

April 10, 2008

Mr. Thomas F. Stewart
County Manager, Lincoln County
P.O. Box 711
Carrizozo, NM 88301-0711

CERTIFIED MAIL
RETURN RECEIPT
REQUESTED

Re: Stone Mountain Subdivision

Dear Mr. Stewart:

The Water Use & Conservation/Subdivision Review Bureau of the Office of the State Engineer has reviewed the referenced subdivision proposal pursuant to the Lincoln County Subdivision Ordinance, the New Mexico Subdivision Act and the OSE Rules and Regulations Governing The Use Of Public Underground Waters For Household Or Other Domestic Use.

Based on the information provided, this office cannot determine that the subdivider can furnish water sufficient in quantity to fulfill the maximum annual water requirements of the subdivision, including water for indoor and outdoor domestic uses, and that the subdivider can fulfill the proposals in his disclosure statement concerning water, excepting water quality. Accordingly, a **negative** opinion is issued.

A staff memorandum providing specific comments is attached for your information. If you have any questions, please call Jerry Keller at 505-827-3845.

Sincerely,

John W. Longworth, P.E.
Water Use & Conservation/Subdivision Review Bureau Chief

Encl.

cc: OSE Water Rights Division, Roswell Office

JK:jk

MEMORANDUM
New Mexico Office of the State Engineer
Water Use and Conservation Bureau

DATE: April 8, 2008

TO: John Longworth, P.E. Water Use & Conservation Bureau Chief

FROM: Jerry Keller, Senior Water Resource Specialist

SUBJECT: Stone Mountain Subdivision in Lincoln County

SUMMARY

On March 12, 2008 the Office of the State Engineer (OSE) received a request to review the Preliminary Plat for Stone Mountain, a Type-Three Subdivision. The proposal is a request to subdivide a 61.28-acre parcel into 22 residential lots ranging in size from 2.003-acres to 5.532-acres each. The proposed water supply is individual 72-12-1 domestic wells. The property is located north of Ruidoso near Alto, within Section 2, Township 11 South, Range 13 East, NMPM.

The water supply documents submitted to this office consist of a Water Supply Plan, Declaration of Covenants, Conditions, and Restrictions (Covenants), Disclosure Statement, Geohydrologic Analysis of Water Supply, and Plat Map.

The proposal was reviewed pursuant to the Lincoln County Subdivision Ordinance 2006-5 (Ordinance) and the New Mexico Subdivision Act (Act). The water supply proposal is not in compliance with the requirements of Sections 17.4.C and 18.1 of the Ordinance and Section 47-6-17(11) and 47-6-11-F (1) of the Act. Accordingly, a **negative** opinion should be issued.

WATER DEMAND ANALYSIS AND WATER CONSERVATION

The proposal contains a detailed Water Demand Analysis, within the Geohydrologic Analysis of Water Supply, as required by Section 18.2.A of the Ordinance.

The analysis substantially reflects the assumptions presented in OSE Technical Report 48 (Wilson, 1996). The annual indoor water use estimate of 0.206 acre-feet is based on 2.34 persons per dwelling unit, reverse osmosis treatment, and no evaporative cooling. The annual outdoor demand is estimated at 0.043 acre-feet for 800 square feet of Kentucky bluegrass. The total estimated annual demand is 0.25 acre-feet per lot and 5.5 acre-feet for the subdivision.

The following water demand and conservation inconsistencies/contradictions must to be addressed:

- The Water Demand Analysis assumes that ornamental ponds, water gardens, and swimming pools will not be permitted within the subdivision and evaporative cooling will not be used. The Covenants only recommend “careful consideration” of any use of hot tubs, swimming pools and water gardens but does not prohibit their use. Evaporative coolers are not addressed. Turf areas are limited to 800 square feet; however additional

landscaping other than turf is not restricted. The Covenants also allow guesthouses and servants' quarters on each lot. No estimated quantities for these uses are included in the Water Demand Analysis.

- Item R of the Disclosure Statement states that a 72-12-1 domestic well permit is limited to a diversion of one acre-foot per annum. Reference to the maximum allowable diversion under a 72-12-1 permit is confusing and is in conflict with the maximum estimated water use established in the water demand analysis.
- The Disclosure Statement does not contain a statement describing the maximum annual water requirements of the subdivision, including water for indoor and outdoor domestic uses, as required by Section 47-6-17(11) of the Act.

The water quantities and conservation measures established in the water demand analysis are the basis for the water availability assessment contained in the Geohydrologic Analysis of Water Supply. All conservation measures used to development the water budget and the water conservation measures required by Section 18.1 of the Ordinance must be summarized in the Disclosure Statement and the Covenants.

WATER AVAILABILITY ASSESSMENT

The proposed water supply for the subdivision is individual 72-12-1 domestic wells constructed by the lot purchaser.

