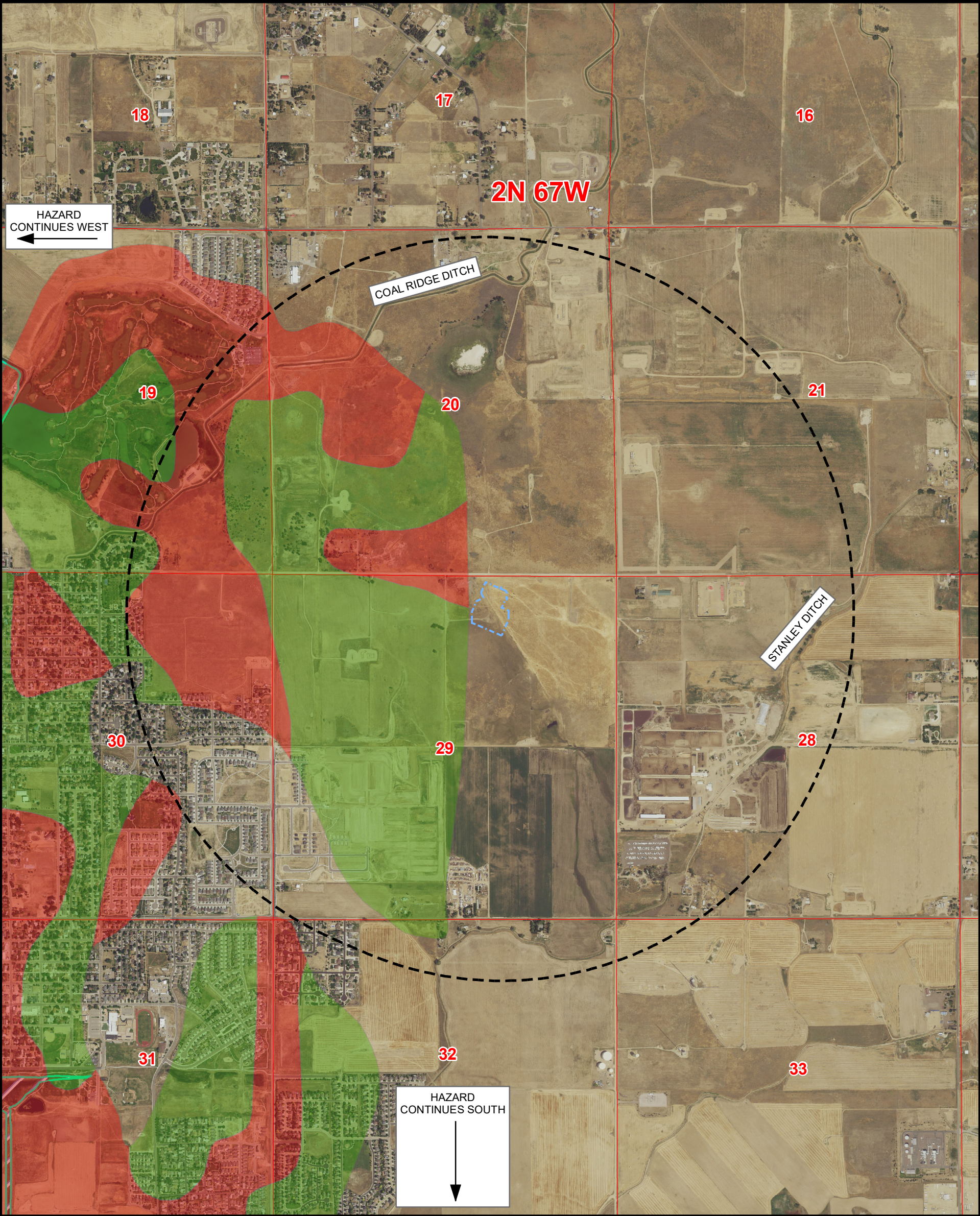


GEOLOGIC HAZARD MAP
CLOVER 2-29HZ

SECTION 29, TOWNSHIP 2 NORTH, RANGE 67 WEST, 6TH P.M., WELD COUNTY, COLORADO



Legend

- PROPOSED WORKING PAD SURFACE
- 1 MILE BUFFER - WORKING PAD SURFACE
- 100-YEAR FLOODPLAIN (EFFECTIVE, 2016)
- 100-YEAR FLOODWAY (PRELIMINARY, 2020)
- 100-YEAR FLOODPLAIN (PRELIMINARY, 2020)

