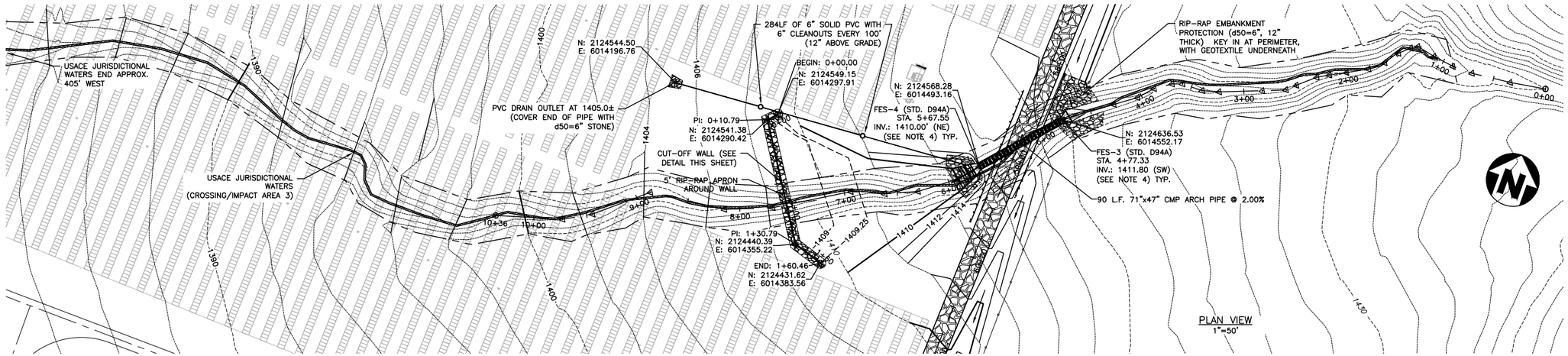
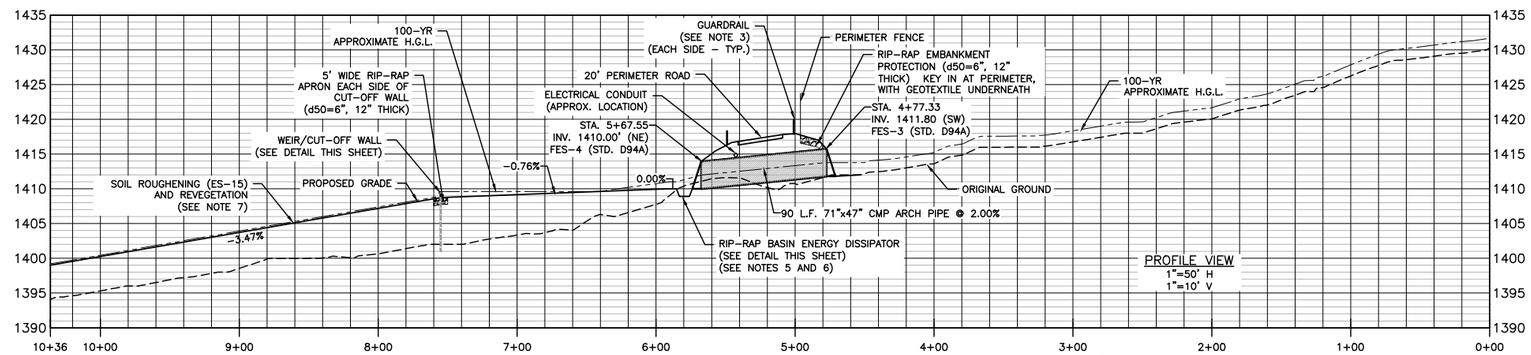
Appendix D
Drainage Crossing Drawings

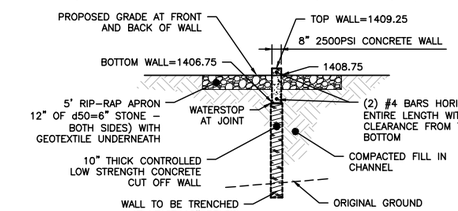
Crossing 3



PLAN VIEW
1"=50'



