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PHOTOGRAPHIC INTERPRETATION REPORT

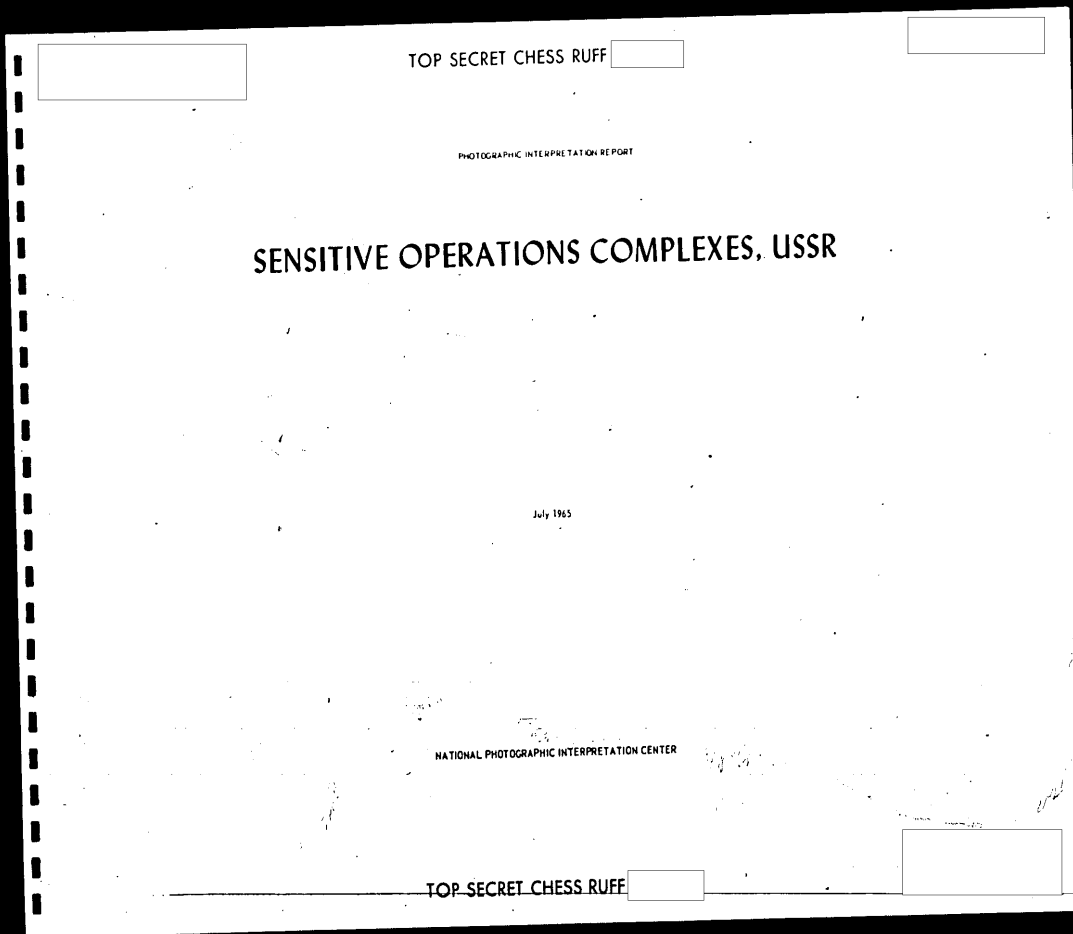
SENSITIVE OPERATIONS COMPLEXES, USSR

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### INTRODUCTION

This report is an analysis of 11 large unusual military installations which have been designated sensitive operations complexes. They are located (Figure 1) near the following towns and at the following coordinates in the European USSR:

Borovnitska	55-11N	40-01E
Chelkove	55-06N	38-37E
Golovchino	55-33N	35-44E
Bulyzhino	56-13N	28-58E
Nyandoma	41-38N	40-02E
Rechitsa	52-27N	20-00E
Zhukovka	53-33N	33-56E
Belev	52-32N	36-00E
Borogolovsk	51-24N	41-52E
Chaslavovka	53-07N	46-02E
Mikheylovka	48-50N	32-17E

The Bulyzhino, Rechitsa, Zhukovka, Golovchino, and Mikheylovka complexes are situated in parts of the USSR which were occupied by German forces during World War II, and the Belev complex is on or near the line of the deepest penetration made by the Germans from Orel toward Moscow. Bulyzhino was identified as a sensitive operations complex in 1964.

This report is based on all usable TALENT and KEY-HOLE photography of the complexes from December 1959 through May 1965. Because photographic coverage of some of the sites is limited, and because several of the complexes were first observed when construction was well under way, it was impossible to observe all stages of construction at each installation. However, a study of the photography of all 11 sites made it possible to estimate the construction progress at each.

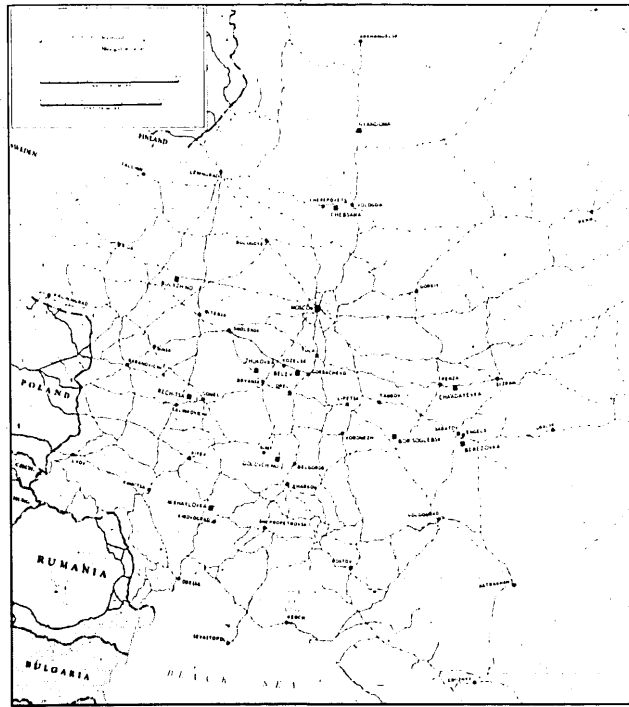


FIGURE 1. LOCATION MAP.

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### CHARACTERISTICS OF THE SENSITIVE OPERATIONS COMPLEXES

The complexes are characterized by isolated locations, the presence of massive concrete bunkers, and standardized site plans which include stringent security precautions, military housing facilities capable of accommodating a large number of troops, and rail facilities which are tied into major Soviet rail networks. The complexes are not defended by SAM sites; however, Berezyovka, Chadaevskaya, Rechitsa, and Zhukovka are on the periphery of the SAM defenses of Saratov and Engels, Penza, Gomel, and Bryansk, respectively. By contrast, at least two SAM sites have been observed in the vicinity of [redacted] in the USSR. No communications facilities have been observed at or near any of the complexes, and no major military or civilian airfields are within a 15 nautical mile (nm) radius of any of the complexes.

#### BUNKERS

The bunkers have been constructed on terrain affording them maximum protection and concealment. With the exception of those at Berezyovka, the bunkers are situated in dense forests which provide excellent concealment. The Berezyovka complex is on a treeless flood plain of the Volga River, and the bunkers have been built in cuts in the wall of the Berezyovka Ravine.

The designs employed in the construction of the bunkers at the sensitive operations complexes comprise three groups or generations. The first group consists of the alpha and beta designs, the earliest and most elaborate. This group has been observed only at Berezyovka, Chebarka, and Golovchino. The second group or generation consists of the gamma, delta, epsilon, and zeta designs, which are less elaborate than the first-generation designs. This generation of bunkers has been found only at Bulzhino, Nyandoma, Rechitsa, and Zhukovka. The third group or generation consists of the eta and theta designs, the simplest of the eight. This generation of

bunkers has been found only at Borizoglebov, Chadaevskaya, and Mikhaylovka. If a bunker is constructed in the existing excavation at Belev, it will probably be an eta or theta bunker. Excavations for the first-generation bunkers were first observed between December 1959 and August 1962; excavations for the second-generation bunkers were first observed between December 1961 and the summer of 1962; and excavations for the third-generation bunkers were first observed between July and October 1963.

#### First-Generation Bunkers

The alpha bunker is a multilevel irregularly shaped structure with a rectangular main bay (Figure 2). A rectangular corridor 110 feet long provides access to the bunker. The main bay is 215 [redacted] feet and is evenly divided into four longitudinal bays. The exterior walls of the bunker are estimated to be approximately two to five feet thick, an estimate based on KLYVIRLE photography of Bunker 5 at Berezyovka, the only alpha bunker observed when the interior walls were still visible. If the interior walls are five feet thick, each bay [redacted]

A vertical cylindrical object which is somewhat higher than the main bay of the bunker is attached to the rear of the alpha bunker, but the function of the object is unknown. It has an outside [redacted] At Chebarka the earth-covered top of this object at Bunker 1 is flush with the earth covering of the bunker and is barely visible. The object could possibly house ventilating equipment, or it could be an emergency entrance or exit should the main entrance be damaged or destroyed. Probable handling or equipment bays are located on each side of the entrance corridor. A superstructure above the entrance probably contains hoisting apparatus. The road serving the bunker is at right angles to the entrance, and the turn is too sharp for a vehicle to negotiate. Materiel could be transported through the corridor, and into the bunker on dollies or by means of overhead traveling cranes. In at least one instance (Bunker 1 at Chebarka), the service road continues inside the entrance. All alpha bunkers are heated by steam.

The beta bunker is multilevel, roughly L shaped, and has two entrances, both of which are probably identical to the corridors observed at the alpha bunkers (Figure 3).

Since no beta bunkers have been observed in a mid-stage of construction, the precise configuration of the structures is unknown. The main bay or leg of the L [redacted] and is divided longitudinally into four bays, each of which is approximately 25 feet wide. The exterior walls of the bunker are about five feet thick.

#### Second-Generation Bunkers

The gamma bunker consists of a main bay, an ell, and an extension (Figure 4). The main bay [redacted] (outside dimensions), and it is divided into four longitudinal bays, each of which [redacted]. Although the thickness of the exterior and interior walls cannot be precisely determined, they are probably five [redacted] thick. The bunker has two entrances: the first is the ell which is 90 by 40 feet (outside dimensions), and the second is in the extension which is [redacted] situated at one end of the bunker. The raised section above the entrance ell may house overhead handling equipment.

The delta bunker consists of a main bay measuring 215 by 120 feet and an entrance ell approximately 85 feet square (Figure 5). A second entrance is in a [redacted] extension at one end of the main bay. Whether the main bay is divided into longitudinal bays is not known. A projection [redacted] is opposite the entrance ell and extends from ground level above the roof of the bunker. The top of this projection is joined to a [redacted] square raised section which may house overhead handling equipment or possibly an elevator. Overhead handling equipment may also be housed in rectangular raised sections over both entrances.

The epsilon bunker, the least elaborate of the second-generation bunkers, consists of a main bay which is [redacted] (Figure 6). An entrance corridor [redacted] has a drive-in capability.

The zeta bunker is L shaped, and a wing which [redacted] is parallel to the base of the L (Figure 7). The entrance to the bunker is a [redacted] corridor which is at right angles to the wing. The leg of the L, or main bay is [redacted] and a portion of it is divided into four longitudinal bays, each of which [redacted]. A center aisle [redacted] is at right angles to the four bays and in line with the entrance. The remainder of the bay is divided into at least two compartments.

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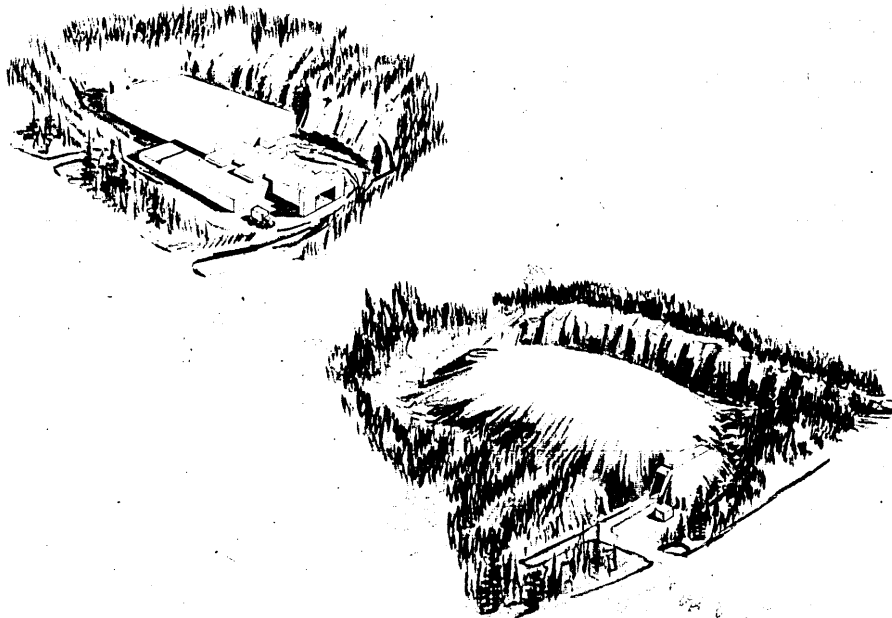


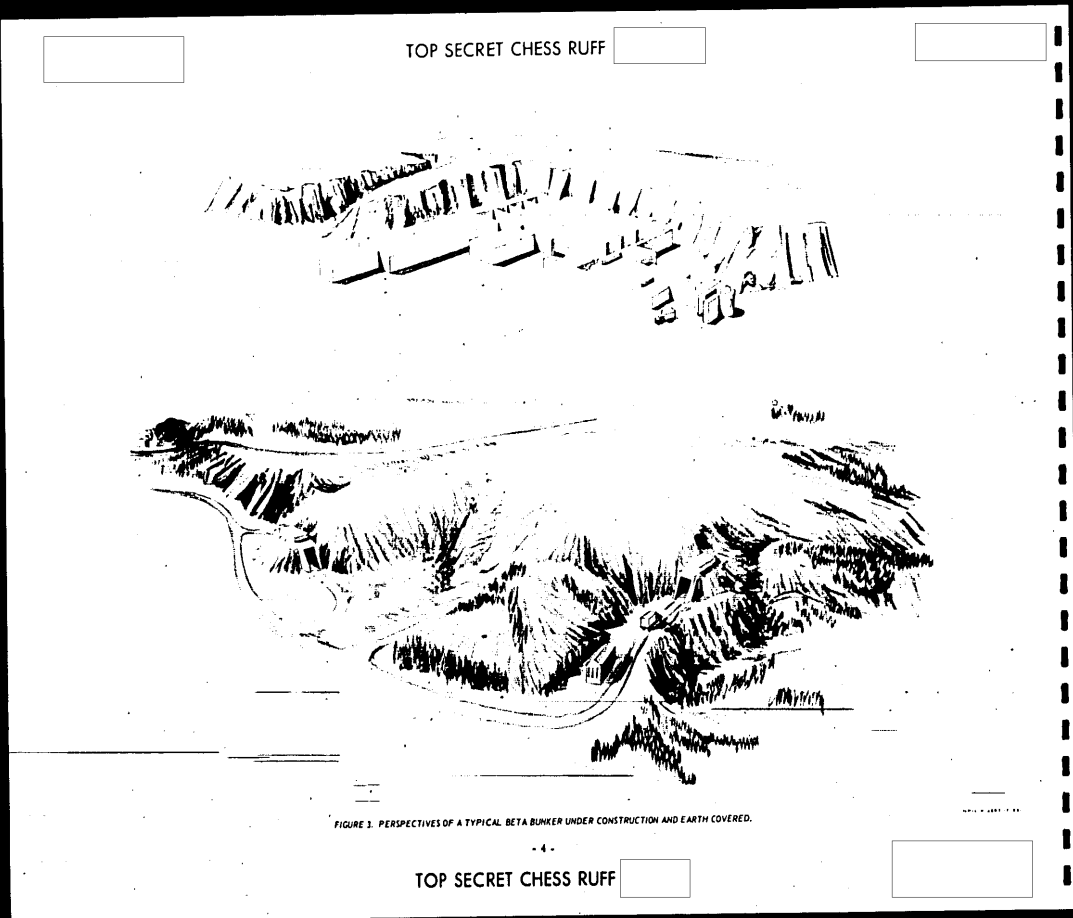
FIGURE 2. PERSPECTIVES OF A TYPICAL ALPHA BUNKER UNDER CONSTRUCTION AND EARTH COVERED.

