

**DETAILED WATER DEMAND ANALYSIS (revised 5/31/02)**  
**PROPOSED "WINDMILL RANCHES" SUBDIVISION**  
**LINCOLN COUNTY, NEW MEXICO**

**1. INDOOR WATER USE**

58.9 Per Capita Daily Consumption <sup>1</sup>  
20 Evaporative Cooling <sup>1</sup>  
78.9 Total Per Capita Daily Consumption  
2.7 Number of Persons per Household <sup>1</sup>  
213.03 Total Daily Water Requirement Per Lot  
213.03 Additional Reverse Osmosis (RO) Requirements at Recovery Rate 50% <sup>2</sup>  
426.06 Total Indoor Water Use Per Lot (gallons per day, gpd)

**2. OUTDOOR WATER USE**

1500 Square footage of turf (outdoor) use  
1500 Square footage of garden (outdoor) use  
3000 Total square footage of outdoor use <sup>3</sup>  
  
30.46 Turf (Bermuda Grass) water use, in gallons per square foot per year <sup>1</sup>  
45690.0 Total water use (gallons per year) for 1500 square feet of turf  
  
11.1 Garden (horticulture) water use, in gallons per square foot per year <sup>1</sup>  
16650.0 Total water use (gallons per year) for 1500 square feet of garden  
  
62340.0 Total outdoor water use (gallons per year), turf + garden  
170.8 Equivalent rate, gallons per day (gpd)

**3. TOTAL WATER USE**

426.06 Indoor water use (gallons per day, gpd)  
170.8 Outdoor water use (gallons per day, gpd)  
596.9 Total water use (gallons per day, gpd)  
0.41 Equivalent Rate (gallons per minute, gpm)  
0.67 Equivalent Rate (acre-feet per annum, AFA)

**4. SOURCES OF ESTIMATES**

- <sup>1</sup> New Mexico SEO Technical Report 48 - "Water Conservation and Quantification of Water Demands in Subdivisions", prepared by Brian C. Wilson, February 1996.  
<sup>2</sup> Personal communication by MJDarr to RO manufacturers and suppliers.  
<sup>3</sup> Included in CCRs (Covenants, Conditions and Restrictions) Regarding Water Conservation Measures.





STATE OF NEW MEXICO  
OFFICE OF THE STATE ENGINEER

SANTA FE

May 31, 2002

THOMAS C. TURNERY  
State Engineer

JUN 17 2002

ACCT. 10001  
LINCOLN COUNTY, NM

BATAAN MEMORIAL BUILDING, ROOM 101  
POST OFFICE BOX 25102  
SANTA FE, NEW MEXICO 87504-5102  
(505) 827-6175  
FAX: (505) 827-6188

**CERTIFIED MAIL**  
**RETURN RECEIPT**  
**REQUERSTED**

Ms. Patsy Sanchez  
Lincoln County Planning Director  
PO Box 711  
Carrizozo, NM 88301-0711

Re: Preliminary Plat Review, Windmill Ranches Subdivision

Dear Ms. Sanchez:

The Office of the State Engineer (OSE) has reviewed the preliminary plat proposal for the referenced subdivision pursuant to the Lincoln County Subdivision Regulations and provisions of the New Mexico Land Subdivision Act. The subdivider has provided sufficient information regarding water availability, water quantification and conservation. A favorable opinion regarding the water proposals for this subdivision will be issued contingent upon the inclusion of the evaporative cooling requirement in the water budget. Additionally, the recommendation for requiring totalizing meters on all wells and action on the fire storage capacity should be addressed by the county before final approval is issued.

A copy of this letter and staff memorandum should be provided to the subdivider. An opinion issued by the State Engineer that the subdivider can fulfill his water proposals does not imply a guarantee that water in sufficient quantities to meet the needs of the subdivision will be obtained for the period of time specified, if any, in the disclosure statement.

If the language of this letter is summarized or otherwise modified by the subdivider, approval must be obtained from this office prior to its incorporation into the subdivider's disclosure statement. If the subdivider has any questions regarding this letter or the attached memorandum they may call John T. Romero at (505) 827-4187.

