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Issued July 18, 1944

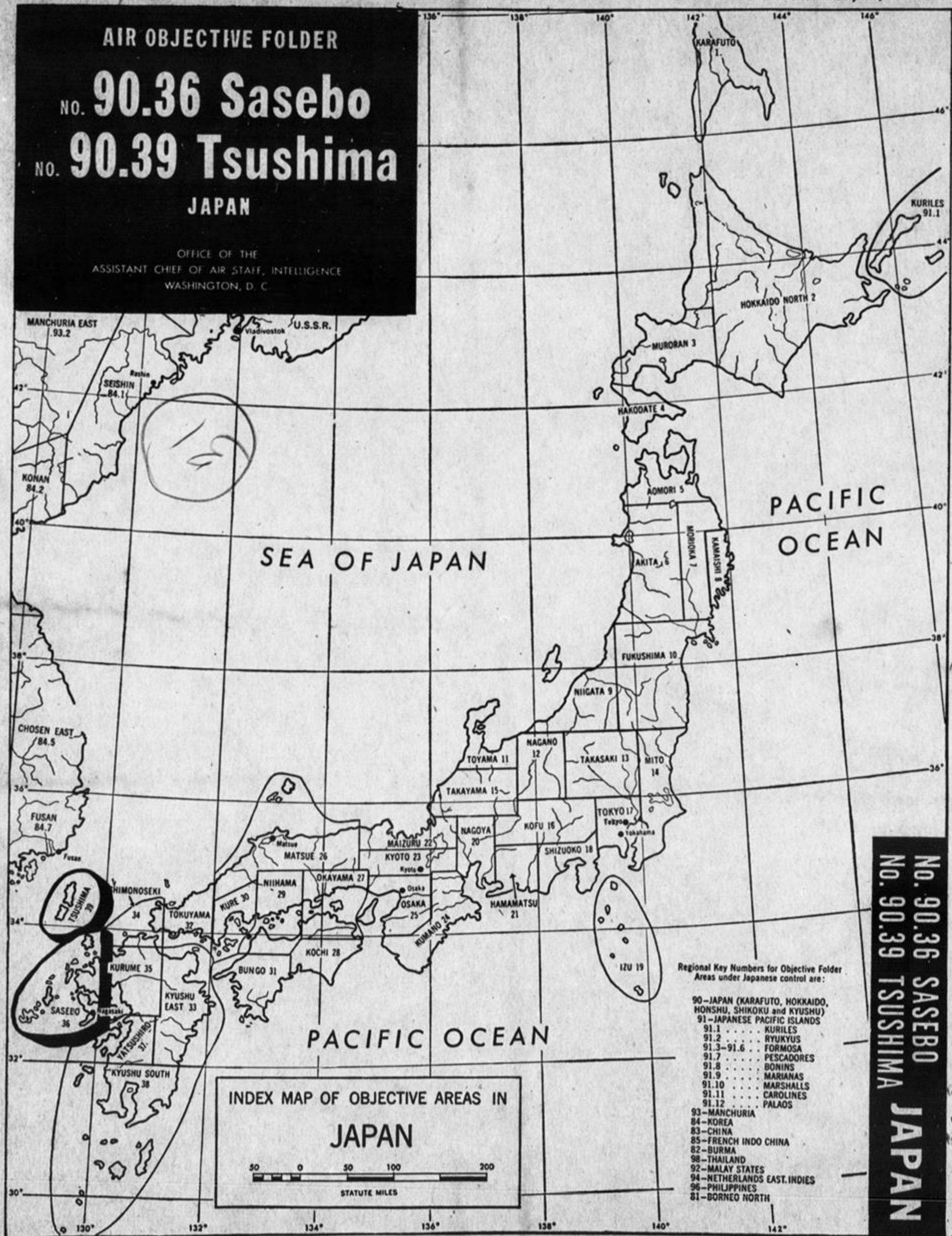
AIR OBJECTIVE FOLDER

NO. 90.36 Sasebo

NO. 90.39 Tsushima

JAPAN

OFFICE OF THE
ASSISTANT CHIEF OF AIR STAFF, INTELLIGENCE
WASHINGTON, D. C.



NO. 90.36 SASEBO

NO. 90.39 TSUSHIMA

JAPAN

14(31)

AIR OBJECTIVE FOLDER, JAPAN

SASEBO AREA, No. 90.36 TSUSHIMA AREA, No. 90.39

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3648-3688 Sesuvium portuacastrum L. - 6-30-44 El Estero, Pinar del Rio

3648-3688 Sesuvium portuacastrum L. - 6-30-44 El Estero, Pinar del Rio

Summary and Evaluation of Sasebo Area, No. 90.36

GENERAL: The Sasebo Area centers around the naval bases at Sasebo and Nagasaki, from which the Japanese Navy deploys and services the fleet units operating in the western sea approaches to Japan Proper. To a large extent the area is a fortified zone, with industry concentrated around, and related to, the shipbuilding, ship repair and general naval activity at Nagasaki and Sasebo. Reconnaissance has shown important new aircraft development at Omura, just northeast of Nagasaki.

Located at the head of the island chain extending down through Formosa, the Ports of Sasebo and Nagasaki have become mutually supporting supply and maintenance bases. The strategic significance of the area as a base for convoy escort and for repair of damaged vessels has been increased by the attacks on Japanese shipping and its progressive contraction into the less exposed route hugging the Philippines and Formosa.

Sasebo is one of Japan's three primary naval bases and a principal naval repair yard. The maintenance and servicing of naval units, particularly lighter escort types, outweighs Sasebo's building capacity. As headquarters of the Third Naval District which includes Kyushu and the island chain to Formosa, Sasebo is responsible for defense and convoy escort at the entrance to the Japan Sea, in the Yellow Sea and the East China Sea. It is also a major supply base, estimated to have one of Japan's largest oil storages and large storages of coal, provisions and munitions. The Sasebo Naval Arsenal is a secondary production unit for naval ordnance (large guns, shells and instruments). The Sasebo Aircraft Factory and the Naval Air Station produce small naval reconnaissance planes and are important for the repair and maintenance of fleet aircraft.

Nagasaki also ranks as a leading shipbuilding and repair center for both naval and merchant vessels. The city's Mitsubishi and Kawanami yards are estimated to account for roughly 15% of the building and repair capacity of Japan's commercial yards. Nagasaki Harbor has been a major supply and embarkation port for the China theater. The port's ample berthing and storage facilities, originally developed to handle a large volume of overseas trade, are now almost exclusively devoted to military shipping. The production of naval torpedoes and other ordnance is also of considerable importance.

At Omura, 15 miles northeast of Nagasaki, reconnaissance has located a new aircraft/engine plant, already large by any standard and still undergoing expansion. It may well be one of the largest plants in the Japanese industry. The only other major center in the Area is Karatsu, site of the Karatsu Iron Works, one of Japan's outstanding precision machine tool plants.

Of the 29 objectives listed in this folder, the following rank among the key targets in the Japanese war economy:

KEY OBJECTIVES IN SASEBO

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829	Mitsubishi Electric Mfg. Co.	Nagasaki	9
544	Tategami Shipyard	Nagasaki	10
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752	Sasebo Naval Dockyard	Sasebo	18
758	Naval Arsenal & Engineering Department	Sasebo	18
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1627	Omura Aircraft Factory	Omura	16

There are a number of other important objectives, such as the Sasebo Aircraft Factory **TARGET 834**, Sasebo Oil Storages **TARGET 755**, Kawanami Industry Co. Shipyard **TARGET 860** and Ainoura Steam Power Plant **TARGET 1603**. The remaining targets are listed as alternate or secondary objectives and as an aid to the interpretation of reconnaissance photography.

PRINCIPAL TARGET CATEGORIES

AIRCRAFT: Photographic reconnaissance of Oct. 1943 established a new aircraft factory at Omura **TARGET 1627** as a major plant, apparently producing Zeke and Rufe fighters. Still under construction, the plant comprised a completed unit (with six engine-test stands, shops and assembly buildings) and two additional incomplete units (with 15 probable engine test blocks and a number of large assembly-type buildings). The total floor space of factory-type buildings alone (including those under construction) is about 2,337,000 square feet, indicating that this is a major plant which may rank among the largest in Japan. Although confirming evidence is lacking, integrated engine production and aircraft assembly is probable.

About 23 hangars and shops located to the north of the plant are designated as part of the Omura Naval Air Station **TARGET 849**. This appears to be a third and fourth echelon repair depot for naval planes, and is probably integrated with the aircraft factory.

The Sasebo Aircraft Factory **TARGET 834** is known to have produced the Pete, Type O reconnaissance float plane. The plant's moderate size and its concentration on single-engine reconnaissance types indicate that it probably does not rank among the key Japanese aircraft factories. It produces most sub-assemblies. Engines are reported manufactured in the nearby Sasebo Naval Arsenal & Engineering Department, **TARGET 758**. The plant also does major repair and overhaul to naval aircraft in conjunction with the Sasebo Naval Air Station **TARGET 754**.

Reports of the manufacture of aircraft engines or engine-mounted accessories at Nagasaki can not be confirmed by available information. Three new unidentified factories are located in the northern outskirts of the city and it is possible that they may be engaged in aircraft production (See SUMMARY AND EVALUATION OF NAGASAKI REGION, Page 7).

ARMS & MUNITIONS: On the basis of available intelligence the area's production of ordnance appears to be substantial but not of major importance. The Sasebo Naval Arsenal & Engineering Department **TARGET 758** primarily manufactures and repairs ships engines and its production of gun turrets and mountings, naval shells, etc. appears to be on a rather small scale. The arsenal finishes guns but does not manufacture tubes. Sasebo's mine and torpedo storages **TARGETS 757 and 762** are very extensive but they are well dispersed and most are either revetted or underground.

The Mitsubishi Steel & Arms Works **TARGET 546** at Nagasaki is only partly devoted to the production of torpedoes and other naval ordnance. The plant also produces substantial quantities of steel, rolls ship plate and does heavy castings and forgings for the city's shipyards.

SUMMARY AND EVALUATION OF SASEBO AREA, No. 90.36—Continued

ELECTRIC POWER: In addition to small standby plants in Sasebo City and Nagasaki, there is one large generating station in the Sasebo Area, the Ainoura Steam Power Plant **TARGET 1603** of 50,000 KW. This plant primarily serves the Sasebo Naval Base area but is an integral part of the West Kyushu power network. For critical interference with essential activity in the Sasebo and Nagasaki districts, operations against this plant would have to be coordinated with attacks upon other large steam plants in the system.

Kyushu is divided into two distinct power supply regions, with systems in the northern and eastern areas operating at 50 cycles and the West Kyushu network operating at 60 cycles. (See Map on page M-1, Electric Power—Kyushu Networks). A few double-cycle hydro stations in central and southeast Kyushu are equipped to supply either network, but the 50-cycle area is believed to require the bulk of this power. Output of Kyushu hydro plants drops by more than 50% during the dry seasons (November-March and August) and a few large steam plants are of critical importance, especially during those periods.

In the West Kyushu network, 75% of dry season capacity and 65% of wet season capacity is represented by the Ainoura Steam Power Plant **TARGET 1603** and four other large steam plants in the Kurume Area (90.35), three with a total capacity of 300,000 KW at Omuta and one of 60,000 KW near Fukuoka. The critical power shortage which would result from elimination of these five plants could not be made up even by complete diversion of the double-cycle capacity to this network.

ELECTRICAL EQUIPMENT: The Mitsubishi Electric Mfg. Co. **TARGET 829** is a branch of Mitsubishi Denki KK, one of Japan's outstanding electrical equipment concerns. This plant is an important producer of marine electrical equipment, including the very largest turbo-generators, and is credited with about 12% of Japan's total capacity. It has also been a substantial producer of large mill motors, electric winches, mining machinery, etc. It is integrated with the nearby and important Akunoura Engine Works **TARGET 542**.

The Sasebo Naval Arsenal & Engineering Department **TARGET 758** also builds and repairs large turbines and produces other electrical equipment.

HARBOR FACILITIES AND SHIP CONCENTRATIONS: Sasebo and Nagasaki are focal points for sizeable concentrations of military shipping. In addition, a number of ships awaiting complete outfitting or repairs may be expected at each port. In view of Japan's stringent shipping position these ship concentrations constitute important objectives. The Sasebo Provision Wharf **TARGET 845** and the Nagasaki & Dejima Wharves & RR Yards **TARGET 1842** are congested with storehouses and open air supply depots. These wharves are comparatively small and there is very little room for dispersion of the large stocks of military supplies which accumulate there.

Imari Harbor is reported as a secondary naval station and may serve as an auxiliary naval anchorage. A new commercial harbor is reported at Ainoura, near Sasebo, and there are several coaling stations along the coast to the west.

MACHINES & MACHINE TOOLS: The Karatsu Iron Works **TARGET 833**, an integrated alloy steel and machine tool plant, is estimated to rank sixth in volume of output among Japanese machine tool factories. It is a model, government-subsidized plant, said to produce Japan's highest quality lathes, drilling, milling and boring machines, gear cutters, etc.

NAVAL BASES & SHIPYARDS: The marine engine works, shipyards and dockyards at Sasebo and Nagasaki constitute objectives of major importance. In the aggregate they account for a very substantial part of Japan's shipbuilding and repair capacity, and their strategic location has made them valuable bases for servicing the naval and merchant shipping employed in Japan's principal convoy routes.

The Sasebo Naval Dockyard **TARGET 752** is reported to have at least three building ways, in addition to two large docks which can be used as building docks. It has launched submarines, destroyers and cruisers. This yard is estimated to account for roughly 12% of the known building capacity of Japan's navy yards. The repair facilities, comprising about six docks and a repair basin which can accommodate 10-12 ships alongside, are much more important. Shops, foundries, etc. are located in the dockyard, but major engine building and repair is done at the Naval Arsenal & Engineering Department **TARGET 758**. It is estimated that this yard accounts for almost 30% of the total repair capacity of navy yards.

The shipbuilding and repair facilities at Nagasaki may be considered equivalent to those in the leading navy yards, since the city's yards build and repair large naval vessels as well as all types of merchantmen. Particularly outstanding are Mitsubishi's Tategami Shipyard **TARGET 544**, Mitsubishi's Dockyard **TARGET 543** and Akunoura Engine Works **TARGET 542**. The Tategami Shipyard, reported to have accounted for 10-12% of Japan's total naval and merchant launchings in the peak pre-war years of 1936-38, comprises six ways, machinery and assembly shops, etc. It has launched several battleships and is reported to employ about 13,000. The dockyard has three large docks and a number of repair shops. The docks are cut into the side of a hill and are widely spaced.

The Akunoura Engine Works **TARGET 542** credited with about 10% of marine engine production during 1936-38, is one of Japan's leading marine engine plants. Together with the nearby Mitsubishi Electric Mfg. Co. **TARGET 829** it has outfitted all types of naval and merchant vessels and is believed to be especially important now for repairs.

The Kawanami Industry Co. Shipyard **TARGET 860** on Koyagi Island to the south of Nagasaki Harbor is a newer shipyard which specializes in standardized

SUMMARY AND EVALUATION OF SASEBO AREA, No. 90.36—Concluded

cargo vessels of 3000-5000 tons. Although this yard accounted for only about 5% of all naval and merchant launchings in 1938, it may now rival the Tategami Yard as a result of recent expansion and concentration on the type of merchant vessel which is currently most useful to Japan. The yard's repair facilities are also significant, comprising about three drydocks. The yard is reported to manufacture its own boilers and engines but it is believed that much of these are supplied by the Hayashi Commercial Co. Engine Works TARGET 828, an affiliated company.

It is believed that marine engine works constitute the most effective shipyard targets because of their substantial size and their concentration of complex tools and machinery. Moreover, the production of marine engines is believed to be a retarding factor in Japan's shipbuilding industry.

PETROLEUM: The Sasebo Naval Base oil storages TARGETS 755, 762, and 1835 are estimated to rank among the largest in Japan. These storages are well dispersed around Sasebo Bay and several are underground. Additional storages may be located near the bay and on O Shima Island to the SW of the Bay's entrance.

The much smaller storages at the entrance to Nagasaki Harbor TARGETS 545 and 832 are also well dispersed.

TRANSPORTATION: The Area is served by a single trunk line, which branches from the main Kyushu rail network at Tosu, in the Kurume Area (90.35) and leads to Nagasaki. Two spur lines, joining at Haiki, connect Sasebo with the trunk line. Successful attacks against the terminals and junctions at Isahaya TARGET 838 and Haiki TARGET 839 would temporarily deprive both Nagasaki and Sasebo of all railroad facilities. However, these are comparatively small terminals and are of secondary importance as compared with the extensive Tosu Terminal in the Kurume Area.

AIRPORTS: With the exception of Omura TARGET 849 and Sasebo TARGET 754 the airports in this Area are not listed as targets. Airports are subject to rapid shifts in significance and available information concerning them is fragmentary and largely of pre-war origin. All known airports are tabulated on page 28 and located on map on page M-3.

Summary and Evaluation of Tsushima Area, No. 90.39

DESCRIPTION: Tsushima comprises two islands, midway between Shimonoseki Strait and Korea. Mountainous and rocky, Tsushima is little developed, the principal economic activities being fishing and subsistence farming. Small zinc, lead and coal mines have been worked intermittently, but are believed to be unimportant. The island extends about 40 miles N/S by 9 miles at its widest point. The highest reported elevation is 2172 ft. The total permanent population is less than 60,000. Information concerning cultural features and other installations is very fragmentary and available maps (published 1921) are poor.

GENERAL: Except for its strategic location at the entrance to the Japan Sea and its potential value as a defensive base, Tsushima is of little importance. On the basis of available information none of the known installations are considered to warrant listing as numbered targets. There are no industries and the island's former naval station is reported abandoned. Numerous coastal gun positions are reported, and it is likely that other military installations have been developed in recent years. The following summary of known installations is based on fragmentary information, much of it originating before 1930.

FORTIFICATIONS: The island has been a fortified zone under the command of the Sasebo Naval District. Several coastal gun and searchlight positions are

reported, most of them in the southern half of the island. Mine-control station are also reported. No information is available concerning anti-aircraft defenses, but it is likely that radio detectors and AA have been installed.

HARBOR FACILITIES: There are no developed harbors. Izuhara, the capital, has a junk and small boat harbor which has been used to export small quantities of coal, zinc, lead and fish and to import salt and fertilizers. Takeshiki, site of a reportedly abandoned naval station, has a small harbor which is used for military supplies. Osaki Harbor is equipped with a small quay and storehouse. A new harbor is reported at Hidakatsu.

CABLES AND RADIO: Several cables linking Japan and Korea are landed at Utsunosaki, Komoda, Sotogahama, Izuhara and Kechi. Wireless stations are reported at Takeshiki and the southern tip of the island; a radio station was projected at Izuhara.

AIRPORTS: A landing field and seaplane station are reported near Sasuna at the northern end of the island. Another landing field is reported at Shishima. A seaplane base is reported at Tsushima Sound, about five miles W/NW of Takeshiki.

Other installations, roads, etc., are indicated on map on page M-2.

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NAGASAKI REGION

SASEBO AREA, No. 90.36

INDEX OF TARGETS BY NUMBER, CLASSIFICATION AND NAME

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ELECTRICAL EQUIPMENT			543	Mitsubishi Dockyard	11
829	Mitsubishi Electric Mfg. Co.	9	544	Tategami Shipyard	10
HARBOR FACILITIES & WAREHOUSES			828	Hayashi Commercial Co. Engine Works	12
1842	Nagasaki & Dejima Wharves & RR Yards	13	860	Kawanami Industry Co. Shipyard	13
IRON & STEEL			PETROLEUM		
1795	Mitsubishi Steel Rolling Mill	13	545	Kozaki Point Oil Storages	12
			832	Megami Point Oil Storages	13

Summary and Evaluation of Nagasaki Region

One of Japan's leading shipbuilding and repair centers, Nagasaki is also important for its production of naval ordnance and its function as a major military port. The single available photo coverage (October 1943), which is largely obscured by cloud, confirms most reported target locations and establishes the existence of several unidentified plants.

Outstanding among the city's objectives is the concentration of Mitsubishi Heavy Industries' shipbuilding and repair facilities, comprising a shipyard **TARGET 544**, dockyard **TARGET 543**, marine engine works **TARGET 542** and electrical equipment works **TARGET 829**. These are located on the western side of the harbor, within an area measuring about 6500 feet NNE/SSW by 2000 ft.

The Mitsubishi Steel & Arms Works **TARGET 546** and its new rolling mill **TARGET 1795**, located along the Urakami River in Northern Nagasaki, are integrated with the shipyards—producing ship plate, castings, forgings, etc., as well as naval ordnance (principally torpedoes). A wood-working plant with extensive timber and lumber storages is located just south of the rolling mill. It supplies lumber and wooden fittings to the shipyards.

The Kawanami Industry Co. Shipyard **TARGET 860**, located on Koyagi Island to the south of the harbor entrance, is believed to be an important producer of medium-size cargo vessels. While the production of Marine engines and boilers is reported at this yard, it is believed that much of these are supplied by the Hayashi Commercial Co. Engine Works **TARGET 828**, which is located at the head of Nagasaki Harbor. Koyagi Island is also the site of several groups of small beehive coke ovens. Other small ovens and a minor ship repair yard are located on the mainland, just east of Koyagi Island.

The eastern side of Nagasaki Harbor contains all the important loading and storage facilities. Its

southwestern location has made this a primary embarkation and supply port for operations on the mainland, and the docks and freight yards **TARGET 1842** are believed to be congested with military supplies. Numerous reports refer to large-scale expansion of dock and storage facilities, and the entire waterfront is said to be lined with storehouses. The shore to the south of the dock area is lined with small shipyards, equipped with shops, foundries, slipways and a patent slip. These yards build small wooden cargo vessels, fishing boats, lifeboats, etc.

Several groups of fuel tanks are located at Kozaki and Megami Points (See **TARGETS 545 and 832**), at the harbor entrance. While important in the aggregate, these storages are small individually and are widely dispersed. Other small storages are reported scattered on several of the small islets near the harbor entrance and at the head of the harbor.

Three unidentified factories are located along the railway to the north of the Mitsubishi Steel and Arms Works **TARGET 546**. Of these, the northernmost appears especially significant, comprising some 8/10 shop-type buildings (the largest measuring about 900 by 400 ft.), a power plant and several storage buildings. The total area occupied by buildings measures about 2000 by 1500 ft. The plant's general layout and appearance suggests either a very large textile mill or a major assembly plant. In view of Japan's excess textile capacity and the fact that this plant was built after 1940, it is probably not a textile mill. Unconfirmed reports mention new munitions plants in this area. An aircraft engine factory in Nagasaki City has also been reported without confirmation and it is also possible that this plant may be an engine works, supplying the Omura Naval Aircraft Factory **TARGET 1627**, located some 15 miles to the NE. However, no engine test stands can be identified here, although at least six are visible at Omura.

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INCENDIARY ATTACK DATA: Nagasaki occupies a very limited, amphitheater-like site, extending from reclaimed land along the waterfront to the lower slopes of the surrounding hills. Small strips of built-up districts extend along the valleys to the east and along both sides of the Urakami River to the north. Other built-up areas extend down the western side of the harbor to Akunoura. In Nagasaki proper, commercial and public buildings are concentrated along the eastern and central parts of the city. Densely-grouped houses crowd these buildings and extend in an almost solid mass to the hills. Four rivers and canals and a few wide streets constitute the only substantial firebreaks. It should be noted

that all important industrial installations are located outside the city proper.

Map on page M-4 indicates two general zones for incendiary attack. Zone I, most vulnerable because of its high degree of building density, covers the city proper and includes the important military storage area along the waterfront. Zone II—somewhat less vulnerable—extends along both banks of the Urakami River and down the west shore of the harbor to Akunoura. This zone covers important industrial objectives, most of which are considerably exposed to fires set in surrounding storage and residential districts.



PHOTO 1—Nagasaki—Old view of northern part of city, a Zone I fire area. A few substantial government buildings are scattered throughout this section now, and warehouses extend along the waterfront, but congestion remains. Industrial suburb of Inase, a Zone II area, visible at upper left.



PHOTO 2—Nagasaki—Congestion of houses and public buildings in southern part of city. Large wharves and warehouses are now located along waterfront.

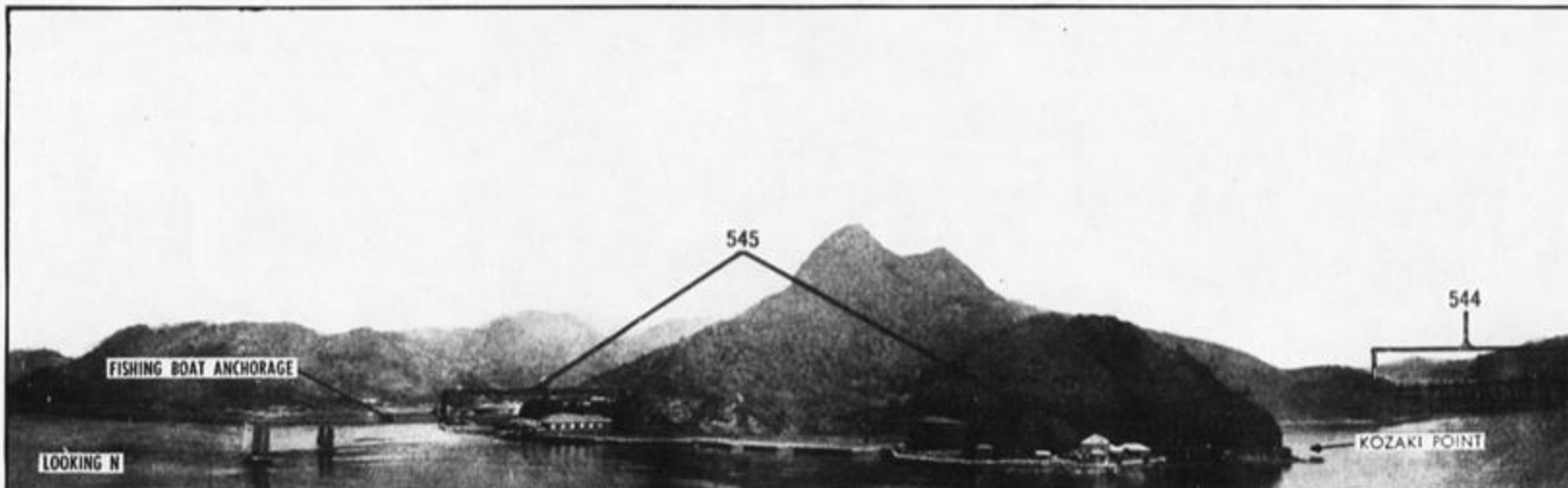


PHOTO 3—(Left Half)—Nagasaki—Panorama of entrance to Nagasaki Harbor, TARGET 544 Tategami Shipyard, TARGET 545 —Kozaki Point Oil Storages. TARGET 832—Megami Point Oil Storages (Also see page 9).

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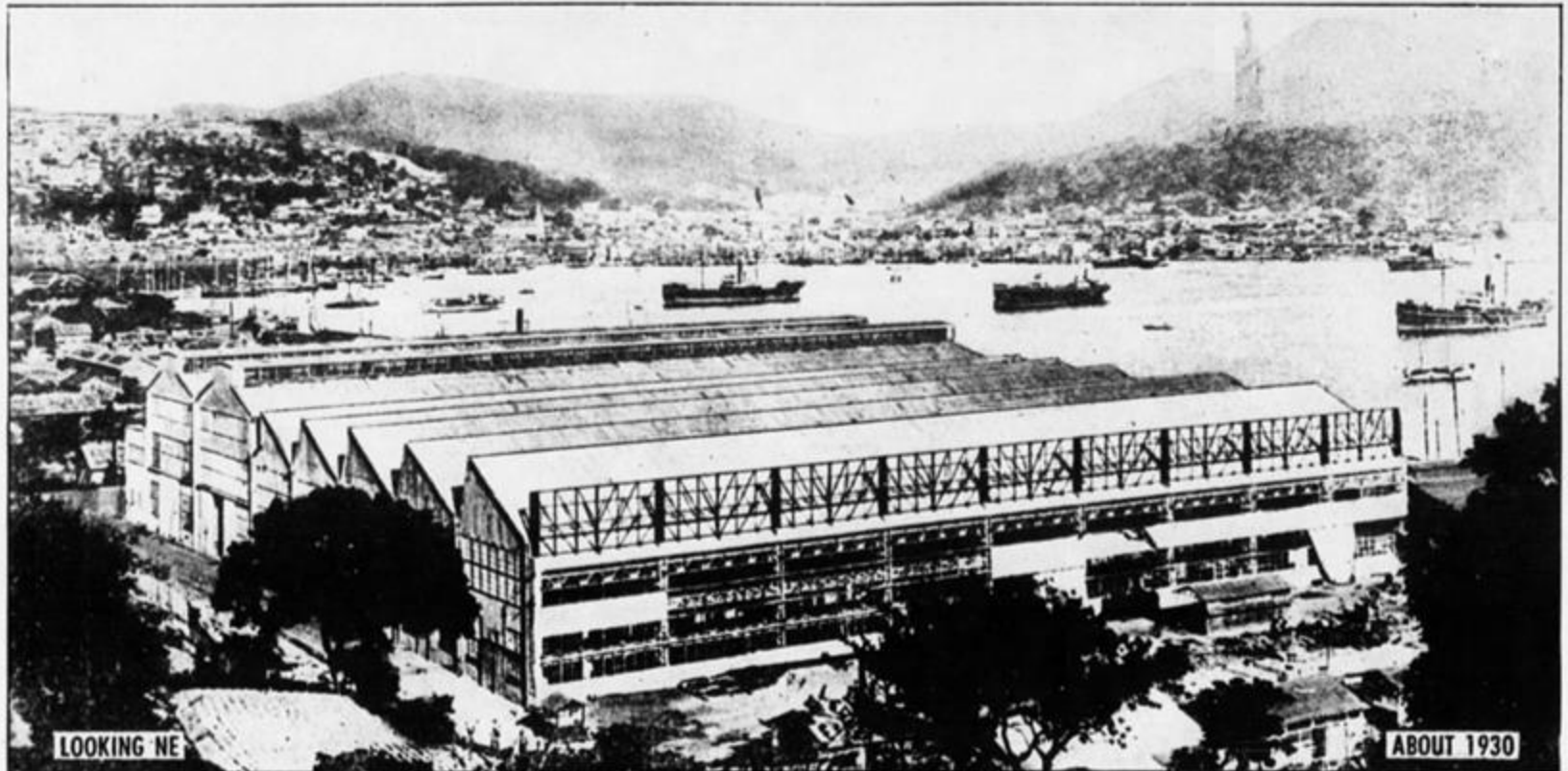
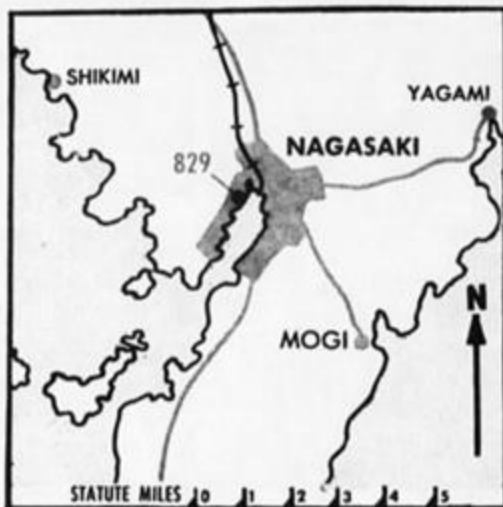


PHOTO 4—Nagasaki—TARGET 829 Mitsubishi Electric Manufacturing Co. View shows amphitheater-like site of Nagasaki city across harbor.



