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AVHGC-DST (31 Oct 68) 3d Ind
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 8 DEC 1968

Commander in Chief, United States Army, Pacific, ATTN: GPOP-DT,
APO 96558

This headquarters has reviewed the Operational Report--Lessons Learned for
the quarterly period ending 31 October 1968 from Headquarters, 84th
Engineer Battalion (Construction) and concurs with the report, as
modified by the preceding indorsements.

THE COMMANDER:

F. S. TAYLOR, JR.
Major, AGC
Asst Adjutant General

Cy furn:
HQ 18th Engr Bde
HQ 84th Engr Bn

MFR: ORLL was staffed through:
Engr: SFC Clayton/4750

ACTION OFFICER: MAJ KLINGMAN/4433

COL PERRY ACoFs, G3
AVHGC-DST RECORD COPY

[Handwritten signatures and initials]

[Handwritten signature]

258-03

CH DST DIV	<i>[initials]</i>
CH MS BR	
CH DGC BR	
CH TRG BR	
A/O	<i>[initials]</i>

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EGCC-CO

14 November 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

C. Training: None

D. Intelligence:

1 Item: Presence of Children around project sites.

DISCUSSION: This unit had a recent incident involving the booby trapping of a pipeline being installed along a populated area. It was noticed that just prior to the incident, the many children who usually congregate around the project site, had returned to their nearby homes.

OBSERVATION: It is felt that the Vietnamese Children who play in the area around the job site have knowledge of any enemy activity in the immediate vicinity, therefore when they suddenly disappear from the project site it's a good indication that there may be an enemy operation in the area.

E. Logistics:

1 Item: Screen for Concrete Aggregate

DISCUSSION: The quarry section was assigned the mission of producing concrete aggregate. The equipment available was one 75 TPH Eagle Primary Crusher and a Pioneer Crusher set: 225 TPH Primary and 150 TPH Secondary. The secondary unit has no capability for screening out fines produced by the secondary crushing operation, but does screen out fines present after the primary crushing. The product obtained was satisfactory except that about 15% by weight of the output was too fine, making the aggregate unsuitable for use in concrete.

The solution found was placing a screen in the path of the output of the secondary unit. Angled about 45 degrees, the screen effectively separated fine material from the output product, leaving an acceptably clean aggregate suitable for concrete work. By using a steep angle for the screen, vibration of the screen was not necessary. The solution required use of one additional conveyor under the screen to carry off the fine material.

OBSERVATIONS: The value of this screen system varies depending upon the availability and price of aggregate and 3"(-) crushed rock calculations, assuming six months use at full production and current prices indicate savings up to \$84,000.00. The screen requires dry material as moist particles cling to and clog the screen, giving a product with excess fines material.

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EGCC-CO

14 November 1968

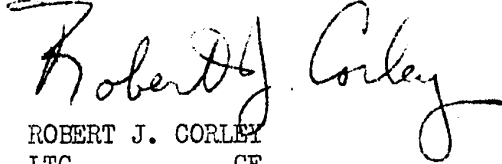
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

F. Other:

- 1 Item: Layin of POL Pipeline in insecure areas.

DISCUSSION: While placing POL Pipe along the beach in Qui Nhon an incident occurred which brought out the necessity of having strict security procedures when undertaking this operation. Six or seven 20' sections of 6" pipe had been laid out in preparation for coupling. However the day crew was not able to complete the coupling and the sections lay unattended until a night crew arrived to complete the connecting. When one of the night crew started to move a section of pipe into place there was an explosion, caused by a charge placed under the section of uncoupled pipe. As a result of the explosion three men were wounded.

OBSERVATION: This incident could have been avoided by insuring that the pipe was secure at all times, even thru a shift change. Also sections of pipe should not be laid out a great length in advance of coupling. Another step to prevent a recurrence of this type of incident is to move all pipes left in an insecure area with the use of a rope tied to the pipe.



ROBERT J. CORLEY
LTC CE
Commanding

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- 1 Copy to 937th Engr Gp (Combat) (Info)

FOR)

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DA-5 (14 Nov 68) 1st Ind

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (RI)

DA, Headquarters, 35th Engineer Group (Const), APO 96312, 24 November 1968

TO: Commanding General, 10th Engineer Brigade, ATTN: AVBG-C, APO 96377

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 84th Engineer Battalion (Const) for the quarterly period ending 31 October 1968. The report is considered an excellent summary of the battalion's activities for the reporting period.

2. The Battalion Commander's comments are concurred in with the following comment reference Section 2, Part 1, Item B.1.: Though use of vibrator in the pipe screed may get good results, the vibrator is subject to severe damage rendering the vibrator unserviceable.

Robert M. Fowler
ROBERT M. FOWLER

Colonel, CE
Commanding

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AVBC-CS (31 Oct 68) 2nd Ind
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, HCS CSPOR - 65 (R1)

DA, Headquarters, 18th Engineer Brigade, APO 96377 3 OCT 1968

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHOC-DST, APO 96375

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 84th Engineer Battalion (Construction) as endorsed by the 35th Engineer Group. The report is considered to be an excellent account of the Battalion's activities for the reporting period.
2. This headquarters concurs with the observations and recommendations of the Battalion and Group Commander.

JOHN H. ELDER, JR.
Colonel, CE
Commanding

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO 96238

EGCC-CO

14 November 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

THRU: Commanding Officer
35th Engineer Group (Const)
APO 96312

Commanding General
18th Engineer Brigade
APO 96377

Commanding General
United States Army Vietnam
ATTN: AVHGC (DST)
APO 96307

Commander in Chief
United States Army Pacific
ATTN: GPOP-OT
APO 96588

TO: Assistant Chief of Staff for Force-Development
Department of The Army (ACSFOR DA)
Washington D.C. 20310

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EGCC-CO

14 November 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

Section 1 Significant Organization or Unit Activities:

a. Command

(1) Organization

(a) Headquarters & HQ Co, 84th Engr Bn

(b) Company A, 84th Engr Bn

(c) Company B, 84th Engr Bn

Company C, 84th Engr Bn

(e) Company D, 84th Engr Bn

(f) 513th Engr Co (DT)

Unit departed this command on 3 September 1968

(g) 536th Engr Det (PC)

(h) 51st Engr Plt (Asphalt)

Unit came under this command on 3 August 1968

Unit departed this command on 8 October 1968

(i) 444th Engr Det (HQ)

Unit came under this command on 1 August 1968

Unit inactivated on 23 August

(j) 2nd Plt, 643rd Engr Co (PL)

Unit came under this command on 1 October 1968

(k) 614th Engr (Power Distribution Team)

Unit came under this command on 1 August 1968

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(1) Ad Hoc Power Distribution Team

Unit came under this command on 1 August 1968

(m) 35th Engr Bn Land Clearing Team

Unit came under this command on 8 October 1968

(2) Unit Operations:

(a) Headquarters & Headquarters Company: The utilities section, augmented with Vietnamese laborers continued work on the improvement of the Camp Williams Cantonment area. On 1 August 1968, HHC took over administrative control of the 614th Power Distribution Team, and the Ad Hoc Power Distribution Team.

