

**WATER OF THE UNITED STATES AND WATERS OF
THE STATE OBSERVATION AND MITIGATION PLAN**

**EASY COME #2
LINCOLN COUNTY, COLORADO**

DECEMBER 2015

Prepared for:

**WIEPKING-FULLERTON ENERGY, LLC
Englewood, Colorado**



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Prepared for:

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FIGURE 1 SITE LOCATION MAP

FIGURE 2 SITE MAP

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EXECUTIVE SUMMARY

LT Environmental Inc., (LTE) was retained by Wiepking-Fullerton Energy, LLC (WFE) to make a determination of the intermittent stream impacted by the construction of the Easy Come #2 oil and gas drill pad (Site) as Waters of the United States (WOTUS) and/or Waters of the State (WOTS), and if determined to meet the classifications of either, to provide a mitigation plan.

From the completed fieldwork and review of available records LTE has determined that jurisdictional WOTUS were not impacted by the construction of the Site. However, it was determined that WOTS of Colorado were impacted by the construction of the Site and as a result the mitigation plan is included.



1.0 INTRODUCTION

On December 2 and 7, 2015, the Colorado Oil and Gas Conservation Commission (COGCC) conducted an inspection (Documentation No. 682500202) at the Site which is operated by WFE. During the inspection, it was noted that the Site was constructed with a waterway that is mapped as an intermittent stream on United States Geological Survey (USGS) Topographic Map. As a result, it was requested by the COGCC that WFE supply a determination as the intermittent stream's classification as WOTUS or WOTS. On December 22, 2015, LTE conducted a site assessment to evaluate the intermittent stream as WOTUS and/or WOTS.

2.0 SITE DESCRIPTION

2.1 LOCATION

The Site is located in the northwest quarter of the northeast quarter of Section 2, Township 6 South, Range 54 West, 6th Principal Meridian, in Lincoln County, Colorado as presented on Figure 1.

2.2 PRE-EXISTING SITE CONDITIONS

The pre-existing land use was agricultural dry crop land. The terrain is generally level with some rolling terrain where the well pad was constructed with furrows running east to west. Surrounding land use is also agricultural dry crop land. The nearest rangeland land use is 0.12 miles to the north of the Site on the north side of Lincoln County Road 0.

2.2.1 Hydrology

The USGS recognizes an unnamed intermittent stream flowing east into the Site and north from the Site to an unnamed intermittent wash that generally flows southeast.

Approximately 0.16 miles to the northeast of the Site, the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory identify the same unnamed intermittent wash mentioned above as a riverine wetland with a classification code R4SBA. The code description from the USFWS National Wetlands Inventory is defined as follows:

1. R: System RIVERINE: The Riverine System includes all wetlands and deep-water habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the Riverine System.
2. 4: Subsystem INTERMITTENT: This Subsystem includes channels that contain flowing water only part of the year, but may contain isolated pools when the flow stops.
3. SB: Class STREAMBED: Includes all wetlands contained within the Intermittent Subsystem of the Riverine System and all channels of the Estuarine System or of the Tidal Subsystem of the Riverine System that are completely dewatered at low tide.
4. A: WATER REGIME Temporary Flooded: Surface water is present for brief periods during growing season, but the water table usually lies well below the soil surface for most of the growing season. Plants that grow both in uplands and wetlands may be characteristic of this water regime.

2.2.2 Soils

The United States Department of Agriculture - Natural Resource Conservation Service (USDA-NRCS) Web Soil Survey identify Colby silt loam as the dominant soil occurring in the region of the Site disturbance.

Colby silt loam is a well-drained soil with a runoff class of medium. The depth to the water table is more than 80 inches. Frequency of flooding and ponding are both described as “none” by the Web Soil Survey. The soil is placed in the Hydrologic Soil Group B, meaning it has a moderately low runoff potential when thoroughly wet.

