

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581



LIC

WELL PERMIT NUMBER		049451		- F -	
DIV. 8	CNTY. 21	WD 10	DES. BASIN 4	MD 12	

APPLICANT

PROLAND GROUP, LLC, D. & G. SCHOEN
C/O HOLLY HOLDER PC
518 17TH ST #1500
DENVER CO 80202-

(303) 534-3636

PERMIT TO CONSTRUCT A WELL

APPROVED WELL LOCATION

EL PASO COUNTY

SW 1/4 SW 1/4 Section 12
Twp 12 S RANGE 65 W 6th P.M.

DISTANCES FROM SECTION LINES

20 Ft. from South Section Line
1300 Ft. from West Section Line

CONDITIONS OF APPROVAL

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
- 2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
- 3) Approved pursuant to Sections 37-90-107 and 37-90-111(5), C.R.S., and the Findings and Order of the Colorado Ground Water Commission dated January 30, 1998. If the well is not operated in accordance with the terms and conditions of the replacement plan described in the above Findings and Order of the Commission, it will be subject to enforcement action, including orders to cease diverting water.
- 4) The maximum pumping rate shall not exceed 15 GPM.
- 5) The allowed maximum annual amount of ground water to be withdrawn is .56 acre-foot.
- 6) The use of ground water from the well shall be limited to the following: residential use in one single family dwelling, irrigation of no more than 4000 square feet of lawn and garden and the watering of domestic animals.
- 7) The well must be constructed to the base of the Dawson aquifer and completed to withdraw water from only the Dawson aquifer. The top of the aquifer is located approximately 100 feet below the ground surface and the base of the aquifer is located approximately 695 feet below the ground surface. Plain casing must be installed and sealed to prevent diversion of water from other aquifers and the movement of water between aquifers.
- 8) This well shall be constructed within 200 feet of the location specified on this permit and shall not be located within 600 feet of any now existing large-capacity well completed in the Dawson aquifer.
- 9) The entire length of the hole shall be geophysically logged according to the attached instructions prior to installing the casing.
- 10) A totalizing flow meter must be installed on the well and maintained in good working order. Permanent records of all diversions must be maintained by the well owner (collected at least annually) and submitted to the Upper Black Squirrel Creek Ground Water Management District and the Ground Water Commission upon request.
- 11) The owner shall mark this well in a conspicuous place with the permit number and the name of the aquifer. He shall take necessary means and precautions to preserve these markings.
- 12) The return flow from the use of this well must be through an individual waste water disposal system of the non-evaporative type where the water is returned to the same stream system in which the well is located.

NOTE: The ability of this well to withdraw its authorized amount of water from this non-renewable aquifer may be less than the 100 years upon which the amount of water in the aquifer is allocated, due to anticipated water level declines. (CAC 1-22-92)

APPROVED
RAC

PERMIT EXPIRATION DATE EXTENDED TO FEBRUARY 2, 2000

Handwritten signature of State Engineer

State Engineer

Handwritten signature of official

By

Receipt No. 0412611

DATE ISSUED

FEB 02 1998

EXPIRATION DATE

FEB 02 1999

FINDINGS AND ORDER OF THE COLORADO GROUND WATER COMMISSION

IN THE MATTER OF AN APPLICATION FOR A PERMIT TO CONSTRUCT A WELL AND APPROPRIATE GROUND WATER IN THE UPPER BLACK SQUIRREL CREEK DESIGNATED GROUND WATER BASIN - AND PROPOSED PLAN TO REPLACE WATER DEPLETIONS TO THE ALLUVIAL AQUIFERS.

APPLICANT: PROLAND GROUP, LLC, AND DONALD & GERALDINE SCHOEN

AQUIFER: DAWSON

PERMIT NO.: 49451-F

In compliance with Sections 37-90-107(1) and 37-90-111(5), C.R.S., and the Designated Basin Rules (2 CCR 410-1), ProLand Group, LLC, and Donald and Geraldine Schoen (hereinafter "applicants") submitted an application for a permit to construct a well and appropriate ground water from the Dawson Aquifer. Based on information provided by the applicants and records of the Division of Water Resources, the Colorado Ground Water Commission finds as follows:

1. The application was first received by the Ground Water Commission on March 5, 1997, and was received complete on November 6, 1997.
2. a. The applicants propose to appropriate ground water from the Dawson Aquifer (hereinafter "aquifer") underlying 320 acres of land generally described as the SW1/4 of Section 12 and the NW1/4 of Section 13, all in Township 12 South, Range 65 West of the 6th Principal Meridian. According to signed statements dated March 26, 1997, and June 9, 1997, the applicants own the 320 acres of land, as further described in said affidavits which are attached hereto as Exhibit A, and claim the ownership or control of the ground water in the aquifer underlying this property.

b. The proposed annual appropriation is 170 acre-feet. To appropriate and withdraw this ground water from the aquifer, the applicants propose to construct a well in the SW1/4 of the SW1/4 of Section 12, Township 12 South, Range 65 West of the 6th P.M. at a location 20 feet from the south section line and 1300 feet from the west section line of said Section 12. The well would be constructed to divert ground water from the aquifer with a maximum pumping rate of 15 g.p.m.
3. The land area overlying the ground water claimed by the applicants is located within the boundaries of the Upper Black Squirrel Creek Designated Ground Water Basin and Ground Water Management District. The Ground Water Commission has jurisdiction.
4. The applicants propose to apply the appropriated ground water to the following beneficial uses: residential use pursuant to a replacement plan. The proposed well is the first of fifty-five (55) residential wells which would withdraw the appropriation. Each of the fifty-five wells is to be located on one of fifty-five lots of a subdivision or subdivisions to be located on the above described 320 acre property, to serve one single family dwelling, irrigation of no more than 4,000 square feet of lawn and garden and the watering of domestic animals, with a maximum annual withdrawal of .56 acre-foot.

5. a. The location of the proposed initial well is more than 600 feet from any now existing large-capacity well completed in the aquifer. No other proposed well locations were indicated in the application. The location of each of the fifty-five proposed residential wells must be located more than 600 feet from any now existing large-capacity wells completed in the aquifer. A review of records of the Ground Water Commission has disclosed that such a well is located within 600 feet of the above described 320 acre property, Permit No. 17662-F. Unless a waiver of injury is filed by the owner of this well with the Commission, the location of any one of the proposed wells must be more than 600 feet from the permitted location of this well, described as a point 2500 feet from the south section line and 2500 feet from the east of Section 13, Township 12 South, Range 65 West of the 6th P.M.

b. The well location of any one of the fifty-five proposed residential wells may be located within 600 feet of another of these well locations. The applicants have provided a waiver, dated March 5, 1997, to all claim of injury which may arise from the proximity of these proposed wells to each other.
6. The applicants are the owners of the land on which the proposed initial well will be constructed.
7. The quantity of water in the aquifer underlying the 320 acres of land claimed by the applicants is 21,440 acre-feet. This determination was based on the following as specified in the Designated Basin Rules:
 - a. The average specific yield of the saturated permeable material of the aquifer underlying the land under consideration that could yield a sufficient quantity of water that may be extracted and applied to beneficial use is 20 percent.
 - b. The average thickness of the saturated permeable material of the aquifer underlying the land under consideration that could yield a sufficient quantity of water that may be extracted and applied to beneficial use is 335 feet.
8. At this time, there is no substantial artificial recharge which would affect the aquifer within a 100-year period.
9. Pursuant to Section 37-90-111(5), C.R.S., the Ground Water Commission is required to allocate designated ground water in the aquifer on the basis of landownership and a 100-year aquifer life. Therefore, the maximum annual appropriation which could be allowed pursuant to the data in the paragraphs above for the 320 acres owned by the applicants is 214 acre-feet.
10. The ability of the proposed initial well, with any additional wells, to withdraw the authorized amount of water from this non-renewable aquifer may be less than the 100 years upon which the amount of water in the aquifer is allocated, due to anticipated water level declines.

