APPENDIX B

PRELIMINARY HYDRAULIC EVALUATION

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Memorandum

Date: September 26, 2011

To: Travis Peterson, Solar Millennium, Inc.

From: William Black, P.E.

Subject: Hydraulic Study: Blythe Solar Power Project

Purpose

The purpose of this report is to provide the following deliverables for use in permitting and design:

1. Display showing pre-development 100-year frequency storm flow velocities across the site.

2. Display showing pre-development 100-year frequency depth-of-flow across the site.

3. Display showing where cross slope exceeds 3% and 5% perpendicular to contours.

4. Conceptual level earthwork quantities for the west portion of the site.

Introduction

Solar Millennium AG and Solar Trust of America are in the process of obtaining environmental permits for a proposed 9,400 acre, 1,000 MW solar power facility, “Blythe Solar Power Project”. The first phase of the project will consist of a 500 MW photovoltaic (PV) system (4 blocks at 125 MW each). The proposed project site is within unincorporated areas of Riverside County, approximately 8 miles west of Blythe.

Previously, the project was to consist of four solar-thermal plants. Both pre and post-development drainage studies were performed by AECOM in 2009[1] and 2010[2]. These reports included site hydrology and analysis of site drainage modifications using HEC-HMS and FLO-2D Version 2007.06. Several drainage channels were proposed to divert storm water flows around the planned facilities.

The proposed PV systems can be designed and constructed for overland storm water flows and would not require the diversion channels previously analyzed for the site. This memorandum was prepared to display estimated high water level elevations for the 100-

[1] “Blythe Solar Power Project – Pre-Development Drainage Conditions”, AECOM, November 25, 2009.
[2] “Blythe Solar Power Project – Post-Development Drainage Conditions”, AECOM, January 29, 2010.

year, 24-hour storm across the project site to be used in the preliminary design of the PV facilities and for environmental permitting with state and federal agencies. Analysis for pre and post-development drainage conditions at the site are presented in this memorandum using MIKE 21 by DHI, Inc. and the hydrology information provided in the previous reports.

Site Hydrology

As previously discussed the hydrology developed in the referenced reports are used to prepare the hydraulic model. The following paragraphs provide a brief description of the site hydrology and a summary of flow rate results used for the hydraulic analysis presented in this memorandum.

The project site is located on the Palo Verde Mesa to the east of the McCoy Mountains. The predominant drainage feature in the area is McCoy Wash located east of the project site. In general, the site receives runoff from the McCoy Mountains to the west. Flows travel across the site southerly in shallow, moderately defined channels towards the McCoy Wash.

The referenced 2010 reports provide existing hydrology estimates for the 100-year storm event. A summary of the calculated flow rates is presented below in Table 1. Locations of these channels can also be found in the previous referenced reports. These flow rates were used in the hydraulic model (MIKE 21).

Table 1
100 Year Existing Hydrology Calculations

Model Boundary Section	Total Flow Rate (cfs)
N2a	242.4
N3a	1,654.4
N4b	1,052.6
N5b	425.0
NW1	151.2
NW3	280.8
W1	1,217.9
SW5	1,282.7

Hydraulic Model

Flood depth across the site was determined using MIKE 21, a two dimensional hydraulic modeling software. The model consists of two parts, a mesh and boundary conditions. The mesh is a three dimensional representation of the ground surface, over which water will flow. The boundary conditions include both inflow and outflow criteria along the perimeter of the model.

A single model was constructed to represent the project site. A roughness coefficient of n = 0.025[3] was used to represent the estimated surface roughness of the site. The PV panel supports are assumed to be small diameter steel or aluminum members and are not anticipated to be a significant hindrance to flow and were not modeled.

Mesh

The mesh is composed of two parts, elements and nodes. A "node" is a point in space that contains both horizontal coordinates and vertical elevation data. The triangular area bounded by three points is an "element". Because multiple elements can share the same node, there are always more elements than nodes in a model. Figure 1 shows the relationship between element and node. The mesh was constructed using photogrammetric data, flown in 2007.

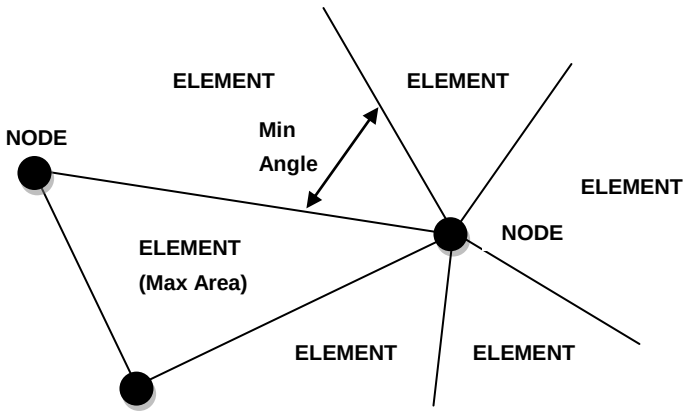


Figure 1 The relationship between the various MIKE 21 mesh components.

Coordinates and elevations for the nodes are interpolated from aerial LIDAR data. Because the nodes are interpolated, the number of nodes generated can be varied throughout the mesh. This allows areas of interest to be modeled at a higher resolution. Figure 2 shows the mesh generated for the site. Areas with greater detail are modeled at a higher resolution.

[3] The roughness coefficient of n = 0.025 was used for the MIKE 21 analysis to be consistent with the above referenced drainage studies by AECOM dated November 25, 2009 and January 29, 2010.

Figure 2 **MIKE 21 mesh representing the project site with areas of higher density indicated.**

The resolution of the mesh is determined by the maximum distance between nodes. MIKE 21 calculates node placement based upon the maximum area allowed for each element and the minimum angle required between sides of an element (see Figure 1). The mesh inputs and corresponding resolutions for the model are shown in Table 2.

Table 2 Mesh Statistics

	Density A	Density B
Max Area	2,000 m^2	1,000 m^2
Min Angle	26°	26°
Resolution	420 ft	297 ft

Total number of elements = 119,000
Total number of nodes = 60,200

Building Permit Requirements

We were unable to verify Riverside County Standards with regard to freeboard. The standard practice of agencies is to require a minimum 1 foot of freeboard from water surface to lowest extent of solar PV equipment.

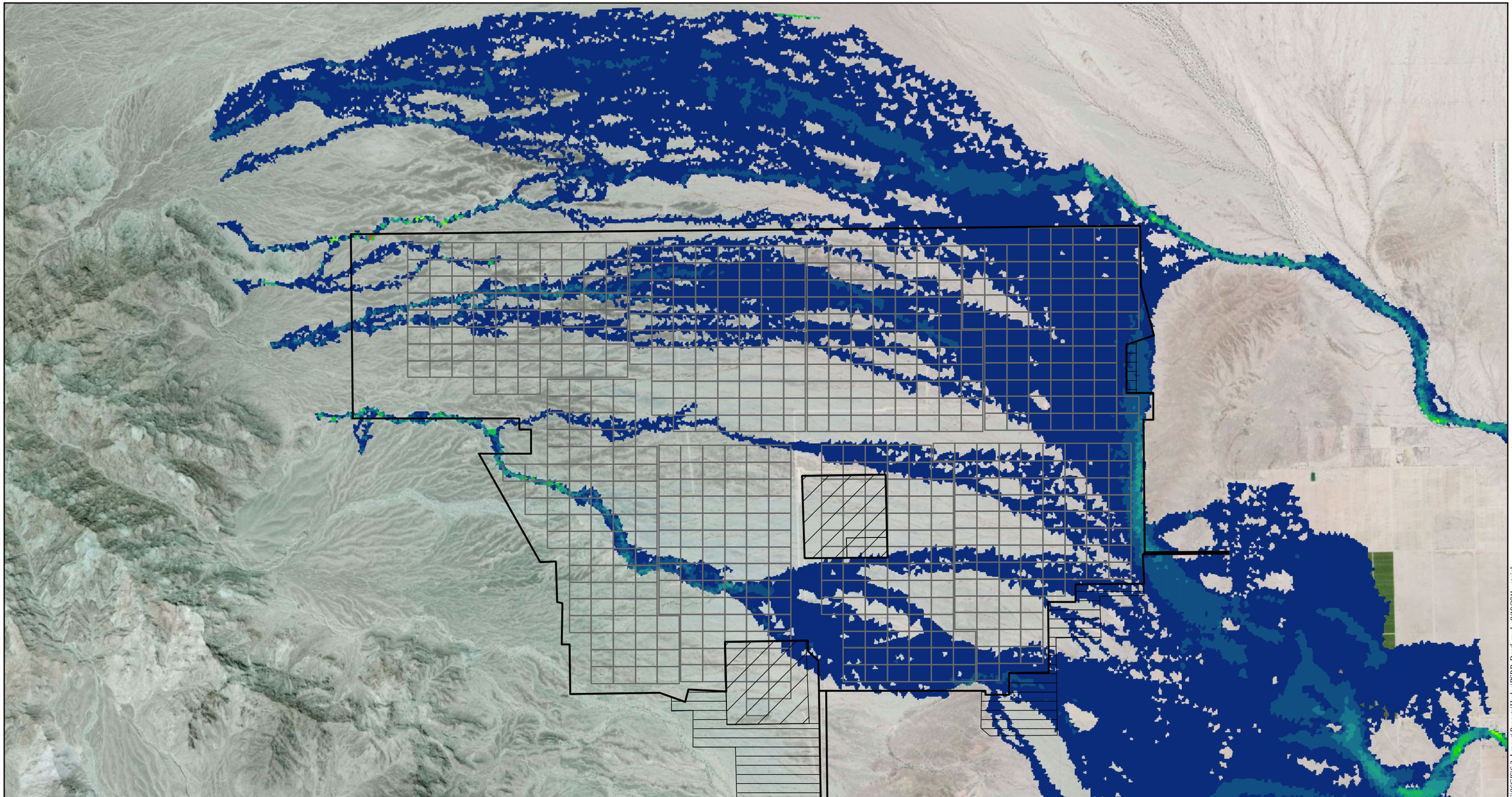
Water Depth and Velocity

The MIKE 21 analysis results were used to create two maps: one for water depth and one for water velocity. The region within these contours provides design data for the proposed foundations and PV panel height. See Figure 3 for the water depth and Figure 4 for the water velocity.

These values are based on existing topography only. Water retained by elevated roadways may increase the design depth in some areas and will need to be accounted for during final design. It should also be noted that the site is located on an alluvial fan. Because of this, it is possible that the existing channels tributary to the project site could meander. In the event that the channels meander, facilities designed for a smaller design depth and velocity could fail in a 100-year 24-hour storm.

On-Site Retention Requirements

Construction of proposed facilities will increase storm water runoff generated from the existing parcel without the implementation of Best Management Practices (BMPs). If onsite retention is required by the agency as mitigation for increased runoff, retention could be achieved by slightly elevating site access roads. Storm water could be impounded behind the roads.



Map Location

Legend

- Current ROW
- Private Property to be Acquired
- Potential Expansion Area
- Solar Arrays

Modeled Water Depth
Feet

- 0.03 - 0.5
- 0.6 - 1
- 1.1 - 1.5
- 1.6 - 2
- 2.1 - 2.5
- 2.6 - 3
- 3.1 - 3.5
- 3.6 - 4
- 4.1 - 4.5
- 4.6 - 5
- 5.1 - 5.5
- 5.6 - 6
- 6.1 - 6.5
- 6.6 - 7
- 7.1 - 7.5
- 7.6 - 8
- 8.1 - 8.5
- 8.6 - 9

Source: ESRI; AECOM 2011

N W E S

1 inch = 3,000 feet

0 3,000 6,000 Feet

Blythe Solar Power Project

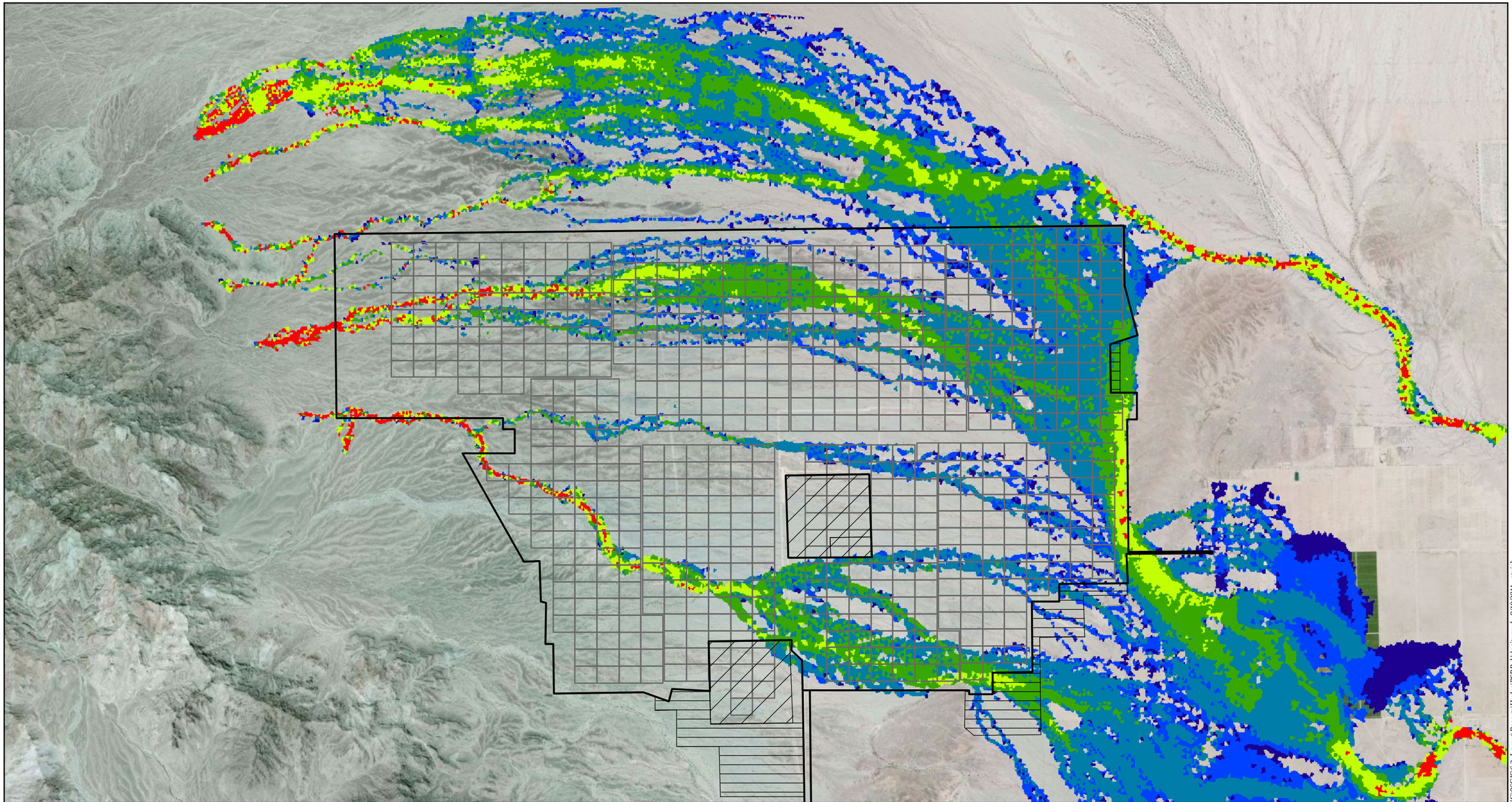
Figure 3
Modeled Water Depth

SOLAR TRUST OF AMERICA

AECOM

Date: September 2011

Path: P:\20111\1280150.01_BSPP_COMPLNC\06GIS\6.3_Layout\Reports\Hydro\BSPP_Depth.mxd, 9/19/2011, steinb



Map Location

Legend

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- Private Property to be Acquired
- Potential Expansion Area
- Solar Arrays

Modeled Water Velocity Feet/Second

- 0.001 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 3
- 3 - 5
- > 5

Source: ESRI; AECOM 2011

N W E S

1 inch = 3,000 feet

0 3,000 6,000 Feet

Blythe Solar Power Project

Figure 4
Modeled Water Velocity

SOLAR TRUST OF AMERICA

AECOM

Date: September 2011

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Grading

Ideally, PV sites are selected so that grading is minimal. Under those conditions, site preparation usually involves vegetation removal and grading to smooth out minor natural swales, depressions and bumps. If the site is smooth and planar, this treatment would normally suffice unless there are excessive slopes in the north-south or east-west directions. If that is the case, extensive grading may be necessary to bring the surfaces close to level (less than 3% in the north-south direction and 5% in the east-west direction.).

