SECRET

IM
AN
DI

PIR

PHOTOGRAPHIC INTELLIGENCE REPORT

"G" CLASS BALLISTIC MISSILE SUBMARINE

CONSTRUCTION, LU-TA SHIPYARD,

DAIREN, CHINA

SECRET

SECRET

CIA/PIR-65C29 25X1

CIA IMAGERY ANALYSIS DIVISION

"G" CLASS BALLISTIC MISSILE SUBMARINE CONSTRUCTION, LU-TA SHIPYARD, DAIREN, CHINA

A detailed photo study, in stereo, of 25X1 revealed one completed "G" Class SSB in the water alongside commercial pier #4 opposite the shipyard (see Reference 1). The center building way (annotated as way #2 on Figure 1) on which a "G" Class submarine was previously noted under construction/assembly, was observed on to contain three probable 25X1 PTF hulls, possibly "Shanghai" Class, and 3½ possible tugboat/trawler hulls. These vessels were placed in two files along the length of the building way. Five possible small tugboat/trawler hull sections were located in the staging areas just above the head of building way #2. Building way #1 contained one possible tugboat/trawler and one small barge. Numerous small pieces of construction material were noted in the large staging area at the head of this building way, none of which could be identified as being submarine-associated. Building way #3 was observed on to contain six possible "Shanghai" 25X1 Class PTFs, two possible PTF hull sections, and one medium tugboat/trawler. The possible "Shanghais" and PTF hull sections were placed unevenly in four files along the length of building way #3. The staging area just above this building 25X1 way was completely empty. 25X1

No evidence of possible sub- 25X1 marine construction or assembly was noted in any other exposed area of the shipyard on this coverage.

A detailed photo analysis, in stereo, of flown on 25X1, 25X1 has again failed to reveal hard evidence of a second submarine under con- 25X1 struction at this yard.

25X1

25X1

25X1

25X1

25X1

SECRET

25X1

25X1

25X1

25X1

d. In all the building ways were nearly filled with small surface craft. No "weather" sheds were observed on any of the building ways.

25X1

25X1

The submarine first noted on (Figure 2) in the water by the commercial pier is nearly identical to the standard Soviet "G" Class SSB with respect to outer dimensions and visible configuration (see Reference 2). Continuing photo/mensural analysis has permitted the identification as a "G" Class of the submarine under construction on the shipbuilding way at Lu-Ta Shipyard as far back as

25X1

25X1

25X1

25X1

25X1

25X1

CHRONOLOGICAL PHOTO/MENSURAL ANALYSIS

[redacted] (Figures 4 and 5)

25X1

A cylindrically-shaped object (subsequently evaluated as an initial section of a possible submarine hull), approximately 15 feet across its visible diameter, was observed to protrude from beneath a small weather/concealment shed (approximately [redacted] long) on building way #2. Narrow flat "platforms", each approximately [redacted] wide, were noted attached along each side of the cylindrical object. On the basis of subsequent photo coverage of this yard, the cylindrical object seen in [redacted] was determined to be a possible submarine hull section in the initial stages of assembly. No object was observed protruding from the other side of the shed; therefore, the maximum length-overall (LOA) of the possible submarine hull section noted at that time could have been no more than approximately 70 feet. In order to plot the progress of the assembly of the submarine on way #2 the distance from the forward (leading) edge of the possible submarine hull to the inboard center of the walkway connecting the craneway extensions over the water across the foot of the building way (see Figure 2) was measured on the first three instances of coverage (the walkway remained fixed during this period). In [redacted] this distance was approximately [redacted] The initial possible submarine hull section was noted approximately in the center of the longitudinal axis of the building way, indicating that the Chinese used the "end-loading" method of hull assembly. High vertical screens surrounded the shed and possible hull on three sides; no screen was observed at the head of way #2.. At least six large additional vertical screen sections were noted stored at the foot of building way #2. Two weather shed roof sections were placed on the floor of the way just forward of the possible submarine hull section.

25X1

25X1

25X1

25X1

25X1

[redacted] (Figures 6 and 7)

25X1

A possible submarine hull, approximately 125 feet long overall, was observed protruding from both ends of a weather/concealment shed on building way #2. The maximum visible length of the possible submarine hull section forward of the shadow cast by the shed was approximately 30 feet. The maximum beam visible on each of the possible hull sections was approximately [redacted] An irregularly (oblong) shaped "flange" or "collar" appeared to project above the center of the forward visible hull section. Maximum dimensions obtained through the two major axes of this object were a length of approximately [redacted] and width of approximately 15 feet. The after edge of this "flange" measured approximately 380 feet from the walkway. The distance from the forward edge of the visible hull to the walkway at the foot of the building way was approximately [redacted] High vertical screens were in place on three sides of the possible submarine hull.

25X1

25X1

25X1

25X1

25X1

(Figure 8 and 9)

A "G" Class ballistic missile submarine was noted in a fairly advanced stage of construction on building way #2 on good-quality stereo coverage taken on this date. The identification was based upon the following visible dimensional and configurational characteristics:

1. The visible overall length of this submarine was at least 315 feet. The stern extremity was hidden in however, projection of the hull outline could reasonably be expected to project another 5-10 feet into the shadow. Reference 3 gives a LOA of 320' for the "G" Class SSB.

2. The apparent beam visible just forward of the weather shed was approximately 35 feet. However, the actual dimension was probably less than this since the 35 feet probably included scaffolding adjacent to each side of the hull of the submarine. Where scaffolding could be recognized on this photography it was observed to blend into the hull outline. Reference 3 gives a maximum beam of for the "G" Class SSB.

3. The centerline of the clearly visible extended bow planes was located approximately from the bow. Reference 2 indicates that the bow planes in the "G" Class SSB are positioned within a slot running approximately abaft the bow. The width of each extended plane was approximately 5 feet.

