

LEGEND

EARTHQUAKE INTENSITY ZONES

Zone 1
AREA SUBJECT TO GENERALLY LOWER INTENSITIES AND SHORTER PERIOD SHAKING. Estimated maximum expected earthquake intensity at 1% to 10% (Modified Mercalli) intensity. This zone is generally underlain by rocks at shallow depth and will experience shorter period shaking with less potential for damage to tall structures.

Zone 2
AREA SUBJECT TO GENERALLY HIGHER INTENSITIES AND LONGER PERIOD SHAKING. Estimated maximum expected earthquake intensity at 10% to 20%. This zone is generally underlain by thick sediments, and will experience longer period shaking. Buildings with long fundamental periods would have a greater potential for damage in this area compared with zone 1.

U
ZONE OF UNKNOWN SURFACE RUPTURE POTENTIAL, RELATIVE TO THE SUSPECTED FAULT ZONE.

Symbols
APPROXIMATE LOCATION OF FAULT ZONE. Provides a division between Earthquake Intensity Zones 1 and 2.

GENERAL DIVISION BETWEEN ZONE 1 (SECTOR AREAS) AND ZONE 2 (AREAS OF THICK ALLUVIUM).

TECTONIC SUBSIDENCE
LINE OF EQUAL SUBSIDENCE RESULTING FROM THE 1964 EARTHQUAKE. Contour interval is two feet. Solid where subsidence projection is in contour interval, dashed where it is not. Appearance of a large magnitude local earthquake on the Alutian Arc Megathrust may be accompanied by a similar order of subsidence of subsidence.

SCALE 1:50,000
0 1.0 2.0 Miles
CONTOUR INTERVALS IN METERS

MUNICIPALITY OF ANCHORAGE
GEOTECHNICAL HAZARDS ASSESSMENT
TECTONIC HAZARDS AND MAXIMUM EXPECTABLE
EARTHQUAKE INTENSITIES - EAGLE RIVER

PLATE 1B

Compiled by JLD
Checked by JLD

MARCH, 1979
Rev. 6/79



NOTES

1) Data map symbol: Municipality of Anchorage Planning Department.