COAL MINES SUBSIDENCE HAZARD

- LOW
- MODERATE
- SEVERE

NOTE:
THIS MAP IS A COMPILATION OF PUBLICLY AVAILABLE DATA. THE ACCURACY AND COMPLETENESS OF SAID DATA
HAS NOT BEEN VERIFIED BY 609 CONSULTING, LLC. EXISTING CONDITIONS MAY DIFFER FROM WHAT IS SHOWN.

**Kerr-McGee Oil &
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1099 18th Street
Denver, Colorado 80202



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Phone 970-776-4331
SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609



NAD83 CO-Nft

1" = 1,500ft

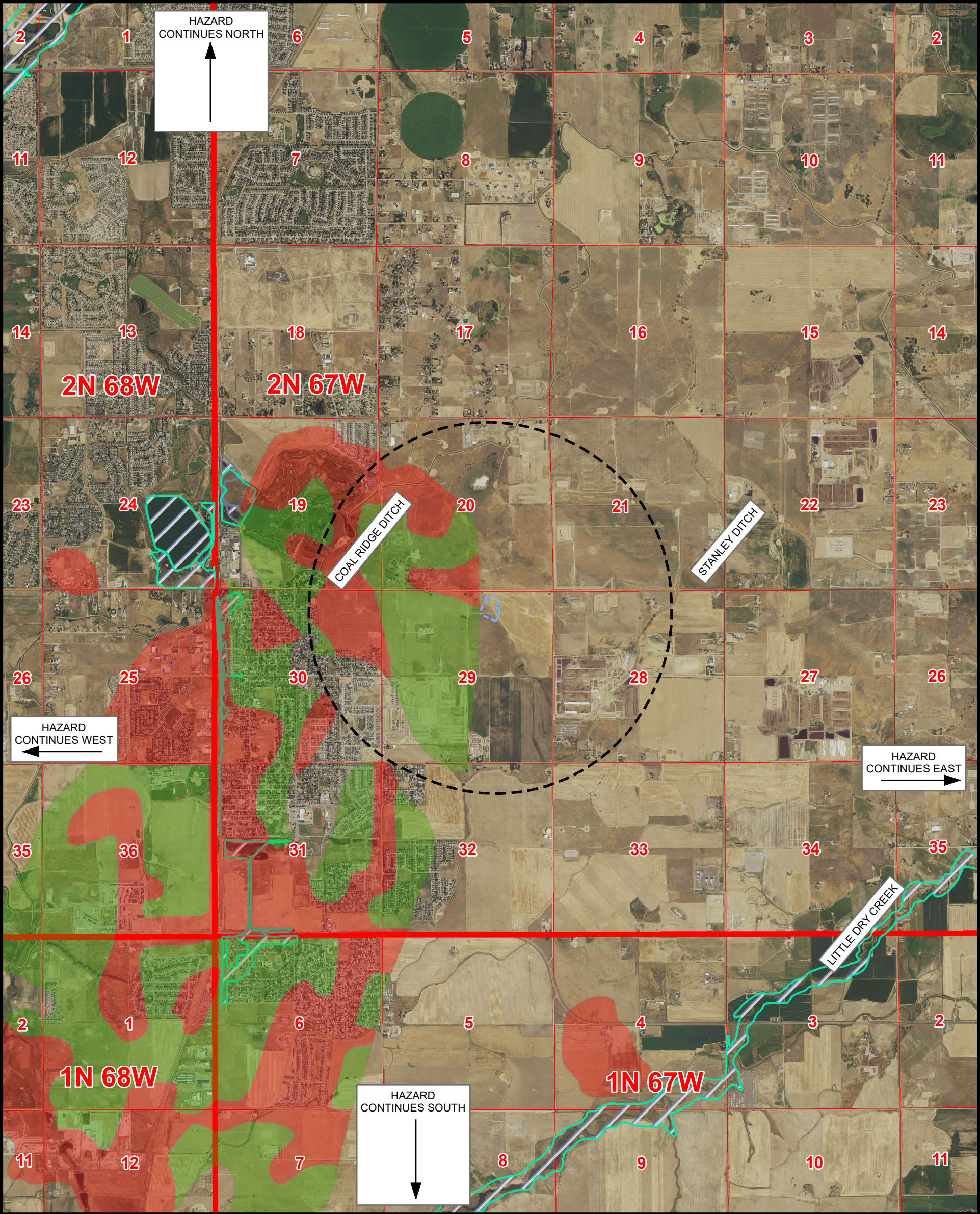
Drawn by: AK
Revised:

Date: 2 Jun 2023
Date:

0 750 1,500

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CLOVER 2-29HZ

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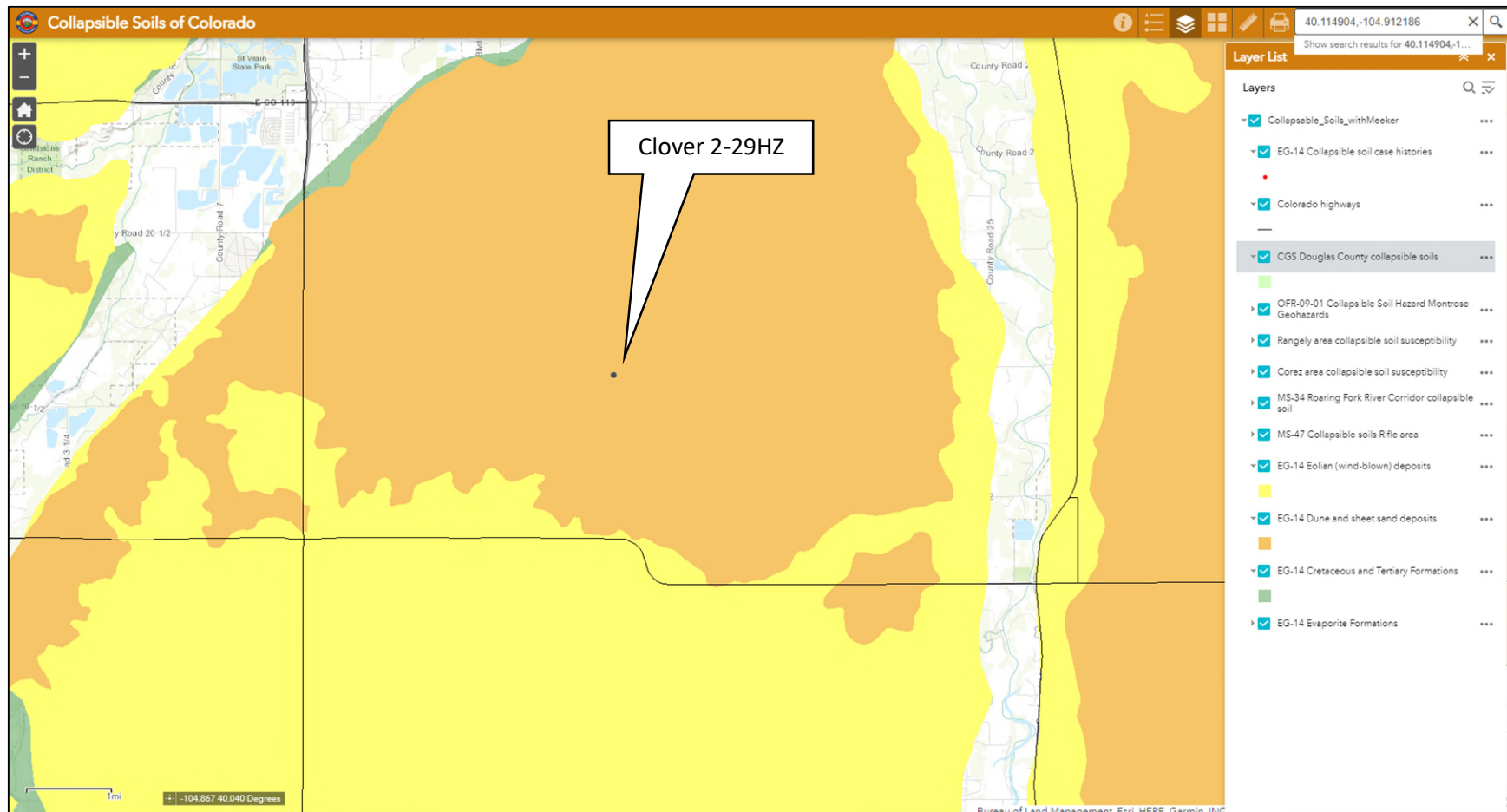
1" = 1,500ft

