#### Appendix 2 Characteristics of Photogeologic Unit

|          | Alota Area            |         |                     |          | ļ                   |  |         |                   |          | P-233 R-075 1/2   |
|----------|-----------------------|---------|---------------------|----------|---------------------|--|---------|-------------------|----------|---|
| Init     | ·                     | stacs   |                     | Mor      | Morphologic Ex      | xpression                                |         | Superficial Cover | 1 Cover  | Probable Lithology  |
|          |                       | Texture | in i                | 98       | Rock                | Section                                  | Bedding | Vecetation        | Cultava- | (Correlation with Available Geologic Map)                                   |
|          | Tone                  |         | Fattorn             | Denmilly | Density Inchistante |  |         |                   |          |   |
|          | bluish gray, gray,    | fine    | meandering very low | very low | very low            |  | ı       | partly            |          | Unconsolidated sediments composed of gravel sand and suc                    |
| 8        | light gray            |         |                     |          |                     |  |         | депяе             |          | (Quaternary:Recent alluvial deposits, marshy sediments)                     |
|          | light purple, gray,   | fine    | meandering, medium  | medium   | very low            |  | ,       | partly            | ı        | Unconsolidated sediments composed of gravel, eand etc.                      |
| 8        | light brown           |         | distributary        | to high  |                     |  | •       | депне             |          | (Quaternary:Composite fan deposita)   |
|          | white, grayish white, | fino    | meandering very low | very low | very low            |  | ı       | 1                 | 1        | Unconsolidated evaporated sediments   |
| 8        | liete bluish green    |         |                     |          |                     |  |         |                   |          | (Quaternary:Marshy sediments)   |
|          | grav                  | medium  | •                   |          | very low            | <b>*</b>                                 | 1       | ı                 | •        | Unconsolidated sediments composed mainly of sand                            |
| 8        | ,                     | •       |                     |          |                     |  |         |                   |          | (Quaternary:Eolian deposits)  |
|          | pluc                  | fine    | •                   | ,        | very low            |  | ı       | ı                 | 1        | Mainly snow and ice   |
| 8        |                       |         |                     |          |                     |  |         |                   |          | (Quaternary:Glacial deposits)   |
|          | gray,light gray,      | coarse  | trellis             | high     | high                | S. S | ı       | •                 | ı        | Volcanic products composed mainly of lava flow, lava dome etc.              |
| 3        | dark gray             |         |                     |          |                     | B)                                       |         |                   |          | (Quaternary:Rhyolite,dacite, andesite,basalt,ignimbrite etc.)               |
|          | purplish gray,        | fine    | dendritie,          | hjgh     | medium              | )<br>()                                  | bedded  | ı                 | ;        | Fine-grained sedimentary rocks  |
| ď        | gray                  |         | pinnate             |          |                     | 24141                                    |         |                   |          | (Pleistocene:Conglomerate, sandostone, mudstone, tuff etc.)                 |
|          | light gray,           | medium  | dendritic           | medium   | low                 | }  | 1       | ,                 | ı        | Fine to medium grained sedimentary rocks                                    |
| ձ        | white                 |         |                     |          |                     |  |         |                   |          | (Pliocene to Pleistocene Limestone, sandstone, carbonate rocks, chert etc.) |
|          | dark gray,            | modium  | pinnate             | high     | medium              | (  | pedded  | 1                 | ı        | Fine to medium -grained sedimentary rocks                                   |
| <u>ā</u> | greensch gray         |         |                     |          |                     | الله                                     |         |                   |          | (Phocene: Conglomerate, sandstone, mudstone, tuff etc.)                     |
|          | dark gray.            | coareo  | dendritic,          | high     | high                | 4.5                                      | ,       | 1                 | 1        | Mainly volcanic products, sedimentary rocks                                 |
| <u>}</u> | dark brownish gray    |         | radial              |          |                     | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   |         |                   | į        | (Pliocene: Andesite, basalt, clastic rocks etc.)                            |
|          | light brown,          | medium  | dendritic,          | medium   | high                | \{                                       | •       | ì                 | •        | Mainly volcanic products  |
| <u>`</u> | greenish brown gray   |         | radial              | to high  |                     | \$ a . a . a &                           |         |                   |          | (Miocene:Rhyolite, dacite, andesite, ignimbrite, clastic 1900ks etc.)       |
|          | brown                 | fine    | pinnate             | hych     | medium              |  | partly  | ı                 | •        | Fine to medium-grained sedimentary rocks                                    |
| =        |                       |         |                     |          |                     |  | bedded  |                   |          | (Miocene:Conglomerate, sandstone, mudetone etc.)                            |
|          | brownish gray,        | fine    | pinnate,            | high     | medium              |  | partly  | ŧ                 | 1        | Fine to medium-grained sedimentary rocks                                    |
| ā        | light brownish gray   |         | trellis             |          |                     | , , ,                                    | pedded  |                   |          | (Oligocene:sandstone,conglomerate,mudstone,tuff etc.)                       |

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|        | Alots Ares            |         |              |         |                    |  |         |                   |          | P-233 R-075 Z/Z   |
|--------|-----------------------|---------|--------------|---------|--------------------|--|---------|-------------------|----------|---|
|        | Photo-characteristics | stics   |              | Mo      | Morphologic Ex     | Ехргеніоп                              |         | Superficial Cover | () Cover | Probable Lithology  |
| 1      |                       | Texture | Drainage     | 031     | Rock               | tion                                   | Bedding |                   | ٠        | Many Many   |
|        | Tone                  |         | Pat          | Density | Density Resistance |  |         | Vegetation        | tion     | (Correlation With Available Creations)                                    |
|        | Vr.73                 | medium  |              | high    | modium             | {.                                     | •       | •                 | 1        | Mainly volcanic products  |
| ž      |                       |         |              |         |                    | ۶<br>۲                                 |         |                   |          | (Cretaceour: Andosite, rhyolite, dacite, ignimbrite, clastic rocks, etc.) |
|        | >                     | medium  | pinnate,     | high    | medium             | E                                      |         | ŀ                 | ŧ        | Fine to medium-grained sedimentary rocks                                  |
| ر<br>ا |                       |         | trellia      |         |                    | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |         |                   |          | (Upper Juransic:Conglomerate, nandstone, mudstone, tuff etc.)             |
|        | rav.                  | medium  | pinnate,     | high    | modium             |  | ١       | ı                 | 1        | Mainly volcanic products  |
| -5     |                       |         | trellis      | ,       |                    | -1111111                               |         |                   |          | (Middle Jurassic: Andesite, rhyolite, decite, clartic rocks etc.)         |
|        | brownish grav.        | coarse  | trellis      | high    | medium             | (                                      |         | ,                 | ı        | Mainly metamorphic rocks  |
| δ.     | CTAV                  |         |              |         |                    | AN MINI                                |         |                   |          | (Paleozoic :meta-sandstone, slate, meta-bassalt, gneiss etc.)             |
|        | gray                  | medium  | dendritic    | medium  | medium             |  | ı       | ,                 | ,        | Fine to medium-grained sedimentary rocks                                  |
| S      |                       |         |              |         |                    |  |         |                   |          | (Silurian:Sandstone,quartzite etc.)                                       |
|        | white,                | coarse  | dendritic    | high    | very high          | \{\tau_{\text{*}}                      | massive | ,                 | ι        | Felsic igneous rocks  |
| E      | light brownish gray   |         | :            |         |                    | · · · · ·                              |         |                   |          | (Menozoic:Plutonic rocks)   |
|        | gray                  | coarse  | rectangular, | dgid    | ų́gių              | {•                                     | massive | 1                 | ı        | Somewhat intermediate igneous and metamorphic rocks                       |
| 2      |                       |         | dendritic    |         |                    | <b>*</b> • • †                         |         |                   |          | (Paleozoic:Plutonic and metamorphic rocks)                                |
| 0      | light yellowish gray  | fine    | radial       | Jow     | modium             | (MXXXX)                                | massive | ı                 | ,        | Alteration zone   |
| }      |                       | ,       |              |         |                    |  |         |                   |          |   |

|      |  |          |              | -                          |                |             |          |                    |                  | P-233 R-076 1/2  |
|------|--|----------|--------------|----------------------------|----------------|-------------|----------|--------------------|------------------|--|
| •    | Atacama Area   |          |              |                            |                |             |          | Camparficial Court | Cover            | Probable Lithology   |
|      | Photo-characteristics  | tice     |              | Morphologic                | оюдс Ехргениоп |             |          | Superment.         |                  |  |
| Í    | E  | Texture  | Dra          | Drainage                   | Resistance     | Section     | Bedding  | Vegetation         | Cultava-<br>tion | (Correlation with Available Geologic Map)  |
|      | Tone   |          | raccern      | Verient.                   | 3              |             |          | 1                  | 20.00            | Timenselidated sediments composed of gravel, sand etc.   |
|      | gray   | fine     | distributory | medium to                  | very low       |             |          | Detruy             | 3                | Controlled the Manual of the M |
| Š    |  |          |              | high                       |                |             | <u>'</u> | ярятно             | rare             | (Quaternary Composite tan exponent)  |
|      | Alinich white  | fine     | parallel     | medium                     | very low       | 1           |          | parth              |                  | Unconsolidated evaporited sediments  |
| 4    | Divisia wance,   | 1        |              |                            | •              |             | -        | ярагне             | 1                | (Quaternary:Marshy sediments)  |
| 8    | iight greenian gray  |          |              |                            | wor you        | >           |          |                    | :                | Unconsolidated sediments composed mainly of sand   |
| - 3  | уепом  | шотрош   | i            | ì                          | }              |             | 1        | -                  | l                | (Quaternary Folian deposits)   |
| 3    |  |          | la for       | anol                       | medium         | 4           | partly   |                    |                  | Recent lava  |
| į    | dark gray,   | Contract | narallal     | }                          |                | インケー        | bedded   |                    | 1                | (Quaternary:Rhvolite, dacite, andesite, basalt ignimbrite ets.)  |
| 3    | Drown  |          | Tan William  | 4.74                       |                |             |          |                    |                  | Fine to medium-grained calcareous sediments  |
|      | brown,   | ine,     | detrabutary  | distribution medium wingh, |                |             | 1        | ı                  | ŀ                | (Plio-Pleistocene:Limestone, sandstone, carbonate rocks, chert etc.)   |
| ă    | light gray   | medium   | parallel     | low to medium              |                |             |          |                    |                  | Constant Line Constant Miss  |
|      | dark greenish gray,  | coarse   | radial,      | low                        | medium         | ر<br>ا<br>ا |          |                    |                  | Lavas with composition between 4v and 14v  |
| 4    | light brown  |          | parallel     |                            |                | ,           | '        | į                  | į                | (Pliocene: Andesite, basait, clastic rocks etc.)   |
|      | light ninkish gray   | fine.    | parallel     | medium                     | high           | 4           | partly   | partly             |                  | Eroded volcanic products and plateau of ignimbrite   |
| 3    | And a second harder  | 9000     |              |                            |                |             | pedded   | пратее             | 1                | (Miocene:Rhyolite, dacite, andesite, ignimbrite, clastic rocks etc.)   |
|      | greenwar Kray  |          |              | *:-                        |                | (           | nartiv   |                    |                  | Fine to medium-grained sedimentary rocks   |
|      | light purple.  | fine     | trellis,     | ਪ੍ਰਤੀਧ                     | OW TO          |             |          | i                  | 1                | (Nicome Conglomerate andatone mudatone etc.)   |
| N.   | light bluish green   |          | dendritic    |                            | medium         |             | nanna    |                    |                  |  |
|      | brownish gray,   | fine     | dendritic,   | high                       | medium         |             | pedded   | partly             |                  | Fine to coarse-granned sedumentary rocks   |
| OIN  | greenish brown   |          | trellia      |                            |                |             |          | pedded             |                  | (Ungoverne to princente: Congrammente:   |
|      | bluish purple  | fine     | dendritie    | medium                     | modium         | (,,,,       |          |                    |                  | Felsic Volcanic rocks  |
| Pafo |  |          |              |                            |                | > > >       | ,        | 1                  | i                | (Paleocene to Focene Knyoure passit, ignituative minercone, construction)  |
|      | light brown,   | îne      | trellis      | medium                     | medium         | E E         | pedded   |                    |                  | Mainly fine-grained sedimentary rocks and volcanic rocks   |
| 2    | dark green   |          |              |                            |                |             |          | <u>,  </u>         | '                | (Cretaceous: Anderite, rhyolite, dagite, 18min on trendictional reserve  |
|      | dank smoon   | medium   | parallel     | medium                     | high           | 1           | well     |                    |                  | Medium to coarse-grained sedimentary rocks   |
| -2   |  |          |              |                            |                |             | hedded   | -                  |                  | (Upper Jurassic:Conglomerate, aandatone, mudetone, tuff etc.)  |
|      | dowly blue bluigh  | 600      | narallel     | medium to                  | medium         | *           |          |                    |                  | Fine to medium-grained sedimentary rocks and volcanic rocks  |
|      | hann addish broun  | <u>;</u> | dendritic    | high                       |                |             | •        | l                  | I                | (Middle Jurassic: Andesite_rhyolite_dacite_clastic rocks etc.)   |
|      | or on the state of | 1        | dondritie    | doid                       | low to         |             | partly   |                    |                  | Fine to medium-grained sedimentary rocks   |
|      | »  | 2        |              | יווליוו                    | A HOY          | The same    | pedded   | ı                  | ŀ                | (Lower Jurassic: Byaporite)  |
|      | greenish blue  | _        |              |                            | Hayer Collin   |             |          |                    |                  |  |

| Cast     | Photo-characteristics         | tics    |            | Morpl     | Мотрьоюдіс Ехргевніоп | жиоп   |         | Superficial Cover | Cover    | Probable Lithology   |
|----------|-------------------------------|---------|------------|-----------|-----------------------|--|---------|-------------------|----------|--|
|          | L                             | Texture | Ω          | Drainage  | Rock                  | Section  | Bedding |                   | Cultiva- |  |
|          | Tone                          |         | Pattern    | Density   | Resistance            |  |         | Vegetation        | tion     | (Correlation with Available Geologic Map)  |
|          | dark blue                     | medium  | pinnate,   | medium    | modium                | ***************************************  |         |                   |          | Fine to medium-grained volcanic rocks  |
| <u></u>  |                               |         | trellia    |           |                       |  | 1       | 1                 | 1        | (Lower Juranaic Alternative beda of andeaite and rhyolite etc.)                  |
|          | dark brownish blue,           | fine    | parallel,  | high      | medium                |  | well    |                   |          | Fine to medium-grained sedimentary rocks and volcanic rocks                      |
| <u> </u> | reddish brown                 |         | trellia    |           |                       |  | bedded  | 1                 | 1        | (Middle to Upper Triassic:Sandstone conglomerate, shale rhyolite, andesite etc.) |
|          | greenish yellow brown,        | fine    | dendritic, | high      | medium                |  |         |                   | _        | Medium to coarse-grained sedimentary rocks and volcanic rocks                    |
| CTr      | ритріян втомп                 |         | trellia    |           |                       | ~///   | 1       | 1                 | 1        | (Carboniferous to Triassic Tuff; ignimbrite, dacite, clastic rocks etc.)         |
|          | yellowish brown               | fine    | trellis    | medium    | medium                | N. A.  | bedded  |                   |          | Medium to coarse-grained sedimentary rocks                                       |
| ٥        |                               |         |            |           |                       | SEX XXX  |         | 1                 | I        | (Devonian: Quartzite, plate, sandstone, conglomerate, limentone etc.)            |
|          | yellowish brown               | fine    | dendritic, | high      | medium to             |  | bedded  | •                 |          | Fine to medium-grained metamorphic rocks   |
| ğ        |                               |         | pinnate    |           | high                  | 7777   |         | 1                 |          | (Paleozoic: Meta-sandatone; alate meta-basalt, gneras etc.)                      |
|          | light blue,                   | euŋ     | dendritic  | medium    | low to                |  |         |                   |          | Somewhat felaic to maffic igneous rocks  |
| γtb      | light green                   |         |            |           | medium                |  | ı       |                   | i        | (Tertiary:Granitic rocks)  |
|          | green,                        | medium  | dendritic  | medium    | medium to             | 5.<br>8.<br>7.   |         |                   |          | Felsic igneous rocks   |
| r te     | light green                   |         |            |           | high                  |  | -       | 1                 | '        | (Paleogene: Granitic rocks)  |
|          | purple,                       | coarse  | dendritic  | medium    | high                  | (******  |         | - "               |          | Felsic igneous rocks   |
| T BO     | greenish purple               |         |            |           |                       |  | ı       | į                 | į        | (Somewhat Late Cretaceous to Early Tertiary: Granitic rocks)                     |
|          | greenish yellow,              | ourg    | dendritic  | medium to | high                  | ×(3)   |         |                   | _        | Felsic igneous rocks   |
| ΥĦ       | purplish brown                |         |            | high      |                       | 15/4/51 t  | ŀ       | ,                 | !        | (Late Jurassic to Early Tertiary Granitic rocks)                                 |
|          | greenish white,               | эвивоэ  | dendritic  | medium    | high                  | {·   |         |                   |          | Felsic igneous rocks   |
| ¥        | whitish yellow                |         |            |           |                       | 5.1.7  | 1       | 1                 | 1        | (Barly Cretaceous: Cranitic rocks)   |
|          | light yellowish brown, medium | medium  | dendritic  | low       | medium                | Service Servic | таявие  |                   |          | Felsic igneous rocks   |
| 7        | light gray                    |         |            | }         |                       | \- \\+.\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   |         | ;                 | ŧ        | (Paleozoic:Granitic rocks, metamorphic rocks)                                    |
| 0        | light pinktsh gray            | coarse  | dendrac    | high      | medium                | Xinesian/  | massive | ı                 | ı        | Alteration zone  |
|          |                               |         |            |           |                       |  |         | 1                 |          |  |

Ţ

|          |                       |             |                        | •        |                               |               |         |                   |      | P-233 R-077 1/2   |
|----------|-----------------------|-------------|------------------------|----------|-------------------------------|---------------|---------|-------------------|------|---|
|          | Imilac Area           |             |                        |          |                               |               |         | 2                 | 1    | Probable Lithology  |
| Unit     | Photo-characternatics | stice       |                        | ž        | Мограновор с Ехргеняют        | хртеняюл      | 1       | Superficial Cover | i i  |   |
|          | £                     | Texture     | Drainage<br>Pattern De | Density  | ge Rock<br>Density Resistance | Section       | Bedding | Vegetation        | tion | (Correlation with Available Geologic Map)   |
|          | T. A. C.              | 1           | 77                     | modium   | very low                      |               |         |                   |      | Unconsolidated sediments composed of gravel, sand etc.  |
| 2        | 'ardınd nüğü          |             | c man or morn          | to high  |                               |               | ı       | 1                 | -    | (Quaternary:Composite fan deposits)   |
| 5        | Fray                  | ,           |                        |          | more loss                     |               |         |                   |      | Unconsolidated evaporated sediments   |
|          | white,                | 2           | ı                      | ı        | mor fran                      |               | ı       | 1                 | 1    | (Quaternary:Marshy sediments)   |
| \$       | bluish white          |             |                        | jag      | medium                        | {             | almost  | <br>              |      | Recent volcanic products  |
| ě        | dark gray.            | man and and | rauman                 | <u> </u> | to high                       | 公司            | massive | ŀ                 | ı    | (Quaternary: Stratovolcanoa composed of undesite and basalt)                                    |
| :        | dark mimle            | medium      | radial                 | NO!      | medium                        |               | almost  |                   |      | Relatively young lavas  |
| 2        | heart                 |             |                        |          | to high                       | 17.5          | maggive | -                 | ,    | (Piiocene: Stratovolcanos composed of andesite and basalt)                                      |
|          | licht purple, gray,   | fine        | pinnate,               | high,    | low to                        | ( ) 0 ( )     | partly  |                   |      | Eroded volcanic products  |
| 2        | vollowerh brown       |             | parallel               | wol      | medium                        | 14/2          | bedded  | '                 | 1    | (Miocene: Andesite, dacite, basalt and pyroclastic rocks).                                      |
|          | Vere                  | fine        | pinnate                | medium   |                               |               | almost  |                   |      | Fine to medium egrained sedimentary rocks   |
| i        | }                     | [           | •                      |          |                               | /             | massive |                   | ı    | (Miccene: Grave), sand, silt, ignimbrite etc.)  |
| i        | Orac                  | fine        | pinnate.               | medium   | medium                        | (Julie)       | bedded  |                   |      | Fine to medium grained sedimentary rocks  |
| 9        |                       |             | dendritie              |          |                               | 1111111       |         | i                 | ı    | (Oligocene to Miocene: Continental conglomerate, sandstone, mudstone etc.)                      |
|          | brownish blue.        | coarse      | <u> </u>               | high     | low to                        | Sec.          | partly  |                   |      | Volcanic and pyroclastic rocks  |
| 2        | dery maney hime       |             |                        |          | medium                        |               | bedded  | 1                 | ı    | (Paleocene to Bocene: Continental lava ignimbrite, sandstone, agglomerate etc.)                 |
|          | brownish hine         | COSTAGO     | dendritic              | high     | low to                        | معهن          | partly  |                   |      | Volcanic and pyroclastic rocks  |
| È        |                       |             |                        | :        | high                          | 14. 1 May 171 | bedded  | '                 | '    | (Upper Cretaceous to Lower Tertiary: Amdesitiof byolitic lava volcanic breedia ignimbrite etc.) |
|          | ↓_                    | fine        | parellel               | low      | medium                        | (             | partly  |                   |      | Fine-grained acdimentary rocks  |
| 5        |                       |             | •                      |          |                               |               | bedded  | ,                 | ļ    | (Cretaceous Andosite rhyolite, dacite, ignimbrite etc.)   |
|          | nword darlowing       | coarge      | dondritic              | high     | medium                        | (e)_{         | partly  |                   |      | Volcanic and pyroclastic rocks  |
| ž        |                       |             |                        | ,        | to high                       | \^^^          | bedded  | ŧ                 | 1    | Cower Cretaeoous. Andenitic/dactitic/rhyolitic lava, pyroclartic rocks etc.)                    |
|          | brownish blue.        | coarrse     | pinnate,               | high     | medium                        | معمد          | partly  |                   |      | Volcanic and pyroclastic rocks  |
| 3        | dark cravial blue     |             |                        |          |                               | 1 1/2/2       | bedded  |                   | '    | (Jurasnic: Andenitic tuff, lava etc.)   |
|          | light brownish gray   | fine        | pinnate                | high     | medium                        |               | pedded  |                   |      | Fine to medium -grained sedimentary rocks   |
| <u>خ</u> |                       |             |                        |          |                               |               |         | ,                 | 1    | (Jurassic:Sandstone, calcareous sandstone, limestone, marl, mudstone etc.)                      |
|          | dark blue,            | fine to     | pinnate,               | high     | medium                        | Mill.         | partly  |                   |      | Fine to medium -grained sedimentary rocks and volcanic rocks                                    |
| Trans    | ր <u>ս</u><br>——      | CORTSR      |                        |          | to high                       |               | bedded  | ı                 | ì    | (Middle to Upper Triannic:Sandatone conglomerate mudatone and volcanic rocks)                   |

|         | Traille Aves                           |         |                         |         |                       |          |         |                   |          | P-233 R-017 2/2   |
|---------|--|---------|-------------------------|---------|-----------------------|----------|---------|-------------------|----------|---|
| Mait    |  | stice   |                         | Mc      | Могрноворіс Ехргевают | хртевяют |         | Superficial Cover | Cover    | Probable Lithology  |
|         | L                                      | Texture | Drainage                |         | Rock                  | Section  | Bedding |                   | Cultava. | •   |
|         | Tone                                   |         | Pat                     | Denaity | Donaity Registance    |          |         | Vegetation        | tion     | (Correlation with Available Geologic Map)                                     |
|         | brown                                  | medium  | dendritic               | high    | medium                |          | almost  |                   |          | Volcanic rocks  |
| 2       |  |         |                         | -       | to high               |          | тавяјуе | 1                 | -        | (Middle to Upper Triansic:Sandstone,conglomerate,mudstone and volcanic rocks) |
|         | brownish purple                        | medium  | dendritic               | high    | medium                | {        | masaive |                   |          | Volcanic rocka  |
| ČĮ.     |  |         |                         |         | to high               | /, , , , |         | ı                 | ,        | (Carboniferous to Triassic:Tuff,volcanic breccia Java ignimbrite etc.).       |
| L       | brown,                                 | medium  | medium dendritic medium | medium  | high                  | الكتب    | partly  | •                 |          | Medium to coarse-grained sedimentary rocks                                    |
| E       | dark brown                             |         |                         |         |                       | 1 611    | bedded  | 1                 | \$       | (Devonian: Quartzite, phyllite, schist, gneiss, slate etc.)                   |
|         | light yellowish brown medium dendritie | medium  | dendritic               | yow     | low                   | <b>\</b> | almoet  |                   |          | Medium to coarse-grained sedimentary rocks                                    |
| ć       |  |         |                         |         |                       | , ]      | manaive | 1                 | ı        | (Lower to Middle Ordovician: Burruyacu P.etc.)                                |
|         | dark blue                              | medium  | dendritic               | high    | very high             | رنشان    | maesive |                   |          | Medium-grained meta-sedimentary rocks   |
| Pzm     | :                                      |         |                         |         |                       | 177777   |         | ,                 |          | (Paleoznic:Schist, meta-sandstone, gneiss etc.)                               |
|         | light grayish white                    | coarse  | dondritic               | high    | hgid                  | \\       | massive |                   |          | Felaic igneous rocks  |
| *       |  |         |                         |         |                       |          |         | 1                 | 1        | (Tertiary: Undivided granitic rocks)  |
|         | light grayish white                    | coarse  | dendritic               | high    | medium                | {        | тавыйе  |                   |          | Felaic igneous rocks  |
| 7 Kt    |  |         |                         |         | to high               |          |         | '                 | ŀ        | (Late Cretaceous/Barly Tertiary:Undivided granitic rocks)                     |
|         | yellowish brown                        | coarse  | dendritic               | high    | high                  | {        | massive |                   |          | Felsic igneous rocks  |
| 7.7     |  |         |                         |         |                       | ٢        |         | 1                 | ı        | (Late Jurassic/Barly Tertiary:Undivided granitic rocks)                       |
|         | light green                            | coarse  | dendritic               | hjgh    | ųžrų                  |          | massive | -, -,             |          | Felsic igneous rocks  |
| 7.      |  |         | :                       |         |                       | /        |         | '                 | ı        | (Jurassic:Undivided granitic rocks)   |
|         | light grayish white                    | osnso   | dendritic,              | hjigh   | very high             | (:       | павяте  |                   |          | Felsic igneous rocks  |
| 4       |  |         | rectangular             |         |                       | (+++)    |         | i                 | !        | (Silurian/Devonian:Undivided granitic rocks)                                  |
| <b></b> | reddish brown,                         | fine    | dendritic               | medium  | medium                |          | maesive | ,                 |          | Alteration zone   |
| )       | light grayish white                    |         |                         |         |                       | · Joanna |         |                   | ı        |   |

