

III a (20)

NAKATIMA

A/c

, OGIKUBO

76

AREA OF SITE 1,045,000. SQ. FT.

— JOINT TARGET GROUP —

INTERNAL USE IN PHYSICAL VULNERABILITY SECTION ONLY

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PRIMARY OBJECTIVES	WHOLE TARGET
NO. BLDGS. 3	NO. BLDGS. 21
NO. FIRE DIVS. 3	NO. FIRE DIVS. 19
PLAN AREA 348,000. SQ. FT.	PLAN AREA 609,000. SQ. FT.
FLOOR AREA 348,000. SQ. FT.	FLOOR AREA 695,000. SQ. FT.

FIRE ANALYSIS CHART

TARGET: NAKAJIMA A/C ENGINE PLANT

LOCATION: OGIKUBO, TOKYO, JAPAN

DATE: JAN. 8, 1945

AREA NO.

90.17

356

ANALYST:

TARGET NO.

FIRE DIVISION		OCCUPANCY	TARGET COMBUSTIBILITY										M-50 WEAPON ANALYSIS										M-47 WEAPON ANALYSIS																		
NUMBER	SUBDIVISION		TYPE	PLAN AREA (000'S SQ. FT.) (A)	NO. FLOORS	TOTAL FLOOR AREA (000'S SQ. FT.) (A _T)	OCCY. COME β	% VULN TO FIRE α	A _T x I.P. (7x10)	A _T x I.P. (9x11)	A _T x I.P. (7x9)	13	PENETRATION	DUDS	CHANGE	IGNITION	ZONE	HEIGHT	SIZE	SHAPE	PARTITIONS	MULTI-STORY	A (5)	AP _f	A _T x I.P. (12)	A _T x I.P. (25x26)	28	PENETRATION	DUDS	CHANGE	IGNITION	ZONE	HEIGHT	SIZE	SHAPE	PARTITIONS	MULTI-STORY	A (5)	AP _f	A _T x I.P. (12)	A _T x I.P. (39x40)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
		U/I = Unidentified																																							
182		U/I	C	12.9	1	12.9	.20	1.00	5	4.5																															
3 a		Electrical Shops	N	32.5	1	32.5	.30	.45	10	5.5																															
3 b,d		Research	N	27.5	1	27.5	.30	.45	6	7.5																															
3 e		Foundry or Forge	N	12.0	1	12.0	.10	.15	2.5	3.0																															
4 b,c		Machining, Processing	N	122.5	1	122.5	.20	.30	90	11,000	3300	80	80	20	35	07								122.5	.384	3300	1267	90	90	07	70							122.5	4.86	3300	16,238
4 d,e		Administration	R	12.4	3	37.2	.40	.13	5	7.5																															
4 f		U/I (Prob. Office)	C	6.0	1	6.0	.40	1.00	5	3.0																															
5		Administration	R	5.5	2	11.0	.40	.20	5	5.5																															
6 a,b		Cafeteria & Dining Rm	R	8.5	3	25.5	.40	.13	5	7.5																															
7 a		Machining, Processing	N	57.0	1	57.0	.20	.30	100	570	1710	80	80	20	35	06								130.4	.350	3913	1370	90	90	06	70							130.4	4.44	3913	17,374
7 b		"	N	56.3	1	56.3	.20	.30	100	563	1690																														
7 c		"	N	17.1	1	17.1	.20	.30	100	171	573																														
8		Storage	C	11.4	1	11.4	.30	1.00	10	7.4																															
9		"	C	28.8	1	28.8	.30	1.00	10	28.8																															
10		"	C	17.6	1	17.6	.30	1.00	10	17.6																															
11 a,b,c		Machining, Processing	N	95.0	1	95.0	.20	.30	100	950	2850	80	80	20	35	08								95.0	.343	2850	977	90	90	08	70							95.0	4.35	2850	12,397
13 a,b		Tasting, Examination	R	12.0	2	32.4	.20	.075	10	37.2																															
14 a,b,c		Research	R	18.6	2	37.2	.20	.10	10	37.2																															
18		Boiler House	N	5.1	1	5.1	.05	.075	5	3.5																															

$AP_f = 3614 \div 10063 = .359$
 $M_I = N \times AP_f = 475 \times .359 = 170.0$ 1000's ft.²/ton M-50

$AP_f = 45,809 \div 10,063 = 4.57$
 $M_I = N \times AP_f = 30 \times 4.57 = 137.0$ 1000's ft.²/ton M-47

$\alpha = \frac{\sum(\alpha \cdot A_T \cdot I.P.)}{\sum(A_T \cdot I.P.)} = \frac{10,063}{33,540} = 30.7\%$

Note: Bldgs. 12(a,b), 15, 16, 17(a,b) damaged previously.

Ex.

S E C R E T

MISSION RESUME

Mission Number 323 19 August 1945

1. Date: 10 August 1945
2. Target: Nakajima Aircraft Co. at Ogikuku (90.12 - 356) PV
Tokyo Arsenal (90.17 - 3600) PR
3. Participating Unit: 314th Bombardment Wing
4. Number A/C Airborne: 78
5. % A/C Bombing Primary Radar: 89.78% (70 radar and 3 opportunit
6. Type of Bombs and Fuzes: M66, 2000# G.P. and M64, 500# G.P.
bombs with instantaneous nose and
non-delay tail.
7. Tons of Bombs Dropped: 320 tons on primary radar and 13.5 tons
on opportunity.
8. Time Over Primary Radar: 101050K - 101059K
9. Altitude of Attack: 22,000 - 26,200
10. Weather Over Target: 5/10 - 7/10
11. Total A/C Lost: 0
12. Resume of Mission: Results unobserved to good. Fighter
escort provided by 50 P-47's and P-51's from landfall to land's end.
A/C bombed primary radar target. Nine E/A sighted did not attack.
Flak was heavy, meager to intense, accurate to inaccurate and damaged
29 B-29's. Thirty-three A/C sighted the target and 37 by radar. Five
A/C were non-effective. Eight B-29's landed at Iwo Jima. Average bomb
load: 9646 lbs. Average fuel reserve: 845 gallons.

S E C R E T

Ex.

S E C R E T

MISSION SUMMARY

Mission Number 199

28 June 1945

1. Date: 10 June 1945
2. Target: Nakajima Aircraft Co. at Ogikubu (PV) (90.17 - 356)
Kasumiguara Seaplane Base (PR) (90.14 - 1491)
3. Participating Unit: 314th Bombardment Wing
4. Number A/C Airborne: 65
5. % A/C Bombing Primary: (PR) 68.85% (45 radar and 4 opportunity)
(PV) 10.71% (7 aircraft)
6. Type of Bombs and Fuzes: AN-M64, 500#-general purpose, 1/100
second delay nose and non-delay tail.
7. Tons of Bombs Dropped: 281.3 on primary targets and 18 tons
on opportunity.
8. Time Over Primary: (Radar) 0837K - 0859K
(Visual) 0924K - 0927K
9. Altitude of Attack: Radar 21,000 - 23,000 feet
Visual 21,000 - 21,100 feet
10. Weather Over Target: 10/10
11. Total A/C Lost: 1
12. Resume of Mission: Strike attack photographs of bombing on
the radar target indicated that the target was approximately 33% des-
troyed. Heavy, meager to moderate and inaccurate flak at West Tokyo,
Tachikawa, Tokyo and Yokohama. Approximately 30 P-51's observed
over the Tokyo Area and on withdrawal 39 E/A sighted made 83 attacks.
Claims were 1-4-9. Nine B-29's landed at Iwo Jima. Average bomb load:
12,028 lbs. Average fuel reserve: 704 gallons. Fighter claims on
Missions 195-200 were 22-6-12.

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PHOTO INTERPRETATION SECTION
3RD PHOTO RECONNAISSANCE SQUADRON (VH)
APO 244, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

15 December 1944

DAMAGE ASSESSMENT P.I. REPORT NO.2

Mission No.: 3PR4M 37A

Target Area: Tokyo-90.17
Airplane Commander: Daniel E. Forbe
Capt., AC

TARGET 356: Nakajima Aircraft Company, Ogikubo Plant (35° 42' N--
139° 37' E).

Annotations:

Completely Destroyed:

- A. One building 180' x 110' immediately east of east machine shop.
- B. Two buildings, 100' x 70' and 80' x 70', immediately north of east machine shop.

Damaged (50 Percent Destroyed):

- C. Electrical shop, 240' x 120', probably damaged by fire, as indicated by burned-off roof and exposed trusses.
- D. One unidentified building 100' x 70' adjoining the south end of the east machine shop.

Damaged (30 Percent Destroyed):

- E. One building 180' x 70' immediately north of assembly line and tool shop.
 - F. One building 200' x 60', immediately north of the electrical shop.
- Quality good on 40", nos. 4R:21, 22; scale 1:10,000.

/s/ HAMILTON D. DARBY
Major, AC
Chief, Intelligence Section

DISTRIBUTION "B"

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2 February 1945

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Preliminary Report on Repairs No. 5

NAKAJIMA AIRCRAFT, OGIKUBO PLANT

Target 90.17-356

SUMMARY OF CONCLUSIONS

There has been some repair to damaged buildings and indication of expansion of the principal building. This suggests that the plant is being prepared to resume engine production or additional production of engine parts as part of a dispersal program for the Nakajima, Musashino-Tama Plant, Target 90.17-357.

PARTICULARS OF REPAIR AND REMOVAL

This plant was bombed as a secondary target on strikes of 24 Nov and/or 3 Dec. The following schedule based on 16 Jan photography lists the buildings damaged in this strike as well as two undamaged buildings which have been removed subsequent to the 13 Dec photography on which damage assessment was based. Refer to Illustration No. 90.17-356, P5.

Buildings Damaged or Removed	Function	Repair or Removal	Size of Building 1000 sq ft	% of Damage
*1	Unidentified	Removed	3.6	---
2	Unidentified	Not Repaired	9.3	35.0
3a	Electrical Shop	Repaired	65.0	22.2 ¹
4f	Unidentified	Repaired	6.0	100.0 ¹
*3	Storage	Removed	11.4	---
9	Storage	Repaired	28.8	23.5
11b	Machining and Processing	Not Repaired	2.0	100.0
12	Storage	Not Repaired	8.0	100.0
15	Storage	Not Repaired	4.2	35.6
16	Storage	Not Repaired	8.0	100.0
17a and b	Unidentified	Not Repaired	19.2	92.0

* Not damaged

¹ Mostly superficial

SIGNIFICANCE OF REPAIR AND REMOVAL

Building 3(a) the electrical shop and 4(f), the function of which is not definitely known but which is thought to be an administrative building received only superficial damage so no particular significance can be attached to this repair.

Building 9 which had been identified as storage was structurally damaged and has been repaired and recamouflaged. This was the only building identified as a storage building which was repaired. This would seem to indicate that the building houses a more important function than storage, perhaps some machining process.

11(b) is thought to be a delivery or shipping room and no particular significance can be attached to failure to repair this damage.

The other damaged buildings all received structural damage in excess of 35 percent and since they were either unidentified as to function or used for storage their repair or rebuilding could not be expected to be given a high priority.

Building 8 was not damaged but has been removed subsequent to attack. This may possibly indicate the beginning of dispersal but cleared ground immediately to the W and the indications of new footings suggests an extension to the N of building 7, the most important building in the site.

End (D)

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There is no indication as to why Building 1 was removed although it may have received damage in the strike which was not apparent on the poor quality post strike photo cover.

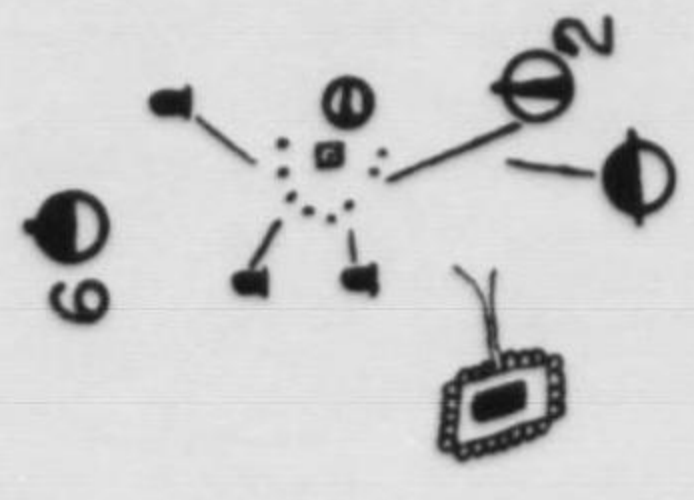
FUTURE
TARGET
VALUE

This plant was formerly the principal Navy engine factory of the Nakajima Company but is thought to have stopped complete engine manufacture and turned to engine parts fabrication after the completion of the Tama section of the Nakajima Musashino-Tama Plant (Target 90.17-357).

The activity at the plant by way of building readjustment after attack and the emplacement of numerous AA batteries around the plant site since 13 Dec suggests that the plant may be preparing to resume engine manufacture or expand its engine parts fabrication if the main Nakajima Engine Plant (Musashino-Tama, Target 90.17-357) is severely damaged.

Continued reconnaissance is necessary to determine the future target value. This plant may become an important engine producer when the Musashino-Tama Plant (Target 90.17-357) production is seriously reduced.

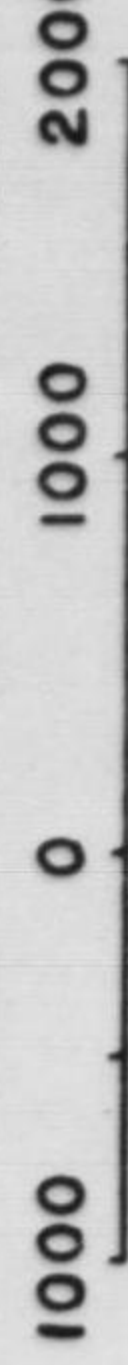
Athletic Stadium



TARGET WORK SHEET
Target No. 356

NAKAJIMA OGIKUBO

LAT. 35° 42' N LONG. 139° 37' E
Based on XXI BC 3PR 5M 16 of 16 Jan. 1945



Approx. Scale in Feet
CONFIDENTIAL INTERPRON TWO - 181.8

90.17-356

SELECTED TOKYO TARGETS
CINCPAC-CINCPOA SPECIAL REPORT

CONFIDENTIAL
7 DEC. 1944

NAKAJIMA OGIKUBO (35°42' N., 139°27' E.) (Target No. 356)

[This PLANT
General. This factory, located eight miles west-northwest of the Imperial Palace, and about four miles east of TAMA-MUSASHINO, is of somewhat less importance as a target than the latter. It is reported that the OGIKUBO factory produced completed aircraft engines in 1940, but it is believed now to be primarily concerned with the production of engine parts which are shipped to TAMA, MUSASHINO, and elsewhere for assembly. There is some indication that the only completed engines produced here now are put out by the experimental and research section of the plant.

Buildings. The total built-up area is approximately 600,000 square feet. Most of the factory buildings are of one story, 15 to 20 feet high (to the roof truss). Some floors are of concrete, the rest of earth. Roof construction is of the light frame saw-toothed type, supported by trusses, probably steel, 25 feet long, spaced approximately 10 feet apart. The walls are probably light steel frame covered with a composition wall board such as asbestos siding. Building number 20 in the attached diagram is probably a two-story reinforced monolithic concrete structure. Building number 21, the power station, is probably a one-story reinforced concrete structure.

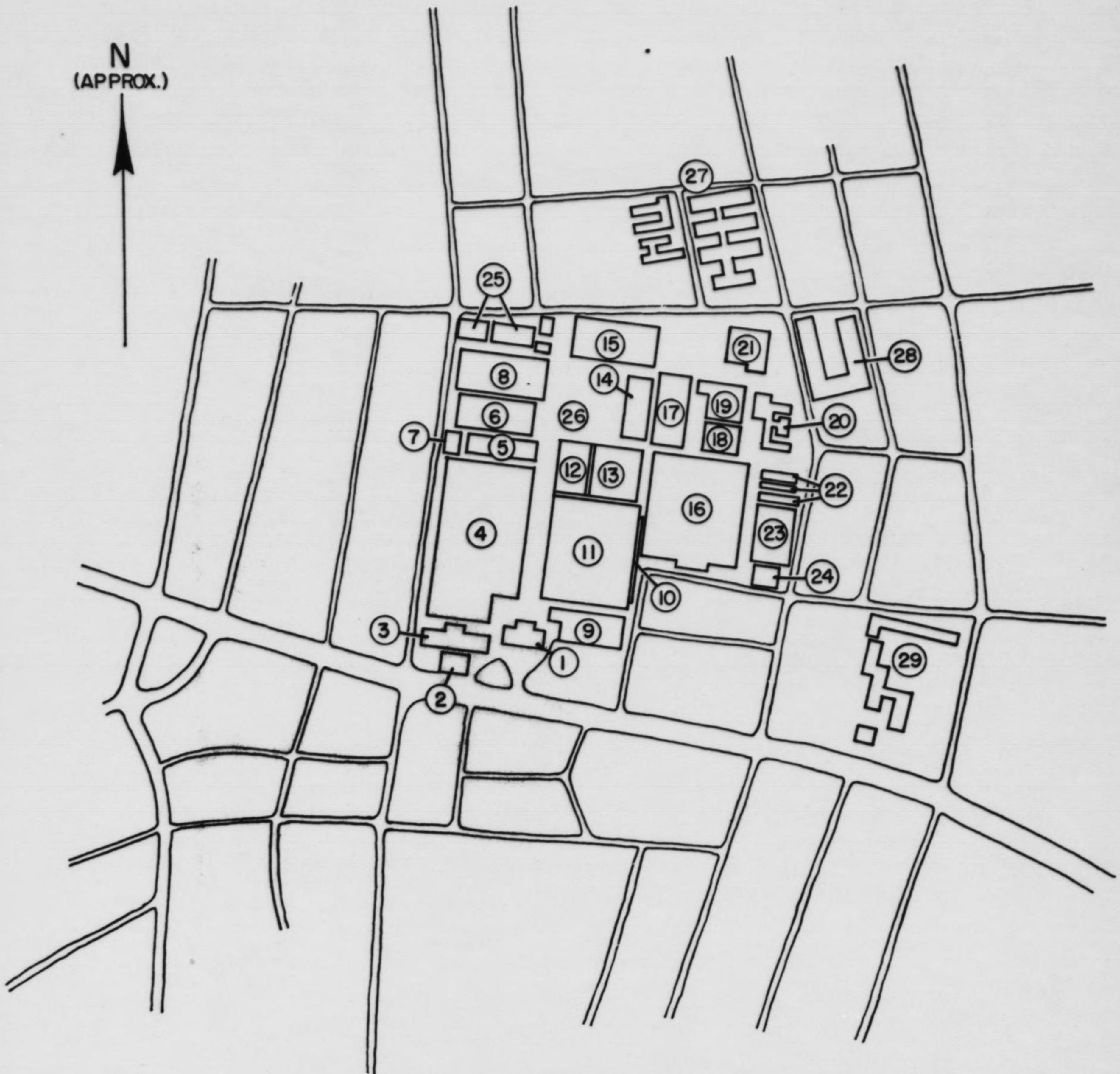
Communications. A four-lane highway bearing ESE-NW is adjacent to the south boundary of the factory area. A number of first-class roads, radiating from the plant, are used for trucking engine parts to MUSASHINO, TAMA, and other engine plants. Two east-west main-line railroads are approximately 4000 feet north and 3400 feet south of the factory.

Landmarks and Surrounding Area. An amphitheatre 4000 feet north of the plant forms a prominent landmark. Housing, hospital, and school facilities for the factory personnel are in the vicinity.

LEGEND FOR OVERLAY OF NAKAJIMA OGIKUBO A/C ENGINE FACTORY.

