

Report on July 30-31, 2012 Storm Event at the Genesis Solar Energy Project Construction Site

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Summary

A monsoonal desert storm event occurred over a 2-day period, July 30 and 31 2012, at the Genesis Solar Energy Project. Beginning on July 30, approximately 5.6-6.0 inches of rain fell in a two-day span, according to on-site personnel. Measurements made at the facility indicate that approximately 3.3 inches of rain fell in a six-hour span on July 31¹. Moderate flooding and damage occurred in specific areas of the property as a result of the event, and there was an offsite migration of materials carried by flood waters up to one mile south of the project.

The facility is constructed with permanent drainage channels designed to divert water from the operational areas. The system of channels is located on the western, northern, and eastern boundaries of the facility. Additionally, there is a channel in the center of the facility that drains from the northern channel to the south (refer to the site map in Appendix A)

To ease the movement of equipment during the construction phase, two of the channels, the central (known as Channel B/C) and the eastern (Channel D) channels were filled in with temporary earthen land bridges (see Figures 1 and 2) that had several 12-inch culverts designed to drain water in the channels through the temporary bridges. From evidence collected at the site, these culverts were insufficient for the rain event, causing the temporary land bridges to act as channel dams which redirected storm water flows into the site, causing much of the damage². The temporary bridges have been removed, and there are no current plans to utilize this type of crossing in the future.

¹ For the same time period, official readings at Rice Valley, 12 miles northwest of the project site, measured 0.50 inch and Blythe Airport, located 17 miles to the east, measured 0.38 inch.

² Additional flooding resulted from an incomplete V-ditch at Blocks 2 and 3 of Unit 1, from underground piping and trenches filling with water and redirecting it to non-designed areas, and due to the unfinished condition of Channel A adjacent to the former Cultural Exclusion area.

The facility was closed for over two days and recovery is ongoing. It is expected that this rain event will have no impact on the start of operations date, currently scheduled for May, 2013 for the first 125 MW Unit, and April 2014 for the second 125 MW Unit.



Figure 1. The temporary land bridge across Channel B/C as shown in June 2012 (from Google Earth).

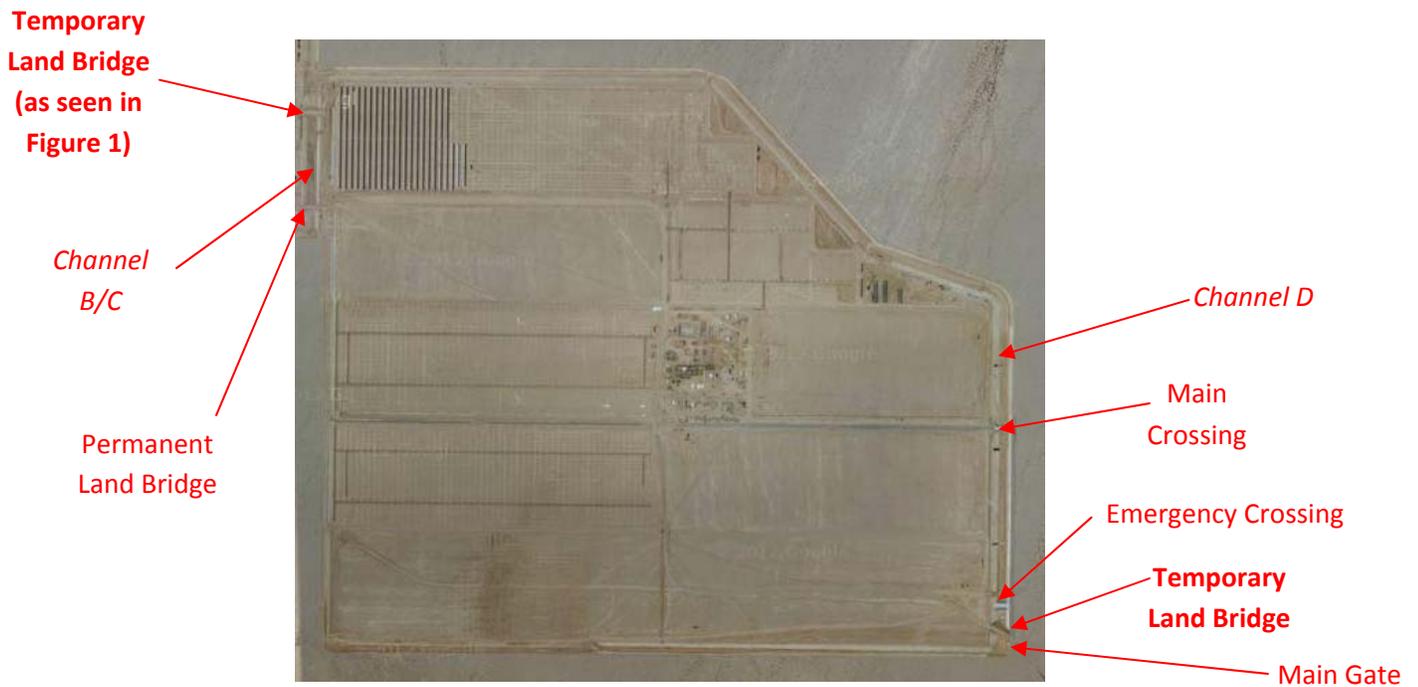


Figure 2. Selected features including the temporary land bridges traversing Channels B/C and D as shown in June 2012 (from Google Earth).

Rain Event and Response

Figures 3-6 below, taken on July 31, 2012, highlight damage centralized around the common area and near the entrance where the earthen bridge was constructed.



Figure 3. Damage to access road at main entrance.



Figure 4. Water overflowing channel at the common area parking lot due to earthen crossing (photo taken atop crossing).



Figure 5. Administration building foundation in Power Block 1.



Figure 6. Equipment flooded in the common area.



Figure 7. Flood waters in the common area near Channel B-C.



Figure 8. This photo shows the temporary earthen crossing located near the common area/trailer city (Channel B/C) being removed after the storm; the photo above is looking to the north. This temporary earthen crossing (and one other located near the main plant entrance) acted as dams during heavy flows, re-directing flood waters towards the site, causing the majority of flood damage to the site.



Figure 9. Water rushing into Channel A.



Figure 10. Water rushing into Channel A.

In addition to damage caused by water, some of the mirror arrays were damaged as shown in Figures 11 and 12. It is believed that this damage was caused by localized winds.



Figures 11. Damage to mirror arrays (July 31, 2012)



Figure 12. Mirror damage, poles in foreground are for as-yet-to-be completed wind protection fence (July 31, 2012)

The GSEP project site was closed down during the storm event. The evacuation of approximately 100 employees who were trapped in the construction trailers by floodwater was complicated by the fact that a section of the access roadway at the main entrance (located at the southeast corner of the site) was washed away by flood water rushing out of channel D to the southeast. A temporary roadway connection had to be created to remove vehicles and personnel from the site which occurred at approximately 630 p.m. on July 31.

For two days following the rain event, the Genesis construction site was closed because it was impossible to traverse the site due to standing water and deep mud. Deliveries of materials and equipment to the site were resumed on Friday August 3.

Damage Assessment

Energy Commission staff visited the project site on Monday August 6, six days after the flooding, to observe the effect of the storm at the project site and site vicinity and to observe the effectiveness of the project erosion and sedimentation control measures. Disturbed soils were affected much more than areas of relatively undisturbed soil. In the undisturbed soil areas, the natural drainages appeared unaltered. Installed tortoise fence downstream of project channels acted as a barrier to sediment and debris in the flood flows. These barriers resulted in approximately 1,000 feet of downed fence total at different locations around the perimeter being either flattened or uprooted.