11. Based on analysis of data in the records of the State Engineer's office, in accordance with the Designated Basin Rules, it has been determined that withdrawal of ground water from the aquifer underlying the land claimed by the applicants will, within one hundred years, deplete the alluvium or flow of a natural stream at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal and therefore the ground water is considered to be not-nontributary ground water. Withdrawal of water from the aquifer underlying the claimed land area would impact the alluvial aquifer of Black Squirrel Creek or its tributaries which has been determined to be over-appropriated. Designated Basin Rules require approval of a replacement plan, to provide for actual depletions to alluvial aquifers located within Designated Ground Water Basins, prior to approval of the proposed well permit. The applicants have submitted a replacement plan proposing to use water provided by the Northgate Company, from the well with Permit No. 43217-F, as replacement water to the alluvium of the West Fork of Black Squirrel Creek and to limit the use of the proposed individual residential wells to those uses and amounts proposed in the plan.
12. According to the applicants, ProLand Group, LLC, has purchased replacement water from the Northgate Company in the amount of 1.5 acre-feet per year or 150 total acre-feet, to replace actual annual depletions to alluvial aquifers located within Designated Ground Water Basins by pumping of the 55 proposed residential wells for a period of 300 years.
13. A review of the records of the Ground Water Commission has disclosed that the issuance of the requested permit would result in unreasonable impairment of existing water rights unless terms and conditions are included to prevent such injurious effect. The well permit number, rate of diversion, and other relevant data concerning such rights are set forth in the attached Exhibit B. To prevent material injury to such existing water rights, the quantity of water underlying the land owned and claimed by the applicants in Exhibit A which is considered unappropriated has been reduced to 17,085 acre-feet or a maximum annual amount of 170 acre-feet. This reduction was based on a calculation of the area necessary to provide a quantity of water underlying such lands as would be sufficient for the persons entitled to divert water under existing rights to divert the maximum (average) annual amount of water from the aquifer for the minimum useful life of the aquifer (100 years). The effect of this calculation is to effectively reduce the land available for calculating the quantity of water underlying the land owned and claimed by the applicant to be served to 255 acres.
14. There are seven small-capacity wells located on the 320 acre property that are completed to withdraw ground water from the aquifer, permit numbers 8768, 12230, 41838, 41930, 50950, 79033 and 141028. The applicants have stated that these wells will be re-permitted to be used pursuant to the replacement plan or will be plugged and abandoned.
15. In accordance with Rules 5.3.8 and 5.3.9 of the Designated Basin Rules, fifty-four residential wells, as proposed, may be permitted as additional wells to withdraw the total allowed appropriation together with the proposed initial well.
16. On May 23, 1997, a letter was sent to the Upper Black Squirrel Creek Ground Water Management District requesting comments or recommendations concerning this application. Written recommendations from the district were received on June 25, 1997, indicating that the district did not recommend approval of the application.

17. The Commission Staff has evaluated the application relying on the claims to control of the water in the aquifer made by the applicants.
18. In accordance with Sections 37-90-107(2) and 37-90-112, C.R.S., the application was published in The Gazette newspaper on November 13 and 20, 1997.
19. No objections to the proposed appropriation were received within the time limit set by statute.

ORDER

The Colorado Ground Water Commission approves the proposed replacement plan and finds that unreasonable impairment of existing water rights will not occur from approval of the appropriation and issuance of a permit for the proposed initial well, and issuance of permits for fifty-four (54) additional residential wells, if the following conditions are complied with:

1. The wells must be constructed to withdraw water from only the Dawson Aquifer. At the proposed initial well location, the top of the aquifer is located approximately 100 feet below ground surface and the base of the aquifer is located approximately 695 feet below ground surface. The wells must have plain non-perforated casing installed and sealed from ground surface to at least 100 feet below ground surface to prevent diversion of ground water from other aquifers and the movement of ground water between aquifers.
2. The proposed initial well shall be completed to the base of the aquifer and the entire depth of the well shall be geophysically logged prior to installing the casing as set forth in Rule 9 of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7.
3. The allowed annual appropriation for the wells is 170 acre-feet. The Commission may adjust this amount based on analysis of geophysical logs if such analysis indicates that the initial estimate of the volume of water in storage was incorrect. The total allowed maximum annual amount of withdrawal is 30.8 acre-feet. The allowed maximum annual amount of withdrawal for each well is .56 acre-foot.
4. The maximum pumping rate of each well shall not exceed 15 g.p.m.
5. The wells shall be constructed within 200 feet of the location specified on the individual permit application and shall be located within the specified lot location on the above described 320 acre property. Each well must be located more than 600 feet from any now existing large-capacity well completed in the same aquifer.
6. A totalizing flow meter shall be installed on each well and maintained in good working order by the well owner. Annual diversion records shall be collected and maintained by the well owner and submitted to the property owners association, the Upper Black Squirrel Creek Ground Water Management District or the Commission upon their request.

7. The well owner shall mark the well in a conspicuous place with the permit number and the name of the aquifer. He shall take necessary means and precautions to preserve these markings.

8. The use of ground water from the appropriation for each well shall be limited to the following uses: residential use in one single family dwelling, irrigation of no more than 4,000 square feet of lawn and garden and the watering of domestic animals.

9. Return flows from use of each well must be through an individual waste water disposal system of the non-evaporative type where water is returned to the same stream system in which the well is located.

10. An annual summary of withdrawals from the wells during each calendar year shall be provided to the Commission no later than February 15 of the following year, on an accounting form acceptable to the Commission. The annual summary will include the number of wells operating in the development, an estimate of the area irrigated on each lot, and the number of domestic animals watered by each well.

11. The applicants shall form a property owners association for the subdivision(s) to assure operation of the replacement plan. This association will be responsible for providing the yearly summary of accounting and other reports pursuant to the replacement plan. Each lot owner shall be a member of this association.

12. Upon Commission approval of the replacement plan, issuance of the initial well permit, timely construction of the initial well and approval of the subdivision by the county, the appropriation shall be transferred by the applicants to the property owners association. Upon purchase of a lot within the subdivision, the association will specifically convey to that lot owner 1/55 of the total allowed appropriation with the right to apply for a well permit for withdrawal of that water pursuant to the replacement plan. Lot owners will provide a copy of the appropriation transfer document and a copy of their deed to the Commission when they file their well permit application for an individual well.

13. The discharge of replacement water shall commence during the 19th year after the year of approval of this replacement plan. The annual amounts of replacement water required shall correspond to the depletion amounts indicated in the schedule provided by the applicants attached hereto as Exhibit C. The Commission shall be notified two weeks prior to any discharge of replacement water for verification purposes. Delivery of replacement water to the place of discharge shall be the responsibility of the applicants until such time as a property owners association is formed at which time that entity shall become responsible.

14. The place of discharge of replacement water to the alluvium of the West Fork of Black Squirrel Creek shall be a point approximately on the west section line of Section 19, Township 12 South, Range 65 West of the 6th P.M., at a point where Meridian Road crosses the West Fork of Black Squirrel Creek.

15. The replacement plan may be amended to allow an alternative source of replacement water, subject to Commission review and approval.

16. In the event the required annual amount of replacement water is not discharged into the alluvium during any particular calendar year, the individual on-lot wells shall cease pumping the following calendar year. Pumping of the individual wells shall not commence unless the required replacement waters have been discharged to the alluvium, including any deficit for prior year shortages.

17. Well permits for fifty-four additional residential wells to withdraw the appropriation shall be available upon application, subject to the terms and conditions of this Order and subject to approval by the Commission.

18. Prior to issuance of any of the fifty-four additional residential on-lot well permits: i) The proposed initial well must be drilled, geophysically logged and completed to withdraw ground water from the Dawson Aquifer prior to its permit expiration date; ii) The applicants must verify to the Commission that all other necessary requirements in the above conditions of this Order have occurred.

19. Any existing small-capacity well completed in the aquifer and located on the above described 320 acre property shall be re-permitted to be used pursuant to the replacement plan or shall be plugged and abandoned within two years after issuance of the proposed initial well permit.