Sincerely,

Brian C. Wilson, P.E.  
Chief, Water Use & Conservation Bureau  
Jtr:bcw




# MEMORANDUM

## New Mexico Office of the State Engineer Water Use & Conservation Bureau

**Date:** May 31, 2002

**To:** Brian C. Wilson, P.E., Chief, Water Use & Conservation Bureau

**From:** John T. Romero, Water Master I 

**Subject:** Windmill Ranches Subdivision, Lincoln County

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The Windmill Ranches Subdivision proposal is a request to develop a type-four subdivision containing 286 parcels on approximately 13,163 acres of land. The size of the smallest parcel is approximately 20 acres and the largest parcel is approximately 150 acres. The subdivision proposal is located in Section 1, 2, 3, 9, 10, 11, & 12, Township 4 South, Range 10 East and Sections 34, 35, & 36, Township 3 South, Range 10 East and Sections 5, 6, 7, 8, 17, & 18, Township 4 South, Range 11 East New Mexico Principal Meridian. This subdivision is located between Corona, New Mexico and Carrizozo, New Mexico off of State Road 54. The subdivision proposal was reviewed pursuant to the Lincoln County Subdivision Regulations and provisions of the New Mexico Subdivision Act.

The subdivider proposes that each parcel utilize individual 72-12-1 domestic wells. The drilling of which will be the responsibility of each individual parcel purchaser. The subdivider has quantified the amount of water available at 0.67 acre-feet per year. This is the maximum annual water requirement for each parcel in the subdivision. It is important to note that under Section 72-12-1 NMSA, 1978 each domestic well is allowed to divert up to three (3) acre-feet per annum of water; however, county regulations take precedence over the statutes in this case. The Lincoln County Subdivision Regulations state that the maximum annual water requirement for indoor and outdoor purposes per parcel shall be 0.50 acre-feet per annum, unless a detailed water demand analysis approved by the Office of the State Engineer (OSE) justifies the use of a different figure. The subdivider has submitted a detailed water demand analysis justifying 0.67 acre-feet of water for OSE review; however, the analysis did not take into account evaporative cooling requirements. The subdivider used the step-by-step computational procedure presented in OSE Technical Report #48 entitled "Water Conservation and Quantification of Water Demands in Subdivisions" (Wilson, 1996) for the analysis. The subdivider needs to include evaporative cooling in the water demand analysis before this office issues favorable approval.

The subdivider has also addressed water availability by including a Geohydrologic Report performed by Michael J. Darr, RG of MJDarrconsult, Inc. The report demonstrates that sufficient water will be available to meet the current and future needs of the proposed subdivision over a 40-year period. Three wells, including one new well, were pump tested at flow rates over 10 gallons per minute (gpm) for 24 to 48 hour periods. The results of these tests



demonstrate that there will be no excessive drawdowns or dewatering of wells and there will be no negative effects on spring flows or stream flows. The report did mention that the wells should be drilled as deep as practically possible (up to 600 feet in most cases) and the water will have to be treated since total dissolved solids (TDS) and Fluoride were found to be high. The water was also determined to be hard with large amounts of salts present and may be unsuitable for the irrigation of turf, vegetables, and other plants. This office recommends that prospective buyers should be made aware of this situation and a warning be included in the disclosure statement. Furthermore, the report suggested that each parcel owner employ a water purification process such as reverse osmosis or a water softening system. The report and water budget took into account a 50% water rejection rate as a conservative estimate for this process.

The subdivider has also addressed water conservation measures in the disclosure statement, in the geohydrologic report and in the restrictions and covenants pursuant to Section 18.1 of the Lincoln County Subdivision Regulations. It is recommended, that the County consider requiring the subdivider to require totalizing meters on each well drilled in the subdivision. This will allow the County a method in which to monitor and restrict the amount of water diverted from the said wells. The County could then require the parcel owners to send in annual meter readings to them. Finally, pursuant to Section 17.2 of the Lincoln County Subdivision Regulations, the subdivider is required to provide stored water for fire protection prior to construction. The storage amount shall not be less than 3,000 gallons. It is not clear if this amount is on a per parcel basis or for the entire subdivision, anyhow, it is considered inadequate by most standards; therefore, it is suggested that either this amount be increased to an amount sufficient enough to provide adequate fire protection. For example, the minimum specified by the Insurance Services Office (ISO) of 60,000 gallons is recommended for a subdivision utilizing a community water system. The County may want to consider waiving the requirement altogether since individual wells will be providing water to the subdivision instead of a community water system or they could consider amending their regulations to specify that the 3,000 gallons storage amount is the minimum fire storage capacity for independent water systems such as proposed for this subdivision.

