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MGD-HB-00

10 February 1960

SUBJECT: Operational Report Lessons Learned (MCS CSFOR-65) for Quarterly
Period Ending 31 January 1960

gallons of diesel fuel. An average of more than 450 requisitions were processed each week of the reported quarter.

f. FORCE DEVELOPMENT: N/A.

g. COMBINED MANAGEMENT: N/A.

h. INSPECTOR GENERAL: On 20-24 November this battalion received an Annual General Inspection by the Engineer Command. A very favorable report was received and the team chief commented to the undersigned that this battalion was the best of the thirteen or fourteen Engineer battalions that he had inspected.

i. CIVIC AFFAIRS: The battalion undertook a variety of civic action projects during this reporting period. The projects included holding sick call at the Kim Chau Orphanage, giving medical treatment to the Vietnamese Nationals working in the compound, distribution of food and clothing to the Kim Chau Orphanage, monetary support of the Holy Infant Orphanage, and hauling laterite fill to be used in the construction of a city playground. During TET the battalion gave a party for 219 children of the soldiers (E-4 and below) in the 421st Engineer Company (ARVN). The battalion also designed a 20 ft X 60 ft medical ward for a refugee center. Currently technical assistance is being provided by the battalion to the Vietnamese living in the refugee center who are constructing the medical ward. The medical ward will contain a complete electrical and water system. Also the battalion provided a senior NCO to the city of Qui Nhon to provide technical assistance for the city's engineer equipment.

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EGD-BB-00

10 February 1968

SUBJECT: Operational ...port Lessons Learned (OS CSFOA 65) for Quarterly Period ending 31 January 1968.

Section 2, Part 1, Observations (Lessons Learned).

a. OPERATIONS:

1. ITEM: Paving Machine Overflow Plate

a. DISCUSSION: During asphalt paving operations, problems were encountered with asphalt overflowing the hopper and falling down into the belts and gears. The asphalt would build up and cause the belts to jump off. A metal plate one foot high and six feet long was welded to the top and rear of the hopper. This plate contained the hot mix asphalt inside the hopper.

b. OBSERVATION: A metal overflow plate can be fabricated to eliminate asphalt overflow on pavers and thus curtail asphalt buildup on belts and gears.

2. ITEM: Concrete Sandbag Headwalls

a. DISCUSSION: In order to combine the best characteristics of sandbag headwalls and reinforced concrete headwalls, a new technique of construction was devised. Sandbags were first filled with a standard mix of concrete and then stacked like bricks to a height of two feet. Reinforcing steel bars cut to 30 inch lengths were then driven vertically on two foot centers through the wet concrete. To gain lateral stiffness, rebar cut to the appropriate length was placed horizontally and tied to the stubs of the vertical bars. The vertical bars driven into succeeding lifts of bars were placed so as to be adjacent to the bars below. After the concrete bags set, the exposed bags may be stripped or burned off and the exterior may be grouted to attain a smooth finish.

b. OBSERVATION: The concrete sandbag type of construction resulted in a shorter construction time and also a reduced materials cost while almost achieving the strength of monolithic reinforced concrete. This type of construction could also be used for bunker construction and erosion control.

3. ITEM: Culvert Extensions

a. DISCUSSION: While widening a major roadway, many existing concrete and masonry culverts were found which were structurally sound, but too narrow. Rather than remove them, CIP extensions of a slightly smaller diameter were placed inside the existing culvert and set at a slope to promote self cleaning. The floor of the existing culvert was reconstructed with concrete to allow a smooth flow line.

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10 February 1968
EGD-BE-00

SUBJECT: Operational Report Lessons Learned (RCS GEPOR-65) for Quarterly
Period Ending 31 January 1968

b. OBSERVATION: Corrugated metal pipe makes a useful extension for existing culverts, regardless of slope. A considerable savings in time was realized when it was not necessary to remove the old culvert.

b. LOGISTICS:

ITEM: Fuel Injection Line of 290M tractor

a. DISCUSSION: The fuel injection line from the fuel shut down valve to the front of the head on the tractor, wheeled, 290M has been cracking at the flared ends of the fittings. This damage is caused by the high vibration of the engine at normal RPM. Most of the failures have occurred before the tractors have logged 150 hours. A flexible line fabricated from the following parts has been substituted:

1. Teflon hose	P/N	NS	27061-000794
2. Adapter	P/N	NS	27061-50
3. Nut	FSN		4730-952-5530
4. Sleeve	FSN		4720-967-9522
5. Elbow	FSN		4730-276-0191
6. Adapter	FSN		4730-243-6607

b. OBSERVATION: The Flexible Line absorbs much of the vibration and is strong enough at the fittings to withstand normal stresses. An EIR was submitted on this item on 17 January 1968, and given a priority of "URGENT" by the US Army Mobility Equipment Command.

