

Encana Oil & Gas (USA) Inc.
E&P Waste Management Plan
Land Application of Water-Based Bentonitic
Drilling Fluids & Associated Drill Cuttings

This document outlines the operational requirements to be used when applying water-based bentonitic drilling fluids and associated drill cuttings to spread fields to maintain compliance with the Colorado Oil and Gas Conservation Commission (COGCC) Rule 907.d.(3). These materials are applied as a beneficial soil amendment.

Only water-based bentonitic drilling fluids and associated drill cuttings generated by Encana Oil and Gas (USA) Inc. (Encana) will be applied at these sites. No other E&P waste shall be deposited at these sites. Changes to Table 1 will be provided to the COGCC in a Form 4 Sundry Notice.

Spread Fields

1. Encana shall obtain written authorization from the surface owner (if non-Encana land) prior to land application of water-based bentonitic drilling fluids and associated drill cuttings. The signed agreement shall state that only Encana generated materials will be accepted and that incorporation of the material into the native soil will occur within 10 days of application.
2. A 3-inch maximum lift of water-based bentonitic drilling fluids and associated drill cuttings will be applied.
3. Daily tracking tickets will be used and will include the following information:
 - Name of well where material was generated;
 - Date of transfer of the material from the well to the spread field;
 - Volume of material taken to the spread field;
 - Name of transporter; and
 - Area where drilling fluid and associated drill cuttings were applied.
4. The volume of material transported to the spread field will be tracked using a spreadsheet to help ensure the 3-inch maximum lift is not exceeded.
5. Conditions permitting, Encana personnel will ensure the material will be incorporated into the native soil within 10 days of application.

6. Soil sampling will be conducted following incorporation on a semi-annual basis, and prior to use if available.
 - Prior to use, composite soil samples will be collected from an interval of 0-6 inches below ground surface (bgs), from every area where material will be applied, to document the baseline conditions of the spread field.
 - During operations, composite soil samples will be collected from an interval of 0-6 inches bgs, from every area where material has been applied. At closeout, samples will be collected from the surface (composite). Soil samples will be analyzed to demonstrate compliance with COGCC Table 910-1. Specific sample analytes will be selected based on prior work and results, with the purpose of demonstrating compliance with organic and inorganic analytes regulated by the COGCC.
7. If Encana deems appropriate, and/or if non-spread field oil and gas activities occur on site, groundwater monitoring may occur.
 - Groundwater samples will be collected if groundwater is encountered within 20 feet bgs.
 - All groundwater samples will be analyzed for BTEX to ensure compliance with COGCC Table 910-1.
8. Spread fields may be identified as geographic locations that are contiguous, but any specific field will not be utilized for more than three years continuously.
9. All records will be available to the COGCC or landowner upon request, within five business days.
10. The resulting concentrations of the spread fields' soil will be in compliance with COGCC Table 910-1 concentration levels.

Attachments

Table 1 – Spread Field Locations

Figure 1 – Site Location Map of Bella Spread Fields 1 through Bella 8, 18, and 19

