GALATI | BLEK LLP

455 Capitol Mall Suite 350
Sacramento CA 95814
Tel· 916.441.6575
Fax· 916.441.6553

November 30, 2009

California Energy Commission
Docket Unit
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: **BLYTHE SOLAR POWER PLANT PRE-DEVELOPMENT DRAINAGE CONDITIONS REPORT DOCKET NO. (09-AFC-6)**

Enclosed for filing with the California Energy Commission is the original copy of the **BLYTHE SOLAR POWER PLANT PRE-DEVELOPMENT DRAINAGE CONDITIONS REPORT**, for the Blythe Solar Power Project (09-AFC-6).

Sincerely,

Marie Mills

Marie Mills

AECOM

Blythe Solar Power Plant

Pre-Development Drainage Conditions

November 25, 2009

This report has been prepared for:

Solar Millennium
1625 Shattuck Ave., Suite 270
Berkeley, CA 94709-1611

This report was prepared by:

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

Project Manager: Bill Hagmaier, P.E.

Senior Drainage Engineer: Matthew Brown, P.E.

Drainage Engineer: Enrique Triana, Ph.D.

TABLE OF CONTENTS

List of Figures

EXECUTIVE SUMMARY

This report provides results of analysis of on-site, pre-development drainage conditions at the Blythe Solar Power Plant site. This report is a supplement to the *Blythe Solar Power Plant, Drainage Report: August 7, 2009* (August 2009 report). This report utilizes refined topographic site data (LIDAR) and a detailed two-dimensional, unconfined flow modeling approach (FLO-2D) to document the pre-development flows.

Appendices A, B, and C include site maps of the Blythe site (associated with the 100-year, 25-year and 10-year storm events, respectively) of FLO-2D simulated maximum flow depth (Sheet 1 of 3), maximum velocity (Sheet 2 of 3), and maximum water surface elevation (Sheet 3 of 3).

Tables 1, 2, and 3 below provide a summary of peak flow rate (cfs), total flow volume (acre-feet), and maximum flow width (feet) at the four “Flow Analysis Cross Sections” defined in the FLO-2D model and shown on Appendix maps (for the 10-, 25-, and 100-year storm events, respectively). The four “Flow Analysis Cross Sections” represent the location at the downstream side of the project boundary where water exits the site. The four Flow Analysis Cross Section locations associated with existing flows are utilized in the proposed design to align the post-development drainage discharges closely with the existing condition.

TABLE 1
PRE-DEVELOPMENT FLO2D RESULTS
10-Year Storm Event

Flow Analysis Cross Section	Peak Flow Rate (cfs)	Total Flow Volume (ac-ft)	Max. Flow Width (ft)
1	310	164	800
2	0	0	0
3	23	9	1200
4	0	0	0

TABLE 2
PRE-DEVELOPMENT FLO2D RESULTS
25-Year Storm Event

Flow Analysis Cross Section	Peak Flow Rate (cfs)	Total Flow Volume (ac-ft)	Max. Flow Width (ft)
1	726	348	1040
2	0	0	0
3	199	101	2480
4	0	0	0

TABLE 3
PRE-DEVELOPMENT FLO2D RESULTS
100-Year Storm Event

Flow Analysis Cross Section	Peak Flow Rate (cfs)	Total Flow Volume (ac-ft)	Max. Flow Width (ft)
1	1478	1508	1760
2	75	59	1600
3	823	594	2640
4	96	76	800

The FLO-2D model simulates volumetric mass balance of water inflows, losses, and outflows consisting of five primary components listed below and tabulated in Table 4 by column:

A. Off-Site Surface Water Inflow (estimated with HEC-HMS model from August 2009 report).
B. On-Site Precipitation Inflow (estimated with FLO-2D model).
C. On-Site Initial Abstraction and Infiltration Losses (estimated with FLO-2D model).
D. On-Site Watershed Storage (estimated with FLO-2D model).
E. Surface Water Outflow (calculated with FLO-2D model as item A plus B minus C minus D).

TABLE 4
FLO-2D MODEL RESULTS (MASS BALANCE)

Storm Event	A Off-Site SW Inflow (ac-ft) (ac-ft)	B On-Site Precip. Inflow (ac-ft) (ac-ft)	C On-Site Initial Ab. and Infil. Loss (ac-ft) (ac-ft)	D On-Site Watershed Storage (ac-ft) (ac-ft)	E Surface Water Outflow (ac-ft) (ac-ft)
10-Yr	268	3228	2317	1171	8
25-Yr	396	4100	2619	1711	168
100-Yr	640	5552	2983	2053	1156

GLOSSARY OF TERMS

The following glossary provides brief definitions of technical terms used throughout this report.

Drainage Basin: Extent of land where water from rain or snow-melt drains by gravity into a body of water (e.g., river, lake, reservoir, estuary, wetland, sea, or ocean).

Dynamic Wave: One solution method used (in FLO-2D) to solve the *momentum equation*.

FLO-2D Model: An integrated river/floodplain and flood routing hydrologic/hydraulic model.

Grid Element (also Grid Cell): Geographic space, as an array, of equally sized square grid points arranged in rows and columns. Each grid point stores a numeric value that represents a geographic attribute (such as elevation or surface slope) for that unit of space. Each grid cell is referenced by its X and Y coordinate location.

Hydrograph: Graph showing changes in flow rate over time.

Hydrologic Model: Simplified, conceptual representation of portions of the hydrologic cycle.

Hydrology: Study of movement, distribution, and quality of water through a system.

Initial Abstraction (also Interception): The portion of rainfall that does not reach the ground (initially) due to vegetated cover or other man-made obstructions.

Model Domain: Geographic area represented by the FLO-2D model.

Momentum Equation: Equation to represent open channel flow and flow over floodplains.

Model Stability: The ability of the model to solve governing equations given computational time and error considerations.

Non-Uniform Flow: Flow characterized by varying velocity with respect to distance at a given time.

Spatial/Model Domain: Geographic area represented by the FLO-2D model.

Spatial Resolution: The level of detail that can be included in the geographic representation of the model. The smaller the model grid cell size, the higher the model resolution.

Time Step: A discrete length of time used in the model calculations.

Unsteady Flow: Flow characterized by varying velocity with respect to time at a given location.

1. PROJECT DESCRIPTION

1.1 Introduction

Solar Millennium and Chevron Energy Solutions (Chevron) propose to locate a solar power plant near the City of Blythe, in Riverside County, California, on land administered by the Bureau of Land Management (BLM).

A hydrologic study (*Blythe Solar Power Plant, Drainage Report: August 7, 2009*) was completed to analyze surface water drainage characteristics at the proposed Blythe site. The August 2009 study included pre- and post-development hydrologic modeling (HEC-HMS) of drainage areas off-site (upslope) and through the proposed site and post-development, one-dimensional hydraulic modeling (HEC-RAS) of proposed drainage channel improvements adjacent to and through the site to downstream discharge points. The August 2009 study utilized USGS 20-foot contour-interval topography as a portion of the model input parameters.

Subsequent to completion of the August 2009 report, LIDAR one-foot contour-interval topography over the site was collected to refine on-site, pre-development hydrology and hydraulic analysis. For the purposes of the current report, a detailed, two-dimensional, physical modeling approach (FLO-2D) was implemented, using the LIDAR topography data, to refine results of the original hydrologic model (HEC-HMS).

The two-dimensional FLO-2D approach summarized herein allows a more detailed characterization of unconventional, unconfined surface water flow over topography consisting of "alluvial fans", as identified on the Blythe site. Off-site (up-slope) HEC-HMS hydrology data (taken from the August 2009 report) was used, in combination with the LIDAR topography and on-site rainfall and physical land attributes, as input parameters for the FLO-2D model, to analyze pre-development flow characteristics (flow rate, velocity, volume, depth, and width) across the project site.

1.2 Site Description

The general area surrounding the proposed project site consists of approximately 9,400 acres located 8 miles west of Blythe, California and 2.5 miles north of Highway I–10. Access to the site is from the Mesa Drive exit on I–10. The total area of land currently proposed for development is approximately 7,030 acres.

1.3 Existing Condition Flow Patterns

1.3.1 Off-Site Flow Patterns

The major watercourse in the project area is McCoy Wash (east of the project site) which drains 210 square miles of the Palo Verde Mesa, McCoy Mountains, Little Maria Mountains and Big Maria Mountains and exits the mesa to the southeast of the site.

The project site lies in the Palo Verde Mesa east of the McCoy Mountains. The general stormwater flow pattern is from higher elevations in the McCoy Mountains, located approximately 3 miles west of the project site, into shallow moderately defined channels at the base of the mountains. Alluvial fans radiate out from the base of the McCoy Mountains and mesa discharging to a broad flat expanse of desert terrain sloping in a southeasterly direction, passing surface water flow through the project to lower elevations in the Palo Verde Mesa to the east and into irrigation canals in the Palo Verde Valley. Ephemeral washes that traverse the project site from the McCoy Mountains in a west to east orientation abate into the landscape prior to any surface hydrological connection with the McCoy Wash.

1.3.2 On-Site Flow Patterns

Flow Patterns onsite are generally in a southeasterly direction. A hill at the northeast corner of the site diverts flow in a southerly direction away from McCoy Wash. As it flows past the southern end of the hill at about the middle of the project site, flow turns east again toward McCoy Wash. Berms located southeast of the project site were constructed offsite by others to divert flow east and south around agricultural land. Storm flows generated on the existing site generally sheet flow to the southeast as well.

2. METHODOLOGY

Pre-development drainage over the Blythe site was analyzed using FLO-2D Version 2007.06, a physical process model that routes rainfall-runoff and flood hydrographs over unconfined flow surfaces or in channels. FLO-2D, owned by FLO-2D Software, Inc., is on FEMA's list of approved hydraulic models for riverine and unconfined alluvial fan flood studies, and has been extensively used by the US Army Corps of Engineers.