Figures 5, 6, 7 and 8 address slope issues by displaying natural slope conditions under three categories: Less than 3% (green), between 3% and 5% (yellow) and greater than 5% (red). By comparing these with the solar block unit boundaries (Figure 9) it can be clearly seen that Units 1 through 5 are ideal for constructing solar arrays and Units 6, 7 and 8 require extensive grading for viable solar array development.

In Units 6, 7 and 8, the east-west oriented slopes are less than 5% and in most cases, less than 2%. Excessive slopes, however, are found as a result of deeply incised channels that traverse the site. Some of the channels were upwards of 20 feet deep and had very steep side slopes – not ideal for solar field development.

For Units 6, 7 and 8, AECOM prepared conceptual grading plans to satisfy slope criteria as described above (3% maximum N-S and 5% E-W). Figures 10, 11 and 12 display pre-development and conceptual post development surfaces[1]. Cut and fill quantities were developed by modeling the two surfaces using CAD. Rough quantities of cut and fill are listed for Units 6, 7 and 8 in Table 3 below:

Table 3 – Earthwork Quantities

Unit	Cut (Cubic Yards)	Fill (Cubic Yards)
6	500,000	400,000
7	800,000	700,000
8	1,100,000	900,000

The volume of cut is deliberately set to be in excess of fill volume by 15% to 25% to compensate for losses (grubbing, shrinkage and subsidence) that result in earthwork. Since the intent is to balance the site (no import or export) further adjustments may be necessary as a part of final design and will depend on soil and site conditions. Minor adjustments to finish grades can result in significant changes in earthwork volume[2].

[1] The grading plans are very rough and would need to be polished as part of final design. They were prepared for use in generating concept level cut and fill volumes.

[2] 0.1 feet of adjustment to a square mile will result in approximately 100,000 cubic yards of change in earthwork quantity.

Grading Cost

The cost of grading will depend on several factors; type of soil, maximum haul distance, if rock is present and water. For these sites, the maximum haul distance should be about ½ mile. Therefore the work can be done mainly with bull dozers, water trucks and scrapers. Based on this, for a project this size, the earthwork should cost about a dollar per cubic yard assuming favorable soils.

Water needed for earthwork will be considerable however. For a site like this water required for grading would be approximately 50 gallons per cubic yard of earth moved. For all three sites the water could be as much as 120 million gallons. The cost of developing a water well, piping water to the site from an assumed distance of 5 miles away, providing on-site water distribution, pre-watering, and running water trucks would add more than a dollar per cubic yard. Adding water, engineering, contingencies for rock and caliche, the cost per cubic yard could exceed $3.00. Without an extensive soils investigation, the cost number provided is only a very rough estimate.

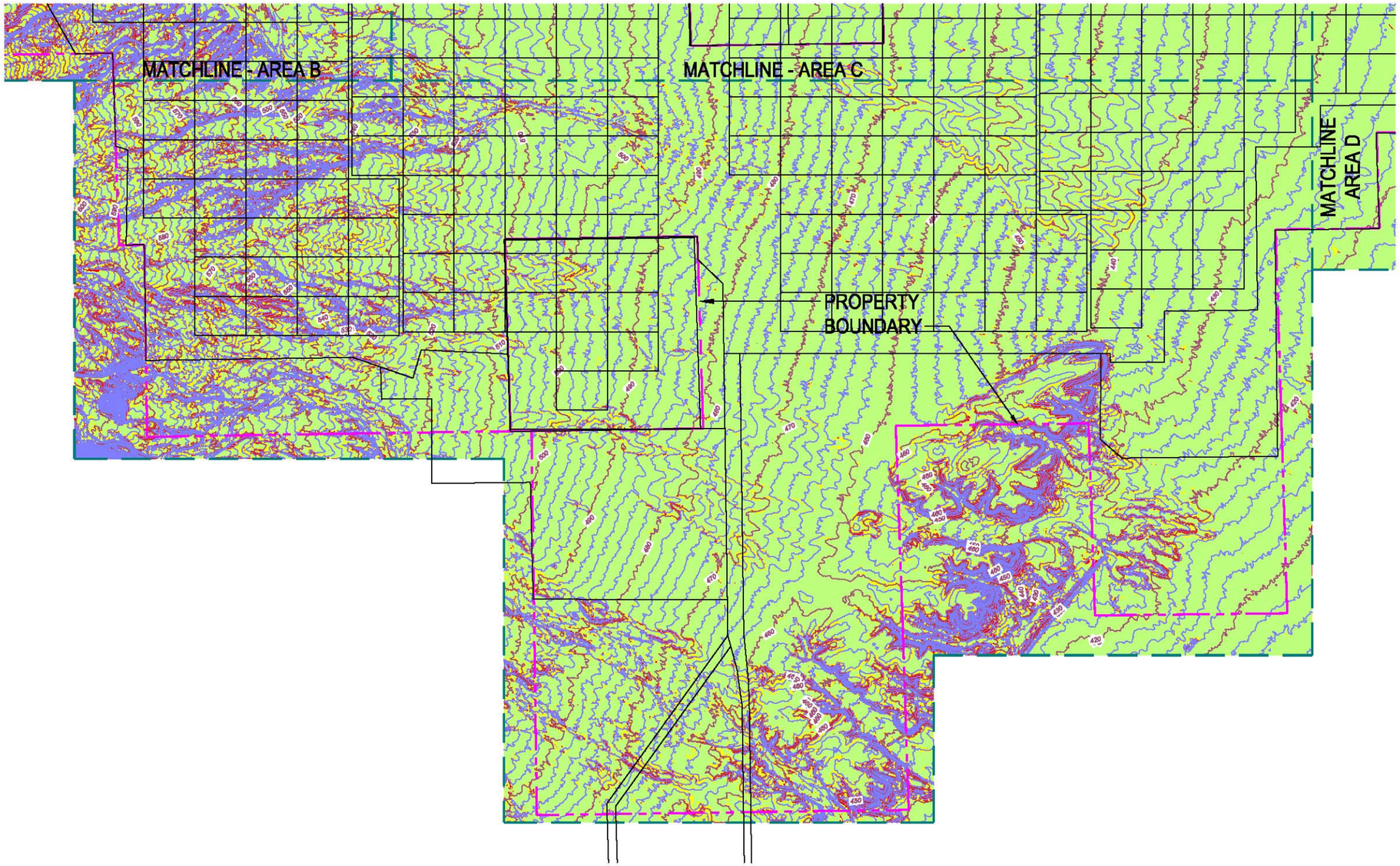
Erosion Control

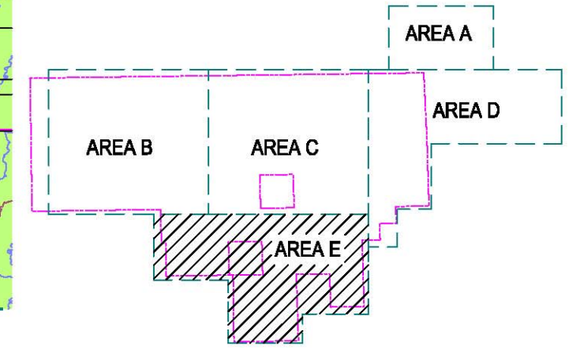
Erosion control for the finished site should consist of standard post construction best management practices (BMP's). A method that has been found acceptable on sites similar to this is to utilize the matrix of internal solar field access roads. In essence the roads can serve as check dams and could therefore, become a means of reducing sediment transfer. As check dams, the resulting small shallow basins can serve as stilling basins that will allow sediment loading to drop out. Where storm water is anticipated to cross roads (dips), those roads could be hardened with aggregate base to minimize stormwater incisions. Where well established natural channels exist, they could be avoided or augmented with rock slope protection[3].

Conclusions

1. Units 1 through 5 require minimal grading to develop as photovoltaic solar sites.
2. Units 6, 7 and 8 require extensive grading.
3. Erosion control can be accomplished by hardening on-site access roads at strategic locations.

[3] It is common practice to avoid significant natural channels when planning solar array construction. For this project, Solar Millennium intended to develop solar blocks without internal gaps for natural channels. Therefore, the practice of hardening internal access roads at strategic locations is one that should be considered.





SITE KEY

NOTES:

1. SLOPES DETERMINED PERPENDICULAR TO CONTOURS

LEGEND

- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- MATCH LINE
- PROPERTY BOUNDARY
- SLOPES 0% TO 3%
- SLOPES 3% TO 5%
- SLOPES 5% AND GREATER

SCALE

0 400 800 1600

1 INCH = 800 FEET

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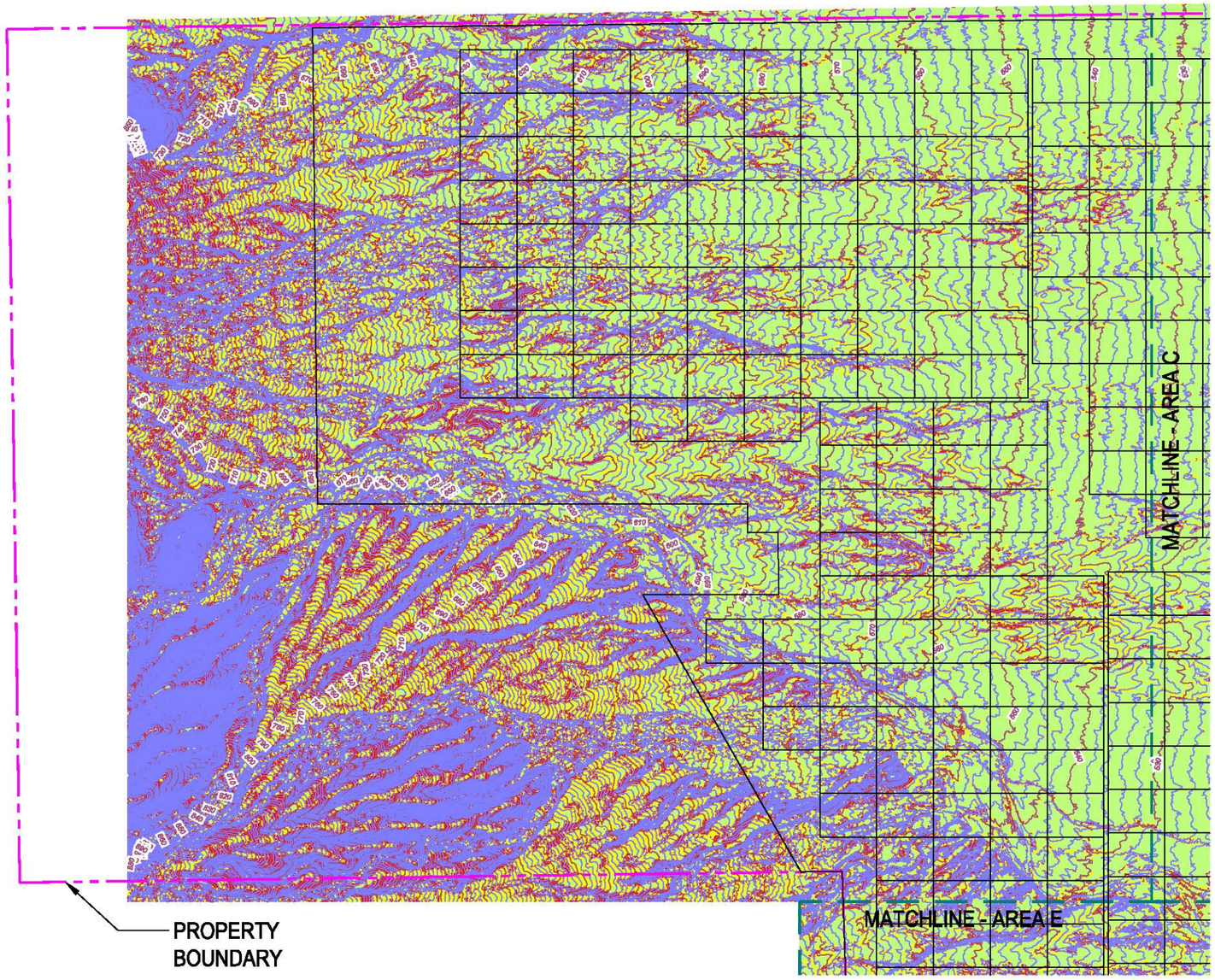
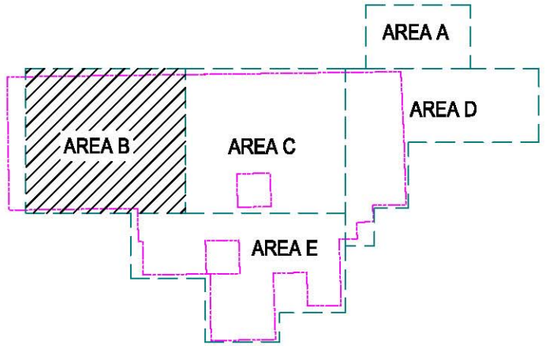
SOLAR MILLENNIUM - BLYTHE SITE
AREA E-1