1. Administration building
2. Gatehouse and guards orderly room
3. Personnel office
4. Machine tools and storage for forgings and castings
5. Heat treatment
6. Research and experimental
7. Forge
8. Research and experimental
9. Mess hall
10. Transformer bank alongside building No. 11
11. Machine tools
12. Plating shop
13. Machine tools
14. Woodworking shops
15. Woodworking shops
16. Northern half used for engine assembly and experimental shop - southern half houses machine tools for non-ferrous alloys.
17. Scrap metal storehouse
18. Possible inflammable storage
19. Possible inflammable storage
20. Probably research and experimental
21. Electric power station (probably transformer station)
22. Material storage
23. Engine tests
24. Boiler plant
25. Material storage
26. Heavy materials storage yard
27. Hospital
28. Training school for plant personnel
29. Primary school

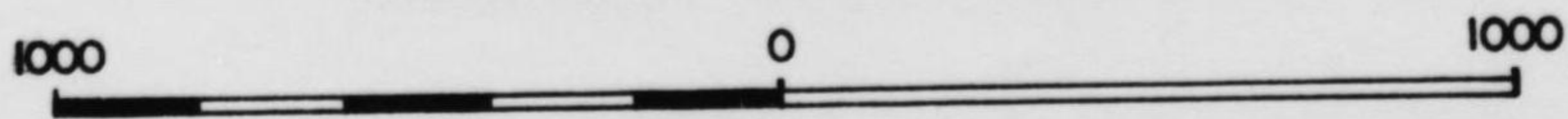
N
(APPROX.)



**NAKAJIMA OGIKUBO AIRCRAFT ENGINE
FACTORY (TARGET No. 356)**

LAT. 35° 42' N., LONG. 139° 37' E.

APPROXIMATE SCALE IN FEET



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N. (APPROX.)



NAKAJIMA OGIKUBO AIRCRAFT ENGINE
FACTORY (TARGET No. 356)

LAT 35° 42' N, LONG 139° 37' E

APPROXIMATE SCALE IN FEET



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JICPOA NEG. 4127-73

JOINT TARGET GROUP, WASHINGTON, D. C.
TARGET INFORMATION SHEET

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**NAKAJIMA AIRCRAFT, OGIKUBO PLANT
(NAKAJIMA HIKOKI K. K., TOKYO
SEISAKUSHO)**
TOKYO **JAPAN**

TARGET 90:17-356
OBJ. AREA 90:17
OBJ. FOLDER 90:17
CATEGORY End Prdt. Ind.—
AIRCRAFT

LAT. 35°42'N
LONG. 139°37'E
ALT. 154 feet

ALL PREVIOUS SHEETS CANCELLED

SIGNIFICANCE

The Nakajima Ogikubo plant is known to produce such engine parts as oil filters, fuel valves, pressure valves and carburetors. Plant originally manufactured engines, but this is thought to have ceased late in 1942 or early 1943 when Nakajima engine production was concentrated in the large Musashino-Tama (Musashi) Plant (TARGET 90:17-357). It is possible that this plant is producing internal engine parts for the Musashi plant but confirmation is lacking. There is also evidence that part of the plant is devoted to research and experimental work.

LOCATION

Approximately 8.5 miles W by N of the Imperial Palace in Tokyo. It is located about midway between two main RR lines which lead W from the city. The Ogikubo RR station is about one mile to the SE. The important Nakajima Aircraft Engine Musashino-Tama Plant (TARGET 90:17-357) is located about 2.2 miles W. A main highway passes the S end of the compound before making a curve to the NW, and an athletic field is located approximately 4000 feet NNW, just S of a RR line. The target is on the northern fringe of a built-up area extending out from Tokyo.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90:17-356-P3, P5, and P6.) The target area is irregular in shape extending about 1100 feet N-S and 1100 feet E-W. The area is compactly built-up with installations occupying 750,000 square feet, about 70 percent of the total. The three largest buildings (4, 7, and 11) are believed to house the vital machining and processing facilities. Building 3 (a) is the electrical shop and 3 (c) and 14 are devoted to research; 3 (e) is the foundry. Building 13 is believed to be used for testing purposes.

CONSTRUCTION AND VULNERABILITY

(Refer to Illustration No. 90:17-356-P3 and P5.) About three-fourths of the major buildings have short-span, sawtooth roofs, the remaining quarter having double pitched roofs of medium to long spans. Roofs are predominantly of galvanized iron and corrugated asbestos over exposed steel trusses.

Walls are of reinforced concrete, the height to the eaves for most buildings being between 20 and 30 feet.

Floors in single story buildings are of concrete and packed earth and in multi-story buildings or reinforced concrete 5 to 6 inches thick.

93 per cent of the entire target (Plant Area) is one story. Several of the important manufacturing build-

ings, however, probably have narrow balcony floors through a portion of their area.

Number of Fire Divisions: 23 in 21 buildings.

The Fire Susceptibility Plan indicates the vulnerability of each building and its contents. Contents are of slight to moderate combustibility. It is estimated that 30 per cent of the productive capacity of the plant can be destroyed by fire. The target therefore should be attacked with incendiary bombs in combination with high explosive weapons.

PRIMARY OBJECTIVES

(Refer to Illustration No. 90:17-356-P3 and P5.) Buildings 4, 7, and 11, housing machining and processing facilities, are the primary objectives.

All buildings within the area fall within a 1000-foot radius centering on building 7. Its selection as a single aiming point is recommended for high level attack.

WEAPON RECOMMENDATIONS

The most effective weapons for high level attack against this target are the AN-M64 500-lb GP and the AN-M50 4-lb incendiary bomb (in M17 aimable clusters). The 500-lb GP, to be used in combination with the AN-M50, should be fuzed 0.1 sec. nose and 0.01 sec. tail for the best chance of causing maximum damage. (If M139 nose fuzes, 0.01 sec. delay, are available, they should be used in place of the AN-M103, set for 0.1 sec. delay.)

As most of the principal buildings are one-story, short-span and therefore not subject to spreading collapse, the 500-lb bomb will be the most effective on a weight for weight basis. Machines as well as structures will be most severely damaged when the bomb bursts 6 to 10 feet beneath the roof as the result of 0.01 sec. fuzing.

The AN-M50 incendiary is recommended; it is much more effective than larger incendiaries.

The combustible portion of the contents is well dispersed in the large fire divisions and thus multiple hits will be required to achieve a satisfactory level of fire damage. Fire spread in the principal buildings is unlikely as the fire divisions are fairly well defined.

The following Loading Table shows the per cent of structural damage to the target which can be expected for different weights of attack and different accuracies of bombing. Accuracy is measured by the per cent of bombs dispatched expected to fall within 1000 feet of the aiming point. (Reference should be made to Joint Target Group Memorandum No. 3, "Explanation of Weapon Recommendations and Loading Tables Given in Target Information Sheets," dated 27 December 1944.)

JOINT TARGET GROUP, WASHINGTON, D. C.
 TARGET INFORMATION SHEET

SHEET 90:17-356-TI
 DATE . . 18 January 1945
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TABLE I

Loading Table—Most Effective Weapons

HE: AN-M64 500-lb GP1

IB: AN-M50 4-lb incendiary (in M17 clusters)

Nakajima Aircraft, Ogikubo Plant

Total Load in Tons (4)	Percent of bombs dispatched expected to fall within 1000 feet of the aiming point (2)											
	10%			15%			20%			30%		
	H. E.	I. B. Tons (4)	F(3)	H. E.	I. B. Tons (4)	F(3)	H. E.	I. B. Tons (4)	F(3)	H. E.	I. B. Tons (4)	F(3)
75				25	50	12%	20	55	14%	15	60	20%
100	35	65	10%	25	75	14	20	80	19	15	85	24
150	35	115	14	25	125	20	20	130	24	60	90	29
200	35	165	19	25	175	24	65	135	27	110	90	34
300	35	265	24	120	180	29	165	135	34	210	90	42
400	130	270	27	220	180	34	265	135	39	310	90	49
500	230	270	30	320	180	38	365	135	44	410	90	55
600	330	270	34	420	180	42	465	135	49	510	90	61
700	430	270	36	520	180	46	565	135	53	610	90	66
800	530	270	39	620	180	49	665	135	58	710	90	70
900	630	270	42	720	180	52	765	135	62	810	90	74
1000	730	270	45	820	180	55	865	135	65	910	90	78
1100	830	270	47	920	180	58	965	135	67	1010	90	80
1200	930	270	49	1020	180	61	1065	135	70	1110	90	
1300	1030	270	51	1120	180	63	1165	135	73	1210	90	
1400	1130	270	53	1220	180	65	1265	135	76	1310	90	
1500	1230	270	55	1320	180	67	1365	135	78	1410	90	
1600	1330	270	57	1420	180	69	1465	135	80	1510	90	
1700	1430	270	59	1520	180	71	1565	135		1610	90	

NOTE: (1) Because of the small difference in effectiveness of the various GP bombs, there will be only a small error if this table is used for the 1000 and 2000-lb GP's.

(2) In the examples following this table, this quantity is called the "Index of Mission Efficiency." It is a measure of bombing accuracy and bears no relation to the size of the target.

(3) Expected fraction (per cent) of structural damage to target.

(4) Load is given in tons of actual (not nominal) weight of bombs.

Method of Use:

- Determine index of mission efficiency:
 - Estimate per cent of dispatched planes bombing primary target.
 - Estimate per cent of bombs over target expected to fall within 1000 feet of aiming point.
 - Multiply (a) by (b) and round off to nearest percentage figure in table.
- Read under computed Index of Mission Efficiency and opposite the total load dispatched the recommended high explosive-incendiary loading and the expected per cent of damage.

Examples Illustrating Use of Loading Table:

- To find best HE-IB combination and resulting per cent of damage for a given force:

Given: Planes expected to bomb primary target, 70 per cent of mission. Per cent of bombs over target expected to fall within 1000 feet of aiming point, 30 per cent. Mission of 100 planes with total load of 300 tons.

Solution: 70% x 30% equals 21%; i.e., 20% is Index of Mission Efficiency.

Opposite 300 tons in 20% column find loading:

HE 165 tons equals 55 plane loads at 3 tons per plane.

IB 135 tons equals 45 plane loads at 3 tons per plane.

Fraction of damage: 34 per cent.

Hence, for optimum loading 55 planes

will carry HE and 45 planes IB, but if groups of 12 are to carry only one kind of bomb per group, this may be revised to 5 groups of HE and 4 groups of IB.

- To find force required to achieve a recommended level of damage:

Given: Recommended level of damage, 70 per cent. Same Index of Mission Efficiency as in Example 1. Individual A/C bomb load, 4 tons.

Solution: In 20% of mission efficiency column take: F equals 70 per cent and find loading:

HE 1065 tons

IB 135 tons

Total 1200 tons

requiring a total force of 300 A/C or 25 groups of 12 A/C.

LEVEL OF DAMAGE

A high level of damage (70 per cent and upward) is necessary in order to seriously affect production at the Nakajima engine plants to which this plant furnishes vital components. Lower levels of damage would reduce production of parts at this plant, but might not have a serious effect on Nakajima engine production since full utilization of other facilities making similar parts and shortening the pipeline could take up the slack for a short time. Seventy per cent damage would insure destruction of substantially all machine tools and would stop parts production here for at least six months. It is not thought that other facilities could com-

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pensate for this loss. However, even if the plant should be completely destroyed, engine production would not be seriously affected until after parts manufactured here and currently in the pipeline at the engine plants have been consumed, and increased production in other plants has been absorbed. This would probably be several months.

CAMOUFLAGE, DECOYS AND SMOKE SCREENS

Photography of 7 November 1944 shows some disruptive roof painting on a few buildings. There is no evidence of decoy buildings or smoke screens.

ADDITIONAL INFORMATION

This is the oldest Nakajima plant and formerly produced engines in the Sakae series. Parts now manufactured will go into the Sakae engines as well as the 1800 HP Homare engine used in the fighters Sam, George, Denko, Tenrai. The carburetors produced are used in the Zeke.

(Refer to Illustration No. 90:17-356-P5.) Slight damage to this plant resulted from attacks of 24 November and 3 December 1944. The structural damage, amounting to 5.1 per cent of the floor area of the plant, occurred to the following buildings.

Building	Function	Per Cent Structural Damage
2	Unidentified	35.0
4 (f)	Unidentified	less than 1 per cent
9	Storage	23.5
11 (b)	Machining	less than 1 per cent
12	Storage	100
15	Storage	35.6
16	Storage	100
17 (a and b)	Unidentified	92

In addition, the electrical shop 3(a) and building 4(f) received some superficial damage.

These attacks had a negligible effect on production at this plant, since damage occurred to buildings not essential to production of engine parts.

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JOINT TARGET GROUP, WASHINGTON, D. C.
TARGET INFORMATION SHEET

SHEET ... **90:17-356-TIA**
 DATE ... **20 February 1945**
 PAGE **1**

NAKAJIMA AIRCRAFT, OGIKUBO PLANT

TARGET **90:17-356**
 OBJ. AREA **90:17**
 OBJ. FOLDER **90:17**
 CATEGORY **End Prdt. Ind.—**
AIRCRAFT

TOKYO

JAPAN

LAT. **35°42'N**
 LONG. **139°37'E**
 ALT. **154 feet**

ANNEX I

(Note: This annex is issued for use by the Navy in conjunction with Target Information Sheet 90:17-356-TI/3, issued by the Joint Target Group on 18 Jan. 1945.)

NAVAL CARRIER-BASED AIR ATTACK

Introduction: This sheet is for the use of Naval carrier-based aircraft which are better adapted for attacking the important individual buildings rather than the target as a whole. In view of the complexities involved in estimating bombing accuracies and stowage capabilities of carrier-based aircraft, this discussion is limited to stating the number of hits with various bombs required to achieve given levels of damage on individual buildings. No attempt is made to convert these to number of bombs or planes to be dispatched.

Buildings and Their Importance to Production: Only those buildings rated as "Primary" on the Fire Susceptibility Plan, Illustration No. 90:17-356-P5, are taken into consideration; other buildings are of minor productive value and do not merit specific attack. The buildings are listed in Table I (right) in the order of their importance to production, the relative value of which is indicated by the numbers in the column headed "I.P." (Index of Importance to Production). These indices, based on a scale 10 to 1 (buildings rated 10 being of greatest importance), refer to this target only and should not be used to compare buildings in different targets.

Number of Hits: Table I (right) gives the number of hits by various HE bombs to achieve 30, 50 and 70 percent serious damage to specific buildings. For other levels of damage within this range, the required number of hits can be obtained by interpolation.

TABLE I
Number of Hits Required to Achieve 30, 50 and 70 Percent Serious Damage to Individual Buildings
 (Refer to Illustration No. 90:17-356-P5)

Building No.	I.P.	Fraction of Serious Damage	Number of Hits		
			500-lb GP	1000-lb GP	2000-lb GP
7abc	10	30%	13	8	4
		50%	25	15	7
		70%	44	26	12
4bc	8	30%	12	7	3
		50%	24	14	7
		70%	42	24	11
11abc	7	30%	9	5	3
		50%	18	10	5
		70%	31	18	8

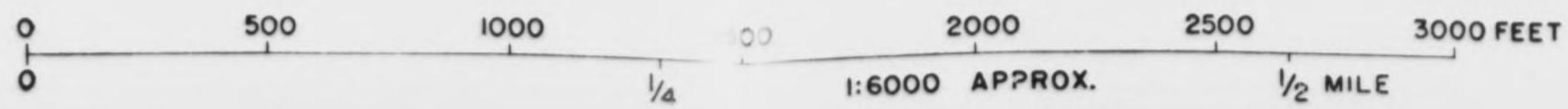
Examples of Use of Table I:

- 1. Problem:** To obtain the required number of hits with 500-lb GP bombs on building No. 7abc to achieve 30 percent serious damage.

Solution: The table gives 13 hits as the number required to achieve 30 percent serious damage.
- 2. Problem:** To obtain the required number of hits with 2000-lb GP bombs on building No. 4bc to achieve 60 percent serious damage.

Solution: The table gives 7 hits for 50 percent and 11 hits for 70 percent serious damage. By interpolation 9 hits are required for 60 percent serious damage.

REPRINT



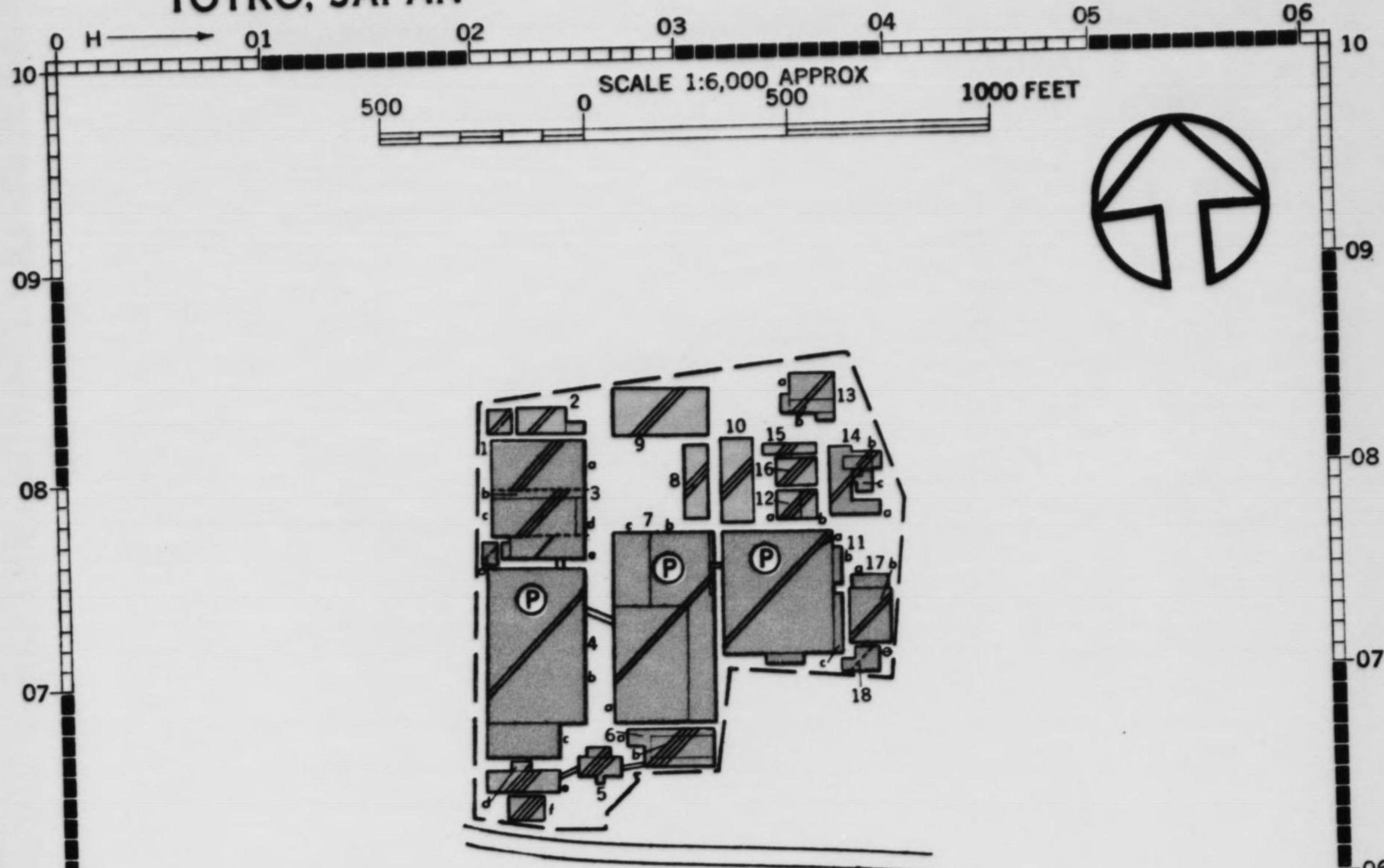
- LEGEND
- 1, 2. Unidentified
 - 3a. Electrical shop
 - b. Unidentified
 - c. Research and experiment
 - d. Unidentified
 - e. Foundry or forge
 - 4a. Boiler house
 - b. Machining and processing
 - c, d. Unidentified
 - e. Administration
 - f. Unidentified
 - 5. Administration
 - 6. Cafeteria and dining room
 - 7a, b, c. Machining and processing
 - 8-10. Storage
 - 11. Machining and processing
 - 12. Storage
 - 13. Testing and examination
 - 14. Research
 - 15a. Unidentified
 - b. Boiler House

REPRINT

JOINT TARGET GROUP WASHINGTON, D. C.
FIRE SUSCEPTIBILITY PLAN

SHEET.....90:17-356-P5
DATE.....February 1945
TARGET.....90:17-356
COORDINATES...35°42'N 139°37'E
PHOTOGRAPHED.7 November 1944

NAKAJIMA AIRCRAFT
OGIKUBO PLANT
TOYKO, JAPAN



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LEGEND

- 1 Unidentified
- 2 Unidentified
- 3a Electrical shop
- b Unidentified
- c Research and experiment
- d Unidentified
- e Foundry or forge
- 4a Boiler house
- b Machining and processing
- c Unidentified
- d Unidentified
- e Administration
- f Unidentified
- 5 Administration
- 6 Cafeteria and dining room
- 7a Machining and Processing
- b Machining and Processing
- c Machining and Processing
- 8 Storage
- 9 Storage
- 10 Storage
- 11 Machining and Processing
- 12 Storage
- 13 Testing and examination
- 14 Research
- 15 Storage
- 16 Storage
- 17 Unidentified
- 18 Boiler house

(Based on F/A Report 2, AC/AS, Intelligence, Photographic Division.)