The FLO-2D model's spatial domain is represented as a system of square grid elements (tiles), called cells, each with an elevation derived from a digital terrain model of the LIDAR topography and hydraulic characteristics. The model provides results of water surface elevation, flow rate and velocity, and other hydraulic parameters for all grid elements in discrete time steps, using a dynamic wave approximation to the momentum equation[1]. FLO-2D simulates infiltration and runoff after rainfall initial abstraction[2], using the Soil Conservation Service (SCS) Curve Number method.

Drainage conditions were simulated for a 48-hour period for the 10-, 25-, and 100-year hydrologic events using the same base model configuration and parameters for all three hydrologic events. The remainder of this section describes key user-selected model parameters used for this study.

2.1 Spatial Configuration

A modeled area is defined by the model computational boundary (the model boundary), a line that encloses the terrain to be modeled. The model boundary was placed around the project site to accurately define flood distribution along the upstream and downstream project site boundaries. The model boundary for this study is a closed polygon defined by lines along the McCoy Mountain foothills to the west of the site, along a drainage basin boundary to the north of the site, along a southeast trending line to the east of the site (west of McCoy Wash), and along an east-west trending line at least 1000 feet south of the site. This polygon includes all drainage areas that contribute to the western and southern project site boundaries and most of the drainage area contributing to the northern project site boundary. Figure 1 shows the model boundary and drainage basins extending outside the model boundary as delineated in the August 2009 report, all superimposed on an area map showing project site boundaries.

The grid element size was selected to coincide with FLO-2D efficiency (stability / computation) guidelines, resulting in grid squares measuring 80 feet square. This cell size provides good spatial resolution of the floodplain, without compromising model run time and stability.

[1] The dynamic wave approximation represents the change of momentum in a body of water as a function of the change in local and convective accelerations, the pressure force, and the gravity force and friction losses.
[2] Portion of rainfall that does not reach the ground (initially) due to vegetated cover or other man-made obstructions.

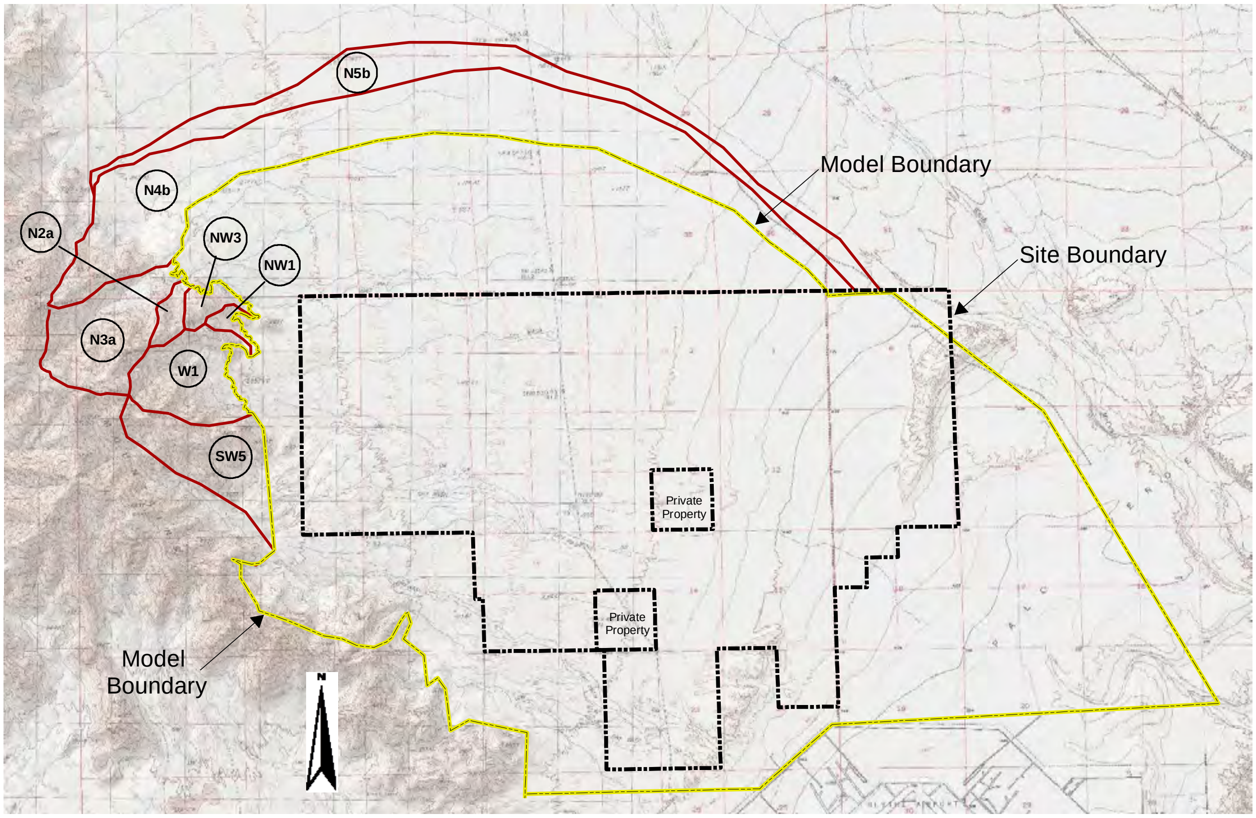


Figure 1. Model Boundary and Drainage Basins outside the Model Boundary

2.2 Elevation

Grid elevations were interpolated from a contour map generated by merging high-resolution (1.0-foot contour) LIDAR data inside the site with lower-resolution (20.0-foot contour) USGS topography outside the site. The FLO-2D model package tools were utilized to perform the interpolation, assigning representative elevation to each grid element.

2.3 Manning's N

Overland flow velocities and depths vary with topography and the surface roughness. A composite overland flow roughness value was assigned to each grid cell to account for vegetation, surface irregularity, and non-uniform[3] and unsteady flow[4]. Sparse vegetation and sandy soils are predominant across the site. Areas of slightly denser vegetation and farm lands were also identified in the modeled area, based on field observations and aerial imagery. Figure 2 shows areas of similar surface roughness characteristics (by color) and their assigned values. These values were chosen based from documented FLO-2D tabular values, attributed to the US Army Corps of Engineers' HEC-1 Manual and Technical Engineering and Design Guide.

[3] Flow characterized by a varying velocity with respect to distance at a given time.
[4] Flow characterized by a varying velocity with respect to time at a given location.

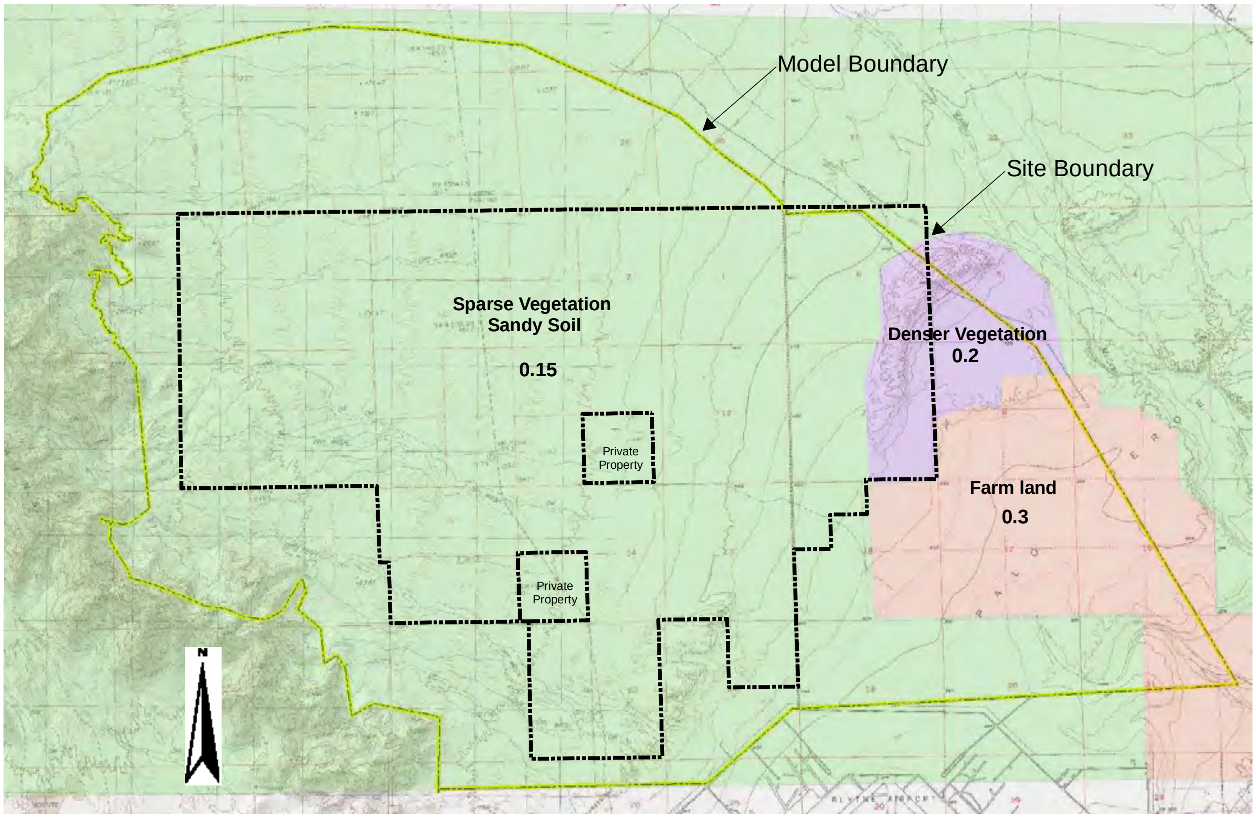


Figure 2. Spatial distribution of overland flow roughness coefficients

2.4 Rainfall-Runoff Modeling

The SCS Curve Number approach, including water loss through infiltration, was used to account for rainfall-runoff processes inside the modeled area. Soil types and cover conditions of the modeled area (from the August 2009 report) were used to assign a general curve number (80) and an initial abstraction (0.59 inches) for this study, providing consistency with the August 2009 report / hydrologic analysis.