Section 2, Part II, Recommendations

NOTE

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James F. Flesher
JAMES F. FLESHER
LTC, CE

Commanding

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VII-280F

IN REPLY REFER TO

AGAM-P (M) (2 July 68) FOR OT RD 682198

8 July 1968

SUBJECT: Operational Report - Lessons Learned, Headquarters, 84th
Engineer Battalion (Const), Period Ending 30 April 1968 (U)

SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation in accordance with paragraph 5b, AR 525-15. Evaluations and corrective actions should be reported to ACSFOR OT RD, Operational Reports Branch, within 90 days of receipt of covering letter.
2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

1 Incl
as

Kenneth G. Wickham

KENNETH G. WICKHAM
Major General, USA
The Adjutant General

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US Army Logistics, Doctrine Systems & Readiness Agency
84th Engr Bn (CONST)

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AUG 23 1971

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3
DEPARTMENT OF THE ARMY
HEADQUARTERS, 34TH ENGINEER BATTALION (CONSTRUCTION)
APO 96230

EGA-EB-CO

14 May 1968

SUBJECT: Operational Report of 34th Engineer Battalion (Construction)
for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

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

Commanding General
10th Engineer Brigade
APO 96377

Commanding General
~~US Army Engineer Command, Vietnam (PROV)~~ *34H*
~~APO 96375~~

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

Commander in Chief
United States Army, Pacific
ATTN: CPOP-OT
APO 96550

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

FOR OT R9
682198

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EGA-BB-CO

14 May 1968

SUBJECT: Operational Report of 84th Engineer Battalion (Construction)
for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

Section 1. Significant Organization or Unit Activities.

a. Command

(1) Organization

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

(b) Co A, 84th Engr. Bn

(c) Co B, 84th Engr. Bn

(d) Co C, 84th Engr. Bn

(e) Co D, 84th Engr. Bn

Earthmoving Plt of Co D became attached to 39th Engr Bn
for an indefinite TDY period on 18 March 1968

(f) 513th Engr. Co (DT)

(g) 523rd Engr. Co (PC)

Unit came under this command 15 March 1968

(h) 3rd Platoon, 517th Engr Co (LE)

Unit departed this command on 3 Feb 1968

(2) Unit Operations

(a) HQ & HQ Co: The utilities section, augmented with Vietnamese laborers continued work on the improvement of the Camp Williams Cantonment area. Construction included a new 2400 SF mess hall, wash stand for EM, new bunkers for S-1 and S-3, and improvement of the perimeter defenses to include clearing fields of fire and building two man emplacements. Also improvement of the motor pool area was completed to include drainage, a wash rack, and a grease rack.

(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 to improve LOC's. Some of the major accomplishments this quarter included: paving of 3 KM on Valley A road, surfacing 55,000 SY of storage area at the Qui Nhon Port Transit Storage Area, surfacing 9000 SY of storage and parking area at Phu Tai Maintenance complex with MC 30 and MC 70 compound, and the production of 62,791 tons of crushed rock.

(c) Company B: This unit moved from Phu Tai to LZ Uplift on 12 Feb. The major effort of B company was the upgrading of QL#1 highway from Phu My to Dong Son.

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EGA-BB-C)

14 May 1968

SUBJECT: Operational Report of 64th Engineer Battalion (Construction)
for Period Ending 30 April 1968, RCS CSFOR-65

This consisted of widening of the road, construction of culverts to include headwalls and wingwalls, construction of 3 bridges, preparing the subgrade of the existing road for asphaltic concrete surface, and maintenance and repair of existing bridges and highway. B Company completed portions of two cantonment areas at Phu Cat Air Base for the 41st Artillery Group and supported LZ's Ivy, Ginny, Crystal, Salam, Pony, and Uplift by clearing fields of fire and constructing gun emplacements, bunkers, sump pits, and ammo pads. This company also provided a daily mine sweep of roads in their AOR.

(d) Company C: Company C accomplished a variety of projects during this period. The Port Maintenance Building was completed which included a metal 40'x100' Pascoe building set on 3'3" reinforced concrete columns and 25,000 SF of prepared hardstand parking area. The transit storage hardstand area of 55,000 SF of prepared subgrade base and drainage was completed at Port Facilities, Qui Nhon. A water fill point at Phu Tai was also completed which included the assembly of a pre-fabricated 250 barrel metal tank on a pre-engineered steel tower, construction of two fill stands to accommodate two 5,000 gallon water tankers simultaneously and 15,000 SF of hardstand driveway. Other projects that were completed during this period were the building of 20 revotments for aircraft at QNAAP, 9000 SF of hardstand area at Phu Tai Maintenance complex, 120' medium tent frames for 173rd ABN BDE, and construction of a 20'x16' communications building with two 60' antenna masts on Vung Chua mountain. Company C also participated in operational support of a joint Korean and U.S. operation north of Qui Nhon by upgrading Route 442 for tank traffic. An 80'x40' refrigerated warehouse at the Qui Nhon depot facility was started this quarter.

(e) Company D: Efforts of Company D during this quarter centered around construction of Phase I of QL#1 south of Phu Tai and continued work at Long My Depot. D Company played a principal role in the security of Qui Nhon during and after the recent TET offensive. Company D was dug in on a strategic hill west of Qui Nhon with the primary mission of infantry support from 9 Feb to 29 Feb. Work completed during this period was a repair shed and eight of sixteen concrete pads for the cantonment area at Long My Depot. Blasting, hauling, preparing subgrade and base, and constructing culvert headwalls, and wingwalls on QL#1 south of Phu Tai continued. Electrical work on the Butler warehouses at Long My depot also continued through this period. The ADPS building at Long My depot, a 70'x144' air conditioned wooden and reinforced concrete structure, was begun this quarter. D Company's Earthmoving Platoon on 18 March was attached for operational control of the 39th Log Bn (Combat) for the purpose of upgrading QL#1 North of Mo'Luc. This attachment remained in effect throughout this quarter.