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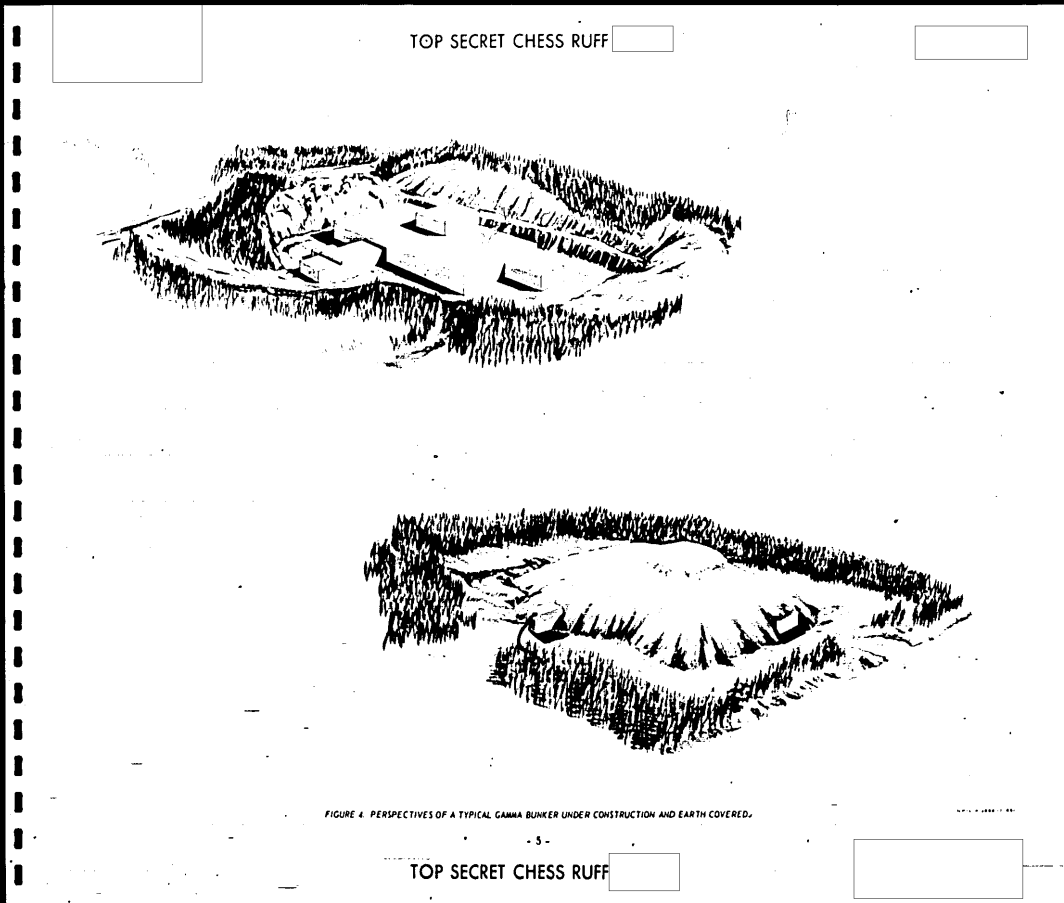
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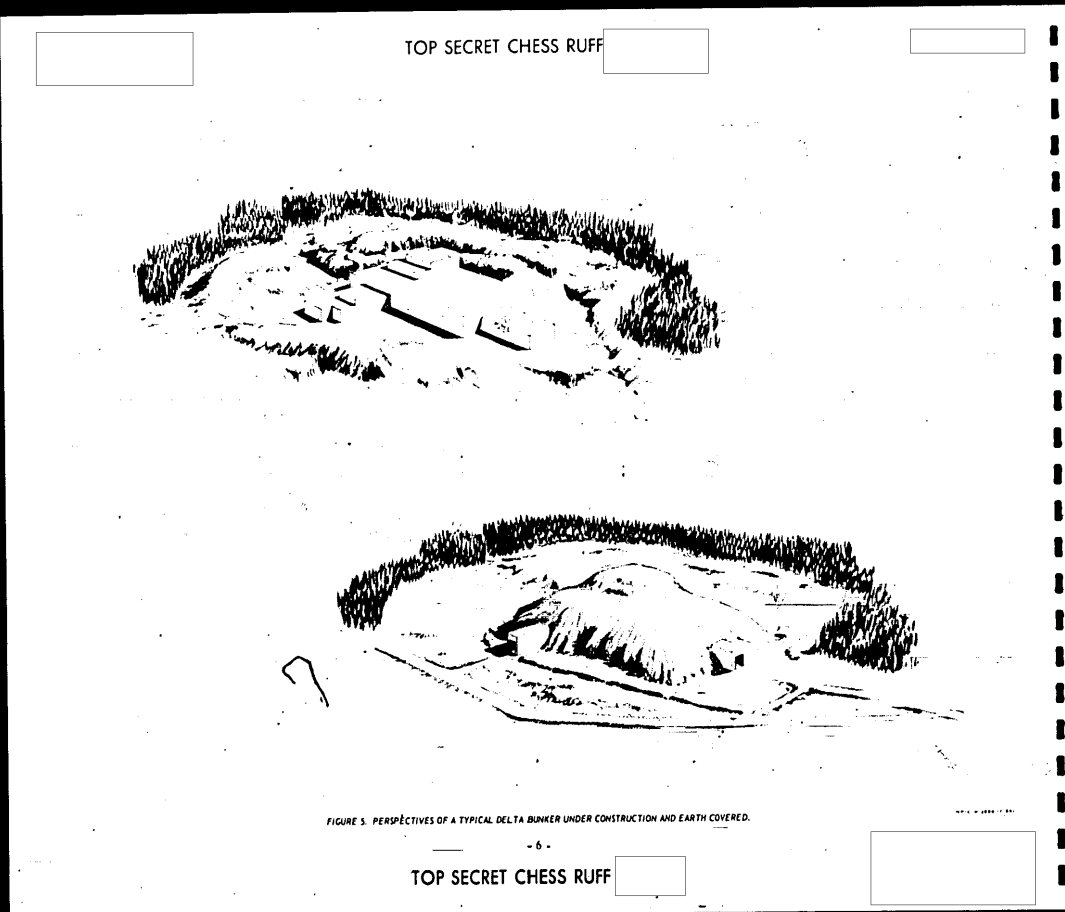
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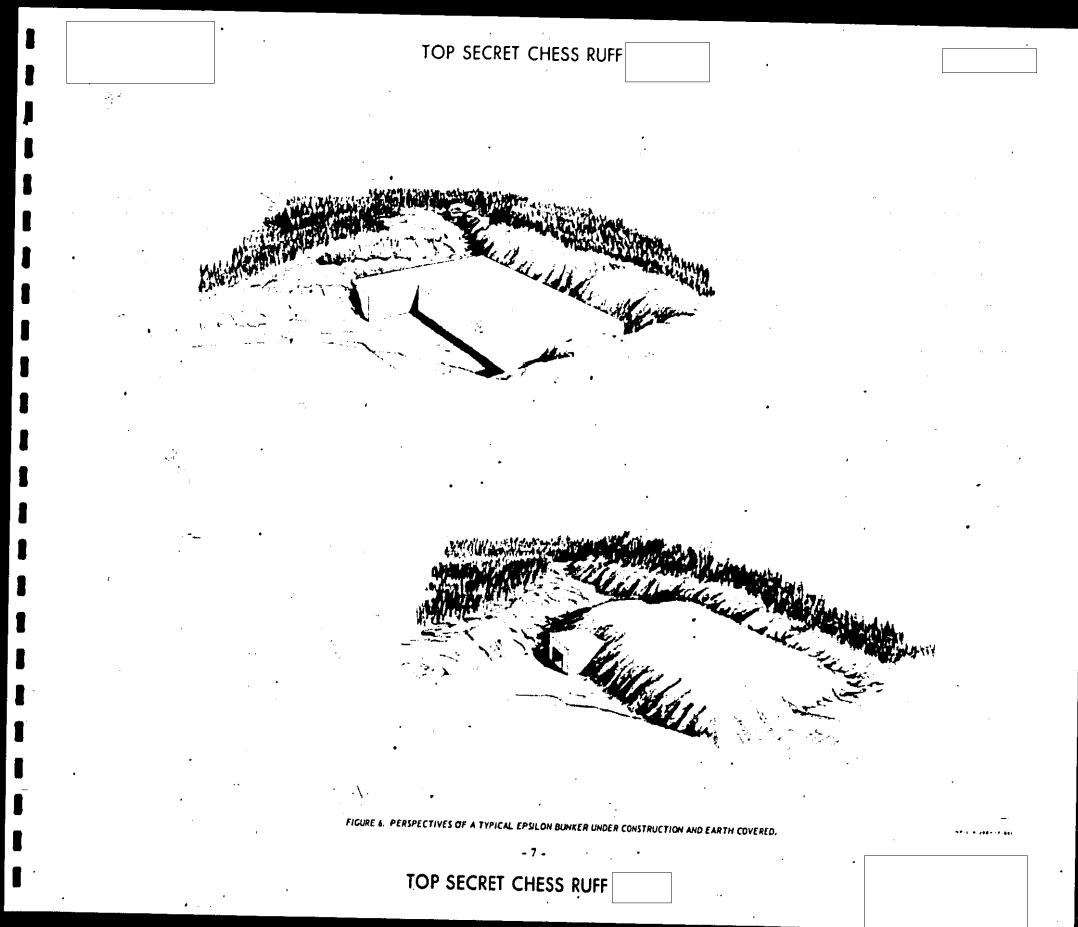
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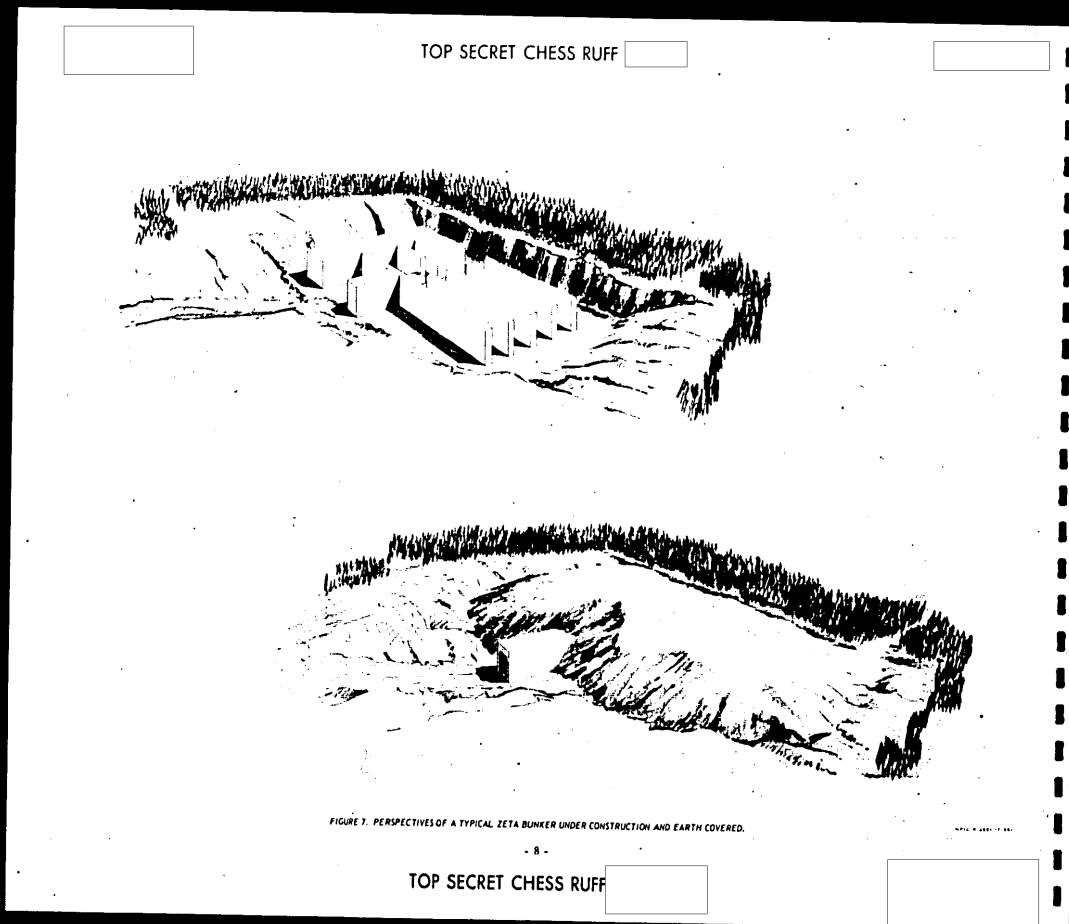
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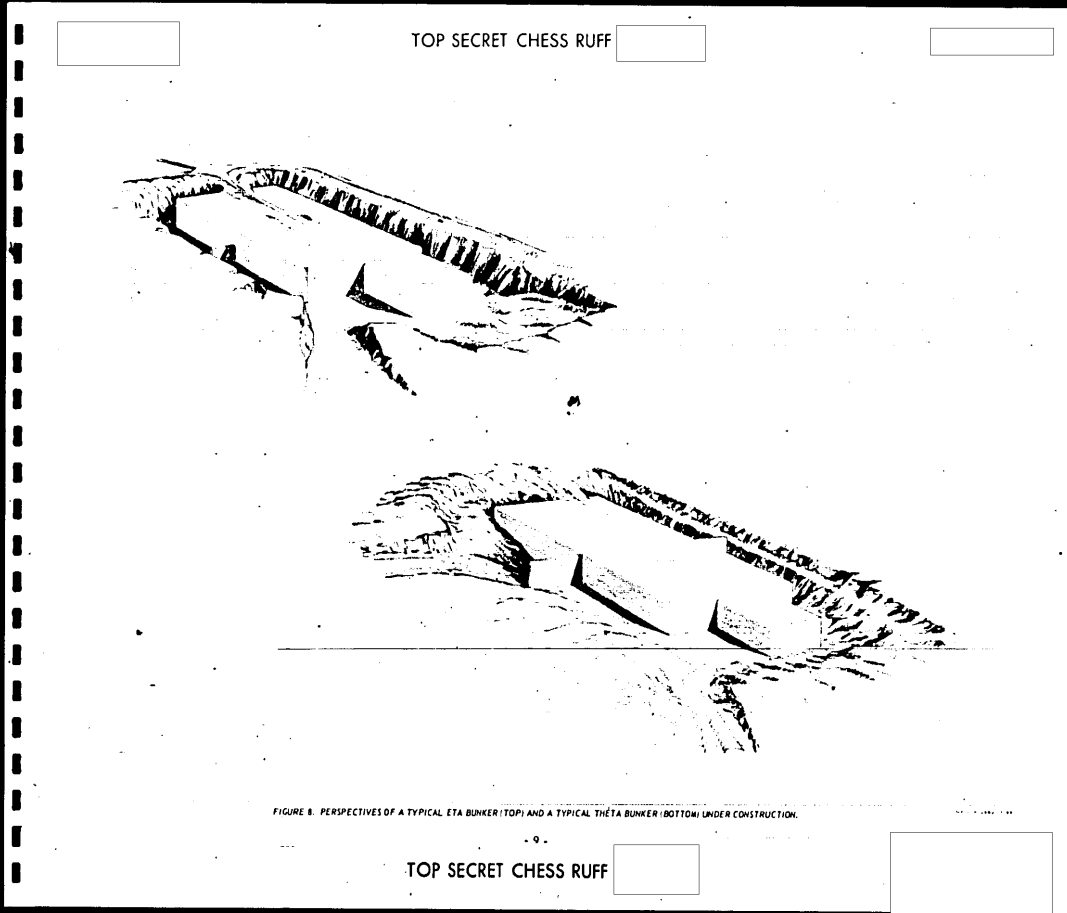
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**Third-Generation Bunkers**