TARGET
90.36—

829

MITSUBISHI ELECTRIC MFG. CO.

(Mitsubishi Denki KK)

NAGASAKI

(ELECTRICAL EQUIPMENT)

32° 45' N 129° 52' E (Approx)—
Branch plant of one of leading electrical
equipment concerns. Integrated with
Akunoura Engine Works (Target 542).
Located directly SW of Hayashi Com-

mercial Co (Target 828) and to W of
naval administration bldgs. Primarily
a manufacturer of marine electric
apparatus. Specializes in Diesel en-
gines of Burmeister and Wain type.
Also mining machinery, large turbo-
generators, mill motors and heavy-
duty loading machinery.
(See photos 4, 5 and 7; maps on pages
M-5 and M-6.)



PHOTO 5—Nagasaki—TARGET 829 Mitsubishi Electric Manufacturing Co. New buildings of the Nagasaki Naval Defense Command are reported situated on reclaimed land in front of the factory.



PHOTO 3—(Right Half) — Nagasaki — Panorama of entrance to Nagasaki harbor. TARGET 544 Tategami Shipyard, TARGET 545 — Kozaki Point Oil Storages. TARGET 832 — Megami Point Oil Storages (Also see page 8).

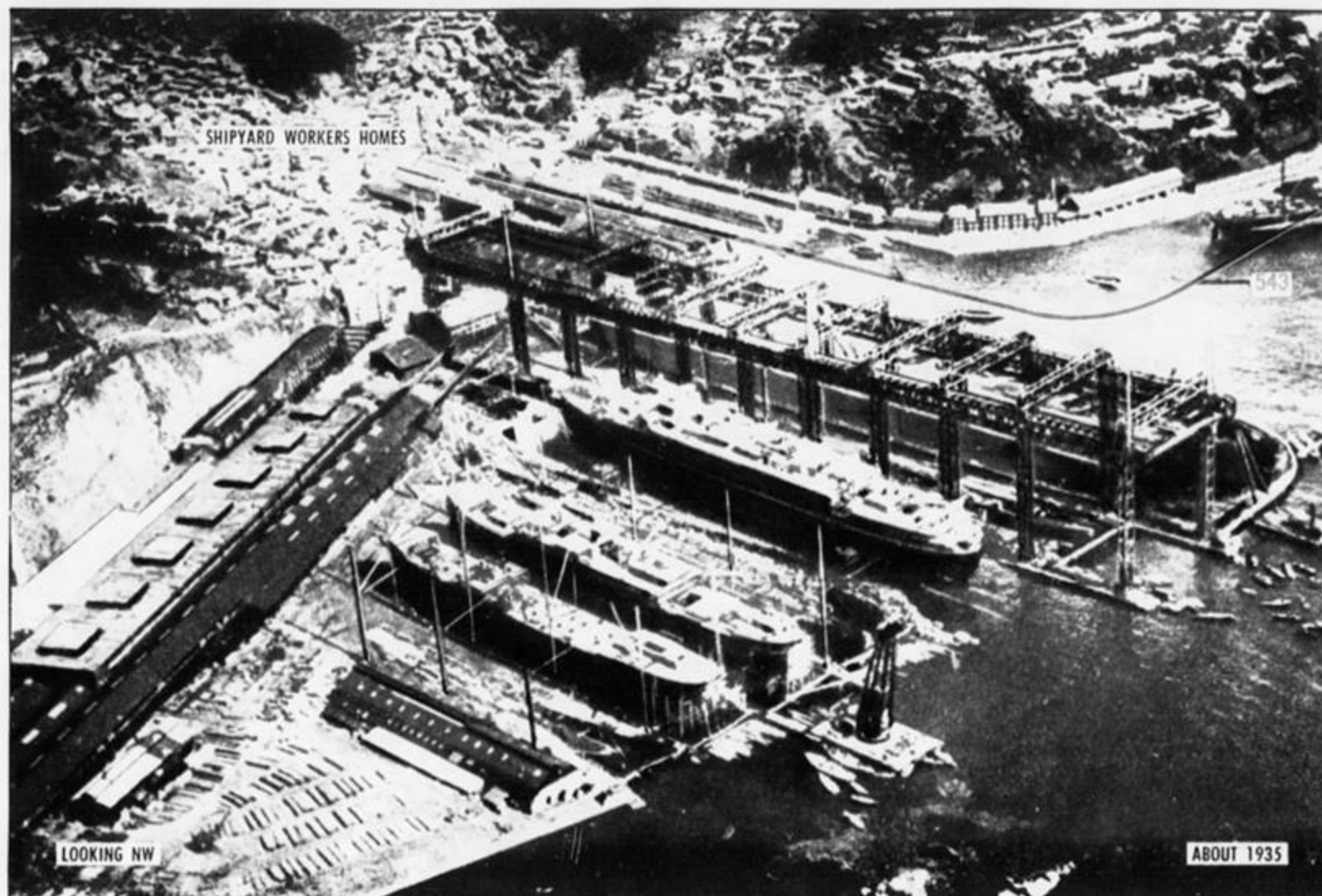
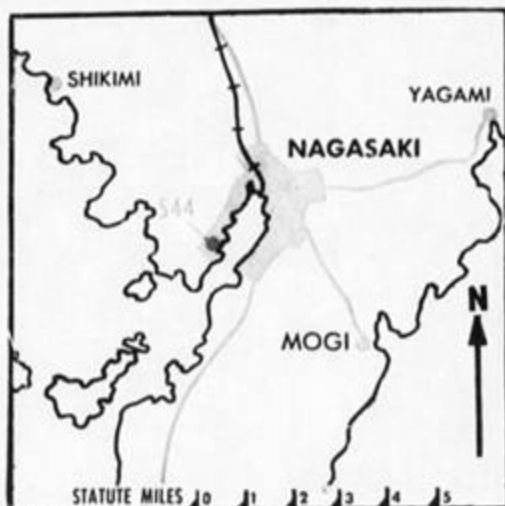


PHOTO 6—Nagasaki—TARGET 544 Tategami Shipyard in foreground. Reports indicate that most ways are now equipped with gantry cranes. TARGET 543 Mitsubishi Dockyard.



TARGET
90.36—
544

TATEGAMI SHIPYARD

(Mitsubishi Jukogyo KK)

NAGASAKI

(NAVAL BASES & SHIPYARDS)

32° 44' N 129° 51' E (Approx)—One of primary shipbuilding yards in Japan; has built all types of merchant vessels and some of the largest naval craft (including 40,000 tons). Bldg slips:

- No. 1—450 by 80 ft (width between gantries)
- No. 2—450 by 80 ft (width between gantries)
- No. 3—650 ft by 170 ft (combined)
- No. 4—650 ft width
- No. 5—806 ft by 115 ft
- No. 6—806 ft by 115 ft

Each slip now reported provided with gantry cranes. Portion of hill as well

as part of plate shop reported cut away to accommodate second large gantry. Anchorage to N of ways reported used for partial outfitting. Shops include: plate shop, machine shops, tool, wood-working and iron shops. Complete outfitting done at Akunoura Engine Works (Target 542). Old power unit in yard not believed in use.

(See photos 3, 6, 7, 8 and 11; maps on pages M-5 and M-6.)

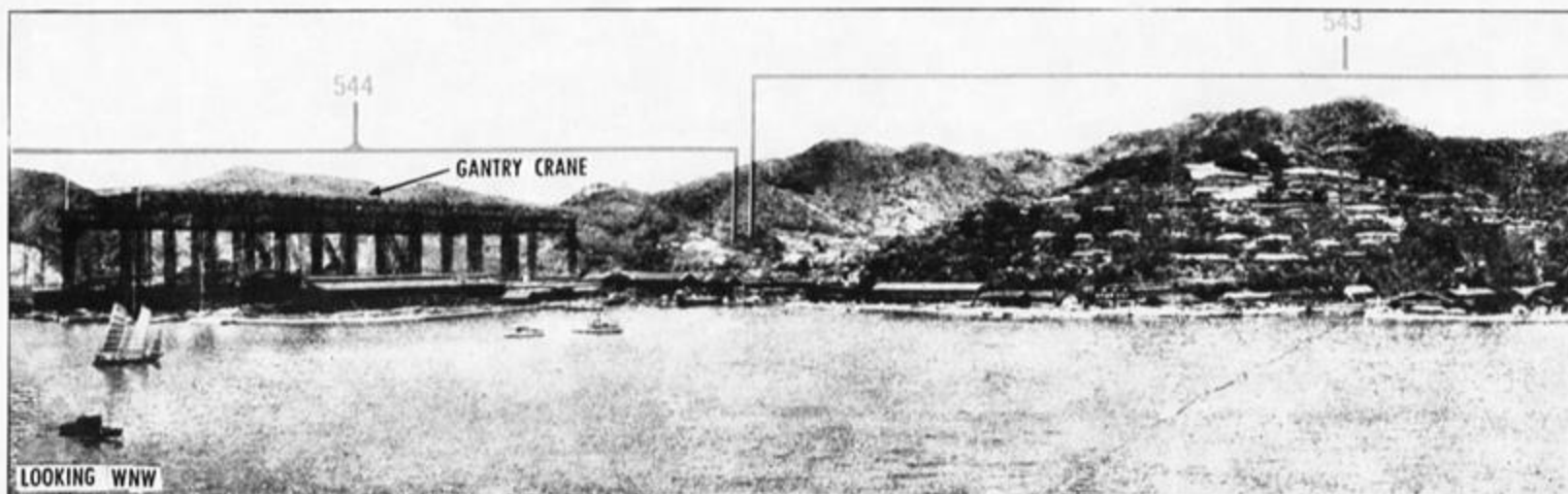


PHOTO 7—(Left half) Nagasaki—Panorama of western side of Nagasaki Harbor. TARGET 544 Tategami Shipyard. TARGET 543 Mitsubishi Dockyard. TARGET 542 Akunoura Engine Works. TARGET 829 Mitsubishi Electric Manufacturing Co. TARGET 828 Hayashi Commercial Co. Engine Works. (Also see page 11.)

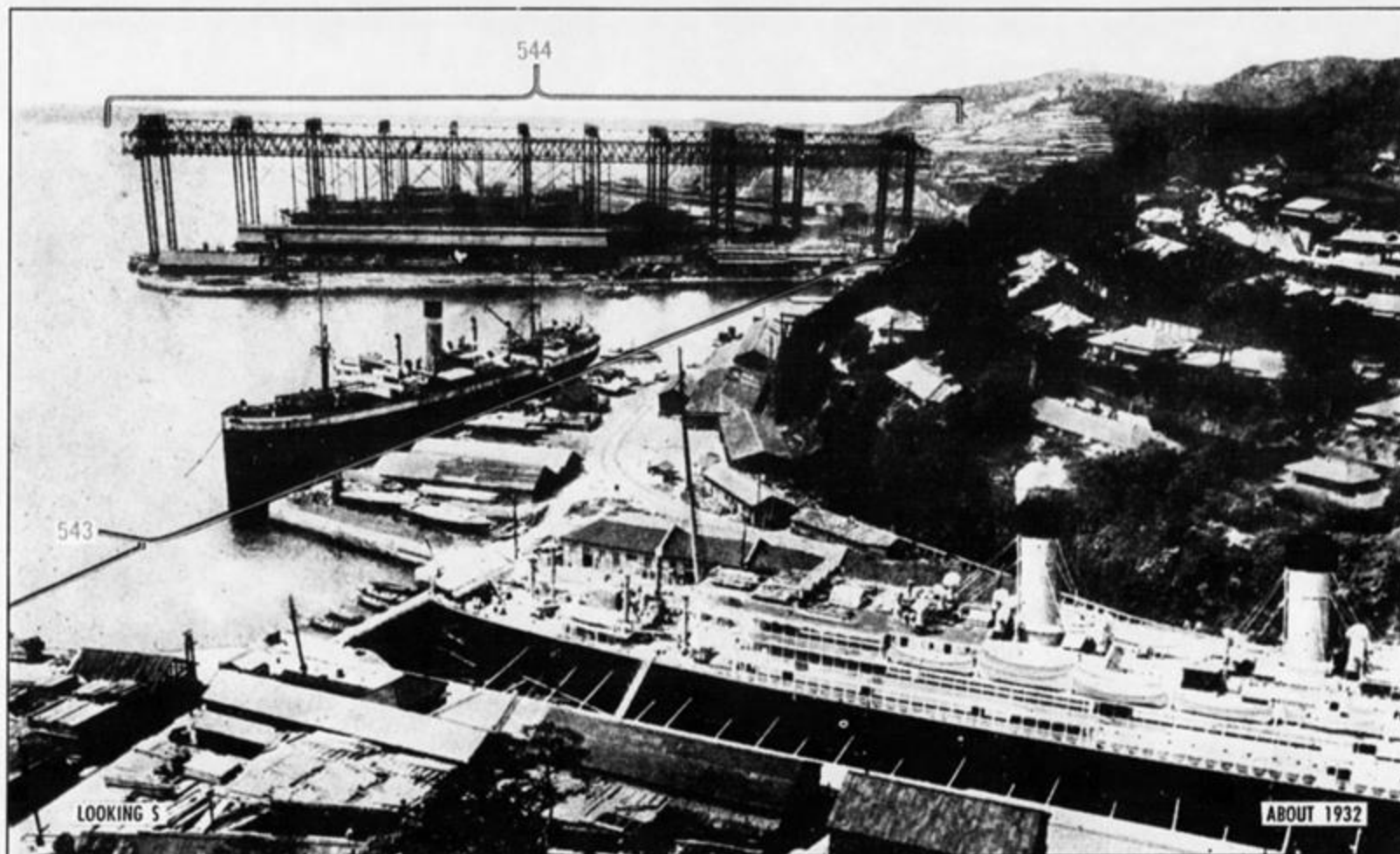


PHOTO 8—Nagasaki—TARGET 543 Mitsubishi Dockyard (view shows only central of three drydocks). TARGET 544 Tategami Shipyard.

TARGET

90.36—

542

AKUNOURA ENGINE WORKS

NAGASAKI

(NAVAL BASES & SHIPYARDS)

32° 44' N 129° 52' E (Approx)—One of leading marine engine works. In 1937 activities included large scale manufacture of Diesel engines, steam turbines, vertical water tube boilers, riveted and welded pipes, castings, and forgings. Compound comprises over 40 bldgs, including: boiler shop, electric steel plant with annual cap of 15,000 tons, copper works, experimental tank and laboratory, machinery assembly shop with gear cutting and propeller balancing equipment, etc. Most bldgs are of steel frame, galvanized iron on brick; some are reinforced concrete. Administration bldgs located on waterfront to N, alongside Target 829. Plant has standby power station of 4000 KW; obtaining balance of power from network through substation 1/2 mi to NW. 178 ft high hammer-head crane on

dock. Also smaller fixed cranes and four floating cranes.

(See photos 7, 9, 10 and 11; maps on pages M-5 and M-6.)

TARGET

90.36—

543

MITSUBISHI DOCKYARD

NAGASAKI

(NAVAL BASES & SHIPYARDS)

32° 44' N 129° 51' E (Approx)—Complete ship repair dockyard. Accredited with approx 7% of repair cap for commercial docks in Japan. Three drydocks of concrete, granitefaced construction.

	Extreme Length	Floor Head
No. 1 Dock	532 ft	447 ft
No. 2 Dock	375 ft	366 ft
No. 3 Dock	728 ft	679 ft

Large shops along waterfront. Reported camouflaged.

(See photos 6, 7, 8 and 11; maps on pages M-5 and M-6.)

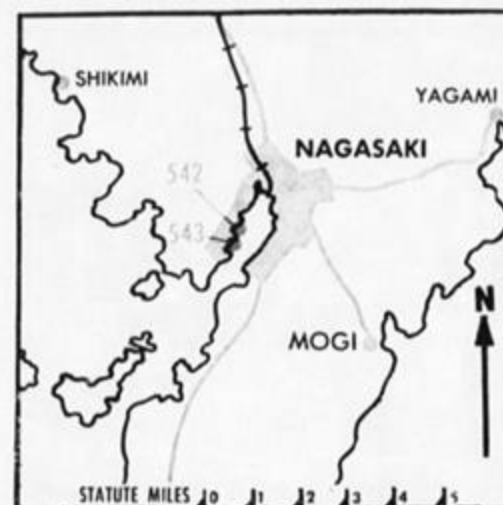


PHOTO 7—(Right half)—Nagasaki—Panorama of western side of Nagasaki Harbor. TARGET 544 Tategami Shipyard. TARGET 543 Mitsubishi Dockyard. TARGET 542 Akunoura Engine Works. TARGET 829 Mitsubishi Electric Manufacturing Co. TARGET 828 Hayashi Commercial Co. Engine Works. (Also see page 10.)



PHOTO 9—Nagasaki—TARGET 542 Akunoura Engine Works. Background has been retouched to alter configuration of hills.

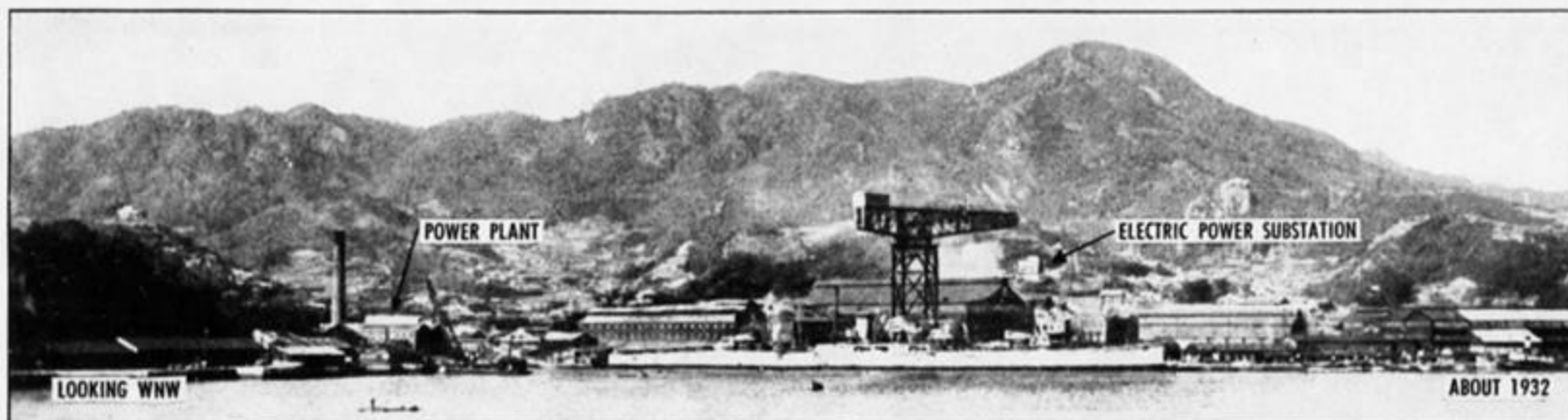
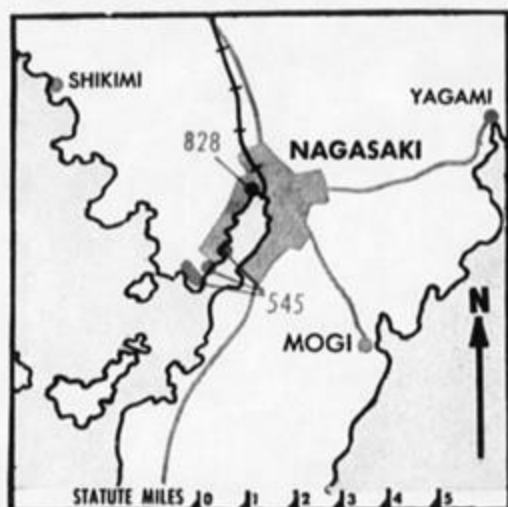


PHOTO 10—Nagasaki—TARGET 542 Akunoura Engine Works. View shows destroyer at outfitting dock. Newest portion of factory is off view to right. One of three drydocks of Mitsubishi Dockyard. TARGET 543 is hidden by hill, to left of power plant.



TARGET
90.36—

828

HAYASHI COMMERCIAL CO.
ENGINE WORKS

(Hayashi Kane Shoten KK)

NAGASAKI

(NAVAL BASES & SHIPYARDS)

32° 45' N 129° 52' E (Approx)—Located just NE of Mitsubishi Electric Mfg Co (Target 829). Manufactures heavy marine engines. Believed to be former Matsuo Engine Works. Probably supplies Kawanami Industry Co. (See photo 7; maps on pages M-5 and M-6.)

TARGET
90.36—

545

KOZAKI POINT OIL STORAGE

NAGASAKI

(PETROLEUM)

32° 43' N 129° 51' E (Approx)—About six groups of fuel oil tanks situated on waterfront around Kozaki Point. Estimated major storage area. Recently enlarged. Probable underground storage. Largest units to SW. (See photo 3; map on page M-6.)

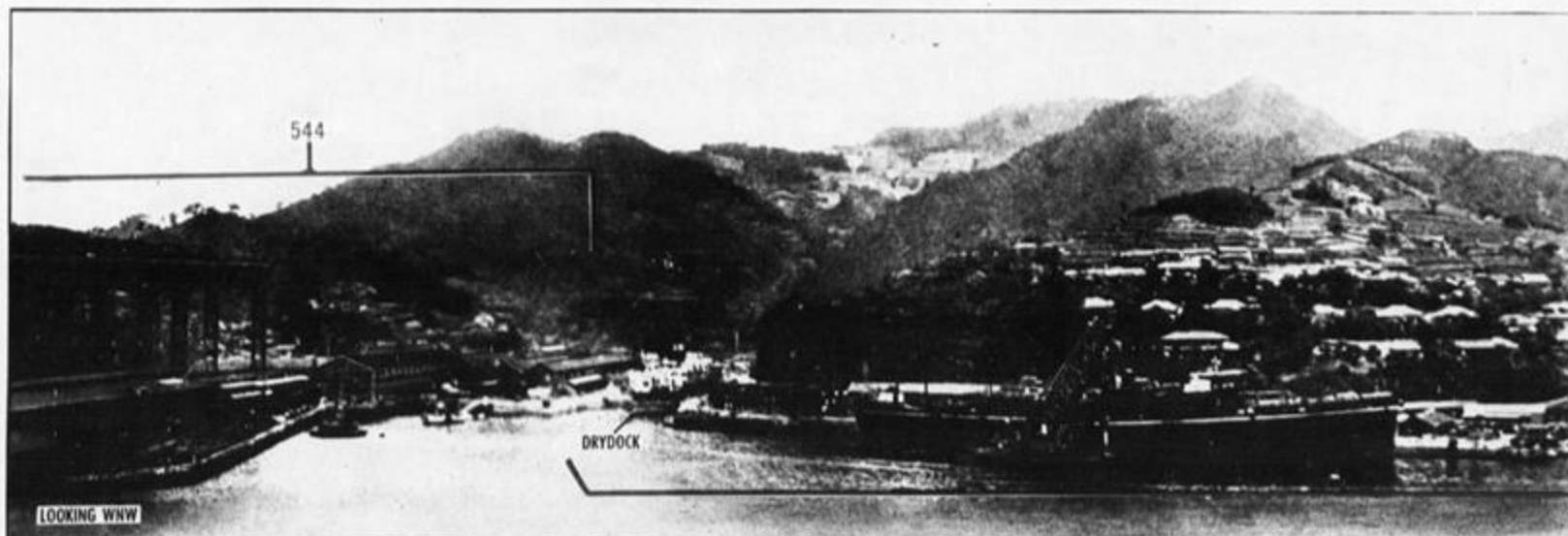


PHOTO 11—(Left half)—Nagasaki—Panorama of shipbuilding and repair district on west side of harbor. TARGET 544 Tategami Shipyard. TARGET 543 Mitsubishi Dockyard. TARGET 542 Akunoura Engine Works. (Also see page 13.)

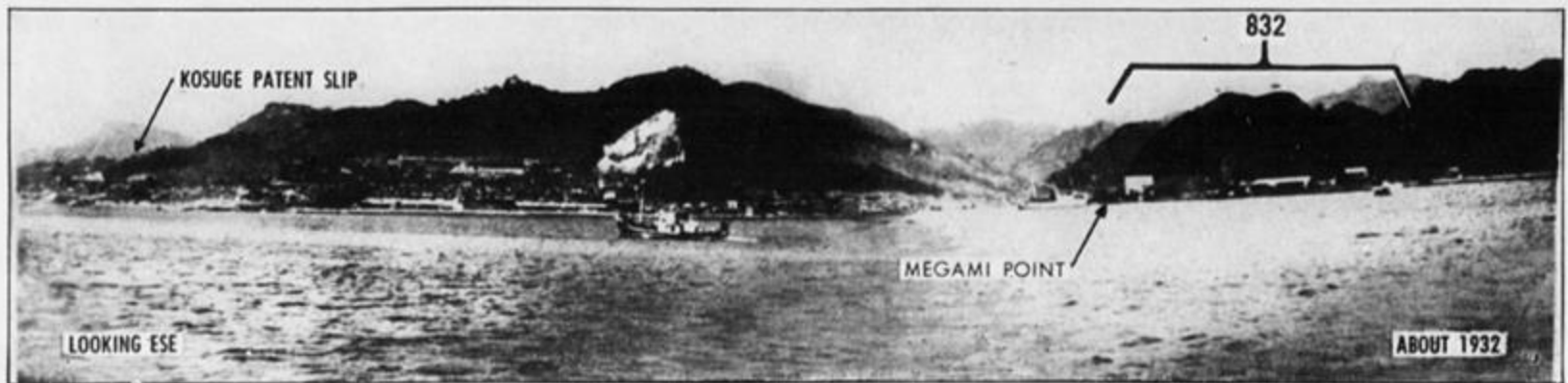


PHOTO 12—Nagasaki—View of eastern side of entrance to harbor, showing TARGET 832 Megami Point Oil Storages (oil tanks are not visible) and shops, foundries, etc., of series of small-boat yards which extend to left of Megami Point.

TARGET
90.36—

1842 NAGASAKI & DEJIMA WHARVES & RR YARDS NAGASAKI

(HARBOR FACILITIES & WAREHOUSES)

32° 45' N 129° 52' E (Approx)—Entire region at the NE end of the harbor important not only to the immediate area, but for general transportation in southern Kyushu. Heavy troop and supply movement reported. New floating dock reported. Northern portion of target area congested with storehouses, oil storages, gas holders, and many small shops. Over 30 large whses of both wood and concrete construction, many used exclusively for military storage, located along western edge of city. Interspersed wood storage adds to fire hazard. Small piers to S used mainly for coastal shipping; also small storehouses.

(See maps on pages M-5 and M-6.)

TARGET
90.36—

1795 MITSUBISHI STEEL ROLLING MILL NAGASAKI (IRON & STEEL)

32° 45' N 129° 52' E (Approx)—New mill, located across from S portion of Mitsubishi Steel & Arms Works. (Target 546).

(See maps on pages M-4 and M-5.)

TARGET
90.36—

832 MEGAMI POINT OIL STORAGES NAGASAKI (PETROLEUM)

32° 43' N 129° 51' E (Approx)—Two groups of Oil Tanks, three S of Megami Point (also coal storage) and two N of Point. Explosives magazine reported in hillside to E. Small boat yards extend northward along coastline.

(See photos 3 and 12; map on page M-6.)

TARGET
90.36—

546 MITSUBISHI STEEL & ARMS WORKS NAGASAKI (ARMS & MUNITIONS)

32° 45' N 129° 52' E (Approx)—Integrated steel/rolling mill/arms works. Compound occupies extensive area on the E bank of Urakami River. Has been enlarged recently by a new extension to N and by conversion of former Nagasaki Spinning Mill to the S. New Rolling Mill (See Target 1795) on W bank of Urakami River, immediately across from S part of compound. Steel works produce largest types of castings, all types of forgings and ship plate. Annual output is believed close to 200,000 tons of steel products. About 12 open-hearth and electric steel furnaces (cap 6-30 tons). Arms works mfg torpedoes and naval munitions. Closely integrated with Steel Works. (See maps on pages M-4 and M-5.)



TARGET

90.36—

860 KAWANAMI INDUSTRY CO. SHIPYARD

(Kawanami Kogyo KK)

KOYAGI SHIMA (ISLAND)

(NAVAL BASES & SHIPYARDS)

32° 42' N 129° 49' E (Approx)—(Formerly Matsuo Shipyards.) Accredited with about 5% of commercial shipyard bldg and repair in Japan. Recently modernized and expanded. Probably integrated with Hayashi Commercial Co (Target 828). Facilities for bldg ships up to 10,000 tons, but specialized in standardized, cargo vessels of 3-5000 tons. Reported mfg engines, boilers, etc. Three drydocks, one of which is reported capable of taking a 20,000 ton ship. Six shipbldg slips. Machine and boiler shops. Important not only for construction of standard cargo vessels but for its strategically located repair facilities.

(See map on page M-6.)