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6

ZGA-BB-00

14 May 1968

SUBJECT: Operational Report of 84th Engineer Battalion (Construction)
for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

(f) 523rd Engineer Company (PC): The major effort in construction this period was the completion of Tank Farm Number 3 at Qui Nhon and causeway bridge No. 2 at the Qui Nhon port. The Tank farm construction included (3) 50,000 BBL welded steel tanks, (4) 10,000 BBL welded steel tanks, berms for fire walls, piping, manifold system, and painting of the tanks. A variety of other projects this quarter were undertaken, including upgrading the flight control tower at Lane Army Airfield, diving support for the 5th Terminal Command, hauling and driving piles for the 589th Engr. Bn (Const) at Bridges 19-11 and 19-26, maintenance of LST beach, and repair of Bridge QL-1-322.

(g) 513th Engineer Company (DT): During this period the 513th Engr Company gave dump truck support to this Battalion for hauling rock and construction materials and supported the move of the 35th Engr Bn and the 45th Engr Group. On 20 March, the 513th Engr Company (DT) came under operational control of the 937th Engineer Group.

b. Personnel, Administration, Morale, and Discipline: During this reporting period the battalion continued its record of over 90% participation in the Savings Bond program while Soldiers Deposits held at 13%. There were a total of 103 people recommended for an award for outstanding performance. The battalion suffered 21 casualties and 3 battle deaths in this quarter. A total of 44 men extended their tours in Vietnam during this quarter.

c. Intelligence and Counter Intelligence: Upon the initiation of the VC/NVA TET offensive, the Battalion became extensively engaged in the defense of the Qui Nhon Installation, initially deploying two companies as provisional infantry. In addition, both base camp security and the provisional platoon controlled by this Headquarters on Ke Soan Mountain were greatly increased to counter the enemy threat. These commitments, except the provisional platoon were gradually reduced near the end of February and the Battalion returned to its normal mission. The Headquarters and C Company Compound was attacked on two occasions: On 3 February, the compound was attacked by a squad size sapper unit resulting in two friendly killed and two friendly wounded. On 26 February, the compound was again attacked by a squad size sapper unit in coordination with an attack on the local ARVN ASP. This attack resulted in two enemy killed with no friendly casualties. On 11 February, a minor mortar attack on the Phu Tai Crusher/Quarry Complex resulted in one friendly killed. Numerous enemy incidents of LOC interdiction and work party harassing fires resulted in sixteen friendly wounded and five bridges destroyed. Total casualties for the period were: Three friendly killed and eighteen friendly wounded and two enemy killed. Good intelligence liaison continued to be maintained by this unit with the Capital ROK Infantry Division, 22nd ARVN Infantry Division, 5th Special Forces, Binh Dinh Province, and other combat and support units in the area.

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DGA-BB-CO

14 May 1960

SUBJECT: Operational Report of 84th Engineer Battalion (Construction)
for Period Ending 30 April 1960, RCS CSFOR-65 (R1)

d. Plans, Operations, and Training: Increased security requirements and operational support missions resulting from increased enemy activities during TET cut into the construction resources of the battalion. Two companies were organized and committed as Infantry units, one for two days and one for 3 weeks. In early February the AOR for this Battalion was extended considerably and effort was diverted from Base Development construction to LOC work. Planning was accomplished for a greater percentage of effort to be given to LOC work in the coming quarter. Training during this period emphasized OJT of many newly assigned personnel and weapons firing for all personnel.

e. Logistics: An intensive follow-up procedure on all types of requisitions has disclosed that a large percentage of all requisitions submitted are lost in supply channels. Because of the close liaison and willing cooperation with supply personnel these lost requisitions are becoming known almost immediately and new requests are being submitted. According to the director of supply a new accounting system is being installed and it should alleviate this problem. There are still critical shortages of TOE items which are all on valid requisitions and are being checked constantly. Many board feet of "two-by" lumber are on request and may, in the near future, become critical. An average of 350 requisitions were processed each week of the reported quarter. The battalion consumed in excess of 130,000 gallons of mogas and 140,000 gallons of diesel.

f. Force Development: N/A

g. Command Management: N/A

h. Inspector General: N/A

i. Civic Affairs: During this reporting period the battalion undertook a variety of civic action projects. The members of this battalion voluntarily contributed 138,575VNS\$ for the support of the Holy Infant Orphanage and the Kim Chau Orphanage. The Battalion also provided materials and technical assistance for the construction of a 20x60 medical ward for the refugee center located at coordinate, CRO03258. This medical ward is now complete and in operation. It contains a complete water and electrical system. Also during this period, the Kim Chau Orphanage was provided with a 12x16 shower facility and 3000 gallon water tower. When this project was completed, the kitchen, aid room, and shower all had running water. The battalion has also continued to provide an NCO to the Qui Nhon Public works department to provide technical assistance for the city's engineering projects and to act as a liaison between the 84th and the City of Qui Nhon.