PROFILE VIEW
1"=50' H
1"=10' V

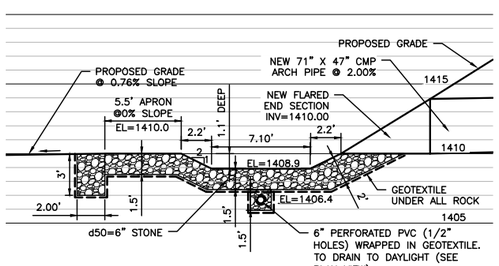


SECTION B-B
1"=5' H AND V

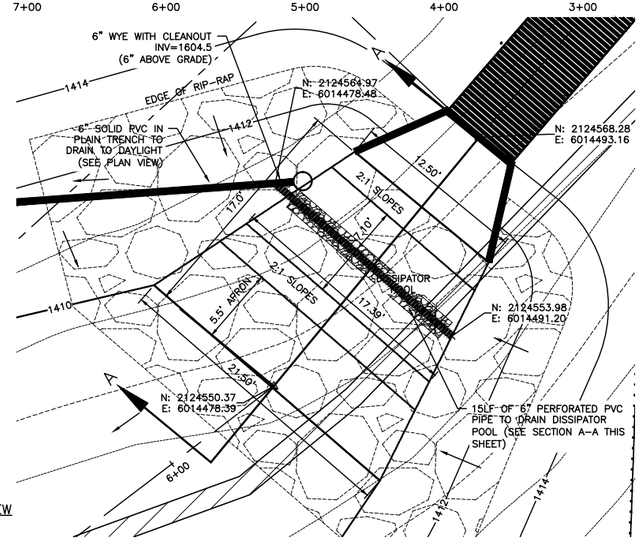
NOTES:
1. TOP OF WALL TO BE WITHIN 1/8" OF ELEVATION 1049.25
2. ALL VERTICAL SURFACES TO BE FORMED
3. VERTICAL SURFACES DOWN FROM 2" BELOW UNDISTURBED SOIL MAY BE PLACED AGAINST NEAT CUT IF APPROVED BY ENGINEER AND CONCRETE WILL NOT MORE THAN 1" BEYOND THEORETICAL FACE.
4. ALL EXPOSED SURFACES TO BE STRIPPED GREEN AND TROWEL FINISHED.
5. COMPACT GRADES ADJACENT TO WEIR TO BE 95% MODIFIED PROCTOR.