FIGURE
5





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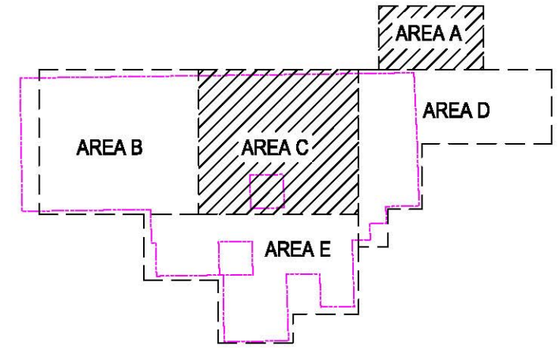
SOLAR MILLENNIUM - BLYTHE SITE
AREA B-1

FIGURE
6



SITE KEY

SCALE
0 800 1600
1 INCH = 800 FEET

NOTES:

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LEGEND

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- MINOR CONTOUR LINE
- MATCH LINE
- PROPERTY BOUNDARY
- SLOPES 0% TO 3%
- SLOPES 3% TO 5%
- SLOPES 5% AND GREATER

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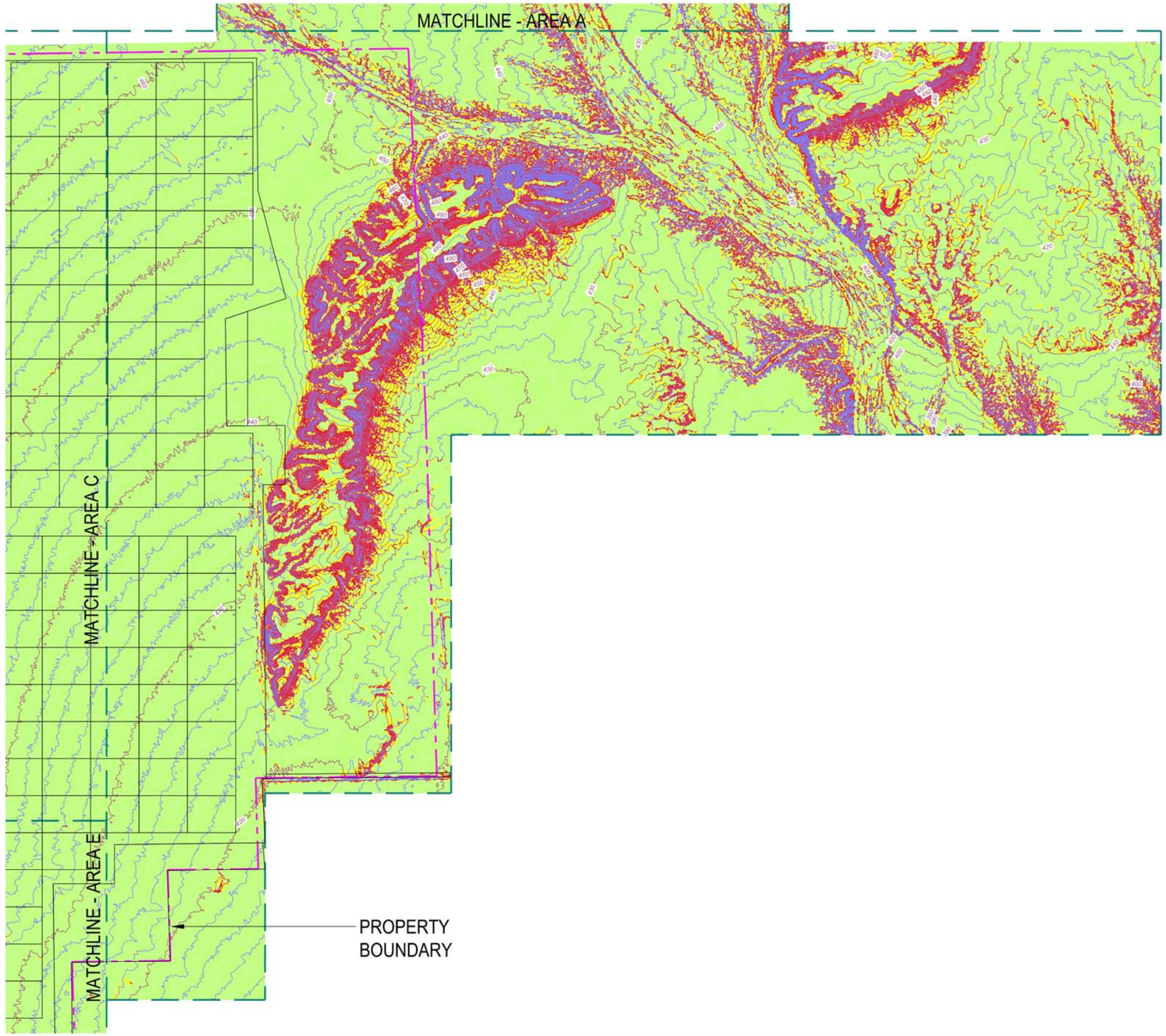
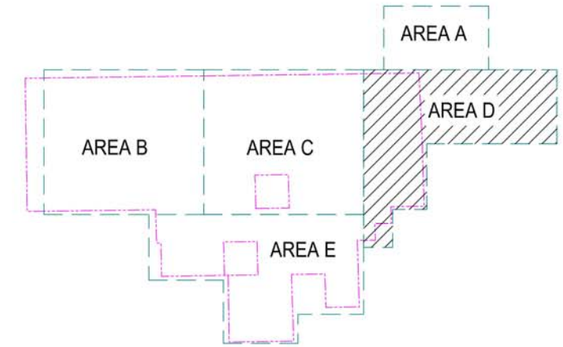
SOLAR MILLENNIUM - BLYTHE SITE
AREA C-1

FIGURE
7





SITE KEY

SCALE
0 400 800 1600
1 INCH = 800 FEET

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SOLAR MILLENNIUM - BLYTHE SITE
AREA D-1

FIGURE
8

Blythe Solar Power Project

Alternative 1 - Conceptual Photovoltaic Design for Review

SOLAR TRUST OF AMERICA
Powering America's Future™
1111 Broadway, 5th Floor
Oakland, CA 94607
510-463-6518

Drafted: 09/14/2011

D:\GIS\Data\Project_Site\Blythe\Support\Development\PV\Typical_Layout\Alternative1\Mxd\Blythe_Conceptual_Layout_Alternative1_09142011R2.mxd

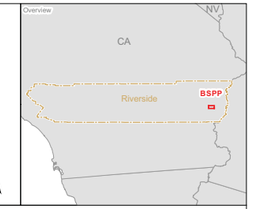
Current Blythe ROW
Private Property to be Aquired
Solar Unit
Photovoltaic Arrays
Switchyard
GSU
Warehouse Control Facility
Water Well Area
Generation Tie
Access Road

0 500 1,000 1,500 2,000 2,500 Feet

0 0.5 1 Miles

N

DRAFT: CONCEPTUAL DESIGN FOR REVIEW



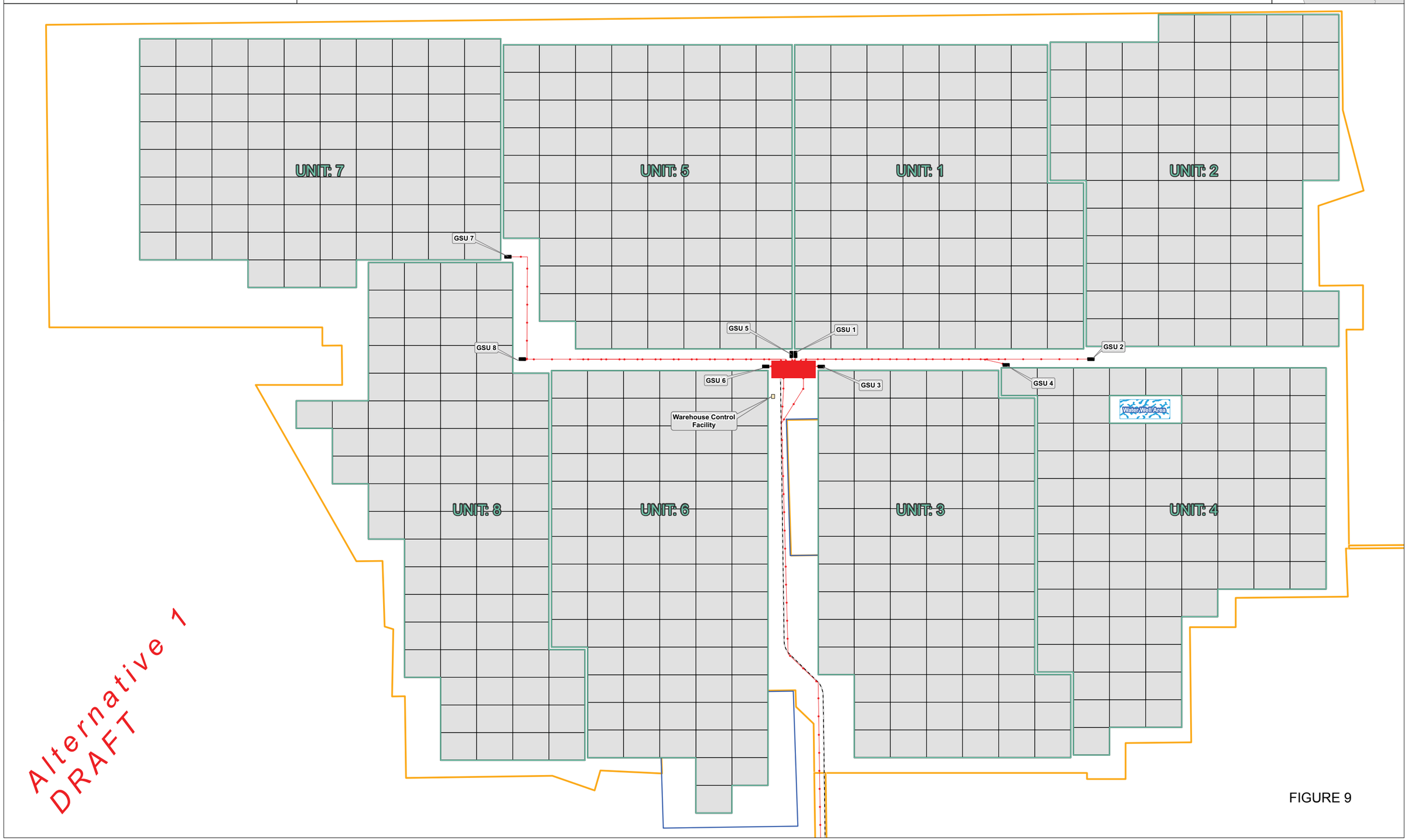
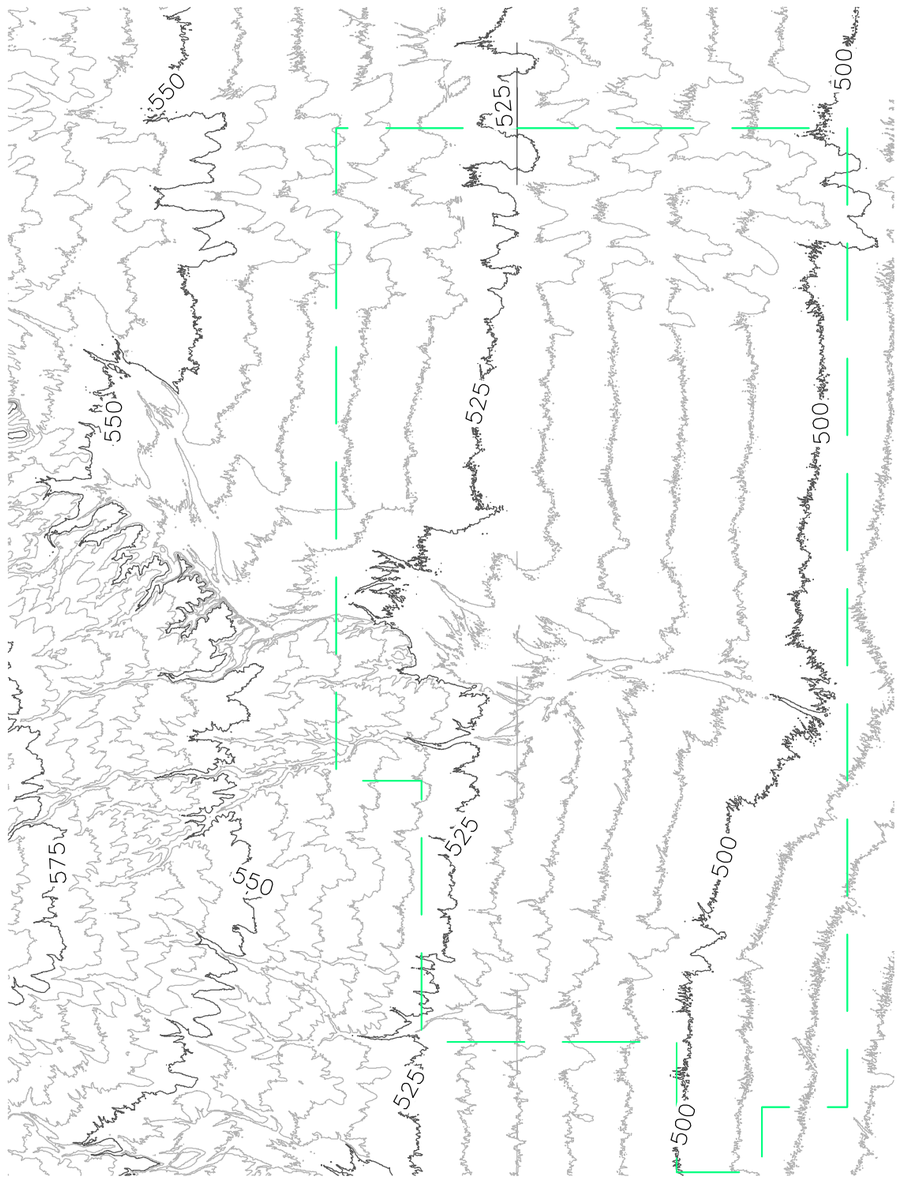


FIGURE 9

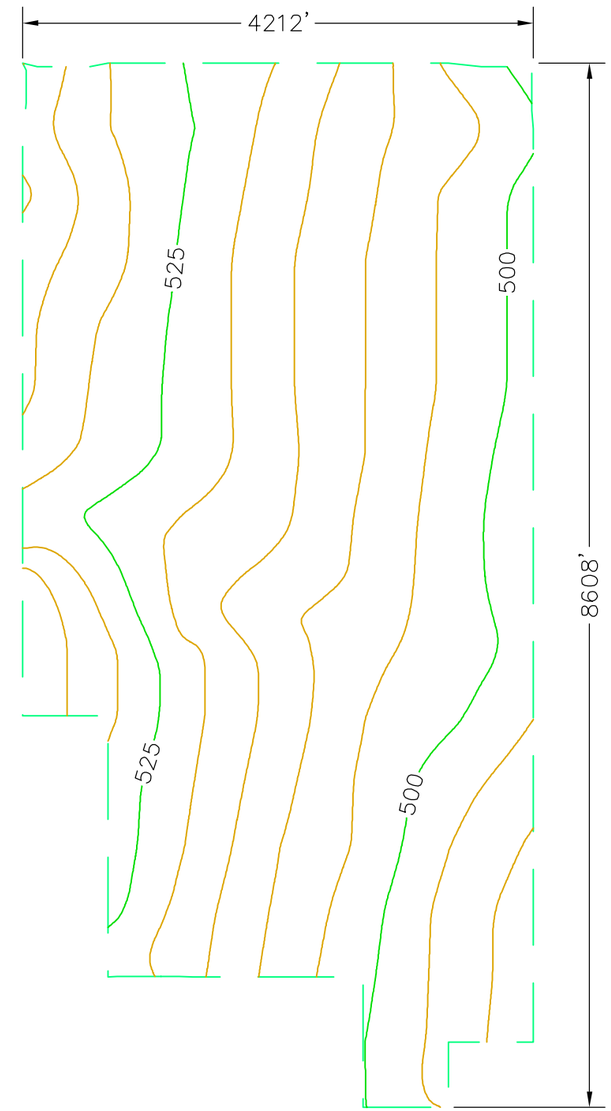


EXISTING SURFACE

LEGEND

LINE	DESCRIPTION
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED SURFACE BOUNDARY