Figure 2 – Site Location Map of Bella Spread Fields 9-17

Figure 3 – Site Boundary Map of Bella 1 Spread Field

Figure 4 – Site Boundary Map of Bella 2 Spread Field

Figure 5 – Site Boundary Map of Bella 3 Spread Field

Figure 6 – Site Boundary Map of Bella 4 Spread Field

Figure 7 – Site Boundary Map of Bella 5 Spread Field

Figure 8 – Site Boundary Map of Bella 6 Spread Field

Figure 9 – Site Boundary Map of Bella 7 Spread Field

Figure 10 – Site Boundary Map of Bella 8 Spread Field

Figure 11 – Site Boundary Map of Bella 9 Spread Field

Figure 12 – Site Boundary Map of Bella 10 Spread Field

Figure 13 – Site Boundary Map of Bella 11 Spread Field

Figure 14 – Site Boundary Map of Bella 12 Spread Field

Figure 15 – Site Boundary Map of Bella 13 Spread Field

Figure 16 – Site Boundary Map of Bella 14 Spread Field

Figure 17 – Site Boundary Map of Bella 15 Spread Field

Figure 18 – Site Boundary Map of Bella 16 Spread Field

Figure 19 – Site Boundary Map of Bella 17 Spread Field

Figure 20 – Site Boundary Map of Bella 18 Spread Field

Figure 21 – Site Boundary Map of Bella 19 Spread Field

Figure 22 – Site Location Map of Miller 1 Spread Field

Figure 23 – Site Boundary Map of Miller 1 Spread Field

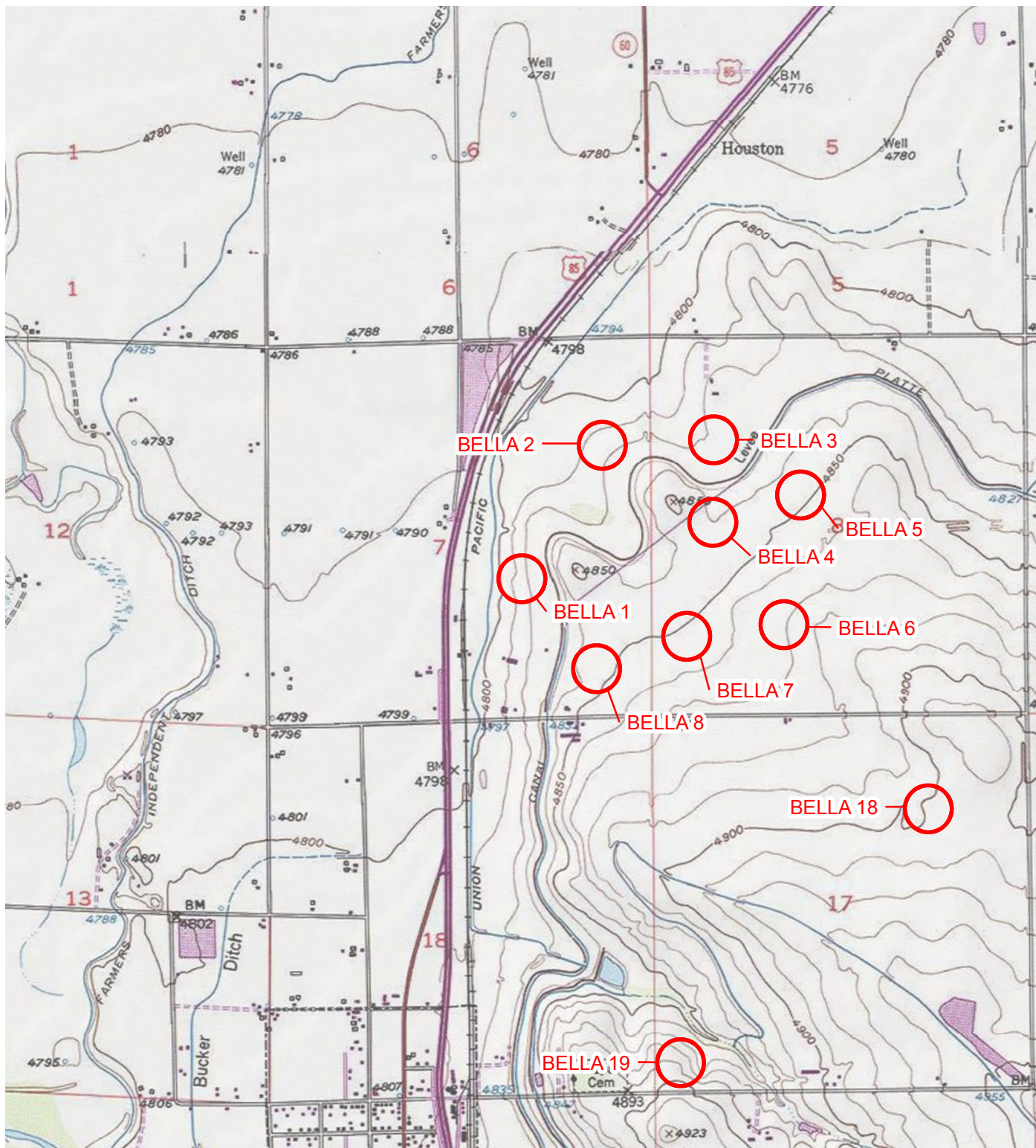
Figure 24 – Site Location Map of McDonald Farm Spread Field

Figure 25 – Site Boundary Map of McDonald Farm Spread Field

Table 1
Spread Field Locations
Encana Oil & Gas (USA) Inc.

Site Name	Legal Description	Latitude/Longitude	Driving Directions
Bella 1	NWSE Sec 7, T3N, R66W	40.236798/ -104.806376	0.3 miles east and 0.3 miles north of County Road 34 and Highway 85
Bella 2	SENE Sec 7, T3N, R66W	40.239412/ -104.806328	0.3 miles east and 0.5 miles north of County Road 34 and Highway 85
Bella 3	NWNW Sec 8, T3N, R66W	40.242793/ -104.804040	0.5 miles east of County Road 36 and Highway 85
Bella 4	SWNW Sec 8, T3N, R66W	40.239412/ -104.805867	0.3 miles east and 0.4 miles northeast of County Road 34 and Highway 85
Bella 5	SENW Sec 8, T3N, R66W	40.242792/ -104.805867	0.3 miles east, 1.0 mile northeast, and 0.1 miles east of County Road 34 and Highway 85
Bella 6	NESW Sec 8, T3N, R66W	40.238392/ -104.805627	0.8 miles east of County Road 34 and Highway 85
Bella 7	SWSW Sec 8, T3N, R66W	40.238392/ -104.805627	0.5 miles east of County Road 34 and Highway 85
Bella 8	SESE Sec 7, T3N, R66W	40.238392/ -104.805627	0.4 miles east of County Road 34 and Highway 85
Bella 9	SWNE Sec 30, T3N, R66W	40.199402/ -104.821040	SE of County Road 30 and Highway 85
Bella 10	SWNE Sec 30, T3N, R66W	40.192358/ -104.821130	NE of County Road 28 and Highway 85
Bella 11	SWNE Sec 19, T3N, R66W	40.211998/ -104.816186	SE of County Road 32 and Highway 85
Bella 12	SWNW Sec 19, T3N, R66W	40.211997/ -104.818115	0.3 miles west and 0.2 miles north of County Road 30 and Highway 85
Bella 13	SESW Sec 30, T3N, R66W	40.187203/ -104.823274	NW of County Road 28 and Highway 85

