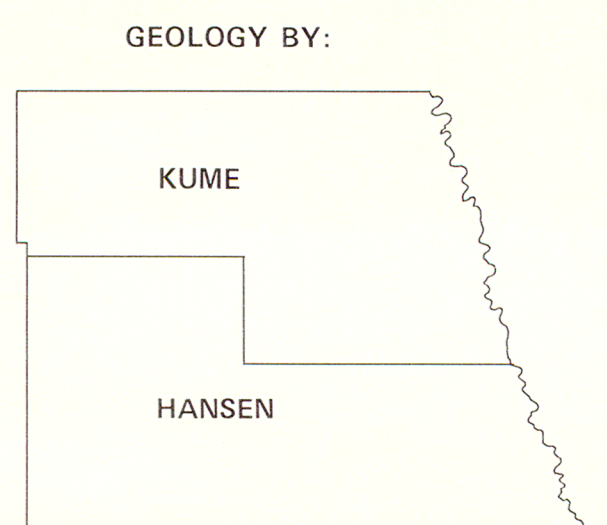
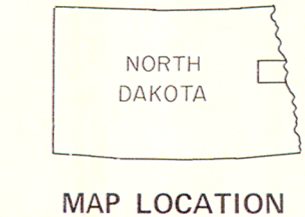


EXPLANATION

- | | | |
|--|--|------------------------------------|
| ALLUVIUM | Non-glacial Landforms | SWAMP DEPOSITS |
| A FLOOD DEPOSITS MOSTLY OF DARK GRAY CLAY AND SILT IN TRENCHES ALONG STREAMS. | S UNDRAINED AREAS. ORGANIC MATERIAL, MOSTLY SWAMP GRASSES AND REEDS. | |
| DS WIND-BLOWN, BROWNISH-GRAY SAND AND SILT. LOW UNDULATING SURFACE OF MOUNDS AND BLOWOUTS; FEW MODERATE DUNES; STABLE. | | |
| SH THIN DEPOSITS OF STRATIFIED YELLOWISH-GRAY AND OLIVE-GRAY CLAY AND SILT; UNDERLIES A FLAT SURFACE; DEPOSITS ARE LOCAL. | B VERY LOW RIDGES AND MOUNDS OF YELLOWISH-GRAY SILT. ASSOCIATED WITH VERY LOW SCARPS. | BEACH DEPOSITS |
| Dsh INTERLAMINATED YELLOWISH-GRAY AND OLIVE-GRAY CLAY AND SILT. UNDERLIES A SURFACE OF VERY LOW RELIEF. | B RIDGED DEPOSITS OF BROWNISH-GRAY SAND AND GRAVEL; STRATIFIED. THE RIDGES ARE FROM 3 TO 15 FEET HIGH. RIDGES FORMED IN A SERIES OF SHORE DEPOSITS ALONG THE RECEDING MARGIN OF GLACIAL LAKE AGASSIZ. | LAKE DEPOSITS |
| shD STRATIFIED BROWNISH-GRAY, OCCASIONAL GRAVEL. UNDERLIES GENTLY UNDULATING SURFACE OF VERY LOW RELIEF BROKEN BY BEACH RIDGES AND OCCASIONAL LOW SAND DUNES. | L STRATIFIED OLIVE-GRAY AND YELLOWISH-GRAY INTERLAMINATED CLAY AND SILT. | LAKE DEPOSITS |
| SH MOSTLY THIN DEPOSITS OF STRATIFIED BROWNISH-GRAY SAND AND SOME GRAVEL; UNDERLIES A SLOPING BUT RELATIVELY FLAT SURFACE. | L STRATIFIED BROWNISH-GRAY SAND AND SOME GRAVEL. THIN DEPOSITS MOSTLY ON BEVELED GROUND MORaine BETWEEN BEACH RIDGES. | ICE CONTACT DEPOSITS |
| O STRATIFIED BROWNISH-GRAY SAND AND SOME GRAVEL; UNDERLIES MODERATELY UNDULATING SURFACE. | I STRATIFIED, BROWNISH-GRAY SAND AND GRAVEL DEPOSITED IN CONTACT WITH GLACIAL ICE. INCLUDES RIDGES, ESKERS, LINEAR DIS-INTEGRATION RIDGES AND MOUNDS OR KAMES. | Subdued END MORaine DEPOSIT |
| E MOSTLY UNSORTED MIXTURE OF STONY BROWNISH-GRAY AND OLIVE-GRAY CLAY, SILT, SAND AND GRAVEL. DEPOSITED IN FORM OF RIDGES OF MODERATE TO HIGH RELIEF. SUPERIMPOSED LOW RIDGES; FEW CLOSED DEPRESSIONS. | Es DIFFERS FROM END MORaine IN THAT RELIEF IS LOW TO MODERATE; SIMILAR TO DEAD-ICE MORaine. | END MORaine, WATERWORN |
| G MOSTLY UNSORTED MIXTURE OF STONY BROWNISH-GRAY AND OLIVE-GRAY CLAY, SILT, SAND AND GRAVEL. UNDERLIES A LOW TO MODERATE UN-UNDULATING SURFACE THAT HAS CLOSED DEPRESSIONS AND LOW KNOBS. | Ew RIDGED DRIFT, CUT AND BEVELED BY EROSION ALONG LAKE SHORELINE. | GROUND MORaine, WATERWORN |
| Kp OLIVE-GRAY TO DARK GRAY THINLY BEDDED SHALE. BASE OF FORMATION IS THIN UNIT OF ALTERNATING LIGHT YELLOWISH-GRAY AND DARK GRAY BENTONITE CLAYS. | Gw GROUND MORaine BEVELED TO ALMOST FLAT SURFACE BY GLACIAL LAKE AGASSIZ. | |
| Kn LIGHT GRAY TO LIGHT BROWNISH-GRAY MARLSTONE AND SHALE; MASSIVE. | | |