(205)

FIRE SUSCEPTIBILITY PLAN		
PRIMARY BUILDINGS	(P)	FIRE WALL, CERTAIN
SECONDARY BUILDINGS	(S)	FIRE WALL, PROBABLE
BUILDINGS	CONTENTS	
COMBUSTIBLE	[Symbol]	NON-COMBUSTIBLE
NON-COMBUSTIBLE	[Symbol]	SLIGHTLY COMBUSTIBLE
FIRE RESISTANT	[Symbol]	MODERATELY COMBUSTIBLE
COMBINATION	[Symbol]	HIGHLY COMBUSTIBLE
I.E. COMBUSTIBLE ROOF RESISTANT FLOORS	[Symbol]	EXTREMELY COMBUSTIBLE
WATER TANK	(W)	INTERMEDIATE VALUES
AREA IN SQ. FT.	PRIMARY	ALL BLDGS. SHOWN
NO. OF BUILDINGS	3	21
NO. OF FIRE DIVISIONS	3	19
PLAN AREA	348,000	609,000
TOTAL FLOOR AREA	348,000	695,000
SITE AREA	1,045,000	

PREPARED BY AERONAUTICAL CHART SERVICE, AAF.

TARGET NO. 90:17-356

NAKAJIMA AIRCRAFT, OGIKUBO PLANT

ILLUSTRATION NO. 90:17-356 P2

APPROX. COORDINATES 35° 42' N 139° 37' E

TOKYO, JAPAN

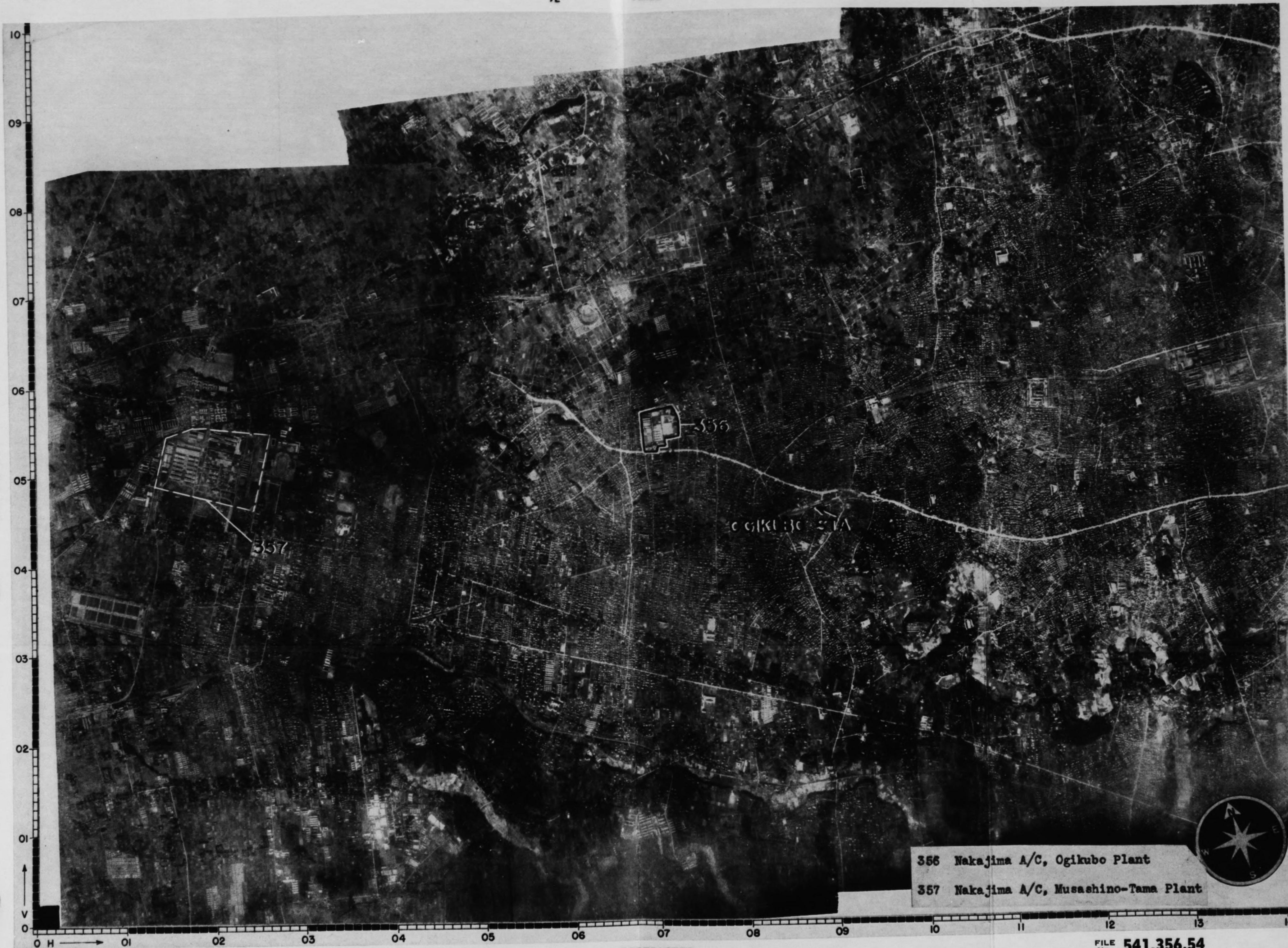
ISSUED JANUARY 1945

PHOTOGRAPHED 7 NOVEMBER 1944



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356 Nakajima A/C, Ogikubo Plant
357 Nakajima A/C, Musashino-Tama Plant

FILE No. 541.356.54

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JOINT TARGET GROUP, WASHINGTON, D.C.
TARGET INFORMATION SHEET

Sheet No. 90.17-356-TI/3
Date 18 Jan. 1945
Page No. 1 (5 pages)

Obj. Folder 90.17
Obj. Area 90.17
AAF Target No. 90.17-356
NAME OF TARGET

Place Tokyo (Japan)
AIR TARGET SYSTEM: Aircraft

Lat.: 35° 42'N
Long: 139° 37'E
Alt.: 154 feet

NAKAJIMA AIRCRAFT, OGIKUBO PLANT
(Nakajima Hikoki K.K., Tokyo Seisakusho)

ALL PREVIOUS SHEETS CANCELLED

SIGNIFICANCE

The Nakajima Ogikubo plant is known to produce such engine parts as oil filters, fuel valves, pressure valves and carburetors. Plant originally manufactured engines, but this is thought to have ceased late in 1942 or early 1943 when Nakajima engine production was concentrated in the large Musashino-Tama (Musashi) Plant (TARGET 90.17-357). It is possible that this plant is producing internal engine parts for the Musashi plant but confirmation is lacking. There is also evidence that part of the plant is devoted to research and experimental work.

LOCATION

Approximately 3.5 miles W by N of the Imperial Palace in Tokyo. It is located about midway between two main RR lines which lead W from the city. The Ogikubo RR station is about one mile to the SE. The important Nakajima Aircraft Engine Musashino-Tama Plant (TARGET 90.17-357) is located about 2.2 miles W. A main highway passes the S end of the compound before making a curve to the NW, and an athletic field is located approximately 4000 feet NNW, just S of a RR line. The target is on the northern fringe of a built-up area extending out from Tokyo.

DESCRIPTION & LAYOUT

(Refer to Illustration No. 90.17-356 P3, P5, and P6). The target area is irregular in shape extending about 1100 feet N-S and 1100 feet E-W. The area is compactly built-up with installations occupying 750,000 square feet, about 70 per cent of the total. The three largest buildings (4, 7, and 11) are believed to house the vital machining and processing facilities. Building 3 (a) is the electrical shop and 3 (c) and 14 are devoted to research; 3 (e) is the foundry. Building 13 is believed to be used for testing purposes.

CONSTRUCTION & VULNERABILITY

(Refer to Illustration No. 90.17-356 P3, P5, and P6). About three-fourths of the major buildings have short-span, sawtooth roofs, the remaining quarter having double pitched roofs of medium to long spans. Roofs are predominantly of galvanized iron and corrugated asbestos over exposed steel trusses.

Walls are of reinforced concrete, the height to the eaves for most buildings being between 20 and 30 feet.

Floors in single story buildings are of concrete and packed earth and in multi-story buildings of reinforced concrete 5 to 6 inches thick.

93 per cent of the entire target (Plant Area) is one story. Several of the important manufacturing buildings, however, probably have narrow balcony floors through a portion of their area.

Number of Fire Divisions: 23 in 21 buildings.

The Fire Susceptibility Plan indicates the vulnerability of each building and its contents. Contents are of slight to moderate combustibility. It is estimated that 30 per cent of the productive capacity of the plant can be destroyed by fire. The target therefore should be attacked with incendiary bombs in combination with high explosive weapons.

PRIMARY OBJECTIVES

(Refer to Illustration No. 90.17-356 P3, P5, and P6). Buildings 4, 7, and 11, housing machining and processing facilities, are the primary objectives.

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Sheet No. 90.17-356-TI/3

Date 12 Jan. 1945

Page No. 2 (5 pages)

TARGET INFORMATION SHEET (Contd.)

WEAPON RECOM-
MENDATIONS

All buildings within the area fall within a 1000-foot radius centering on building 7. Its selection as a single aiming point is recommended for high level attack.

The most effective weapons for high level attack against this target are the AN-M64 500-lb G.P. and the AN-M50 4-lb incendiary bomb (in M17 aimable clusters). The 500-lb G.P., to be used in combination with the AN-M50, should be fuzed 0.1 sec. nose and 0.01 sec. tail for the best chance of causing maximum damage. (If M139 nose fuzes, 0.01 sec. delay, are available, they should be used in place of the AN-M103, set for 0.1 sec. delay.)

As most of the principal buildings are one-story, short-span and therefore not subject to spreading collapse, the 500-lb bomb will be the most effective on a weight for weight basis. Machines as well as structures will be most severely damaged when the bomb bursts 6 to 10 feet beneath the roof as the result of 0.01 sec. fuzing.

The AN-M50 incendiary is recommended; it is much more effective than larger incendiaries.

The combustible portion of the contents is well dispersed in the large fire divisions and thus multiple hits will be required to achieve a satisfactory level of fire damage. Fire spread in the principal buildings is unlikely as the fire divisions are fairly well defined.

The following Loading Table shows the per cent of structural damage to the target which can be expected for different weights of attack and different accuracies of bombing. Accuracy is measured by the per cent of bombs dispatched expected to fall within 1000 feet of the aiming point. (Reference should be made to Joint Target Group Memorandum No. 3, "Explanation of Weapon Recommendations and Loading Tables Given in Target Information Sheets", dated 27 December 1944.)

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Sheet No. 90.17-356-TI/3

Date 18 Jan. 1945

Page No. 3 (5 pages)

TARGET INFORMATION SHEET (Contd.)

Table I

LOADING TABLE - MOST EFFECTIVE WEAPONS

HE: AN-M64 500-lb G.P. (1)

IB: AN-M50 4-lb incendiary (in M17 clusters)

Nakajima Aircraft, Ogikubo Plant

Per cent of bombs dispatched expected to fall within 1000 feet of the aiming point (2)

Total Load in Tons (4)	10%			15%			20%			30%		
	H.E.	I.B.	F(3)	H.E.	I.B.	F(3)	H.E.	I.B.	F(3)	H.E.	I.B.	F(3)
	Tons (4)			Tons (4)			Tons (4)			Tons (4)		
75				25	50	12%	20	55	14%	15	60	20%
100	35	65	10%	25	75	14	20	80	19	15	85	24
150	35	115	14	25	125	20	20	130	24	60	90	29
200	35	165	19	25	175	24	65	135	27	110	90	34
300	35	265	24	120	180	29	165	135	34	210	90	42
400	130	270	27	220	180	34	265	135	39	310	90	49
500	230	270	30	320	180	38	365	135	44	410	90	55
600	330	270	34	420	180	42	465	135	49	510	90	61
700	430	270	36	520	180	46	565	135	53	610	90	66
800	530	270	39	620	180	49	665	135	58	710	90	70
900	630	270	42	720	180	52	765	135	62	810	90	74
1000	730	270	45	820	180	55	865	135	65	910	90	78
1100	830	270	47	920	180	58	965	135	67	1010	90	80
1200	930	270	49	1020	180	61	1065	135	70	1110	90	
1300	1030	270	51	1120	180	63	1165	135	73	1210	90	
1400	1130	270	53	1220	180	65	1265	135	76	1310	90	
1500	1230	270	55	1320	180	67	1365	135	78	1410	90	
1600	1330	270	57	1420	180	69	1465	135	80	1510	90	
1700	1430	270	59	1520	180	71	1565	135		1610	90	

- NOTES: (1) Because of the small difference in effectiveness of the various G.P. bombs, there will be only a small error if this table is used for the 1000 and 2000-lb G.P.'s.
- (2) In the examples following this table, this quantity is called the "Index of Mission Efficiency". It is a measure of bombing accuracy and bears no relation to the size of the target.
- (3) Expected fraction (per cent) of structural damage to target.
- (4) Load is given in tons of actual (not nominal) weight of bombs.

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JOINT TARGET GROUP - WASHINGTON, D.C.

Sheet No. 90. 17-356-TI/3

Date 18 Jan. 1945

Page No. 4 (5 pages)

TARGET INFORMATION SHEET (Contd.)

Method of use:

1. Determine index of mission efficiency:
 - (a) Estimate per cent of dispatched planes bombing primary target.
 - (b) Estimate per cent of bombs over target expected to fall within 1000 feet of aiming point.
 - (c) Multiply (a) by (b) and round off to nearest percentage figure in table.
2. Read under computed Index of Mission Efficiency and opposite the total load dispatched the recommended high explosive - incendiary loading and the expected per cent of damage.

Examples Illustrating Use of Loading Table:

1. To find best HE-IB combination and resulting per cent of damage for a given force:

Given: Planes expected to bomb primary target, 70 per cent of mission. Per cent of bombs over target expected to fall within 1000 feet of aiming point, 30 per cent. Mission of 100 planes with total load of 300 tons.

Solution: 70% x 30% equals 21%; i.e., 20% is Index of Mission Efficiency. Opposite 300 tons in 20% column find loading:

HE 165 tons equals 55 plane loads at 3 tons per plane.

IB 135 tons equals 45 plane loads at 3 tons per plane.

Fraction of damage: 34 per cent.

Hence, for optimum loading 55 planes will carry HE and 45 planes IB, but if groups of 12 are to carry only one kind of bomb per group, this may be revised to 5 groups of HE and 4 groups of IB.

2. To find force required to achieve a recommended level of damage:

Given: Recommended level of damage, 70 per cent. Same Index of Mission Efficiency as in Example 1. Individual A/C bomb load, 4 tons.

Solution: In 20% of mission efficiency column take:

F equals 70 per cent and find loading: HE 1065 tons

IB 135 tons

Total 1200 tons

requiring a total force of 300 A/C or 25 groups of 12 A/C.

LEVEL OF DAMAGE

A high level of damage (70 per cent and upward) is necessary in order to seriously affect production at the Nakajima engine plants to which this plant furnishes vital components. Lower levels of damage would reduce production of parts at this plant, but might not have a serious effect on Nakajima engine production since full utilization of other facilities making similar parts and shortening the pipeline could take up the slack for a short time. Seventy per cent damage would insure destruction of substantially all machine tools and would stop parts production here for at least six months. It is not thought that other facilities could compensate for this loss. However, even if the plant should be completely destroyed, engine production would not be seriously affected until after parts manufactured here and currently in the pipeline at the engine plants have been consumed, and increased production in other plants has been absorbed. This would probably be several months.

CAMOUFLAGE, DECOYS AND SMOKE SCREENS

Photography of 7 November 1944 shows some disruptive roof painting on a few buildings. There is no evidence of decoy buildings or smoke screens.

ADDITIONAL INFORMATION

This is the oldest Nakajima plant and formerly produced engines in the Sakae series. Parts now manufactured will go into the Sakae engines as well as the 1800 HP Homare engine used in the fighters Sam, George, Denko, Tenrai. The carburetors produced are used in the Zeke.

HOLDERS OF JTG FOLDERS SHOULD INSERT THIS SHEET IN AIR TARGET SYSTEM FOLDER: JAPANESE AIRCRAFT

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JOINT TARGET GROUP - WASHINGTON, D.C.
TARGET INFORMATION SHEET (Contd.)

Sheet No. 90.17-356-TI/3
Date 18 Jan. 1945
Page No. 5 (5 pages)

(Refer to Illustration No. 90.17-356 P5). Slight damage to this plant resulted from attacks of 24 November and 3 December 1944. The structural damage, amounting to 5.1 per cent of the floor area of the plant, occurred to the following buildings.

<u>BUILDING</u>	<u>FUNCTION</u>	<u>PER CENT STRUCTURAL DAMAGE</u>
2	Unidentified	35.0
4 (f)	Unidentified	less than 1 per cent
9	Storage	23.5
11 (b)	Machining	less than 1 per cent
12	Storage	100
15	Storage	35.6
16	Storage	100
17 (a and b)	Unidentified	92

In addition, the electrical shop 3(a) and building 4(f) received some superficial damage.

These attacks had a negligible affect on production at this plant since damage occurred to buildings not essential to production of engine parts.

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Sheet No. 90.17-356 T1/3
Date 20 FEB. 1945
Page No. 1 (2 pages)

JOINT TARGET GROUP, WASHINGTON, D.C.
TARGET INFORMATION SHEET

ANNEX I

Obj. Folder 90.17
Obj. Area 90-17
AAF Target No. 90.17-356
NAME OF TARGET

Place Tokyo (Japan)
AIR TARGET
SYSTEM Aircraft
NAKAJIMA AIRCRAFT, OGIKUBO PLANT

Lat.: 35°42'N
Long: 139°37'E
Alt.: 154 feet

(Note: This annex is issued for use by the Navy in conjunction with Target Information Sheet 90.17-356 T1/3, issued by the Joint Target Group on 18 Jan. 1945.)

NAVAL
CARRIER-BASED
AIR ATTACK

Introduction: This sheet is for the use of Naval carrier-based aircraft which are better adapted for attacking the important individual buildings rather than the target as a whole. In view of the complexities involved in estimating bombing accuracies and stowage capabilities of carrier-based aircraft, this discussion is limited to stating the number of hits with various bombs required to achieve given levels of damage on individual buildings. No attempt is made to convert these to number of bombs or planes to be dispatched.

Buildings and Their Importance to Production: Only those buildings rated as "Primary" on the Fire Susceptibility Plan, Illustration No. 90.17-356 P5, are taken into consideration; other buildings are of minor productive value and do not merit specific attack. The buildings are listed in Table I below in the order of their importance to production, the relative value of which is indicated by the numbers in the column headed "I.P." (Index of Importance to Production). These indices, based on a scale 10 to 1 (buildings rated 10 being of greatest importance) refer to this target only and should not be used to compare buildings in different targets.

Number of Hits: Table I below gives the number of hits by various HE bombs to achieve 30, 50 and 70 percent serious damage to specific buildings. For other levels of damage within this range, the required number of hits can be obtained by interpolation.

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 System Folder Japanese Aircraft after sheet 90.17-356 T1/3.