An example of downed fencing at the site is shown in Figure 13. Additional images of damage are shown in Figures 14 through 19³.

³ A key showing where all photographs contained in this report were taken is contained in Appendix A.



Figure 13. Tortoise fence was damaged along the south side at the outfall by debris (August 1, 2012).



Figure 14. Administration building foundation in Power Block 2 (August 1, 2012).



Figure 15. The steam turbine generator foundation in Power Block 1 under water after the storm (August 1, 2012).



Figure 16. Caissons in Unit 2. Erosion around the caissons occurred because water filled up Channel B-C and flowed around the earthen berm (August 6, 2012).



Figure 17. Looking south-southeast at the earthen berm constructed in Channel B/C. Flooding and receding flows damaged the soil cement lining the sides of the channel (August 6, 2012).



Figure 18. Channel D dissipation area along the southern site boundary (August 6, 2012)



Figure 19. Residual Sediments in Channel D (August 6, 2012).

It is worth noting that the Genesis project was able to avoid any serious damages concerning hazardous waste, with the exception of one vehicle oil filter and one oily rag that were carried onto open soil by the rushing water. This was quickly remediated by the removal and proper disposal of all contaminated materials. Approximately 7 portable toilets were overturned by flood water; however, there was no spillage of waste because the toilets had been serviced immediately before the rain event and were empty. There is no known damage to any major electrical equipment. The facility's temporary transformers were protected by secondary containment that prevented any water from contacting the equipment. No power poles were lost.

This Energy Commission outline of project damage is based on a damage assessment report prepared by NextEra staff (Appendix B) and by the Energy Commission's contracted Chief Building Official (Bureau Veritas) (Appendix C), and on the personal site visit conducted by the compliance project manager and soil and water staff on August 6, 2012.

The damage is classified as either major damage or minor, as follows:

Major Damage

- A total of 46 solar elements were affected, with a total of 195 mirrors broken. According to NextEra sources, these repairs can be made in the field. On-site personnel reached a conclusion that the cause of the damage was sustained winds of 55 mph that may have been muted had the wind fence been in place.
- Approximately 1,000 feet of tortoise fence was either flattened or uprooted by floodwater.
- Caissons (200 total), both completed and partially completed were damaged by water infiltration and by both erosion and sedimentation (by soils being washed away and by some soils being built up respectively), as follows:
 - 80 caissons with cages (steel support structure) needing to be pulled for repair and/or reconstruction;
 - 120 caissons drilled but without cages need to be filled, compacted and rebored (redone)
- 500 sleeper⁴ and pipe supports were damaged, most of the damage consisted of eroded excavations with some foundations requiring replacing. Soil erosion and siltation, particularly at the main access road at the front entrance, resulting in silt deposits in channels, on roadways, and in other areas where they will need to be removed
- Flood diversion channels themselves sustained damages from floodwaters overflowing their banks eroding the soil cement lining the sides

Minor Damage

- Open trenches mostly in Unit 2, were either completely or partially filled with sediment need to be cleaned out,
- Water infiltration occurred in the assembly pits in the assembly building,
- There was flooding of portable generators in and around trailer city, specifically the lined containment pits that each generator sits in filled with water and eroded so that the generators were set to listing an uneven soils; however, there was no water infiltration of the generators themselves
- Drywall damage occurred to the bottom 12 inches of the walls of the electronics building in Power Block 2
- Minor erosion occurred to foundations of one or two temporary trailers
- Several vehicles that needed to be dug out after being partially buried

⁴ Sleeper support structures carry heat transfer fluid (HTF) piping.

Recovery

In response to the impacts from this storm, NextEra repaired or replaced the tortoise fence wherever necessary around the project perimeter. NextEra initiated repairs to structures and features in the Common Area; they then coordinated with the BLM for access to BLM lands offsite to retrieve debris that had been washed off of the site. Subsequently, they proceeded to affect repairs to all other areas of the site that received damage.

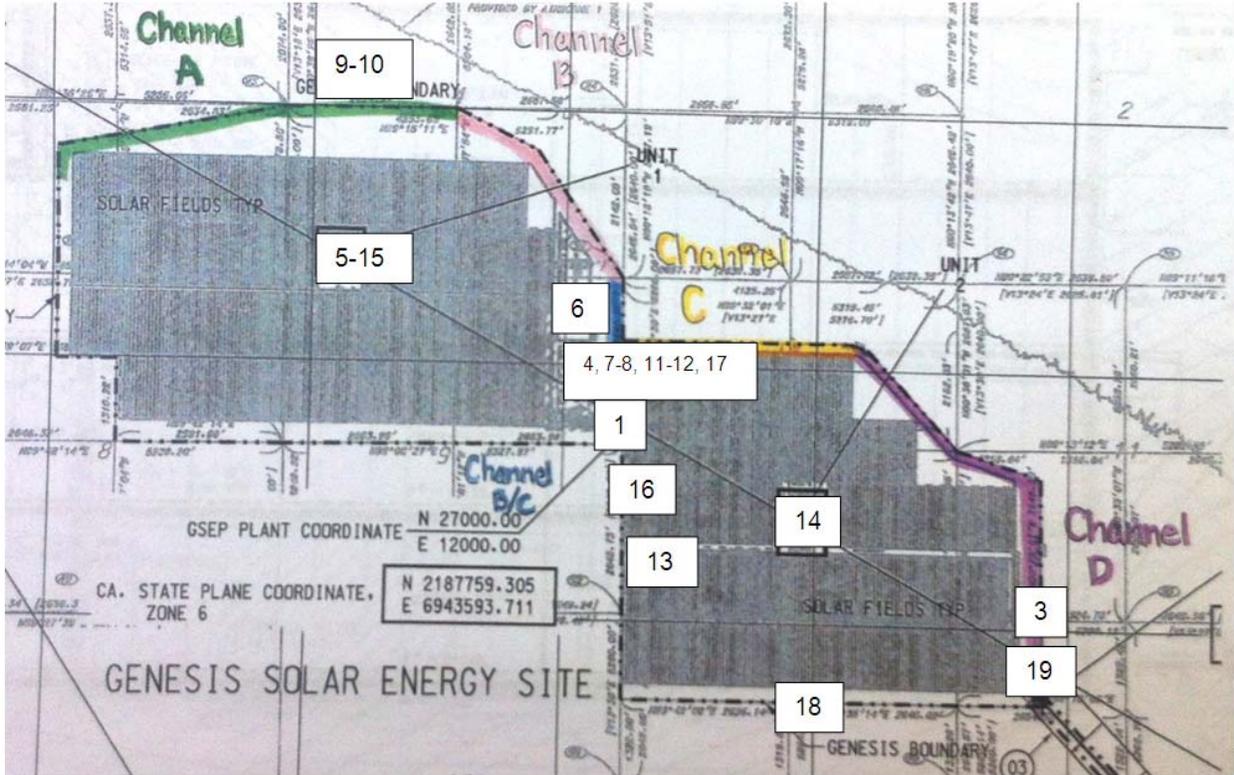
The BLM is working with NextEra and the Energy Commission to assess which off-site areas, if any, sustained damage from waters passing through and over the Genesis site, particularly any potential damage to cultural resources.

Recommendations

Based on a review of the response of the project site to the storm water, Energy Commission staff has made the following recommendations:

- Discontinue the use of earthen crossings that don't provide sufficient capacity for channel flow.
- Install a more sophisticated weather system to track and record weather on site.
- Require installations of portable bridges if temporary channel crossings are still needed.

