

Description of Strata is according to Unified Soil Classification System

# GEOTECHNICS PHILIPPINES, INCORPORATED SOILS AND MATERIALS TESTING LABORATORY 119 SAUVO ROAD, NOVALICHES, QUEZON CITY



|                     |                                 |  |          |                                    |           | 7     | n y                    | 2             |          |       |               |            | 119 SAUYO R<br>TEL. NO. 93                               | OAD,       | NO       | VAL        | .IC         | HES          | , Qu              | JEZ        | ON CITY                       |                  |   | DPWH-BR  | RS Accredited        |
|---------------------|---------------------------------|--|----------|------------------------------------|-----------|-------|------------------------|---------------|----------|-------|---------------|------------|--|------------|----------|------------|-------------|--------------|-------------------|------------|-------------------------------|------------------|---|--|----------------------|
| CLIEN               | Т                               | MOHR   | I, ARC   | HITECT                             | & ASS     | OCI   | ATE                    | ES,           | IN       | C.    |               |            |  |            |          |            |             |              |                   |            |                               |                  | BOREHOLE NO.                                | BH- 1  |                      |
| PROJE               | СТ                              | Propos                                       | sed Ma   | yon Eva                            | cuatio    | n Ce  | ente                   | er (          | Lib      | on    | Со            | mm         | unity Colleg   | e)         |          |            |             |              |                   |            |                               |                  | JOB NO. 22                                  | 09-10.R1-FBL-(                                     | 01                   |
| LOCAT               | ION                             | Brgy.  | Zone 4   | 4 Libon,                           | Provir    | ice o | fΑ                     | lba           | у        |       |               |            |  | DRIL       | LED      | l          |             |              | R.                | . Р        | OLIDAN                        |                  | SHEET                                       | 1 of 1   |                      |
| RIG                 |                                 | KSK S  | MALL     |                                    |           |       |                        |               |          |       |               |            |  | LOGO       | SED      |            |             |              | R.                | . P        | OLIDAN                        |                  | 0.0   | 0 to 10.00 meters                                  |                      |
|                     |                                 | Hamme  | r Weight | 63.50 Kg.                          |           |       |                        |               |          |       |               |            |  | DATE       | ST       | ART        | ED          |              | 0                 | ct.        | 16, 201                       | LO               | GROUND LEVEL                                | - m.   |                      |
|                     |                                 | Fall Heig                                    | ght 76.2 | 0 cm.                              |           |       |                        |               |          |       |               |            |  | DATE       | CC       | MPL        | LET         | ED           | 0                 | ct.        | 16, 201                       | LO               | WATER LEVEL                                 | 0.75 m.  |                      |
| METHO               | DD                              | WASH   | BORI     | NG                                 |           |       |                        |               |          |       |               |            |  | NORT       | THI      | NG         |             |              | -                 |            |                               |                  | EASTING                                     | -  |                      |
|                     |                                 |  |          |                                    |           |       |                        |               |          |       |               | FI         | NAL BOR  | RIN        | G        | L          | 00          | G            |                   |            |                               |                  | •   |  |                      |
| DEP                 | ТН                              | SOIL   | SAMPLE   | TYPE OF                            | REC       | RQD   | PL                     | L I           | VMC      | L     | L             | PI         | CONSISTENCY  | 0          | - 1      | v - v      | / A         | LU           | E                 |            |                               |                  | SOIL DESCRIPTION                            |  | OTHER                |
| (m                  | )                               | SYMBOL                                       | NUMBER   | SAMPLING                           | G (cm)    | (%)   | 20                     |               | -O-      | 80 10 | - 1           | L1         | CONSISTENCI  | •          | 0        |            |             | Rec          |                   | · 1        |                               |                  | OIL DESCRIPTION                             |  | TEST<br>DATA         |
| <del>-</del><br>7 - | -                               |  | S-1      | SPT                                | 45        | -     |                        |               |          |       |               | NP         | VERY LOOSE   | . 4        |          |            |             |              |                   |            |                               | dark g           | raded SAND with<br>gray; dry                | traces of  |                      |
| -                   | 1.00 -                          | • • • •                                      | S-2      | SPT                                | 45        | _     |                        |               |          |       |               | NP         |  | 4          |          |            |             |              |                   |            | (SM) Si<br>dark gr<br>NB: (3) | ay, m            |   | ım grained;  |                      |
| -                   | 2.00 -                          |  | S-3      | SPT                                | 45        | -     |                        |               |          |       |               | 8          | MEDIUM DENS  | SE 18      | 3        |            |             |              |                   |            | (SC) Cl<br>gray; v<br>NB: (6) | ery mo           |   | of gravel; dark                                    |                      |
| -                   | 3.00 -<br>-<br>-<br>4.00 -      |  | S-4      | SPT                                | 42        | -     |                        |               |          |       |               | NP         |  | 1!         | 5        |            |             |              |                   |            |                               | of grav          | ND fine to coarse<br>el; dark gray; m       |  |                      |
| -                   | 4.00 =<br>-<br>-<br>-<br>5.00 = |  | S-5      | SPT                                | 39        | -     |                        |               |          |       |               | NP         | DENSE  | 32         | 2        |            |             |              |                   |            |                               | dark g           | raded SAND with<br>gray; moist<br>17)       | fine to coarse                                     |                      |
| -                   | -<br>-<br>-<br>6.00 -           |  | S-6      | SPT                                | 45        | -     |                        |               |          |       |               | NP         | MEDIUM DENS  | SE 14      | 1        |            |             |              |                   |            | with<br>NB: (8)               | _                | ravel                                       |  |                      |
| -                   | -<br>-<br>-<br>7.00 <b>-</b>    |  | S-7      | SPT                                | 45        | -     |                        |               |          |       |               | 37         | STIFF  | 15         | 5        |            |             |              |                   |            | (CH) Fa<br>moist<br>NB: (3)   |                  | with few sand;                              | dark gray; very                                    |                      |
| -                   | -<br>-<br>-                     | • • • •                                      | S-8      | SPT                                | 37        | -     |                        |               | <i>/</i> |       |               | NP         | MEDIUM DENS  | SE 23      |          |            |             |              |                   |            | . ,                           | of grav          | ND fine to coarse<br>el; dark gray; ve<br>) | _  |                      |
| -                   | 8.00 -<br>-<br>-<br>9.00 -      |  | S-9      | SPT                                | 45        | -     |                        |               |          |       |               | 38         | HARD   | 46         | 5        |            | $\setminus$ |              |                   |            | (CH) Fa<br>moist<br>NB: (16   |                  | with few sand;                              | dark gray; very                                    |                      |
| -                   | -                               |  | S-10     | SPT                                | 45        | _     |                        |               | /T:      |       |               | NP         | MEDIUM DENS  | SE 1!      | 5        |            | 1           |              |                   |            | gray; m<br>NB: (12            | noist<br>!)(6)(9 | y graded SAND v<br>)<br>ORING AT 10.0       | ·  |                      |
| Туре                | of Sar                          | npling                                       |          |                                    | Type of S | Soil  |                        | 9—            |          |       | "             |            | !  | ONS        | _        | LEV        | ۸C.         | Ϋ́           |                   | ш          |                               |                  | MOISTURE                                    | PERCENTA   | .GE                  |
|                     | PEI<br>TE                       | ANDARD<br>NETRATION<br>ST (SPT)<br>DISTURBED |          | Silty CLAY Clayey SILT Clayey SAND |           |       | Silty Well of with s   | grade<br>silt |          | AVEL  |               | <u>N-V</u> | COHESIVE SOII ALUE CONSIS - 2 - VERY S - 4 - SOFT        | LS<br>TENC | <u>c</u> | <u>N-V</u> | EN<br>/AL   | ISIC<br>UE   | <u>CC</u><br>- VE | ONS<br>ERY | S SOILS<br>SISTENCY<br>LOOSE  | MOIS<br>RANG     | ES VALUES  O - DRY                          | % of SAND and 0                                    | GRAVE<br>LUES<br>CES |
|                     | (UI                             | MPLING<br>DS)<br>RING<br>RG)                 |          | Silty SAND Clayey silty S          |           | V V V | SILTS<br>TUFF<br>Tuffe |               |          | rstor | NE            | 15         | - 8 - FIRM<br>- 15 - STIFF<br>- 30 - VERY S<br>30 - HARD | TIFF       |          | 10<br>30   | - 3<br>- 5  | 30 -<br>50 - | - MI<br>- DI      | EDI<br>ENS | IUM DENSE                     | 30 <b>-</b> 7    | 70 - VERY MOIST<br>00 - WET                 | 11 - 25 — LITTI<br>26 - 35 — SOM<br>36 - 45 — WITH | LE<br>E              |
| REMAR               | RKS:                            | Rec =  | Recov    | ery in C                           | entim     | eters | s                      | N             | IB :     | = N   | <u></u><br>Ю. | of F       | Blows HW   | = H        | an       | nme        | er          | We           | eiał              | ht         |                               |                  | Prepared by : M                             | P. CUNAHAP   |                      |
|                     | Refe                            |  |          | pacing                             |           |       |                        |               |          |       |               |            | cm. >#3>3c   |            |          |            |             | <10          | _                 |            |                               | 1                | GL 1 11                                     | B.A. / M.R.R.                                      |                      |
|                     |                                 |  |          |                                    | 30 cm     |       |                        | 10            | cm       |       |               |            | :m. >#4>1c   |            |          |            |             |              |                   |            |                               |                  | Certified by :                              | /  |                      |
|                     |                                 | RQD =  | Rock     | Quality                            |           |       |                        |               |          |       | S             |            | Core Recove  |            |          |            |             |              |                   |            |                               |                  |   | JTHORIZED SIGNATO                                  | ORY.                 |
|                     |                                 |  |          | /                                  | 9         |       |                        |               |          | _     |               |            |  |            |          |            |             |              |                   |            |                               |                  | Date Issued :                               | JINORIZED SIGNATO                                  | JI(1                 |

Date Issued :



# GEOTECHNICS PHILIPPINES, INCORPORATED SOILS AND MATERIALS TESTING LABORATORY



AUTHORIZED SIGNATORY

Date Issued :

| .IEN | NT                     | MOH                   | DT AD             | LITECT       | . O. V.C.C | COCI                    | AT           | -             | TNI   | _          |              |          |                             |                |             |                  |                |             |        |                              |           | BOREHOLE NO.                                | BH- 2                            |                 |
|------|------------------------|-----------------------|-------------------|--------------|------------|-------------------------|--------------|---------------|-------|------------|--------------|----------|-----------------------------|----------------|-------------|------------------|----------------|-------------|--------|------------------------------|-----------|---|----------------------------------|-----------------|
|      | ECT                    |                       |                   | HITECT       |            |                         |              |               |       |            |              |          | ·····it·· Callan            |                |             |                  |                |             |        |                              |           | 100 NO                                      |                                  | 0.2             |
|      | TION                   |                       |                   | -            |            |                         |              |               | _     | юп         |              | mmc      | unity College               | ORILLE         | D           |                  |                | _           |        |                              | 1         | SHEET                                       | 09-10.R1-FBL-(                   | 02              |
| G    |                        |                       |                   | 4 Libon,     | Provii     | ice c                   | )I P         | IDa           | У     |            |              |          |                             | OGGE           | D           |                  |                |             |        | POLIDAN                      |           |   | 1 of 1                           |                 |
|      |                        |                       | SMALL<br>or Wolgh | t 63.50 Kg   |            |                         |              |               |       |            |              |          |                             | DATE S         | STAF        | RTE              |                |             |        | POLIDAN                      |           | GROUND LEVEL                                | to 10.00 meters                  |                 |
|      |                        |                       | ight 76.2         |              | , .        |                         |              |               |       |            |              |          |                             | DATE (         |             |                  |                | _           |        | 16, 20<br>16, 20             |           | WATER LEVEL                                 | - m.                             |                 |
| ΞТН  | IOD                    |                       | H BORI            |              |            |                         |              |               |       |            |              |          |                             | NORTH          |             |                  |                |             | JCL.   | . 16, 20                     | 10        | EASTING                                     | 1.57 m.                          |                 |
|      |                        | WASI                  | II DOM            | 110          |            |                         |              |               |       |            |              |          |                             |                | _           | _                | _              |             |        |                              |           |   |                                  |                 |
|      |                        |                       |                   |              |            |                         |              |               |       |            |              | FI       | NAL BOR                     | ING            | 3 L         | _0               | G              |             |        |                              |           |   |                                  |                 |
|      | PTH<br>n)              | SOIL                  | SAMPLE            | TYPE OF      |            | (%)                     |              | L<br>  —      | -0-   | _          | .            | PI       | CONSISTENCY                 | 0 <del>-</del> | %           |                  | e Re           | eco         |        |                              | Ş         | SOIL DESCRIPTION                            |                                  | OTI<br>TE<br>DA |
| Ť    | <del>'''/</del> -      | 1                     | LINOPIBLE         | SAMPLIN      | (CIII)     | ( /0 )                  | T            | ĬΪ            | Ϋ́    | ΪÌ         | ΪĦ           |          |                             |                | ĬΤ          | أآآأ             | TŤ             | Ť           | Ť      | (SM) S                       | ilty CA   | ND fine to mediu                            | m grained:                       |                 |
| -    | -                      |                       | S-1               | SPT          | 45         |                         |              |               |       |            |              | NP       | VERY LOOSE                  |                |             |                  |                |             |        | dark gi<br>NB: (2            | ray, m    | oist  | m grameu,                        |                 |
| t    | 1.00 -                 | ▋▋▐                   | 3-1               | SPI          | 45         | <u> </u>                | #            | $\vdash$      | Н     | $\dagger$  | Ш            | NP       | VERT LOOSE                  | 3              |             | Н                | +              | H           | +      |                              |           |   |                                  |                 |
| -    | -                      |                       | S-2               | SPT          | 45         |                         |              |               |       |            |              | NP       |                             | 2              |             |                  |                |             |        | fine<br>NB: (2               |           | rse grained with                            | traces of gravel                 |                 |
| F    | 2.00 -                 |                       | 32                | 311          | 73         |                         | Ħ            | $\bigvee$     |       | Ħ          | Ш            | 141      |                             |                |             |                  | $\parallel$    |             |        |                              |           | ILT; dark gray; v                           | ery moist                        |                 |
| Ė    | -                      | <u>-</u>              |                   |              |            |                         |              | $\setminus$   |       |            |              |          |                             |                |             |                  |                |             |        | NB: (5)                      | )(3)(3)   |   |                                  |                 |
| ŀ    | 3.00 -                 |                       | S-3               | SPT          | 45         | -                       | +            | ⊣♦            | Н     | +          | Н            | 16       | FIRM                        | 6              | ₩           | Н                | +              | $^{+}$      | +      | (56) 6                       | laviavi C | CAND with two co.                           | of augusts doubt                 | 1               |
| ļ    |                        |                       | 1                 |              |            |                         |              |               |       |            |              |          |                             |                | Ш           |                  |                |             |        | gray, v                      |           | SAND with traces<br>pist                    | or graver; dark                  |                 |
| Ė    | -<br>4.00 <b>-</b>     |                       | S-4               | SPT          | 45         | _                       |              |               |       |            | Ш            | 11       | LOOSE                       | 8              |             |                  |                |             |        | NB: (10                      | 0)(5)(3   | 3)  |                                  |                 |
| ŀ    |                        |                       |                   |              |            |                         |              | Ī             |       |            |              |          |                             |                | $\ $        |                  |                |             |        |                              |           | ND fine to coarse<br>vel; dark gray; ve     |                                  |                 |
| ŀ    | -                      | ▋▋₿                   |                   |              |            |                         |              |               |       |            |              |          |                             |                |             |                  |                |             |        | NB: (9)                      |           |   | iry moisc                        |                 |
| F    | 5.00 -                 | 9 9                   | S-5               | SPT          | 45         | -                       | +            | $\phi$        | Н     | +          | Н            | NP       | MEDIUM DENS                 | 13             | ┢           | ₩                | +              | +           | +      |                              |           |   |                                  |                 |
|      | -                      |                       |                   |              |            |                         |              | /             |       |            |              |          |                             |                |             |                  |                |             |        |                              | of grav   | ly graded SAND v<br>vel; dark gray; m<br>9) |                                  |                 |
| ŀ    | 6.00 -                 |                       | S-6               | SPT          | 45         | -                       | +            | $\mathbb{H}$  |       | $^{\rm H}$ | Н            | NP       |                             | 18             | +4          | ₩                | $^{\parallel}$ | H           | +      |                              |           |   |                                  |                 |
| -    |                        |                       |                   |              |            |                         |              |               |       |            |              |          |                             |                |             | $\setminus \mid$ |                |             |        | (SW-SN<br>dark gr<br>NB: (13 | ay; mo    |   | ith few gravel;                  |                 |
| Ė    | 7.00 -                 |                       | S-7               | SPT          | 45         | -                       | #            | $\parallel$   |       | $^{+}$     | Ш            | NP       | DENSE                       | 32             | $\parallel$ | þ                | #              | $\parallel$ | $\bot$ |                              | , ,       | •   |                                  |                 |
| F    |                        |                       | :                 |              |            |                         |              |               |       |            |              |          |                             |                | Ш           | И                |                |             |        | with<br>NB: (6)              |           | of gravel                                   |                                  |                 |
| F    |                        |                       | S-8               | SPT          | 45         | -                       |              |               |       |            |              | NP       | LOOSE                       | 9              | $\int$      |                  |                |             |        | ND. (0)                      | (3)(4)    |   |                                  |                 |
| F    | 8.00 -                 | 1111                  |                   |              |            |                         |              | M             |       |            | Ш            |          |                             |                | M           |                  |                |             |        |                              |           | SILT with some sa                           | and; dark gray;                  |                 |
| ţ    | -                      | 1                     |                   |              |            |                         |              | N             |       |            |              |          |                             |                | Ш'          | M                |                |             |        | very m<br>NB: (1             |           | (19)  |                                  |                 |
| ŀ    | -                      | 1111                  | S-9               | SPT          | 45         | -                       |              |               | Ш     |            |              | 26       | HARD                        | 36             |             | IД               |                |             |        |                              | , ,       | ` ,   |                                  |                 |
| -    | 9.00 <del>-</del><br>- |                       |                   |              |            |                         |              |               | P     |            |              |          |                             |                |             |                  |                |             |        | traces                       | of grav   | ND fine to coarse                           |                                  |                 |
| F    | 10.00                  | <b>∤</b> ‡‡           | S-10              | SPT          | 45         | _                       |              | $\ $          |       |            |              | NP       | DENSE                       | 36             |             |                  |                |             |        | NB: (14<br>ENI               |           | .20)<br>BORING AT 10.0                      | 0 METERS\                        |                 |
| pe   | of Sar                 | npling                |                   |              | Type of S  | Soil                    |              | ΦТ            | ш     |            | "            |          | !                           | NSI            | STE         | - <b>(</b>       | CY             |             |        | . /                          |           | MOISTURE                                    | PERCENTA                         | GE              |
| _    |                        | ANDARD                |                   | Silty CLAY   |            | *                       | Silty        | GRA           | /EL   |            | Ì            | <u>c</u> | OHESIVE SOIL                | <u>S</u>       | CO          | HE               | NSI            | 101         | ILES   | SS SOILS                     | MOIS      | STURE CONTENT                               | % of SAND and G                  | GRA             |
|      | PE                     | NETRATION<br>ST (SPT) | '│ ∭              | Clayey SILT  | -          |                         | Well<br>with | grade<br>silt | d GR  | AVEL       |              | N-V      | ALUE CONSIST                |                |             |                  |                |             |        | SISTENCY                     | RANG      |   |                                  | LUE             |
|      | ñи                     | IDISTURBE             | ,  🏻              | Clayey SANI  | D          | 0000                    | GRA          |               |       |            |              | 0<br>2   | - 2 - VERY SO<br>- 4 - SOFT | )FT            |             | 4 -              | 10             | -           | LOOS   |                              | 10 - 3    |   | 0 - 5 — TRAC<br>6 - 10 — FEW     |                 |
|      | SA                     | MPLING<br>DS)         | 9 9               | SIIty SAND   | Ī          |                         | SILT         | STON          | E     |            |              | 4<br>g   | - 8 - FIRM<br>- 15 - STIFF  |                |             |                  |                |             | MED:   | IUM DENSE<br>SE              | l         | 70 – VERY MOIST<br>.00 – WET                | 11 - 25 — LITTI<br>26 - 35 — SOM |                 |
|      |                        | RING<br>RG)           |                   | Clayey silty | , ,        | ↑ ↑ ↑<br>↑ ↑ ↑<br>↑ ↑ ↑ | TUF          | =             |       |            |              | 15       | - 30 - VERY ST              | IFF            | 3           |                  |                |             |        | Y DENSE                      | > 10      |   | 36 - 45 — WITH                   |                 |
|      |                        | ,                     |                   | SAND         | į.         | 7. V. V.<br>V. V. V     | Tuff         | eceou         | s SIL | rsto       | NE           | >        | 30 — HARD                   |                |             |                  |                |             |        |                              |           |   |                                  |                 |
| МΑ   | RKS:                   | Rec =                 | = Recov           | ery in C     | Centim     | eter                    | s            | ľ             | ΙB    | = [        | <del>ا</del> | of E     | Blows HW                    | = Ha           | mr          | nei              | r W            | /ei         | ght    |                              | <u> </u>  | Prepared by : M.                            | P. CUNAHAP                       |                 |
| _    |                        |                       |                   | pacing:      |            |                         |              |               |       |            |              |          | m. >#3>3cr                  |                |             | #5               |                |             |        |                              |           | Checked by : A                              |                                  |                 |

SCR = Solid Core Recovery

RQD = Rock Quality Designation

Description of Strata is according to Unified Soil Classification System



CLIENT....... MOHRI, ARCHITECT & ASSOCIATES, INC.

PROJECT..... Proposed Mayon Evacuation Center (Libon Community College)

LOCATION... Brgy. Zone 4 Libon, Province of Albay

DATE OF TEST...... October 21-28, 2010

#### **SUMMARY OF LABORATORY TESTS**

| SAMPLE | DEPTH        | NMC | ATTER | RBERG<br>(%)                            | LIMIT, | USCS   |   | SI                          | EVE AN | ALYSIS | (% FIN | IER) PAS | SSING S                                 | SIEVE N                                 | 10. |     | Remarks |
|--------|--------------|-----|-------|---|--------|--------|---|-----------------------------|--------|--------|--------|----------|---|---|-----|-----|---------|
| NUMBER | (m)          | (%) | LL    | PL                                      | PI     | Class. | 1                                       | <sup>3</sup> / <sub>4</sub> | 3/8    | 4      | 10     | 20       | 40                                      | 60                                      | 140 | 200 |         |
| BH-1   |              |     |       |   |        |        |   |                             |        |        |        |          |   |   |     |     |         |
| 1      | 0.55 - 1.00  | 9   | -     | NP                                      | _      | SP     |   |                             | 100    | 95     | 83     | 63       | 33                                      | 12                                      | 5   | 3   | -       |
| 2      | 1.55 - 2.00  | 29  | -     | NP                                      | -      | SM     |   |                             |        | 100    | 97     | 90       | 74                                      | 56                                      | 21  | 14  | -       |
| 3      | 2.55 - 3.00  | 36  | 40    | 32                                      | 8      | SC     |   | 100                         | 98     | 97     | 94     | 85       | 75                                      | 65                                      | 47  | 45  | _       |
| 4      | 3.55 - 4.00  | 30  | -     | NP                                      | _      | SM     |   |                             | 100    | 96     | 91     | 81       | 57                                      | 34                                      | 18  | 16  |         |
| 5      | 4.55 - 5.00  | 17  | -     | NP                                      |        | SP     | 100                                     | 83                          | 70     | 60     | 52     | 40       | 25                                      | 11                                      | 3   | 2   |         |
| 6      | 5.55 - 6.00  | 21  | -     | NP                                      | -      | SP     |   | 100                         | 75     | 58     | 46     | 34       | 21                                      | 12                                      | 5   | 4   | -       |
| 7      | 6.55 - 7.00  | 59  | 69    | 32                                      | 37     | СН     |   |                             |        |        | 100    | 99       | 98                                      | 96                                      | 91  | 90  | -       |
| 8      | 7.55 - 8.00  | 35  | -     | NP                                      |        | SM     |   |                             | 100    | 99     | 98     | 96       | 87                                      | 73                                      | 30  | 24  | -       |
| 9      | 8.55 - 9.00  | 60  | 70    | 32                                      | 38     | СН     |   |                             |        |        |        | 100      | 99                                      | 97                                      | 94  | 92  | -       |
| 10     | 9.55 - 10.00 | 23  | -     | NP                                      | _      | SP-SM  | *************************************** |                             |        | 100    | 99     | 94       | 54                                      | 20                                      | 6   | 5   | _       |
| BH-2   |              |     |       |   |        |        |   |                             |        |        |        |          |   |   |     |     |         |
| 1      | 0.55 - 1.00  | 23  | -     | NP                                      | -      | SM     |   |                             |        | 100    | 98     | 95       | 85                                      | 65                                      | 30  | 25  | -       |
| 2      | 1.55 - 2.00  | 23  | -     | NP                                      | -      | SM     |   |                             | 100    | 98     | 94     | 84       | 68                                      | 47                                      | 27  | 23  | -       |
| 3      | 2.55 - 3.00  | 40  | 48    | 32                                      | 16     | ML     |   |                             |        | 100    | 98     | 93       | 83                                      | 73                                      | 62  | 58  | -       |
| 4      | 3.55 - 4.00  | 39  | 44    | 33                                      | 11     | SC     |   |                             | 100    | 99     | 98     | 93       | 83                                      | 70                                      | 50  | 47  | -       |
| 5      | 4.55 - 5.00  | 30  | -     | NP                                      | _      | SM     |   | 100                         | 99     | 98     | 97     | 93       | 84                                      | 61                                      | 29  | 24  | -       |
| 6      | 5.55 - 6.00  | 19  | -     | NP                                      | -      | SP-SM  |   |                             | 100    | 99     | 97     | 81       | 42                                      | 22                                      | 9   | 7   | -       |
| 7      | 6.55 - 7.00  | 20  | -     | NP                                      |        | SW-SM  |   |                             | 100    | 93     | 82     | 58       | 31                                      | 18                                      | 8   | 7   | _       |
| 8      | 7.55 - 8.00  | 20  | -     | NP                                      | -      | SW-SM  |   | 100                         | 99     | 95     | 89     | 73       | 45                                      | 25                                      | 11  | 8   | -       |
| 9      | 8.55 - 9.00  | 50  | 58    | 32                                      | 26     | MH     |   |                             |        | 100    | 99     | 97       | 94                                      | 89                                      | 73  | 67  | _       |
| 10     | 9.55 - 10.00 | 28  | -     | NP                                      | -      | SM     |   |                             | 100    | 99     | 99     | 98       | 90                                      | 66                                      | 28  | 22  | -       |
|        |              |     |       | *************************************** |        |        | *************************************** |                             |        |        |        |          | *************************************** | *************************************** |     |     |         |
|        |              |     |       |   |        |        |   |                             |        |        |        |          |   |   |     |     |         |

|   |   |  | <br> |        |         |        |        |         |          |  |
|---|---|--|------|--------|---------|--------|--------|---------|----------|--|
| SAMPLE SUBMITTED BY :  ☐ Walk-in Clients  ☐ POLIDAN   |   |  |      | REMA   | ARKS:   | * witl | n hydr | omete   | r        |  |
| COMPUTER PRINT-OUT  By: MARIA ANTONIETTE P. CUNAHAP  Encoder  Data Chkd by: ABA / MRR  Quality Assurance  Date Issued | - |  |      | CERTIF | IED BY: |        | AUTHOI | RIZED S | IGNATORY |  |

