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DIRECTORATE OF INTELLIGENCE

Imagery Analysis Report

Serpukhov Radioastronomical Observatory
USSR

Top Secret

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DATE DECEMBER 1967
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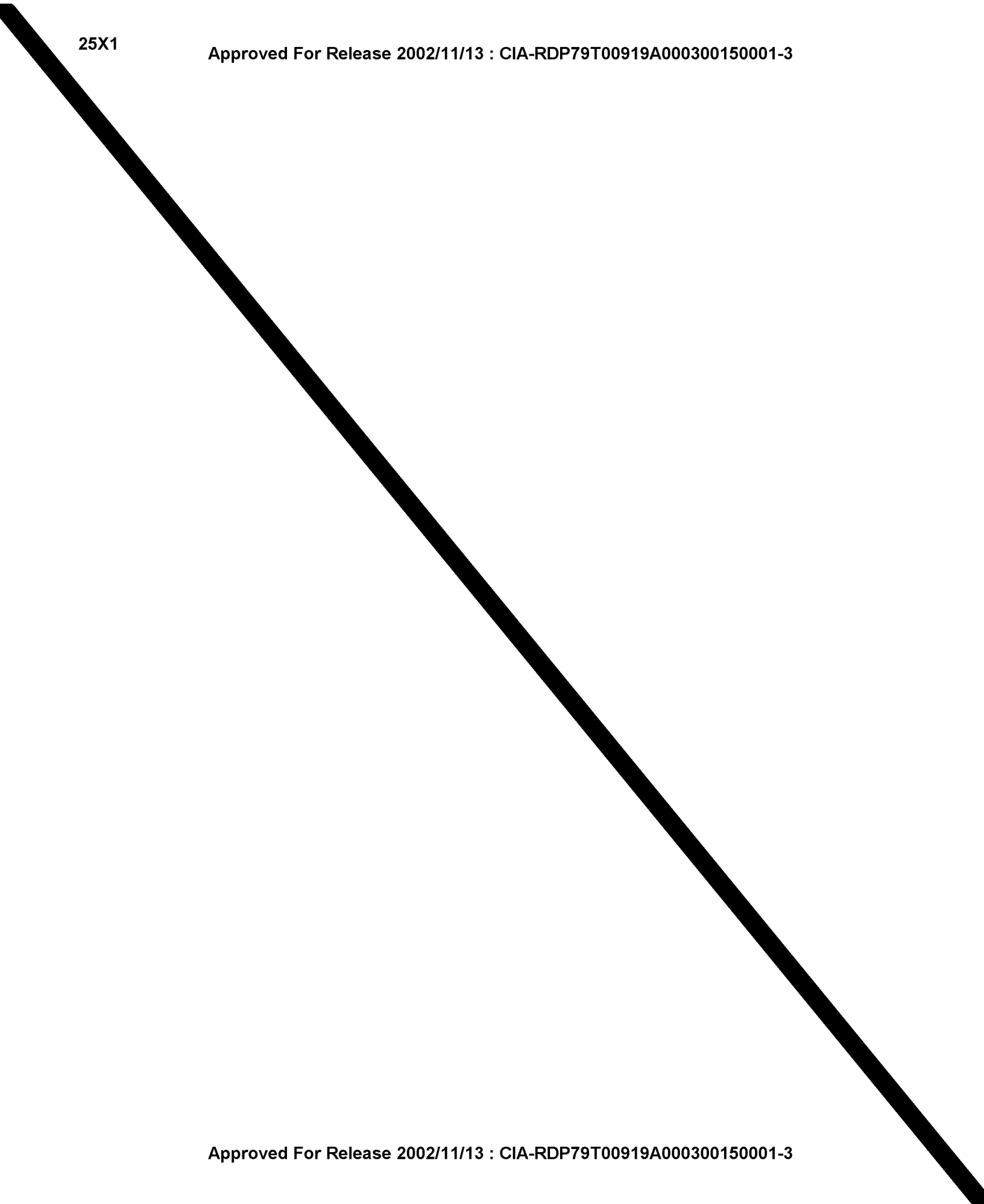

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IMAGERY ANALYSIS SERVICE

[redacted] 25X1

December 1967

SERPUKHOV RADIOASTRONOMICAL OBSERVATORY
USSR

SUMMARY

This report identifies the major features of the Serpukhov Radio-astronomical Observatory and traces its development from [redacted] 25X1 25X1 when it was still under construction. The most important facilities at the observatory are a Mills Cross antenna, a 22-meter parabolic antenna, and 2 eight-dish arrays capable of radioastronomical observations and space tracking.

CONTENTS

INTRODUCTION

The Serpukhov Radioastronomical Observatory of the Lebedev Physics Institute is located at 54-50N 37-37E, on the south bank of the Oka River approximately 8 nautical miles southeast of Serpukhov, USSR (Figure 1).

