NEW APPLICATION

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ORIGINAL

LAWRENCE V. ROBERTSON, JR.
ATTORNEY AT LAW

P. O. BOX 1448
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OF COUNSEL TO
MUNGER CHADWICK, P.L.C.

ADMITTED TO PRACTICE IN:
ARIZONA, COLORADO, MONTANA,
NEVADA, TEXAS, WYOMING,
DISTRICT OF COLUMBIA

March 21, 2008

Docket Control
Arizona Corporation Commission
1200 West Washington
Phoenix, Arizona 85007

Arizona Corporation Commission
DOCKETED
MAR 25 2008
DOCKETED BY

Re: Ridgeline Water Company, L.L.C.
Docket No. W-
W-20589A-08-0173

To Whom It May Concern:

Enclosed for filing are the original and thirteen (13) copies of an Application for a Certificate of Convenience and Necessity ("Application"), together with supporting Appendices "A" through "N," on behalf of Ridgeline Water Company, L.L.C.

Thank you for your assistance. Please advise me if you have any questions.

Sincerely,

Angela R. Trujillo
Secretary
Lawrence V. Robertson, Jr.

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400 W CONGRESS STE 218 TUCSON AZ 85701

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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

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MAR 21 2008

ARIZONA CORP. COMM
400 W CONGRESS STE 218 TUCSON AZ 85701

MIKE GLEASON, Chairman
WILLIAM A. MUNDELL
JEFF HATCH-MILLER
KRISTIN K. MAYES
GARY PIERCE

IN THE MATTER OF THE APPLICATION OF RIDGELINE WATER COMPANY, L.L.C. FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY TO PROVIDE WATER SERVICE TO AND WITHIN AN UNINCORPORATED AREA IN PIMA COUNTY, ARIZONA.	))))))	DOCKET NO. W- APPLICATION

LAWRENCE V. ROBERTSON, JR.
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P.O. Box 1448
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(520) 398-0411

Ridgeline Water Company, L.L.C. ("Ridgeline"), by and through its undersigned attorney, submits this Application for an Opinion and Order of the Commission granting Ridgeline a Certificate of Convenience and Necessity ("CC&N") to provide water service in an unincorporated area within Pima County, Arizona. In support of its Application, Ridgeline provides the following information.

I.

IDENTIFICATION OF APPLICANT

Ridgeline is an Arizona limited liability company, and it is in good standing with the Commission's Corporations Division. A Certificate of Good Standing attesting to that effect is attached hereto as Appendix "A" and is incorporated herein by this reference.

II.

APPLICANT'S CONTACT PERSONS AND CONTACT INFORMATION

The name of and contact information for Ridgeline's General Manager in connection with this Application are as follows:

Jeffrey S. Utsch

General Manager
Ridgeline Water Company, L.L.C.
6141 N. Pomona Road
Tucson, Arizona 85704
Phone: (520) 977-7946
Fax: (520) 545-0113

The name of and contact information for Ridgeline's attorney in connection with this Application are as follows:

Lawrence V. Robertson, Jr.
P. O. Box 1448
Tubac, Arizona 85646
Phone: (520) 398-0411
Fax: (520) 398-0412
Email: Tubaclawyer@aol.com

III.

DESCRIPTION OF CIRCUMSTANCES OCCASIONING APPLICATION

Ridgeline has received a request from Pollux Properties, L.L.C. ("Pollux") for Ridgeline to provide water service to and within approximately 632 acres of land which Pollux owns in an unincorporated area of Pima County, Arizona, southwest of the City of Tucson. A copy of Pollux's request for service is attached hereto as Appendix "B" and is incorporated herein by this reference. Attached hereto as Appendix "C" and incorporated herein by this reference is a copy of the legal description(s) for the aforesaid 632 acres.[1] Attached hereto as Appendix "D" and incorporated herein by this reference is a copy of a map of the proposed water service area which is the subject of this Application.

Pollux intends to facilitate the development of Ridgeline Estates on the 632 aforesaid acres. Ridgeline Estates will consist of 136 single-family residential units situated on 4-5 acre lots; and, the acreage in question is currently zoned and entitled for this type and amount of development. The average lot sales price is anticipated to be $250,000 and individual home

[1] Pollux owns additional acreage (approximately 41 acres) in the vicinity of the proposed water service area. However, Pollux recently decided to withdraw those 41 acres from the total 673 acres referred to in Appendices "B," "E" and "F." Thus, those 41 acres are not included within the boundaries of the CC&N requested by this Application; and, the legal descriptions for that acreage (Parcels 25 through 27) have been deleted from the Land America legal descriptions attached hereto as Appendix "C."

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construction costs are anticipated to be on the order of $700,000 to $2,000,000. At present, it is contemplated that Pollux or its affiliates will perform or cause the performance of the role of master developer of Ridgeline Estates. The final development of individual residential structures will be undertaken by qualified and experienced residential contractors selected by the ultimate lot owners. In that regard, it is currently anticipated that build-out of the 632 acres will occur over a five (5) year period of time.

In response to Pollux's letter, Ridgeline has advised Pollux that Ridgeline is willing and able to provide the requested service, subject to (i) Ridgeline's prior receipt of a CC&N from the Commission authorizing provision of the requested water service on terms and conditions acceptable to Ridgeline, and (ii) the consummation of Commission-approved line extension agreements and off-site facilities agreements between Ridgeline and Pollux as and when determined to be appropriate by Ridgeline. In turn, Pollux has requested that Ridgeline proceed with the preparation and filing of this Application. Copies of this exchange of correspondence between Ridgeline and Pollux are attached hereto as Appendices "E" and "F," respectively, and are incorporated herein by this reference.

IV.

DESCRIPTION OF CONTEMPLATED WATER SYSTEM FACILITIES

Attached hereto as Appendix "G" and incorporated herein by this reference is a copy of a December 2007 Water System Master Plan ("Water Plan") for the subject acreage, as prepared by Greg Carlson Engineering, L.L.C. ("Carlson Engineering"). As therein indicated, the demand criteria for the contemplated single-family residential units are based on standard engineering practice for master planning in the metropolitan Tucson area. In turn, the estimated demand was used to determine the required production, storage and booster station facilities for the contemplated water system. At full build-out, Ridgeline Estates' water requirements will necessitate the following facilities: (i) two (2) wells, one (1) 150 gpm well and one (1) 250 gpm well; (ii) three (3) storage reservoirs, including a 181,200 gallon central system storage reservoir, a 12,240 gallon forebay and a 3,400 gallon forebay; and (iii) two (2) booster stations. The

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aggregate storage reservoir capacity will be 196,840 gallons, which has been sized using Arizona Department of Environmental Quality ("ADEQ") Engineering Bulletin No. 10 criteria and the Arizona Administrative Code.

Included within the Water Plan as Figures 2 and 3 are maps which depict the contemplated location of the aforesaid facilities on a full build-out and an interim condition basis, respectively, within the boundaries of the proposed CC&N.

The 8-inch transmission water main and facility piping depicted on the maps comprise the transmission "backbone" for the contemplated water system. Larger and smaller-sized distribution mains will be designed and constructed to facilitate the delivery of water service to the several pressure zones and ultimate point(s) of use at the required regulatory pressure(s). In that regard, the Water Plan design contemplates a minimum fire flow requirement of 1,000 gpm for a two (2) hour duration.

V.

ESTIMATED COST AND FINANCING OF CONTEMPLATED WATER SYSTEM FACILITIES

Attached hereto as Appendix "H" and incorporated herein by this reference is an analysis of the estimated cost of construction of the water system facilities contemplated by the Water Plan. These estimates have been prepared by Thomas J. Bourassa, C.P.A., a utility consultant who is well known to the Commission and its Staff, who has taken these estimates provided to him by Pollux and projected Ridgeline's plant account balances, by year, for the first five (5) of operation.

In conjunction with financing the construction of the aforesaid water system facilities, Ridgeline currently anticipates that it will use a combination of funds provided by the master developer in the form of Advances In Aid of Construction, and common equity. In that regard, attached hereto as Appendix "I" and incorporated herein by this reference is a projected Balance Sheet reflecting the financial condition of Ridgeline for the initial five (5) years of operation, as prepared by Mr. Bourassa. Funds obtained from the master developer will be by means of line extension agreements and/or and off-site facilities agreements approved by the Commission.

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VI.

PROPOSED RATES AND CHARGES

Attached hereto as Appendix "J" and incorporated herein by this reference is a schedule of proposed rates and charges for water service to and within the proposed service area. These rates and charges also have been prepared by Mr. Bourassa. As may be noted therefrom, the commodity rate design is priced with the objective of promoting conservation. In addition, it is Ridgeline's understanding that Pollux intends to impose certain conditions, covenants and restrictions ("CC&R") on the aforesaid 632 acres which also will promote water conservation. The single-family residences in Ridgeline Estates will have individual septic systems, and thus effluent will not be available as a conservation measure.

VII.

ESTIMATED ANNUAL OPERATING REVENUES, EXPENSES AND CUSTOMERS

Attached hereto as Appendix "K" and incorporated herein by this reference are schedules depicting, by year for the first five (5) years of operation, the estimated annual number of customers and associated operating revenues and expenses for Ridgeline. These estimates also have been prepared by Mr. Bourassa, and are based upon a combination of (i) development pace estimates provided by Pollux, (ii) projected expenditures prepared by Mr. Bourassa in consultation with Ridgeline, and (iii) the rates and charges for water service herein proposed by Ridgeline.

VIII.

ESTIMATED SCHEDULE FOR CONSTRUCTION OF WATER SYSTEM FACILITIES

It is currently anticipated that development of Ridgeline Estates will occur over a five (5) year period of time. In that regard, Appendix "H" hereto as prepared by Mr. Bourassa also provides, in effect, a schedule of estimated commencement and completion of construction dates for the water system facilities contemplated by the Water Plan described in Section IV above.

However, it is important to recognize that these dates are estimates, not guarantees, and that the actual dates will be significantly influenced by the pace at which development occurs.

IX.

ANALYSES OF ASSURED WATER SUPPLY AND WATER QUALITY

Attached hereto as Appendix "L" and incorporated herein by this reference is a copy of an a February 14, 2008 Analysis of Assured Water Supply ("Analysis"), as issued the Arizona Department of Water Resources ("ADWR") in response to an application submitted by Pollux for Ridgeline Estates. As indicated in the Analysis, ADWR

> "...has determined that 78.28 acre-feet per year of ground water will be physically and continuously available"

to the Ridgeline Estates development for the statutorily requisite 100 years. It is contemplated that Pollux will obtain the Certificate of Assured Water Supply referred to in the Analysis incident to the final platting of Ridgeline Estates as a subdivision.

Attached hereto as Appendix "M" and incorporated herein by this reference are copies of pages 11 and 12 of an August 10, 2007 Hydrogeologic Report prepared for Pollux by Chuck M. Dickens, a Consulting Hydrogeologist, who is a licensed Geologist in Arizona and California. Mr. Dickens' Hydrogeologic Report was submitted in support of Pollux's Application for Analysis of Assured Water Supply, which resulted in the aforesaid February 14, 2008 Analysis issued by ADWR. As may be noted from pages 11 and 12 of the Hydrogeologic Report, (i) no arsenic and no nitrate were detected in the groundwater pumped from Well No. 1 and Well No. 2, and (ii) the fluoride concentration level detected in each well was substantially below the allowed drinking water level.

X.

CURTAILMENT TARIFF

Attached hereto as Appendix "N" and incorporated herein by this reference is a copy of the Curtailment Plan Tariff which Ridgeline is hereby requesting be contemporaneously

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approved by the Commission in the event that a CC&N is granted in response to this Application.

XI.

ADDITIONAL APPROVALS

Ridgeline shortly will be filing an application with the Pima County Board of Supervisors requesting a Public Utility License Agreement ("License") for such public roadways and right(s)-of-way which may abut or transect the Ridgeline Estates. A copy of that License will be filed with the Commission's Docket Control upon receipt of the same by Ridgeline.

In addition, in the event of a Commission decision granting Ridgeline the CC&N requested by this Application, and in connection with subsequent construction of the contemplated water system for Ridgeline Estates, Ridgeline will file with the Commission copies of the Approval(s) to Construct and Approval(s) of Construction which are issued by ADEQ in connection with the design and construction of the various phases of the water system.

XII.

MISCELLANEOUS

The 632 acres of which Ridgeline Estates will be comprised are not located within any city or town. In addition, such acreage is not located within or adjacent to the existing certificated service area of any public service corporation providing water or wastewater service. Finally, there are no existing water utility service connections within the proposed CC&N area.

As previously noted in Section VI above, the single-family residences in Ridgeline Estates will have individual septic systems, and thus effluent will not be available as a conservation measure. In addition, there are no surface water sources of supply (including Central Arizona Project water) available to the proposed CC&N area. However, the nature of the development anticipated for Ridgeline Estates <u>will</u> <u>not</u> include any parks, recreation areas, golf courses, greenbelts, ornamental lakes or other water features.

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XIII.

CONCLUSION

WHEREFORE, and based upon the discussion set forth in the preceding sections of this Application and the information contained in Appendices "A" through "N" hereto, Ridgeline respectfully requests that the Commission issue an Opinion and Order granting Ridgeline a CC&N to provide water service in the area legally described and graphically depicted in Appendices "C" and "D" hereto, respectively.

Dated this 21st day of March 2008.

Respectfully submitted,

Lawrence V. Robertson, Jr.
Attorney for Ridgeline Water Company, L.L.C.

The original and thirteen (13) copies of the foregoing Application have been filed this 21st day of March 2008 with:

Docket Control
Arizona Corporation Commission
c/o 400 W. Congress, Suite 218
Tucson, Arizona 85701

A copy of the foregoing Application has been emailed or mailed this 21st day of March 2008 to:

Christopher Kempley, Chief Counsel
Legal Division
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Ernest Johnson, Director
Utilities Division
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

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MAR 21 2008

ARIZONA CORP. COMM
400 W CONGRESS STE 218 TUCSON AZ 85701

APPENDIX "A"

(Certificate of Good Standing)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

STATE OF ARIZONA

Office of the

CORPORATION COMMISSION

CERTIFICATE OF GOOD STANDING

To all to whom these presents shall come, greeting:

I, Brian C. McNeil, Executive Director of the Arizona Corporation Commission, do hereby certify that

******RIDGELINE WATER COMPANY, LLC******

a domestic limited liability company organized under the laws of the State of Arizona, did organize on the 23rd day of May 2007.

I further certify that according to the records of the Arizona Corporation Commission, as of the date set forth hereunder, the said limited liability company is not administratively dissolved for failure to comply with the provisions of A.R.S. section 29-601 et seq., the Arizona Limited Liability Company Act; and that the said limited liability company has not filed Articles of Termination as of the date of this certificate.

This certificate relates only to the legal existence of the above named entity as of the date issued. This certificate is not to be construed as an endorsement, recommendation, or notice of approval of the entity's condition or business activities and practices.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Arizona Corporation Commission. Done at Phoenix, the Capital, this 19th Day of March, 2008, A. D.

Executive Director

Order Number: 219232

APPENDIX "B"

(Pollux Properties, L.L.C.'s request for water service from Ridgeline Water Company, L.L.C.)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

January 4, 2008

Ridgeline Water Company, L.L.C.
655 N . Alvernon Way, Suite 114
Tucson, Arizona 85711

Attention: Jeffrey S. Utsch
General Manager

Re: Request For Water Service

Dear Mr. Utsch:

Pollux Properties, L.L.C. ("Pollux") hereby formally requests that Ridgeline Water Company, L.L.C. ("Ridgeline") undertake such actions as may be necessary to enable Ridgeline to become the lawful provider of water service to and within approximately 673 acres of land which Pollux owns in an unincorporated in the southernmost portion of Pima County. Attached to this letter as Appendix "A" are legal descriptions of the acreage in question ("Subject Property").

As currently contemplated, Pollux intends to facilitate the development of 134-144 single-family residential units within the Subject Property. Enclosed with this letter as Appendix "B" is a December 2007 draft Water System Master Plan ("Plan"), prepared by Carlson Engineering, Inc., which identifies the water system facilities that would be needed in order to satisfy the anticipated demands of the Subject Property for water service. As you will note, the Plan analysis includes a discussion of the demand criteria and design criteria utilized in arriving at the conclusions reached as to the needed water system infrastructure.

Please advise us in writing if Ridgeline is interested in becoming the lawfully authorized provider of water service to the Subject Property. In that regard, you may use this request for water service in connection with any approvals Ridgeline must obtain from regulatory or permitting agencies or entities.

Sincerely,

POLLUX PROPERTIES, L.L.C.

By: _____
Glen Kerslake

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MAR 21 2008

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400 W CONGRESS STE 218 TUCSON AZ 85701

APPENDIX "C"

(Ridgeline Estates legal description)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

Escrow No.: 06144822-JCS
Order No.: PJB\jv1
Amended: January 8, 2007 No. 2

LANDAMERICA

PRIVACY POLICY NOTICE

Dear LandAmerica Customer:

The Financial Services Modernization Act recently enacted by Congress has brought many changes to the financial services industry, which includes insurance companies and their agents. One of the changes is that we are now required to explain to our customers the ways in which we collect and use customer information.

The statement attached to or on the reverse side of this letter is the privacy policy of the LandAmerica family of companies. The three largest members of the family – Commonwealth Land Title Insurance Company, Lawyers Title Insurance Corporation, and Transnation Title Insurance Company – may issue policies and handle real estate closings in virtually every part of the country. A number of other companies in the family provide other real estate services, and some operate more locally. You may review a list of LandAmerica companies on our website (www.landam.com). You may also visit our website for an explanation of our privacy practices relating to electronic communication.

Our concern with the protection of your information has been a part of our business since 1876, when the company that is now Commonwealth Land Title Insurance Company issued its first policy. We will continue to protect the privacy, accuracy, and security of customer information given to us.

No response to this notice is required, but if you have questions, please write to us:

LandAmerica Privacy
P.O. Box 27567
Richmond, VA 23261-7567.