(b) Company A: The efforts of Company A included the maintenance and repair of battalion ordnance and engineer equipment, the production of crushed rock, the distribution of asphalt for maintenance and upgrade of LOC's, and soil stabilization by hydroseeding. Some of the major accomplishments this period included the production of 12,530 cubic yards of crushed rock, patching and paving sections of QL #1 and QL #19 with 107 tons of hot mix asphalt, and distributing 52,365 gal of penepreme on roads, bridges, and helipads for dust control. In addition, 9.5 acres of land were seeded with the hydroseeder for the purpose of erosion control.

(c) Company B has been predominately concerned with construction of drainage structures and road upgrade on highway QL-1 during the last quarter. At present, the company's immediate area of operations now extends from the Phu Tai ASP, through Cu Mong Pass, to Binh Thanh. To date, eight (8) culverts in Phase III of the project (BDE 68-16-45) have been installed and three (3) bailey bridges have been erected in anticipation of the oncoming monsoon season. Subbase of 9.4 KM's have been prepared. Base course has been spread on 3.3KM's and 1.5KM's of the road have been paved with asphalt. Work on Phase I and II has been mostly limited to road maintenance in order to keep the pass open to traffic. Within "B" Company cantonment area physical security structures have been improved and the drainage system has undergone extensive work. Also efforts have been made to improve the motor pool area. Whenever possible, B Company supports the Koreans with materials and equipment for their operations and engages in civic action projects with the local villagers.

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for the Period Ending 31 October 1968, RCS CSFOR-65 (RI)

(d) During this period "C" Company has been involved in a variety of projects. Thirteen (13) MACV shelters have been completed and all but five (5) have been shipped to the using units. Bridge # 318 on highway QL-1 was completed ahead of schedule and the bailey bridge used as a bypass has been taken out. The paving of Route 6B was taken over RMK and was completed under the supervision of C Company EM platoon. This included the access road of 6B to ROK division headquarters. Route 6B was also reopened from Van Canh to the intersection of QL-1 South with no enemy activity encountered. A 250 barrel water storage tank and a twenty (20) seat burn-out type latrine were erected at 35th Engineer Group headquarters. The AUTOSEVOCOM Facility was started during this quarter. This project was taken over from the 536th Engr Det (PC) and is 95% complete. Work consisted of completing the inside of the facility with all electrical wiring, wall and ceiling panels, tile floor, inside latrine facilities and air conditioning completed. The block plant and prefab yard are currently supporting the POW hospital being constructed by "D" Company with cement blocks and prefabricated buildings. The Tandem Switch building on Vung Chua Signal complex is 80% complete and lacks only the air conditioning system, septic tank and ceiling for completion. The 440'x80' Cold Storage Warehouse is also in full swing. The Sub Floor has been placed, wall panels are up and the trusses are currently being placed. Work at the ARVN ASP has been slowed down by weather, but is nearly complete. The Phu Tai ASP has been turned over to D Co for completion. The EM Platoon of C Co is currently repairing flood damages on QL-1. Work on the Phu Tai Ice Plant continues. It is now 75% complete. The Purification Unit has arrived and is now being installed.

(e) During this reporting period "D" Company worked on a variety of projects. Work on Phase I and II of highway QL-1 progressed well this period, but was turned over to "B" Company in August to free D Company for other commitments. The automatic data processing center, a 70' x 144' air conditioned, wood frame, computer building at Long My Depot was completed. Work on the Dial Central office has progressed well, leaving the 40' x 60' wood frame building approximately 75% complete. The walls, roof, ceiling partitions and interior paneling have all been constructed. Work is presently being conducted on the electrical wiring, insulation and acoustical tile for the switchboard room ceiling is being placed. "D" Company started work in the Phu Tai ASP in August. There are many ammunition berms that need repair due to erosion. Concrete pads are also being placed for small arms ammunition storage. Work on the 240 bed POW hospital was also started this period. The hospital consists of eight (8) quonset type buildings, twelve (12) ward type buildings (wood frame), sidewalk canopy walkways and a sophisticated water and sewage system. Work started in September and at present is approximately 3% complete. "D" Company also assumed responsibility for road maintenance on highway QL-19 from its east base to bridge # 27. Five (5) bridge bypasses were built along this route for employment in the event of damage or destruction to the bridge.

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(f) The 536th Engr Det (PC) was responsible for the repair of bridge # 322 on highway QL-1 during this quarter. This consisted of the replacement of a blown 20' span. The work included replacing two pile bents, concrete caps 36 WF 230 steel stringers, and timber decking. The Ammo Offloading Facility, located on Qui Nhons Harbor causeway, was started during this period. Phase I, the placement of two mooring buoys in the ammo turning basin was completed. Work is nearing completion on the pile driving barge. The haul of fill has been completed at the barge wharf site. Repair of the barge quay was started. The installation of camels was begun as a temporary repair until materials and manpower are available for permanent repair.

(g) At the beginning of the quarter, the 35th LCT was responsible for clearing Route TB 506 from LZ Uplift west to LZ Pony. The overall mission was accomplished in approximately two months. Security was provided by the 1st of the 69th Armor, 173rd Airborne Brigade. From 28 July until 4 September the land clearing team cleared areas in the Bong Son Plains while support and security was supplied by the 173rd Airborne Brigade and the 40th ARVN Regiment. During this operation the 35th LCT was credited for the capture of several Viet Cong with arms, records and Viet Cong flags. The job of clearing 150 meters of land on each side of highway LTL 6B started on 15 October with the ROK Capitol Infantry Division providing security. This is, at present, their mission with approximately 927 acres already cleared.

b. Personnel, Administration, Morale, and Discipline: During this reporting period battalion participation in the Savings Bond Program averaged 78% while soldiers deposits participation averaged 2%. There were a total of 33 personnel recommended for awards, and 44 personnel voluntarily extended their foreign service tours. The battalion suffered one casualty and no battle deaths during this quarter. There were 118 disciplinary cases (103 article 15's and 15 courts-martial).

c. Intelligence and counter intelligence: Enemy activities on LOC's continued, resulting in one bridge and one culvert being destroyed by enemy action. Enemy harrassment of work crews decreased to a negligable level, except for one incident, on 26 October while elements of the 2nd Plt, 643rd Engr Co (PL) and the 240th QM Bn were engaged in repair of a POL Line on the beach in Qui Nhon City, they received two unidentified explosions and AW/SA fire resulting in three members of the 643rd Engr Co (PL) being wounded in action. Good intelligence continued to be maintained by this unit with the Capital ROK Infantry Division, 5th Special Forces, Binh Dinh Province Forces and other combat and support units in the area. During this period the defense plans for this sector were completely revised and implimented. This unit is responsible for the defense of two personnel compounds, two POL storage farms, and a PX HQ and storage area under the Qui Nhon Installation Defense structure.