The observatory has facilities for radioastronomical observations and space tracking. Figures 2 through 4 show the chronological development of this installation [redacted] Table I provides the chronological development of construction by missions. The dimensions and areas of the buildings within the installation are presented in Table II.

All measurements have been made by the NPIC Technical Intelligence Division. Horizontal measurements are considered to be accurate within ± 10 feet; heights are considered approximate.

DISCUSSION

The observatory is divided into six distinct areas as shown on Figures 3 and 5.

Area A - Housing and Support
Barracks, support buildings, and materials for construction of the installation.

Area B - Academic Center
Academic buildings including research and classroom facilities, administration buildings, and multistory apartments.

Area C - Unidentified Area
Two support buildings and fenced area.

Area D - Research, Storage, and Support
Research and classroom facilities with support and storage buildings.

Area E - Control/Instrumentation
Control/Instrumentation buildings for the antenna system, and housing.

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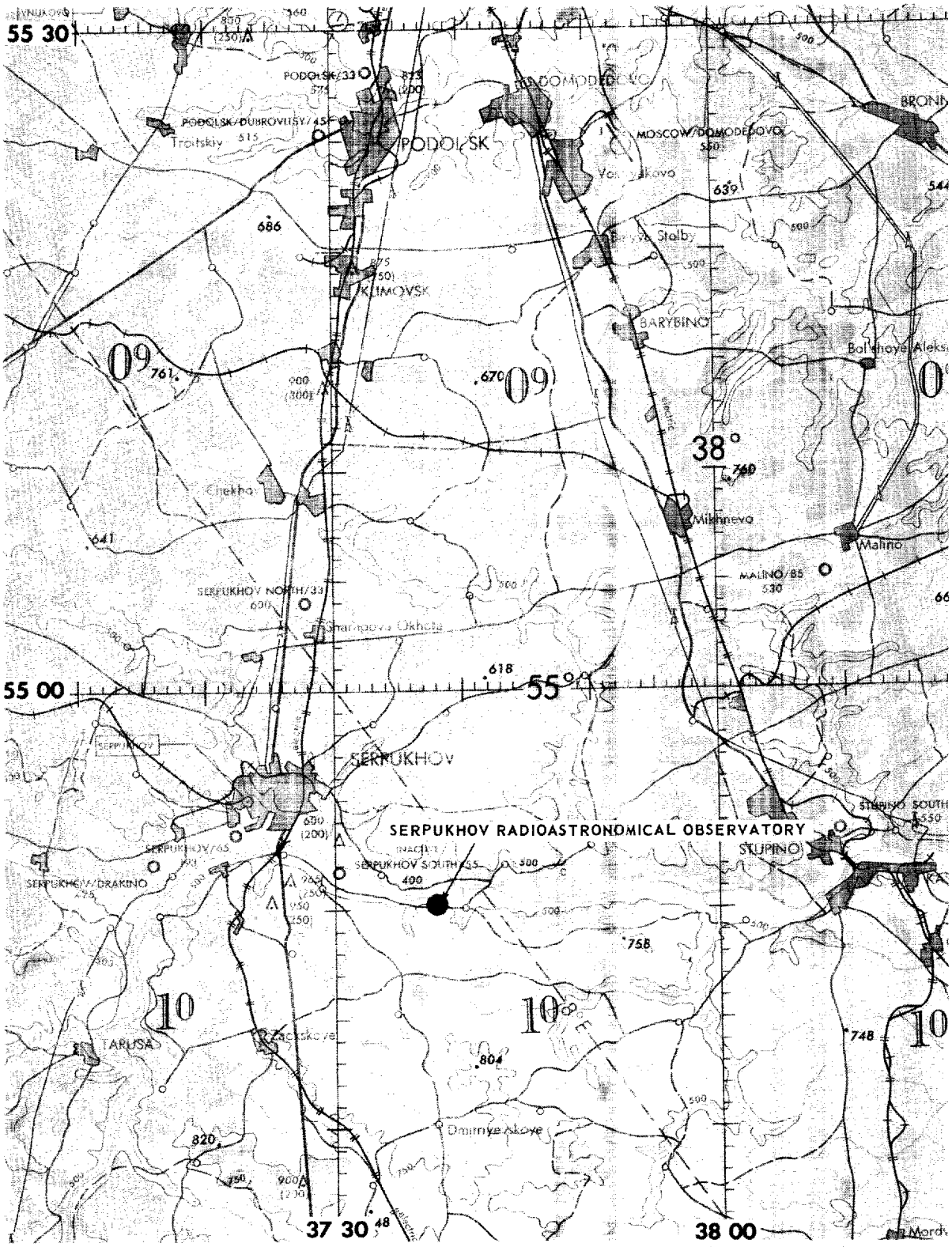

FIGURE 1. LOCATION MAP, SERPUKHOV, USSR

Area F - Antenna Systems

25X1
1. [redacted] parabolic antenna
2. Mills Cross antenna - north/south arm calculated on existing base line will be 3,390 feet; east/west arm is 2,390 feet.
3. Unidentified "T-configuration" with eight-dish array at each end of the east/west arm (Figures 2 and 5).

