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 modules 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 locations along slope line. See Detail Sheets for additional info. Design Information: Building/Occupancy Category: C, Area of Array: 33.4 acres, Seismic Site Class: D, Wind Exposure Category: ASCE7-15, Design Wind Speed: 105 mph, Snow Load: 45 psf, Distance to Saltwater: >20 Miles.
26'-3" Row to Row Spacing

Legend:

- W6x7 Gr 50 (No Color)
  - Count: 1683
  - Embedment Depth: 7'-0"

- W6x8.5 Gr 50 (Red)
  - Count: 1206
  - Embedment Depth: 7'-0"

- W6x8.5 Gr 50 (Light Green)
  - Count: 565
  - Embedment Depth: 8'-6"

GENERAL NOTES:
- The layout shown herein is based on site layout geometry provided by GameChange Solar to 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 modules shown in the Array Information table.

Customer: Conti
Project: DSun Ellis South
Location: 140 Dodge Road, Ithaca, NY 14850

Array Information

- PV Modules
  - Manufacturer: Hanwha Gamechange Solar
  - Model: Q.Plus L-G4.2 340 Q.Plus L-G4.2 345 20-Degree MaxSpan
  - Dimensions: 78.5" x 39.37" 1.38"
  - Weight: 50.7 lbs
  - Quantity: 38890 3454 Posts
  - Min Ground Clearance to Panel: 36 in

- Design Information
  - Building/Occupancy Category: I
  - Area of Array: 33.4 acres
  - Seismic Site Class: D
  - Design Wind Speed: 105 mph ASCE7-10
  - Distance to Saltwater: >20 Miles
  - Design Snow Load: 45 psf
  - Dead Load: 3.3 psf

- Module Wattage Updated
- Alternate Foundations Updated

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. See Detail Sheets for additional information.

AERIAL VIEW

POST PLAN 2 of 11

Engineer's Seal:

Customer: Conti
Project: DSun Ellis South
Location: 140 Dodge Road, Ithaca, NY 14850
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), Bend Straps (GC871)

GC874A Red
GC874B Light Green
GC874C No Color
GC874D Dark Blue

26'-3" Row to Row Spacing
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 to scale. See Detail Sheets for additional info.

Array Information:

- Manufacturer: Hanwha Gamechange Solar
- Model: Q.Plus L-G4.2 340
- Dimensions: 78.5" x 39.37" 1.38"
- Weight: 50.7 lbs
- Quantity: 38890
- Min Ground Clearance to Panel: 36 in

Design Information:

- Building/Occupancy Category: I
- Area of Array: 53.4 acres
- Seismic Site Class: D
- Wind Exposure Category: C
- No. of rows: 129
- Design Wind Speed: 105 mph ASCE7-10
- Distance to Saltwater: >20 Miles
- Design Snow Load: 45 psf
- Dead Load: 2.3 psf

Customer: Conti

Project: DSun Ellis South

Location: 140 Dodge Road, Ithaca, NY 14850

Sheet # 4 of 11

TYPICAL ASSEMBLY

South Elevation
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 to scale. See Detail Sheets for additional info.

### Array Information
- **PV Modules**
  - Manufacturer: Hanwha GameChange Solar
  - Model: Q.Plus L-G4.2 340
  - Dimensions: 78.5" x 39.37" 1.38"
  - Weight: 50.7 lbs
  - Quantity: 38890
  - Total: 3454 Posts
  - Min Ground Clearance to Panel: 36 in

- **Design Information**
  - Area of Array: 33.4 acres
  - Seismic Site Class: D
  - Design Wind Speed: 105 mph
  - Design Snow Load: 45 psf

- **Building Occupancy**
  - Building Category: I
  - No. of rows: 139

- **Seismic**
  - 20 Degree MaxSpan

- **Other**
  - Distance to Saltwater: >20 Miles
  - Distance to Seismic: 13.417 MW

**NOTICE**: 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 to scale. See Detail Sheets for additional info.
Remediate refused piles per one of the following options:

Pile Refusal Option 1:
- Pull out refused pile.
- Drill a pilot hole in the refusal with a diameter less than the largest pile size (2-3" diameter).
- Do not excavate the spoils of the drill. Leave the soil in place when pulling drill back up.
- Drive the pile into the hole. Perform a proof test to ensure the pile load capacity. Plumbess of pile to be confirmed within spec.