2.3 CURRENT SITE CONDITIONS

The agricultural use of the land has been disturbed in order to construct the Site. A cattle guard and culvert were installed at the intersection of Lincoln County Road 0 and the access road to the Site. The access road goes south approximately 480 feet to the Site from Lincoln County Road 0. The Site is rectangular in shape disturbing approximately 3.36 acres and was observed to extend into the intermittent stream identified on the USGS topographic map. A drilling pit was constructed on the southwest corner of the Site. South and west of the pit are topsoil stockpiles. Surrounding the Site is a berm and areas of surface roughening intended as temporary stormwater Best Management Practices (BMPs). A Site Map is provided as Figure 2, which presents these features.



3.0 DEFINITIONS OF JURISDICTIONAL WATERS AND WETLANDS

3.1 WATERS OF THE UNITED STATES

Waters of the United States is defined by the Environmental Protection Agency (EPA) in the Clean Water Act (CWA). The table below created by the EPA summarizes the most recent rules defining WOTUS.

Subject	1986 Rule and Rapanos Guidance	Final Rule
Navigable Waters	Jurisdictional	Same
Interstate Waters	Jurisdictional	Same
Territorial Seas	Jurisdictional	Same
Impoundments	Jurisdictional	Same
Tributaries to the Traditionally Navigable Waters	Did not define tributary	Same as proposal except wetlands and open waters without beds, banks and high water marks will be evaluated for adjacency.
Adjacent Wetlands/Waters	Included wetlands adjacent to traditional navigable waters, interstate waters, the territorial seas, impoundments or tributaries.	Includes waters adjacent to jurisdictional waters within a minimum of 100 feet and within the 100-year floodplain to a maximum of 1,500 feet of the ordinary high water mark.
Isolated or “Other” Waters	Included all other waters the use, degradation or destruction of which could affect interstate or foreign commerce.	Includes specific waters that are similarly situated: Prairie potholes, Carolina & Delmarva bays, pocosins, western vernal pools in California, & Texas coastal prairie wetlands when they have a significant nexus. Includes waters with a significant nexus within the 100-year floodplain of a traditional navigable water, interstate water, or the territorial seas, as well as waters with a significant nexus within 4,000 feet of jurisdictional waters.
Exclusions to the definition of “Waters of the U.S.”	Excluded waste treatment systems and prior converted cropland, swales, erosion features and ditches excavated wholly in and draining only uplands and that do not carry relatively permanent low of water.	Includes proposed rule exclusions, expands exclusion for ditches, and also excludes constructed components for MS4s and water delivery/reuse and erosional features.

www.epa.gov/cleanwaterrule

Although the table above presents definitions related to the Final Rule issued in 2015, this rule has been stayed and as a result the 1986 Rule and Rapanos Guidance was utilized for the purpose of classification along with the following significant nexus determination factors:

- Consider tributary and any and all adjacent wetlands together to see if they, together have a significant effect on the chemical, physical, and biological integrity of the downstream WOTUS;
- Evaluate flow connection (magnitude, duration, and frequency);



- Ecological connection; and
- Evaluate how water body carries pollutants; stores flood waters; transfers nutrients; provides habitat; transports life cycle stages; or carries organic carbon to a WOTUS.

3.2 WATERS OF THE STATE OF COLORADO

The Colorado Water Quality Control Act defines Waters of the State as any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.

3.3 JURISDICTIONAL WETLAND

Section 404 of the Clean Water Act and the United States Army Corps of Engineers (USACE) use the following definition to determine jurisdictional wetlands: Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

4.0 SITE OBSERVATIONS

On December 22, 2015, LTE personnel conducted a site visit to evaluate the mapped intermittent stream as a WOTUS and/or WOTS and if determined as either, to collect information needed to develop a mitigation plan.

4.1 OBSERVATIONS

LTE made observation of the Site, the mapped intermittent stream, and the surrounding area to make a determination as to if the mapped intermittent stream was a WOTUS or WOTS.

4.1.1 Vegetation

The land use surrounding the well pad is agricultural and the crop appears to be winter wheat. Furrows are evident throughout the agricultural area. Dry standing stems from last season's crop remain in place with the new seedlings coming among last season's growth.

