Bedrock Geology of Northeast Iowa

DIGITAL GEOLOGIC MAP OF IOWA
PHASE 2: NORTHEAST IOWA

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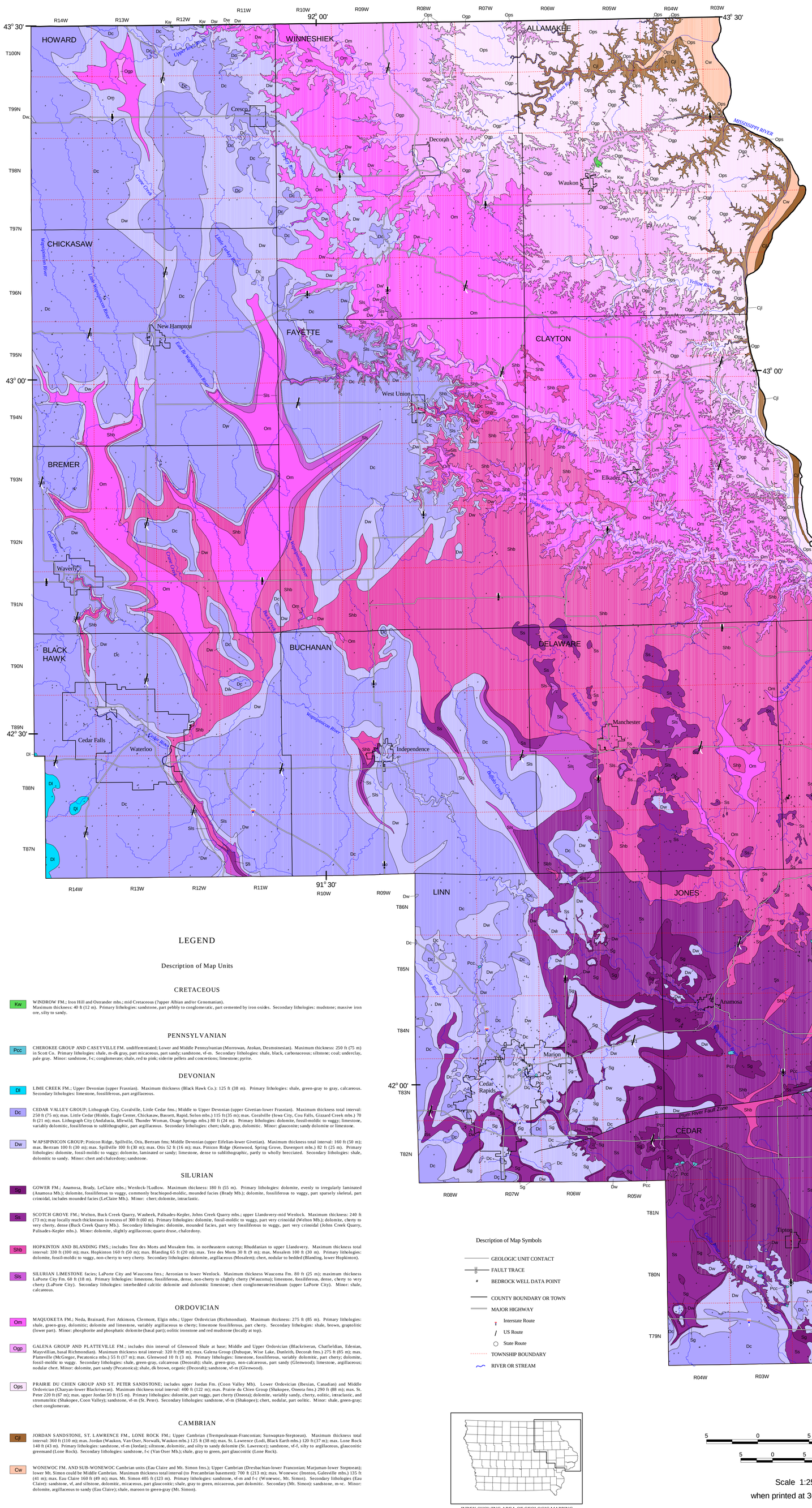

LEGEND

Description of Map Units

CRETACEOUS

Kw — WINDROW FM.; Iron Hill and Ostrander mbs.; mid Cretaceous (?upper Albian and/or Cenomanian). Maximum thickness: 40 ft (12 m). Primary lithologies: sandstone, part pebbly to conglomeratic, part cemented by iron oxides. Secondary lithologies: mudstone; massive iron ore, silty to sandy.