2.5 Inflow to the FLO-2D Model

The Blythe project site receives surface water flow from higher elevations in the mountains located 3 miles west of the site. Flow contributions from drainage basins outside the model boundary (defined in section 2.1 above) were input to the FLO-2D model from results of the August 2009 report. Figure 1 shows these "exterior" drainage basin delineations and corresponding identifiers (circled labels). Hydrographs (flow rate over time) from these "exterior" drainage basins are distributed evenly across the FLO-2D model boundary, providing inflows to the FLO-2D model. Figure 3 shows the off-site 24-hour storm hydrographs through each of the "exterior" drainage basins, corresponding to 10-year, 25-year, and 100-year precipitation events. The drainage basins are identified in Figure 1 and Figure 3 with the original HEC-HMS name used in the August 2009 report.

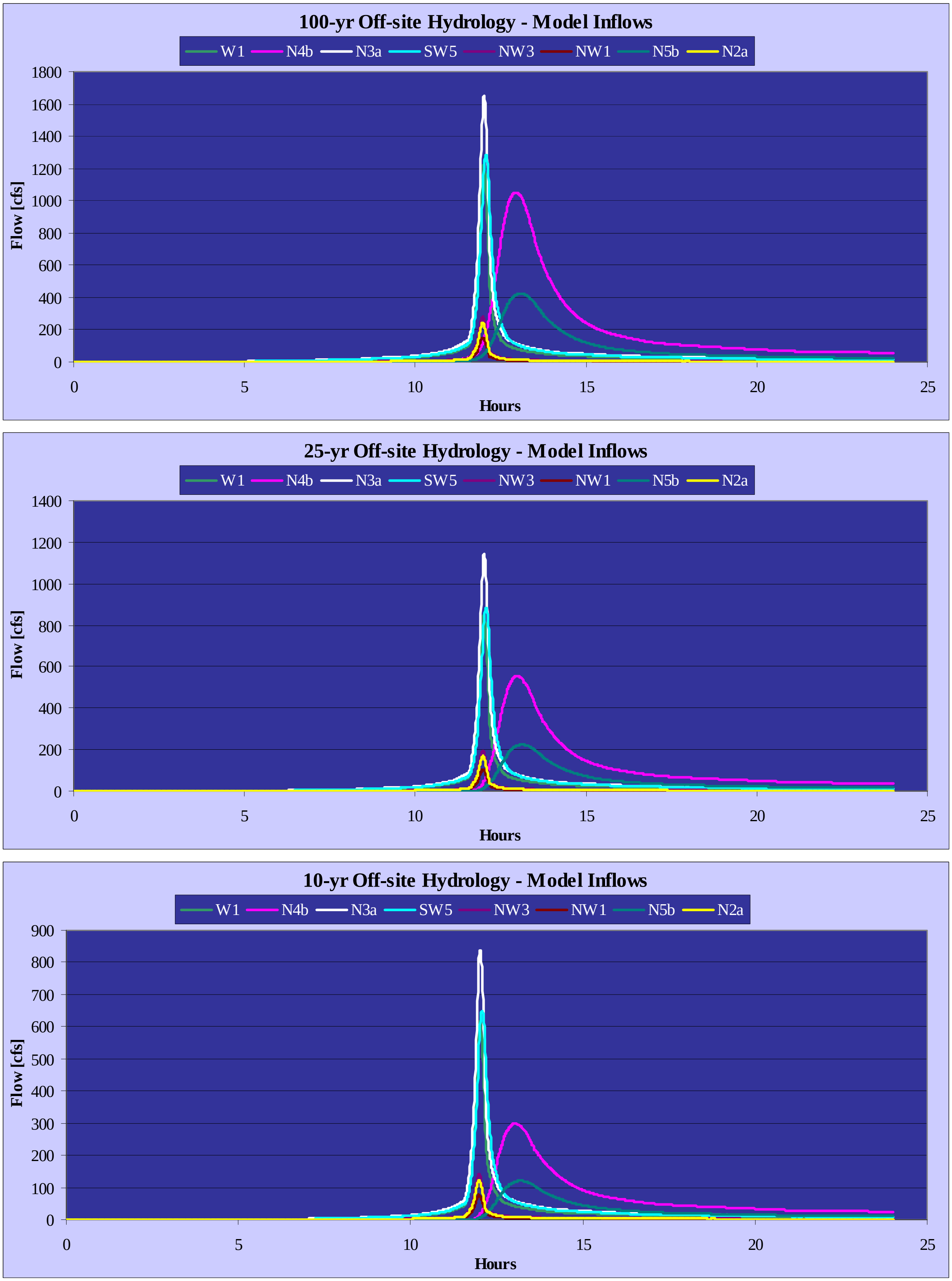


Figure 3. Inflow hydrographs for 100, 25 and 10 year hydrologic events

2.6 Outflow from the FLO-2D Model

Movement of water inside the FLO-2D modeled area is based on topography and roughness characteristics; therefore, an approximate and rather extensive portion of the south and east model boundaries were designated as potential model outflow locations. Simulation of drainage outflow through the model boundary was achieved by designating cells along this boundary as “floodplain outflow cells”. The two-dimensional modeling process across and through the site simulates exact outflow locations along the model boundary based on the topographic direction of the overland flow at each model boundary cell.

Within the FLO-2D model boundary, “Flow Analysis Cross Sections” were established at the downstream site boundary locations where existing drainage water exits the site. The drainage outflow through these cross sections at the east and southeast project site boundaries, provides the basis of surface water discharge over time for each of the 10, 25 and 100 year events. Flow Analysis Cross Sections are defined by a set of cells aligned at a right angle with the main direction of flow exiting the model boundary. Figure 4 shows the location of the implemented Flow Analysis Cross Sections. The four Flow Analysis Cross Section locations associated with existing flows are utilized in the proposed design to align the post-development drainage discharges closely with the existing condition.

2.7 Precipitation

The 24-hour precipitation event that generates the modeled inflow from upstream drainage basins is assumed to occur contemporaneously over the model domain. The 24-hour precipitation depth was obtained from NOAA’s Precipitation Frequency Data Server (PFDS). Rainfall depths used for 10-year, 25-year, and 100-year return periods were, respectively, 2.0 inches, 2.54 inches, and 3.44 inches.

Comparable with the August 2009 report, precipitation was distributed temporally as a Type II storm, in accordance with the U.S. Soil Conservation Service (now NRCS) Technical Release 55 recommendation for extreme eastern California.

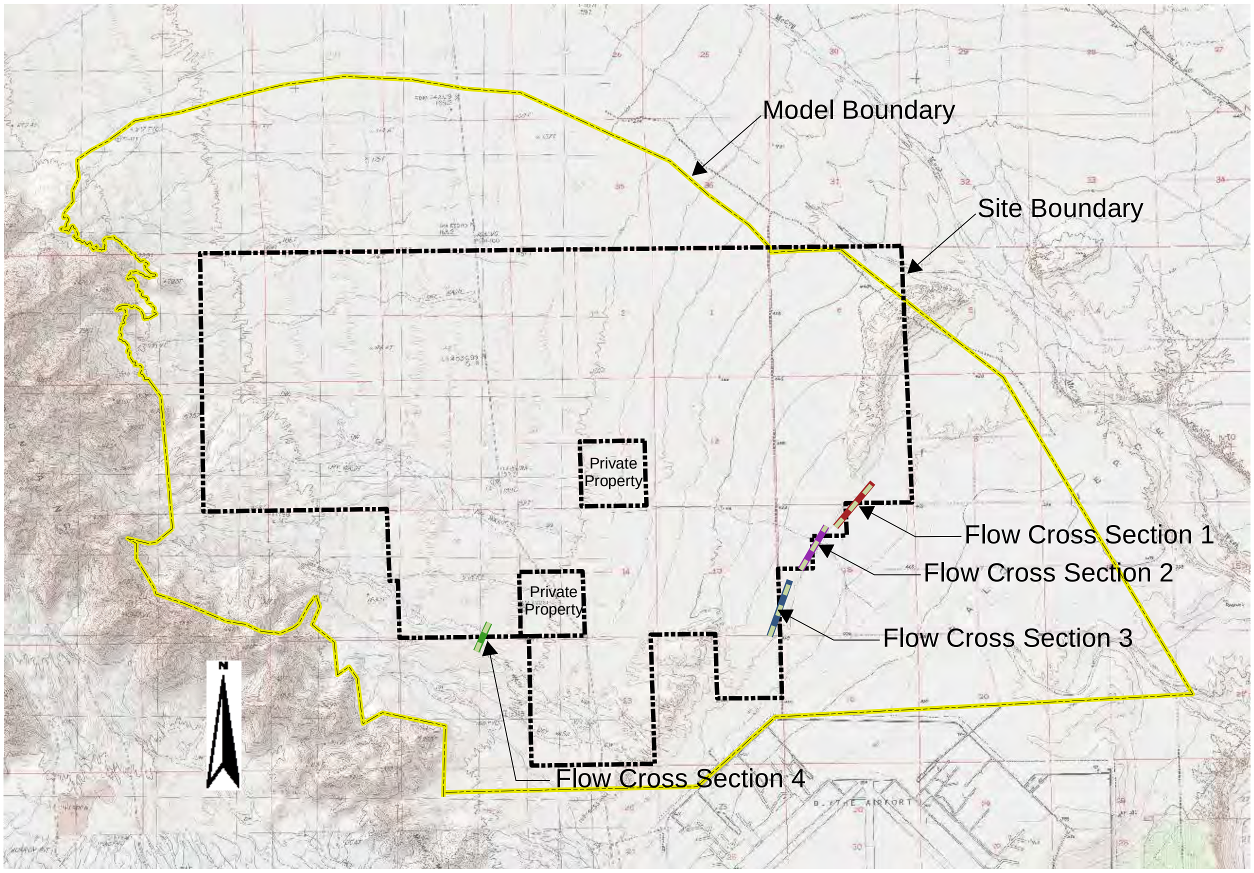


Figure 4. Flow Cross Section Locations

3. RESULTS AND CONCLUSIONS

- This report provides results of analysis of on-site, pre-development drainage conditions at the Blythe site, which are supplement to the August 2009 report through utilization of refined topographic site data (LIDAR) and a detailed two-dimensional, unconfined flow modeling approach (FLO-2D) described in more detail in the report introduction. This refined model approach was utilized to generate a more detailed representation of water movement across the Blythe site, including routing flow from mountainous terrain through shallow moderately-defined channels at the base of the mountains that radiate outward in a complex alluvial fan onto a broad, flat expanse of desert terrain.