4. The distance between the bow and a large vertical shear just forward of the shed was approximately It is possible that this shear was the snorkel intake mast; if so, this compares favorably to the approximately 115 feet given by Reference 2 for this dimension.

Vertical screens were set up across the stern and two-thirds of the way up each side of the submarine. Possible matting or protective plating (not deck plating) covered the after deck of the submarine from just abaft the shed to a point roughly 35 feet from where the stern disappeared into shadow. Four large irregularly-shaped holes of varying sizes appear to have been cut into the matting along the centerline of the vessel. Two peaked-roof shed sections, each approximately wide, and a third flat-roofed shed, approximately wide, were placed over the submarine's midsection. The sheds began approximately from the bow. The center leading edge of the forward peaked-roof shed had a wedge-shaped section approximately deep removed from the top of the roof. The after edge of this wedge-shaped cutout atop the shed roof at this point appears to coincide with the after edge of the elliptically-shaped possible bridge housing within the sail of the "G" Class. The

vertical sides of the possible bridge housing were visible leading aft from either side of the possible snorkel intake mast; these sides appeared to taper aft and to meet just before the apex of the cutout section of the roof. The distance from the after edge of the possible bridge housing to the inboard center of the connecting walkway between the craneways at the foot of building way #2 was approximately On the last prior coverage of Dairen it was noted that the forward hull section appeared to have an oblong-shaped "flange" fastened to the top of the hull section, which could possibly have been the base of the bridge housing at the deckline of the possible submarine hull. On the coverage the distance from the after edge of this "flange" to the center of the walkway was approximately 380 feet. The distance from the after edge of the possible bridge housing to the bow of the submarine as observed in the coverage was approximately 130 feet. The distance from the after edge of the bridge housing to the bow of the completed "G" Class SSB (seen in was approximately (This figure has not compensated for the factor of slant range displacement in the horizontal plane of the deck, which would probably add approximately to this dimension.) The approximate distance scaled from Reference 2 for this dimension is Given the varying accuracy tolerance peculiar to each mission over Dairen it would appear that the submarine or submarine hull seen in each instance was of the "G" Class.

(Figures 10 and 11)

A "G" Class SSB in an advanced stage of construction was observed on poor-quality stereo coverage in the same position on building way #2 as previously sighted. The overall length of the submarine was approximately A shed approximately long covered the amidship section of the submarine. Flat possible matting covered the aft portion of the vessel from the shed to a position roughly 45 feet from the stern. Vertical side panels protruded from beneath the weather shed toward the forward area of the sail. The sail area was completely open across the top as well as across its leading edge. The distance from the bow to the open-ended leading edges of these vertical side panels was approximately Reference 2 gives a dimension of for the distance between the bow and the leading edge of the completed sail of the "G" Class SSB. It is quite probable that the unfinished sail, as viewed on coverage, is to be extended, possibly another The poor resolution and obliquity of this photography precluded the determination of any meaningful beam or width dimensions. The vertical screens noted on three sides of the submarine on the latest prior coverage were still in place. Possible scaffolding appeared to be positioned around a large portion of the visible hull outline.

(Figures 12 and 13)

A completed "G" Class SSB was observed berthed alongside commercial pier #4 (see Reference 2) opposite the shipyard. Excellent-quality stereo photography permitted analysis of several topside details of the submarine, especially those configurations on top of the sail. The visible features of the submarine observed at Dairen were identical in all respects, with two exceptions (described below), to those characteristics derived from Reference 3 of the standard Soviet "G" Class SSB. The two exceptions were: (1) the position of sail on the deckline appeared to be approximately farther forward on the Dairen submarine than on the Soviet "G" Class; and (2) no sonar dome could be detected on the Dairen submarine. There are two probable explanations for the apparent position of the sail: (1) the sail measurement represents a distance along the top of the sail only - shadow from the after edge of the sail precluded a measurement at the deckline; and (2) due to the slightly oblique angle of the taking camera, a horizontal displacement occurred with respect to the apparent position of the sail on the deckline (i.e., the LOA of the submarine was measured along the horizontal plane of the deckline; the sail was measured in a plane roughly 20 feet above the deckline). The waterline LOA of the submarine measured approximately The length of the sail across the top was approximately The slant range distance between the bow (on the plane of the deck) and the top of the leading edge of the sail was approximately The slant range from the stern (on the plane of the deck) to the top after edge of the sail was approximately Additional significant mensural data were as follows: maximum waterline beam - approximately maximum width of sail - approximately athwartships centerline to centerline distance between the two cleavages separating the missile tube canopies-approximately distances from the center of each of these two cleavages to the leading edge of the sail were approximately length of bridge housing atop the sail - approximately No fitting-out activity was discernible on the coverage. An unidentified small craft or barge (approximately served as a breasting platform between the submarine and the pier's edge. A gangway led from the after missile compartment area of the submarine sail to the barge.

(Figure 3)

A completed "G" Class SSB was observed berthed at the same position alongside commercial pier #4 as was the "G" Class seen on the coverage of The only change noted during the month's interval was the substitution of a larger rectangular raftlike ooject (approximately 105 feet by 30 feet) for use as a breasting platform. A gangway led from the forward sail area of the submarine to the breasting platform.