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JOINT TARGET GROUP - WASHINGTON, D.C.
TARGET INFORMATION SHEET
ANNEX I

Table I

Number of Hits Required to Achieve 30, 50 or 70
Percent Serious Damage to Individual Buildings

(Refer to Illustration No. 90.17-356 P5)

Building No.	I.P.	Fraction of Serious Damage	Number of Hits		
			500-lb GP	1000-lb GP	2000-lb GP
7abc	10	30%	13	8	4
		50%	25	15	7
		70%	44	26	12
4bc	8	30%	12	7	3
		50%	24	14	7
		70%	42	24	11
11abc	7	30%	9	5	3
		50%	18	10	5
		70%	31	18	8

Examples of Use of Table I:

1. Problem: To obtain the required number of hits with 500-lb GP bombs on building No. 7abc to achieve 30 percent serious damage.

Solution: The table gives 13 hits as the number required to achieve 30 percent serious damage.

2. Problem: To obtain the required number of hits with 2000-lb. GP bombs on building No. 4bc to achieve 60 percent serious damage.

Solution: The table gives 7 hits for 50 percent and 11 hits for 70 percent serious damage. By interpolation 9 hits are required for 60 percent serious damage.

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JAPANESE AIRCRAFT AFTER
90.17-356 TI/3

TARGET NO.90.17-356

JOINT TARGET GROUP-WASHINGTON, D. C.
NAKAJIMA AIRCRAFT, OGIKUBO PLANT

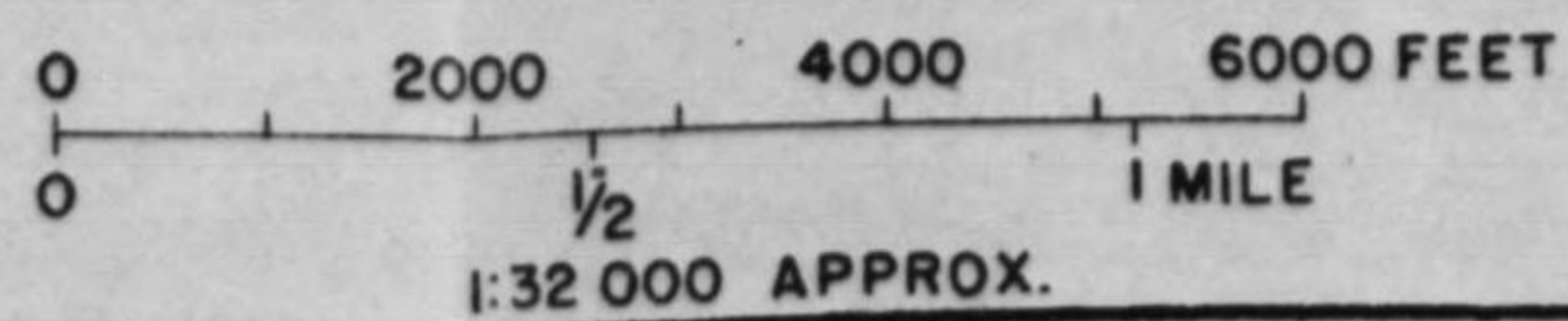
ILLUSTRATION NO.90.17-356 PI

APPROX. COORDINATES 35° 42' N 139° 37' E

TOKYO, JAPAN

ISSUED JANUARY 1945

PHOTOGRAPHED 7 NOV. 1944



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FOR THE USE OF ALLIED FORCES

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TYPE A

TARGET NO.90.17-356

JOINT TARGET GROUP-WASHINGTON, D. C.
NAKAJIMA AIRCRAFT, OGIKUBO PLANT

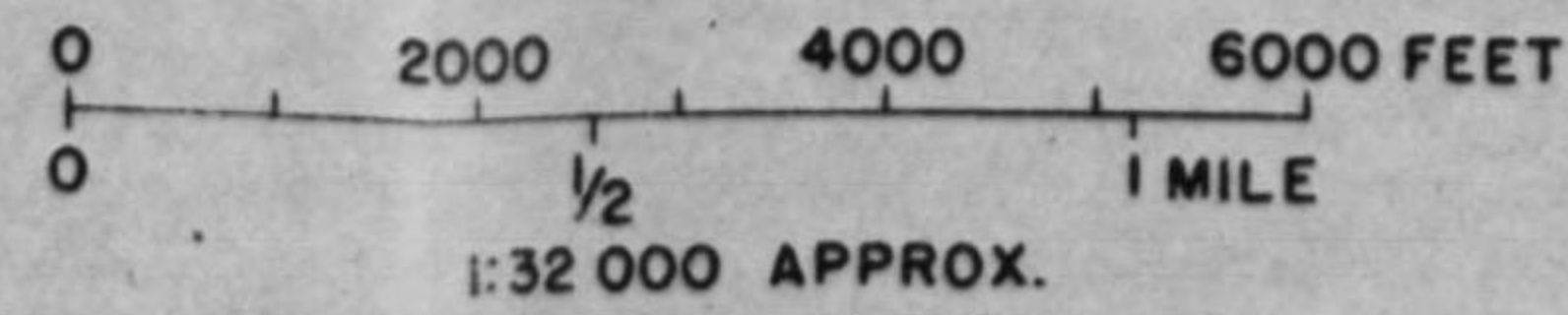
ILLUSTRATION NO.90.17-356 P 2

APPROX. COORDINATES 35° 42' N 139° 37' E

TOKYO, JAPAN

ISSUED JANUARY 1945

PHOTOGRAPHED 7 NOV. 1944



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356 Nakajima A/C, Ogikubo Plant
357 Nakajima A/C, Musashino-Tama Plant

0 H 01 02 03 04 05 06 07 08 09 10 11 12 13 14

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TYPE A

TARGET No. 90.17-356

COORDINATES 35° 42' N 139° 37' E

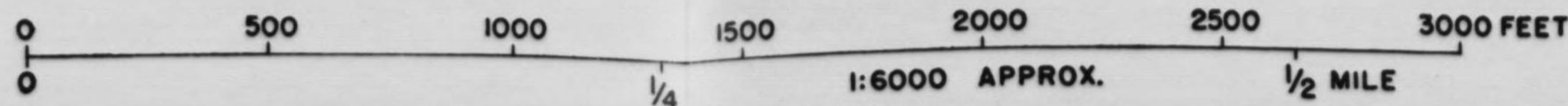
PHOTOGRAPHED 7 NOVEMBER 1944

JOINT TARGET GROUP • WASHINGTON, D. C.
NAKAJIMA AIRCRAFT, OGIKUBO PLANT
TOKYO, JAPAN

ILLUSTRATION No. 90.17-356 P3/1

DATE 26 APRIL 1945

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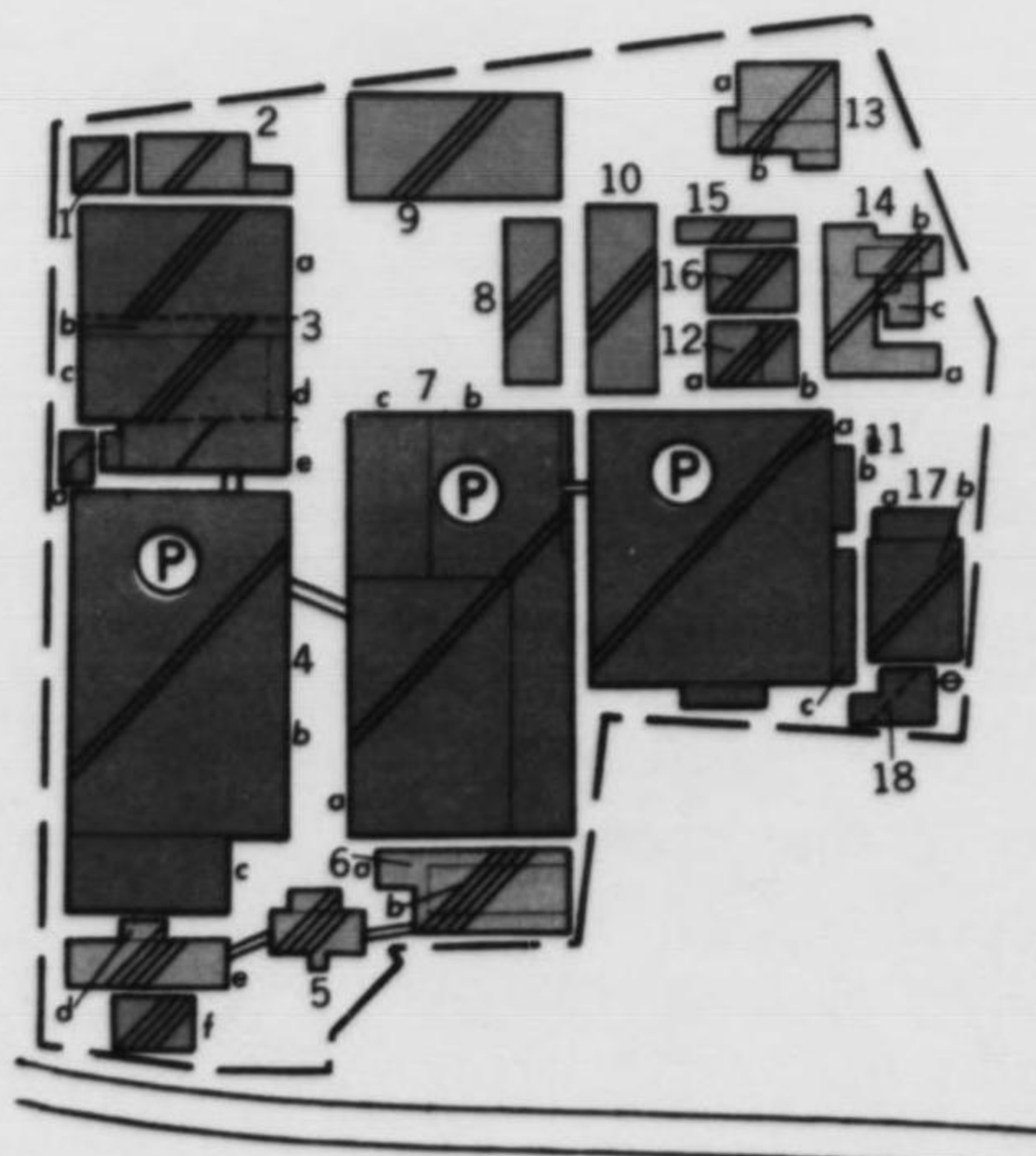
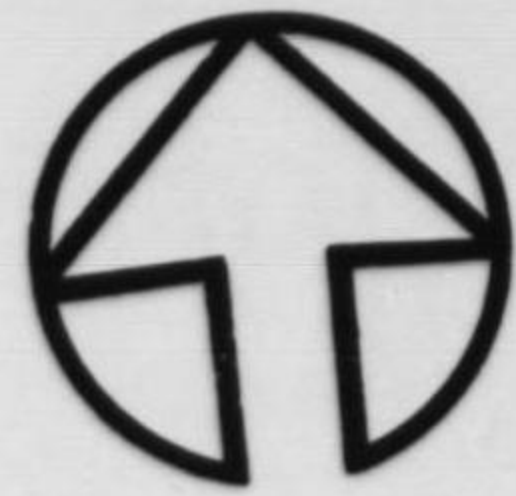
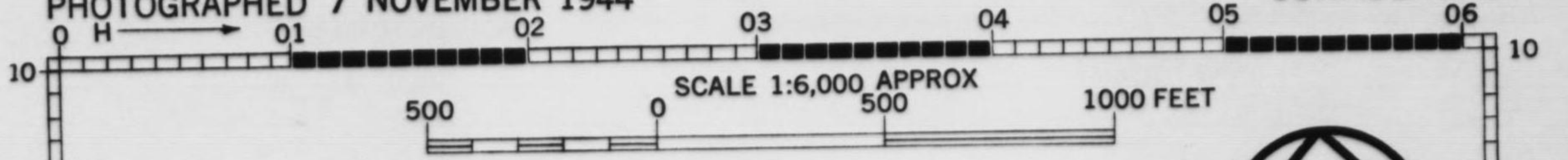
- LEGEND**
- 1, 2. Unidentified
 - 3a. Electrical shop
 - b. Unidentified
 - c. Research and experiment
 - d. Unidentified
 - e. Foundry or forge
 - 4a. Boiler house
 - b. Machining and processing
 - c, d. Unidentified
 - e. Administration
 - f. Unidentified
 - 5. Administration
 - 6. Cafeteria and dining room
 - 7a, b, c. Machining and processing
 - 8-10. Storage
 - 11. Machining and processing
 - 12. Storage
 - 13. Testing and examination
 - 14. Research
 - 15a. Unidentified
 - b. Boiler House

CONFIDENTIAL

JOINT TARGET GROUP-WASHINGTON, D. C.
NAKAJIMA AIRCRAFT
 OGIKUBO PLANT
 TOYKO, JAPAN

TARGET NO. 90.17-356
 APPROX. COORDINATES 35°42' NORTH 139°37' EAST
 PHOTOGRAPHED 7 NOVEMBER 1944

ILLUSTRATION NO. 90.17-356-P5/1
 ISSUED FEBRUARY 1945
 CONFIDENTIAL



HOLDERS OF JTG FOLDERS SHOULD INSERT
 THIS SHEET IN AIR TARGET SYSTEM FOLDER:
 JAPANESE AIRCRAFT IN PLACE OF PAGE
 NO. 90.17-356-P5

FIRE SUSCEPTIBILITY PLAN			
PRIMARY BUILDINGS (P)	FIRE WALL, CERTAIN		
SECONDARY BUILDINGS (S)	FIRE WALL, PROBABLE		
BUILDINGS		CONTENTS	
COMBUSTIBLE		NON-COMBUSTIBLE	
NON-COMBUSTIBLE		SLIGHTLY COMBUSTIBLE	
FIRE RESISTANT		MODERATELY COMBUSTIBLE	
COMBINATION I.E. COMBUSTIBLE ROOF RESISTANT FLOORS		HIGHLY COMBUSTIBLE	
WATER TANK (W)		EXTREMELY COMBUSTIBLE	
		INTERMEDIATE VALUES	
AREA IN SQ. FT.	PRIMARY	ALL BLDGS. SHOWN	
NO. OF BUILDINGS	3	21	
NO. OF FIRE DIVISIONS	3	19	
PLAN AREA	348,000	609,000	
TOTAL FLOOR AREA	348,000	695,000	
SITE AREA	1,045,000		

PREPARED BY AERONAUTICAL CHART SERVICE, AAF.

NOT TO BE TAKEN INTO AIR

CONFIDENTIAL

JOINT TARGET GROUP, WASHINGTON, D.C.
FUNCTIONAL IDENTIFICATION SHEET

Sheet No. 90.17-356 P6
Date 18 Jan. 1945
Page No. 1 (1 pages)

(To be read in conjunction with illustration No. 90.17-356 P5).

Obj. Folder 90.17

Place Tokyo (Japan)

Lat.: 35° 42'N

Obj. Area 90.17

AIR TARGET SYSTEM: Aircraft

Long: 139° 37'E

AAF Target No. 90.17-356

Alt.: 154 feet

NAME OF TARGET NAKAJIMA AIRCRAFT, OGIKUBO PLANT
(Nakajima Hikoki K.K., Tokyo Seisakusho)

ALL PREVIOUS SHEETS CANCELLED

1. Unidentified
2. Unidentified
- 3a Electrical shop
- b Unidentified
- c Research and experiment
- d Unidentified
- e Foundry or forge
- 4a Boiler house
- b Machining and processing
- c Unidentified
- d Unidentified
- e Administration
- f Unidentified
- 5 Administration
- 6 Cafeteria and dining room
- 7a Machining and Processing
- b Machining and Processing
- c Machining and Processing
- 8 Storage
- 9 Storage
- 10 Storage
- 11 Machining and Processing
- 12 Storage
- 13 Testing and examination
- 14 Research
- 15 Storage
- 16 Storage
- 17 Unidentified
- 18 Boiler house

(BASED ON F/A REPORT 2, AC/AS, INTELLIGENCE, PHOTOGRAPHIC DIVISION)

HOLDERS OF JTG FOLDERS SHOULD INSERT
THIS SHEET IN AIR TARGET SYSTEM FOLDER:
JAPANESE AIRCRAFT

CONFIDENTIAL

SECRET

BOMB LOAD RECOMMENDATIONS

Prepared by the Ordnance, Chemical and Operations
Analysis Section

Target No. 356, Nakajima A/C, Ogikubo Plant.

Date: 13 February 1945.

I. RECOMMENDATIONS:

a. Bombs

- (1) H.E. 500 lb., AN-M64 General Purpose
- (2) I.B. 500 lb., M17A1 Clusters containing
110 AN-M50A2 Mag. Alloy bombs each.

b. Fuzings

- (1) High Explosives
 - a. If bombs are salvoed: Nose--none; tail--non-delay.
 - b. If intervalometer used: Nose--0.1; tail--non-delay.

(2) Incendiarics:

Set to open cluster at 5,000 ft. above ground.

c. Percent I.B. to H.E.

- (1) 40% Incendiarics
- (2) 60% High Explosives
- (3) Maintain above percentages by squadrons as near
as possible.

d. Method of Loading.

- (1) Squadrons scheduled to reach target first should be
loaded 100% with H.E.
- (2) Incendiary bombs should be loaded into squadrons
scheduled to reach the target last, but, as soon
as possible after the last H.E. bombs have been
released on the target.

e. Dispersion of Bombs.

- (1) H.E. Minimum distance apart.
- (2) I.B. Minimum distance apart.

II. REASON FOR RECOMMENDATIONS.

a. 500 lb. G.P. Bombs Selected Because:

- (1) Good stowage characteristics for B-29 A/C over
2,000 lb. bomb.
- (2) High destruction caused by numerous expected hits on
this type of target.

SECRET

b. M17-500 Lb. Clusters were Selected Because:

- (1) Target, buildings and contents taken together, are considered to be 30% inflammable.
- (2) Number of expected hits much higher compared with M76 and M47 bombs.
- (3) Probability of hitting inflammable material and starting fires higher.
- (4) Numerous fire divisions and widely dispersed inflammable material in this type of plant.
- (5) More aimable than M-47 but less aimable than M-76.
- (6) Surrounding area of target consists of inflammable housing, closely built up. Bombs missing the plant are likely to cause damage in this domestic area.

c. Fuzings were selected because:

- (1) High Explosive bombs, fuzed to initiate detonation by inertia tail fuzes, are believed to be passing through light weight factory roofs without being initiated. This causes bombs with delay tail fuzes to detonate below the floor level and therefore not get the full blast effect on the buildings and contents.
- (2) Nose fuzes are omitted in bombs to be salvoed because fuzes suitable for this type release are not available.

d. Ratio of I.B. to H.E. Loads:

40 to 60 percent I.B. to H.E. load was selected because:

- (1) More damage can be expected, ton for ton, on this target by a combined load of incendiaries and high explosives. The most efficient ground density of I.B. is 0.27 tons per acre, or 175 tons per square mile. This density will give an expected damage of approximately 22%, based on 20% of the dispatched load falling within 1,000 ft. of the aiming point.
- (2) With 110 A/C available, 66% of which are loaded with 100% H.E., a density of .55 tons/acre is expected on the target. This density should give approximately 17% expected damage.
- (3) The combined load should give about 35% expected damage, based on 20% of bombs dispatched falling within 1,000 ft. of aiming point.
- (4) The combined load, in the proportions stated above will give a higher percent expected damage than either weapon carried 100% by the A/C available.

III. REMARKS:

The above load is based on the following present conditions:

- (1) Aircraft available.
- (2) Target information.
- (3) Bombs and fuzes available.

SECRET

SECRET

Any one or all of these may change before the mission is run
on this target and revisions may be made at that time.

W. N. DILLIN,
Capt., Ord. Dept.

J. W. THOMPSON,
Capt., C.W.S.

J. V. PROCTOR,
Operations Analyst.

MOST EFFICIENT COMBINATION OF H.E. & I.B.

WITH A GIVEN NUMBER OF PLANES

Target No. 90.17 - 356
28 Acres

Area of Target Use 72 Acres

(M) M.A.E./Ton H.E. .34 A/Ton

(MI) Index Eff. I.B. 4.6 A/Ton

(S) Stowage Factor 1.0

(g) % H.E. on Target 30%

(gI) % I.B. on Target 25%

(k) Stowage--Aimability

$$J = \frac{MI}{KM} = \frac{4.6}{1.5} \times .34 = 9.03$$

qI from Curves = 1.24

Most Eff. Ground Density $DI = \frac{qI}{MI} = \frac{1.24}{4.6} = 0.27$ Tons/A.

I.B. Load to Dispatch = $\frac{DA}{gI} = \frac{72 \times 0.27}{.15} = 130$ Tons.

