

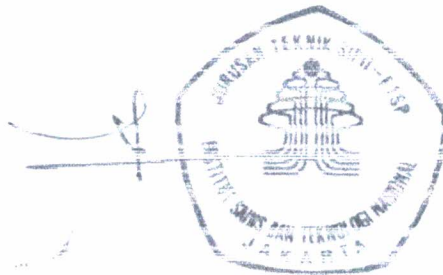
**LEMBAR PENGESAHAN
PENGABDIAN PADA MASYARAKAT**



**PENYELIDIKAN TANAH CBR LAPANGAN PENINGKATAN
JALAN TB ANGKE
Lokasi : Jakarta**

Oleh :
Idrus Ir, M.Sc

Mengetahui :
Ketua Jurusan Teknik Sipil



Ir. Atjep Sudarjanto, M.T

Program Studi Teknik Sipil
Institut Sain dan Teknologi Nasional
Jakarta 2008

THE UNIVERSITY OF CHICAGO

PHILOSOPHY DEPARTMENT



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FINAL REPORT

SOIL INVESTIGATION

PROJECT :

CBR FIELD TEST

PENINGKATAN JALAN TB. ANGKE

LOCATION : JAKARTA



**LABORATORIUM MEKANIKA TANAH
INSTITUT SAINS DAN TEKNOLOGI NASIONAL**

KAMPUS ISTN BHUMI SRENGSENG INDAH JALAN MOCH KAHFI 2 JAGAKARSA - JAKARTA 12640
TELPON. 021 98189554 FAX. 021 78893379



**LABORATORIUM MEKANIKA TANAH
INSTITUT SAINS DAN TEKNOLOGI NASIONAL**

KAMPUS ISTN BHUMI SRENGSENG INDAH JALAN MOCH KAHFI 2 JAGAKARSA - JAKARTA 12640
TELPON. 021 98189554 FAX . 021 78893379

Jakarta 03 September 2008
No: 03-09.2/FR/CBR/IX/08

Kepada Yth
PT. PANGKHO MEGAH
Jl. Asem Baris Raya, No.52, Kebon Baru
Tebet, Jakarta Selatan

Perihal : Laporan Uji CBR Lapangan di Peningkatan Jalan TB. Angke
Dengan hormat,

Sehubungan permohonan yang kami terima untuk melakukan pengujian CBR lapangan pada proyek : Peningkatan Jalan TB. Angke ,maka kami Laboratorium Mekanika Tanah ISTN, akan melaporkan hasil pengujian yang telah kami lakukan sbb :

1. Uji CBR Lapangan kami lakukan pada 02 September 2008 sebanyak 10 (sepuluh) titik pengujian pada lapisan basecourse (limestone)
2. Hasil uji sbb :

| No | CBR 0,1" | Jenis tanah | Keterangan |
|----|----------|-------------|------------|
| 1 | 12.66 | limestone | |
| 2 | 17.40 | limestone | |
| 3 | 53.79 | limestone | |
| 4 | 42.71 | limestone | |
| 5 | 44.29 | limestone | |
| 6 | 33.22 | limestone | |
| 7 | 41.13 | limestone | |
| 8 | 18.98 | limestone | |
| 9 | 44.29 | limestone | |
| 10 | 31.64 | limestone | |

3. Hasil uji CBR lapangan untuk subgrade berkisar antara 12.66 s/d 53.79 %.

Hasil uji CBR lapangan terlampir.

Demikianlah laporan ini kami buat dengan sebenar benarnya.

Hormat kami,
ISTN Soil Mechanics Laboratory



Idrus Muhammad Ir. M.Sc

REG LPJK : 1.2.500.2.31.09.03.000007

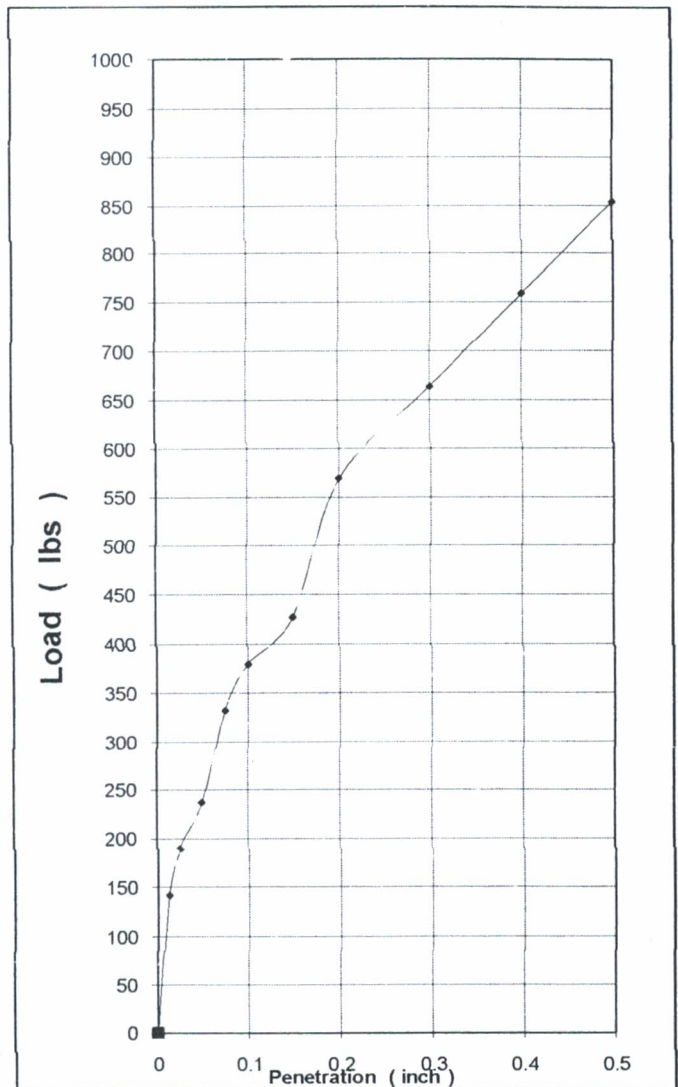
LAY-OUT TITIK CBR
SITE : PENINGKATAN JALAN TB. ANGKE
TANGERANG

| | | |
|----|---|----------|
| 10 | ● | STA 2055 |
| 9 | ● | STA 1980 |
| 8 | ● | STA 1905 |
| 7 | ● | STA 1830 |
| 6 | ● | STA 1755 |
| 5 | ● | STA 1680 |
| 4 | ● | STA 1605 |
| 3 | ● | STA 1530 |
| 2 | ● | STA 1455 |
| 1 | ● | STA 1380 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|----------------------|-----------------------------|-------------------------|--------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE | | |
| LOCATION | Jakarta | | |
| Location of Tested | No : 1 | Date of Test | September 02, 2008 |
| Soil Description | Limestone | Tested By | Budi |
| Coordinate of Tested | N : E : | Calibration (lbs/div) | 47.45784 |
| Elevation | | Standard of Test | ASTM |

