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AUTHORITY

OAG, D/A ltr, 29 Apr 1980

DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGDA (M) (30 Sep 70) FOR OT UT 702221 5 October 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 159th Engineer Group, Period Ending 30 April 1970

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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:

Kenneth G. Wickham

KENNETH G. WICKHAM
Major General, USA
The Adjutant General

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 159TH ENGINEER GROUP
APO 96491

EGB-CO 14 May 1970

SUBJECT: Operational Report-Lessons Learned (Headquarters, 159th Engineer Group) Period Ending 30 April 1970, RCS CSFOR-65(R2)

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SECTION I, Operations: Significant Activities

1. COMMAND:

a. Organization:

This report covers the activities of the 159th Engineer Group from 1 February 1970 to 30 April 1970. The Group was commanded by COL Joseph K. Bratton, 472-24-0434, for the entire reporting period. Subordinate units to the 159th Engineer Group are listed below with the arrival and operational dates in this command:

UNIT	ARRIVAL	OPERATIONAL
HHC, 159th Engineer Group	30 October 1965	30 October 1965
34th Engineer Battalion	16 December 1968	16 December 1968
46th Engineer Battalion	25 September 1965	4 October 1965
92nd Engineer Battalion	20 January 1967	30 January 1967
169th Engineer Battalion	30 May 1966	10 June 1966
41st Engineer Company (PC)	1 February 1967	13 February 1967
43rd Engineer Company (DT)	12 September 1966	25 September 1966
163rd Engineer Company (CS)	5 February 1966	5 February 1966
544th Engineer Company (CS)	14 November 1969	1 December 1969
515th Asphalt Platoon	1 November 1969	14 November 1969
22nd Engineer Detachment (WD)	1 November 1967	20 May 1968
38th Engineer Detachment (WD)	1 August 1968	1 August 1968
143rd Engineer Detachment (CMP)	16 May 1967	1 June 1968
156th Engineer Detachment (WD)	1 August 1968	1 August 1968
551st Engineer Detachment (WD)	21 January 1968	21 January 1968
714th Engineer Detachment (PWR)	1 January 1970	1 January 1970
917th Engineer Detachment (WD)	1 August 1968	1 August 1968

b. Mission: The mission of the 159th Engineer Group is to accomplish engineer construction as directed, to provide combat support as required, and to defend approximately three miles of the Long Binh Post perimeter.

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c. AOR: The 159th Engineer Group AOR includes the main political and tactical districts of Saigon, Bien Hoa, Long Binh, Bearcat, Vung Tau, Long Thanh, Xuan Loc, Blackhorse, Phu Loi and all major lines of communication within its borders. The AOR is defined as being all that area bounded by the South China Sea and the following trace from the Song Nha Be (XS 9276) west along the Gia Dinh Province border to the Kinh Xang canal (XS 6982) then north to the Gia Dinh Province border intersection with QL-1 (XT 7107) and west to the Song Saigon (XT 6108). from there along the Song Saigon and Song Thi Tinh north to XT 7723, west to QL-13 (XT 7823) and north along QL-13 to Ben Cat (XT 7433). The trace follows small stream beds northwest of Ben Cat to LTL-1A (XT 9244), then west and south along the Song Be and Song Dong Nai to the Long Khanh Province border to the coast (YS 7489).

d. Assignment: The 159th Engineer Group has been assigned to the 20th Engineer Brigade since 5 August 1967. Prior to 5 August 1967, the 159th Engineer Group was assigned directly to the U.S. Army Engineer Command Vietnam (Provisional), USAECAV(P). The Group headquarters is located at Long Binh, RVN.

e Movements, Attachments and Detachments: The Group and battalion headquarters remain unchanged during the reporting period. A number of company and platoon sized moves were made in support of the FY 70 LOC program.

Elements of D and C Companies, 34th Engineer Battalion moved from FSB Attleboro on 28 March 1970 to Phuoc Vinh to support LOC restoration of TL2A/LTL1A.

On 16 February 1970, an earth moving platoon from the 517th Engineer Company LE, 34th Engineer Group, was detached from the 92nd Engineer Battalion and attached to the 169th Engineer Battalion in support of LOC restoration on QL-20

On 12 March 1970, the 22nd, 30th, 156th, 551st, and 917th Engineer Detachment (WD) were detached from the 169th Engineer Battalion and attached to the 92nd Engineer Battalion.

f Visitors and Awards:

(1) The following visitors were given briefings and/or tours in the 159th Engineer Group during the reporting period.

7 Feb 70	LTC Tue, CO, 5th ARVN Group
9 Feb 70	BG Dillard, CG, Engr Troops, VN
16 Feb 70	COL Denz, CO, 79th Engr Group
18 Feb 70	COL O'Donnell, CO, 20th Engr Bde
18-19 Feb 70	MAJ Whitehead, Liaison Officer, Office of Chief of Engineers

EGB-CO
SUBJECT: Operational Report-Lessons Learned (Headquarters, 159th Engineer Group) Period Ending 30 April 1970, RCS CSFOR-65(R2)

20 Feb 70	COL O'Donnell, CO, 20th Engr Bde
23 Feb 70	BG Dillard, CG, Engr Troops, VN
24 Feb 70	BG Dillard, CG, Engr Troops, VN
25 Feb 70	BG Morris, CG, 18th Engr Bde
4 Mar 70	COL O'Donnell, CO, 20th Engr Bde
9 Mar 70	COL O'Donnell, CO, 20th Engr Bde
10 Mar 70	BG Yates, Div of Construction, MACV
	BG Tarbox, DCG, USAECV
	LTC Ko, Chief, Engr Section, HQ, ROKFV
12 Mar 70	BG Dillard, CG, Engr Troops, VN
	COL Fuller, DC, 20th Engr Bde
17 Mar 70	COL Nghia, III CTZ ARVN Engineer
18 Mar 70	COL O'Donnell, CO, 20th Engr Bde
20 Mar 70	BG Dillard, CG, Engr Troops, VN
	COL O'Donnell, CO, 20th Engr Bde
23 Mar 70	COL O'Donnell, CO, 20th Engr Bde
	LTC Ko, Chief, Engr Section, HQ, ROKFV
24 Mar 70	COL O'Donnell, CO, 20th Engr Bde
26 Mar 70	COL O'Donnell, CO, 20th Engr Bde
2 Apr 70	COL O'Donnell, CO, 20th Engr Bde
4 Apr 70	COL O'Donnell, CO, 20th Engr Bde
5 Apr 70	MG Dillard, CG, Engr Troops, VN
13 Apr 70	COL Fuller, DC, 20th Engr Bde
	LTC Lai, ROKFV
14 Apr 70	LTG Mildren, DCG, USARV

26 Apr 70	COL O'Donnell, CO, 20th Engr Bde
30 Apr 70	BG Schroeder, CG, 18th Engr Bde

(2) Awards: The following awards were presented during this reporting period:

(a)	Army Commendation Medal-Svc	814
(b)	Army Commendation Medal-Ach	23
(c)	Bronze Star Medal-Service	163
(d)	Bronze Star Medal-Ach	9
(e)	Purple Heart	6
(f)	Air Medal	2
(g)	Legion of Merit	0
	TOTAL AWARDS RECEIVED:	1017

2. PERSONNEL, MORALE AND DISCIPLINE:

a. Personnel:

(1) The consolidated strength figures for the reporting period are as follows:

(a) As of 28 Feb 70

	OFF	WO	EM	TOTAL
AUTH	170	40	3747	3957
ASG	167	43	3548	3758

(b) As of 31 Mar 70

AUTH	170	40	3747	3957
ASG	166	40	3522	3728

(c) As of 30 Apr 70

AUTH	170	40	3747	3957
ASG	171	38	3746	3955

(2) There continued to be a critical shortage of E-6, squad leaders throughout the Group.

b. Morale:

(1) The morale remained high throughout the 159th Engineer Group during the reporting period.

(2) There were 135 men who voluntarily extended their tour of duty for 6 months or longer. There were 167 men who extended their tours of duty for less than 6 months.

(3) Reenlistment dropped slightly during the past reporting period with 22 first term and AUS personnel reenlisting. The cumulative USARV objective was 54, for a Group 40 percent reenlistment rate.

c. Discipline:

(1) There were only 13 special courts-martial, 2 summary courts, and 316 Article 15's administered during this period.

(2) There was a sharp decline in special courts-martial during this period.

d. Casualties:

(1) The 159th Engineer Group suffered the following casualties during the reporting period:

KIA: 1 WIA: 16 NHD: 1

(2) It should be noted that all WIA's and KIA's were the result of 5 mine incidents in which there was not direct contact with enemy forces.

3. INTELLIGENCE:

a. During the period 1 Feb 70 to 30 Apr 70 the 159th Engineer Group continued its program of daily intelligence briefings and the dissemination of all available tactical and technical intelligence to subordinate units. Liaison visits are made daily to HQ, LBP and other available intelligence agencies of the FWMAF to insure that all intelligence information is made available to the Group and subordinate units.

b. The 159th Engineer Group remains responsible for the defense of one of the four defensive sectors of Long Binh Post. Due to a shift of personnel in early April the sector was reduced. The sector of responsibility lies on the southern perimeter of Long Binh Post and now consists of 31 primary bunkers, two 60' observation towers and two critical installations.

c. Continual improvements have been made to the 159th Engineer Group sector. Some of the main improvements are summarized below:

(1) Installation of ground surveillance radar.

(2) Continued construction of the defensive berm and prepared blocking positions.

d. The 159th Engineer Group sector has continued its program of tri-weekly patrols outside the perimeter. Results of patrol for this reporting period are:

(1) One AK-47 with ammo turned in by local national.

(2) One 50 Cal MG barrel located.

(3) Enemy defensive position with sleeping area including sleeping platforms with mats located; position was destroyed.

e. The 159th Engineer Group sector has continued its training program for forward observers and crater-analysis teams.

f. There has been no significant enemy action directed at 159th Engineer Group operations or at the defensive sector. Enemy activity was confined to mines, booby traps, occasional sniper fire and indirect attacks by fire which resulted in minor damage/casualties.

4. OPERATIONS, PLANS, AND TRAINING

a. The following projects were completed by the 159th Engineer Group during the reporting period.

(1) Combat/Operational Support

(a) 112-5493-0-20, Bridge Boat Support, 79th Engr Gp, 41st Engr Co, 92nd Engineer Battalion: Two 27' bridge erection boats were used to support the 79th Bridge Provisional Company to assist in the construction of the Go Day Ha Bridge. Project completed 10 April 1970.

(b) 112-5494-0-20, Equipment Support, 79th Engr Gp, B Co, 92nd Engineer Battalion: One 20 ton crane and one 250 CFM air compressor were provided to the 79th Engineer Group. Project completed 1 April 1970.

(c) 143-5503-0-20, Dozer Support 2/35th Artillery, C Co, 46th Engineer Battalion: This unit constructed 750 meters of berm for 2/35th Artillery, "B" Battery, dug in fifteen (15) ammo pits, six (6) 155 howitzers, three (3) 105 howitzers and two (2) 175 howitzers. Project completed 22 April 1970.

(d) 189-5465-0-20, Dozer Support, D Co, 169th Engineer Battalion: Constructed berms and gun pits FSB Dan, project completed 3 March 1970.

(e) 189-5476-0-20, Dozer Support, South of Tanh Linh, B Co, 46th Engineer Battalion: Pushed up protective berm for compound. Dug in four guns and four 548 carriers and several ammo trenches. Project completed 14 March 1970.

