ALL CONCRETE TRUCKS AND CONCRETE PUMPER TRUCKS TO REMAIN ON ACCESS ROAD AT ALL TIMES.
2. LOW GROUND PRESSURE EQUIPMENT SHALL BE UTILIZED WERE REQUIRED FOR INSTALLATION OF SOLAR PANELS AND ASSOCIATED ELECTRICAL COMPONENTS.
3. CONTRACTOR TO PROVIDE FOR ENGINEERS REVIEW AND APPROVAL A PHASING WORK PLAN INCLUDING EQUIPMENT PROPOSAL FOR USE ON THE PROJECT. PLAN SHALL ALSO SHOW ACCESS ROUTE AT CONSTRUCTION VEHICLES AND LOAD SPECIFICATIONS.
4. NO CONSTRUCTION VEHICLES/EQUIPMENT IN EXCESS OF 10 POUNDS PER SQUARE INCH (PSI) IS ALLOWED ON THE LANDFILL CAP (EXCLUDING ACCESS RING ROAD).

A1 SITE PLAN
SCALE: 1" = 100'

0 100' 200'



NOTES:

1. THIS PORTION OF THE ROAD SHALL BE MODIFIED USING CRUSHED GRAVEL COMPACTED TO 95% STANDARD PROCTOR COMPACTED IN 6" LIFTS.
2. THE EXTENTS OF THE CRUSHED GRAVEL SHOWN ON THE PLAN ARE APPROXIMATE.
3. THE ELECTRICAL CONDUIT SHALL BE COMPLETELY SUPPORTED BY CRUSHED GRAVEL FOR THE ENTIRETY OF THE ROAD CROSSING.
4. THE ELECTRICAL CONDUIT SHALL BE COVERED WITH CRUSHED GRAVEL TO A MINIMUM DEPTH OF 24 INCHES ABOVE THE TOP-MOST ELEMENT OF THE CONDUIT ASSEMBLY.
5. THE LONGITUDINAL SLOPE OF THE GRAVEL FILL ALONG THE ROADWAY SHALL NOT EXCEED 15% (1:6.7 V:H).
6. THE CONDUIT CROSSING OF THE ROAD SHALL NOT BE INSTALLED UNTIL ALL HEAVY CONSTRUCTION TRAFFIC HAS BEEN COMPLETED.

A4 RAISED ACCESS ROAD
SCALE: 1" = 10'

0 10' 20'

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SITE, EROSION AND SEDIMENTATION CONTROL PLAN

C-101

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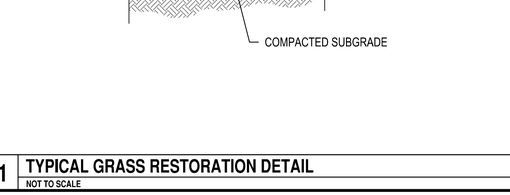
D1 NOT USED

SCALE: X" = 1'-0"

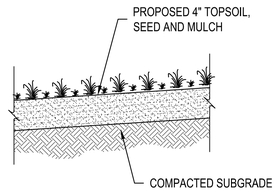


TEMPORARY TOPSOIL STOCKPILE NOTES:

1. REFER TO COMPOST SOCK DETAIL FOR MATERIALS AND INSTALLATION METHODS.
2. IF THE STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, IT SHALL BE STABILIZED WITH BURLAP MATTING OR SEEDED WITHIN 7 DAYS OF COMPLETION TO MINIMIZE EROSION.
3. INSPECTION OF COMPOST SOCK SHALL BE AT LEAST ONCE PER WEEK AND AFTER RAIN EVENTS IN EXCESS OF 1/2". REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. SEDIMENT TRAPPED BY THE COMPOST SOCK SHALL BE REMOVED AND PROPERLY DISPOSED OF WHENEVER SIGNIFICANT ACCUMULATION OCCURS.
5. COMPOST SOCK SHALL BE MAINTAINED IN PLACE UNTIL TOPSOIL STOCKPILE HAS BEEN ELIMINATED AND SHALL BE REMOVED ONLY WHEN DIRECTED BY THE ENGINEER.
6. TOPSOIL STOCKPILE LOCATION SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE OWNER OR AN AUTHORIZED REPRESENTATIVE

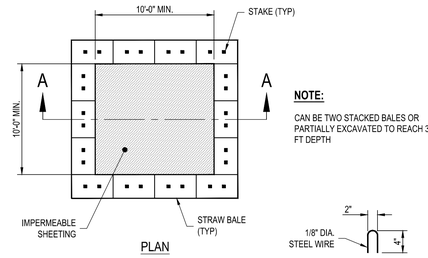
B1 TEMPORARY TOPSOIL STOCKPILE DETAIL (IF APPLICABLE)

NOT TO SCALE



A1 TYPICAL GRASS RESTORATION DETAIL

NOT TO SCALE

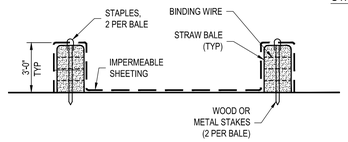


PLAN

NOTE:

CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

STAPLE DETAIL



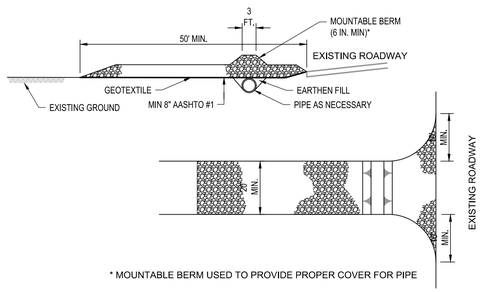
SECTION A-A

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC. CONCRETE WASHOUT WILL BE PERMITTED UNDER THE ARTICLE 24, PERMIT TO BE PLACED WITHIN WETLAND BUFFER.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 1 FOOT OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER.
6. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

C2 TEMPORARY CONCRETE WASHOUT FACILITY DETAIL

NOT TO SCALE



* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:
REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

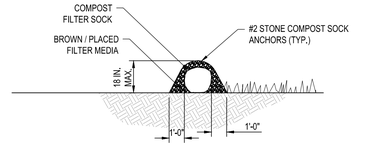
RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

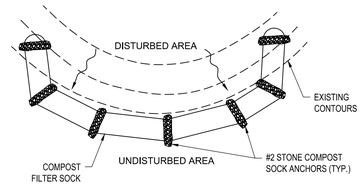
MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

A2 TEMPORARY STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE





NOTES:

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STONE ANCHORS SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

TABLE 4.1
COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

MATERIAL TYPE	3 MIL HDPE	*5 MIL HDPE	5 MIL HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIO-DEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
MESH OPENING	¼"	¼"	¼"	¼"	¼"
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202 PSI
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1YEAR	2 YEARS

TABLE 4.2
COMPOST STANDARDS

ORGANIC MATTER CONTENT	2%-100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5-8.5
MOISTURE CONTENT	30%-60%
PARTICLE SIZE	30%-50% PASS THROUGH ¾" SIEVE
SOLUBLE SALT CONCENTRATION	5.0dS/m (mmhos/cm) Maximum

A3 COMPOST FILTER SOCK DETAIL

NOT TO SCALE

D4 NOT USED

SCALE: X" = 1'-0"

C4 NOT USED

SCALE: X" = 1'-0"

B4 NOT USED

SCALE: X" = 1'-0"

A4 NOT USED

SCALE: X" = 1'-0"

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MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	V34.001.001
DATE:	MARCH 2019
DRAWN BY:	B. BUCKINGHAM
DESIGNED BY:	M. FRATESCHI
CHECKED BY:	

DETAILS

C-501

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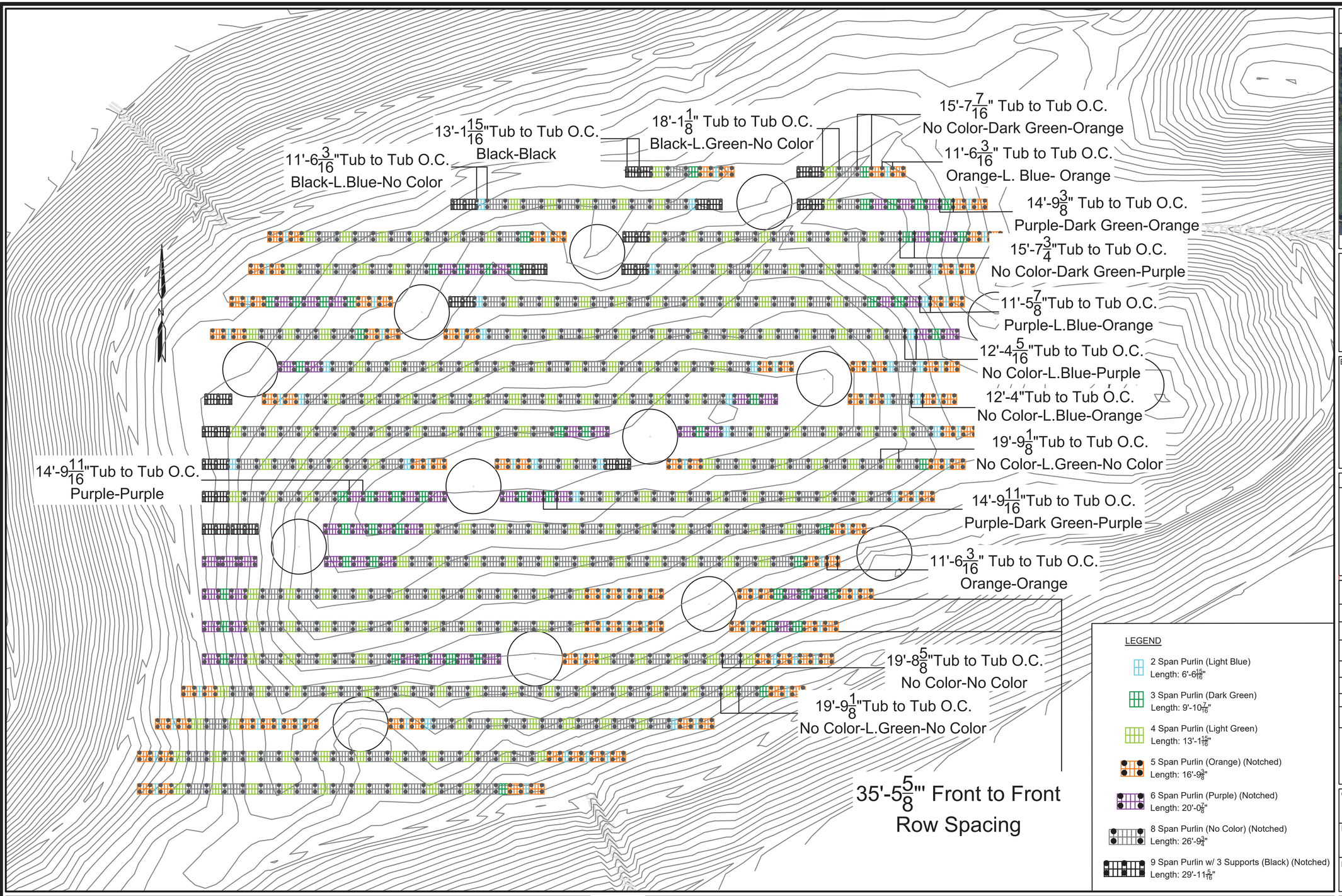


AERIAL VIEW

GAMECHANGE SOLAR
REPOWERING THE PLANET
152 West 57th St, Fl 17, New York, NY 10019
Tel:212-388-5160
www.gamechangesolar.com

Engineer's Seal:

Site Key Plan:

Rev:	By:	Date:	Description:
1	SH	10-13-2017	Preliminary Layout
...	...	...	...
5	SF	06-29-2018	Revised Panel: CSUN345
6	SF	09-04-2018	Revised Layout/Panel Count
7	SF	09-05-2018	Revised Total Dead Load
8	GF	05-09-2019	Issued for Client Approval
9	SC	05-15-2019	Revised Assembly/874 Count

Array Information

	PV Modules	Racking
Manufacturer	CSUN	Gamechange Solar
Model	CSUN345-72M	30-Degree Pour-In-Place
Dimensions	76.98" x 38.96" x 1.57"	
Weight	46.3 lbs	
Quantity	7722	790 Pairs of Tubs
Ground Clearance	30 in	

7722 modules at 345W

2.66 MW

Customer: **RER Energy Group**

Project: **Dewitt Landfill**

Project #:

Location: **6330 Fischer Rd, East Syracuse, NY 13057**

GENERAL NOTES

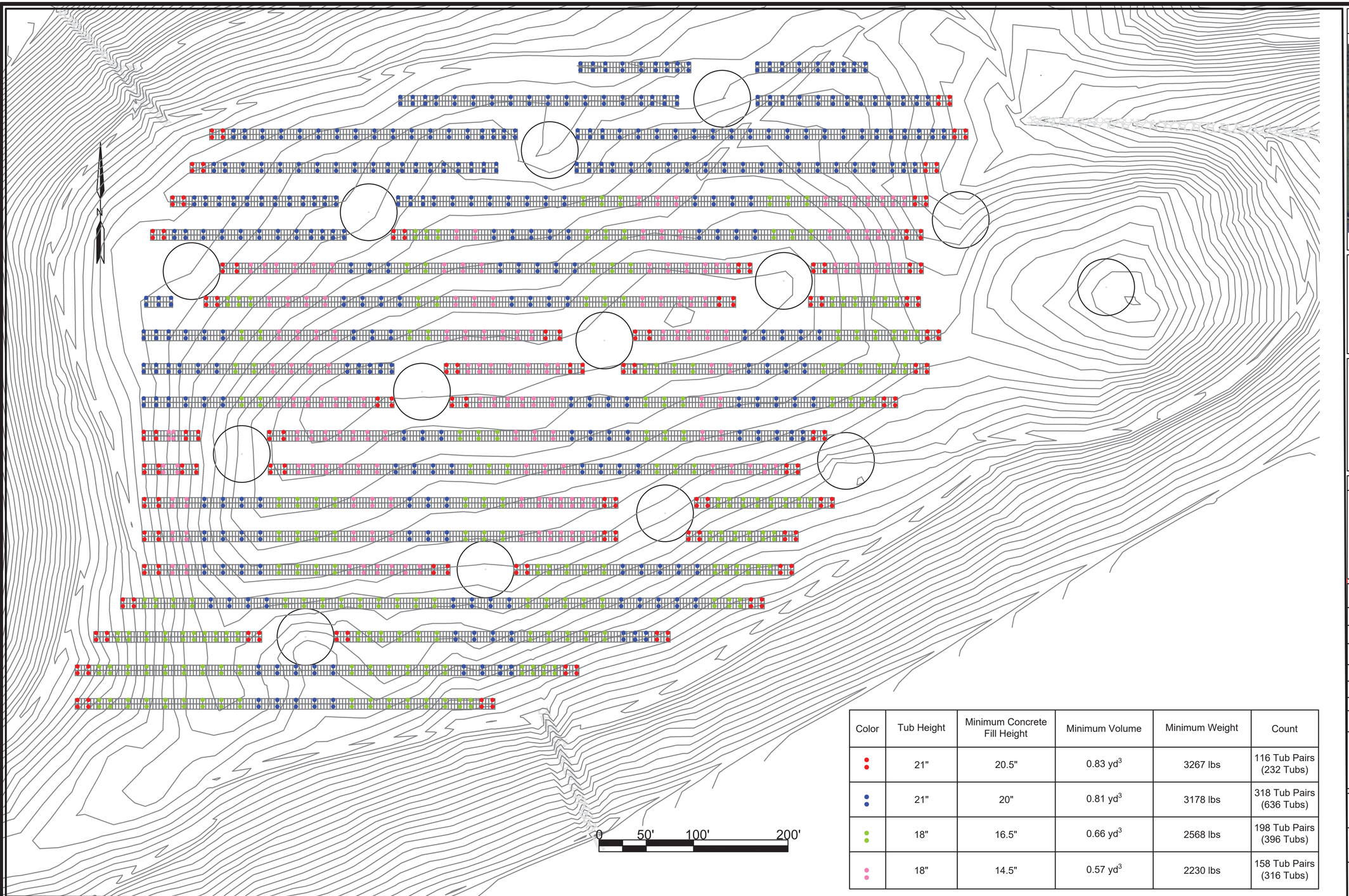
- The layout shown herein is based on site layout geometry provided to GameChange Solar by the customer.
- Any changes to the site that may affect the solar PV arrays depicted herein shall be notified to GameChange Solar.
- The layouts and details shown herein are a custom design for this project and are specific to the PV module(s) shown in the Array Information table.
- GameChange Solar cannot be responsible for errors during installation caused by changes that impact the layout as shown
- Install foundations at specified distances along slope line, Not by plane view. See Detail Sheets for additional info

Design Information

Building Occupancy Category	I	Area of Array	10.88 acres	Dead Load	12.5 psf
Wind Exposure Category	C	No. of rows	39	Seismic Site Class	D
Design Wind Speed	105 mph ASCE7-10	Distance to Saltwater	>30 miles	S_S	0.144 g
Design Snow Load	50 psf	Years Since Landfill Capped	25 years	S_1	0.062 g

SITE PLAN

Sheet #: 1 of 9



Color	Tub Height	Minimum Concrete Fill Height	Minimum Volume	Minimum Weight	Count
●	21"	20.5"	0.83 yd^3	3267 lbs	116 Tub Pairs (232 Tubs)
●	21"	20"	0.81 yd^3	3178 lbs	318 Tub Pairs (636 Tubs)
●	18"	16.5"	0.66 yd^3	2568 lbs	198 Tub Pairs (396 Tubs)
●	18"	14.5"	0.57 yd^3	2230 lbs	158 Tub Pairs (316 Tubs)

AERIAL VIEW

GAMECHANGE SOLAR
REPOWERING THE PLANET

152 West 57th St, Fl 17, New York, NY 10019
Tel:212-388-5160
www.gamechangesolar.com

Engineer's Seal:

Site Key Plan:

Rev:	By:	Date:	Description:
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Array Information

	PV Modules	Racking
Manufacturer	CSUN	Gamechange Solar
Model	CSUN345-72M	30-Degree Pour-In-Place
Dimensions	76.98" x 38.96" x 1.57"	
Weight	46.3 lbs	
Quantity	7722	790 Pairs of Tubs
Ground Clearance	30 in	

7722 modules at 345W

2.66 MW

Customer: **RER Energy Group**

Project: **Dewitt Landfill**

Project #:

Location: **6330 Fischer Rd, East Syracuse, NY 13057**

GENERAL NOTES

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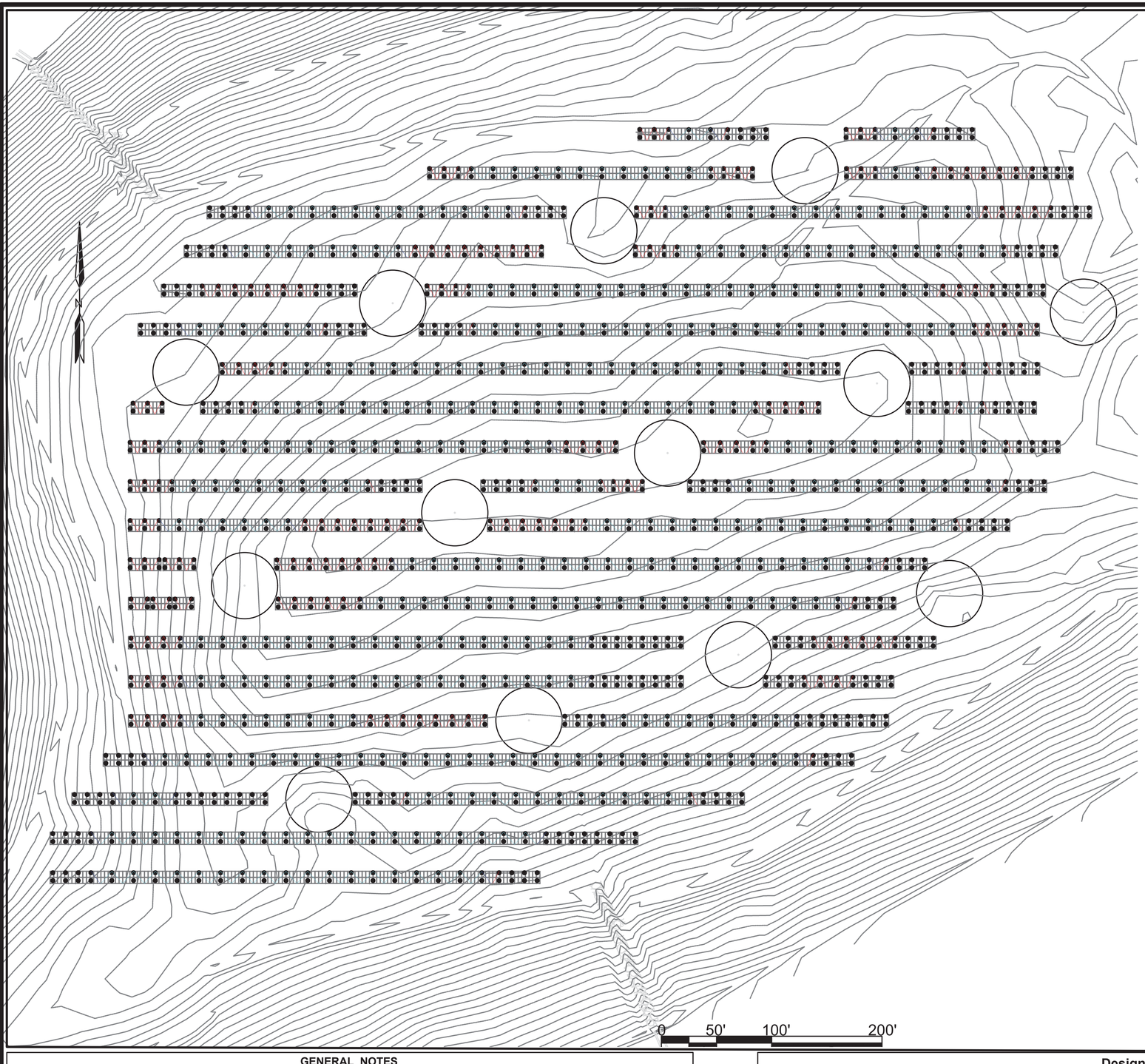
Design Information

Building Occupancy Category	I	Area of Array	10.88 acres	Dead Load	12.5 psf
Wind Exposure Category	C	No. of rows	39	Seismic Site Class	D
Design Wind Speed	105 mph ASCE7-10	Distance to Saltwater	>30 miles	S_S	0.144 g
Design Snow Load	50 psf	Years Since Landfill Capped	25 years	S_1	0.062 g

SITE PLAN

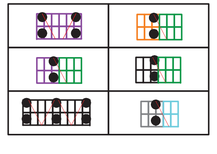
Sheet #: 2 of 9



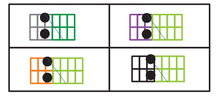
Purlin Angle Key

Note:
-The following Purlin Angles (GC874), Bend Straps (GC871) will be used in these locations.
-All other locations do not require Purlin Angles (GC874), Bends Straps (GC871)

