



LARAMIE COUNTY PLANNING & DEVELOPMENT DEPARTMENT

Planning • Building

MEMORANDUM

TO: Laramie County Board of Commissioners

FROM: Marissa Pomerleau, Planning Technician

DATE: June 18th, 2019

TITLE: Review and action on a Subdivision Permit and Plat for Willadsen Estates, 2nd Filing, located in a portion of the E1/2 E1/2, Sec. 19, and a portion of the W1/2 W1/2, Sec. 20, T.13N., R.69W., of the 6th P.M., Laramie County, WY.

EXECUTIVE SUMMARY

Steil Surveying Services LLC, on behalf of Aspen Holdings Inc., c/o Victoria Ganskow, has submitted a Subdivision Permit and Plat application for Willadsen Estates, 2nd Filing, located east of Jaymers Lane and Cougar Lane. The application has been submitted for the purpose of subdividing the property into 14 single family residential tracts and 1 tract to be designated as an easement for open space, utilities, and drainage.

BACKGROUND

The property currently is undeveloped, and is assessed vacant residential. The gross acreages of the proposed tracts range from 7.24 acres to 9.03 acres, meeting the minimum density requirements for groundwater recharge based on the AMEC Memo per Section 2-1-103(c)(i) of the Laramie County Land Use Regulations. The surrounding area consists of rural residential and agricultural properties of varying acreage. The proposed subdivision is bordered to the west by Willadsen Estates, containing thirty-six (36) single-family residential tracts with an average lot size of 9.5 acres (net). To the north are three (3) 35-40 acre single-family residential tracts and to the south and east is the Belvoir Ranch property which is owned by the City of Cheyenne.

Pertinent Regulations

Section 2-1-101 (a-e) of the Laramie County Land Use Regulations governing the criteria for a subdivision permit and plat.

DISCUSSION

The Laramie County Comprehensive Plan identifies the area as Ag and Range Land (AGR). Areas in this category are generally located on the outlying portions of the county with public utilities being absent and limited road access. This land use category discourages freestanding residential uses not associated with agricultural purposes, with agricultural, livestock, and associated residences as the primary uses. Although this proposed subdivision would create freestanding single-family residences, the Comprehensive Plan does support expansion of existing development identified as rural centers. This area is specifically discussed upon, stating: ... *“the Harriman Road area in Southwestern Laramie County may be appropriate for additional residential uses and/or neighborhood services, keeping in mind that access to water may be difficult and expensive.”*

This proposed subdivision is bordering Belvoir Ranch, which the Laramie County Comprehensive Plan identifies as a Recreational Hub (REC). Fairgrounds, public parks and facilities, multi-use trails, and learning centers are all considered appropriate uses in this area. Recreational Hubs encourage investment through tourism, while also providing a service to Laramie County residents.

This proposed plat would create 15 individual tracts for which Community Facility Fees will be due prior to recordation. Water and sewage disposal shall be provided by individual well and septic systems. With an average lot size of 8.10 acres, the minimum requirements for septic system permits are met.

This property lies outside of the PlanCheyenne boundary and the Zoned Boundary, and therefore cannot be impacted by these guidelines or regulations.

On October 25th, this Planning Commission held a public hearing for the Preliminary Development Plan for this project. The PDP was recommended for approval with four recommendations:

1. *Evidence of submittal of the Chapter 23 Study to DEQ shall be provided with the subdivision permit & plat application, with proof of DEQ approval required prior to plat recordation.*
2. *A letter from a certified engineer stating that no additional drainage easements are required on the plat shall be provided with the subdivision permit and plat application.*
3. *The plat shall indicate that any new ROW shall be dedicated to the public and privately maintained.*
4. *Any reference to the Vermont Agency of Transportation shall be removed from all documents included in the subdivision permit and plat application submittal.*
5. *The applicant shall specify (and show on the plat) the road names for the extensions off of Jaymers Lane and Cougar Lane to be respectively the same as they extend east from the plat boundary and until they change direction towards the South and North respectively. The North/South portion of the proposed ROW shall be a distinctly different road name. No “loops” or “circles” shall be allowed.*

All of these recommendations have been met with a Chapter 23 Study Report and a certified engineer letter, copies of which are attached. The proposed connections of Jaymers Lane and Cougar Lane, along with Corbin James Trail, are to be designated as public rights-of-way, and privately maintained by the homeowners. Additional drainage easements have been added to the plat, connecting to the existing drainage easements shown on the plat for Willadsen Estates.

A letter requesting waiver of traffic and drainage studies was submitted, a copy of which is attached. The County Engineer has concurred with this request based on the justification provided in the waiver request letter. Agency comments pertained to proposed drainage easements and clerical corrections to the Plat.

Public notice was provided and neighbor notice letters were sent by certified mail per Section 1-2-104 of the Laramie County Land Use Regulations. Staff received no comments from the public nor any adjacent landowners.

A public hearing of this application was held on May 23rd, 2019 by the Laramie County Planning Commission. No public comment was received. The Planning Commission voted 5-0 to recommend approval of the application to the Board with the following condition:

1. All remaining County Engineer and Public Works comments shall be addressed prior to the Board of County Commissioners public hearing on June 18th, 2019.

A revised Plat was submitted on June 7th, 2019 addressing all County Engineer and Public Works comments.

Staff finds that this application is in conformance with the plans and policies of Laramie County. The attached resolution shall serve as the subdivision permit upon approval by the Board.

RECOMMENDATION and FINDINGS

Based on evidence provided, staff recommends the Board find that:

- a. This application meets the criteria for a subdivision permit and plat pursuant to section 2-1-101 (a-e) of the Laramie County Land Use Regulations.

and that the Board approve the Subdivision Permit and Plat for Willadsen Estates, 2nd Filing with no conditions.

PROPOSED MOTION

I move to approve the Subdivision Permit and Plat for Willadsen Estates, 2nd Filing and adopt the findings of fact a of the staff report.

ATTACHMENTS

- Attachment 1: Location Map**
- Attachment 2: Aerial Map**
- Attachment 3: Comprehensive Plan Map**
- Attachment 4: Chapter 23 Study Report**
- Attachment 5: Drainage Easement Requirement Letter – June 3rd, 2019**
- Attachment 6: Applicant Traffic/Drainage Study Waiver Request**
- Attachment 7: Agency Comments Report**
- Attachment 8: SEO Comments Letter**
- Attachment 9: Plat – Revised June 7th, 2019**
- Attachment 10: Resolution**

Laramie County, Wyoming



Willadsen Estates
2nd Filing
Subdivision Permit
& Plat

PZ-19-00081

Location Map

Legend

- Property Lines
- Subject Property

April 2019



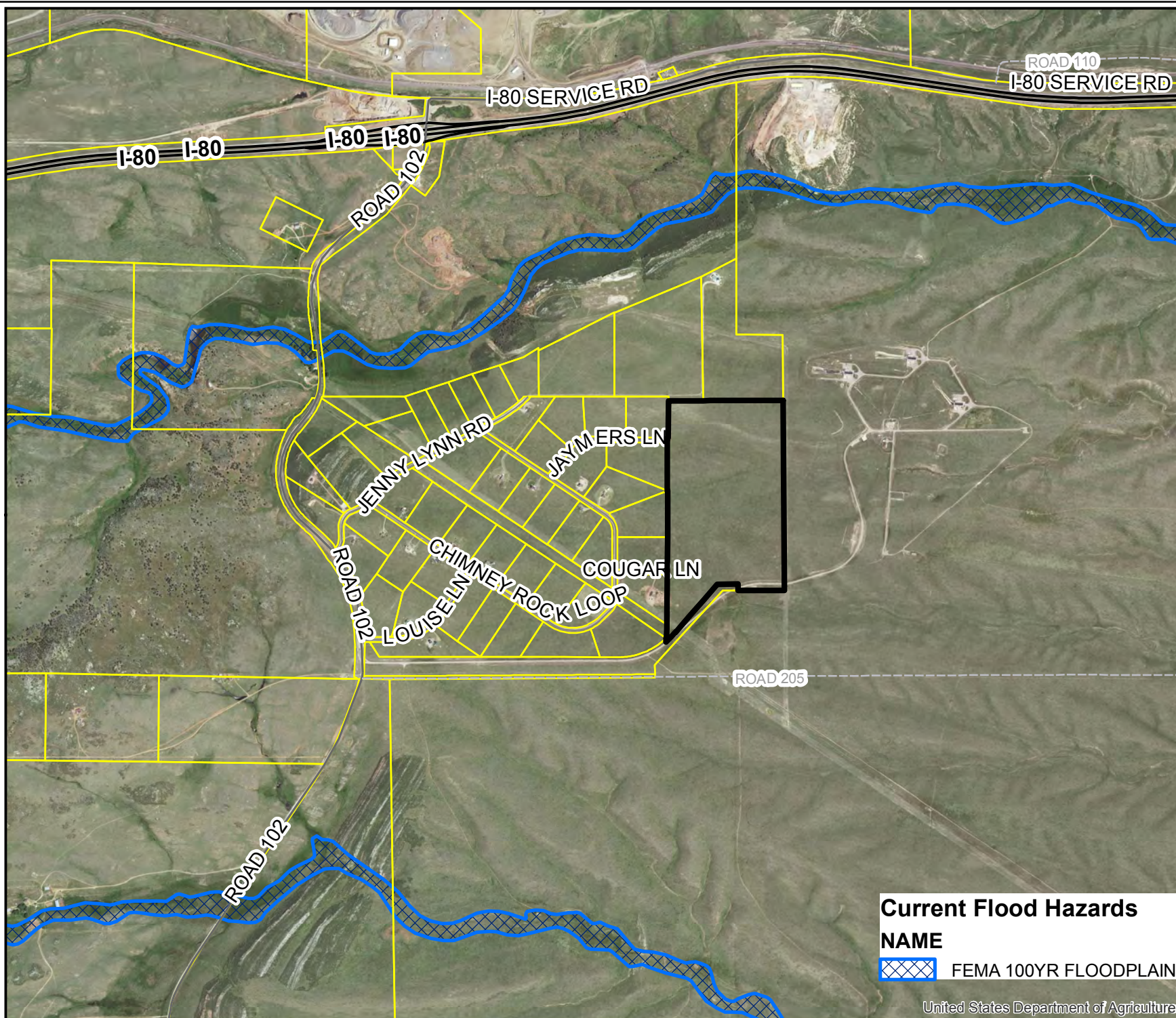
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Feet

Current Flood Hazards

NAME

FEMA 100YR FLOODPLAIN

United States Department of Agriculture



This map is made possible through the Cheyenne and Laramie County Cooperative GIS Program (CLCCGIS). The data contained herein was collected for its use and is for display and planning purposes only. The CLCCGIS will not be held liable as to the validity, correctness, accuracy, completeness, and/or reliability of the data. The CLCCGIS furthermore assumes no liability associated with the use or misuse of this information.

