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7.2 PHOTOGRAPHIC DOCUMENTATION

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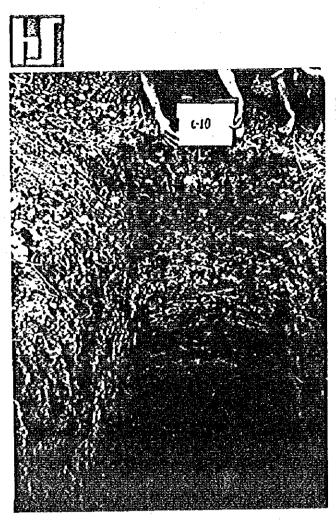
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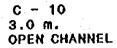
TEST PIT

### WORK: OPEN CHANNEL

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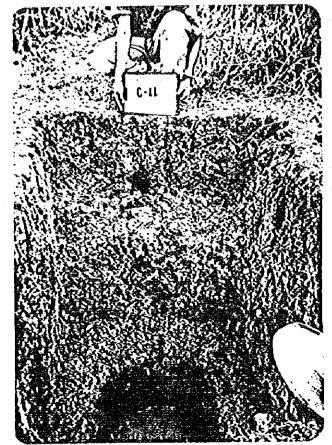


| TEST | PIT | NQ: |
|------|-----|-----|
| DEPT | H:  |     |
| WORK | :   |     |



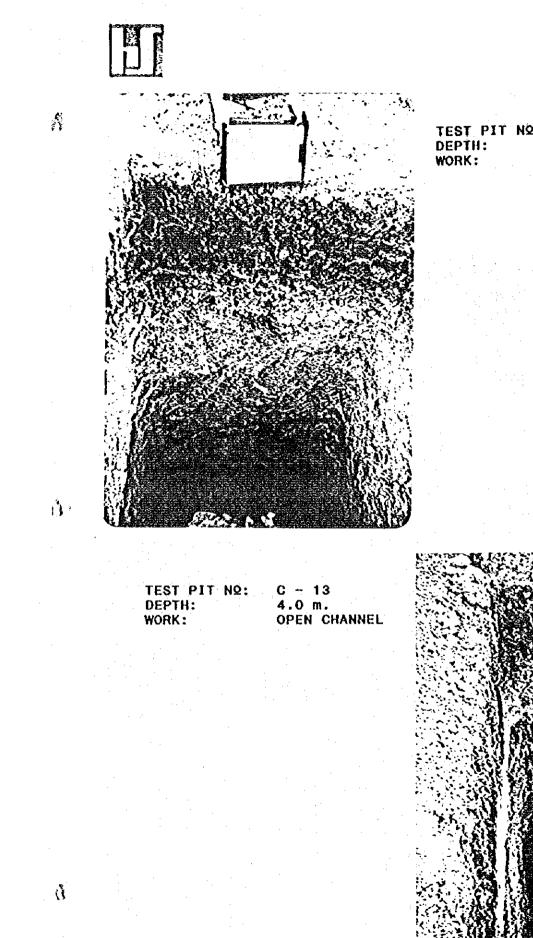
| TEST PIT N | Q: C - 11    |
|------------|--------------|
| DEPTH:     | 2.0 m.       |
| WORK:      | OPEN CHANNEL |

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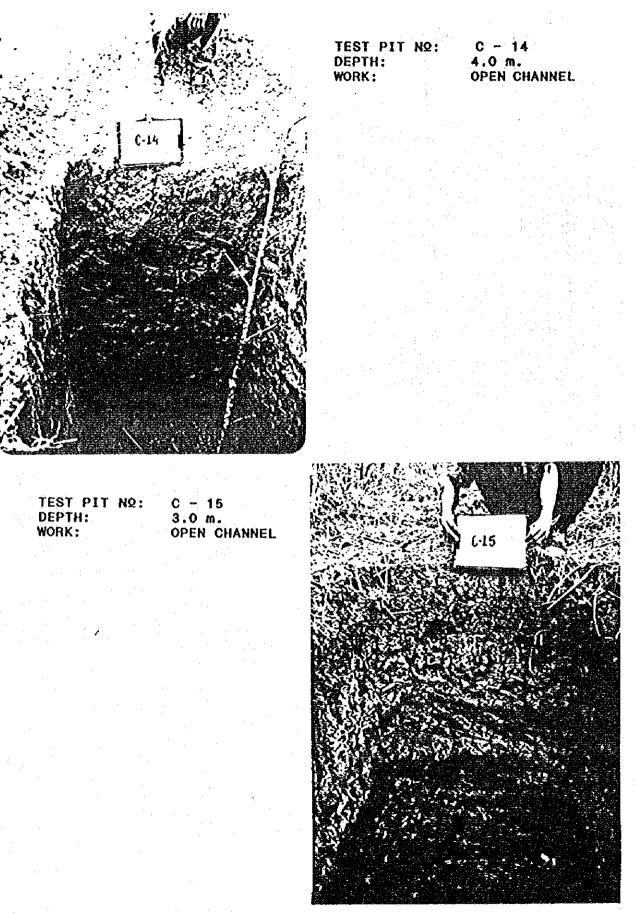
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TEST PIT NQ:C - 12DEPTH:4.0 m.WORK:OPEN CHANNEL

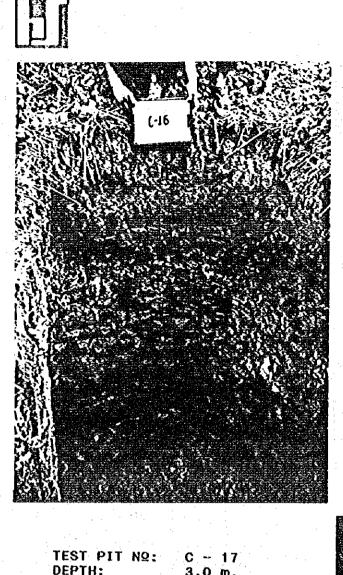
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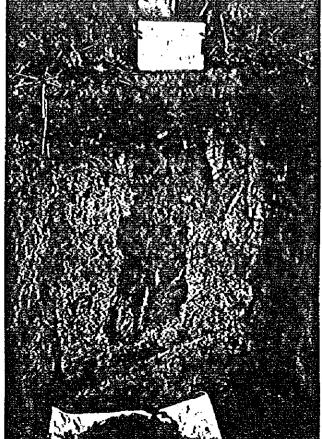


TEST PIT NQ: DEPTH: WORK:

C - 16 4.0 m. OPEN CHANNEL

TEST PIT NO: DEPTH: WORK:

C - 17 3.0 m. OPEN CHANNEL

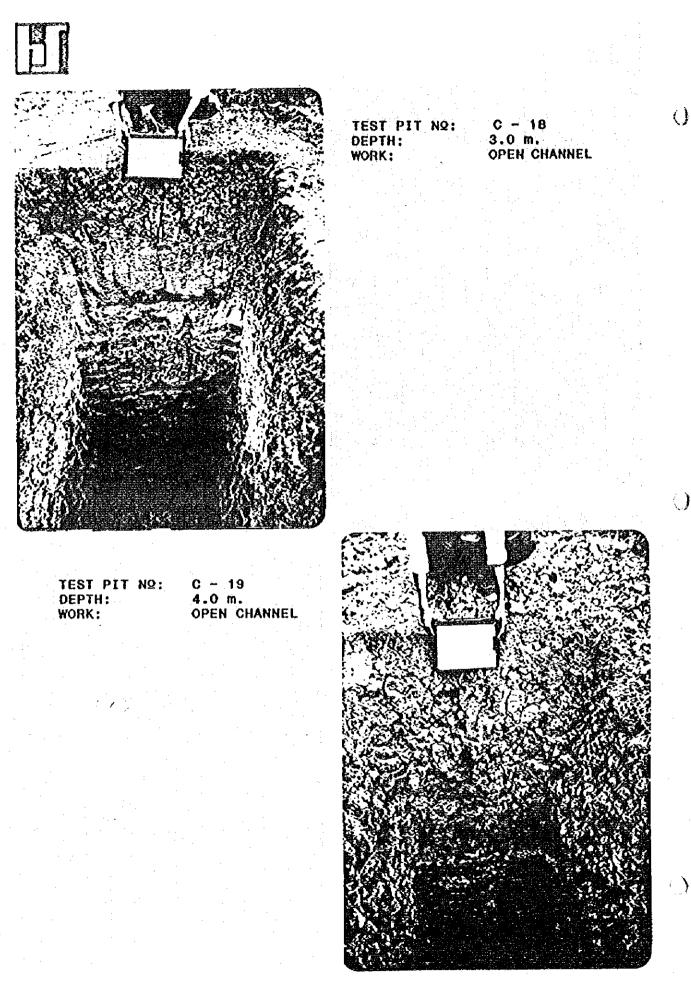


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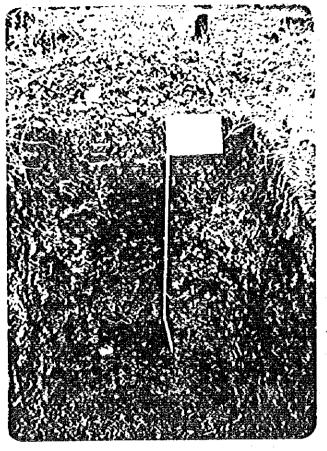
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## TEST PIT

### WORK: TRANSMISSION LINE





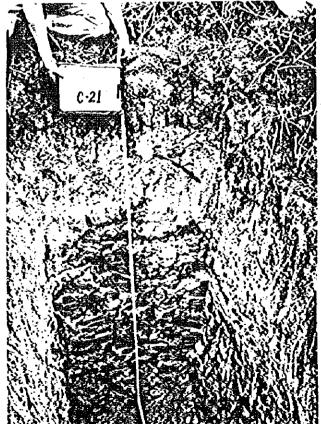
TEST PIT NO: DEPTH: WORK: C - 20 1.5 m. TRANSMISSION LINE ()

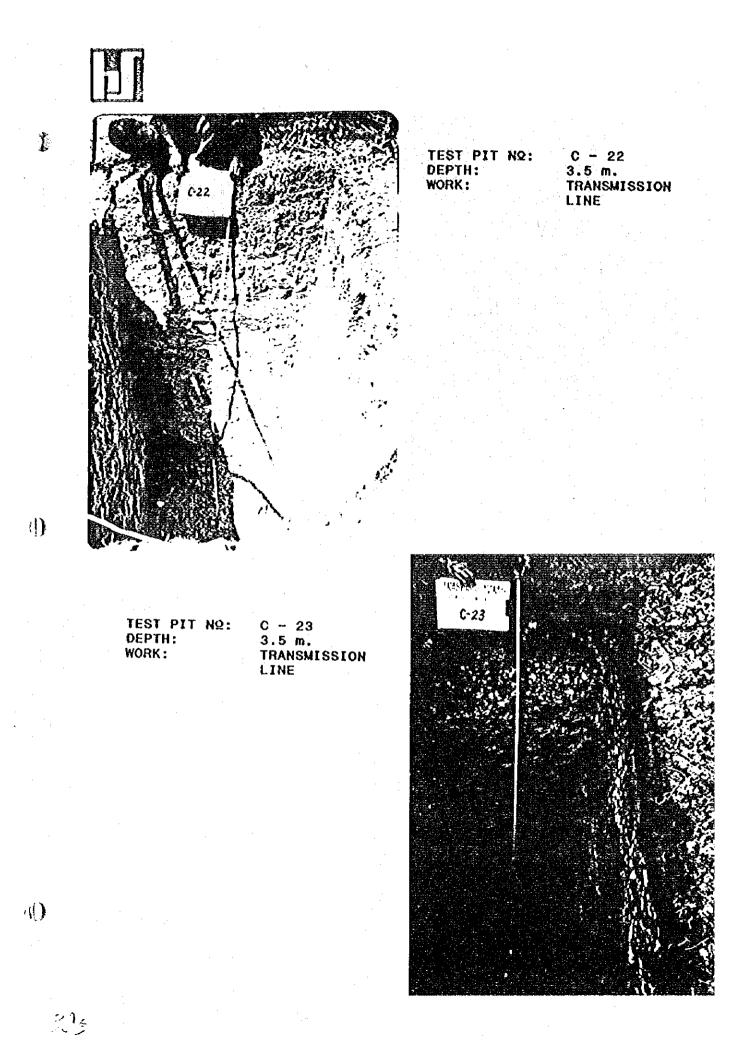
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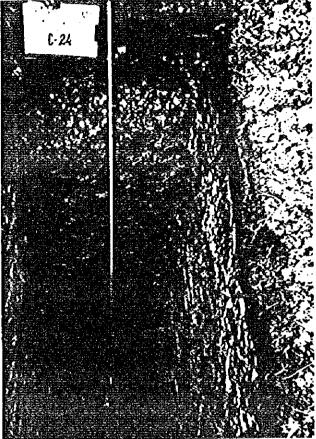
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| TEST  | PIT | NQ: |
|-------|-----|-----|
| DEPTI | 1:  |     |
| WORK  | :   |     |

C - 21 3.0 m. TRANSMISSION LINE







TEST PIT NO: DEPTH: WORK:

C - 24 4.0 m. TRANSMISSION LINE Ü

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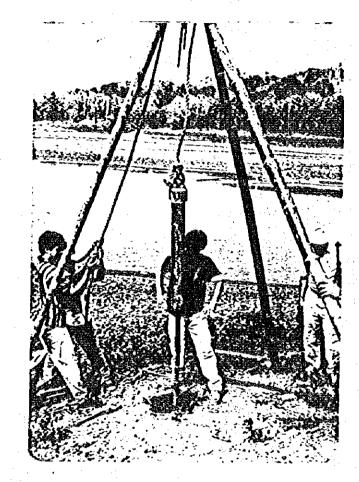
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SOUNDING WITH TOWER