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| LABORATO<br>PNS ISO/IEC 17<br>LA-2006-0 | 7025:2005          |                      |                      |                   |                  | LS TESTINO<br>aliches, Qu |             | ORY           |              | DPWH-E       | BRS Accredited |
|---|--------------------|----------------------|----------------------|-------------------|------------------|---------------------------|-------------|---------------|--------------|--------------|----------------|
| Client                                  | MOHRI, ARCH        | ITECT &              | ASSOCIA              | TES, INC          |                  |                           |             | Job Numbe     | er           | . 2209-10.I  | R1-NMC-01-1    |
|   | Proposed May       |                      |                      |                   |                  | unity Co                  | llege)      | Date of Re    | ceipt        | October 1    | 19, 2010       |
| Location                                | . Brgy. Zone 4 Lik | on, Provin           | nce of Alba          | ıy                |                  | J                         |             | Date of Te    | st           | October 2    | 21-22, 2010    |
| TEST RE                                 | PORT FOR LAB       | ORATOR               |                      | MINATIO<br>ASTM D |                  | -                         | ISTURE)     | CONTEN        | T OF SOI     | L & ROCI     | K BY MASS      |
|   |                    |                      |                      | Method            |                  | Пв                        |             |               |              |              |                |
| BOREHOLE                                | NOBH-1             |                      | 1                    | 1                 | <b>—</b> · ·     |                           | I           |               | I            |              |                |
| SAMPLE<br>NUMBER                        | DEPTH (m)          | WET SOIL<br>DISH (g) | DRY SOIL<br>DISH (g) | WATER<br>(g)      | DISH<br>MASS (g) | DRY SOIL<br>(g)           |             | CONTENT<br>%) |              | REMARK       | (S             |
|   |                    |                      |                      | <u> </u>          | NATURAL M        | IOISTURE C                | CONTENT     |               |              |              |                |
| 1                                       | 0.55-1.00          | 105.98               | 98.22                | 7.76              | 9.74             | 88.48                     |             | 9             |              |              |                |
| 2                                       | 1.55-2.00          | 95.35                | 76.15                | 19.20             | 9.91             | 66.24                     | 2           | 29            |              |              |                |
| 3                                       | 2.55-3.00          | 100.31               | 76.36                | 23.95             | 9.56             | 66.80                     | 3           | 36            |              |              |                |
| 4                                       | 3.55-4.00          | 111.50               | 88.05                | 23.45             | 9.53             | 78.52                     | 3           | 30            |              |              |                |
| 5                                       | 4.55-5.00          | 117.08               | 101.57               | 15.51             | 10.29            | 91.28                     | 1           | 7             |              |              |                |
| 6                                       | 5.55-6.00          | 122.28               | 102.55               | 19.73             | 9.84             | 92.71                     | 2           | 21            |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   | TEST REPOR         | T FOR L              | IQUID L              | IMIT, PI          | LASTIC           | LIMIT A                   | ND PLAS     | STICITY       | INDEX (      | OF SOIL      | S              |
|   |                    |                      | ASTM                 | Designat          | tion : D 4       | 318 - 05                  | , Method    | В             |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             | %             |              |              |                |
| SAMPLE                                  | 5-5-14             | D. 01110             | WET SOIL             | DRY SOIL          | WATER            | DISH                      | DRY SOIL    | Retained      | ATTERBE      | RG LIMIT     | 551115110      |
| NUMBER                                  | DEPTH (m)          | BLOWS                | DISH (g)             | DISH (g)          | (g)              | MASS (g)                  | (g)         | on 0.425      |              | DI           | REMARKS        |
|   |                    |                      |                      |                   |                  |                           |             | mm            | LL           | PL           |                |
|   | T                  |                      | T                    | T                 | LIC              | QUID LIMIT                |             | T             | ı            |              | T              |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   | PLA              | ASTIC LIMIT               | Γ           |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
|   |                    | 14/ 1 0              | (0()                 | 0.0004            |                  |                           | 1           |               |              | 1            | I.             |
| Uncertainty I                           |                    |                      | tent (%) =           |                   |                  | uid Limit =               |             |               | stic Limit = |              |                |
|   | ported expanded ι  | incertainty          | is based on          | a combine         | a uncertain      | ity by a cov              | erage racto | rork=2, pi    | roviding a i | evel of conf | idence of      |
| approximate                             | ly 95%.            |                      |                      |                   |                  |                           |             |               |              | LAB.FILE N   | O.:NMC-10-498  |
|   | BMITTED BY :       |                      |                      |                   |                  | REMARKS:                  |             |               |              |              |                |
| ☐ Walk-in (                             | Clients 🛂 G        | PI Field Op          | erator               |                   |                  |                           |             |               |              |              |                |
| R. POLIDAN                              |                    |                      |                      | _                 |                  |                           |             |               |              |              |                |
| COMPUTER I                              |                    |                      |                      |                   |                  |                           |             |               |              |              |                |
| <i>By:</i> N                            | MARIA ANTONIETT    | E P. CUNAH           | AP                   |                   |                  |                           |             |               |              |              |                |

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| LABORATO<br>PNS ISO/IEC 17<br>LA-2006-09 | 025:2005          |                      |                      |              |                  | LS TESTING<br>aliches, Qu |             | ORY                  |              | DPWH-E       | BRS Accredited |
|--|-------------------|----------------------|----------------------|--------------|------------------|---------------------------|-------------|----------------------|--------------|--------------|----------------|
| Client                                   | MOHRI, ARCH       | ITECT &              | ASSOCIA              | TES, INC     | •                |                           |             | Job Numbe            | er           | .2209-10.F   | R1-NMC-01-2    |
| Project                                  | Proposed May      | on Evacu             | ation Ce             | nter (Libo   | on Comm          | unity Co                  | llege)      | Date of Re           | ceipt        | . October 1  | 9, 2010        |
| Location                                 | Brgy. Zone 4 Lib  | on, Provin           | nce of Alba          | ay           |                  |                           |             | Date of Te           | st           | . October 2  | 1-22, 2010     |
| TEST DE                                  | PORT FOR LAB      | ODATOD               | V DETER              | ALNATIO      | NI OE WA         | TED /MO                   | ICTUDE\     | CONTEN               | T OF SOI     | II e DOCI    | / DV MACC      |
| IESI KEI                                 | PORT FOR LAD      | OKATOK               |                      | ASTM D       |                  | -                         | ISTURE)     | CONTEN               | 1 OF 301     | Lakuci       | C DT IVIASS    |
|  |                   |                      |                      | t Method     |                  | Пв                        |             |                      |              |              |                |
| BOREHOLE                                 | NOBH-1            | Т                    | 1                    | 1            |                  | <b>—</b> -                | I           |                      |              |              |                |
| SAMPLE<br>NUMBER                         | DEPTH (m)         | WET SOIL<br>DISH (g) | DRY SOIL<br>DISH (g) | WATER<br>(g) | DISH<br>MASS (g) | DRY SOIL                  |             | CONTENT<br>6)        |              | REMARK       | S              |
|  |                   |                      |                      |              | IATUDAL A        | IO IOTUDE O               | CNITENIT    |                      |              |              |                |
| 7  | 6.55-7.00         | 83.18                | 55.90                | 27.28        |                  | IOISTURE C                |             | 9                    |              |              |                |
| 8  | 7.55-8.00         | 118.20               | 89.93                | 28.27        | 9.82<br>9.53     | 46.08<br>80.40            |             | 1 <del>9</del><br>15 |              |              |                |
| 9  | 8.55-9.00         | 103.70               | 68.40                | 35.30        | 9.58             | 58.82                     |             | 0                    |              |              |                |
| 10                                       | 9.55-10.00        | 116.13               | 95.93                | 20.20        | 9.42             | 86.51                     |             | 3                    |              |              |                |
|  |                   |                      | 70.70                | 20.20        | 7.12             | 00.01                     |             | -                    |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  | TEST REPOR        | T FOR L              | IQUID L              | IMIT, PI     | LASTIC           | LIMIT A                   | ND PLAS     | STICITY              | INDEX        | OF SOILS     | S              |
|  |                   |                      | ASTM                 | Designat     | tion : D 4       | 318 - 05                  | , Method    | В                    |              |              |                |
|  |                   |                      |                      |              |                  |                           |             | %                    |              |              |                |
| SAMPLE                                   | DEDTIL ( )        | DI OMO               | WET SOIL             | DRY SOIL     | WATER            | DISH                      | DRY SOIL    | Retained             | ATTERBE      | ERG LIMIT    | DEMARKO        |
| NUMBER                                   | DEPTH (m)         | BLOWS                | DISH (g)             | DISH (g)     | (g)              | MASS (g)                  | (g)         | on 0.425             | LL           | PL           | REMARKS        |
|  |                   |                      |                      |              |                  |                           |             | mm                   |              | ''-          |                |
|  |                   |                      |                      |              | LIC              | QUID LIMIT                | 1           |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              | DI A             | CTIC LIMIT                | <u> </u>    |                      |              |              |                |
|  |                   |                      |                      |              | PLF              | STIC LIMIT                |             |                      |              | 1            |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
|  |                   |                      |                      |              |                  |                           |             |                      |              |              |                |
| Uncertainty F                            |                   | Water Con            |                      |              |                  | uid Limit =               |             |                      | stic Limit = |              |                |
|  | ported expanded u | uncertainty          | is based on          | a combine    | d uncertain      | ty by a cov               | erage facto | r of k=2, pr         | oviding a l  | evel of conf | idence of      |
| approximate                              | ly 95%.           |                      |                      |              |                  |                           |             |                      |              | LAB.FILE NO  | D.:NMC-10-49   |
|  | MITTED BY :       |                      |                      |              |                  | REMARKS:                  |             |                      |              |              |                |
| ☐ Walk-in (                              | Clients 🗹 G       | PI Field Op          | erator               |              |                  |                           |             |                      |              |              |                |
| R. POLIDAN                               |                   |                      |                      | =            |                  |                           |             |                      |              |              |                |
| COMPUTER I                               |                   |                      | IAD.                 |              |                  |                           |             |                      |              |              |                |
| <i>By:</i> N                             | IARIA ANTONIETTI  | E P. CUNAH           | AP                   |              |                  |                           |             |                      |              |              |                |

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| LABORATO<br>PNS ISO/IEC 17<br>LA-2006-09 | 025:2005          |                      |                      |                   |                  | LS TESTINO<br>raliches, Qu |             | ORY           |              | DPWH-E       | BRS Accredited |
|--|-------------------|----------------------|----------------------|-------------------|------------------|----------------------------|-------------|---------------|--------------|--------------|----------------|
| Client                                   | MOHRI, ARCH       | ITECT &              | ASSOCIA              | TES, INC          | •                |                            |             | Job Numbe     | er           | . 2209-10.1  | R1-NMC-02-1    |
|  | Proposed May      |                      |                      |                   |                  | unity Co                   | llege)      |               |              | October 1    |                |
| Location                                 | Brgy. Zone 4 Lik  | on, Provin           | ice of Alba          | у                 |                  |                            |             | Date of Te    | st           | October 2    | 26-27, 2010    |
| TEST REI                                 | PORT FOR LAB      | ORATOR               |                      | MINATIO<br>ASTM D |                  | -                          | ISTURE)     | CONTEN        | T OF SOI     | L & ROCI     | K BY MASS      |
|  |                   |                      |                      | Method            |                  | Пв                         |             |               |              |              |                |
| BOREHOLE                                 | NOBH-2            | T                    | 1                    |                   | <b>—</b>         |                            | T           |               | Т            |              |                |
| SAMPLE<br>NUMBER                         | DEPTH (m)         | WET SOIL<br>DISH (g) | DRY SOIL<br>DISH (g) | WATER<br>(g)      | DISH<br>MASS (g) | DRY SOIL<br>(g)            |             | CONTENT<br>%) |              | REMARK       | (S             |
|  |                   |                      |                      | ľ                 | NATURAL M        | IOISTURE (                 | CONTENT     |               |              |              |                |
| 1  | 0.55-1.00         | 110.73               | 91.53                | 19.20             | 9.53             | 82.00                      | 2           | 13            |              |              |                |
| 2  | 1.55-2.00         | 123.74               | 102.59               | 21.15             | 9.54             | 93.05                      | 2           | .3            |              |              |                |
| 3  | 2.55-3.00         | 117.60               | 86.96                | 30.64             | 9.72             | 77.24                      | 4           | .0            |              |              |                |
| 4  | 3.55-4.00         | 105.90               | 79.03                | 26.87             | 9.60             | 69.43                      | 3           | 9             |              |              |                |
| 5  | 4.55-5.00         | 122.70               | 96.31                | 26.39             | 9.60             | 86.71                      | 3           | 0             |              |              |                |
| 6  | 5.55-6.00         | 103.77               | 88.73                | 15.04             | 9.57             | 79.16                      | 1           | 9             |              |              |                |
|  |                   | 1                    | l                    | 11                | 1.               | 1                          |             |               | I            |              |                |
|  | TEST REPOR        | T FOR L              |                      | -                 |                  |                            |             |               | INDEX        | OF SOIL      | S              |
|  |                   |                      | ASTM                 | Designat          | tion : D 4       | 318 - 05                   | , Method    | В             |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             | %             |              |              |                |
| SAMPLE                                   | DEPTH (m)         | BLOWS                |                      | DRY SOIL          | WATER            | DISH                       | DRY SOIL    | Retained      | ATTERBE      | RG LIMIT     | REMARKS        |
| NUMBER                                   | DEF TIT (III)     | BLOWS                | DISH (g)             | DISH (g)          | (g)              | MASS (g)                   | (g)         | on 0.425      | LL           | PL           | KLIVIAKKS      |
|  |                   |                      |                      |                   | 1.10             | L<br>QUID LIMIT            | -           | mm            |              |              |                |
|  |                   |                      |                      |                   | LIC              | ZOID LIMIT                 |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   | DI A             | CTIC LIMIT                 | <u> </u>    |               |              |              |                |
|  |                   |                      |                      |                   | PLF              | ASTIC LIMIT                |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
|  |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
| Uncertainty F                            | Results:          | Water Con            | tent (%) =           | ± 0.0295          | Liq              | uid Limit =                |             | Plas          | stic Limit = |              |                |
| Note: The re                             | ported expanded ι | uncertainty          | is based on          | a combine         | d uncertain      | ity by a cov               | erage facto | r of k=2, pi  | roviding a l | evel of conf | idence of      |
| approximatel                             | ly 95%.           |                      |                      |                   |                  |                            |             |               |              | LAB.FILE NO  | O.:NMC-10-499  |
| SAMPLE SUB                               | MITTED BY :       |                      |                      |                   |                  | REMARKS:                   |             |               |              |              |                |
| ☐ Walk-in (                              | Clients           | PI Field Op          | erator               |                   |                  |                            |             |               |              |              |                |
| R. POLIDAN                               |                   |                      |                      |                   |                  |                            |             |               |              |              |                |
| COMPUTER F                               | DRINT_OUT         |                      |                      | -                 |                  |                            |             |               |              |              |                |
|  | iaria antonietti  | e P. Cunah           | AP                   |                   |                  |                            |             |               |              |              |                |

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| LABORATO<br>PNS ISO/IEC 17<br>LA-2006-0 | 025:2005                      |                      |                      |                   |                  | LS TESTINO<br>valiches, Qu |             | ORY           |              | DPWH-E       | BRS Accredited |
|---|-------------------------------|----------------------|----------------------|-------------------|------------------|----------------------------|-------------|---------------|--------------|--------------|----------------|
| Client                                  | MOHRI, ARCH                   | ITECT &              | ASSOCIA              | TES, INC          |                  |                            |             | Job Numbe     | er           | .2209-10.    | R1-NMC-02-2    |
| Project                                 | <b>Proposed May</b>           | on Evacu             | ation Cei            | nter (Libo        | on Comm          | nunity Co                  | llege)      | Date of Re    | ceipt        | . October 1  | 19, 2010       |
| Location                                | Brgy. Zone 4 Lib              | on, Provin           | ice of Alba          | ay                |                  |                            |             | Date of Te    | st           | October 2    | 26-27, 2010    |
| TEST RE                                 | PORT FOR LAB                  | ORATOR               |                      | MINATIO<br>ASTM D |                  | -                          | ISTURE)     | CONTEN        | T OF SOI     | L & ROCI     | K BY MASS      |
| BOREHOLE                                | E NOBH-2                      |                      | Test                 | t Method          | ✓ A              | □в                         |             |               |              |              |                |
| SAMPLE<br>NUMBER                        | DEPTH (m)                     | WET SOIL<br>DISH (g) | DRY SOIL<br>DISH (g) | (g)               | DISH<br>MASS (g) | DRY SOIL<br>(g)            | (9          | CONTENT<br>%) |              | REMARK       | KS .           |
|   | T                             |                      | 1                    |                   |                  | OISTURE C                  |             |               |              |              |                |
| 7                                       | 6.55-7.00                     | 115.10               | 97.26                | 17.84             | 9.70             | 87.56                      |             | 20            |              |              |                |
| 8                                       | 7.55-8.00                     | 119.05               | 101.05               | 18.00             | 9.51             | 91.54                      |             | 20            |              |              |                |
| 9                                       | 8.55-9.00                     | 111.70               | 77.75                | 33.95             | 9.63             | 68.12                      |             | 0             |              |              |                |
| 10                                      | 9.55-10.00                    | 115.43               | 91.96                | 23.47             | 9.37             | 82.59                      | 2           | 28            |              |              |                |
|   | TEST REPOR                    | T FOR L              |                      | •                 |                  | LIMIT AI<br>1318 - 05      |             | В             | INDEX        | OF SOIL      | S              |
| SAMPLE                                  |                               |                      | WET SOIL             | DRY SOIL          | WATER            | DISH                       | DRY SOIL    | %<br>Retained | ATTERBE      | ERG LIMIT    |                |
| NUMBER                                  | DEPTH (m)                     | BLOWS                | DISH (g)             | DISH (g)          | (g)              | MASS (g)                   | (g)         | on 0.425      | LL           | PL           | REMARKS        |
|   |                               |                      |                      |                   | LIC              | UID LIMIT                  |             | mm            |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   | DI /             | ASTIC LIMIT                | <u> </u>    |               |              |              |                |
|   |                               |                      |                      |                   | FLF              | ASTIC LIMIT                |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
|   |                               |                      |                      |                   |                  |                            |             |               |              |              |                |
| Uncertainty I                           | Results:                      | Water Con            | tent (%) =           | $\pm~0.0313$      | Liq              | juid Limit =               |             | Plas          | stic Limit = |              |                |
| Note: The re                            | ported expanded ι             | ıncertainty          | is based on          | a combine         | d uncertain      | ity by a cov               | erage facto | r of k=2, pi  | roviding a l | evel of conf | fidence of     |
| approximate                             | ly 95%.                       |                      |                      |                   |                  |                            |             |               |              | LAB.FILE NO  | O.:NMC-10-499  |
| SAMPLE SUB                              | BMITTED BY :                  | PI Field Op          | orator               |                   |                  | REMARKS:                   |             |               |              |              |                |
| <del></del>                             | Cheff(s                       | гт гіеій Ор          | cialui               |                   |                  |                            |             |               |              |              |                |
| R. POLIDAN                              |                               |                      |                      | =                 |                  |                            |             |               |              |              |                |
| COMPUTER I                              | PRINT-OUT<br>IARIA ANTONIETTI | E P. CUNAH           | AP_                  |                   |                  |                            |             |               |              |              |                |

Encoder

Date Issued: \_\_\_\_

Data Checked by:

ABA/MRR

Quality Assurance

TESTED BY : ARTURO Q. AQUINO

LABORATORY TECHNICIAN

AUTHORIZED SIGNATORY

Rev.6 / Oct. 2010





| Client MOHRI, ARCHITECT & ASSOCIATES, INC. |  | Client MOHRI, ARCHITECT & ASSOCIATES, INC. |
|--|--|--|
|--|--|--|

Project..... Proposed Mayon Evacuation Center (Libon Community College)

Location.... Brgy. Zone 4 Libon, Province of Albay

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM D 4318 - 05

Method : A ☑ Wet Preparation ☐ Dry Preparation

| BOREHOLE NO          | BH-1    |            | DEPTH (m) | )       | 2.55-3.00 |         |      | SOIL DESC  | RIPTION |             |      |     |
|----------------------|---------|------------|-----------|---------|-----------|---------|------|------------|---------|-------------|------|-----|
| SAMPLE NO            | S-3     |            | USCS CLAS | S       | SC        |         |      | Clayey SAN | D       |             |      |     |
| MOISTURE CONTENT     | L       | IQUID LIMI | Т         | PLASTI  | C LIMIT   |         | 44 T |            |         |             |      |     |
| <u>DETERMINATION</u> | TRIAL 1 | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   | ્ર      | 43 - | •\         |         |             |      |     |
| DISH NUMBER          | A2      | A37        | A82       | B32     | B5        | t (%)   | 42 - | `          |         |             |      |     |
| WET SOIL + DISH (g)  | 33.84   | 35.97      | 38.16     | 22.81   | 22.78     | Content | 41 - |            | \•      |             |      |     |
| DRY SOIL + DISH (g)  | 27.17   | 28.33      | 29.56     | 19.59   | 19.56     | Con     | 40 - |            |         |             |      |     |
| WATER (g)            | 6.67    | 7.64       | 8.60      | 3.22    | 3.22      | ure     |      |            | *       |             |      |     |
| DISH MASS (g)        | 9.64    | 9.70       | 9.80      | 9.53    | 9.51      | oist    | 39 - |            | \       | $\setminus$ |      |     |
| DRY SOIL (g)         | 17.53   | 18.63      | 19.76     | 10.06   | 10.05     | Š       | 38 - |            |         |             |      |     |
| MOISTURE CONTENT     | 38.05   | 41.01      | 43.52     | 32.01   | 32.04     |         | 37   |            |         |             |      | Ш   |
| NUMBER OF BLOWS      | 31      | 22         | 14        | 3       | 2         |         | 10   | 0          | No.     | of Blows    | 3    | 100 |
| % RETAINED ON 0.425  | 5mm     |            |           |         | 24.63     |         | LL = | 40         | PL =    | 32          | PI = | 8   |

| BOREHOLE NO          | BH-1    |            | DEPTH (m) | )       | 6.55-7.00 |       | S               | OIL DESC | RIPTION                 |      |     |
|----------------------|---------|------------|-----------|---------|-----------|-------|-----------------|----------|-------------------------|------|-----|
| SAMPLE NO            | S-7     |            | USCS CLAS | S       | СН        |       | Fa              | at CLAY  |                         |      |     |
| MOISTURE CONTENT     | L       | IQUID LIMI | IT        | PLASTI  | C LIMIT   |       | 74 <sub>T</sub> |          |                         |      |     |
| <u>DETERMINATION</u> | TRIAL 1 | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   |       | 73 -            | ``       |                         |      |     |
| DISH NUMBER          | B17     | B24        | B90       | C73     | C40       | %     | 72 -            | \        | $\setminus$ $ $ $ $ $ $ |      |     |
| WET SOIL + DISH (g)  | 32.47   | 35.59      | 38.24     | 22.68   | 22.72     | tent  | 71 -            |          |                         |      |     |
| DRY SOIL + DISH (g)  | 23.31   | 24.94      | 26.25     | 19.52   | 19.55     | S     | 70 -            |          | <b>\</b>                |      |     |
| WATER (g)            | 9.16    | 10.65      | 11.99     | 3.16    | 3.17      | ture  | 69 -            |          | 🔪                       |      |     |
| DISH MASS (g)        | 9.63    | 9.72       | 9.83      | 9.55    | 9.56      | Moist | 68 -            |          |                         |      |     |
| DRY SOIL (g)         | 13.68   | 15.22      | 16.42     | 9.97    | 9.99      | 2     | 67 -            |          | •                       |      |     |
| MOISTURE CONTENT     | 66.96   | 69.97      | 73.02     | 31.70   | 31.73     |       | 66 +            |          |                         |      |     |
| NUMBER OF BLOWS      | 32      | 21         | 15        | 3       | 2         |       | 10              | )        | No. of Blows            |      | 100 |
| % RETAINED ON 0.42!  | 5mm     |            |           |         | 1.78      | I     | L =             | 69       | PL = 32                 | PI = | 37  |

| Uncertainty Results: I                                     | Liquid Limit = $\pm 0.1137$             | Plastic Limit = $\pm$ 0.1994                     |
|--|---|--|
| П  | Liquid Limit = $\pm$ 0.1453             | Plastic Limit = $\pm$ 0.2010                     |
| Note: The reported expanded uncertainty is based of        | on a combined uncertainty by a coverage | e factor of k=2, providing a level of confidence |
| of approximately 95%.                                      |   | LAB.FILE NO.:AL-10-646                           |
| SAMPLE SUBMITTED BY :  Walk-in Clients  GPI Field Operator | REMARKS:                                |  |
| R. POLIDAN   |   |  |
| COMPUTER PRINT-OUT  By: MARIA ANTONIETTE P. CUNAHAP        |   |  |
| Encoder  | TESTED BY :                             | ARTURO Q. AQUINO                                 |
| Data Checked by: ABA / MRR  Quality Assurance              | _                                       | LABORATORY TECHNICIAN                            |
| Date Issued:   | CERTIFIED BY :                          | AUTHORIZED SIGNATORY                             |

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Final Report Form - 2 Rev.5/ Dec.2009





| Client MOHRI, ARCHITECT & ASSOCIATES, INC.                         | Job Number2209-10.R1-AL-01-2     |
|--|----------------------------------|
| Project Proposed Mayon Evacuation Center (Libon Community College) | Date of Receipt October 19, 2010 |
| Location Brgy. Zone 4 Libon, Province of Albay                     | Date of Test October 25-26, 2010 |

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM D 4318 - 05

**Method**: **A** ✓ Wet Preparation □ Dry Preparation

| BOREHOLE NO          | BH-1    |            | DEPTH (m) | )       | 8.55-9.00 |       | S    | OIL DESCRI | PTION     |          |      |     |
|----------------------|---------|------------|-----------|---------|-----------|-------|------|------------|-----------|----------|------|-----|
| SAMPLE NO            | S-9     |            | USCS CLAS | S       | СН        |       | F    | at CLAY    |           |          |      |     |
| MOISTURE CONTENT     | L       | IQUID LIMI | Т         | PLASTI  | C LIMIT   |       | 75 — |            |           |          |      |     |
| <u>DETERMINATION</u> | TRIAL 1 | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   | _     | 74 - | ``         |           |          |      |     |
| DISH NUMBER          | A29     | A11        | A21       | B49     | B55       | (%)   | 73 - |            |           |          |      |     |
| WET SOIL + DISH (g)  | 32.54   | 35.74      | 38.40     | 22.69   | 22.75     | tent  | 72 - | \          | $\sqrt{}$ |          |      |     |
| DRY SOIL + DISH (g)  | 23.27   | 24.94      | 26.26     | 19.48   | 19.55     | Con   | 71 - |            | •         |          |      |     |
| WATER (g)            | 9.27    | 10.80      | 12.14     | 3.21    | 3.20      | re    | 70 - |            | ×         |          |      |     |
| DISH MASS (g)        | 9.65    | 9.74       | 9.85      | 9.52    | 9.55      | Moist | 69 - |            | \         |          |      |     |
| DRY SOIL (g)         | 13.62   | 15.20      | 16.41     | 9.96    | 10.00     | Š     | 68 - |            |           |          |      |     |
| MOISTURE CONTENT     | 68.06   | 71.05      | 73.98     | 32.23   | 32.00     |       | 67   |            |           |          |      |     |
| NUMBER OF BLOWS      | 31      | 22         | 15        | 3       | 2         |       | 10   |            | No.       | of Blows |      | 100 |
| % RETAINED ON 0.42   | 5mm     |            |           |         | 1.09      |       | LL = | 70         | PL =      | 32       | PI = | 38  |

| BOREHOLE NO   |                              | DEPTH (m) |                   |                    | SOIL                 | DESCRIPTION  |     |
|---|------------------------------|-----------|-------------------|--------------------|----------------------|--------------|-----|
| SAMPLE NO   |                              | USCS CLA  | SS                |                    |                      |              |     |
| MOISTURE CONTENT  DETERMINATION  DISH NUMBER  WET SOIL + DISH (g)  DRY SOIL + DISH (g)  WATER (g)  DISH MASS (g)  DRY SOIL (g)  MOISTURE CONTENT  NUMBER OF BLOWS | LIQUID LI<br>TRIAL 1 TRIAL 2 |           | PLASTI<br>TRIAL 1 | C LIMIT<br>TRIAL 2 | Moisture Content (%) | No. of Blows | 100 |
| % RETAINED ON 0.425mm   |                              |           | LL =              | PL =               | PI =                 |              |     |

| Uncertainty Results: I                           | Liquid Limit = $\pm 0.1454$             | Plastic Limit = $\pm$ 0.2015                   |
|--|---|--|
| II   | Liquid Limit =                          | Plastic Limit =                                |
| Note: The reported expanded uncertainty is based | on a combined uncertainty by a coverage | factor of k=2, providing a level of confidence |
| of approximately 95%.                            |   | LAB.FILE NO.:AL-10-646                         |
| SAMPLE SUBMITTED BY :                            | REMARKS:                                |  |
| ☐ Walk-in Clients                                |   |  |
| R. POLIDAN                                       |   |  |
| COMPUTER PRINT-OUT                               |   |  |
| By: MARIA ANTONIETTE P. CUNAHAP                  |   |  |
| Encoder  | TESTED BY :                             | ARTURO Q. AQUINO                               |
| Data Checked by: ABA / MRR                       |   | LABORATORY TECHNICIAN                          |
| Quality Assurance                                | _                                       |  |
| ,  | CERTIFIED BY :                          |  |
| Date Issued:                                     |   | AUTHORIZED SIGNATORY                           |
|  |   |  |

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| Client MOHRI, ARCHITECT & ASSOCIATES, INC.           | Job No                       | umber      |
|--|------------------------------|------------|
| Project Proposed Mayon Evacuation Center (Liboration | n Community College) Date of | of Receipt |

