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Box 2

AIR TARGET INTELLIGENCE
JAPANESE WAR

TARGET ANALYSIS BY AREAS

VOLUME 2

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JOINT TARGET GROUP

WASHINGTON, D. C.

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ADDENDA CHECK LIST

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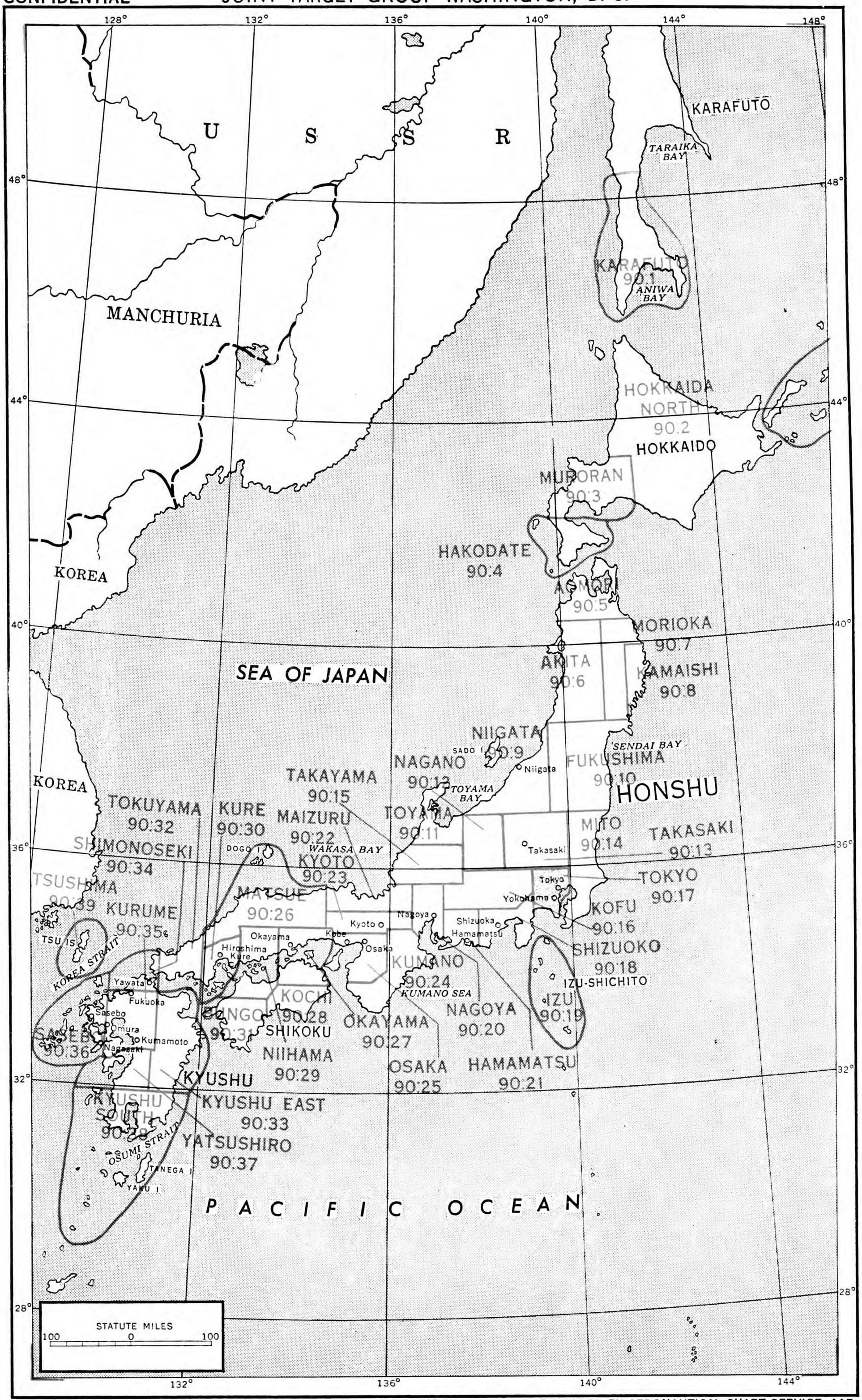

90:17 TOKYO

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JOINT TARGET GROUP, WASHINGTON, D. C.

AIR TARGET INDEX—JAPANESE WAR

NUMERICAL TARGET INDEX

SHEET . . . . . ATI

DATE . . . . . 20 June 1945

OBJECTIVE AREA 90:17—TOKYO (JAPAN)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-51 Tokyo (Japan)	Asano Iron Works	On Kawasaki waterfront, about 5 miles SW of Tama River mouth.	35°29′N 139°42′E	BPI	CIS	Integrated steel plant with large capacity for ship's plate.
90:17-52 Tokyo (Japan)	Japan Steel Tube Company	On Kawasaki waterfront, about 4½ miles WSW of Tama River mouth.	35°30′N 139°43′E	BPI	CIS	One of 4 largest iron and steel plants in Japanese Empire. Believed currently operating at very low level.
90:17-56 Tokyo (Japan)	Fuji Steel Works of Imp. Iron & Steel	At Kawasaki, on S bank of Tama River, about 1 mile from mouth.	35°32′N 139°44′E	BPI	CIS	Pig iron and steel producer, medium importance.
90:17-57 Tokyo (Japan)	Oriental Steel Products Co.	On Kawasaki waterfront, about 3 miles W of Tama River mouth.	35°30′N 139°43′E	BPI	CIS	Structural steel products.
90:17-58 Tokyo (Japan)	Tokyo Special Steel & Chrome Works	In N Kawasaki. On S bank of Tama River, W of Tokaido RR.	35°32′N 139°42′E	BPI EPI	CIS LM	Produces special steels and ball bearings.
90:17-62 Tokyo (Japan)	Hodogaya Sub-station	In NW Yokohama, S of Tokaido main line RR.	35°27′N 139°37′E	BSU	EP	About 20 transformers. Important station for Yokohama area.
90:17-66 Tokyo (Japan)	Takashima Freight Yard	On reclaimed land in center of Yokohama Harbor.	35°28′N 139°38′E	BSU	RRT	Ship-to-shore transfer point. Warehouses and freight yard.
90:17-67 Tokyo (Japan)	Station, junctions, overpass (Yokohama)	About ½ mile W of freight yard on reclaimed land in center of Yokohama Harbor waterfront.	35°28′N 139°38′E	BSU	RRT	Chief Yohokama passenger concentration. Short canal bridges near station.
90:17-68 Tokyo (Japan)	Higashi Yokohama Yard	Just S of Yokohama Dockyard (90:17-69) near central part of Yokohama Harbor waterfront.	35°27′N 139°38′E	BSU	RRT	One of main Yokohama freight yards.
90:17-69 Tokyo (Japan)	Yokohama Dockyard	Central part of Yokohama Harbor waterfront.	35°27′N 139°38′E	BEI BSU EPI	TE S A	One of largest shipyards in Japan. All classes of naval and commercial vessels built and repaired.
90:17-70 Tokyo (Japan)	Asano Dockyard	NW corner of Yokohama Harbor.	35°28′N 139°39′E	BEI EPI BSU	TE A S	Large scale repair of commercial and naval ships.
90:17-72 Tokyo (Japan)	Ford Motor Company	N part of Yokohama Harbor waterfront.	35°29′N 139°39′E	EPI	A	Producer of light armament, tanks, trucks, shells, small arms.
90:17-75 Tokyo (Japan)	Furukawa Electric Co., Plant No. 1	About 1 mile W of Yokohama Harbor.	35°27′N 139°37′E	BEI	MMT	Cable works and other electrical accessories.
90:17-80 Tokyo (Japan)	Niigata Sulphuric Acid Company (Yokohama)	On N waterfront, Yokohama Harbor. W of oil refinery and tank farm.	35°29′N 139°40′E	BPI	C	Sulphuric acid and other basic chemicals.

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AIR TARGET INDEX—JAPANESE WAR
NUMERICAL TARGET INDEX

OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-87 Tokyo (Japan)	**Ogura Oil Company**	**On Tokyo outer harbor water front in Tokyo Bay.**	**35°29′N 139°40′E**	**EPI MS**	**P P**	**3rd or 4th largest Inner Zone crude oil refinery, but apparently not operating May 1945. Major oil storage but some tankage removed.**
90:17-90 Tokyo (Japan)	Oriental Oil Co.	On reclaimed land N of Yokohama Harbor, about ½ mile NE of tank farm of Ogura Oil Co. (90:17-87) next to bridge to mainland.	35°29′N 139°40′E	EPI	P	Oil and gasoline producer.
90:17-94 Tokyo (Japan)	Matsukata Oil Storage	On reclaimed land, immediately N of large tank farm of Ogura Oil Co. (90:17-87).	35°29′N 139°40′E	MS	P	Secondary petroleum and gasoline storage.
90:17-102 Tokyo (Japan)	**Asahi Substation**	**About 5 miles NNE of Yokohama Harbor. About 1½ miles SW of Tsurumi Shunting Yard (90:17-112).**	**35°32′N 139°39′E**	**BSU**	**EP**	**One of key stepdown stations in Tokyo Bay area.**
90:17-104 Tokyo (Japan)	Nippon Electric Power Transfomer Station	In W Kawasaki. Between Tsurumi River and Tsurumi Shunting Yard (90:17-112) near S end of latter.	35°32′N 139°40′E	BSU	EP	Secondary substation connected with Tokyo Steam Power Plant (90:17-493).
90:17-105 Tokyo (Japan)	**Kawasaki Substation No. 1**	**In W Kawasaki. About ½ mile E of S end of Tsurumi Shunting Yard (90:17-112).**	**35°32′N 139°41′E**	**BSU**	**EP**	**Important outdoor switching and transformer station. Connects area with power plants in north.**
90:17-106 Tokyo (Japan)	Railroad Transformer Station	In Kawasaki, just N of main RR line to Yokohama, near Tama River bridge.	35°32′N 139°40′E	BSU	EP	Railway step-up station.
90:17-110 Tokyo (Japan)	**Tokyo Electric Power Station, Tsurumi Plant**	**On Kawasaki waterfront.**	**35°29′N 139°43′E**	**BSU**	**EP**	**Important power station for area. 178,000 kw capacity.**
90:17-111 Tokyo (Japan)	**Kawasaki Electric Power Plant**	**On Kawasaki waterfront, about 3½ miles SW of Tama River mouth.**	**35°30′N 139°43′E**	**BSU**	**EP**	**Chief power source for railroads in area. 60,000 kw capacity.**
90:17-112 Tokyo (Japan)	**Tsurumi Shunting Yard**	**In N Kawasaki, W of Tama River.**	**35°32′N 139°41′E**	**BSU**	**RRT**	**One of most important yards in area.**
90:17-116 Tokyo (Japan)	**Mitsubishi Oil Refinery**	**Kawasaki waterfront. S of Hayama Petroleum Refinery. (90:17-127).**	**35°30′N 139°44′E**	**EPI MS**	**P P**	**Fifth largest Inner Zone crude oil refinery. Major oil storage target. Refinery apparently not operating. Some tankage has been removed.**
90:17-122 Tokyo (Japan)	**Tsurumi Steel & Shipbuilding Co.**	**On Kawasaki waterfront, about ¾ mile E of Tsurumi River mouth.**	**35°29′N 139°42′E**	**BEI** EPI	**TE** A	**Most modern shipyard in Japan. Specializes in naval escort and merchant vessel construction.**

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-127 Tokyo (Japan)	Hayama Petroleum Refinery	Kawasaki waterfront N of Mitsubishi Oil Refinery. (90:17-116).	35°30′N 139°44′E	EPI MS	P P	Tenth largest Inner Zone crude oil refinery. Major oil storage target. Refinery apparently not operating and some tankage removed.
90:17-128 Tokyo (Japan)	Petroleum Center	On Kawasaki waterfront, about 1½ miles E of Tsurumi River mouth.	35°29′N 139°42′E	EPI MS	P P	7th largest Inner Zone crude oil refinery. Major oil storage target. Refinery apparently not operating May 1945.
90:17-133 Tokyo (Japan)	Shibaura Engineering Works	On Kawasaki waterfront, 1 mile NE of Tsurumi river mouth.	35°29′N 139°42′E	BEI	MMT	Produces 1/3 of total Jap heavy electrical equipment, i.e. generators, transformers, etc. Also major producer of heavy high precision machine tools. One of two known Jap manufacturers of heavy steel rolling mill equipment.
90:17-134 Tokyo (Japan)	Asahi Glass Co.	On Kawasaki waterfront, about ½ mile E of Tsurumi River near mouth.	35°29′N 139°41′E	BPI	C	Optical glass producer, also chemicals.
90:17-136 Tokyo (Japan)	Fuji Electric Works	In S Kawasaki near waterfront.	35°30′N 139°42′E	BEI	MMT	Produces wire and cable.
90:17-137 Tokyo (Japan)	Showa Fertilizer Company	On Kawasaki waterfront about midway between Tsurumi River and Tama River mouths.	35°30′N 139°44′E	BPI	C	Major nitrogen fixation plant, important producer of sulphuric acid.
90:17-141 Tokyo (Japan)	Yokohama Rubber Company	In S Kawasaki. about 1 mile N of waterfront.	35°30′N 139°41′E	BEI	TE	Producer of truck and airplane tires
90:17-142 Tokyo (Japan)	Unidentified Arms Plant	In Kawasaki, just SW of mouth of Tama River.	35°32′N 139°45′E	EPI	A	Producer of guns.
90:17-191 Tokyo (Japan)	Mitsubishi Coal Depot	On Kawasaki waterfront, Tokyo Bay, just WSW of Mitsubishi Oil Refinery (90:17-116).	35°30′N 139°43′E	BSU	S	Large coal depot. Large wharf and loading cranes.
90:17-201 Tokyo (Japan)	Ordnance Storehouse—Ammunition	In Oji, Ward, N Tokyo.	35°47′N 139°43′E	MS EPI	M A	Ammunition storage and loading.
90:17-202 Tokyo (Japan)	Army Central Clothing Depot	In Oji Ward, N Tokyo.	35°47′N 139°43′E	MS	M	Part of the Tokyo arsenal.
90:17-203 Tokyo (Japan)	Ordnance Supply Depot	In Oji Ward, N Tokyo.	35°46′N 139°43′E	MS EPI	M A	Part of Tokyo arsenal.
90:17-204 Tokyo (Japan)	Japan Artificial Fertilizer	On W bank of Sumida River in Oji Ward, N Tokyo.	35°45′N 139°45′E	BPI	C	Producer of chemicals for munitions with chlorine by-products.
90:17-205 Tokyo (Japan)	Army Arsenal & Military Gunpowder Works	In N Tokyo, 5 miles NNW of Tokyo Palace.	35°45′N 139°43′E	EPI MS	A M	Major arsenal, explosives, shell loading, extensive storage. Large propellants plant.

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-206 Tokyo (Japan)	Army Arsenal	In Oji Ward, N Tokyo.	35°45′N 139°44′E	EPI	A	Major arsenal (Jujo Factory of Tokyo No. 1 Arsenal), producing fire control equipment, light weapons. Communications equipment.
90:17-207 Tokyo (Japan)	Military Gunpowder Works	In Oji Ward, N Tokyo.	35°45′N 139°45′E	EPI	A	Part of Tokyo arsenal.
90:17-208 Tokyo (Japan)	Army Branch Powder Factory	In Oji Ward, N Tokyo.	35°45′N 139°45′E	EPI	A	Part of Tokyo arsenal.
90:17-209 Tokyo (Japan)	Military Works	In Oji Ward, N Tokyo.	35°45′N 139°44′E	EPI	A	Part of Tokyo arsenal.
90:17-211 Tokyo (Japan)	Inawashiro Transformer Station	In N Tokyo between Tabata-Nippori RR Yards (90:17-224) and the Sumida River.	35°44′N 139°46′E	BSU	EP	Capacity 106,000 kw. Receives power from Lake Inawashiro generators. One of key stepdown stations in Tokyo Bay area.
90:17-212 Tokyo (Japan)	Asahi Electro Chemical Co. (Tokyo)	N Tokyo on S bank of Sumida River above Tabata-Nippori RR Yards (90:17-224).	35°44′N 139°47′E	BPI	NFM	One of the most important Japanese magnesium plants. Has own steam power plant and oil tanks.
90:17-213 Tokyo (Japan)	Kinugawa Steam Power Station	N Tokyo on S bank Sumida River E of and adjacent to Asahi Electro-Chemical Co. (90:17-212).	35°45′N 139°47′E	BSU	EP	Reserve plant, 30-35,000 kw capacity. Supplies Tokyo tramways.
90:17-214 Tokyo (Japan)	Koishikawa Armory	N Tokyo, approximately 2 miles NNW of Imperial Palace. In Koishikawa Ward.	35°43′N 139°44′E	EPI	A	Produces guns, artillery and firing control mechanisms.
90:17-217 Tokyo (Japan)	Powder Factory	In Oji Ward, N Tokyo.	35°46′N 139°43′E	EPI	A	Part of Tokyo Arsenal.
90:17-218 Tokyo (Japan)	Ordnance Storehouse	In Oji Ward, N Tokyo.	35°46′N 139°43′E	MS	M	Part of Tokyo Arsenal.
90:17-224 Tokyo (Japan)	**Tabata-Nippori Railroad Yards**	**N Tokyo, approximately 3 miles N of Imperial Palace.**	**35°44′N 139°46′E**	**BSU**	**RRT**	**One of 5 most important yards in Tokyo City area. Yard is 2 miles long and 1500 feet wide.**
90:17-228 Tokyo (Japan)	Government Steam Power Station	In Oji area N Tokyo, on W side of Sumida River.	35°46′N 139°44′E	BSU	EP	Second most important Railway power plant in Tokyo area. Capacity 25,000 kw.
90:17-230 Tokyo (Japan)	**Senju Steam Power Station**	**N Tokyo, between Sumida and Ara Rivers.**	**35°45′N 139°48′E**	**BSU**	**EP**	**77,000 kw capacity. Station connects to "Joetsu Line."**
90:17-274 Tokyo (Japan)	**Yokosuka Navy Yard**	**Along entire E side of Yokosuka Harbor.**	**35°17′N 139°40′E**	**EPI**	**A**	**One of 4 most important Navy yards in Japan, capable of handling every type of Naval vessel. Has 6 drydocks, 4 building ways and a marine railway.**

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-282 Tokyo (Japan)	**Yokosuka Arsenal and Armament Works**	**At head (SW end) of Nagaura Harbor, NW of Yokosuka Harbor.**	**35°18′N 139°38′E**	**EPI MS**	**A M**	**Major arsenal, gun mounts, torpedoes, extensive storage.**
90:17-297 Tokyo (Japan)	**Azuma Oil Storage**	**At Yokosuka, on N tip of Hako Point, E side of Nagaura Harbor.**	**35°18′N 139°39′E**	**MS**	**P**	**Several surface and some underground oil tanks (major oil storage).**
90:17-298 Tokyo (Japan)	Oppama Naval Air Station (Yokosuka)	E of entrance to Kanazawa Bay, Yokosuka.	35°19′N 139°39′E	EPI	AC	Facilities for maintenance repair and overhaul of aircraft and aero engines.
90:17-326 Tokyo (Japan)	**Nippon Electric Co., Factory No. 2, Mita Plant**	**Near Tokyo Harbor waterfront, about 2 miles S of Imperial Palace, ½ mile N of Shinagawa RR Yards. (90:17-364).**	**35°39′N 139°45′E**	**EPI**	**LM**	**Most important plant in Japan for manufacture of telephonic and general electrical communication equipment. ¾ of all electrical indicating instruments in military radar and radio, plus large quantities of other radio and radar components. Tube production, if any, is unimportant.**
90:17-327 Tokyo (Japan)	Mitsubishi Electric, Shibaura Plant	Tokyo Harbor waterfront, S of mouth of Sumida River.	35°38′N 139°46′E	BEI	MMT	Medium size machine tool and electrical equipment producer.
90:17-330 Tokyo (Japan)	**Ishikawajima Dockyard**	**In Tokyo Harbor, near mouth of Sumida River.**	**35°40′N 139°47′E**	**BEI** EPI	**TE** A	**Important engineering works for commercial and naval shipbuilding. Makes turbines and other machinery for capital ships.**
90:17-331 Tokyo (Japan)	**Tokyo Gas & Electric Engineering Company**	**SE Tokyo near shore of Tokyo Bay. About 700 feet W of ship canal between shore and filled land. About 6.5 miles S SE of Imperial Palace.**	**35°35′N 139°44′E**	**BEI** EPI	**MMT** A AC	**One of leading Japanese machine tool producers; a Hitachi concern. Most types of grinders; possibly the most important producer of milling machines. Also ordnance, airplane and engine parts.**
90:17-334 Tokyo (Japan)	Nisso Steel Mfg. Co.	In Tokyo, just N of Onagigawa Canal joining Sumida and Ara Rivers near mouths.	35°41′N 139°50′E	BPI	CIS	Secondary special steel and machinery producer.
90:17-336 Tokyo (Japan)	Japan Special Steel Company	SE Tokyo near waterfront. Just N of Tokyo Gas Company high cylinder tanks.	35°35′N 139°45′E	BPI	CIS	Small alloy steel manufacturer.
90:17-337 Tokyo (Japan)	Haneda Airport	About half way between Tokyo and Yokohama, near Tama River mouth.	35°34′N 139°46′E	EPI	AC	Airport surrounded by small aircraft factories and experimental plants.
90:17-350 Tokyo (Japan)	Tsukishima Machinery Co.	On reclaimed island in Tokyo Harbor at Sumida River mouth.	35°39′N 139°47′E	BEI	MMT	Small machine tool producer. Many similar small plants in near vicinity. Chemical Machinery.
90:17-352 Tokyo (Japan)	Army Engineering School	In Tokyo, about 1½ miles N of Imperial Palace.	35°42′N 139°45′E	EPI	A	No further information.

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AIR TARGET INDEX—JAPANESE WAR

NUMERICAL TARGET INDEX

OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-355 Tokyo (Japan)	Army Provisions Depot	Tokyo Harbor waterfront. On E bank of Sumida River at mouth. E across river branch from dockyard.	35°40′N 139°48′E	MS	M	Military goods storage.
90:17-356 Tokyo (Japan)	**Nakajima Aircraft, Ogikubo Plant**	**NW Tokyo, 8½ miles NW of Imperial Palace and 2.2 miles E of Nakajima Musashino-Tama Plant (90:17-357).**	**35°42′N 139°37′E**	**EPI**	**AC**	**Manufactures a wide variety of engine parts and possibly complete engines.**
90:17-357 Tokyo (Japan)	**Nakajima Aircraft, Musashino-Tama (Musashi) Plant**	**NW Tokyo, about 10 miles NW of Imperial Palace and 2.2 W of Nakajima Aircraft Ogikubo, Plant (90:17-356).**	**35°43′N 139°35′E**	**EPI**	**AC**	**Estimated once producing 40% of all Japanese operational type engines, both Army and Navy.**
90:17-360 Tokyo (Japan)	Edogawa Petroleum Storage	In E Tokyo. On island in Edo River, about 1½ miles above mouth.	35°40′N 139°53′E	MS	P	Minor storage.
90:17-364 Tokyo (Japan)	**Shinagawa Railroad Yards**	**E Tokyo, near harbor waterfront. About 4½ miles S of Imperial Palace.**	**35°38′N 139°45′E**	**BSU**	**RRT**	**One of the most important yards in Tokyo area. Repair shops and roundhouses.**
90:17-365 Tokyo (Japan)	Shiodome Freight Yards	In Tokyo, 1½ miles SE of Imperial Palace; just W of Sumida River mouth.	35°40′N 139°46′E	BSU	RRT	Freight terminal and rail-water transshipment point. Minor importance.
90:17-366 Tokyo (Japan)	Steam Eng. & Rolling Stock Mfg. Co.	In NE Tokyo about ½ mile N of Tokyo Bay.	35°40′N 139°49′E	EPI BEI	A TE	Producer of RR equipment; probably also guns, gun carriages, tanks.
90:17-367 Tokyo (Japan)	**Tokyo Central Station**	**In Tokyo, about ½ mile E SE of Imperial Palace.**	**35°41′N 139°46′E**	**BSU**	**RRT**	**Major passenger and minor freight traffic center.**
90:17-369 Tokyo (Japan)	Ueno Railroad Station	In E Tokyo, about 2 miles N NE of Imperial Palace. Just E of Ueno Park.	35°42′N 139°47′E	BSU	RRT	Passenger traffic center. Handles most traffic to N out of Tokyo.
90:17-370 Tokyo (Japan)	Oi Railroad Works	In SE Tokyo, near waterfront, about 1 mile S of Shinagawa RR Yards. (90:17-364).	35°37′N 139°44′E	BSU	RRT	RR repair shops. About 20 buildings.
90:17-475 Tokyo (Japan)	Asano Cement Co.	In SE Kawasaki, near waterfront.	35°31′N 139°44′E	BPI	C	Large cement producer.
90:17-481 Tokyo (Japan)	**Tokyo Gas Company, Tsurumi Branch**	**In Kawasaki, about 1¼ mile E of Tsurumi River mouth.**	**35°30′N 139°42′E**	**BPI**	**CIS C**	**Most important illuminating gas producer in E Japan. Also produces coke.**

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-484 Tokyo (Japan)	Showa Wire Cable Company	In S Kawasaki,	35°30′N 139°42′E	BEI	MMT	Affiliate of Tokyo-Shibaura Electric, producing insulated wire and cable.
90:17-485 Tokyo (Japan)	**Tokyo Nakajima Electric Co.**	**In Kawasaki, S of Tama River.**	**35°32′N 139°43′E**	**EPI**	**LM**	**Important manufacturer of aircraft electrical equipment.**
90:17-487 Tokyo (Japan)	Meiji Sugar Factory	In Kawasaki, on S bank of Tama River.	35°32′N 139°42′E	BPI	C	One of largest in Japan. Sugar and alcohol production.
90:17-488 Tokyo (Japan)	**Tokyo-Shibaura Electric Co., Factory No. 2, Yanagi Plant**	**In Kawasaki, on N side of Tokaido RR, about 1/3 mile S of Tama River.**	**35°32′N 139°42′E**	**EPI**	**LM**	**Third most important electronic tube manufacturing plant in Japan (10 to 20% of total). Also produces other radio and radar components.**
90:17-489 Tokyo (Japan)	Nippon Elec. Wire & Cable	In Kawasaki, on S side Tokaido RR 1/2 mile S of Tama River.	35°32′N 139°42′E	BEI	MMT	No information as to products.
90:17-493 Tokyo (Japan)	**Tokyo Steam Power Plant**	**On S Kawasaki waterfront. NE of Petroleum Center (90:17-127)**	**35°30′N 139°43′E**	**BSU**	**EP**	**Important power source. 77,000 kw.**
90:17-496 Tokyo (Japan)	**Tokyo-Shibaura Electric Co., Factory No. 1, Horikawa Plant**	**Kawasaki, N of Tokaido RR, 1 mile S of Tama River.**	**35°32′N 139°42′E**	**EPI**	**LM**	**Most important electronic tube plant in Japanese Empire (50% of all tubes, tungsten filament and glass envelopes). Completely integrated plant; also has one of best electronic research laboratories.**
90:17-497 Tokyo (Japan)	**Nippon Electric Co., Factory No. 1, Tama Plant**	**In N Kawasaki, about 1 mile N of Tsurumi Shunting Yard (90:17-112).**	**35°34′N 139°40′E**	**EPI**	**LM**	**One of three largest producers of electronic tubes, has important electronic laboratory. Specializes in radar tubes.**
90:17-498 Tokyo (Japan)	Kurada Iron Works	NE Yokohama waterfront.	35°29′N 139°39′E	EPI BEI	A TE	Produces car bodies, steel hulls, small armed boats.
90:17-499 Tokyo (Japan)	Nippon Carbon Co., Factory No. 1	NE Yokohama waterfront.	35°29′N 139°39′E	BPI EPI	C LM	Largest producer of carbon electrodes in Japan.
90:17-521 Tokyo (Japan)	**Japan (Showa) Electro-Chemical Co.**	**NE Yokohama waterfront.**	**35°29′N 139°40′E**	**BPI**	**NFM**	**Alumina plant.**
90:17-522 Tokyo (Japan)	**Nissan Automobile Co.**	**NE Yokohama, about 1mile W of Tsurumi River mouth.**	**39°39′N 139°40′E**	**EPI** BEI	**A** TE	**One of 2 largest Japanese motor vehicle plants. Produces military trucks, artillery tractors, small caliber shells and merchant ship guns.**
90:17-523 Tokyo (Japan)	Japan Radio & Phonograph Co.	NE Yokohama, about 1 mile W of Tsurumi River mouth.	35°29′N 139°40′E	EPI	LM	Produces field radios for Army use.
90:17-539 Tokyo (Japan)	**Nakajima Aircraft, Tanashi Foundry**	**1 mile N of Tanashi Town, and 2 miles NW of Nakajima Musashino-Tama Plant (90:17-357).**	**35°44′N 139°32′E**	**EPI**	**AC**	**Important producer of castings and forgings for the Musashino-Tama Plant (90:17-357); also tests engines from that plant.**

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-541 Tokyo (Japan)	Oriental Otis Elevator Co.	S Tokyo about 1½ miles N of Tama River Bridges (90:17-1367).	35°33′N 139°43′E	EPI	A	Produces machine gun mountings, bomb racks, gun turrets.
90:17-551 Tokyo (Japan)	Meidensha Elec. Equip. Co. Factory No. 1	S Tokyo near Bay, just NW of Oi RR Works (90:17-370).	35°37′N 139°44′E	EPI	LM	Producer of small motors, generators and electrical equipment for aircraft detection.
90:17-573 Tokyo (Japan)	Miyata Engineering Works	S Tokyo, about 1 mile N of Tama River Bridges (90:17-1367).	35°33′N 139°43′E	EPI BEI	AC TE	Produces aircraft parts, motorcycles and other military equipment.
90:17-791 Tokyo (Japan)	**Showa Aircraft**	**2 miles NW of Tachikawa and 2.7 miles W of Tachikawa Aircraft (90:17-792).**	**35°43′N 139°22′E**	**EPI**	**AC**	**Assembles transport and trainer aircraft.**
90:17-792 Tokyo (Japan)	**Tachikawa Aircraft**	**N edge of Tachikawa, bounded on W by Tachikawa Airfield.**	**35°42′N 139°25′E**	**EPI**	**AC**	**Assembles Army combat and trainer aircraft, 8% of total combat aircraft.**
90:17-799 Tokyo (Japan)	Mitsubishi Heavy Industry, Oimachi Plant	SW Tokyo near waterfront about ½ mile SW of Oi RR Works (90:17-370) and adjoining Nippon Light Works to the E.	35°36′N 139°44′E	EPI	AC A	Reported to manufacture aero-engines. Possibly part of Mitsubishi tank factory.
90:17-826 Tokyo (Japan)	Fujikura Elec. Cable Wks.	Tokyo, NE of Harbor at juncture of Shiohama and Heiku Rivers	35°40′N 139°48′E	BEI	MMT	One of largest producers of telephone, telegraph and television cables, submarine cable accessories and communications wires.
90:17-879 Tokyo (Japan)	Yodobashi Filter Plant	In W Tokyo, NW of Shinjuku Station.	35°40′N 139°45′E			One of the primary filtering, pumping and distribution points in the Tokyo water supply system.
90:17-880 Tokyo (Japan)	Konishi Photo Works	W Tokyo ½ mile W of Shinyuku Station & RR Junction. (90:17-1374) and just W of Yodobashi Reservoir Filter Beds.	35°41′N 139°42′E	BPI EPI	C A	All types of photo equipment. Reported partial conversion to shell fuses, airplane gunsight circles, sensitized aluminum sheets.
90:17-882 Tokyo (Japan)	Ikegai Machine Foundry	Tokyo near Harbor about 2 miles S of Imperial Palace just NE of Shinagawa RR Yards (90:17-364).	35°39′N 139°45′E	BEI	MMT	Minor producer of machine tools, components.
90:17-883 Tokyo (Japan)	Ikegai Motor Plant	Tokyo near Harbor, about 2 miles S of Imperial Palace, NE of Shinagawa RR Yards (90:17-364).	35°39′N 139°45′E	BEI	TE	Internal combustion engines.

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-885 Tokyo (Japan)	Takeshiba Pier	Tokyo Harbor adjoining Hinode-Cho Pier. (90:17-886).	35°39′N 139°46′E	BSU	S	Storage and loading facilities.
90:17-886 Tokyo (Japan)	Hinode-Cho Pier	Tokyo Harbor adjoining Take-shiba Pier (90:17-885).	35°39′N 139°46′E	BSU	S	RR connections, storage facilities.
90:17-887 Tokyo (Japan)	Shibaura Wharf	Tokyo Harbor, southernmost pier.	35°38′N 139°46′E	BSU	S	Storage; rail connection.
90:17-888 Tokyo (Japan)	Oki Electric Co., Plant No. 1	Tokyo near Harbor adjoining the NE corner of the Shinagawa RR Yards (90:17-364).	35°38′N 139°45′E	EPI	LM	Small plant of company producing telephone equipment.
90:17-889 Tokyo (Japan)	Nippon Elec. Co., Factory No. 3	Tokyo near harbor. Midway between N tip of Shinagawa RR yards (Target 90:17-364) and Shibaura wharf (Target 90:17-887).	35°38′N 139°45′E	EPI	LM	Small research laboratory reported working for Navy.
90:17-894 Tokyo (Japan)	Imperial Government Railway Shops	Omiya, 17 miles N NW of Imperial Palace, Tokyo.	35°56′N 139°38′E	BEI BSU	TE RRT	Major RR repair and manufacturing center for locomotives and rolling stock.
90:17-899 Tokyo (Japan)	Japan Military Goods Co., Tomioka Plant	Just S of Tomioka midway between Yokohama and Yokosuka W of Shonan Elec. RR tracks.	35°21′N 139°38′E	EPI BEI MS	A MMT M	Leading private producer of automatic weapons and ammunition and of high precision machine tools.
90:17-904 Tokyo (Japan)	Sakurada Engineering Co. Wks.	Joto district of NE Tokyo, ½ mile W of Ara River.	35°41′N 139°51′E	BEI	MMT TE	Produces girders, etc., chemical machinery, RR equipment. May produce some airplane parts, carburetors.
90:17-907 Tokyo (Japan)	Tokyo Gas Co., Sunamachi Branch	N and S of Ona-gigawa Canal, NE Tokyo, midway be-tween Sumida and Ara Rivers.	35°41′N 139°48′E	BPI	C CIS	2 plants either side of canal. Smallest of 3 Tokyo gas plants. Coke by-products.
90:17-910 Tokyo (Japan)	Rising Sun Petroleum Terminal	In NE Tokyo on Joban RR 2 miles E of Sumida River.	35°42′N 139°49′E	MS	P	Small storage tank farm.
90:17-911 Tokyo (Japan)	Ogura Oil Co.	Joto district of NE Tokyo.	35°41′N 139°49′E	EPI	P	Small refinery.
90:17-912 Tokyo (Japan)	Nisshin Spinning Mill	½ mile N of Kata-gawa Canal about midway between Sumida and Naka Rivers.	35°42′N 139°49′E			Two adjacent spinning mills reported converted to unspecified military production.

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-913 Tokyo (Japan)	Hattori Co.	Tokyo W of Yokojikkengawa Canal. Just N of Kinshi Park.	35°42′N 139°49′E	EPI	LM A	Produces precision instruments, including chronometers, AA fire control equipment and other ordnance apparatus.
90:17-914 Tokyo (Japan)	Oriental Weaving Co.	NE Tokyo, adjacent to Target 90:17-915.	35°41′N 139°50′E	EPI	A	Large textile mill reported converted to munitions components.
90:17-915 Tokyo (Japan)	Oriental Weaving Co.	E Tokyo. Just N of Katagawa Canal. 1/3 mile E of Target 90:17-914.	35°41′N 139°50′E	EPI	A	Textile mill possibly converted to making munitions components.
90:17-916 Tokyo (Japan)	**Hitachi Engineering Works, Kameido Plant**	**On S bank of Naka River at Joban Line RR bridge on Tokaido RR.**	**35°42′N 139°50′E**	**BEI**	**MMT**	**Important manufacturer of heavy electrical equipment including generators, turbines, electric motors, compressors.**
90:17-918 Tokyo (Japan)	Niigata Iron Works, Tokyo Plant	S Tokyo about 3 miles W of Haneda airport.	35°34′N 139°43′E	BEI EPI	MMT TE A	Produces machine tools, Diesel engines, pumps, compressors, rolling stock, submarine motors, Diesel trucks.
90:17-919 Tokyo (Japan)	Tokyo Measuring Instrument Works	S Tokyo, 2 miles NW of Haneda Airport.	35°34′N 139°44′E	EPI	LM	Produces AA equipment and Naval instruments.
90:17-1331 Tokyo (Japan)	**Kayaba Engineering Co.**	**On reclaimed land in Tokyo Harbor, S of Mitsubishi Electric, Shibaura Plant (90:17-327).**	**35°38′N 139°46′E**	**EPI**	**AC**	**Producer of aircraft components. Location of this target shifted to site formerly designated as 90:17-354. "Shibaura Machine Tool Company"—which is now cancelled. Important producer of landing gear and undercarriages.**
90:17-1332 Tokyo (Japan)	Rolling Stock Co.	In S Tokyo, on Tokaido Main Line about 1 mile N of Tama River.	35°34′N 139°43′E	EPI BEI	A MMT	Branch works of important RR equipment and ordnance producer.
90:17-1333 Tokyo (Japan)	Nippon Typewriter Co.	SW. Tokyo, about 2 miles SW of Shinjuku Station and RR Junction (90:17-1374).	35°40′N 139°41′E	EPI	A	Precision ordnance components.
90:17-1334 Tokyo (Japan)	Asano Karite Co.	In Hadagaya Ward, W Yokohama about 3½ miles W of Yokohama Harbor.	35°27′N 139°35′E	EPI	A	Secondary explosives plant in scattered small buildings.
90:17-1336 Tokyo (Japan)	**Navy Arsenal**	**N of Hiratsuka Village, just W of Sagami River.**	**35°20′N 139°21′E**	**EPI MS**	**A M**	**Major arsenal, ammunition, explosives and storage area.**
90:17-1337 Tokyo (Japan)	Tsurumi Army & Navy Stores	Kawasaki waterfront at mouth of Tsurumi River.	35°29′N 139°41′E	MS	M	Large military storage area.
90:17-1338 Tokyo (Japan)	Inflammable Storage Docks	Yokohama Harbor.	35°26′N 139°40′E	MS	M	Transit sheds.
90:17-1342 Tokyo (Japan)	Japan Machine Industry	In NE Tokyo on N end of Yokojikkengawa Canal.	35°42′N 139°49′E	EPI BEI	A TE	Produces military equipment, bicycles and auto parts.

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Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-1343 Tokyo (Japan)	Ishikawajima Motor Co.	Kawasaki waterfront, directly N of Shibaura Engineering Works (90:17-133).	35°29′N 139°42′E	BEI	MMT TE	Light Diesel engines for ships.
90:17-1345 Tokyo (Japan)	Tokyo Municipality Steam Plant and Shiba Gas Works.	In SW Tokyo. Just NE of Shinagawa RR Yards (Target 90:17-364).	35°39′N 139°45′E	BSU	EP	One of principal Tokyo gas works and serves as standby power plant.
90:17-1347 Tokyo (Japan)	Japan Service Co.	E Kawasaki on Tama River just E of Fuji Steel Works of Imp. Iron and Steel (90:17-56).	35°32′N 139°44′E	BPI	CIS	Modern stainless steel forging mill. Supplies heavy chemical machinery.
90:17-1348 Tokyo (Japan)	Toho Steel Foundry Co.	NW Tokyo on former island in Ara River.	35°46′N 139°41′E	BPI	CIS	Steel furnaces, rolling mills, foundries, rod and bar mill.
90:17-1349 Tokyo (Japan)	Japan Special Steel Works	In SE Tokyo. Exact location unknown.	35°40′N 139°50′E	BPI	CIS	Electric furnaces. 1937 steel production 18,000 tons.
90:17-1350 Tokyo (Japan)	Tokyo Kozai Co.	In N Tokyo on Katagawa Canal.	35°41′N 139°50′E	BPI	CIS	Medium size producer of steel ingots, forgings, polished steel, steel springs.
90:17-1351 Tokyo (Japan)	Tokyo Nakayama Iron Works	Kawasaki waterfront. Just N of Petroleum Center (90:17-128).	35°30′N 139°42′E	BPI	CIS	Small producer of sheet and galvanized products.
90:17-1353 Tokyo (Japan)	Niigata Iron Works, Urawa Plant	In Urawa, 13 miles N of Imperial Palace.	35°52′N 139°39′E	BSU	TE	RR rolling stock.
90:17-1354 Tokyo (Japan)	Oriental Babcock Co.	S of Yokohama on Tokyo Bay. Near mouth and on W bank of Horikama River.	35°25′N 139°38′E	BEI	MMT	Produces boilers and general machinery.
90:17-1355 Tokyo (Japan)	Japan Steel Bearing Co., Osaki Plant	In S Tokyo just NE of Meidensha Electrical Equipment Co., Factory No. 1 (90:17-551).	35°37′N 139°44′E	EPI	LM	With Fujisawa Plant (90:17-1356) most important bearing plant in Japan. Combined output: 20,000 NSK bearings per day.
90:17-1356 Tokyo (Japan)	Japan Steel Bearing Co. Fujisawa Plant	10 miles SW of Yokohama Harbor. At Fujisawa, W of RR station.	35°21′N 139°29′E	EPI	LM	With Tokyo Branch (90:17-1355), most important bearing plant in Japan. Combined production: 20,000 NSK bearings a day.
90:17-1357 Tokyo (Japan)	Oriental Precision Machinery Co.	In S Tokyo on Tama River about ¾ mile W of N end of Tsurumi Shunting Yard (90:17-112).	35°34′N 139°41′E	BEI	MMT	Producer of machine tools.
90:17-1358 Tokyo (Japan)	Riken Heavy Ind. Co.	Oji district of N Tokyo, W of Sumida R.	35°46′N 139°43′E	BEI	MMT	Produces drills, cutters, gauge blocks and lathes.

