

SECRET

110-106/4

PROJECT ENGINEERS' REPORT ON TILAGAON  
& SRIMANGAL - 29 NOVEMBER, 1943.

Date of Arrival:

Arrived by car at SHAMSHERNAGAR and bungalow occupied by #77 R.E. Works Section at 10:00 a.m. 22 November, 1943.

Communications:

Radio messages from CALCUTTA or KURMITOLA can be sent to the R.A.F. AGARTOLA to Captain Wood or Lt. Seabury, C/o C.R.E. #2 Airfields., and they will then be taken by courier from AGARTOLA to SHAMSHERNAGAR. At present, there is no definite courier system established, but an average of two trips a week by various individuals is being maintained. Messages can be relayed also from AGARTOLA to SHAMSHERNAGAR by Indian Telegraph or Post. Mail sent by civil post should be addressed in care of Mr. Godwin-Smith or #77 R.E. Works Section, SHAMSHERNAGAR.

A definite need exists for a low powered radio transmitter and receiver to maintain contact with AGARTOLA and KURMITOLA. A radio operator could be placed on D.S. with the rest of the American Field Section to operate the set and stand daily watches. One of the officers already here can send and receive code signals. Another alternate would be a small airplane of the "Cub" or "Moth" class piloted by several officers here, one of which is an R.A.F. pilot. A small available level strip of ground exists about 1 1/2 miles from present Hqs. and this would serve as a landing field for small aircraft. In addition to being used for rapid communications, an airplane would be invaluable for future reconnaissance of hospital sites or landing grounds in addition to observing construction progress on existing airfields.

Hospital Facilities:

A civil hospital exists at SYLHET where the British Army retains facilities for approximately 24 men. This hospital is served by an Indian doctor and is approximately 50 miles by rail from SHAMSHERNAGAR, (TILAGAON Airfield). There is also an automobile road from SHAMSHERNAGAR, via MAULAVI BAZAR, to SYLHET - approximately 75 miles. A tea planter's hospital of a sort, is maintained locally by the tea owners. It is not equipped with beds and ordinary hospital equipment and consists mainly of a stucco bungalow, with the services of two Indian doctors employed by the tea estates. There is no regular British Medical Unit closer than SHILLONG (2000 beds and approximately 165 miles by automobile road from TILAGAON) or DACCA. There is no rail access to SHILLONG. With TILAGAON, SRIMANGAL, & PATHARKANDI in operation presenting a strength of 300 officers and 2350 E.M. it seems advisable that some plans for siting a hospital in this area should be under consideration. There is plenty of high ground available in this general locality for, say a 200 bed hospital. No definite reconnaissance for such a site has been made. More desirable land is under tea cultivation, and in view of the past difficulties encountered in acquiring tea land, it is felt that ample time should be devoted to such a reconnaissance.

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Land Acquisition:  
(TILAGAON)

See letter copy attached, from Hq. 14th Army, No. E/1040/1/Air, dated 25 Nov 1943.

This is the one item holding up all construction at TILAGAON. The entire runway, taxi tracks, dispersal system, bomb dumps and half the domestic area are sited on tea land, and so far no agreement has been reached with the Indian Tea Association to turn this land over to the British Government. At present, the dispute has gone beyond the I.T.A. to the Govt. of India. Until this matter is settled no attempt can be made to import machinery, or gather materials, or start construction of any nature whatsoever. At present, the only unit having permission from the I.T.A. to live on the property, for survey and siting purposes, is the #77 R.E. Works Section, with Hqs. in an existing, ass't manager's bungalow. No pioneer units can be brought in or quarters built until the land has been acquired.

Land Acquisition:  
(SRIMANGAL)

Since this airfield does not fall on tea land, no trouble with land acquisition is anticipated. A survey has not yet been made; therefore, the exact quantity of land required and its boundaries are not known. Major Tolhurst, and Capt. Harris plan to set up Survey Hqs. at SRIMANGAL on 1st December, 1943, for the purpose of siting and staking out the runway, dispersal system, and domestic camp sites. Immediate action on this field is not desirable for, if for some reason, TILAGAON is abandoned, a fighter satellite will probably not be required at SRIMANGAL; and, in any case, construction at this field can be completed quickly in comparison to TILAGAON, the former being only a fair weather strip for fighters.

Current Design  
Progress. (TILAGAON)

A. Alternate layouts.

Two plans or layouts have been drawn for TILAGAON: (1) Arbitrarily as laid down in E-in-C's Pamphlet #1. "Landing Grounds" and (2) using the items basically as listed in the Pamphlet but with changes in grouping and service facilities, as suggested by experience gained from observing heavy bomber operations by the U.S.A.A.F. - a combination of suggestions furnished by both British and American Officials.