#### SOUNDING WITHOUT TOWER

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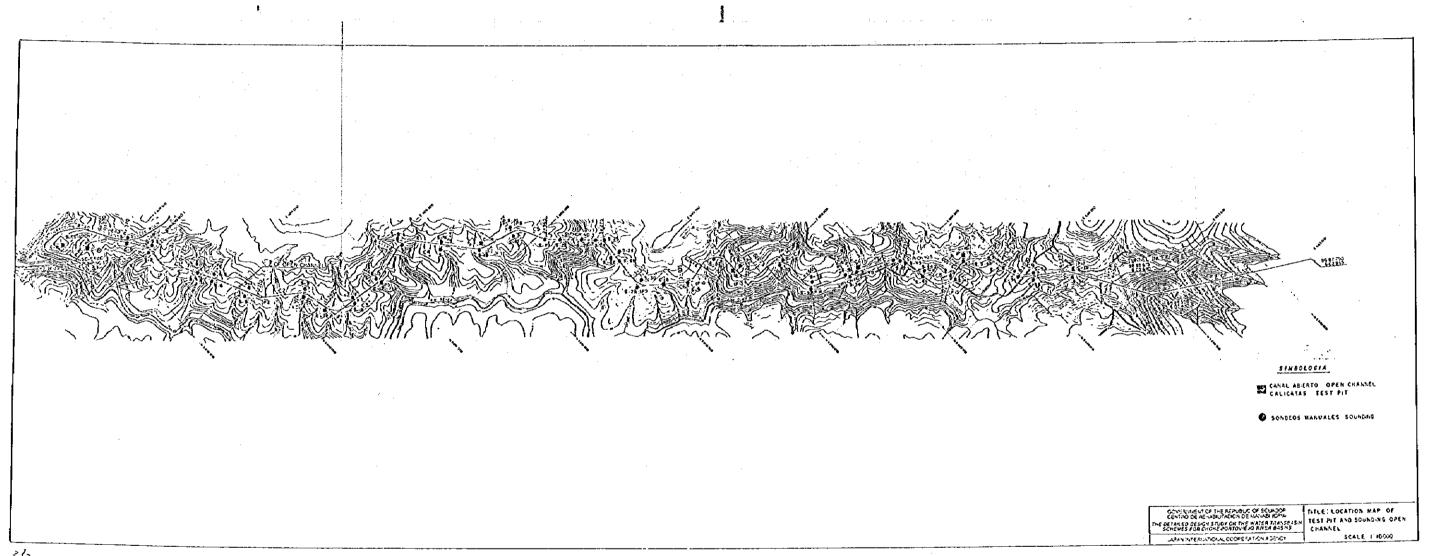


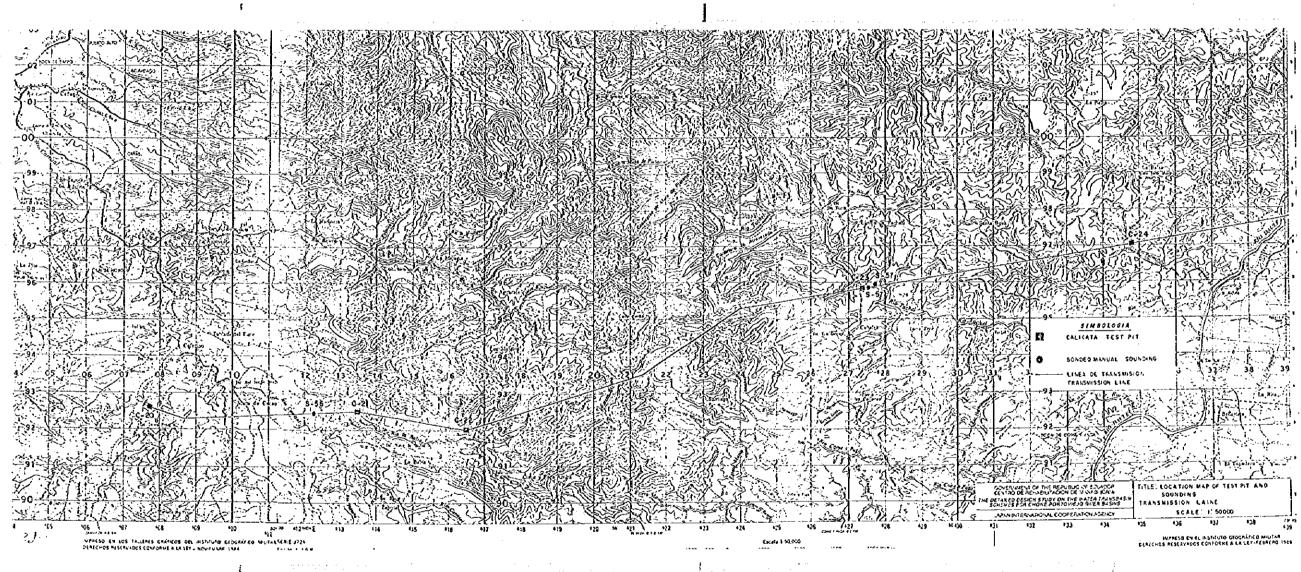


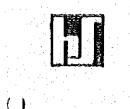
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### 7.3 PLAN WITH LOCATION OF TEST PIT AND SOUNDING







### JAPAN INTERNATIONAL COOPERATION AGENCY J I C A

#### THE DETAILED DESIGN STUDY ON THE WATER TRANSBASIN SCHEMES FOR CHONE-PORTOVIEJO RIVER BASINS

### GEOLOGICAL - GEOTECHNICAL INVESTIGATIONS REPORT

ANNEX - VOLUME II

FEBRUARY 1994



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### **RESULTS OF LABORATORY**

#### TESTS

#### CLASSIFICATION

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(NATURAL MOISTURE CONTENT)

(ATTERBERG LIMITS)

( GRAIN SIZE ANALISIS )



#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| FROYECTO/PROJEC | TRASVASES/I | RANSASINS  |         |                  |             | MUESTRA NO. / SAMPLE  | M-1     |
|-----------------|-------------|------------|---------|------------------|-------------|-----------------------|---------|
|                 |             |            |         |                  |             | PROFUNDIONO/DEPTH: 0. | 50-1.40 |
| UBICACION/SITE: | C-10        | FECHA/DATE | 010./93 | ENSAYADO-TESTED: | <b>G.S.</b> | CALCULO/CALCULATED    | F.V.    |

|                               | No. DE GOLPES | PESO HUMEOO | PESO SECO  | PESO CAPSULA |       | hedia   |
|-------------------------------|---------------|-------------|------------|--------------|-------|---------|
|                               | NO. OF BLOWS  | HET HELGHT  | DRY LETONT | CAN WEIGHT   | ¥ ۲   | AVERAGE |
| 1 HUMEDAD / HOISTURE          |               | 48.26       | 41.24      | 18.16        | 30.42 |         |
|                               | · · ·         | 56,20       | 47.05      | 18.38        | 31.91 | 31.17   |
| 2LIN. LIQUIDO/LIQUID LINIT    | 32            | 24.86       | 20.24      | 12.15        | 57.11 |         |
| •                             | 20            | 25,20       | 20.10      | 11.68        | 60.57 | •       |
| ÷                             | <b>i</b> 9    | 26.14       | 20.61      | 12.19        | 65.09 |         |
|                               |               |             |            |              |       | 58.89   |
| 3LIM. PLASTICO /PLASTIC LIBIT |               | 8.62        | 7.72       | 5.27         | 36.73 | 1       |
| ·                             |               | 9,45        | 8.36       | 5.37         | 36.45 |         |
|                               |               | 9.83        | 8.63       | 5.36         | 36.70 | 36.63   |

| r              |                                       | · · · · |   |          |             |      |     | - 1 | 4 GRAMULOHETRI      | A/STEVE ANALIZIS  |                  |               |
|----------------|---------------------------------------|---------|---|----------|-------------|------|-----|-----|---------------------|-------------------|------------------|---------------|
| 66 <sub></sub> |                                       |         | 1   | <u> </u> | [ <b></b> ] | -    |     |     | P. IN. / IN. WEIGHT | 101.85            | (H/S)            | H             |
| 65             | <u> </u>                              |         |   |          |             |      |     |     | PESO INICIAL DE C   | ALCULO/INITIAL CA | LCULUS HEIGHT :  | 77.65         |
| 64             |                                       |         | <u>†                                     </u> | <u> </u> |             |      | -   |     | TANIZ/SIEVE         | P.RET. /RET. H.   | VRET. ARTAINED % | i/Pasa/Passed |
| ÷63+           |                                       |         |   | <u> </u> |             | -1-1 |     |     | 1 <sup>u</sup>      | 0.00              | 0.0              | 100.0         |
| : 62           |                                       |         | 1   | <u> </u> |             |      |     |     | 3/4"                | 0.00              | 0.0              | 100.0         |
| 61-            | \                                     | ţ       | 1   | <u> </u> |             | -    |     | :   | 1/2 <sup>n</sup>    | 0.00              | 0.0              | 100.0         |
| 60 -           |                                       |         |   | 1        |             |      |     |     | 378"                | 0.00              | 0.0              | 100.0         |
| 59-            | · · · · · · · · · · · · · · · · · · · | $\Box$  | 1   |          |             |      |     | )   | No. 4               | 0.00              | 0.0              | : 100.0       |
| 58-            |                                       |         |   | :        |             |      |     |     | No. 10              | 0.00              | 0.0              | 100.0         |
| 574<br>10      |                                       |         |   |          |             |      | 100 | j.  | No. 40              | 0.00              | 0.0              | 100.0         |
|                | •                                     | GOLPI   | ES/BLO  | ws       | . 1         |      |     | 1   | No. 280             | 3.12              | 4.0              | 96.0          |

| CLASIFICACION/ |    |                 | un    | 59.0 | SUCS   | MH    |
|----------------|----|-----------------|-------|------|--------|-------|
| GRAVA-GRAVEL   | 0  | ан<br>1917 - Ал | 19/91 | 37.0 | AASHTO | A-7-5 |
| APENA/SAND     | 4  | ÷               | 10/01 | 22.0 | 16(86) | 28    |
| FINOS/FINES    | 96 | •               | v7.   | 31.2 | 16(45) | 17    |

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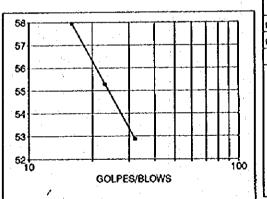
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|                 | TRASUASES/1 | DANRASINS  | <b></b>    |                 |      | HUESTRA No. /SAMPLE | H-2        |
|-----------------|-------------|------------|------------|-----------------|------|---------------------|------------|
| PROTECTOPROVEC  |             |            |            |                 |      | PROFUNDIDAD/DEPTH:  | 2.00-3.00m |
| UBICACION/SITE: | 01-0        | FECHA/DATE | DIC. /93 0 | NSAYADO/TESTED: | 6.S. | CALCULO/CALCULATED  | F.V.       |

|                              | No. OE GOLPES<br>No. OF BLOWS | PESO HUMEOO<br>LIET WEIGHT | PESO SECO<br>DRY NEIGHT | PESO CAPSULA<br>CAN HEIGHT | R X   | NEO IA<br>AVERAGE |
|------------------------------|-------------------------------|----------------------------|-------------------------|----------------------------|-------|-------------------|
| 1 HUNEDAD/HOISTURE           |                               | 52,85                      | 43.54                   | 16.51                      | 31.11 |                   |
|                              |                               | 55.47                      | 46.21                   | 19.05                      | 34.09 | 34.27             |
| 2LIB.LIQUICO/LIQUID LINIT    | 32                            | 25.30                      | 20.71                   | 12.03                      | 52.88 |                   |
|                              | 23                            | 25.32                      | 20.56                   | 11.95                      | 55.28 |                   |
|                              | 16                            | 26,60                      | 21.31                   | 12.18                      | 57,94 |                   |
|                              |                               |                            |                         |                            |       | 51.68             |
| 3LIM. PLASTICO/PLASTIC LIMIT |                               | 16.19                      | 15.07                   | 12.05                      | 37.09 |                   |
|                              |                               | 16.81                      | 15.52                   | 12.05                      | 37.18 |                   |
| 1                            | 1                             | 9.77                       | 8.51                    | 5.14                       | 37.39 | 37.22             |



| 4 GRANULOMETRU     | AVSIEUE ANALIZIS |                  |             |
|--------------------|------------------|------------------|-------------|
| P. IN. /IN. NEIGHT | 119.90           | (H/S)            | Н           |
| PESO INICIAL DE CA | ACULO/INITIAL CA | LCULUS HEEGHT :  | 89.30       |
| TAN12/SIEVE        | P.RET. /RET.W.   | WELL ARETAINED % | PASA/PASSED |
| i <sup>n</sup>     | 0.00             | . 0.0            | 100.0       |
| 3/4 <sup>4</sup>   | 0.00             | 0.0              | 100.0       |
| 1/2"               | 0.00             | 0.0              | 100.0       |
| 378"               | 0.00             | 0.0              | 100.0       |
| No. 4              | 0.00             | 0.0              | 100.0       |
| No. 10             | 0.00             | 0.0              | 100.0       |
| No. 40             | 0.00             | 0.0              | 100.0       |
| No. 200            | 1.13             | 1.3              | 98.7        |

| 5CLASIFICACIO | N/CLASIFICATION |
|---------------|-----------------|
| SRAUA-GRAUEL  | 0               |
| APEN9-SAND    | 1               |
| FINDS/FINES   | 99              |

| ua    | 55.0 |
|-------|------|
| LP/PL | 37.0 |
| 1P/P1 | 18.0 |
| ý.    | 34.3 |

| SUCS   | МН    |
|--------|-------|
| AASHTO | A-7-5 |
| 16(86) | 24    |
| 16(45) | 14    |

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A. Marine

#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST



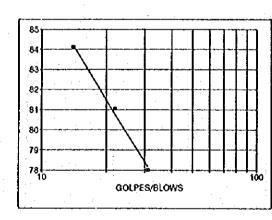
ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

|         | PROYECTO/PROJEC | TRASUASES-1 | RANBASINS  |         |                  |      | HUESTRA No. /SAMPLE | M-1      |
|---------|-----------------|-------------|------------|---------|------------------|------|---------------------|----------|
| ۰.<br>ا |                 |             |            |         |                  |      | PROFUNDIDAD/DEPTH)  | 0.55-1.6 |
|         | UBICACION/SITE: | C-11        | FECHA/DATE | 010./93 | ENSAYADO-TESTED: | 6.5. | CALCULO/CALCULATED  | F.V.     |

|                              | NOLDE SOUPES | peso huteoo | PESO SECO    | PESO CAPSULA |       | NICOTA  |
|------------------------------|--------------|-------------|--------------|--------------|-------|---------|
|                              | No. OF BLOUS | HET LETGHT  | DRY LIE IGHT | CAN NEIGHT   | ЧX    | AVERASE |
| NHUNEDAD-HOISTURE            |              | 57.30       | 46.66        | 18.32        | 37.54 |         |
|                              |              | 64.02       | 51.78        | 19.50        | 37.92 | 37.73   |
| 2LIM.LIQUID0/LIQUID LIMIT    | 31           | 26.32       | 20.15        | 12.24        | 78,00 |         |
|                              | 22           | 25.58       | 19.50        | 12.00        | 81.07 |         |
|                              | 14           | 25,65       | 19.66        | 12.54        | 84.13 |         |
|                              |              |             |              |              |       | 79.80   |
| 3LIM. PLASTICO/PLASTIC LIMIT |              | 16.43       | 14.98        | 12.26        | 53.31 |         |
| 6                            | -            | 9.34        | 7.98         | 5,45         | 53,75 |         |
|                              |              | 16.06       | 14.67        | 12. 10       | 54.09 | 53.72   |