25X1

REFERENCES

PHOTOGRAPHY

25X1

DOCUMENTS

1. NIS 39A, Supp. I, Section 2, Fig. 2-22 (SECRET)
"Port Plan Dairen (Lu-Ta), China"
2. USNPIC 646/61-S, "USSR 'G' Class SSB Photo Analysis (s)" (SECRET)
3. DIA PC 230/21, "Naval Ships of the USSR". (SECRET)

REQUIREMENT

CIA. C-RR5-82,930

CIA/IAD PROJECT

30279-6

25X1

SECRET

[redacted] 25X1

CIA/PIR - 65029

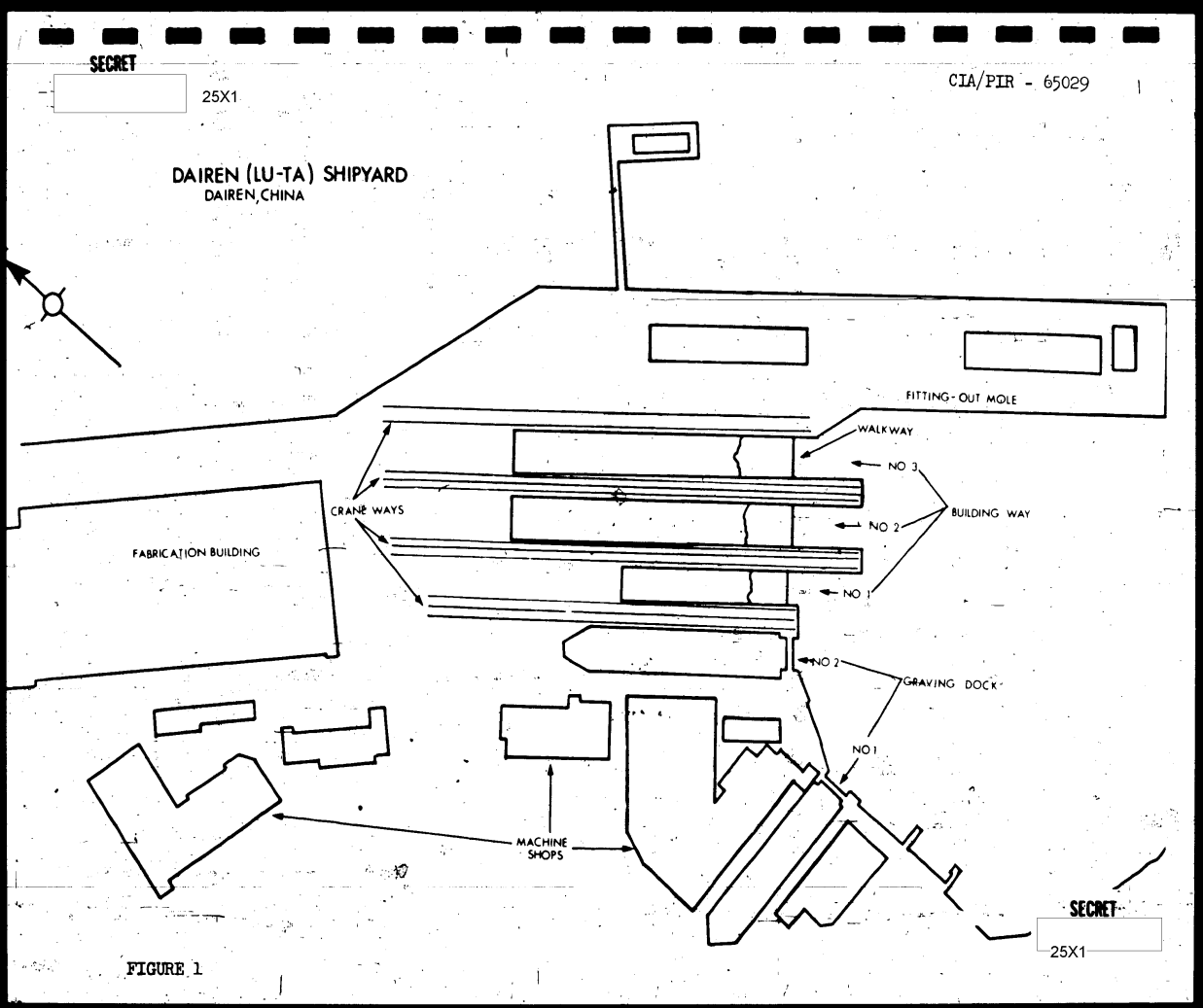


FIGURE 1

SECRET

25X1

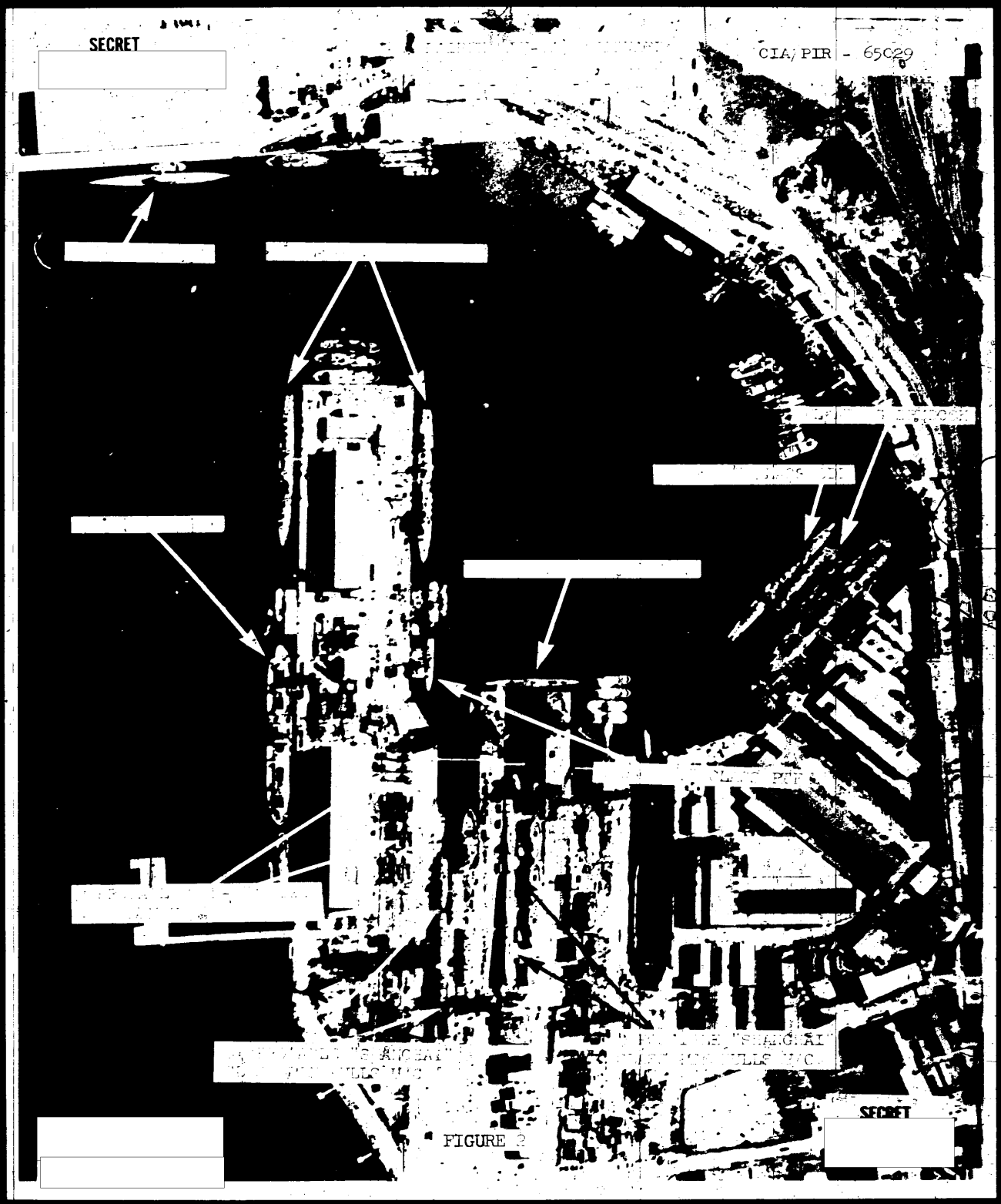


FIGURE 2

25X1

25X1

25X1

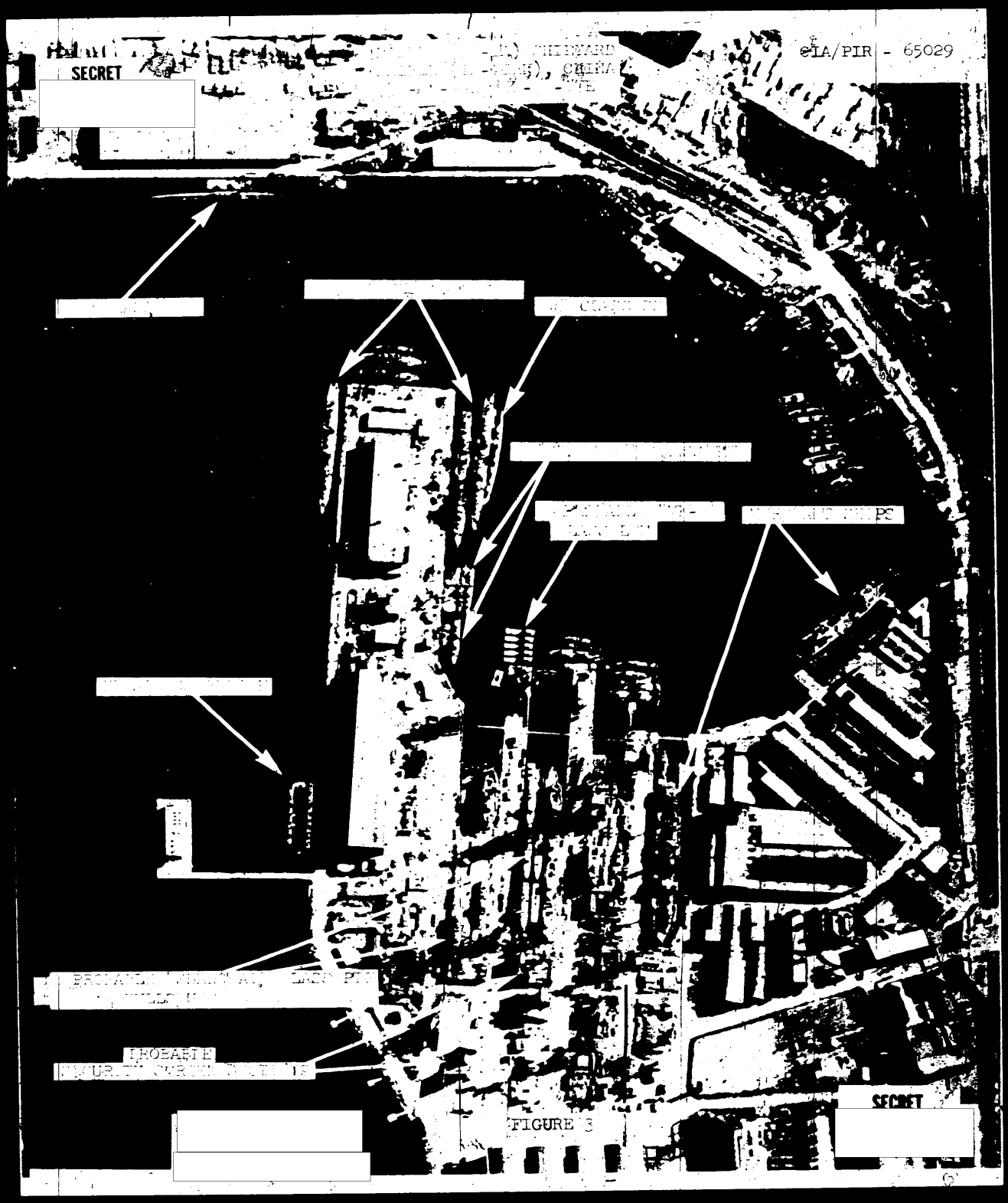


FIGURE 3

25X1

25X1

25X1

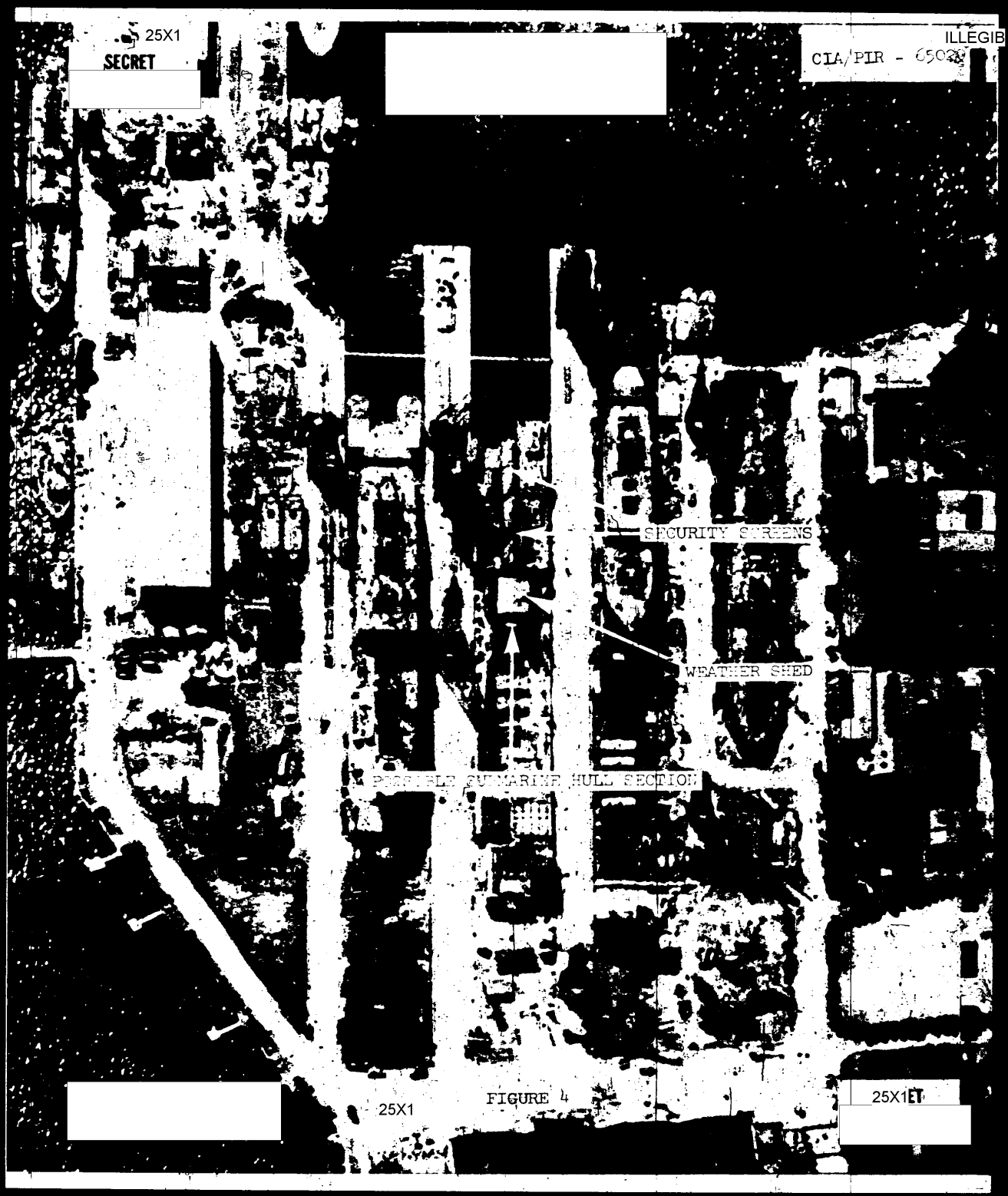


FIGURE 4

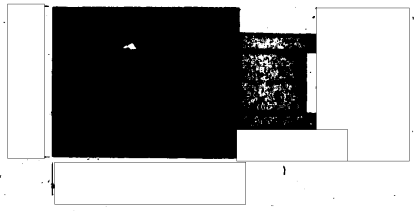
SECRET

25X1

POSSIBLE SUBMARINE HULL
IN INITIAL STAGE OF ASSEMBLY
BUILDING WAY #2
DAIREN SHIPYARD, CHINA

CIA/PIR - 65029

25X1



25X1
25X1
25X1
25X1

25X1

NOTES:

1. ALL DIMENSIONS BY CIA/TID/TAB (NPIC) WITH THE ASSISTANCE OF THE PI
2. ACCURACY 25X1
3. DASHED LINES (---) REPRESENTS INTERPRETATION OF TENUOUS IMAGERY.
4. DRAWING IS NOT TO EXACT SCALE.