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-1359 Tokyo (Japan)	Nippon Piston Ring Co.	In Kawaguchi E of RR and N of Ara River.	35°47′N 139°45′E	EPI	LM	High grade piston rings for aircraft.
90:17-1360 Tokyo (Japan)	Ishii Iron Works Ltd.	In Kamata district of S Tokyo.	35°32′N 139°43′E	BEI	MMT	Produces chemical equipment and machine tools. Minor plant.
90:17-1361 Tokyo (Japan)	Kokusan Machinery Co.	In S Tokyo about 1¾ miles N NW of Shinagawa Station.	35°39′N 139°43′E	BEI	MMT	Produces about 200 turret lathes per month; signal apparatus.
90:17-1362 Tokyo (Japan)	Kitashin Elec. Eng. Co.	In S Tokyo, about 1 mile E of N end of Tsurumi Shunting Yard (90:17-112).	35°34′N 139°42′E	EPI	LM	Produces aircraft indicating instruments and navigation instruments for Navy.
90:17-1363 Tokyo (Japan)	Shoun Engineering Co.	At Ofuna, 8 miles W NW of Yokosuka Harbor.	35°21′N 139°32′E	BEI	MMT	Produces machines for making ball and roller bearings.
90:17-1364 Tokyo (Japan)	Physico-Chemical Industries	In Central Tokyo about ¾ mile SW of Tabata Station.	35°43′N 139°45′E	BEI EPI	MMT LM	Research center for "Riken" group of war industries.
90:17-1365 Tokyo (Japan)	Japan Bakelite Co.	In NE Tokyo on Sumida River.	35°43′N 139°49′E	BPI	C	Leading Far East producer of metal substitutes for aircraft, naval vessels, tanks, bombs and communications.
90:17-1367 Tokyo (Japan)	Tama River Bridges	In N Kawasaki about 4½ miles from Tama River mouth.	35°32′N 139°43′E	BSU	RRT	On Tokaido Line. There are by-pass bridges to the N.
90:17-1368 Tokyo (Japan)	Akabane RR Bridge and Junction	In N Tokyo. Bridge spans Ara and Sumida Rivers.	35°46′N 139°44′E	BSU	RRT	One of a number of RR outlets N of Tokyo City.
90:17-1369 Tokyo (Japan)	Tsurumi River Bridges	In S Kawasaki about 2½ miles from Tsurumi River mouth.	35°31′N 139°41′E	BSU	RRT	Multiple track bridge on Tokaido Line. Smaller by-passes above and below.
90:17:1370 Tokyo (Japan)	Sumida River Bridge, and Sumida River RR Yard of Joban Line.	In NE Tokyo near right angle bend in Sumida River.	35°44′N 139°48′E	BSU	RRT	With the Arakawa River Bridge (90:17-1371) controls a primary outlet NE out of Tokyo.
90:17-1371 Tokyo (Japan)	Arakawa River Bridge, Joban & Tobu RR	In NE Tokyo about 1 mile N of Sumida River Bridge (90:17-1370).	35°45′N 139°49′E	BSU	RRT	With Sumida River Bridge (90:17-1370) controls a primary NE outlet from Tokyo.
90:17-1372 Tokyo (Japan)	Sumida River Bridge of Sobu RR, Ryogoku Station and RR Yard	Central Tokyo just N of Katagawa Canal.	35°41′N 139°48′E	BSU	RRT	Bridge serves Sobu RR E out of Tokyo. Yard chiefly serves Koto Wholesale Market.
90:17-1373 Tokyo (Japan)	Sobu RR Bridge, Arakawa River and Shinkoiwa Yard Junction	In NE Tokyo about 4 miles from mouth of Arakawa River.	35°43′N 139°51′E	BSU	RRT	With Sumida River Bridge of Sobu RR (90:17-1372), serves Sobu RR E out of Tokyo.
90:17-1374 Tokyo (Japan)	**Shinjuku Station and RR Junction**	**In Central Tokyo just NW of Shinjuku Imperial Park**	**35°41′N 139°43′E**	**BSU**	**RRT**	**One of three important Tokyo Stations. Focus of most W lines, including Tokaido**

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-1375 Tokyo (Japan)	Hachioji Junction and Bridge	SE edge of Hachioji, 23 miles W of Imperial Palace.	35°39′N 139°20′E	BSU	RRT	Outlying junction of Chuo and transinsular lines.
90:17-1376 Tokyo (Japan)	Ofuna RR Junction	At Ofuna 8 miles NW of Yokosuka Harbor.	35°21′N 139°32′E	BSU	RRT	Tokaido Mainline connection with spur to Yokosuka Naval Base.
90:17-1377 Tokyo (Japan)	Sagami River Bridge (Tokaido Line)	Near Sagami Bay, 17 miles W of Yokosuka Harbor. Navy Arsenal (90:17-1336) just NW of bridges.	35°20′N 139°22′E	BSU	RRT	Two bridges between Chigasaki and Hiratsuka.
90:17-1390 Tokyo (Japan)	Hitachi-Solex Aircraft Works	At Totsuka, 7 miles SW of Yokohama Harbor.	35°24′N 139°32′E	EPI	AC	Produces aircraft carburetors, and possibly other aero engine parts.
90:17-1391 Tokyo (Japan)	**Ishikawajima Engine Plant**	**At Tomioka, on W shore of Tokyo Bay 5 miles S of Yokohama Harbor.**	**35°22′N 139°38′E**	**EPI**	**AC**	**Manufactures engines for Navy aircraft.**
90:17-1392 Tokyo (Japan)	**Yokosuka Naval Aircraft Factory & Aeronautical Research Center**	**N of Yokosuka on N entrance to Nagaura harbor S of Oppama Naval Air Station (90:17-298).**	**35°18′N 139°39′E**	**EPI**	**AC** LM	**Most important naval air experimental center. Produces new type aircraft and engines.**
90:17-1394 Tokyo (Japan)	**Kanegafuchi Aircraft Parts Plant**	**N Tokyo, on E bank of Sumida River N of Japan Bakelite Company (90:17-1365).**	**35°44′N 139°49′E**	**EPI**	**A**	**Large spinning mill probably converted to ordnance components. Formerly thought to be making a/c parts.**
90:17-1395 Tokyo (Japan)	**Shoda Aircraft**	**NW Tokyo, 1¾ miles SSE of Nakajima Musashino-Tama Plant (90:17-357).**	**35°41′N 139°34′E**	**EPI**	**AC**	**Function and identity uncertain. Reported production of trainers and aero-engines but layout suggests manufacture of parts and sub assembly.**
90:17-1396 Tokyo (Japan)	**Tsurumi Soda Co.**	**In N Yokohama at mouth of Tsurumi River.**	**35°29′N 139°41′E**	**BPI**	**C**	**Important producer of caustic soda, with chlorine an important by-product.**
90:17-1397 Tokyo (Japan)	Japan Refining Works	In E Tokyo at junction of Ara River and Onagigawa Canal.	35°41′N 139°51′E	BPI	C	Produces chemicals for match manufacture, bleaching textiles, leather tanning, fire proofing, purification of gases.
90:17-1398 Tokyo (Japan)	**Tokyo Gas Co., Omori Branch**	**In S Tokyo on Tokyo Bay.**	**35°34′N 139°45′E**	**BPI**	**CIS** C	**Illuminating gas works producing coke and nitrogen.**
90:17-1399 Tokyo (Japan)	Hodogaya Soda, Yokohama Plant	In W Yokohama about 1½ mile from Yokohama Harbor.	35°27′N 139°36′E	BPI	C	Large producer: caustic soda, benzoic acid and bleaching powders. Could produce poison gases.
90:17-1400 Tokyo (Japan)	Hodogaya Soda, Tokyo Plant	In NW Tokyo on W bank of Sumida River	35°46′N 139°45′E	BPI	C	Supplements production of Yokohama Branch. (90:17-1399.)
90:17-1401 Tokyo (Japan)	Japan Artificial Fertilizer, Tokyo Plant	In E Tokyo. Believed to be near mouth of Ara River.	35°41′N 139°51′E	BPI	C	Produces sulfuric acid, chemicals for fertilizers

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Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-1403 Tokyo (Japan)	Tomioka Seaplane Base	At Sugita Point about midway between Yokohama and Yokosuka Harbors	35°22′N 139°38′E	EPI	AC	Adjoins Ishikawajima Engine Plant (90:17-1391) Maintenance and repair of Navy flying boats and seaplanes.
90:17-1418 Tokyo (Japan)	Marunouchi Telephone Exchange	¾ mile E of Imperial Palace and just N of Tokyo Central Station (90:17-367).	35°41′N 139°46′E			One of the most important communication centers in Japan.
90:17-1421 Tokyo (Japan)	**Meidensha Elec Equip. Co., Factory No. 2**	**In S Tokyo. On Tokyo Bay S of Haneda Airport (90:17-337).**	**35°33′N 139°46′E**	**BEI**	**MMT**	**Produces heavy electrical equipment for Army and Navy.**
90:17-1430 Tokyo (Japan)	Nippon Elec. Wire & Cable Co.	N Tokyo E of first bridge over Sumida River N of Kotota bridge.	35°43′N 139°49′E	BEI	MMT	Produces rubber insulated and lead-covered wire and cable.
90:17-1431 Tokyo (Japan)	Bridgestone Tire Co.	7 miles SW of Yokohama Harbor at Totsuka, ½ mile N of Totsuka Air Base.	35°24′N 139°32′E	BEI	TE	5th most important rubber factory in Far East. Tires and tubes (8% Jap total), boots for Army and Navy, etc. Own steam power plant.
90:17-1432 Tokyo (Japan)	Yokohama Harbor Passenger Wharves	S Yokohama Harbor.	35°27′N 139°39′E	BSU	S	Can handle 50,000-ton ships. RR spurs, freight depot, 100-ton crane, warehouses.
90:17-1433 Tokyo (Japan)	Yokohama Main Pier	S Yokohama Harbor just E of Yokohama Harbor Passenger Wharves (90:17-1432).	35°27′N 139°39′E	BSU	S	Largest pier in Yokohama. Travelling cranes.
90:17-1437 Tokyo (Japan)	Mitsubishi Piece Goods Wharf.	Kawasaki waterfront between Mitsubishi Coal Depot (90:17-191) and Mitsubishi Oil Refinery (90:17-116).	35°30′N 139°43′E	BSU MS	S M	Stores overseas goods. 2 cranes, warehouses.
90:17-1438 Tokyo (Japan)	Kyoritsu Warehouse	W Central Yokohama Harbor just N of docks of Yokohama Dockyard (90:17-69).	35°27′N 139°38′E	BSU MS	S M	Frozen food storage. RR spur.
90:17-1439 Tokyo (Japan)	Yokohama Central Warehouse Market	N Yokohama Harbor adjacent to and W of Asano Dockyard (90:17-70).	35°28′N 139°38′E	BSU	S	No further information.
90:17-1440 Tokyo (Japan)	Mitsubishi Warehouse	S Yokohama Harbor adjacent to and SE of Yokohama Harbor Passenger Wharves (90:17-1432).	35°27′N 139°39′E	BSU	S	Used for landing, shipping and forwarding.
90:17-1442 Tokyo (Japan)	Yokohama Warehouse, South	N Yokohama about ½ mile N of Asano Dockyard (90:17-70).	35°28′N 139°39′E	BSU	S	No further information.

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90:17-1446 Tokyo (Japan)	East Asia Dev. Co. Warehouses	N side canal N of W tip of westernmost of 3 large reclaimed islands N of Yokohama Harbor.	35°29′N 139°39′E	BSU	S	Warehouses, RR spur to Tokaido Main Line.
90:17-1448 Tokyo (Japan)	Tsukiji Market and Wholesale Warehouse	Adjacent to and NE of Hama Palace, W bank mouth of Sumida River, Tokyo.	35°40′N 139°46′E	BSU	S	Most important food distributing center in area. Numerous piers.
90:17-1449 Tokyo (Japan)	Kanda Market	At RR junction about 1 mile NE of Imperial Palace grounds, Tokyo.	35°42′N 139°47′E			Branch of Tsukiji Market (90:17-1448). Distributing center for food shipped by rail and water. Truck depots.
90:17-1450 Tokyo (Japan)	Koto Market	Central Tokyo, E bank of Sumida River, just S of Kuramae Bridge, and N of Ryoguku RR Station and Yards.	35°41′N 139°48′E			Main branch of Tsukiji Market (90:17-1448). Food distributing center.
90:17-1451 Tokyo (Japan)	Naniwa Warehouse	Waterfront Yokohama, ¼ mile N of Asano Dockyard (90:17-70).	35°28′N 139°39′E	BSU	S	Storage and transit sheds.
90:17-1459 Tokyo (Japan)	**Susaki Dockyard**	**NE corner Tokyo Harbor.**	**35°39′N 139°48′E**	**BEI** BSU	**TE** S	**2 drydocks, 6 ways for construction and repair.**
90:17-1460 Tokyo (Japan)	**Uraga Dockyard No. 1**	**NW corner Uraga Bay.**	**35°15′N 139°43′E**	**BEI** EPI BSU	**TE** A S	**Facilities for building all types naval vessels up to large cruisers, also passenger liners, etc.**
90:17-1461 Tokyo (Japan)	**Uraga Dockyard No. 2**	**SE corner Uraga Bay.**	**35°15′N 139°43′E**	**BEI** EPI BSU	**TE** A S	**Operated as part of Dockyard No. 1 (90:17-1460)**
90:17-1485 Tokyo (Japan)	So. Manchurian Wharf and Warehouses	NW Kawasaki waterfront adjacent to and S of Hayama Petroleum Refinery (90:17-127).	35°30′N 139°44′E	BSU	S	Cranes, warehouses, railroad spur to Kawasaki Freight Yard.
90:17-1493 Tokyo (Japan)	Toshin and Shinko Warehouses	S Yokohama Harbor on and immediately S of Yokohama Harbor Passenger Wharves (90:17-1432).	35°27′N 139°39′E	MS	M	Devoted to war use.
90:17:1640 Tokyo (Japan)	Japan Steel Bearing Co., Tamakawa Plant	In SW Tokyo, 2 miles N of Tsurumi Shunting Yard (90:17-112)	35°34′N 139°41′E	BPI EPI	CIS LM	Special steel plant.
90:17-1641 Tokyo (Japan)	Tanaka Instrument Mfg. Co.	In SW Tokyo, 1 mile W of Oi Railroad Works (90:17-370)	35°37′N 139°43′E	EPI	AC	Producer of aircraft instruments and parts

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90:17-1686 Tokyo (Japan)	Hitachi Engineering Works, Kameari Plant	In Adachi Section of Tokyo, 8 miles NE of Imperial Palace. On W bank Naka River just N of Kameari Station.	35°47′N 139°51′E	BEI EPI	MMT AC	One of largest Hitachi plants, producing A/C engine parts, machine tools, tractors, tank engines and heavy industrial equipment.
90:17-1687 Tokyo (Japan)	Mitsui Machine Tool Co., Okegawa Plant	Along RR line, about 7 miles NNW of Omiya and Imperial Government Railway Shops (90:17-894.)	36°00′N 139°34′E	BEI	MMT	Important producer of all types of grinders.
90:17-1688 Tokyo (Japan)	Hitachi Machine Tool Co.	In Kawasaki, adjacent to and E of Tsurumi Shunting Yard (90:17-112).	35°33′N 139°40′E	BEI	MMT	Important producer of milling machines, slotters, shapers.
90:17-1692 Tokyo (Japan)	Sagami Arsenal	7 miles SE of Hachioji, N of Fuchinobe RR station.	35°35′N 139°23′E	EPI	A	Major arsenal, combat vehicles, major repair center.
90:17-1693 Tokyo (Japan)	Miyata Manufacturing Co.	SW Tokyo near Kawasaki and near Tokyo Bay. ½ mile W of Japan Special Steel Co. (90:17:336).	30°34′N 139°44′E	EPI	LM	Manufacturer of electronic tubes, also assembling of radio sets.
90:17-1694 Tokyo (Japan)	Japan Wireless Co., Factory No. 1	SW Tokyo about 1 mile SW of S end of Shinagawa RR Yards (90:17-364). Exact building not located.	35°37′N 139°43′E	EPI	LM	Company manufactures radio tubes, sets and D/F equipment. Products of this plant not known.
90:17-1695 Tokyo (Japan)	Japan Wireless Co., Factory No. 2	In SW Tokyo, about 4 miles inland from point on Tokyo Bay just S of group of 5 islands.	35°36′N 139°42′E	EPI	LM	Company manufactures radio tubes, sets and D/F equipment. Products of this plant not known.
90-17-1696 Tokyo (Japan)	Japan Wireless Co., Factory No. 3	W of Tokyo, about 1½ miles directly S of Nakajima Aircraft, Musashino Tama Plant (90:17-357). Precise location unknown.	35°41′N 139°33′E	EPI	LM	Company manufactures radio tubes, sets and D/F equipment. This plant believed to make tubes.
90:17-1697 Tokyo (Japan)	Japan Wireless Co., Factory No. 4	In W outskirts of Tokyo.	35°38′N 139°35′E	EPI	LM	Aircraft communications equipment.
90:17-2008 (Tokyo (Japan)	Tachikawa Army Air Arsenal	On NW edge of Tachikawa. 21 mi. W of Tokyo Palace	35°42′N 139°24′E	EPI	AC LM	Factory section of arsenal (NW corner) manufactures aircraft and aero engines on limited scale. Arsenal also has aircraft modification, repair and research and important electronics laboratory.
90:17-2009 Tokyo (Japan)	Hitachi Aircraft, Tachikawa Plant	20 miles WNW of Tokyo Palace. 1 mile N of Tachikawa Aircraft (90:17-792).	35°44′N 139°25′E	EPI	AC	Important producer of low and medium powered aero-engines.

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90:17-2015 Tokyo (Japan)	Japan International Aircraft, Hiratsuka Plant	NE Hiratsuka.	35°20′N 139°21′E	EPI	AC	Principally important as one of 4 major propeller plants. Also makes gliders, transports and possibly BAKA suicide planes.
90:17-2026 Tokyo (Japan)	Ebara Mfg. Co., Kamata Plant	In S Tokyo	35°33′N 139°45′E	BEI	MMT	Major producer of machine tools used in ordnance manufacture. Large size boring and turning mills.
90:17-2027 Tokyo (Japan)	Ebara Mfg. Co., Kawasaki Plant	In W. Kawasaki, in Sumiyoshi district.	35°34′N 139°39′E	BEI	MMT	Producer of machine tools for ordnance manufacture. Large size boring and turning mills.
90:17-2028 Tokyo (Japan)	Ikegai Iron Works, Mizonoguchi Plant	In NW Kawasaki, in Mizonoguchi district.	35°35′N 139°37′E	BEI	MMT	Major producer of machine tools used in manufacture of aero-engines.
90:17-2029 Tokyo (Japan)	Okamoto Machine Tool Co., Kamata Plant	In S Tokyo	35°34′N 139°42′E	BEI	MMT	Producer of machine tools used in manufacture of aero-engines. Gear grinders and Gleason gear generators.
90:17-2033 Tokyo (Japan)	Fuji Aircraft, Ofuna Plant	3000′ S of Ofuna RR Junction (90:17-1376)	35°20′N 139°32′E	EPI	AC	Probable manufacturer of BAKA suicide planes.
90:17-2035 Tokyo (Japan)	Hiratsuka Branch of 2nd Naval Air Arsenal	In Hiratsuka.	35°20′N 139°21′E	EPI	A	Former textile mill, converted to rebuilding of aircraft machine guns.
90:17-2036 Tokyo (Japan)	Japan Gas Engine Co., Samukawa Plant	NE of Hiratsuka.	35°22′N 139°22′E	EPI BEI	A TE	New plant reported producing engines and light military vehicles.
90:17-2037 Tokyo (Japan)	Koshiba Point Oil Storage	Yokosuka 2.5 miles N of Oppama Naval Air Station (90:17-298).	35°22′N 139°39′E	MS	P	Oil storage approximately 1,000,000 barrels capacity.
90:17-2038 Tokyo (Japan)	Army Oil Storage	Kawasaki, directly W of Tokyo Steam Power Plant (90:17-493).	35°30′N 139°43′E	MS	P	Major oil storage target. 21 tank sites but only 10 are intact.
90:17-2042 Tokyo (Japan)	Japan Steel Co., Yokohama Plant	NW of Yokosuka.	35°20′N 139°37′E	EPI MS	A M	One of 3 main plants of leading private ordnance producer. Light and medium armament, steel fabrication.
90:17-2044 Tokyo (Japan)	Diesel Automotive Co., Hino Plant	Hino.	35°41′N 139°24′E	EPI BEI	A TE	A medium size motor vehicle or tank plant.
90:17-2045 Tokyo (Japan)	Ofuna Naval Fuel Research Plant	Just E of Ofuna Junction.	35°22′N 139°33′E	EPI	P	Liquid fuel testing, research and development for Navy.
90:17-2052 Tokyo (Japan)	Yose Hydro Plant	On Sagami River.	35°36′N 139°13′E	BSU	EP	26,000 kw capacity. Of minor importance in Tokyo network.
90:17-2071 Tokyo (Japan)	Kubozawa Hydro Plant	On Sagami River.	35°35′N 139°18′E	BSU	EP	22,000 kw capacity. Of minor importance in Tokyo network.
90:17-2082 Tokyo (Japan)	Japan Optical Mfg. Co., Shiba Plant	1 mile SSW of Imperial Palace.	35°39′N 139°45′E	EPI	A	Range finders, optical instruments.

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Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-2083 Tokyo (Japan)	Municipal Electric Bureau, Shiba Workshops	Tokyo waterfront.	35°38′N 139°45′E	BSU	RRT	Repair center for Tokyo streetcar system.
90:17-2084 Tokyo (Japan)	Tokyo Gas Co., Senju Works	Directly S of Sumida River Bridge and RR Yard (90:17-1370).	35°43′N 139°48′E	BPI	C	Large gas works supplying N Tokyo
90:17-2085 Tokyo (Japan)	Hitachi Engineering Co., Fukugawa Plant	On reclaimed land at head of Tokyo Bay.	35°39′N 139°48′E	BPI	CIS	Alloy steel castings and forgings.
90:17-2086 Tokyo (Japan)	Mitsubishi Heavy Industry, Fukugawa Plant	On reclaimed land at head of Tokyo Bay.	35°39′N 139°47′E	BEI	MMT	Reported production of marine engines.
90:17-2087 Tokyo (Japan)	**Kami-Seya Munitions Storage**	**SE of Tsuruma.**	**35°29′N 139°29′E**	**MS**	**M**	**Large ammunition storage area.**
90:17-2089 Tokyo (Japan)	**Tama Branch of Tokyo No. 2 Arsenal**	**S of Tama River and S of Fuchu.**	**35°38′N 139°29′E**	**MS**	**M**	**Large ammunition storage and manufacture.**
90:17-2095 Tokyo (Japan)	**Kawagoe Branch of Tokyo No. 1 Arsenal**	**About 3 miles SE of Kawagoe.**	**35°52′N 139°32′E**	**EPI MS**	**A M**	**Large explosives manufacturing and storage area.**
90:17-2096 Tokyo (Japan)	**Atsugi Aircraft Plant**	**9 miles W of Yokohama. 1 mile E of Sagami River**	**35°28′N 139°26′E**	**EPI**	**AC**	**New aircraft plant, probably producing THALIA or making aircraft components.**
90:17-2097 Tokyo (Japan)	**Nakajima Aircraft, Omiya Engine Plant**	**1½ miles N of Omiya**	**35°56′N 139°38′E**	**EPI**	**AC**	**Engine parts mfr. and assembly. Reported to assemble aircraft also.**
90:17-2101 Tokyo (Japan)	Adachi Electric Co., Yokohama plant	In NW Yokohama N of Tsurumi River, about 3 miles W of Tsurumi Shunting Yard (90:17-112).	35°32′N 139°38′E	EPI	LM	Largest of 3 plants. D/F and telephone equipment.
90:17-2102 Tokyo (Japan)	Central Industrial Co., Omori Plant	In SW Tokyo, on E side of Tokaido Main Line, about 6,000 feet W of Tokyo Gas Co. Omori Branch. (90:17-1398)	35°34′N 139°44′E	EPI	AC LM	Aircraft electrical components and armament. Also radio set components.
90:17-2103 Tokyo (Japan)	Fuji Aircraft Instrument Co.	SW Tokyo. In complex of targets on E side of Tama River, incl. Kitashin Electric Engineering Co. (90:17-1362).	35°34′N 139°41′E	EPI	**LM**	Producer of aircraft indicating instruments, e.g. temperature and fuel gauges, automatic pilots.
90:17-2104 Tokyo (Japan)	Furukawa Electric Co., Plant No. 2	In W Yokohama, about 1¼ miles WNW of Furukawa Electric Co. Plant No. 1 (90:17-75).	35°27′N 139°35′E	EPI	LM	Produces storage batteries. Probably also wire and cable.

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90:17-2105 Tokyo (Japan)	Kokusan Electric Co., Toshima Plant	N Central Tokyo, about 1 mile W of Koishikawa Armory (90:17-214).	35°43′N 139°43′E	EPI	LM	Producer of magnetos and starting equipment for aircraft.
90:17-2106 Tokyo (Japan)	Oana Manufacturing Co., Mukojima Plant	NE Tokyo, E side of Sumida River, adjacent to and SW of Japan Bakelite Co. (90:17-1365).	35°43′N 139°49′E	EPI	LM	Light electrical equipment, mostly for aircraft.
90:17-2107 Tokyo (Japan)	Oriental Communications Equipment Co.	In W Kawasaki, On E side of S end of Tsurumi Shunting Yard (90:17-112).	35°32′N 139°41′E	EPI	LM	Largest of the 4 plants producing radios and D/F equipment.
90:17-2108 Tokyo (Japan)	Tokyo-Shibaura Electric Co., Kyomachi Plant	In S Kawasaki, adjacent to Yokohama Rubber Co. (90:17-141).	35°30′N 139°41′E	EPI	LM	Radio and radar metal components.
90:17-2109 Tokyo (Japan)	Shinagawa Mfg. Co., Tokyo Plant	S Tokyo. About 2,000 feet W of S end of Shinagawa RR Yards (90:17-364).	35°37′N 139°44′E	EPI	LM	Manufacturer of A/C indicating instruments.
90:17-2110 Tokyo (Japan)	Tanaka Instrument Mfg. Co.	S. Tokyo, about 3 000 feet W of Japan Special Steel Co. (90:17-336).	35°34′N 139°44′E	EPI	LM	Manufacturer of A/C indicating instruments.
90:17-2111 Tokyo (Japan)	**Tokyo Aircraft Instrument Co., Kawasaki Plant**	**In N W Kawasaki, About 2,500 feet SW of Nippon Electric Co., Factory No 1. Tama Plant, (90:17-497).**	**35°34′N 139°40′E**	**EPI**	**LM**	**Major plant of company which is important manufacturer of A/C indicating instruments and largest producer of A/C starters.**
90:17-2112 Tokyo (Japan)	**Tokyo Aircraft Instrument Co., Komae Plant**	**Just N of Tama River, SW Tokyo.**	**35°38′N 139°35′E**	**EPI**	**LM**	**Important plant of company which is important manufacturer of A/C indicating instruments and largest producer of A/C starters.**
90:17-2113 Tokyo (Japan)	Tokyo Wireless Electric Co., Kamata Plant	SW Tokyo. In complex of targets on E side of Tama River, including Kitashin Electric Engineering Co. (90:17-1362).	35°34′N 139°41′E	EPI	LM	Company is leading producer of aircraft radio sets.
90:17-2114 Tokyo (Japan)	Tokyo Wireless Electric Co., Kawasaki Plant	In NW Kawasaki, Just W of N end of Tsurumi Shunting Yard (90:17-112).	35°33′N 139°41′E	EPI	LM	Producer of radio sets and components.
90:17-2115 Tokyo (Japan)	**Yokogawa Electric Mfg. Co., Koganei Plant**	**W of Tokyo, About 8,200 feet NW of Tama graveyard, on RR.**	**35°42′N 139°29′E**	**EPI**	**LM**	**Important producer of light electrical equipment, including electric indicating instruments and A/C magnetos.**

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Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-2126 Tokyo (Japan)	Hattori Co., Otsuki Branch	NE Tokyo, ¾ mile SE of Hattori main plant (90:17-913).	35°42′N 139°50′E	EPI	LM	Precision optical and electrical instruments, particularly for ordnance.
90:17-2127 Tokyo (Japan)	Ikegai Iron Works, Kawasaki Plant	Kawasaki—adjacent to and N of Tokyo Special Steel & Chrome Works. (90:17-58).	35°32′N 139°42′E	BEI	MMT	Important producer of lathes, grinders and boring machines.
90:17-2128 Tokyo (Japan)	Okamoto Machine Tool Co., Kawasaki Plant (Hiyoshi-mura)	In Kawasaki, about 8,000′ W of Tsurumi Shunting Yard (Kawasaki). (90:17-112).	35°33′N 139°39′E	BEI	MMT	Lathes, gear grinders and generators.
90:17-2130 Tokyo (Japan)	Fujisawa Aircraft Plant	Just N of Fujisawa	35°21′N 139°29′E	EPI	AC	Probable underground aircraft plant.
90:17-2141 Tokyo (Japan)	Tokyo Gas Co., Kanegawa Branch	Yokohama	35°28′N 139°39′E	BPI	CIS C	Gas plant for Yokohama with 40 Koppers coke ovens.
90:17-2146 Tokyo (Japan)	Japan Iron Works, Funabashi Plant	About 7 miles NE of mouth of Arakawa River.	35°42′N 139°59′E	EPI	AC	Makes airframe components.
90:17-2151 Tokyo (Japan)	Joto Oil Refinery	E Tokyo, directly E of Tokyo Kozai Co. (90:17-1350).	35°41′N 139°50′E	EPI	P	Estimated 135,000 barrels storage capacity.
90:17-2200 Tokyo (Japan)	Japan Aircraft, Tomioka Plant	At Tomioka adjoining Ishikawajima Engine Plant, Tomioka (90:17-1391).	35°22′N 139°38′E	EPI	AC	Small scale Navy trainer and float plane manufacture, probably also making BAKA.
90:17-2222 Tokyo (Japan)	Senju Aircraft Parts Plant	4 miles NE of Tokyo Palace. W bank of Sumida River adjoining Sumida RR Yard (90:17-1370).	35°44′N 139°48′E	EPI	AC	Two former spinning mills now believed producing Aircraft parts for Nakajima and Hitachi.
90:17-2230 Tokyo (Japan)	Haramachida Explosives Works	At Haramachida.	35°34′N 139°29′E	MS EPI	M A	Large explosives loading area.
90:17-3399 Tokyo (Japan)	Misaki—Port Area	On Sagami Sea on point below Yokosuka.	35°08′N 139°37′E	BSU	S	Landing.
90:17-3400 Tokyo (Japan)	Yokosuka—Port Area	On SE side of Tokyo Bay.	35°17′N 135°40′E	BSU	S	Naval Base.
90:17-3413 (Tokyo) (Japan)	Uraga—Port Area	On entrance to Tokyo Bay SE of Yokosuka.	35°14′N 139°43′E	BSU	S	Minor traffic.
90:17-3522 Tokyo (Japan)	Kawasaki—Port Area	On Tokyo Bay just S of Tokyo.	35°29′N 139°43′E	BSU	S	Annual capacity about 7,458,000 metric tons. Steel port, shipbuilding, warehouses.

BEI—Basic Equipment Industries; BPI—Basic Processing Industries; BSU—Basic Services & Utilities; EPI—End Product Industries; MIC—Mixed Industrial Concentrations; MS—Military Stores.

A—Armament; AC—Aircraft; C—Chemicals; CIS—Coke, Iron & Steel; EP—Electric Power; LM—Light Manufacturing; MMT—Machinery & Machine Tools; M—Munitions; NFM—Non-ferrous Metals; P—Petroleum; RRT—Road & Rail Transportation; S—Shipping; TE—Transportation Equipment; UIC—Urban Industrial Concentrations.

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AIR TARGET INDEX—JAPANESE WAR

NUMERICAL TARGET INDEX

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-3567 Tokyo (Japan)	Tokyo—Port Area	On Tokyo Bay.	35°39′N 139°46′E	BSU	S	Annual capacity about 7,458,000 metric tons. General industrial products port.
90:17-3582 Tokyo (Japan)	Yokohama—Port Area	On Tokyo Bay S of Tokyo.	35°27′N 139°39′E	BSU	S	Annual capacity about 20,460,000 metric tons. General industrial products port. Shipbuilding.
90:17-3600 Tokyo (Japan)	Tokyo Urban Industrial Concentration No. 1	In North Tokyo. About 1,000′ N of Army Arsenal (90:17-206).	35°45′N 139°44′E	MIC	UIC	Site of Tokyo Arsenal main plants and precision instrument plants.
90:17-3601 Tokyo (Japan)	Tokyo Urban Industrial Concentration No. 2	Tokyo Bay, W side. Centered on a point about 6,000′ N of Rolling Stock Co. (90:17-1332).	35°34′N 139°43′E	MIC	UIC	Contains many plants producing machine tools, aircraft and ordnance components, precision instruments, industrial machinery, railroad equipment, diesel engines.
90:17-3602 Tokyo (Japan)	Tokyo Urban Industrial Concentration No. 3	Tokyo Harbor, W side. Centered roughly on Nippon Electric Co., Factory No. 2, Mito Plant (90:17-326).	35°39′E 139°45′E	MIC	UIC	Includes important producers of aircraft instruments and components; also machine tools, electronic equipment, optical precision instruments and ordnance components; also military storage and marshalling yards.
90:17-3603 Tokyo (Japan)	Tokyo Urban Industrial Concentration No. 4	In North Tokyo. Centered on a point midway between Kinugawa Steam Power Station 90:17-213 and Nippon Oil Co. (Tokyo).	35°45′N 139°47′E	MIC	UIC	Includes aircraft and ordnance component plants, industrial machinery, some steel products and freight marshalling yards.
90:17-3604 Tokyo (Japan)	Kawasaki Urban Industrial Concentration No. 1	In Kawasaki. Center about 2,000′ SE from Nippon Elec. Wire & Cable (90:17-489).	35°31′N 139°42′E	MIC	UIC	Includes three major electronic plants and some plants producing aircraft components, tires, cable, diesel engines and industrial machinery.
90:17-3605 Tokyo (Japan)	Kawasaki Urban Industrial Concentration No. 2	In Tsurumi on Tokyo Bay. Center point about 2,000′ E of Tokyo Gas Company, Tsurumi Branch (90:17-481).	35°30′N 139°43′E	MIC	UIC	Contains industrial plants producing heavy electrical equipment, machine tools, ships, marine engines, steel fabrication, synthetic oil equipment, chemicals; also petroleum refining and storage, power plants, military storage.
90:17-3606 Tokyo (Japan)	Kawasaki Urban Industrial Concentration No. 3	In Kitsuki. Centered roughly at N end of Tsurumi Shunting Yard (90:17-112).	35°33′N 139°41′E	MIC	UIC	Contains important electronics and radio plants, machine tool and precision instrument factories and the large Tsurumi Shunting Yard.
90:17-3607 Tokyo (Japan)	Yokohama Urban Industrial Concentration No. 1	On Yokohama Harbor. Centered roughly on Kurada Iron Works (90:17-498)	35°28′N 139°39′E	MIC	UIC	Includes important auto and truck assembly plants, oil refining and storage, alumina and basic chemicals; also some shipyards, electrical equipment plants and military storage.
90:17-3608 Tokyo (Japan)	Yokohama Urban Industrial Concentration No. 2	In Yokohama. Centered roughly 2,000′ SE from Furakawa Electric Co., Plant No. 1 (90:17-75).	35°27′N 139°37′E	MIC	UIC	Contains an important shipyard, electrical equipment plants, small chemical plants; extensive freight yard and waterfront storage area.

BEI—Basic Equipment Industries; BPI—Basic Processing Industries; BSU—Basic Services & Utilities; EPI—End Product Industries; MIC—Mixed Industrial Concentrations; MS—Military Stores.

A—Armament; AC—Aircraft; C—Chemicals; CIS—Coke, Iron & Steel; EP—Electric Power; LM—Light Manufacturing; MMT—Machinery & Machine Tools; M—Munitions; NFM—Non-ferrous Metals; P—Petroleum; RRT—Road & Rail Transportation; S—Shipping; TE—Transportation Equipment; UIC—Urban Industrial Concentrations.

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OBJECTIVE AREA 90:17—TOKYO (JAPAN)—(Continued)

Target Number and Objective Area	Name	Location	Coordinates (approx.)	General Category	Particular Category	Comment
90:17-4011 Tokyo (Japan)	Tokyo-Shibaura Elec. Co. Factory No. 3, Komukai Plant	On N edge of Kawasaki, on main Tokyo-Yokohama highway, about 4 miles from waterfront. Tsurumi Shunting Yard. (90:17-112) is about ¾ miles to W.	35°33′N 139°42′E	EPI	LM	New plant recently expanded. Produces and assembles military electronic equipment, possibly including tube production.

BEI—Basic Equipment Industries; BPI—Basic Processing Industries; BSU—Basic Services & Utilities; EPI—End Product Industries; MIC—Mixed Industrial Concentrations; MS—Military Stores.

A—Armament; AC—Aircraft; C—Chemicals; CIS—Coke, Iron & Steel; EP—Electric Power; LM—Light Manufacturing; MMT—Machinery & Machine Tools; M—Munitions; NFM—Non-ferrous Metals; P—Petroleum; RRT—Road & Rail Transportation; S—Shipping; TE—Transportation Equipment; UIC—Urban Industrial Concentrations.

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TARGET . . . . . U. A. 7
OBJ. AREA 90:17
OBJ. FOLDER . New Target
CATEGORY . . . Mixed Ind. Conc.—URBAN AREA

LAT. . . . . 35°40′N
LONG. . . . . 139°45′E
ALT. . . . . .

ALL PREVIOUS SHEETS CANCELLED

TOKYO NO. 7

JAPAN

NOTE: This Urban Information Sheet is issued to show the importance and status of the area prior to attack, and to indicate the extent of damage to individual installations through 10 March 1945. This area contains little future target value for area attack.

PRE-ATTACK SIGNIFICANCE

This section of E central Tokyo is the site of a large number of factories most of which are small, the main retail and commercial district of Tokyo, the headquarters offices of Japan's principal business and financial concerns, many important public buildings, and important storage and trans-shipment facilities. It is also an area of high residential densities.

The larger factories within the area are engaged primarily in producing electrical equipment, ordnance, aircraft parts, machine tools, marine engines, special steel products, industrial leather and rubber goods, chemicals, machinery, and optical and precision instruments. In addition to the production of a wide variety of consumers goods by the small factories within the area, some hundreds of these small concerns have been identified as machine shops and iron works supplying castings, forgings, and machined parts to shipyards and to large producers of military end-products located within the immediate district or elsewhere. Shipyards, lumber mills, and extensive storage and trans-shipment facilities add to the area's industrial importance.

DESCRIPTION AND LAYOUT

Tokyo Urban Area No. 7 includes that part of central metropolitan Tokyo bounded on the S by Tokyo Bay with the Sumida River bisecting the area in a N-S direction somewhat E of center (see Tokyo No. 7 Urban Area Mosaic).

The sections NE and SE of the Imperial Palace and W of the Sumida River are predominantly residential but include military establishments and many public buildings. Japan's principal business and financial concerns have their headquarters offices directly E of the government offices surrounding the Palace, and the main retail and commercial district occupies the area extending E to the Sumida River. Bordering Tokyo Bay and S of the central business and financial district is an important industrial zone with storage and trans-shipment facilities. The area N of the main commercial district is one of Tokyo's most congested residential sections which is interspersed with small factories, most of which produce consumer goods. E of the Sumida River the area, although primarily industrial, has a high residential density. It is one of Tokyo's primary industrial districts.

Attacks to and including the area attack of 10 March 1945 heavily damaged the area between the Sumida and Ara Rivers extending S to Tokyo Bay; also the sections NE, E and SE of the Palace on the W side of the Sumida River. The principal area of damage extends roughly 5 miles E from the Palace to the Ara River and some 6 miles N from Tokyo Bay. The total area of damage (unoccupied land, water areas, and undamaged segments excluded) is approximately 13.2 sq. miles. With the exception of the immediate waterfront district abutting Tokyo Bay, the areas S, W, and NW of the Palace and the NE fringe of the burned-out area, this area contains no future value for area attack.

Of the attacks directed to the E central section of Tokyo most of the damage was caused by the attacks of 25 February and 10 March 1945. The 25 February attack delivered 432 tons of mixed IB-HE on the Tokyo Urban Area damaging .6 square miles; the attack of 10 March was a low level attack which dropped 1282 tons of incendiaries. This last attack was most successful resulting in a area of damage of some 12.6 square miles.

Damage to this section of Tokyo consists of:

(1) Destruction of most of some 3000 factories the great majority of which were small establishments.
(2) Numerous large and medium size factories suffered moderate or greater damage.
(3) Destruction of 200-250,000 homes.
(4) Dehousing of some 1.2 million people.
(5) Extensive casualties.
(6) Destruction and serious damage to a number of important government buildings, storage and trans-shipment facilities, food markets, and utility systems.

The highest concentration of industrial loss was in general metal working, and in the production of machinery, electrical equipment, and consumer goods. A few of the larger fire-resistant plants within the area of damage escaped with minor damage.

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ANNOTATED INSTALLATIONS

Ref. No.	Target No.	Name	Comment	Damage Resulting From Attacks Through 10 March 1945
1		Tokyo Prison		
2		Nagata Precision Co.	Small plant; alloy castings for aircraft	
3		Pilot Fountain Pen Co.		
4	90:17-1364	Physical-chemical Industries, Ltd.	Research Headquarters for "RIKEN"—major government-sponsored producer of alloy steel, machine tools, aircraft and ordnance components. Precision instruments and apparatus for metallurgical testing also manufactured here	
5		Komegome Hospital		Extensive
6a,b,c		Street Car and Bus Terminals		
7	90:17-224	Tobata—Nippori RR Yards	Key classification yard for trunk lines running north from Tokyo. Serves NW Tokyo industrial districts Yard area includes warehouses and two ironworks	
8	90:17-214	Koishikawa Armory	Barracks and secondary army headquarters	
9		Kyodo Printing Co.	Large printing works	
10		Japan Printing Co.	Large printing works	
11		Toppan Printing Co., Koishikawa Plant	Engraving and printing	
12	90:17-352	Army Engineering School	Former arsenal site; now headquarters Army Engineering School	
13		Imperial University	Largest Japanese university	Moderate
14	90:17-369	Ueno RR Station	One of 3 principal Tokyo passenger stations	Slight
15		School		
16		Hongo Waterworks	Secondary distributing station	
17	90:17-1449	Kanda Market and Station	Principal food storage and distribution center	Slight
18		Toppan Printing Co., Shitaya Plant	Large engraving plant	Destroyed
19		RR Transformer Stations		
20		Telephone exchange	Local exchange	
21		Military Police Hq.		
22		Imperial Guards HQ. and Barracks: Inspectorate General of Military Training		Moderate
23		Iida RR Yards	Local freight yards and shops	
24		Ice Plant		
25		Yasukuni Shrine and Park		
26		Japan Printing Co.		
27		Imperial GHQ; Inspectorate General of Aviation		
28		Schools and Public Buildings		Slight
29		Meteorological Center	Headquarters for Empire weather reporting system	
30		Japan Paper Co.	Printing and bookbinding	
31		Army Barracks and Supply Center		
32		Imperial Guards Barracks		
33		Parliament Building		
34		Hq., Munitions and Aviation Depts.		
35		War Department, Army General Staff		
36		Government Departments a. Metropolitan Police Hq. b. Home Office c. Foreign Office d. Minor Civil Departments e. Courts and Justice Depts.		
37		US Embassy and minor public buildings		
38	90:17-1419	Navy Department Hq.		
39	90:17-363	JOAK Broadcasting Center		
40		Business and Financial District a. Marunouchi Building b. Central Post Office c. City Hall d. Municipal Electric Bureau e. Imperial Hotel f. 4 principal banking institutions.	Modern multi-story buildings containing head offices of practically all large industrial concerns and government-sponsored economic control associations	
41	90:17-367	Tokyo Central Station	One of 3 principal passenger stations. Station building also houses chief administrative offices for Japanese railway system	

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Ref. No.	Target No.	Name	Comment	Damage Resulting From Attacks Through 10 March 1945
42		Public Buildings and Utilities		
		a. Tax Office		Extensive
		b. Treasury		Extensive
		c. Government Printing Office		Destroyed
		d. Communications Department		Destroyed
	90:17-1418	e. Marunouchi Telephone Exchange		Extensive
43		Numerous machine shops and precision instrument plants	Reported making chemical machinery, lathes, optical instruments and machined parts for AA fire control apparatus	Moderate
44	90:17-1448	Tsukiji Market and Wholesale Warehouses	One of Tokyo's 3 principal food storage and distribution centers	Moderate
45	90:17-365	Shiodome Freight Yards	Key trans-shipment point for central Tokyo. Extensive freight handling and storage facilities	Extensive
46		Shiba carbarns and bus terminal	Several small optical equipment plants are located directly N and W	
47	90:17-885	Takeshiba Pier	Extensive wharfage, warehousing and cold storage facilities	
48	90:17-1331	Kayaba Engineering Works and Kunifuji Steelworks	Hydraulic equipment and A/C components. One of principal sources of landing gear for navy planes Unconfirmed production of ordnance components and A/C instruments	
49	90:17-886	Hinode-cho Piers	Trans-shipping facilities, warehousing, and open stores, repair shops for ship machinery	Moderate
50	90:17-327	Mitsubishi A-C, Shibaura Plant	Machine tools and precision aircraft components	
51	90:17-1345	Tokyo Municipality Steam Plant & Shiba Gas Works	One of principal Tokyo Gas Works. Small standby power plant	
52	90:17-882	Ikegai Machine Foundry	Original Ikegai machine tool plant. Unconfirmed report that this plant now specializes in milling machines	
53	90:17-326	Factory No. 2 of Nippon Electric Co.	One of principal plants for radar and radio components	
54		Mita Carbarns		
55	90:17-883	Ikegai Motor Plant	Semi-diesel truck and barge engines, final assembly of which is probably now concentrated at new Ikegai plant in Kawasaki TARGET 883, finishes and assembles parts supplied by small nearby machine shops and foundries	
56	90:17-2082	Japan Optical Mfg. Co.	One of company's four plants reported producing range-finders, optical instruments and other precision equipment. A number of related components shops are located in the immediate vicinity	
57		Municipal Electric Bureau	Supply warehouses. Army warehouse directly S	
58		Schools and Public Buildings, including Keio University and National Insurance Hq.		
59		Imperial Mint		
60		District of small machine shops, including	Producing A/C instruments and electrical equipment, small marine engines, vehicle wheels	
	90:17-889	Factory No. 3 of Nippon Electric	Small research lab reported operating under navy jurisdiction	
61	90:17-887	Shibaura Wharf	Docks, warehouses and administrative Hq. for navy construction and pioneer units	
62		Municipal Electric Bureau, Shiba Workshops	Construction and major repair center for Tokyo street car system	
63	90:17-2083	Small casting and machine shops	Producing RR car springs, automotive castings and forgings, steel pipe and oil pressure regulators	
64		Tokyo Structural Steel Co.	Bridge and building steel	
65		Small ironworks and machine shops	Producing small gas engines, lathes, drills, building hardware and switchboards	
66	90:17-888	Oki Electric Co. Ltd., Plant No. 1	Secondary plant of major producer of telephonic and radio equipment	
67		Ensuiko Sugar Co. and Kinuta Electric Co.	Small producer of electrical equipment for army aircraft	
68		Yokogawa Bridge Co.	Structural Steel	
69	90:17-364	Shinagawa RR Yards	One of two principal Tokyo classification yards	
70		Shibaura Sewage Disposal Plant		Destroyed
71		New warehouse area		Extensive
72		Military storage and trans-shipment area		

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Ref. No.	Target No.	Name	Comment	Damage Resulting From Attacks Through 10 March 1945
73		Small precision machinery plants	Over 40 identified machine shops producing small springs, valves, gears, switches, optical equipment, meters, gauges and similar precision items. 3 sizeable plants reported producing machine tools, ordnance and marine engine components	Destroyed
74		Precision Parts Plants	Over 20 identified workshops producing plating and machining small parts and electrical equipment	Moderate
75		Former Senju Woolen Mill	Large plant converted to production of unspecified ordnance components	Extensive
76		South Senju Engineering Works	Produces paper mill equipment and other specialized machinery	Extensive
77		Ishimura Factory		
78	90:17-1370	Sumida River Bridge & RR Yard	Large freight yard and storage depot on Joban RR Line leading NE out of Tokyo	
79		Kanegafuchi Spinning Co., Senju Mill	Large textile plant. Unconfirmed report of conversion to producing aircraft parts for Nakajima	Extensive
80	90:17-1366	Nippon Oil Co.	Local storage, and distribution	
81		Former Japan Spinning Co., Senju Mill	Now producing machined components for Hitachi	
82	90:17-2084	Tokyo Gas Co., Senju Works	Large gas works	Moderate
83		Machinists School	Training school for textile mill operatives	Extensive
84		Yaegushi Works	Electrical fittings	
85		Oana Mfg. Co., Senju Plant	Sumitomo affiliate making small motors and generators for A/C	Extensive
86		Dye Works	Chemical dye products	
87		Minawa Street Car Barns		Extensive
88		Bus Terminal	Urban bus terminal and garage	Extensive
89		N Senju RR Yards	Local shunting yard	
90		Showa Rubber Co.	Industrial rubber products	
91		Warehouses	Unidentified storage sheds	
92		Japan Concrete Pole Co.	Large producer of concrete piles, poles and pipes Used as steel substitutes	
93		Tokyo Iron Works	Small alloy steel and auto parts plant	
94		Azuma Steel Works	Medium size steel mill producing plate, bars and drawn products	
95	90:17-1394	Kanegafuchi A/C Parts Plant	Reported machining of A/C engine components; no evidence of assembly	Moderate
96		Asakusa Telephone Exchange	Large branch telephone exchange	Destroyed
97		Kubota Machinery Works, Sumida Plant	Sizeable casting plant	
98	90:17-1365	Japan Bakelite Co.	Japan's largest "bakelite" plant, producing many items for aircraft and ordnance factories	Extensive
99	90:17-2016	Oana Mfg. Co., Mukojima Plant	Sumitomo affiliate reported producing constant-speed governor assemblies for A/C propellers	Extensive
100		Telephone Exchange	Local telephone exchange	
101		Choseki Cord Mfg. Co.	Cord plant	Slight
102		Terajima Transformer Station	Electric Transformer station	Destroyed
103		Kanegafuchi Iron Works	Small castings and forgings	
104		Daido Aluminum Products Co.	Small aluminum plant; possible production of aircraft parts	
105		Marumiya Rubber Works	Small rubber products plant	Destroyed
106		Kyowa Leather Co.	Various leather products for industrial use	Destroyed
107		Rubber Works	Rubber products	Extensive
108		Haneda Belt Co.	Industrial belting	Extensive
109		Lion Soap Co.	Fats and glycerine	Destroyed
110	90:17-1430	Nippon Electric Wire and Cable Co.	Large-scale producer of wire and cable for electric power and communications	
111		Soap Works	Soap	
112		Kyowa Leather Co.	Leather products for industrial use	
113		Tokyo Iron Works	Small metal products	
114		Royal Celluloid Co.	Celluloid products	
115		Tokyo Cork Co.	Cork products	
116		Daido Rubber Works	Rubber products	Extensive
117		Japan Brewery Co.	Large brewery	Destroyed
118		Komiai Alcohol Co.	Alcohol distillery	Destroyed
119		Narihara Station & Yards	Local freight and shunting yard; freight sheds and small shops	Destroyed
120		Ito Dye Works	Chemical dye works	Destroyed
121		Toyo Textiles, Mukojima Plant	Textile mill	Destroyed
122		Japan Military Goods Co. No. 1 Plant	Large textile mill converted for Navy ordnance program by largest private producer of light AA and other automatic weapons	Destroyed