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| P. IN. JIN. VEIGHT | 102.01             | 04/\$>          | H          |
|--------------------|--------------------|-----------------|------------|
| PESO INICIAL DE    | CALCULO/INITIAL CA | LCULUS HEIGHT : | 77.7       |
| TAMIZ/SIEUE        | P.RET. /RET.W.     | WELL PETAINED X | PASA/PASSE |
| 1 <sup>m</sup>     | 0.00               | 0.0             | 100.0      |
| 3/4"               | 0.00               | 0.0             | 100.0      |
| 1/2"               | 0.00               | 0.0             | - 100.0    |
| 3,8"               | 0.00               | 0.0             | 100.0      |
| No. 4              | 0.00               | 0.0             | 100.0      |
| No. 10             | 0.00               | 0.0             | : 100.0    |
| No. 40             | 0.22               | 0.3             | 99.7       |
| No. 200            | 10.16              | 13.1            | 86.9       |

| -CLASIFICACION/CL | ASIFICATIO |
|-------------------|------------|
| GRAVA-GRAVEL      | 0          |
| AGENA/SAND        | 13         |
| FINOS/FINES       | 87         |

| ua      | 80.0 |
|---------|------|
| LP/PL   | 51.0 |
| 10/01   | 26.0 |
| ي.<br>ي | 37.7 |

| SUCS   | МН    |
|--------|-------|
| AASHTO | A-7-5 |
| 16(86) | 32    |
| 16(45) | 18    |



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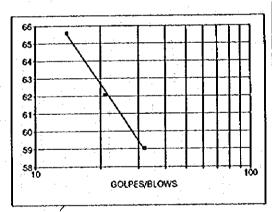
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#### HIDROSUELOS CIA. LTDA.

| PROYECTO/PRO XC | 2226(12601 | / TRANBASINS |         |                  |      | HUESTRA NO. /SAMPLE M-1       |
|-----------------|------------|--------------|---------|------------------|------|-------------------------------|
| PROTECTO/PROXC  | (KHOVI)SCO | 18410-15110  |         |                  |      | FROFUNDIDAD/DEPTH: 0.60-1.60m |
| UBICACION/SITE: | C-12       | FECHA-DATE   | DIC./93 | ENSAYADO/TESTED: | 6.S. | CALCULO/CALCULATED F.U.       |

#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| · · · · · · · · · · · · · · · · · · · | No. DE GOLPES | PESO HUREDO<br>LIET LIELGHT | PESO SECO | PESO CAPSULA<br>CAN HEIGHT | N 2   | MEDIA<br>AVERAGE |
|---------------------------------------|---------------|-----------------------------|-----------|----------------------------|-------|------------------|
| L HUMEDAD/INDISTURE                   |               | 51.12                       | 43.51     | 19.47                      | 31.66 |                  |
|                                       |               | 57,57                       | 48.05     | 18,93                      | 32.69 | 32.17            |
| 2LTH.LTOUTOO/LTOUTO LTHIT             | 32            | 25.91                       | 20.66     | 11.77                      | 59.06 |                  |
|                                       | 21            | 27.18                       | 21.45     | 12.22                      | 62.08 |                  |
|                                       | 14            | 25.26                       | 20.00     | 11.98                      | 65.59 |                  |
|                                       |               |                             | · .       |                            |       | 60.91            |
| 3LIN. PLASTICO PLASTIC LINIT          | ;             | 16.41                       | 15.08     | 12.05                      | 43.89 |                  |
|                                       |               | 16.88                       | 15.46     | 12.17                      | 43.16 |                  |
| 5                                     |               | 17.52                       | 15.82     | 11.88                      | 43.15 | 43.40            |



| 4 GRANAL DHE TRI                                  | AUSTEVE ANALIZIS |                   |             |  |  |  |
|---|------------------|-------------------|-------------|--|--|--|
| P. IN. ZIN. LETCHT                                | 107.00           | (H/\$)            | <u> </u>    |  |  |  |
| PESO INICIAL DE CALCULO/INITIAL CALCULUS HEIGHT : |                  |                   |             |  |  |  |
| TAN ZASTEVE                                       | P.RET. ART. N.   | VRET. ARETAINED 2 | PASA/PASSED |  |  |  |
| 1"  | 0.00             | 0.0               | 100.0       |  |  |  |
| 3/4"  | 0.00             | 0.0               | 100.0       |  |  |  |
| 1/2"  | 0.00             | 0.0               | 100.0       |  |  |  |
| 378"  | 0.00             | 0.0               | 100.0       |  |  |  |
| No. 4   | 0.00             | 0.0               | 100.0       |  |  |  |
| No. 10  | 0.00             | 0.0               | 100.0       |  |  |  |
| No. 40  | 0.00             | 0.0               | 100.0       |  |  |  |
| No. 200   | 8.13             | 10.0              | 90.0        |  |  |  |

| 5CLASTFICACION | LASIFICATION |
|----------------|--------------|
| GRAVA/GRAVEL   | 0            |
| ADENA/SAND     | 10           |
| FINDS/FINES    | 90           |

| ua    | 61.0 |
|-------|------|
| LPAL  | 43.0 |
| 10,P1 | 18.0 |
| بن.   | 32.2 |

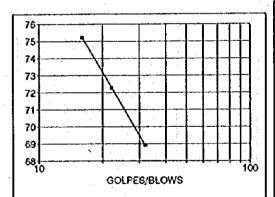
| SUCS   | HH    |
|--------|-------|
| AASHIO | A-7-5 |
| IG(86) | 23    |
| 16(45) | 15    |

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#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| PPOYEC 10/PPOJEC | TRASVASES/ | IRANBAS INS | ·       |                  |              | MRESTRA NO. /SAMPLE | M-2     |
|------------------|------------|-------------|---------|------------------|--------------|---------------------|---------|
| · ·              |            |             |         |                  |              | PROFUNDIOAD/DEPTH:  | 2.00-3. |
| UBICACION/SITE:  | C-12       | FECHA/DATE  | DIC./93 | ENSAYADO-TESTED: | <u>6,5</u> . | CALCULO/CALCULATED  | F.V.    |

|                             | No. DE GOLPES | PESO HUHEDO | PESO SECO  | peso capsula |       | MEDIA   |
|-----------------------------|---------------|-------------|------------|--------------|-------|---------|
|                             | No. OF BLOUS  | INCE RECENT | DRY HEIGHT | CAN LE IGHT  | N X   | AVERAGE |
| 1 HUMEDAD / MOISTURE        |               | 51.48       | 42.15      | 19.50        | 41.19 |         |
|                             | -             | 55.00       | 44.51      | 19.59        | 42.09 | 41.64   |
| 2LIN.LTOUIDO/LTOUID LTNIT   | 32            | 24.31       | 19.32      | 12.08        | 68.92 |         |
|                             | 22            | 26.48       | 20.40      | 11.99        | 72.29 | ł       |
|                             | 16            | 28.17       | 21.34      | 12.26        | 75.22 |         |
|                             |               |             |            |              |       | 71.16   |
| 3LIN.PLASTICO/PLASTIC LINIT | ······        | 9.07        | 7.85       | 5.31         | 48.03 |         |
|                             |               | 9.23        | 7.98       | 5.40         | 48.45 |         |
|                             |               | 8.80        | 7.71       | 5,45         | 48.23 | 48,24   |



| 9. IN. / IN. VEIGHT | 102.37            | (H/S)           | - H       |
|---------------------|-------------------|-----------------|-----------|
| PESO INICIAL DE C   | ALCULO/INITIAL CA | LEULUS HEIGHT : | . 72.     |
| TANIZ/SIEVE         | P.RET. ART.N.     | WELL RETAINED 2 | PASA/PASS |
| 15                  | 0.00              | 0.0             | 100.0     |
| 3/4"                | 0.00              | . <b>0.0</b>    | 100.0     |
| 1/2"                | 0.00              | 0.0             | 100.0     |
| 3∕8 <sup>ª</sup>    | 0.00              | 0.0             | 100,0     |
| No. 4               | 0.00              | 0.0             | 100.0     |
| No. 10              | 0.00              | 0.0             | 100.0     |
| No. 40              | 0.00              | 0.0             | 100.1     |
| No. 200             | 7.80              | 10.8            | 89.2      |

|                 |              | 1.1.1 | 1     | •    |        |       |
|-----------------|--------------|-------|-------|------|--------|-------|
|                 | ;            |       |       |      |        |       |
| CLASIFICACION/C | LASIFICATION |       | ILAL  | 71.0 | SUCS   | MH    |
| GRAUA/GRAUEL    | 0            |       | LP/AL | 48.0 | AASHTO | A-7-9 |
| ARENA/SAND      | - 11         |       | 10,9] | 23.0 | IG(86) | 29    |
| FINOS/FINES     | 89           |       |       | 41.6 | 16(45) | 12    |

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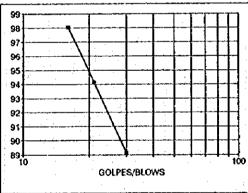
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| ROYECTO/PROJEC                        | TRASUASES | TRANBASINS | 1. A.   |                  |      | NUESTRA No SAMPLE  | n-1        |
|---------------------------------------|-----------|------------|---------|------------------|------|--------------------|------------|
| · · · · · · · · · · · · · · · · · · · |           |            |         | ·                |      | PROFUNDIDAD/DEPTH: | 0.80-2.00m |
| BICACION/SITE:                        | C-13      | FECHAZOATE | DIC./93 | ENSAYA00-TESTED: | G.S. | CALCULO/CALCULATED | F.V.       |

|       | 100 AN 12 AN | ( *       | 1.11.11.11.11.11.11.11.11.11.11.11.11.1 |            |
|-------|--------------|-----------|---|------------|
|       |              |           | ANUAL AAIELA                            | ATION TOOT |
| ENSAY | OS DE CLI    | ASIFICACI | ON/CLASIFIC                             | ATION TEST |
|       |              |           |   |            |
|       |              |           |   |            |

|                            | NO DE GOLPES | PESO HUHEOO | PESO SECO  | PESO CAPSULA |            | NEDIA   |
|----------------------------|--------------|-------------|------------|--------------|------------|---------|
|                            | No. OF BLOWS | HET HELGHT  | DRY VE16HT | CAN LIE IGHT | <u>u 7</u> | AKERAGE |
| -HUNEDAD-HOISTURE          |              | 55.48       | 45.70      | 18.32        | 35.72      |         |
|                            |              | 58.67       | 18.54      | 20.10        | 35.62      | 35.67   |
| -LIN.LIQUIDO/LIQUID LINIT  | 30           | 25.10       | 19.03      | 12.22        | 89.13      | 4.1.1   |
|                            | 21           | 23.20       | 17.74      | 11.94        | 94.14      | 1<br>1  |
|                            | 16           | 27.23       | 19.71      | 12.04        | 98.04      |         |
|                            |              |             |            |              |            | 91.70   |
| LIN.PLASTICO/PLASTIC LIMIT |              | 17.35       | 15.61      | 11,92        | 47, 15     |         |
|                            |              | 10.21       | 8.66       | 5.37         | 47.11      |         |
|                            |              | 15.93       | 14.64      | 11.92        | 47.43      | 47.23   |



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97

| 1 GRANULOHETRI     | A/SIEVE ANALIZIS |                   |              |
|--------------------|------------------|-------------------|--------------|
| P. IN. /IN. NEIGHT | 103.46           | 04/\$>            | Н            |
| PESO INICIAL DE C  | LCULUS HEIGHT :  | 76.26             |              |
| TAN12/SIEVE        | P.RET. ARET.N.   | VRET. /RETAINED % | ipasa/passeo |
| 1 <sup>u</sup>     | 0.00             | 0.0               | 100.0        |
| 3/4"               | 0.00             | 0.0               | 100.0        |
| 1/2"               | 0.00             | 0.0               | 100.0        |
| 378"               | 0.00             | 0.0               | 100.0        |
| No. 4              | 0.00             | 0.0               | 100.0        |
| No. 10             | 0.00             | 0.0               | 100.0        |
| No. 40             | 0.38             | 0.5               | 99.5         |
| No. 200            | 2.40             | 3.1               | 96.9         |

| 92<br>91<br>90 |   |           |       |    |   |
|----------------|---|-----------|-------|----|---|
| 89<br>1        | 0 | GOLPE     | s/BLO | ws | i |
| <b>L</b>       |   |           |       |    |   |
| 5ELAS          |   | JF ICATIO | N     |    | Г |

GRAVA/GRAVEL ARENA/SAND

FINDS/FINES

Q,

| un    | 92.0 |
|-------|------|
| 19/91 | 47.0 |
| 1P/91 | 45.0 |
| v%.   | 35.7 |

| n8    |
|-------|
| A-7-5 |
| 57    |
| 20    |
|       |

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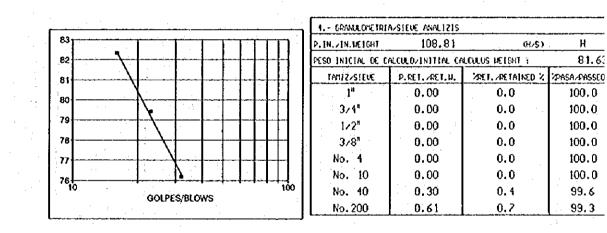
**ENSAYOS DE CLASIFICACION/CLASIFICATION TEST** 

|                 |                     |            |         |                  |      | and a similar transmission of the |           |
|-----------------|---------------------|------------|---------|------------------|------|-----------------------------------|-----------|
| PROYECTO/PROJEC | ILESTRA NO. /SAMPLE | 11-2       |         |                  |      |                                   |           |
|                 |                     |            |         |                  |      | PROFUNDIDAD/DEPTH:                | 2.00-3.50 |
| UBICACION/SITE: | C-13                | FECHA/DATE | DIC./93 | ENSAYADO-TESTED: | 6.5. | CALCULO/CALCULATED                | F.V.      |

|   | No.DE GOUPES<br>No.DF BLOUS | peso huredo<br>Het hetght | PESO SECO<br>ORY NEIGHT | PESO CAPSULA<br>CAN HEIGHT | 4 X   | NEOJA<br>AVERACE |
|---|-----------------------------|---------------------------|-------------------------|----------------------------|-------|------------------|
| 1 HUMEQAOZHOISTURE  |                             | 56.23                     | 47.11                   | 19.51                      | 33.04 |                  |
|   |                             | 49.07                     | 41.06                   | 17.18                      | 33.54 | 33.29            |
| 2LIM.CIQUIDO/CIQUID CIMIT   | 32                          | 26.71                     | 20.38                   | 12.07                      | 76.17 | ·                |
|   | 23                          | 25.42                     | 19,40                   | 11.82                      | 79.42 |                  |
| 1   | 16                          | 27.57                     | 20.58                   | 12.09                      | 82.33 |                  |
|   |                             | 11 - A                    |                         |                            |       | 78.46            |
| 3LIH.PLASTICO/PLASTIC LINIT   |                             | 10.85                     | 9.24                    | 5.40                       | 41,93 |                  |
|   |                             | 17.38                     | 15.82                   | 12.09                      | 41.82 |                  |
| n de la composición d<br>Composición de la composición de la comp |                             | 16.95                     | 15.49                   | 12.03                      | 42.20 | 41.98            |