20. A copy of this Findings and Order shall be recorded by the applicants in the real property records of El Paso County, so that a title examination of the above described 320 acre property, or any part thereof, shall reveal to all future purchasers the existence of the replacement plan. The terms and conditions of the replacement plan will be considered to be a covenant on and running with the subject property.

21. Covenants for the proposed subdivision(s) should contain a description of the replacement plan and how the plan is to be administered, including accounting requirements and limitations on water use for each lot.

Dated this 30th day of January, 1998



Hal D. Simpson
Executive Director
Colorado Ground Water Commission

By:



Purushottam Dass, Ph.D., P.E.
Supervising Professional Engineer

RECEIVED

RECEIVED

JUN 20 1997

APR 02 1997

STATE OF COLORADO
OFFICE OF THE STATE ENGINEER
DIVISION OF WATER RESOURCES

WATER RESOURCES
STATE ENGINEER
COLO.

WATER RESOURCES
STATE ENGINEER
COLO.

NONTRIBUTARY GROUND WATER LANDOWNERSHIP STATEMENT

I (We) The Land-Pro Group, LLC
(Name)

claim and say that I (we) am (are) the owner(s) of the following described property consisting of 160 acres in the County of El Paso, State of Colorado:

(INSERT PROPERTY LEGAL DESCRIPTION)

NW 1/4 of Section 13, T12S,
R65W of the 6th P.M.

and, that the ground water sought to be withdrawn from the Dawson aquifer underlying the above-described land has not been conveyed or reserved to another, nor has consent been given to its withdrawal by another.

Further, I (we) claim and say that I (we) have read the statements made herein; know the contents hereof; and that the same are true to my (our) own knowledge.

Jerry A. Fendler 3/26/97
(Signature) (Date)
as President COO of The
Land-Pro Group, LLC
(Signature) (Date)

INSTRUCTIONS:

Please type or print neatly in black ink. This form may be reproduced by photocopy or word processing means. See additional instructions on back.

LANDOWNERSHIP STATEMENT INSTRUCTIONS

The landownership statement must be submitted with the well permit application in all cases where the well permit applicant believes or claims that water to be withdrawn is nontributary ground water or any ground water from the Dawson, Denver, Arapahoe, Laraine-Fox Hills or Dakota aquifers. The statement must be signed by the landowner(s).

The legal description and the number of acres of overlying land must be indicated. In areas of the state that are not surveyed, the State Engineer will accept an alternate description of the location of the overlying land sufficient to identify and locate the land. For legal descriptions of irregularly shaped parcels (where the boundaries do not follow or parallel section lines) or where there are exclusions of land within the total parcel, the applicant must submit a map having a scale of 1:24,000 or larger (e.g., 1:10,000) which accurately depicts the overlying land.

If the legal description is too lengthy for the space provided on the statement, please indicate "See attached legal description" in the space provided on the statement and attach the complete legal description. The legal descriptions and maps provided must be complete and legible.

The aquifer from which ground water is to be withdrawn must be indicated on the space provided. Where applications for more than one aquifer are submitted at one time, the applicant shall provide a separate statement for each aquifer. Production from a well is limited to one aquifer only.

RECEIVED
JUN 20 1997

WATER RESOURCES
STATE ENGINEER
COLO.

STATE OF COLORADO
OFFICE OF THE STATE ENGINEER
DIVISION OF WATER RESOURCES

NONTRIBUTARY GROUND WATER LANDOWNERSHIP STATEMENT

I (We) Donald W. Schoen and Geraldine V. Schoen
(Name)

claim and say that I (we) am (are) the owner(s) of the following described property consisting of 160 acres in the County of El Paso, State of Colorado:

(INSERT PROPERTY LEGAL DESCRIPTION)

SW 1/4, except North 209 feet of the East 105 feet, of Section 12, T12S, R65W of the 6th P.M.

and, that the ground water sought to be withdrawn from the Dawson aquifer underlying the above-described land has not been conveyed or reserved to another, nor has consent been given to its withdrawal by another.

Further, I (we) claim and say that I (we) have read the statements made herein; know the contents hereof; and that the same are true to my (our) own knowledge.

Donald W. Schoen 9 Jun 97
(Signature) (Date)

Geraldine V. Schoen 9 Jun 1997
(Signature) (Date)

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EXHIBIT B

APPLICANT: PROLAND GROUP AND DONALD & GERALDINE SCHOEN

AQUIFER: DAWSON

<u>WELL NUMBER</u>	<u>1/4</u>	<u>1/4</u>	<u>SEC</u>	<u>TWP</u>	<u>RNG</u>	<u>AF</u>	<u>ST</u>	<u>SY</u>	<u>RADIUS</u>	<u>AREA</u>
17662-F	NW	SE	13	12S	65W	178	292	20	2055	65

Permit issued October 16, 1973. The cylinder protects the claimed appropriation for this well. The amount of appropriation is based on the well owners statements and is subject to verification by the Ground Water Commission and publication prior to issuance of a final permit. The cylinder is centered at the permit location, a point 2500 feet from the south section line and 2500 feet from the east section line of Section 13, T12S, R65W.

WELL NUMBER = WELL PERMIT NUMBER OR WATER COURT CASE AND WELL NUMBER

AF = THE ANNUAL APPROPRIATION OF THE WELL IN ACRE-FEET

ST = THICKNESS OF THE SATURATED AQUIFER MATERIAL AT THE WELL LOCATION IN FEET

SY = SPECIFIC YIELD OF THE SATURATED AQUIFER MATERIAL AT THE WELL LOCATION AS A PERCENT

RADIUS = IS THE RADIUS OF THE CYLINDER OF APPROPRIATION IN FEET

AREA = THE AREA OF THE APPLICANTS' LAND THAT IS OVERLAPPED BY THE CYLINDER OF APPROPRIATION IN ACRES.

EXHIBIT C - 1

YEARS	DEPLETIONS % q/Q	DEPLETIONS IN ACRE-FEET	DEPLETIONS IN GALLONS
1	0.00	0.00000	0.00000
2	0.00	0.00000	0.00000
3	0.00	0.00000	0.00000
4	0.00	0.00000	0.00000
5	0.00	0.00000	0.00000
6	0.00	0.00000	0.00000
7	0.00	0.00000	0.00000
8	0.00	0.00000	0.00000
9	0.00	0.00000	0.00000
10	0.00	0.00000	0.00000
11	0.00	0.00000	0.00000
12	0.00	0.00000	0.00000
13	0.00	0.00000	0.00000
14	0.00	0.00000	0.00000
15	0.00	0.00000	0.00000
16	0.00	0.00000	0.00000
17	0.00	0.00000	0.00000
18	0.00	0.00000	0.00000
19	0.01	0.00308	1,003.62108
20	0.01	0.00308	1,003.62108
21	0.01	0.00308	1,003.62108
22	0.01	0.00308	1,003.62108
23	0.01	0.00308	1,003.62108
24	0.01	0.00308	1,003.62108
25	0.01	0.00308	1,003.62108
26	0.01	0.00308	1,003.62108
27	0.01	0.00308	1,003.62108
28	0.01	0.00308	1,003.62108
29	0.01	0.00308	1,003.62108
30	0.02	0.00616	2,007.24216
31	0.02	0.00616	2,007.24216
32	0.02	0.00616	2,007.24216
33	0.02	0.00616	2,007.24216
34	0.02	0.00616	2,007.24216
35	0.03	0.00924	3,010.86324
36	0.03	0.00924	3,010.86324
37	0.03	0.00924	3,010.86324
38	0.03	0.00924	3,010.86324
39	0.04	0.01232	4,014.48432
40	0.04	0.01232	4,014.48432
41	0.04	0.01232	4,014.48432
42	0.05	0.01540	5,018.10540
43	0.05	0.01540	5,018.10540
44	0.05	0.01540	5,018.10540
45	0.06	0.01848	6,021.72648
46	0.06	0.01848	6,021.72648
47	0.06	0.01848	6,021.72648
48	0.07	0.02156	7,025.34756
49	0.07	0.02156	7,025.34756
50	0.08	0.02464	8,028.96864
51	0.08	0.02464	8,028.96864
52	0.09	0.02772	9,032.58972
53	0.09	0.02772	9,032.58972
54	0.10	0.03080	10,036.21080
55	0.10	0.03080	10,036.21080
56	0.11	0.03388	11,039.83188
57	0.11	0.03388	11,039.83188
58	0.12	0.03696	12,043.45296
59	0.13	0.04004	13,047.07404
60	0.13	0.04004	13,047.07404
61	0.14	0.04312	14,050.69512
62	0.14	0.04312	14,050.69512
63	0.15	0.04620	15,054.31620
64	0.16	0.04928	16,057.93728
65	0.16	0.04928	16,057.93728