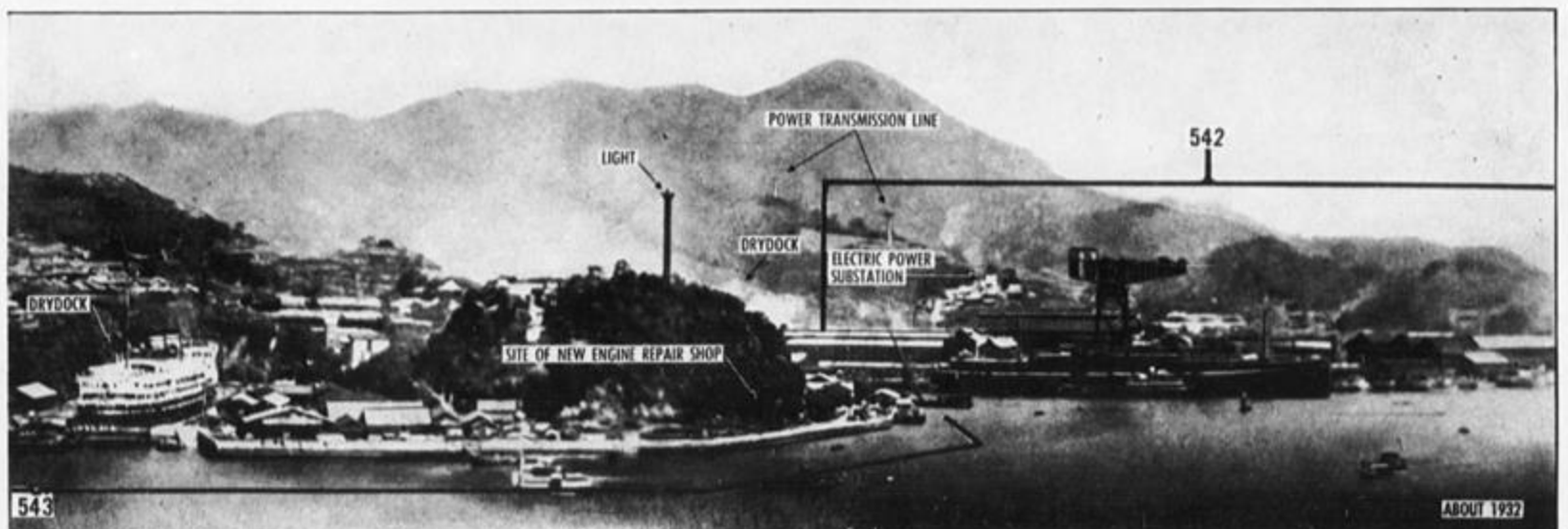


PHOTO 11—(Right half—Nagasaki—Panorama of shipbuilding and repair district on west side of harbor. TARGET 544 Tategami Shipyard. TARGET 543 Mitsubishi Dockyard. TARGET 542 Akunoura Engine Works. (Also see page 12.)

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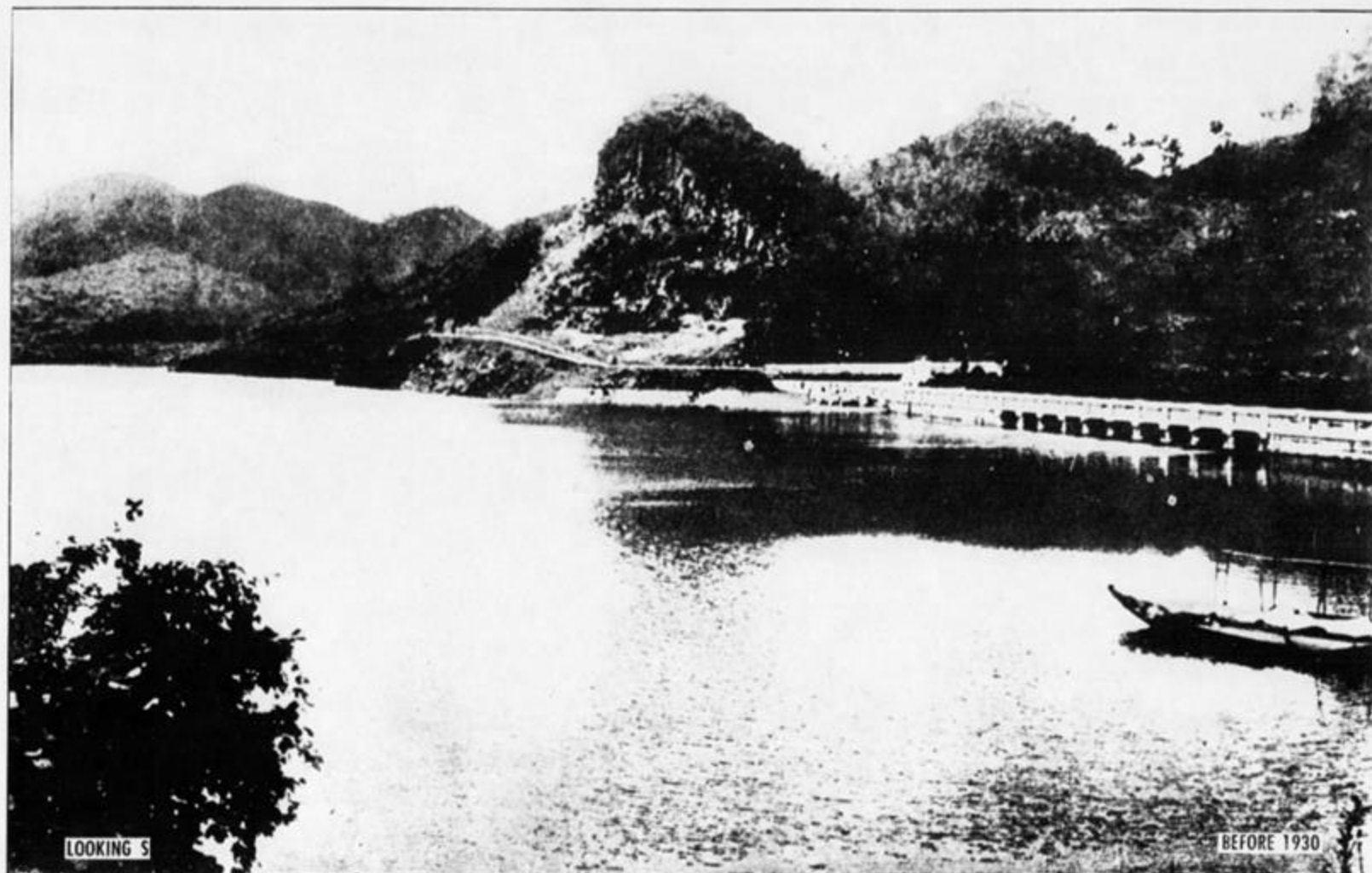


PHOTO 13—Nagasaki—Ogakura Reservoir and Dam (not listed as a target). Capacity 5,000,000 gallons.



PHOTO 14—Nagasaki—Ogakura Dam (not listed as a target).

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SASEBO 90.36, TSUSHIMA 90.39 GENERAL PHOTOS (NAGASAKI REGION)

SASEBO 90.36, TSUSHIMA 90.39 GENERAL PHOTOS (NAGASAKI REGION)

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Air Objective Folder

OMURA REGION

SASEBO AREA, No. 90.36

INDEX OF TARGETS BY NUMBER, CLASSIFICATION AND NAME

TARGET NO.	NAME	PAGE	TARGET NO.	NAME	PAGE
	AIRCRAFT			AIRPORTS	
1627	Omura Aircraft Factory	16	849	Omura Naval Air Station	16

Summary and Evaluation of Omura Region

Photo reconnaissance of October 1943 establishes Omura as an important aircraft center. The previously unreported Omura Aircraft Factory **TARGET 1627** appears to be a major plant which may rank among Japan's leading aircraft works. There has been no evidence to date of this plant's production and the management is unknown. Based on interpretation of a single photo cover the plant appears to be an integrated engine/assembly works, producing fighter types (Zekes and Rufes are identifiable). It is also a primary repair depot, doing third and fourth echelon repair (Petes and Daves in various stages of rebuilding visible). Much of the plant was still under construction. The total floor space of factory-type buildings alone (including buildings under construction) is approximately 2,337,000 square feet. In addition there are numerous hangars and storage buildings. There is no confirming evidence of engine production, but the plant has six engine test stands and 15 probable engine test blocks are under construction.

An unconfirmed report states that a marine engine factory, operated by the Sasebo Naval Base, was

projected at Omura. It is possible that some of the buildings under construction along the waterfront to the south of the completed group of aircraft buildings might be intended for such a plant. However, the layout and general appearance of these structures indicates they are additional units of the aircraft factory.

Most of the Omura Naval Air Station **TARGET 849** is not visible in the photo cover. About 26 hangar and shop-type buildings, administration buildings, etc., are located along the waterfront, just north of the aircraft factory. The field is an operational base and a basic training station for naval pilots.

The entire Omura district comprises a military zone, apparently under the joint jurisdiction of the Sasebo Naval Base and the Army divisional headquarters in the Kumamoto-Kurume region (Kurume Area No. 90.35). Extensive groups of barracks are located to the east of the aircraft plant. Unconfirmed reports refer to the use of Omura Bay as a fleet anchorage. There are no facilities for servicing large ships in the immediate vicinity of Omura.

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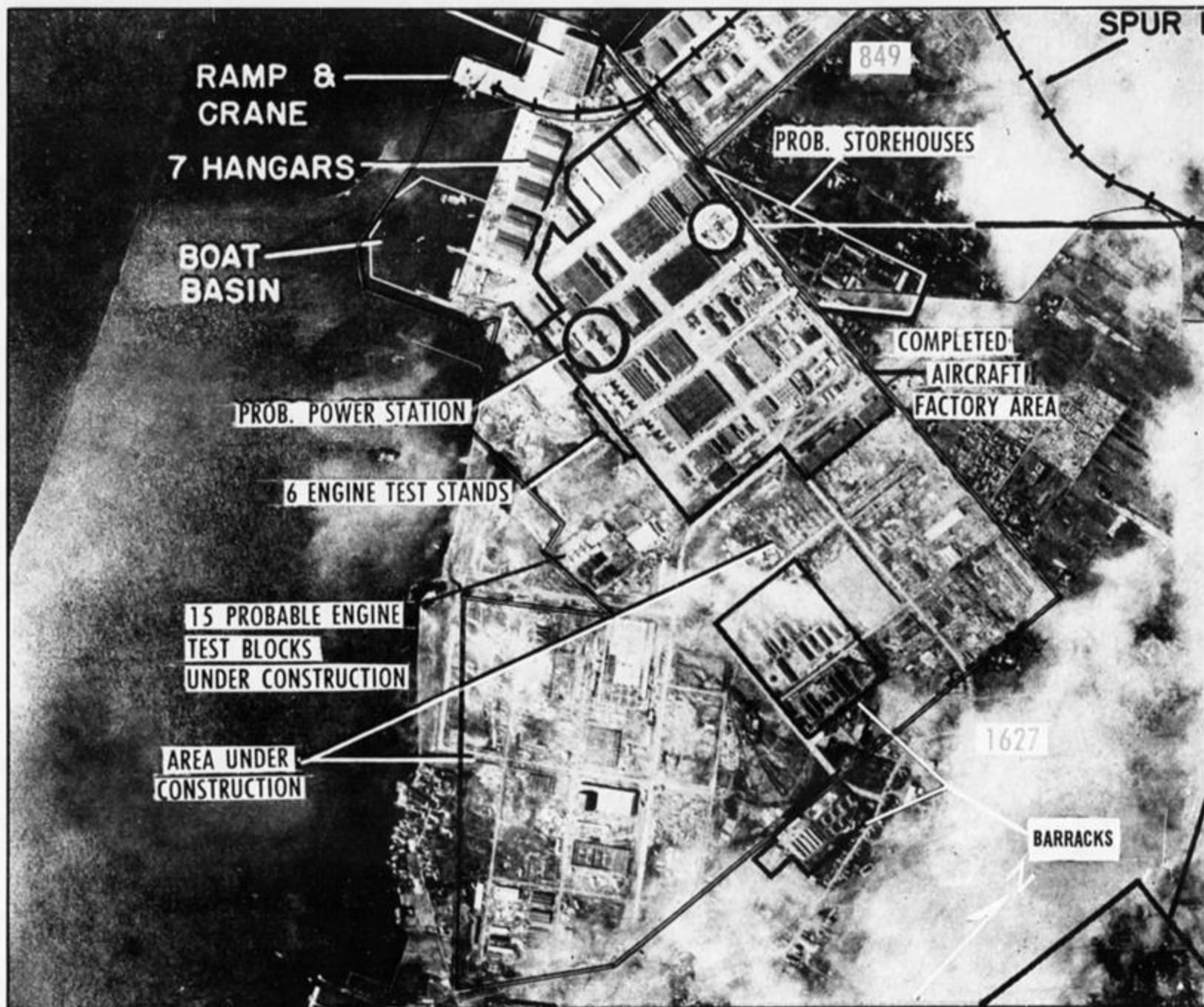


PHOTO 15—Omura—TARGET 1627 Omura Aircraft Factory. TARGET 849 Omura Naval Air Station.



TARGET

90.36—
1627

OMURA AIRCRAFT FACTORY
OMURA
(AIRCRAFT)

32° 55' 129° 56' E (Approx)—Very large aircraft/engine factory. Based on interpretation of single photo cover, plant probably builds fighter types (Zekes and Rufes visible) and does third and fourth echelon repairs (Petes and Daves undergoing repair visible). Engine production likely: six engine test stands completed and an additional 15 probable engine test blocks under construction. Has appearance of major integrated aircraft works.

Much of plant under construction as of date of photography—31 October 1943. Total plant compound covered approx 15,000,000 sq ft. Total floor space of factory-type bldgs already completed was about 1,190,000 sq ft (excluding hangar, administration and storage-type bldgs). An additional 1,147,000 sq ft of factory-type bldgs were under construction.

Most completed bldgs concentrated in northern apex of triangular compound. This concentration includes shop-type bldgs at E end, engine test stands at S end, shop and assembly bldgs in center and final assembly bldgs at NW end (on waterfront). Additional shops, assembly bldgs and engine test blocks under construction to E and SE of main plant. A group of about 23 hangar and shop-type bldgs located along waterfront to N of aircraft plant is designated as part of Omura Naval Air Station (See Target 849), with which it is connected by a taxi strip. These bldgs may be used for storage, final testing or modification.

(See photo 15; maps on page M-8 and M-9.)

TARGET

90.36—
849

OMURA NAVAL AIR STATION
OMURA
(AIRPORTS)

32° 56' N 129° 56' E (Approx)—Main operational land and seaplane base for Sasebo Area. Three large hangars, repair shops, barracks for 800-1000 men and radio masts SW corner of field. About 23 hangar and shop-type bldgs located along shore, toward Omura Aircraft Factory (Target 1627) to S. Probable training center. Considerable recent expansion and improvements. Auxiliary field reported short distance SE. Several extensive barracks areas to SE.

(See photo 15; maps on pages M-8 and M-9.)

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Air Objective Folder SASEBO REGION SASEBO AREA, No. 90.36

INDEX OF TARGETS BY NUMBER, CLASSIFICATION AND NAME

TARGET NO.	NAME	PAGE	TARGET NO.	NAME	PAGE
AIRCRAFT			ELECTRIC POWER		
834	Sasebo Aircraft Factory	18	1603	Ainoura Steam Power Station	18
AIRPORTS			HARBOR FACILITIES & WAREHOUSES		
754	Sasebo Naval Air Station	18	845	Sasebo Provision Wharf	18
ARMS & MUNITIONS			NAVAL BASES & SHIPYARDS		
757	Sasebo Mine & Torpedo Storage	18	752	Sasebo Naval Dockyard	18
758	Naval Arsenal & Engineering Department	18	PETROLEUM		
762	Sasebo Fuel & Munitions Depot	18	755	Sasebo Oil Storages	18
			1835	Yokose Oil Storage	18

Summary and Evaluation of Sasebo Region

One of Japan's three principal naval bases, Sasebo's functions include repair and maintenance of naval vessels, construction of naval vessels and defense and convoy escort throughout the East China Sea and down the island chain to the Philippines. It is also a supply base for the mainland and the Philippines as well as the naval administrative center for Kyushu and much of the island chain to the south.

The Sasebo Naval Dockyard **TARGET 752**, and the nearby Arsenal and Engineering Department **TARGET 758**, located at the NW head of the harbor, are not visible in the available photo coverage. However, available reports emphasize repair and maintenance as against new construction and it is likely that this may be the principal repair base for destroyers and other lighter naval vessels. Provision and supply depots **TARGET 845**, torpedo and munitions storages **TARGETS 757 and 762**, fuel storages **TARGETS 755 and 1835** and coal storages are located along the shores of the harbor. The oil storages are especially important, but they are well dispersed and many are underground. Several probable underground oil storages, in addition to those listed as targets, are annotated on Mosaic D. The Sasebo Aircraft Factory **TARGET 834** is a medium-size factory which has produced small reconnaissance types. Aircraft engines are reported supplied by the Naval Arsenal **TARGET 758**. The Sasebo Naval Air Station **TARGET 754** appears to be a second or third echelon repair depot as well as an operational base.

Fragmentary reports indicate that a new "commercial" harbor has been developed at Ainoura, just NW of Sasebo. It is possible that Ainoura Bay now serves as an auxiliary naval anchorage. The largest power plant in this area and one of the principal stations in the West Kyushu power network is the Ainoura Steam Power Station **TARGET 1603**. Its exact location is not known, but it is reported located on the shore near Ainoura. The coast to the West of Ainoura is marked by numerous small anchorages, several of which have been developed as coal bunk-

ering and export stations for the Matsuura and other coal fields in the vicinity of Sasebo. While very small producers, the Matsuura mines are said to produce the best metallurgical coking coal in Japan proper.

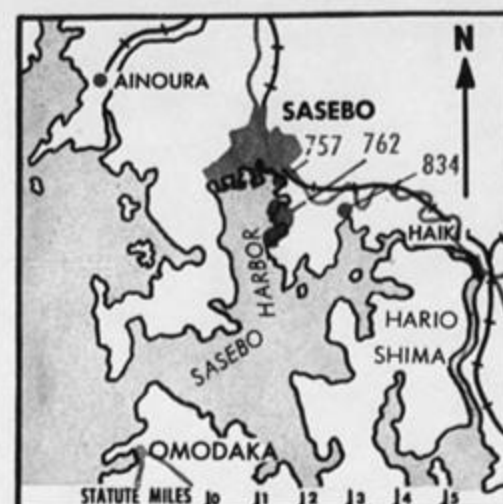
It should be noted that storages, barracks and other facilities of the Sasebo Naval Base extend along the shore of Hario Island to the SE and along the north coast of Omura Bay (See SUMMARY AND EVALUATION, OUTLYING TARGETS).

INCENDIARY ATTACK DATA: Flanked by high hills to the NE and the Sasebo River to the east, the city of Sasebo is confined within a relatively small area. The bulk of the city's population of over 200,000 (1940) lives in an area of approximately two miles by 2000 ft. Virtually all public and commercial buildings are located in the south central part of the city, just NNE of the railroad station. This part of the city is regularly laid out, with medium width streets separating groups of about four to ten small and congested blocks. A wide avenue which runs NW/SW the length of the city divides the regularly zoned southwestern section from the irregular eastern part. Only fragmentary information is available concerning that portion of the city to the west of the Sasebo River and north of the naval base.

The Incendiary Zone Map of Sasebo City (See map on page M-11) indicates two general zones for incendiary attack. Zone I extends along the entire northeastern portion of the city which is primarily a residential district. Population density and housing congestion are very high, but the conflagration hazard is somewhat reduced by three spurs of low hills which project SW into the city and tend to break it up into smaller fire areas.

Zone II covers the southwestern part of the city, which although less congested than Zone I, covers the bulk of the city's small factories, storage and commercial districts and utilities. It also covers the central barracks and most of the storage depots of the Sasebo Naval Base.

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TARGET
90.36—

758 NAVAL ARSENAL & ENGINEERING DEPARTMENT SASEBO (ARMS & MUNITIONS)

33° 10' N 129° 42' E (Approx)—Integral part of dockyard. Believed equipped to outfit and repair all types of naval craft, produce ship's engines, turbines, boilers, machinery, guns and gun mounts, shell casings and aircraft engines. Reports emphasize mainly repair work. Section NE of Naval Hospital and SE of reservoir, labelled as Hydrographic Office, has been reported converted to an arsenal. No further information.

(See maps on pages M-10, M-11, M-13 and M-14.)

TARGET
90.36—

1603 AINOURA STEAM POWER STATION AINOURA (ELECTRIC POWER)

33° 12' N 129° 39' E (Approx)—Cap 30,000 KW in 1939; reported expanded to 50,000 KW in 1940-41. One of five principal generating stations in W Kyushu network. Only large plant in Sasebo Area. Primarily serves Sasebo Naval Base district. Located on shore of Ainoura Bay, NW of Sasebo. Reinforced concrete bldg, estimated 180 by 225 ft, with adjacent coal handling and wharfage facilities. Large jib crane.

(See map on page M-10.)

TARGET
90.36—

1835 YOKOSE OIL STORAGE YOKOSE (PETROLEUM)

33° 05' N 129° 42' E (Approx)—Large underground fuel storage, comprising at least eight very large tanks (measuring about 250-350 ft in diameter). Four small bunkering piers to N.

(See map on page M-13.)

TARGET
90.36—

845 SASEBO PROVISION WHARF SASEBO (HARBOR FACILITIES & WAREHOUSES)

33° 10' N 129° 43' E (Approx)—Large, "U"-shaped, concrete dock. Congested with storehouses and shop-type bldgs. Believed to be main supply depot.

(See maps on pages M-10, M-11, M-13 and M-14.)

TARGET
90.36—

754 SASEBO NAVAL AIR STATION SASEBO (AIRPORTS)

33° 08' N 129° 43' E (Approx)—Operational field for coastal patrol and fleet aircraft training and maintenance. Shops and storehouses at N end; administration bldgs, revetted stores and seaplane ramp at NE end; eight hangars (six large and two very small), three ramps, a probable engine test house and two cranes at SE end.

(See maps on pages M-10, M-11 and M-13.)

TARGET
90.36—

755 SASEBO OIL STORAGES SASEBO (PETROLEUM)

33° 07' N 129° 42' E (Approx)—Three separate tank farms along W shore of inner harbor. Some tanks enclosed with heavy concrete walls, others underground. Some reported to drain into underground reservoirs. Several piers, believed to be oil bunkering piers, located in inlets near tank farms.

(See maps on pages M-10, M-11 and M-13.)

TARGET
90.36—

752 SASEBO NAVAL DOCKYARD SASEBO (NAVAL BASES & SHIPYARDS)

33° 10' N 129° 42' E (Approx)—One of three primary naval shipyards and principal fleet repair base. Information concerning facilities in this part of naval base is from ground intelligence, largely of pre-war origin. Facilities include:

- (1) Three bldg ways, two 600 ft and one 350 ft long.
- (2) About six drydocks (exact number in doubt). Reported lengths: 454 ft 900 ft (may be bldg dock), 568 ft, 1000 ft (believed to be bldg dock), 606 ft and 266 ft. Concrete, granite-faced construction.
- (3) Repair basin, enclosing about nine acres, accommodates 10-12 ships alongside. Concrete, granite-faced construction.

Repair shops, equipped for complete repair and maintenance, are located to N of docks and repair basin. Engines, turbines, etc., built at Naval Arsenal & Engineering Department (See Target 758.)

(See maps on pages M-10, M-11, M-13 and M-14.)

TARGET
90.36—

757 SASEBO MINE & TORPEDO STORAGE SASEBO (ARMS & MUNITIONS)

33° 09' N 129° 43' E (Approx)—Reported destroyer base. About 16 storehouses; other small bldgs. Reported torpedo and mine depot.

(See maps on pages M-10, M-11 and M-13.)

TARGET
90.36—

762 SASEBO FUEL & MUNITIONS DEPOT SASEBO (ARMS & MUNITIONS)

33° 09' N 129° 43' E (Approx)—General munitions and fuel storage extending along coast from Sasebo Mine and Torpedo Storage (Target 757) to Sasebo Naval Air Station (Target 754). Northern portion includes several shop-type bldgs, concrete magazines, storehouses and quays. Southern part includes two large underground fuel tanks, revetted magazines and underground storages in the flanking hillside. Torpedoes and mines reported adjusted and set here.

(See maps on pages M-10, M-11 and M-13.)

TARGET
90.36—

834 SASEBO AIRCRAFT FACTORY SASEBO (AIRCRAFT)

33° 09' N 129° 45' E (Approx)—Medium-size aircraft factory; has assembled small naval observation planes and probably does complete repair and overhaul to fleet aircraft. Engines reported manufactured in Naval Arsenal and Engineering Department (Target 758). Comprises approx 16 shop-type bldgs, six hangars, several storehouse and administration bldgs, small powerhouse, ramp and piers. Additional shop and storage-type bldgs located NE across canal from main plant. Other bldgs to SW of main plant. Some bldgs under construction as of 31 October 1943.

(See maps on pages M-10, M-11 and M-13.)

SASEBO 90.36, TSUSHIMA 90.39 TARGETS 758, 1603, 1835, 845, 752, 755, 754, 757, 762, 834 (SASEBO REGION)

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OUTLYING TARGETS

SASEBO AREA, No. 90.36

INDEX OF TARGETS BY NUMBER, CLASSIFICATION AND NAME

TARGET NO.	NAME	PAGE	TARGET NO.	NAME	PAGE
	COAL			MACHINES & MACHINE TOOLS	
842	Taka Shima Colliery	22	833	Karatsu Iron Works	21
843	Ha Shima Colliery	22		TRANSPORTATION	
1843	Kyushu Coal & SS Co. Colliery	23	838	Isahaya RR Junctions	21
			839	Haiki RR Terminal	23

Summary and Evaluation of Outlying Targets

With the exception of the Karatsu Iron Works **TARGET 833** all objectives of major importance in the area are located in the Nagasaki, Omura and Sasebo regions. Several minor outlying targets are listed primarily as an aid to the interpretation of photographic reconnaissance and also as possible alternative objectives.

Karatsu Region: Karatsu is a secondary coal exporting port for the small mines located to the south of the city. The tidal harbor has very limited facilities and coal is lightered from the Mitsubishi Coal Dock on O Shima to ships in the anchorage. The Karatsu Iron Works **TARGET 833**, an integrated alloy steel and machine tool plant, is considered one of Japan's model tool plants and is an important objective. Several machine tool plants, foundries, etc., are reported in the city, but they are small and dispersed. A reported ordnance factory (Karatsu Kakohin Seizosho) has not been identified. Small railroad shops of the north Kyushu railroad, which serves the region's coal fields, are located just NE of the town.

Imari Region: Imari is reported as a secondary naval station and Imari Bay may serve as an auxiliary anchorage for convoy escort vessels based at Sasebo. A sizable chemical plant (Kawanami Soda Ash Co.), located on the western shore of Imari Harbor, is considered unimportant. Arita, about six miles south of Imari, is an unimportant ceramics center.

Haiki-Kawatana Region: (See Mosaic E.) In effect, the

Haiki-Kawatana district constitutes an extension of the Sasebo Naval Base. Available photo coverage is inadequate for detailed interpretation, but it establishes the location of several barracks and storage sites along the railroad. Haiki is the site of a small but important railroad terminal **TARGET 839** which controls Sasebo's single rail connection. A number of very small, unidentified factories are located in and near the town. Kawatana, on the northern shore of Omura Bay, is the site of a large unidentified factory which comprises about nine shop-type buildings (each about 300 by 180 ft.), three other large buildings and several storage sheds. The factory fronts on a 2400 ft. quay. A number of warehouses are located to the west of the town.

Off-Shore Islands: Numerous coal fields are located throughout the area, but none are considered of major importance. Three of the largest mines **TARGETS 1843, 842 and 843** are located on small islands off the Kyushu coast. These are listed as minor targets since they are underwater mines and their pumping equipment may be vulnerable to air attack. They supply the bulk of Nagasaki's and Sasebo's bunker coal. The island of O Shima, SW of the entrance to Sasebo Bay, is reported to contain extensive oil storages. However, these could not be identified in the available photo coverage.

Isahaya: Although located in the adjacent Kurume Area (90.35), the railroad terminal and junctions at Isahaya **TARGET 838** are included in this folder because they control Nagasaki's only railroad connection.

CONFIDENTIAL equals British Confidential

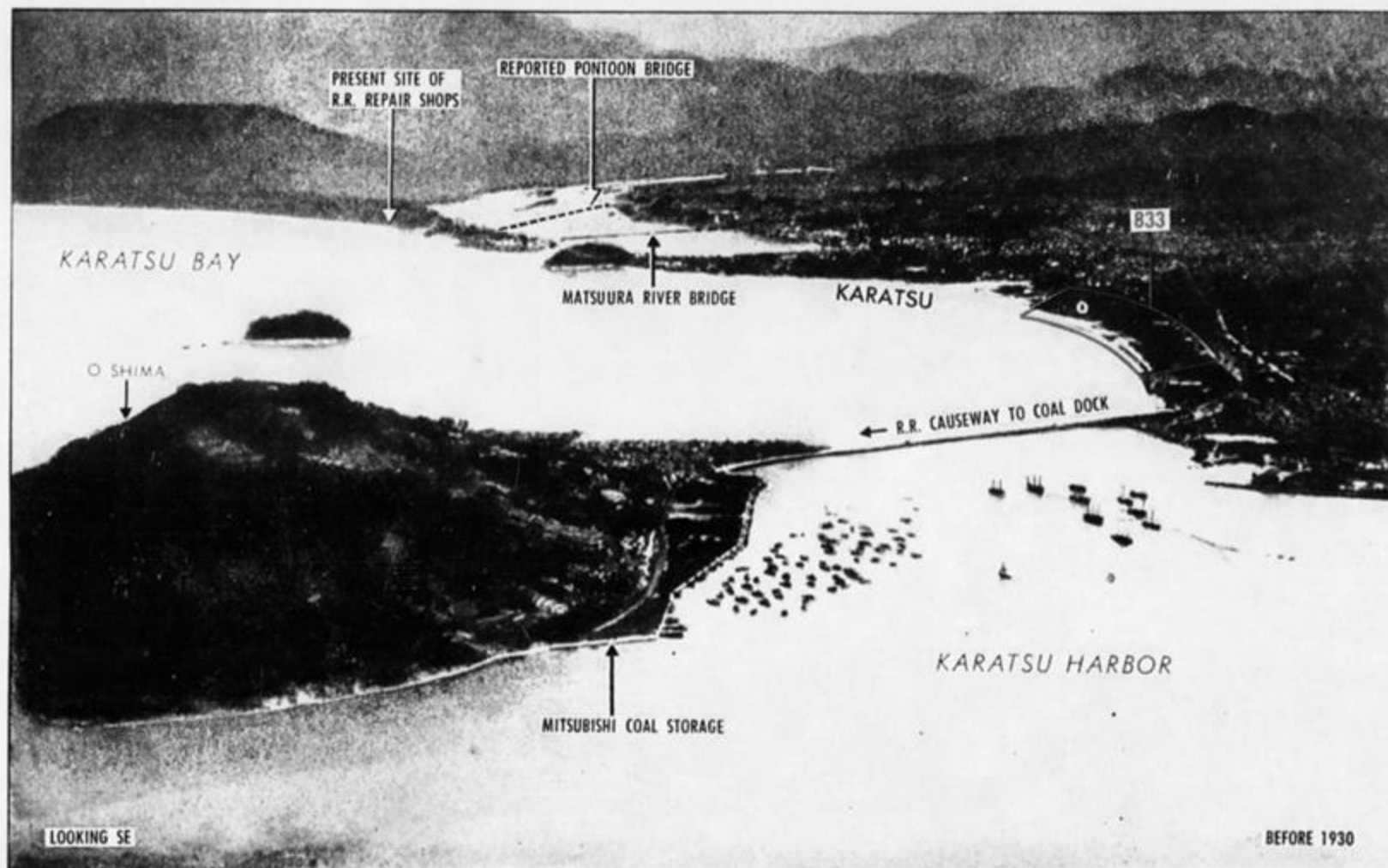


PHOTO 16—Karatsu—View of Karatsu city and harbor, showing present site of TARGET 833 Karatsu Iron Works. This is a shallow anchorage and coaling is done by lighter.