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Ref. No.	Target No.	Name	Comment	Damage Resulting From Attacks Through 10 March 1945
123		Japan Machinery Co., Azuma Branch	Important producer of aircraft parts (landing gear, etc.)	Destroyed
124		Japan Fat and Soap Co.	Large glycerol plant	Destroyed
125		Glass Works	Glass products	Destroyed
126		Tokyo Chemical Works	Unidentified chemicals production	Moderate
127		Miyoshi Chemical Products Co.	Unidentified chemicals production	Destroyed
128		Cork Products Co.	Cork products	
129		Toyo Drug Co.	Drugs	
130		Meiji Leather Co.	Leather products for navy	Destroyed
131		Chiyoda Mfg. Co.	Leather boots	
132		Nissan Chemical Mfg. Co., Kinoshita Plant	By-products plant for sulphuric acid producer	Destroyed
133		Uno Ironworks	Castings	
134		Nakayama Steel Co., Tokyo Plant	Large-scale production of galvanized sheet and plate	
135		Lion Soap Co. Hirai Plant	Soap works	
136		Felt works	Industrial felt products	
137		Azuma Steel Works	Sizeable steel ingot, casting and rolling works	
138		Dye Works	Dye plant	
139		Japan Military Goods Co. No. 2 Plant	Textile mill converted for navy ordnance program by largest private producer of light AA and other automatic weapons	Destroyed
140		Ishibara Steel Works, Mukajima Plant	Rolled steel products, wire and nails	Destroyed
141		Daido Steel Co., Teihatsu Plant	Alloy steel ingots and springs; ordnance forgings Several other related ironworks and machine shops	Destroyed
142	90:17-916	Hitachi Engineering, Kameido Plant	Major producer of heavy electrical equipment and industrial machinery; reported truck production	Moderate
143		Ishii Ironworks	Industrial chemical equipment	Slight
144		Oriental Steel Works	Thin steel plate	Destroyed
145		Mitado Rubber Products Co.	Rubber products	Destroyed
146		Taisai Chemical Mfg. Co.	Chemicals	Destroyed
147		Nitto Soda Works	Chemical fertilizers	Destroyed
148		Yanagishima Drug Co.	Drugs	Destroyed
149		Riken Steel Products Company	Special steel ingots and rolled products, including tubes	Destroyed
150		Tawara Engineering Works	Sizeable machinery plant	Moderate
151		Japan Chemical Equipment Co.	One of two company plants producing liquid oxygen and oxygen welding equipment	
152		Shimizu Oxygen Equipment Co.	A/C oxygen equipment	Destroyed
153	90:17-914 & 915	Oriental Weaving Co.	Two adjacent woolen mills, at least one of which has been converted to fabrication of unspecified munitions components	Destroyed
154		Japan Cast Steel Co., Oshima Tool Plant	Machine tools and second grade bearings	Extensive
155	90:17-911	Ogura Oil Co.	Minor refining capacity; local distribution and storage point	Destroyed
156 & 157	90:17-1350	Tokyo Kozai (Steel Products) Co.	Two related plants: alloy and bearing steel; steel springs (156). Precision instruments, fire-control apparatus; searchlights (157)	Extensive
158	90:17-2126	Hattori Co., Otsuki Branch	Precision ordnance components	Destroyed
159		Takasago Iron Works	Boilers and strip steel	Destroyed
160		Hamada Printing Machinery Co., Plant No. 1	Reported now producing grinding machines and machine tools	Destroyed
161		Kameido Station and Yards	Local freight station	
162		Hamada Printing Machinery Co., Plant No. 2	General purpose machine tools	Extensive
163	90:17-910	Rising Sun Petroleum Terminal	Small tank farm	Destroyed
164		Kameido Coke Co., Joto Plant	Charcoal storage and distribution center	Destroyed
165		Unidentified industry		
166		Japan Ford Products Co.	Auto parts	Destroyed
167	90:17-912	Nisshin Spinning Mill	Possible conversion to aircraft parts or ordnance; large plant	Destroyed
168	90:17-913	Hattori Co.	Large plant producing chronometers, AA fire-control equipment and other precision ordnance	Extensive
169		Aoki Dyeworks	Chemical dye works	Destroyed
170		Japan Acetic Acid Co.	Acetic Acid, formalin, etc.	Destroyed
171		Nisshin Dyeing Co.	Cloth dyeing.	Destroyed
172		Kurihara Woolen Mill	"Rubberized" balloon fabric	Destroyed
173		Tobacco Monopoly, Honjo Plant	Tobacco warehouses	Extensive
174		Mitado Rubber Products	Rubber products	Destroyed
175		Tokyo Gas Co. Branch	Gas storage	Destroyed

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

SHEET . . . TOKYO No. 7, TI
DATE . . . . . 8 June 1945
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Ref. No.	Target No.	Name	Comment	Damage Resulting From Attacks Through 10 March 1945
176	90:17-1342	Japan Machine Industry	Aircraft parts and ordnance components	Destroyed
177		Marine Products Co.	Fish cannery	Destroyed
178		Kamezawa Lathe Co.	General purpose lathes	
179		Kinshi-cho Freight Yards	Local freight yards and storage depot	Destroyed
180		Tajiro Industrial Co.	Precision machinery	Destroyed
181		Shinohara Machinery Co., Honjo Plant	Small producer of high-quality machine tools	Destroyed
182	90:17-1372	Sumida River Bridge Ryogoku Station and RR Yard	Local freight yard and storage depot	Destroyed
183		Toppan Printing Co., Honjo Plant	Manufactures type metal and type	Destroyed
184		Lion Toothpaste Co.	Soap and toothpaste	Extensive
185		Tobacco Monopoly, Asakusa Plant	Tobacco warehouses	Destroyed
186	90:17-1450	Koto Market	Central food market and storage. Directly N is memorial for 1923 conflagration victims	Destroyed
187		Toppan Printing Co.	Printing	Extensive
188		Okada Manufacturing Co.		
189		Municipal Utility Workshops		
190		Tokyo Belting Co.		
191		Yamato Rubber Works	Rubber products	Moderate
192		Unidentified Industry		
193		Warehouses		
194		Takasaki Paper Machinery Co.		
195		Ito Machine Shop	Chemical and mining machinery	
196		Takasaki Paper Co.		
197		Yokohama Equipment Co.	Structural steel; frames for machine tools and other machinery	Extensive
198		Hirasawa Iron Works	Building hardware	Extensive
199		Ironworks	Affiliated with No. 239 (Rolling Stock Mfg. Co.)	Destroyed
200		Tokushima Machinery Co.	Internal combustion engines	Destroyed
201		Asano Warehouses	Reported storage for naval ordnance components produced in locality	Destroyed
202		Tokyo Rice Co.	Storage and packing	Destroyed
203		Asano Cement Co.	Cement works with 4 rotary kilns	Moderate
204		Imperial Warehouses		Slight
205		Yusen Warehouses		Extensive
206		Shibusawa Warehouses		Moderate
207		Kiyosumi Lumber Mill		Destroyed
208		Mitsubishi Warehouses		Extensive
209		Kicho Copper Works	Small alloy metal-working plant with foundry equipment	Destroyed
210		Nitta Veneer Mfg. Co.	Veneer for aircraft	Destroyed
211		Kyodo Printing Co.		Destroyed
212		Toyo Lumber Co.		Destroyed
213		Lumber Mill		Destroyed
214	90:17-355	Army Provisions Depot	Army receiving and shipping point for ordnance and other equipment manufactured nearby. Additional warehousing has been constructed on newly reclaimed land to the SE and S	Extensive
215		Unidentified industry		Destroyed
216	90:17-826	Fujikura Electric Cable Works	Sumitomo plant producing about 10% of Japanese insulated wire and cable; all types of wire and cable	Destroyed
217		Bus barns		Destroyed
218		Unidentified industry	On reclaimed land	Destroyed
219		Unidentified		Destroyed
220		Unidentified industry		Destroyed
221		Warehouse	Unidentified storage	Destroyed
222	90:17-2085	Hitachi Engineering Works, Fukagawa Plant	Special steel: estimated annual ingot capacity 6000 metric tons. Malleable iron and steel castings 5-10,000 tons per year	Destroyed
223		Teikoku Lumber Co.	Large lumber mill	Destroyed
224		Merchant marine school	Training school for engineering and deck officers	
225		Aircraft Experimental Station	Exact function unknown	
226		Unidentified industry		
227		Government Grain Warehouses		
228	90:17-2086	Probable new Fukagawa plant of Mitsubishi Heavy Industry	Probable marine engine production truck assembly also reported. Under navy supervision	Destroyed
229	90:17-1459	Susaki Dockyard of Ishikawajima Shipbuilding and Engineering Corp.	Medium size shipyard, building small naval and merchant vessels. Drydock for 20,000 ton vessels	Extensive
230		Unidentified Industry		Destroyed
231		Unidentified Industry		
232		Unidentified Industry		Extensive

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

SHEET . . . **TOKYO No. 7, TI**
DATE . . . . . **8 June 1945**
PAGE **7**

Ref. No.	Target No.	Name	Comment	Damage Resulting From Attacks Through 10 March 1945
233		Unidentified Industry		
234		Hitachi Warehouse Area	Large storage area on reclaimed land	
235		Unidentified		Destroyed
236		Sunamachi Sewage Disposal Plant		
237	90:17-1349	Japan Special Steel Works	Special steel tubes, forgings and rolled products	Moderate
238		Tsukijima Ironworks, Sunamachi Branch	General purpose machine tools	Extensive
239	90:17-366	Steam Engineering and Rolling Stock Mfg. Co.	Rolling stock, manufacture and repair. Reports of armament manufacture	Extensive
240		Unidentified		Destroyed
241		Hasegawa Steel Works, Plant No. 2	Small fabricating plant	Destroyed
242		Asahi Steel Works	Formerly produced heavy building hardware. Reported conversion to ordnance parts	Destroyed
243		Nakajima Iron Works	Iron frames for machinery	Destroyed
244		Hasegawa Steel Works, Plant No. 1	Cast steel	Destroyed
245		Azuma Steel Works, Sunamachi Plant	Steel ingots, castings and rolled products	
246		Miya Steel Works	Steel ingots, rolled products	Extensive
247		Saito Iron Works	Small machine shop	Destroyed
248		Japan Manufacturing Co.	Machinery, automobile parts	Destroyed
249		Tokyo Heavy Industry	Electrical machinery	Destroyed
250	90:17-904	Sakurada Engineering Works	Industrial machinery plant converted to aircraft parts, including carburetors	Destroyed
251		Showa Feed Co.	Flour, feed, fertilizer	Destroyed
252		Yokoyama Mfg. Co., Plant No. 2	Structural steel	Destroyed
253		Japan Sugar Co.	Warehousing and packaging	Extensive
254		Asahi Steel Works, Sunamachi Plant	Reported production of aircraft and ordnance components	Destroyed
255		Nasu Aluminum Products Co.	Aluminum plate and other products	Destroyed
256		Kameido Coke Co., Sunamachi Briquette Works		Destroyed
257	90:17-907	Tokyo Gas Co., Sunamachi Branch	Gas works and coke plant	Destroyed
258	90:17-907	Tokyo Gas Co., Sunamachi Branch	Gas storage	Moderate
259		Unidentified Industry		Extensive
260		Japan Steel Wire Co.	Special drawn wire	Destroyed
261	90:17-334	Nisso Steel Mfg. Co.	Special steel forgings for roller and thrust bearings; lathes and drill presses	Moderate
262		Hasegawa Steel Works, Plant No. 3	Castings	Destroyed
263		Sunamachi Freight Yards	Local freight yards	Extensive
264		Japan Flour Co., Tokyo Mill	Large flour mill	Destroyed
265	90:17-330	Ishikawajima Shipbuilding Co., Marine Engine Works	Major producer of heavy marine engines. Many small parts obtained from nearby foundries and machine shops	
266		Toshin Warehouses	Extensive storage and trans-shipping facilities	Destroyed
267		Japan Ebonite	Plastics	
268		Sumida Boatyard	Repair and construction of tugs and small boats	
269		Nakayama Machine Co.	Under navy supervision; special metal working machinery	
270		Maruboshi Mfg. Co., Suna Works	Navy contractors; marine machinery	
271		Suction Gas Engine Co.	Diesel engines up to 800 HP for coastal boats and landing barges	

Damage classifications:

Slight—less than 5% visible damage.
Moderate—5% through 20% visible damage.
Extensive—21% through 60% visible damage.
Destroyed—over 60% visible damage.

Percentages are based on visible damage to building area. They exclude invisible damage to interiors and contents.

Where no damage is specified, none has yet been determined.

NOTE: Only the larger and more important installations have been annotated on the attached mosaic. With a few exceptions, schools, public buildings, military barracks, storage areas, lumber mills, etc., have not been listed.

RESTRICTED

JOINT TARGET GROUP, WASHINGTON, D. C.
URBAN AREA MOSAIC

TOKYO No. 7 — JAPAN

Clear Mosaic

SHEET . . . . . TOKYO No. 7—PM
ISSUED. . . . . 24 April 1945

6° 5° 4° 3° 2° 0°

676 139°44′ 677 678 679 680 46′ 681 682 683 48′ 684 685 686 139°50′ 687 688

1428 1427 35°44′ 1426 1425 1424 1423 42′ 1422 1421 1420 1419 40′ 1418

1420
1419
40′
1418
1417
1416
1415
35°38′
1414 000yds. N.

676 000yds. E. 139°44′ 677 678 679 46′ 680 681 682 683 48′ 684 685 686 139° 50′ 687 688

P

Prepared under the direction of the Chief of Engineers by the Army Map Service (AM), U. S. Army, Washington, D.C., 1945. Mosaic controlled by average fit to best available map source. Aerial photographs flown by U.S.A.A.F. (Sorties): 5M-16 40''V Jan.'45, 4M-4 · 4M-20 24''V Nov.'44, 4M-10 · 4M-37A 24''V Dec.'44, 5M-5 12''V Jan.'45,

Reliability of grid uncertain due to local minor disagreement between photo map and topographic map.

Scale 1:25,000 (Approximate)

1/2 0 1 Nautical Mile

1/2 0 1 Statute Mile

1000 500 0 1000 Meters

1000 500 0 1000 Yards

ONE THOUSAND YARD WORLD POLYCONIC GRID, BAND IIIn, ZONE "A"
THE LAST THREE DIGITS OF THE GRID NUMBERS ARE OMITTED

POLYCONIC PROJECTION

4°00′ OR 71 MILS

★ 1°52′ OR 33 MILS

Use diagram only to obtain numerical values. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between GRID NORTH and MAGNETIC NORTH, as plotted on the degree scale at the north edge of the map.

APPROXIMATE MEAN DECLINATION 1945
FOR CENTER OF SHEET
ANN. A. MAGNETIC CHANGE 7 WESTERLY

INDEX TO ADJOINING SHEETS

1	2	3	4
5	6		8
	9	10	
	11	12	

File No. 540,700.535

RESTRICTED

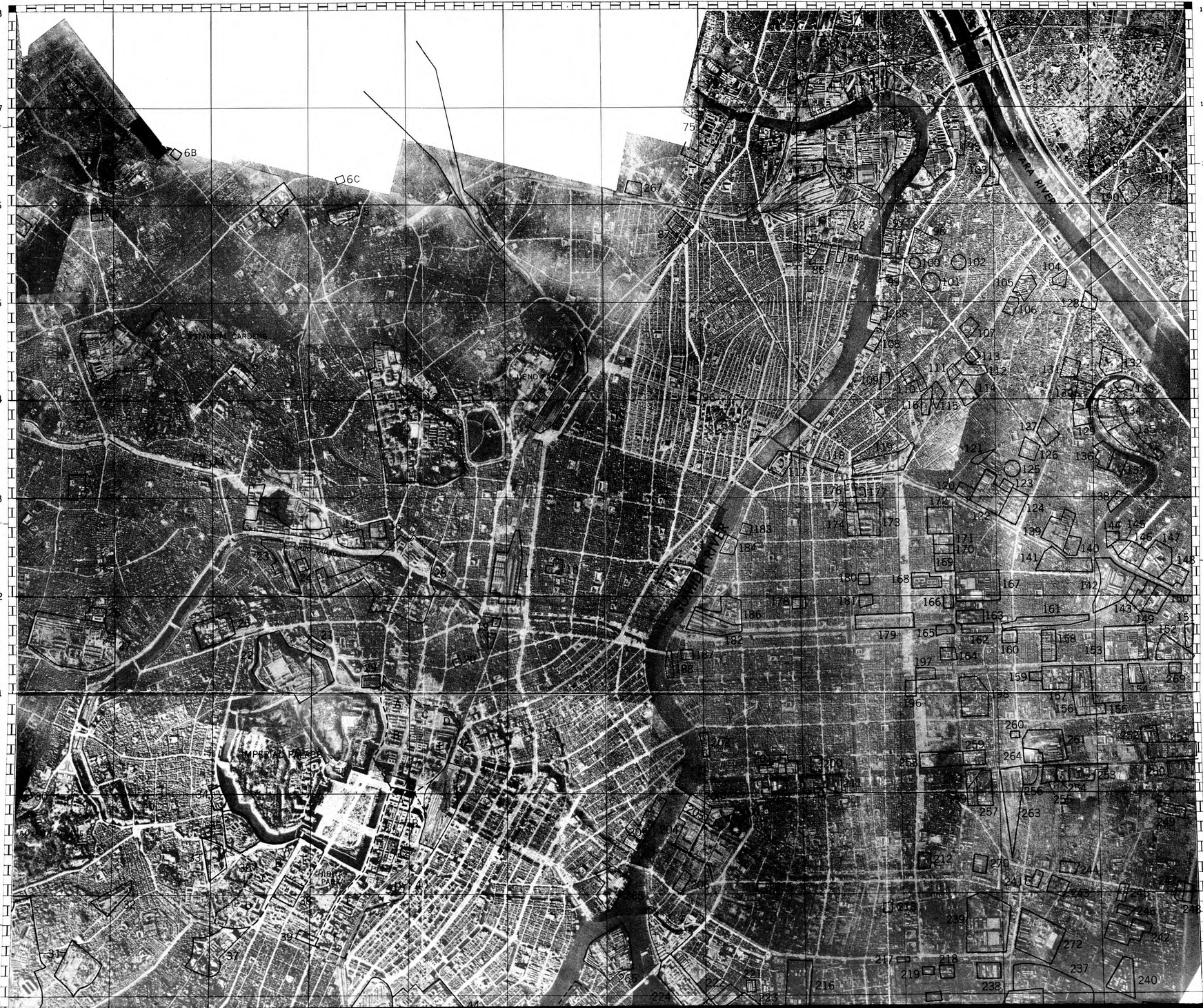
JOINT TARGET GROUP, WASHINGTON, D. C.
URBAN AREA MOSAIC

TOKYO No. 7 — JAPAN

Annotated Mosaic

CONFIDENTIAL

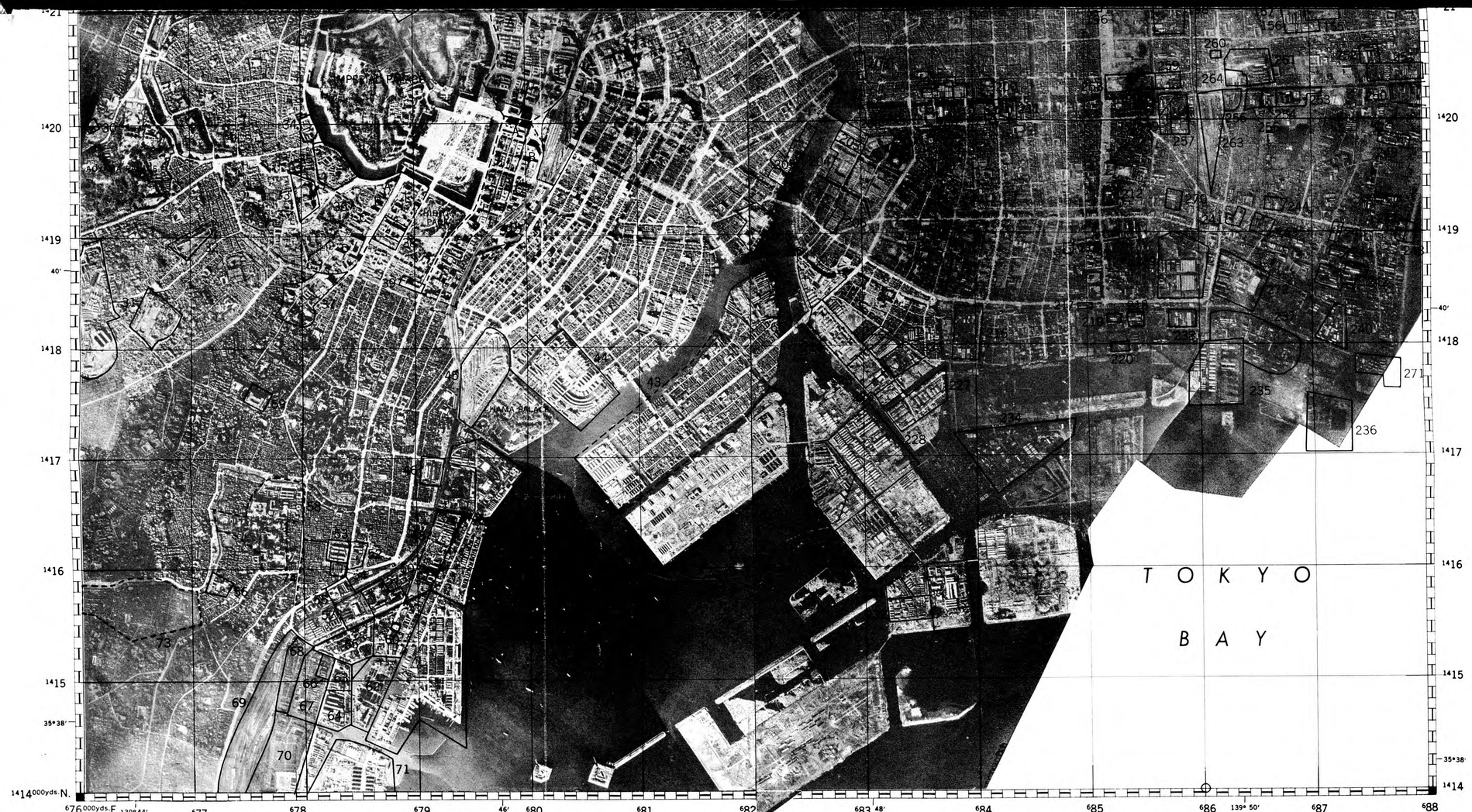
SHEET. . . . . TOKYO No. 7–PA
ISSUED. . . . . 24 April 1945



LEGEND

Page No.	Target No.	Name
1		Tokyo Gyosan
2		Nagano Precision Co.
3		Pilot Fountain Pen Co.
4	90.17-1364	Physical Chemical Industries, Ltd.
5		Komeno-se Hospital
6a, b, c		Streetcar and Bus Terminals
7	90.17-224	Tobacco Nippori RR Yards
8	90.17-214	Koishikawa Armory
9		Kyodo Printing Co.
10		Japan Printing Co.
11		Toppan Printing Co., Koishikawa Plant
12	90.17-352	Army Engineering School
13		Imperial University
14	90.17-369	Ueno RR Station
15		School
16		Hongo Waterworks
17	90.17-1449	Kanda Market and Station
18		Toppan Printing Co. Shitaya Plant
19		RR Transformer Stations
20		Telephone exchange
21		Military Police Hq.
22		Imperial Guards HQ. and Barracks: Inspectorate General of Military Training
23		Iida RR Yards
24		Ice Plant
25		Yasukuni Shrine and Park
26		Japan Printing Co.
27		Imperial GHQ; Inspectorate General of Aviation
28		Schools and Public Buildings
29		Meteorological Center
30		Japan Paper Co.
31		Army Barracks and Supply Center
32		Imperial Guards Barracks
33		Parliament Building
34		Hq., Munitions and Aviation Depts.
35		War Department, Army General Staff
36		Government Departments a. Metropolitan Police Hq. b. Home Office c. Foreign Office d. Minor Civil Departments e. Courts and Justice Depts.
37		US Embassy and minor public buildings
38	90.17-1419	Navy Department Hq.
39	90.17-1363	JOAK Broadcasting Center
40		Business and Financial District a. Marunouchi Building b. Central Post Office c. City Hall d. Municipal Electric Bureau e. Imperial Hotel f. 4 principal banking institutions
41	90.17-367	Tokyo Central Station
42		Public Buildings and Utilities a. Tax Office b. Treasury c. Government Printing Office d. Communications Department
	90.17-1418	e. Marunouchi Telephone Exchange
43		Numerous machine shops and precision instrument plants
44	90.17-1448	Tsukiji Market and Wholesale Warehouses
45	90.17-*365	Shiodome Freight Yards
46		Shiba carbarns and bus terminal
47	90.17-885	Takeshiba Pier
48	90.17-1331	Koyabu Engineering Works and Kunifuji Steelworks
49	90.17-886	Hinode-cho Piers
50	90.17-*327	Mitsubishi A. C, Shibaura Plant
51	90.17-1345	Tokyo Municipality Steam Plant & Shiba Gas Works
52	90.17-*882	Ikegai Machine Foundry
53	90.17-*326	Factory No. 2 of Nippon Electric Co.
54		Mita Carbarns
55	90.17-883	Ikegai Motor Plant
56	90.17-2082	Japan Optical Mfg. Co.
57		Municipal Electric Bureau
58		Schools and Public Buildings, inclucing Keio University and National Insurance Hq.
59		Imperial Mint
60		District of small machine shops including Factory No. 3 of Nippon Electric
	90.17-889	
61	90.17-887	Shibaura Wharf
62		Municipal Electric Bureau, Shiba Workshops
63	90.17-2083	Small casting and machine shops
64		Tokyo Structural Steel Co.
65		Small ironworks and machine shops
66	90.17-888	Oki Electric Co. Ltd., Plant No. 1
67		Ensuiko Sugar Co. and Kinuta Electric Co.
68		Yokogawa Bridge Co.
69	90.17-*364	Shinagawa RR Yards
70		Shibaura Sewage Disposal Plant
71		New warehouse area
72		Military storage and transshipment area
73		Small precision machinery plants
74		Precision Parts Plants
75		Former Senju Woolen Mill
76		South Senju Engineering Works
77		Ishimura Factory
78	90.17-1370	Sumida River Bridge & RR Yard
79		Kanegufuchi Spinning Co., Senju Mill
80	90.17-1366	Nippon Oil Co.
81		Former Japan Spinning Co., Senju Mill
82	90.17-2084	Tokyo Gas Co., Senju Works
83		Machinists School
84		Yaegushi Works
85		Oana Mfg. Co., Senju Plant
86		Dye Works
87		Minawa Street Car Barns
88		Bus Terminal

Page No.	Target No.	Name
128		Cork Products Co.
129		Toyo Drug Co.
130		Meiji Leather Co.
131		Chiyoda Mfg. Co.
132		Nissan Chemical Mfg. Co., Kinshita Plant
133		Uno Ironworks
134		Nakayama Steel Co., Tokyo Plant
135		Lion Soap Co., Hirai Plant
136		Felt Works
137		Azuma Steel Works
138		Dye Works
139		Japan Military Goods Co., No. 2 Plant
140		Ishibara Steel Works, Mukajima Plant
141		Daido Steel Co., Teihatsu Plant
142	90.17-*916	Hitachi Engineering, Kameido Plant
143		Ishii Ironworks
144		Oriental Steel Works
145		Mitado Rubber Products Co
146		Taisei Chemical Mfg. Co.
147		Nitto Soda Works
148		Yanagishima Drug Co.
149		Riken Steel Products Company
150		Tawara Engineering Works
151		Japan Chemical Equipment Co.
152		Shimizu Oxygen Equipment Co
153	90.17-914 & 915	Oriental Weaving Co.
154		Japan Cast Steel Co., Oshima Tool Plant
155	90.17-911	Ogura Oil Co.
156 & 157	90.17-1350	Tokyo Kozai (Steel Products) Co.
158	90.17-2126	Hattori Co., Otsuki Branch
159		Takasago Iron Works
160		Hamada Printing Machinery Co., Plant No. 1
161		Kameido Station and Yards
162		Hamada Printing Machinery Co., Plant No. 2
163	90.17-910	Rising Sun Petroleum Terminal
164		Kameido Cake Co., Jato Plant
165		Unidentified industry
166		Japan Ford Products Co.
167	90.17-912	Nisshin Spinning Mill
168	90.17-913	Hattori Co.
169		Aoki Dyeworks
170		Japan Acetic Acid Co.
171		Nisshin Dyeing Co.
172		Kurihara Woolen Mill
173		Tobacco Monopoly, Honjo Plant
174		Mitado Rubber Products
175		Tokyo Gas Co. Branch
176	90.17-1342	Japan Machine Industry
177		Marine Products Co.
178		Kamezawa Lathe Co.
179		Kiushi-cho Freight Yards
180		Tajiro Industrial Co.
181		Shinohara Machinery Co., Honjo Plant
182	90.17-1372	Sumida River Bridge, Ryogoku Station and RR Yard
183		Toppan Printing Co., Honjo Plant
184		Lion Toothpaste Co.
185		Tobacco Monopoly, Asakusa Plant
186	90.17-1450	Koto Market
187		Toppan Printing Co.
188		Okada Manufacturing Co.
189		Municipal Utility Workshops
190		Tokyo Belting Co.
191		Yamato Rubber Works
192		Unidentified Industry
193		Warehouses
194		Takasaki Paper Machinery Co.
195		Ito Machine Shop
196		Takasaki Paper Co.
197		Yokohama Equipment Co.
198		Hirasawa Iron Works
199		Ironworks
200		Tokushima Machinery Co.
201		Asano Warehouses
202		Tokyo Rice Co.
203		Asano Cement Co.
204		Imperial Warehouses
205		Yusen Warehouses
206		Shibaura Warehouses
207		Kiyosumi Lumber Mill
208		Mitsubishi Warehouses
209		Kicho Copper Works
210		Nitta Veneer Mfg. Co.
211		Kyodo Printing Co.
212		Toyo Lumber Co.
213		Lumber Mill
214	90.17-355	Army Provisions Depot
215		Unidentified industry
216	90.17-826	Fujikura Electric Cable Works
217		Bus Barns
218		Unidentified industry
219		Unidentified
220		Unidentified industry
221		Warehouse
222	90.17-2085	Hitachi Engineering Works, Fukagawa Plant
223		Teikoku Lumber Co.
224		Merchant Marine School
225		Aircraft Experimental Station
226		Unidentified industry
227		Government Grain Warehouses
228	90.17-2086	Probable new Fukagawa plant of Mitsubishi Heavy Industry
229	90.17-1459	Susaki Dockyard of Ishikawajima Shipbuilding and Engineering Corp.
230		Unidentified Industry
231		Unidentified Industry
232		Unidentified Industry
233		Unidentified Industry
234		Hitachi Warehouse Area
235		Unidentified
236		Sunamachi Sewage Disposal Plant
237	90.17-1349	Japan Special Steel Works
238		Tsukijima Ironworks, Sunamachi Branch
239	90.17-366	Steam Engineering and Rolling Stock Mfg. Co.



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77		Ishimura Factory
78	90.17-1370	Sumida River Bridge & RR Yard
79		Kanegafuchi Spinning Co., Senju Mill
80	90.17-1366	Nippon Oil Co.
81		Former Japan Spinning Co., Senju Mill
82	90.17-2084	Tokyo Gas Co., Senju Works
83		Machinists School
84		Yaeguchi Works
85		Oana Mfg. Co., Senju Plant
86		Dye Works
87		Minawa Street Car Barns
88		Bus Terminal
89		N Senju RR Yards
90		Showa Rubber Co.
91		Warehouses
92		Japan Concrete Pole Co.
93		Tokyo Iron Works
94		Azuma Steel Works
95	90.17-1394	Kanegafuchi A C Parts Plant
96		Asakusa Telephone Exchange
97		Kubota Machinery Works, Sumida Plant
98	90.17-1365	Japan Bakelite Co.
99	90.17-*2106	Oana Mfg. Co., Mukojima Plant
100		Telephone Exchange
101		Choseki Cord Mfg. Co.
102		Terajima Transformer Station
103		Kanegafuchi Iron Works
104		Daido Aluminum Products Co.
105		Marumiya Rubber Works
106		Kyowa Leather Co.
107		Rubber Works
108		Haneda Belt Co.
109		Lion Soap Co.
110	90.17-1430	Nippon Electric Wire and Cable Co.
111		Soap Works
112		Kyowa Leather Co.
113		Tokyo Iron Works
114		Royal Celluloid Co.
115		Tokyo Cork Co.
116		Daido Rubber Works
117		Japan Brewery Co.
118		Komiai Alcohol Co.
119		Narihira Station & Yards
120		Ito Dye Works
121		Toya Textiles, Mukojima Plant
122		Japan Military Goods Co. No. 1 Plant
123		Japan Machinery Co., Azuma Branch
124		Japan Fat and Soap Co.
125		Glass Works
126		Tokyo Chemical Works
127		Miyoshi Chemical Products Co.
206		Shibusawa Warehouses
207		Kiyosumi Lumber Mill
208		Mitsubishi Warehouses
209		Kicho Copper Works
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211		Kyodo Printing Co.
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240		Unidentified
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242		Asahi Steel Works
243		Nakajima Iron Works
244		Hasegawa Steel Works, Plant No. 1
245		Azuma Steel Works, Sunamachi Plant
246		Miya Steel Works
247		Saito Iron Works
248		Japan Manufacturing Co.
249		Tokyo Heavy Industry
250	90.17-904	Sakurada Engineering Works
251		Showa Feed Co.
252		Yokoyama Mfg. Co., Plant No. 2
253		Japan Sugar Co.
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255		Nasu Aluminum Products Co.
256		Kameido Coke Co., Sunamachi Briquette Works
257	90.17-907	Tokyo Gas Co., Sunamachi Branch
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264		Japan Flour Co., Tokyo Mill
265	90.17-*330	Ishikawajima Shipbuilding Co., Marine Engine Works
266		Toshin Warehouses
267		Japan Ebonite
268		Sumida Boatyard
269		Nakayama Machine Co.
270		Marubashi Mfg. Co., Suna Works
271		Suction Gas Engine Co.

NOTE: An asterisk adjoining target numbers listed above indicates targets for which Target Information Sheets have been distributed or are in process.

Prepared under the direction of the Chief of Engineers by the Army Map Service (AM), U. S. Army, Washington, D. C., 1945. Mosaic controlled by average fit to best available map source. Aerial photographs flown by U.S.A.A.F. (Sorties): 5M-16 40°/V Jan.'45, 4M-4 · 4M-20 24°/V Nov.'44, 4M-10 · 4M-37A 24°/V Dec.'44, 5M-5 12°/V Jan.'45.

Reliability of grid uncertain due to local minor disagreement between photo map and topographic map.

Scale 1:25,000 (Approximate)

1/2 0 1 Nautical Mile

1/2 0 1 Statute Mile

1000 500 0 1000 Meters

1000 500 0 1000 Yards

ONE THOUSAND YARD WORLD POLYCONIC GRID, BAND IIIn, ZONE "A"
THE LAST THREE DIGITS OF THE GRID NUMBERS ARE OMITTED

POLYCONIC PROJECTION

CONFIDENTIAL

1°52' OR 33 MILS

4°00' OR 71 MILS

Use diagram only to obtain numerical values. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between GRID NORTH and MAGNETIC NORTH, as plotted on the degree scale at the north edge of the map.

APPROXIMATE MEAN DECLINATION 1945 FOR CENTER OF SHEET ANNUAL MAGNETIC CHANGE 1 WESTERLY

INDEX TO ADJOINING SHEETS

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	11	12	

TOKYO No. 7—PA

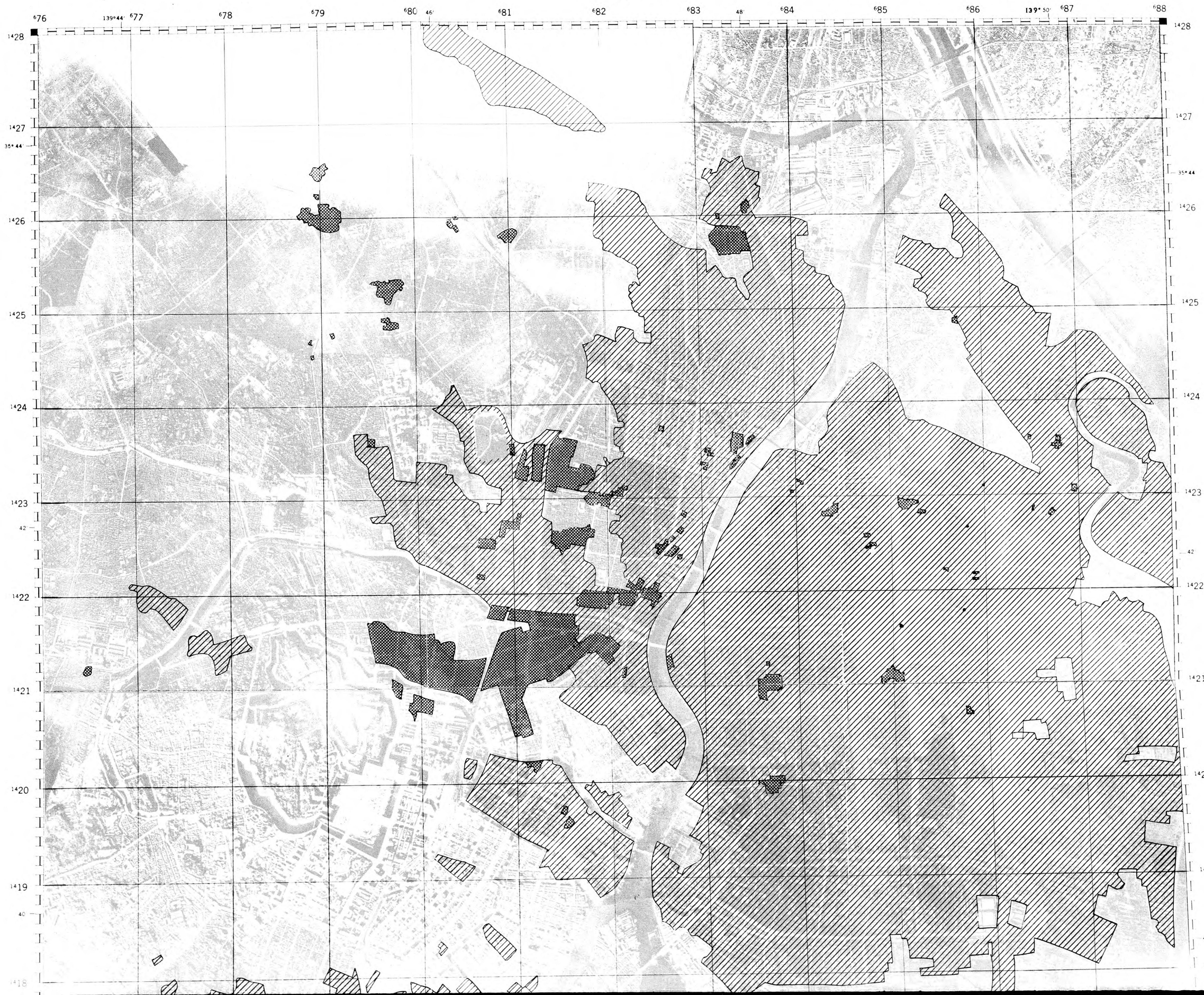
File No. 540,700.635

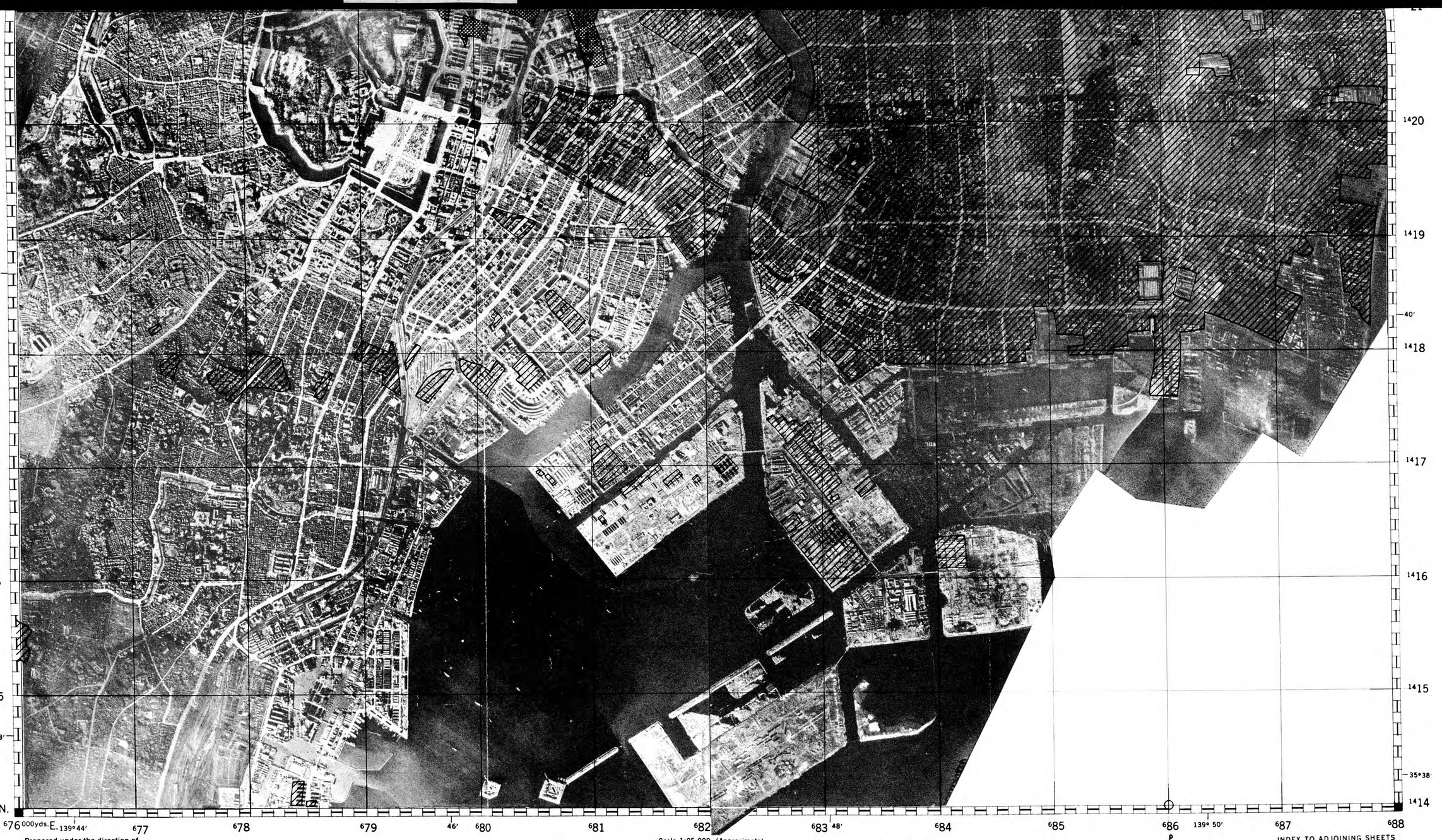
CONFIDENTIAL

TOKYO No. 7 — JAPAN

Damage Plot

SHEET ..... TOKYO No. 7—DP
ISSUED ..... 24 April 1945





Prepared under the direction of the Chief of Engineers by the Army Map Service (AM), U. S. Army, Washington, D. C., 1945. Mosaic controlled by average fit to best available map source. Aerial photographs flown by U.S.A.A.F. (Sorties): 5M-16 40"/V Jan. '45, 4M-4 · 4M-20 24"/V Nov. '44, 4M-10 · 4M-37A 24"/V Dec. '44, 5M-5 12"/V Jan. '45,

Reliability of grid uncertain due to local minor disagreement between photo map and topographic map.

Damage on Photos to 27 March 1945

Damage on Photos from 27 February to 11 March 1945

Scale 1:25,000 (Approximate)

1/2 0 1 Nautical Mile

1/2 0 1 Statute Mile

1000 500 0 1000 Meters

1000 500 0 1000 Yards

ONE THOUSAND YARD WORLD POLYCONIC GRID BAND IIIn, ZONE "A"
THE LAST THREE DIGITS OF THE GRID NUMBERS ARE OMITTED

POLYCONIC PROJECTION

4°00' OR 71 MILS

★ 1°52' OR 33 MILS

Use diagram only to obtain numerical values. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between GRID NORTH and MAGNETIC NORTH, as plotted on the degree scale at the north edge of the map.