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| Unit P       | Salvador Area<br>Photo-characteristics | st)C8   |                          |         |                |   |                  | 1000              | 10176          | Deskala Isthalam   |
|--------------|--|---------|--------------------------|---------|----------------|---|------------------|-------------------|----------------|--|
|              |  |         |                          | Mo      | Thologic Lix   | Мотрhоюю Ехргевиюя                        | -                | Superficial Cover | 3              | E robatie Laction  |
| _{           |  | Texture | Drainage                 | П       | Rock           | tion                                      | Bodding          |                   | Cultiva-       | (Creedlesian with Available Geologic Map)  |
|              | Tone                                   |         | Pattern                  | Dennity | Resistance     |   | Ň                | Vegetation        | tion           | (College) with Dyapan College  |
| 5            | light purple,                          | fine    | fine distributary medium | medium  | very low       |   | 1                | 1                 | <del>- ¥</del> | Unconsolidated sediments composed of gravel, sand etc. (Quaternary: Composite fan deposits)  |
|              | grav                                   | Ţ       |                          | 117     | ļ              |   | -                |                   | <br>           | The state of the s |
|              | white,                                 | fine    |                          | •       | very low       |   | l                | ı                 | 1              | Unconsolidated evaporated segments (Onatemary Marshy sediments)  |
| 8            | bluish white                           |         | -                        | ,       |                |   | +                |                   | Τ              |  |
|              | dark gray,                             | medium  | radial                   | low     | medium         | N. S. | almost           |                   | -              | Recent volcanic products   |
| ઢ            | brown                                  |         |                          |         | to high        | 7   | massive          | ,                 | ,              | (Quaternary:Stratovolcanos composed of andesite and onship   |
| _            | le,                                    | medium  | radial                   | low     | medium         | ( )                                       | almost           |                   | <i>.</i> .     | Relatively young lavas   |
| > 4          | brown                                  |         |                          |         | to high        | 11/17                                     | massive          | ,                 | 1              | (Phocene:Stratovo)canos composed of andesite and Darait)   |
|              | light purple,                          | fine    | parallel                 | low     | low            |   | partly           |                   | i              | Fine to medium grained brittle sedimentary rocks<br>(Quaternary:Unconsolidated sediments,Miccene:Mainly continental sedimentary rocks)   |
| p i          | light brown                            |         |                          |         |                |   | The clark of     | T                 | Γ              |  |
|              | hght purple,                           | fine    | pinnate,                 | high,   | low to         | Sirving and the second                    | partly           |                   | <u></u>        | Eroded volcanic products Adjacent Andrews and norrelastic moke   |
| <u>&gt;i</u> | gray                                   |         | parallel                 | wol     | medium         | ,   | pedded           | 1                 | T              | MICCERCIALING AGAINST CHARLES AND ACTUAL ACT |
|              | gray                                   | ourg    | pinnate                  | medium  | medium         | {   | almost           | J.                | ı              | Fine to medium -grained sedimentary rocks (Microne-Grave) sand silt ignimbrite etc.))  |
| Ä            |  |         |                          |         |                |   | танят            |                   | Т              |  |
| <u> </u>     | brownish blue,                         | coarse  | dendrític                | high    | low.to         |   | partly           | ı                 | 1              | Volcanic and pyroclastic rocks<br>Paleocene to Eccene:Continental lava ignimbrite, sandstone, agglomerate etc.)  |
| E. du        | dark gravish blue                      |         |                          |         | megnam         |   | namna,           |                   | Τ              |  |
| KTV da       | brownish blue,<br>dark crevish blue    | coarse  | dendritic                | high    | low to<br>high | التكريكات ا                               | partiy<br>bedded | 1                 | 1              | Volcanic and pyroclastic rocks<br>(Upper Cretaceous to Lower Tertiany Amdesitic/rhyolitic lava, ignimbrite etc.)   |
| <del> </del> | purplish brown                         | coarse  | dendritic                | high    | medium         | (3,5)                                     | partly           |                   |                | Volcanic and pyroclastic rocks   |
| K;           |  |         |                          |         | to high        | 1 227                                     | bedded           | -                 | -              | Cower Cretaceous: Andesitio dacitic rhyolitic Isva pyrodastic rocks etc.)  |
| 2            | light brown                            | fine    | pinnate                  | medium  | low to         | Las                                       | bedded           | 1                 | 1              | Fine to medium -grained sedimentary rocks<br>(Lower Cretaceous:Sandatone mudatone, siltatone, conglomerate, limestone etc.)  |
| ╀.           | hrownish blue                          | COSTRO  | pinnate.                 | high    | medium         | \$  | partly           |                   |                | Volcanic and pyroclastic rocks   |
| ٠<br>        | dark emivieh blue                      |         | dendritie                |         |                | 12.77                                     | bedded           | ,                 | 1              | (Jurassic Andesitic tuff lava etc.)  |
| H            | light brownish cray                    | fine    | pinnate                  | high    | medium         | Carrie Carrie                             | bedded           |                   |                | Fine to medium -grained sedimentary rocks  |
| ;<br>;       |  |         | •                        |         |                | 1 11111                                   |                  | ,                 | 1              | (Jurassic:Sandstone calcareous sandstone, limestone, mar), mudstone etc.)  |
|              | dark blue,                             | fine to | pinnate,                 | high    | medium         |   | partly           |                   |                | Fine to medium grained sedimentary rocks and volcanic rocks  |
| Trons        | purplish brown                         | coarse  | dendritic                |         | to high        |   | pedded           |                   | -              | (Middle to Upper Triassic:Sandstone,conglomerate,mudstone and Vocanic Fixis)   |

|          | Salvador Area              |         |                  |         |                        |                   |         |                   |             | P-233 R-078 2/2  |
|----------|----------------------------|---------|------------------|---------|------------------------|-------------------|---------|-------------------|-------------|--|
| Tigit    |                            | Stics   |                  | ×       | Morphologic Expression | кргевніоп         | •       | Superficial Cover | Cover       | Probable Lithology   |
| ,        |                            | Texture | Drainage         | ļ       | Rock                   | Section           | Bedding |                   | Cultiva-    |  |
|          | Tone                       |         | Pattern          | Density | Dennity Resistance     |                   |         | Vegetation        | tion        | (Correlation with Available Geologic Map/                              |
|          | urple                      | medium  | medium dendritic | high    | medium                 | (55)              | massive |                   | <del></del> | Volcanic rocks   |
| 7        |                            |         | :                |         | to high                |                   |         | 1                 | i           | (Carboniferous to Trisssic Tuff volcanic breccia lava ignimbrite etc.) |
|          | light brown                | coarse  | dendritic        | medium  | modium                 | AULUIC.           | partly  |                   | · · · ·     | Fine -grained sedimentary to metamorphic rocks                         |
| ē        |                            |         |                  |         |                        |                   | bedded  | i                 | 1           | (Lower Ordovician:Meta-sedimentary rocks, volcanic rocks)              |
|          | light pinkish gray         | fine    | trellis          | medium  | medium very high       | (                 | almost  |                   |             | Medium -grained sedimentary rocks                                      |
| õ        |                            |         |                  |         |                        |                   | massive | '                 | '           | Cower Ordovician: Phyllite, schixt, limestone etc.)                    |
| <u> </u> | dark blue                  | medium  | dendritic        | high    | very high              | (2,2,2,2)         | massive |                   |             | Medium-grained meta-sedimentary rocks                                  |
| P.       |                            |         |                  |         |                        | / 1/17            |         | '                 | -           | (Paleozoic:Schist, meta-sandstone, gneisa etc.)                        |
|          | purplish brown             | coarse  | dendritic,       | high    | very high              | ALLEY)            | massivo |                   |             | Medium-grained mota-sedimentary rocks                                  |
| 8        |                            |         | rectangular      |         |                        | 111111            |         | 1                 | ı           | (Proterozoic Gneiss, schist etc.)                                      |
|          | light grayish white        | coarse  | dendritic        | hjich   | hjgh                   | المنتن            | massive |                   |             | Felsic igneous rocks   |
| ĭ        |                            |         |                  |         |                        | /                 |         | ,                 | 1           | (Tertiary-Undivided granitic rocks)                                    |
|          | light grayish white        | coarse  | dendritic        | hjigh   | medium                 | {                 | massive |                   |             | Felsic igneous rocks   |
| *<br>*   |                            |         |                  |         | to high                | \\                |         | -                 | ,           | (Early Oretaceous: Undivided granitic rocks)                           |
|          | light grayish white        | coarse  | dendritic,       | high    | very high              | {                 | massive |                   |             | Felsic igneous rocks   |
| 7.0      |                            |         | rectangular      |         | ÷                      | くこう               |         | ,                 | 1           | (Silurian/Devonian:Undivided granitic rocks)                           |
|          | light grayish white medium | medium  | dendritic        | low     | medium                 | \( \frac{1}{2} \) | massive |                   |             | Felsic igneous rocks   |
| Dt       |                            |         |                  |         |                        | (E E E            |         | 1                 | 1           | (Tertiary:Porphyritic rocks)   |
|          | reddish brown,             | fine    | dendritic        | тоефин  | medium                 |                   | massive |                   | -           | Alteration zone  |
| )        | light grayish white        |         |                  |         |                        | F. 18. 4          |         | -                 | 1           |  |

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|             |                       |             |                     | •        |                            |           |          |  | Į             | P-233 R-079 1/2  |
|-------------|-----------------------|-------------|---------------------|----------|----------------------------|-----------|----------|--|---------------|--|
|             | Francisco Area        | Ī           |                     |          |                            |           |          | Company Congress   | 30,00         | Probable Lithology   |
| Unit        | Photo-characteristics | istics      |                     | ļ        | Merphologic Expression     | orceasion |          | THE PARTY OF THE P | 2             |  |
|             | 1                     | Texture     | Drainage            | Donaite  | Rock<br>Descript Rocietone | Section   | Decong   | Vegetation   | tion          | (Correlation with Available Geologic Map)  |
|             | lone.                 |             | racern              | Dellard  | ,                          |           |          | 1  | Ti volument   | if favorabilitated sediments composed of cravel, sand, clay etc.   |
|             | gray, grayash         | fine        | meandering very low | very low | very low                   |           |          |  | S .           | And the state of t |
| đ           | white green           |             |                     |          |                            | ****      | <u>'</u> | фелне  | internee      | intense (whiteinary: Recent alluvial defication)   |
|             | limbé mumolo          | f.no        | distributary        | medium   | very low                   |           |          |  |               | Unconsolidated sediments composed of gravel, sand, clay etc.   |
| 5           | ugar parpas,          | ì           |                     |          | •                          |           | 1        | ı  | ı             | (Quaternary:Composite fan depoeits)  |
| <u>-</u>    | Kray                  | 1           |                     |          | were low                   |           |          |  | _ <del></del> | Unconsolidated evaporated sediments  |
|             | white,                |             | ı                   | ŀ        | 3                          |           | ŀ        | 1  | -             | (Quaternary:Marshy sediments)  |
| 3           | DINIBR WILLY          | modium      | F                   | low      | medium                     | Ę         | almost   |  |               | Recent volcanic products   |
| ě           | hander of             |             |                     |          | to high                    | 1111      | таякіуе  | 1  | 1             | (Quaternary,Stratovolcanos composed of anderite and basalt)  |
| ;           | oromiah may           | OBTBO       | parallel            | high     | medium                     | ļ ļ       |          |  |               | Unconsolidated composite fan deposits composed of gravel, sand etc.  |
| 9.0         | Constant              | }           |                     | ;        |                            |           | 1        | -  | ١             | (Pleistocene)  |
|             | Janes State           | an coling   | [ajpo#              | No.      | modium                     |           | almoet   |  |               | Relatively young lavas   |
| •           | dark purple,          | meanian     |                     |          | Hoid of                    |           | magaive  | ı  | ı             | (Pliocene Stratovolcanoa composed of anderite and baralt)  |
| <u>}</u>    | brown                 |             | 9400000             | high     | low to                     |           | partly   |  |               | Fine to medium-grained brittle sedimentary rocks   |
| ž           | ugnt purple,          | elini.      | puniane,            |          | medium                     | AN        | pedded   | ;  | 1             | (Upper Phocene: Conglomerate sandstone mudstone etc.)  |
| =           | gray                  |             | Parenter            |          | 111                        |           |          |  |               |  |
|             | light purple,         | fine        | pingate,            | high,    | low to                     |           | partly   |  |               | Erroded volcanic products  |
| <u>&gt;</u> | grav                  |             | parallel            | low      | medium                     |           | pedded   | 1  |               | (Miocene: Andesite, dacite, basalt and pyroclastic rocks)  |
|             | gray                  | fine        | pinnate             | medium   | medium                     | {         | almost   |  |               | Fine to medium -grained sedimontury rocks  |
| =           |                       |             |                     |          |                            |           | masaive  | ,  | ,             | (Miocene: Grave), sand, allt, ignimbrite etc.)   |
|             | hrownish blue         | coarse      | dondritic           | high     | low to                     | (0,000)   | partly   |  |               | Volcanic and pyroclastic rocks   |
| 2           | dowly ceromony bling  | ;<br>       |                     |          | medium                     | 1. 1/1.   | bedded   | l  | ı             | (Paleocene to Eocener Continental lava ignimbrite, sandstone, agglomorate etc.)  |
| <u> </u>    | hrounish blue         | COSTAG      | dendritic           | high     | low to                     | مفعمتين   | partly   |  |               | Volcanic and pyroclastic rocks   |
| Š           | dowle creatish bline  |             |                     |          | high                       | 1.111.11  | bedded   | 1  | 1             | (Upper Cretaceous to Lower Tertiary: Amdesitio/thyolitic lava volcanic brectia ignimbrite etc.)  |
|             | nvordish brown        | coarse      | dendritic           | high     | medium                     | (; c. c.  | partly   |  |               | Volcanic and pyroclastic rocks   |
| ž           |                       | <del></del> |                     |          | to high                    |           | pedded   | -  |               | (Lower Cretaceous Andesitic/dacitic/rhyolitic lays, pyrodastic rocks etc.)   |
|             | licht brown           | fine        | pinnate             | medium   | low to                     | KK        | bedded   |  |               | Fine to medium grained sedimentary rocks   |
| ž           |                       |             |                     |          | medium                     | 641       |          | 1  | 1             | (Lower Cretaceous/Sandstone, mudstone, siltstone, conglomerate, limestone etc.)  |
|             | brownish blue.        | coarse      | pinnate,            | hgir     | medium                     |           | partly   |  |               | Volcanie and pyroclastic rocks   |
| 3           | dark grayish blue     |             | dendritie           |          |                            |           | bedded   | į  | ı             | (Jurassic.Andesitic tuff, lava etc.)   |

| Unit Photo-characterpatics Texture Drainage Tone Towne Pattern D  light brownish gray fine to pinnate.  yellowish brown, coarse dendritic myellowish brown, coarse pinnate, myellowish purple medium dendritic dark brown medium sub-trellis m coarse trellis m oiv light pinkish gray coarse trellis m light pinkish gray coarse trellis m by light pinkish gray fine trellis m light ginkish gray fine trellis m light grayish white coarse dendritic rt light grayish white coarse dendritic rt light brownish gray medium dendritic m light brownish gray medium dendritic m light brownish gray medium dendritic m | edit high ligh  | Morphologic Expression Rock So ity Resistance n medium n modium | ction  |                  | Superficial Cover | Cover            | Probable Lithology  |
|---|---|---|--|------------------|-------------------|------------------|---|
| fine to pinnate.  fine to pinnate.  coarse dendritic  coarse pinnate,  wub-trellia  medium sub-trellia  coarse trellia  coarse trellia  fine trellis  coarse dendritic  coarse dendritic  medium dendritic  medium dendritic  coarse dendritic  | high r high r high r high r high r modium r high r high r nocdium r   | Rock esistance medium modium to high                            |  |                  |                   | I                |   |
| fine to pinnate.  coarse dendritic  coarse pinnate,  sub-trellis  medium aub-trellis  coarse trellis  fine trellis  medium dendritic  coarse dendritic  medium dendritic  medium dendritic  medium dendritic  medium dendritic  | high r medium r high r high r medium r | medium<br>medium<br>to high                                     |  | Redding          | Vegetation        | Cultiva-<br>tion | (Correlation with Available Geologic Map)   |
| fine to pinnate, coarse dendritic medium dendritic medium sub-trellis coarse trellis fine trellis fine trellis medium dendritic coarse dendritic coarse dendritic medium dendritic medium dendritic medium dendritic medium dendritic   | <del>    </del>   | medium<br>to high   | STEEL STEEL  | pedded           |                   | 1                | Fine to medium -grainod eodimentary rocka<br>(Jurassic:Sandstone,calcareous sandstone,limertone,mari,mvdstone.etc.) |
| coarse dendritic coarse pinnate, sub-trellis medium sub-trellis coarse trellis fine trellis medium dendritic coarse dendritic medium dendritic medium dendritic   |   | to high   | M.M.   | partly           |                   |                  | Fine to medium -grained sedimentary rocks and volcanic rocks  |
| coarse pinnate,  aub-trellia medium aub-trellia coarse trellia tine trellia medium dendritic coarse dendritic coarse dendritic medium dendritic   |   |   |  | bedded           | -                 | -                | (Middle to Upper Triannic:Sandstone, conglomerate, mudatone and voicanic rocks)                                     |
| medium dendritic medium sub-trellia coarse trellia fine trellia medium dendritic coarse dendritic coarse dendritic  |   | medium  | The state of the s | partly           | 1                 | _ <del></del>    | Fine to medium -grained sedimentary rocks  (Dominal Continuous) American sand styles amelomerate style)             |
| dark brown medium sub-trellis light pinkish gray light pinkish gray light pinkish gray fine trellis dark blue medium dendritic light grayish white coarse dendritic light grayish white coarse dendritic light prownish gray medium dendritic   |   | to nign<br>medium   | 583.   | massive          |                   | T                | Volcanic rocks  |
| dark brown medium sub-trellis light pinkish gray light pinkish gray light pinkish gray dark blue medium dendritic light grayish white coarse dendritic light grayish white coarse dendritic light grayish white medium dendritic  |   | to high   | ```  |                  | 1                 | )<br>-           | (Carboniferous to Triassic:Tuff volcanic broccia, lava, ignimbrite etc.)  |
| coarse fine medium coarse coarse coarse   |   | medium<br>to high   | نشك  | partly<br>bedded | ı                 | ,                | Volcanic rocks<br>(Upper Carboniferous:Porphyry,agglomerate,volcanie breccia,andesite lava etc.)                    |
| fine medium coarse coarse medium  | medium  | medium<br>to high   | 111,111  | bedded           | ı                 | 1                | Medium-grained sedimentary rocks<br>(Upper Carboniferous-Sandstone, mudstone, volcanie breggia etc.)                |
| fine medium coarse coarse medium  | medium  | medium  | relet  | partly           | 3                 | 1                | Fine to medium .grained sedimentary rocka<br>(Lower Ordovician:Meta-sedimentary rocks,volcanic rocks)               |
| medium<br>coarse<br>coarse<br>medium  | medium v  | very high   | (  | almost           | 1                 | -                | Medium-grained sedimentary rocks<br>(Lower Ordovician:Phyllite, schist, limestone etc.)                             |
| coarse  | high  | very high   | 1375 B   | massive          |                   | 1                | Medium-grainod meta-sedimentary rocks<br>(Palrozoic:Schist, meta-sandstone, griefas etc.)                           |
| coarse  | high  | high  | المثنث   | таввіче          | ł                 | 1                | Felsic igneous rocks<br>(Tertiary:Undivided granitic rocks)   |
| medium  | high n  | medium<br>to high   | منتثث  | massivo          | 1                 | )                | Felsic igneous rocks<br>(Early Gretaceous:Undivided granitic rocks)   |
|   | medium  | high  | التحقيقا   | massive          | 1                 | H. O             | Felsic igneous rocks<br>(Permian/Trissaic:Undivided granitic rocks)   |
| light grayish white coarse dendritic, rectangular   | high ve   | very high   | التوثيث  | massive          | · 1               | 1                | Felsic igneous rocks<br>(Silvrian/Devonian:Undivided granitic rocks)  |
|   | medium n  | medium  | WESTERN .  | massive          | ì                 | -                | Altoration zone.  |

|          | Puntilla Area         |           |                     |          |                        |         |             |                   |          | more and the first of the second seco |
|----------|-----------------------|-----------|---------------------|----------|------------------------|---------|-------------|-------------------|----------|--|
| I Init.  | Photo-characteristics | stice     |                     | Mo       | Morphologic Expression | ргевяют |             | Superficial Cover | Cover    | Something and All  |
| }        |                       | Texture   | Dramage             |          | Rock Book              | Section | Bodding     | Veretation        | Cultava- | (Correlation with Available Geologic Map)  |
|          | Tone                  |           | Fattern             | Denisity | Newistantee            |         |             | 1                 | T        | I'monsolidated sediments composed of gravel, sand etc.   |
|          | light purple,         | enii<br>E | distributary medium | mecum    | very tow               |         | ı           | врагае            | 1        | (Quaternary:Composite fan deposita)  |
| ě        | gray                  | 1         |                     | TO MIKU  |                        |         |             |                   |          | Unconsolidated evaporated sediments  |
|          | white,                | pug       |                     |          | wor Assa               |         | 1           | ,                 | ı        | (Quaternary: Marshy aediments)   |
| ક        | bluish white          |           | ;                   |          |                        |         | 7           |                   |          | Rosent volcanic preducts   |
|          | dark gray.            | modium    | radial              | *o       | medium                 |         | magaive     | )                 | 1        | (Quaternary Stratovolcanos composed of andesite and basalt)  |
| š        | brown                 |           | 1.11.               | 1        | THE COLUMN             |         |             |                   |          | Unconsolidated composite fan deposite composed of gravel, sand etc.  |
| Daf      | purplish gray         | coarrae   | paramer             | ugu<br>m |                        |         | į.          | ١                 | 1        | (Pleistocene)  |
|          | don't dead            | medina    | radial              | low      | medium                 | (i)     | almost      |                   | •        | Relatively young lavas   |
| 2        | and make              |           |                     |          | to high                |         | mannive     | ı                 | ŀ        | (Pliocene: Stratovolcanos composed of andesite and basalt)   |
|          | Table seconds         | f, me     | at a month          | hoh      | low to                 |         | partly      |                   |          | Fine to medium-grained brittle sedimentary rocks   |
| ć        | ngne perpie,          |           | lollong             | h        | modium.                |         | pedded      | ı                 | ł        | (Upper Phocene:Conglomerate, sandstone, mudatone etc.)   |
| <u> </u> | gray                  |           | parame              | 477.7    | A STATE OF             | 1       | السه        |                   |          | Fine to medium -grained sedimentary rocks  |
|          | light purplish gray,  | egn       | pinnare,            | ngu<br>H |                        |         | Professor 1 | 1                 | ı        | Coner Micens Conglomerate tuffaceous sandstone mudstone etc.)  |
| e<br>T   | grayish white         |           | parallel            |          |                        |         | nannaki     |                   | ļ        |  |
|          | dark greenish blue    | fine      | pinnate             | high     | medium                 | N.K.    | partly      |                   |          | Fine to medium grained sedimentary rocks   |
| Ë        | !                     |           |                     |          |                        |         | bedded      | l l               | 1        | (Middle Miocene: Sandstone, conglomerate, mudakone)  |
|          | gray                  | earg      | pinnate             | medium   | medium                 | {       | almost      | _                 |          | Fine to medium -grained sedimentary rocks  |
| ž        |                       |           |                     |          |                        |         | таявіче     | i                 | ì        | (Miocene: Gravel, sand, silt, ignimbrite etc.)   |
|          | dark green            | fine      | pinnato,            | high     | medium                 |         | partly      |                   |          | Fine to medium grained sedimentary rocks   |
| ō        |                       |           | trellia             |          |                        |         | bedded      | ì                 | 1        | (Oligocene:Sandatone,conglomerate, mudatone, andesitic volcanic breccia etc.)  |
|          | dark moen             | fine      | pinnate.            | high     | medium                 |         | partly      |                   |          | Volcanie and pyroclastic rocks   |
| Ž,       |                       |           | trellia             |          |                        |         | bedded      | 1                 | t        | (Paleocene to Miocene: Acidic volcanic rocka etc.)   |
|          | brownish blue.        | coarse    | dendritic           | high     | low to                 | (5,     | partly      |                   |          | Volcanic and pyroclastic rocks   |
| <u>ن</u> | dark crawish blue     |           | -                   |          | medium                 | 1       | bedded      | 1                 | ,        | (Paleocene to Eocene: Continental Java, ignimbrite, aandatone, agglomerate etc.)   |
|          | brownish blue,        | coarse    | dendritic           | high     | low to                 |         | partly      |                   |          | Volcanic and pyroclastic rocks   |
| Š        | dark gravish blue     |           |                     |          | high                   | 1010    | hedded      | 1                 | ,        | (Upper Cretaceous to Lower Tertisty: Amdesitic/rhyolitic Isya volcanic brecca, ignimbrite etc.)  |
|          | light brown           | fine      | pinnate             | modium   |                        |         | bedded      |                   |          | Fine to medium grained sedimentary rocks   |
| 2        |                       |           |                     |          | medium                 |         |             | ı                 | -        | (Lower Cretaceous:Sandstone,mudstone,altatone.conglomerate,imerione etc.)  |

| trey fine to pinnate, high fine to pinnate, high fine to pinnate, high fine to pinnate, high coarse dendritic high coarse pinnate, high medium dendritic medium dendritic medium dendritic medium dendritic medium dendritic medium dendritic high coarse pinnate high medium dendritic high medium dendritic high coarse pinnate high coarse trellis medium dendritic medium dendritic medium dendritic medium dendritic medium dendritic medium dendritic high coarse pinnate high medium sub-trellis medium coarse trellis medium coarse trellis mediu |
|---|
| retristics  Texture  Texture  Draina  coarse pinnate, fine to pinnate, fine to pinnate, fine to pinnate, coarse pinnate, aub-trellis medium dendritic ooarse pinnate coarse pinnate pinnate coarse pinnate coarse pinnate pinnate coarse pinnate pinnate coarse pinnate pinnate coarse pinnate                              |
| retristics  Toxture Dramage  Toxture Pattern Denai  to coarse pinnate, high fine to pinnate, high coarse dendritic high an medium dendritic mediu  n. coarse pinnate, high and medium dendritic mediu  n. coarse pinnate, mediu  n. coarse pinnate, mediu  an medium dendritic mediu  medium dendritic mediu  an medium dendritic mediu  an medium dendritic mediu  an medium dendritic mediu  an medium dendritic mediu  coarse pinnate high medium aub-trellis modiu  ay coorse trellis mediu   |
| reprietuca Toxture Toxture ray fine to fine to fine to coarse ray medium medium medium medium medium ay coarse coarse coarse coarse coarse  |
|   |
|   |

