37

TARGET NO. 90.14 NAME Hitachi ZONE

CONTENTS

TARGET INFORMATION

J.T.G.

AC/AS

OTHER REPORTS

A-2 Target Info. Sheet.

MOSAIC

MISSION NUMBER	FIELD ORDER	MISSION RESUME	MISSION SUMMARY	REPORTS	BOMB PLOT	TYPE BOMB	BOMB TONNAGE	PRE-STRIKE	STRIKE	POST-STRIKE
278		✓		DA 161		M47A2			✓	
						E46				
						E36	963.2			
						M17A1				

file Hitachi U/A

NOT TO BE TAKEN INTO THE AIR ON COMBAT MISSIONS

CONFIDENTIAL

TARGET: Hitachi Urban Industrial Area
OBJECTIVE AREA: 90.14

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

HITACHI URBAN INDUSTRIAL AREA

Latitude: 36° 35' N
Longitude: 140° 39' E
Elevation: Sea Level

1. SUMMARY COMMENT: Hitachi is the center of the most important industrial complex north of Tokyo. It is a manufacturing center for electrical equipment as well as machine tools, aircraft parts, tanks and locomotives. Hitachi is a copper mining and refining center, processing the native copper to the completed product. Practically all the city's population is composed of highly skilled employees of the Hitachi interests, which have been heavily subsidized by the Government. The city lies astride the vital JOBAN Coastal railroad line from Tokyo.

2. LOCATION & IDENTIFICATION: Hitachi is located 80 miles NE of Tokyo on the east coast of Honshu. The city is 6 miles north of the Kanto plain. The southeastern part of the city occupies part of a low coastal strip. This strip is compressed along the coast except where it breaks back into the hills along narrow river valleys. The city lies 15 miles north of ISOZAKI MISAKI (Cape). It is served by a coastal highway and important railroad, the double track Joban Line.

3. TARGET DESCRIPTION: In shape, Hitachi resembles a dipper with its bottom side resting on the coastline. The principal area, which lies to the southeast, is a rough rectangle approximately three square miles in area. The "handle" of the dipper extends 5 miles N along a narrow valley floor and its adjacent hill slope. At the upper end of the valley is the copper mine which produces about 10% of Japan's copper.

Hitachi's congested built-up city area is about 3 square miles in area. Low, light, inflammable residence and business structures make this are a good incendiary target. Within this confined area has been crammed the tremendous increase in Hitachi's population. The city has grown from 10,000 in 1933 to over 82,000 in 1940. In the fire area the density is at least 30,000 per square mile. Two small congested areas lie southwest of the city and total 1/3 square mile in area.

NOTE: AN AMERICAN POW CAMP IS REPORTED TO BE LOCATED OUTSIDE THE TARGET AREA ALONG THE ROAD BETWEEN SUKEGAWA (in Hitachi) AND SHIMOMAGO (near TARGET 2100). BOMBS SHOULD NOT BE JETTISONED ALONG THIS ROAD.

5. AIMING POINTS: Aiming points will be specified in the Field Order.

1 July 1945.

Target Section, A-2
XXI Bomber Command

218C 5M278 IVI 7-20-0039 12-12100
36°35'N-140°39'E HITACHI Z49 RESTRICTED

TARGET SUMMARY

NO. 90.14 NAME Hitachi U/A

DATE 15 July 1945 COORDINATES 36/35N - 140/39E

LOCATION 80 miles NE of Tokyo on east coast of Honshu. 6 miles N of Kanto plain.

FUNCTION Center of most important industrial complex N Tokyo. Copper mining and refining center. Practically all the city's employees are skilled.

TYPE STRUCTURE Resembles a dipper with bottom side resting on coastline. Low, light, inflammable residence and business structures.

TOTAL AREA 2.5 sq. mi. BUILT UP AREA 1.2 sq. mi. %

PLANNING	EXECUTION
AIM. PT. 115 121 RAD 4000 FT BOMBING METHOD Night - radar REF. Litho Hitachi Area 90.14 - 1476 IP 35/56/00N - 140/28/30E AXIS 12 ALT. 12,000 FT. AIR SPEED	DATE MISSION FO WING BOMBING METHOD FORCE AXIS ALT. BOMBS/A/C A/C LOST AS MPH
BOMBS	BOMBS
TYPE M47 M17 FUZE I 5000 IM. SET 75 50 TONS AB TONS EPT %M/N TAR CIRCLE FORCE 66 66	TYPE FUZE IM. SET TONS AB TONS EPT %M/N TAR CIRCLE FORCE
WIND DIRECTION VELOCITY	WIND DIRECTION VELOCITY
AT ALT. SURFACE 150 5 K EXP'D DEN. T/A EXP'D F % REMARKS	AT ALT. SURFACE WEATHER OVER TARGET REMARKS

PHOTOS

MISSION	ROLL	PRINTS	DATE

PHOTOS

MISSION	ROLL	PRINTS	DATE

RESULTS

DENSITY T/A
FRACTION OF DAMAGE
REMARKS

AREA DAMAGED SQ. FT
STRUCTURAL SQ. FT
SUPERFICIAL SQ. FT
TOTAL DAMAGE TO DATE SQ. FT

S E C R E T

MISSION RESUME

Mission Number 278 31 July 1945

1. Date: 19/20 July 1945

2. Target: Hitachi Urban Area (90.14)

3. Participating Unit: 73rd Bombardment Wing

4. Number A/C Airborne: 130

5. % A/C Bombing Primary: 96.92% (126 primary and 1 opportunity)

6. Type of Bombs and Fuzes: AN-M47A2 100# incendiary bombs with instantaneous nose and E46, E36, AN-M17A1, 500# incendiary clusters set to open 5000 feet above target.

7. Tons of Bombs Dropped: 963.2 tons on primary and 7.2 tons on opportunity.

8. Time Over Primary: 200020K - 200153K

9. Altitude of Attack: 12,200 - 13,650

10. Weather Over Target: 9/10 - 10/10

11. Total A/C Lost: 2

12. Resume of Mission: Reconnaissance showed .88 sq. mi. (or 64.5%) of the city's built-up area was destroyed. RCM A/C observed fires from 60 miles away. The target was seen by only 6 A/C. Three A/C were non-effective. One E/A sighted did not attack. Flak was medium and heavy, meager and inaccurate encountered by approximately 1/3 of the B-29's. One Wind-Run A/C A/B. Five suvivors from a ditching due to mechanical failure. One B-29 lost to unknown reasons. One B-29 landed at Iwo Jima. Average bomb load: 15,214 lbs. Average fuel reserve: 910 gallons.

S E C R E T

045

file Hitachi

CONFIDENTIAL

C. I. U.
TWENTIETH AIR FORCE
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

3 August 1945

DAMAGE ASSESSMENT REPORT 161

HITACHI-90.14-URBAN

20 AF Mission 278, 19-20 July 1945 73rd Wing

SUMMARY OF DAMAGE

Built-up area: Sq.Mi. total: 1.38 Sq. Mi. destroyed: ~~73.3~~ .88

Percent destroyed: 64.5

Planned target area 1.2 sq. mi. Percent destroyed: 73.3

Total damage to date: 1.08 sq. mi. Percent of built-up area: 78.2

Targets damaged by current strike: 3 numbered; 5 other.

Note: Data in this report supersedes that listed in all previous reports.

REPORT

Damage within limits of built-up area:

Area damage from current strike:	Sq. Mi.	Destroyed Sq. Mi.	Destroyed Percent
Built-up area (Urban)	1.1	.85	77.2
Built-up area (Industrial)	.28	.03	10.7
Built-up area (Total)	1.38	.88	64.5
Area damage from all strikes:			
Built-up area (Urban)	1.1	.87	79
Built-up area (Industrial)	.28	.21	75
Built-up area (Total)	1.38	1.08	78.2

Damage to targets:

Number	Name	
*812	Hitachi Copper Refinery	About 80% destroyed
1476	Hitachi Engineering Works, Kaigan Plant	96.8% (old damage)
2098	Hitachi Engineering Works, Densen Plant	About 30% damaged
*2099	Hitachi Engineering Works, Yamate Plant	About 8% damaged

Railroad yard shows minor damage.
4 small unidentified industries 100% destroyed.

Damage outside built-up area (within 5 mile radius of center of city)

Area damage from current strike:

Two small areas NW of city are destroyed and one small area E of the city is partially destroyed. These areas are very near the city. Total area destroyed outside built-up area totals about .1 sq. mi..

Damage Assessment Report 161, cont'd.

Area damage outside the limits of the built-up area for all strikes totals .1 sq. mi.