- Appendices A, B, and C include site maps of the Blythe site (associated with the 100-year, 25-year and 10-year storm events, respectively) of FLO-2D simulated maximum flow depth (Sheet 1 of 3), maximum velocity (Sheet 2 of 3), and maximum water surface elevation (Sheet 3 of 3, which also provides an inset chart summarizing flow hydrographs at four "Flow Analysis Cross Sections" identified on the maps).

  Review of the maps described above provide several general flow characteristics. The "Flow Areas" are noted on Sheet 1 of the respective Appendix maps:

  - Flow Area 1 – Water contributions from north of the project site flow easterly within relatively parallel small channels that converge near the northeastern corner of the project site, cross the northern site boundary, and flow in a southern direction within the site area.
  - Flow Area 2 – The southerly flow mentioned above constitutes the largest concentration of surface water flow within the model area, flowing south within the eastern site boundary, between the proposed solar fields to the west and a topographic high (hill) to the east. A "Flow Analysis Cross Section 1" (shown on all the Appendix maps) has been identified in the FLO-2D model at a location where Flow Area 2 crosses (exits) the southeastern site boundary. Tables 1, 2, and 3 below (for the 10-, 25-, and 100-year storm events, respectively) provide a summary of peak flow rate (cubic feet per second or cfs), total flow volume (acre-feet), and maximum flow width (feet) at this Flow Analysis Cross Section.
  - Flow Area 3 – Within the project site boundary, water is conveyed within two primary "bands" of flow: one (Flow Area 3) originating from the western site boundary, extending near and along the northern edge of the site boundary, eventually joining the southerly flow routes originating from areas north of the site (described in the previous bullet item). This band of flow increases in width as it extends easterly until it joins the southerly flow route mentioned above.
  - Flow Area 4 – A second "band" of on-site flow originates from the approximate middle of the western site boundary, extending in a southeasterly direction. This band of flow increases in width as it extends southeasterly until it exits at the southeast corner of the project site. A "Flow Analysis Cross Section 2" and "Flow Analysis Cross Section

3" (shown on all the Appendix maps) have been identified in the FLO-2D model at a location where Flow Area 4 crosses (exits) the southeastern site boundary. Tables 1, 2, and 3 below (for the 10-, 25-, and 100-year storm events, respectively) provide a summary of peak flow rate (cfs), total flow volume (acre-feet), and maximum flow width (feet) at this Flow Analysis Cross Section.

- Flow Area 5 – Minor southeasterly flows are apparent along the southern project site boundary, concentrating on a small surface water course that exits at the southern boundary of the project site. A "Flow Analysis Cross Section 4" (shown on all the Appendix maps) has been identified in the FLO-2D model at a location where Flow Area 5 crosses (exits) the southern site boundary. Tables 1, 2, and 3 below (for the 10-, 25-, and 100-year storm events, respectively) provide a summary of peak flow rate (cfs), total flow volume (acre-feet), and maximum flow width (feet) at this Flow Analysis Cross Section.
- Flow Area 6 – Flows reaching the down-slope project site boundary (east side of the site) are spread out several thousands of feet in complex (shallow multi-channel) alluvial fans.

➢ Tables 1, 2, and 3 below provide a summary of peak flow rate (cfs), total flow volume (acre-feet), and maximum flow width (feet) at the four "Flow Analysis Cross Sections" defined in the FLO-2D model and shown on Appendix maps (for the 10-, 25-, and 100-year storm events, respectively). The four "Flow Analysis Cross Sections" represent the location at the downstream side of the project boundary where existing drainage water exits the site.

TABLE 1
PRE-DEVELOPMENT FLO2D RESULTS
10-Year Storm Event

Flow Analysis Cross Section	Peak Flow Rate (cfs)	Total Flow Volume (ac-ft)	Max. Flow Width (ft)
1	310	164	800
2	0	0	0
3	23	9	1200
4	0	0	0

TABLE 2
PRE-DEVELOPMENT FLO2D RESULTS
25-Year Storm Event

Flow Analysis Cross Section	Peak Flow Rate (cfs)	Total Flow Volume (ac-ft)	Max. Flow Width (ft)
1	726	348	1040
2	0	0	0
3	199	101	2480
4	0	0	0

TABLE 3
PRE-DEVELOPMENT FLO2D RESULTS
100-Year Storm Event

Flow Analysis Cross Section	Peak Flow Rate (cfs)	Total Flow Volume (ac-ft)	Max. Flow Width (ft)
1	1478	1508	1760
2	75	59	1600
3	823	594	2640
4	96	76	800

- The FLO-2D model simulates volumetric mass balance of water inflows, losses, and outflows consisting of five primary components listed below and tabulated in Table 4 by column:

A. Off-Site Surface Water Inflow (estimated with HEC-HMS model from August 2009 report).
B. On-Site Precipitation Inflow (estimated with FLO-2D model).
C. On-Site Initial Abstraction and Infiltration Losses (estimated with FLO-2D model).
D. On-Site Watershed Storage (estimated with FLO-2D model).
E. Surface Water Outflow (calculated with FLO-2D model as item A plus B minus C minus D).

TABLE 4
FLO-2D MODEL RESULTS (MASS BALANCE)

Storm Event	A Off-Site SW Inflow (ac-ft) (ac-ft)	B On-Site Precip. Inflow (ac-ft) (ac-ft)	C On-Site Initial Ab. and Infil. Loss (ac-ft) (ac-ft)	D On-Site Watershed Storage (ac-ft) (ac-ft)	E Surface Water Outflow (ac-ft) (ac-ft)
10-Yr	268	3228	2317	1171	8
25-Yr	396	4100	2619	1711	168
100-Yr	640	5552	2983	2053	1156

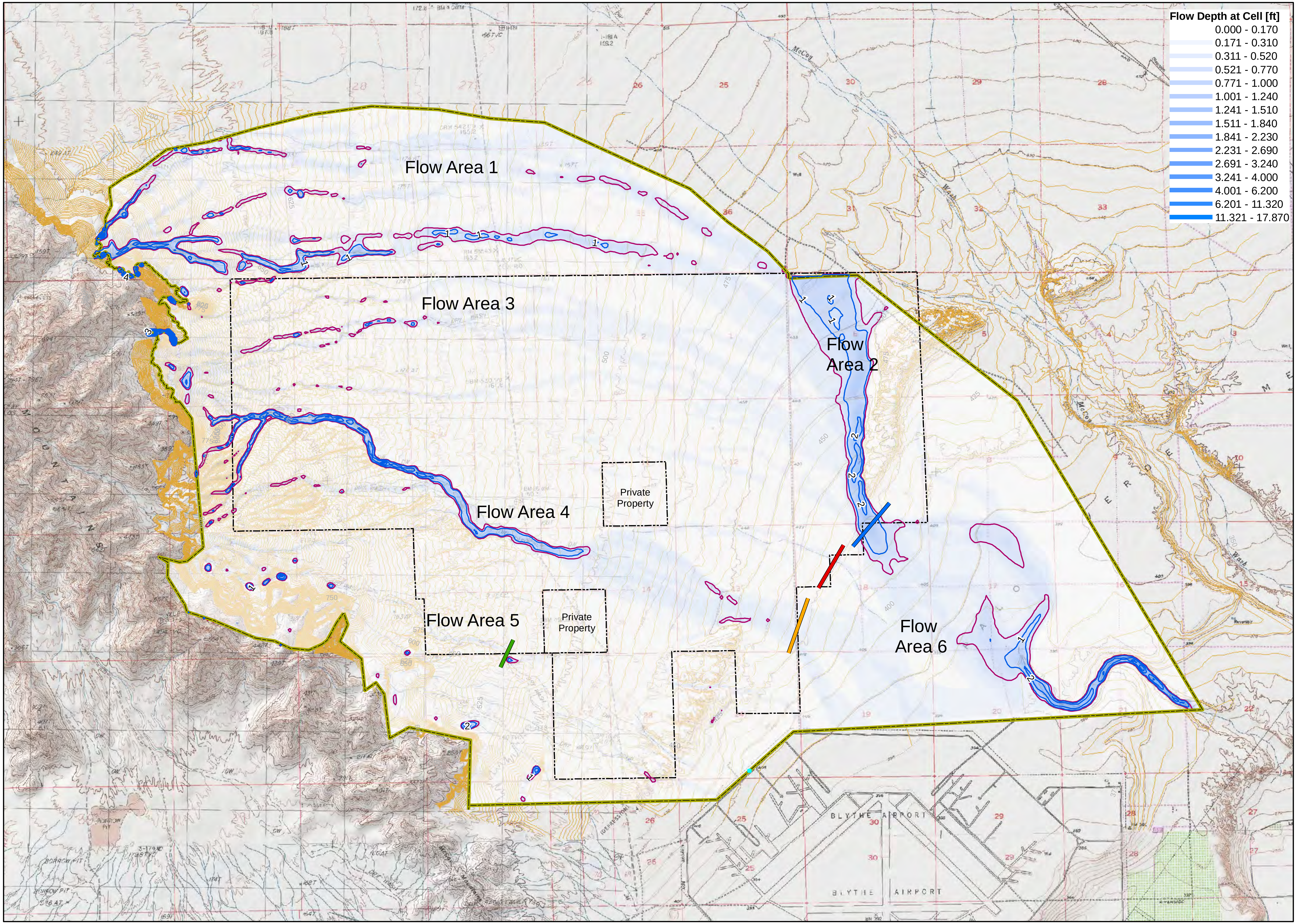
- In general, the results presented above portray peak flow rates and total flow volumes that are less than those results presented in the August 2009 Drainage Report. Comparison of results between this report and the August 2009 report must include qualification of model assumptions utilized for each report, as summarized below.

