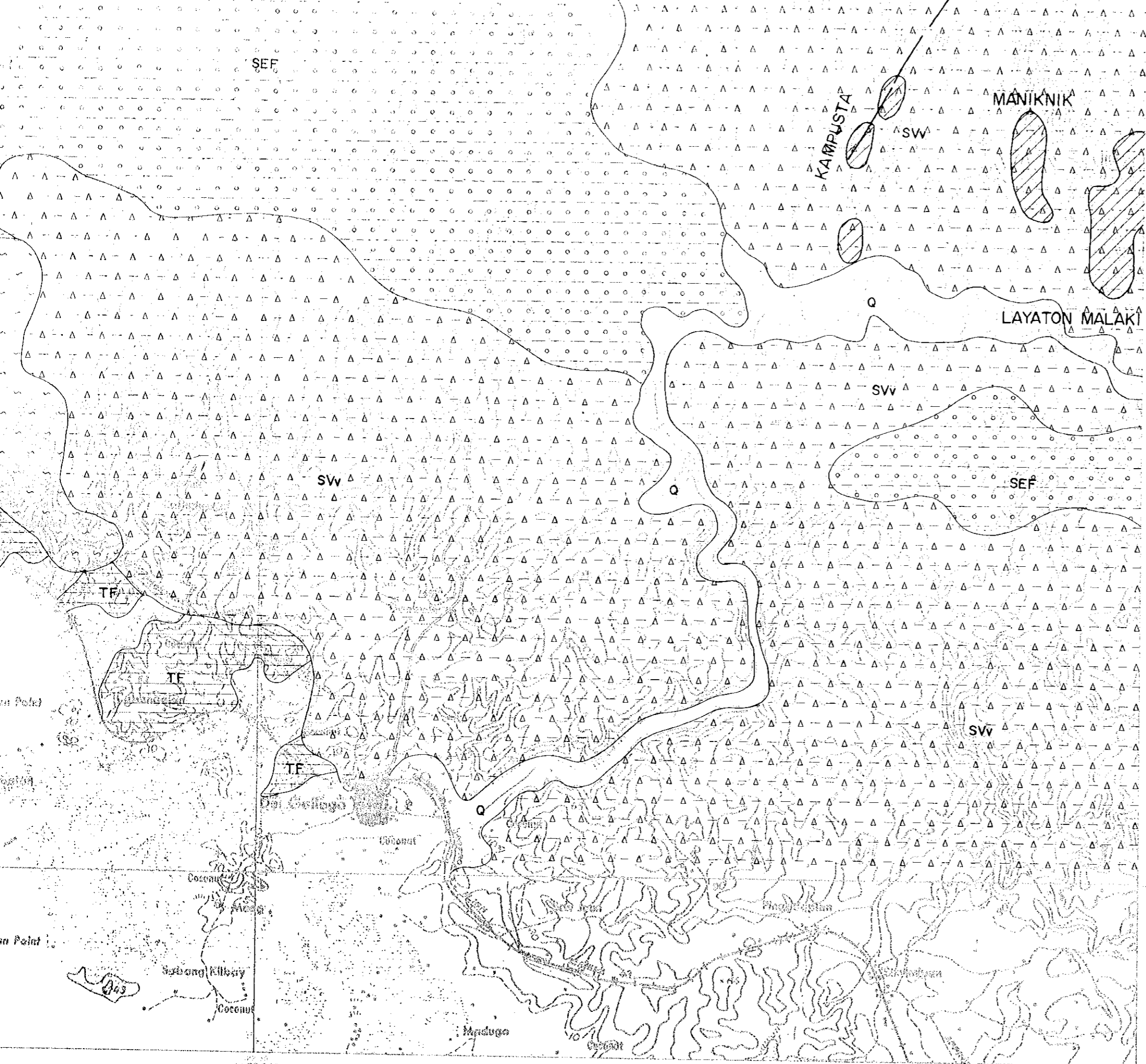


**LEGEND**

|            |                        |                                 |  |                       |    |                                  |
|------------|------------------------|---------------------------------|--|-----------------------|----|----------------------------------|
| QUATERNARY | Alluvium               | Q                               | Sand and gravel  |                       |    |                                  |
|            |                        | LVP                             | Pyroclastic flow   |                       |    |                                  |
|            | Labo Volcanics         | LVA                             | Andesitic and dacitic lava   |                       |    |                                  |
|            |                        | LVA                             | Andesitic and dacitic pyroclastics   |                       |    |                                  |
|            | LVA                    | Andesitic and dacitic plug dome |  |                       |    |                                  |
| TERTIARY   | Susungdaloga Volcanics | SVV                             | Dacitic lava, tuff and pyroclastics  |                       |    |                                  |
|            |                        | SVD                             | Dacitic plug dome  |                       |    |                                  |
|            | Macagon F.             | MF                              | Andesitic pyroclastics and tuffaceous black shale with minor basaltic flow                         |                       |    |                                  |
|            | Sta. Elena F.          | SEF                             | Conglomerate, sandstone, shale and minor limestone   | Tamisan Diorite       | TD | Diorite and dacite porphyry      |
| Miocene    | Basigon F.             | BVF                             | Basaltic flows, volcanic wackes, tuff breccia, chert and limestone                                 |                       |    |                                  |
|            |                        | BFs                             | Conglomerate, sandstone, black calcareous shale and limestone                                      | Paracale Granodiorite | PG | Gneissic granodiorite            |
| Paleogene  | Universal F.           | UF                              | Limestone, marl and calcareous shale   |                       |    |                                  |
| CRETACEOUS | Tigbinan F.            | TF                              | Graywacke, siltite, chert andesite, cherty limestone, black tuffaceous shale and arkosic sandstone | Ultramafic Complex    | UC | Ferrotite, gabbro and epidiorite |
| PRE-CRET.  | Schists                | SC                              | Green schist and quartzite   |                       |    |                                  |
|            |                        |                                 |  |                       |    | Fault                            |