NOTES

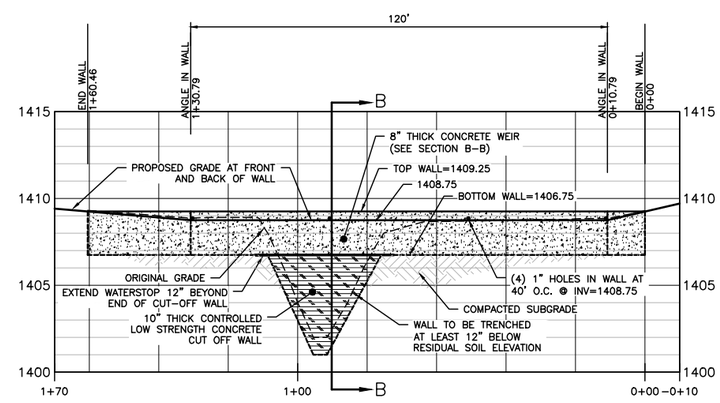
1. FOR GENERAL NOTES SEE DRAWING D-000-C-0002.
2. ALL CONTRACTORS SHALL ADEHERE TO AND FOLLOW RULES AND GUIDELINES SET FORTH WITHIN THE LAKE AND STREAMBED ALTERATION AGREEMENT NOTIFICATION NO. XXXX-XXXX-XXXX-XX, ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE.
3. GUARDRAIL SHALL BE MIDWEST GUARDRAIL SYSTEM STANDARD RAILING SECTION (STEEL POST WITH NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCK) IN ACCORDANCE WITH STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARDS. SEE DWG. D-000-C-0086.
4. THE FLARED END SECTION, FES, OF THE CMP PIPE ARCH SHALL BE TYPE III IN ACCORDANCE WITH CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD, D94A. SEE DWG. D-000-C-0085.
5. HYDRAULIC ANALYSIS OF THE CMP PIPE ARCH AND RIP RAP BASIN ENERGY DISSIPATOR COMPLETED WITH THE USE OF THE FEDERAL HIGHWAY ADMINISTRATION PROVIDED SOFTWARE, HY-8 VERSION 7.30.
6. THE RIP RAP BASIN ENERGY DISSIPATOR IS DESIGNED IN ACCORDANCE WITH HYDROLOGIC ENGINEERING CIRCULAR, HEC 14, CHAPTER 10, SECTION 10.1 RIP RAP BASIN.
7. RE-VEGETATION OF THE BACKFILLED EXISTING CHANNEL IS PARAMOUNT. CONTRACTOR SHALL ENSURE THAT AREA OF BACKFILL HAS A GOOD STAND OF VEGETATION.
   RE-VEGETATION OF THE OPEN SPACE JUST DOWN STREAM OF THE PROPOSED WEIR SHALL ALSO BE OF A GOOD VEGETATED STAND. CONTRACTOR AND OPERATIONS AND MAINTENANCE SHALL NOT MOW THE OPEN AREA DOWNSTREAM OF THE WEIR UNLESS OTHERWISE DIRECTED BY CALFIRE OR THE LOCAL AUTHORITIES.
8. FOR AREAS AND VOLUMES OF CIVIL SITE DEVELOPMENT WORK WITHIN THE FULL EXTENTS OF THE USACE OHWM AND WITHIN THE TOP OF BANK PLEASE REFER TO THE 404(b)(1) DRAFT.
9. CROSSING 14 HYDROLOGY CONSISTS OF THE FOLLOWING TO THE CMP PIPE ARCH
   - DRAINAGE AREA = 208.1 ACRES
   - CONSISTS OF THREE SUB-BASINS AT 32.5, 2.8, AND 172.8 ACRES
   - COMPOSITE CN = 69
     i.SOILS CONSISTS OF HYDRAULIC SOIL GROUPS A&B
   - TIME OF CONCENTRATION = 18.4 min.
     i.TIME OF REACH = 2.5 min.
   - PEAK FLOW RATE DETERMINED BY SCS METHOD, TIME INTERVAL 2 min. STORM DISTRIBUTION, TYPE 1
   - 100-YR PEAK FLOW RATE = 62.71 CFS
10. BROAD CRESTED WEIR HYDRAULIC INFORMATION CONSISTS OF THE FOLLOWING, VALUES, IN ACCORDANCE WITH THE 100 YR FLOW RATE + 2.29 CFS TO ACCOUNT FOR ADDITIONAL RUNOFF DOWNSTREAM FROM CMP PIPE ARCH;
    - FLOW RATE FOR WEIR CALCULATIONS = 65 CFS
    - BROAD CRESTED WEIR COEFFICENT, C = 2.78
    - FLOW DEPTH JUST UPSTREAM AND ABOVE TOP OF WEIR, H = 0.33'
    - CRITICAL FLOW DEPTH ALONG BROAD CRESTED WEIR, dC = 0.20'
    - BRINK FLOW DEPTH ALONG BROAD CRESTED WEIR JUST PRIOR TO NAPPE, dB = 0.14'
    - HORIZONTAL LENGTH OF NAPPE FROM BROAD CRESTED WEIR = 0.28'
11. FLOW DEPTHS UPSTREAM OF PIPE ARCH IN EXISTING CHANNEL ≤ 1.6' AT Q = 36.10 CFS, V = 5.1 FT/S
12. FLOW DEPTHS DOWNSTREAM OF BROAD CRESTED WEIR ≤ 0.2' AT Q = 65 CFS, V ≤ 2.0 FT/S