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d. Plans Operations and Training: Weather conditions during the period severely hampered the LOC Upgrading on QL-1 and caused extensive damage on both QL-1 and QL-19. The addition of sections of QL-19 to the battalions area of responsibility, along with added base construction projects has resulted in a decrease of LOC construction on QL-1 south. Therefore at present only one line company is working on new LOC Construction while the other two line companies are committed to base construction and LOC maintenance and repair. Training during this period emphasized OJT of many newly assigned personnel, and weapons firing and safety for all personnel.

e. Logistics: During the period, the S-4 was involved in many functions pertaining to the supply of class IV items to the organic and attached units within the battalion. Of utmost importance was the supply of class II TO&E equipment and class IV construction materials in order to expedite the successful accomplishment of the battalions overall mission. During the period many of the long lead items for the complex communications projects were obtained, however there are still critical shortages for the air conditioning units and duct work. The battalion has completed several logistical support missions to US units for construction materials, and to several ARVN units for bridge supplies and materials. The S-4 has continued to operate two water points in support of its companies.

f. Force Development: N/A

g. Command Management: N/A

Inspector General: N/A

i. Civic Action: The battalion under took a variety of civic action projects during this quarter. The members of this battalion voluntarily contributed 121,040 VN\$ for the support of Holy Infant and Kim Chau Orphanage, the 84th Engr Bn has also furnished material and equipment for civic action and revolutionary development projects in support of the 41st Civil Affairs Company. Company B, to promote good will in their area of operation, has done minor road work for the village of Binh Thanh. HHC has continued to provide an NCO everyday to the Qui Nhon public works department for technical assistance for the city's engineering projects, and to act as liaison between the 84th Engr Bn and the city of Qui Nhon.

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EGCC-CO 14 November 1968
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

Section 2, Part I, Observations (Lessons Learned)

A. Personnel: None

B. OPERATIONS:

1 Item: Use of a modified vibrating process in the placing of concrete pads.

DISCUSSION: In the construction of concrete pads for the Automatic Data Processing Center, Dial Central Office, and the POW Hospital it has been found that screeding concrete first with a four inch diameter pipe the width of the form, with a vibrator positioned in the center levels and smooths concrete more easily and uniformly than a wooden hand drawn screed. When the concrete is placed in the form the pipe with the vibrator inserted is rolled quickly along the form to cause uniform setting of the concrete. This process is then followed by a wooden screed to fill any depressions or remove any high points. This process has proven itself over and over again. No problems arise unless the pipe is rolled too slowly allowing the concrete to segregate.

OBSERVATION: Use of the vibrating screed method for placing concrete makes the job easier and insures a more uniform distribution of concrete throughout the form.

2 Item: Use of three inch minus aggregate to cap bypasses and serve as a wearing surface.

DISCUSSION: In construction of bypasses on QL #19, most have been built from compacted laterite only. During a hard and continuous rain, erosion takes its toll slowly eating away the roadway until traffic is restricted in some areas. Two bypasses built on QL #19, both capped with three inch minus rock (six to eight inches) sustained very minor damage from heavy rains. During a recent flood of this area, flood waters rapidly washed over these bypasses. The bypasses capped with aggregate held up longer and sustained less damage than the ones built from compacted laterite only.

OBSERVATION: Capping bypasses with three inch minus aggregate although expensive, is an excellent method of deterring erosion and washout.

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14 November 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

3 Item: Building bypasses on down stream side of bridges.

DISCUSSION: In construction of bypasses on QL #19 several bypasses were built on the up stream side of bridges. Several factors contributed to the decision to build these bypasses in this manner. There is a POL pipeline on the down stream side hampering the construction of approaches to the rivers. In most cases there are bunkers (bridge guards) or some other obstacle to hinder operations and in some cases the width of the up stream side of the river is smaller than down stream. These factors coupled with the knowledge of the normal high water level of the river led to the assumption that we were perfectly safe using this method. After approximately thirty-six hours of typhoon rain the water levels reached a new high and began flowing more swiftly than anticipated. The culverts were not able to carry this large volume of water. The water flowed over the bypass causing a churning action against both abutments of the bridges on the up stream side. At one bridge site the water action was significant enough to wash out large sections of the road behind concrete abutments, even through a concrete retaining wall was present. Building the bypass on the down stream side of a bridge would render the churning action of the water harmless in the event of an unexpected flood. Bypasses built on the down stream side of bridges, although in some instances they were partially washed out, left the bridge abutment and approaches unharmed.

OBSERVATION: The construction of bypasses on the down stream side of bridges, while it may be troublesome and time consuming, is the best method of constructing bridge bypasses.

4 Item: The imbedding of 2" closed link chain into a concrete anchor thus eliminating the need for a lifting eye.

DISCUSSION: The original design for the construction of concrete anchors, to be used for the mooring buoy system, called for three (3) pieces of #10 rebar, embedded in the concrete, to act as a lifting eye. In the process of lifting the anchor the lifting eye failed and a suitable substitute had to be made. An alternate design was developed consisting of embedding the anchor chain in the concrete thus eliminating the rebar lifting eye. The chain is lowered about 4' into the 8' block of concrete and #4 rebar is placed horizontally thru the imbedded link of the chain.

OBSERVATION: That imbedding anchor chain directly into a concrete anchor provides a stronger connection than the use of a lifting eye of rebar. It also eliminates the time consuming process of bending the large #10 rebar.

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AVHGD-POM (21 Dec 69)
SUBJECT: Analysis and Evaluation of Operational Reports - Lessons Learned
for 84th Engr Bn

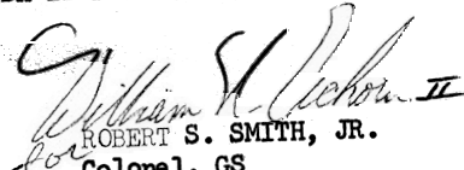
TO: ACoFS, G3

FROM: ACoFS, G4

DATE: 24 DEC 1969 GMT 2
MAJ BAKER/ljd/4142

Reference item concerning "Operations", page 6, para 2c(9): Concur.
The solution to the problem of the sticking of two wheel trailer brakes,
advanced by the unit, is the only practical solution under existing circum-
stances. As a precautionary measure it is suggested that when a trailer is
of necessity parked on an incline, wheel blocks be secured to the wheels
with a length of wire to prevent accidental displacement and a "runaway"
trailer. No action by USARPAC or DA is recommended.

2 Incl
nc


for ROBERT S. SMITH, JR.
Colonel, GS
Acting ACoFS, G4

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SUBJECT: Operational Report - Lessons Learned of the 84th Engineer
Battalion (Construction) for the Period Ending 31 October
1969, RCS CSFCR-65 (R2)

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RECOMMENDATION: If the excess thread is cut off at the time they are installed, the bolts have a much longer lifetime.

d. Organization: None

e. Training:

Item: Operation of the 290M Training Course

OBSERVATION: While conducting a 290M tractor-scraper training course for members of the ARVN Engineers, the most difficult problem was the lack of communication.

EVALUATION: Although a qualified interpreter was used, he was not familiar with the operation and nomenclature of the 290M tractor-scraper. He consequently did not fully understand the technical terms used in the training course.

RECOMMENDATION: Prior to the conduct of the training course, the instructor must fully train the interpreter in all aspects of operation and maintenance of the particular construction equipment.

f. Logistics: None

g. Communications: None

h. Material:

Item: Expedient Storage of Cement

OBSERVATION: Cement was being damaged by rains and covered storage space was not available.

EVALUATION: Suitable expedient covering was necessary.