LandAmerica Companies

Title Insurance Companies: Commonwealth Land Title Insurance Company, Commonwealth Land Title Insurance Company of New Jersey, Industrial Valley Title Insurance Company, Land Title Insurance Company. Lawyers Title Insurance Corporation, Title Insurance Company of America, Transnation Title Insurance Company, Transnation Title Insurance Company of New York
Relocation and Mortgages: Commonwealth Relocation Services, CRS Financial Services, Inc., LandAmerica Account Servicing, Inc.
Title Agents: Austin Title Company, ATACO, Inc., Albuquerque Title Company, Atlantic Title & Abstract Company, Brighton Title Services Company, Capitol City Title Services, Inc., CFS Title Insurance Agency, Charleston Title Agency; Charter Title Company of Fort Bend, Galveston, and Sugarland; Commercial Settlements, Inc., Commonwealth Land Title Company; Commonwealth Land Title Company of Austin, Dallas, Fort Worth, Houston, Washington, Congress Abstract Corp., Cornerstone Residential Title, Cumberland Title Company, First Title & Escrow, Inc., Gulf Atlantic, Harbour Title, HL Title Agency, Lawyers Title Company; Lawyers Title of Arizona, El Paso, Galveston, Nevada, Pueblo, San Antonio, Lawyers Title Settlement Company, Lion Abstract, Longworth Insured, Louisville Title Agency of Central Ohio, Lorain County Title Company, M/I Title Agency, NIA/ Lawyers Title Agency, Oregon Title, Park Title, Partners Title Company, Pikes Peak Title Services, RE/Affirm Title Agency, Rainier Title Company, Residential Abstract, Residential Title, Rio Rancho Title, Texas Title Company, Title Transfer Service, Inc., TransOhio Residential Title Agency, Transnation Title & Escrow, Union Title Agency, University Title Services, Wilson Title Company
Appraisals and Ancillary Services: LandAmerica OneStop, Inc.

Escrow No.: 06144822-JCS
Order No.: PJB\jv1
Amended: January 8, 2007 **No.** 2

LANDAMERICA PRIVACY POLICY

What kinds of information we collect. Most of LandAmerica's business is title insurance, but there are companies in our family that provide other real estate services to consumers. We collect information about you, (for instance, your name, address, telephone number), and information about your transaction, including the identity of the real property that you are buying or financing. We obtain a copy of any deeds, notes, or mortgages that are involved in the transaction. We may get this information from you or from the lender, attorney, or real estate broker that you have chosen. Our title insurance companies then obtain information from the public records about the property so that we can prepare a title insurance policy. When we provide closing, escrow, or settlement services, mortgage lending, or mortgage loan servicing, we may get your social security number, and we may receive additional information from third parties including appraisals, credit reports, land surveys, escrow account balances, and sometimes bank account numbers to facilitate the transaction. If you are concerned about the information we have collected, please write to us.

How we use this information. The company giving or specifically adopting this notice does not share your information with marketers outside its own family. There's no need to tell us to keep your information to ourselves because we share your information only to provide the service requested by your or your lender, or in other ways permitted by law. The privacy laws permit some sharing without your approval. We may share internally and with nonaffiliated third parties in order to carry out and service your transaction, to protect against fraud or unauthorized transactions, for institutional risk control, and to provide information to government and law enforcement agencies. Companies within a family may share certain information among themselves in order to identify and market their own products that they think may be useful to you. Credit information about you is shared only to facilitate your transaction or for some other purpose permitted by law.

How we protect your information. We restrict access to nonpublic personal information about you to those employees who need the information to provide products or services to you. We maintain physical, electronic, and procedural safeguards that comply with law to guard your nonpublic personal information. We reinforce the company's privacy policy with our employees.

Agents that may be covered by this policy. Often, your transaction goes through a title insurance agent. Agents that are part of the LandAmerica family are covered by this policy. **Agents that are not part of the LandAmerica family may specifically, in writing, adopt our policy statement.**

Exhibit A

Legal Description

Parcel 1:

The Northwest quarter of the Southeast quarter of Section 18, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 7

Parcel 2:

The Northeast quarter of the Southwest quarter of Section 18, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 2

Parcel 3:

The Southwest quarter of the Southeast quarter of Section 18, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 9

Parcel 4:

The Northwest quarter of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 10

Parcel 5:

A portion of Government Lot 4 in Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona, described as follows:

BEGINNING at the Southwesterly corner of said Lot 4, which is monumented by a set ½ inch rebar tagged "RLS 35111";

THENCE North 00 degrees 03 minutes 21 seconds West, upon the Westerly line of said Lot 4, a distance of 58.48 feet;

THENCE South 88 degrees 41 minutes 16 seconds East, a distance of 206.46 feet;

THENCE North 81 degrees 11 minutes 10 seconds East, a distance of 278.20 feet;

THENCE North 61 degrees 47 minutes 14 seconds East, a distance of 388.51 feet;

THENCE North 57 degrees 52 minutes 05 seconds East, a distance of 585.08 feet to the Easterly line of said Lot 4;

THENCE South 00 degrees 03 minutes 10 seconds East, upon said Easterly line, a distance of 590.64 feet to the Southeasterly corner thereof;

THENCE South 89 degrees 58 minutes 29 seconds West, upon the Southerly line of said Lot 4, a distance of 1,320.49 feet to the POINT OF BEGINNING.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 43

Parcel 6:

The South half of the Southeast quarter of the Northwest quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 25

Parcel 7:

The South half of the Northeast quarter of the Southwest quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 34

Parcel 8:

The East half of the North half of the Northeast quarter of the Southwest quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 36

Parcel 8A:

An easement for ingress, egress, and utilities over, under, and across the North half of the Northeast quarter of the Southwest quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona, said easement being 30 feet in width, the centerline of which extends from the mid point of the North line of the North half of the Northeast quarter of the Southwest quarter of Section 19, Township 19 South, Range 14 East, Southerly to the mid point of the North line of the South half

of the Northeast quarter of the Southwest quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

Parcel 9:

The South half of the Northeast quarter of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT coal and other minerals as reserved in the Patent from United States of America.

JV arb 29

Parcel 9A:

A right-of-way for ingress and egress and an easement for poles, wires, pipes, and conduits for lighting, heating, electricity, gas, telephone, and any other public or quasi-public utility service purposes, on, over, and under the North 30 feet of the South half of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

Parcel 10:

The North half of the Northeast quarter of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

TOGETHER WITH a right-of-way and easement over the West 20 feet of the South half of the Northeast quarter of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

JV arb 18

Parcel 11:

The West one-half of the Southeast quarter of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 19

Parcel 12:

The North half of the Southwest quarter of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 33

Parcel 13:

The Southwest quarter of the Southwest quarter of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 30

Parcel 14:

The Southeast quarter of the Southwest quarter of the Southeast quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 32

Parcel 15:

A portion of Government Lot 3 in Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona, described as follows:

The South 160.00 feet of Government Lot 3 in Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 45

Parcel 16:

The Southwest quarter of the Southwest quarter of Section 20, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 6

Parcel 17:

A portion of the Northwest quarter of the Southwest quarter of Section 20, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona, described as follows:

The West 330.00 feet of the Northwest quarter of the Southwest quarter of Section 20, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

Portion of JV arb 5

Parcel 18:

The South half of the Northeast quarter of Section 29, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arbs 4 and 6

Parcel 19:

The West half of the Northeast quarter of the Northwest quarter of Section 29, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 30

Parcel 20:

The East half of the Northeast quarter of the Northwest quarter of Section 29, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 31

Parcel 21:

The West half of the Northwest quarter of the Northwest quarter of Section 29, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 29

Parcel 22:

The Southwest quarter of the Northeast quarter of the Northeast quarter of Section 30, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 15

Parcel 23:

The South 660 feet of the East 330 feet thereof, of the Northeast quarter of the Northeast quarter of Section 30, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals as reserved in Patent from United States of America.

JV arb 24

Parcel 24:

The Northeast quarter of the Northeast quarter of Section 30, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT the South 660 feet of the East 330 feet thereof.

FURTHER EXCEPT the Southwest quarter thereof.

FURTHER EXCEPT all coal and other minerals as reserved in Patent from United States of America.

Parcel 28:

The North half of the Southeast Quarter of the Northwest Quarter of Section 29, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals, as reserved in Patent from United States of America

(Jv arb 15)
(State Tax Parcel: 304-45-007D)

Parcel 29

The West half of the Northwest Quarter of the Northeast Quarter of Section 19, Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

Parcel 30:

A portion of Government Lot 4 of Section 19, Township 19 South, Range 14 East, Gila and Salt River Meridian, Pima County, Arizona, described as follows:

COMMENCING at the Southwesterly corner of said Lot 4, which is monumented by a set ½ inch rebar tagged "RLS 35111";

THENCE North 00 degrees 03 minutes 21 seconds West, upon the Westerly line of said Lot 4, 58.48 feet to the POINT OF BEGINNING;

THENCE continue North 00 degrees 03 minutes 21 seconds West, upon said Westerly line, 1259.24 feet to the Northwesterly corner of said Lot 4;

THENCE North 89 degrees 57 minutes 32 seconds East, upon the Northerly line of said Lot 4, 1319.69 feet to the Northeasterly corner thereof;

THENCE South 00 degrees 03 minutes 10 seconds East, upon the Easterly line of said Lot 4, 727.44 feet;

THENCE South 57 degrees 52 minutes 05 seconds West, 585.08 feet;

THENCE South 61 degrees 47 minutes 14 seconds West, 388.51 feet;

THENCE South 81 degrees 11 minutes 10 seconds West, 278.20 feet;

THENCE North 88 degrees 41 minutes 16 seconds West, 206.46 feet to the POINT OF BEGINNING.

EXCEPT all coal and other minerals, as reserved in Patent from United States of America.

(JV Arb. 44)

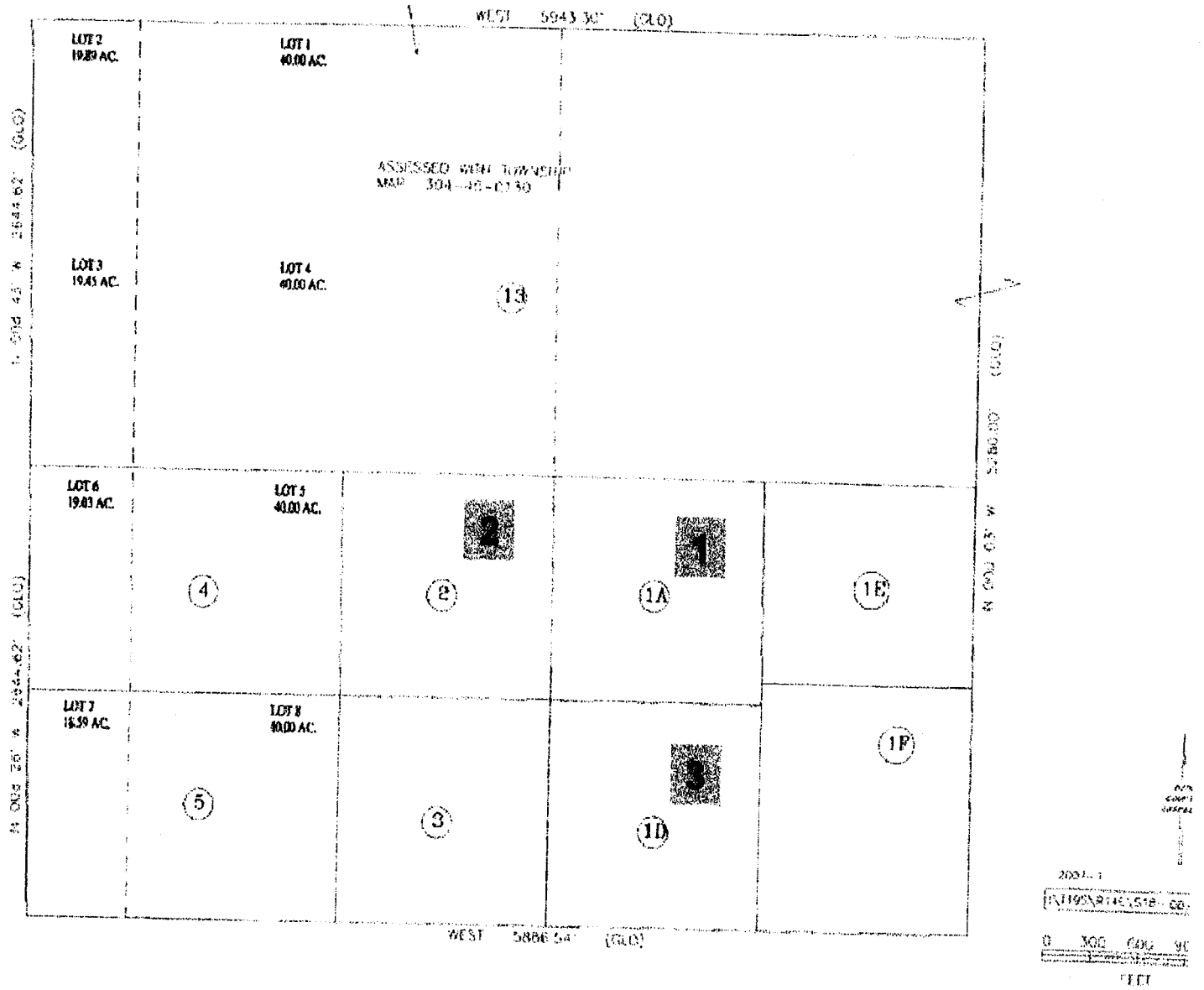
Parcel 31:

The Southeast Quarter of the Northwest Quarter of the Northwest Quarter of Section 29 Township 19 South, Range 14 East, Gila and Salt River Base and Meridian, Pima County, Arizona.

EXCEPT all coal and other minerals, as reserved in Patent from United States of America.

(Jv arb 14)
(State Tax Parcel: 304-45-009D)

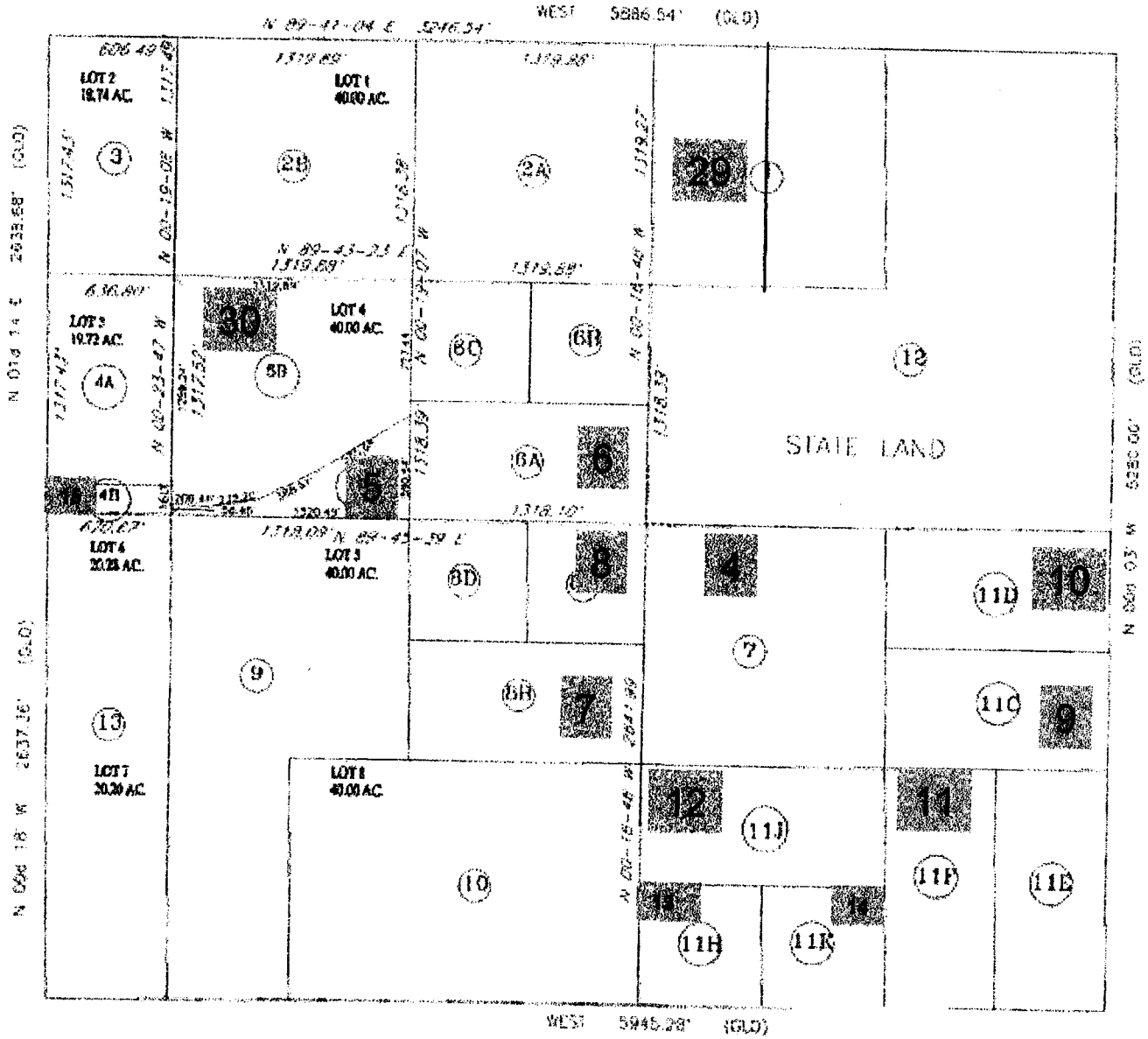
ASSESSOR'S RECORD MAP
304-47 SECTION 18, TOWNSHIP 19 SOUTH, RANGE 14 EAST