(f) 189-5485-0-20, Construction of Heavy Gun Pads, FSB Dan, C Co, 169th Engineer Battalion: Constructed two (2) each heavy gun pads and excavated for an underground FDC at FSB Dan. Project completed 31 March 1970.

(g) 189-5488-0-20, Dozer Support FSB Mace, C Co, 46th Engineer Battalion: This unit constructed 1,500 meters of berm for two (2) Fire Support Bases for 2/35th Artillery, "A" Battery. Also dug in three (3) command posts, seven (7) ammo pits and built six (6) berms around 155 howitzers. Project completed 11 April 1970.

(h) 189-5489-0-20, Dozer Support Rising Sun, C Co, 46th Engineer Battalion: This unit constructed 700 meters of berm around FSB Rising Sun for 2/35th Artillery, "A" Battery. Also dug in one (1) command post and seven (7) ammo pits, plus six (6) 155 howitzers. Project completed 3 April 1970.

(i) During this Quarter, The Carpenter Shop, HHC, 46th Engineer Battalion, 543-5302-0-20, prefabricated the following items in accordance with operational support directives:

1 11 Begonia, 4-man, Fighting Bunkers, 9'8" x 10'

2 37 Daisy, 24-Man Personnel Mortar Bunkers, 7' x 24'

3 18 Rose, 12-Man, Reaction Bunkers, 28' x 20'

4 10 Columbine, 4-Man, Fighting Bunkers, 10' x 10'

(j) 207-6048-0-20, ASP Berm Construction, Bien Hoa, B Co, 92nd Engineer Battalion: A total of 1550 linear feet of twelve foot high berms and blast wall were constructed to provide five ammo storage areas. Berms were peneprimed to control erosion. Project completed 10 April 1970.

(k) 207-6130-0-20, Minesweep Support, Bien Hoa Army Base, D Co, 46th Engineer Battalion: The project consists of the clearing of a unrecorded mine field utilizing TOE mine detection equipment. The project was delayed due to the discovery of plastic mines. An armored plated dozer was used to complete the task. Project completed 28 April 1970.

(l) 207-6131-0-20, Engineer Support, Headquarters, Headquarters Company, 20th Engr Bde, D Co, 92nd Engineer Battalion: Provide one dozer, one lowboy, and one 5-ton dump with 80 pc 36" culverts. Project completed 6 February 1970.

(m) 207-6141-0-20, Peneprime Bien Hoa Airfield, B Co, 92nd Engineer Battalion: A 100 foot by 500 foot area was peneprimed at Bien Hoa Air Base. Project completed 8 March 1970.

(n) 207-6164-0-20, Repair POL Jetty, 1st LOG, 41st Engr Co, 92nd Engineer Battalion: Repaired POL jetty by installing a new anchorage system. Project completed 25 February 1970.

(o) 207-6167-0-20, Defensive Positions Technical Assistance, Bien Hoa Army Base, 92nd Engineer Battalion: 150 bunker positions were inspected and recommendations were made. Project completed 4 March 1970.

(p) 207-6168-0-20, Equipment Support, Bien Hoa, B Co, 92nd Engineer Battalion: Fields of fire were cleared on the Bien Hoa perimeter. Project completed 6 April 1970.

(q) 243-5898-0-20, Perimeter Berm Upgrade, Long Binh, 92nd Engineer Battalion: Design and install drainage structures to include headwalls, culverts, and trash racks for ten (10) existing gaps in berm, also install one (1) culvert through the existing berm between bunkers 356 and 358 and one culvert under the perimeter road between these same bunkers. Project terminated 28 March 1970.

(r) 243-6080-0-20, Ridgeline Clearing, Long Binh, 41st Engr Co, 92nd Engineer Battalion: 200 meters of brush was cleared beyond the perimeter from bunker 460 to bunker 466. Project completed 1 February 1970.

(s) 243-6081-0-20, Technical Assistance USAICC, 92nd Engineer Battalion: Project cancelled 7 April 1970.

(t) 246-6102-0-20, Radar Tower, Fire Support Base Exodus, 92nd Engineer Battalion: Project cancelled 6 March 1970.

(u) 243-6113-0-20, Technical Assistance, Dong Nai POL Jetty, 92nd Engineer Battalion: Provide technical assistance and fence wire installation equipment only to the 64th QM Bn to erect a chain link fence around POL pumping station. Project terminated 21 March 1970.

(v) 243-6128-0-20, Equipment Support, A Co, 92nd Engineer Battalion: Two lowboys were provided to the 79th Engineer Group. Project completed 4 February 1970.

(w) 243-6128-0-20, Equipment Support, 79th Engr Group, A Co, 169th Engineer Battalion: Provided two 25 ton trailers with tractors. Project completed 6 February 1970.

(x) 207-6174-0-20, Construction of Ammo Storage Bunkers, Bien Hoa, B Co 92nd Engineer Battalion: Protective berms were constructed around four ammo bunkers and two 20 foot by 20 foot holes were filled with laterite. Project completed 1 April 1970.

(y) 207-6183-0-20, Blast Rock Support, A Co, 92nd Engineer Battalion: Three loads of blast rock were dumped into a ditchline 100 meters south of Bien Hoa Army Base. Project completed 2 March 1970.

(z) 207-6217-0-20, Install Poles, 20th Engineer Brigade, B Co, 92nd Engineer Battalion: Four each 40 foot telephone poles were installed at Headquarters, 20th Engineer Brigade; two poles to serve as banner supports and two as lighting poles for volleyball court. Project completed 19 April 1970.

(aa) 212-5829-0-20, Maintenance MSR Zinc, 1st Infantry Division, B, C, and D Co, 34th Engineer Battalion: Maintained MSR Zinc from Ben Cat to Phuoc Vinh. Project completed 15 April 1970.

(bb) 212-6041-0-20, Rock Issue to 65th Engineer Battalion, C Co 92nd Engineer Battalion: 350 cubic yards blast rock issued to 65th Engineer Battalion. Project terminated 9 February 1970.

(cc) 212-6179-0-20, Asphalt Kettle Loan, 92nd Engineer Battalion: Support CO, 79th Engr Gp by providing a 165 gallon asphalt kettle at Song Be Airfield for a period of 30 days. Project cancelled 2 April 1970.

(dd) 212-6197-0-20, Diver Support, 79th Engineer Group, 41st Engr Co, 92nd Engineer Battalion: The condition of damaged bridge piers was checked by divers in the vicinity of Go Dau Ha. Project completed 14 March 1970.

(ee) 217-6180-0-20, Operational Support, Lai Thieu, B Co, 92nd Engineer Battalion: Two ammo storage pits were dozed and 300 meters of berm was raised by 18 inches. The center area on 1 range was also lowered. Project completed 17 March 1970.

(ff) 243-5839-0-20, Equipment Support, IIFFV, B Co, 92nd Engineer Battalion: 150 cubic yards of laterite was hauled to HQ, HQ Company, IIFFV. Project completed 24 February 1970.

(gg) 243-5873-0-20, Perimeter Upgrade, Long Binh Post (Exterior), B Co, 92nd Engineer Battalion: Cleared approximately 400 acres of brush to improve fields of fire on Long Binh Post exterior. Project completed 7 March 1970.

(hh) 243-5884-0-20, Long Binh Major Relay Revetments, B Co, 92nd Engineer Battalion: The Long Binh Major Relay Facility was reveted using 500 linear feet of 10 foot high M8A1 soil bin revetment. Security wire was placed on top of the revetments and a 30 foot chain link fence was erected. To provide personnel and equipment access, five entrance gates were constructed. Project completed 1 April 1970.

(ii) 243-6148-0-20, Equipment Support, 79th Engineer Group, D Co, 92nd Engineer Battalion: Provided two each lowboys to the 62nd Engineer Battalion which is part of the 79th Group. Project completed 16 February 1970.

(jj) 243-6170-0-20, Interior Land Clearing, Long Binh Post, B Co, 92nd Engineer Battalion: Cleared approximately 60 acres of land behind General Officers Quarters, Long Binh. Project completed 3 March 1970.

(kk) 243-6196-0-20, Erection of MPPAS, Plantation, B Co, 92nd Engineer Battalion: One multiplate pipe arc shelter was erected for use as a Tactical Operations Center. Project completed 23 March 1970.

(ll) 243-6201-0-20, Equipment Support, 79th Engineer Group, A Co, 92nd Engineer Battalion: Three ten-ton tractors were provided to the 62nd Engineer Battalion for use in an equipment move. Project completed 17 March 1970.

(mm) 243-6204-0-20, Lowboy Support, 62nd Engineer Battalion, A Co, 92nd Engineer Battalion: Two lowboys were furnished to the 62nd Engineer Battalion in an equipment move. Project completed 16 March 1970.

(nn) 243-6213-0-20, Equipment Support, 79th Engineer Group, A Co, 169th Engineer Battalion: Provided two 25 ton trailers with 10 ton tractors. Project completed 25 March 1970.

(oo) 243-6213-0-20, Lowboy Support, 62nd Engineer Battalion, A Co, 92nd Engineer Battalion: One ten-ton tractor with trailer was provided to the 62nd Engineer Battalion to help in an equipment move. Project completed 25 March 1970.

(pp) 243-6221-0-20, Land Clearing, Long Thanh District, B Co, 92nd Engineer Battalion: Approximately 120 acres of brush and vegetation was cleared in the vicinity of Long Thanh. Project completed 6 April 1970.

(qq) 243-8303-0-20, Support of IIFFV, A Co, 46th Engineer Battalion: Supplied IIFFV with an entrenching machine and operator which dug approximately 225-250 meters. Project completed 15 March 1970.

(rr) 245-6086-0-20, Signal Site Revetments, Tan Son Nhut B Co, 92nd Engineer Battalion: Constructed a 43 foot by 36 foot hardstand area by using M8A1 matting. Also 176 feet of 6 foot high pre-cast concrete revetments were emplaced. Project completed 3 March 1970.

(ss) 246-5958-0-20, Secondary Power, Long Thanh, 714th Power Line Detachment, D Co 46th Engineer Battalion: The project consisted of the installation of an exterior electrical distribution system of transformers, junction boxes, wiring and the extension of primary and secondary power systems at Long Thanh. Project completed 7 March 1970.

(tt) 246-6132-0-20, Mine Sweep, QL-15, B Co, 92nd Engineer Battalion: Cleared a 10 meter by 300 meter strip on each side of QL-15 in the vicinity of coordinates YS 215817. Project completed 25 February 1970.

(uu) 246-6134-0-20, POL Berm Construction, B Co, 92nd Engineer Battalion: Three 40 foot by 40 foot by 4 foot high POL retaining berms were constructed at Camp Martin Cox. Project completed 18 February 1970.

(vv) 246-6147-0-20, Equipment Support, RTVAF, 41st Engr Co (PC), 92nd Engineer Battalion: One dozer was provided to construct a fire support base near Dinh Son in the vicinity of coordinates YS 282933. Project completed 24 February 1970.

(ww) 246-6166-0-20, Equipment Support, B Co, 92nd Engineer Battalion: Provided 3 dump trucks, 1 D-7 dozer, 1 front loader, and 1 sheepsfoot roller with 1 NCOIC to prepare an access ramp at Bearcat. Also provided a six-man escort for 3-1500 KW generators to Tan Son Nhut. Project completed 26 February 1970.