0 1,500 3,000

Drawn by: AK
Revised:

Date: 2 Jun 2023
Date:

Clover Collapsible Soils Map



The Clover 2-29HZ pad has been mapped in an area of Collapsible Soils by the Colorado Geologic Survey. The area includes Eolian deposits and Cretaceous and Tertiary Formations. Neither are considered a geologic hazard that would cause of long-term damage to the surface or a hazard to drilling operations that could result in compromising the environment or safety of individuals in the immediate area.

Collapsible soils as mapped do not constitute a geologic hazard. Collapsible Soils extend beyond the map limits.

I certify that I am a Professional Geologist, having met the educational requirements and professional work experience required by C.R.S. 23-41-208(b). I have reviewed information pertaining to this Oil and Gas Location and the surrounding area and have identified the following Geologic Hazards within a one-mile radius: coal mines subsidence hazard low and severe.

Low and Severe coal mine subsidence hazards are present within one mile of the proposed drilling location; however, based on the mapped data, the hazard is not present at the surface drilling location, nor does it impact the proposed access road. The hazard should not pose a risk to the proposed Oil and Gas Operations or Location.

The data source for coal mine subsidence is the ECMC GIS, Roberts et al, 2001 and Ivery and Hynes 1974. These references and additional datasets, maps, and published papers used to evaluate other possible geologic hazards included in C.R.S. § 24-65.1-103 are listed below.

Collapsible soils as mapped by the Colorado Geologic Survey (CGS) are present in the vicinity of the location. These soils do not constitute a geologic hazard. Kerr-McGee will mitigate any potential issues by using proper engineering, construction, stormwater and dust practices.

Respectfully,
Kerr-McGee Oil & Gas Onshore LP

A handwritten signature in black ink, appearing to read 'Rachel Friedman', with a stylized, cursive script.

Rachel Friedman
Geological Advisor

- Floodplain
 - ECMC Floodplains (FEMA) <https://ecmc.state.co.us/maps.html#/gisonline>
 - National Flood Hazard Layer (NFHL) <https://hazards-fema.maps.arcgis.com/apps/webappviewer/>
 - Weld County: <https://www.weldgov.com/Government/Departments/Planning-and-Zoning/Floodplain-Management>
- Surface Mines
 - ECMC DRMS Mine: <https://ecmc.state.co.us/maps.html#/gisonline>
 - Weld County: <https://www.weldgov.com/Government/Departments/Planning-and-Zoning>
- Earthquakes:
 - USGS: <https://www.usgs.gov/natural-hazards/earthquake-hazards/science/>
 - USGS: <https://earthquake.usgs.gov/earthquakes/map/>
- Landslides
 - CGS: <https://cologeosurvey.maps.arcgis.com/apps/webappviewer/>
- Sub-Surface Mines
 - ECMC Coal Mine: <https://ecmc.state.co.us/maps.html#/gisonline>
 - Roberts, S.B., Hynes, J.L., and Woodward, C.L. Maps Showing the Extent of Mining, Locations of Mine Shafts, Adits, Air Shafts, and Bedrock Faults, and Thickness of Overburden above Abandoned Coal Mines in the Boulder-Weld Coal Field, Boulder, Weld and Adams Counties, Colorado. 1:48:000. Denver, CO: US Geological Survey: 2001
 - Ivery, J.B., and Hynes, J.L., Subsidence Hazard Map Boulder-Weld Coal Field Boulder and Weld Counties, Colorado. Map No. 7361-6 1:24,000. Colorado Geological Survey: 1974
- Collapsible Soils
 - Collapsible Soils of Colorado: <https://cologeosurvey.maps.arcgis.com/apps/webappviewer/index.html?id=a6f816b35fb64d3da096e84af661f070>.
 - White, J.L and Greenman, C., Collapsible Soils in Colorado, Engineering Geology 14, Colorado Geological Survey, 2008.