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81.63



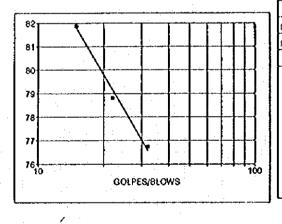
| <br>5CLASIFICACION/C | LASIFICATION |   | ua    | 78.0 |   | SUCS   | МН    |
|----------------------|--------------|---|-------|------|---|--------|-------|
| GRAVA/GRAVEL         | 0            |   | LP/PL | 42.0 | - | AASHTO | A-7-5 |
| ARENA/SAND           | 1            |   | 10,01 | 36.0 |   | 16(86) | 47    |
| FINOS/FINES          | 99           | : | υX.   | 33.3 |   | 16(15) | 20    |

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#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| PROYECTO/PROJEC TRASVASES/TRANGASINS |      |            |         |                  |      | MUESTRA No. /SAMPLE | M~ )       |
|--------------------------------------|------|------------|---------|------------------|------|---------------------|------------|
|                                      |      | ·          |         |                  |      | PROFUNDIDAD/DEPTH:  | 0.90-1.90m |
| UBICACION/SITE:                      | C-14 | FÈCHA/DATE | DIC./93 | ENSAYADO/TESTED: | 6.5. | CALCULO/CALCULATEO  | ٤.٧.       |

|                              | No.DE GOLPES   | peso hunedo<br>Het height | peso seco<br>dry height | PESO CAPSULA<br>CAN HEIGHT | ых    | heota<br>Alierage |
|------------------------------|----------------|---------------------------|-------------------------|----------------------------|-------|-------------------|
|                              | No. OF BLOUS   | 52.84                     | 44.84                   | 19.76                      | 31.90 | narria            |
| 1HUHEOAD/HOISTURE            |                | 56.95                     | 47.65                   | 18.45                      | 31.85 | 31.87             |
| 2LIH.LIQUICOA.TOUID LIMIT    | 32             | 22.28                     | 17.86                   | 12.10                      | 76.74 |                   |
|                              | 22             | 21.51                     | 17.38                   | 12.14                      | 78.82 |                   |
|                              | 15             | 23.65                     | 18.45                   | 12.10                      | 81.89 |                   |
|                              |                |                           |                         |                            |       | 78.27             |
| 3LIN. PLASTICO/PLASTIC LINIT |                | 8.51                      | 7.59                    | 5.39                       | 41.82 |                   |
|                              | - <sup>1</sup> | 9,22                      | 8.07                    | 5.44                       | 43.73 |                   |
|                              |                | 14.39                     | 13.65                   | 11.93                      | 43.02 | 42.86             |



| 4 GRANULONETRIA/SIEVE ANALIZIS |              |       |       |  |  |  |  |  |  |  |
|--------------------------------|--------------|-------|-------|--|--|--|--|--|--|--|
| P. IN. ZIN. WEIGHT             | 112.58       | (H/S) | Н     |  |  |  |  |  |  |  |
| PESO INICIAL DE C              | 85.37        |       |       |  |  |  |  |  |  |  |
| TANIZ/SIEVE                    | /PASA/PASSED |       |       |  |  |  |  |  |  |  |
| 1"                             | 0.00         | 0.0   | 100.0 |  |  |  |  |  |  |  |
| 3/4"                           | 0.00         | 0.0   | 100.0 |  |  |  |  |  |  |  |
| 1/2 <sup>n</sup>               | 0.00         | 0.0   | 100.0 |  |  |  |  |  |  |  |
| 378*                           | 0.00         | 0.0   | 100.0 |  |  |  |  |  |  |  |
| No. 1                          | 0.00         | 0.0   | 100.0 |  |  |  |  |  |  |  |
| No. 10                         | 0.00         | 0.0   | 100.0 |  |  |  |  |  |  |  |
| No. 40                         | 5.34         | 6.3   | 93.7  |  |  |  |  |  |  |  |
| No. 200                        | 20.82        | 24.4  | 75.6  |  |  |  |  |  |  |  |

|       | F 1C |       | 170 |
|-------|------|-------|-----|
| <br>_ |      | <br>_ |     |
|       |      |       |     |
|       |      |       |     |
|       |      |       |     |

| -CLASIFICACION/CLASIFICATION<br>GRAVA/GRAVEL 0<br>ARENA/SAND 24 |    |  |  |
|---|----|--|--|
| GRAVA-GRAVEL  | 0  |  |  |
| APENA/SAND  | 24 |  |  |
| FINOS/FINES   | 76 |  |  |

| แกเ   | 78.0 |
|---|------|
| LP/PL   | 43.0 |
| 10,01   | 35.0 |
| 57  | 31.9 |
| and the second se |      |

| SUCS   | NH    |
|--------|-------|
| AASHTO | A-7-5 |
| [6(86) | 31    |
| IG(15) | 20    |

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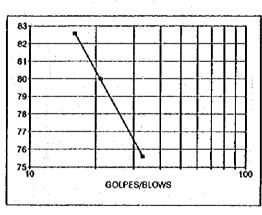
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| PROYECTO-PROJEC | TRASUASES/T | RANBAS1NS  |         |                  |      | HUESTRA No. /SAMPLE  | M-2     |
|-----------------|-------------|------------|---------|------------------|------|----------------------|---------|
|                 | i i         |            |         |                  |      | PROFUNDIOAD/DEPTH: 2 | .00-3.1 |
| UBICACION/SITE: | C-14        | FECHA/DATE | 010./93 | ENSAYADD-TESTED: | G.S. | CALCULO-CALCULATED   | F.V.    |

#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

|                             | NO. DE GOLPES | peso huhedo | PESO SECO  | PESO CAPSURA |           | heoia  |
|-----------------------------|---------------|-------------|------------|--------------|-----------|--------|
|                             | No. OF BLOWS  | NET WEIGHT  | ORY DELCHI | CAN HEIGHT   | <u>цх</u> | AVERAG |
| 1. HUNEDAD/HOISTURE         |               | 57.44       | 46.32      | 18.47        | 39.93     |        |
|                             |               | 71.26       | 56.22      | 18.20        | 39.56     | 39.74  |
| 2LIM. LIQUIDO/LIQUID LIMIT  | 33            | 22.36       | 17.93      | 12.07        | 75.60     |        |
| 2                           | 21            | 25.27       | 19.47      | 12.22        | 80.00     |        |
|                             | 16            | 24.25       | 18.71      | : 12.00      | 82.56     |        |
|                             |               |             |            |              |           | 78.28  |
| 3LIM.PLASTICO/PLASTIC LIMIT |               | 14.29       | 13.60      | 12.05        | 44.52     |        |
|                             |               | 15.42       | 14.40      | 12.08        | 43.97     |        |
|                             | :             | 15, 10      | 11.22      | 12.17        | 42.93     | 43.80  |



| 1 URANULUALIR       | AUSTEVE ANALIZIS  |                   |            |
|---------------------|-------------------|-------------------|------------|
| P. IN. / IN. VEIGHT | 127.22            | (H/\$)            | Н          |
| PESO INICIAL DE C   | ALCULO/INITIAL CA | LEULUS HEIGHT :   |            |
| TAMIZ/SIEVE         | P.RET. /RET. H.   | VRET. PRETAINED % | 2PASA/PASS |
| l <sup>a</sup>      | 0.00              | 0,0               | 100.0      |
| 3/4"                | 0.00              | 0.0               | 100.0      |
| 1/2"                | 0.00              | 0.0               | 100.0      |
| 3784                | 0.00              | 0.0               | 100.0      |
| No. 4               | 0.00              | 0.0               | 100.0      |
| No. 10              | 0.00              | 0.0               | 100.0      |
| No. 4D              | 0.76              | 0.8               | 99.2       |
| No. 200             | 5.70              | 6.3               | 93.7       |

|                  |              | , |       |      |   |        |       |
|------------------|--------------|---|-------|------|---|--------|-------|
| 5CLASIFICACION/C | LASIFICATION |   | uai   | 78.0 |   | SUCS   | МН    |
| GRAVA/GRAVEL     | 0            |   | 10,91 | 44.0 |   | AASHTO | A-7-5 |
| ARENA/SAND       | 6            |   | 10/01 | 34.0 | 5 | IG(86) | 12    |
| FINDS/FINES      | 94           |   | UX.   | 39.7 |   | IG(45) | 20    |

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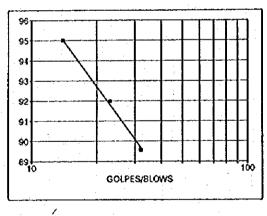
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#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| PROYEETO PRO JEC | TRASUASES   | IRANBÁS I NS | *****   | <u>*************************************</u> |             | NUESTRA No. SAMPLE | M-1        |
|------------------|-------------|--------------|---------|--|-------------|--------------------|------------|
|                  | · · · · · · |              |         |  |             | PROFUNDIORD/DEPTH: | 0.40-1.00m |
| UBICACION/SITE:  | C-15        | FECHA-DATE   | 010.793 | ENSAYADO/TESTED:                             | <u>G.S.</u> | CALCULO/CALCULATED | Γ.V.       |

|                             | No. DE GOLPES | PESO HUHEOÒ | PESO SECO  | PESO CAPSULA |       | hE01A   |
|-----------------------------|---------------|-------------|------------|--------------|-------|---------|
|                             | NO. OF BLOWS  | HET HEIGHT  | DRY HEIGHT | CAN NEIGHT   | 97    | AVERAGE |
| Humedad/hoisture            |               | 66.41       | 56.06      | 18.57        | 27.61 |         |
|                             |               | 58.55       | 49.95      | 18.58        | 27.41 | 27.51   |
| 2LIM.LIQUID0/LIQUID LIMIT   | 32            | 28.25       | 20.62      | 12.10        | 89.55 |         |
| <u>.</u>                    | 23            | 26.61       | 19.72      | 12.23        | 91.99 |         |
|                             | 14            | 28.12       | 20.32      | 12.11        | 95.01 |         |
|                             | :             | 1           | •          |              |       | . 91.27 |
| LIM, PLASTICO/PLASTIC LIMIT |               | 10.41       | 9.00       | 5.35         | 38.63 |         |
|                             |               | 15.58       | 14.63      | 12.15        | 38.31 |         |
|                             |               | 8.87        | 7.84       | 5, 17        | 38.58 | 38.50   |



| 4 GRANULOHETRI     | AVSIEVE ANALIZIS  |                  |              |
|--------------------|-------------------|------------------|--------------|
| P. IN. ZIN, MEIGHT | 103.15            | (H/S)            | H            |
| PESO INICIAL DE C  | ALCULOVINITIAL CA | LCULUS HEIGHT :  | 80.89        |
| TANIZ-SIEVE        | P.RET. /RET. H.   | VRET. ARTAINED % | VPASA/PASSED |
| 1"                 | 0.00              | 0.0              | 100.0        |
| 3/4" -             | 0.00              | 0.0              | 100.0        |
| 1/2ª               | 0.00              | 0.0              | 100.0        |
| 3/8"               | 0.00              | 0.0              | 100.0        |
| No. 4              | 0.00              | 0.0              | 100.0        |
| No. 10             | 0.00              | 0.0              | 100.0        |
| No. 10             | 0.88              | 1.1              | 98.9         |
| No.200             | 19.25             | 23.8             | 76.2         |
|                    |                   |                  |              |

| 5CLASIFICACION | CLASIFICATION |
|----------------|---------------|
| GRAVA/GRAVEL   | 0             |
| APENA/SAND     | 24            |
| FENDSAFINES    | . 76          |

| 91.0 |
|------|
| 39.0 |
| 52.0 |
| 27.5 |
|      |

| SUCS   | СН    |
|--------|-------|
| AASHTO | A-7-5 |
| 16(86) | 44    |
| 16(45) | 20    |

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| PROYECTO/PROJEC TRASUASES/T | RANBASINS  |         | <u> </u>         |      | NUESTRA No. /SAMPLE | hi-2     |
|-----------------------------|------------|---------|------------------|------|---------------------|----------|
|                             |            |         |                  |      | PROFUNDIOAD/DEPTH:  | 1.20-1.6 |
| UBICACION/SITE: C-15        | FECHA/DATE | 0IC./93 | ENSAYADO/TESTED: | 6.5. | CALCULO/CALCULATED  | F.V.     |

#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

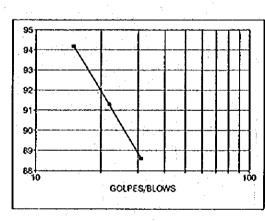
|                                       | No.DE GOLPES | PESO HUMEDO | PESO SECO  | PESD CAPSULA |            | ALOJA   |
|---------------------------------------|--------------|-------------|------------|--------------|------------|---------|
|                                       | No. OF BLOUS | HET HETCH   | ORY LEIGHT | CAN LEIGHT   | NХ         | ÁVERAGE |
| 1HUHEDAO/HOISTURE                     |              | 55.86       | 46.73      | 18.97        | 32.89      |         |
| and the second second second          |              | 52.74       | 11.13      | 18, 43       | 31.96      | 32.43   |
| 2LIN.LIQUIDO/LIQUID LINIT             | 31           | 27.33       | 20.18      | 12.11        | 88.60      |         |
|                                       | 22           | 29.15       | 21.07      | 12.22        | 91.30      | 1       |
|                                       | 15           | 28.86       | 20.72      | 12.18        | 94.18      |         |
| · · · · · · · · · · · · · · · · · · · |              | :           |            |              | <u>.</u> . | 90.27   |
| 3LIH. PLASTICO /PLASTIC LIMIT         |              | 9.65        | 8.38       | 5.47         | 43.64      |         |
|                                       |              | 10.23       | 8.75       | 5.41         | 14.31      |         |
|                                       |              | 9.68        | 8.37       | 5.33         | 43.09      | 43.68   |