NO SCALE



PROPOSED SURFACE

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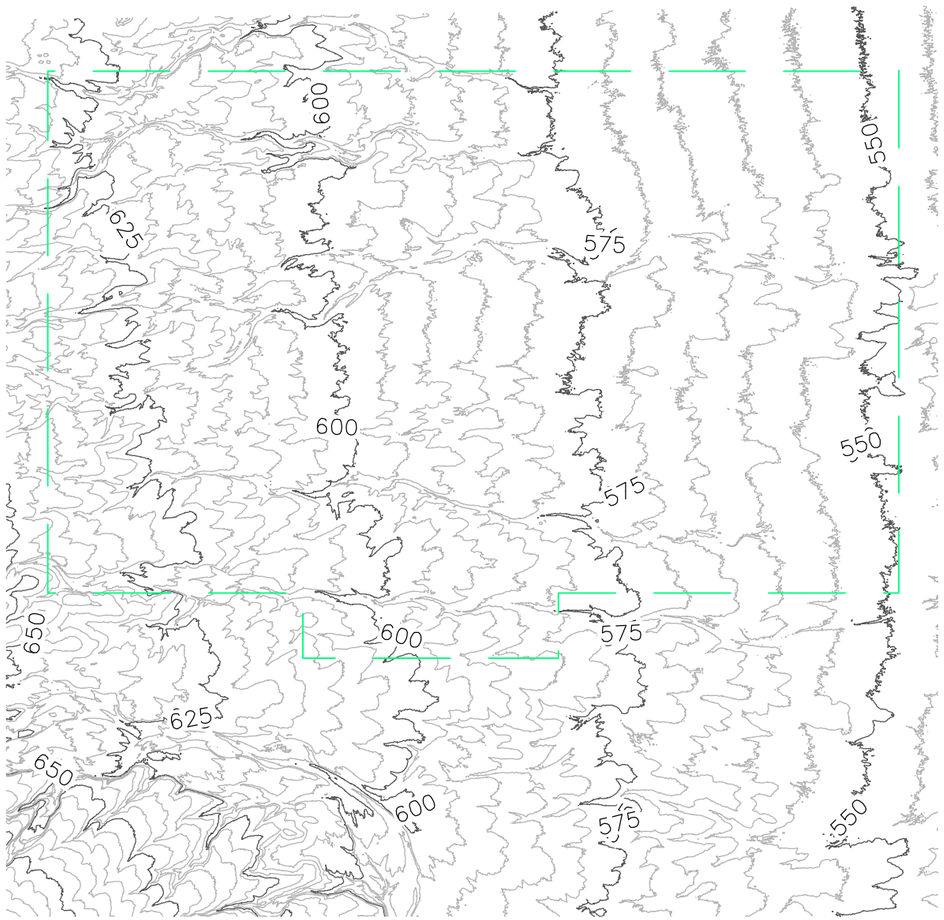
AECOM

BLYTHE SOLAR POWER PROJECT
UNIT 6

FIGURE
10

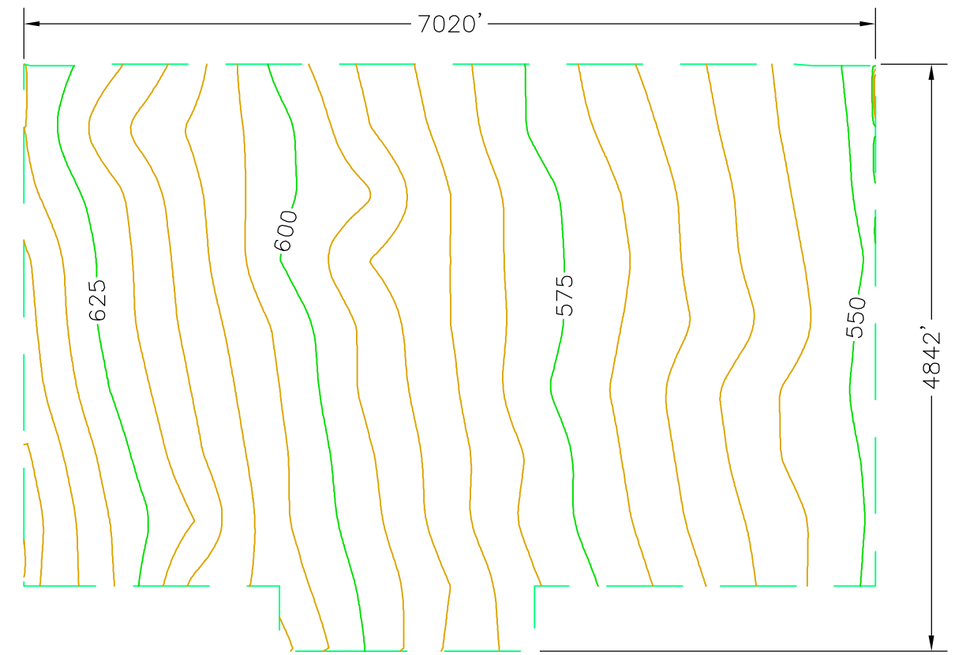
LEGEND

LINE	DESCRIPTION
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED SURFACE BOUNDARY



EXISTING SURFACE

NO SCALE



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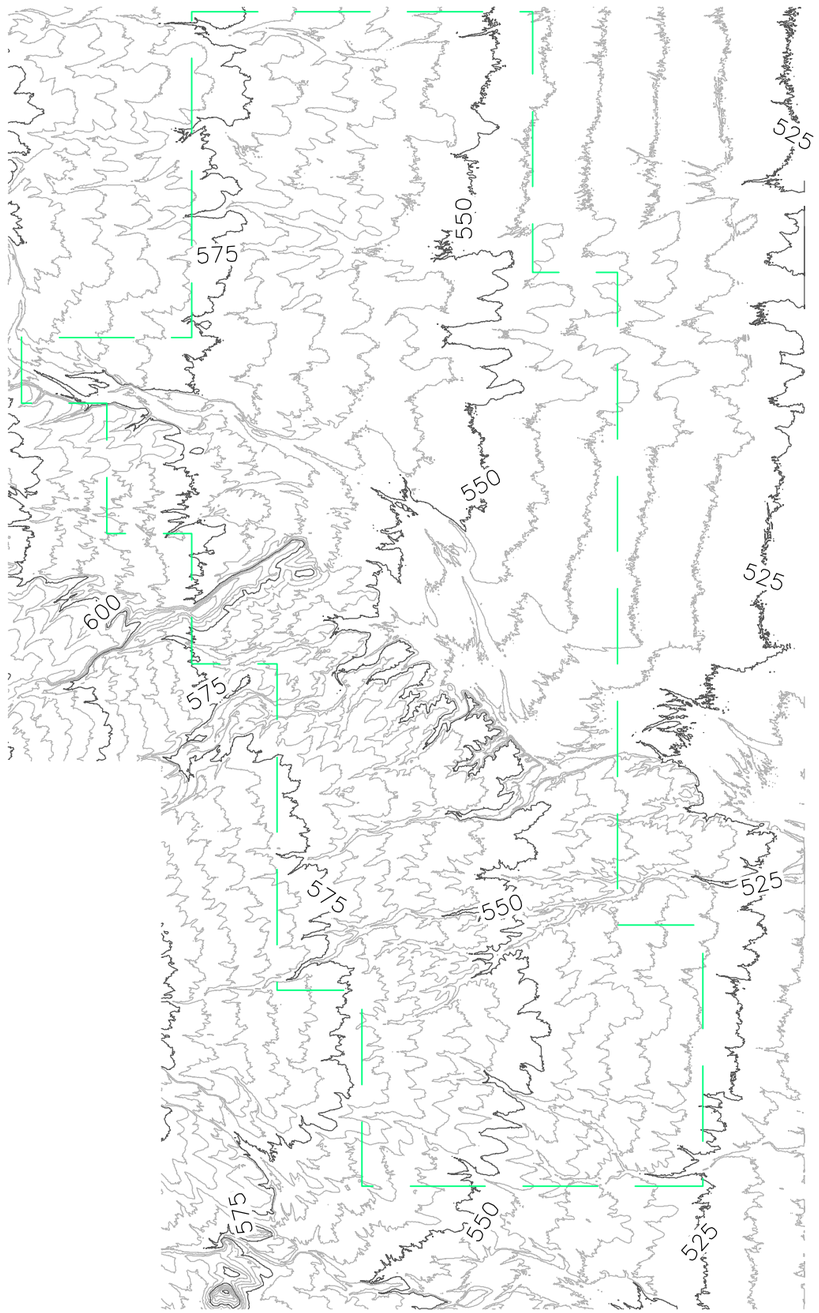
BLYTHE SOLAR POWER PROJECT
UNIT 7

FIGURE
11



EXISTING SURFACE

LEGEND

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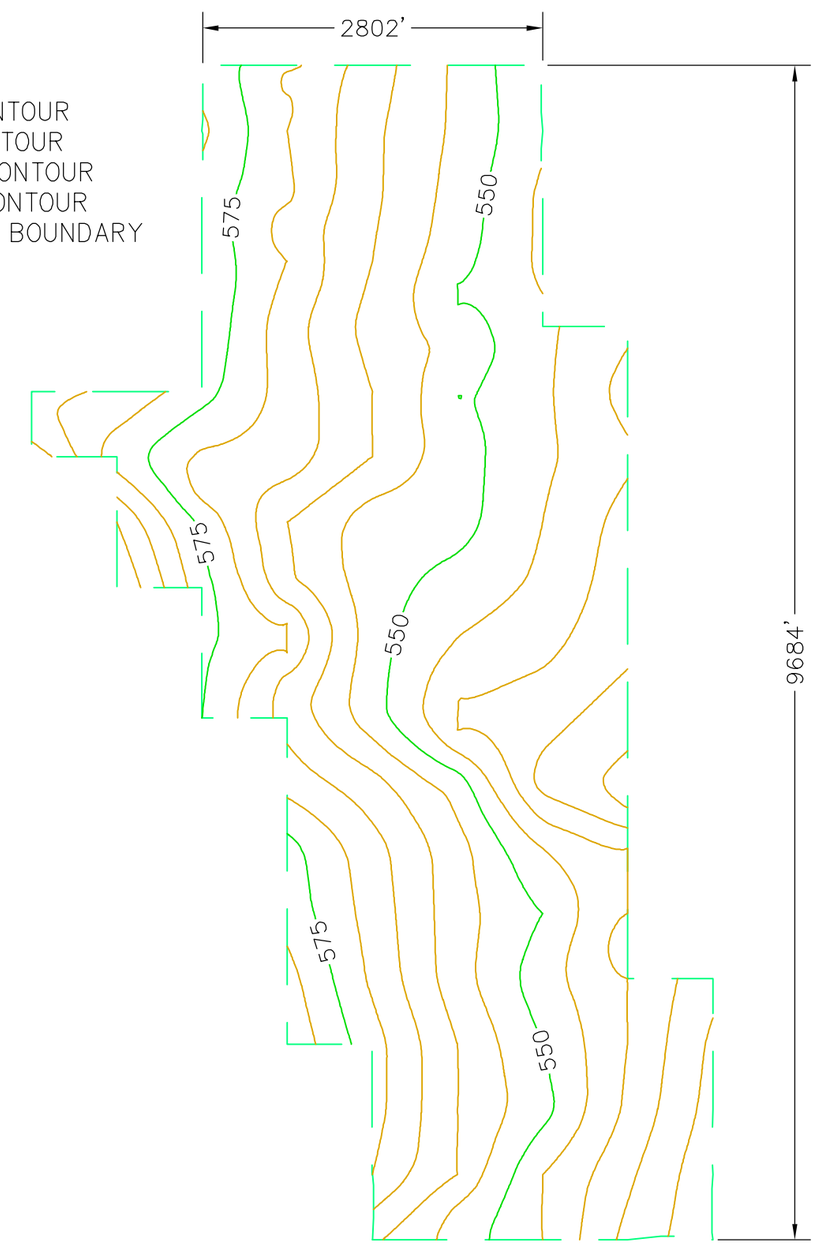

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UNIT 8

FIGURE
12

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Technical Memorandum

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3. Display showing where cross-slopes exceed 3% and 5% perpendicular to contours.

4. Conceptual level earthwork quantities for the west portion of the site.

5. Order of Magnitude cost estimates for grading.

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[2] “Blythe Solar Power Project – Post-Development Drainage Conditions”, AECOM, January 29, 2010. See also Figure 3 of this memorandum for a visual display from that report.

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SW5	1,282.7

Hydraulic Model

Flood depth across the site was determined using MIKE 21, a two dimensional hydraulic modeling software. The model consists of two parts, a mesh and boundary conditions. The mesh is a three dimensional representation of the ground surface, over which water will flow. The boundary conditions include both inflow and outflow criteria along the perimeter of the model.

A single model was constructed to represent the project site. A roughness coefficient of n = 0.025 was used[3] to represent the estimated surface roughness of the site. The PV panel supports are assumed to be small diameter steel or aluminum members and are not anticipated to be a significant hindrance to flow and were not modeled.

Mesh

The mesh is composed of two parts, elements and nodes. A “node” is a point in space that contains both horizontal coordinates and vertical elevation data. The triangular area bounded by three points is an “element”. Because multiple elements can share the same node, there are always more elements than nodes in a model. Figure 1 shows the relationship between element and node. The mesh was constructed using photogrammetric data, flown in 2007.