RECOMMENDATION: The cement was stacked in the shape of a general purpose medium tent. The tent was then placed over the cement and rain damage was eliminated.

i. Other: None

Richard M. Wells
RICHARD M. WELLS
LTC, CE
Commanding

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ASSIGNED AND ATTACHED UNITS OF THE 84TH ENGINEER BATTALION (CONSTRUCTION)

1. Headquarters and Headquarters Company, APO 96238
2. Company A, APO 96316
3. Company B, APO 96238
4. Company C, APO 96238
5. Company D, APO 96316
6. 536th Engr Det (PC), APO 96238
7. 497th Engr Co (PC) has had a platoon minus attached to the Battalion since 27 September 1969.
8. 585th Dump Truck Company was attached to the Battalion from 12 July 1969 until 11 October 1969.
9. The platoon from the 509th Panel Bridge Company was detached on 1 October 1969.

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8 JAN 1970

AVHGC-DST (31 Oct 69) 3d Ind
SUBJECT: Operational Report - Lessons Learned, 84th Engineer Battalion
(Construction), for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 9 JAN 1970

Commander in Chief, United States Army, Pacific, ATTN: GPOF-DT,
APO 96558

1. This headquarters has reviewed the Operational Report - Lessons Learned for the quarterly period ending 31 October 1969 from Headquarters, 84th Engineer Battalion (Construction) and comments of indorsing headquarters.
2. Reference item concerning "Trailer Brakes", page 6, paragraph 2c(9); concur. The solution to the problem of the sticking of two wheel trailer brakes, advanced by the unit, is the only practical solution under the existing circumstances. As a precautionary measure, it is suggested that when a trailer is of necessity parked on an incline, wheel blocks be secured to the wheels with a length of wire to prevent accidental displacement and a "runaway" trailer.

FOR THE COMMANDER:

1 Incl
nc

for JOHN A. O'BRIEN
Colonel, AGC
Adjutant General

Cy furn:
84th Engr Bn
13th Engr Ede

ORLL was staffed through:

ENGR: MAJ Ryan/4750
G4: MAJ Baker/4142

ACTION OFFICER: MAJ HENDRICKS/rad/4433

CONCURRENCE/NONCONCURRENCE: Not required

Suitable for Commander's Notes: Yes/No.

11 JAN 1970
[Signature]

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A/O	<i>[initials]</i>

COL. READ, ACOFS, G3
RECORD COPY RETURN TO AVHGC-DST
208-03

[Handwritten marks]

EGC-CO (31 Oct 69) 1st Ind
SUBJECT: Operational Report on Lessons Learned the Period October
through 31 October 1969

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 6318 24 November 1969

Commanding General, 18th Engineer Brigade, ATTN: WBC-CG, APO 96377

1. The subject report, submitted by the 84th Engineer Battalion (Construction) has been reviewed and is considered a well compiled report of organizational activities.
2. I concur with the observation and recommendations of the
Commander.

1 Incl
as

W.G. KRATZ
COLONEL, CG
Commanding

WFO-03 (31 Oct 69) 2d Incl
SUBJECT: Operational Report of the 84th Engineer Battalion (Combat)
for the Period Ending 31 Oct 69, RCO GSPCE-65 (P2)

TO: HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377 16 DEC 1969

FC: Commanding General, U.S. Army Vietnam, ATTN: AWHQ-DST, APO 96375

1. This Headquarters has reviewed the Operational Report - Lessons Learned for the 84th Engineer Battalion (Combat), as indexed by the 937th Engineer Group (Combat). The report is considered to be an excellent account of the Battalion's activities during the reporting period.
2. This Headquarters concurs with the observations and recommendations of the Battalion and Group Commanders.

J. W. Morris
J. W. MORRIS
Brigadier General, USA
Commanding

CC:
1 - CG, 937th Engr Gp
1 - CG, 84th Engr Bn

DECLASSIFIED
Authority *WFO-73807*
By *110* NARA, Date

AVHEN-MO (21 Dec 69)

SUBJECT: Analysis and Evaluation of Operational Reports - Lessons
Learned for 84th Engr Bn

TO: ACofS, G3
ATTN: AVHGC-DST


FROM: Engineer

DATE: 28 DEC 1969 CMT2
MAJ Ryan/dgd/4750

1. Reference item concerning, "Installation of Buried Pipeline," section 2, page 4, paragraph 2c(1). Concur.
2. Reference item concerning, "Interdiction of a Main Supply Route," section 2, page 4, paragraph 2c(2). Concur.
3. Reference item concerning, "Criteria for Acceptance of POL Pipelines," section 2, page 4, paragraph 2c(3). Concur.

FOR THE ENGINEER:

2 Incl
nc


WILLIAM J. SIMPSON
COL, CE
Ch, Mil Opns

Y

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO San Francisco 96238

EGCC-CO

31 October 1969

SUBJECT: Operational Report - Lessons Learned, 84th Engineer
Battalion (Construction), for the period ending 31
October 1969, RCS CSFOR-65 (R2)

THRU: Commanding Officer
937th Engineer Group (Combat)
APO 96318

Commanding General
18th Engineer Brigade
ATTN: AVBC-C
APO 96377

Commanding General
United States Army, Vietnam
ATTN: AVHGC-DST
APO 96375

Commander In Chief
United States Army, Pacific
ATTN: GPOP-DT
APO 96558

TO: Assistant Chief of Staff for Force Development
Department of the Army (ACSFOR-DA)
Washington, D.C. 20310

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31 October 1969

SUBJECT: Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

1. Operations

a. Command: Assigned and attached units are listed in Inclosure 1.

b. Unit Operations:

(1) LOC Restoration of QL-1, Tuy An to Tuy Hoa: The major portion of the horizontal construction capability of the Battalion was employed on this project. At the end of the quarter the restoration was 56% complete with 22 kilometers of subbase, 19.6 kilometers of base course, and 4.4 kilometers of paved roadway finished. Work accomplished during the quarter included the placement of 40,000 cubic yards of laterite, 35,000 cubic yards of crushed rock, and 4000 tons of asphaltic concrete. The quarry and crusher operation continued to support this project by crushing over 40,000 cubic yards of rock. This increased production was achieved by operating the crusher on a 24 hour basis. Additional haul capability was provided by the 585th Dump Truck Company and a platoon from the 509th Panel Bridge Company. This capability was further augmented by the addition of 15 MCA 12 cubic yard dump trucks.

(2) LOC Restoration of QL-1 from Phu Tai to Binh Thanh: This project has been completed except for a short section in the Cu Mong Pass. During this reporting period, over 51,000 cubic yards of rock and laterite were moved using explosives and earth-moving equipment. RMK was given a contract late in the quarter to assist the 84th Engr Bn (Const) in the completion of this project.

(3) Cold Storage Warehouse, Qui Nhon: Additional purlins were installed in the Cold Storage Warehouse roof. Construction was also started on an addition to the loading dock.

(4) Underground POL Pipeline Tuy Hoa AFB to Vung Ro Bay: Installation of the pipeline was completed by burying 60,720 feet of 6 inch and 8 inch parallel pipelines. The 8" line has been accepted by the user and has pumped over 4 million gallons of fuel since construction was completed. Preparations are continuing for acceptance of the 6" line.

(5) Road Maintenance: Road maintenance became a major task during periods of heavy monsoons rains. The Battalion effort was concentrated along QL-1 where culverts, bypasses, and bridges required repair. At Bridge #273, CQ070815, an Eiffel span was replaced with a 38 foot M4T6 dry span, and a bent was restored.