PENNSYLVANIAN

Pcc — CHEROKEE GROUP AND CASEYVILLE FM. undifferentiated; Lower and Middle Pennsylvanian (Morrowan, Atokan, Desmoinesian). Maximum thickness: 250 ft (75 m) in Scott Co. Primary lithologies: shale, m-dk gray, part micaceous, part sandy; sandstone, vf-m. Secondary lithologies: shale, black, carbonaceous; siltstone; coal; underclay, pale gray. Minor: sandstone, f-c; conglomerate; shale, red to pink; siderite pellets and concretions; limestone; pyrite.

DEVONIAN

Dl — LIME CREEK FM.; Upper Devonian (upper Frasnian). Maximum thickness (Black Hawk Co.): 125 ft (38 m). Primary lithologies: shale, green-gray to gray, calcareous. Secondary lithologies: limestone, fossiliferous, part argillaceous.

Dc — CEDAR VALLEY GROUP; Lithograph City, Coralville, Little Cedar fms.; Middle to Upper Devonian (upper Givetian-lower Frasnian). Maximum thickness total interval: 250 ft (75 m); max. Little Cedar (Hinkle, Eagle Center, Chickasaw, Bassett, Rapid, Solon mbs.) 115 ft (35 m); max. Coralville (Iowa City, Cou Falls, Gizzard Creek mbs.) 70 ft (21 m); max. Lithograph City (Andalusia, Idlewild, Thunder Woman, Osage Springs mbs.) 80 ft (24 m). Primary lithologies: dolomite, fossil-moldic to vuggy; limestone, variably dolomitic, fossiliferous to sublithographic, part argillaceous. Secondary lithologies: chert; shale, gray, dolomitic. Minor: glauconite; sandy dolomite or limestone.

Dw — WAPSIPINICON GROUP; Pinicon Ridge, Spillville, Otis, Bertram fms; Middle Devonian (upper Eifelian-lower Givetian). Maximum thickness total interval: 160 ft (50 m); max. Bertram 100 ft (30 m); max. Spillville 100 ft (30 m); max. Otis 52 ft (16 m); max. Pinicon Ridge (Kenwood, Spring Grove, Davenport mbs.) 82 ft (25 m). Primary lithologies: dolomite, fossil-moldic to vuggy; dolomite, laminated or sandy; limestone, dense to sublithographic, partly to wholly brecciated. Secondary lithologies: shale, dolomitic to sandy. Minor: chert and chalcedony; sandstone.

SILURIAN

Sg — GOWER FM.; Anamosa, Brady, LeClaire mbs.; Wenlock-?Ludlow. Maximum thickness: 180 ft (55 m). Primary lithologies: dolomite, evenly to irregularly laminated (Anamosa Mb.); dolomite, fossiliferous to vuggy, commonly brachiopod-moldic, mounded facies (Brady Mb.); dolomite, fossiliferous to vuggy, part sparsely skeletal, part crinoidal, includes mounded facies (LeClaire Mb.). Minor: chert; dolomite, intraclastic.

Ss — SCOTCH GROVE FM.; Welton, Buck Creek Quarry, Waubeek, Palisades-Kepler, Johns Creek Quarry mbs.; upper Llandovery-mid Wenlock. Maximum thickness: 240 ft (73 m); may locally reach thicknesses in excess of 300 ft (60 m). Primary lithologies: dolomite, fossil-moldic to vuggy, part very crinoidal (Welton Mb.); dolomite, cherty to very cherty, dense (Buck Creek Quarry Mb.). Secondary lithologies: dolomite, mounded facies, part very fossiliferous to vuggy, part very crinoidal (Johns Creek Quarry, Palisades-Kepler mbs.). Minor: dolomite, slightly argillaceous; quartz druse, chalcedony.

Shb — HOPKINTON AND BLANDING FMS.; includes Tete des Morts and Mosalem fms. in northeastern outcrop; Rhuddanian to upper Llandovery. Maximum thickness total interval: 330 ft (100 m); max. Hopkinton 160 ft (50 m); max. Blanding 65 ft (20 m); max. Tete des Morts 30 ft (9 m); max. Mosalem 100 ft (30 m). Primary lithologies: dolomite, fossil-moldic to vuggy, non-cherty to very cherty. Secondary lithologies: dolomite, argillaceous (Mosalem); chert, nodular to bedded (Blanding, lower Hopkinton).

Sls — SILURIAN LIMESTONE facies; LaPorte City and Waucoma fms.; Aeronian to lower Wenlock. Maximum thickness Waucoma Fm. 80 ft (25 m); maximum thickness LaPorte City Fm. 60 ft (18 m). Primary lithologies: limestone, fossiliferous, dense, non-cherty to slightly cherty (Waucoma); limestone, fossiliferous, dense, cherty to very cherty (LaPorte City). Secondary lithologies: interbedded calcitic dolomite and dolomitic limestone; chert conglomerate/residuum (upper LaPorte City). Minor: shale, calcareous.