Pile Refusal Option 2:
- Drill and Grouted Pier
- 10" or 12" Diameter drilled (concrete/cement grout) pier
- Concrete shall have min. compressive strength of 400 psi @ 28 days.
- Concrete materials and installation shall be in accordance with ACI318. Submit mix design to engineer prior to installation.

Pile Refusal Option 3:
- Pull out refused pile.
- Excavate the existing soil to obstruction or embedment depth
- Remove any boulders or cobbles greater than 1" diameter out of the excavated soil.
- Place the soil back in 9" lifts.
- Compact each lift using a 2-ton plate tamper for 4 passes (2 each direction)
- Drive new pile to the target embedment. Perform proof test to confirm the pile load capacity

PROOF TEST PROCEDURE

The following procedure shall be performed on piles that were driven to at least the minimum embedment depth as part of the production pile driving activities of the project. Piles for proof testing shall be shallowest refused piles however care shall be taken to select geographically dispersed piles in each field or array to be tested.

1. Apply vertical loads concentric to the pile so that no eccentricity is created by the load.
2. Loads shall be applied by smooth operation of hydraulic equipment such as a Gradeall (e.g. Lull) with precision hydraulic control, a hydraulic jack or a chain fall (hoist) so that applied load levels are within 50 lbs of the target load level. It is not permissible to apply loads using a bobcat, by driving equipment farther from the post, or similar jerky motion.
3. Loads shall be measured by a calibrated dynamometer (load cell).
4. Displacements shall be measured by a calibrated micrometer or similar equipment with a resolution of 0.01" or finer and. Micrometer must be capable to measure a minimum of 2.0". It is not permissible to measure displacements visually using a string line, tape measure, or ruler. Equipment for measuring vertical and lateral displacement shall be supported by a steel reference beam. The steel reference beam shall be supported on either end by wood blocking or similar. The supports for the reference beam shall not be closer than 5 ft from the test pile.
5. Once the target load level has been reached, hold the load for a time interval of no less than 2 minutes. If the pile moves such that the load drops by more than 10% apply more load to keep the load constant. Record the displacement of the pile at the end of 2 minutes.
6. The target load levels for the project are 4850 lbs of uplift for perimeter piles and 2790 lbs of uplift for interior piles. For lateral load, it is 1990 lbs for perimeter piles and 1310 lbs for interior piles
7. The proof test is considered a “pass” if the horizontal movement of the pile is 1.5 inches of movement or less for vertical load and 1.0 inch or less at grade for horizontal load. Vertical and Lateral tests do not need to be performed simultaneously.
Proper installation shall result in top of post to top of post distances matching that on layout. In order to achieve this, two factors must be considered and properly compensated for. Sloping ground (slopes over 3%) will result in distance between posts growing as compared to the required distance. Thus, the measure length shall be taken along the slope of the table and place rooster tails (pile driving flags) at proper distance along that slope. NOT AT PLAN VIEW LOCATIONS.

1) Install first Post (I-Beam) to the proper embedment depth, with the openings facing East-West, and bottom attachment slots to the South on the west side, and plumb to within +/- 1 degree. Make sure the tops of the next Posts are installed at specified distances from the top of the previous (East-West +/- 1 1/2", North-South +/-1/2")

The racking system allows for +/-2" but this will make more adjustment of purins necessary and slow down installation.