North of the pad, a barbed wire fence, roadside ditches, and Lincoln County Road 0 separate the agricultural land use from the rangeland land use. Evidence of cattle grazing the rangeland was observed. The vegetation throughout the rangeland area, including the topographical relief where the USGS maps identify a stream, is consistent. Dominant plants observed were blue grama (*Bouteloua gracilis*), sideoats grama (*Bouteloua curtipendula*), prairie sage (*Artemisia ludoviciana*), fringed sage (*Artemisia frigida*), needle and thread (*Hesperostipa comata*), yucca (*Yucca* sp.), native thistle (*Cirsium* sp.), and cactus (*Opuntia* sp.).

4.1.2 Soil

LTE completed three soil borings to evaluate the soil within the mapped intermittent stream for indications of seasonal periods of standing water or saturation as well as to make observations for shallow groundwater. In addition, LTE completed soil borings in other areas of the agricultural field for comparison. Locations of the soil borings were chosen based on the drainage patterns and geomorphic positions that would most likely have hydric soils. Hydric soil form under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper soil horizons. Most hydric soil exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days. Hydric soil indicators were not observed at any of the soil borings, this indicates the mapped intermittent stream does not have repeated periods of saturation or inundation of surface water and is similar in nature to other soil with in the agricultural field.

4.1.3 Hydrology

The mapped intermittent stream on the southwest side of the Site is generally associated with an area of topographical relief compared to the surrounding agricultural land, but the mapped intermittent stream indicated no defined bed, bank, or ordinary high water mark. Surface water flow through the area of topographical relief on the southwest side of the Site appeared to be infrequent and at most would only occur as a result of a major storm event (500-year event or greater).

On the north side of the Site, the intermittent stream becomes topographically flat and has no discernable definition as an intermittent stream or swale. The area is a dry agricultural cropland field in which surface water flow that may have been concentrated within the lower lying area on the southwest side of the Site likely disperses and infiltrates into the subsurface.

North of the dry agricultural cropland field, located north of the Site, is Lincoln County Road 0 where two roadside ditches were observed. Both appear to carry collected surface water east. A culvert was observed running under Lincoln County Road 0 that appeared to transport collected surface water from the southern roadside ditch to the northern roadside ditch and generally to the location of the mapped intermittent stream.

The area north of Lincoln County Road 0, in which the intermittent stream is mapped, again is generally topographically flat rangeland and has no discernable definition as an intermittent stream or swale until it approaches the unnamed intermittent creek approximately 1,200 feet north of the Site. Again, surface water flow that may be concentrated from the culvert under Lincoln County Road 0, likely disperses into the rangeland and infiltrates into the subsurface. No evidence of sustained surface water flow through a defined stream or swale is present.

The intermittent unnamed creek north of the Site, appeared to flow to the east. The intermittent unnamed creek was observed to have a discernable bed and bank. Flow within the intermittent unnamed creek appeared to be infrequent in duration and low in magnitude, if any.

5.0 WATERS OF THE UNITED STATES AND WATERS OF THE STATE DETERMINATION

Based on the field observation, LTE formulated a determination related to the mapped intermittent stream classification as WOTUS and/or WOTS.

5.1 Waters of the United States Determination

5.1.1 Navigable Waters

The mapped intermittent stream or the intermittent unnamed creek are not subject to Section 9 or 10 of the Rivers and Harbors Appropriations Act of 1899. They are also not waters currently being used, historically been used, or susceptible to being used in the future for commercial navigation. Nor do they flow to a designated waterbody subject to a Section 9 or 10 of the River and Harbors Appropriation Act of 1899.

5.1.2 Interstate Waters

The intermittent stream do not cross state borders.

5.1.3 Impoundments

No impoundments are associated with the intermittent stream and therefore, no impoundments are subject to jurisdiction.

5.1.4 Tributaries to the Traditionally Navigable Waters

The unnamed intermittent stream flowing east into the Site and north from the Site recognized by the USGS was walked during the site assessment. A clear area of topographical relief was observed south of the Site. However, following the topography of the area north where water would flow, if present, the drainage feature dissipated to nearly level ground. The flow of water, if present, would have to cross the perpendicular furrows created by the farming of the land over soils classified with a moderately low runoff potential when thoroughly wet. Bed, bank, or indicators of an ordinary high water mark were not observed up gradient of the pad location and the topography down gradient of the pad location did not have visible drainage features other than generally sloping north at a nearly negligible grade.