Total load of I.B. plus H.E. being fixed by the number of planes available, the rest of the load is H.E.

If the figure for I.B. load is nearly as high or higher than the total load that can be carried by the number of aircraft available, then enough H.E. should be taken to give a ground density of 0.2 Tons/Acre with the maximum amount of I.B. in addition.

Intervalometer Setting: H.E. Minimum I.B. Minimum

Loading: With 110 A/C available, 44 A/C Loaded with I.B.

66 A/C Loaded with H.E.

Remarks: I. B. Load = 40%

H. E. Load = 60%

H. E. Recommended 500# G.P.
If Salvoed None Non Delay
Fuzing 0.1 N. Non Delay T.

I.B. Recommended M17 (M50) 500# Cl.
Open at 5,000 ft. above ground
Fuzing _____ N. _____ T.

= 30%

Axis of attack 87°

Drift 3° Left

Aiming Pt. 14 30 91

Gr. Speed 420 MPH

$$\begin{aligned} q^I &= \log_e (J-1) + \log_e \left(\frac{\alpha}{1-\alpha} \right) \\ &= \log_e (9.03-1) + \log_e \left(\frac{.30}{1-.30} \right) \\ &= \log_e 8.03 + \log_e .43 \\ &= 2.09 - .85 \end{aligned}$$

$$q^I = 1.24$$

356

31 MAY



5-2-71

31 MAY





3 PR 54254 - 44/102 XXI BC

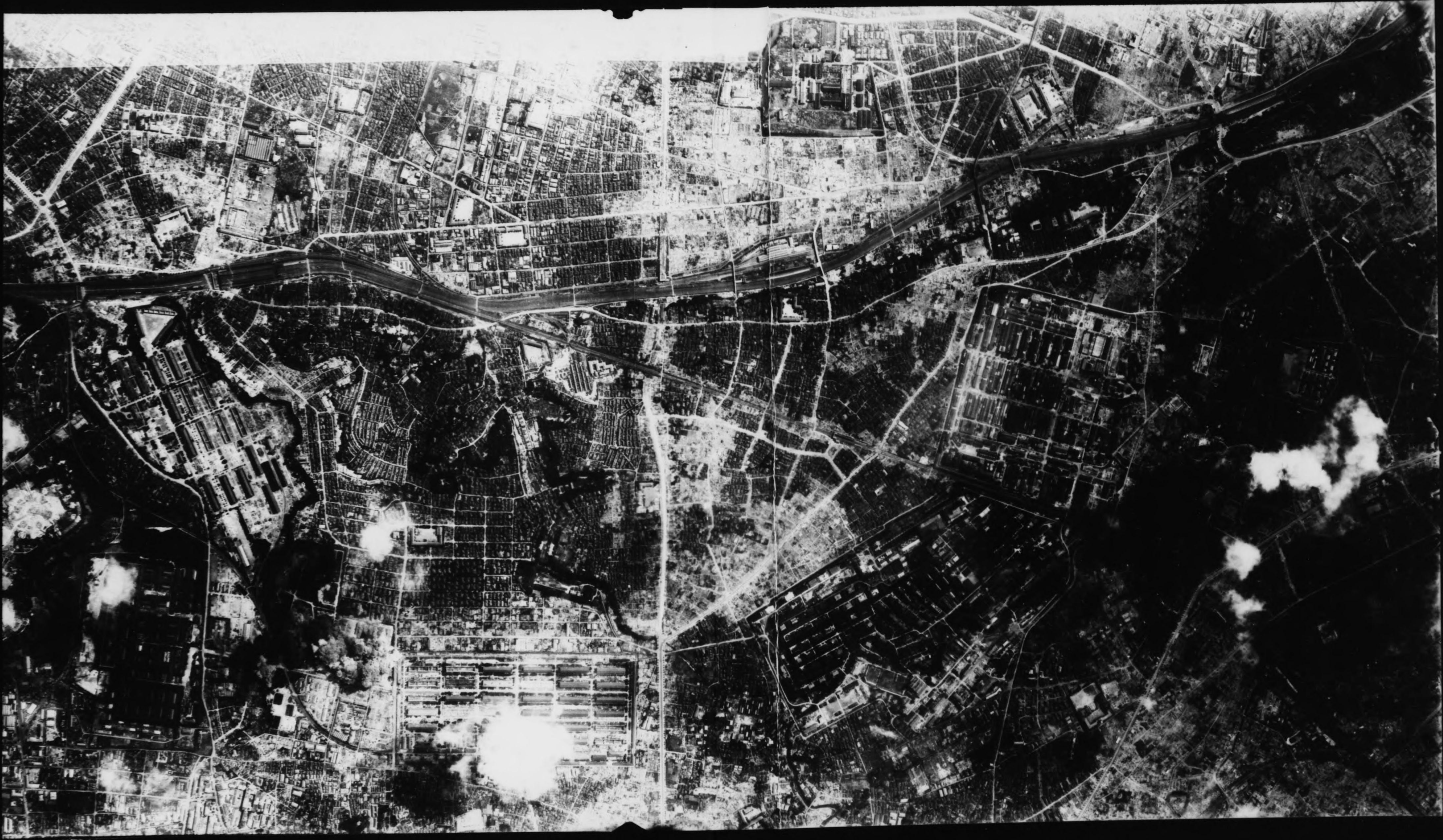
↓ 102

RESTRICTED

SIMAN

20AF 51389 20V-10:8-10-51:24 2450053 5048 1007 044'E KWA 800W P. 8



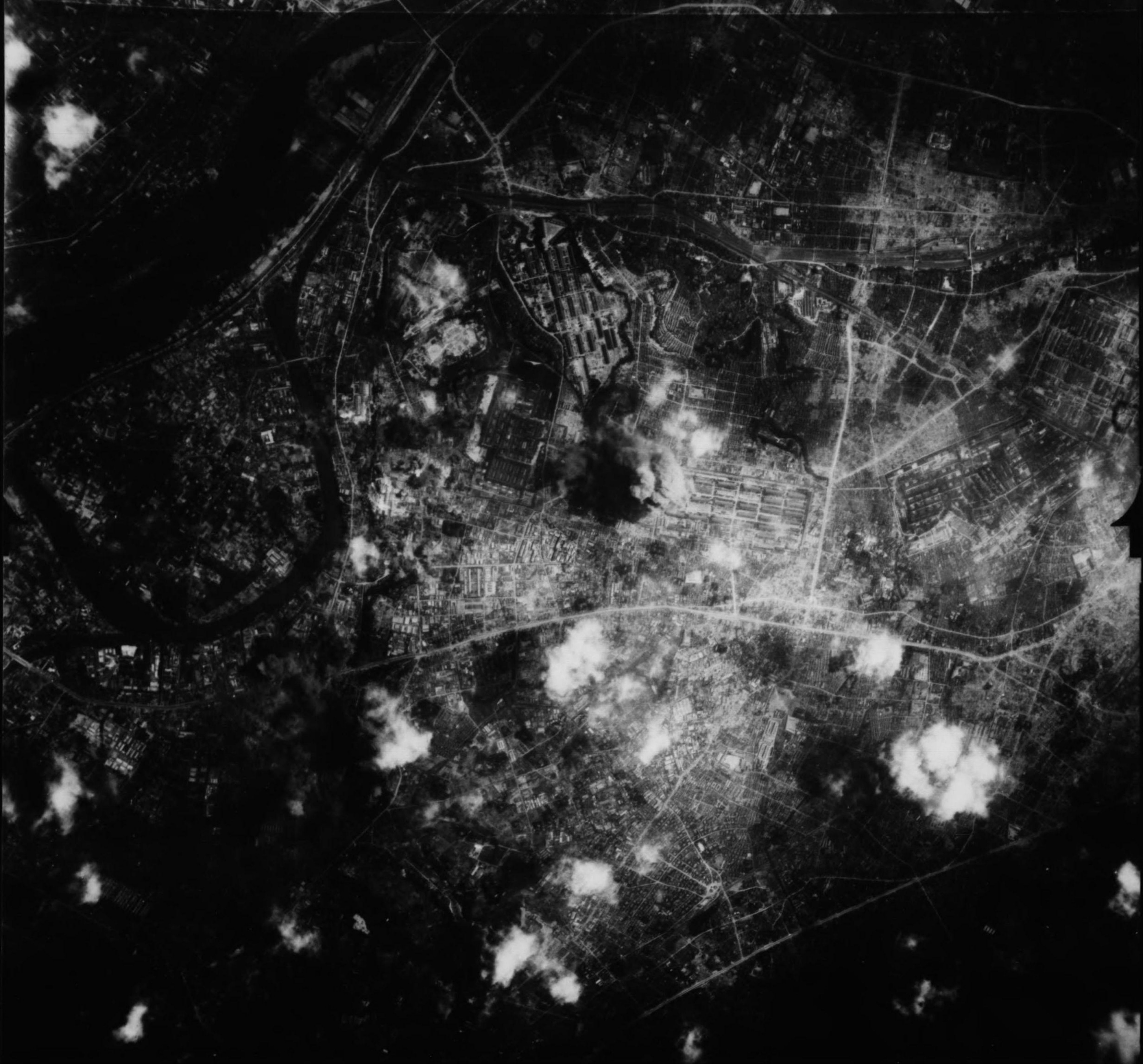




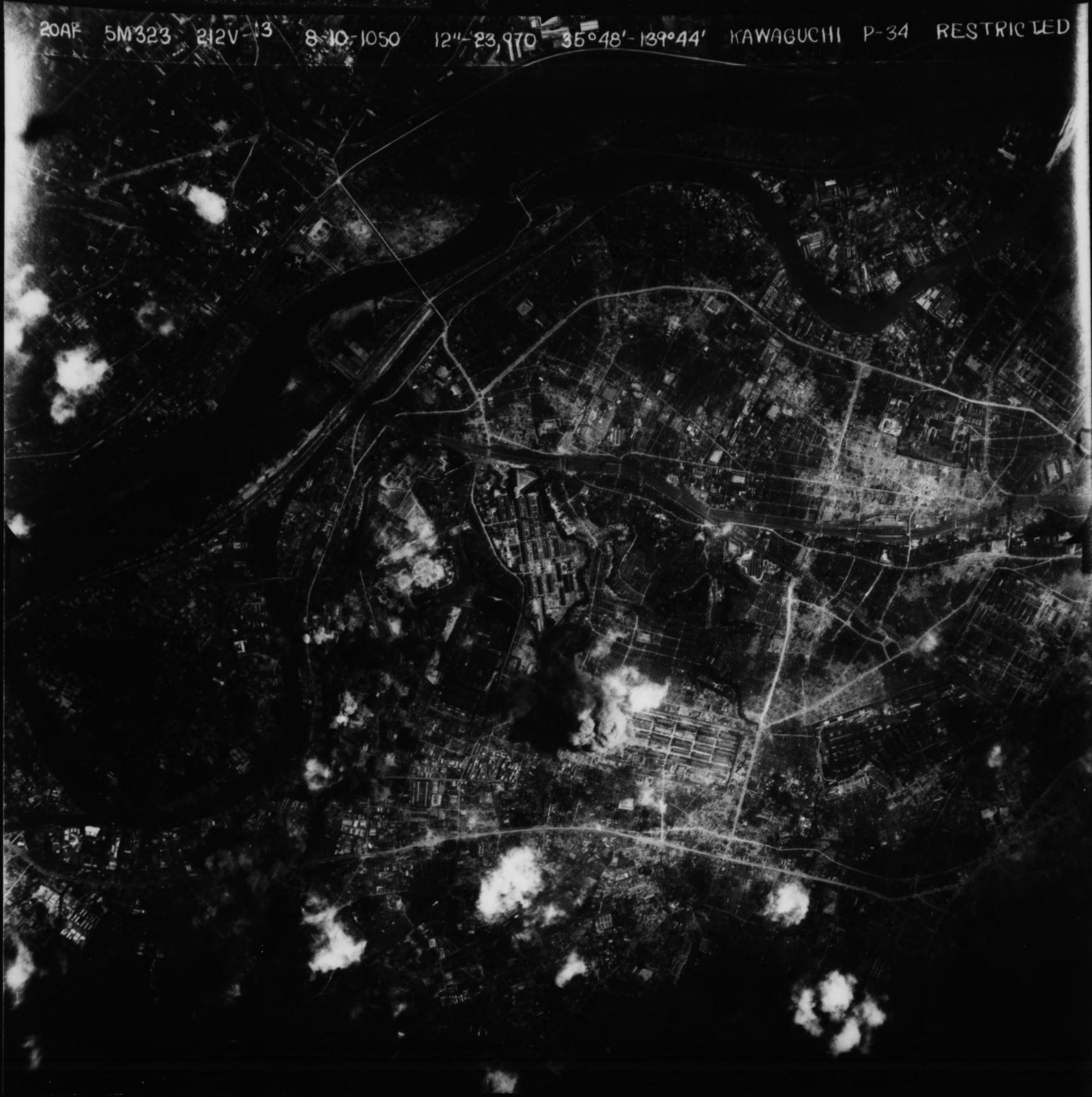
20AF 5M323 208V 8-10-1050 12"-21,000 35°48'-139°48' KAWAGUCHI P-18 RESTRICTED

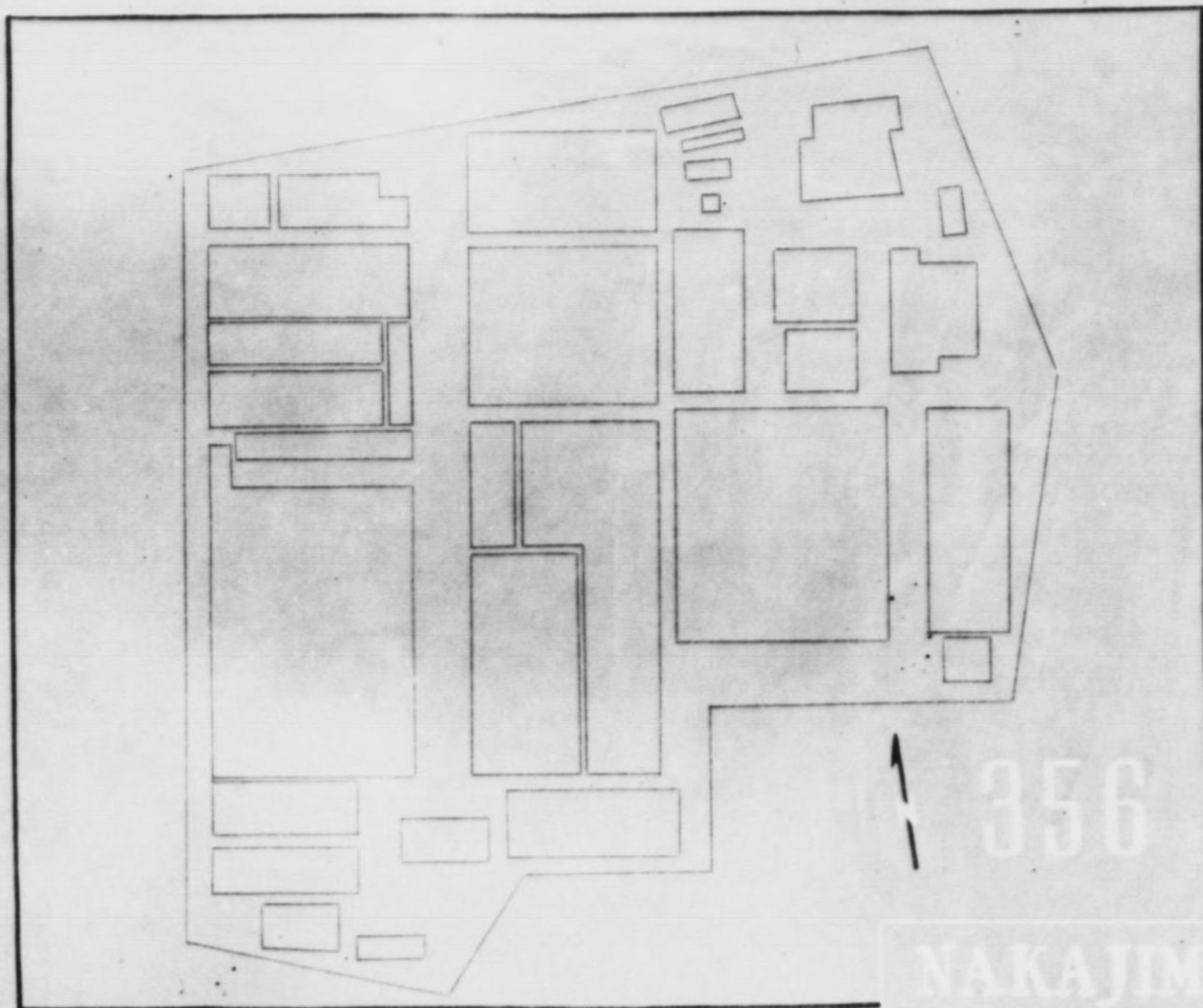


20AF 5M323 212V II 8-10-1050 12"-23,970 35°48'-139°44' KAWAGUCHI P-34 RESTRICTED



20AF 5M323 212V-13 8-10-1050 12"-23,970 35°48'-139°44' KAWAGUCHI P-34 RESTRICTED





NAKAJIMA A/C
OGIKUBA PLANT

MISSION NO	199	323		
DAMAGE	HIT 49	HIT TOKYO ARSENAL		
WINGS	314	314		
DATE	10 JUNE '45			
DAY/NIGHT	DAY			
BOMB TYPE	G.P.			
AV. LOAD	12,028			
A/C AIRBORNE	65			
A/C BOMB. P.T.	52			
TONS ON P.T.	281.3			
ALTITUDE	21,000-23,800			
BOMB. METH.	45R-7V			
CLAIMS	1-9-9			
LOSSES	0			

500 # G.P.
1/100 DELAY NOSE
NON DELAY TAIL

CONFIDENTIAL

NOT TO BE TAKEN
INTO THE AIR ON
COMBAT MISSIONS

TARGET: 90.17-356

OBJECTIVE AREA: 90.17-Tokyo

T A R G E T I N F O R M A T I O N S H E E T

TARGET 90.17-356

NAKAJIMA AIRCRAFT, OGIKUBO PLANT

Latitude: 35° 42' N
Longitude: 139° 37' E
Elevation: 154 ft.

1. LOCATION AND IDENTIFICATION: The Nakajima A/C Company at Ogikubo is located eight miles WNW of the Imperial Palace in Tokyo and about four miles east of Target 357. It lies between the two main-line railroads running west and west by north from the city. The Ogikubo RR station is about one mile to the SE. Two extremely good check points in locating this plant are the large amphitheatre nearly one mile to the north, and the main OME highway, which forms the southern border of the plant.

The plant is on the edge of a densely built-up area of suburban Tokyo. To the north, for the most part there is open country, with scattered worker's housing units which are very conspicuous because of their uniformity.

2. PLANT DESCRIPTION: The plant is irregular in shape extending about 1100 feet N-S and 1100 feet E-W. The area is compactly built-up with installations occupying 750,000 sq. ft. or about 70% of the total area. The majority of the buildings are of one-story light steel-frame construction, with corrugated sheet metal/asbestos covering. Sawtooth construction predominates throughout the target area.

The electric power station lies in the NE corner of the area, just to the west of the large open rectangular-shaped plant school building. The most vital machining and processing facilities are housed in the three large buildings on the south side of the plant area. These buildings contain machine tools, engine assembly, storage for castings and forgings, and machine tools for non-ferrous alloys.

3. IMPORTANCE: The Nakajima Ogikubo plant is known to produce such engine parts as oil filters, fuel valves, pressure valves and carburetors. Musashino Plant (Target 90.17-357) with vital engine components. The Musashino plant formerly was believed to supply 30% to 40% of the A/C engines used in Japanese combat planes.