SUBMARINE HULL

SHED ROOFS

FIGURE 5

SECRET

25X1

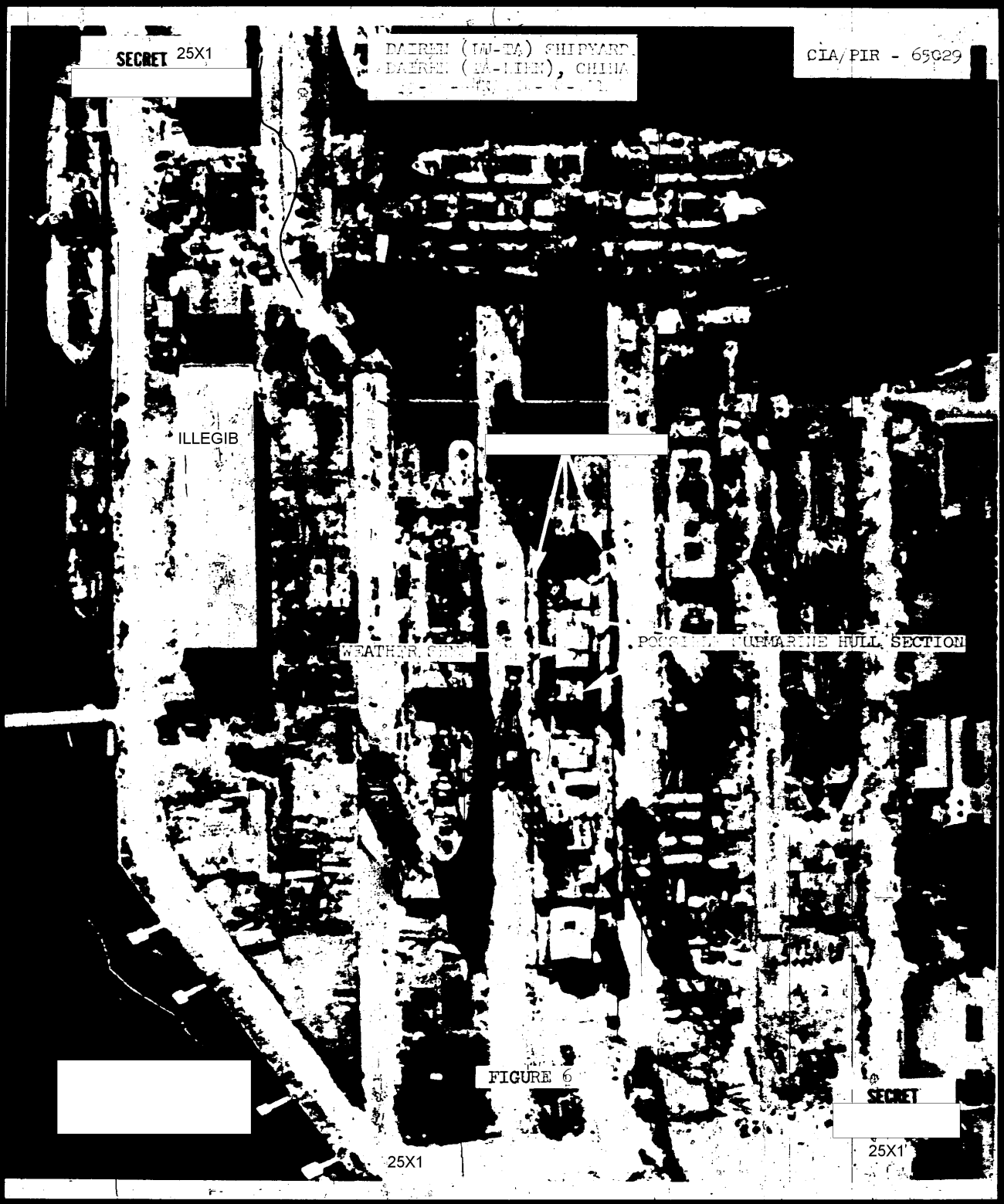


FIGURE 6

SECRET

CIA/PIR - 65029

25X1

25X1

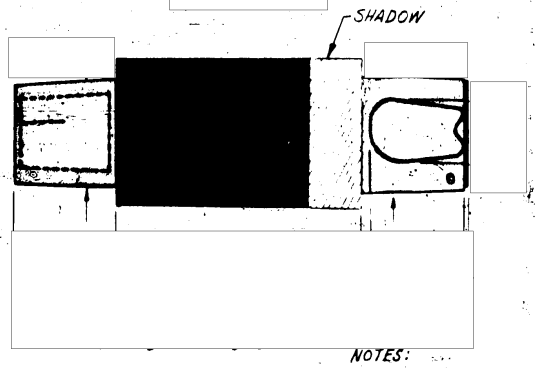
25X1

25X1

25X1

25X1

POSSIBLE SUBMARINE HULL
UNDER CONSTRUCTION
BUILDING WAY #2
DAIREN SHIPYARD, CHINA



SUBMARINE HULL

SHED ROOFS

NOTES:

1. ALL DIMENSIONS PROVIDED BY CIA/TID/TAB (NPIC) WITH THE ASSISTANCE OF THE PI.
2. ACCURACY
3. DASHED LINES (---) REPRESENT INTERPRETATION OF TENUOUS IMAGERY.
4. DRAWING IS NOT TO EXACT SCALE.