Appendix A
Site Map with Location of Figures



Appendix B

NextEra Damage Assessment

Scope. This report focuses on environmental impact that resulted from the storm that the Genesis project experienced on July 30 and 31. Localized impacts were experienced on July 30, consisting of rain and an intense wind event that damaged 35 Solar Collector Elements in Unit 2. Work shut down as appropriate and dewatering activities were begun. After a break in the weather on the morning of July 31st, heavy rain (3.25"-3.5" on 7/31) subjected the Genesis site to flooding. This report describes the events and impacts on July 31st.

Notes. It is noteworthy that the rain event on July 31 was a 100 year storm event. It is also noteworthy that this 2 day storm that started Monday (5.6-6 inches over the 2 day period) occurred during construction where foundations, fencing, major equipment deliveries, and other temporary construction activities were ongoing and not complete per the design. It is also noteworthy that the perimeter storm drainage system was still under construction, including Channel A (part of the former Exclusion Zone).

Design Review. The design has been reviewed and no significant issues have been identified. The damage is due mainly to the incomplete state of construction. Minor tweaks are being evaluated, to assure that a proper design is placed in service.

Offsite Environmental Impacts

Genesis has not identified any significant flood-related offsite environmental impacts. Minor offsite impacts that have been noted and were clearly contemplated/evaluated in the BLM Final EIS and CEC Decision.

Impacts to downstream hydrology and waters of the state. Flood waters were diverted around and through the site in a manner that did not cause any significant offsite, downstream erosion or impacts to vegetation. Note that BLM and CEC permitting documents conservatively assumed some impact to downstream hydrology and waters of the state and imposed mitigation accordingly.

Impacts from debris carried offsite. All debris that was carried offsite (up to one mile south) by floodwaters was successfully retrieved via the use to two, soft-tired OHVs ("gators"). The OHVs were careful to avoid damaging vegetation and were accompanied by a biological monitor. No hazardous materials were carried offsite or compromised by floodwaters.

Impacts from creating a temporary exit route. A small, approximate ¼-acre area outside of the Project's ROW was impacted when an emergency exit route was created due to the flooding of the main access road. All disturbance is within 100 feet of the existing ROW boundary. In accordance with Stipulation 18 in Exhibit B to the ROW Grant, which was designed to accommodate minor, unplanned disturbances outside of the ROW, this disturbance can be

documented in a Conformance Request and will be revegetated/reclaimed in accordance with the Project's Revegetation Plan.

No impacts to offsite cultural resources. Genesis is not aware of any significant impacts to offsite cultural resources.

On-site Activities Related to the Rain/Flood Event

- On 7-31-12, at about 9:30 AM, Genesis site management was informed that the tortoise fence on the north side of Unit 1 was down. The Contract Managers were contacted immediately to get crews in place to repair fence when the rain cleared.
- Channel BC overflowed into the area containing the construction trailers, south of the common area and Unit 2 solar field. The area became flooded and breached the south tortoise fence taking with it construction debris. The compliance team took pictures and walked along the edge of the sediment pond to determine what had left site and if any environmental concerns needed attention. There was no evidence of concern.
- Variances were issued to work outside the fence work by the BLM and CEC. The variances allowed for small equipment and personal to pick up debris washed from the site.
- Debris clean-up commenced on the south fence of Unit 1. An AECOM Bio Monitor was present during clean-up to protect environmental welfare and provide appropriate oversight.
- The site access road in the SE corner of the project was breached and was inaccessible. With permission from the BLM and the CEC a new road was cut to facilitate egress/evacuation. CUL and BIO monitors were present.
- The tortoise crossing was washed out, it was retrieved for repairs.
- Two couch's spade foot toads have been found in the southeast corner of channel D. It was verified with picture and sound. The Designated Biologist captured both and relocated them to the Ford Dry Lake Bed.
- After the rain even on 7/31, the fencing contractor was exclusively reassigned to tortoise fence repair. These repair were complete around the site perimeter on Sunday 8/5.

On site water flow:

- Blocks 2 & 3 Unit 1 – construction of the trapezoidal ditch (v-ditch) was not complete. It runs north and south along the western perimeter of each unit. This concrete ditch controls water flow to the southern portions of the plant. Since this ditch was not

complete it allowed for erosion between block tiers where if it was in place water flow would have been controlled by the channel.

- Blocks 2 & 3 Unit 2 – construction was ongoing and utilized a temporary crossing at Channel BC for overweight/oversized loads as well as access to Unit 1 while the permanent bridges were constructed. This crossing caused the diversion channel to overflow allowing a higher volume of water to flood the solar fields and trailer city area.
- With construction unfinished, the full design of handling storm-water was not realized. Open underground power and piping trenches channeled water to non-designed areas. As water follows the path of least resistance, open trenches, material storage, unfinished grading, along with other minor items allowed additional erosion and sedimentation build-up. As the attached map indicates, the primary areas indicate a total of 31,300 cubic yards (cut) of soil/sedimentation displaced. Comparing this quantity to the total cut for the project of 3,170,500 cubic yards, there was less than 1% of soil/sedimentation displacement within the site.

Off site to on site water flow:

- Channel D & Site Entrance (SE corner Unit 2) – no retention berm was in place along the East-side of Channel D which allowed sediment to enter the channel bottom (Unit 2 Attachment shows a cut in Channel D). Additionally, there was a significant natural channel that was observed on the East-side of Channel D, which continued through the plant entrance road, and continued offsite. This channel allowed the project entrance roadway to experience erosion (See map attached for approximate quantities).
- Channel A was in the former exclusion zone and therefore construction was stalled in this location for an extended period of time. The channel was graded but unfinished with structure yet to be installed on the southern edge of the channel. This area is 3-4 feet below existing grade and therefore the design is for it to fill up and slowly release water as it overflows.
- When Channel BC overflowed an abnormal amount of water flowed into the west side of unit 2 and collected within block 5 of unit 2. Per the design there are to be 3 pipes installed on the western edge to relieve the water from this low point in unit 2. The pipe was yet to be installed and therefore a 24” channel was cut to allow for the water to flow per the design.

No impacts to offsite cultural resources. Genesis is not aware of any significant impacts to offsite cultural resources.

Appendix C

Bureau Veritas Damage Assessment

**Bureau Veritas North America, Inc.**

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 Sacramento, CA 95835
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Appendix C

Report # **1**
 Page: **1 of 1**
 Day: **Tuesday**
 Project #: **36110-320000.01**

DAMAGE ASSESSMENT REPORT

Project Name	Genesis Solar Energy Project				Date	July 31, 2012	
Project Location	11995 Wiley's Well Road Blythe CA, 92225				Time Arrived	7:00 am	
General Contractor	Nextera				Time Departed	6:30 pm	
Inspectors	<input checked="" type="checkbox"/> Field Report				Date Cleared		
Robert DeKruise, Kent Ward Jim Perryman, Mike Barr	<input type="checkbox"/>	Trailer City	<input type="checkbox"/>	Equipment	<input type="checkbox"/>	Installed Mirror Assembly	<input type="checkbox"/>
Visual assessment Performed	<input type="checkbox"/>	Erosion	<input type="checkbox"/>	Caissons	<input type="checkbox"/>	Environmental	<input type="checkbox"/>
	<input type="checkbox"/>	Generators	<input type="checkbox"/>	Misc. Excavations	<input type="checkbox"/>	Buildings	<input type="checkbox"/>
	<input type="checkbox"/>	Other		Weather			

Storm Damage Assessment Summary

The Genesis Solar Power project received heavy rains the morning of July 31, 2012. By noon the rains from the Palen Mountains, to the north of Genesis and the McCoy Mountains, to the east had turned into a steady 3" to 5" of water sheeting over the desert into Genesis diversion channels. It appeared that more water was coming from the Palen Mountains than the McCoy Mountains. Because the project was under construction, it was not prepared for a hundred year storm. There were 2 locations where temporary road crossings, one in channel B/C and the other in channel D were in place for site access, while the box culvert bridges were being built, failed and dammed the water causing flooding of Trailer City, Unit 2 and the access road at the site entrance. The temporary road structures had pipes running through them for water to pass through, however as the soil around the pipes eroded the end of the pipes lifted above the height of the water causing the dams of channel B/C and D. The catch basin at the southern end of channel A was not complete at the time of the storm which caused some flooding of Unit 1.