It is significant that [redacted] the orientation 25X1 of the 2 eight-dish arrays was changed from northwest/southeast to east/west. This placed the antennas at the ends of the crossarm of the unidentified "T-configuration." No reasons for justifying this change can be given. Prior to [redacted] only one arm of the Mills Cross antenna had been 25X1 completed. From [redacted] 25X1 the Mills Cross remained relatively unchanged, thus substantiating the report that the Soviets were having difficulty with its development. 2/ When the installation was observed 25X1 on photography [redacted], work on the Mills Cross had again commenced, possibly indicating that some of the developmental problems had been solved.

TABLE I
LEVEL OF ACTIVITY AT THE SERPUKHOV RADIOASTRONOMICAL OBSERVATORY

25X1 Area A - [redacted]
Thirty-seven buildings.

25X1 [redacted]
Two new buildings constructed.

25X1 [redacted]
Minor ground scarring and new construction evident.

25X1 Area B - [redacted]
Twenty-three buildings.

25X1 [redacted]
One new building completed and unidentified new construction.

25X1 [redacted]
Construction continues.

25X1 [redacted]
Minor ground scarring and new construction evident.

25X1 Area C - [redacted]
One building in fenced area.

25X1 [redacted]
One building added.

25X1 [redacted]
Minor ground scarring and new construction evident.

25X1 Area D - [redacted]
Ten buildings and two under construction.

25X1 [redacted]
Two buildings completed.

25X1 [redacted]
One building added.

25X1 [redacted]
Minor ground scarring and new construction evident.

TABLE I (continued)
LEVEL OF ACTIVITY AT THE SERPUKHOV RADIOASTRONOMICAL OBSERVATORY

25X1 Area E -
Nine control/instrumentation buildings.

25X1
Completed.

25X1 Area F -
22-meter parabolic antenna, the east/west arm of the Mills Cross, the two eight-dish arrays, and the unidentified "T-configuration."

25X1
Orientation changed on 2 eight-dish arrays from northwest/southeast to east/west. Unidentified "T-configuration" no longer visible.

25X1
At least one dish from each of the 2 eight-dish arrays removed.

25X1
Possible early stage work on the north/south arm of Mills Cross.

25X1
Early stage work confirmed on north/south arm of Mills Cross, but progress is unusually slow with no significant change.

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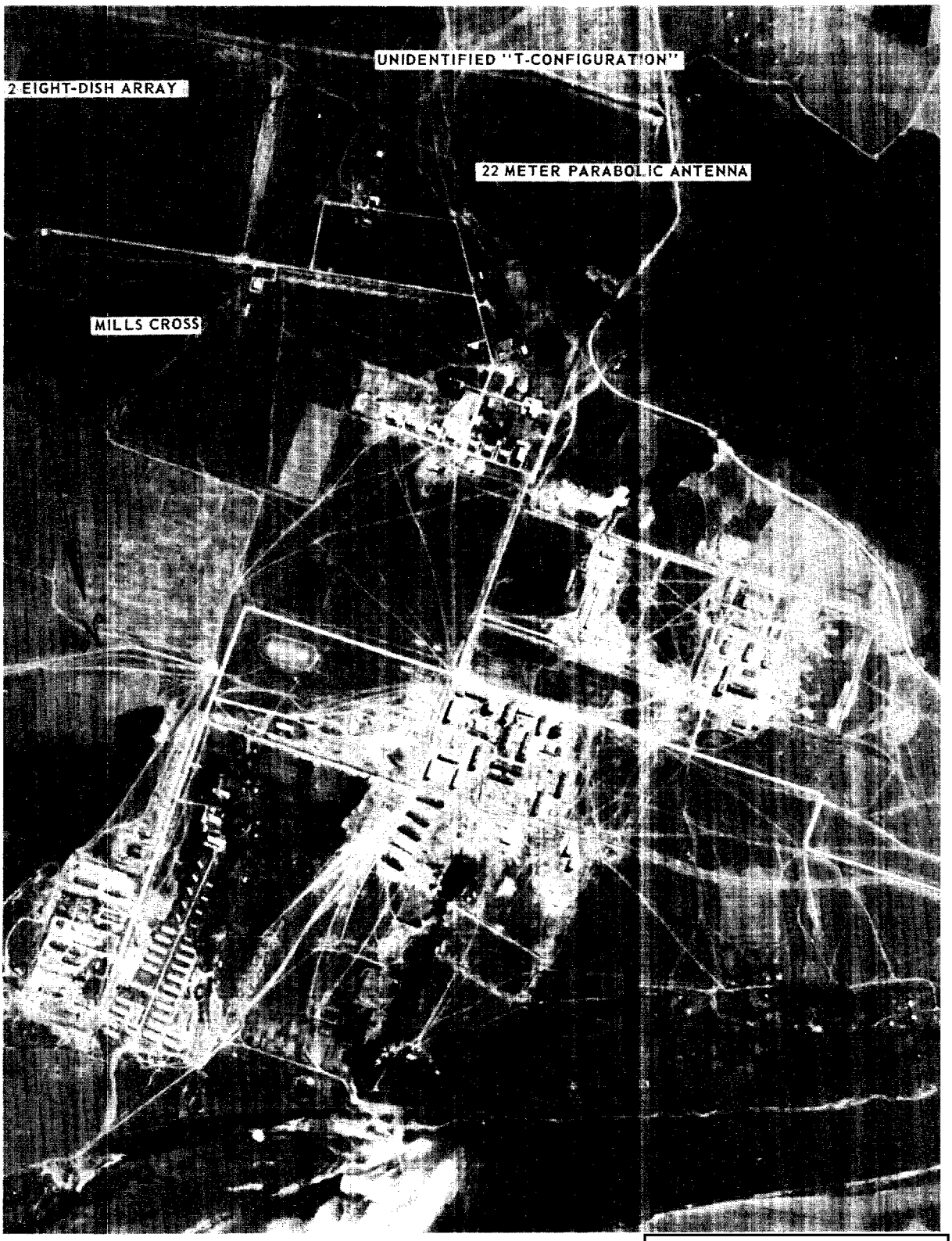