Bella 14	NENW Sec 31, T3N, R66W	40.186161/ -104.823892	SW of County Road 28 and Highway 85
Bella 15	SENW Sec 31, T3N, R66W	40.186161/ -104.823892	0.3 miles south of County Road 25.5 and 28
Bella 16	NENW Sec 31, T3N, R66W	40.186161/ -104.823892	0.2 miles west of County Road 25.5 and 28
Bella 17	SWNW Sec 31, T3N, R66W	40.186161/ -104.823892	0.5 miles south and 0.3 miles west of County Road 25.5 and 28
Bella 18	NENE Sec 17, T3N, R66W	40.225447/ -104.800389	SW of County Roads 34 and 29
Bella 19	NENE Sec 17, T3N, R66W	40.225447/ -104.800389	0.1 miles west of County Roads 32 and 29
Miller 1	SENE Sec 29, T3N, R66W	40.195058/ -104.789915	1 mile west and 0.1 miles south of County Roads 30 and 31
McDonald Farm	NENE Sec 11, T3N, R66W	40.243401/ -104.737158	SW of County Road 30 and 35



LEGEND

○ SITE LOCATION

IMAGE COURTESY OF ESRI/BING MAPS

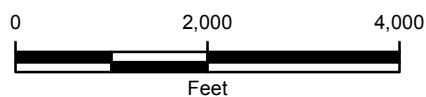


FIGURE 1
SITE LOCATION MAP
BELLA SPREAD FIELDS 1-8, 18, 19
WELD COUNTY, COLORADO

ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

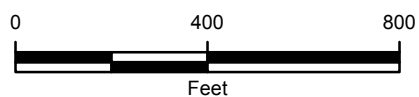


FIGURE 3
SITE BOUNDARY MAP
BELLA 1 SPREAD FIELD
NWSE SEC 7-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

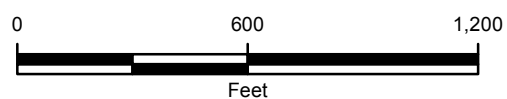


FIGURE 4
SITE BOUNDARY MAP
BELLA 2 SPREADFIELD
SENE SEC 7-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





WELD COUNTY ROAD 36

LEGEND

 SPREAD FIELD BOUNDARY

IMAGE COURTESY OF ESRI/BING MAPS

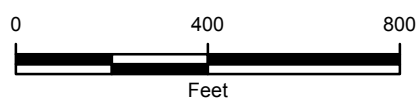


FIGURE 5
SITE BOUNDARY MAP
BELLA 3 SPREAD FIELD
NWNW SEC 8-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

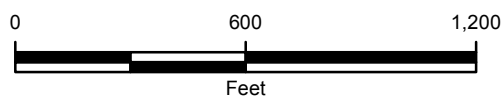


FIGURE 6
SITE BOUNDARY MAP
BELLA 4 SPREAD FIELD
SWNW SEC 8-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.