Location.... Brgy. Zone 4 Libon, Province of Albay

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM D 4318 - 05

**Method**: **A** ✓ Wet Preparation □ Dry Preparation

| BOREHOLE NO          | BH-2    |            | DEPTH (m) | )       | 2.55-3.00 |        | (               | SOIL DESC | CRIPTION |          |      |     |
|----------------------|---------|------------|-----------|---------|-----------|--------|-----------------|-----------|----------|----------|------|-----|
| SAMPLE NO            | S-3     |            | USCS CLAS | S       | ML        |        | ,               | Sandy SIL | Т        |          |      |     |
| MOISTURE CONTENT     | L       | IQUID LIMI | IT        | PLASTI  | C LIMIT   |        | 53 <sub>T</sub> |           |          |          |      |     |
| <u>DETERMINATION</u> | TRIAL 1 | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   | 3      | 52 -            | `         |          |          |      |     |
| DISH NUMBER          | A29     | A86        | A6        | B51     | B2        | t (%)  | 51 -            | `         |          |          |      |     |
| WET SOIL + DISH (g)  | 32.56   | 35.41      | 38.24     | 22.69   | 22.72     | tent   | 50 -            |           |          |          |      |     |
| DRY SOIL + DISH (g)  | 25.29   | 26.97      | 28.53     | 19.46   | 19.49     | Conte  |                 |           |          |          |      |     |
| WATER (g)            | 7.27    | 8.44       | 9.71      | 3.23    | 3.23      | ure    | 49 -            |           |          |          |      |     |
| DISH MASS (g)        | 9.65    | 9.74       | 9.85      | 9.51    | 9.49      | Moistu | 48 -            |           | 1        |          |      |     |
| DRY SOIL (g)         | 15.64   | 17.23      | 18.68     | 9.95    | 10.00     | Š      | 47 -            |           |          | <b>/</b> |      |     |
| MOISTURE CONTENT     | 46.48   | 48.98      | 51.98     | 32.46   | 32.30     |        | 46              |           |          | <u> </u> |      |     |
| NUMBER OF BLOWS      | 32      | 22         | 15        | 3       | 2         |        | 10              | )         | No.      | of Blow  | 'S   | 100 |
| % RETAINED ON 0.425  | 5mm     |            |           |         | 16.56     |        | LL =            | 48        | PL =     | 32       | PI = | 16  |

| BOREHOLE NO          | BH-2    |            | DEPTH (m) | )       | 3.55-4.00 |         | S               | OIL DESCR  | RIPTION  |         |      |        |
|----------------------|---------|------------|-----------|---------|-----------|---------|-----------------|------------|----------|---------|------|--------|
| SAMPLE NO            | S-4     |            | USCS CLAS | S       | SC        |         | С               | layey SANI | D        |         |      |        |
| MOISTURE CONTENT     | L       | IQUID LIMI | Т         | PLASTI  | C LIMIT   |         | 48 <sub>T</sub> |            |          |         |      | $\neg$ |
| <u>DETERMINATION</u> | TRIAL 1 | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   | ~       | 47 -            | •          |          |         |      |        |
| DISH NUMBER          | B62     | B21        | В9        | A48     | A91       | (%)     | 46 -            |            |          |         |      |        |
| WET SOIL + DISH (g)  | 32.62   | 35.54      | 38.32     | 22.70   | 22.73     | Content | 45 -            |            | \•       |         |      |        |
| DRY SOIL + DISH (g)  | 25.82   | 27.52      | 29.15     | 19.43   | 19.45     | Son     | 44 -            |            |          |         |      |        |
| WATER (g)            | 6.80    | 8.02       | 9.17      | 3.27    | 3.28      | ture    |                 |            | <b>X</b> |         |      |        |
| DISH MASS (g)        | 9.62    | 9.70       | 9.85      | 9.48    | 9.50      | Moist   | 43 -            |            |          |         |      |        |
| DRY SOIL (g)         | 16.20   | 17.82      | 19.30     | 9.95    | 9.95      | 2       | 42 -            |            |          |         |      |        |
| MOISTURE CONTENT     | 41.98   | 45.01      | 47.51     | 32.86   | 32.96     |         | 41 +            |            |          |         |      |        |
| NUMBER OF BLOWS      | 31      | 22         | 15        | 3       | 3         |         | 10              | )          | No. o    | f Blows |      | 100    |
| % RETAINED ON 0.425  | 5mm     |            |           |         | 16.56     | į       | LL =            | 44         | PL =     | 33      | PI = | 11     |

| Hannatainta Danulta I                            | Linuid Linit 0 1075                     | Diagram Limit 0.0010                           |
|--|---|--|
| Uncertainty Results: I                           | Liquid Limit = $\pm 0.1275$             | Plastic Limit = $\pm 0.2019$                   |
| II   | Liquid Limit = $\pm 0.1227$             | Plastic Limit = $\pm$ 0.2021                   |
| Note: The reported expanded uncertainty is based | on a combined uncertainty by a coverage | factor of k=2, providing a level of confidence |
| of approximately 95%.                            |   | LAB.FILE NO.:AL-10-647                         |
| SAMPLE SUBMITTED BY :                            | REMARKS:                                |  |
| <b>Walk-in Clients ✓ GPI Field Operator</b>      |   |  |
| R. POLIDAN                                       | <u> </u>                                |  |
| COMPUTER PRINT-OUT                               |   |  |
| By: MARIA ANTONIETTE P. CUNAHAP                  |   |  |
| Encoder  | TESTED BY :                             | ARTURO Q. AQUINO                               |
| Data Checked by: ABA / MRR                       |   | LABORATORY TECHNICIAN                          |
| Quality Assurance                                | _                                       |  |
|  | CERTIFIED BY :                          |  |
| Date Issued:                                     | _                                       | AUTHORIZED SIGNATORY                           |
|  |   |  |

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| Client MOHRI, ARCHITECT & ASSOCIATES, INC.                         | Job Number2209-10.R1-AL-02-2     |
|--|----------------------------------|
| Project Proposed Mayon Evacuation Center (Libon Community College) | Date of Receipt October 19, 2010 |
| Location Brgy. Zone 4 Libon, Province of Albay                     | Date of Test October 27-28, 2010 |

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM D 4318 - 05

**Method**: **A** ✓ Wet Preparation □ Dry Preparation

| BOREHOLE NO          | BH-2    |            | DEPTH (m) | )       | 8.55-9.00 |          | 9    | SOIL DESCRIF | PTION |          |      |        |
|----------------------|---------|------------|-----------|---------|-----------|----------|------|--------------|-------|----------|------|--------|
| SAMPLE NO            | S-9     |            | USCS CLAS | S       | MH        |          | E    | Elastic SILT |       |          |      |        |
| MOISTURE CONTENT     |         | IQUID LIMI |           | PLASTI  |           |          | 63 T |              |       |          |      | $\Box$ |
| <u>DETERMINATION</u> | TRIAL 1 | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   | (%)      | 62 - | •            |       |          |      |        |
| DISH NUMBER          | A43     | A8         | A93       | B82     | B5        |          | 61 - |              |       |          |      |        |
| WET SOIL + DISH (g)  | 32.47   | 35.28      | 38.22     | 22.68   | 22.74     | tent     | 60 - | /            |       |          |      |        |
| DRY SOIL + DISH (g)  | 24.23   | 25.79      | 27.34     | 19.49   | 19.54     | Conte    |      |              | 7     |          |      |        |
| WATER (g)            | 8.24    | 9.49       | 10.88     | 3.19    | 3.20      | <u>r</u> | 59 - |              |       |          |      |        |
| DISH MASS (g)        | 9.60    | 9.70       | 9.80      | 9.49    | 9.51      | Moist    | 58 - |              | ×     |          |      |        |
| DRY SOIL (g)         | 14.63   | 16.09      | 17.54     | 10.00   | 10.03     | Š        | 57 - |              | \     |          |      |        |
| MOISTURE CONTENT     | 56.32   | 58.98      | 62.03     | 31.90   | 31.90     |          | 56   |              |       | <b>P</b> |      |        |
| NUMBER OF BLOWS      | 31      | 21         | 15        | 3       | 2         |          | 10   | )            | No. c | of Blows |      | 100    |
| % RETAINED ON 0.425  | 5mm     |            |           |         | 6.34      |          | LL = | 58           | PL =  | 32       | PI = | 26     |

| BOREHOLE NO   |                              | DEPTH (m) |                   |                    | SOIL                 | DESCRIPTION  |     |
|---|------------------------------|-----------|-------------------|--------------------|----------------------|--------------|-----|
| SAMPLE NO   |                              | USCS CLA  | SS                |                    |                      |              |     |
| MOISTURE CONTENT  DETERMINATION  DISH NUMBER  WET SOIL + DISH (g)  DRY SOIL + DISH (g)  WATER (g)  DISH MASS (g)  DRY SOIL (g)  MOISTURE CONTENT  NUMBER OF BLOWS | LIQUID LI<br>TRIAL 1 TRIAL 2 |           | PLASTI<br>TRIAL 1 | C LIMIT<br>TRIAL 2 | Moisture Content (%) | No. of Blows | 100 |
| % RETAINED ON 0.425mm   |                              |           | LL =              | PL =               | PI =                 |              |     |

| Uncertainty Results: I                           | Liquid Limit = $\pm 0.1355$             | Plastic Limit = $\pm 0.2005$                   |
|--|---|--|
| II   | Liquid Limit =                          | Plastic Limit =                                |
| Note: The reported expanded uncertainty is based | on a combined uncertainty by a coverage | factor of k=2, providing a level of confidence |
| of approximately 95%.                            |   | LAB.FILE NO.:AL-10-647                         |
| SAMPLE SUBMITTED BY :                            | REMARKS:                                |  |
| ☐ Walk-in Clients ☐ GPI Field Operator           |   |  |
| R. POLIDAN                                       |   |  |
| COMPUTER PRINT-OUT                               |   |  |
| By: MARIA ANTONIETTE P. CUNAHAP                  |   |  |
| Encoder  | TESTED BY :                             | ARTURO Q. AQUINO                               |
| Data Checked by: ABA / MRR                       |   | LABORATORY TECHNICIAN                          |
| Quality Assurance                                |   |  |
| ,  | CERTIFIED BY :                          |  |
| Date Issued:                                     |   | AUTHORIZED SIGNATORY                           |
|  |   |  |

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| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                         | Job Number2209-10.R1-GSA-01-1    |
|---|----------------------------------|
| ProjectProposed Mayon Evacuation Center (Libon Community College) | Date of Receipt October 19, 2010 |
| Location Brgy. Zone 4 Libon, Province of Albay                    | Date of Test October 22, 2010    |

#### TEST REPORT FOR GRAIN SIZE ANALYSIS ASTM D 422 - 63 (Re-approved 2007)

| DEPTH (m        | PLE NO<br>n)                                     |                     | <u>O</u> <u>1</u><br>0.55-1.00                   |              |   | □ <u>2</u><br>1.55-2.00                 |              |                      | <u>∆</u> <u>3</u><br>2.55-3.00 |                           |
|-----------------|--|---------------------|--|--------------|---|---|--------------|----------------------|--------------------------------|---------------------------|
|                 | CRIPTION   | Poo                 | ly graded SAND                                   | )            |   | Silty SAND                              |              | 1                    | Clayey SAND                    |                           |
| SIEV            | VE SIZE  | Cumm.Mass           | Cumm.%   | Percent      | Cumm.Mass   | Cumm.%                                  | Percent      | Cumm.Mass            | Cumm.%                         | Percent                   |
| inches          | <u>mm</u>  | Retained (g)        | Retained   | <u>Finer</u> | Retained (g)                                      | Retained                                | <u>Finer</u> | Retained (g)         | Retained                       | <u>Finer</u>              |
| 2 1/2           | 62.5   |                     |  |              |   |   |              |                      |                                |                           |
| 2               | 50.0   |                     |  |              |   |   |              |                      |                                |                           |
| 1 1/2           | 37.5   |                     |  |              |   |   |              |                      |                                |                           |
| 1               | 25.0   |                     |  |              |   |   |              |                      |                                |                           |
| 3/4             | 19.0   |                     |  |              |   |   |              |                      |                                | 100                       |
| 3/8             | 9.5  |                     |  | 100          |   |   |              | 1.16                 | 1.74                           | 98                        |
| 4               | 4.75   | 4.34                | 4.91   | 95           |   |   | 100          | 1.93                 | 2.89                           | 97                        |
| 10              | 2.0  | 15.39               | 17.39  | 83           | 1.96  | 2.96                                    | 97           | 3.97                 | 5.94                           | 94                        |
| 20              | 0.8  | 33.02               | 37.32  | 63           | 6.73  | 10.16                                   | 90           | 9.89                 | 14.81                          | 85                        |
| 40              | 0.425  | 59.43               | 67.17  | 33           | 17.01   | 25.68                                   | 74           | 16.45                | 24.63                          | 75                        |
| 60              | 0.25   | 77.49               | 87.58  | 12           | 29.09   | 43.92                                   | 56           | 23.59                | 35.31                          | 65                        |
| 140             | 0.105  | 84.00               | 94.94  | 5            | 52.05   | 78.58                                   | 21           | 35.62                | 53.32                          | 47                        |
| 200             | 0.075  | 85.42               | 96.54  | 3            | 56.68   | 85.57                                   | 14           | 37.03                | 55.43                          | 45                        |
| OVEN D          | DRIED MASS                                       | 10000, 10000, 10000 | 88.48 gms  | ,,           | 10000 10000 100                                   | 66.24 gms                               |              |                      | 66.80 gms                      |                           |
| 100 -           | 3"<br>2 1/2"<br>2"<br>1 1/2                      | 3/8                 | 4  | #10          | #40   | #140                                    |              | HYDROM               | ETER                           |                           |
| 100             |  |                     |  |              |   | :   :  :                                |              |                      |                                |                           |
| 90 -            | <del>                                     </del> | 1 1                 | +++  |              |   | : |              |                      |                                |                           |
| 00              |  |                     |  | \d [         |   | :                                       |              |                      |                                |                           |
| 80 -            |  |                     |  |              |   | : : : : :                               |              |                      |                                |                           |
| 70 -            |  |                     |  |              |   |   |              |                      |                                |                           |
|                 |  |                     |  |              | $\sqrt{ \cdot }$                                  | <u>从</u>                                |              |                      |                                |                           |
| - 60 -          | <del>                                     </del> | : :                 | <del>                                     </del> |              |   |   |              |                      |                                |                           |
| Pas             |  |                     |  |              | :   | ₹ \ <u> </u>                            |              |                      |                                |                           |
| Percent Passing |  |                     |  |              | <del>                                      </del> | :\ \                                    |              |                      |                                |                           |
| 5 40 -          |  |                     |  |              | :   \:  | :  \                                    | <b>Y</b>     |                      |                                |                           |
| g               |  |                     |  |              |   | :   \ :   :                             |              |                      |                                |                           |
| 30 -            | <del>                                     </del> | : : :               |  |              | <del> :                                    </del> | :                                       |              |                      |                                |                           |
| 20 -            |  | : : :               |  |              |   | :                                       |              |                      |                                |                           |
| 20              |  |                     |  |              |   | <u>:</u>                                | 1            |                      |                                |                           |
| 10 -            | <del>                                     </del> |                     | 1  |              | <del>                                      </del> | <del>}</del>                            | -            |                      |                                |                           |
|                 |  |                     |  |              |   |   |              |                      |                                |                           |
| 0 -             | COARS  |                     | COARS  |              | IUM   | FINE                                    |              | 0.04                 |                                | 0.004                     |
| COBBLES         | 00   | 10<br>GRAVEL        |  | 1            | Particle Size SAND                                | e (mm) 0.1                              |              | 0.01<br>FINES ( SILT | OR CLAY)                       | 0.001                     |
|                 | Hydrometer                                       | OKAVLL              |  |              | 071112  | REMARKS :                               | S-1:         | Cu = 3.56            |                                | 0.00                      |
|                 | i riyurometel<br>UBMITTED BY:                    |                     |  |              |   | KLWAKKS.                                | J-1.         | Ou = 3.00            | - CC =                         | 0.70                      |
| _               |  | GPI Field Oper      | ator   |              |   | =                                       |              |                      |                                |                           |
|                 |  | ori riela Oper      | aiUI   |              |   | -                                       |              |                      |                                |                           |
| R. POLIDA       | IN   |                     |  | _            |   |   |              |                      |                                |                           |
| COMPUTER        | R PRINT-OUT                                      |                     |  |              |   | TESTED BY :                             |              |                      |                                |                           |
| Ву:             | MARIA ANTO                                       | ONIETTE P. CU       | NAHAP  |              |   |   |              | LABORATORY           | TECHNICIAN                     |                           |
|                 |  | Encoder             |  |              |   |   |              |                      |                                |                           |
|                 |  |                     |  |              | CE  | RTIFIED BY :                            |              |                      |                                |                           |
| Data Che        | ecked by:  |                     | uranaa   |              |   | =                                       |              | AUTHORIZED           | SIGNATORY                      |                           |
|                 |  | Quality Assu        | rance  | Uncertaint   | y Results:  | % Finer =                               | ± 0.0488     |                      | LAB.FILE NO.                   | :GSA-10-400               |
| Date Issu       | ıed:   |                     |  |              | =   |   |              | on a combined        |                                |                           |
|                 |  |                     |  |              |   |   |              | proximately 95%      |                                | , , , , , , , , , , , , , |
|                 |  |                     |  |              |   |   | ·            | -                    |                                |                           |

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| Client MOHRI, ARCHITECT & ASSOCIATES, INC.                         | Job Number      | 2209-10.R1-GSA-01-2 |
|--|-----------------|---------------------|
| Project Proposed Mayon Evacuation Center (Libon Community College) | Date of Receipt | October 19, 2010    |
| Location Brgy. Zone 4 Libon, Province of Albay                     | Date of Test    | October 22, 2010    |

#### TEST REPORT FOR GRAIN SIZE ANALYSIS ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO..... <u>BH-1</u> O <u>4</u> □ 5 3.55-4.00 4.55-5.00 5.55-6.00 DEPTH (m)..... SOIL DESCRIPTION...... Silty SAND Poorly graded SAND Poorly graded SAND SIEVE SIZE Cumm.Mass Cumm.% Percent Cumm.Mass Cumm.% Percent Cumm.Mass Cumm.% Percent Finer inches Retained (q) Retained <u>Finer</u> Retained (q) Retained <u>Finer</u> Retained (g) Retained mm 2 1/2 62.5 2 50.0 1 1/2 37.5 25.0 100 1 19.0 15.10 100 3/4 16.54 83 3/8 9.5 27.52 30.15 70 23 58 25.43 100 75 4.75 2.89 40.16 38.81 41.86 3.68 96 36.66 60 58 4 10 6.74 8.58 91 43.81 48.00 52 50.07 54.01 2.0 46 20 15.28 19.46 59.90 40 60.94 65.73 0.8 81 54.68 34 25 40 0.425 34.04 43 35 57 68.55 75 10 72.80 78 52 21 0.25 51.72 65.87 34 88.08 88.61 11 81.60 88 02 60 12 140 0.105 81.66 18 88.65 97.12 88.20 95 14 64.12 3 5 89.03 200 0.075 65.86 83.88 97.54 2 88.78 95.76 4 16 OVEN DRIED MASS 92.71 gms 78.52 gms 91.28 gms #200 #20 #40 09# 3/4 3/8 HYDROMETER 100 90 80 70 Percent Passing 60 50 40 30 20 10 0 COARSE 100 10 Particle Size (mm) 0.01 0.001 **COBBLES** SAND **GRAVEL** FINES (SILT OR CLAY) \* - with Hydrometer **REMARKS:** S-5: Cc = 0.37Cu = 23.17SAMPLE SUBMITTED BY: S-6: Cu = 22.34 Cc = 0.26Walk-in Clients ✓ GPI Field Operator R. POLIDAN TESTED BY: ARTURO Q. AQUINO COMPUTER PRINT-OUT LABORATORY TECHNICIAN MARIA ANTONIETTE P. CUNAHAP Encoder CERTIFIED BY: Data Checked by: \_\_\_ ABA/MRR **AUTHORIZED SIGNATORY Quality Assurance** Uncertainty Results: % Finer =  $\pm 0.0408$ LAB.FILE NO.:GSA-10-400 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage Date Issued:

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factor of k=2, providing a level of confidence of approximately 95%.







| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                          | Job Number      | . 2209-10.R1-GSA-01-3 |
|--|-----------------|-----------------------|
| Project Proposed Mayon Evacuation Center (Libon Community College) | Date of Receipt | October 19, 2010      |
| Location Brgy. Zone 4 Libon, Province of Albay                     | Date of Test    | . October 22, 2010    |

# TEST REPORT FOR GRAIN SIZE ANALYSIS ASTM D 422 - 63 (Re-approved 2007)

| DEPT            | H (m     | PLE NO<br>)<br>CRIPTION     | · · · · · · · · · · · · · · · · · · · | O <u>7</u><br>6.55-7.00<br>Fat CLAY |             |                         | □ <u>8</u> 7.55-8.00 Silty SAND         | ,                    |                 | △ <u>9</u><br>8.55-9.00<br>Fat CLAY |                |
|-----------------|----------|-----------------------------|---------------------------------------|-------------------------------------|-------------|-------------------------|---|----------------------|-----------------|-------------------------------------|----------------|
| JOIL            |          | E SIZE                      | Cumm.Mass                             |                                     | % Percent   | Cumm.Mass               |   | Percent              | Cumm.Mass       | Cumm.%                              | Percent        |
| inc             | ches     | mm                          | Retained (g                           |                                     |             | Retained (g)            |   | Finer                | Retained (g)    | Retained                            | Finer          |
|                 | 1/2      | 62.5                        | rtotamou (g                           | <u>rtotairi</u>                     | <u> </u>    | retained (g)            | retained                                | 111101               | rtotaliloa (g)  | rtotanioa                           | <u>r irror</u> |
|                 | 2        | 50.0                        |                                       |                                     |             |                         |   |                      |                 |                                     |                |
|                 | _<br>1/2 | 37.5                        |                                       |                                     |             |                         |   |                      |                 |                                     |                |
|                 | 1        | 25.0                        |                                       |                                     |             |                         |   |                      |                 |                                     |                |
| 3               | 3/4      | 19.0                        |                                       |                                     |             |                         |   |                      |                 |                                     |                |
|                 | 3/8      | 9.5                         |                                       |                                     |             |                         |   | 100                  |                 |                                     |                |
|                 | 4        | 4.75                        |                                       |                                     |             | 0.50                    | 0.62                                    | 99                   |                 |                                     |                |
| 1               | 10       | 2.0                         |                                       |                                     | 100         | 1.77                    | 2.20                                    | 98                   |                 |                                     |                |
| 2               | 20       | 0.8                         | 0.30                                  | 0.65                                | 99          | 3.32                    | 4.13                                    | 96                   | 0.10            | 0.17                                | 100            |
| 4               | 40       | 0.425                       | 0.82                                  | 1.78                                | 98          | 10.78                   | 13.41                                   | 87                   | 0.64            | 1.09                                | 99             |
| 6               | 60       | 0.25                        | 1.81                                  | 3.93                                | 96          | 22.05                   | 27.43                                   | 73                   | 1.70            | 2.89                                | 97             |
| 1               | 40       | 0.105                       | 4.00                                  | 8.68                                | 91          | 55.94                   | 69.58                                   | 30                   | 3.80            | 6.46                                | 94             |
|                 | 00       | 0.075                       | 4.68                                  | 10.16                               | 90          | 60.81                   | 75.63                                   | 24                   | 4.75            | 8.08                                | 92             |
| OV              | 'EN DI   | RIED MASS                   |                                       | 46.08 gm                            | 6           |                         | 80.40 gms                               |                      |                 | 58.82 gms                           |                |
|                 | 100 +    | 3"<br>2 1/2"<br>2"<br>1 1/2 | 3/4                                   | 8,0                                 | #10         | #40                     | #140                                    | 000                  | HYDROM          | ETER                                |                |
|                 | 100 ]    |                             |                                       |                                     | <del></del> |                         | <b>*</b>                                |                      |                 |                                     |                |
|                 | 90 -     | 1 1 1 1                     | 1 1                                   |                                     |             |                         | + +                                     | <del>}        </del> |                 |                                     |                |
|                 | .        |                             |                                       |                                     |             |                         |   |                      |                 |                                     |                |
|                 | 80 -     |                             |                                       |                                     |             |                         |   | :                    |                 |                                     |                |
|                 | 70       |                             |                                       |                                     |             |                         | Q :                                     | :                    |                 |                                     |                |
| 0               |          |                             |                                       |                                     |             |                         | :\ :                                    |                      |                 |                                     |                |
| ssin            | 60 +     | 1 1 1 1                     | 1 1                                   |                                     |             | 1 1                     | -                                       |                      |                 |                                     |                |
| Ъ               | 50       |                             |                                       |                                     |             |                         | :   \                                   |                      |                 |                                     |                |
| Percent Passing | 30       |                             |                                       |                                     |             |                         |   |                      |                 |                                     |                |
| erc             | 40       |                             |                                       |                                     |             |                         | <del>:   \ :   </del>                   | •                    |                 |                                     |                |
| <u> </u>        | _        |                             |                                       |                                     |             |                         | :   \( \frac{7}{1} \)                   |                      |                 |                                     |                |
|                 | 30 +     |                             |                                       |                                     |             |                         |   |                      |                 |                                     |                |
|                 | 20       |                             |                                       |                                     |             |                         |   | :                    |                 |                                     |                |
|                 |          |                             |                                       |                                     | 1           |                         |   |                      |                 |                                     |                |
|                 | 10 -     | 1111111                     |                                       |                                     |             |                         | : |                      |                 |                                     |                |
|                 | 0        |                             |                                       |                                     |             |                         | :   :                                   |                      |                 |                                     |                |
|                 | 10       | COARS                       | E FIN                                 |                                     | ARSE MED    | NUM  <br>I Particle Siz | FINE<br>ze (mm) 0.1                     |                      | 0.01            |                                     | 0.001          |
| COE             | BBLES    |                             | GRAVEL                                |                                     | '           | SAND                    | 20 (11111)                              |                      | FINES (SILT     | OR CLAY)                            | 0.001          |
| * -             | with     | Hydrometer                  |                                       | •                                   |             |                         | REMARKS :                               |                      | •               |                                     | <u> </u>       |
|                 |          | IBMITTED BY:                |                                       |                                     |             |                         |   |                      |                 |                                     |                |
|                 |          | Clients 🔽                   |                                       | erator                              |             |                         |   |                      |                 |                                     |                |
| R. PO           |          |                             |                                       |                                     |             |                         |   |                      |                 |                                     |                |
|                 |          |                             |                                       |                                     | _           |                         | TESTED RV ·                             |                      | ARTURO (        | ) AOIIINO                           |                |
|                 |          | PRINT-OUT                   | NIIETTE D 0                           | LINIALIAD                           |             |                         | ILOILD DI .                             |                      |                 | TECHNICIAN                          |                |
| <i>By:</i> _    |          | MARIA ANTO                  |                                       | UNAHAP                              | -           |                         |   |                      | LABORATORY      | LCHNICIAN                           |                |
|                 |          |                             | Encoder                               |                                     |             |                         |   |                      |                 |                                     |                |
| Data            | a Chec   | cked by:                    | ABA/MRF                               | ?                                   |             | C                       | ERTIFIED BY :                           |                      |                 |                                     |                |
|                 |          | · · -y ·                    | Quality As:                           |                                     | _           |                         |   |                      | AUTHORIZED      | SIGNATORY                           |                |
|                 |          |                             | Š                                     |                                     |             | ty Results:             | % Finer =                               |                      |                 | LAB.FILE NO.                        |                |
| Date            | ! Issue  | ed:                         |                                       |                                     |             |                         |   |                      | on a combined   |                                     | y a coverage   |
|                 |          |                             |                                       |                                     | factor of k | x=2, providing          | a level of confi                        | dence of ap          | proximately 95° | %.                                  |                |

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| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                         | Job Number      | . 2209-10.R1-GSA-01-4 |
|---|-----------------|-----------------------|
| ProjectProposed Mayon Evacuation Center (Libon Community College) | Date of Receipt | October 19, 2010      |
| Location Brgy. Zone 4 Libon, Province of Albay                    | Date of Test    | . October 22, 2010    |

#### TEST REPORT FOR GRAIN SIZE ANALYSIS ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO..... Δ <u>BH-1</u> <u>O10</u> 9.55-10.00 DEPTH (m)..... SOIL DESCRIPTION..... Poorly graded SAND with silt SIEVE SIZE Cumm.Mass Cumm.% Percent Cumm.Mass Cumm.% Percent Cumm.Mass Cumm.% Percent inches Retained (q) Retained <u>Finer</u> Retained (q) Retained <u>Finer</u> Retained (g) Retained Finer <u>mm</u> 2 1/2 62.5 2 50.0 1 1/2 37.5 25.0 1 19.0 3/4 3/8 9.5 4.75 0.40 0.46 100 4 10 2.0 0.94 1.09 99 20 5.11 5.91 94 8.0 39.51 40 0.425 45.67 54 79.90 20 0.25 69.12 60 80.90 140 0.105 93.52 6 81.94 200 0.075 94.72 5 OVEN DRIED MASS 86.51 gms #200 3/4 HYDROMETER 100 90 80 70 Percent Passing 60 50 40 30 20 10 0 COARSE Particle Size (mm) 100 10 0.01 0.001 COBBLES SAND FINES (SILT OR CLAY) **GRAVEL** \* - with Hydrometer REMARKS : S-10: Cu = 3.16 Cc = 1.35SAMPLE SUBMITTED BY: Walk-in Clients ✓ GPI Field Operator R. POLIDAN TESTED BY : ARTURO Q. AQUINO COMPUTER PRINT-OUT By: MARIA ANTONIETTE P. CUNAHAP LABORATORY TECHNICIAN Encoder CERTIFIED BY : Data Checked by: \_\_\_\_ ABA/MRR **AUTHORIZED SIGNATORY** Quality Assurance **Uncertainty Results:** % Finer =  $\pm 0.0391$ LAB.FILE NO.:GSA-10-400 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage Date Issued: factor of k=2, providing a level of confidence of approximately 95%.