(6) Ammunition Off-Loading Facility, Qui Nhon: Progress on the Ammo Off-Loading Facility included the completion of concrete placement, walers, and bollards. The area in front of the facility was dredged and the area behind the retaining wall was backfilled with sand. Laterite and rock were hauled, spread, and compacted for the hardstand area, access roads, and storage area.

(7) Class II & IV Warehouses, Long My Depot: One 120'x200' Rhoen Dudley Building and one 120'x200' Nichoman Building, were completed during the quarter.

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(8) Other Selected Projects:

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(a) One platoon from Company D has begun work on the MACV Advisor Facility at Tuy Hoa.

(b) The 536th Engr Det (PC) with a platoon from the 497th Engr Co (PC) has begun construction of dolphins to protect the Qui Nhon POL Jetty.

(c) The Tandem Switch Building revetments have been completed.

c. Intelligence and Counterintelligence: Enemy activity throughout the Battalion's area of responsibility was moderate during the first half of the reporting period and light during the later half. One minor stand off B-41 rocket attack on Camp Sherman Williams Compound (HQ, 84th Engr Bn (Const)) resulted in negative casualties and minor damage. Enemy harassment of work parties and LOC's consisted of 12 reportable incidents of minings, ambushes, and sniper fire resulting in 1 US KIA, 15 US WIA, 4 vehicles destroyed, and 3 other vehicles damaged. Additionally, one bridge was destroyed by explosives. During the enemy summer/fall campaign and the seven week lull in enemy activity from mid September to the end of October, good intelligence continued to be maintained by this unit with the Capitol ROK Infantry Division, 22nd ARVN Infantry Division, 173rd Airborne Brigade, Binh Dinh and Phu Yen Province MACV Advisors and VN Forces and other combat and combat support units in the Battalion's area of responsibility.

d. Plans and Training: Planning for construction of a 1400 foot bridge at Bong Son is now underway. Increased emphasis was placed on training during this quarter with Sunday mornings reserved for training and standdown maintenance.

e. Personnel, Administration, Morale and Discipline: During this reporting period there were a total of 55 personnel recommended for awards, and 87 personnel voluntarily extended their Foreign Service Tour, which represents an increase of 31 individuals over the previous reporting period. There were 42 disciplinary cases including 38 Article 15's and 4 Special Courts-Martial's.

f. Logistics: During the past quarter, the S-4 Section gave logistical support to organic companies and attached units of the 84th Engr Bn (Const). The areas of logistical support included:

Procurement and distribution of Class A rations for 900 personnel daily

(2) Operation of two water points producing 45,000 gallons of potable water daily.

(3) Supply of Class II TCE equipment. An average of 100 equipment and supply requisitions were processed weekly by the property book section. During the quarter 180 new pieces of TCE and MCA equipment were acquired.

(4) Supply of Class IV Construction Materials to all units for MCA funded projects. An average of 150 requisitions for construction materials were processed weekly by the S-4 Section.

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SUBJECT: Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

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(5) Resupply of unit basic loads and demolitions through the Phu Tai ABD. An average of 10,000 pounds of dynamite were used monthly for quarry operations.

(6) Receiving sufficient M16A1 rifles to bring the Battalion to 93% of authorization.

g. Inspector General: The USARV Inspector General inspected the 84th Engr Bn during the period 13-17 October 1969. An overall rating of satisfactory was given to the Battalion.

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h. Civic Action: This Battalion undertook a variety of civic action projects during this quarter. Voluntary contributions totaling \$VN 102,305 were made by members of the Battalion. This money was distributed among several orphanages. As part of the civic action program 500 board feet of scrap lumber and 20 feet of culvert were distributed to schools and medical facilities. During this quarter 32 mandays were devoted to civic action projects.

i. ARVN Affiliation:

(1) Members of the 84th Engr Bn (Const) have continued to develop meaningful relationships with our ARVN counterparts. Liaison and technical advice are being provided for the construction of Bridge 241 at Tuy Hoa. 84th Engineer Battalion personnel are assisting in the continued planning for the bridge construction and are coordinating material and equipment acquisition.

(2) Equipment and instructors have been provided for training ARVN Engineers to operate the 40 ton crane and the 290M Tractor-Scraper. The skills of Arc and Gas welding were also presented in training sessions. Approximately 235 class hours on the 40 ton crane and 95 hours on welding have been given during the last quarter. 196 hours of instruction were given on the 290M.

(3) During recent heavy rainfall along QL-1, engineers from the 20th ARVN Gp and the 84th Engr Bn (Const) combined forces to repair pot holes and washed out culverts in an effort to keep this vital line of communication open.

2. Lessons Learned: Commanders Observations, Evaluations, & Recommendations

a. Personnel

(1) Item: Daily MOS Inventory

OBSERVATION: Valuable man hours were being expended each month in preparation of the monthly MOS Inventory report and furnishing various staff elements strength figures for the Battalion.

EVALUATION: A reduction of man hours was necessary to cut down the time of preparation of monthly MOS inventories and time consumed furnishing strength figures to staff elements.

RECOMMENDATION: A daily MOS inventory has been initiated for each company and attached units of the 84th Engr Bn (Const). This inventory is posted on a daily basis utilizing the morning report. By utilization of this daily MOS inventory, a reduction of 10 man hours per month has resulted.

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SUBJECT: Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) for the Period Ending 31 October 1969, RCS CSFCR-65 (R2)

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b. Intelligence: None

c. Operations

(1) Item: Installation of Buried Pipeline

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OBSERVATION: Considering materials availability and other factors, the decision was made to bury two coupled pipelines in an insecure area where pilferage had been a major problem. It was planned that short sections of the lines between valves would be flushed with water; however, this was not done because of a shortage of pumps. Covers were coupled on open ends of the lines at night. Forces were not available to secure the lines at night. After completion of construction much time and fuel was lost because of blockages in the lines. The blockages were caused by lumber, rocks and other materials.

EVALUATION: The enemy was able to sabotage the lines by removing the coupled covers, placing materials far enough down the lines so that they were not detected, and recapping the lines. The failure to flush the line allowed the problem to go undetected until after the lines were placed into operation.

RECOMMENDATION: When pipelines are installed in unsecure areas, the lines should be guarded by security forces until they are buried. The lines should be flushed prior to burial to insure that no blockages exist. These measures will reduce the time required to develop a fully operational pipeline system and will prevent an unnecessary loss of fuel.

Item: Interdiction of a Main Supply Route

OBSERVATION: During recent heavy monsoon rains, QL-1 was washed out in several places. Engineers were seriously hampered in their efforts to repair the road because civilian and military traffic blocked access to the trouble spots.

EVALUATION: Traffic congestion was caused by insufficient dissemination of road information, lack of timely traffic control, and incomplete coordination between free world military forces.

RECOMMENDATION: The interdiction of a main supply route in a theater of operations such as Vietnam is a contingency which requires advance planning by the tactical commander having jurisdiction over all route users. This plan should provide for aerial reconnaissance, traffic control, convoy restrictions and other measures necessary to allow rapid repair of the damaged road.

Item: Criteria for Acceptance of POL Pipelines

OBSERVATION: The acceptance of the recently constructed 6" and 8" underground pipelines between Vung Ro Bay and Tuy Hoa, RVN, became the source of concern because the using unit had not defined acceptance criteria prior to the completion of construction.

EVALUATION: Early planning of pipeline construction should include detailed consideration of the exact criteria required for pipeline acceptance.