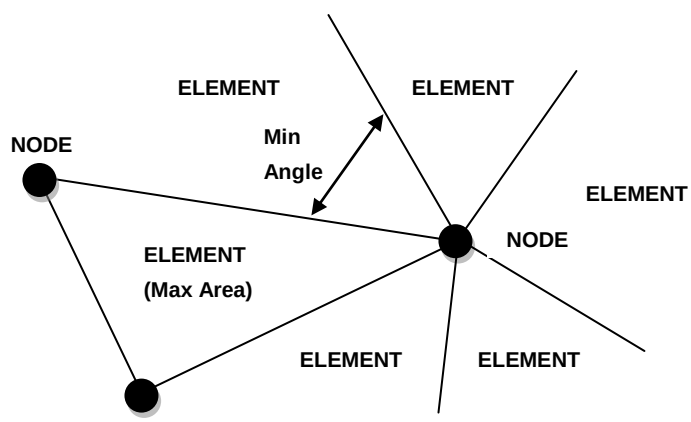

Figure 1 The relationship between the various MIKE 21 mesh components.

Coordinates and elevations for the nodes are interpolated from aerial LIDAR data. Because the nodes are interpolated, the number of nodes generated can be varied throughout the

[3] The roughness coefficient of n = 0.025 was used for the MIKE 21 analysis to be consistent with the above referenced drainage studies by AECOM dated November 25, 2009 and January 29, 2010.

mesh. This allows areas of interest to be modeled at a higher resolution. Figure 2 shows the mesh generated for the site. Areas with greater detail are modeled at a higher resolution.

Figure 2 MIKE 21 mesh representing the project site with areas of higher density indicated.

The resolution of the mesh is determined by the maximum distance between nodes. MIKE 21 calculates node placement based upon the maximum area allowed for each element and the minimum angle required between sides of an element (see Figure 1). The mesh inputs and corresponding resolutions for the model are shown in Table 2.

Table 2 Mesh Statistics

	Density A	Density B
Max Area	22,000 ft^2	11,000 ft^2
Min Angle	26°	26°
Resolution	420 ft	297 ft

Total number of elements = 119,000
Total number of nodes = 60,200

Building Permit Requirements

We were unable to verify Riverside County Standards with regard to freeboard. The standard practice of agencies is to require a minimum 1 foot of clearance from the calculated 100-year stormwater surface to the lowest extent of solar PV equipment.

Water Depth and Velocity

The MIKE 21 analysis results were used to create two maps: one for water depth and one for water velocity. The region within these contours provides design data for the proposed foundations and PV panel height. See Figure 3 for peak flow rates entering various locations of the site[4] and Figures 4 A and 4 B for respective water depth and velocity.

These values are based on existing topography only. Water retained by elevated roadways may increase the design depth in some areas and will need to be accounted for during final design. It should also be noted that the site is located on an alluvial fan. Because of this, it is possible that the existing channels tributary to the project site could meander. In the event that the channels meander, facilities designed for a smaller design depth and velocity could fail in a 100-year 24-hour storm.

On-Site Retention Requirements

Construction of proposed facilities may result in a slight change in storm water runoff generated from the existing site without the implementation of Best Management Practices (BMPs). The reason is that clearing and smoothing the site could result in a change of infiltration rates. The runoff volume difference can be mitigated through the use of BMP(s). For example, by slightly elevating on-site access roads, stormwater could be impounded. In effect the project area would have a series of small, shallow retention basins which could thereby mitigate the runoff volume difference[5].

[4] "Blythe Solar Power Project – Post-Development Drainage Conditions", AECOM, January 29, 2010.
[5] Please also refer to the erosion control commentary on page 9 of this memorandum.

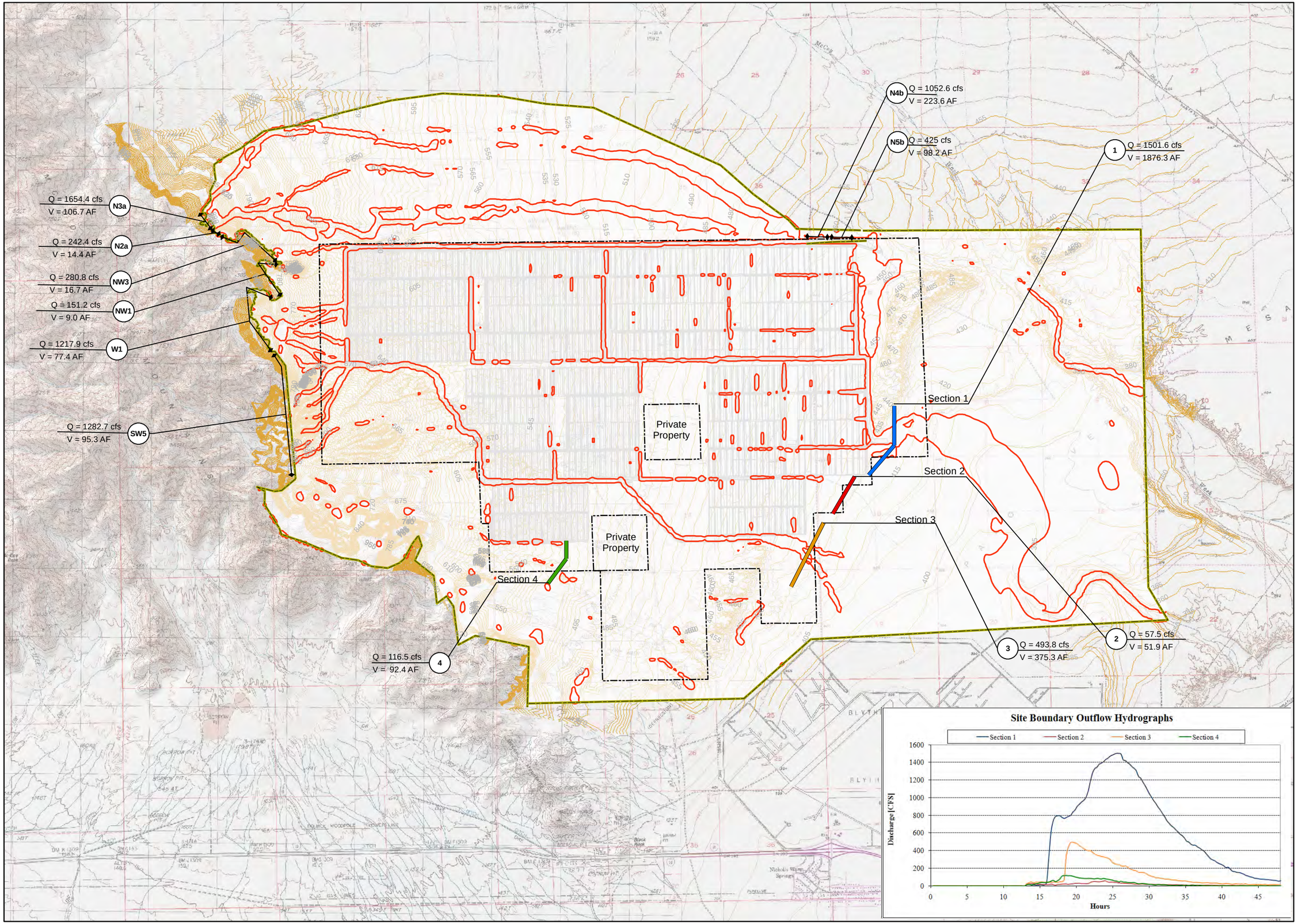

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Figure 3

Designed:
Checked:
Drawn:
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

Q = Peak Flow
V = Total 24-hour Volume

Flow Analysis Section

1
2
3
4

Model Boundary
Site Boundary
Area of Concentrated Flow*
Blythe_SitePlan_CAD_2
Surface Contours

*** Area of maximum concentrated flow with water depth exceeding 0.3 feet**

N

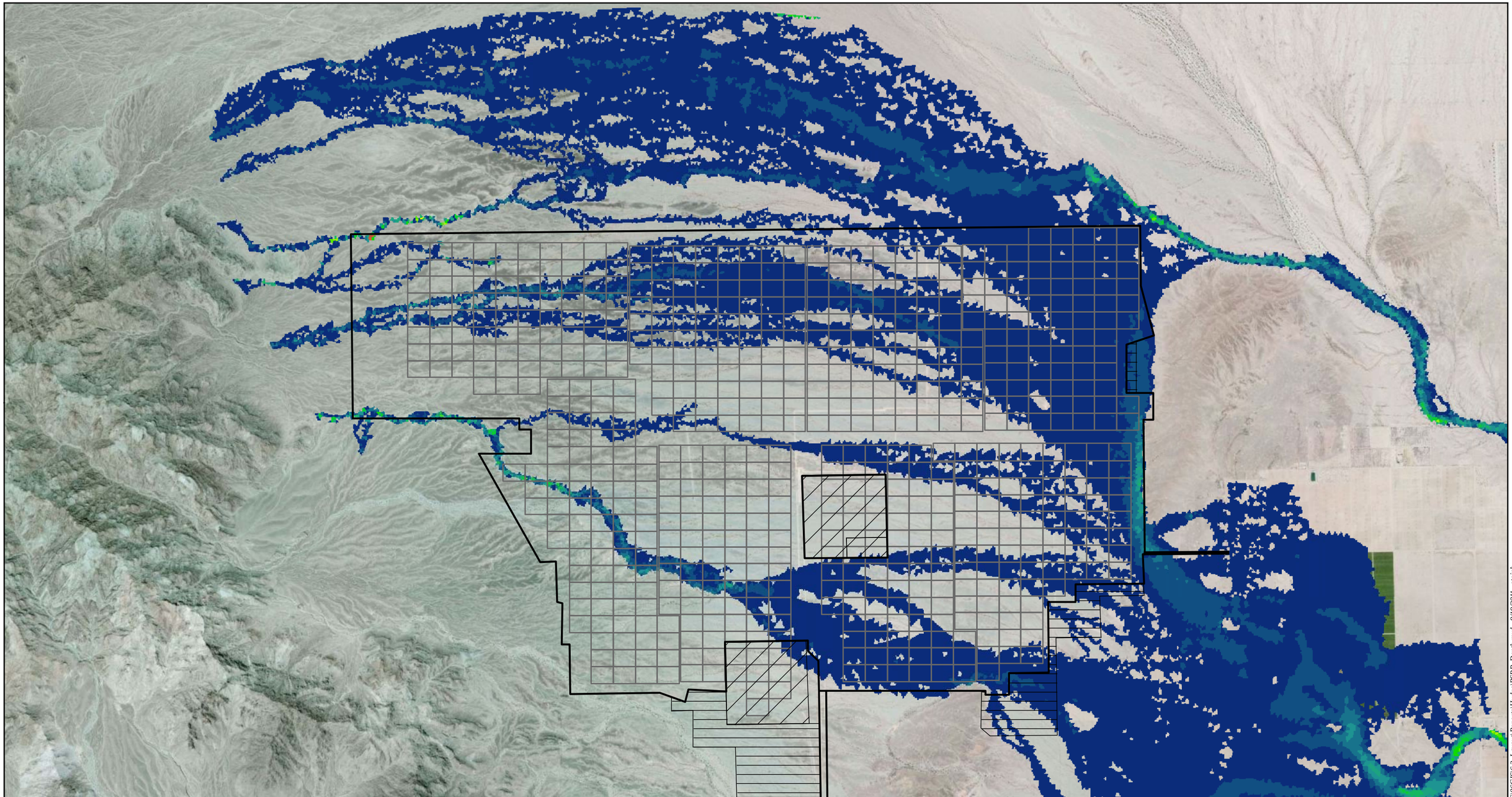
0 1,300 2,600 5,200 Feet

Blythe Solar Power Plant

Riverside County, California

Proposed Conditions
100-Yr Storm
Max. Water Surface

Date: 01/28/10
Sheet: 3 of 3



Map Location

Legend

- Current ROW
- Private Property to be Acquired
- Potential Expansion Area
- Solar Arrays

Modeled Water Depth

Feet

- 0.03 - 0.5
- 0.6 - 1
- 1.1 - 1.5
- 1.6 - 2
- 2.1 - 2.5
- 2.6 - 3
- 3.1 - 3.5
- 3.6 - 4
- 4.1 - 4.5
- 4.6 - 5
- 5.1 - 5.5
- 5.6 - 6
- 6.1 - 6.5
- 6.6 - 7
- 7.1 - 7.5
- 7.6 - 8
- 8.1 - 8.5
- 8.6 - 9

Source: ESRI; AECOM 2011

N W E S

1 inch = 3,000 feet

0 3,000 6,000 Feet

Blythe Solar Power Project

Figure 4A
Modeled Water Depth

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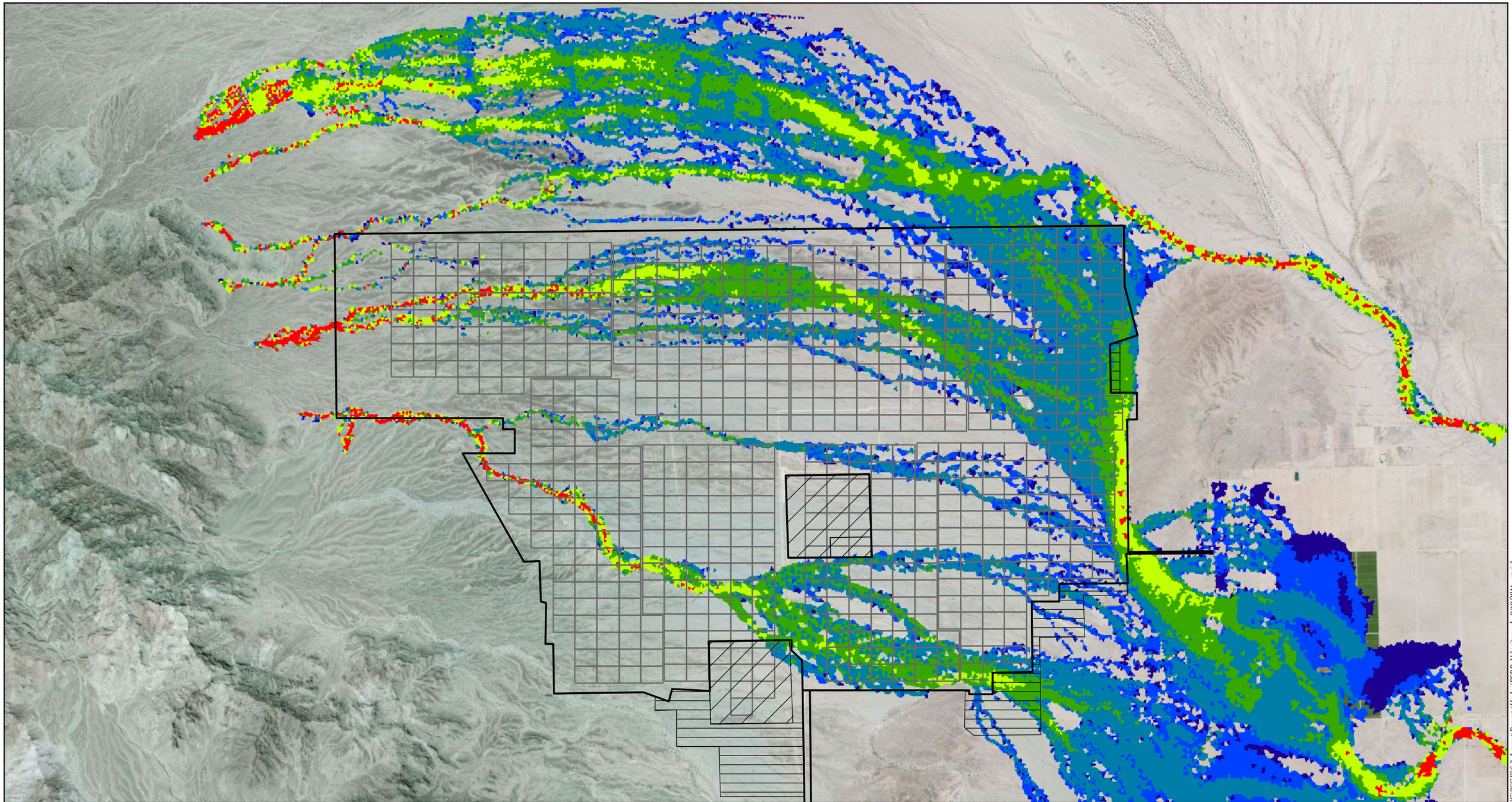
AECOM