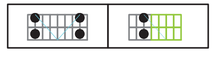
GC874A Red



GC874B Dark Blue



GC874C Light Blue



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7722 modules at 345W

2.66 MW

Customer: **RER Energy Group**

Project: **Dewitt Landfill**

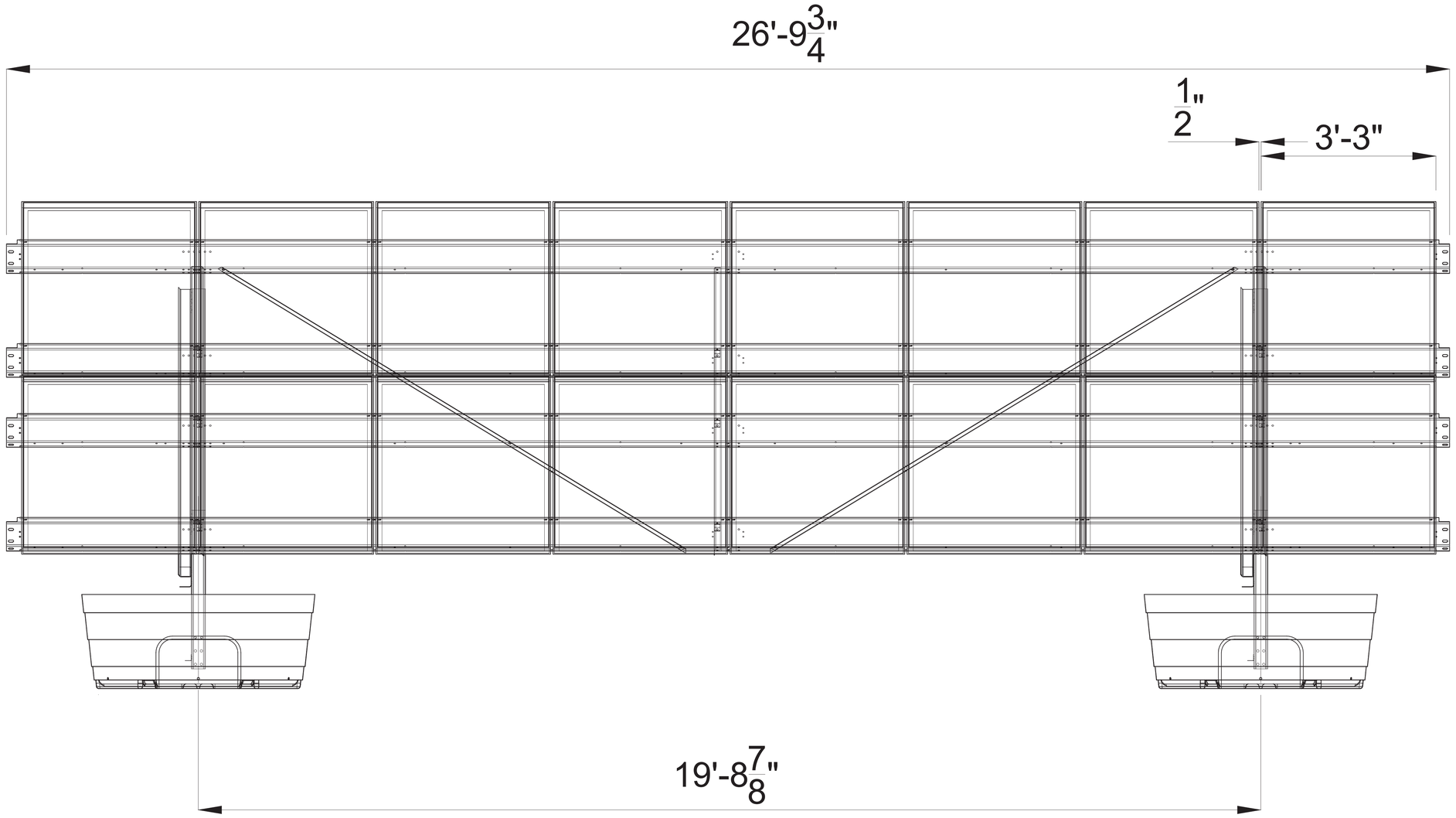
Project #:

Location: **6330 Fischer Rd, East Syracuse, NY 13057**

SITE PLAN

Sheet #: 3 of 9

2019-05-14 SC
DeWitt
RER Energy Group
CSUN



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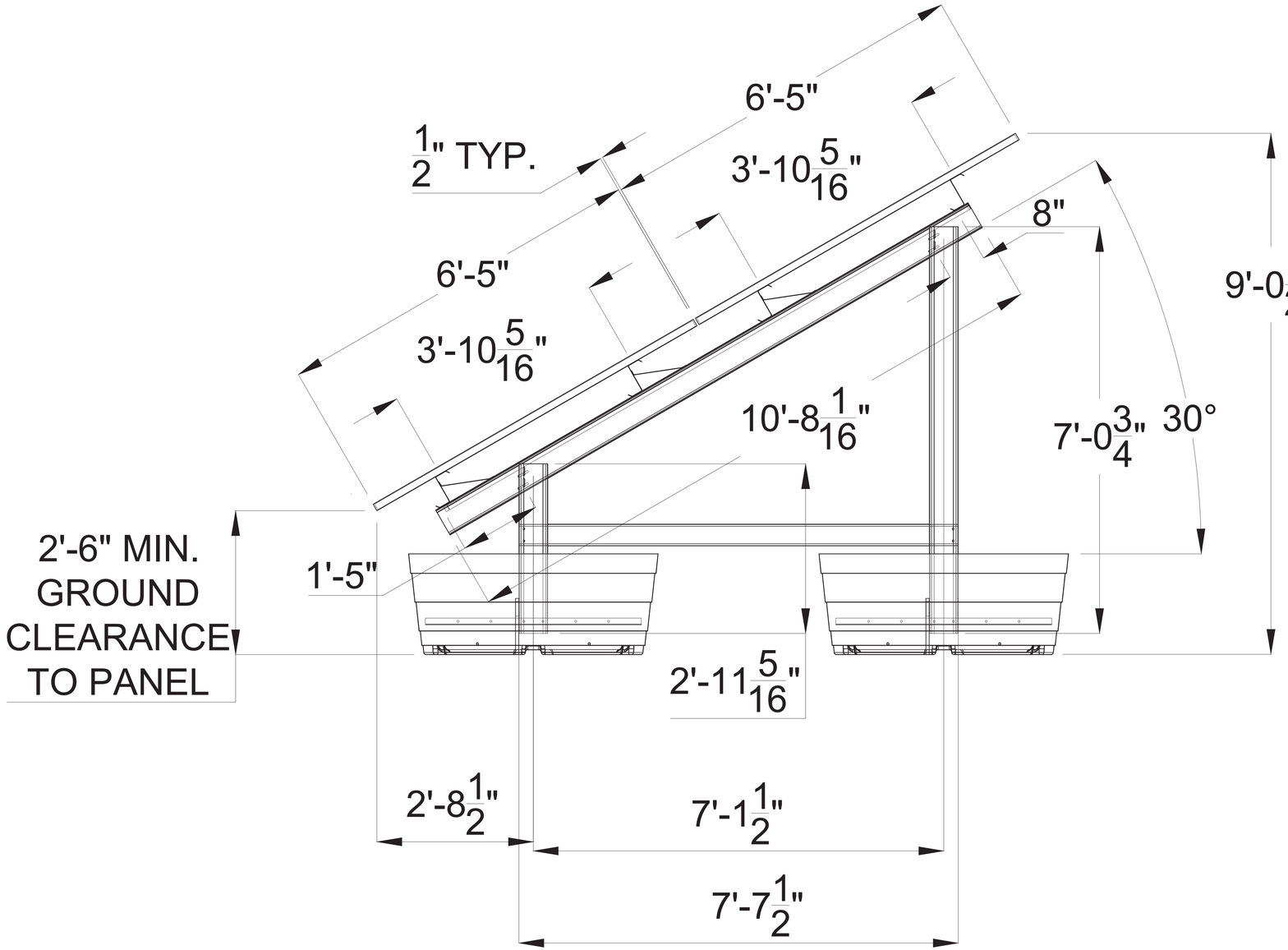
Project #:

Location: **6330 Fischer Rd, East Syracuse, NY 13057**

Assembly Drawing

Sheet #: 4 of 9



AERIAL VIEW

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Tel:212-388-5160
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Engineer's Seal:

STATE OF NEW YORK · SCOTT VAN FLEET · 092572 · LICENSED PROFESSIONAL ENGINEER

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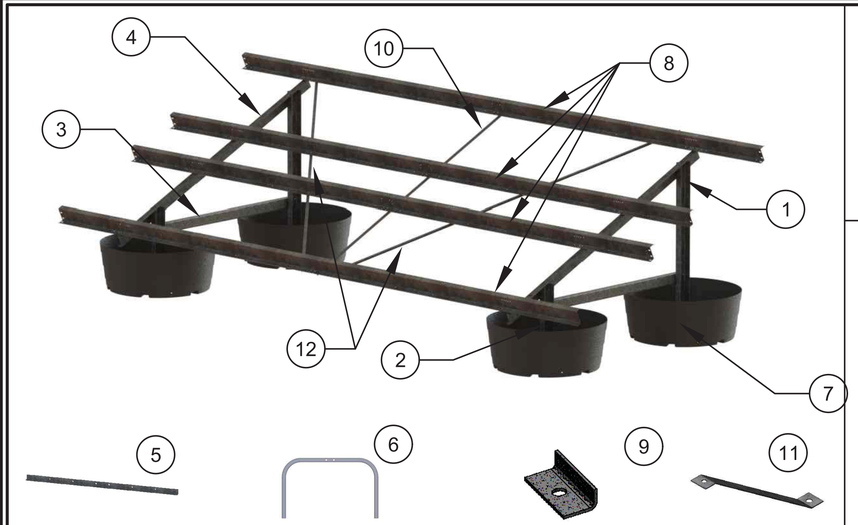
Assembly Drawing

Sheet #: 5 of 9



PARTS LIST

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2	South Post	GC361WP-S	Galvanized Steel G90
3	Horizontal Channel	GC361WP-H	Galvanized Steel G90
4	NS Beam	GC862MT	Galvanized Steel G90
5	Horizontal Angle	GC275	Galvanized Steel G90
6	Base Bracket	GC999T	Galvanized Steel G90
7	Round Tub	GC281	HMWPE
8	EW Purlin	GC63 / GC63N	Galvanized Steel G90
9	Purlin Washer	GC126	Galvanized Steel G90
10	Bend Strap	GC871	Galvanized Steel G90
11	Roll Strap	GC873	Galvanized Steel G90
12	Purlin Angle	GC874	Galvanized Steel G90
13a	3/8-16 x 1" Hex Bolt		Magnicoat
13b	3/8-16 x 1½" Hex Bolt		Magnicoat
13c	3/8 ID x 1" OD Washer		HDG or Magnicoat
13d	3/8 ID x 1½" OD Washer		HDG or Magnicoat
13e	3/8-16 Serrated Flange Nut		Magnicoat
14a	1/4-20 Hex Bolt		Stainless Steel or Magnicoat
14b	1/4 Washer		HDG or Magnicoat
14c	1/4-20 Hex Nut		Stainless Steel or Magnicoat
15	Star Washer		Stainless Steel

TOP TIPS:

1. **Use vertical adjustability provided to make Mounting Purlins level, and the site install look great.**
2. **If pouring concrete in areas with freezing winters, make sure to use freeze thaw additives and frost blankets if possible. If accelerators are used, they shall NOT contain calcium chloride.**

1) Make sure ground is free from debris.

2) Existing soil must have a minimum soil bearing capacity of at least 1,000 pounds per square foot. Installation of the System on very loose soil which will have substantial movement over time could result in structural damage to the racks if this movement is not countered by adjusting racking to compensate. This could lead to voiding the warranty. See Installation Manual for recommended remediation options for loose soils.

3) If ground slopes from east to west or from north to south so that amount of concrete in tub will not meet the requirement specified in install manual, then place crushed stone or gravel to level the area directly under where Tub will be placed as well as 6 inches outside of this footprint. If the AHJ or DEP has determined that materials coming onto the site must be controlled, it is recommended that crushed stone or gravel fill for local leveling under the tubs be approved prior to the start of construction.

4) Attach Horizontal Channel to North and South Posts using two 3/8"-16 x 1" bolts and 3/8 flange nuts per connection. Make sure Horizontal Channel is perpendicular to posts. Torque to Spec.

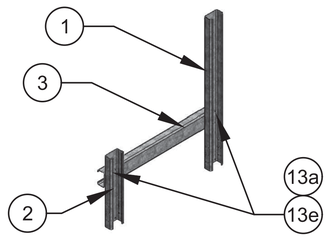
5) Attach NS Beam to posts midway on slots both vertically and horizontally using 3/8-16 x1" hex bolt with 3/8 x 1" OD washers on NS Beam side and 3/8 flange nuts on Post side. Make sure NS Beam is at propper tilt angle. Torque to Spec

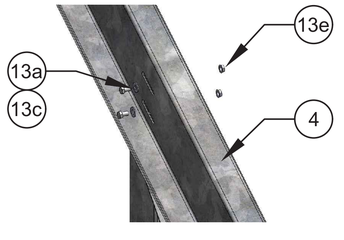
6) Attach Horizontal Angle using two 3/8-16 x 1" hex bolt and flange nuts per connection. Toque to spec.

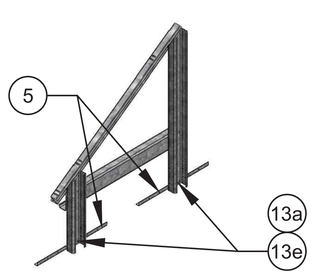
7) Install Base Brackets to the middle set of holes approximately 4 inches up from bottom of North Post and South Post using 3/8"-16 x 1-1/2" long hex bolts and serrated flange nuts. Leave hardware finger tight.

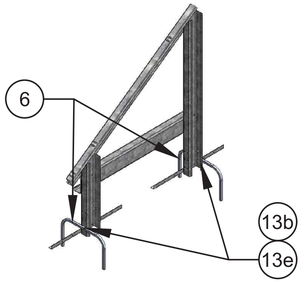
   As an alternative, the Base Brackets may be installed after the purlin support assemblies are positioned within the tubs.

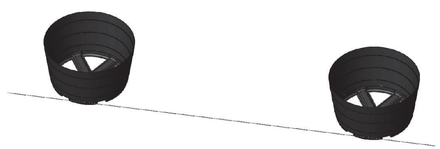
8) Find the edges of the array according to project the layout sheets. Drop a string line on the southern edge of the row to be installed. The string line should align with the south edge of the south tubs in the row. Place Round Tubs per spacing shown in layout sheets with the south end of the south Round Tub touching the string for North-South alignment.











GC Pour-in-Place (Steel) System

- Use only GameChange parts. Use of other parts to complete the installation as substitutes may void the warranty.
- Make sure the ground structure (notably in the case of a capped landfill) is inspected and can support the loading resulting from the GC Pour-n-Place Ground System and provided PV modules.
- Comply with all relevant local, state and national safety laws and standards for both for mechanical and electrical aspects of the solar PV array installation.
- When encountering undocumented or unexpected obstacles requiring a work around, work arounds should be brought to the attention of GameChange personnel prior to being attempted. If approved by GameChange, work arounds shall be noted on project as-built drawings. Work arounds should be completed in a manner that ensures that the remainder of the array is not affected.
- Customers are responsible for grade variations.and making sure slope tolerances support GameChange System. GC Pour-in-Place Ground System ideally should be installed on flat, level and pre-compacted ground. This is to avoid system settlement over time. Topsoil with loam content and organics should be removed, and soil scraped down to subsoil level. If the system is installed on new fill, the soil should be compacted with a compacting roller prior to installation. However, due to vertical adjustability of the NS Beams on the Posts, the GC Pour-in-Place System may be erected on less than ideally prepared grounds when site conditions preclude removal of topsoil. In that scenario, the rails should be adjusted to appropriate heights on Posts during periods of operation and maintenance visits.
- Reference Install Manual for installation. Not following Install Manual may result in voiding warranty.
- Ballast forms (tubs) are provided for each site by GameChange. See installation manual for concrete specifications.

It is a requirement for installation crews including EPC, installer, foundation installation vendor and surveyor to be trained by GameChange personnel (complete page turn review of install manual and construction drawing, building the golden row, as well as walking the site prior to foundation surveying) in person or at a minimum via video conference.

Tool Required

- String line
- 48 inch long level
- 30 foot tape measure
- Inclinometer with digital degree read out
- Impact Drill with interchangeable drivers
- 1/4" Drill Bit
- Wrenches and driver sockets, both standard and deep, in the following sizes:
  - 7/16 inch (for 1/4-inch hex bolts and nuts),
  - 9/16 inch (for 3/8-inch hex bolts and nuts),
- Torque Wrench. Torque bolt to appropriate torque range
  - 1/4" Stainless hardware use 6-7 ft-lbs (72-84 in-lbs)
  - 1/4" Magni hardware use 9-10 ft-lbs (108-120 in-lbs)
  - 3/8" hardware use 29-31 ft-lbs
- Concrete mixture (weather and freeze-thaw resistant if required). See Pour-in-Place Installation Manual for concrete specifications
- Rack assembly jig made of plywood and 2"x4" wood.

Preventative Maintenance

- It is best practice to unbundle loads and install parts within several weeks of delivery so air is able to flow around parts and thus prevent white rust formation. In order to maintain the longest life possible for the protective zinc coating under the warranty, it is important to monitor for any severe white rust developments prior to installation and if this condition appears to take proper maintenance steps to remediate it. See the Pour-in-Place Installation Manual for more information.
- After Installation, installer must annually monitor for any surface rust that may occur over time. Identify any rust areas, wire brush area to remove rust, and coat with 80% zinc rich paint, or equivalent field life paint. This step is not required if rust is limited to edges which were cut during fabrication.
- Maintenance checks should be performed annually or after severe wind events. Please refer to Install Manual for more details.
- Proper preventative maintenance must be conducted or warranty may be voided. The Install Manual provides required maintenance steps and diagnostic procedure for malfunctions. Follow steps and consult with GameChange in case of maintenance issues.

CRITICAL INFORMATION INDICATOR

This icon indicates critical and important information that MUST be followed for proper installation. Disregarding it may lead to serious injury and/or irreparable damage to equipment, tools, or componenets; it will compromise GameChange warranty. Information indicated with this icon must be followed to meet quality requirements.

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7722 modules at 345W

2.66 MW

Customer: **RER Energy Group**

Project: **Dewitt Landfill**

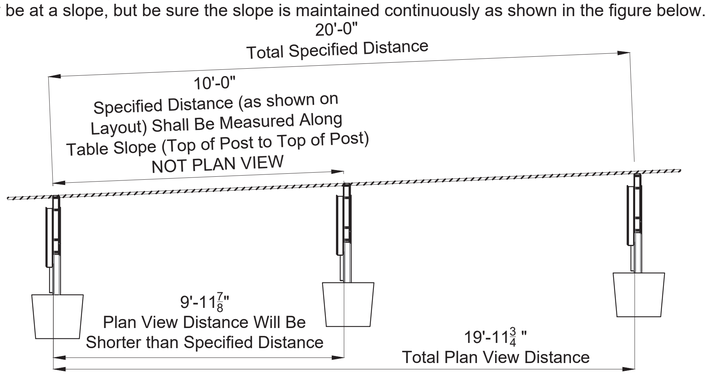
Project #:

Location: **6330 Fischer Rd, East Syracuse, NY 13057**

Pour-In-Place™ Ballasted Ground

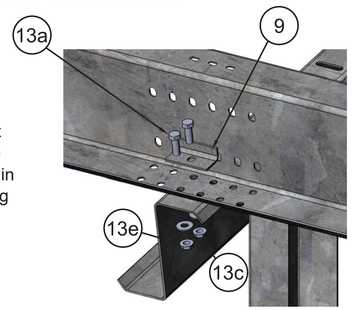
Sheet #: 6 of 9

10) When placing Purlin Support Assemblies at specific distances away from each other to match the positions on the layout, it is important that the tops of the assemblies are in a straight line. The line may be at a slope, but be sure the slope is maintained continuously as shown in the figure below.



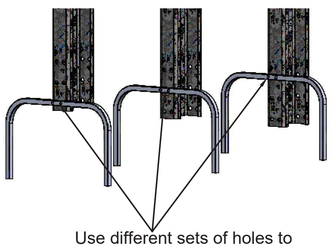
⚠ PURLIN SUPPORT ASSEMBLIES MUST BE AT SPECIFIED DISTANCE ALONG THE SLOPE LINE, NOT BY PLAN VIEW, OTHERWISE PURLINS MAY NOT FIT. DIMENSIONS SHOWN ABOVE ARE EXAMPLE DIMENSIONS TO ILLUSTRATE DIFFERENCE BETWEEN SPECIFIED DISTANCE AND PLAN VIEW DISTANCE. PROJECT SPECIFIC DIMENSIONS SHALL BE USED PER LAYOUT.

11) Attach first table EW Purlins at southernmost position on the NS Beams using center set of holes for Table Purlin to NS Beam attachment. Attach EW Purlins to NS Beams using two 3/8" bolts. Under the bolt closest to the NS Purlin wall, place a Purlin Washer under the bolt head with the bent flange bearing against the Purlin wall. Both bolts will be attached on the underside using a 1" OD washer and a flange nut. Finger tight on hardware. Once Panels are mounted torque all hardware to specifications.



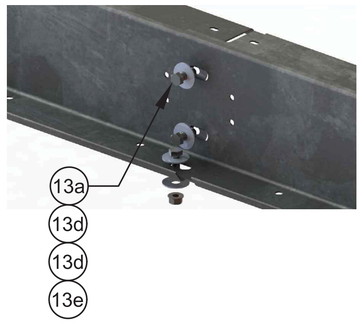
12) Repeat Purlin Support Assembly and installation for adjacent Round Tubs. Position Purlin Support Assembly and Round Tubs to the appropriate distance apart as required by layout

13) For leveling, after EW Purlins have been installed, choose 1 of 3 sets of holes on the posts to attach the Base Brackets to in order to set the height of the system at each post location to even out ups and downs in the system caused by uneven ground conditions. Once preferable height has been obtained, tighten hardware to spec.



Use different sets of holes to level posts

14) For continuous configurations, Connector Purlin are connected to Table Purlins using three sets of 3/8" flange bolt, washers (1-1/2" OD), and serrated flange nuts at each end of the Purlins. Torque to specifications. **It is important that the correct washers are used.**



15) Attach the alternating table EW Purlins and connector EW Purlins starting at one end of the row and continue to the other end of the row.