EXHIBIT C - 2

66	0.17	0.05236	17,061.55836
67	0.18	0.05544	18,065.17944
68	0.19	0.05852	19,068.80052
69	0.19	0.05852	19,068.80052
70	0.20	0.06160	20,072.42160
71	0.21	0.06468	21,076.04268
72	0.22	0.06776	22,079.66376
73	0.23	0.07084	23,083.28484
74	0.23	0.07084	23,083.28484
75	0.24	0.07392	24,086.90592
76	0.25	0.07700	25,090.52700
77	0.26	0.08008	26,094.14808
78	0.27	0.08316	27,097.76916
79	0.28	0.08624	28,101.39024
80	0.29	0.08932	29,105.01132
81	0.30	0.09240	30,108.63240
82	0.31	0.09548	31,112.25348
83	0.32	0.09856	32,115.87456
84	0.33	0.10164	33,119.49564
85	0.34	0.10472	34,123.11672
86	0.35	0.10780	35,126.73780
87	0.36	0.11088	36,130.35888
88	0.37	0.11396	37,133.97996
89	0.38	0.11704	38,137.60104
90	0.39	0.12012	39,141.22212
91	0.40	0.12320	40,144.84320
92	0.41	0.12628	41,148.46428
93	0.42	0.12936	42,152.08536
94	0.43	0.13244	43,155.70644
95	0.44	0.13552	44,159.32752
96	0.45	0.13860	45,162.94860
97	0.47	0.14476	47,170.19076
98	0.48	0.14784	48,173.81184
99	0.49	0.15092	49,177.43292
100	0.50	0.15400	50,181.05400
101	0.51	0.15708	51,184.67508
102	0.53	0.16324	53,191.91724
103	0.54	0.16632	54,195.53832
104	0.55	0.16940	55,199.15940
105	0.56	0.17248	56,202.78048
106	0.58	0.17864	58,210.02264
107	0.59	0.18172	59,213.64372
108	0.60	0.18480	60,217.26480
109	0.61	0.18788	61,220.88588
110	0.63	0.19404	63,228.12804
111	0.64	0.19712	64,231.74912
112	0.65	0.20020	65,235.37020
113	0.67	0.20636	67,242.61236
114	0.68	0.20944	68,246.23344
115	0.69	0.21252	69,249.85452
116	0.71	0.21868	71,257.09668
117	0.72	0.22176	72,260.71776
118	0.73	0.22484	73,264.33884
119	0.75	0.23100	75,271.58100
120	0.76	0.23408	76,275.20208
121	0.77	0.23716	77,278.82316
122	0.79	0.24332	79,286.06532
123	0.80	0.24640	80,289.68640
124	0.82	0.25256	82,296.92856
125	0.83	0.25564	83,300.54964
126	0.84	0.25872	84,304.17072
127	0.86	0.26488	86,311.41288
128	0.87	0.26796	87,315.03396
129	0.89	0.27412	89,322.27612
130	0.90	0.27720	90,325.89720
131	0.92	0.28336	92,333.13936
132	0.93	0.28644	93,336.76044
133	0.94	0.28952	94,340.38152

EXHIBIT C - 3

134	0.96	0.29568	96,347.62368
135	0.97	0.29876	97,351.24476
136	0.99	0.30492	99,358.48692
137	1.00	0.30800	100,362.10800
138	1.02	0.31416	102,369.35016
139	1.03	0.31724	103,372.97124
140	1.05	0.32340	105,380.21340
141	1.06	0.32648	106,383.83448
142	1.08	0.33264	108,391.07664
143	1.09	0.33572	109,394.69772
144	1.11	0.34188	111,401.93988
145	1.12	0.34496	112,405.56096
146	1.14	0.35112	114,412.80312
147	1.15	0.35420	115,416.42420
148	1.17	0.36036	117,423.66636
149	1.18	0.36344	118,427.28744
150	1.20	0.36960	120,434.52960
151	1.21	0.37268	121,438.15068
152	1.23	0.37884	123,445.39284
153	1.24	0.38192	124,449.01392
154	1.26	0.38808	126,456.25608
155	1.27	0.39116	127,459.87716
156	1.29	0.39732	129,467.11932
157	1.31	0.40348	131,474.36148
158	1.32	0.40656	132,477.98256
159	1.34	0.41272	134,485.22472
160	1.35	0.41580	135,488.84580
161	1.37	0.42196	137,496.08796
162	1.38	0.42504	138,499.70904
163	1.40	0.43120	140,506.95120
164	1.41	0.43428	141,510.57228
165	1.43	0.44044	143,517.81444
166	1.45	0.44660	145,525.05660
167	1.46	0.44968	146,528.67768
168	1.48	0.45584	148,535.91984
169	1.49	0.45892	149,539.54092
170	1.51	0.46508	151,546.78308
171	1.52	0.46816	152,550.40416
172	1.54	0.47432	154,557.64632
173	1.55	0.47740	155,561.26740
174	1.57	0.48356	157,568.50956
175	1.59	0.48972	159,575.75172
176	1.60	0.49280	160,579.37280
177	1.62	0.49896	162,586.61496
178	1.63	0.50204	163,590.23604
179	1.65	0.50820	165,597.47820
180	1.66	0.51128	166,601.09928
181	1.68	0.51744	168,608.34144
182	1.69	0.52052	169,611.96252
183	1.71	0.52668	171,619.20468
184	1.73	0.53284	173,626.44684
185	1.74	0.53592	174,630.06792
186	1.76	0.54208	176,637.31008
187	1.77	0.54516	177,640.93116
188	1.79	0.55132	179,648.17332
189	1.80	0.55440	180,651.79440
190	1.82	0.56056	182,659.03656
191	1.84	0.56672	184,666.27872
192	1.85	0.56980	185,669.89980
193	1.87	0.57596	187,677.14196
194	1.88	0.57904	188,680.76304
195	1.90	0.58520	190,688.00520
196	1.91	0.58828	191,691.62628
197	1.93	0.59444	193,698.86844
198	1.94	0.59752	194,702.48952
199	1.96	0.60368	196,709.73168
200	1.97	0.60676	197,713.35276
201	1.99	0.61292	199,720.59492