- Make sure tops of Posts are leveled to be at a consistent height or slope depending on the topography of the land.
- Note that embedment depth will vary to handle rolling ground variations. Gamechange provides piles with additional length enabling an adjustment range typically of 4" to 6". Be careful to always meet minimum embedment depth and ground clearance requirement.
- Make sure Posts are squared to within +/- 2 degrees to the azimuth of the array
- Make sure Posts are plum +/- 1 deg so long as:
  - Not more than +/- 1 1/2 inches on east to west direction at top of post (from the proper post location marked on ground).
  - Not more than +/- 1/2 inch north to south direction at top of post (from the proper post location marked on ground).
- Make sure defined distance between foundations is measured from center of post to center of next post along the ground (not from plan view). Otherwise foundation locations will creep if there is rolling terrain since plan view does not factor in dimensions differences caused by terrain. This could make purin attachment more difficult.

### Array Information

<table>
<thead>
<tr>
<th>Description</th>
<th>PV Modules</th>
<th>Racking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Q.Plus L-G4.2 345 20-Degree MaxSpan</td>
<td>GameChange Solar</td>
</tr>
<tr>
<td>Quantity</td>
<td>38890 3454 Posts</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>3850 lbs</td>
<td>2450 lbs</td>
</tr>
<tr>
<td>Min Ground Clearance Per Post</td>
<td>36 in</td>
<td></td>
</tr>
<tr>
<td>Tool Required</td>
<td>30 ft Tape Measure</td>
<td>30 ft Tape Measure</td>
</tr>
</tbody>
</table>

### GC Max-Span System

- Use only GameChange parts. Use of other parts to complete the installation as substitutes may void the warranty.
- Make sure the site ground can support the loading resulting from the GC Max-Span I Beam Ground System and provided PV modules.
- Make sure the site is level and that the foundation depth is sufficient to support the PV modules. The foundation depth is not required by relevant local, regional and national organizations and procedures as outlined in this Install Manual, both for mechanical and electrical aspects of the solar PV array installation.
- When encountering undocumented or unexpected obstacles requiring a work around. Work around shall be noted on working drawings and notified to engineer for approval. Work should then be completed in a manner that ensures that the remainder of the array is not affected.
- GC Max-Span I Beam Ground System is to be installed in a clear area free of shading with a suggested 15 ft bordering array.
- Reference Install Manual for installation. Not following install manual may result in voiding Warranty.
- Make sure to place the array in areas where there is no shading.
- Install the array facing as close as possible south.
- It is a requirement for installation crews including SPC, 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) as performed or a minimum via video conference.

### Preventative Maintenance

- All work is required to be done with tools and loads and install parts within several weeks of delivery so as to allow for ground hardening and to prevent damage to the modules. It is recommended to allow an extended hardening period for these situations.
- It is important to review all procedures and enable installation crews to start work on the array in a logical sequence. Start with the foundation survey and ensure that the array is to be built in a logical order.
- All work is required to be done with tools and loads and install parts within several weeks of delivery so as to allow for ground hardening and to prevent damage to the modules. It is recommended to allow an extended hardening period for these situations.
- Maintenance checks should be performed annually or after severe wind events. Please refer to Install Manual for more details.
- 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.

### Critical Information Indicator

This section contains critical information and must be followed for proper installation. Disregarding it may lead to serious injury and irreparable damage to equipment, tools, or components; it will compromise GameChange warranty. Information indicated with this icon must be followed to meet quality requirements.
2) Place Post Bracket on top of Post such that the open side of the Post Bracket faces East. Attach Post Bracket to Post using four 1/2-inch bolts inside Post Bracket and serrated flange nuts on Post side. Leave hand tight to allow for adjustment in later steps.

3) The highest point the Post Bracket may be installed is the top end of the top slot to the third hole from the bottom. Post Bracket MAY NOT be extended such that the top end of the top slot attaches to the bottom hole.