FIGURE 2. SERPUKHOV RADIOASTRONOMICAL OBSERVATORY, 25X1

IMAGERY ANALYSIS SERVICE

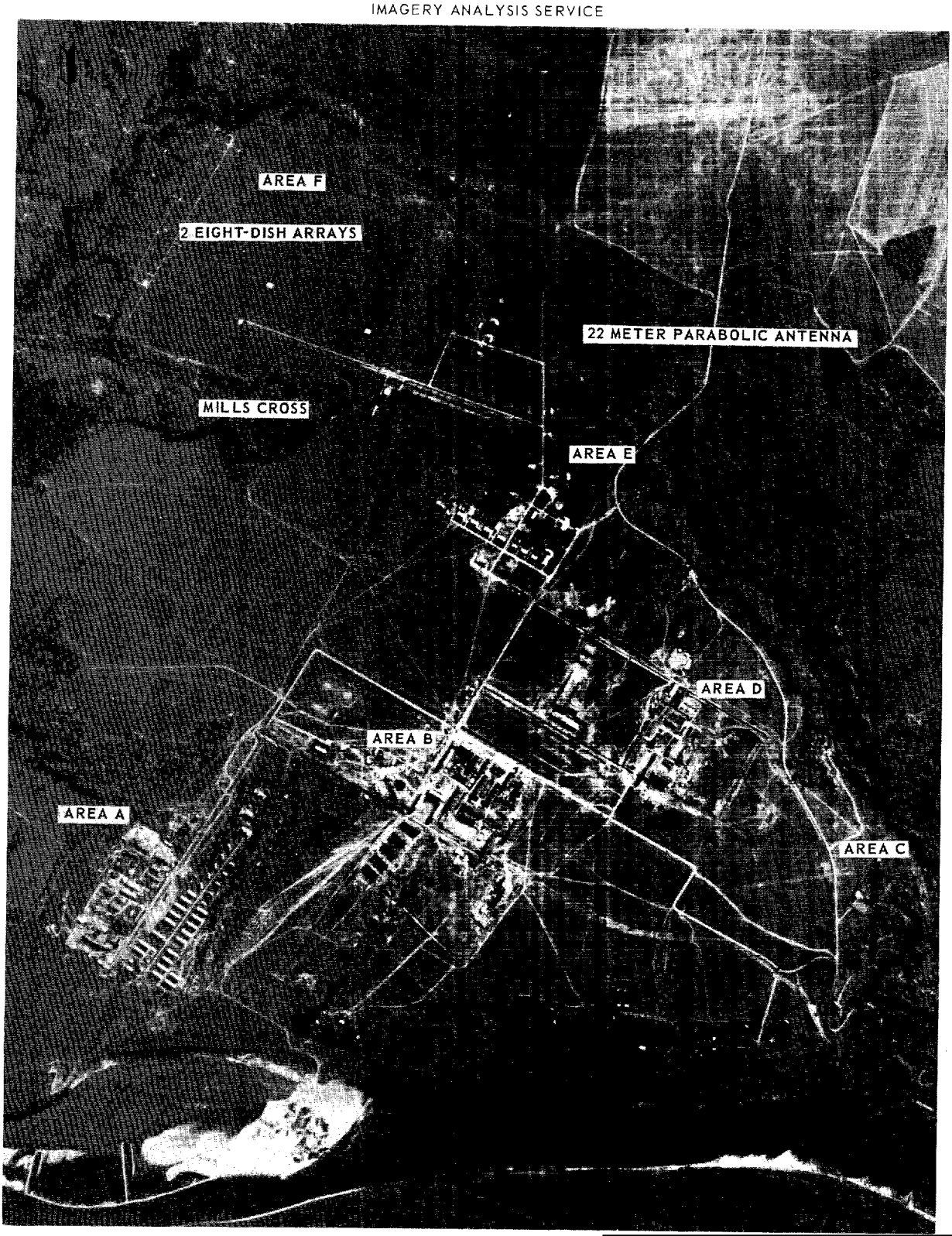

FIGURE 3. SERPUKHOV RADIOASTRONOMICAL OBSERVATORY 25X1

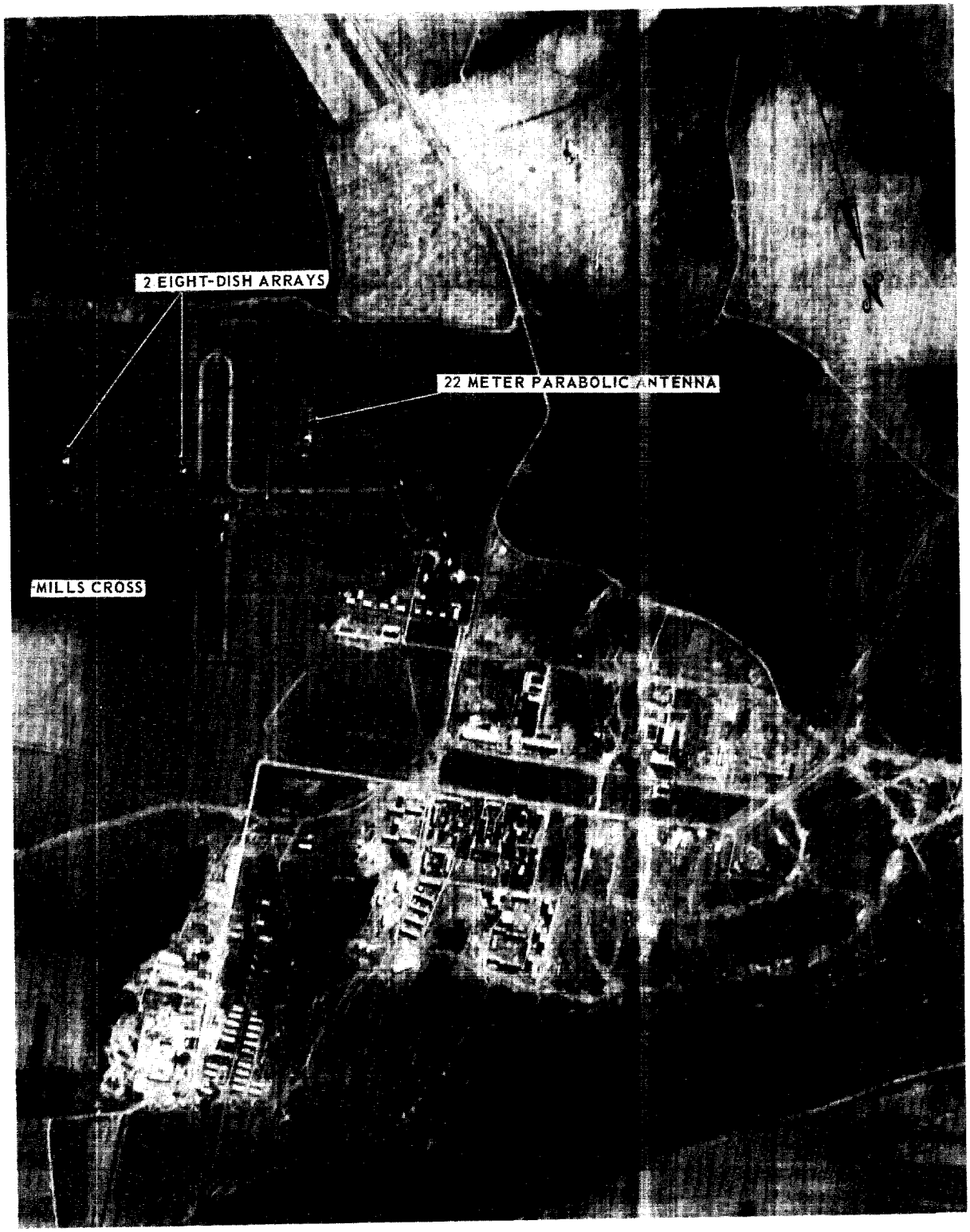

FIGURE 4. SERPUKHOV RADIOASTRONOMICAL OBSERVATORY, [redacted] 25X1

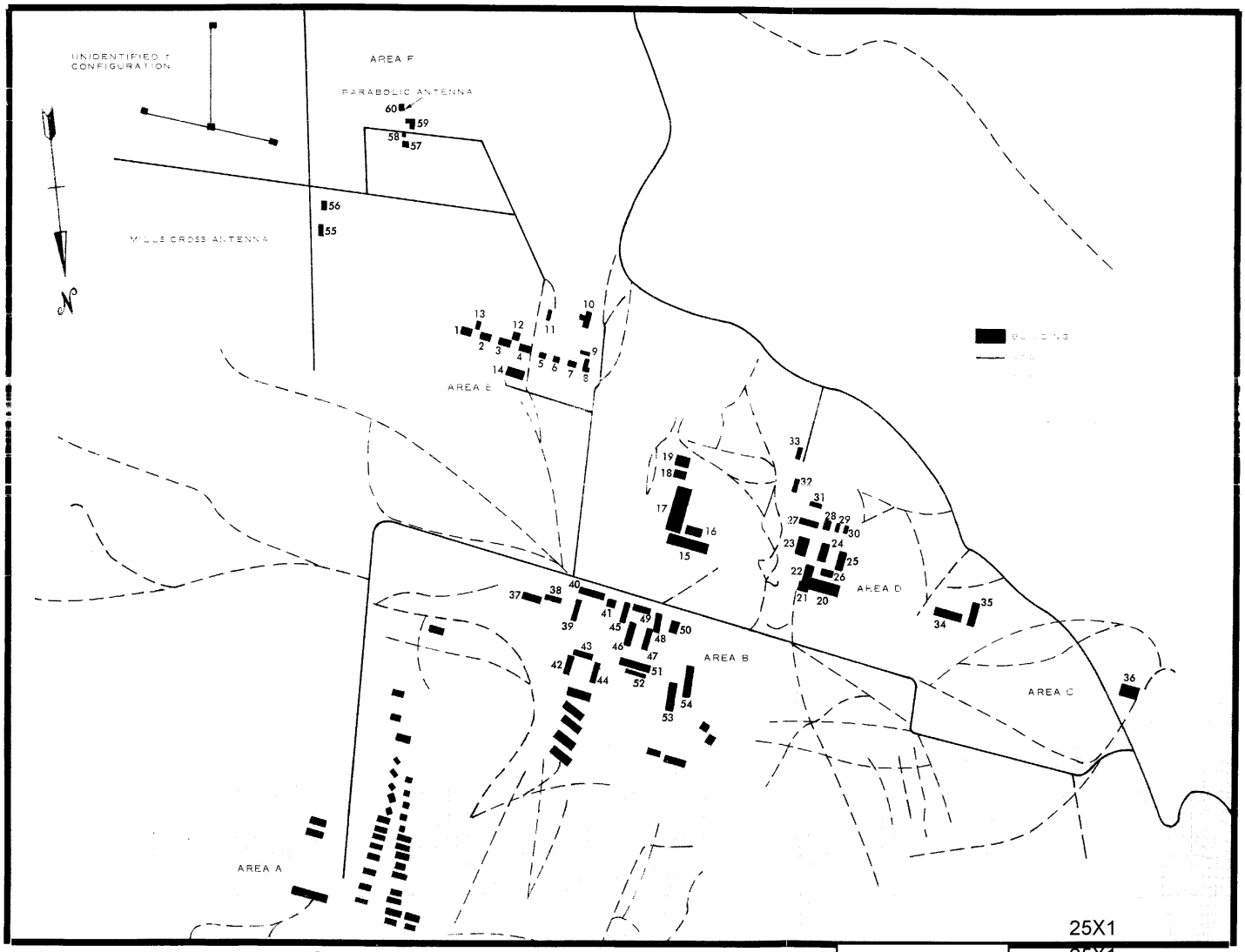

FIGURE 5. SERPUKHOV RADIOASTRONOMICAL OBSERVATORY, LINE DRAWING,

TABLE II