RECOMMENDATION: Required flow rates, pumping pressures and other acceptance criteria must be defined during early planning stages. Additionally, pipeline

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SUBJECT: Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) for the period Ending 31 October 1969, RCS CS FCR-65 (R2)

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maintenance responsibilities should be clearly delineated before actual construction begins.

Item: Rolling Door Construction

OBSERVATION: Heavy warehouse doors on Rhein Dudley Buildings are mounted on overhead rollers that are difficult to open and close. Also, they are easily torn loose from the rollers.

EVALUATION: Such heavy rolling doors should have some type of support to prevent their detachment from the rollers. Also, the doors should be constructed so they may be easily opened and closed by one person.

RECOMMENDATION: A U shaped rail, slightly wider than the door rollers that are being installed, should be placed in concrete at the base of the doorway. The door should be hung by the top rollers and then the same number of rollers should be attached to the bottom of the door. In this manner, these rollers will roll along the bottom rail and give additional support to the door.

Item: Dredging with 40 Ton Crane

OBSERVATION: Dredging to a depth of 10 feet below water level was required immediately in front of an Ammo Off-Loading Dock. The material to be dredged consisted of a sandy silt.

EVALUATION: A 40 ton crane with a clamshell was able to get satisfactory loads and efficiently dredge the required area.

RECOMMENDATION: The 40 ton crane with a clamshell can be effectively employed to dredge small shallow areas.

Item: Expedient Maintenance Facility

OBSERVATION: During the rainy season, proper preventive maintenance and operational checks of the undercarriage of vehicles were not being performed by the operators because of inadequate facilities.

EVALUATION: To improve working conditions, a safe rack had to be built to allow operators to work under vehicles.

RECOMMENDATION: A rack was constructed using 16"x16"x10' timbers for support and salvaged M4T6 bulk for decking. A 30" space was left in the center to insure ample working area. This rack is being used for $\frac{1}{4}$ ton up to 10 ton vehicles, and has significantly improved preventive maintenance.

(7) Item: Item: Leaks in large corrugated sheet metal roofs

OBSERVATION: The corrugated sheet metal roof on the large Gold Storage Warehouse in Qui Nhon, RVN was observed not to be watertight after the completion of construction. Puddles of water were forming on the top of the vapor seal in the attic space and threatening damage to the insulation.

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Battalion (Construction) for the Period Ending 31 October
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EVALUATION: The sheet metal roof was flexing under wind loads and allowing rain to enter the building under the end laps. Design spacing of purlins was determined to be excessive.

RECOMMENDATION: Additional purlins were installed to reduce the maximum center to center spacing to 2 feet. This modification eliminated the leaks due to sheet metal flexing.

Item: Emergency Bypasses

OBSERVATION: The placement of a culvert in a swift stream is difficult as the stream tends to move the culvert.

EVALUATION: A method is needed to anchor culverts prior to backfilling.

RECOMMENDATION: Emergency bypass culverts can be secured in swift streams by using 7 foot lengths of #9Ø Ribar driven at the rear and sides of each culvert. Positioning a culvert in swift current can be accomplished by using the 7 foot lengths of #9Ø Ribar as stakes on the near and far shores with ropes attached to the culvert. The ribar can be recovered after the culvert has been positioned.

Item: Trailer Brakes

OBSERVATION: When parking $\frac{1}{4}$, $\frac{3}{4}$ and $1\frac{1}{2}$ ton trailers for prolonged periods of time, the brakes stick and require considerable effort to free.

EVALUATION: Brakes have a tendency to stick because the humidity causes the fiber brake shoes to adhere to the metal drums.

RECOMMENDATION: When parking trailers for prolonged periods of time, it is recommended that blocking be placed in front & behind the wheels instead of using the hand brake.

Item: Keeping snakes out of culvert type bunkers

OBSERVATION: A culvert, when built into a berm as a fighting position, often becomes a snake trap. The snakes not only fall into the culvert from the top, but also burrow their way into the bunker through the bottom.

EVALUATION: A method was needed to keep snakes out of culvert type bunkers.

RECOMMENDATION: Screening material can be placed on the bottom of the hole and the culvert then can be placed on the screen. This prevents snakes from burrowing into the bunker. Screen can also be placed loosely across the top. This keeps the snakes from falling into the hole, but still allows a man to easily jump into the bunker.

(11) Item: Grader Bolts

OBSERVATION: Bolts that hold cutting edges on ton grader blades often become twisted or broken.

EVALUATION: Obstructions are catching on the excess thread on these bolts and causing the damage.

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9-22

AVHGC-DST (14 Aug 68) 3d Ind MAJ Klingman/ds/LBN 4433
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968 (RCS CSFCR-65) (R1)

HEADQUARTERS, US ARMY VIETNAM, APO San Francisco 96375 13 SEP 1968

TO: Commander in Chief, United States Army, Pacific, ATTN: GFOP-DT,
APO 96558

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 July 1968 from Headquarters, 84th Engineer Battalion (Construction).

2. Reference item concerning the use of a 2 pole (single phase) double breaker with boxes, as a substitute for a circuit breaker lighting panel board, Section 2, paragraph B3: Concur. This method is acceptable in accordance with the National Electric Code, but should only be used as an expedient. The cost of installation will increase due to the increased manhours necessary for installation, plus the cost of additional wire and each separate circuit breaker box installed.

FOR THE COMMANDER:

A.R. GUENTHER
CPT. AGC
ASST. ADJUTANT GENERAL

Cy furn:
HQ 18th Engr Bde
HQ 84th Engr Bn

MFR: ORLL was staffed through:
Engr - CPT Brown/4419

ACTION OFFICER: MAJ Klingman/4433

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CH DST DIV	
CH MS BR	
CH DCC BR	
CH TNG BR	
A/O	

PROTECTIVE MARKINGS MAY BE
CANCELLED WHEN SEPARATED
FROM PROTECTED MATERIAL

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EGA-CBA-CO

14 August 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, RCS CSFOR-65 (R1)

DISCUSSION: In wiring the Long My Depot, it was found that the panel board contained a number of circuit breakers (20A) which were not available. A successful substitute was used by mounting as many as 10, 2 pole, single phase double breaker (with box) in line on a $\frac{1}{2}$ " to $\frac{5}{8}$ " plywood board and attaching the plywood sheet to the building. This method works quite well and this type of breaker is much more readily obtainable than the type circuit breaker using a lighting panel board; since lighting panel boards generally are made by a particular manufacturer, to fit into a particular type board. It was found that in some cases when using 2 pole, double breaker, single phase, made by different manufacturers that the breakers did not carry the design load, when the design load approached the capacity of the breaker. This was compensated for by using a different manufacturers breaker or by removing one light from the circuit.

OBSERVATION: That individual 2 pole double breaker, single phase and box may be used as an acceptable substitute in place of a circuit breaker lighting panel board.

C. Training: None

D. Intelligence: None

E. Logistics: Item - Expedient Jumper Cable

DISCUSSION: The shortage of battery jumper cables within the unit caused delays in starting faulty equipment. A cable was fabricated by utilizing salvaged power cable and expended M-16 cartridges. A ten-foot piece of 2/0 dual conductor power cable was prepared by stripping the insulation from the four ends. The M-16 cartridges were sawed off at the base to provide a hollow cylinder. The cases were then soldered into the wire and taped to complete assembly. The cartridges fit tightly into the receptacles on engineer equipment and the cable performs satisfactorily.