Date: September 2011

Path: P:\20111\1280150.01_BSPP_COMPLNC\06GIS\6.3_Layout\Reports\Hydro\BSPP_Depth.mxd, 9/19/2011, steinb



Map Location

Legend

- Current ROW
- Private Property to be Acquired
- Potential Expansion Area
- Solar Arrays

Modeled Water Velocity Feet/Second

- 0.001 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 3
- 3 - 5
- > 5

Source: ESRI; AECOM 2011

N W E S

1 inch = 3,000 feet

0 3,000 6,000 Feet

Blythe Solar Power Project

Figure 4B
Modeled Water Velocity

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AECOM

Date: September 2011

Path: P:\20111\1280150.01_BSPP_COMPLNC\06GIS\6.3_Layout\Reports\HydroUBSPP_Velocity.mxd, 9/19/2011, steinb

Grading

Ideally, PV sites are selected so that grading is minimal. Under those conditions, site preparation usually involves vegetation removal and grading to smooth out minor natural swales, depressions and bumps. If the site is smooth and planar, this treatment would normally suffice unless there are excessive slopes in the north-south or east-west directions. If that is the case, extensive grading may be necessary to bring the surfaces close to level (less than 3% in the north-south direction and 5% in the east-west direction.).

Figures 5, 6, 7 and 8 address slope issues by displaying natural slope conditions under three categories: Less than 3% (green), between 3% and 5% (yellow) and greater than 5% (red). By comparing these with the solar block unit boundaries (Figure 9) it can be clearly seen that Units 1 through 5 are ideal for constructing solar arrays and Units 6, 7 and 8 require extensive grading for viable solar array development.

In Units 6, 7 and 8, the east-west oriented slopes are less than 5% and in most cases, less than 2%. Excessive slopes, however, are found as a result of deeply incised channels that traverse the site. Some of the channels were upwards of 20 feet deep and had very steep side slopes – not ideal for solar field development.

For Units 6, 7 and 8, AECOM prepared conceptual grading plans to satisfy slope criteria as described above (3% maximum N-S and 5% E-W). The conceptual grading plans were developed to smooth significant irregularities while maintaining stream flow within original natural channel alignments. In that manner, stormwater will enter and exit the site following development as it currently does without diverting or increasing[1] flow from one channel to another.

Figures 10, 11 and 12 display pre-developed and conceptual post-developed surfaces[2]. Cut and fill quantities were calculated by modeling the two surfaces using CAD. Rough quantities of cut and fill are listed for Units 6, 7 and 8 in Table 3 below:

Table 3 – Earthwork Quantities

Unit	Cut (Cubic Yards)	Fill (Cubic Yards)
6	500,000	400,000
7	800,000	700,000
8	1,100,000	900,000

The volume of cut is deliberately set to be in excess of fill volume by 15% to 25% to compensate for losses (grubbing, shrinkage and subsidence) that result in earthwork. Since the intent is to balance the site (no import or export) further adjustments may be necessary

[1] Refer to "**Onsite Retention Requirements**" page 5 of this memorandum.

[2] The grading plans are very rough and would need to be polished as part of final design. They were prepared for use in generating concept level cut and fill volumes.

as a part of final design and will depend on soil and site conditions. Minor adjustments to finish grades can result in significant changes in earthwork volume[3].

Grading Cost

The cost of grading will depend on several factors; type of soil, maximum haul distance, if rock is present and water. For these sites, the maximum haul distance should be about ½ mile. Therefore the work can be done mainly with bull dozers, water trucks and scrapers. Based on this, for a project this size, the earthwork should cost about a dollar per cubic yard assuming favorable soils.

Water needed for earthwork will be considerable however. For a site like this water required for grading would be approximately 50 gallons per cubic yard of earth moved. For all three sites the water could be as much as 120 million gallons. The cost of developing a water well, piping water to the site from an assumed distance of 5 miles away, providing on-site water distribution, pre-watering, and running water trucks would add more than a dollar per cubic yard. Adding water, engineering, contingencies for rock and caliche, and the cost per cubic yard could exceed $3.00. Without an extensive soils investigation, the cost number provided is only a very rough estimate.

Erosion Control

Erosion control for the finished site should consist of standard post construction best management practices (BMP's). A method that has been found acceptable on sites similar to this is to utilize the matrix of internal solar field access roads. In essence the roads can serve as check dams and could therefore, become a means of reducing sediment transfer. As check dams, the resulting small shallow basins can serve as stilling basins that will allow sediment loading to drop out. Where storm water is anticipated to cross roads (dips), those roads could be hardened with aggregate base to minimize stormwater incisions. Where well established natural channels exist, they could be avoided or augmented with rock slope protection[4].

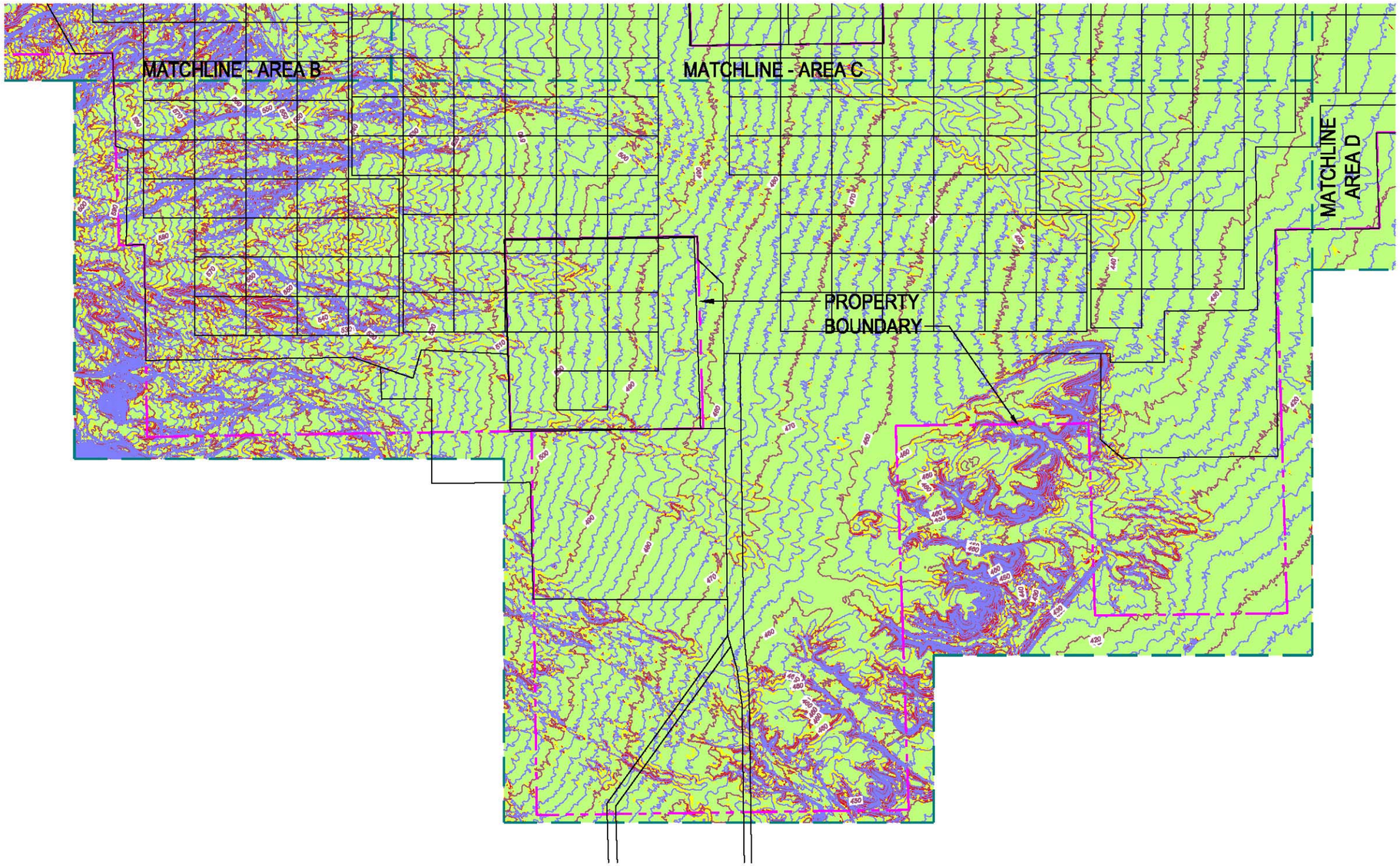
Conclusions

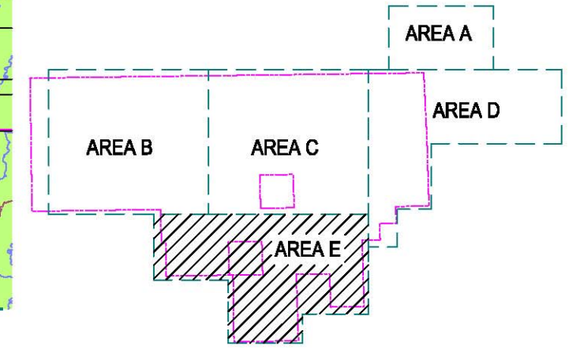
1. Units 1 through 5 require minimal grading to develop as photovoltaic solar sites.
2. Units 6, 7 and 8 require extensive grading.
3. Through the implementation of post construction BMP's, no significant stormwater runoff volume differences will occur between pre and post developed sites.
4. Erosion control can be done by hardening on-site access roads at stream crossing locations.

---

[3] 0.1 feet of adjustment to a square mile will result in approximately 100,000 cubic yards of change in earthwork quantity.

[4] It is common practice to avoid significant natural channels when planning solar array construction. For this project, Solar Millennium intended to develop solar blocks without internal gaps for natural channels. Therefore, the practice of hardening internal access roads at strategic locations is one that should be considered.





SITE KEY

NOTES:

1. SLOPES DETERMINED PERPENDICULAR TO CONTOURS

LEGEND

- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- MATCH LINE
- PROPERTY BOUNDARY
- SLOPES 0% TO 3%
- SLOPES 3% TO 5%
- SLOPES 5% AND GREATER

SCALE

0 400 800 1600

1 INCH = 800 FEET

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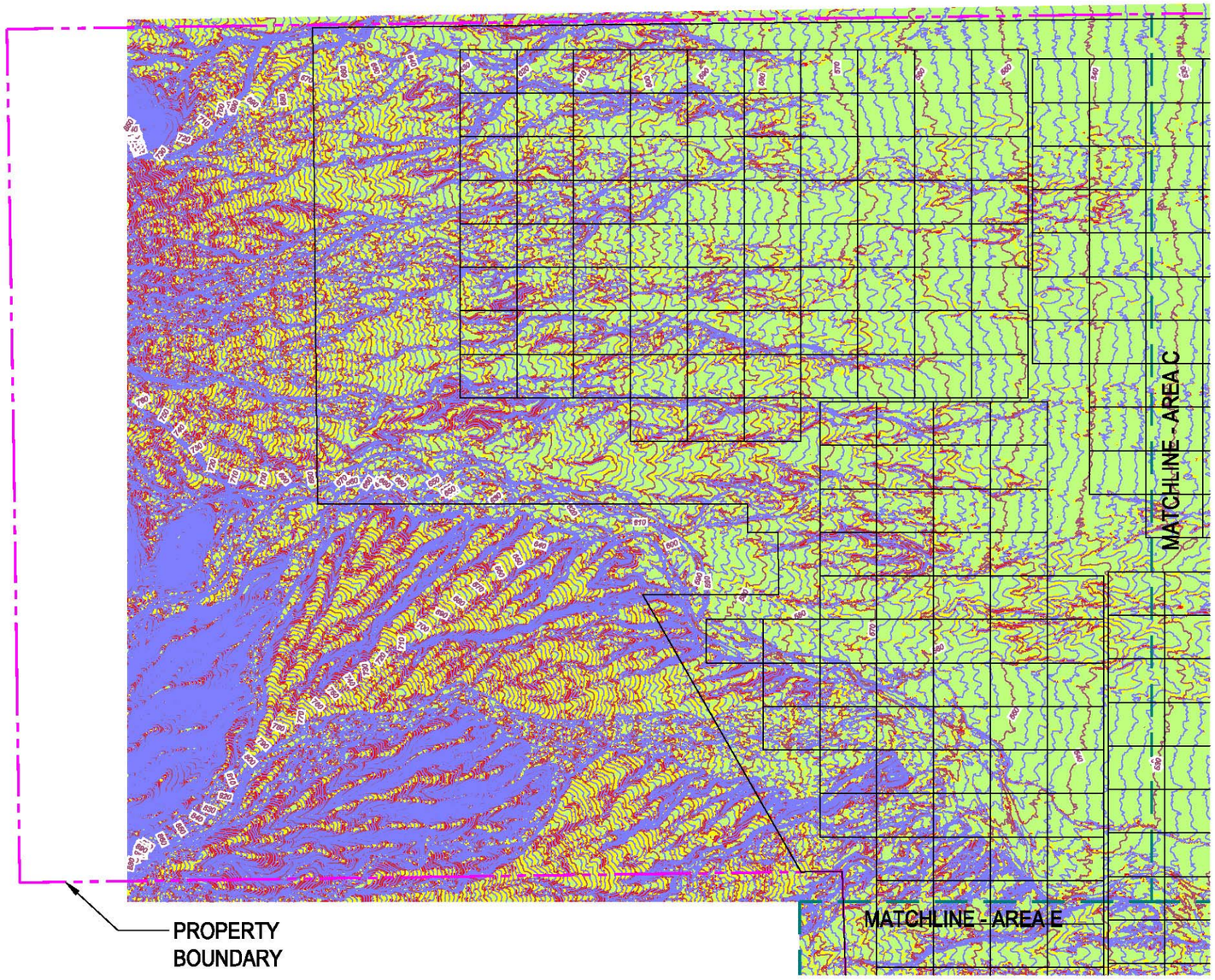
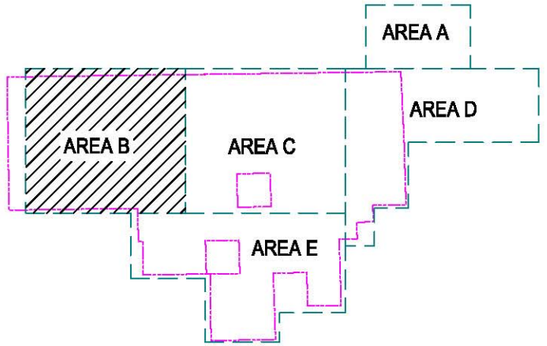
SOLAR MILLENNIUM - BLYTHE SITE
AREA E-1