5 September 1945.

TARGET SECTION, A-2
TWENTIETH AIR FORCE

S E C R E T

MISSION SUMMARY

Mission Number 199

28 June 1945

1. Date: 10 June 1945
2. Target: Nakajima Aircraft Co. at Ogikubu (PV) (90.17 - 356)
Kasumiguara Seaplane Base (PR) (90.14 - 1491)
3. Participating Unit: 314th Bombardment Wing
4. Number A/C Airborne: 65
5. % A/C Bombing Primary: (PR) 68.85% (45 radar and 4 opportunity)
(PV) 10.71% (7 aircraft)
6. Type of Bombs and Fuzes: AN-M64, 500#-general purpose, 1/100
second delay nose and non-delay tail.
7. Tons of Bombs Dropped: 281.3 on primary targets and 18 tons
on opportunity.
8. Time Over Primary: (Radar) 0837K - 0859K
(Visual) 0924K - 0927K
9. Altitude of Attack: Radar 21,000 - 23,000 feet
Visual 21,000 - 21,100 feet
10. Weather Over Target: 10/10
11. Total A/C Lost: 1
12. Resume of Mission: Strike attack photographs of bombing on
the radar target indicated that the target was approximately 33% des-
troyed. Heavy, meager to moderate and inaccurate flak at West Tokyo,
Tachikawa, Tokyo and Yokohama. Approximately 30 P-51's observed
over the Tokyo Area and on withdrawal 39 E/A sighted made 83 attacks.
Claims were 1-4-9. Nine B-29's landed at Iwo Jima. Average bomb load:
12,028 lbs. Average fuel reserve: 704 gallons. Fighter claims on
Missions 195-200 were 22-6-12.

S E C R E T

S E C R E T

MISSION RESUME

Mission Number 323 19 August 1945

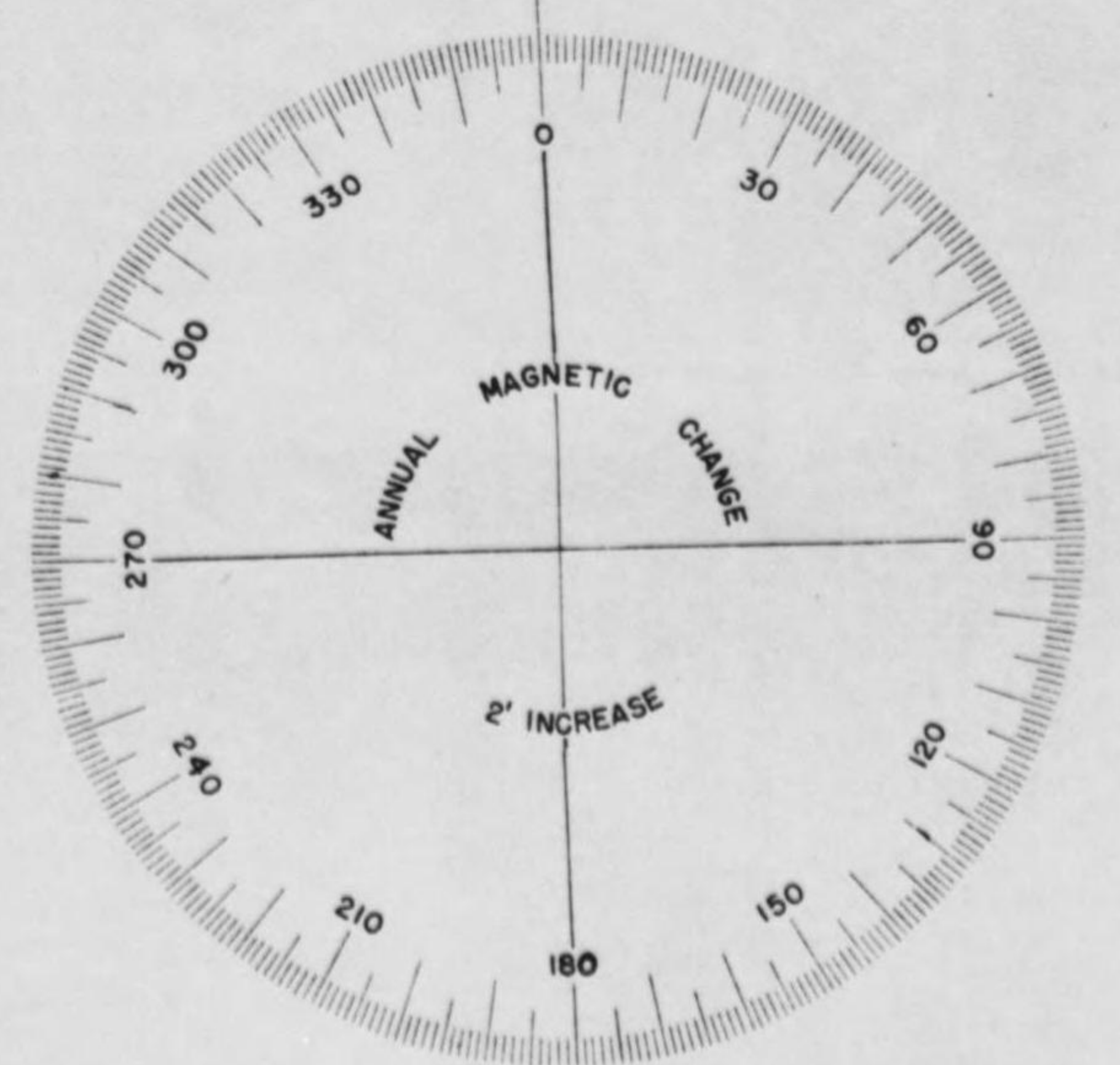
1. Date: 10 August 1945
2. Target: Nakajima Aircraft Co. at Ogikuku (90.12 - 356) PV
Tokyo Arsenal (90.17 - 3600) PR
3. Participating Unit: 314th Bombardment Wing
4. Number A/C Airborne: 78
5. % A/C Bombing Primary Radar: 89.78% (70 radar and 3 opportunit
6. Type of Bombs and Fuzes: M66, 2000# G.P. and M64, 500# G.P.
bombs with instantaneous nose and
non-delay tail.
7. Tons of Bombs Dropped: 320 tons on primary radar and 13.5 tons
on opportunity.
8. Time Over Primary Radar: 101050K - 101059K
9. Altitude of Attack: 22,000 - 26,200
10. Weather Over Target: 5/10 - 7/10
11. Total A/C Lost: 0
12. Resume of Mission: Results unobserved to good. Fighter
escort provided by 50 P-47's and P-51's from landfall to land's end.
A/C bombed primary radar target. Nine E/A sighted did not attack.
Flak was heavy, meager to intense, accurate to inaccurate and damaged
29 B-29's. Thirty-three A/C sighted the target and 37 by radar. Five
A/C were non-effective. Eight B-29's landed at Iwo Jima. Average bomb
load: 9646 lbs. Average fuel reserve: 845 gallons.

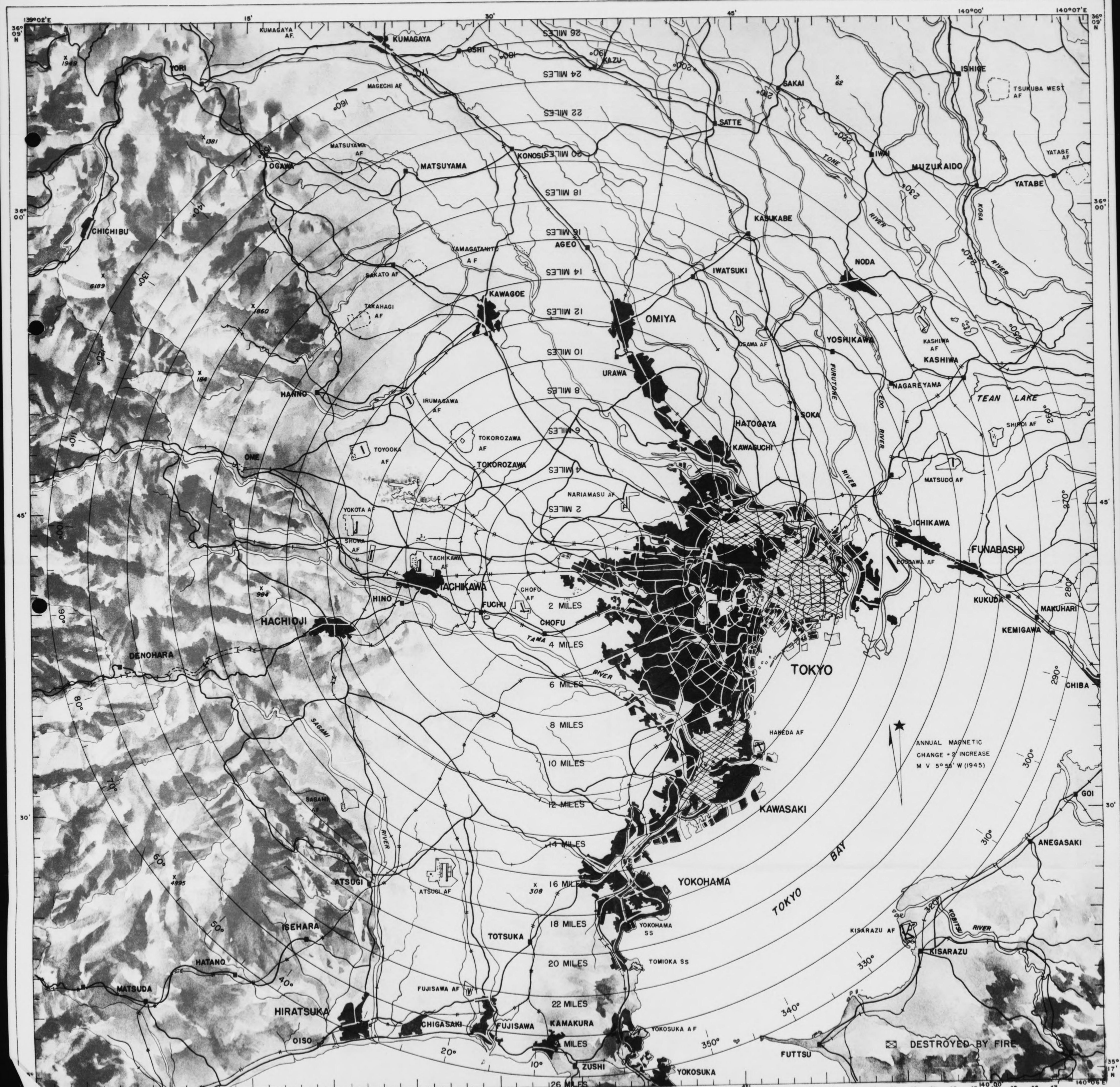
S E C R E T



6° W
(1945)

5° 45' W
(1945)

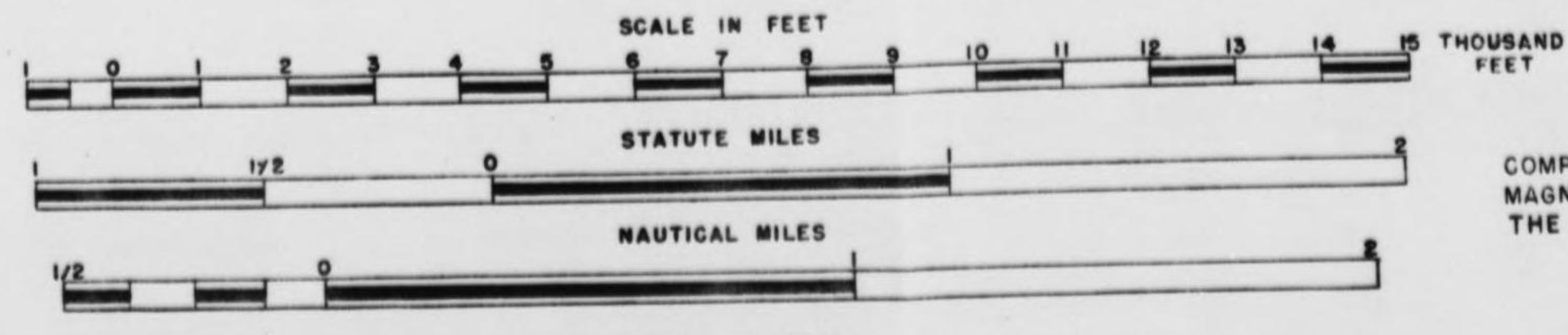




TOKYO AREA
NAKAJIMA AIRCRAFT-MUSASHINO PLANT
TARGET NO. 90.17-357
FEBRUARY 1945



NO	DESIGNATION	ELEV
357	NAKAJIMA AIRCRAFT, MUSASHINO PLANT	183'
356	NAKAJIMA AIRCRAFT, OGIKUBO PLANT	154'
539	NAKAJIMA AIRCRAFT, TANASHI FOUNDRY	170'
1412	GHOFU AIRFIELD	164'



COMPASS ROSE INDICATES
MAGNETIC BEARING TOWARDS
THE TARGET



ANNUAL MAGNETIC
CHANGE = 2' INCREASE
M.V. 5° 58' W (1945)

TOKYO AREA
NAKAJIMA AIRCRAFT, MUSASHINO PLANT

TARGET NO. 90.17-357

35° 43' N - 139° 35' E

ELEVATION 180 FT (APPROX)

