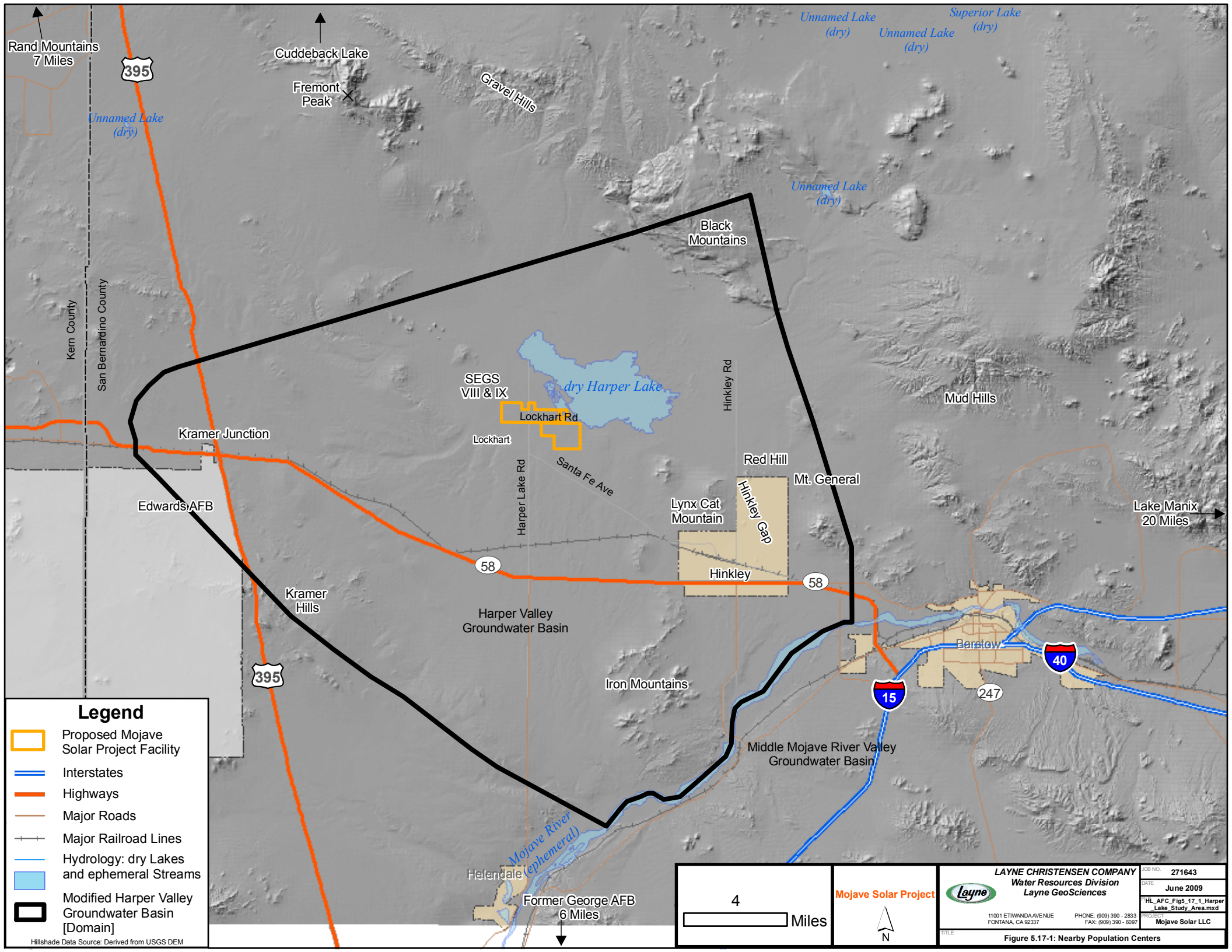
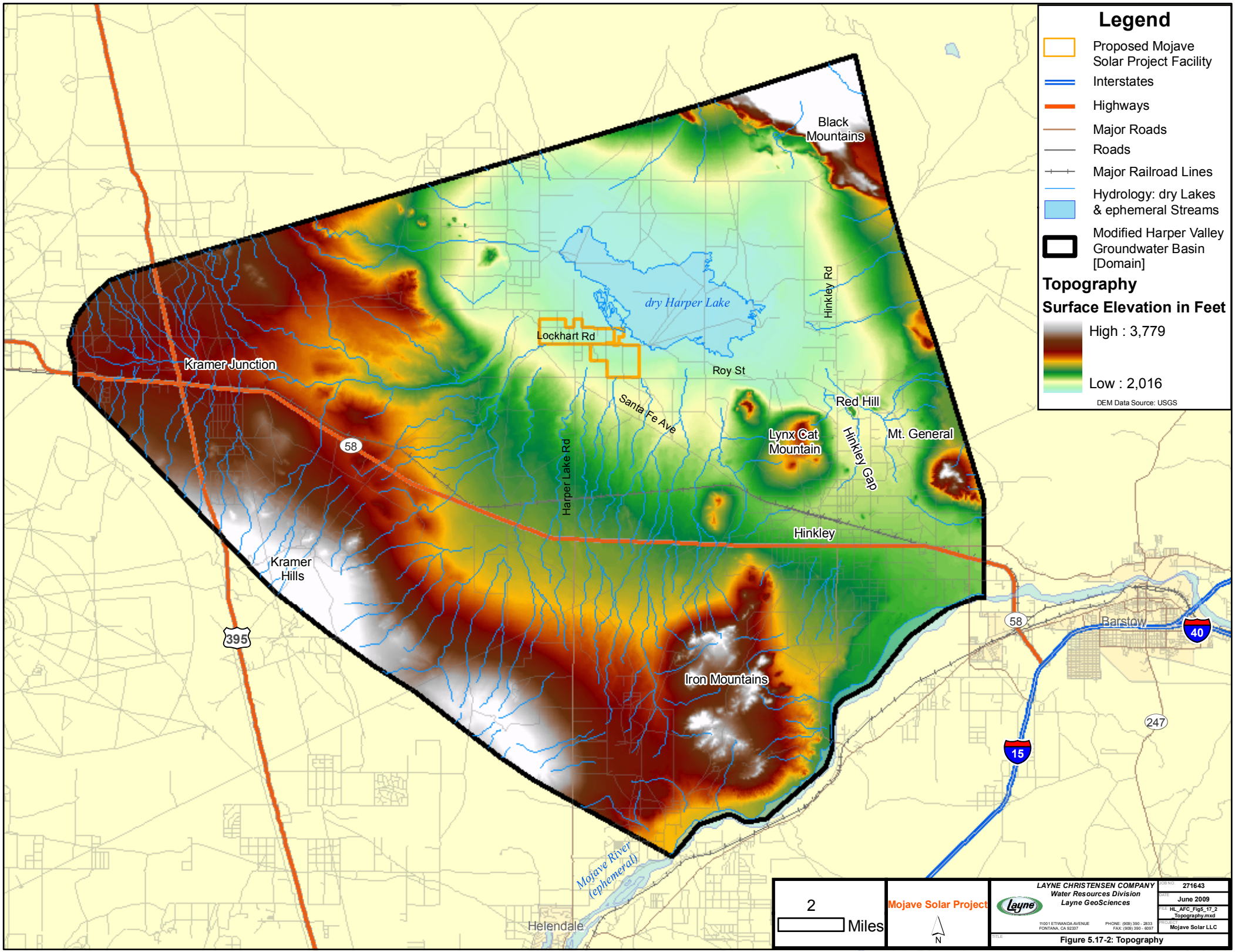
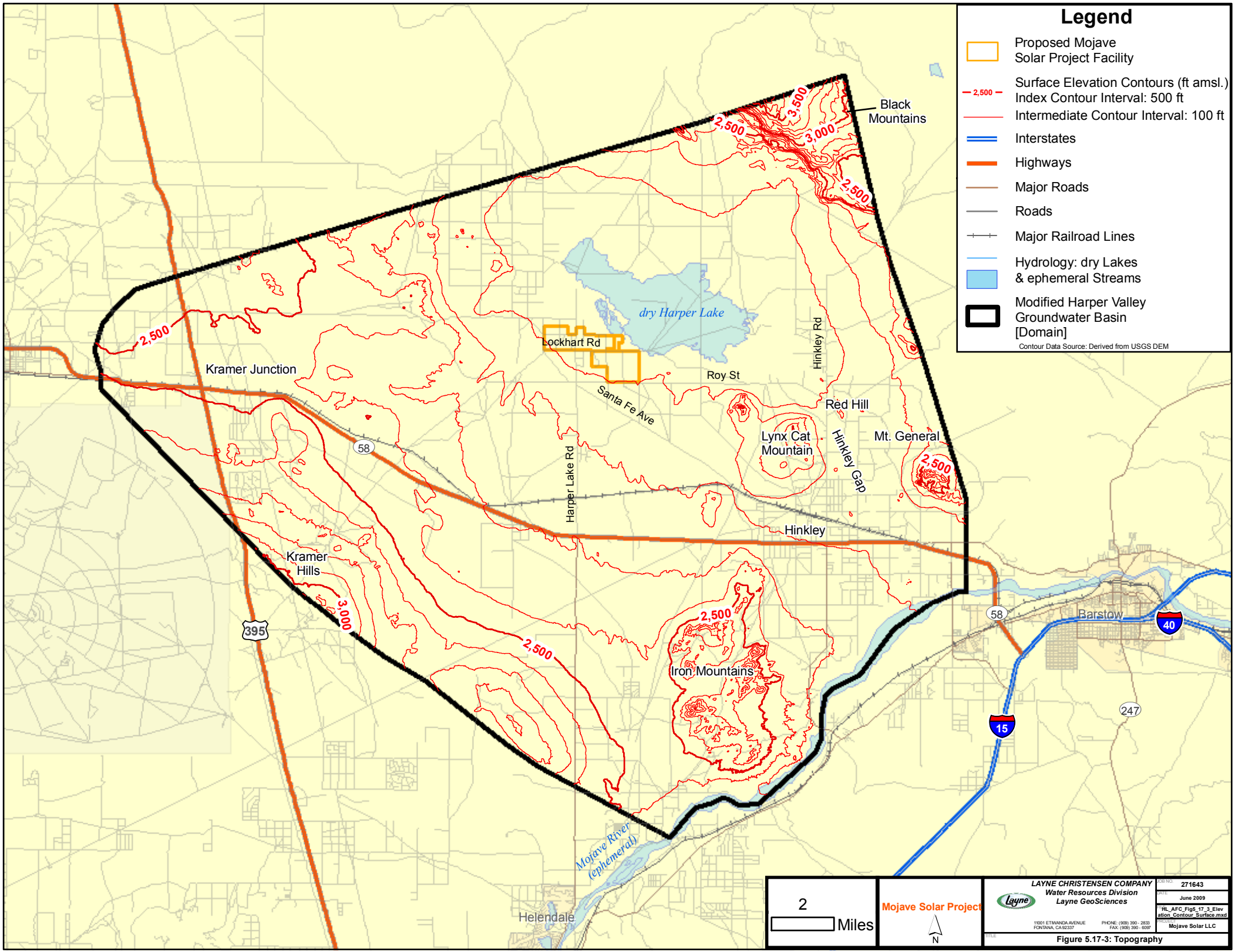
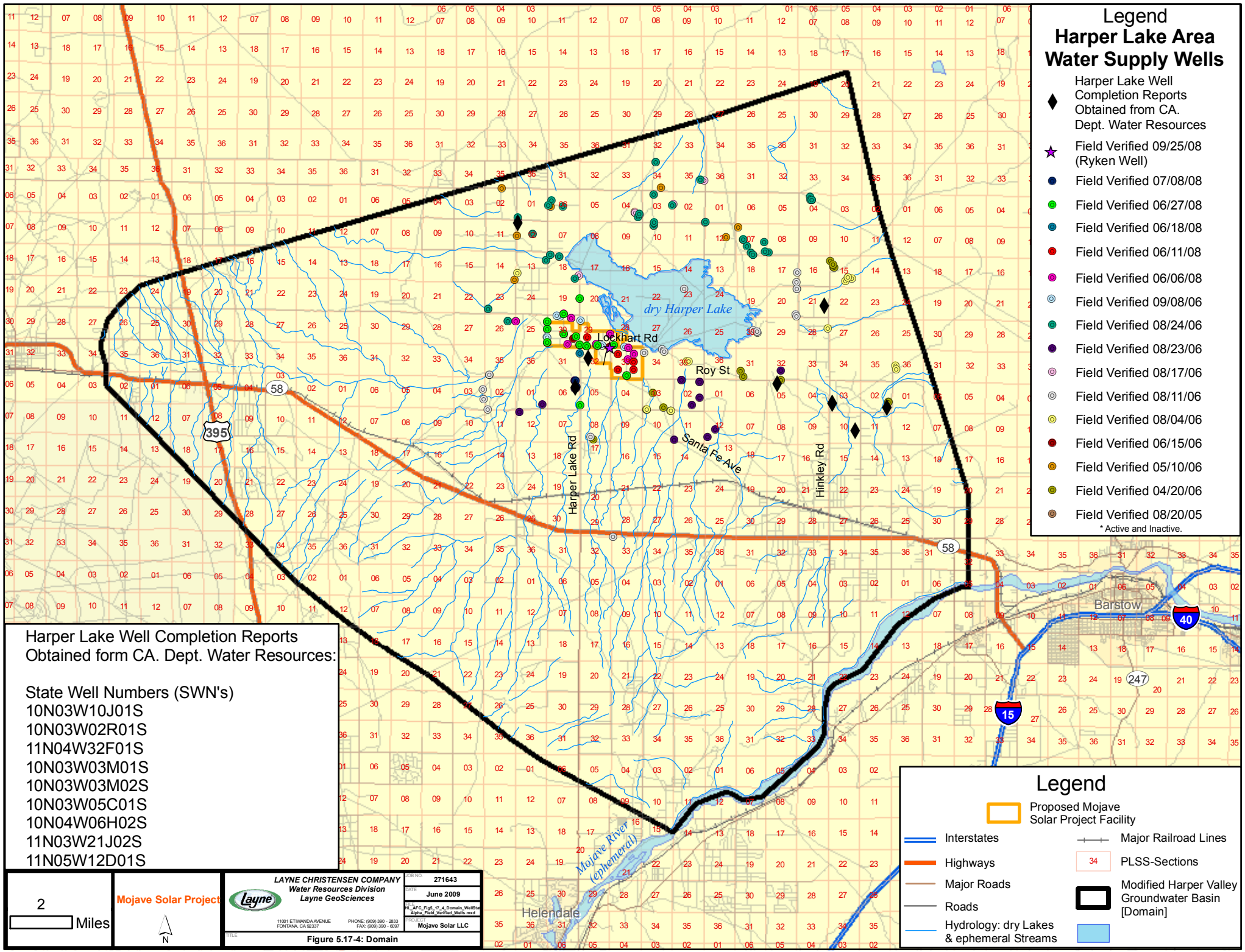
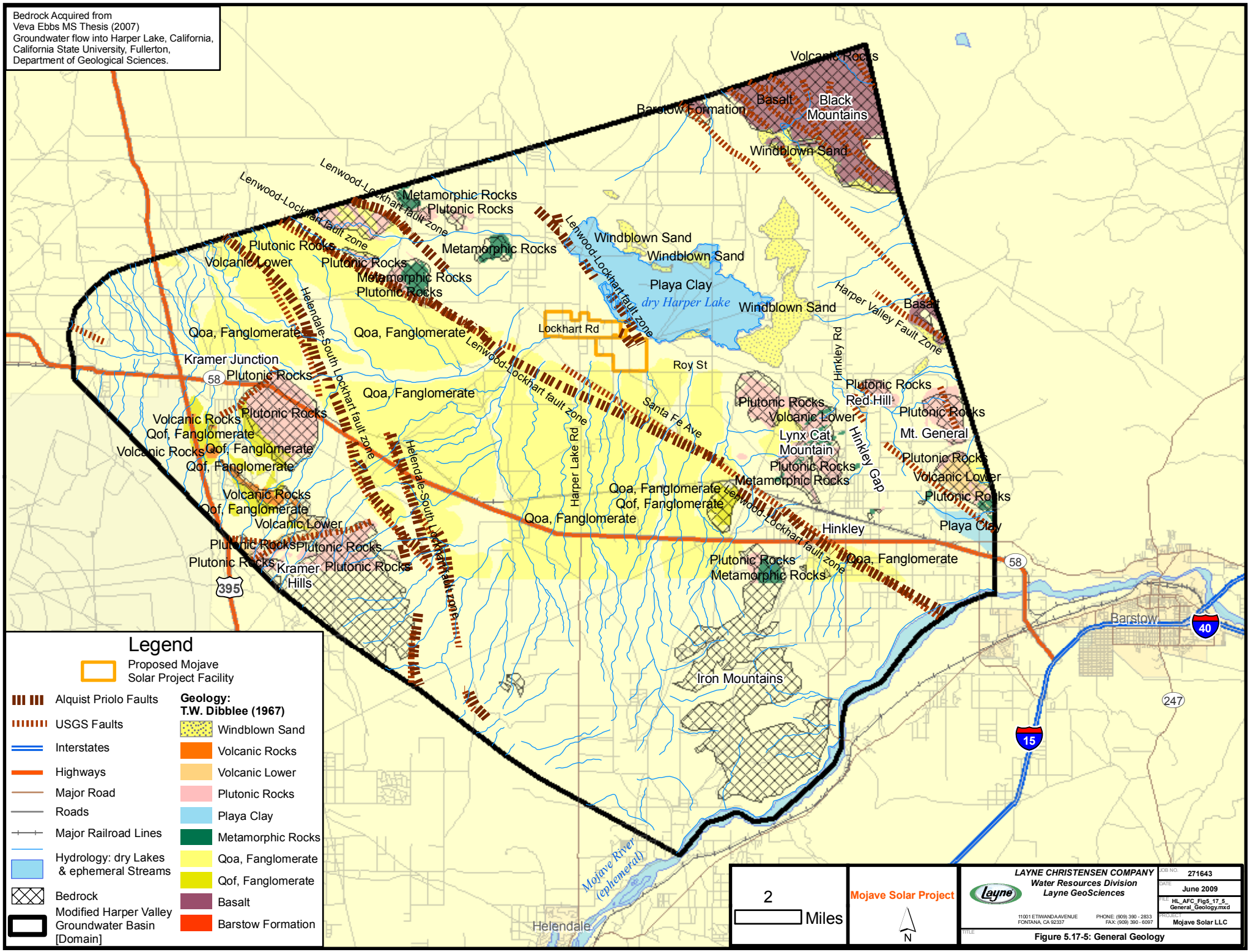
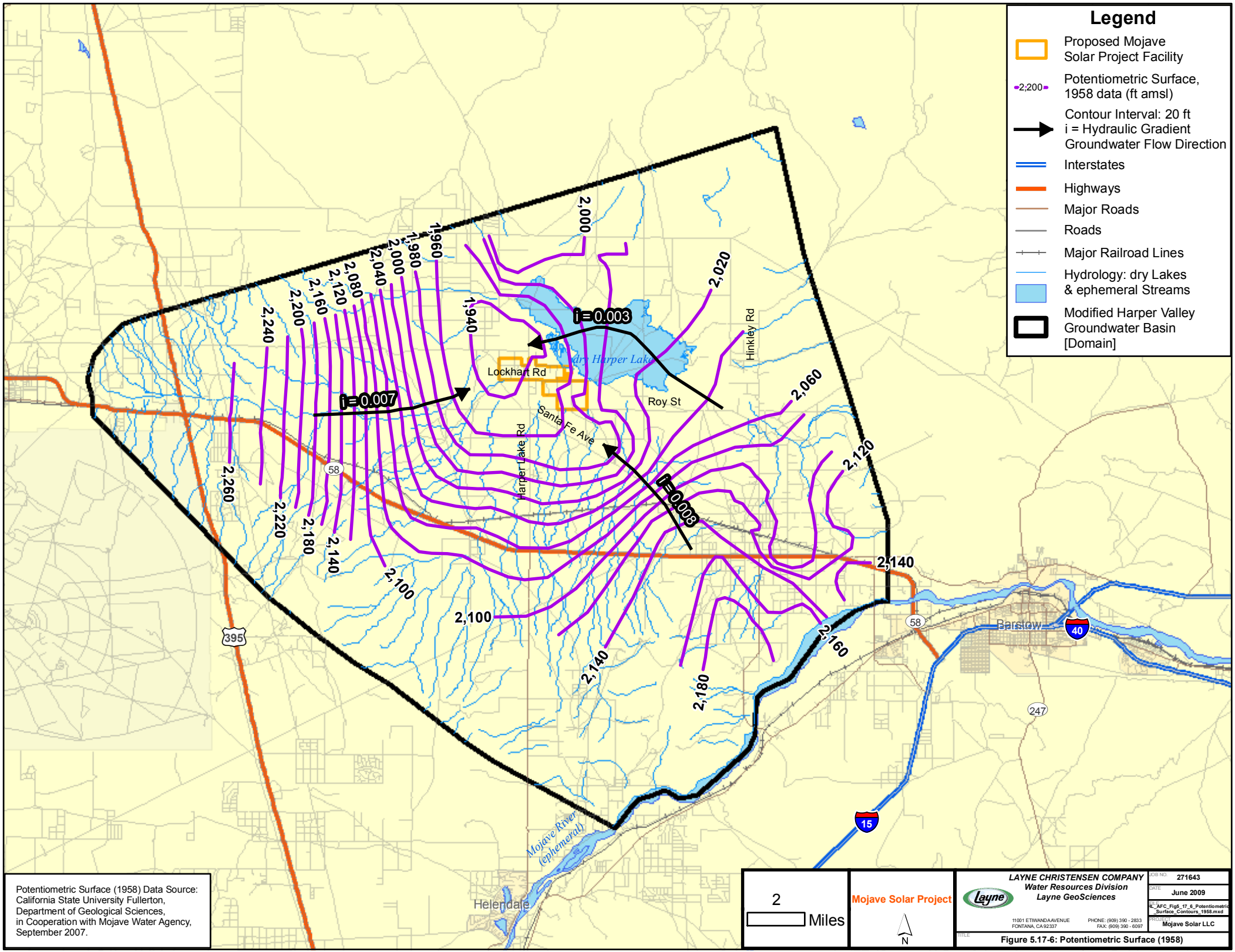