Of the eight designs used in the construction of bunkers at the sensitive operations complexes, the eta and theta designs are the simplest (Figure 8). The eta bunker [redacted] and is divided into three longitudinal bays. The outside bays are approximately 25 feet wide, and the center bay is 35 to 40 feet wide. An extension at one end of the bunker [redacted]. Although entrances were not discernible, the eta bunker may have a drive-in capability. The theta bunker [redacted] and is divided into three longitudinal bays. Each outside bay is about 30 feet wide, and the center bay is 35 feet wide. An extension at one end of the bunker measures 55 by 40 feet. The thickness of the exterior and interior walls cannot be determined. No entrances were observed.

**Construction Chronology**

At most of the complexes several bunkers have been and are under construction concurrently. Bunkers of an earlier generation are under construction at one complex while work on those of a later generation is started at another. For example, at Ghebsara two bunkers, one an alpha and the other probably a beta, are under construction; at Rechitsa one delta bunker is under construction; and at Mikhailovka one eta and two theta bunkers are under construction. In 1965 fifteen bunkers of at least six different designs are in various stages of construction at seven complexes. All the bunkers at Berezojka, Golovchino, and Bulzhino have been completed and earth covered. No bunkers are under construction at Belov.

The pace of construction on the bunkers has varied. At Berezojka five bunkers were completed and earth covered in four years. At Bulzhino five bunkers were built and earth covered between August 1962 and March 1965. On the other hand, at Chaadayevka construction on three bunkers began at some time after April 1962 but was abandoned by July 1962. By September 1963 a new excavation for a fourth bunker was visible several miles from the site of the abandoned construction activity. The bunker under construction in this excavation is probably a theta bunker.

**SITE PLAN**

Although individual facilities at each complex may vary somewhat in both layout and structural detail, it is evident

that an effort has been made to standardize site plans and structures. Each site plan usually consists of the following features:

1. Operations Area. The operations area is heavily secured and usually contains from three to six bunkers and an operations support facility consisting of two to four buildings. At complexes having first-generation bunkers this facility contains three or four buildings; at complexes having second- and third-generation bunkers, two buildings. One of these structures is always a large, high-bay, drive-through building. With the exception of the Chaadayevka complex, access to the operations area is controlled by a gatehouse at the entrance. Unless noted otherwise, this gatehouse has been arbitrarily designated as the reference point (RP) from which all distances and azimuths within the complex have been calculated.

2. Roads. All bunkers in the operations area are served by roads; at five of the complexes these are loop roads. Most of the complexes have central service roads extending from the operations areas to all other facilities within the installations.

3. Rail Facility. The rail facility consists of a holding yard with five to seven parallel sidings, a traveling bridge crane, a steamplant, and POL tanks. The crane travels on two rails supported by vertical members which are 20 feet apart on center [redacted] (Figure 9). One rail siding and a portion of a loop road are situated between the vertical supports. The length of the rails is from 275 to 315 feet; the crane spans [redacted]. At most of the complexes rolling stock observed in the rail facility has included rail cars which [redacted].

4. Military Housing and Administration Facilities. Housing and administration facilities for military personnel consist of multistory barracks, duplex units, messhalls, and administration buildings. The barracks are usually three stories high and measure 220 by 50 feet. The duplex units (probably for officers) [redacted] and provide housing for two or three families. In estimating the number of troops the barracks could accommodate, 100 square feet has been allowed per man. The barracks at each complex could accommodate an estimated average total of 3,300 troops. At seven of the complexes the messhall is an H-shaped building probably having separate messing facilities for enlisted personnel and officers and [redacted] over-

all. Kitchen facilities probably occupy the crossbar of the H. An irregularly shaped infirmary or assembly and recreation building has been observed at three of the complexes. This is a multistory structure and measures 215 by 50 feet.

5. Construction Workers Housing Facilities. Housing for construction workers consists of five to nine dormitory-type buildings and a messhall.

6. Construction Support Facility. This facility is rail served and separately secured. It is adjacent to the rail facility and contains a concrete batch plant, warehouses, piles of aggregate, a fabrication yard, and equipment.

7. Motor Pool. The motor pool is adjacent to or near the rail facility and contains a vehicle garage and associated buildings. It is secured by a wire fence, and access to it is controlled by a gatehouse. At complexes having first-generation bunkers the vehicle garage is 300 by 120 feet. At complexes having second- and third-generation bunkers the garage is 255 feet long and 65 to 70 feet wide.

**BEREZOVKA SENSITIVE OPERATIONS' COMPLEX**

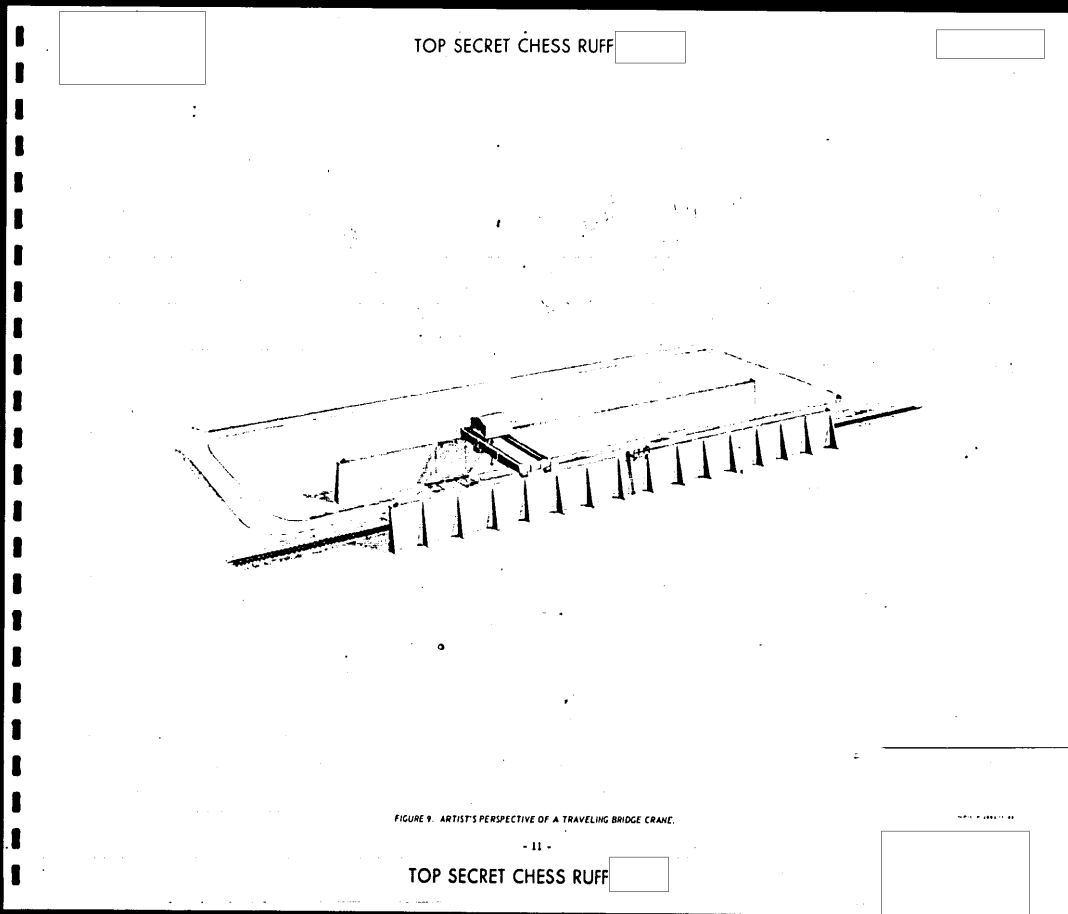
The Berezojka Sensitive Operations Complex is 17.5 nm south-southwest of Ingela near the village of Berezojka (Figure 10). The complex is tied into the Engels-Uralsk and Engels-Astrakhan rail lines east of the Volga River. Excavations for three bunkers and construction of some of the support facilities were first observed in December 1959, and at that time it was evident that work on the complex had been started at least six months earlier. Construction progress at the complex since that time is presented in SPR/BR-95 63, 2.

**OPERATIONS AREA**

The Operations Area of the Berezojka complex is situated at the eastern end of the Berezojky Ravine, approximately 4 nm east of the Volga River, and it is approximately 11,000 by 7,000 feet. The floor of the ravine is relatively level and covered by scrub growth. The terrain bordering the ravine is flat. A Soviet Army topographic map indicates that the walls of the ravine are about 20 meters (66 feet) high. Bridges have been built across streams at the bottom of the ravine. The area is surrounded by at least four rows

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of wire fencing, and access to it is controlled by a gatehouse (RP) [redacted]

The area contains three completed alpha bunkers (bunkers 2, 3, and 5) and two completed beta bunkers (bunkers 1 and 4), all of which have been constructed in deep cuts in the walls of the ravine (Table B). Each bunker is protected by an earth cover which projects slightly above the top of the ravine. If the main bay of each bunker [redacted] if the floors of the bunkers are 10 feet above the bottom of the ravine, and if the walls of the ravine are actually [redacted] the bunkers are covered with an estimated [redacted] earth. The bunkers are heated by steam, and aboveground steamlines are clearly visible. Each bunker is separately secured by wire fencing and served by a well-engineered concrete road having wide turns and gentle grades. One section of this road is protected from washouts by earthen levees.

Table B. Description of Bunkers in the Operations Area, Barracks Section, Operations Complex

Bunker No.	Type	Distance from RP (ft)	Area from RP (sq ft)	Distance from Other Bunkers (ft)	Status
1	Beta	3,700	1,400	From No. 5	Complete & earth covered
2	Alpha	7,000	6,200	From No. 1	Complete & earth covered
3	Alpha	5,000	2,000	From No. 2	Complete & earth covered
4	Beta	4,100	2,000	From No. 3	Complete & earth covered
5	Alpha	3,700	2,000	From No. 4	Complete & earth covered

The Operations Support Facility in the southeastern part of the Operations Area and 7,000 feet southeast of the RP consists of four buildings. The most prominent of the four is the separately secured drive-through building which is served by a loop road. The building [redacted] has a center longitudinal high bay 45 feet wide. The second building is situated east of the drive-through building on a branch of the loop road and [redacted]. The other two buildings are on the south side of the loop road and southwest of the drive-through building. One is [redacted] and has two sidewalk entrances. The other is [redacted] a concrete apron and an extension [redacted] are at the south end of the building. On several occasions FAGOI/FRESKO aircraft were observed on or near the loop road at the drive-

through building, and in March 1964 one FAGOI/FRESKO aircraft was parked between the smallest building and the south wall of the ravine.

Between July 1962 and March 1964 a concrete helicopter pad was constructed on level ground 1,100 feet southeast of the Operations Support Facility and south of the ravine. The pad is 360 by 190 feet and is connected to the Operations Support Facility by a road. In March 1964 a FAGOI/FRESKO aircraft was observed near the pad. At that time the ground was snow covered, and snow had been blown in several directions around the aircraft, probably an indication that the pad had been recently used. On subsequent photography FAGOI/FRESKO aircraft were observed on or alongside the pad. It is possible that the aircraft were delivered to the complex by helicopter.

**RAIL FACILITY**

The Rail Facility is 14.5 nm north of the complex and south-southwest of Engels near the village of Antoninka. A re-examination of the December 1959 photography indicated that this facility existed at that time; however, its association with the Brezovka installation was not known at the time. The facility is enclosed by a solid fence or wall and consists of a holding yard with six parallel sidings, a bridge crane, three barracks, and a probable administration building. A rail siding is situated between the supporting walls of the bridge crane. Another siding serves a row of warehouses south of the bridge crane. Rolling stock was observed in the facility in June 1964 when a string of five short rail cars was parked outside the bridge crane, and material was either being removed from or being delivered to the complex. In October 1964 a longer string of rail cars was noted in the same location, and a large number of short and long rail cars were also observed in the facility. The barracks and probable administration buildings are in the northwest portion of the Rail Facility. Each barracks is 170 by 80 feet, and the probable administration building, 95 by 80 feet. A separately fenced area measuring 600 by 520 feet has been added to the southwest side of the facility since June 1964. No activity has been noted in this area.

**HOUSING AND ADMINISTRATION FACILITIES**

Military housing and administration facilities are at the

western end of the complex and include barracks and officers quarters. Seventeen two-story barracks were built before April 1962, and each measures 115 by 50 feet. Six three-story barracks were built between July 1962 and March 1964, and each is 220 by 45 feet. Probable officers' quarters consist of six two-story units, each of which [redacted]. The military housing facilities could house an estimated total of 3,600 troops. Administration facilities include a large administration building and several small U-shaped administration buildings. These facilities do not include an H-shaped mess hall.

