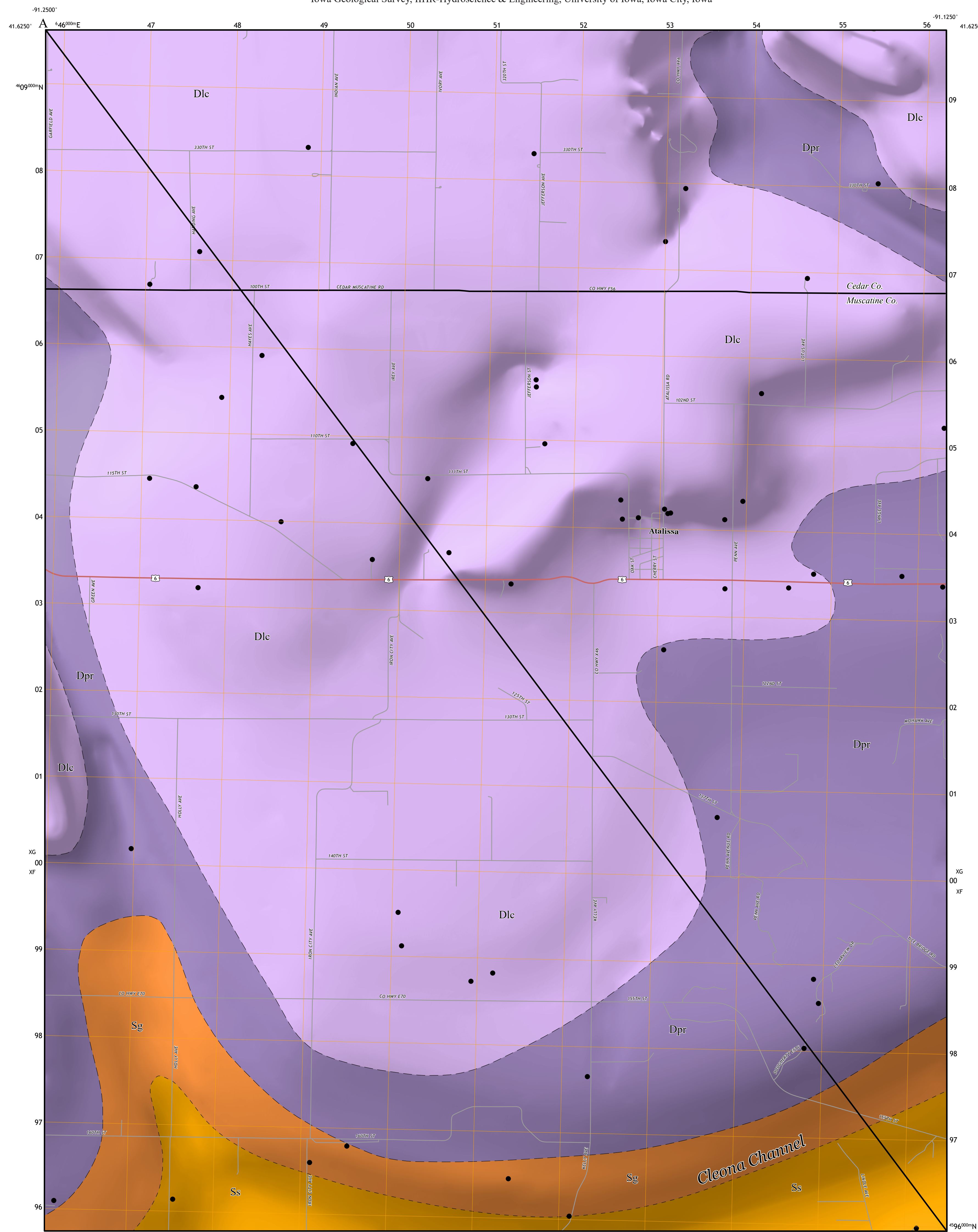


BEDROCK GEOLOGIC MAP OF THE ATALISSA 7.5' QUADRANGLE, MUSCATINE AND CEDAR COUNTIES, IOWA

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IOWA Iowa Geological Survey

Open File Map: OFM-23-5
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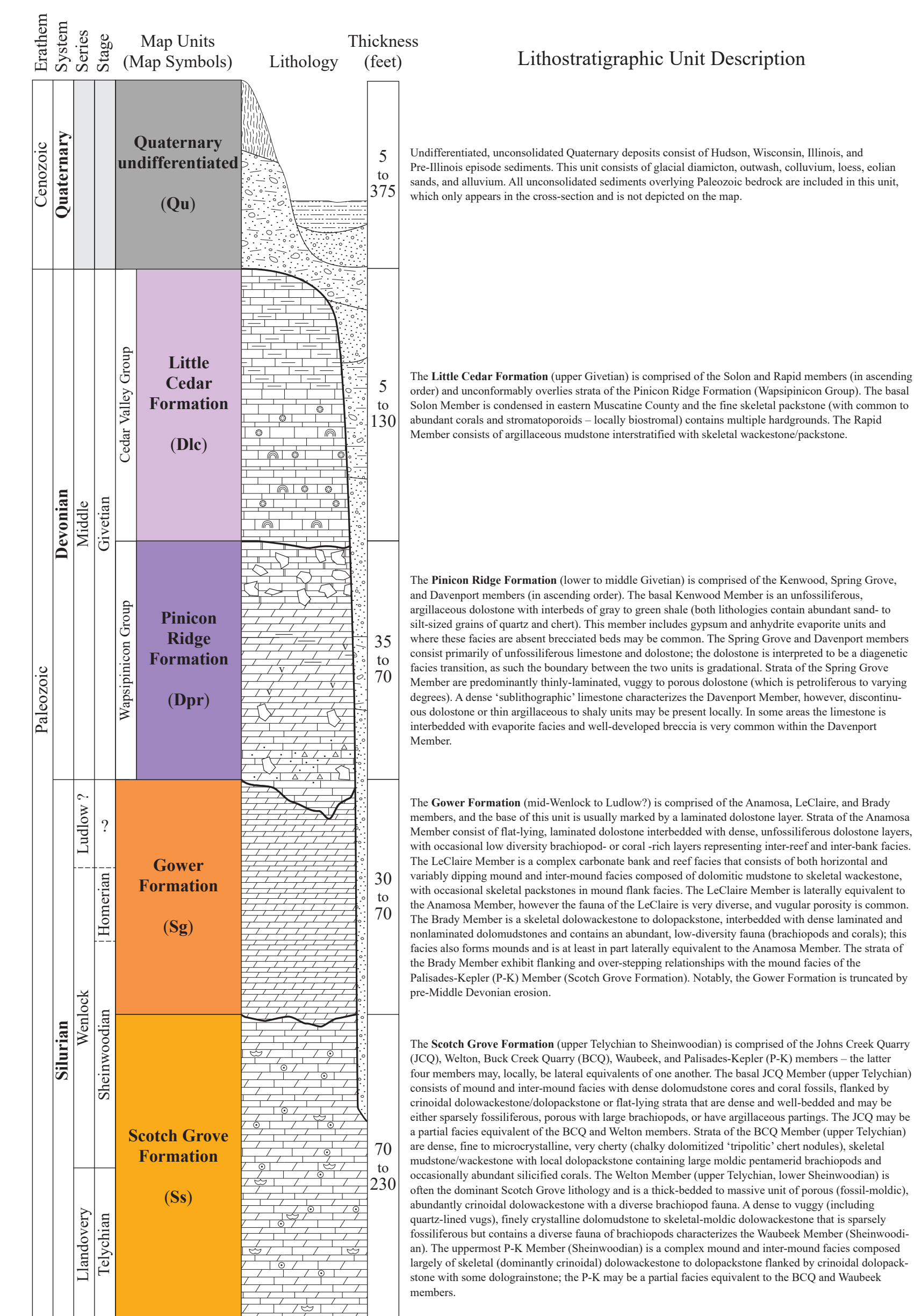


INTRODUCTION

The Atalissa 7.5' Quadrangle in Muscatine and Cedar counties, Iowa, is located within the Southern Iowa Drift Plain (SIDP) and Iowa-Cedar Lowland (ICL) landform regions. There are no bedrock exposures in the map area due to burial by Quaternary materials. The SIDP is an area with surface topography defined by loess-mantled uplands and slopes, whereas the ICL is a low-relief floodplain consisting of sediment deposited by the Cedar River. The top of the till package of the SIDP in the map area is likely Pre-Illinoian-age diamicton of the Wolf Creek/Alburnett formations. The ICL is a broad, flat lowland that is comprised of outwash deposited during the Late Wisconsin Episode and the Cedar River has formed Holocene terraces in this valley. The shape of the ICL does not directly correspond with the underlying bedrock channel (Cleona Channel).

The Cleona Channel is a buried bedrock valley that trends in a southwest – northeast direction across the southeastern portion of the map area, and this channel can be up to 325 feet deep below the modern surface. Although entirely buried by Quaternary deposits, the bedrock surface of the Atalissa 7.5' Quadrangle is dominated by Middle Devonian strata of the Little Cedar Formation (Cedar Valley Group) and the Pinicon Ridge Formation (Wapsipinicon Group). Silurian strata of the Gower and Scotch Grove formations make up the bedrock surface of the Cleona Channel. Just to the east of the mapping area these Paleozoic stratigraphic units are exposed in the Moscow Quarry (Wendling Quarries Inc. in the Wilton 7.5' Quadrangle). Due to sparse well data and the lack of bedrock exposures within the quadrangle, the contacts between these stratigraphic units are concealed and have been dashed on the map and the contact between the Gower and Scotch Grove formations is concealed and its location is inferred. Further detail about the bedrock elevation and Quaternary thickness in the Atalissa 7.5' Quadrangle can be found on the accompanying map (Open File Map OFM-23-06).