Laramie County, Wyoming






Willadsen Estates
2nd Filing
Subdivision Permit
& Plat

PZ-19-00081

Aerial Map

Legend

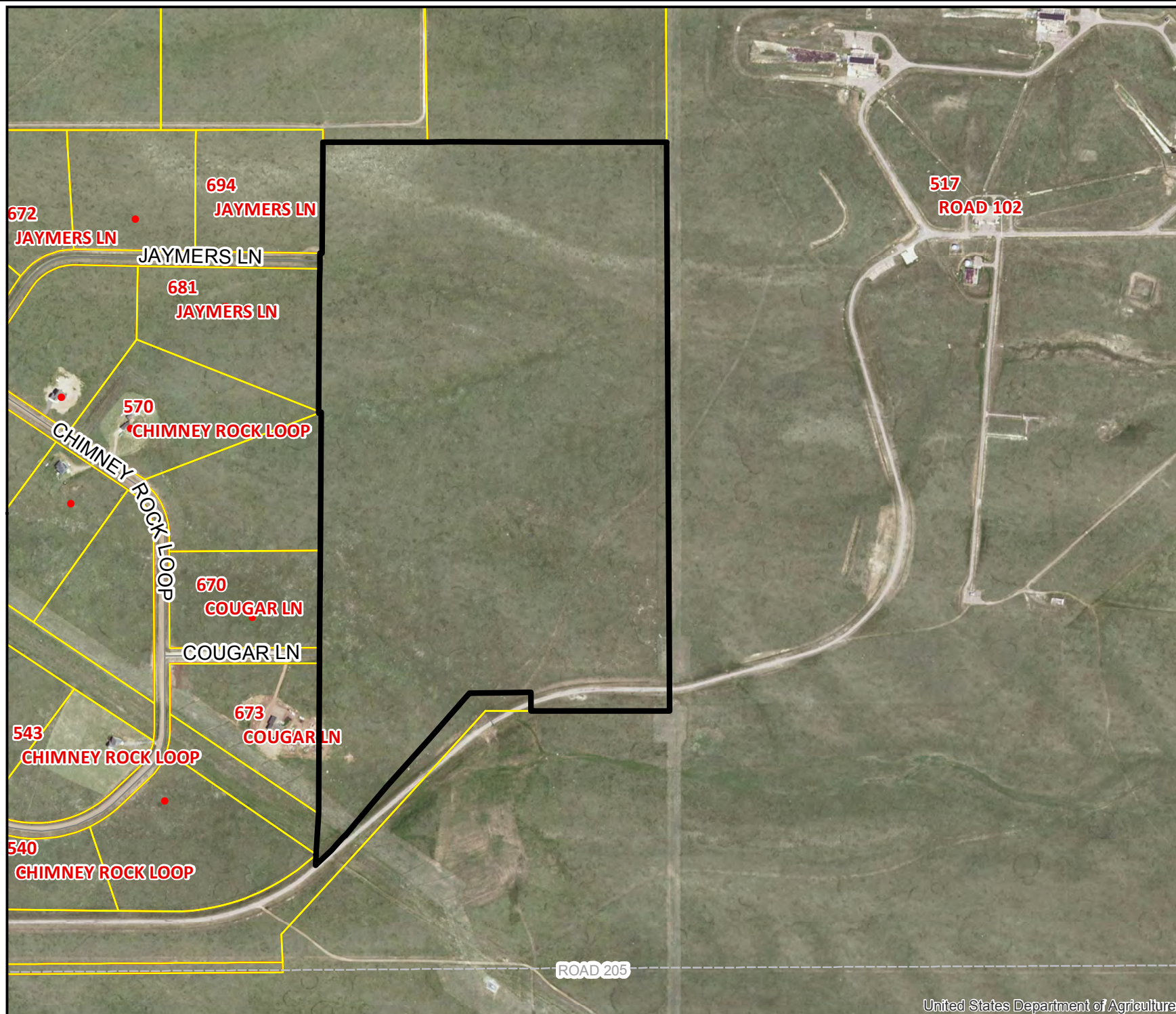
-  Property Lines
-  Addresses
-  Subject Property

April 2019



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United States Department of Agriculture



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Laramie County, Wyoming





**Willadsen Estates
2nd Filing
Subdivision Permit
& Plat**

PZ-19-00081



**Comprehensive Plan
Map**

Legend

-  Property Lines
-  Subject Property

Future Land Use Overlay Districts

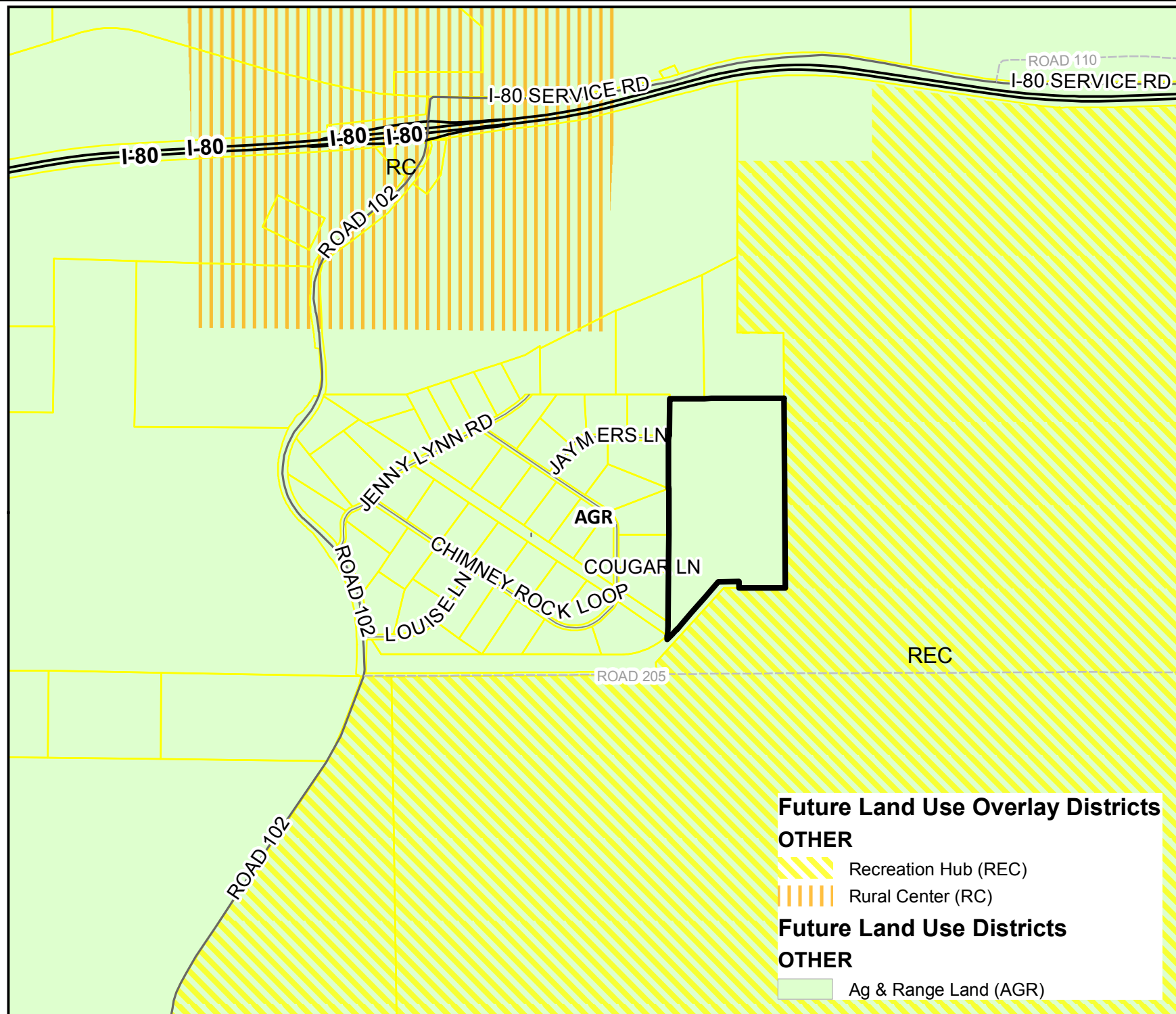
OTHER

-  Recreation Hub (REC)
-  Rural Center (RC)

Future Land Use Districts

OTHER

-  Ag & Range Land (AGR)



April 2019



0 1,150 2,300
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WILLADSEN ESTATES 2ND FILING SUBDIVISION

LARAMIE COUNTY, WYOMING

**REPORT FOR
MINIMUM STANDARDS FOR
SUBDIVISION APPLICATIONS
DEQ-WQD CHAPTER 23**

MARCH 2019

PREPARED FOR:

ASPEN HOLDINGS, INC.