Rand Mountains
7 Miles
395
Cuddeback Lake
Fremont
Peak
Gravel Hills
Unnamed Lake
(dry)
Unnamed Lake
(dry)
Unnamed Lake
(dry)
Superior Lake
(dry)
Unnamed Lake
(dry)
Black
Mountains
Kern County
San Bernardino County
SEGS
VIII & IX
dry Harper Lake
Lockhart Rd
Lockhart
Hinkley Rd
Mud Hills
Kramer Junction
Santa Fe Ave
Red Hill
Mt. General
Harper Lake Rd
Edwards AFB
Lynx Cat
Mountain
Hinkley Gap
Lake Manix
20 Miles
58
Hinkley
58
Kramer
Hills
Harper Valley
Groundwater Basin
Barstow
40
395
Iron Mountains
15
247
Middle Mojave River Valley
Groundwater Basin
Mojave River
(ephemeral)
Helendale
Former George AFB
6 Miles
Legend
Proposed Mojave
Solar Project Facility
Interstates
Highways
Major Roads
Major Railroad Lines
Hydrology: dry Lakes
and ephemeral Streams
Modified Harper Valley
Groundwater Basin
[Domain]
Hillshade Data Source: Derived from USGS DEM
4
Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
HL_AFC_Fig5_17_1_Harper_Lake_Study_Area.mxd
PROJECT Mojave Solar LLC
TITLE
Figure 5.17-1: Nearby Population Centers


Legend
Proposed Mojave Solar Project Facility
Interstates
Highways
Major Roads
Roads
Major Railroad Lines
Hydrology: dry Lakes & ephemeral Streams
Modified Harper Valley Groundwater Basin [Domain]
Topography
Surface Elevation in Feet
High : 3,779
Low : 2,016
DEM Data Source: USGS
Black Mountains
dry Harper Lake
Hinkley Rd
Lockhart Rd
Roy St
Kramer Junction
Santa Fe Ave
Red Hill
Lynx Cat Mountain
Mt. General
Hinkley Gap
Harper Lake Rd
58
Hinkley
Kramer Hills
395
Iron Mountains
Barstow
40
247
15
Mojave River (ephemeral)
Helendale
2
Miles
N
Mojave Solar Project
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
1100 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_2_Topography.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-2: Topography