4) Attach Brace Bracket to Post at specified distance as per assembly drawing in Permit/Layout drawing set below the Post Bracket, using two bolts outside bracket and flange nuts and Post Bracket washer inside post.

5) Place NS Beams on top of Post Bracket such that longer part to the south. Align 1/2-inch mounting slots with 1/2-inch slots on top of Post Bracket.

6) Attach NS Beam to Post Bracket using three 1/2-inch bolts / washers on NS Beam side and serrated flange nuts inside Post Bracket. Leave hand tight to allow for adjustment in later steps.

7) Align 1/2-inch width slots on South Brace to 1/2-inch width slots on Base Bracket, attach using two 1/2-inch bolts and Post Bracket Washer on Bracket side and serrated flange nuts on South Brace side. Leave hand tight to allow for adjustment in later steps. It is critical that the Post Washer sits flush on base bracket and it does not ride up on the chamfer on the rib.

8) Align 1/2-inch slots on Brace to 1/2-inch slots on NS Beam. Make sure to review assembly print for specific job and attach to hole that results in tilt as required for installation. Attach Brace to NS Beam using two 1/2-inch bolts / washers on NS Beam side and serrated flange nuts on Brace side. Leave hand tight to allow for adjustment in later steps.

9) Place NS Beams on top of Post Bracket such that longer part to the south. Align 1/2-inch mounting slots with 1/2-inch slots on top of Post Bracket.

10) Attach NS Beam to Post Bracket using three 1/2-inch bolts / washers on NS Beam side and serrated flange nuts inside Post Bracket. Leave hand tight to allow for adjustment in later steps.

Preventative Maintenance
- It is best practice to use only GameChange parts and install parts within several weeks of delivery so as to allow the components to cure thoroughly before installation.
- 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 / acid primer, or equivalent field life paint.
- This step is not required if rust is limited to edges which were cut during fabrication.

Tool Required
- Impact wrench
- String Line
- Tape Measure
- Impact wrench
- String Line
- Tape Measure
- Impact wrench
- String Line
- Tape Measure
- Impact wrench
- String Line
- Tape Measure

CRITICAL INFORMATION INDICATOR
This section indicates crucial and required information that MUST be followed for proper installation. Disregarding it may lead to failure of equipment and/or warranty void, which may result in complete compromise of the GC Max-Span™ System.
9) Attach 2nd Brace Bracket to Post at specified distance as per assembly drawing in Permit/Layout drawing set below the Post Bracket, using two bolts outside bracket and flange nuts and Post Bracket washer inside post.

10) Align 1/2-inch slots on Brace to 1/2-inch slots on NS Beam. Make sure to review assembly print for specific job and attach to hole that results in tilt as required for installation. Attach Brace to NS Beam using two 1/2-inch bolts / washers on NS Beam side and serrated flange nuts on Brace side. Leave hand tight to allow for adjustment in later steps.

11) Repeat for NS Beams and Braces on adjacent Posts. With NS Beams, make sure all NS Beams are at the same tilt. The North ends of the NS Beams shall be correctly oriented in the North-South direction, aligned properly in the East-West direction, and are to be at a consistent level height or slope. Once this is complete, torque all previous joints to specifications.

12) Attach EW Purlins to NS Beams using 3/8-inch bolts and serrated flange nuts. EW Purlins should be attached with 2 bolts. Place a Double Beam Strip on the under side of the Beam. Place a Purlin Washer under the hex bolt closer to the Purlin wall while the hex bolt further from the Purlin wall only receives a flange nut. Tighten hardware to specification. Alternatively bolts may come up and flange nuts be above Purlins.