SUBMITTED TO:

**WYOMING DEPARTMENT OF ENVIRONMENTAL
QUALITY
WATER QUALITY DIVISION**

PREPARED BY:

**Weston Engineering, Inc.
1050 N 3rd St, Suite E
Laramie, WY 82072**

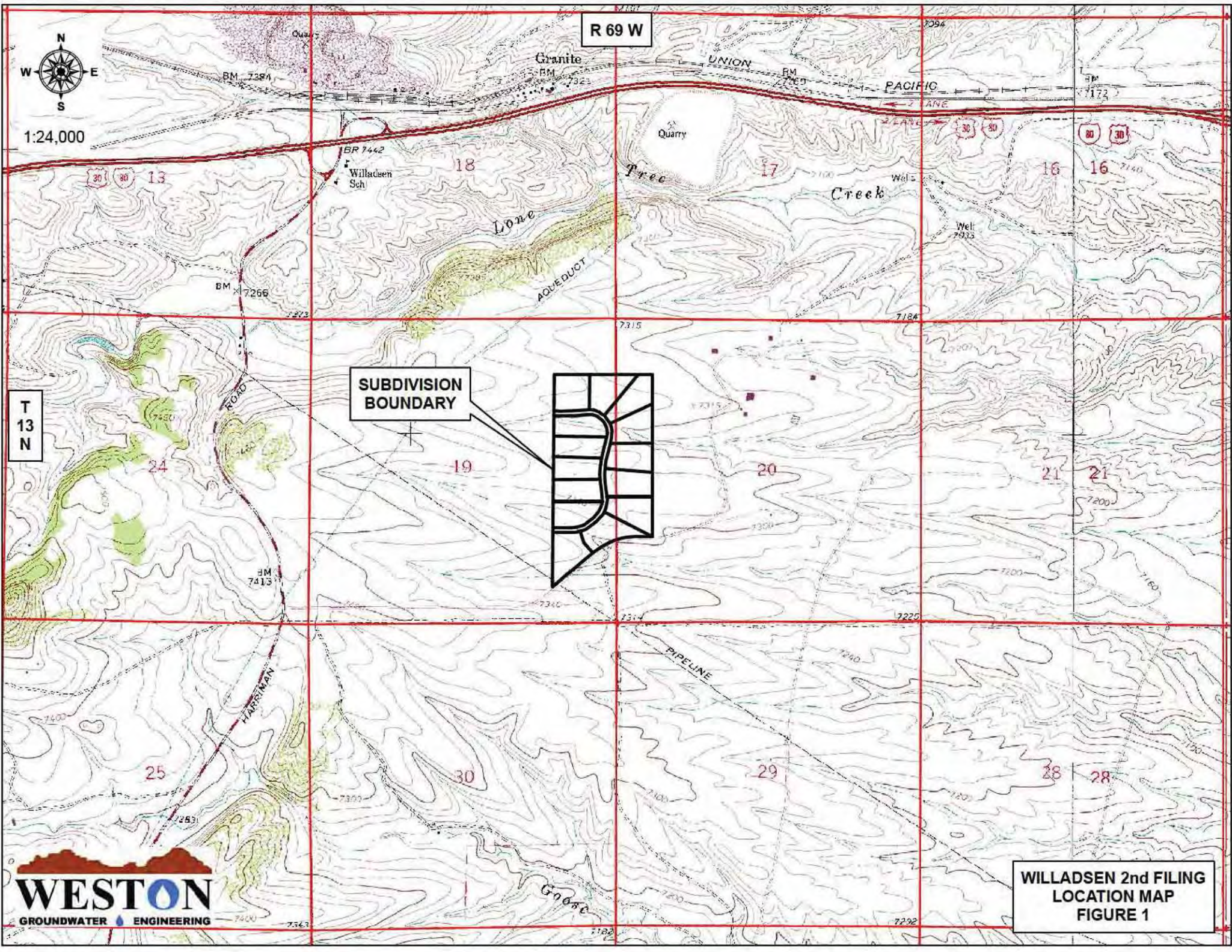


INTRODUCTION

This document was prepared and submitted on behalf of Aspen Holdings, Inc., to aid in obtaining approval of the Department of Environmental Quality – Water Quality Division (DEQ) and the Laramie County Planning and Zoning Commission for the 14 lot, 121.48-acre Willadsen Estates 2nd Filing Subdivision. The subdivision is located east of the Willadsen Estates 1st Filing Subdivision and is situated approximately 17 miles west of Cheyenne, Wyoming. This document is formatted to facilitate review of the DEQ following the requirements of DEQ rules and regulations found in Chapters 8, 12, 23, and 25.

Figure 1 provides the topography and major geographic features in the vicinity of the proposed subdivision and all areas within one mile of the development boundaries. The base map is adapted from the USGS Granite, Wyoming (1962, photo revised 1978) 1:24,000 topographic quadrangle.

The Willadsen Estates 2nd Filing Subdivision is located in Laramie County within the E 1/2, E 1/2 of Section 19 and the W 1/2, W 1/2 of Section 20, Township 13 North, Range 69 West. The proposed subdivision consists of fourteen undeveloped lots. These lots will be single family residential and will use individual on-site septic systems and water supply wells.



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CHAPTER 23 - SECTION 7**(a)(i) Type of Sewage System**

Disposal of domestic sewage will be made with individual on-lot septic systems with soil absorption systems. Individual lot owners will be responsible for obtaining permits to install the disposal systems and hiring experienced installers.

(a)(ii-iii) Adequacy of Sewer System

Based on the general layout of this development, including the large lot sizes and subsurface conditions, individual on-lot septic disposal is adequate for this development. The remainder of this section of the report addresses the details of the sewer system assessment and compliance with applicable rules and regulations.

(b)(i-v) New Central Sewage System

This section is not applicable to the Willadsen Estates 2nd Filing Subdivision because individual on-site septic systems will be used for wastewater disposal for the 14 undeveloped lots.

(c)(i-iii) Connection to Existing Central Sewage System

This section is not applicable to the Willadsen Estates 2nd Filing Subdivision because on-site septic systems will be used for wastewater disposal for the 14 undeveloped lots.

(d) On-Lot Sewer System**(d)(i) Groundwater and Impermeable Soils Separation**

The Natural Resource Conservation Service (NRCS) has mapped the soils in the vicinity of the Willadsen Estates 2nd Filing Subdivision. The soils report prepared by the NRCS is provided in Appendix A. As shown in Figure 2, the soil type 134 – *Evanston-Ipson* association covers approximately 72 percent of the property, and soil type 138, the *Ipson-Evanston* complex, underlies the remainder of the property.

The *Evanston-Ipson* association soil type is described as loam, sandy loam, gravelly sandy clay loam, and very gravelly loam and is classified as well drained. According to the soils report, the depth to bedrock and to the water table beneath this unit is greater than 80 inches. This unit is rated “somewhat limited” with respect to suitability for septic system absorption fields due to the possibility of excessive slope. The capacity of the most limiting layer to transmit water is moderately high to high at 0.60 to 2.00 inches per hour.

The *Ipson-Evanston* complex is described as gravelly loam, very gravelly loam, sandy clay loam, very gravelly sandy loam, loam, and clay loam and is well drained. According to the soils report, the depth to bedrock and to the water table beneath this unit is greater than 80 inches. This unit is rated “very limited” with respect to suitability for septic system absorption fields due to the likelihood of excessive slope. The capacity of the most limiting layer to transmit water is moderately high to high at 0.60 to 2.00 inches per hour.

On February 13, 2019, a backhoe was used to dig two 10-foot deep test pits in tracts 41 and 45 in the *Evanston-Ipson* association soil type and in the *Ipson-Evanston* complex soil type in the Willadsen Estates 2nd Filing Subdivision. The locations of the pits are shown in Figure 2. Descriptions of the test pit soils by WESTON personnel are provided in Tables 1 and 2. No mottling, impermeable materials, groundwater, or bedrock were observed in either of the test pits.



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TEST PIT
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WILLADSEN 2nd FILING
SOILS MAP
FIGURE 2

**TABLE 1
TEST PIT SOIL DESCRIPTIONS
TRACT #41 - SOIL TYPE 134**

Depth (feet)	Soil Description
0 – 1.0	Pale reddish-brown, top soil with roots and angular granite cobbles
1.0 – 6.0	Pale yellowish-brown sand gravel loam
6.0 – 10.0	Dark yellowish-brown sandy gravel cobble loam, with large rocks to 12-inches diameter, thin moderately cemented bed at 9 feet
No mottled soil, groundwater, or bedrock encountered	

**TABLE 2
TEST PIT SOIL DESCRIPTIONS
TRACT #45 - SOIL TYPE 138**

Depth (feet)	Soil Description
0 – 2.0	Pale reddish-brown, top soil, with roots and angular granite cobbles up to 6 inches in diameter
2.0 – 5.0	Dark yellowish-brown coarse clay gravel loam, with minor cemented, porous interval at 4.0 feet
5.0 – 10.0	Dark yellowish-brown sand gravel loam
No mottled soil, groundwater, or bedrock encountered	

(d)(ii) Soil Percolation Tests

Per DEQ Rules and Regulations Chapter 23, Section 7(d)(ii)(B), percolation tests are required for every three lots or for each soil type as mapped by the NRCS, whichever requires the least number of percolation tests. Two sets of percolation tests were conducted to meet the requirement of one set for each soil type. Percolation testing was completed on February 14, 2019. The six percolation test holes were dug to depths from 36 to 37 inches. The percolation test holes were excavated adjacent to the test pit sites and were spaced 30 feet apart at each location.

The percolation test holes were all approximately three feet deep corresponding to the approximate bottom of absorption fields. The percolation tests were performed in accordance with procedures set forth in DEQ Rules and Regulations Chapter 25, Appendix A. The holes were filled with at least 24 inches of water and kept wet for four hours. After allowing the test holes to soak overnight, the holes were refilled twice, and the percolation tests were performed.

The percolation tests were run on the bottom 18 inches of each hole. Fluid level was measured at ten minute intervals. The percolation test field sheets are provided in Appendix B.

The percolation rates for the tests conducted in soil types 134 in Tract 41 are summarized in Table 3, and the percolation rates conducted in soil type 138 in Tract 45 are summarized in Table 4. The percolation rates ranged from 10.0 to 26.67 minutes per inch, which is within the acceptable range of 5 to 60 minutes per inch per Chapter 25, Section 7 (d). Therefore, the lots on these soil types are suitable for constructing individual septic systems. Because the undeveloped lot sizes are all greater than six acres, there is ample space for locating a replacement leach field in each lot.

**TABLE 3
SUMMARY OF PERCOLATION TEST RESULTS
PIT #1 SITE - SOIL TYPE 134**

Test Hole Number	Elapsed Time (minutes)	Final Drop in Water Level (inches)	Percolation Rate (min/inch)	Hydraulic Conductivity (ft/day)
1-1	10	0.750	13.33	9.0
1-2	10	1.000	10.00	12
1-3	10	0.375	26.67	4.5

**TABLE 4
SUMMARY OF PERCOLATION TEST RESULTS
PIT #2 SITE - SOIL TYPE 138**

Test Hole Number	Elapsed Time (minutes)	Final Drop in Water Level (inches)	Percolation Rate (min/inch)	Hydraulic Conductivity (ft/day)
2-1	10	0.875	11.43	10
2-2	10	0.750	13.33	9.0
2-3	10	0.375	26.67	4.5

(d)(iii) Slopes of Lots

As shown on Figure 1, the topography of the Willadsen Estates 2nd Filing Subdivision lots slopes generally to the east. Ephemeral drainages transect the property and drain to the east. The ground slope is variable due to the eroded nature of the property. Care must be taken to site soil absorption systems such that the slope requirements of DEQ Rules and Regulations Chapter 25 are met, but the lots have sufficiently flat areas to locate absorption fields and replacement fields.