The mirror damage in unit 2 was due to high winds during construction. The 195 mirrors damaged were more at risk due to incomplete wind fencing and the southern end of block 1 being more exposed to wind due to the entire designed system being incomplete at the time.

The Genesis Management team reacted quickly to open the dams in both channels which stopped the flooding immediately. The water then went to the sedimentation pond as designed. The access road was cut off for about six hours while repairs could be made. There was an all-managers meeting held to inform every one of the repairs taking place and that everyone should exit the site in a safe and orderly manner. When the repair was complete the horn was sounded. At 6:30 pm the site entrance was repaired enough to allow safe passage off the site. There were no injuries reported from the hundred year storm.

All damage will be repaired:

- excavations dewatered and where required filled in, compacted and re-excavated
- electrical damage will be re-inspected and tested prior to energizing
- secondary containments will be repaired prior to equipment being use
- all life and safety issues will be secluded by safety tape until repairs can be made
- Any and all materials that were washed off site will be removed with BLM's approval
- All blocks in both units will be recertified for finish grade to assure water will still flow as designed
- Cement-soil held up good, however the few areas requiring repair shall be re-inspected and certified

In conclusion, it appears that the designed diversion channels, catch basins and sedimentation pond are well designed to handle a 100 year storm.

Robert DeKruise
 Chief Site Inspector
 Bureau Veritas North America, Inc.



Bureau Veritas North America, Inc.

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Report #	
Page:	2
Day:	
Project #:	36110-320000.01

DAMAGE ASSESSMENT REPORT

Project Name	Genesis Solar Energy Project				Date	08/01/2012		
Project Location	11995 Wiley's Well Road Blythe CA, 92225				Time Arrived	6:00 am		
General Contractor	Nextera				Time Departed	6:00 pm		
Inspectors	<input checked="" type="checkbox"/> Field Report				Date Cleared			
Robert DeKruise, Kent Ward Jim Perryman, Mike Barr	<input type="checkbox"/>	Trailer City	<input type="checkbox"/>	Equipment	<input checked="" type="checkbox"/>	Installed Mirror Assembly	<input type="checkbox"/>	Foundations
Visual assessment Performed	<input type="checkbox"/>	Erosion	<input type="checkbox"/>	Caissons	<input type="checkbox"/>	Environmental	<input type="checkbox"/>	
	<input type="checkbox"/>	Generators	<input type="checkbox"/>	Misc. Excavations	<input type="checkbox"/>	Buildings	<input type="checkbox"/>	
	<input type="checkbox"/>	Other		Weather				

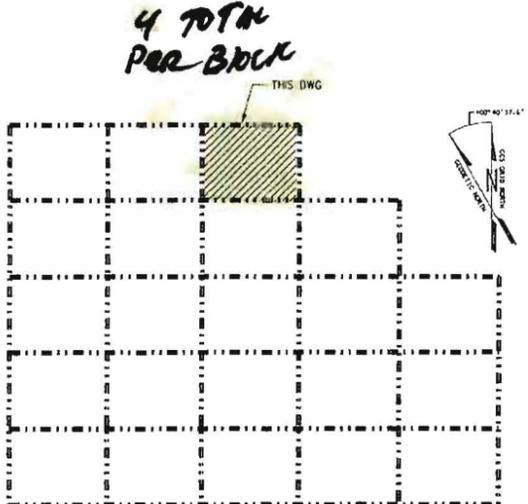
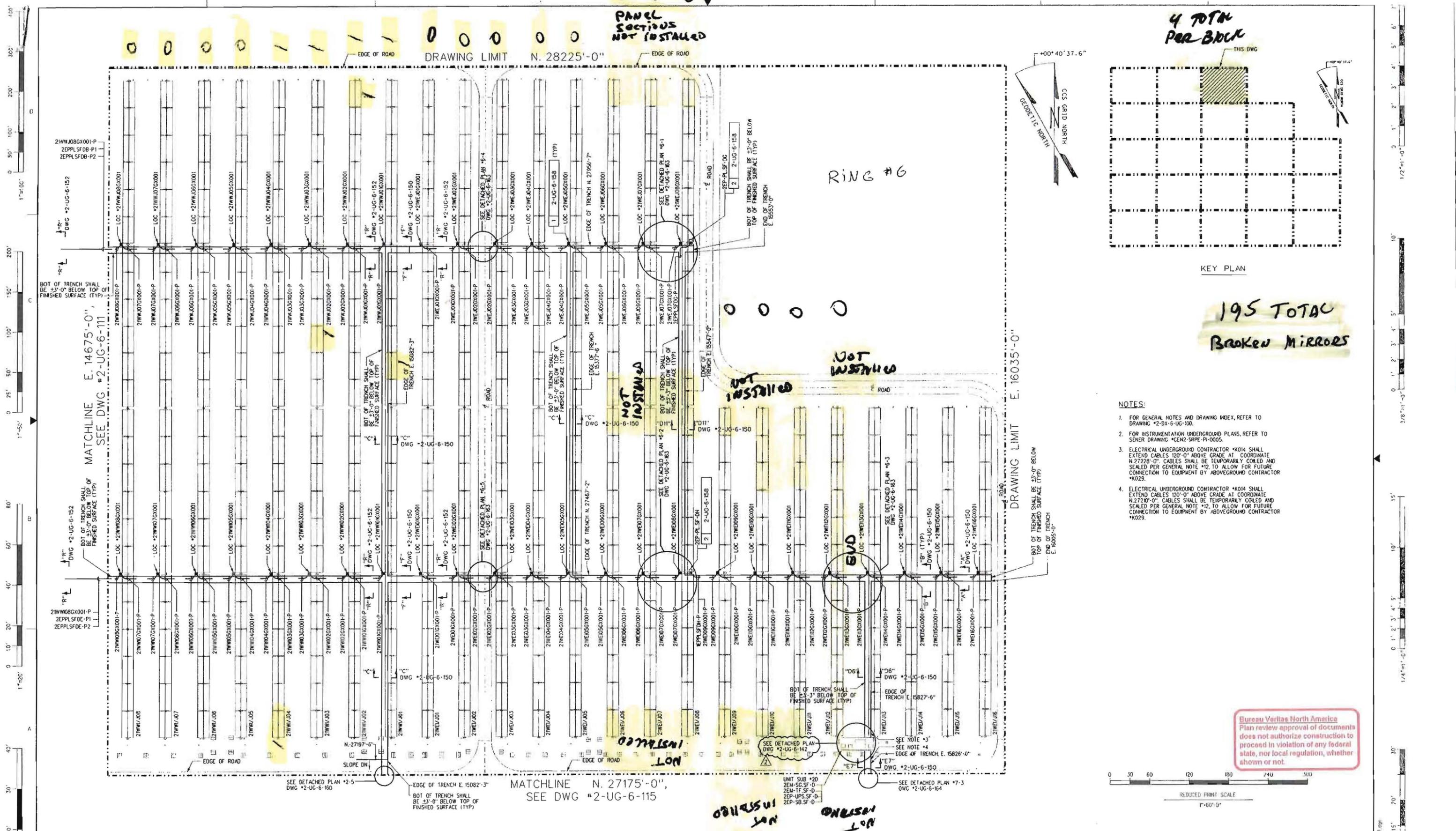
MIRROR DAMAGE TO SOLAR FIELD #2 RING #1

Visually inspected mirror damage to solar panel mirrors in solar field #2 ring #1 and solar field #1 ring #1. A total of 195 mirrors were broken in solar field #2 ring #1 due to flood rains and high winds, most of the damage was at the south end panels, mostly at bottom, top and middle of panels, refer to drawings #s A4PA-2-UG-6-110 to A4PA-2-UG-6-112. Solar field #1 ring #1 all solar panels had no damage.