1. The August 2009 Drainage Report was prepared to analyze the post-development drainage flows on a full graded site with no localized depressions, no detention, and to size drainage channels to convey the storm events around and through the site to avoid damage to the project infrastructure. The HEC-RAS model is the appropriate tool for this type of flow modeling. This predevelopment report was prepared to analyze existing flows on a site that contains depressions, braided washes, and alluvial fan flows. FLO-2D is the appropriate model for this type of flow. The comparison of canalized flow to overland flow will naturally create differences.
2. The August 2009 analysis included HEC-HMS modeling based on 20-foot contour-interval topography; the current report analysis includes FLO-2D modeling based on 1-foot

contour-interval topography. Contour interval resolution affects watershed slope and boundary delineation, flow routing dynamics, flow concentration and flow diffusion.

3. The August 2009 analysis included HEC-HMS modeling based on Muskingum routing; the current report analysis includes FLO-2D modeling based on dynamic wave approximation. Each of these methods is appropriate for their respective modeling (channel flow versus overland flow) but they are difficult to compare because they analyze different types of flow.
4. The August 2009 Drainage Report utilized HEC-HMS modeling, a software package for sizing the post development drainage channels. It does not have the modeling capability for predicting watershed storage. The current report analysis utilizes FLO-2D modeling, a software package that includes an on-site "Watershed Storage" factor that will hold water in on-site storage when simulated hydraulic head is beneath a specific threshold. This "storage factor" results in different flow rates at the site boundary.

APPENDIX A:
100-year Existing Hydrology Flow Depth, Velocity, and Water Surface Maps



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

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

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

Flow Analysis Section
1
2
3
4
Flow Depth at Cell (Contour)
Model Boundary
Site Boundary
Area of Concentrated Flow*

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

N

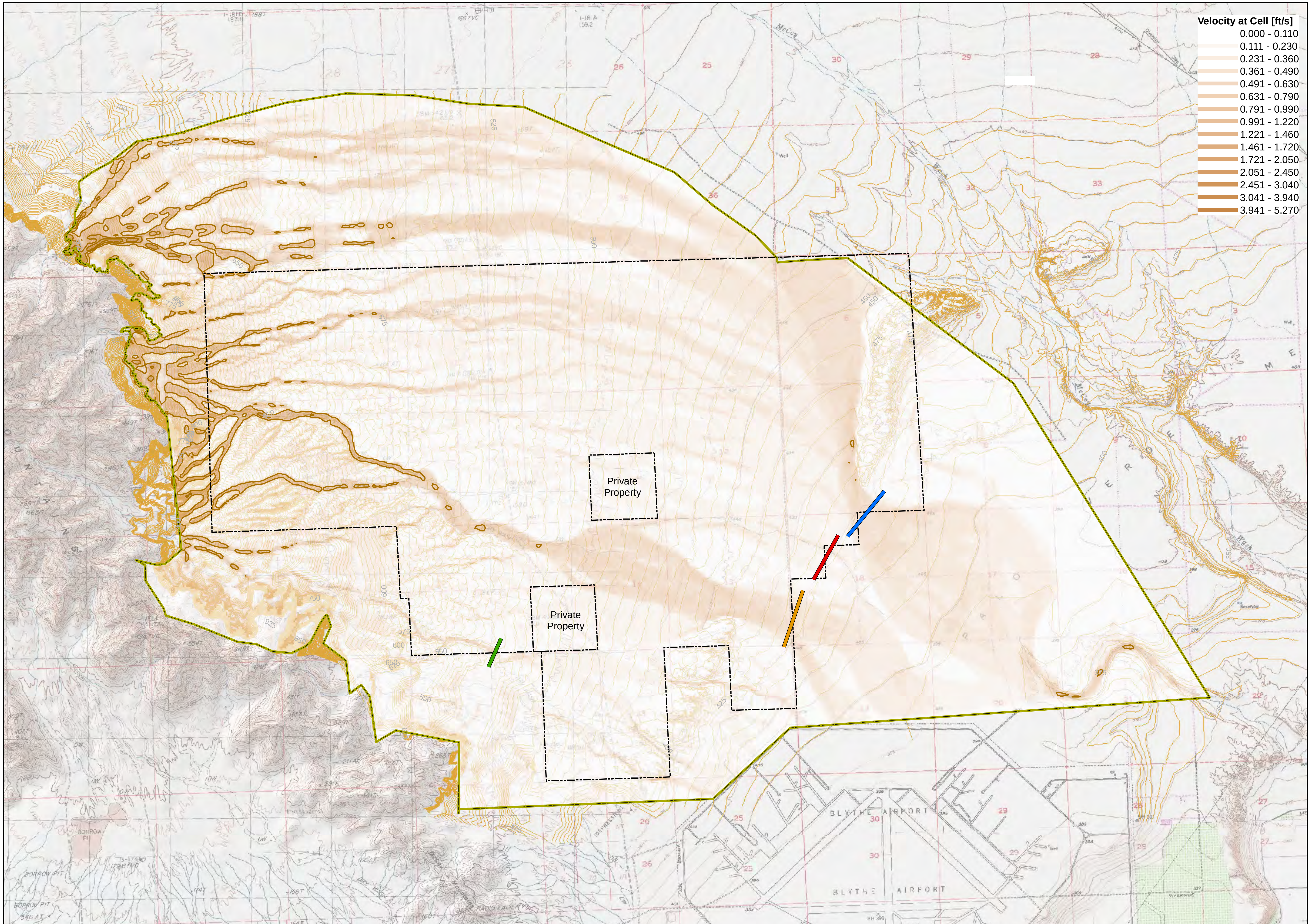
0 1,150 2,300 4,600
Feet

Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions 100-Yr Storm Max. Flow Depth

Date: 11/25/09
Sheet: 1 of 3



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

Designed:

Checked:

Drawn:

Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

Flow Analysis Section
1
2
3
4

Model Boundary
Site Boundary
Contours 5ft
Velocity at Cell (Contour)

N

0 1,250 2,500 5,000 Feet

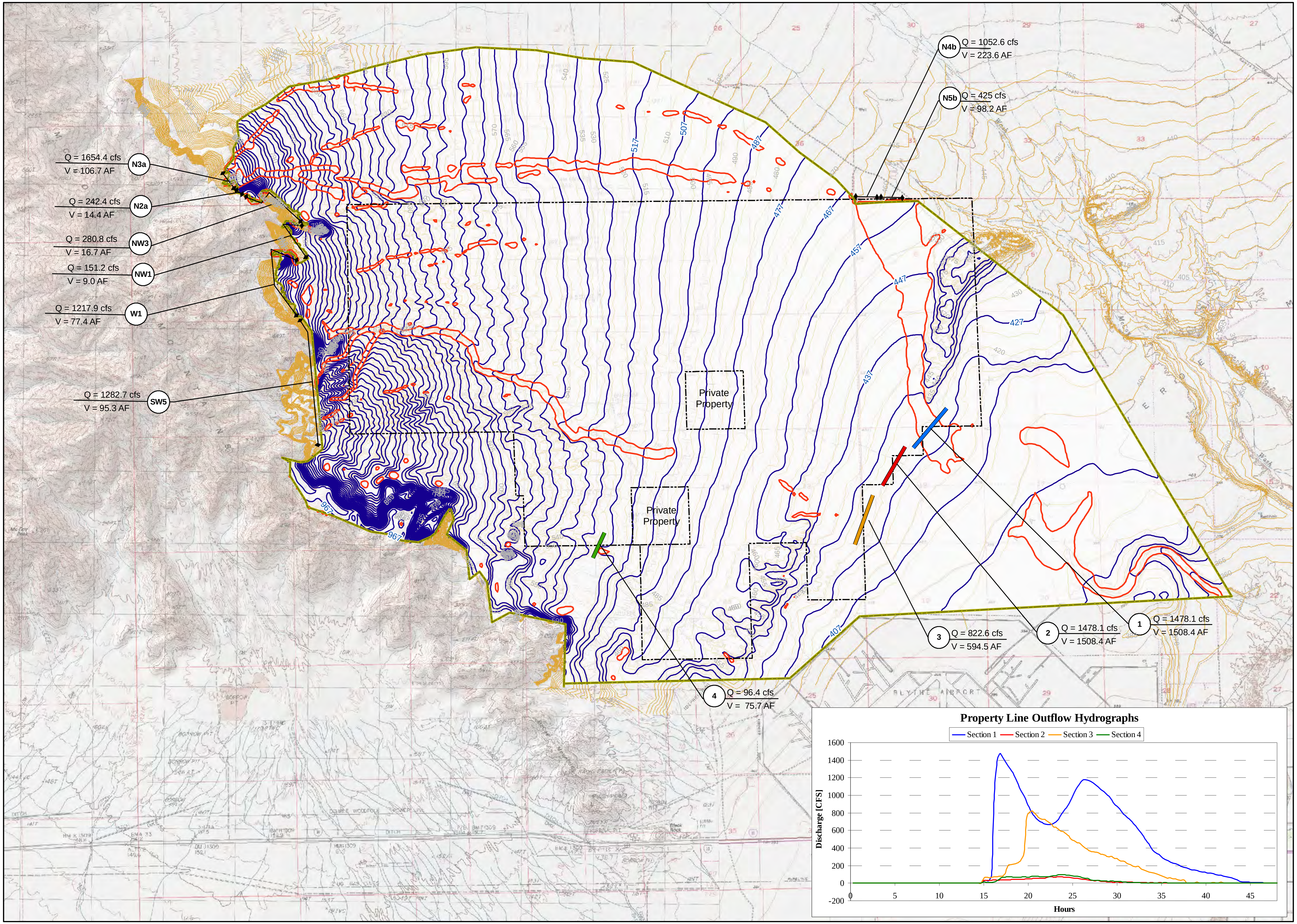
Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions 100-Yr Storm Maximum Velocity