Section 2, Part I, Observations (Lessons Learned)

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EGA-BB-CO

14 May 1963

SUBJECT: Operational Report of 84th Engineer Battalion (Construction)
for Period Ending 30 April 1968, RGS CSFOR (RI)

b. Operations:

- 50.15
1. Item: Expedient Repair of a Two inch Hole in the Side of a Welded Steel Tank.

40-4

Discussion: During the 1968 TET offensive one of the 50,000 BBL tanks at Tank Farm No. 3 was struck by a B-40 rocket. The impact of the round created a two inch diameter hole in the side of the tank approximately fifteen feet above the floor. Since the tank contained eleven feet of JP-4 Jet Fuel at the time it was impossible to repair the hole by welding unless the tank was drained and flushed. It was decided that an expedient method of repair could eliminate the delay caused by draining of the tank. The method decided upon was to use a four inch square steel plate coated with neoprene and bolted to the outside of the tank with a "Molly Bolt" inserted through the hole. This method of repair took only two hours to repair and the tank has been filled to full capacity on several occasions since the hole was plugged.

Observations: This fabricated plug is a quick and expedient way of repairing tanks and saving the contents. To date there have been no traces of seepage from this hole.

2. Item: Culvert Jacking Post

40-4

Discussion: During the process of expanding culvert to accommodate struts, wooden jacking posts frequently slipped or buckled causing severe danger to the personnel inside the CMP. A metal post was developed to enclose both the upper sill and the jack post to prevent failure during the jacking process. Inclosure I outlines the assembly details of the jacking post and the correct operation of the unit. Different lengths must be made for each size CMP (48" 60" 72"). A telescoping unit would not be advisable unless close tolerances could be obtained between the telescoping tubes to prevent buckling.

Observations: The additional time and equipment needed to fabricate jacking posts would be fruitful because the unit both speeds assembly of culvert struts and reduces the hazard of failing wooden jacking post.

3. Item: A-Frame type Airfield Revetment Ties

Discussion: The original design of the standard A frame type Airfield-Aircraft Revetment requires wire ties to keep the walers in the proper position. The use of 1/2" to 5/8" banding material in conjunction with a banding machine to tie the walers together through the A frame was used in place of the tie wire to decrease the time element in construction.

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9 EGA-BB-CO

1A May 1960

SUBJECT: Operational Report of 14th Engineer Battalion (Construction)
for Period Ending 30 April 1960, BCS CSFOR-65 (R1)

Observation: The use of banding material cuts the construction time for this phase considerably thus a great saving in manpower cost.

4. Item: Use of CH 47 Helicopter for construction in inaccessible places.

Discussion: The construction of a communications facility on Vung Chua mountain included the setting of two 80' Class A telephone poles for an antenna mast. The site was inaccessible to any type of lifting equipment since it was on the peak of the mountain. It was decided to try and set the antenna mast by helicopter. The mast was assembled on the ground by tying the two 80' poles together as called for in the plans for construction, placing the steps on the poles and fastening the ground guys and wrapping them around the poles before placement. The ground anchorage was built and holes for the two pole base were dug. The entire mast was lifted by a CH 47 helicopter and set in place. As soon as the aircraft lowered the mast into the base holes the guys were unwrapped and fastened to the ground anchorage system that was in place. The setting of the mast by the CH 47 took less than one hour.

Observations: The use of air support in the construction effort can greatly reduce time and cost of construction in inaccessible locations. Precise prior planning and having all phases such as guy wires tag lines and anchorage systems all in place is absolutely necessary to make the operation worthwhile and run smoothly.

c. Training: None

d. Intelligence: None

e. Logistics

1. Item: Conveyor Belt Drive on 225 TPH Rock Crusher

Discussion: It was noted during operation that the integral conveyor did not move fast enough to prevent rock from piling up and slowing down the jaws. It was discovered that a right angle drive in the propelling shaft had a reduction assembly that could be switched to increase shaft speed.

Observation: A right angle reduction drive can be switched in the 225 Primary Crusher to increase the speed of the integral belt conveyor.

g. Other: None

Section 2 Part II, Recommendations

None

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EGA-BB-CO

14 May 1968

SUBJECT: Operational Report of 84th Engineer Battalion (Construction)
for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

Ralph T Garver

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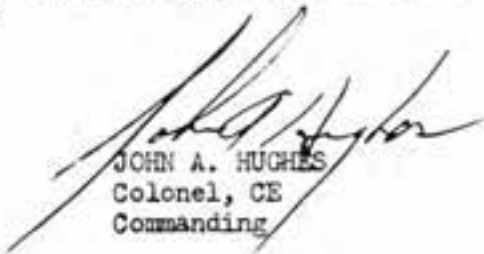
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EGA-3 (30 April 1968) 1st Ind Maj Pierce/dlj/2003
SUBJECT: Operational Report - Lessons Learned (RCS-CSFOR-65)(R-1) for
Quarterly Period ending 30 April 1968.

DA, HQ, 35th Engineer Group, APO 96238, 20 May 1968.

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

The Operational Report - Lessons Learned submitted by the 84th Engineer Battalion (Const) has been reviewed by this headquarters and is considered an excellent summary of the Battalion's operations during the reporting period ending 30 April 1968. This headquarters concurs with the remarks of the Battalion Commander.