PHOTO 17—Karatsu—TARGET 833 Karatsu Iron Works. The steel works of this plant are located off the view to the right. Plant has been considerably expanded since view was taken.



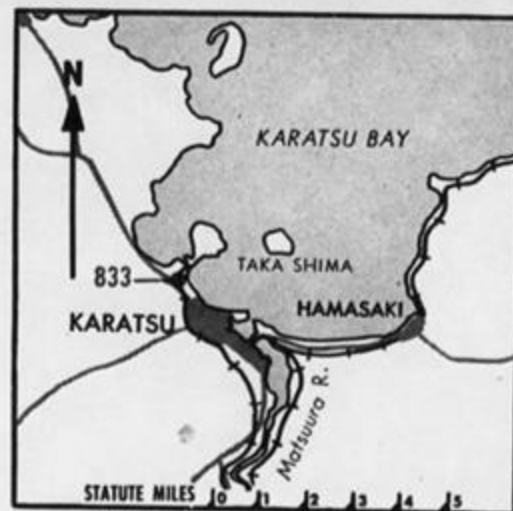
TARGET
90.36—

838

ISAHAYA RR JUNCTIONS
ISAHAYA

(TRANSPORTATION)

32° 51' N 130° 03' E (Approx)—Junction of Sasebo-Nagasaki and Saga-Isahaya lines in NW Isahaya. Controls single RR to Nagasaki. Junction of Sasebo-Nagasaki and Shimabara lines in SW Isahaya. Switchboard extends beyond two junctions. Although this objective lies in the Kurume Area (90.35), it is included because of its direct relation to this Area's transportation system.



TARGET
90.36—

833

KARATSU IRON WORKS

(Karatsu Tekkosho KK)

KARATSU

(MACHINES & MACHINE TOOLS)

33° 28' N 129° 57' E (Approx)—One of outstanding machine tool plants in Japan. Probably first in quality and among first six in output. Plant comprises integrated alloy steel/machine tool works. Products include: lathes, drilling and boring machines, milling machines, gear cutters, ingot slicing machines, portable cranes, etc. At least 9000 tons of alloy steel annually. (See photos 16 and 17.)

SASEBO 90.36, TSUSHIMA 90.39 TARGETS 838, 833 (OUTLYING)

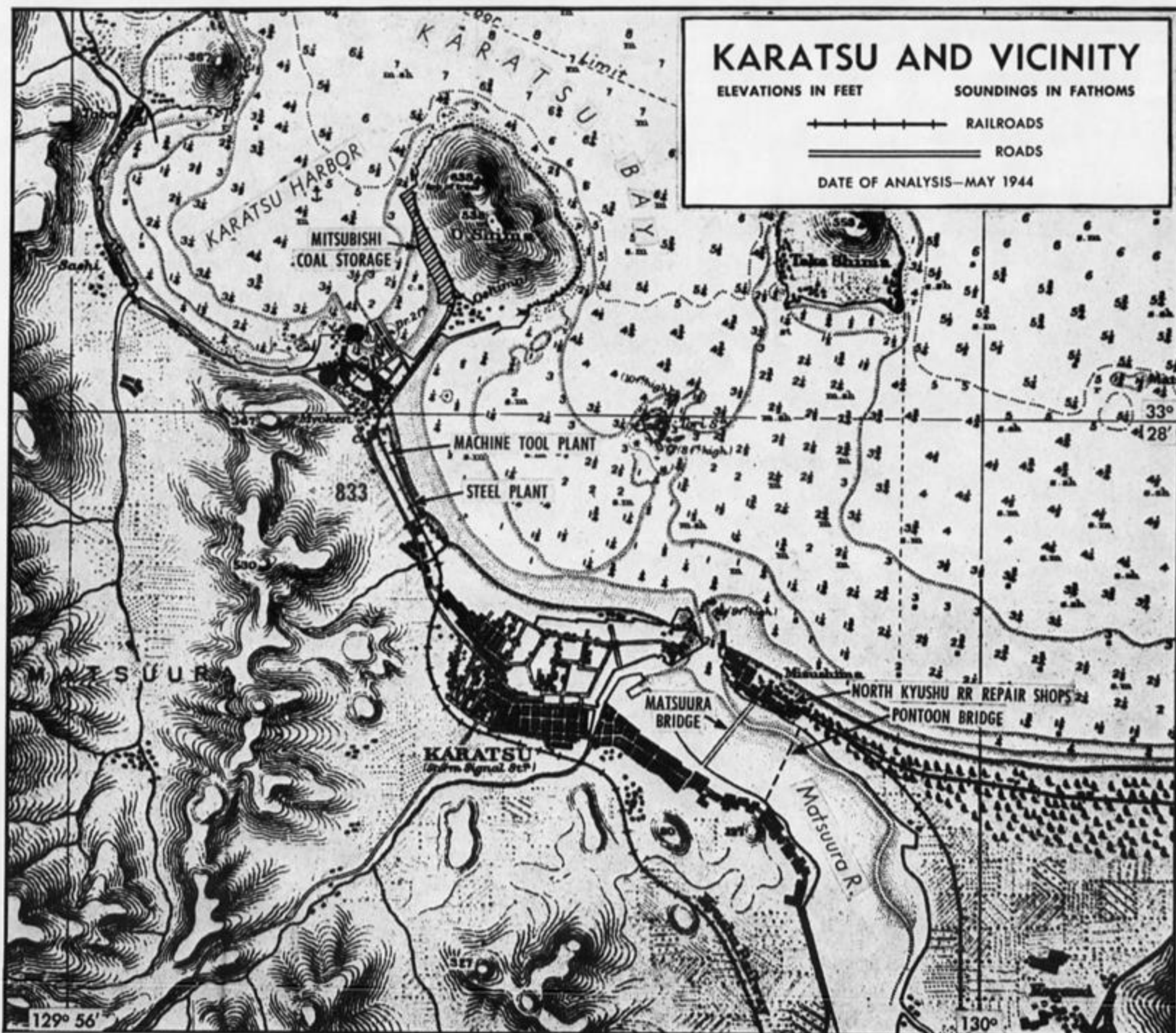
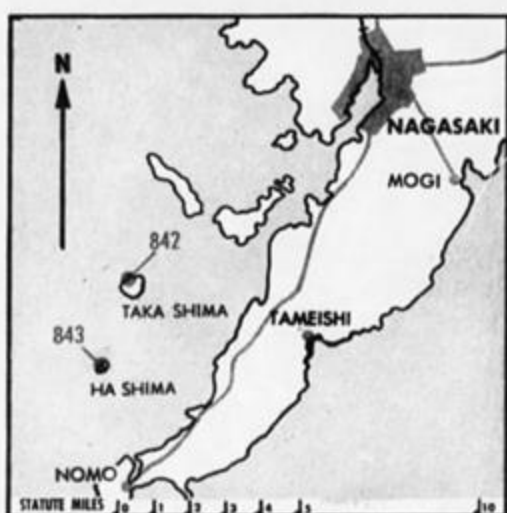




PHOTO 18—Fukushima and Matsushima Islands. Typical fishing anchorages in islands off the Kyushu Coast.



TARGET
90.36—

843

HA SHIMA COLLIERY
HA SHIMA (ISLAND)
(COAL)

32° 37' N 129° 45' E (Approx)—Situ-
ated 2.5 mi SSW of Takashima.
Model mine, modern equipment. In-
stallations at S end of Is, living quarters
at N end.
(See photo 20.)

TARGET
90.36—

842

TAKA SHIMA COLLIERY
TAKA SHIMA (ISLAND)
(COAL)

32° 39' N 129° 46' E (Approx)—Now
connected by causeway to Futago-
shima. Accredited with 700,000 tons
per year. Approx 1.3% of total Jap-
anese production.
(See photo 19.)

SASEBO 90.36, TSUSHIMA 90.39 TARGETS 843, 842 (OUTLYING)

SASEBO 90.36, TSUSHIMA 90.39 TARGETS 843, 842 (OUTLYING)

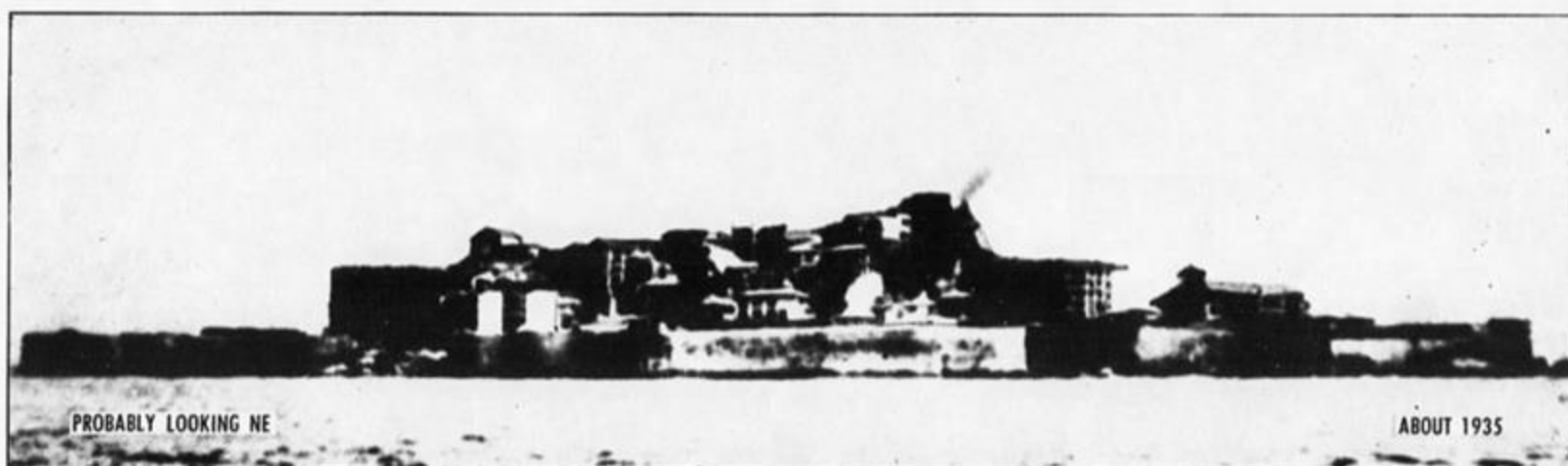


PHOTO 19—Taka Shima—TARGET 842 Taka Shima Colliery.

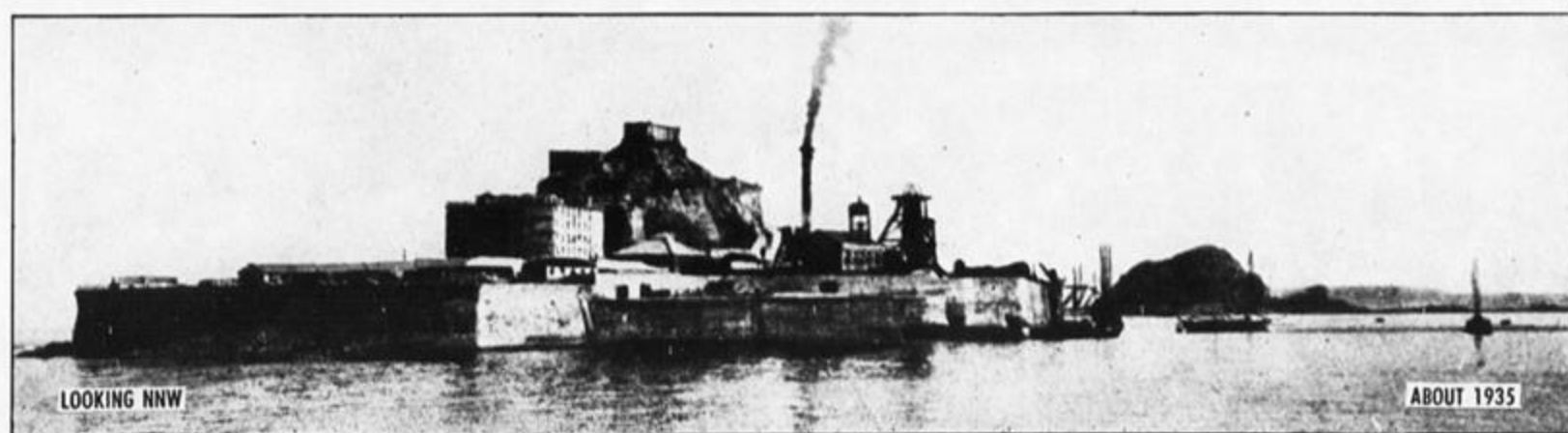


PHOTO 20—Ha Shima—TARGET 843 Ha Shima Colliery.



TARGET
90.36—
1843

**KYUSHU COAL & SS CO.
COLLIERY**

(Kyushu Tanko Kisen KK)
SAKITO SHIMA (ISLAND)
(COAL)

33° 00' N 129° 33' E (Approx)—Located on small Is 14.3 mi SW of Sasebo Naval Base and believed to supply coal to that area. Co operating mine also operates a few small coal ships. 1937 production listed at 1,071,000 metric tons, 2.3% of total for Japan Proper. Small steam power station which supplies mine is located nearby. Exact spotting unknown.



TARGET
90.36—
839

**HAIKI RR TERMINAL
HAIKI**

(TRANSPORTATION)

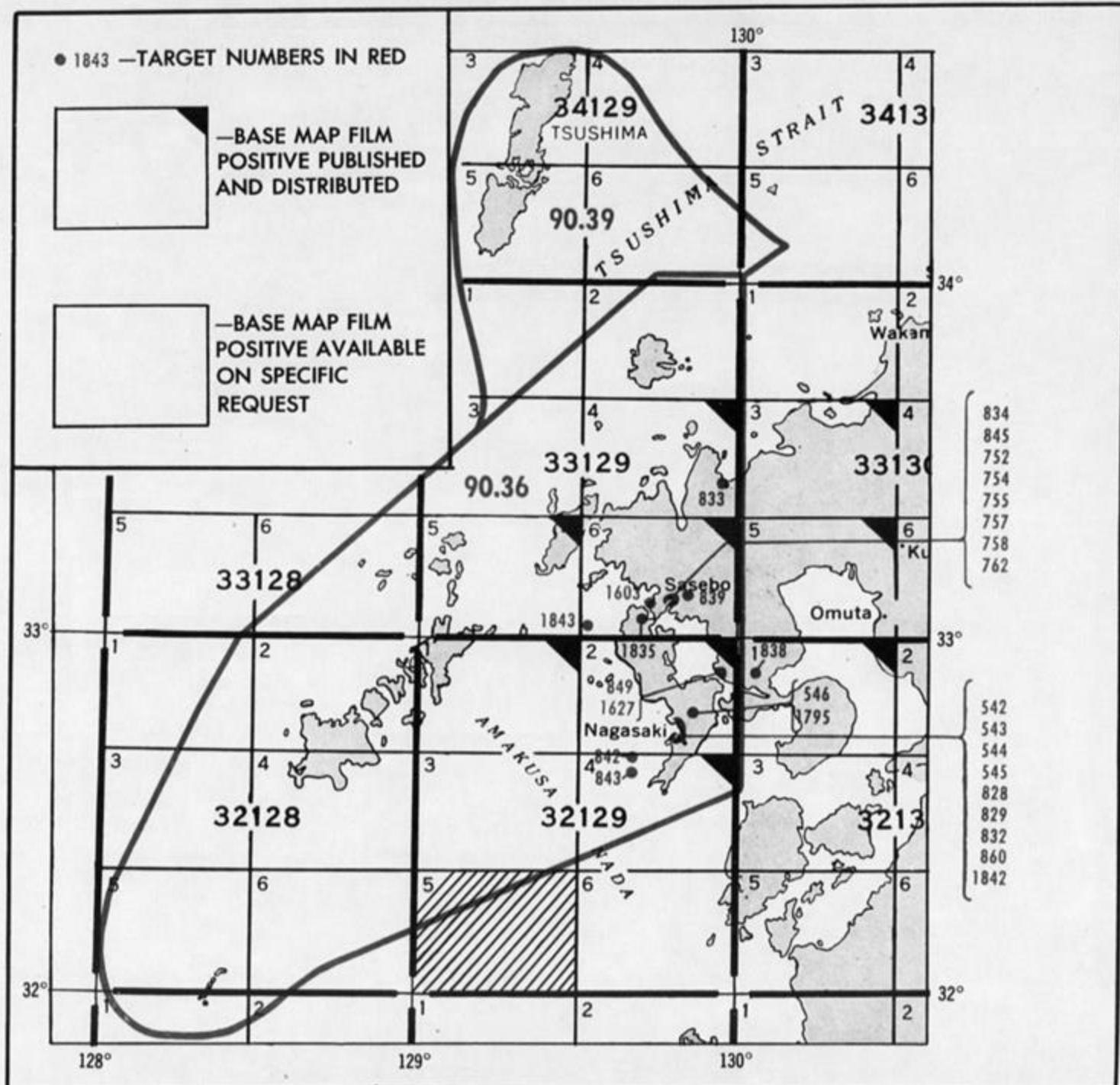
33° 08' N 129° 48' E (Approx)—Important junction of Sasebo-Nagasaki RR with trunk line from NE region of Kyushu.
(See map on page M-12.)

SASEBO 90.36, TSUSHIMA 90.39 TARGETS 839, 1843 (OUTLYING)

SASEBO 90.36, TSUSHIMA 90.39 TARGETS 839, 1843 (OUTLYING)

Target Chart Information for Sasebo, No. 90.36, Tsushima, No. 90.39

INDEX AAF TARGET AREA BASES, 1:75,000

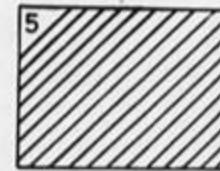


EXPLANATION: In lieu of the AAF Target Charts which heretofore have been distributed in conjunction with Air Objective Folders, Target Area Bases are being distributed in limited quantities to Theater Air Force Headquarters according to the coverage indicated by this index map. These maps are in the form of color-separation film positives which can be amplified with field intelligence and used as a base for target charts. In the event that the theater is unable to prepare specific charts, these will be prepared by Headquarters, AAF upon request.

PURPOSE AND USE: These film positives provide Theater Air Force Headquarters with the best map compilation of target areas that is available at Headquarters, AAF. Targets are identified by number on the film positives and are coordinated with the targets listed in Air Objective Folders. The maps are on a scale of 1:75,000 and are suitable for use with a bombardier grid in the bombing of obscured targets. Adjacent maps of the area may be joined to form a film positive from which a four-color target chart with a

12-mile radius may be prepared on any target or targets in this Air Objective Folder. These bases also provide ground control for the laying of aerial mosaics.

INDEX: The objective area covered by this Air Objective Folder is indexed for base map coverage in "blocks" bounded by one full degree of latitude and longitude. These blocks are further subdivided into six (6) individual sheets numbered from 1 to 6.



Thus a block is identified by the reading of the coordinates at its SW corner, and the sheet by its individual sheet number.

FOR EXAMPLE: Sheet 5 in the Index Map above is identified by the block, (the reading at its SW corner is Lat. 32° N., Long.

129° E.) and then the sheet (Sheet 5).
The correct sheet number is therefore "32129-5".

Weather Information, Sasebo No. 90.36, Tsushima No. 90.39

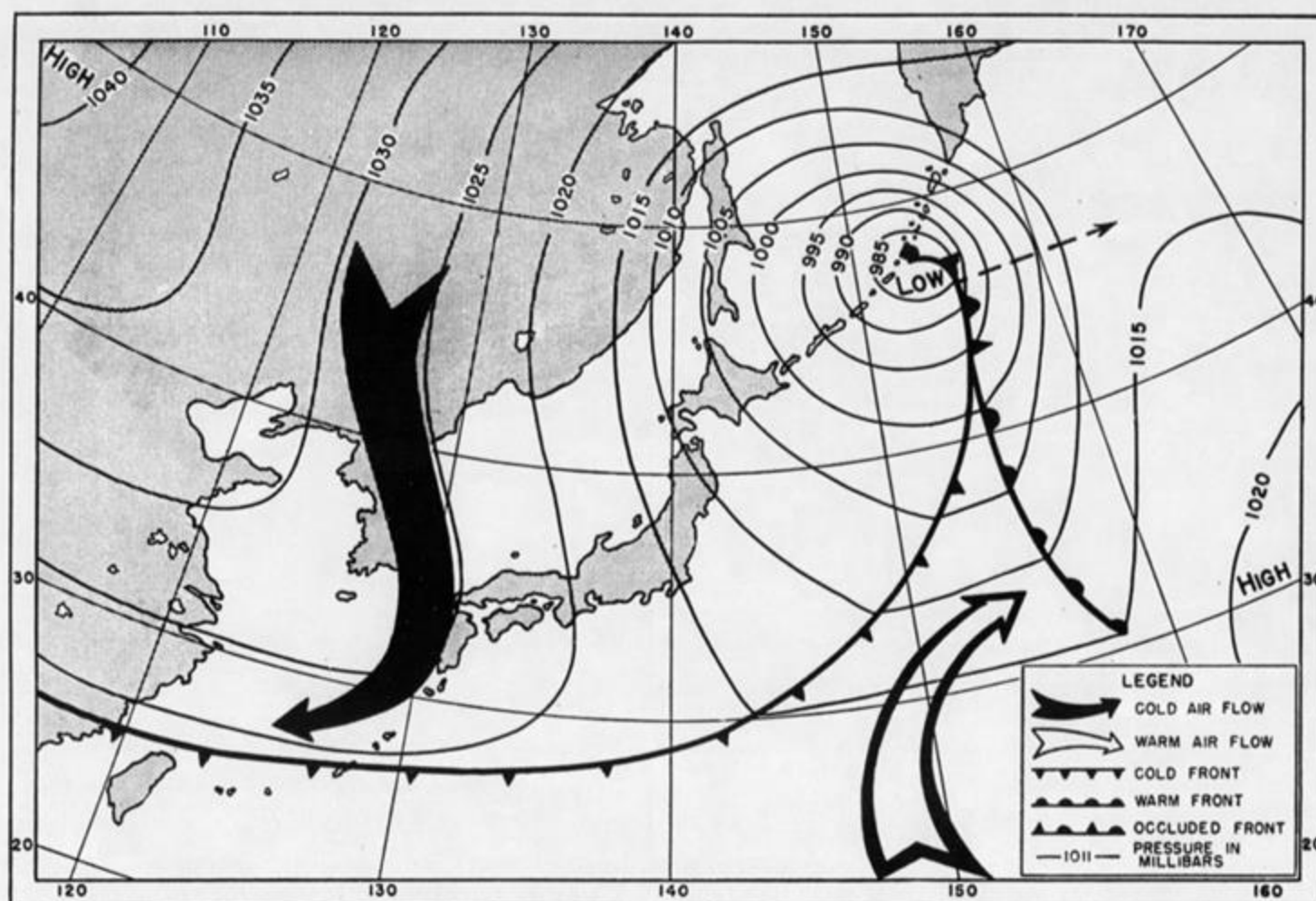


Figure 1.—Weather Situation Which is Frequent in Winter, and Usually Gives Excellent Bombing Weather at Stations in Tsushima Straits and on the Southwest Coast of Kyushu.

FREQUENCY OF SUITABLE BOMBING WEATHER

The frequency with which weather conditions suitable for various types of bombing may be expected in the Sasebo-Tsushima area depends upon the season and upon the direction of air flow over the area. In general, winds from westerly and northerly directions bring the best bombing weather, and since winds from these directions are more frequent in winter than in other seasons, winter is, on the average, the best season for aerial bombardment of the area.

The percentage frequencies of air flow from eight directions for winter, summer, and the transitional months are given in table 1.

Table 1.—Percentage Frequencies of Air Flow by Directions and Seasons*

	N	NE	E	SE	S	SW	W	NW
Winter (Oct.-Mar.)	21	17	8	6	3	6	7	32
Summer (June-Aug.)	3	16	11	10	10	36	10	4
Spring and Autumn (Apr., May, Sept.)	6	19	9	9	14	21	7	15

*From observations at 0600 and 1800 L.C.T. for a 2-year period.

The percentages show that about 50 percent of the time from October through March the general air flow is from the northwest and north. In summer, air from southerly directions prevails about 60 percent of the time, while air flow from the northwest and north occurs only 7 percent of the time.

WINTER WEATHER

During the months of October through March, when the most frequent direction of air flow is from the northwest, a common type of weather situation is one in which a deep, low-pressure center lies to the northeast of Japan, with a cold front aligned east-west, south of Japan. To the north of the cold front, northerly and northwesterly winds blow over Tsushima Straits and southwestern Japan. This type of situation is shown in figure 1.

Convective-type clouds form in the air from the north and northwest as it moves across the Sea of Japan and Tsushima Straits. At Izuhara, there are, on the average, 6 clear days in January, but at Sasebo there are only 2. (See figures 2 and 3.) Rain and snow showers are frequent, occurring on from one-third to one-half the days of the month. (See tables 3 and 4.)

The frequency of conditions suitable for various types of bombing at Izuhara, on the island of Tsushima, are shown in table 2. The values given in the table are the percentage frequencies of occurrence of weather suitable for either high-level or low-level visual bombing, suitable for low-level bombing only, or unsuitable for flying. It should be noted that the values refer only to conditions over Izuhara, and cannot be assumed to indicate the frequency of conditions favorable for operations from bases to the target and return.

If for any given direction and speed of air flow, conditions favorable for a certain type of bombing occur 75 percent or more of the time, this fact has been considered particularly significant, and has been emphasized in the table by underlining the value.

In winter, the highest frequency of good bombing weather occurs with westerly, northwesterly, and northerly air flow, while unfavorable weather occurs usually with easterly, southeasterly and southerly air flow.

Above about 6,000 feet, and up to at least 20,000 feet, westerly winds prevail about 90 percent of the time in winter. The average velocity of this westerly current at 10,000 feet is 28 m.p.h.

Between October and May, the freezing level in the upper air is normally below 10,000 feet, and icing may occur on aircraft below this level whenever clouds are present.

SUMMER WEATHER

Summers are cloudy over the entire region. Consequently, the opportunities for high-level visual bombing are infrequent at this season. Low-level bombing, however, is possible about 50 percent of the time. The best weather for high-level visual bombing is associated with westerly or northeasterly air flow of 15 to 25 m.p.h. (see table 2). Westerly air flow occurs about 10 percent of the time in summer, and northeasterly flow about 16 percent of the time (table 1).

A typical weather situation for the summer months, and one which usually brings favorable conditions for low-level bombing, is shown on figure 4. Southwesterly air flow occurs to the south of a warm front lying north of Tsushima. Clouds are prevalent over the entire area in this type of weather situation.

Izuhara, in July, has an average of 18 days with cloud cover of 0.8 or greater, while only two days, on the average, are clear (see figure 3). Rainfall occurs on about one-half the days of June and July.

Icing on aircraft will seldom occur in this region in summer, except in the tops of towering cumulus clouds. The prevailing southwesterly winds of lower levels become westerly above about 6,000 feet, and velocities increase to about 20 m.p.h. at 10,000 feet.

WEATHER INFORMATION FOR SASEBO AREA, No. 90.36, TSUSHIMA AREA No. 90.39—Continued

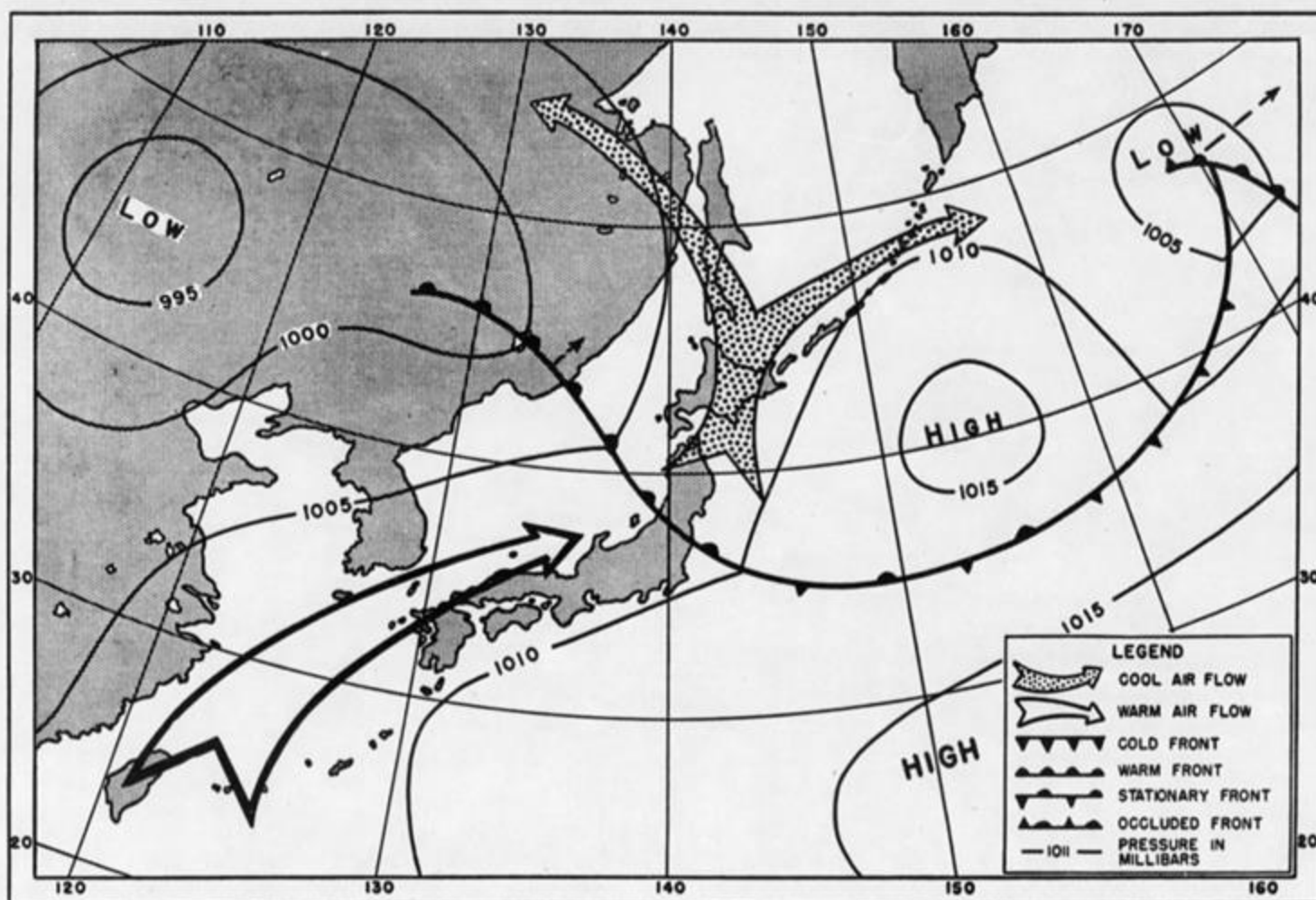


Figure 4.—Typical Summer Weather Situation with Predominantly Southwesterly to Southeasterly Flow. Because of the High Frequency of Low-Level and Middle-Level Clouds Associated with This Type, Usually only Low-Level Bombing May Be Employed.