Damage to targets:

1492 - Hitachi Copper Smelter	No visible damage
Unidentified target just E of Hitachi	Minor damage
2200 - Hitachi Engineering Works, Taga Plant, SW of Hitachi	Damaged as result of a U. S. Navy strike.
4 unidentified (probable industries)	No visible damage

Note: * Target 812 - located immediately N of 2099 (determined by CIU, 20 AF) See attached enlargement

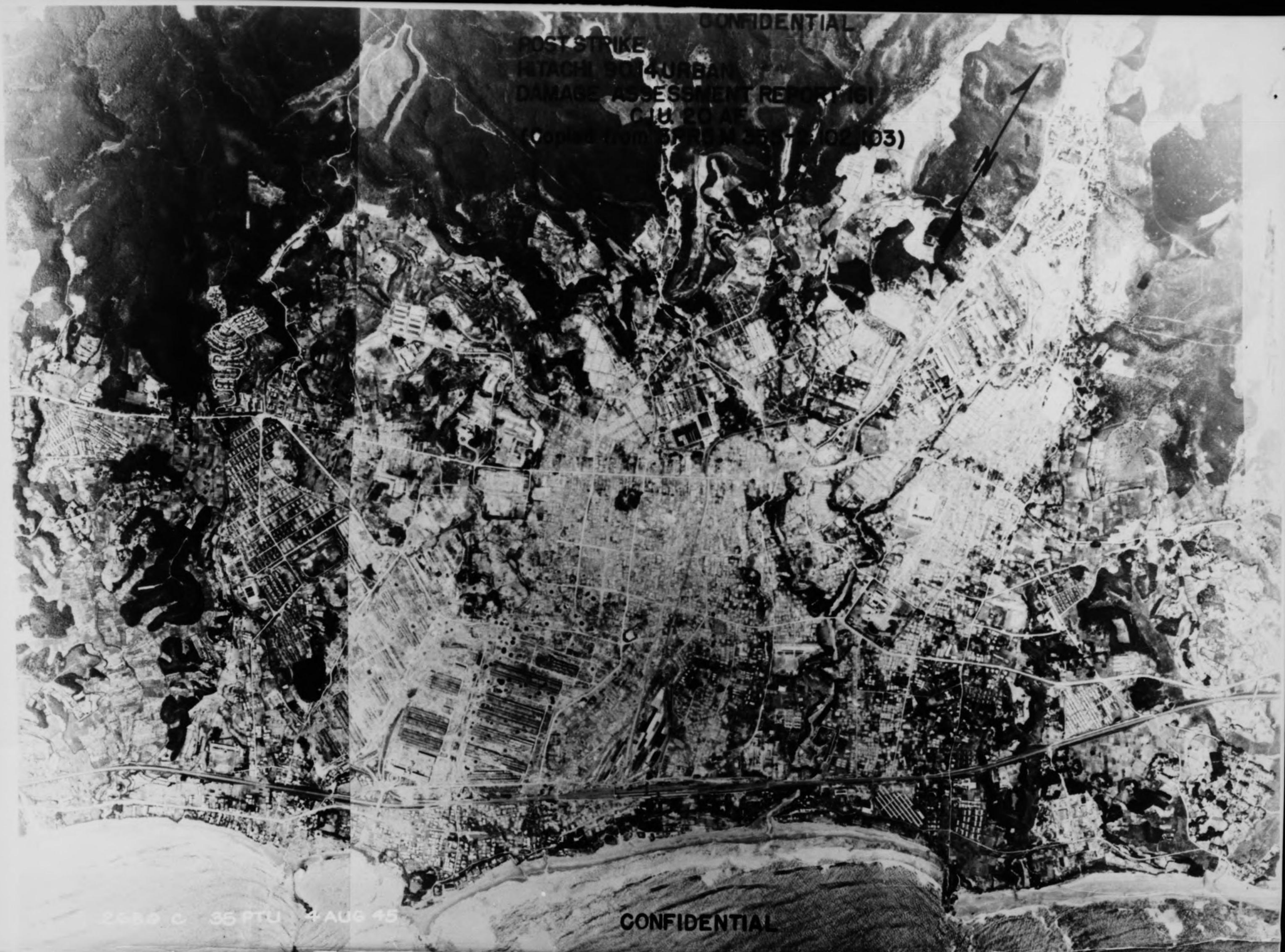
* Target 2099 - the correct target identification used for this report is that given in J.T.G. 90.14-2099 TL, 24 May 1945. (See attached enlargement).

Photos used: Pre-strike: Navy coverage 21-VD-72A (18 July 1945)
Post-strike: 3PR5M355-2: 102, 103, 104.

Annotated and attached: Enlargement from Navy Pre-strike 21-VD-72A
Post Strike 3PR5M355-2:103

Approved. Hamilton D. Darby
HAMILTON D. DARBY
MAJOR, AC

DISTRIBUTION: "B"


CONFIDENTIAL
POST STRIKE
HITACHI 90 TURBAN
DAMAGE ASSESSMENT REPORT 161
CJU 20 AF
(copied from SPRS M 355-2/102/103)
N
2680 C 35 PTU 4 AUG 45
CONFIDENTIAL

KEY
Old Damage
New Damage
Sparsely
HITACHI

MISSION Nº	278	OTHER			
DAMAGE	.88 Sq. Mi. (63.7)	.20 Sq. Mi. (14.5%)			
WINGS	73rd				
DATE	19/20 July				
DAY/NIGHT	NIGHT				
BOMB TYPE	INCEN				
AV. LOAD					
A/C AIRBORNE	130				
A/C BOMB. P.T.	126				
TONS ON P.T.	947				
ALTITUDE	12.600				
BOMB. METH.	6V 120R				
CLAIMS	0				
LOSSES	2				

M 47 INST 449T
M 17 5000' ABOVE 270T
E 46 5000' ABOVE 230T

CONFIDENTIAL

NOT TO BE TAKEN INTO THE AIR ON COMBAT MISSIONS

TARGET: Hitachi Urban Industrial Area
OBJECTIVE AREA: 90.14

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

HITACHI URBAN INDUSTRIAL AREA

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4. IMPORTANCE: The industrial targets constitute an industrial complex of six Hitachi Engineering Co. plants, which integrate copper production vertically from mining through smelting, refining, drawing and coiling to the end production of electrical equipment. Since they are probably not vulnerable to incendiary attack, a blow at the city should be combined with precision attacks on the individual industrial installations.

In the main part of the city there are four plants:

90.14-812 - THE HITACHI COPPER REFINERY - The 3rd or 4th ranking in its category in Japan. Covers 20 acres. With Target 90.14-2099 (below), formerly known as Hitachi Engineering Works, Yamate Plant.

90.14-1476 - HITACHI ENGINEERING WORKS, KAIGAN PLANT - Produces electrical equipment, diesel engines, machine tools, locomotives, tanks, and A/C components. 180 acres. Reported 85% destroyed on June 10.

90.14-2098 - HITACHI ENGINEERING WORKS, DENSEN PLANT - Heavy electrical equipment, wire and cable. 10 acres.

90.14-2099 - HITACHI ENGINEERING WORKS, SHIBAUCHI PLANT - Light electrical equipment. 10 acres, adjacent to Target No. 812. Both also known as Yamate Wire & Cable Plant.

Unnumbered - Sukegawa Station and Yards - Located at northeast corner of Kaigan Plant. Handles all traffic from the Smelter and Refinery; and finished products from the assembly plants. On the coastal JOBAN Line which connects Hitachi with the Tokyo area.

In addition to these four plants within the city proper, there are three other Hitachi plants in the immediate vicinity of the city.

90.14-1492 - The Hitachi Copper Smelter, which lies two miles southeast of the mine, and about two miles northwest of the city.

90.14-2100 - Hitachi Engineering Works, Taga (Or Shimomago) plant, light and heavy electrical equipment, aircraft and engine parts. Lies 2 3/4 miles southwest of the center of the city, less than 100 yards from shore.

An incendiary strike at the city of Hitachi would supplement precision damage already dealt to one of its installations. Further heavy explosive blows on the heels of the fire attack may well render impotent this important, integrated area. Destruction will be complete with coordinated incendiary attacks on nearby MITO, FUKUSHIMA, and KORIYAMA which contain supplementary subcontracting plants tied to the Hitachi complex. Disruption of coastal traffic will also result from an attack on the city.

5. AIMING POINTS: Aiming points will be specified in the Field Order.

1 July 1945.

Target Section, A-2
XXI Bomber Command

S E C R E T

MISSION RESUME

Mission Number 278 31 July 1945

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8. Time Over Primary: 20002CK - 200153K