FEBRUARY 1945

A-2 SECTION XXI BOMBER COMMAND
3RD PHOTO RCN SQN PHOTOS 7 NOVEMBER 1944
PREPARED BY 949TH ENGR AVN TOPO CO

APPROX SCALE

1000 0 1000 2000 3000 4000 FEET

357

356

96°

76°

72°30' Planned

MAG. NORTH
TRUE NORTH

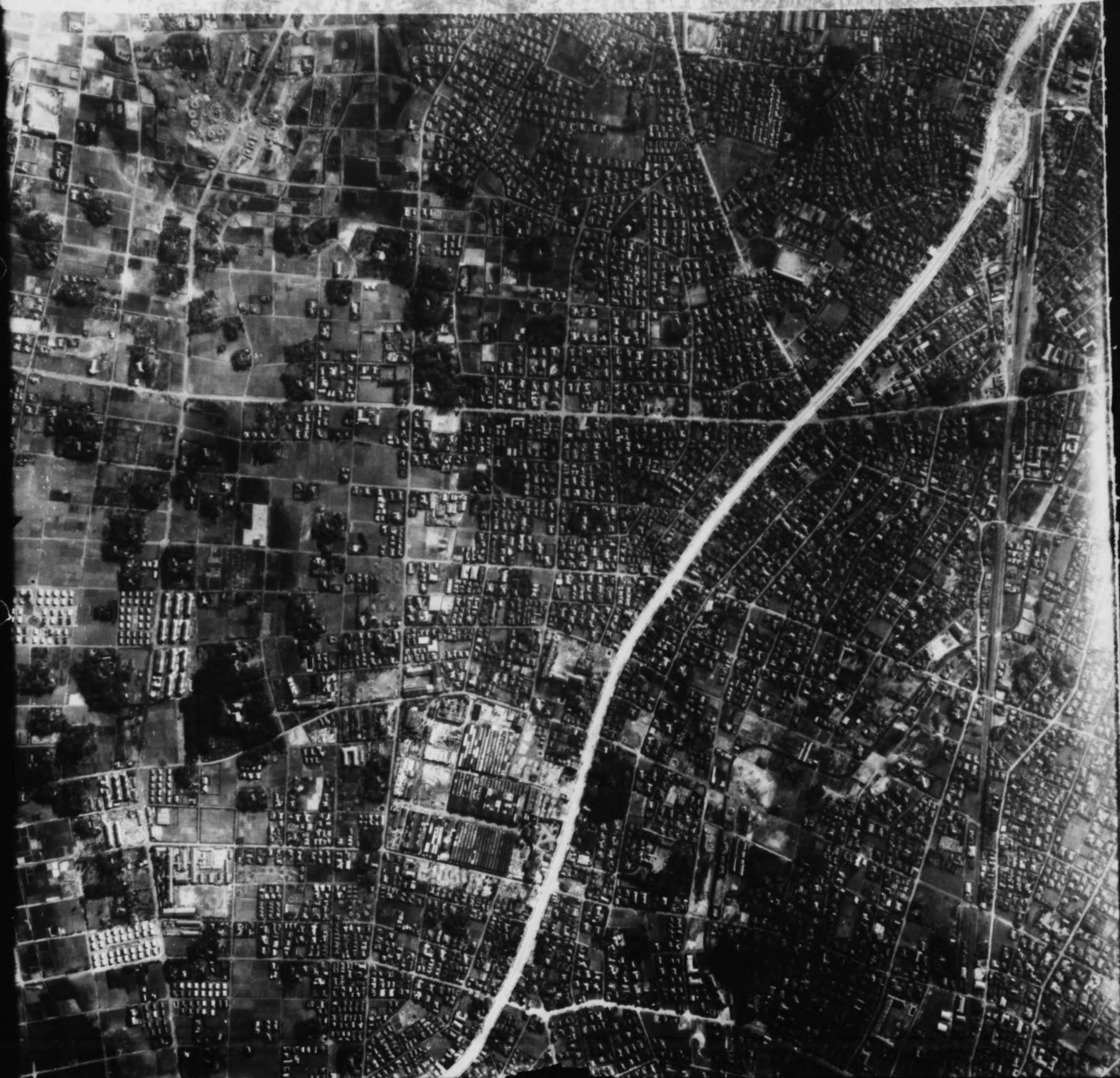
MAG. DEC.
5° 58'
ANNUAL
CHANGE
2" INCL

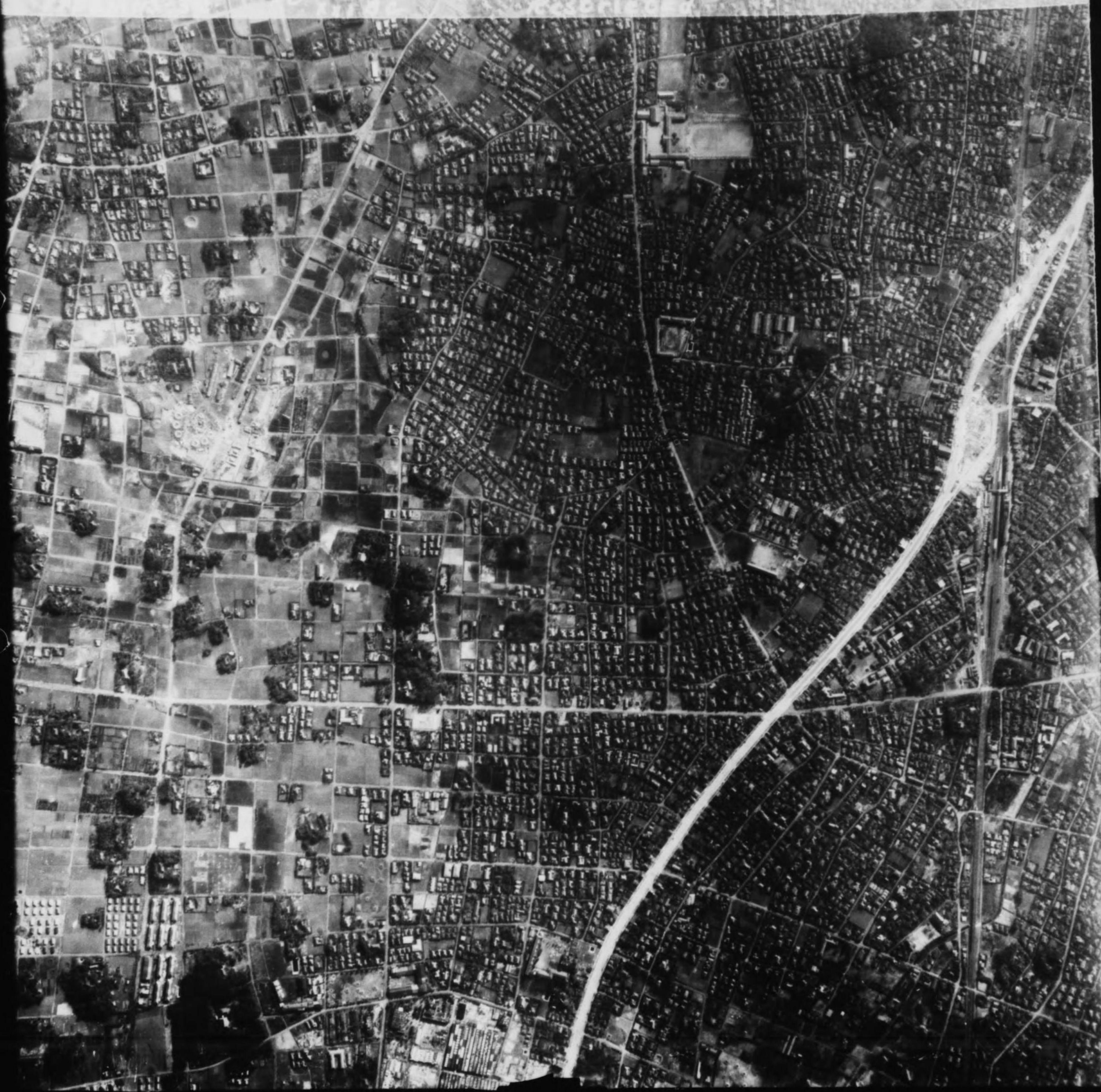


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3PR5M2544L

102

XX USC

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- 2:19

20AF RESTRICTED



RESTRICTED

54113-2:19

20 AF RESTRICTED



FASTMAN DEPT. OF AERIAL PHOTOGRAPHY

72:20

20AF RESTRICTED



FROM AIR PHOTOGRAPH

R 5M113-12:20

2044 RESTRICTED



U.S. AIR FORCE
PHOTOGRAPHIC CENTER
WASHINGTON, D.C. 20330

PHOTOGRAPH BY SP4 J. W. BROWN

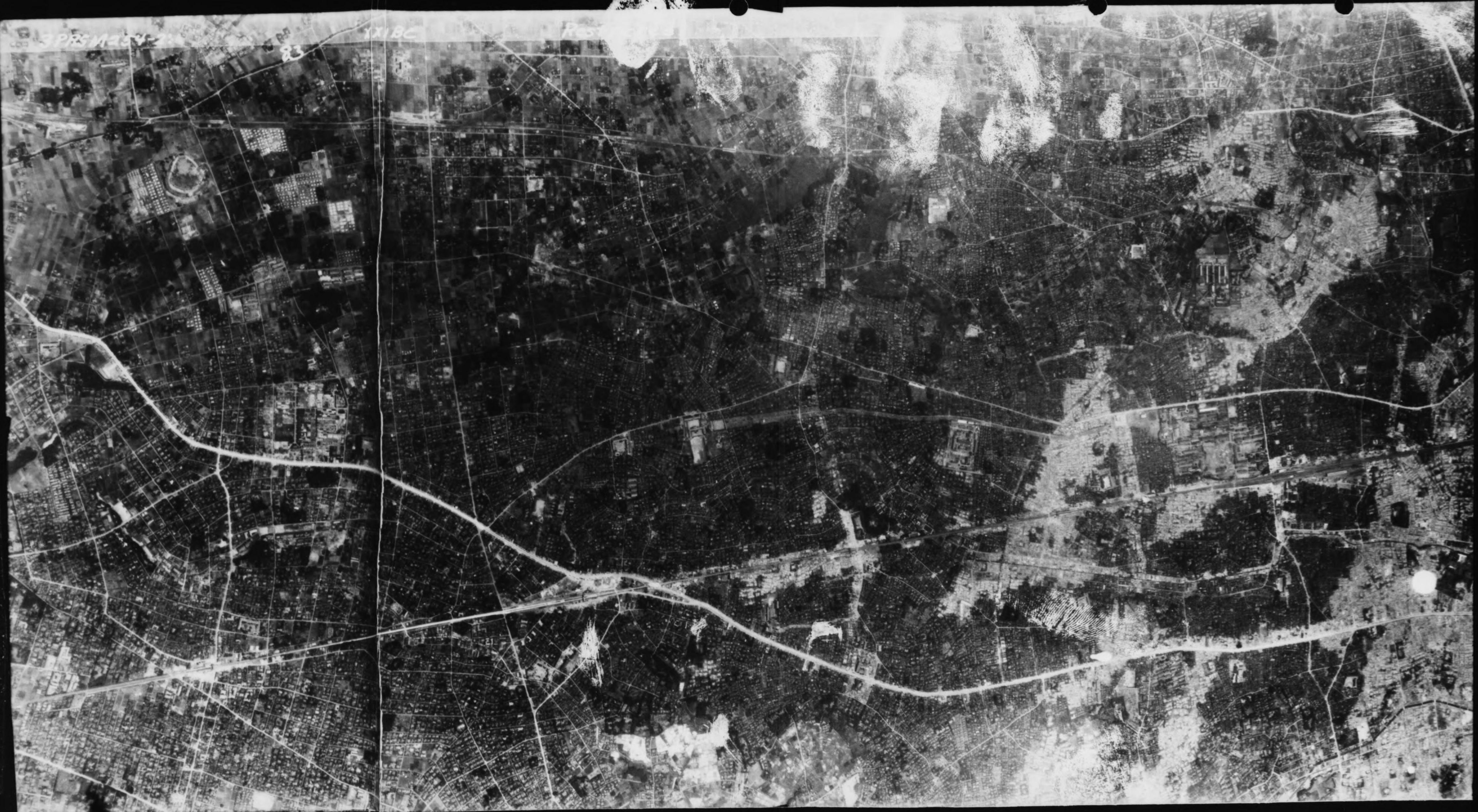
PHOTOGRAPH BY SP4 J. W. BROWN

F 195M-2-1-21



By HKM NARS, Date 1-17-92





By I.H.K.-M
NARS, Date 1-17-92

R 51173-2

21

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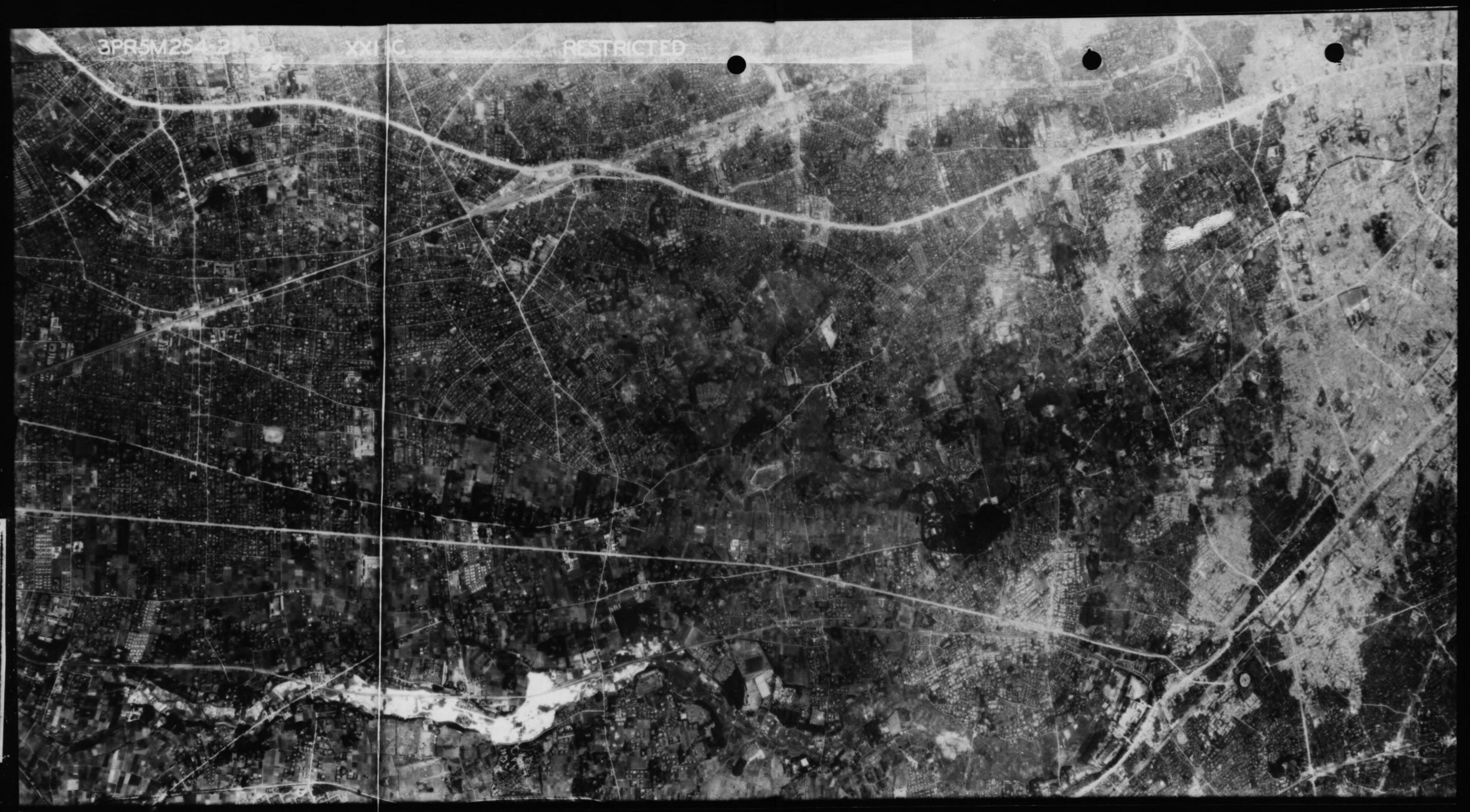
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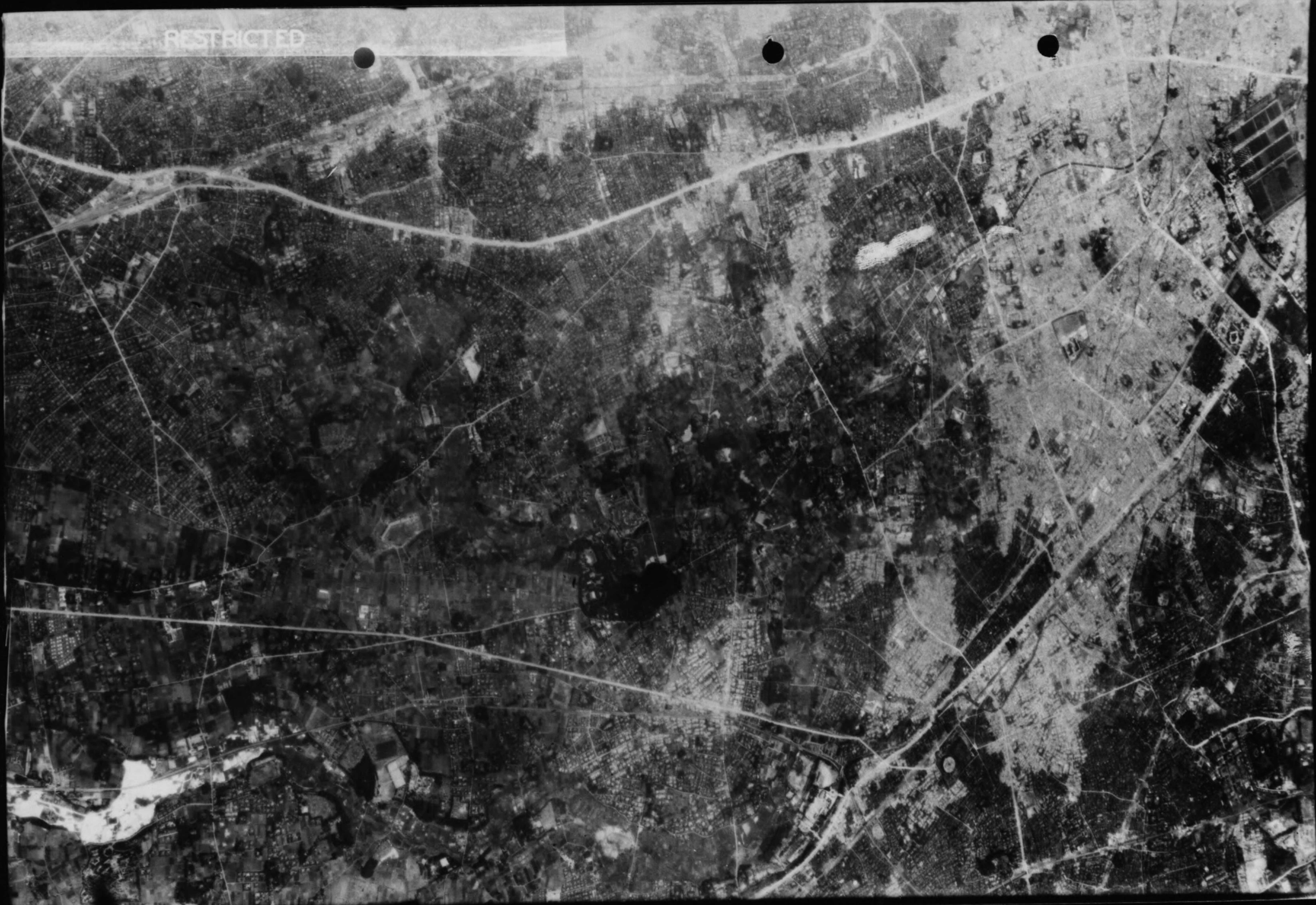
3PR5M254-2

XXI C

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PHOTO INTERPRETATION SECTION
3RD PHOTO RECONNAISSANCE SQUADRON (VH)
APO 244, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

15 December 1944

DAMAGE ASSESSMENT P.I. REPORT NO. 2

Mission No.: 3PR4M 37A

Target Area: Tokyo - 90.17

Date Flown: 13 December 1944

Airplane Commander: Daniel E. Forrester,
Capt., AC

TARGET 356: Nakajima Aircraft Company, Ogikubo Plant (35° 42' N--
139° 37' E).

Annotations:

Completely Destroyed:

- A. One building 180' x 110' immediately east of east machine shop.
- B. Two buildings, 100' x 70' and 80' x 70', immediately north of east machine shop.

Damaged (50 Percent Destroyed):

- C. Electrical shop, 240' x 120', probably damaged by fire, as indicated by burned-off roof and exposed trusses.
- D. One unidentified building 100' x 70', adjoining the south end of the east machine shop.

Damaged (30 Percent Destroyed):

- E. One building 180' x 70', immediately north of assembly line and tool shop.
- F. One building 200' x 60', immediately north of the electrical shop.

Quality good on 40", nos. 4R:21, 22; scale 1:10,000.

Hamilton D. Darby
HAMILTON D. DARBY
Major, AC
Chief, Intelligence Section

DISTRIBUTION "B"

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SPRA-M37A-4R-22

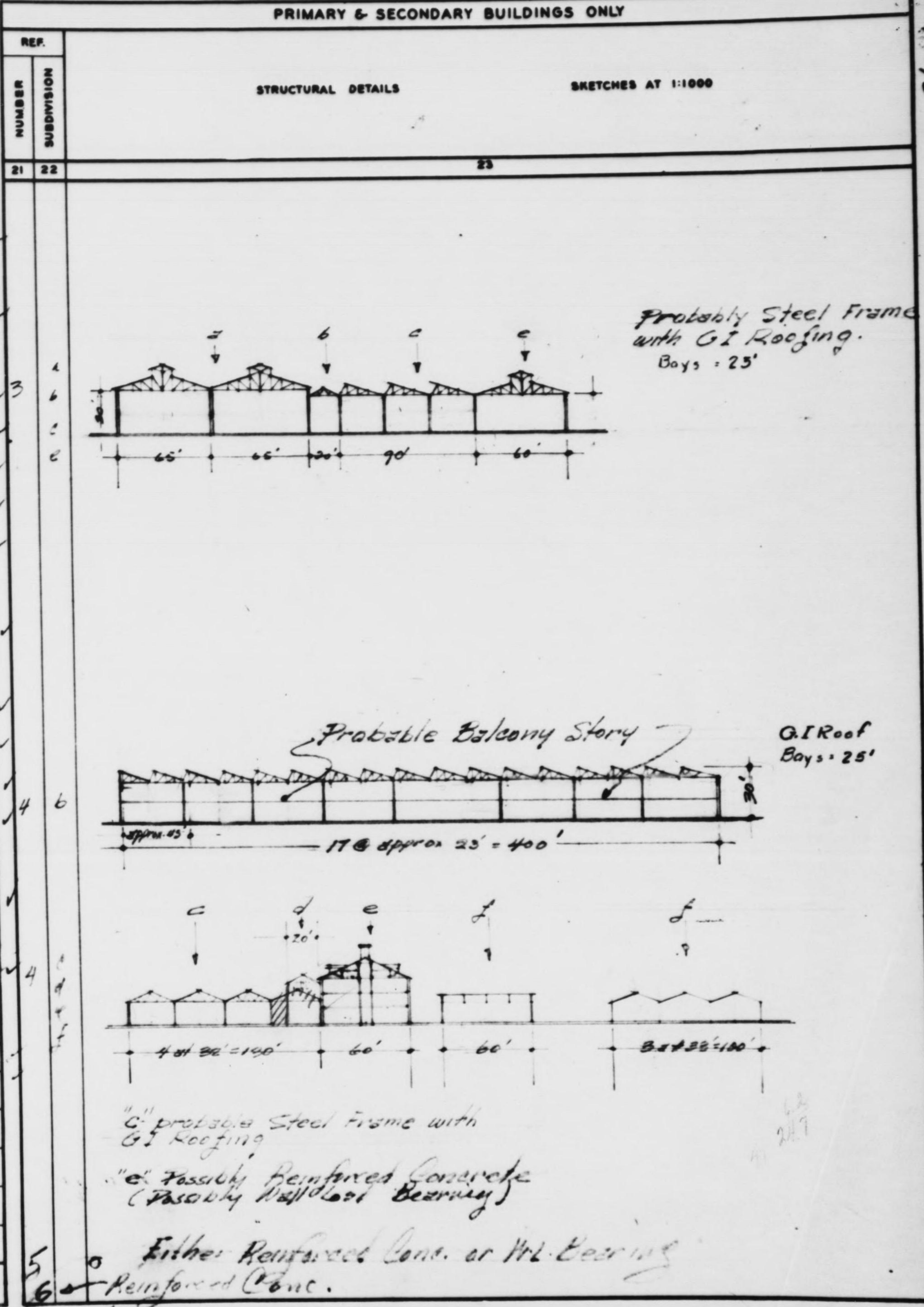
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356

TARGET NO. 356
NAKAJIMA AIRCRAFT, OGIKUBO PLANT
TOKYO AREA
35°42' N - 139°37' E
DAMAGE ASSESSMENT P.L.R. NO 2'

COVER USED					AC/AS INTELLIGENCE - PHOTOGRAPHIC DIVISION JOINT P/I GROUP					CONFIDENTIAL					T/V	
MISSION	PRINTS	DATE	QUALITY	SCALING DATA					BUILDING CONSTRUCTION ANALYSIS					DATE	AREA NO.	TARGET NO.
PRINT	BEARING	SHAD. RAT.	PLAN SC.	SHAD. SC.	TARGET <i>NAKAJIMA AIRCRAFT ENGINE PLANT</i>									INTERPRETER	90-17/350	
LAT. <i>35°42'N</i> LONG. <i>139°37'E</i> ENL. NO.					ENL. RAT.	SCALE: <i>1:2760</i>	LOCATION <i>OGIKUBO</i>					SHEET NO. <i>1</i> OF <i>3</i> SHEETS				

ALL BUILDINGS																				
REF.		OCCUPANCY	LENGTH	WIDTH	PLAN AREA	NO. OF FLOORS	TOTAL AREA	HEIGHT		ROOF			FLOORS			TYPE				
NUMBER	SUBDIVISION							BAYES	RIDGE	SPAN IN FT.	COMBUSTIBLE	NON-COMBUST.	RESISTANT	COMBUSTIBLE	NON-COMBUST.	RESISTANT	STL. FRAME	WD. FRAME	LD. BEARING	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1		UNIDENTIFIED	.06	.06	3.6	1	3.6	12'		20'										
2		UNIDENTIFIED	.13	.08	7.8	1	9.3	12'		20'										
* 3	a	ELECTRICAL SHOPS	.26	.13	32.5	1	65.0	30'		20'										
	b	UNIDENTIFIED	.26	.02	5.0	1	10.0	24'												
	c	RESEARCH	.22	.09	19.8	1	39.6	24'												
	d	UNIDENTIFIED	.09	.03	2.7	1	5.4	24'												
	e	FOUNDRY OR FORGE	.20	.06	12.0	1	12.0	24'												
* 4	a	BOILER HOUSE	.06	.05	3.0	1	3.0	14'												
* 4	b	MACHINING & PROCESSING	.40	.26	104.0	2	208.0	30'												
	c	UNIDENTIFIED	.19	.13	24.7	1	24.7	14'												
	d	do	.05	.02	1.0	1	3.0	30'												
	e	ADMINISTRATION	.19	.06	11.4	3	34.2	30'												
4	f	UNIDENTIFIED	.10	.06	6.0	1	6.0	10'												
5		ADMINISTRATION	.11	.05	5.5	2	11.0	20'												
6	a	CATERING DINING ROOM	.05	.05	MINUS 8	3	25.5	30'												
	b		.17	.06	10.2	1	10.2	8'												
		TOTALS PAGE NO 1			253.0	461.7														
		54.8			254.2	464.6														
		1000'S OF SQ. FT.	TOTAL FLOOR AREA OF BUILDINGS		954.3	1000'S OF SQ. FT.	TOTAL SITE AREA	24												ACRES



580.2 1009.6 * All totals should be checked!