ASSESSOR'S RECORD MAP

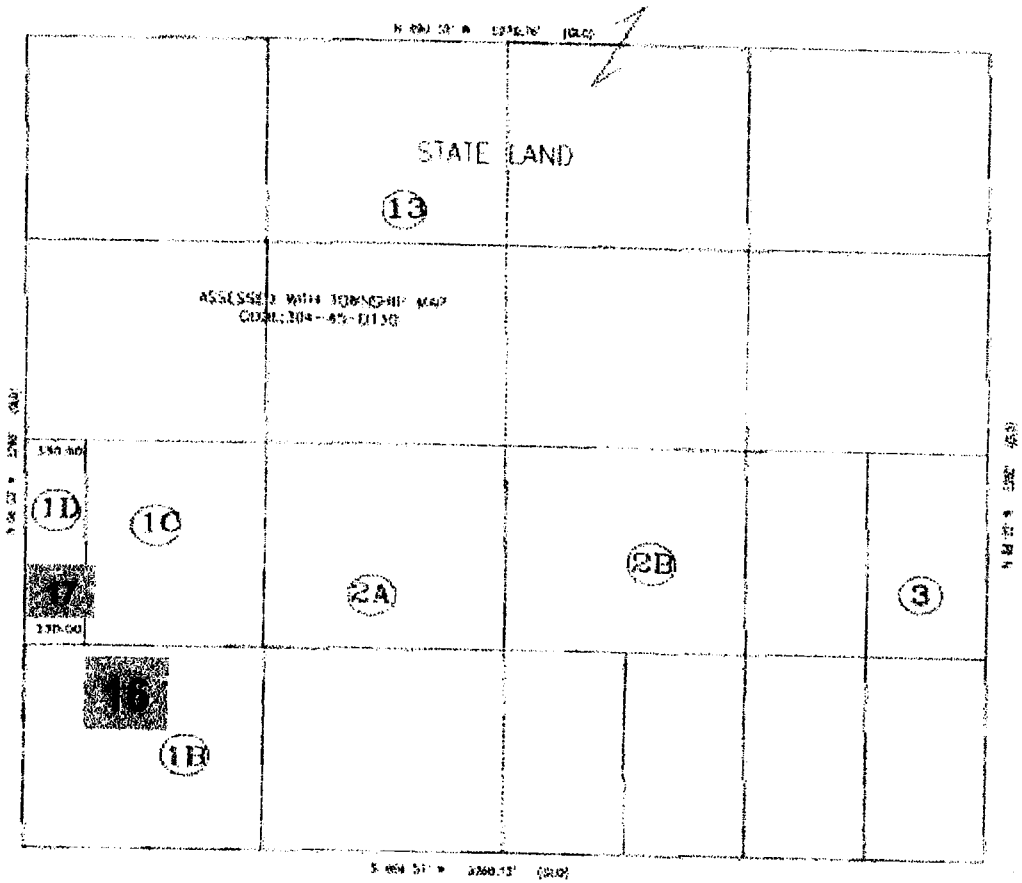
304-48

SECTION 19, TOWNSHIP 19 SOUTH, RANGE 14 EAST

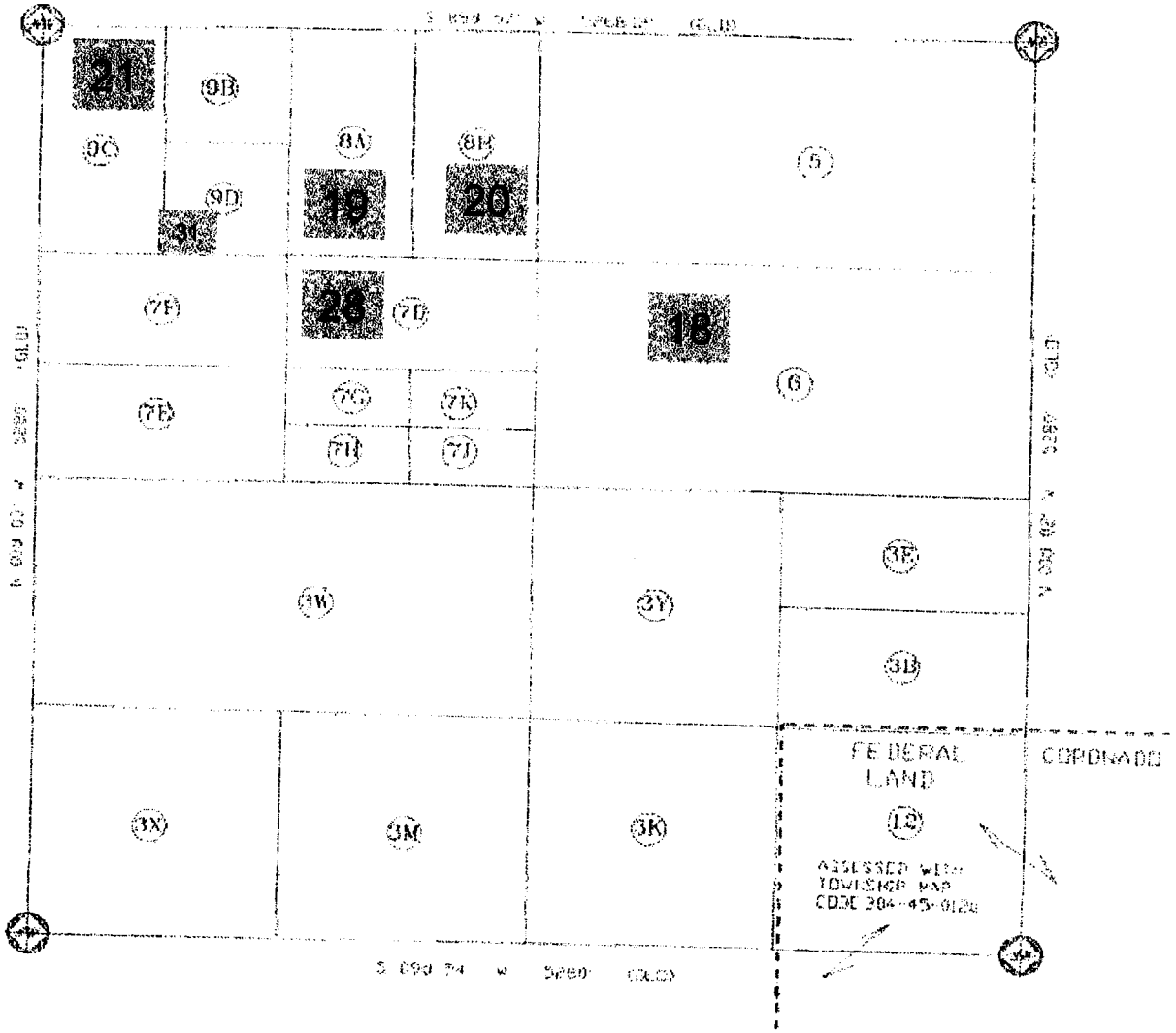


ASSESSOR'S RECORD MAP

304-49 SECTION 20, TOWNSHIP 19 SOUTH, RANGE 14 EAST

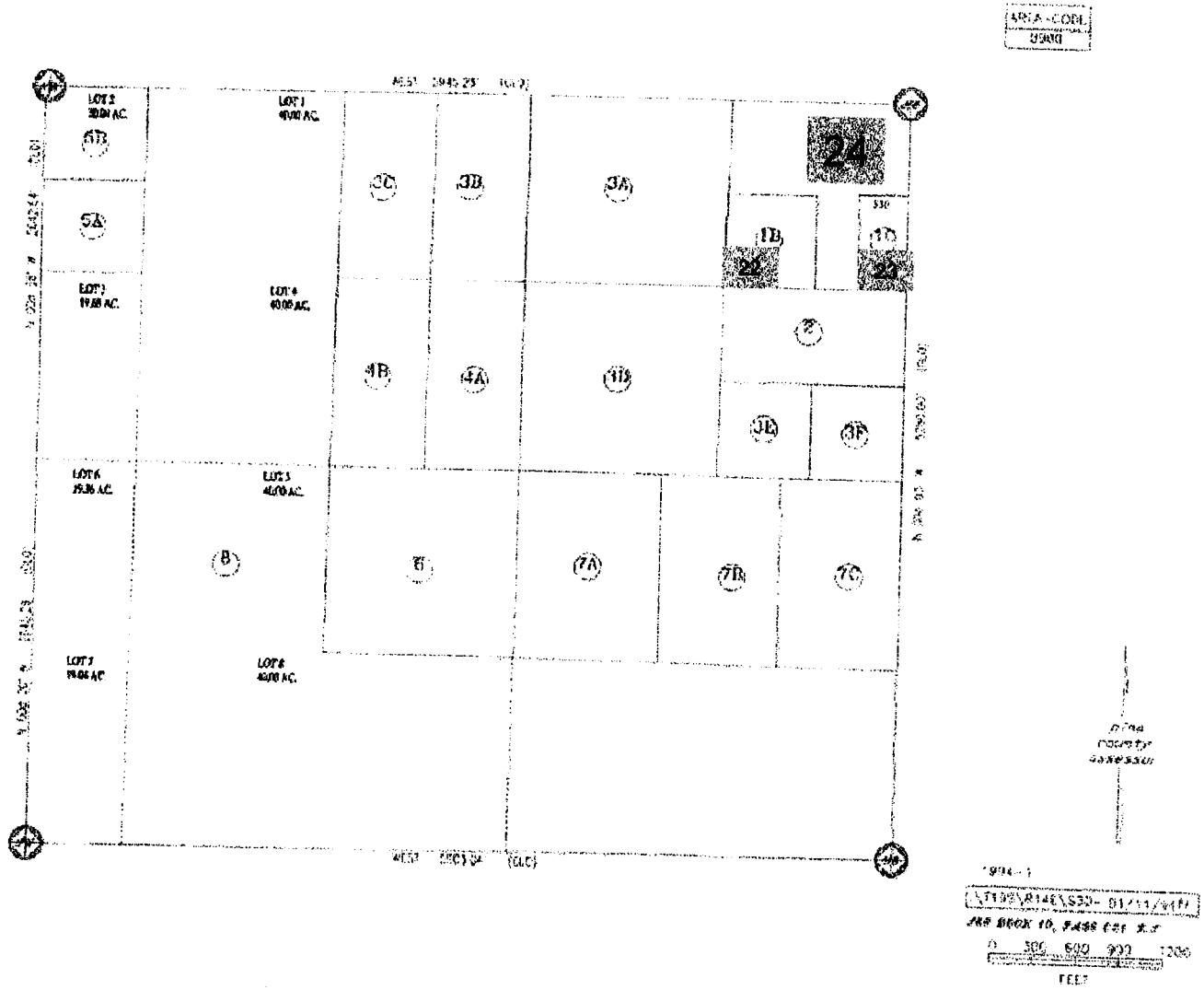


ASSESSOR'S RECORD MAP
304-45 SECTION 29, TOWNSHIP 19 SOUTH, RANGE 14 EAST



ASSESSOR'S RECORD MAP

504-50 SECTION 30, TOWNSHIP 19 SOUTH, RANGE 14 EAST

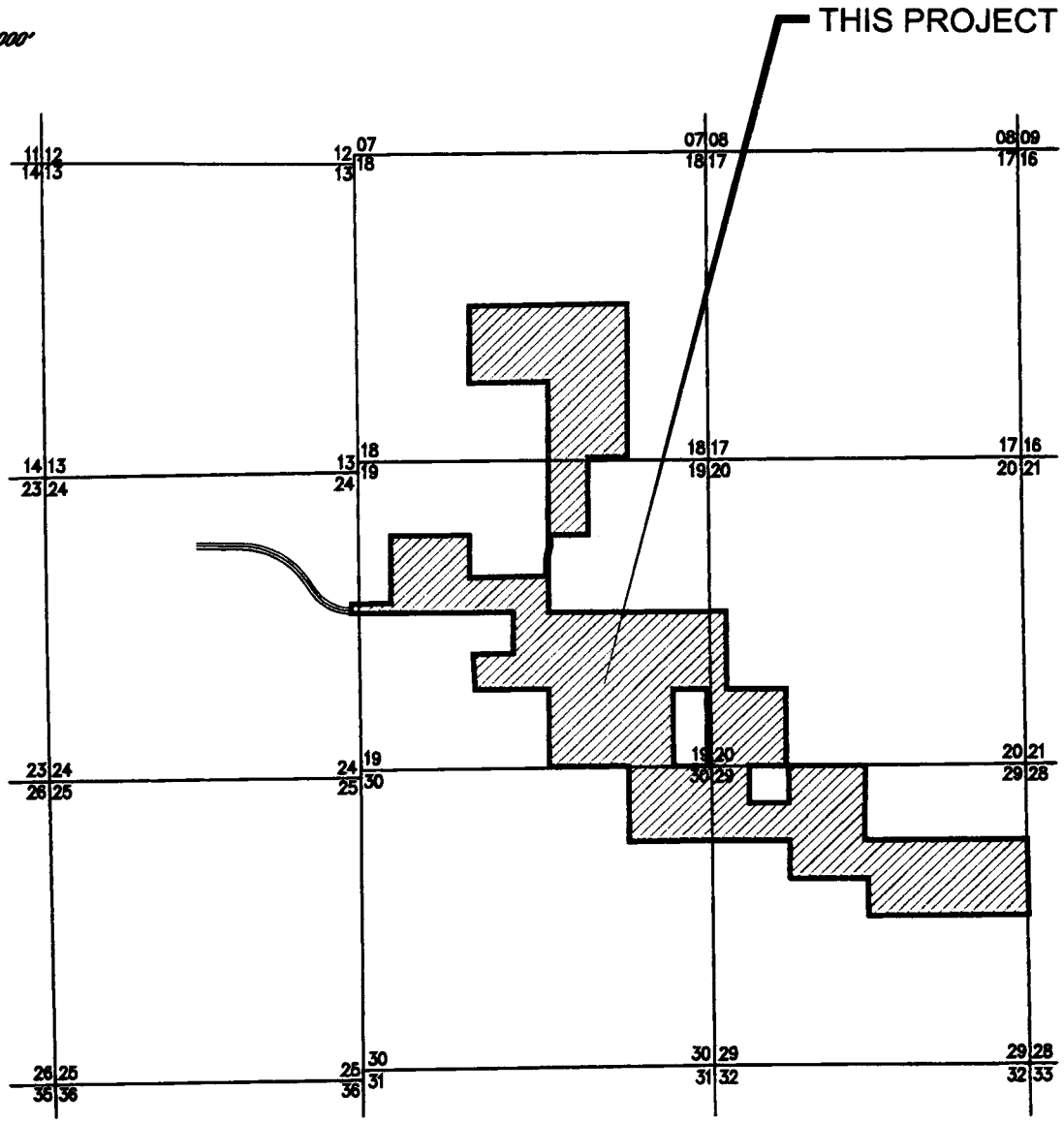


APPENDIX "D"

(Map of Proposed Water Service Area)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

SCALE: 1"=3,000'



PREPARED BY:

GREG CARLSON ENGINEERING, L.L.C.
1521 E. Broadway Boulevard, Tucson, AZ 85719
(520) 624-0070 (520) 624-4197 Fax E-mail:gceng@gceng.biz

DESIGNED BY: GRC DRAFTED BY: JJF CHECKED BY: GRC

RIDGELINE ESTATES

LOCATED WITHIN A PORTION OF
SECTIONS 18-20, 29 & 30, T19S, R14E,
G&SRM PIMA CO., ARIZONA

SCALES: HORIZ: 1"=3,000' JOB NO. 07-036

DATE: MARCH, 2008

G:\Carlson Engineering\2007\07-036\Exhibits\Exhibit-Water-Model-Bound.dwg, 3/10/2008 3:34:56 PM, 1:3000

APPENDIX "E"

(Ridgeline Water Company, L.L.C.'s response to Pollux Properties, L.L.C.'s request for water service)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

February 1, 2007

Pollux Properties, L.L.C.
655 N. Alvernon Way, Suite 114
Tucson, Arizona 85711

Attention: Glen Kerslake

Re: Request For Water Service

Dear Mr. Kerslake:

This letter will acknowledge Ridgeline Water Company, L.L.C.'s ("Ridgeline") receipt of your January 1, 2008 letter requesting that Ridgeline undertake such actions as may be necessary to enable Ridgeline to become the lawful provider of water service to the 673 acres of land located in the southernmost portion of Pima County, Arizona which Pollux Properties, L.L.C. ("Pollux") owns and contemplates developing ("Subject Property").

Ridgeline is interested in becoming the lawfully authorized provider of water service to the Subject Property, and is willing and able to do so, subject to prior receipt of the necessary approvals and authorizations from governmental entities with jurisdiction over Ridgeline's water provider operations. These will include the receipt of the necessary certificate of convenience and necessity from the Arizona Corporation Commission ("ACC"), and ACC approval of such line extension agreements and off-site facilities agreements as Ridgeline may find to be necessary or appropriate.

In that regard, as a condition to Ridgeline's willingness to proceed with such actions as may be necessary to obtain the requisite approvals and authorizations, Ridgeline will require that Pollux fund any expenses Ridgeline may incur in connection with such efforts.

If the foregoing condition is acceptable to Pollux, please so advise me in writing and Ridgeline will promptly undertake to obtain the approvals and authorizations necessary to enable it to be the lawful water provider to the Subject Property.

Sincerely,

Ridgeline Water Company, L.L.C.
By: _____
Jeffrey S. Utsch, General Manager

RECEIVED

MAR 21 2008

ARIZONA CORP. COMM
400 W CONGRESS STE 218 TUCSON AZ 85701

APPENDIX "F"

(Pollux Properties, L.L.C.'s reply to Ridgeline Water Company, L.L.C.'s response to Pollux Properties, L.L.C.'s request for water service)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

March 15, 2008

Ridgeline Water Company, L.L.C.
655 N. Alvernon Way, Suite 114
Tucson, Arizona 85711

Attention: Jeffrey S. Utsch
General Manager

Re: Request For Water Service

Dear Mr. Utsch:

The condition outlined in your letter of February 1, 2008 is acceptable to Pollux Properties, L.L.C. ("Pollux"). Accordingly, please proceed with all actions necessary to enable Ridgeline Water Company, L.L.C. ("Ridgeline") to become the lawful water provider to the 673 acres owned by Pollux and described in my January 4, 2008 letter to you.

In that regard, please provide me with a copy of all documents filed with such governmental entities from whom the necessary approvals or authorizations are requested by Ridgeline; and, please provide me with periodic statements of fees and costs incurred by Ridgeline in connection with its efforts on our behalf, in order that Pollux may either directly pay the same or reimburse Ridgeline.

Sincerely,

Pollux Properties, L.L.C.

By: _____
Glen Kerslake

RECEIVED

MAR 21 2008

ARIZONA CORP. COMM
400 W CONGRESS STE 218 TUCSON AZ 85701

APPENDIX "G"

(December 2007 Water System Master Plan, as prepared by Greg Carlson Engineering, L.L.C.)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

DESIGN REPORT
for
RIDGELINE ESTATES
WATER DISTRIBUTION SYSTEM

Prepared for:

Pollux Properties LLC
2102 N Country Club Ste 4
Tucson, Arizona 85716-2856

Prepared by:

GREG CARLSON ENGINEERING, L.L.C.
1521 E. Broadway Boulevard, Tucson, AZ. 85719
(520)-624-0070 fax (520)-624-4197
e-mail:gceng@gceng.biz

December, 2007
Job Number 07-036

Registered Professional Engineer (Civil)
CERTIFICATE NO.
25292
GREGORY R.
CARLSON
Date Signed 12-17-07
ARIZONA U.S.A.