PICTURES OF DAMAGED MIRRORS

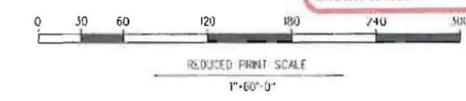




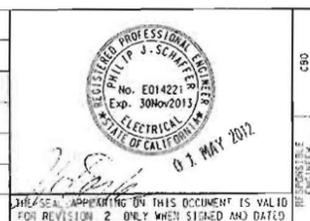


- NOTES:**
- FOR GENERAL NOTES AND DRAWING INDEX, REFER TO DRAWING *2-DX-6-UG-100.
 - FOR INSTRUMENTATION UNDERGROUND PLANS, REFER TO SENIOR DRAWING *GEN2-SRPE-PI-0005.
 - ELECTRICAL UNDERGROUND CONTRACTOR *K014 SHALL EXTEND CABLES 120'-0" ABOVE GRADE AT COORDINATE N.27228'-0". CABLES SHALL BE TEMPORARILY COILED AND SEALED PER GENERAL NOTE *12, TO ALLOW FOR FUTURE CONNECTION TO EQUIPMENT BY ABOVEGROUND CONTRACTOR *K029.
 - ELECTRICAL UNDERGROUND CONTRACTOR *K014 SHALL EXTEND CABLES 120'-0" ABOVE GRADE AT COORDINATE N.27200'-0". CABLES SHALL BE TEMPORARILY COILED AND SEALED PER GENERAL NOTE *12, TO ALLOW FOR FUTURE CONNECTION TO EQUIPMENT BY ABOVEGROUND CONTRACTOR *K029.

Bureau Veritas North America
Plan review approval of documents does not authorize construction to proceed in violation of any federal, state, or local regulation, whether shown or not.



REV	DATE	REVISION DESCRIPTION	BY	CHK	APPV	REFERENCE DWG NUMBER	REFERENCE DRAWINGS
1	03/05/12	ISSUED FOR CONSTRUCTION	EM	FS	PJS	2-DX-6-GD-100	ELEC GROUNDING DRAWING INDEX - SOLAR FIELD #2
2	04/30/12	REMOVED HOLD	MK	EW	SS		



CRISTIAN SON
Philip Schaffer
FLUOR

Digitally signed by Philip Schaffer
DN: cn=Philip Schaffer, o=FLUOR, ou=PHILIP SCHAFER, email=philip.schaffer@fluor.com, c=US
Reason: I am responsible for this document
Location: Irvine, CA
Date: 2012.05.21 09:12:19 -0700

CONTRACT	DRAWING BY	DATE
A4PA	P. MAHAJAN	03/05/12
DESIGNED BY	E. WYBENGA	03/05/12
CHECKED BY	F. SUZUKI	03/05/12
SUPV. BY	K. CHIENG	03/05/12
LEAD ENGINEER	P. SCHAFER	03/05/12
APP. DATE	A. PINTO	03/05/12
CLIENT	M. MCCABER	5/11/12

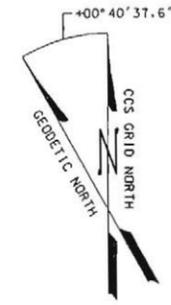
Genesis Solar Energy Project
Riverside County, California

ELECTRICAL UNDERGROUND PLAN
RING #1 & #6, SOLAR FIELD #2

SCALE: 1" = 60'-0"
DRAWING NUMBER: A4PA-2-UG-6-112

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DRAWING LIMIT N. 28260'-0"



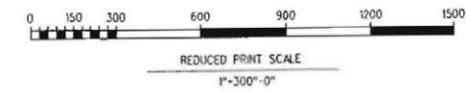
HOLD
MATCHLINE SEE DRAWING 0-UG-6-XXX
E. 11688'-0"



DRAWING LIMIT E. 18330'-0"

- LEGEND:**
- CABLE TRENCH
 - 480V POWER PANELBOARDS

- NOTES:**
- FOR GENERAL NOTES AND DRAWING INDEX, REFER TO DRAWING #2-DX-6-UG-100.



DRAWING LIMIT N. 22920'-0"

REV	DATE	REVISION DESCRIPTION	BY	CHK	APPV	REFERENCE DWG NUMBER	REFERENCE DRAWINGS
1	03/05/12	ISSUED FOR CONSTRUCTION	EW	FS	PJS		



CRISTI AN SON
Philip Schaffer
Digitally signed by Philip Schaffer
DN: cn=Philip Schaffer, o=Cristi An Son, ou=Engineering, email=pschaffer@crisan.com, c=US
Reason: I am responsible for this document.
Location: Irvine, CA
Date: 2012.03.13 09:23:44 -0700