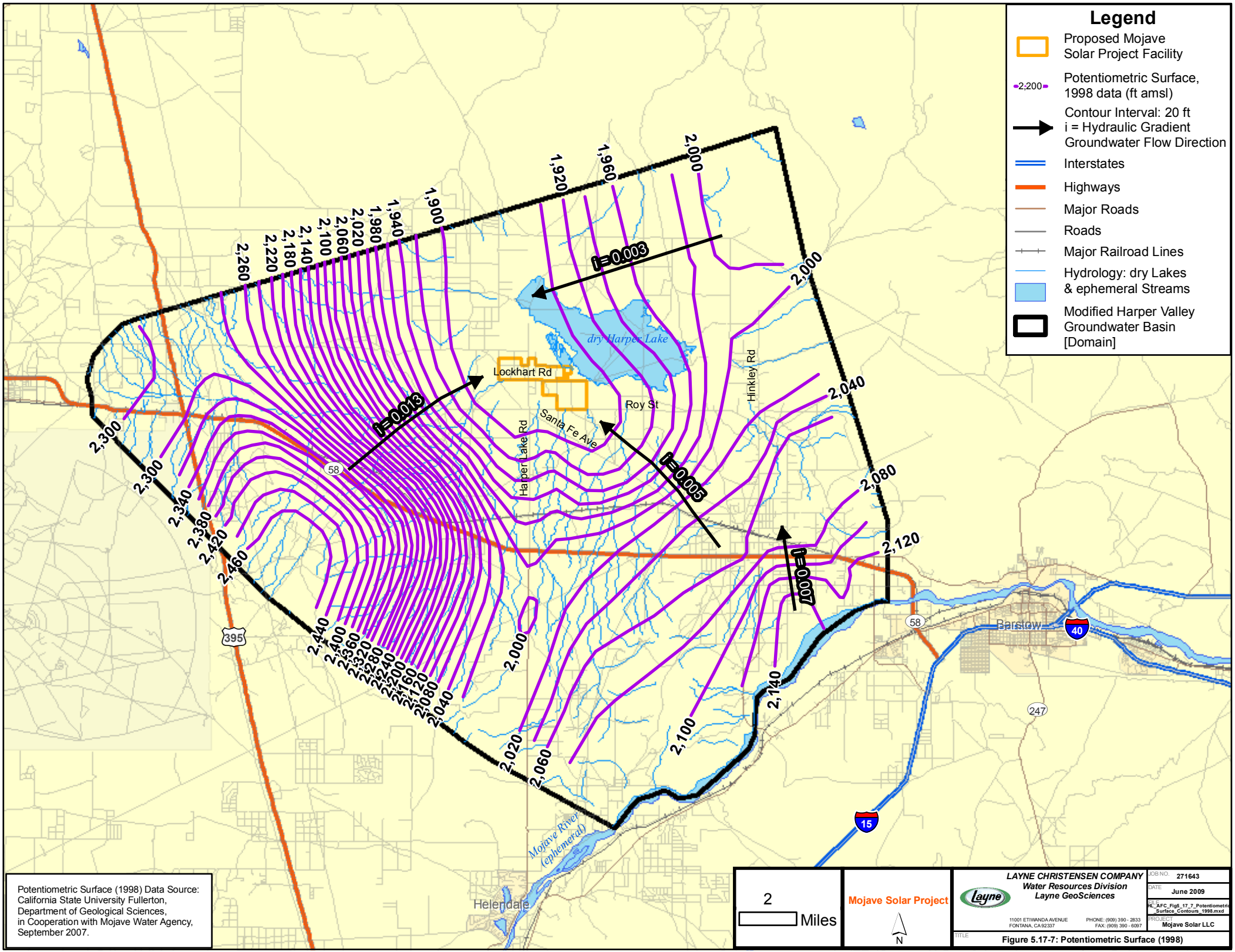

Legend
Proposed Mojave Solar Project Facility
Surface Elevation Contours (ft amsl.)
Index Contour Interval: 500 ft
Intermediate Contour Interval: 100 ft
Interstates
Highways
Major Roads
Roads
Major Railroad Lines
Hydrology: dry Lakes & ephemeral Streams
Modified Harper Valley Groundwater Basin [Domain]
Contour Data Source: Derived from USGS DEM
Black Mountains
dry Harper Lake
Lockhart Rd
Roy St
Santa Fe Ave
Hinkley Rd
Red Hill
Lynx Cat Mountain
Mt. General
Hinkley Gap
Harper Lake Rd
Hinkley
Kramer Junction
Kramer Hills
Iron Mountains
Barstow
Helendale
Mojave River (ephemeral)
58
395
15
40
247
2,500
3,000
3,500
2 Miles
N
Mojave Solar Project
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_3_Elevation_Contour_Surface.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-3: Topography


Legend
Harper Lake Area
Water Supply Wells
Harper Lake Well Completion Reports Obtained from CA. Dept. Water Resources
Field Verified 09/25/08 (Ryken Well)
Field Verified 07/08/08
Field Verified 06/27/08
Field Verified 06/18/08
Field Verified 06/11/08
Field Verified 06/06/08
Field Verified 09/08/06
Field Verified 08/24/06
Field Verified 08/23/06
Field Verified 08/17/06
Field Verified 08/11/06
Field Verified 08/04/06
Field Verified 06/15/06
Field Verified 05/10/06
Field Verified 04/20/06
Field Verified 08/20/05
* Active and Inactive.
dry Harper Lake
Lockhart Rd
Roy St
Santa Fe Ave
Harper Lake Rd
Hinkley Rd
Barstow
Helendale
Mojave River (ephemeral)
58
395
40
247
15
Harper Lake Well Completion Reports Obtained form CA. Dept. Water Resources:
State Well Numbers (SWN's)
10N03W10J01S
10N03W02R01S
11N04W32F01S
10N03W03M01S
10N03W03M02S
10N03W05C01S
10N04W06H02S
11N03W21J02S
11N05W12D01S
2
Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_4_Domain_WellStat_Alpha_Field_Verified_Wells.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-4: Domain
Legend
Proposed Mojave Solar Project Facility
Interstates
Highways
Major Roads
Roads
Hydrology: dry Lakes & ephemeral Streams
Major Railroad Lines
PLSS-Sections
Modified Harper Valley Groundwater Basin [Domain]

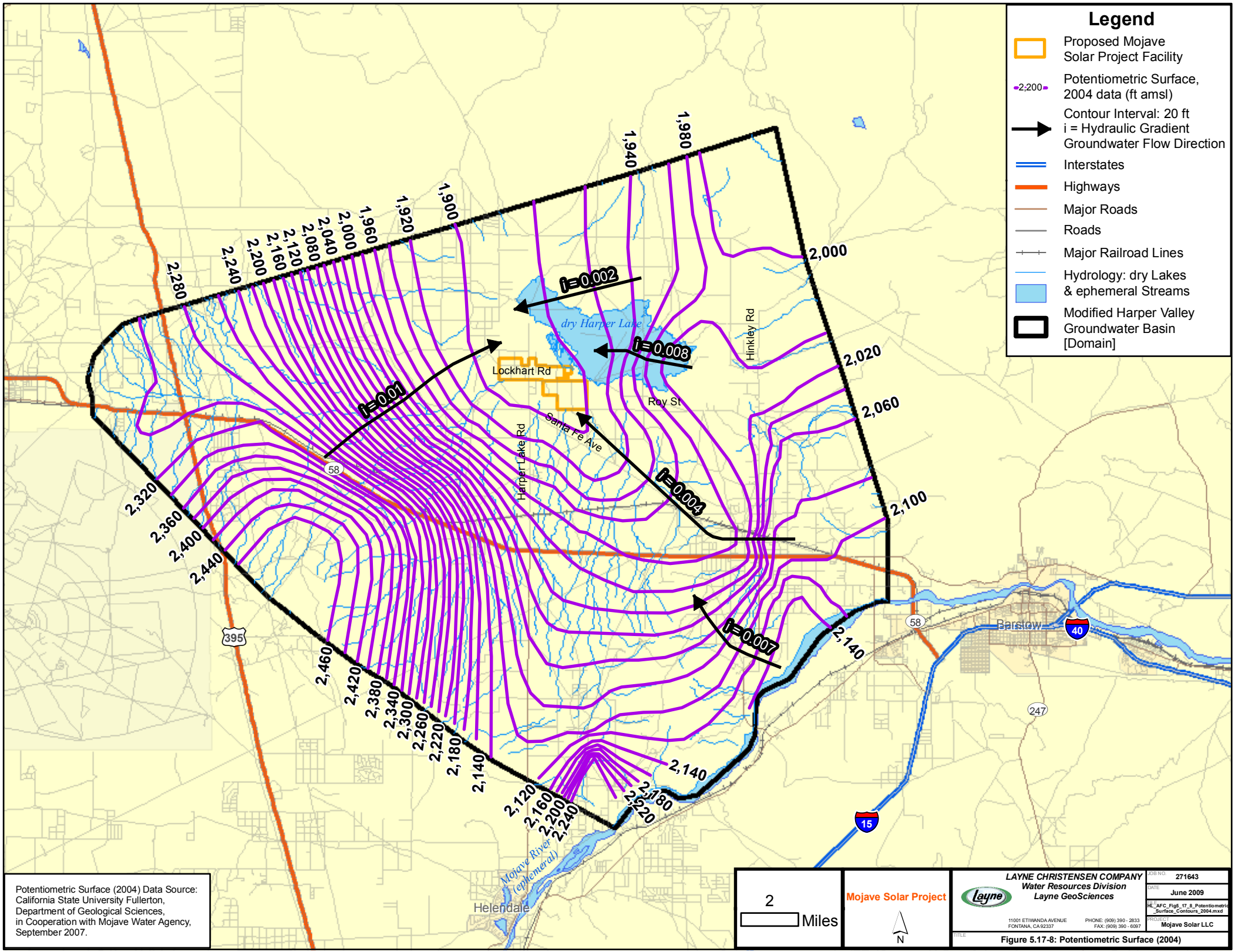

Bedrock Acquired from
Veva Ebbs MS Thesis (2007)
Groundwater flow into Harper Lake, California,
California State University, Fullerton,
Department of Geological Sciences.
Volcanic Rocks
Basalt
Black Mountains
Barstow Formation
Windblown Sand
Lenwood-Lockhart fault zone
Metamorphic Rocks
Plutonic Rocks
Volcanic Lower
Windblown Sand
Playa Clay
dry Harper Lake
Harper Valley Fault Zone
Basalt
Lockhart Rd
Qoa, Fanglomerate
Helendale-South Lockhart fault zone
Kramer Junction
Roy St
Hinkley Rd
Red Hill
Mt. General
Volcanic Rocks
Qof, Fanglomerate
Santa Fe Ave
Harper Lake Rd
Lynx Cat Mountain
Hinkley Gap
Metamorphic Rocks
Hinkley
Kramer Hills
Iron Mountains
Mojave River (ephemeral)
Helendale
Barstow
58
395
40
15
247
Legend
Proposed Mojave Solar Project Facility
Alquist Priolo Faults
USGS Faults
Interstates
Highways
Major Road
Roads
Major Railroad Lines
Hydrology: dry Lakes & ephemeral Streams
Bedrock
Modified Harper Valley Groundwater Basin [Domain]
Geology: T.W. Dibblee (1967)
Windblown Sand
Volcanic Rocks
Volcanic Lower
Plutonic Rocks
Playa Clay
Metamorphic Rocks
Qoa, Fanglomerate
Qof, Fanglomerate
Basalt
Barstow Formation
2
Miles
N
Mojave Solar Project
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_5_General_Geology.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-5: General Geology

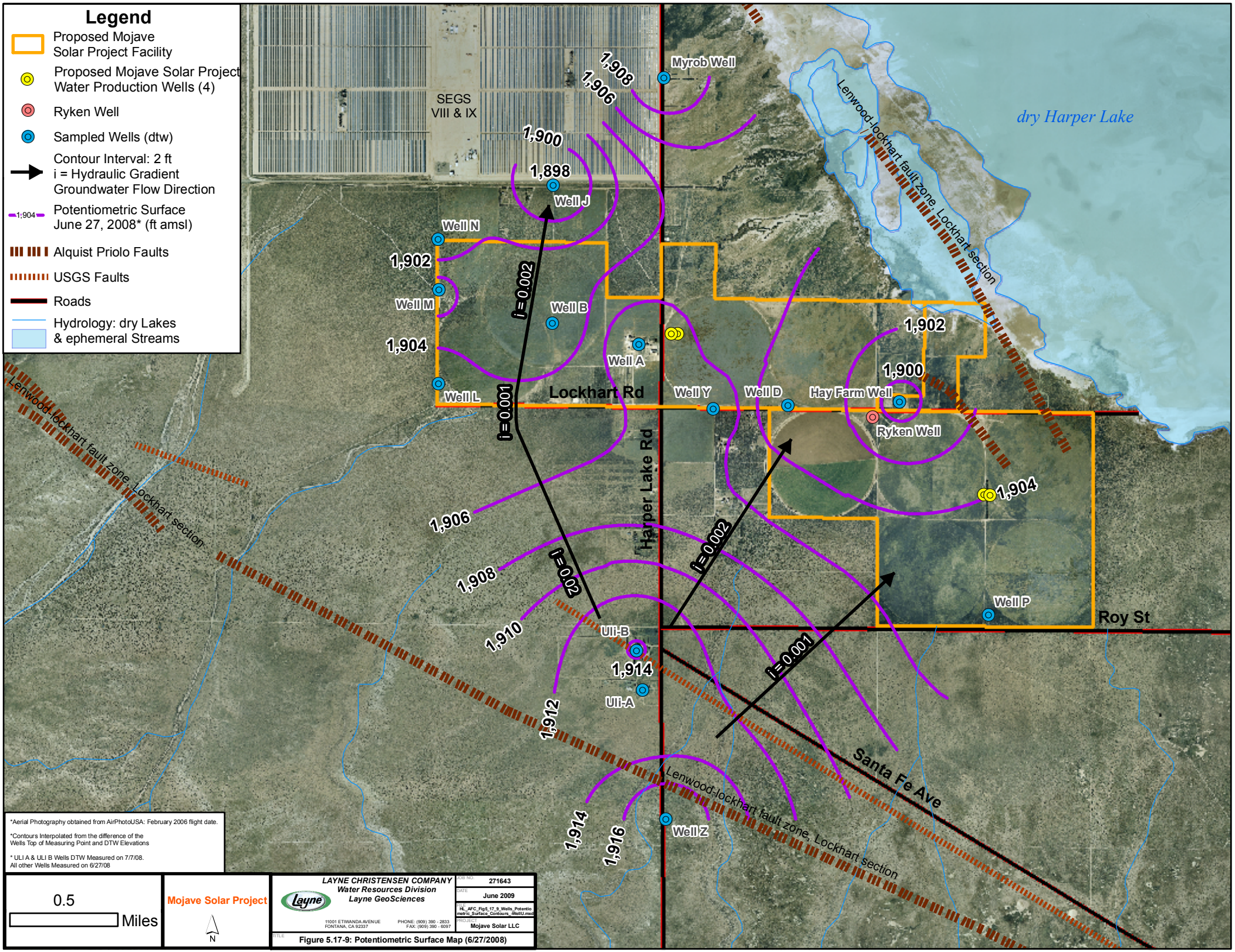


Potentiometric Surface (1958) Data Source: California State University Fullerton, Department of Geological Sciences, in Cooperation with Mojave Water Agency, September 2007.