I am of the opinion that the subdivider has met the basic requirements of the Lincoln County Subdivision Regulations concerning their water proposal; therefore, I recommend that a favorable opinion be issued for this subdivision proposal contingent upon the addition of the evaporative cooling requirement in the water budget. Also, the County should seriously consider the recommendation requiring the subdivider to install totalizing meters on all the wells drilled at the subdivision and the recommendation that they resolve the issue of fire storage capacity.

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<sup>3</sup> Included in CCRs (Covenants, Conditions and Restrictions) Regarding Water Conservation Measures.



Prepared by Michael J. Darr, RG  
Professional Hydrologist



Reviewed by Claude Schleyer, PE  
Professional Engineer





GARY E. JOHNSON  
GOVERNOR

State of New Mexico  
**ENVIRONMENT DEPARTMENT**  
*Drinking Water Bureau – Ruidoso Field Office*  
1216 Mechem Drive, Ruidoso, NM 88345  
(505) 258-3272  
(505) 258-4891 fax



PETER MAGGIORE  
SECRETARY

May 30, 2002

RE: Environment Department Opinion on Water Quality for Windmill Ranches

Under section Y. State Agencies Statements on Water, following a statement that the New Mexico Environment Department's opinion on water quality will be included in the Disclosure Statement Addendum is a statement that the water quality of representative wells had been analyzed, and that the reported concentrations of most contaminants were all within human health standards for chemicals contained in "New Mexico Environment Department standards for groundwater quality (NMAC20.6.2.3103)..." Copies of the analyses have not been provided to the NM Environment Department for review, so the following is based on the information contained in the discussion in section Y. of the Disclosure Statement.

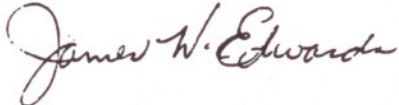
The standards cited are those for groundwater with total dissolved solids (TDS) equal to or less than 10,000 mg/l, and are the standards that may not be exceeded by anyone discharging contaminants into the ground. Many of those groundwater standards are higher than the "standards" or maximum contaminant levels (MCLs) allowed in drinking water, and which are contained in the New Mexico Drinking Water Regulations (NMAC 20.7.1). These MCLs are the same as those contained in the National Primary Drinking Water Regulations enforced by the US Environmental Protection Agency (USEPA). While these regulations and MCLs apply to public drinking water systems, these MCLs and USEPA's secondary standards are our recommended limits for individual drinking water supplies. also. Copies of the MCLs and secondary standards for inorganic chemicals are enclosed for reference.

According to the information provided in the disclosure statement, the concentrations of sulfate and total dissolved solids exceeds both groundwater standards and drinking water standards. Again, the standards cited in the disclosure statement are groundwater standards, which are those that may not be exceeded by groundwater discharges. The drinking water standards or MCLs for TDS and sulfate are 500 mg/l and 250 mg/l, respectively, so the concentrations of those contaminants in the sample referenced in the disclosure statement (TDS = 3100 mg/l and sulfate = 1700 mg/l) are more than six times the drinking water standards.

The only other contaminant referenced in the disclosure statement is fluoride, which was detected at a concentration of 1.9 mg/l. which is less than the drinking water MCL of 4.0 mg/l, and slightly less than the secondary MCL of 2.0 mg/l. Some children exposed to fluoride concentrations greater than about 2.0 mg/l may develop dental fluorosis. Dental fluorosis in moderate and severe forms is a brown staining and/or pitting of the permanent teeth. Because dental fluorosis occurs only when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. Families with children under the age of nine should have their water tested for fluoride, and if the concentration is greater than 2.0 mg/l, they should seek other sources of drinking water for their children to avoid the possibility of dental staining and pitting.

Because the developer provided concentrations only for constituents that exceeded groundwater standards, it is unknown if water in the development exceeds any other drinking water standards. As stated by the developer, drinking water from wells in the development will require treatment by softening or reverse osmosis to lower hardness and sulfate to acceptable levels. The developer's statement regarding water treatment system requirements for those constituents is acceptable.