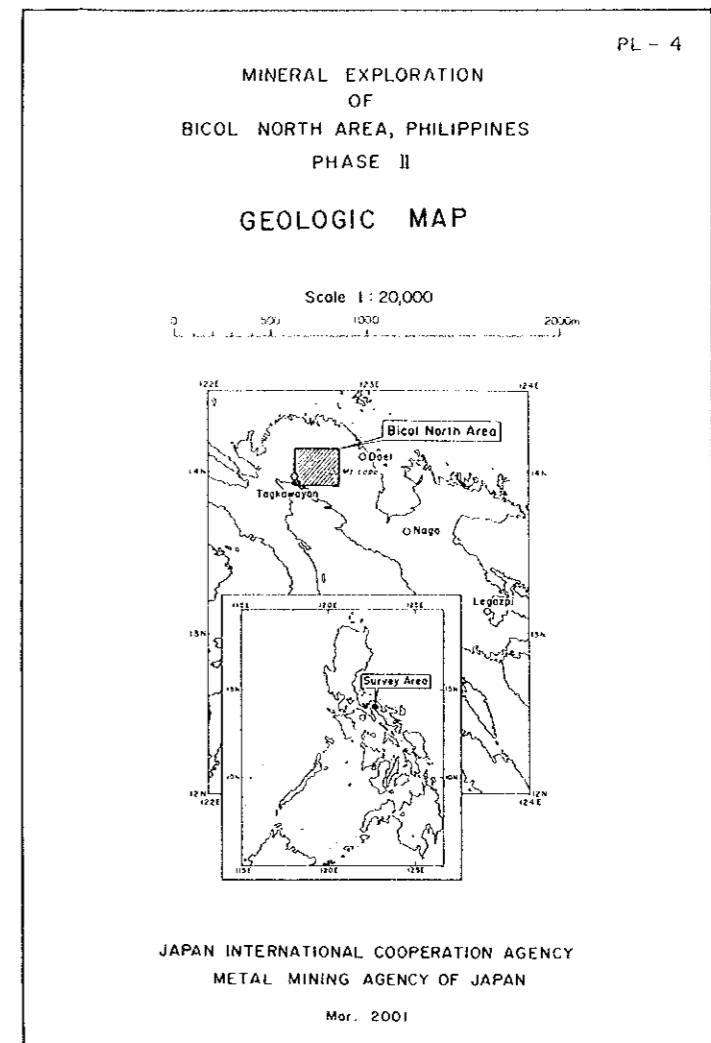