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14 August 1968

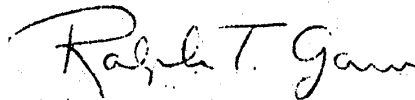
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, RCS CSFOR-65 (R1)

OBSERVATIONS: The expedient cable provides the unit with additional
emergency starting capability without substantial cost or assembly time.

G. Other: None

Section 2 Part II Recommendations

None



RALPH T. GARVER
LTC, CE
Commanding

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO 96238

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14 August 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, RCS CSFOR-65 (R1)

THRU: Commanding Officer
35th Engineer Group (Const)
APO 96238

Commanding General
13th Engineer Brigade
APO 96377

Commanding General
United States Army Vietnam
ATTN: AVHOC (DST)
APO 96307

Commander in Chief
United States Army Pacific
ATTN: GPOP-OT
APO 96588

TO: Assistant Chief of Staff for Force-Development
Department of The Army (ACSFOR DA)
Washington D.C. 20310

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14 August 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, RCS GSFOR-65 (R1)

Section 1 Significant Organization or Unit Activities:

a. Command

Organization

- (a) Headquarters & HQ Co 84th Engr Bn
- (b) Company A 84th Engr Bn
- (c) Company B 84th Engr Bn
- (d) Company C 84th Engr Bn
- (e) Company D 84th Engr Bn

Earthmoving Plt of Company D returned to the control of its parent unit on 15 July 1968

- (f) 513th Engr Co (DT)
- (g) 523rd Engr Co (PC)

Unit departed this command on 1 July 1968

- (h) 536th Engr Det (PC)

Unit came under this command on 1 July 1968

Unit Operations:

(a) Headquarters & Headquarters Company: The utilities section, augmented with Vietnamese laborers continued work on the improvement of the Camp Williams Cantonment area. Construction included about 500 ft. of drainage ditches and placement of 60 linear feet of CMP for culverts. HHC also maintained a high standard of maintenance of its equipment this period. The company maintained its record of the lowest dead line rate in the battalion for this quarter.

(b) Company A: The efforts of Company A included the maintenance and repair of battalion ordnance and engineer equipment, the production of rock and the distribution of asphalt for maintenance and upgrade of the LOC's. Some of the major accomplishments this quarter included the production of 35,938 tons of crushed rock, painting of the center line on QL #1 and QL #19 for a total of 94 miles, repairing of QL #1 from Song Cai to Bong Son with 60 tons of hot mix asphalt, and paving 14 bridge approaches on QL #1 between Qui Nhon and Bong Son. The direct support maintenance section completed 96 engineer equipment jobs and 115 ordnance equipment jobs.

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SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, FCS CSFOR-65 (R1)

(c) Company B: During this quarter, B Company has been involved in construction of QL-1 from Phu My to Bong Son and from bridge No 297 to the village of Binh Thanh. Having completed the basic construction of QL #1 highway from Phu My to Bong Son, three platoons of the company moved to Binh Thanh compound 20KM South of Qui Nhon on 15 May 1968 from LZ Uplift. One platoon remained at LZ Uplift until 12 July 1968 to finish culverts and headwalls and to repair a damaged section of roadway. To date 3.7KM of sub-base has been prepared for base course north from the village of Binh Thanh and 1.6KM of base course has been spread. Four culverts have been completed to include headwalls. While at the Binh Thanh Compound B Company has been responsible for road maintenance from the road junction of 6B and QL #1 (Coord CQ 072712) to Bridge 297 in addition to the new LOC construction. B Company also supported other units at LZ Uplift and Binh Thanh Compound by clearing and stripping fields of fire, constructing two helicopter landing pads, constructing all weather roads on the compound, and constructing a new company base camp.

(d) Company C: Company C has been involved in a large number of projects of both horizontal and vertical construction. During this quarter, Company C has completed the medical storage warehouse at the Qui Nhon Depot to include 8,000 Sq Ft of warehouse, ramps, driveways, and drainage ditches within the warehouse area; a new mess hall for 35th Engineer Group; ten (10) prefabricated (20' x 20') shelters for MACV advisor teams, and the tactical operation center bunker at the Province Chief's headquarters. The Bailey Bridge at 442-3 was taken out and located as a by pass at QL-1 #318 while the deteriorated, existing bridge is being replaced by this company. A number of projects were started this quarter and are currently under construction by C Company. The following projects are under construction: The Tandem Switch Building which is a metal prefabricated (40' x 100') Pasco building to include latrines and air conditioning at the Vung Chua Communication site; water well facilities which consist of three water wells and a 250 barrel storage tank at the Phu Tai Ice Plant; repair of the existing berms (50' x 160'), and construction of new storage pads and aprons at the Phu Tai ASP; and Class II & IV Warehouses at Long My Depot which consist of two 120' x 200' prefabricated buildings. Company C also participated in operational support of a Korean Operation to provide security for the railroad work crews by upgrading and opening road 6B to fair weather traffic from the road junction of 6B and QL-1 (Coord CQ 072712) to ROKA Capital Division Headquarters (Coord BR 959217). The project is still underway at the end of the period.

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SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, RCS CSFOR-65 (R1)

(e) Company D: During this reporting period, Company D worked on a variety of projects. D Company's earthmoving platoon supported C Company of the 39th Engr Bn (Combat) in upgrading of QL-1, north of Mo Duc for most of this period, returning to the company on 15 July 1968 to enable the company to continue earth work on QL-1 south of Qui Nhon on both sides of Cu Mong Pass. Construction on LOC (QL-1 in Cu Mong Pass) continued during the whole period with the installation of 8 culverts with headwalls. Also a large quantity of rock removal was done in the pass with the use of explosives. The electrical wiring and lighting in the Long My Depot, eight 120' x 200' and two 120' x 400' Butler warehouses was completed this period. Work continued this quarter on the ADPS building at Long My Depot, a 70' x 140' wood frame building with corrugated metal siding, insulated and finished for air conditioning for use as a data processing building. Work commenced this quarter on the 40' x 60' Dial Central Office building in Phu Tai Valley.

(f) 513th Engineer Company (DT): During the period the 513th Engineer Company (DT) supported two different Engineer Battalions and one separate Engineer Company located within the Corps II Tactical zone area. At the beginning of this quarter the Company was attached to the 937th Engineer Group, at Pleiku, for operational control. The second platoon was in Dak To attached to D Company of the 299th Engineer Battalion (Combat). While at this location the platoon hauled 100,000 cubic yards of sand and 12,233 cubic yards of rock to the road site between Dak To and Kontum. The first platoon was attached to the 70th Engineer Company (Dump Truck) located at Pleiku, RVN. The first platoon's major project was the hauling of asphalt for QL-19 between Pleiku and An Khe. In mid-July the company returned to Qui Nhon and was immediately attached for operational control to Delta Company of the 589th Engineer Battalion (Construction) at An Khe. It is now hauling asphalt from An Khe toward Pleiku for the paving of QL-19 between An Khe and Pleiku.