(d)(iv) USGS Map

Figure 1 is a 1:24,000 scale base map showing the watersheds, drainages, and water bodies for a nine-square mile area around the Willadsen Estates 2nd Filing Subdivision. The ephemeral drainages within the Willadsen Estates 2nd Filing Subdivision drain eastward into Lone Tree Creek. As shown in Figure 1, unnamed ephemeral drainages transect the subdivision resulting in an eroded topography.

(d)(v) Replacement Absorption System Area

Based on the information presented above, it is anticipated that the maximum square footage of an absorption field in both soil types 134 and 138 will be based on the slowest percolation rate of 26.67 minutes per inch measured in Tracts 41 and 45. The estimated size of the absorption field is calculated by dividing the estimated wastewater volume for a single-family three-bedroom dwelling, 390 gallons per day, by the soil loading rate for the slowest percolation rate for 26 to 27 minutes per inch (0.41 gpd/ft², DEQ Chapter 25, Table 5). This calculation results in an absorption field size of 952 square feet. Replacement field of these sizes can easily be sited within the undeveloped lots while maintaining all DEQ required setbacks.

If any proposed individual sewage disposal system exceeds 2,000 gpd, then the system will be required to be permitted under the DEQ Chapter 27 UIC Program's Water Quality Rules and Regulations. Additionally, any disposal of waste fluids other than domestic-type waste fluids will need to be reviewed by Laramie County and DEQ.

(d)(vi & vi A) Population-Wastewater Type

There are 14 undeveloped, single-family, residential lots that comprise the Willadsen Estates 2nd Filing Subdivision. According to the 2010 census data, the average number of people per household in Laramie County is 2.40 (U.S. Census Bureau). Based on this household of 2.40 people, the maximum residential population of the development at build-out is 34 persons. It is anticipated that 14 new the houses will have three bedrooms each. Using DEQ Chapter 25 Table 1, the total estimated sewage flow per residential lot would be 390 gallons per day. Only domestic wastewater will be generated at the proposed development.

If any proposed individual sewage disposal system exceeds 2,000 gpd, the system will be required to be permitted under the DEQ Chapter 16 UIC Program's Water Quality Rules and Regulations.

In the event that an enhanced treatment system is required within the subdivision, DEQ Chapter 23, Section 7(d)(viii)(E) requires that applications must contain a system design, developed and certified by a Wyoming licensed engineer, documenting the system's ability to achieve the required treatment standards and include the following:

- Plan view and cross section view of a proto-type enhanced wastewater treatment system;
- Enhanced treatment system performance standards for the proposed system;
- Number of bedrooms or average daily volumes of wastewater flow; and
- Operation and maintenance requirements necessary to ensure optimum system performance.



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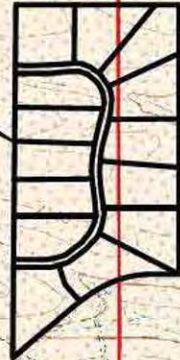
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WILLADSEN 2nd FILING
GEOLOGIC MAP
FIGURE 3

(d)(vii) Groundwater and Surface Water Protection**(d)(vii)(A)(I-III) Geology**

The Willadsen Estates 2nd Filing Subdivision is located along the eastern flank of the Laramie Range. As shown on the geologic map provided in Figure 3, the subdivision is underlain by the Ogallala Formation of Miocene age. The stratigraphic sequence beneath the Willadsen Estates 2nd Filing Subdivision is described as follows.

The Miocene Ogallala Formation consists semi-consolidated to unconsolidated sand and gravel with occasional beds of siltstone and clay (Libra, Collentine, and Feathers, 1981) derived primarily from granitic rocks. The Ogallala Formation has a maximum thickness of 330 feet in the region (Ver Ploeg and Boyd, 2007) but is much thinner beneath the Willadsen Estates 2nd Filing Subdivision and is unsaturated beneath the Willadsen Estates 2nd Filing Subdivision.

The Oligocene White River Formation underlies the Ogallala Formation. The White River Formation consists of granitic conglomerate and arkose and is weakly consolidated in the vicinity of the Willadsen Estates 2nd Filing Subdivision. A clay layer described in driller's logs may mark the top of the White River Formation in this area. This unit is up to 500 feet thick in the region (Ver Ploeg and Boyd, 2007).

The Paleozoic Casper Formation underlies the White River Formation and is exposed along the western part of the study area. Wells in the Willadsen Estates 1st Filing Subdivision withdraw water from the Casper Formation. The Casper Formation is comprised of quartzitic to arkosic sandstone interbedded with limestone and dolomite beds. The Casper Formation is underlain by sandstone and arkose comprising the Paleozoic Fountain Formation. The thickness of these units beneath the study area is uncertain, but the combined apparent thickness of the Casper and Fountain Formations is 961 feet in the Lone Tree Creek #1 monitor well (U.W. 168921) located in section 17 Township 13 North, Range 69 West. The Fountain Formation overlies Precambrian igneous and metamorphic rocks (Houston and Marlatt, 1997).

The mapping of Ver Ploeg and Boyd (2007) indicates that the Ogallala Formation is nearly flat-lying and that there are no faults exposed within the nine-square mile study area. The Casper Formation and Precambrian rocks are exposed west of the Willadsen Estates 2nd Filing Subdivision, as shown on Figure 3. The Paleozoic Formations exposed west of the subdivision have been deformed by uplift of the Laramie Range during the Laramide Orogeny.

(d)(vii)(B)(I-IV) Groundwater

The Buffalo #12 Well (U.W. Permit No. 205407) was constructed by All Around Drilling on September 23, 2016. The well was drilled through the Ogallala Formation and completed in the White River Formation.

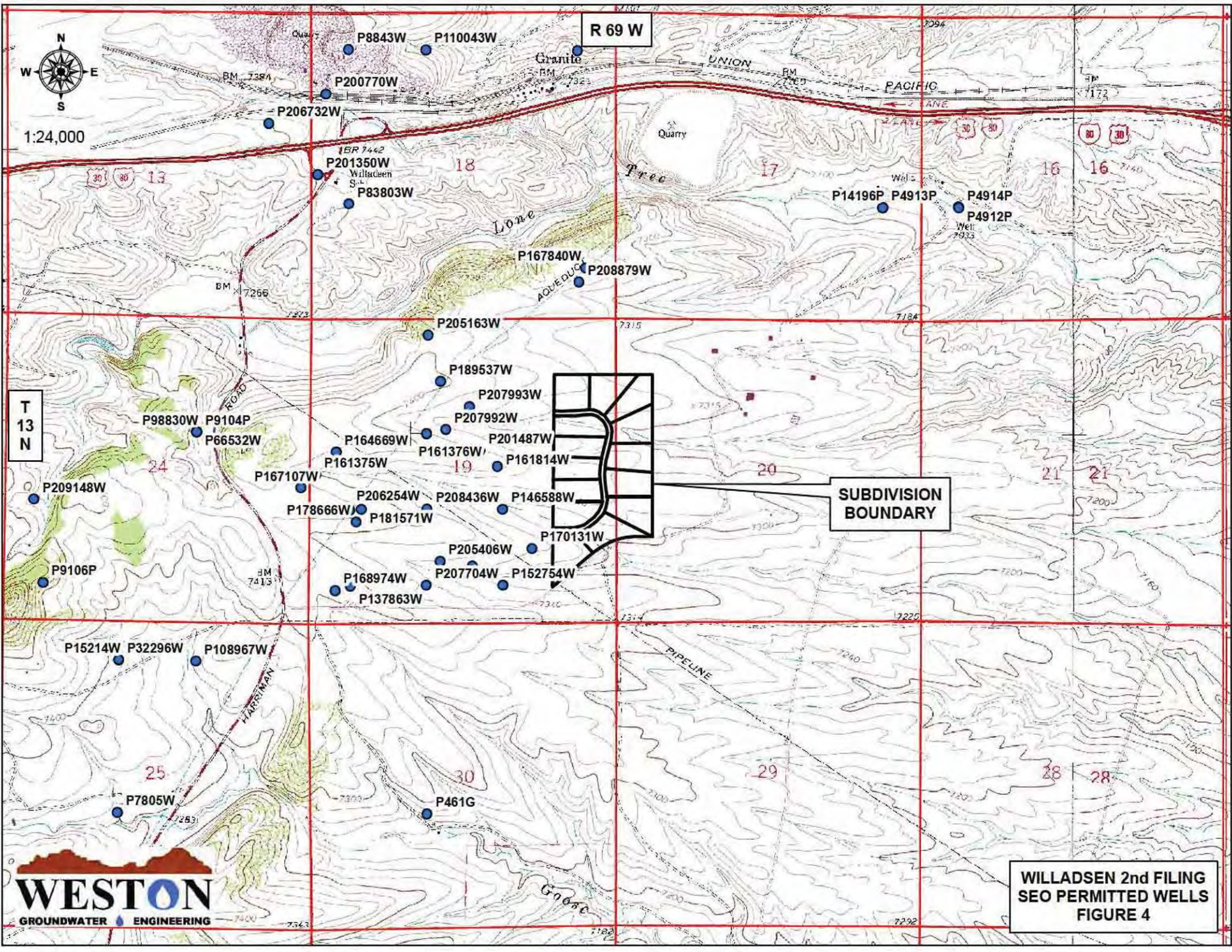
Details of the Buffalo #12 Well are summarized in Table 5, and copies of the Permit to Appropriate Ground Water and the Statement of Completion for the well are provided in Appendix C. The log of the well included in the Statement of Completion for Buffalo #12 Well indicates that water is produced at depths from 160 to 220 feet.

TABLE 5
BUFFALO #12 WELL SUMMARY

State Engineer Permit No.:	U.W. 205407
Priority Date:	April 18, 2016
Permitted Yield:	15 gpm
Location:	NW NE Section 19, Township 13 North, Range 69 West
Total Depth:	220 feet
Formation and Lithology:	Ogallala and White River Formations 0 to 120 feet: alluvial material derived from granite 120 -160 feet: clay and siltstone 160 – 220 feet: gravel and siltstone
Hole Diameter:	8 3/4-inches
Casing:	+2 to 220 feet: 5-inch PVC casing
Producing Interval:	180 to 200 feet
Sanitary Seal	0 to 180 feet: bentonite chips
Gravel Pack:	180 - 220 feet: 3/8-inch pea gravel
Static Water Level:	80 feet below ground level (September 23, 2016)
Completion Date:	September 23, 2016
Pump Information:	1.5 HP Sta-Rite submersible pump set at a depth of 180 feet
Drilling Contractor:	All Around Drilling, LLC (Hulett, Wyoming)

Besides the Buffalo #12 Well, there are a total of 49 other permitted wells in the nine-square mile area surrounding the subdivision. There are no permitted wells located within the subdivision. The locations of the wells along with permitted wells in the adjacent sections are shown on Figure 4. The wells located in Section 19 generally are completed in the Casper and/or Fountain Formations. Shallower wells tap the High Plains Aquifer comprised of saturated parts of the Ogallala and White River Formations. Wells completed in Section 19 range in depth from 191 to 850 feet and reportedly yield up to 25 gpm. According to driller's logs, producing intervals typically occur below an extensive clay layer.