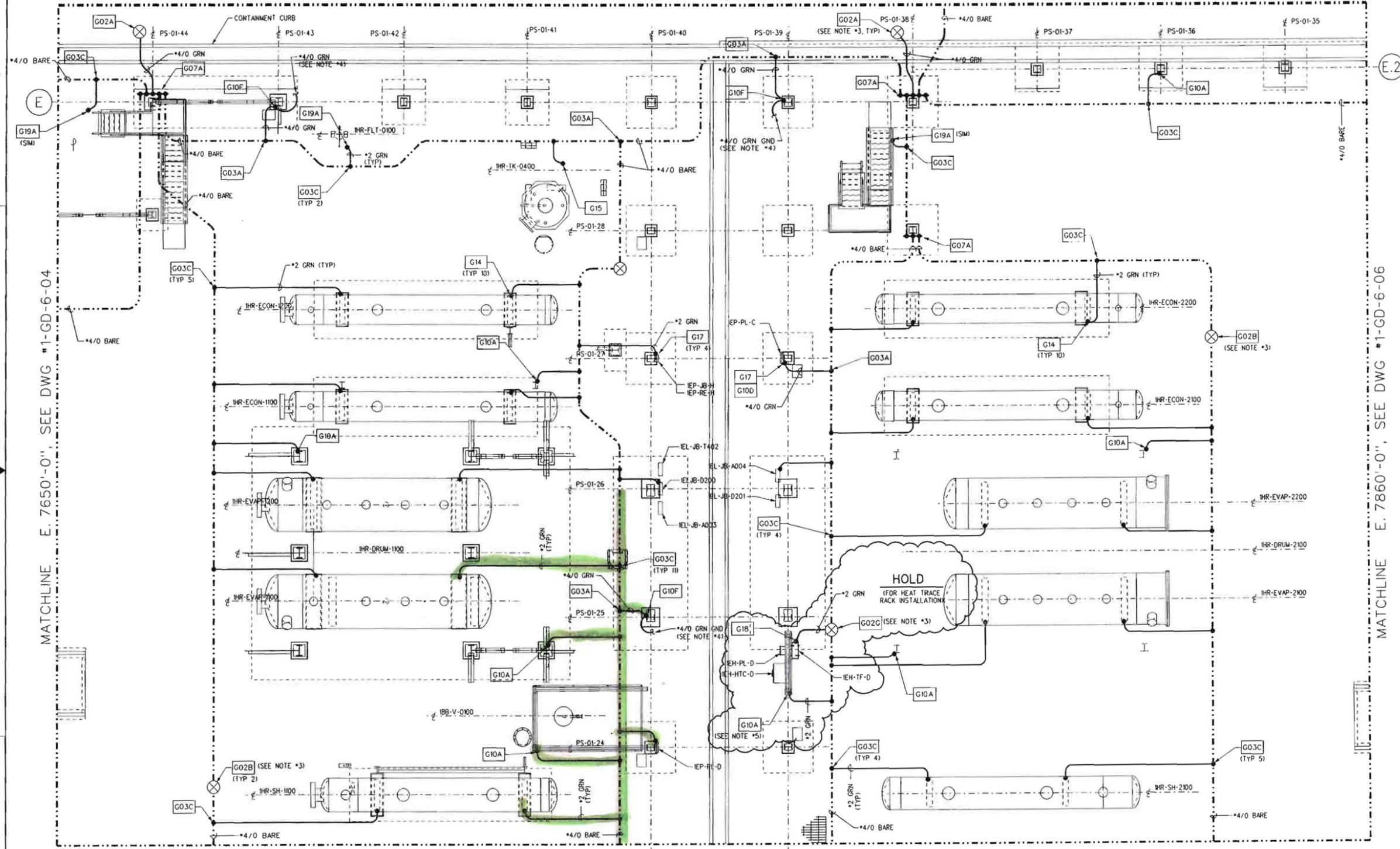
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CONTRACT #4PA	DRAWING BY R. DE LEON
DESIGNED BY E. WYBENGA	CHECKED BY F. SUZUKI
SUPERVISOR K. CHENG	APP DATE 03/05/12
LEAD ENGR/SEC. P. SCHAFER	APP DATE 03/05/12
CLIENT FLUOR	APP DATE 03/05/12
CLIENT A. PINTO	APP DATE 03/05/12
CLIENT M. McLeod	APP DATE 03/05/12

Genesis Solar Energy Project
Riverside County, California
ELECTRICAL
OVERALL UNDERGROUND TRENCHING PLAN
SOLAR FIELD #2
SCALE 1" = 300'-0"
DRAWING NUMBER A4PA-2-UG-6-100
REV 1

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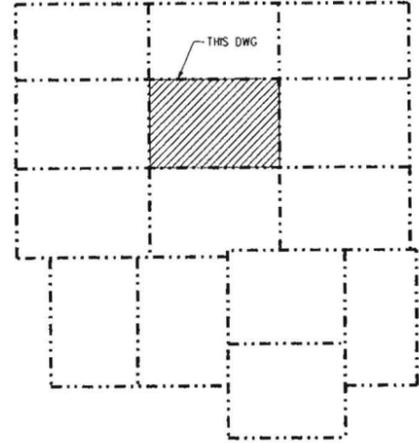
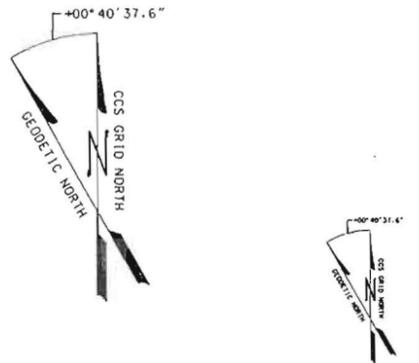
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MATCHLINE E. 7650'-0", SEE DWG #1-GD-6-04

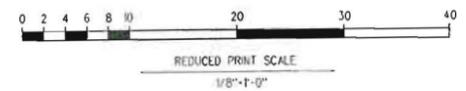
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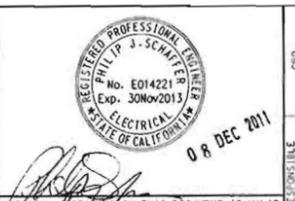


KEY PLAN

- NOTES:
- FOR GENERAL NOTES AND DRAWING INDEX SEE DWG #1-DX-6-GD-01.
 - HIGH POINT OF FINISH SURFACE ELEVATION IS 383'-7".
 - FIELD CONTRACTOR MUST VERIFY AND AVOID ALL UNDERGROUND PIPING OR CONCRETE FOUNDATIONS BEFORE STRIKING THE GROUND ROD INTO THE GROUND.
 - 4/0 GREEN INSULATED GROUND CONTINUED UP PIPE SUPPORT TO CABLE TRAY, SEE DWG #1-GT-6-03, 04 & 07.
 - UNDERGROUND CONTRACTOR *K014 TO EXTEND GROUND TAP WIRE APPROXIMATELY 10'-0" ABOVE GRADE AND COIL AND TAP THE END. HEAT TRACE VENDOR TO PROVIDE GROUNDING BUS BAR AT SIDE OF HEAT TRACE RACK FOR #2 EQUIPMENT GROUND CONNECTION.



REV	DATE	REVISION DESCRIPTION	BY	CHK	APPV	REFERENCE DWG NUMBER	REFERENCE DRAWINGS
1	12/06/11	ISSUED FOR CONSTRUCTION	MV	FS	PJS	1-DX-6-UG-01	UNDERGROUND DRAWING INDEX - POWER BLOCK #1