Sincerely,

A handwritten signature in cursive script that reads "James W. Edwards".

James W. Edwards  
Environmental Specialist  
Drinking Water Bureau



**20 NMAC 7.1. Drinking Water Regulations, NM Environment Department, Drinking Water Bureau**  
**202. MAXIMUM CONTAMINANT LEVELS FOR INORGANIC CONTAMINANTS .—**

- A. The maximum contaminant levels for inorganic contaminants specified in subsections A(1)-(2), A(4)-(8), A(10)-(16) of this Section apply to community water systems and non-transient, non-community water systems. The maximum contaminant levels specified in subsection A(3) and A(9) of this Section only apply to community water systems. The maximum contaminant levels specified in A(12)-(14) apply to community, non-transient non-community, and non-community water systems.

	Contaminant	MCL (mg/l)	MCL (µg/L)
1.	Antimony	0.006	6
2.	Asbestos	7 Million Fibers/liter (longer than 10 µm)	
3.	Arsenic	0.05	50
4.	Barium	2	2000
5.	Beryllium	0.004	4
6.	Cadmium	0.005	5
7.	Chromium	0.1	100
8.	Cyanide	0.2	200
9.	Fluoride	4.0	
10.	Mercury	0.002	2
11.	Nickel	0.1	100
12.	Nitrate (as N)	10	
13.	Nitrite (as N)	1	
14.	Total Nitrate and Nitrite (as N)	10	
15.	Selenium	0.05	50
16.	Thallium	0.002	2

**Environmental Protection Agency**

§ 143.3 Secondary maximum contaminant levels.

The secondary maximum contaminant levels for public water systems are as follows:

**Contaminant Level**

Aluminum .....	0.05 to 0.2 mg/l.
Chloride .....	250 mg/l.
Color .....	15 color units.
Copper .....	1.0 mg/l.
Corrosivity .....	Non-corrosive.
Fluoride .....	2.0 mg/l.
Foaming agents .....	0.5 mg/l.
Iron .....	0.3 mg/l.
Manganese .....	0.05 mg/l.
Odor .....	3 threshold odor number.
pH .....	6.5–8.5.
Silver .....	0.1 mg/l.
Sulfate .....	250 mg/l.
Total dissolved solids (TDS) .....	500 mg/l.
Zinc .....	5 mg/l.





GARY E. JOHNSON  
GOVERNOR

# State of New Mexico ENVIRONMENT DEPARTMENT

Ruidoso Field Office  
1216 Mechem Suite 2  
Ruidoso, New Mexico 88345  
Telephone (505) 258-3272  
Fax (505) 258-4891



PETER MAGGIORE  
SECRETARY

May 30, 2002

Patsy Sanchez, Planning Administrator  
County of Lincoln  
PO Box 771  
Carrizozo, New Mexico 88301



Subject: Review of Windmill Ranches Subdivision

Dear Ms. Sanchez:

Thank you for your request for comment on the Windmill Ranches Subdivision. The following comments are related to the areas of interest to the Environment Department as allowed in the Disclosure Statement.

## Section Y. STATE AGENCIES STATEMENT ON WATER:

See attachment.

## Section AA. ENVIRONMENT DEPARTMENT STATEMENT ON LIQUID WASTE DISPOSAL:

The developer has proposed onsite liquid waste disposal. The proposal has been evaluated for compliance with the New Mexico Liquid Waste Disposal Regulations (LWDR).

LOT SIZE – The large size of the lots, limitation of one residence per lot, and a prohibition of any further subdivision ensure that all of the properties offered meet the lot size requirements.