25X1

FIGURE 7

SECRET

25X1

25X1

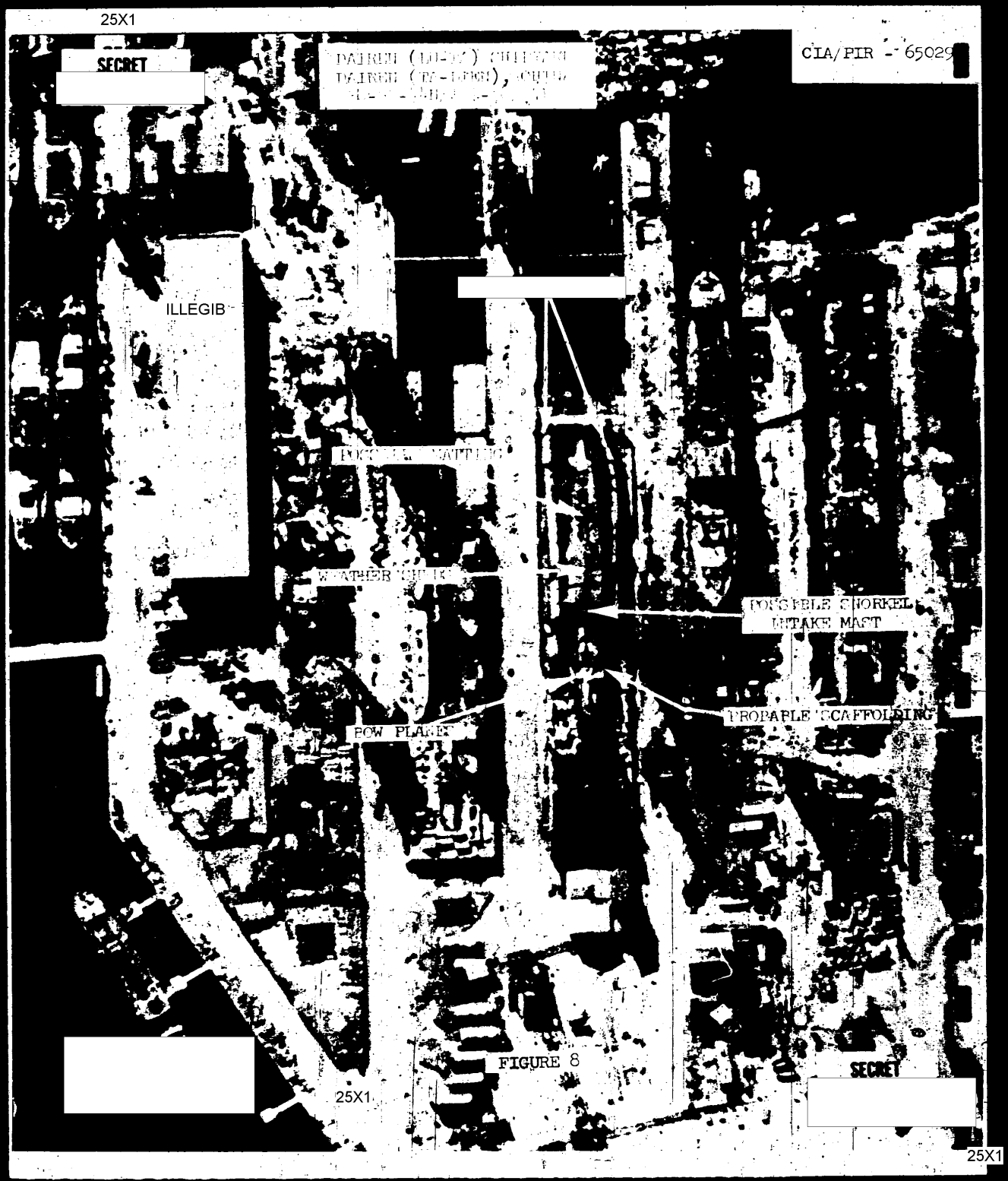


FIGURE 8

SECRET

[redacted]

25X1

"G" CLASS SSB UNDER CONSTRUCTION
BUILDING WAY #2
DAIREN SHIPYARD, CHINA

CIA/PIR - 65029

25X1 [redacted]

OVERALL LENGTH 315'

25X1 [redacted]

25X1 [redacted]

25X1 [redacted]

SUBMARINE HULL

SUBMARINE BOWPLANES

POSSIBLE MATTING OVER DECK OF SUBMARINE

SHED ROOFS

HOLES THROUGH POSSIBLE MATTING

SAIL AREA DETAIL

25X1

25X1

NOTES:

1. ALL DIMENSIONS PROVIDED BY CIA/TIG/TAB (MSC) WITH ASSISTANCE OF THE PI - EXCEPT AS NOTED BELOW
2. DISTANCE FROM BOW TO TOP OF UNIDENTIFIED VERTICAL SHEARING [redacted] DERIVED FROM BASE MEASUREMENTS SUPPLIED BY CIA/TIG/TAB (NPIC).
3. BEAM DIMENSION PROBABLY INCLUDES PORTIONS OF SCAFFOLDING CONTIGUOUS TO THE OUTER HULL
4. EXTREME AFTER END OF SUBMARINE IS POSSIBLY OBSCURED BY SHADOW THROWN BY SECURITY SCREEN ERECTED ACROSS BUILDING WAY.
5. ACCURACY [redacted]
6. DRAWING IS NOT TO EXACT SCALE
7. DASHED LINES (- - -) REPRESENT INTERPRETATION OF TENUOUS IMAGERY.

FIGURE 9

SECRET

[redacted]

25X1

25X1

SECRET

CIA/PIR - 65029

OPEN FORWARD SAIL AREA

FIGURE

SECRET

25X1

SECRET

CIA/PIR - 65029

25X1

"G" CLASS SSB UNDER CONSTRUCTION
BUILDING WAY #2
DAIREN SHIPYARD, CHINA

25X1

25X1

OVERALL LENGTH

SHADOW

25X1

25X1

SUBMARINE HULL

POSSIBLE MATTING OVER DECK OF SUBMARINE

SHED ROOFS

SAIL AREA DETAIL

25X1

FIGURE 11

NOTES:

1. ALL DIMENSIONS PROVIDED BY CIA/TID/TAB (NPIC) WITH THE ASSISTANCE OF THE PI.
2. QUALITY OF PHOTOGRAPHY WAS LESS THAN OPTIMUM DUE TO OBLIQUITY AND HAZE.
3. DIFFICULTY IN DISTINGUISHING HULL IMAGERY FROM POSSIBLE SCAFFOLDING JUST FORWARD OF THE SAIL PRECLUDED ANY ACCURATE DETERMINATION OF BEAM DIMENSIONS
4. ACCURACY
5. DASHED LINES (- - -) REPRESENT INTERPRETATION OF TENUOUS IMAGERY.
6. DRAWING IS NOT TO EXACT SCALE.