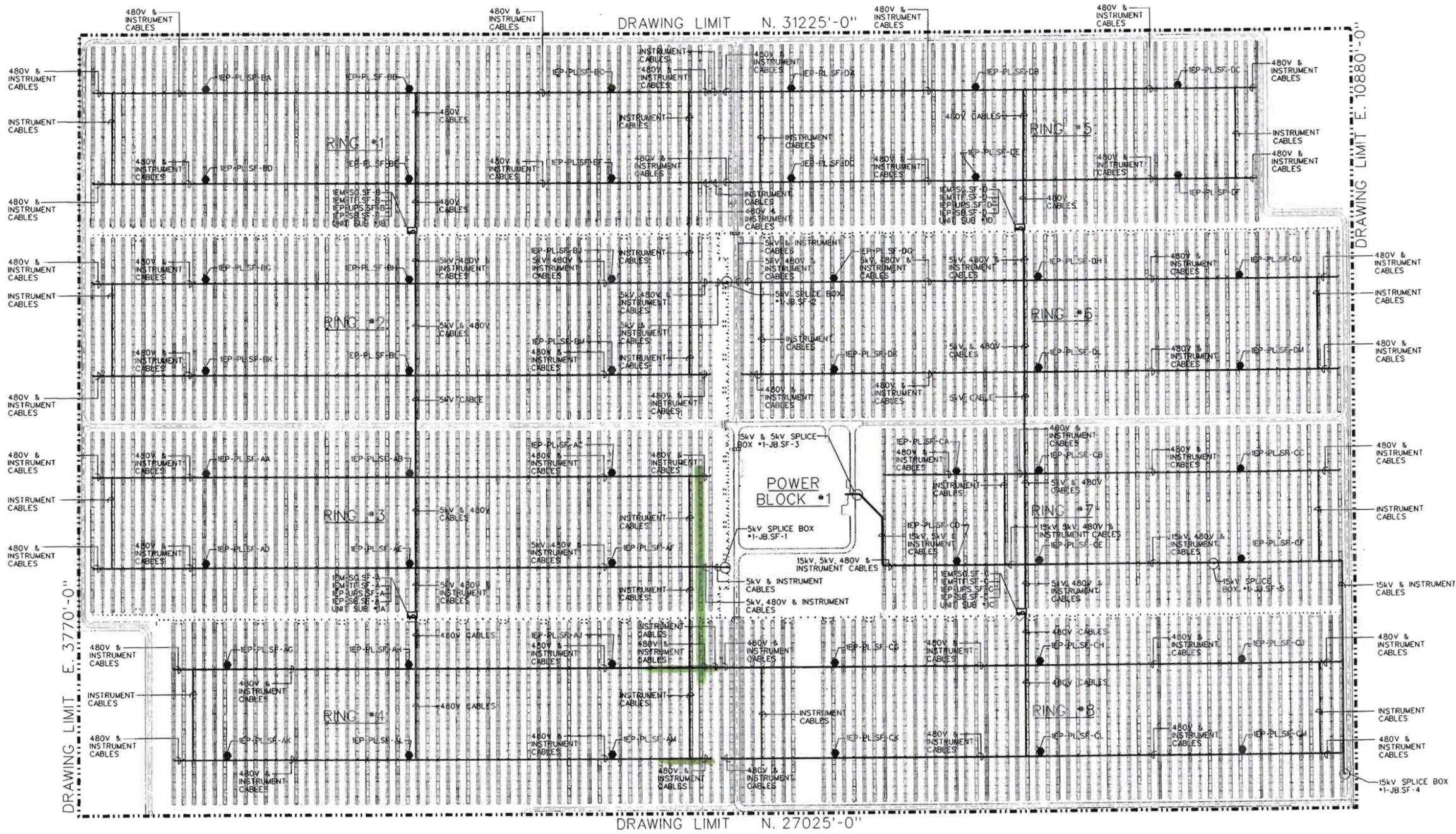
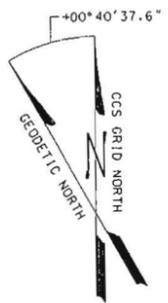


CRISTI AN SON
 Philip Schaffer
 RESPONSIBLE ENGINEER

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CONTRACT A4PA
 DRAWING BY M. VILORIA
 DESIGNED BY P. MAHAJAN
 CHECKED BY F. SUZUKI
 SUPERVISOR K. CHENG
 LEAD ENGR/SEC. P. SCHAFER
 FLUOR A. PINTO
 CLIENT

Genesis Solar Energy Project
 Riverside County, California
 ELECTRICAL
 GROUNDING PLAN
 POWER BLOCK #1
 SCALE: 1/8"=1'-0"
 DRAWING NUMBER: 1-DX-6-GD-01

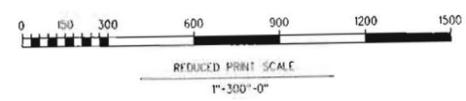


LEGEND:

- CABLE TRENCH
- 480V POWER PANELBOARDS

NOTES:

1. FOR GENERAL NOTES AND DRAWING INDEX, REFER TO DRAWING *1-DX-6-UG-100.



REV	DATE	REVISION DESCRIPTION	BY	CHK	APPV	REFERENCE DWG NUMBER	REFERENCE DRAWINGS
1	09/30/11	ISSUED FOR CONSTRUCTION	EW	FS	PJS		



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FLUOR

CONTRACT A4PA
 DRAWING BY R. DE LEON
 DESIGNED BY E. WYBENGA
 CHECKED BY F. SUZUKI
 SUPERVISOR K. CHENG
 APP DATE 09/30/11
 APP DATE 09/30/11
 APP DATE 09/30/11
 APP DATE

Genesis Solar Energy Project
 Riverside County, California

ELECTRICAL
OVERALL UNDERGROUND TRENCHING PLAN
SOLAR FIELD #1

SCALE: 1"=300'-0"

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					Page:	1
					Day:	wednesday
					Project #:	36110-320000.01
DAMAGE ASSESSMENT REPORT						
Project Name	Genesis Solar Energy Project				Date	08/01/12
Project Location	11995 Wiley's Well Road Blythe CA, 92225				Time Arrived	0600
General Contractor	Nextera				Time Departed	1430
Inspectors	<input checked="" type="checkbox"/> Field Report				Date Cleared	
Robert DeKruise, Kent Ward Jim Perryman, Mike Barr	<input checked="" type="checkbox"/>	Trailer City	<input type="checkbox"/>	Equipment	<input type="checkbox"/>	Installed Mirror Assembly
Visual assessment Performed	<input type="checkbox"/>	Erosion	<input type="checkbox"/>	Caissons	<input type="checkbox"/>	Environmental
	<input type="checkbox"/>	Generators	<input type="checkbox"/>	Misc. Excavations	<input type="checkbox"/>	Buildings
	<input type="checkbox"/>	Other		Weather		

TRAILER AND LANDING DAMAGE

Visually inspected damage to trailers and landings due to heavy rain and flooding most of the damage was erosion at base of trailers ,1st trailer at north end had 3 support jacks and mud sills were washed away trailer is still in tact , bureau veritas trailer has west end landing that sunk and is out of level landing is taped off and not in use for safety issues . Did not see any water damage at wood siding to subgrade on all trailers . See attached photos.





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Day:
Project #: 36110-320000.01

DAMAGE ASSESSMENT REPORT

Project Name	Genesis Solar Energy Project				Date	
Project Location	11995 Wiley's Well Road Blythe CA, 92225				Time Arrived	
General Contractor	Nextera				Time Departed	
Inspectors	<input checked="" type="checkbox"/> Field Report				Date Cleared	
Robert DeKruise, Kent Ward Jim Perryman, Mike Barr	<input type="checkbox"/>	Trailer City	<input type="checkbox"/>	Equipment	<input type="checkbox"/>	Installed Mirror Assembly
Visual assessment Performed	<input type="checkbox"/>	Erosion	<input type="checkbox"/>	Caissons	<input type="checkbox"/>	Environmental
	<input type="checkbox"/>	Generators	<input type="checkbox"/>	Misc. Excavations	<input checked="" type="checkbox"/>	Buildings
	<input type="checkbox"/>	Other	Weather			

Assembly Building Electrical:

Due to the flooding of the pits at both the north and south ends of the Assembly Building a total of four GFCI receptacles were submerged in water. All four GFCI receptacles were changed out and tested by a Bureau Veritas inspector and are approved for use. The building was then tested by Newtron to insure proper function and integrity of the electrical system. No other storm related issues were reported and the building is back in normal operation.

Pictures:



Both pits were flooded and all GFCI receptacles were replaced



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Day:	Friday
Project #:	36110-320000.01

DAMAGE ASSESSMENT REPORT

Project Name	Genesis Solar Energy Project				Date	08-03-12		
Project Location	11995 Wiley's Well Road Blythe CA, 92225				Time Arrived			
General Contractor	Nextera				Time Departed			
Inspectors	<input checked="" type="checkbox"/> Field Report by K Ward				Date Cleared			
Robert DeKruise, Kent Ward Jim Perryman, Mike Barr	<input type="checkbox"/>	Trailer City	<input type="checkbox"/>	Equipment	<input type="checkbox"/>	Installed Mirror Assembly	<input type="checkbox"/>	Foundations
Visual assessment Performed	<input type="checkbox"/>	Erosion	<input checked="" type="checkbox"/>	Caissons	<input type="checkbox"/>	Environmental	<input type="checkbox"/>	
	<input type="checkbox"/>	Generators	<input type="checkbox"/>	Misc. Excavations	<input type="checkbox"/>	Buildings	<input type="checkbox"/>	
	<input type="checkbox"/>	Other		Weather				

Caisson damage field 1

The following pictures will show damage to caisson holes that have been drilled and rebar cages have been set in place, ready for concrete pour. Because of flooding caisson holes filled up with mud and water. Approximately 80 caisson holes are going to be re-drilled after rebar cages are taken out with fork lift and holes have dried up. About 60 % of the rebar cages taken out are being destroyed. Also the top of the caisson holes have been eroded to twice the diameter, Largo will fill in hole , get compaction , and then re-drill hole and set in new cages.