Fog is very rare in this region. Only when warm air moves over colder water are advection fogs formed over the sea, and this condition obtains in this region only during the summer months. Izuhara has a maximum frequency in June, when fog occurs, on the average, 5 days of the month.

WEATHER OF THE TRANSITIONAL MONTHS

In spring and autumn, a series of storm centers moves through this region, and air flow alternates frequently between northerly and southerly directions. Conditions suitable for high-level visual bombing occur about 15 percent of the time, generally with air flow from the northwest. Low-level bombing operations are possible about 80 percent of the time, and are most favorable with east or southeast winds.

On the southwest coast in the vicinity of Sasebo, the months of October and November are the sunniest of the year, having, respectively, six and five clear days. At Izuhara, October and November rank with December and January as the best months for bombing operations (see figure 3 and table 3).

INCENDIARY BOMBING

The weather on the western part of the island of Kyushu is not particularly well suited to effective incendiary bombing. The south shores in the vicinity of Nagasaki are protected from those winds (north and west) which have the highest velocities, and wind speed is the most important factor in the spread of fire. High rainfall in the summer months and frequent showers at all seasons also reduce the number of days when surfaces are in condition for easy ignition. Generally, those days in any month when high-level visual bombing is possible will be suitable for incendiary bombing. This is particularly true of the spring and autumn months, because at these seasons the wind velocities tend to be higher. Figure 5 shows the average number of days in each month when conditions are rated good, excellent or superior for the spread of fire at Nagasaki at 0800 L.C.T.

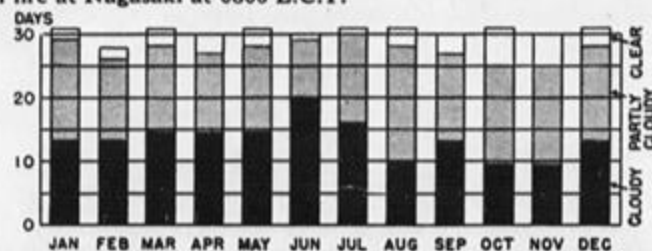


Figure 2.—Average Number of Days Clear (Less Than 0.2 Cloud Cover), Partly Cloudy (0.2 to 0.8 Cloud Cover), and Cloudy (Over 0.8 Cloud Cover) at Sasebo.

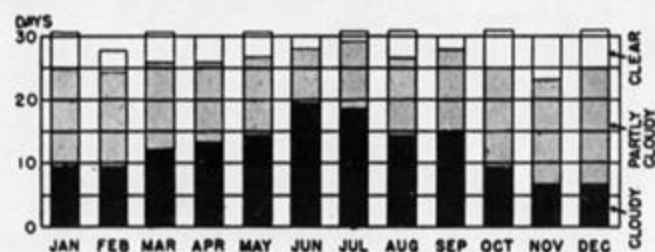


Figure 3.—Average Number of Days Clear (Less Than 0.2 Cloud Cover), Partly Cloudy (0.2 to 0.8 Cloud Cover), and Cloudy (Over 0.8 Cloud Cover) at Izuhara, Tsushima.

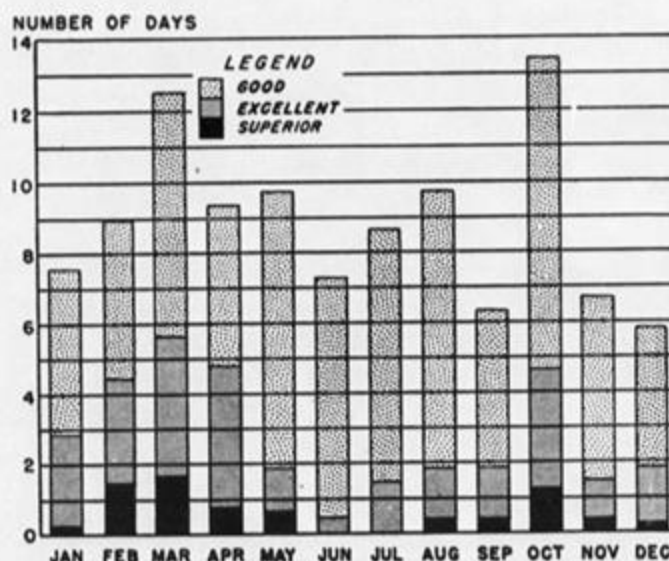


Figure 5.—Average Number of Days per Month When Conditions at Nagasaki are Rated Good, Excellent, or Superior for the Spread of Fire.

WEATHER INFORMATION FOR SASEBO AREA, No. 90.36, TSUSHIMA AREA, No. 90.39—Continued

Table 2.—Percentage Frequency of Conditions Suitable for Various Types of Bombing^a for Various Directions and Velocities of Air Flow at Izuhara, Tsushima

Table 2.—Percentage Frequency of Conditions Suitable for Various Types of Bombing for Various Directions and Velocities of Air Flow at Izuohara, Tsushima									
Velocity, m.p.h.	Bombing Conditions	Direction of Free-Air Flow							
		N	NE	E	SE	S	SW	W	NW
Winter (Oct.-Mar.)									
5-10	Suitable for high- and low-level _____	67	62	28	0	33	73	91	81
	Suitable for low-level only _____	28	32	67	81	67	27	9	19
	Unsuitable for either type _____	5	6	5	19	0	0	0	0
10-15	Suitable for high- and low-level _____	58	33	26	8	0	27	71	61
	Suitable for low-level only _____	32	54	65	77	67	60	18	34
	Unsuitable for either type _____	10	13	9	15	33	13	11	5
15-25	Suitable for high- and low-level _____	45	24	0	0	0	10	50	60
	Suitable for low-level only _____	48	48	16	12	16	70	50	32
	Unsuitable for either type _____	7	28	84	88	84	20	0	8
25 or >	Suitable for high- and low-level _____	58	*	*	*	*	28	75	38
	Suitable for low-level only _____	42	*	*	*	*	14	0	62
	Unsuitable for either type _____	0	*	*	*	*	58	25	0
Summer (June-Aug.)									
5-10	Suitable for high- and low-level _____	25	23	40	33	60	48	42	66
	Suitable for low-level only _____	75	65	60	67	33	48	58	34
	Unsuitable for either type _____	0	12	0	0	7	4	0	0
10-15	Suitable for high- and low-level _____	0	31	18	7	57	10	43	57
	Suitable for low-level only _____	100	53	77	93	31	77	36	43
	Unsuitable for either type _____	0	16	5	0	12	13	21	0
15-25	Suitable for high- and low-level _____	*	83	0	0	25	9	100	*
	Suitable for low-level only _____	*	17	87	50	50	72	0	*
	Unsuitable for either type _____	*	0	13	50	25	19	0	*
25 or >	Suitable for high- and low-level _____	0	0	*	*	*	5	43	*
	Suitable for low-level only _____	100	71	*	*	*	70	57	*
	Unsuitable for either type _____	0	29	*	*	*	25	0	*
Spring and Autumn (April, May, and Sept.)									
5-10	Suitable for high- and low-level _____	29	44	20	10	11	43	44	41
	Suitable for low-level only _____	71	56	80	85	78	43	56	47
	Unsuitable for either type _____	0	0	0	5	11	14	0	12
10-15	Suitable for high- and low-level _____	56	26	0	9	11	24	30	55
	Suitable for low-level only _____	33	52	90	82	53	73	70	41
	Unsuitable for either type _____	11	22	10	9	36	3	0	4
15-25	Suitable for high- and low-level _____	50	9	0	*	9	7	25	100
	Suitable for low-level only _____	33	59	43	*	45	73	50	0
	Unsuitable for either type _____	17	32	57	*	46	20	25	0
25 or >	Suitable for high- and low-level _____	*	*	*	*	*	25	*	100
	Suitable for low-level only _____	*	*	*	*	*	50	*	0
	Unsuitable for either type _____	*	*	*	*	*	25	*	0

^aWeather suitable for high-level and low-level bombing—clear sky to scattered clouds.

Weather suitable for low-level bombing only—broken to overcast cloud cover.

Weather unsuitable for either type—rain, snow, thunderstorm, or fog.

*Insufficient data or no cases.

Table 3.—Climatic Summary for Izuhara, Tsushima

34°11' N.; 129°15' E. Elevation, 24 feet (30-year record)

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Cloudiness													
No. of days													
Clear (<0.2)	6	4	5	4	4	2	2	4	2	6	7	6	52
Cloudy (>0.8)	9	9	12	13	14	19	18	14	15	9	7	7	146
Precipitation													
Mean amount (in.)	3.6	3.7	5.0	8.8	7.6	14.0	13.1	9.9	12.6	5.5	3.2	3.1	90.1
No. of days with 0.004 in.	12	11	13	12	11	14	15	13	14	9	10	10	144
Temperature (°F.)													
Mean Maximum	49	49	55	63	71	76	82	86	79	71	62	52	66
Mean Minimum	33	34	39	48	55	62	71	73	67	55	45	36	52
Fog													
No. of days	1	1	2	2	2	5	3	1	1	1	1	1	21
Snowfall													
No. of days	4	4	1	—	—	—	—	—	—	—	—	3	12

WEATHER INFORMATION FOR SASEBO AREA, No. 90.36, TSUSHIMA AREA, No. 90.39—Concluded

Table 4.—Climatic Summary for Sasebo													
33°11' N.; 129°40' E. Elevation, 48 feet (36-year record)													
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Cloudiness													
No. of days													
Clear (<0.2)	2	2	3	3	3	1	1	3	3	6	5	3	35
Cloudy (>0.8)	13	13	14	14	14	20	16	10	13	9	9	13	158
Precipitation													
Mean amount (in.)	2.9	3.3	5.1	7.3	6.1	13.5	11.4	7.2	10.0	4.3	3.4	3.1	77.6
No. of days with 0.004 in.	16	13	14	13	12	16	14	11	13	10	11	15	158
Temperature (°F.)													
Mean Maximum	50	51	57	67	73	79	86	89	83	74	64	54	69
Mean Minimum	36	36	41	49	56	65	73	74	68	57	47	39	53
Fog													
No. of days	*	*	*	1	*	*	*	—	—	—	*	*	2
Snowfall													
No. of days	6	5	2	—	—	—	—	—	—	—	*	3	16

*Less than 0.5 day.

Tabulation of Airports and Seaplane Anchorages

Sasebo No. 90.36, Tsushima No. 90.39

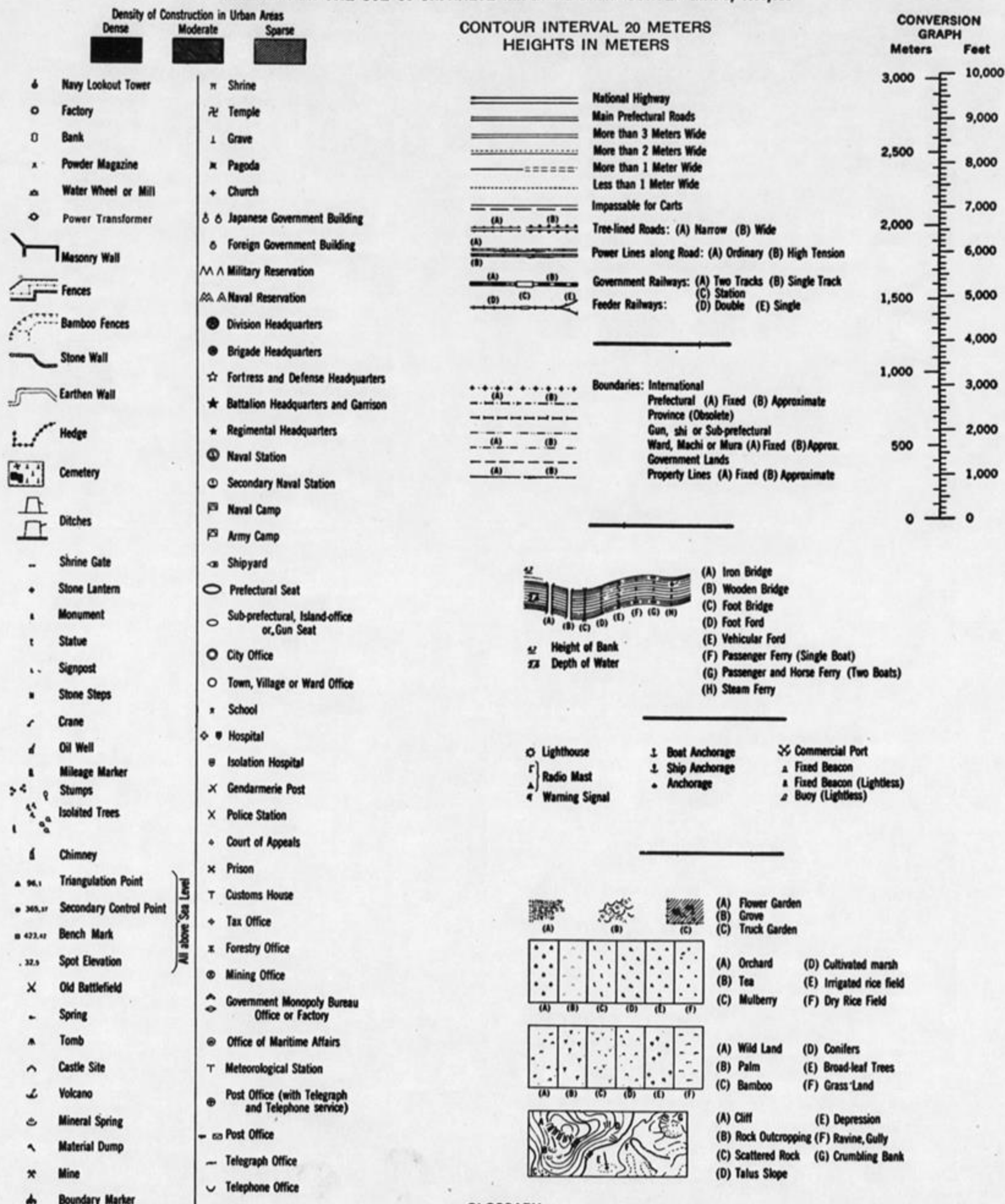
TABULATION OF AIRPORTS IN SASEBO AREA, No. 90.36

Name	Location	AIRPORTS	Comment
Kodakamura	32° 50' N 129° 50' E About 6 mi NNW of Nagasaki, on S shore of Omura Bay.	Civil landing field reported.	Also training center for Fleet Air Arm Pilots.
Nagasaki	32° 45' N 129° 51' E Near entrance to Nagasaki Harbor.	Civil airfield reported.	
Omura (T.N. 849)	32° 56' N 129° 56' E 2½ mi NW of Omura on W shore of Omura Bay.	Naval Air Base & Seaplane Station.	Auxiliary field 1 mi SE.
Sasebo (T.N. 754)	33° 08' N 129° 43' E E side of Sasebo Inner Harbor.	Naval Air Base and Seaplane Station.	
Tomie	32° 36' N 128° 46' E On S shore of Fukue Shima.	Naval airfield. Also called Hukuejima.	
SEAPLANE BASES			
Iki Shima	33° 44' N 129° 41' E SW side of Iki Shima.	Seaplane base reported.	Unconfirmed.
Nagasaki	32° 43' N 129° 52' E In Nagasaki Harbor.	Reported	

NOTE: A new Naval Air Station is reported on the Doinikubi Peninsula. Exact location not known.

Map Information for Sasebo Area, No. 90.36, Tsushima Area, 90.39

LEGEND FOR THE USE OF JAPANESE IMPERIAL LAND SURVEY MAPS, 1:50,000



GLOSSARY

VARIANTS IN PARENTHESES

-bae (-hae).....rock
-bakufu.....waterfall
-bama (-hama).....beach, field
-bana (-hara).....point
-bara (-hara).....plain, field
-chō (-machi).....township
-dai (-tai).....plateau, plain
-dake (-take).....mountain
-dani (-tani).....valley, stream
-gan (-iwa).....rock, cliff
-gata.....bay, inlet, lake
-gawa (-kawa).....river

-goe (-koe).....mountain pass
-gun.....county
-guntō.....archipelago
-fuji.....mountain
-hae (-bae).....rock
-hama (-bama).....beach, field
-hana (-bana).....point
-hantō.....peninsula
-hara (-bara).....plain, field
-ike.....pond
-ishi.....rock, cliff
-iso.....rock, shoal
-iwa (-gan).....rock, cliff

-jima (-shima, -tō).....island
-kai (-umi).....bay, gulf
-kaikyō.....strait
-kawa (-gawa).....river
-ken.....prefecture
-ko.....lake
-kō.....harbor
-koe (-goe).....mountain pass
-kojima.....small isle
-machi (-chō).....township
-mine.....mountain
-misaki (-saki, -zaki).....cape
-mori.....mountain, forest

-mura.....township
-nada.....sea
-no.....plain, field
-onsen.....hot spring, spa
-rettō.....island chain
-saki (-zaki, -misaki).....cape
-san (-zan, -yama).....mountain, ridge
-se.....reef, shoal, rapid
-seto.....strait
-shi.....municipality, city
-shima (-jima, -tō).....island
-shō.....reef, shoal
-shotō.....island group

-suidō.....channel
-tai (-dai).....plateau, plain
-take (-dake).....mountain
-taki (-daki).....waterfall
-tani (-dani).....valley, stream
-tō (-shima, -jima).....island
-tōge.....mountain pass
-uchi.....inlet
-umi (-kai).....bay, gulf
-ura.....inlet, beach
-wan.....bay
-yama (-san, -zan).....mountain, ridge
-yu.....mineral spring, spa
-zaki (-saki, -misaki).....cape
-zan (-san, -yama).....mountain, ridge

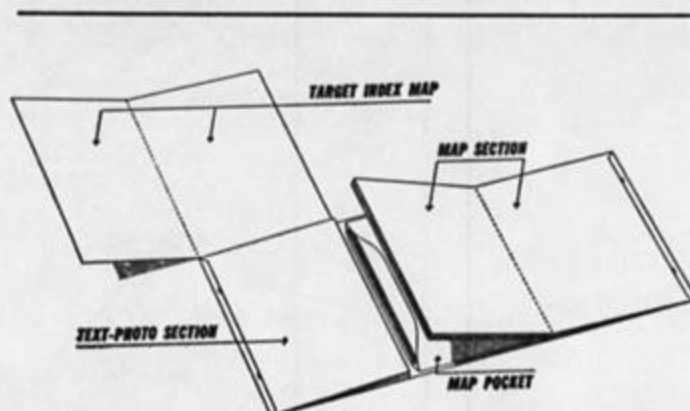
AIR OBJECTIVE FOLDERS

Air Objective Folders are primarily for the use of group and squadron commanders, operations officers, and intelligence officers in the planning of operations and the briefing of crews.

As an aid to staff planning, a summary and evaluation of main divisions within the area is included. Target and objective areas are numbered in a separate series for each country. For example, in this folder:

90.36-849 indicates Japan (90), Sasebo Area (36) and TARGET 849, Omura Naval Air Station.

Supplementing the Air Objective Folder are Target Area Base Maps, distributed in lieu of AAF Target Charts formerly provided for the use of air crews. These maps are being distributed in limited quantities to Theater Air Force Headquarters and are described on the Target Chart Information page in this folder.



The Air Objective Folder is divided into a Text-Photo Section, a Map Section, and a Map Pocket.

In the Text-Photo Section a Target-Index Map opens upward to form a handy reference in locating ALL TARGETS.

The Map Section unfolds to permit cross-checking with material in the Text-Photo Section.

The Map Pocket contains oversize maps.

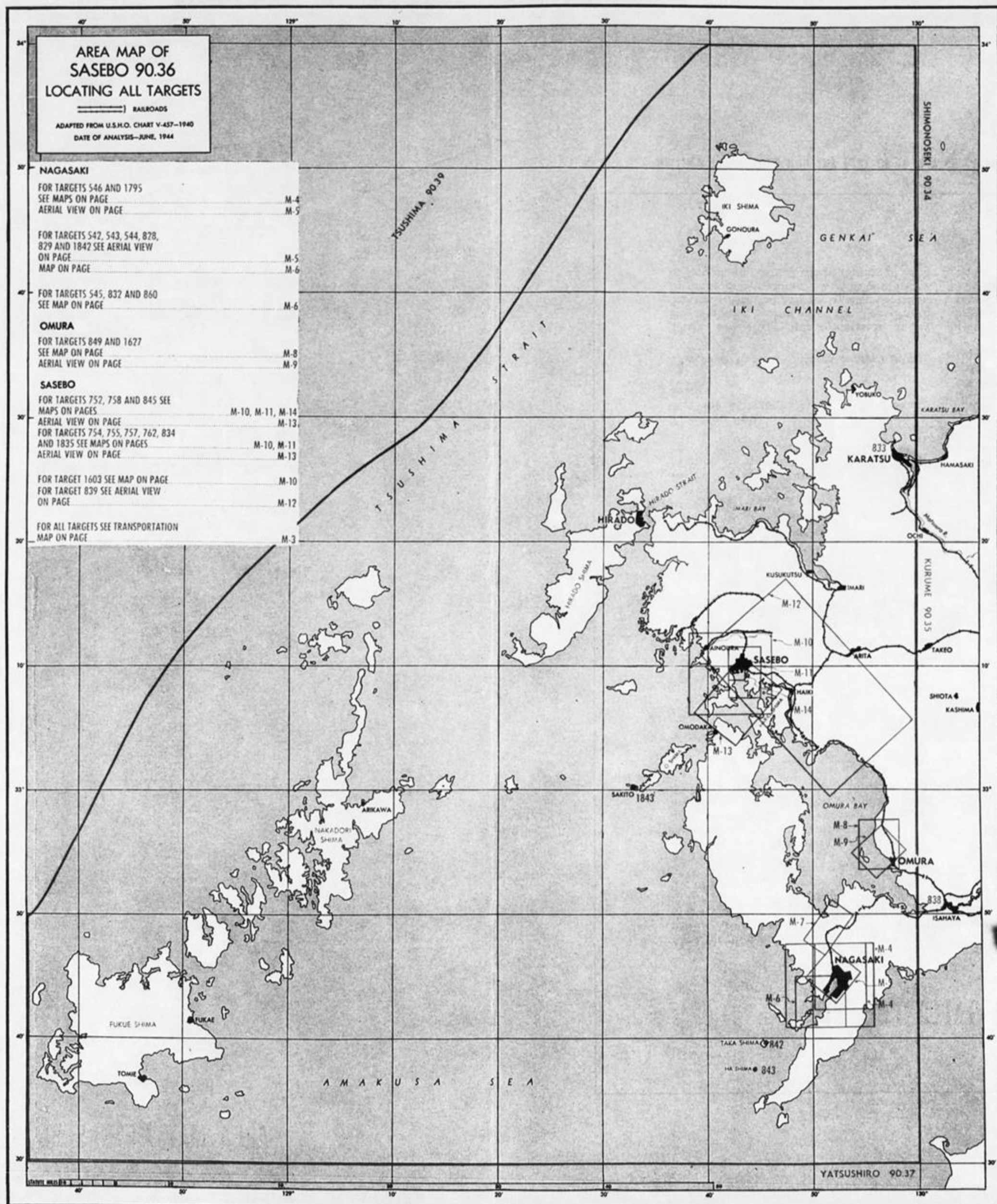
There are three quick-reference Index Pages at the beginning of the Text-Photo Section which list targets by classification, by name, or by number. An additional Index of Targets appears at the beginning of each

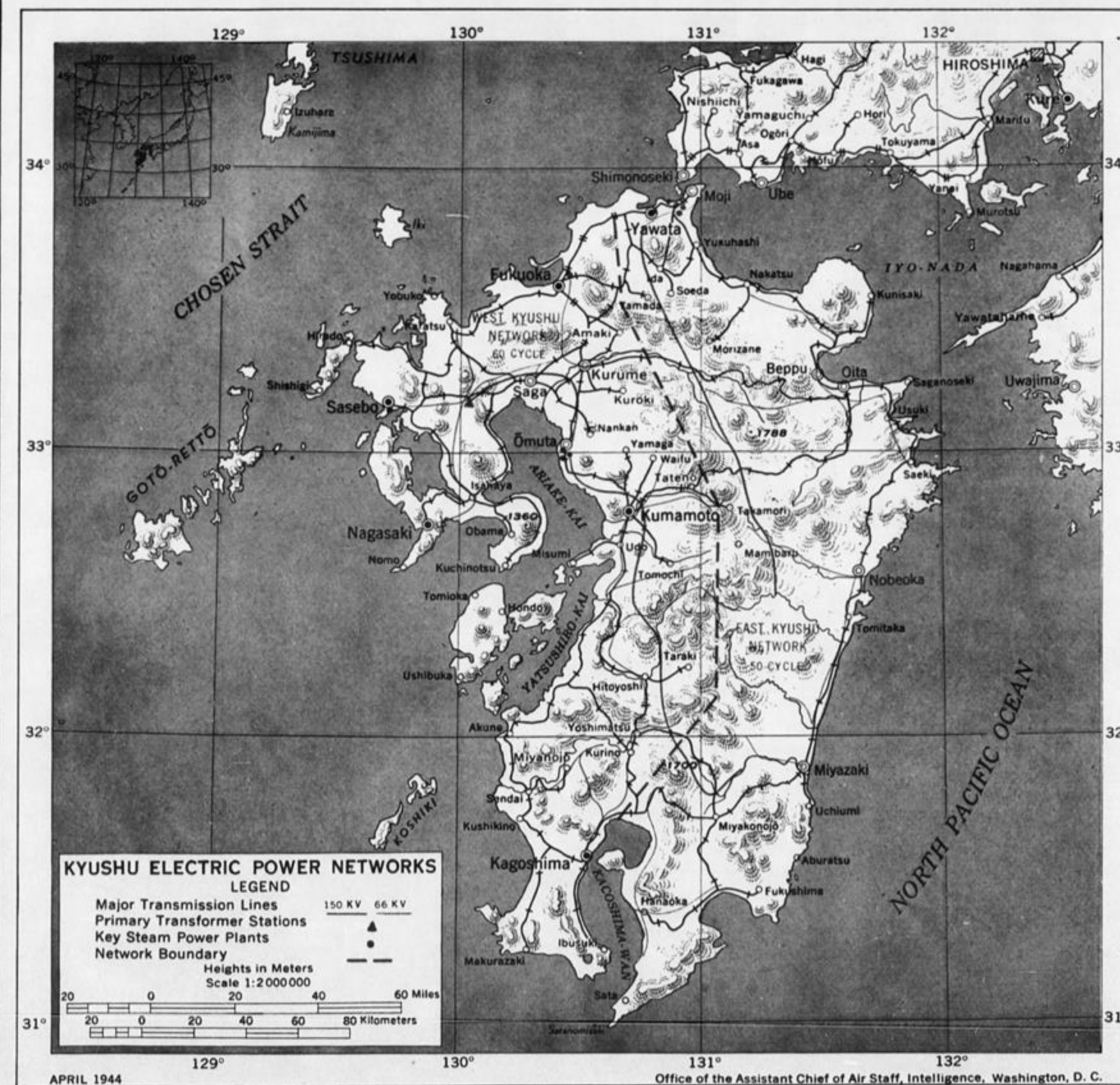
regional division. Thus in locating a target in the Air Objective Folder you need to know only the classification, name or number of the target.