Characteristics of Photogeologic Units

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|     | •                                    |            |             | -      |                      |  |         |                   |          | P-233 R-080 3/3  |
|-----|--------------------------------------|------------|-------------|--------|----------------------|--|---------|-------------------|----------|--|
| :   | Puntula Area<br>Dhotomharactoristics | tice       |             | Mo     | Могрьоворс Ехргевноп | pression   |         | Superficial Cover | Cover    | Probable Lithology   |
| Cmt | LION CINITAGES                       | Tour track | Desinace    | İ      | Rock                 | Section  | Bedding |                   | Cultiva- |  |
|     | Tone                                 | amara r    | Pattern     | enwity | Resistance           |  |         | Vegetation        | tion     | (Correlation with Available (reologic Map)                         |
|     | in became                            | S. C.      | dondritic   | Mol    | medium               | Ç  | partly  |                   |          | Coarse-grained sedimentary rocks                                   |
| 8   | purpusa orowa                        |            | -           |        | to high              | JII 111  | bedded  | ı                 | 1        | (Devonian to Carboniferous Sandstone, mudstone, conglomerate etc.) |
|     | mumlish brown.                       | medium     | trellis,    | medium | medium               | N. Committee of the com | partly  |                   |          | Fine to medium grained sedimentary rocks                           |
| å   | -                                    |            | parallel    |        | to high              | , , , , , , , , , , , , , , , , , , ,  | bedded  | -                 | 1        | (Upper Devonian:Sandatone, mudatone etc.)                          |
|     | numbeh brown                         | coarse     | trellis     | high   | hyth                 |  | almost  |                   |          | Fine-grained sedimentary rocks                                     |
| ع   |                                      |            |             |        |                      |  | maaaive | ŧ                 | ļ        | (Upper Ordovician:Sandstone mudstone etc.)                         |
|     | licht ninkiah crav                   | fine       | trellis     | medium | very                 | (  | almost  |                   |          | Medium-grained sedimentary rocks                                   |
| õ   |                                      |            | ;           |        | high                 |  | таяяіче | ,                 | 1        | (Lower Ordenician: Phyllite, achist, limestone etc.)               |
|     | dowk hlue                            | medium     | dendritic   | high   | very                 | 4125   | massive |                   |          | Medium-grained meta-sedimentary rocks                              |
| 4   |                                      |            |             | }      | high                 | \$4447   |         | ]                 | 1        | (Paleozoic:Schist, meta-aandatone, gneisa etc.)                    |
|     | purplish brown                       | coarso     | dendritic,  | high   | very                 | 1666   | massive |                   | <u> </u> | Medium-grained sedimentary rocks                                   |
| 8   | •                                    |            | rectangular |        | high                 |  |         | 1                 | i        | (Proterozoje: Gneisa, achist etc.)                                 |
|     | light grayish white                  | coarse     | dendritic   | high   | ųžių                 | \\\  |         |                   |          | Felsic igneous rocks   |
| 7.  |                                      |            |             |        |                      |  | -       | -                 | 1        | (Tertisary:Undivided granitic rocks)                               |
|     | light brownish gray medium           | medium     | dendritic   | medium | hgid                 |  |         | ı                 |          | Felsic igneous rocks.<br>Domina Phisoste Hadisidad granitic maks.  |
| F   |                                      |            |             |        |                      |  |         |                   | 1        |  |
|     | gray.                                | medium     | :           |        | very                 | A: BEEN  |         | :                 | ı        | Dike rocks within 7 p  |
| 8   | light gravish white                  | coarse     | dendritic,  | high   | very                 | (  |         |                   |          | Felsic igneous rocks   |
| 7.  | <u> </u>                             | :          | rectangular |        | high                 | ( - + +/   | ı       | ı                 | i        | (Silvrian/Devonian:Undivided granitic rocks)                       |
|     | brown                                | fine       | dendritic   | medium | very                 | (r)  |         |                   |          | Felsic igneous rocks   |
| 9   |                                      |            |             |        | high                 | ,<br>U U   | '       | -                 | •        | (Permian: Porphyrac rocks)   |
| 0   |                                      | fine       | dendritic   | medium | medium               | SARANA (   |         |                   | 1        | Alteration zone  |
| )   | light graysah white                  |            |             |        |                      |  |         |                   |          |  |

|          | VI Section Appeal |         |                       |          |              |   |         |                   |                  | P-233 R-081 1/3  |
|----------|-------------------|---------|-----------------------|----------|--------------|---|---------|-------------------|------------------|--|
| Unit     | -                 | ristics |                       | Mo       | rphologic Ex | френцоп                                 |         | Superficial Cover | Cover            | Probable Lithology   |
|          |                   | Texture | Drainage<br>Pattern D | 8        | Rock Sec     | Section                                 | Bedding | Vegetation        | Cultiva-<br>tion | (Correlation with Available Geologic Map)                        |
|          | gray.             | fine    | meandering            |          | very low     |   |         | partly            | partly           | Unconsolidated sediments composed of gravel sand and silt        |
| 8        | grayish white     |         |                       | low      |              | 100000000000000000000000000000000000000 | ,       | dense             | intense          | intense (Quaternary:Recent alluvial deposits)                    |
|          | purple,           | fine    | distributary          | medium   | very low     | 1                                       |         | partly            | partly           | partly Unconsolidated sediments composed of gravel sand and suit |
| 8        | red               |         |                       | to high  |              | 1                                       | -       | dense             | intense          | intense (Quaternary:Composite fan deposits)                      |
|          | on[q              | fine    |                       |          | very low     | J,                                      |         |                   |                  | Glacial deposits   |
| ö        |                   |         | - 1                   | 1        |              | 1                                       | į       | 1                 | ı                | (Quaternary: Glacial deposits)                                   |
|          | gray,             | Case    | pinnate,              | ųžrų     | low to       | (                                       | partiy  |                   |                  | Fine to medium-grained sediments                                 |
| Nis      | light purple      |         | trellia               |          | medium       |   | pedded  | i                 | -                | (Upper Miocene: Conglomerate, tuff etc.)                         |
|          | purplish brown,   | coarse  | dendritic,            | anipour  | medium       | 1                                       |         |                   |                  | Medium to coarse-grained sedimentary rocks                       |
| E.       | greenish brown    |         | pinnate               |          |              |   | 1       | ı                 | -                | (Middle Miocene:Sandatone,conglomerate,tuff etc.)                |
|          | greenish brown    | coarse  | pinnate,              | low to   | high         | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\  |         |                   |                  | Volcanic rocks   |
| ¥        |                   |         | dendritic             | medium   | •            | \ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\  | ı       | 1                 | 1                | (Middle Miocene: Acidic volcanic rocks)                          |
|          | pink,             | modium  | trellis,              | medium   | medium       | (;;                                     |         |                   |                  | Volcanie rocks   |
| OIXI.    | reddish brown     |         | pinnate               |          | to high      | ,                                       | -       | ı                 | -                | (Oligocene to Miocene: Acidic volcanic rocks)                    |
|          | dark groen        | fine    | pinnato               | पृष्ठीःप | medium       |   | partly  |                   |                  | Fine to medium-grained sedimentary rocks                         |
| <u>-</u> |                   |         |                       |          |              |   | bedded  | 1                 |                  | (Oligocene:Sandstone, conglomerate, mudstone etc.)               |
|          | bluish purple     | fine    | dendritie             | पृष्ठीप  | medium       | The second                              |         |                   | -                | Acidic volcanic rocks  |
| PaEo     |                   |         |                       |          |              | , I                                     |         | ,                 | -                | (Paleocene to Eocene:Rhyolitic, basaltic lavas)                  |
|          | greenish gray     | medium  | pinnate,              | high     | medium       |   | partly  |                   |                  | Medium to coarse-grained sedimentary rocks                       |
| Ks.      |                   |         | dendritic             |          |              | /                                       | bedded  | -                 | 1                | (Upper Cretaceous:Andewite,dacite etc.)                          |
|          | bluish green      | coarse  | dendritic             | medium   | high         | (                                       |         | •                 |                  | Medium to coarse-grained sedimentary rocks                       |
| ¥.       |                   |         | ÷                     |          |              | /                                       | ı       | ı                 | -                | (Middle Cretaceoua:Sandatone,conglomerato etc.)                  |
|          | whitish yollow    | эвлвоэ  | parallel              | anipoa   | medium       | (                                       |         |                   |                  | Fine to medium-grained sedimentary rocks                         |
| Kib      |                   |         |                       |          |              |   | -       | -                 | 1                | (Lower Cretaceous:Sandstone, calcareous sandstone etc.)          |
|          | bluish brown      | fine    | dendritic             | very     | low          | 47.7.                                   |         |                   |                  | Volcanic rocks   |
| Kia      |                   |         |                       | high     |              | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\  | '       | 1                 | i                | (Lower Cretaceous: Anderitic, dacitic, volcanie breccia etc.)    |
| 4        | greenish brown    | modium  | pinnate               | medium   | medium       | Checker                                 | 1       | ı                 | ı                | Volcanic sedimentary rocks<br>(Jurannic:Andentic tuff)           |
| :        |                   |         |                       |          |              |   |         |                   |                  |  |

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|       | Vicuna Area           |         |                       | 1       |             |                                       |         |                   |                  | P-233 R-081 2/3  |
|-------|-----------------------|---------|-----------------------|---------|-------------|---------------------------------------|---------|-------------------|------------------|--|
| Thuit | Photo-characteristics | netice  |                       | Mor     | phologic Ex | pression                              |         | Superficial Cover | Cover            | Probable Lithology   |
| 1     | Tone                  | Texture | Drainage<br>Pattern D |         | Rock Sec    | tion                                  | Bedding | Vegetation        | Cultiva-<br>tion | (Correlation with Available Geologic Map)                        |
|       | brown                 | coarse  |                       |         | medium      | <                                     |         |                   |                  | Medium to coarse-grained sedimentary rocks                       |
| 9     |                       |         |                       |         |             |                                       | 1       | i                 | -                | (Jurannic:Sandatone, calcareous sandatone etc.)                  |
|       | purplish brown        | fine    | dendritic             | high    | medium      |                                       | partly  |                   | <u> </u>         | Volcanic rocks   |
| ۲,    |                       |         |                       |         |             | 2/2/2/                                | bedded  | •                 | 1                | (Upper Triannic:Effunive rocks)                                  |
|       | light purplish        | medium  | dendritic             | medium  | medium      |                                       |         |                   |                  | Medium to coarse-grained sedimentary rocks                       |
| Ťrb   | gray                  |         |                       |         |             | ,                                     | 1       | 1                 | 1                | (Triannic:Continental nandutone, mudatone etc.)                  |
|       | purplish gray,        | medium  | dendritic             | qgiq    | medium      |                                       | partly  |                   | -                | Fine to medium grained sedimentary rocks                         |
| Tra   | green                 |         |                       |         |             |                                       | bedded  | 1                 | 1                | (Triassic:Continental tuffaceous sandstone, black mudstone etc.) |
|       | green,                | coarse  | dondritic             | very    | dgid        | جرا<br>در<br>در                       |         |                   | ·                | Volcanic rocks   |
| Psvb  | 9<br>13<br>           |         |                       | low     |             | ر<br>ا<br>ا                           | -       | 1                 | I                | (Upper Permian: Acidic porphyry)                                 |
|       | ļ                     | medium  | pinnato               | medium  | medium      | {                                     | partly  |                   |                  | Volcanie rocks   |
| Psva  |                       |         | ,                     |         | to high     | (^ ^ ^ ^                              | bedded  | ŀ                 | 1                | (Upper Permian:Dacite,rhvolite)                                  |
|       | aword Heilarna        | medium  | parallel              | medium  | medium      | ****                                  |         |                   |                  | Volcanic rocks   |
| ç     |                       |         |                       |         |             | <i>y</i>                              | l       | 1                 | I                | (Carboniferous to Triassic:Toff, volcanic breccia etc.)          |
|       | reddish brown         | coarse  | dendritic             | medium  | high        | \{\{\}                                | partly  |                   |                  | Fine to medium-grained sedimentary rocks                         |
| ĝ     |                       |         |                       |         |             |                                       | bedded  | I                 | l                | (Carboniferous to Permian: Continental sandstone etc.)           |
|       | bluish brown          | medium  | dendritic             | medium  | medium      | (111)                                 | partly  |                   |                  | Fine to medium-grained sedimentary rocks                         |
| Š     |                       |         |                       | to high |             | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | bedded  | -                 | 1                | (Carboniferous to Permian:Continental randatone etc.)            |
|       | purplish gray,        | gue     | trellis               | medium  | modium      |                                       | partly  |                   |                  | Medium to coarse-grained sedimentary rocks                       |
| ర     | nword deilana         |         |                       |         | to high     |                                       | bedded  | 1                 | 1                | (Lower Carboniferous:Conglomerate, sandstone etc.)               |
|       | vellowish brown       | coarse  | trellis               | high    | modium      |                                       | almost  |                   |                  | Medium to coarse-grained sedimentary rocks                       |
| 5     | •                     |         |                       |         |             | <u>/</u>                              | тавятуе | ,                 |                  | (Lower Carboniferous:Conglomerate, sandstone etc.)               |
|       | nword deilarua        | fine    | dendritic             | low     | medium      |                                       | partly  |                   |                  | Coarse-grained sedimentary rocks                                 |
| 8     |                       |         |                       |         |             | / / / /                               | bedded  | -                 |                  | (Devonian to Carboniferous: Sandatone, mudatone etc.)            |
|       | purplish brown,       | medium  | trellis,              | high    | high        |                                       | partly  |                   |                  | Fine to medium-grained sedimentary rocks                         |
| S     | light brown           |         | parallel              |         |             |                                       | bedded  |                   | 1                | (Upper Devenian:Mudstone sandstone etc.)                         |
|       | dark purple           | fine    | trellis               | medium  | high        |                                       | partly  |                   |                  | Medium-grained sedimentary rocks                                 |
| ā     |                       |         |                       |         |             |                                       | bedded  | яратке            | 1                | (Lower Devonian:Mudatone, aandatone etc.)                        |

|     | Vicuna Area            |         |                     | ٠       |                     |  |         |                   |          | P-233 R-081 3/3  |
|-----|------------------------|---------|---------------------|---------|---------------------|--|---------|-------------------|----------|--|
| 110 | Photo-characteristics  | Tretice |                     | Mo      | Мотрьоюдс Ехргенноп | ртекніол   |         | Superficial Cover | Cover    | Probable Lithology                                       |
|     | ļ                      | Texture | Drainage            |         | Rock                | Section  | Bedding |                   | Cultiva- |  |
|     | Tone                   |         | Pattern             | Density | Density Resistance  |  |         | Vegetation        | tion     | (Correlation with Available Geologic Map)                |
|     | purplish brown         | соатве  | trellis             | high    | hjirh               | ()   | partly  | partly            |          | Fine-grained sedimentary rocks                           |
| 50  |                        |         |                     |         |                     | 4  | bedded  | нрятке            | 1        | (Upper Ordovician : Sandatone, mudatone etc.)            |
|     | white,                 | coarse  | dendritic           | modium  | <b>43</b> i4        | 4.57   |         |                   | -        | Felsic igneous rocks                                     |
| *   | vello                  |         |                     |         |                     | ~  | 1       | ı                 | 1        | (Early Miocene: Granitic rocks)                          |
|     |                        | modium  | dendritic           | medium  | medium              | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   |         |                   |          | Intermediate volcanic rocks                              |
| ₹   | brown                  |         |                     |         |                     | ,  | ı       | ı                 | ,        | (Late Triassic:Intrusive rocks at the bottom of volcano) |
|     | yellow,                | fine    | dendritic           | ųžių    | medium              | A. C. L.   |         |                   |          | Somewhat felsic igneous rocks                            |
| E   | brown                  |         |                     |         | to high             | くんさくとう   | l       | 1                 | 1        | (Late Cretaceous : Plutonic rocks)                       |
|     | yellowish brown medium | modium  | pinnate             | medium  | medium              | (  |         |                   |          | Volcanic rocks   |
| đ.  |                        |         |                     |         |                     |  |         | ı                 | 1        | (Middle Permian: Rhyolite)                               |
|     | greenish brown,        |         | coarse rectangular, | цвіц    | very high           |  | massive | partly            |          | Somewhat felsic igneous rocks                            |
| å   | yellowish brown        | :       | dendritic           |         |                     | イベシン   |         | ярятже            | •        | (Permian:Granito, granodionite etc.)                     |
| 0   | hght yellowish         | fine    | parallel            | medium  | high                | THE STATE OF THE S | таввіче |                   |          | Alteration 2000  |
| >   | gray                   |         |                     |         |                     |  |         | 1                 | ŀ        |  |

|               | ,                    |                                       |                       | •       |  |                         |         |                   | İ                | P-233 R-082 1/3  |
|---------------|----------------------|---------------------------------------|-----------------------|---------|--|-------------------------|---------|-------------------|------------------|--|
| 17,414        | Illapel Area         | Patrice                               |                       | Mor     | Morphologic Ext  | кртеватор               |         | Superficial Cover | Cover            | Probable Lathology   |
| i contraction |                      | Texture                               | 125                   | \       | Rock<br>Donathy Resistance   | 1                       | Bedding | Vegetation        | Cultiva-<br>tion | (Correlation with Available Geologic Map)                                |
|               | Lone                 | ┸                                     |                       |         | The state of the s |                         |         | partiv            | partiv           | partly [Inconsolidated sediments composed of gravel, sand, silt and clay |
| d             | gray, grayish white. | fine                                  | meandering            | very    | very tow   | A STATE OF THE STATE OF | l       | dense             | intense          | intense (Quaternary: Recent alluvial deposits)                           |
| 3             | Masen                | ١                                     | distant process       | modilim | wor you  | /                       |         | partly            | partly           | Unconsolidated sediments composed of gravel, sand etc.                   |
| 3             | nght purple,         | e e e e e e e e e e e e e e e e e e e | distributed.          | r dair  |  |                         | ŀ       | dense             | intense          | (Quaternary:Composite fan deposite)                                      |
| 5             | ngnt bluien gray     | 3                                     | manual designation of | ·       | work low   |                         |         |                   |                  | Unconsolidated evaporated sediments                                      |
|               | White,               | 3                                     | grir ionine am        |         |  |                         | 1       |                   | j                | (Quaternary:Marshy sediments)  |
| 3             | Prilylen willer      | fine.                                 | none partix           |         | verv low   | ,                       |         |                   |                  | Too and unconsolidated sediments composed of gravel, sand, sailt etc.    |
| ě             | himsh grav           | 1                                     | distributary          |         | •  |                         | •       | ı                 | I                | (Quaternary:Qlader and glacial deposits)                                 |
|               | bluish crosn crav    | medium                                | dendritic             | high    | medium   | (                       |         | partly            |                  | Andesitic_rhyolitic and baseltic volcanic rocks                          |
| ā.            | A                    |                                       |                       |         |  | \<br>\<br>\             | ı       | bedded            | ì                | (Miocene to Pliocene:Volcanic rocks)                                     |
|               | 2016                 | modium                                | punnate.              | high    | medium   | Ç                       | partly  | ì                 |                  | Medium to coarse - grained sedimentary rocks                             |
| 5             |                      |                                       | trollia               | ;       |  | /, //<br>//             | bedded  | 1                 | 1                | (Upper Miocene: Conglomerate sandatone etc.)                             |
|               | ٦                    | modium                                | Ľ                     | high    | low to   | {                       | pedded  |                   |                  | Fine to medium "grained sedimentary rocks                                |
| .E            |                      |                                       |                       |         | medium   | //                      |         | 1                 | ,                | (Middle Miocene:Sandatone,conglomerate,ailtatone,tuff etc.)              |
|               | da                   | fine                                  | pinnate               | medium  | medium   | (3)                     |         |                   |                  | Volcanic rocke(felsic?)  |
| <u>&gt;</u>   |                      | :                                     |                       |         |  | ř                       | ,       | 1                 | 1                | (Middle Miocene:Dike rocks, effusive rocks etc.)                         |
|               | Erce                 | fine                                  | pinnate               | medium  | modum  |                         |         |                   |                  | Intermodiate volcanic rocks  |
| ¥             |                      |                                       |                       |         |  |                         | 1       | 1                 | -                | (Lower Miocene Effusive rocks etc.)                                      |
|               | brownish gray,       | medium                                | pinnate,              | medium  | medium   | (3)                     |         |                   |                  | Felsic Volcanic rocks  |
| VI#10         | v greenish gray      |                                       | dendritic             |         |  | ,                       | '       | '                 | ١                | (Oligocene to Miocene: Acidic to intermediate effusive rocks)            |
|               |                      | fine                                  | dendritic             | modium  | medium   | <                       |         |                   |                  | Felsic and mafic volcanic rocks  |
| P             |                      |                                       |                       |         |  | 17.17.                  | -       | ,                 |                  | (Paleocene to Rocene:Rhyolitic and basaltic effusive rocks)              |
|               | vellowish gray.      | medium                                | pinnate,              | high    | medium   | (i                      | pedded  |                   |                  | Medium to coarse - grained sedimentary rocks                             |
| \$            | отеепіна стау        |                                       |                       |         |  | ///                     |         | j                 | 1                | (Upper Cretaceous:Sandstone conglomerate, siltatone volcanic rocks etc.) |
|               | brownish gray,       | medium                                | dendritic             | medium  | high   | <                       |         |                   |                  | Intermediate to feluic volcanic rocks                                    |
| ¥             | bluish gray          |                                       |                       |         |  |                         | 1       | 1                 | 1                | (Lower Cretaceous Andesitic distric and rhyolitic effusive 10088)        |
|               | bluish green         | fine                                  | dendritic             | medium  | medium   | \(\frac{1}{2}\).        |         |                   |                  | Intermediate to felsic volcanic rocks                                    |
| Kib           |                      |                                       |                       |         |  |                         |         |                   |                  | (Lower Cretaceous: Andersto dacite, rhyolite etc.)                       |

| Photo - characteristica Toxture Drinnage  Tone Tone Fattern Denis white, fine pinnate medii brownish gray, fine dendritic, medii brownish gray, fine dendritic medii gray, fine dendritic medii brownish gray, fine dendritic medii gray, fine dendritic medii gray, fine dendritic medii brownish gray, medium dendritic medii gray, medium dendritic medii gray, medium dendritic high gray, medium trellis hight brownish gray, medium trellis medii dark purple fine fine trellis, high dark purple fine trellis medii dark purple fine trellis high purplish brown medium trellis high purplish brown medium trellis high purplish brown medium trellis high purplish brown medium trellis high purplish brown medium trellis high purplish brown medium trellis high purplish brown medium trellis high purplish brown medium trellis high |            | Manel Area           |         |            |            |                |   | ,       |                   |          | P-233 R-082 2/3  |
|--|------------|----------------------|---------|------------|------------|----------------|---|---------|-------------------|----------|--|
| Tone Tower Drainse white, fine pinnate yellowish gray, fino pinnate brown, medium dendritic, whitish gray, fino dendritic gray, gray, medium dendritic gray, medium dendritic gray, medium dendritic gray, modium dendritic gray, modium dendritic gray coarse pinnate, denk gray, coarse pinnate, denk prownish gray, medium trellis gray, medium trellis dark bluish gray, medium trellis gray, medium trellis gray, medium trellis dark bluish gray coarse parallel dark purple frown, medium trellis, hight brown, medium trellis, hight brown, medium trellis func trellis  | ja         | -                    | istica  |            | Me         | Morphologic Ex | хргевліоп                                 |         | Superficial Cover | d Cover  | Probable Lithology   |
| white, fine pinnate rancern brownish gray, fine pinnate brown, medium dendritic, whitish gray, fine dendritic gray, fine dendritic gray, fine dendritic gray, brownish gray, medium dendritic brownish gray, medium dendritic brownish gray, coarse pinnate, dendritic dendritic green brownish gray, medium dendritic dendritic brownish gray, medium trellis gray, dendritic dendritic dendritic brownish gray, medium trellis dark bluish gray, medium trellis dark bluish gray, medium trellis hight brown medium trellis fine trellis hurplish brown medium trellis   |            |                      | Texture | Drain      | яўе        |                | Section                                   | Bedding | Vecetation        | Cultiva- | (Correlation with Available Geologic Map)  |
| white grayish white fine pinnate medium brownish gray fine pinnate medium brown medium pinnate to high prownish gray, fine dendritic medium gray, fine dendritic medium gray, medium dendritic medium gray, medium dendritic high dark gray, medium dendritic high dark gray, medium trellis medium gray, medium trellis medium gray, medium trellis medium dark bluish gray, medium trellis medium dark bluish gray coarse parallel medium trellis, high high brown medium trellis, high high brown medium trellis medium dark purple fine trellis high high hown medium trellis high high hown medium trellis high high high hown medium   |            | Tone                 |         | raccern    | Lensity    | Prior.         | (   | hoddod  |                   |          | Medium to coarse – grained sedimentary rocks   |
| yellowish gray, fino pinuato medium brown medium pinnate to high hrwwnish gray, fino dendritic medium gray, fino dendritic medium gray, medium dendritic medium gray, modium dendritic high dark gray, coarse pinnate, high dark gray, medium trellis medium grayish white coarse trellis medium grayish brown, medium trellis medium grayish brown, medium trellis medium dark purple fine fine trellis, high high hown medium trellis medium dark purple fine trellis high high hown medium trellis medium dark purple fine trellis high high high hown medium trellis high high high hown medium trellis high high high hown medium trellis high high high  | 4          | wasteh white         | ann -   | Spining    |            | i              |   |         | 1                 | _        | (Jurassic:Conglomerate evaporite etc.)   |
| brown brown medium dendritic, medium hrewnish gray, fine dendritic medium gray, fine dendritic medium gray, fine dendritic medium gray, medium dendritic medium gray, medium dendritic high dark gray, coarse pinnate, high dark bluish gray, medium trellis medium grayish white purplish brown, medium trellis medium grayish white purplish brown, medium trellis, high to high dark bluish gray coarse parallel medium dark bluish gray coarse parallel medium gray, medium trellis medium hight brown, medium trellis, high high brown medium trellis medium dark burple fine trellis high high high hown medium trellis high   |            | vollowish craw       | ئين     | minnete    | medium     | medium         | (   | pedded  |                   |          | Fine to medium – grained sedimentary rocks   |
| brown, medium dendritic, medium hrewnish gray, fine dendritic medium gray, fine dendritic medium gray, fine dendritic medium gray, medium dendritic medium gray, modium dendritic high dark gray, coarse pinnate, high dark gray, medium trellis medium grayish white dark bluish gray, coarse porallel medium grayish white coarse porallel medium dark bluish gray coarse porallel medium dark bluish gray coarse porallel medium dark bluish brown, medium trellis, high high brown medium trellis medium dark burple fine trellis high high hown medium trellis high   | 4          | brownish oray        | }       |            |            | to high        | 1   |         | ţ                 | 1        | (Jurawsic:Conglomerate, sandstone, alltatone etc.)                                   |
| brown, medium pinnate to high hrewnish gray, fine dendritic medium gray, fine dendritic medium gray, medium dendritic medium gray, modium dendritic high dark gray, medium trellis medium gray, coarse pinnate, high dark gray, medium trellis medium gray, high the brownish gray, medium trellis medium gray, high dark bluish gray coarse porallel medium gray, high the brown medium trellis, high high brown medium trellis medium dark purple fine trellis high high hown medium trellis high high   |            | brown                | medium  | dendritic, | medium     | medium         | The same                                  | partly  | эвледв            |          | Fine to medium—grained sedimentary rocks   |
| brown, medium pinnate high hrownish gray, fine dendritic medium gray, fine dendritic medium gray, medium dendritic medium gray, modium dendritic high brownish gray, coarse pinnate, high dark gray, medium trellis medium grayish white coarse porallel medium purplish brown, medium trellis, high high brown medium trellis, high high brown medium trellis medium dark purple fine trellis high high hown medium trellis high high hown medium trellis high  | 7          |                      |         | pinnate    | to high    | to high        | V. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. | bedded  |                   | 1        | (Jurannic:Conglomerate, nandatone, tuff etc.)  |
| hrownish gray,  gray, yellowish gray, pellowish gray, prownish gray, brownish gray, brownish gray, dark gray dark gray dark bluish gray, coarse purplish brown, light brown, hight brown, hight brown, hight brown dark purple finc trellis high high purplish brown, high high hown medium trellis, high high high high high high high hig  |            | brown,               | medium  | pinnate    | hjid       | medium         | 4   | partly  |                   |          | Fine to medium – grained sedimentary rocks   |
| whitish gray, fine dendritic medium gray, medium dendritic medium brownish gray, modium dendritic high dark gray coarse pinnate, high dark bluish gray, coarse trellis medium grayish white carse parallel medium grayish white purplish brown, medium trellis, high high brown medium trellis, high dark bluish gray coarse parallel medium dark bluish brown medium trellis, high purplish brown medium trellis medium dark burple fine trellis medium   | Ļ          | hrowniah gray        |         |            |            |                | 41/41/11                                  | bedded  | 1                 |          | (Triassic:Sandstone conglomerate siltatone volcanic rocks etc.)                      |
| whitish gray.  yellowish gray.  prownish gray, modium dendritic high green brownish gray, coarse pinnate, high dark gray.  light brownish gray, coarse trellis medium grayish white dark bluish gray coarse parallel medium hight brown medium trellis, high dark bluish gray coarse parallel medium dark bluish gray coarse parallel medium dark bluish brown medium trellis, high high brown trellis, high high brown medium trellis medium dark purple finc trellis high  |            | gray                 | fine    | dendritic  | medium     | low            |   | partly  |                   |          | Fine to medium—grained sedimentary rocks   |
| yellowish gray, medium dendritic medium gray brownish gray, modium dendritic high dark gray coarse pinnate, high dark gray, medium trellis medium grayish white dark bluish gray coarse parallel medium hight brown, medium trellis, high high brown medium trellis, high high dark bluish brown medium trellis medium dark purple fine trellis medium high brown medium trellis high high high medium   | , <u>.</u> | whitish gray         |         |            |            |                | 4(1)                                      | bedded  | ,                 | ı        | (Upper Triassic:Continental sandstone mudstone intermediate tuff etc.)               |
| brownish gray, modium dendritic high green brownish gray, coarse pinnate, high dark gray, coarse trellis high dark gray, medium trellis medium gray, hite purplish brown, modium trellis, high high brown fine trellis, high high brown medium trellis, high high brown medium trellis medium dark purple fine trellis high high high medium   |            | yellowish gray.      | medium  | dendritic  | medium     | umpou          | <b>{</b>                                  |         |                   |          | Intermediate volcanic rocks  |
| brownish gray, modium dendritic high brownish gray, coarse pinnate, high dark gray, coarse trellis high light brownish gray, medium trellis medium grayish white to high dark bluish gray coarse parallel medium hight brown fine trellis, high hight brown medium trellis medium dark purple fine trellis high  | <u>}</u>   | crav                 |         |            |            |                | 7, 2, 2, 2, 2                             | ı       | į                 | i        | (Upper Triansic:Effusive rocks etc.)   |
| brownish gray coarse prinate, high dark gray, coarse trellis high high dark gray, medium trellis medium grayish white coarse parallel medium purplish brown, medium trellis, high high high fine fine trellis, high high brown medium trellis, high high brown medium trellis medium dark purple fine trellis medium   |            | brownish gray,       | modium  | dendritic  | high       | medium         | \<br>!                                    | partly  |                   |          | Fine to medium—grained sedimentary rocks   |
| brownish gray, coarse pinnate, high dentk gray, coarse trellis high dark gray, medium trellis medium grayish white dark bluish gray coarse parallel medium hight brown, medium trellis, high high brown, medium trellis, high purplish brown, medium trellis medium dark purple fine trellis medium  | 7.0        | ктеел                |         |            |            |                |   | bedded  | ,                 |          | (Lower Triassic:Continental tuffaceous sandstone, black mudstone, conglomerate etc.) |
| brownish gray, coarso trellis high dark gray, medium trellis medium gray, hubite to high dark bluish gray coarso parallel medium hight brown, medium trellis, high high brown fine trellis medium dark purple fine trellis medium purplish brown medium trellis high high  |            | brownish gray        | coarse  | pinnate.   | high       | medium         | {   | partly  |                   |          | Fine to medium - grained sedimentary rocks   |
| brownish gray, coarse trellis high dark gray, medium trellis medium grayish white to high dark bluish gray coarse parallel medium purplish brown, medium trellis, high dark purple fine trellis medium purplish brown fine trellis medium  | æ          |                      |         | dendritic  |            | to high        | /   | poppod  | ,                 |          | (Upper Permian:Continental quartzore sandstone, conglomerate etc.)                   |
| light brownish gray, medium trellis medium grayish white dark bluish gray coarse parallel medium hight brown, medium trellis, high dark purple fine trellis medium purplish brown medium trellis medium hurplish brown medium trellis high   |            | brownish gray,       | coarse  | trellis    | high       | unmeun         |   | partly  |                   |          | Fine to medium—grained sedimentary rocks   |
| light brownish gray, medium trellis medium grayish white dark bluish gray coarso parallel medium hight brown, medium trellis, high dark purple fine trellis medium purplish brown medium trellis high  | ಕ್ರಿ       | dark gray            |         |            |            |                |   | hedded  | ŀ                 | ı        | (Carboniferous to Permian andatone, imentone etc.)                                   |
| dark bluish gray coarso parallel medium purplish brown, medium trellis, high high dark purple fine trellis medium purplish brown medium trellis high   |            | light brownish gray, | medium  | trellis    | medium     | medium         | 2   | partly  |                   |          | Medium — grained sedimentary rocks   |
| dark bluish gray coarso parallel medium purplish brown medium trellis, high dark purple fine trellis medium purplish brown medium trellis high   | క          | grayish white        |         |            | to high    | to high        |   | pedded  | Į                 | 1        | (Upper Carboniferous:Sandatone, mudatone, volcanic breccia etc.)                     |
| purplish brown, medium trellis, high light brown fine trellis medium purplish brown medium trellis high  |            | dark bluish gray     | coarec  | parallel   | medium     | high           | 1   | partly  |                   |          | Medium to coarse - grained sedimentary rocks   |
| purplish brown, medium trellis, high light brown fine trellis medium purplish brown medium trellis high  | :5         |                      |         | •          |            |                | . ////                                    | bedded  | 1                 | ı        | (Lower Carboniferous: Conglomerate, sandstone etc.)                                  |
| light brown fine trellis medium purplish brown medium trellis high   | ĺ          | purplish brown.      | medium  | trellis,   | high       | high           | 4   | partly  |                   |          | Medium – grained sodimentary rocks   |
| dark purple fine trellis medium purplish brown medium trellis high   | 2          | light brown          |         | parallel   |            |                | 11/14                                     | hedded  | į                 | I        | (Upper Devonian:Sandatone, mudatone etc.)  |
| purplish brown medium trellis high   |            | dark purple          | fine    | trellia    | medium     | high           |   | partly  |                   |          | Medium – grained sedimentary rocks   |
| purplish brown medium trellis high   | <u>.</u>   |                      |         |            |            |                | //  | bedded  | į                 | t        | (Lower Devonian:Mudstone and atone etc.)   |
|  |            | purplish brown       | medium  | trellis    | पृत्रीत्प् | medium         | July 1                                    | partly  |                   |          | Fine to medium—grained sedimentary rocks   |
|  | B          |                      |         |            |            | to high        | <u> </u>                                  | bedded  |                   | 1        | (Silurian to Devonian:Sandatone,conglomerate etc.)                                   |