5.1.5 Waters Adjacent to Waters of the United States

Approximately 1,200 feet to the north of the Site, is an intermittent unnamed creek in which the USFWS National Wetlands Inventory identified riverine wetland with a classification code R4SBA described in detail in section 1.2.2, herein. The mapped intermittent stream is depicted by the USGS as being adjacent to this intermittent unnamed creek. However, although the intermittent stream is mapped adjacent to the intermittent unnamed creek, the connection to each other appears to be separated by topographically flat agricultural land that has no definable stream or swale. The intermittent stream additionally appears to have no ecological interconnection to the intermittent unnamed creek north of the Site.

5.1.6 Waters of the United States by Significant Nexus

Regionally, the natural surface water features adjacent to the mapped intermittent stream appear to only carry flow in major storm events, in particular the mapped intermittent stream, which due to its lack of discernable bed, bank or ordinary high water mark north of the Site has little to no effect on the chemical, physical, and biological integrity of the downstream WOTUS. Likewise, the lack of bed, bank, and ordinary high water mark north of the Site limits flow connection. The current use of the mapped intermittent stream is agricultural and provides little ecological connection to WOTUS or provide natural habitat. The mapped intermittent stream, because of its lack of connection to surrounding WOTUS, does not carry pollutants or organic carbon to WOTUS. The mapped intermittent stream does not store flood waters or transport life cycle stage to WOTUS.

5.1.7 Exclusions to the definition of “Waters of the United States”

Exclusions relevant to the mapped intermittent stream include “prior converted cropland”.

5.2 Waters of the State Determination

By definition WOTS are any and all surface and subsurface waters which are contained in or flow in or through this state.

6.0 CONCLUSION

6.1 WATERS OF THE UNITED STATES

Based on the above observations and evaluation of the mapped intermittent stream, LTE believes it is not a WOTUS. No evidence of relatively permanent water present for any portion of the year was observed, no wetlands were observed and it appears Significant Nexus determination factors are not present as well.

6.2 WATERS OF THE STATE

Rain and snow melt, which was present within intermittent stream during the evaluation, may collect and infiltrate into the shallow groundwater. The mapped intermittent stream is considered WOTS of Colorado.

7.0 RECOMMENDATIONS

Based on the above conclusions, LTE has developed the following recommendations:

- Although LTE believes the mapped intermittent stream, due to many factors, does not meet the detentions of a WOTUS, WOTUS by Significant Nexus is determined on case by case basis and subject to the “similarly situated” provision and need concurrence from the USACE. The process to obtain concurrence from the USACE can take up to several months and therefore could not be achieved in the timeline provided by the COGCC. LTE recommends that WFE obtain concurrence from the USACE regarding WOTUS determination. Based on USACE determination, there is the potential that an after the fact Nationwide Permit may need to be obtained.
- Since the mapped intermittent stream is a WOTS, mitigation is needed once the well has been completed or plugged and abandoned. The mitigation should include the following:
 - All waste from within the pit should be removed of and disposed of properly per applicable COGCC rules;
 - The areas of fill material within the location of the mapped intermittent stream should be removed;
 - The areas to be reclaimed should be regraded to match historical contours;
 - The areas to be reclaimed should be either seeded and stabilized per the field wide Stormwater Management Plan or returned to the landowner to resume agricultural activities.

8.0 ACTION PLAN

8.1 CURRENT STAGE OF CONSTRUCTION

The construction activities at the Site have been completed. Equipment necessary for the construction of the location is currently being removed from the site. Reclamation of the site is the next step after the production well is completed or plugged and abandoned.

8.2 RECLAMATION ACTIONS

8.2.1 Colorado Department of Public Health and Environment

The Colorado Department of Public Health and Environment – Water Quality Control Division (CDPHE-WQCD) COR030000 Permit is required to allow for stormwater discharges associated with construction activities. The site is covered under an existing field-wide permit (COR039788). Compliance with the permit is required at all times through the construction and interim defined stages for the Site.