EXHIBIT C - 4

202	2.01	0.61908	201,727.83708
203	2.02	0.62216	202,731.45816
204	2.04	0.62832	204,738.70032
205	2.05	0.63140	205,742.32140
206	2.07	0.63756	207,749.56356
207	2.08	0.64064	208,753.18464
208	2.10	0.64680	210,760.42680
209	2.11	0.64988	211,764.04788
210	2.13	0.65604	213,771.29004
211	2.14	0.65912	214,774.91112
212	2.16	0.66528	216,782.15328
213	2.17	0.66836	217,785.77436
214	2.19	0.67452	219,793.01652
215	2.20	0.67760	220,796.63760
216	2.22	0.68376	222,803.87976
217	2.23	0.68684	223,807.50084
218	2.25	0.69300	225,814.74300
219	2.26	0.69608	226,818.36408
220	2.28	0.70224	228,825.60624
221	2.29	0.70532	229,829.22732
222	2.31	0.71148	231,836.46948
223	2.32	0.71456	232,840.09056
224	2.34	0.72072	234,847.33272
225	2.35	0.72380	235,850.95380
226	2.37	0.72996	237,858.19596
227	2.38	0.73304	238,861.81704
228	2.40	0.73920	240,869.05920
229	2.41	0.74228	241,872.68028
230	2.43	0.74844	243,879.92244
231	2.44	0.75152	244,883.54352
232	2.46	0.75768	246,890.78568
233	2.47	0.76076	247,894.40676
234	2.49	0.76692	249,901.64892
235	2.50	0.77000	250,905.27000
236	2.52	0.77616	252,912.51216
237	2.53	0.77924	253,916.13324
238	2.55	0.78540	255,923.37540
239	2.56	0.78848	256,926.99648
240	2.57	0.79156	257,930.61756
241	2.59	0.79772	259,937.85972
242	2.60	0.80080	260,941.48080
243	2.62	0.80696	262,948.72296
244	2.63	0.81004	263,952.34404
245	2.65	0.81620	265,959.58620
246	2.66	0.81928	266,963.20728
247	2.67	0.82236	267,966.82836
248	2.69	0.82852	269,974.07052
249	2.70	0.83160	270,977.69160
250	2.72	0.83776	272,984.93376
251	2.73	0.84084	273,988.55484
252	2.75	0.84700	275,995.79700
253	2.76	0.85008	276,999.41808
254	2.77	0.85316	278,003.03916
255	2.79	0.85932	280,010.28132
256	2.80	0.86240	281,013.90240
257	2.82	0.86856	283,021.14456
258	2.83	0.87164	284,024.76564
259	2.84	0.87472	285,028.38672
260	2.86	0.88088	287,035.62888
261	2.87	0.88396	288,039.24996
262	2.88	0.88704	289,042.87104
263	2.90	0.89320	291,050.11320
264	2.91	0.89628	292,053.73428
265	2.93	0.90244	294,060.97644
266	2.94	0.90552	295,064.59752
267	2.95	0.90860	296,068.21860
268	2.97	0.91476	298,075.46076
269	2.98	0.91784	299,079.08184

EXHIBIT C - 5

270	2.99	0.92092	300,082.70292
271	3.01	0.92708	302,089.94508
272	3.02	0.93016	303,093.56616
273	3.03	0.93324	304,097.18724
274	3.05	0.93940	306,104.42940
275	3.06	0.94248	307,108.05048
276	3.08	0.94864	309,115.29264
277	3.09	0.95172	310,118.91372
278	3.10	0.95480	311,122.53480
279	3.12	0.96096	313,129.77696
280	3.13	0.96404	314,133.39804
281	3.14	0.96712	315,137.01912
282	3.15	0.97020	316,140.64020
283	3.17	0.97636	318,147.88236
284	3.18	0.97944	319,151.50344
285	3.19	0.98252	320,155.12452
286	3.21	0.98868	322,162.36668
287	3.22	0.99176	323,165.98776
288	3.23	0.99484	324,169.60884
289	3.25	1.00100	326,176.85100
290	3.26	1.00408	327,180.47208
291	3.27	1.00716	328,184.09316
292	3.28	1.01024	329,187.71424
293	3.30	1.01640	331,194.95640
294	3.31	1.01948	332,198.57748
295	3.32	1.02256	333,202.19856
296	3.33	1.02564	334,205.81964
297	3.35	1.03180	336,213.06180
298	3.36	1.03488	337,216.68288
299	3.37	1.03796	338,220.30396
300	3.38	1.04104	339,223.92504

CUMULATIVE DEPLETION FOR 300 YEARS IN GALLONS
CUMULATIVE DEPLETION FOR 300 YEARS IN ACRE-FEET

40,863,435.89328

125.40528

JUN 20 1997

MAR 05 1997

WATER RESOURCES
STATE ENGINEER

WATER RESOURCES
STATE ENGINEER

Water Well Permit Application

GENERAL PURPOSE

(Please note: other forms are available for specific uses including - residential, livestock, monitoring/observ., gravel pits, registration of old wells)
 Review instructions prior to completing form **Must be completed in black ink or typed**

1. APPLICANT INFORMATION				6. USE OF WELL (please attach detailed description)			
Name of applicant <i>The Land-Pro Group LLC Donald + Geraldine Salomon c/o Holly I. Holder, P.C. 6/16/97</i>				<input checked="" type="checkbox"/> INDUSTRIAL <input checked="" type="checkbox"/> OTHER: <i>In house use, irrigation, stock water - ins through 55 individual wells pursuant to submitted replacement plan</i> <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> MUNICIPAL <input checked="" type="checkbox"/> IRRIGATION <input type="checkbox"/> FEED LOT - Number of head:			
Mailing Address <i>518 17th St, #1500</i>				7. WELL DATA Maximum pumping rate: <i>15 per well</i> gpm Annual amount: <i>308 acre-feet</i> Total depth: <i>600</i> feet Aquifer: <i>Dawson</i>			
City: <i>Denver</i> State: <i>CO</i> Zip Code: <i>80202</i>				8. LAND ON WHICH GROUND WATER WILL BE USED A. LEGAL DESCRIPTION (may be provided as an attachment): <i>Same as 5-C</i> (If used for crop irrigation, attach scaled map that shows irrigated area.)			
Telephone number (include area code) <i>(303) 534-3636</i>				B. # acres: <i>320</i> C. Owner: <i>Applicants</i> D. List any other wells or water rights used on this land: <i>None</i>			
2. TYPE OF APPLICATION (check applicable box(es))				9. PROPOSED WELL DRILLER (optional)			
<input type="checkbox"/> Construct new well <input type="checkbox"/> Use existing well <input type="checkbox"/> Replace existing well <input type="checkbox"/> Change or Increase Use <input type="checkbox"/> Change (source) Aquifer <input type="checkbox"/> Reapplication (expired permit) <input type="checkbox"/> Other:				Name: <i>Licensed / TBD</i> License number: _____			
3. REFER TO (if applicable):				10. SIGNATURE of applicant(s) or authorized agent			
Water court case #		Permit #		The making of false statements herein constitutes perjury in the second degree, which is punishable as a class 1 misdemeanor pursuant to C.R.S. 24-4-104(13)(a). I have read the statements herein, know the contents thereof, and state that they are true to my knowledge.			
Emergency Verbal # <i>-VE-</i>		Monitoring hole acknowledgment # <i>MH-</i>		Must be original signature: <i>Holly Holder</i>			
Well name or # <i>Land-Pro #1</i>				Title: <i>Agent for Applicant</i> Date: <i>3/5/97</i>			
4. LOCATION OF WELL				OPTIONAL INFORMATION			
County: <i>El Paso</i>		Quarter/quarter: <i>SW 1/4</i>		USGS map name		DWR map no. <i>51-P</i>	
Section: <i>12</i>		Township N or S: <i>12 N</i>		Range E or W: <i>65 E</i>		Surface elev. <i>7300</i>	
Principal Meridian: <i>6th</i>		Distance of well from section lines: <i>20</i> ft from <input type="checkbox"/> N <input checked="" type="checkbox"/> S <i>1300</i> ft from <input type="checkbox"/> E <input checked="" type="checkbox"/> W		Office Use Only			
Well location address. If different from applicant address (if applicable):				DIV <i>8</i> CO <i>21</i> WD <i>10</i> BA <i>4</i> MD <i>12</i>			
For replacement wells only - distance and direction from old well to new well				CHECKS TR#412611 030597 DIV OF WATER RESOURCES			
5. TRACT ON WHICH WELL WILL BE LOCATED				USE(S)			
A. LEGAL DESCRIPTION (may be provided as an attachment): <i>SW 1/4 of Section 12 and NW 1/4 of Section 13, T12S, R65W of the 6th PM</i>				ID# (optional): C. # acres in tract: <i>320</i> D. Owner: <i>Applicants</i> <i>6/16/97</i>			
B. STATE PARCEL				E. Will this be the only well on this tract? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (if other wells are on this tract, see instructions)			

170. AS. PER RECEIVED AUG 14 1997

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MAR 13 1997

WATER RESOURCES
STATE ENGINEER
COLO.