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Final Report Form - 3&4 Rev.6 / Dec. 2009



SIEVE SIZE

mm

inches

Cumm.Mass

Retained (q)

Cumm.%

Retained





Percent Finer

| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                          | Job Number      | 2209-10.R1-GSA-02-1 |
|--|-----------------|---------------------|
| Project Proposed Mayon Evacuation Center (Libon Community College) | Date of Receipt | October 19, 2010    |
| Location Brgy. Zone 4 Libon, Province of Albay                     | Date of Test    | October 27, 2010    |

#### TEST REPORT FOR GRAIN SIZE ANALYSIS ASTM D 422 - 63 (Re-approved 2007)

Cumm.Mass

Retained (q)

Cumm.%

Retained

Percent

<u>Finer</u>

Cumm.Mass

Retained (q)

Cumm.%

Retained

| BH / SAMPLE NO   | BH-2 O 1   | □ <u>2</u> | <u> </u>   |
|------------------|------------|------------|------------|
| DEPTH (m)        | 0.55-1.00  | 1.55-2.00  | 2.55-3.00  |
| SOIL DESCRIPTION | Silty SAND | Silty SAND | Sandy SILT |

Percent

<u>Finer</u>

| 11101103              |  |  |  |             |  | <u> </u>  |              |     | 111111111111111111111111111111111111111 |           |       |
|-----------------------|--|--|--|-------------|--|-----------|--------------|-----|---|-----------|-------|
| 2 1/2                 | 62.5   |  |  |             |  |           |              |     |   |           |       |
| 2                     | 50.0   |  |  |             |  |           |              |     |   |           |       |
| 1 1/2                 | 37.5   |  |  |             |  |           |              |     |   |           |       |
| 1                     | 25.0   |  |  |             |  |           |              |     |   |           |       |
| 3/4                   | 19.0   |  |  |             |  |           |              |     |   |           |       |
| 3/8                   | 9.5  |  |  |             |  |           |              | 100 |   |           |       |
| 4                     | 4.75   |  |  | 100         | 1.91   | 2.05      |              | 98  |   |           | 100   |
| 10                    | 2.0  | 1.41   | 1.72   | 98          | 5.83   | 6.27      |              | 94  | 1.37                                    | 1.77      | 98    |
| 20                    | 0.8  | 4.38   | 5.34   | 95          | 14.85  | 15.96     | )            | 84  | 5.47                                    | 7.08      | 93    |
| 40                    | 0.425  | 12.42  | 15.15  | 85          | 29.37  | 31.56     | )            | 68  | 12.79                                   | 16.56     | 83    |
| 60                    | 0.25   | 28.51  | 34.77  | 65          | 49.55  | 53.25     | ,            | 47  | 21.13                                   | 27.36     | 73    |
| 140                   | 0.105  | 57.11  | 69.65  | 30          | 68.22  | 73.32     |              | 27  | 29.40                                   | 38.06     | 62    |
| 200                   | 0.075  | 61.65  | 75.18  | 25          | 71.75  | 77.11     |              | 23  | 32.38                                   | 41.92     | 58    |
| OVEN D                | RIED MASS  |  | 82.00 gms  |             |  | 93.05 gm  |              |     |   | 77.24 gms |       |
|                       | 3"<br>2 1/2"<br>2"<br>1 1/2                      | 3/4  | 6<br>0<br>4<br>4                                 | #10         | #20  | 30        | #140         |     |   |           |       |
| 100 ⊣                 | 2 7  | , E  | 2 #  | #           | # #  | #60       | # #          |     | HYDROM                                  | IEIEK     |       |
| 100                   |  | 1:1: 1:  |  |             |  |           |              |     |   |           |       |
| 90 -                  |  | 1 1 1  | <del>                                     </del> | <del></del> |  | 1         | + +          |     |   |           |       |
|                       |  |  | :         :                                      |             |  |           |              |     |   |           |       |
| 80 -                  |  | : : :  |  |             |  |           | 1111         |     |   |           |       |
| 70 -                  |  |  | :  |             | :      \   | X         | 1 1          |     |   |           |       |
|                       |  |  |  |             |  | b   \     |              |     |   |           |       |
| - 60 -                | <del>                                     </del> | 1 1  | <del>                                     </del> |             | <del>                                     </del> |           | <del>7</del> |     |   |           |       |
| - Pas                 |  |  |  |             |  | <b>\</b>  |              |     |   |           |       |
| ± 50 -                |  |  |  |             |  | 12        |              |     |   |           |       |
| Percent Passing 6 0 0 |  |  |  |             |  | :\\       |              |     |   |           |       |
|                       |  |  |  |             |  | ;   \ \   |              |     |   |           |       |
| 30 -                  |  | <del>                                     </del> | <del>                                     </del> |             | <del>                                     </del> |           |              |     |   |           |       |
| 20 -                  |  |  |  |             |  |           |              |     |   |           |       |
| 20                    |  |  |  |             |  |           |              |     |   |           |       |
| 10 -                  | 1  | 1 1  | <del>                                     </del> |             | 1 1 1  | 1         | + + +        |     |   |           |       |
|                       |  |  |  |             |  |           |              |     |   |           |       |
| 0 -                   | COARS  |  | COAR   |             | IÚM Darriar                                      | FINE      | ~            |     | 6.24                                    |           | 0.004 |
| 10<br>COBBLES         |  | 10<br>GRAVEL                                     | )  | 1           | Particle S                                       | Size (mm) | 0.1          |     | 0.01<br>FINES ( SILT                    |           | 0.001 |
|                       | 1  | OIMVLL   |  |             | U VD   | DEMADI    | /S ·         |     | I IIVES ( SIET                          | OR OLAT)  |       |
| - vvitti              | - with Hydrometer REMARKS :                      |  |  |             |  |           |              |     |   |           |       |

\* - with Hydrometer REMARKS :

SAMPLE SUBMITTED BY:

Walk-in Clients GPI Field Operator

R. POLIDAN

COMPUTER PRINT-OUT

By: MARIA ANTONIETTE P. CUNAHAP

Encoder

Data Checked by: ABA/MRR

Quality Assurance

Date Issued:

TESTED BY : ARTURO Q. AQUINO

LABORATORY TECHNICIAN

CERTIFIED BY :

AUTHORIZED SIGNATORY

Uncertainty Results: % Finer =  $\pm 0.0375$ 

LAB.FILE NO.:GSA-10-401

Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.

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Final Report Form - 3&4 Rev.6 / Dec. 2009



BH / SAMPLE NO.....

<u>BH-2</u>

<u>O</u> <u>4</u>





| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                          | Job Number2209-10.R1-GSA-02-2    |
|--|----------------------------------|
| Project Proposed Mayon Evacuation Center (Libon Community College) | Date of Receipt October 19, 2010 |
| Location Brgy. Zone 4 Libon, Province of Albay                     | Date of Test October 27, 2010    |

#### TEST REPORT FOR GRAIN SIZE ANALYSIS ASTM D 422 - 63 (Re-approved 2007)

<u> 5</u>

| DEPTH (n  | n)   | <u>51. 2</u>    | 3.55-4.00  |              | 4.55-5.00 5.55-                                  |                            |              |                              | 5.55-6.00    |              |
|---|--|-----------------|------------|--------------|--|----------------------------|--------------|------------------------------|--------------|--------------|
| -   | CRIPTION   | С               | layey SAND |              | Silty SAND                                       |                            |              | Poorly graded SAND with silt |              |              |
| SIE   | VE SIZE  | Cumm.Mass       | Cumm.%     | Percent      | Cumm.Mass  | Cumm.%                     | Percent      | Cumm.Mass                    | Cumm.%       | Percent      |
| inches  | <u>mm</u>  | Retained (g)    | Retained   | <u>Finer</u> | Retained (g)                                     | Retained                   | <u>Finer</u> | Retained (g)                 | Retained     | <u>Finer</u> |
| 2 1/2   | 62.5   |                 |            |              |  |                            |              |                              |              |              |
| 2   | 50.0   |                 |            |              |  |                            |              |                              |              |              |
| 1 1/2   | 37.5   |                 |            |              |  |                            |              |                              |              |              |
| 1   | 25.0   |                 |            |              |  |                            |              |                              |              |              |
| 3/4   | 19.0   |                 |            |              |  |                            | 100          |                              |              |              |
| 3/8   | 9.5  |                 |            | 100          | 1.12   | 1.29                       | 99           |                              |              | 100          |
| 4   | 4.75   | 0.61            | 0.88       | 99           | 2.00   | 2.31                       | 98           | 0.50                         | 0.63         | 99           |
| 10  | 2.0  | 1.47            | 2.12       | 98           | 2.71   | 3.13                       | 97           | 2.48                         | 3.13         | 97           |
| 20  | 8.0  | 5.04            | 7.26       | 93           | 5.96   | 6.87                       | 93           | 15.23                        | 19.24        | 81           |
| 40  | 0.425  | 11.50           | 16.56      | 83           | 14.10  | 16.26                      | 84           | 45.91                        | 58.00        | 42           |
| 60  | 0.25   | 20.64           | 29.73      | 70           | 33.58  | 38.73                      | 61           | 61.89                        | 78.18        | 22           |
| 140   | 0.105  | 34.90           | 50.27      | 50           | 61.72  | 71.18                      | 29           | 72.20                        | 91.21        | 9            |
| 200   | 0.075  | 36.52           | 52.60      | 47           | 65.52  | 75.56                      | 24           | 73.80                        | 93.23        | 7            |
| OVEN D  | DRIED MASS                                       | 6               | 59.43 gms  | 11           | 10000 10000 10000                                | 36.71 gms                  |              |                              | 79.16 gms    |              |
| 100 -   | 3"<br>2 1/2"<br>2"<br>1 1/2                      | 3/8             | 4#         | #10          | #40  | #140                       |              | HYDROM                       | ETER         |              |
|   |  |                 |            |              |  |                            |              |                              |              |              |
| 90 -  |  |                 |            |              |  |                            |              |                              |              |              |
| 80 -  | <del>                                     </del> | : : :           | 1          |              | X     5     :                                    |                            |              |                              |              |              |
|   |  |                 |            |              | : \    :   \  :                                  |                            |              |                              |              |              |
| 70  |  |                 |            |              | 11 / 1 : / /                                     |                            |              |                              |              |              |
| ig 60 -   |  |                 | !          |              |  |                            |              |                              |              |              |
| ass   |  |                 |            |              | 13 I IN 3 1 3                                    | $\setminus \setminus     $ |              |                              |              |              |
| Percent Passing                                     |  |                 |            |              |  | / p/                       |              |                              |              |              |
| 9 40 -  |  |                 |            |              |  |                            |              |                              |              |              |
| A   |  |                 |            |              | :   :\\ :  |                            |              |                              |              |              |
| 30 -  | <del>                                     </del> | : : :           | 1          |              | <del>                                     </del> |                            |              |                              |              |              |
| 20 -  |  | 1 1 1           |            |              | <u> </u>   |                            |              |                              |              |              |
| 10 -  |  | : : :           |            |              |  |                            |              |                              |              |              |
| 10  |  |                 |            |              |  | 7                          |              |                              |              |              |
| 0 -   | COARS  |                 | COAR       | SE MED       |  | FINE                       |              |                              |              |              |
| COBBLE  | 00<br>S  | 10<br>GRAVEL    |            |              | l Particle Size<br>SAND                          | (mm) 0.1                   |              | 0.01<br>FINES ( SILT         | OR CLAY)     | 0.001        |
| * - with  | Hydrometer                                       |                 |            |              |  | REMARKS :                  | S-6:         | Cu = 4.95                    | Cc =         | 1.66         |
| SAMPLE SI   | UBMITTED BY:                                     |                 |            |              |  |                            |              |                              |              |              |
| ☐ Walk-i  | n Clients 🔽                                      | GPI Field Opera | ator       |              |  | -                          |              |                              |              |              |
| R. POLIDA   |  |                 |            |              |  | <del>-</del>               |              |                              |              |              |
|   |  |                 |            | <br>]        |  | TESTED BY :                |              | ARTURO C                     | . AQUINO     |              |
| COMPUTER PRINT-OUT  By: MARIA ANTONIETTE P. CUNAHAP |  |                 |            | -            |  | LABORATORY                 |              |                              |              |              |
| -7:   |  | Encoder         |            |              |  |                            |              |                              |              |              |
|   |  |                 |            |              | CEI  | TIFIFD RV ·                |              |                              |              |              |
| Data Che  | ecked by:  |                 |            |              | CER  | . זט טבו וויט              |              | AUTHORIZED                   | SIGNATORV    |              |
|   |  | Quality Assur   | rance      | Uncertaint   | v Results:                                       | % Finer =                  | + 0 0424     |                              | LAB.FILE NO. | ·GSA-10 401  |
| Data 1:   | uad.   |                 |            |              | -  |                            |              |                              |              |              |
| Date ISSU   |  |                 |            |              | reported expan =2, providing a                   |                            |              |                              |              | y a coverage |
|   |  |                 |            | 1 1          |  |                            |              |                              |              |              |

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| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                          | Job Number2209-10.R1-GSA-02-3   |
|--|---------------------------------|
| Project Proposed Mayon Evacuation Center (Libon Community College) | Date of ReceiptOctober 19, 2010 |
| Location Brgy. Zone 4 Libon, Province of Albay                     | Date of Test October 27, 2010   |

#### TEST REPORT FOR GRAIN SIZE ANALYSIS ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO..... BH-2 <u>O</u> <u>7</u> □ 8 6.55-7.00 7.55-8.00 8.55-9.00 DEPTH (m)..... SOIL DESCRIPTION..... Well graded SAND with silt Well graded SAND with silt Elastic SILT SIEVE SIZE Cumm.Mass Cumm.% Percent Cumm.Mass Cumm.% Percent Cumm.Mass Cumm.% Percent inches Retained (q) Retained <u>Finer</u> Retained (q) Retained <u>Finer</u> Retained (q) Retained <u>Finer</u> mm 2 1/2 62.5 2 50.0 1 1/2 37.5 25.0 1 100 3/4 19.0 3/8 100 1.35 99 95 1.24 4.75 6.48 93 4.25 95 7.40 4.64 100 4 15.66 17.88 82 9.87 10.78 29 10 2.0 0.46 0.68 99 41.83 24.54 26.81 73 2.05 3.01 97 20 0.8 36.63 58 4.32 0.425 60.47 69.06 31 50.78 55.47 45 6.34 94 40 0.25 72.10 82.34 18 69.02 75.40 25 7 41 10.88 89 60 140 0.105 80.38 91.80 89.21 27.20 8 81.66 11 18.53 73 200 81.45 93.02 84.35 92.15 8 22.25 0.075 32.66 67 OVEN DRIED MASS 87.56 gms 91.54 gms 68.12 gms #200 #40 HYDROMETER 100 80 70 Percent Passing 60 50 40 30 20 10 n COARSE 100 10 Particle Size (mm) 0.01 0.001 COBBLES SAND **GRAVEL** FINES (SILT OR CLAY) - with Hydrometer **REMARKS:** S-7: Cc = 1.47Cu =7.01 SAMPLE SUBMITTED BY: S-8: Cu = 6.27 Cc = 1.62Walk-in Clients ✓ GPI Field Operator R. POLIDAN

COMPUTER PRINT-OUT

By: MARIA ANTONIETTE P. CUNAHAP

Encoder

Data Checked by: ABA/MRR

Date Issued:

**Quality Assurance** 

TESTED BY : ARTURO Q. AQUINO

LABORATORY TECHNICIAN

CERTIFIED BY : \_

AUTHORIZED SIGNATORY

Uncertainty Results:

% Finer =  $\pm 0.0383$ 

LAB.FILE NO.:GSA-10-401

Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.

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Final Report Form - 3&4 Rev.6 / Dec. 2009



Date Issued:





|                    | O/IEC 17025:2005<br>A-2006-097B |   | A FIT              | 119 Saus     | o Roau, Novalici                                 | ies, Quezon                               | City         |              |              | BRS Accredited |
|--------------------|---------------------------------|---|--------------------|--------------|--|---|--------------|--------------|--------------|----------------|
| Client.            | MOHRI,                          | ARCHITECT   | & ASSOC            | IATES, IN    | IC.  |   | Job Numbe    | r            | 2209-10.R1   | -GSA-02-4      |
| Projec             | tProposed                       | l Mayon Evac                                      | uation Cer         | nter (Libor  | Community (                                      | College)                                  | Date of Rec  | eipt         | October 19   | , 2010         |
| Locatio            | on Brgy. Zon                    | ie 4 Libon, Pro                                   | ovince of A        | lbay         |  |   | Date of Tes  | t            | October 27   | , 2010         |
|                    |                                 |   | TEST I             | REPORT       | FOR GRAIN  | SIZE AN                                   | IALYSIS      |              |              |                |
|                    |                                 |   |                    |              | 2 - 63 (Re-ap                                    |   |              |              |              |                |
| BH / S             | SAMPLE NO                       | <u>BH-2</u>                                       | <u>010</u>         |              |  |   |              |              | Δ            |                |
| DEPT               | H (m)                           | 9   | .55-10.00          |              |  |   |              |              |              |                |
|                    | DESCRIPTION                     | 1   | Silty SAND         |              |  |   |              |              |              |                |
|                    | SIEVE SIZE                      | Cumm.Mass   | Cumm.%             | Percent      | Cumm.Mass  | Cumm.%                                    | Percent      | Cumm.Mass    | Cumm.%       | Percent        |
| <u>incl</u><br>2 1 |                                 | Retained (g)                                      | Retained           | <u>Finer</u> | Retained (g)                                     | Retained                                  | <u>Finer</u> | Retained (g) | Retained     | <u>Finer</u>   |
|                    | 2 50.0                          |   |                    |              |  |   |              |              |              |                |
| 1 1                |                                 |   |                    |              |  |   |              |              |              |                |
| 1                  |                                 |   |                    |              |  |   |              |              |              |                |
| 3/                 |                                 |   |                    |              |  |   |              |              |              |                |
| 3/                 |                                 | 0.50  | 0.71               | 100<br>99    |  |   |              |              |              |                |
| 1                  |                                 | 1.03  | 0.61<br>1.25       | 99<br>99     |  |   |              |              |              |                |
| 2                  |                                 | 1.98  | 2.40               | 98           |  |   |              |              |              |                |
| 4                  | 0 0.425                         | 8.00  | 9.69               | 90           |  |   |              |              |              |                |
| 6                  |                                 | 28.14   | 34.07              | 66           |  |   |              |              |              |                |
| 1 <sup>2</sup>     |                                 | 59.65<br>64.74                                    | 72.22<br>78.39     | 28<br>22     |  |   |              |              |              |                |
|                    | EN DRIED MASS                   |   | 76.39<br>32.59 gms | 22           |  |   |              |              |              |                |
|                    | 3"<br>2"<br>2"                  | mm m  | [7]                | 0            | 0 0  | 9   | 0            |              |              |                |
| 1                  | 1 2 2 3                         | 3/4   | #                  | #10          | #20  | #140                                      | #200         | HYDROM       | ETER         |                |
| '                  |                                 |   | Y                  | -            | <b>9</b>   | :   |              |              |              |                |
|                    | 90                              |   |                    |              | 1112   |   | !            |              |              |                |
|                    | 80                              |   |                    |              |  |   |              |              |              |                |
|                    |                                 | :  :  :   |                    |              | :   :  \:  |   |              |              |              |                |
|                    | 70                              |   |                    |              |  |   |              |              |              |                |
| sinç               | 60                              |   |                    |              |  | $\forall \exists \exists$                 |              |              |              |                |
| Percent Passing    | 50                              | :  :  :   |                    |              |  |   | 1            |              |              |                |
| cent               |                                 |   |                    |              |  | $\parallel \setminus \parallel \parallel$ |              |              |              |                |
| Per                | 40                              | <del>                                      </del> |                    |              | <del>                                     </del> | + \ :                                     | :            |              |              |                |
|                    | 30                              |   |                    |              |  | <del>  \</del>                            |              |              |              |                |
|                    | 20                              |   |                    |              |  | 1   |              |              |              |                |
|                    | 20                              | : : : : :   |                    |              |  | - :                                       |              |              |              |                |
|                    | 10                              |   |                    |              | <del>                                     </del> | - :                                       | 1            |              |              |                |
|                    | O III COADS                     | FINE  | COAD               | CE MED       |  | FINE                                      |              |              |              |                |
|                    | 100                             | 10  | COAR               |              | Particle Size                                    | FINE<br>(mm) 0.1                          |              | 0.01         |              | 0.001          |
|                    | BLES                            | GRAVEL  |                    |              | SAND   | DE1.1.D.//0                               |              | FINES (SILT  |              |                |
|                    | with Hydrometer                 |   |                    |              |  | REMARKS                                   |              |              |              |                |
|                    | E SUBMITTED BY alk-in Clients   |   | ator               |              |  |   |              |              |              |                |
| R. POL             |                                 | or rricia opera                                   | 1101               |              |  |   |              |              |              |                |
|                    |                                 |   |                    | <br>1        |  | TESTED BY                                 | :            | ARTURO C     | . AOUINO     |                |
|                    | JTER PRINT-OUT<br>MARIA ANTO    | ONIETTE P. CUM                                    | NAHAP              |              |  |   |              | LABORATORY   |              |                |
| <i></i>            |                                 | Encoder   |                    |              |  |   |              |              |              |                |
|                    |                                 |   |                    |              | CER  | TIFIED BY                                 |              |              |              |                |
| Data               | Checked by:                     | ABA/MRR Quality Assur                             | rance              |              |  |   |              | AUTHORIZED   | SIGNATORY    |                |
|                    |                                 | Quality Assul                                     | ance               | Uncertaint   | y Results:                                       | % Finer =                                 | ± 0.0378     |              | LAB.FILE NO. | :GSA-10-401    |

Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage

factor of k=2, providing a level of confidence of approximately 95%.

### **FINAL REPORT**

# PROPOSED MAYON EVACUATION CENTER (2-STOREY)

POLANGUI NORTH CENTRAL SCHOOL CENTRO ORIENTAL, PROVINCE OF ALBAY

MOHRI, ARCHITECT & ASSOCIATES, INC.

OCTOBER 2010 JOB NO. 2209-10.R1





#### **FINAL REPORT**

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#### FINAL REPORT

#### SUB-SURFACE INVESTIGATION FOR THE PROPOSED MAYON EVACUATION CENTER (2-STOREY) LOCATED AT POLANGUI NORTH CENTRA SCHOOL, CENTRO ORIENTAL, PROVINCE OF ALBAY

#### 1.0 Introduction:

Geotechnics Philippines, Incorporated (GPI) completed the subsurface soil investigation for the proposed Mayon Evacuation Center. The proposed site explored is located at Centro Oriental, Province of Albay.

Two (2) boreholes were drilled at the proposed site from October 17 to October 18, 2010. Borings were undertaken down to 10m for both BH-1 and BH-2 below existing natural ground line. Borehole locations are as indicated on the accompanying Boring Plan and Soil Profile Sheets.

The subsurface soil exploration was undertaken upon the request of Mohri, Architect & Associates, Inc. in order to gain information on the subsurface conditions and bearing characteristics of the underlying soils at site.

The undersigned was tasked to evaluate the results of the completed subsurface soil exploration and to recommend a suitable foundation solution for the proposed structure.

This report embodies the undersigned's engineering analysis and recommendations based mainly on the results of the geotechnical soil borings and pertinent laboratory tests performed on extracted samples.

The results of geotechnical soil borings and laboratory tests can be referred to in the attachments accompanying this report.

#### 2.0 Objectives:

The geotechnical investigation aims to determine the following:

- Soil Profile
- Engineering properties of the Soil Strata
- Bearing Capacities and Foundation Types
- Settlement conditions of critical areas
- Comment on ground stability and liquefaction potential of the site.
- Provide Excavation and Fill Guidelines

In addition to the above mentioned items, matters on implementation and construction shall be given as required.

#### 3.0 Field Exploration and Investigation

The field exploration implored continuous was boring and the Standard Penetration Test (SPT) were performed at the last 45cm of every change strata or 1.0 meter intervals. The blow counts (N value or NB) were recorded as disturbed samples from the split spoon sampler were retrieved for laboratory testing. The recovered samples were described semi qualitative in terms of extracted length. The extracted soil samples were wrapped in double plastic bags for moisture and sample protection and were transported to the laboratory for further testing of engineering properties.

#### 3.1 Standard Penetration Test

The Standard Penetration Test (SPT) is a field test used in determining the shear strength of soils from an established correlation. The SPT requires the count of the number of blows that it would take a standard split spoon sampler to penetrate its last 30.5cm (12inches) of the sampler. The standard mass is 63.5 kilograms and the height of the drop is 76.2cm specified as a free drop.

#### 3.2 Ground Water Table

The ground water table (GWT) elevation was observed at least 4 hours from the completion of the borehole up to demobilization.

#### 4.0 Laboratory Investigation

The retrieved samples were brought to the laboratory in Sauyo Road, Novaliches, Quezon City. Various tests were conducted on all extracted samples with test procedures conforming to the American Standards for Testing Materials (ASTM). The following are the laboratory tests conducted on the soil samples.

| Type of Test  | ASTM Designation                   | Description of Test   |
|---|------------------------------------|---|
| Soil Classification for Engineering<br>Purposes - Unified Soil Classification<br>System | ASTM D 2487-05                     | <ul> <li>Standard in classifying the type of soil based<br/>on composition and physical properties</li> <li>These were classified in accordance to grain<br/>size, composition, percentage of size in the<br/>distribution</li> </ul>   |
| Particle Size Distribution – Sieve<br>Analysis  | ASTM D 422-63<br>(Reapproved 2002) | <ul> <li>The test allows the dried or wet soil to pass through a series of sieves in order to determine the distribution of grain sizes.</li> <li>The distributions of the particles are graphed on a semi log scale</li> <li>This test aids the previous test in classification</li> </ul>   |
| Moisture Content  | ASTM D 2216-05                     | The test aims to determine the natural content of water in the soil This is taken as the ratio of water to the ratio of the soil particles The test uses a weighing scale measuring the initial weight of the soil and the final weight of the soil after drying it in the oven   |
| Atterberg Limits<br>Liquid Limit, Plastic Limit and<br>Plasticity Index                 | ASTM D4318-05                      | Tests determining the limits of cohesive soils in behaving as a plastic or a flowing medium by incrementally changing the water content. The plastic limit is determined by rolling a clay sample to around 1/8 of an inch or 3mm. The liquid limit uses the liquid limit device and determines the number of blows it would take for the slit to close. Correlative values can be used for settlement relations. |

The results of the laboratory investigation are appended.

#### 5.0 Borehole Stratigraphy

Two (2) boreholes were driven to investigate the subsurface. The following are the findings:

#### 5.1 Borehole BH-1

| Depth (m)    | Soil Classification | Consistency  | N-Value |
|--------------|---------------------|--------------|---------|
| 0.00 - 1.00  | Elastic SILT        | Very Stiff   | 26      |
| 1.00 - 4.00  | Silty SAND          | Firm         | 11 ~ 18 |
| 4.00 - 5.00  | Silty SAND          | Loose        | 7       |
| 5.00 - 10.00 | Poorly graded       | Dense - Firm | 18 ~ 31 |

The ground water was measured at 1.05 meters from the existing ground.