PARTS LIST

Item No.	Description	Part No.	Material
1	North Post	GC361WP-N	Galvanized Steel G90
2	South Post	GC361WP-S	Galvanized Steel G90
3	Horizontal Channel	GC361WP-H	Galvanized Steel G90
4	NS Beam	GC862MT	Galvanized Steel G90
5	Horizontal Angle	GC275	Galvanized Steel G90
6	Base Bracket	GC999T	Galvanized Steel G90
7	Round Tub	GC281	HMWPE
8	EW Purlin	GC63 / GC63N	Galvanized Steel G90
9	Purlin Washer	GC126	Galvanized Steel G90
10	Bend Strap	GC871	Galvanized Steel G90
11	Roll Strap	GC873	Galvanized Steel G90
12	Purlin Angle	GC874	Galvanized Steel G90
13a	3/8-16 x 1" Hex Bolt		Magnicoat
13b	3/8-16 x 1 1/2" Hex Bolt		Magnicoat
13c	3/8 ID x 1" OD Washer		HDG or Magnicoat
13d	3/8 ID x 1 1/2" OD Washer		HDG or Magnicoat
13e	3/8-16 Serrated Flange Nut		Magnicoat
14a	1/4-20 Hex Bolt		Stainless Steel or Magnicoat
14b	1/4 Washer		HDG or Magnicoat
14c	1/4-20 Hex Nut		Stainless Steel or Magnicoat
15	Star Washer		Stainless Steel

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Engineer's Seal:

Site Key Plan:

Rev:	By:	Date:	Description:
1	SH	10-13-2017	Preliminary Layout
...	...	...	...
5	SF	06-29-2018	Revised Panel: CSUN345
6	SF	09-04-2018	Revised Layout/Panel Count
7	SF	09-05-2018	Revised Total Dead Load
8	GF	05-09-2019	Issued for Client Approval
9	SC	05-15-2019	Revised Assembly/874 Count

Array Information

	PV Modules	Racking
Manufacturer	CSUN	Gamechange Solar
Model	CSUN345-72M	30-Degree Pour-In-Place
Dimensions	76.98" x 38.96" x 1.57"	
Weight	46.3 lbs	
Quantity	7722	790 Pairs of Tubs
Ground Clearance	30 in	

7722 modules at 345W

2.66 MW

GC Pour-in-Place (Steel) System

- Use only GameChange parts. Use of other parts to complete the installation as substitutes may void the warranty.
- Make sure the ground structure (notably in the case of a capped landfill) is inspected and can support the loading resulting from the GC Pour-n-Place Ground System and provided PV modules.
- Comply with all relevant local, state and national safety laws and standards for both for mechanical and electrical aspects of the solar PV array installation.
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Tool Required

- String line
- 48 inch long level
- 30 foot tape measure
- Inclinometer with digital degree read out
- Impact Drill with interchangeable drivers
- 1/4" Drill Bit
- Wrenches and driver sockets, both standard and deep, in the following sizes:
  - 7/16 inch (for 1/4-inch hex bolts and nuts),
  - 9/16 inch (for 3/8-inch hex bolts and nuts),
- Torque Wrench. Torque bolt to appropriate torque range
  - 1/4" Stainless hardware use 6-7 ft-lbs (72-84 in-lbs)
  - 1/4" Magni hardware use 9-10 ft-lbs (108-120 in-lbs)
  - 3/8" hardware use 29-31 ft-lbs
- Concrete mixture (weather and freeze-thaw resistant if required). See Pour-in-Place Installation Manual for concrete specifications
- Rack assembly jig made of plywood and 2"x4" wood.

Preventative Maintenance

- It is best practice to unbundle loads and install parts within several weeks of delivery so air is able to flow around parts and thus prevent white rust formation. In order to maintain the longest life possible for the protective zinc coating under the warranty, it is important to monitor for any severe white rust developments prior to installation and if this condition appears to take proper maintenance steps to remediate it. See the Pour-in-Place Installation Manual for more information.
- After Installation, installer must annually monitor for any surface rust that may occur over time. Identify any rust areas, wire brush area to remove rust, and coat with 80% zinc rich paint, or equivalent field life paint. This step is not required if rust is limited to edges which were cut during fabrication.
- Maintenance checks should be performed annually or after severe wind events. Please refer to Install Manual for more details.
- Proper preventative maintenance must be conducted or warranty may be voided. The Install Manual provides required maintenance steps and diagnostic procedure for malfunctions. Follow steps and consult with GameChange in case of maintenance issues.

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Customer: **RER Energy Group**

Project: **Dewitt Landfill**

Project #:

Location: **6330 Fischer Rd, East Syracuse, NY 13057**

Pour-In-Place™ Ballasted Ground

Sheet #: 7 of 9

16) **Required Temporary Staking and Ballasting as Precautionary Safety Measure**

⚠ At the end of each row, install temporary manual bracing to keep the posts plumb and also to allow for a sturdy foundation. Temporary manual bracing shall consist of 2x4's jammed between the nooks of the Purlin Support Assembly and stakes in the ground (or 50+ lb ballast blocks for sites where stakes will not hold or penetration is not allowed).

- Install temporary bracing on the first Purlin Support Assembly of each row.
- Pour concrete into tubs under the first 2 tables (4 pairs of tubs) of each row.
- Add temporary bracing on every 8th Purlin Support Assembly as the row is installed.
- When done with each row, add temporary bracing on the last Purlin Support Assembly.

Temporary Bracing with Stakes

Temporary Bracing with Ballast Blocks

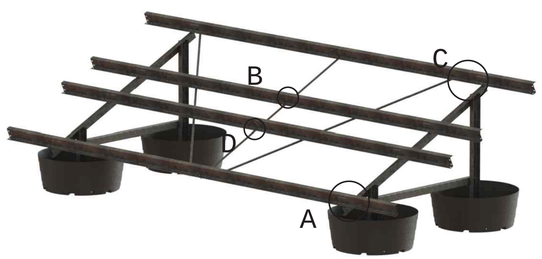
17) Make sure to pour concrete immediately if heavy wind (over 22mph) expected as it may blow assembled Purlins and Purlin Support Assemblies over and may be a safety hazard as well as causing damage or wasting time to set up again. At a minimum, make sure to pour a few Round Tubs (or place heavy rocks to hold the Horizontal Angles and Base Brackets) at the end of each row to prevent heavy wind (over 22 mph) from tipping over unfilled Round Tubs/racking.

18) After installation of Purlins has been completed, run a string along Upper and Lower Purlins from east to west across array, or use visual line of sight method to check for flatness of row. Elevate the Purlin Support Assemblies to level purlins where required by either of the following options:

- Adjusting Base Brackets (connect Base Bracket to Bottom sets of holes to raise Purlin Support Assembly, connect Base Bracket to top sets of holes to lower Purlin Support Assembly)
- Placing handfuls of additional riprap or 1 $\frac{1}{2}$ inch minus stone under tub to raise tub and Purlin Support Assembly.

19) Install Bend Strap, Roll Straps, and Purlin Angles using 3/8" bolts and flange nuts. Racks should "square up" when Purlin Angles are installed. Torque to specifications.

⚠ **It is very important that Roll Straps are taut.**



PARTS LIST			
Item No.	Description	Part No.	Material
1	North Post	GC361WP-N	Galvanized Steel G90
2	South Post	GC361WP-S	Galvanized Steel G90
3	Horizontal Channel	GC361WP-H	Galvanized Steel G90
4	NS Beam	GC862MT	Galvanized Steel G90
5	Horizontal Angle	GC275	Galvanized Steel G90
6	Base Bracket	GC999T	Galvanized Steel G90
7	Round Tub	GC281	HMWPE
8	EW Purlin	GC63 / GC63N	Galvanized Steel G90
9	Purlin Washer	GC126	Galvanized Steel G90
10	Bend Strap	GC871	Galvanized Steel G90
11	Roll Strap	GC873	Galvanized Steel G90
12	Purlin Angle	GC874	Galvanized Steel G90
13a	3/8-16 x 1" Hex Bolt		Magnicoat
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14b	1/4 Washer		HDG or Magnicoat
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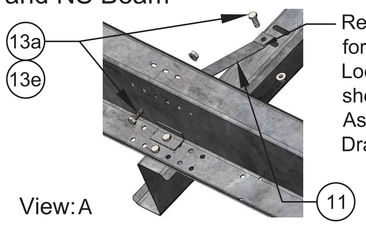
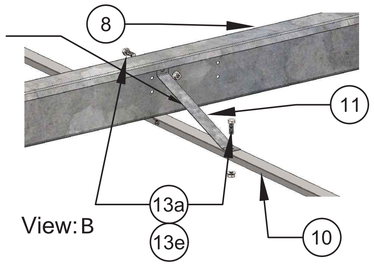
Roll Strap to EW Purlin and NS Beam

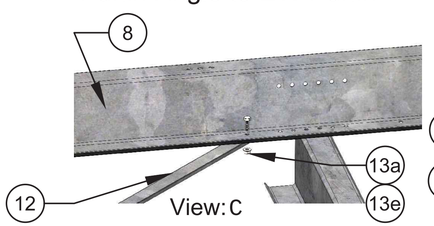


Repeat for all Locations shown in Assembly Drawing

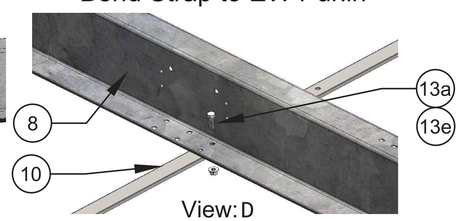
Roll Strap to Bend Strap/EW Purlin



Purlin Angle to EW Purlin



Bend Strap to EW Purlin



GC Pour-in-Place (Steel) System

- Use only GameChange parts. Use of other parts to complete the installation as substitutes may void the warranty.
- Make sure the ground structure (notably in the case of a capped landfill) is inspected and can support the loading resulting from the GC Pour-n-Place Ground System and provided PV modules.
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Tool Required

- String line
- 48 inch long level
- 30 foot tape measure
- Inclinometer with digital degree read out
- Impact Drill with interchangeable drivers
- 1/4" Drill Bit
- Wrenches and driver sockets, both standard and deep, in the following sizes:
  - 7/16 inch (for 1/4-inch hex bolts and nuts),
  - 9/16 inch (for 3/8-inch hex bolts and nuts),
- Torque Wrench. Torque bolt to appropriate torque range
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- Concrete mixture (weather and freeze-thaw resistant if required). See Pour-in-Place Installation Manual for concrete specifications
- Rack assembly jig made of plywood and 2"x4" wood.

Preventative Maintenance

- It is best practice to unbundle loads and install parts within several weeks of delivery so air is able to flow around parts and thus prevent white rust formation. In order to maintain the longest life possible for the protective zinc coating under the warranty, it is important to monitor for any severe white rust developments prior to installation and if this condition appears to take proper maintenance steps to remediate it. See the Pour-in-Place Installation Manual for more information.
- After Installation, installer must annually monitor for any surface rust that may occur over time. Identify any rust areas, wire brush area to remove rust, and coat with 80% zinc rich paint, or equivalent field life paint. This step is not required if rust is limited to edges which were cut during fabrication.
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Rev:	By:	Date:	Description:
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9	SC	05-15-2019	Revised Assembly/874 Count

Array Information

	PV Modules	Racking
Manufacturer	CSUN	Gamechange Solar
Model	CSUN345-72M	30-Degree Pour-In-Place
Dimensions	76.98" x 38.96" x 1.57"	
Weight	46.3 lbs	
Quantity	7722	790 Pairs of Tubs
Ground Clearance	30 in	

7722 modules at 345W

2.66 MW

Customer: **RER Energy Group**

Project: **Dewitt Landfill**

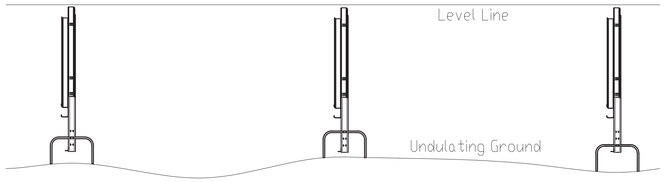
Project #:

Location: **6330 Fischer Rd, East Syracuse, NY 13057**

Pour-In-Place™ Ballasted Ground

Sheet #: 8 of 9

20) Vertical adjustability is set prior to pouring concrete. After Purlin installation is complete run a string along Upper and Lower Purlins, in the east west direction. Evaluate Purlin level.

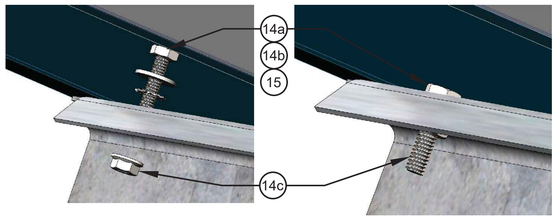


21) Pour Concrete. Concrete should first be poured in the center of the Round Tub, then use shovels to push to the ends. See Installation Manual for concrete specifications and best practices when pouring concrete. Use vibrator per industry standards to ensure concrete does not contain voids. **Do not allow vibrator or anything else touch the sides of the tub.** Use magnesium trowel to trowel wash around Posts so precipitation does not collect.

For best pouring results, it is recommeneded that tub locations be as close to level as practical. Make sure Round Tubs are lelvel with +/- 3% N-S and +/- 3% E-W.

22) Once tubs are filled, true up Posts and Purlins. Check tilt angle of NS Beam. Use vertical and lateral tolerance in Post to NS Beam connections to correct tilt angle as required.

23) Insert hex bolt through a 1/4" washer, the star washer, the mounting hole on the back of the panel, and then through the Purlin. Place a star washer at one mounting location per panel. Attach with a serrated flange nut. The bolt head should be on top and the serrated flange nut should be below the Purlin. Check again to make sure star washer is still in place. Torque to specifications. Repeat for all panels.



Check the install manual for the module you are installing to make sure that the panel mounting hardware and installation methodology recommended by GameChange mentioned below is acceptable. Otherwise you may risk voiding the warranty for your modules. It is also recommended to check that the panels are listed per UL 1703.

PARTS LIST

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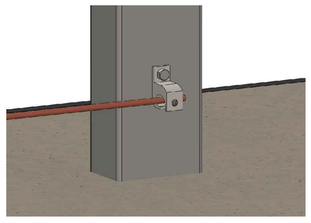
24) If weep holes are not present in tub walls, at least three days after concrete is poured, drill half inch (1/2") diameter weep holes on each side of the Tub, centered 2" above the ground level. This enables water to drain out.

25) The modules, EW Purlins and NS Beams are all bonded together, left to right, so that each row form one single structure. To achieve grounding of the system, GameChange recommends installing Cooper, Burndy, or Eaton UL approved grounding lug(s) with 1/4-inch bolts as in accordance with NEC Article 690 to the Post below the last EW Purlin which has panels attached to it which are to be bonded, using 8 gauge copper wire or larger.



The Purlin to Purlin bonded connection is rated for up to 30 amps. Therefore, conductors with expected currents greater than 30 amps may not be installed on the racking system without installing additional grounding measures.

The entire system needs to be grounded from a single point to an appropriate grounding source.

Please confirm with an electrician, as this is their responsibility

GC Pour-in-Place (Steel) System

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7722 modules at 345W

2.66 MW

Customer: **RER Energy Group**

Project: **Dewitt Landfill**

Project #:

Location: **6330 Fischer Rd, East Syracuse, NY 13057**

Pour-In-Place™ Ballasted Ground

Sheet #: 9 of 9

APPENDIX B
CME GEOTECHINCAL INVESTIGATION

CME Associates, Inc.

6035 Corporate Drive
East Syracuse, New York 13057
(315) 701-0522
(315) 701-0526 (Fax)

www.cmeassociates.com

Transmittal

December 12, 2018

C&S Companies
499 Col. Eileen Collins Blvd.
Syracuse, New York 13212

Attn: Mr. Bryan Bayer

Re: RER Energy Group (RER) – Town of Dewitt Landfill 2.6 MW Solar PV Array
Dewitt, New York
CME Project No.: 27445-05

Gentlepeople:

Enclosed you will find….

Number of Copies	Report Number
1	27445Y-01

Respectfully submitted,
CME Associates, Inc.

Anas N. Anasthas, P.E.
Geotechnical Engineer
AA.tam

CME Associates, Inc.

6035 Corporate Drive
East Syracuse, New York 13057
(315) 701-0522
(315) 701-0526 (Fax)

www.cmeassociates.com

DAILY PROGRESS REPORT

PROJECT:	RER Energy Group (RER) – Town of Dewitt Landfill 2.6 MW Solar PV Array, Dewitt New York	**PAGE:** 1 of 8	**REPORT NO.:** 27445Y-01
CLIENT:	C&S Companies		**REPRESENTATIVE:** D. Stabile, MSI / N. Smith, P.G.
DATE:	12/04/18-12/05/18	**WEATHER:** Overcast/Clear	**TEMPERATURE:** 25 °F (12/4/18) 20 °F (12/5/18)

The above referenced CME representatives were on site at the subject project to perform Static Load Tests.

Static Load tests were performed in general conformance with ASTM D1194-94 "Standard Test Method for Bearing Capacity of Soil for Static Load and Spread Footings" with the following exceptions:

1. A 20-ton jack assembly was utilized in lieu of the 50-ton jack assembly specified in the referenced ASTM standard, Section 3.2. The 20-ton jack assembly used was more than sufficient for the relatively small test load (1-ton) specified by client.

2. The reference beam utilized was 8' total length, and therefore was supported at lengths of 4' from the center of the loaded area. The referenced ASTM standard, Section 4.5 calls for reference beam supports at 8' from the center. This change, in CME's professional opinion, will not adversely affect the test readings due to the relatively small test load being used.

3. The test method calls for the load to be decreased incrementally so that rebound can be measured. However, due to the utilization of a hydraulic ram and jack, the test load could not be incrementally reduced and therefore, no rebound measurements could be made.

Three test locations were selected during a site visit with representatives from Client, CME, and Gamechange Solar. Please reference page 8 of this report for approximate test locations, selected by Client.

At each test location, grass and topsoil were removed to expose undisturbed subgrade. A 1" thick, 12" x 12" plate was set on subgrade and leveled. A dial indicator affixed to a separate reference beam was then placed and zeroed. The test load was then applied to the plate in 200 lbs. ($\frac{1}{10}^{th}$ of the test load) increments and held for 15 minutes. Deflection was recorded during each loading increment. After the termination of each test, the removed topsoil and grass were placed and compacted back into the hole.

Please reference the attached pages of this report for test results and details.

Test No. 1

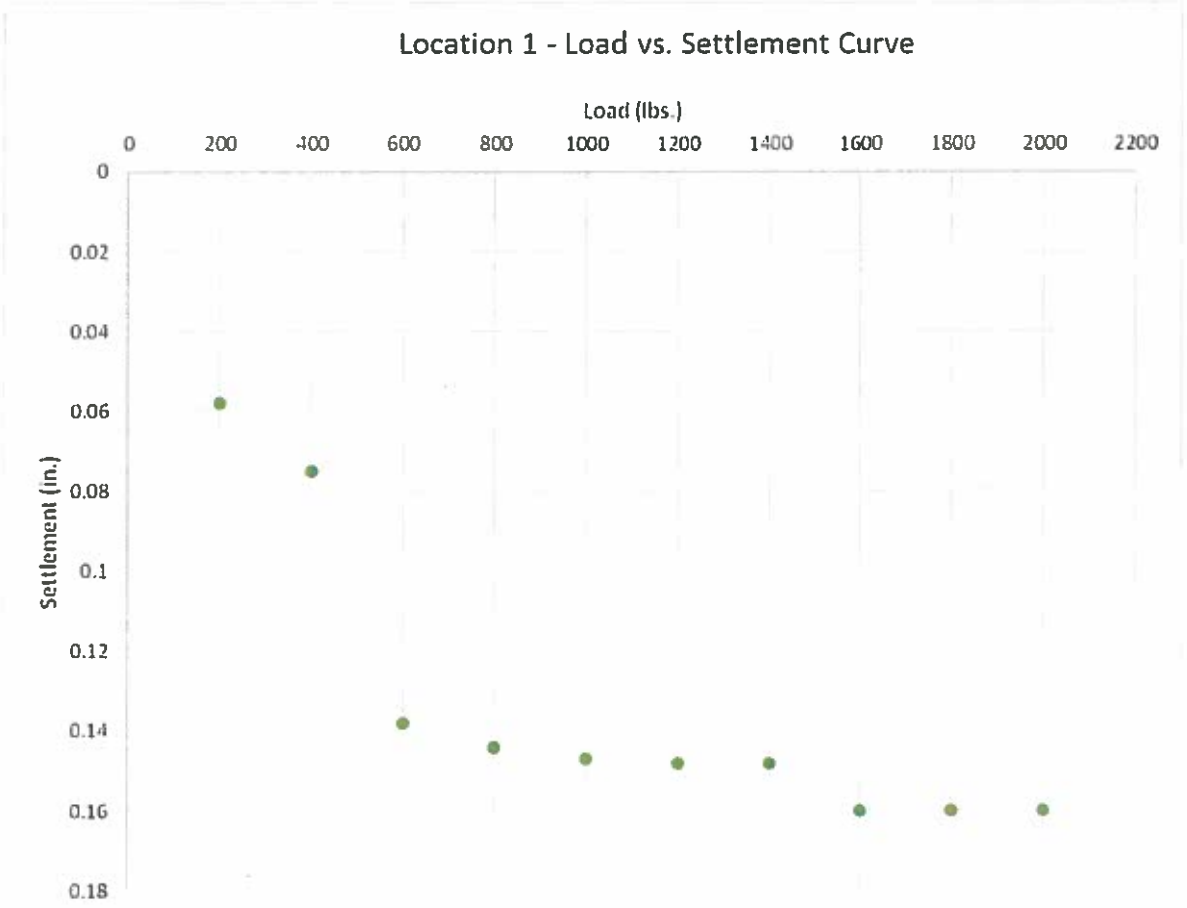
Test elevation = 7.5" below existing grade / Ambient Temp = 25°F / Soil Temp = 40°F
Groundwater entered the surface after applying the 400 lb. load. As test load was increased, groundwater continued to rise to about 1-1/8" above test surface.

