Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. Applicant/Contact name and address: Wilderness Development L.L.C.
3015 12th Street NE, Suite 260
Calgary, Alberta T2E7J2

2. Type of action: Application for Beneficial Water Use Permit 30045578-76D

3. Water source name: Ground Water

4. Location affected by project: The proposed points of diversion are four wells located in Sections 29 & 33, T37N, R27W. The proposed places of use are located within Sections 28, 29, 32 & 33 T37N, R27W, all in Lincoln County.

5. Narrative summary of the proposed project, purpose, action to be taken, and benefits:

The Applicant requests 150 gallons per minute (gpm) up to 187.9 acre-feet (AF) per year to supply a public water supply system for The Wilderness Club subdivision located near Eureka, MT. The supply system will utilize four wells, drilled as two pairs within a complex aquifer system of leaky and confining units. For purposes of this review, it should be noted that the Applicant's well numbering scheme is not consecutive, there is no Well #3 mentioned in the application materials. Applicant's Wells #5 & #4 are completed in a prolific shallow aquifer, from which Well #5 will be used as the primary means of diversion. Wells #1 & #2 are completed in a deeper more confined aquifer and will be used mainly as backup wells. Well #5 can supply the requested flow rate independently, while a combination of pumping any two of the remaining three wells will need to be utilized to achieve the maximum requested flow rate of 150 gpm. The public water supply system proposes to serve 319 residential lots with 67.6 acres of lawn and garden irrigation and a commercial golf course clubhouse, which includes an additional 0.78 acres of irrigation. The total volumes requested for domestic, commercial, and lawn and garden irrigation are 107.1 AF, 5.8 AF, and 75.0 AF respectively. The period of diversion for domestic and commercial purposes is from January 1 to December 31, while lawn and garden use will take place from April 20 to October 21, inclusive of each year. The Points of Diversion and Places of Use for the subdivision will be located within Sections 28, 29, 32, & 33 T37N R27W, all in Lincoln County.

The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-311 MCA are met.

6. Agencies consulted during preparation of the Environmental Assessment:
(include agencies with overlapping jurisdiction)

Dept. of Environmental Quality Website - TMDL 303d listing
MT. National Heritage Program Website - Species of Concern
USDI Fish & Wildlife Service Website - Endangered and Threatened Species Lincoln County, MT
MT State Historic Preservation Office - Archeological/Historical Sites
USDA Natural Resources Conservation Service – Web Soil Survey
USDI Fish & Wildlife Service – Wetlands Online Mapper

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity **-** *Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

Determination: Not Applicable.

The source of supply is ground water.

Water quality **-** *Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

Determination: Not Applicable.

The source of supply is ground water.

Ground water **-** *Assess if the proposed project impacts ground water quality or supply. If this is a ground water appropriation, assess if it could impact adjacent surface water flows.*

Determination: Minor impact.

The proposed appropriation includes the use of various combinations of four wells pumping at a maximum flow rate of 150 gpm. The Applicant's consultant determined a width for the radius of influence (ROI) based on aquifer test conclusions, of approximately 3,250 feet. The consultant used Darcy's law to estimate the total flux through a 6,500-foot wide transect based upon the estimated ROI, a transmissivity value of 108,620.66 ft^2/day and a hydraulic gradient of 0.001114 ft/ft. The annual volume of water passing through the potential zone of influence was calculated as 6,590.46 AF. The consultant estimates the total legal demand on the aquifer through this same transect at 605.94 AF/YR, which includes the Applicants appropriation and equates to about 9 percent of the estimated flux. Given the proposed and existing legal demands are a small fraction of the available flux and given that the maximum projected drawdown in the closest well is expected to be less than one-half foot, this appropriation of water is not expected to significantly affect ground-water quality or supply.

This appropriation should not have an adverse impact to nearby surface water sources. The Kootenai River has existing legal demands of 17.2 cubic feet per second (cfs), leaving an available median monthly flow of 3,972 cfs in May, the month with the least available water.

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

Determination: Minor impact.

The Applicant is requesting a ground water appropriation using various combinations of four wells pumping at a maximum flow rate of 150 gpm. The Applicants' wells were completed by a licensed well driller in accordance with MCA Title 37, Chapter 43 and ARM Title 36, Chapter 21. Applicant's Well #1 & Well #2 are completed in the deeper more confined aquifer and will predominately be used for backup wells, while Wells #4 & #5 are completed in a shallower unconfined aquifer that includes locally confined sequences. Well #5 will be the primary production well, and the only individual well capable of producing the requested flow rate of 150 gpm. The following table shows selected elements of the Applicant's four wells:

Well No. for Wilderness Club	Depth (feet)	Min. Casing Diameter (inches)	Stainless Screen	Location (T37N R27W)
#1	330	10	280' – 320'	NW SW NW NW Sec.33
#2	325	10	270' – 310'	SW NW NW NW Sec.33
#4	180	8	132' – 140'	NW SW SE SE Sec.29
#5	140	8	120' – 135'	NW SW SE SE Sec.29

Wells #1 & #2 propose to contain Goulds 15-hp model 70J15 submersible pumps capable of producing 100 gpm at 419 feet of lift. The pump in Well #4 will be a Goulds 10-hp model 85S100-7 submersible pump capable of producing 115 gpm at 336 feet of lift. The primary production well, Well #5, plans to employ a Goulds 15-hp model 150S150-8 submersible pump capable of producing 150 gpm at 305 feet of lift. Other than temporary disturbances created by construction of the conveyance facilities, the Applicant proposes to install a cistern within the supply system for storage; no substantial impacts are expected as a result of the diversion works.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species - *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

Determination: Low likelihood of impact.