| Time /minute | Penetration | | Load | |
|-----------------|-------------|---------------|------------|------------|
| | (inch) | (Dial mm/100) | Prov. Ring | Load(lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 3.0 | 142.37 |
| 0.50 | 0.025 | 63.5 | 4.0 | 189.83 |
| 1.00 | 0.05 | 127 | 5.0 | 237.29 |
| 1.50 | 0.075 | 190.5 | 7.0 | 332.20 |
| 2.00 | 0.1 | 254 | 8.0 | 379.66 |
| 3.00 | 0.15 | 381 | 9.0 | 427.12 |
| 4.00 | 0.2 | 508 | 12.0 | 569.49 |
| 6.00 | 0.3 | 762 | 14.0 | 664.41 |
| 8.00 | 0.4 | 1016 | 16.0 | 759.33 |
| 10.00 | 0.5 | 1270 | 18.0 | 854.24 |



Field Water Content (%)

| | Unit |
|----------------------|------|
| Weight of Container | gram |
| Wet Soil & Container | gram |
| Dry Soil & Container | gram |
| Field Water Content | % |

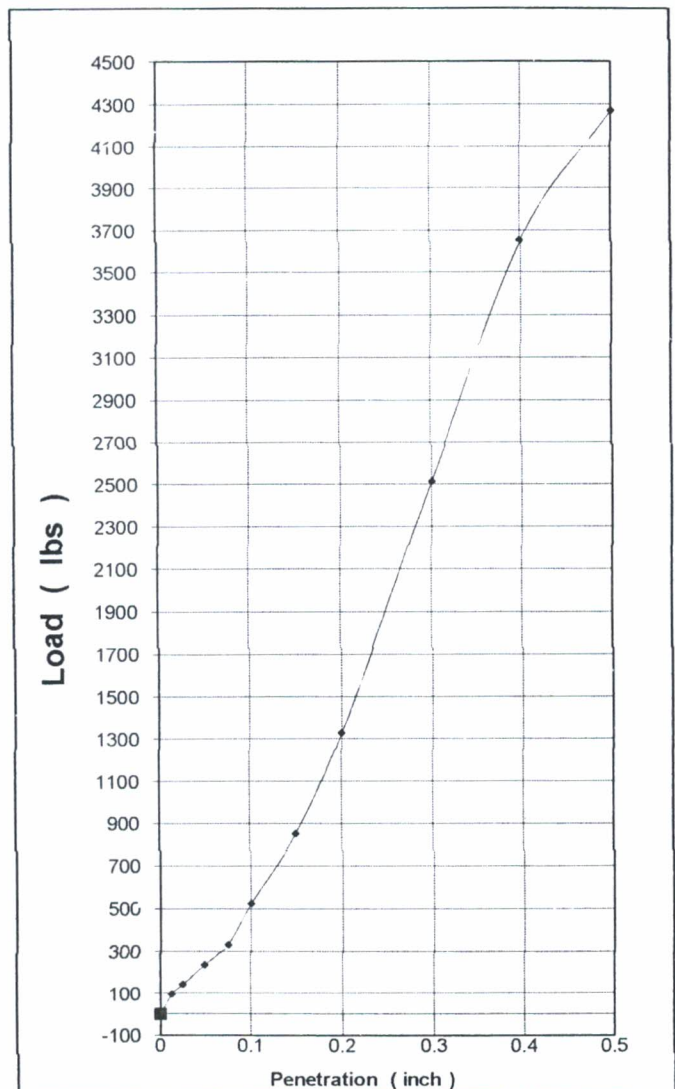
C.B.R VALUE

| | Penetration | |
|-------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| C.B.R VALUE | 12.66 | 12.66 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|----------------------|----------------------------------|-------------------------|--------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested | No : 2 | Date of Test | September 02, 2008 |
| Soil Description | Limestone | Tested By | Budi |
| Coordinate of Tested | N : E : | Calibration (lbs/div) | 47.45784 |
| Elevation | | Standard of Test | ASTM |

| Time Minute | Penetration | | Load | |
|----------------|-------------|---------------|-----------|------------|
| | (inch) | (Dial mm/100) | Prov.Ring | Load(lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 2.0 | 94.92 |
| 0.50 | 0.025 | 63.5 | 3.0 | 142.37 |
| 1.00 | 0.05 | 127 | 5.0 | 237.29 |
| 1.50 | 0.075 | 190.5 | 7.0 | 332.20 |
| 2.00 | 0.1 | 254 | 11.0 | 522.04 |
| 3.00 | 0.15 | 381 | 18.0 | 854.24 |
| 4.00 | 0.2 | 508 | 28.0 | 1328.82 |
| 6.00 | 0.3 | 762 | 53.0 | 2515.27 |
| 8.00 | 0.4 | 1016 | 77.0 | 3654.25 |
| 10.00 | 0.5 | 1270 | 90.0 | 4271.21 |



Field Water Content (%)

| | Unit |
|----------------------|------|
| Weight of Container | gram |
| Wet Soil & Container | gram |
| Dry Soil & Container | gram |
| Field Water Content | % |