Photographs of Test No. 1 Setup

Test No. 1 – Load vs. Settlement Data

Test 1- Time, Load and Settlement Data						
Load (lbs)	Settlement (in.)					
	0.5 min	1 min	2 min	4 min	8 min	15 min
200	0.058	0.058	0.058	0.058	0.058	0.058
400	0.058	0.058	0.058	0.060	0.075	0.075
600	0.099	0.100	0.100	0.134	0.138	0.138
800	0.140	0.140	0.140	0.144	0.144	0.144
1000	0.144	0.144	0.144	0.144	0.145	0.147
1200	0.148	0.148	0.148	0.148	0.148	0.148
1400	0.148	0.148	0.148	0.148	0.148	0.148
1600	0.154	0.154	0.160	0.160	0.160	0.160
1800	0.160	0.160	0.160	0.160	0.160	0.160
2000	0.160	0.160	0.160	0.160	0.160	0.160

Test No. 1- Load vs. Settlement Curve



Test No. 2

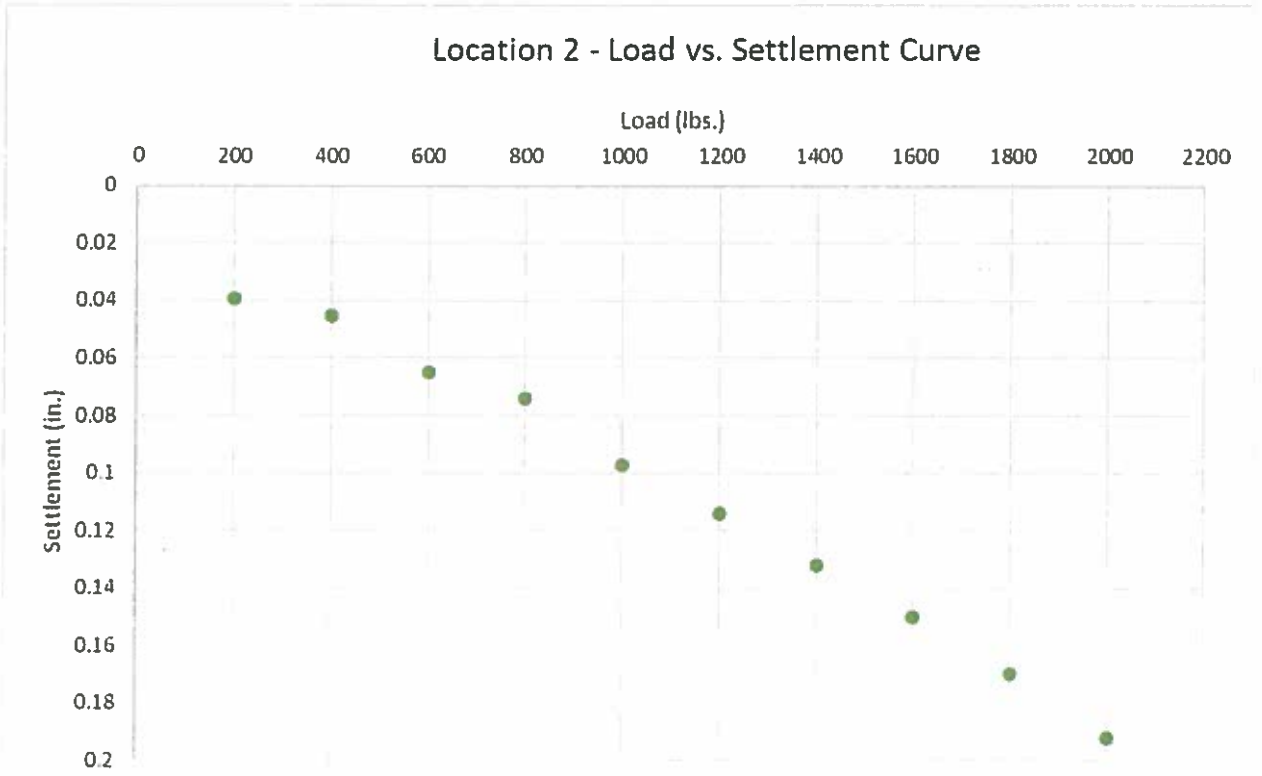
Test elevation = 7" below existing grade / Ambient Temp = 30°F / Soil Temp = 40°F

Photographs of Test No. 2 Setup

Test No. 2 – Load vs. Settlement Data

Test 2- Time, Load and Settlement Data						
Load (lbs)	Settlement (in.)					
	0.5 min	1 min	2 min	4 min	8 min	15 min
200	0.020	0.024	0.030	0.030	0.035	0.039
400	0.039	0.041	0.043	0.043	0.045	0.045
600	0.056	0.058	0.061	0.061	0.065	0.065
800	0.072	0.072	0.072	0.073	0.073	0.074
1000	0.087	0.090	0.092	0.095	0.097	0.097
1200	0.098	0.102	0.107	0.109	0.112	0.114
1400	0.121	0.123	0.125	0.127	0.132	0.132
1600	0.138	0.141	0.145	0.147	0.148	0.150
1800	0.154	0.160	0.163	0.165	0.170	0.170
2000	0.175	0.177	0.180	0.182	0.190	0.192

Test No. 2 – Load vs. Settlement Curve



Test No. 3

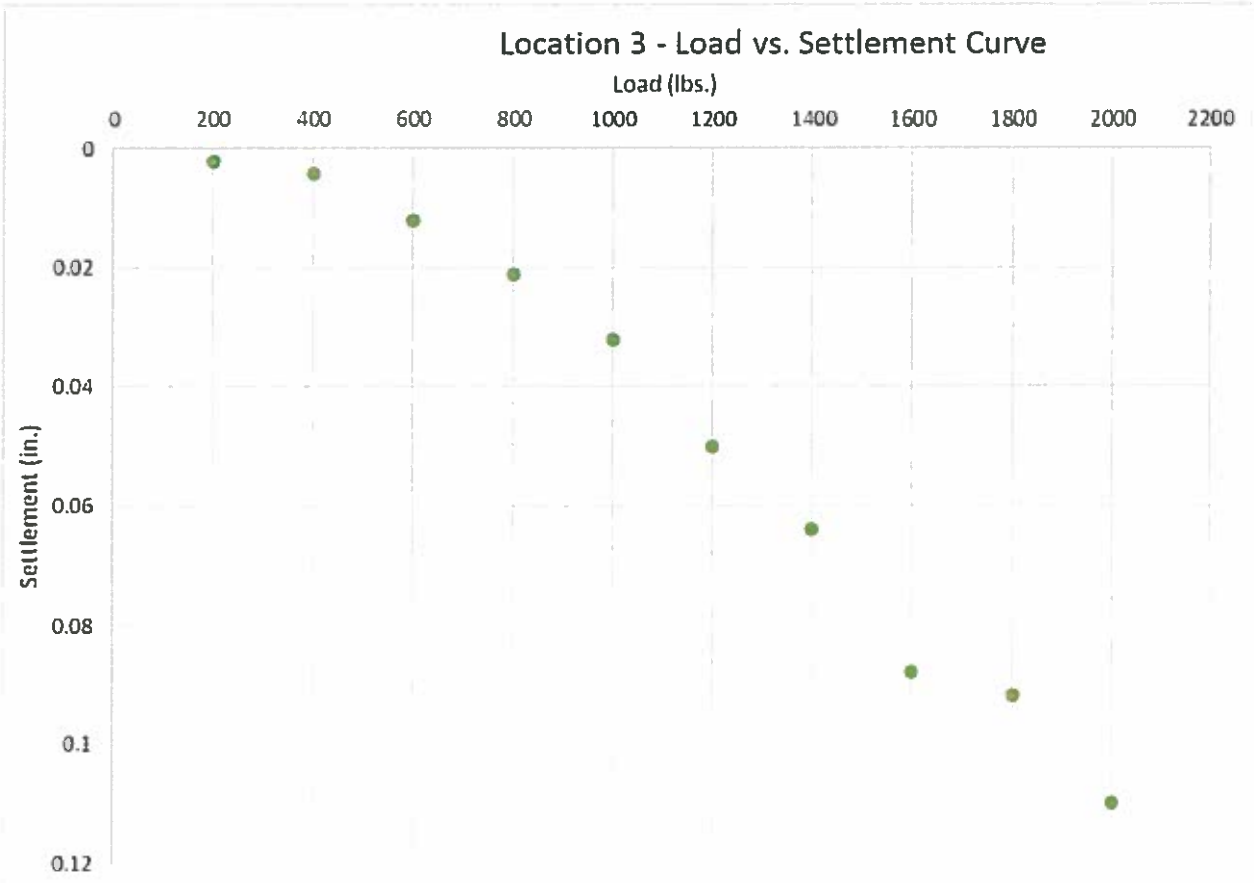
Test elevation = 8" below existing grade /Ambient Temp = 20°F / Soil Temp = 40°F

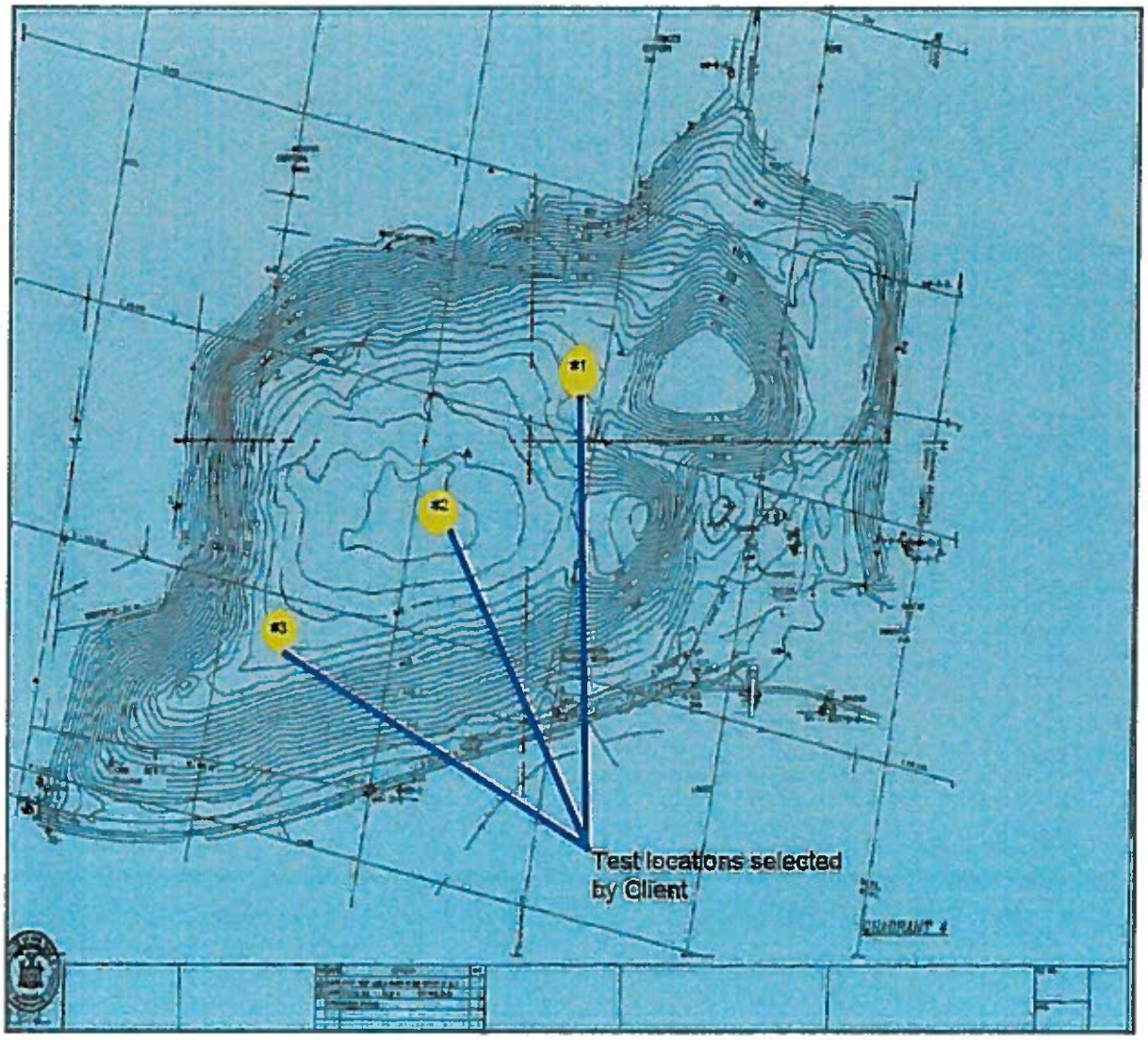
Photographs of Test No. 3 Setup

Test No. 3 – Load vs. Settlement Data

Test 3- Time, Load and Settlement Data						
Load (lbs)	Settlement (in.)					
	0.5 min	1 min	2 min	4 min	8 min	15 min
200	0.002	0.002	0.002	0.002	0.002	0.002
400	0.004	0.004	0.004	0.004	0.004	0.004
600	0.005	0.007	0.008	0.010	0.012	0.012
800	0.014	0.016	0.018	0.018	0.020	0.021
1000	0.022	0.023	0.024	0.027	0.031	0.032
1200	0.038	0.040	0.042	0.045	0.050	0.050
1400	0.054	0.055	0.057	0.059	0.060	0.064
1600	0.099	0.101	0.102	0.102	0.096	0.088
1800	0.090	0.090	0.090	0.092	0.092	0.092
2000	0.095	0.097	0.097	0.097	0.100	0.110

Test No. 3 – Load vs. Settlement Curve




#1
#2
#3
Test locations selected
by Client

APPENDIX C
CONSTRUCTION INSPECTION REPORTS & PHOTOGRAPHS

DAILY WORK REPORT

(6/2016)

Project Identification

V34001001 Town of Dewitt Solar

Date: August 15th 2019

Day of Week: S | M | T | W | (T) | F | S

Sheet 1 of ____ DWR No. _____

	AM	PM
Weather		Sunny
Temp.	°F	78 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

3 employees from CNR solar were on site. An access road leading to the top of the landfill is in place. The contractor has the racking frames assembled in stacks and the crew is beginning to mark out the rows for the array. There are light vehicle tracks throughout the site. Area surrounding a few vent pipes has recently been regraded by Town.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification
Town of Dewitt Solar
V34001001

Date: August 22nd 2019

Day of Week: S | M | T | W | (T) | F | S

Sheet 2 of ____ DWR No. _____

	AM	PM
Weather		Sunny
Temp.	°F	75 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

CNR Solar was on site

They were assembling A-frames and beginning to put in place the first row of the racking system

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification
Town of Dewitt Landfill Solar

Date: August 29 2019

Day of Week: S | M | T | W | (T) | F | S

Sheet 3 of ____ DWR No. ____

	AM	PM
Weather		Sunny
Temp.	°F	72 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Three employees from CNR Solar were on site assembling the solar frames. The tubs and stone have been placed for the first row of panels. Rutting from vehicle traffic was noted on the ground

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification
Town of Dewitt Landfill Solar

Date: September 5th 2019

Day of Week: S | M | T | W | T | (F) | S

Sheet 4 of ____ DWR No. _____

	AM	PM
Weather		Sunny
Temp.	°F	70 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Completion of A-Frame assembly, continue to build racking and place tubs in other rows. Concern with proximity of tubs/racking to vent pipes in design layout. Rutting and wear on grass from vehicles noted.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

9/19/2019

(6/2016)

Project Identification

Town of Dewitt Landfill Solar Array

Date: [redacted]

Day of Week: S | M | T | W | (T) | F | S

Sheet 5 of ____ DWR No. ____

	AM	PM
Weather		Sunny
Temp.	°F	75 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Fuel tank is currently on site at bottom of access road/near the perimeter road sitting atop stone on top of filter fabric. Filter sock check dams have been placed at connection of access road and perimeter road.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Town of Dewitt Landfill Solar Array

Date: 9/25/19

Day of Week: S | M | T | (W) | T | F | S

Sheet 6 of ____ DWR No. _____

	AM	PM
Weather		Sunny
Temp.	°F	78 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Portion of access road at top of landfill moved. Beginning placement of multiple rows of tubs and racks.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Solar Array - Town of Dewitt landfill

Date: 10/4/2019

Day of Week: S | M | T | W | T | (F) | S

Sheet 1 of ____ DWR No. _____

	AM	PM
Weather		Overcast
Temp.	°F	50 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Noted rutting and wear of gravel on access road as well as grass along access road from construction vehicles as well as town vehicles. Access road being placed running alongside east of array. Several (approx. 10) rows of panel racking are up with stone and tubs placed for additional rows

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Dewitt Landfill Solar Array

Date: 10/11/19

Day of Week: S | M | T | W | T | (F) | S

Sheet 8 of ___ DWR No. _____

	AM	PM
Weather		Sunny
Temp.	°F	65 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Change in design - more panels be added due to smaller wattage panels being used. Ponding noted in rutting, along berm. Racking is up alongside eastern portion of the array, beginning to work west

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Dewitt Landfill Solar

Date: 10/18/2019

Day of Week: S | M | T | W | T | F | S

Sheet 9 of ____ DWR No. _____

	AM	PM
Weather		Overcast
Temp.	°F	45 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Ponding noted alongside access road and in fire ruts as well as along berm. Raceway CNR is continuing in assembling racking, placing additional stone below subs where water ponding is significant. There is some concern/ discussion about best method of bringing up concrete

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Town of Dewitt Solar Array

Date: 11/1/19

Day of Week: S | M | T | W | T | F | S

Sheet 10 of ____ DWR No. _____

	AM	PM
Weather		Overcast
Temp.	°F	40 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

A concrete washout has been assembled in the staging area at the bottom of the road to the landfill. Pouring of concrete into tubs has begun. Concrete pump piping has been laid out up the hill

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Dewitt Landfill Solar

Date: 11/15/19

Day of Week: S | M | T | W | T | (F) | S

Sheet 11 of ____ DWR No. ____

	AM	PM
Weather		Cloudy
Temp.	°F	40 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Concrete trucks were on site pumping concrete up to be used to fill tubs. Concrete is pumped up to top of landfill, filled into the track loader bucket and driven to the tublorations. Some concrete is spilling onto ground due to nature of tub having open bottoms. Mud and rutting being created due to constant vehicle tracks between rows, hay being placed to help

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Date: 12/4/2019

Day of Week: S M T (W) T F S

Sheet 12 of ____ DWR No. _____

	AM	PM
Weather		Cloudy
Temp.	°F	35 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Contractor is not finished with concrete work, not all tubs are filled with concrete. Rocks that are stabilized with concrete are beginning to be fitted with panels.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Town of Dewitt Landfill-Solar Array

Date: 1/31/2020

Day of Week: S | M | T | W | T | (F) | S

Sheet 13 of ___ DWR No. _____

	AM	PM
Weather		Cloudy
Temp.	°F	40 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Anticipate pouring / testing concrete for transformer pad next week. Continue pumping concrete and filling tubs. Significant ponding in some areas. Extremely muddy conditions with significant rutting and ponding in ruts due to vehicle traffic.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Town of Dewitt Landfill - Solar

Date: 1/10/2020

Day of Week: S | M | T | W | T | F | S

Sheet 14 of ____ DWR No. ____

	AM	PM
Weather		Rain
Temp.	°F	40 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

CNR Solar is continuing to place concrete in the tubs utilizing the buckets on the track loaders. The area where the transformer pad has stone down and is getting ready for the pad ~~to be prepared~~ to be formed and poured. Significant rutting and muddy conditions in high traffic areas

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Dewitt Landfill Solar Array

Date: 1/15/2020

Day of Week: S M T (W) T F S

Sheet 15 of ____ DWR No. ____

	AM	PM
Weather	Cloudy	
Temp.	35 °F	°F

Contractor Work Hours: ____ to ____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Concrete for transformer pad is being poured and tested. Roughly half of the panels have been placed on the racks. Ponding noted along access road at the top of the landfill. The site is in muddy conditions, no snow on the ground. Area surrounding transformer pad has significant disturbance

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: ____ Date Prepared ____

Reviewed By: ____ Date Reviewed ____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Dewitt Landfill Solar

Date: 11/23/20

Day of Week: S | M | T | W | (T) | F | S

Sheet 16 of ____ DWR No. ____

	AM	PM
Weather		Cloudy
Temp.	°F	35 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

CNR Solar is continuing to place panels, anticipating having all panels placed next week. Significant ground disturbance from vehicle traffic noted

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Town of Dewitt Landfill - Solar

Date: 1/30/2020

Day of Week: S | M | T | W | (T) | F | S

Sheet 17 of ____ DWR No. _____

	AM	PM
Weather		Cloudy
Temp.	°F	°F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Almost all panels are on the racking, beginning to affix hardware to panels. Significant bonding in nuts and low spots across the site, water has frozen.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Date: 2/11/20

Day of Week: S M (T) W T F S

Sheet 14 of ____ DWR No. _____

	AM	PM
Weather		
Temp.	35 °F	°F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Transformer arrived onsite this morning. Transformer is being transported to the pad at the top of the landfill using an excavator with a ground pressure of 5 psi.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Date: 2/21/20

Day of Week: S | M | T | W | T | (F) | S

Sheet 19 of ____ DWR No. _____

	AM	PM
Weather		Sunny
Temp.	°F	30 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

The transformer is in place on the concrete pad. required additional excavator from the efforts noted on 2/11/20.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Date: 8/2/2020

Day of Week: S (M) T W T F S

Sheet 20 of ____ DWR No. _____

	AM	PM
Weather		
Temp.	15 °F	°F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Anticipate electrical poles to be placed at ~~Beginning~~ Deer entrance of site in the next week. Remnants of concrete work and the concrete washout are gone from the site. A

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Dewitt Landfill Solar Array

Date: 3/12/20

Day of Week: S | M | T | W | (T) | F | S

Sheet 21 of ___ DWR No. _____

	AM	PM
Weather		cloudy
Temp.	°F	50 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

The 3 utility roads at the access road leading into the landfill will be placed at roughly 60' spacing within the next week. The transformer was leaking oil (biodegradable) on 3-6. The contaminated soil is still onsite, contained in a lined box waiting to be tested. Contractor anticipates running conduit to bottom of landfill Monday of next week

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Town of Dewitt Landfill Solar Array

Date: 5/11/2020

Day of Week: S | (M) | T | W | T | F | S

Sheet 22 of ____ DWR No. _____

	AM	PM
Weather		
Temp.	°F	50 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Contractor work over past few weeks sporadic/ temporarily halted due to government shut downs. Conduit piping has been run down to bottom of landfill to utility pole. Contractor has begun with some site grading, particularly around transformer pad. Straw has been placed in muddy spots around the site. Conduit piping is laid out connecting the solar arrays

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

☐

DAILY WORK REPORT

(6/2016)

Project Identification

Dewitt Landfill Solar

Date: 5/18/20

Day of Week: S (M) T W T F S

Sheet 23 of ___ DWR No. _____

	AM	PM
Weather		overcast
Temp.	°F	60 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

The electrical cable is connected vertically to the utility poles, but a connection with the existing national grid poles has not been made yet. Contractor still needs to finish wiring and testing, as well as grading and topsoiling

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

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C&S Form 2-1S
(3/2015)

DAILY WORK REPORT

Project Stamp

Town of Dewitt Landfill - Solar Array

Date: 5/28/2020

Day of Week: S M T W (T) F S

Sheet 24 of ____ DWR No. _____

	AM	PM
Weather	Cloudy	
Temp.	70 °F	°F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Contractor is working on completing pipe work so they can go through and begin pulling wires. Contractor is beginning to fill and topsoil areas where rutting and ground disturbance had occurred. A layer of topsoil will be placed over the majority of the conduit piping connecting the array rows. There are some areas of concern for this practice as the topsoiled pipes will act as a berm in places where the flow is perpendicular. Significant ponding was noted along the northeast end of panel rows.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared 5/28/20

Reviewed By: _____ Date Reviewed _____

C&S Form 2-1S
(3/2015)

DAILY WORK REPORT

Project Stamp

Dewitt Landfill Solar Array

Date: 6-4-2020

Day of Week: S M T W (T) F S

Sheet 25 of ____ DWR No. _____

	AM	PM
Weather		Sunny
Temp.	°F	85 °F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Utility connection to national grid poles still has not been made. CNR solar has begun pulling wires through the conduit. They also have topsoil on site and are beginning to stone and topsoil over conduit piping. Ponding still noted across site.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: Cam Chm Date Prepared 6-4-20

Reviewed By: _____ Date Reviewed _____

C&S Form 2-1S
(3/2015)

DAILY WORK REPORT

Project Stamp

Town of Dewitt Solar Array

Date: 6-12-20

Day of Week: S | M | T | W | T | (F) | S

Sheet 26 of ____ DWR No. _____

	AM	PM
Weather	Sunny	
Temp.	70 °F	°F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

CNR Solar onsite, working on torque marking the panels, as well as doing some electrical and site work. All wires have been pulled through the piping, contractor anticipates being finished with wiring next week. Work on grading up to the transformer pad has begun, as well as regrading area around transformer pad that experienced significant disturbance

Concern with piping going into the west side of the transformer pad prohibiting the flow of water resulting in ponding

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

C&S Form 2-1S
(3/2015)

DAILY WORK REPORT

Project Stamp

Dewitt Landfill Solar Array

Date: 6-18-20

Day of Week:

S	M	T	W	T	F	S

Sheet 21 of ____ DWR No. _____

	AM	PM
Weather	Sunny	
Temp.	80 °F	°F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Stone and topsoil has been placed over majority of pipes. Small crew on site working on grading and electrical work

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

C&S Form 2-1S
(3/2015)

DAILY WORK REPORT

Project Stamp

Town of Dewitt Landfill - Solar Array

Date: 6-25-20

Day of Week: S | M | T | W | T | F | S

Sheet 28 of ____ DWR No. _____

	AM	PM
Weather		
Temp.	°F	°F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Contractor is working on testing wires and regrading disturbed areas across the site. Anticipate IV testing of the panels within the next week. Topsoil for regrading is being done with the Kubota track loader. Stone has been placed in some areas where ponding, rutting was significant, Still require a layer of topsoil. Areas on the site Still need to be back bladed to regrade.