Date: 11/25/09

Sheet: 2 of 3



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

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
Max Water Elevation
Surface Contours
Area of Concentrated Flow*
* Area of maximum concentrated flow with water depth exceeding 0.3 feet

N

0 1,200 2,400 4,800 Feet

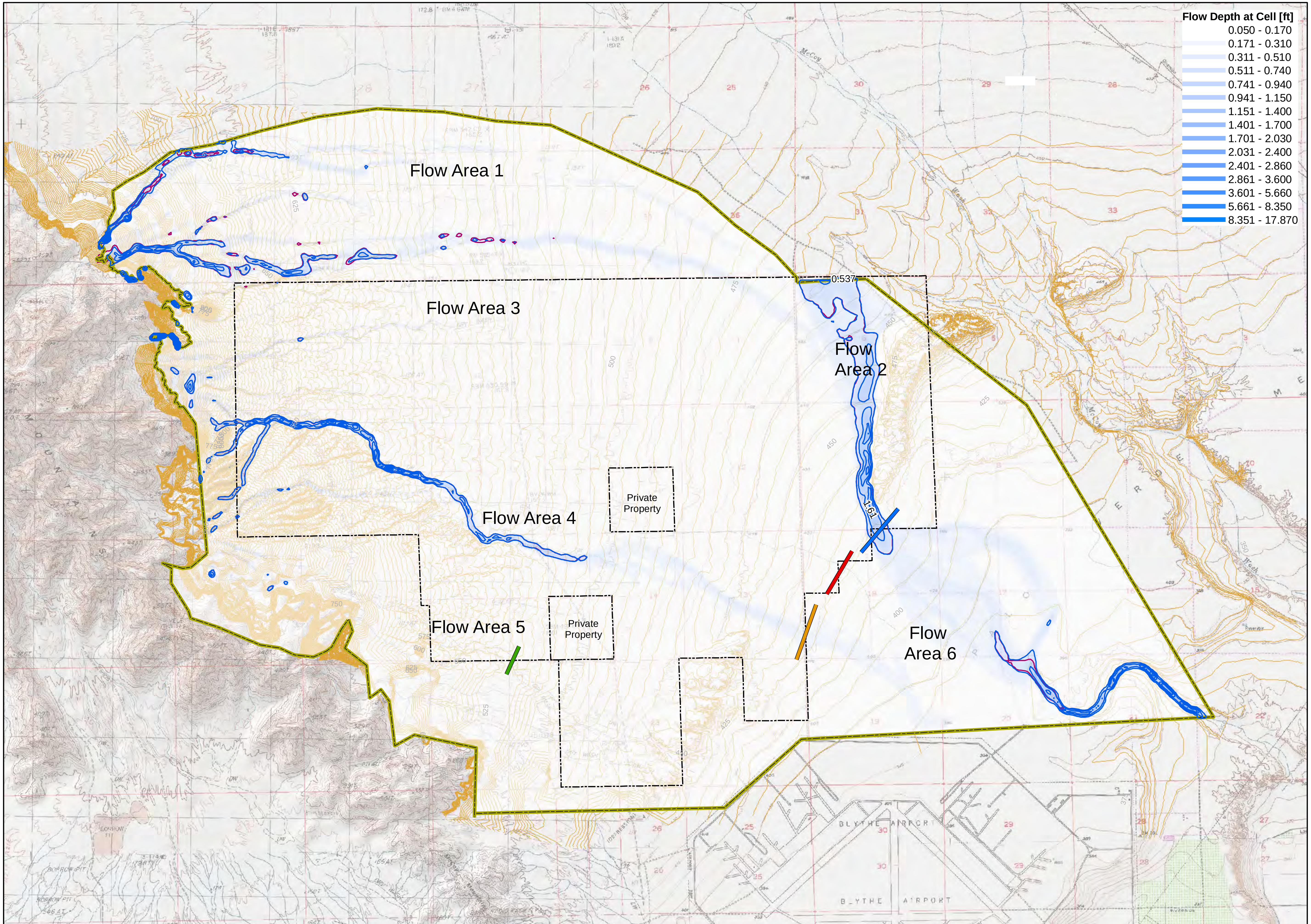
Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions 100-Yr Storm Max. Water Surface

Date: 11/25/09
Sheet: 3 of 3

APPENDIX B
25-year Existing Hydrology Flow Depth, Velocity, and Water Surface Maps



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

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

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

Flow Analysis Section
1
2
3
4
Flow Depth at Cell (Contour)
Model Boundary
Site Boundary
Area of Concentrated Flow*

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

N

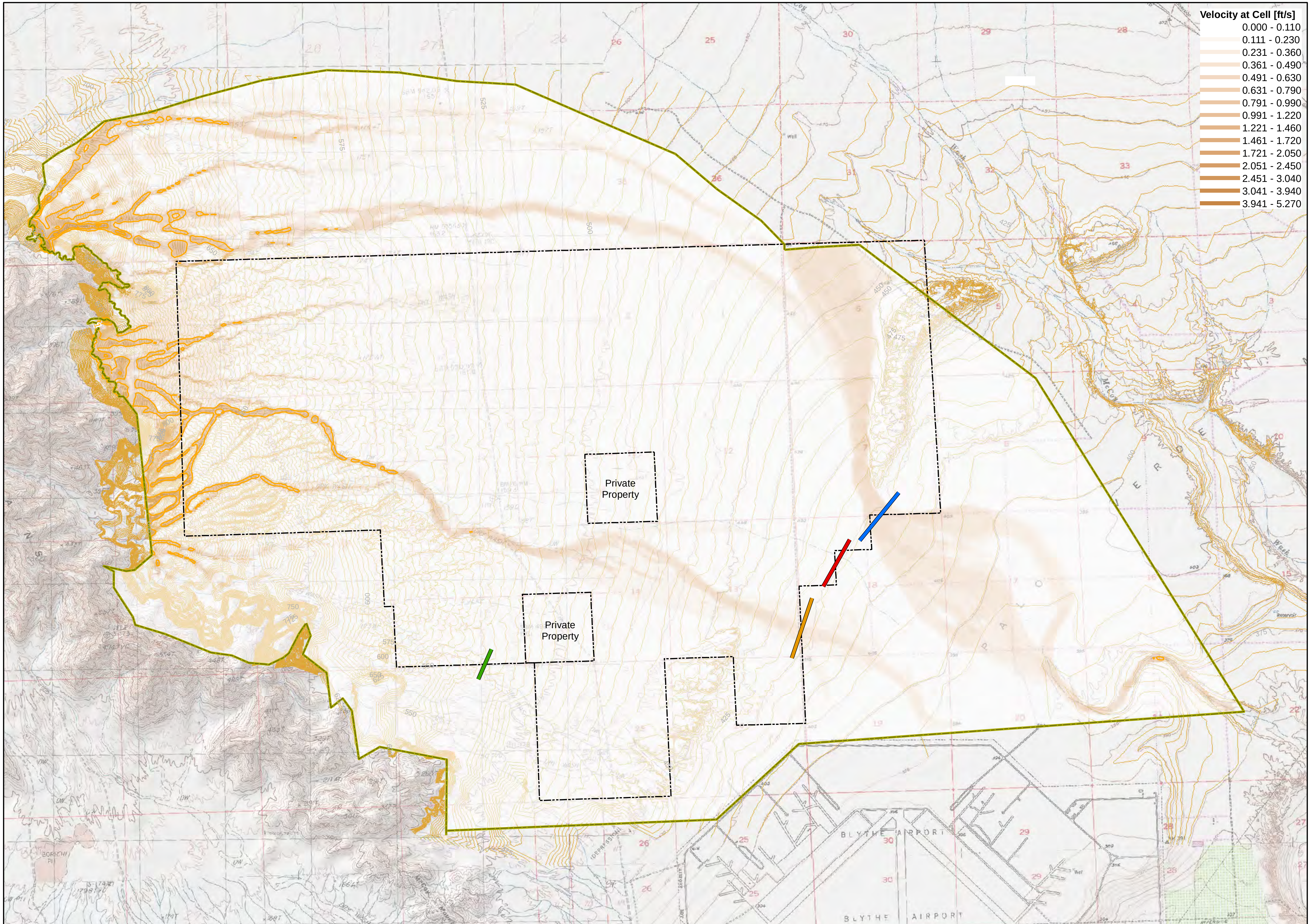
0 1,150 2,300 4,600 Feet

Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions 25-Yr Storm Max. Flow Depth