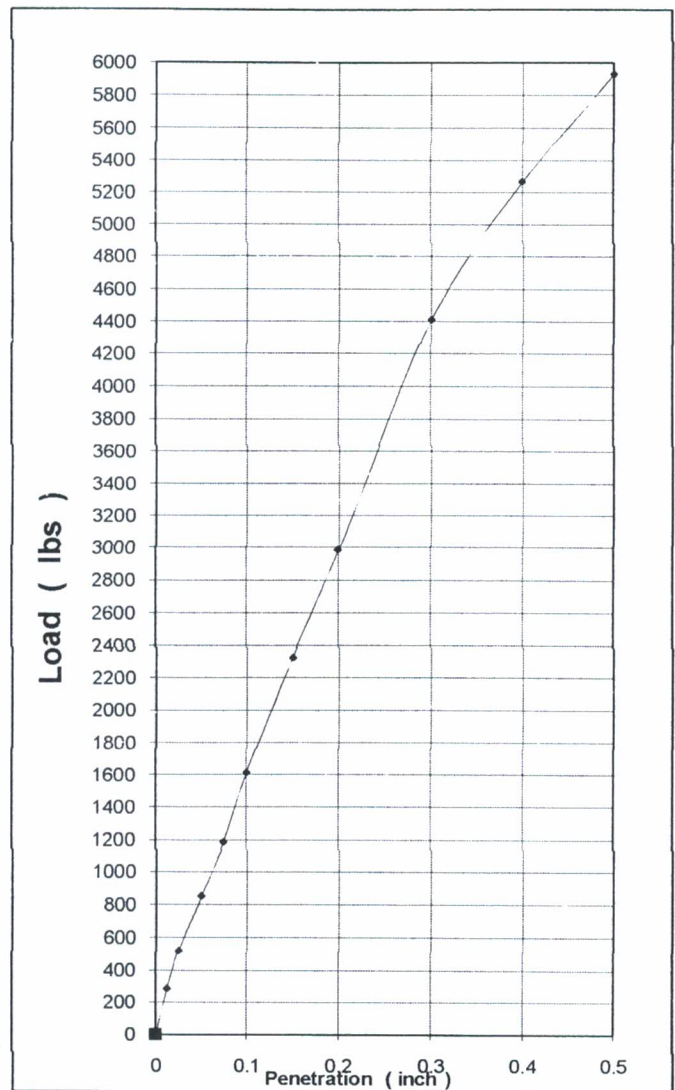
C.B.R VALUE

| | Penetration | |
|-------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| C.B.R VALUE | 17.40 | 29.53 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|----------------------|----------------------------------|-------------------------|--------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested | No : 3 | Date of Test | September 02, 2008 |
| soil Description | Limestone | Tested By | Budi |
| Coordinate of Tested | N : E : | Calibration (lbs/div) | 47.45784 |
| levation | | Standard of Test | ASTM |

| Time /minute | Penetration | | Load | |
|--------------|-------------|---------------|------------|--------------|
| | (inch) | (Dial mm/100) | Prov. Ring | Load (lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 6.0 | 284.75 |
| 0.50 | 0.025 | 63.5 | 11.0 | 522.04 |
| 1.00 | 0.05 | 127 | 18.0 | 854.24 |
| 1.50 | 0.075 | 190.5 | 25.0 | 1186.45 |
| 2.00 | 0.1 | 254 | 34.0 | 1613.57 |
| 3.00 | 0.15 | 381 | 49.0 | 2325.43 |
| 4.00 | 0.2 | 508 | 63.0 | 2989.84 |
| 6.00 | 0.3 | 762 | 93.0 | 4413.58 |
| 8.00 | 0.4 | 1016 | 111.0 | 5267.82 |
| 10.00 | 0.5 | 1270 | 125.0 | 5932.23 |



Field Water Content (%)

| | Unit |
|----------------------------|------|
| Weight of Container | gm |
| Weight of Soil & Container | gm |
| Weight of Soil & Container | gm |
| Field Water Content | % |

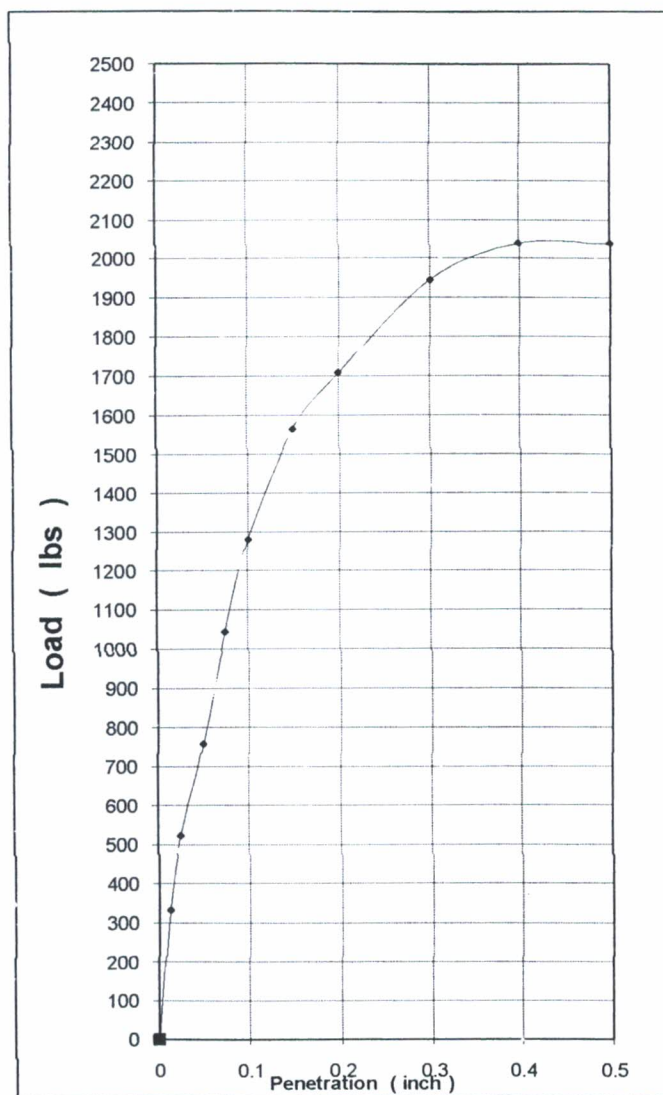
C.B.R VALUE

| | Penetration | |
|-------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| C.B.R VALUE | 53.79 | 66.44 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|---|---|--|--|
| PROJECT | PENINGKATAN JALAN TB. ANGKE 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested Soil Description Coordinate of Tested Elevation | No : 4 <i>Limestone</i> N : E : | Date of Test Tested By Calibration (lbs/div) Standard of Test | September 02, 2008 Budi 47.45784 ASTM |