APPROX MAG MEAN DECLINATION 1945 FOR CENTER OF SHEET
ANNUAL MAGNETIC CHANGE IS WESTERLY

INDEX TO ADJOINING SHEETS

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	9	10	
	11	12	

File No. **540,700.935**

CONFIDENTIAL

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

SHEET . . . . . 90:17-51—TI
DATE . . . . . 12 May 1945
PAGE 1

TARGET 90:17-51
OBJ. AREA 90:17
OBJ. FOLDER 90:17
CATEGORY . . . . . Bsc. Proc. Ind.—Coke, Iron & Steel

LAT. . . . . 35° 29′ N
LONG. . . . . 139° 42′ E
ALT. . . . . 15 feet

ASANO IRON WORKS

KAWASAKI JAPAN

SIGNIFICANCE

This is the third largest producer of steel plate in the Japanese Empire. The major outlets for its ships' plates are its affiliates, Tsurumi Steel and Shipbuilding Co. (TARGET 90:17-122) and Asano Dockyard (TARGET 90:17-70). The former, adjacent to the W of the target, is a major producer of medium size merchant vessels as well as destroyer escorts and patrol craft. The latter, 3.6 miles SW of the target in Yokohama Inner Harbor, is a repair yard for medium size vessels. At current operating levels, these yards might together require as much as 75,000 tons of ship's plate per year or about 30 percent of the plant's capacity.

The plant has integrated facilities, from coke ovens to rolling mills, although the capacities of the various facilities are not in balance. It is likely that sheets and castings are furnished to Ishikawajima Motor Co. (TARGET 90:17-1343) immediately SE, a manufacturer of combat vehicles. Some castings may also be furnished to Shibaura Engineering Works Ltd. (TARGET 90:17-133) 500 feet SE, a major manufacturer of machine tools and heavy electrical equipment. The plant is believed currently operating at 30 to 50 percent of capacity.

Estimated 1945 effective capacity and percentages of estimated Japanese capacities are:

	Metric Tons	Empire	Home Islands
Metallurgical coke	73,000	.8%	1.3%
Pig Iron	155,000	1.7%	2.6%
Ingot Steel	269,000	2.0%	2.4%
Rolled Products	283,000	2.8%	3.1%
Plates	268,000	10.4%	11.5%
Sheets	15,000	1.0%	1.0%

LOCATION

(Refer to Illustration No. 90:17-51 P2.) On the Kawasaki waterfront in Tokyo Bay on the second inland block of reclaimed land NE of the Tsurumi River. It is about 4.5 miles WSW of the Tama River mouth and 4000 feet NE of the mouth of the Tsurumi River. The compound is bounded on the W by the Tsurumi Shipbuilding Co. (TARGET 90:17-122), on the N by the waterfront branch RR line, on the E by a ship canal, on the SE by the Ishikawajima Motor Co. (TARGET 90:17-1343) separating the target from Shibaura Engineering Works Ltd. (TARGET 90:17-133) to the S, and on the SW by ship canals.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90:17-51 P3.) The target area is roughly rectangular minus its SE corner (occupied by the Ishikawajima Motor Co.). It measures about 2300 feet N-S by 1600 feet E-W and covers an area of about 3,450,000 square feet. All but the W edge is compactly built-up.

Coke and By-products

Coal is unloaded along the southern edge of the plant by 2 cranes (3 and 4), and reaches the 60 coke ovens (10), at the S end, arranged in 2 batteries containing 30 ovens each. Gases are drawn off by the exhausters (11), and by-products are manufactured and stored in 6, 7, and 8. Coke capacity is less than 50 percent of that required by full operation of the blast furnaces. Additional coke, when required, is probably supplied by the Tokyo Gas Company, Tsurumi Branch (TARGET 90:17-481) immediately NE, which is capable of furnishing the balance of the plant's needs.

Pig Iron

There are 2 blast furnaces (20, 26), just S of the center of the compound, of about 250 metric tons rated capacity each. Coke, iron ore, and limestone are charged into the furnaces and molten iron is tapped from the bottom. The blast furnaces are served by a boiler house (29) and by a blower house (30) which is essential to their operation.

Steel Furnaces

The 7 or 8 open hearth furnaces (39), N of the blast furnaces, make steel from pig iron and scrap from the rolling mills. Their capacity would supply less than 75 percent of the steel required by capacity operations of the rolling mills and foundry.

Rolling Mills

Ingots from the steel furnaces are heated to the proper temperature in the soaking pits (32a and 34) and are then conveyed to the rolling mills (32b, 40, 43) in the NE quarter of the compound. It is not known whether or not there is a primary mill but it would be logical to assume the presence of a slabbing mill in building 40. Heavy and medium plate are also probably rolled in building 40, light plate in building 43 and some sheet in building 32b.

Castings

Some molten steel from the open hearth furnaces is conveyed to the foundry (16), SE of the blast furnaces, for the production of small and medium castings.

PRIMARY OBJECTIVES

(Refer to Illustration No. 90:17-51 P3.) The primary objectives are the coke ovens (10). Pig iron facilities, including coke ovens, are economically the most vulnerable part of a Japanese steel plant. Without coke, steel production is limited to minor amounts from scrap iron and emergency substitute techniques.

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The physical vulnerability of coke ovens is reasonably high. A direct hit on a battery of ovens will, because of misalignment of oven walls through shock action, and secondary damage due to rapid cooling of oven walls, usually necessitate almost complete rebuilding of the entire battery, requiring at least 6 months. The coke ovens at Tokyo Gas Works, Tsurumi Plant (TARGET 90:17-481), about 1700 feet NE of the Asano ovens, would also have to be attacked in order further to curtail pig iron supplies to Asano.

Destruction of the blowing engines in building 29 would, in the absence of standby equipment, effectively stop blast furnace operations and replacement might require as much as a year. Destruction of the exhausters in building 11 would effectively stop coke oven operations.

If it were desired to attack shipbuilding facilities directly, the plate mill in building 40 would be the most effective objective. If hits were to destroy the motors, the mill could not operate for at least a year. The blowing engines, exhausters and plate mill motors are relatively small and thus are difficult targets to hit.

CONSTRUCTION AND VULNERABILITY

(Refer to Illustration No. 90:17-51 P3.) Plant layout is compact and built-upness is high. Primary objectives (coke ovens) occupy only a very small fraction of total plant area. Coke ovens are of normal construction. Exhauster and blower houses are medium size, one-story structures with normal spans and heights to eaves. Roofs are gabled and covering is light. Buildings 32, 39, 40 and 43 are large, steel framed structures housing traveling cranes. Roof spans are large and height to eaves above normal. Roof covering is light. Other structures are small, framed (probably timber) with short roof spans and low eave heights.

For a discussion of the vulnerability of coke ovens see Annex 1 to JTG Coke, Iron and Steel Industry, General Analysis (ATSF/CIS-A1, 24 March 1945). HE vulnerability classification (as defined in Memorandum JTG/M-3/1) of buildings 32, 39, 40 and 43 is V2. Vulnerability classification of other structures is V4.

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist Planners in formulating such orders the following information is given:

An attack with high explosive bombs alone is recommended. The construction of the coke oven batteries is such that weapons should be selected as follows:

	High Explosive	Fuzing	Incendiary
Preferred:	500-lb GP	0.1 N/0.1 T	None
Alternative:	1000-lb GP	0.1 N/0.1 T	None
Not recommended:	Other GP bombs SAP or AP bombs Depth bombs		

Notes: (a) The 1000-lb GP bomb is approximately 65 percent as effective as the 500-lb GP bomb.
(b) The above recommendations are on a weight for weight basis.
(c) Direct hits and very near misses by the 500-lb bomb also would be effective against the blowing engines, exhausters, and plate mill motors.

CAMOUFLAGE, DECOYS, AND SMOKE SCREENS

Photography of 28 January 1945 shows some disruptive painting. Given short notice of air attack, it is possible to use the blast furnaces, open hearths and even coke ovens to create a smoke screen.

ADDITIONAL INFORMATION

This target is an affiliate of Japan Steel Tube Co. (TARGET 90:17-52), located about one mile NE, the second largest steel plant in the home islands.

JOINT TARGET GROUP
WASHINGTON, D. C.

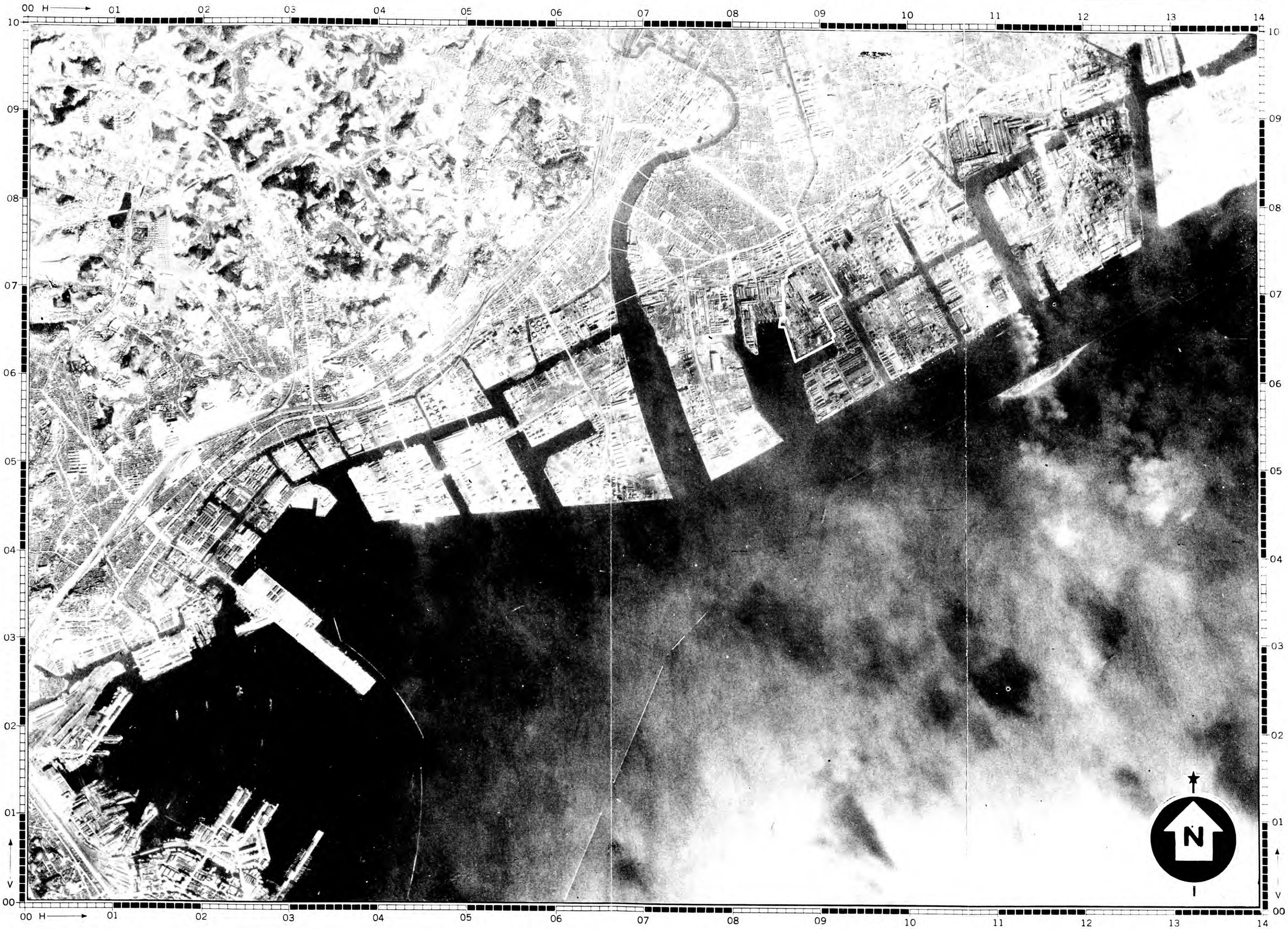
ASANO IRON WORKS

KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

ILLUSTRATION	90:17-51 P1
DATE	12 May 1945
TARGET	90:17-51
COORDINATES	35°29′N 139°42′E
PHOTOGRAPHED	28 January 1945



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File No. 541,051.52

JOINT TARGET GROUP
WASHINGTON, D.C.

ASANO IRON WORKS

KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

ILLUSTRATION	90:17-51 P2
DATE	12 May 1945
TARGET	90:17-51
COORDINATES	35°29'N 139°42'E
PHOTOGRAPHED	28 January 1945

LEGEND

90:17-51	Asano Iron Works
90:17-52	Japan Steel Tube Co.
90:17-69	Yokohama Dockyard
90:17-70	Asano Dockyard
90:17-87	Ogura Oil Co.
90:17-110	Tokyo Electric Power Station, Tsurumi Plant
90:17-111	Kawasaki Electric Power Plant
90:17-116	Mitsubishi Oil Refinery
90:17-122	Tsurumi Steel and Shipbuilding Co.
90:17-127	Hayama Petroleum Refinery
90:17-128	Petroleum Center
90:17-133	Shibaura Engineering Works, Ltd.
90:17-136	Fuji Electric Works
90:17-137	Showa Fertilizer
90:17-481	Tokyo Gas Co., Tsurumi Branch
90:17-493	Tokyo Steam Power Plant
90:17-521	Japan (Showa) Electro-Chemical Co.
90:17-522	Nissan Automobile Co.
90:17-1343	Ishikawajima Motor Co.

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RESTRICTED

File No. 541,051.54

JOINT TARGET GROUP
WASHINGTON, D. C.

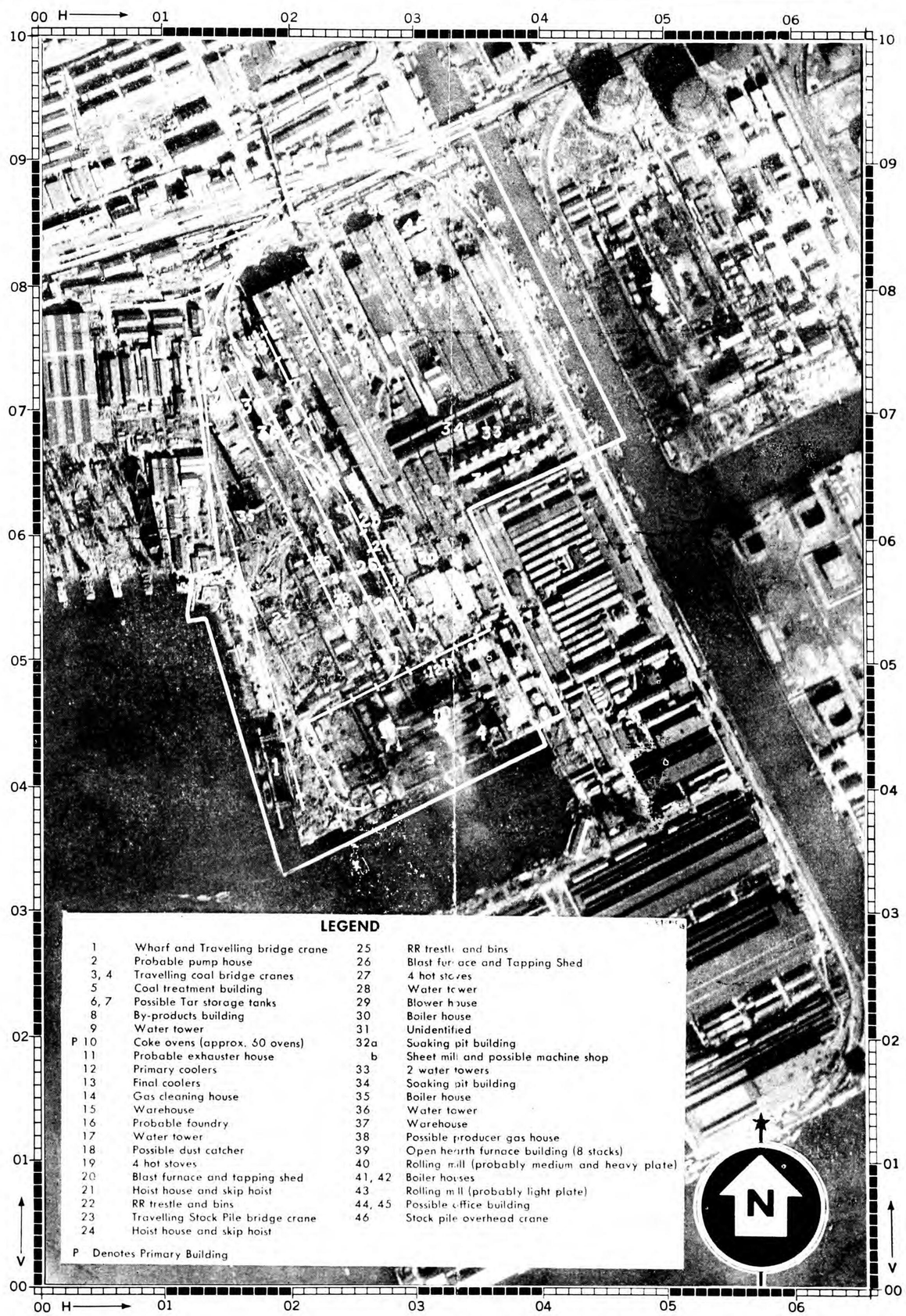
ASANO IRON WORKS

KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

CONFIDENTIAL

ILLUSTRATION	90:17-51 P3
DATE	12 May 1945
TARGET	90:17-51
COORDINATES	35°29'N 139°42'E
PHOTOGRAPHED	28 January 1945



LEGEND

1	Wharf and Travelling bridge crane	25	RR trestle and bins
2	Probable pump house	26	Blast furnace and Tapping Shed
3, 4	Travelling coal bridge cranes	27	4 hot stoves
5	Coal treatment building	28	Water tower
6, 7	Possible Tar storage tanks	29	Blower house
8	By-products building	30	Boiler house
9	Water tower	31	Unidentified
P 10	Coke ovens (approx. 50 ovens)	32a	Soaking pit building
11	Probable exhauster house	b	Sheet mill and possible machine shop
12	Primary coolers	33	2 water towers
13	Final coolers	34	Soaking pit building
14	Gas cleaning house	35	Boiler house
15	Warehouse	36	Water tower
16	Probable foundry	37	Warehouse
17	Water tower	38	Possible producer gas house
18	Possible dust catcher	39	Open hearth furnace building (8 stacks)
19	4 hot stoves	40	Rolling mill (probably medium and heavy plate)
20	Blast furnace and tapping shed	41, 42	Boiler houses
21	Hoist house and skip hoist	43	Rolling mill (probably light plate)
22	RR trestle and bins	44, 45	Possible office building
23	Travelling Stock Pile bridge crane	46	Stock pile overhead crane
24	Hoist house and skip hoist		

P Denotes Primary Building

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File No. 541,051.56 [redacted]

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

SHEET . . . . . 90:17-69—TI
DATE . . . . . 1 June 1945
PAGE 1

TARGET 90:17-69
OBJ. AREA 90:17
OBJ. FOLDER 90:17
CATEGORY Bsc. Eqpt. Ind.— TRNSPTN. EQPT.

LAT. . . . . 35° 27′ N
LONG. . . . . 139° 38′ E
ALT. . . . . 10 feet

YOKOHAMA DOCKYARD

YOKOHAMA JAPAN

ALL PREVIOUS SHEETS CANCELLED.

SIGNIFICANCE

One of Japan's 5 most important shipyards for the building, repair, and conversion of large merchant and light naval vessels. Owned and operated by Mitsubishi Heavy Industries, one of the oldest and most influential of the large Japanese industrial organizations. The current importance of the yard in Japan's wartime expanded shipbuilding capacity, especially for a range of specialized building, conversions, and repairs, is greater than is indicated by the yard's percentage position in terms of its 5 building ways (7%) and 3 large (above 350 feet long) drydocks (6%).

While the yard has never built capital ships, it formerly built light cruisers, destroyers, minelayers, subchasers and naval auxiliaries, as well as special types of commercial vessels. The 18,000 ton crack liner, Chichibu Maru, was launched here in 1929, and in the pre-war peak building year 1937, the yard was Japan's fourth largest builder of commercial vessels, launching about 50,000 gross tons, or about 10 percent of Japan's total for that year. Four vessels appear on the ways in cover of 28 January 1945 and it is probable that launchings currently exceed pre-war rates.

For repairs and conversions the yard has even greater relative importance. 95 vessels drydocked in 1935. Cover of 28 January showed four 530-foot tanker hulls alongside in varying stages of conversion to carriers and 2 vessels in drydocks.

The extensive shops before the war supplied other yards with steam engines, boilers and diesels, and may continue to do so. Some 6,000 persons were reported employed 1 January 1943.

LOCATION

(Refer to Illustration No. 90:17-69—P2.) Situated in the SW corner of Yokohama Harbor. Bounded on the S and SW by Higashi Yokohama Yard (TARGET 90:17-68) and the Tokaido Mainline RR. The Takashima Freight Yard (TARGET 90:17-66) is about 1100 feet NW and the Asano Dockyard (TARGET 90:17-70) about 4000 feet NNE across the harbor.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90:17-69—P3.) The irregular area occupied by the target contains about 2.5 million square feet. It is deeply indented by a basin from which a wet dock (12 and 22) at the N, and three drydocks (23, 39, 47) finger into the yard itself. Shipbuilding is confined to a triangular area NW of the basin area and wet dock where 5 ways side by side measure about 500 feet across. These ways, numbered from N to S, are of the following approximate lengths: No. 1 (7), 350 feet; No. 2 (8), 470 feet; Nos. 3 (9) and 4 (10), 580 feet; No. 5 (11), 715 feet. All ways except No. 1, which has a gantry, are equipped with mobile hammerhead tower cranes. Adjacent to the ways on the W is an extensive plate storage yard (6a). Immediately beyond, a group of buildings (3, 4, 5, 13a, b), covering approximately 200,000 square feet, houses shops for shaping, punching, and fabricating structural steel for hull construction. The rest of the yard structures to the SE, are more generally associated with fitting, repairs and conversions than with hull building, including the blacksmith (28), boiler shop (35), foundry and forge (34) and machine shops (38, 40, 41, 42). Major above water repairs and modifications, as well as installation of boilers and engines, are most likely to be carried out alongside the cranes available to the outfitting wharf (12), in the southernmost drydock, No. 1 (47), on the south side of which there is a hammerhead crane, or at the easternmost 900-foot fitting wharf (54), the 600-foot fitting/repair wharf (22), on the S side of the wet dock and at the northernmost fitting/repair wharf (6b).

Drydock No. 1 (47) is the largest with a bottom length of 628.8 feet, gate width of 75.5 feet, and a depth over blocks of 25.3 feet at high water. Drydock No. 2 (39) between the other two drydocks is the smallest and has corresponding dimensions of 382.3 feet, 46.0 feet and 22.9. Drydock No. 3 (23) although 489.5 feet at the bottom, with a 62.5 foot gate, has depth of only 18.9 feet over the blocks at high water. All three drydock gates are of the floating caisson type (not hinged gates).

PRIMARY OBJECTIVES

(Refer to Illustration No. 90:17-69—P3.) Ships under repair, modification, fitting or construction, are more important objectives than any yard facilities. The resulting reduction in ship supply is more immediate. Such ships might be alongside the quays (6b, 12, 22, 54) in the drydocks (23, 39, 47) or on the ways (7-11).

For reduction of overall repair and conversion capacity the most important buildings to be destroyed are the SE group containing: blacksmith (28), design and pattern shop (29, 30), foundry and forge (34), boiler shops (35, 36), electrical shop (37) and machine shops (38-42).

For reduction of hull building capacity and capacity for conversions involving major hull modification the most important buildings to destroy are the NW group containing: angle shop (3), bending shop (4), structural shop (5) and punching shop (13).

In view of the varied functions of this yard it is not possible to determine priority between these groups, nor among the individual buildings. The drydocks them-

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selves (23, 39, 47) take low priority. Their only vulnerable points, the floating caisson gates and pumps, are very small targets.

CONSTRUCTION AND VULNERABILITY

Principal structures are large, framed in steel and sheathed in corrugated iron. Most buildings are single story with more than normal heights to eaves. Simple trusses, supported on steel columns, with normal to long spans are used for roof framing. Several of the principal buildings probably contain traveling cranes. HE vulnerability classification (as defined in JTG/M8) is either V2 or V4. Most buildings are noncombustible with a small percentage in the combustible classification.

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist Planners in formulating such orders the following information is given:

A preliminary structural and occupancy analysis of the target indicates that weapon recommendations will vary according to the following objectives:

SHIPS

	High Explosive	Fuzing	Incendiaries
Preferred:	1000-lb GP	0.1 N/0.025 T	No incendiaries are recommended.
Alternative:	500-lb GP or	0.1 N/0.025 T	
	2000-lb GP	0.1 N/0.025 T	
Not recommended:	Smaller GP bombs		
	SAP or AP bombs		
	Depth bombs		

Note: (a) The above recommendations are on a weight for weight basis. Use of 4-5 sec delay fuzing is recommended for minimum altitude attack.

SHOP BUILDINGS

	High Explosive	Fuzing	Incendiaries
Preferred:	2000-lb GP or	0.1 N/0.1 T	No incendiaries are recommended.
	1000-lb GP	0.1 N/0.1 T	
Alternative:	500-lb GP	0.1 N/0.1 T	
Not recommended:	Smaller GP bombs		
	SAP or AP bombs		
	Depth bombs		

Notes: (a) Use of 0.025 T fuzing is recommended if 0.1 T are not available. Heavy buildings with cranes are best destroyed by cratering bombs. If these buildings are severely damaged, 0.01 N/ND T fuzing will be effective against the remaining structures.

(b) The above recommendations are on a weight for weight basis.
The use of 8-15 sec fuzing is recommended for minimum altitude attack.

CAISSONS AND PUMP HOUSES (Drydocks)

	High Explosive	Fuzing	Incendiaries
Preferred:	500-lb GP	0.1 N/0.025 T	No incendiaries are recommended.
Alternative:	1000-lb GP or	0.1 N/0.025 T	
	250-lb GP	0.1 N/0.025 T	
Not recommended:	Other GP bombs		
	SAP or AP bombs		
	Depth bombs		

Note: (a) The above recommendations are on a weight for weight basis. Use of an 8-15 sec delay fuzing is recommended for minimum altitude attack.

(b) Caissons and pump houses of the drydocks are small and thus difficult to hit. The 500-lb bomb is also recommended against cranes.

CAMOUFLAGE, DECOYS AND SMOKE SCREENS

Cover of 28 January 1945 shows partial use of what appears to be disruptive camouflage. No attempts to cover the drydocks or ways or to use decoys or smoke screens have been observed.

ADDITIONAL INFORMATION

While the Tokyo Bay region generally has more than adequate mill equipment for furnishing plate and structural steel for hull building in the regional yards, especially noteworthy sources are the Japan Steel Tube Company (TARGET 90:17-52), and the Asano Iron Works (TARGET 90:17-51). In addition to these steel mills, there are a number of more specialized plants able to fabricate and forge shipyard requirements. Other Mitsubishi Shipyards include the Mitsubishi group at Nagasaki (TARGETS 90:36-542, 543, 544), the Mitsubishi Heavy Industries at Kobe (TARGET 90:25-169), and the Mitsubishi Shipyard at Hikoshima (TARGET 90:34-1846).

JOINT
TARGET
GROUP
WASHINGTON, D. C.

YOKOH[illegible]MA DOCKYARD

YOKOH[illegible]MA JAPAN

0 2000 4000 6000 FEET

0 ½ 1 MILE

[illegible]000 APPROX.

RESTRICTED

SHEET . . . . . 90:17-69—P1
DATE . . . . . 1 June 1945
TARGET 90:17-69
COORDINATES . . 35 27'N 139 38'E
PHOTOGRAPHED . . 28 January 1945

PUBLISHED IN OFFICE OF AC/AS INTELLIGENCE, AAF, BY COMBINED PERSONNEL OF UNITED STATES AND BRITISH SERVICES FOR THE USE OF ALLIED FORCES

RESTRICTED

File No. 541,069.52

RESTRICTED

JOINT TARGET GROUP
WASHINGTON, D. C.

YOKOHAMA DOCKYARD

YOKOHAMA JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:12 000 APPROX.

SHEET . . . . . 90:17-69—P2
DATE . . . . . 1 June 1945
TARGET 90:17-69
COORDINATES . . 35°27'N 139°38'E
PHOTOGRAPHED . . 28 January 1945

00 H → 01 02 03 04 05 06 07 08 09 10 11 12 13 14
10 09 08 07 06 05 04 03 02 01 00 V

90:17-128
90:17-481
90:17-122
90:17-128
TOKAIDO MAIN LINE
90:17-522
90:17-87
90:17-2141
90:17-70
90:17-66
YOKOHAMA

LEGEND

90:17-51	Asano Iron Works
90:17-66	Takashima Freight Yard—Yokohama
90:17-68	Higashi Yokohama Yard
90:17-69	Yokohama Dockyard
90:17-70	Asano Dockyard
90:17-87	Ogura Oil Co.
90:17-122	Tsurumi Steel & Shipbuilding Co.
90:17-128	Petroleum Center
90:17-133	Shibaura Engineering Works, Ltd.
90:17-481	Tokyo Gas Company, Tsurumi Branch
90:17-521	Japan (Showa) Electro-Chemical Co.
90:17-522	Nissan Automobile Co.
90:17-1396	Tsurumi Soda Co.
90:17-2141	Tokyo Gas Company, Kanagawa Branch

N

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RESTRICTED

File No. 541,069.54

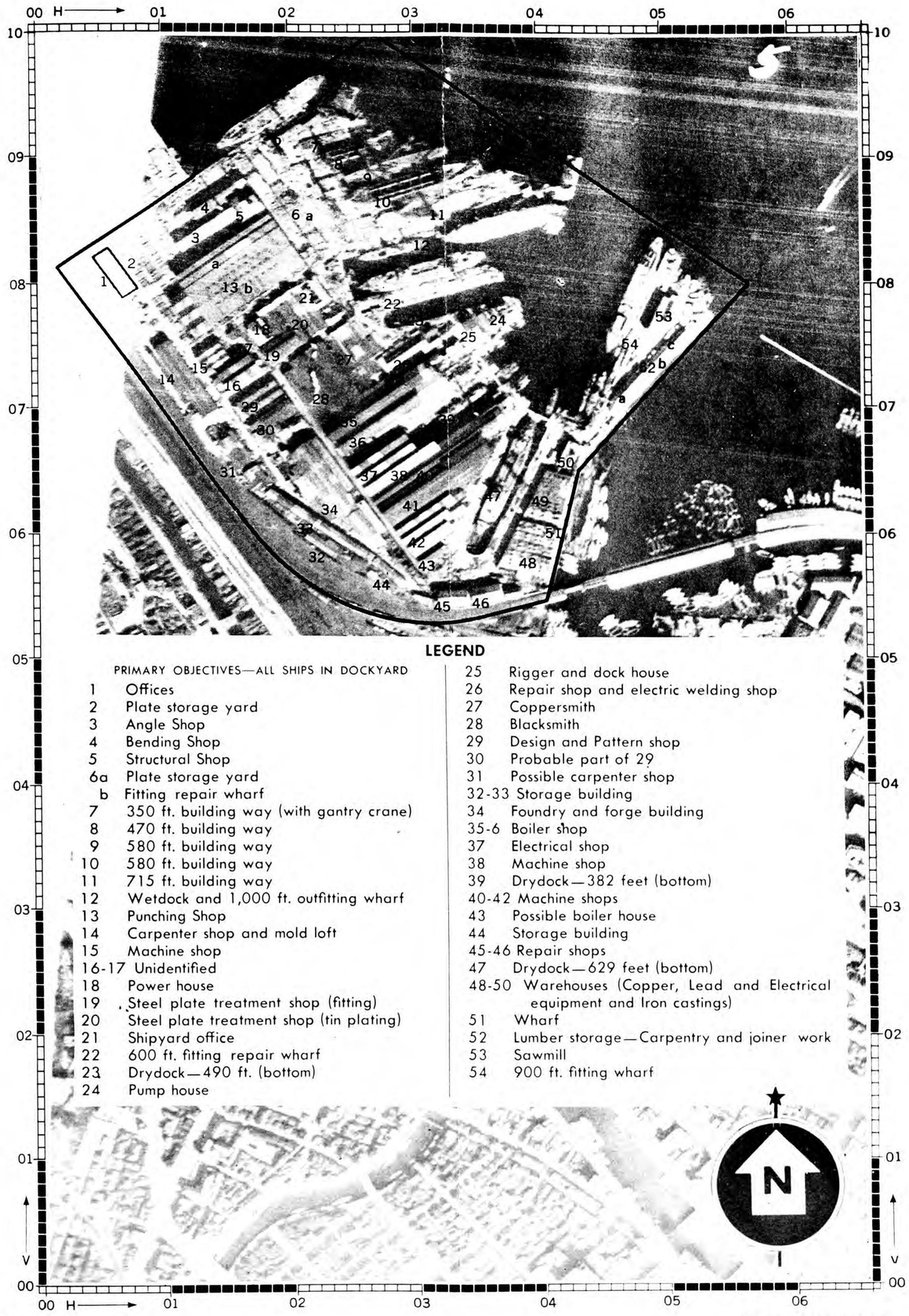
JOINT TARGET GROUP
WASHINGTON, D. C.

YOKOHAMA DOCKYARD

YOKOHAMA JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

SHEET . . . . . 90:17-69—P3
DATE . . . . . 1 June 1945
TARGET 90:17-69
COORDINATES . . 35°27'N 139°38'E
PHOTOGRAPHED . . 28 January 1945



LEGEND

PRIMARY OBJECTIVES—ALL SHIPS IN DOCKYARD

1 Offices
2 Plate storage yard
3 Angle Shop
4 Bending Shop
5 Structural Shop
6a Plate storage yard
b Fitting repair wharf
7 350 ft. building way (with gantry crane)
8 470 ft. building way
9 580 ft. building way
10 580 ft. building way
11 715 ft. building way
12 Wetdock and 1,000 ft. outfitting wharf
13 Punching Shop
14 Carpenter shop and mold loft
15 Machine shop
16-17 Unidentified
18 Power house
19 Steel plate treatment shop (fitting)
20 Steel plate treatment shop (tin plating)
21 Shipyard office
22 600 ft. fitting repair wharf
23 Drydock—490 ft. (bottom)
24 Pump house
25 Rigger and dock house
26 Repair shop and electric welding shop
27 Coppersmith
28 Blacksmith
29 Design and Pattern shop
30 Probable part of 29
31 Possible carpenter shop
32-33 Storage building
34 Foundry and forge building
35-6 Boiler shop
37 Electrical shop
38 Machine shop
39 Drydock—382 feet (bottom)
40-42 Machine shops
43 Possible boiler house
44 Storage building
45-46 Repair shops
47 Drydock—629 feet (bottom)
48-50 Warehouses (Copper, Lead and Electrical equipment and Iron castings)
51 Wharf
52 Lumber storage—Carpentry and joiner work
53 Sawmill
54 900 ft. fitting wharf

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File No. 541,069.56

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

SHEET . . . . . 90:17-87—TI
DATE . . . . . 5 May 1945
PAGE 1

TARGET 90:17-87
OBJ. AREA 90:17
OBJ. FOLDER 90:17
CATEGORY End Prdt. Ind.—PETROLEUM

LAT. . . . . 35°29'N
LONG. . . . . 139°40'E
ALT. . . . . 10 feet

OGURA OIL CO.

YOKOHAMA **JAPAN**

REPRINT

SIGNIFICANCE

Believed to be the second or third largest Japanese Inner Zone crude oil refinery. (Tokuyama Naval Fueling Station. TARGET 90:32-673, rated equal in size.) The refinery is apparently not operating, much of the tankage has been removed (12 large tanks remain intact out of 30 tank sites), and many of the tanks may be empty.

Estimated capacities: crude refining 3,300,000 barrels per year, about 8 per cent of Inner Zone capacity; cracking 330,000 barrels, about 3 per cent; iso-octane 23,725 barrels; storage 1,275,000 about 2 per cent.

LOCATION

On the Yokohama outer harbor waterfront in Tokyo Bay. It is situated on the second inner and outer blocks of reclaimed land W of the Tsurumi River mouth. It is about 4,000 feet W of the mouth of the Tsurumi and 1.8 miles NE of Yokohama Harbor Passenger Wharves (TARGET 90:17-1432). It occupies the entire inland or N block and the E half of the seaward or S block, the W half of which is occupied by the Nissan Automobile Co. (TARGET 90:17-522). A RR spur and highway pass E-W through the S compound, connecting with the adjoining blocks over causeways; a third causeway at the NW corner connects with the N compound.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90:17-87—P3.) The target includes two compounds separated by a 275 foot canal. The (inland) N compound is roughly rectangular, measuring about 1500 feet N-S by 1600 feet E-W; the (seaward) S compound is roughly oblong, extending about 2700 feet N-S by 700 feet E-W.

There appear to be four processing units. At the NE end of the N compound is a distillation unit (22), asphalt handling equipment (28), and a coke furnace (31); in the SE corner is a second group of distillation units (70, 72, 74, 75), and a possible boiler house (73). At the NW corner of the S compound, between the ship canal and highway, is a third group including four distillation units (79, 80, 82, 83), a probable boiler house (81), two possible shell stills (84, 85), and a possible scrubber unit (92); the functions of the fourth processing unit (97-99) on the W side, just S of the highway, have not been identified.

Storage is dispersed throughout both compounds, but the main bulk tankage is located on the W side (1-13) of the N compound, and on the S end (106-114) of the S compound. The tanks on the W side of the N compound appear to be new, but only 6 with an estimated capacity of 480,000 are intact. There is no change in the appearance of the other 7 in photography from 1 November 1944 to 28 January 1945. In the S compound group 6 tanks with an estimated capacity of 480,000 barrels remain intact (tank 107 was removed and tank 108 was being dismantled in photography of 28 January 1945).

PRIMARY OBJECTIVES

(Refer to Illustration No. 90:17-87, P3.)

A. Attack against storage.
The large tanks, 1, 4, 5, 7, 8, 10, 48, 106, 109, 110, 112-114.

B. Attack against the refinery.
Primary: The distillation and cracking units, 22, 70, 72, 74, 75, 79, 80, 82, 83-85. The iso-octane units are unidentified.
Secondary: The larger tanks listed above, and the boiler houses, 25, 50, 73, 81.

CONSTRUCTION AND VULNERABILITY

The built-up area of the target is approximately 20 percent and covers three categories:

1. The process equipment which consists mainly of steel cylindrical vessels, open steel structures, furnaces, a few small buildings, pumps, piping, etc. (approx. one-quarter of built-up area).
2. Steel storage tanks of the cylindrical type with fixed roofs (approx. one-half of built-up area).
3. Warehouses (approx. one-quarter of built-up area; consisting of low one-story buildings, and probably of combustible construction).

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist Planners in formulating such orders the following information is given:

A preliminary analysis indicates that weapons should be selected on the following basis:

A. Attack designed against storage tanks.

	High Explosive	Fuze	Incendiary
Preferred:	100-lb GP	0.025 N/0.025 T; some LDT	None
Poor Alternative:	250-lb GP	Same	None
	500-lb GP	Same	
Not recommended:	Other GP bombs SAP or AP bombs Depth bombs Fragmentation bombs		

Notes: (a) In low level attacks rockets fuzed instantaneous are recommended.
(b) Use 0.1 N fuzes if 0.025 N fuzes are not available.
(c) A small per cent of the HE bombs should be fuzed LDT.
(d) The above recommendations are on a weight for weight basis.

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B. Attack designed against the entire refinery.

	High Explosive	Fuze	Incendiary
Preferred:			
(1) Refinery in operation:	500-lb GP	Inst N/ND T; some LDT	None
(2) Refinery shut down:	250-lb GP	0.025 N/0.025 T; some LDT	None
Alternative:	250-lb GP	0.01 N/0.01 T; some LDT	None
Not recommended:	Other GP bombs SAP or AP bombs Depth bombs Fragmentation bombs		

Notes: (a) In dive bombing attacks the above recommendations hold
(b) Use 0.1 N fuzes of 0.01 or 0.025 N fuzes are not available.
(c) A small per cent of the HE bombs should be fuzed LDT.
(d) The above recommendations are on a weight for weight basis.

CAMOUFLAGE, DECOYS, AND SMOKE SCREENS

Photography of 28 January 1945 shows no attempt at camouflage or use of decoys. No use of smoke screens has been reported.

ADDITIONAL INFORMATION

Five additional small facilities within the mile E of Ogura to the Tsurumi River bring the total crude refining capacity in this district to an estimated 3,366,000 barrels per year and its storage to 1,988,000 barrels. This includes the Matsukata Oil Storage (Yokohama) (TARGET 90:17-94) with 10 tanks having an estimated capacity of 452,300 barrels located about 625 feet E of Ogura across the wide ship canal. The compound of the Eastern Petroleum Refinery (Yokohama) (TARGET 90:17.89) is 2400 feet E of Ogura at the end of the blind ship canal. Photography of 28 January 1945 shows that all tanks have been removed and that the refinery is partially dismantled.

About 2.5 miles NE of Ogura another group of oil installations extends for 2 miles NE from the Petroleum Center (TARGET 90:17-128) to the Mitsubishi and Hayama Refineries (TARGETS 90:17-116, 127). These Kawasaki waterfront facilities have an estimated crude refining capacity of 6,170,000 barrels per year, and a storage capacity of 3,310,000 barrels.

These oil facilities within the 4.5 miles of Kawasaki-Yokohama waterfront have the following aggregate capacity: refining 9,536,000 barrels per year, storage 5,298,000 barrels.

REPRINT

CONFIDENTIAL

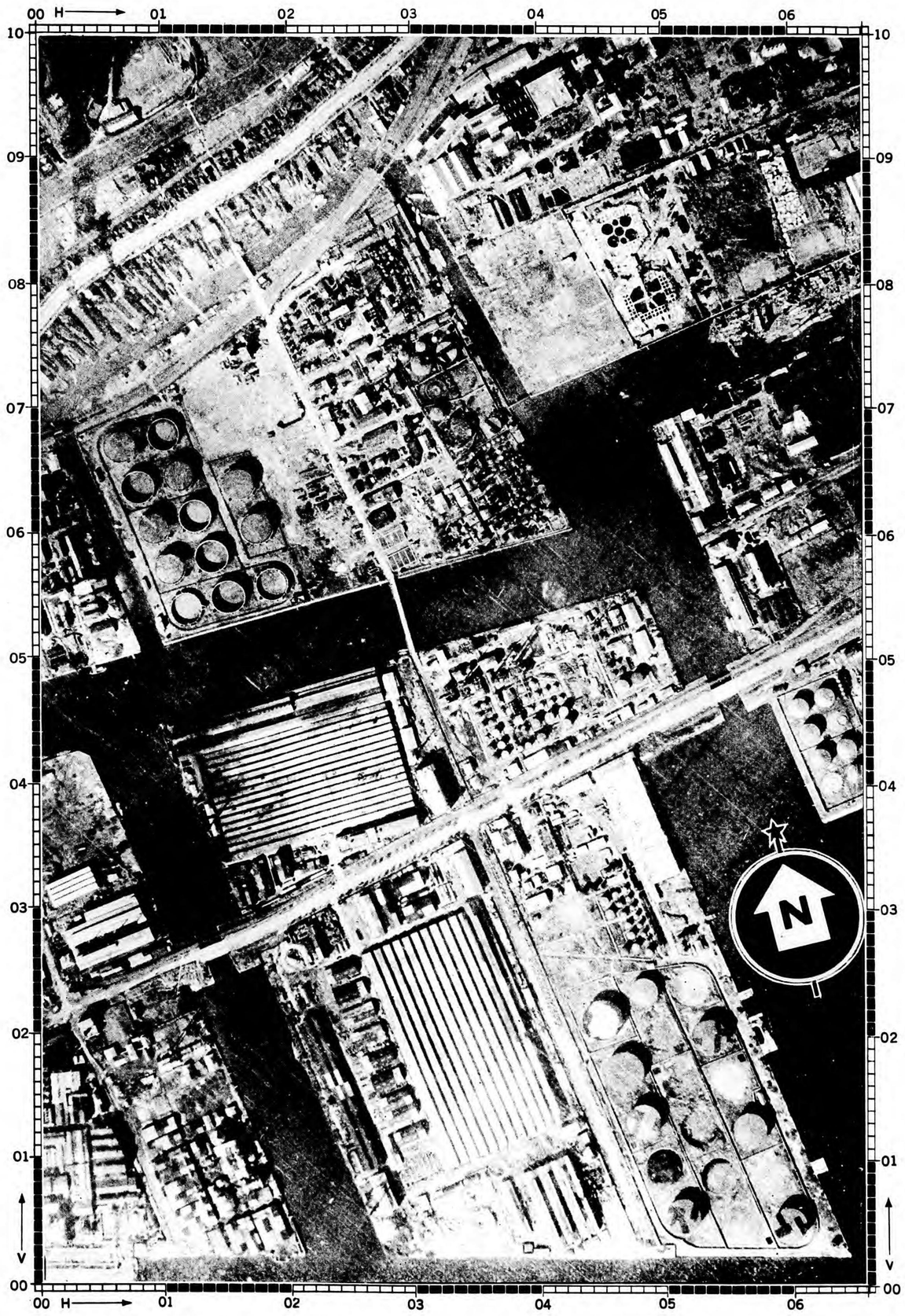
JOINT TARGET GROUP
WASHINGTON, D. C.