Additional military housing northwest of the RP and north of the central service road consists of three two-story barracks [redacted] and three barracks under construction [redacted]. When completed, these facilities could house an estimated total of 800 troops. Housing for construction workers is immediately west of these barracks and consists of six single-story dormitory-type buildings.

**OTHER SUPPORT FACILITIES**

In the eastern portion of the complex these facilities include a steamplant northwest of the construction workers housing. Aboveground steamlines serve the military and construction workers housing, all of the bunkers, and the Operations Support Facility. In the western portion of the complex support facilities consist of two separately secured unidentified areas, a steamplant, and the motor pool. The first unidentified area south of the military housing facilities is enclosed by one wire fence, and guard towers are situated at the corners. When first observed in March 1964, this area contained 15 FAGOI/FRESKO aircraft and a COACH/GRAB/CAR. In June 1964 nine FAGOI/FRESKO aircraft were observed there; the following August seven FAGOI/FRESKO were observed in the area, and in October of the same year nine FAGOI/FRESKO were visible. In January 1965 a jet blast mark, the result of an engine run-up, was visible in the snow behind one of the aircraft in this area.

The second unidentified area north of the first is surrounded by a solid fence or wall and contains two buildings. One is a drive-through building which [redacted] and has a center longitudinal bay 45 feet wide. The building is served by a concrete loop road 15 feet wide and having wide

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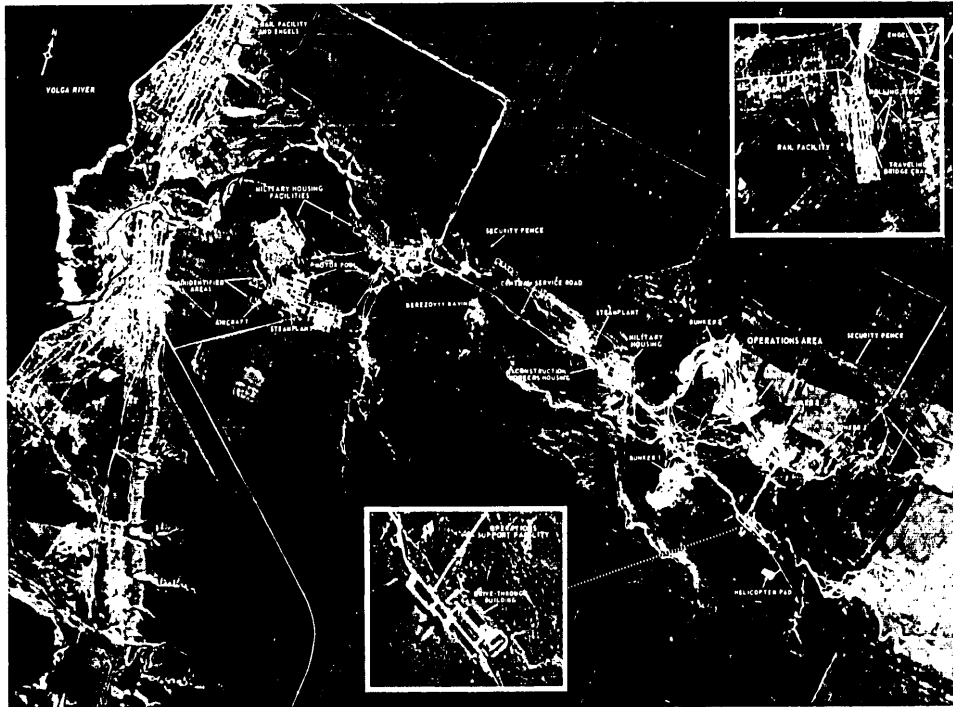


FIGURE 10. BEREZOVKA SENSITIVE OPERATIONS COMPLEX, JUNE 1964

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turns. At the entrance to the building the road is 25 feet wide. The other building is situated at right angles to the first. [redacted] Bereznika is the only sensitive operations complex having such an area.

The motor pool southeast of the military housing and administration facilities contains a vehicle repair shop and/or garage which is 340 by 120 feet.

**CHEBSARA SENSITIVE OPERATIONS COMPLEX**

The Chebsara Sensitive Operations Complex is 7 nm southwest of the town of Chebsara and 21.5 nm east of Cherepovets (figure 11). The complex is served by an improved road and by a rail spur from the Cherepovets-Vologda double-track rail line. The site was photographed for the first time in August 1960 when it was in an early stage of construction, but the quality of that photography was poor. The first good photography of the complex was that of April and August 1962 when the complex was identified as a probable nuclear weapons stockpile site. Construction progress on the complex is presented in NPIC/R-149/63.37 In February 1964 one bunker was complete and earth covered, one bunker was being earth covered, and three bunkers were under construction.

**OPERATIONS AREA**

The Operations Area of the Chebsara Sensitive Operations Complex is situated in a heavily wooded horseshoe-shaped pocket .95 nm southwest of Chebsara. The area measures approximately 8,500 by 6,800 feet and is secured by five parallel rows of wire fences. The first and second rows of fence [redacted] the second and third, [redacted] the third and fourth, 26 feet apart; and the fourth and fifth, [redacted] Access to the area is controlled by a gatehouse (RP), which is [redacted] and which could provide sleeping quarters and mess facilities for a guard detachment.

The Operations Area contains two completed alpha bunkers (Bunkers 1 and 3), one completed beta bunker (Bunker 2), one alpha bunker (Bunker 5) under construction, and one other bunker under construction (Bunker 4), which is probably a beta (Table 2). A loop road with an all-weather surface, probably concrete, serves the bunk-

ers. At Bunker 4 the road terminates inside the entrance. All turns in the road are wide, and all gradients are fairly level. The completed bunkers are separately secured by a single wire fence. They are heated by steam, and above-ground steamlines are clearly visible.

Table 2. Description of Bunkers in the Operations Area.

Bunker No.	Type	Distance from RP (ft)	Azimuth from RP	Distance from Other Bunkers (ft)	Status
1	Alpha	2,000		2,000 from No 5	Complete & earth covered
2	Beta	2,500		2,200 from No 1	Complete & earth covered
3	Alpha	2,000		3,000 from No 2	Complete & earth covered
4	Beta*	1,800		2,800 from No 3	Under construction
5	Alpha	2,200		2,000 from No 4	Under construction

\*Probably.

In April 1964 three F4G01 aircraft were observed outside the Operations Area south of the gatehouse, and there was evidence that two additional aircraft may have been parked there prior to that time. Three F4G01 aircraft were again observed in the same location in May 1965.

The Operations Support Facility is on an azimuth of 245 degrees and 1,800 feet west of the RP, on the east side of the loop road. It contains three buildings, each of which is heated by an overhead steamline. The largest building is a separately secured drive-in building [redacted]

[redacted] Except for the absence of a drive-through capability, this structure is identical to the drive-through buildings observed in the operations support facilities at other sensitive operations complexes. The building consists of a center longitudinal high bay 55 feet wide; two bays, one on each side of the center bay, contain shop space, and each is 20 feet wide. The second building measuring [redacted] in east of the loop road and approximately 225 feet south of the drive-in building. The third building [redacted] and 320 feet southeast of the drive-in building. In April 1964 a F4G01 aircraft was parked 105 feet north of this building. Snow immediately behind this aircraft may have melted as a result of an engine runup. In May 1965 a F4G01 aircraft was observed in the same area.

**RAIL FACILITY**

The Rail Facility in the eastern extremity of the complex is 2.5 nm southwest of the center of Chebsara and just south of the Cherepovets-Vologda rail line. It was first observed under construction in April 1962. The facility is secured and is served by a branch of the central service road. It contains a holding yard with five (possibly six) tracks, a traveling bridge crane, a security building, and separately secured barracks. After the facility had been completed, rolling stock was observed in the holding yard on several occasions. In April 1964, 22 cars [redacted] and 18 unidentified cars [redacted] were standing in the holding yard. A rail siding is situated between the supporting walls of the bridge crane. A large warehouse east of the crane parallels this siding. Another siding south of the warehouse serves a coal pile. Coal is probably transported by truck from the Rail Facility to a probable steamplant in the north-central portion of the complex and to the military housing facilities near the Operations Area, a distance of about 5 nm and 7.5 nm, respectively.

**HOUSING AND ADMINISTRATION FACILITIES**

A military housing area is about 5 nm northeast of the Operations Area and east of the Chebsara River. The area contains barracks and several small units. Five barracks [redacted] each and are probably three stories high; nine barracks are [redacted] each and are probably two stories high; and five barracks are [redacted] each and are two stories high. Additional housing, probably for officers, is provided by five small units which could accommodate two families. The facilities in the Military Housing Area could house an estimated total of 2,900 to 4,000 troops. Other facilities in this portion of the complex include an 11-shaped messhall and a U-shaped administration building.

Additional military housing facilities are east of the RP, immediately outside the Operations Area. These facilities are secured and consist of three two-story barracks, each measuring 130 by 60 feet, and one two-story administration building [redacted] The three barracks could house an estimated total of 400 troops. Because of their

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proximity to the Operations Area, it is logical to conclude that these quarters are for security or support troops assigned to that area.

Construction workers are housed in an area east of the RP and just outside the Operations Area. The area is secured partially by a wall and partially by a fence. It contains six one-story dormitory-type buildings, a T-shaped mess-hall, and several small buildings. Several warehouse-type buildings are situated in a storage area east of the construction workers housing.

**OTHER SUPPORT FACILITIES**

In the western portion of the complex support facilities consist of the Construction Support Facility and a coal-fired steamplant southeast of the RP. The Construction Support Facility east of the RP contains a concrete batch plant, warehouses, piles of aggregate, and a traveling gantry crane situated in a fabrication yard. The crane is mounted on a pair of tracks 610 feet long. Large quantities of material and equipment are visible throughout the facility. Steamlines can be traced from the steamplant to the military and construction workers housing facilities near the Operations Area. An above-ground steamline from the plant serves the completed bunkers and the Operations Support Facility.

In the central portion of the complex support facilities include a probable steamplant, a probable water treatment facility near the Chebsara River, and a probable pumping station situated on a hilltop west of the river. A probable waterline extends from the west bank of the Chebsara River to the steamplant and all of the housing facilities near the Operations Area. The motor pool east of the probable steamplant and north of the Military Housing Area contains a vehicle garage which is 390 by 120 feet.

**GOLOVCHINO SENSITIVE OPERATIONS COMPLEX**

The Golovchino Sensitive Operations Complex is 3 nm northwest of Golovchino, 32 nm west of the town of Belgorod, and 38 nm north-northwest of the center of Kharkov in the Ukrainian SSR (Figure 12). The complex is served by a

branch of the double-track Kharkov-Bryansk rail line. When first observed on oblique TALENT photography of February 1960, the complex contained a rail facility, an operations support facility, a steamplant, steamlines, and a construction support facility. The next photography of the site was KLY-BOLLE photography of April and November 1962, but the quality of that photography was poor. At that time the complex was identified as a probable nuclear weapons stockpile site. 3/ The next and most recent photography of the complex was stereo photography of January 1965, the first good coverage of the complex. An analysis of all photography of the complex indicated that construction at Golovchino began at least a year before construction on Berezovka had started.

**OPERATIONS AREA**

The Operations Area occupies approximately 1 square nautical mile. It is situated on sloping terrain deeply cut by ravines which intersect above the valley of the Vorakla River. A dense forest of deciduous trees provides excellent concealment during the spring and summer months. The area is served by a well-engineered central service road, which spans the Vorakla River on an open-truss bridge west of the military housing facilities. With the exception of two sections, this road is new and was constructed especially for the complex. The Operations Area is secured, but the number of fences enclosing it cannot be determined. Security measures are probably similar to those observed at the other complexes. Access to the area is controlled by a gatehouse (RP) at the entrance.

In the Operations Area there are seven, possibly eight, completed bunkers served by a loop road (Table 3). In addition to the alpha and beta bunkers, there are three, possibly four, other earth-covered bunkers in the area. Because the latter were never observed while under construction or before being earth covered, it was impossible to observe their configurations or to determine their dimensions. However, it has been determined that they are different from one another and that they are also different from the bunkers observed at all the complexes. Although the distances between the bunkers are not as great as the distances between those at the other complexes, the terrain between them affords a high degree of protection.

Table 3. Description of Bunkers in the Operations Area, Golovchino Sensitive Operations Complex

Bunker No.	Type	Distance from RP (ft)	Length from RP	Distance from Other Bunkers (ft)	Status
1	Beta	1,500		1,400 from No. 2	Complete & earth covered
2	Alpha	1,900		2,200 from No. 3	Complete & earth covered
3	Alpha	3,600		1,500 from No. 4	Complete & earth covered
4	Alpha	4,950		2,800 from No. 5	Complete & earth covered
5	...	5,700		1,800 from No. 6	Complete & earth covered
6	...	5,500		1,200 from No. 7	Complete & earth covered
7	...	3,900		3,150 from No. 8	Complete & earth covered
8	...	900		1,800 from No. 1	Possible complete & earth covered bunker

The Operations Support Facility is approximately 1,400 feet west-northwest of and on an azimuth of 300 degrees from the RP. It contains a large high-bay drive-through building and two associated small buildings. The facility is secured by a single wire fence.

A probable helicopter pad in the southwest portion of the Operations Area is served by a road from the Operations Support Facility.

**RAIL FACILITY**

The Rail Facility is in the southern portion of the complex, 1.9 nm west-southwest of the center of Golovchino. The facility contains a holding yard with six or seven tracks, a traveling bridge crane, three warehouses, and six unidentified buildings. In January 1965 the facility was operational, and rolling stock included 26 rail cars and three rail cars 46 to 50 feet long standing on two sidings just north and east of the bridge crane.

**HOUSING AND ADMINISTRATION FACILITIES**

Housing for military personnel 1 nm south-southeast of the Operations Area includes five three-story barracks,

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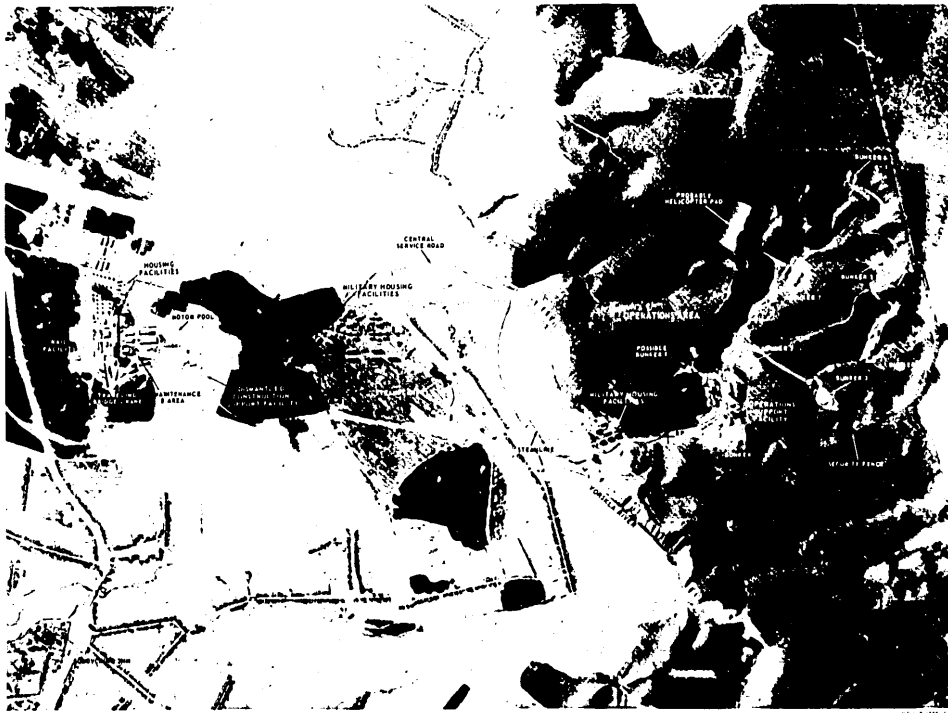


FIGURE 12. GOLOVCHINO SENSITIVE OPERATIONS COMPLEX, JANUARY 1965.