8.2.2 Colorado Oil and Gas Conservation Commission

8.2.2.1 COGCC Rule 902.g.

Per COGCC Rule 902.g, the unlined pit at the Site should not be constructed in areas where pathways for communication with ground water or surface water are likely to exist. Pit contents will be removed and be disposed of at a properly licensed disposal facility or land applied as a beneficial amendment at a permitted land application site per COGCC Rule 907.a.(3) and 907.d.(3).B.

8.2.2.2 COGCC Rule 905. d.

Once the pit contents have been removed, the unlined drilling pit will be closed and reclaimed in accordance with the COGCC 1000 Series rules and confirmation soil samples will be collected to ensure that soils beneath the pit are compliant with COGCC Table 910-1 concentration levels.

8.2.2.3 COGCC 1000 Series Rules

Operators are required to meet reclamation performance standards. Successful compliance with reclamation performance standards is determined by the COGCC 1000 Series Rules. Special attention should be given to the following:

- All disturbed areas affected by drilling or subsequent operations shall be reclaimed as early as possible and as nearly as practicable to their original condition. Specifically, the re-contouring, shall include the drainage south of the pad flowing to the east side of the pad.
- Alleviate soil compaction as required by COGCC 1003.c. Rip compacted soil located along the length of the access road and the entire site to a minimum depth of 18 inches, unless bedrock is encountered at a shallower depth. Ripping shall occur perpendicular to slopes or in-line with the existing furrows of the crop land.



- Conduct weed mitigation as required by the rules with special consideration of the crops. It is recommended to contact the landowner regarding appropriate weed control in the vicinity of the crop.
- Monitor the location as required by the Stormwater Discharge Permit and for successful reclamation.
- Maintenance should take place immediately regarding non-compliance with the Stormwater Discharge Permit. If reclamation objectives are not met, subsequent treatments and actions should be conducted until the objectives are met.



9.0 REFERENCES

Colorado Department of Public Health and Environment. 2015. WQCC regulations and policies, and water quality statutes. <https://www.colorado.gov/pacific/cdphe/wqcc-regulations-and-policies-and-water-quality-statutes>