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| P. IN. / IN. VEIGHT | 134.64            | (H/S)           | <u> </u>   |
|---------------------|-------------------|-----------------|------------|
| PESO INICIAL DE C   | ALCULO/INITIAL CA | LCULUS HEIGHT : | 101.6      |
| TAMIZ/SIEVE         | P.RET. ART. W.    | WET. RETAINED X | PASA PASSE |
| 111                 | 0.00              | 0.0             | 100.0      |
| 3/4"                | 0.00              | 0.0             | 100.0      |
| 1/2"                | 0.00              | 0.0             | 100.0      |
| 3./8"               | 0.00              | 0.0             | 100.0      |
| No. 4               | 0.00              | 0.0             | 100.0      |
| No. 10              | 0.00              | 0.0             | 100.0      |
| No. 40              | 0.83              | 0.8             | 99.2       |
| No.200              | 2.10              | 2.1             | 97.9       |

| -CLASIFICACION/CL | ASIFICATION |
|-------------------|-------------|
| GRAVA/GRAVEL      | 0           |
| ARENAZSAND        | · 2         |
| FINDS/FINES       | 98          |

| илі   | . 90.0 |
|-------|--------|
| LP/PL | 44,0   |
| 16/01 | 46.0   |
| υ.    | 32.4   |

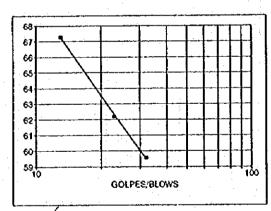
| SUCS   | - MH  |
|--------|-------|
| AASHTO | A-7-5 |
| IG(86) | 58    |
| IG(45) | 20    |

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|--|---|
| PROYECTO/PROJEC TRASUASES/TRANSASTINS                        | HUESTRA NO. / SAMPLE 1-1                              |
|  | PROFUNDIOND/DEPTH: 0.85-1.80m                         |
| UBICACIONISTE: C-16 FECHAIDATE DIC. 193 ENSAYADDITESTED: 6.5 | CALCULO/CALCULATEO F.V.                               |

| ENGAVOS DE | CI ASIFICACIÓ | N/CLASIFICAT | ION TEST |
|------------|---------------|--------------|----------|
| ERONIOS DE | OPPORT OF A   | NOUNDIN      |          |

| · · · · · · · · · · · · · · · · · · · | NO.DE GOLPES | peso huheco | PESO SECO  | PESO CAPSULA |       | heola   |
|---------------------------------------|--------------|-------------|------------|--------------|-------|---------|
|                                       | No. OF BLOWS | HET HEIGHT  | DRY HEIGHT | CAN LE LOHT  | и /   | AVERAGE |
| 1HUMEDAD/HOISTURE                     |              | 62.81       | 52.73      | 19.29        | 30.14 |         |
|                                       |              | 57.78       | 48.55      | 17.88        | 30.09 | 30.12   |
| 2LIK. LIQUICO/CIQUID LIBIT            | 32           | 24.48       | 19.84      | 12.05        | 59.56 |         |
|                                       | 23           | 22.51       | 18.53      | 12.13        | 62.19 |         |
| · · · · · · · · ·                     | 13           | 25.12       | 19.88      | 12.09        | 67.27 |         |
|                                       |              |             |            |              |       | 61.60   |
| 3LIM. PLASTICO /PLASTIC LIMIT         |              | 15.42       | 14.53      | 12.10        | 36.63 |         |
|                                       | :            | 15.77       | 14.81      | 12.12        | 35.69 |         |
|                                       |              | 10.75       | 9.34       | 5.45         | 36.25 | 36.19   |



| 4                  | A/STEVE ANALIZIS |                 |              |
|--------------------|------------------|-----------------|--------------|
| P. IN. 21N, VE16HT |                  | (H/S)           | Н            |
| PESO INICIAL DE C  | 105.60           |                 |              |
| TANJZ/SIEVE        | P.RET. ART.W.    | ART. ARTAINED & | VPASA/PASSED |
| 1"                 | 0.00             | 0.0             | 100.0        |
| 3/4"               | 0.00             | 0.0             | 100.0        |
| 1/2*               | 0.00             | 0.0             | 100.0        |
| 378"               | 0.00             | 0.0             | 100.0        |
| No. 4              | 0.00             | 0.0             | 100.0        |
| No. 10             | 0.00             | 0.0             | 100.0        |
| No. 10             | 0.90             | 0.9             | 99.1         |
| No. 200            | 22.74            | 21.5            | 78.5         |

| 5 CLASIFICACION/CL | ASTELCATION |
|--------------------|-------------|
| GRAUA-GRAVEL       | 0           |
| ARENA/SAND         | 22          |
| FINOS/FINES        | 78          |

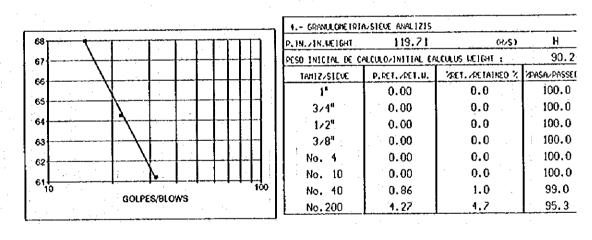
| แสเ   | 62.0 |
|-------|------|
| LP/PL | 36.0 |
| 10/P1 | 26.0 |
| ن٪.   | 30.1 |

| SUCS   | MK    |
|--------|-------|
| AASHTO | A-7-5 |
| IG(86) | 24    |
| 16(45) | 18    |



| PROYECTO/PRO JC | TRASUBSES/1 | RANBASINS  |         |                  |      | INESTRA NO. /SANDLE M-2    | ***       |
|-----------------|-------------|------------|---------|------------------|------|----------------------------|-----------|
|                 |             |            |         | ·                |      | PROFUNDIDAD/DEPTH: 2.00-3. | <u>50</u> |
| UBICACION/SITE: | C-16        | FECHA/DATC | DIC./93 | ENSAYADO-TESTED: | G.S. | CALCULO/CALCULATED F.V.    | -         |

|                               | No.DE GOLPES | peso humedo | PESO SECO  | PESO CAPSULA |       | MEDIA   |
|-------------------------------|--------------|-------------|------------|--------------|-------|---------|
|                               | No. OF BLOUS | NET NEIGHT  | DRY LEIGHT | CAN VEIGHT   | 42    | AVERAGE |
| I HUMEDAD/MOISTURE            |              | 59.26       | 48.25      | 16.75        | 32.81 |         |
|                               |              | 63.29       | 52.36      | 18.70        | 32.47 | 32.66   |
| 2LIN.LIQUIDO/LIQUID LINIT     | 32           | 27.12       | 21.13      | 11.34        | 61.18 | :       |
| No. State State               | 22           | 22.82       | 18.52      | 11.83        | 61.28 | 1.1     |
|                               | 15           | 26.48       | 20.62      | 12.00        | 67.98 |         |
|                               |              | ÷           |            |              |       | 63.32   |
| 3LIM. PLASTICO /PLASTIC LIMIT |              | 9.11        | 8.15       | 5.33         | 31.01 |         |
|                               |              | 9.29        | 8.30       | 5.39         | 31.02 | • • •   |
|                               | -            | 16.06       | 15.05      | 12.10        | 34.24 | 34.10   |



| 5CLASIFICACION | CLASIFICATION | 1.1 | uu    | 63.0 | 1. J. | SUCS   | ИН    |
|----------------|---------------|-----|-------|------|-------|--------|-------|
| GRAVA-GRAVEL   | 0             |     | LP/PL | 31.0 | 1     | AASHTO | A-7-5 |
| <br>APENA/SAND | 5             | · . | [0,0] | 29,0 | ÷ .   | 16(86) | 34    |
| FINOS/FINES    | 95            |     | . v.  | 32.7 | ·     | 16(45) | 20    |

ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

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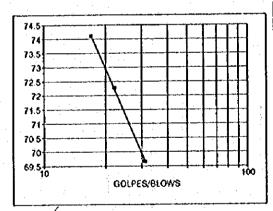
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|                 | DPDYECTO/DPDJEC TRASUASES/TRANBASINS NESTRA No. /SAMPLE H-1 |            |         |                  |       |                      |              |  |  |
|-----------------|---|------------|---------|------------------|-------|----------------------|--------------|--|--|
|                 |   |            |         |                  |       | PROFUNDIOAD/DEPTH: 0 | . 40- 1. 60m |  |  |
| UBICACION/SITE: | C-17  | FÉCHA/DATE | DIC./93 | ENSAYADO-TESTED: | G. S, | CALCULD/CALCULATED   | <u>F.V.</u>  |  |  |

| <b>ENSAYOS DE CLASIFICACION/CLASIFICA</b> |  |
|---|--|
|   |  |
|   |  |
|   |  |

|                             | No. DE GOLPES | peső hűhedő<br>Het hetgrt | peso seco<br>Dry height | PESO CAPSULA<br>CAN HEIGHT | u X           | hedia<br>Averase |
|-----------------------------|---------------|---------------------------|-------------------------|----------------------------|---------------|------------------|
| 1 HUNEDAD / HOISTURE        | NO. O DECHO   | 59.27                     | 51.81                   | 19.98                      | 23.44         |                  |
| 1- ACCONCISIONE             |               | 52,86                     | 16.52                   | 19.08                      | 23.10         | 23.27            |
| 2LIM.LIQUIDOZ. 10010 LIMIT  | 31            | 25.18                     | 19.83                   | 12.15                      | 69.66         |                  |
|                             | 22            | 21.88                     | 15.78                   | 7.34                       | 72.27         |                  |
|                             | 17            | 26.00                     | 20.16                   | 12.28                      | <b>74.1</b> 1 |                  |
|                             |               |                           |                         |                            |               | 71,28            |
| 3LIH.PLASTICO/PLASTIC LINIT | į             | 10.36                     | 8,90                    | 5.35                       | 41.13         |                  |
|                             |               | 16.64                     | 15.33                   | 12.16                      | 41.32         |                  |
|                             |               | 16.45                     | 15.25                   | 12.35                      | 41.38         | 41,28            |



| 4 GRANULOMETRI     | AVSIEVE ANALIZIS |                 |              |
|--------------------|------------------|-----------------|--------------|
| P. IN. JIN. VEIGHT | 107.21           | (8/5)           | <u> </u>     |
| PESO INICIAL DE CA | LCULD/INITIAL CA | LCULUS NEIGHT : | 86.97        |
| TAMIZ/SIEVE        | P.RET. /RET.H.   | WET. RETAINED % | IPASA/PASSEO |
| 1"                 | 0.00             | 0.0             | 100.0        |
| 3/4"               | 0.00             | 0.0             | 100.0        |
| 1/2"               | 0.00             | 0.0             | 100.0        |
| 378"               | 0.00             | 0.0             | 100.0        |
| No. 4              | 0.00             | 0.0             | 100.0        |
| No. 10             | 0.00             | 0.0             | 100.0        |
| No. 40             | 0.00             | 0.0             | 100.0        |
| No. 200            | 3.96             | 1.6             | 95.4         |

| SCLASIFICACIO | CLASSE LEATION |
|---------------|----------------|
| GRAVA/GRAVEL  | 0              |
| ARENA/SAND    | 5              |
| FINDS/FINES   | 95             |

| uai   | 71.0 |
|-------|------|
| LOM:  | 41.0 |
| 19,91 | 30.0 |
| ن.    | 23.3 |

| SUCS   | мн    |
|--------|-------|
| AASHTO | A-7-5 |
| 16(86) | 38    |
| IG(45) | 20    |

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#### HIDROSUELOS CIA. LTDA.

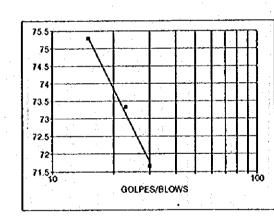
ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| PROYECTO, PROJEC | TRASUASES | RANBASINS    |         |                  |      | PRESTRA NO. /SAMPLE | <u>H-2</u> |
|------------------|-----------|--------------|---------|------------------|------|---------------------|------------|
|                  |           |              |         |                  |      | PROFUNDIDAD/DEPTH:  | 2.00-3.0   |
| UBICACION/SITE:  | C-17      | FECHA/DATE - | DIC./93 | ENSAYADO/TESTED: | 6.5. | CALCULO/CALCULATED  | F.V.       |

|                              | No. DE GOLPES | peso humedo | PESO SECO  | PESD CAPSULA |        | HEOTA   |
|------------------------------|---------------|-------------|------------|--------------|--------|---------|
|                              | No. OF BLOUS  | NET NEIGHT  | ORY LEIGHT | CAN HEIGHT   | ЦХ     | AUERAGE |
| 1 HUMEDAD/HOISTURE           |               | 55.90       | 47.68      | 18.89        | 28.55  |         |
|                              |               | 68.90       | 57.72      | 18.67        | 28.63  | 28.59   |
| 2LIN.LIQUIDO/LIQUID LIMIT    | 30            | 26.22       | 20.33      | 12.11        | 71.65  |         |
|                              | 23            | 26.53       | 20.26      | 11.71        | 73.33  |         |
| •                            | 15            | 21.61       | 19.25      | 12.13        | 75.28  |         |
|                              |               |             |            |              |        | 72.71   |
| 3LIM. PLASTICO/PLASTIC LIMIT |               | 10.39       | 8.85       | 5.36         | 44.13  |         |
|                              |               | 10.03       | 8.61       | 5.43         | 44.65  |         |
|                              |               | 10.06       | 8.62       | 5.36         | 44. 17 | 44.32   |