The water levels in three wells located west of the Willadsen Estates 2nd Filing Subdivision completed in the White River Formation were used to determine the hydraulic gradient of the White River Aquifer in the vicinity of the subdivision. The location of these wells is shown in Figure 5. These wells are: Frontier +2 (U.W. 161375, completed October 18, 2004), Buffalo #12 (U.W. 205407, completed September 23, 2016), and Moore 2005 (U.W. 170131, completed July 19, 2007). Based on the ground surface elevation and the static water levels provided in the well completion reports, the groundwater gradient is 0.0186 feet/foot in a southeasterly direction. This direction and magnitude of groundwater gradient is in good agreement with the



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WILLADSEN 2nd FILING
SEO PERMITTED WELLS
FIGURE 4

potentiometric gradient of the High Plains Aquifer mapped by Crist (1980). The presence of a clay layer and a potentiometric surface denotes that the Tertiary Aquifer is confined. Because water levels have not been routinely measured in the wells, the seasonal variations in the water level are not known. A series of potentiometric contours based on the water level elevations for the three wells is provided in Figure 5.

(d)(vii)(C) Aquifer Classification

(d)(vii)(C)(I) State Engineer Well Search

The Wyoming State Engineer's Office database was accessed from the internet on October 17, 2018 and revisited on January 21, 2019 to conduct an inventory of permitted water wells with groundwater appropriation located in a nine-square mile area around the Willadsen Estates 2nd Filing Subdivision. A copy of the well search results is provided in Appendix D. The locations of the wells are plotted by quarter-quarter section or by latitude and longitude if the data are available and are shown in Figure 4. The permit number for each well corresponds to the permit number listed in the table in Appendix D.

(d)(vii)(C)(II-III) Groundwater Class

Water from the Buffalo #12 Well was sampled by WESTON on February 13, 2019. The location of the Buffalo #12 Well is shown on Figure 4. The sample was submitted to Wyoming Analytical Laboratories, in Laramie, for analysis of the full suite of constituents required by DEQ Chapter 23. In addition, the Buffalo #12 Well was sample for trichloroethane (TCE). This sample was analyzed by Energy Labs, of Casper, Wyoming. The results of the water quality analyses for the well are summarized in Table 6, and a copy of the laboratory results of the analysis is provided in Appendix E. As summarized in Table 6, all of the constituents meet the water quality standards for DEQ Class I and II waters.

(d)(vii)(D)&(d)(viii) Septic System Models

The DEQ Chapter 23 Appendix A, Wehrmann Nitrate Model was used to estimate the cumulative nitrate loading from the proposed Willadsen Estates 2nd Filing Subdivision. The quantity of infiltration used in the model was estimated from precipitation normals. U.S. Climate Data reports that Cheyenne receives an average of 15.92 inches of precipitation per year. Because Wyoming's climate is dry, it is assumed that only 10 percent of precipitation infiltrates into the ground and reaches the vadose zone. The total acreage of the subdivision is 121 acres. For the purposes of this model, it is assumed that each lot will have a single-family, three-bedroom home that discharges a total of 390 gpd per lot. Using these assumptions, the total wastewater generated for the 14 lot Willadsen Estates 2nd Filing Subdivision is estimated to be 5,460 gpd.

The hydraulic conductivity value used for the model is based on a range of reported rates for the predominant soil types in the proposed subdivision. Because the percolation testing for the *Evanston-Ipson* and *Ipson-Evanston* soil types had measured hydraulic conductivity values ranging from 4.5 to 12 feet per day (see Tables 3 and 4), an intermediate hydraulic conductivity value of 9 feet per day was used in the model. Based on water level measurements in three wells completed in the shallow aquifer west of the subdivision, the hydraulic gradient is 0.0186 feet per foot in a southeasterly direction, and the distance across the midpoint of the subdivision down the hydraulic gradient is 2,410 feet. The water quality results for the Buffalo #12 Well indicate that the background nitrate concentration is 1.55 mg/L from the local aquifer as shown in Table 6.

TABLE 6
BUFFALO #12
WATER QUALITY SAMPLING RESULTS

Constituent	Water Quality Standard Class I Water	Water Quality Standard Class II Water	Buffalo #12 U.W. 205407
<i>Date Collected</i>	-	-	2/13/2019
Arsenic (mg/L)	0.01	0.1	0.006
Calcium (mg/L)	No Standard	No Standard	43.2
Chloride (mg/L)	250	100	2.9
Copper (mg/L)	1.0	0.2	0.004
Fluoride (mg/L)	4.0	No Standard	0.9
Iron (mg/L)	0.3	5.0	<0.1
Lead (mg/L)	0.015	5.0	0.001
Magnesium (mg/L)	No Standard	No Standard	12.3
Manganese (mg/L)	0.05	0.2	<0.001
Nitrate + Nitrite as N (mg/L)	10	No Standard	1.55
Selenium (mg/L)	0.05	0.02	0.002
Sodium (mg/L)	No Standard	No Standard	10.2
Sulfate (mg/L)	250	200	10.2
Total Dissolved Solids (mg/L)	500	2,000	191
Zinc (mg/L)	5.0	2.0	0.016
pH (S.U.)	6.5 – 8.5	4.5 - 9.0	7.96
Total Coliform	Pass	No Standard	Pass
E-coli Coliform	Pass	No Standard	Pass
Trichloroethane (µg/L)	5*	No Standard	Not Detected

* Safe Drinking Water Act standard

Based on these inputs, the Wehrmann Nitrate Model predicts that inputs from the 14 lots in the Willadsen Estates 2nd Filing Subdivision will result in a total cumulative nitrate load of 2.8 mg/L, an increase of 1.2 mg/L. This nitrate level is significantly below than the 10 mg/L as required by the DEQ Chapter 23 Rules and Regulations. The results of the nitrate modeling are provided in Appendix F of this report.

The DEQ Chapter 23 Appendix B, Minimum Isolation Distance Analysis was used to calculate the vertical travel time and 2-year horizontal travel time for the subdivision soil absorption system wastewater. Based on estimated total wastewater output from 14 residential lots with an infiltration rate of 0.41 gpd/ft² for the Willadsen Estates 2nd Filing Subdivision, the vertical travel time is calculated to be 302 days, based on 242 inches for "AP". The total volumetric soil moisture for sandy loam was determined from Table 1, provided by DEQ. The depth to seasonal high groundwater was estimated to be 50 feet, which was determined from the potentiometric map and the lowest elevations shown in Figure 5. In addition, test pit data reported in the wastewater application that no indication of seasonal high groundwater was observed in the 10 foot excavation and the absorption systems having a depth of three feet.

The two year horizontal time of travel distance is calculated to be 157 feet, based on inputs of 9 feet/day for K, a hydraulic gradient of 0.0186 feet/foot, and an effective porosity of 41.2 percent for sandy loam (Maidment, 1993). The minimum lot width along the groundwater gradient in the Willadsen Estates 2nd Filing Subdivision is 500 feet. The model predicts that neighboring properties would not be affected by wastewater disposal from the Willadsen Estates 2nd Filing Subdivision provided that absorption fields are set back at least 157 feet from lot boundaries. In addition, well completion data from the Tract 29 Willadsen Estates Well (U.W. 189537) show that the water-bearing intervals are hydraulically **confined** so that wastewater disposal through soil

absorption systems is unlikely to impact the shallow aquifer. The results of the Minimum Isolation Distance Analysis are provided in Appendix F of this report.

CHAPTER 23 - SECTION 8**(a)(i) Type of Water Supply**

The water supply needs for the Willadsen Estates 2nd Filing Subdivision will be met with on-site wells. It is anticipated that individual wells will be drilled to meet the needs of each lot owner.

(a)(ii) Average and Maximum Water Usage

It is assumed that the 14 residential lots will each have an average population of 2.40 persons based on the average household occupancy rate for Laramie County from the 2010 census. Thus, it is assumed that the build-out population of the Willadsen Estates 2nd Filing Subdivision will be 33.6 people. DEQ-WQD Rules and Regulations Chapter 12 Section 8 (a) states that a design rate of 125 gallons per day per person can be used for an average daily demand, and a rate of 340 gallons per day per person can be used for a maximum day demand if no consumption data are available. Application of these per capita demands to the build-out population of 2.40 persons per lot results in an average daily demand of 300 gallons (0.21 gpm) per lot and a maximum daily demand of 816 gallons (0.57 gpm) per lot. The total average daily demand for the 14 lots in the proposed subdivision is 4,200 gpd (2.92 gpm), and the total maximum daily demand for the proposed subdivision is 11,424 gpd (7.93 gpm).

(a)(iii) Water Well - Septic System Compatibility

According to water well driller's logs, a low permeability clay layer occurs over the water-bearing intervals. This clay layer would inhibit leachate from septic systems from migrating into the White River Aquifer. Furthermore, the nitrate modeling indicates that in a worst-case scenario, the nitrate concentration could increase by approximately 1.2 mg/L.

(a)(iv) Surface and Groundwater Rights

A search of the State Engineer's Office water rights database reveals that there are no groundwater or surface water rights issued within the Willadsen Estates 2nd Filing Subdivision.

(a)(v) Mitigation of Impacts

To date there have been no documented impacts to surrounding property owners as a function of groundwater withdrawals. It is not anticipated that impacts will occur as a result of developing groundwater supplies for each of the 14 undeveloped lots proposed for the Willadsen Estates 2nd Filing Subdivision because of the low demands and productivity of the White River Aquifer as demonstrated through pump testing.

(b) Connection to Existing Water Supply System

This section is not applicable to the Willadsen Estates 2nd Filing Subdivision because individual water wells will be used to meet the water demands of the owners.

(c) Common Water Supply System

This section is not applicable to Willadsen Estates 2nd Filing Subdivision because individual wells will be used to meet the water demands of the owners.