Potentiometric Surface (1998) Data Source: California State University Fullerton, Department of Geological Sciences, in Cooperation with Mojave Water Agency, September 2007.


Legend
Proposed Mojave Solar Project Facility
2,200
Potentiometric Surface, 2004 data (ft amsl)
Contour Interval: 20 ft
i = Hydraulic Gradient
Groundwater Flow Direction
Interstates
Highways
Major Roads
Roads
Major Railroad Lines
Hydrology: dry Lakes & ephemeral Streams
Modified Harper Valley Groundwater Basin [Domain]
i = 0.002
i = 0.008
i = 0.01
i = 0.004
i = 0.007
dry Harper Lake
Lockhart Rd
Roy St
Santa Fe Ave
Harper Lake Rd
Hinkley Rd
Barstow
Helendale
Mojave River (ephemeral)
58
395
247
40
15
1,980
1,940
1,920
1,900
1,960
2,000
2,040
2,080
2,120
2,160
2,200
2,240
2,280
2,320
2,360
2,400
2,440
2,460
2,420
2,380
2,340
2,300
2,260
2,220
2,180
2,140
2,120
2,160
2,200
2,240
2,220
2,180
2,140
2,100
2,060
2,020
2,000
Potentiometric Surface (2004) Data Source: California State University Fullerton, Department of Geological Sciences, in Cooperation with Mojave Water Agency, September 2007.
2
Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_8_Potentiometric_Surface_Contours_2004.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-8: Potentiometric Surface (2004)


Legend
Proposed Mojave Solar Project Facility
Proposed Mojave Solar Project Water Production Wells (4)
Ryken Well
Sampled Wells (dtw)
Contour Interval: 2 ft
i = Hydraulic Gradient
Groundwater Flow Direction
1,904
Potentiometric Surface June 27, 2008* (ft amsl)
Alquist Priolo Faults
USGS Faults
Roads
Hydrology: dry Lakes & ephemeral Streams
SEGS VIII & IX
Myrob Well
dry Harper Lake
Lenwood-lockhart fault zone, Lockhart section
Well J
Well N
Well M
Well B
Well A
Well L
Well Y
Well D
Hay Farm Well
Ryken Well
Well P
Uli-B
Uli-A
Well Z
Lockhart Rd
Harper Lake Rd
Roy St
Santa Fe Ave
i = 0.002
i = 0.001
i = 0.02
1,908
1,906
1,900
1,898
1,902
1,904
1,906
1,908
1,910
1,912
1,914
1,916
1,914
1,902
1,900
1,904
*Aerial Photography obtained from AirPhotoUSA: February 2006 flight date.
*Contours Interpolated from the difference of the Wells Top of Measuring Point and DTW Elevations
* ULI A & ULI B Wells DTW Measured on 7/7/08.
All other Wells Measured on 6/27/08
0.5
Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5.17_9_Wells_Potentiometric_Surface_Contours_WellU.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-9: Potentiometric Surface Map (6/27/2008)

Note: Depth to basalt layer is mapped as Depth to Bedrock (for relevant portions of the map including the proposed Mojave Solar Project Facility).

Legend

- Proposed Mojave Solar Project Facility
- 1,000 — Depth to Bedrock: Contour (feet bgs) Contour Interval: 250 feet
- Interstates
- Highways
- Major Roads
- Roads
- Major Railroad Lines
- Hydrology: dry Lakes & ephemeral Streams
- Modified Harper Valley Groundwater Basin [Domain]

dry Harper Lake
Lockhart Rd
Roy St
Santa Fe Ave
Harper Lake Rd
Hinkley Rd
Barstow
Helendale
Mojave River (ephemeral)
58
395
40
15
247

Depth to Bedrock Acquired from
Veva Ebbs MS Thesis (2007)
Groundwater flow into Harper Lake, California,
California State University, Fullerton,
Department of Geological Sciences.

Subset of Depth to Bedrock, Plate 3,
Inventory of Groundwater Stored in the
Mojave River Basins (Crosby, 1990).

Interpretation of gravity data.

2 Miles

Mojve Solar Project

N

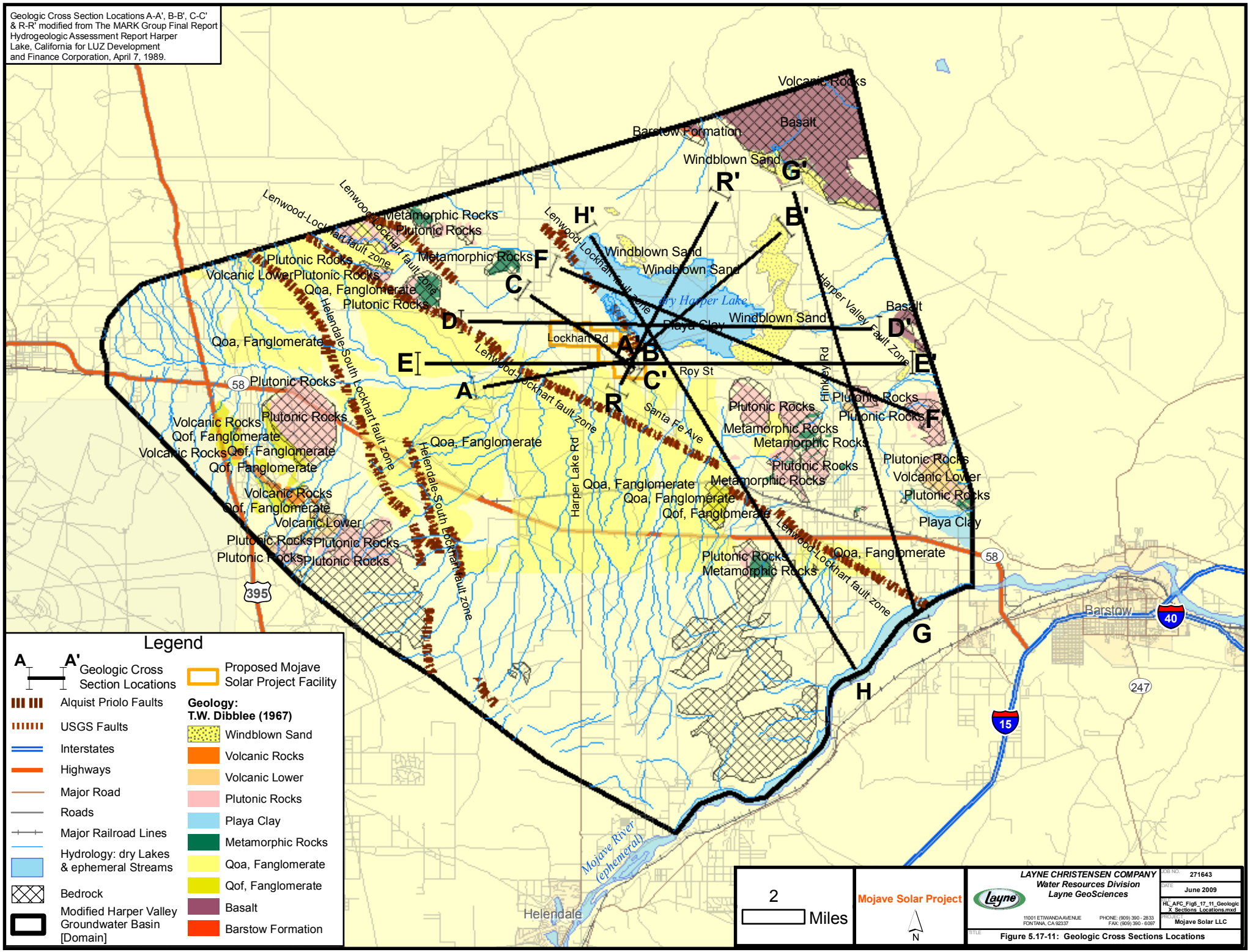
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences

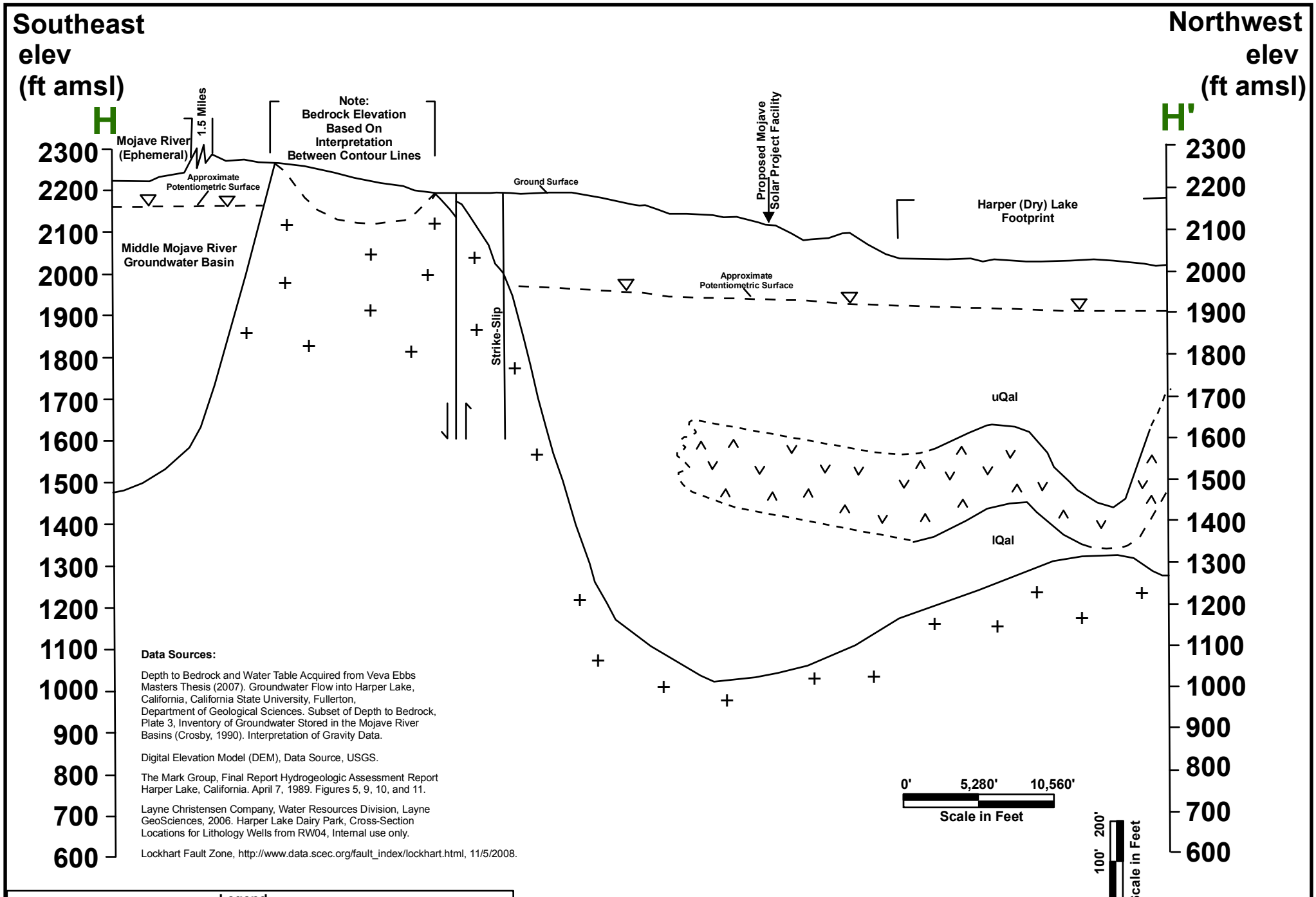
11001 ETIWANDA AVENUE
FONTANA, CA 92337

PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097

JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_10_Depth_to_Bedrock.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-10: Depth to Bedrock

Geologic Cross Section Locations A-A', B-B', C-C' & R-R' modified from The MARK Group Final Report Hydrogeologic Assessment Report Harper Lake, California for LUZ Development and Finance Corporation, April 7, 1989.





Data Sources:

Depth to Bedrock and Water Table Acquired from Veva Ebbs Masters Thesis (2007). Groundwater Flow into Harper Lake, California, California State University, Fullerton, Department of Geological Sciences. Subset of Depth to Bedrock, Plate 3, Inventory of Groundwater Stored in the Mojave River Basins (Crosby, 1990). Interpretation of Gravity Data.

Digital Elevation Model (DEM), Data Source, USGS.

The Mark Group, Final Report Hydrogeologic Assessment Report Harper Lake, California. April 7, 1989. Figures 5, 9, 10, and 11.

Layne Christensen Company, Water Resources Division, Layne GeoSciences, 2006. Harper Lake Dairy Park, Cross-Section Locations for Lithology Wells from RW04, Internal use only.

Lockhart Fault Zone, http://www.data.scec.org/fault_index/lockhart.html, 11/5/2008.