SOIL PROPERTIES - A study of the soils has been performed and is attached. The study is based on information found in the Soil Survey of Lincoln County Area New Mexico by the US Department of Agriculture, Soil Conservation Service. Most of the soils are classed as having Severe limitations with some Moderate to Severe limitations. The Soil Survey reviews the kinds of soil limitations that affect septic tank absorption fields installation and performance and defines them as "moderate if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and severe if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are require." (Soil Survey of Lincoln County Area New Mexico, Chapter – use and management of the soils, sanitary facilities, page 80). The limitations stated are due to slow percolation rates, shallow soil depths, steep slopes, and flooding potential. Absorption fields in slow percolating soils shall be designed with larger fields to accommodate the decreased permeability rates prevalent in this area. Soil depth limitations can be overcome by good site selection, which is possible on the large lots in this subdivision. Sites with shallow soil depth throughout or selected construction sites with shallow soils can be overcome with special system design, which can include increased construction costs and possibility increased maintenance. Steep slopes and flooding limitations can also be overcome with adequate selection site selection.

GENERAL DESIGN REQUIREMENTS – Other design and permit requirements can achieve compliance with the LWDR with proper attention to detail.

CC. ENVIRONMENT DEPARTMENT STATEMENT ON SOLID WASTE DISPOSAL:

The developer has proposed collection and disposal of solid waste by a property owner obtained service. The Lincoln County Solid Waste Authority offers this service. This service is in substantial compliance with the Solid Waste Management regulations.

Should you have any questions regarding this review, please contact me at the telephone number or address stated above.

Sincerely,



Carl Stubbs  
Area Manager, District 4  
Environment Department 4

Cc: Darwin Pattengale, District Manager, District 4, NMED  
Steve Walker, Community Services Bureau, NMED  
Jim Edwards, Drinking Water Bureau, NMED  
Fred Bennett, Solid Waste Bureau, NMED  
File



## WINDMILL RANCHES – SOIL SURVEY by Section and Type

### LOCATION SOIL TYPES in each Section

#### T3S, R10E, Sections:

24 (1,3,4)	67, 88
25	67, 82, 88
26	67, 88
35 (1,2)	67, 82, 88
36	8, 67, 82

#### T3S, R11E, Sections:

19 (3,4)	88
20 (3,4)	67, 88
28 (1,3,4)	67, 88
29	19, 67, 88
30	19, 67, 88
31	82
32	67, 82, 88
33 (1,2,3)	67

#### T4S, R10E, Sections:

1 (1,2)	8, 67, 82
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#### T4S, R11E, Sections:

4 (1,3,4)	19, 67, 82, 88
5	67, 82, 88
6 (1,2,4)	67, 82, 88
8 (2,4)	19, 67, 96
9	19, 67, 82, 88, 96
16	67, 82, 83
17 (3,4)	61, 67, 82, 96
18 (3,4)	61, 83
19	61
20 (1,2)	59, 61, 83
21 (1)	83, 82, 59

# WINDMILL RANCHES – SOIL SURVEY by Type and Characteristic

Soil	Soil Type Name	Slope %	Permeability inches/hour	Clay %	Bedrock inches	Limitations	Basis of Limitations
8	Darvey-Asparas	0-5	0.2-2.0	20-35	>60	Moderate-Severe	Percs slowly
19	Gabaldon	0-2	0.6-2.0	18-35	>60	Severe	Flooding
59	Pena-Hogadero	1-30	0.6-2.0	7-27	>60	Severe	Poor Filter, Slope
61	Penistaja-Travessilla	2-5	0.6-2.0	5-30	12-60	Moderate-Severe	Depth to rock, Percs slowly
67	Rance-Tanbark	2-9	0.6-2.0	18-35	20	Severe	Depth to rock
82	Sharps	2-5	0.2-2.0	10-35	30	Severe	Depth to rock
83	Sharps-Rock Outcrop	2-15	0.2-2.0	10-35	30	Severe	Depth to rock
88	Tanbark-Tortugas	5-50	0.6-2.0	15-35	20	Severe	Depth to rock, Slope
96	Witt-Penistaja	0-5	0.2-2.0	10-35	>60	Moderate-Severe	Percs slowly



## **CARRIZOZO SOIL AND WATER CONSERVATION DISTRICT**

**P. O. Box 457, Carrizozo, NM 88301 PH: (505) 648-2941 FAX: (505) 648-2558**

*Jim Grider, Chairman  
Bill Hightower, Vice-Chairman  
Melvin Johnson, Sec/Tres  
Knollene McDaniel, Member*

*Gordon Barham, Member  
Floyd Proctor, Member  
Jack Allen Davidson, Member  
Sue Stearns, Program Director*