Table of Contents

1.0 **Introduction** 1

1.1 Location and Description 1

1.2 Purpose and Objectives 2

1.3 Previous Studies 2

2.0 **Design Requirements** 3

2.1 Minimum Fire Flow. 3

2.2 System Pressures 3

2.3 Velocity and Headloss 3

2.4 Demand Criteria. 4

2.5 Storage Requirements. 4

2.6 Well Production 4

3.0 **Proposed System** 5

3.1 System Configuration. 5

3.2 Storage Capacity. 6

3.3 Boosters and Pumps. 7

3.4 Water Hammer. 7

4.0 **Model Construction**. 9

4.1 Modeling Software. 9

4.2 Model Creation 9

4.3 Model Scenarios. 9

4.4 Demand Allocation. 9

4.5 Model Parameters. 10

5.0 Model Results. 11

Registered Professional Engineer (Civil)
CERTIFICATE NO. 25292
GREGORY R. CARLSON
Date Signed 12-17-07
ARIZONA U.S.A.

5.1 Operating Pressures. 11

5.2 Fire Flow Capacity. 11

5.3 Pipeline Performance. 12

6.0 **Summary and Conclusions**. 13

7.0 **References**. 15

Appendix A Maps and Figures
Appendix B Calculations
Appendix C Model Results
Appendix D Hydrogeologist's Letter

1.0 INTRODUCTION

1.1 Location and Description

This project is located in portions of Sections 18-20, 29 and 30, Township 29 South, Range 14 East, Gila and Salt River Meridian, Pima County, Arizona. The 632-acre site is bounded on the west by vacant land, on the north by vacant land and White House Canyon Road, on the east by Madera Canyon Road, and on the south by Madera Canyon. The subject parcel is described by the associated tax I.D. numbers of the participating parcels shown in Table 1. The location of the project is depicted in Figure 1 Appendix A.

Table 1:

Participating Parcels Tax I.D. Numbers

Parcel I.D. Number	Owner
304-48-004B	Pollux Properties,LLC
304-48-005A	Pollux Properties, LLC
304-48-005B	Pollux Properties, LLC
304-48-006A	Pollux Properties, LLC
304-48-008C	Pollux Properties, LLC
304-48-008B	Pollux Properties, LLC
304-48-0070	Pollux Properties, LLC
304-48-011J	Pollux Properties, LLC
304-48-011H	Pollux Properties, LLC
304-48-011K	Pollux Properties, LLC
304-48-011F	Pollux Properties, LLC
304-48-011C	Pollux Properties, LLC
304-48-011D	Pollux Properties, LLC
304-49-001D	Pollux Properties, LLC
304-49-001B	Pollux Properties, LLC
304-50-001B	Pollux Properties, LLC
304-50-001D	Pollux Properties, LLC
304-50-001C	Pollux Properties, LLC
304-45-009C	Pollux Properties, LLC
304-45-008B	Pollux Properties, LLC
304-45-008A	Pollux Properties, LLC
304-45-007D	Pollux Properties, LLC
304-45-009D	Pollux Properties, LLC
304-45-0060	Pollux Properties, LLC
304-48-005B	Pollux Properties, LLC
304-48-001B	Pollux Properties, LLC
304-47-001D	Pollux Properties, LLC
304-47-001A	Pollux Properties, LLC
304-47-0020	Pollux Properties, LLC

The existing condition for the project site is undeveloped land currently zoned as RH. The proposed development for the site consists of a 136 unit single family detached residential subdivision with a minimum lot area of 180,000 square feet.

Two groundwater supply/test wells currently exist at the northwest corner of the proposed development. No system piping, storage or appurtenances currently exist.

The location of this proposed subdivision and associated water system falls outside of the jurisdiction of any of the neighboring fire districts.

1.2 Purpose and Objectives

The objective of this design report is to demonstrate that the proposed water distribution system will satisfy the minimum design standards as required by the Arizona Administrative Code (AAC) Title 18, Chapter 5, Article 5 and contained in Engineering Bulletin No. 10 issued by the Arizona Department of Health Services, May 1978. The system shall also comply with the requirements of the 2003 International Fire Code.

1.3 Previous Studies

A groundwater study was performed by Chuck M Dickens for the site. He provided a letter in May 2007 (attached in Appendix D) summarizing the test results for two supply / test wells. In addition, an application for assured water supply has been submitted to AZDWR. No other known studies exist for this site.

2.0 DESIGN REQUIREMENTS

2.1 Minimum Fire Flow

The proposed system will be outside of the service area of the neighboring fire districts and therefore, falls under the jurisdiction of the state fire marshal. The design fire flow capacity of the subdivision is in accordance with the 2003 International Fire Code, which requires a minimum fire flow capability of 1,000 gpm for 2 hours for homes not exceeding 3,600 square feet. Any homes in this development planned to exceed 3,600 square feet will be required to have a sprinkler system installed.

2.2 System Pressures

In accordance with the requirements of AAC R18-5-502, the proposed system must maintain a minimum pressure of 20 psi under all flow conditions and 40 psi under normal operating conditions. Individual pressure reducing valves (PRVs) will be required for service connections that tap into locations with 80 psi or greater. The following design criteria were used for system design:

Flow Condition	***Minimum System Pressure***
Average Day Demand (ADD)	40 psi
Maximum Day Demand (MDD)	40 psi
Peak Hour Demand (PHD)	35 psi
MDD Plus Concurrent Fire Flow	20 psi

2.3 Velocity and Headloss

The design guidelines of the City of Tucson Water Department were used to limit pipeline velocities and headloss gradients as shown on Table 2:

Table 2:

Pipeline Performance Criteria

Flow Condition	Maximum Velocity	Maximum Headloss Gradient
MDD	5 ft/sec	10 ft/1,000 ft
MDD with Fire Flow (1,000 gpm)	8 ft/sec where extension of pipeline is possible. 11 ft/sec where no extensions are possible	N/A

Guidelines from City of Tucson Water Department Design Standard 8-06.4.3

2.4 Demand Criteria

The following assumptions were used to determine the system demand:

Factor	***Value***
Average Daily Demand per Capita per Day (gpcd)	100 gpcd
Average Persons Per Household	3
Peak Month Demand (PMD) Peaking Factor	1.5
MDD Peaking Factor	1.8
PHD Peaking Factor	3.15
Total Number of Lots	136

The total system ADD equates to approximately 28.3 gpm based on the above criteria. The maximum required demand is 1,051 gpm for the flow condition of MDD plus concurrent fire flow.

2.5 Storage Requirements

The AAC requires that new distribution systems provide storage for one day at peak month demand. A second component is required for fire flow storage per Engineering Bulletin No 10 Chapter 6-D. An average day of peak month demand (61,200 gallons) plus the fire flow storage equates to a total storage requirement of 181,200 gallons.

2.6 Well Production

The production wells must be capable of supplying a minimum of 50 gpcd for a period of 100 years per the requirements documented in AAC R18-4-603. The ground water study performed by Chuck M. Dickens revealed that the aquifer has capacity to serve approximately 600 single-family units. The two existing wells will have capacity to serve approximately 350 single-family units.

3.0 PROPOSED SYSTEM

3.1 System Configuration

The proposed system will be divided into five pressure zones, each of which will receive the water stored in the elevated storage tank at the east end of the development named the Upper Tank. Table 3 below summarizes the service and high water elevations for each pressure zone.

Table 3:
Pressure Zones

Pressure Zone	Low Service Elevation (Static Pressure)	High Service Elevation (Static Pressure)	High Water Elevation	Range of Service Elevations (ft)
Zone A	3320 (85 psi)	3425 (40 psi)	3517	105
Zone B	3425 (81 psi)	3520 (40 psi)	3612	95
Zone C	3520 (85 psi)	3625 (40 psi)	3717	105
Zone D	3625 (85 psi)	3730 (40 psi)	3822	105
Zone E	3730 (85 psi)	3835 (40 psi)	3927	105

The following summarizes the pressure zone characteristics:

Zone A

Pressure Zone A will be the lowest pressure zone. The service elevations for the zone will be from 3320 to 3425 feet. The zone will receive water from the higher pressure zones through pressure reducing valves (PRVs). In the proposed configuration, two hydraulically independent service areas will be within Zone A. Their high water elevations will be equivalent and set by the pressure settings of the PRVs serving them from Zone B. In the future, these two service areas can be looped together by direct connection if the land between them is added to the water company service area.

Zone B

Pressure Zone B will serve elevations 3425 thru 3520. It will receive water by gravity from Zone C through PRVs.

Zone C

Pressure Zone C will serve elevations 3520 thru 3625. It will receive water by gravity from Zone D through a PRV in the distribution piping. It will also have a PRV connection from the 8-inch transmission main. The PRV will be located at the Lower Tank site and set low to open only under high flow conditions or during maintenance of the PRV from Zone D.

Zone D
Pressure Zone D will serve elevations 3625 thru 3730. The water surface elevation in the Upper Tank will be the high water elevation for this zone. Zone D will receive water by gravity from the Upper Tank through two connections to the 8-inch transmission main. It will also receive water from the Lower Tank site booster as it supplies the Upper Tank.

Zone E
Pressure Zone E will serve elevations 3730 thru 3835. Since the high water surface elevation in the Upper Tank will be 3822, Zone E will not be sufficiently pressurized by gravity. Instead, it will be pressurized by pumps and a hydro-pneumatic tank at the Upper Tank site. It will also require a stand-by fire pump to ensure fire flow availability.

3.2 Storage Capacity

In addition to the Upper Tank, which will provide storage for the entire system, two other tanks will be installed to act as forebay storage along the 8-inch transmission main between the Upper Tank and the wells. The wells will pump into the Wellsite Tank (named after its proximity to the existing wells). A booster station at that site will then pump water to the Lower Tank. Boosters at the Lower Tank site will then boost water to the Upper Tank. The following table summarizes the storage characteristics of the Ridgeline Estates Water Distribution System:

Table 4:
System Water Storage

Facility	Zones Served	Diameter (ft)	Height (ft)	Area (sf)	Required Storage (gal)	Usable Volume* (gal)
Upper	ALL	47.53	16.12	1774	181,200	187,397
Lower	(Forebay)	9.23	12	67	3,400	5,005
Wellsite	(Forebay)	15.39	12	186	12,240	13,915

*Usable Volume deducts 2' from total tank height for overflow pipe and elevated discharge pipe.

The Upper Tank will have enough volume to provide storage for a 2-hour, 1,000 gpm fire flow plus a full day of peak month demand for the entire system. In the event of a power failure, Zones A, B, C and D will have available water pressure and fire flow until the Upper Tank is emptied. If no fire event occurs, the Upper Tank will have enough supply for approximately 3 days without power.

The storage requirements for the two forebay tanks were determined based on the volume required to refill the Upper Tank after its water level drops to the pump-on level. Current plans are for the Upper Tank level to drop approximately 1.6 feet two times daily. The tank will refill each time over a period of approximately 68 minutes. The Wellsite Tank will have enough volume to prevent complete drainage during refill periods in the event that the greatest producing well is out-of-service. The Lower Tank will have enough volume to prevent drainage based on the precaution that the Wellsite booster cannot keep up with the Lower booster in flow production.

3.3 Boosters, Pumps and Wells

The booster pumps at the Wellsite Tank site and the Lower Tank site will be sized to provide sufficient flow to refill the Upper Tank over the course of approximately 72 minutes after the water level has dropped 1.6 feet. This will occur approximately two times per day. It is also desirable, in this system, to size the two booster stations such that the flow rate delivered from each is roughly equal. This will prevent the Lower Tank from emptying due to a negative net inflow under high flow conditions. Each booster station will have two identical alternating pumps.

The pumps at the Upper Tank site will be sized to pressurize the system to the high water elevation of Zone E (3,927'). Two service pumps will alternate in pressurizing a hydro-pneumatic tank for the domestic service of Zone E. The fire pump will be sized to provide a minimum 1,000 gpm at a pumping head equal to the high water elevation for Zone E. The fire pump will only turn on if a fire event occurs within Zone E.

It is recommended that the wells run at the same time and are not connected in an alternating fashion. Their combined capacity will be approximately 400 gpm.

3.4 Water Hammer

Water hammer, otherwise known as pressure surges or transients, can be caused by power failures, quickly closed valves, or any other event that causes a sudden change of flow in the system. The Tucson Water design standards require a surge allowance of 40% of the normal operating pressures. The Ridgeline Estates water system experiences a peak critical operating pressure of 111 psi. Adding the 40% surge allowance renders a minimum pipe rating of 155 psi. Tucson Water design standards require all pipelines to have a minimum rating of 200 psi. It is recommended that the 200 psi standard be followed for the design of the proposed Ridgeline Estates water system.

The hydro-pneumatic tank at the Upper Tank site will provide protection against positive and negative pressure surges in Zone E by allowing water to enter the system under negative surges and allowing water to enter the tank during positive surges.

Protection devices will be installed along the transmission main to protect the pumps and mitigate the effects of surges and air accumulations. The greatest surge that can be caused in the transmission main would be due to a pump trip at one of the booster stations. Since the greatest static pressure in the transmission main is 113 psi at the Wellsite Tank, and the pumps are producing a maximum of approximately 350 gpm, the surge will not cause the pressure to exceed the capacity of class 200 pipe. However, spring loaded check valves will be installed downstream of the booster stations to prevent surges from damaging the pumps.

4.0 MODEL CONSTRUCTION

4.1 Modeling Software

A model of the proposed system was created using Bentley's WaterCad V8 XM edition. The software has the ability to perform both steady state and extended period simulations. It can also perform a fire flow analysis in which the capacity of the system is calculated while maintaining certain performance criterion such as minimum system pressures and maximum flow velocities.

4.2 Model Creation

A topographic map and the proposed lot layout were imported into the water system model using the AutoCad features of the Bentley Software. The water system was modeled by placing model nodes and pipes in their proper locations over the base mapping. Nodes and appurtenances were assigned elevations at ground level to produce results representing ground level pressures. Tanks and pumps were assigned elevations representing their intended design elevations to accurately determine the high water elevations and hydraulic grade lines.

4.3 Model Scenarios

A total of six models were created. The complete proposed system was modeled for the average daily demand (ADD), maximum daily demand (MDD) and peak hour demand (PHD). The first three models were named the Final Condition Scenarios. The model configuration for the final condition is shown on Figure 2. Three other scenarios were also modeled including the piping and facilities for only the interim condition. This includes construction of the transmission main, Upper Tank, and two booster stations as well as distribution piping for the lower pressure zones as shown on Figure 3. These model scenarios were named the Interim Condition Scenarios.

4.4 Demand Allocation

Once the pipes and system components were created within the WaterCad software each model junction, or node, was assigned a demand (representing ADD) based on the number of proposed lots that were nearest to that particular node. Therefore, some of the nodes have no demand associated with them while others have demands representing anywhere from 1 to 11 lots. The ADD was then multiplied by the appropriate peaking factors for the MDD and PHD scenarios.

4.5 Model Parameters

The Hazen Williams roughness coefficient for all PVC pipes in the model were set to 120 to conservatively estimate the fire flow capacity of the system for aged piping. In the Interim Condition Scenarios, the roughness was set at 150 to model new PVC piping.

A local minor loss coefficient of 6.2 was applied to all of the PRVs. This coefficient was provided by the manufacturer's (Cla-Val) representative and is also available on their website. Each PRV in the system will be a 6-inch PRV.

Tank diameters and nominal volumes were provided by BH Tank Incorporated per the sizes and specifications listed on their website. The actual usable volume of the tanks, assuming two feet of unusable depth, was considered in storage calculations.

5.0 MODEL RESULTS

5.1 Operating Pressures

As described in the pressure zone descriptions, the majority of the distribution system will be served by gravity from the Upper Tank through a series of pressure reducing valves (PRVs). Pressure Zone E is the only zone that will require a pump to pressurize it. Since PRVs will separate the pressure zones, the operating pressures depend on their locations and settings. The PRVs will be set so that the target range of pressures within each zone range between 40 psi and 85 psi.

There will be some areas in the distribution system that experience higher pressures than the 40-85 psi range mentioned above. They include loops crossing through lower pressure zones and lowered waterlines crossing under washes. The locations of the loops and wash crossings can be seen on Figures 4 thru 7. No service connections are anticipated in the aforementioned high-pressure areas. Individual PRVs will be required for any service connections made at locations expected to have pressures exceeding 80 psi. A limited number of lots could potentially encounter localized pressures exceeding 80 psi.

Results of the fire flow analysis indicate that a fire flow of 1,000 gpm at any location will not drop the pressure below 20 psi anywhere in the system.

5.2 Fire Flow Capacity

A fire flow analysis was run for both the Interim Condition MDD scenario and the Final Condition MDD scenario. The analysis calculated the available fire flow capacity (during MDD flow conditions) at each model node based on the criteria that the minimum system and residual pressures remain at least 20 psi. Certain model nodes were excluded from the minimum pressure criteria and were also not tested for fire flow capacity because they represent non-service or facility locations or locations were no hydrant would be located such as in a cul-de-sac less than 500-feet from a hydrant.

No locations failed the fire flow analysis. All hydrants will be capable of producing a minimum of 1,000 gpm. An extended period simulation also showed that the Upper Tank will have the volume to provide 1,000 gpm for 2 hrs plus a full day's peak month demand in the event that it can not receive supply from the transmission main. Figures 8 and 9 summarize the fire flow results.

5.3 Pipeline Performance

The flow velocities and headloss gradients were analyzed for both the Interim Condition and Final Condition of the system. Model results indicate that the proposed system satisfies the City of Tucson Water Department Design Standards listed in Section 2.3. The maximum velocity for the Interim Condition MDD and Final Condition MDD scenarios were 0.20 ft/sec and 6.59 ft/sec respectively. The maximum velocities were 0.30 ft/sec and 7.49 ft/sec for the Final Condition MDD and MDD plus Fire Flow scenarios respectively. The maximum headloss gradients for the Interim and Final Conditions MDD scenarios were 0.030 ft/1,000 ft and 0.073 ft/1,000 ft. Figures 10 thru 13 summarize the pipeline performance.