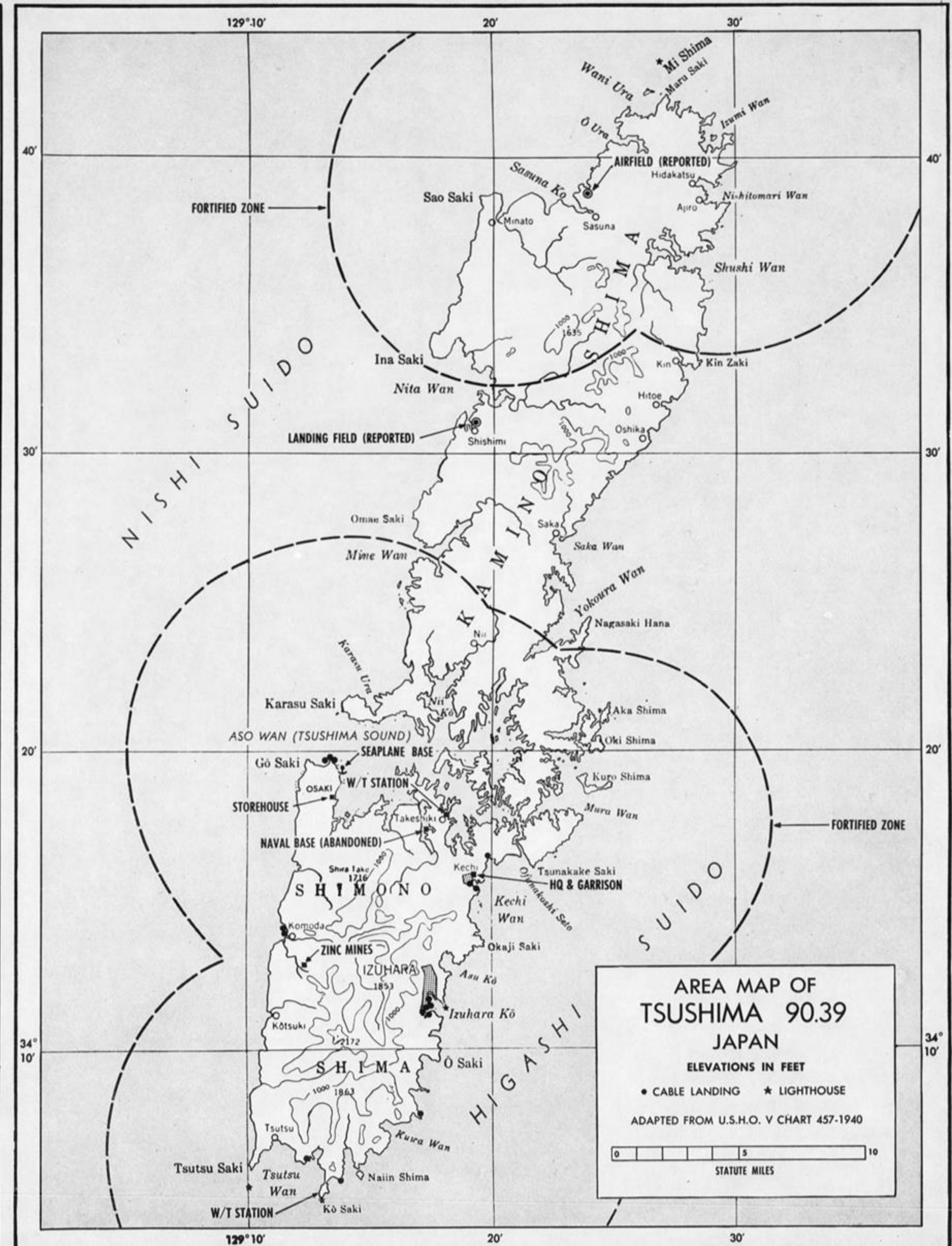
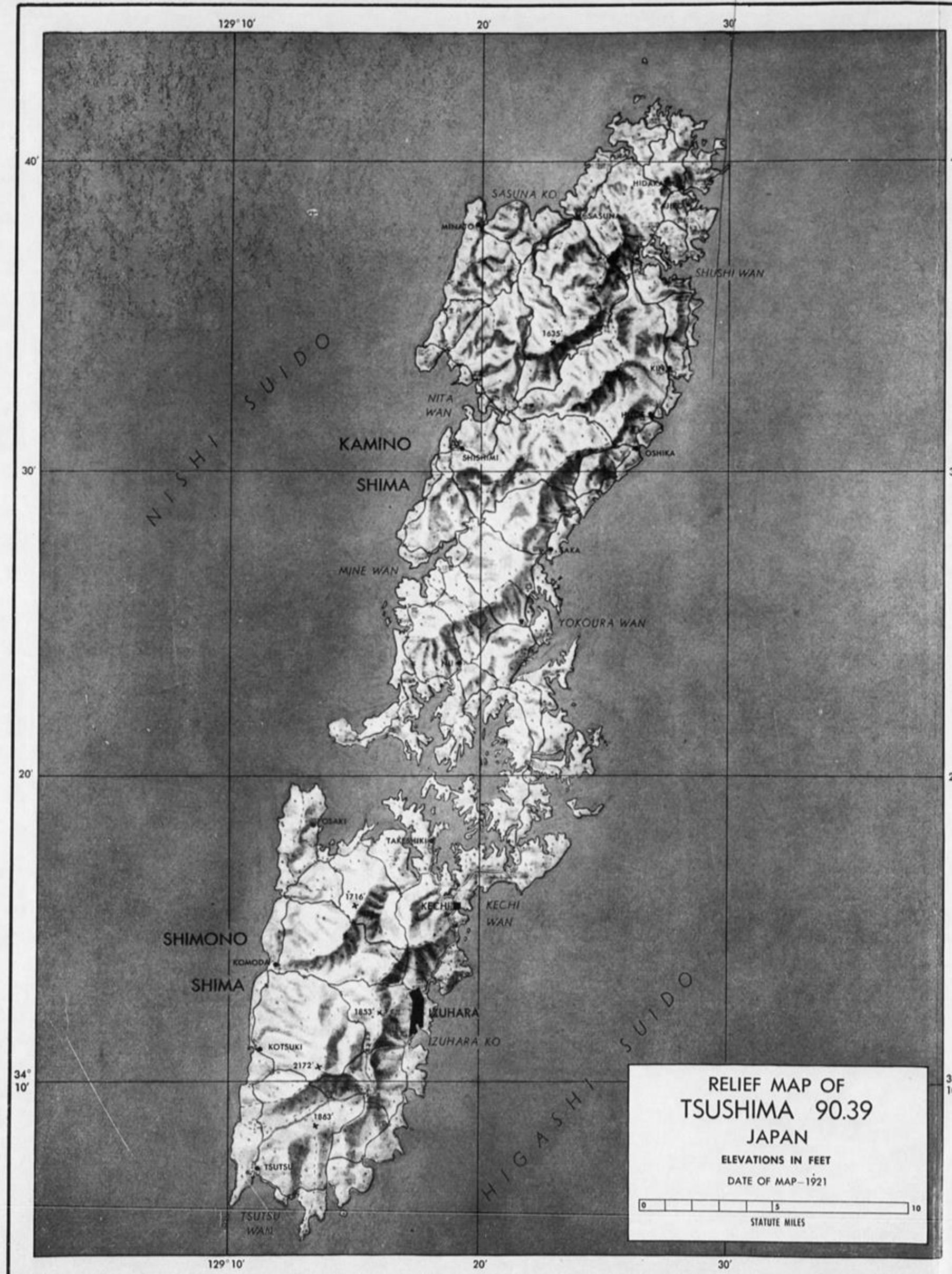
Target description pages in this folder have been perforated, so that they may be extracted and adapted to any filing system. All text and photo pages are indexed for filing. Individual target descriptions and illustrations are grouped together so that photographs, city plans and orientation maps may be used in a balopticon while briefing the crews.

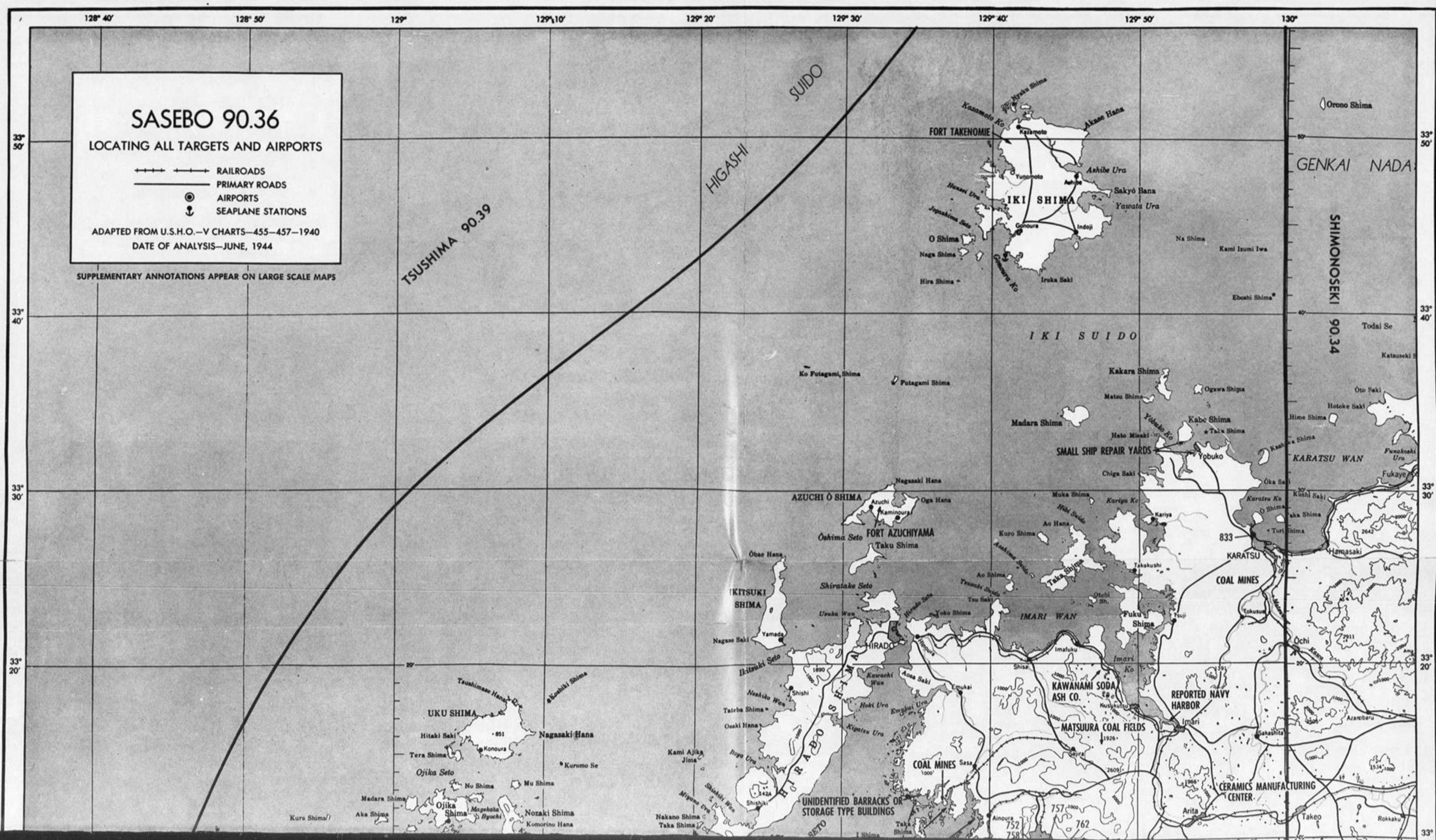
It will be noted that one photograph may include several targets for orientation purposes. However, in every instance, the best available photograph of a target will accompany the description of that target.

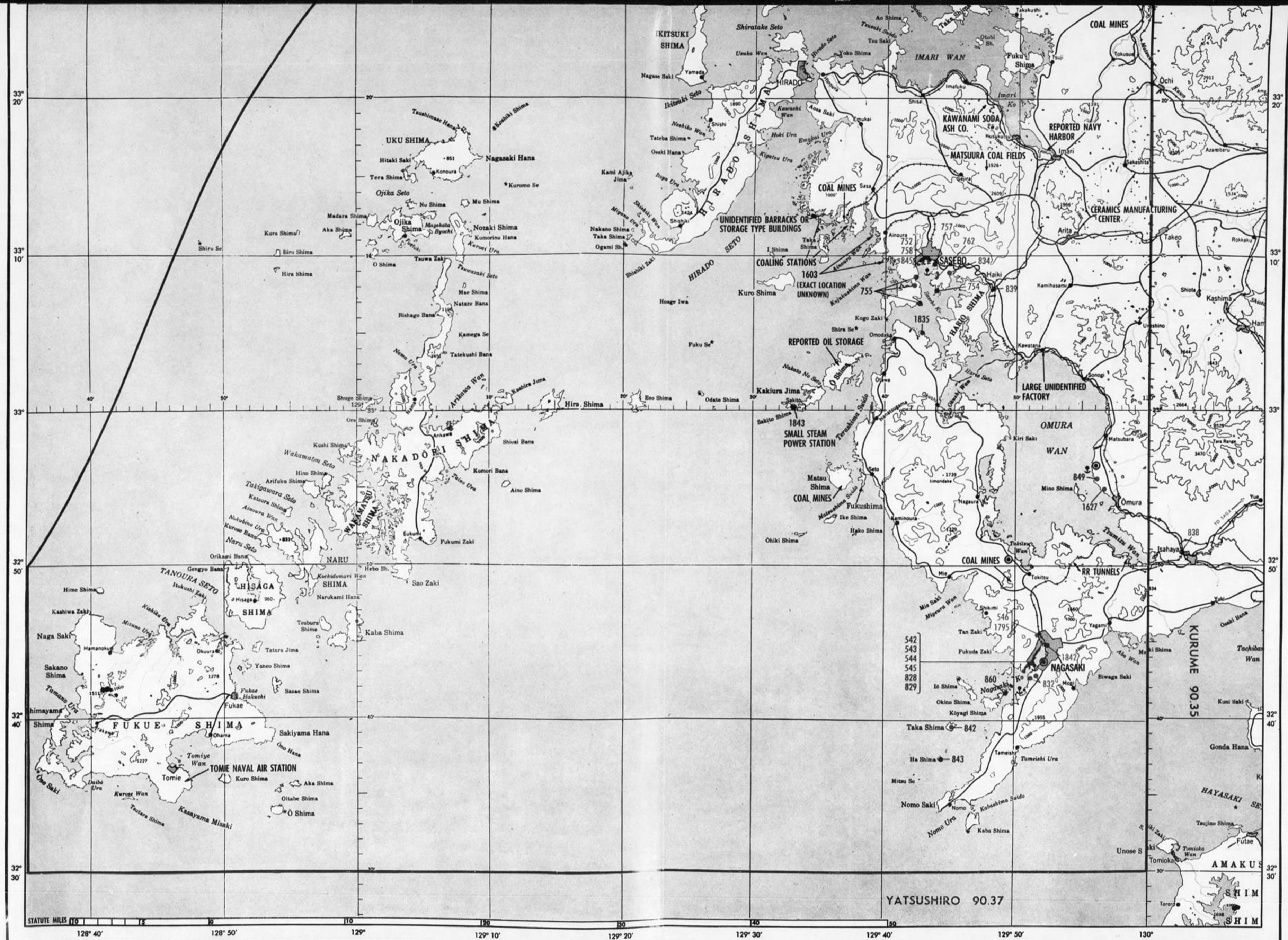
NEITHER THE FOLDER NOR ANY PART OF IT MAY BE TAKEN INTO THE AIR ON OFFENSIVE MISSIONS

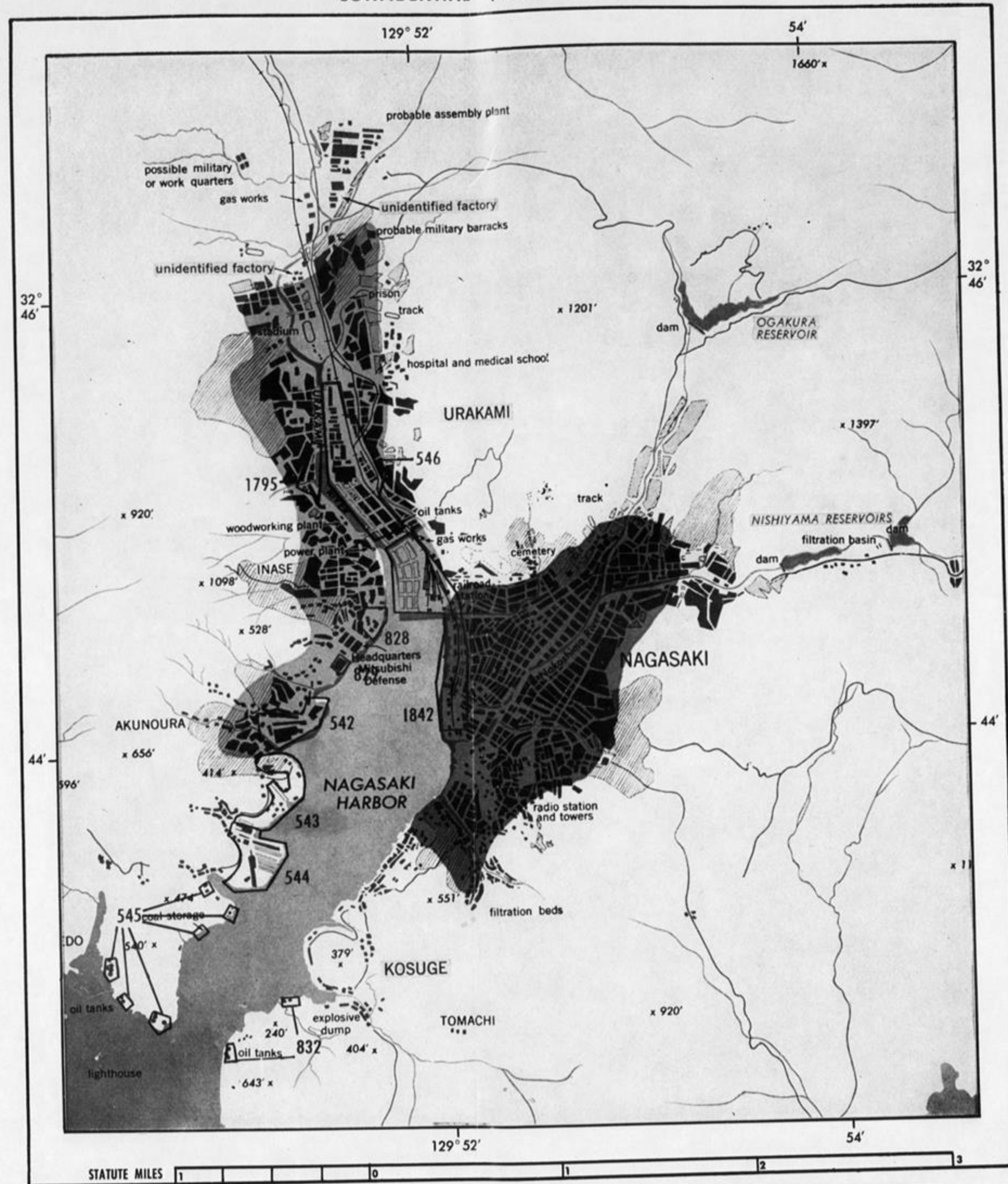












INCENDIARY ZONE MAP OF NAGASAKI and VICINITY

ZONE 1
ZONE 2

SOURCE: AAF TARGET CHART, JAPAN,
NO. 90.36-542-FEBRUARY, 1944
DATE OF ANALYSIS-JUNE, 1944

ELEVATIONS IN FEET

RAILROADS
ROADS

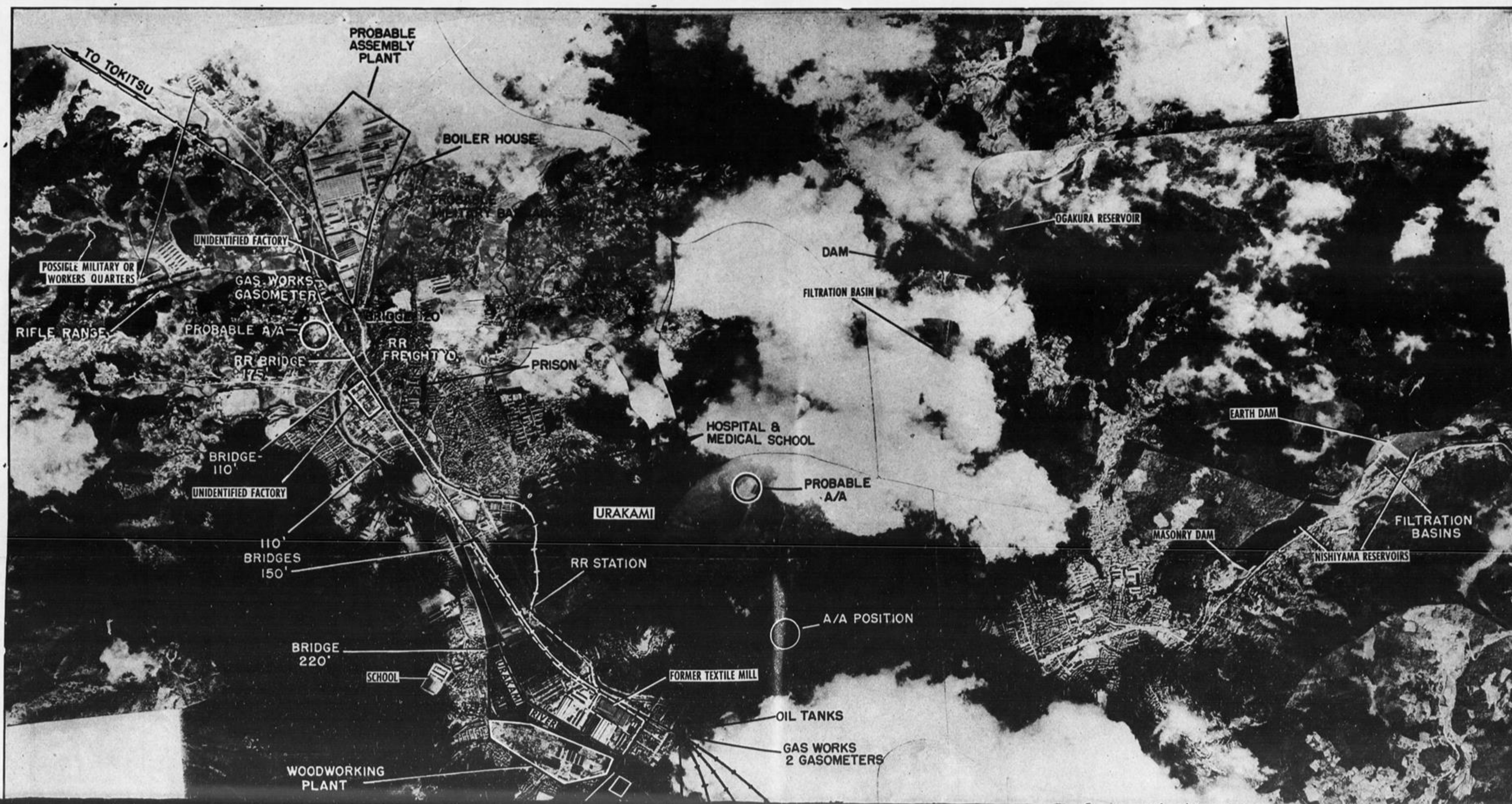
546.. MITSUBISHI STEEL AND ARMS WORKS
1795.. MITSUBISHI STEEL ROLLING MILL

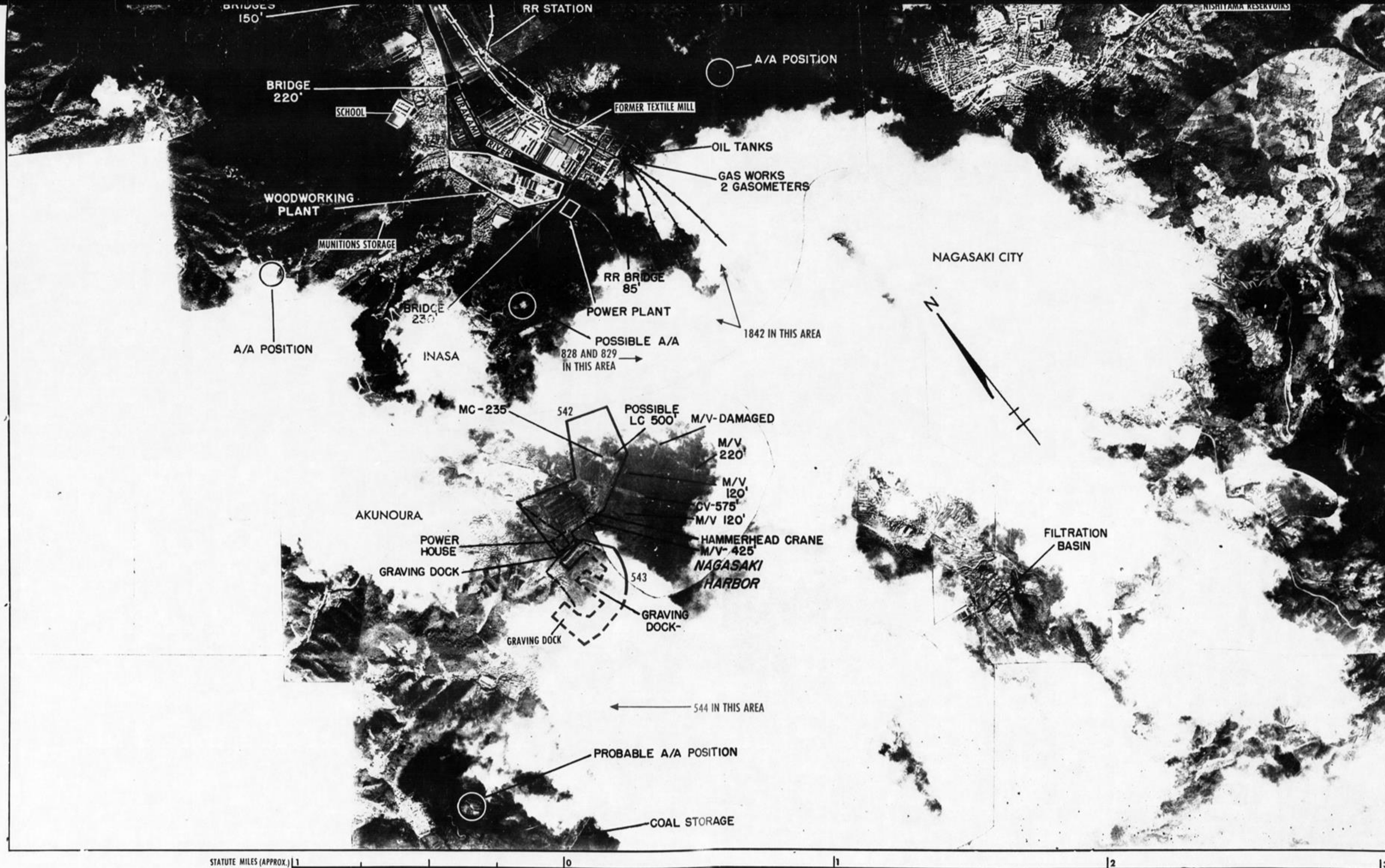
ELEVATIONS IN FEET

546 .. MITSUBISHI STEEL AND ARMS WORKS
1795 .. MITSUBISHI STEEL ROLLING MILL

SASEBO, TSUSHIMA AREA ... continued

CONFIDENTIAL equals British Confidential





MOSAIC A NAGASAKI and VICINITY

32°45'N 129°52'E (TARGET 546)

DATE OF PHOTOGRAPHY—OCTOBER 31, 1943
DATE OF ANALYSIS—JUNE, 1944
OFFICE OF AC/AS INTELLIGENCE

542 .. AKUNOURA ENGINE WORKS
543 .. MITSUBISHI DOCKYARD
544 .. TATEGAMI SHIPYARD
546 .. MITSUBISHI STEEL AND ARMS WORKS
828 .. HAYASHI COMMERCIAL CO. ENGINE WORKS
829 .. MITSUBISHI ELECTRIC CO.
1795 .. MITSUBISHI STEEL ROLLING MILL
1842 .. NAGASAKI AND DEJIMA WHARVES AND RR YARDS



日本
九州西岸
長崎港及附近

實形---12000

昭和8年我が海軍ノ測量

水深---米---基本水準面下
高程---米---平均水面上

神ノ島 (Lat.N.)...32°43'00"
Kamino Sima (Long.E.)...129°49'41"
(東京丸太石 139°44'41"E. 1基7)

潮 Tides 伊予島 長崎港(水ノ浦)
Is Sima Nagasaki K6
平均高潮間隙(M.H.W.I.)...553...555
大潮升(Sp. rise)...2.8 m...2.9 m
小潮升(Np. ")...2.1 " ...2.2 "
平均水面 基本水準面上...1.6 " ...1.7 "
(Mean level above datum)
基本水準 伊予島村役場西側基本水準標石+下3.67米 (伊予島村役場基本水準標石+下3.67米)

換算表 Conversion Table

Fathoms	M	F	Metres
0.54	1	2	1.82
1.09	2	3	3.65
1.64	3	4	5.48
2.18	4	5	7.31
2.73	5	6	9.14
3.28	6	7	10.97
3.82	7	8	12.80
4.37	8	9	14.63
4.92	9	10	16.45
5.47	10	11	18.28
6.02	11	12	20.11
6.57	12	13	21.94
7.12	13	14	23.77
7.67	14	15	25.60
8.22	15	16	27.43
8.77	16	17	29.26
9.32	17	18	31.09
9.87	18	19	32.92
10.42	19	20	34.75
10.97	20	21	36.58
11.52	21	22	38.41
12.07	22	23	40.24
12.62	23	24	42.07
13.17	24	25	43.90
13.72	25	26	45.73
14.27	26	27	47.56
14.82	27	28	49.39
15.37	28	29	51.22
15.92	29	30	53.05
16.47	30	31	54.88
17.02	31	32	56.71
17.57	32	33	58.54
18.12	33	34	60.37
18.67	34	35	62.20
19.22	35	36	64.03
19.77	36	37	65.86
20.32	37	38	67.69
20.87	38	39	69.52
21.42	39	40	71.35
21.97	40	41	73.18
22.52	41	42	75.01
23.07	42	43	76.84
23.62	43	44	78.67
24.17	44	45	80.50
24.72	45	46	82.33
25.27	46	47	84.16
25.82	47	48	85.99
26.37	48	49	87.82
26.92	49	50	89.65
27.47	50	51	91.48
28.02	51	52	93.31
28.57	52	53	95.14
29.12	53	54	96.97
29.67	54	55	98.80
30.22	55	56	100.63
30.77	56	57	102.46
31.32	57	58	104.29
31.87	58	59	106.12
32.42	59	60	107.95
32.97	60	61	109.78
33.52	61	62	111.61
34.07	62	63	113.44
34.62	63	64	115.27
35.17	64	65	117.10
35.72	65	66	118.93
36.27	66	67	120.76
36.82	67	68	122.59
37.37	68	69	124.42
37.92	69	70	126.25
38.47	70	71	128.08
39.02	71	72	129.91
39.57	72	73	131.74
40.12	73	74	133.57
40.67	74	75	135.40
41.22	75	76	137.23
41.77	76	77	139.06
42.32	77	78	140.89
42.87	78	79	142.72
43.42	79	80	144.55
43.97	80	81	146.38
44.52	81	82	148.21
45.07	82	83	150.04
45.62	83	84	151.87
46.17	84	85	153.70
46.72	85	86	155.53
47.27	86	87	157.36
47.82	87	88	159.19
48.37	88	89	161.02
48.92	89	90	162.85
49.47	90	91	164.68
50.02	91	92	166.51
50.57	92	93	168.34
51.12	93	94	170.17
51.67	94	95	172.00
52.22	95	96	173.83
52.77	96	97	175.66
53.32	97	98	177.49
53.87	98	99	179.32
54.42	99	100	181.15