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				Day:	Thursday			
				Project #:	36110-320000.01			
DAMAGE ASSESSMENT REPORT								
Project Name	Genesis Solar Energy Project			Date	08/02/2012			
Project Location	11995 Wiley's Well Road Blythe CA, 92225			Time Arrived	7:00 am			
General Contractor	Nextera			Time Departed	3:30 pm			
Inspectors	<input checked="" type="checkbox"/> Field Report			Date Cleared				
Robert DeKruise, Kent Ward Jim Perryman, Mike Barr	<input type="checkbox"/>	Trailer City	<input type="checkbox"/>	Equipment	<input type="checkbox"/>	Installed Mirror Assembly	<input type="checkbox"/>	Foundations
Visual assessment Performed	<input type="checkbox"/>	Erosion	<input type="checkbox"/>	Caissons	<input type="checkbox"/>	Environmental	<input type="checkbox"/>	
	<input type="checkbox"/>	Generators	<input type="checkbox"/>	Misc. Excavations	<input type="checkbox"/>	Buildings	<input type="checkbox"/>	
	<input checked="" type="checkbox"/>	Other	Newtron Open Trenches	Weather				

Newtron Open Underground Trenches Solar Field 1:

Solar Field 1 had minimal open electrical trenches prior to the storm. Ring 3 east end ground grid from the north trench of Ring 3 to the Ring 4 north trench. A small section of Ring 4 north trench at the east end of the trench approximately fifty feet of open trench and approximately twenty feet of open trench in the south trench. For trenches open prior to the storm view highlighted sections of attached drawing 1-UG-6-100. Also view attached pictures in this report.

Newtron Open Underground Trenches Solar Field 2:

Solar Field 2 had several open trenches prior to the storm. Ring 2 all trenches were open and have been completely filled with silt. Ring 2 was scheduled for inspection early Tuesday 7/31/2012. Due to the storm it was not possible to inspect the trenches in Ring 2 as it was full of water from rain the previous day and is now full of silt. All cables in Ring 2 will be tested by an insulation resistance test (megger) witnessed by a Bureau Veritas representative to insure the integrity of the cables have not been compromised. Approval of Ring 2 underground cables is pending until results of the insulation resistance test. Ring 4 had been backfilled both the north and the south trenches west of the middle north and south lateral. East of the middle lateral of both the north and the south trenches had not been backfilled prior to the storm and are now full of silt. In Ring 7 minimal trenches were not backfilled prior to the storm and are full of silt as well. For open trenches prior to storm view highlighted sections of attached drawing 2-UG-6-100. Also view attached pictures in this report.

Power Block 1 Ground Grid:

One section of trenching for the grounding grid in Power Block 1 had been open prior to the storm and is now full of silt. Refer to attached highlighted section of drawing 1-GD-6-05 for open trenches prior to the storm.

Solar Field 1 Pictures:



Solar Field 1 East End of Ring 3 and 4 North and South Lateral Trench



Solar Field 2 Ring 2 North South Trench East End



Solar Field 2 Ring 2 North Trench



Solar Field 2 Ring 2 South Trench



Solar Field 2 Ring 4 North South Trench East End



Solar Field 2 Ring 4 North South Trench Middle



Solar Field 2 Ring 4 North Trench



Solar Field 2 Ring 4 South Trench



Solar Field 2 Ring 7 North South Trench Middle



Solar Field 2 Ring 7 North Trench Partial



Solar Field 2 Ring 7 South Trench



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Day:	Tuesday
Project #:	36110-320000.01

DAMAGE ASSESSMENT REPORT

Project Name	Genesis Solar Energy Project				Date	07-31-12		
Project Location	11995 Wiley's Well Road Blythe CA, 92225				Time Arrived			
General Contractor	Nextera				Time Departed			
Inspectors	<input checked="" type="checkbox"/> Field Report by Kward				Date Cleared			
Robert DeKruise, Kent Ward Jim Perryman, Mike Barr	<input type="checkbox"/>	Trailer City	<input type="checkbox"/>	Equipment	<input type="checkbox"/>	Installed Mirror Assembly	<input type="checkbox"/>	Foundations
Visual assessment Performed	<input type="checkbox"/>	Erosion	<input type="checkbox"/>	Caissons	<input type="checkbox"/>	Environmental	<input checked="" type="checkbox"/>	Diversion channel
	<input type="checkbox"/>	Generators	<input type="checkbox"/>	Misc. Excavations	<input type="checkbox"/>	Buildings	<input type="checkbox"/>	
	<input type="checkbox"/>	Other			Weather			

Diversion channel damage

Flood waters washed massive amounts of silt and sand into the bottom of diversion trench job wide. Channel B-C at the temporary crossing overflowed causing extensive erosion damage to the banks of the channel. Channel D at the temporary crossing by the entrance to the site overflowed causing the road to be completely washed out along with massive amounts of silt. A temporary road was cut in order to evacuate remaining personnel on site. Minimal damage to the rip-rap was noticed. The V-ditch west of Solar Field 2 Block 2 and Block 3 sustained erosion damage and was filled completely with silt runoff. A large portion of the V-ditch was destroyed and will need to be replaced. Minimal damage to the A and B channels was noticed.



Damage to east side of channel B-C



Main entrance road to jobsite



Damage to west side of channel B-C



V ditch west end of field 2



Silt in D channel



South end of V ditch



Looking south at D channel

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					Project #:	36110-320000.01
DAMAGE ASSESSMENT REPORT						
Project Name	Genesis Solar Energy Project				Date	08/01-03/2012
Project Location	11995 Wiley's Well Road Blythe CA, 92225				Time Arrived	
General Contractor	Nextera				Time Departed	
Inspectors	<input checked="" type="checkbox"/> Field Report				Date Cleared	
Robert DeKruise, Kent Ward Jim Perryman, Mike Barr	<input type="checkbox"/>	Trailer City	<input type="checkbox"/>	Equipment	<input type="checkbox"/>	Installed Mirror Assembly
Visual assessment Performed	<input type="checkbox"/>	Erosion	<input type="checkbox"/>	Caissons	<input type="checkbox"/>	Environmental
	<input checked="" type="checkbox"/>	Generators	<input type="checkbox"/>	Misc. Excavations	<input type="checkbox"/>	Buildings
	<input type="checkbox"/>	Other	Weather			
						Foundations

Generators Unit 1:



South of Power Block 1 Electronics Building 1: Generator secondary containment needs to be rebuilt.

Generators Common Area:



ARB trailers south of the Assembly Building: Generator secondary containment needs to be rebuilt.



Temporary Fire Water Tanks: Generator needs to be taken out of the sink hole and relocated.

Generators Unit 2:



Power Block 2 PMI laydown: Generator secondary containment needs to be rebuilt.



Power Block 2 South of Electronics Building: Containment needs to be rebuilt.