Legend

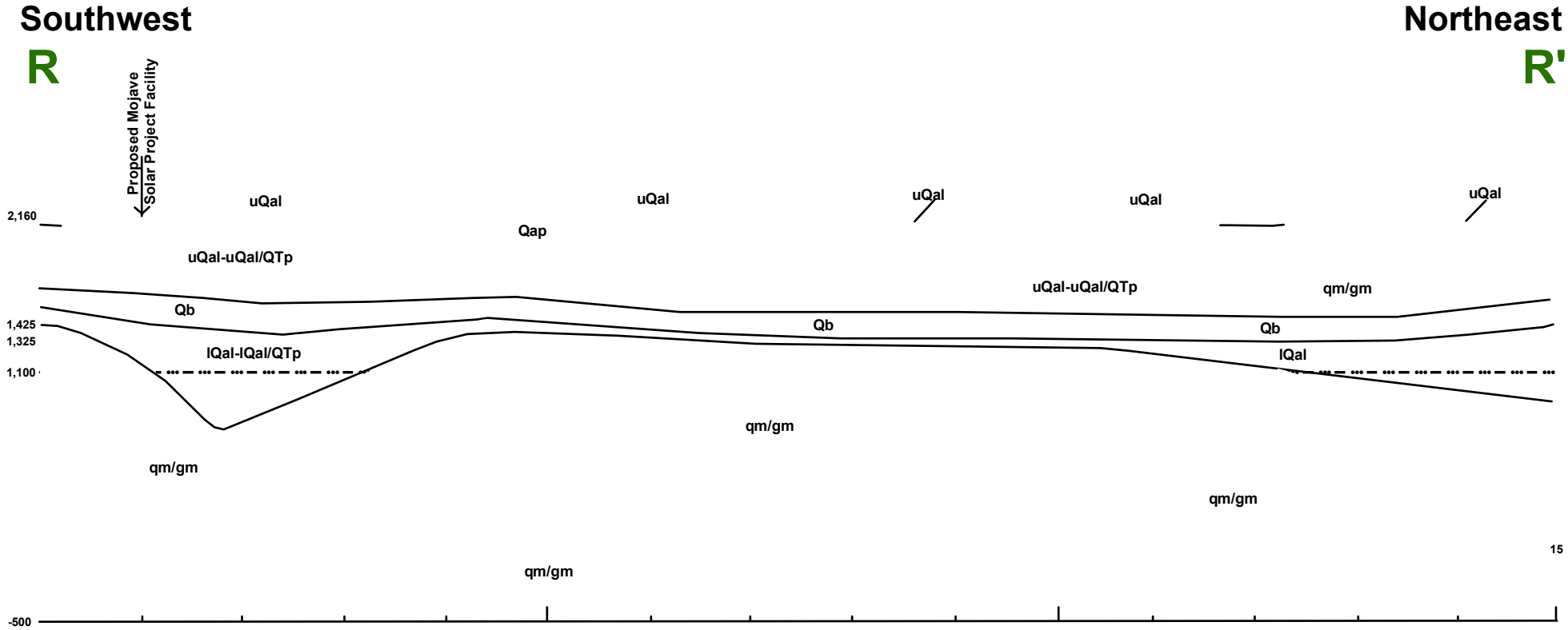
- Basalt
- Bedrock
- Approximate Potentiometric Surface
- Strike-Slip Fault
- Strike-Slip Fault with some Vertical Slip
- uQal Upper Quatnernary Alluvium
- lQal Lower Quatnernary Alluvium
- Lithologic Contact is Uncertain

Geologic Cross Section H - H'

LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
Mojave Solar Project
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097

JOB NO.	271643
DATE	June 2009
FILE	H_AFC_Fig5_17_12_Geologic_X Section_Darren_H_H'.mxd
PROJECT	Mojave Solar LLC
TITLE	Figure 5.17-12: Geologic Cross Section H-H'

Geologic Cross Sections Modified from The MARK Group Final Report Hydrogeologic Assessment Report Harper Lake, California for LUZ Development and Finance Corporation, April 7, 1989.



uQal / lQal — Upper and Lower

Qap — Active Playa Deposit of Holocene Age

Quaternary:

- QTp — Playa/Lucustrine Deposits
- uQal/QTp, lQal/QTp — Playa /Lucustrine and reworked Playa/Lucustrine and Fluvial deposits from Ancestral Mojave River

Jurassic/ Cretaceous Precambrian — qm/gm — Quartz Monzonite/Quartz Diorite Gneiss

1,100 — Increased compaction is estimated within lQal at elevations less than 1,100 ft amsl.

Lithologic Contact is Uncertain

Data Sources:
Depth to Bedrock Interpreted from Veva Ebbs MS Thesis (2007)
Groundwater flow into Harper Lake, California, California State University, Fullerton, Department of Geological Sciences.

Subset of Depth to Bedrock, Plate 3, Inventory of Groundwater Stored in the Mojave River Basins (Crosby, 1990).

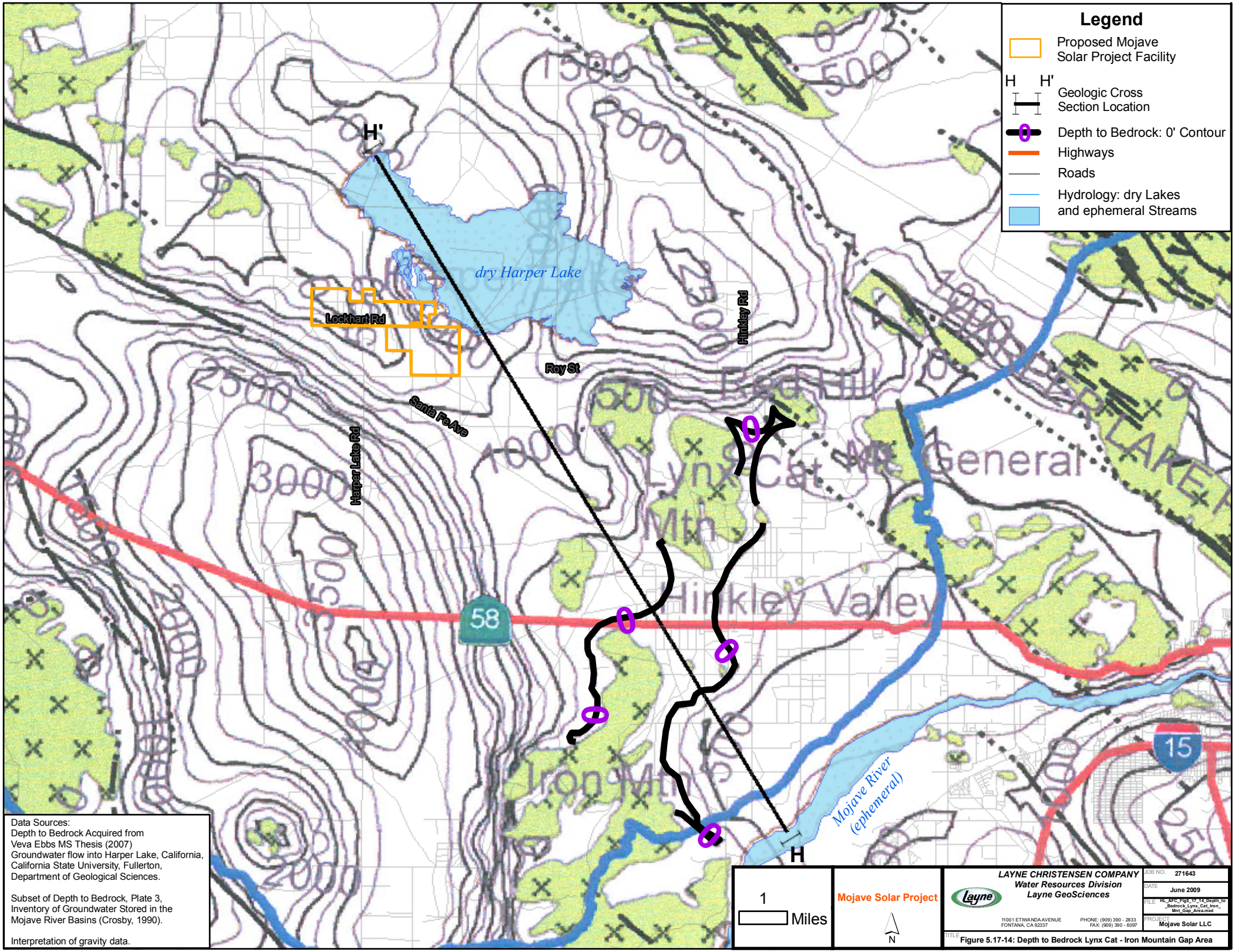
Interpretation of gravity data.

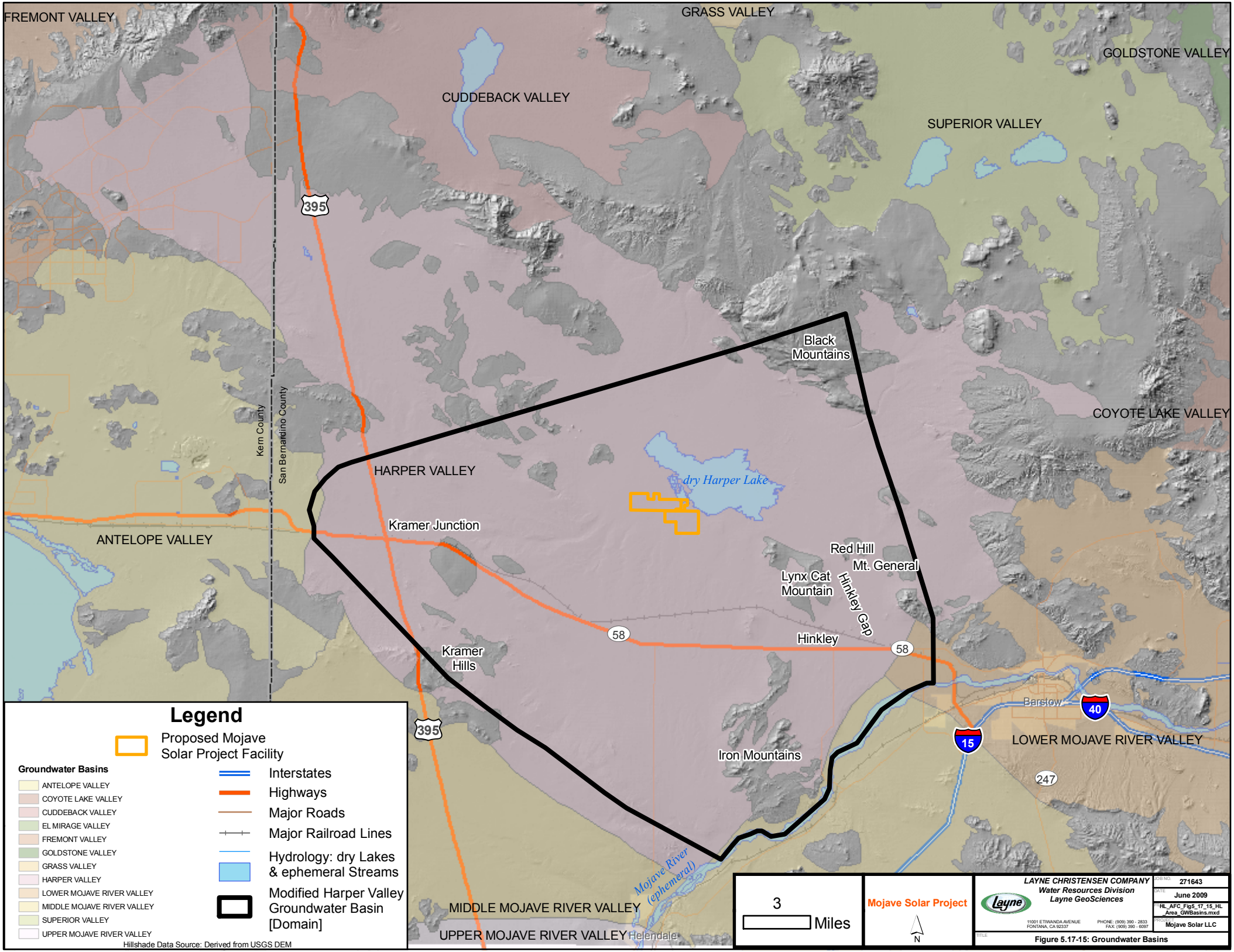
Idealized Geologic Cross Section R - R'

LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
Mojave Solar Project
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097

JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_13_Geologic_X_Section_Renamed_R_R'_MG.mxd
PROJECT Mojave Solar LLC

TITLE Figure 5.17-13: Idealized Geologic Cross Section R-R'


Legend
Proposed Mojave Solar Project Facility
H H'
Geologic Cross Section Location
Depth to Bedrock: 0' Contour
Highways
Roads
Hydrology: dry Lakes and ephemeral Streams
H'
H
dry Harper Lake
Lockhart Rd
Ray St
Santa Fe Ave
Harper Lake Rd
Hinkley Rd
Red Hill
Lynx Cat Mtn
General
Hinkley Valley
Iron Mtn
58
15
Mojave River (ephemeral)
Data Sources:
Depth to Bedrock Acquired from Veva Ebbs MS Thesis (2007) Groundwater flow into Harper Lake, California, California State University, Fullerton, Department of Geological Sciences.
Subset of Depth to Bedrock, Plate 3, Inventory of Groundwater Stored in the Mojave River Basins (Crosby, 1990).
Interpretation of gravity data.
1 Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_14_Depth_to_Bedrock_Lynx_Cat_Iron_Mnt_Gap_Area.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-14: Depth to Bedrock Lynx Cat - Iron Mountain Gap Area