6.0 SUMMARY AND CONCLUSIONS

It is anticipated that the water distribution system will be constructed in phases. It is also understood that it is desirable to the developer that the transmission main and all tanks be installed as part of the first phase of construction. This is recommended. Also, we recommend the following:

Phase 1: Install the following system components:

1) All tanks,
2) The entire length of transmission main,
3) Booster pumps at Wellsite and Lower Tanks,
4) The PRV at the Lower Tank site. Interim setting shall be equal to Zone C high water elevation,
5) The 8-inch distribution main between Lot 1 and the Lower Tank site following the alignment of the transmission main in the main access road,
6) The PRVs separating Zones A, B and C,
7) Connect the wells to the Wellsite Tank.

Phase 2: Install further distribution piping and service meters per the following:

1) Complete construction of water mains within Zones A, B, and C,
2) Install services within Zones A and B; all lots.
3) Install services within Zone C for lots downstream of the Lower Tank site PRV.

Phase 3: Install Zone D:

1) Install Zone D distribution mains and connections to the transmission main.
2) Install PRV to Zone C. Reset the PRV at the Lower Tank site to 40 psi at this point.
3) Install services for rest of Zone C lots.
4) Install services for all Zone D lots.

Phase 4: Install Zone E:

1) Install hydro-pneumatic tank, pumps and fire pump at the Upper Tank site.
2) Install Zone E distribution mains.

Other construction phasing strategies are possible. Any significant variations to the plan should be modeled before implementation.

The proposed water system has the capability to be expanded to serve future service areas following completion of the proposed Ridgeline Estates system. Since fire flow is the controlling factor for the design of the system, connections will be possible prior to completion but should be analyzed when development details are known. It is recommended that future system additions follow the same pressure zone elevation boundaries in order to facilitate the looping of mains between built and new service areas.

Service connections made at the low end of their pressure zones will require pressure-reducing valves at the meters. Any connection made at locations with operating pressures in excess of 80 psi will be required to have a PRV. The following table summarizes the areas that will be affected.

Table 5:
Required PRV Connections

Pressure Zone	Threshold Elevation (Connections lower than this require PRVs)
Zone A	3332
Zone B	3427
Zone C	3532
Zone D	3637
Zone E	3742

The proposed system will perform adequately both as a completed system and under interim conditions. The model results indicate that there will be sufficient fire flow capacity and pressure at all locations in the system under the applicable flow conditions to satisfy the requirements of the 2003 International Fire Code. The design requirements of AAC Title 18, Chapter 5, Article 5 and contained in ADEQ Engineering Bulletin No. 10 have been satisfied by the proposed design as well.

7.0 REFERENCES

Arizona Department of Environmental Quality, Engineering Bulletin No. 10, May 1978. **www.azdeq.gov/**

Arizona Administrative Code, Title 18 Chapters 4 and 5, www.azsos.gov/

City of Tucson Water Department, Design Standard No 8-06 Water Facility Minimum Sizing and Reliability Standards

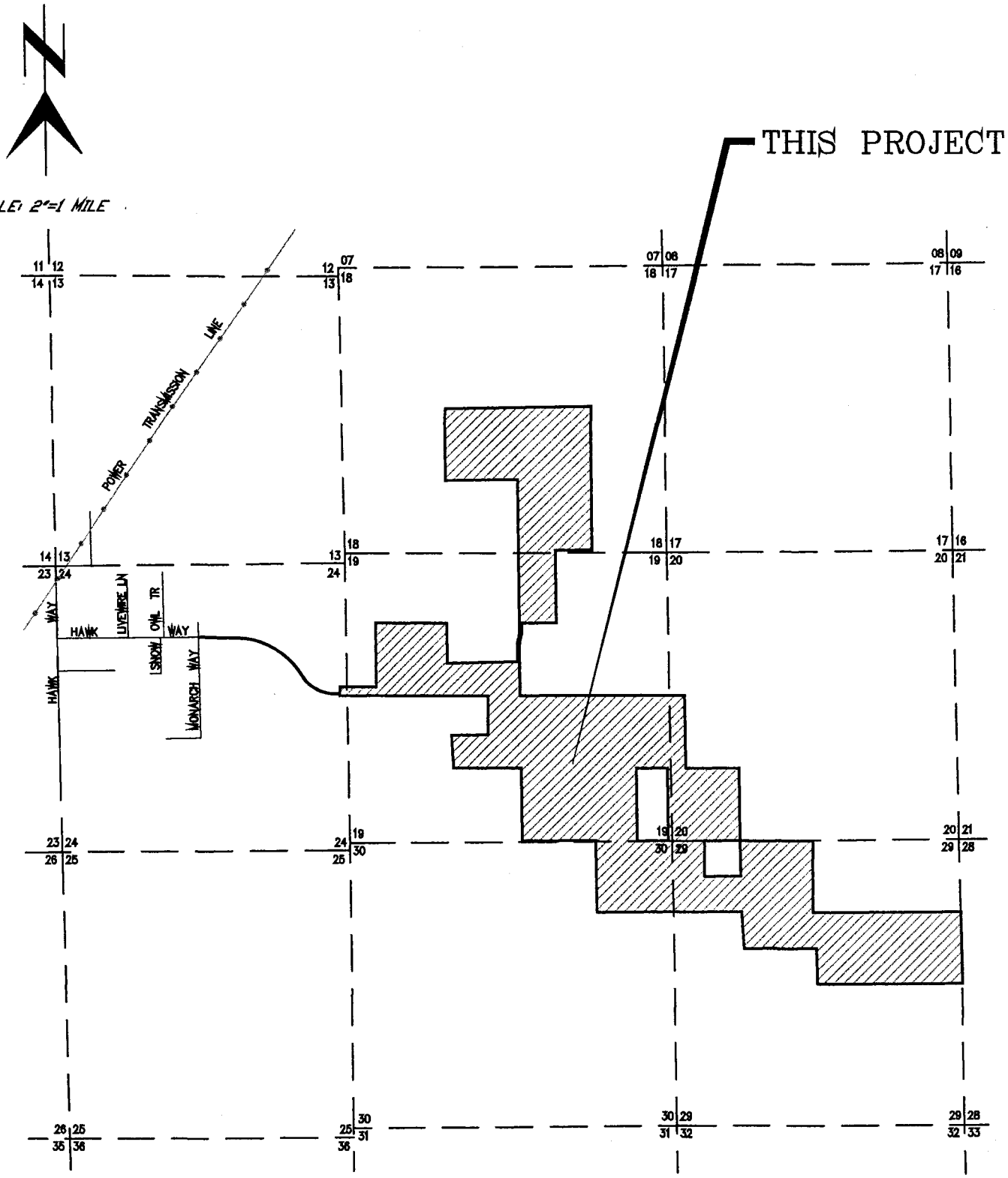
City of Tucson Water Department, Design Standard No 8-08 Water Pipeline Design Standards

PVC Pipe Specifications: Harvel Plastics Inc., www.harvel.com

Pressure Reducing Valve Specifications: Cla-Val, www.cla-val.com

Storage Tank Sizes and Specifications: BH Tank, www.bhtank.com

Appendix A
Maps and Figures



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DESIGNED BY: GRC DRAFTED BY: JJF CHECKED BY: GRC

FIGURE 1:
PROJECT LOCATION MAP
FOR
RIDGELINE ESTATES
LOCATED WITHIN A PORTION OF
SECTIONS 18–20, 29 & 30, T19S, R14E,
G&SRM PIMA CO., ARIZONA

SCALES: HORIZ: 3"=1 mi JOB NO. 07-036

DATE: DECEMBER, 2007

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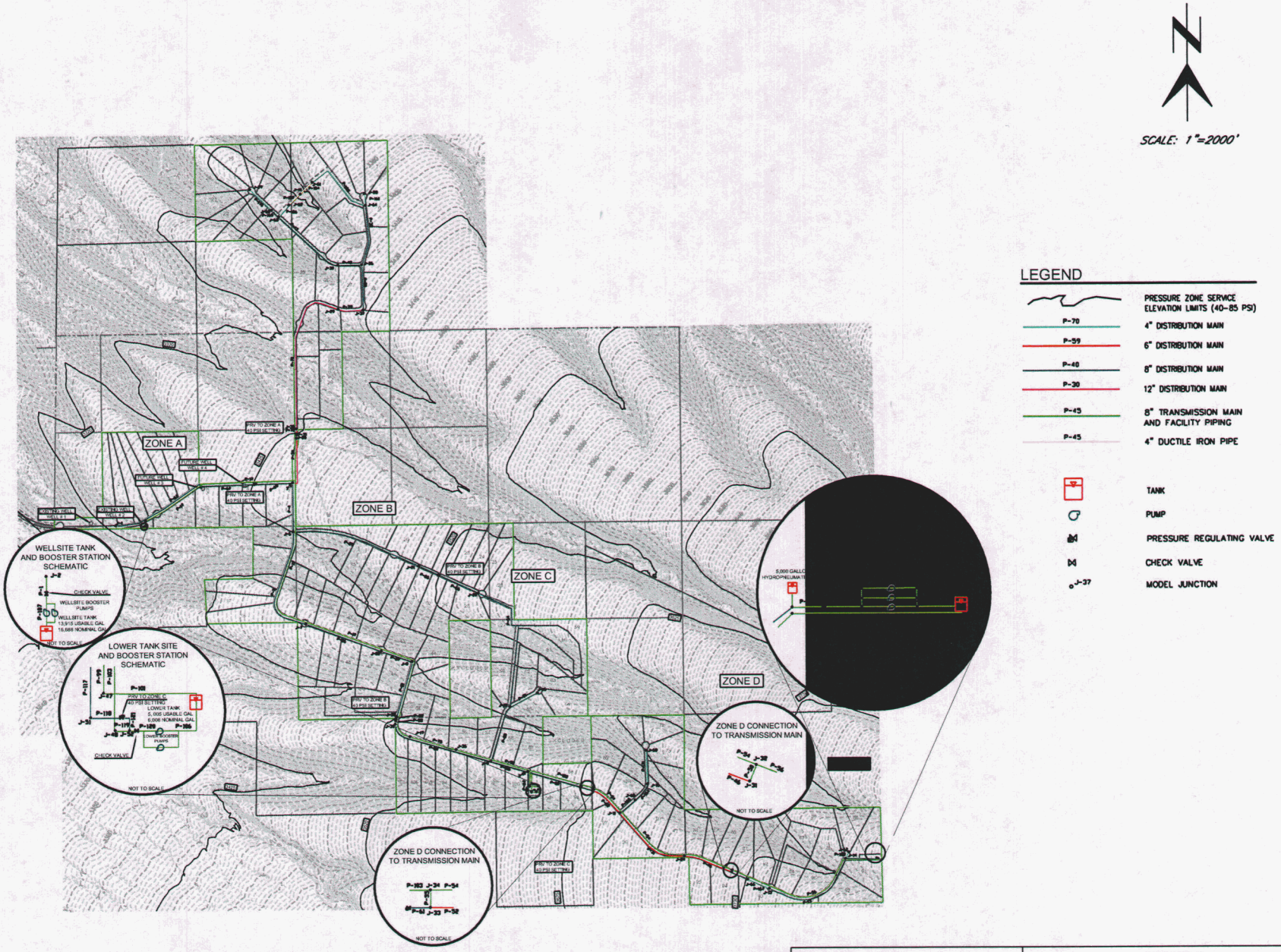

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FIGURE 2
WATER DISTRIBUTION SYSTEM MODEL
MASTER MAP
FOR
RIDGELINE ESTATES
LOCATED WITHIN A PORTION OF SECTIONS 18-20, 29 & 30, T19S, R14E G&SRM, PIMA COUNTY, AZ

SCALES: HORIZ: 1"=2000' REF: -
VERT: N/A JOB NO. 07-036

1/1

DESIGNED BY: JRM DRAFTED BY: JJF CHECKED BY: GRC DATE: DECEMBER, 2007

Greg Carlson Engineering Project No. 07-036

PREPARED BY:

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FIGURE 3
WATER DISTRIBUTION SYSTEM MODEL
INTERIM CONDITION MAP
FOR
RIDGELINE ESTATES
LOCATED WITHIN A PORTION OF SECTIONS 18-20, 29 & 30, T19S, R14E G&SRM, PIMA COUNTY, AZ

SCALES: HORIZ: 1"=2000' REF: -
VERT: N/A JOB NO. 07-036

1/1

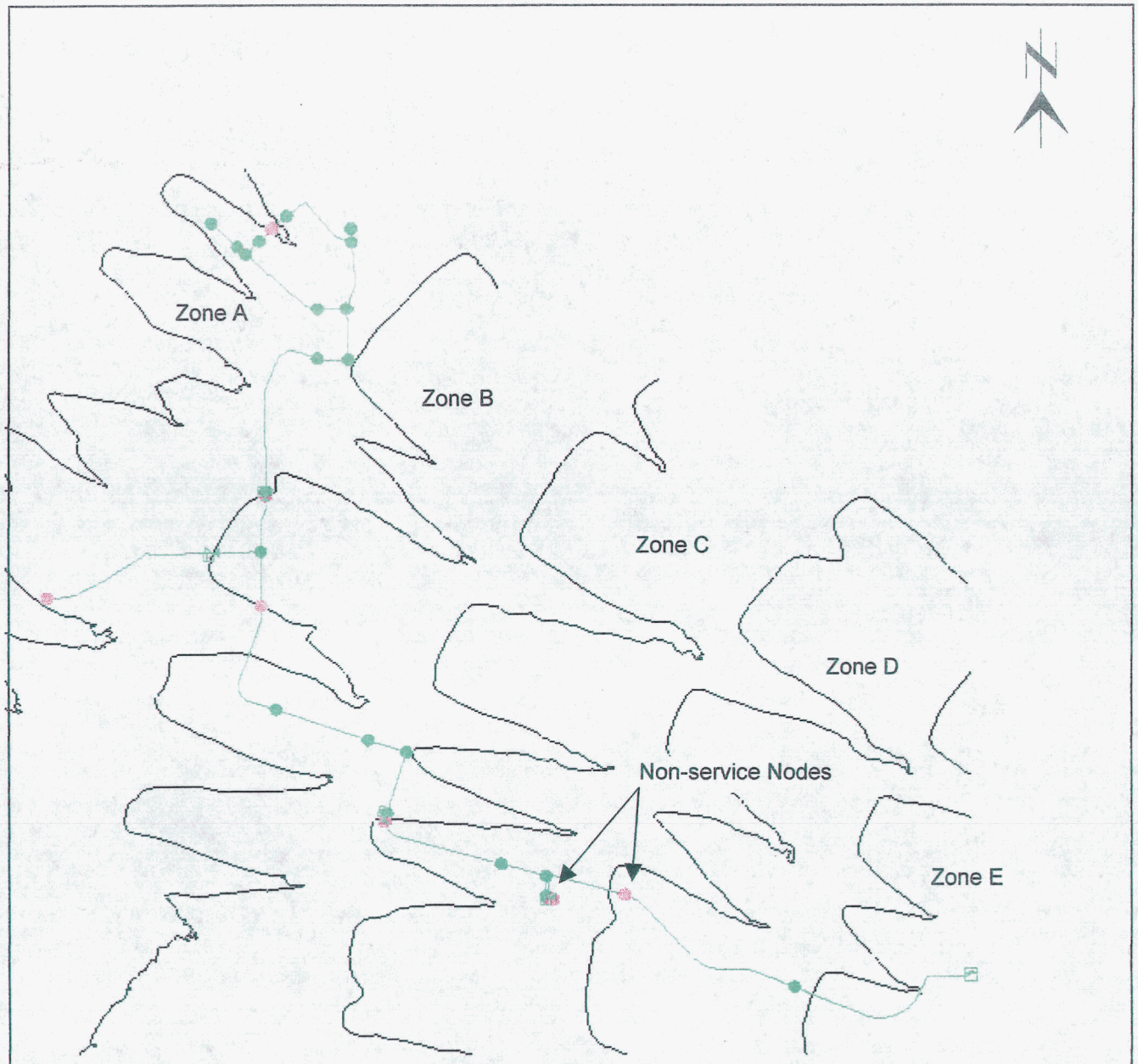
DESIGNED BY: JRM DRAFTED BY: JJF CHECKED BY: GRC DATE: DECEMBER, 2007

Greg Carlson Engineering Project No. 07-036

Ridgeline Estates Water Distribution System Model Results

Nodal Pressure Analysis

Scenario: Interim Condition (MDD)



Nodal Pressure Legend

Junction Color	Operating Pressure
●	< 40 psi
●	< 80 psi
●	> 80 psi

Individual PRV's are the responsibility of the homeowner. PRV's required for service connections at locations with operating pressures of 80 psi or more.