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

Reviewed By: _____ Date Reviewed _____

C&S Form 2-1S
(3/2015)

DAILY WORK REPORT

Project Stamp

Dewitt Landfill Solar

Date: 7-1-20

Day of Week: S M T (W) T F S

Sheet 29 of ____ DWR No. _____

	AM	PM
Weather	Sunny	
Temp.	75 °F	°F

Contractor Work Hours: _____ to _____

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

The section of piping that was of concern in regards to berming water has been lifted on blocks, with soil placed on sides leaving middle with no soil. This will allow water to flow under pipes and reduce ponding. Seed mixture has not been decided on. CVR Solar has been working on grading and testing wires. They still need to seed and lay access road on west side of the array. Concrete barriers will be placed around conduit running from the west into transformer pad to allow for water to flow while preventing vehicles from hitting pipes

Contract Pay Item No.	Quantity	Units	QTY CHK	Description/Location	ENT	CHK

I certify that the work described in this report was incorporated into this contract on the date of this DWR, unless otherwise noted.

Inspector's Signature: _____ Date Prepared _____

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APPENDIX D
EQUIPMENT SPECIFICATIONS

For Earth, For Life
Kubota

SVL

KUBOTA COMPACT TRACK LOADER

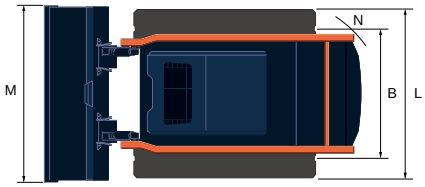
SVL75-2 / SVL95-2s

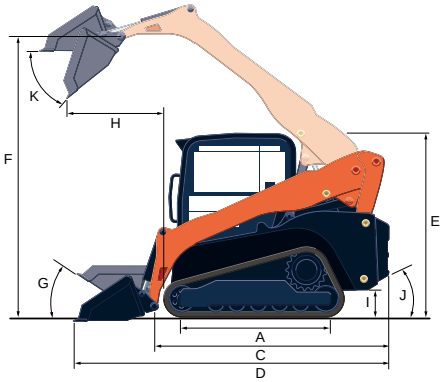
The outstanding power and exceptional comfort of Kubota's new Compact Track Loaders take high performance and productivity to a new level.

SPECIFICATIONS

Model				SVL75-2	SVL95-2s
Type of operator station				Open CAB / Closed CAB	Open CAB / Closed CAB
Engine	Model			V3307-CR-TE4	V3800-TIEF4
	Emission certification			Tier 4	Tier 4
	Gross HP (SAE J1995)		HP (kW)/rpm	74.3 (55.4)/2400	96.4 (71.9)/2400
	Net HP (SAE J1349)		HP (kW)/rpm	68.8 (51.3)/2400	87.0 (64.9)/2400
	Displacement		cu.in. (cc)	203.3 (3331)	230.0 (3769)
	Cylinders			4	4
	Bore × Stroke		in.(mm)	3.7 (94) × 4.72 (120)	3.94 (100) × 4.72 (120)
	Aspiration			Turbocharged	Turbocharged
Loader Performance	Rated operating capacity-35% tipping load		lbs. (kg)	2300 (1043)	3200 (1451)
	Tipping load		lbs. (kg)	6570 (2980)	9143 (4147)
	Breakout force	Bucket	lbf. (kg)	6204 (2814)	7961 (3611)
		Lift arm	lbf. (kg)	4766 (2162)	6742 (3058)
	Lift arm path			Vertical	Vertical
Undercarriage	Track Width	Standard	in. (mm)	12.6 (320)	17.7 (450)
		Wide	in. (mm)	15.0 (380)	N/A
	Ground pressure	Standard	psi	5.6 / 5.8	4.4 / 4.5
		Wide	psi	4.7 / 4.9	N/A
	Track rollers (per side)			4	5
	Track ground contact length		in. (mm)	56.5 (1436)	65.6 (1667)
	Travel speed	Low	mph (km/h)	4.7 (7.5)	5.0 (8.0)
		High	mph (km/h)	7.1 (11.5)	7.3 (11.7)
	Traction force		lbs. (kg)	9678 (4390)	12178 (5524)
	Min. ground clearance		in. (mm)	11.7 (296)	11.5 (293)
Hydraulic system	Aux. hydraulic flow	Std./High	gpm (ℓ/min.)	17.4 (66.0) / 29.3 (110.9)	23.1 (87.6) / 40.0 (152)
	Aux. hydraulic pressure		psi (kgf/cm²)	3185 (224.0)	3553 (249.8)
Service refill capacities	Hydraulic system		gal. (ℓ)	15.9 (60)	17.96 (68)
	Hydraulic tank		gal. (ℓ)	9.2 (35)	10.1 (38.1)
	Fuel tank		gal. (ℓ)	24.6 (93)	28.8 (109)
	DEF tank		gal. (ℓ)	N/A	5.0 (18.8)
Operating weight (Includes operator weight 165lbs.)			lbs. (kg)	9039 (4100) / 9315 (4225)	11299 (5125) / 11574 (5250)

DIMENSIONS





Model			SVL75-2	SVL95-2s
A	Length of track on ground	in. (mm)	56.5 (1436)	65.6 (1667)
B	Track gauge	in. (mm)	53.3 (1355)	59.5 (1512)
C	Length w/o bucket	in. (mm)	109 (2768)	123.5 (3137)
D	Length w/bucket on ground	in. (mm)	140.8 (3576)	154.6 (3929)
E	Height to top of cab	in. (mm)	82 (2083)	83.3 (2116)
F	Bucket hinge pin height at max. lift	in. (mm)	119.1 (3025)	128.5 (3264)
G	Rollback angle at carry position	degree	27	27
H	Reach at max. lift and dump	in. (mm)	41.7 (1060)	40.7 (1035)
I	Ground clearance	in. (mm)	11.7 (296)	11.5 (293)
J	Departure angle	degree	31.5	31
K	Max. dump angle	degree	40	43
L	Vehicle width Standard track / Wide track	in. (mm)	65.9 (1675) / 68.3 (1735)	77.2 (1962)
M	Width with bucket	in. (mm)	68 (1727)	80 (2032)
N	Turning radius from center-machine rear	in. (mm)	107.1 (2720)	127 (3220)

APPENDIX E
NYSDEC SPILL CORRESPONDENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 7
615 Erie Boulevard West, Syracuse, NY 13204-2400
P: (315) 426-7519, (315) 426-7551 | F: (315) 426-2653
www.dec.ny.gov

June 2, 2020

Gordon Smith
RER Energy Group
Solar Project Developer
4700 Pottsville Pike
Reading, PA 19605

Re: Spill No.: 1911243

Dear Mr. Smith:

You requested the NYS Department of Environmental Conservation (the Department) make a determination that you have completed all required remedial activities with regard to the referenced spill site.

The Department has reviewed the records and data regarding the cleanup actions at the above referenced spill site. These records included, but were not limited to, site visit, SDS, disposal analytical results and disposal receipts provided by C&S Engineers. Based on such review, the Department has determined that you have completed the necessary cleanup and removal actions, and no further remedial activities are necessary.

Nothing contained herein shall be construed as barring, diminishing, or in any way limiting the Department's authority under the Navigation Law or the Environmental Conservation Law, including the authority to require additional remedial work, if necessary.

Should you have any questions concerning this matter, you may call me at (315) 426-7525.

Sincerely,

Stephanie Fitzgerald
Environmental Engineer

APPENDIX F
SOLAR ARRAY OPERATION & MAINTENANCE PLAN

GREEN STREET
POWER PARTNERS

GSPP DESCRIPTION OF SOLAR MAINTENANCE SERVICES

Full Site Visual Inspection

- PV Panel Condition
  - Inspect for cleanliness, cracked/chipped/scratched/ shattered panels, fading/discoloration, burn marks, seal condition, frame damage or rust
- PV Mounting Structure
  - Inspect mounts and mounting structures (loose panels, loose rack,/clips missing hardware, rusted bolts, flashing issues, ballast condition, rack anchor condition)
- PV Array Ventilation
  - Inspect conditions under panels, remove of any large debris or pests; visual check to ensure maximum ventilation under panels
- PV System Foundations
  - Roof mount arrays (visual review of roof conditions, check sealants around roof penetrations)
  - Ground mount arrays (visual inspection of grounds and vegetation, identify issues related to mud, water pooling, soil erosion)
  - Carport mount arrays (visual inspection of physical carport structure and ground condition)
- Balance of System
  - Inspect conduit runs (separated/cracked conduits, misaligned wire runs)
  - Inspect panel interconnectivity and string lines (wire/cable wear, wire fading, chewed wire due to pests, identify loose/detached wires)
  - Inspect junction/combiner enclosure(s) condition (seals, rust, damage, locks)
  - Inspect electrical equipment enclosure(s) (seals, rust, damage, door condition, locks, equipment pad(s))
- Inverter(s)
  - Inspect inverter structure(s) and enclosure(s) (seals, rust, damage, door condition, switch/handle condition, locks)
  - Inspect inverter equipment pad(s) (cracks, base damage, soil erosion)
- Data Acquisition System (DAS)
  - Weather stations condition (alignment of irradiance sensor, condition of wind and temperature meters)
  - DAS device condition (screen, seals, rust, damage)
- Shading Conditions
  - Visual inspection to identify any shading issues, preventive care if shading caused by nearby vegetation)
- Vegetation/Pest Conditions
  - Vegetation management (inspection for vegetation issues or tree branches or other plants/trees blocking panels/system, recommend corrective actions)
    - Inspect ballast tubs/blocks for signs of unusual settling, changes in elevation. And structural integrity (cracking, breakage).
    - Review ground conditions for soil depressions or regional pooling of water.
    - Review ground conditions for loss of vegetation.
  - Pest Control (review for insects, bird nests, squirrels, spider nests, etc.; Recommend corrective actions if necessary)
- System Security
  - Visually inspect fence line or confinement structures for wear, damage, breach, vandalism, or

other problems

- Visually inspect any electronic surveillance equipment (cameras, alarms, etc) and identify if operating.
- Check condition of any locks, chains or other protection measures preventing unauthorized access to the system

Site Visit(s) & Service Report(s)

- Service Reports: Include details of preventative maintenance work, such as electrical measurements, thermal images, and system testing results. Include non-conformance report to identify potential short-term and long-term power production issues
- Monthly Performance Metric Reports: Provide monthly system/inverter performance metrics against weather adjusted performance metrics.

Inverter Preventative Maintenance

- Conduct preventative maintenance in accordance with manufacturer specifications
- Clean and vacuum enclosure, vents and heat sink / remove any identifiable debris and clean any accumulation of dust
- Change air filters according to manufacturer specifications (***filters are billed at cost, installation is included in O&M fees)
- Check fuses and switchboards (visually inspect for signs of corrosion/burning of components)
- Check wiring (visually inspect for breaks, deterioration or signs of corrosion/burning, check cable wire protection**)**
- Maintenance requirements that must occur more frequently than annually are NOT included

MV Transformer & Switchgear Maintenance

- Transformer – Oil and gas analysis, infrared image connections, positive nitrogen charge (if required), record oil temp, level, PSI, visually inspect terminations
- MV Switchgear - Trip test protection devices, verify electrical controls, download relay event files, operate disconnects, visual inspection of Terminations, verify meter operation

Warranty Enforcement

- Make and coordinate claims for reimbursement and/or replacement under any available warranty from manufacturers, installers or other similar entities relating to the System; Assistance from Owner/Customer may be required

String level Voc, DC operating current / Drone IR Scans

- For PV sites that do not have string or zone level monitoring, perform testing to measure the open circuit voltage (V_{oc}) and operating current of each string in the system. Alternatively, conduct aerial thermography (via Drone IR site scans) of all modules do identify string outages and/or potential module issues
- Analyze and document any anomalies that effect system performance and propose correct actions if necessary

String Level IV Curve Tracing

- Perform string level IV Curve tracing with a minimum of 400 w/m^2 irradiance
- Perform annual testing on 25% of the site's strings per year, moving on to a different 25% of the site each year to close a complete I-V curve testing cycle in 4 years.
- Perform IV curve testing on 6 individual modules throughout the site, keeping them constant every year to study the evolution of degradation on the panels.
- Analyze and document any anomalies that effect system performance and propose correct actions if necessary

Thermal Imaging Combiners, Inverters and Disconnects

- Thermal imaging of combiners, inverters and disconnects by a trained thermographer

- Analyze and document all images taken, identify any potential hot spots and propose correct actions if necessary

System Performance Monitoring: (System login information required)

- Using the DAS, monitor on a daily basis, the day-to-day system output and performance
- Nonconformance – Identify performance departures; Dispatch per contract scope or upon notice from Owner or the DAS that the system is not performing in accordance with the specifications as set forth in the Agreement/SOW

Dispatch Commitment

- Dispatch resources in response to alerts/service requests received by Customer. Response time is per O&M contract level (see table). On-site labor is billed on a T&M basis when request is made or alert received.

O&M Solar Services	Frequency
Full Site Visual Inspection & Report	Semi-Annually
Performance and Analytical Reports	Monthly
Inverter Preventative Maintenance	Annually
Thermal Imaging Combiners, Inverters, Disconnects	100% Annually
MET Station Inspections	Annually
MV Equipment Preventive Maintenance	Bi-Annually
Aerial Module Thermography	Annually
String Electrical Testing Voc/Imp*	As Required
Daily System Performance Monitoring	24/7
Dispatch Commitment (Time & Materials fees apply)	24/7

* If Aerial Thermography is not allowed by FAA regulations

APPENDIX G
NYSDEC ARTICLE 24 FRESHWATER WETLANDS PERMIT

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 7
615 Erie Boulevard West, Syracuse, NY 13204-2400
P: (315) 426-7438 | F: (315) 426-7425
www.dec.ny.gov

April 25, 2019

RER Energy Group LLC
4700 Pottsville Pike
Reading, PA 19605

Dear Permittee,

Enclosed is your NYSDEC Freshwater Wetlands permit as requested. Please take some time to review the permit and note:

1. The permit is valid for only that activity specifically represented in your permit application and authorized in writing in the permit itself. Any deviation from the activity authorized in the permit or described in your application may require additional approval(s) or corrective action;
2. Review the General and Special Conditions carefully. If you are unsure of your obligations under the permit, please bring your questions to our attention;
3. If, for any reason, you believe you will be unable to comply or remain in compliance with the terms of your permit, please contact us;
4. Please check the expiration date and any requirements for renewal or modification of your permit;
5. Please keep the permit in a safe place for reference and a copy at the work site and have your contractor read and abide by its conditions;
6. The identification numbers help us communicate with you. Please reference them in any subsequent communications;
7. **Caution: Your project may be subject to the jurisdiction of the US Army Corps of Engineers, and need additional permitting. Contact them in the Auburn Field Office at 315-255-8090 with any questions.**
8. Be advised, the Uniform Procedures Regulations (6NYCRR Part 621) provide that an applicant may request a public hearing if a permit is denied or contains conditions which are unacceptable to them. Any such request must be made in writing within 30 calendar days of the date of permit issuance and must be addressed to the Regional Permit Administrator at the letterhead address.

If you have any questions, please contact me at 315-426-7445. Thank you.

Sincerely,

Trendon Choe
Environmental Analyst
trendon.choe@dec.ny.gov

Enc. Permit 7-3126-00376
cc: Tiffany Toukatly- DEC BOH
Stephanie Fitzgerald, DEC DER
US Army Corps of Engineers
Bryan Bayer – C & S Companies
Edward M. Michalenko, Sam Gordon – Town of Dewitt
John A. Bonafide – NYS Parks, Recreation and Historic Preservation

PERMIT

Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
RER Energy Group LLC
4700 Pottsville Pike
Reading, PA 19605
(717) 554-5801

Facility:
DEWITT LANDFILL SOLAR PROJECT
6330 FISHER RD
EAST SYRACUSE, NY 13057

Facility Location: in DEWITT in ONONDAGA COUNTY
Facility Principal Reference Point: NYTM-E: 415.189 NYTM-N: 4766.349
Latitude: 43°02'42.4" Longitude: 76°02'28.6"

Authorized Activity: Installation of a solar PV array and associated electrical distribution lines, specifically the installation of two utility poles within the adjacent area of regulated NYS Class 2 Freshwater Wetland, SYE-22, all in accordance with approved plans and permit conditions herein.

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 7-3126-00376/00001 (Freshwater Wetland ID SYE-22)
New Permit Effective Date: 4/25/2019 Expiration Date: 4/24/2022

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 7-3126-00376/00002
New Permit Effective Date: 4/25/2019 Expiration Date: 4/24/2022

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: KEVIN M BALDUZZI, Deputy Regional Permit Administrator
Address: NYSDEC Region 7 Headquarters
615 Erie Boulevard W
Syracuse, NY 13204 -2400

Authorized Signature: Kevin M. Balduzzi Date 4/25/19

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Bryan Bayer, C & S Engineers, Inc..

2. **Failure to Meet Permit Conditions** Failure of the permittee to meet all the conditions of this permit is a violation of this permit and grounds for an order to immediately cease the permitted activity at the project site.

3. **Prior Approval of Changes** If the Permittee desires to make any changes in construction techniques, species to be planted, the site plan, any mitigation plan, scheduling or staging of construction, or any other aspect of this project, the Permittee shall submit a written request to the Regional Permit Administrator to make such proposed changes and shall not make such changes unless authorized in writing by the Department.

4. **Notify DEC 48 Hrs Prior to Work** The permittee or a representative must contact by telephone Tiffany Toukatly at (607) 753-3095 x 206 least 48 hours prior to the commencement of the project authorized herein.

5. **Invasive Species (Non-native Vegetation)** To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment be cleaned of mud, seeds, vegetation and other debris before entering and leaving any approved construction areas within the state regulated freshwater wetland or its 100 foot adjacent area.

6. **Minimize Adverse Impacts to Wetlands, Wildlife, Water** All work must be performed in a manner which minimizes adverse impacts to wetlands, wildlife, water quality and natural resources.

7. **No Wetland Disturbance** There shall be no wetland disturbance while project is being developed and conducted.

8. **Timing of Wetland Work** Work shall occur in wetland and regulated adjacent areas when soils are dry enough to support equipment without forming ruts. Low ground pressure equipment is preferred. No equipment crossing or operating in standing water. If access is absolutely needed during/after a rain event or through softer soils where rutting is anticipated, wetland matting must be used.

9. **Install Erosion Controls** Before any soil is disturbed on the subject site, the permittee shall install erosion and sedimentation controls (such as silt fencing, sediment traps or settling basins) which are adequate to prevent erosion and sedimentation on and off-site. Such controls shall be maintained until no erosion is apparent and the vegetation cover adequately (80% or more) will prevent erosion and sedimentation on and off such site. Once the site is adequately stabilized, the erosion controls must be taken out. Before such controls are removed, the permittee shall remove all sediment that has accumulated at such controls.

10. **Fueling Equipment** All equipment, including pumps, must be fueled in a location at least 100 feet from the wetland. If any pump is operated closer than 100 feet from the wetland, it must be on an impervious surface with absorbents capable of containing any leakage of petroleum products. Any reportable leakage must be reported as per regulations. A spill kit must be on site to contain and clean up any leaks that may occur during work. Follow NYSDEC spills reporting procedure by contacting the NYS Spill Hotline: 1-800-457-7362. Any leakage not meeting reportable threshold must be immediately cleaned up and disposed of properly.

11. **Equipment and Materials Storage** Equipment must be stored in a location and manner that will prevent any leakage of deleterious substances from reaching the wetland. Erodible materials, if not used in the same day as delivery, will be contained by properly installed silt fence or strawbales.

12. **Seed and Mulch** All areas of disturbed soils shall be seeded and mulched with an appropriate conservation mix within two days of project completion, within two days of final grading, or by the expiration of the permit, whichever is first. If weather conditions are not favorable for successful plant growth, soil may be stabilized with straw mulch, an erosion control blanket or similar effective practice and seeding can take place as soon as weather conditions are favorable. Woody and native herbaceous vegetation will be planted to prevent erosion, according to plans submitted.

13. **Temporary Storage of Materials On Site** Excavated materials and/or fill materials if stockpiled shall be a sufficient distance from the wetland so that materials and or runoff may not re-enter the wetland. Stockpiles of erodible materials left on site longer than 48 hours shall be covered and contained by straw bales, silt fencing or by other effective method. Fill removed from the site must be effectively stabilized and disposed of in a manner that prevents it from directly or indirectly entering any water body, stream, or wetland area.