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S E C R E T

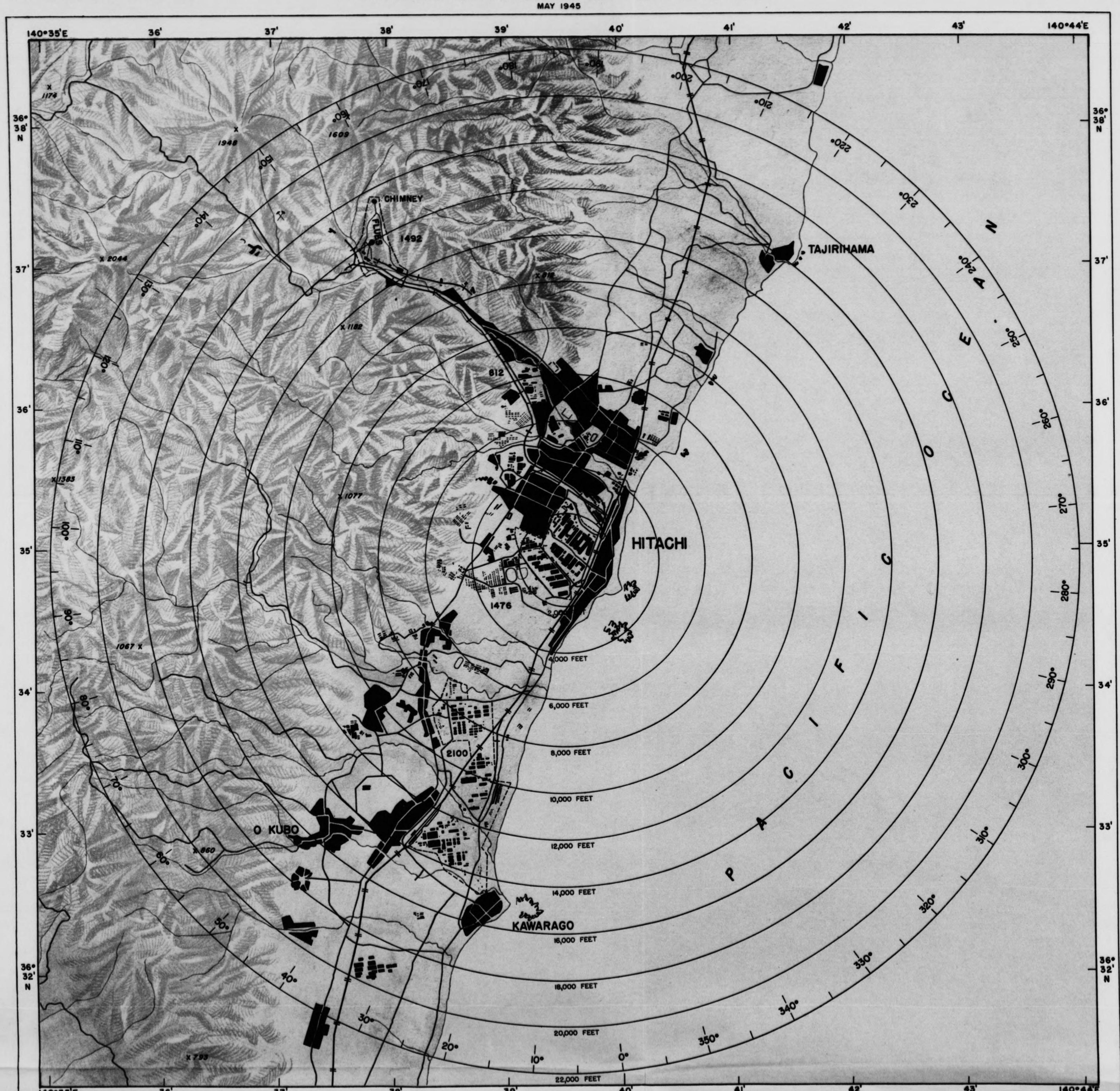
A-2 SECTION
XXI BOMBER COMMAND

HITACHI AREA

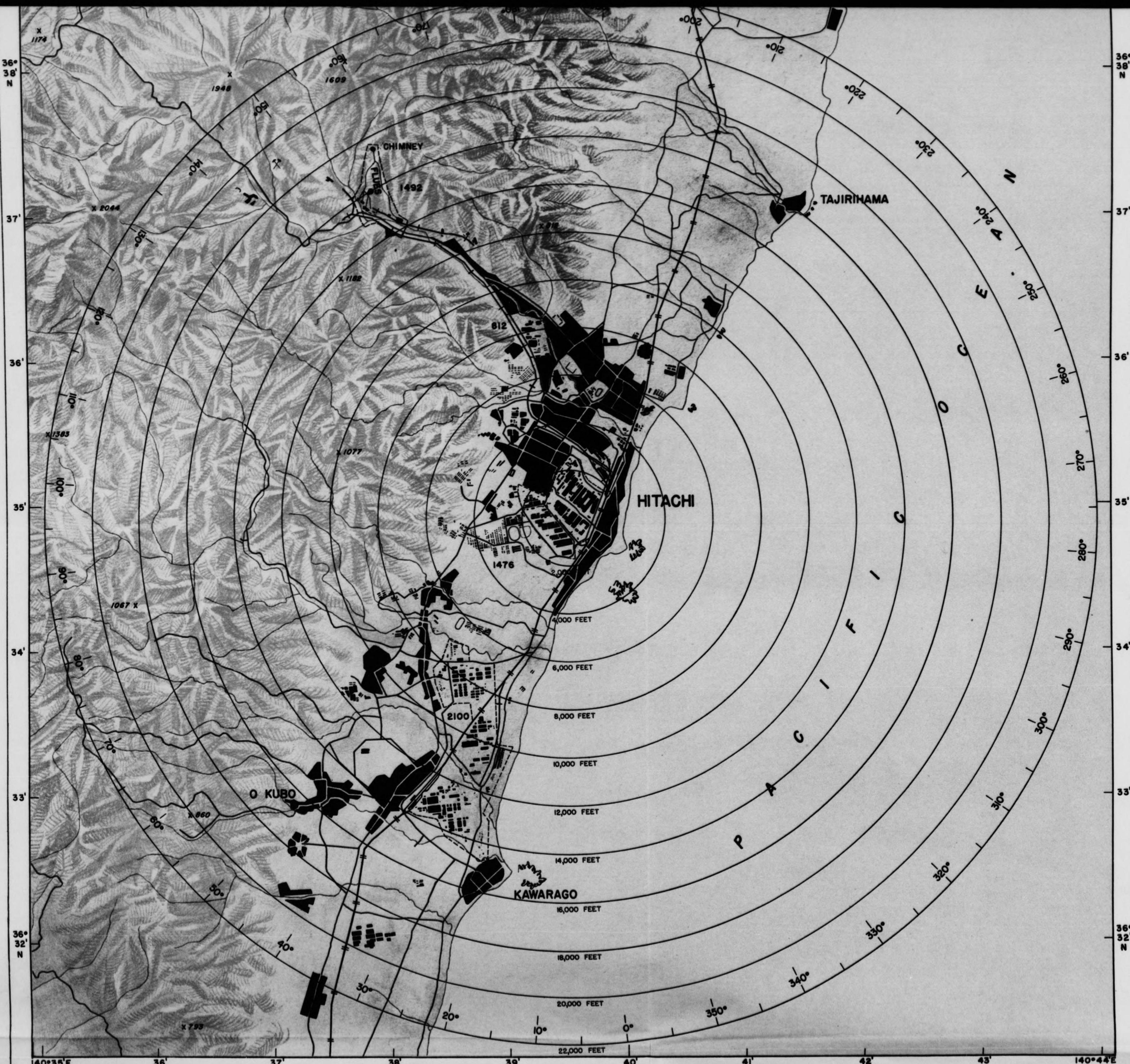
HITACHI ENGINEERING WORKS, KAIGAN PLANT TARGET NO 90.14-1476

MAY 1945

TARGET CHART NO. 34A
RESTRICTED



NO.	DESIGNATION	ELEV
812	HITACHI COPPER REFINERY	25'
1476	HITACHI ENGINEERING WORKS	



NO.	DESIGNATION	ELEV.
812	HITACHI COPPER REFINERY	25'
1476	HITACHI ENGINEERING WORKS KAIGAN PLANT	13'
1492	HITACHI COPPER SMELTER	65'
2100	UNIDENTIFIED INDUSTRY	10'

CORAL REEF

COMPILED FROM 3D PHOTO RCN SQ PHOTOS, APRIL 1945

THOUSANDS OF FEET

STATUTE MILES

NAUTICAL MILES

SCALE 1:40,000

COMPASS ROSE INDICATES MAGNETIC BEARING TOWARD THE TARGET

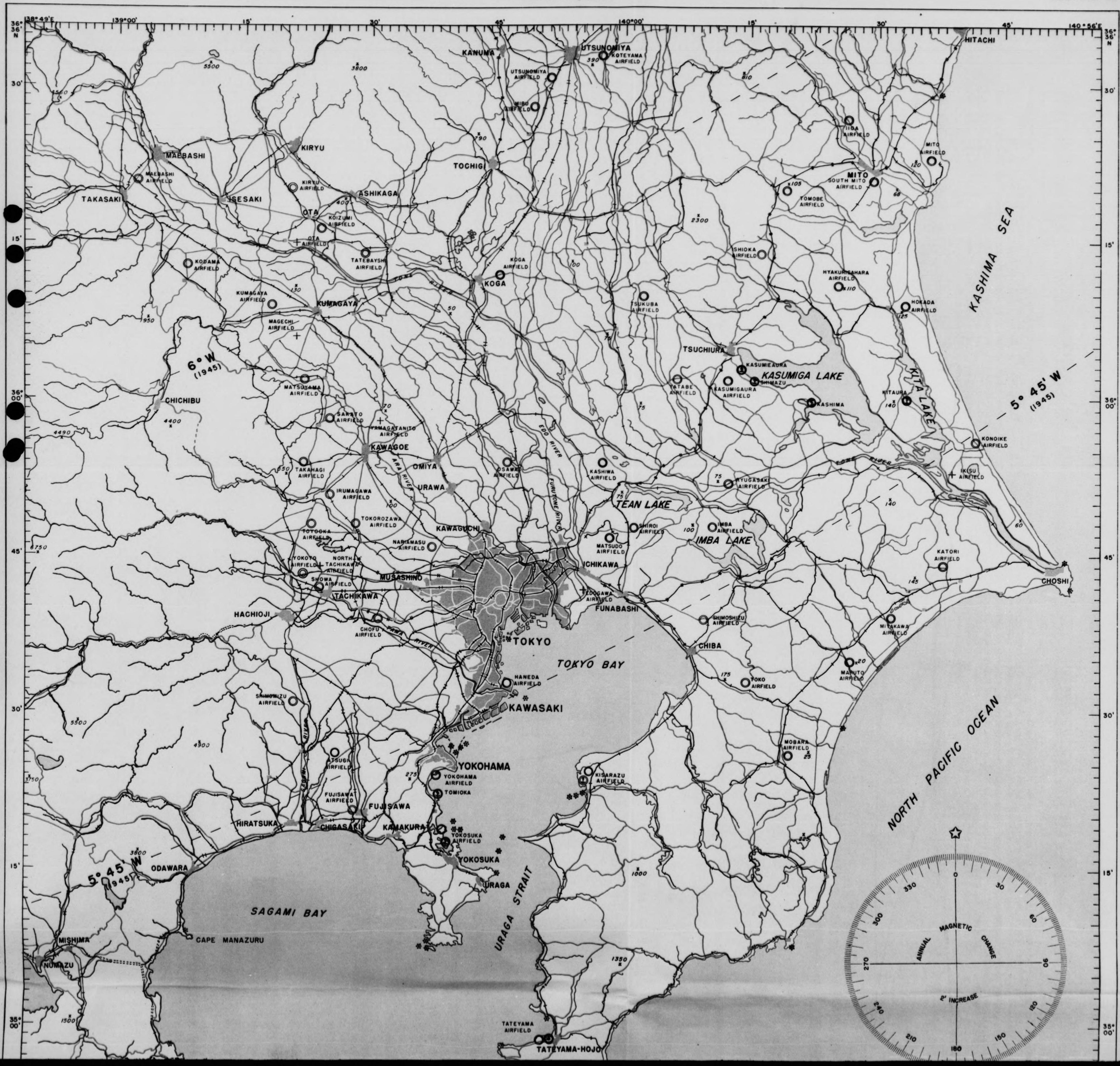
MAG DEC 6°02' W (1945)
ANNUAL MAGNETIC CHANGE = 2' INCREASE