Array Information

- PV Modules: GameChange Solar Max-Span System
- Rack: GC Max-Span 2.0
- Model: GC Max-Span System
- Dimensions: 32.05' x 30.37' x 1.38'
- Weight: 50.7 lbs
- Min Ground Clearance to Panel: 36 in
- Min Distance to Panel: 36 in

38890 modules at 345W 13.417 MW

Preventative Maintenance

- Inspect all previous assembly loads and install parts within several weeks of delivery so air is able to flow around and around. The painted white nut tamper-proof in order to maintain the longest possible for the protective anode coating under the warranty. It is important to maintain proper torques for all tamper-proof nuts. See the installation manual for more details.
- After installation, installer must annually monitor for any surface rust that may occur over time. Identify any rust areas, remove rust with wire brush area to remove rust, and coat with 80% zinc rich paint, or equivalent field paint coat. This step is not required if rust is limited to edges which were cut during fabrication.
- 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.
- Dear customers, Conti
- Reference Install Manual for installation. Not following install manual may result in voiding warranty.

Critical Information: This icon indicates critical and important information that MUST be followed for proper installation. Disregarding it may lead to system failure, and inflammable gas. Make sure to follow all steps and consult with GameChange in case of maintenance issues.

Array Information

- Manufacturer: GameChange Solar
- Model: GC Max-Span System
- Dimensions: 32.05' x 30.37' x 1.38'
- Weight: 50.7 lbs
- Min Ground Clearance to Panel: 36 in
- Min Distance to Panel: 36 in

38890 modules at 345W 13.417 MW

Preventive Maintenance

- Inspect all previous assembly loads and install parts within several weeks of delivery so air is able to flow around and around. The painted white nut tamper-proof in order to maintain the longest possible for the protective anode coating under the warranty. It is important to maintain proper torques for all tamper-proof nuts. See the installation manual for more details.
- After installation, installer must annually monitor for any surface rust that may occur over time. Identify any rust areas, remove rust with wire brush area to remove rust, and coat with 80% zinc rich paint, or equivalent field paint coat. This step is not required if rust is limited to edges which were cut during fabrication.
- 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: This icon indicates critical and important information that MUST be followed for proper installation. Disregarding it may lead to system failure, and inflammable gas. Make sure to follow all steps and consult with GameChange in case of maintenance issues.
14) Attach Bend Straps, Roll Straps, and Purlin Angles as required. Use 3/8" bolts and serrated flange nuts to attach. Make sure all hardware is tightened to proper torque settings. This is a general guideline only, please refer to install manual which must be followed for proper installation or warranty may be voided. Roll Straps must be taut, this is very important. Roll Straps and Roll Straps are only required with spans with Purlin Angles. See Purlin Angle Key on Sheet 1

15) Attach first panel to EW Purlin through mounting holes nearest to NS Beam. Place a star washer at one mounting location per panel. Insert flange hex bolt through the star washer and mounting slot of panel. Attach with a serrated flange nut on the bolt end underside the purlin. Check again to make sure star washer is still in place. Torque to specifications. Repeat for all panels.

Alternative 1. Insert hex bolt through the bottom of the purlin, the mounting hole on the back of the panel, and through the star washer (one per panel). Attach with a serrated flange nut. The bolt head should be on bottom and the serrated flange nut should be on the panel. Check again to make sure star washer is still in place. Torque to specifications. Repeat for all panels.
16) For bottom mount attachment of panels GameChange typically provides slotted panel mounting holes to enable panel adjustment in case purlins are not perfectly aligned due to rolling or otherwise uneven ground situations. It is the customer’s responsibility to make sure to follow panel spacing guidelines if any are given by panel vendor in their specification sheet or elsewhere, otherwise panel warranty could be voided. In all cases make sure panel spacing is the greater of 1/8 inch or the minimum called out by the panel vendor. This will allow for thermal expansion of panels. GameChange systems typically enable 1/2 inch panel spacing if aligned properly. Spacing between panels can be set by placing a temporary spacer such as bolt shaft or plywood of same thickness as required for panel spacing between panels while they are being installed. This spacer should be removed after panel installation is complete.

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.

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, Burdy, 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 9 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**

17) 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, Burdy, 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 9 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**