(xx) 273-5962-0-20, Driver Support, Nha Bai, 92nd Engineer Battalion: Provide driver support 14 miles south of Nha Bai, YS 023445. Project terminated 21 March 1970.

(yy) 273-6044-0-20, Clear Suspected Minefield, 92nd Engineer Battalion: Clear suspected minefield area approximately 40' x 300' at MACV annex Tan Son Nhut. Project cancelled 3 February 1970.

(zz) 273-6150-0-20, Engineer Support to USAID, D Co, 92nd Engineer Battalion: One mine sweep team was provided to assist in steel recovery in the vicinity of coordinates XS 825929. The team came up with negative results. Project completed 21 March 1970.

(aaa) 275-6105-0-20, Rock Issue to 79th Engineer Group, 92nd Engineer Battalion: Issue rock to 79th Group. Project cancelled 28 February 1970.

(bbb) 275-6265-0-20, Bridge Boat Support, 79th Engineer Group, 41st Engr Co (PC), 92nd Engineer Battalion: Provided one 27' bridge erection boat for three days to the 79th Engineer Group. Project completed 27 April 1970.

(ccc) 275-6265-0-20, Equipment Support, 79th Engineer Group, A Co, 169th Engineer Battalion: Provided one 20 ton crane. Project completed 28 April 1970.

(ddd) 289-6078-0-20, Living Fighting Bunkers 544th Engr Co (CS), C Co, 169th Engineer Battalion: Ten (10) each 20' x 40' and one (1) each 40' x 40' command bunkers were constructed. Project completed 4 February 1970.

(eee) 289-6125-0-20, Perimeter Maintenance LSB Attleboro, C and D Co, 34th Engineer Battalion: Maintained defensive wire bunkers at fire support base Attleboro. Project completed 1 April 1970.

(fff) 289-6157-0-20, Dozer Support, B Co, 46th Engineer Battalion: Dug 24 holes in search for articles for LBP-CID. Each hole was approximately 20' by 20' by 10' deep. Project completed 28 February 1970.

(ggg) 290-6062-0-20, Operational Support for Aviation Units, B Co, 92nd Engineer Battalion: Subject project has classified scope. Project completed 7 March 1970

(hhh) 290-6063-0-20, Operational Support for Aviation Maint Units, 1st Cavalry Division (AM), B Co, 34th Engineer Battalion: Relocated six buildings, built aircraft revetments and built maintenance hardstands. Project completed 28 February 1970.

(iii) 291-5559-0-20, Bridge Security Maintenance, Dong Nai PPS, 41st Engr Co (PC), 92nd Engineer Battalion: Repairs were made on the existing pier protective system. Eight fender systems were then constructed to protect the pier protective system from river traffic. Project completed 24 March 1970.

(jjj) 291-6184-0-20, Lowboy Support, 79th Engr Group, A Co, 92nd Engineer Battalion: Two 10 ton tractors with trailers and one 10 ton bobtail were provided to assist the 62nd Engineer Battalion in an equipment move. Project completed 8 March 1970.

(kkk) 291-6224-0-20, Equipment Support, 79th Engr Group, A Co, 92nd Engineer Battalion: Three 10 ton tractors with trailers were provided to the 79th Engineer Group to assist in an equipment move. Project completed 5 April 1970.

(lll) 291-6224-0-20, Equipment Support, 79th Engineer Group, A Co 169th Engineer Battalion: Provided one 25 ton trailer with 10 ton tractor. Project completed 6 April 1970.

(mmm) 291-6224-0-20, Support of 79th Engineer Group, A Co, 46th Engineer Battalion: This unit supplied the 79th with a 10 ton tractor and 25 ton lowbed for the purpose of hauling. Project completed 5 April 1970.

(nnn) 291-6232-0-20, Equipment Support, 79th Engineer Group, A Co 169th Engineer Battalion: Provided one 25 ton trailer with 10 ton tractor. Project completed 6 April 1970.

(ooo) 291-6233-0-20, Equipment Support, 62nd Engr Bn, A Co, 92nd Engineer Battalion: Three 10 ton tractors with trailers were provided to the 62nd Engineer Battalion to assist them in an equipment move. Project completed 5 April 1970.

(ppp) 291-6256-0-20, Support of 62nd Engineers, A Co, 46th Engineer Battalion. This unit supported the 62nd with a 10 ton tractor and 25 ton lowbed for hauling purposes. Project completed 25 April 1970.

(qqq) 291-6256-0-20, Lowboy Support, 79th Engr Group, A Co, 92nd Engineer Battalion: One 10 ton tractor with trailer was provided to support the 79th Engineer Group. Project completed 24 April 1970.

(rrr) 291-5968-0-20, Tactical Roads, IIFFV, D Co, 34th Engineer Battalion: Upgraded 9.25 km of road to class 12 standard. Project completed 15 February 1970.

(2) Minimum Essential Requirements

(a) 253-6226-0-20, MER for 79th Engineer Group AOR, Carpenter Shop HHC, 46th Engineer Battalion: Prefabricated 4 each 6-head showers and 8 each 4-hole latrines. Project completed 28 April 1970.

(b) 290-6227-0-20, MER for 34th Engineer Battalion, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated 5 each 6-head showers and 10 each 4-hole latrines. Project completed 24 April 1970.

(c) 340-5329-0-20, MER for 1st Cavalry Division, Carpenter Shop HHC, 46th Engineer Battalion: Prefabricated 2 each 4-head showers and 3 each 4-hole latrines. Project completed 29 April 1970.

(d) 343-5319-0-20, MER for 39th Signal Battalion, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated one each 6-head shower and one each 4-hole latrine. Project completed 12 April 1970.

(e) 346-5301-0-20, Revetment Support, C Co, 46th Engineer Battalion: The project consisted of the precasting of fourteen reinforced concrete 9' x 7' revetments with three concrete footers per revetment. The revetments were used for protection of CH-47 Helicopters. Project completed 27 April 1970.

(f) 346-5302-0-20, MER for 2nd Signal Group, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated one each 6-head shower. Project completed 30 April 1970.

(g) 346-5303-0-20, MER for 73rd AVN Company, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated five each 4-hole latrines. Project completed 30 April 1970.

(h) 346-5304-0-20, MER for 54th AVN Company, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated one each 6-head shower, and two each 4-hole latrines. Project completed 30 April 1970.

(i) 346-5306-0-20, MER for 223th Battalion ASH, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated two each 4-hole latrines. Project completed 25 April 1970.

(j) 353-5323-0-20, MER for 79th Group AOR, Carpenter Shop, HHC 46th Engineer Battalion: Prefabricated eight each 4-hole latrines, six each 6-head showers, six each water towers. Project completed 30 April 1970.

(k) 359-5313-1-20, MER for 79th Group AOR, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated one each 4-head shower, one each 4-hole latrine, and one each water tower. Project completed 22 April 1970.

(l) 389-5302-0-20, MER for C Co, 46th Engineer Battalion: This project consisted of building burnout latrines, field showers and interior roads for a base camp at Gia Ray. Project completed 30 March 1970.

(m) 389-5303-0-20, MER for B Co, 46th Engineer Battalion: Expanded mess hall by extending one entire side. Installed new showers for the enlisted personnel. Built new guard house at front gate. Project completed 30 March 1970.

(n) 389-5304-0-20, MER for FSB Nancy, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated one each 4-hole latrine and one each 4-head shower. Project completed 3 March 1970.

(o) 389-5304-0-20, 2nd Battalion 35th Artillery, D Co, 169th Engineer Battalion: One (1) each four-hole latrine, one each 4-head shower, and 216 SF 12 x 18 mess hall slab were constructed. Project completed 11 March 1970.

(p) 391-5210-0-20, MER for 335th AHC, Carpenter Shop, HHC, 46th Engineer Battalion: Prefabricated one each 6-head shower. Project completed 4 February 1970.

(q) 391-5311-0-20, MER for 79th Group AOR, Carpenter Shop, HHC, 46th Engineer Battalion: During this quarter the following items were prefabricated:

1 One each 2-hole latrine

2 Twenty-two each 4-hole latrines

3 Three each 6-hole latrines

4 One each 2-head showers

5 Twelve each 6-head showers

6 Two each 8-head showers

7 One each water tower

(r) 391-5313-0-20, MER for 79th Group AOR, Carpenter Shop, HHC, 46th Engineer Battalion: During this quarter, the following items were prefabricated:

1 Three each 4-hole latrines

2 Two each 6-head showers

(3) Lines of Communications

(a) 407-5304-0-20, Additional Cantonment Facilities, 103rd Engr Co (CS), Resor Quarry, D Co, 46th Engineer Battalion: The project consisted of providing technical assistance and construction materials for the the erection of two SEA huts, one water tower and a generator shed. In addition, all the interior electrical distribution for the SEA huts was completed by this unit. Project completed 4 February 1970.

(b) 417-5302-0-20, Installation of Crusher, C Co, 92nd Engineer Battalion: One cone crusher and ancillary facility were installed at Black Diamond Industrial Site. Project completed 23 March 1970.

(c) 443-8302-0-20, Move Trestle Grease Rack, D Co, 169th Engineer Battalion: Relocated trestle grease rack from LOC area to 43rd Engineer Company motor pool. Project completed 23 February 1970.

(d) 451-5302-0-20, Additional Cantonment Facilities, B Co, 34th Engineer Battalion: Relocated 6016 square feet of buildings. Project completed 4 February 1970.

(e) 451-5303-0-20, Fuel Tank and Tower Phu Loi Asphalt Plant, B Co 34th Engineer Battalion: A 250 bbl fuel tank with tower and berm was constructed for use with the asphalt plant. Project completed 10 February 1970.

(f) 453-5301-0-20, FSB Attleboro, C and D Co, 34th Engineer Battalion: Defensive and living bunkers, latrines, and showers were constructed. Project completed 1 April 1970.

(g) 489-5302-0-20, Base Camp Construction Gia Ray, C Co, 46th Engineer Battalion: This unit constructed POL berms for 1,500 gallons of Mo-gas, and 7,000 gallons of Diesel, four (4) conexes to be used as ammo bunkers, 10' x 10' generator shed, a 24' x 24' x 14' water towers to hold storage tanks equaling 6,000 gallons a 22,000 SF motor pool, 40' antennae tower, an engineer maintenance tent, a maintenance shed, and electrical distribution. Project completed 31 March 1970.

(h) 489-5311-0-20, Base Camp Construction of Gia Kiem Base Camp, 544th Engr Co (CS), C Co, 169th Engineer Battalion: 16' x 32' SEA huts. Project completed 4 February 1970.

(i) 489-5316-0-20, Base Camp Construction, B Co, 46th Engineer Battalion: Completed a grease ramp with one ramp, 25' long by 12' wide. Completed a maintenance shed of corrugated metal 15 x 15 x 8'. Completed ammo bunker using three conex boxes and 4,000 sandbags. Completed a tent floor slab using 15 cubic yards of concrete. Completed 3 generator sheds for emergency generators using 300 sandbags each. All buildings and sheds were electrically wired up, and the motor pool lighting was completed. Project completed 30 March 1970.

(4) Base Construction

(a) 51-722-01-159, Phu Loi Base Camp Roads, Phu Loi Base Camp, B Co, 34th Engineer Battalion: 10 km of road within the base camp have been paved. Project terminated 30 April 1970.

(b) 73-242-05, Fendering System Rehab, Newport, 92nd Engineer Battalion: Repair or replace all damaged components of barge pier fendering system. Project terminated 7 April 1970.