WELD COUNTY ROAD 36

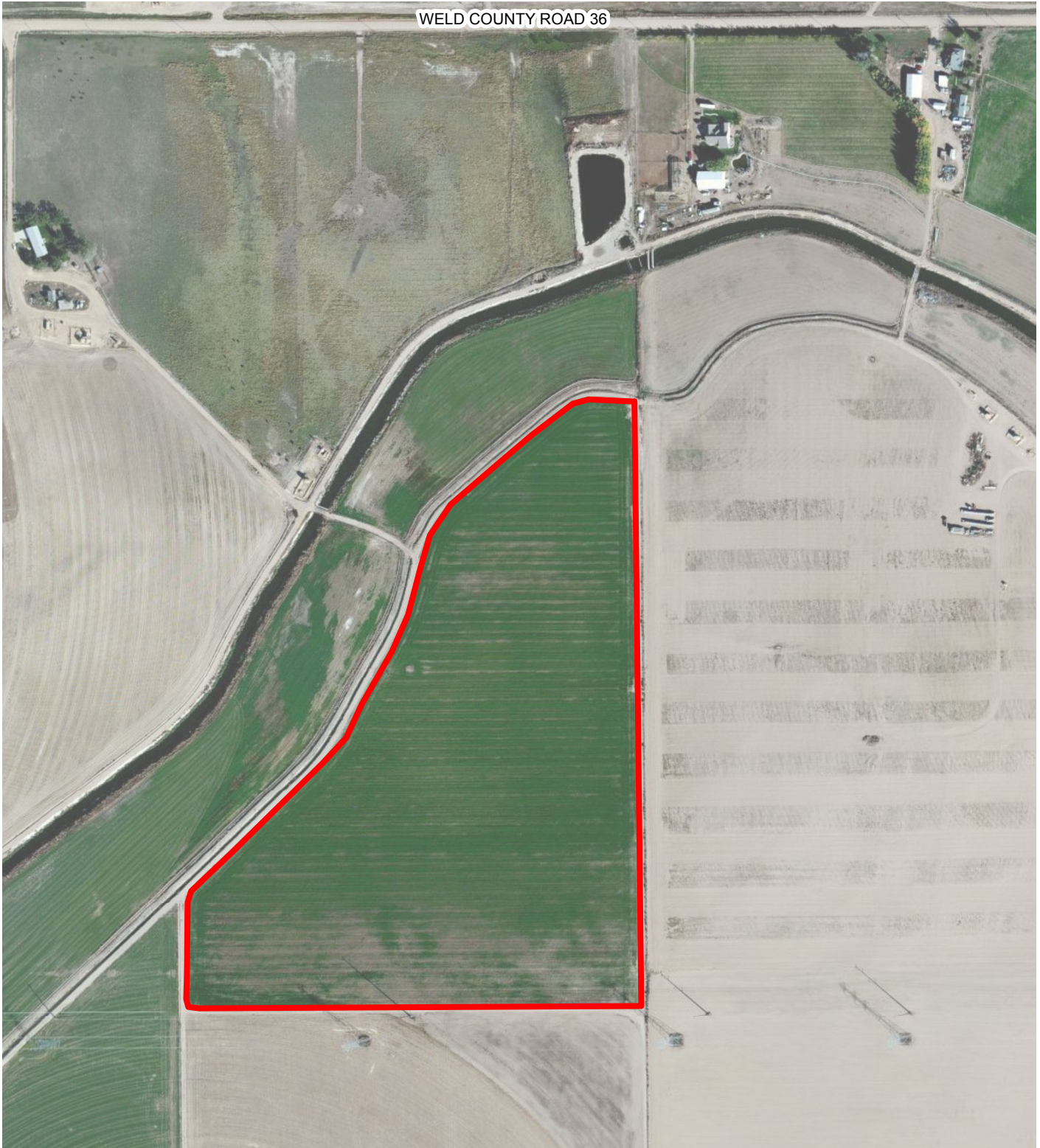


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

0 400 800
Feet



FIGURE 7
SITE BOUNDARY MAP
BELLA 5 SPREAD FIELD
SENW SEC 8-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

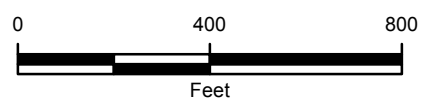


FIGURE 8
SITE BOUNDARY MAP
BELLA 6 SPREAD FIELD
NESW SEC 8-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

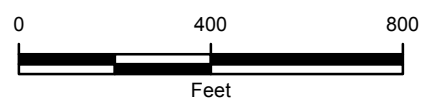


FIGURE 10
SITE BOUNDARY MAP
BELLA 8 SPREAD FIELD
SESE SEC 7-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





WELD COUNTY ROAD 30

85

LEGEND



SPREAD FIELD BOUNDARY

IMAGE COURTESY OF ESRI/BING MAPS

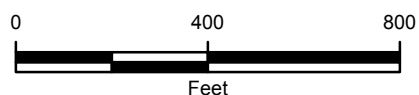


FIGURE 11
SITE BOUNDARY MAP
BELLA 9 SPREAD FIELD
SWNE SEC 30-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

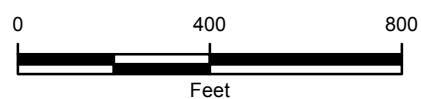


FIGURE 12
SITE BOUNDARY MAP
BELLA 10 SPREAD FIELD
SWNE SEC 30-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