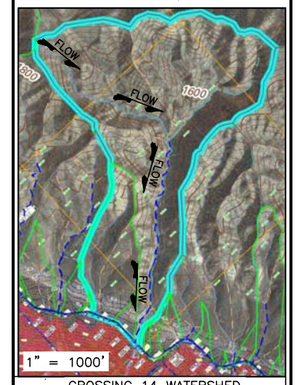
SECTION A-A
1"=5' H AND V



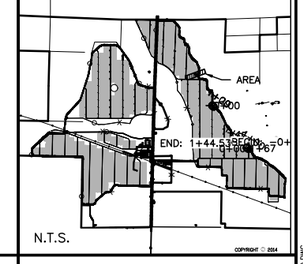
PLAN VIEW
1"=5'



WEIR/CUT OFF WALL PROFILE
1"=20' H
1"=4' V



CROSSING 14 WATERSHED



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REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	11DEC14	ISSUED FOR INFORMATION	JCS	MBE				

REF	NUMBER	TITLE
		REFERENCES

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CONCEPTUAL DESIGN REVIEW
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APPROVED FOR REVIEW

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
	DRE	HRM

PROJECT PHASE: PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	JCS/MTG	01JUL14
SCALE	PACKAGE CODE	DRN	MTG/JTW	01JUL14
AS SHOWN		CHK		
		APP		