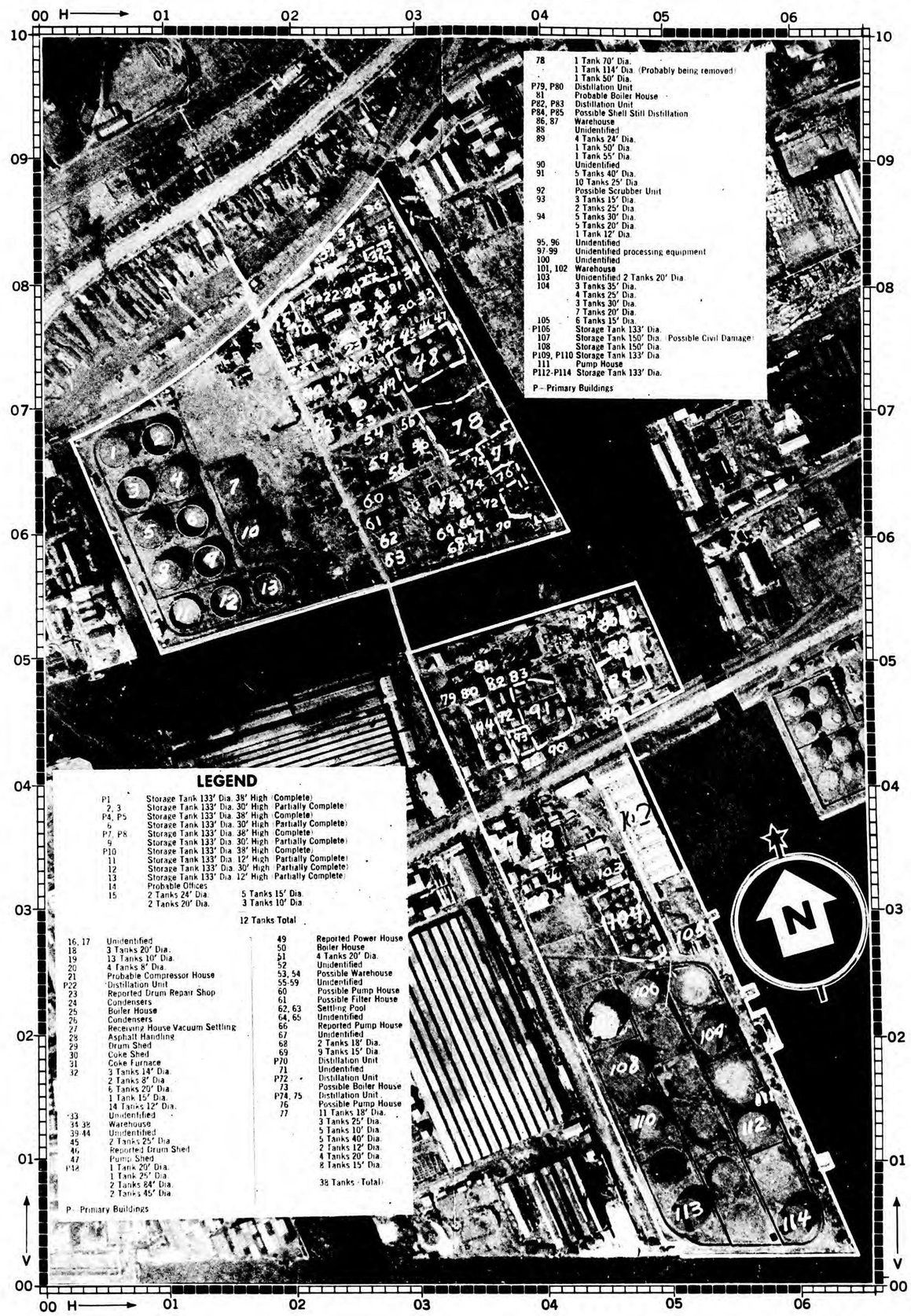
OGURA OIL CO.

YOKOHAMA JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

SHEET . . . . . 90:17-87—P3
DATE . . . . . 5 May 1945
TARGET 90:17-87
COORDINATES . . 35°29'N 139°40'E
PHOTOGRAPHED . 1 November 1944





78	1 Tank 70' Dia.
	1 Tank 114' Dia. (Probably being removed)
	1 Tank 50' Dia.
P79, P80	Distillation Unit
81	Probable Boiler House
P82, P83	Distillation Unit
P84, P85	Possible Shell Still Distillation
86, 87	Warehouse
88	Unidentified
89	4 Tanks 24' Dia.
	1 Tank 50' Dia.
	1 Tank 55' Dia.
90	Unidentified
91	5 Tanks 40' Dia.
	10 Tanks 25' Dia.
92	Possible Scrubber Unit
93	3 Tanks 15' Dia.
	2 Tanks 25' Dia.
94	5 Tanks 30' Dia.
	5 Tanks 20' Dia.
	1 Tank 12' Dia.
95, 96	Unidentified
97-99	Unidentified processing equipment
100	Unidentified
101, 102	Warehouse
103	Unidentified 2 Tanks 20' Dia.
104	3 Tanks 35' Dia.
	4 Tanks 25' Dia.
	3 Tanks 30' Dia.
	7 Tanks 20' Dia.
105	6 Tanks 15' Dia.
P106	Storage Tank 133' Dia.
107	Storage Tank 150' Dia. Possible Civil Damage
108	Storage Tank 150' Dia.
P109, P110	Storage Tank 133' Dia.
111	Pump House
P112-P114	Storage Tank 133' Dia.

P—Primary Buildings

LEGEND

P1	Storage Tank 133' Dia. 38' High	(Complete)
2, 3	Storage Tank 133' Dia. 30' High	(Partially Complete)
P4, P5	Storage Tank 133' Dia. 38' High	(Complete)
6	Storage Tank 133' Dia. 30' High	(Partially Complete)
P7, P8	Storage Tank 133' Dia. 38' High	(Complete)
9	Storage Tank 133' Dia. 30' High	(Partially Complete)
P10	Storage Tank 133' Dia. 38' High	(Complete)
11	Storage Tank 133' Dia. 12' High	(Partially Complete)
12	Storage Tank 133' Dia. 30' High	(Partially Complete)
13	Storage Tank 133' Dia. 12' High	(Partially Complete)
14	Probable Offices	
15	2 Tanks 24' Dia.	5 Tanks 15' Dia.
	2 Tanks 20' Dia.	3 Tanks 10' Dia.
		12 Tanks Total

16, 17	Unidentified	49	Reported Power House
18	3 Tanks 20' Dia.	50	Boiler House
19	13 Tanks 10' Dia.	51	4 Tanks 20' Dia.
20	4 Tanks 8' Dia.	52	Unidentified
21	Probable Compressor House	53, 54	Possible Warehouse
P22	Distillation Unit	55-59	Unidentified
23	Reported Drum Repair Shop	60	Possible Pump House
24	Condensers	61	Possible Filter House
25	Boiler House	62, 63	Settling Pool
26	Condensers	64, 65	Unidentified
27	Receiving House Vacuum Settling	66	Reported Pump House
28	Asphalt Handling	67	Unidentified
29	Drum Shed	68	2 Tanks 18' Dia.
30	Coke Shed	69	9 Tanks 15' Dia.
31	Coke Furnace	P70	Distillation Unit
32	3 Tanks 14' Dia.	71	Unidentified
	2 Tanks 8' Dia.	P72	Distillation Unit
	6 Tanks 20' Dia.	73	Possible Boiler House
	1 Tank 15' Dia.	P74, 75	Distillation Unit
	14 Tanks 12' Dia.	76	Possible Pump House
33	Unidentified	77	11 Tanks 18' Dia.
34-38	Warehouse		3 Tanks 25' Dia.
39-44	Unidentified		5 Tanks 10' Dia.
45	2 Tanks 25' Dia.		5 Tanks 40' Dia.
46	Reported Drum Shed		2 Tanks 12' Dia.
47	Pump Shed		4 Tanks 20' Dia.
P48	1 Tank 20' Dia.		8 Tanks 15' Dia.
	1 Tank 25' Dia.		38 Tanks Total
	2 Tanks 84' Dia.		
	2 Tanks 45' Dia.		

P—Primary Buildings

REPRINT

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File No. 541,087.56

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

Sheet	90:17-110-TI
Date	20 April 1945
Page	1
Target	90:17-110
Obj. Area	90:17
Obj. Folder	90:17
Category:	Bsc. Serv. & Utly. Electric Power
Lat.	35°29′ N
Long.	139°43′ E
Alt.	10 feet

TOKYO ELECTRIC POWER STATION, TSURUMI PLANT

KAWASAKI . . . . . JAPAN

ALL PREVIOUS SHEETS CANCELLED

REPRODUCTION

SIGNIFICANCE

Largest of the four principal steam-electric plants in the Tokyo power supply system which covers about one-fourth of Honshu, and extends some 150 miles N, NW, and NE from the Tokyo Bay district; third largest in whole of Japan. Capacity 178,000 kw. Hydroelectric plants represent about 80 percent of the generating capacity available to this network, but the four steam plants—all located in Kawasaki and Tokyo—are required for base and peak loads and are particularly important in the dry season (December through February).

LOCATION

(Refer to illustration No. 90.17–110 P2.) On the Kawasaki waterfront in Tokyo Bay. It is situated on the E side of the fourth block of reclaimed land SW of the Tama River mouth. It is about 4 miles SW of the mouth of the Tama River and about 2 miles ENE of the mouth of the Tsurumi River. The compound is on the W bank of a 600-foot wide shipping canal about 500 feet NW of Tokyo Bay. Other installations on the same block of land are oil storage tanks on the NE side and miscellaneous small industries on the W side and NE corner. Tokyo Steam Power Plant (Target 90.17–493), the third largest of the four plants, is about 1,100 feet to the N; Kawasaki Electric Power Plant (Target 90.17–111), the fourth largest, is diagonally across the ship canal to the NE.

DESCRIPTION AND LAYOUT

(Refer to illustration No. 90.17–110 P3.) The target is essentially rectangular, measuring about 700 feet E-W by 1,000 feet N-S. Powerhouse in center of compound consists of two adjoining buildings. The original 160- by 200-foot building (1) on W side has 6 stacks (6 boilers in boiler room). The new 210- by 240-foot building (2) on E side containing 60 percent of total capacity (106,000 kw) has 2 stacks (4 boilers in boiler room). Extensive outdoor electrical equipment is N of building 1. Compound includes coal storage yards (12, 13) on the S with coal conveyor (11) and overhead travelling cranes (14, 15); coaling dock (16) with 2 cranes and depths alongside to 20 feet.

PRIMARY OBJECTIVES

(Refer to illustration No. 90.17–110 P3.) Any part of powerhouses (1*a*, *b*, *c*; 2*a*, *b*, *c*).

CONSTRUCTION AND VULNERABILITY

Both buildings are of reinforced concrete and steel frame construction, five to six stories high, and with a 5-inch concrete slab roof. Turbo-generator units are at the third floor level.

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist planners in formulating such orders the following information is given:

An attack with high-explosive bombs alone is recommended. A preliminary structural and occupancy analysis of the plant indicates the following weapons should be selected:

	High explosive	Fuzing	Incendiary
Preferred	500-lb. GP	0.1 N/0.025 T	None.
Alternative	1,000-lb. GP	0.1 N/0.025 T	None.
Not recommended.	Other GP bombs, SAP and AP bombs, Depth bombs, Fragmentation bombs, Strafing or Rocket attack.		

NOTE.—The above recommendations are on a weight for weight basis.

CAMOUFLAGE, DECOYS, AND SMOKE SCREENS

None apparent in photography of 13 December 1944. No use of smoke screens has been reported.

ADDITIONAL INFORMATION

Senju Steam Power Station (Target 90.17–230), the second largest of the four principal plants, is on the upper Sumida River in northern Tokyo.

PUBLISHED IN OFFICE OF AC/AS INTELLIGENCE, A. A. F., BY COMBINED PERSONNEL OF UNITED STATES AND BRITISH SERVICES FOR THE USE OF ALLIED FORCES.

RESTRICTED

JOINT TARGET GROUP
WASHINGTON, D. C.

TOKYO ELECTRIC POWER STATION, TSURUMI PLANT
KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

SHEET . . . . . 90:17-110—P1
DATE . . . . . 20 May 1945
TARGET 90:17-110
COORDINATES . . . 35°29'N 139°43'E
PHOTOGRAPHED . 13 December 1944

PUBLISHED IN OFFICE OF AC/AS INTELLIGENCE, AAF, BY COMBINED PERSONNEL OF UNITED STATES AND BRITISH SERVICES FOR THE USE OF ALLIED FORCES.

RESTRICTED

File No. 541,110.52

JOINT
TARGET
GROUP
WASHINGTON, D. C.

TOKYO ELECTRIC POWER STATION, TSURUMI PLANT
KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

SHEET . . . . . 90:17-110—P2
DATE . . . . . 20 May 1945
TARGET 90:17-110
COORDINATES . . . 35°29'N 139°43'E
PHOTOGRAPHED . 13 December 1944

LEGEND

90.17— 51	Asano Iron Works
90.17— 52	Japan Steel Tube Co.
90.17—110	Tokyo Electric Power Station, Tsurumi Plant
90.17—111	Kawasaki Electric Power Plant
90.17—116	Mitsubishi Oil Refinery
90.17—122	Tsurumi Steel and Shipbuilding Co.
90.17—127	Hayama Petroleum Refinery
90.17—128	Petroleum Center
90.17—133	Shibaura Engineering Works, Ltd.
90.17—136	Fuji Electric Works
90.17—137	Showa Fertilizer
90.17—481	Tokyo Gas Co., Tsurumi Branch
90.17—488	Tokyo-Shibaura Electric Co., Factory No. 2 Yanagi Plant
90.17—493	Tokyo Steam Power Plant
90.17—496	Tokyo-Shibaura Electric Co., Factory No. 1 Horikawa Plant

REPRINT

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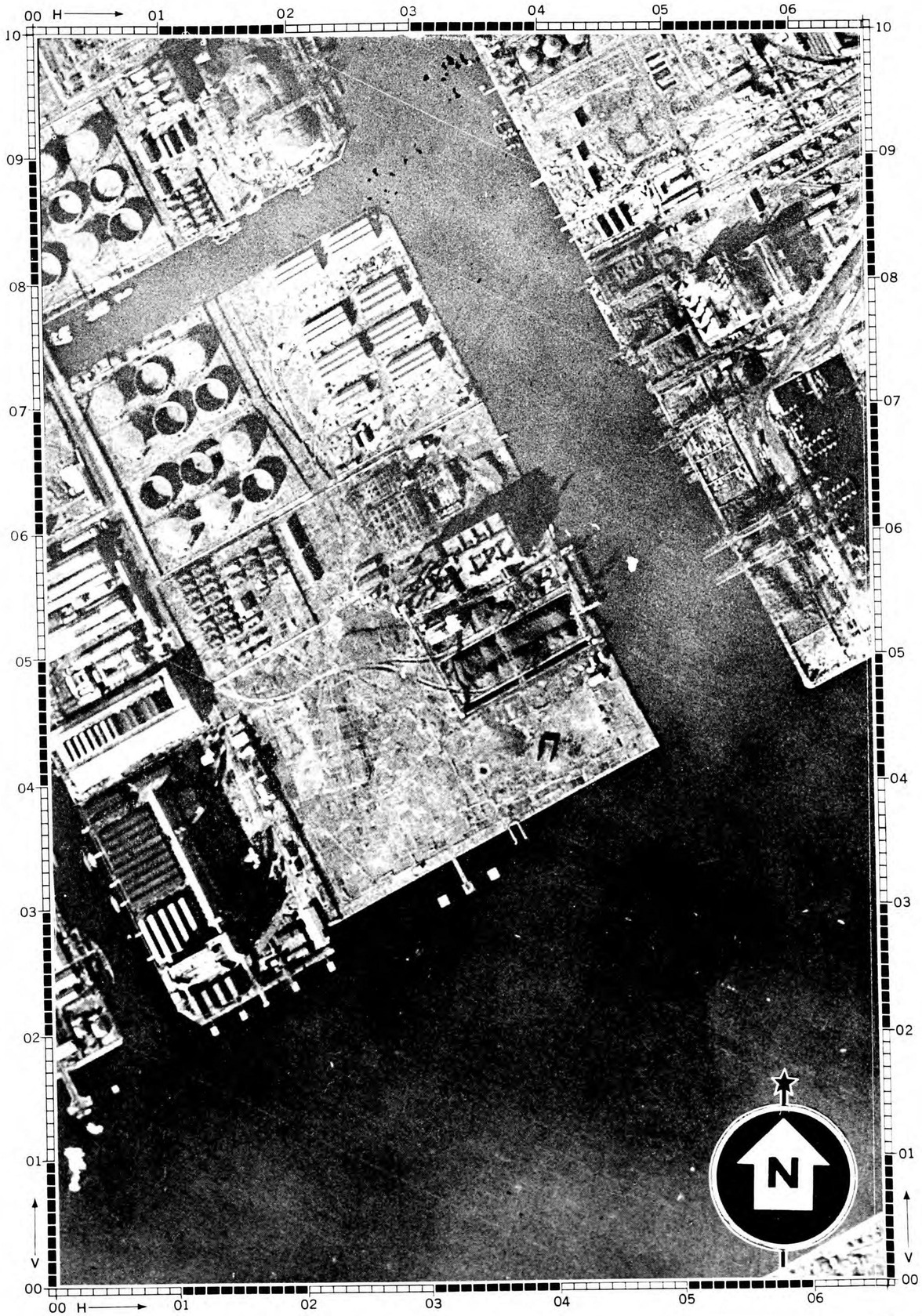
File No. 541,110.54

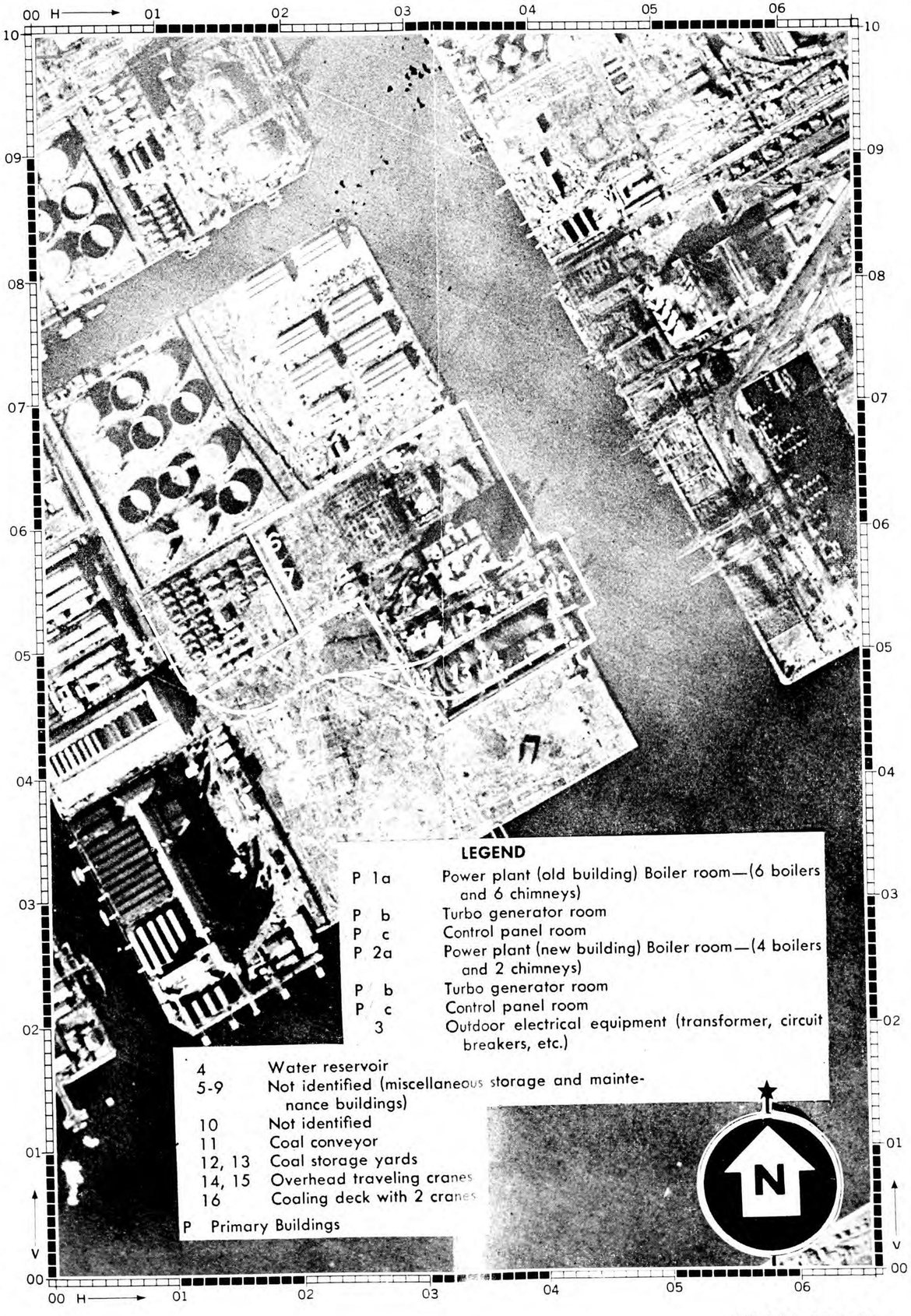
JOINT TARGET GROUP WASHINGTON D.C.

TOKYO ELECTRIC POWER STATION, TSURUMI PLANT
KAWASAKI JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

SHEET . . . . . 90:17-110—P3
DATE . . . . . 20 May 1945
TARGET 90:17-110
COORDINATES . . . 35 29'N 139 43'E
PHOTOGRAPHED . 13 December 1944





LEGEND

P 1a	Power plant (old building) Boiler room—(6 boilers and 6 chimneys)
P b	Turbo generator room
P c	Control panel room
P 2a	Power plant (new building) Boiler room—(4 boilers and 2 chimneys)
P b	Turbo generator room
P c	Control panel room
3	Outdoor electrical equipment (transformer, circuit breakers, etc.)
4	Water reservoir
5-9	Not identified (miscellaneous storage and maintenance buildings)
10	Not identified
11	Coal conveyor
12, 13	Coal storage yards
14, 15	Overhead traveling cranes
16	Coaling deck with 2 cranes
P	Primary Buildings

PUBLISHED IN OFFICE OF AC/AS INTELLIGENCE AAF, BY COMBINED PERSONNEL OF UNITED STATES AND BRITISH SERVICES FOR THE USE OF ALLIED FORCES.

File No. 541,110.56

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

Sheet	90:17-111-TI
Date	20 April 1945
Page	1
Target	90:17-111
Obj. Area	90:17
Obj. Folder	90:17
Category:	Bsc. Serv. & Utly. Electric Power
Lat.	35°30′ N
Long.	139°43′ E
Alt.	10 feet

KAWASAKI ELECTRIC POWER PLANT

KAWASAKI . . . . . JAPAN

ALL PREVIOUS SHEETS CANCELLED

SIGNIFICANCE

Fourth largest of the four principal steam-electric plants in the Tokyo power supply system which covers about one-fourth of Honshu, and extends some 150 miles N, NW, and NE from the Tokyo Bay district. Capacity 60,000 kw. Hydroelectric plants represent about 80 percent of the generating capacity available to this network, but the four steam plants—all located in Kawasaki and Tokyo—are required for base and peak loads and are particularly important in the dry season (December through February).

LOCATION

(Refer to illustration No. 90.17–111 P2.) On the Kawasaki waterfront in Tokyo Bay. It is situated on the W side of the third large block of reclaimed land SW of the Tama River mouth. It is about 3.75 miles SW of the mouth of the Tama River and about 2.25 miles ENE of the mouth of the Tsurumi River. The compound is on the E bank of a 600-foot wide ship canal about 1,300 feet NW of Tokyo Bay, and just N of the Mitsubishi Wharfs, Warehouses, and Coal Depot. Tokyo Electric Power Station, Tsurumi Plant (Target 90.17–110), the largest of the four plants, is diagonally across the ship canal to the SW; Tokyo Steam Power Plant (Target 90.17–493), the third largest, is about 1,000 feet to the NW across the ship canal.

DESCRIPTION AND LAYOUT

(Refer to illustration No. 90.17–111 P3.) The target area is rectangular, measuring about 900 feet E-W by 575 feet N-S. The 260 by 400-foot powerhouse (1) with 8 stacks (8 boilers in boiler room) is in the S center of the compound. It includes a large 260 by 70-foot transformer building (1*e*) on its E side. Coal storage (2) and coal-handling equipment (3) are in the W quarter of the area; coaling dock and cranes are along ship canal on the W side.

PRIMARY OBJECTIVES

(Refer to illustration No. 90.17–111 P3.) Any part of powerhouse (1*a*, *b*, *c*) and adjoining transformer building (1*e*).

CONSTRUCTION AND VULNERABILITY

Powerbouse is of reinforced concrete and steel frame construction, four stories high, and with 5-inch concrete slab roof.

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist planners in formulating such orders the following information is given:

An attack with high explosive bombs alone is recommended. A preliminary structural and occupancy analysis of the plant indicates the following weapons should be selected:

	High explosive	Fuzing	Incendiary
Preferred	500-lb. GP	0.1 N/0 025 T	None.
Alternative	1,000-lb. GP	0.1 N/0.025 T	None.
Not recommended	Other GP bombs, SAP and AP bombs, Depth bombs Fragmentation bombs, Strafing or Rocket attack.		

NOTE.—The above recommendations are on a weight for weight basis.

CAMOUFLAGE, DECOYS, AND SMOKE SCREENS

None apparent in photography of 13 December 1944. No use of smoke screens has been reported.

ADDITIONAL INFORMATION

Senju Steam Power Station (Target 90.17–230), the second largest of the four principal plants, is on the upper Sumida River in northern Tokyo.

REPRODUCTION

PUBLISHED IN OFFICE OF AC/AS INTELLIGENCE, A. A. F., BY COMBINED PERSONNEL OF UNITED STATES AND BRITISH SERVICES FOR THE USE OF ALLIED FORCES.

JOINT TARGET GROUP
WASHINGTON, D. C.

KAWASAKI ELECTRIC POWER PLANT
KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

SHEET	90:17-111 P1
DATE	5 May 1945
TARGET	90:17-111
COORDINATES	35 30'N 139 43'E
PHOTOGRAPHED	13 December 1944

PUBLISHED IN OFFICE OF AC/AS INTELLIGENCE, AAF BY COMBINED PERSONNEL OF UNITED STATES AND BRITISH SERVICES FOR THE USE OF ALLIED FORCES.

File No. 541,111.52

JOINT TARGET GROUP
WASHINGTON, D. C.

KAWASAKI ELECTRIC POWER PLANT
KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

SHEET 90:17-111 P2
DATE . . . . . 5 May 1945
TARGET 90:17-111
COORDINATES . . . 35°30'N 139°43'E
PHOTOGRAPHED 13 December 1944

PUBLISHED IN OFFICE OF AC/AS INTELLIGENCE, AAF, BY COMBINED PERSONNEL OF UNITED STATES AND BRITISH SERVICES FOR THE USE OF ALLIED FORCES.

File No. 541,111.54

JOINT
TARGET
GROUP
WASHINGTON, D. C.

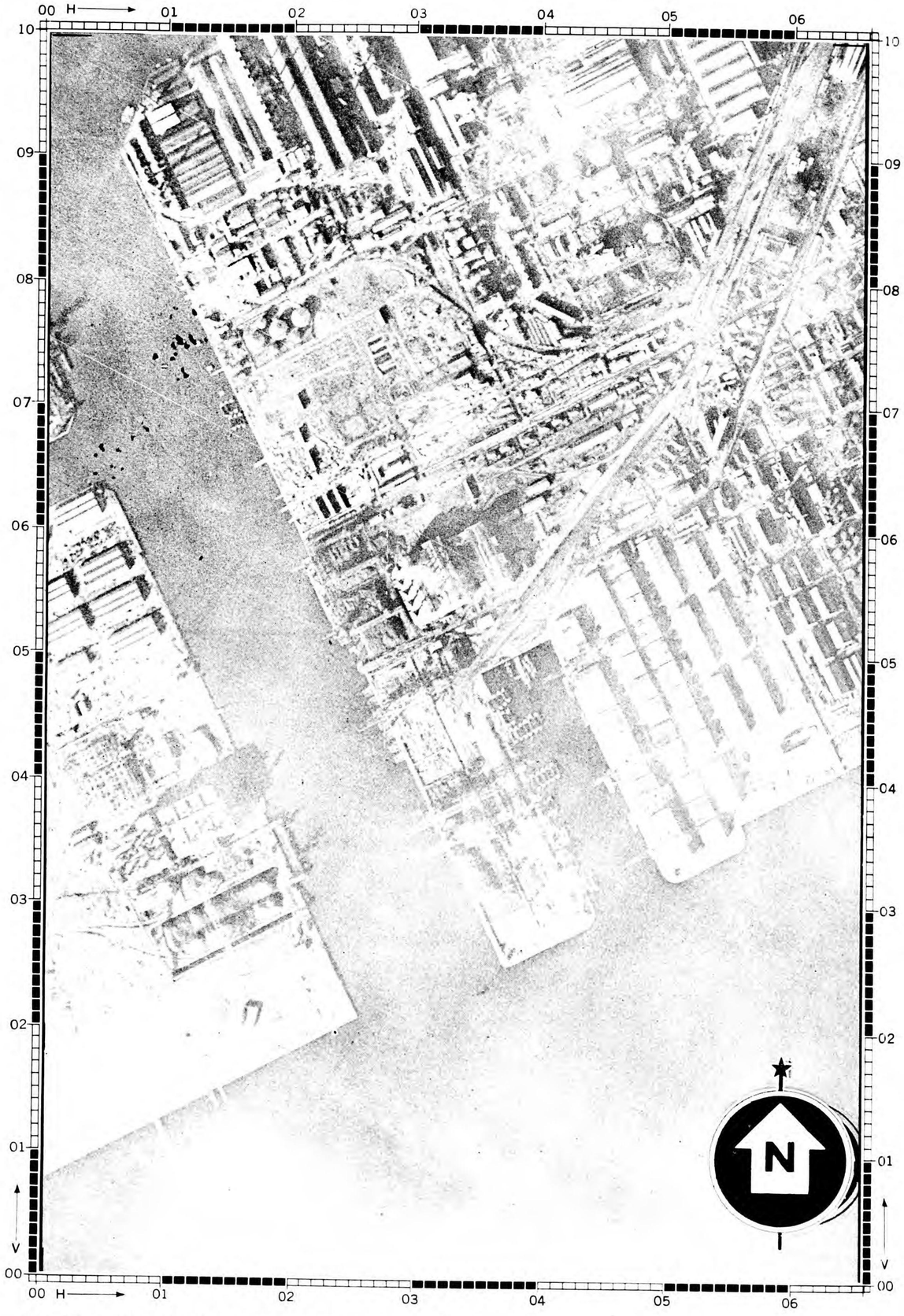
KAWASAKI ELECTRIC POWER PLANT

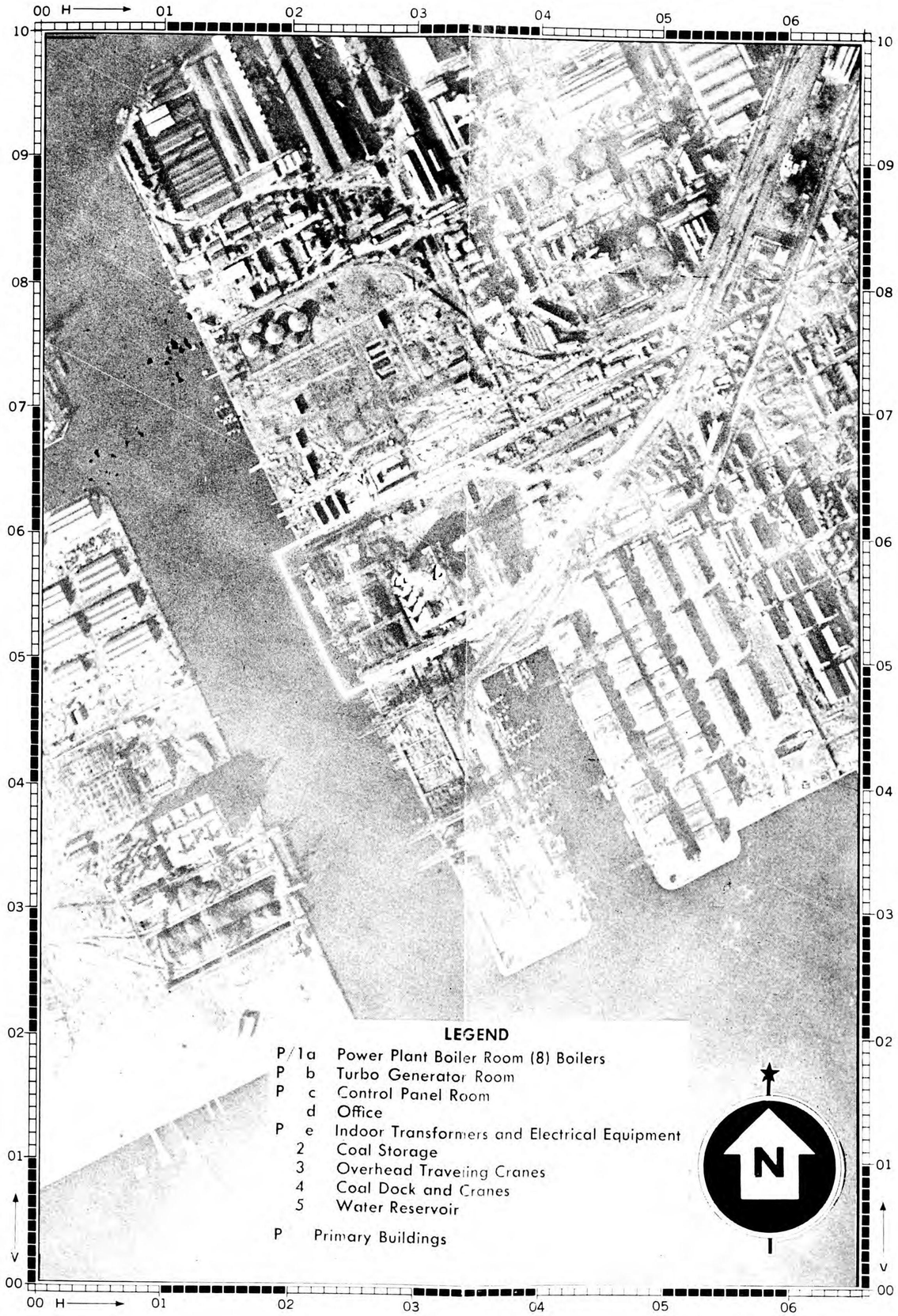
KAWASAKI JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

CONFIDENTIAL

SHEET 90:17-111 P3
DATE . . . . . 5 May 1945
TARGET 90:17-111
COORDINATES . . . 35 30'N 139 43'E
PHOTOGRAPHED 13 December 1944





LEGEND

P/1	a	Power Plant Boiler Room (8) Boilers
P	b	Turbo Generator Room
P	c	Control Panel Room
	d	Office
P	e	Indoor Transformers and Electrical Equipment
	2	Coal Storage
	3	Overhead Traveling Cranes
	4	Coal Dock and Cranes
	5	Water Reservoir
P		Primary Buildings

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JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

Sheet	90:17-116/127-TI
Date	17 April 1945
Page	1
Target	90:17-116/127
Obj. No.	90:17
Obj. Folder No.	90:17
Category:	End Prdt. Ind. PETROLEUM
Lat.	35°30′ N
Long.	139°44′ E
Alt.	10 feet

ALL PREVIOUS SHEETS CANCELLED

MITSUBISHI OIL REFINERY
HAYAMA PETROLEUM REFINERY
KAWASAKI . . . . . JAPAN

SIGNIFICANCE

These adjacent targets together are the largest among the extensive facilities on the Kawasaki-Yokohama waterfront for refining crude oil and storing oil and oil products; their combined tankage is believed to be the eighth largest in the Inner Zone. Their refineries are apparently not operating, some tankage has been removed, and many of the tanks may be empty.

Mitsubishi Oil Refinery is believed to be the fourth largest Inner Zone crude oil refinery. Estimated capacities: Crude refining 2,850,000 barrels per year, about 7 percent of Inner Zone capacity; cracking 1,000,000 barrels, about 8 percent; iso-octane 36,500 barrels; tankage 872,000 barrels.

Hayama Petroleum Refinery is believed to be the tenth largest Inner Zone crude oil refinery. Estimated capacity: Crude refining 1,320,000 barrels per year, about 3 percent of Inner Zone capacity; cracking 1,000,000 barrels, about 8 percent; iso-octane 14,600 barrels; tankage 600,000 barrels.

LOCATION

(Refer to illustration No. 90.17–116/127 P2.) On the Kawasaki waterfront in Tokyo Bay. The target complex is located on the E side of the third large block of reclaimed land SW of the Tama River mouth. It is about 2.9 miles SW of the mouth of the Tama River and about 2.5 miles E-NE of the mouth of the Tsurumi River. The target is bounded on the NE by a section of the Japan Steel Tube Co. (Target 90.17–52), on the NW by Showa Fertilizer (Target 90.17–137), on the E by a ship canal, and on the S end by Tokyo Bay. Other installations on the same block of reclaimed land are a second section of the Japan Steel Tube Co. at the NW corner and the Kawasaki Electric Power Plant (Target 90.17–111) on the W central edge.

DESCRIPTION AND LAYOUT

(Refer to illustration No. 90.17–116/127 P3.) The total target area is very irregular in shape, measuring about 3,500 feet N-S and 2,200 feet E-W at its longest dimensions. It consists of two complete and independent installations. Refining units are in the NE and SW; the main storage runs through the center.

The larger Mitsubishi Oil Refinery (Target 90.17–116) occupies the S and central section of the area. Refining units are compactly built in the W central part of its compound. Tankage and open storage are at the S end, warehouses along the W side. The NE half, adjacent to Hayama Refinery, is occupied by relatively dispersed storage tanks.

The main section of the smaller Hayama Petroleum Refinery (Target 90.17–127) adjoins the Mitsubishi Refinery on the NE. Roughly rectangular, it is divided into two triangles by NE-SW multiple railroad tracks. The bulk of the refining units are in the compact, congested NE section, storage in the SW section adjacent to the Mitsubishi Refinery. A narrow strip, or panhandle occupied by reported asphalt or distillation units and gas holders extends across the N end and down the NW side of the Mitsubishi Refinery. The functions of this equipment are not identified sufficiently to verify reports that it produces synthetic oil.

PRIMARY OBJECTIVES

(Refer to illustration No. 90.17–116/127 P3.)

A. Attack against storage. The larger tanks, Mitsubishi 1, 3, 36, 38–43, 71–73, 95–101; Hayama 6, 16, 22–26, 69–71, 76–79.

B. Attack against refineries. Primary: The distillation and cracking units, Mitsubishi 45, 49, 67–69, 75, 76, 80. Hayama 49, 50, 58, 60, 61, 88–90, 93, 95. Iso-octane units, Mitsubishi 21, 22, 25, 26. Secondary: The larger tanks listed above, and the boiler houses, Mitsubishi 31, 59.

CONSTRUCTION AND VULNERABILITY

(Refer to illustration No. 90.17–116/127 P3.) The combined built-up area of the two targets is probably less than 20 percent and covers three categories:

1. The process equipment which consists mainly of steel cylindrical vessels, open steel structures, furnaces, a few small buildings, pumps, piping, etc.

2. Steel storage tanks of the cylindrical type with fixed roofs (approx, one-half of built-up area).

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3. Warehouses (approximatly 20 low one-story buildings of less than 7,000 square feet each, and probably of noncombustible construction).

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist planners in formulating such orders the following information is given:

A preliminary analysis indicates that weapons should be selected on the following basis:

A. *Attack designed against storage tanks.*

	HE	Fuze	Incendiary
Preferred	100-lb. GP	0.025 N/0.025 T, long delay.	None.
Poor alternative	250-lb. GP, 500-lb. GP.	Same	None.
Not recommended	Larger GP bombs, SAP or AP bombs, Depth bombs, Fragmentation bombs.		

NOTES.—(*a*) Use 0.1 N fuzes if 0.025 N fuzes are not available.
(*b*) 5 percent of the HE bombs should be fuzed long delay.

B. *Attack designed against refining installations.*

	HE	Fuze	Incendiary
Preferred	500-lb. GP	Inst N/ND T, long delay.	None.
Alternative	250-lb. GP	0.01 N/0.01 T, long delay.	None.
Not recommended	Other GP bombs, SAP or AP bombs, Depth bombs.		

NOTES.—(*a*) Use 0.1 fuzes if 0.01 N fuzes are not available.
(*b*) 5 percent of the HE bombs should be fuzed long delay.

CAMOUFLAGE, DECOYS AND SMOKE SCREENS

Photography of 13 December 1944 shows no attempt at camouflage or use of decoys. No use of smoke screens has been reported in this area.

ADDITIONAL INFORMATION

Additional facilities on the reclaimed land within about 2 miles W of these targets bring the total crude oil refining capacity of this Kawasaki area to an estimated 6,170,000 barrels or 15 percent of the Inner Zone total, and its storage capacity to an estimated 3,310,000 barrels, or 5 percent.

Two small refineries in the same block of reclaimed land as Hayama and Mitsubishi, the Aikoku Petroleum Refinery (Target 90.17–147) and Asaishi Petroleum Co. (Target 90.17–130) appear to have been removed except for 6 medium and small tanks with a capacity of about 58,300 barrels at Asaishi.

The Army Oil Storage (Target 90.17–2038) in the middle of the next 2 blocks of reclaimed land to the W contains 21 storage tank sites, but only 10 tanks with an estimated capacity of 550,000 barrels appear to be intact.

The Petroleum Center (Target 90.17–128) at the W end of the area has an estimated refining capacity of 2,000,000 barrels per year, and storage capacity of 1,230,000 barrels although it has 30 sites from which tanks have been or are being removed.

In photography of November and December 1944 the only evidence of any of these Kawasaki waterfront facilities being used was change in the level of three floating roof tanks at the Petroleum Center.

Another group of oil installations is located within 2.5 miles of Petroleum Center on the first two blocks of reclaimed land SW of Tsurumi River. These include the Ogura Oil Co. (TARGET 90.17–87) and scattered tank farms, with a refining capacity of about 3,300,000 barrels per year and storage capacities of 1,988,500 barrels.

JOINT
TARGET
GROUP
WASHINGTON, D. C.

MITSUBISHI OIL REFINERY (90.17-116)
HAYAMA PETROLEUM REFINERY (90.17-127)
KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ I MILE
1:32 000 APPROX.

RESTRICTED

SHEET 90:17-116/127 P1
DATE ..... 29 April 1945
TARGET 90:17-116/127
COORDINATES 35 30'N 139 44'E
PHOTOGRAPHED 13 December 1944

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File No. 541,116.52

JOINT TARGET GROUP
WASHINGTON, D. C.

MITSUBISHI OIL REFINERY (90.17-116)
HAYAMA PETROLEUM REFINERY (90.17-127)
KAWASAKI JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

SHEET 90:17-116 127 P2
DATE . . . . . 29 April 1945
TARGET 90:17-116 127
COORDINATES . . 35 30'N 139 44'E
PHOTOGRAPHED 13 December 1944

LEGEND

90.17- 51	Asano Iron Works
90.17- 52	Japan Steel Tube Co.
90.17- 110	Tokyo Electric Power Station, Tsurumi Plant
90.17- 111	Kawasaki Electric Power Plant
90.17- 116	Mitsubishi Oil Refinery
90.17- 122	Tsurumi Steel and Shipbuilding Co.
90.17- 127	Hayama Petroleum Refinery
90.17- 128	Petroleum Center
90.17- 130	Asaishi Petroleum Co.
90.17- 133	Shibaura Engineering Works, Ltd.
90.17- 136	Fuji Electric Works
90.17- 137	Showa Fertilizer
90.17- 481	Tokyo Gas Co., Tsurumi Branch
90.17- 488	Tokyo-Shibaura Electric Co., Factory No. 2, Yanagi Plant
90.17- 493	Tokyo Steam Power Plant
90.17- 496	Tokyo-Shibaura Electric Co., Factory No. 1 Horikawa Plant
90.17-2026	Ebara Mfg. Co., Kamata Plant
90.17-2038	Army Oil Storage
90.17-4011	Tokyo-Shibaura Electric Co., Factory No. 3, Komukai Plant

Note: The following targets are not listed in the Air Target Index:
90.17-130 Asaishi Petroleum Co.
90.17-136 Fuji Electric Works
90.17-481 Tokyo Gas Co., Tsurumi Branch

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File No. 541,116.54

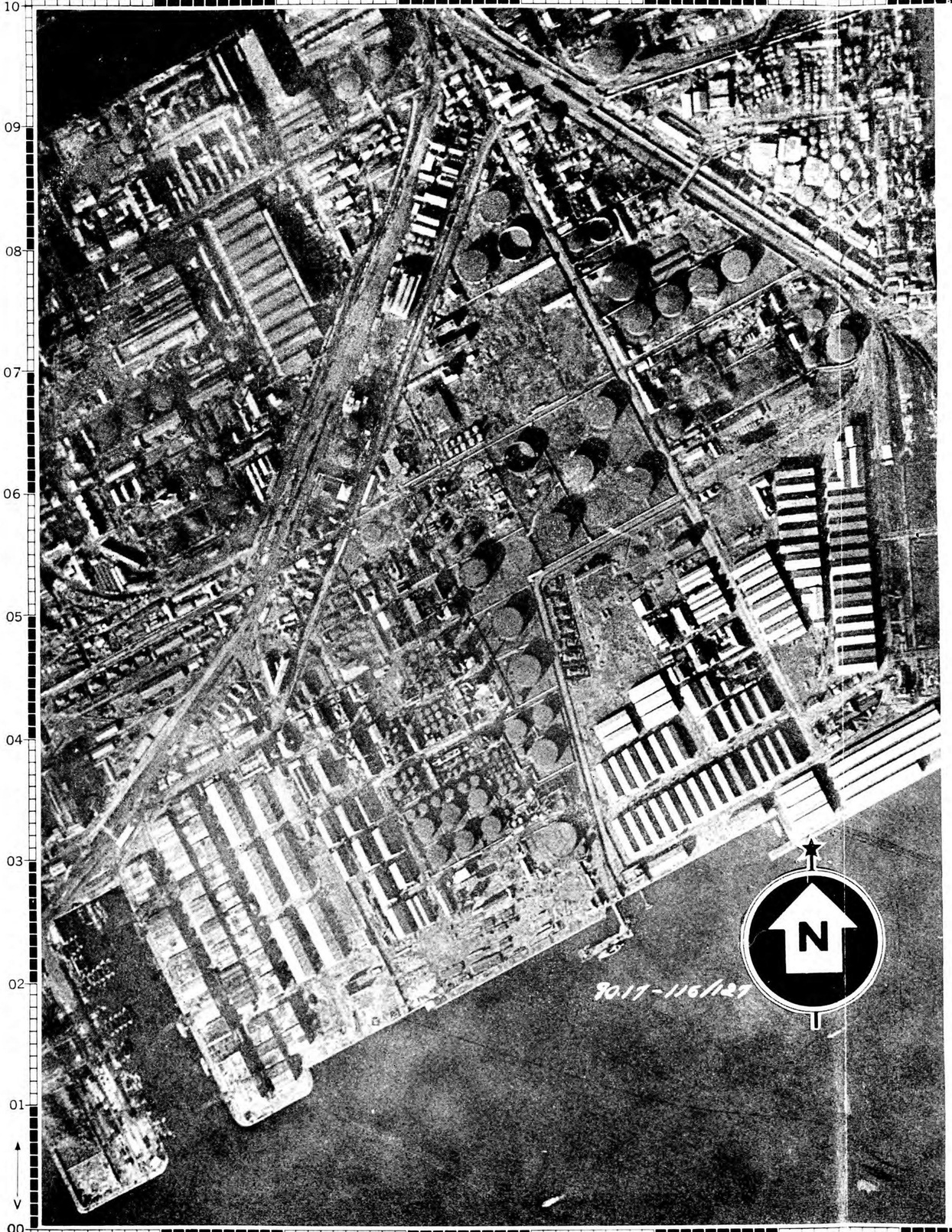
JOINT TARGET GROUP
WASHINGTON, D. C.