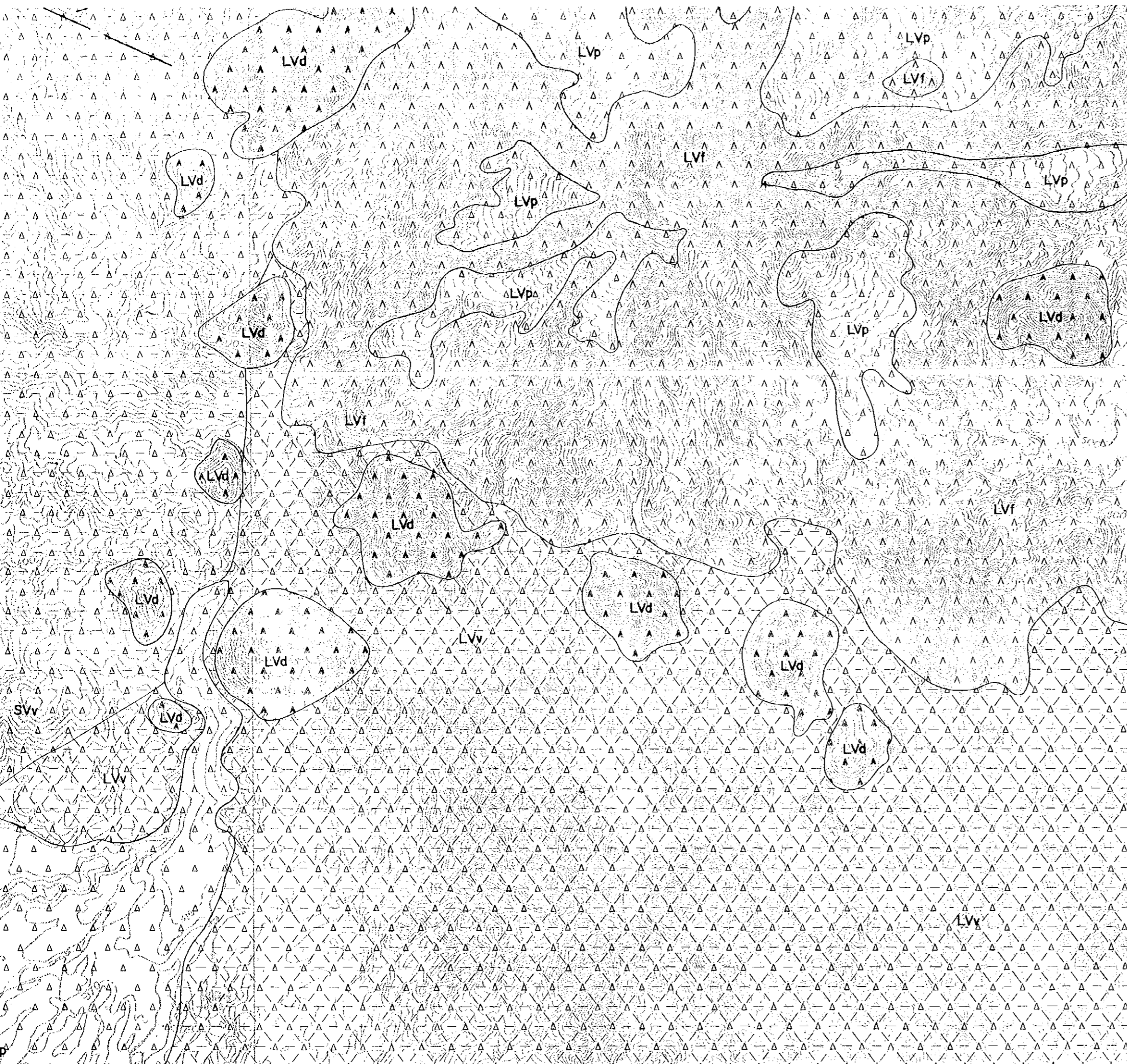