(c) 517-0301-0-01, Water Supply Facility Dian, 1st Infantry Division, B Co, 34th Engineer Battalion: A well was drilled and water storage tower with related plumbing constructed. Project completed 15 February 1970.

(d) 543-0306-0-20, 6th Trans Cantonment, D Co, 46th Engineer Battalion: The project consisted of providing technical assistance, construction materials, and tools for the construction of 5 Pascoe troop buildings. This was a reactivated project. Project suspended 18 April 1970.

(e) 546-0305-0-01, Aircraft Maintenance Facility, Long Thanh North, B Co, 92nd Engineer Battalion: One maintenance hangar with electrical distribution was dismantled at Vung Tau, moved to Long Thanh North and reconstructed. Electrical distribution was provided to all revetments and four POL berms were constructed. Project completed 10 March 1970.

(f) 573-0306-0-01, Repair LST Ramps, Newport Docks, 41st Engr Co (PC), 92nd Engineer Battalion: Decking on the LST ramps at Newport was accomplished by self-help labor with materials and technical assistance furnished by the 41st Engineer Company. Project completed 14 March 1970.

(g) 573-0313-0-01, Equipment Support, Vinnell Corporation, A Co, 92nd Engineer Battalion: Supported Vinnell Corporation by providing one entrenchet for two weeks. Project completed 24 April 1970.

(5) Material Issue

(a) CD 743-0306-0-01, Construction Materials for Long Binh Power Plant, D Co 46th Engineer Battalion: Issued a total of 225 CY of sand. Project completed 21 February 1970.

(b) 773-5301-0-20, Rock Issue, CMAC, C Co, 92nd Engineer Battalion: 1000 cubic meters of 1½"(-) aggregate was issued to CMAC on an as-available basis. Project completed 31 March 1970.

(c) 773-5303-0-20, Rock Issue, 5th ARVN Group, C Co, 92nd Engineer Battalion: 100 cubic yards of 3/4"(-) was issued to the 5th ARVN Group. Project completed 31 March 1970.

(d) 810-0325-0-01, Material Issue, D Co, 46th Engineer Battalion: The project consisted of inventorying and issuing of sections from a dismantled 40' x 96' Pascoe building stored in the 46th Engineer Battalion S-4 yard to the 35th Engineer Battalion. Project completed 21 April 1970.

(6) MACV Advisor Facilities

(a) 807-0303-0-01, MACV Advisory Facilities, Duc Tu, B Co, 92nd Engineer Battalion: A 20 foot by 60 foot concrete block building providing billets, mess hall, covered storage and administration facilities was constructed. An electrical distribution system, and waterborne sewage system were also provided. Project began on 11 November 1969 and was completed on 19 April 1970.

(b) 887-0303-0-01, MACV Advisory Facilities, Vung Tau, B Co, 92nd Engineer Battalion: A concrete block building was constructed for advisory living quarters, administration space, a mess hall and a latrine. Project includes sewage, running water a maintenance building, and electrical facilities. Project completed 30 April 1970.

(c) 889-0303-0-01, III CTZ, MACV Advisor Facility, B Co, 46th Engineer Battalion: Project consisted of constructing a 21' x 10' concrete block latrine. Two urinals, two commodes, and two sinks were inside and drained into two septic tanks. A 200 gallon water tank with tower was installed. Project completed 31 January 1970.

(d) 887-0306-0-01, MACV Baria Electrical Upgrade, 92nd Engineer Battalion: Design and construct for Senior Advisor Phuoc Tuy Province one (1) each generator switching station. Project terminated 3 February 1970.

b. The following projects are still active and construction will continue into the next reporting period:

(1) Combat/Operational Support

(a) 159-68-2470, Pier Protective Systems, Rach Cat-Cau Ganh Bridges, 41st Engr Co (PC), 92nd Engineer Battalion: Scope classified. Project began 18 May 1969 by the 497th Engineer Company (PC) and was transferred to the 41st Engineer Company (PC) when the 497th Engineer Company was transferred to the 18th Engineer Brigade. Project is 64% complete.

(b) 207-6225-0-20, Castle Helipad Upgrade, B Co, 92nd Engineer Battalion: Initial horizontal effort has been accomplished on the site. No further work will be done until completion of 289-6259-0-20. Project is 4% complete.

(c) 212-6222-0-20, Lighting Equipment Support, 79th Engr Group, B Co, 92nd Engineer Battalion: A platoon lighting set is being furnished for a period of approximately 30 days. Project is 95% complete.

(d) 243-5729-0-23, Long Binh Post Perimeter Defense, D Co, 46th Engineer Battalion: Work accomplished during this period included continuous repair of perimeter bunkers, clearing vegetation from the perimeter area in company's area of responsibility and replacing unserviceable trip flares. Project is continuous.

(e) 243-5729-2-23, Maintenance of Base Camp Perimeter, Long Binh Post, 92nd Engineer Battalion: Concertina was reinforced with 510 reels of barbed tape. Four bunkers were built and 95 trip flares replaced. Project is continuous.

(f) 243-5729-3-23, Maintenance Base Camp Perimeter, Long Binh Post, HHC 169th Engineer Battalion: Repair bunkers and install concertina wire and trip flares. Project is continuous.

(g) 243-5731-0-20, Perimeter Upgrade, Resor Quarry, 103rd Engr Co (CS), 46th Engineer Battalion: Three perimeter bunkers were replaced, wire and sandbags were added to existing defense facilities. Project is continuous.

(h) 243-5732-0-20, Maintenance of Base Camp Perimeter, Black Diamond Industrial Site, C Co, 92nd Engineer Battalion: Concertina was strung and three fighting bunkers were constructed. Work was also accomplished on the perimeter lighting system. Project is continuous.

(i) 243-5897-0-20, Concrete Revetments for 93rd Evacuation Hospital, D Co, 46th Engineer Battalion: Work accomplished during this period was forming, pouring and erection of reinforced concrete revetments around the ward buildings at the 93rd Evacuation Hospital area, 600 feet of revetments have been set during this period. Project is 70% complete.

(j) 243-6022-0-20, Revetments Trailer Park, Long Binh, D Co, 46th Engineer Battalion: Project consists of placing revetments around trailers in areas 2, 3 4 and 5. Project is 2% complete.

(k) 243-6090-0-20, Phu Long Bridge Pier Protective System, 41st Engr Co (PC), 92nd Engineer Battalion: Existing pier protective system was salvaged and a new floating collar system has been installed on Piers "B", "C" and "D". The system consists of a floating steel collar supported by aluminum spheres with chain link attached to the collar. The interior of the collar is then filled with concertina. Project is 82% complete.

(l) 243-6190-0-20, Technical Assistance, Long Binh Radio Park, S-3, 92nd Engineer Battalion: Technical assistance was provided in construction of overhead shelter for radio vans. Project is 60% complete.

(m) 246-6262-0-20, Revetments, Long Thanh North, B Co, 92nd Engineer Battalion: Prefabrication of M8A1 panels has begun, and will be transported to Long Thanh North for erection upon completion. Project consists of construction of 9 each revetments for fixed wing aircraft. Project is 4% complete.

(n) 251-5730-0-20, Phu Loi Base Camp Perimeter, Phu Loi Base Camp, 34th Engineer Battalion: Maintained and upgraded perimeter wire and bunkers within Castle Sector. Project is continuous.

(o) 287-5735-0-20, Airfield Maintenance, Ham Tan, 46th Engineer Battalion: Inspection and maintenance of Ham Tan Airfield on continuous basis. No effort required this period. Project is continuous.

(p) 289-6073-0-20, Bunkers and F.O. Tower 18th ARVN, B Co, 46th Engineer Battalion: Hauled three bunkers and two towers to the MACV Compound. Technical assistance has been provided on call. Project is 25% complete.

(q) 289-6109-0-20, Maintenance Base Camp Perimeter, 54th Engr Co (CS), 169th Engineer Battalion: Repair bunkers and install wire and trip flares. Project is continuous.

(r) 289-6110-0-20, Maintenance of Base Camp Perimeter, Gia Ray, C Co, 46th Engineer Battalion: Effort during this period has included placing of concertina and tangle foot wire, and repair of individual bunkers. Project is continuous.

(s) 289-6111-0-20, Maintenance Base Camp Perimeter, B Co, 169th Engineer Battalion: Repair bunkers and install concertina wire and trip flares. Project is continuous.

(t) 289-6112-0-20, Maintenance Base Camp Perimeter, C Co, 169th Engineer Battalion: Repair bunkers and install concertina wire and trip flares. Project is continuous.

(u) 289-6113-0-20, Maintenance Base Camp Perimeter, D Co, 169th Engineer Battalion: Repair bunkers and install concertina wire and trip flares. Project is continuous.

(v) 289-6124-0-20, Maintenance of Base Camp Perimeter, Xuan Loc, D Co, 46th Engineer Battalion: Effort this period included erecting of tower bunkers, placing of sandbags and perimeter wire, and upgrading of berm. Project is continuous.

(w) 289-6258-0-20, Road Upgrade, FSB Colorado, B Co, 92nd Engineer Battalion: This project was started on 24 April 1970 and mobilization has been completed. Construction is in its initial phases. Project is 9% complete

(x) 290-6227-0-20, Relocation of Aviation Units, User (Classified), D Co, 34th Engineer Battalion: Ten latrines, six showers and a maintenance hardstand have been completed. Construction of revetments for NCR vans remain Project is 85% complete.

(y) 291-5986-0-20, Tactical Roads Program, D Co, 92nd Engineer Battalion: Five roads were upgraded to class 12: Road G, XT 841009-XT 846008; Road N, YT 029013-YT 034034; Road E, XT 971225-XT 973170; Road I, XS 739893-XS 751856; and road H, XS 729995-XS 725972. Work was started on three new roads; Road K, XS 689809-XS 732301, 35% complete; Road L, XS 760814-XS 763784, 27% complete; and road M, XS 750827-XS 813822, 3% Complete. Project is 55% complete.

(2) Minimum Essential Requirements

(a) 353-5323-0-20, MER for 79th Engineer Group, Carpenter Shop, HHC, 46th Engineer Battalion: Provide six (6) each prefabricated four (4) head showers complete with plumbing and water towers to 79th Engineer Group. Also provide eight (8) each prefabricated four (4) hole latrines, less burn-out cans to 79th Engineer Group for erection by 79th Engineer Group. Two water towers complete. Project is 10% complete.

(b) 391-5311-6-20, MER for 25th Infantry Division, Bearcat, Carpenter Shop, HHC, 46th Engineer Battalion: Four 6-head showers and eight 4-hole latrines complete. Project is 70% complete.

(3) Lines of Communications

Roads

(a) 98-201-15-T-MA (A), Maintenance and Repair of Roads and Bridges 20th Engineer Brigade AOR: IIFFV, 34th Engineer Battalion: Repaired potholes on MSR 25% and QL-13, replaced deck on bridge at XT 988050. Project is continuous

(b) 98-201-15-T-MA, O&MA, Road and Bridge Maintenance and Repair, D Co, 46th Engineer Battalion: No work was required in 20th Brigade AOR this period. Project is continuous.

(c) 98-217-79, LOC Restoration QL-13 Phu Cuong to Lai Khe, IIFFV, 34th Engineer Battalion: Restored 29 km of road to class A standards. All work completed except for shoulders which has been deferred due to construction of 2A/1A. Project is 97% complete.