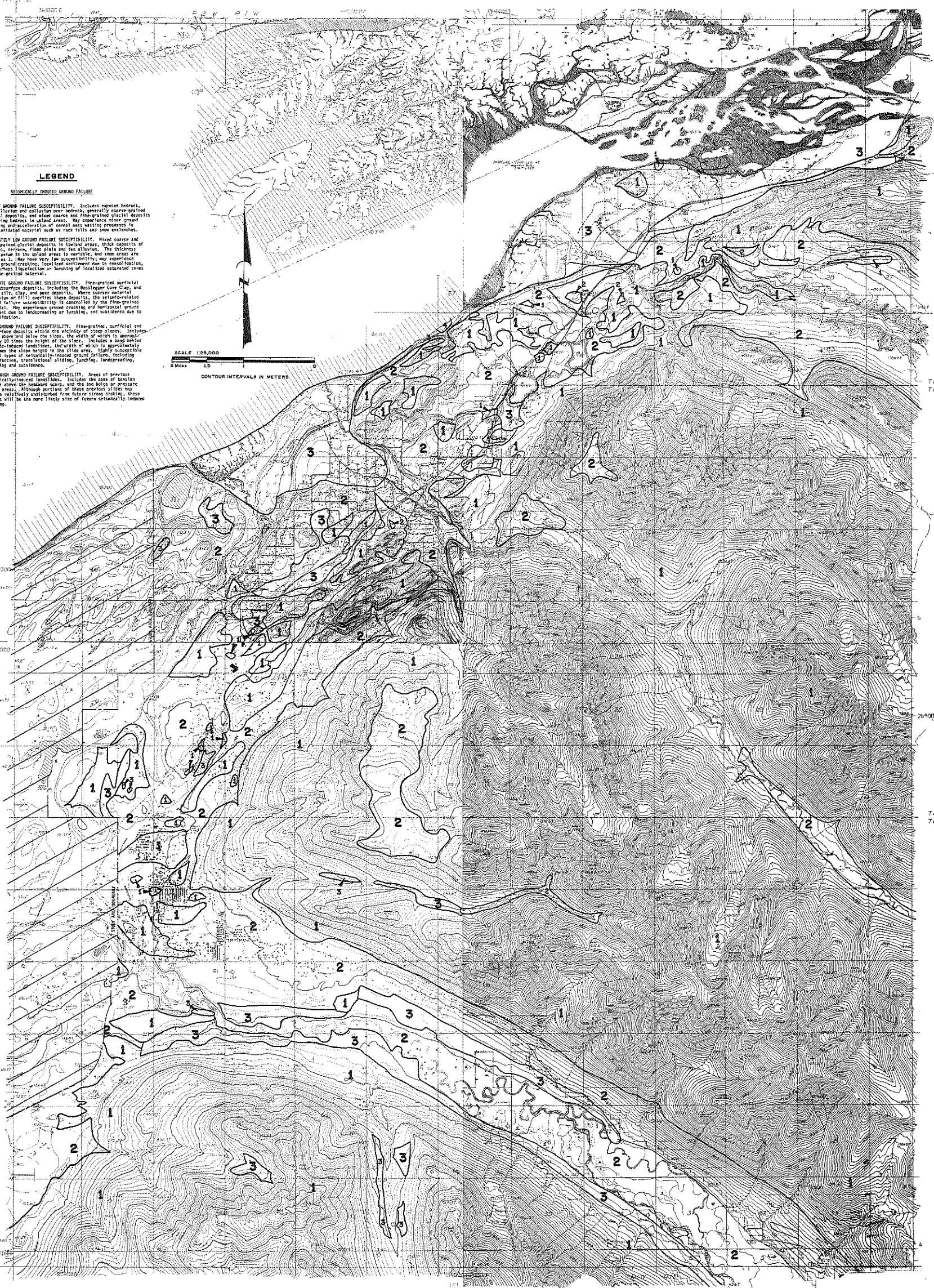
2) Interpretive map for general planning based upon Municipality-wide geological and other data which is of varying accuracy and completeness as detailed in the accompanying report titled "Geotechnical Hazards Assessment Study, Municipality of Anchorage prepared by Hovind-Larsen Associates, Anchorage, Alaska. Geotechnical hazards assessment and subsurface conditions relative to construction at specific sites should be determined by qualified engineers and geologists through appropriate investigations of those sites.

149 27 30
741022 E

LEGEND

Hazard
Zones

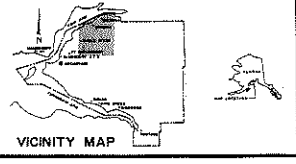
- SEISMICALLY INDUCED GROUND FAILURE**
- 1 LOWEST GROUND FAILURE SUSCEPTIBILITY.** Includes exposed bedrock, thin alluvium and colluvium over bedrock, generally coarse-grained (silt) deposits, and other coarse and fine-grained glacial deposits overlying bedrock in upland areas. May experience minor ground cracking and liquefaction of loose sand processes in unconsolidated material such as rock falls and snow avalanches.
 - 2 MODERATELY LOW GROUND FAILURE SUSCEPTIBILITY.** Mixed coarse and fine-grained (silt) deposits in lowland areas, thin deposits of (silt) terraces, flood plain and fan alluvium. The thickness of fill in the alluvial areas is variable, and low areas are rated as 1. May have very low susceptibility; may experience minor ground cracking. Local sand saturation due to consolidation, and perhaps liquefaction or burning of localized saturated zones of fine-grained material.
 - 3 MODERATE GROUND FAILURE SUSCEPTIBILITY.** Fine-grained surficial and subsurface deposits, including the Bootlegger Cove Clay, and other silt, clay, and peat deposits. More cohesive material (clay) or fill overlying these deposits, the seismic-induced ground failure susceptibility is controlled by the fine-grained materials. May experience ground cracking and horizontal ground movement due to landsliding or burning, and subsidence due to consolidation.
 - 4 HIGH GROUND FAILURE SUSCEPTIBILITY.** Fine-grained, surficial and subsurface deposits within the vicinity of steep slopes. Includes areas above and below the slope, the width of which is approximately 10 times the height of the slope. Includes a broad band behind retreating landslides, the width of which is approximately 10 times the slope height in the slide area. Slightly susceptible to all types of seismically-induced ground failure, including liquefaction, translational sliding, burning, landsliding, cracking and subsidence.
 - 5 VERY HIGH GROUND FAILURE SUSCEPTIBILITY.** Areas of previous seismically-induced landslides. Includes the zone of tension cracks above the bedrock scarp and the toe slope or pressure ridge areas. Although portions of these previous slides may remain relatively unaltered from future strong shaking, these slides will be the more likely site of future seismically-induced sliding.