ORDOVICIAN

Om — MAQUOKETA FM.; Neda, Brainard, Fort Atkinson, Clermont, Elgin mbs.; Upper Ordovician (Richmondian). Maximum thickness: 275 ft (85 m). Primary lithologies: shale, green-gray, dolomitic; dolomite and limestone, variably argillaceous to cherty; limestone fossiliferous, part cherty. Secondary lithologies: shale, brown, graptolitic (lower part). Minor: phosphorite and phosphatic dolomite (basal part); oolitic ironstone and red mudstone (locally at top).

Ogp — GALENA GROUP AND PLATTEVILLE FM.; includes thin interval of Glenwood Shale at base; Middle and Upper Ordovician (Blackriveran, Chatfieldian, Edenian, Maysvillian, basal Richmondian). Maximum thickness total interval: 320 ft (98 m); max. Galena Group (Dubuque, Wise Lake, Dunleith, Decorah fms.) 275 ft (85 m); max. Platteville (McGregor, Pecatonica mbs.) 55 ft (17 m); max. Glenwood 10 ft (3 m). Primary lithologies: limestone, fossiliferous, variably dolomitic, part cherty; dolomite, fossil-moldic to vuggy. Secondary lithologies: shale, green-gray, calcareous (Decorah); shale, green-gray, non-calcareous, part sandy (Glenwood); limestone, argillaceous; nodular chert. Minor: dolomite, part sandy (Pecatonica); shale, dk brown, organic (Decorah); sandstone, vf-m (Glenwood).

Ops — PRAIRIE DU CHIEN GROUP AND ST. PETER SANDSTONE; includes upper Jordan Fm. (Coon Valley Mb). Lower Ordovician (Ibexian, Canadian) and Middle Ordovician (Chazyan-lower Blackriveran). Maximum thickness total interval: 400 ft (122 m); max. Prairie du Chien Group (Shakopee, Oneota fms.) 290 ft (88 m); max. St. Peter 220 ft (67 m); max. upper Jordan 50 ft (15 m). Primary lithologies: dolomite, part vuggy, part cherty (Oneota); dolomite, variably sandy, cherty, oolitic, intraclastic, and stromatolitic (Shakopee, Coon Valley); sandstone, vf-m (St. Peter). Secondary lithologies: sandstone, vf-m (Shakopee); chert, nodular, part oolitic. Minor: shale, green-gray; chert conglomerate.

CAMBRIAN

Cjl — JORDAN SANDSTONE, ST. LAWRENCE FM., LONE ROCK FM.; Upper Cambrian (Trempealeauan-Franconian; Sunwaptan-Steptoean). Maximum thickness total interval: 360 ft (110 m); max. Jordan (Waukon, Van Oser, Norwalk, Waukon mbs.) 125 ft (38 m); max. St. Lawrence (Lodi, Black Earth mbs.) 120 ft (37 m); max. Lone Rock 140 ft (43 m). Primary lithologies: sandstone, vf-m (Jordan); siltstone, dolomitic, and silty to sandy dolomite (St. Lawrence); sandstone, vf-f, silty to argillaceous, glauconitic greensand (Lone Rock). Secondary lithologies: sandstone, f-c (Van Oser Mb.); shale, gray to green, part glauconitic (Lone Rock).

Cw — WONEWOC FM. AND SUB-WONEWOC Cambrian units (Eau Claire and Mt. Simon fms.); Upper Cambrian (Dresbachian-lower Franconian; Marjuman-lower Steptoean); lower Mt. Simon could be Middle Cambrian. Maximum thickness total interval (to Precambrian basement): 700 ft (213 m); max. Wonewoc (Ironton, Galesville mbs.) 135 ft (41 m); max. Eau Claire 160 ft (49 m); max. Mt. Simon 405 ft (123 m). Primary lithologies: sandstone, vf-m and f-c (Wonewoc, Mt. Simon). Secondary lithologies (Eau Claire): sandstone, vf, and siltstone, dolomitic, micaceous, part glauconitic; shale, gray to green, micaceous, part dolomitic. Secondary (Mt. Simon): sandstone, m-vc. Minor: dolomite, argillaceous to sandy (Eau Claire); shale, maroon to green-gray (Mt. Simon).

Description of Map Symbols

- GEOLOGIC UNIT CONTACT
- FAULT TRACE (U / D)
- # BEDROCK WELL DATA POINT
- COUNTY BOUNDARY OR TOWN
- MAJOR HIGHWAY
  - Interstate Route
  - US Route
  - State Route
- TOWNSHIP BOUNDARY
- RIVER OR STREAM

INDEX SHOWING AREA OF GEOLOGIC MAPPING

5 0 5 10 15 Miles

5 0 5 10 15 Kilometers

Scale 1:250,000
when printed at 36" x 48" format

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Open File Map 98-7

Universal Transverse Mercator Projection, UTM Zone 15, North American Datum 1927