| Time /minute | Penetration | | Load | |
|-----------------|-------------|---------------|-----------|------------|
| | (inch) | (Dial mm/100) | Prov Ring | Load(lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 7.0 | 332.20 |
| 0.50 | 0.025 | 63.5 | 11.0 | 522.04 |
| 1.00 | 0.05 | 127 | 16.0 | 759.33 |
| 1.50 | 0.075 | 190.5 | 22.0 | 1044.07 |
| 2.00 | 0.1 | 254 | 27.0 | 1281.36 |
| 3.00 | 0.15 | 381 | 33.0 | 1566.11 |
| 4.00 | 0.2 | 508 | 36.0 | 1708.48 |
| 6.00 | 0.3 | 762 | 41.0 | 1945.77 |
| 8.00 | 0.4 | 1016 | 43.0 | 2040.69 |
| 10.00 | 0.5 | 1270 | 43.0 | 2040.69 |



Field Water Content (%)

| | Unit |
|----------------------------|------|
| Weight of Container | gram |
| Weight of Soil & Container | gram |
| Weight of Soil & Container | gram |
| Field Water Content | % |

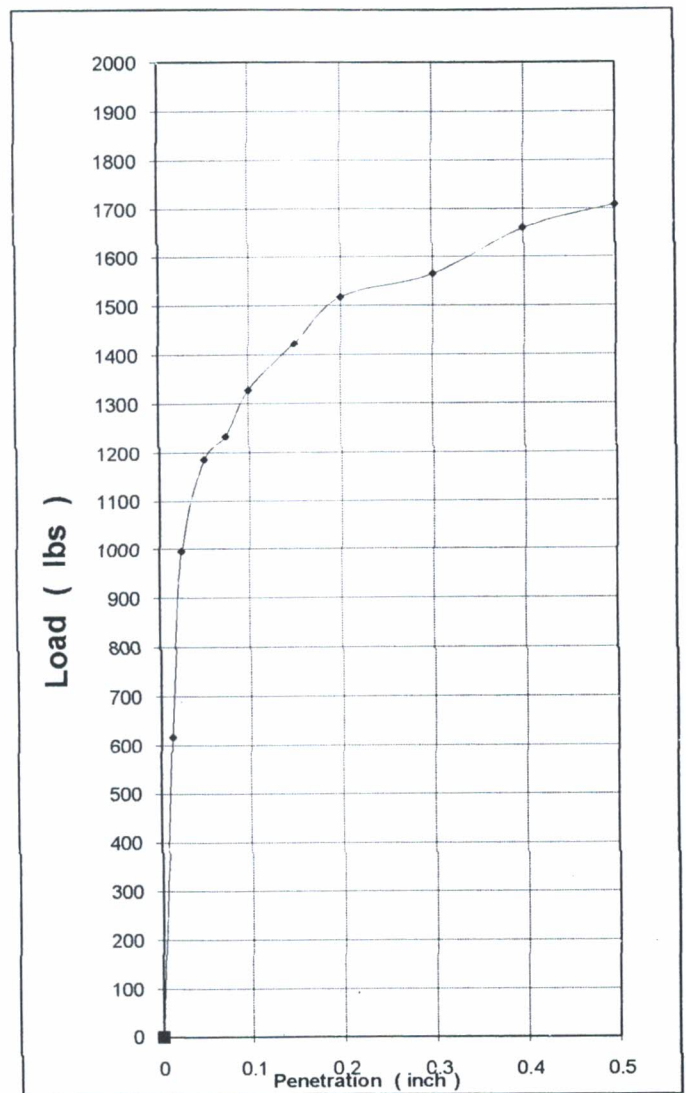
C.B.R VALUE

| | Penetration | |
|-------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| C.B.R VALUE | 42.71 | 37.97 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|----------------------|----------------------------------|-------------------------|--------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested | No : 5 | Date of Test | September 02, 2008 |
| soil Description | Limestone | Tested By | Budi |
| Coordinate of Tested | N : E : | Calibration (lbs/div) | 47.45784 |
| levation | | Standard of Test | ASTM |

| Time /minute | Penetration | | Load | |
|-----------------|-------------|---------------|------------|------------|
| | (inch) | (Dial mm/100) | Prov. Ring | Load(lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 13.0 | 616.95 |
| 0.50 | 0.025 | 63.5 | 21.0 | 996.61 |
| 1.00 | 0.05 | 127 | 25.0 | 1186.45 |
| 1.50 | 0.075 | 190.5 | 26.0 | 1233.90 |
| 2.00 | 0.1 | 254 | 28.0 | 1328.82 |
| 3.00 | 0.15 | 381 | 30.0 | 1423.74 |
| 4.00 | 0.2 | 508 | 32.0 | 1518.65 |
| 6.00 | 0.3 | 762 | 33.0 | 1566.11 |
| 8.00 | 0.4 | 1016 | 35.0 | 1661.02 |
| 10.00 | 0.5 | 1270 | 36.0 | 1708.48 |



Field Water Content (%)

| | Unit |
|----------------------|------|
| Weight of Container | gm |
| Wet Soil & Container | gm |
| Dry Soil & Container | gm |
| Field Water Content | % |