SERPUKHOV RADIOASTRONOMICAL OBSERVATORY

ITEM	DIMENSIONS (feet) Length	Width	Height	AREA (Square Feet)
1-3	90	55	-	14,850
4	95	50	-	4,750
5	50	40	-	2,000
6-7	65	40	-	5,200
8	120	60	-	7,200
9	100	30	-	3,000
10	140	50	-	7,000
11	100	30	-	3,000
12	70	50	-	3,500
13	85	50	-	4,250
14	165	105	-	17,325
15	360	45	55	16,200
16	165	50	-	8,250
17	420	115	-	48,300
18-19	125	60	-	15,000
20	255	55	90	14,025
21	55	50	145	2,750
22	90	50	85	4,500
23	130	55	-	7,150
24	170	90	-	15,300
25	170	60	-	10,200
26	115	70	-	8,050
27	155	45	-	10,850
28-30	100	45	-	13,500
31	125	35	-	4,375
32	135	45	-	6,075
33	100	50	-	5,000
34	230	60	-	13,800
35	210	50	-	10,500
36	195	105	-	20,475
37-38	170	80	50	27,200
39	200	40	55	8,000
40	270	40	65	10,800
41	65	55	115	3,575
42	165	40	40	6,600
43	165	50	40	8,250
44	155	40	40	6,200
45	140	45	65	6,300
46-47	210	45	65	18,900
48	165	50	65	8,250