**LEGEND**

|   |   |   |  |   |   |   |
|---|---|---|--|---|---|---|
| QUATERNARY<br>Labo<br>Volcanics<br>Susungdaga<br>Volcanics<br>Macogon F.<br>Sta. Elena F.<br>Bosigon F.<br>Universal F.<br>CRETACEOUS<br>Tighnan F.<br>PRE-CRET.<br>Schists | Alluvium<br>Q<br>Sand and gravel                            | Pyroclastic flow<br>LVP<br>Andesitic and dacitic lava<br>LVA<br>Andesitic and dacitic pyroclastics<br>LVA<br>Andesitic and dacitic plug dome<br>LVA | Dacitic lava, tuff and pyroclastics<br>SVV<br>Dacitic plug dome<br>SVV | Andesitic pyroclastics and tuffaceous<br>black shale with minor basaltic flow<br>MF<br>Conglomerate, sandstone, shale<br>and minor limestone<br>SEF<br>Basaltic flows, volcanic wackes,<br>tuff breccia, chert and limestone<br>BFV<br>Conglomerate, sandstone,<br>black calcareous shale and limestone<br>BF<br>Limestone, marl and calcareous shale<br>UF | Diorite<br>and dacite porphyry<br>TD<br>Gneissic granodiorite<br>PG | Ultramafic<br>Complex<br>UC<br>Peridotite, gabbro<br>and epidiorite |
|   | Fault<br>Thrust<br>Syncline<br>Anticline<br>Alteration zone |   |  |   |   |   |

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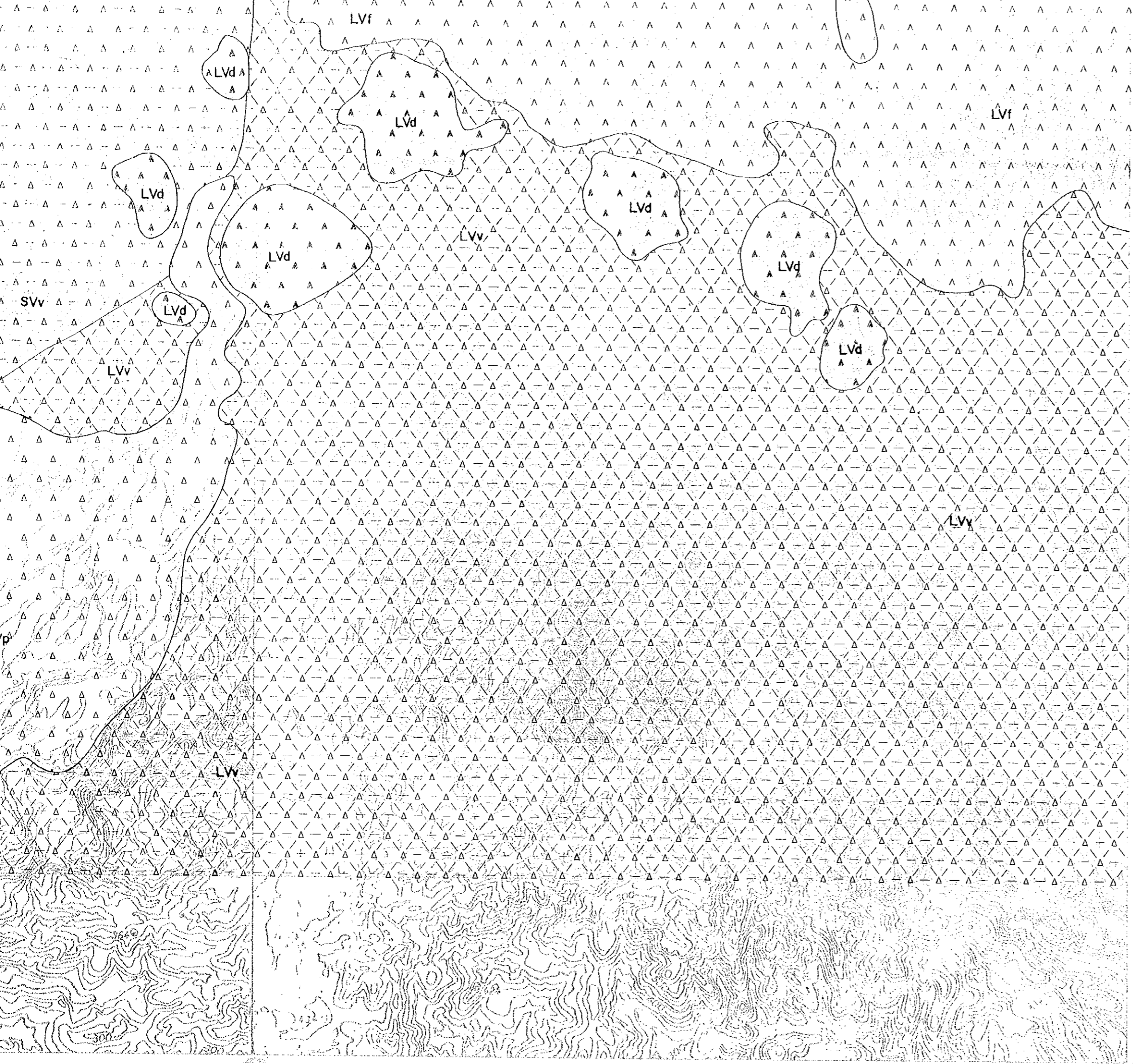


