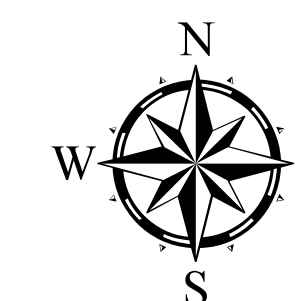
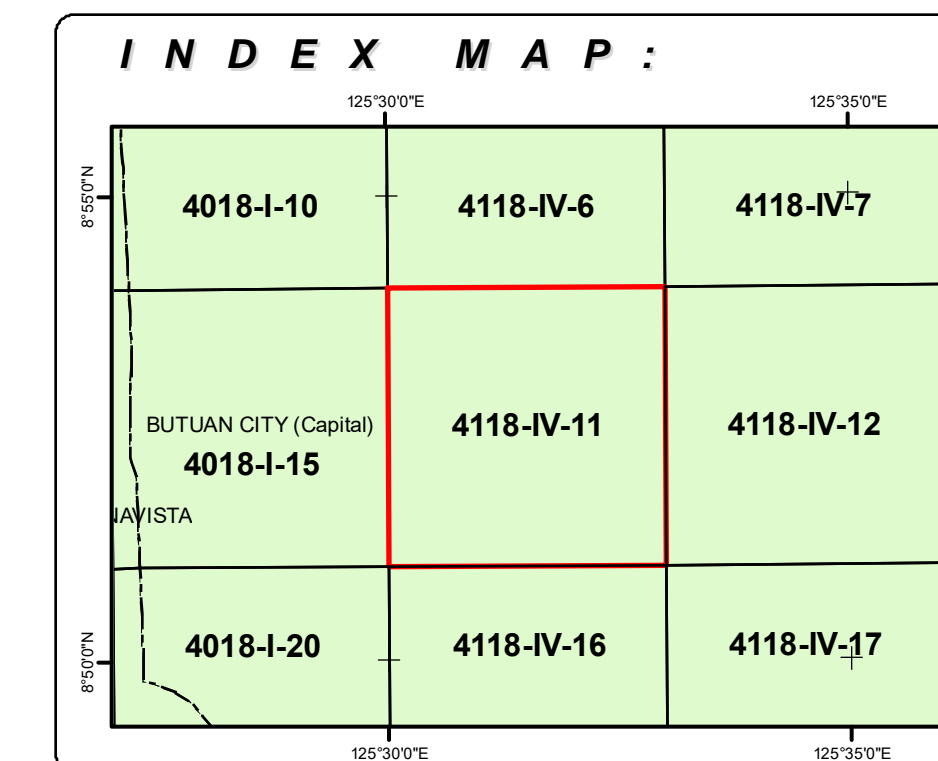
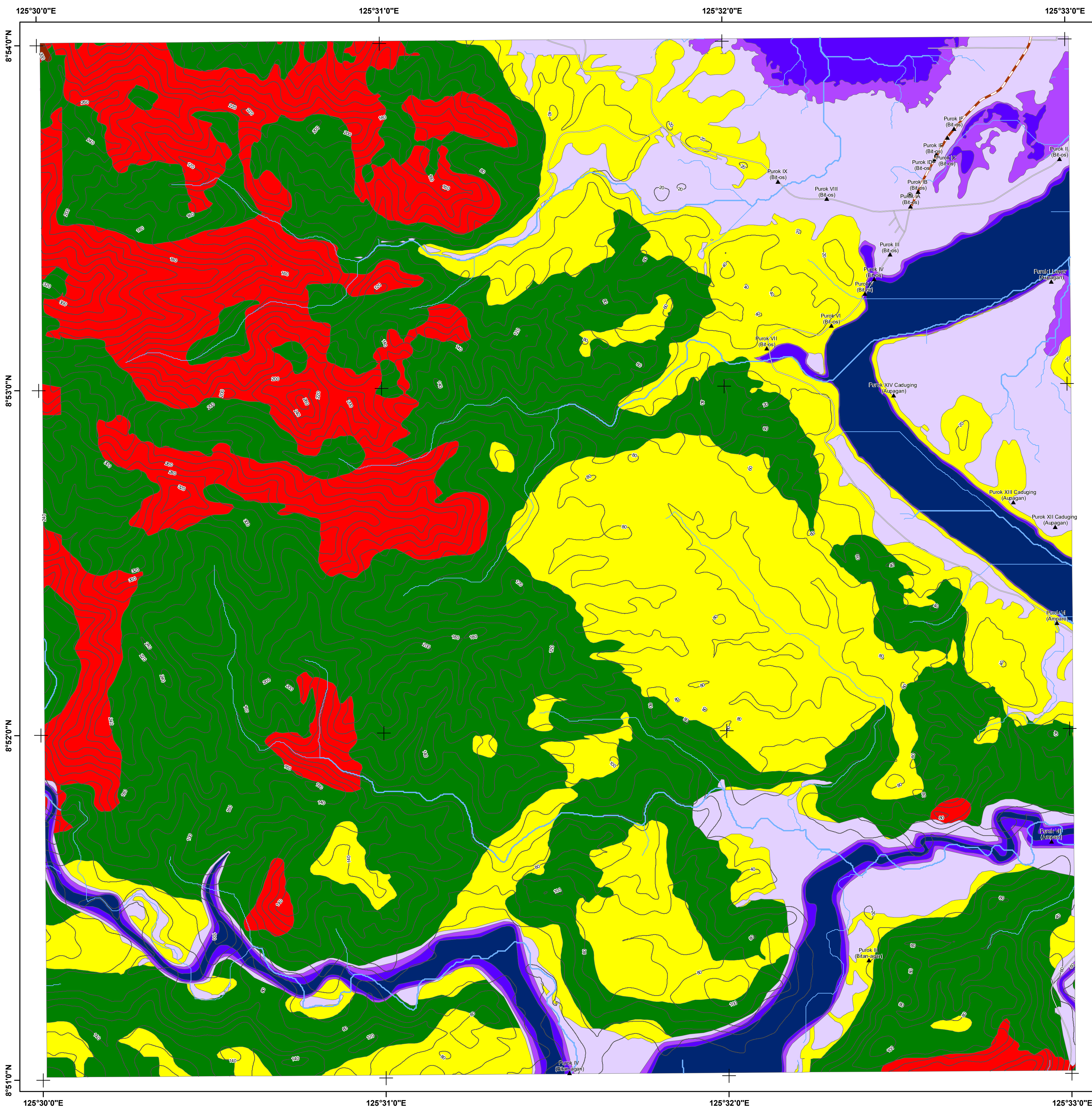