MITSUBISHI OIL REFINERY (90.17-116)
HAYAMA PETROLEUM REFINERY (90.17-127)
KAWASAKI JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

RESTRICTED

SHEET 90:17-116 127 P3
DATE . . . . . 29 April 1945
TARGET 90:17-116 127
COORDINATES . . 35 30'N 139 44'E
PHOTOGRAPHED . 13 December 1944



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10 09 08 07 06 05 04 03 02 01 V 00

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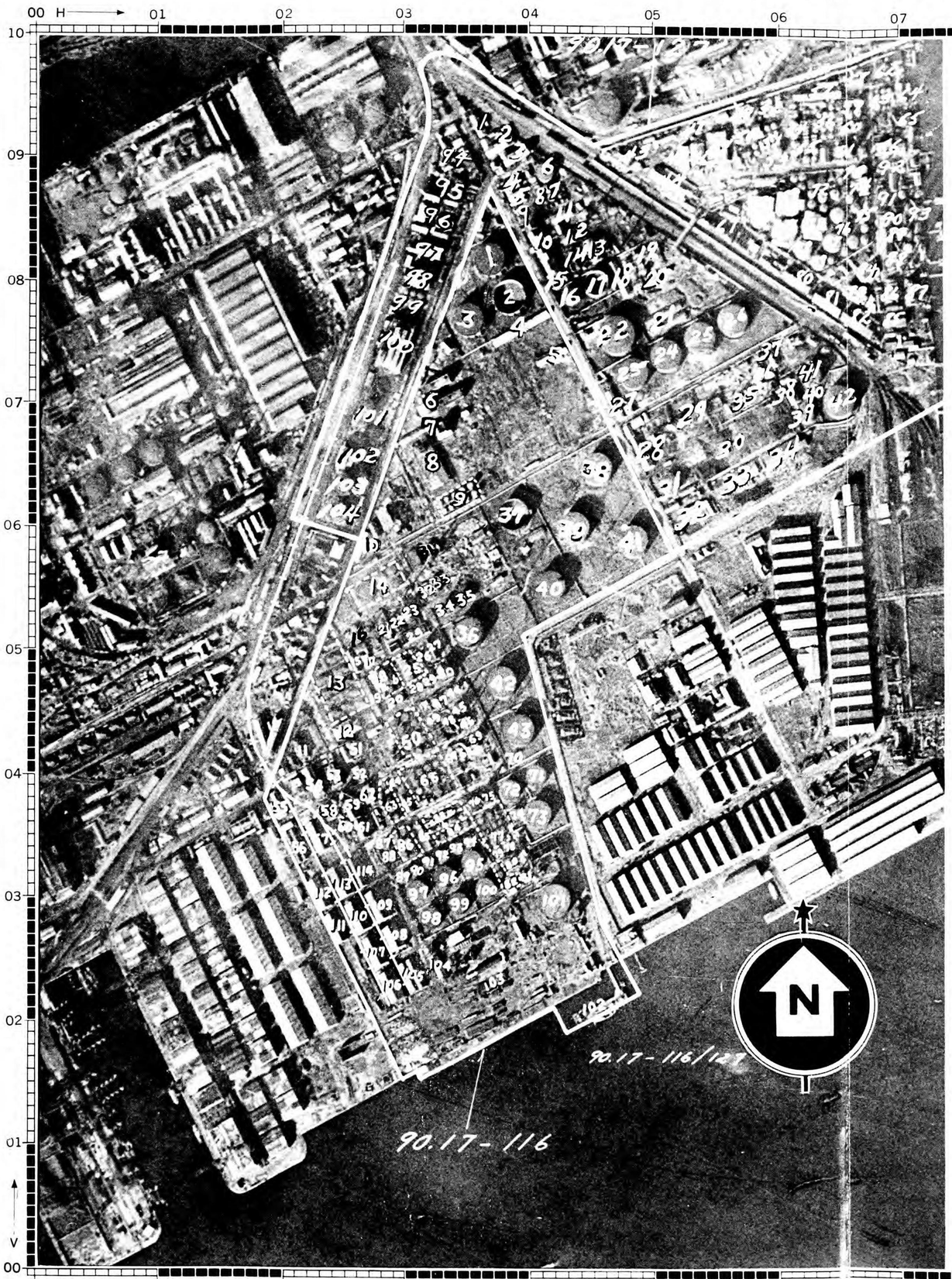
File No. 541,116.56

JOINT TARGET GROUP
WASHINGTON, D. C.

MITSUBISHI OIL REFINERY (90.17-116)
HAYAMA PETROLEUM REFINERY (90.17-127)
KAWASAKI JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

SHEET 90:17-116/127-P4
DATE . . . . . 29 April 1945
TARGET 90:17-116/127
COORDINATES . . . 35°30'N 139°44'E
PHOTOGRAPHED . 13 December 1944



LEGEND

90.17—116

1	Crude Oil Storage Tank Diam. 120'
2	Crude Oil Storage Tank Diam. 120' (Possibly Dismantled)
3	Crude Oil Storage Tank Diam. 120'
4, 5	Warehouse
6-8	Unidentified
9	10 Storage Tanks 5 Tanks Diam. 18' 5 Tanks Diam. 25'
10	Warehouse
11	Workers Building
12	Office Type Building
13	Workers Residences
14	4 Storage Tanks—1 Tank Diam. 75' 3 Tanks Diam. 36'
15	Warehouse
16, 17	Unidentified
18a	Possible Processing Building
18b	Probable Butane Tanks
19	Warehouse
20	Unidentified
P 21, P 22	Iso-octane unit
23	Furnace
24	Accumulators and Horizontal Tanks
P 25, P 26	Iso-octane unit
27	Possible Processing Building
28	Accumulators and Horizontal Tanks
29	Intermediate Tank Diam. 30'
30	Furnace
31	Boiler and Power House
32	3 Horizontal Tanks Length 30' Diam. 10'
33	Storage Tank Diam. 20'
34, 35	Storage Tanks Diam. 40'
36	Storage Tank Diam. 120' (Possible Repairs)
37	Storage Tank Diam. 120' (Roof Removed)
38-43	Storage Tank Diam. 120'
44	Unidentified
P 45, 46	Furnaces
47-P 49	Cracking Unit
50	Intermediate Tanks 2 Tanks Diam. 30' 6 Tanks Diam. 20' (1 Possible 1 Tank Diam. 18' Dismantling)
51	Storage Tanks (2) Diam. 30'
52	Research Laboratory
53	Offices
54	Personnel Building
55	Probable Shipping Offices
56, 57	Warehouse
58	Possible Offices
59	Boiler House
60	Storage Tank Diam. 55'
61	Possible Pump House
62	Chemical Laboratory
63	Intermediate Tanks 6 Tanks Diam. 25' 3 Tanks Diam. 20' (1 Possible Dismantling)
64, 65	Possible Treating Plant
66	Gasoline Intermediate Storage Tanks 1 Tank Diam. 30' 11 Tanks Diam. 25'
P 67, P 68	Primary Distillation Unit
P 69	Furnace
70	Storage Tank Diam. 30'
71	Storage Tank Diam. 78'
72	Storage Tank Diam. 78'
73	Storage Tank Diam. 102'
74	Storage Tank Diam. 30'
P 75	Furnace
P 76	Vacuum Distillation Unit
77	Storage Tanks 6 Tanks Diam. 15' 4 Tanks Diam. 20'
78, 79	Storage Tanks Diam. 30'
P 80	Pressure Distillate Re-run Unit
81	Asphalt Loading Unit
82	Storage Tanks 2 Tanks Diam. 19' 2 Tanks Diam. 22'
83a	Pump House (Possible Association with Gasoline Treating)
83b	Horizontal Tanks (Possible Association with Gasoline Treating)
84	Storage Tanks 2 Tanks Diam. 19' 2 Tanks Diam. 22'
85	Pump House
86	Storage Tanks (5) Diam. 25'
87-94	Storage Tanks Diam. 36'
95-100	Storage Tanks Diam. 78'
101	Storage Tank Diam. 120'
102	Oil Bunkering Pier
103	Open Storage Area
104	Warehouse
105	Warehouse (Drum Storage)
106-108	Warehouse
109	Can Manufacturing Plant
110-112	Warehouse
113	Drum Manufacturing Plant
114	Tank Car Loading Rack Building

90.17—127

1-3	Probable Offices
4, 5	Not identified
6	Oil storage tank 65' Diam.
7	(2) Intermediate tanks
8	9 or 10 run down tanks
9-15	Reported Asphalt or Tar Distillation Plant
9	(2) Furnace stills
10	Probable storage
11	Not identified
12	Still
13	Not identified
14	6 or more tanks
15	Not identified
16	Oil storage tank 65' Diam.
17	Oil storage tank 90' Diam. Empty or being torn down.
18	Probable storage
19	Not identified
20	Conveyor house small gas holder 25' Diam. nearby
21	Not identified
22	Oil storage tank 145' Diam.
23	Oil storage tank 120' Diam.
24	Oil storage tank 120' Diam.
25	Oil storage tank 120' Diam.
26	Oil storage tank 120' Diam.
27-29	Not identified
30	Coal storage pile—gantry crane
31	Gas holder 75' Diam. (Wet type)
32	Not identified
33	Storage—(8) Horizontal tanks S of building
34	Storage
35	(4) Horizontal stills
36-38	Not identified
39	Oil storage tank 55' Diam.
40	Oil storage tank 25' Diam.
41	Oil storage tank 78' Diam.
42	Oil storage tank 114' Diam.
43	Office Building
44	Warehouse
45, 46	Possible drum plant
47	(4) Small tanks—Empty
48	Possible drum plant
P 49, P 50	Stills and fractionating columns
51	(14) Run down tanks
52	(6) Run down tanks
53	Intermediate tank 30' Diam.
54	(8) Intermediate tanks
55	(11) Horizontal tanks—Probably butane
56	12 Run down tanks
57	Not identified—Building
P 58	Still
59	(6) Intermediate tanks
P 60, P 61	Still and fractionation
62	Not identified
63	(9) Intermediate tanks
64	Not identified
65	Still
66	Not identified
67	Loading tanks
68-71	Oil storage tanks 85' Diam. Camouflaged
72	(11) Intermediate tanks
73, 74	Unidentified Building
75	(11) Intermediate tanks
76	(3) Oil storage tanks (1) 54', (2) 45' Diams.
77	Oil storage tank 72' Diam.
78	Oil storage tank 65' Diam.
79	Oil storage tank 55' Diam.
80, 81	Warehouse
82	Warehouse (9) loading tanks E of building on RR Siding.
83-86	Unidentified miscellaneous store and maintenance shed.
87	Probable warehouse and oil pier
P 88, P 89	Still and oil tank near pier
P 90	Still
91	Probable intermediate tanks
92	Horizontal tanks
P 93	Still
94	Office group
P 95	Still
96-98	Not identified
99	(6) Intermediate tanks
100	Possible compressor building
101	Gas holder 50' Diam.
102	Possible gas generators
103, 104	Gas holders (Wet type) 75' Diam.

P Primary Buildings

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File No. 541,116.58

TARGET NO. 90:17–133

COORDINATES 35° 29' N 139° 42' E

PHOTOGRAPHED 1 NOVEMBER 1944

JOINT TARGET GROUP • WASHINGTON, D. C.

SHIBAURA ENGINEERING WORKS

YOKOHAMA, JAPAN

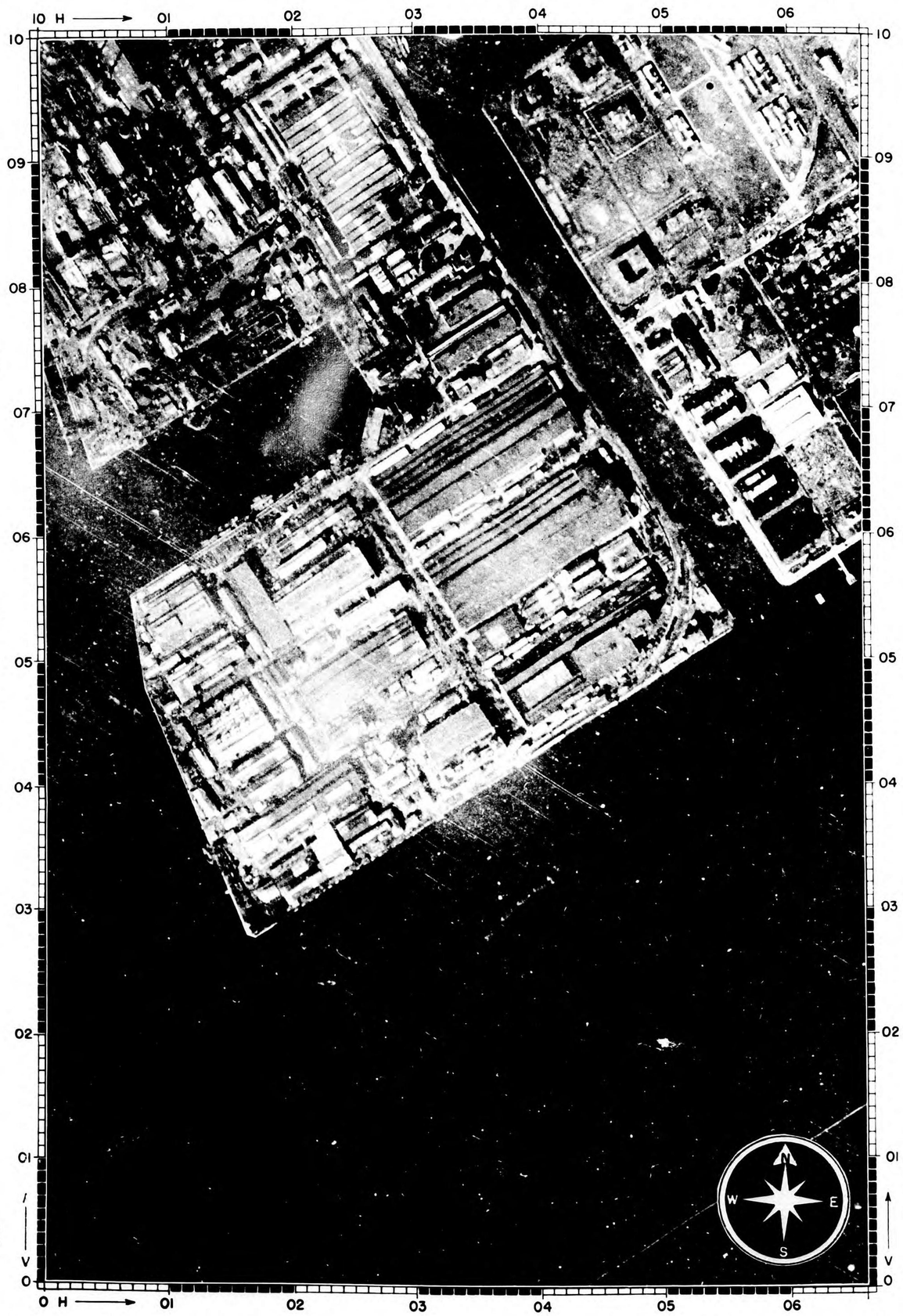
ILLUSTRATION NO. 90:17–133 P3

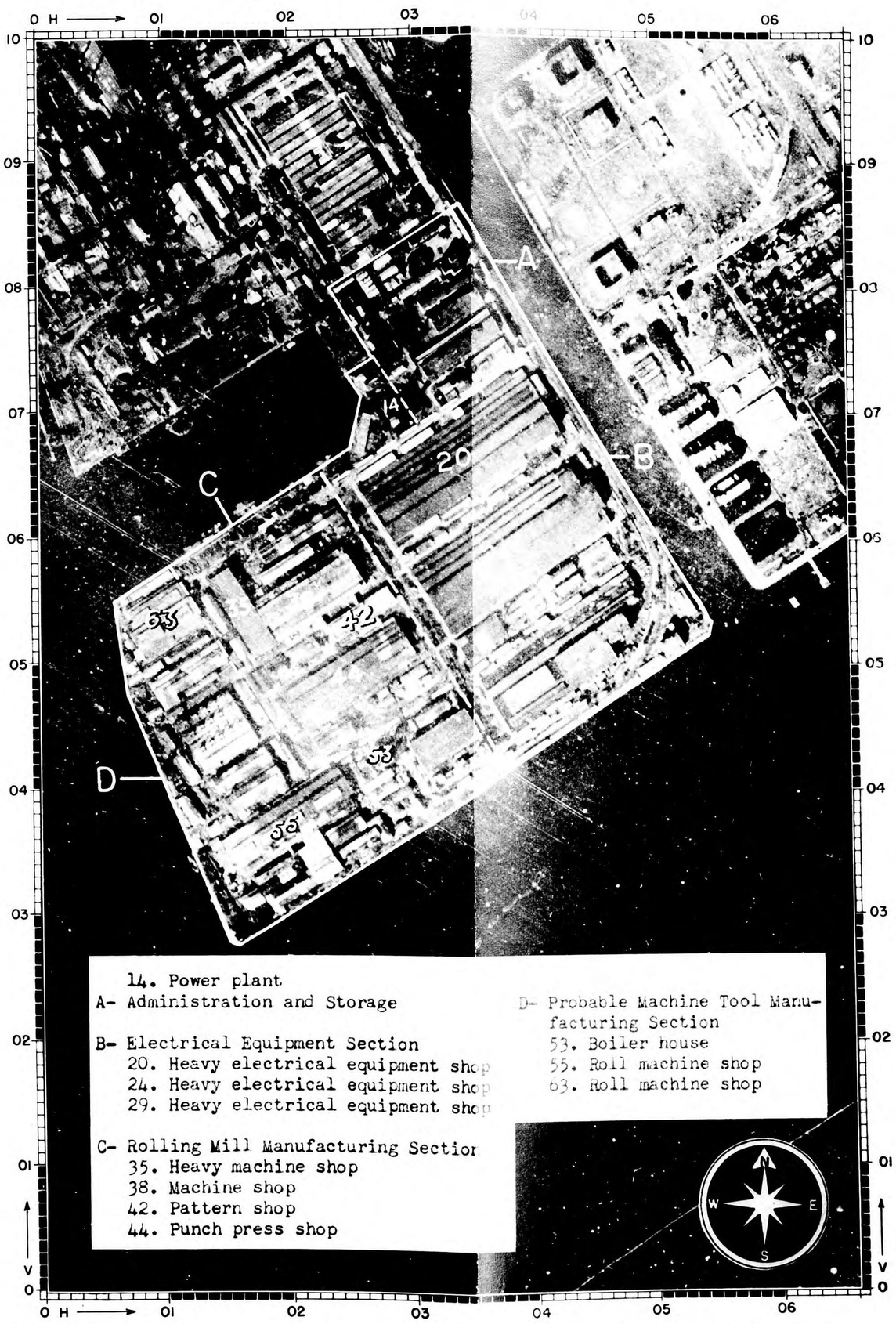
ISSUED 14 JANUARY 1945

CONFIDENTIAL

0 500 1000 1500 2000 2500 3000 FEET

0 1/4 1:6000 APPROX. 1/2 MILE





14. Power plant

A- Administration and Storage

B- Electrical Equipment Section
20. Heavy electrical equipment shop
24. Heavy electrical equipment shop
29. Heavy electrical equipment shop

C- Rolling Mill Manufacturing Section
35. Heavy machine shop
38. Machine shop
42. Pattern shop
44. Punch press shop

D- Probable Machine Tool Manufacturing Section
53. Boiler house
55. Roll machine shop
63. Roll machine shop

REPRINT

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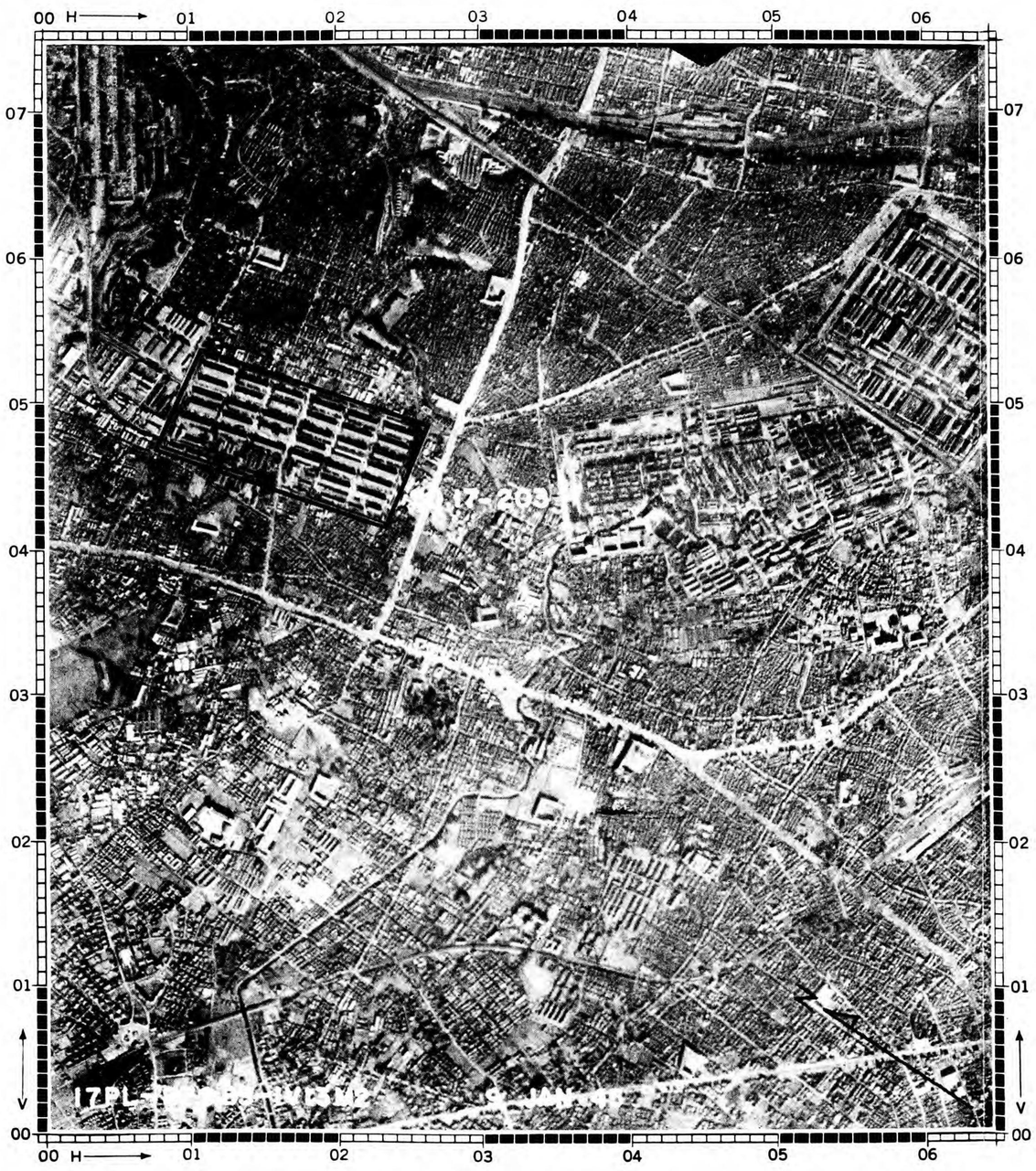
JOINT TARGET GROUP, WASHINGTON, D. C.
TARGET LOCATION SHEET

ORDNANCE SUPPLY DEPOT
(POWDER MAGAZINE)
TOKYO JAPAN

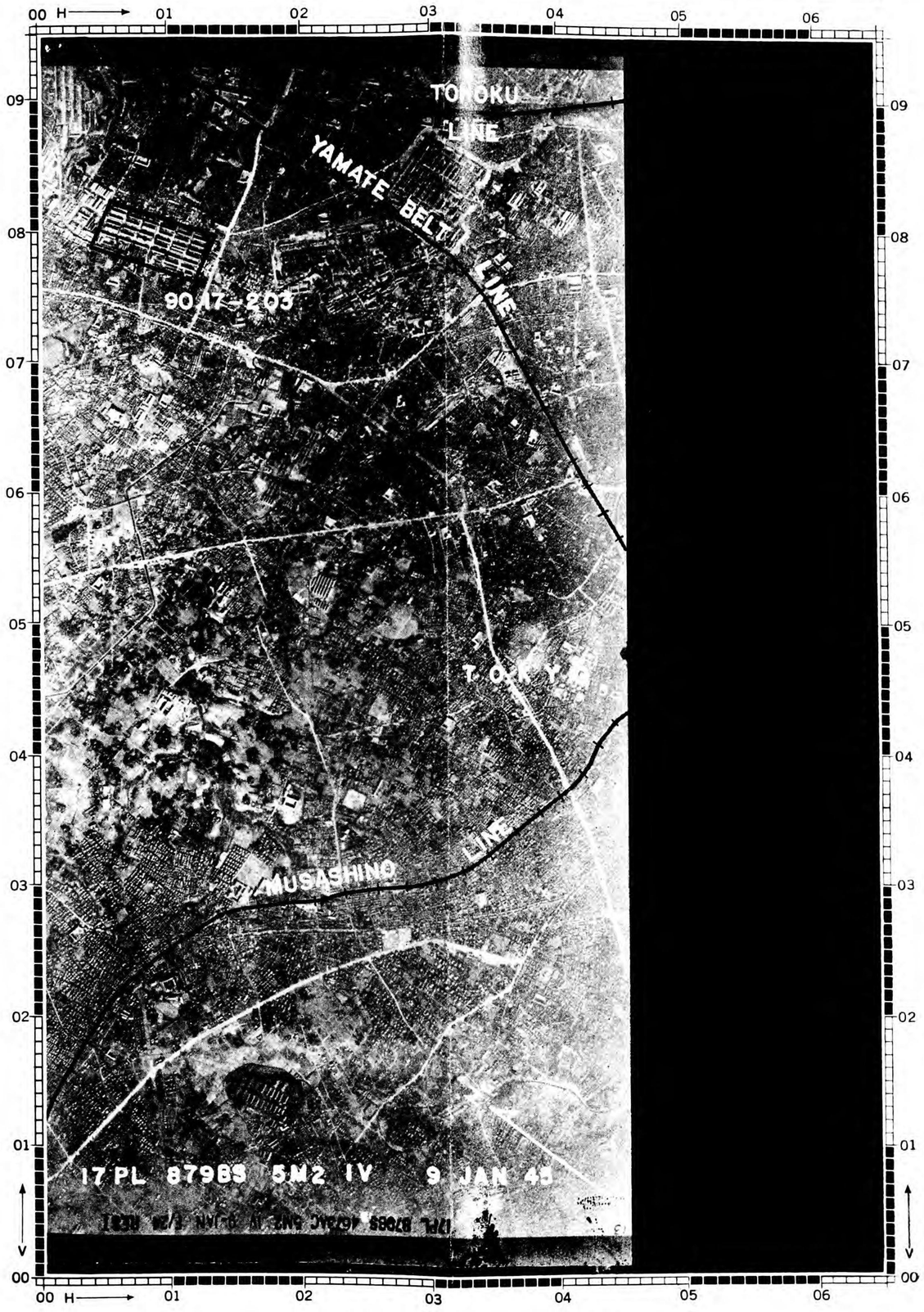
SHEET	90:17-203—TL
DATE	19 May 1945
TARGET	90:17-203
CATEGORY	MILITARY STORES
COORDINATES	35°46'N 139°43'E
ALTITUDE	65 feet

SIGNIFICANCE:

Target buildings reported as powder magazine. Photography of 9 January 1945 reveals large widely spaced buildings consistent with the storage of inflammable materials such as propellant powder. Non-explosive munitions, however, may also be stored here.



LARGE SCALE ILLUSTRATION—SCALE APPROX.: 1:16,500



SMALL SCALE ILLUSTRATION—SCALE APPROX.: 1:33,000

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File No. 541,203.1

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

SHEET 90:17-205–TI
DATE . . . . . 19 May 1945
PAGE 1

TARGET 90:17-205
OBJ. AREA 90:17
OBJ. FOLDER 90:17
CATEGORY
End Prdt. Ind.—Armament

LAT. . . . . 35° 45′ N
LONG. . . . . 139° 43′ E
ALT. . . . . 65 feet

ARMY ARSENAL AND MILITARY GUNPOWDER WORKS

TOKYO — JAPAN

SIGNIFICANCE

This is believed to be the main, or Itabashi, factory of Tokyo No. 2 Arsenal. Tokyo No. 2 Arsenal consists of this plant and 8 or 9 other establishments located in different parts of Japan, specializing in the manufacture of high explosives, propellants, initiators, fuzes, detonators, demolition equipment, ammunition and other similar products. It is believed to be a principal producer of a wide variety of explosives for the Japanese army and is probably the administrative head of all such production for the army.

This target is believed to specialize primarily in the manufacture of black powder and the loading of fuzes, primers and initiators, in addition to serving as the administrative center.

It is not believed that damage to the plant in the urban-area attack of 13/14 April 1945 will seriously affect production. Partial photo cover of 28 April 1945 shows damage only to secondary buildings.

LOCATION

(Refer to Illustration No. 90:17-205 P2.) In N Tokyo (Oji-ku) about 5 miles NNW of the Imperial Palace in an ordnance production and storage depot complex. Tokyo Bay is about 8 miles SE at its nearest point. The winding Sumida River, flowing generally NW-SE, is about 1.5 miles to the E; the NW-SE flowing Ara River is about 2.5 miles to the E. The target is bounded on the E by the Yamate Belt Line RR, separating it from the adjacent Army Arsenal (TARGET 90:17-206) of Tokyo No. 1 Arsenal. The NW-SE multiple track Tohoku Main Line is about 2700 feet to the E.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90:17-205 P3.) The target area is irregular, but essentially oblong in shape, measuring about 3600 feet NW-SE by 2000 feet NE-SW. Most of the compound is filled with small irregularly arranged buildings, many of which are revetted. There is a fairly heavy tree growth throughout the main section. A small stream winds through the length of the target, SW of the center, forming what appears to be a deep gully. At least 8 bridges cross this gully within the compound.

The primary manufacturing activities are housed in revetted buildings along the major axis from SE to NW in order: component loading (50), black powder manufacture (54), component loading (57), probable fuze loading (59).

PRIMARY OBJECTIVES

(Refer to Illustration No. 90:17-205 P3.) The most critical manufacturing processes (loading and black powder manufacture) are divided into many relatively small buildings. Available photography is not adequate for a selection of particular buildings as primary objectives. The most important areas in the compound, however, are believed to be: component loading (50, 56), black powder manufacture (54), possible initiator loading (57), and probable fuze loading (59).

CONSTRUCTION AND VULNERABILITY

(Refer to Illustration No. 90:17-205 P3.) In the primary areas most of the buildings appear to be small one-story structures of short span and normal eave height, probably combustible, and protected either individually or in small groups by earth embankments.

Building 26 and a few others near it are multi-storied buildings with frames, roofs, and floors of reinforced concrete. Other buildings generally are somewhat larger than the primary objectives; available air cover does not permit determination of details, but they apparently include both one- and two-story structures, with a fairly high proportion of combustible materials.

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist Planners in formulating such orders the following information is given:

An attack with a combination of high explosive and incendiary bombs is recommended, with incendiaries as the primary weapon. A preliminary structural and occupancy analysis of the plant indicates that weapons should be selected as follows:

	High Explosive	Fuzing	Incendiary
Preferred:	500-lb GP or 1000-lb GP	0.01 N/ND T 0.01 N/ND T	AN-M50 4-lb or AN-M69 6-lb (in aimable clusters for high altitude attack)
Alternative:	250-lb GP 2000-lb GP	0.01 N/ND T 0.01 N/ND T	
Not recommended:	Other GP bombs SAP or AP bombs Depth bombs		AN-M47 70-lb AM-M76 500-lb Fire bombs

Notes: (a) Use 0.025 N or 0.1 N fuzes if 0.01 N fuzes are not available, and 0.01 T fuzes if ND T fuzes are not available. ND tail fuzing is recommended since most of the buildings have light roof material and are best destroyed by blast effects.

(b) The above recommendations are on a weight for weight basis.

CAMOUFLAGE, DECOYS, AND SMOKE SCREENS

Photography of 9 January 1945 shows no attempts at camouflage. There is no evidence of the use of decoys. The use of smoke screens has not been reported in this area.

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ADDITIONAL INFORMATION

The other plants under the jurisdiction of Tokyo No. 2 Arsenal are:

Arao Branch of Tokyo No. 2 Arsenal, Arao, Kumamato-ken (TARGET 90:35-2094).

Iwahana Factory of Tokyo Arsenal, Iwahana-mura, Gumma-gun, Gumma-ken (TARGET 90:13-2043).

Kori Factory. Not located.

Research Laboratory, Itabashi-cho, Itabashi-ku, Tokyo.

Sakanoichi Branch of Tokyo No. 2 Arsenal, Sakanoichi, Oita-ken (TARGET 90:33-2092).

Sone Factory. Not located.

Tadanoumi Factory, Tadanoumi-mura, Toyoda-gun, Hiroshima-ken.

Tama Branch of Tokyo No. 2 Arsenal, Inagi-mura, Minami Tama-gun, Tokyo-fu (TARGET 90:17-2089).

Uji Powder Factory, Uji-gun, Kyoto-fu (TARGET 90:23-1169).

(Refer to Illustration No. 90:17-205 P3.) Partial photo cover of 28 April 1945 shows that the SW section of the compound containing buildings 9-39 was considerably damaged in the urban area attack of 13/14 April 1945. Building 50, component loading, is not damaged.

JOINT
TARGET
GROUP
WASHINGTON, D.C.

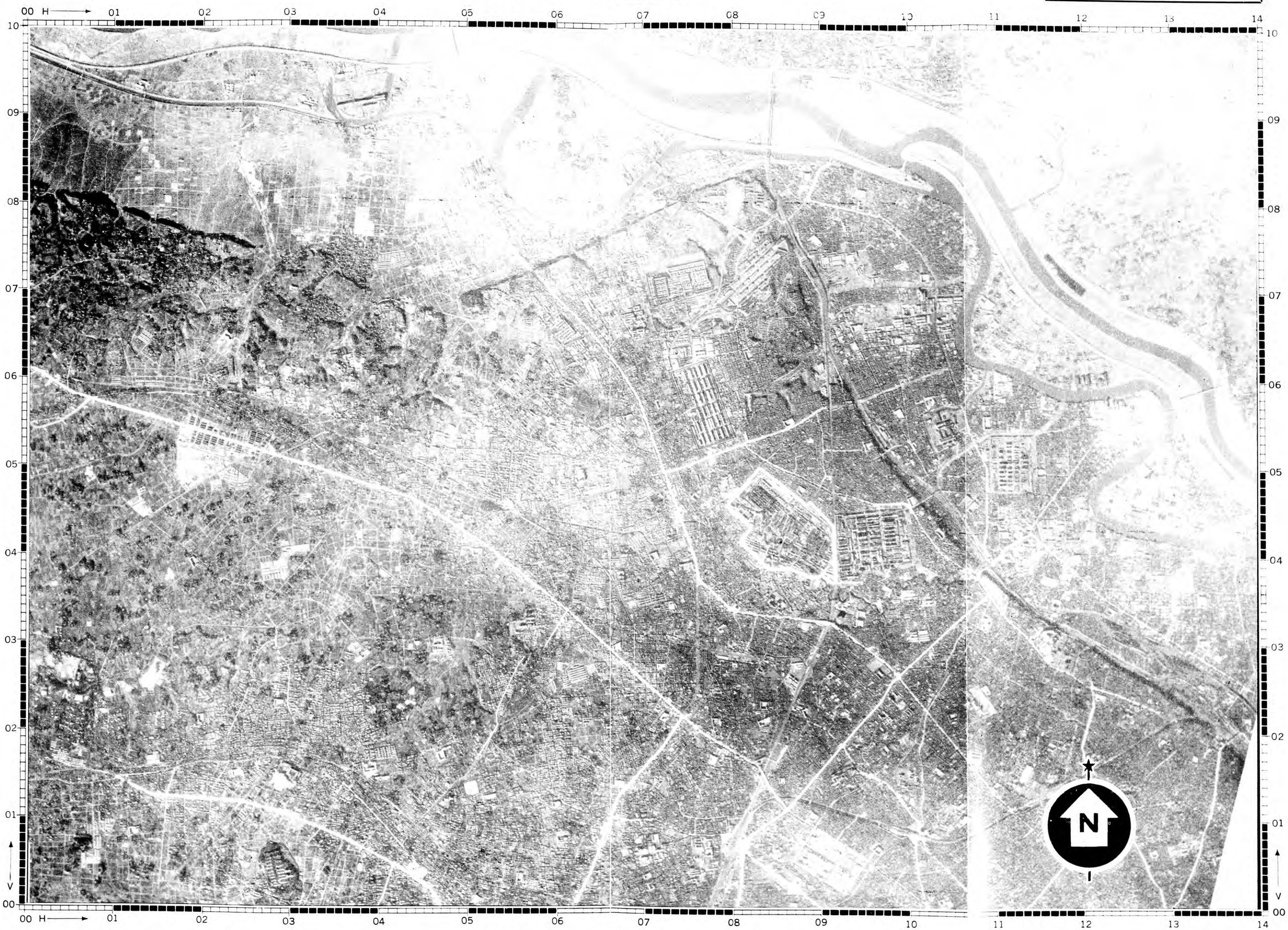
ARMY ARSENAL AND MILITARY GUNPOWDER WORKS

TOKYO **JAPAN**

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

ILLUSTRATION	**90:17-205 P1**
DATE	**19 May 1945**
TARGET	**90:17-205**
COORDINATES	**35 45'N 139 43'E**
PHOTOGRAPHED	**9 January 1945**



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File No. **541,205.52**

JOINT TARGET GROUP
WASHINGTON, D. C.

ARMY ARSENAL AND MILITARY GUNPOWDER WORKS

TOKYO — JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

ILLUSTRATION 90:17-205 P2
DATE . . . . . 19 May 1945
TARGET 90:17-205
COORDINATES . . . 35°45'N 139°43'E
PHOTOGRAPHED . . . 9 January 1945

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

10 09 08 07 06 05 04 03 02 01 00 V

LEGEND

90:17-202 Army Central Clothing Depot
90:17-203 Ordnance Supply Depot
90:17-205 Army Arsenal and Military Gunpowder Works
90:17-206 Army Arsenal
90:17:207 Military Gunpowder Works (Tokyo)
90:17-208 Army Branch Powder Factory
90:17-209 Military Works
90:17-224 Tabata-Nippori Railroad Yards

ARA RIVER
90:17-202
90:17-203
TOHOKU MAIN LINE
SUMIDA RIVER
ITABASHI
90:17-205
90:17-207
90:17-206
90:17-208
90:17-209
90:17-224
YAMATE BELT LINE R.R.
SUGAMO PRISON
N

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File No. 541,205.54

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JOINT TARGET GROUP
WASHINGTON, D. C.

ARMY ARSENAL AND MILITARY GUNPOWDER WORKS

TOKYO — JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

ILLUSTRATION	90:17-205 P3
DATE	19 May 1945
TARGET	90:17-205
COORDINATES	35°45'N 139°43'E
PHOTOGRAPHED	9 January 1945

LEGEND

1-7	Unidentified
8	Pump house
9-20	Storage (inert)
21-29	Administration, laboratory and storage
30	Boiler house
31-49	Servicing area (Storage, tool shops and offices)
P50	Component loading (15-20 buildings, mostly revetted)
51	Pump station.
52	Unidentified building with probable stand pipe.
53	Probable black powder magazine
P54	Black powder manufacturer (4 revetted buildings)
55	Inert storage
P56	Component loading (20-25 buildings, mostly revetted)
P57	Possible initiator loading (6 revetted buildings)
58	Possible empty fuse storage area
P59	Probable fuse loading (25 revetted buildings)
60	Loaded component storage area (6 partially revetted buildings)
61-67	Storage
68-70	Ballistic testing area and buildings

P—Denotes Primary Building

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File No. 541,205.56

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

SHEET 90:17-206-TI
DATE . . . . . 19 May 1945
PAGE 1

TARGET 90:17-206
OBJ. AREA 90:17
OBJ. FOLDER 90:17
CATEGORY End Prdt. Ind.—ARMAMENT

LAT. . . . . 35°45'N
LONG. . . . . 139°44'E
ALT. . . . . 65 feet

ARMY ARSENAL
(Tokyo Dai Ich Rikugun Zoheisho)

TOKYO **JAPAN**

REPRINT

SIGNIFICANCE

This is the main, or Jujo, factory of Tokyo No. 1 Army Arsenal. This arsenal, with three factories, is known to produce light tanks and tankettes, 6.5 mm. LMG's, 70 mm. barrage mortars, fuzes, primers, gun sights, height finders, binoculars, and small amounts of Army field radio and communications equipment. Reported production of small arms on a considerable scale is unconfirmed.

The specific products of this factory are not known, but it is believed engaged primarily in manufacture of light equipment. In the production of fuzes and primers it probably works closely with the adjacent Army Arsenal and Military Gunpowder Works (TARGET 90:17-205) of Tokyo No. 2 Arsenal. It may also produce the weapons listed above, except for tanks, which are probably made at the Omiya factory. An unconfirmed report of production of heavy ordnance is very unlikely. The research laboratory of Tokyo No. 1 Arsenal is located here.

The target was slightly damaged in the urban area attack of 13/14 April 1945. Although 13 of the 87 buildings were destroyed or damaged, they were small and their loss will not seriously affect production.

LOCATION

(Refer to Illustration No. 90:17-206 P2.) In N Tokyo (Oji-ku) about 5 miles NNW of the Imperial Palace in an ordnance production and storage depot complex. Tokyo Bay is about 8 miles SE at its nearest point. The winding Sumida River, flowing generally NW-SE, is slightly over one mile to the E at its nearest point; the NW-SE flowing Ara River is about 2 miles to the E. The target is bounded on the W by the Yamate Belt Line RR, separating it from the adjacent Army Arsenal and Military Gunpowder Works (TARGET 90:17-205). The NW-SE multiple track Tohoku Main Line is about 1000 feet to the NE.

A plant RR line, leaving the compound at the NE corner, runs along the S edge of the Military Gunpowder Works (TARGET 90:17-207) to the NE, and connects with the Army Branch Powder Factory (TARGET 90:17-208 to the E. The target is served by good highway connections.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90:17-206 P3.) The target area is roughly square in shape, measuring about 2000 feet E-W and a maximum of 2000 feet N-S. The compound is very compactly built-up with a large number of medium size and small shops arranged regularly in rows. The principal machine and fabricating shops are on the W side of the compound (buildings 12, 18, 21); through the center of the target (buildings 31, 32, 35, 44, 46, 47, 49); and in the SE corner (buildings 64, 65). Light bench work and assembly takes place on the E side (buildings 69, 70, 72-74). Heavier assembly is located in the NW (buildings 37, 38) and NE (building 76). Storage facilities are scattered throughout the compound. Offices and the research laboratory are on the S side.

PRIMARY OBJECTIVES

It is not possible to select any building or buildings as of outstanding importance, because of the nature of the shops in this plant, and of the products believed made in them. All of the larger shops and assembly buildings are believed to be of about equal importance.

CONSTRUCTION AND VULNERABILITY

(Refer to Illustration No. 90:17-206 P3.) There are a few multi-story reinforced concrete-framed buildings along the S edge of the compound. Buildings 69, 70, and 72-74 appear to be two-story wood-framed structures of average story heights and short spans. Most of the other buildings are one-story storage and shop buildings ranging in area up to about 75,000 square feet. Probably at least half of them are wood-framed, the remainder, including two or three which probably contain traveling cranes, being steel-framed. Eave heights generally are normal, and spans short to normal. Roof surfaces are not determinable from available cover but are probably mostly of lightweight non-combustible sheet material together with some wood sheathing, and with concrete slabs on the few concrete-framed buildings.

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist Planners in formulating such orders the following information is given:

An attack with a combination of high explosive and incendiary bombs is recommended. A preliminary structural and occupancy analysis of the plant indicates that weapons should be selected as follows:

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File No. 541,206.1

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

	High Explosive	Fuzing	Incendiary
Preferred:	1000-lb GP or 2000-lb GP or 500-lb GP	0.01 N/ND T 0.01 N/ND T 0.01 N/ND T	AN-M50 4-lb or AN-M69 6-lb (in aimable clusters for high altitude attack)
Alternative:	250-lb GP	0.025 N/ND T	AN-M47 70-lb AN-M76 500-lb
Not recommended:	Smaller GP bombs SAP or AP bombs Depth bombs		

Notes: (a) Use 0.1 N fuzes if 0.01 N fuzes are not available, and 0.01 T fuzes if ND T fuzes are not available. ND tail fuzing is recommended since most of the buildings have light roof material and are best destroyed by blast effects.

(b) The 250-lb GP is not recommended as an alternative weapon in high altitude attacks.

(c) The above recommendations are on a weight for weight basis.

CAMOUFLAGE, DECOYS, AND SMOKE SCREENS

Photography of 2 April 1945 shows no attempt at camouflage of the target other than a small amount of black and white rectangular painting. There is no evidence of the use of decoys. No smoke screens have been reported in the area.