NAGASAKI HARBOR

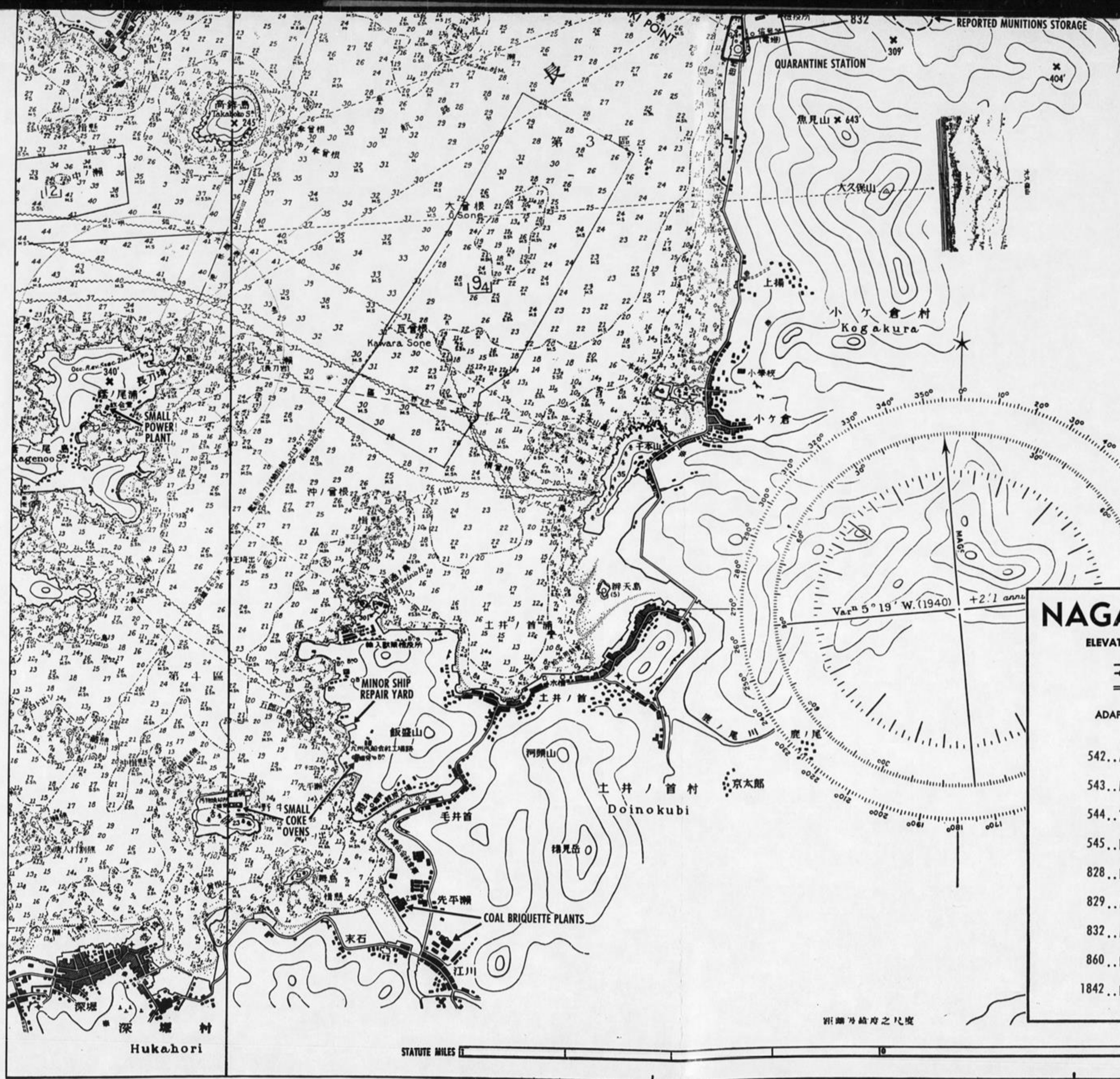
ELEVATIONS IN FEET SOUNDINGS IN METERS

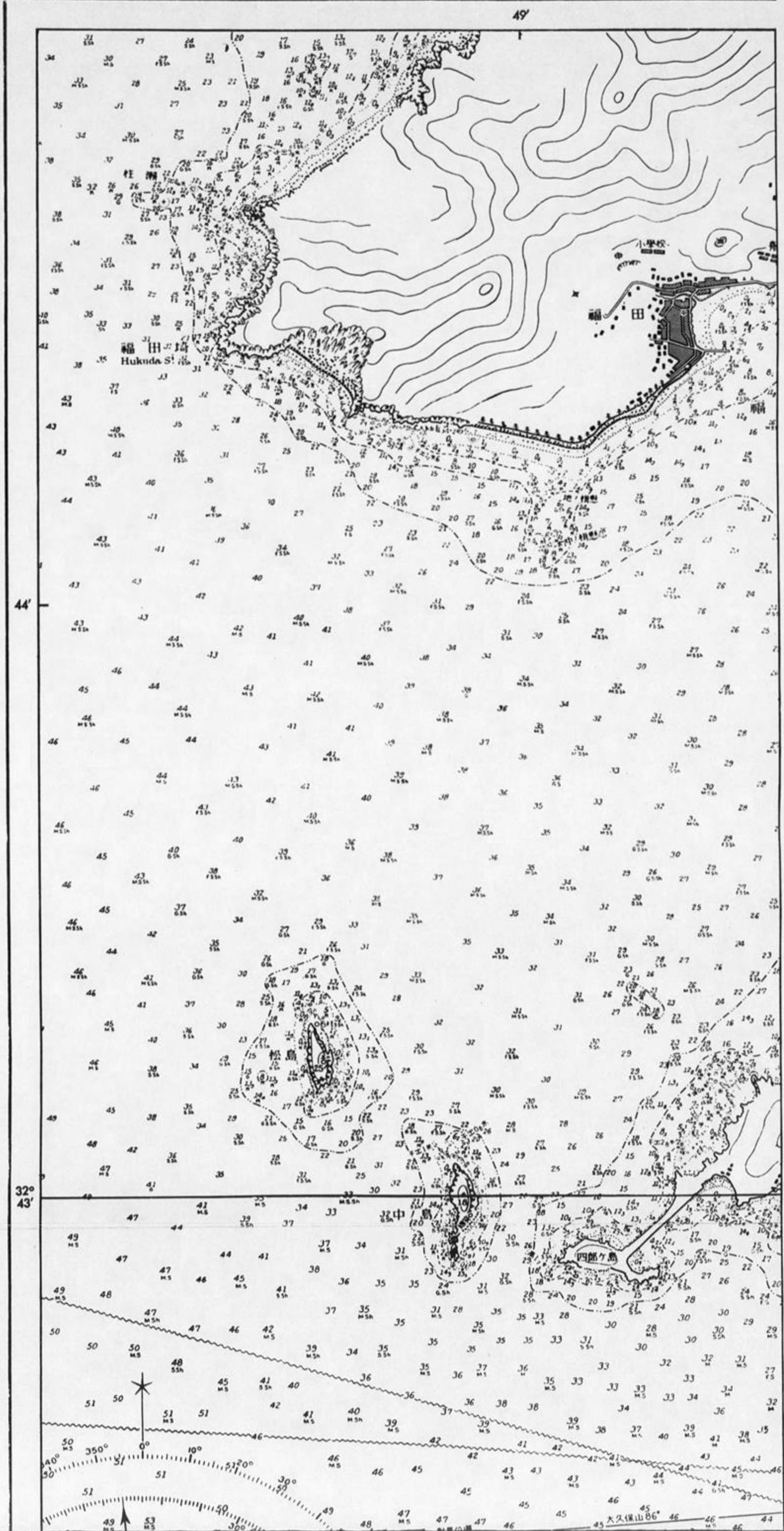
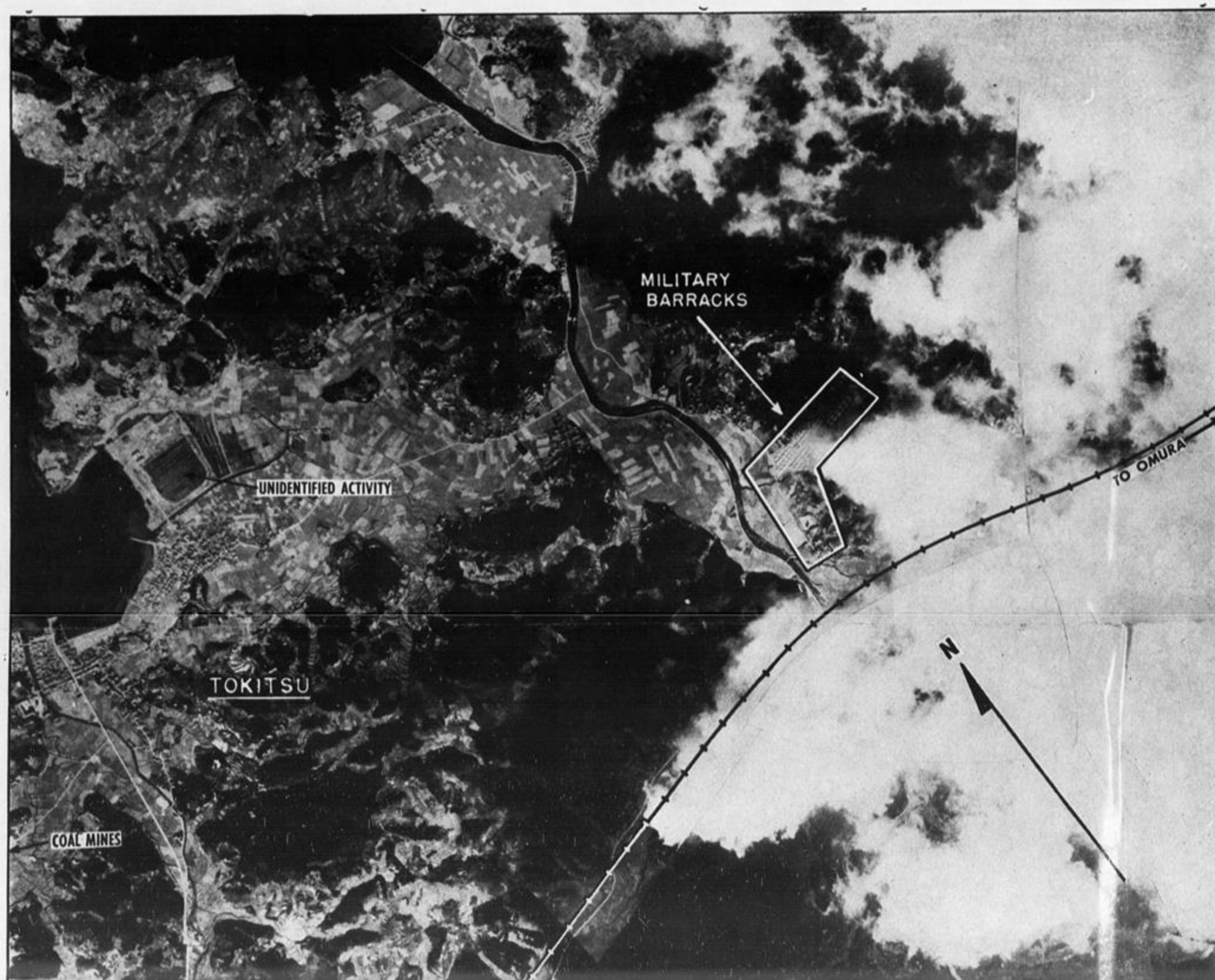
RAILROADS
ROADS

ADAPTED FROM JAPANESE H. O. CHART-1933
DATE OF ANALYSIS-JUNE, 1944

- 542.. AKUNOURA ENGINE WORKS
- 543.. MITSUBISHI DOCKYARD
- 544.. TATEGAMI SHIPYARD
- 545.. KOZAKI POINT OIL STORAGEES
- 828.. HAYASHI COMMERCIAL CO. ENGINE WORKS
- 829.. MITSUBISHI ELECTRIC MFG. CO.
- 832.. MEGAMI POINT OIL STORAGEES
- 860.. KAWANAMI INDUSTRIAL CO. SHIPYARD
- 1842.. NAGASAKI AND DEJIMA WHARVES & RR YARDS

SEE MAP ON PAGE M-7.





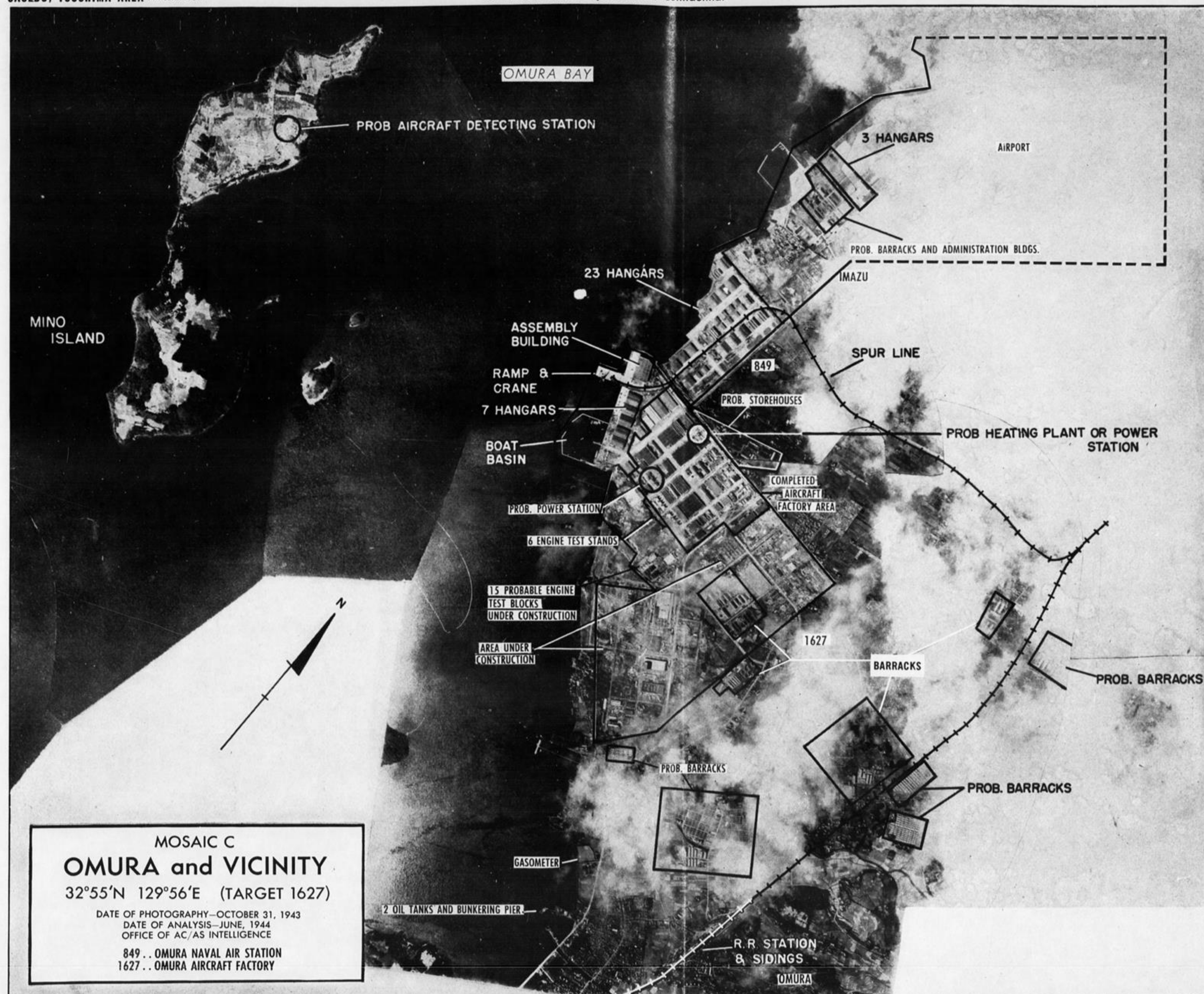
ELEVATIONS IN FEET

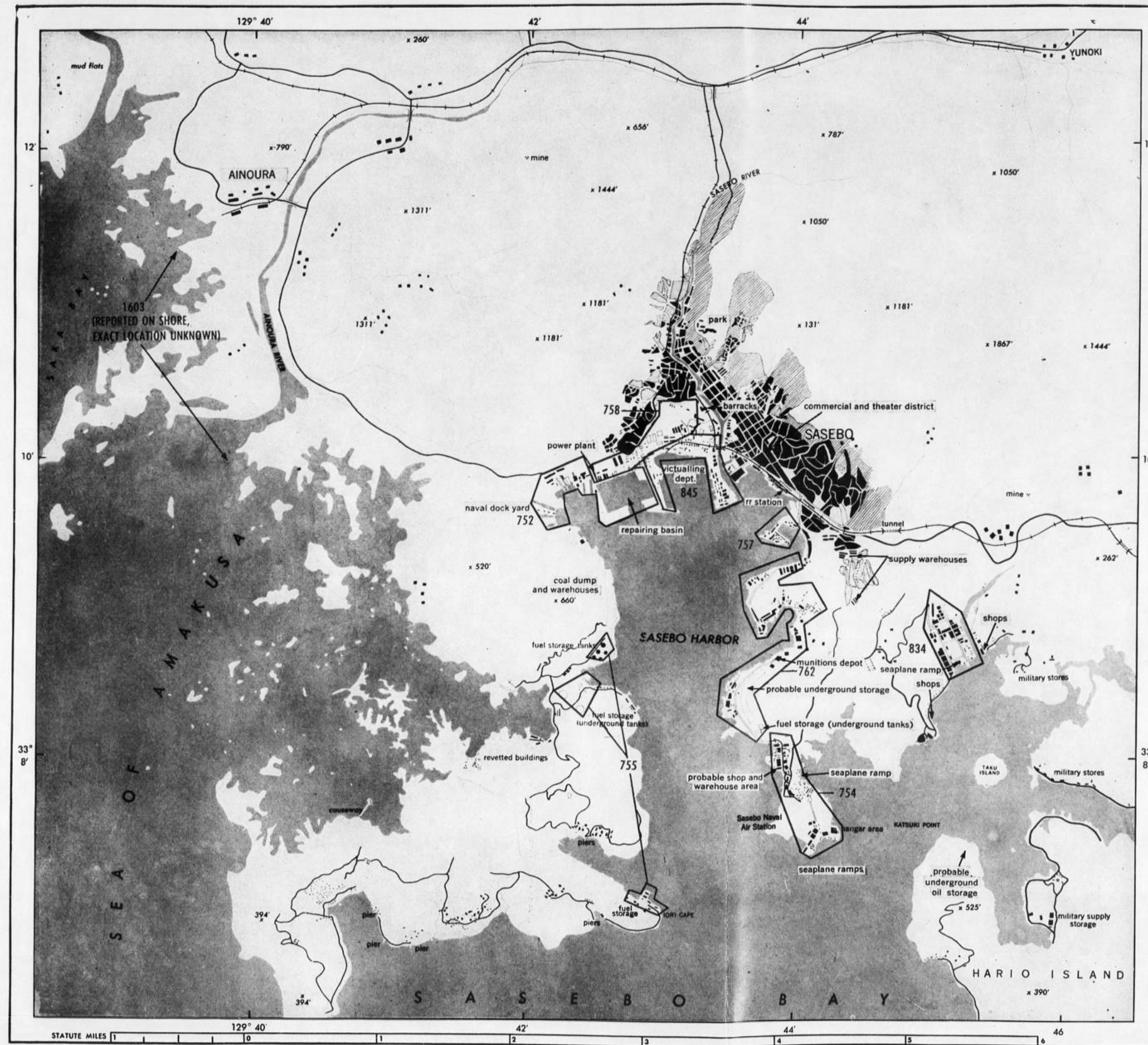
 SINGLE TRACK RAILROADS
 ROADS

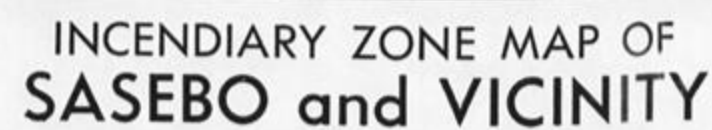
SOURCE: AAF TARGET CHART, JAPAN,
NO. 90.36-849-FEBRUARY, 1944

DATE OF ANALYSIS—JUNE, 1944

849.. OMURA NAVAL AIR STATION
1627.. OMURA AIRCRAFT FACTORY







ZONE 2

RAILROADS

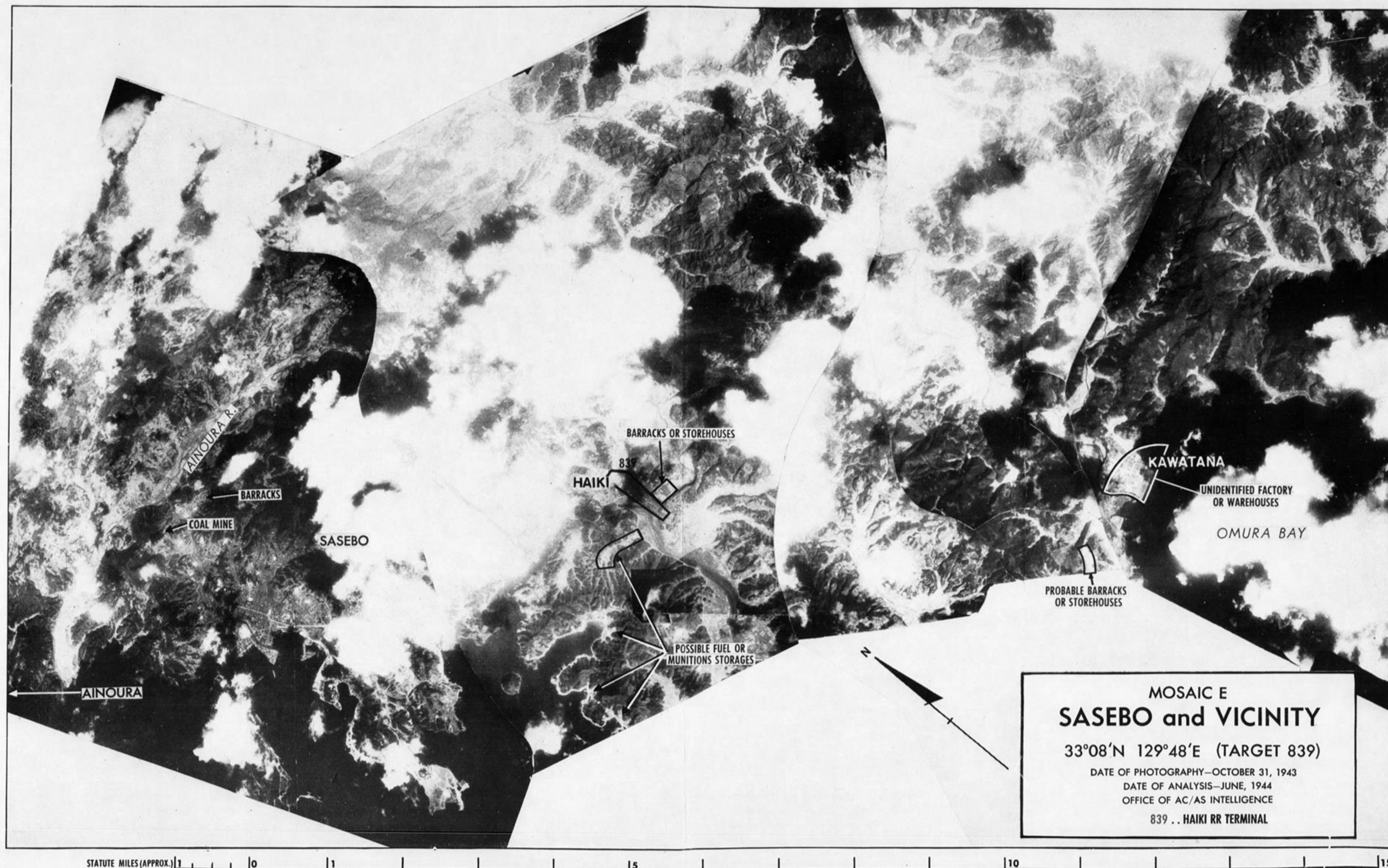
ROADS

SOURCE: AAF TARGET CHART, JAPAN,
NO. 90.36-752-FEBRUARY, 1944

DATE OF ANALYSIS—JUNE, 1944

752 .. SASEBO NAVAL DOCKYARD
754 .. SASEBO NAVAL AIR STATION
755 .. SASEBO OIL STORAGES
757 .. SASEBO MINE AND TORPEDO STORAGE
758 .. NAVAL ARSENAL & ENGINEERING DEPARTMENT
762 .. SASEBO FUEL AND MUNITIONS DEPOT
834 .. SASEBO AIRCRAFT
845 .. SASEBO PROVISION WHARF

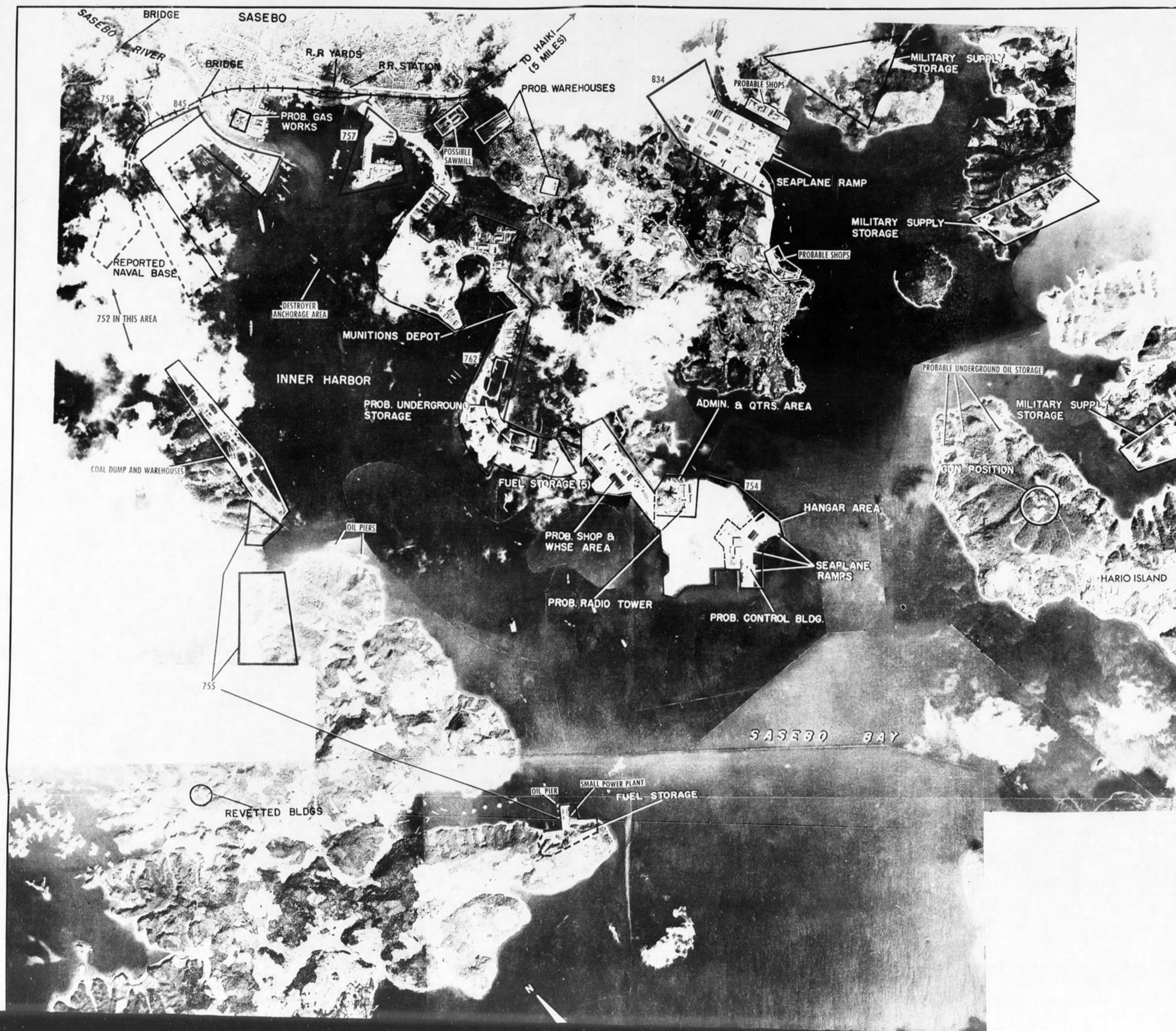
CONFIDENTIAL equals British Confidential