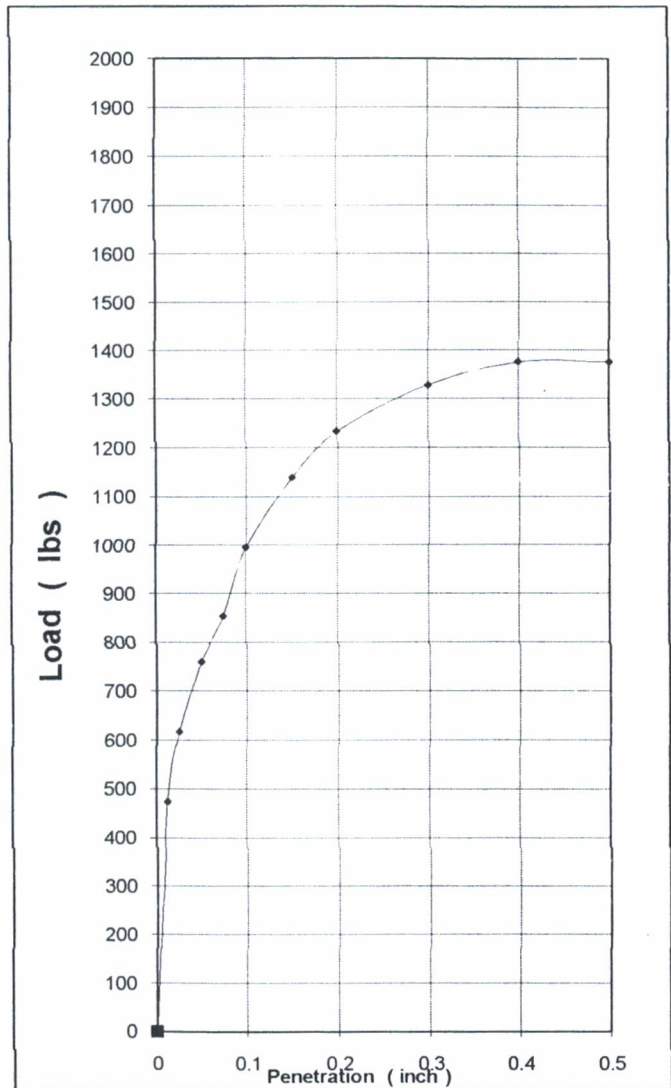
Soil B.R VALUE

| | Penetration | |
|----------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| Soil B.R VALUE | 44.29 | 33.75 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|----------------------|----------------------------------|-------------------------|--------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested | No : 6 | Date of Test | September 02, 2008 |
| Soil Description | Limestone | Tested By | Budi |
| Coordinate of Tested | N : E : | Calibration (lbs/div) | 47.45784 |
| Elevation | | Standard of Test | ASTM |

| Time /minute | Penetration | | Load | |
|-----------------|-------------|---------------|------------|------------|
| | (inch) | (Dial mm/100) | Prov. Ring | Load(lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 10.0 | 474.58 |
| 0.50 | 0.025 | 63.5 | 13.0 | 616.95 |
| 1.00 | 0.05 | 127 | 16.0 | 759.33 |
| 1.50 | 0.075 | 190.5 | 18.0 | 854.24 |
| 2.00 | 0.1 | 254 | 21.0 | 996.61 |
| 3.00 | 0.15 | 381 | 24.0 | 1138.99 |
| 4.00 | 0.2 | 508 | 26.0 | 1233.90 |
| 6.00 | 0.3 | 762 | 28.0 | 1328.82 |
| 8.00 | 0.4 | 1016 | 29.0 | 1376.28 |
| 10.00 | 0.5 | 1270 | 29.0 | 1376.28 |



Field Water Content (%)

| | Unit |
|----------------------|------|
| Weight of Container | gm |
| Wet Soil & Container | gm |
| Dry Soil & Container | gm |
| Field Water Content | % |

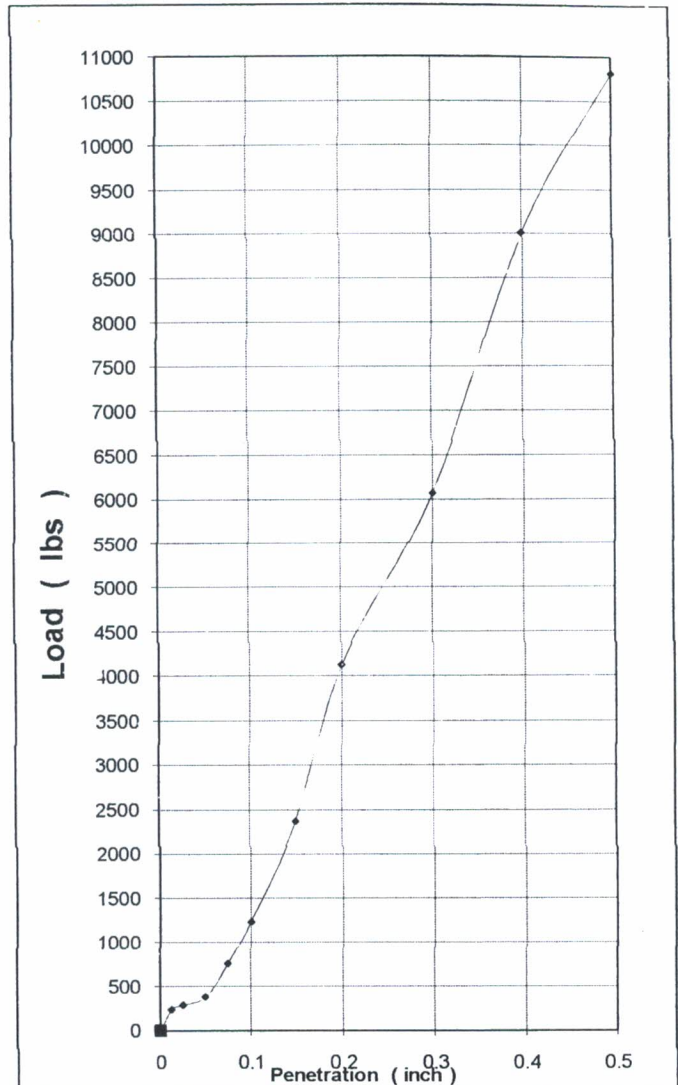
Soil B.R VALUE

| | Penetration | |
|----------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| Soil B.R VALUE | 33.22 | 27.42 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|----------------------|----------------------------------|-------------------------|--------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested | No : 7 | Date of Test | September 02, 2008 |
| Soil Description | Limestone | Tested By | Budi |
| Coordinate of Tested | N : E : | Calibration (lbs/div) | 47.45784 |
| Elevation | | Standard of Test | ASTM |

| Time Minute | Penetration | | Load | |
|----------------|-------------|---------------|------------|------------|
| | (inch) | (Dial mm/100) | Prov. Ring | Load(lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 5.0 | 237.29 |
| 0.50 | 0.025 | 63.5 | 6.0 | 284.75 |
| 1.00 | 0.05 | 127 | 8.0 | 379.66 |
| 1.50 | 0.075 | 190.5 | 16.0 | 759.33 |
| 2.00 | 0.1 | 254 | 26.0 | 1233.90 |
| 3.00 | 0.15 | 381 | 50.0 | 2372.89 |
| 4.00 | 0.2 | 508 | 87.0 | 4128.83 |
| 6.00 | 0.3 | 762 | 128.0 | 6074.60 |
| 8.00 | 0.4 | 1016 | 190.0 | 9016.99 |
| 10.00 | 0.5 | 1270 | 228.0 | 10820.39 |