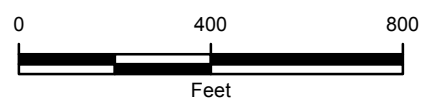


FIGURE 13
SITE BOUNDARY MAP
BELLA 11 SPREAD FIELD
SWNE SEC 19-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





GOODRICH AVE

DIVISION ST

LEGEND

 SPREAD FIELD BOUNDARY

IMAGE COURTESY OF ESRI/BING MAPS

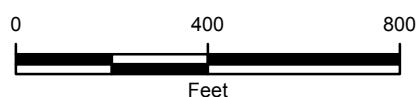
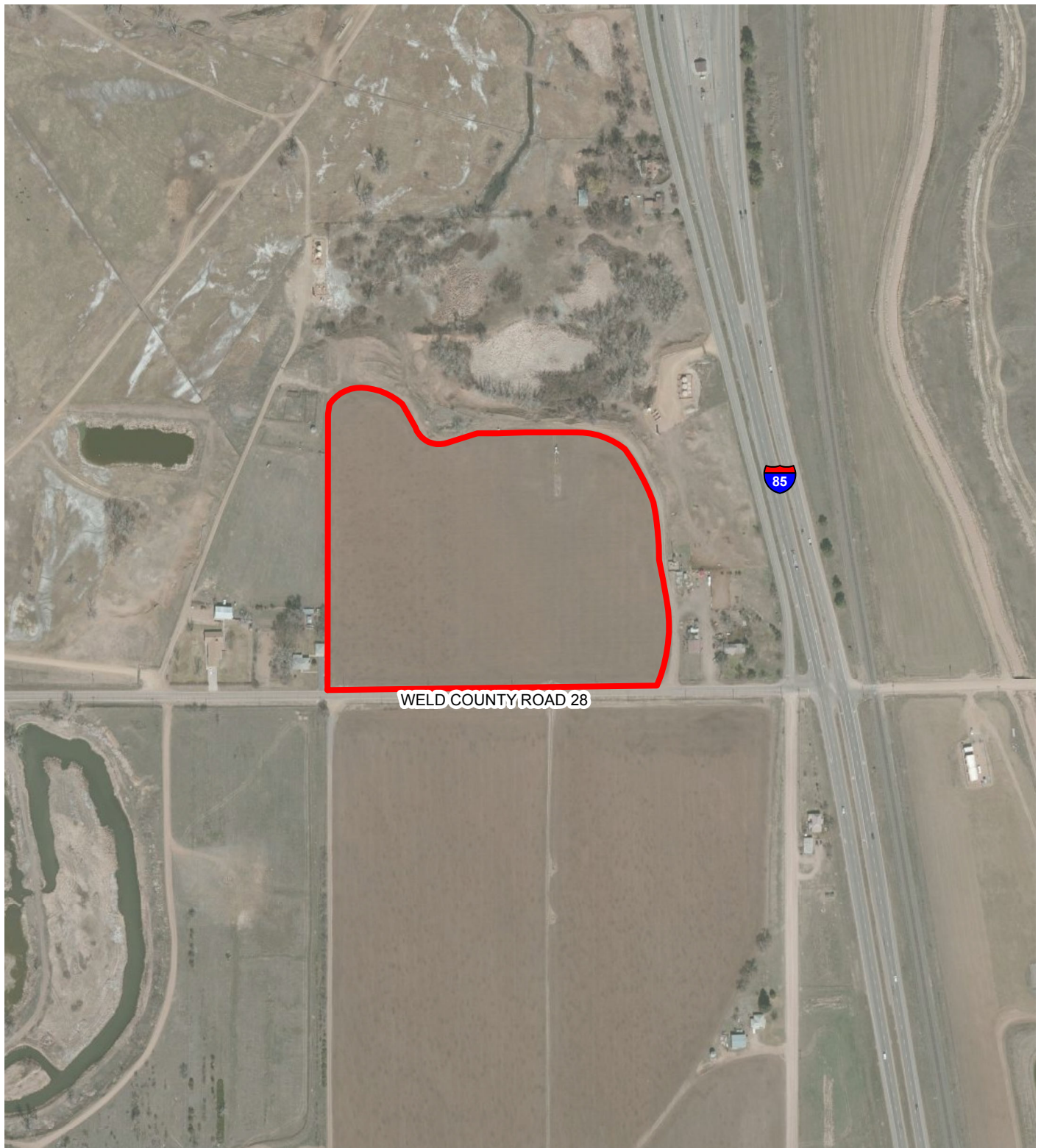


FIGURE 14
SITE BOUNDARY MAP
BELLA 12 SPREAD FIELD
SWNW SEC 19-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





WELD COUNTY ROAD 28



LEGEND

 SPREAD FIELD BOUNDARY

IMAGE COURTESY OF ESRI/BING MAPS

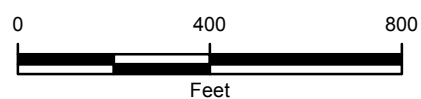


FIGURE 15
SITE BOUNDARY MAP
BELLA 13 SPREAD FIELD
SESW SEC 30-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

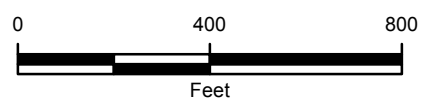


FIGURE 16
SITE BOUNDARY MAP
BELLA 14 SPREAD FIELD
NENW SEC 31-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

0 400 800
Feet



FIGURE 17
SITE BOUNDARY MAP
BELLA 15 SPREAD FIELD
SENW SEC 31-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.