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a foundation for a sixth, and seventeen two-story, U-shaped barracks. Each of the rectangular barracks is [redacted] feet; each of the U-shaped barracks is [redacted] and has wings which are [redacted]. The barracks could accommodate an estimated total of 3,400 troops. Seven two-story units, each [redacted] probably house junior officers. Five administration buildings, an assembly hall, and a U-shaped messhall are associated with the military housing facilities. Five small housing units, probably duplex units, and one U-shaped administration building are in a wooded area just south of the barracks.

Additional housing facilities are situated at the west end of the Rail Facility and consist of 28 small single-family dwellings. Military housing facilities south of the RP are similar to those observed at Bereznika and Chebsara and consist of three multi-story barracks (each 120 by 85 feet), which could accommodate an estimated total of 460 troops, an administration-type building [redacted] and eight unidentified buildings are associated with the barracks.

**OTHER SUPPORT FACILITIES**

The Maintenance Area north of the Rail Facility contains three shop-type buildings, a warehouse-type building, an irregularly shaped possible powerplant, and a possible substation. The first shop-type building [redacted] overall and has an end section which is [redacted] approximately one story higher than the rest of the building. At least five tall roof vents are situated along the ridge of the main section. The second shop-type building which is [redacted] overall has a high end section measuring [redacted] and a longitudinal roof monitor measuring [redacted]. The third shop-type building is 120 by 50 feet. The possible powerplant and substation in the eastern part of the Maintenance Area are separately secured. The main section of the possible powerplant is [redacted] about three stories high, and has six roof vents. The east side of the plant is [redacted] two stories high, and has a gable roof, the south side of the plant is low and about 20 feet wide. A tall vertical tank or chimney is visible on the west side of the plant. If this building is a powerplant, it must be gas fired because no fuel supply was observed. The possible substation is south of the possible powerplant.

The Construction Support Facility formerly located north of the Maintenance Area has been dismantled.

A coal-fired steamplant north of the military housing facilities is served by a single rail spur which extends through the site of the former Construction Support Facility. Aboveground steamlines extend from the plant to the nearby military housing facilities, the Rail Facility, the Maintenance Area, and the Operations Area. The steamline and its supports span the Vorzka River south-southeast of the Operations Area.

The motor pool north of the Maintenance Area contains a probable vehicle repair shop (390 by 120 feet) and a probable vehicle shed (235 by 85 feet). The repair shop has a low-pitched gable roof with two rows of slender roof vents. In January 1965 many unidentified vehicles were parked in the vicinity of the two buildings, and 20 vans and other vehicles were parked in rows north of the buildings. The bodies of eleven of the vans [redacted] and the bodies of nine of the vans are 15 feet long. Similar vans have been seen at the Nyandoma complex [redacted]

**BULYZHINO SENSITIVE OPERATIONS COMPLEX**

The Bulyzhino Sensitive Operations Complex is 5.5 nm southwest of Bulyzhino and 4 nm east of the Latvviakaya SSR border (Figure 13). The complex is served by a rail spur from the Moscow-Riga rail line. A description of the various stages of construction observed at the complex between August 1961 and February 1964 is presented in NMC/R-217/64. 1/

**OPERATIONS AREA**

The Operations Area of the Bulyzhino complex is situated in a dense coniferous forest and measures approximately 9,200 by 8,000 feet. The area is secured by wire fencing, and access to it is controlled by a gatehouse (RP) on the west side of the central service road at the entrance. The area contains six bunkers, an operations support facility, a loop

road, and a central service road. The central service road terminates just inside the entrance where it intersects the loop road at right angles. The turn-in both directions have been rounded to a radius of 110 feet. The loop road serves all the bunkers. It has an all-weather surface, probably concrete, and has been built up in several places to maintain an even gradient. Where practicable, existing roadbeds have been utilized, and other roads have been constructed in old firebreaks.

At Bulyzhino one gamma bunker (bunker 1), two delta bunkers (bunkers 2 and 3), one epsilon bunker (bunker 5), and two zeta bunkers (bunkers 4 and 6) have been completed and earth covered (Table 4). Whether each bunker is separately secured is not known. Since the completed bunkers at Bereznika and Chebsara are separately secured, it is reasonable to assume that similar security precautions may have been taken at Bulyzhino.

Table 4. Description of Bunkers in the Operations Area, Bulyzhino Sensitive Operations Complex

Bunker No.	Type	Distance from RP (ft)	Area from RP (sq ft)	Distance from Other Bunkers (ft)	Status
1	Gamma	1,850		7,250	Complete & earth covered
2	Delta	4,200		2,900	Complete & earth covered
3	Epsilon	8,250		4,350	Complete & earth covered
4	Zeta	8,750		4,450	Complete & earth covered
5	Delta	7,000		3,150	Complete & earth covered
6	Zeta	5,400		3,150	Complete & earth covered

The Operations Support Facility is immediately south and east of the RP, near the intersection of the loop road and the central service road. The facility contains an unidentified building and a separately secured drive-through building served by a loop road. The drive-through building is [redacted] a center longitudinal highbay [redacted] probably houses overhead handling equipment. A one-story bay 30 feet wide is situated on each side of the center bay and may contain shop space. The unidentified building is [redacted] and is grad served. It has no drive-through capability. No steamlines are discernible in the Operations Area.

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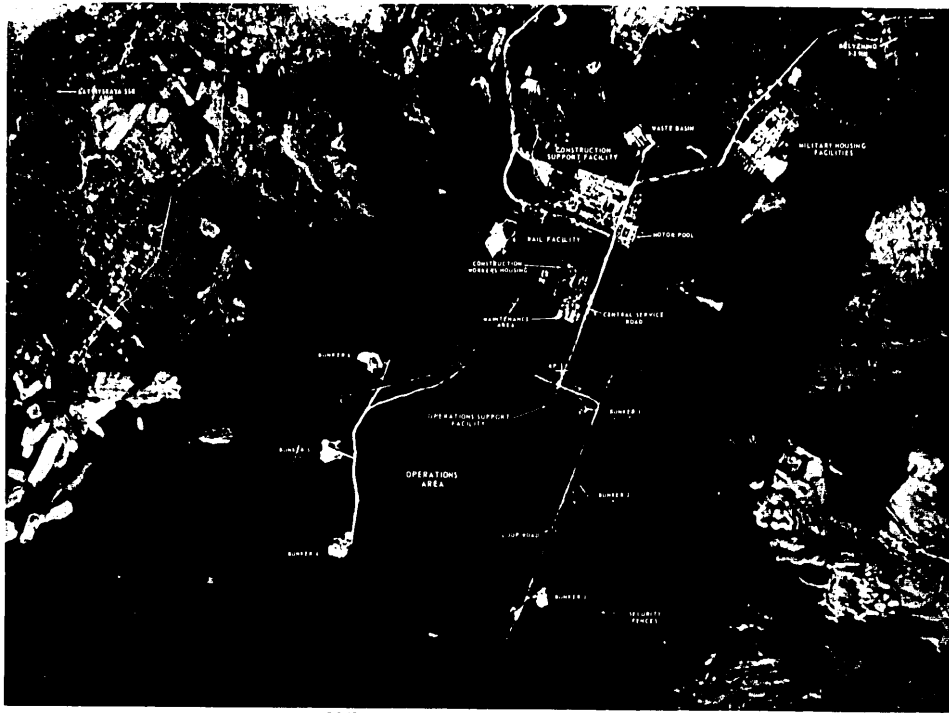
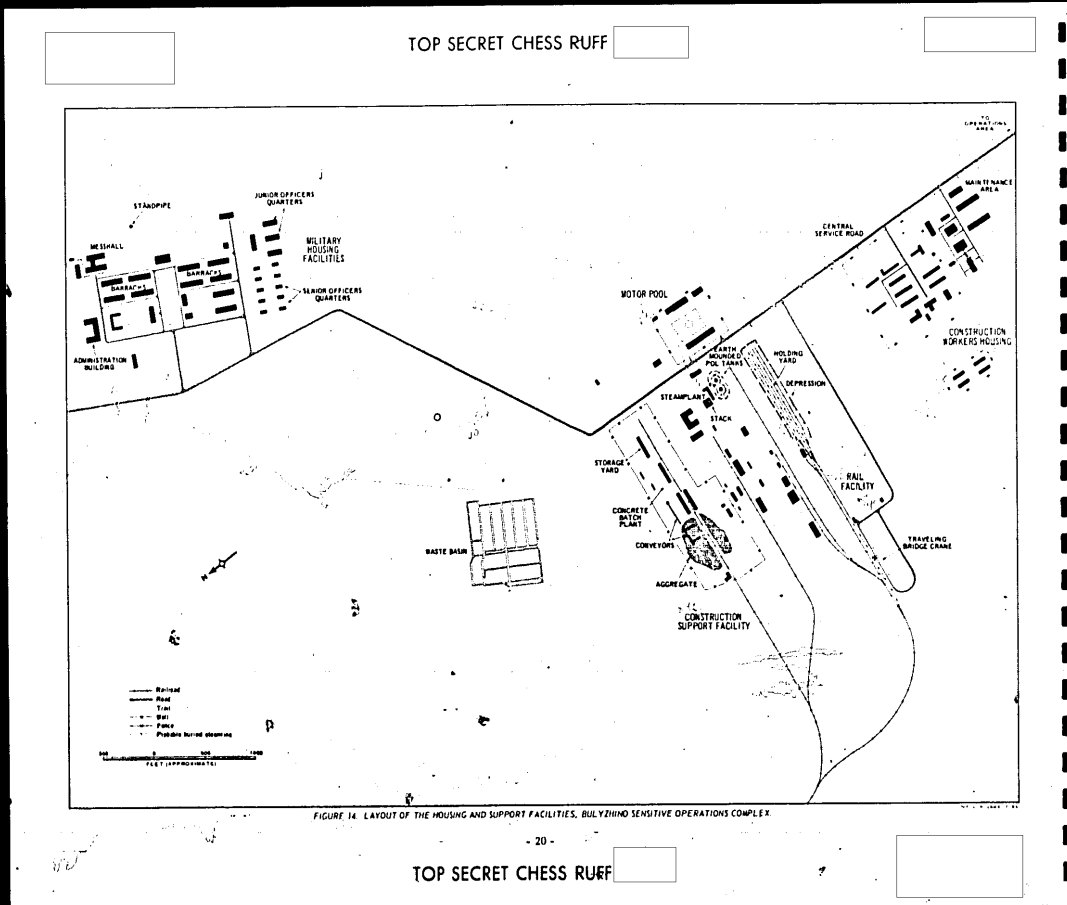


FIGURE 13. BULZHINO SENSITIVE OPERATIONS COMPLEX, OCTOBER 1964.

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RAIL FACILITY

The Rail Facility is 3,500 feet north of the Operations area and west of the central service road (Figure 11). It consists of a holding yard with five or six parallel sidings, a traveling bridge crane, a steamplant, two earth-mounded P.O.L. tanks, and three rail spurs. The holding yard has been constructed in a man-made depression. One rail spur and a portion of a loop road are situated between the supporting walls of the bridge crane, which is 2,300 feet west of the central service road. Although no fences are visible, this portion of the facility is probably secured. Since February 1964 two types of rail cars have been observed in the holding yard: [redacted] and the other, probably a freight car, [redacted]. Although it has been impossible to determine the exact number of each type of car, as many as 24 of the longer cars have been observed in the yard at one time. Approximately the same number of both types of cars have been observed at most of the complexes. The rail spur on the north side of the holding yard terminates in the vicinity of the P.O.L. tanks (each 45 feet in diameter). Earth scars on the west side of the central service road are probably buried steamlines extending from the steamplant in the housing and administration facilities and to the Operations area.

HOUSING AND ADMINISTRATION FACILITIES

Housing for military personnel is approximately 4,200 feet northeast of the Rail Facility and consists of multistory barracks and single-story units (Figure 14). Ten barracks have been completed, and each is three stories high and 220 by 50 feet. These barracks could accommodate an estimated total of 3,300 troops. Four two-story barracks, each measuring [redacted] probably house junior officers, and ten single-story units probably house senior officers. Each unit [redacted] and can accommodate two or three families. Other facilities include an H-shaped mess hall, a U-shaped building, and a U-shaped administration building. [redacted] and has wings measuring 80 by 55 feet each. A probable parade ground and/or athletic field is being prepared at the southeast corner of the military housing facilities.

Construction workers are housed in a separately fenced

area south of the Rail Facility. The area contains six single-story dormitory-type buildings, an administration building, two I-shaped buildings (one of which is a mess hall), and several other buildings.

OTHER SUPPORT FACILITIES

The Construction Support Facility north of the Rail Facility is enclosed by a wall and consists of one rail siding, piles of aggregate, a concrete batch plant, two conveyors, an open storage yard, warehouses, and administration buildings (Figure 14). A waste basin southwest of the military housing and north of the Rail Facility is for sewage disposal.

The Maintenance area is west of the central service road and adjacent to the construction workers housing facilities (Figure 14). A fenced motor pool immediately west of the Rail Facility and west of the central service road contains three support buildings and a vehicle garage. The garage is 255 by 70 feet and is evenly divided into five gable-roofed bays. The center of the motor pool is landscaped. Many unidentified vehicles have been parked between the garage and the landscaping since February 1964.

NYANDOMA SENSITIVE OPERATIONS COMPLEX

The Nyandoma Sensitive Operations Complex is approximately 4 km south of Nyandoma and east of the Volgda-Arkhangelsk rail line (Figure 15). A spur from that line serves the complex. The complex was observed for the first time in August 1960 when the Rail Facility was under construction. The next visible photographic coverage of the complex was in March 1962. At that time two barracks had been built, and sites for three bunkers had been cleared approximately 3 km east of the Rail Facility. In April 1962 excavating for a bunker was noted for the first time, and two months later two excavations were visible. By December 1962 a third barracks had been built, and two P.O.L. tanks had been constructed in the Rail Facility. Two bunkers were in the early stages of construction in April 1963.