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FIGURE 4

RIDGELINE ESTATES
WATER DISTRIBUTION SYSTEM

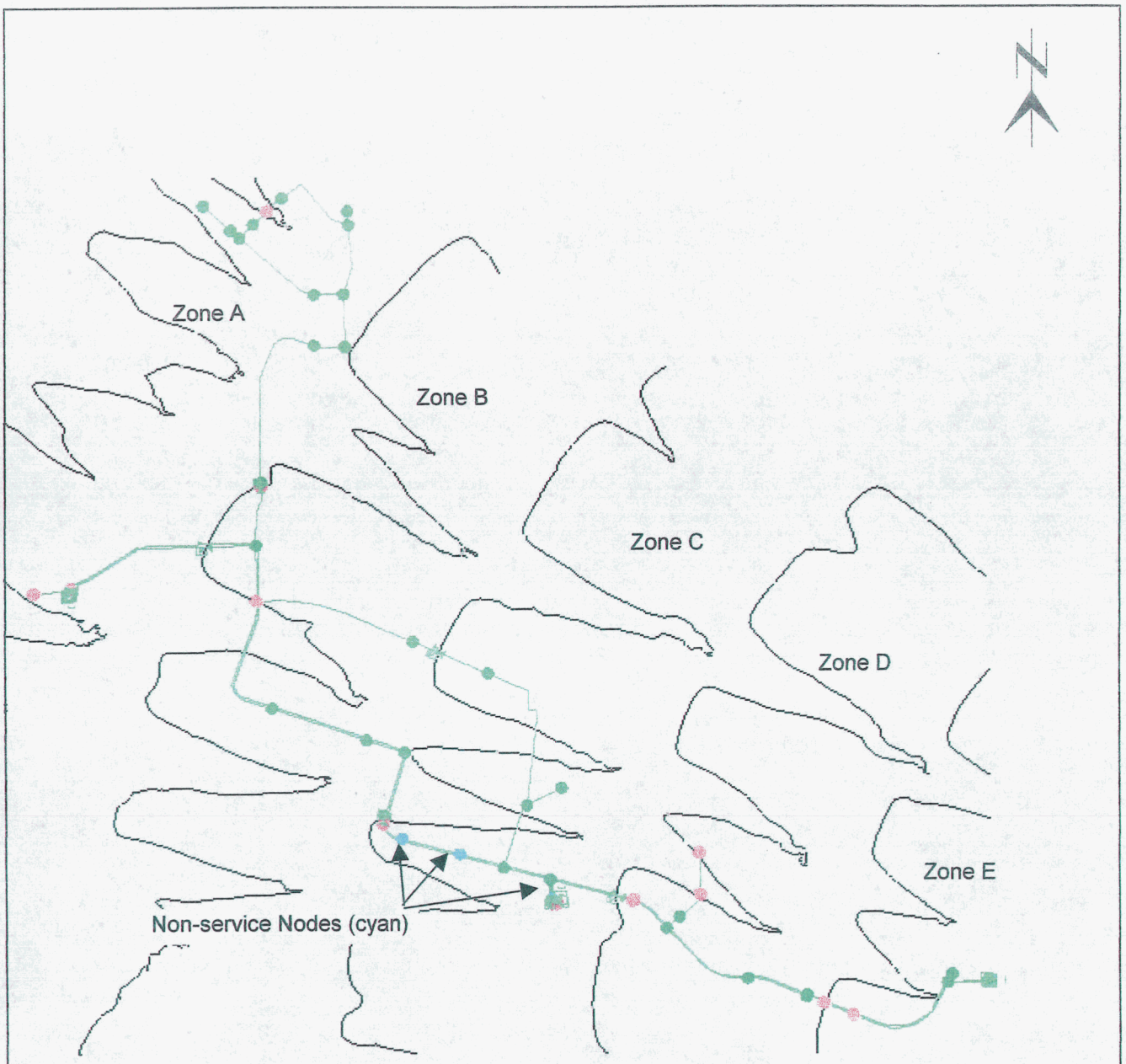
SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

DESIGNED BY: JRM DRAFTED BY: JRM CHECKED BY: GRC DATE: DECEMBER, 2007

Ridgeline Estates Water Distribution System Model Results

Nodal Pressure Analysis

Scenario: Final Condition (MDD)



Nodal Pressure Legend

Junction Color	Operating Pressure
●	< 40 psi
●	< 80 psi
●	> 80 psi

Individual PRV's are the responsibility of the homeowner. PRV's required for service connections at locations with operating pressures of 80 psi or more.

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FIGURE 5

RIDGELINE ESTATES
WATER DISTRIBUTION SYSTEM

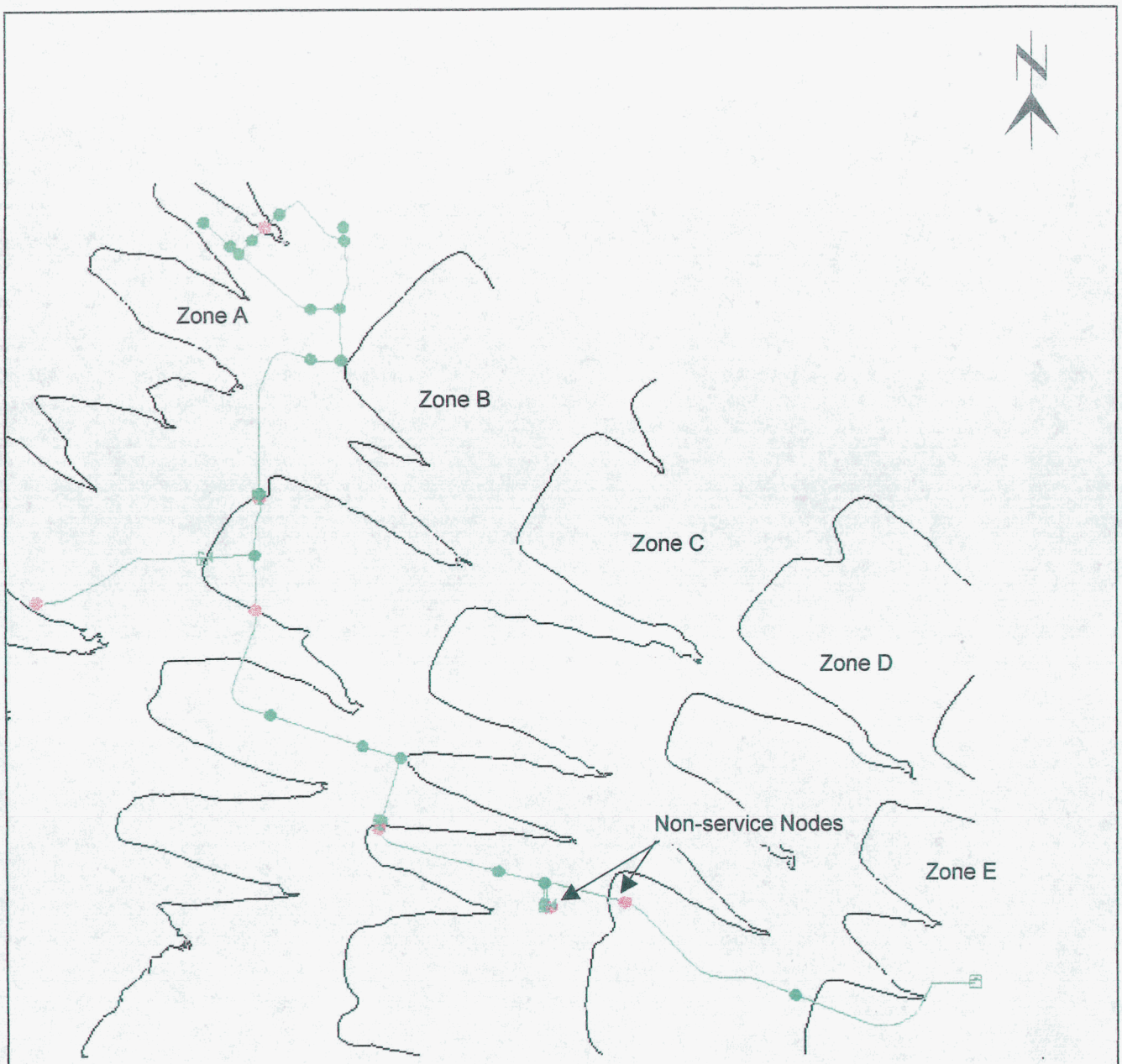
SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

DESIGNED BY: JRM DRAFTED BY: JRM CHECKED BY: GRC DATE: DECEMBER, 2007

Ridgeline Estates Water Distribution System Model Results

Nodal Pressure Analysis

Scenario: Interim Condition (PHD)



Nodal Pressure Legend

Junction Color	Operating Pressure
	< 35 psi
	< 80 psi
	> 80 psi

Individual PRV's are the responsibility of the homeowner. PRV's required for service connections at locations with operating pressures of 80 psi or more.

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FIGURE 6
RIDGELINE ESTATES WATER DISTRIBUTION SYSTEM

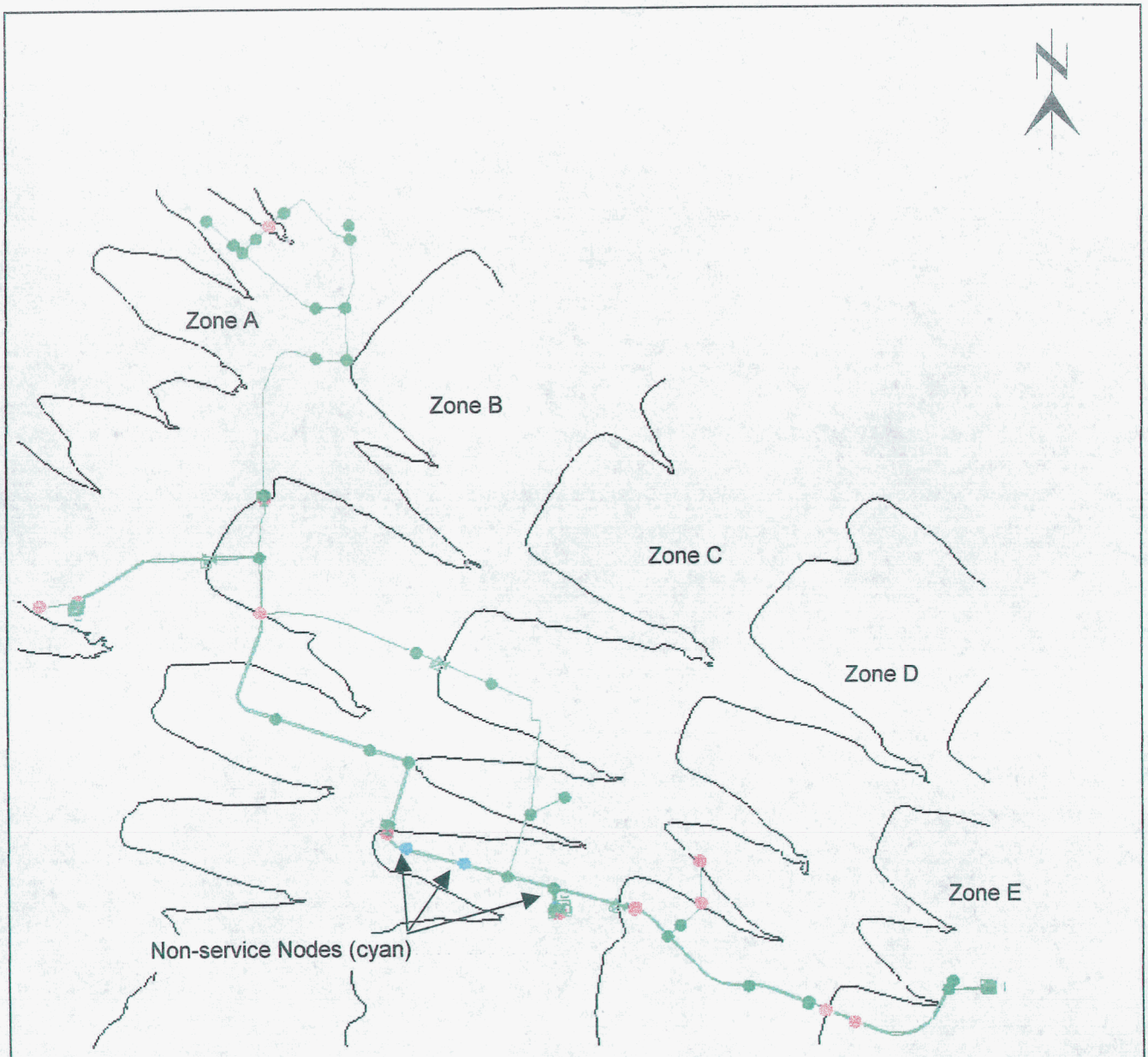
SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

DESIGNED BY: JRM DRAFTED BY: JRH CHECKED BY: GRC DATE: DECEMBER, 2007

Ridgeline Estates Water Distribution System Model Results

Nodal Pressure Analysis

Scenario: Final Condition (PHD)



Nodal Pressure Legend

Junction Color	Operating Pressure
●	< 35 psi
●	< 80 psi
●	> 80 psi

Individual PRV's are the responsibility of the homeowner. PRV's required for service connections at locations with operating pressures of 80 psi or more.

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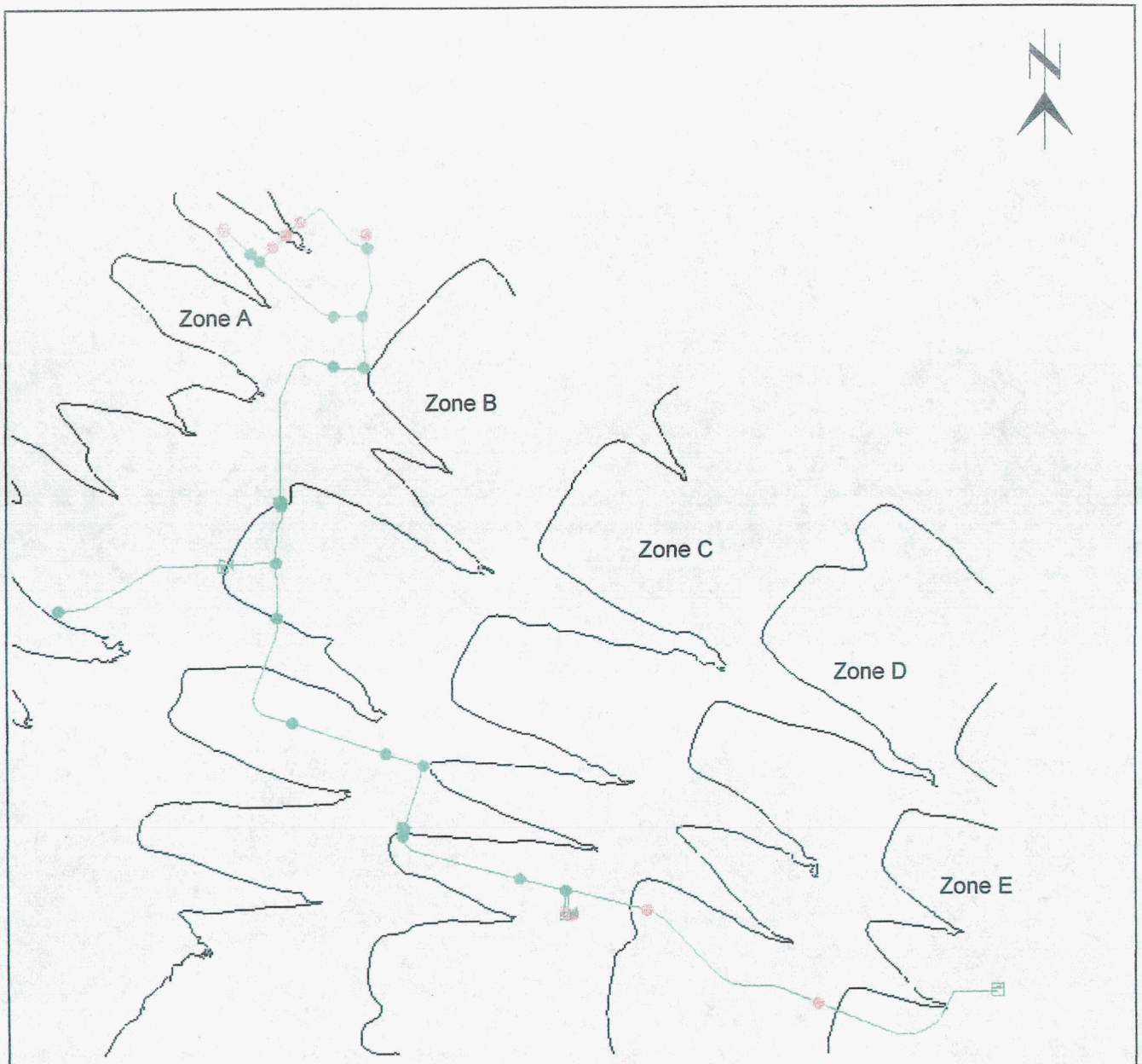
FIGURE 7
RIDGELINE ESTATES WATER DISTRIBUTION SYSTEM

SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

DESIGNED BY: JRM DRAFTED BY: JRM CHECKED BY: GRC DATE: DECEMBER, 2007

Ridgeline Estates Water Distribution System Model Results
Fire Flow Analysis
Scenario: Interim Condition (MDD)



Fire Flow Legend

Junction Color	Available Fire Flow
	Non-service Node
	< 500 gpm
	< 1000 gpm
	> 1,000 gpm

Available Fire Flow based on minimum system pressure of 20 psi (excludes facility nodes).