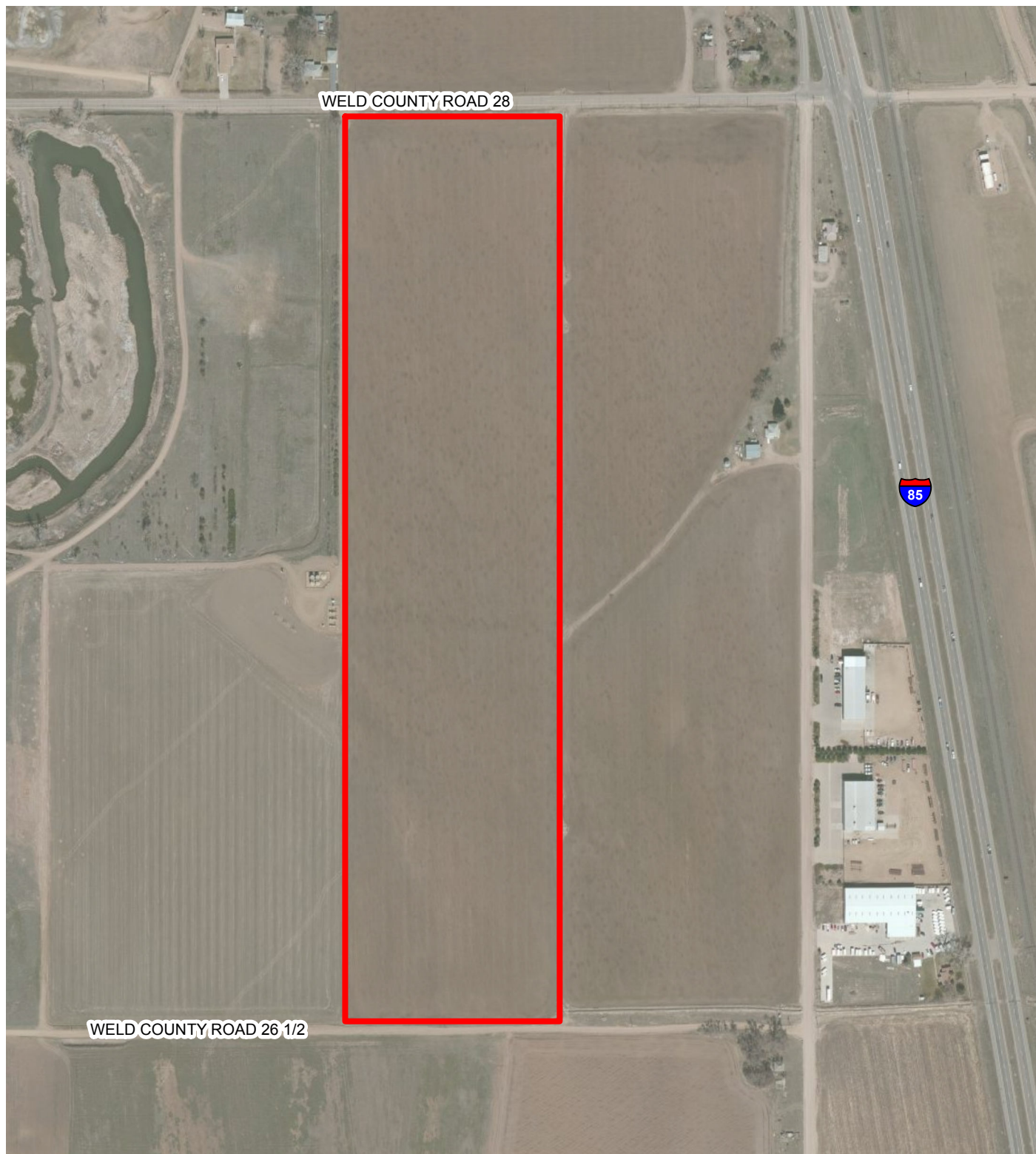


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

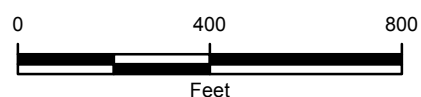


FIGURE 18
SITE BOUNDARY MAP
BELLA 16 SPREAD FIELD
NENW SEC 31-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

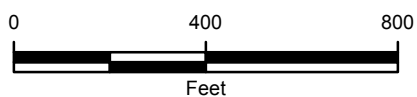


FIGURE 19
SITE BOUNDARY MAP
BELLA 17 SPREAD FIELD
SWNW SEC 31-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.