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| P. IN. 21N. HEIGHT | 107.28            | (R/S)           | <u> </u>   |
|--------------------|-------------------|-----------------|------------|
| PESO INTETAL DE C  | ALCULOZINITIAL CA | LCULUS HEIGHT : | 83.        |
| TAH12/SIEVE        | P.RET. /RET.W.    | WELL/RETAINED % | VPASA/PASS |
| 1 <sup>n</sup>     | 0.00              | 0.0             | 100.0      |
| 374"               | 0.00              | 0.0             | 100.0      |
| 1/2"               | 0.00              | 0.0             | 100.0      |
| 3∕8ª               | 0.00              | 0.0             | 190.0      |
| No. 4              | 0.00              | 0.0             | 100.0      |
| No. 10             | 0.00              | 0.0             | 100.0      |
| No. 40             | 0.00              | 0.0             | 100.0      |
| No.200             | 0.66              | 0.8             | 99.2       |

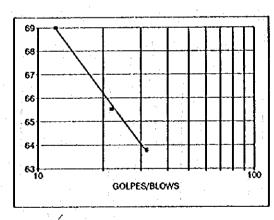
| 5CLASIFICACION/ | CLASIFICATION |         | ιи    | 73.0 | 5 | SUCS   |       |
|-----------------|---------------|---------|-------|------|---|--------|-------|
| GRAVA/GRAVEL    | 0             | н.<br>1 | LP/9L | 44.0 | 1 | AASHTO | A-7-5 |
| ARENA/SAND      | 1             | : · · · | 1P/P1 | 29.0 | 1 | IG(86) | 39    |
| FINDS/FINES     | <b>9</b> 9    |         | U.    | 28.6 |   | 16(45) | 20    |

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#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| FROYECTO/PROJEC | TRASUASES/T | RANDASINS  |         |                  | 45.5. <u>86.9975 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - </u> | NUESTRA No. /SAMPLE | M-1        |
|-----------------|-------------|------------|---------|------------------|---|---------------------|------------|
|                 |             |            |         |                  |   | PROFUNDIOAD/DEPTH:  | 0.30-1.60m |
| UBICACION/SITE: | Ç-18        | FECHA/DATE | 010./93 | ENSAYADO-TESTED: | <u>G.S.</u>   | CALCULO/CALCULATED  | F.V.       |

|                               | No.DE GOLPES | peso hunedo | PESO SECO    | PESD CAPSULA | · · · · | HEDTA   |
|-------------------------------|--------------|-------------|--------------|--------------|---------|---------|
|                               | No. OF BLOUS | HET HEIGHT  | DRY LIE IGHT | CAN HEIGHT   | ЦХ      | AVERASE |
| 1HUMEDAD/HOISTURE             |              | 61.96       | 54.32        | 18,45        | 21.30   |         |
|                               |              | 62,91       | 54.86        | 18.52        | 22.18   | 21.74   |
| 2LIN.LIQUIQUALIQUID LIMIT     | 32           | 28.37       | 22.08        | 12.22        | 63.79   | · · ·   |
|                               | 22           | 24.45       | 19,43        | 11.77        | 65.54   | :       |
|                               | · 12         | 28.50       | 21.78        | 12.04        | 68.99   |         |
|                               |              |             |              | _            |         | 65.02   |
| 3LIM. PLASTICO /PLASTIC LIMIT |              | 9.32        | 8.26         | 5.31         | 35.93   |         |
|                               |              | 15.63       | 14.72        | 12.13        | 35.14   |         |
|                               |              | 9.65        | 8.58         | 5.44         | 34.08   | 35.05   |



| P. IN. ZIN. VEIGHT | 114, 38           | (H/\$)          | H            |
|--------------------|-------------------|-----------------|--------------|
| PESO INICIAL DE C  | ALCULO/INITIAL CA | LEULUS NEIGHT : | 93.95        |
| TAMIZ-SIEVE        | P.RET. ART.N.     | WELL RETAINED Z | VPASA/PASSEO |
| 1 <sup>#</sup>     | 0.00              | 0.0             | 100.0        |
| 3/4"               | 0.00              | 0.0             | 100.0        |
| 1/2"               | 0.00              | 0.0             | 100.0        |
| 378*               | 0.00              | 0.0             | 100.0        |
| No. 4              | 0,00              | 0.0             | 100.0        |
| No. 10             | 0.00              | 0.0             | 100.0        |
| No. 10             | 0,63              | 0.7             | 99.3         |
| No.200             | 4.47              | 4.8             | 95.2         |

| 5CLASIFICACION/C | LASIFICATION |
|------------------|--------------|
| GRAUA/GRAUEL     | 0            |
| ARENA-SAND       | 5            |
| FINOS/FINES      | 95           |

| แมเ   | 65.0 |
|-------|------|
| LP/PL | 35.0 |
| 10,01 | 30.0 |
| ٧٪.   | 21.7 |

| SUCS   | : MH  |
|--------|-------|
| AASHTO | A-7-5 |
| 16(86) | 36    |
| IG(45) | 20    |

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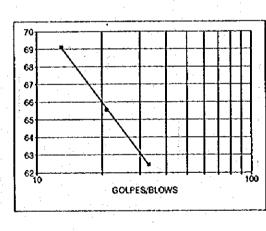


## HIDROSUELOS CIA. LTDA.

| 1 | PROYECTO / PROJEC TR | ASUASES/IR | ANSÁSINS   |         |                  |      | HUESTRA No SANPLE  | n-2      |
|---|----------------------|------------|------------|---------|------------------|------|--------------------|----------|
|   |                      |            |            |         |                  |      | PROFUNDIDAD/DEPTH: | 2.00-3.5 |
|   | UBICACION/SITE:      | C-18       | FECHA/DATE | DIC./93 | ENSAYADO/TESTED: | G.S. | CALCULO/CALCULATED | F.V.     |

#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

|                              | NO. DE GOLPES | pesò huhedo | PESO SECO  | PESO CAPSULA |       | HE01A   |
|------------------------------|---------------|-------------|------------|--------------|-------|---------|
|                              | No. OF BLOUS  | HET HEIGHT  | ORY HEIGHT | CAN HEIGHT   | NХ    | AVERAGE |
| 1HUMEDAD/HOISTURE            |               | 60.34       | 51.72      | 17.84        | 25.44 |         |
|                              |               | 66.62       | 57.10      | 19.77        | 25.50 | 25.47   |
| 2 LIN. LIQUIDO & 10010 LIMIT | 33            | 22.93       | 18.67      | 11.85        | 62.46 |         |
|                              | 21            | 23.40       | 18.93      | 12.11        | 65.54 |         |
|                              | 13            | 25.98       | 19.27      | 9.56         | 69.10 |         |
|                              |               | · · ·       |            | -            |       | 64.40   |
| 3LIN, PLASTICO/PLASTIC LINIT |               | 16.57       | 15.38      | 12.10        | 36.28 |         |
|                              |               | 8,96        | 8,00       | 5.33         | 35.96 |         |
|                              |               | 15,98       | 14.94      | 12.07        | 36.24 | 36.16   |



| P. IN. /IN. HEIGHT | 101.05            | (8/5)           | Н                  |
|--------------------|-------------------|-----------------|--------------------|
| PESO INICIAL DE C  | ALCULOZINITIAL CA | LCOLUS HEIGHT : | 80.                |
| TAMIZ-SIEVE        | P.RET. ART.N.     | WET. METAINED % | PASA/PASS          |
| 18                 | 0.00              | 0.0             | 100.0              |
| 374"               | 0.00              | 0.0             | 100.0              |
| 1/2"               | 0.00              | 0.0             | 100.0              |
| 3/8"               | 0.00              | 0.0             | 100.0              |
| No. 4              | 0.00              | 0.0             | 100.0              |
| No. 10             | 0.00              | 0.0             | 100,0              |
| No. 40             | 0.00              | 0.0             | <sup>:</sup> 100.0 |
| No.200             | 4.00              | 5.0             | 95.0               |

| 5CLASIFICACION/CLI | ASIFICATION |
|--------------------|-------------|
| GRAVA-GRAVEL       | . 0         |
| ARENA/SANO         | 5           |
| FINOS/FINES        | 95          |

| ил    | 61.0 |
|-------|------|
| LP/PL | 36.0 |
| 10,01 | 28.0 |
| ٧.    | 25.5 |

| SUCS   | КН    |
|--------|-------|
| AASHTO | A-7-5 |
| 16(86) | 34    |
| 16(45) | 19    |

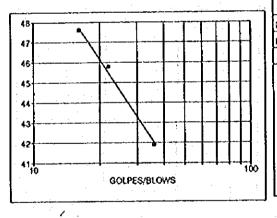
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#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| PROVECTO/PROJEC TRASUASES/TRANSASTAS INJESTRA NO. / SAMPLE H-1   PROFUNDIDAD/DEDTH: 1.10-1.20m PROFUNDIDAD/DEDTH: 1.10-1.20m   INDESTRA NO. / SAMPLE 0.10.293 ENSAYA00/TESTED: 6.5. EALCULO/CALCULATED F. V. |                     | 1. S. |            |         |                  |      | and the second secon |            |
|--|---------------------|---|------------|---------|------------------|------|---|------------|
|  | 37 000 01 12 000 FC | TRASUASES/1                               | RANBAS INS |         |                  |      | HESTRA NO. SAMPLE   | <u>M-1</u> |
| TOTACTONICATE C-19 TECHA DATE DIC. 293 ENSAYA00/TESTED: G.S. EACUD/CALCULATED F.V.   |                     |   |            |         |                  |      | PROFUNDIDAD/DEPTH:  | 1.10-1.70m |
|  | UBICACION/SITE:     | C-19                                      | FECHALDATE | 010.793 | ENSAYADO-TESTED: | 6.5. | CALCULO-CALCULATED  | F.V.       |

|                            | NO. DE GOLPES | PESO HUHEOO | PESO SECO           | PESO CAPSULA<br>CAN HEIGHT | . u X | HEDIA<br>AVERASE |
|----------------------------|---------------|-------------|---------------------|----------------------------|-------|------------------|
|                            | No. OF BLOUS  | 63.12       | DRY WEIGHT<br>54.18 | 17.44                      | 21.33 |                  |
| ,-HUNEDAD/HOISTURE         |               | 53.68       | 16.85               | 18.60                      | 24.18 | 24.26            |
|                            | 36            | 27.03       | 22.38               | 11.28                      | 41.89 |                  |
|                            | 22            | 28.37       | 23.27               | 12.13                      | 45.78 |                  |
|                            | 16            | 24.10       | 19.41               | 9.56                       | 47.61 | - 2              |
|                            |               |             |                     |                            |       | 44.57            |
| LIN.PLASTICO/PLASTIC LIMIT |               | 10.24       | 9.37                | 5.35                       | 21.64 |                  |
|                            |               | 8,74        | 8.14                | 5.36                       | 21.58 |                  |
| -                          |               | 9.46        | 8.75                | 5.43                       | 21.39 | 21.54            |



| 1 GRANULOHETRI     | A/SIEVE ANALIZIS  |                     |              |
|--------------------|-------------------|---------------------|--------------|
| P. IN. ZIN. WEIGHT | 111.42            | (8//\$)             | н            |
| PESO INICIAL DE C  | ALCULO/INITIAL CA | LCULUS HEIGHT       | 89,67        |
| TANIZISTEVE        | P.REL. RET. H.    | VELT. WETAINED %    | /PASA/PASSED |
| 1#                 | 0.00              | 0.0                 | 100.0        |
| 3/4" -             | 0.00              | 0.0                 | 100.0        |
| 1/2"               | 0.00              | 0.0                 | 100.0        |
| 378"               | 0.00              | 0.0                 | 100.0        |
| No. 1              | 0.00              | 0.0                 | 100.0        |
| No. 10             | 0.00              | 0.0                 | 100.0        |
| No. 40             | 0.00              | 0.0                 | 100.0        |
| No. 200            | 0.68              | 0.8 <sup>E.e.</sup> | 99.2         |

| 5CLASIFICACIO | V/CLASIFICATION |
|---------------|-----------------|
| GRAUA/GRAVEL  | 0               |
| ARENA-SAND    | 1               |
| F1N05/F1NES   | 99              |

| แกเ   | 45.0  |
|-------|-------|
| 10,91 | 22.0  |
| 1P/P1 | 23.0  |
| ين    | 24.3  |
|       | LPAPL |

| SUCS   | CL    |
|--------|-------|
| AASHTO | A-7-6 |
| 16(86) | 25    |
| IG(45) | 14    |

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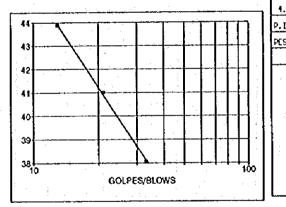
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| PROYECTO/PROJEC TRASUASES/TR |                    |                  |       | MUESTRA No. /SAMPLE | H-?       |
|------------------------------|--------------------|------------------|-------|---------------------|-----------|
|                              |                    |                  |       | PROFUNDIOAD/DEPTH:  | 2.00-4.00 |
| UDICACION/SITE: C-19         | FECHA-DATE 010.193 | ENSAYADO-TESTED: | G. S. | CALCULD/CALCULATED  | F.V.      |

## ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

|                              | No. OF GOLPES | PESO HUHEOO<br>Het height | PESO SECO<br>DRY HE16HT | PESO CAPSULA<br>CAN NEJGHT | u X   | NEOIA<br>AVERAGE |
|------------------------------|---------------|---------------------------|-------------------------|----------------------------|-------|------------------|
| 1. HUREDADZHOISTURE          |               | 61.71                     | 56.19                   | 19.69                      | 23.34 |                  |
|                              |               | 74.96                     | 61.29                   | 19.10                      | 23.61 | 23.48            |
| 2LIN.LIQUIOO/LIQUID LIBIT    | 33            | 24.30                     | 20.91                   | 12.11                      | 38.05 |                  |
|                              | 21            | 25.94                     | 21.95                   | 12.22                      | 41.01 |                  |
|                              | 13            | 30.21                     | 24.69                   | 12.11                      | 43.88 | I                |
|                              |               |                           |                         |                            |       | 39.83            |
| 3LIN, PLASTICO/PLASTIC LINIT |               | 9.61                      | 8.87                    | 5.36                       | 21.08 |                  |
|                              |               | 17.30                     | 16.40                   | 12.12                      | 21.03 |                  |
|                              |               | 11.40                     | 10.36                   | 5.45                       | 21.18 | 21.10            |



| 4 GRANULOHETRI    | A/SIEVE ANALIZIS  |                   |               |
|-------------------|-------------------|-------------------|---------------|
| P.IN. JN. VEIGHT  | 135.40            | (4/5)             | <u> </u>      |
| PESO INICIAL DE C | ALCULO/INITIAL CA | LCULUS PETGHT :   | 109.60        |
| TAMIZ/SIEVE       | P.RET. RET.W.     | VICT. /RETAINED % | 12 ASA-PASSED |
| 1"                | 0.00              | 0.0               | 100.0         |
| 3/4"              | 0.00              | 0.0               | 100.0         |
| 1/2*              | 0.00              | 0.0               | 100.0         |
| 3/8"              | 0.00              | 0.0               | 100.0         |
| No. 4             | 0.00              | 0.0               | 100.0         |
| No. 10            | 0.00              | 0.0               | 100.0         |
| No. 10            | 3.12              | 2.8               | 97.2          |
| No. 200           | 46,57             | 42.5              | 57.5          |

| 5CLASIFICACION | CLASIFICATION | u.a.c        | 10.0 | SUCS       | CL  |
|----------------|---------------|--------------|------|------------|-----|
| GRAVA/GRAVEL   | 0             | 10,01        | 21.0 | <br>AASHTO | A-6 |
| ARENA/SAND     | 12            | 19/PI        | 19.0 | 16(86)     | 8   |
| FINOS/FINES    | 58            | υ <i>ν</i> , | 23.5 | IG(45)     | 8   |