(g) 536th Engineer Detachment (PC): The 536th Engineer Detachment (Port Construction) was attached to the 84th Engineer Battalion (Construction) for operational control effective 1 July 1968. The unit has previously been attached to the 34th Engineer Group (Construction) APO 96291. The 523rd Engineer Company (PC) left the Qui Nhon area

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EGA-CBA-3

14 August 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
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and moved into the area previously occupied by the 536th Detachment. Projects that were completed or under construction prior to the 536th Detachment coming under control of the 84th Engineer Battalion were: the My Tho Barge Off Loading Facility which was completed on 4 June 1968 and Vinh Long Rock Off Loading Facility. These two projects were turned over to the 523rd Engineer Company (PC) as of 1 July 1968. Projects that were turned over to the 536th Detachment by the 523rd Engineer Company (PC) as of 1 July 1968 were the repair of Bridge QLL-322, the Ammo Off Loading Facility on the Qui Nhon Harbor causeway, and the Autosevocom facility in Qui Nhon. The Ammo Off Loading Facility is under construction with a total of 15,320 cubic yards of sand already in place. The Autosevocom Facility is a reinforced concrete and concrete block building and is 70% complete. The 536th Engineer Detachment (Port Construction) has supported the 61st ARVN Engr Bn by driving 14" H-piles at bridge QLL-258 and has supported the 5th Terminal Command with divers.

b. Personnel, Administration, Morale, and Discipline: During this reporting period the battalion participation in Savings Bond Program averaged 78% while Soldiers Deposits participation averaged 3%. There were a total of 46 people recommended for awards for outstanding performance. The battalion suffered 12 casualties and 1 battle death during this quarter. There were 139 disciplinary cases (129 article 15's and 10 court-martials) and a total of 44 men extended their tours in Vietnam during this period.

c. Intelligence and Counter Intelligence: Numerous incidents of enemy LOC interdiction and harassing of work parties by sniper fire continued through the quarter and resulted in one member of this battalion killed in action and seven wounded in action. In addition to the personnel casualties suffered during LOC construction, two culverts on QL #1 were destroyed by enemy action. The requirement for a provisional platoon on Ke Sein mountain, controlled by this headquarters, was deleted on 13 June 1968. Good intelligence liaison continued to be maintained by this unit with the Capital ROK Infantry Division, 22nd ARVN Infantry 5th Special force, Binh Dinh Province and other combat and support units in the area.

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d. Plans, Operations and Training: Weather conditions during the period remained good for construction activities. The battalion's priority projects centered around the LOC construction of QL-1. The use of several units of the battalion as mentioned above in support of other battalions greatly cut into the construction resources of the battalion. Planning was accomplished for the battalion LOC construction and vertical construction for the next year with LOC work receiving the highest priority. Training during this period emphasized OJT of many newly assigned personnel and weapons firing and safety for all personnel.

e. Logistics: Recently several of our complex communications projects have been curtailed due to the long lead electrical and air conditioning supplies arriving late or not at all. We had problems with the last three prefabricated steel buildings with component parts being either lost in shipment or not shipped at all, which caused us to redesign one of the buildings using a wood frame structure instead of the prefabricated building. We have continued an intensive followup on all our requisitions, but will soon be critically short of one inch lumber used in our cantonment projects. Past problems were bridging materials and plumbing supplies, but both of these are starting to arrive in our area. We remain critically short of several TOE items, all of which are on valid requisitions and are being checked constantly. We have continued to process in excess of 350 requisitions each week, and believe this will increase with the thirteen detachments to be attached in August to the battalion for logistical support. We have completed several logistical support missions to U.S. units for construction materials, and to several ARVN units for bridge supplies and materials. The battalion has continued to operate two waterpoints in support of its companies. Our units have consumed in excess of 130,000 gallons of Mogas and 150,000 gallons of diesel fuel this period.

Force Development: N/A

g. Command Management: A Company C underwent a USARV Command Management Maintenance Inspection on 18 July 1968. The result of that inspection was highly satisfactory.

h. Inspector General: N/A

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1. Civic Action: The Battalion under took a variety of civic action projects during this quarter. The members of this battalion voluntarily contributed 266,000 VN\$ for the support of Holy Infant and Kim Chau Orphanage. In addition, two parties were given for the Children of the Kim Chau Orphanage by HHC and C Company at Camp Williams Compound. The battalion has also continued to provide an NCO overday to the Qui Nhon Public Works Department for technical assistance for the city's engineering projects and to act as liaison between the 84th and the City of Qui Nhon. The 84th Engineer Battalion has also furnished material and equipment for Civic Action and Revolutionary Development projects in support of the 41st Civil Affairs Company. Some of these projects are the new high school for Tuy Phuoc District and a new village headquarters in the Tuy Phuoc District. Company B, to promote good will in their new area of operation, built a 6KM fair weather (sand and laterite) road from the village of Binh Thanh to the bay. This road provides the fishermen in the village access to the sea.

Section 2, Part I Observations (Lessons Learned)

A. Personnel: None

B. Operation:

1. Item: The use of U pickets in the construction of runoff ditches on steep inclines.

DISCUSSION: In constructing culverts where the outflow of the culvert is on a fill slope of several hundred feet at an angle of 45 degrees, the problem of erosion becomes acute. One method to approach this is to construct a concrete spillway from the outflow of the culvert to the intersection of the incline and the base of the hill, however quite frequently on filled surfaces the water undermines the concrete spillway until it cracks and disintegrates. One way to alleviate this problem is to drive U pickets 4 to 5 feet into fill slightly offset on 6 foot centers and tie two re-bars onto the pickets and construct a reinforced concrete spillway. This will suffice until sufficient soil consolidation and vegetation growth prevents massive erosion around the culvert and headwall.

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OBSERVATION: U pickets driven into the ground to reinforce a concrete spillway, tied and interlaced with rebar is an excellent deterrent to massive soil erosion around the culvert and concrete headwall and serves to anchor the spillway in place.

2. Item: The use of cement stabilization in the construction of culverts on unstable organic soil.

DISCUSSION: In constructing a culvert at CR 028-152, it was found that the water table was approximately a foot higher than the culvert and that a number of springs were present. The construction of this particular culvert consisted of 4 foot (48") culverts, 70 feet long. The major problem was that there was no apparent bottom to the area in which the culverts were to rest. For example a stick or pole (10 feet long) could be pushed out of sight in the bottom of the spring bed. The culvert was dug out approximately three or more feet below the water table and backfilled with 350 cy of blastrock. Approximately a 6" layer of sand was placed and 150 sacks of cement also placed on top of the blastrock. This was mixed and bladed by a dozer until a level surface was obtained. After a period of 5 or 6 days the bottom of the culvert was firm enough to drive a loaded 5 Ton over it without getting it stuck even though the elevation of the ground level of the culvert was approximately 3 to 4 inches below the water table. The culvert was then placed and backfilled with sand to a depth of approximately 6" above the water table and then backfilled with an impervious material. A reinforced continuous footer was placed at the end of the culverts at an approximate depth of 18" and a width of 36". This prevented the pervious sand layer from acting as a verticle sand drain. later a headwall was constructed upon the footer.

OBSERVATION: Cement stabilization while it may be expensive, is an excellent form of solving the problem of soil stabilization in a spring infested area with an organic sub-base

3. Item: The use of 2 pole. (single phase) double breaker, with boxes, as a substitute for circuit breaker lighting panel board.

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