The Montana National Heritage Program currently lists nine animal species as Species of Concern and one potential Species of Concern within Township 37 North Range 27 West. Common names for the nine animal species are the Gray Wolf, Grizzly Bear, Grasshopper Sparrow, Bald Eagle, Great Blue Heron, Pileated Woodpecker, Common Loon, Sharp-tailed Grouse, & the Bull Trout. The potential Species of Concern is a fish, the Burbot. The Montana National Heritage Program also lists two plant species as

Species of Concern within Township 37 North Range 27 West. Common names for these two species are the Spalding's Campion & the Many-headed Sedge. The USDI Fish & Wildlife Service Website shows that Lincoln County has five species listed as threatened and one species listed as endangered. The threatened species are the Bull Trout, Grizzly Bear, Spalding's Campion, Canada Lynx & the Water Howellia. The endangered species is the Kootenai River population of White Sturgeon. Since this project is associated to ground water withdrawals and many adjacent properties have significant development, there is a low likelihood of impact to endangered or threatened species because of this appropriation.

Wetlands **-** *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

Determination: Low likelihood of impact.

There are no known wetlands associated with this application The USDI Fish & Wildlife Service Wetlands Online Mapper has no data available for the area of interest.

Ponds **-** *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

Determination: Low likelihood of impact.

The project does not involve nor affect any ponds.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE - *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

Determination: Low likelihood of impact.

Typical construction activities may cause short-term disturbances to soil stability; however, there is a low likelihood of impact to soil quality as a result of this project.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

Determination: Low likelihood of impact.

Again, typical construction activities may cause short-term disturbances to vegetative cover; however, there is a low likelihood of any considerable impact due to this appropriation. It is the responsibility of the property owner to control noxious weeds on their property.

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

Determination: Low likelihood of impact.

It is unlikely air quality will be deteriorated; this project will utilize electrically driven pumps to divert the water.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project.*

Determination: Low likelihood of impact.

The property in question is predominately pasture and timberland. There is a low likelihood cultural properties will be affected; a cultural resource inventory is unwarranted at this time.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

Determination: Low likelihood of impact.

No additional impacts are anticipated.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

Determination: Low likelihood of impact.

No locally adopted environmental plans or goals have been identified.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

Determination: Low likelihood of impact.

This proposal should not impact recreational activities in the area.

HUMAN HEALTH - *Assess whether the proposed project impacts on human health.*

Determination: Low likelihood of impact.

No impacts to human health have been identified.

PRIVATE PROPERTY - *Assess whether there are any government regulatory impacts on private property rights.*
Yes___ No_X__ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.

Determination: No known impacts.

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

(a) *Cultural uniqueness and diversity?* None

(b) *Local and state tax base and tax revenues?* Slight Impact

(c) *Existing land uses?* Slight Impact

(d) *Quantity and distribution of employment?* None

(e) *Distribution and density of population and housing?* Slight Impact

(f) *Demands for government services?* Slight Impact

(g) *Industrial and commercial activity?* None

(h) *Utilities?* Slight Impact

(i) *Transportation?* Slight Impact

(j) *Safety?* None

(k) *Other appropriate social and economic circumstances?* None

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary Impacts - No secondary impacts have been identified.

Cumulative Impacts – The development of additional subdivision projects can affect the physical environment in many ways, both negatively and positively. Urbanization can deplete water quantity, re-direct storm water runoff, congest traffic flow patterns, burden public schools with an influx of new students, and prohibit wildlife movement. Development can also increase local and state tax revenues, help support local commerce, help public schools maintain sufficient student populations and increase available housing needs. Cumulative impacts will generally depend upon the specific project.

3. *Describe any mitigation/stipulation measures:*

The following condition is necessary to prove the criteria in MCA 85-2-311:

**Water Measurement Records Required

The appropriator shall install a department approved in-line flow meter at a point in the delivery line approved by the department. Water must not be diverted until the required measuring device is in place and operating. On a form provided by the department, the appropriator shall keep a written daily record of the flow rate and volume of all water diverted, including the period of time. Records shall be

submitted by November 30 of each year and upon request at other times during the year. Failure to submit reports may be cause for revocation of a permit or change. The records must be sent to the water resources regional office. The appropriator shall maintain the measuring device so it always operates properly and measures flow rate and volume accurately.

4. ***Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:***

No action alternative: Deny the application. This alternative would result in none of the benefits to the regional housing market or the related economic benefits being realized by the Applicant.

PART III. Conclusion

1. Preferred Alternative

The preferred alternative is the proposed alternative, but only if the recommended stipulation is included on the Provisional Permit.

2 Comments and Responses

None Received.

3. ***Finding:***
*Yes___ No_**X**__ Based on the significance criteria evaluated in this EA, is an EIS required?*

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:

None of the identified impacts for any of the alternatives are significant as defined in ARM 36.2.524.

Name of person(s) responsible for preparation of EA:

Name: Douglas Mann
Title: Water Resources Specialist - LRO
Date: 3/2/2010