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|                       |                        |                                      |                                       |                                  |   |                                | -1-                           |                      | 7                        |                               |   |                               | -1-                                 |                 | ~ 1       |
|-----------------------|------------------------|--------------------------------------|---------------------------------------|----------------------------------|---|--------------------------------|-------------------------------|----------------------|--------------------------|-------------------------------|---|-------------------------------|-------------------------------------|-----------------|-----------|
| Downloads I also down | Photograph Mondon I    | ( Mar) and the state of the Barlowie | Correlation With Avanable Avances and | Fine – grained sedimentary rocks | (Upper Ordovician:Sandatone, mudatone etc.) | Fine—grained sedimentary rocks | (Upper Ordovician:Limestone?) | Felaic igneous rocks | (Miocene:Plutonic rocka) | Somewhat felaic igneous rocks | (Cretaceous to Early Tertiary:Plutonic rocks) | Somewhat felaic igneous rocks | (Permian:Granite granodiorite etc.) | Alteration zone |           |
| ļ                     | iavo:                  |                                      | tion                                  |                                  | ı   | :                              | ŀ                             |                      | ı                        | <u>-</u>                      | 1   |                               | ļ                                   |                 | į         |
|                       | Superficial Cover      |                                      | Vegetation                            |                                  | 1   |                                | 1                             |                      | ı                        |                               | 1   |                               | 1                                   |                 | I         |
|                       |                        | Bedding                              |                                       | partly                           | bedded                                      | partly                         | bedded                        | massive              |                          | massive                       |   | massive                       |                                     | massive         |           |
|                       | хртевяюл               | Section                              |                                       | Ų                                | 1   | Q                              | ,                             | (;                   | /* * \                   | X . X                         | /x  | 18.81                         | \ x x x x/                          |                 | NAVYKAN - |
|                       | Morphologic F.         | Rock                                 | Denaity Registance                    | high                             |   | medium                         |                               | high                 | •                        | high                          |   | very high                     |                                     | high            |           |
|                       | Mor                    | ge                                   | Denaity                               | high                             |   | medium                         |                               | ųžių                 |                          | high                          |   | high                          |                                     | भृत्रेत्प       |           |
|                       |                        | Drains                               | Pattern                               | trellis                          |   | pipnate                        |                               | dendritic            |                          | dendritic                     |   | rectangular,                  | dendritic                           | dondritic       |           |
|                       | eptice                 | Texture                              |                                       | coarse                           | :   | medium                         |                               | coarse               |                          | coarse                        |   | coarse                        |                                     | coarse          |           |
| Illapel Area          | Photo - characteratics |                                      | Tone                                  | nurnlish brown                   |   | light brownish gray medium     |                               | white.               | wellowish white          | light brown.                  |   |                               | 3                                   | light yellow    |           |
|                       | Unit                   |                                      |                                       |                                  | å   |                                | 980                           |                      | س<br>۸                   |                               | #<br>*  |                               | 2                                   | C               | )         |

|          | Santiago Area       |         |                   |         |                    |  | 1       |                   |          | P-233 R-083 1/2  |
|----------|---------------------|---------|-------------------|---------|--------------------|--|---------|-------------------|----------|--|
| Unit     |                     | DBCICS  |                   | Mo      | Morphologic Expr   | хргеняют                               |         | Superficial Cover | Cover    | Probable Lithology   |
|          |                     | Texture | Drainage          |         | Rock               | Section                                | Bedding |                   | Cultiva- |  |
|          | Tone                |         | Pattern           | Density | Density Resistance |  |         | Vegetation tion   | tion     | (Correlation with Available Geologic Map)  |
|          | light purple, light | fine    | meandering        | low     | wol                |  |         | partly            | partly   | partly Unconsolidated sediments composed of gravel, sand, silt and clay            |
| త        | yellowish gray      |         |                   |         |                    |  | '       | dense             | intense  | intense (Quaternary:Recent alluvia) deposits)                                      |
|          | light brown         | fine    | parallel,         | modium  | low                |  |         | partly            | parth    | partly Unconsolidated sediments composed of gravel, sand, silt and clay            |
| ծ        |                     |         | distributary      |         |                    |  | 1       | dense             | intense  | intense (Quaternary.Terrace and fan deposits)                                      |
|          | light purple        | medium  |                   |         | very low           |  |         |                   |          | Unconsolidated sediments composed mainly of sand                                   |
| 3        |                     |         | I                 | i       |                    | KKKKK                                  | ì       | ì                 | I        | (Quaternary: Polian deposits)  |
|          | light blue          | une     |                   |         | high               |  |         |                   |          | Unconsolidated sediments composed of gravel, sand                                  |
| 9        |                     |         | ŧ                 |         |                    |  | 1       | 1                 | -        | (Quaternary:Glacial deposits)  |
|          | dark brown          | coarse  | radial,           | medium  | high               | {<br>{<br>{                            | massive |                   |          | Andesitic volcanic rocks   |
| <u>^</u> |                     |         | sub-dendritic     |         |                    |  |         | ı                 | 1        | (Pilocene: Andesite, pyrodastic flow deposits)                                     |
|          | light yellowish     | coarse  | depdritic         | hìgh    | high               | 14.8                                   | massive | partly            |          | Felsic volcanic rocks  |
| <u> </u> | brown               |         |                   |         |                    | (,, )                                  |         | dense             | 1        | (Miocene: Andesitic volcanic breccia, rhyolitic volcanic breccia etc.)             |
|          | dark brown,         | coarse  | dendritic,        | hjigh   | low to             | <b>\</b>                               |         | partly            |          | Andesitic volcanic rocks   |
| Kav      | light purple        |         | sub-parallel      |         | medium             | ` ` ` ` ` \                            | i       | dense             | 1        | (Cretaceous: Andesitic volcanic breccia, rhyolitic volcanic breccia etc.)          |
|          | light brown         | medium  | dendratic,        | medium  | medium             | 4                                      | partly  | partly            |          | Medium to coarse-grained sedimentary rocks   |
| ×        |                     | ·       | pinnate           | to high | to high            | , ,,,,                                 | bedded  | dense             | 1        | (Cretaceous:Conglomerate, sandstone, mudatone.tuff etc.)                           |
|          | hght yellowish      | medium  | dendritic         | medium  | low to             | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |         | partly            |          | Andesitic volcanic rocks   |
| Χį       | brown               |         |                   |         | medium             |  | 1       | dense             | 1        | (Lower Cretaceous: Andesitic volcanic breccia, rhyolitic volcanic breccia etc.)    |
|          | light brown         | medium  | dendritic,        | medium  | medium             | Ę                                      | partly  | partly            |          | Medium to coarse-grained sedimentary rocks   |
| ž        |                     |         | pinnate           | to high | to high            | 111                                    | bedded  | dense             |          | (Lower Cretaceous:Conglomerate, sandstone, tuff etc.)                              |
|          | dark brown,         | coarse  | dendritic,        | medium  | medium             | MIN DE                                 | partly  | partly            |          | Medium to coarse-grained sedimentary rocks   |
| ×        | light brown         |         | sub-parallel      |         | to high            | VIII. 1 111                            | bedded  | депъе             | 1        | (Cretaceous:Conglomerate, sandstone, andesitic to rhyolitic volcanic breccia etc.) |
|          | dark brown,         | coarse  | dendritic,        | medium  | medium             |  | partly  | sparse            |          | Medium to coarso-grained sedimentary rocks   |
| -S       | brown               |         | sub-parallel      |         | to high            | \ """                                  | bedded  |                   | 1        | (Upper Jurassic:Conglomerate, sandstone, andesitic volcanic breccia etc.)          |
|          | brown               | medium  | dendritic, medium | medium  | medium             | 4                                      | partly  | sparse            | 1        | Fine to coarse-grained sedimentary rocks   |
| ٦        |                     |         | pinnate           | to high | to high            |  | hedded  |                   | -        | (Jurassic:Conglomerate, sandstone, tuff etc.)                                      |

Characteristics of Photogeologic Units

all lands on

| P-233 R-083 2/2 |                       |  |   |  |   |                          |  |   |   |                      |                         |                         |                                     |                      |                         |                             |                                  |                 |              |
|-----------------|-----------------------|--|---|--|---|--------------------------|--|---|---|----------------------|-------------------------|-------------------------|-------------------------------------|----------------------|-------------------------|-----------------------------|----------------------------------|-----------------|--------------|
| P-233 R         | Probable Lithology    | Amage specified Control of the Contr | (Correlation with Available Geologic Map) | Fine to coarse-grained sedimentary rocks | (Triassic:Conglomerate, sandstone etc.) | Andesitic volcanic rocks | (Upper Permian: Conglomerate, tuff, andesitic volcanic breccia etc.) | partly Fine to medium grained sedimentary rocks | intense (Paleozoic:Mudstone,gneiss,serpentinite etc.) | Felsic igneous rocks | (Tertiary:Granodiorite) | Andesitic ignoous rocks | (Mesozoic: Andesite, thyolite etc.) | Felsic igneous rocks | (Mesonoic:Granodiorite) | partly Felsic igneous rocks | intense (Paleozoic Granodiorite) | Alteration zone |              |
|                 | 1 Cover               | Cultava-   | tion                                      |  | 1                                       |                          | 1  | partly  | intense   |                      | -                       |                         | 1                                   |                      | ,                       | partly                      | intense                          | -               | 1            |
|                 | Superficial Cover     |  | Vegetation                                | sparse                                   | :                                       | <b>врате</b> е           |  | sparse  |   | partly               | dense                   | sparse                  |                                     | sparse               |                         | sparse                      |                                  |                 | ì            |
|                 |                       | Bedding  |   | partly                                   | bedded                                  |                          | '  | partly  | bedded  | massive              |                         | massive                 |                                     | massive              |                         | massive                     |                                  | massive         |              |
|                 | ргезніол              | Section  |   | 4  | 11111                                   | \(\frac{1}{2}\)          |  |   |   |                      | 1+++/                   | \$                      | / ^ _ ^/                            | ****                 | Y+++                    | {                           | <u>۲</u>                         | All Marketing   | . distribute |
|                 | Morphologic Expre     | Rock   | Density Resistance                        | low to                                   | medium                                  | medium                   | to high  | low   |   | medium               | to high                 | medium                  | to high                             | low                  |                         | low                         |                                  | high            |              |
|                 | Mor                   |  | Denmity                                   | medium                                   |   | medium                   |  | medium  | to high   |                      |                         | muthom                  | :                                   | ųžių                 | -                       | цЯјц                        |                                  | medium          |              |
|                 |                       | Drainage   | Pattern                                   | dendritic,                               | pinnate                                 | dendritic                | trellis  | pinnate,  | sub-parallel  | dendritic,           | sub-parallel            | dendritic, medium       | sub-parallel                        | pinnate,             | sub-parallel            | pinnate,                    | sub-parallel                     | dendritic       |              |
|                 | 1stics                | Texture  |   | medium                                   | ,                                       | coarse                   | :  | gue   | •   | medium               |                         | medium                  | >                                   | medium               |                         | medium                      |                                  | medium          |              |
| Santing Area    | Photo-characteristics |  | Tone                                      | brown                                    |   | brown, light             | vellowish brown  | light brown                                     | ,   | light yellowish      | hrown                   | light brown             |                                     | light yellowish      | brown, brown            | light yellowish             | brown, brown                     | light yellowish | - Priorie    |
| •               | 11211                 |  |   |  | <u>;</u>                                |                          | P  |   | 2   |                      | 7                       |                         | Ę                                   |                      | F                       |                             | 7.0                              | Q               | )            |

|            |                                      |         |               | •                |                |  |         |                   |          | P-232 R-075 1/2  |
|------------|--------------------------------------|---------|---------------|------------------|----------------|--|---------|-------------------|----------|--|
| ¥1,41,4    | Tupiza Area<br>Photo-characteristics | tics    |               | Mo               | Morphologic Es | Ехргевают  |         | Superficial Cover | Cover    | Probable Lithology   |
| 5          |                                      | Texture | Drainage      | П                | Rock           | Section  | Bedding | Vezetation        | Cultiva- | (Correlation with Available Geologic Map)  |
|            | Tone                                 |         | Fattern       | Lenaity Negistan | Nesistance     |  |         |                   |          | Transmitted and allowed describe composed of grave legal, silt and clav  |
|            | gray                                 | fine    | meandering    | very             | very low       | Control of the Contro |         | pared             |          | Underhold the trace in the property of the pro |
| కి         |                                      |         |               | low              |                |  | 1       | dense             | TATE.    | (Quaternary: Recent unconsolidated segiments)  |
|            | light purple,                        | fine    | distributary, | low to           | very low       |  |         | partly            |          | Unconsolidated composite fan deposits composed of gravel, sand etc.  |
| 8          | light hown                           |         | meandering    | medium           |                |  | Į:      | ярятяе            | ŀ        | (Quaternary:Recent unconsolidated sediments)   |
|            | bluish white                         | fine    | meandering    | verv             | very low       | 4  |         | · · · · ·         |          | Unconsolidated evaporated sediments  |
| ક          | ANT LITTLE                           | }       |               | } <b>%</b>       |                |  | i       | 1                 | 1        | (Quaternary:Recent unconsolidated sediments)   |
|            | light gray                           | coarse  |               |                  | very low       | (  |         |                   |          | Unconsolidated sediments composed mainly of sand   |
| 3          |                                      |         | ı             | 1                |                |  | ı       | <u> </u>          | 1        | (Quaternary:Recent unconsolidated sediments)   |
|            | dark grav.                           | coarse  | radial,       | low              | low to         | £,,  | partly  |                   |          | Recent volcanic products   |
| ઢ          | light greenish grav                  |         | parallel      |                  | medium         | 201 - John   | bedded  | 1                 | •        | (Pliocene to Holocene: Anderste lava, ignimbrite etc.)   |
|            | vellowish brown.                     | fine    | parallel      | low              | low            | ST.  | partly  | partly            |          | Coarse-grained brittle semi-consolidated sediments   |
| ď          | dark purple                          | •       |               |                  |                |  | bedded  | sparse            | ı        | (Quaternary: Unconsolidated sediments composed of grave), sand, clay etc.)   |
|            | light purplish gray,                 | coarse  | paralle),     | medium           | medium         |  | partly  |                   |          | Fine to medium-grained sedimentary rocks (partly brittle)  |
| ā          | light green                          |         | trellia       | to high          |                | \  | bedded  | 1                 | ı        | Miocene to Oligocene; Muddy sandstone, mudstone, etc.)   |
|            | dark greenish gray                   | medium  | parallel      | you              | medium         |  | таввіче |                   |          | Relatively young lavas   |
| ž          |                                      |         |               |                  |                |  |         | 1                 |          | Pliocene to Plenatocene: Andesitic to basaltic lava pyroclastic rocks)   |
|            | brown,                               | fine    | trellis,      | medium           | medium         |  | partly  | ·                 |          | Fine to medium-grained compact sedimentary rocks   |
| Ξ          | light yellowish gray                 |         | dendritic     | to high          | to high        |  | bedded  | '                 | •        | (Miocene: Conglomerate, sandstone etc.)  |
|            | light pinkash gray.                  | fire,   | parallel      | medium           | high           |  | partly  |                   |          | Eroded volcanic products-including plateau of ignimbrite)  |
| . <u>}</u> | greenish grav                        | CORTRE  |               |                  |                |  | bedded  | 1                 | ı        | (Miocene: Andesite to dacite lava, ignimbrite etc.)  |
|            | yellowish brown,                     | coarse  | trellis.      | medium           | <b>q</b> Biq   |  | partly  |                   | <b></b>  | Coarse-grained compact sedimentary rocks   |
| ō          | greenish gray                        |         | parallel      |                  |                |  | pedded  | ,                 | ;        | Oligocene: Red polymictic conglomerate)  |
|            | greenish gray                        | muibom  | trellis       | medium           | wol            |  | partly  |                   |          | Medium-grained sedimentary rocks   |
| 103<br>803 |                                      |         |               |                  |                | .///   | bedded  |                   | 1        | Bocene: Red sandstone, siltstone, conglomerate)  |
|            | light yellowish brown medium         | anipea  | trellis       | medium           | medium         |  | pedded  |                   |          | Medium-grained sedimentary rocks   |
| Š          |                                      |         |               |                  | to high        | 11111  |         | 1                 | 1        | Eccene: Red sandatone, siltetone, conglomerate)  |
|            | light green,                         | unipour | trellis,      | medium           | ЧЗич           |  | bedded  |                   |          | Fine to medium-grained hard sedimentary rocks  |
| ×          | light yellow                         |         | dendritic     | to high          | :              |  |         | 1                 | 1        | (Cretaceous Conglomerate, sandstone, limestone etc.)   |



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|    | Tupiza Area                  |         |          |         |                              |  |         |                   |       | Details I the lower                                      |
|----|------------------------------|---------|----------|---------|------------------------------|--|---------|-------------------|-------|--|
| 11 |                              | tice    |          | Mo      | Morphologic Ex               | Expression                             |         | Superficial Cover | Cover | L'ACCEPTA TALLINGUES                                     |
|    |                              | Texture | Drainage | ıge     | Rock                         | Section                                | Bedding |                   | _     | (One-lastic Associated Conforme Man)                     |
|    | 7.                           |         | Pattern  | Density | Pattern   Density Resistance |  |         | Vegetation        | tion  | (Correlation with Avallable Action of Many)              |
|    | light vellowish brown medium | medium  |          | low     | high                         |  | partly  |                   |       | Almost massive hard volcanic rocks                       |
| 3  |                              |         |          |         |                              | <b>₹</b>                               | bedded  | ,                 | 1     | (Upper Silurian:Felsic and intermediate volcanic rocks). |
|    | brown.                       | coarse  | trellia  | high    | very high                    | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | partly  | partly            |       | Fine-grained hard compact sedimentary rocks              |
| đ  |                              |         |          |         | '                            |  | bedded  |                   | ١     | (Upper Ordovician: Mudatone)                             |
|    | ┺                            | coarse  |          | high    | very high                    | <                                      | partly  |                   |       | Fine-grained hard compact sedimentary rocks              |
| ö  |                              |         |          |         |                              | All Way                                | bedded  | i<br>:            | ı     | (Lower Ordovician: Mudstone)                             |
| L  | ╂                            | fine    | annular  | low     | high                         |  | massive |                   |       | Pelsic igneous rocks                                     |
| *  |                              |         |          |         | ,                            | \x,x,\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |         | ı                 | ١     | (Terriary: Granitic rocks)                               |
| 16 | light yellowish gray         | coarse  |          |         | medium                       |  | massive |                   |       | Alteration zone  |
| )  |                              |         | ·        | ı       | to high                      | NXXXXXX                                |         | ı                 | ı     |  |

|           | Susones Area         |         |                       |                |                               |                |         |                   |                  | P-232 R-076 1/2   |
|-----------|----------------------|---------|-----------------------|----------------|-------------------------------|----------------|---------|-------------------|------------------|---|
| Crit      | -                    | States  |                       | Mo             | Morphologic E                 | одіс Ехргеняюл |         | Superficial Cover | J Cover          | Probable Lithology  |
|           | Топе                 | Texture | Drainage<br>Pattern D | age<br>Denaity | ge Rock<br>Density Resistance | Section        | Bedding | Vegetation        | Cultava-<br>tion | (Correlation with Available Geologic Map)                                       |
|           |                      | fine    | ğ                     |                | very                          |                |         | partly            | partly           | Unconsolidated recent alluvial deposits composed of gravel, sand, sait and clay |
| ક         |                      |         |                       | 46             | low                           |                | •       | dense             | rare             | (Quaternary:Recent unconsolidated sediments)                                    |
| <u> </u>  | light purple,        | fine    | distributary          | medium         | very                          |                |         | partly            | partly           | Unconsolidated composite fan deposits composed of gravel, sand etc.             |
| ъ         |                      |         |                       | to high        | low                           |                | ŧ       | ярагае            | rare             | (Quaternary: Recent unconsolidated sediments)                                   |
|           | bluish white,        | fine    | parallel              | medium         | very                          |                |         | partly            |                  | Unconsolidated evaporated sediments   |
| \$        | light greenish gray  |         |                       |                | low                           |                | 1       | яратяе            | ŀ                | (Quaternary:Evaporated sediments)   |
|           | -                    | coarse  | radial,               | low            | medium                        |                | partly  |                   |                  | Recent volcanic products-including plateau of ignimbrite)                       |
| ઠ         |                      |         | parallel              |                |                               |                | pedded  | ,                 | 1                | (Pliocene to Holocene: Andesite Java ignimbrite etc.)                           |
|           | light purple,        | fine    | parallel              | low to         | low                           |                | almost  |                   |                  | Coarse-grained brittle semi-consolidated sediments                              |
| <i>z</i>  | -×                   |         |                       | medium         |                               |                | танеіуе | 1                 | 1                | (Quaternary: Recent sediments of gravel and pebble)                             |
| L         | light brown,         | fine    | distributary, medium  | medium         | medium                        | {              | partly  |                   |                  | Medium to coarse-grained brittle sedimentary rocks                              |
| <u>ء</u>  | [ <u>a</u>           |         | parallel              | to high        |                               | ζ (            | pedded  | -                 | ŝ                | (Quaternary: Recent sedimenta of gravel and pebble)                             |
| L         | dark greenish gray,  | coarse  | radial,               | low            | medium                        | المديدة        | partly  |                   |                  | Relatively young lavas  |
| <u>\$</u> |                      |         | parallel              |                |                               |                | bedded  | '                 | -                | (Pilocene:Lava*)  |
|           | _                    | fine    | trellia,              | medium         | medium                        |                | partly  |                   |                  | Fine to medium-grained compact sedimentary rocks                                |
| <b>=</b>  | light purple         |         | dendritic             |                |                               | \<br>\{\       | bedded  | 1                 | 1                | (Miocene to Pilocene:Sedimentary rocks including volcanic products)             |
|           | dark pinkish gray,   | fine,   | parallel              | medium         | high                          | <b>\</b>       | partly  | partly            |                  | Eroded volcanic products-including plateau of ignimbrite)                       |
| <u>}</u>  | rreenish gray        | coarse  |                       |                |                               |                | bedded  | aparee            | ı                | (Miocene: Andesite to dacitic lava,ignimbrite etc.)                             |
| <u> </u>  | light grayish yellow | бле     | dendritic             | low            | hjirh                         |                | pedded  |                   |                  | Hard compact carbonate rocks  |
| ₹<br>8    |                      |         |                       |                |                               | 100            |         | -                 | 1                | (Upper Cretaceous to Paleocene:Sbgrupo Balbnena)                                |
|           | light green,         | eug     | trellia               | medium         | medium                        |                | bedded  |                   |                  | Mainly fine-grained sedimentary rocks   |
| ž         | dark green           |         |                       |                |                               | £              |         | 7                 | I                | (Cretaceous:Salta G.)   |
|           | light purplish gray  | fine    | parallel              | low            | No                            | {              | almost  |                   |                  | Fine-grained sedimentary rocks  |
| ۵         |                      | . ]     | 16                    |                |                               | · .            | massive | ı                 | ı                | Permian:Sedimentary rocks, Cauchari F. Cerro Morado F.)                         |
|           | brown,               | coarse  | dendritic             | low            | medium                        | ٠,             | almost  |                   |                  | Intermediate volcanic xocks and pyroclastic rocks                               |
| ઠે        | yellowish brown      |         |                       |                |                               | ·              | таввате | ,                 | -                | (Ordovician: Volcanic rocks)  |
|           | brown,               | coarse  | trellis               | medium         | high                          | MITTING        | pedded  |                   |                  | Fine to medium-grained hard compact sedimentary rocks                           |
| ٥         | dark gray            |         |                       |                |                               |                |         |                   | 1                | (Lower Ordovician Santa Victoria G.)  |