FIGURE
5





SITE KEY

NOTES:

1. SLOPES DETERMINED PERPENDICULAR TO CONTOURS

LEGEND

- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- MATCH LINE
- PROPERTY BOUNDARY
- SLOPES 0% TO 3%
- SLOPES 3% TO 5%
- SLOPES 5% AND GREATER

SCALE

0 400 800 1600

1 INCH = 800 FEET

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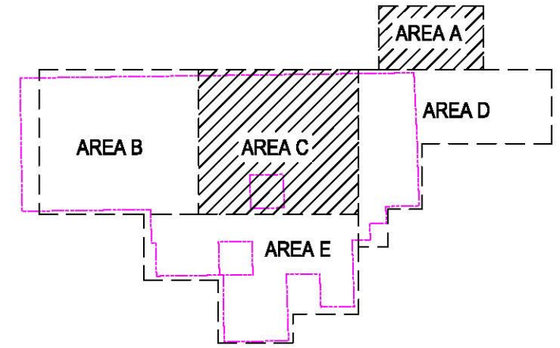
AREA B-1

FIGURE
6



SITE KEY

SCALE
0 800 1600
1 INCH = 800 FEET

NOTES:

1. SLOPES DETERMINED PERPENDICULAR TO CONTOURS.

LEGEND

- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- MATCH LINE
- PROPERTY BOUNDARY
- SLOPES 0% TO 3%
- SLOPES 3% TO 5%
- SLOPES 5% AND GREATER

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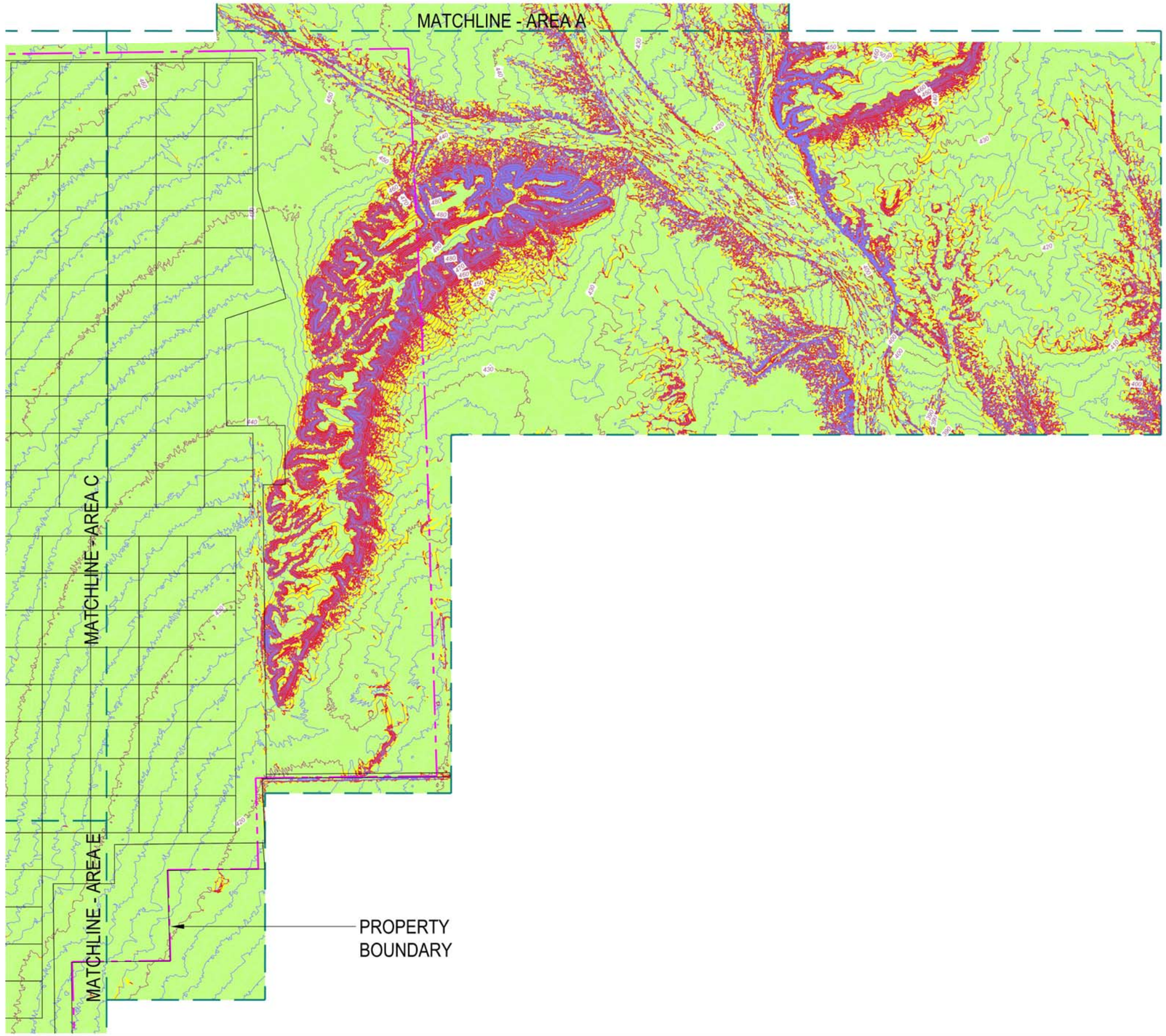
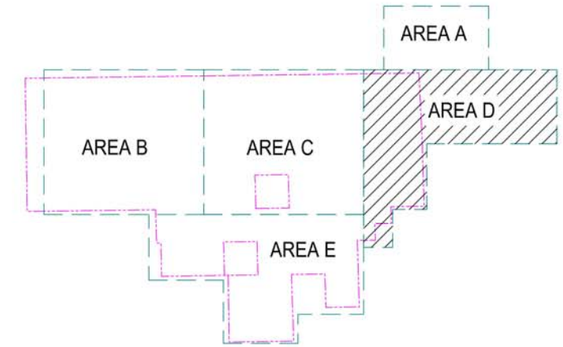
AREA C-1

FIGURE
7





SITE KEY

SCALE
0 400 800 1600
1 INCH = 800 FEET

NOTES:

1. SLOPES DETERMINED PERPENDICULAR TO CONTOURS

LEGEND

- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- MATCH LINE
- PROPERTY BOUNDARY
- SLOPES 0% TO 3%
- SLOPES 3% TO 5%
- SLOPES 5% AND GREATER

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AREA D-1

FIGURE
8

Blythe Solar Power Project

Alternative 1 - Conceptual Photovoltaic Design for Review

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Powering America's Future™
1111 Broadway, 5th Floor
Oakland, CA 94607
510-463-6518

Drafted: 09/14/2011

D:\GIS\Data\Project_Site\Blythe\Support\Development\PV\Typical_Layout\Alternative1\Mxd\Blythe_Conceptual_Layout_Alternative1_09142011R2.mxd

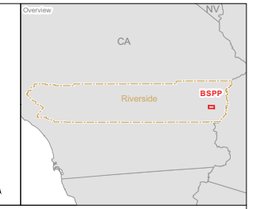
Current Blythe ROW
Private Property to be Aquired
Solar Unit
Photovoltaic Arrays
Switchyard
GSU
Warehouse Control Facility
Water Well Area
Generation Tie
Access Road

0 500 1,000 1,500 2,000 2,500 Feet

0 0.5 1 Miles

N

DRAFT: CONCEPTUAL DESIGN FOR REVIEW



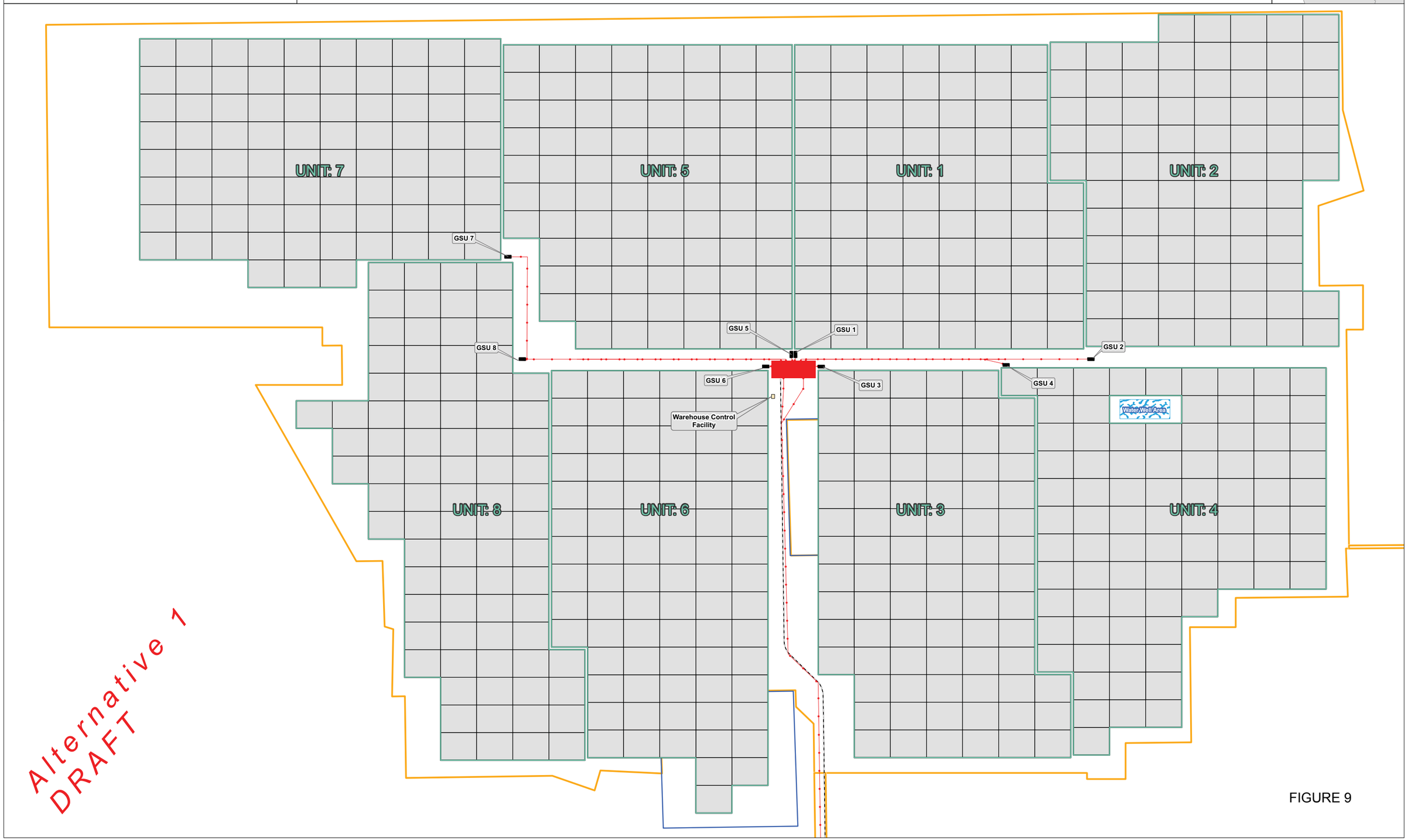
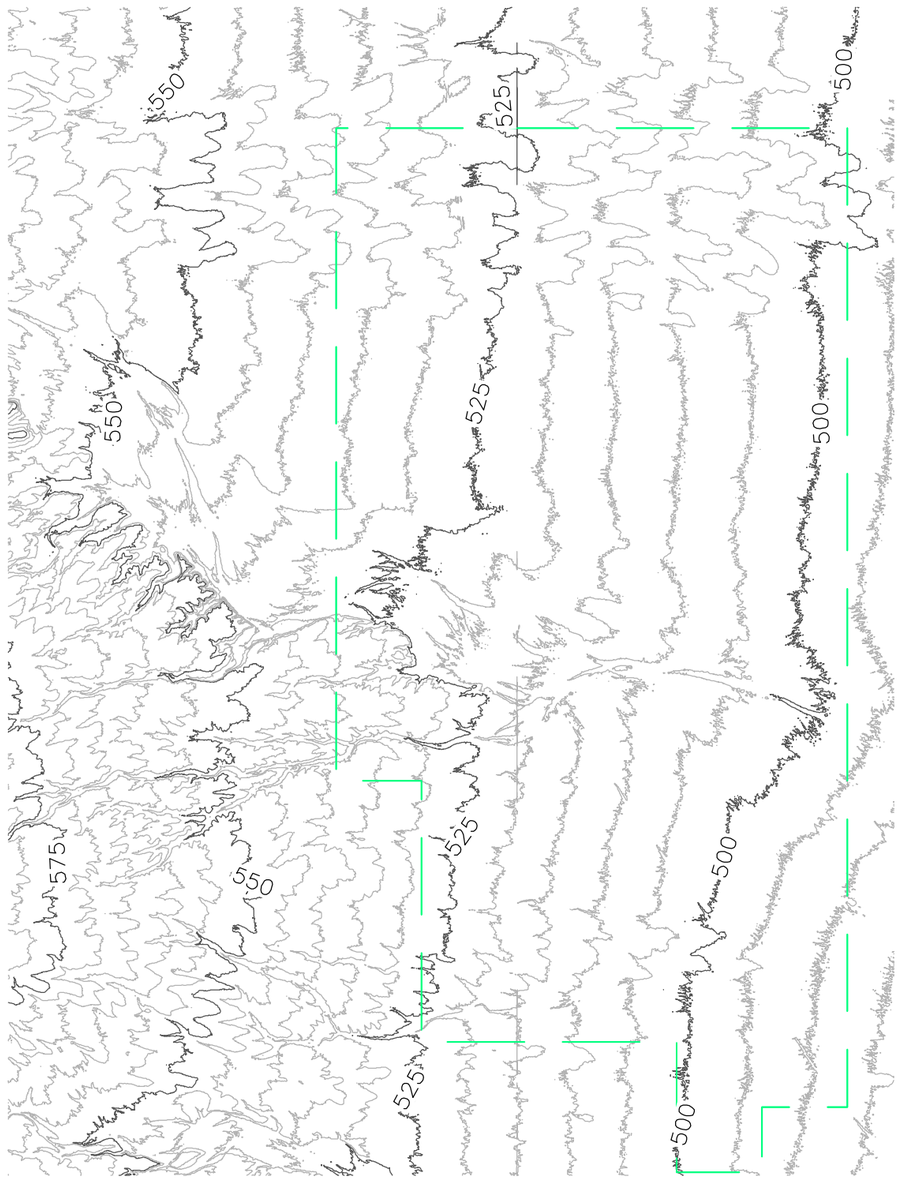