COMPILED AND REPRODUCED BY 949TH ENGR AVN TOPO CO

A-2 SECTION
XXI BOMBER COMMAND

TOKYO AREA
FEBRUARY, 1945

CHART NO. 5
RESTRICTED



MAEBASHI
MAEBASHI AIRFIELD
KIRYU
KIRYU AIRFIELD
TAKASAKI
ISESAKI
ASHIKAGA
OTA
KOIZUMI AIRFIELD
OTA AIRFIELD
TATEBAYSHI AIRFIELD
KODAMA AIRFIELD
KUMAGAYA AIRFIELD
KUMAGAYA
MAGECHI AIRFIELD
TONE RIVER
MIBU AIRFIELD
TOCHIGI
KOGA AIRFIELD
KOGA
IIDA AIRFIELD
MITO
SOUTH MITO AIRFIELD
MITO AIRFIELD
TOMOBE AIRFIELD
ISHIOKA AIRFIELD
HYAKURIGAHARA AIRFIELD
TSUKUBA AIRFIELD
HOKADA AIRFIELD
KASHIMA SEA
6° W (1945)
5° 45' W (1945)
TSUCHIURA
KASUMIEAURA
KASUMIGA LAKE
SHIMAZU
TATABE AIRFIELD
KASUMIGAURA AIRFIELD
KASHIMA
KITAURA
KITA LAKE
KONOIKE AIRFIELD
IKISU AIRFIELD
CHICHIBU
MATSUYAMA AIRFIELD
SAKATO AIRFIELD
YAMAGATANITO AIRFIELD
KAWAGOE
ARA RIVER
OMIYA
EDO RIVER
FURUTONE RIVER
OSAWA AIRFIELD
KASHIWA AIRFIELD
RYUGASAKI AIRFIELD
TEAN LAKE
TAKAHAGI AIRFIELD
IRUMAGAWA AIRFIELD
URAWA
TOKOROZAWA AIRFIELD
TOYOOKA AIRFIELD
KAWAGUCHI
NARIMASU AIRFIELD
SHIROI AIRFIELD
IMBA AIRFIELD
IMBA LAKE
MATSUDO AIRFIELD
ICHIKAWA
KATORI AIRFIELD
YOKOTO AIRFIELD
NORTH TACHIKAWA AIRFIELD
SHOWA AIRFIELD
MUSASHINO
TACHIKAWA
EDOGAWA AIRFIELD
FUNABASHI
CHOSHI
HACHIOJI
CHOFU AIRFIELD
TAMA RIVER
TOKYO
SHIMOSHIZU AIRFIELD
MITAKAWA AIRFIELD
CHIBA
TOKYO BAY
HANEDA AIRFIELD
KAWASAKI
TOKO AIRFIELD
MARUTO AIRFIELD
SHIMOMIZU AIRFIELD
MOBARA AIRFIELD
NORTH PACIFIC OCEAN
ATSUGI AIRFIELD
YOKOHAMA
YOKOHAMA AIRFIELD
TOMIOKA
KISARAZU AIRFIELD
FUJISAWA AIRFIELD
FUJISAWA
HIRATSUKA
CHIGASAKI
KAMAKURA
YOKOSUKA AIRFIELD
YOKOSUKA
URAGA
URAGA STRAIT
5° 45' W (1945)
ODAWARA
SAGAMI BAY
CAPE MANAZURU
MISHIMA
NUMAZU
TATEYAMA AIRFIELD
TATEYAMA-HOJO
MAGNETIC
ANNUAL CHANGE
2' INCREASE
0
30
60
90
120
150
180
210
240
270
300
330
138°50'E
139°00'
15'
30'
45'
140°00'
15'
30'
45'
140°55'E
30'
15'
45'
36° 00'
35° 00'
34° 53' N
NAUTICAL MILES
COMPILED BY 35TH PHOTO TECH UNIT
REPRODUCED BY 949TH ENGR AVN TOPO CO

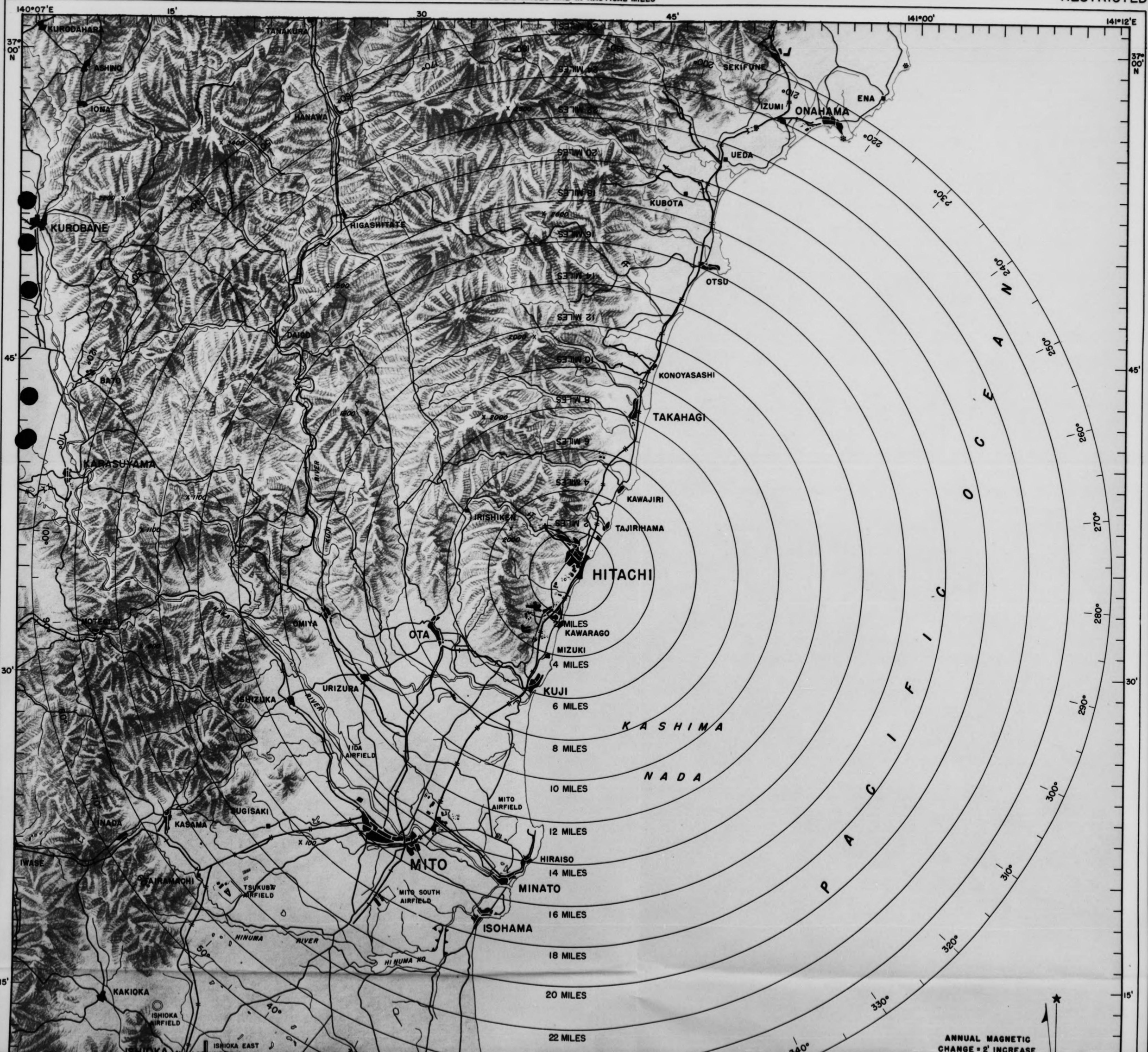
A-2 SECTION
XXI BOMBER COMMAND

HITACHI AREA

TARGET NO. 90.14-1476 HITACHI ENGINEERING WORKS, KAIGAN PLANT (36°35'N - 140°39'30"E) ELEV APPROX 10 FEET

ALL DISTANCES ARE IN NAUTICAL MILES

TARGET CHART NO. 34
RESTRICTED



IONA
HANAWA
KUROBANE
HIGASHITATE
DAIGO
BATO
KARASUYAMA
NOTEGI
OMIYA
OTA
URIZURA
ISHIZUKA
IIDA AIRFIELD
SUGISAKI
KASAMA
INADA
IWASE
SAIRAMACHI
TSUKUBA AIRFIELD
MITO
MITO AIRFIELD
MITO SOUTH AIRFIELD
HINUMA RIVER
HINUMA KO
KAKIOKA
ISHIOKA AIRFIELD
ISHIOKA
ISHIOKA EAST AIRFIELD
OGAWA
HYAKURIGAHARA AIRFIELD
ODA
HOKOTA
HOKODA AIRFIELD
SHIRATSUKA
HIRAISO
MINATO
ISOHAMA
IZUMI
ONAHAMA
ENA
UEDA
KUBOTA
OTSU
KONOYASASHI
TAKAHAGI
KAWAJIRI
TAJIRIHAMA
IRISHIKEN
HITACHI
KAWARAGO
MIZUKI
KUJI