(d) 407-0302-0-01, LOC Restoration of TL2A from Junction of QL-13 to Junction of LTL1A, IIFFV, 34th Engineer Battalion: Restore 22.5 km of road to class C standards. Paving is completed on 21.2 km. Project is 93% Complete.

(e) 407-0304-0-01, LOC Restoration of LTL1A from Junction of TL2A to Phuoc Vinh, IIFFV, 34th Engineer Battalion: Restore 17.3 km of road to class C standard. Culverts are 67% complete and 90,000 CY of laterite has been hauled, placed, and compacted. Project is 25% complete.

(f) 489-0302-0-01, LOC Restoration QL-1, B Co, 46th Engineer Battalion: Subgrade has been completed from the intersection of QL-1 and QL-20 station 18+500 approximately 18.5 kilometers. Base rock has been placed in a 4" lift from QL-1 and QL-20 to station 18+500 except for section II which is 1.3 kilometers. Except for Section II, the first lift of asphalt is completed from QL-1 and QL-20 to station 18+500 and the second lift is completed to station 13+000. A total of 3,500 linear feet of culvert has been placed. Project is 60% complete.

(g) 489-0303-0-01, LOC Restoration QL-1, LTL-2 to Gia Ray, C Co, 46th Engineer Battalion: This unit is working on the construction of a 143,000 SY, 17.9 kilometers of paved road to include 3,000 linear feet of culvert. Subbase is complete from 18+500 to 27+000. Base rock is complete from 18+500 to 25+000, and 1st lift pavement is complete from 18+500 to 23+000. Project is 48% complete.

(h) 489-0304-0-01, Restoration of QL-20 from Gia Kiem to II/III Corps Border, 169th Engineer Battalion: Construction of 65.4 km of MACV standard class A highway. Thus far 903,732 cubic yards of embankment/subbase 123,956 cubic yards of base rock and 89,658 tons of asphalt have been placed during construction of the highway. The paving effort consists of 33 4 kilometers of 24 foot first lift and 20.0 kilometers of second lift Project is 64% complete.

(i) 489-0305-0-01, Bridge Design and Construction QL-1, C Co, 46th Engineer Battalion: Construct vehicular bridges 436 SY (40 M) YT 575065 (20 M). YT 591065 (20 M). Site preparation is in progress for a 40' x 60' bridge at YT 591065. Project is 10% complete.

(j) 489-0308-0-20, Bridge Design and Construction QL-1, B Co, 46th Engineer Battalion: Site has been prepared with one and 3/4 abutments poured for a 40' x 40' vehicular bridge at YT 447067. Project is 55% complete.

(k) 491-0303-3-20, ARVN LOC Support, QL-1, C Co, 46th Engineer Battalion: Assist ARVN Engineer Units to procure materials for ARVN LOC projects. Materials will be released only by tasking message from 20th Engineer Brigade Headquarters. 5,578 CY of 2"(-) base rock were issued. Project is continuous.

Support Operations

(a) 407-5302-0-20, Operation and Maintenance, Resor Quarry Asphalt Plant and Quarry/Crusher Complex, 103rd Engr Co (CS), 46th Engineer Battalion: Operate and maintain an asphalt plant capable of sustained production: operate and maintain a quarry/crusher complex capable of sustained production. Produced 4,269 yards of 2" base course and 61,154 yds 3/4 (-) asphalt aggregate. Produced 11,440 tons IIId and 33,209 tons IVs asphalt concrete. Project is continuous.

(b) 417-5301-0-20, Installation of Asphalt Plant, C Co, 92nd Engineer Battalion: No work has been accomplished during this period. Project is 99% complete

(c) 417-5303-0-20 Operation and Maintenance of Black Diamond Industrial Site, C Co, 92nd Engineer Battalion: 62,345 cubic yards of crushed rock and 54,760 tons of asphalt were produced during this period. Project is continuous.

(d) 443-5310-0-20 Concrete Batch Plant, Long Binh Post, A Co, 92nd Engineer Battalion: Water well is being drilled, however thus far no sufficient water source has been found. Project is 50% complete.

(e) 443-5311-0-20, Operation and Maintenance of Concrete Batch Plant Long Binh, A Co, 92nd Engineer Battalion: 3595 cubic yards of concrete were produced during this period. Project is continuous.

(f) 451-5301-0-20, Maintenance and Operation of the Phu Loi Asphalt Plant, B Co, 34th Engineer Battalion: Daily operation and maintenance of the asphalt plant. Project is continuous.

(g) 489-5313-0-20, Operation and Maintenance of Quarry Crusher and Asphalt Plant, 544th Engr Co (CS), 169th Engineer Battalion: Operate and maintain an asphalt plant capable of sustained production; operate and maintain a quarry/crusher complex capable of sustained production. Project is continuous.

(h) 489-5315-0-20, Operation and Maintenance of Quarry and Crusher, Gia Ray, C Co, 46th Engineer Battalion: Operate and maintain a quarry/crusher complex capable of sustained production. The crusher and quarry produced 57,602 cubic yards of 2"(-) base rock this period. Project is continuous.

Support Projects

(a) 407-5305-0-20, Base Camp Maintenance, Resor, 103rd Engr Co (CS), 46th Engineer Battalion: Perform R&U maintenance and repair for the 103rd Engr Co (CS), Resor Quarry. No effort required this period. Project is continuous.

(b) 417-5305-0-20, Base Camp Maintenance, Black Diamond Industrial Site, C Co, 92nd Engineer Battalion: Work was accomplished on a drainage ditch for the rock crusher. Showers were also constructed and billets were upgraded. Project is continuous.

(c) 453-5302-0-20, Base Camp Construction Phuoc Vinh, D Co, 34th Engineer Battalion: Tent floors, showers and latrines to be constructed. Project is 10% complete.

(d) 489-5307-0-20, Maintenance of Base Camp, B Co, 169th Engineer Battalion: Perform R&U maintenance and repair for B Co, 169th Engineer Battalion base camp, QL-20. Project is continuous.

(e) 489-5308-0-20, Maintenance of Base Camp, C Co, 169th Engineer Battalion: Perform R&U maintenance and repair for D Co, 169th Engineer Battalion base camp QL-20 Project is continuous.

(f) 489-5309-0-20, Maintenance of Base Camp, D Co, 169th Engineer Battalion: Perform R&U maintenance and repair for D Co, 169th Engineer Battalion base camp, QL-20. Project is continuous.

(g) 489-5312-0-20, Maintenance of Base Camp for Banana Quarry Cantonment, 544th Engr Co (CS), 169th Engineer Battalion: Perform R&U maintenance and repair for 544th Engr Co (CS), at Banana Quarry. Project is continuous.

(h) 489-5314-0-20, Site Preparation and Construction of Facilities, Gia Ray, C Co, 46th Engineer Battalion: One 250 ton per hour crusher with a secondary 75 ton per hour crusher has been installed with maintenance floodlights explosive magazines, and generator sheds. Project is 80% complete.

(4) Base Construction

(a) 17-214-03, Aviation Maintenance Facility Dian, 3/17 Air Cavalry Squadron, B Co, 34th Engineer Battalion: All work is suspended until rescources become available. Project is 15% complete.

(b) 43-280-T-7S, B&D) Outdoor Recreation Facilities, Long Binh Post, C Co, 169th Engineer Battalion: Project consists of constructing four softball fields four tennis courts four basketball courts and thirty volleyball courts. Project is 0% complete.

(c) 43-350-01, MCA, BOQ's and BEQ's Plantation, D Co, 46th Engineer Battalion: Six 16' x 64' SEA huts have been erected under this directive. Project was started 11 October 1968, suspended on 11 August 1969 and reactivated on 7 January 1970. Project is 40% complete.

(d) 43-352-01, Cantonment Facilities Plantation, D Co, 46th Engineer Battalion: Contract self-help erection SEA huts Orderly/Arms Room, 1 024 SF. EM housing, 15,360 SF; Officer housing, 7,680 SF. Five buildings have been erected under this directive. Project is 30% complete.

(e) 43-368-01-T-67S/7S, MCA, Medical Warehouse, Long Binh D Co, 46th Engineer Battalion: Constructed general purpose warehouse, 4 000 SF. Project was started 10 May 1969, suspended 11 August 1969, and reactivated 7 January 1970. Project is 25% complete.

(f) 51-223-03, Aircraft Direct Fueling Facilities Phu Loi, 1st Logistical Command. D Co, 34th Engineer Battalion: Preliminary planning underway. Estimated start date 15 May 1970. Project is 2% complete.

(g) 543-5301-0-20, Concrete Block and Precast Shop, D Co, 46th Engineer Battalion: The project consists of the operation and maintenance of a concrete block and precast shop. During this period 43,510 concrete blocks were manufactured. Project is continuous.

(h) 542-5302-0-20, Carpentry and Fabrication Shop, HHC, 46th Engineer Battalion: Operation and maintenance of a wood fabrication shop to supply current and future demands. Project is continuous.

(i) 543-0208-0-01, Road Paving, Long Binh Post, 169th Engineer Battalion: Consists of paving arterial streets on Long Binh Post, project to be started after completion of QL-20. Project is 0% complete.

(j) 543-0310-0-01, Post Exchange, Long Binh, D Co, 46th Engineer Battalion: A 70 x 144' main retail store has been completed and a 40' x 96' warehouse is near completion. Project is 86% complete.

(k) 543-0311-0-01, Exchange Administration Building, Long Binh, D Co, 46th Engineer Battalion: Construct Exchange Administration Building of 3 840 SF; open storage area, concrete of 233 SY; parking area vehicular, DBST of 2,500 SY. Drainage for exchange area is complete and the administration building is erected. Project is 69% complete.

(l) 543-0313-0-20, MCA/LOC Support Activity, Long Binh, B Co, 92nd Engineer Battalion: Project consists of erection of the 40 foot by 96 foot buildings with electrical distribution and interior fixtures. The exterior of one building has been completed and the pad has been poured for the second building. The project is 43% complete.

(m) 543-0314-0-01, Removal of Building from Camp Davies, D Co, 46th Engineer Battalion: The project consisted of the providing of technical assistance, crane assistance and transportation for the dismantling and moving of five Pascoe buildings (40' x 96') from Camp Davies in Saigon, and re-erection on Long Binh Post. Project is 30% complete.

(n) 546-0302-0-01, Aviation Support Facilities, Long Thanh Noath D Co, 92nd Engineer Battalion: Two 20 ton cranes are being provided on an as-available basis to assist in self-help construction. Project is 2% complete.

(o) 551-0304-0-01, Aircraft Maintenance Hangar, Phu Loi, 1st Cavalry Division (AM), B Co, 34th Engineer Battalion: A wash apron, generator shed have been constructed, a hardstand has been completed and primed and the concrete pad for the 127' x 132' hangar has been completed. Project is 25% complete.

(5) Material Issue

(a) 707-5301-0-20, Rock Issue, Bien Hoa Province Public Works, C Co, 92nd Engineer Battalion: No rock has been issued. Project is continuous.

(b) 707-5302-0-20, Hot Mix Issue, Bien Hoa Province, C Co, 92nd Engineer Battalion: 602 tons of asphalt were issued during this period. Project is 40% complete.

(c) 707-5303-0-20, Hot Mix, Bien Hoa Air Base, 103rd Engr Co (CS), 46th Engineer Battalion: During this period 524 tons of asphalt were issued. Project is 76% complete.