T16N
T15N
2600000 FT
715N
714N

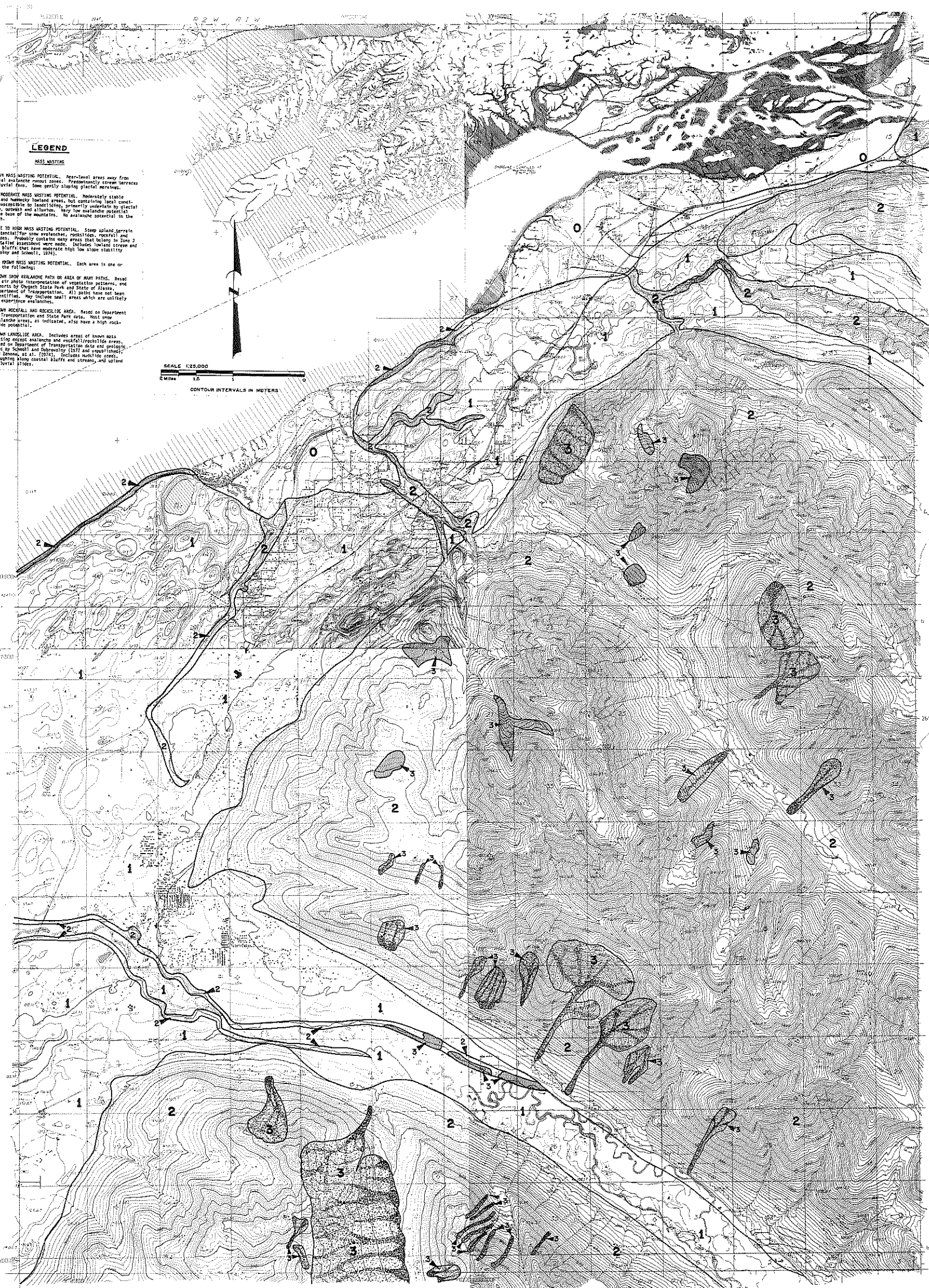
MUNICIPALITY OF ANCHORAGE
GEOTECHNICAL HAZARDS ASSESSMENT
SEISMICALLY INDUCED GROUND FAILURE
EAGLE RIVER