STRATIGRAPHIC COLUMN AND LEGEND



- MAP SYMBOLS**
- GeoSam point
 - unit contact – concealed
 - unit contact – concealed, location inferred
 - cross-section
 - hillshade
- ROAD CLASSIFICATION**
- U.S. Route
 - Local Road

- LITHOLOGIES**
- dolostone
 - limestone
 - lithographic limestone
 - sandy limestone
 - unlithified sediments
- LITHOLOGY & FOSSIL SYMBOLS**
- argillaceous zone
 - vugs
 - crinoids
 - chert
 - brachiopods
 - corals
 - stromatolites
 - breccia
 - unconformity

ADJOINING QUADRANGLES

| | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | |

1 West Branch, IA
2 Rochester, IA
3 Lime City, IA
4 West Liberty, IA
5 Wilton, IA
6 Nichols, IA
7 Muscatine NW, IA
8 Muscatine, IA-IL

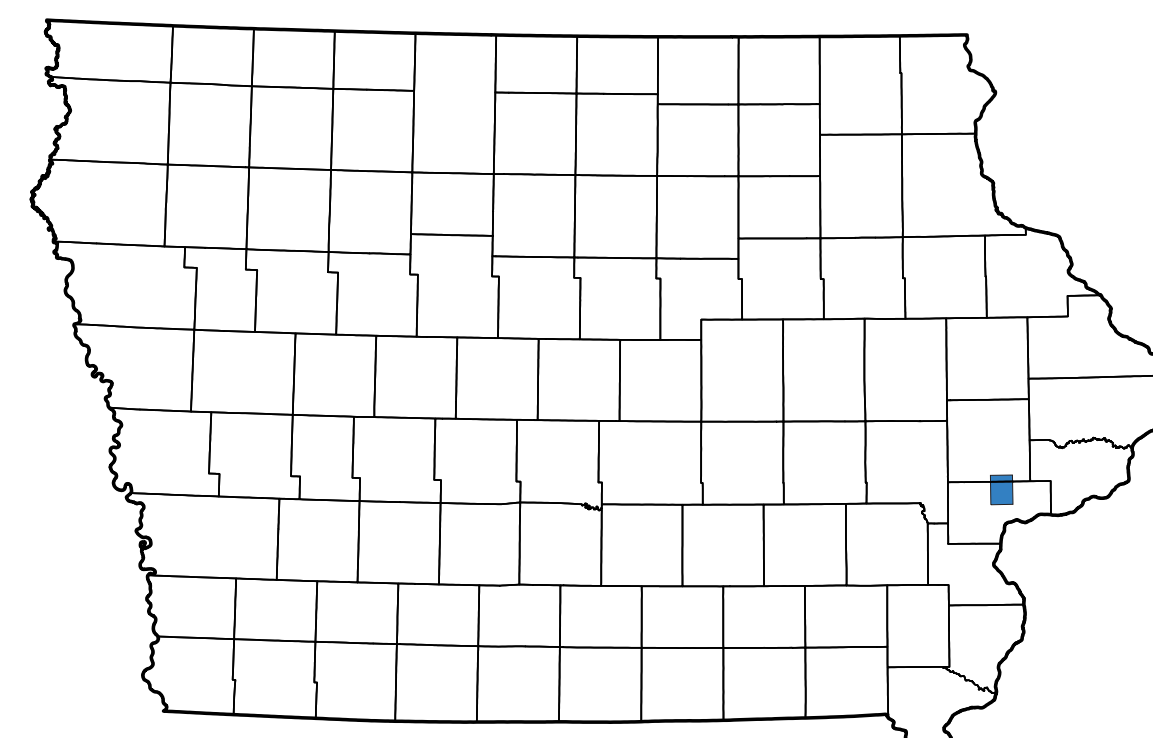
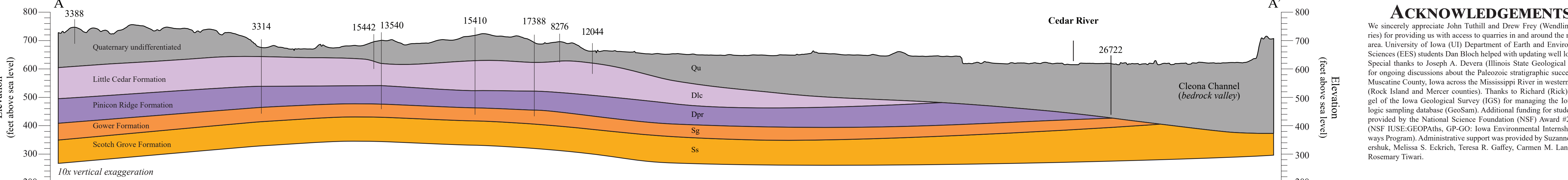


Figure 1. The location of the Atalissa Quadrangle in Iowa.

Base map from U.S. Geological Survey (USGS) Atalissa 7.5' Quadrangle map, published by the USGS in 2022. Bedrock topography raster created internally for this map project: Atalissa_BR_3m.mxd, version 7/01/23 (ArcGIS Pro 3.0). Map projection and coordinate system based on Universal Transverse Mercator (UTM) Zone 15N, datum NAD83. The map and cross-section are based on interpretations of the best available information at the time of mapping. Map interpretations are not a substitute for detailed site-specific studies. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

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GEOLOGIC CROSS-SECTION A-A'



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