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FIGURES

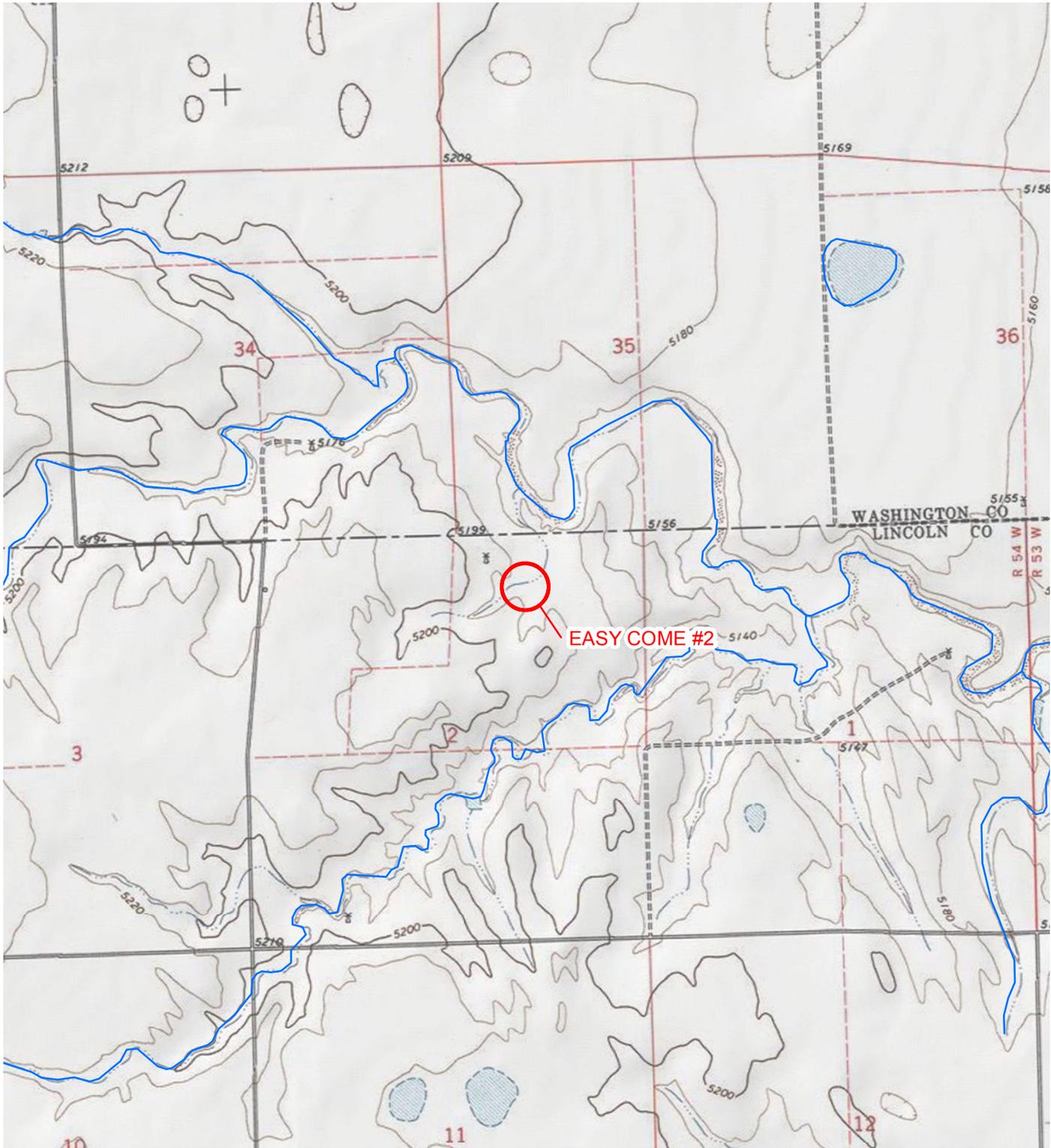


IMAGE COURTESY OF ESRI/USGS

LEGEND

-  SITE LOCATION
-  SURFACE WATER FEATURE

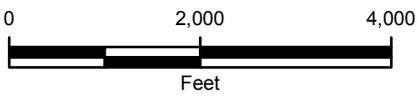
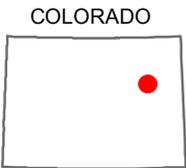
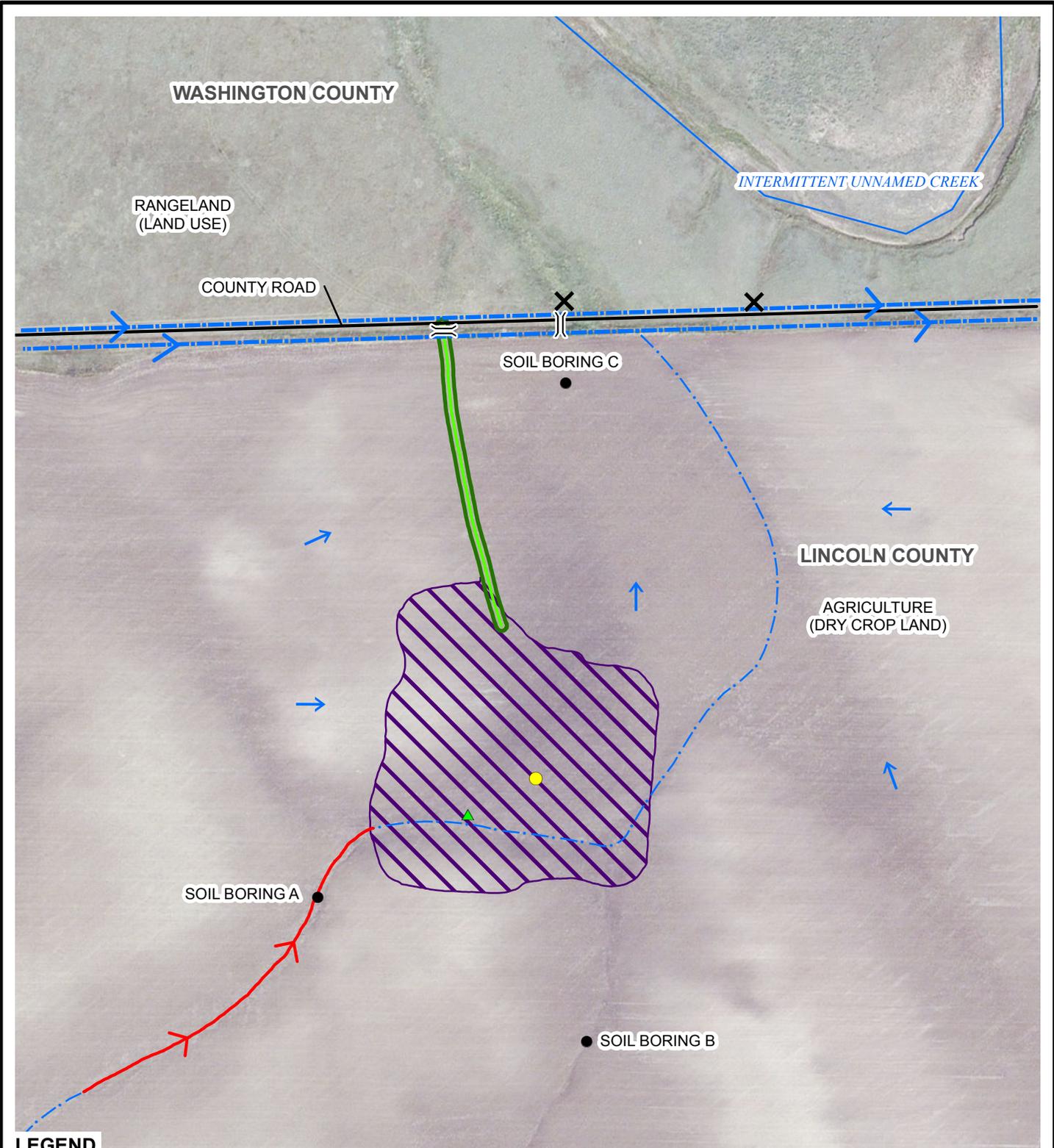