#### 5.2 Borehole - BH-2

| Depth (m)    | Soil Classification | Consistency   | N-Value |
|--------------|---------------------|---------------|---------|
| 0.00 - 1.00  | Elastic SILT        | Stiff         | 13      |
| 1.00 - 2.00  | Elastic SILT        | Firm          | 8       |
| 2.00 - 4.00  | Silty SAND          | Firm          | 13 ~ 25 |
| 4.00 - 5.00  | Silty SAND          | Loose         | 8       |
| 5.00 - 6.00  | Silty SAND          | Firm          | 27      |
| 6.00 - 7.00  | Elastic SILT        | Very Stiff    | 16      |
| 7.00 - 10.00 | SAND                | Dense to Firm | 10 ~ 32 |

The ground water was measured at 1.05 meters from the existing ground.

#### 6.0 Soil Properties

The following are the adapted soil properties for the investigated strata:

| Soil Parameters   |                                    |      |         |
|-------------------|------------------------------------|------|---------|
| Gravels, Sands, S | ilty Sands and Cl<br>lon-cohesive) | ayey | Sands   |
| Sands             | C                                  | φ    | y (kcf) |
| Very Loose        | 0                                  | 26   | 0.085   |
| Loose             | 0                                  | 28   | 0.100   |
| Medium Dense      | 0                                  | 30   | 0.110   |
| Dense             | 0                                  | 32   | 0.120   |
| Very Dense        | 0                                  | 35   | 0.130   |
| Silts an          | d Clays (Cohesiv                   | e)   |         |
| Silts and Clays   | С                                  | φ    | y (kcf) |
| Very Soft         |                                    | 0    | 0.100   |
| Soft              | 7818483 77                         | 0    | 0.105   |
| Firm              | =(N*10)/2                          | 0    | 0.115   |
| Stiff             | from Braja<br>Das                  | 0    | 0.120   |
| Very Stiff        | Das                                | 0    | 0.125   |
| Hard              |                                    | 0    | 0.130   |

#### 7.0 Liquefaction Potential

The boreholes showed thin layer of potentially liqueflable layer between 4~5 meters deep. However, the impact would be minimal as dense layer are found in between loose formation.

#### 8.0 Bearing Capacity and Foundation Type

Shallow Foundations

Shallow Foundations have good bearing capacities. The following are the allowable net bearing capacities based on Terzaghi's Bearing Capacity Equation:

#### BH-1:

| Depth (m) | Bearing Capacity (kPa) |
|-----------|------------------------|
| 1.0       | 96                     |
| 1.5       | 96                     |

#### BH-2:

| Depth | Bearing Capacity (kPa) |
|-------|------------------------|
| 1.0   | 96                     |
| 1.5   | 96                     |

The associated settlement on the other hand is within the tolerable engineering settlement of 25mm. It is suggested that structural tie beam be installed to hold the foundation rigid during major earthquakes.

#### 9.0 Excavation and Fill

The contractor of the proposed structure is advised to rail the excavation at night and during break times so as to ensure the general safety of the public specially childrens. Existing structures, whether temporary or permanent that are adjacent, the excavation should be protected from damages. Dewatering shall be necessary as the water table is shallow.

Fill for the excavation for footings and may utilize the same materials. On the other hand, grade and subgrade materials should be sandy frictional materials.

Fill should be compacted at 95% its maximum dry density. Should the amount of soil be inept, sandy fill may be utilized and should be compacted in the same degree. In both cases, the height of fill should be reviewed and adjusted accordingly to adapt minimal settlements.

#### Borehole Conclusions and Recommendations

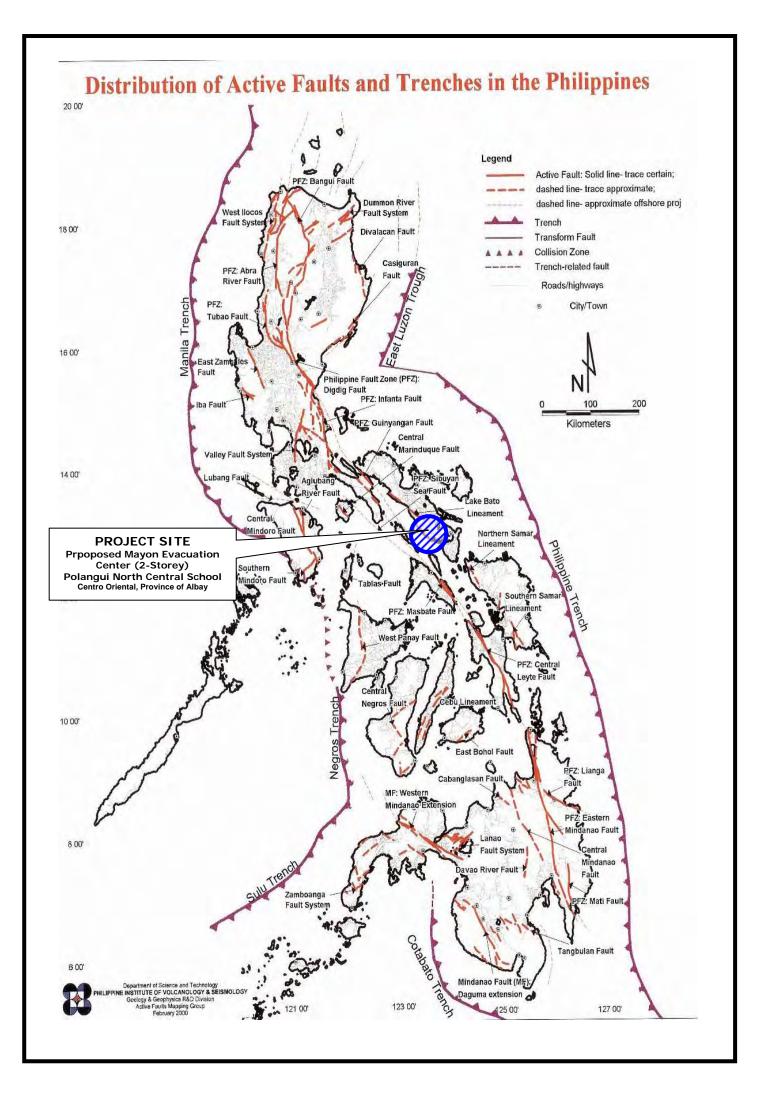
The conclusions and recommendations are based on the data of two (2) boreholes. Deviations from these are expected and should be minimal as the boreholes are typical of an alluvial formation. Should there be any major deviation in the substrata be detected during the excavation phase, may the undersigned thru Geotechnics Philippines Inc (02-930-6555) be contacted immediately for proper reassessment.

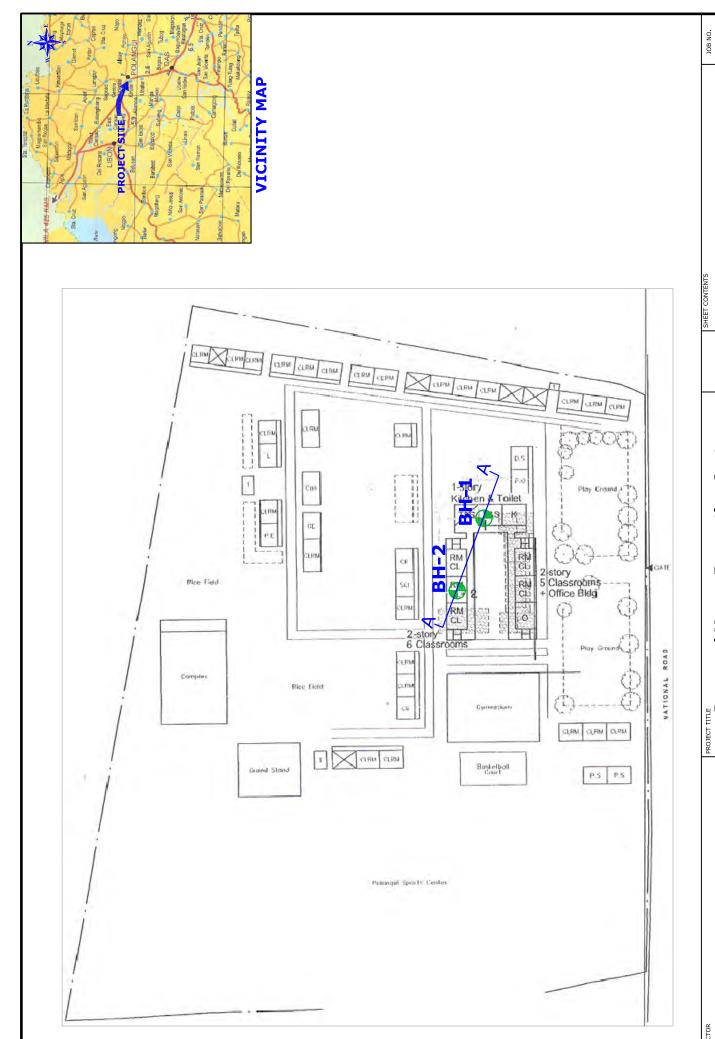
DIOSDADO A. URENA

CE Reg. No. 053884 PTR No. 3228274 Issued on January 8, 2010 Issued at Quezon City

# **APPENDICES**







Proposed Mayon Evacuation Center (Polangui North Central School) Centro Oriental, Province of Albay

2209-10.R1 SHEET NO.

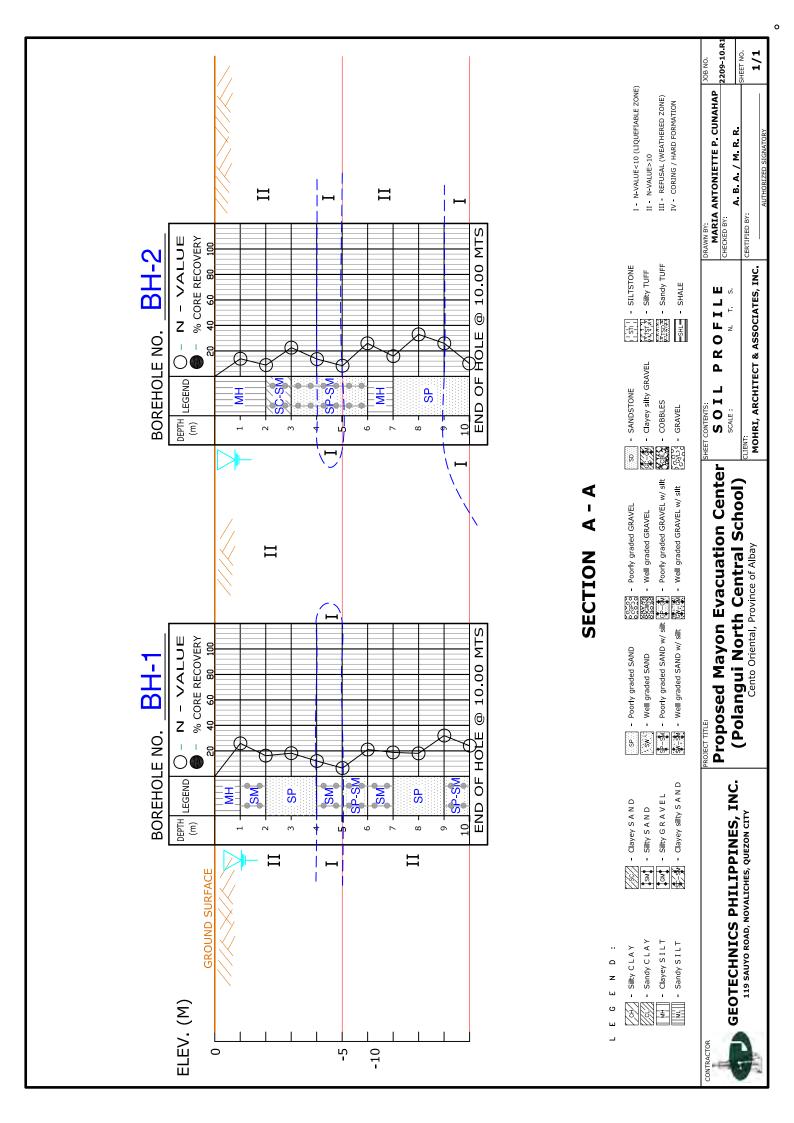
1/1

MOHRI, ARCHITECT & ASSOCIATES, INC.

LOCATION PLAN/VICINITY MAP

SCALE NTS

GEOTECHNICS PHILIPPINES, INC. 119 SAUVO ROAD, NOVALICHES, QUEZON CITY





Description of Strata is according to Unified Soil Classification System

# GEOTECHNICS PHILIPPINES, INCORPORATED



|          |                                     |  |          |  |           |  | 100                                   | 2            | 7     |                     |                        | ILS AND MA<br>119 SAUYO<br>TEL. NO. 9  | ROAI                | D, N    | OVAL               | LIC                       | HES,                             | , QU                               | IEZO                        | N CITY                          |  |   | DPWH-BR                    | S Accredited                |
|----------|-------------------------------------|--|----------|--|-----------|--|---------------------------------------|--------------|-------|---------------------|------------------------|--|---------------------|---------|--------------------|---------------------------|----------------------------------|------------------------------------|-----------------------------|---------------------------------|--|---|----------------------------|-----------------------------|
| CLIE     | ENT                                 | MOHR   | I, ARC   | HITECT   | & ASS     | OCI                                    | ATI                                   | S,           | IN    | C.                  |                        |  |                     |         |                    |                           |                                  |                                    |                             |                                 |  | BOREHOLE NO.  | BH- 1                      |                             |
| PRO      | JECT                                | Propo  | sed Ma   | ayon Eva   | cuatio    | on Ce                                  | ente                                  | <u> </u>     | Pol   | ane                 | gui N                  | orth Central   | Sch                 | ool     | )                  |                           |                                  |                                    |                             |                                 |  | JOB NO. 22  | 09-10.R1-FBL-(             | 01                          |
| LOC      | ATION                               | Centro   | o Orier  | ntal, Pro  | vince o   | of All                                 | bay                                   | <u> </u>     |       |                     |                        |  | DR:                 | ILLE    | )                  |                           |                                  | R.                                 | PC                          | DLIDAN                          |  | SHEET   | 1 of 1                     |                             |
| RIG      |                                     | KSK S  |          | · ·  |           |  |                                       |              |       |                     |                        |  | LOC                 | GGEI    | )                  |                           |                                  | R.                                 | PC                          | DLIDAN                          |  | 0.0   | 0 to 10.00 meters          |                             |
|          |                                     |  |          | t 63.50 Kg   |           |  |                                       |              |       |                     |                        |  | DA                  | TE S    | TART               | ΓED                       |                                  |                                    |                             | 17, 201                         | .0   | GROUND LEVEL  | - m.                       |                             |
|          |                                     | Fall Hei   | ght 76,2 | 0 cm.  |           |  |                                       |              |       |                     |                        |  | DA <sup>-</sup>     | TE C    | ОМРІ               | LET                       | ED                               |                                    |                             |                                 |  | WATER LEVEL   | 1.05 m.                    |                             |
| MET      | HOD                                 | WASH   | BORI     | NG   |           |  |                                       |              |       |                     |                        |  | NO                  | RTH:    | NG                 |                           |                                  | _                                  |                             |                                 |  | EASTING   | _                          |                             |
|          |                                     |  |          |  |           |  |                                       |              |       |                     | F)                     | NAL BOI  | RII                 | ١G      | L                  | 00                        | <u> </u>                         |                                    |                             |                                 |  |   |                            |                             |
| DI       | EPTH                                | SOIL   | SAMPLE   | TYPE OF  | REC       | RQD                                    | P                                     | L N          | NMC   | LI                  | - PI                   | CONSISTENC   | , [                 | <br>o - | N - \              | V A                       | L U                              | E                                  | T                           |                                 |  | OIL DESCRIPTION   |                            | OTHER                       |
|          | (m)                                 | SYMBOL   | NUMBER   | SAMPLIN  | G (cm)    | (%)                                    | 21                                    |              | -     | <b>—  </b><br>80 10 |                        | CONSISTENC   | <u> </u>            | 9 -     | % C                |                           |                                  | over                               | ´ I                         |                                 |  | OIL DESCRIPTION   |                            | TEST<br>DATA                |
| $\nabla$ | -<br>-<br>-<br>- 1.00 ·             | -<br>-<br>-<br>-   | S-1      | SPT  | 45        | -                                      |                                       |              |       |                     | 28                     | VERY STIFF   | F                   | 26      |                    |                           |                                  |                                    | Ш                           |                                 | ces of                                     | ILT with little ar<br>gravel, dark gra<br>4)                        |                            |                             |
| ¥        | -<br>-<br>-                         |  | S-2      | SPT  | 45        | -                                      |                                       |              |       |                     | NF                     |  |                     | 16      |                    |                           |                                  |                                    |                             |                                 | of grav                                    | ND, fine to coars   |                            |                             |
|          | - 2.00 ·<br>-<br>-<br>-             | -  | S-3      | SPT  | 45        | <br> -                                 |                                       |              |       |                     | NF                     | MEDIUM DEN   | ISE                 | 18      |                    |                           |                                  |                                    | Ш                           |                                 | dark g                                     | aded SAND with<br>ray, moist  | little amount of           |                             |
|          | - 3.00 ·<br>-<br>-<br>-             |  | S-4      | SPT  | 45        | _                                      |                                       |              |       |                     | NF                     |  |                     | 11      |                    |                           |                                  |                                    |                             | (SP-SM)<br>NB: (8)              |  | st  |                            |                             |
|          | - 4.00 ·<br>-<br>-<br>-             |  | S-5      | SPT  | 45        | _                                      |                                       |              |       |                     | 2                      | LOOSE  |                     | 7       |                    |                           |                                  |                                    | Ш                           | (SM) Sil<br>dark gra<br>NB: (5) | ay, ver                                    | ND, fine to mediony moist   | um grained,                |                             |
|          | - 5.00 ·<br>-<br>-<br>-<br>- 6.00 · |  | S-6      | SPT  | 45        | -                                      |                                       |              |       |                     | NF                     |  |                     | 21      |                    |                           |                                  |                                    | Ш                           |                                 | ount o                                     | y graded SAND<br>f gravel, dark g<br>)                              |                            |                             |
|          | -<br>-<br>-                         |  | S-7      | SPT  | 45        | ı                                      | ۱۹                                    |              |       |                     | NF                     | MEDIUM DEN   |                     | 19      |                    |                           |                                  |                                    | Ш                           | (SM) Sil<br>traces c<br>NB: (5) | of grav                                    |   | e grained with             |                             |
|          | - 7.00 ·<br>-<br>-<br>-<br>- 8.00 · |  | S-8      | SPT  | 39        | -                                      |                                       |              |       |                     | NF                     |  |                     | 18      |                    |                           |                                  |                                    | Ш                           | (SP) Poo<br>dark gra<br>NB: (8) | ay, mo                                     |   | some gravel,               |                             |
|          | -<br>-<br>-                         |  | S-9      | SPT  | 45        | -                                      |                                       |              |       |                     | NF                     | DENSE  |                     | 31      |                    |                           |                                  |                                    |                             | (SP)w<br>NB: (10                |  |   |                            |                             |
|          | - 9.00 ·<br>-<br>-<br>-             |  | S-10     | SPT  | 45        | -                                      |                                       |              |       |                     | NF                     | MEDIUM DEN   | ISE                 | 25      |                    |                           |                                  |                                    | 11.                         | traces on NB: (9)               | f grav<br>(11)(1                           | y graded SAND vel, dark gray, m<br>4)<br>ORING AT 10.0              | oist                       |                             |
| Тур      | 10.00<br>oe of Sa                   | mpling   |          |  | Type of S | Soil                                   | ш                                     | ـــــــ      | ш     | ш                   | +                      |  | CON                 |         | ц <b>ф</b><br>;TFN | AC.                       | <br>Y                            | ш                                  |                             | 7                               |  | MOISTURE  | PERCENTA                   | GF                          |
|          | ST PE                               | FANDARD NETRATION EST (SPT) NDISTURBED AMPLING IDS) DRING ERG) |          | Silty CLAY  Clayey SILT  Clayey SAND  Silty SAND  Clayey silty | SAND      | 00000000000000000000000000000000000000 | Well<br>with<br>GRAV<br>SILT:<br>TUFF | /EL<br>STONI | d GR/ | VEL STON            | N-<br>0<br>2<br>4<br>8 | COHESIVE SOI  VALUE CONSIS  - 2 - VERY  - 4 - SOFT  - 8 - FIRM  - 15 - STIFF  5 - 30 - VERY  > 30 - HARD | ILS<br>STEN<br>SOFT | ICY     | 0<br>4<br>10<br>30 | /ALI<br>- 4<br>- 1<br>- 3 | SIC<br>UE<br>4 -<br>.0 -<br>30 - | CO<br>- VE<br>- LO<br>- ME<br>- DE | NSI<br>RY L<br>OOSE<br>EDIU | IM DENSE                        | MOIS<br>RANGI<br>0 - 1<br>10 - 3<br>30 - 7 | TURE CONTENT  S VALUES  O - DRY  O - MOIST  O - VERY MOIST  O - WET | % of SAND and G            | GRAVEL<br>LUES<br>CES<br>LE |
| REM      | ARKS:                               | Poc -  | Poss     |  |           | ***                                    |                                       |              |       |                     |                        | Blows HW   |                     | <u></u> | n~                 | or                        | ١٨/ -                            | ia h                               | nt.                         |                                 |  | Prepared by : D   | T LUCTUS                   |                             |
|          |                                     |  |          | very in C<br>pacing:   |           |  |                                       | IN           | ID :  | = IN                |                        | cm. >#3>3  | / =<br>cm.          | пal     |                    |                           |                                  | eign<br>:m.                        |                             |                                 |  | Charles de la constant  | T. LUSTRE<br>B.A. / M.R.R. |                             |
|          | . (C)                               | 0.100  | . 5      | Faciliai   | 30 cm     |  |                                       | 10           | cm    |                     |                        | cm. >#4>10   |                     |         |                    | - '                       |                                  |                                    |                             |                                 | +  | Certified by :  |                            |                             |
|          |                                     | RQD =  | = Rock   | Quality  |           |  |                                       |              |       |                     |                        | Core Recov   |                     |         |                    |                           |                                  |                                    |                             |                                 | $\neg$                                     | Δ   | UTHORIZED SIGNATO          | ORY                         |
| D        |                                     | of Strat   |          |  |           |  |                                       |              |       | _                   |                        |  |                     |         |                    |                           |                                  |                                    |                             |                                 |  | Date Issued :   |                            |                             |

Date Issued :



Reference Joint Spacing: #1 > 30cm.

RQD = Rock Quality Designation

Description of Strata is according to Unified Soil Classification System

30 cm.>#2>10cm.

# GEOTECHNICS PHILIPPINES, INCORPORATED SOILS AND MATERIALS TESTING LABORATORY



| LIE                  | NT   | МОНЕ  | RT. ARC   | HITECT   | & ASS    | SOCI        | ATE                         | S. 1               | INC              | _    |                         |  |   |          |                            |                     |                  |                              |                   |  | BOREHOLE NO.                               | BH- 2            |                   |  |
|----------------------|--|---|-----------|--|----------|-------------|-----------------------------|--------------------|------------------|------|-------------------------|--|---|----------|----------------------------|---------------------|------------------|------------------------------|-------------------|--|--|------------------|-------------------|--|
| ROJ                  | ECT  |   |           |  |          |             |                             |                    |                  |      | ui Na                   | rth Central  | Schoo   | n        |                            |                     |                  |                              |                   |  | JOB NO. 22                                 | 09-10.R1-FBL-(   | 02                |  |
| OCA                  | TION   | •   |           | Orienta  |          |             |                             | <u> </u>           |                  | 9    |                         | Ten ochtran  | DRILL   |          |                            |                     | F                | R. P                         | OLIDAN            |  | SHEET                                      | 1 of 1           |                   |  |
| .IG                  |  | KSK S   |           | o i i ci i ca  | ,        | ******      |                             | ,                  | ,,,              |      |                         |  | LOGGED R. POLIDAN  DATE STARTED Oct. 18, 2010  DATE COMPLETED Oct. 18, 2010 |          |                            |                     |                  |                              |                   |  | 0,00 to 10,00 meters                       |                  |                   |  |
|                      |  |   |           | 63.50 Kg.  |          |             |                             |                    |                  |      |                         |  |   |          |                            |                     |                  |                              |                   |  | GROUND LEVEL                               | - m.             |                   |  |
|                      |  | Fall Hei  | ight 76.2 | 0 cm.  |          |             |                             |                    |                  |      |                         |  |   |          |                            |                     |                  |                              |                   |  | WATER LEVEL                                | 0.97 m.          |                   |  |
| 1ETH                 | HOD  | WASH  | 1 BORI    | NG   |          |             |                             |                    |                  |      |                         |  | NORTI   | HIN      | G                          |                     | _                | -                            |                   |  | EASTING                                    | -                |                   |  |
|                      |  |   |           |  |          |             |                             |                    |                  |      | FI                      | NAL BO   | RING  | G        | LC                         | G                   |                  |                              |                   |  | •  |                  |                   |  |
| DE                   | PTH  | SOIL  | SAMPLE    | TYPE OF  | REC      | RQD         | -                           |                    | мс<br><b>0</b> — |      | PI                      | CONSISTENC   |   |          | - V                        |                     |                  |                              |                   | S                                      | OIL DESCRIPTION                            |                  | OT<br>TI          |  |
| (r                   | m)<br>_  | SYMBOL  | NUMBER    | SAMPLING   | 3 (cm)   | (%)         | 20                          | 40                 | 60 80            | 100  |                         |  |   | Î        | 20 4                       | 0 60                | 80               | 100                          |                   |  |  |                  | D.                |  |
| <u> </u><br> -<br> - | -<br>-<br>- 1.00 -                                   |   | S-1       | SPT  | 40       | _           |                             |                    |                  |      | 25                      | STIFF  | 13  |          |                            |                     |                  |                              |                   | dark g                                 | ILT with sand and ray, very moist          | nd traces of     |                   |  |
| -                    |  |   | S-2       | SPT  | 45       | _           |                             |                    |                  |      | 28                      | FIRM   | 8   |          |                            |                     |                  |                              | (MH)<br>NB: (4)   |  | me sand                                    |                  |                   |  |
| -                    | - 2.00 <del>-</del><br>-<br>-                        |   | S-3       | SPT  | 45       | _           |                             |                    |                  |      | 4                       |  | 23  | ١        |                            |                     |                  |                              |                   | dark g                                 | ey silty SAND wi<br>ray, very moist<br>13) | th traces of     |                   |  |
| -                    | - 3.00 <del>-</del>                                  |   | S-4       | SPT  | 45       | _           |                             |                    |                  |      | NP                      | MEDIUM DEN   | 13  |          |                            |                     |                  |                              |                   | of grave                               | y graded SAND vel, dark gray, ve           |                  |                   |  |
| -                    | - 4.00 <del>-</del><br>-<br>-                        |   | S-5       | SPT  | 45       | _           |                             |                    |                  |      |                         | LOOSE  | 8   |          |                            |                     |                  |                              | (SP-SM<br>NB: (2) |  | ist  |                  |                   |  |
| -                    | - 5.00 <del>-</del><br>-<br>-<br>- 6.00 <del>-</del> |   | S-6       | SPT  | 45       | _           |                             |                    |                  |      | NP                      | MEDIUM DEN   | SE 27   | 9        |                            |                     |                  |                              | (SP-SM<br>NB: (10 |  |  |                  |                   |  |
| -                    | - 0.00 -<br>-<br>- 7.00 -                            |   | S-7       | SPT  | 45       | -           | 1                           |                    |                  |      | 24                      | VERY STIFF   | : 16  |          |                            |                     |                  |                              |                   | h gray                                 | ILT with little an<br>, very moist<br>)    | nount of sand,   |                   |  |
| -                    | •  |   | S-8       | SPT  | 45       | _           |                             |                    |                  |      | NP                      | DENSE  | 32  |          |                            |                     |                  |                              |                   | dark gı                                | ray, moist                                 | little amount of |                   |  |
| -                    | - 8.00 -   |   | S-9       | SPT  | 45       | _           |                             |                    |                  |      | 26                      | MEDIUM DEN   | SE 27   |          |                            |                     |                  |                              | (SP)v<br>NB: (10  |  | ces of gravel<br>15)                       |                  |                   |  |
|                      | - 9.00 <del>-</del><br>-<br>-<br>-                   |   | S-10      | SPT  | 45       |             |                             |                    |                  |      | NP                      |  | 10  |          |                            |                     |                  |                              | (SP)c<br>NB: (7)  | (5)(5)                                 | oring at 10.0                              | O METERS\        |                   |  |
| Туре                 | 10.00<br>e of Sar                                    | npling  | 3-10      |  | ype of s | L -<br>Soil | Щ                           | ЬШ                 | Ш                |      | H INP                   |  | 10<br>ONSI  | 6        | EN,                        | CV<br>CV            | Ш                | Ш                            | I / EINL          |  | MOISTURE                                   | PERCENTA         | L<br>AGE          |  |
|                      | ST PE TE   | ANDARD NETRATION ST (SPT) IDISTURBED MPLING DS) ORING |           | Silty CLAY  Clayey SILT  Clayey SAND  Silty SAND  Clayey silty S |          | 0000        | Silty ( Well g with s GRAVI | raded<br>ilt<br>EL | GRAV             | ÆL.  | N-\<br>0<br>2<br>4<br>8 | COHESIVE SOI<br>YALUE CONSIS<br>- 2 - VERY:<br>- 4 - SOFT:<br>- 8 - FIRM<br>- 15 - STIFF<br>- 30 - VERY: | LS<br>STENCY<br>SOFT  | <u>C</u> | 0 -<br>4 -<br>10 -<br>30 - | 4<br>10<br>30<br>50 | _<br>_<br>_<br>_ | VERY<br>LOOS<br>MED:<br>DENS | IUM DENSE         | MOIS RANGE 0 - 1 10 - 3 30 - 7 70 - 10 | TURE CONTENT  S VALUES  O – DRY            | % of SAND and G  | GRA' ALUE CES 'LE |  |
|                      |  | RG)   |           | SAND   | , ,      | A A A       | Tuffed                      | eous               | SILTS            | TONE | Ι.                      | 30 - HARD  | - 1 2 1 1   |          |                            | 20                  | _                | v L N 1                      | . DENSE           | ~ 101                                  | SATURATED                                  | 20 42 - MIL      | .,                |  |

10 cm. >#3>3cm.