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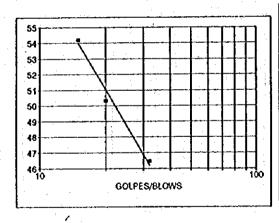
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| PROYEC TO /PROJEC | TRASUASES | TRANBASINS                            |         | <u> </u>         | F           | HUESTRA No. /SAMPLE  | M-1        |
|-------------------|-----------|---------------------------------------|---------|------------------|-------------|----------------------|------------|
|                   |           | · · · · · · · · · · · · · · · · · · · |         |                  |             | PROFUNDIDAD/DEPTH: C | ).35-1.10m |
| UBICACION/SITE:   | C-20      | FECHAZOATE                            | 010.293 | ENSAYA00/TESTED: | <u>G.S.</u> | CALCULO/CALCULATED   | ٤.٧.       |

| ENSAYOS D | E CLASIFICACION/CLASIFICATION | 1621 |
|-----------|-------------------------------|------|
|           |                               |      |

|                               | No. OF BLOUS | peso huhedo<br>Net neight | peso seco<br>Ory usight | DESO CADSULA<br>CAN HEIGHT | цх    | HEDIA<br>AVERAGE |
|-------------------------------|--------------|---------------------------|-------------------------|----------------------------|-------|------------------|
| I HUNEDAD/MOISTURE            |              | 57.10                     | 49.21                   | 18.51                      | 25.70 |                  |
|                               |              | 52.45                     | 45.24                   | 17,20                      | 25.71 | 25.71            |
| 2LIN.LIQUICO/LIQUID LIMIT     | 32           | 20.22                     | 17.54                   | 11.77                      | 46.45 |                  |
|                               | 20           | 23.50                     | 19.70                   | 12.15                      | 50.33 |                  |
|                               | 15           | 25.14                     | 20.63                   | 12.31                      | 54.21 |                  |
|                               | х.           |                           |                         |                            |       | 48.73            |
| 3LIM. PLASTICO /PLASTIC LIMIT |              | 16.54                     | 15.50                   | 12.15                      | 31.04 |                  |
|                               |              | 15.84                     | 14,95                   | 12.10                      | 31.23 |                  |
| · · ·                         |              | 9,71                      | 8.67                    | 5.35                       | 31.33 | 31.20            |



| 4 GRANULOHETRI    |                   |                  |              |
|-------------------|-------------------|------------------|--------------|
| P.IN. /IN. HEIGHT | 104.48            | (H/S)            | <u>H</u> .   |
| PESO INICIAL DE C | ALCULO-INITIAL CA | RECULUS METCHE : | 83.11        |
| TANIZ/SIEVE       | P.RET. ART. H.    | WET. WETAINED Z  | 'PASA/PASSED |
| j <sup>a</sup> .  | 0.00              | 0.0              | 100.0        |
| 3/4"              | 0.00              | 0.0              | 100.0        |
| 1/2"              | 0.00              | 0.0              | 100.0        |
| 378*              | 0.00              | 0.0              | 100.0        |
| No. 4             | 0.00              | 0.0              | 100.0        |
| No. 10            | 0.00              | 0.0              | 100.0        |
| No. 10            | 0.41              | 0,5              | 99.5         |
| No. 200           | 16.88             | 20.3             | 29.7         |

| 5CLASIFICACION | CLASIFICATION |
|----------------|---------------|
| GRAUA/GRAUEL   | 0             |
| ARENA/SAND     | 20            |
| FINDS/FINES    | 80            |

| uai   | 49.0 |
|-------|------|
| LO/PL | 31.0 |
| 10-P1 | 18.0 |
| υ/.   | 25.7 |

| SUCS   | HL.   |
|--------|-------|
| AASHTO | A-7-5 |
| 16(86) | 16    |
| 16(45) | 13    |

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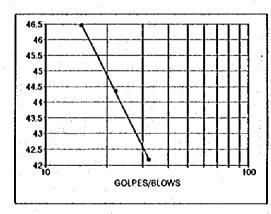
| FROYECTO/PROJEC | TRASUASES/T | RANBAS I NS | · · · · · · · · · · · · · · · · · · · | ***              |      | HUESTRA No. /SAMPLE  | H-1      |
|-----------------|-------------|-------------|---------------------------------------|------------------|------|----------------------|----------|
|                 |             |             |                                       |                  |      | PROFUNDIDAD/DEPTH: ( | . 40-1.0 |
| UBICACION/SITE: | C-21        | FECHA/DATE  | 0IC./93                               | ENSAYA00/TESTED: | Ġ.S. | CALCULOZCALCULATED   | £.V.     |

#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

|                               | No. DE GOLPES | peso humeoo   | PESO SECO                             | PESO CAPSULA |            | MEDIA   |
|-------------------------------|---------------|---------------|---------------------------------------|--------------|------------|---------|
|                               | NO. OF BLOUS  | LIET LIETGHT. | DRY NEIGHT                            | CAN NETGHT   | <u>ц х</u> | AVERAGE |
| IHUHEDADZHOISTURE             |               | 56.91         | 50.75                                 | 17.88        | 18.74      |         |
|                               |               | 61.65         | 57.47                                 | 18.93        | 18.63      | 18.69   |
| 2LIH.LIQUIQO/LIQUIQ LIHIT     | 32            | 26.06         | 21.91                                 | 12.07        | 42, 17     |         |
|                               | 22            | 26.96         | 22.43                                 | 12.22        | 44.37      |         |
|                               | 15            | 27.27         | 22.46                                 | 12.11        | 46.47      |         |
|                               |               |               | · · · · · · · · · · · · · · · · · · · |              |            | 43.60   |
| 3LIH. PLASTICO /PLASTIC LIHIT | :             | 10.10         | 9.05                                  | 5,35         | 28.38      |         |
| •                             |               | 9.32          | 8.44                                  | 5.36         | 28.57      |         |
|                               |               | 9,45          | 8,57                                  | 5.43         | 28.03      | 28.33   |

0

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| 4 GRANULOHETR        | A/SIEVE ANALIZIS   |                 |             |
|----------------------|--------------------|-----------------|-------------|
| P. IN. / IN. HE IGHT | 116.46             | (8/5)           | H           |
| PESO INICIAL DE I    | CALCULO/INITIAL CA | LEULUS HEIGHT : | 98.1        |
| TANIZ/SIEVE          | P.RET. ARET. H.    | WET. RETAINED % | VPASA/PASSE |
| 1 <sup>0</sup>       | 0.00               | 0.0             | 100.0       |
| 3/4"                 | 0.00               | 0.0             | 100.0       |
| 1/2"                 | 0.00               | 0.0             | 100.0       |
| 378"                 | 0.00               | 0.0             | 100.0       |
| No. 1                | 0.00               | 0.0             | 100.0       |
| No. 10               | 0.00               | 0.0             | 100.0       |
| No. 10               | 0,25               | 0.8             | 99.2        |
| No. 200              | 49.00              | 49.9            | 50.1        |

| Providence in the statement |        | No. of Concession, Name | and the second |
|-----------------------------|--------|-------------------------|--|
| 5CLASIFIC                   | AC JON | 1/CLAS                  | SIFICATION   |
| GRAVA-GRA                   | ve.    |                         | 0  |
| ARENA/SA                    | SD     |                         | 50   |
| EINOS/EI                    | ξS     |                         | 50   |
|                             |        |                         |  |

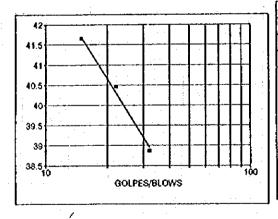
| u <i>i</i> u i         | 44.0 |
|------------------------|------|
| LP/PL                  | 28.0 |
| 1 <b>P</b> 2P <b>J</b> | 16.0 |
| الأن                   | 18.7 |

| SUCS   | ML    |
|--------|-------|
| AASHTO | A-7-6 |
| 16(86) | 5     |
| 16(45) | 5     |

#### ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| PROYECTO/PROJEC | TRASUASES/ | TRANBAS INS |         |                  |      | HUESTRA NoSAMPLE   | M-2        |
|-----------------|------------|-------------|---------|------------------|------|--------------------|------------|
|                 |            | ·····       |         |                  |      | PROFUNDIDAD-DEPTH: | 1.10-2.15m |
| UBICACION/SITE: | C-21       | FECHA-DATE  | 010./93 | ENSAYADO-TESTED: | G.S. | CALCULO/CALCULATED | F.U.       |

|                              | No.CE GOLPES | PESO HUPEOO | PESO SECO  | PESO CAPSULA |          | i neoja |
|------------------------------|--------------|-------------|------------|--------------|----------|---------|
|                              | NO. OF BLOUS | NET NEIGHT  | DRY VEIGHT | CAN DELIGHT  | <u> </u> | AVERAGE |
| 1. HUNEDAD / HOISTURE        |              | 58.30       | 49.95      | 18.45        | 26.51    |         |
|                              |              | 64.22       | 54.72      | 19.28        | 26.81    | 26.66   |
| 2LIM.LIQUIDO/LIQUID LIMIT    | 32           | 25.45       | 21.73      | 12.16        | 38.87    |         |
|                              | 22           | 23.33       | 20.00      | 11.77        | 40.46    | 1 · .   |
|                              | 15           | 26.32       | 22.13      | 12.07        | 41.65    |         |
|                              |              | -           |            |              |          | 39.84   |
| LIN. PLASTICO /PLASTIC LINIT |              | 10, 17      | 9.28       | 5.37         | 22.76    |         |
|                              |              | 9,35        | 8.62       | 5.36         | 22.39    | ļ       |
|                              |              | 9.70        | 8.91       | 5.35         | 22. 19   | 22.45   |



| P. IN. 21N. HE IGHT | 103.43            | <u>(H/S)</u>    | H           |
|---------------------|-------------------|-----------------|-------------|
| PESO INICIAL DE C   | ALCULO/INITIAL CA | LEULUS NEIGHT : | 81.66       |
| TAMIZZSIEVE         | P.RET. /RET.W.    | WET. PETAINED Z | PASA/PASSED |
| . 1 <sup>#</sup>    | 0.00              | 0.0             | 100.0       |
| 3/4° ·              | 0.00              | 0.0             | 100.0       |
| 1/2"                | 0.00              | 0.0             | 100.0       |
| 378"                | 0.00              | 0.0             | 100.0       |
| No. 4               | 0.00              | 0.0             | 100.0       |
| No. 10              | 0,00              | 0.0             | 100.0       |
| No. 40              | 1.15              | 1.4             | 98.6        |
| No. 200             | 10, 16            | 12.4            | 87.6        |

| 5CLASIFICACION | CLASIFICATION |
|----------------|---------------|
| GRAUA/GRAUEL   | 0             |
| ARENA/SAND     | 12            |
| FUNDS/FINES    | 88            |

| 40.0 |
|------|
| 22.0 |
| 18.0 |
| 26,7 |
|      |

| SUCS   | CL  |
|--------|-----|
| AASHTO | A-6 |
| 16(86) | 16  |
| 16(45) | 11  |

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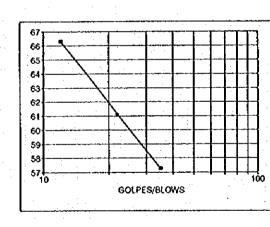
ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| . | PROYECTO/PRO EC | TRASUASES/T | RANBASINS  |         |                  |      | HUESTRA NO. /SAMPLE | M-2       |
|---|-----------------|-------------|------------|---------|------------------|------|---------------------|-----------|
|   |                 |             |            |         |                  |      | PROFUNDIDAD/DEPTH:  | 1.00-2.35 |
|   | UBICACION/SITE: | C-22        | FECHA/DATE | DIC./93 | ENSAYADO-TESTED: | G.S. | CALCULO/CALCULATED  | F.V.      |

|                               | No. DE GOLPES<br>No. OF BLOUS         | peso hunedo<br>Liet lietght | PESO SECO<br>ORY WELGHT | PESO CAPSULA<br>CAN HEIGHT | មង    | HEOTA<br>AVERAGE |
|-------------------------------|---------------------------------------|-----------------------------|-------------------------|----------------------------|-------|------------------|
| I HUNEDAD / MOISTURE          |                                       | 61.34                       | 52.27                   | 18.48                      | 26.84 |                  |
|                               | a a a a a a a a a a a a a a a a a a a | 66.06                       | 55,87                   | 19.10                      | 27.71 | 27.28            |
| 2LIM.LTOUIDO/LTOUID LIMIT     | 35                                    | 27.21                       | 21.73                   | 12.16                      | 57.26 |                  |
|                               | 22                                    | 25.86                       | 20,68                   | 12.20                      | 61.08 |                  |
|                               | 12                                    | 27.00                       | 21.00                   | 11.95                      | 66.30 |                  |
|                               |                                       |                             |                         |                            |       | 60.07            |
| 3LIM, PLASTICO /PLASTIC LIMIT |                                       | 9.84                        | 8.83                    | 5.36                       | 29.11 | · · ·            |
|                               |                                       | 15.87                       | 15.05                   | 12.12                      | 27.99 | ;                |
|                               |                                       | 15.65                       | 14.88                   | 12.20                      | 28.73 | 28.61            |