PLATE 2B
Compiled by JLD
Checked by JLD
MARCH, 1979



NOTES

- 1) **Base map origin:** Municipality of Anchorage Planning Department.
- 2) **Integrations:** Interpretive map for general planning based upon Municipality-wide geotechnical and other data which is of varying accuracy and completeness as outlined in the accompanying report titled "Geotechnical Hazards Assessment Study: Municipality of Anchorage prepared by Harding-Landrum Associates, Anchorage, Alaska. Geotechnical hazards assessment and subsurface conditions relative to construction at specific sites should be determined by qualified engineers and geologists through appropriate investigation of those sites.



LEGEND

- Mass Wasting**
- 0 NO KNOWN MASS WASTING POTENTIAL. Near-level areas away from potential avalanche runoff zones. Predominantly stream terraces and alluvial fans. Some gently sloping glacial moraines.
 - 1 LOW TO MODERATE MASS WASTING POTENTIAL. Moderately stable bluffs and hummocky lowland areas, but containing local conditions susceptible to landslides, primarily underlain by glacial moraine, outwash and alluvium. Very low avalanche potential near the base of the mountains. No avalanche potential in the lowlands.
 - 2 MODERATE TO HIGH MASS WASTING POTENTIAL. Steep upland terrain with potential for snow avalanches, rockfalls, mudflows and landslides. Probably contains many areas that belong in Zone 3 if a detailed investigation were made. Includes lowland stream and coastal bluffs that have moderate high low slope stability (Chamberlain and Schell, 1971).
 - 3 HIGHEST KNOWN MASS WASTING POTENTIAL. Each area is one or more of the following:
 - KNOWN SNOW AVALANCHE PATHS OR AREA OF MANY PATHS. Based on air photo interpretation of vegetation patterns, and reports by Chugach State Park and State of Alaska, Department of Transportation. All paths have not been identified. May include small areas which are unlikely to experience avalanches.
 - KNOWN ROCKFALL AND ROCKFALL AREAS. Based on Department of Transportation and State Park data. Most snow avalanche areas, as indicated, also have a high rockfall potential.
 - KNOWN LANDSLIDE AREA. Includes areas of known mass wasting except avalanche and rockfall/prone to landslides areas. Based on Department of Transportation data and geologic maps by Schell and Hubbard (1971) and unpublished data by Schell, et al. (1972). Includes mudflow areas. Outlines along coastal bluffs and streams, and upland outcrops.

SCALE 1:25,000
 5 Miles 1 0.5
 CONTOUR INTERVALS IN METERS

T16N
 T15N
 76°00'00"W
 T15N
 T14N

**MUNICIPALITY OF ANCHORAGE
 GEOTECHNICAL HAZARDS ASSESSMENT
 MASS WASTING - EAGLE RIVER**



NOTES

a) Base map source: Municipality of Anchorage Planning Department.

b) Limitations: Interpretive map for general planning based upon Municipality-wide geotechnical and other data which is of varying accuracy and completeness as explained in the accompanying report titled "Geotechnical Hazards Assessment Study: Municipality of Anchorage prepared by Harding-Larsen Associates, Anchorage, Alaska." Geotechnical hazards assessment and subsurface conditions relative to construction of specific sites should be determined by qualified engineers and geologists through appropriate investigation of those sites.