Field Water Content (%)

| | Unit |
|----------------------|------|
| Weight of Container | gm |
| Net Soil & Container | gm |
| Dry Soil & Container | gm |
| Field Water Content | % |

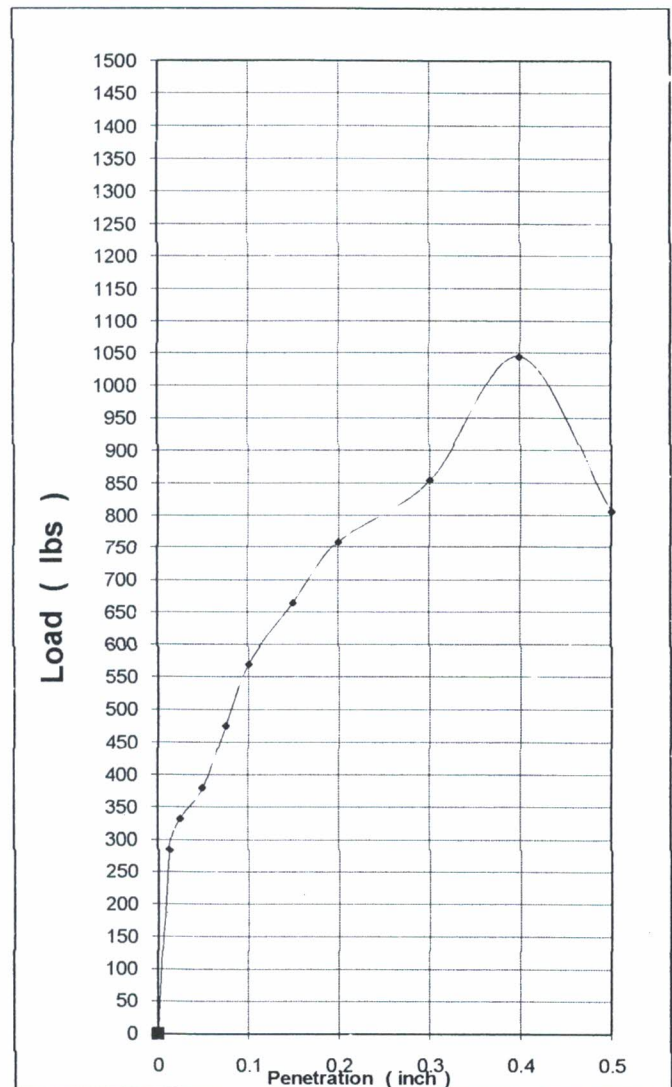
C.B.R VALUE

| | Penetration | |
|-------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| C.B.R VALUE | 41.13 | 91.75 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|-------------------------------------|----------------------------------|---|----------------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested Soil Description | No : 8 <i>Limestone</i> | Date of Test Tested By | September 02, 2008 Budi |
| Coordinate of Tested Location | N : E : | Calibration (lbs/div) Standard of Test | 47.45784 ASTM |

| Time Minute | Penetration | | Load | |
|----------------|-------------|---------------|------------|------------|
| | (inch) | (Dial mm/100) | Prov. Ring | Load(lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 6.0 | 284.75 |
| 0.50 | 0.025 | 63.5 | 7.0 | 332.20 |
| 1.00 | 0.05 | 127 | 8.0 | 379.66 |
| 1.50 | 0.075 | 190.5 | 10.0 | 474.58 |
| 2.00 | 0.1 | 254 | 12.0 | 569.49 |
| 3.00 | 0.15 | 381 | 14.0 | 664.41 |
| 4.00 | 0.2 | 508 | 16.0 | 759.33 |
| 6.00 | 0.3 | 762 | 18.0 | 854.24 |
| 8.00 | 0.4 | 1016 | 22.0 | 1044.07 |
| 10.00 | 0.5 | 1270 | 17.0 | 806.78 |



Field Water Content (%)

| | Unit |
|----------------------------|------|
| Weight of Container | gram |
| Weight of Soil & Container | gram |
| Weight of Soil & Container | gram |
| Field Water Content | % |

