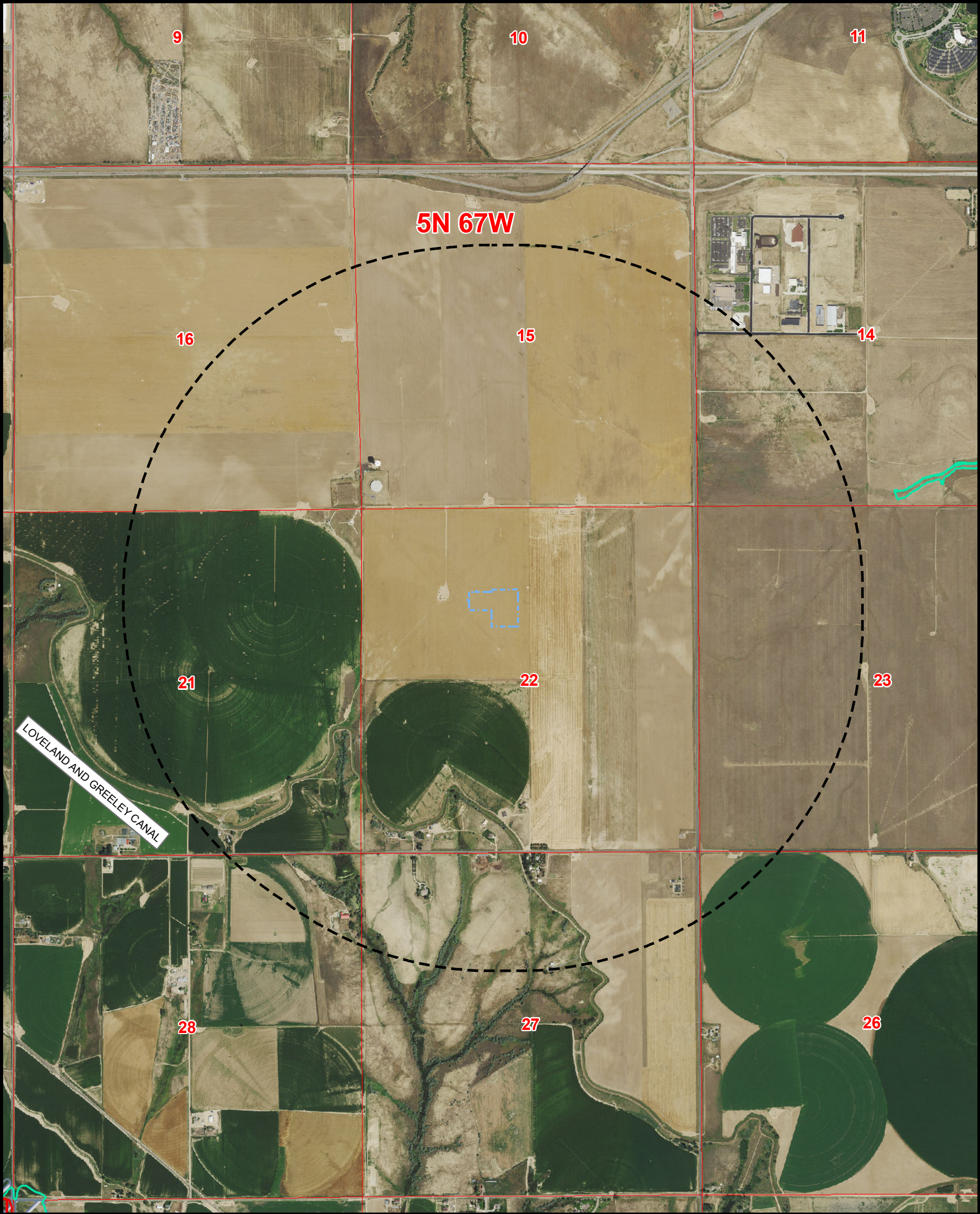


GEOLOGIC HAZARD MAP
BLUE CHIP 6-22HZ

SECTION 22, TOWNSHIP 5 NORTH, RANGE 67 WEST, 6TH P.M., GREELEY, 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)

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 &
Gas Onshore L.P.**

1099 18th Street
Denver, Colorado 80202



Consulting, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331
SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609



NAD83 CO-Nft

1" = 1,500ft






Drawn by: BB
Revised: AK

Date: 4 Nov 2021
Date: 11 Feb 2022

0 750 1,500

SECTION 22, TOWNSHIP 5 NORTH, RANGE 67 WEST, 6TH P.M., GREELEY, COLORADO



-  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)

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 &
Gas Onshore L.P.**
1099 18th Street
Denver, Colorado 80202



LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

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



NAD83 CO-Nft

$$1'' = 3,000f$$

0 1,500 3,000

Drawn by: BB
Revised: AK

Date: 4 Nov 2021
Date: 11 Feb 2022

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: floodplain and collapsible soils.


No floodplain is present within one mile of the proposed drilling location. The soil types impacting our operation include Weld loam (1-3% slopes). Weld loam constitutes 100% of the working pad surface. With respect to risk of caving during shallow excavation, Crab (1980) classifies Weld loam soil as slight to moderate risk in the soil survey of Weld County, CO. KMOG will not be creating any steep embankments or cutbank style changes in the disturbance area. KMOG follows proper sloping and benching techniques suggested by OSHA.

In addition, KMOG best practices conservatively assume Type C soils (1½ :1 or 34° slope) for all construction activities that require excavation. Assuming Type C also accounts for soil that has been worked and reworked during the grading and pad construction process, effectively homogenizing pre-existing soil types. Most shallow excavation is done after the soil has been reworked. Collapsible soils do not pose a risk to the proposed Oil and Gas Operations or Location.

Weld loam soil is classified as low risk for shrinking and swelling up to 8 inches depth, high risk from 8 inches to 15 inches, and low risk from 15 to 80 inches. Compacting and swelling soils are not a concern for our operations given the well pad is a temporary location with no long-term structures and the location will be actively worked throughout the construction phase.

The data source for floodplain information shown on the figure is the Federal Emergency Management Agency GIS Datasets (both effective and preliminary). USDA Natural Resources Conservation Service soil data, the Weld County Soil Survey and the Colorado Geological Survey's Collapsible Soils web map was used for the soil hazards evaluation. Additional datasets, maps, and published papers used to evaluate other possible geologic hazards included in CO Rev Stat § 24-65.1-103 are listed below.

Respectfully,
Kerr-McGee Oil & Gas Onshore LP


Cameron S Ross
Senior Geologist

- Floodplain
 - COGCC Floodplains (FEMA) https://cogccmap.state.co.us/cogcc_gis_online/
 - <https://hazards-fema.maps.arcgis.com/apps/webappviewer/>
 - Weld County: <https://www.weldgov.com/Government/Departments/Planning-and-Zoning/Floodplain-Management>
- Surface Mines
 - COGCC DRMS Mine: https://cogccmap.state.co.us/cogcc_gis_online/
 - 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
 - COGCC Coal Mine: https://cogccmap.state.co.us/cogcc_gis_online/
 - 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
- Soils
 - USDA NRCS Soil Survey: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>
 - Collapsible Soils: CGS: <https://cologeosurvey.maps.arcgis.com/apps/webappviewer/>
 - Crab, J.A., Soil Survey of Weld County, Colorado, Southern Part., USDA Soil Conservation Service, 1980.