(d) 717-5301-0-20 Rock Issue to ROK Troops, 103rd Engr Co (CS), 46th Engineer Battalion: Issue 80 CY rock per month to ROK forces, Vietnam, for Civic Action Projects. No rock issued this period. Project is 17% complete.

(e) 743-0303-0-01, Rock Issue to US Army Depot, 103rd Engr Co (CS), 46th Engineer Battalion: Issue 5,000 CY of 3"(-) rock at rate of 100 CY per day to U.S. Army Depot, Long Binh. No rock issued this period. Project is 23% complete.

(f) 773-5301-0-20, Rock Issue to Capital Military Assistance Commission, 103rd Engr Co (CS), 46th Engineer Battalion: Issued 223 CY of 1½(-) aggregate to capital military assistance command, Saigon. No rock required this period Project is continuous.

(g) 773-5304-0-20, Hot Mix to Public Works, Gia Dinh, 103rd Engr Co (CS), 46th Engineer Battalion: Issue (not to exceed 20 tons per day) on as-available basis 1800 T hot mix asphalt to Gia Dinh Public Works Department. Asphalt was issued this period totaling 408 tons. Project is 67% complete.

(h) 789-0306-0-20, Rock Issue to 18th ARVN Battalion, C Co, 46th Engineer Battalion: Issue maximum of 2,000 CY of 2"(-) base course rock from Gia Ray Quarry to ARVN, 18th Division for use for LTL-2. During this period 395 CY of 2"(-) have been issued. Project is 16% complete.

(i) 791-0301-1-20, ARVN Dependent Housing Various Locations, 159th Engineer Group AOR, ARVN, S-4, 34th Engineer Battalion: Project consists of issuing construction material for ARVN dependent housing. Project is 75% complete.

(j) 791-0301-2-20 ARVN Dependent Housing, 46th Engineer Battalion: Issue 111,997 BF lumber, 3,784 SHT plywood, and various other building materials to ARVN dependent housing No materials issued this period. Project is 60% complete.

(6) MACV Advisor Facilities

(a) 887-0304-0-01, MACV Advisory Facilities, Can Gio, B Co, 92nd Engineer Battalion: MACV advisory facilities are being constructed with materials supplied by this unit utilizing self-help labor. Project is 6% complete.

(b) 887-0305-0-01, MACV Advisory Facilities, Quang Xuyen, B Co, 92nd Engineer Battalion: MACV advisory facilities are being constructed with materials supplied by this unit utilizing self-help labor. Project is 6% complete.

(c) 889-0304-0-01, III CTZ MACV Advisor Facility, B Co, 46th Engineer Battalion: Site layout has been planned for a well; pump/chlorinator shed, 10 500 gallon water with tower, and 400 SF of waterfill hardstand. The 169th Engineer Battalion has completed drilling the well. Project is 4% complete

c. Engineer Plans: During this reporting period the 159th Engineer Group Engineer Section was involved primarily with LOC road construction and quality control. Design assistance to battalions filled the remainder of the quarter.

(1) The Group survey section was committed primarily to LOC road survey on QL-20 and QL-1 during the reporting period. The section was divided into 2 teams. During the first of the quarter, one team was attached to the 169th Engineer Battalion to provide centerline and survey control for construction of QL-20: the other team augmented the 46th Engineer Battalion capabilities for centerline and grade control on QL-1. On 1 March 1970 the team attached to the 46th Engineer Battalion was moved to Cu Chi to begin initial design survey for QL-1 from Cu Chi to Go Da Ha. The survey consisted of surveying the existing centerline, taking cross-sections every 100 meters, locating all drainage structures and locating all buildings within the construction limits. This survey of 28 km was completed on 30 April 1970

(2) The drafting section has been involved with plans for 40' bridge for QL-20 and the drafting of the design package for QL-1, Cu Chi to Go Da Ha.

(3) The Group soils section was totally committed to LOC work. The Group soils section monitors and spot checks subbase, base course and paving compaction on all three LOC projects. In-place density and in-place California Bearing Ratio tests are used. The section has a coring machine, and it is used extensively to take cores from in-place asphalt. Marshall stability, bitumen content, and gradation tests are conducted on these cores to see if required specifications are being met. An extensive training program was conducted by members of the soils section for 4 ARVN soldiers from the 5th ARVN Engineer Group. During the two week course they were taught all required quality control tests for soil, crushed rock, and asphaltic concrete. The Group soils section also instructed men from the 46th, 92nd, and 169th Engineer Battalions in the procedures for testing asphalt concrete from their respective plants.

(4) Augmentation to battalion design sections was provided on two occasions The section designed two 40' and two 60 bridges to be used on QL-1 and QL-20. The bridges consisted of concrete abutments supported by piles. steel stringers with precast concrete deck panels and utilized concrete approach pads. A modified concrete slab was designed for the Phu Loi hangar (CD 551-0304-0-01).

(5) The 100% Trans-Asia drawings for LOC restoration on QL-20 were received by 159th Engineer Group on 10 April 1970.

(6) Continuing coordination is made between the 159th Engineer Group and the Saigon highway Detachment concerning engineer plans on the 1970 LOC roads. Minor changes and modifications have been recommended by the 159th Engineer Group and approved by the Saigon Highway Detachment. These changes are then entered on the as-built drawings, which will be submitted at the completion of the road.

(7) In addition to the survey of 28 km of QL-1, Cu Chi to Go Dau Ha, the 159th Engineer Group Engineer Section is designing this road to Class A CENCOM standards The design will be completed during the next quarter

(8) Surveying assistance was given throughout the quarter to the 159th Engineer Group by the 66 TOPO Company Ten to fifteen 66 TOPO surveyors worked in two to four teams on two of the 70 LOC roads. One team worked on TL2A/LTL1A for a month. and two-three teams worked on QL-20 throughout the quarter.

d. Quarry and Crusher Asphalt Plant and Concrete Plant Operations:

(1) Total rock crushed - 359,420 CY

(2) Total asphalt produced - 196,246 tons

(3) Concrete batch plant production - 3529 CY

e. Training:

(1) During the past quarter the 159th Engineer Group continued to train ARVN engineers in a variety of engineering on-the-job training programs. All four battalions continued to train the first through third echelon of equipment maintenance to ARVNs in a 12 week program known as Project Buddy. The fourth Project Buddy class graduated on 13 February. 31 ARVNs received diplomas at a ceremony conducted at Group headquarters. Currently, the fifth Project Buddy class is receiving training. 41 ARVNs are expected to graduate 8 May. CPT Dinh Van Chieu continued to serve as liaison officer from ARVN-OCE. He helped to monitor training and handle ARVN administrative matters.

The 34th Battalion trained 7 ARVNs (OJT) to operate the Barber-Greene continuous mix asphalt plant; training ended 20 February. In addition, during the quarter the 34th Battalion trained (OJT) 5 ARVNs to operate the 830 MB scraper. The 34th Battalion trained (OJT) 6 ARVNs to operate asphalt paving equipment. The 159th Group taught quality control procedures of soil analysis to 4 ARVNs from the 5th ARVN Group.

(2) The 159th Engineer Group continues to emphasize company level training and weapons familiarization. Weekly classes and range firing are held by units within the Group; each man fires his assigned weapon and the crew-served weapons he is likely to man at least once every 90 days. Special emphasis is given to safety and defensive driving due to high monthly mileage driven by the Group.

5. Logistics:

a. General logistics support for units of this Group during the period 1 February 1970 to 30 April 1970 was adequate but was characterized by shortages of certain construction materials and particular items of equipment.

b. Construction Materials:

(1) Lumber: With the exception of plywood, sufficient quantities of most sizes of lumber were available throughout the quarter. The non-availability of certain sizes of plywood necessitated the redesign of some projects and caused some minor delays. Due to the command control procedures placed on plywood, 1X, 2X, and 4X lumber, it has not been possible to maintain the authorized OSL (Operational Stockage Level) on any of the commonly used sizes of lumber. Quantities on hand are committed to active projects, and small quantities received periodically through Brigade controlled releases are rapidly consumed.

(2) Bituminous Products: AP-3 was available on a "thru-put" basis from port to plant throughout the quarter. MCC assets were used exclusively for the delivery of drummed AP-3 to each of our four industrial sites. The availability of MC-70 remained critical throughout the quarter. All quantities received at port were thru-put directly to engineer units and rapidly consumed. MCC assets were also used to transport MC-70 to the more readily available base camps. Requests for delivery of MC-70 to job sites in outlying areas were refused and thereby necessitated double handling.

(3) CMP: The availability of corrugated metal pipe in the 60" and 72" size remained critical throughout the quarter. Two actions are being taken to preclude the delays that might otherwise develop in the LOC and tactical road programs:

(a) Multiplate pipe arch culvert, 5'8" x 5'7" and 12'8" x 8'1", is being used wherever possible.

(b) Two 48" culverts are being emplaced where the road design may have specified one 60" or 72" CMP.

(4) Steel shapes: The in-country shortage of wide flange and bearing pile steel has caused numerous design changes in bridges and pier protective systems. The lack of available bearing pile or suitable wide flange steel necessitated the substitution of a wooden pile substructure for a bridge on QL-1 that was originally designed for a steel substructure. The developing shortage in practically all sizes of steel plate may cause notable problems in bridging and heavy equipment repair. The persistent shortage of 3/8", ½" and 5/8" reinforcing bar was particularly bothersome during the quarter.

c. Critical Items: Limited relief was experienced in obtaining specific command controlled items by aggressive hand carrying of requests through channels. With the takeover by U.S. Army Depot of ECMY Operations at Long Binh, the privilege of hand carrying construction material requisitions will be denied to engineer units thereby reducing the responsiveness of the supply system.

d. Contract Hauling: Civilian contract trucks were provided to the Group during the quarter for the hauling of RMK-BRJ supplied mineral products to TL2A. Since the initial scope of the construction effort did not include the change in design of TL2A, contract haul was utilized.

e Mineral Products: All of the OICC contracts for RMK-BRJ supplied mineral products are written on an as-available basis. Direct coordination between the Group S-4 section and RMK managers resulted in mutually acceptable solutions to all problems. Since this Group is operating four quarry and crusher sites this construction season, the dependence on RMK-BRJ supplied mineral products has decreased proportionally. RMK-BRJ produced rock is currently used as a back-up and augmentation to our four industrial sites.

f. Equipment Status: The following list reflects mission essential TOE/MTOE equipment shortages throughout the Group:

NOMENCLATURE	AUTH	O/H	SHORT	CHANGE SINCE LAST QRLL
Truck Dump, 5 Ton (1)	269	264	5	+31
Semi-Trailer, Lowbed 25 Ton (2)	114	84	30	+1
Semi-Trailer, Wtr. 5,000 Gal (3)	12	0	12	0
Sweeper Rotary	10	2	8	-4
Distributor, Water	27	22	5	+5
Mixer, Rotary Tiller	4	0	4	-1
Grader, Motorized	36	36	0	+3
Welding Equip Set, #1, 300 AMP	32	19	13	-1

(1) The continuing score out and retrograde rate on dump trucks hampers the efforts of the Group to maintain the authorized level.

(2) Of the 84 on hand, 54 lowbeds are in condition code H (eligible for score out). Special arrangements have been made to continue to utilize these 54 lowbeds until replacements are received.