PLATE **3B**
 Compiled by [Signature]
 Checked by [Signature]
 MARCH, 1979
 Rev. 6/79

1:4 37 30
36:0000 G

LEGEND

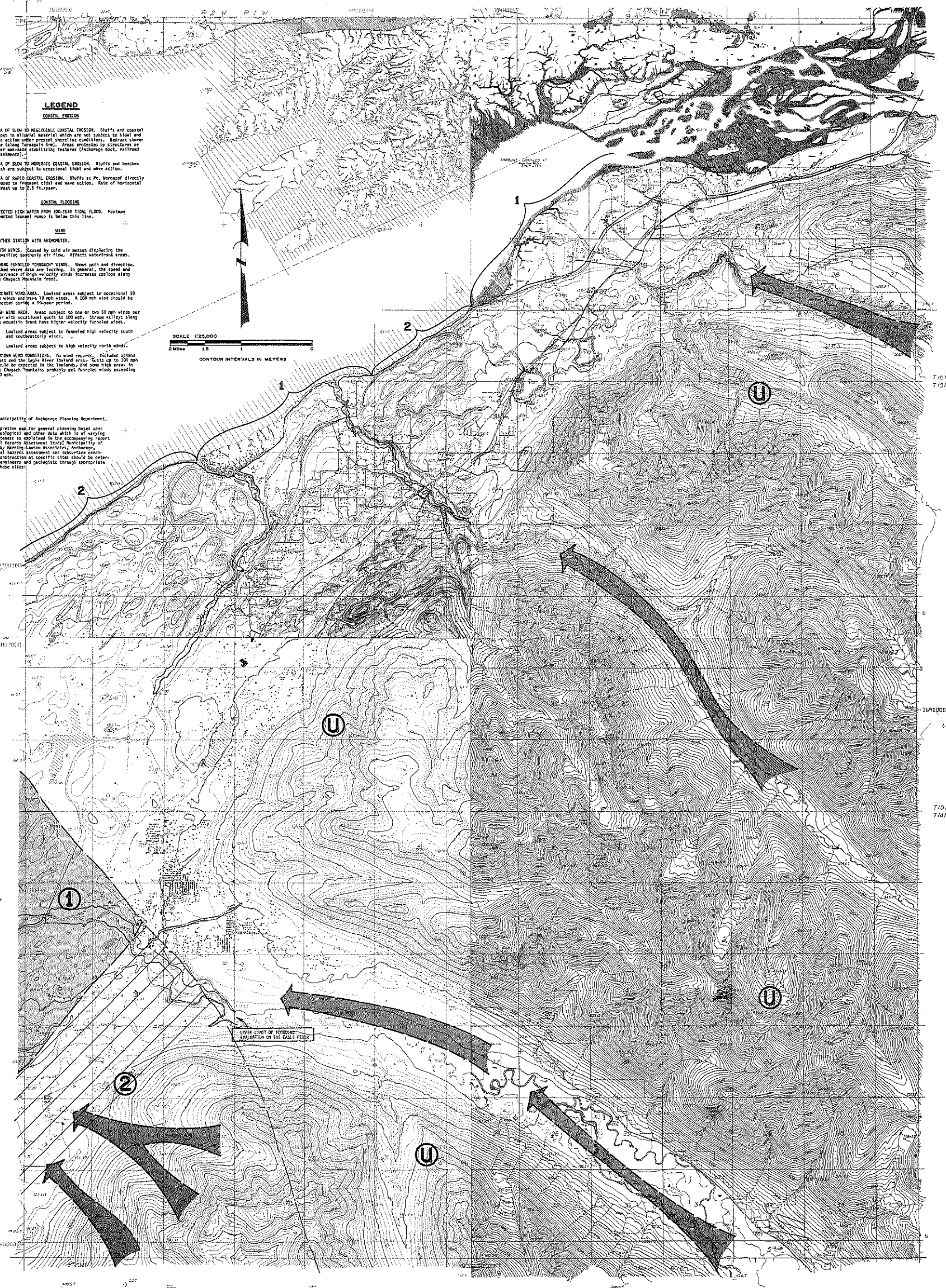
- Hazard Zones**
- 1 AREA OF SLOW TO MODERATE COASTAL EROSION. Bluffs and coastal slopes in alluvial material which are not subject to tidal and wave action under present conditions. Backrock shoreline (along Turagaia Arm). Areas protected by structures or other man-made stabilizing features (anchorage dock, retained shorelines).
 - 2 AREA OF SLOW TO MODERATE COASTAL EROSION. Bluffs and beaches which are subject to occasional tidal and wave action.
 - 3 AREA OF RAPID COASTAL EROSION. Bluffs at Pt. Barrow directly exposed to frequent tidal and wave action. Rate of horizontal retreat up to 7.5 ft./year.
- COASTAL FLOODING**
- EXPECTED HIGH WATER FROM 100-YEAR TIDAL FLOOD. Maximum expected tsunami runup is below this line.
- WIND**
- WEATHER STATION WITH ANEMOMETER.
- NORTH WINDS. Caused by cold air masses displacing the prevailing southerly air flow. Affects waterfront areas.
- STRONG FUNNELED "CHUGACH" WINDS. Shows path and direction. Such wind paths are localized. In general, the speed and occurrence of high velocity winds increases uplope along the Chugach Mountain front.
- MODERATE WIND AREAS. Lowland areas subject to occasional 50 mph winds and rare 70 mph winds. A 100 mph wind should be expected during a 50-year period.
- HIGH WIND AREAS. Areas subject to one or two 50 mph winds per year with occasional gusts to 100 mph. Strong westerly along the mountain front have higher velocity funneled winds.
- Lowland areas subject to funneled high velocity south and southeasterly winds.
- Lowland areas subject to high velocity north winds.
- UNKNOWN WIND CONDITIONS. No wind records. Includes island areas and the Eagle River lowland areas. Gusts up to 100 mph should be expected in the lowlands and high areas in the Chugach Mountains probably get funneled winds exceeding 100 mph.