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|                | \$ 1 mm 1 mm 2 mm 2 mm 2 mm 2 mm 2 mm 2 m |         |                  |         |                            |           |         |  |         |   |
|----------------|---|---------|------------------|---------|----------------------------|-----------|---------|--|---------|---|
|                | Susques Arca                              |         |                  |         |                            |           |         | Sumantinial Court  | Court   | Probable Lathology                            |
| 1,11           | Photo-characteristics                     | 5       |                  | Œ       | Morphologic Expression     | (pression |         | California de la Califo |         |   |
| 7              |   | Texture | Drainage         | яgе     | Rock                       | Section   | Bedding |  | Cultava | (Campleticm with Available Geologic Map)      |
|                | Tone                                      | <b></b> | Pettern          | Denaity | Pattern Denaity Resistance |           |         | Vegetation mon   | non     |   |
|                | -   | medium  | medium dendritic | high    | medium                     | {         | almost  |  |         | Fine-grained meta sedimentary rocks           |
| ğ              |   |         |                  | , ;     |                            | £222.     | massive | 1  | 1       | (Proteronoic: Puncoviacana R.)                |
|                | The court American designation            | 90000   | dendritie        | high    | high                       | 4         | massive |  |         | Felsic igneous rocks                          |
|                |   | 3       |                  | }       | •                          | 1         |         | ı  | _       | (Jurannic to Early Cretaceoun Granitic rocks) |
| <u>د</u><br>بر |   | 1       |                  |         |                            |           |         |  |         |   |
|                | light nollowed how medium dendritic       | madium  | dendritic        | Jo#     | medium                     | {         | massive |  |         | Felsic igneous rocks                          |
|                | LEGAL SCALOTAGA GAS TO                    |         |                  | _       |                            | 4         |         | 1  | ١       | (Ordovician:Plutonic rocks)                   |
| 70             | light grav                                |         |                  |         |                            |           |         |  |         |   |
| (              | Light yellowish gray                      | gue     |                  |         | medium                     | (B)XX(B)  | тавваче |  |         | Alteration zone                               |
| 3              |   |         |                  | į       |                            | •         | :       | •  | ı       |   |

| The control of the    |      | Pocitos Area         |         |              |          |              |  |         |             |         | P-232 R-077 1/2  |
|--|------|----------------------|---------|--------------|----------|--------------|--|---------|-------------|---------|--|
| Tono Tono Tonture Denasty Resistance Section Bedding Vegetation light purple, fine meandering medium very low remains gray fine distributary medium very low remains gray, coarse radial, low medium light purples greenish gray, coarse radial, low medium low partly bedded light purples greenish gray, coarse radial, low medium low partly light greenish gray, coarse radial, low medium low partly light greenish gray, medium parallel medium low partly light greenish gray, medium parallel medium low medium low light greenish gray, medium parallel medium low lodded gantle greenish gray, medium parallel medium medium low lodded latt greenish gray, medium parallel medium medium low lodded latt greenish gray, medium parallel medium medium low lodded latt greenish gray, medium parallel low low low low low low light greenish gray and dark green fine trellis medium medium low lodded latt green light green fine trellis medium low low low low low low low low low light greenish gray line dendritic low low low low low low low light greenish gray line dendritic low low low low low low low light greenish gray line dendritic low low low low low low low light greenish gray line dendritic low low low low low low low low low low  | Unit | Photo-characterist   | tics    |              |          |              |  | _       | Superfi     | Cla)    | Probable Lithology   |
| light greenish gray, fine meandering very vory low recommendate from meandering very vory low recommendate from meandering very low recommendate from meaning very low recommendate from meaning from meaning light purplish gray, coarse radial low meaning light purplish gray, fine parallel medium low meaning partly brown light green. fine trellis, medium low medium high medium parallel medium parallel low low partly bedded light green, fine trellis medium medium medium parallel low low partly bedded light green, fine trellis medium medium medium medium medium medium medium medium medium medium medium medium parallel low low partly bedded light green, fine trellis medium medium medium medium parallel low low partly bedded light green, fine dendritic low low partly bedded light greenish gray fine dendritic low low partly bedded light greenish gray fine dendritic low low partly bedded light greenish gray fine dendritic low low low bedded light greenish gray fine dendritic low low low bedded light greenish gray fine dendritic low low low low low low low low low low  |      |                      | Texture | Ц            | é        | Rock         | Contion  |         | Vocatation  |         | (Correlation with Available Map)   |
| light purple, fine distributary medium very low truly, brown in the parallel low to low firetherman light purple, fine distributary medium very low truly, brown fine parallel low to low medium light purplish gray, coarse radial low medium light purplish gray, fine parallel low to low medium light purplish gray, fine parallel low to low medium light purples gray, fine parallel low to low medium light purples gray, coarse radial low medium low perallel low to low medium light purples gray, maedium parallel low medium low parallel medium low perallel medium medium low bedded light green fine trellis medium medium low light gray fine trellis medium medium light gray light green fine trellis medium low light green fine trellis medium light gray light green fine trellis medium light gray low low low low light green, fine parallel low low low low low low light green, fine parallel low low low low low low low low low lo  |      |                      |         | LAICHE       | Cenality | DENINGE INC. | SACOLOII.  |         |             |         | The second second of the second secon |
| light purple, fine distributary medium very low return to high purple, fine distributary medium very low return to high purple, fine distributary medium very low return to high purples greenish gray, coarse radial, low to low fire partille low to low fight purples beaved fine parallel low to low fight purples coarse fine trellis, medium medium light green fine trellis, medium medium light green fine trellis medium medium fight fine trellis medium medium medium medium medium medium light green fine trellis medium medium medium medium medium medium light green fine trellis medium medium medium medium medium medium light green fine trellis medium medium parallel low low partly brownish gray fine dendritic low low partly bedded light green, fine trellis medium medium parallel low low partly bedded light green, fine dendritic low low partly bedded light green, fine parallel low low partly bedded light green, fine parallel low low partly bedded light green, fine parallel low low low partly bedded light green, fine parallel low low low partly bedded light green, fine parallel low low low partly bedded light green, fine parallel low low low low low low low low low lo  |      | light greenish gray  | fine.   | meandering   |          | very low     | The state of the s |         | parti       | A PRIMA | Unconsolidated recent alluvial deposits composed of gravet, saud, successed one  |
| light purple, fine distributary medium very low white, white, the fine caree radial low to high grave brown light purplish grav, fine parallel low to high greenish grav, fine parallel low to high greenish grav, fine parallel low to high light purples greenish grav, fine parallel low medium low parallel low to high greenish grav, fine parallel low medium low medium light purples greenish grav, fine trellis, medium low medium low parallel low to high light green fine trellis medium medium medium medium light green fine trellis medium medium medium medium light green fine trellis medium medium parallel low low parallel low low fight green fine trellis medium medium parallel low low parallel low light green fine trellis medium medium parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low parallel low low low parallel low low low parallel low low low parallel low low low parallel low low low low low low low light greenish grav long light greenish grav line dendritic low low low low low low low low low low  | 8    |                      |         |              | low      |              |  | ı       | dense       | common  | (Quaternary Recent unconsolidated sediments)   |
| white, white white time the high with the white the coarse radial, low medium fight purplish gray, coarse radial, low to low for tree high grown ight purplish gray, the parallel low to low for the brown in the greenish gray, medium parallel medium low for tree greenish gray, medium parallel medium low fight groen fine trellis, medium high force for trellis medium medium fight green fine trellis medium medium fight green fine trellis medium medium medium fight greenish gray, fine parallel low low fight greenish gray, fine trellis medium medium fight force fine trellis medium medium fight force fine trellis medium medium fight green fine trellis medium medium fight green fine freilis medium fight green fine freilis medium force fine freilis medium force fine freilis medium force fine freilis fine force force fine force f |      | light purple,        | fine    | distributary |          | very low     |  |         | partly      | partly  | Unconsolidated composite fan deposits composed gravel, sand etc.   |
| white, fine — — wery low — bluish white dark greenish gray, coarse radial, low to low of medium from partly — broked spare, fine parallel how to low medium high green, fine parallel how medium high green, fine parallel how medium high green, fine trellis, medium high medium high green, fine trellis, medium high medium high medium high green, fine trellis medium medium high medium fight green fine trellis medium medium medium medium medium medium high browned fine trellis medium high green, fine parallel low low — hedded — — hedded — — hight green fine trellis medium medium medium medium medium medium medium hight green, fine parallel low low — hedded — hight green, fine dendritic low low — hedded — hedded — hight green, fine parallel low low — hedded — hedded — hedded — hight green, fine parallel low low — hedded — — — — — — — — — — — — — — — — —   | ኔ    | gray, brown          |         |              | to high  |              |  | -       | вратве      | $\neg$  | (Quaternary: Recent unconsolidated sediments)  |
| dark greenish gray, coarse radial, low medium for partly dark brown light purplish gray, fine parallel low to low freeding light purplish gray, fine parallel low to low freeding partly light purplish gray, fine parallel low to low freeding partly light green.  Inchine the promise gray, coarse radial, low medium low freeding light green.  Inchine greenish gray, medium parallel medium high frow partly bedded light green fine trellis medium medium medium high frow hodded ark green fine trellis medium medium medium fight green.  Inght green fine trellis medium medium fight for high medium medium fight for high medium medium high frow hodded light green fine trellis medium medium fine fine trellis medium medium fight green fine fine fine high medium fine fine fine fine fine fine fine fine   |      | white,               | fine    |              |          | very low     |  | partly  | <del></del> |         | Unconsolidated evaporated sediments  |
| dark greenish gray, fine parallel low to low medium bedded bedded by parallel low to low medium light purplish gray, fine parallel low to low medium light greenish gray, fine parallel low medium light green.  Jight purples greenish gray, coarse radial, low medium low bedded sparse brown fine trellis, medium high medium light green.  Jight purple coarse dendritic high medium medium medium medium high medium parallel medium medium medium parallel low low wellowish brown fine trellis medium medium pedded   | ક    | bluish white         |         | 1            | į        |              |  | bedded  | ,           |         | Quaternary:Evaporated aedimenta)   |
| light purplish gray, fine parallel low to low medium low greenish gray, fine parallel low to low medium low greenish gray, fine parallel low medium low medium low partity partity brown fine trellis medium low medium low greenish gray, medium parallel medium low medium light green fine trellis medium medium medium medium medium medium light green fine trellis medium medium medium medium medium light green fine trellis medium medium medium medium light green fine trellis medium medium medium parallel low low bedded bedded light green fine trellis medium medium medium medium medium medium medium medium parallel low low bedded light green fine trellis medium medium medium parallel low low bedded light green fine parallel low low bedded light greenish gray fine dendritic low low bedded light greenish gray fine dendritic low low bedded light greenish gray fine dendritic low low bedded low bedded light greenish gray fine dendritic low low bedded light greenish gray fine dendritic low low low bedded light greenish gray fine dendritic low low low bedded light greenish gray fine dendritic low low low light greenish gray fine dendritic low low low light greenish gray fine dendritic low low low low low light greenish gray fine dendritic low low low light greenish gray fine dendritic low low low low light greenish gray fine dendritic low low low low low low low low low low   |      | dark greenish gray,  | coarse  | radial,      | low      | medium       |  | partly  |             |         | Recent volcanic products   |
| light purplish gray, fine parallel low to low medium low greenish gray.  Jight purplish gray, coarse radial, low medium low medium low parallel brown light green.  Jight  | ઢ    | dark brown           |         | parallel     |          |              |  | bedded  | 1           | 1       | (Quaternary Stratovoleanos composed of andesite and basalt, ignimbrite)  |
| light purplish gray, fine parallel medium low partiy partiy partiy light green dark green, fine trellis, medium high brownish gray, coarse radial, low medium high purple green, fine trellis medium high medium high medium high medium fine trellis medium medium medium medium high portly hedded — — — — — — — — — — — — — — — — —   |      | light purplish gray. | fine    | parallel     | low to   | low.         |  | partly  |             |         | Medium to coarse-grained brittle semi-consolidated sediments   |
| light green, fine parallel medium low podded spare light green tradial, low medium low bedded spare brown fine trellis, medium low medium brownish gray, medium parallel medium medium medium low massive dark green fine trellis medium medium medium low massive light green, fine trellis medium medium low massive bedded brownish gray fine trellis medium medium low low massive light green, fine trellis medium medium low low massive light green, fine trellis medium medium low low bedded light green, fine dendritic low low low bedded light greenish gray fine dendritic low low low bedded light greenish gray fine dendritic low low low bedded light greenish gray fine dendritic low low low bedded light greenish gray fine dendritic low low low low bedded light greenish gray fine dendritic low low low low low low low low low low  | ť    | greenish gray        |         |              | medium   |              |  | bedded  | <u> </u>    | $\neg$  | Quaternary:Recent unconsolidated sediments)  |
| dark green.  dark greenish gray, coarse radial, low medium bedded sparae — brown  light green.  light green.  fine trellis, medium high medium medium medium medium medium medium fine trellis medium bedded — — light greenish gray fine dendritic low low partly — — — — — — — — — — — — — — — — — — —   |      | light purplish gray. | fine    | parallel     | medium   | low          |  | partly  | partly      |         | Fine to medium-grained brittle sedimentary rocks   |
| dark greenish gray, coarse radial, low medium low brown  light green, fine trellis, medium low bedded  light green, fine trellis medium high brownish gray  dark purple  dark purple  coarse dendritic high medium  light green, fine trellis medium medium  light green, fine trellis medium medium  light green, fine dendritic low low  bedded  | 4    | light green          |         |              | to high  |              | ,  | bedded  | яратве      |         | Quaternary:Recent unconsolidated «ediment»)  |
| light green, fine trellis, medium low from high forwards gray, medium parallel medium high forwards greenish gray fine trellis medium medium medium medium fine trellis medium medium medium fine trellis medium medium fine fine trellis medium medium fine fine trellis medium medium fine fine fine trellis medium medium fine fine fine fine fine fine fine fine   |      | dark greenish gray.  | coarse  | radial,      | low      | medium       |  | partly  | :           | ,,      | Relatively young lavas   |
| light green, fine trellis, medium high high frownish gray, medium parallel medium high medium high frownish green fine trellis medium medium medium medium medium medium fine trellis medium medium fine trellis medium medium fine trellis medium medium fine fine trellis medium medium fine parallel low low fight green, fine dendritic low low fight greenish gray fine dendritic low low fight partly partly bedded — —  | 3    | brown                |         | parallel     |          |              |  | bedded  | '           |         | Pliocene to Pleistocene:Volcanic rocks)  |
| light greenish gray, medium parallel medium high high frownish gray, medium parallel medium m |      | light green.         | fine    | trellis,     | medium   | low          |  | bedded  |             | ,       | Fine to medium-grained compact sedimentary rocks   |
| greenish gray, medium parallel medium high high high high high hown ish gray, medium trellis medium medium medium medium medium medium high partly bedded light green, fine parallel low low hown light greenish gray fine dendritic low low hedded  | ä    | light purple         |         | dendritie    |          |              | 1  |         | '           | $\neg$  | Miocene to Pliocene:Pastos Grandes G.)   |
| dark green fine trellis medium medium medium podded — — adark purple coarse dendritic high medium medium medium medium medium medium medium medium pedded — — hight green, fine parallel low low partly bedded — b |      | greenish gray,       | medium  |              | medium   | high         |  | partly  |             |         | Eroded volcanic products-including plateau of ignimbrite)  |
| dark green fine trellis medium medium fodded bedded dark purple coarse dendritic high medium medium fine trellis medium medium bedded bedded light green, fine parallel low low for bedded bedded light greenish gray fine dendritic low low bedded  | 2    | brownish gray        |         |              |          |              | \  | bedded  |             |         | Miocene:Volcanic rocka ignimbrite)   |
| dark purple coarse dendritic high medium almost massive light green fine trellis medium medium bedded light green, fine parallel low low bedded bedded light greenish gray fine dendritic low low bedded   |      | dark green           | fine    | trellis      | medium   | medium       |  | pedded  | •           |         | Fine-grained compact sedimentary rocks   |
| dark purple coarse dendritic high medium almost massive — — — — — — — — — — — — — — — — — — —  | 6    |                      |         |              |          |              |  |         | -           | ╗       | (Focene: Red sandstone, siltstone, conglomerate)   |
| light green, fine trellis medium medium bedded bedded light green, fine parallel low low partly bedded light greenish gray fine dendritic low low bedded bed |      | dark purple          | coarse  | dendritic    | पृष्ठीप  | medium       | <  | almost  |             |         | Fine-grained hard compact sedimentary rocks  |
| light green, fine trellis medium medium bedded bedded light green, fine parallel low low partly bedded light greenish gray fine dendritic low low bedded bedded light greenish gray fine dendritic low low low bedded light greenish gray fine dendritic low low low low low bedded light greenish gray fine dendritic low low low low low low low low low low   | χa   |                      |         |              |          |              |  | massive | '           |         | Upper Cretaceous:Subgrupo Balbuena)  |
| light green, fine parallel low low bedded bedded light greenish gray fine dendritic low low bedded bedded bedded   |      | light green          | fine    | trellis      | medium   | medium       | / Yawa   | pedded  |             |         | Fine to medium-grained sedimentary rocks   |
| light green, fine parallel low low for bedded bedded light greenish gray fine dendritic low low bedded   | ×    |                      |         |              |          |              |  |         | ,           |         | (Cretaceous:Subgrupo Pirgus)   |
| yellowish brown light greenish gray fine dendritic low low bedded bedded bedded bedded bedded bedded bedded  |      | light green,         | fine    | parallel     | wor      | low          | {  | partly  | ·           |         | Medium to coarse-grained sedimentary rocks   |
| light greenish gray fine dendritic low low partly bedded   | Ь    | yellowish brown      |         |              |          |              |  | pedded  |             | $\neg$  | Permian:Sedimentary rocks)   |
| bedded   |      | light greenish gray  | fine    | dendritic    | low      | low          |  | partly  |             |         | Medium to coarse-grained sedimentary rocks   |
|  | å    |                      |         |              |          |              |  | bedded  |             |         | Lower to Middle Ordovician Burruyacu Fetc.)  |

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|          |                       |         |                  | •                |            |  |         |            |          | P-232 R-077 2/2                                     |
|----------|-----------------------|---------|------------------|------------------|------------|--|---------|------------|----------|---|
|          | Pocitos Area          |         |                  |                  |            |  |         | 3          | 1        | Probable Lithology                                  |
| 1        | Photo-characteristics | tics    |                  |                  |            |  |         | Supericial | CIRL     |   |
|          | Tone                  | Texture | Н                |                  | Rock       |  | Bedding |            | Cultiva- | (Correlation with Available Map)                    |
|          |                       |         | Pattren.         | Density Registan | Registance | Section                                |         | у екстикол | TOTO I   |   |
|          | Robe beauth           | COSTIGO | dendritic        | medium           | medium     | {                                      | partly  |            |          | Fine-grained sedimentary rocks to metamorphic rocks |
|          | THE PLANT             | 3       | namalle!         |                  | :          |  | bedded  | 1          | ij       | (Lower to Middle Ordovician:Las Vicunas Fetc.)      |
| 5        | The beauty            | 000     | 1                | J.               | medium     | {                                      | almost  |            |          | Intermediate volcanic rocks, pyroclastic rocks      |
| •        | уепомлял вгомп        | warse   | 200              |                  |            | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | massive | ı          | _        | (Ordovician:Volcanic rocks)                         |
| 3        |                       |         | - mallie         | tallia modium    | modium     | The same                               | bedded  |            |          | Fine to medium-grained sedimentary rocks            |
|          | arown,                | 3 7 7 7 | amari -          |                  |            |  |         | i          | ı        | (Lower Ordovician:Santa Victoria G.)                |
| ō        | grayish brown         |         |                  |                  |            |  | T       |            |          |   |
|          | light purplish gray,  | fine    | parallel, medium | modum            | hgid       |  | partly  |            |          | Medium-grained meta sedimentary rocks               |
| č        | liche nollour         |         | dondritic        |                  |            |  | bedded  | i          | _        | (Cambrian:Macon F.)                                 |
|          | Total Vision          | 1000    | 1                | high             | hich       |  | almost  | partly     |          | Fine-grained meta sedimentary rocks                 |
| Ę        | dara purpae.          |         |                  |                  |            | ノミミ\<br>-                              | massive |            | 1        | (Protenozoic Puncoviacana F.)                       |
| 2        | ngnt ngm              |         | dondaitio        | ł gr             | hivh       | Ç                                      | massive |            |          | Felsic igneous rocks                                |
|          | ngnt purpusa gray.    | Coarrac | weather the      | 1                | <u>.</u>   | 1                                      |         | 1          | ١        | (Ordovician Taca T, Complejo Eruptivo Oire)         |
| 4        |                       |         | oreilin          | ,                | _          |  | macaiva |            |          | Alteration zone                                     |
| <u></u>  | reddish brown,        | out     | dendritic        | macon            | mamam      | ( )XXXXXXX                             |         | !          |          |   |
| <u>\</u> | light gravish white   |         |                  |                  |            |  |         | -          |          |   |

|          | Antofoosto Area     | ď       |              |         |                       |                                       |         |                   |             | P-232 R-078 1/2  |
|----------|---------------------|---------|--------------|---------|-----------------------|---------------------------------------|---------|-------------------|-------------|--|
| Unit     | -                   | ratics  |              | Mo      | Мотрьоюріс Ехргенсіон | хртевноп                              |         | Superficial Cover | 1 Cover     | Probable Lithology   |
|          |                     | Texture | Drainage     | П       | Rock                  | Section                               | Bedding |                   | Cultiva-    |  |
|          | Tone                |         | Pattern      | Density | Density Resistance    |                                       |         | Vegetation        | tion        | (Correlation with Available (reologic Map)   |
|          | gray                | fine    | meandering   | very    | very low              |                                       |         | partly            | partly      | partly Unconsolidated recent alluvial deposits composed of gravel, sand, silt and clay |
| క        |                     |         |              | low     |                       |                                       | 1       | dense             | rare        | (Quaternary: Recent unconsolidated sediments)  |
|          | light purple,       | fine    | distributary | medium  | very low              | J.                                    |         | partly            | partly      | partly Unconsolidated composite fan deposits composed gravel, sand etc.                |
| 5        | gray, brown         |         |              | to high |                       |                                       | 1       | ярагне            | rare        | (Quaternary:Recent unconsolidated sediments)   |
|          | bluish white,       | fine    |              |         | very low              |                                       |         | partly            |             | Unconsolidated evaporated sediments  |
| ક        | light gray          |         | 1            | 1       |                       |                                       | )       | ярагяе            | ł           | (Quaternary:Evaporated sediments)  |
|          | dark purple,        | coarse  | radial,      | you     | low to                |                                       | partly  |                   |             | Recent volcanic products   |
| ઠે       | light greenish gray |         | parallel     |         | medium                | /\<br> -<br>                          | bedded  | 1                 | ł           | (Quaternary:Stratovolcanos composed of andesite and basalt,ignimbrite)                 |
|          | light purple.       | fine    | parallel     | low     | low                   |                                       | partly  |                   |             | Fine to medium-grained brittle sedimentary rocks                                       |
| ã        | light brown         |         |              |         |                       |                                       | bedded  | ı                 | -           | (Quaternary Unconsolidated sediments, Miocene: Mainly continental sedimentary rocks)   |
|          | dark purple,        | coarse  | radial,      | low     | medium                |                                       | partly  |                   |             | Relatively young lavas   |
| ž        | brownish gray       |         | parallel     |         |                       | _                                     | bedded  | 1                 | 1           | (Pliocene:Stratovolcanos composed of andesite and basalt)                              |
|          | light green,        | fine    | trellis      | medium  | wol                   |                                       | partly  |                   |             | Fine to medium-grained compact sedimentary rocks                                       |
| E.       | brownish gray       |         |              |         |                       |                                       | bedded  | '                 | 1           | (Miocene:Mainly Continental redimentary rocks)   |
|          | greenish gray,      | fine    | parallel     | medium  | पृत्रीत्प             |                                       | almost  |                   |             | Eroded volcanic products   |
| <u>.</u> | light brown         |         |              |         |                       | , , , , , , , , , , , , , , , , , , , | massive | ı                 | i           | (Miocene: Andesite, dacite, basalt, pyroclastic rocks)                                 |
|          | light purplish      | medium  | dendratic    | medium  | high                  | {                                     | almost  |                   |             | Medium-grained compact sedimentary rocks   |
| Os.      | brown               |         |              |         |                       | \                                     | massive | i                 | 1           | (Upper Ordovician:Mylonite)  |
|          | light brown         | coarse  | dendritic    | medium  | medium                |                                       | partly  |                   | <del></del> | Fine-grained sedimentary rocks to metamorphic rocks                                    |
| E.O      |                     |         |              |         |                       |                                       | bedded  | 1                 | ŀ           | (Lower Ordovician: Meta sedimentary rocks, volcanic rocks)                             |
|          | nword heliquad      | coarse  | trellis      | medium  | medium                | <                                     | almost  | sparse            |             | Fine to medium-grained massive sedimentary rocks                                       |
| 0iv      |                     |         |              |         |                       |                                       | massive |                   | ı           | (Lower Ordovician:Meta sedimentary rocks, volcanic rocks)                              |
|          | light brown,        | eug     | dendritic    | medium  | medium                |                                       | bedded  |                   | <del></del> | Fine to medium-grained sedimentary rocks   |
| ï        | light gray          |         |              |         | to high               | Sinh 1                                |         | 1                 | Ť           | Cower Ordovician: Meta sedimentary rocks, volcanic rocks)                              |
|          | light purplish gray | coarse  | dendritic    | medium  | medium                |                                       | partly. |                   |             | Carbonate rocks  |
| đ        |                     |         |              |         |                       |                                       | bedded  | -                 | 1           | (Cambrian: Amphibolite, gneiss, meta-volcanic and calcareous rocks)                    |