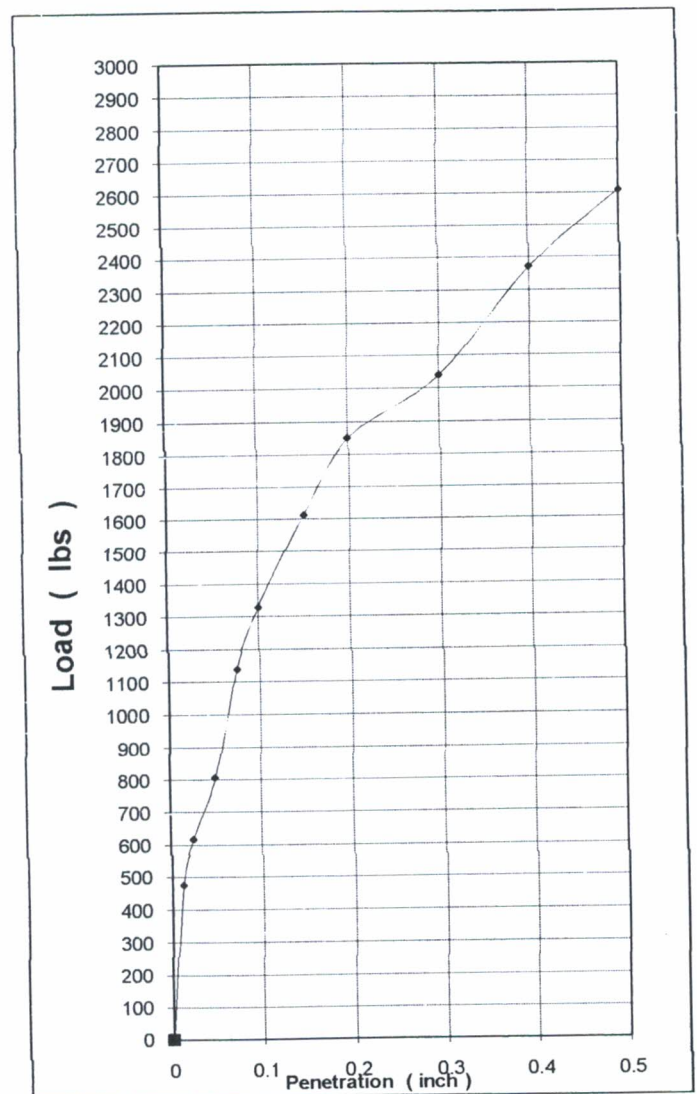
C.B.R VALUE

| | Penetration | |
|-------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| C.B.R VALUE | 18.98 | 16.87 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|----------------------|-----------------------------|-------------------------|--------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE | | |
| | 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested | No : 9 | Date of Test | September 02, 2008 |
| soil Description | Limestone | Tested By | Budi |
| Coordinate of Tested | N : E : | Calibration (lbs/div) | 47.45784 |
| levation | | Standard of Test | ASTM |

| Time Minute | Penetration | | Load | |
|----------------|-------------|---------------|------------|------------|
| | (inch) | (Dial mm/100) | Prov. Ring | Load(lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 10.0 | 474.58 |
| 0.50 | 0.025 | 63.5 | 13.0 | 616.95 |
| 1.00 | 0.05 | 127 | 17.0 | 806.78 |
| 1.50 | 0.075 | 190.5 | 24.0 | 1138.99 |
| 2.00 | 0.1 | 254 | 28.0 | 1328.82 |
| 3.00 | 0.15 | 381 | 34.0 | 1613.57 |
| 4.00 | 0.2 | 508 | 39.0 | 1850.86 |
| 6.00 | 0.3 | 762 | 43.0 | 2040.69 |
| 8.00 | 0.4 | 1016 | 50.0 | 2372.89 |
| 10.00 | 0.5 | 1270 | 55.0 | 2610.18 |



Field Water Content (%)

| | Unit |
|----------------------|------|
| Weight of Container | gm |
| Wet Soil & Container | gm |
| Dry Soil & Container | gm |
| Field Water Content | % |

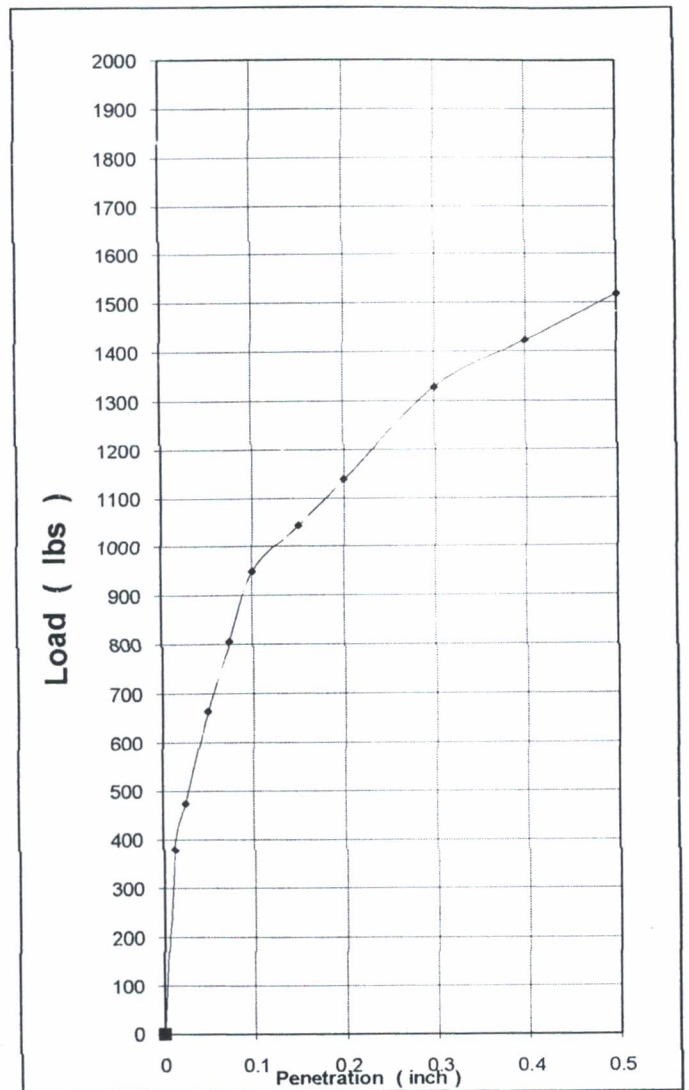
CBR VALUE

| | Penetration | |
|-----------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| CBR VALUE | 44.29 | 41.13 |

CALIFORNIA BEARING RATIO FIELD TEST

| | | | |
|----------------------|-----------------------------|-------------------------|--------------------|
| PROJECT | PENINGKATAN JALAN TB. ANGKE | | |
| | 0 | | |
| LOCATION | Jakarta | | |
| Location of Tested | No. 10 | Date of Test | September 02, 2008 |
| Soil Description | Limestone | Tested By | Budi |
| Coordinate of Tested | N : E : | Calibration (lbs/div) | 47.45784 |
| Elevation | | Standard of Test | ASTM |

| Time Minute | Penetration | | Load | |
|----------------|-------------|---------------|------------|------------|
| | (inch) | (Dial mm/100) | Prov. Ring | Load (lbs) |
| 0.00 | 0 | 0 | 0.0 | 0 |
| 0.25 | 0.0125 | 31.75 | 8.0 | 379.66 |
| 0.50 | 0.025 | 63.5 | 10.0 | 474.58 |
| 1.00 | 0.05 | 127 | 14.0 | 664.41 |
| 1.50 | 0.075 | 190.5 | 17.0 | 806.78 |
| 2.00 | 0.1 | 254 | 20.0 | 949.16 |
| 3.00 | 0.15 | 381 | 22.0 | 1044.07 |
| 4.00 | 0.2 | 508 | 24.0 | 1138.99 |
| 6.00 | 0.3 | 762 | 28.0 | 1328.82 |
| 8.00 | 0.4 | 1016 | 30.0 | 1423.74 |
| 10.00 | 0.5 | 1270 | 32.0 | 1518.65 |