JOHN A. HUGHES
Colonel, CE
Commanding

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11 JUN 1968

12

AVBC-C (14 May 1968) 2nd Ind

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the period ending 30 April 1968, RCS CSFOR-65 (R1)

DA, Headquarters, 18th Engineer Brigade, APO 96377

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for the 84th Engineer Battalion (Construction) for the quarterly period ending 30 April 1968. The report is considered an excellent account of the Battalion's activities for the reporting period.

2. This headquarters concurs with the observations and recommendations of the Battalion Commander.

FOR THE COMMANDER:



DOUGLAS K. BLUE
Colonel, CE
Deputy Commander

10

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13
AVHGC-DST (14 May 68) 3d Ind

CPT Arnold/dls/LEN 4485

SUBJECT: Operational Report of 84th Engineer Battalion (Construction)
for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

HEADQUARTERS, US ARMY VIETNAM, APO San Francisco 96375

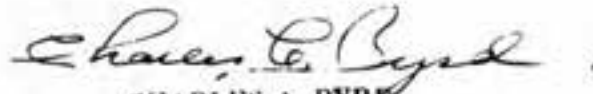
16 JUN 1968

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1968 from Headquarters, 84th Engineer Battalion (Construction).

2. Concur with report as submitted.

FOR THE COMMANDER:



CHARLES A. BYRD
Major, AGC
Assistant Adjutant General

Cy furn:
HQ 18th Engr Bde
HQ 84th Engr Bn (Const)

14
GPOP-DT (14 May 68) 4th Ind

SUBJECT: Operational Report of HQ, 84th Engr Bn (Const) for Period
Ending 30 April 1968, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 19 JUN 1968

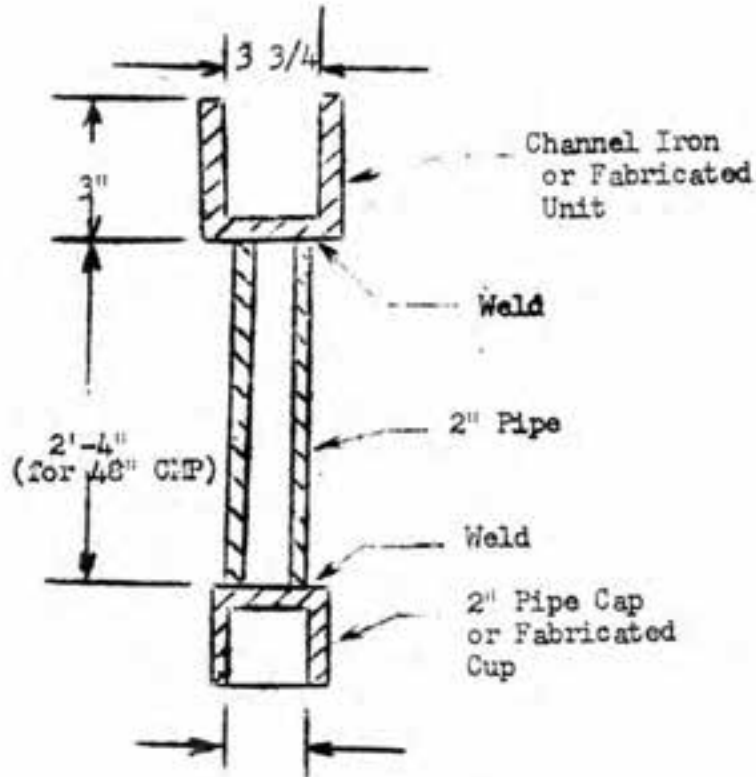
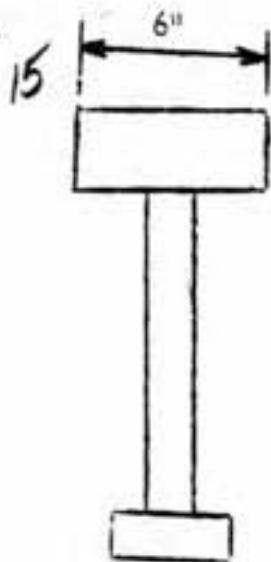
TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding indorse-
ments and concurs in the report as indorsed.

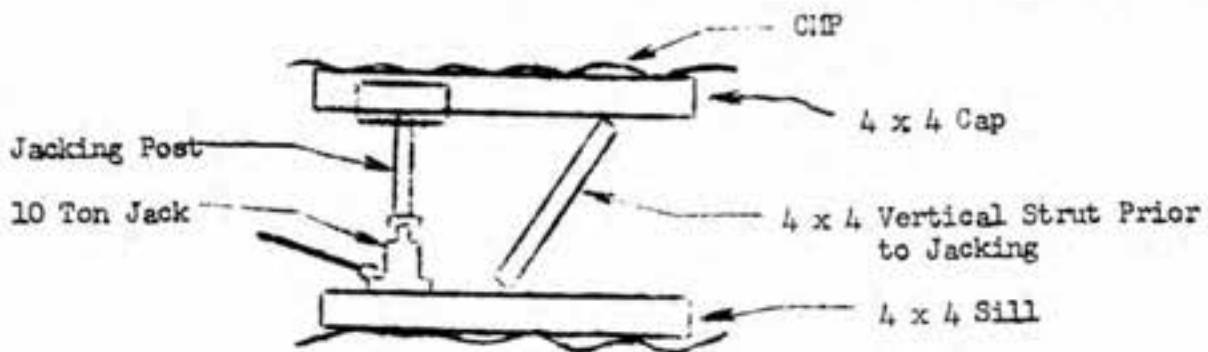
FOR THE COMMANDER IN CHIEF:


K. F. OSBOURN
MAJ. AGC
Asst AG

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NOTE: Inside bearing surfaces for 4 x 4 lumber and jack post must be parallel and both caps must be centered on the post before welding.