Characteristics of Photogeologic Units

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|                    |                        |   | 1  |                                | 7  |                                       |                                   |   |  | 丁   | _       | - <b></b>                               | 1      |
|--------------------|------------------------|---|--|--------------------------------|--|---------------------------------------|-----------------------------------|---|--|---|---------|---|--------|
| Danhahla I sehalam |                        | (Completion with dwallship (Goologic Mat) | (CONTRACTOR MAIN AVAILABLE CONTRACTOR CONTRA | Hard compact metamorphic rocks | (Cambrian:Phyllite gneiss meta volcanic rocks) | Medium-grained meta sedimentary rocks | (Proterozoic:Gneiss, schist etc.) |   | Febric igneous rocks                     | (Late Ordovician: Undivided granitic rocks) |         | Alteration zone                         |        |
|                    | Cover                  | Cultava-                                  | tion   |                                | ı  |                                       | J                                 |   |  | 1   |         |   | į      |
|                    | Superficial Cover      | •   | /egetation tion  |                                | 1  |                                       | 1                                 |   | partly                                   | sparse                                      |         |   | Į      |
| l                  |                        | Bedding                                   |  | partly                         | bedded   | partly                                | bedded                            |   | massive partly                           | -   |         | massive                                 |        |
|                    | pression               | Section                                   |  | <                              |  | <                                     | 1                                 |   | (  | /<br>\                                      |         | ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) | Janah. |
|                    | Morphologic Expression | Rock                                      | Resistance   | high                           |  | high                                  |                                   | İ | high very high                           |   |         | medium                                  |        |
|                    | Mor                    | ge  | Denaity  | medium                         |  | high                                  | · ·                               |   |  |   | Į       | medium                                  |        |
|                    |                        | Drainage                                  | Pattern Density Resistance   | dendritic medium               | :  | parallel                              |                                   |   | dendritic,                               | +rollia                                     | CICITES | dendritic medium medium                 |        |
| đ                  | MUCS                   | Texture                                   |  | fine                           |  | murpom                                |                                   |   | coarse                                   |   |         | fine                                    |        |
| Antolagasta Area   | Photo-characteristics  |   | Tone   | numlish brown                  | the same successful the di                     | 1 nankish bawa madium                 | The principle of the second       |   | light numlish gray   coarse   dendritic, |   |         | reddish brown,                          | -      |
|                    |                        | , T                                       |  |                                | ć  |                                       | ٤                                 | 5 |  | 1   | 4       | (                                       | \<br>- |

Characteristics of Photogeologic Units

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|          |                                       |         |             | •      |                        |               |         |                       |          | P-232 R-079 2/2   |
|----------|---------------------------------------|---------|-------------|--------|------------------------|---------------|---------|-----------------------|----------|---|
| į        | Belen Area                            |         |             |        |                        |               |         | Currentinio Course    | 20,00    | Probable Lithology  |
| Unit     | Photo-characteristics                 | BCCB    |             | Mo     | Могрноюде Ехргеялог    | cpression     |         | Soberios              |          | 3   |
|          | L.                                    | Texture | Drainage    | 981    | Rock                   | Section       | Bedding | Vegetation            | Cultiva- | (Correlation with Available Geologic Map)                           |
|          | Tone                                  |         | Fattern     | LAMBLY | LATINITY   DEPTEMBLINE |               |         |                       |          |   |
|          | light pinkish gray                    | coarse  | trellis     | medium | modium                 |               | partly  |                       |          | Medium-grained sedimentary rocks                                    |
|          |                                       |         |             | :      | to high                |               | bedded  | j                     | ,        | (Upper Carboniferous: Conglomerate, sandstone, mudstone etc.)       |
|          | dark green.                           | coarse  | dendritic,  | medium | medium                 |               | partly  |                       |          | Medium to coarse-grained sedimentary rocks                          |
|          | hmwnish emen                          |         | trellia     | :      | to high                | \ "/          | bedded  | -                     | 1        | (Lower Carboniferous: Conglomerate, sandstone etc.)                 |
|          | licht numlish hrawn medium            | medium  | dendritic   | medium | L                      |               | almost  | partly                |          | Medium-grained compact sedimentary rocks                            |
|          |                                       | :       | :           | :      |                        | \             | massive | sparse                | 1        | (Upper Ordovician: Mylonite)  |
| <u>!</u> | munich houn                           | 909786  | dendritic   | high   | medium                 | 744,474       | almost  | partly                |          | Fine-grained massive sedimentary to metamorphic rocks               |
|          |                                       |         | 7           |        |                        | <b>(</b>      | massive | кратве                | 1        | (Lower Ordovician:Meta sedimentary rocks, volcanic rocks)           |
| ,        |                                       | 90,000  | + mollia    | medium | medium                 | {             | partly  | partly                |          | Fine to medium-grained sedimentary rocks.                           |
|          | maco remdand                          | ¥ .     |             |        |                        |               | bedded  | sparse                | 1        | (Lower Ordovician: Meta sedimentary rocks, volcanic rocks)          |
| <u>}</u> | dark green                            | 6       | dondmitio   | medium | medium                 | {             | almost  | врагъе                |          | Medium-grained sedimentary rocks                                    |
|          | ngint purpusa gray.                   |         | -           |        |                        | <b>'</b><br>{ | massive |                       | ı        | (Lower Ordovician:Phyllite achist, limestone etc.)                  |
| 1        | Nohe windiah orav                     | COB TEO | rectangular | low to | medium                 | {             |         | partly                |          | Carbonate rocks   |
| đ        |                                       |         |             |        |                        |               | _       | вратке                | Ļ        | (Cambrian: Amphibolite, greiss, meta-volcanic and calcareous rocks) |
|          | light number hown medium rectangular. | medium  | rectangular | _      | high                   | \{            |         | partly                |          | Fine-grained sheared metamorphic rocks                              |
| 4        |                                       |         | trellis     |        | ?                      | <b>,</b>      | i       | sparse                | ı        | (Cambrian.Phyllite, schist, meta volcanic rocks)                    |
|          | Verre                                 | coarse  | parallel    | high   | medium                 | {             | almost  |                       |          | Medium-grained meta sedimentary rocks                               |
| 2        |                                       |         |             | )      |                        | <b>/</b>      | massive | 1                     | ı        | (Proterozoic:Gneiss, achist etc.)                                   |
|          | licht vink licht                      | coarse  | dendritic,  | high   | very high              | (             | massive | massive partly sparse |          | Felsic igneous rocke  |
| 4        |                                       |         | <br>trellis |        |                        | <b>✓</b>      |         | to moderate           | 1        | (Late Ordovician: Undivided granitic rocks)                         |
|          | ╀⋍                                    | COBYSO  | dendritic   | haid   | high                   | <             | massive |                       |          | Felsic igneous rocks  |
| <u>}</u> |                                       |         |             |        | 3                      | /<br>\<br>_   |         | 1                     | i        | (Protorozoic:Undivided granitic rocks)                              |
|          |                                       | coarse  | dendritic   | high   | high                   | <             | massive |                       |          | Matic igneous rocks   |
| å<br>Ø   |                                       |         |             |        |                        | /<br>\        |         |                       | '        | (Cambrian to Ordovician: Gabbro-norite, very mafic rocks etc.)      |
| 0        | reddish brown,                        | fine    | dendritic   | medium | medium                 |               | massive |                       |          | Alteration zone   |
| )        | light grayish white                   |         |             |        |                        | india.        |         |                       |          |   |

| P-232 R-080 1/2 | Probable Lithology | (Correlation with Available Geologic Map) | Unconsolidated sediments composed of gravel, sand, silt and clay | intense (Quaternary:Recent alluvial deposits) | partly Unconsolidated sediments composed of gravel, sand etc. | (Quaternary:Composite fan deposite) | Unconsolidated evaporated sediments | (Quaternary:Marahy aedimente) | Recent volcanic products | (Quaternary:Stretovolcanos composed of andesite and basalt) | Unconsolidated composite fan deposits composed of gravel, sand etc. | (Pleistacene) | Composite fan deposits composed of gravel, sand etc. | (Pliocene) | Relatively young lavas | (Pliocene:Stratovolcanon composed of andesite and basalt) | Fine to medium-grained brittle sedimentary rocks | (Upper Pliccene:Conglomerate, sandstone, mudstone etc.) | Fine to medium-grained sedimentary rocks | (Upper Miccene: Conglomerate, tuffaceous sandstone, mudatone etc.) | Medium to coarse-grained sedimentary rocks | (Cretrocous:Sandstone,conglomerate,mudatone etc.). | Fine to medium-grained sedimentary rocks | (Triassic:Continental sandstone, mudstone etc.) | Fine to medium-grained sedimentary rocks | (Trinsmic:Continental gandstone, mudetone etc.) | Medium to coarse-grained sedimentary rocks | (Triaseic:Continental sandstone, muddy randstone, coal etc.) | Fige to medium-grained sedimentary rocks | (Triassic:Continental tuffaceous sandstone, black mudstone, conglomerate etc.) |
|-----------------|--------------------|---|--|---|---|-------------------------------------|-------------------------------------|-------------------------------|--------------------------|---|---|---------------|--|------------|------------------------|---|--|---|--|--|--|--|--|---|--|---|--|--|--|--|
|                 | Cover              | Cultiva-<br>tion                          | partly   | intense                                       | partly  | intense                             |                                     | ,                             |                          | -   |   | 1             |  | -          |                        | Ţ   |  | -   |  | 1  |  | -  |  | ì   |  | ı   |  | <u>'</u>   |  | ı  |
|                 | Superficial Cover  | Vegetation                                | partly   | denne   | partly  | яратве                              |                                     | ı                             |                          | 1   |   | ì             |  | 1          |                        | ۱,  |  | '   | densely partly sparse                    | to moderate  |  | ,  |  | '   |  | I   |  | 1  | partly                                   | *****  |
|                 |                    | Bedding                                   |  | ì   |   | į                                   |                                     | 1                             | almost                   | тияявіче  |   | 1             |  | ŀ          | almost                 | тавятуе   | partly   | pedded  | densely                                  | pedded   | bedded                                     |  | partly                                   | pedded  | densely                                  | bedded  | bedded                                     |  | partiy                                   |  |
|                 | Expression         | Section                                   |  |   | P   |                                     |                                     |                               | £.;                      | 13/1/   | 1   |               |  |            | (                      | , , , , ,   | (  |   | MA                                       | , ,,,  |  | 441  |  |   | (Sile)                                   |   | -MILL                                      | 1111   |  |  |
|                 | Mornhologic Ex     |   | very low   | •   | very low  |                                     | very low                            |                               | medium                   | to high   | medium  |               | medium   |            | medium                 | to high   | low to   | medium  | modium                                   |  | low to                                     | medium   | medium                                   |   | high                                     | ,   | low to                                     | medium   | medium                                   |  |
| •               | Mon                | Nemaity 1                                 | , Acid   |   | modrum  | to high                             |                                     | 1                             | low                      |   | hgid  |               | high   |            | yol                    |   | high   |   | high                                     |  | पृत्रीग्प                                  |  | low                                      |   | qSiq                                     |   | MOγ  |  | wol                                      |  |
|                 |                    | Drainage<br>Pattern D                     | 9  |   | distributary  |                                     | centripetal                         |                               | radial                   |   | parallel  |               | parallel   |            | radial                 |   | pinnate,   | parallel  | pinnate,                                 | parallel   | sub-departic                               |  | eub-dendritic                            |   | pinnate,                                 | sub-trellia                                     | dendritic                                  |  | dendritic                                |  |
|                 | 80,40              | Texture                                   | fine   |   | fine  | _                                   | fine                                |                               | medium                   |   | course  |               | coarse   |            | medium                 |   | fine   | :   | earg                                     |  | medium                                     |  | eurg                                     |   | coarse                                   |   | umedium                                    | •  | medium                                   |  |
| ;               | Chilecito Area     | £   | Atto r   | creavish white                                | light purple,   | , ALL                               | white.                              | bluish white                  | dark gray,               | brown   | purplish gray   |               | purplish gray  |            | dark purple,           | brown   | light purple,                                    | gray  | light purplish gray.                     | gravish white  | dark greenish gray, medium sub-dendritic   | vellowish brown                                    | gravish green                            |   | light yellowish brown                    | •   | light purplish gray                        |  | purplish gray,                           |  |
|                 |                    |   | Ì  | 8   |   | ક                                   |                                     | 3                             |                          | કે  |   | Part          |  | P   4      |                        | à   |  | ÷   |  | *  |  | ×  |  | <u>.</u>  |  | ŗ   |  | ٦  |  |  |

|       | Chilecito Area             |          |             |         |                |  |         |                   |                  | P-232 R-080 2/2  |
|-------|----------------------------|----------|-------------|---------|----------------|--|---------|-------------------|------------------|--|
| Unit  | -                          | 8508     |             | Mor     | Morphologic Ex | Охргевают  |         | Superficial Cover | Cover            | Probable Lithology   |
| }     |                            | Texture  | Drainage    |         | Rock           | Section  | Bedding | Vegetation        | Cultava-<br>tion | (Correlation with Available Geologic Map)  |
|       | vellowish brown.           | coarse   |             | modium  | medium         |  | partly  |                   |                  | Fine to medium-grained sedimentary rocks   |
| ۵     | light yellowish gray       |          | sub-trellis |         | to high        |  | bedded  | 1                 |                  | (Permian:Continental quartzoae sandstone,conglomerate etc.)                        |
|       | dark brown                 | medium   | trellia     | medium  | medium         | (dire)   | partly  |                   |                  | Volcanic rocks   |
| š     |                            |          |             |         | to high        | , , , ,  | bedded  | ı                 | 1                | (Upper Carboniferous:Porphyry, agglomerate, volcanic breccia, andesite, lava etc.) |
|       | light pinicieh gray        | coarse   | trellis     | unipour | modium         | met mar  | bedded  |                   |                  | Medium-grained sedimentary rocks   |
| Š     |                            |          |             |         | to high        |  |         | ,                 | '                | (Upper Carboniferoua:Sandatone, mudatone, volcanic breccia etc.)                   |
|       | light brown                | coarse   | trellis     | medium  | medium         | Miller   | bedded  |                   |                  | Medium to coarse-grained sedimentary rocks   |
| 5     |                            |          |             |         |                |  |         | 1                 | ,                | (Lower Carboniferous:Conglomerate sandstone etc.)                                  |
|       | purplish brown             | fine     | dondritic   | low     | medium         |  | partly  | partly            | _                | Coarse-grained sedimentary rocks   |
| 2     |                            |          |             |         | to high        |  | bedded  | вратве            | _                | (Devonian to Carboniferous:Sandstone, mudstone, conglomerate etc.)                 |
|       | purplish brown,            | medium   | trellis,    | medium  | medium         |  | partly  |                   |                  | Fine to medium-grained sedimentary rocks   |
| å     | dark bluish brown          | :        | parallel    |         | to high        | ////   | pedded  | I                 | ı                | (Upper Devonian:Sandatone mudatone etc.)   |
|       | purplish brown             | соатье   | trellis     | hjgh    | high           | (  | almost  | partly            |                  | Fine-grained sedimentary, rocks  |
| రీ    |                            |          |             |         |                |  | massive | Арагве            | 1                | (Upper Ordovician:Sandstone,mudstone etc.)   |
|       | purplish brown,            | COBL'INC | dendritic   | high    | medium         |  | almost  | partly            |                  | Fine-grained massive sedimentary to metamorphic rocks                              |
| į     |                            |          |             |         | to high        |  | massive | вратве            | ı                | (Lower to Middle Ordovician; Meta sedimentary rocks, volcanic rocks)               |
|       | purplish brown             | coarse   | dendritic   | medium  | medium         | (  | almost  |                   |                  | Fine to medium-grained sedimentary rocks   |
| ŝ     |                            |          |             |         | to high        |  | таякіче | ŀ                 | i                | (Lower Ordovician: Meta sedimentary rocka, volcanic rocks)                         |
|       | light pinkish gray         | fme      | rrellia     | medium  |                |  | almost  |                   |                  | Medium-grained sedimentary rocks   |
| ō     |                            |          |             |         |                |  | magaive | i                 | ı                | (Lower Ordovician: Phyllite, achiet, limestone etc.)                               |
|       | purphsh brown              | coarse   | dendritic,  | Hgirt   | very high      | 3337   | massive | partly            |                  | Medium-grained meta sedimentary rocks  |
| P. C. |                            |          | rectangular |         |                |  |         | крагче            | ,                | (Proterozoic, Gneise, schist etc.)   |
|       | light brownish gray medium | medium   | dendritic   | medium  | high           | (:   |         |                   |                  | Felaic igneous rocke   |
| *     |                            |          | ì           |         |                |  | ·       | 1                 | -                | (Permian Triannic Undivided granitic rocks)  |
|       | grayish brown,             | coarse   | dondratic   | ų žių   | very high      | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   |         | partly            |                  | Felsic igneous rocks   |
| 7     | lig.                       |          | rectangular |         |                |  | -       | яратяе            | ì                | (Silurian/Devonian:Undivided granitic rocks)                                       |
|       |                            | coarse   | dendratic   | high    | very high      | \(\cdot \cdot          | partly            |                  | Felsic igneous rocks   |
| rpr   | light greenish brown       |          | trellis     |         |                |  | -       | врягче            | 1                | (Proterozoic:Undivided granitic rocks)   |
| 0     | light brownish gray        | medium   | trollis     | medium  | medium         | L WORKING !  | massive |                   | 1                | Alteration zone  |
| )     | white                      |          |             |         |                |  |         |                   |                  |  |

|          | •                                    |         |   | n'       |                        |            |         |                   |          | P-232 R-081 1/2  |
|----------|--------------------------------------|---------|---|----------|------------------------|------------|---------|-------------------|----------|--|
|          | San Jose Area                        | 90,00   |   | ĮŽ       | Mormhologic Expression | xpression  |         | Superficial Cover | d Cover  | Probable Lithology   |
|          |                                      | Texture | [2]                                       | $\  \ $  | Rock                   | Section    | Bedding | Vocatation        | Cultiva- | (Correlation with Available Geologic Map)  |
|          | Tone                                 |         | Pattern                                   | Denaity  | Denaity Kenutance      |            |         | , che munio       |          | The state of the s |
|          | gray.                                | frne    | meandering                                | very     | very low               | المتنافعات |         | partly            | partiy   | partiy   Unconsolidated sequinents composed of graves, some six and constant   |
| 3        | gravish white                        |         | ***                                       | low      |                        |            | i       | dense             | intense  | intense (Quaternary:Recent alluvial deposits)  |
|          | light numble.                        | fine    | distributary medium                       | medium   | very low               |            |         | partly            | partly   | Unconsolidated sediments composed of gravel, sand etc.   |
| 8        | toward deiwollow                     |         |   | to high  |                        |            | -       | dense             | intense  | intense (Quaternary:Composite fan deposits)  |
| 1        | Action on promote                    | ئ       | manadaring                                | /vow     | werv low               |            |         | :                 |          | Unconsolidated evaporated rediments  |
|          | white,                               |         | S. C. C. C. C. C. C. C. C. C. C. C. C. C. | ano.     |                        |            | ı       | ı                 | L        | (Quaternary:Marshy rediments)  |
| 3        | grayisa wata                         | medium  |   |          | very low               |            |         |                   |          | Unconsolidated sediments composed mainly of sand   |
| 8        |                                      |         | ŧ   | i        |                        |            | I       | i                 | 1        | (Quaternary:Eolian deposits)   |
|          | limbt mimle                          | medium  | pinnate                                   | high     | low                    |            | pedded  |                   |          | Fine to medium-grained brittle sedimentary rocks   |
| ā        | and order                            |         |   |          |                        |            |         | 1                 | ı        | (Upper Pliocene: Conglomerate, sandstone, mudstone etc.)   |
|          | Nohe orac                            | coarso  | pinnate                                   | high     | low                    | (          | densely |                   |          | Fine to medium-grained brittle sedimentary rocks   |
| ā        | licht numle                          |         |   | <b>,</b> |                        |            | bedded  | ı                 | -        | (Lower Pliocene:Sandatone, mudatone etc.)  |
|          | verav                                | fine    | pinnate.                                  | high     | low to                 | (          | bedded  |                   |          | Fine to medium-grained sedimentary rocks   |
| =        | light purple                         |         | trellia                                   | 1        | medium                 | (//<br>*   |         | -                 | 1        | (Upper Miccene: Conglomerate, tuffaceous sandatone, mudatone etc.)   |
|          | gray                                 | fine    | pinnate,                                  | high     | low to                 | Ų          | bedded  |                   |          | Fine to medium-grained sedimentary rocks   |
| £        |                                      |         | trellia                                   |          | medium                 |            |         | 1                 | 1        | (Middle Miocene:Sandstone,conglomerate,mudstone)   |
|          | dark green                           | fine    | pinnate,                                  | high     | medium                 |            | partly  |                   |          | Fine to medium-grained sedimentary rocks   |
| <u></u>  | )                                    |         | trollia                                   |          |                        |            | bedded  | 1                 | 1        | (Ologocene:Sandstone, conglomerate, mudstone, andestric volcanic breccia etc.)   |
|          | light green,                         | medium  | dendritic                                 | high     | medium                 |            | bedded  |                   |          | Medium to coarse-grained sedimentary rocks   |
| ×        | dark green                           |         |   |          |                        |            |         | I                 | 1        | (Cretaceous:Sandstone,conglomerate,mudstone etc.)  |
|          | light yellowish                      | coarse  | pinnate,                                  | цЯіц     | high                   |            | densely |                   |          | Fine to medium-grained sedimentary rocks   |
| Ļ        | brown                                |         | trellis                                   |          |                        | / /        | bedded  | 1                 | 1        | (Triassic:Continental sandstone mudatone etc.)   |
|          | gravish white                        | fine    | trellis                                   | medium   | low                    | ~          | partly  |                   |          | Medium to coarse-grained sedimentary rocks   |
| ŗ        |                                      |         |   |          |                        | ¥          | bedded  | 1                 | '        | (Triassic:Continental sandstone, mudstone etc.)  |
|          | light purplish gray medium dendritic | medium  | dendritic                                 | medium   | medium                 |            | bedded  |                   |          | Medium to coarse-grained sedimentary rocks   |
| <u>1</u> |                                      |         |   |          |                        |            |         | 1                 | '        | (Triassic:Continental sandstone, muddy sandstone, coal etc.)   |
|          | purplish gray.                       | medium  | dendritic                                 | high     | medium                 |            | partly  |                   |          | Fine to medium-grained sedimentary rocks   |
| ŗ        | green                                |         |   |          |                        | 64         | pedded  | <u>.</u>          |          | (Thasaccontinental unitactous sandrating order intercentations of  |

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|            |                      |          |  | -        |                            |   |         |                   |            | P-232 R-081 2/2  |
|------------|----------------------|----------|--|----------|----------------------------|---|---------|-------------------|------------|--|
| •          | San Jose Area        |          |  |          | Manahalama P.              | WOGOOD                                    |         | Superficial Cover | Cover      | Probable Litthology  |
| n<br>C     |                      | Posture  | Designation                              | 1        | Rock                       | Section                                   | Bedding |                   | Cultiva-   |  |
|            | Tone                 | Teature  | Pattern                                  | Density  | Pattern Density Resistance |   |         | Vegetation        | tion       | (Correlation with Available (reologic Map)                         |
|            | vellowish brown.     | coarse   | pianate,                                 | high     | medium                     |   | partly  |                   | <u>- }</u> | Fine to medium-grained sedimentary rocks                           |
| ۵          | heht vellowish grav  |          | trellia                                  |          |                            |   | bedded  | 1                 |            | (Permian: Continental quartzose sandatone, conglomerate etc.)      |
|            | dowle man            | Ang Plan | trealling                                | high     | medium                     | (   | partly  | -                 |            | Fine to medium-grained sedimentary rocks                           |
| 8          | dark gray,           | 36 TP 03 | ST ST ST ST ST ST ST ST ST ST ST ST ST S | 1        |                            |   | bedded  | •                 | 1          | (Carboniferous to Permian:Sandatone limeatone etc.)                |
| 5          | OKUL YCHOWIGH KICK   | f.nc     | tvollis                                  | modium   | modium                     | (   | partly  | partly            |            | Medium-grained sedimentary rocks                                   |
| ď          | purpusa gray,        |          |  | 1        |                            |   | bedded  | яратяе            | 1          | (Upper Carboniferous:Sandatone, mudatone, volcanic breccia etc.)   |
|            | vellowish brown      | coarse   | trellis                                  | high     | medium                     |   | almost  |                   |            | Medium to coarse-grained sedimentary rocks                         |
| ಪ          |                      |          |  | <u> </u> |                            | \<br>\                                    | таячіче | '                 | -          | (Lower Carboniferous:Conglomerate, sandstone etc.)                 |
|            | ourolish brown       | fine     | dendritic                                | low      | medium                     |   | partly  |                   |            | Coarse-grained sedimentary rocks                                   |
| 8          |                      | :        |  |          |                            |   | bedded  | 1                 | -          | Devonian to Carboniferous. Sandstone, mudstone, conglomerate etc.) |
|            | nurnlish brown.      | medium   | trellis,                                 | high     | hgid                       |   | partly  |                   |            | Pine to medium-grained sedimentary rocks                           |
| 2          | world haw            |          |  | , _      |                            | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\    | bedded  | 1                 | 1          | (Upper Devonian: Sandatone, mudatone etc.)                         |
|            | dark purple          | fine     | trellis                                  | medium   | high                       | <u> </u>                                  | partly  | partly            |            | Medium-grained sedimentary rocks                                   |
| ä          |                      | <br>     | :  |          |                            |   | bedded  | яратяс            | \$         | (Lower Devonian:Mudstone, sandstone etc.)                          |
|            | light purplish brown | coarse   | pinnate                                  | high     | wol                        |   | partly  |                   |            | Fine-grained sedimentary rocks                                     |
| တ          |                      |          | ٠.                                       |          |                            | 1111                                      | bedded  | 1                 | ,          | (Silurian:Mudatone etc.)   |
|            | purplish brown       | coarse   | trellis                                  | high     | high                       | 4   | densely | partly            |            | Fine-grained sedimentary rocks                                     |
| క          | •                    |          |  |          |                            | į.  | bedded  | вратве            | 1          | (Upper Ordovician:Sandstone, mudstone etc.)                        |
|            | light pinkish gray   | fine     | trellis                                  | high     | very high                  |   | partly  | partly            |            | Hard compact carbonate rocks                                       |
| õ          |                      |          |  |          |                            | WIII III                                  | bedded  | врагяе            | 1          | (Lower Ordovician: Limestone)                                      |
|            | greenish brown       | coarse   | trellis,                                 | high     | very high                  | 13.55                                     | massive | sparse            |            | Sheared metamorphic rocks  |
| £          |                      |          | dendritie                                | •        |                            | <b>`</b>                                  |         |                   | -          | (Proterozoic:Gneiss, schist etc.)                                  |
|            | dark purple          | соагве   | parallel                                 | medum    | a medium                   | {   | massive |                   |            | Matic igneous rocks  |
| <i>B</i> m |                      |          |  |          |                            | ,   |         |                   | -          | (Triangic Basalt)  |
|            | greenish brown       | coarse   | coarse rectangular,                      | high ,   | very high                  | 1   | massive |                   |            | Somewhat felsic igneous rocks                                      |
| 4          |                      |          | dendritic                                |          |                            | V. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. |         | sparse            | 1          | (Ordovician:Granodiorite)  |
| 0          | hgil                 | medium   | parallel                                 | high     | high                       |   | massive | . 1               | ı          | Alteration zone  |
|            | Drown                |          |  |          |                            |   |         |                   |            |  |

|               | Morphologic Expression | tture Drainage Rock Section Bedding Cultiva- | Pattern Denaity Resistance regional tion Correlation with Available Ceologic, Strep | fine. meandering very low reprint partly partly Unconsolidated sediments composed of gravel, sand, silt and clay | low - dense intense (Quaternary:Recent alluvial deposits) | fine distributary medium very low Time partly Unconsolidated sediments composed of gravel, sand etc. | to high         | fine meandering very very low | low           | wery low Very low | (Quaternary Eolian deposits) | medium pinnate high low bedded bedded Medium to fine-grained sedimentary rocks | (Upper Phosene:Conglomerate, sandstone, mudstone, etc.) | fine pinnate high low densely densely Fine to medium-grained sodimentary rocks |                   | fine pinnate, high low to bedded Fine to medium-grained sedimentary rocks | trellis mudstone etc.) | fine to pinnate, high medium bedded Pedded Pine to medium-grained sedimentary rocks | medium trellia - (Middle Miocene: Sandstone conglomerate mudatone) | medium dendritic medium high | the nimeta high laste        | trellis medium | high medium partly | trellis — (Ologocene:Sandstone.conglomerate mudstone,etc.) | fine to medium grained sedimentary rocks | bedded — (Upper Triassic Continental sandstone mudstone intermediate tuff etc.) | medium dendritic medium medium partly Intermediate volcanic rocks | bedded – (Upper Triassic Volcanic rocks) | medium dendritic high medium ATTLAM bedded Fine to medium-grained sedimentary rocks |
|---------------|------------------------|--|---|--|---|--|-----------------|-------------------------------|---------------|-------------------|------------------------------|--|---|--|-------------------|---|------------------------|---|--|------------------------------|------------------------------|----------------|--------------------|--|--|---|---|--|---|
|               |                        |  | Pattern   |  |   |  | -               | <del> </del>                  |               | mn:               | 3                            |  |   |  |                   |   | trellie                | Ľ.  |  | dendritic                    | +                            |                |                    | trellis  | trellia                                  |   | dendritic   |  |   |
| San Juan Area |                        | •  | Tone  | gray, grayish white, fin   | brownish gray   | light purple, fin  | yellowish brown |                               | grayish white |                   | yellowish grav               | light purple, med  | purple  | light gray, fin  | light blue, green |   | light blue             | gray, fine  | light bluish green   | gray, light brownish         | Kitty ingite of daring gardy | light number   |                    | light bluish gray  | grayish white, fin                       | light brownish gray   | yellowish gray, medi  | gray                                     | yellowish gray white, medi  |
|               | Unit                   |  | İ   |  | 8   |  | 5               |                               | 8             |                   | 8                            |  | P.I.  | L  | <u>:</u>          |   | #<br>#                 |   | E  | )<br>1                       |                              | ij             |                    | ē  |  | -   |   | ₹.                                       |   |