(3) Indication from USARPAC are that no new 5,000 gallon water tankers will be procured for the theater. USARPAC, G-4, Service's Division, is currently attempting to locate 5,000 gallon fuel (as a substitute) tankers within theater assets.

g. MCA Equipment Program: The 169th Engineer Battalion has issued the remaining items of MCA-LOC equipment purchased last year for all 20th Engineer Brigade units.

h RVNAF Improvement and Modernization: The 92nd Engineer Battalion at Long Binh is continuing to receive, store, stage, and transfer equipment for the 20th Engineer Brigade. The few remaining pieces of equipment have been shipped and transfer was completed except for a roller sheepsfoot which was damaged in shipment.

i. Durability Test of 5 Ton Dump Vehicle Frame Repair: On 16 February 70 the 34th Engineer Battalion accepted on a temporary loan five 5 ton dump trucks that had been rebuilt including welding of frame. The sixth truck was issued on 17 March 1970: it had been delayed because of repairs needed due to damage incurred during shipment. The 90 day temporary loan was to determine the soundness of the two types of welds (Eutectic and AG&P) that were used to repair the truck frames. At the end of the 90 day period the six trucks will be sent back to Okinawa for evaluation. So far the trucks have held-up in an outstanding manner with little, if any, down time. None of the frames have cracked near the repaired sections or in new areas. Both repair methods appear to be highly effective.

j. ARVN Support for the 70 LOC Program: This headquarters has received letters from MACV directing the support of ARVN with construction materials for the ARVN 70 LOC program. This program has been hindered by many small problems and by one large transportation problem. Essentially all the minor details have been ironed out; but the arrangements of transporting these materials to the ARVN work site has not been accomplished. Transportation assets within this Group are critical (see TOE shortages). The Saigon Support Command has refused to transport these materials to Gia Ray, a location not on the SSC approved routes. A letter has been sent from 20th Engineer Brigade requesting that transportation support be given this program on a continuing basis. As of this date no decision has been made.

k. Maintenance

(1) The four main areas of maintenance interest during the past reporting period were TOE equipment deadline rates, MCA-LOC equipment deadline rates, ASL percent fill, and industrial site repairs.

(a) Deadline rates for selected critical items has been steadily dropping since the beginning of the quarter. Finally at the end of April the deadline rate went below the Brigade goal of 8.5%. This was due to the increased emphasis on maintenance at operator and organizational level and a close surveillance of repair parts requisitions.

(b) ASL zero balances were lowered from 53.76 percent at the beginning of the quarter to 46.46 percent at the end. This was due to the emphasis placed on using Red Ball Expanded (RBX) requisitions in ordering up to 25 percent of authorized requisitioning objectives on deadlining critical parts and also to the emphasis placed on obtaining a higher percent accuracy of ASL inventories.

(c) The MCA/LOC equipment deadline rate has decreased on the whole through the quarter. This can be contributed to two factors: first, the command emphasis placed on the proper maintenance of the equipment. Interest by commanders to insure parts are on order for their equipment has added significantly to the lowering of the rate. Secondly, there has been an improvement by the contractor in the repair parts supply procedures which has enabled a larger stockage of critical repair parts to be on hand.

(d) Industrial sites are still the most critical maintenance area due to the low density items such as rock crushers and asphalt plants. Repair parts for these items continue to be short in supply. However, adhering to the proper supply procedures for repair parts has started the build up of the authorized stockage level. Receipt of IMG parts has also helped to alleviate some of the problems. RMK-BRJ and Vinnell Corporation have been a great assistance in the repair parts area.

(2) TOE Equipment

(a) Cracks developed in the trunion cross member braces and the walking beams for the 25 ton lowbeds. Initial welding was done but proved to be unsatisfactory. Although a second welding attempt remedied the situation it still requires monitoring. Positive results on this method should be available next quarter.

(b) The 25 ton semi-trailers continue to have a high number of cracked frames. The cracks appear along welds above the goose neck: mixed results have been obtained by welding.

(3) MCA-LOC Equipment

(a) Most units are pleased with MCA/LOC contractor personnel that are assigned to them. Problems are resolved by the additional personnel, or if necessary, replacements.

construction efficiency. New weekly scheduling conferences have been initiated in order to allocate group assets to subordinate battalions, and when required to other groups within the 20th Engineer Brigade. Daily and weekly LOC reports are compiled to insure accurate and current production and construction rates. The Group headquarters has direct communications with all industrial sites in order to obtain information on short notice and also to monitor the status of all plants and give assistance when required.

d. Planning conferences for the 71 LOC program are being conducted both at Group and Brigade level. Schedules are being made for unit and industrial site movements.

8. Inspector General Activities:

a. The 34th Engineer Battalion received a satisfactory rating from inspection held during the quarter.

b. Acting Inspectors General continue to receive and process complaints and requests for assistance at battalion and group levels.

9. PIO:

a. During the past quarter, the Group Information Office implemented policies which served to increase the output of news articles and Home Town News Releases. Each battalion was given a minimum objective of two stories to write and submit each week. Greater coordination between Group and battalion IO s became increasingly necessary to supply assistance when needed and to reduce the chances of duplication.

b. The Group Dyline, published bi-weekly, provided guidance to the battalion IO s for increased quality output. Each Dyline indicated the extent to which each battalion had participated in the IO program for the two-week period. During the quarter, the Dyline stressed the need for more photographs to augment the written story for proper screening of Home Town News Releases, and for the reporting of the individual's role in the event. Primarily, the major news categories for articles submitted were ARVN training, human interest stories and unique engineering solutions.

The photographic program continued to support both Operations and PIO sections. Color slides of significant construction projects were processed weekly for briefings conducted at the 20th Engineer Brigade. A Group slide briefing for visiting VIPs presented a comprehensive visual portrait of each battalion s engineering activities. The VIP briefing was continually updated with the addition of recent slides of Group projects and industrial sites.

d 10[illegible] written stories were submitted to Group from the battalions during the past quarter. This figure represents an increase of 20 stories from the

(b) It was noted during the quarter that certain minor repairs and lubrication were required on jobsites that were quite some distance from the base camp where the MCA/LOC team was located. This was resolved by permitting the operator to perform the minor repairs and lubrications. By permitting the operators to perform these repairs it left the MCA/LOC team free during the day to do the required organizational maintenance work.

(c) At the end of the quarter a class on maintenance responsibilities was being prepared at Group headquarters to present to all units within the Group. It is felt that this class will result in a more effective maintenance program of MCA/LOC equipment

6. Force Development: The 159th Engineer Group and subordinate battalion AOR s remained unchanged from the previous quarter reflecting the major road construction mission of each unit for the next three months. The 34th Engineer Battalion remained at Phu Loi and operated the Phu Loi asphalt plant with organic personnel. The 103rd Engineer Company (CS) attached to the 46th Engineer Battalion, operates the quarry, crusher, and asphalt plant at Resor Quarry. Company C of the 46th Engineer Battalion operates a quarry and crusher at Gia Ray (YT 6313). Company C of the 92nd Engineer Battalion with the attached 515th Asphalt Platoon operates Black Diamond quarry, crusher, and asphalt plant. The 544th Engineer Company (CS), attached to the 169th Engineer Battalion, is augmented with two light equipment company quarry sections from the 557th and 595th Engineer Companies (LE) to establish and operate a large quarry, crusher complex, and asphalt plant at Banana Quarry (YT 3516). The total of four quarry-crusher complexes and four KA-60 hot mix asphalt plants provides a large capability for road construction.

7. Command Management:

a. Within the 159th Engineer Group great effort is still being expended to insure the effective flow of communications and efficient planning and scheduling techniques. Scheduling priorities and efficient utilization of available engineer effort are coordinated and problems resolved.

b. Major emphasis was given to completing and instituting a comprehensive accounting and construction reporting program which gives continuous automatic review of construction costs and provides accurate costing information for proper completion of project data requests. Procedures have been set up to monitor and report all of the production of the group construction support operations as well as contractor supporting operations and to insure that after continuous and complex intra-group allocations of resources, the materials, manhours, and production figures are reported accurately to the correct project.

c. With over two thirds of the Group effort devoted to LOC construction, command management techniques are constantly being refined to achieve greater

previous quarter. 100 stories were forwarded to the 20th Engineer Brigade for external release. Stories were not forwarded if the content was outdated or did not have news interest beyond Group level. Fifty stories were published in outside media which included the Castle Courier, Army Reporter, MACV Observer, Army Times and Stars and Stripes. The number of published stories increased by 100% since last quarter. Total column inches published for this quarter was 779 column inches, and increase of more than 250 inches over the previous quarter.

e During the past quarter the 159th Engineer Group's newspaper, The Laterite Lantern, was awarded second place (mimeograph category) in the annual USARV journalism competition.

f. A new aggressive approach was applied to the Home Town News Release Program. Primarily, the objective was to give everyone who was eligible to complete a Home Towner an opportunity to do so. In addition, careful screening of Home Town News Releases was stressed. During the past quarter 1199 Home Town News Releases were forwarded. This represents an increase from the previous quarter.

g. Other communication media were utilized to augment the public information program within the Group. A radio feature, concerning the training of ARVNs by the Group's Quality Control Team was broadcast on AFVN's program "Working Together". In addition TV Home Town News Releases were conducted for the Group by IIFFV IO.

10. CIVIC ACTION

a. The Group Civic Action program placed special emphasis upon coordination with Province CORDS and MACV personnel to gain approval for proposed civic action projects. All requests must receive the approval in writing of the district chief, the district senior advisor, the New Life Development chief, and the deputy province chief. An important objective of civic action projects was to maximize Vietnamese participation and to conduct projects which would benefit as many Vietnamese as possible.

b. Group civic action projects received public information coverage. News articles appeared in the MACV Observer and Castle Courier. Primarily, the MEDCAP effort was highlighted: the tactical road program also continued to receive publicity.

c Battalion civic action projects were monitored by Group. Battalions submitted monthly civic action reports to Group for review, consolidation and submission to 20th Engineer Brigade.

d. In support of the tactical road program, PSYOPS activities were initiated by the 92nd Engineer Battalion. To help reduce mine casualties, leaflets are being printed by the 6th PSYOPS Battalion which will alert the Vietnamese to the benefits of tactical roads and the need for their assistance.

e. Commodities distributed for Civic Action:

(1) Rock - 2 cubic yards

(2) Canned Food - 152 pounds, 30 gallons

(3) Clothing - 100 pounds

(4) MEDCAPS - 1781

SECTION II: Lessons Learned: Commander's Observations, Evaluations, and Recommendations.

1. Personnel: None

2. Intelligence: None

3. Operations:

a. Haul requirements for LOC program.

(1) Observation: Haul requirements are the most critical part of the LOC program at this time in the construction season.

(2) Evaluation: Extremely close control must be exercised over the trucks at all times; scheduling of truck mission assignments must be well coordinated in order to minimize unproductive time.

(3) Recommendation: Trucks that are waiting for asphalt should be utilized for short haul missions either within the quarry, or between nearby quarries. The NCOIC of each truck convoy should carry a radio in order to be able to report immediately if any problems develop. Truck convoys should be planned only when absolutely necessary. Much time is wasted waiting for the convoy to form up.

b. Direct communications with industrial sites

(1) Observation: Reaction time for obtaining repair parts was being lost due to delay in relaying information through the battalions to Group and because of incomplete repair part information.

(2) Evaluation: An effective means of communications was necessary to provide fast response when assistance was needed.

(3) Recommendation: A direct communication network was established between Group headquarters and the industrial sites. This network is used for relaying administrative information concerning status of the sites and any direct assistance required.

c. Early haul from asphalt plants to project sites.