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FIGURE 8
RIDGELINE ESTATES WATER DISTRIBUTION SYSTEM

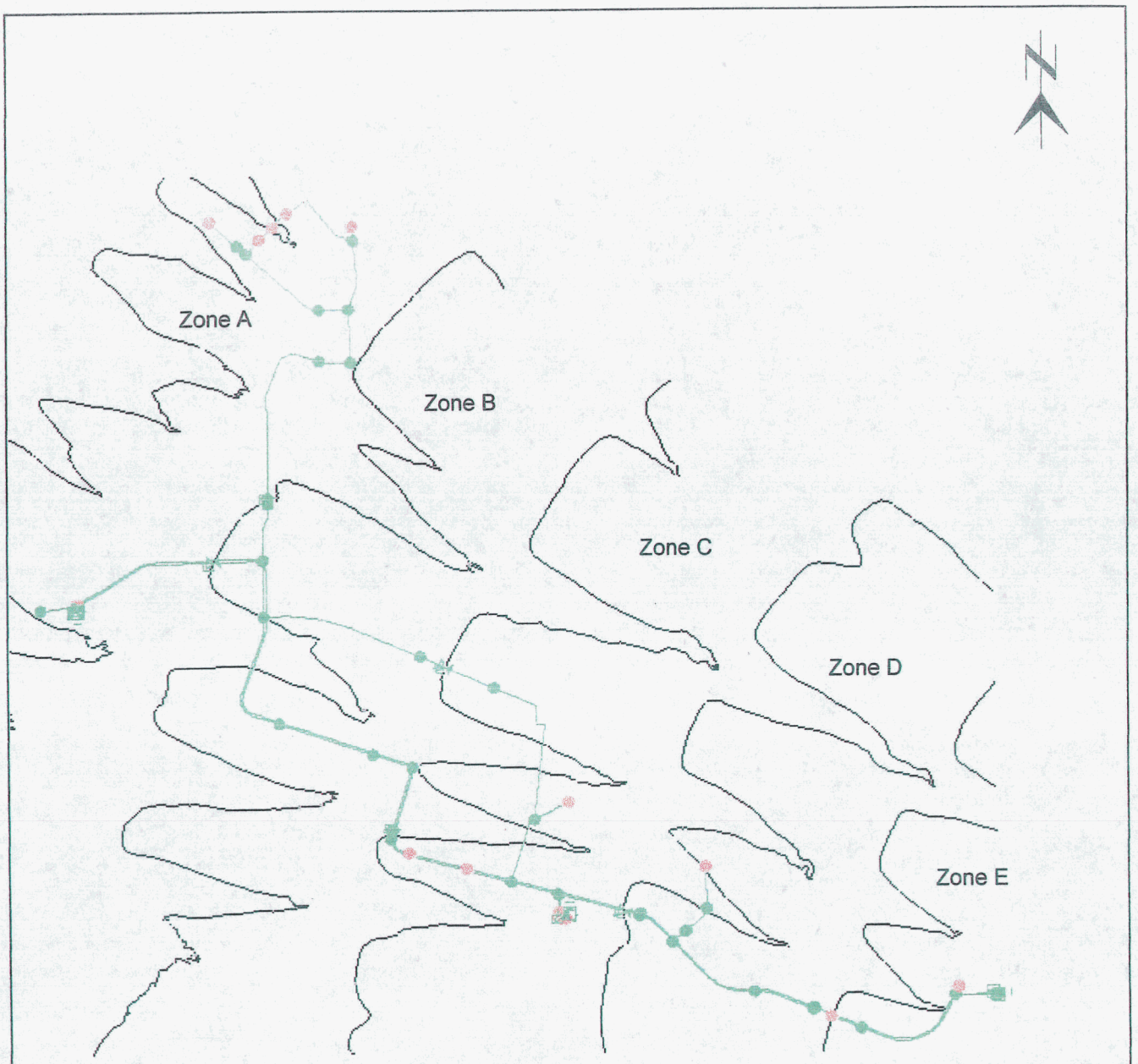
SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

DESIGNED BY: JRM DRAFTED BY: JRM CHECKED BY: GRC DATE: DECEMBER, 2007

Ridgeline Estates Water Distribution System Model Results

Fire Flow Analysis

Scenario: Final Condition (MDD)



Fire Flow Legend

Junction Color	Available Fire Flow
	Non-service Node
	< 500 gpm
	< 1000 gpm
	> 1,000 gpm

Available Fire Flow based on minimum system pressure of 20 psi (excludes facility nodes).

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FIGURE 9

RIDGELINE ESTATES WATER DISTRIBUTION SYSTEM

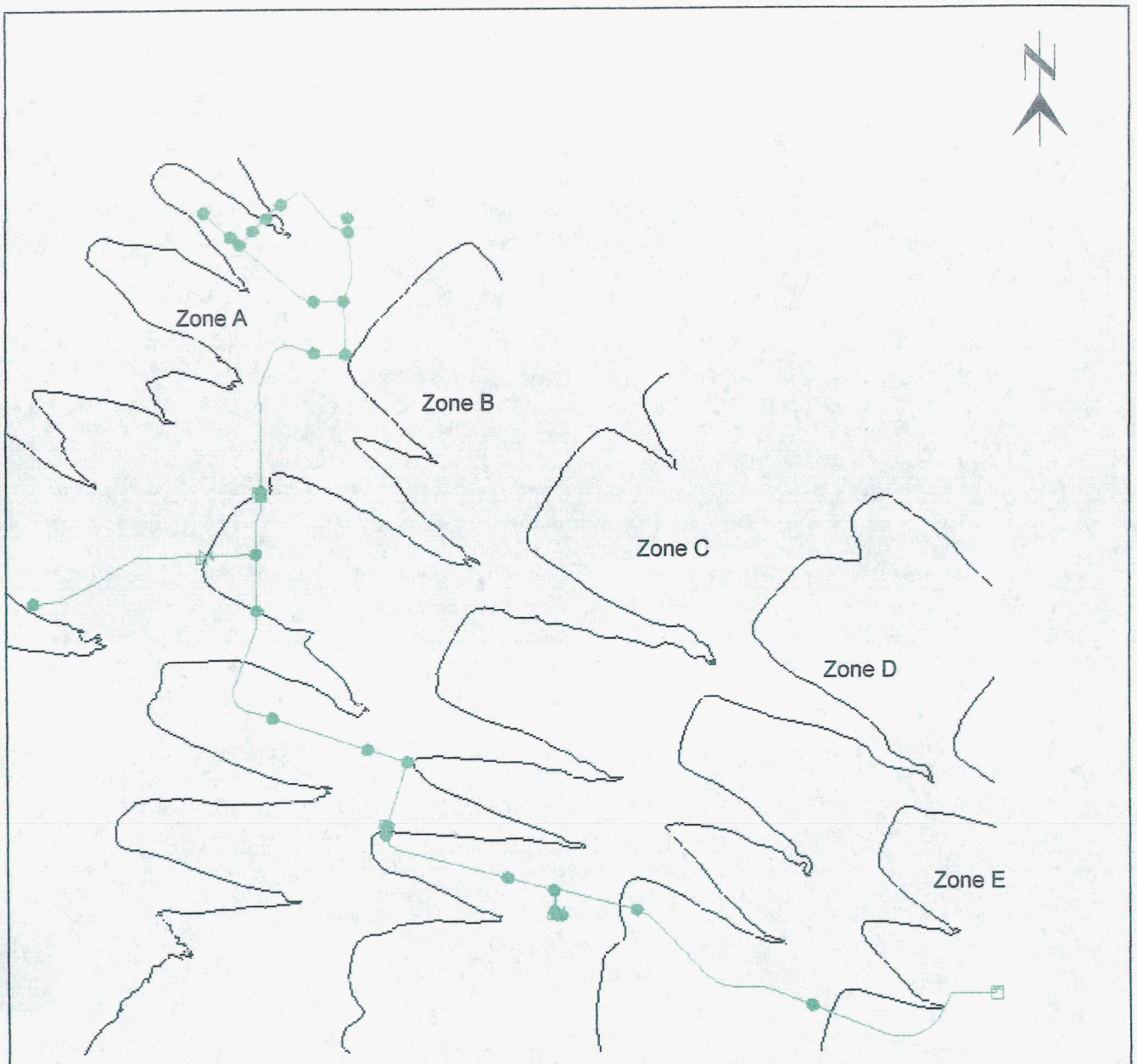
SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

DESIGNED BY: JRM DRAFTED BY: JRM CHECKED BY: GRC DATE: DECEMBER, 2007

Ridgeline Estates Water Distribution System Model Results

Operating Velocity Analysis

Scenario: Interim Condition (MDD)



Pipeline velocities have been limited to 8 ft/sec for mains that have the possibility of expansion and 11 ft/sec for those that do not. Results are summarized in the Fire Flow reports.

Velocity Legend

Pipe Color	Operating Velocity
	< 5 ft/sec
	> 5 ft/sec

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FIGURE 10

RIDGELINE ESTATES WATER DISTRIBUTION SYSTEM

SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

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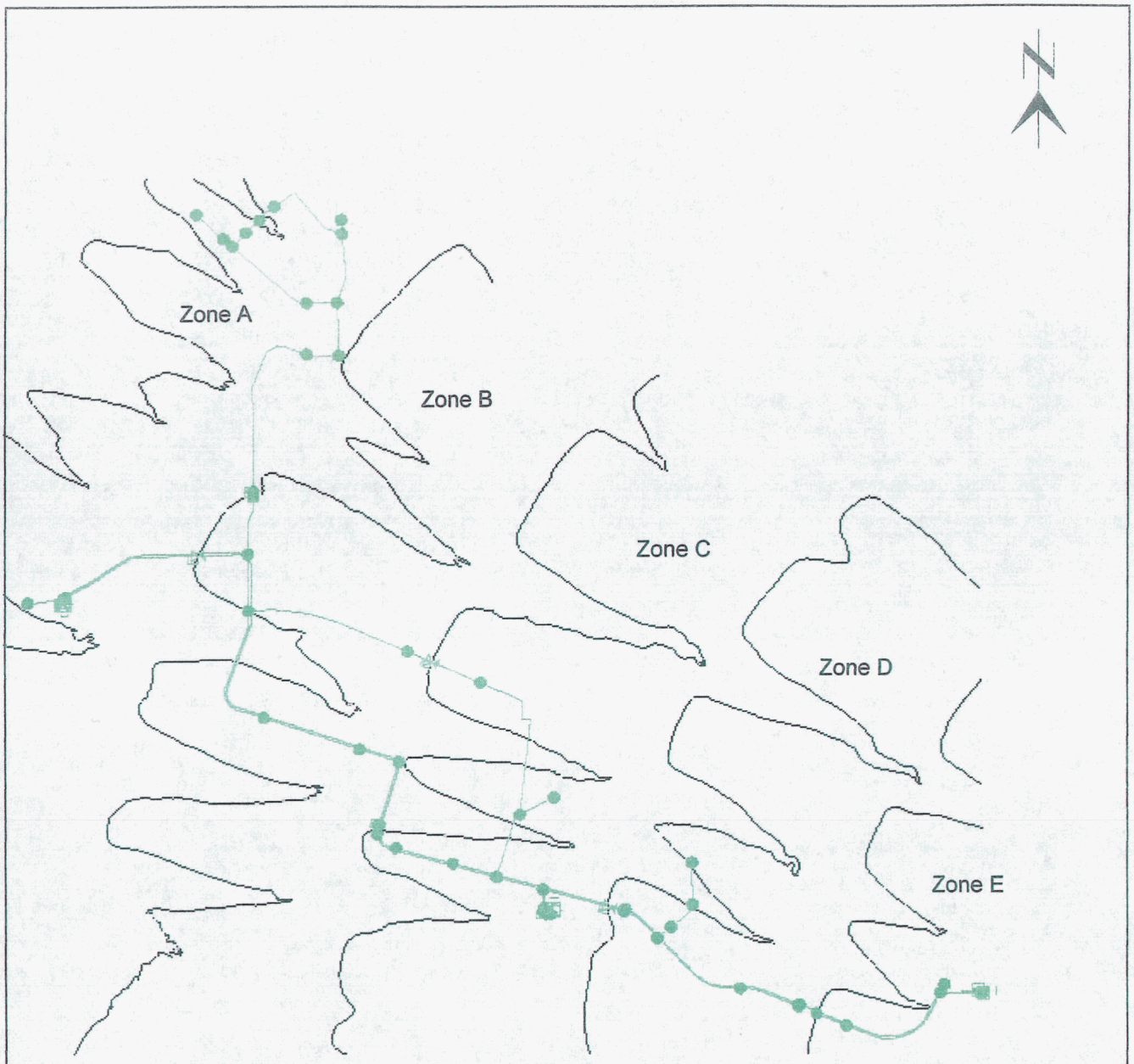
Ridgeline Estates Water Distribution System Model Results
Operating Velocity Analysis
Scenario: Final Condition (MDD)



Pipeline velocities have been limited to 8 ft/sec for mains that have the possibility of expansion and 11 ft/sec for those that do not. Results are summarized in the Fire Flow reports.

Velocity Legend

Pipe Color	Operating Velocity
	< 5 ft/sec
	> 5 ft/sec

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FIGURE 11
RIDGELINE ESTATES WATER DISTRIBUTION SYSTEM

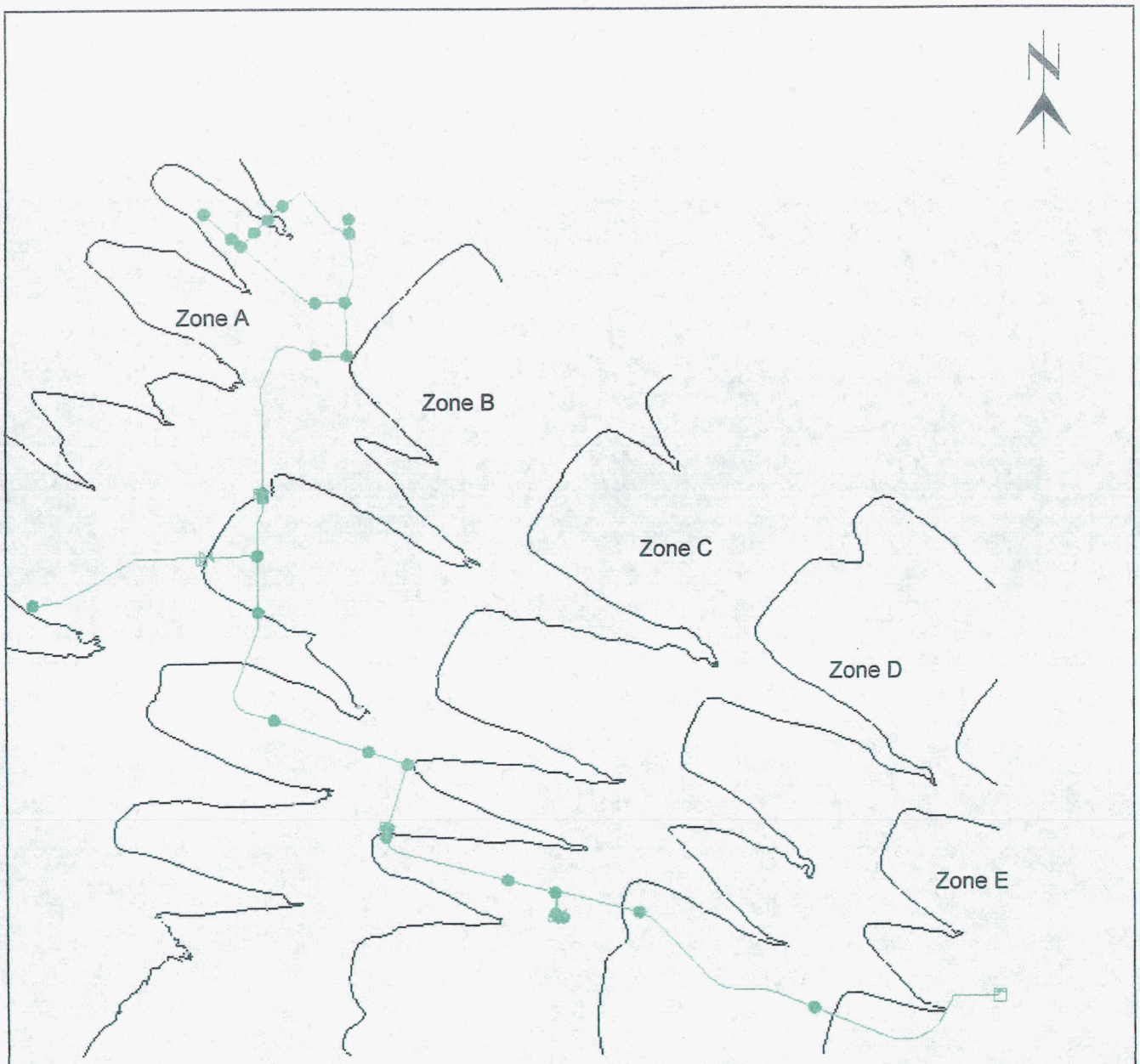
SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

DESIGNED BY: JRM DRAFTED BY: JRM CHECKED BY: GRC DATE: DECEMBER, 2007

Ridgeline Estates Water Distribution System Model Results

Headloss Analysis

Scenario: Interim Condition (MDD)



Headloss Gradient Legend

Pipe Color	Headloss Gradient
	< 5 ft / 1000 ft
	< 10 ft / 1000 ft
	> 10 ft / 1000 ft

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FIGURE 12
RIDGELINE ESTATES WATER DISTRIBUTION SYSTEM

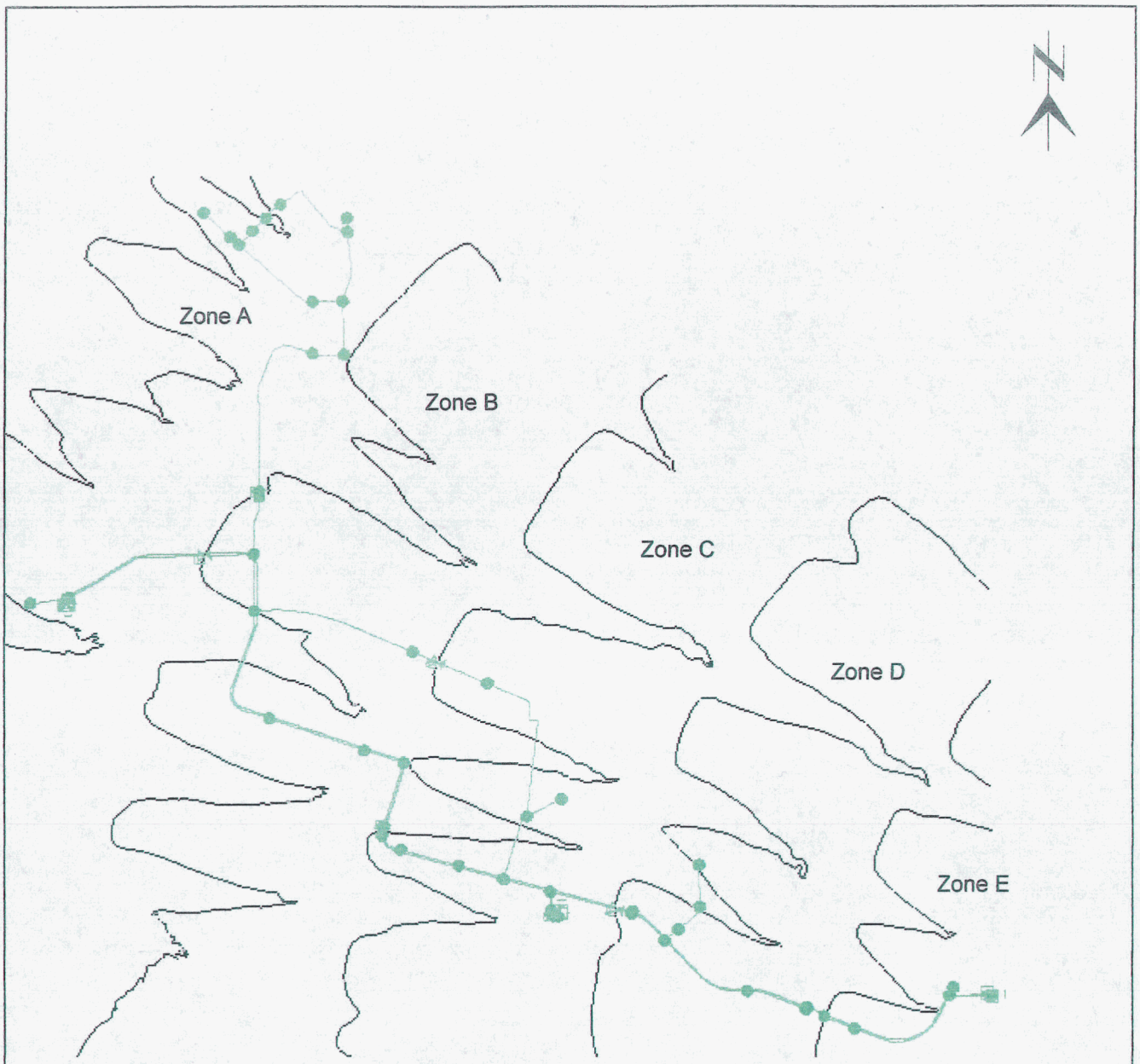
SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

DESIGNED BY: JRM DRAFTED BY: JRM CHECKED BY: GRC DATE: DECEMBER, 2007

Ridgeline Estates Water Distribution System Model Results

Headloss Analysis

Scenario: Final Condition (MDD)



Headloss Gradient Legend

Pipe Color	Headloss Gradient
	< 5 ft / 1000 ft
	< 10 ft / 1000 ft
	> 10 ft / 1000 ft

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FIGURE 13
RIDGELINE ESTATES WATER DISTRIBUTION SYSTEM

SCALES: HORIZ: N/A REF: –
VERT: N/A JOB NO. 07-036

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Appendix B
Calculations

Ridgeline Estates Water Distribution Sytem
Pressure Zone Limits

Pressure Zone	Low Service Elevation (85 psi)	High Service Elevation (40 psi)	High Water Elevation	80 psi Elevation
Zone A	3320	3425	3517	3332.2
Zone B	3425	3520	3612	3427.2
Zone C	3520	3625	3717	3532.2
Zone D	3625	3730	3822	3637.2
Zone E	3730	3835	3927	3742.2

Ridgeline Estates Water Distribution System
Domestic System Demands

Demand Data

Average Daily Demand (ADD) per person=	100 gpcd
Average people per household (pph)=	3
Peak Month Demand (PMD) Peaking Factor=	1.5
Maximum Daily Demand (MDD) Peaking Factor=	1.8
Peak Hour Demand (PHD) Peaking Factor=	3.15
Total Number of lots =	136
Total ADD=	28.33
Total PMD=	42.50
Total MDD=	51.00
Total PHD=	89.25

Each model node is assigned a percentage of the demand based on the number of lots closest to that node.