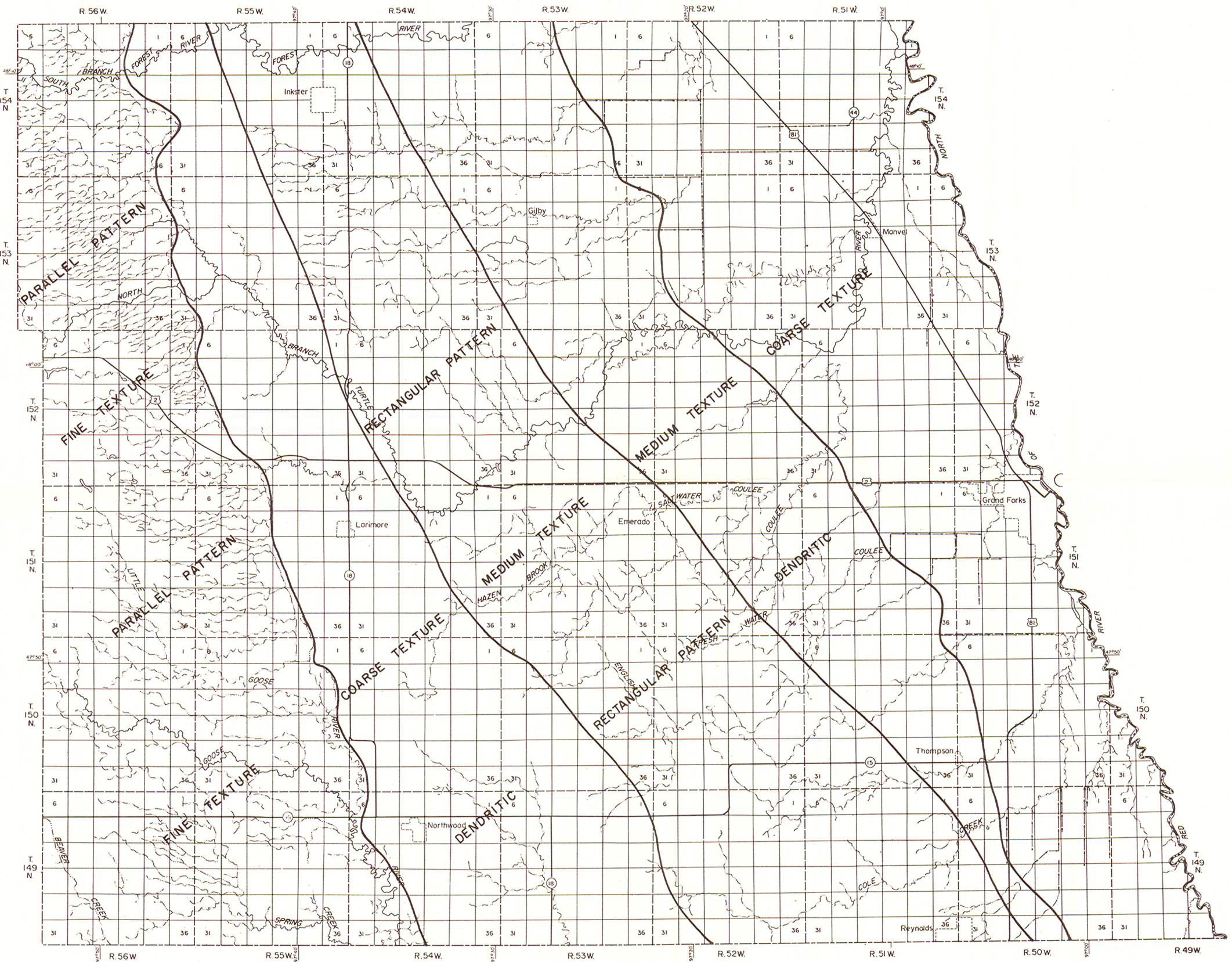
- NIORARA FORMATION**
- X** EXPOSURE OF Kp BEDROCK.
- Z** EXPOSURE OF Kn BEDROCK.
- F** FLOODPLAIN
- T** TERRACE
- P** PLAIN
- E** ESKER
- K** KAME