FIGURE 9



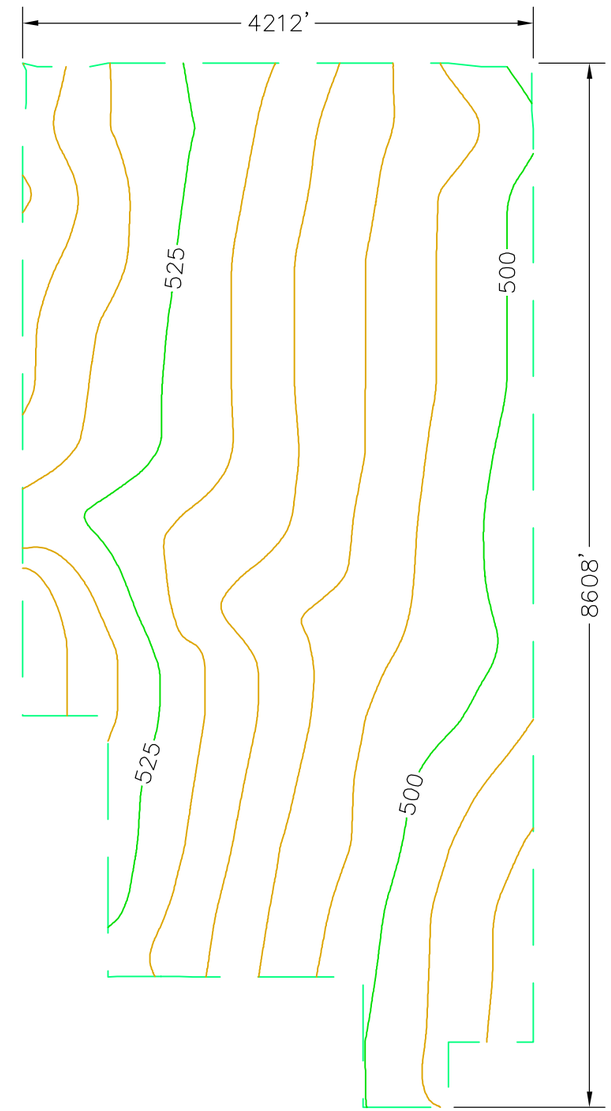
EXISTING SURFACE

LEGEND

LINE	DESCRIPTION
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED SURFACE BOUNDARY

NO SCALE

CONTOUR INTERVAL = 5'



PROPOSED SURFACE
(CONCEPTUAL)

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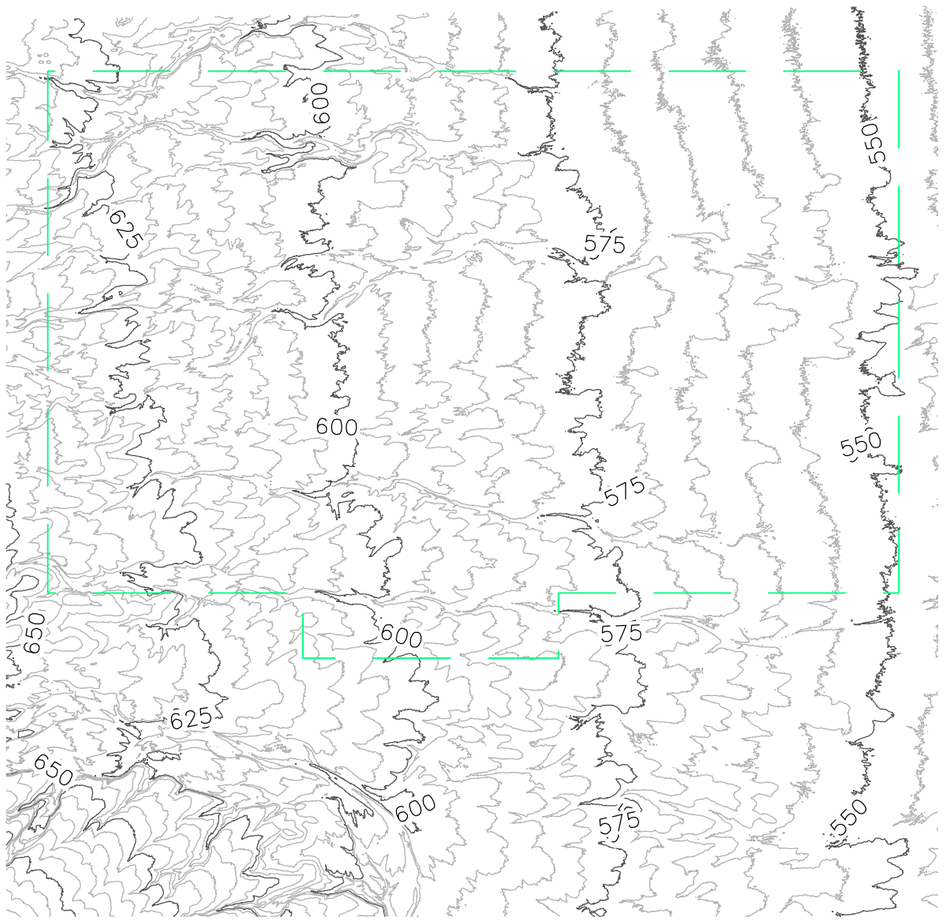
BLYTHE SOLAR POWER PROJECT
UNIT 6

FIGURE
10

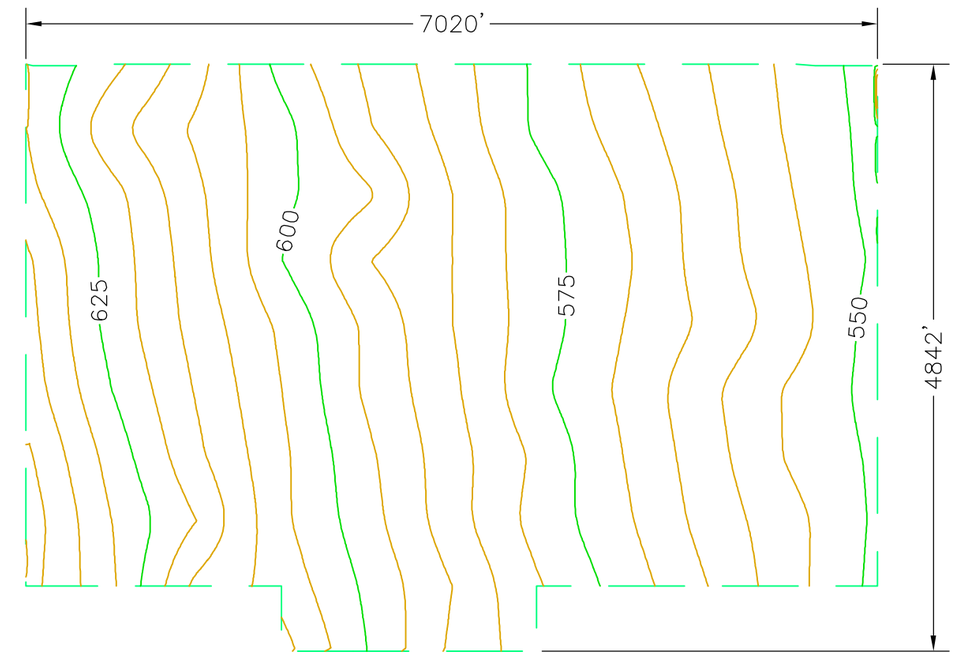
LEGEND

LINE	DESCRIPTION
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED SURFACE BOUNDARY

CONTOUR INTERVAL = 5'



EXISTING SURFACE



NO SCALE

PROPOSED SURFACE
(CONCEPTUAL)

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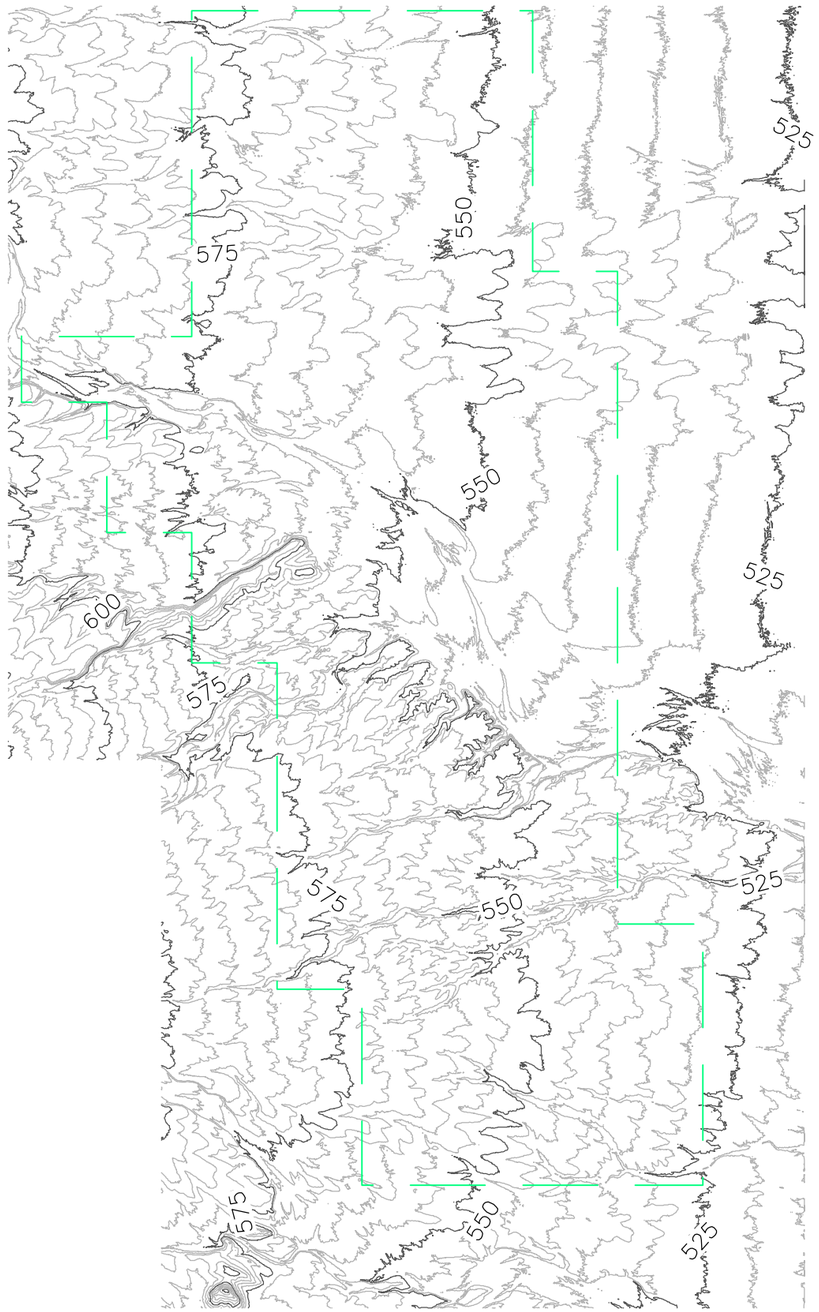
BLYTHE SOLAR POWER PROJECT
UNIT 7

FIGURE
11



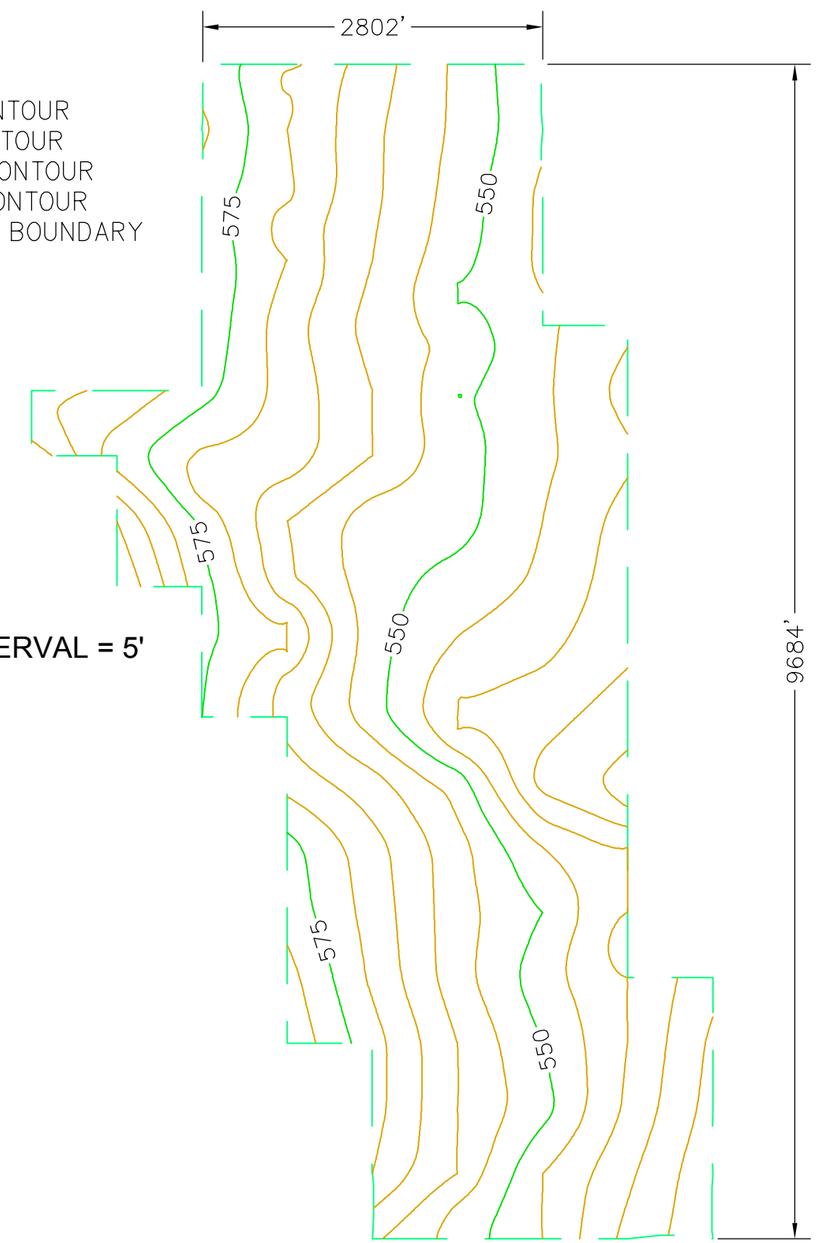
EXISTING SURFACE

LEGEND

LINE	DESCRIPTION
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED SURFACE BOUNDARY

CONTOUR INTERVAL = 5'

NO SCALE



PROPOSED SURFACE
(CONCEPTUAL)

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UNIT 8

FIGURE
12