(1) Observation: The paving operation on the roads was not able to start early due to the late arrival (0900) of the plant mix at the paving site. This was due to the non-availability of trucks to load at the asphalt plant in the early morning hours because of road security before dawn.

(2) Evaluation: Haul assets are required at the asphalt plants early in the morning in order to load and arrive at the paving site before 0900.

(3) Recommendation: Several trucks from the paving unit stay overnight at the asphalt plant location.

d. Protective grates for cold bin feeder

(1) Observation: Large rocks and other foreign matter get stuck in the cold bin feeder, thus stopping plant production.

(2) Evaluation: A screening element is required to scalp off the covering and foreign material before it enters the cold bin feeder.

(3) Recommendation: Install a 3" steel grate over each cold bin feeder.

4. Organization: None

5. Training: None

6. Logistics:

a. Liaison with MCC

(1) Observation: The 159th Engineer Group has developed an excellent working relationship with 3rd Transportation, Movement Control Center in the area of transportation support for hauling drummed AP-3 to our four industrial sites.

(2) Evaluation: MCC has provided this Group with efficient and timely transportation support, enabling our organic transportation assets to be used to their fullest potential for our roadbuilding missions. Daily telephone contact and the total absence of unnecessary paperwork has characterized the effective transportation support which has resulted in AP-3 deliveries of approximately 27,000 drums per month.

(3) Recommendation: That all engineer groups maintain a close working relationship with transportation support activities, providing liaison officers to deal with these agencies on a personal basis whenever possible.

b. Contract for General Support Maintenance

(1) Observation: During the past quarter it was required to obtain the support of a large machine shop facility to manufacture critical repair parts for the repair of asphalt plant and rock crusher components.

(2) Evaluation: The distance the Group must travel for General Support Maintenance, the Vinnell Corporation at Cam Ranh Bay, is entirely too long when a contractor, RMK-BRJ, who has the capability to provide a machine shop facility to manufacture the critical repair parts required by our subordinate units exists in the local area. If this facility were made available as a GS Maintenance Facility, both time and money could be saved by eliminating the need for transporting these parts to the Vinnell Corporation at Cam Ranh Bay.

(3) Recommendation: That a General Support Maintenance work contract be negotiated for a General Support maintenance activity in the local area. This contract would have to be controlled at Group or Brigade level to insure only required job requests are submitted which fall outside the capabilities of direct support units. A request for this work contract has been submitted through 20th Engineer Brigade.

c. Transportation of Repair Parts

(1) Observation: Many production hours have been saved by using air transportation to transport repair parts to the industrial sites.

(2) Evaluation: On numerous occasions parts have been flown to industrial sites during both daylight and hours of darkness. Repair times were reduced in some instances up to six hours due to the fact that parts were available at one location in the early evening hours but could not be transported to the industrial site at night on unsecure roads. Without these flights plant operation would have been delayed for an additional time. By flying these parts to the site in the evening hours the part was installed during the night, and the plant was operational the following day.

(3) Recommendation: That flights continue to be made available for the transporting of repair parts in order to cut down the non-operational time of the industrial sites.

d. Industrial site repair parts

(1) Observation: The down time of asphalt and rock crusher plants is often attributable to one or two parts which are not available in the theater due to the low stockage level for these very low density items.

(2) Evaluation: The linear flow by which either asphalt or crushed rock is produced requires that no component of a crusher or asphalt plant be inoperative or the whole plant is deadlined. To guarantee continuous production for a tightly scheduled project such as the line of communications road upgrade program in the Republic of Vietnam, the operating unit must program redundancy into the industrial site management. The nonredundant design of the plant precludes shifting the process flow to bypass an inoperative component; thus the redundant backup must be provided with stockage of all key repair parts and components. One battalion has had singular success in reducing nonoperational time by maintaining a complete set of backup engines with power takeoff shafts mounted. Component removal and installation is accomplished during the night, and the plant is operational the next day. The defective component is repaired or replaced off line without reducing production.

(3) Recommendation: A complete set of backup plant components, particularly engine packages ready for installation, should be available at each industrial site. Stockage at rear echelons in accordance with equipment densities are not responsive to the maintenance of acceptable production rates.

7. COMMUNICATIONS: None

8. MATERIALS:

a. Requisitioning of Construction Materials

(1) Observation: Recent changes in the source of supply for construction materials and changes in management data has caused problems to develop which could be eliminated or reduced by using the battalions' own DSU as the source of supply.

(2) Evaluation: Some federal stock numbers are now classed in the Management Data List as repair parts. Requests for these items are now cancelled by the present supporting DSU, causing the battalion to order those items classed as repair parts through their own DSU. Not only is additional work generated, but valuable time is lost. In addition, two DSU's become involved. Several federal supply classes have now been transferred from the ECMY to U.S. Army Depot. Requests for those items are placed through normal Depot supply channels. Shipment of these materials to an already over-burdened DSU may result in lost construction material or a delay in processing which could cause work stoppages. Shipments directly to the using battalion would save duplicate handling. The present supporting DSU has no means of editing the authorization placed on construction material request. The only function actually performed is to assign a MILSTRIP number and return the requisition to the customer for hand carry to the ECMY. Since some items are now depot stocked, it will now be necessary for the DSU to separate these requests and process as other normal

requisitions. The DSU is already overburdened; use of the battalion DSU would save a trip and reduce one source of paperwork. Class IV construction materials is a supply function which is generally not understood by DSU personnel who are primarily geared to furnish Class II supplies. Placing the responsibility for Class IV supplies under the construction battalion commander, who has qualified personnel under his command should improve the construction support program.

(3) Recommendation: That the battalion DSU be utilized as the processing source for construction materials and a separate document register with a specific block of numbers be maintained. All supply functions concerning construction materials to be accomplished by the battalion S-4, thereby separating the construction materials from the normal DSU mission.

9. OTHER: None

J. K. BRATTON
COL, CE
Commanding

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1-CO, 34th Engr Bn
1-CO, 46th Engr Bn
1-CO, 92nd Engr Bn
1-CO, 169th Engr Bn

AVBI-OS (14 May 70) 1st Ind
SUBJECT: Operational Report - Lessons Learned (Headquarters, 159th Engineer Group) Period Ending 30 April 1970, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 20th ENGINEER BRIGADE, APO 96491 11 JUN 1...

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

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

1. Submitted in accordance with USARV Regulation 525-15, dated 13 April 1968.

2. This headquarters concurs with the submitted report with the following comments:

a. Section I, paragraph 5k(2), page 32: Concur: However, when cracks are repaired in accordance with TM 9-2320-211-15, the results are satisfactory. The basic problem remains that the 25 ton semi-trailer possesses inadequate capacity to carry normal engineer items such as a D7E tractor with winch and blade. Having no other trailer to use, units must employ the 25 ton trailer which results in cracked goosenecks and frame members.

b. Section II, paragraph 6c, page 38: Concur: Due to the approaching monsoon season in III and IV CTZ, night flying will be much more hazardous than normal. Night flights must be held to a minimum and requests should be submitted only in cases of emergency. If at all possible, emergency parts runs should be handled during normal duty hours by diverting one of the Group's assigned aircraft for that day. If this is not possible, requests must be made with discretion.

FOR THE COMMANDER:

D. L. MC BRIDE
1LT, CE
Assistant Adjutant

Copy Furnished:
CO, 159th Engr Gp

AVHGC-DST (14 May 70) 2d Ind
SUBJECT: Operational Report-Lessons Learned (Headquarters, 159th Engineer Group) Period Ending 30 April 1970, RCS CSFOR-65 (R2)

Headquarters, United States Army Vietnam, APO San Francisco 96375

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 1970 from Headquarters, 159th Engineer Group and comments of indorsing headquarters.

2. Comments follow:

a. Reference item concerning "Critical Items," page 30, paragraph 5c: nonconcur. The system employed by USAD, Long Binh concerning "hand carry operations" allows five hand carry transactions per day per authorized customer. The system also allows for additional hand carry transactions, when verified, by an officer, in the grade of 06 or above, to be either a combat emergency or a requisition for a mission essential item. The present system was initiated as a result of Army Audit Agency criticism of the volume of hand carry transactions at USAD, LBN in the past. The 159th Engineer Group should contact the supporting DSU to obtain details for hand carry transactions. Unit has been so advised.

b. Reference item concerning "ARVN Support for the LOC Program," page 31, paragraph 5j: nonconcur. At the present time the 48th Transportation Group, SSC, is hauling barrels of AP-3 to Gia Ray. There is no requirement for US Engineer units to haul asphalt to the Gia Ray Asphalt Plant. Additionally a bulk procurement action for AP-3 has been initiated which will eliminate the requirement for US Army resources being tasked to haul the AP-3 and also the task of de-drumming the barrels of AP-3 at the plant. No action by USARPAC or DA is recommended.

c. Reference item concerning "25 Ton Lowbeds," page 32, paragraph 5k(2) and 1st Indorsement, paragraph 2a: concur. This problem has been brought to the attention of this Headquarters and CG USATACOM. The Army Audit Agency has also investigated this matter and made recommendations to CG USATACOM. The problem is compounded by improper loading and traveling at high speeds over rough roads. The recommended speed when the trailer is loaded is 15 mph. Engineer units should properly load all cargo and when the trailer is loaded the 15 mph speed limit should be adhered to. Unit has been so advised.

AVHGC-DST (14 May 70) 2d Ind
SUBJECT: Operational Report-Lessons Learned (Headquarters, 159th Engineer Group) Period Ending 30 April 1970, RCS CSFOR-65 (R2)

d. Reference item concerning "Contract for General Support Maintenance", page 38, paragraph b: concur with the evaluation contained in paragraph b(2). Transporting equipment parts and assemblies from 20th Brigade units to Vinnell Corporation at Cam Ranh Bay does result in a loss of equipment utilization. However, the maintenance contract with Vinnell Corporation was consummated to provide GS maintenance support for low density engineer equipment for all Engineer Command units. This Headquarters will review the GS requirement/capability to determine if additional contract support should be available in the Long Binh area. No action by USARPAC or DA is recommended.

e. Reference item concerning "Industrial Site Repair Parts", page 38, paragraph d: concur with the recommendation contained in paragraph d(3) if "components" are taken to mean repair parts and sub-assemblies. Project IMG, initiated in September 1969, was designed to provide each industrial site with repair parts based on its particular needs. It is impractical to provide every industrial site with a complete set of back-up major components (i.e., mixer, gradation control unit, aggregate dryer). Currently one complete set of asphalt plant components and additional critical components (i.e., gradation control units) is being repaired by Vinnell Corporation at Cam Ranh Bay for the purpose of providing just such back-up support. No action by USARPAC or DA is recommended.

f. Reference item concerning "Requisitioning of Construction Materials", page 39, paragraph 8a: concur. The Supply Operation Branch, Supply Division of the USARV G4 is currently studying this situation. Upon completion of this review, appropriate action will be taken. No action by USARPAC or DA is recommended.

FOR THE COMMANDER:

D. J. Winter
CPT, AGC
Assistant Adjutant General

Cy furn:
20th Engr Bde
159th Engr Gp

GPOP-DT (14 May 70) 3d Ind
SUBJECT: Operational Report of HQ, 159th Engineer Group for Period Ending 30 April 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 9 AUG 70

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

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

D.D. Cline

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2LT, AGC
Asst AG

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