3 cm. >#4>1cm.

SCR = Solid Core Recovery

#5 <1cm.

Certified by :

Date Issued :

A.B.A. / M.R.R.

AUTHORIZED SIGNATORY



| CLIENT MOHRI, ARCHITECT & ASSOCIATES, INC.                               | JOB NUMBER 2209-10.R1-SUM-1      |
|--|----------------------------------|
| PROJECT Proposed Mayon Evacuation Center (Polangui North Central School) | DATE OF RECIEPT October 27, 2010 |
| LOCATION Centro Oriental, Province of Albay                              | DATE OF TEST October 27-30, 201  |

#### **SUMMARY OF LABORATORY TESTS**

| SAMPLE | DEPTH        | NMC | ATTER | RBERG<br>(%)                            | LIMIT, | USCS   |   | SI                          | EVE AN                      | ALYSIS | (% FIN | IER) PAS | SSING S                                 | SIEVE N                                | 10. |     | Remarks |
|--------|--------------|-----|-------|---|--------|--------|---|-----------------------------|-----------------------------|--------|--------|----------|---|--|-----|-----|---------|
| NUMBER | (m)          | (%) | LL    | PL                                      | PI     | Class. | 1 | <sup>3</sup> / <sub>4</sub> | <sup>3</sup> / <sub>8</sub> | 4      | 10     | 20       | 40                                      | 60                                     | 140 | 200 |         |
| BH-1   |              |     |       |   |        |        |   |                             |                             |        |        |          |   |  |     |     |         |
| 1      | 0.55 - 1.00  | 45  | 60    | 32                                      | 28     | MH     |   |                             | 100                         | 98     | 97     | 93       | 88                                      | 83                                     | 77  | 76  | -       |
| 2      | 1.55 - 2.00  | 30  | -     | NP                                      | -      | SM     |   |                             | 100                         | 95     | 81     | 61       | 43                                      | 32                                     | 25  | 24  | -       |
| 3      | 2.55 - 3.00  | 27  | -     | NP                                      | -      | SP     |   | 100                         | 87                          | 78     | 64     | 45       | 24                                      | 10                                     | 3   | 3   | _       |
| 4      | 3.55 - 4.00  | 19  | -     | NP                                      | -      | SP     |   | 100                         | 90                          | 79     | 67     | 47       | 22                                      | 10                                     | 4   | 3   | -       |
| 5      | 4.55 - 5.00  | 32  | 35    | 33                                      | 2      | SM     |   |                             |                             | 100    | 99     | 91       | 72                                      | 56                                     | 34  | 32  | _       |
| 6      | 5.55 - 6.00  | 16  | -     | NP                                      | -      | SP-SM  |   | 100                         | 94                          | 84     | 75     | 52       | 22                                      | 12                                     | 7   | 6   | -       |
| 7      | 6.55 - 7.00  | 29  | -     | NP                                      | -      | SM     |   |                             | 100                         | 98     | 96     | 84       | 58                                      | 40                                     | 25  | 22  | _       |
| 8      | 7.55 - 8.00  | 23  | -     | NP                                      | -      | SP     |   | 100                         | 86                          | 69     | 56     | 44       | 25                                      | 12                                     | 5   | 4   | _       |
| 9      | 8.55 - 9.00  | 25  | -     | NP                                      | -      | SP     |   | 100                         | 95                          | 92     | 82     | 64       | 29                                      | 10                                     | 5   | 4   | -       |
| 10     | 9.55 - 10.00 | 26  | -     | NP                                      | -      | SP-SM  |   |                             | 100                         | 98     | 89     | 64       | 29                                      | 13                                     | 7   | 5   | _       |
| BH-2   |              |     |       |   |        |        |   |                             |                             |        |        |          |   |  |     |     |         |
| 1      | 0.55 - 1.00  | 47  | 57    | 32                                      | 25     | MH     |   |                             | 100                         | 98     | 95     | 86       | 78                                      | 72                                     | 69  | 67  | -       |
| 2      | 1.55 - 2.00  | 50  | 60    | 32                                      | 28     | MH     |   |                             | 100                         | 96     | 88     | 85       | 81                                      | 77                                     | 73  | 72  | -       |
| 3      | 2.55 - 3.00  | 36  | 38    | 34                                      | 4      | SC-SM  |   |                             | 100                         | 97     | 91     | 82       | 71                                      | 60                                     | 39  | 37  | -       |
| 4      | 3.55 - 4.00  | 37  | -     | NP                                      | -      | SP-SM  |   | 100                         | 98                          | 96     | 90     | 73       | 43                                      | 17                                     | 6   | 5   |         |
| 5      | 4.55 - 5.00  | 27  | -     | NP                                      | -      | SP-SM  |   |                             | 100                         | 98     | 92     | 75       | 37                                      | 15                                     | 6   | 5   | _       |
| 6      | 5.55 - 6.00  | 24  | -     | NP                                      | -      | SP-SM  |   |                             |                             | 100    | 97     | 81       | 40                                      | 18                                     | 7   | 6   | -       |
| 7      | 6.55 - 7.00  | 48  | 56    | 32                                      | 24     | MH     |   |                             |                             |        | 100    | 98       | 93                                      | 84                                     | 77  | 73  | _       |
| 8      | 7.55 - 8.00  | 23  | -     | NP                                      | -      | SP     |   |                             | 100                         | 86     | 73     | 49       | 24                                      | 12                                     | 6   | 4   | _       |
| 9      | 8.55 - 9.00  | 21  | -     | NP                                      | -      | SP     |   |                             | 100                         | 98     | 86     | 61       | 32                                      | 14                                     | 4   | 3   | _       |
| 10     | 9.55 - 10.00 | 27  | -     | NP                                      | -      | SP     |   |                             | 100                         | 98     | 86     | 61       | 32                                      | 14                                     | 4   | 3   | -       |
|        |              |     |       | *************************************** |        |        |   |                             |                             |        |        |          | *************************************** | ************************************** |     |     |         |
|        |              |     |       |   |        |        |   |                             |                             |        |        |          |   |  |     |     |         |

| *************************************** |                      |               |              |               |            |          |          |         |            |          |      |       |        |         |          |
|---|----------------------|---------------|--------------|---------------|------------|----------|----------|---------|------------|----------|------|-------|--------|---------|----------|
|   |                      |               |              |               |            |          |          |         |            |          |      |       |        |         |          |
|   |                      |               |              |               |            |          |          |         |            |          |      |       |        |         |          |
| MPLE SUBMITTED E                        | BY :                 |               |              | I             |            |          |          |         |            |          |      |       | Į      |         |          |
| Walk-in Clients                         | <b>✓</b> GPI Fie     | eld Operator  |              |               |            |          |          |         | REMA       | ARKS:    |      | * wit | h hydr | omete   | r        |
| POLIDAN                                 |                      |               |              |               |            |          |          |         |            |          |      |       |        |         |          |
| OMPUTER PRINT-OU                        | JT                   |               |              |               |            |          |          |         |            |          |      |       |        |         |          |
| By: <u>MARIA ANTC</u>                   |                      | <i>VAHAP</i>  | _            |               |            |          |          |         |            |          |      |       |        |         |          |
|   | Encoder              |               |              |               |            |          |          |         |            |          |      |       |        |         |          |
| Data Chkd by:                           | ABA / MRR            |               | _            |               |            |          |          |         | CERTIF     | IED BY:  |      |       |        |         |          |
|   | Quality Assuran      | ce            |              |               |            |          |          |         |            |          |      |       | AUTHOI | RIZED S | IGNATORY |
| Date Issued                             |                      |               | _            |               |            |          |          |         |            |          |      |       |        |         |          |
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| Client MOHRI, ARCHITECT & ASSOCIATES, INC.                               | Job Number2209-10.R1-NMC-01-1    |
|--|----------------------------------|
| Project Proposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt October 27, 2010 |
| Location Centro Oriental, Province of Albay                              | Date of Test October 27-28, 2010 |
|  |                                  |

# TEST REPORT FOR LABORATORY DETERMINATION OF WATER (MOISTURE) CONTENT OF SOIL & ROCK BY MASS ASTM D 2216 - 05

Test Method ☑ A ☐ B

BOREHOLE NO...BH-1

| SAMPLE<br>NUMBER | DEPTH (m) | WET SOIL<br>DISH (g) | DRY SOIL<br>DISH (g) | WATER<br>(g) | DISH<br>MASS (g) | DRY SOIL<br>(g) | WATER CONTENT<br>(%) | REMARKS |
|------------------|-----------|----------------------|----------------------|--------------|------------------|-----------------|----------------------|---------|
|                  |           |                      |                      | ľ            | NATURAL M        | OISTURE C       | ONTENT               |         |
| 1                | 0.55-1.00 | 93.80                | 67.75                | 26.05        | 9.66             | 58.09           | 45                   |         |
| 2                | 1.55-2.00 | 97.57                | 77.42                | 20.15        | 9.53             | 67.89           | 30                   |         |
| 3                | 2.55-3.00 | 96.30                | 78.08                | 18.22        | 9.97             | 68.11           | 27                   |         |
| 4                | 3.55-4.00 | 106.75               | 90.94                | 15.81        | 9.82             | 81.12           | 19                   |         |
| 5                | 4.55-5.00 | 111.50               | 87.10                | 24.40        | 9.97             | 77.13           | 32                   |         |
| 6                | 5.55-6.00 | 116.10               | 101.23               | 14.87        | 9.52             | 91.71           | 16                   |         |

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM Designation : D 4318 - 05, Method B

| SAMPLE | DEPTH (m)   | BLOWS | WET SOIL | DRY SOIL | WATER | DISH       | DRY SOIL | %<br>Retained  | ATTERBE | RG LIMIT | REMARKS   |
|--------|-------------|-------|----------|----------|-------|------------|----------|----------------|---------|----------|-----------|
| NUMBER | DEFIN (III) | BLOWS | DISH (g) | DISH (g) | (g)   | MASS (g)   | (g)      | on 0.425<br>mm | LL      | PL       | KLIVIARKS |
|        |             |       |          |          | LIC   | QUID LIMIT | •        |                |         |          |           |
| 5      | 4.55-5.00   | 20    | 37.64    | 30.35    | 7.29  | 10.04      | 20.31    |                | 35      |          | 35        |
| 3      | 4.55-5.00   | 20    | 37.80    | 30.46    | 7.34  | 10.00      | 20.46    |                | 35      |          | 33        |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          | ,        | PLA   | STIC LIMIT | Γ        |                |         |          |           |
| 5      | 4.55-5.00   | Р     | 22.78    | 19.47    | 3.31  | 9.49       | 9.98     |                |         | 33       | 33        |
| 3      | 4.55-5.00   | Р     | 22.80    | 19.50    | 3.30  | 9.50       | 10.00    |                |         | 33       | 33        |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |

| Uncertainty Results:     | Water Content (%)          | = ± 0.0360 Liquid Limit          | $= \pm 0.0922$    | Plastic Limit = $\pm$ 0.2017              |
|--------------------------|----------------------------|----------------------------------|-------------------|---|
| Note: The reported expan | ded uncertainty is based   | on a combined uncertainty by a c | overage factor of | f k=2, providing a level of confidence of |
| approximately 95%.       |                            |                                  |                   | LAB.FILE NO.:NMC-10-502                   |
| SAMPLE SUBMITTED BY :    |                            | REMARK                           | S:                |   |
| ☐ Walk-in Clients        | GPI Field Operator         |                                  |                   |   |
| R. POLIDAN               |                            |                                  |                   |   |
| COMPUTER PRINT-OUT       |                            |                                  |                   |   |
| By: MARIA ANTON          | IETTE P. CUNAHAP           |                                  |                   |   |
| E                        | ncoder                     | TESTED B                         | Y :               | ARTURO Q. AQUINO                          |
| Data Checked by:         | ABA/MRR  Quality Assurance |                                  |                   | LABORATORY TECHNICIAN                     |
|                          | ,                          | CERTIFIED B                      | Y :               |   |
| Date Issued:             |                            |                                  |                   | AUTHORIZED SIGNATORY                      |
|                          |                            |                                  |                   |   |

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| LABORATO<br>PNS ISO/IEC 17<br>LA-2006-0 | 7025:2005                                  |                      |                      |                   |                  | LS TESTING<br>aliches, Qu |             | ORY            |              | DPWH-E      | BRS Accredited                         |
|---|--|----------------------|----------------------|-------------------|------------------|---------------------------|-------------|----------------|--------------|-------------|--|
| Project                                 | MOHRI & PA A Proposed Mayo Centro Oriental | on Evacua            | tion Cent            |                   | gui North        | Central S                 | School)     | Date of Re     | ceipt        | . October 2 | R1-NMC-01-2<br>27, 2010<br>27-28, 2010 |
| TEST RE                                 | PORT FOR LAE                               | BORATOR'             |                      | MINATIO<br>ASTM D |                  |                           | ISTURE)     | CONTEN         | T OF SO      | IL & ROCI   | C BY MASS                              |
| BOREHOLE                                | E NOBH-1                                   |                      |                      | Method            |                  | В                         | Ι           |                | I            |             |  |
| SAMPLE<br>NUMBER                        | DEPTH (m)                                  | WET SOIL<br>DISH (g) | DRY SOIL<br>DISH (g) | WATER<br>(g)      | DISH<br>MASS (g) | DRY SOIL<br>(g)           |             | CONTENT<br>%)  |              | REMARK      | 'S                                     |
|   | 1  |                      |                      | ľ                 | NATURAL N        | ⊥<br>MOISTURE C           | CONTENT     |                |              |             |  |
| 7                                       | 6.55-7.00                                  | 106.18               | 84.64                | 21.54             | 9.68             | 74.96                     | 2           | 29             |              |             |  |
| 8                                       | 7.55-8.00                                  | 106.20               | 88.30                | 17.90             | 9.65             | 78.65                     | 2           | 23             |              |             |  |
| 9                                       | 8.55-9.00                                  | 100.58               | 82.29                | 18.29             | 9.49             | 72.80                     | 2           | 25             |              |             |  |
| 10                                      | 9.55-10.00                                 | 100.10               | 81.67                | 18.43             | 9.73             | 71.94                     | 2           | 26             |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   | TEST REPOR                                 | RT FOR L             | IQUID L              | IMIT, PI          | LASTIC           | LIMIT A                   | ND PLAS     | STICITY        | INDEX        | OF SOIL     | S                                      |
|   |  |                      | ASTM                 | Designat          | tion : D 4       | 1318 - 05                 | , Method    | В              |              |             |  |
| SAMPLE                                  | DEPTH (m)                                  | BLOWS                |                      | DRY SOIL          | WATER            | DISH                      | DRY SOIL    |                | ATTERB       | ERG LIMIT   | REMARKS                                |
| NUMBER                                  | DEI III (III)                              | BLOWS                | DISH (g)             | DISH (g)          | (g)              | MASS (g)                  | (g)         | on 0.425<br>mm | LL           | PL          | REWARKS                                |
|   | I.   |                      |                      |                   | LIC              | QUID LIMIT                |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   | PL/              | ASTIC LIMIT               | Γ           |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
|   |  |                      |                      |                   |                  |                           |             |                |              |             |  |
| Uncertainty                             |  |                      | itent (%) =          |                   |                  | quid Limit =              |             |                | stic Limit = |             | idonoo of                              |
| approximate                             | eported expanded                           | uncertainty          | is based on          | a combine         | u uncertair      | ity by a cov              | erage racio | οι οι κ=2, ρι  | _            |             |  |
|   | BMITTED BY :                               |                      |                      |                   |                  | REMARKS:                  |             |                |              | LAD.FILE IN | D.:NMC-10-502                          |
| Walk-in                                 |  | GPI Field Op         | erator               |                   |                  | KLIVIAKKS:                |             |                |              |             |  |
| R. POLIDAN                              |  | <b>F</b>             |                      |                   |                  |                           |             |                |              |             |  |
| COMPUTER                                |  |                      |                      | =                 |                  |                           |             |                |              |             |  |
|   | MARIA ANTONIETT                            | E P. CUNAH           | IAP                  |                   |                  |                           |             |                |              |             |  |
|   | Encod                                      | der                  |                      |                   | Т                | ESTED BY :                |             | AF             | RTURO Q. A   | AQUINO      |  |
| Data Chock                              | kad hu:                                    | DΛ/MDD               |                      |                   |                  |                           | -           |                | RATORY T     | ECHNICIAN   |  |

Data Checked by:
ABA/MRR
Quality Assurance

Date Issued: \_\_

CERTIFIED BY :

AUTHORIZED SIGNATORY







| LA-2006-097B         | N. A.                             | DPWH-BRS Accredited                                    |
|----------------------|-----------------------------------|--|
| Client MOHRI, A      | RCHITECT & ASSOCIATES, INC.       | Job Number2209-10.R1-NMC-02-1                          |
| Project Proposed I   | Mayon Evacuation Center (Polangui | lorth Central School) Date of Receipt October 27, 2010 |
| Location Centro Orie | ental, Province of Albay          | Date of Test October 27-28, 2010                       |
| TEST REPORT FOR      | LABORATORY DETERMINATION O        | WATER (MOISTURE) CONTENT OF SOIL & ROCK BY MASS        |

Test Method ✓ A ☐ B

BOREHOLE NO...BH-2

| DOTTETTOEL       | . NOBi 1-2 |                      |                      |              |                  |                 |                      |         |
|------------------|------------|----------------------|----------------------|--------------|------------------|-----------------|----------------------|---------|
| SAMPLE<br>NUMBER | DEPTH (m)  | WET SOIL<br>DISH (g) | DRY SOIL<br>DISH (g) | WATER<br>(g) | DISH<br>MASS (g) | DRY SOIL<br>(g) | WATER CONTENT<br>(%) | REMARKS |
|                  |            |                      |                      | 1            | NATURAL M        | OISTURE C       | ONTENT               |         |
| 1                | 0.55-1.00  | 109.70               | 77.86                | 31.84        | 9.84             | 68.02           | 47                   |         |
| 2                | 1.55-2.00  | 93.90                | 65.88                | 28.02        | 9.65             | 56.23           | 50                   |         |
| 3                | 2.55-3.00  | 121.90               | 92.02                | 29.88        | 9.54             | 82.48           | 36                   |         |
| 4                | 3.55-4.00  | 89.34                | 67.97                | 21.37        | 9.86             | 58.11           | 37                   |         |
| 5                | 4.55-5.00  | 106.50               | 85.81                | 20.69        | 9.51             | 76.30           | 27                   |         |
| 6                | 5.55-6.00  | 99.60                | 82.43                | 17.17        | 9.59             | 72.84           | 24                   |         |

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM Designation : D 4318 - 05, Method B

| SAMPLE | DEPTH (m)   | BLOWS | WET SOIL | DRY SOIL | WATER | DISH       | DRY SOIL | %<br>Retained  | ATTERBE | RG LIMIT | REMARKS   |
|--------|-------------|-------|----------|----------|-------|------------|----------|----------------|---------|----------|-----------|
| NUMBER | DEFIN (III) | BLOWS | DISH (g) | DISH (g) | (g)   | MASS (g)   | (g)      | on 0.425<br>mm | LL      | PL       | KLIVIARKS |
|        |             |       |          |          | LIC   | QUID LIMIT | -        |                |         |          |           |
| 3      | 2.55-3.00   | 20    | 38.10    | 30.25    | 7.85  | 10.10      | 20.15    |                | 38      |          | 38        |
| 3      | 2.33-3.00   | 20    | 37.94    | 30.14    | 7.80  | 10.08      | 20.06    |                | 38      |          | 30        |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          | ,        | PLA   | STIC LIMIT | Γ        |                |         |          |           |
| 3      | 2.55-3.00   | Р     | 22.78    | 19.45    | 3.33  | 9.56       | 9.89     |                |         | 34       | 34        |
| 3      | 2.33-3.00   | Р     | 22.81    | 19.45    | 3.36  | 9.55       | 9.90     |                |         | 34       | 34        |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |
|        |             |       |          |          |       |            |          |                |         |          |           |

| Uncertainty Results: Water Co           | ontent (%) = ± 0.0380       | Liquid Limit = ± 0.0932       | Plastic Limit = ± 0.2038                     |
|---|-----------------------------|-------------------------------|--|
| Note: The reported expanded uncertainty | y is based on a combined un | certainty by a coverage facto | r of k=2, providing a level of confidence of |
| approximately 95%.                      |                             |                               | LAB.FILE NO.:NMC-10-503                      |
| SAMPLE SUBMITTED BY :                   |                             | REMARKS:                      |  |
| Walk-in Clients ✓ GPI Field O           | perator                     |                               |  |
| R. POLIDAN                              |                             |                               |  |
| COMPUTER PRINT-OUT                      |                             |                               |  |
| By: MARIA ANTONIETTE P. CUNA            | NHAP                        |                               |  |
| Encoder                                 |                             | TESTED BY :                   | ARTURO Q. AQUINO                             |
| Data Checked by: ABA/MRR                |                             |                               | LABORATORY TECHNICIAN                        |
| Quality Assur                           | ance                        | CERTIFIED BY :                |  |
| Date Issued:                            |                             |                               | AUTHORIZED SIGNATORY                         |

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| Client MOHRI, ARCHITECT & ASSOCIATES, INC.                               | Job Number      | 2209-10.R1-AL-01-1  |
|--|-----------------|---------------------|
| Project Proposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010    |
| Location Centro Oriental, Province of Albay                              | Date of Test    | October 28-29, 2010 |

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM D 4318 - 05

**Method**: **A** ✓ Wet Preparation □ Dry Preparation

| BOREHOLE NO          | BH-1       |            | DEPTH (m) | )       | 0.55-1.00 |       |      | SOIL DESCRI  | PTION      |          |      |     |
|----------------------|------------|------------|-----------|---------|-----------|-------|------|--------------|------------|----------|------|-----|
| SAMPLE NO            | S-1        |            | USCS CLAS | S       | MH        |       |      | Elastic SILT |            |          |      |     |
| MOISTURE CONTENT     | L          | IQUID LIMI | Т         | PLASTI  | C LIMIT   |       | 65 - |              |            |          |      |     |
| <u>DETERMINATION</u> | TRIAL 1    | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   | (     | 64 - | ``           |            |          |      |     |
| DISH NUMBER          | <b>A</b> 2 | A37        | A82       | B32     | B98       | (%)   | 63 - |              |            |          |      |     |
| WET SOIL + DISH (g)  | 32.75      | 35.28      | 38.40     | 22.71   | 22.74     | tent  | 62 - | `            | $\sqrt{}$  |          |      |     |
| DRY SOIL + DISH (g)  | 24.27      | 25.59      | 27.24     | 19.52   | 19.54     | Con   | 61 - |              | •          |          |      |     |
| WATER (g)            | 8.48       | 9.69       | 11.16     | 3.19    | 3.20      | are   | 60 - |              | \ <b>x</b> |          |      |     |
| DISH MASS (g)        | 9.64       | 9.70       | 9.80      | 9.53    | 9.54      | Moist | 59 - |              | '\         |          |      |     |
| DRY SOIL (g)         | 14.63      | 15.89      | 17.44     | 9.99    | 10.00     | Ž     | 58 - |              |            |          |      |     |
| MOISTURE CONTENT     | 57.96      | 60.98      | 63.99     | 31.93   | 32.00     |       | 57 - |              |            |          |      |     |
| NUMBER OF BLOWS      | 31         | 22         | 15        | 3       | 2         |       | 1    | 0            | No.        | of Blows |      | 100 |
| % RETAINED ON 0.425  | 5mm        |            |           |         | 12.48     |       | LL = | 60           | PL =       | 32       | PI = | 28  |

| BOREHOLE NO           |              |         | DEPTH (m)     |         |         | SOIL DESCRIPTION |      |            |      |  |     |
|-----------------------|--------------|---------|---------------|---------|---------|------------------|------|------------|------|--|-----|
| SAMPLE NO             | •••          |         | USCS CLAS     | SS      |         |                  |      |            |      |  |     |
| MOISTURE CONTENT      | LIQUID LIMIT |         | PLASTIC LIMIT |         | 2       |                  |      |            |      |  |     |
| DETERMINATION         | TRIAL 1      | TRIAL 2 | TRIAL 3       | TRIAL 1 | TRIAL 2 | (                |      |            |      |  |     |
| DISH NUMBER           |              |         |               |         |         | t (%)            |      |            |      |  |     |
| WET SOIL + DISH (g)   |              |         |               |         |         | Content          |      |            |      |  |     |
| DRY SOIL + DISH (g)   |              |         |               |         |         |                  | -    |            |      |  |     |
| WATER (g)             |              |         |               |         |         | ture             |      |            |      |  |     |
| DISH MASS (g)         |              |         |               |         |         | Moistur          |      |            |      |  |     |
| DRY SOIL (g)          |              |         |               |         |         | _                |      |            |      |  |     |
| MOISTURE CONTENT      |              |         |               |         |         | 0                | 10   | No of Di   |      |  | 100 |
| NUMBER OF BLOWS       |              |         |               |         |         |                  | 10   | No. of Blo | ows  |  | 100 |
| % RETAINED ON 0.425mm |              |         |               |         | LL      | =                | PL = |            | PI = |  |     |

| Uncertainty Results: I                           | Liquid Limit = $\pm 0.1355$             | Plastic Limit = $\pm 0.2008$                   |  |  |
|--|---|--|--|--|
| II   | Liquid Limit =                          | Plastic Limit =                                |  |  |
| Note: The reported expanded uncertainty is based | on a combined uncertainty by a coverage | factor of k=2, providing a level of confidence |  |  |
| of approximately 95%.                            |   | LAB.FILE NO.:AL-10-650                         |  |  |
| SAMPLE SUBMITTED BY :                            | REMARKS:                                |  |  |  |
| ☐ Walk-in Clients                                |   |  |  |  |
| R. POLIDAN                                       |   |  |  |  |
| COMPUTER PRINT-OUT                               |   |  |  |  |
| By: MARIA ANTONIETTE P. CUNAHAP                  |   |  |  |  |
| Encoder  | TESTED BY :                             | ARTURO Q. AQUINO                               |  |  |
| Data Checked by: ABA / MRR                       |   | LABORATORY TECHNICIAN                          |  |  |
| Quality Assurance                                |   |  |  |  |
| ,  | CERTIFIED BY :                          |  |  |  |
| Date Issued:                                     |   | AUTHORIZED SIGNATORY                           |  |  |
|  |   |  |  |  |

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| Client MOHRI, ARCHITECT & ASSOCIATES, INC.                               | Job Number      | 2209-10.R1-AL-02-1  |
|--|-----------------|---------------------|
| Project Proposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010    |
| Location Centro Oriental, Province of Albay                              | Date of Test    | October 29-30, 2010 |