20 MILES
18 MILES
16 MILES
14 MILES
12 MILES
10 MILES
8 MILES
6 MILES
4 MILES
2 MILES

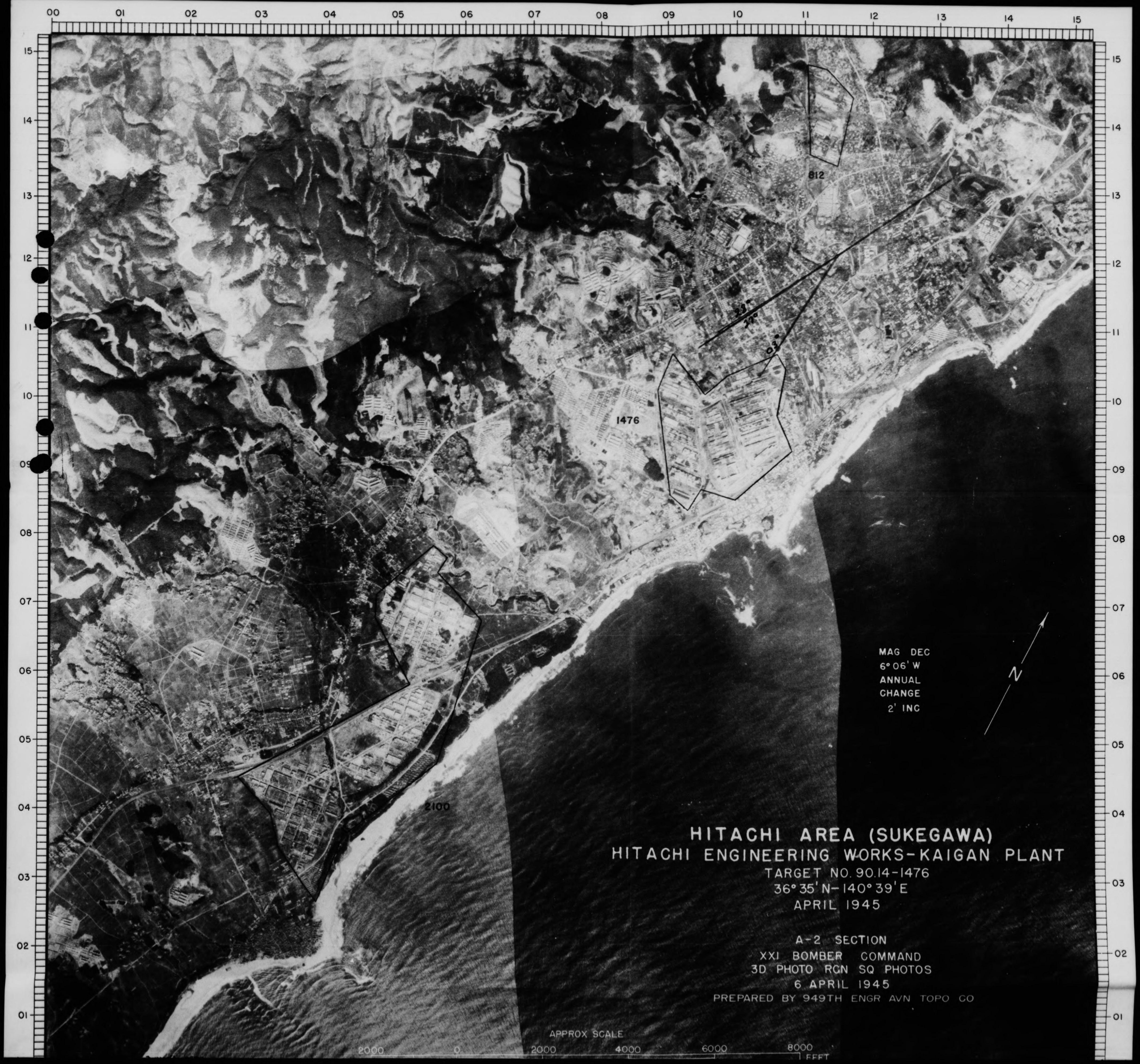
K A S H I M A N A D A

P A C I F I C O C E A N

ANNUAL MAGNETIC CHANGE = 2' INCREASE
MV 6°06'W (1945)

45'
30'
15'
36° 09' N
140°07'E
141°12'E
NAUTICAL MILES

COMPILED AND REPRODUCED BY 949TH ENGR AVN TOPO CO, MAY 1945



HITACHI AREA (SUKEGAWA)

HITACHI ENGINEERING WORKS-KAIGAN PLANT

TARGET NO. 90.14-1476

36° 35' N-140° 39' E

APRIL 1945

A-2 SECTION

XXI BOMBER COMMAND

3D PHOTO RCN SQ PHOTOS

6 APRIL 1945

PREPARED BY 949TH ENGR AVN TOPO CO

812

1476

2100

MAG DEC
6° 06' W
ANNUAL
CHANGE
2' INC

N

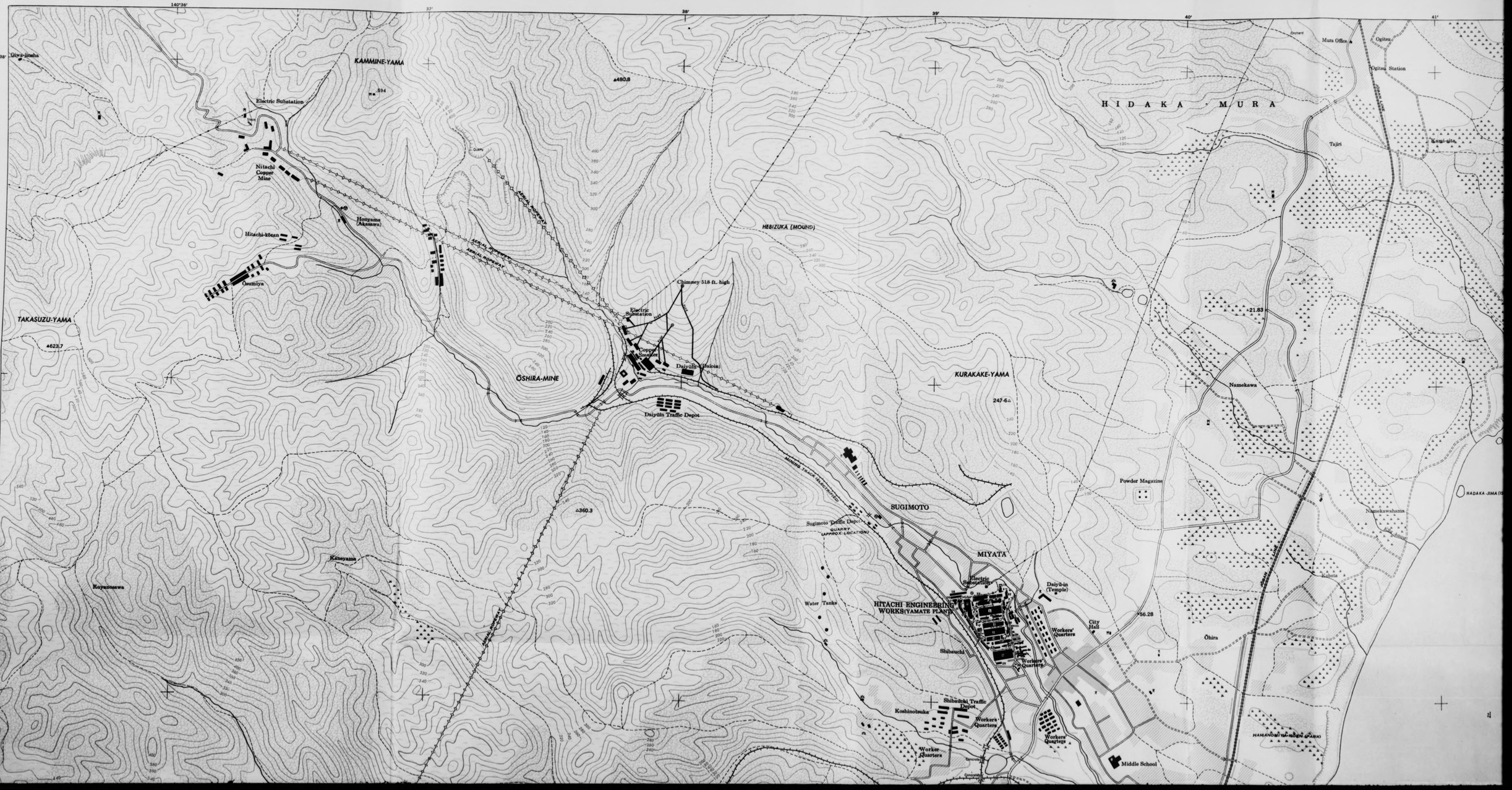
HITACHI AREA (SUKEGAWA)