ADDITIONAL INFORMATION

The other factories of this arsenal are:

Kawagoe Branch of Tokyo No. 1 Arsenal (TARGET 90:17-2095).

Omiya Branch of Tokyo No. 1 Arsenal, Omiya, Saitama-ken.

This target was built in the early 1930's to replace the Army Arsenal and Engineering School (TARGET 90:17-352), the arsenal of which was later torn down.

In the urban area attack on 13/14 April 1945, this plant was damaged as follows:

a. Destroyed: Shops 82, 83, 85-87; storage buildings 24, 52, 84; garage 53; and unidentified buildings 23, 25.

b. Seriously damaged: Storage building 22.

c. Moderately damaged: Shop 21.

REPRINT

JOINT TARGET GROUP

ARMY ARSENAL

TOKYO JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

ILLUSTRATION	90:17-206 P1
DATE	6 June 1945
TARGET	90:17-206
COORDINATES	35 45'N 139 44'E
PHOTOGRAPHED	9 January 1945

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File No. 541,206.52

RESTRICTED

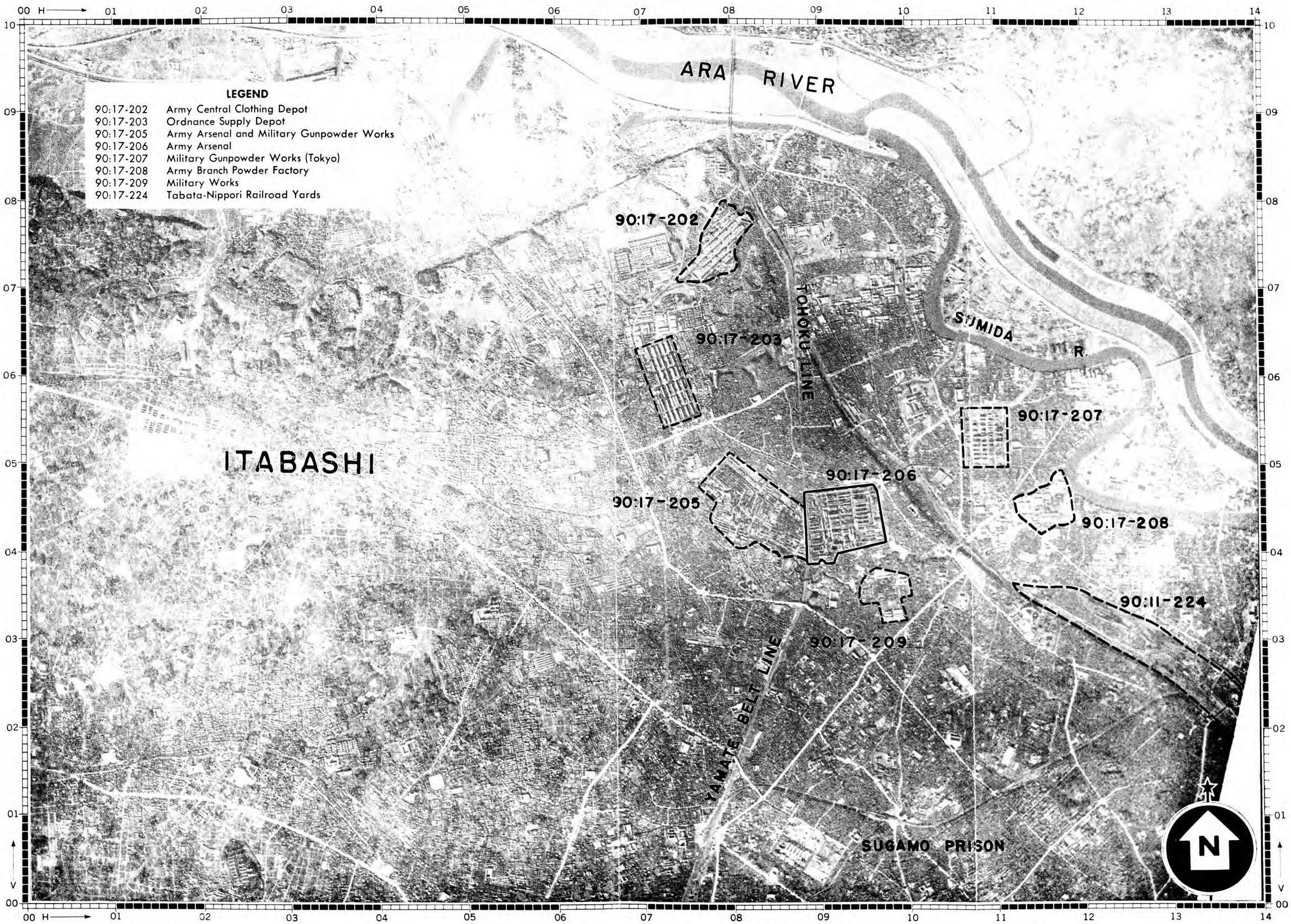
JOINT TARGET GROUP
WASHINGTON, D. C.

ARMY ARSENAL

TOKYO JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

ILLUSTRATION	90:17-206 P2
DATE	6 June 1945
TARGET	90:17-206
COORDINATES	35°45'N 139°44'E
PHOTOGRAPHED	9 January 1945



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RESTRICTED

File No. 541,206.54

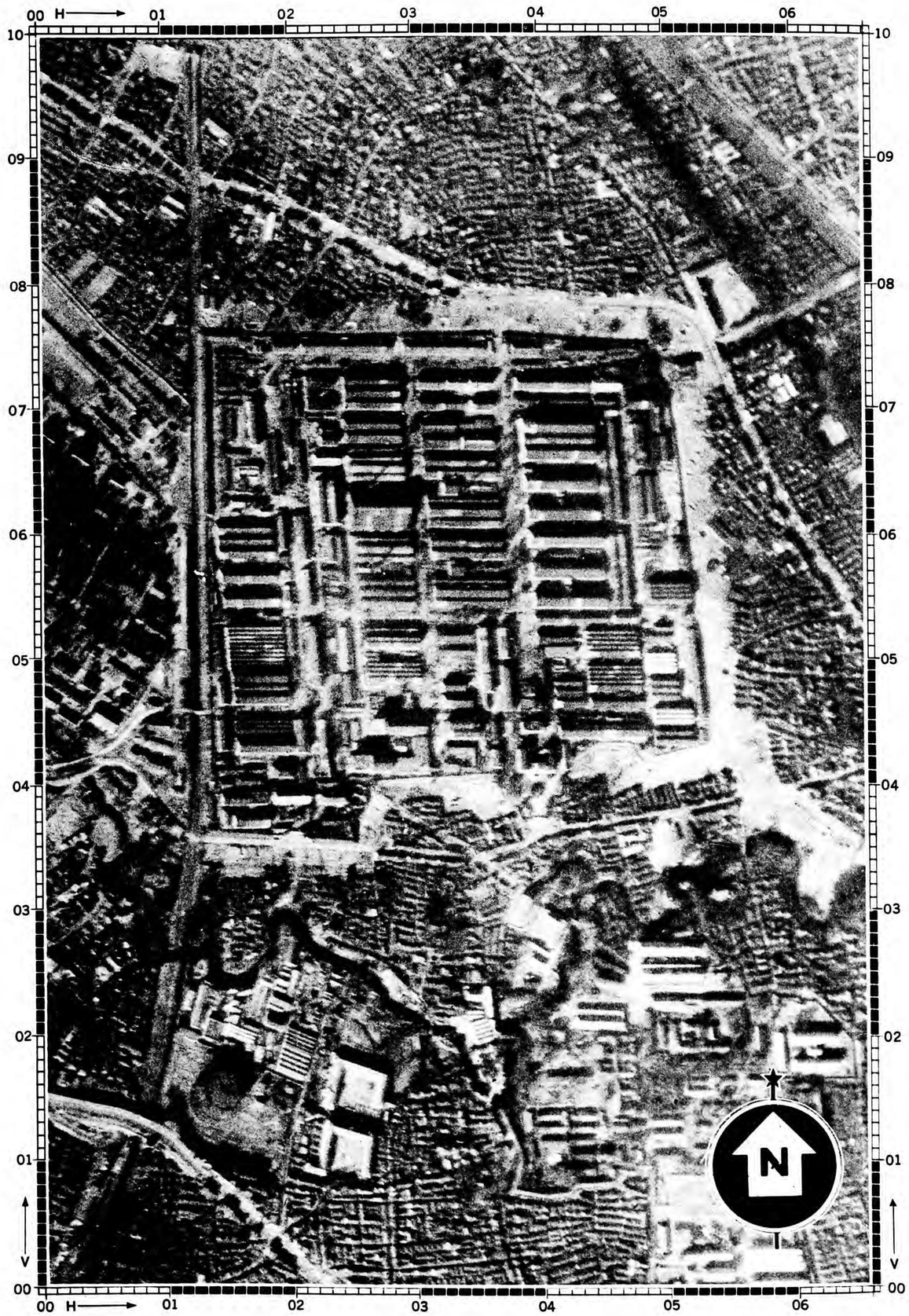
JOINT
TARGET
GROUP
WASHINGTON, D. C.

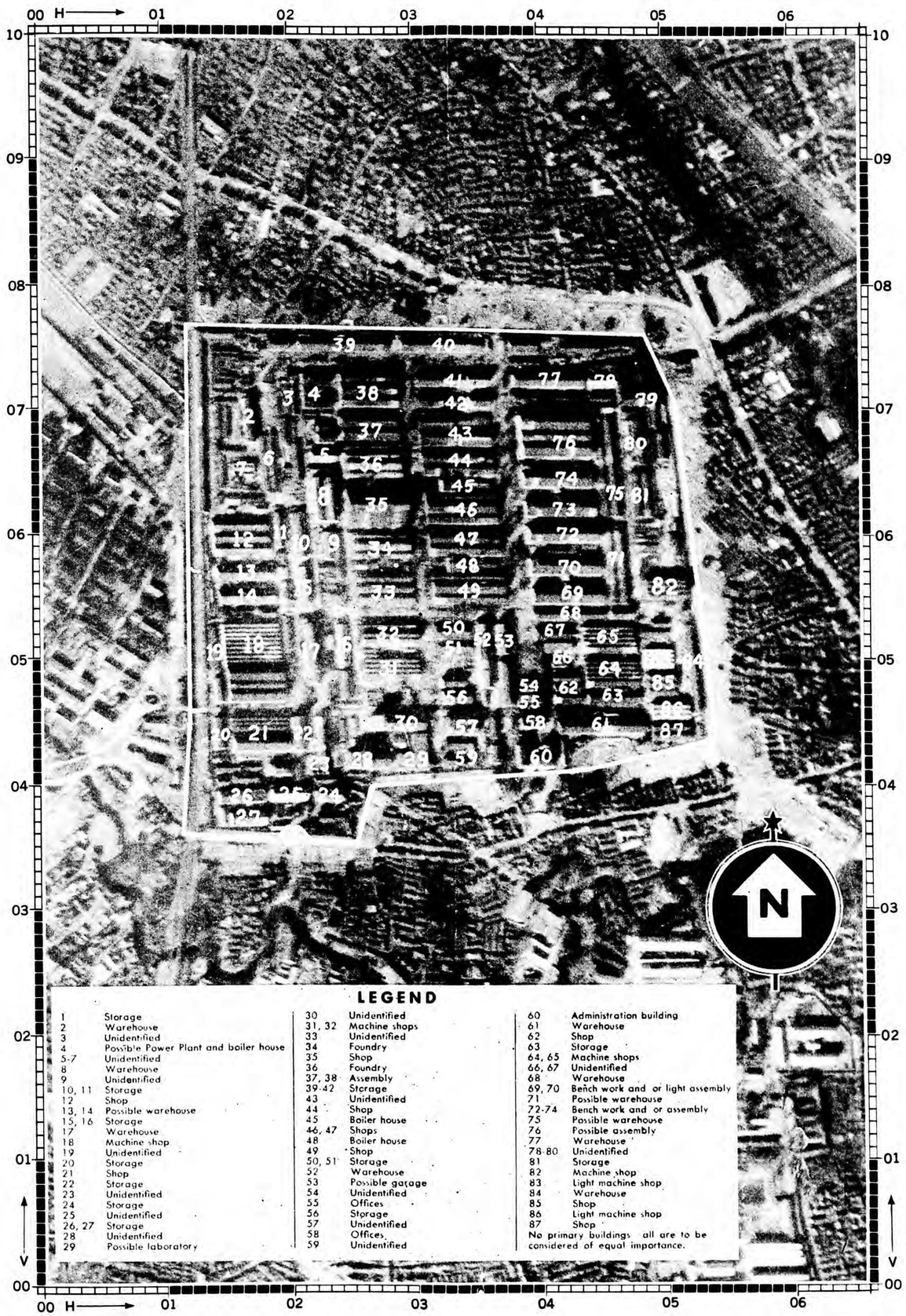
ARMY ARSENAL
TOKYO JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 ¼ 1:6000 APPROX. ½ MILE

CONFIDENTIAL

SHEET	90:17-206—P3
DATE	19 May 1945
TARGET	90:17-206
COORDINATES	35°45'N 139°44'E
PHOTOGRAPHED	9 January 1945





LEGEND

1	Storage	30	Unidentified	60	Administration building
2	Warehouse	31, 32	Machine shops	61	Warehouse
3	Unidentified	33	Unidentified	62	Shop
4	Possible Power Plant and boiler house	34	Foundry	63	Storage
5-7	Unidentified	35	Shop	64, 65	Machine shops
8	Warehouse	36	Foundry	66, 67	Unidentified
9	Unidentified	37, 38	Assembly	68	Warehouse
10, 11	Storage	39-42	Storage	69, 70	Bench work and or light assembly
12	Shop	43	Unidentified	71	Possible warehouse
13, 14	Possible warehouse	44	Shop	72-74	Bench work and or assembly
15, 16	Storage	45	Boiler house	75	Possible warehouse
17	Warehouse	46, 47	Shops	76	Possible assembly
18	Machine shop	48	Boiler house	77	Warehouse
19	Unidentified	49	Shop	78-80	Unidentified
20	Storage	50, 51	Storage	81	Storage
21	Shop	52	Warehouse	82	Machine shop
22	Storage	53	Possible garage	83	Light machine shop
23	Unidentified	54	Unidentified	84	Warehouse
24	Storage	55	Offices	85	Shop
25	Unidentified	56	Storage	86	Light machine shop
26, 27	Storage	57	Unidentified	87	Shop
28	Unidentified	58	Offices		
29	Possible laboratory	59	Unidentified		

No primary buildings all are to be considered of equal importance.

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CONFIDENTIAL

File No. 541,206.56

REPRINT

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

SHEET . . . . . 90:17-274—TI
DATE . . . 9 February 1945
PAGE 1

TARGET 90:17-274
OBJ. AREA 90:17
OBJ. FOLDER 90:17
CATEGORY . . . Bsc. Serv. & Utly.—SHIPPING

LAT. . . . . 35°17′N
LONG. . . . . 139°40′E
ALT. . . . . 10 feet

YOKOSUKA NAVY YARD

YOKOSUKA JAPAN

ALL PREVIOUS SHEETS CANCELLED

REPRINT

SIGNIFICANCE

This is one of the four largest and most important navy yards in Japan. It is compactly laid out and equipped to repair, construct and fit out every type of Japanese naval vessel. It contains six dry docks, two of which can accommodate the largest type naval vessels, four building ways, and a marine railway. Two of these ways are relatively wide and will accommodate several small vessels at one time. The yard contains complete repair facilities including a foundry, forge shop, boiler shop, diesel engine plant, and machine, ordnance and engine shop; also two structural shops, a new and old mold loft, a landing craft engine factory, and many other supplemental and complementary buildings. There are several thousand feet of docking space, a long slender finger pier and many large fixed, movable, and floating cranes. Important engineering research laboratories are reported to be located here. It is apparent that there is considerable activity at this yard. Photography of 1 November 1944 showed the docks, wharves and piers to be crowded with small and medium size naval vessels, landing craft, and small boats. The dry docks and building ways are all in use.

LOCATION

Along the entire W side of Yokosuka Peninsula which lies about 27 air miles S of Tokyo, at the southern end, western side, of Tokyo Bay. Sagami Bay is about 5 miles to the SW across the Miura Peninsula on which hills rise to about 800 feet. The base is about 10 miles N from the S tip of Miura Peninsula. Chiba Peninsula across Uraga Strait, is about 8 miles to the E at its closest point. It is connected with Yokohama by a branch line RR and a 3 lane macadam highway. A second branch connects with the Tokaido Mainline RR at Ofuna about 8 miles to the NW.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90:17-274—P4.) The target area is of irregular shape measuring about 7,000 feet long from N to S and about 3,000 feet wide at its widest point. The buildings, ways, docks and wharves are tightly packed in every available space throughout the yard. Relatively high hills have been cut into and land has been reclaimed. Railroad tracks and roads serve all parts of the yard.

The S end of the target area is occupied by three slipways, 1100, 920, 260 feet in length (Slipways Nos. 1, 2 and 4), a marine railway, 525 feet in length (Slipway No. 3), a structural shop and old mold loft (Bldgs. 4 and 5), and supplementary structures. Photography of 1 Nov. 1944 showed four destroyer-type and a number of smaller vessels under construction in these ways.

The central section of the yard, on a small peninsula jutting NW into Yokosuka Harbor, has at its northern end dry dock No. 5, about 1,015 feet in length and dry dock No. 4, about 750 feet long; at its southern end, dry dock No. 3, about 300 feet in length, dry dock No. 2, approximately 460 feet long, and dry dock No. 1, about 420 feet long. Photography of 1 November 1944 showed that dry dock No. 1 contained two vessels 135 and 120 feet long, dry dock No. 2 a 350 foot vessel, dry dock No. 3 possibly a small submarine, dry dock No. 4 a 265-foot vessel (afloat), dry dock No. 5 two 280-foot vessels. All five of these docks are served by the major buildings adjacent to them on the small peninsula, including a foundry and machine shop (34), forge shop (27 and part of 28), boiler shop (33 also reported as a forge shop) diesel engine shop (59), and a machine, ordnance and engine shop (46, also reported as a pattern shop, 47 and 49). Other identified shops such as copper, pipe, electrical and sheet metal shops are also located in this area. A landing craft engine factory (17) is also located on this peninsula. The N edge of this peninsula is used as fitting out and repair and replacement area, as is the water's edge N from this small peninsula to dry dock No. 6. A long slender finger pier (pontoon) extends into the opening formed between Yokosuka Peninsula and the small peninsula. Photography of 1 November 1944 showed a large number of small vessels tied up along this dockage, including six or seven destroyer-type vessels.

The N end of the target area, the most recently constructed section, contains the largest dry dock in the yard, No. 6, over 1060 feet long. This is a construction dock, equipped with six large cranes, a large new structural shop (91), about 690 feet long and about 485 feet wide at its widest point, new mold loft (90), and supporting shops and equipment. Immediately to the NW of this structural shop are located several contiguous slipways (Slipway 5), 435 feet long, 165 feet wide, for the construction of small vessels, and presumably supporting shops. Photography of 1 November 1944 showed several small craft under construction on these ways.

There appeared to be, in the photography, a large quantity of material stored adjacent to the building ways and dry docks. There were many 80 foot to 110 foot vessels along the fitting-out wharves and piers. Adjacent to the landing craft engine factory (17) were craft measuring approximately 50 feet in length. Large numbers of small boats were also packed around the S end of the yard adjacent to Slipway 4.

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(Refer to Illustration No. 90:17-274—P2.) There is known to be extensive anchorage facilities for all sizes and types of ships in Yokosuka and nearby Harbors. On the E side of Yokosuka Peninsula are located an artillery school, military warehouses, naval barracks, naval hospital, machinist school, and a naval headquarters. On the W side of Yokosuka Harbor are located huge oil storage areas (Azuma Peninsula), the Azuma Oil Storage (TARGET 90:17-297); Yokosuka Arsenal and Armament Works (TARGET 90:17-282); and Oppama Naval Air Station (TARGET 90:17-298).

PRIMARY OBJECTIVES

(Refer to Illustration No. 90:17-274—P4.) The primary objectives vary, depending upon whether repair facilities, new construction plant, or work in process is given the principal weight in evaluation. The machine, ordnance, and engine shops (46, 47, and 49) are probably the most vital area from a repair standpoint, the new and old structural shops and new and old mold lofts (4, 5, 90, and 91), are the most important from a new construction viewpoint, and the actual work in process in the dry docks, alongside the wharves, and on the ways, the most important for immediate front line effect. The destruction of the dry dock caissons and pump houses would probably put the dry docks out of operation for the longest period of time, but are very small targets and the pump houses may be cross connected.

CONSTRUCTION AND VULNERABILITY

(Refer to Illustration No. 90:17-274—P4.) The majority of the buildings are one-story steel frame with corrugated iron roofing and siding. Sawtooth roofed buildings have spans about 35 feet and are approximately 38 feet high to the eaves. Spans of 85 feet are found in monitor roofed buildings whose heights to eaves are about 45 feet. The smaller shed type buildings have spans of 30 to 40 feet and are 15 to 18 feet high to the eaves. Buildings 27, 28, 33, 34, 49, 59, and 91 probably contain gantry cranes which necessitate extra heavy steel framing along the side walls. Drydocks are of standard heavy concrete or granite block construction.

WEAPON RECOMMENDATIONS

Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such instructions and to assist Planners in formulating such orders the following information is given:

A preliminary structural and occupancy analysis of the yard indicates that weapon recommendations should vary according to the following objectives:

Objective	*Weapon Recommendations*
1. Heavy engineering shops (repair and new construction facilities)	1. 2000-lb. GP, fuzed 0.1 sec. nose/0.025 sec. tail Alternate: 1000-lb GP, fuzed similarly.
2. Caissons and pump houses (dry docks)	2. 500-lb GP, fuzed 0.1 sec. nose/0.025 sec. tail. Alternate: 1000-lb GP, fuzed similarly.
3. Ships (work in progress)	3. 500-lb GP, fuzed 0.1 sec. nose/0.025 sec. tail. Alternate: 1000-lb GP, fuzed similarly.

Large GP bombs are necessary to cause maximum damage in the heavy engineering shops, which contain large, massive equipment and in some units, gantry cranes. The 2000-lb bomb, which produces a crater 40 to 45 feet in diameter, has the best chance of undermining two or more main columns and thus causing primary collapse of the crane runway. Maximum cratering will result from 0.025 fuzing.

The caissons and pump houses of the dry docks are small. Direct hits with bombs of 500-lbs upwards are needed for maximum effectiveness.

Photography of 1 November 1944 shows most of the vessels in the area to be destroyer-type or smaller craft. Therefore, the 500-lb bomb is recommended rather than larger GP's.

Incendiary bombs are not recommended against this target, as the objectives are largely non-combustible.

CAMOUFLAGE, DECOYS AND SMOKE SCREENS

Photography of 1 November 1944 shows no attempt at camouflage or use of decoys. No use of smoke screens has been reported.

ADDITIONAL INFORMATION

The following changes in targets at Yokosuka have been made: TARGETS 90:17-276, 277, 278, 295, 1452, 1453, 1454, 1457, and 1458 are cancelled. The name of TARGET 90:17-274 is changed from "Shipyard of Yokosuka Naval Base" to "Yokosuka Navy Yard" and the boundaries of the target area are extended to include the former TARGETS 90:17-276, 277 and 1454. The arsenal area of this base, TARGET 90:17-282, is located about 9,000 feet W of this yard.

REPRINT

TARGET NO. 90:17–274

COORDINATES 35° 17' N 139° 40' E

PHOTOGRAPHED 1 NOVEMBER 1944

JOINT TARGET GROUP • WASHINGTON, D. C.

YOKOSUKA NAVY YARD

YOKOSUKA, JAPAN

0 2000 4000 6000 FEET

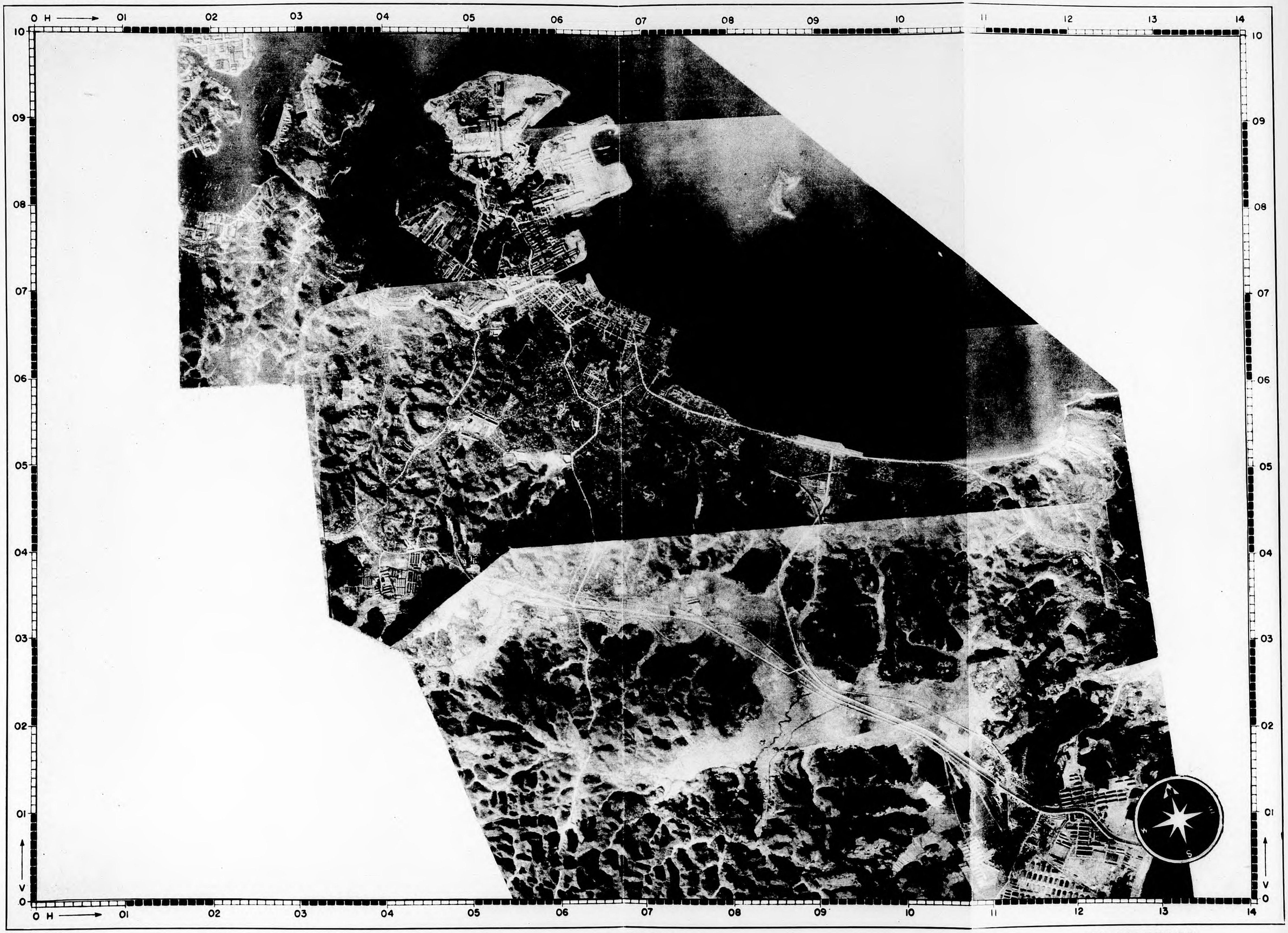
0 ½ 1 MILE

1:32 000 APPROX

ILLUSTRATION NO. 90:17–274 P1

ISSUED 22 FEBRUARY 1945

RESTRICTED



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FILE No **541,274.52**

TARGET NO. 90:17–274

COORDINATES 35° 17' N 139° 40' E

PHOTOGRAPHED 1 NOVEMBER 1944

JOINT TARGET GROUP • WASHINGTON, D. C.

YOKOSUKA NAVY YARD

YOKOSUKA, JAPAN

0 2000 4000 6000 FEET

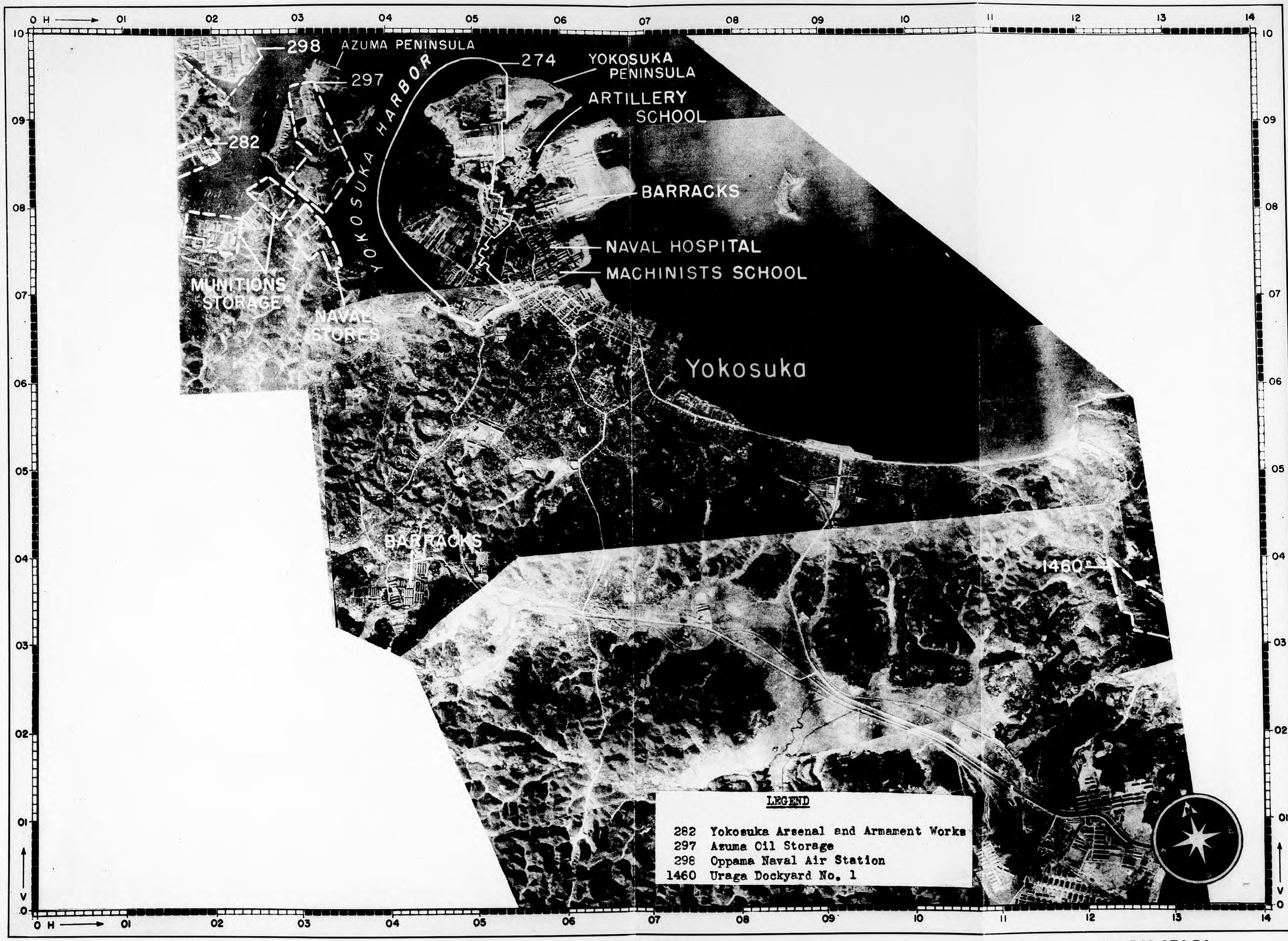
0 ½ 1 MILE

1:32 000 APPROX.

ILLUSTRATION NO. 90:17–274 P2

ISSUED 22 FEBRUARY 1945

RESTRICTED



LEGEND

282 Yokosuka Arsenal and Armament Works
297 Azuma Oil Storage
298 Oppama Naval Air Station
1460 Uraga Dockyard No. 1

REPRINT

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FILE No. 541,274.54

TARGET NO. 90:17–274

COORDINATES 35 17' N 139 40' E

PHOTOGRAPHED 1 NOVEMBER 1944

JOINT TARGET GROU[P] • WASHINGTON, D. C.

YOKOSUKA NAVY YARD

YOKOSU[KA], JAPAN

0 500 1000 150[0] 2000 2500 3000 FEET

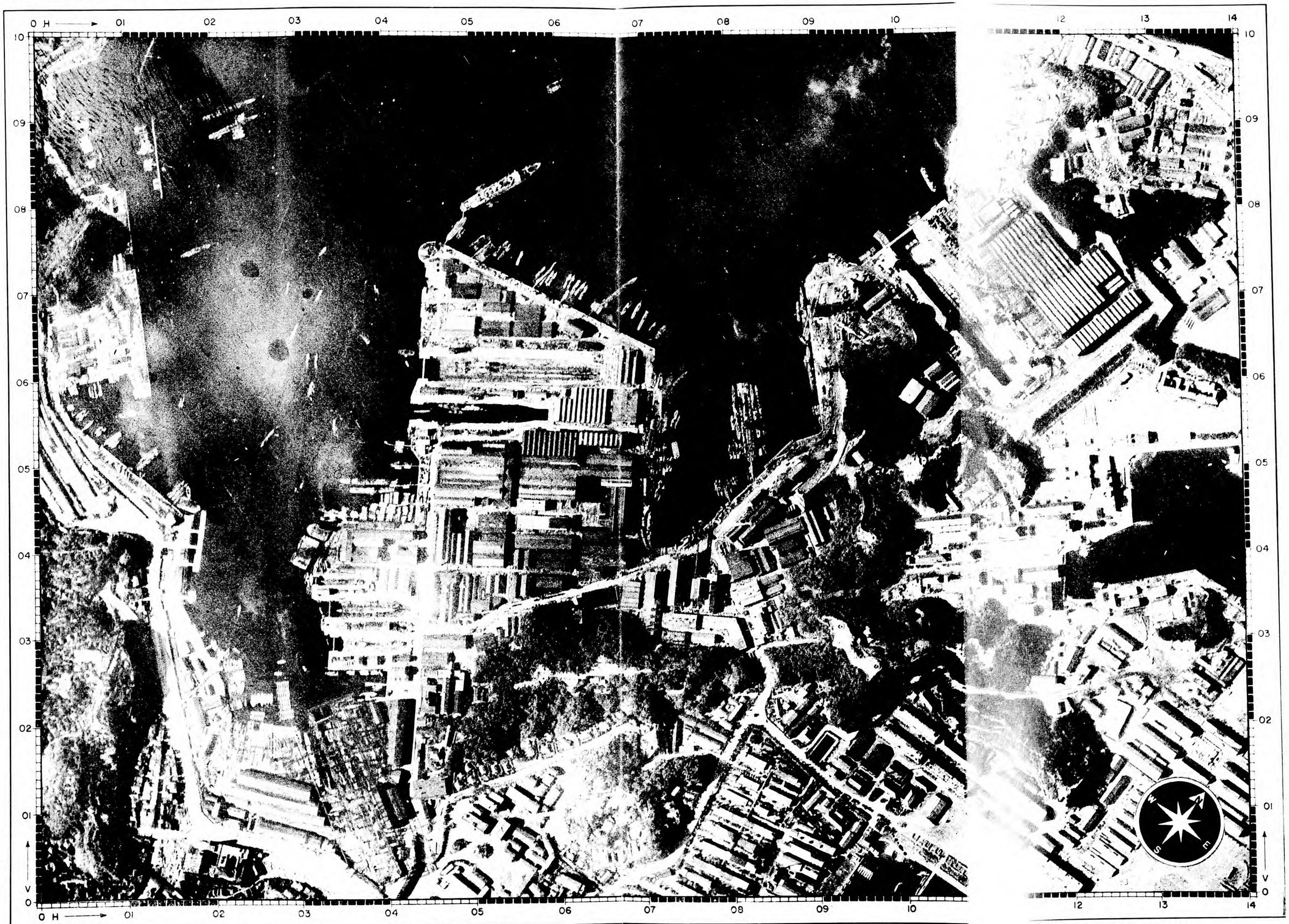
0 1/4 1:6000 APPROX. 1/2 MILE

ILLUSTRATION NO. 90:17–274 P3

ISSUED 22 FEBRUARY 1945

RESTRICTED

REPRINT



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FILE NO. **541,274.56**

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JOINT TARGET GROUP
WASHINGTON, D. C.

YOKOSUKA NAVAL YARD
YOKOSUKA JAPAN

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

RESTRICTED

SHEET 90:17-274 P4
DATE .....13 May 1945
TARGET 90:17-274
COORDINATES...35°17'N 139°40'E
PHOTOGRAPHED.1 November 1944

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

LEGEND

1. Small Boat Shop
2. Boat Shed - Tracks appear to enter building from landward and water sides
3. Probably small storage huts, etc., etc.
*4. Structural Shop
*5. Offices and probably old Mold Loft
6. Tool Lockers and Small Store
7. Offices
8. Ship Shed and adjoining Shop - Marine Railway Tracks continue through building
9. Small Ship
10. Probable Warehouse (Many rails reported to be in building)
11. Small Ship
SW. Marine Railway - Tracks appear to continue through building No. 8.
"SW" to indicate all marine railroads
SW 1. Shipbuilding ways - Max. length approx. 1500' - 1/3 of length submerged
SW 2. Shipbuilding ways - Max. length approx. 1000' - Approx. 1/3 of length submerged
SW 3. Ways for small vessels - Approx. 200' x 100' wide
10. Unidentified
11. Unidentified
DD 1. 450' x 75' Pump House probably [illegible] between DD 1 & DD 2
12. Active Storage Shed
DD 2. 450' x 80' Pump House probably [illegible] at head of ship's each side
DD 3. 300' x 45' Pump House probably [illegible] at head of ship between DD 2 & DD 3
16. Probably Rigger, Paint and Dock Shops
17. Unidentified - probably warehouse
*18. Landing Craft and Small Boat Engine Mfg. Plant
19. Office
20. Office and reported Warehouse
21. Office
22. Office
*23. Offices (Reported Deceased Buyer Office)
24. Offices
25. Warehouse
26. Warehouse
27. Warehouse
*28. Forge Shop
*29. Forge Shop (East part reported as Transportation plant, Warehouse)
29. Unidentified
30. Unidentified
31. Reported Pattern Shop
32. Reported Pipe Shop
*33. Boiler Shop
*34. Foundry - East corner reported devoted to laboratory or engineering research
DD 4. 750' x 85' Pump House - Probably at Gate end of South side of DD
DD 5. 1015' x 115' Pump House - Probably at Gate end of dock between DD 4 and DD 5
35 thru 44. Rigger Paint & Dock Shops - General outdoor storage area for Repair Tools and Materials
Probably Rigger, Paint and Dock Shops
*46. Machine, Ordnance and Engine Shop
*47. Machine and reported Sheet Metal Shop
48. Hammer-Head Crane at Fitting out Wharf
*49. Machine, Ordnance and Engine Shop
50. Possible Welding Shop
51. Reported administration building and Watchman's House
52. Reported Engine Parts Finishing Shop
53. Reported Copper Shop
54. Reported Welding Shop
55. Reported Welding Shop
56. Warehouse
57. Warehouse
58. Unidentified (Reported Electric Power Plant - very doubtful)
*59. Diesel Shop (Smith Wing reported as Electrical Testing Shop)
60. Unidentified
61. Unidentified
62. Reported Battery Recharging Department
63. Reported Wood Working Shop
64. Reported Aircraft Engine Testing Shop
*65. Power Station with overhead conveyor to waterfront
66 thru 69. Unidentified - Possible experimental laboratories located in this area
70. Office
71. Unidentified
72. Unidentified
73 thru 75. Repair and Replacement Shops
76. Fitting out Shops
77. Fitting out Shops
78 thru 81. Repair and Replacement Shops
82. Fitting out Shop
83A. Hammer-Head Crane - Total length 330' - Prob. fixed
83B. Hammer-Head Crane - Also Fitting out Wharf
83C. Hammer-Head Crane - Probably Movable on Pier in Bay
84. Work Shed
85. Unidentified
86. Probably Storage Warehouse
87. Probably Storage Warehouse
88. Unidentified
89. Unidentified
*90. New Mold Loft
*91. New Structural Shop
92. Small Tool, Storage and Work Shed
93. Small Tool, Storage and Work Shed
DD 6. (Under construction)
94 thru 96. Hammer Head Cranes - All appear movable - 5 each side DD
97 thru 106. Traveling Over Head Cranes
S.W. 4. [illegible] There appears to be a low pier-like[illegible] back of it toward the [illegible] of this [illegible] and [illegible] appear submerged or covered at high tide.
No. Yellow Numbers for the following:
107 thru 110. Unidentified - Four Big Work Shops for outfit [illegible]
111 thru 114. Unidentified - Appear to be Storage Shed [illegible]
115. Reported Torpedo Boat Plant
116. Unidentified
117 thru 146. Unidentified

* Denotes primary building no.

Yokosuka Harbor
Floating Crane
Floating Cranes
Komi Bay
DD 1
DD 2
DD 3
DD 4
DD 5
DD 6
S.W. 1
S.W. 2
S.W. 3
S.W. 4

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File No. 541,274.58

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

NIPPON ELECTRIC CO., FACTORY NO. 2, MITA PLANT
(Now known as Sumitomo Tsushin Kogyo KK)
TOKYO . . . . . JAPAN

Sheet	90:17-326-TI
Date	5 April 1945
Page	1
Target	90:17-326
Obj. Area	90:17
Obj. Folder	90:17
Category:	End Prdt. Ind.—Lt. Mfgr.
Lat.	35°39′ N
Long.	139°45′ E
Alt.	15 feet

ALL PREVIOUS SHEETS CANCELLED

SIGNIFICANCE

Probably the most important plant in Japan for the manufacture of telephonic and general electrical communication equipment. Equipment made in this plant includes switchboards, train dispatching apparatus, and virtually all types of components necessary for equipping and maintaining the telephone system in Japan. It is also an important producer of electronic components other than tubes. Three-fourths of all electrical indicating instruments used in Japanese military radar and radio apparatus are believed to be manufactured here. The plant produces large quantities of other radio and radar components such as condensers, wire-wound resistors, transformers, and batteries. Tube production at this plant, if it exists, is believed to be unimportant.

This target was once the primary radio and radar manufacturing center for the company. According to reports, however, all tube and radio and radar equipment manufacture and research was transferred, about 1937, to the company's Tama Plant (Target 90.17–497). It is possible, however, that this plant is still playing an active part in the research and production of radio and radar equipment, including tubes.

LOCATION

(Refer to Illustration No. 90.17–496 P2.) In Tokyo City about 2 miles south of the Imperial Palace and about 3,300 feet west of the Tokyo waterfront. The main Tokyo-Yokohama railroad, running generally north-south, curves past the plant about 700 feet from its southeast corner. The Shinagawa railroad yards (Target 90.17–364) are about 2,600 feet to the south; the Shiodome freight yards (Target 90.17–365) are about 4,600 feet to the north-northeast. A wide primary highway paralleling the railroad runs between the target and the railroad. The target is bounded on the east by Mita Street which runs north from the highway and borders the Imperial Palace moat on the east side of the palace; it is bounded on the north and west by a 130-foot wide firebreak. A car barn adjoins the plant on the south. The Ikegai Machine Foundry (Target 90.17–882) lies just east of the target across Mita Street. The target is in a densely built-up area.

Factory No. 1 of Nippon Electric Co. (Target 90.17–497) lies about 7.2 miles to the southwest.

DESCRIPTION AND LAYOUT

(Refer to Illustrations No. 90.17–326 P3, P5, and P6.) The target area is rectangular in shape, measuring about 470 feet north-south and 500 feet east-west. The plant consists of two building units: (1) A main building about 400 feet wide and 440 feet long in the shape of a four-armed "E" opening toward the west, and (2) a long (465 feet) narrow (40 feet) building, (17) extending north-south, only about 15 or 20 feet west of the wings of the main building and virtually closing the four-armed "E." The principal building (1–11) is flat-roofed, has four stories on the east side and east sections of the two inside wings, and three stories on the outside (north and south) wings and west sections of the inside wings. Units 12–15 are single story, reinforced concrete continuations of the first floors of 1–11. Building 16 is a noncombustible unit, situated in the central court. Most of the production is carried on in the main unit (1–11). The smaller building (17) is a two-story, gabled roof structure.

PRIMARY OBJECTIVES

(Refer to Illustrations No. 90.17–326 P3, P5, and P6.) The primary objectives of this target is the multi-story main building, consisting of units 1–11. In general, heavier processes such as forging, welding, machine work, and press facilities are on the ground floor, with assembly, research, and testing activities taking place on upper floors. Engineering blue-printing, production planning, and offices are on the fourth floor. Generally speaking, the most important and critical equipment and machinery are located on the second and third floors of this main building.

CONSTRUCTION AND VULNERABILITY

(Refer to Illustrations No. 90.17–326 P3, P5, and P6.)

Primary objective:

Building No.	Plan area (sq. ft.)	Roof	Combustibiity	HE vulnerability[1]
1-11	116,800	4-6″ concrete	Fire resistant	VI

[1] HE vulnerability classifications are explained in JTG Memorandum No. JTG/M/3/1 which is now in process of revision. In brief, a single vulnerability classification is assigned types of industrial buildings which behave in a similar manner when attacked with the same HE weapon. These vulnerability classes are arranged in order of vulnerability to HE attack, with very invulnerable, earthquakeproof structures assigned the classification V1. The other classifications V2, V3, V4, V5 are progressively more vulnerable types, V5 being the very vulnerable large span, arched hangar type structures. Most 1-story buildings fall in class V4.

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Classification of buildings:

	Primary objectives	Whole target
Total plan area of buildings (square feet)	116,800	174,800
Total floor area of buildings (square feet)	409,600	486,200
Combustibility:	*Percent*	*Percent*
Fire resistant (R)	100	84
Noncombustible (N)		2
Combustible (C)		3
"C" roof, "R" floors (multi-story)		11
HE vulnerability:		
V1 (least vulnerable):		
4-story	54	36
3-story	45	30
1-story	1	18
V2		
V3, 2-story		11
V4		5
V5 (most vulnerable)		

Susceptibility of contents to incendiaries: *Top floors only* of whole target: Fair. Remainder of whole target: None. Since the latter category comprises 64 percent of total floor area, the target is considered a poor one for incendiary attack. (For detailed study of fire susceptibility of structures and top-floor contents refer to Illustration No. 90.17–326 P5.)