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM D 4318 - 05

**Method**: **A** ✓ Wet Preparation □ Dry Preparation

| BOREHOLE NO          | BH-2    |            | DEPTH (m) | )       | 0.55-1.00 |         | 5               | SOIL DESCRI  | PTION       |          |      |     |  |  |  |
|----------------------|---------|------------|-----------|---------|-----------|---------|-----------------|--------------|-------------|----------|------|-----|--|--|--|
| SAMPLE NO            | S-1     |            | USCS CLAS | S       | МН        |         | E               | Elastic SILT |             |          |      |     |  |  |  |
| MOISTURE CONTENT     | L       | IQUID LIMI | Т         | PLASTI  | C LIMIT   |         | 61 <sub>T</sub> |              |             |          |      |     |  |  |  |
| <u>DETERMINATION</u> | TRIAL 1 | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   | _       | 60 -            | `            |             |          |      |     |  |  |  |
| DISH NUMBER          | A43     | A68        | A14       | B75     | B25       | %       | 59 -            |              |             |          |      |     |  |  |  |
| WET SOIL + DISH (g)  | 32.44   | 35.27      | 38.18     | 22.58   | 22.61     | Content | 58 -            | `            | $\setminus$ |          |      |     |  |  |  |
| DRY SOIL + DISH (g)  | 24.33   | 25.94      | 27.55     | 19.38   | 19.39     | Con     |                 |              | •           |          |      |     |  |  |  |
| WATER (g)            | 8.11    | 9.33       | 10.63     | 3.20    | 3.22      | nre     | 57 -            |              | X           |          |      |     |  |  |  |
| DISH MASS (g)        | 9.60    | 9.72       | 9.85      | 9.39    | 9.38      | Moist   | 56 -            |              |             |          |      |     |  |  |  |
| DRY SOIL (g)         | 14.73   | 16.22      | 17.70     | 9.99    | 10.01     | Š       | 55 -            |              |             |          |      |     |  |  |  |
| MOISTURE CONTENT     | 55.06   | 57.52      | 60.06     | 32.03   | 32.17     |         | 54              |              |             |          |      | Ш   |  |  |  |
| NUMBER OF BLOWS      | 31      | 22         | 15        | 3       | 2         |         | 10              | )            | No.         | of Blows |      | 100 |  |  |  |
| % RETAINED ON 0.425  | 5mm     |            |           |         | 21.55     |         | LL =            | 57           | PL =        | 32       | PI = | 24  |  |  |  |

| BOREHOLE NO          | BH-2          |            | DEPTH (m) | )       | 1.55-2.00 |       | S               | OIL DESCR   | RIPTION |          |      |        |
|----------------------|---------------|------------|-----------|---------|-----------|-------|-----------------|-------------|---------|----------|------|--------|
| SAMPLE NO            | SAMPLE NO S-2 |            |           | S       | МН        |       | El              | lastic SILT |         |          |      |        |
| MOISTURE CONTENT     | L             | IQUID LIMI | Т         | PLASTI  | C LIMIT   |       | 65 <sub>T</sub> |             |         |          |      | $\neg$ |
| <u>DETERMINATION</u> | TRIAL 1       | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   |       | 64 -            | •           |         |          |      |        |
| DISH NUMBER          | B17           | B24        | B90       | A48     | A32       | %     | 63 -            | \           |         |          |      |        |
| WET SOIL + DISH (g)  | 32.52         | 35.40      | 38.34     | 22.68   | 22.74     | tent  | 62 -            |             |         |          |      |        |
| DRY SOIL + DISH (g)  | 24.12         | 25.67      | 27.21     | 19.51   | 19.56     | S     | 61 -            |             | •       |          |      |        |
| WATER (g)            | 8.40          | 9.73       | 11.13     | 3.17    | 3.18      | iure  | 60 -            |             | ×       |          |      |        |
| DISH MASS (g)        | 9.63          | 9.72       | 9.83      | 9.48    | 9.55      | Moist | 59 -            |             | \       | 1        |      |        |
| DRY SOIL (g)         | 14.49         | 15.95      | 17.38     | 10.03   | 10.01     | 2     | 58 -            |             |         |          |      |        |
| MOISTURE CONTENT     | 57.97         | 61.00      | 64.04     | 31.61   | 31.77     |       | 57 <del> </del> |             |         |          |      |        |
| NUMBER OF BLOWS      | 31            | 22         | 15        | 3       | 2         |       | 10              | )           | No.     | of Blows |      | 100    |
| % RETAINED ON 0.42   | 5mm           |            |           |         | 18.94     | I     | _L =            | 60          | PL =    | 32       | PI = | 28     |

| Liquid Limit = ± 0.1346               | Plastic Limit = ± 0.2008                          |
|---------------------------------------|---|
| Liquid Limit = $\pm 0.1368$           | Plastic Limit = $\pm$ 0.1998                      |
| n a combined uncertainty by a coverag | ge factor of k=2, providing a level of confidence |
|                                       | LAB.FILE NO.:AL-10-651                            |
| REMARKS:                              |   |
|                                       |   |
|                                       |   |
| TESTED BY :                           | ARTURO Q. AQUINO                                  |
| -                                     | LABORATORY TECHNICIAN                             |
| CERTIFIED BY : _                      | AUTHORIZED SIGNATORY                              |
|                                       | REMARKS: TESTED BY :                              |

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Rev.5/ Dec.2009

| Client MOHRI, ARCHITECT & ASSOCIATES, INC.                               | Job Number      | 2209-10.R1-AL-02-2  |
|--|-----------------|---------------------|
| Project Proposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010    |
| Location Centro Oriental, Province of Albay                              | Date of Test    | October 29-30, 2010 |

# TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS ASTM D 4318 - 05

**Method**: **A** ✓ Wet Preparation □ Dry Preparation

| BOREHOLE NO          | BH-2    |            | DEPTH (m) | )       | 6.55-7.00 |       | 5    | SOIL DESCRI  | PTION       |          |      |     |
|----------------------|---------|------------|-----------|---------|-----------|-------|------|--------------|-------------|----------|------|-----|
| SAMPLE NO            | S-7     |            | USCS CLAS | S       | МН        |       | E    | Elastic SILT |             |          |      |     |
| MOISTURE CONTENT     | L       | IQUID LIMI | Т         | PLASTI  | C LIMIT   |       | 61 — |              |             |          |      |     |
| <u>DETERMINATION</u> | TRIAL 1 | TRIAL 2    | TRIAL 3   | TRIAL 1 | TRIAL 2   | _     | 60 - | ``           |             |          |      |     |
| DISH NUMBER          | B52     | B21        | B63       | C85     | C57       | %     | 59 - |              |             |          |      |     |
| WET SOIL + DISH (g)  | 32.70   | 35.49      | 38.50     | 22.67   | 22.71     | tent  | 58 - |              | $\setminus$ |          |      |     |
| DRY SOIL + DISH (g)  | 24.61   | 26.12      | 27.74     | 19.47   | 19.49     | Con   | 57 - |              | •           |          |      |     |
| WATER (g)            | 8.09    | 9.37       | 10.76     | 3.20    | 3.22      | a.    | 56 - |              | ×           |          |      |     |
| DISH MASS (g)        | 9.63    | 9.70       | 9.82      | 9.52    | 9.54      | Moist | 55 - |              | \           |          |      |     |
| DRY SOIL (g)         | 14.98   | 16.42      | 17.92     | 9.95    | 9.95      | Š     | 54 - |              |             |          |      |     |
| MOISTURE CONTENT     | 54.01   | 57.06      | 60.04     | 32.16   | 32.36     |       | 53   |              |             |          |      | Ш   |
| NUMBER OF BLOWS 32   |         | 22         | 15        | 3       | 2         |       | 10   | )            | No.         | of Blows |      | 100 |
| % RETAINED ON 0.425  | 5mm     |            |           |         | 7.28      |       | LL = | 56           | PL =        | 32       | PI = | 24  |

| BOREHOLE NO                           |     |                             | DEPTH (m)    | )                 |                    | SOIL DESCRIPTION |    |          |      |      |     |  |
|---------------------------------------|-----|-----------------------------|--------------|-------------------|--------------------|------------------|----|----------|------|------|-----|--|
| SAMPLE NO                             | ••  |                             | USCS CLAS    | SS                |                    |                  |    |          |      |      |     |  |
| MOISTURE CONTENT <u>DETERMINATION</u> |     | QUID LIMI<br><u>TRIAL 2</u> | T<br>TRIAL 3 | PLASTI<br>TRIAL 1 | C LIMIT<br>TRIAL 2 | 2                |    |          |      |      |     |  |
| DISH NUMBER                           |     |                             |              |                   |                    | (%) 1            |    |          |      |      |     |  |
| WET SOIL + DISH (g)                   |     |                             |              |                   |                    | Content<br>1     |    |          |      |      |     |  |
| DRY SOIL + DISH (g)                   | 107 |                             |              |                   |                    | U 1              | -  |          |      |      |     |  |
| WATER (g)                             |     |                             |              |                   |                    | ture             |    |          |      |      |     |  |
| DISH MASS (g)                         |     |                             |              |                   |                    | Moistu           |    |          |      |      |     |  |
| DRY SOIL (g)                          |     |                             |              |                   |                    | 2                |    |          |      |      |     |  |
| MOISTURE CONTENT                      |     |                             |              |                   |                    | 0                | +  |          |      |      |     |  |
| NUMBER OF BLOWS                       |     |                             |              |                   |                    |                  | 10 | No. of B | lows |      | 100 |  |
| % RETAINED ON 0.425                   | 5mm |                             |              |                   |                    | LL :             | =. | PL =     |      | PI = |     |  |

| Uncertainty Results: I                           | Liquid Limit = $\pm 0.1330$             | Plastic Limit = $\pm$ 0.2017                   |
|--|---|--|
| II   | Liquid Limit =                          | Plastic Limit =                                |
| Note: The reported expanded uncertainty is based | on a combined uncertainty by a coverage | factor of k=2, providing a level of confidence |
| of approximately 95%.                            |   | LAB.FILE NO.:AL-10-652                         |
| SAMPLE SUBMITTED BY :                            | REMARKS:                                |  |
| ☐ Walk-in Clients ☐ GPI Field Operator           |   |  |
| R. POLIDAN                                       |   |  |
| COMPUTER PRINT-OUT                               |   |  |
| By:MARIA ANTONIETTE P. CUNAHAP                   |   |  |
| Encoder  | TESTED BY :                             | ARTURO Q. AQUINO                               |
| Data Checked by: ABA / MRR                       |   | LABORATORY TECHNICIAN                          |
| Quality Assurance                                | —                                       |  |
| ,  | CERTIFIED BY :                          |  |
| Date Issued:                                     |   | AUTHORIZED SIGNATORY                           |
|  |   |  |

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Final Report Form - 2







| 2.2000 00.2   |                 | DI WII BITO MOGICATION |
|---|-----------------|------------------------|
| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                               | Job Number      | . 2209-10.R1-GSA-01-1  |
| ProjectProposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010       |
| Location Centro Oriental, Province of Albay                             | Date of Test    | October 28, 2010       |

| BH / SAMPLE NO         BH-1         0 1           DEPTH (m)         0.55-1.00           SOIL DESCRIPTION         Elastic SILT           SIEVE SIZE         Cumm.Mass         Cumm.% |                     |                          |          |                          |   | ☐ <u>2</u><br>1.55-2.00<br>Silty SAND |                      |                               | △ 3<br>2.55-3.00<br>Poorly graded SAND |                 |              |  |  |
|---|---------------------|--------------------------|----------|--------------------------|---|---------------------------------------|----------------------|-------------------------------|--|-----------------|--------------|--|--|
| SIEVE   | SIZE                | Cumm.Mass                | Cumm.%   | Percent                  | Cumm.Mass   | s Cumm.%                              | Percent              | Cumm.N                        | Mass                                   | Cumm.%          | Percent      |  |  |
| inches  | <u>mm</u>           | Retained (g)             | Retained | <u>Finer</u>             | Retained (g                                       | <u>Retained</u>                       | <u>Finer</u>         | Retained                      | d (g)                                  | Retained        | <u>Finer</u> |  |  |
| 2 1/2   | 62.5                |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| 2   | 50.0                |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| 1 1/2   | 37.5                |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| 1   | 25.0                |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| 3/4   | 19.0                |                          |          |                          |   |                                       |                      |                               |  |                 | 100          |  |  |
| 3/8   | 9.5                 |                          |          | 100                      |   |                                       | 100                  | 8.95                          | 5                                      | 13.14           | 87           |  |  |
| 4   | 4.75                | 1.33                     | 2.29     | 98                       | 3.64  | 5.36                                  | 95                   | 14.80                         |  | 21.73           | 78           |  |  |
| 10  | 2.0                 | 2.03                     | 3.49     | 97                       | 13.08   | 19.27                                 | 81                   | 24.60                         |  | 36.12           | 64           |  |  |
| 20  | 0.8                 | 4.22                     | 7.26     | 93                       | 26.71   | 39.34                                 | 61                   | 37.70                         |  | 55.35           | 45           |  |  |
| 40  | 0.425               | 7.25                     | 12.48    | 88                       | 38.38   | 56.53                                 | 43                   | 51.4                          |  | 75.58           | 24           |  |  |
| 60  | 0.25                | 9.98                     | 17.18    | 83                       | 46.11   | 67.92                                 | 32                   | 61.19                         |  | 89.84           | 10           |  |  |
| 140   | 0.23                | 13.08                    | 22.52    | 77                       | 50.79   | 74.81                                 | 25                   | 65.80                         |  | 96.61           | 3            |  |  |
| 200   | 0.105               | 14.10                    | 24.27    | 7 <i>7</i><br>76         | 51.52   | 74.61<br>75.89                        | 25<br>24             | 66.2                          |  | 97.30           | 3            |  |  |
|   | IED MASS            |                          |          | 70                       | 51.52   | 67.89 gms                             | 24                   | 00.2                          |  |                 | 3            |  |  |
| OVEN DR   | ****** ****** ***** | MASS 58.09 gms           |          |                          | #20   |                                       | #200                 | HV D D                        |  | 68.11 gms METER |              |  |  |
| 100 +   |                     |                          | * O      | #10                      | # #   | # F                                   | *                    | HYDR                          | ОМ                                     | EIEK            |              |  |  |
| 90 +  |                     |                          |          |                          | 9   |                                       |                      |                               |  |                 |              |  |  |
|   |                     | <b>*</b>                 |          | $\searrow$               |   | <b>√</b>                              |                      |                               |  |                 |              |  |  |
| 80 +  |                     |                          | *        | 1                        |   |                                       | Ż                    |                               |  |                 |              |  |  |
| 70 +  |                     |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| Percent Passing   |                     | 1 1 1                    |          | $\xrightarrow{\uparrow}$ |   |                                       |                      |                               |  |                 |              |  |  |
| ) as  |                     | : : : ::                 |          |                          | N   :   | 1:1 :11                               |                      |                               |  |                 |              |  |  |
| 늘 50 十  |                     | : : :                    |          |                          |   |                                       | :                    |                               | +++                                    |                 |              |  |  |
| 90<br>40 ↓  |                     |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
|   |                     |                          | i        |                          |   |                                       |                      |                               |  |                 |              |  |  |
| 30 +  |                     | : : :                    | 1111     |                          | <b>     </b>                                      |                                       | <u>:</u>             |                               | 1111                                   |                 |              |  |  |
| 20 📙  |                     |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| 20  |                     |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| 10 +  |                     | <del>:  :  :  :</del>    | 1        |                          | <del>                                      </del> | *                                     | :                    |                               | ++++                                   |                 |              |  |  |
| 0 ⊥   | COARSI              | FINE                     | COARS    | SE   MED                 | IUM   | FINE                                  | <u> </u>             |                               |  |                 |              |  |  |
| 100<br>COBBLES  |                     | 10<br>GRAVEL             |          |                          | 1 Particle S<br>SAND                              | Size (mm) 0.1                         |                      |                               | ).01<br>SILT (                         | OR CLAY)        | 0.0          |  |  |
| - with H  | Hydrometer          |                          |          |                          |   | REMARKS                               | S-3:                 | Cu =                          | 6.64                                   | Cc =            | 0.61         |  |  |
| MPLE SUE  | BMITTED BY:         |                          |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| ] Walk-in   | Clients 🔽           | GPI Field Opera          | ator     |                          |   |                                       |                      |                               |  |                 |              |  |  |
| POLIDAN   |                     | or resid opera           |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
|   |                     |                          |          | _                        |   | TESTED BY :                           |                      | ΔRTI                          | IRO O                                  | . AQUINO        |              |  |  |
|   | PRINT-OUT           | MUETTE D. OUI            | IALIAD   |                          |   | TESTED DI .                           |                      |                               |  | TECHNICIAN      |              |  |  |
| <i>By:</i>  |                     | NIETTE P. CUN            | IAHAP    |                          |   |                                       |                      | LABUKA                        | IOKY                                   | ICUTIVICIAN     |              |  |  |
|   | l                   | Encoder                  |          |                          |   |                                       |                      |                               |  |                 |              |  |  |
| Data Char   | kad bu              | V D V /V / D D           |          |                          |   | CERTIFIED BY                          |                      |                               |  |                 |              |  |  |
| лата Спест  | кей by:             | ABA/MRR<br>Quality Assur |          |                          |   |                                       | AUTHORIZED SIGNATORY |                               |  |                 |              |  |  |
|   |                     |                          |          |                          |   |                                       |                      | 0.0503 LAB.FILE NO.:GSA-10-40 |  |                 |              |  |  |

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factor of k=2, providing a level of confidence of approximately 95%.







| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                               | Job Number      | . 2209-10.R1-GSA-01-2 |
|---|-----------------|-----------------------|
| ProjectProposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010      |
| Location Centro Oriental, Province of Albay                             | Date of Test    | October 28, 2010      |

|                 |   | LE NO       | <u>BH-1</u>   | O <u>4</u><br>3.55-4.00 |               |             | •           | □ <u>5</u><br>4.55-5.00 |              | ·            |            |          | <b>△</b> 5.55- |        |             |            |
|-----------------|---|-------------|---------------|-------------------------|---------------|-------------|-------------|-------------------------|--------------|--------------|------------|----------|----------------|--------|-------------|------------|
|                 |   | RIPTION     | Poo           | rly graded SAND         |               |             |             | Silty SAND              |              |              |            | Poorly ( |                |        | vith silt   |            |
|                 | SIEVI                                       | E SIZE      | Cumm.Mass     |                         | Percent       | Cumi        | m.Mass      |                         | ,<br>o       | Percent      | Cumm.      |          |                | nm.%   |             |            |
| inc             | hes   | <u>mm</u>   | Retained (g)  |                         | <u>Finer</u>  |             | ined (g)    |                         |              | <u>Finer</u> | Retaine    | ed (g)   |                | ained  | Percent Fi  | <u>ner</u> |
| 2 1             | 1/2   | 62.5        |               |                         |               |             |             |                         |              |              |            |          |                |        |             |            |
| 1               | 2   | 50.0        |               |                         |               |             |             |                         |              |              |            |          |                |        |             |            |
| 1 1             | 1/2   | 37.5        |               |                         |               |             |             |                         |              |              |            |          |                |        |             |            |
| -               | 1   | 25.0        |               |                         |               |             |             |                         |              |              |            |          |                |        |             |            |
| 3,              | /4  | 19.0        |               |                         | 100           |             |             |                         |              |              |            |          |                |        | 100         |            |
| 3,              | /8  | 9.5         | 7.71          | 9.50                    | 90            |             |             |                         |              |              | 5.5        | 1        | 6.             | .01    | 94          |            |
| 4               | 4   | 4.75        | 16.71         | 20.60                   | 79            | 0           | ).16        | 0.21                    |              | 100          | 14.5       | 54       | 15             | .85    | 84          |            |
| 1               | 10  | 2.0         | 26.91         | 33.17                   | 67            | 1           | .00         | 1.30                    |              | 99           | 23.3       | 30       | 25             | .41    | 75          |            |
| 2               | 20  | 0.8         | 43.29         | 53.37                   | 47            | 6           | .68         | 8.66                    |              | 91           | 44.0       |          |                | 3.00   | 52          |            |
| 4               | 10  | 0.425       | 63.22         | 77.93                   | 22            |             | 1.73        | 28.17                   |              | 72           | 71.2       |          | 77             | .72    | 22          |            |
| 6               | 50  | 0.25        | 73.25         | 90.30                   | 10            |             | 3.98        | 44.06                   |              | 56           | 80.5       |          |                | .80    | 12          |            |
|                 | 40  | 0.105       | 78.10         | 96.28                   | 4             |             | 1.07        | 66.21                   |              | 34           | 85.5       |          |                | 3.23   | 7           |            |
| 20              | 00  | 0.075       | 78.82         | 97.16                   | 3             | 52          | 2.20        | 67.68                   |              | 32           | 86.5       | 57       | 94             | .40    | 6           |            |
| OVI             | OVEN DRIED MASS                             |             | t t           | 81.12 gms               | f3.           |             | (0000       | 77.13 gms               |              |              |            |          | 91.71          | gms    |             |            |
|                 | 2 1/2 2 1/2 2 1/2 1 1 1/2 1 1 1/2           |             |               | #                       | #10           | #20         | #40         | #60                     | #200         |              | HYDR       | ОМ       | ETE            | R      |             |            |
| '               | 100   |             |               |                         | Ψ_            |             |             |                         |              |              |            |          |                |        |             |            |
|                 | 90 +  | 1 1 1       |               |                         |               | T.          | 1           | 1                       | ++           |              |            |          |                |        |             |            |
|                 |   |             |               |                         |               | :   N       |             |                         |              |              |            |          |                |        |             |            |
|                 | 80 +  |             |               |                         | $\overline{}$ |             | /:          | 1                       |              |              |            |          |                |        |             |            |
|                 | 70 \  |             |               |                         |               | 1:11        | <u> </u>    |                         | 11:1         |              |            | -        |                |        |             |            |
| p               |   |             |               |                         | <b>Q</b> \    |             | :  \        |                         |              |              |            |          |                |        |             |            |
| Percent Passing | 60 +  |             | : : :         |                         | $\rightarrow$ |             | -           | 14                      | +++          |              |            |          |                |        |             |            |
| Ра              | 50 +  |             |               |                         | \             |             |             |                         |              |              |            |          |                |        |             |            |
| ent             |   |             |               |                         |               | $ \nabla $  |             |                         |              |              |            |          |                |        |             |            |
| )<br>erc        | 40 +  |             |               |                         |               | ++          | ++-         |                         |              |              |            |          |                |        |             |            |
| _               | 30 +  |             |               |                         |               |             |             |                         | 1-0          |              |            |          |                |        |             |            |
|                 | 30  |             |               | 1 1                     |               |             | <b>\</b>    | 1 1                     |              |              |            |          |                |        |             |            |
|                 | 20 +  |             |               | :                       |               |             | <b>*</b>    |                         |              |              |            |          |                |        |             |            |
|                 | 10 +  |             |               | i                       |               |             |             | XXX                     |              |              |            |          |                |        |             |            |
|                 | 0   |             |               |                         |               |             |             |                         | <del>}</del> |              |            |          |                |        |             |            |
|                 | 10  | COARS<br>0  | E FINE        |                         |               | IUM<br>1 Pa | article S   | FINE<br>Size (mm) 0     | 0.1          |              |            | 0.01     |                |        | 0.00        | 01         |
| COB             | BLES  |             | GRAVEL        |                         |               | SAND        |             | - (                     |              |              | FINES      |          | OR CL          | AY)    |             |            |
| * -             | with I                                      | Hydrometer  |               |                         |               |             |             | REMARK                  | (S:_         | S-4:         | Cu =       | 5.68     |                | Cc =   | 0.74        |            |
|                 |   | BMITTED BY: |               |                         |               |             |             |                         | _            | S-6:         | Cu =       | 5.57     |                | Cc =   | 1.19        |            |
| ☐ Wa            | alk-in                                      | Clients <   | GPI Field Ope | rator                   |               |             |             |                         | _            |              |            |          |                |        |             |            |
| R. POL          | LIDAN                                       | J           |               |                         | =             |             |             |                         |              |              |            |          |                |        |             |            |
| COMPL           | UTER  | PRINT-OUT   |               |                         |               |             |             | TESTED BY               | ': _         |              | ART        | TURO C   | ). AQU         | JINO   |             |            |
| By:             |   |             | ONIETTE P. CL | JNAHAP                  |               |             |             |                         |              |              | LABOR      | ATORY    | TECH           | INICIA | N           |            |
|                 |   |             | Encoder       |                         |               |             |             |                         |              |              |            |          |                |        |             |            |
| Data            | Chec  | rked hv     |               |                         |               |             | CERTIFIED B | BY : _                  |              |              |            |          |                |        |             |            |
| Data            | Data Checked by: ABA/MRR  Quality Assurance |             |               |                         |               |             |             |                         |              |              | AUTH       | ORIZED   |                |        |             |            |
|                 | Ç   |             |               |                         |               | y Resu      | lts:        | % Finer                 | _ ±          | 0.0422       |            |          | LAB.F          | ILE N  | O.:GSA-10-4 | 404        |
| Date            | Issue                                       | ed:         |               |                         |               |             |             | anded uncert            |              |              |            |          | uncer          | tainty | by a covera | age        |
|                 |   |             |               |                         | factor of k   | =2, pro     | oviding     | a level of con          | ifiden       | ce of app    | roximately | 95%.     |                |        |             |            |

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## GEOTECHNICS PHILIPPINES, INC.