Date: 11/25/09
Sheet: 1 of 3



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

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

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

Flow Analysis Section
1
2
3
4
Model Boundary
Site Boundary
Contours 5ft
Velocity at Cell (Contour)

N

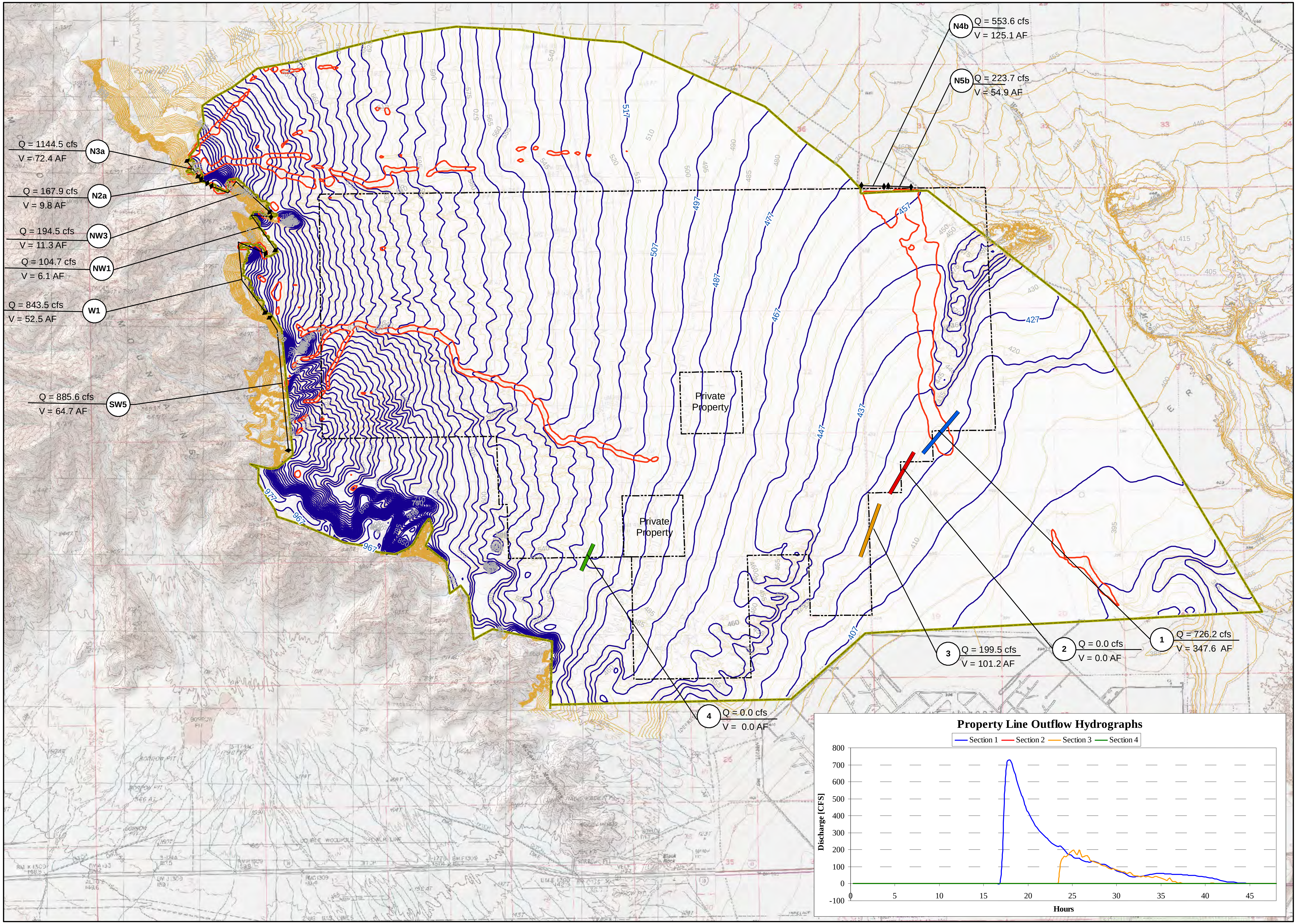
0 950 1,900 3,800
Feet

Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions 25-Yr Storm Maximum Velocity

Date: 11/25/09
Sheet: 2 of 3



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

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 Boudary
Max Water Elevation
Surface Contours
Area of Concentrated Flow*
* Area of maximum concentrated flow with water depth exceeding 0.3 feet

N

0 1,100 2,200 4,400 Feet

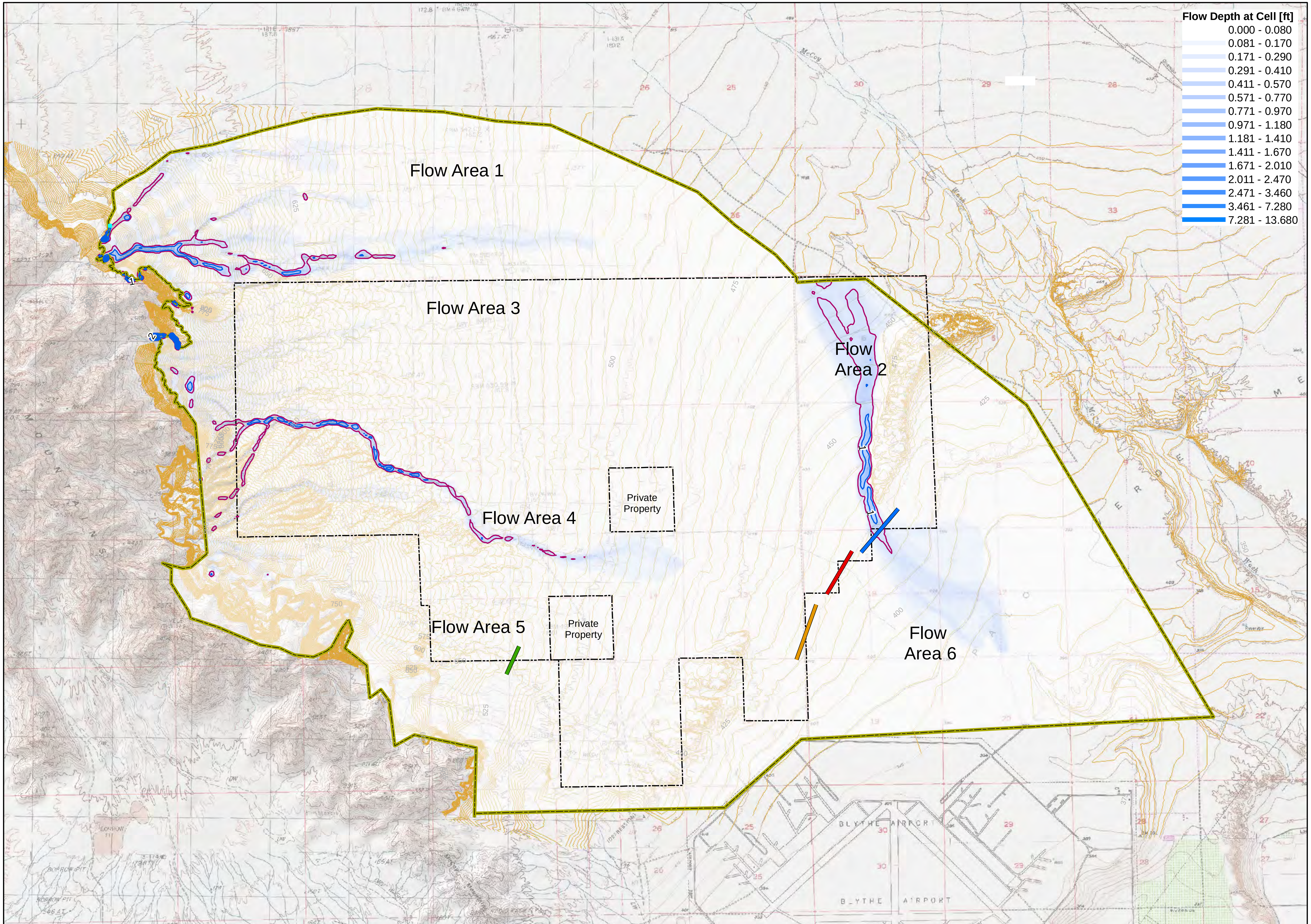
Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions 25-Yr Storm Max. Water Surface

Date: 11/25/09
Sheet: 3 of 3

APPENDIX C
10-year Existing Hydrology Flow Depth, Velocity, and Water Surface Maps



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

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

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

Flow Analysis Section
1
2
3
4

Flow Depth at Cell (Contour)
Model Boundary
Site Boundary
Area of Concentrated Flow*