14. **No Material in Wetland or Adjacent Area** Any debris, fill, excavated material, brush or excess material from construction of this project shall not be disposed of in any wetland and adjacent area. Once the project is complete, all extra material must be removed from the site.

15. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

16. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

17. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

18. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. Relationship of this Permit to Other Department Orders and Determinations Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. Applications For Permit Renewals, Modifications or Transfers The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 7 Headquarters
615 Erie Boulevard W
Syracuse, NY13204 -2400

4. Submission of Renewal Application The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. Permit Modifications, Suspensions and Revocations by the Department The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. Permit Transfer Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

APPENDIX H
NYSDEC CHANGE OF USE CORRESPONDENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 7
615 Erie Boulevard West, Syracuse, NY 13204-2400
P: (315) 426-7519, (315) 426-7551 | F: (315) 426-2653
www.dec.ny.gov

June 14, 2019

Andrew Biederman
4700 Pottsville Pike
Reading, PA 19605

Subject: Dewitt Landfill, Site #734012
Change of Use- Work Plan; March 2019
Village of Dewitt, Onondaga County

Dear Ms. Biederman:

The New York State Department of Environmental Conservation (Department) has reviewed the Work Plan Response to Comments dated June 5, 2019 submitted by Bryan Bayer, Managing Environmental Scientist at C&S Companies, in response to the Department's letter dated April 29, 2019 regarding the Change of Use PV Array Work Plan at the Town of Dewitt Landfill Site. C&S Companies response is approved.

If you have any questions, please do not hesitate to contact me at 315-426-7525 or stephanie.fitzgerald@dec.ny.gov.

Sincerely,

Stephanie Fitzgerald

Digitally signed by Stephanie Fitzgerald
DN: cn=Stephanie Fitzgerald, o=NYSDEC, ou=Remediation, email=stephanie.fitzgerald@dec.ny.gov, c=US
Date: 2019.06.14 09:33:40 -04'00'

Stephanie Fitzgerald
Project Manager

cc: Town of Dewitt
Bryan Bayer (C&S Companies)

C&S Companies
499 Col. Eileen Collins Blvd.
Syracuse, NY 13212
p: (315) 455-2000
f: (315) 455-9667
www.cscos.com

June 5, 2019

Ms. Stephanie Fitzgerald
Division of Environmental Remediation – Region 7
615 Erie Boulevard West
Syracuse, New York 13204

Re: RER Energy Group, LLC, Town of DeWitt Landfill 2.6MW Solar PV Array
DeWitt Landfill, Site #734012
Change of Use – Work Plan, March 2019
Town of DeWitt, Onondaga County, New York

Dear Ms. Fitzgerald,

C&S Engineers, Inc., on behalf of RER Energy Group, LLC, is providing this letter in response to your April 29, 2019 request for additional information regarding the proposed Town of DeWitt Landfill 2.6MW Solar PV Array Change of Use – Work Plan. The following information is prepared in order to receive authorization from the New York State Department of Environmental Conservation to proceed with the proposed project.

DEC Request: The following certification must be included on the title page of all submissions of the document and must be fully executed when a submission of the document is made by the remedial party to NYSDEC Division of Environmental Remediation (DER) for approval:

> "I certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10)"

C&S Response: Attached are revised plans that are amended consistent with your request.

DEC Request: Discuss the findings of the hand dug test pits performed on December 12, 2019 to investigate the landfill cap.

C&S Response: C&S conducted test pits on the landfill to determine the amount of soil cover overtop the geomembrane landfill liner. The test pits were conducted on December 13, 2018, and six hand dug pits were examined in total. Attached with this letter is a map that depicts the test pit locations. C&S personnel used a flat blade shovel to hand dig the observation holes. The three southern most test pits found the liner to be at depths between 29 and 29.5 inches below grade. The soil material was generally a sandy clay texture. The two test pits located proximate to the ring road were unable to identify the depth of the liner due to refusal. Soils in this area were very

gravelly and compact. Lastly, the test pit located nearest the gate found the geomembrane at 27.5 inches below grade.

DEC Request: Section 3.0, Geotechnical Investigation of the Work Plan (WP) requires further discussion of the tests performed and an evaluation as to whether the engineered cap system will support the proposed infrastructure. Define "minimal" as used in the 7th sentence. This section must include a statement as to whether the test was performed in accordance with the ASTM standard, must discuss any deviations from the standard, and state whether the test results are usable given any deviations. Test No. 1 indicated water entered the testing area. Test No. 2 and Test No. 3 graphs indicate that settling was continuing to occur at these locations at the completion of the test. The WP must include a settling assessment which discusses the potential for future settling and the impacts which may occur.

C&S Response: CME Associates, Inc. (CME) conducted limited geotechnical work at the project site. Static load testing was performed below topsoil at three locations in general conformance with ASTM D1194-94 “Standard Test Method for Bearing Capacity of Soil for Static Load and Spread Footings” with the following exceptions:

1.) A 20-ton jack assembly was used in lieu of the 50-ton jack assembly specified in the referenced ASTM standard, Section 3.2 According to CME Associates, the 20-ton jack assembly used was more than sufficient for the relatively small test load (1 – ton).
2.) The reference beam utilized was 8-feet total length, and therefore was supported at lengths of 4-feet from the center of the loaded area. The referenced ASTM standard, Section 4.5 calls for reference beam supports at 8-feet from the center. According to CME, the change does not adversely affect the test readings due to the relatively small test load being used.
3.) The test method calls for the load to be decreased incrementally so that rebound can be measured. However, due to the utilization of a hydraulic ram and jack, the test load could not be incrementally reduced and therefore, no rebound measurements could be made.

As you have stated, water was observed in test pit number 1 during the test. The test occurred during periods of precipitate (snow), and it is our opinion that water observed is a result of precipitation.

Test Nos. 2 and 3 graphs do indicate that settling was continuing to occur at these locations at the end of the fifteen minutes at two times the service load. However, it should be noted that settling was not continuing to be observed at the 1000-pound load that is the service load as specified by the GameChange pre-engineered ballast system. In addition, the settlement observed at 2,000 pounds in test 2 from 8 to 15 minutes was 2/1000’s of an inch and in test 3 over the same time period was 10/1000’s of an inch. The settlement observed is minimal. The testing results indicate that some foundation settlement will likely be observed over the life of the project; however, based

on the test results we do not anticipate that settlement would jeopardize the landfill cap system. The proposed infrastructure is tolerant to moderate settlement; the geomembrane liner is also tolerant to moderate settlement.

It should also be noted that the electrical pad with the switchboard, transformer, and disconnect switch will provide 221 pounds per square foot (psf) load on the capped landfill. The electrical pad will be located on top of compacted structural fill, which will add an additional 240 psf. The total load below the stone will be approximately 470 psf.

The geotechnical evaluation provides the best practical method of determining whether the landfill cap will support the solar project. The site is a non-natural setting (i.e. man-made), we cannot assume homogeneity within the entire solar array footprint. Major differences in the bearing capacity of the landfill cap is not anticipated. Settling may occur at differing rates within the project limits. Observation of settling rates will occur during annual inspection efforts. In the event localized failures are observed during inspections, corrective measures will be taken.

DEC Request: The potential for landfill gas (LFG) accumulation within system components must be evaluated. Components with the potential for LFG accumulation must be equipped with LFG monitoring or air ventilation systems to avoid LFG accumulation.

C&S Response: System equipment is located at a minimum 30-feet separation distance from vent stacks. The vent stack outlets occur at a height above the installed height of the inverters. Landfill gases are lighter than air and disperse quickly in free air. As such, LFG migration to the inverters is unlikely due to the substantial vertical and horizontal separation between these components.

DEC Request: The WP should include an assessment of the impact of the installed photovoltaic (PV) system on drainage and soil stability. Specifically, the assessment should discuss: impacts due to removal of vegetation, increase in runoff due to impervious surface area, and degradation of the cap vegetation due to shading. In addition, a contingency plan must also be included with a section that addresses mitigation of large-scale drainage changes, vegetation loss, and soil loss, including the submission of a reparation WP should such events take place. A contingency plan must also include Department notification should the cap be damaged at any time during construction or found to be damaged during any inspections

C&S Response: Site drainage patterns will not be affected as a result of the proposed project. The project does not involve grading activities. The panels will follow the existing contours of the landfill.

We do not anticipate an increase in stormwater runoff as a result of this project. The NYSDEC issued a solar specific technical memorandum titled “Solar Panel Construction Stormwater Permitting/SWPPP Guidance” on April 5th, 2018. The NYSDEC Department of Water considers solar panel projects designed and constructed with the following criteria to be a “land clearing and

grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields)" type project and therefore the Stormwater Pollution Prevention Plan typically only need to address erosion and sediment controls:

1.) Solar panels are constructed on post or rack systems and elevated off the ground surface.
2.) The panels are spaced apart so that rain water can flow off the down gradient side of the panel and continue as sheet flow across the ground surface.
3.) For solar panels constructed on slopes, the individual rows of solar panels are generally installed along the contour so rain water sheet flows down slope.
4.) The ground surface below the panels consist of a well-established vegetative cover.
5.) The project does not include construction of traditional impervious areas.
6.) Construction of the solar panels will not alter the hydrology from pre-to post development conditions.

This memorandum generally outlines criteria that solar panels need to meet in order to be considered pervious area. If the solar panel design does not meet the criteria outlined within the memorandum, the solar panels are to be considered impervious area and treated for water quality and peak flow rate mitigation. The proposed project is designed to construct the solar panels in a manner that will meet the criteria defined above, and therefore negates the requirement to provide water quality volume treatment and peak flow rate mitigation. Specifically, our project involves a rack system that is elevated off the ground surface. The panels are spaced apart according to the memorandum; the NYSDEC memorandum states that in situations where average slope is less than or equal to 5%, then spacing between solar panel rows should be equal to or greater than the width of the solar panels themselves to effectively treat runoff from 1.0 inch of rainfall. This spacing is observed in the project design. The panels are designed to naturally follow the existing landfill contours as well. The existing landfill vegetation is dense and well established. This provides a higher Manning's n-value and therefore runoff velocities are lower as compared to newly seeded sites. No traditional impervious areas are proposed as part of project efforts. Lastly, no alteration of hydrology from pre- to post conditions.

The ballasted system will result in a loss of vegetation beneath each tub structure. It is not anticipated that this loss of vegetation will result in an increase is soil erosion as the tub will provide a cap to these areas.

Loss of vegetation as a result of shading from the panels is not anticipated to occur. Full shading will not be observed as the minimum clearance above grade of the panels is 30 inches. In addition, the landfill groundcover is dense/tall meadow that has been established for over 25 years.

Regardless, landfill inspections will involve review of the project site to determine whether erosion or loss of vegetation is occurring. If observed, the following measures will be undertaken:

1.) Vegetation loss will be corrected via seeding and mulching. A determination will be made as to the probable cause of vegetation loss, and an appropriate seed mix will be used for restoration.
2.) In the event soil erosion is observed around the ballast tubs, soils will be backfilled and the area will be seeded and mulched.
3.) In the event erosion rills or scars are observed due to sheet flow runoff from the panels, corrective measures will be taken including, but not limited to, placement of an erosion control blanket or mesh followed by top-soiling, re-seeding, and mulching to prevent future erosion.

DEC Request: The WP states that electrical conduits will be placed above grade and installed down the slope. The WP must specify the measures needed to protect the conduit and how routine maintenance will be affected as a result of the conduit location.

C&S Response: Electrical hazardous warning signs will be mounted 4-feet high on the conduit support. The hazardous warning sign will be approximately 5-feet above finished grade including the conduit support height. Sign details are provided in the attached drawings.

No significant changes in routine maintenance will occur as a result of the conduit location. Mowing patterns will be adjusted, however this is not considered a significant change to maintenance operations.

DEC Request: As a part of continued site management, the site owner will need to include a site inspection form/list specific to the PV area. This form/list will be included in addition to the site wide quarterly monitoring reports. The form/list should include PV area specific issues such as:

- Changes in ballast elevation
- Loss of vegetation
- Regional pooling or depressions
- Integrity of ballasts

Once redevelopment has been completed at the site, the PV inspection form/list will become a part of the site management plan.

C&S Response: Attached, please find a copy of the RER Energy Group – Performance Checklist. The attached checklist includes changes in ballast elevation, loss of vegetation, regional pooling or depressions, and integrity of ballasts.

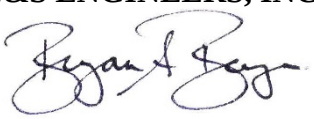
DEC Request: The WP must state that as-built drawings and a construction completion report (CCR) will be submitted at the completion of the construction project along with a timeframe for submission. The CCR will include the details of the installation, any variances from the original WP, and any issue and/or corrective measures employed during the installation (i.e. cap repair).

C&S Response: RER will provide as-built drawings and a construction completion report at the conclusion of construction.

If you have any additional questions or comments, please do not hesitate to contact me at (315) 455-2000. Thank you for your time and consideration.

Sincerely,

C&S ENGINEERS, INC.



Bryan A. Bayer, PWS, CE
Managing Environmental Scientist

/bab

cc: Mike Barnes, RER
Mike Roach, RER
Andrew Biederman, RER
Gordon Smith, RER
Emerick Martin, SSM
Sam Gordon, Town of DeWitt

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 7
615 Erie Boulevard West, Syracuse, NY 13204-2400
P: (315) 426-7519, (315) 426-7551 | F: (315) 426-2653
www.dec.ny.gov

April 29, 2019

Andrew Biederman
RER Energy Group
4700 Pottsville Pike
Reading, PA 19605

Subject: Dewitt Landfill, Site #734012
Change of Use- Work Plan; March 2019
Town of Dewitt, Onondaga County

Dear Mr. Biederman:

The New York State Department of Environmental Conservation (Department) has completed its review of the site Change of Use Work Plan – Solar PV Array, submitted on March 8, 2018 for the Dewitt Landfill site, which was prepared by C&S Companies, Inc. The following modifications are requested:

1. The following certification must be included on the title page of all submissions of the document and must be fully executed when a submission of the document is made by the remedial party to DER for approval:

   "*I _____certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10)*"

2. Discuss the findings of the hand dug test pits performed on December 12, 2019 to investigate the landfill cap.

3. Section 3.0, Geotechnical Investigation of the Work Plan (WP) requires further discussion of the tests performed and an evaluation as to whether the engineered cap system will support the proposed infrastructure. Define "minimal" as used in the 7th sentence. This section must include a statement as to whether the test was performed in accordance with the ASTM standard, must discuss any deviations from the standard, and state whether the test results are usable given any deviations. Test No. 1 indicated water entered the testing area. Test No. 2 and Test No. 3 graphs indicate that settling was continuing to occur at these locations at the completion of the test. The WP must include a settling assessment which discusses the potential for future settling and the impacts which may occur.

4. The potential for landfill gas (LFG) accumulation within system components must be evaluated. Components with the potential for LFG accumulation must be equipped with LFG monitoring or air ventilation systems to avoid LFG accumulation.

5. The WP should include an assessment of the impact of the installed PV system on drainage and soil stability. Specifically, the assessment should discuss: impacts due to removal of vegetation, increase in runoff due to impervious surface area, and degradation of the cap vegetation due to shading. In addition, a contingency plan must also be included with a section that addresses mitigation of large-scale drainage changes, vegetation loss, and soil loss, including the submission of a reparation WP should such events take place. A contingency plan must also include Department notification should the cap be damaged at any time during construction or found to be damaged during any inspections.

6. The WP states that electrical conduits will be placed above grade and installed down the slope. The WP must specify the measures needed to protect the conduit and how routine maintenance will be affected as a result of the conduit location.

7. As a part of continued site management, the site owner will need to include a site inspection form/list specific to the PV area. This form/list will be included in addition to the site wide quarterly monitoring reports. The form/list should include PV area specific issues such as:

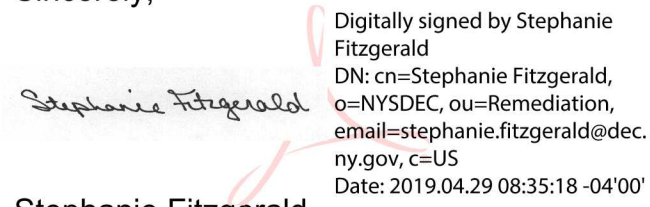
    - Changes in ballast elevation
    - Loss of vegetation
    - Regional pooling or depressions
    - Integrity of ballasts

    Once redevelopment has been completed at the site, the PV inspection form/list will become a part of the site management plan.

8. The WP must state that as-built drawings and a construction completion report (CCR) will be submitted at the completion of the construction project along with a timeframe for submission. The CCR will include the details of the installation, any variances from the original WP, and any issue and/or corrective measures employed during the installation (i.e. cap repair).

The Department recognizes and appreciates the efforts being made toward sustainability and the clean energy initiative. If you have any questions, please do not hesitate to contact me at 315-426-7525 or stephanie.fitzgerald@dec.ny.gov.

Sincerely,



Stephanie Fitzgerald
Project Manager

cc: Town of Dewitt
Bryan Bayer (C&S Companies)

APPENDIX I
AS-BUILT DRAWINGS

2664.09 KW GROUND MOUNTED SOLAR ARRAY
TOWN OF DEWITT

PREPARED FOR

RER ENERGY GROUP

BY

READING
1047 North Park Road
PO Box 6307
Reading, PA 19610-0307
610.621.2000
F. 610.621.2001

LEHIGH VALLEY
Roma Corporate Center, Suite 106
1605 North Cedar Crest Boulevard
Allentown, PA 18104
P. 610.849.9700
F. 610.849.9701

LANCASTER
701 Creekside Lane
Lititz, PA 17543
P. 717.568.2678
F. 610.621.2001

SSM
SPOTTS | STEVENS | MCCOY
Engineers and Consultants
ssmgroup.com

STATE OF NEW YORK · EMERICK V. MAST · LICENSED PROFESSIONAL ENGINEER · 069170
03-26-2020

RER Energy Group
Corporate: 4700 Pottsville Pike, Reading, PA 19605
Regional offices serving CT, DE, MD, NJ, NY, PA, and Mexico
p: 610-332-7232 • f: 888-712-0734
www.rerenergygroup.com

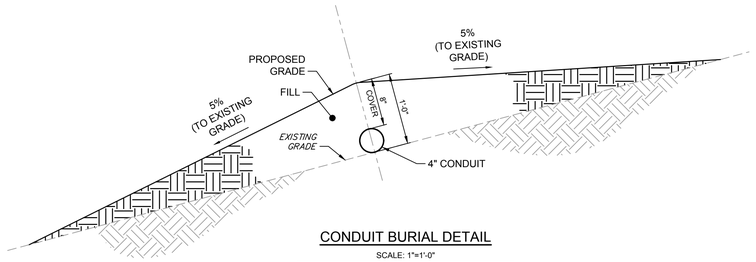
INDEX TO DRAWINGS

DWG NO.	DESCRIPTION
G.0-00	COVER SHEET
E.1-01	SITE PLAN
E.5-01	SINGLE LINE DIAGRAM
E.5-02	THREE LINE DIAGRAM
E.5-03	DETAILS

"I CERTIFY THAT I AM CURRENTLY A NYS REGISTERED PROFESSIONAL ENGINEER AS DEFINED IN 6 NYCRR PART 375 AND THAT THIS WORK PLAN WAS PREPARED IN ACCORDANCE WITH ALL APPLICABLE STATUTES AND REGULATIONS AND IN SUBSTANTIAL CONFORMANCE WITH THE DER TECHNICAL GUIDANCE FOR SITE INVESTIGATION AND REMEDIATION (DER-10)"

LOCATION MAP

101644.0035/G.0-00



CONDUIT BURIAL DETAIL

SCALE: 1"=1'-0"

1' 0' 1' 2'

EXISTING NATIONAL GRID POLE 28

PROPOSED NATIONAL GRID POLE 29

GUY WIRE AND ANCHOR

PROPOSED NATIONAL GRID POLE 30 WITH PCC RECLOSER

CUSTOMER OWNED POLE WITH LOAD BREAK SWITCH C-1

CUSTOMER OWNED POLE WITH PRIMARY METERING EQUIPMENT C-2

CUSTOMER OWNED RISER POLE LOCATED OUTSIDE OF SITE SECURITY FENCE / GATE C-3

OVERHEAD UTILITIES± (TYP.)

GRAVEL DRIVE±

(1) 4"C W/ 15KV CABLE - ROUTE ABOVE FINISHED GRADE - REFER TO CONDUIT INSTALLATION DETAIL THIS DRAWING. PROVIDE WITH EXPANSION FITTING EVERY 300'.

CONCRETE PAD W/ SECURITY FENCE

2000 KVA TRANSFORMER

MAIN SWITCHBOARD MSB-1

600A, 15 KV PAD MOUNTED DISCONNECT INV. #1

(13) 4" CONDUITS - ROUTE ABOVE FINISHED GRADE

(10) 4" CONDUITS - ROUTE ABOVE FINISHED GRADE

(7) 4" CONDUITS - ROUTE ABOVE FINISHED GRADE

(4) 4" CONDUITS - ROUTE ABOVE FINISHED GRADE

(2) 4" CONDUITS - ROUTE ABOVE FINISHED GRADE

PANEL MDP-1

PANEL MDP-2

PANEL MDP-3

PANEL MDP-4

PANEL MDP-5

INV. #1 INV. #2 INV. #3 INV. #4 INV. #5 INV. #6 INV. #7 INV. #8 INV. #9 INV. #10 INV. #11 INV. #12 INV. #13 INV. #14 INV. #15 INV. #16 INV. #17 INV. #18 INV. #19 INV. #20 INV. #21 INV. #22 INV. #23 INV. #24 INV. #25 INV. #26 INV. #27 INV. #28 INV. #29 INV. #30 INV. #31 INV. #32 INV. #33

VENT 1 VENT 2 VENT 3 VENT 5 VENT 6 VENT 7 VENT 8 VENT 9 VENT 10 VENT 11 VENT 12 VENT 13 VENT 14 VENT 15 VENT 16 VENT 17 VENT 18 VENT 19 VENT 20

GAS DISCHARGE VENT (TYP.)