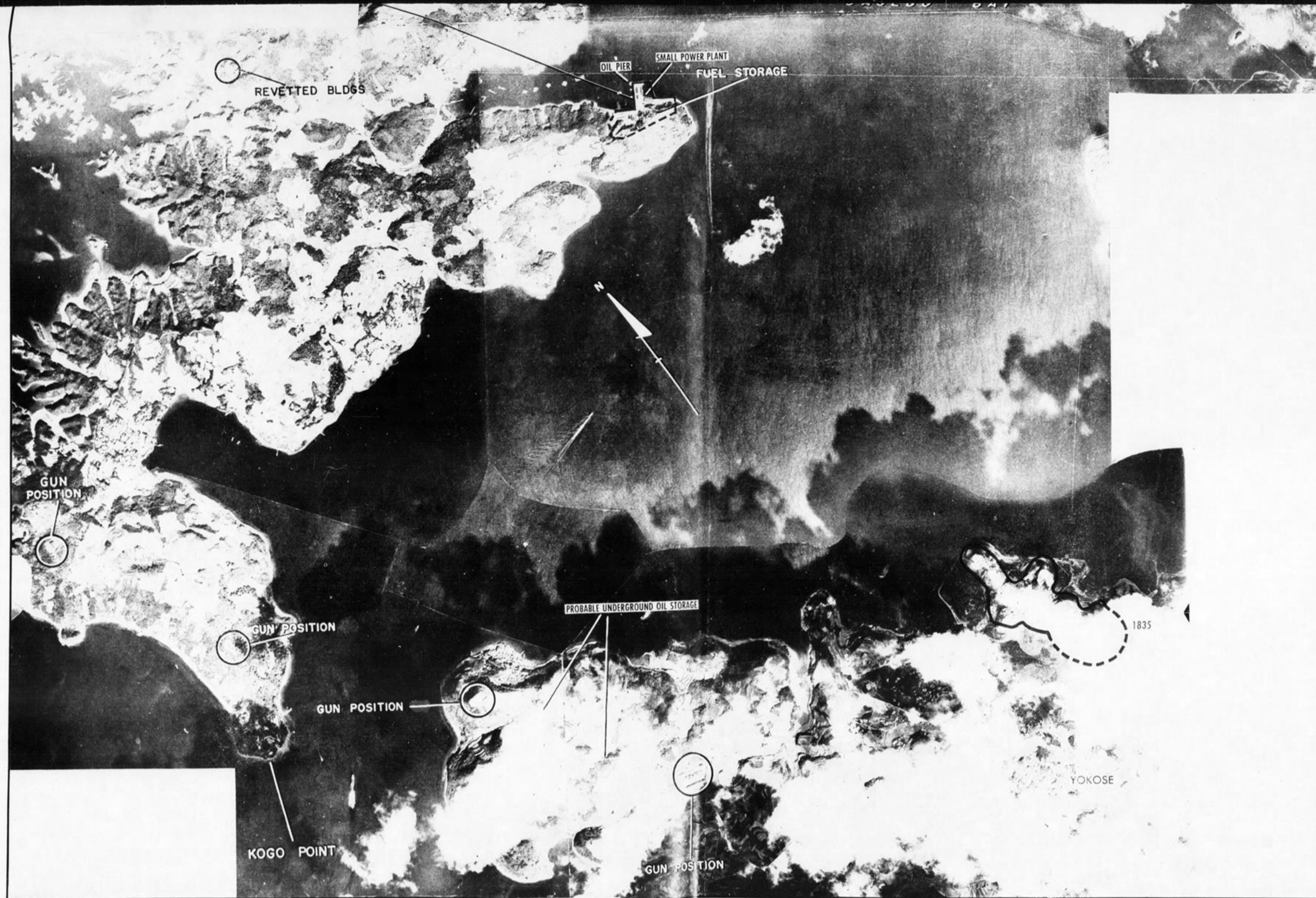


3648—Sasebo-Tsushima—M-12—6-30-44—First Proof

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M-12





STATUTE MILES (APPROX.) 1 0 1 2 3

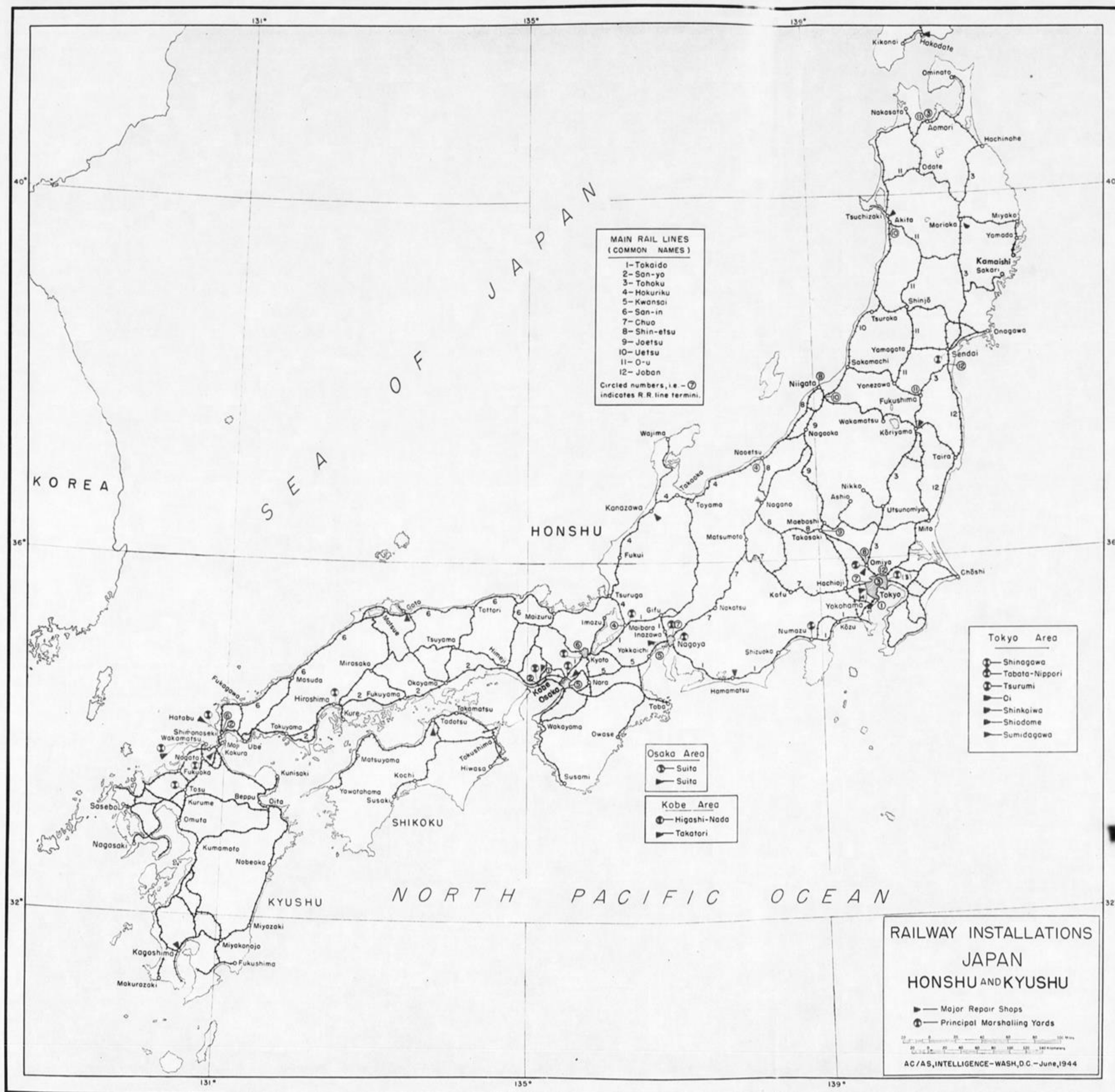
MOSAIC D
SASEBO and VICINITY

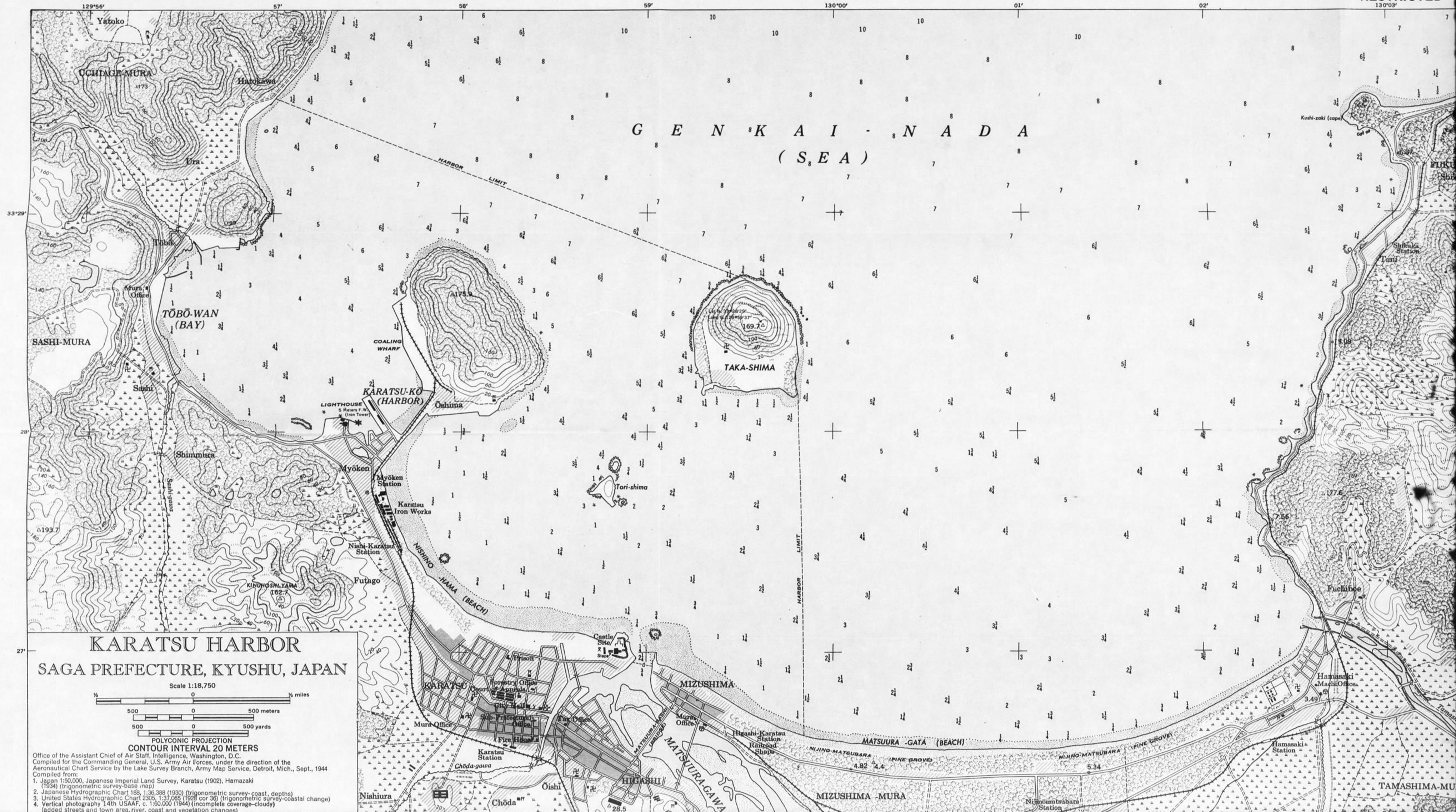
33°08'N 129°43'E (TARGET 754)

DATE OF PHOTOGRAPHY—OCTOBER 31, 1943
 DATE OF ANALYSIS—JUNE, 1944
 OFFICE OF AC/AS INTELLIGENCE

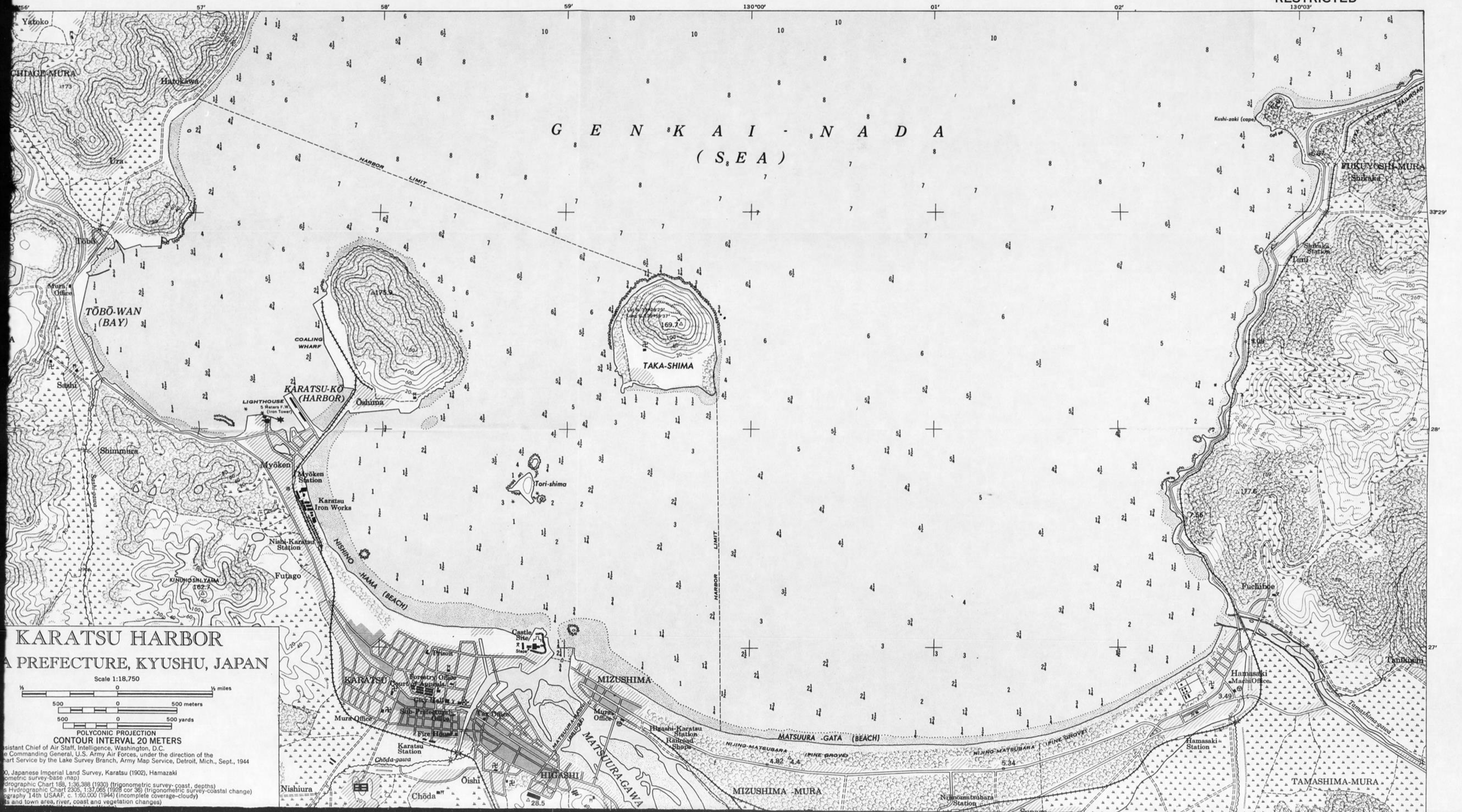
752.. SASEBO NAVAL DOCKYARD
 754.. SASEBO NAVAL AIR STATION
 755.. SASEBO OIL STORAGE
 757.. SASEBO MINE AND TORPEDO STORAGE
 758.. SASEBO NAVAL ARSENAL & ENGINEERING DEPARTMENT

762.. SASEBO FUEL & MUNITIONS DEPOT
 834.. SASEBO AIRCRAFT FACTORY
 845.. SASEBO PROVISION WHARF
 1835.. YOKOSE OIL STORAGE





RESTRICTED
130°03'





KARATSU HARBOR
SAGA PREFECTURE, KYUSHU, JAPAN

Scale 1:18,750

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, Mich., Sept., 1944
Compiled from:
1. Japan 1:50,000, Japanese Imperial Land Survey, Karatsu (1902), Hamazaki
(1934) (trigonometric survey-base map)
2. Japanese Hydrographic Chart 188, 1:36,388 (1930) (trigonometric survey-coast, depths)
3. United States Hydrographic Chart 2305, 1:37,065 (1928 cor 36) (trigonometric survey-coastal change)
4. Vertical photography 14th USAF, c. 1:60,000 (1944) (incomplete coverage-cloudy)
5. Oblique Photography, (c. 1935) (Karatsu Iron Works)
6. Japanese Government Railway Timetable (1941) (railroad gauges)
7. U.S.H.O. List of Lights (1944) (lighthouse)
Names Transcribed according to Modified Hepburn (Romaji) System

LEGEND

Hospital	—	National or Prefectural Road	—
Shrine	—	generally metalled over 4 m. wide,	—
Temple	—	or Streets in City Area	—
Chimney	—	Other roads 2.4 m. wide	—
Monument	—	Road, Track or Trail	—
School	—	less than 2 m. wide	—
Post Office	—	3 1/2" Gauge, Single Track Railroad	—
Depth of Water	—	Railroad Station	—
Police Station	—		—

Densely Populated

Sparsely Populated

Woodland

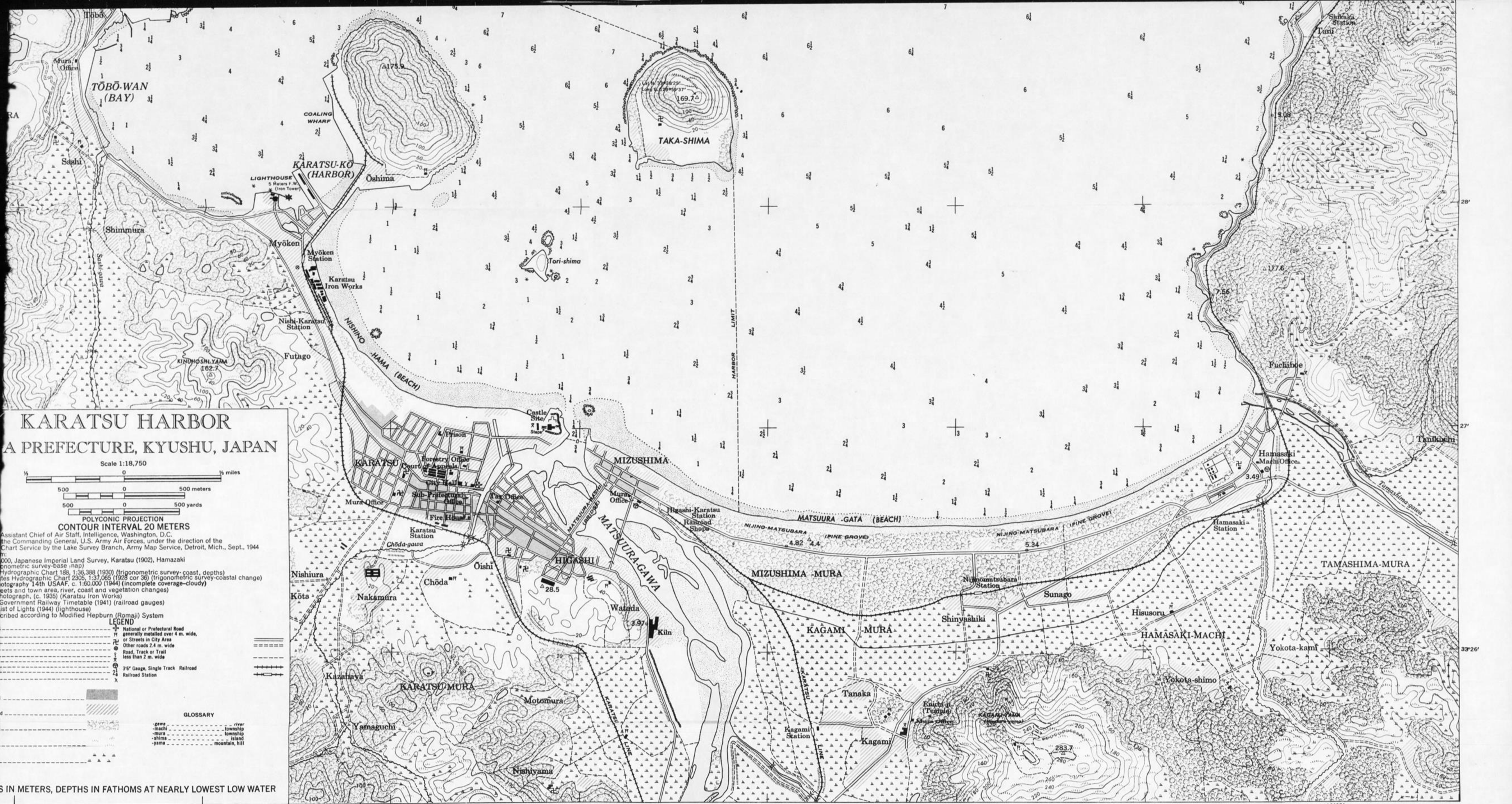
Grassland

Rice

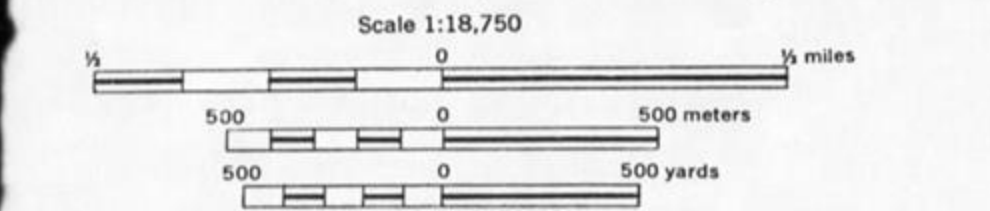
GLOSSARY

-gawa	river
-machi	township
-mura	township
-shima	island
-yama	mountain, hill

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



KARATSU HARBOR
A PREFECTURE, KYUSHU, JAPAN



Assistant Chief of Air Staff, Intelligence, Washington, D.C.
the Commanding General, U.S. Army Air Forces, under the direction of the
Chart Service by the Lake Survey Branch, Army Map Service, Detroit, Mich., Sept., 1944
000, Japanese Imperial Land Survey, Karatsu (1902), Hamazaki
onometric survey-base map)
Hydrographic Chart 188, 1:36,388 (1930) (trigonometric survey-coast, depths)
Hydrographic Chart 2305, 1:57,065 (1928 cor 36) (trigonometric survey-coastal change)
ography 14th USAF, c. 1:80,000 (1944) (incomplete coverage-cloudy)
ets and town area, river, coast and vegetation changes)
otograph, (c. 1935) (Karatsu Iron Works)
Government Railway Timetable (1941) (railroad gauges)
ist of Lights (1944) (lighthouse)
cribed according to Modified Hepburn (Romaji) System

- LEGEND
- National or Prefectural Road
 - generally metalled 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' Gauge, Single Track Railroad
 - Railroad Station

- GLOSSARY
- gawa - river
 - mura - township
 - shima - island
 - yama - mountain, hill

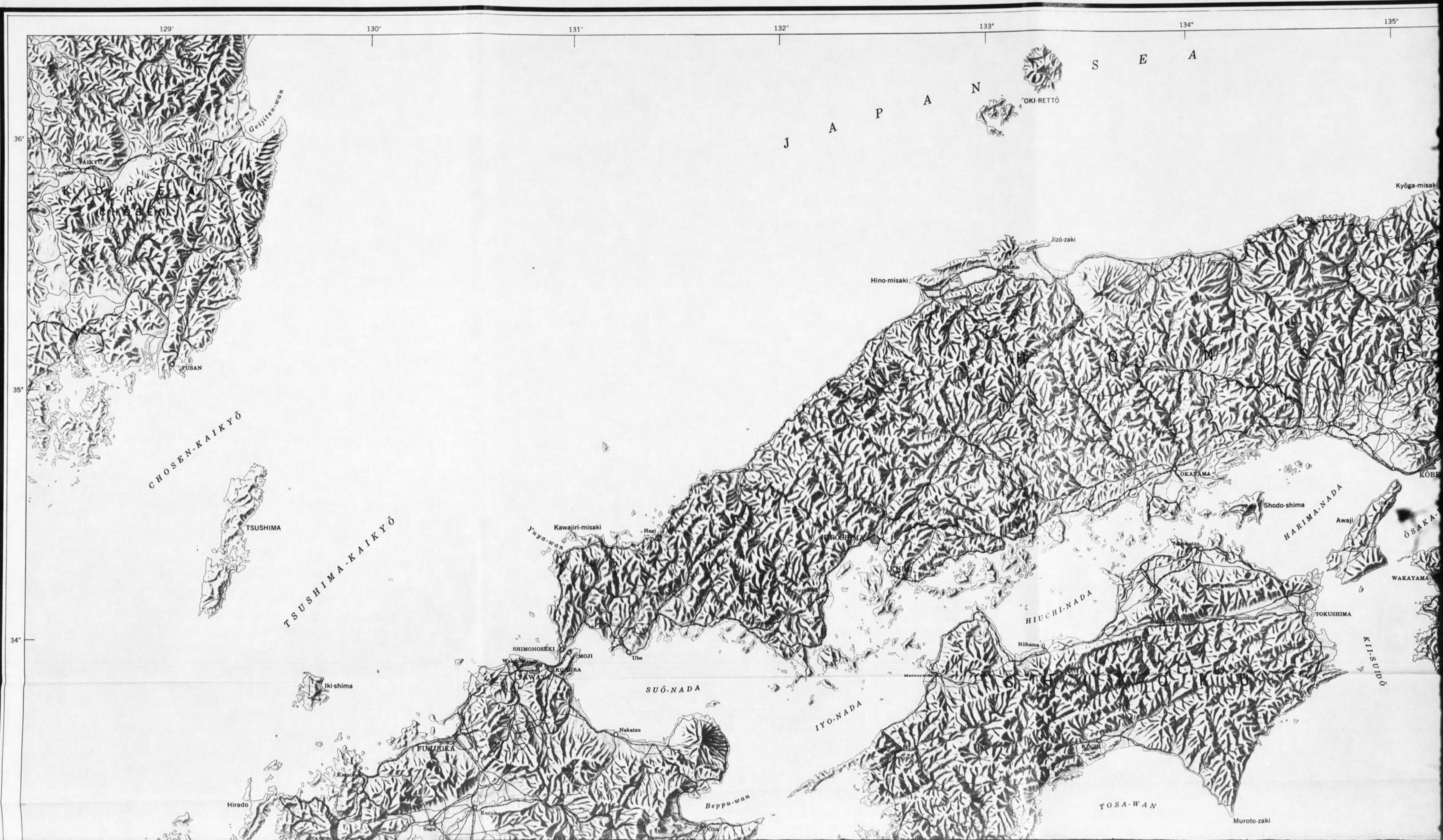
TS IN METERS, DEPTHS IN FATHOMS AT NEARLY LOWEST LOW WATER

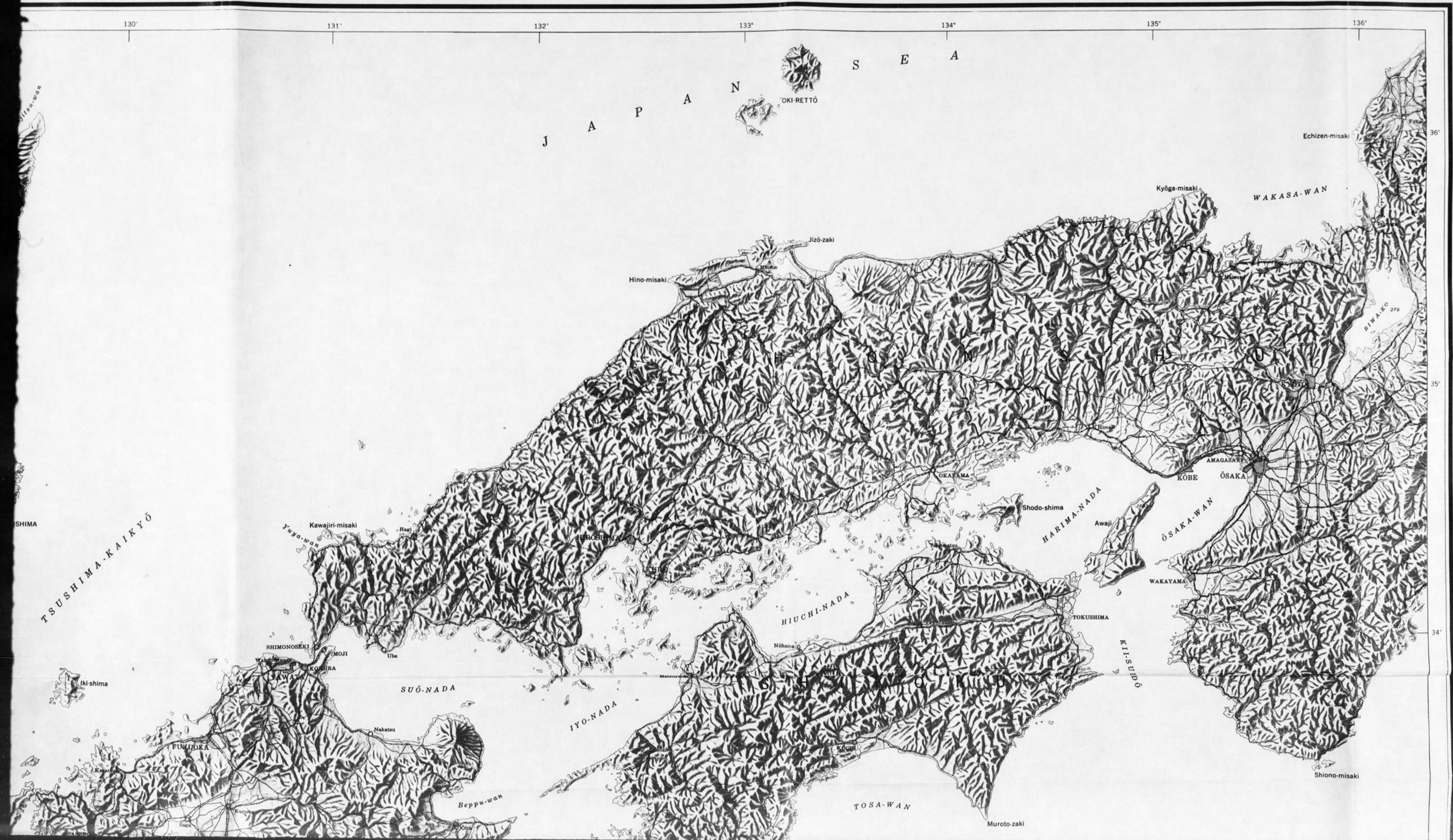
RESTRICTED

FOR USE WITH AAF AIR OBJECTIVE FOLDER SASEBO 90.36

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

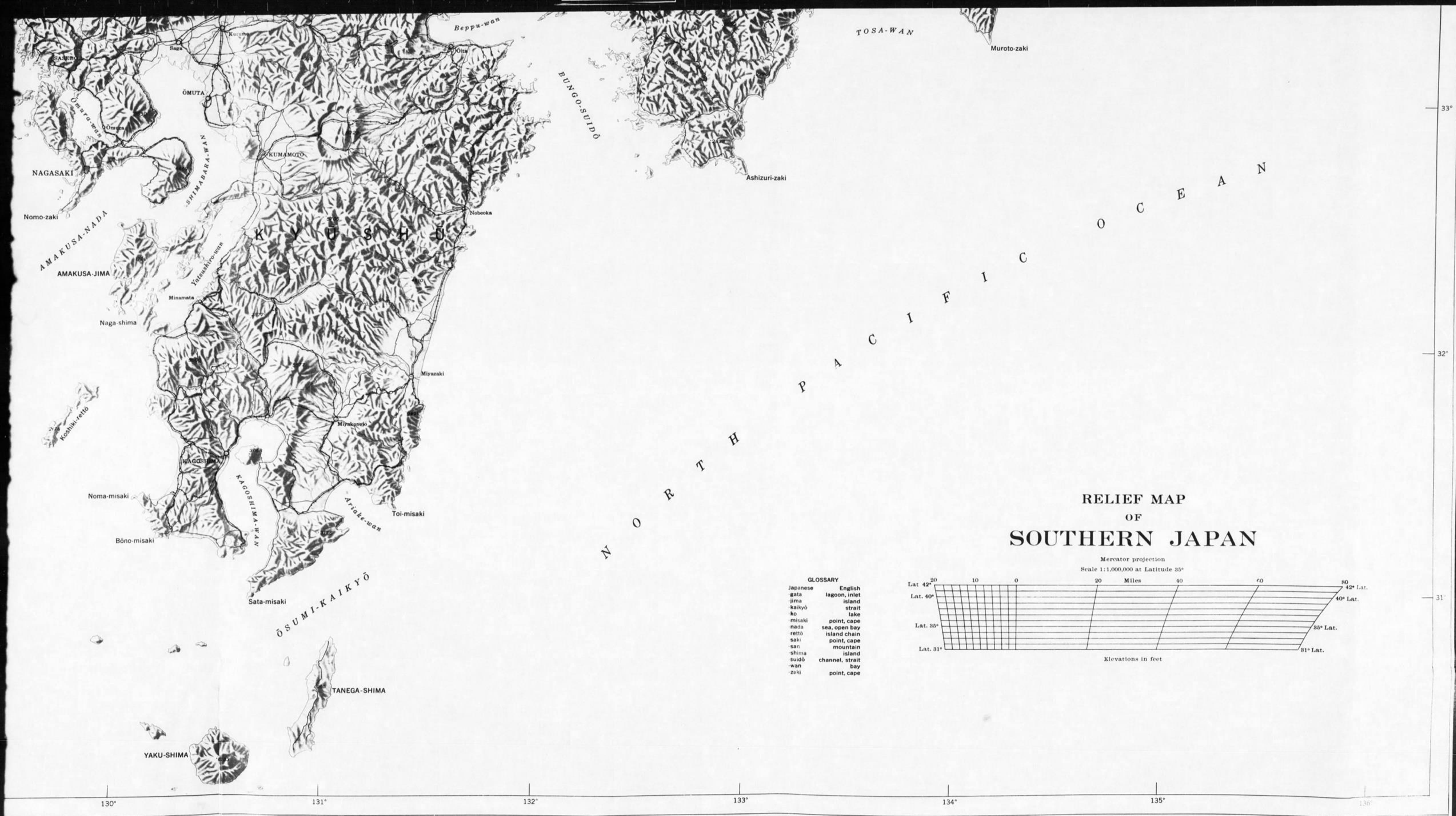
ARMY MAP SERVICE, U.S. ARMY, WASHINGTON, D.C. 340458
SEPTEMBER, 1944







PREPARED AND REPRODUCED IN THE UNITED STATES
DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY
UNDER THE DIRECTION OF THE AERONAUTICAL CHART
SERVICE, ARMY AIR FORCES, FOR THE ASSISTANT CHIEF
OF AIR STAFF, INTELLIGENCE. FEBRUARY 1944



RELIEF MAP
OF
SOUTHERN JAPAN

Mercator projection
Scale 1:1,000,000 at Latitude 35°

GLOSSARY	
Japanese	English
-gata	lagoon, inlet
-jima	island
-kaikyô	strait
-ko	lake
-misaki	point, cape
-nada	sea, open bay
-retto	island chain
-saki	point, cape
-san	mountain
-shima	island
-suidô	channel, strait
-wan	bay
-zaki	point, cape