SECRET

25X1

SECRET

25X1

COMPLETED "G" CLASS SSB
ALONGSIDE COMMERCIAL WHARF
DAIREN, CHINA

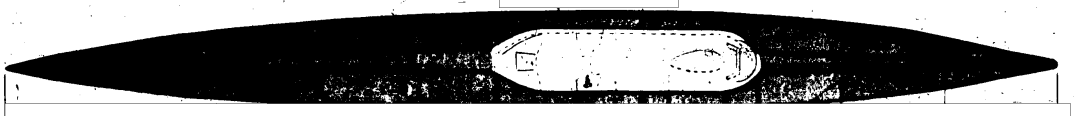
CIA/PIR - 65029

25X1

OVERALL LENGTH

25X1

25X1



25X1

25X1

SUBMARINE HULL

SAIL AREA DETAIL

NOTES:

1. ALL DIMENSIONS PROVIDED BY CIA/TID/TAB (NPIC) WITH THE ASSISTANCE OF THE PI.
2. SHADOW FROM AFTER EDGE OF SAIL PRECLUDED A SAIL LOA AT THE DECKLINE. SAIL MEASUREMENT REPRESENTS THE DISTANCE ALONG THE TOP OF SAIL; THEREFORE THERE IS A HORIZONTAL DISPLACEMENT WITH RESPECT TO THE POSITION OF THE SAIL ON THE DECKLINE OF THE SUBMARINE.
3. ACCURACY
4. DASHED LINES (---) REPRESENT INTERPRETATION OF TENUOUS IMAGERY.
5. DRAWING IS NOT TO EXACT SCALE.

25X1

FIGURE 12

SECRET

25X1

25X1

SECRET

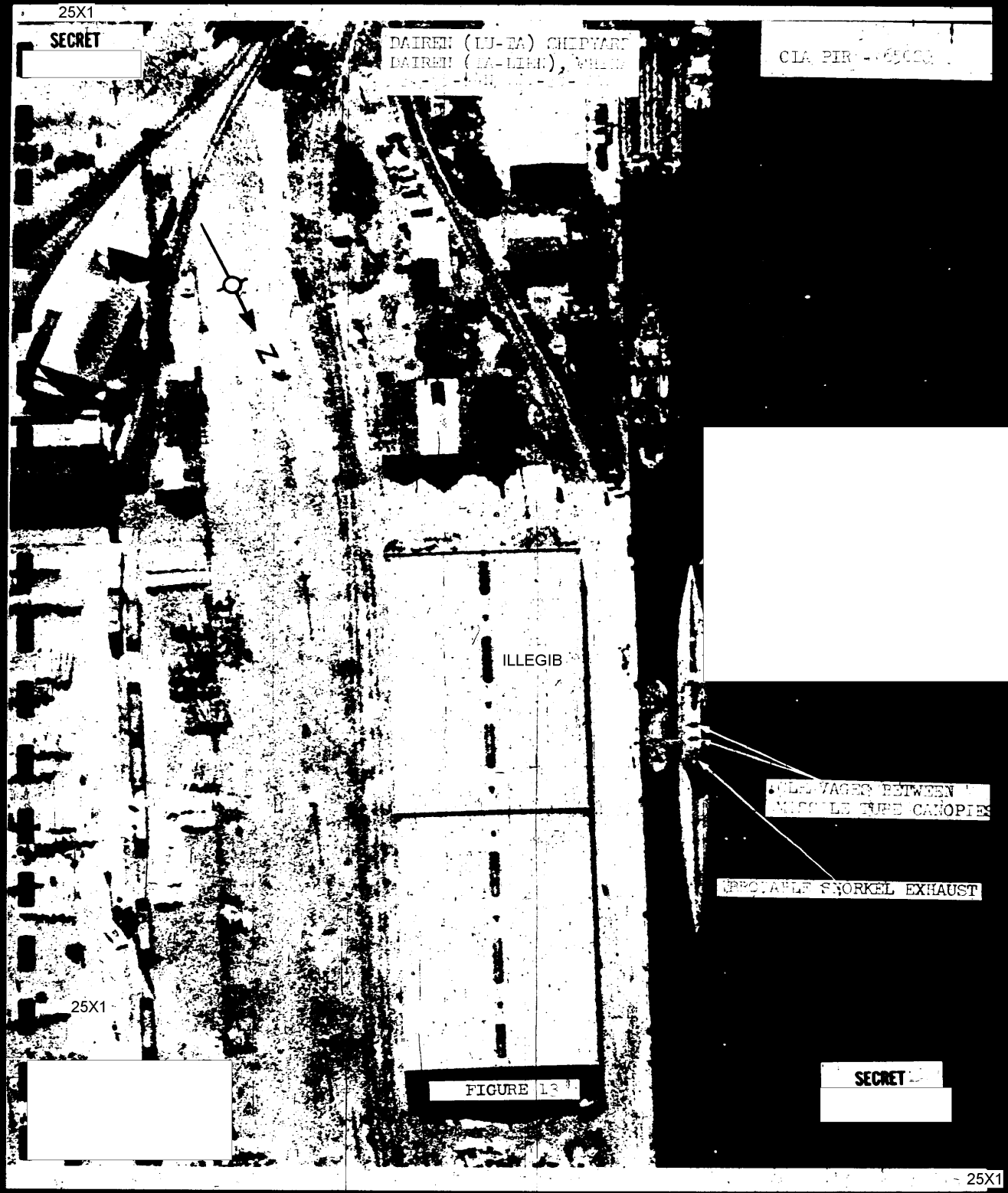


FIGURE 13

25X1