Under items (2) the major changes or additions, as the case may be are as follows:

a). Retention of the R.R. construction spur up to the south end of the taxi track, where it enters the runway; six bulk petrol underground storage tanks located parallel to the siding and taxi track, so that aircraft can be refuelled, three or four at a time, directly from the tanks. This, according to Col. Hainesworth, Deputy Chief Engineer, 14th Army R.E., is the system now being used on airfields in Northern Assam.

b). Although not a change from the book but more or an addition, an extra taxi track parallel to the runway has been sited. This to provide quick access to the runway from any

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section of the dispersal area should one portion of the dispersal taxi-track be blocked, for reasons of repair, construction, damaged aircraft etc., in addition to serving the south refuelling area for the northern dispersal group with a minimum of time loss and traffic obstruction.

c). Adoption of the twin type blast pen for reasons of economy. Previously all fields had been constructed with single pens, but recently the R.A.F. signified their willingness to accept dual pens. The U.S.A.A.F. should be asked if they will accept this type of pen, as there is no record in this office, either pro or con. An alternate arrangement of pens and hardstandings has been drawn, using the single pen, should the U.S.A.A.F. have objections to the dual pen.

d). 10 blast pens and 10 circular hardstandings have been roughly segregated in each of the two dispersal groups according to standard practise, with the 5 pens for maintenance under the R.A.F. scheme centrally located. In this way, both squadrons can maintain their desire for isolation and at the same time use the maintenance pens for aircraft hardstandings. In the center of each squadron dispersal area (Groups N), it is planned to build approximately six moderate sized basti, or brick if available, buildings for squadron workshop and repair sections, instead of grouping all these buildings in one R.A.F. type maintenance or servicing area. Experience has shown that U.S.A.A.F. squadrons do not mix and do all their repair and servicing while the airplanes are dispersed; they do not use the R.A.F. servicing area as such. For the same reason, it is not contemplated constructing the large engine workshop building with its overhead gantry, as all 3rd and 4th echelon repair is done at a separate Air Service Center. A power house will be built in the maintenance area, since it is approximately centrally located with respect to the Group Hqs. office area and the two dispersal squadron workshop area. Such an economical arrangement will permit siting of the other power house in the middle of the two domestic areas adjacent to the 22-bed hospital.

e) The domestic areas will accommodate 500 E.M. each, with 60 Officers in one and 65 officers in the other. It is planned to build a set of U.S.A.A.F. type squadron briefing and administrative offices in each camp and use the R.A.F. squadron Hq. office area for Group Hqs. offices plus standard technical functions, such as W/T station, meteorological office, photo laboratory, etc., in addition the M.T. bays, normally scattered all over the airfield site, will be grouped together in two U.S.A.A.F. type motor pools located in each domestic camp. There will be an officers' and E.Mens mess and kitchen in each camp, according to U.S. design. Also, the latrines and shower houses will be U.S. type.

Domestic areas, both camp, group Hqs. area and both domestic camps are all on high ground.

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f). Several M.T. bays and basti living quarters will be located adjacent to the watch tower for housing the petrol service crew and alert detail.

g). 1st aid shelters and gas field decontamination sheds will have to be sited in accordance with the latest circular from 10th Air Force and Rear Echelon Hqs.

#### B - Soil Stabilization Tests:

The report of soil analysis of TILAGAON soil samples has not yet been received from CALCUTTA. The water test shows approx. 33% clay to sand. In September, a pioneer unit stabilized four test areas on the runway site, mixing 11% of cement to soil in a layer 4" deep. The soil was saturated with water to an extent greater than that required for normal soil cement. The areas were then covered with water and a test load placed on one - the equivalent of 11 tons sq.ft. super load. To date, the loading structure has not sunk one fraction of an inch, and no surface cracks are visible. Soil cement samples, extracted by pick, have shown no tendency to absorb any great quantity of water and have remained firm and hard, having the appearance of sandstone. It is the general opinion that soil stabilization, in this area, is an excellent substitute for soiling. There are, apparently, two types of runways surfacing under consideration:

a). 9" layer of 12% soil cement and 1" compacted layer of bitumen chips.

b). 4" layer of stone or laterite soling and 6" of 1:2½:5 concrete, the two specifications outlined in Chief Engineer's (Air) instructions accompanying the order form for TILAGAON Airfield. Various observers on the site are agreed that a 6" layer of soil cement and 3" of 1:2½:5 concrete would be desirable. Stone for soling will be difficult to obtain and does not appear necessary in view of the soil cement test results. In view of past experience with bitumen surfaces in Eastern India, it is the opinion of Lt. Seabury that specification (a). above should not be adopted in the case of a heavy bomber field. Asphalt or bitumen, in the hot season, peels and ordinary maintenance cannot cope with it. This specification is all right for taxi-tracks.

c). Drainage:

The runway is sited on a ridge of high ground, sloping away on all four sides. Transverse tea drains will be filled with stone and French drains will parallel both sides of the runway. Over-all natural drainage is excellent. A detailed drainage survey of the area is now underway.