FREMONT VALLEY
GRASS VALLEY
GOLDSTONE VALLEY
CUDDEBACK VALLEY
SUPERIOR VALLEY
395
Black Mountains
COYOTE LAKE VALLEY
Kern County
San Bernardino County
HARPER VALLEY
dry Harper Lake
Kramer Junction
ANTELOPE VALLEY
Red Hill
Mt. General
Lynx Cat Mountain
Hinkley Gap
58
Hinkley
58
Kramer Hills
Barstow
40
15
LOWER MOJAVE RIVER VALLEY
395
Iron Mountains
247
Mojave River (ephemeral)
MIDDLE MOJAVE RIVER VALLEY
UPPER MOJAVE RIVER VALLEY
Helendale
Legend
Proposed Mojave Solar Project Facility
Groundwater Basins
ANTELOPE VALLEY
COYOTE LAKE VALLEY
CUDDEBACK VALLEY
EL MIRAGE VALLEY
FREMONT VALLEY
GOLDSTONE VALLEY
GRASS VALLEY
HARPER VALLEY
LOWER MOJAVE RIVER VALLEY
MIDDLE MOJAVE RIVER VALLEY
SUPERIOR VALLEY
UPPER MOJAVE RIVER VALLEY
Interstates
Highways
Major Roads
Major Railroad Lines
Hydrology: dry Lakes & ephemeral Streams
Modified Harper Valley Groundwater Basin [Domain]
Hillshade Data Source: Derived from USGS DEM
3
Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_15_HL_Area_GWBasins.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-15: Groundwater Basins

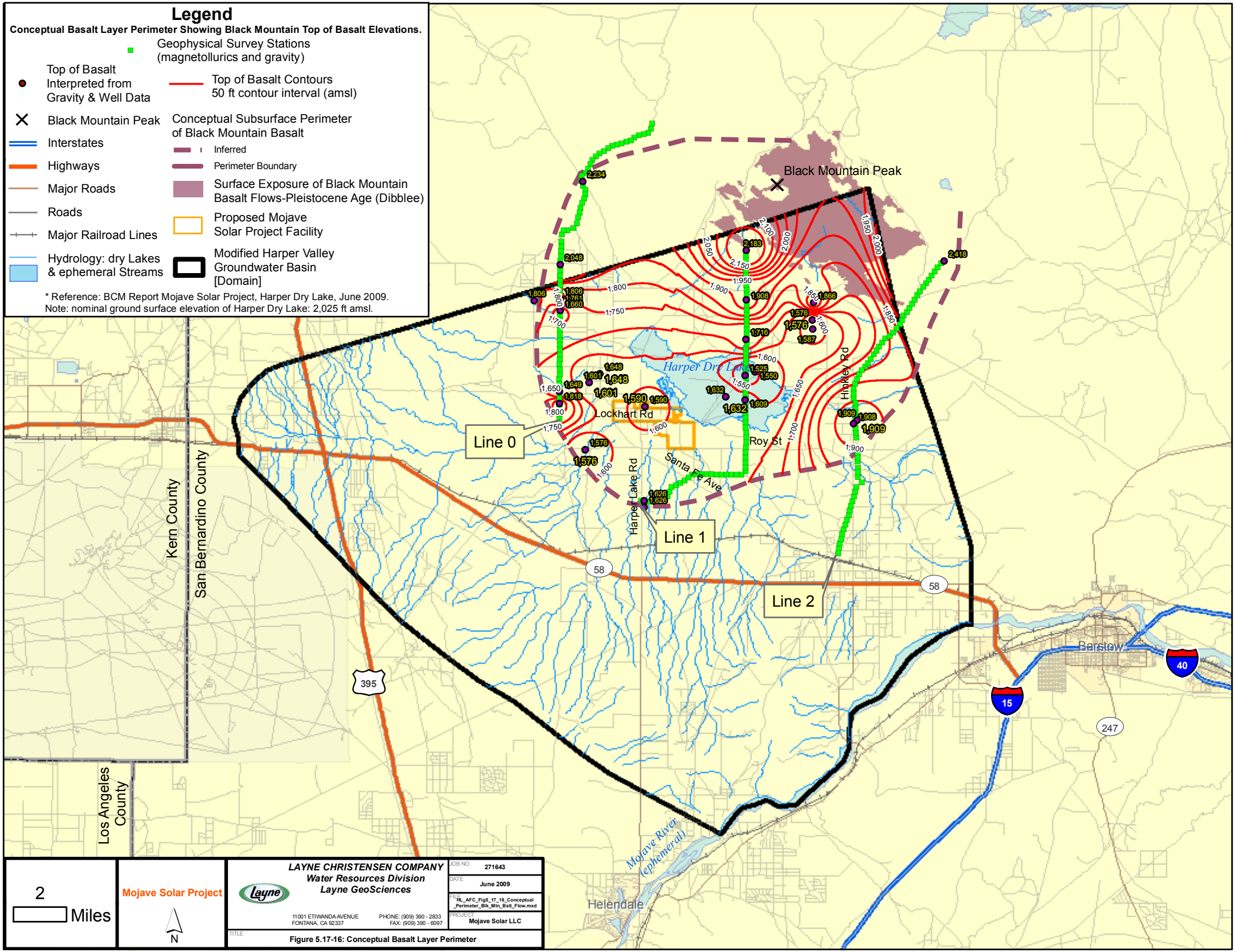
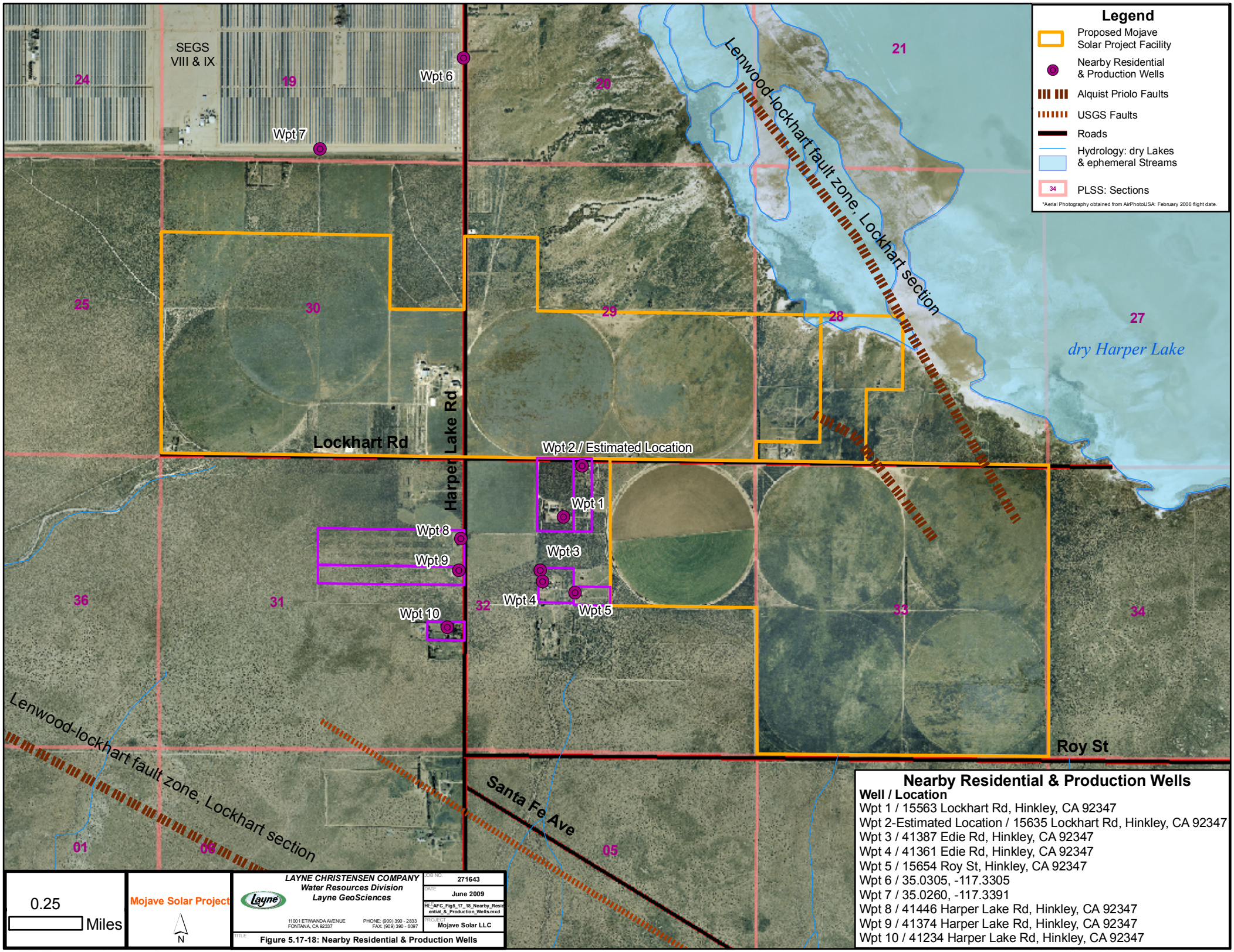

Legend
Conceptual Basalt Layer Perimeter Showing Black Mountain Top of Basalt Elevations.
Geophysical Survey Stations (magnetollurics and gravity)
Top of Basalt Interpreted from Gravity & Well Data
Top of Basalt Contours 50 ft contour interval (amsl)
Black Mountain Peak
Conceptual Subsurface Perimeter of Black Mountain Basalt
Interstates
Inferred
Highways
Perimeter Boundary
Major Roads
Surface Exposure of Black Mountain Basalt Flows-Pleistocene Age (Dibblee)
Roads
Proposed Mojave Solar Project Facility
Major Railroad Lines
Hydrology: dry Lakes & ephemeral Streams
Modified Harper Valley Groundwater Basin [Domain]
* Reference: BCM Report Mojave Solar Project, Harper Dry Lake, June 2009.
Note: nominal ground surface elevation of Harper Dry Lake: 2,025 ft amsl.
Black Mountain Peak
Harper Dry Lake
Lockhart Rd
Roy St
Hinkley Rd
Santa Fe Ave
Harper Lake Rd
Line 0
Line 1
Line 2
Kern County
San Bernardino County
Los Angeles County
Barstow
Helendale
Mojave River (ephemeral)
58
395
15
40
247
2,234
2,048
1,806
1,806
1,761
1,660
2,183
2,418
1,908
1,866
1,576
1,576
1,587
1,716
1,525
1,550
1,632
1,609
1,601
1,648
1,649
1,818
1,590
1,590
1,576
1,626
1,626
1,909
1,908
1,909
2,100
2,050
2,150
2,000
1,950
2,000
1,950
1,850
1,800
1,750
1,700
1,650
1,600
1,550
1,900
1,850
2
Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_16_Conceptual _Perimeter_Blk_Mtn_Bslt_Flow.mxd
PROJECT Mojave Solar LLC
TITLE
Figure 5.17-16: Conceptual Basalt Layer Perimeter

Figure 5.17-17: Water Balance: Waste Water Treatment

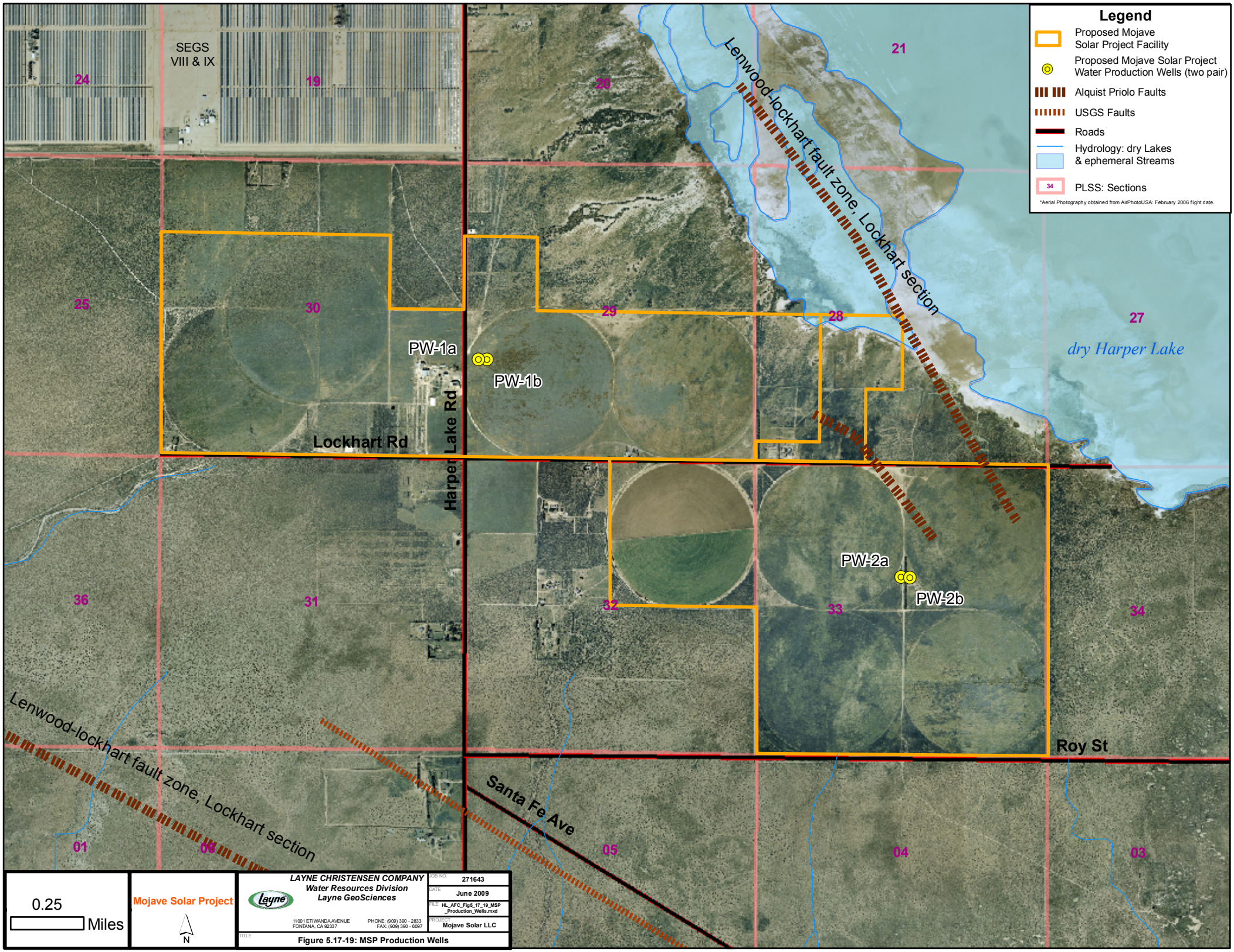
[Please reference to Project Description Figure 2-8]