# DETAILED LANDSLIDE AND FLOOD HAZARD MAP OF BUTUAN CITY (CAPITAL), AGUSAN DEL NORTE, PHILIPPINES 4118-IV-11 BITANAGAN QUADRANGLE



## LEGEND :

- Main road
- Secondary road
- Track; trail
- River
- Municipal boundary
- Contour (meter)
- Barangay center location
- Purok/Sitio location (Barangay)
- School
- Hospital
- Church
- Proposed relocation site

## Landslide

- Very high landslide susceptibility**  
Areas usually with steep to very steep slopes and underlain by weak materials. Recent landslides, escarpments and tension cracks are present. Human initiated effects could be an aggravating factor.
- High landslide susceptibility**  
Areas usually with steep to very steep slopes and underlain by weak materials. Areas with numerous old/inactive landslides.
- Moderate landslide susceptibility**  
Areas with moderately steep slopes. Soil creep and other indications of possible landslide occurrence are present.
- Low landslide susceptibility**  
Gently sloping areas with no identified landslide.
- Debris flow / Possible accumulation zone**  
Areas that could be affected by landslide debris.
- Active landslide
- Inactive landslide
- Landslide area with mitigating measure
- Rock fall/Rock slide prone area
- Old landslide deposits
- Recent landslide deposits
- Areas susceptible to ground subsidence/sinkhole development
- Creep
- Tension crack
- Gully
- Riverbank erosion

## Flood

- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours; include landforms of topographic lows such as active river channels, abandoned river channels and area along river banks; also prone to flashfloods.
- High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours; include landforms of topographic lows such as active river channels, abandoned river channels and area along river banks; also prone to flashfloods.
- Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and infilled valleys are areas moderately subjected to flooding.
- Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate drainage density.

- Direction of rising floodwater
- Direction of receding floodwater
- Flood depth (meter)
- Flashflood exit point



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**GIS Processing :**  
Lands Geological Survey Division

**Coordinate System :**  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

Mapping scale 1:10,000