(d) Groundwater Quantity and Quality

A summary of wells completed in the nine-square mile area surrounding the proposed subdivision is provided in Appendix D. These wells are predominantly completed in the White River Formation. Wells located in the western part of Section 19 tap Paleozoic formations. These

wells have deeper static water levels. Wells range in depth from spring capture at the surface to 850 feet. Permitted yields range from 0.1 to 125 gpm. The average permitted yield for the 50 wells listed in Appendix D is 19 gpm (monitor wells are not included in this calculation).

The Buffalo #12 Well is located immediately west of the proposed subdivision in the Willadsen 1st Filling Subdivision, as shown on Figure 4. Table 5 provides a summary of well construction details for the Buffalo #12 Well. This well has a reported yield of 15 gpm.

On February 13 and 14, 2019, WESTON conducted a constant-rate pump test on the Buffalo #12 Well. Discharge was regulated through a ball valve and was monitored using a stop watch and five gallon calibrated bucket. A Waterline well sounder was used to measure the water level in the well. Water was discharged down gradient from the well through discharge tubing.

The well was pumped continuously at a rate of 2.5 gpm and produced 3,600 gallons. The volume of water pumped is 4.4 times the estimated maximum daily household demand. The well exhibited a maximum drawdown from the initial static water level of 8.10 feet after 24 hours of pumping. The lack of appreciable drawdown indicates that the aquifer was not stressed by pumping at a rate of 2.5 gpm. Aquifer test data are included in Appendix C.

Based on the pump test results of the Buffalo #12 Well, as well as the water production data available for other wells in the area as summarized in Appendix D, it is opinion of WESTON that individual wells at each lot can easily meet the projected average and maximum daily demands for the 14 residential lots.

The quality of water from the Buffalo #12 Well is presented in Table 5. As discussed previously, the water quality sample indicated that water produced from the White River Aquifer beneath the subdivision meets the Class I water quality standards.

(d) (ii) Potential Adverse Effects

The lots in the Willadsen Estates 2nd Filling Subdivision located in Section 20 (lots 41 through 45) are located within contamination Area A of Former Atlas D Missile Site 4. This is an area of remedial investigation of trichloroethane (TCE) contamination. The following information was obtained from the minutes from the Restoration Advisory Board meeting on November 17, 2017 (the November 2018 meeting was cancelled, and as of January 28, 2019, the minutes from the June 14, 2018 meeting were not available for download).

Figure 6 shows the locations of the TCE plume, Army Corps of Engineers TCE monitoring wells, and the Willadsen Subdivision. The TCE plume occurs within the Ogallala Formation and is moving eastward. Three Army Corps of Engineers monitoring wells completed in the Ogallala Formation and located immediately west of the TCE plume and east of the Willadsen Estates 2nd Filling Subdivision were last sampled in 2008 (MW-2 and MW-18) and in 2011 (MW-25). TCE was not detected in these wells or in the Buffalo #12 Well. Nonetheless, it is recommended that any water wells completed with the Willadsen Estates 2nd Filling Subdivision be sampled for TCE.

A windshield survey of the area within and surrounding the proposed subdivision was performed to identify potential additional sources of contamination that could affect the quality of water in the target aquifer. No activities or land uses were observed within 1/4 mile of the subdivision that could reasonably be expected to impact the quality of the water in the local aquifer.



SUMMIT ENGINEERING

SINCE 1997

CIVIL ENGINEERING - LAND DEVELOPMENT
MUNICIPAL - TRANSPORTATION

5907 Townsend Pl. Cheyenne, WY 82009
307-637-0681

June 4, 2019

Mr. Casey Palma
Steil Surveying Services
1102 West 19th Street
Cheyenne, WY 82001

Re: Subdivision Permit for Willadsen Estates, 2nd Filing – Drainage Easements

Dear Mr. Palma:

Summit Engineering has reviewed the plat for Willadsen Estates, 2nd Filing, dated 6/3/2019. We believe that no additional drainage easements will be required from those that are shown on this plat.

The topography of this area is such that storm water flows from west to east. The drainage easements from Willadsen Estates 1st Filing have been continued through Willadsen Estates 2nd Filing along historic drainage routes, to the greatest extent possible.

Sincerely,

Darci Hendon, P.E.
Project Engineer
WY PE # 10154



April 10, 2019

Laramie County Planning & Development Office
3966 Archer Parkway
Cheyenne, WY 82009
(307) 633-4303

InRe: Request for waiver of the Traffic Study, Drainage Report & GESC requirements for a Final Plat to be known as Willadsen Estates, 2nd Filing, on a previously unplatted parcel situated in the E1/2E1/2 of Section 19 and the W1/2W1/2 of Section 20, Township 13 North, Range 69 West of the 6th P.M. Laramie County, WY (containing 121.48 acres more or less)

To whom it may concern:

Steil Surveying Services, agent for the owner(s), Aspen Holdings, L.L.C. intends to plat the above-noted parcel of land into fifteen (15) lots; (1) (undevelopable) open space lot (0.42 acres), being contiguous with previous open space platted with Willadsen Estates (2001), and fourteen (14) residential lots averaging 8.18 acres (gross) for each single-family detached residential use. The Preliminary Development Plan (PDP) was approved at the regular meeting of the Laramie County Board of County Commissioners on October 25th, 2018 and the submitted Final Plat meets all conditions of that approval. This letter is hereby submitted, accompanying the Final Plat and other supporting documents, requesting a waiver from the requirements from the *Preliminary Drainage Plan and Preliminary Traffic Study*.

This development is predicated on a rural residential development model; leaving a significant portion of the pre-development land unaffected. Utilization of the Rational Method to relate runoff to rainfall comparing pre-development vs. calculated post-development site conditions results in a negligible increase to the runoff coefficient (≤ 0.02 change). No portion of the proposed subdivision falls within a FEMA 100-year Special Flood Hazard Area per F.I.R.M panel # 56021C1300F; dated January 17, 2007.

Preliminary Traffic Generation numbers are as follows:

TRAFFIC AND TRIP GENERATION BY USE*	
SINGLE-FAMILY RURAL RESIDENTIAL	
AVERAGE DAILY TRIPS	
14 Units (Tracts) x 9.56 ADT =	134 AVERAGE DAILY TRIPS (ADT)
A.M.+P.M. PEAK-HOUR TRIPS	
20 Units (Tracts) x 1.6/Unit =	22.4 PEAK HOUR TRIPS
*According to anecdotal evidence and studies: "ITE Manual will overestimate Trip Generation in rural and small urban areas (sixteen overestimates in twenty statistically significant instances)"	

The proposed plat is approximately 2.6 miles from Interstate 80 (exit 341 - Harriman Road) and will connect existing Jaymers Lane & Cougar Lane local roads with a single internal road. There is no potential for alternative road network connections as the property is bounded by Belvoir Ranch and private property on three sides.

Given these preliminary plans and analyses, the limited potential of significant traffic generation and/or surface runoff increases, we respectfully submit this waiver request on behalf of the owner.

Please contact us with any questions or concerns.

Thank you and best regards,

Casey Palma
Steil Surveying Services, LLC
CPalma@SteilSurvey.com



County Engineer: Scott Larson COMMENTS ATTACHED 04/29/2019**Engineer Review**

1. Access for all proposed Tracts shall be from the proposed internal roadway only.
2. I concur with the request for a waiver of a detailed Traffic Study and Drainage Study since this development will have a negligible impact on both.
3. There is a 50' Drainage Easement that is being created in Tract 48 to handle the natural drainage that comes from the west and discharges it into the proposed ROW. However, the natural drainage continues to the east and runs through Tract 46. Is it the intent to take the drainage from the 50' easement and fit it into the 16' Utility & Drainage Easement between Tract 46 and 47? This does not seem to get it back into the natural drainage. In addition, is 16' wide enough to build a channel to handle the drainage? There might need to be a 50' drainage easement that crosses Tract 46 to follow the natural drainage instead of forcing it into a small area and discharging it into an area that historically didn't have this runoff. More clarification is needed regarding the drainage through Tracts 46, 47, 48.
4. On the lower left hand corner of the plat it says "(See Note 9)" but there is no Note 9 in the list of Notes.

Surveyor Review

1. The bearing base of S2°22'05"E referenced in the GENERAL NOTES does not show up clearly on my copy of the scan of the plat (below Tract 46). This could be a bad scan.
2. There are large differences between MEASURED AND RECORD distances along the East and West boundaries of the subdivision. These differences should be explained.
3. There is a 50' Drainage Easement platted in WILLADSEN ESTATES that 'dead ends' on the West boundary of Tract 52. The drainage might begin here and drain to the West, but it is not clear on the plat why it just ends here.

County Public Works Department: David Bumann COMMENTS ATTACHED

04/29/2019

Laramie County does not maintain new public R/W's. We agree that the new road shall be dedicated to the public, however, the homeowner's association will have to enter into a road maintenance agreement approvable by County which delineates road surface treatment frequency, collection/distribution of road maintenance funds, etc. for the long term life of the road.

Environmental Health Department: Roy Kroeger COMMENTS ATTACHED

04/26/2019

Laramie County Small Wastewater System Regulations

A DEQ Subdivision review shall be completed prior to the issuance of any small wastewater system permit. Provide the Health Department a copy of the report.

A small wastewater system permit shall be obtained for each lot.

A 10' deep site hole and percolation test shall be performed on each lot prior to application for the small wastewater permit.

No small wastewater system shall be located within 50' of the property line or drainage.

Planners: Nancy Trimble COMMENTS ATTACHED 04/30/2019

Clerical corrections required on the plat include:

- 1) Centerline curve table at top-left of plat - correct road name to "Corbin James Trail".
- 2) General Note 8 - correct road reference to (Corbin James Trail), and remove language "and maintained by Laramie County". Refer to County Public Works comments.
- 3) Year referenced in "APPROVAL" block should be changed to "2019".

The following PDP approval recommendations provided by the Planning Commission on October 25, 2018 have not been satisfied with the subdivision permit & plat submittal:

1. Evidence of submittal of the Chapter 23 Study to DEQ shall be provided with the subdivision permit & plat application.....
2. A letter from a certified engineer stating that no additional drainage easements are required on the plat shall be provided with the subdivision permit and plat application.
3. The plat shall indicate that any new ROW shall be dedicated to the public and privately maintained.

Planners: Cambia McCollom COMMENTS ATTACHED 04/22/2019

The street name Corbin James Trl should be sufficiently unique.

Is access for Tracts 46 & 47 to be restricted solely to Cougar LN and not to the "Unnamed Road" to the South?