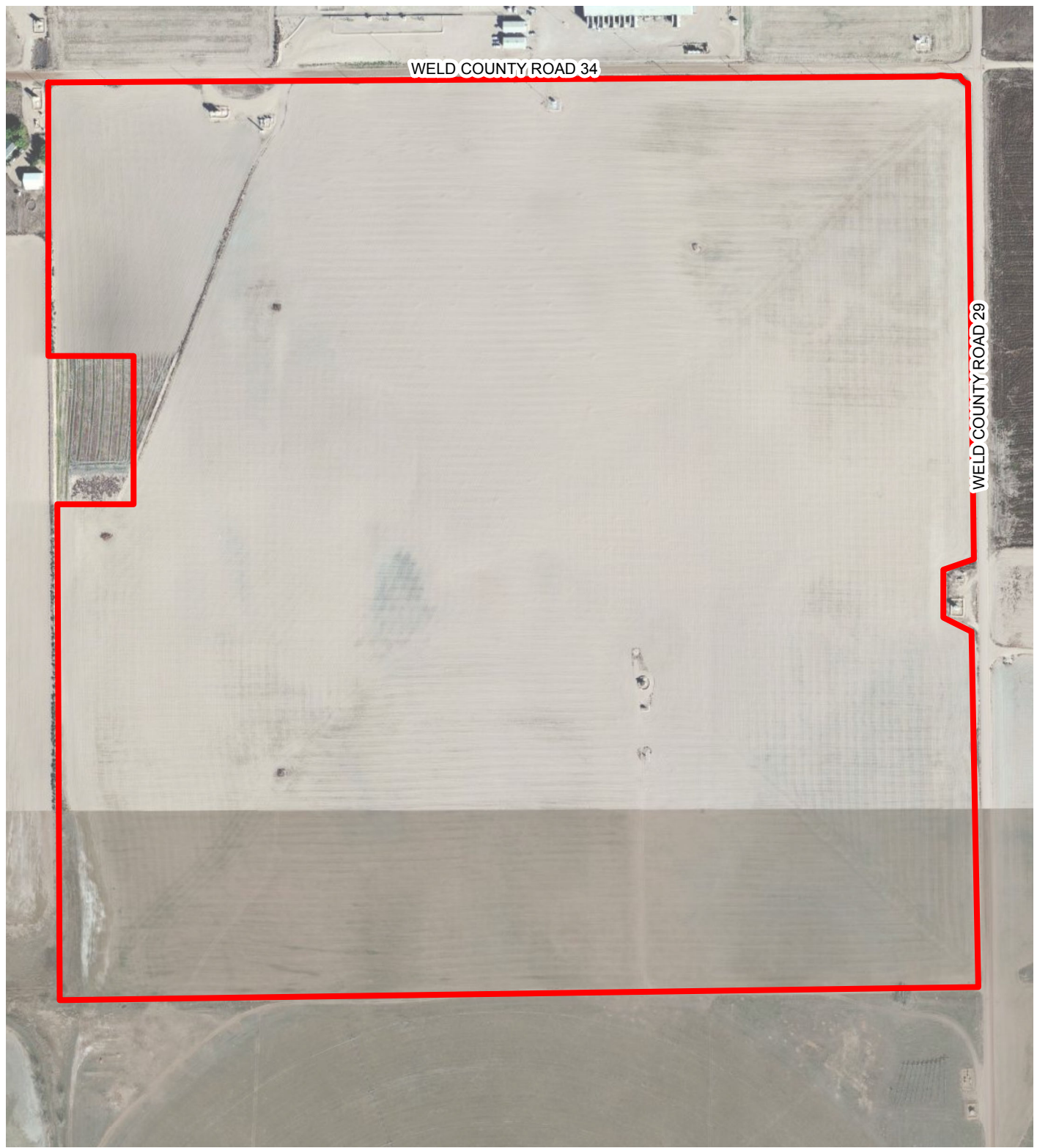


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

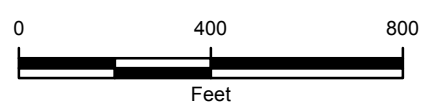


FIGURE 20
SITE BOUNDARY MAP
BELLA 18 SPREAD FIELD
NENE SEC 17-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

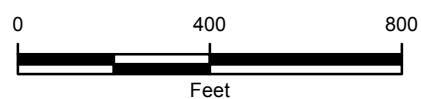


FIGURE 21
SITE BOUNDARY MAP
BELLA 19 SPREAD FIELD
NENE SEC 17-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.



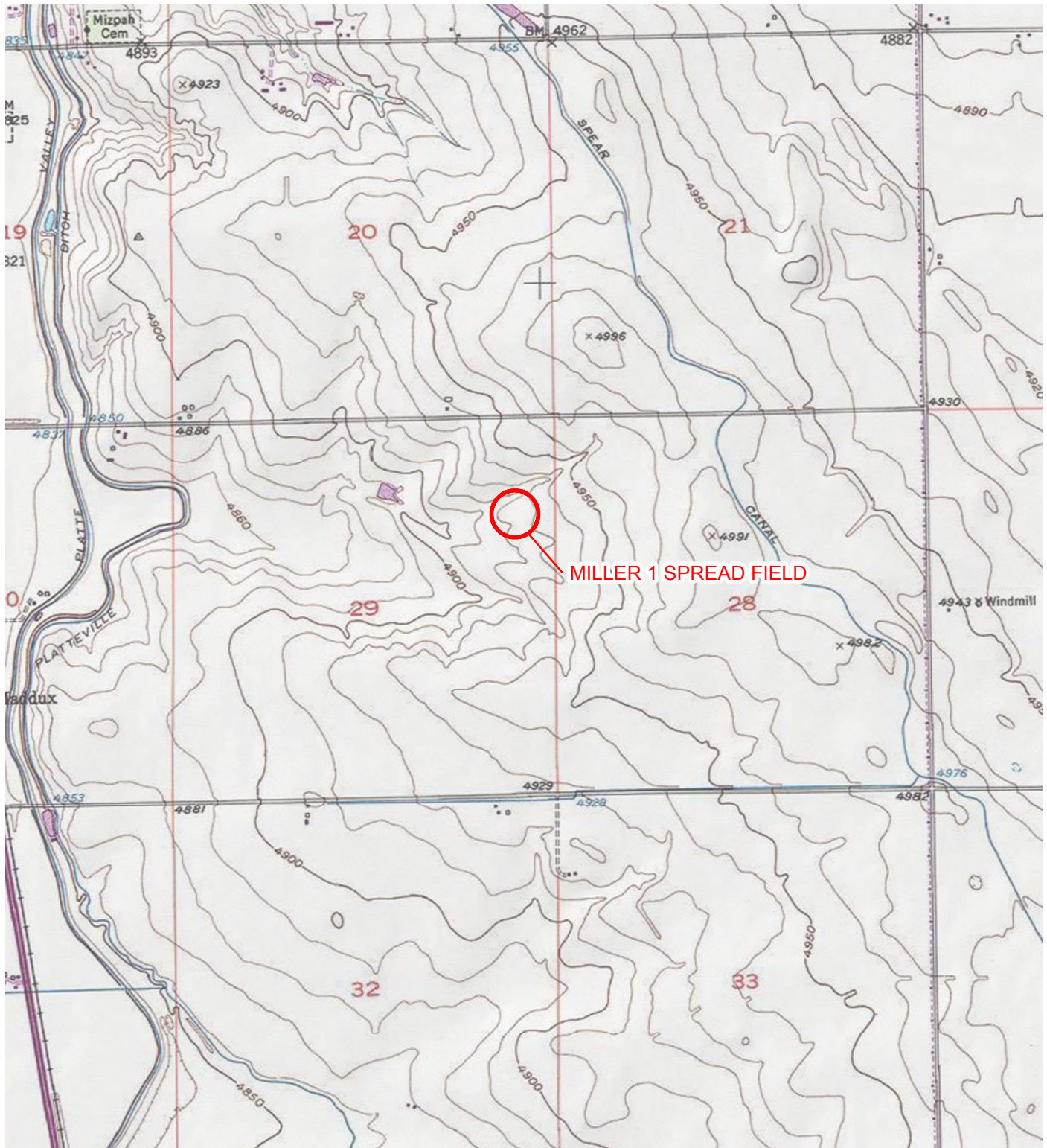


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

○ SITE LOCATION

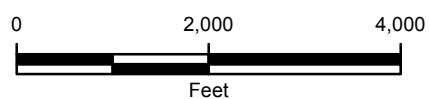


FIGURE 22
 SITE LOCATION MAP
 MILLER 1 SPREAD FIELD
 SENE SEC 29-T3N-R66W
 WELD COUNTY, COLORADO
 ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

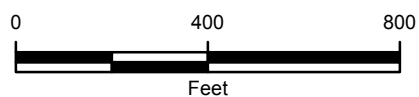


FIGURE 23
SITE BOUNDARY MAP
MILLER 1 SPREAD FIELD
SENE SEC 29-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.