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| P. IN. /IN. MEIGHT | 109.10            | (H/S)            | H           |
|--------------------|-------------------|------------------|-------------|
| PESO INICIAL DE C  | ALCULOZINITIAL CA | LCULUS WEIGHT :  | 85.7        |
| TAM12/SIEVE        | P.RET. ART.N.     | VRET. ARTAINED % | itasa/passe |
| 11                 | 0.00              | 0.0              | 100.0       |
| 3/4"               | 0.00              | 0.0              | 100.0       |
| 1/2 <sup>#</sup>   | 0.00              | 0.0              | 100.0       |
| 3/8"               | 0.00              | 0.0              | 100.0       |
| No. 4              | 0.00              | 0.0              | 100.0       |
| No. 10             | 0.00              | 0.0              | 100.0       |
| No. 40             | 0.00              | 0.0              | 100.0       |
| No.200             | 44.08             | 51.4             | 48.6        |

| 5CLASIFICACION/ | CLASIFICATION |
|-----------------|---------------|
| GRAUA/GRAVEL    | . 0           |
| AGENA/SAND      | 51            |
| FINDS/FINES     | 49            |

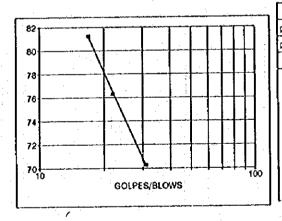
| uat              | 60.0 |
|------------------|------|
| LP/PL            | 29.0 |
| 19701            | 31.0 |
| υ <sup>γ</sup> . | 27.3 |

| SUCS   | SC    |
|--------|-------|
| AASHTO | A-7-6 |
| 16(86) | 11    |
| 16(45) | 11    |

|                 |            |            |                                | Thereton No. CONTR.  | M-2        |
|-----------------|------------|------------|--------------------------------|----------------------|------------|
| PROYECTO/PROJEC | TRASUASES/ | TRANSASINS |                                | HUESTRA NO. /SAMPLE  |            |
|                 | 7          |            |                                | PROFUNDIDAD/DEPTH: 2 | 2.00-2.80m |
| UBICACTON-SITE: | C-23       | FECHA/DATE | DIC. 793 ENSAYADO-TESTED: 6.S. | CALCULO/CALCULATED   | <u> </u>   |

| ENSAYOS | DE CLASIFIC | ACION/C | LASIFIC | ATION TEST |
|---------|-------------|---------|---------|------------|

|                             | No.DE GOLPES   | pesd hunedo<br>Het height | PESO SECO<br>DRY HEIGHT | PESO CAPSULA<br>CAN HEIGHT | ях                      | MEDIA<br>AVERAGE |
|-----------------------------|----------------|---------------------------|-------------------------|----------------------------|-------------------------|------------------|
| 1 HUNEDAD/HOISTURE          |                | 59.26<br>59.51            | 48.43                   | 19.69<br>18.12             | 37.68<br>37.74          | 37.71            |
| 2LIH.LIQUIDO.A. IQUIO LIMIT | 31<br>22<br>17 | 25.41<br>24.28<br>28.10   | 19.93<br>19.00<br>21.00 | 12, 13<br>12, 08<br>12, 26 | 70.26<br>76.30<br>81.24 | 74, 13           |
| 3LIM.PLASTICO/PLASTIC LIMIT |                | 8.57<br>9.47<br>9.69      | 7.92<br>8.48<br>8.68    | 5.45<br>5.32<br>5.43       | 26.32<br>31.33<br>31.08 | 29.57            |



| AVSIEVE ANALIZIS  |  |  |
|-------------------|--|--|
| 103.61            | (4/5)  | H  |
| ALCULOZINITIAL CA | LCULUS HERGHT :  | 75.24  |
| P.RET. ARET.W.    | VRET . ARETAINED %   | TASA-PASSED  |
| 0.00              | 0.0  | 100.0  |
| 0.00              | 0.0  | 100.0  |
| 0.00              | 0.0  | 100.0  |
| 0.00              | 0.0  | 100.0  |
| 0.00              | 0.0  | 100.0  |
| 0.00              | 0.0  | 100.0  |
| 0.00              | 0.0  | 100.0  |
| 1. 19             | 2.0  | 98.0   |
|                   | RICULO/INITIAL CA<br>P.RET./RET.U.<br>0.00<br>0.00<br>0.00<br>0.00<br>0.00<br>0.00<br>0.00<br>0.00<br>0.00 | 103.61 04/53   ALCULO/INITIAL CALCULUS KEIGHT :   P.RET./RET.U. //////////////////////////////////// |

| 5 CLASIFICACION | CLASIFICATION |
|-----------------|---------------|
| GRAVA/GRAVEL    | 0             |
| ALENA/SAND      | 2             |
| FINOS/FINES     | 98            |

| un    | 74.0 |
|-------|------|
| LP/PL | 30.0 |
| 10,01 | 44.0 |
| ان.   | 37.7 |

| SUCS   | СН    |
|--------|-------|
| AASHTO | A-7-5 |
| 16(86) | 52    |
| IG(45) | 20    |

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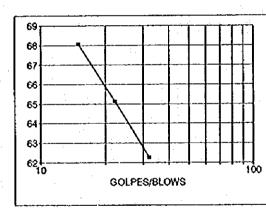
ENSAYOS DE CLASIFICACION/CLASIFICATION TEST

| PROYECTO PRO EC | TRASUASES/T | RANBASINS  |         | <u> </u>         |      | HUESTRA NoSAMPLE   | l1-2     |
|-----------------|-------------|------------|---------|------------------|------|--------------------|----------|
|                 |             |            |         |                  |      | PROFUNDIDAD/DEPTH: | 2.50-3.5 |
| UBICACION/SITE: | C-24        | FECHAZDATE | DIC./93 | ENSAYADO-TESTED: | G.S. | CALCULO-CALCULATED | F.V.     |

|  | NO. DE GOLPES<br>No. OF BLOUS | peso huhedo<br>Liet lietght | PESO SECO<br>DAY WE164T | peso capsula<br>Can height | иX    | neota<br>Averagi |
|--|-------------------------------|-----------------------------|-------------------------|----------------------------|-------|------------------|
| 1HUNEDAD/HOISTURE  | 10.01 00043                   | 55,35                       | 42.00                   | 18.63                      | 57.12 | · · · ·          |
| 1. Addied to Anna ta |                               | 57.00                       | 42.82                   | 18.47                      | 58.23 | 57.68            |
| 2LIN.LIQUIOO/LIQUID LINIT                                | 32                            | 26.84                       | 21.36                   | 12.56                      | 62.27 |                  |
|  | 22                            | 25.46                       | 20.05                   | 11.72                      | 65.14 |                  |
|  | 15                            | 25.27                       | 22.35                   | 18.06                      | 68.07 |                  |
|  |                               |                             |                         | · ·                        |       | 64.16            |
| 3LIM.PLASTICO/PLASTIC LINIT                              |                               | 15.78                       | 14.87                   | 12.01                      | 31.82 |                  |
|  |                               | 9.76                        | 8.74                    | 5.52                       | 31.68 |                  |
|  |                               | 9.85                        | 8.76                    | 5.45                       | 32,93 | 32.14            |

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| P. IN. /IN. MEIGHT | 105.66            | (H/S)           | <u> </u>  |
|--------------------|-------------------|-----------------|-----------|
| PESO INICIAL OF C  | ALCULO/INITIAL CA | LCULUS HEIGHT : | 67        |
| TANIZ/SIEVE        | P. SET. ART. H.   | WET RETAINED %  | ZPASA/PRS |
| 1"                 | 0.00              | 0.0             | 100.      |
| 3/4"               | 0.00              | 0.0             | 100.      |
| 1/2"               | 0.00              | 0.0             | 100.      |
| 378"               | 0.00              | 0.0             | 100.      |
| No. 4              | 0.00              | 0.0             | 100.      |
| No. 10             | 0.00              | 0.0             | 100.      |
| No. 40             | 0,23              | 0.3             | 99.       |
| No. 200            | 7.00              | 10.4            | 89.       |

| CLASIFICATIO | -CLASIFICACION |
|--------------|----------------|
| . 0          | GRAVA/GRAVEL   |
| 10           | PRENA/SAND     |
| 90           | FINDS/FINES    |

| un         | 64.0 |
|------------|------|
| LP/PL      | 32.0 |
| 1P/PI      | 32.0 |
| <u>، ب</u> | 57.7 |

| SUCS   | ИН    |
|--------|-------|
| AASHTO | A-7-1 |
| 16(86) | 34    |
| 16(45) | 20    |

## UNDISTURBED SAMPLE

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#### ESCUELA POLITECNICA NACIONAL FACULTAD DE INGENIERIA CIVIL LABORATORIO DE MECANICA DE ROCAS

## PROYECTO "TRASVASES MANABI"

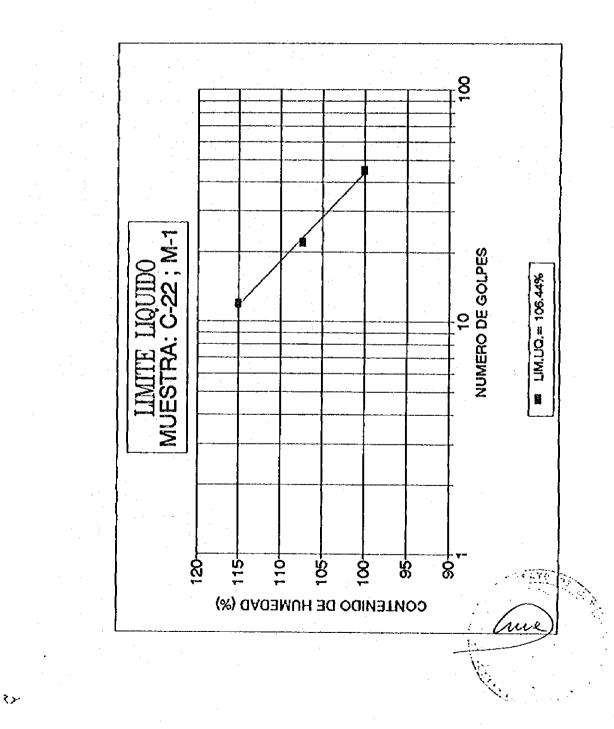
ENVIO 2 SONDEO: MUESTRA: FROFUNDIDAD:

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C-22 BLOQUE M-1 0.60-0.90



#### ESCUELA POLITECNICA NACIONAL FACULTAD DE INGENIERIA CIVIL LABORATORIO DE MECANICA DE ROCAS

CALIFICATION CONTRACTOR CONTRACTOR CONTRACTOR OF CONTRACTOR OF

## PROYECTO "TRASVASES MANABI"

ENVIO 2 SOLICITADO POR: SONDEO: MUESTRA:

HIDROSUELOS C-23 BLOQUE M-1

PROFUNDIDAD:

#### 1.20-1.50

| CAPSULA No. | No.<br>GOLFES | PESO :<br>Humedo : | PESO<br>SECO | PESO (<br>CAFSULA ) | *<br>HUMEDAD |
|-------------|---------------|--------------------|--------------|---------------------|--------------|
| 5 1         | 40 ;          | 22.50              | 15.81        | 9.68                | 107.73       |
| 8           | 30            | 22.40              | 14.03 ;      | 6.60                | 111.23       |
| 36 1        | 21            | 23.20 !            | 15.88        | 9.62                | 116.93       |
| 5           | 12            | 23.44              | 15.79        | 9.67                | 125.00       |
|             |               | INITE FLASTIC      | :0           |                     |              |
| 22 ;        | 3             | 13.48              | 12.14        | 9.46                | 50.00        |
| 38          |               | 13.85              | 12.31        | 9.37                | 52.38        |

| RESUMEN DE RESULTADOS! | SUCS: | CH     | LP = | 51.19 |
|------------------------|-------|--------|------|-------|
|                        | LL =  | 114.29 | 1F = | 63.10 |
|                        |       |        |      |       |

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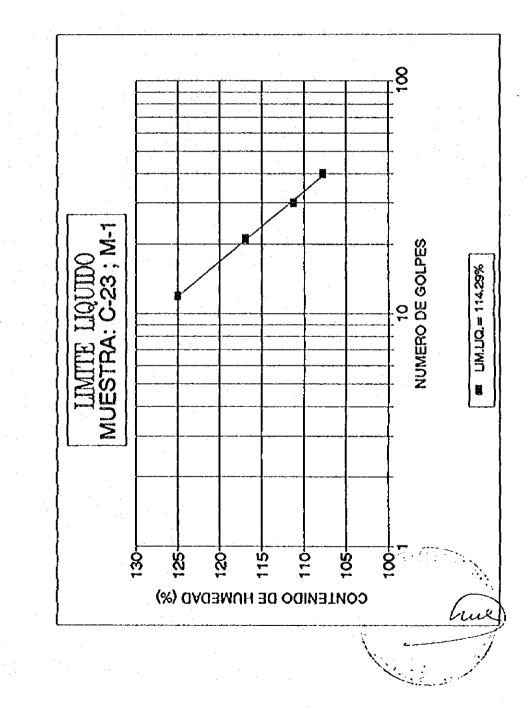
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## PROYECTO "TRASVASES MANABI"

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#### ESCUELA POLITECNICA NACIONAL FACULTAD DE INGENIERIA CIVIL LABORATORIO DE MECANICA DE ROCAS

## PROYECTO "TRASVASES MANABI"

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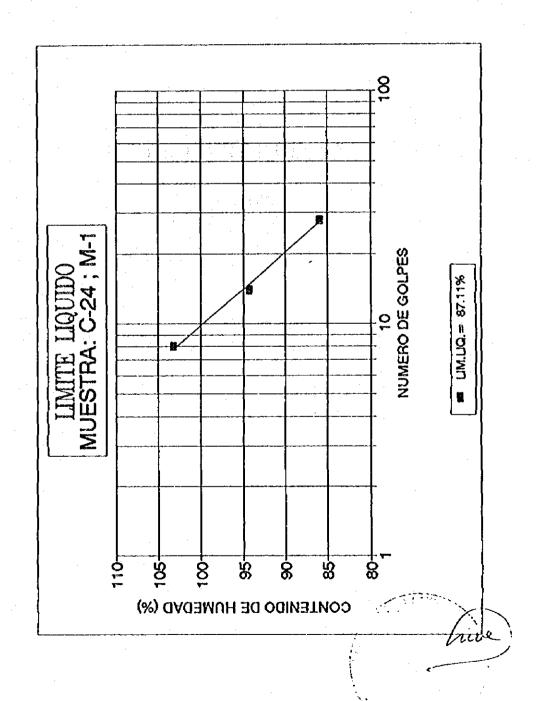
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PROYECTO "TRASVASES MANABI"

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