The subdivider submitted a Geohydrologic Analysis of Water Supply (Report) as required by Sections 17.4.C and 17.5 of the Ordinance. One test well (H-3754) was completed within the proposed subdivision. The well was drilled in July 2005 to a total depth of 900 feet. A 24-hour pump test was conducted in August 2005.

Graphs of drawdown and recovery well test data, geologic cross-sections, groundwater level contours, water availability calculations, well logs for numerous well in the vicinity of the development, and results of 40-year schedule of effects model are included in the Report.

OSE Hydrology Bureau, as well as the Water Uses and Conservation Bureau, reviewed the Report. The Hydrology Bureau's comments are summarized in the attached memorandum.

MEMORANDUM

**New Mexico Office of the State Engineer
Hydrology Bureau**

April 4, 2008

TO: Jerry Keller, Water Use & Conservation Bureau

THROUGH: Mike Johnson, Chief, Hydrology Bureau

FROM: Douglas Rappuhn, Hydrology Bureau *DR*

SUBJECT: Comments on *Geohydrologic Analysis of Water Supply for the Proposed Stone Mountain Subdivision near Ruidoso, Lincoln County, New Mexico*, prepared December 5, 2007, and associated Disclosure Statement; Declaration of Covenants, Conditions, and Restrictions; and Water Supply Plan

The subject December 5, 2007 Geohydrologic Analysis report ("report") and additional materials provided March 2008 ("3/2008 submittal") assert sufficient ground water availability to provide 40-year supply to the proposed Stone Mountain Subdivision, planned northeast of Ruidoso, Lincoln County. Evaluation of the local hydrogeology was preceded by developer test-pumping of project well H-3754, which allowed derivation of a local value of transmissivity within the aquifer developed in Cretaceous-age sediments. Although the report is generally comprehensive, for the NMOSE to assess the availability of 40-year ground water supply from the developer-recommended well designs in light of existing regional use, additional information is needed. The following issues were identified:

- The report (Section 5.4) identifies total water demand at 0.25 AFY per dwelling, and with 22 tracts subdivided, the total estimated demand for the subdivision is stated to be 5.5 AFY. Simulation of project 40-year drawdown is provided based on the 5.5 AFY demand. Submitted Water Supply Plan (page 1) and Disclosure Statement (page 11) indicate up to one AFY may be pumped from project single household wells, resulting in suggested consideration of up to 22 AFY total project demand.
- Aquifer water level plots (Figures 8, 10) for well H-3754 indicate background diurnal fluctuations of water level in H-3754 on the scale of five- to ten-feet within successive approximate 24-hour periods, which can not be characterized due to barometric pressure changes (report, page 10), and suggest prominent local competing use that warrants further diagnosis and comment.
- Report Appendix C includes Figures 2 and 3 reproduced from DBSA 2007 Alto Lakes Water Company subdivision review submittal. Those graphics indicate hydrogeologic simulations were run incorporating the geologic faults shown in the Stone Mountain report Figures 3, 4, and 5 as impermeable boundaries. The Stone Mountain hydrogeologic report simulation of 40-year drawdown effects does not simulate the more-proximal fault as an impermeable boundary.

- Disclosure Statement items under “W” (average, maximum depth to water; suggestion to complete well to a depth of 100 feet below top of water table; estimated minimum well yield; pump setting depth) found to be inconsistent with information presented in Geohydrologic report.

To help address these issues, the following additional information is requested:

- Reconciliation of Item “W” elements of Disclosure Statement with information presented in Geohydrologic report.
- Reconciliation of project water demand in project submittals, and re-simulation (as necessary) of project demand.
- Review and comment regarding the diurnal fluctuations noted in the H-3754 water level data. Of particular interest is consideration of a long-term simulation including the source of the pumpage related to the five- to ten-foot fluctuations seen in the data plots, an effect not likely attributable to proximal domestic well pumpage.
- It would be helpful to receive notes regarding all discharge measurements and adjustments for the H-3754 aquifer test, particularly if appended to a version of the digital water level file already provided for the test. A copy of the field notes, including any instantaneous or totalizing flowmeter measurements would suffice if report Figure 8 reflects the only discharge rate adjustments made.
- Digital file “H03754Analysis.aqt”, provided on the report’s CD is in an unrecognized format. Please identify format, and if possible provide a paper copy of the file.
- Submittal of 40-year hydrologic simulation of project diversion characterizing the southern Eagle Creek-area fault (shown in report Figures 3, 4, 5) as an impermeable boundary during proposed project pumping.
- If the NMOSE Theis program or other non-proprietary analytical program is used to simulate project and regional hydrologic effects, please provide digital input and output files for all simulations submitted to allow efficient NMOSE assessment of sensitivity of hydrologic variations in simulations, as necessary.