April 1964 KH-7 photography, the first large-scale coverage of the complex, revealed that construction was continuing on the first two bunkers, and a third was in the early stages of construction. Four barracks had been completed,

and a fifth was under construction. The P.O.L. tanks had been earth covered, and a steamplant had been completed next to the P.O.L. tanks. By June 1964 the first two bunkers were nearing completion; the third was in a midstage of construction; and an excavation, possibly for a fourth bunker, was observed approximately 5,200 feet north of the existing bunkers. The fifth barracks was nearly complete. A traveling bridge crane and the Operations Support Facility were under construction. At that time military housing facilities included nine barracks and thirteen duplex units. The bridge crane was completed between June and September. Although much of the complex was obscured by clouds in September 1964, it was evident that one bunker had been completed and earth covered and that the bridge crane had also been completed.

OPERATIONS AREA

The Operations area is 2.9 nmi east-northeast of the Rail Facility and is approximately 8,000 by 7,000 feet. Only a portion of the security fencing is visible. Access to the area is controlled by a gatehouse (RP) on the south side of the area. A central service road extends from the area to the support and housing facilities. The area contains one complete earth-covered gamma bunker (Bunker 1), one delta bunker (Bunker 2) and one gamma bunker (Bunker 3), both of which are under construction (Table 5). An unimproved road serves the bunkers.

Table 5. Description of Bunkers in the Operations Area, Nyandoma Sensitive Operations Complex

Bunker No.	Type	Distance from RP (ft)	Altitude from RP	Distance from Other Bunkers (ft)	Status
1	Gamma	4,000	90'	3,000 from No. 2	Complete & earth covered
2	Delta	1,700	[redacted]	3,300 from No. 1	Under construction
3	Gamma	2,300	200'	2,500 from No. 2	Under construction

The Operations Support Facility in the southwestern part of the Operations Area is under construction. The facility contains an unidentified long building which is complete and a drive-through building. Only the exterior walls of this building have been erected.

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**RAIL FACILITY**

The Rail Facility in the western portion of the complex contains a holding yard with five or six sidings, a traveling bridge crane, two earth-mounded POL tanks, and a steamplant. The steamplant and POL tanks are rail served. The crane is about 1,800 feet north-northwest of the steamplant, and a seventh rail siding is situated between the supporting walls of the crane. In April 1964 at least 20 long rail cars were observed in the holding yard, and in June 1964 about the same number of long cars were observed again. In April 1964 three F4U aircraft were parked on a hardstand near the northwest end of the Rail Facility, and two months later five bright unidentified objects were observed in the same location. In March 1965, 25 to 27 long rail cars and four shorter cars were in the holding yard.

**HOUSING AND ADMINISTRATION FACILITIES**

Military housing facilities include barracks, duplex units, an H-shaped messhall, and a U-shaped administration building. Five completed three-story barracks are approximately the same size as those observed at Bulzhino. Six one-story barracks, probably for junior officers, are 1,700 feet west of the three-story barracks. Thirteen duplex units midway between the one-story and three-story barracks are probably quarters for senior officers.

Construction workers are housed in six single-story dormitories in a fenced area west-northwest of the military housing facilities. The area also contains a T-shaped messhall and several small unidentified buildings. Construction workers are also housed in an area west-southwest of the RP near the Operations Area. This area contains five single-story dormitories, a T-shaped messhall, and several small buildings.

**OTHER SUPPORT FACILITIES**

Additional support facilities include the Maintenance Area, the Construction Support Facility, and the motor pool. The Maintenance Area is 2,500 feet west-southwest of the RP on the south side of the central service road. An earth ramp extends from the southeast corner of the area to a

probable pump house 1,150 feet east-southeast of the area. The Construction Support Facility east of and parallel to the Rail Facility contains two rail spurs, a concrete batch plant, several warehouses, a fabrication yard, and construction materials. The motor pool at the south end of the Rail Facility is secured by a solid fence or wall. It contains a vehicle garage and a building measuring approximately 160 by 65 feet. In April 1964 five rows of vehicles, including 40 to 50 large van-type vehicles and many small vans and trucks, were parked in the motor pool.

**RECHITSA SENSITIVE OPERATIONS COMPLEX**

The Rechitsa Sensitive Operations Complex is 12 nm northwest of the city of Rechitsa and north of the Gomel-Kalinkovichi double-track rail line (Figure 16). A spur from that line serves the complex. The road serving the complex intersects the Rechitsa-Slutsk highway 2.5 nm south of the complex. The complex was first observed in June 1961, and at that time a spur from the Gomel-Kalinkovichi line had been extended from Lemkhit Station into the complex. By December 1961 the Rail Facility had been constructed. Excavations for four bunkers were visible in the summer of 1962, and in September a fifth excavation was observed. By the end of 1964 three bunkers had been completed and earth covered, one was nearly complete, and two were under construction. All support facilities had been completed. In March 1965 five bunkers were complete and earth covered, and the sixth was nearing completion.

**OPERATIONS AREA**

The Operations Area has been constructed on level terrain in a forest of coniferous and deciduous trees and is approximately 6,800 by 6,600 feet. Although the total number of fences enclosing the area cannot be determined, at least two fences are clearly visible. Access to the area is controlled by a gatehouse (RP) at the entrance. A U-shaped road serves the area. The area contains one gamma bunker (Bunker 4), two delta bunkers (bunkers 2 and 5), one bunker (Bunker 6), possibly an epsilon, and two zeta bunkers (bunkers 1 and 3), all of which have been constructed on flat terrain (Table 6).

Table 6. Description of Bunkers in the Operations Area, Rechitsa Sensitive Operations Complex

Bunker No.	Type	Distance from RP (ft)	Distance from Other Bunkers (ft)	Status
1	Zeta	1,500	4,800 from No 6	Complete & earth covered
2	Delta	1,750	2,200 from No 1	Complete & earth covered
3	Zeta	1,900	3,500 from No 2	Complete & earth covered
4	Gamma	7,500	4,700 from No 3	Complete & earth covered
5	Delta	6,300	2,900 from No 4	Under construction
6	Epsilon*	6,300	2,700 from No 5	Complete & earth covered

\*Possibly

The Operations Support Facility is north of the RP and near the junction of the central service road and the U-shaped road. The facility contains a high-bay drive-through building and a long unidentified building. The drive-through building is 1,800 feet north of and on an azimuth of 10 degrees from the RP; the unidentified building is 1,200 feet north of

**RAIL FACILITY**

The Rail Facility in the southeastern section of the complex contains a holding yard, a traveling bridge crane, steamplant, and POL tanks. Although the exact number of sidings in the holding yard is unknown, rolling stock observed there indicated that there are at least five sidings. A number of rail cars have been seen in the yard since October 1964. The easternmost siding is situated between the supporting walls of the bridge crane. The steamplant and adjacent POL tanks are in the northwest corner of the Rail Facility.

**HOUSING AND ADMINISTRATION FACILITIES**

Military housing facilities are on the east side of the central service road and 1.2 nm north of the Gomel-Luninets highway. These facilities include ten completed three-story barracks capable of housing an estimated total of 3,300 troops. Junior officers are probably housed in five two-story barracks, each of which

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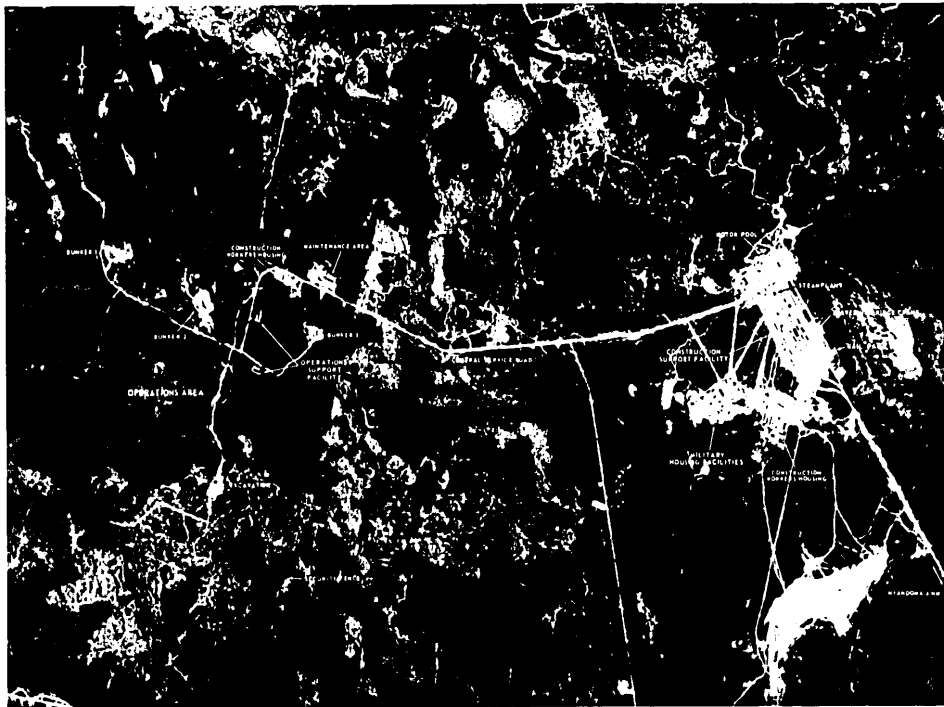


FIGURE 15. NYANDOMA SENSITIVE OPERATIONS COMPLEX, JUNE 1964

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FIGURE 16. RECHITSA SENSITIVE OPERATIONS COMPLEX, MARCH 1965

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1964 there were seven such barracks, but two were razed between October 1964 and March 1965. Twenty-two duplex units north of the barracks are probably quarters for senior officers. Other facilities include several administration buildings, an H-shaped messhall, and several other buildings. Construction workers are housed in five dormitories directly west of the RP.

**OTHER SUPPORT FACILITIES**

The Maintenance Area is immediately south of the RP on the west side of the central service road. Facilities in the area are similar to those observed in the maintenance areas at most of the other complexes. The Construction Support Facility parallels the west side of the Rail Facility and contains piles of aggregate, a concrete batch plant, a fabrication yard, and warehouses. The motor pool is on the east side of the central service road and 2,000 feet west of the Rail Facility. In March 1965 many unidentified vehicles were observed on the parking apron.

**ZHUKOVKA SENSITIVE OPERATIONS COMPLEX**

The Zhukovka Sensitive Operations Complex is 7 nm east of the city of Zhukovka and 22nm northwest of Bryansk (Figure 17). The complex is approximately 3 nm north of the Bryansk-Smolensk rail line. A spur from that line extends from the Rzhanitsa Station into the complex. The complex was first observed in April 1962 when it was under construction. At that time the Rail Facility and some housing facilities had been constructed, and a rail spur had been extended beyond the Rail Facility to the Operations Area. One excavation was visible in that area. By November 1962 additional housing units had been built, and a second excavation was observed in the Operations Area. By September 1963 the housing facilities were nearing completion, and construction activity was concentrated in the Operations Area. A bunker was under construction in the first excavation, and two additional sites were being excavated. Grading for a loop road had been started. A high-bay drive-through building and the Maintenance Area had been completed. In June 1964 the first bunker was complete and earth covered; the second bunker was nearing completion; bunkers

were under construction in the third and fourth excavations; and a fifth excavation was observed. A sixth excavation was observed in March 1965.

**OPERATIONS AREA**

The Operations Area in the northeast portion of the complex covers 1 square nautical mile. Like the Rechitsa Operations Area, the Operations Area at Zhukovka is on flat terrain. It is enclosed by at least two fences, and access to it is controlled by a gatehouse (RP) on the west side of the area. A loop road with wide turns was completed in March 1965 and now serves the bunkers. A traveling bridge crane has been built astride a rail spur which has been extended into the Operations Area. Zhukovka is the only sensitive operations complex having a rail-served Operations Area.

One gamma bunker (Bunker 1), one delta bunker (Bunker 2), and one zeta bunker (Bunker 3) have been completed and earth covered (Table 7). One zeta and one delta bunker (Bunkers 4 and 5) are under construction. The excavation for a sixth bunker is 2,300 feet

It is in the northwest corner of the Operations Area and is served by the loop road. What type of bunker will be constructed in the excavation is unknown.

Table 7. Description of Bunkers in the Operations Area, Zhukovka Sensitive Operations Complex.

Bunker No	Type	Distance from RP (ft)	Distance from Other Bunkers (ft)	Status
1	Gamma	2,300	3,150 from No 6	Complete & earth covered
2	Delta	5,000	2,500 from No 1	Complete & earth covered
3	Zeta	6,100	2,500 from No 2	Complete & earth covered
4	Zeta	6,400	3,750 from No 3	Under construction
5	Delta	4,500	1,800 from No 4	Under construction

The Operations Support Facility near the entrance contains a high-bay drive-through building and a long unidentified building. The drive-through building is immediately southeast of the intersection of the loop road and the central service road; the unidentified building is on the north side of the central service road.

**RAIL FACILITY**

The Rail Facility is in the southwestern portion of the complex and contains a holding yard, a steam plant, and two earth-covered POL tanks. The holding yard at the north-east end of the facility probably contains six sidings; the precise number cannot be determined. Several long rail cars were first observed in the yard in June 1961. The steamplant and POL tanks are in the northwest corner of the holding yard.

**HOUSING AND ADMINISTRATION FACILITIES**

Military housing facilities northwest of the Rail Facility and west of the central service road consist of barracks and an H-shaped messhall south of the barracks. Seven three-story barracks have been completed and an eighth is under construction. The estimated total capacity of the eight buildings is 3,400 troops. Probable junior officers quarters are approximately 1 nm north of the barracks and include five two-story barracks, each measuring approximately 135 by 45 feet. Thirteen small duplex units are north of the five barracks and probably provide housing for senior officers. Construction workers housing near the entrance to Operations Area and south of the central service road contains six dormitory-type buildings and a messhall.

**OTHER SUPPORT FACILITIES**

The Maintenance Area opposite the construction workers housing and on the north side of the central service road contains facilities similar to those observed at the other complexes. The Construction Support Facility west of the Rail Facility is rail served and contains a concrete batch plant, warehouses, and a fabrication yard. The motor pool is at the north end of the Rail Facility and 0.5 nm east of the military housing facilities.