HITACHI ENGINEERING WORKS-KAIGAN PLANT

TARGET NO. 90.14-1476
36° 35' N-140° 39' E
APRIL 1945

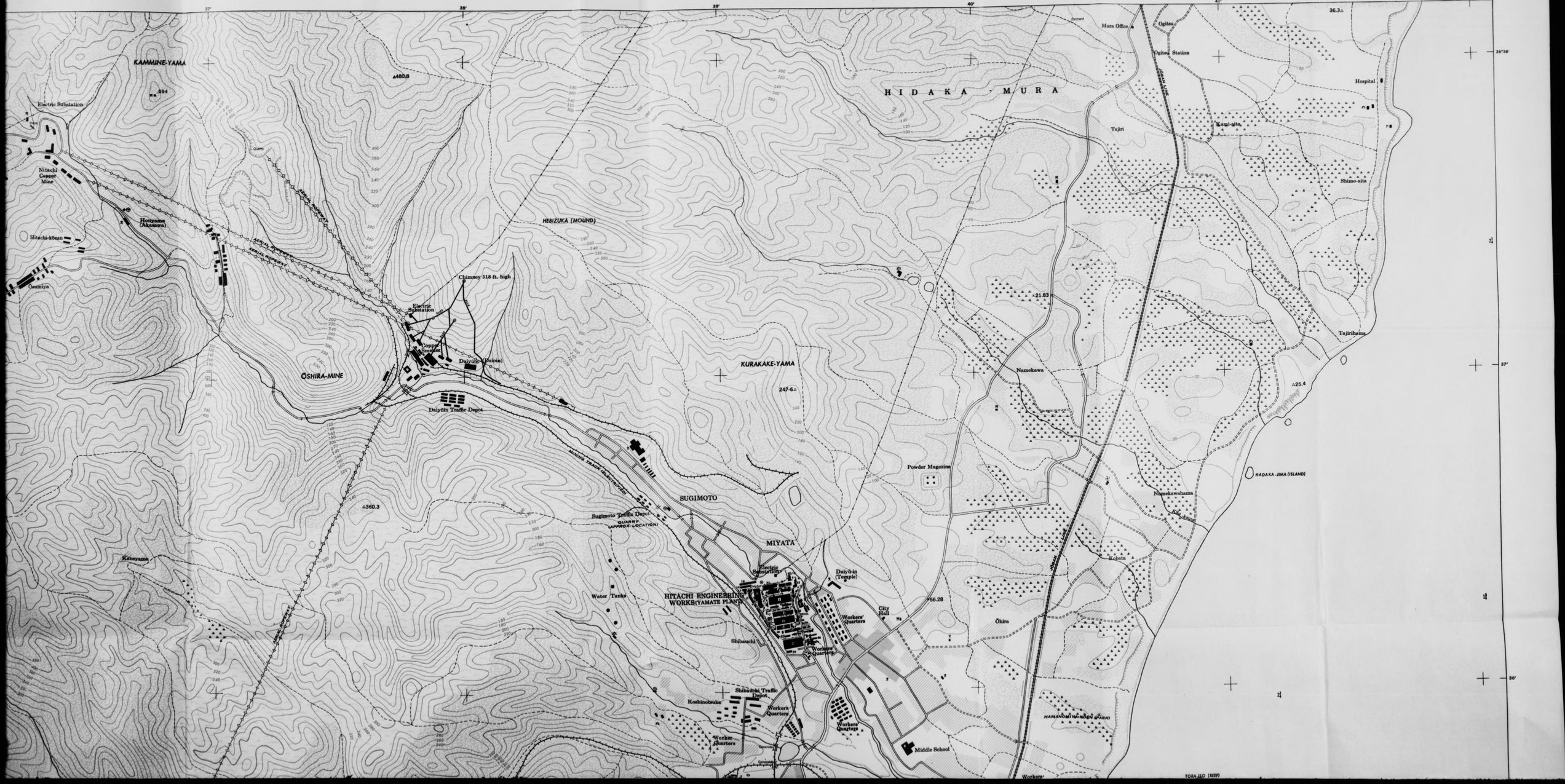
A-2 SECTION
XXI BOMBER COMMAND
3D PHOTO RCN SQ PHOTOS
6 APRIL 1945
PREPARED BY 949TH ENGR AVN TOPO CO

APPROX SCALE
2000 0 2000 4000 6000 8000 FEET



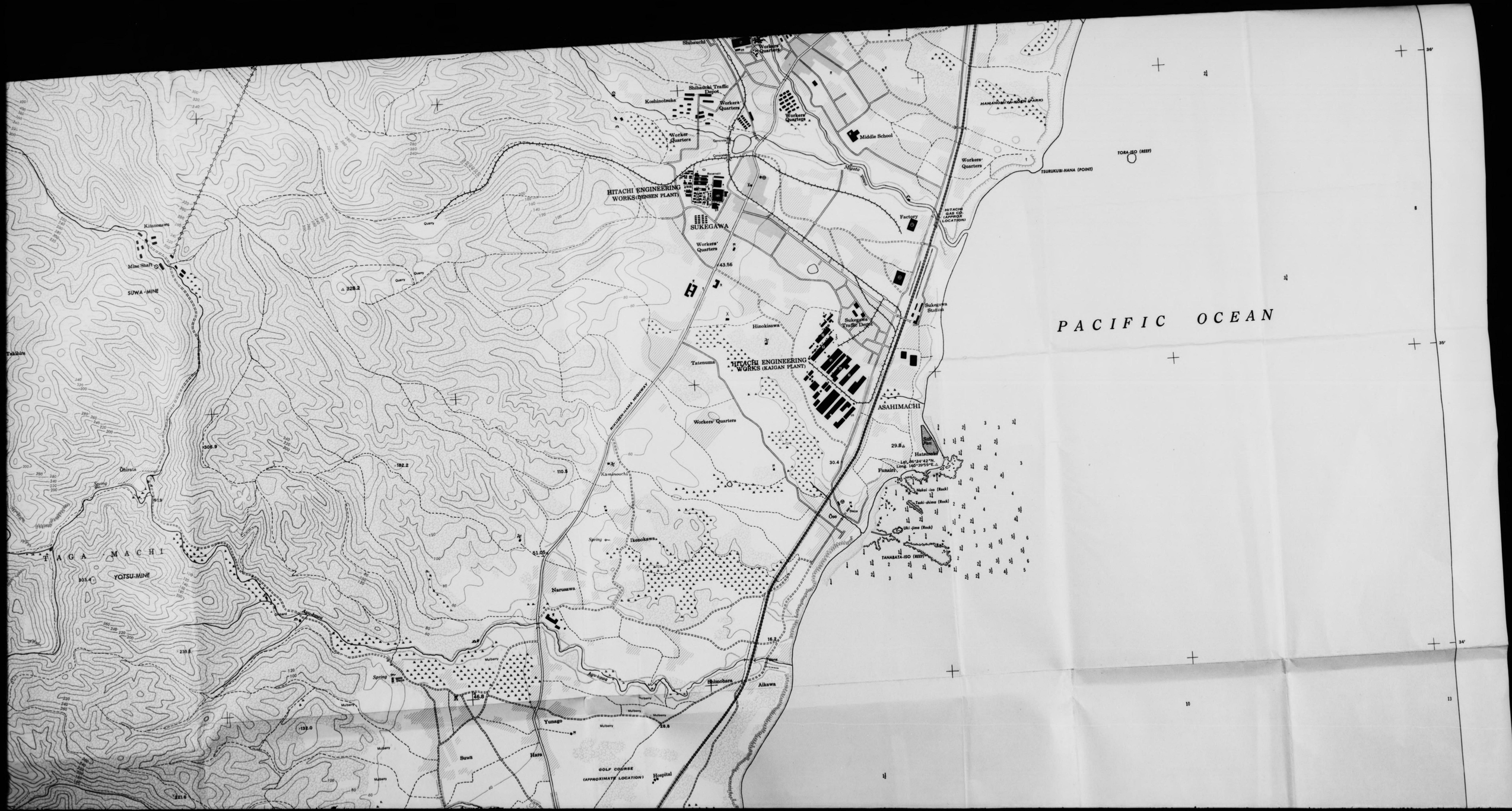
KAMMINE-YAMA
Electric Substation
Nitachi Copper Mine
Honyama (Akasawa)
Hitachi-kōzan
Ōsumiya
TAKASUZU-YAMA
ŌSHIRA-MINE
Chimney 518 ft. high
Electric Substation
Copper Smelter
Daiyūin (Daioin)
Daiyūin Traffic Depot
HEBIZUKA (MOUND)
KURAKAKE-YAMA
HIDAKA-MURA
Mura Office
Ogitsu
Ogitsu Station
Tajiri
Kami-aita
Namekawa
Powder Magazine
Namekawahama
Kobata
Ōhira
SUGIMOTO
Sugimoto Traffic Depot
QUARRY (APPROX. LOCATION)
MIYATA
Electric Substation
Daiyū-in (Temple)
HITACHI ENGINEERING WORKS (YAMATE PLANT)
Water Tanks
City Hall
Workers' Quarters
Shibauchi
Shibauchi Traffic Depot
Koshinotsuka
Middle School
Kaneyama
Koyanosawa
Ōiwa-jinsha