AC/AS INTELLIGENCE - PHOTOGRAPHIC DIVISION
JOINT P/I GROUP

CONFIDENTIAL

T/V

BUILDING CONSTRUCTION ANALYSIS

COVER USED				SCALING DATA				
MISSION	PRINTS	DATE	QUALITY	PRINT	BEARING	SHAD. RAT.	PLAN SC.	SHAD. SC.
PR 4445	RY/US/99	7 NOV.	9000	189		.69	1/10180	7000

TARGET NAKAJIMA A/C ENGINE PLANT
LOCATION OGIKUBO

DATE DEC. 5. 1944
INTERPRETER GARRISON
SHEET NO. 3 OF 3 SHEETS

AREA NO. 90.17/356
TARGET NO.

ALL BUILDINGS																			
REF.		OCCUPANCY	LENGTH	WIDTH	PLAN AREA	NO. OF FLOORS	TOTAL AREA	HEIGHT		ROOF			FLOORS			TYPE			
NUMBER	SUBDIVISION							EAVES	RIDGE	SPAN IN FT.	COMBUSTIBLE	NON-COMBUST.	RESISTANT	COMBUSTIBLE	NON-COMBUST.	RESISTANT	STL. FRAME	WD. FRAME	LD. BEARING
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
* 14	a	RESEARCH	.17	.06	10.2	2	20.4	24								✓	✓		
	b	do	.08	.03	2.4	1	7.2	35								✓	✓		
	c	do	.05	.04	2.0	2	4.0	24								✓	✓		
					14.6														
15		STORAGE	.14	.03	4.2	1	4.2	12				✓				✓			
16		STORAGE	.10	.08	8.0	1	8.0	12			20 40	✓				✓			
17	a	UNIDENTIFIED	.09	.04	3.6	1	3.6	8								✓	✓		
	b	do	.14	.11	15.6	1	15.6	12								✓	✓		
18		ENGINE HOUSE	.03	.07	0.9	1	5.1									✓	✓		
			.07	.06	4.2	1	5.1									✓	✓		
		TOTALS PAGE NO 3					55.1												
							76.1												

REF.		PRIMARY & SECONDARY BUILDINGS ONLY	
NUMBER	SUBDIVISION	STRUCTURAL DETAILS	SKETCHES AT 1:1000
21	22	23	

Checked & Dec 44
W.F. Swiger

COVER USED					SCALING DATA				
MISSION	PRINTS	DATE	QUALITY	PRINT	BEARING	SHAD. RAT.	PLAN SC.	SHAD. SC.	
TR. 4M-5	RV 105-104	7 NOV.	GOOD	109		.67	1:10,100	7:100	
LAT. 35°42'N		LONG. 137°37'E		ENL. NO.	ENL. RAT.	SCALE 1:3750			

AC/AS INTELLIGENCE - PHOTOGRAPHIC DIVISION
JOINT F/I GROUP

BUILDING CONSTRUCTION ANALYSIS

TARGET NAKAJIMA A/C ENGINE PLANT
LOCATION OGIRUBO

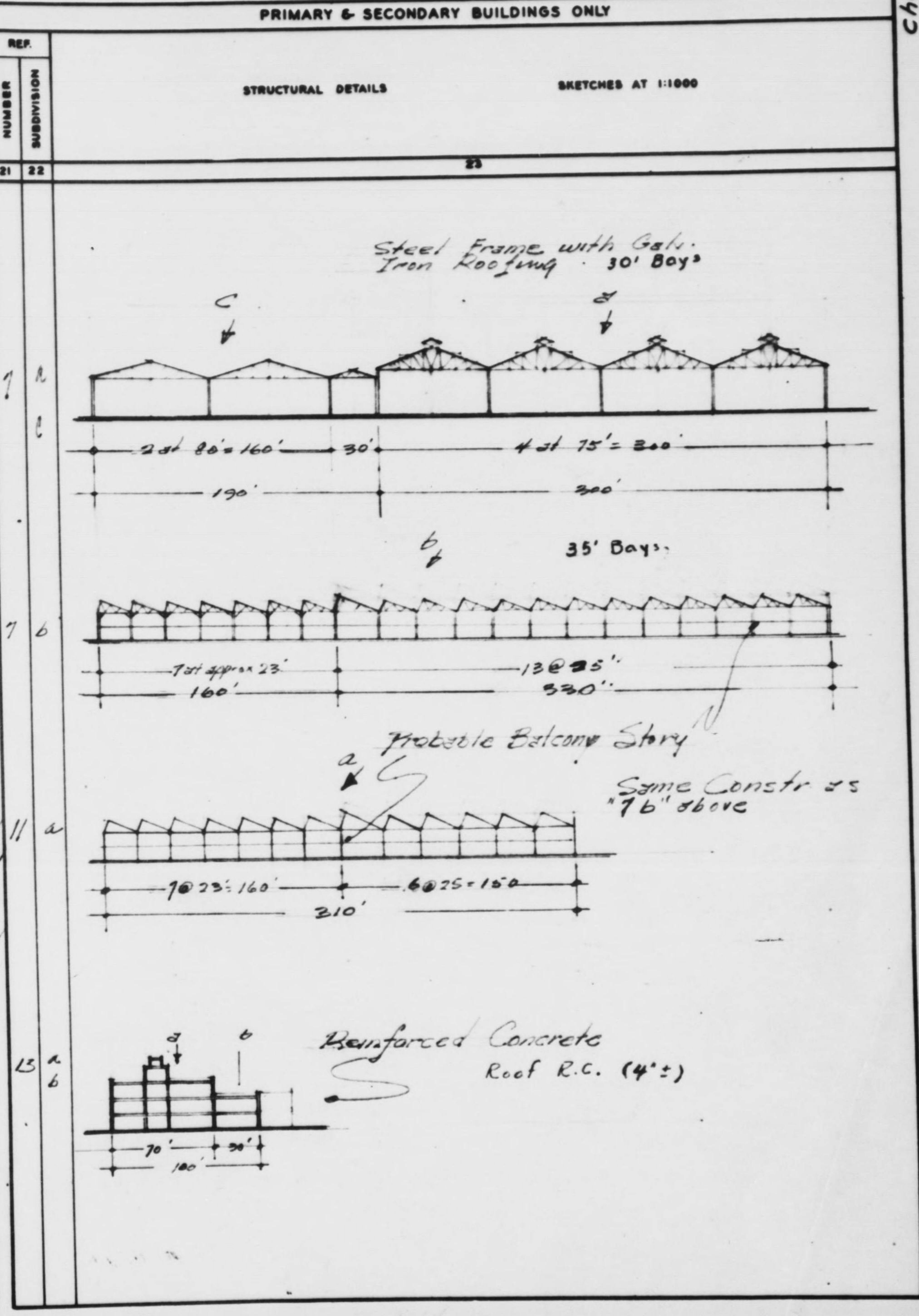
CONFIDENTIAL

T/V

DATE DEC. 4. 1944 AREA NO. 90.17/356 TARGET NO.
INTERPRETER GARRISON
SHEET NO. 2 OF 3 SHEETS

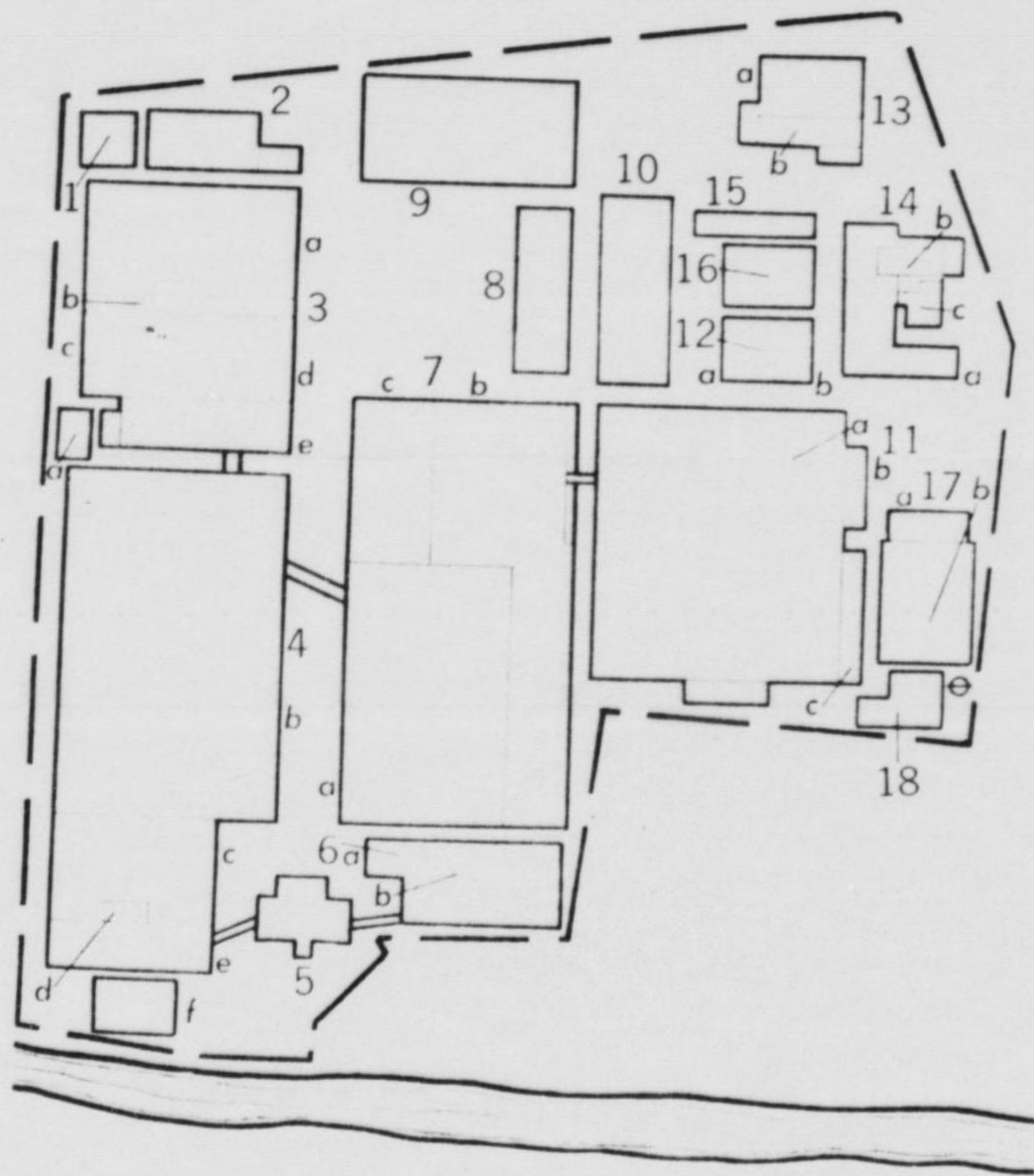
Checked 8 Dec 44
W. F. Swiger

ALL BUILDINGS																			
REF.	NUMBER	SUBDIVISION	OCCUPANCY	LENGTH	WIDTH	PLAN AREA	NO. OF FLOORS	TOTAL AREA	HEIGHT		ROOF			FLOORS			TYPE		
									BAYES	RIDGE	SPAN IN FT.	COMBUSTIBLE	NON-COMBUST.	RESISTANT	COMBUSTIBLE	NON-COMBUST.	RESISTANT	STL. FRAME	WD. FRAME
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
*	7	a	MACHINING & PROCESSING	.30	.19	57.0	2	104.0	30'		4 @ 75'	✓		✓	✓				
		b	do	.19	.17	32.3	2	112.6	30'			✓		✓	✓				
		c	do	.09	.08	2.40	2	79.4	30'		7 @ 10'	✓		✓	✓				
				.19	.09	17.1	2	34.2	26'					✓	✓				
	8		STORAGE	.19	.06	11.4	1	11.4	10'		10 @ 7'	✓		✓					
	9		STORAGE	.24	.12	28.8	1	28.8	14'		3 @ 40'	✓		✓					
	10		STORAGE	.22	.08	17.6	1	17.6	12'		7 @ 20'	✓		✓					
*	11	a	MACHINING & PROCESSING	.31	.29	90.0	1	90.0	30'					✓	✓	✓			
		b	do	.10	.02	2.0	1	2.0	12'					✓	✓	✓			
		c	do	.15	.02	3.0	1	3.0	12'					✓	✓	✓			
		d	do	.06	.03	0.5													
	12	a	STORAGE	.08	.06	4.8	1	4.8	12'		20 @ 20'	✓		✓					
		b	do	.08	.04	3.2	1	3.2	12'			✓		✓					
*	13	a	TESTING & EXAMINATION	.12	.07	8.4	2	25.2	20'										
		b	do	.12	.03	3.6	2	7.2	20'										
* * *						292.1	4	411.8											
TOTALS PAGE NO 2						250.5	4	438.6											



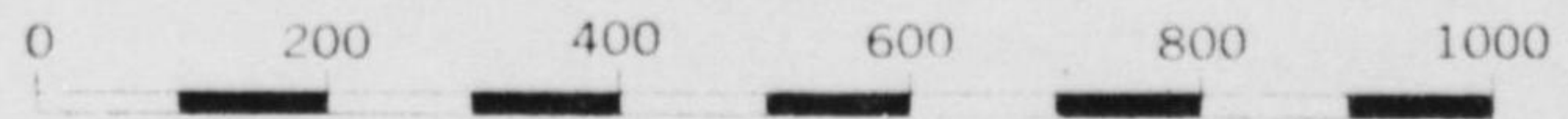
PLAN AREA OF BUILDINGS	1000'S OF SQ. FT.	TOTAL FLOOR AREA OF BUILDINGS	1000'S OF SQ. FT.	TOTAL SITE AREA	ACRES

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SCALE IN FEET
1:3600



AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION
PHOTO INTELLIGENCE SECTION

NAKAJIMA AIRCRAFT
OGIKUBO PLANT
TOKYO, JAPAN

TARGET NO.
90.17/356



PHOTOGRAPHY OF
7 NOV 1944

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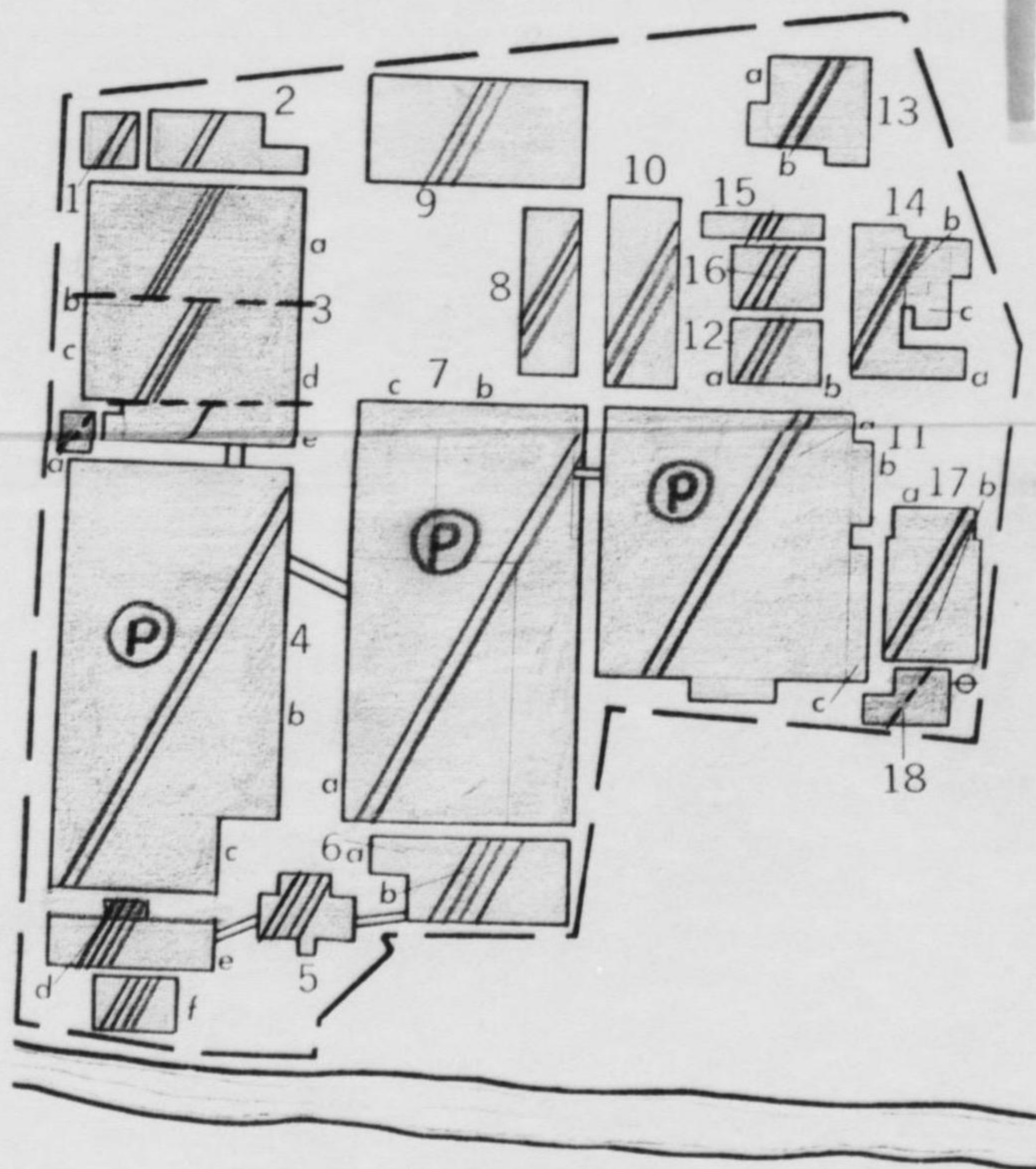
Illustration No. 90.17-356 P.5

FIRE SUSCEPTIBILITY PLAN

PRIMARY BUILDINGS (P) FIRE WALL CERTAIN
 SECONDARY BUILDINGS (S) FIRE WALL PROBABLE

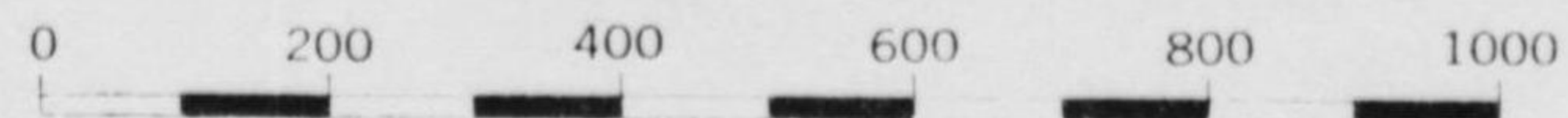
BUILDINGS		CONTENTS	
COMBUSTIBLE	[Symbol]	NON-COMBUSTIBLE	[Symbol]
NON-COMBUSTIBLE	[Symbol]	SLIGHTLY COMBUSTIBLE	[Symbol]
FIRE RESISTANT	[Symbol]	MODERATELY COMBUSTIBLE	[Symbol]
COMBINATION (E COMBUSTIBLE ROOF RESISTANT FLOORS)	[Symbol]	HIGHLY COMBUSTIBLE	[Symbol]
WATER TANK	(W)	EXTREMELY COMBUSTIBLE	[Symbol]
		INTERMEDIATE VALUES	[Symbol]

AREAS IN SQ. FEET	PRIMARY	ALL BUILDINGS SHOWN
NO OF BUILDINGS	3	21
NO OF FIRE DIVISIONS	3	23 25
PLAN AREA	348,000	609,000
TOTAL FLOOR AREA	348,000	695,000
SITE AREA	1,045,000	



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SCALE IN FEET
1:3600



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OGIKUBO PLANT
TOKYO, JAPAN

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7 NOV 1944

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