PANOCHE VALLEY SOLAR LLC

amec

SUBJECT: CIVIL
PERIMETER ROAD DETAILS
CROSSING 14

AREA
CLIENT DWG. NO.
DRAWING NO. D-000-C-0155
REV. A

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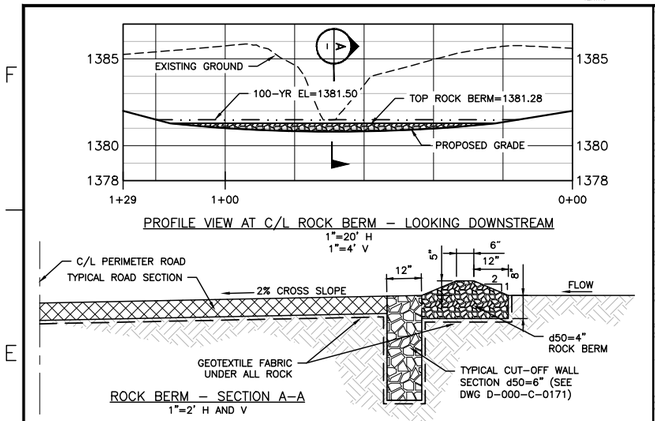
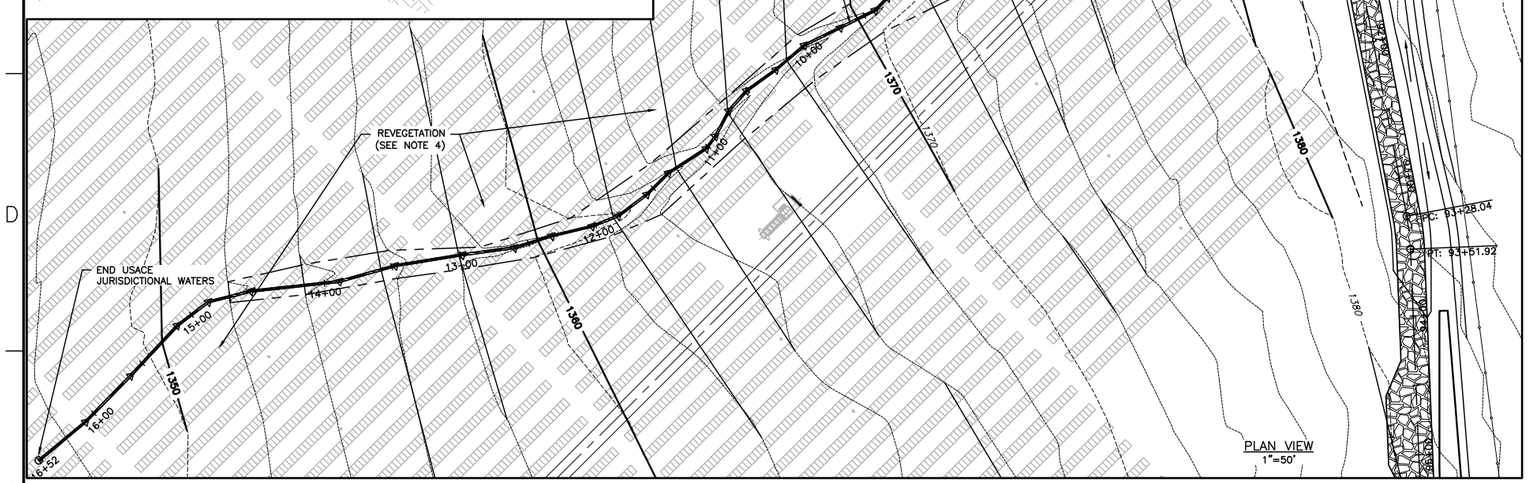
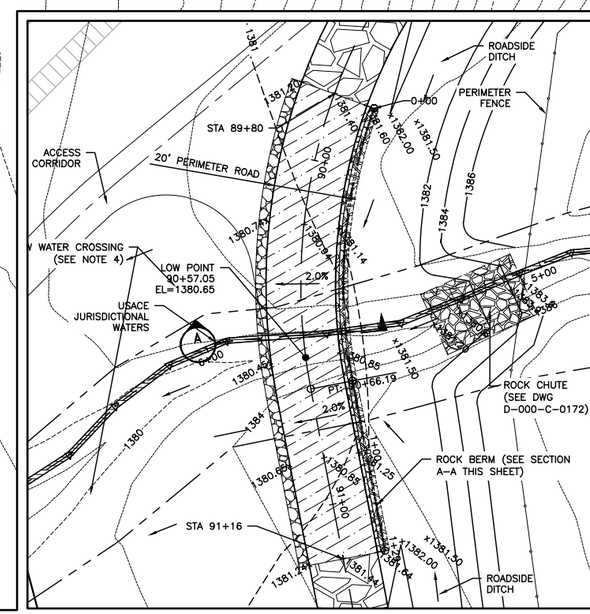
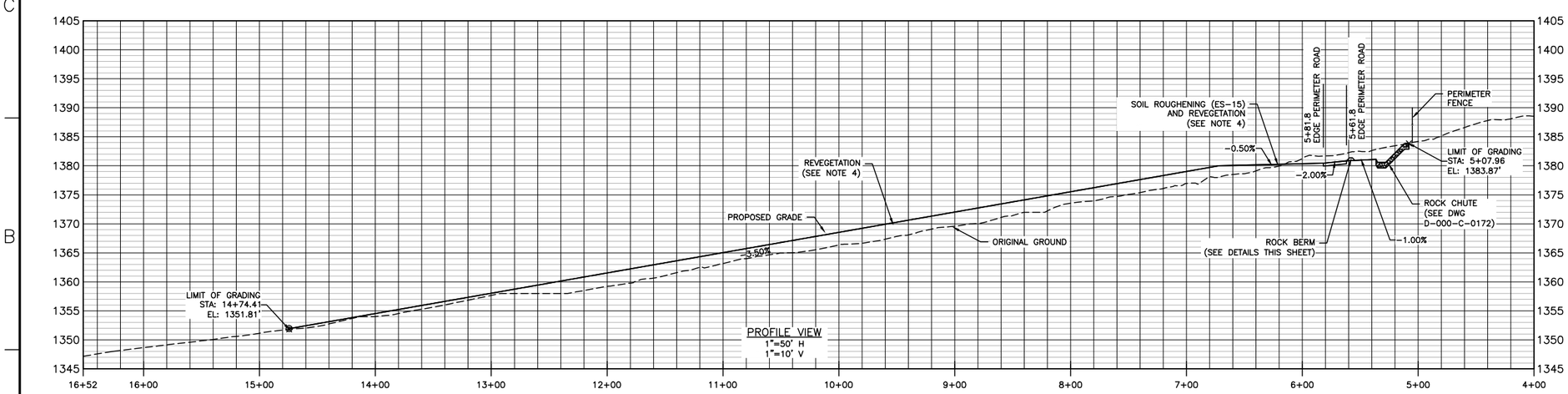
Crossing 4