TABLE II (continued)
SERPUKHOV RADIOASTRONOMICAL OBSERVATORY

ITEM	DIMENSIONS (feet) Length	Width	Height	AREA (Square Feet)
49	150	60	65	9,000
50	75	50	115	3,750
51	250	45	60	11,250
52	200	50	-	10,000
53-54	220	45	50	19,800
55	110	25	-	2,750
56	70	60	-	4,200
57	40	30	-	1,200
58	25	25	-	625
59	75	85	-	6,375
60	55	55	45	3,025
61	70	40	-	2,800

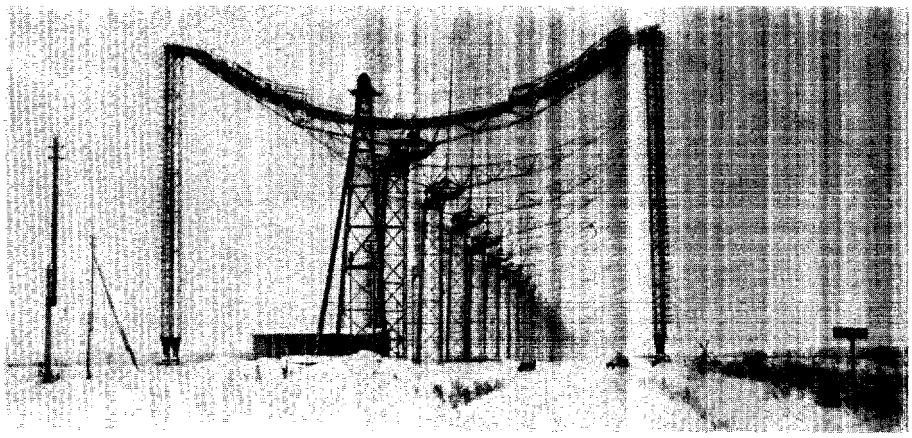

FIGURE 6A. MILLS CROSS, SERPUKHOV RADIOASTRONOMICAL OBSERVATORY, 25X1

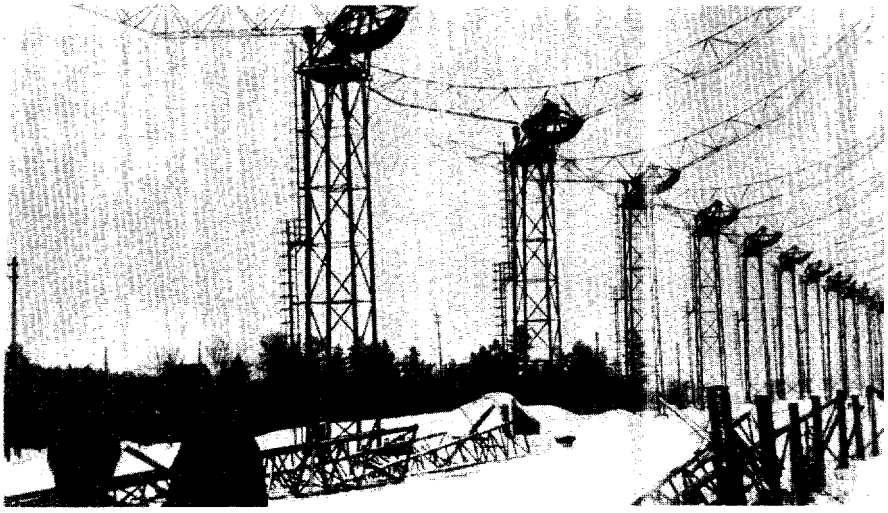

FIGURE 6B. MILLS CROSS, SERPUKHOV RADIOASTRONOMICAL OBSERVATORY, 25X1

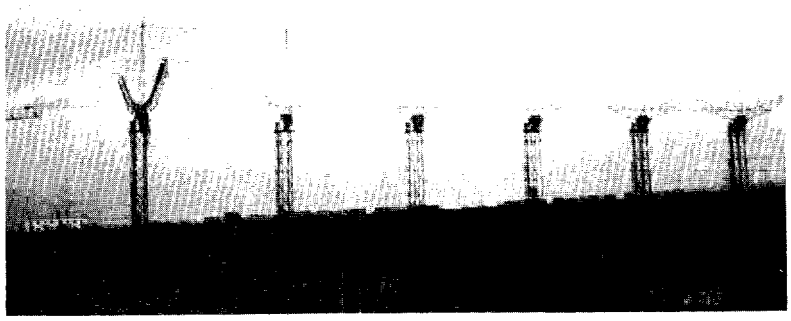

FIGURE 7A. MILLS CROSS, SERPUKHOV RADIOASTRONOMICAL OBSERVATORY, [redacted] 25X1