SOILS AND MATERIALS TESTING LABORATORY 119 Sauyo Road, Novaliches, Quezon City



| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                                | Job Number      | . 2209-10.R1-GSA-01-3 |
|--|-----------------|-----------------------|
| Project Proposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010      |
| Location Centro Oriental, Province of Albay                              | Date of Test    | October 28, 2010      |

# TEST REPORT FOR GRAIN SIZE ANALYSIS ASTM D 422 - 63 (Re-approved 2007)

|                    | SAMPLE NO                          |                           | <u>0 7</u>                              |                  | ·  | <u> </u>                  | <u>∆</u> <u>9</u><br>8.55-9.00 |                                 |                    |               |
|--------------------|------------------------------------|---------------------------|---|------------------|--|---------------------------|--------------------------------|---------------------------------|--------------------|---------------|
|                    | H (m)                              |                           | 6.55-7.00                               |                  | Do   | 7.55-8.00                 |                                | 8.55-9.00<br>Poorly graded SAND |                    |               |
|                    | OIL DESCRIPTION Silty SAND         |                           | D                                       |                  | oorly graded SAND  | Damasast                  |                                |                                 |                    |               |
|                    | SIEVE SIZE                         | Cumm.Mass<br>Retained (q) | Cumm.%<br>Retained                      | Percent<br>Finer | Cumm.Mass<br>Retained (g)                                    | Cumm.%<br><u>Retained</u> | Percent<br>Finer               | Cumm.Mass<br>Retained (g)       | Cumm.%<br>Retained | Percent Finer |
| <u>inch</u><br>2 1 |                                    | Retained (g)              | Retaineu                                | <u>FILIEL</u>    | Ketaineu (g)   | Retained                  | <u>riner</u>                   | Retained (g)                    | Retaineu           |               |
| 2 1                |                                    |                           |   |                  |  |                           |                                |                                 |                    |               |
| 11                 |                                    |                           |   |                  |  |                           |                                |                                 |                    |               |
| 1                  |                                    |                           |   |                  |  |                           |                                |                                 |                    |               |
| 3/                 |                                    |                           |   |                  |  |                           | 100                            |                                 |                    | 100           |
| 3/                 |                                    |                           |   | 100              | 10.82  | 13.76                     | 86                             | 3.37                            | 4.63               | 95            |
| 4                  |                                    | 1.58                      | 2.11                                    | 98               | 24.26  | 30.85                     | 69                             | 5.88                            | 8.08               | 92            |
| 10                 |                                    | 3.05                      | 4.07                                    | 96               | 34.63  | 44.03                     | 56                             | 13.14                           | 18.05              | 82            |
| 20                 |                                    | 11.89                     | 15.86                                   | 84               | 43.74  | 55.61                     | 44                             | 26.35                           | 36.20              | 64            |
| 40                 |                                    | 31.58                     | 42.13                                   | 58               | 58.67  | 74.60                     | 25                             | 51.89                           | 71.28              | 29            |
| 60                 |                                    | 45.02                     | 60.06                                   | 40               | 69.16  | 87.93                     | 12                             | 65.23                           | 89.60              | 10            |
| 14                 |                                    | 56.50                     | 75.37                                   | 25               | 74.82  | 95.13                     | 5                              | 69.20                           | 95.05              | 5             |
| 20                 |                                    | 58.44                     | 77.96                                   | 22               | 75.56  | 96.07                     | 4                              | 70.00                           | 96.15              | 4             |
|                    | N DRIED MASS                       |                           | 74.96 gms                               |                  |  | 78.65 gms                 |                                |                                 | 72.80 gms          |               |
|                    | 3"<br>2 1/2"<br>2"<br>1 1/2        | 3/8                       | #                                       | #10              | #40  | #140                      |                                | HYDROM                          | IETER              |               |
| 1                  | 00                                 |                           |   |                  | 11111111   | 1                         | -:                             |                                 |                    |               |
|                    | 90                                 |                           | <b>***</b>                              |                  |  |                           |                                |                                 |                    |               |
|                    |                                    |                           |   | 7                |  |                           |                                |                                 |                    |               |
|                    | 80                                 | <del>         </del>      | N                                       |                  | H:N   -  |                           |                                |                                 |                    |               |
|                    | 70                                 |                           |   |                  |  |                           |                                |                                 |                    |               |
|                    | , o                                |                           |   |                  |  |                           |                                |                                 |                    |               |
| Percent Passing    | 60                                 |                           |   | $\times \bot$    | <del>                                    </del>              |                           |                                |                                 |                    |               |
| Jas                |                                    |                           |   | 7                | :  \  : <u> </u>   |                           |                                |                                 |                    |               |
| tu l               | 50                                 | : : :                     |   |                  |  |                           |                                |                                 |                    |               |
| ) Sice             | 40                                 |                           | !                                       |                  |  |                           |                                |                                 |                    |               |
| ٣                  |                                    |                           |   |                  |  | [   :     :     :         |                                |                                 |                    |               |
|                    | 30                                 | 1 1                       |   |                  | <del>  :   <b>                                    </b></del> |                           |                                |                                 |                    |               |
|                    | 20                                 | : : :                     |   |                  |  |                           |                                |                                 |                    |               |
|                    |                                    |                           |   |                  |  |                           |                                |                                 |                    |               |
|                    | 10                                 | : : :                     | + |                  | <del>                                      </del>            |                           |                                |                                 |                    |               |
|                    | OARS                               |                           | I COAD                                  | MED              |  | FINE                      | 4     2                        |                                 |                    |               |
| 000                | 100                                | 10                        | COARS                                   | SE MED           | 1 Particle S   |                           |                                | 0.01                            | 00 01 110          | 0.001         |
|                    | BLES  <br>with Hydrometer          | GRAVEL                    |   |                  | SAND   | REMARKS :                 | S-8:                           | FINES (SILT                     |                    | 0.38          |
|                    | with Hydrometer<br>E SUBMITTED BY: |                           |   |                  |  | REIVIARNS .               |                                | Cu = 10.19                      |                    |               |
|                    | alk-in Clients 🔽                   |                           | ator                                    |                  |  | -                         | S-9:                           | Cu = 3.56                       | ) CC =             | 1.19          |
| R. POL             |                                    | GFT FIEIG Oper            | atui                                    |                  |  | -                         |                                |                                 |                    |               |
|                    |                                    |                           |   | _<br>            |  | TESTED BY :               |                                | ARTHR∩                          | Q. AQUINO          |               |
|                    | JTER PRINT-OUT                     | ONIETTE D. CIII           | NIALIAD                                 |                  |  | -                         |                                |                                 | Y TECHNICIA        | N             |
| <i>By:</i>         |                                    | ONIETTE P. CU<br>Encoder  | IVALIAL                                 |                  |  |                           |                                | LABORATOR                       | . ILOHINIOIP       |               |
|                    |                                    |                           |   |                  |  | CERTIFIED BY :            |                                |                                 |                    |               |
| Data               | Checked by:                        |                           | ranco                                   |                  |  | <del>-</del>              |                                |                                 | D SIGNATOR         | Υ             |
|                    |                                    | Quality Assu              | ii ance                                 | Uncertaint       | y Results:   | % Finer =                 | ± 0.0468                       |                                 |                    | O.:GSA-10-404 |
| Date               | Issued:                            |                           |   |                  | =  | anded uncertaint          | v is based                     | on a combined                   |                    |               |
| 2010               |                                    |                           |   |                  |  | a level of confider       |                                |                                 |                    | .,            |
|                    |                                    |                           |   |                  | . 3  |                           | 1.1                            |                                 |                    |               |

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| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                               | Job Number      | 2209-10.R1-GSA-01-4 |
|---|-----------------|---------------------|
| ProjectProposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010    |
| Location Centro Oriental, Province of Albay                             | Date of Test    | October 28, 2010    |

BH / SAMPLE NO..... Δ <u>BH-1</u> <u>010</u> 9.55-10.00 DEPTH (m)..... SOIL DESCRIPTION..... Poorly graded SAND with silt SIEVE SIZE Cumm.Mass Cumm.% Percent Cumm.Mass Cumm.% Percent Cumm.Mass Cumm.% Percent Finer inches Retained (q) Retained <u>Finer</u> Retained (q) Retained <u>Finer</u> Retained (q) Retained <u>mm</u> 2 1/2 62.5 2 50.0 1 1/2 37.5 25.0 1 3/4 19.0 3/8 100 95 4.75 98 1.56 2.17 4 10 2.0 7.69 10.69 29 25.83 35.90 20 0.8 64 0.425 71.10 40 51.15 29 0.25 62.52 86.91 60 13 140 0.105 67.14 93.33 7 200 0.075 68.33 94.98 5 OVEN DRIED MASS 71.94 gms #200 #10 #40 09# HYDROMETER 100 90 80 70 Percent Passing 60 50 40 30 20 10 n COARSE Particle Size (mm) 100 10 0.01 0.001 COBBLES SAND FINES (SILT OR CLAY) GRAVEL \* - with Hydrometer **REMARKS**: S-10: Cu = 3.99 Cc = 1.26SAMPLE SUBMITTED BY: R. POLIDAN TESTED BY: ARTURO Q. AQUINO COMPUTER PRINT-OUT By: MARIA ANTONIETTE P. CUNAHAP LABORATORY TECHNICIAN Encoder CERTIFIED BY: Data Checked by: \_\_\_ ABA/MRR **AUTHORIZED SIGNATORY Quality Assurance Uncertainty Results:** % Finer =  $\pm 0.0471$ LAB.FILE NO.:GSA-10-404 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage Date Issued: factor of k=2, providing a level of confidence of approximately 95%.

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| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                               | Job Number      | . 2209-10.R1-GSA-02-1 |
|---|-----------------|-----------------------|
| ProjectProposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010      |
| Location Centro Oriental, Province of Albay                             | Date of Test    | October 28, 2010      |

|   |   |   | Λ.        | 71 W D 72    | 2 - 63 (Re-ap                                     | proved 20                               | 01)                            |                                 |                   |              |  |
|---|---|---|-----------|--------------|---|---|--------------------------------|---------------------------------|-------------------|--------------|--|
|   | MPLE NO   | <u>BH-2</u>                             | <u>01</u> |              |   | <u>2</u>                                |                                |                                 | <u>∆</u> <u>3</u> |              |  |
| DEPTH (m)         0.55-1.00           SOIL DESCRIPTION         Elastic SILT |   |   |           |              | 1.55-2.00   |   | 2.55-3.00<br>Clayey silty SAND |                                 |                   |              |  |
|   |   |   |           |              |   | Elastic SILT                            |                                | 1                               |                   |              |  |
|   | IEVE SIZE   | Cumm.Mass                               | Cumm.%    | Percent      | Cumm.Mass   | Cumm.%                                  | Percent                        | Cumm.Mass                       | Cumm.%            | Percent      |  |
| inche   |   | Retained (g)                            | Retained  | <u>Finer</u> | Retained (g)                                      | Retained                                | <u>Finer</u>                   | Retained (g)                    | Retained          | <u>Finer</u> |  |
| 2 1/2<br>2  | 2 62.5<br>50.0                                    |   |           |              |   |   |                                |                                 |                   |              |  |
| 1 1/2   |   |   |           |              |   |   |                                |                                 |                   |              |  |
| 1 1/2   | 25.0  |   |           |              |   |   |                                |                                 |                   |              |  |
| 3/4   |   |   |           |              |   |   |                                |                                 |                   |              |  |
| 3/8   |   |   |           | 100          |   |   | 100                            |                                 |                   | 100          |  |
| 4   | 4.75  | 1.15                                    | 1.69      | 98           | 2.51  | 4.46                                    | 96                             | 2.31                            | 2.80              | 97           |  |
| 10  | 2.0   | 3.31                                    | 4.87      | 95           | 6.56  | 11.67                                   | 88                             | 7.30                            | 8.85              | 91           |  |
| 20  | 0.8   | 9.30                                    | 13.67     | 86           | 8.53  | 15.17                                   | 85                             | 14.93                           | 18.10             | 82           |  |
| 40  | 0.425   | 14.66                                   | 21.55     | 78           | 10.65   | 18.94                                   | 81                             | 24.08                           | 29.19             | 71           |  |
| 60  | 0.25  | 19.05                                   | 28.01     | 72           | 12.80   | 22.76                                   | 77                             | 32.89                           | 39.88             | 60           |  |
| 140   |   | 21.10                                   | 31.02     | 69           | 15.20   | 27.03                                   | 73                             | 50.60                           | 61.35             | 39           |  |
| 200   |   | 22.40                                   | 32.93     | 67           | 15.97   | 28.40                                   | 72                             | 52.30                           | 63.41             | 37           |  |
|   | I DRIED MASS                                      |   | 8.02 gms  |              |   | 56.23 gms                               | . –                            |                                 | 82.48 gms         |              |  |
|   | 3"<br>21/2"<br>2"<br>11/2                         | 3/8                                     | 4         | #10          | #40   | #140                                    | 001                            | HYDROM                          | ETER              |              |  |
| 100   | 0 111111111                                       | 1 1                                     |           | <u></u>      |   |   |                                |                                 |                   |              |  |
| 90  | 0   |   | +         |              |   |   |                                |                                 |                   |              |  |
| 80  |   |   |           |              |   |   |                                |                                 |                   |              |  |
|   |   |   |           |              |   |   |                                |                                 |                   |              |  |
| 70  | 0 <del>                 </del>                    | : : :                                   | ++-       |              |   | O T                                     |                                |                                 |                   |              |  |
| sing 60   |   | : |           |              |   |   |                                |                                 |                   |              |  |
| SSS   |   | : : :                                   |           |              |   |   |                                |                                 |                   |              |  |
| Percent Passing   | o <del>                 </del>                    | 1 1                                     | 1         |              | <del>                                      </del> | <del></del>                             |                                |                                 |                   |              |  |
| cen   |   | :  :  :                                 |           |              |   |   |                                |                                 |                   |              |  |
| ă 40  | 0   | : : :                                   |           |              |   | 24                                      |                                |                                 |                   |              |  |
| 30  |   | : : :                                   | 1 :       |              |   | : 1                                     |                                |                                 |                   |              |  |
|   |   | :  :  :                                 |           |              |   |   |                                |                                 |                   |              |  |
| 20  | 0 <del>                                    </del> | : : :                                   | 1 1       |              | +++++++++++++++++++++++++++++++++++++++           | + |                                |                                 |                   |              |  |
| 10  |   | : : : : :                               |           |              |   |   |                                |                                 |                   |              |  |
|   |   |   |           |              |   |   |                                |                                 |                   |              |  |
| (   | O COARSE  | FINE<br>10                              | COARS     |              | IUM   1   1   1   1   1   1   1   1   1           | FINE (mm) 0.1                           |                                | 0.01                            |                   | 0.001        |  |
| COBBL   |   | GRAVEL                                  |           |              | SAND  | (11111) 0.1                             |                                | 0.01 C<br>FINES ( SILT OR CLAY) |                   |              |  |
| - wi  | ith Hydrometer                                    |   |           |              |   | REMARKS :                               |                                |                                 |                   |              |  |
| _   | SUBMITTED BY:                                     |   |           |              |   |   |                                |                                 |                   |              |  |
| Walk  | k-in Clients                                      | GPI Field Opera                         | itor      |              |   |   |                                |                                 |                   |              |  |
| . POLIE   | DAN   |   |           | _            |   |   |                                |                                 |                   |              |  |
| OMPUT   | ER PRINT-OUT                                      |   |           |              | ٦   | ESTED BY :                              |                                | ARTURO Q                        | . AQUINO          |              |  |
| Ву:   |   | NIETTE P. CUN                           | IAHAP     |              |   |   |                                | LABORATORY                      | TECHNICIAN        |              |  |
|   |   | Encoder                                 |           |              |   |   |                                |                                 |                   |              |  |
|   |   |   |           |              | CE  | RTIFIED BY :                            |                                |                                 |                   |              |  |
| Data Ci   | hecked by:  |   |           |              |   |   |                                | AUTHORIZED                      | SIGNATORY         |              |  |
|   |   | Quality Assur                           | ance      | Uncertaint   | y Results:  | % Finer =                               | ± 0.0454                       |                                 | LAB.FILE NO.:     | GSA-10-40    |  |
|   |   |   |           | 1            | •   |   |                                |                                 |                   |              |  |

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| ClientMOHRI, ARCHITECT & ASSOCIATES, INC.                                | Job Number      | . 2209-10.R1-GSA-02-2 |
|--|-----------------|-----------------------|
| Project Proposed Mayon Evacuation Center (Polangui North Central School) | Date of Receipt | October 27, 2010      |
| Location Centro Oriental, Province of Albay                              | Date of Test    | October 28, 2010      |

| BH / SAMPLE NO <u>BH-2</u> <u>O 4</u> DEPTH (m) 3.55-4.00 |   |                |               | □ <u>5</u><br>4.55-5.00 |   |                |             |              |                              | <u>∆</u> <u>6</u><br>5.55-6.00 |               |              |  |
|---|---|----------------|---------------|-------------------------|---|----------------|-------------|--------------|------------------------------|--------------------------------|---------------|--------------|--|
|   | CRIPTION  | Poorly g       | raded SAND wi | th silt                 | Poorly  | y graded SAND  | with sil    | t            | Poorly graded SAND with silt |                                |               | th silt      |  |
| SIEV  | /E SIZE   | Cumm.Mass      | Cumm.%        | Percent                 | Cumm.Mass   | Cumm.%         |             | Percent      | Cumm.Mass                    |                                | Cumm.%        | Percent      |  |
| inches  | <u>mm</u>   | Retained (g)   | Retained      | <u>Finer</u>            | Retained (g)                                      | Retaine        | <u>d</u>    | <u>Finer</u> | Retaine                      | <u>ed (g)</u>                  | Retained      | <u>Finer</u> |  |
| 2 1/2   | 62.5  |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| 2   | 50.0  |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| 1 1/2   | 37.5  |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| 1   | 25.0  |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| 3/4   | 19.0  |                |               | 100                     |   |                |             |              |                              |                                |               |              |  |
| 3/8   | 9.5   | 1.08           | 1.86          | 98                      |   |                |             | 100          |                              |                                |               |              |  |
| 4   | 4.75  | 2.18           | 3.75          | 96                      | 1.77  | 2.32           |             | 98           |                              |                                |               | 100          |  |
| 10  | 2.0   | 5.93           | 10.20         | 90                      | 6.26  | 8.20           |             | 92           | 2.2                          | 4                              | 3.08          | 97           |  |
| 20  | 0.8   | 15.46          | 26.60         | 73                      | 18.86   | 24.72          |             | 75           | 13.6                         | 66                             | 18.75         | 81           |  |
| 40  | 0.425   | 32.88          | 56.58         | 43                      | 48.34   | 63.36          |             | 37           | 43.8                         | 34                             | 60.19         | 40           |  |
| 60  | 0.25  | 48.30          | 83.12         | 17                      | 65.10   | 85.32          |             | 15           | 59.9                         | 96                             | 82.32         | 18           |  |
| 140   | 0.105   | 54.70          | 94.13         | 6                       | 72.00   | 94.36          |             | 6            | 67.8                         | 30                             | 93.08         | 7            |  |
| 200   | 0.075   | 55.45          | 95.42         | 5                       | 72.50   | 95.02          |             | 5            | 68.5                         | 52                             | 94.07         | 6            |  |
| OVEN D  | RIED MASS   |                | 58.11 gms     |                         |   | 76.30 gms      |             |              |                              |                                | 72.84 gms     |              |  |
| 100   | 3"<br>21/2"<br>2"<br>11/2                         | 3/4            | ##            | #10                     | #20   | #60            | #140        |              | HYDR                         | ОМ                             | ETER          |              |  |
| 100 -   |   |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| 90 -  |   |                |               |                         |   |                |             |              |                              | $+\!\!+\!\!+\!\!+$             |               |              |  |
|   |   |                |               |                         | N:        :                                       |                |             |              |                              |                                |               |              |  |
| 80 -  |   | : : :          | 1             |                         | <b>V</b>  |                |             |              |                              |                                |               |              |  |
| 70 -  |   | : : :          | !!!!          |                         | <del>                                    </del>   |                |             |              |                              | Ш                              |               |              |  |
|   |   |                |               |                         | <b>  </b>   |                |             |              |                              |                                |               |              |  |
| Percent Passing   | <del>                                     </del>  |                |               |                         | <b>        </b>                                   |                |             |              |                              |                                |               |              |  |
| as  |   |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| 물 50 -  | <del>                                      </del> |                |               |                         | <del>                                      </del> |                |             |              |                              |                                |               |              |  |
| 90 40 -   |   |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| P 40  |   |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| 30 -  |   |                |               |                         |   |                | 1111        |              |                              |                                |               |              |  |
|   |   |                |               |                         |   |                |             |              |                              |                                |               |              |  |
| 20 -  |   |                |               |                         |   | YA :           |             |              |                              |                                |               |              |  |
| 10 -  |   | : : :          | 1 1           |                         | <del>                                      </del> | <del>Т</del>   | 1           |              |                              |                                |               |              |  |
|   |   |                |               |                         |   | ;   🌂          | <b>&gt;</b> |              |                              |                                |               |              |  |
| 0 -   | COARS   |                | COAR          |                         |   | FINE           |             |              |                              |                                |               |              |  |
| COBBLES   | 00  | 10<br>GRAVEL   |               |                         | 1 Particle S<br>SAND                              | ize (mm) 0     | .1          |              |                              | 0.01<br>(SILT (                | OR CLAY)      | 0.001        |  |
|   | Hydrometer  | GRAVEL         |               |                         | SAND  | REMAR          | /C ·        | S-4:         | Cu =                         | 4.37                           |               | 1.17         |  |
|   | JBMITTED BY:                                      |                |               |                         |   | ILIVIAN        | ·           | S-5:         | Cu =                         | 3.19                           |               |              |  |
|   |   | GPI Field Opei | rator         |                         |   |                | _           |              |                              |                                |               | 1.22         |  |
|   |   | GPT Fleid Opei | atui          |                         |   |                | _           | S-6:         | Cu =                         | 3.47                           | CC =          | 1.32         |  |
| R. POLIDAI  |   |                |               | _                       |   | TECTED O       | , .         |              | ADT                          | LIDO O                         | AOLUNO        |              |  |
|   | R PRINT-OUT                                       |                |               |                         |   | TESTED BY      | r: _        |              |                              |                                | . AQUINO      |              |  |
| <i>By:</i>  |   | ONIETTE P. CU  | NAHAP         |                         |   |                |             |              | LABORA                       | ATORY                          | TECHNICIAN    |              |  |
|   |   | Encoder        |               |                         |   |                |             |              |                              |                                |               |              |  |
| Data Cho  | cked by:  | ABA/MRR        |               |                         |   | CERTIFIED I    | BY :        |              |                              |                                |               |              |  |
| Data Office   |   | Quality Assu   | urance        |                         |   |                |             |              | AUTHO                        |                                | SIGNATORY     |              |  |
|   |   |                |               | Uncertaint              | y Results:  | % Fine         | r = ±       | 0.0584       |                              | I                              | LAB.FILE NO   | :GSA-10-405  |  |
| Date Issu   | ıed:  |                |               |                         | reported expa                                     |                |             |              |                              |                                | uncertainty b | y a coverage |  |
|   |   |                |               | factor of k             | =2, providing                                     | a level of cor | nfiden      | ce of appi   | roximately                   | 95%.                           |               |              |  |

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# **FINAL REPORT**

# PROPOSED MAYON EVACUATION CENTER (2-STOREY)

OAS SOUTH CENTRAL SCHOOL BRGY. ILAOR NORTE, PROVINCE OF ALBAY

MOHRI, ARCHITECT & ASSOCIATES, INC.

OCTOBER 2010 JOB NO. 2209-10.R0





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#### FINAL REPORT

# SUB-SURFACE INVESTIGATION FOR THE PROPOSED MAYON EVACUATION CENTER (2-STOREY) LOCATED AT OAS SOUTH CENTRAL SCHOOL, BRGY. ILAOR NORTE, PROVINCE OF ALBAY

#### 1.0 INTRODUCTION

Geotechnics Philippines, Incorporated (GPI) completed the subsurface soil investigation for the proposed Mayon Evacuation Center. The proposed site explored is located at Oas South Central School Brgy. Ilaor Norte, Province of Albay.

Two (2) boreholes were drilled at the proposed site from October 18 to October 19, 2010. Borings were undertaken down to 8.45m and 8.00 m respectively for both BH-1 and BH-2 below existing natural ground line. Borehole locations are as indicated on the accompanying Boring Plan and Soil Profile Shpeets.

The subsurface soil exploration was undertaken upon the request of Mohri, Architect & Associates, Inc. in order to gain information on the subsurface conditions and bearing characteristics of the underlying soils at site.

The undersigned was tasked to evaluate the results of the completed subsurface soil exploration and to recommend a suitable foundation solution for the proposed structure.

This report embodies the undersigned's engineering analysis and recommendations based mainly on the results of the geotechnical soil borings and pertinent laboratory tests performed on extracted samples.

The results of geotechnical soil borings and laboratory tests can be referred to in the Attachments accompanying this report.

#### 2.0 OBJECTIVES

The geotechnical investigation aims to determine the following:

- Soil Profile
- Engineering properties of the Soil Strata
- Bearing Capacities and Foundation Types
- Settlement conditions of critical areas
- · Comment on ground stability and liquefaction potential of the site
- Recommend ground improvement when necessary
- Provide Excavation and Fill Guidelines

In addition to the above mentioned items, matters on implementation and construction shall be given as required.

#### 3.0 BOREHOLE STATIGRAPHY

Two (2) boreholes were driven to investigate the subsurface. The following are the findings:

#### 3.1 Borehole BH-1

Borehole BH-1 extends 10 meters obtaining the following stratification: Firm sandy silt with traces of grave at 0-1 meter, firm fat clays with traces of sand at 1-3 meters, medium dense clayer silty sand at 3-4 meters, medium dense well graded sand with silt at 4-6 meters, Stiff elastic silt at 6-7 meters, medium dense well graded sand with silt at 7-8 meters, medium dense silty sand at 8-9 meters, very stiff elastic silt at 9-10 meters, the extent of the borehole.

The ground water was detected at 0.75 meters from the existing grade.

#### 3.2 Borehole BH-2

Borehole BH-2 extends 10 meters obtaining the following subsurface stratification: Stiff sandy silt at 0-1 meter, firm fat clay at 1-2 meters, very firm elastic silt at 2-3 meters, medium dense poorly graded sand with silt at 3-5 meters, dense poorly graded sand with silt at 5-6 meters, medium dense well graded sand with silt at 6-7 meters, very stiff sandy silt at 7-8 meters, dense silty sand at 8-10 meters, the extent of the borehole.

The ground water table was detected at 0.71 meters from the existing grade.

#### 4.0 FIELD EXPLORATION AND INVESTIGATION

The field exploration implored continuous was boring as the Standard Penetration Test (SPT) was performed at the last 45cm of every change strata or 1.0 meter intervals. The blow counts (N value or NB) were recorded as disturbed samples from the split spoon sampler were retrieved for laboratory testing. The recovered samples were described semi qualitative in terms of extracted length. The extracted soil samples were wrapped in double plastiv bags for moisture and sample protection and were transported to the laboratory for further testing of engineering properties.

Advancing through the hard strata, the same technique was implored. Hard strata are defined over a series of high blow count layers of more than 50 blows or the inability of driving the hammer to penetrate at high blow counts termed as refusal.

#### 4.1 Standard Penetration Test

The Standard Penetration Test (SPT) is a field test used in determining the shear strength of soils from an established correlation. The SPT requires the count of the number of blows that it would take a standard split spoon sampler to penetrate its last 30.5cm (12inches) of the sampler. The standard mass is 63.5 kilograms and the height of the drop is 76.2cm specified as a free drop.

#### 4.2 Hard Strata and Soft Strata Sampling

Hard strata are defined as a consecutive ground resistance of refusal to the standard penetration test of blow counts of 50 with a penetration less than or equal to 25.4mm, This is in accordance to the American Standard for Testing Materials (ASTM) Designated D 1586. Coring techniques were not conducted in the investigation. Sampling of undisturbed samples for soft cohesive soils was not conducted via pressing the sampler.

#### 4.3 Ground Water Table

The ground water table (GWT) elevation was observed at least 4 hours from the completion of the borehole up to demobilization.

#### 5.0 LABORATORY INVESTIGATION

The retrieved samples were brought to the laboratory in Sauyo Road, Novaliches, Quezon City. Various tests were conducted on all extracted samples with test procedures conforming to the American Standards for Testing Materials (ASTM). The following are the laboratory tests conducted on the soil samples.

| Type of Test  | ASTM Designation                   | Description of Test  |
|---|------------------------------------|--|
| Soil Classification for<br>Engineering Purposes – Unified<br>Soil Classification System | ASTM D 2487-05                     | <ul> <li>Standard in classifying the type of soil based<br/>on composition and physical properties</li> <li>These were classified in accordance to grain<br/>size, composition, percentage of size in the<br/>distribution</li> </ul>  |
| Particle Size Distribution –<br>Sieve Analysis  | ASTM D 422-63<br>(Reapproved 2002) | <ul> <li>The test allows the dried or wet soil to pass through a series of sieves in order to determine the distribution of grain sizes.</li> <li>The distributions of the particles are graphed on a semi log scale</li> <li>This test aids the previous test in classification</li> </ul>  |
| Moisture Content  | ASTM D 2216-05                     | <ul> <li>The test aims to determine the natural content of water in the soil</li> <li>This is taken as the ratio of water to the ratio of the soil particles</li> <li>The test uses a weighing scale measuring the initial weight of the soil and the final weight of the soil after drying it in the oven</li> </ul>  |
| Atterberg Limits Liquid Limit, Plastic Limit and Plasticity Index                       | ASTM D4318-05                      | <ul> <li>Tests determining the limits of cohesive soils in behaving as a plastic or a flowing medium by incrementally changing the water content</li> <li>The plastic limit is determined by rolling a clay sample to around 1/8 of an inch or 3mm</li> <li>The liquid limit uses the liquid limit device and determines the number of blows it would take for the slit to close</li> <li>Correlative values can be used for settlement relations</li> </ul> |

The results of the laboratory investigation are appended.

#### 6.0 SOIL PROPERTIES

The following are the adapted soil properties for the investigated strata:

| Se                  | oil Parameters                   |      |          |
|---------------------|----------------------------------|------|----------|
| Gravels, Sands, Sil | ty Sands and Clayey<br>cohesive) | Sanç | is (Non- |
| Sands               | C                                | φ    | y (kcf)  |
| Very Loose          | ()                               | 26   | 0.085    |
| Loose               | 0                                | 28   | 0.100    |
| Medium Dense        | 0                                | 30   | 0.110    |
| Dense               | -0-                              | 32   | 0.120    |
| Very Dense          | 0                                | 35   | 0.130    |
| Silts a             | nd Clays (Cohesive)              | )    |          |
| Silts and Clays     | c                                | φ    | y (kcf)  |
| Very Soft           |                                  | 0    | 0.100    |
| Soft                | -/NI\$1/W/2                      | 0    | 0.105    |
| Firm                | =(N*10)/2<br>from                | 0    | 0.115    |
| Stiff               | 3777                             | 0    | 0.120    |
| Very Stiff          | Braja Das                        | 0    | 0.125    |
| Hard                |                                  | 0    | 0.130    |

# 7.0 LIQUEFACTION POTENTIAL

The two (2) boreholes showed no potential for liquefaction due to dense and stiff layer underneath.

#### 8.0 BEARING CAPACITY AND FOUNDATION TYPE

Depth

Shallow Foundations have good bearing capacities. The following are the allowable net bearing capacities based on Terzaghi's Bearing Capacity Equation:

#### BH-1:

|      | Depth | Bearing Capacity (kPa) |
|------|-------|------------------------|
|      | 1.0   | 96                     |
| H-2: |       |                        |

| L             | 1.0           |    |     |       |      |    |        |     |           |             |            |    |
|---------------|---------------|----|-----|-------|------|----|--------|-----|-----------|-------------|------------|----|
| The associate | ed settlement | on | the | other | hand | is | within | the | tolerable | engineering | settlement | of |

The associated settlement on the other hand is within the tolerable engineering settlement of 25mm. Although the soil bearing capacity is competent, the structural tie beam proved to be efficient during major earthquake.

Bearing Capacity (kPa)

#### 9.0 EXCAVATION AND FILL

Fill for the excavation for footings may utilize the same materials. On the other hand, grade and subgrade materials should be sandy frictional materials.

Fill should be compacted at 95% its maximum dry density. Should the amount of soil be inept, sandy fill may be utilized and should be compacted in the same degree.

#### Borehole Conclusions and Recommendations

The conclusions and recommendations are based on the data of two (2) boreholes and the geologic map. Deviations from these are expected and should be minimal as the boreholes are typical of an alluvial formation. Should there be any major deviation in the substrata be detected during the excavation phase, may the undersigned through Geotechnics Philippines Inc (02-930-6555) be approached immediately for proper reassessment.

WHITE

DIOSDADO A. UREÑA CE REG No. 053884 PTR No. 3228274 Issued on January 8, 2010 Issued at Quezon City