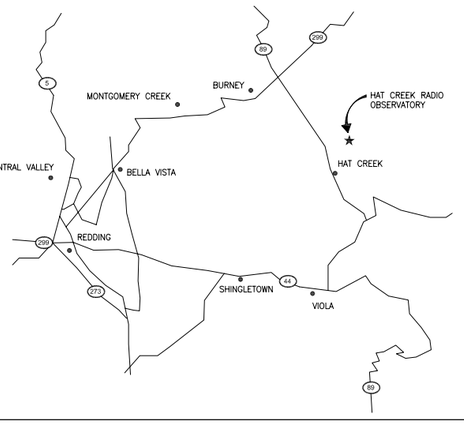
ALLEN TELESCOPE ARRAY PROJECT

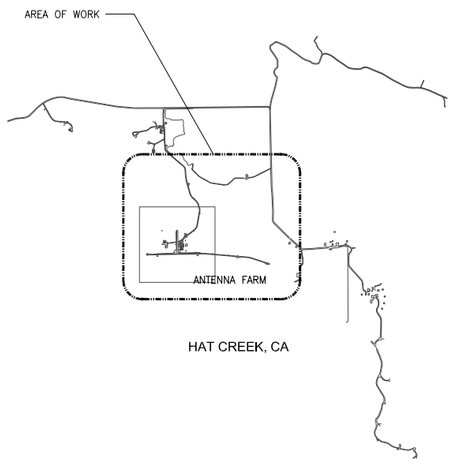
HAT CREEK RADIO OBSERVATORY

HAT CREEK, CA

VICINITY MAP



AREA MAP



LEGEND

1 / A101 — ELEVATION CALL-OUT

1 / A201 — SECTION CUT

[#] — KEY NOTE

[#] — REVISION DELTA

N — NORTH ARROW

PROJECT CONTACT LIST

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PROJECT DESCRIPTION

THE UNIVERSITY OF CALIFORNIA AT BERKELEY (UCB) HAS AN EXISTING RADIO ASTRONOMY OBSERVATORY AT HAT CREEK, CALIFORNIA. HAT CREEK IS ABOUT 70 MILES EAST OF REDDING ON HIGHWAY 89 ABOUT MIDWAY BETWEEN JUNCTIONS OF HIGHWAYS 299 AND 44. THE OBSERVATORY SITE IS ON FOREST SERVICE LAND COVERED BY A USE PERMIT AND LAND LEASED FROM THE BIDWELL RANCH. CURRENTLY THERE IS AN ARRAY OF 10 PARABOLIC DISH TYPE ANTENNAS AT THIS SITE WORKING IN A FREQUENCY RANGE UP TO 300 GHZ AND OPERATED AS THE BERKELEY-ILLINOIS-MARYLAND ASSOCIATION (BIMA) ARRAY. THE BIMA EQUIPMENT WILL BE MOVING TO A NEW SITE IN 2004. A PARTNERSHIP BETWEEN THE U. C. BERKELEY RADIO ASTRONOMY LABORATORY AND THE SETI INSTITUTE, MOUNTAIN VIEW, PLANS TO BUILD A NEW VERY LARGE RADIO ARRAY, THE ALLEN TELESCOPE ARRAY (ATA), AT THE HAT CREEK SITE. THE ATA WILL EVENTUALLY HAVE 350 RADIO TELESCOPES ABLE TO RECEIVE A FREQUENCY RANGE FROM 500 MHZ TO 11.3 GHZ. EACH ANTENNA HAS A 20-FOOT DIAMETER OFFSET DISH. THESE ANTENNAS WOULD BE POSITIONED ALL ACROSS THE SITE WITHIN ABOUT A 1-KILOMETER DIAMETER AREA. EACH ANTENNA WOULD BE FIXED TO A FOUNDATION AND PEDESTAL WITH FIBER OPTIC AND POWER DISTRIBUTED BY AN UNDERGROUND CONDUIT/CABLE SYSTEM. ONCE INSTALLED ALL THESE ANTENNAS WILL SEND INFORMATION BACK TO A CENTRAL PROCESSING FACILITY WHERE THE SIGNALS WILL BE ADDED, CORRELATED AND PROCESSED FOR USE BY BOTH UCB ASTRONOMY AND SETI RESEARCHERS.

THE PROJECT WILL BE EXECUTED IN THREE PHASES. THE FIRST PHASE WAS STARTED IN AUGUST 2003 AND WILL FINISH BY MID 2004. THIS PHASE WILL COVER THE DETAILED DESIGN AND CONSTRUCTION FOR THE FIRST 33 ANTENNAS WITH FIVE ZONE COOLING SYSTEMS FOR THE ANTENNAS. THE DESIGN AND CONSTRUCTION WILL KEEP IN MIND THE PROVISIONS NEEDED FOR THE TOTAL 350 ANTENNAS. THE CENTRAL PROCESSOR BUILDING WILL NOT BE CONSTRUCTED DURING THIS PHASE. THE EXISTING LAB 1 BUILDING WILL BE USED AS THE PROCESSOR BUILDING FOR THIS PHASE.

SCOPE OF WORK - PHASE I

STRUCTURAL

1. CONSTRUCTION OF REINFORCED CONCRETE PIER FOOTINGS FOR 33 ANTENNAS.

2. CONSTRUCTION OF REINFORCED CONCRETE PADS FOR 5 COOLING UNITS (ZC)

3. CONSTRUCTION OF REINFORCED CONCRETE MAIN VAULT AT PROCESSOR BUILDING FOR COLLECTION OF ELECTRICAL AND FIBER CONDUIT SYSTEMS.

ELECTRICAL

1. LAYOUT TRENCH AND PULL BOXES LOCATIONS.

2. VERIFY ALL UNDERGROUND AND ABOVE GROUND INTERFERENCES THAT ARE AFFECTED BY THE TRENCHING. VERIFY UNDERGROUND INTERFERENCES BY HAND DIGGING AT EACH LOCATION.

3. EXCAVATE TRENCHES AND PULL BOX LOCATIONS.

4. INSTALL THE CONDUIT, GROUND CONDUCTOR, WARNING TAPE, SAND AND BACKFILL IN TRENCHES.

5. INSTALL PULL BOXES AND COMPLETE CONDUIT CONNECTIONS.

6. INSTALL THE GROUNDING SYSTEM AND COMPLETE THE CONDUIT CONNECTIONS AT MANHOLE #1 (MH-01).

7. INSTALL GROUNDING AT ALL EQUIPMENT.

8. INSTALL POWER AND FIBER OPTIC CABLES IN CONDUIT SYSTEM.

9. TEST AND CONNECT ALL CABLES.

PROJECT DRAWING INDEX

Sym.	Description	Date	Drawn By	Appr. By
0	ISSUED FOR CONSTRUCTION	12-5-03	DK2	RAC

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WRMS ENGINEERING
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Seattle, WA
Boston, MA

Drawn By: CEU
Designed By: JG
Date: 9/10/03
Proj. No.: 02-242

ALLEN TELESCOPE ARRAY
HAT CREEK RADIO OBSERVATORY
HAT CREEK, CA

GENERAL
TITLE SHEET

One Inch at Full Scale (0 .5 1.0)
Dwg. No: G001
Rev.: 0