State Engineer's Office:

1. If any new wells are proposed, they must be constructed in accordance with the State Engineer's Office Rules and Regulations, Part III, Water Well Minimum Construction Standards. An approved permit from the Wyoming State Engineer's Office is required prior to the drilling of any water well.
2. The procurement of the necessary and appropriate State Engineer water right permit allows the applicant to attempt to develop a water supply adequate to meet the proposed needs, and is no guarantee that any water will be physically available.
3. Any well not to be used must be properly plugged and abandoned as outlined in the above referenced rules and regulations.
4. Any wells developed for uses that do NOT fall within the definition of domestic or stock use require adjudication by the Board of Control.
5. The water right search revealed that there are no subject existing water rights of record that attach to the subdivision lands. If this is the case, further action on the part

of the subdivider or his agent in addressing Wyoming Statute 18-5-306 (a) (xi) would not be required.

AGENCIES WITH NO COMMENT:

County Assessor
County Real Estate Office
Sheriff's Office

AGENCIES WITH NO RESPONSE:

County Attorney
County Treasurer
County Conservation District
Wyoming DEQ
Wyoming Game & Fish
US Post Office
Combined Communications Center
Emergency Management
Fire District No. 10
High West Energy
CenturyLink
Rockies Express Pipeline
Building Dept.
Laramie County Weed & Pest



State Engineer's Office

MARK GORDON
GOVERNOR

PATRICK TYRRELL
STATE ENGINEER

HERSCHLER BUILDING, 4-E CHEYENNE, WYOMING 82002
(307) 777-7354 FAX (307) 777-5451
seoleg@seo.wyo.gov

April 15, 2019

Laramie County Board of Commissioners
309 W. 20th Street
Cheyenne, WY 82001

RE: Willadsen Estates 2nd Filing Subdivision, Laramie County, WDEQ Application #19-098

Dear Commissioners:

The State Engineer's Office – Ground Water Division received application material related to the Willadsen Estates 2nd Filing Subdivision from the Wyoming Department of Environmental Quality, requesting information and advice to the Water Quality Division. Our office reviewed the referenced submittal in compliance with W.S. 18-5-306(c)(i).

The proposed subdivision is to be located in parts of the E $\frac{1}{2}$ E $\frac{1}{2}$ of Section 19 and W $\frac{1}{2}$ W $\frac{1}{2}$ of Section 20, T13N, R69W, Laramie County, Wyoming. Water supply is proposed to be provided by individual on lot wells. Based upon the review of both the subdivision application and a preliminary search of the agency's water rights database, the State Engineer's Office offers the following:

1. If any new wells are proposed, they must be constructed in accordance with the State Engineer's Office Rules and Regulations, Part III, Water Well Minimum Construction Standards. An approved permit from the Wyoming State Engineer's Office is required prior to the drilling of any water well.
2. The procurement of the necessary and appropriate State Engineer water right permit allows the applicant to attempt to develop a water supply adequate to meet the proposed needs, and is no guarantee that any water will be physically available.
3. Any well not to be used must be properly plugged and abandoned as outlined in the above referenced rules and regulations.
4. Any wells developed for uses that do NOT fall within the definition of domestic or stock use require adjudication by the Board of Control.
5. The water right search revealed that there are no subject existing water rights of record that attach to the subdivision lands. If this is the case, further action on the part of the subdivider or his agent in addressing Wyoming Statute 18-5-306 (a) (xi) would not be required.

In summary, the State Engineer's Office is generally supportive of approving the development of the proposed action.

In all correspondence regarding this application, please reference "State Engineer Subdivision Review Number 2019-14-2".

If you have any questions, please feel free to contact me at (307) 777-6166, or if you prefer email, at markus.malessa@wyo.gov. Thank you for the opportunity to comment on the subdivision application.

Sincerely,

A handwritten signature in black ink, appearing to read 'Markus Malessa', with a long horizontal flourish extending to the right.

Markus Malessa
Natural Resources Analyst

Cc: Paul Lohman, P.E., Southeast District Engineer, DEQ, 200 West 17th Street, Cheyenne, WY 82002
Lisa Lindemann, Administrator, Ground Water Division
Lee Arrington, Administrator, Surface Water Division
Cheryl Timm, Administrator, Board of Control Division
Brian Pugsley, Superintendent, Water Division I
Adam Skadsen, Hydrographer/Commissioner, Water Division I, District 1

NO PROPOSED CENTRAL WATER SUPPLY SYSTEM NO PROPOSED CENTRALIZED SEWAGE SYSTEM FIRE PROTECTION TO BE PROVIDED BY FIRE DISTRICT #10
THE SURFACE ESTATE OF THE LAND TO BE SUBDIVIDED IS SUBJECT TO FULL AND EFFECTIVE DEVELOPMENT OF THE MINERAL ESTATE

BOUNDARY CURVE TABLE				
CURVE #	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH
C1	40° 11' 28"	1220.92	N89° 59' 49"E	839.98'
C1(R)	40° 13' 58"	1220.92	S70° 49' 51"W	839.98'

TRACT CURVE TABLES				
CURVE #	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH
C1	40° 11' 28"	1220.92	N89° 59' 49"E	839.98'
C2	5° 54' 08"	4340.00'	S87° 27' 21"W	442.78'
C3	8° 22' 27"	400.00'	S87° 41' 31"W	44.48'
C4	35° 18' 17"	400.00'	N89° 28' 07"W	268.05'
C5	35° 15' 45"	400.00'	N87° 11' 08"W	174.24'
C6	37° 39' 53"	400.00'	N87° 43' 17"W	268.24'
C7	7° 58' 11"	1100.00'	N87° 08' 34"E	152.23'
C8	17° 32' 28"	1100.00'	N11° 03' 45"W	240.28'
C9	33° 30' 04"	485.87'	N10° 18' 00"E	288.63'
C10	24° 33' 08"	485.87'	N30° 20' 36"E	188.11'
C11	22° 52' 17"	480.00'	N62° 02' 23"E	180.00'
C12	18° 15' 08"	480.00'	N81° 39' 02"E	136.70'
C13	39° 05' 25"	400.00'	S70° 13' 09"W	267.64'
C14	45° 13' 30"	400.00'	S29° 04' 19"W	307.63'
C15	12° 46' 22"	400.00'	S01° 57' 17"E	89.33'
C16	2° 24' 21"	1180.00'	S8° 04' 48"E	48.54'
C17	18° 04' 18"	1180.00'	S4° 04' 31"W	570.64'
C18	108° 58' 58"	320.00'	S41° 11' 32"E	510.75'
C19	5° 54' 08"	4340.00'	N87° 27' 21"E	442.78'
C20	22° 34' 21"	320.00'	N11° 49' 24"E	126.27'
C21	11° 44' 14"	1220.92	S55° 42' 08"W	248.67'

JAYMERS LANE CENTERLINE CURVE TABLE (80' R/W)				
CURVE #	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH
C2	5° 54' 08"	4340.00'	N87° 27' 21"E	442.78'
C3	45° 40' 44"	360.00'	S72° 39' 21"E	279.47'

CORBIN JAMES LOOP CENTERLINE CURVE TABLE (80' R/W)				
CURVE #	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH
C4	82° 25' 38"	360.00'	S18° 21' 16"E	375.81'
C5	20° 28' 37"	1140.00'	S2° 52' 21"W	405.26'
C6	34° 17' 03"	440.00'	S8° 48' 33"W	359.37'

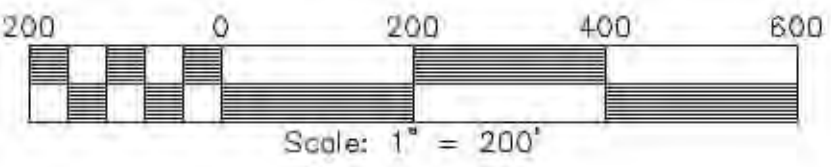
COUGAR LANE CENTERLINE CURVE TABLE (80' R/W)				
CURVE #	DELTA	RADIUS	CHORD BEARING	CHORD LENGTH
C7	23° 46' 10"	440.00'	S38° 48' 10"W	181.23'
C8	39° 05' 25"	440.00'	S70° 13' 09"W	267.64'

TRACT LINE TABLE		
LINE #	BEARING	LENGTH
L1	S03° 46' 14"E	90.00'
L2	S88° 46' 39"W	90.00'



LEGEND

- SET 1 1/2" ALUMINUM CAP STAMPED "SSS P.L.S. 5910" ON 3/4" x 2 1/2" REBAR
- FOUND 1 1/2" ALUMINUM CAP STAMPED "SSS P.L.S. 2500"
- FOUND 3/4" BRASS CAP STAMPED "SSS P.L.S. 2500" & APPROPRIATE DATA
- ACRES NET ACREAGE OF LOT
- ACRES GROSS ACREAGE OF LOT (TO E OF ADJACENT ROAD R/W)



DEDICATION

KNOW ALL PERSONS BY THESE PRESENTS THAT:

Aspen Holdings, Inc., owner of A portion of the East Half of the E1/2E1/2 of Section 19 and a portion of the W1/2W1/2 of Section 20, Township 13 North, Range 69 West of the 6th P.M., Laramie County, Wyoming, more particularly described in Deed Book 1690, Page 785 as follows:

Beginning at a point on the section line between said Section 19 and 20 from which the northwest corner of said section 20 bears N.00°09'28"W., a distance of 1006.41 feet; thence N. 90°00'00"E., a distance of 857.30 feet; thence S.00°01'54"E., a distance of 2855.44 feet to the north line of Tract 101E-2 as recorded in Book 898 at Page 102 and 103 of Laramie County records; thence along the north line of said Tract 101E-2 the following 3 courses: N.89°03'10"W., a distance of 233.59 feet; thence southwesterly a distance of 857.32 feet along a curve concave to the southeast, having a radius of 1220.92 feet and a central angle of 40°13'58" (chord bearing of S. 70°49'51"W., chord distance of 839.80 feet); thence S.50°42'52"W., a distance of 916.20 feet; thence leaving said north line on a bearing of N.00°25'41"E., a distance of 3707.57 feet; thence N.90°00'00"E., a distance of 1049.38 feet to the point of beginning.

Has caused the same to be surveyed, vacated and platted to be known as WILLADSEN ESTATES, 2nd FILING, and do hereby declare the subdivision of said land as it appears on this plat, to be their free act and deed in accordance with their desires and do hereby dedicate the right-of-way to the public as shown and grant the easements for the purposes indicated hereon.