**BELEV SENSITIVE OPERATIONS COMPLEX**

The Belev Sensitive Operations Complex 26 nm south-southeast of the town of Belev and 13 nm south-southwest

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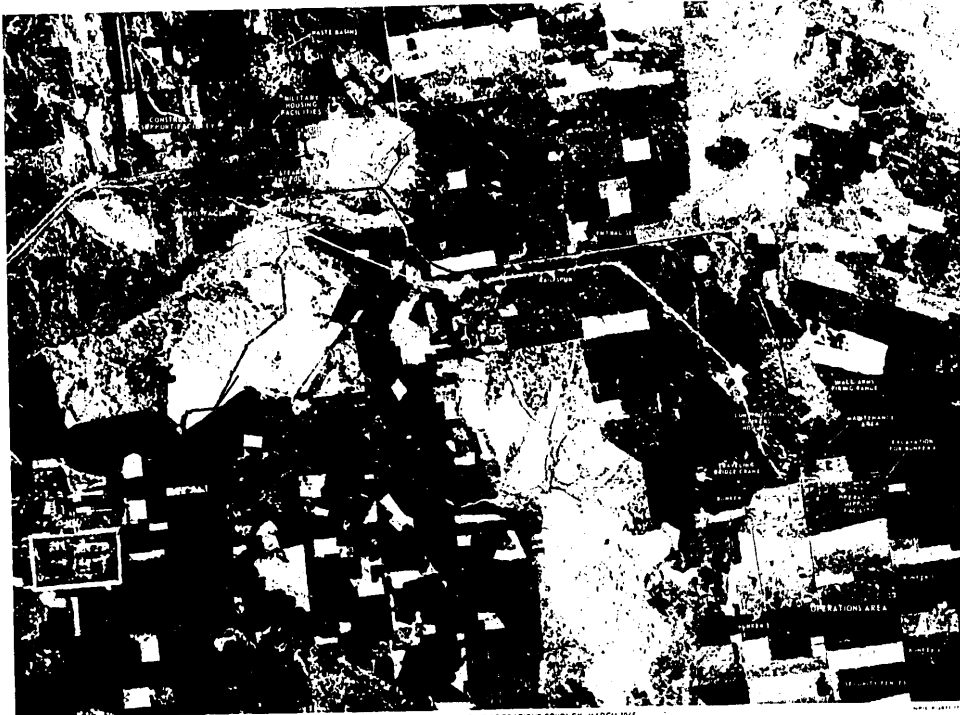


FIGURE 17. ZHUKOVKA SENSITIVE OPERATIONS COMPLEX, MARCH 1945.

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FIGURE 18. BELEV SENSITIVE OPERATIONS COMPLEX, JUNE 1964.

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of Arsenyev Station is in an early stage of construction (Figure 18). When first observed in June 1963, the complex contained a construction support facility and a limited number of housing units; a rail spur from the Kozelsk-Gorhachevo single-track line had been constructed from about just west of Arsenyev Station to the complex. The only roads serving the complex were unimproved roads. In February 1964 the Rail Facility was nearing completion; a steamplant and one POL tank had been erected, and additional housing units were observed. By early June 1964 three additional POL tanks had been constructed near the steamplant; rolling stock was visible in the Rail Facility; and ground was being cleared for roads which will serve the Operations Area. In late June 1964 all four POL tanks had been earth covered, and a portion of the Operations Area had been enclosed by security fencing. A new road was being constructed, and when completed, will terminate 11.4 nm southeast of the complex on the Orei-Tula double-track rail line. The road, which is wide and straight, is capable of carrying a heavy volume of high-speed traffic.

**OPERATIONS AREA**

The Operations Area is situated in the southeastern portion of the complex and measures approximately 4.5 by 2.5 nm. Only a portion of the security fencing is visible. At least two parallel fences are visible on the south side of the area, and a row of postholes at the southeastern end of the area indicates the alignment of the fence. Access to the Operations Area is controlled by a gatehouse (RP) 2,500 feet southeast of the Construction Support Facility and by a building which is also probably a gatehouse located on a country road 10,900 feet southwest of the first gatehouse, near the village of Sushki.

No bunkers have been constructed in the Belev Operations Area. Only one excavation approximately 7,300 feet south of the RP near the southern perimeter fence has been identified as the probable site for a bunker. The excavation which is served by a new road is long and narrow and could accommodate an eta or theta bunker. Road construction is under way and wide rights-of-way have been cleared through the forest.

The Operations Area does not contain an operations support facility as yet. However, such a facility may be under construction in the western portion of the complex,

south of the steamplant where a possible drive-through building is under construction. If so, the proximity of the Operations Support Facility to the Rail Facility will resemble the site plan observed at the Mikhaylovka complex.

**RAIL FACILITY**

The Rail Facility 8,500 feet west-northwest of the RP and north of the steamplant is under construction. It consists of a holding yard with five to seven sidings. A separate siding serves four POL tanks just north of the steamplant. Although rolling stock has been observed at the Rail Facility on several occasions, the size and type have not been determined. Because the complex is still in an early stage of construction, long rail cars observed at some of the other complexes are probably not present at Belev. A railroad turning wye, the only one observed at any of the complexes, is northwest of the Rail Facility. No bridge crane has been constructed. Roads in the vicinity of the facility are under construction, and road patterns are not clearly defined.

**HOUSING AND ADMINISTRATION FACILITIES**

Facilities for housing military personnel are 2.5 nm west of the RP in the western extremity of the complex. They include nine barracks and thirteen single-story units which are probably quarters for senior officers. Ample space is available for the construction of additional units. Four multistory barracks, each of which is approximately 220 by 50 feet, could accommodate an estimated total of about 1,300 troops. Five barracks, probably for junior officers, are probably two stories high, and each is 135 by 45 feet. Each one-story unit could house two or three families. A small-arms firing range is 1.3 nm north-northeast of the military housing facilities. The irregularly shaped probable infirmary or assembly and recreation building is southeast of the military housing facilities. No administration buildings or messhalls have been constructed.

Construction workers are housed west of the RP and immediately south of the Construction Support Facility. These facilities consist of six, or possibly nine, single-

story dormitories and several other structures.

**OTHER SUPPORT FACILITIES**

The Construction Support Facility just northwest of the RP consists of piles of materials, a concrete batch plant, warehouses, shops, and a fabrication yard. A probable maintenance area is under construction immediately west of the construction workers housing facilities. The Belev complex contains no motor pool. If such a facility is constructed, it will probably be located immediately south of the Operations Support Facility.

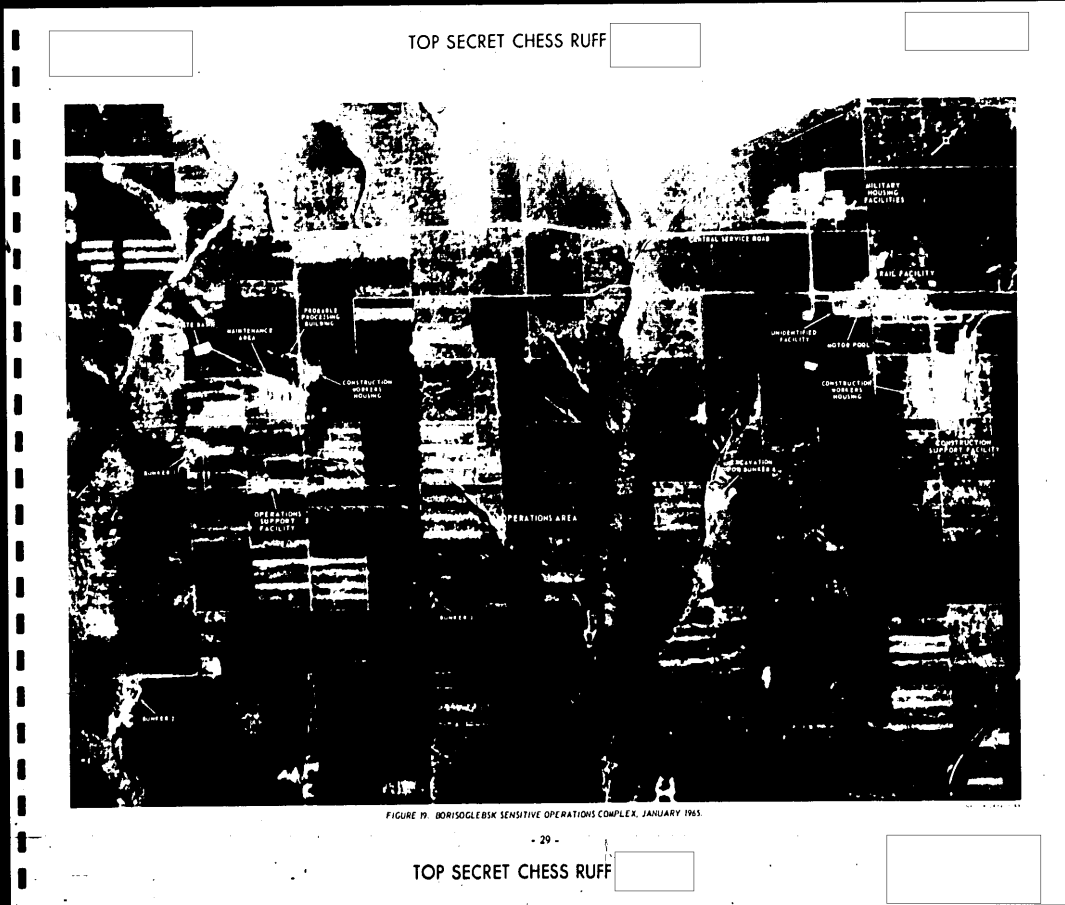
**BORISOGLEBSK SENSITIVE OPERATIONS COMPLEX**

The Borisoglebsk Sensitive Operations Complex is approximately 6 nm west of the town of Borisoglebsk and immediately southwest of the Lipetsk-Volograd rail line (Figure 19). A spur from that line serves the complex. The complex was first observed in April 1962 when a construction support facility and some housing facilities were under construction. By November 1962 three barracks and nine housing units for military personnel had been completed. A central service road has been extended from the military housing facilities to the Operations Area; and housing for construction workers was being built southwest of the Construction Support Facility. The next usable photography of the complex was that of December 1963. At that time two additional barracks were under construction. In the Operations Area two bunkers were under construction, and the exterior walls of a high-bay drive-through building had been erected. Work on the Rail Facility was under way, and a steamplant and two adjacent POL tanks were observed there. A motor pool had been completed, and the Maintenance Area was under construction just outside the entrance to the Operations Area. In September 1964 construction was continuing on the two bunkers, and an excavation for a third bunker was observed; the high-bay drive-through building was complete; in the Rail Facility 15 long rail cars were observed on two sidings; six barracks had been completed, and a seventh was under construction. An infirmary or assembly and recreation hall and an H-shaped messhall had been built.

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**OPERATIONS AREA**

The Operations Area is about 3.5 mi south-southwest of the military housing facilities. Because no security fencing is discernible, the size of the area cannot be determined from the photography. A gatehouse (RP) is just outside the entrance and on the side of the central service road. The area is served by the central service road and by roads previously used in logging activity. All turns have wide radiuses, and all probably have concrete surfaces.

The Operations Area contains one eta bunker (Bunker 2), one theta bunker (Bunker 1), one bunker (Bunker 3) which is probably an eta, an excavation for a fourth bunker, and an operations support facility (Table 8). Bunkers 1 and 2 are nearing completion but have not been backfilled or earth covered as yet. Construction equipment was visible in the immediate vicinity of both bunkers in January 1965. Some of the exterior walls for Bunker 3 have been erected. No construction activity has been noted in the excavation for the fourth bunker. The excavation is on an azimuth of 86 degrees and 11,400 feet from the RP.

Table 8. Description of Bunkers in the Operations Area, Borzhomskii Strategic Operations Complex

Bunker No.	Type	Distance from RP (ft)	Azimuth from RP	Distance from Other Bunkers (ft)	Status
1	Theta	3,500		---	Under construction
2	Eta	9,000		7,000 from No 1	Under construction
3	Eta*	6,500		9,300 from No 2	Under construction

\*Probably

The Operations Support Facility south of the RP consists of a large bay drive-through building and a small unidentified building. The buildings are connected by an unidentified ground scar which terminates at a probable processing building northwest of the Maintenance Area.

**RAIL FACILITY**

The Rail Facility in the northern part of the complex contains a holding yard with six parallel sidings, five buildings, and a loop road. No traveling bridge crane has been

observed, but holes for the footings of the vertical supports have been dug. In September 1964, 15 rail cars [redacted] were observed on two of the sidings and probably have not been moved since that time. Fifteen rail cars were observed in the same location in January 1965. The five buildings, each of which [redacted] are situated between the holding yard and the central service road. All have drive-through or walk-through capabilities and are 95 feet apart. A steamplant, earth-mounded P.O. tanks, and unidentified buildings are on the north and northwest side of the Rail Facility.

**HOUSING AND ADMINISTRATION FACILITIES**

Housing for military personnel is approximately 7,000 feet west of the Rail Facility and is enclosed by a single fence. A gatehouse was observed at the entrance. Six three-story barracks, each of which is 230 by 45 feet, have been completed, and three additional large barracks are under construction. When completed, the nine barracks could house an estimated total of 2,800 men. Ten duplex units in the northeastern part of the area are probable officers' quarters. Other facilities include an H-shaped messhall and several administration buildings. A three-story irregularly shaped building measuring 215 by 50 feet is located between two rows of barracks and is probably an infirmary or an assembly and recreation building.

Construction workers are housed at two locations: approximately 1,200 feet northwest of the RP and immediately west of the Construction Support Facility. The facilities near the RP include six one-story dormitory-type buildings, a T-shaped messhall, a large U-shaped building, and a small unidentified building. Those adjacent to the Construction Support Facility consist of nine single-story dormitory-type buildings.

**OTHER SUPPORT FACILITIES**

The Construction Support Facility is in the northeastern section of the complex, south of and parallel to the Lipetsk-Volgograd rail line. It contains warehouses, a concrete batch plant, a fabrication yard, construction equipment, and three rail sidings.

The motor pool occupies a secured rectangular area im-

mediately southwest of the Rail Facility. It contains a garage measuring 255 by 65 feet and an associated building measuring [redacted]. In January 1965 many unidentified vehicles were observed in the motor pool. Access to the area is controlled by a gatehouse at the entrance. An unidentified secured facility adjacent to the motor pool contains several unidentified vehicles and equipment, a large one-story U-shaped building, and several unidentified buildings.

The Maintenance Area immediately west of the RP probably provides service and technical support for the Operations Area (Figures 19 and 20). It is secured by a single fence, and a gatehouse is situated at the entrance. The area contains at least 15 buildings (one of which is under construction), a possible auxiliary powerplant, and five earth-mounded tanks (Table 9). Most of the buildings are shop-type structures, and their functions are not known. A separately

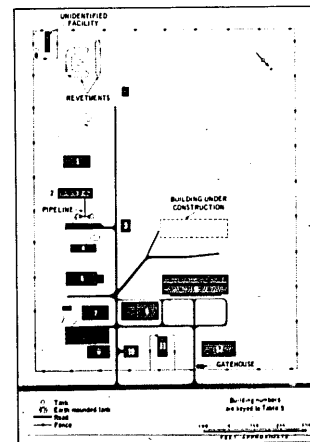


FIGURE 20. LAYOUT OF THE MAINTENANCE AREA, BORZHOMSKII SENSITIVE OPERATIONS COMPLEX.

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secured unidentified facility is in the southern corner of the area. A pipeline east west of the Maintenance Area terminates at a waste basin.