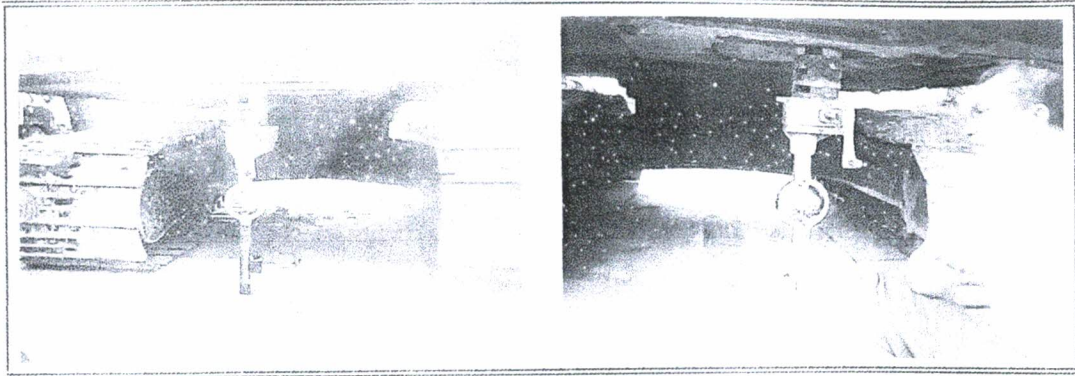
Field Water Content (%)

| | Unit |
|----------------------|------|
| Weight of Container | gm |
| Wet Soil & Container | gm |
| Dry Soil & Container | gm |
| Field Water Content | % |

C.B.R VALUE

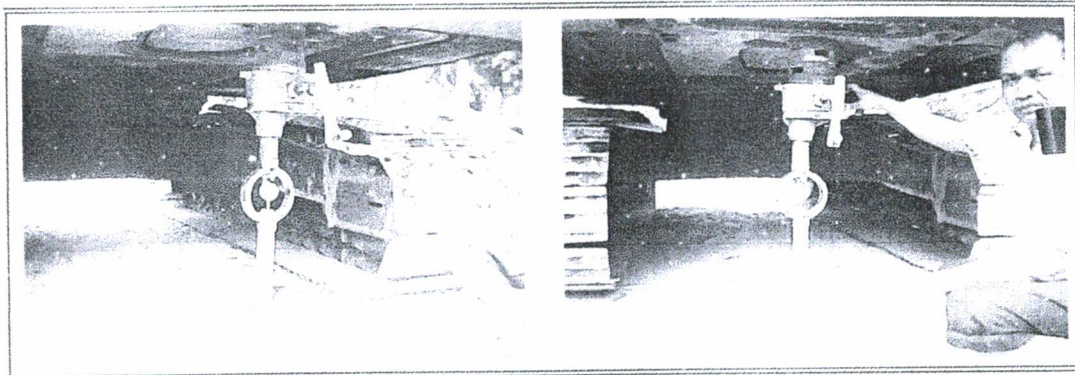
| | Penetration | |
|-------------|-------------|----------|
| | 0.1 inch | 0.2 inch |
| C.B.R VALUE | 31.64 | 25.31 |

DOKUMENTASI CBR : PENINGKATAN JALAN TB. ANGKE
JAKARTA



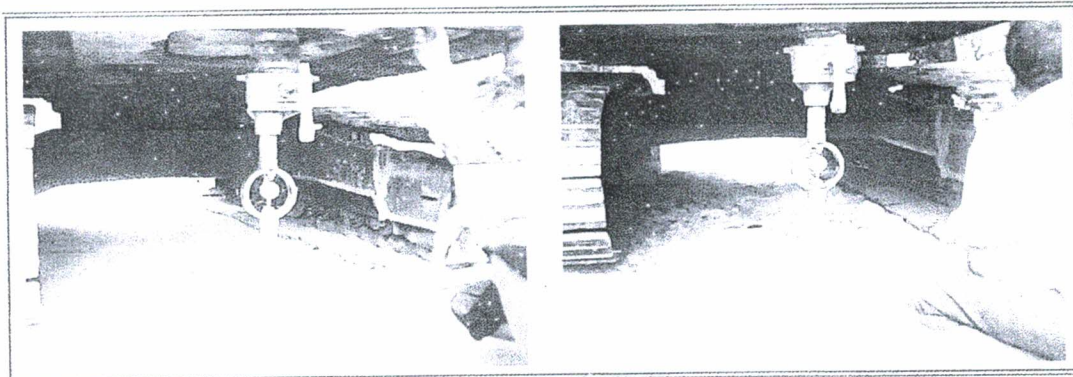
Titik-1

Titik-2



Titik-3

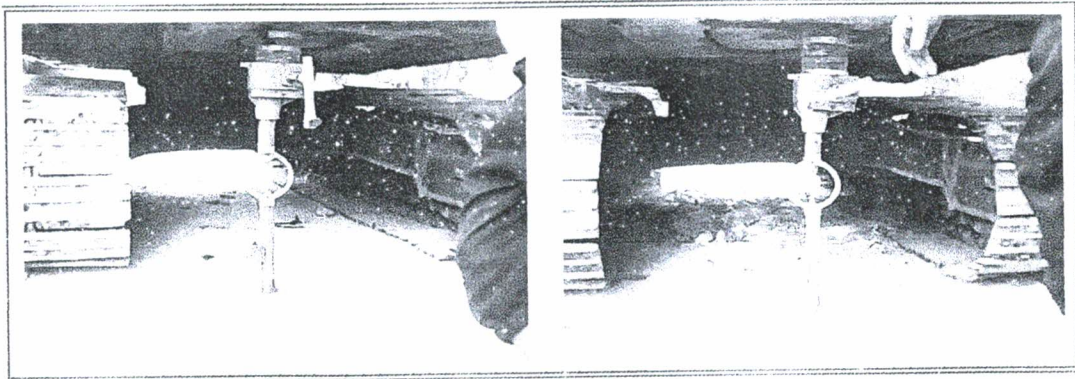
Titik-4



Titik-5

Titik-6

DOKUMENTASI CBR : PENINGKATAN JALAN TB. ANGKE
JAKARTA



Titik-7

Titik-8



Titik-9

Titik-10