FIGURE 1
SITE LOCATION MAP
EASY COME #2
LOT 2 SEC 2-T6S-R54W
LINCOLN COUNTY, COLORADO
WIEPKING-FULLERTON ENERGY, L.L.C.





LEGEND

-)) CULVERT AND LOW POINT A
- ↑ SURFACE FLOW DIRECTION
- ✕ LOW POINT
- SOIL BORE LOCATION
- ▲ PIT LOCATION
- EASY COME #2
- ACCESS ROAD, WIDTH 15'
- COUNTY BOUNDARY/ROAD
- ROADSIDE DITCH
- DRAINAGE FEATURE A
- USGS MAPPED INTERMITTENT STREAM
- ▨ DISTURBED AREA

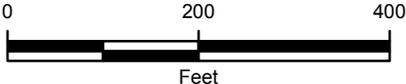


IMAGE COURTESY OF ESRI

**FIGURE 2
SITE MAP
EASY COME #2
LOT 2 SEC 2-T6S-R54W
LINCOLN COUNTY, COLORADO
WIEPKING-FULLERTON ENERGY, L.L.C.**



APPENDIX A
PHOTOGRAPHICAL LOG





Location Sign



Looking Northeast toward Southwest corner of pad



Looking Southwest from the Southwest corner of pad



Looking South from West edge of pad

Site Photographs	Location: Easy Come #2	Photographs taken: 12/22/2015
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Looking North toward Southwest corner of pad



Looking West from Southeast corner of pad



Looking North from Southeast corner of pad



Looking South from Northeast corner of pad

Site Photographs

Location: Easy Come #2

Photographs taken:
12/22/2015



Looking South from South edge of County Road 0 toward pad



Looking East from West side of access road intersection



Looking West from Eastern low point at County Road 0



Looking North from north side of access road

Site Photographs

Location: Easy Come #2

Photographs taken:
12/22/2015



Looking South at pad from topographical relief North of County Road 0



Looking East from topographical relief toward creek



Looking Southeast from topographical relief downstream creek

Site Photographs

Location: Easy Come #2

Photographs taken:
12/22/2015