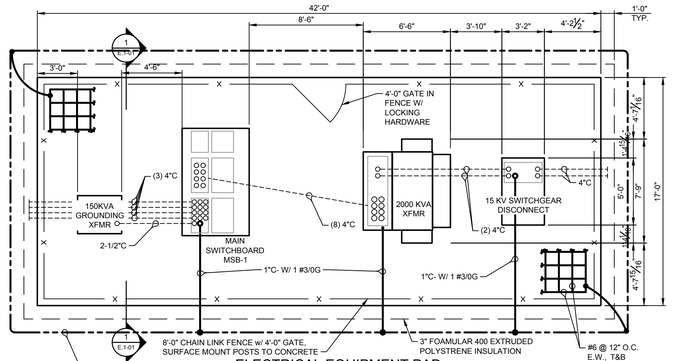
MAINTAIN 30' RADIUS CLEARANCE AT VENT PIPES (TYP.) 1

ASPHALT WALK

SITE PLAN

SCALE: 1"=80'

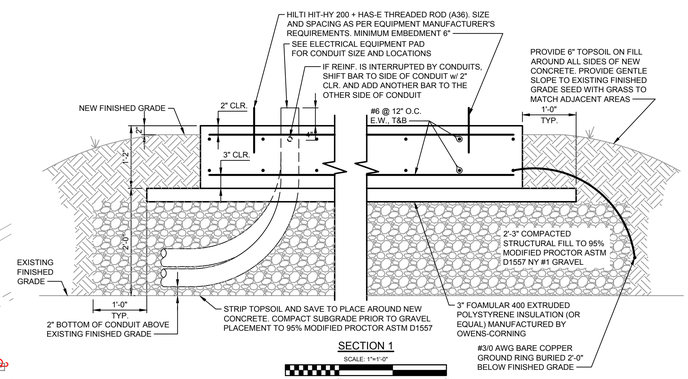
80' 40' 0' 80' 160'



ELECTRICAL EQUIPMENT PAD

SCALE: 3/16"=1'-0"

4' 0' 4' 8' 12'



SECTION 1

SCALE: 1"=1'-0"

1' 0' 1' 2'

NOTES:

1. NO EQUIPMENT SHALL BE LOCATED WITHIN THE 30' RADIUS OF THE VENTS TO PREVENT ANY RISK OF LAND FILL GAS ACCUMULATION.
2. PROVIDE 24" OF GRAVEL COVER OVER CONDUIT ON WIDTH OF GRAVEL ROAD. SPEED HUMP SLOPES MAY NOT EXCEED 5% SLOPE ON ALL SIDES.

NO	DATE	DESCRIPTION	MADE	CHKD	APVD
7	03/26/20	ISSUED FOR CONSTRUCTION	CJC	EVM	
6	01/09/20	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
5	12/16/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
4	11/15/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
3	11/05/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
2	08/02/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
1	07/30/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
0	07/16/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	

RELEASED FOR: CONSTRUCTION

PROJECT MANAGER: EVM
BASE BY: N/A
DRAWN BY: GLB
DESIGNED BY: GLB
N.B. - N/A
DATE: 4/25/17
CHKD: EVM

STATE OF NEW YORK ERRETCH V. MARTY 069170 LICENSED PROFESSIONAL ENGINEER 03-26-2020

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RER ENERGY GROUP
GES SOLAR PROJECT
6330 FISHER ROAD, TOWN OF DEWITT, EAST SYRACUSE,STATE OF NEW YORK
2664.09 KW DC GROUND MOUNTED SOLAR ARRAY

ELECTRICAL
SITE PLAN

RER Energy Group
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Regional offices serving CT, DE, MD, NJ, NY, PA, and Mexico
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www.rerenergygroup.com

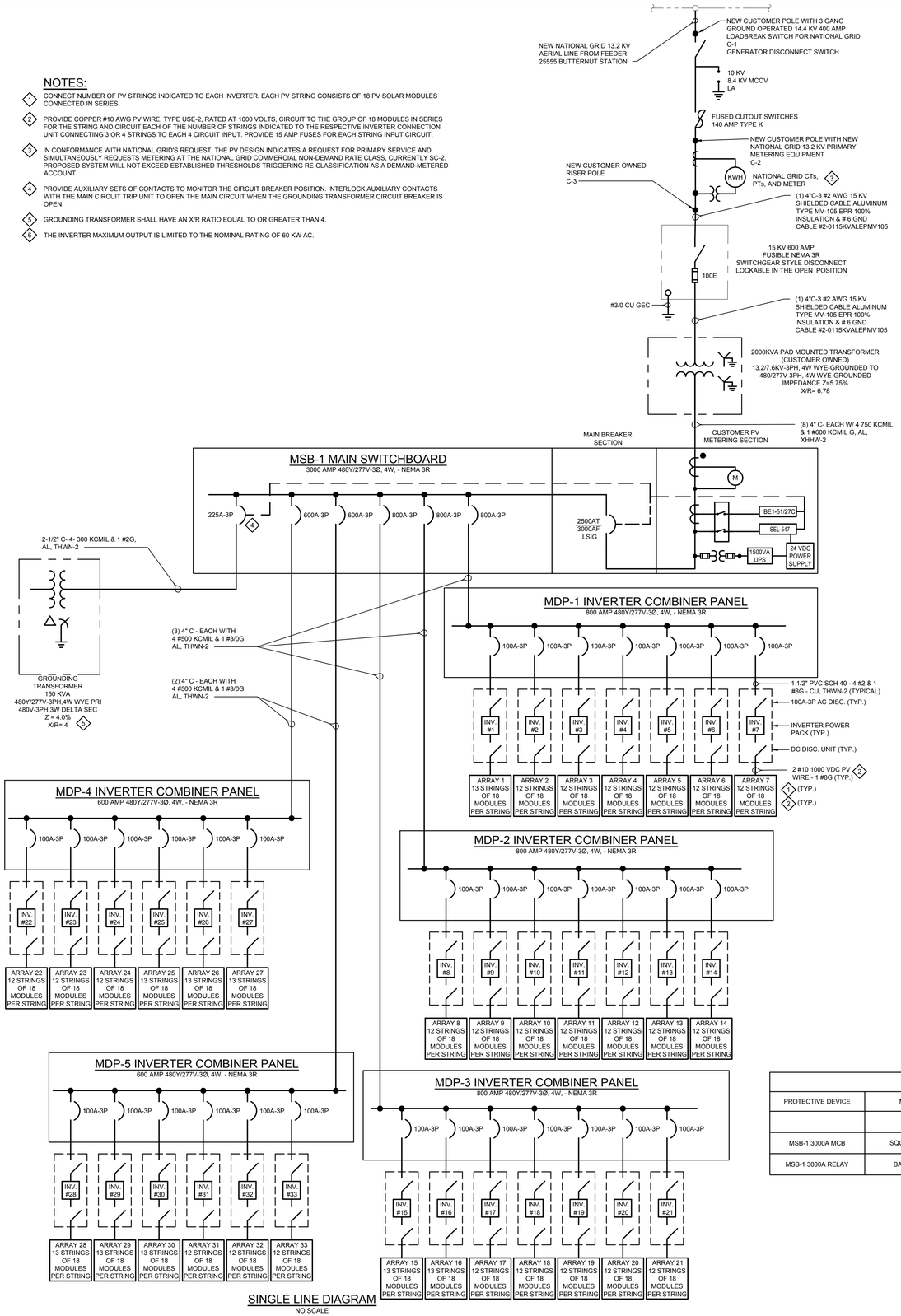
DATE	DIGITAL FILENAME
01/16/19	101644.0035 E.1-01

WORK ORDER NUMBER: 101644.0035

DRAWING NUMBER: E.1-01

NOTES:

1. CONNECT NUMBER OF PV STRINGS INDICATED TO EACH INVERTER. EACH PV STRING CONSISTS OF 18 PV SOLAR MODULES CONNECTED IN SERIES.
2. PROVIDE COPPER #10 AWG PV WIRE, TYPE USE-2, RATED AT 1000 VOLTS, CIRCUIT TO THE GROUP OF 18 MODULES IN SERIES FOR THE STRING AND CIRCUIT EACH OF THE NUMBER OF STRINGS INDICATED TO THE RESPECTIVE INVERTER CONNECTION UNIT CONNECTING 3 OR 4 STRINGS TO EACH 4 CIRCUIT INPUT. PROVIDE 15 AMP FUSES FOR EACH STRING INPUT CIRCUIT.
3. IN CONFORMANCE WITH NATIONAL GRID'S REQUEST, THE PV DESIGN INDICATES A REQUEST FOR PRIMARY SERVICE AND SIMULTANEOUSLY REQUESTS METERING AT THE NATIONAL GRID COMMERCIAL NON-DEMAND RATE CLASS, CURRENTLY SC-2. PROPOSED SYSTEM WILL NOT EXCEED ESTABLISHED THRESHOLDS TRIGGERING RE-CLASSIFICATION AS A DEMAND-METERED ACCOUNT.
4. PROVIDE AUXILIARY SETS OF CONTACTS TO MONITOR THE CIRCUIT BREAKER POSITION. INTERLOCK AUXILIARY CONTACTS WITH THE MAIN CIRCUIT TRIP UNIT TO OPEN THE MAIN CIRCUIT WHEN THE GROUNDING TRANSFORMER CIRCUIT BREAKER IS OPEN.
5. GROUNDING TRANSFORMER SHALL HAVE AN X/R RATIO EQUAL TO OR GREATER THAN 4.
6. THE INVERTER MAXIMUM OUTPUT IS LIMITED TO THE NOMINAL RATING OF 60 KW AC.



SINGLE LINE DIAGRAM
NO SCALE

NATIONAL GRID CONTACT INFORMATION:

CENTRAL REGION

JOB NUMBER:
10019644738

ELECTRICAL LEGEND

- FUSE
- CIRCUIT BREAKER
- PV MODULE OR PANEL
- INVERTER
- SWITCH OR DISCONNECT
- VOLTAGE TRANSFORMER

PV SYSTEM SUMMARY

SYSTEM	BALLASTED GROUND MOUNTED
PV MODULE MODEL	RISEN ENERGY RSM72-6-365M
PV MODULE STC DC RATING	365 W
PV MODULES PER SOURCE CIRCUIT (STRING)	18
TOTAL PV MODULE COUNT	7290
TOTAL STC DC SYSTEM SIZE	2660.85
TOTAL AC SYSTEM SIZE	1980
DC/AC RATIO	1.34
INVERTER MODEL	SUNGROW SG 60KU-M
NUMBER OF INVERTERS	33

LABELS

AC SYSTEM RATING - 690.54

ALL INTERACTIVE SYSTEM(S) POINTS OF CONNECTION WITH OTHER SOURCES - INVERTER OUTPUT CONNECTION AT AC DISCONNECTS AND SERVICE PANEL DOOR

WARNING THIS PANEL HAS SECONDARY POWER SOURCE FROM PHOTOVOLTAIC SYSTEM. TURN-OFF PHOTOVOLTAIC SYSTEM BREAKER PRIOR TO SERVICING PANEL. MAX AC OUTPUT CURRENT: XXX.X AMPS OPERATING AC VOLTAGE XXXV

OPEN CIRCUIT VOLTAGE

DC DISCONNECTS - 690.17

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

GENERAL NOTES:

1. ALL CONDUCTORS WILL ENTER ENCLOSURES PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. WIRE DERATES ARE CALCULATED BASED ON NEC CONDUIT FILL PER NEC TABLE 310.15(B)(3)(a) MULTIPLIED BY AMBIENT TEMPERATURE CORRECTION OF NEC TABLE 310.15(B)(2)(a). CONDUITS MUST BE DERATED FOR EXPOSURE TO SUNLIGHT.
3. CONDUCTORS NOT TO EXCEED 90 DEGREE C AND ARE THEREFORE DERATED PER NEC TABLE 310.15(B)(2)(a).
4. MAXIMUM AND MINIMUM AMBIENT TEMPERATURES ARE 93 AND 0 DEGREE F RESPECTIVELY.
5. MAXIMUM SYSTEM OPEN CIRCUIT VOLTAGE IS NOT ANTICIPATED TO EXCEED 1000 VDC UNDER ANY CONDITIONS.
6. PV CONDUCTORS NOT ANTICIPATED TO OPERATE AT TEMPERATURES GREATER THAN 90 DEGREE C.
7. ALL ELECTRICAL CONDUCTORS AND FITTINGS SHALL BE INSTALLED BY AN APPROPRIATELY LICENSED AND INSURED MASTER ELECTRICIAN REGISTER TO PERFORM THE WORK ACCORDANCE WITH THE AHJ'S REGULATIONS

EQUIPMENT SCHEDULE

PART NO.	NAME	QUANTITY	DESCRIPTION
1	PV MODULE	7290	365 W MODULES 1000VDC
2	60 KW INVERTER	33	60 KW INVERTER @ 480/277VAC 1000VDC
3	AC MAIN DISTRIBUTION PANEL	5	480/277 VAC, 3ϕ, 4W, 600A MLO DISTRIBUTION PANEL, NEMA 3R, WITH 6 TO 7 100A-3 POLE BREAKERS
4	AC MAIN SWITCHBOARD	1	480/277 VAC, 3ϕ, 4W, 3000A SWITCHBOARD, NEMA 3R, 2500AT/3000AF ELECTRICALLY OPERATED MAIN CIRCUIT BREAKER
5	PV REVENUE METER	1	480 VAC, 3ϕ, 2500:5 CTS IN SWITCHBOARD SECTION
6	TRANSFORMER	1	2000 KVA PAD MOUNTED 13.2/7.6 KV - 3 PH, 4W WYE-GROUNDED TO 480/277 V - 3 PH, 4W WYE GROUNDED
7	UTILITY ACCESSIBLE MAIN AC DISCONNECT	1	15 KV, 600A, FUSED SWITCHGEAR STYLE LOADBREAK RATED SWITCH, 100E FUSE
8	PRIMARY CONDUIT AND CABLE	-	15 KV SHIELDED CABLE ALUMINUM TYPE MV-105 EPR 100% INSULATION & # 6 GND CABLE #2-0115KVALEPMV105
9	UTILITY PRIMARY METER	1	NATIONAL GRID PRIMARY METER, CT & PT METERING EQUIPMENT, MOUNTED ON METERING POLE

EQUIPMENT SPECIFICATIONS

PHOTOVOLTAIC SOLAR MODULE (PANEL) - RISEN ENERGY RSM72-6-365M	365 W	
MAXIMUM POWER	P_max	365 W
MAXIMUM POWER CURRENT	I_mp	9.30 A
SHORT CIRCUIT CURRENT	I_sc	9.85 A
OPEN CIRCUIT VOLTAGE	V_oc	47.70 V

INVERTER - SUNGROW SG 60KU-M	60 KW
MAXIMUM POWER OUTPUT	66,000 W
PEAK POWER TRACKING (MPPT)	550-850 VDC
DC MAXIMUM VOLTAGE	1000 VDC
OUTPUT VOLTAGE RANGE	422-528 VAC
OUTPUT VOLTAGE	480/277 VAC
AC MAXIMUM AMPERAGE	80 A
CEC EFFICIENCY	98.5%

6

TRIP SETTINGS TABLE

PROTECTIVE ELEMENT	EVENT	TYPICAL SETTINGS	THRESHOLD	TIME (SEC)
27	UNDER-VOLTAGE	27-1	0.50 pu V (240 VOLTS)	0.16
		27-2	0.88 pu V (423 VOLTS)	2.00
59	OVER-VOLTAGE	59-1	1.20 pu V (576 VOLTS)	0.16
		59-2	1.10 pu V (520 VOLTS)	1.00
81o	OVER-FREQUENCY	81O-1	60.5 Hz	0.16
81u	UNDER-FREQUENCY	81U-1	57.0 Hz	0.16
51C	VOLTAGE CONTROLLED OVER CURRENT			

PROTECTIVE DEVICE SETTING

PROTECTIVE DEVICE	MFG	TYPE	FRAME SIZE	TRIP UNIT	SENSOR PLUG RATING	LONG TIME PICK-UP	LONG TIME DELAY	SHORT TIME PICK-UP	SHORT TIME DELAY	SHORT TIME DELAY I²T	INSTANTANEOUS PICK-UP
						LTPU	LTD	STPU	STD	I²T	INST
MSB-1 3000A MCB	SQUARE D	NW30H	3000 A	MICROLOGIC 6.0A; PLUG C	3000 A	0.83 (2500A)	1	1.5 (3735A)	0.1	OFF(In)	10 (30000A)
MSB-1 3000A RELAY	BASLER	BE1-51/27C	3000A	2500:5 A CT	2500:5 A CT	6 (3000A)	TIME DA ILS=10	----	----	----	11 (33000A)

NO	DATE	DESCRIPTION	MADE	CHKD	APVD
6	03/26/20	ISSUED FOR CONSTRUCTION	CJC	EVM	EVM
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4	11/18/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
3	11/05/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
2	08/02/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
1	07/30/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
0	07/16/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM

RELEASED FOR: CONSTRUCTION

PROJECT MANAGER: EVM
BASE BY: N/A
DRAWN BY: GLB
DESIGNED BY: GLB
N.B.: N/A
DATE: 4/25/17
CHKD: EVM

STATE OF NEW YORK
EMERICK V. MASTRO
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03-26-2020

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2664.09 KW DC GROUND MOUNTED SOLAR ARRAY
ELECTRICAL
SINGLE LINE DIAGRAM

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4/25/17	101644.0035 E.5-01
DATE	DIGITAL FILENAME

101644.0035
WORK ORDER NUMBER

E.5-01
DRAWING NUMBER

SOLAR PV SYSTEM
2,664 KW STC DC
1980 KW AC
(7200) 370W MODULES
BALLASTED GROUND MOUNTED ARRAY
PRIMARY SERVICE WITH PRIMARY NATIONAL GRID METERING

GROUND MOUNTED PV ARRAY

ARRAY 1
13 STRINGS
OF 18 MODULES

ARRAY 2
13 STRINGS
OF 18 MODULES

ARRAY 3
13 STRINGS
OF 18 MODULES

ARRAY 4
13 STRINGS
OF 18 MODULES

ARRAY 5
13 STRINGS
OF 18 MODULES

ARRAY 6
13 STRINGS
OF 18 MODULES

ARRAY 7
13 STRINGS
OF 18 MODULES

ARRAY 8
13 STRINGS
OF 18 MODULES

ARRAY 9
13 STRINGS
OF 18 MODULES

INVERTER

PV NEG
15A
GRD
GFPI

INVERTER COMBINER PANEL MDP-1
INVERTER COMBINER PANEL MDP-2
INVERTER COMBINER PANEL MDP-3
INVERTER COMBINER PANEL MDP-4
INVERTER COMBINER PANEL MDP-5
NEUTRAL

100A
TYP. OF 7

100A
TYP. OF 6

600A
TYP. OF 5

2500AT
3000AF
LSIG

2500:5
2500:5
2500:5
225A

EXTERIOR ELECTRICAL PAD MOUNTED EQUIPMENT

PV METER 5

ABB FT-1
TEST SWITCH

BE1-51/27C
SEL-547
24V DC POWER SUPPLY
1500VA UPS

CUSTOMER PV METER

CUSTOMER OWNED AC EQUIPMENT

8
(1) 4" RIGID CONDUIT
3 #2 AL, 15 KV CABLE
& 1 SPARE

(8) 4" C- EACH W/ 4 750 KCMIL & 1 #600 KCMIL G, AL, XHHW-2

2000 KVA PAD MOUNTED TRANSFORMER
Z= 5.75%
X/R= 6.78 6

7 15 KV 600A MAIN DISCONNECT

CUSTOMER OWNED POLES

RISER POLE
C-3

UTILITY
METER & POLE
C-2

UTILITY ACCESSIBLE DISCONNECT
CUSTOMER OWNED
3 GANG GROUND OPERATED 14.4 KV
400 AMP LOADBREAK SWITCH
GENERATOR DISCONNECT SWITCH

GANG-OPERATED LOAD BREAK SWITCH
POLE
C-1

10 KV
8.4 KV MCOV

10 KV
8.4 KV MCOV

FUSED CUT OUT SWITCHES
140 AMP TYPE K

TO NEW NATIONAL GRID 13.2 KV AERIAL LINE FROM FEEDER 25555 BUTTERNUT STATION POINT OF INTERCONNECTION (POI)

POINT OF COMMON COUPLING (PCC)

9 NATIONAL GRID PRIMARY METER

150 KVA

GROUNDING TRANSFORMER
480Y/277V, 3ϕ4W, WYE-GROUNDED
TO 480V, 3ϕ3W, DELTA
150 KVA
Z=4.0%
X/R= 4 3

NATIONAL GRID CONTACT INFORMATION:

CENTRAL REGION

JOB NUMBER:
1001964738

PV SYSTEM SUMMARY

SYSTEM	BALLASTED GROUND MOUNTED
PV MODULE MODEL	RISEN ENERGY RSM72-6-365M
PV MODULE STC DC RATING	365 W
PV MODULES PER SOURCE CIRCUIT (STRING)	18
TOTAL PV MODULE COUNT	7290
TOTAL STC DC SYSTEM SIZE	2660.85
TOTAL AC SYSTEM SIZE	1980
DC/AC RATIO	1.34
INVERTER MODEL	SUNGROW SG 60KU-M
NUMBER OF INVERTERS	33

ELECTRICAL LEGEND

- FUSE
- CIRCUIT BREAKER
- PV MODULE OR PANEL
- INVERTER
- SWITCH OR DISCONNECT
- VOLTAGE TRANSFORMER

GENERAL NOTES:

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2. PROVIDE AUXILIARY SETS OF CONTACTS TO MONITOR THE CIRCUIT BREAKER POSITION. INTERLOCK AUXILIARY CONTACTS WITH THE MAIN CIRCUIT TRIP UNIT TO OPEN THE MAIN CIRCUIT WHEN THE GROUNDING TRANSFORMER CIRCUIT BREAKER IS OPEN.
3. GROUNDING TRANSFORMER SHALL HAVE AN X/R RATIO EQUAL TO OR GREATER THAN 4.
4. THE INVERTER MAXIMUM OUTPUT IS LIMITED TO THE NOMINAL RATING OF 60 KW AC.