**LEGEND**

|              |                   |                                      |  |   |                       |    |
|--------------|-------------------|--------------------------------------|--|---|-----------------------|----|
| QUATERNARY   | Alluvium          | Q                                    | Sand and gravel  |   |                       |    |
|              | Laba<br>Volcanics | Lvp                                  | Pyroclastic flow   |   |                       |    |
|              |                   | Lvf                                  | Andesitic and dacitic lava   |   |                       |    |
|              |                   | Lvpd                                 | Andesitic and dacitic pyroclastics   |   |                       |    |
|              |                   | Lvd                                  | Andesitic and dacitic plug dome  |   |                       |    |
| TERTIARY     | Pliocene          | Swv                                  | Dacitic lava, tuff and pyroclastics  |   |                       |    |
|              |                   | Svd                                  | Dacitic plug dome  |   |                       |    |
|              | Miocene           | Macogon F.                           | MF   | Andesitic pyroclastics and tuffaceous blockstone with minor basaltic flow |                       |    |
|              |                   | Sta. Elena F.                        | SEF  | Conglomerate, sandstone, shale and minor limestone                        | Tamisan Diorite       | TD |
|              |                   | Basigon F.                           | BFv  | Basaltic flows, volcanic wackes, tuff breccia, chert and limestone        |                       |    |
|              |                   |                                      | BFs  | Conglomerate, sandstone, black calcareous shale and limestone             | Paracale Granodiorite | PG |
| Universal F. | UF                | Limestone, marl and calcareous shale |  |   |                       |    |
| CRETACEOUS   | Tigbinan F.       | TF                                   | Graywacke, spilitic, chert, andesite, cherty limestone, black tuffaceous shale and arkosic sandstone | Ultramafic Complex  | UC                    |    |
|              | PRE-CRET. Schists | SC                                   | Green schist and quartzite   |   |                       |    |

Fault





LEGEND

|            |                        |   |   |                       |    |                                  |
|------------|------------------------|---|---|-----------------------|----|----------------------------------|
| QUATERNARY | Alluvium               | Q   | Sand and gravel   |                       |    |                                  |
|            | Lobo Volcanics         | LVP   | Pyroclastic flow  |                       |    |                                  |
|            |                        | LVI   | Andesitic and dacitic lava  |                       |    |                                  |
|            |                        | LVD   | Andesitic and dacitic pyroclastics  |                       |    |                                  |
|            |                        | LVD   | Andesitic and dacitic plug dome   |                       |    |                                  |
| TERTIARY   | Susungdalaga Volcanics | SW  | Dacitic lava, tuff and pyroclastics   |                       |    |                                  |
|            |                        | SVd   | Dacitic plug dome   |                       |    |                                  |
|            | Macogon F.             | ME  | Andesitic pyroclastics and tuffaceous black shale with minor basaltic flow                          |                       |    |                                  |
|            | Sta. Elena F.          | SEF   | Conglomerate, sandstone, shale and minor limestone  | Tarnisan Diorite      | TD | Diorite and dacite porphyry      |
|            | Bosigon F.             | BFV   | Basaltic flows, volcanic wackes, tuff breccia, chert and limestone                                  |                       |    |                                  |
| BFS        |                        | Conglomerate, sandstone, black calcareous shale and limestone |   |                       |    |                                  |
| Paleogene  | Universal F.           | UF  | Limestone, marl and calcareous shale  | Paracale Granodiorite | PG | Gneissic granodiorite            |
|            |                        |   |   |                       |    |                                  |
| CRETACEOUS | Tigbinon F.            | TF  | Graywacke, siltite, chert, andesite, cherty limestone, black tuffaceous shale and arkosic sandstone | Ultramafic Complex    | UC | Pendolite, gabbro and epidiorite |
| PRE-CRET.  | Schists                | SC  | Green schist and quartzite  |                       |    |                                  |

|  |                 |
|--|-----------------|
|  | Fault           |
|  | Thrust          |
|  | Syncline        |
|  | Anticline       |
|  | Alteration zone |



JICA