WATER RESOURCES
STATE ENGINEER
COLO.

AGENT LETTER

By this letter the undersigned hereby designates Holly I. Holder, P.C., to act on its behalf in filing well permit applications concerning approximately 320 acres in El Paso County, Colorado.


The Land - Pro Group, LLC

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AGENT LETTER

MINERAL RESOURCES
STATE ENGINEER
COLO.

By this letter, the undersigned as owners of the SW1/4 of Section 12, T12S, R65W, hereby authorize Holly I. Holder, P.C., to designate them as Co-applicant's in the permit application as filed in Receipt No. 412611, and to act on their behalf in all matters associated with that permit application and associated request for approval of replacement plan.



Donald W. Schoen



Geraldine V. Schoen

Holly I. Holder, P.C.

Attorneys at Law

Holly I. Holder
Margaret O'Donnell
Carmen Sower Hall

518 Seventeenth Street
Suite 1500
Denver, Colorado 80202
(303) 534-3636 Fax (303) 534-6905

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STATE ENGINEER
Paralegal
COLO.

Gary J. Crosby
Dean C. Stalnaker

March 5, 1997

VIA HAND DELIVERY

Craig Lis
Office of the State Engineer
1313 Sherman Street, Room 818
Denver, Colorado 80203

Re: The Land-Pro Group, LLC/Well Permit Application and
Request for Approval of Replacement Plan/Upper Black
Squirrel Creek Designated Ground Water Basin

Dear Craig:

REQUEST FOR GROUNDWATER

Enclosed please find a well permit application filed on behalf of The Land-Pro, LLC (Applicant), for up to 30.8 acre-feet per year of not nontributary Dawson aquifer groundwater underlying approximately 320 acres of land, located in the SW1/4 of Section 12 and the NW1/4 of Section 13, T12S, R65W of the 6th P.M. (Subject Property). Also enclosed please find a check in the amount of \$60.00 for the filing fee. Applicant estimates that there is approximately 150 acre-feet per year available underlying the Subject Property based on a 100 year aquifer life. The Subject Property is located within the boundaries of the Upper Black Squirrel Creek Designated Ground Water Basin.

REQUEST FOR APPROVAL OF REPLACEMENT PLAN

This letter also requests approval of a replacement plan pursuant to Rule 5.3.6.2.C. of the Rules and Regulations for the Management and Control of Designated Ground Water, for the withdrawal of 30.8 acre-feet per year for 300 years.

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Applicant will withdraw 30.8 acre-feet per year through 55 individual wells to serve 55 individual residential lots. Applicant hereby waives any 600 foot spacing rule that may apply to these wells. In addition to the well permit application filed in conjunction with this letter, well permit applications for the individual wells will be requested after final approval of this replacement plan and when the individual lot owners are prepared to construct their wells. Each well will be limited to approximately 0.56 acre-feet per year (0.27 acre-feet for inhouse use, 0.23 acre-feet per year for irrigation of up to 4,000 square-feet, and 0.06 acre-feet per year for stockwatering). Each lot will utilize nonevaporative septic systems.

Return flows of water used for inhouse use through the nonevaporative septic systems will be approximately 90% of inhouse use. Approximately 20% of the water used for irrigation will be returned to the stream system and stockwatering use is considered to be 100% consumed. Septic systems will be installed pursuant to County and State Health Department requirements to assure that all return flows from inhouse use will not cause injury to surface water quality. Based on the above described uses and return flows, approximately 0.289 acre-feet per year per lot will return to the stream system (0.243 acre-feet from inhouse use and 0.046 acre-feet from irrigation use) for a total of 15.90 acre-feet per year for all 55 lots.

Enclosed please find a Ground Water Investigation Report prepared by Wm. Curtis Wells & Co. and dated November 6, 1996, which describes depletions to Black Squirrel Creek from pumping of 30.8 acre-feet per year for 300 years from the Dawson aquifer. Because the subject water is under the jurisdiction of the Colorado Ground Water Commission, deletions which may occur to stream systems other than Black Squirrel Creek do not require replacement. The modelling indicates that at 300 years the depletion to Black Squirrel Creek is approximately 4.3% of the amount withdrawn or 1.3 acre-feet per year. The return flows from use of the water on the Subject Property accrue to Black Squirrel Creek and those return flows are more than sufficient to replace those depletions during 300 years of pumping.

The modelling indicates that a depletion of 4.3% of the amount of water withdrawn or 1.3 acre-feet per year, occurs

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WATER RESOURCES
STATE ENGINEER
COLO.

to the West Fork of Black Squirrel Creek in the 300th year of pumping. To provide replacement to the West Fork, Applicant will purchase a sufficient amount of effluent from the Paint Brush Hills Metropolitan District (District) for said replacement. The wells utilized by the District are nontributary and are the subject of Permit Nos. 17048-F, 30593-F, 46553-F, and 47813-F. Effluent from the use of said water is released to the West Fork of Black Squirrel Creek through the District's wastewater treatment plant, which is generally located in the SW1/4 of Section 30, T12S, R65W of the 6th P.M., as more particularly shown on Attachment A hereto.

PROPOSED CONDITIONS

Applicant proposes the following terms and conditions for approval and operation of the replacement plan described above:

1. Applicant will withdraw the 30.8 acre-feet per year of Dawson aquifer water for 300 years, through no more than 55 individual wells. Each well will be limited to an annual withdrawal of 0.56 acre-feet per year (0.27 acre-feet for inhouse use, 0.23 acre-feet per year for irrigation use of up to 4,000 square-feet of irrigated acreage, and 0.06 acre-feet per year for stockwatering).

2. Each lot and well will utilize a nonevaporative septic system and return flows from use of the water on the Subject Property will not be sold or traded, and will only be used in the replacement plan requested herein.

3. Each individual Dawson well will be required to have a totalizing flow meter. An annual summary of withdrawals from the wells during the prior calendar year will be provided to the Office of the State Engineer, acting on behalf of the Colorado Ground Water Commission, no later than January 30 of the following year, on an accounting form acceptable to the Office of the State Engineer. The annual summary will include the number of wells operating in the development, an estimate of the area irrigated on each lot, and the number of stock watered by each well.

4. Applicant will form a homeowners association, non-profit corporation, or other entity, which will be

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WALTER HEDGECOCK
STATE ENGINEER
C.O.D.

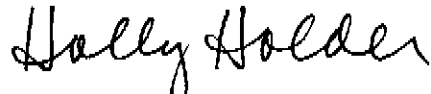
responsible for providing the yearly summary of accounting pursuant to the replacement plan. Also, the final replacement plan approved by the Colorado Ground Water Commission or a summary of that plan will be recorded in the real property records of El Paso County, so that a title examination of the property, or any part thereof, shall reveal to all future purchasers the existence of the replacement plan. The terms and conditions of the replacement plan will be considered to be a covenant on and running with the Subject Property.

Applicant believes that the withdrawal of 30.8 acre-feet per year of Dawson aquifer groundwater for 300 years, made pursuant to the terms and conditions of the replacement plan requested herein will not cause harm or injury to other water rights in the Upper Black Squirrel Creek Designated Groundwater Basin. Wherefore, Applicant respectfully requests that the well permit application and replacement plan be accepted and approved by the Ground Water Commission.

If you have any questions, please call.

Sincerely,

Holly I. Holder, P.C.



Holly I. Holder, Esq.
Attorneys for The Land-Pro
Group, LLC

HIH:gjc
enclosures
cc: (w/encl.):
Jerry Landress
Tom Pirro
Curt Wells
Landpro.app



Wm. CURTIS WELLS & CO. / *consulting geologists*
the ranch office commons, bldg 3, suite 102 / 2010 west 120th avenue
denver, colorado 80234 / telephone (303) 466-3801 / fax 465-5859

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WATER RESOURCES
STATE ENGINEER
COLO.