Aspen Holdings, Inc.

by :
Jeff H. Peterson as Vice President

ACKNOWLEDGEMENT

STATE OF WYOMING
COUNTY OF LARAMIE

SS

The foregoing instrument was acknowledged before me this ____ day of _____, 2019 by Jeff H. Peterson as Vice President for Aspen Holdings, Inc.

Notary Public, Laramie County, Wyoming

My Commission Expires: _____

GENERAL NOTES

- BASIS OF BEARINGS - EAST LINE OF THE SE1/4 OF SECTION 19 (COMMON TO SECTION 20), HAVING A BEARING OF S 02°22'05"W.
WYOMING STATE PLANE COORDINATES - EAST ZONE, NAD83-2011,
US SURVEY FEET, DISTANCES ARE GRID DISTANCES.
COMBINATION FACTOR = 0.9999696967.
- ALL LOT CORNERS, ANGLE POINTS, AND POINTS OF CURVATURE TO BE MONUMENTED WITH 1 1/2" ALUMINUM CAP STAMPED "SSS P.L.S. 5910" ON 3/4" x 2 1/2" REBAR.
- NO PORTION OF THE PROPOSED SUBDIVISION FALLS WITHIN A FEMA 100-YEAR SPECIAL FLOOD HAZARD AREA PER FIRM PANEL No.66021C1300E DATED JANUARY 17, 2007.
- WATER SERVICE TO EACH LOT TO BE PROVIDED BY INDIVIDUAL WELLS, ALL WELLS SHALL COMPLY WITH APPLICABLE STATE AND LOCAL RULES AND REGULATIONS.
- SEWAGE DISPOSAL TO BE PROVIDED WITH INDIVIDUAL SEPTIC LEACH FIELDS FOR EACH LOT, NO PUBLIC SEWER SYSTEM IS PROPOSED. ALL SEPTIC SYSTEMS SHALL COMPLY WITH APPLICABLE STATE AND LOCAL RULES AND REGULATIONS.
- "10' DRAINAGE & UTILITY EASEMENT" GRANTED TO FRANCHISED UTILITIES PROVIDERS; INCLUDING CHARTER/SPECTRUM, CENTURY LINK, QWEST, HIGH WEST ENERGY AND/OR CHEYENNE LIGHT, FUEL & POWER, THEIR LEGAL SUCCESSORS AND/OR ASSIGNS FOR INSTALLATION OF LOCAL UTILITIES SERVICE(S) AND TO LARAMIE COUNTY FOR SURFACE DRAINAGE.
- "16' DRAINAGE & UTILITY EASEMENT" & "40' DRAINAGE & UTILITY EASEMENT" GRANTED TO FRANCHISED UTILITIES PROVIDERS; INCLUDING CHARTER/SPECTRUM, CENTURY LINK, QWEST, HIGH WEST ENERGY AND/OR CHEYENNE LIGHT, FUEL & POWER, THEIR LEGAL SUCCESSORS AND/OR ASSIGNS FOR INSTALLATION OF LOCAL UTILITIES SERVICE(S).
- "VARIABLE-WIDTH DRAINAGE EASEMENT(S)" & "20' DRAINAGE EASEMENT" GRANTED TO LARAMIE COUNTY FOR CONNECTION BETWEEN RIGHTS-OF-WAY & THAT EXISTING 50' DRAINAGE EASEMENT AT TRACT 35, WILLADSEN ESTATES.
- 6.48 ACRES OF RIGHT-OF-WAY TO BE DEDICATED BY THIS PLAT, SAID RIGHT-OF-WAY IS TO BE DEDICATED TO THE PUBLIC AND PRIVATELY MAINTAINED.
- TRACT 33 IS DESIGNATED HEREON AS AN UN-BUILDABLE TRACT, DEDICATED AS COMMON OPEN SPACE. OWNERSHIP IS TO BE ESTABLISHED BY UNDIVIDED INTEREST OF ALL OWNERS OF LANDS CONTAINED WITHIN THIS PLAT BOUNDARY, THEIR LEGAL SUCCESSORS AND/OR ASSIGNS; ANY CONVEYANCE OF ANY OF TRACTS 39 THRU 52 SHALL INCLUDE "AN UNDIVIDED INTEREST IN TRACT 33". SAID TRACT 33 IS FURTHERMORE GRANTED AS A DRAINAGE & UTILITY EASEMENT; MAINTENANCE TO BE PERFORMED BY OWNERS ASSOCIATION.
- ALL ACCESS TO THE LOTS CONTAINED WITHIN THE BOUNDARY OF THIS PLAT SHALL BE FROM INTERNAL RIGHTS-OF-WAY.
- THE PREVIOUS SURVEY IN 1995 OF THIS PARCEL IDENTIFIED SIGNIFICANT DIFFERENCES BETWEEN THE FOUND MONUMENTATION AS SHOWN AND THE DESCRIPTION OF THE 150' PARCEL (1964) "150 FOOT STRIP KNOWN AS TRACT 101E-2 IN CIVIL ACTION No. 4248 IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF WYOMING, A CERTIFIED COPY OF FINAL JUDGEMENT IN SUCH ACTION IS RECORDED IN BOOK 808, PAGES 98-103, LARAMIE COUNTY, WYOMING RECORDS FOR ACCESS ROAD AND UTILITY LINES". THE CLIENT WAS NOTIFIED AND DESIRED TO USE THE WRITTEN DOCUMENT FOR PREPARATION OF DEEDS AT THAT TIME. IT IS MY OPINION THAT THE HISTORICAL OCCUPATION AND ACCEPTANCE OF THE ORIGINAL MONUMENTATION AND OCCUPATION SHOULD BE USED FOR THIS PLAT AS SHOWN.

CERTIFICATE OF SURVEYOR

I, Jeffrey B. Jones, A Professional Land Surveyor in the State of Wyoming, for and on behalf of Steil Surveying Services, LLC, hereby state, to the best of my knowledge, information and belief, that this map was prepared from field notes taken during an actual survey made by me or under my direct supervision; and that this map correctly shows the results of said survey and that the monuments found or set are as shown.

WILLADSEN ESTATES
2nd FILING

SITUATED IN
THE E1/2E1/2 OF SECTION 19 AND
THE W1/2W1/2 OF SECTION 20
TOWNSHIP 13N., RANGE 69W. OF THE 6TH P.M.
LARAMIE COUNTY, WYOMING

PREPARED June, 2018



STEIL SURVEYING SERVICES, LLC
PROFESSIONAL LAND SURVEYORS
PLANNING & DEVELOPMENT SPECIALISTS
1102 WEST 19th ST. CHEYENNE, WY. 82001 • (307) 634-7273
736 GILCHRIST ST. WHEATLAND, WY. 82201 • (307) 322-9789
www.SteilSurvey.com • info@SteilSurvey.com

APPROVAL

Approved by the Laramie County Planning Commission
this ____ day of _____, 2019.

Chairman

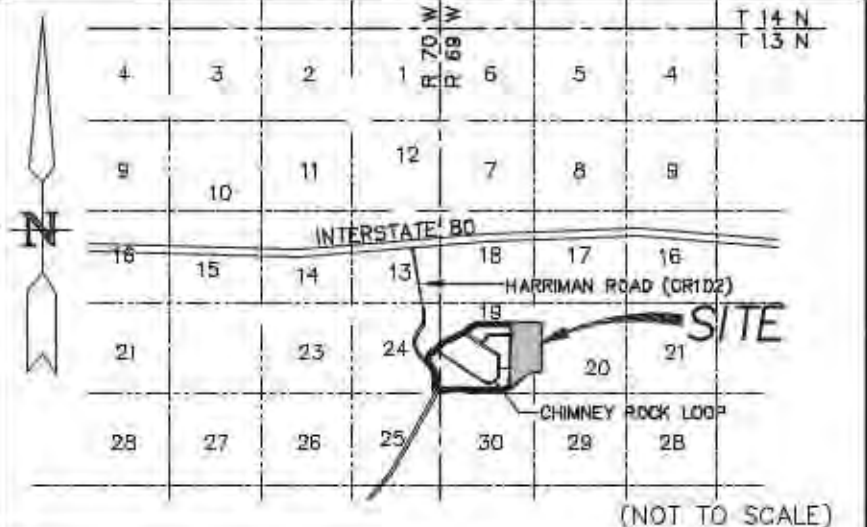
Approved by the Board of Commissioners of Laramie County,
Wyoming this ____ day of _____, 2019.

Chairman

ATTEST:

County Clerk

VICINITY MAP



FILING RECORD

REVISED: 6/7/2019

\\S19-13-69 WILLADSEN 2nd\\18182 WILLADSEN 2nd FINAL.dwg

RESOLUTION NO. _____

**A RESOLUTION TO APPROVE A SUBDIVISION PERMIT AND PLAT FOR
WILLADSEN ESTATES, 2ND FILING,
LOCATED IN A PORTION OF THE E1/2 E1/2, SECTION 19,
AND A PORTION OF THE W1/2 W1/2, SECTION 20, T.13N., R.69W.,
OF THE 6TH P.M., LARAMIE COUNTY, WY.**

WHEREAS, Wyoming State Statutes §18-5-201 to 18-5-208; §18-5-301 to 18-5-315 authorize Laramie County, in promoting the public health, safety, morals and general welfare of the county, to regulate the use of land through zoning in unincorporated Laramie County; and

WHEREAS, the Laramie County Board of Commissioners adopted the Laramie County Land Use Regulations; and

WHEREAS, the proposed subdivision and plat is in accordance with section 2-1-101 (a-e) of the Laramie County Land Use Regulations; and

WHEREAS, this resolution is the subdivision permit for Willadsen Estates, 2nd Filing.

NOW THEREFORE BE IT RESOLVED BY THE GOVERNING BODY OF LARAMIE COUNTY, WYOMING, as follows:

The Laramie County Board of Commissioners finds that:

- a. This application is in conformance with section 2-1-101 (a-e) of the Laramie County Land Use Regulations.

and the Board approves the Subdivision Permit and Plat for Willadsen Estates, 2nd Filing with no conditions.

PRESENTED, READ AND ADOPTED THIS _____ DAY OF _____, 2019.

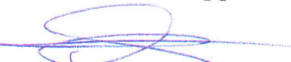
LARAMIE COUNTY BOARD OF COMMISSIONERS

Linda Heath, Chairman

ATTEST:

Debra K. Lee, Laramie County Clerk

Reviewed and approved as to form:

 **FOR**

Mark T. Voss, Laramie County Attorney