SCALE 1:25,000
2 Miles 1.5 1 0
CONTOUR INTERVALS IN METERS

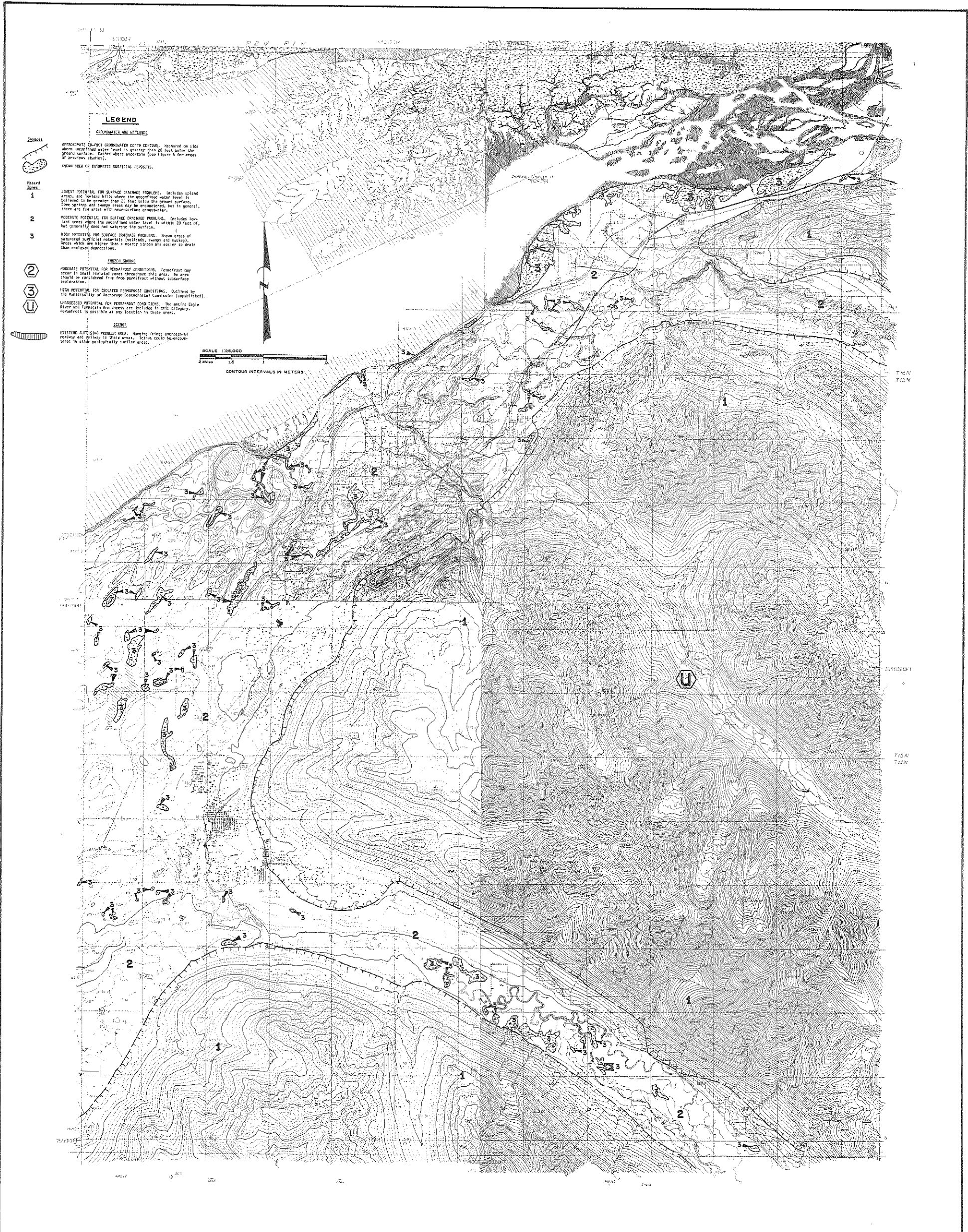
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b) Limitations: Interpretive map for general planning based upon Municipality-wide geological and other data which is of varying accuracy and completeness as explained in the accompanying report titled "Geotechnical Hazards Assessment Study, Municipality of Anchorage prepared by Bartley-Larson Associates, Anchorage, Alaska. Geotechnical hazards assessment and subsurface conditions relative to construction at specific sites should be determined by qualified engineers and geologists through appropriate investigations of these sites.



MUNICIPALITY OF ANCHORAGE GEOTECHNICAL HAZARDS ASSESSMENT COASTAL EROSION, FLOODING AND WIND EAGLE RIVER		
PLATE 4B	Compiled by <u> </u> Checked by <u> </u> MARCH, 1979	



MUNICIPALITY OF ANCHORAGE
 GEOTECHNICAL HAZARDS ASSESSMENT
 GROUND WATER, ICINGS AND PERMAFROST
 EAGLE RIVER

PLATE 5B

Compiled by _____
 Checked by _____

MARCH, 1979

VICINITY MAP

NOTES

a) Base map source: Municipality of Anchorage Planning Department.

b) Limitations: Interpretive map for general planning based upon Municipality-wide geotechnical and other data which is of varying accuracy and completeness as outlined in the accompanying report titled "Geotechnical Hazards Assessment Study" Municipality of Anchorage prepared by Hertzog-Lawson and Associates, Anchorage, Alaska. Geotechnical hazards assessment and subsurface conditions relative to construction at specific sites should be determined by qualified engineers and geologists through appropriate investigation of these sites.