RESTRICTED



KAMMINE-YAMA
Electric Substation
Nitachi Copper Mine
Honyama (Akasawa)
Hitachi-kōzan
Osumiya
AERIAL ROPEWAY
HEBIZUKA (MOUND)
Chimney 518 ft. high
Electric Substation
Copper Smelter
Daiyūin (Daioin)
ŌSHIRA-MINE
Daiyūin Traffic Depot
MINING TRACK (ELECTRIFIED)
SUGIMOTO
Sugimoto Traffic Depot
QUARRY (APPROX. LOCATION)
MIYATA
Electric Substation
Daiyū-in (Temple)
HITACHI ENGINEERING WORKS (YAMATE PLANT)
Water Tanks
Workers' Quarters
City Hall
Shibauchi
Shibauchi Traffic Depot
Koshinotsuka
Worker Quarters
Middle School
Kaneyama
KURAKAKE-YAMA
HIDAKA MURA
Mura Office
Ogitsu
Ogitsu Station
Hospital
Tajiri
Kami-aita
Shimo-aita
Tajirihama
Namekawa
Powder Magazine
Namekawahama
HADAKA-JIMA (ISLAND)
Kobata
Ōhira
HAMANOMIYA-KOEN (PARK)
TORA-JIO (REEF)

Shibauchi
Workers' Quarters
Shibauchi Traffic Depot
Koshinotsuka
Workers' Quarters
Worker Quarters
Workers' Quarters
Middle School
HAMANOMIYA-KOEN (PARK)
Workers' Quarters
TORA-ISO (REEF)
TSURUKUBI-HANA (POINT)
HITACHI ENGINEERING WORKS (DENSEN PLANT)
SUKEGAWA
Workers' Quarters
Factory
HITACHI GAS CO. (APPROX LOCATION)
Kitanosawa
Mine Shaft
SUWA-MINE
Takihira
Hinokisawa
Sukegawa Traffic Depot
Sukegawa Station
PACIFIC OC
Tatenuma
HITACHI ENGINEERING WORKS (KAIGAN PLANT)
RIKUZEN-HAMA HIGHWAY
Workers' Quarters
ASAHIMACHI
Ohirata
Spring
Kaminouchi
Hatasaki
Funairi
Nakai-iso (Rock)
Tsuki-shima (Rock)
Uki-jima (Rock)
TANABATA-ISO (REEF)
Öso
TAGA MACHI
YOTSU-MINE
Ikenokawa
Narusawa
Ayukawa
Spring
Shimohara
Aikawa
Yunago
Suwa
Hara
GOLF COURSE (APPROXIMATE LOCATION)
Hospital
Cave


PACIFIC OCEAN
HITACHI ENGINEERING WORKS (DENSEN PLANT)
HITACHI ENGINEERING WORKS (KAIGAN PLANT)
SUKEGAWA
ASAHIMACHI
TAGA MACHI
SUWA-MINE
YOTSU-MINE
Shibauchi
Shibauchi Traffic Depot
Koshinotsuka
Middle School
HAMANOMIYA-KOEN (PARK)
TORA-ISO (REEF)
TSURUKUBI-HANA (POINT)
HITACHI GAS CO. (APPROX. LOCATION)
Sukegawa Station
Sukegawa Traffic Depot
Hinokisawa
Tatenuma
Kaminouchi
Ikenokawa
Narusawa
Shimohara
Aikawa
Yunago
Suwa
Hara
Hospital
GOLF COURSE (APPROXIMATE LOCATION)
Kitanosawa
Mine Shaft
Takibira
Onirata
Funairi
Hatanosaki
Lat. 36°24'42"N
Long. 140°39'59"E
Nekoi-jima (Rock)
Taki-shima (Rock)
Uki-jima (Rock)
TANABATA-ISO (REEF)
Oni
Gulf Port
Workers' Quarters
Factory
Quarry
Spring
Mulberry
Orchard
Cemetery
Playground
Public Office
Post Office
Police Box
Temple
Shrine
Church
Bridge
Tunnel
Embankment
Cutting
Railway
Highway
Path
Contour
Stream
Pond
Sea Wall
Rock
Reef
Sea Weed
Sea Grass
Sand
Mud
Rock
Coral
Shell
Sand
Mud
Rock
Coral
Shell
Sand
Mud
Rock
Coral
Shell

H
IBARAKI PREFEC

½

500

500

POL

CONTOUR

Office of the Assistant Chief of Air Staff, Intelligence, Washington, D. C.
Compiled for the Commanding General, U.S. Army Air Forces, under the
Aeronautical Chart Service by the Lake Survey Branch, Army Map Servic
May, 1945
Compiled from:

1. Japan 1:50,000, Japanese Imperial Land Survey, Hitachi Ōta (1932) (tr
survey-base map in north)
2. Japan 1:25,000, Japanese Imperial Land Survey, Ōta, Kawarogo (1932)
base map in south)
3. Japanese Hydrographic Chart 47, Inset: Ose Hakuti, 1:7,507 (1926 cor
survey - Ose harbor detail)
4. Japanese Hydrographic Chart 62, 1:500,000 (1926 cor. 41) (compiled m
5. Hitachi Engineering Works Construction Report, Kaigan Plant 1:2,500
(planimetric drawing—factory detail)
6. Hitachi Engineering Works Construction Report, Yamate Plant 1:2,500
drawing—factory detail)
7. Hitachi Engineering Works Construction Report, Densen Plant 1:2,500
(planimetric drawing—factory detail)
8. Hitachi Copper Mine, pub. World Engineering Congress, 1:40,000 (192
added detail)
9. Geologic Map of Hitachi Mine, 1:20,000 (1926) (compiled map—added
10. 14 Oblique photographs (1926 - 1937) (factory buildings and detail)
11. Japanese Government Railway Timetable (1941) (railroad gauges)
12. Intelligence data (1943) (names of industries)

Names transcribed according to the Modified Hepburn (Romaji) System

LEGEND

Shrine
Temple
Chimney
Monument
School
Water Mill
Post Office
Depth of Water
Police Station
Cemetery
Densely Built up
Sparsely Built up
Rice
National or Prefectural R
generally metalled over
or Streets in City Area
Other Roads 2-4 m. wide
Road, Track or Trail
less than 2 m. wide
2'6" Gauge, Double Track
Narrow Gauge, Single Tra
High Tension Power Line
Woodland
Grassland
Bamboo

GLOSSARY

-kawa, gawa ... river
-yama, -mura ... mountain
-jinja, -jinsha ... shrine
-mura ... township
-machi ... precinct, township

HEIGHTS IN METERS: DEPTHS IN FATHOMS A
LOWEST LOW WATER

NOTE: Officers using this chart will mark hereon corrections and additions which come to their attention and mail direct to "AERONAUTICAL CHART SERVICE, HEADQUARTERS ARMY AIR FORCES, WASHINGTON, D. C."

RESTRICTED

FOR USE WITH AAF AIR OBJECTIVE FOLDER MITO 90.14

HITACHI
IBARAKI PREFECTURE, HONSHU, JAPAN

Scale 1:12,500

½ 0 ½ Mile

500 0 500 Meters

500 0 500 Yards

POLYCONIC PROJECTION

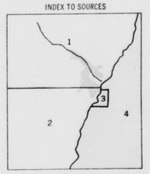
CONTOUR INTERVAL 20 METERS

Office of the Assistant Chief of Air Staff, Intelligence, Washington, D. C.
Compiled for the Commanding General, U.S. Army Air Forces, under the direction of the Aeronautical Chart Service by the Lake Survey Branch, Army Map Service, Detroit, Michigan,
May, 1945.
Compiled from:

1. Japan 1:50,000, Japanese Imperial Land Survey, Hitachi Ōta (1932) (trigonometric survey-base map in north)
2. Japan 1:25,000, Japanese Imperial Land Survey, Ōta, Kawarogo (1932) (trigonometric survey-base map in south)
3. Japanese Hydrographic Chart 47, Inset: Ose Hakuti, 1:7,507 (1926 cor. 33) (trigonometric survey - Ose harbor detail)
4. Japanese Hydrographic Chart 62, 1:500,000 (1926 cor. 41) (compiled map—added depths)
5. Hitachi Engineering Works Construction Report, Kaigan Plant 1:2,500 (1935 cor. 37) (planimetric drawing—factory detail)
6. Hitachi Engineering Works Construction Report, Yamate Plant 1:2,500 (1932) (planimetric drawing—factory detail)
7. Hitachi Engineering Works Construction Report, Densen Plant 1:2,500 (1935 cor. 37) (planimetric drawing—factory detail)
8. Hitachi Copper Mine, pub. World Engineering Congress, 1:40,000 (1929) (compiled map—added detail)
9. Geologic Map of Hitachi Mine, 1:20,000 (1926) (compiled map—added detail)
10. 14 Oblique photographs (1926 - 1937) (factory buildings and detail)
11. Japanese Government Railway Timetable (1941) (railroad gauges)
12. Intelligence data (1943) (names of industries)

Names transcribed according to the Modified Hepburn (Romaji) System

INDEX TO SOURCES



LEGEND

Shrine
Temple
Chimney
Monument
School
Water Mill
Post Office
Depth of Water
Police Station
Cemetery
Densely Built up
Sparsely Built up
Rice
National or Prefectural Road generally installed over 4 m. wide, or Streets in City Area
Other Roads 2-4 m. wide
Road, Track or Trail less than 2 m. wide
3'6" Gauge, Double Track Railroad
Narrow Gauge, Single Track Railroad
High Tension Power Line
Woodland
Grassland
Bamboo

GLOSSARY

-kawa, -gawa ..... river
-yama, -mine ..... mountain
-jinja, -jisha ..... shrine
-mura ..... township
-machi ..... precinct, township