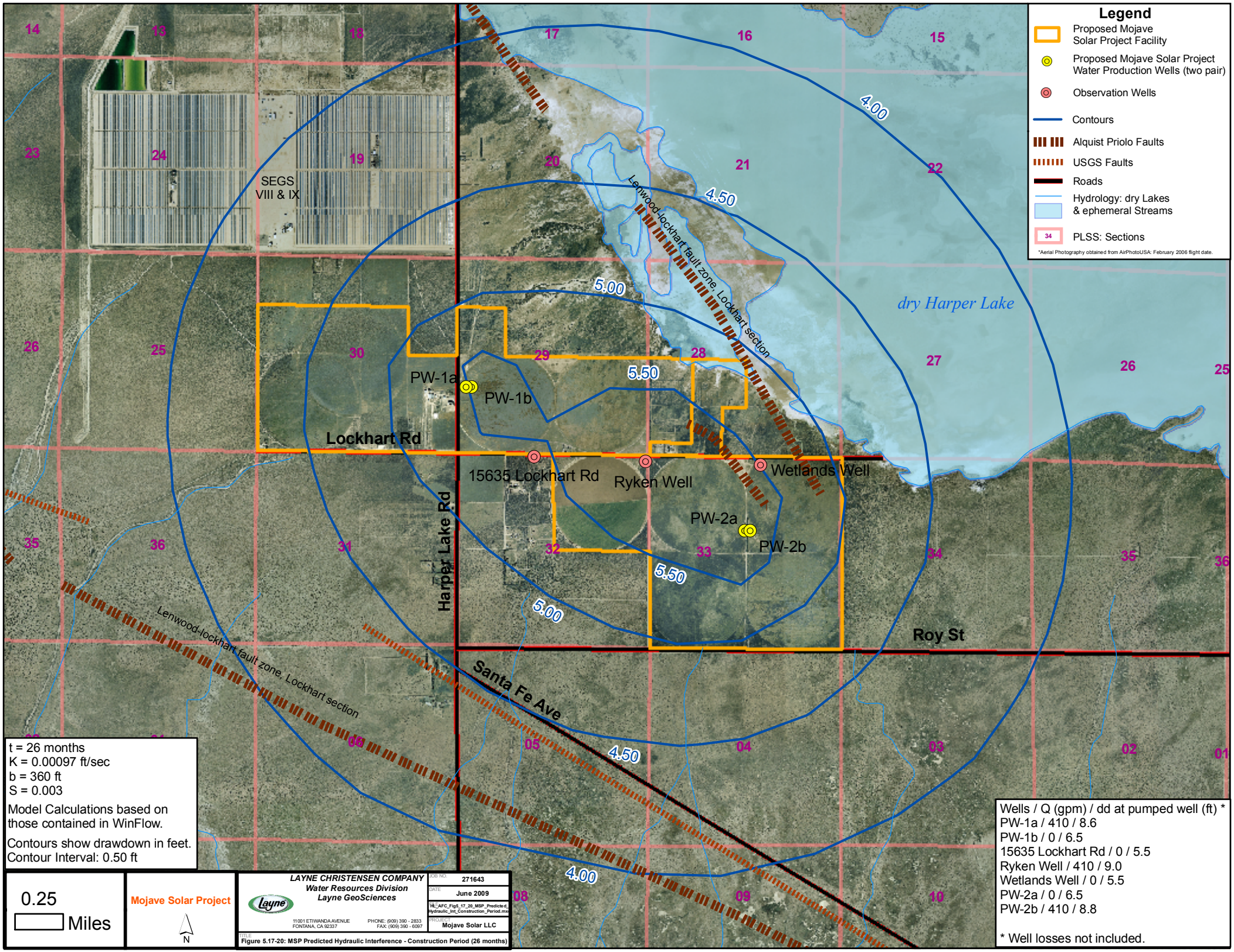


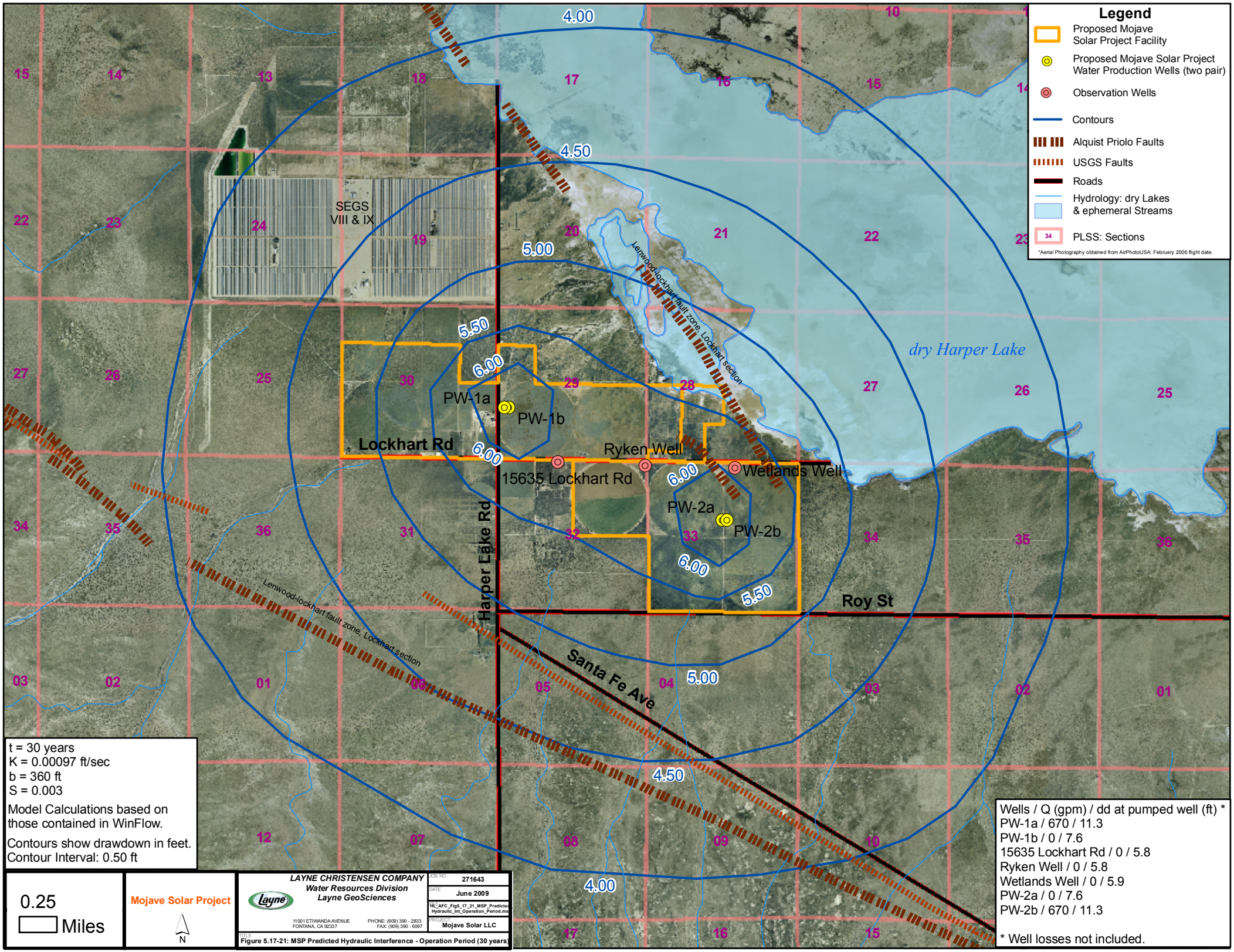
Nearby Residential & Production Wells

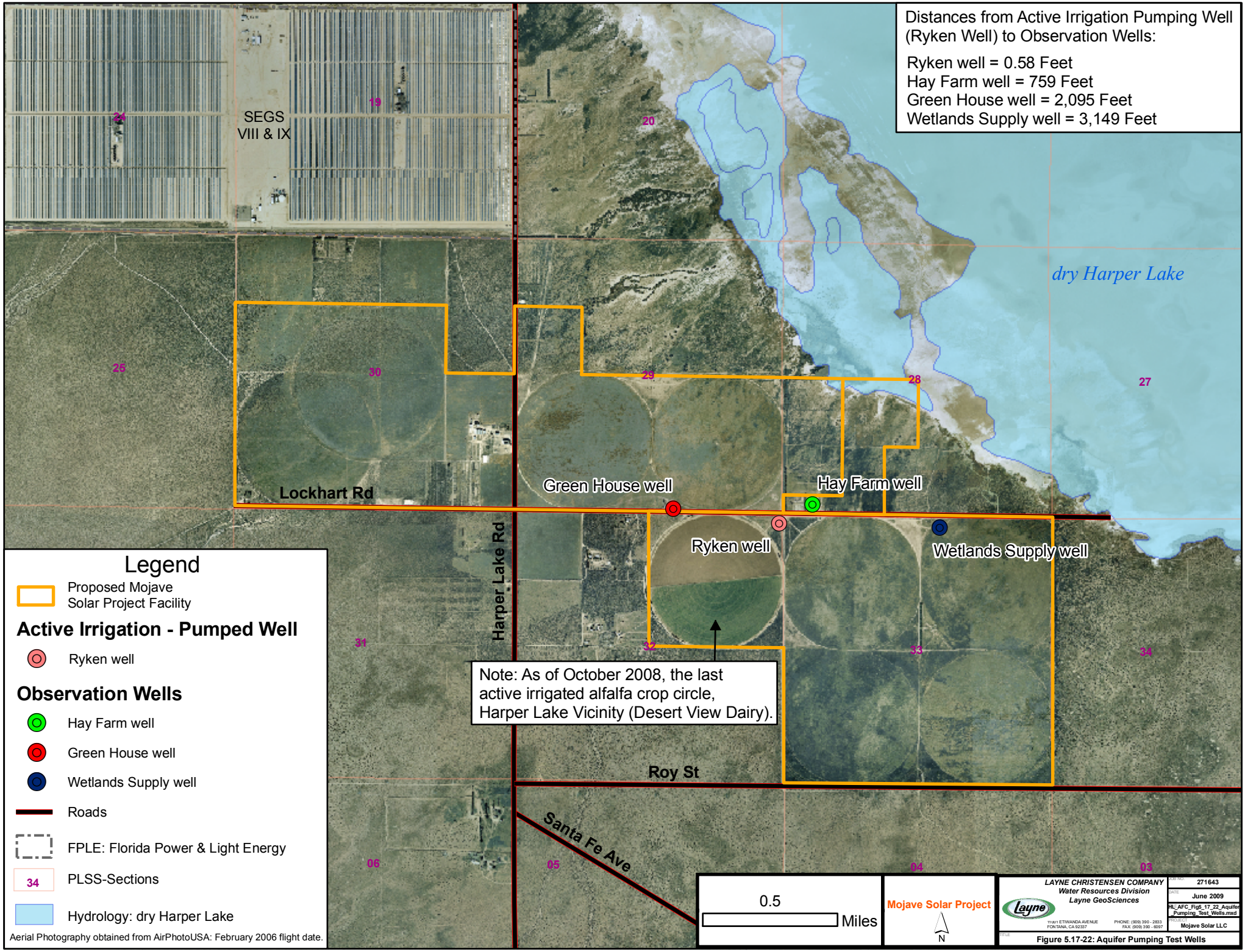
Well / Location

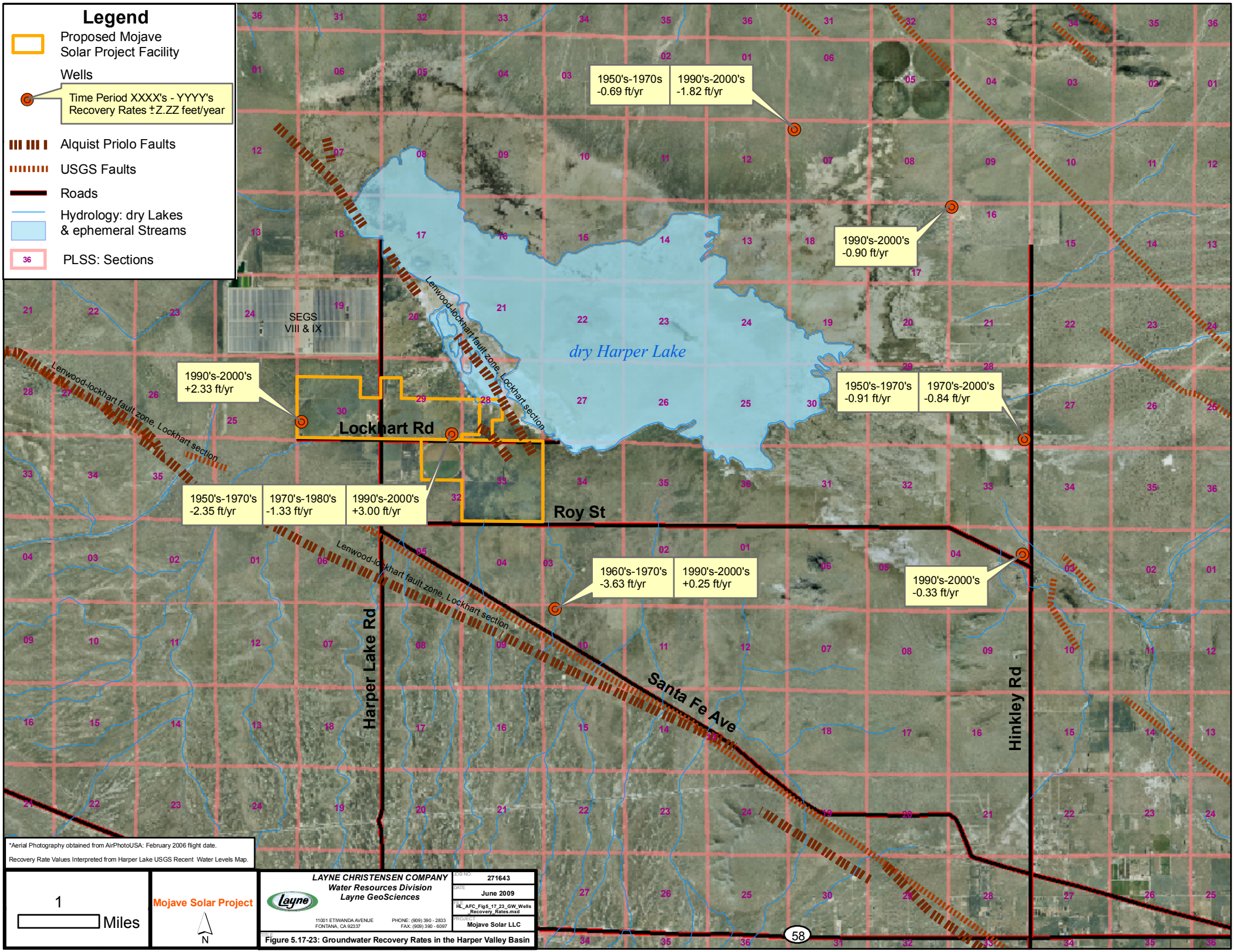
Wpt 1 / 15563 Lockhart Rd, Hinkley, CA 92347
Wpt 2-Estimated Location / 15635 Lockhart Rd, Hinkley, CA 92347
Wpt 3 / 41387 Edie Rd, Hinkley, CA 92347
Wpt 4 / 41361 Edie Rd, Hinkley, CA 92347
Wpt 5 / 15654 Roy St, Hinkley, CA 92347
Wpt 6 / 35.0305, -117.3305
Wpt 7 / 35.0260, -117.3391
Wpt 8 / 41446 Harper Lake Rd, Hinkley, CA 92347
Wpt 9 / 41374 Harper Lake Rd, Hinkley, CA 92347
Wpt 10 / 41234 Harper Lake Rd, Hinkley, CA 92347


Legend
Proposed Mojave Solar Project Facility
Proposed Mojave Solar Project Water Production Wells (two pair)
Alquist Priolo Faults
USGS Faults
Roads
Hydrology: dry Lakes & ephemeral Streams
PLSS: Sections
*Aerial Photography obtained from AirPhotoUSA: February 2006 flight date.
SEGS VIII & IX
24
19
20
21
25
30
29
28
27
31
36
32
33
34
01
06
05
04
03
PW-1a
PW-1b
PW-2a
PW-2b
Lockhart Rd
Harper Lake Rd
Roy St
Santa Fe Ave
Lenwood-lockhart fault zone, Lockhart section
dry Harper Lake
0.25
Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_19_MSP _Production_Wells.mxd
PROJECT Mojave Solar LLC
TITLE
Figure 5.17-19: MSP Production Wells


Legend
Proposed Mojave Solar Project Facility
Proposed Mojave Solar Project Water Production Wells (two pair)
Observation Wells
Contours
Alquist Priolo Faults
USGS Faults
Roads
Hydrology: dry Lakes & ephemeral Streams
PLSS: Sections
*Aerial Photography obtained from AirPhotoUSA: February 2006 flight date.
SEGS VIII & IX
dry Harper Lake
Lenwood-lockhart fault zone, Lockhart section
Lockhart Rd
Harper Lake Rd
Roy St
Santa Fe Ave
PW-1a
PW-1b
15635 Lockhart Rd
Ryken Well
Wetlands Well
PW-2a
PW-2b
4.00
4.50
5.00
5.50
t = 26 months
K = 0.00097 ft/sec
b = 360 ft
S = 0.003
Model Calculations based on those contained in WinFlow.
Contours show drawdown in feet.
Contour Interval: 0.50 ft
Wells / Q (gpm) / dd at pumped well (ft) *
PW-1a / 410 / 8.6
PW-1b / 0 / 6.5
15635 Lockhart Rd / 0 / 5.5
Ryken Well / 410 / 9.0
Wetlands Well / 0 / 5.5
PW-2a / 0 / 6.5
PW-2b / 410 / 8.8
* Well losses not included.
0.25 Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE AFC_Fig5_17_20_MSP_Predicted_Hydraulic_Int_Construction_Period.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-20: MSP Predicted Hydraulic Interference - Construction Period (26 months)


Legend
Proposed Mojave Solar Project Facility
Proposed Mojave Solar Project Water Production Wells (two pair)
Observation Wells
Contours
Alquist Priolo Faults
USGS Faults
Roads
Hydrology: dry Lakes & ephemeral Streams
PLSS: Sections
*Aerial Photography obtained from AirPhotoUSA: February 2006 flight date.
SEGS VIII & IX
dry Harper Lake
Lenwood-lockhart fault zone, Lockhart section
Lockhart Rd
Harper Lake Rd
Roy St
Santa Fe Ave
PW-1a
PW-1b
PW-2a
PW-2b
Ryken Well
15635 Lockhart Rd
Wetlands Well
4.00
4.50
5.00
5.50
6.00
t = 30 years
K = 0.00097 ft/sec
b = 360 ft
S = 0.003
Model Calculations based on those contained in WinFlow.
Contours show drawdown in feet.
Contour Interval: 0.50 ft
Wells / Q (gpm) / dd at pumped well (ft) *
PW-1a / 670 / 11.3
PW-1b / 0 / 7.6
15635 Lockhart Rd / 0 / 5.8
Ryken Well / 0 / 5.8
Wetlands Well / 0 / 5.9
PW-2a / 0 / 7.6
PW-2b / 670 / 11.3
* Well losses not included.
0.25 Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE AFC_Fig5_17_21_MSP_Predicted Hydraulic_Int_Operation_Period.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-21: MSP Predicted Hydraulic Interference - Operation Period (30 years)


Distances from Active Irrigation Pumping Well (Ryken Well) to Observation Wells:
Ryken well = 0.58 Feet
Hay Farm well = 759 Feet
Green House well = 2,095 Feet
Wetlands Supply well = 3,149 Feet
SEGS VIII & IX
dry Harper Lake
Lockhart Rd
Harper Lake Rd
Green House well
Hay Farm well
Ryken well
Wetlands Supply well
Roy St
Santa Fe Ave
Note: As of October 2008, the last active irrigated alfalfa crop circle, Harper Lake Vicinity (Desert View Dairy).
Legend
Proposed Mojave Solar Project Facility
Active Irrigation - Pumped Well
Ryken well
Observation Wells
Hay Farm well
Green House well
Wetlands Supply well
Roads
FPLE: Florida Power & Light Energy
PLSS-Sections
Hydrology: dry Harper Lake
Aerial Photography obtained from AirPhotoUSA: February 2006 flight date.
0.5 Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
Layne
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO.: 271643
DATE: June 2009
FILE: HL_AFC_Fig5_17_22_Aquifer_Pumping_Test_Wells.mxd
PROJECT: Mojave Solar LLC
TITLE: Figure 5.17-22: Aquifer Pumping Test Wells


Legend
Proposed Mojave Solar Project Facility
Wells
Time Period XXXX's - YYYY's
Recovery Rates ±Z.ZZ feet/year
Alquist Priolo Faults
USGS Faults
Roads
Hydrology: dry Lakes & ephemeral Streams
PLSS: Sections
1950's-1970s -0.69 ft/yr
1990's-2000's -1.82 ft/yr
1990's-2000's -0.90 ft/yr
1990's-2000's +2.33 ft/yr
1950's-1970's -0.91 ft/yr
1970's-2000's -0.84 ft/yr
1950's-1970's -2.35 ft/yr
1970's-1980's -1.33 ft/yr
1990's-2000's +3.00 ft/yr
1960's-1970's -3.63 ft/yr
1990's-2000's +0.25 ft/yr
1990's-2000's -0.33 ft/yr
SEGS VIII & IX
dry Harper Lake
Lenwood-lockhart fault zone, Lockhart section
Lockhart Rd
Roy St
Harper Lake Rd
Santa Fe Ave
Hinkley Rd
58
*Aerial Photography obtained from AirPhotoUSA: February 2006 flight date.
Recovery Rate Values Interpreted from Harper Lake USGS Recent Water Levels Map.
1 Miles
Mojave Solar Project
N
LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences
11001 ETIWANDA AVENUE
FONTANA, CA 92337
PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097
JOB NO. 271643
DATE June 2009
FILE HL_AFC_Fig5_17_23_GW_Wells_Recovery_Rates.mxd
PROJECT Mojave Solar LLC
TITLE Figure 5.17-23: Groundwater Recovery Rates in the Harper Valley Basin

Non-enforceable Secondary Maximum Contaminant Level for Total Dissolved Solids (TDS), under USEPA or Calif. State Guidelines, is 500 mg/L.

Non-enforceable Secondary Maximum Contaminant Level for Chloride, under USEPA or Calif. State Guidelines, is 250 mg/L.

Legend

- Proposed Mojave Solar Project Facility
- Wells
- Roads
- Hydrology: dry Lakes & ephemeral Streams
- 34 PLSS-Sections

Aerial Photography Obtained from AirphotoUSA: February 2006 Flight Date.

SEGS VIII & IX

dry Harper Lake

Lockhart Rd

Roy St

Harper Lake Rd

Santa Fe Ave

Parameter	Well HL-1	11N4W30K
Sample Date	2005-2006	
TDS	2,000 mg/L	
Chloride	650 mg/L	

Parameter	Well HL-3	11N4W28M
Sample Date	2005-2006	
TDS	5,100 mg/L	
Chloride	2,400 mg/L	

Parameter	Well HL-2/Wetlands	11N4W33B	
Sample Date	2005-2006	11/5/2008	
TDS	3,900 mg/L	5,500 mg/L	
Chloride	1,500 mg/L	2,400 mg/L	

Parameter	Well HL-5	11N4W30R
Sample Date	2005-2006	
TDS	4,500 mg/L	
Chloride	510 mg/L	

Parameter	Well HL-6/Ryken	11N4W32A	
Sample Date	2005-2006	8/14/2008	8/25/2008
TDS	1,600 mg/L	1,700 mg/L	1,500 mg/L
Chloride	490 mg/L	690 mg/L	580 mg/L

Parameter	Well HL-4	11N4W33H
Sample Date	2005-2006	
TDS	3,400 mg/L	
Chloride	1,300 mg/L	

0.25 Miles

Mojave Solar Project

N

LAYNE CHRISTENSEN COMPANY
Water Resources Division
Layne GeoSciences

11001 ETIWANDA AVENUE
FONTANA, CA 92337

PHONE: (909) 390 - 2833
FAX: (909) 390 - 6097

JOB NO. 271643
DATE June 2009
HL_AFC_Fig5_17_24_TDS Chloride_Wells.mxd
PROJECT Mojave Solar LLC

TITLE Figure 5.17-24: TDS and Chloride Concentrations (2005-2008)