November 6, 1996

Mr. Tom Pirro
Mr. Jerry Landress
18 Makanna Drive
Huntington, NY 11743

Re: Preliminary Ground Water Investigation, 320 Acre Ayers Road Property, El Paso County, Colorado.
Job No. 3946

Gentlemen:

At your request I have prepared this preliminary ground water investigation report for your 320± acre Ayers Road property which is outlined on the attached Figure-1. As shown, this rectangular parcel spans the Southwest Quarter of Section 12 and the Northwest Quarter of Section 13, Township 12 South, Range 65 West. I understand this property may be developed for five acre single family homesites with individual wells for water supply. Non-evaporative septic systems and leach fields will be the method of wastewater disposal.

For this investigation I have reviewed my files and those of the State Engineer for geologic, ground water and well information in this area. Subsurface geohydrologic information was obtained from my geophysical well log file and the State Engineer's aquifer computer data base. From this investigation I conclude that (1) a sufficient supply of ground water is contained in the Dawson aquifer beneath the property to meet the 300 year needs of this planned community, (2) the quality of the ground water in this aquifer appears adequate for domestic use, (3) a replacement plan to use the Dawson ground water will be required prior to final platting of this property and (4) with proper replacement plan terms and conditions, adequate replacement water and accounting, no water rights injury should occur to downstream water appropriators.

SITE AND GROUND WATER CONDITIONS

The subject property, at a surface elevation of 7,350 feet above sea level, is located at the eastern edge of the Black Forest. The land surface slopes to the east and the parcel is drained by tributaries of Black Squirrel Creek, an east trending, intermittently flowing stream. Most of the property is forested.

The property is underlain by four water bearing formations comprised of a series of sands, sandstones, claystones, shales and a few rare coal seams. In descending stratigraphic order, from just below the ground



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WATER RESOURCES
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surface, the Dawson formation should extend to about 650 feet. This formation is underlain by mainly shales of the Denver formation which extends to about 1,550 feet. The 400 foot thick Arapahoe formation, composed of shales and sandstones, should be present beneath the Denver formation. The deepest aquifer, the Laramie Fox Hills Sandstones, should be in the interval 2,400 to 2,650 feet below ground surface. All of these formations/aquifers are known to produce ground water in quantities useable for domestic or municipal supplies.

Clearly the Dawson aquifer would be the source of water for the proposed individual wells on the subject property. This aquifer allows wells to produce more than adequate ground water for existing homes in the area. An example is Well No. 17662-F, located just south of the property (Figure 1). In 1975 I tested this 720 foot deep Dawson well at a rate of 110 gallons per minute. Normally only 10 to 15 gallons per minute are needed for single family homes.

A quality test was performed on the water pumped from Well 17662-F and the results are listed on the attached Table I. As shown, the mineral constituents in the water are all below drinking water standards, including iron. Iron is, however, commonly present in Dawson ground water at concentrations slightly higher than the drinking water standards hence, prospective home buyers should be advised iron treatment may be necessary.

Ground water availability is computed by multiplying the property area times the saturated aquifer sand thickness, thence specific yield (drainable porosity). For this subject property the Dawson aquifer alone should contain 15,000 acre feet of water. Individual aquifer estimates of ground water storage are listed below.

AQUIFER	AREA OF PROPERTY (ac)	SAND THICKNESS (ft)	TOTAL AQUIFER STORAGE (af)
Dawson - N NT	260 ^{1/2}	313	15,000 ^{2/2}
Denver - N NT	320	308	16,800
Arapahoe - NT	320	238	12,900
Laramie Fox Hills - NT	320	194	9,300
TOTAL			54,000



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N NT = Not Non-Tributary

NT = Non-Tributary

¹Area reduced by cylinder of appropriation for pre-1973 well No. 17662-F.

²Storage reduced by five recorded on-site wells (NOTE: State records may be in error).

WATER SUPPLY DEVELOPMENT

Ground water in all of the above described aquifers receives very little surface water recharge hence, the water resource has been identified as "non renewable". The El Paso County Commissioners, in the late 1980's, declared that developments using this water must demonstrate a 300 year supply in order to establish water supply sufficiency.

For this proposed development I estimate each home would use 0.56 acre feet of water per year (182,560 gallons). In-house, about 0.27 acre feet of water per year would be used while irrigation of 4,000 square feet of lawn or garden, if desired, would require 0.23 acre feet per year. Two horses, as an example, would additionally require 0.06 acre feet per year. If the property was developed for 55 homes, as an example, the annual water supply would equate to 31 acre feet. The 300 year supply would be 9,300 acre feet or only a little more than one-half the ground water stored in the Dawson aquifer.

Individual domestic wells normally are drilled for about \$12 per foot. A 650 foot deep well on this property would cost \$7,800 plus about \$2,000 for pumping equipment.

The four aquifers beneath this property are all part of the Denver Basin. This basin spans the area from southeast of Colorado Springs north about 50 miles past Denver and from the Front Range mountains east to nearly Limon, Colorado. Ground water in these aquifers is considered non-tributary beneath specific properties if, through computer analysis, a statutory test can be met¹. As shown on the above table the Dawson ground

¹"Non-tributary Ground Water" means that ground water, the withdrawal of which will not, within 100 years, deplete the flow of a natural stream, or its alluvial aquifer, at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal. Commission Doc. No. 1196 R&R Rule 4.2.19



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water is not non-tributary hence, to use this supply your water rights attorney, Ms. Holly Holder, needs to seek Colorado Ground Water Commission ("Commission") approval for a replacement plan².

Where not non-tributary Dawson ground water is pumped, through computer analysis, it can be demonstrated that theoretically some percentage of the volume of pumped ground water is lost from nearby streams potentially to the detriment of downstream water users. The State Engineer, in 1985, developed a computer data base which also includes a definition of where ground water in the Dawson aquifer is hydraulically connected to flowing streams.

Using this data base I have operated the USGS ground water flow model to predict the location and magnitude of stream depletions theoretically caused by pumping domestic wells on the subject property. Exhibit A, to the attached draft accounting form, lists the computed depletions as a percent of well pumping. As shown, the maximum depletion occurs 130 years after the wells are pumped for 300 years. The maximum stream depletion is 21% of the water pumped and this would be 6.5 acre feet per year if all 31 acre feet per year was pumped by subdivision wells.

The impact of pumping on-site Dawson wells, as shown by the State Engineer's data base, is on the West Fork of Black Squirrel Creek ("West Fork") and tributaries of this creek are highlighted on Figure-1. For replacement water during well pumping, normally septic system return flows can be used to offset the stream depletion obligation. The return flows from your property accrue to Black Squirrel Creek and not the West Fork. A source of replacement water in the West Fork drainage basin will be required to legalize the use of Dawson wells on the property.

Non-tributary ground water, which when pumped does not effect the surface stream, can be used for replacement supplies. Four wells Nos. 17048-F, 30593-F, 46553-F and MH-28676, are illustrated on Figure-1. These structures tap non-tributary ground water in the Arapahoe and Laramie Fox Hills aquifers. The wells are pumped by Paint Brush Hills Metropolitan District to supply water to its customers. Effluent from the use of

²A replacement plan is a detailed program to allow use of tributary ground water providing that stream depletions caused by the use of the water are replaced so that injury to downstream water appropriators does not occur.



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this water is treated by the District at its wastewater treatment plant (see Figure 1) and can be released to the West Fork. Your water rights attorney should approach the District on the possible one time purchase of this effluent to meet the anticipated replacement needs in your development. Typically replacement water in El Paso County costs \$4,000-\$10,000 per acre foot. You should note that I cannot represent you in negotiating with the District since they are also my client.