Dispersal areas, bomb dump, group Hqs. area and both domestic camps are all on high ground.

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D. Interior Roads:

Most of the interior roads will make use of existing tea roads. The latter will be widened to 16' wherever possible and given a tarmac surface. Total length of interior roads is approximately 6 miles. Drainage is good.

E. Rail Access.

B. & A. railway officials have already been contacted with regard to the construction siding and permanent stores unloading spur. They have the materials available as soon as the bed is constructed and have approved of the take-off point. No difficulty is anticipated with the R.R.

F. Construction Equipment:

Major Tolhurst has been promised a certain amount of machinery now available in CALCUTTA - see attached letter No. E/1040/1/Air, dated 25 November, 1943, from Hq. 14th Army. In addition, the Major has been promised 20 to 30 elephants, available locally. Col. Hainesworth suggests that U.S. machinery, now apparently idle in N. Assam, be borrowed. There seems to be special equipment up there for mixing and placing soil cement. The #77 R.E. Works Section plan to complete the job in six months, if they can only get the order to start.

G. Labor:

We have had assurance that ample labor is available, without interfering with normal tea cultivation, even to the extent of building the airfield with hand labor alone.

H. Material:

Cement is manufactured near SYLHET, the factory now producing about 250 tons per day, of which approximately 100 tons per day will be available for TILAGAON. It must be transported initially by boat, and this may be the only hold up, although it is anticipated that deliveries will be sufficient. Stone aggregate is also available at SYLHET but must be transported by R.R. a potential tie up. However, sufficient stone has been promised locally and samples are due to arrive the latter part of this week. If they are acceptable, it will mean that aggregate supply is assured without interfering with any other projects now under construction in other area. River sand is available locally in quantity, and sufficient water can be obtained by bunding a nearby stream.

Bitumen is allocated monthly by 14th Army and from past

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records will be sufficient. Chips will be made by a rock crusher from local stone. Bamboo chattai for basti buildings is furnished by the local ministry of forestry; plenty is available. Contracts for burning of bricks have been let in the SYLHET area, and it is planned to burn some locally, the quantity depending upon the amount of coal available.

I. Water Supply.

No difficulty is anticipated in providing drinking and washing water for the domestic area. It is planned to drill a sufficient number of 2" tube wells to supply approx. 30,000 gals. per day. This size well can be drilled by local labor, eliminating the need for specialists, such as Scott & Saxby. The average tube well in this area is approximately 125' deep.

The survey of SRIMANGAL is scheduled to start 1st December, 1943. Up to now the runway site has been tentatively chosen by visual inspection only.

Current Design  
Progress(SRIMANGAL)

Sd/- C.S. Wood,  
Capt. C.E.

Sd/- E.S. Seabury.  
2nd Lt., C.E.

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FILE UNDER NO: *Tilgiam*  
DATE *29/Nov/43*  
SUBJECT *—*  
MESSAGE NO: *—*  
FROM *OC RE 77E Works Section*  
TO  
SYNOPSIS

*Approp Estimate of cost  
based on Scheme "B" and instructions  
contained in E in 2 Pamphlet  
# 1.*

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JOB Tilagaon Aerodrome.

SUSPENSE ~~14/17~~

1. Aerodrome order form for this airfield received 6/9/43. To R.E. for approval on same date.

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2. Approval received from R.E. by 1st Ind dated 13/9/43.

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3. Aerodrome Order Form issued dated 16/9/43.

SUSPENSE ~~27/6~~

4. Letter from Gen Staff Branch to E.A. stating camouflage in imperative category. Copy to Base #2 (27/9/43.)

SUSPENSE ~~8~~

5. Letter from E.in C to E.A. dated 24/9/43 requesting rough costs + works programme. Copy to Base 2 on 27/9/43.

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6. Ltr. Air Hqs, dated 26.9.43 to S.O.S. acknowledging (3) above and advising that steps have been taken for work to be commenced.

SUSPENSE ~~15/10~~ ~~17/10~~

7. Ltr. dated 29.9.43 from S.O.S. to CBI-ASC enclosing (6) above for info.

SUSPENSE ~~15/10~~ ~~17/10~~

8. Letter dtd 15/11/43 from Base 2 saying Royal Engrs. starting work on this soon.

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