EQUIPMENT SCHEDULE

PART NO.	NAME	QUANTITY	DESCRIPTION
1	PV MODULE	7290	365 W MODULES 1000VDC
2	60 KW INVERTER	33	60 KW INVERTER @ 480/277VAC 1000VDC
3	AC MAIN DISTRIBUTION PANEL	5	480/277 VAC, 3ϕ, 4W, 600A MLO DISTRIBUTION PANEL, NEMA 3R, WITH 6 TO 7 100A-3 POLE BREAKERS
4	AC MAIN SWITCHBOARD	1	480/277 VAC, 3ϕ, 4W, 3000A SWITCHBOARD, NEMA 3R, 2500AT/3000AF ELECTRICALLY OPERATED MAIN CIRCUIT BREAKER
5	PV REVENUE METER	1	480 VAC, 3ϕ, 2500:5 CTS IN SWITCHBOARD SECTION
6	TRANSFORMER	1	2000 KVA PAD MOUNTED 13.2/7.6 KV - 3 PH, 4W WYE-GROUNDED TO 480/277 V - 3 PH, 4W WYE GROUNDED
7	UTILITY ACCESSIBLE MAIN AC DISCONNECT	1	15 KV, 600A, FUSED SWITCHGEAR STYLE LOADBREAK RATED SWITCH, 100E FUSE
8	PRIMARY CONDUIT AND CABLE	-	15 KV SHIELDED CABLE ALUMINUM TYPE MV-105 EPR 100% INSULATION & # 6 GND CABLE #2-0115KVALEPMV105
9	UTILITY PRIMARY METER	1	NATIONAL GRID PRIMARY METER, CT & PT METERING EQUIPMENT, MOUNTED ON METERING POLE

EQUIPMENT SPECIFICATIONS

PHOTOVOLTAIC SOLAR MODULE (PANEL) - RISEN ENERGY RSM72-6-365M	365 W	
MAXIMUM POWER	P_max	365 W
MAXIMUM POWER CURRENT	I_mp	9.30 A
SHORT CIRCUIT CURRENT	I_sc	9.85 A
OPEN CIRCUIT VOLTAGE	V_oc	47.70 V

INVERTER - SUNGROW SG 60KU-M	60 KW
MAXIMUM POWER OUTPUT	66,000 W
PEAK POWER TRACKING (MPPT)	550-850 VDC
DC MAXIMUM VOLTAGE	1000 VDC
OUTPUT VOLTAGE RANGE	422-528 VAC
OUTPUT VOLTAGE	480/277 VAC
AC MAXIMUM AMPERAGE	80 A
CEC EFFICIENCY	98.5%

4

LABELS

AC SYSTEM RATING - 690.54

ALL INTERACTIVE SYSTEM(S) POINTS OF CONNECTION WITH OTHER SOURCES - INVERTER OUTPUT CONNECTION AT AC DISCONNECTS AND SERVICE PANEL DOOR

WARNING THIS PANEL HAS SECONDARY POWER SOURCE FROM PHOTOVOLTAIC SYSTEM. TURN-OFF PHOTOVOLTAIC SYSTEM BREAKER PRIOR TO SERVICING PANEL. MAX AC OUTPUT CURRENT: XXX.X AMPS OPERATING AC VOLTAGE XXXV

OPEN CIRCUIT VOLTAGE

DC DISCONNECTS - 690.17

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

THREE LINE DIAGRAM
NO SCALE

NO	DATE	DESCRIPTION	MADE	CHKD	APVD
6	03/26/20	ISSUED FOR CONSTRUCTION	CJC	EVM	
5	01/09/20	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
4	12/06/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
3	11/05/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
2	08/02/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
1	07/30/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	
0	07/16/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	

RELEASED FOR:
CONSTRUCTION

PROJECT MANAGER: EVM
BASE BY: N/A
DRAWN BY: GLB

DATE: 4/25/17
N.B.: N/A
DESIGNED BY: GLB

CHKD: EVM

STATE OF NEW YORK
EMERICK V. MCCOY
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03-26-2020

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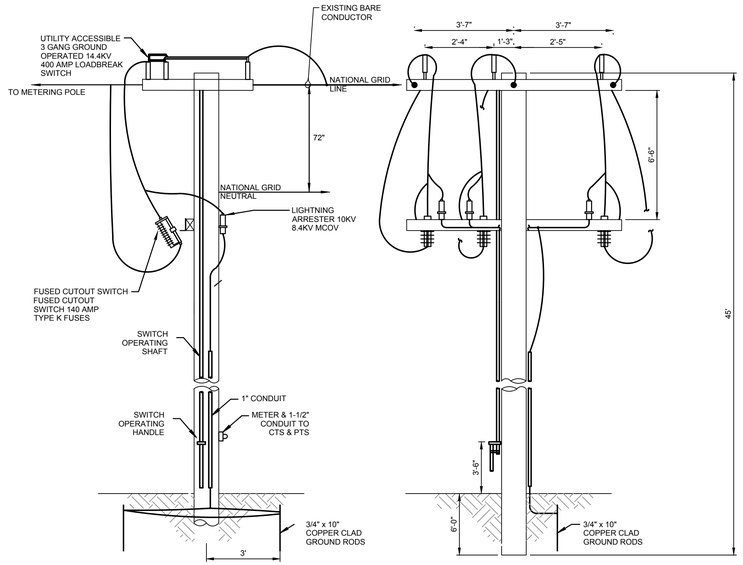
4/25/17
DATE

101644.0035
E.5-02
DIGITAL FILENAME

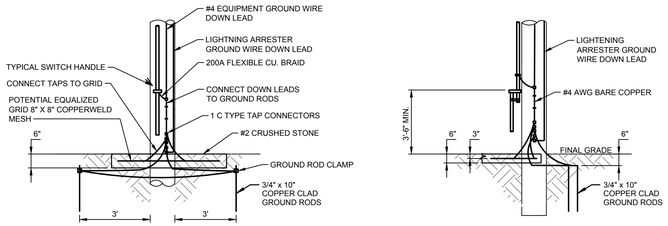
101644.0035
WORK ORDER NUMBER

E.5-02
DRAWING NUMBER



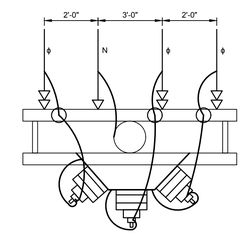
GANG-OPERATED LOAD BREAK SWITCH CLASS 3 POLE

NO SCALE



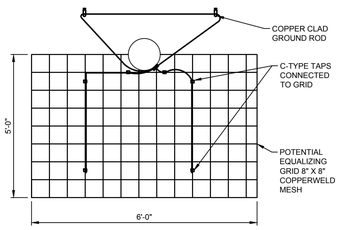
GROUND GRID AND SWITCH HANDLE GROUNDING

NO SCALE



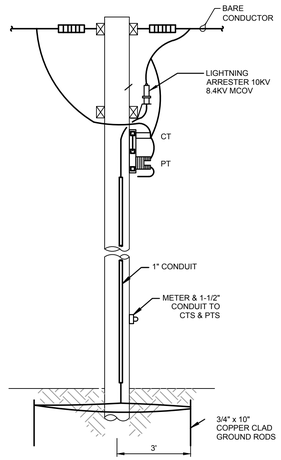
METERING POLE DETAIL SECTION A-A

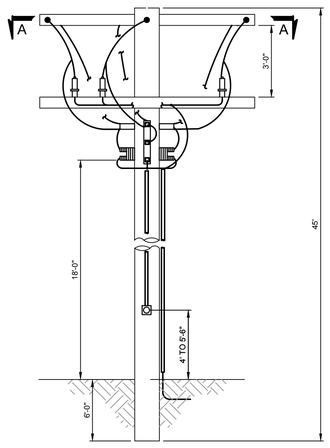
NO SCALE



PLAN VIEW GROUNDING

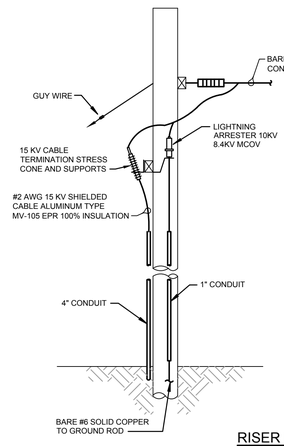
NO SCALE

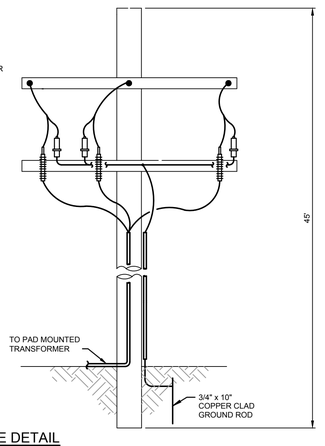




METERING POLE DETAIL

NO SCALE





RISER POLE DETAIL

NO SCALE

NO	DATE	DESCRIPTION	MADE	CHKD	APVD
6	03/26/20	ISSUED FOR CONSTRUCTION	CJC	EVM	EVM
5	01/09/20	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
4	11/18/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
3	11/05/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
2	08/02/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
1	07/30/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM
0	07/16/19	ISSUED FOR PERMIT & CONSTRUCTION	CJC	EVM	EVM

RELEASED FOR: CONSTRUCTION

PROJECT MANAGER: EVM
BASE BY: N/A
DRAWN BY: GLB
DATE: 4/25/17
N.B.: N/A
DESIGNED BY: GLB
CHKD: EVM

STATE OF NEW YORK
EMERICK V. MATT
069170
LICENSED PROFESSIONAL ENGINEER
03-26-2020

SSM
SPOTTS | STEVENS | MCCOY
Engineers and Consultants
ssmgroup.com

READING
1912 Spotts Stevens & McCoy, Inc.
PO Box 6307
Reading, PA 19610-0307
P: 610.921.6000
F: 610.921.6001

LEHIGH VALLEY
Morgan Corporate Center, Suite 320
1605 North Cedar Crest Boulevard
Allentown, PA 18104
P: 610.849.9700
F: 610.849.9705

HARRISBURG
1968 Market Street
Harrisburg, PA 17111
P: 717.230.1487
F: 610.921.6001

RER ENERGY GROUP
GES SOLAR PROJECT
6330 FISHER ROAD, TOWN OF DEWITT, EAST SYRACUSE STATE OF NEW YORK
2664.08 KW DC GROUND MOUNTED SOLAR ARRAY
ELECTRICAL
DETAILS

RER Energy Group
Corporate: 4700 Pottsville Pike, Reading, PA 19605
Regional offices serving CT, DE, MD, NJ, NY, PA, and Mexico
p: 610-332-7232 • f: 888-712-0734
www.rerenergygroup.com

DATE	DIGITAL FILENAME
4/25/17	101644.0035 E.5-03

WORK ORDER NUMBER: 101644.0035

DRAWING NUMBER: E.5-03

SCHEDULE A

PARCEL 1:
ALL that certain plot, piece or parcel of land, situate, lying and being in the Town of Dewitt, County of Onondaga and State of New York, being a part of Lot 52 of the Town of Dewitt, described as follows:

BEGINNING at a point in the Blue line of the Erie Canal said point being the Southeast corner of a parcel of land owned now or formerly by Pearl Kellogg, said point being 149.01 feet North 65 degrees 15 minutes 20 seconds East of the iron stake in the blue line, 154.97 feet on a right angle offset from the red line station designated as 691 + 5.89 according to Map 393 of Erie Canal Lands belonging to the State of New York approved August 20, 1927 by William M. Acheson;

RUNNING THENCE North 03 degrees 17 minutes 30 seconds West, 250 feet along the West line of the Pearl Kellogg parcel;

THENCE South 71 degrees 33 minutes 30 seconds West, 2263.97 feet to the West line of property owned by Vincent Noto and Gerome Noto individually and as trustees of John N. Noto;

THENCE South 02 degrees 47 minutes 30 seconds East, 207.89 feet along the West line of said Noto property;

THENCE North 87 degrees 17 minutes 40 seconds East along the South line of Military Lot 52, 843.14 feet to the blue line;

THENCE Northeasterly along the courses of the blue line to the point of BEGINNING.

PARCEL 2:
ALL that certain plot, piece or parcel of land, situate, lying and being in the Town of Dewitt, County of Onondaga and State of New York, being a part of Lot 52 of said Town, described as follows:

BEGINNING in the Westerly line of a parcel of land formerly owned by Pearl Kellogg at the Northeast corner of a parcel of land conveyed to the Town of Dewitt by deed dated March 26, 1952 and recorded in the Onondaga County Clerk's Offices on March 26, 1952 in Liber 1554 page 581;

RUNNING THENCE South 04 degrees 48 minutes 00 seconds West along the westerly line of the Pearl Kellogg parcel, 250 feet to the blue line of the lands of the State of New York acquired for the 1834 Canal;

THENCE Easterly along the blue line of said canal, which is the Southerly line of Pearl Kellogg parcel, 53.5 feet to an angle point therein;

THENCE Easterly along said blue line and Southerly line of Pearl Kellogg parcel, 157.24 feet to the boundary line between the Town of Dewitt and the Town of Manlius, which is also the Southeast corner of the Pearl Kellogg parcel;

THENCE North 04 degrees 54 minutes 30 seconds East along the boundary line of the Town of Dewitt and the Town of Manlius, which is also the Easterly line of the Pearl Kellogg parcel, 628.24 feet to the Northeast corner of the Pearl Kellogg parcel;

THENCE North 85 degrees 12 minutes 00 seconds West along the Northerly line of the Pearl Kellogg parcel, 202.2 feet to the Northeast corner thereof;

THENCE North 04 degrees 48 minutes 00 seconds East on a line which is an extension of the Westerly line of the Pearl Kellogg parcel, 189.6 feet;

THENCE South 79 degrees 39 minutes 00 seconds West, 849.84 feet to the Easterly line of premises conveyed by Manlius Center Road Corporation to Niagara Mohawk Power Corporation by deed recorded in the Onondaga County Clerk's Office on October 29, 1964 in Liber 2222 page 626;

THENCE South 04 degrees 22 minutes 10 seconds West along the Easterly line of the Niagara Mohawk Power Corporation parcel, 75.36 feet to a corner thereof;

THENCE North 85 degrees 37 minutes 40 seconds West along the Southerly line of the Niagara Mohawk Power Corporation parcel, 1052.59 feet to a corner;

THENCE South 05 degrees 34 minutes 10 seconds West, 833.67 feet to the Northerly line of premises conveyed to the Town of Dewitt by deed recorded in the Onondaga County Clerk's Office in Liber 1554 page 581;

THENCE North 79 degrees 39 minutes 00 seconds East along the Northerly line of Town of Dewitt parcel, 1951.47 feet to the Northeast corner thereof and the Westerly line of the Pearl Kellogg parcel and the point of BEGINNING.

SCHEDULE B

5. Grant of Easements recited in Deed from Manlius Center Road Corporation to Niagara-Mohawk Power Corporation dated 10/29/1964 recorded 10/29/1964 in Liber 2222 page 626. **- Does not affect survey area**

6. Easement contained in Indenture made by Manlius Center Road Corporation to Town of Dewitt dated 07/08/1968 recorded 08/14/1968 in Liber 2383 page 96. **- Shown on map**

7. Grant of Easement made by Town of Dewitt to Niagara Mohawk Power Corporation dated 08/21/2019 recorded 11/29/2019 in Instrument #2019-45246. Refers to Fisher Road Landfill. **- Shown on map**

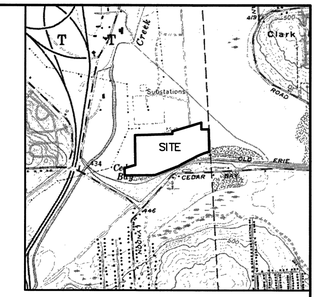
8. Terms of Lease Agreement and Easements made by and between Manlius Center Road Corporation, Lessor, and Town of Dewitt, Lessee, dated 10/27/1958 recorded 09/02/1960 in Liber 2011 page 575 insofar as the same may still be in effect. **- Does not affect survey area**

TITLE REPORT

BY: PRESTIGE TITLE AGENCY, INC.
TITLE No.: 13124-ST-OD
DATED: MARCH 3, 2020

NOTES:

Total area: 49.261± acre
Present Zone: Industrial (Ind.).
Location of underground utilities taken by field measurement where practicable, otherwise taken from various other sources and are approximate only.
No wetland delineation markers were observed during the process of conducting fieldwork.
The premises shown hereon is within Zone "X" (Areas determined to be outside the 0.2% annual chance floodplain.) & Zone AE (Base Flood Elevations determined.) according to Federal Emergency Management Agency National Flood Insurance Program Flood Insurance Rate Map Community Panel No. 36067C0241F, effective date: November 4, 2016.
Tax Map No. 53.-04-04.1
*Bearings per Parcel 1 description.



LOCATION PLAN
Scale: 1" = 2000'

ZONING REQUIREMENTS	
PRESENT ZONE:	Industrial (IND)
Minimum Front Yard Setback	50 feet
Minimum Side Yard Setback	12 feet one side 32 feet total
Minimum Rear Yard Setback	40 feet
Minimum Building Line	100 feet
Building Height	No structure shall be higher than any plane from the lot lines inclining upwards at a slope of 1 foot vertically for each 1 foot horizontally
Minimum Lot Area	N/A
Minimum Lot Width	N/A
Minimum Lot Depth	No requirement noted
Maximum Lot Coverage	50%
Maximum Lot Coverage	No requirement noted
Parking formula	1 space/500 sq. ft. GFA

To: Prestige Title Agency, Inc.;
Stewart Title Insurance Company;
Sunvestment Energy Group NY 63, LLC;
Fifth Third Bank, National Association, its successors and assigns;
EC GSFT RETC Fund I, LLC;
GSPP 53 Fund II, LLC ;
GSPP EC Fund IV, LLC;
The Town of Dewitt.

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 6(b), 7(a), 7(b1), 8, 11, 13, 14, 16, 17, 18 & 19 of Table A thereof. The field work was completed on March 26, 2020.

Date of Plat or Map: April 1, 2019.

Signed: _____

Timothy J. Coyer, L.S.

N.Y.S. Licensed Land Surveyor Registration No. 050856

\\server\Civil 3D Projects\ONONDAGA COUNTY\DEWITT\FISHER ROAD_6330\DWG\FISHER ROAD_6330_ALTA_R1.dwg

REVISIONS	
	MARCH 26, 2020

ALTA/NSPS LAND TITLE SURVEY
PART OF LANDS OF
TOWN OF DEWITT
PART OF MILITARY LOT No. 52
TOWN OF DEWITT
ONONDAGA COUNTY, NEW YORK

STATE OF NEW YORK · TIMOTHY J. COYER · 050856 · LICENSED LAND SURVEYOR

IANUZI & ROMANS
LAND SURVEYING, P.C.
5251 WITZ DRIVE
NORTH SYRACUSE, NY 13212
PHONE: (315) 457-7200
FAX: (315) 457-9251

DATE: DECEMBER 10, 2018
SCALE: 1" = 100'
FILE NO.: 301.077
SHEET NO. 1 OF 2
F.B. NO.

DEED

NATIONAL GRID, N/F
BOOK 2361, PAGE 286x

TAX MAP No. 53.-04-02.1

NIAGARA MOHAWK
POWER CORPORATION, FORMERLY
(BOOK 2222, PAGE 626)

OVERHEAD UTILITIES (TYP.)

GRAVEL DRIVES

20' NIAGARA MOHAWK
POWER CORPORATION
(INSTRUMENT No. 2019-45246)

EASEMENT
BOOK 2383, PAGE 96

MANLIUS CENTER
ROAD CORPORATION, N/F
BOOK 1888, PAGE 15

TAX MAP No. 53.-04-03.1

ROAD BOUNDARY

FISHER ROAD (PUBLIC)

60'

CHAIN LINK FENCE

MANLIUS CENTER
ROAD CORPORATION, N/F
BOOK 1888, PAGE 15

TAX MAP No. 53.-04-03.1

TOWN OF DEWITT, N/F
BOOK 3264, PAGE 82
TAX MAP No. 53.-04-03.3

TOWN OF DEWITT, N/F
BOOK 3264, PAGE 82

TAX MAP No. 53.-04-03.4

MANLIUS CENTER
ROAD CORPORATION, N/F
BOOK 2299, PAGE 313

TAX MAP No. 74.-01-04

IRS

S79° 39' 00"W
849.84'

189.6'
N4° 48' 00"E

N85° 12' 00"W
202.2'

S4° 22' 10"W
75.36'

FRONT YARD SETBACK

SIDE YARD SETBACK

16'

N85° 37' 40"W
1052.59'

SIDE YARD SETBACK

16'

PEARL KELLOGG,
FORMERLY

TOWN OF DEWITT

SIDE YARD SETBACK

TOWN OF MANLIUS

628.24' Deed
623.07' Meas.

N4° 54' 30"E

LAUREL C. JOINES, N/F
BOOK 5265, PAGE 356

TAX MAP No. 74.-01-11

P.O.B.
PARCEL 2

N3° 17' 30"W
250.0'

P.O.B.
PARCEL 1

S4° 48' W

53.5' Deed
71.4' Meas.

157.24' Deed
140.44' Meas.

N78° 25' 54"E

IRS BLUE LINE

149.01' Deed
127.41' Meas.

198.80'
N72° 58' 54"E

REAR YARD SETBACK

CHAIN LINK FENCE

510.90'
N68° 32' 34"E

92.76'
N54° 24' 34"E

696.73'
N75° 04' 04"E

BLUE LINE

PARCEL 1

TOWN OF DEWITT, N/F
BOOK 1554, PAGE 581x

TAX MAP No. 53.-04-04.1
(VACANT)

CONC. PADS

GAS DISCHARGE
VENT (TYP.)

1951.31'
2263.97' Deed / 2244.97' Meas.

EXISTING SOLAR
PANEL SYSTEM (TYP.)

S79° 39'W

S71° 33' 30"W

TOWN OF DEWITT, FORMERLY
(BOOK 1554, PAGE 581)

*PARCEL 1

STATE OF NEW YORK CANAL LANDS
(MAP No. 393)

ASPHALT WALKS

NATIONAL GRID, N/F
BOOK 2361, PAGE 286x

TAX MAP No. 53.-04-02.1

S5° 34' 10"W
833.67'

S79° 39'W
312.50' Deed / 293.50' Meas.

S5° 09' 46"W
207.89' Deed
213.09' Meas.

S52° 47' 30"E

WEST LINE OF
NOTO, FORMERLY

REAR YARD SETBACK

S.L.M.L. 52
N.L.M.L. 63

S84° 49' 28"E
843.14' Deed / 855.86' Meas.

*N87°17'40"E

TOWN OF DEWITT, N/F
BOOK 3348, PAGE 286

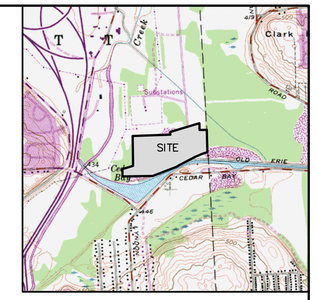
TAX MAP No. 53.-04-06.1

CHAIN LINK FENCE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



LOCATION PLAN
Scale: 1" = 2000'

LEGEND:

- indicates utility pole, anchor & overhead lines
- IPF / MON. FND — indicates iron pipe and/or monument found
- indicates vent
- indicates sign
- 12" CMP — indicates storm culvert
- 6" G, GV, GLM — indicates gas main, gas valve & gas line marker
- 8" W, WV, HYD — indicates water main, water valve & hydrant
- 18" D, CB, D — indicates storm sewer, catch basin & manhole
- 8" S, SV, S — indicates sanitary sewer, sewer vent & manhole
- TEL MH, U-TEL, TEL — indicates underground telephone line, manhole & box
- UE, ELEC MH — indicates underground electric line & manhole
- CATV, TV — indicates underground television cable & box
- W — indicates 6" diameter monitoring well (typical)
- indicates boundary line
- indicates adjacent parcel line
- indicates old/original parcel line
- indicates easement line
- indicates centerline road

\\server\Civil 3D Projects\ONONDAGA COUNTY\DEWITT\FISHER ROAD_6330\DWG\FISHER ROAD_6330_ALTA_R1.dwg

REVISIONS
MARCH 26, 2020

ALTA/NSPS LAND TITLE SURVEY
PART OF LANDS OF

TOWN OF DEWITT

PART OF MILITARY LOT No. 52
TOWN OF DEWITT
ONONDAGA COUNTY, NEW YORK

STATE OF NEW YORK
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050866
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PHONE: (315) 457-7200
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DATE: DECEMBER 10, 2018
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SHEET NO.
2 OF 2
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