May 30, 2002

Patsy Sanchez, Planning Director  
County of Lincoln  
P. O. Box 711  
Carrizozo, NM 88301

SUBJECT: Review of Windmill Ranches Development

On Thursday, May 23, 2002, members of the Carrizozo soil and Water Conservation District and Natural Resources Conservation Service made an on-site review of the proposed Windmill Ranches Development Subdivision. Those representing the Carrizozo SWCD were Jim Grider, Melvin Johnson, Gordon Barham, Bill Hightower, Knollene McDaniel and Floyd Proctor. Greg Haussler represented the NRCS. Mr. Daniel Dattola, President of Southwest Properties of New Mexico was also present for a portion of the review.

The items reviewed referred in general to terrain management, including surface drainage, subsurface drainage, storm drainage, cut and fill slope grading, and suitability of soils for potential intended uses. Areas of concern are identified below with references to specific locations if applicable.

Areas of concern from the standpoint of surface and storm drainage were noted along some of the proposed roads. The road in Largo Canyon near Lots 256 and 68 will be subject to overland flow during periods of flooding. Other locations of concern which will be subject to flooding are near the corner of Lots 68 and 69, on the open space between Lots 165 and 235, on the open space between Tracts 31 and 32, and on the open space near Lots 37 and 38. Although not all of these crossings are located within the subdivided area, their condition will considerably impact access to all of the lots platted from number 41 through 248, or a total of 207 lots.

As stated in the disclosure, the area proposed for development has not been assessed by FEMA for flooding potential. However, a very large drainage, Largo Canyon, does cross the property, and it and its large tributaries are subject to flooding during periods of heavy rainfall. In general, these areas correspond to the location of soil mapping unit #19, Gabaldon Loam, on soil survey maps. Other large drainages not mapped at unit #19

are readily obvious. Although flooding may be infrequent, it can also occur from rainfall from areas far removed from the subdivision location.

Surface drainage from roads as well as overland flow in small drainages and its impact on roads was also noted. Two areas of concern were the road near Lots 66 and 67 from ditch flow and many other locations where turnouts are needed to drain surface water from road ditches to prevent these ditches from eroding. Of particular concern are areas where roads cross soils high in gypsum or where gypsum is at the soil surface. Road drainage was also noted as essential for areas near Lots 285 to 294. Culverts will also need to be sized and placed at all critical locations. Care should be taken to keep road ditches from eroding, but due to erratic precipitation, seeding and mulching of ditches may not prove feasible.

At the present time, culvert sizes and locations have not been specified. The same is true of ditch turnouts. These items cannot specifically be addressed until such information is available. Since these roads are private roads that are to meet county standards, we recommend that the county inspect the roads to determine proper placement of needed drainage structures.

The Terrain Management Plan lists brief descriptions of the soils on the subdivision and suitabilities of these soils for some uses, particularly road fill and topsoil. Also to be noted are suitabilities of these soil units for building site development and sanitary facilities which are not included in the plan but are of interest to landowners. These include the following:

Unit 19: Gabaldon Loam - Building site development and sanitary facilities – severe limitations due to flooding.

Unit 59: Pena-Hogadero Association - Building and sanitary facilities – Pena: severe slopes; Hogadero - slight for dwellings and foundations; severe for septic systems.

Unit 61: Penistaja-Travessilla Association - Penistaja – slight to moderate limitations; Travessilla – severe due to shallow depth to bedrock.

Unit 67: Rance-Tanbark Association – slight to moderate for building sites and severe for sanitary facilities. Tanbark has severe limitations due to depth to bedrock.

Unit 71: Reventon Loam: slight to moderate for fall uses except septic tanks; severe due to slow percolation.

Unit 82: Sharps Silt Loam: moderate for building sites but severe for sanitary facilities due to depth to bedrock.

Unit 83: Sharps-Rock Outcrop – same as Unit 82.



Unit 88: Tanbark-Tortugas – severe limitations for all uses due to shallow depth to bedrock.

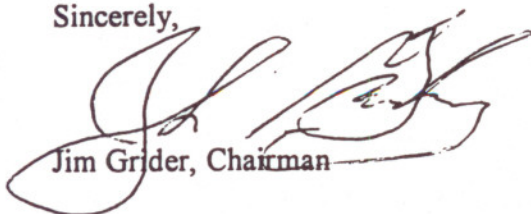
Unit 96: Witt-Penistaja Association – slight to moderate limitations for building sites and sanitary facilities.