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|          | •                                   |         |           | -       |                      |   |         |                   |          | P-232 R-082 2/3  |
|----------|-------------------------------------|---------|-----------|---------|----------------------|---|---------|-------------------|----------|--|
|          | San Juan Area Photo-characteristics | tics    |           | Mo      | Morahologic Expre    | pression                                |         | Superficial Cover | Cover    | Probable Lithology   |
| <u> </u> |                                     | Texture | ΙäΓ       | İΪ      | Rock                 | Section                                 | Bedding |                   | Cultiva- | (Correlation with Available Geologic Map)  |
|          | Tone                                |         | Pattern   | PERMIT  | Pensity   Kesistance | ÷                                       |         | Vergenation       | 1011     |  |
| ,        | brownish gray,                      | medium  | dendritic | hgh     | medium               |   | pedded  | 1                 | l        | Fine to medium-grained sedimentary rocks<br>(Lower Triansic:Continental tuffaceous aandstone, black mudstone, conglomerate etc.) |
| 2        | green                               |         |           |         |                      |   |         |                   | Ī        |  |
|          | green                               | coarse  | pinnate,  | hgh     | medium               | \{\cdot\}                               |         |                   |          | Volcanic rocks   |
| P<br>*   | vellowish green                     |         | trellis   |         |                      |   | 1       |                   | ,        | (Upper Permian: Acidic to intermediate volcanic rocks etc.)  |
|          | hrown                               | medium  | trellis   | hgid    | muipam               |   | partly  |                   |          | Medium-grained sedimentary rocks   |
| ď        |                                     |         | -         |         |                      | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\  | bedded  | 1                 | ı        | (Permian: Conglomerate, sandstone, mudstone, etc.)   |
|          | brown.                              | coarse  | trellis   | Hzirl   | medium               | E                                       | partly  |                   |          | Fine to medium-grained sedimentary rocks   |
| ક        | bluish brown                        |         |           |         |                      |   | bedded  | 1                 | 1        | (Carboniferous to Permian; Sandstone, conglomerate, limestone etc.)  |
|          | bluish gray.                        | modium  | trollis   | medium  | medium               | ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) | partly  |                   |          | Medium-grained sedimentary rocks   |
| తే       | gravish white                       |         |           | to high | to high              |   | bedded  | '                 | -        | (Upper Carboniferous:Sandstone, mudstone, volcanic breccia etc.)   |
|          | dark bluish grav                    | coarse  | parallel  | medium  | high                 |   | partly  | *****             |          | Medium to coarse-grained sedimentary rocks   |
| :5       |                                     |         |           |         |                      |   | bedded  | 1                 | 1        | (Lower Carboniferous:Conglomerate, sandstone etc.)   |
|          | purplish brown.                     | medium  | trellia,  | high    | high                 |   | partly  |                   |          | Medium-grained sedimentary rocks   |
| ద        | light brown                         |         | parallel  |         |                      |   | bedded  | -                 | 1        | (Upper Devonian:Sandstone, mudstone, volcanic breccia etc.)  |
|          | dark purple                         | fine    | trellis   | medium  | high                 |   | partly  | partly            |          | Medium-grained sedimentary rocks   |
| ä        |                                     |         |           |         |                      |   | bedded  | bedded            | 1        | (Lower Devonian: Conglomerate, sandstone, mudstone etc.)   |
|          | purplish brown,                     | medium  | trellis   | high    | Hgirl                |   | partly  |                   |          | Fine-grained sedimentary rocks   |
| 8        | light brown                         |         |           |         |                      |   | pedded  | l                 | 1        | (Silurian to Devonian Sandstone, conglomerate etc.)  |
|          | brown,                              | coartee | pinnate   | high    | medium               |   | densely |                   |          | Fine-grained sedimentary rocks   |
| s        | brownish gray                       | :       |           |         | to low               | J. Company                              | bedded  | ,                 | -        | (Silvrian Mudetone etc.)   |
|          | purplish brown,                     | coarse: | dendritie | high    | high                 |   | densely | partly            |          | Fine-grained sedimentary rocks   |
| క        | bluish gray                         |         |           |         |                      | W. W. W. W.                             | bedded  | pedded            | 1        | (Upper Ordovician:Sandstone, mudstone etc.)  |
|          | gravish white                       | medium  | pinnate   | medium  | medium               |   | partly  |                   | ·        | Pine-grained sedimentary rocks   |
| ŝ        |                                     |         |           |         |                      |   | hedded  | 1                 | 1        | (Olistolith within Upper Ordovician:Limestone?)  |
|          | brown,                              | medium  | parallel, | hgh     | very high            | 4                                       | partly  |                   |          | Hard compact carbonate rocks   |
| 9        | light pinkish gray                  | to fine | dendritic |         | to high              |   | bedded  | ı                 | ;        | (Lower Ordovician Limestone?)  |
| <u> </u> | grayish white,                      | medium  | pinnate,  | high    | high                 | E                                       |         |                   |          | Medium to coarse-grained sedimentary rocks   |
| 4        | light brownish gray                 |         | trellia   |         |                      | 3                                       | 1       |                   | 1        | (Upper Cambrian: Limestone, dolomite, chert, etc.)   |

|       | Son Juan Area  |         |               |         |                      |           | •       |                   |         | P-232 R-082 3/3  |
|-------|----------------|---------|---------------|---------|----------------------|-----------|---------|-------------------|---------|--|
| Trait | _              | tics.   |               | Mo      | Могоројоди Ехргениол | сртевніоп |         | Superficial Cover | Cover   | Probable Lithology   |
| 5     |                | Texture | Drainage      |         | Rock                 | Section   | Bedding |                   | Cultiva |  |
|       | Tone           |         | Pat           | Denesty | Deneity Registance   |           |         | Vegetation        | tion    | (Correspondence of the contraction of the contracti |
|       | bluish cray.   | coarse  | dendritic     | high    | high                 |           |         |                   |         | Sheared metamorphic rocks  |
| Ě     | gravish white  |         |               | ,       |                      | 10000     | -       | •                 |         | (Proterozoic:Quartzite, calcareous, etc.)  |
|       | greenish brown | coarse  | trellia,      | fgid    | very high            | (         |         |                   |         | Sheared metamorphic rocks  |
| £     |                |         | dendritic     | ,       | ,                    | 7         |         | 1                 | 1       | (Proterozoic:Gneiss, schist etc.)  |
|       | hrown          | CORTSC  | dendritic     | high    | high                 | 13.7      |         |                   |         | Sheared metamorphic rocks  |
| 8     | preenia        |         |               | )       |                      | スこう       | 1       | 1                 | ţ       | (Proteroxoic: Gneian, achint etc.)   |
|       | bluish gray.   | coarse  | dendritic     | dgird   | very high            |           |         |                   |         | Felsic igneous rocks   |
| 7     | _              |         | - <del></del> |         |                      |           | -       | 1                 | 1       | (Permian: Gmnite, granodionite)  |
| Ę     | :3             | coarse  |               | L       | medium               | •         | massive |                   |         | Alteration zone  |
| )     |                |         | ı             | ı       |                      | XXXXX     |         | ı                 | ,       |  |

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| Print | Mendoza Area              | •       |                     |         |                        |                    |         |                   |                  | P-232 R-083 1/2   |
|-------|---------------------------|---------|---------------------|---------|------------------------|--------------------|---------|-------------------|------------------|---|
|       | Photo-characteristics     | stice   |                     | Mor     | Morphologic Expression | pression           |         | Superficial Cover | Cover            | L'Yobadie Lilingiogy  |
|       | Ě                         | Texture | Drainage<br>Dattern | ٥       | Rock<br>Resistance     | Section            | Bedding | Vegetation        | Cultiva-<br>tion | (Correlation with Available Geologic Map)   |
| I     | resev                     | fine    | meandering          | _       | very low               |                    |         | partly            | partly           | Unconsolidated sediments composed of gravel, sand, silt and clay  |
|       | ourolish red              |         |                     | low     |                        | المعادرة والمعادرة | ١       | dense             | intense          | intense (Quaternary: Recent alluvial deposits)  |
|       | purolish red              | fine    | dietributary        | medium  | very low               | Į.                 |         | partly            | partly           | Unconsolidated sediments composed of gravel, sand, silt and clay  |
|       |                           |         |                     | to high |                        |                    | ,       | депъе             | intense          | intense (Quaternary:Composite fan deposita).  |
| 1     | wollow                    | medium  |                     |         | very low               |                    |         |                   |                  | Unconsolidated sediments composed of sand   |
|       | ontrole                   |         |                     | 1       |                        |                    | 1       | -                 | 1                | (Quaternary:Marshy sediments)   |
| i     | blue                      | fine    | ı                   | ,       | very low               |                    | ı       | - 1               | 1                | Giacial deposits<br>(Quaternary: Eolian deposits)   |
| 1     | reddish brown             | fine    | parallel            | very    | very low               |                    | ı       | ŧ                 | ı                | Unconsolidated sediments composed of latorized gravel, sand, silt   Pleistocene, Talus devosits   |
|       | dark brown                | coarse  | radial,             | medium  | high                   | <u>ر</u><br>درج    | massive |                   | 1 "              | Andesitic volcanic rocks  |
|       |                           |         | Aub-dendritic       |         |                        |                    |         |                   | ij               | (Pliocene: Andenite, pyroclastic flow edposits etc.)  |
| 1     | green,                    | coarse  | pinnate             | high    | low to                 | A.W.               | partly  | ŀ                 | ı                | Fino to medium-grained sedimentary rocks<br>(Middle Miocene:Sandstone, conglomerste, mudstone)  |
| 1     | Corav                     | coarse  | dendritic           | medium  | medium                 | {                  | partly  |                   |                  | Fine to medium-grained sedimentary rocks  |
|       | light brown               |         | pinnate             | to high | to low                 |                    | bedded  | 1                 | I                | (Lower Miocene:Sandatone,conglomerate,mudatone etc.)  |
|       | pink to                   | coartee | pinnate             | high    | medium                 | {                  | ļ       | j                 | ı                | Volcanic rocks Cower Micone-Andesite etc.)  |
| 1     | reddish brown             | fine    | lellaren            | ) wo    | WO: 02                 | (                  |         | dense             | partly           | Fine to medium-grained sedimentary rocks  |
|       | croenish white            |         |                     |         |                        | <u> </u>           | 1       |                   | intense          | intense (Oligocene: Conglomerate, sandatone, mudatone etc.)   |
|       | light brown               | medium  | dendritic,          | medium  | medium                 | -Mir               | partily | partly            |                  | Medium to coarse-grained sedimentary rocks  |
|       |                           |         | pinnate             | to high | to high                |                    | bedded  | denne             | i                | (Cretaceous:Conglomerate, sandatone, mudatone etc.)   |
|       | dark brown,               | coarse  | dendritic,          | medium  | medium                 | 11111              | partly  | partly            |                  | Medium to coarse-grained sedimentary rocks  |
|       | light brown               |         | aub-parallel        |         | to high                |                    | bedded  | dense             | į                | (Cretacecua: Conglomerate, sandatone, volcanic breccia etc.)  |
|       | dark brown,               | coarse  | dendritic,          | medium  | medium                 |                    | partly  | sparse            |                  | Medium to coarse-grained sedimentary rocks  |
| -     | brown                     |         | Rub-parallel        |         | to high                |                    | bedded  |                   |                  | (Upper Jurassic Conglomerate, sandstone, andesuic volcanic orecus etc.)   |
|       | blue, dark blue,          | coarse  | parallel,           | high    | low to                 |                    | partly  | partly            | partly           | partly Medium to coarse-grained sedimentary rocks   |
| .     | yellowish white           |         | dendritic           |         | medium                 |                    | bedded  | ярагае            | rare             | Middle Triassic:Continental sandstone conglomerate, intermediate uni euc.)  |
|       | white,                    | medium  | dendritic           | modium  | medium                 |                    | partly  | partly            | 1                | Fine to medium-grained sedimentary rocks A surve Twissesier Continental sandatone conclomerate acidic tuff etc.)  |
| 8     | Tri yellowiah brown, blue |         |                     | to high |                        |                    | bedded  | dense             |                  | (TOWER I Hawke Continental ballowood confidence of the confidence |

|          | Mendora Area          |         |                         |        |                      |  |         |   | ٠                | P-232 R-083 2/2  |
|----------|-----------------------|---------|-------------------------|--------|----------------------|--|---------|---|------------------|--|
| iii.     | Photo-characteristics | tics    |                         | Mor    | Могрноюдіс Ехргенноп | pression   |         | Superficial Cover                                 | Cover            | Probable Lithology   |
| <u></u>  | Tone                  | Texture | Drainage<br>Pattern 1 D | [      | Roeistance           | Section  | Bedding | Vegetation  | Cultiva-<br>tion | (Correlation with Available Geologic Map)                        |
|          | purplish brown        | fine    | dendritic               | medium | high                 | {  |         |   |                  | Tuff   |
| Pe       |                       |         |                         |        |                      |  | -       | '   | 1                | (Upper Permian: Volcanic rocks, tuff)                            |
| <u> </u> | greenish brown,       | fine    | pinnate                 | medium | high                 |  | partly  | dense   |                  | Volcanic rocka   |
| P.       |                       |         |                         |        |                      | //./   | bedded  |   | 1                | (Upper Permian: Dacite, rhyolite)                                |
|          | <u> </u>              | coarse  | dendritic               | high   | medium               | المرازان الم   | partly  | partly  |                  | Intermediate volcanic rocks                                      |
| À        |                       |         |                         | ,      |                      |  | bedded  | яратяе  | 1                | (Middle Permian: Andeaite Dacite)                                |
|          | ye                    | course  | pinnate,                | high   | medium               | {  |         | dense   |                  | Fine to medium-grained sedimentary rocks                         |
| ۵        | light vellowish gray  |         | trellia                 | :      | to low               |  | ŀ       |   | 1                | (Permian: Pyroclastic rocks)                                     |
| L        | purplish brown,       | fine    | pinnete,                | medium | medium               | The state of the s | partly  | partly  |                  | Fine to medium grained sedimentary rocks                         |
| ే        | dark green            |         | dendritic               |        |                      |  | bedded  | делее   | ,                | (Upper Carboniferous:Manne sandatone mudatone etc.)              |
| <u> </u> | purplish brown        | овлес   | dendritic               | medium | medium               | 1  |         |   | -                | Medium to coaree-grained sedimentary rocks                       |
| ٥        |                       |         |                         |        |                      |  | ,       | ,   | ,                | (Devonian: Marine sediments)                                     |
|          | purplish brown        | coarse  | pinnate                 | pigh   | high to              | {  |         | partly  |                  | Fine-grained sedimentary rocks                                   |
| s        |                       |         |                         |        | medium               |  | į       | врагее  | ì                | (Silurian: Marine sediments)                                     |
| L        | gray to white         | medium  |                         | high   | modium               | {  |         |   |                  | Fine-grained sedimentary rocks                                   |
| ٥        |                       |         | _                       |        |                      |  | 1       | 1   | ,                | (Ordovician:Marine sedimenta)                                    |
| L        | purplish brown,       | medium  | dendritic,              | medium | medium               | (2,5)  |         |   |                  | Fine to medium-grained sedimentary rocks                         |
| 4        |                       |         | pinnate                 |        | to high              |  | 1       | 1   | 1                | (Upper Cambrian:Metamorphic rocks, phyllite etc.)                |
|          | <u> </u>              | coarse  | trellis,                | dgid   | high                 | 15555  |         | partly  |                  | петатогрыс госкв   |
| £        |                       |         | dendritic               |        |                      |  | -       | demse   | 1                | (Upper Proterozoic:Metamorphic rocks, amphibolite, schist, etc.) |
|          | white,                | fine    | dendritic               | medium | पृष्ठीप              | (4)  | ·       | partly  |                  | Felsic igneous rocks   |
| 7.       | yellowish white       |         |                         |        |                      | , , ,  | ı       | врагее  | 1                | (Meaozoic: Granite)  |
|          | yellowish brown       | coarse  | dendratic               | t/gird | hjir                 | Service of the servic |         |   |                  | Felsic igneous rocks   |
| 7 0      |                       |         | 7                       |        |                      | 10000  | -       | ŀ   | -                | (Paleozoic:Tonalite)   |
|          | light green,          | coarse  | pinnate                 | high   | medium               | (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)  |         |   |                  | Somewhat mafic greeous rocks                                     |
| ę        | <u>.</u>              |         |                         | :      |                      | くという   | ì       | '   | 1                | (Paleozoic:Gabbro diorite)                                       |
|          |                       | fine    | pinnato                 | medium | पृत्रीम्             |  |         |   |                  | Mafic igneous rocks forming annular structure                    |
| 9        |                       |         |                         |        |                      |  | ,       | ֓֡֜֜֜֜֜֜֜֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֓֓֓֓֡֓֓֓֡֓֡֓֡֓֡ |                  | (Faleozoic, rerigodice serpendinae)                              |
| <u> </u> | ight pinkah gray      | tine    | dendritic               | medium | medium               | - ARTYAR   | massive | !   | i                | Alteration zone  |
|          |                       |         |                         |        |                      |  |         |   |                  |  |

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|             | Morphologic Expression Superficia | ture Drainage Rock Section Bedding Cultiva-<br>Pattern Denaity Registance Vegetation tion | gg very very low dense | wol | fine dietributery m | coarse dendritic | fine very low     | 1 | av coarse very low      | 1 | fine navellel low low |   | on fine parallel very low partly Coarse-grained brittle semi-consolidated sediments | wol | medium       | •  | fine trellis, high medium bedded dense | dendritic  | medium trellis medium low bedded partly | sparse — (Cocene: Red sandstone, sultstone, conglomerate) | wn medium trellis medium medium medium medium medium grained sedimentary rocks | to high //// - (Eocene: Red sandstone, conglomerate) | coarse parallel medium medium pedium bedded bedded |   | tine parallel low very high bedded bedded Hard compact carbonate rocks |   | medium trellie high medium bedded dense Fine to medium grained compact sedimentary rocks | to high | medium trellis high medium bedded dense Fine to medium-grained compact sedimentary rocks | - (Permian to Triassic:Sandatone, alliceous, limeatone, alltatone etc.) |
|-------------|-----------------------------------|---|------------------------|-----|---------------------|------------------|-------------------|---|-------------------------|---|-----------------------|---|---|-----|--------------|----|--|------------|---|---|--|--|--|---|--|---|--|---------|--|---|
|             | 38                                | ture<br>Pat   |                        |     |                     |                  | ┞                 |   | oarse                   |   | ╀                     |   | ├   |     | <b> </b>     |    | <u> </u>                               | dend       |   |   |  |  | ļ  |   |  |   |  | •       | <u> </u>   |   |
| Tariis Area | Photo-characteristics             | Tone  | _                      |     | hwonith             |                  | Light Minish crav |   | light vellowish gray Co |   | Isohe walloungh brown |   | hight cravish brown   |     | heht brown c |    | light yellowish gray                   |            | light greenish gray m                   | •   | light yellowish brown medium   | •  | brown  |   | light gray   |   | light brown m  |         | light brown m  |   |
|             | Unit                              |   |                        | ဒီ  |                     | 8                | L                 | 8 |                         | 8 |                       | ő | 1   | చ   |              | ā, |  | : <u>-</u> |   | នឹ  |  | Ëo:  |  | å |  | ¥ |  | 7       | <u></u>  | ۵   |

| Unit | Photo-characteristics      | Stics   |           | Mo           | Могрһоюс Ехргенноп | ргенніоп                               |         | Superficial Cover | Cover        | Probable Lithology   |
|------|----------------------------|---------|-----------|--------------|--------------------|--|---------|-------------------|--------------|--|
|      | L                          | Texture | Drainage  |              | Rock               | Section                                | Bedding |                   | Cultiva-     |  |
|      | Tone                       |         | Pattern   | Density      | Density Registance |  |         | Vegetation        | tion         | (Correlation with Available Geologic Map)                              |
|      | light brown                | medium  | dendritic | high         | high               | 1000                                   | bedded  | dense             |              | Fine to medium-grained hard compact sedimentary rocks                  |
| ပ    |                            |         | •         | i            | •                  | 11111                                  |         |                   | 1            | (Carboniferous:Sandatone conglomerate mudatone etc.)                   |
|      | light brown                | fine    | parallel  | Jow          | high               | Ų,                                     | bedded  |                   |              | Medium to coarse-grained hard compact sedimentary rocks                |
| ទ    |                            |         |           |              |                    |  |         | 1                 | ı            | (Lower Carboniferous:Sandstone,conglomerate)                           |
|      | yellowish brown medium     | medium  | trellia,  | daid         | high               |  | bedded  | partly            | -            | Fine to medium-grained hard compact sedimentary rocks                  |
| £    |                            |         | dendritie |              |                    | - 441111                               |         | dense             | ı            | (Widdle Devonian: Arkose sandstone, micaceous mudstone etc.)           |
|      | yellowish brown            | medium  | trellis,  | high         | high               |  | bedded  | partly            |              | Fine to medium grained hard compact sedimentary rocks                  |
| ē    |                            | •       | dendritic |              |                    | ·                                      |         | moderate          | '            | (Lower Devonian:Sandatone)   |
|      | yellowish brown            | fine    | trellis   | high         | medium             |  | partly  | partly            |              | Fine to medium-grained compact sedimentary rocks                       |
| S    | :                          | :       |           |              |                    |  | bedded  | moderate          | 1            | (Silurian: Alternative beds of mudstone sandstone and muddy sandstone) |
|      | dark purplish gray.        | coarse  | trellis,  | पृष्ठींप     | very high          | (                                      | partly  |                   |              | Fine-grained hard compact sedimentary rocks                            |
| ే    | light brown                |         | dendritic |              |                    |  | bedded  | ı                 | 1            | (Upper Ordovician:Mudstone)  |
|      | brown,                     | coarse  | trellia   | पृष्ठांप     | very bigh          |  | partly  | partly            | <u>,,,,,</u> | Fine-grained hard compact sedimentary rocks                            |
| ō    | dark purplish gray         |         |           |              |                    | \ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | bedded  | moderate          | ı            | (Lower Ordovician:Mudatone)  |
|      | light yellowish brown      | fine    | trellas,  | low          | high               | <                                      | partly  |                   |              | Mainly coarse-grained hard compact sedimentary rocks                   |
| 4    |                            |         | dendritic |              |                    |  | pedded  | 1                 | ì            | (Upper Cambrian:Quartzite, sandatone etc.)                             |
|      | light yellowish brown      | coarse  | trellis   | medium       | high               |  | partly  |                   |              | Medium-grained hard compact meta sedimentary rocks                     |
| Ē    |                            |         |           |              |                    | Y ( ) , ( ) .                          | bedded  | '                 | -            | (Proterozoic: Phyllite, echist, quartzite)                             |
|      | light pinkish brown medium | meqinm  | dendritic | <b>d</b> gid | very high          | (-                                     | massive |                   | -            | Felaic igneous rocks   |
| 7.0. |                            |         |           |              |                    | /X x 2 x X                             |         | ı                 | -            | (Proterozoic:Meta granodiorite)  |