- | | | |
|--|---|-------------------------------------|
| /// LINEAR TILL RIDGES | MELT-WATER CHANNELS | GLACIAL LAKE AGASSIZ BEACHES |
| — — — ESKERS OR LINEAR DIS-INTEGRATION RIDGE | — — — LAKE PLAIN LINEATIONS GROOVES AND RIDGES. VERY LOW ON LAKE PLAIN IN EASTERN GRAND FORKS COUNTY. | he HERMAN |
| SCARP | | n NORCROSS |
| — — — BEACH RIDGE | | t TINTAH |
| TRENCHES | | c CAMPBELL |
| | ▲ DATED CARBON 14 LOCATION (w-100, 10,000 ± 100) | m MCCAULEYVILLE |
| | | b BLANCHARD |
| | | hi HILLSBORO |
| | | e EMERADO |
| | | o OJATA |
| | | o₂ OJATA |

PLATE 1. GEOLOGIC AND LAND FORM MAP OF GRAND FORKS COUNTY

Base prepared from North Dakota State Highway Department county highway maps



Base prepared from North Dakota State Highway Department county highway maps

PLATE 2. Stream drainage patterns of Grand Forks County.

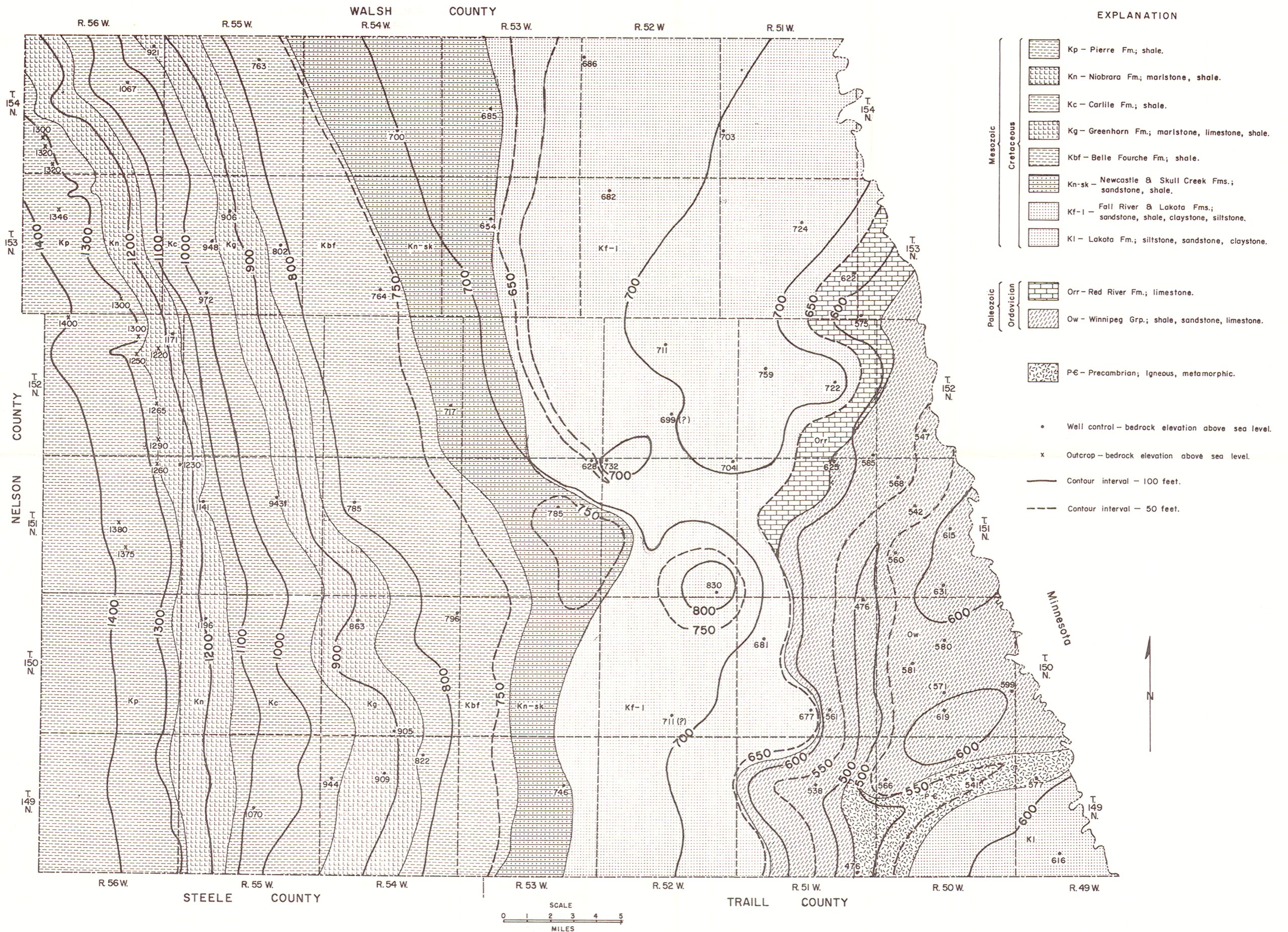


PLATE 3. Bedrock Subcrop and Topographic Map of Grand Forks County.

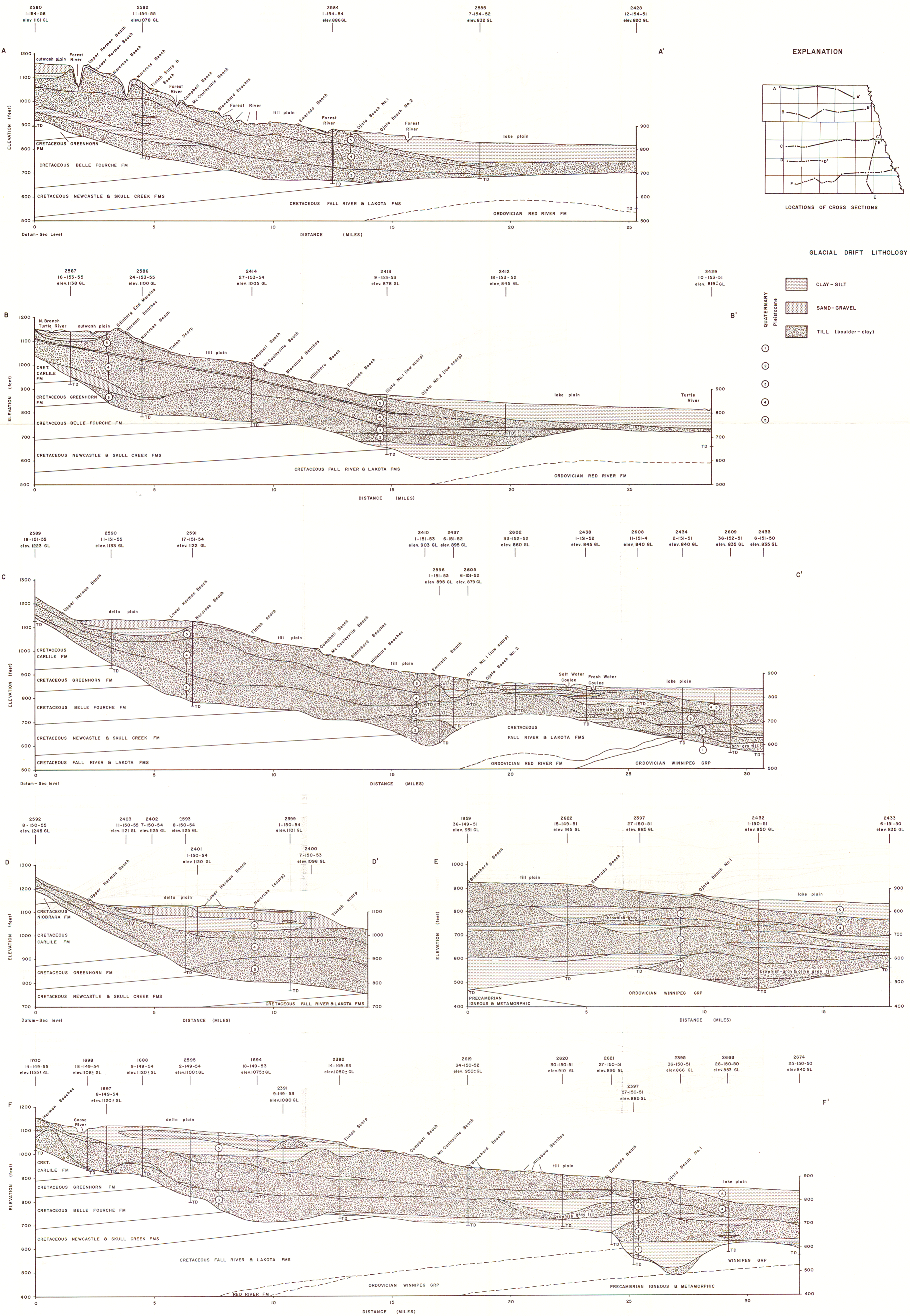


PLATE 4. Stratigraphic Cross-Sections of Glacial Drift in Grand Forks County.