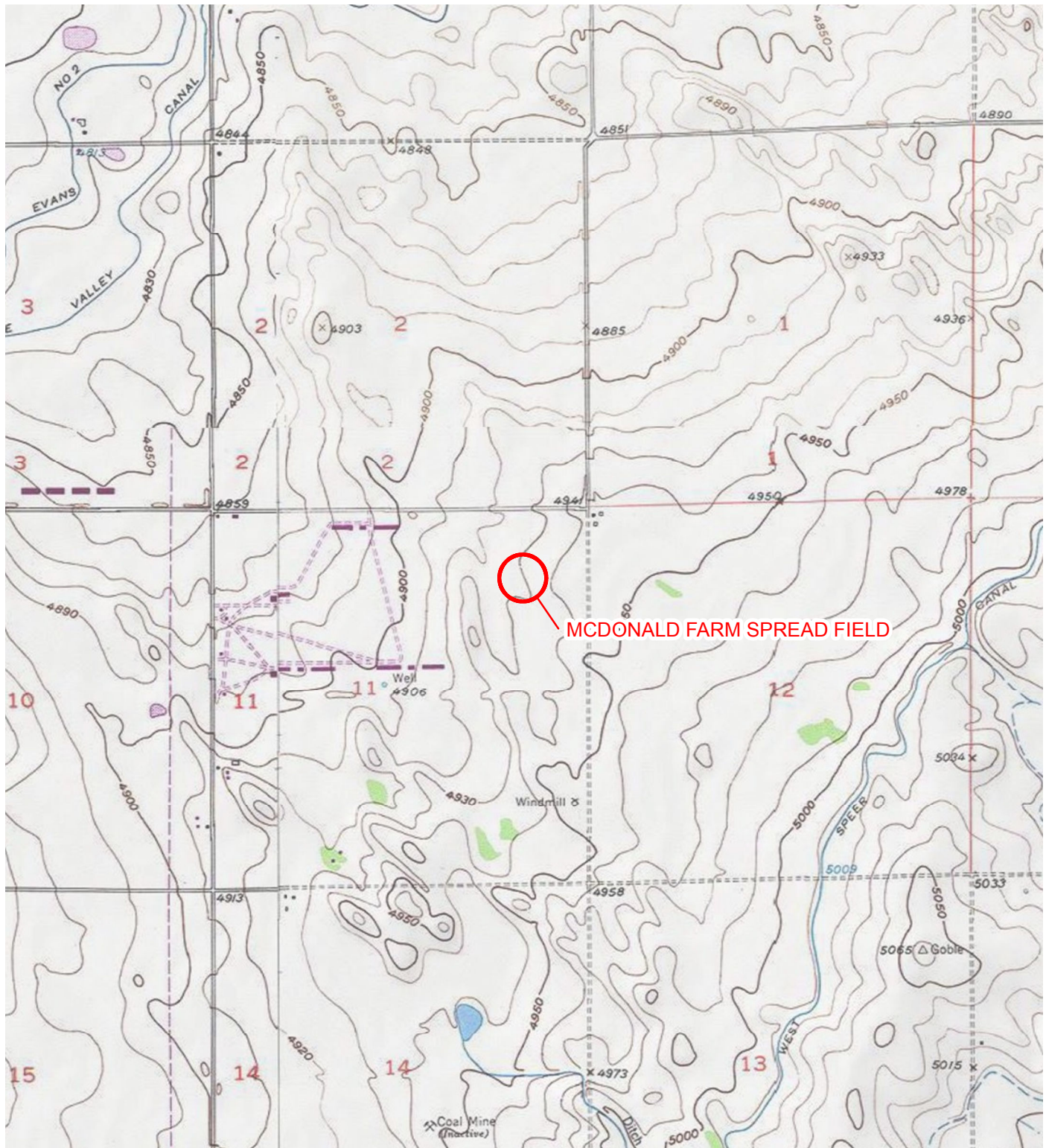


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

○ SITE LOCATION

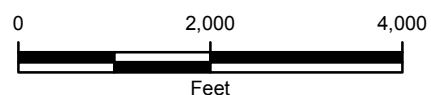


FIGURE 24
SITE LOCATION MAP
MCDONALD FARM SPREAD FIELD
NENE SEC 11-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

 SPREAD FIELD BOUNDARY

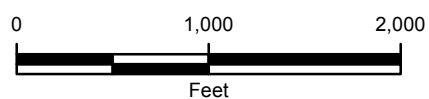


FIGURE 25
SITE BOUNDARY MAP
MCDONALD FARM SPREAD FIELD
NENE SEC 11-T3N-R66W
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.