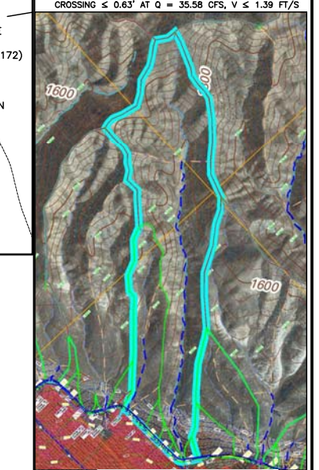




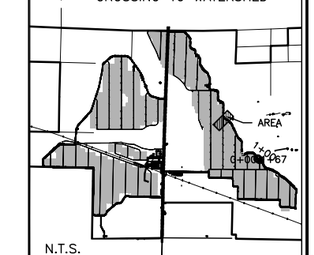


NOTES

1. FOR GENERAL NOTES SEE DRAWING D-000-C-0002.
2. ALL CONTRACTORS SHALL ADHERE TO AND FOLLOW RULES AND GUIDELINES SET FORTH WITHIN THE LAKE AND STREAMBED ALTERATION AGREEMENT NOTIFICATION NO. XXXX-XXXX-XXXX-XX, ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE.
3. HYDRAULIC ANALYSIS OF THE ROCK LINED LOW WATER CROSSING IS DESIGNED IN ACCORDANCE WITH THE HYDROLOGIC ENGINEERING CIRCULAR, HEC 15, CHAPTER 6, RIP RAP, COBBLE, AND GRAVEL LINING DESIGN AND USDA FOREST SERVICE TECHNICAL MANUAL.
4. RE-VEGETATION OF THE BACKFILLED EXISTING CHANNEL IS PARAMOUNT. CONTRACTOR SHALL ENSURE THAT AREA OF BACKFILL HAS A GOOD STAND OF VEGETATION. RE-VEGETATION OF THE OPEN SPACE JUST DOWN STREAM OF THE LOW WATER CROSSING SHALL ALSO BE OF A GOOD VEGETATED STAND. CONTRACTOR AND OPERATIONS AND MAINTENANCE SHALL NOT MOW THE OPEN AREA DOWNSTREAM OF THE LOW WATER CROSSING UNLESS OTHERWISE DIRECTED BY CALFIRE OR THE LOCAL AUTHORITIES.
5. FOR AREAS AND VOLUMES OF CIVIL SITE DEVELOPMENT WORK WITHIN THE FULL EXTENTS OF THE USACE OHWM AND WITHIN THE TOP OF BANK PLEASE REFER TO THE 404(b)(1) DRAFT.
6. CROSSING 19 HYDROLOGY CONSISTS OF THE FOLLOWING TO THE CMP PIPE ARCH
   - DRAINAGE AREA = 114.5 ACRES
   - CONSISTS OF THREE SUB-BASINS AT 25.4, 0.8, AND 88.3 ACRES
   - COMPOSITE CN = 71, SOILS CONSISTS OF HYDRAULIC SOIL GROUPS A&B
   - TIME OF CONCENTRATION = 14.6 min.
   - PEAK FLOW RATE DETERMINED BY SCS METHOD, TIME INTERVAL 1 min. STORM DISTRIBUTION, TYPE 1
   - 100-YR PEAK FLOW RATE = 35.58 CFS
7. FLOW DEPTHS UPSTREAM OF LOW WATER CROSSING IN PROPOSED ROCK CHUTE ≤ 0.26' AT Q = 24.4 CFS, V = 5.9 FT/S
8. FLOW DEPTHS AT OUTLET OF ROCK CHUTE ≤ 0.18' AT Q = 35.58 CFS, V ≤ 1.53 FT/S
9. BROAD CRESTED WEIR HYDRAULIC CALCULATIONS FOR THE SMALL ROCK BERM CONSISTS OF THE FOLLOWING, VALUES, IN ACCORDANCE WITH THE 100 YR FLOW RATE ;
   - FLOW RATE FOR WEIR CALCULATIONS = 35.58 CFS
   - BROAD CRESTED WEIR COEFFICENT, C = 2.80
   - FLOW DEPTH JUST UPSTREAM AND ABOVE TOP OF WEIR, H = 0.22'
   - CRITICAL FLOW D. AT BROADCRESTED WEIR, dC = 0.14'
   - BRINK FLOW DEPTH ALONG BROAD CRESTED WEIR JUST PRIOR TO NAPPE, dB = 0.10'
   - HORIZONTAL LENGTH OF NAPPE FROM BROAD CRESTED WEIR = 0.28'
   - VELOCITY ACROSS THE WEIR IS AT 1.33 FT/S
10. FLOW DEPTHS ACROSS THE ROCK LOW WATER CROSSING ≤ 0.63' AT Q = 35.58 CFS, V ≤ 1.39 FT/S