KEY TO BUILDINGS

YAMATE PLANT

1. MILL NO. 1
2. FINISHING ROOM
3. ASSEMBLY
4. FACTORY
5. TRANSFORMER HOUSE
6. FACTORY
7. IRON FOUNDRY
8. PATTERN SHOP
9. LUMBER STORAGE
10. WAREHOUSES
11. FACTORY
12. BOILER MAKING
13. BLACKSMITH
14. PACKING ROOM
15. FAN FACTORY
16. CHIMNEY FACTORY
17. FAN WAREHOUSE
18. SEAT IRON WORKS
19. OFFICE
20. PUNCHING SHOP
21. BOILER HOUSE
22. DRAFTING ROOM
23. DRAWING ROOM
24. OFFICE
25. MARBLE FACTORY
26. WORKSHOPS & SAWMILLS
27. ELECTRICAL DRYING ROOM
28. OFFICE
29. ELECTRIC TOOL & DRAWING ROOM
30. GALVANIZING SHOP
31. COMPRESSOR
32. WAREHOUSE
33. FOUNDRY

DENSEN PLANT

1. OIL REFINERY
2. VARNISH WORKS
3. CAN FACTORY
4. OIL REFINERY
5. PACKING ROOM & WAREHOUSE
6. FACTORY
7. WAREHOUSE
8. WIRE FACTORY
9. WIRE FACTORY
10. ROLLING FACTORY
11. COVERING FACTORY
12. COVERING FACTORY
13. ENAMEL FACTORY
14. FACTORY
15. OFFICE
16. BOILER HOUSE
17. TESTING ROOM
18. ENAMEL FACTORY
19. FACTORY
20. SCREW FACTORY
21. LUMBER SHED
22. COVERING PLANT
23. LABORATORY

KAIGAN PLANT

1. OFFICE
2. WAREHOUSE
3. SMALL TRANSFORMERS
4. LARGE TRANSFORMERS
5. TURBINE & BOILER FACTORY
6. ELEVATOR FACTORY
7. SWITCHBOARDS & MOTORS
8. DESIGNING ROOMS
9. ADMINISTRATION
10. STORAGE BUILDING

HEIGHTS IN METERS: DEPTHS IN FATHOMS AT NEARLY LOWEST LOW WATER

NOTE: Officers using this chart will mark hereon corrections and additions which come to their attention and mail direct to "AERONAUTICAL CHART SERVICE, HEADQUARTERS ARMY AIR FORCES, WASHINGTON, D.C."

ARMY MAP SERVICE, U. S. ARMY, WASHINGTON, D. C. 340708
6-45
1945

FOR USE WITH AAF AIR OBJECTIVE FOLDER MITO 90.14

CONFIDENTIAL

C. I. U.
TWENTIETH AIR FORCE
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

3 August 1945

DAMAGE ASSESSMENT REPORT 161

HITACHI-90.14-URBAN

20 AF Mission 278, 19-20 July 1945 73rd Wing

SUMMARY OF DAMAGE

Built-up area: Sq.Mi. total: 1.38 Sq. Mi. destroyed: 73.3

Percent destroyed: 64.5

Planned target area 1.2 sq. mi. Percent destroyed: 73.3

Total damage to date: 1.08 sq. mi. Percent of built-up area: 78.2

Targets damaged by current strike: 3 numbered; 5 other.

Note: Data in this report supersedes that listed in all previous reports.

REPORT

Damage within limits of built-up area:

Area damage from current strike:	Sq. Mi.	Destroyed Sq. Mi.	Percent
Built-up area (Urban)	1.1	.85	77.2
Built-up area (Industrial)	.28	.03	10.7
Built-up area (Total)	1.38	.88	64.5
Area damage from all strikes:			
Built-up area (Urban)	1.1	.87	79
Built-up area (Industrial)	.28	.21	75
Built-up area (Total)	1.38	1.08	78.2

Damage to targets:

Number	Name	
*812	Hitachi Copper Refinery	About 80% destroyed
1476	Hitachi Engineering Works, Kaigan Plant	96.8% (old damage)
2098	Hitachi Engineering Works, Densen Plant	About 30% damaged
*2099	Hitachi Engineering Works, Yamate Plant	About 8% damaged

Railroad yard shows minor damage.
4 small unidentified industries 100% destroyed.

Damage outside built-up area (within 5 mile radius of center of city)

Area damage from current strike:

Two small areas NW of city are destroyed and one small area E of the city is partially destroyed. These areas are very near the city. Total area destroyed outside built-up area totals about .1 sq. mi..

Damage Assessment Report 161, cont'd.

Area damage outside the limits of the built-up area for all strikes totals .1 sq. mi.

Damage to targets:

1492 - Hitachi Copper Smelter	No visible damage
Unidentified target just E of Hitachi	Minor damage
2200 - Hitachi Engineering Works, Taga Plant, SW of Hitachi	Damaged as result of a U. S. Navy strike.
4 unidentified (probable industries)	No visible damage

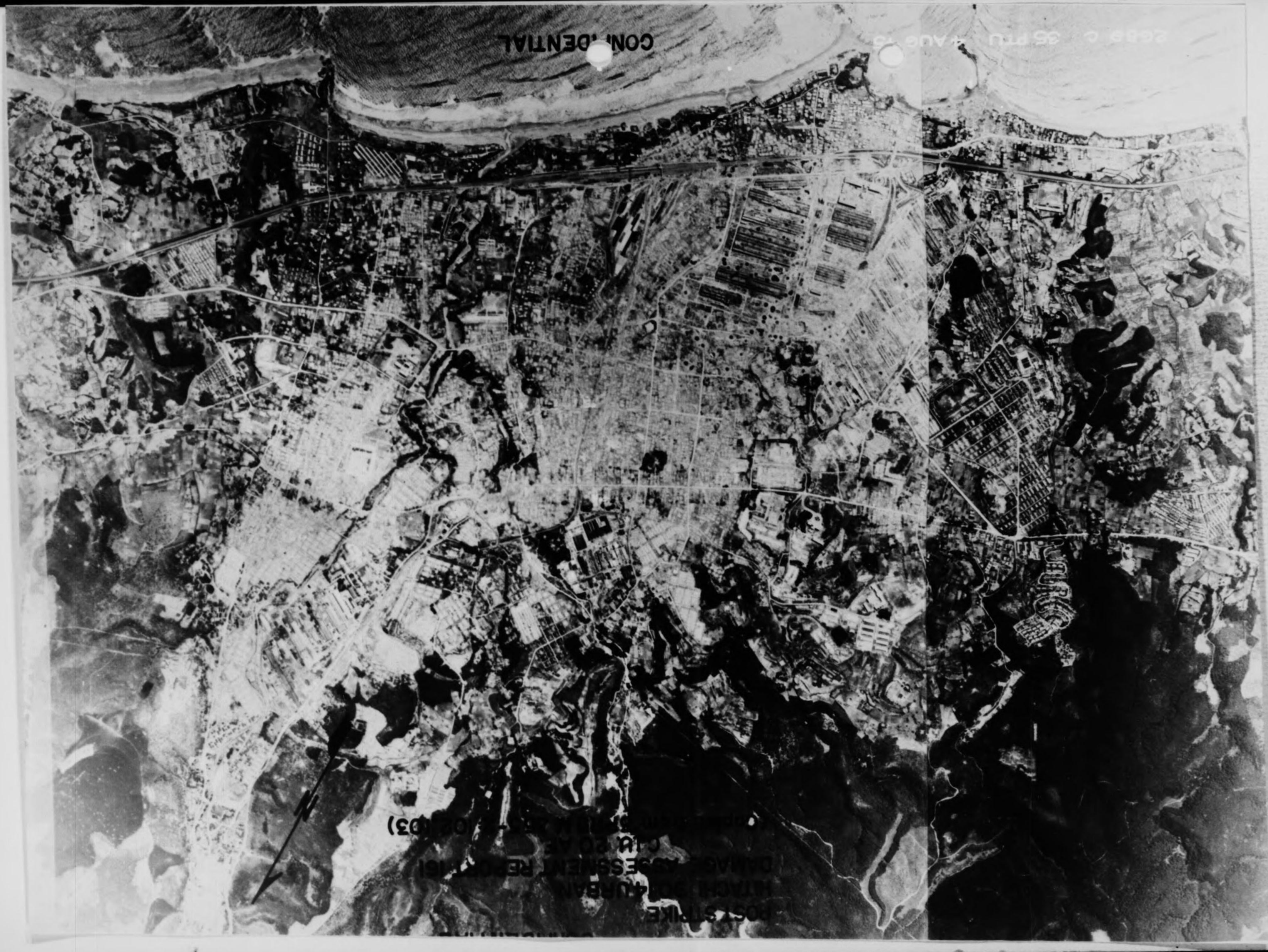
Note: * Target 612 - located immediately N of 2099 (determined by CIU, 20 AF) See attached enlargement

* Target 2099 - the correct target identification used for this report is that given in J.T.G. 90.14-2099 TL, 24 May 1945. (See attached enlargement).

Photos used: Pre-strike: Navy coverage 21-VD-72A (18 July 1945)
Post-strike: 3PR5M355-2: 102, 103, 104.

Annotated and attached: Enlargement from Navy Pre-strike 21-VD-72A
Post Strike 3PR5M355-2:103

Approved. Hamilton D. Darby
HAMILTON D. DARBY
MAJOR, AC

DISTRIBUTION: "B"

Damage To Hitachi
As Of Upon
20 A.F. Mission 278
18-20 July 1945
Damage Assessment
Group
HITACHI
KEY
Old Damage
New Damage
Sparsely Built Up Area
Industrial Area
2688 C 35 PTU 4 AUG 45