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|          | •                     |         |                         | -1            |                    |             |         |                   |           | P-231 R-076 1/2  |
|----------|-----------------------|---------|-------------------------|---------------|--------------------|-------------|---------|-------------------|-----------|--|
|          | Dhoto-characteristics | atica   |                         | Mon           | Morphologic Ext    | pression    |         | Superficial Cover | 1 Cover   | Probable Luthology   |
|          |                       | Texture | Drainage                | $\  \cdot \ $ | Rock               | Section     | Bedding | :                 | Cultiva-  | ( Community Armitable Bondone Man)   |
|          | Tone                  |         | Pattern                 | Density       | Density Resistance |             |         | Veretation        | noti      |  |
|          | gray.                 | fine    | meandering              | very          | very low           |             |         | mostly            | generally | generally Unconsolidated recent alluvial deposits composed of gravel, sand, sut and clay |
| 8        | brown                 |         |                         | low           |                    |             | 1       | dense             | intense   | intense (Quaternary:Unconsolidated alluvial deposits)                                    |
|          | light numble.         | fine    | distributary medium     | medium        | wory low           | Į,          |         | partly            | partly    | Unconsolidated composite fan deposits composed gravel, sand etc.                         |
| ઢ        | grav                  |         |                         |               |                    |             | 1       | фепяе             | rare      | (Quaternary: Gravel, aand, ailt, clay-alluvial deposits)                                 |
|          | hobe Almah orav       | fine    | distributary.           | wol           | very low           |             |         |                   |           | Unconsolidated evaporated sediments  |
|          | /                     |         | paralle                 |               |                    |             |         | -                 | Į         | (Quaternary:Evaporated sediments)  |
|          | light grav            | coarse  |                         |               | very low           |             |         |                   |           | Unconsolidated sediments composed mainly of sand   |
| 8        |                       |         | ı                       | ı             | ,                  | 4.000       | -       | 1                 | ,         | (Quaternary:Recent colian deposits)  |
|          | light gravish brown   | fine    | distributary, very low. | very low.     | wol                |             |         | partly            |           | Coarse-grained brittle semi-consolidated sediments                                       |
| <u></u>  | 9                     |         | parallel                | medium        |                    |             | 1       | депяе             | •         | (Quaternary:Semi-consolidated sediments composed of grave), sand and clay etc.)          |
| _        | light brown           | coarse  | dendritic               | meginm        | low                | ()          | almost  | partly            |           | Medium to coarse-grained sedimentary rocks (partly brittle)                              |
|          | <b>B</b>              |         |                         |               |                    | 7.74 (4.74) | таваіче | dense             | 1         | (Quaternary: Recent deposits of grave) and sand)   |
|          | light brown           | coarse  | trellis,                | hặth          | medium             | (           | bedded  | mostly            |           | Fine to medium-grained compact sedimentary rocks   |
| <u>=</u> |                       |         | dendritic               |               |                    |             |         | dense             | 1         | (Miocene to Pliocene:Sedimentary rocks including volcanic products)                      |
|          | yellowish brown,      | coarse  | trellis                 | high          | qgiq               | AMM.        | bedded  | mostly            |           | Fine to medium-grained hard compact sedimentary rocks                                    |
| ន        | brown                 |         |                         |               |                    | 1.11111     |         | dense             | 1         | (Eocene Subgrupo Santa Barbara)  |
|          | light grayish yellow  | fine    | dendritic               | low           | ų žių              | (           | pedded  | partly            |           | Hard compact carbonate rocks   |
| <u>~</u> | ·<br>·                |         |                         |               |                    |             |         | деляе             | i         | (Upper Cretaceous to Paleocene:Subgrupo Balbuena)  |
|          | yellow,               | coarse  | trellis,                | high          | high               |             | pedded  | partly            |           | Fine to medium-grained compact sedimentary rocks   |
| :Z       | light crayish green   | · ·-    | dendritic               |               |                    |             |         | dense             | -         | (Lower Cretaceoun:Subgrupo Pirgua)   |
|          | light brown           | medium  | L.                      | high          | medium             |             | pedded  | dense             |           | Fine to medium-grained compact sedimentary rocks   |
| _        |                       |         |                         |               | to high            |             |         |                   | 1         | (Middle Jurnssic-Quartzose andstone)   |
| <u> </u> | hght brown            | medium  | trellis                 | high          | medium             | 4           | bedded  | dense             |           | Fine to medium-grained compact sedimentary rocks   |
| ۵.       |                       |         |                         |               |                    |             |         |                   | 1         | (Permian to Triansic:Sandstone, siliceous limestone, silestone etc.)                     |
|          | light brown           | medium  | dendritic               | high          | high               |             | pedded  | dense             |           | Fine to medium-grained hard compact sedimentary rocks                                    |
| ပ        |                       |         |                         |               |                    | · ///       |         |                   | -         | (Carboniferous:Sandstone,congjomerate, mudatone etc.)                                    |
|          | yellowish brown       | medium  | trellis,                | high          | high               |             | bedded  | dense             |           | Fine to medium-grained hard compact sedimentary rocks                                    |
| Æ        |                       |         | dendritic               |               |                    |             |         |                   | 1         | (Middle Devonian: Arkose sandstone, micaceous mudetone etc.)                             |

|             | Son Romon Area               |         |           |         |                        |  |         |   |          | P-231 R-076 2/2                                       |
|-------------|------------------------------|---------|-----------|---------|------------------------|--|---------|---|----------|---|
| 11.11       | _                            | TCCR    |           | Mo      | Morphologic Expression | тргеявіоп                              |         | Superficial Cover                       | Cover    | Probable Lithology                                    |
|             |                              | Texture | Dramage   |         | Rock                   | Section                                | Bedding | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | Cultiva- | (Commolination with Aveniable Captoric Man)           |
|             | Tone                         |         | Pattern   | Denmity | Dennity   Registance   |  |         | vegetation                              | uou      | CONTRACTOR WITH CARRIES CARRY                         |
|             | yellowish brown              | medium  | trellis,  | high    | hỳth                   |  | pedded  | деляе                                   |          | Fine to medium-grained hard compact sedimentary rocks |
| õ           | ·                            |         | dendritic |         |                        |  |         |   | <u>'</u> | (Lower Devonian:Sandatone)                            |
|             | yellowish brown              | medium  | dendritic | high    | hìgh                   | \{\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | partly  | mostly                                  |          | Fine to medium-grained hard compact sedimentary rocks |
| ٥           |                              |         |           |         |                        |  | bedded  | dense                                   | ,        | (Devonian: Percado F. etc.)                           |
|             | yellowish brown              | medium  | trellis   | hjigh   | high                   |  | partly  | mostly                                  |          | Fine to medium-grained compact sedimentary rocks      |
| တ           | -                            |         |           |         |                        |  | bedded  | dense                                   | 1        | (Siluman:Lipeon F.)                                   |
|             | brown,                       | coarse  | dendritic | Not     | medium                 | (2)<br>(2)<br>(3)                      | almost  |   |          | Intermediate volcanic rocks, pyroclastic rocks        |
| ઢ           | vellowish brown              |         |           |         |                        | ,                                      | massive | 1                                       | 1        | (Ordovician: volcanic rocks)                          |
|             | brown,                       | coarse  | trellis   | medium  | medium very high       | All Mrs                                | bedded  | partly                                  |          | Fine-grained hard compact sedimentary rocks           |
| ö           | dark grav                    |         |           | to high |                        | 1111111                                |         | dense                                   | 1        | (Lower Ordovician:Santa Victoria Getc.)               |
|             | light yellowish brown        | fine    | trellis,  | low     | high                   | <                                      | partly  |   |          | Fine-grained hard compact sedimentary rocks           |
| 4           | •                            |         | dendritic |         |                        | *                                      | bedded  | 1                                       | 1        | (cambrian:Meson G.)                                   |
| $\prod_{-}$ | light yellowish brown coarse | coarse  | trellis   | hjgh    | very bigh              | 4/2/2                                  | partly  |   |          | Medium-grained hard compact meta sedimentary rocks    |
| 8           |                              |         |           |         |                        | 11/11/15                               | bedded  | ı                                       | -        | (Proterozoie:Puncoviacana F.)                         |
|             | light yellowish brown coarse | coarse  | dendritte | high    | high                   | ٠<br>د<br>د                            | massive |   |          | Felsic igneous rocks                                  |
| 7           |                              |         |           |         |                        | 4.4.4.2                                |         | -                                       | -        | (Juransic to Early Cretaceous: Granitic rocks)        |

|          | Son Pemon Area   | 891       |                     |        |  |  |         | ļ                 |            | P-231 R-077 1/2  |
|----------|------------------|-----------|---------------------|--------|--|--|---------|-------------------|------------|--|
| Unit     | -                | eristica  |                     | Mon    | Morphologic Ex   | xpression  |         | Superficial Cover | Cover      | Probable Lithology   |
|          | <u> </u>         | Texture   | Drainage            |        | ge Rock  | tion   | Bedding | Vecetation        | Cultiva    | (Correlation with Available Geologic Map)  |
| ĺ        | Tone             |           | ratherii            |        | The state of the s |  |         | donce             | nove ly    | If wone olidated recent alluvial deposits composed of gravel, sand, silt and clay  |
| ð        | gray.<br>brown   | tme       | meandering          | very   | very low   | محسمن شرزن   | ŀ       | 2000              | intense    | (Quaternary: Unconsolidated alluvial deposits)   |
|          | light hrown      | g Line    | distributary medium | medium | very low   |  |         | partly            | partly     | partly Unconsolidated composite fan deposits composed gravel sand etc.   |
| à        | light vellow     | COSTE     | <b>)</b>            |        | •  | (  | ı       | moderate          | intense    | intense (Quaternary: Crave) sand, silt, clay-alluvial deposits)  |
|          | light blue       | fine      |                     |        | very low   |  |         |                   |            | Unconsolidated evaporated sediments  |
| ક        | •                |           | i                   | 1      |  |  | 1       | 1                 | -          | (Qunternary: Recent unconsolidated sediments)  |
| ×        | purplish brown   | fine      | parallel            | medium | very low   | مستعدد في  | ı       | 1                 | ı          | Coarse-grained brittle semi-consolidated sediments (Quaternary:Semi-consolidated sediments composed of grave), sand and clay etc.) |
| ة ا      | purplish brown   | medium,   | parallel            | medium | low  | شمير م   |         | t :               | 1          | Fine to medium-grained sedimentary rocks (partly brittle) (Miccene to Pliceene:Muddy sandstone, mudstone etc.)                     |
|          | purplish brown,  | fine to   | dendritic,          | high   | medium   |  | bedded  | partly            |            | Fine to medium-grained compact sedimentary rocks   |
| ź        | cravish brown    | medium    | parallel            |        |  |  |         | denne             | rare<br>or | (Miocene:Sandstone, siltstone, conglomerate)   |
| 2        | yellowish brown, |           | dendritic           | medium | medium   | ( المنافعة ا | massive | 1                 | ı          | Eroded volcanic products-including plateau of ignimbrite<br>Offiocene: Andesire, dactric lava, ignimbrite etc.)                    |
| <u> </u> | yellowish brown  | medium    | parallel            | medium | low to   |  | bedded  | partly            |            | Fine to medium-grained sedimentary rocks<br>(Rosene-Sandstone mudstone)  |
| ន        |                  |           |                     |        | meanan   |  |         |                   |            |  |
| 2        | light brown      | medium    | parallel            | medium | medium   |  | bedded  | Į.                | 1          | Hard compact carbonate rocks<br>(Upper Cretaceous:Subgrupo Balbuena etc.)  |
| 3        | greenish gray    | medium    | parallel            | medium | medium   |  | bodded  | partly            | 1          | Medium-graiped sedimentary rocks<br>(Lower Cretaceous:Subgrupo, Pirgua etc.)   |
| ٥        | greenish gray    | medum     | dendritic           | high   | medium<br>to high  | (IIII)   | partly  | partly            | 1          | Fine to medium-grained compact sedimentary rocks<br>(Devonian;Sandstone, mudstone)   |
| ، ا      | aword            | fine to   | dendritic,          | high   | medium   | 1  | partly  | yaraq             | ı          | Fine to medium-grained compact sedimentary rocks<br>(Silurian Alternative beds of mudstone muddy sandstone sandstone etc.)         |
| 1        | brown, dark      | medium    | <u> </u>            | high   | high   |  | partly  |                   | 1          | Fine-grained hard compact sedimentary rocks  |
| ŝ        | brownish gray    | to coarse | dendritie           | medium | high   | <  | partly  |                   |            | Mainly coarse-grained hard sedimentary rocks   |
| 4        |                  |           | trellis             |        |  | /  | brdded  | 1                 | ì          | (Cambrian to Lower Ordovician:Quartrite, sandstone etc.)   |

|      | San Ramon Area        | rea      |           |        |                    |  |         | ;                 |          | P-231 R-077 2/2  |
|------|-----------------------|----------|-----------|--------|--------------------|--|---------|-------------------|----------|--|
| Unit | Photo-characteristics | eristics |           | Me     | Morphologic Ex     | Ехргению                               |         | Superficial Cover | Cover    | Probable Lithology   |
|      |                       | Texture  | Dramage   | Age    | Rock               | Section                                | Bedding |                   | Cultiva- |  |
|      | Tone                  |          | Pattern   |        | Density Registance |  |         | Vegetation        | tion     | (Correlation with Available Geologic Map)                    |
|      | dark brown,           | coarse   | trellis   | medium | hìgh               | Average States                         | partly  |                   |          | Medium-grained hard compact meta sedimentary rocks           |
| æ    | light brown           |          |           |        |                    |  | bedded  | 1                 |          | (Proterozoic to Cambrian. Phyllite, schirt, quartraite etc.) |
|      | prown                 | coarse   | trellis   | medium | medium very high   | <u>(</u> :                             | massive |                   |          | Felsic igneous rocks   |
| 7.0  |                       |          |           |        |                    | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |         | '                 | Ť        | - (Late Ordovician: Undivided granitic rocks)                |
| (    | ight yellowish        | coarse   | dendritic | low    | medium             | () X(4) X(6)                           | таявіче |                   |          | Alteration zone  |
| 7    | hrown                 | _        |           |        |                    |  |         | •                 | ;        |  |

|   |                  |           |                     |         |                        |  |         |                   | İ                | P-231 R-078 1/2   |
|---|------------------|-----------|---------------------|---------|------------------------|--|---------|-------------------|------------------|---|
| <u>, , , , , , , , , , , , , , , , , , , </u> | Rosario Area     | nafter    |                     | Mo      | Mornhologic Expression | pression                               |         | Superficial Cover | Cover            | Probable Lithology  |
| <u>,                                    </u>  | man mari         | Texture   | Drainage            | Į Į     | Rock                   | Section                                | Bedding |                   | Cultiva-         | (Contraction with Assoilable Goolnesie Wan)   |
|   | Tone             |           | Pattern             | Density | Density Resistance     |  |         | Vegetation        | tion             | (C) Triadion With avalance of order of the  |
|   | gray.            | fine      | meandering          | very    | very low               |  |         | dense             | partly           | partly Unconsolidated recent alluvial deposits composed of gravel, sand, sut and clay |
| ð   | hword            |           |                     |         |                        | )                                      |         |                   | intense          | intense (Quatornary:Unconsolidated alluvial deposits)                                 |
|   | hahr blue        | fine      |                     |         | very low               |  |         |                   |                  | Unconsolidated evaporated sediments   |
| 8   | ang angir        | Ì         | ı                   | ı       | •                      |  | ,       | -                 | 1                | (Quaternary:Recent unconsolidated sediments)  |
|   | light brown      | fine      | distributary medium | medium  | very low               |  |         | partly            | partly           | Unconsolidated composite fan deposits composed gravel, sand etc.                      |
| 8   | light vellow     | coarse    | :                   |         |                        |  | i       | moderate          | intense          | (Quaternary:Cravel, sand, silt, clay-alluvial deposite)                               |
|   | hrownish grav    | coarse    | radial              | low     | hjigh                  |  |         |                   | <del>- 1.7</del> | Recent volcanic products  |
| ઢ   |                  |           |                     |         |                        | \ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | 1       | ı                 | 1                | (Phocene to Holocene: Anderite lava, ignimbrite etc.)                                 |
|   | ournish brown    | fine      | parallel            | medium  | very low               | E                                      |         | -                 |                  | Coarse-grained brittle semi-consolidated sediments                                    |
| ď   |                  |           |                     |         |                        |  | 1       | l                 | 1                | (Quaternary:Semi-consolidated rediments composed of gravel, sand and clay etc.)       |
|   | numbish brown    | medium.   | parallel            | medium  | low                    | (                                      |         |                   |                  | Fine to medium-grained sedimentary rocks (partly brittle)                             |
| ā   |                  | coarse    |                     |         |                        | ?                                      | _       | i                 | 1                | (Miocene to Phocene:Muddy sandstone, mudstone etc.)                                   |
|   | dark grav.       | coarse    | radial              | medium  | medium                 | 6                                      |         |                   |                  | Relatively young lavas  |
| À   | brownish gray    |           |                     |         |                        | ,                                      | 1       | 1                 | 1                | (Pliocene to Pleistocene: Andesite to basaltic Java, pyroclastic rocks)               |
|   | purplish brown.  | fine to   | dendritic,          | high    | medium                 | and the same                           | pedded  | dense             | partly           | Fine to medium-grained compact sedimentary rocks                                      |
| 3   | gravish brown    | medium    |                     |         |                        | allen-                                 |         |                   | rare             | (Miocene:Sandstone, ailtatone, conglomerate)  |
|   | vellowish brown, | соатже    | <u> </u>            | medium  | medium                 | (e. c.)                                | massive |                   |                  | Eroded volcanic products-including plateau of ignimbrite                              |
| > =   | dark grav        |           |                     |         |                        | > > >                                  |         | 1                 | :                | (Miocene: Andewite to dacitic lava, ignimbrite etc.)                                  |
|   | vellowish brown  | medium    | parallel            | medium  | low to                 | CONT.                                  | bedded  | partly            |                  | Fine to medium-grained sedimentary rocks  |
| <b>.</b>                                      |                  |           |                     |         | medium                 |  |         | яратяе            | ŀ                | (Excene:Sandatone, mudatone)  |
|   | Noht brown       | medium    | parallel            | medium  | L.,                    | <b>(</b>                               | pedded  |                   |                  | Hard compact carbonate rocks  |
| 2   |                  |           |                     |         |                        | A                                      |         | ı                 | l                | (Upper Cretaceous:Subgrupo Balbuena etc.)   |
|   | greenish gray    | medium    | parallel            | medium  | medium                 | (80)                                   | bedded  | partly            |                  | Medium-grained sedimentary rocks  |
| ¥   |                  | to coarse |                     |         | to high                | Attion                                 |         | sparse            | -                | (Lower Cretaceous; Subgrupo Pirgua etc.)  |
|   | grayish brown    | coarse    | parallel            | medium  | medium                 | المتقاق                                | partly  |                   |                  | Fine-grained sedimentary rocks to metamorphic rocks                                   |
| ě   |                  |           |                     | to high |                        | `                                      | bedded  | ,                 | -                | (Lower to Middle Ordovician: Las Vicunas F etc)                                       |
|   | light yellowish  | coarse    | trellis             | medium  | high                   |  | partly  | parth             |                  | Medium-grained hard compact meta sedimentary rocks                                    |
| 9.<br>F.                                      | brown            |           |                     |         |                        | ٠,٢                                    | bedded  | яратже            | 1                | (Procerozoic:Phyllite, schist, quartzite)   |

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| Unit         Photo-characteristies         Morphologie Expression         Superficial Cover         Section         Bedding         Section         Bedding         Collitiva-         Collitiva-         Correlation with Available Geologic Map)           rp         prown         coarse         trellis         medium         might         massive         massive         massive         -         (Ordevician:Poutonic rocks)           prown         coarse         dendritic         medium         medium         medium         massive         massive         Alteration zone |          | KOSALIO ALCA    |         |           |         |               |          |         |            |          |                             |
|---|----------|-----------------|---------|-----------|---------|---------------|----------|---------|------------|----------|-----------------------------|
| Texture         Drainage         Rock Townstance         Section         Bedding Negetation         Cultivation           coarse         trellis         medium         high  | Unit     |                 | nstics  |           | Mo      | erphologic Ex | сргемноп |         | Superficia | Cover    | Probable Lithology          |
| coarse trollis medium high massive  |          |                 | Texture |           | age     | Rock          |          | Bedding |            | Cultiva- |                             |
| coarse trellies medium high massive   |          | Tone            |         | Pattern   | Density | Resistance    |          |         | Vegetation | tion     |                             |
| coarse dendritic medium medium  | <u> </u> | brown           | coarse  |           | medium  | hgid          |          | тавніче |            |          | Felsic igneous rocks        |
| coarse dendritic medium medium  | 7 0      |                 |         |           |         |               | \;\.\\   |         | ı          | 1        | (Ordovician:Poutonic rocks) |
|   |          | light yellowish |         | dendritic | medium  | medium        | ()30,000 |         |            |          | Alteration zone             |
|   | )        | brown           |         |           |         |               | Warney   |         | -          | 1        |                             |

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|          |   |              |                 | 4       |                        |             |         |                   |          | P-231 R-079 1/2  |
|----------|---|--------------|-----------------|---------|------------------------|-------------|---------|-------------------|----------|--|
|          | Tucuman Area  | 7            |                 | May     | Mounhologie Pennession | COMPRESSION |         | Superficial Cover | Cover    | Probable Lithology   |
| Cmit     | F noto-characteristics  | Texture      | Drainage        |         | Rock                   | Section     | Bedding |                   | Cultava- | (ac) I should be the state of solution of the                                  |
|          | Tone  |              | Pattern         | Density | Density Resistance     |             | ·A      | Vegetation        | tion     | (Correlation With Avanable Completing)   |
|          | Acres   | fine         | meander         | very    | very                   |             |         | partly            | intense  | Unconsolidated recent alluvial deposits composed of gravel, sand, sut and clay |
| å        | Secretary Secretary   | <u> </u>     |                 | , %c    | wol                    |             | ,       | dense             |          | (Quaternary:Recent unconsolidated rediments)                                   |
| 3        | עראטזאוז שווזני   | 1            | dictalhutom     | 1 5     | VPOV                   |             |         | partly            | partly   | Unconsolidated composite fan deposits composed gravel, sand etc.               |
|          | 'erdind july  | atrit        | Cream ment your |         | , wo                   | A           | . 1     |                   | іптепяе  | intense (Quaternary: Recent unconsolidated sediments)                          |
| 5        | gray  |              | -               | n iiiku |                        |             |         | Г                 |          | Unconsolidated evaporated sediments  |
|          | white,  | ogn<br>Tribe | meander         | very    | , cary                 |             | ,       | •                 | 1        | (Quaternary:Evaporated sediments)  |
| 8        | bluish white  |              |                 | MOI .   | MOI I                  |             | -       |                   |          | Polisa deposits composed mainly of sand  |
|          | light gray  | medium       | meander         | very    | very                   |             | ,       | 1                 |          | (Quaternary: Recent unconsolidated sediments)                                  |
| 3        | Transfer and  | Ş            | กอะลไโดไ        | low to  | No                     |             |         | partly            | partly   | Medium to coarse-grained brittle semi-consolidated sediments                   |
| <u></u>  | my high hours   | 1            |                 | medium  |                        |             | 1       | RDATSE            | rare     | (Quaternary:Recent unconsolidated sediments)                                   |
|          | light numle   | fine         | pinnate         | high    | low to                 |             | almost  |                   |          | Fine to medium-grained brittle ecdimentary rocks                               |
| 5        | again parties.  | 1            | 4               |         | medium                 | {           | massive | t                 | ,        | (Quaternary:Unconsolidated sediments)  |
| :        | Marioh oray   | COATSE       | parallel        | Not     | medium                 | (           | partly  |                   |          | Relatively young lavas   |
| 2        | hydricalsh creat  |              |                 |         |                        | l. i.c.     | bedded  | 1                 | -        | (Piocene:Stratovolcanos composed of andesite and basalt)                       |
|          | light mimital gray  | fine         | pinnate         | high    | wol                    |             | partly  | partly            |          | Fine-grained somewhat brittle sedimentary rocks                                |
| <u>.</u> | Care monday days  | 1            |                 | ,       |                        |             | pedded  | sparse            |          | (Miocene:Mainly continental sedimentary rocks)                                 |
|          | light numblish gray   | fine         | pinnate,        | high    | low to                 | (           | partly  |                   |          | Fine to medium-grained sedimentary rocks                                       |
|          |   |              | trellis         |         | medium                 | 111         | bedded  | -                 | ,        | (Miocene:Mainly continental sedimentary rocks)                                 |
|          | lioht numlish orgy  | fine         | pinnate.        | high    | medium                 | 13          | almost  |                   |          | Eroded volcame products  |
| E        |   |              | parallel        | }       |                        | * * * * *   | massive | ı                 | ,        | (Miocene: Andesite, dacite, basalt, pyroclastic rocks)                         |
|          | licht o   | fine         | trellis         | high    | medium                 | *           | partly  | dense             | _        | Fine to medium-grained compact sedimentary rocks                               |
| <u> </u> | Tario in the control of the control | <br>         |                 | }       |                        | ( )         | bedded  |                   | -        | (Miocene:Mainly continental sedimentary rocks)                                 |
|          | Creen   | medium       | parallel,       | medium  | medium                 | {           | almost  | dense             |          | Medium-grained sedimontary rocks   |
| ÿ        |   |              |                 |         |                        | \           | massive |                   | 3        | (Lower Cretaceous:Subgrupo Pirgua etc.)  |
|          | light brown   | medium       | P               | medium  | Agid                   | {           | almost  |                   |          | Medium-grained compact sedimentary rocks                                       |
| ం        |   |              |                 |         |                        |             | тажыме  | '                 | ,        | (Upper Ordovician:Mylopite)  |
|          | grayish brown   | coarse       | trellùs         | medium  | medium                 | {           | almost  |                   |          | Fine to medium-grained sedimentary rocks                                       |
| 0iv      | -   |              |                 |         |                        |             | таяязуе |                   |          | (Lower Ordovician: Meta sedimentary rocks meat voicinit rocks)                 |

|          | Tucuman Area             |         |                  |               |                    |           |         |                   |          | P-231 R-079 2/2  |
|----------|--------------------------|---------|------------------|---------------|--------------------|-----------|---------|-------------------|----------|--|
| Unit     |                          | cres    |                  | Mo            | Morphologic Ext    | cpression |         | Superficial Cover | il Cover | Probable Lithology   |
|          |                          | Texture | Drainage         | ıge           | Rock               | Section   | Bedding |                   | Cultiva- |  |
|          | Tone                     |         | Pattern          | Denaity       | Denaity Registance |           |         | Vegetation        | tion     | (Correlation with Available Geologic Map)                            |
|          | grayish brown            | fine    | dendritic        | medium medium | medium             | {         | almost  |                   |          | Medjum-grained sedimentary rocks                                     |
| <u>.</u> |                          |         |                  |               | to high            |           | таяніче | 1                 | •        | Cower Ordovician: Phyllite, schist, limentone etc.)                  |
|          | light grayish brown      | coarse  | parallel         | low to        | unipour            | 1         |         |                   |          | Medium to coarso-grained sedimentary rocks                           |
| 4        |                          |         |                  | medium        |                    |           | ı       | J                 | ŧ        | (Cambrian: Amphibolite, gneiss, meta volcanic rocks, meta carbonate) |
| <u> </u> | light brown,             | coarse  | parallel.        | high          | Aran               | MAN       | almost  | partly            |          | Medium-grained meta sedimentary rocks                                |
| æ        | purplish brown           |         | dendritic        |               | high               |           | massive | denne             | ,        | (Proterozoic:gneiss, schist etc.)                                    |
|          | light yellowish brown    | coarse  | dendritic        | medium        | <b>q</b> Biq       | {         | massive |                   |          | Felsic igneous rocks   |
| <u>۲</u> |                          |         |                  |               |                    |           |         | ,                 | ,        | (Cretaceous:Undivided granitic rocks)                                |
|          | light pink               | coarse  | dendritic,       | high          | Very               |           | massive | partly            |          | Felsic igneous rocks   |
| 7        | 7p light yellowish brown |         | trellia          |               | high               |           |         | sparse            | '        | (Late Ordovician Carboniferous: Undivided granitic rocks)            |
| 6        | light pinkish gray       | соатие  | dendritic medium |               | medium             | {         | таявые  |                   |          | Alteration zone  |
| )        |                          |         |                  |               |                    |           |         | 1                 | •        |  |