WEAPON RECOMMENDATIONS

Reference should be made to Weapon Recommendations Sheet No. 90.17–326 WR1 for high and medium altitude attack and to Weapon Recommendations Sheet No. 90.17–326 WR2 for low altitude attack.

LEVEL OF DAMAGE

(Refer to Illustrations No. 90.17–326 P3, P5, and P6.) It is believed that equipment damage will be considerably higher than structural damage. Equipment in the main building (1–11) consists of light and medium machine tools, jigs and fixtures, intricate and delicate testing instruments, and laboratory facilities. The building is of heavy construction. Structural damage of 30 to 35 percent would probably cause a 50 percent production loss. Seventy percent structural damage would probably stop all production.

CAMOUFLAGE, DECOYS, AND SMOKE SCREENS

Photography of 13 December 1944 shows no attempt at camouflage. No decoy buildings or use of smoke screens has been reported.

FOR REPRINT

JOINT TARGET GROUP, WASHINGTON, D. C.

WEAPON RECOMMENDATIONS SHEET

Sheet	90:17-326-WR1
Date	17 April 1945
Page	1
Target	90:17-326
Obj. Area	90:17
Obj. Folder	90:17
Category:	End Prdt. Ind.—Lt. Mfgr.
Lat.	35°39′ N
Long.	139°45′ E
Alt.	15 feet

NIPPON ELECTRIC CO.

FACTORY NO. 2, MITA PLANT

TOKYO . . . . . JAPAN

ALL PREVIOUS SHEETS CANCELLED

HIGH AND MEDIUM ALTITUDE ATTACK

(See also 90.17-326 TI and associated target illustrations)

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AIMING POINT

The target is essentially one multi-story building divided into sections, some of which are considered to be primary (Illustrations No. 90.17–326 P3, P5). The aiming point should be in the vicinity of the center of this building.

WEAPONS AND FUZING

	HE	Fuze	IB
Preferred	1,000-lb. GP, 2,000-lb. GP	0.1 N/0.025 T	None.
Alternative	500-lb. GP	0.1 N/0.025 T	None.
Not recommended	Smaller GP bombs, SAP or AP bombs, Depth bombs.		

NOTE.—(a) The above recommendations are on a weight for weight basis.

LOADING TABLE FOR INITIAL ATTACK

The table below is prepared for an initial attack on this target. For its application to later attacks see JTG Memorandum No. 3/1.

The table indicates that an extremely low percentage of serious damage can be expected even with large bomb loads. This is due to the small size of the target (approximately 234,000 square feet) and the low effectiveness of high explosive or incendiary weapons against multistory, earthquake-resistant, fire-proof, reinforced concrete buildings.

Reference should be made to Weapon Recommendations Sheet 90.17–326 WR2 for low altitude attack.

Loading table for preferred high explosive bombs [1]

Tons (actual) dispatched	Percent of bombs dispatched falling within 1,000 feet of aiming point			
	10 percent	15 percent	20 percent	30 percent
	F [2] (percent)	F [2] (percent)	F [2] (percent)	F [2] (percent)
1,000	--------	10	10	15
2,000	10	15	20	30
3,000	15	25	30	45
4,000	20	30	40	55
5,000	25	40	45	60
6,000	30	50	55	--------

[1] If the alternative weapon is used, the expected percent of serious damage will, of course, be lower.

[2] Expected percent of serious damage to the whole target.

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JOINT TARGET GROUP, WASHINGTON, D. C.

WEAPON RECOMMENDATIONS SHEET

Sheet	90:17-326-WR2
Date	6 April 1945
Page	1
Target	90:17-326
Obj. Area	90:17
Obj. Folder	90:17
Category:	End Prdt. Ind.—LT. MFGR.
Lat.	35°39′ N
Long.	139°45′ E
Alt.	15 feet

NIPPON ELECTRIC CO., FACTORY No. 2, MITA PLANT

TOKYO . . . . . JAPAN

ALL PREVIOUS SHEETS CANCELLED

LOW ALTITUDE ATTACK

(See also No. 90.17–326 TI and associated target illustrations.)

TYPE OF ATTACK

This sheet applies primarily to an attack by carrier based aircraft, fighter bombers, and other similar aircraft which carry out dive, glide, low level, or minimum altitude attacks.

BUILDINGS CONSIDERED

Data are given below for an attack on the whole target, which is essentially one multi-story building divided into sections (Illustrations No. 90.17–326 P3, P5).

WEAPONS AND FUZING

A pure HE attack (no incendiaries) may be launched against the building specified in the table below. The choice of a particular HE weapon for attack can be made by considering both the number of hits required for the various bombs (see the table below) and the stowage capabilities of the aircraft to be used. The proper fuzing for the HE weapon to be used is given in the table below, with the exception that for minimum altitude attacks a 4–5 sec. delay is required for safety to the aircraft. The use of SAP, AP, smaller GP, or depth bombs is not recommended for this target.

NUMBER OF HITS

Number of hits required to achieve 30, 50, and 70 percent serious damage to the building (1–17)

Building	Percent of serious damage	Number of hits: 500-lb. GP	Number of hits: 1,000-lb. GP	Number of hits: 2,000-lb. GP	Fuzing
1–17 (consider as single building).	30	125	62	31	0.1 N/.025 T.
	50	240	120	60	
	70	420	210	105	

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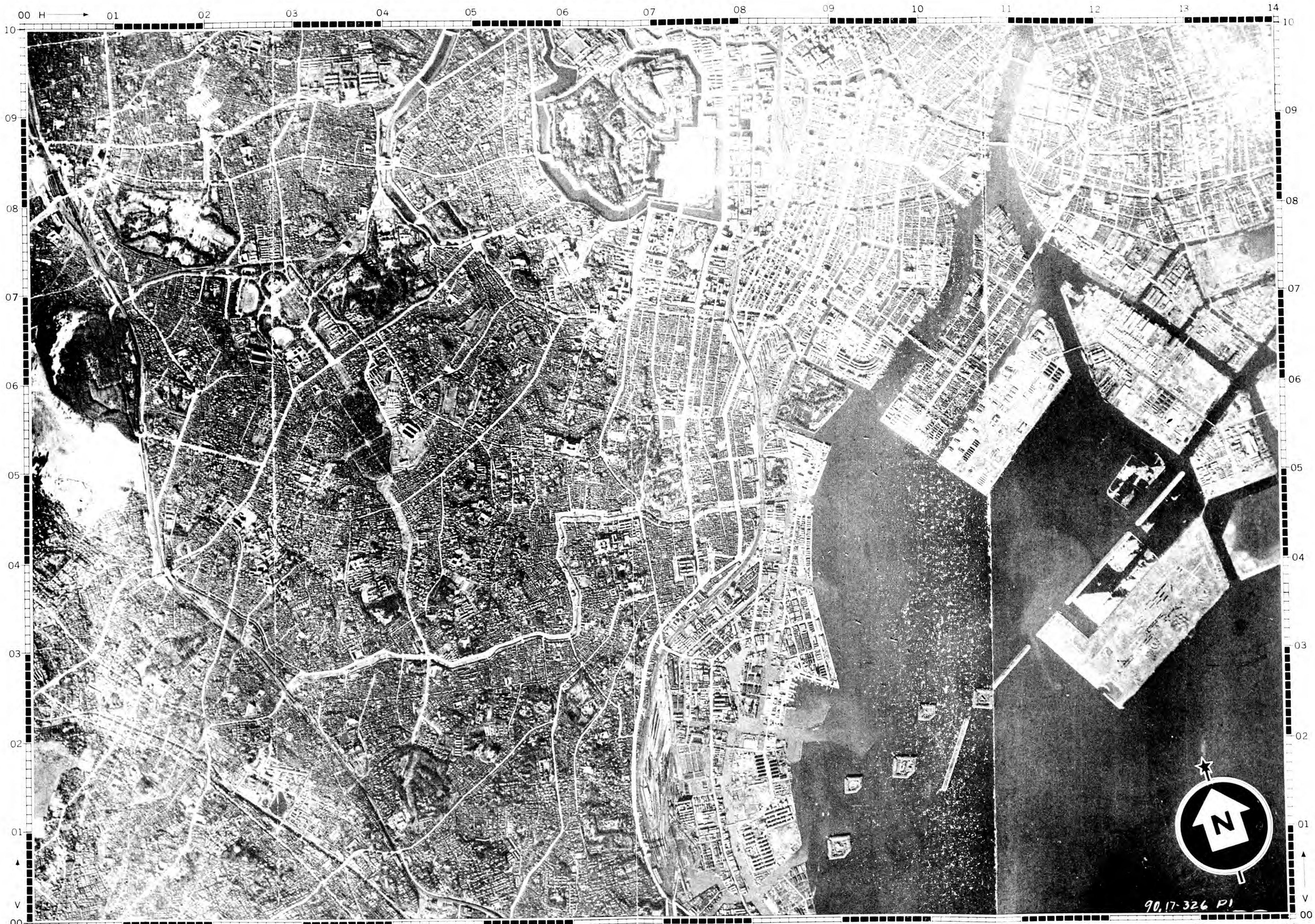
NIPPON ELECTRIC COMPANY, FACTORY No. 2
MITA PLANT
TOKYO JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

SHEET 90:17-326 P1
DATE . . . . . 29 April 1945
TARGET 90:17-326
COORDINATES . . . 35 39'N 139 45'E
PHOTOGRAPHED 13 December 1944



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File No. 541,326.52

JOINT TARGET GROUP WASHINGTON, D. C.

NIPPON ELECTRIC CO., FACTORY No. 2
MITA PLANT
TOKYO JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX.

RESTRICTED

SHEET 90:17-326 P2
DATE . . . . . 29 April 1945
TARGET 90:17-326
COORDINATES . . . 35 39'N 139 45'E
PHOTOGRAPHED 13 December 1944

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File No. 541,326.54

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JOINT TARGET GROUP
WASHINGTON, D. C.

NIPPON ELECTRIC CO., FACTORY No. 2
MITA PLANT

TOKYO **JAPAN**

0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

SHEET	90:17-326-P3
DATE	29 April 1945
TARGET	90:17-326
COORDINATES	35°39'N 139°45'E
PHOTOGRAPHED	13 December 1944

LEGEND

1	1st Floor	Arc Welding & Blasting; First Aid Hospital;
	2nd Floor	W end - Executive Offices S end - Switchboard Assembly & Inspection N end - Paint Shop W end - Executive Offices E end - Automatic Switchboard Assembly
	3rd Floor	Coil & Cord Inspection; Circuit Laboratory for Engineers; Library; Storage
	4th Floor	Telephone exchange; Production planning; Offices
2	1st Floor	Offices and Reception Room
	2nd Floor	W end - Executive Offices E end - Automatic Switchboard Assembly
	3rd Floor	Executive Offices; Engineers' Laboratories; Government Offices
	4th Floor	Executive Offices; Meeting Rooms
3	1st Floor	Braiding Machinery; Switchboard Cable Dept.
	2nd Floor	W end - Executive Offices E end - Automatic Switchboard Assembly
	3rd Floor	Coil winding; Coil Braiding; Inculating; Testing; Machine Maintenance
	4th Floor	Reception Room; Private Offices
4	1st Floor	Plant Maintenance
	2nd Floor	Woodworking Shop
	3rd Floor	Backboard Assembly; Dial Assembly; Transmission Apparatus Assembly; Cut Lumber & Switchboard Stock
5	1st Floor	Iron Working; Forging; Tool Room
	2nd Floor	Piecework Production
	3rd Floor	Assembly and Semi-finished Stores
6	1st Floor	Packing and Storage
	2nd Floor	Tool Plant
	3rd Floor	Research; Switchboard Control
	4th Floor	Engineering Blueprinting; Work Rooms
7	1st Floor	Forging; Metal Varnishing
	2nd Floor	Unidentified
	3rd Floor	Assembly and Switchboard Control
	4th Floor	Engineering Blueprinting; Work Room
8	1st Floor	Packing Section
	2nd Floor	Automatic Switchboard Assembly
	3rd Floor	Testing and Services
	4th Floor	Engineering and Executive Offices
9	1st Floor	Boiler, Pump and Condenser Rooms
	2nd Floor	E end - Battery Plant
	3rd Floor	Weston Type Instrument Assembly
	4th Floor	Engineering and Executive Offices
10	1st Floor	Machine Shop and Coil Section
	2nd Floor	Automatic Switchboard Assembly - W end
	3rd Floor	Chemical Lab; Motor Assembly; Development Dept. Receiver and Transmitter Inspection Dept.
11	1st Floor	Loading and Repeater Coil and Wire Enameling Area; Punch Presses
	2nd Floor	Platinum Welding Room; Model Shop; Misc. Assembly; Branch Office
	3rd Floor	Testing; Telephone Receiver and Transmitter Assembly; Final Inspection
12	North Section	1st Floor - Packing Section
	South Section	1st Floor - Machine Shop and Coil Section
13	North Section	1st Floor - Boiler, Pump and Condenser Rooms
	South Section	1st Floor - Loading and Repeater Coil and Wire Enameling Area; Punch Presses
14	North Section	1st Floor - Plant Maintenance
	South Section	1st Floor - Packing and storage
15	North Section	1st Floor - Iron Working; Forging; Tool Room
	South Section	1st Floor - Forging; Metal Varnishing
16		Plating Equipment and Carpentry Area
17		Metal Varnishing and Plating; Casting Section; Storage
18		Unidentified

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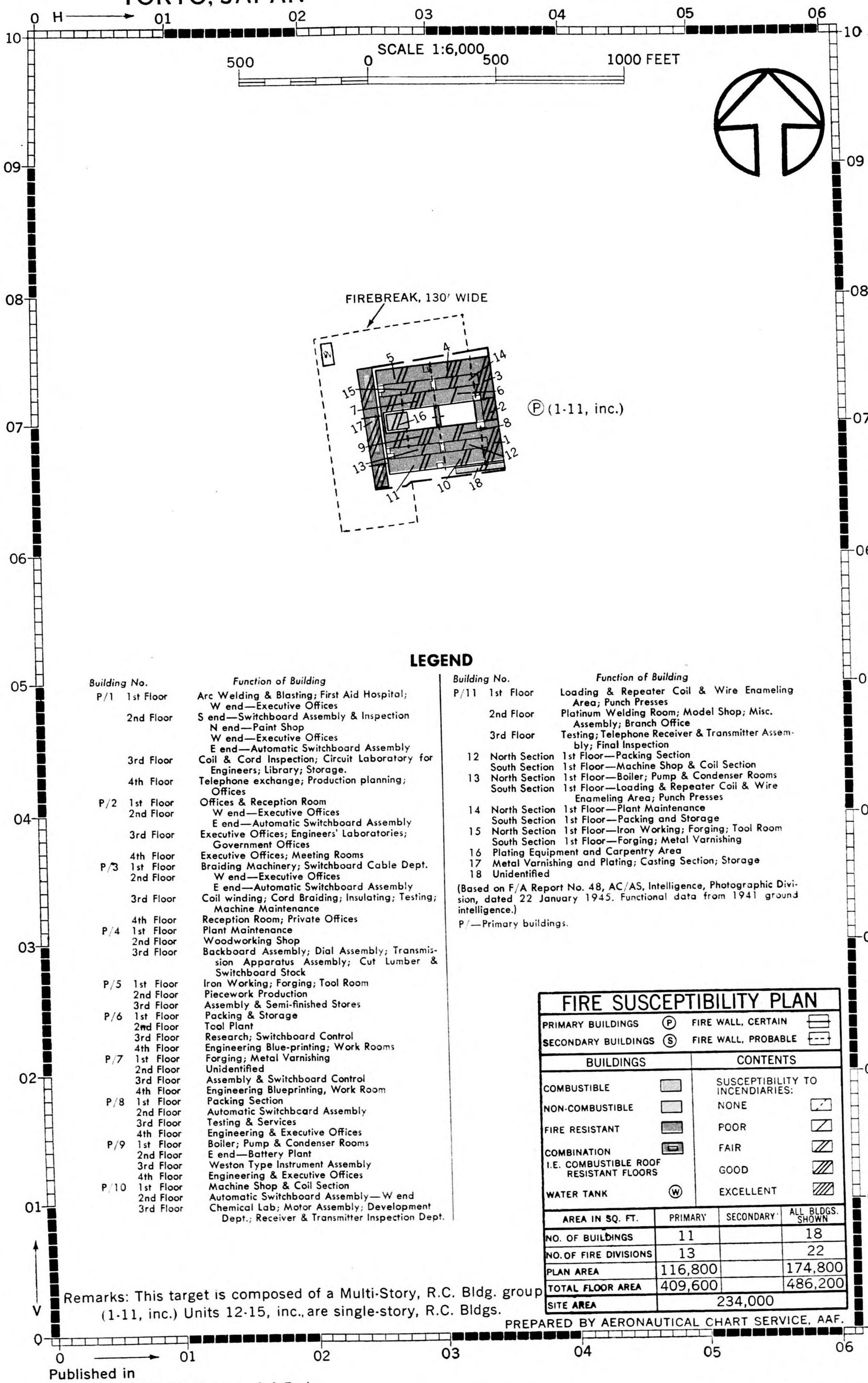
JOINT TARGET GROUP WASHINGTON, D. C.
FIRE SUSCEPTIBILITY PLAN

NIPPON ELECTRIC CO
FACTORY NO. 2, MITA PLANT
TOKYO, JAPAN

SHEET . . . . . 90:17-326—P5
DATE . . . . . 22 March 1945
TARGET 90:17-326
COORDINATES . . . 35°39'N 139°45'E
PHOTOGRAPHED 13 December 1944



LEGEND

Building No.		Function of Building
P/1	1st Floor	Arc Welding & Blasting; First Aid Hospital; W end—Executive Offices
	2nd Floor	S end—Switchboard Assembly & Inspection N end—Paint Shop W end—Executive Offices E end—Automatic Switchboard Assembly
	3rd Floor	Coil & Cord Inspection; Circuit Laboratory for Engineers; Library; Storage.
	4th Floor	Telephone exchange; Production planning; Offices
P/2	1st Floor	Offices & Reception Room
	2nd Floor	W end—Executive Offices E end—Automatic Switchboard Assembly
	3rd Floor	Executive Offices; Engineers' Laboratories; Government Offices
	4th Floor	Executive Offices; Meeting Rooms
P/3	1st Floor	Braiding Machinery; Switchboard Cable Dept.
	2nd Floor	W end—Executive Offices E end—Automatic Switchboard Assembly
	3rd Floor	Coil winding; Cord Braiding; Insulating; Testing; Machine Maintenance
	4th Floor	Reception Room; Private Offices
P/4	1st Floor	Plant Maintenance
	2nd Floor	Woodworking Shop
	3rd Floor	Backboard Assembly; Dial Assembly; Transmission Apparatus Assembly; Cut Lumber & Switchboard Stock
P/5	1st Floor	Iron Working; Forging; Tool Room
	2nd Floor	Piecework Production
	3rd Floor	Assembly & Semi-finished Stores
P/6	1st Floor	Packing & Storage
	2nd Floor	Tool Plant
	3rd Floor	Research; Switchboard Control
	4th Floor	Engineering Blue-printing; Work Rooms
P/7	1st Floor	Forging; Metal Varnishing
	2nd Floor	Unidentified
	3rd Floor	Assembly & Switchboard Control
	4th Floor	Engineering Blueprinting, Work Room
P/8	1st Floor	Packing Section
	2nd Floor	Automatic Switchboard Assembly
	3rd Floor	Testing & Services
	4th Floor	Engineering & Executive Offices
P/9	1st Floor	Boiler; Pump & Condenser Rooms
	2nd Floor	E end—Battery Plant
	3rd Floor	Weston Type Instrument Assembly
	4th Floor	Engineering & Executive Offices
P/10	1st Floor	Machine Shop & Coil Section
	2nd Floor	Automatic Switchboard Assembly—W end
	3rd Floor	Chemical Lab; Motor Assembly; Development Dept.; Receiver & Transmitter Inspection Dept.

Building No.		Function of Building
P/11	1st Floor	Loading & Repeater Coil & Wire Enameling Area; Punch Presses
	2nd Floor	Platinum Welding Room; Model Shop; Misc. Assembly; Branch Office
	3rd Floor	Testing; Telephone Receiver & Transmitter Assembly; Final Inspection
12	North Section	1st Floor—Packing Section
	South Section	1st Floor—Machine Shop & Coil Section
13	North Section	1st Floor—Boiler; Pump & Condenser Rooms
	South Section	1st Floor—Loading & Repeater Coil & Wire Enameling Area; Punch Presses
14	North Section	1st Floor—Plant Maintenance
	South Section	1st Floor—Packing and Storage
15	North Section	1st Floor—Iron Working; Forging; Tool Room
	South Section	1st Floor—Forging; Metal Varnishing
16		Plating Equipment and Carpentry Area
17		Metal Varnishing and Plating; Casting Section; Storage
18		Unidentified

(Based on F/A Report No. 48, AC/AS, Intelligence, Photographic Division, dated 22 January 1945. Functional data from 1941 ground intelligence.)

P/—Primary buildings.

FIRE SUSCEPTIBILITY PLAN

PRIMARY BUILDINGS Ⓟ — FIRE WALL, CERTAIN
SECONDARY BUILDINGS Ⓢ — FIRE WALL, PROBABLE

BUILDINGS	CONTENTS
COMBUSTIBLE	SUSCEPTIBILITY TO INCENDIARIES:
NON-COMBUSTIBLE	NONE
FIRE RESISTANT	POOR
COMBINATION I.E. COMBUSTIBLE ROOF RESISTANT FLOORS	FAIR
WATER TANK Ⓦ	GOOD
	EXCELLENT

AREA IN SQ. FT.	PRIMARY	SECONDARY	ALL BLDGS. SHOWN
NO. OF BUILDINGS	11		18
NO. OF FIRE DIVISIONS	13		22
PLAN AREA	116,800		174,800
TOTAL FLOOR AREA	409,600		486,200
SITE AREA	234,000		

Remarks: This target is composed of a Multi-Story, R.C. Bldg. group (1-11, inc.) Units 12-15, inc., are single-story, R.C. Bldgs.

PREPARED BY AERONAUTICAL CHART SERVICE, AAF.

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By NARA Date

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

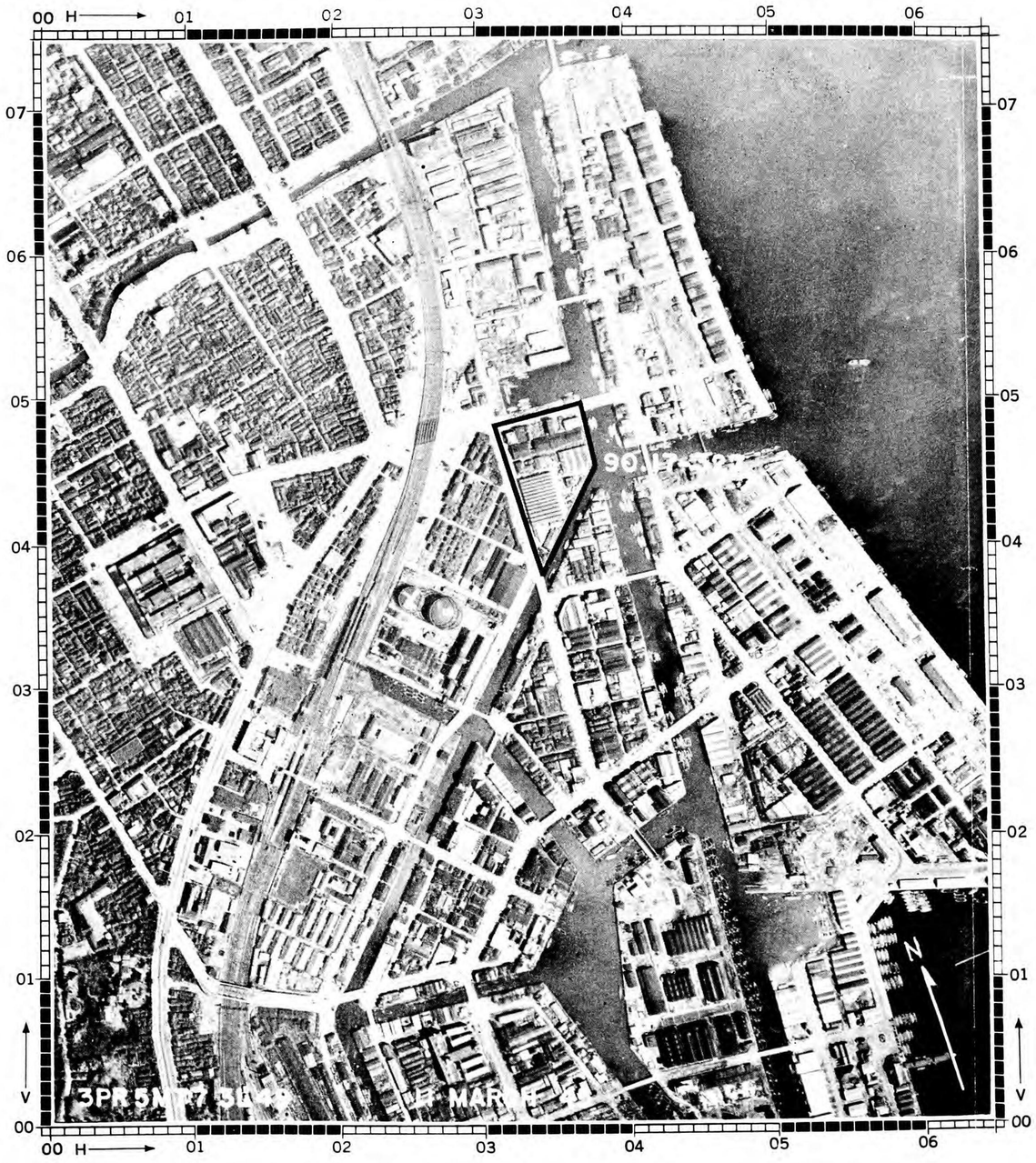
MITSUBISHI AIRCRAFT, SHIBAURA PLANT

TOKYO JAPAN

SHEET	90:17-327—TL
DATE	19 May 1945
TARGET	90:17-327
CATEGORY	End Prdt. Ind.—AIRCRAFT
COORDINATES	35°38'N 139°46'E
ALTITUDE	10 feet

SIGNIFICANCE:

A small plant of the Mitsubishi company, the exact function of which is not known. It is variously reported as producing aircraft engines and engine parts but photo cover indicates little likelihood of production of engines or major engine components.



LARGE SCALE ILLUSTRATION—SCALE APPROX.: 1:9,900

SMALL SCALE ILLUSTRATION—SCALE APPROX.: 1:66,000

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File No. 541,327.1

By HR-DT NARA. Date 4/10/11

TARGET NO. 90:17–331

COORDINATES 35° 35' N 139° 44' E

PHOTOGRAPHED 26 NOVEMBER 1944

JOINT TARGET GROUP • WASHINGTON, D. C.
TOKYO GAS AND ELECTRIC ENGINEERING CO.
TOKYO, JAPAN

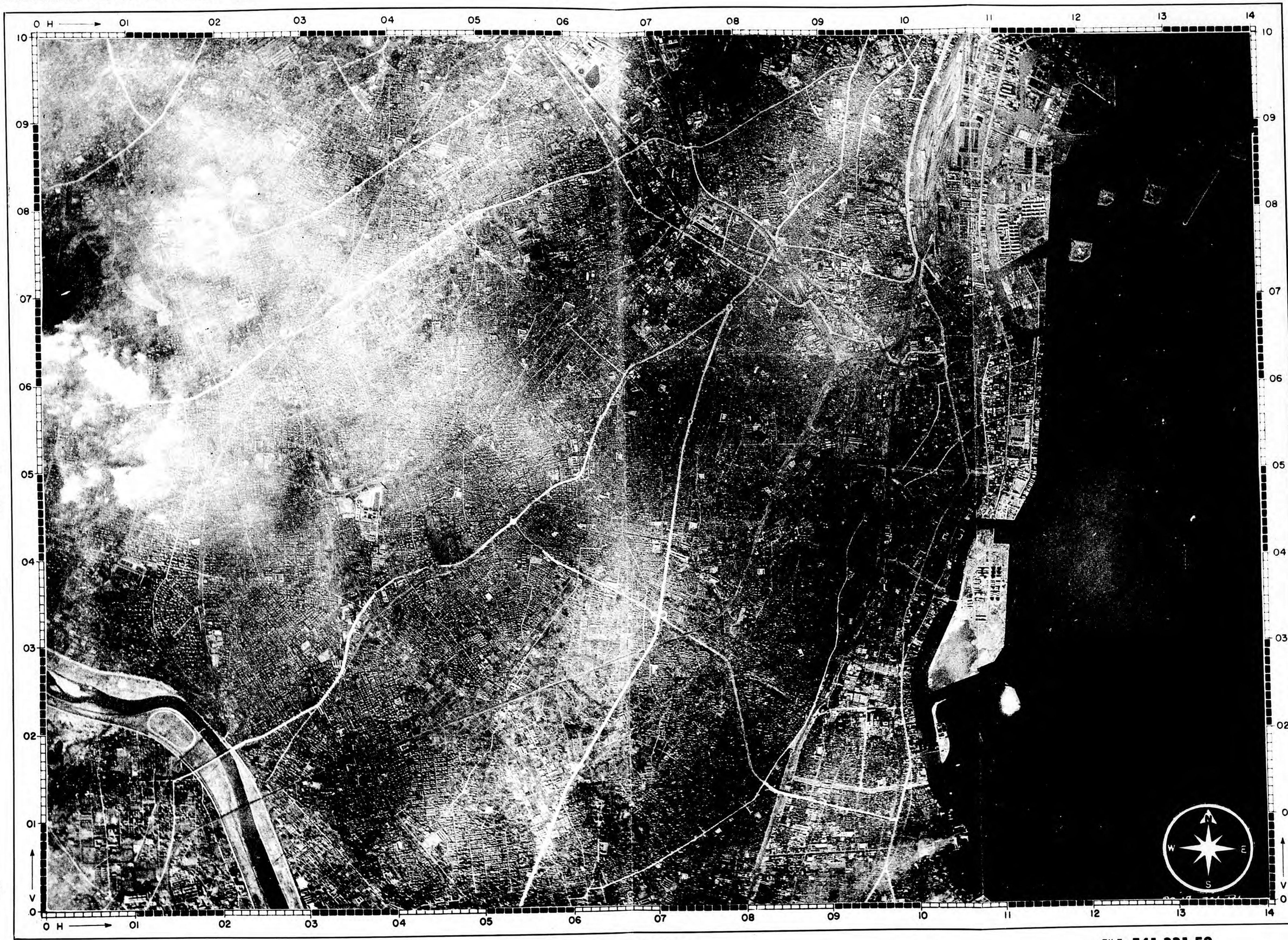
0 2000 4000 6000 FEET
0 ½ 1 MILE

1:32 000 APPROX.

ILLUSTRATION NO. 90:17–331 P1

ISSUED 7 MARCH 1945

RESTRICTED



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RESTRICTED

FILE No. **541,331.52**

TARGET NO. 90:17–331

COORDINATES 35° 35' N 139° 44' E

PHOTOGRAPHED 26 NOVEMBER 1944

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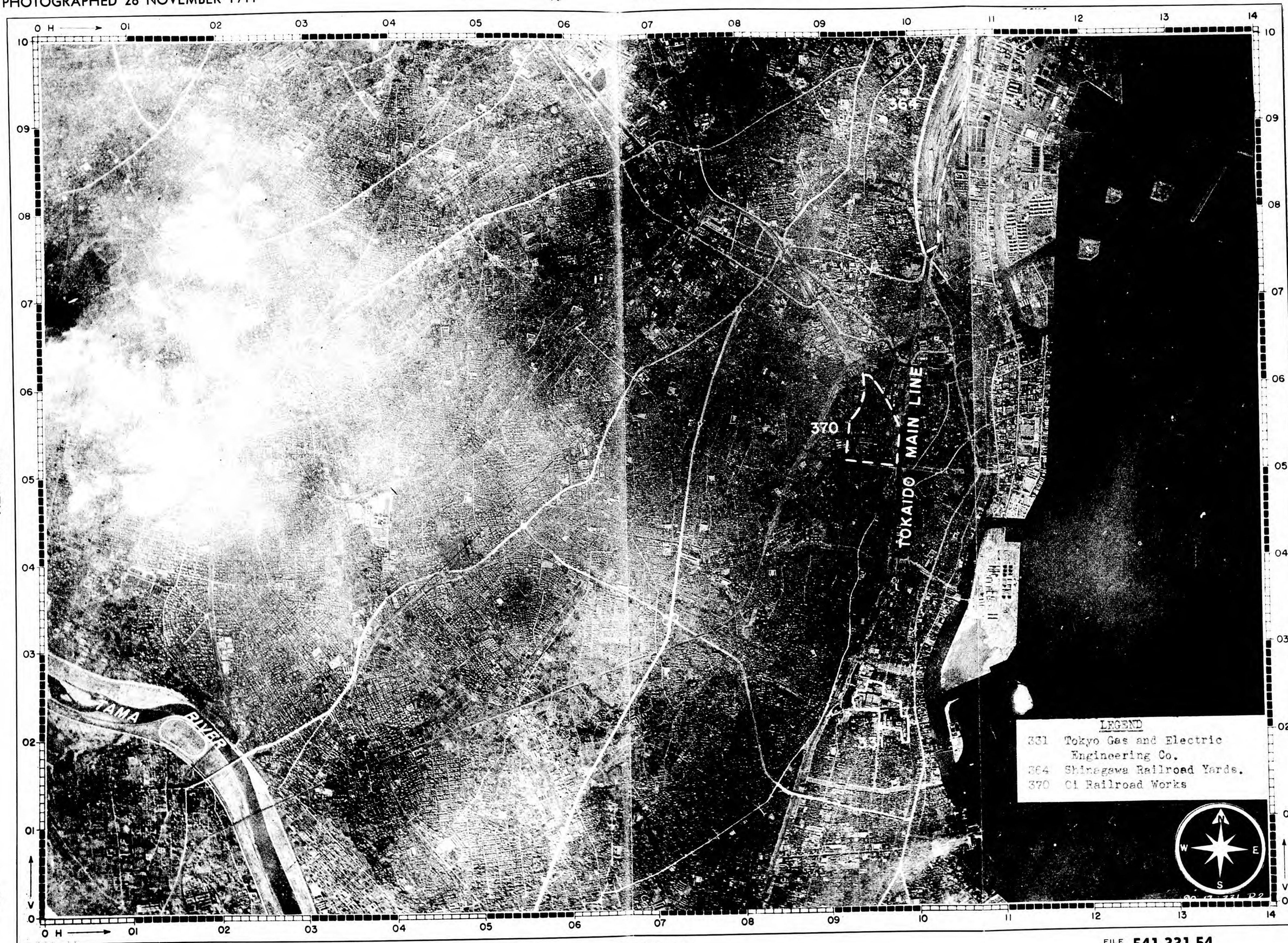
TOKYO, JAPAN

0 2000 4000 6000 FEET
0 ½ 1 MILE
1:32 000 APPROX

ILLUSTRATION NO. 90:17–331 P2

ISSUED 7 MARCH 1945

RESTRICTED



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RESTRICTED

FILE No. **541,331.54**

TARGET NO. 90:17–331

COORDINATES 35° 42' N 139° 50' E

PHOTOGRAPHED 26 NOVEMBER 1944

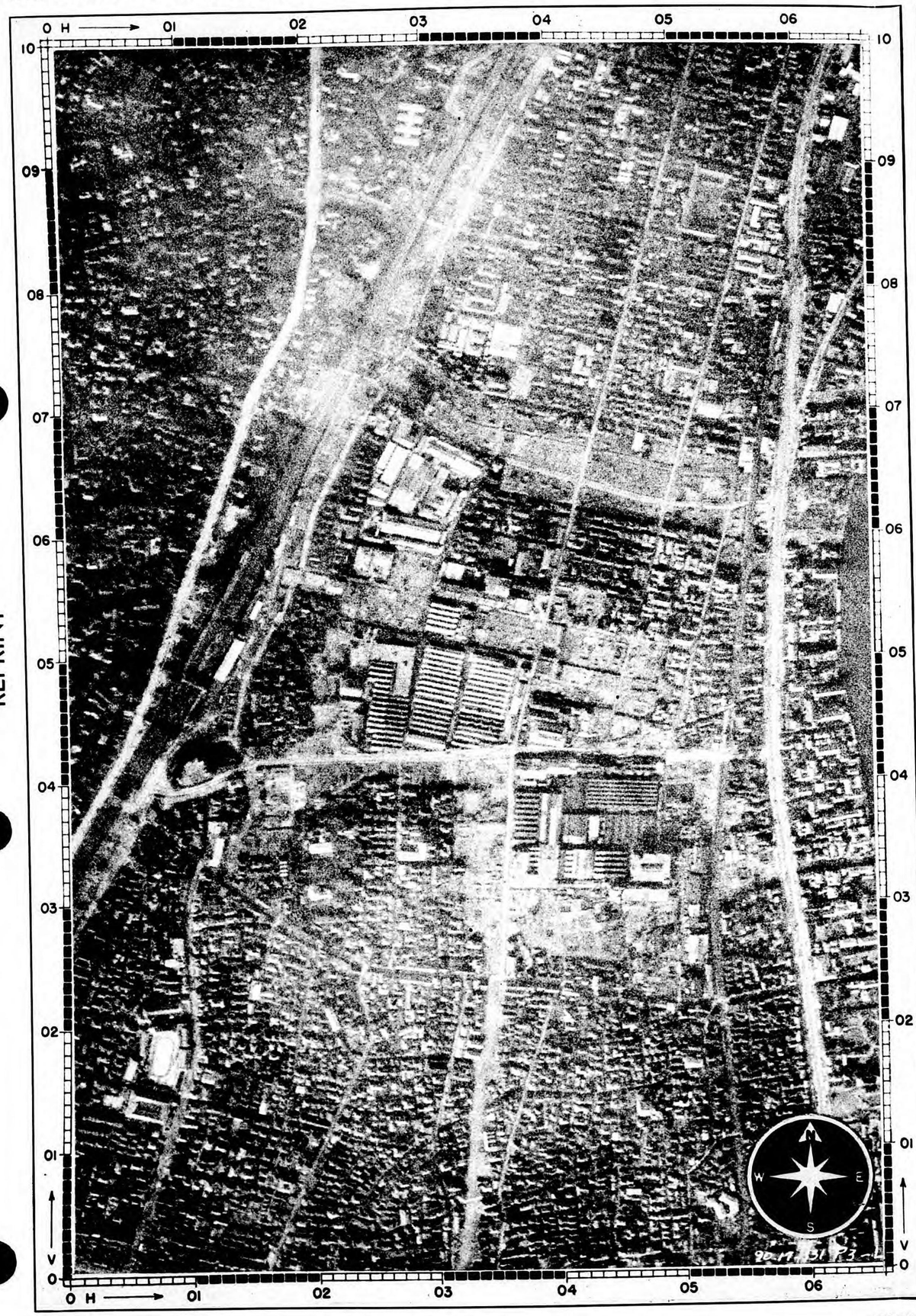
JOINT TARGET GROUP • WASHINGTON, D. C.
TOKYO GAS AND ELECTRIC ENGINEERING CO.
TOKYO, JAPAN

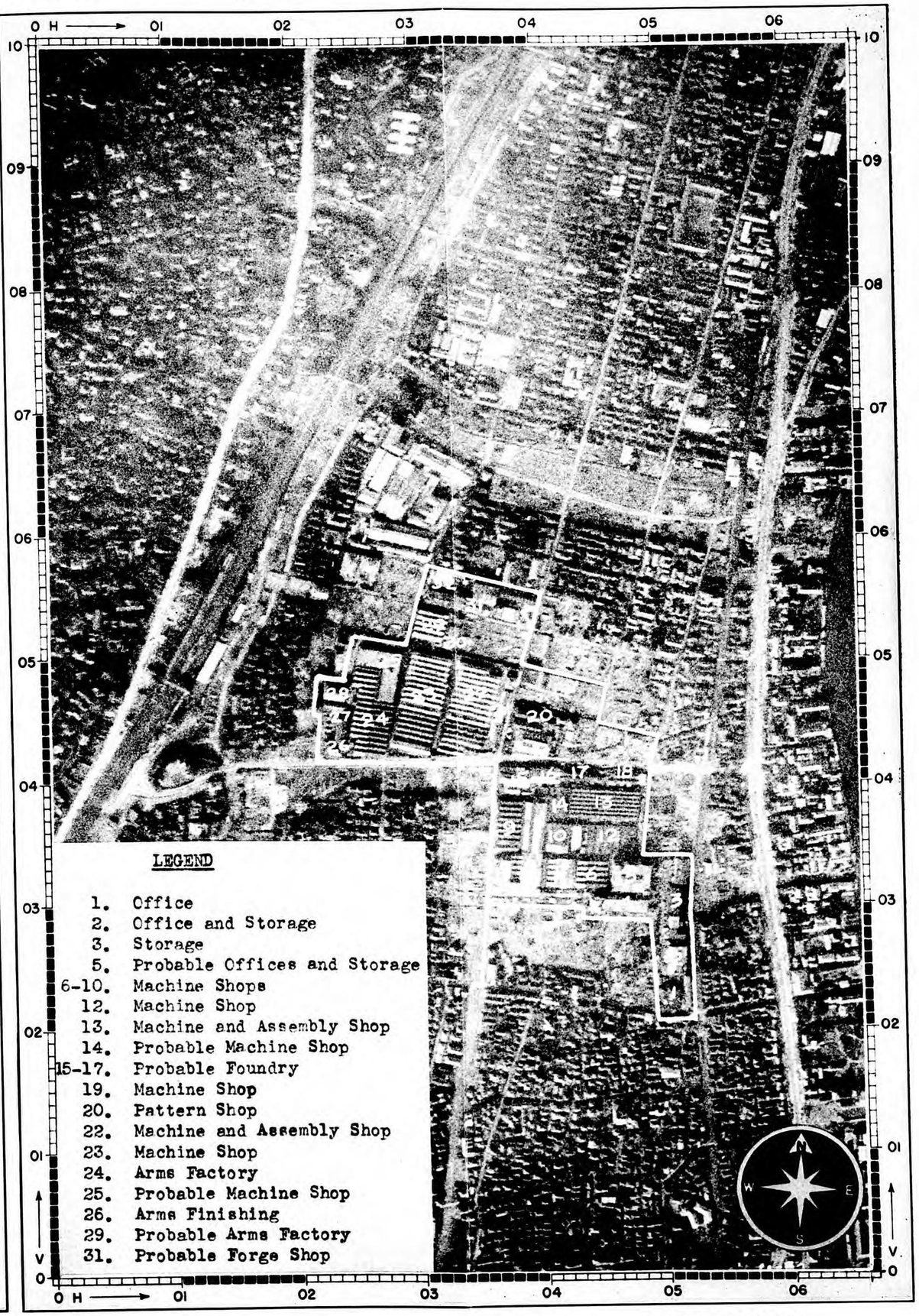
0 500 1000 1500 2000 2500 3000 FEET
0 1/4 1:6000 APPROX. 1/2 MILE

ILLUSTRATION NO. 90:17–331 P3

ISSUED 7 MARCH 1945

CONFIDENTIAL





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FILE NO. 541,331.56

JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

SHEET 90:17-356–TI
DATE . . 18 January 1945
PAGE 1

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

TOKYO **JAPAN**

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

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

ALL PREVIOUS SHEETS CANCELLED

REPRINT

SIGNIFICANCE

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

LOCATION

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

DESCRIPTION AND LAYOUT

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

CONSTRUCTION AND VULNERABILITY

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

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

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

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

Number of Fire Divisions: 23 in 21 buildings.

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

PRIMARY OBJECTIVES

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

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

WEAPON RECOMMENDATIONS

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

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

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

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

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

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TABLE I

Loading Table—Most Effective Weapons

HE: AN-M64 500-lb GP[1]
IB: AN-M50 4-lb incendiary (in M17 clusters)

Nakajima Aircraft, Ogikubo Plant

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

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

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

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

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

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Method of Use:

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

Examples Illustrating Use of Loading Table:

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

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

   Solution: 70% x 30% equals 21%; i.e., 20% is Index of Mission Efficiency.
   Opposite 300 tons in 20% column find loading:
   HE 165 tons equals 55 plane loads at 3 tons per plane.
   IB 135 tons equals 45 plane loads at 3 tons per plane.
   Fraction of damage: *34 per cent.*
   Hence, for optimum loading 55 planes will carry HE and 45 planes IB, but if groups of 12 are to carry only one kind of bomb per group, this may be revised to 5 groups of HE and 4 groups of IB.

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

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

   Solution: In 20% of mission efficiency column take: F equals 70 per cent and find loading:
   HE 1065 tons
   IB 135 tons
   Total *1200 tons*
   requiring a total force of 300 A/C or 25 groups of 12 A/C.

LEVEL OF DAMAGE

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

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

CAMOUFLAGE, DECOYS AND SMOKE SCREENS

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

ADDITIONAL INFORMATION

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

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

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

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

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

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JOINT TARGET GROUP, WASHINGTON, D. C.

TARGET INFORMATION SHEET

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

NAKAJIMA AIRCRAFT, OGIKUBO PLANT

TOKYO — JAPAN

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

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

ANNEX I

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

NAVAL CARRIER-BASED AIR ATTACK

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

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

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

TABLE I

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

(Refer to Illustration No. 90:17-356–P5)

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

Examples of Use of Table I:

1. Problem: To obtain the required number of hits with 500-lb GP bombs on building No. 7abc to achieve 30 percent serious damage.
   Solution: The table gives 13 hits as the number required to achieve 30 percent serious damage.
2. Problem: To obtain the required number of hits with 2000-lb GP bombs on building No. 4bc to achieve 60 percent serious damage.
   Solution: The table gives 7 hits for 50 percent and 11 hits for 70 percent serious damage. By interpolation 9 hits are required for 60 percent serious damage.

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