INCLOSURE I

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Experiences of unit engaged in counterinsurgency operations. 1 Feb - 30 Apr 1968			
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CO, 84th Engineer Battalion			
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DEPARTMENT OF THE ARMY
HEADQUARTERS, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO 96238

EGA-CRA-00

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
10th 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 (ACSPOR DA)
Washington D.C. 20310

CY FURN:
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EGA-CBA-00

14 August 1968

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, PCS 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
- (d) Company C. 84th Engr Bn
- (e) Company D. 84th Engr Bn

Earthmoving Plt of Company D returned to the control of it's parent unit on 15 July 1968

- (f) 115th Engr Co (BT)
- (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

(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. 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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(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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(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 No 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, insulation 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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BCA-CBA-3

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

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 QLI-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 QLI-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 Soan 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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for the Period Ending 31 July 1968, MOS CSFOR-65 (R1)

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.

f. Force Development: N/A

g. Command Management: 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 undertook a variety of civic action projects during this quarter. The members of this battalion voluntarily contributed 266,000 VMS 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.

5000
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 contours 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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SUBJECT: Operational Report of the 64th Engineer Battalion (Construction)
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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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SUBJECT: Operational Report of the 34th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, RCS CSFOR-65 (P1)

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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SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 July 1968, RCS CSTOR-05 (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

RALPH T. GARVER
LTC, CE
Commanding

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69-11-89-11
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IN REPLY REFER TO

AGAM-P (M) (31 Jan 69) FOR OT UT 684133

5 February 1969

SUBJECT: Operational Report - Lessons Learned, Headquarters, 84th Engineer Battalion (Const), Period Ending 31 October 1968

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Kenneth G. Wickham

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Major General, USA
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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: GPOF-OT
APO 96588

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

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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
- (d) 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 1968

- (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 peneprene 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 (EDE 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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(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 ROK 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 Tanden Switch building on Vung Chun 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 Capital 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 harassment of work crews decreased to a negligible 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 implemented. 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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for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

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

h. Inspector General: N/A

i. Civic Action: The battalion undertook 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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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)

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 inbedding 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 inbedded link of the chain.

OBSERVATION: That inbedding 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 bonding the large #10 rebar.

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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

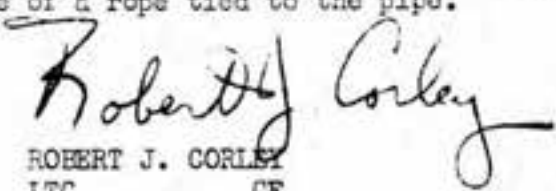
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 October 1968, RCS CSFOR-65 (R1)

F. Other:

1 Item: Laying 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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EGA-3 (14 Nov 68) 1st Ind


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

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

TO: Commanding General, 18th Engineer Brigade, ATTN: AVBC-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.


DELBERT M. FOWLER
Colonel, CE
Commanding

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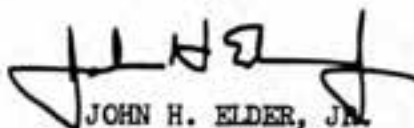
AVBC-CS (31 Oct 68) 2nd Ind

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

DA, Headquarters, 18th Engineer Brigade, APO 96377 **3 DEC 1968**

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

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 84th Engineer Battalion (Construction) as indorsed 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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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

TO: 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.

FOR THE COMMANDER:


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

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

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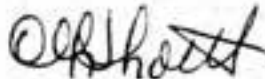
GPOP-DT (14 Nov 68) 4th Ind
SUBJECT: Operational Report of HQ, 84th Engr Bn (Const) for Period
Ending 31 October 1968, RCS CSFOR-65 31)

HQ, US Army, Pacific, APO San Francisco 96558 13 DEC 1968

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding indorsements and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:



C. L. SHORTT
CPT, AGC
Asst AG

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UNCLASSIFIED

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(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO 96233

15 February 1969

EGCC-00

SUBJECT: Operational Report of the 84th Engineer Battalion
(Construction) for the period ending 31 January 1969, RCS
CSFCR-65 (R1)

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

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

Commanding General
United States Army Vietnam
ATTN: AVHCC-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 (ACSPOR-DA)
Washington, D.C. 20310

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EOCC-00

15 February 1969

SUBJECT: Operational Report of the 14th Engineer Battalion (Construction)
for the Period Ending 31 January 1969, RCS GEPOR-65 (R1)

1. Section 1 Significant Organization or Unit Activities:

a. Command

(1) Organization:

(a) Headquarters & Headquarters Company, 84th Engr Bn (Const)

(b) Company A, 84th Engr Bn (Const)

(c) Company B, 84th Engr Bn (Const)

(d) Company C, 84th Engr Bn (Const)

(e) Company D, 84th Engr Bn (Const)

(f) 536th Engr Det (FC)

(g) 2nd Flt, 643rd Engr Co (PL)

(h) Ad Hoc Power Distribution Team

(i) 614th Engr (Power Distribution Team)

Unit departed this command on 13 November 1968.