Table 9. Principal Buildings in the Maintenance Area, Chaadayevka Sensitive Operations Complex (Housing bunkers type in Figure 21)

Bldg	Dimensions (ft)	Description
1		Shop-type bldg; 1 story
2		Possible diesel auxiliary powerplant; 2 roof vents; connected by pipeline to 2 earthburied tanks
3		Shop-type bldg; 1 story
4		Shop-type bldg; 1 story
5		Shop-type bldg; 1 story; vestibule
6		Laboratory-type bldg; 3-4 stories; 4 roof vents
7		Shop-type bldg; 1 story
8		Shop-type bldg; 1 story; low roof monitor
9		Shop-type bldg; 1 story
10		Shop-type bldg; 1 story; parking spots on E side; may have drainage capability
11		Shop-type bldg; 1 story; fenced
12		Shop-type bldg; 2 stories

The probable processing building west of the Maintenance Area was under construction in January 1965 when the exterior walls were approximately at ground level. The building consists of several compartments. A trench, probably for an effluent pipeline, extends from the building to a discharge point in a gully.

**CHAADAYEVKA SENSITIVE OPERATIONS COMPLEX**

The Chaadayevka Sensitive Operations Complex is 5 nm east-southeast of the town of Chaadayevka (Figure 21). The Syzran-Penza double-track rail line bisects the complex, and a spur from that line serves the installation. The complex was first observed on July 1961 KEYHOLE photography when the Rail Facility was under construction. At some time after April 1962 construction began on three bunkers but was abandoned by July 1962. Because construction stopped, it was impossible to determine the types of bunkers being built or the

generation to which they belonged. Between July 1962 and September 1963 an excavation for a fourth bunker was observed. The long narrow configuration of the excavation indicated that a probable third-generation bunker was under construction. Since the theta bunkers were the first to be built at Borisoglebsk and Mikhaylovka, it was logical to assume that the fourth bunker at Chaadayevka would be a theta bunker. Chaadayevka is the only complex where such a changeover in bunker design and construction has been observed. In June 1964 an overpass for the Syzran-Penza rail line was under construction north of Ignatyev Station, and it was probably completed by October of that year. Construction on two PGB tanks began in June 1964, and by November the tanks were probably complete but not earth covered.

**OPERATIONS AREA**

The Operations Area is in the eastern half of the complex. Security fencing and a gatehouse were not visible. The area contains three abandoned bunkers (bunkers 1, 2, and 3) and a fourth bunker (Bunker 4), probably a theta, under construction (Table 10). An existing road has been extended northward and across the Syzran-Penza rail line via an overpass to Bunker 4. Earth scarrring 2,700 feet north-northwest and 2,800 feet northwest of that bunker may indicate that the two sites are being prepared for the construction of a fifth and sixth bunker. A fork in the road west of Bunkers 1, 2, and 3 has been arbitrarily selected as the reference point (RP) from which all distances and azimuths within the complex have been calculated. The area does not contain an operations support facility.

Table 10. Description of Bunkers in the Operations Area, Chaadayevka Sensitive Operations Complex

Bunker No.	Type	Distance from RP (ft)	Azimuth from RP	Status
1	..	7,200		Not completed; abandoned
2	..	10,200		Not completed; abandoned
3	..	9,100		Not completed; abandoned
4	Theta (probably)	28,500		Under construction

**RAIL FACILITY**

The Rail Facility 1 nm northwest of the RP contains a

holding yard and two PGB tanks. The number of sidings in the yard is not known. The PGB tanks are situated in an excavation, and approximately half of each tank is below ground level. The capacity of the tanks is unknown. No steamplant has been built adjacent to the tanks, and no traveling bridge crane or rolling stock have been observed.

**HOUSING AND ADMINISTRATION FACILITIES**

Housing facilities for military personnel southwest of the Rail Facility are probably under construction. At present these facilities consist of five barracks which are probably two-story structures. They could accommodate an estimated total of 1,530 troops. No administration buildings were observed. Three unidentified buildings are in the immediate vicinity of the barracks. The first is three stories high and approximately the second is also three stories high and the third building is approximately and has a flat roof with a low longitudinal monitor. Housing for construction workers is east of the Rail Facility and consists of seven long, narrow, single-story, dormitory-type buildings and a T-shaped mess hall.

**OTHER SUPPORT FACILITIES**

The Construction Support Facility southeast of the Rail Facility is rail served and contains a concrete batch plant, piles of aggregate, warehouses, and other support buildings. No motor pool or steamplant have been observed at the Chaadayevka complex.

**MIKHAYLOVKA SENSITIVE OPERATIONS COMPLEX**

The Mikhaylovka Sensitive Operations Complex is 5.2 nm west of the town of Mikhaylovka and 1 1/2 nm north of the city of Kirovograd (Figure 22). The complex is served by a rail spur from the Znamenka-Mironovka double-track rail line. The installation was first observed on KEYHOLE photography of December 1961 when the Construction Support Facility was complete and work on the Rail Facility had be-

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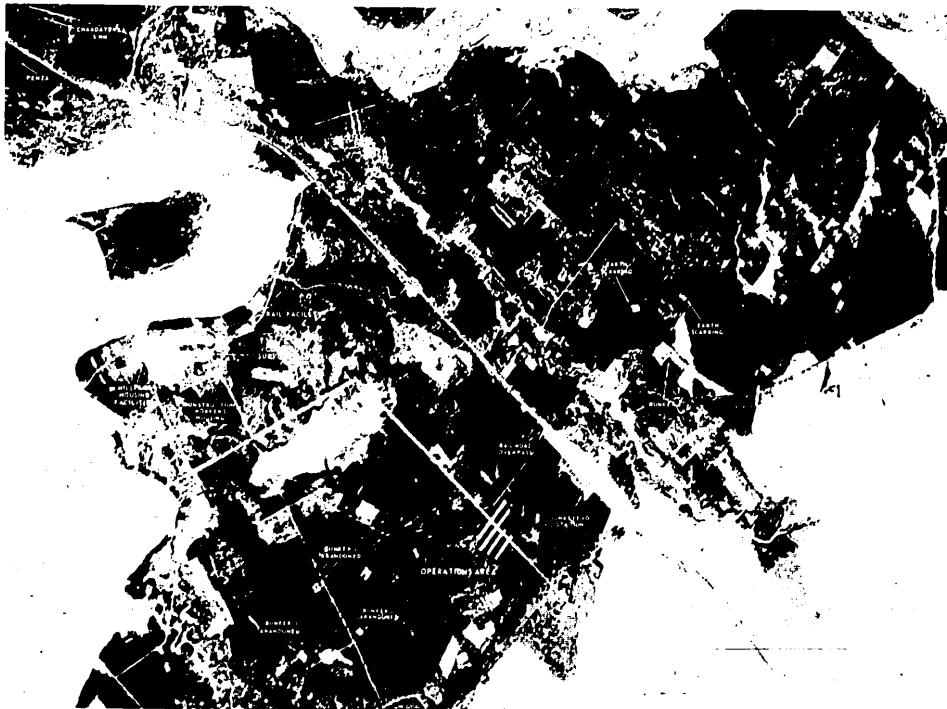


FIGURE 21. CHADAYEVKA SENSITIVE OPERATIONS COMPLEX, FEBRUARY 1965.

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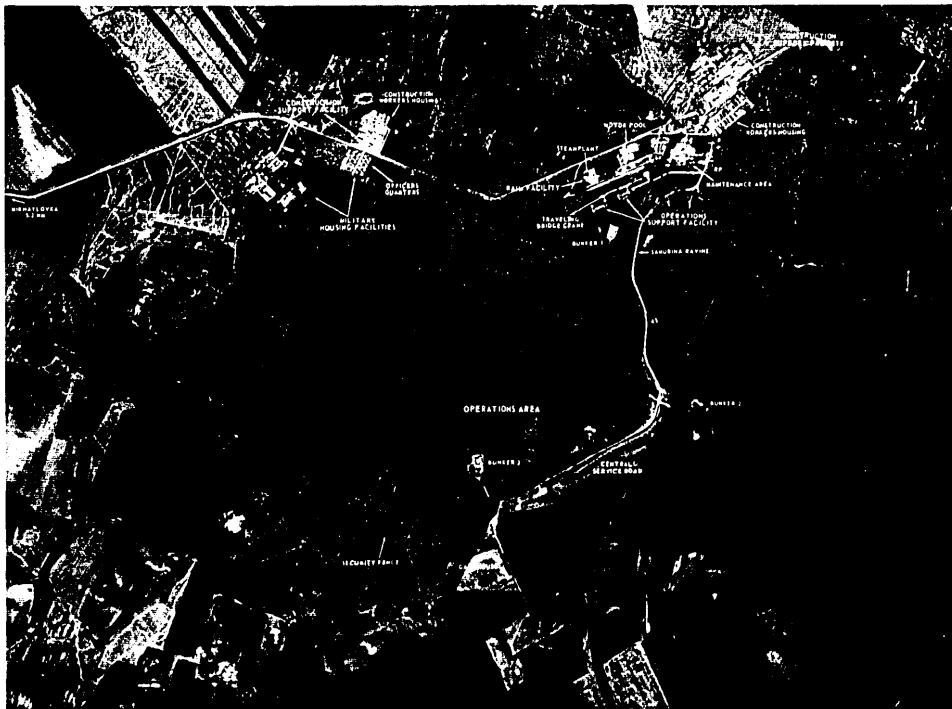


FIGURE 22. MIKHAILOVKA SENSITIVE OPERATIONS COMPLEX, SEPTEMBER 1964

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gun. No barracks had been constructed. In the summer of 1963 excavations for three bunkers were visible, and two barracks had been erected. Construction activity in the excavations was noted the following spring. The Maintenance Area was under construction in August 1963 and was completed prior to June 1964. By that time three bunkers were under construction; the Operations Support Facility had been completed; and the Rail Facility was nearing completion. At the same time military housing and administration facilities were being expanded with the addition of a third barracks and an infirmary or assembly and recreation building. An H-shaped messhall was also under construction. Between June and October 1964 the three bunkers were nearing completion, and a traveling bridge crane had been erected in the Rail Facility.

**OPERATIONS AREA**

The Operations Area is in the northwest portion of the complex and covers an area measuring 11,500 by 7,900 feet. With the exception of the security fencing which crosses open ground, details of security fencing are concealed by the dense forest. Access to the area is controlled by two gatehouses, one (RP) at the south entrance to the area and the other at the north entrance. The area is served by a central service road constructed on the floor of the Samurina Ravine, and the bunkers are served by branches of this road. One theta bunker (Bunker 2) and two theta bunkers (Bunkers 1 and 3) are under construction in branches of the Samurina Ravine (Table 11). According to the best available topographic map, this ravine is 50 meters deep. The bunkers are the following number of meters below the level of the highest ground bordering the feeder ravines: Bunker 1, about 20 meters; Bunker 2, about 45 meters; and Bunker 3, about 30 meters.

Table 11. Description of Bunkers in the Operations Area, Mikhaylovka Operations Complex

Bunker No.	Type	Distance from RP (ft)	Altitude from RP	Distance from Other Bunkers (ft)	Status
1	Theta	2,500		2,660 from No 3	Under construction
2	Eta	8,300		5,000 from No 1	Under construction
3	Theta	9,300		2,760 from No 2	Under construction

The Operations Support Facility, [redacted]

[redacted] and 2,000 feet northeast of the RP, contains a high-bay drive-through building and an associated unidentified building. The high-bay building is 840 feet from Bunker 1; the unidentified building is approximately 450 feet west-southwest of the drive-through building. A loop road serves the drive-through building and intersects the road which serves Bunker 1. Mikhaylovka is the only complex where the Operations Support Facility is so close to the Rail Facility.

**RAIL FACILITY**

The Rail Facility northeast of the RP consists of a holding yard with five or six parallel sidings, a traveling bridge crane, and a steamplant. Since September 1964 rolling stock in the holding yard has included 12 rail cars [redacted].

The steamplant is in the southeastern part of the facility. No POL tanks or coal piles have been identified, an indication that the steamplant is probably gas-fired. A short rail siding, south of and parallel to the holding yard, is adjacent to the motor pool. A platform between the siding and the motor pool may facilitate the loading or offloading of small items or possibly vehicles.

**HOUSING AND ADMINISTRATION FACILITIES**

Housing for military personnel is at the eastern end of the complex. Facilities for enlisted personnel include three completed barracks and three under construction. All are three stories high. Two of the completed barracks [redacted] and both have three-story offset extensions at one end. The third completed barracks is [redacted]. Of the three barracks under construction, two will also have extensions at one end, and the third will be identical to the existing rectangular barracks. These facilities will be capable of housing an estimated total of approximately 3,000 troops. An H-shaped messhall, an irregularly shaped probable infirmary or assembly and recreation building, a soccer field, and a small-arms firing range are associated with the barracks. Officers quarters southwest of the barracks consist of 21 duplex units and one probable single-family unit. All are complete and are probably occupied.

**OTHER SUPPORT FACILITIES**

The Maintenance Area at the southwest end of the Rail

Facility contains several shop-type buildings, a possible auxiliary powerplant, and earth-mounded tanks. All roads in the area are concrete.

Unlike the other complexes, Mikhaylovka has two Construction Support Facilities. The first is directly south of the Operations Area and contains a concrete batch plant, warehouses, and piles of aggregate. Housing for the construction workers is adjacent to the facility and consists of ten dormitory-type buildings, two probable administration buildings, and a T-shaped messhall. The second Construction Support Facility is southwest of the military housing and is engaged in the construction of barracks. This facility is served by a short rail siding and contains several warehouses and a concrete batch plant. Housing for the construction workers is immediately south of the facility and includes nine single-story dormitory-type buildings and several other structures.

The motor pool immediately south of the Rail Facility is secured. Access to it is controlled by a gatehouse.

**CONCLUSIONS**

The complexes probably have a tactical support mission which may involve a variety of weaponry [redacted].

The large number of troops the complexes could house far exceeds that needed for caretaker purposes.

The presence of a fairly constant number of long rail cars at a given complex over a period of time may indicate that these cars are on a standby basis and could facilitate the rapid movement of troops and materiel.

In order to conceal activity as much as possible, the local terrain at each complex has been disturbed as little as possible. Little vegetation has been removed, and only the areas needed for construction activity have been cleared and graded. Security fencing around the operations areas has been erected in wooded areas rather than in fire-breaks, thus effecting a greater degree of concealment.

To reduce the vulnerability of the bunkers, they have been constructed on terrain which provides them with maximum protection wherever possible, and they have been protected by a heavy earth cover.

An analysis of the photography has not provided an explanation for the presence of the aircraft at three of the complexes.

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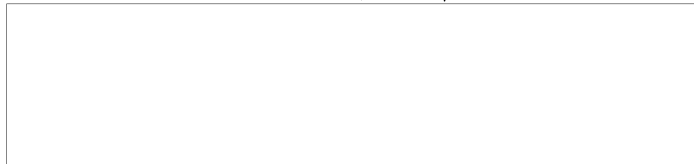


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[Redacted]

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REQUIREMENTS

CIA. C-54-1-441, *supplements 1 and 2*

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