FIGURE 7B. MILLS CROSS, SERPUKHOV RADIOASTRONOMICAL OBSERVATORY, [redacted] 25X1

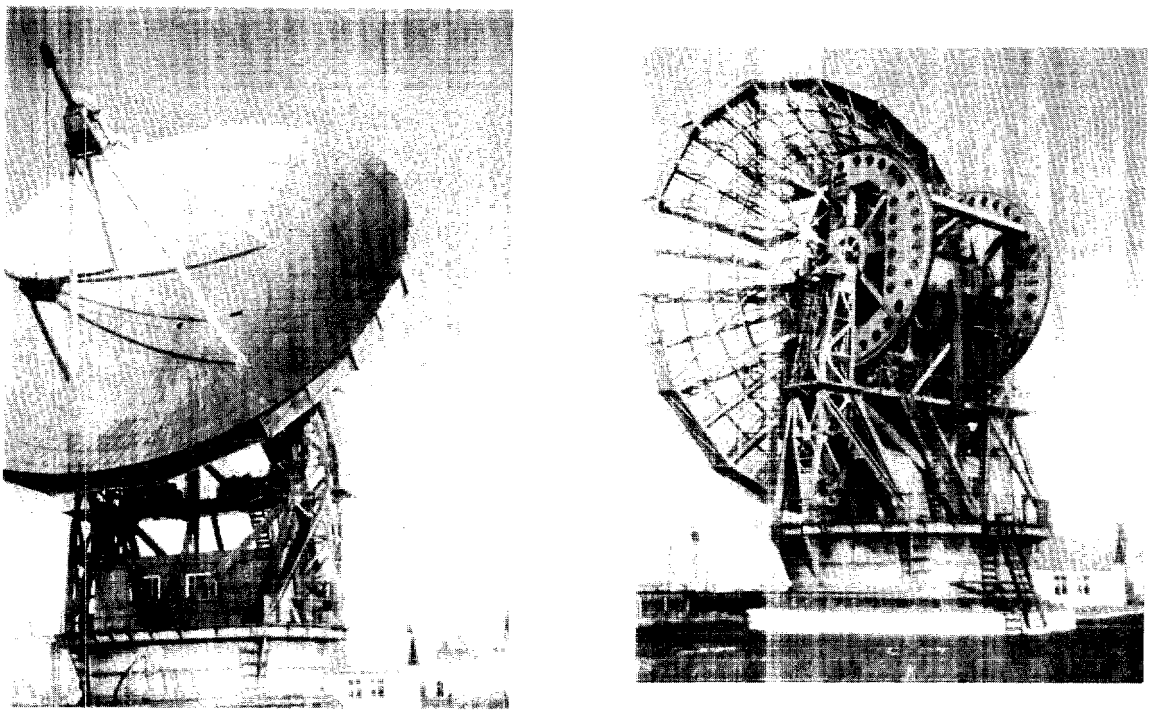

FIGURE 8A. PARABOLIC ANTENNA, SERPUKHOV RADIOASTRONOMICAL OBSERVATORY,

25X1

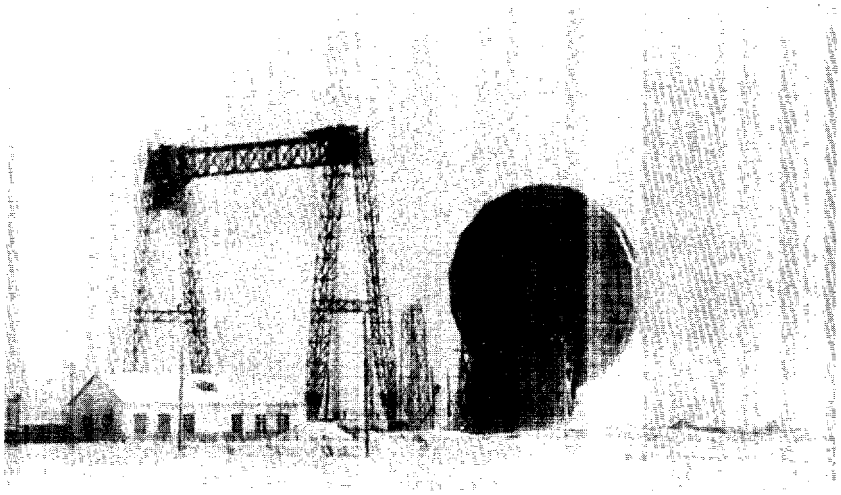

FIGURE 8B. PARABOLIC ANTENNA, SERPUKHOV RADIOASTRONOMICAL OBSERVATORY

25X1

REFERENCES

[redacted] 25X1

MAPS AND CHARTS

ACIC. USAF Pilotage Chart, Sheet PCE-4A, 1st Classified Edition, April 1966, Scale 1:500,000 (Confidential)

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REQUIREMENT

C-SI6-84,156

CIA/IAS PROJECT

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