(j) 35th Engr Bn Land Clearing Team

Unit departed this command on 31 November 1968.

(2) Unit Operations:

(a) Headquarters & Headquarters Company: The utilities section continued to maintain the Camp Williams Cantonment area; this section was augmented with Vietnamese laborers as required. Under the control of HHC, the Ad Hoc Power Distribution Team was primarily utilized on the Cha Rang Valley Power Distribution Project and the Security Lighting of Lane AAF. Neither project has been completed as of this report due to the scope of work and late arrival of materials necessary for completion.

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EGGK-00

15 February 1969

SUBJECT: Operational Report of the 31st Engineer Battalion (Construction)
for the Period Ending 31 January 1969, RGS CSFOR-65 (R1)

(b) Company A had the responsibility for the maintenance and repair of this battalion's ordnance and engineer equipment. This company also operates the Howell Quarry and Crusher Complex, as well as providing the support for LOC maintenance and upgrade. During this reporting period Howell Quarry produced 8,152 CYS of crushed rock, and 84 tons of hot mix asphalt was used for maintenance of QL-1 and QL-19. Company A's hydroseeder was used to stabilize 25.2 acres with grass seed, using 81 lbs of bermuda, 393 lbs of rice, and 1656 lbs of fertilizer.

(c) Company B was predominately involved with the construction of drainage structures and road rehabilitation of QL-1 from Binh Thanh (CG 057014) to Tuy An (CG100692). To facilitate the unit in it's mission, Company B began movement of its base camp to Miami Beach (CG104783) on 20 January 1969.

(d) Company C concentrated its effort on base construction type projects within the Qui Nhon area. It provides such operational support as a prefab yard to build MACV Huts and standard tropical buildings as needed for directed projects. The Autosevocom Facility was finished during this reporting period and work continued on the 440' x 80' Cold Storage Warehouse in Qui Nhon. The 2nd Flt, 643rd Engr Co (FL) receives operational support from Company C/84th as required.

(e) Company D was involved in both LOC and base construction work. It, with Company A, provides maintenance for QL-1 and QL-19. Both A and D companies were the primary elements involved in the building of a by-pass for bridge #302 on QL-1 when it was blown on 24 January 1969. Company C provided what earth moving equipment it had to supplement A & D companies' efforts. The 22nd ARVN Div provided the necessary 5 ton dumps to haul blast rock from RMK's Quarry, located just north of bridge #302; while the 84th hauled the necessary blast rock from Howell Quarry. The joint efforts of the US and ARVN Engineers enabled traffic to pass only thirty six hours after the bridge was blown. Company D is continuing work on the Dial Central Building and the 240 Bed POW Hospital, both located in Phu Tai.

(f) The 536th Engr Det (PC) was principally working on the Ammo Off-Loading Facility and repairing the Barge Quay, both projects are part of Qui Nhon's Harbor system. This unit was also called upon to support the 2nd Flt, 643rd Engr Co (FL) by driving the necessary pilings to support an 8" welded steel pipeline as the pipeline crossed over water on the Qui Nhon Harbor Causeway.

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EGGCCO

15 February 1969

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 January 1969, RCS CSFOR-65 (R1)

(g) The 2nd Plt, 643rd Engr Co (PL) had the sole responsibility for installing an 8" welded steel POL pipeline from the pumping station on Qui Nhon Harbor Causeway to Tank Farm #1. The route that was finally approved meant the burial of this pipeline thru the railroad yard of Qui Nhon and it was at this point Company C added its additional support to accomplish the assigned mission. During this reporting period 15,180 ft of 8" welded line was completed and temporarily hooked into an existing 8" coupled (Invasion type pipe) at the south end of Qui Nhon Airfield to provide a means of pumping POL to Tank Farm #1 while the remainder of the project is completed.

b. Personnel, Administration, Morale, and Discipline: During this reporting period the 84th Engr Bn's participation in the Savings Bond Program averaged 66.6% while soldiers deposits participation averaged 3.1%. There was a total of 27 personnel recommended for awards, and 92 personnel voluntarily extended their foreign service tours. This battalion suffered one casualty and one battle death during this quarter. There were 109 disciplinary cases, 89 article 15's and 20 courts martial.

c. Intelligence and counter intelligence: Enemy activities against LOC's remained light, resulting in one bridge being destroyed by enemy action. The method of this action is significant in that the explosives used on an intermediate support were apparently placed below water line during the previous night and then detonated by a former bridge security guard, using the pretense of fishing during daylight hours while under surveillance of bridge security guards. Enemy harassment of work crews remained light with only two incidents resulting in minor damage to one grader and one wounded (slight) in action. There were no incidents of enemy action against base camps of this Battalion; however, a reaction force of Hq Co responded when sappers penetrated POL Tank Farm #2. This action resulted in moderate damage to the tank farm, four members of the 134th QM Co being wounded in action and the enemy sustaining six killed and one captured (wounded) in action. Mining of LOC's increased slightly with six mines being located by friendly minesweep teams in the B Co area and a seventh resulted in minor damage to a friendly vehicle. One security element of this unit received one grenade while in convoy resulting in one killed in action. Under the threat of an expected enemy winter/spring campaign, good intelligence continued to be maintained by this unit with the Capital ROK Infantry Division, 22nd ARVN Infantry Division, 5th Special Forces, 173rd AB Brigade, Binh Dinh and Phu Yen Province Forces and other combat and support units in the Battalion's AOR.