CROSSING 19 WATERSHED



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REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
A	11DEC14	ISSUED FOR INFORMATION	JCS	MBE				

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CLIENT PROJECT MGR.	DRE DEPARTMENT MGR.	HRM PROJECT MGR.

PROJECT PHASE: PANOCHE VALLEY SOLAR PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
176055		DES	JCS/MTG	24NOV14
SCALE	PACKAGE CODE	DRN	JCS/JTW	24NOV14
AS SHOWN		CHK		
		APP		

PANOCHE VALLEY SOLAR LLC

amec

SUBJECT: CIVIL PERIMETER ROAD DETAILS CROSSING 19

AREA

CLIENT DWG. NO.

DRAWING NO. D-000-C-0158 REV. A

ARCH D-24x36

SAVED: 12-Dec-14 11:02 AM PLOTTED: 12-Dec-14 11:14 AM USER: STEADHAM, CHARLES

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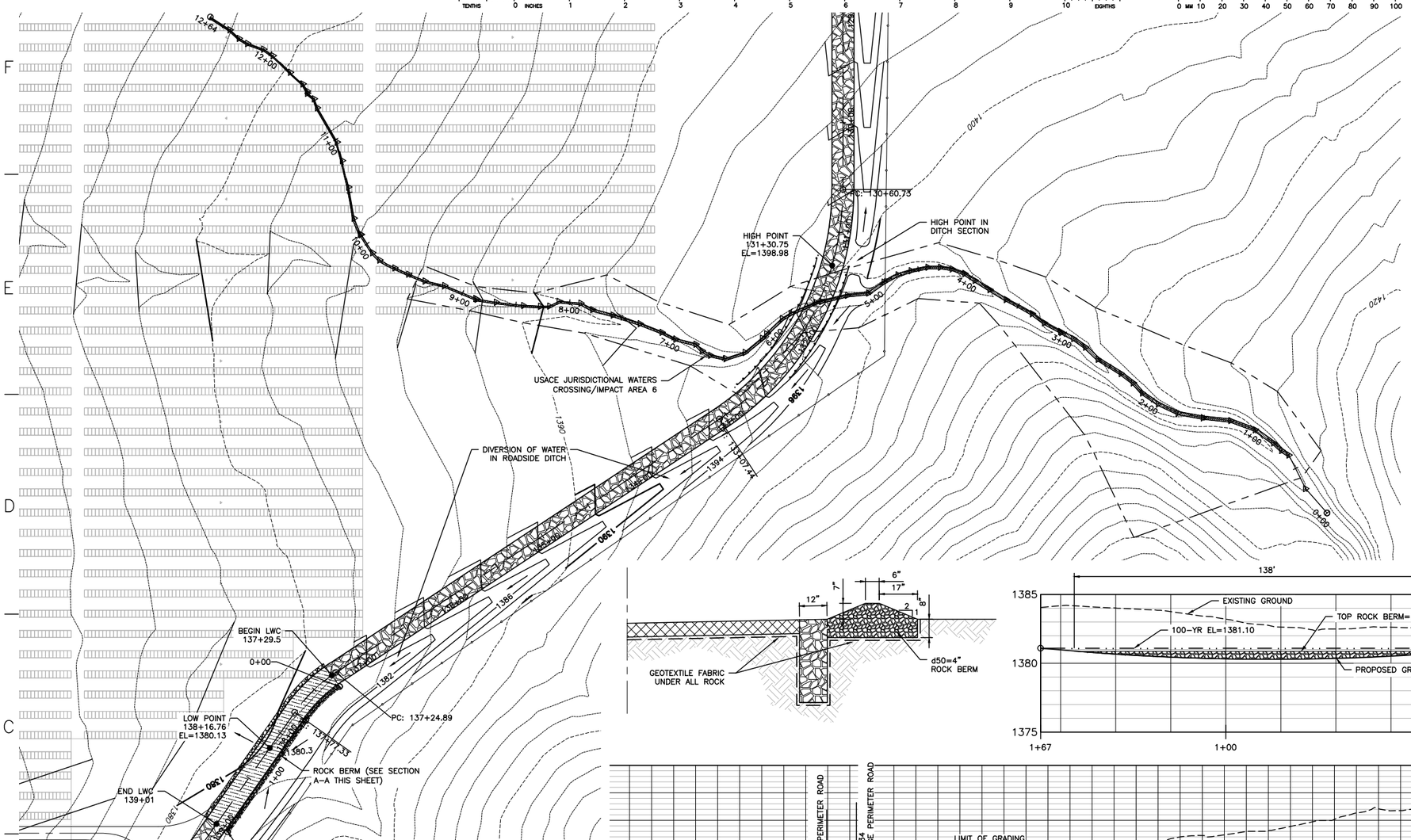
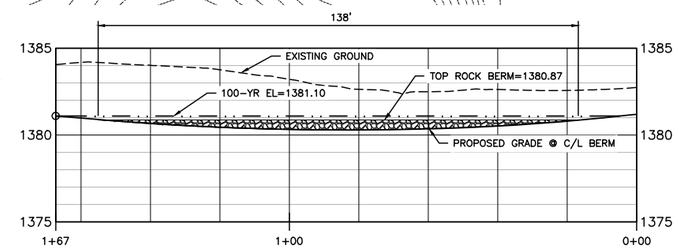
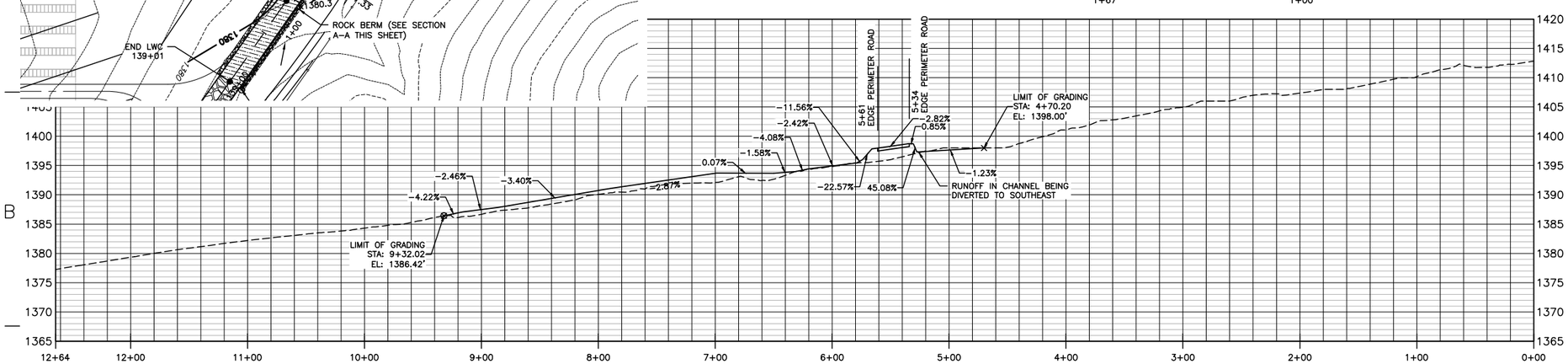
Crossing 6







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