More detailed information for these soils can be found in Tables 5 and 6 - Building Site Development and Sanitary Facilities in the Lincoln County Soil Survey which is available at the NRCS office in Carrizozo.

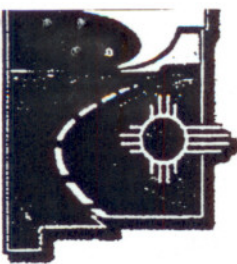
The subdivision allows grazing animals on the properties. Care should be taken by landowners to confine these animals to restricted areas for the majority of the year to keep them from destroying existing native vegetation by overgrazing. For grazing animals on native grazing lands, fifty to sixty acres are required per animal to provide adequate forage in an average year. Of particular concern is depletion of ground cover and subsequent erosion during the growing season, which also corresponds to the traditional rainy season.

The Carrizozo SWCD appreciates the opportunity to review this subdivision proposal. Services are available from the district to help landowners with problems relating to natural resources and their uses. Our office is located at 409 Central Avenue in Carrizozo, Telephone Number – 648-2941.

Sincerely,



Jim Grider, Chairman



NEW MEXICO STATE HIGHWAY  
AND TRANSPORTATION DEPARTMENT  
AN EQUAL OPPORTUNITY EMPLOYER

GARY E. JOHNSON  
GOVERNOR

COMMISSION

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Coronado Station  
Santa Fe, NM  
87502-4127  
(505) 827-9500

District Six Office  
P.O. Box 2159  
Millan, NM 87021  
(505) 285-3200

June 4, 2002

Patsy Sanchez  
Planning Officer  
County of Lincoln  
Post Office Box 711  
Carrizozo, New Mexico 88301-0711

RE: Windmill Ranches Subdivision

Dear Ms. Sanchez:

The appropriate engineers of the New Mexico State Highway and Transportation Department, have reviewed the material submitted on the above referenced development and have the following comments.

**District:** "Based on the number of parcels involved and only county road accessing the US 54, a Traffic Impact Analysis will be required. The analysis shall be performed for the intersection of County Road A017 and US 54. This is an existing intersection so permitting will not be required, however improvements to US 54 may be required as part of this development."

**Traffic Technical Support Section:** "The Developer has not included any information about the traffic impacts from this subdivision on US 54. The NMSHTD has now published the State Access Management Manual and developers are required to follow this manual to obtain approval of their developments. The developer should obtain a copy of State Management Manual form the Department and follow the requirements in Chapter Six, Section16, Traffic Studies for Land Development. This development is significant in size and may require improvements to US 54."

**Drainage:** "The regression equations used are acceptable. There is not a storm drain system designed for this subdivision. There are several arroyos that cross the subdivision. The capacity of the arroyos and the flow rates are mentioned, however no structures are recommended. Spoke with Mr. Bill Lorang of Turline Engineering, the engineer who did the hydrology study, and he informed me that no arroyos from the Subdivision, cross a State highway or flow to any other arroyos that cross a State Highway.

It is required that the Subdivision does not add any additional (resulting from developed conditions) flow to NM 54.



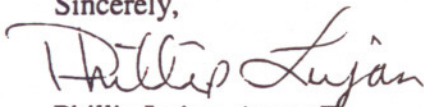
May 4, 2002  
Santa Fe County  
Windmill Ranches Subdivision

It should be noted that when the roads span any arroyos, adequate size structures are required for those locations. Mr. Lorang informed me that either the roadway will be a dip section at the arroyos, as to allow the flow to continue over the roadway and cross over, or there will be adequately sized structures recommended for those locations. It is necessary to make recommendations on structures that would be required if any roadways will be built over the arroyos."

**Lands Engineering:** "Subject property does not adjoin Department Right of Way – traffic volumes will impact US 54 @ County Road."

If you have any further questions, please contact me at (505) 827-5167.

Sincerely,



Phillip Lujan, Agent II  
Subdivision Coordinator  
Property Management Unit

XC: L. Cisneros  
R. Noedel  
D. Stewart  
B. Bracher  
File