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

N

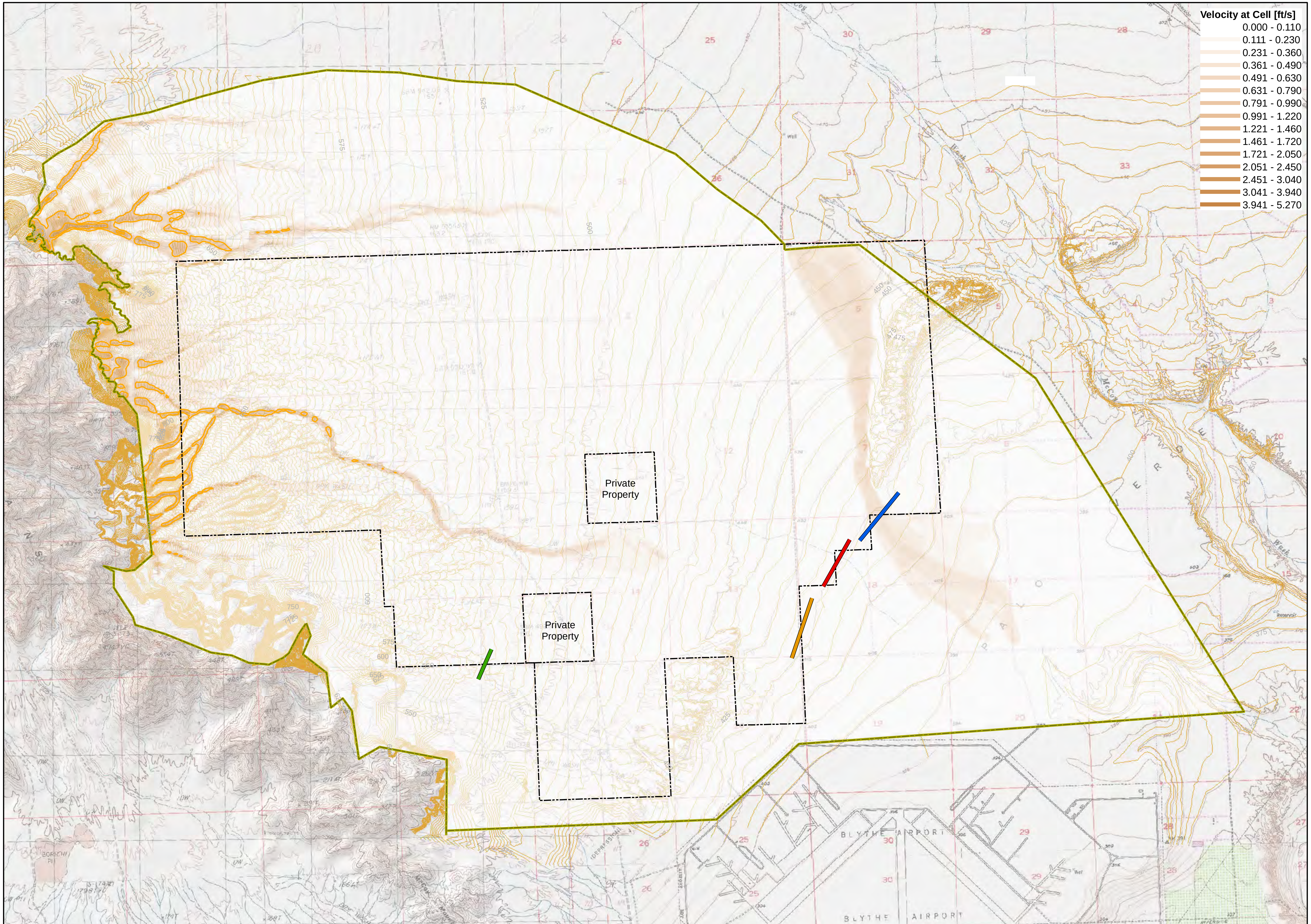
0 1,000 2,000 4,000
Feet

Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions
10-Yr Storm
Max. Flow Depth

Date: 11/25/09
Sheet: 1 of 3



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

Designed:

Checked:

Drawn:

Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

Flow Analysis Section
1
2
3
4

Model Boundary
Site Boundary
Contours 5ft
Velocity at Cell (Contour)

N

0 1,000 2,000 4,000 Feet

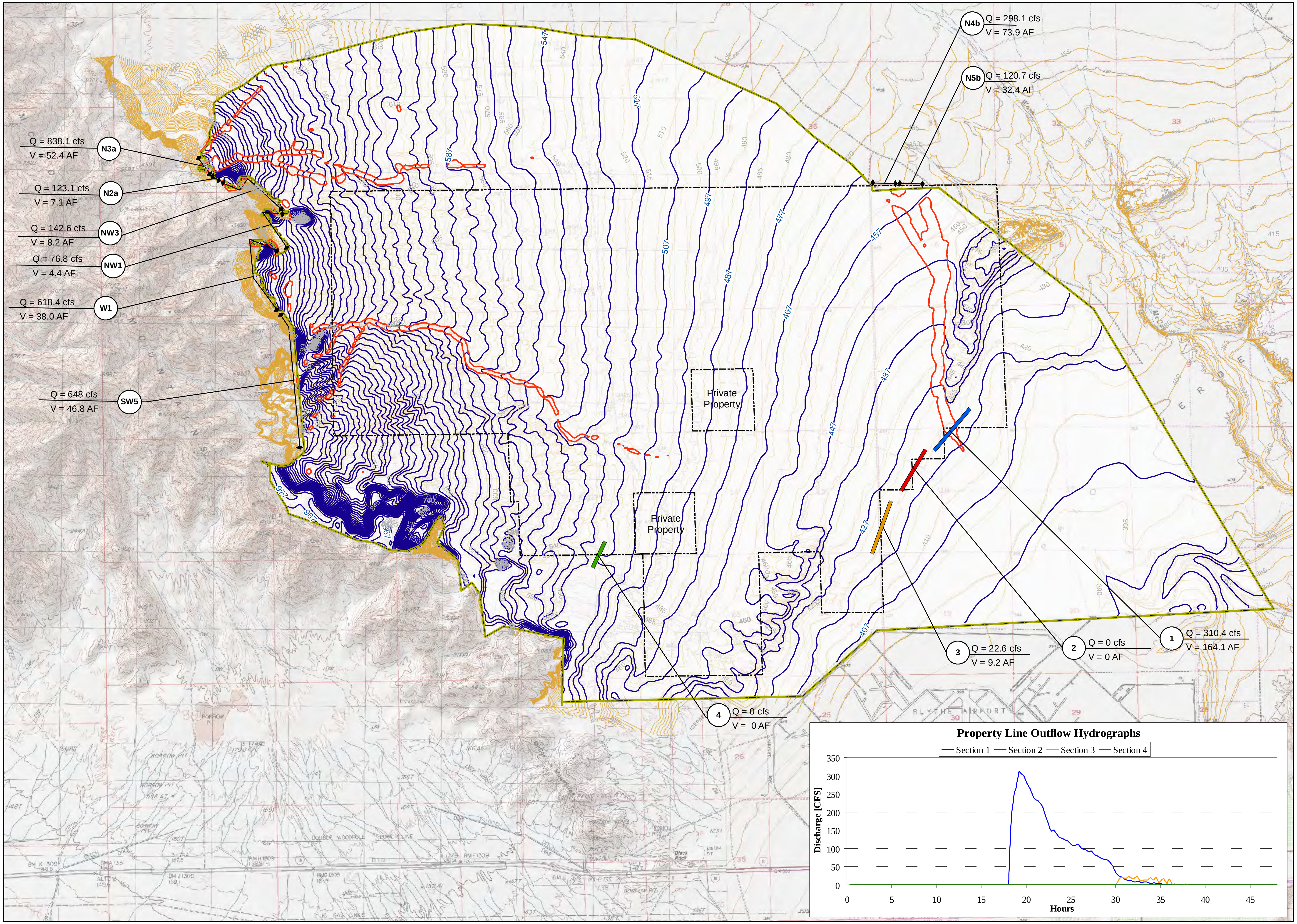
Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions 10-Yr Storm Maximum Velocity

Date: 11/25/09

Sheet: 2 of 3



AECOM

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

www.aecom.com

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
MyGroups
1
2
3
4
Model Boundary
Site Boudary
Max Water Elevation
Surface Contours
Area of Concentrated Flow*

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

N

0 1,100 2,200 4,400
Feet

Blythe Solar Power Plant

Riverside County, California

Exisiting Conditions 10-Yr Storm Max. Water Surface

Date: 11/25/09

Sheet: 3 of 3

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *BLYTHE SOLAR POWER PLANT PROJECT*

Docket No. 09-AFC-6

PROOF OF SERVICE
(Established 11/18/09)

APPLICANT

Gavin Berg
Senior Project Manager
1625 Shattuck Avenue, Suite 270
Berkeley, CA 94709
berg@solarmillennium.com

Carl Lindner
AECOM Project Manager
1220 Avenida Acaso
Camarillo, CA 93012
carl.lindner@aecom.com

Co-COUNSEL

Scott Galati, Esq.
Galati/Blek, LLP
455 Capitol Mall, Suite 350
Sacramento, CA 95814
sgalati@gb-llp.com

Co-COUNSEL

Peter Weiner
Matthew Sanders
Paul, Hastings, Janofsky & Walker LLP
55 2nd Street, Suite 2400-3441
San Francisco, CA 94105
peterweiner@paulhastings.com
matthewsanders@paulhastings.com

INTERESTED AGENCIES

California ISO
e-recipient@caiso.com

INTERVENORS

ENERGY COMMISSION

Karen Douglas
Chair and Presiding Member
kldougla@energy.state.ca.us

Jeffrey D. Byron
Commissioner and Associate Member
jbyron@energy.state.ca.us

Raoul Renaud
Hearing Officer
rrenaud@energy.state.ca.us

Alan Solomon
Siting Project Manager
asolomon@energy.state.ca.us

Lisa DeCarlo
Staff Counsel
ldecarlo@energy.state.ca.us

Public Adviser's Office
publicadviser@energy.state.ca.us

*indicates change

DECLARATION OF SERVICE

I, Ashley Y. Garner, declare that on November 30, 2009, I served and filed copies of the attached BLYTHE SOLAR POWER PLANT PRE-DEVELOPMENT DRAINAGE CONDITIONS REPORT dated November 25, 2009. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/solar_millennium_blythe]

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

FOR SERVICE TO ALL OTHER PARTIES:

__X__ sent electronically to all email addresses on the Proof of Service list;

__X__ by personal delivery or by depositing in the United States mail at with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses NOT marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

__X__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

// Original Signed //
Ashley Y. Garner