To this point the proposed plan to legalize use of Dawson wells on the subject property would appear fairly straight forward. The ground water in this area is under the control of the Commission and once the replacement plan is drafted it would be forwarded for their approval. The subject property is in the Upper Black Squirrel Creek Designated Ground Water Management District ("Black Squirrel") and according to a Black Squirrel rule³ replacement plans must use renewable water to augment stream depletions caused by well pumping. The State Engineer, who is the executive secretary of the Commission, has approved and published Dawson well pumping replacement plans in Black Squirrel where the applicant has demonstrated that the operation of the plan will not result in injury to downstream appropriators. The most recent approval, just this last October, was for the Meadows Filing 3 located 3 miles south of the subject property⁴.

RECOMMENDATIONS

- (1) Have your water rights attorney file the replacement plan outlined above once the replacement water has been secured.
- (2) In platting the property care should be exercised to make sure individual wells on the property can be spaced 400± feet apart to avoid mutual well interference.
- (3) When the first well is constructed on the property have the water chemically tested to learn if iron treatment of drinking water will be necessary prior to domestic consumption.

³Rule 7E, "...If the replacement water originates from a source within the boundaries of the District, the source shall be a renewable source of supply. The Arapahoe, Denver, Dawson and Laramie Fox Hills aquifers shall not be considered as renewable sources of supply for purposes of fulfilling the requirement of this Rule."

⁴Approval publication of October 9, 1996 for Charles Towner & Virginia Neely



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Professional judgement have been expressed in this report. They are based on my understanding of the project requirements, the available ground water information and my experience with the aquifers in this area. Well drilling and testing will be necessary to verify my preliminary conclusions.

I trust this information satisfies your immediate needs. If you have questions please call.

Very truly yours,

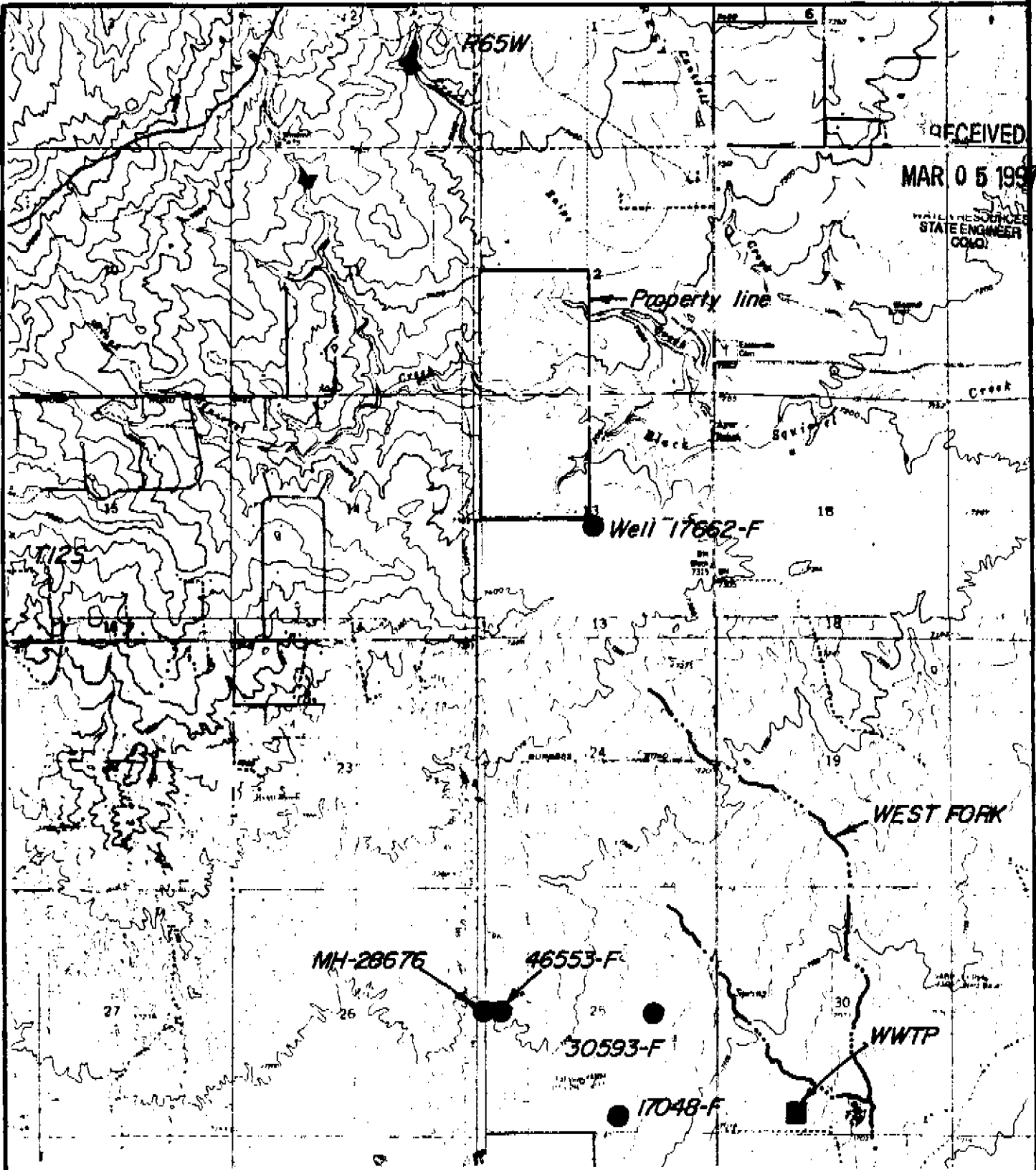
WM. CURTIS WELLS & CO.

Wm. Curtis Wells, CPG
Consulting Ground Water Geologist

WCW/vjw

(2 copies sent)

cc: Dave Jones
Holly Holder



SCALE 1" = 3000'

LOCATION MAP

WELLS & CO.
consulting ground water geologists

fig. 1

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TABLE I
CHEMICAL ANALYSIS*
WELL 17662-F

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MINERAL	SYMBOL	CONCENTRATION (mg/l)	UPPER LIMITS ESTABLISHED BY U. S. DEPT. OF HEALTH FOR DRINKING WATER (mg/l)
Total Dissolved Solids	--	180	500
Calcium	Ca	20	125
Magnesium	Mg	50	125
Sodium	Na	50	
Carbonate	CO ₃	<0.1	
Bicarbonate	HCO ₃	85	
Chloride	Cl	<1.0	250
Sulfate	SO ₄	20	250
Phosphate	PO ₄	<0.1	
Silicon Dioxide	SiO ₂	48	
Iron	Fe	0.08	0.3
Total Alkalinity	--	70	
Hardness		60	500
pH		7.6	

BDL = Below Detection Limits

* = Analysis by Industrial Labs, Denver, Colorado

job no. 3946

EXHIBIT A
 DAWSON AQUIFER STREAM DEPLETION FACTORS
 Ayers Road Property
 AS % q/Q

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YRS	BLACK SQUIRREL		YRS	BLACK SQUIRREL
10	0.00		410	5.09
20	0.01		420	5.06
30	0.04		430	5.01
40	0.07		440	4.95
50	0.12		450	4.88
60	0.19		460	4.81
70	0.29		470	4.72
80	0.40		480	4.64
90	0.51		490	4.54
100	0.66		500	4.45
AVG	0.23		AVG	4.81
110	0.80		510	4.36
120	0.97		520	4.25
130	1.13		530	4.16
140	1.31		540	4.06
150	1.50		550	3.97
160	1.68		560	3.87
170	1.88		570	3.77
180	2.07		580	3.67
190	2.27		590	3.58
200	2.47		600	3.49
AVG	1.61		AVG	3.92
210	2.66			
220	2.85			
230	3.05			
240	3.23			
250	3.41			
260	3.60			
270	3.78			
280	3.95			
290	4.12			
300	4.30	(4.3)		
AVG	3.50			
310	4.45			
320	4.60			
330	4.75			
340	4.85			
350	4.95			
360	5.03			
370	5.08			
380	5.11			
390	5.13			
400	5.12			
AVG	4.91			