d. Plans Operations and Training: Weather conditions severely hampered the LOC maintenance and rehabilitation within the 84th Engr Bn's AOR. During this reporting period the effort was concentrated in repair of the damage incurred due to the rains and flooding action. There was only one bridge blown during this period: #302, QL-1, 24 January 1969. At present

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EGCC-CC

15 February 1969

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 January 1969, LOS CSFOR-65 (R1)

there remains only one line company committed to LOC construction (Co B/84th) while two other line companies are committed to base construction and LOC maintenance and repair (Co A/84th & Co D/84th). Training emphasized during this reporting period was the OJT/Cross training of newly assigned personnel as well as the weapons/safety training conducted each Sunday morning for all newly assigned personnel.

e. Logistics: During the past quarter, the S-4 gave logistical support to the five organic companies of the 84th Engineer Battalion (Const) and also its attached units; the 536th Engineer Detachment (PC) and the 2nd Platoon of the 643rd Engineer Co (PL). The areas of logistical support included:

- (1) Class A rations for some 1000 personnel each day, procured and distributed by the ration breakdown facility.
- (2) Two (2) water points which together produce approximately 40,000 gallons of potable water each day.
- (3) FOL delivery to all organic and attached units amounting to 37,000 gallons of Mogas and 42,000 gallons of Diesel Fuel per month.
- (4) Supply of Class IV Construction Materials to all units for MCA funded projects. An average of 350 requisitions for construction materials are processed each week by the BCM section of the S-4.
- (5) Supply of Class II TCE Equipment, where an average of 150 requisitions for expendable and non-expendable equipment and supplies are processed by the property book section each week. The quarter showed an influx of 30 new pieces of TCE equipment.
- (6) Resupply of unit basic loads and demolitions through the Phu Tai ASF. An average of 10,000 lbs of TNT are used each month for quarry operations.

f. Force Development: N/A

g. Command Management: N/A

h. Inspector General: The Annual General Inspection of the 84th Engr Bn (Const) was conducted during the period 18-22 November 1968. The 84th Engr Bn (Const) received a satisfactory rating (based on a satisfactory - unsatisfactory rating scale). All personnel contacted were found to be professionally competent and enthusiastic in the performance of assigned duties. The overall appearance of areas, the condition of facilities and equipment, except as otherwise noted, and the positive attitude exhibited by all personnel were indicative of a high degree of professionalism and dedication. The 84th Engr Bn (Const) was reinspected in all areas wherein deficiencies were noted for each of the companies and it was verified that the necessary corrective action was accomplished.

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EGCC-00

15 February 1969

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction)
for the Period Ending 31 January 1969, POC CSFOR-65 (R1)

1. Civic Action: During this reporting period, the 84th Engr Bn (Const) distributed \$VN 346,000 between the Phuoc Thien Orphanage in An Khe and the Kim Chau Orphanage in Binh Dinh. This money was used to hire teachers, maintain water heaters and generators, and for further use at the orphanages directors discretion. The \$VN 346,000 was donated by the personnel of the 84th Engr Bn (Const). \$VN 90,000 was obtained from the 18th Engr Bde Civic Action Fund (\$VN 84,000) and the Qui Nhon Support Command Chaplain's Fund (\$VN 6,000) for further distribution by the 84th Engr Bn (Const) Civil Affairs Section. During this period the 84th also sponsored a Christmas Party for the Save the Children Hospital located in Qui Nhon; where a large amount of toys and clothing were distributed. As part of the daily civic action program within the 84th the following survey materials were distributed to various orphanages, schools, and refugee centers in the Qui Nhon area: 150 broken bags of cement, 50 sheets of roofing, 3500 BF of lumber, and 180 CYS of 3"(-).

2. Section 2, Observations (Lessons Learned)

a. Personnel: None

b. Operations:

(1) Item: Limited use of Intrenching Machine for laying of POL pipeline.

(a) OBSERVATION: Considerable maintenance down time was experienced when an intrenching machine was used under various types of soil conditions.

(b) EVALUATION: It was found that the intrenching machine was unable to handle the blast rock and 3"(-) used to stabilize sandy areas. The intrenching machine would become overloaded and in many cases critical parts were stressed to their breaking point. It was also noted that in an area composed entirely of sand the trench would cave in so quickly that it endangered the stability of the intrenching machine and the trench had to be re-dug by hand.

(c) RECOMMENDATION: The use of a commercial type backhoe would all but replace the intrenching machine for burial of a pipeline. This unit was unable to secure any of the four (4) commercial type backhoes in Vietnam; therefore a D7A was used to trench in sandy areas and a grader employed on the stabilized areas. There was a great deal of hand digging required where the aforementioned equipment did not have room to operate, a backhoe in these areas would have resulted in a great saving in man-hours as well as total time required to complete that portion of the project.

(2) Item: Laying of POL pipeline in secure and insecure areas.

(a) OBSERVATION: When welding sections of 8" steel pipe together it was observed upon final testing of the system that foreign material had been intentionally placed inside the line.

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