Model Demand Allocation

Node	Zone	ADD gpm	PMD gpm	MDD gpm	PHD gpm
J-2	Facility	0	0.00	0.00	0.00
J-4	Zone A	2.28	3.42	4.10	7.18
J-5	Zone B	0.41	0.62	0.74	1.29
J-6	Zone B	1.03	1.55	1.85	3.24
J-7	Zone B	1.65	2.48	2.97	5.20
J-8	Zone B	0.62	0.93	1.12	1.95
J-9	Zone C	1.25	1.88	2.25	3.94
J-10	Zone C	1.04	1.56	1.87	3.28
J-11	Zone D	0.42	0.63	0.76	1.32
J-13	Zone E	1.04	1.56	1.87	3.28
J-14	Zone E	0.62	0.93	1.12	1.95
J-15	Zone D	0.21	0.32	0.38	0.66
J-16	Zone C	0.62	0.93	1.12	1.95
J-17	Facility	0	0.00	0.00	0.00
J-18	Zone C	0.83	1.25	1.49	2.61
J-20	Zone C	1.87	2.81	3.37	5.89
J-21	Zone B	1.86	2.79	3.35	5.86
J-22	Zone B	1.03	1.55	1.85	3.24
J-24	Zone D	0.83	1.25	1.49	2.61
J-25	Zone B	0	0.00	0.00	0.00
J-26	Zone A	0.62	0.93	1.12	1.95
J-27	Zone A	1.86	2.79	3.35	5.86
J-28	Zone A	1.45	2.18	2.61	4.57
J-29	Zone A	0.83	1.25	1.49	2.61
J-30	Zone A	0.41	0.62	0.74	1.29
J-31	Zone D	0.62	0.93	1.12	1.95
J-32	Zone D	0	0.00	0.00	0.00
J-33	Zone D	0.21	0.32	0.38	0.66
J-34	Zone D	0	0.00	0.00	0.00
J-35	Zone A	0.41	0.62	0.74	1.29
J-36	Facility	0	0.00	0.00	0.00
J-37	Zone A	0.41	0.62	0.74	1.29
J-38	Zone B	0.62	0.93	1.12	1.95
J-39	Zone C	1.24	1.86	2.23	3.91
J-41	Zone A	0	0.00	0.00	0.00

Ridgeline Estates Water Distribution System
Domestic System Demands

Model Demand Allocation continued

Node	Zone	ADD gpm	PMD gpm	MDD gpm	PHD gpm
J-47	Facility	0	0.00	0.00	0.00
J-48	Facility	0	0.00	0.00	0.00
J-49	Facility	0	0.00	0.00	0.00
J-50	Facility	0	0.00	0.00	0.00
J-51	Facility	0	0.00	0.00	0.00
J-52	Facility	0	0.00	0.00	0.00
J-61	Zone A	0	0.00	0.00	0.00
J-62	Zone A	0	0.00	0.00	0.00
J-63	Zone A	0	0.00	0.00	0.00
J-64	Zone A	0	0.00	0.00	0.00
J-65	Zone D	0.62	0.93	1.12	1.95
J-66	Zone E	0.21	0.32	0.38	0.66
J-67	Zone E	0.62	0.93	1.12	1.95
J-68	Zone A	0	0.00	0.00	0.00
J-69	Zone D	0.62	0.93	1.12	1.95
Totals		28.36	42.54	51.05	89.33

Ridgeline Estates Water Distribution System
System Storage Requirements

Required Domestic Storage

Zone	PMD (gpm)	Domestic Storage (gal)
Zone A	12.38	17,827
Zone B	10.83	15,598
Zone C	10.25	14,764
Zone D	5.29	7,619
Zone E	3.74	5,391
Total System	42.50	61,200

Domestic Storage= Average day of Peak Month
Fire Storage = 1000 gpm for 2 hours= **120,000 gallons**
Total System Required Storage = 61,200 + 120,000 = **181,200 gallons**

Storage Facilities

Facility	Zones Served	Diameter (ft)	Height (ft)	Area (sf)	Required Storage (gal)	Nominal Volume (gal)	Usable Volume* (gal)
Upper	ALL	47.53	16.12	1774	181,200	213,991	187,397
Lower	(Forebay)	9.23	12	67	3,400	6,008	5,005
Wellsite	(Forebay)	15.39	12	186	12,240	16,688	13,915
Total							206,316

*Usable Volume deducts 2' from total tank height.

Tank Data from **bhtank.com**

Upper Tank Drain/Fill Calculations

1-Day ADD Volume=	40752	gallons
1-Day ADD Volume=	5448	cubic feet
This Volume equates to an Upper Tank Depth of =	3.1	feet
Approx number of times boosters will turn on in 24-hrs=	2.0	
Approx. flow rate of boosters=	330.0	gpm
ADD being removed from Upper Tank during refilling=	30.0	gpm
Required run time for boosters to fill Upper Tank=	68	minutes

Lower and Wellsite Tank Drain/Fill Calculations

Required Storage for Well-site and Lower Tank=	20376	gallons total
Available flow from Well 1=	150.0	gpm
Well run time if only Well 1 is on=	136	minutes

Lower and Wellsite Tank Sizing

The Wellsite Tank will need to be sized to avoid draining if only Well #1 is supplying water to it. (150 gpm)
The net inflow into the Wellsite Tank in that case would be:
150 gpm- 330 gpm= -180 gpm
Draining at 180 gpm for 68 minutes, the tank volume required would be a minimum of 12,240 gallons

The Lower Tank could drain if not sized considering a production difference in the Wellsite and Lower boosters. The boosters will be designed to produce roughly the same flow rate. As a safety measure, the Lower Tank will be sized such that it will not drain in the event that the Wellsite booster is supplying 50 gpm less than the Lower booster.
50 gpm X 68 minutes=3,400 gallons.

Appendix C
Model Results

Pipe Report
Scenario: Final Condition (MDD)

Label	Scaled Length (ft)	Length (User Defined) (ft)	Is Open?	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
P-1	46	0	TRUE	8	PVC	120	0	0	0
P-4	665	0	TRUE	8	PVC	120	-15.64	0.1	0.01
P-5	1,584	0	TRUE	8	PVC	120	-5.8	0.04	0.002
P-13	1,335	0	TRUE	8	PVC	120	-2.25	0.01	0
P-17	7,176	0	TRUE	8	PVC	120	0	0	0
P-20	794	0	TRUE	8	PVC	120	21.03	0.13	0.017
P-21	426	0	TRUE	4	PVC	120	1.12	0.03	0.002
P-26	1,098	0	TRUE	8	PVC	120	-8.77	0.06	0.003
P-27	448	0	TRUE	8	PVC	120	-10.64	0.07	0.005
P-29	1,811	0	TRUE	8	PVC	120	-11.7	0.07	0.006
P-31	1,126	0	TRUE	6	PVC	120	-14.21	0.16	0.033
P-34	690	0	TRUE	12	PVC	120	10.8	0.03	0.001
P-42	324	0	TRUE	8	PVC	120	3.77	0.02	0.001
P-46	685	0	TRUE	6	PVC	120	-15.71	0.18	0.039
P-50	25	0	TRUE	8	PVC	120	-16.83	0.11	0.01
P-52	482	0	TRUE	6	PVC	120	-10.84	0.12	0.02
P-54	2,297	0	TRUE	8	PVC	120	-29.78	0.19	0.032
P-55	25	0	TRUE	8	PVC	120	-29.78	0.19	0.029
P-56	2,340	0	TRUE	8	PVC	120	-46.61	0.3	0.073
P-60	762	0	TRUE	8	PVC	120	-40.25	0.26	0.055
P-61	166	0	TRUE	8	PVC	120	-40.25	0.26	0.056
P-64	1,941	0	TRUE	8	PVC	120	-18.42	0.12	0.013
P-65	305	0	TRUE	8	PVC	120	-15.05	0.1	0.009
P-66	591	0	TRUE	8	PVC	120	-15.05	0.1	0.009
P-67	2,052	0	TRUE	8	PVC	120	-4.1	0.03	0.001
P-68	540	0	TRUE	8	PVC	120	-4.1	0.03	0.001
P-70	2,149	0	TRUE	12	PVC	120	10.05	0.03	0.001
P-71	4	0	TRUE	8	PVC	120	10.8	0.07	0
P-72	58	0	TRUE	12	PVC	120	10.8	0.03	0
P-75	655	0	TRUE	8	PVC	120	0	0	0
P-79	344	0	TRUE	12	PVC	120	8.56	0.02	0.001
P-80	627	0	TRUE	8	PVC	120	7.82	0.05	0.003
P-81	780	0	TRUE	8	PVC	120	-11.75	0.08	0.006
P-82	51	0	TRUE	8	PVC	120	-12.87	0.08	0.005
P-83	58	0	TRUE	8	PVC	120	-12.87	0.08	0.004
P-84	1,462	0	TRUE	8	PVC	120	-15.1	0.1	0.009
P-99	1,282	0	TRUE	8	PVC	120	0	0	0
P-101	108	0	TRUE	8	PVC	120	0	0	0
P-103	1,217	0	TRUE	8	PVC	120	0	0	0
P-106	35	0	TRUE	8	PVC	120	0	0	0
P-107	30	0	TRUE	8	PVC	120	0	0	0
P-109	6	0	TRUE	8	PVC	120	4.5	0.03	0
P-110	17	0	TRUE	8	PVC	120	4.49	0.03	0
P-111	27	10	TRUE	8	PVC	120	0	0	0
P-112	434	0	TRUE	8	PVC	120	-4.49	0.03	0.001
P-113	16	0	TRUE	8	PVC	120	-4.49	0.03	0
P-114	26	10	TRUE	8	PVC	120	0	0	0
P-115	22	1	FALSE	8	PVC	120	0	0	0
P-116	528	0	TRUE	8	PVC	120	-38.38	0.24	0.051
P-117	252	0	TRUE	8	PVC	120	0	0	0
P-118	48	0	TRUE	8	PVC	120	0	0	0
P-119	58	0	TRUE	8	PVC	120	0	0	0
P-120	73	0	TRUE	8	PVC	120	0	0	0
P-121	71	0	TRUE	8	PVC	120	0	0	0

P-134	33	1	FALSE	8	PVC	120	0	0	0
P-137	22	1	FALSE	8	PVC	120	0	0	0
P-138	16	1	TRUE	8	PVC	120	0	0	0
P-139	8	1	TRUE	8	PVC	120	0	0	0
P-154	231	0	TRUE	4	Ductile Iron	120	-0.32	0.01	0
P-155	996	0	TRUE	4	PVC	120	-0.32	0.01	0
P-156	219	0	TRUE	4	PVC	120	-0.32	0.01	0.001
P-157	207	0	TRUE	4	Ductile Iron	120	-0.32	0.01	0
P-158	1,061	0	TRUE	8	PVC	120	3.03	0.02	0
P-161	164	0	TRUE	4	PVC	120	-2.61	0.07	0.01
P-162	827	0	TRUE	8	PVC	120	-2.93	0.02	0
P-164	357	0	TRUE	8	PVC	120	-1.5	0.01	0
P-165	197	0	TRUE	8	PVC	120	-2.62	0.02	0.001
P-167	354	0	TRUE	4	PVC	120	0.37	0.01	0.001
P-168	109	0	TRUE	4	PVC	120	1.12	0.03	0.002
P-169	135	0	TRUE	8	PVC	120	3.35	0.02	0
P-170	411	0	TRUE	4	PVC	120	3.35	0.09	0.016
P-171	495	0	TRUE	4	PVC	120	1.12	0.03	0.002

Junction Report
Scenario: Final Condition (MDD)

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Pressure Head (ft)
J-2	212: Facility	3,356.00	0	110.8	256
J-4	207: Zone A	3,332.00	4.1	80.3	185.48
J-5	208: Zone B	3,440.00	0.74	74.6	172.47
J-6	208: Zone B	3,424.00	1.86	81.5	188.47
J-7	208: Zone B	3,470.00	2.98	61.6	142.48
J-8	208: Zone B	3,516.00	1.12	41.7	96.48
J-9	209: Zone C	3,574.00	2.25	62	143.42
J-10	209: Zone C	3,596.00	1.87	52.5	121.44
J-11	210: Zone D	3,650.00	0.75	74.3	171.77
J-13	211: Zone E	3,744.00	1.87	90	208
J-14	211: Zone E	3,774.00	1.12	77	178
J-15	210: Zone D	3,610.00	0.37	91.6	211.77
J-16	209: Zone C	3,584.00	1.12	57.7	133.4
J-17	212: Facility	3,532.00	0	34.6	80
J-18	209: Zone C	3,548.00	1.49	73.3	169.4
J-20	209: Zone C	3,540.00	3.37	76.7	177.38
J-21	208: Zone B	3,510.00	3.35	44.3	102.48
J-22	208: Zone B	3,502.00	1.86	47.8	110.48
J-24	210: Zone D	3,692.00	1.5	56.2	129.8
J-25	208: Zone B	3,425.00	0	81.1	187.47
J-26	207: Zone A	3,410.00	1.12	46.5	107.48
J-27	207: Zone A	3,336.00	3.35	78.5	181.48
J-28	207: Zone A	3,390.00	2.61	55.2	127.48
J-29	207: Zone A	3,410.00	1.49	46.5	107.48
J-30	207: Zone A	3,402.00	0.74	50	115.48
J-31	210: Zone D	3,720.00	1.12	44.1	101.83
J-32	210: Zone D	3,720.00	0	44.1	101.83
J-33	210: Zone D	3,628.00	0.37	83.8	193.76
J-34	210: Zone D	3,628.00	0	83.8	193.76
J-35	207: Zone A	3,415.00	0.74	44.3	102.49
J-36	212: Facility	3,556.00	0	24.2	56
J-37	207: Zone A	3,422.00	0.74	41.3	95.48
J-38	208: Zone B	3,508.00	1.12	45.2	104.49
J-39	209: Zone C	3,524.00	2.23	83.7	193.4
J-41	207: Zone A	3,300.00	0	94.1	217.48
J-47	212: Facility	3,600.00	0	5.2	12
J-48	212: Facility	3,600.00	0	95.9	221.76
J-49	212: Facility	3,807.00	0	6.5	15
J-50	212: Facility	3,804.00	0	64	148
J-51	212: Facility	3,600.00	0	50.8	117.44
J-52	212: Facility	3,600.00	0	95.9	221.76
J-61	207: Zone A	3,360.00	0	68.1	157.48
J-62	207: Zone A	3,360.00	0	68.1	157.48
J-63	207: Zone A	3,362.00	0	67.3	155.48
J-64	207: Zone A	3,394.00	0	53.4	123.48
J-65	210: Zone D	3,654.00	1.12	72.6	167.77
J-66	211: Zone E	3,730.00	0.37	96	222
J-67	211: Zone E	3,782.00	1.12	73.5	170
J-68	207: Zone A	3,358.00	0	69	159.48
J-69	210: Zone D	3,630.00	1.12	83	191.77

Tank Report
Scenario: Final Condition (MDD)

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial Elevation (ft)	Maximum Elevation (ft)	Diameter (ft)	Outflow (gpm)	Hydraulic Grade (ft)	Net Inflow (gpm)
Upper Tank	3,807.00	3,808.00	3,822.00	3,823.00	47.53	51.11	3,822.00	-51.11
Lower Tank	3,601.00	3,602.00	3,612.00	3,613.00	12.31	0	3,612.00	0
Wellsite Tank	3,351.00	3,352.00	3,362.00	3,363.00	15.39	0	3,362.00	0

Pump Report
Scenario: Final Condition (MDD)

Label	Elevation (ft)	Pump Definition	Status	Intake Grade (ft)	Discharge Grade (ft)	Discharge (gpm)	Pump Head (ft)
Lower Pump	3,601.00	202: Lower	Off	3,612.00	3,821.80	0	0.00
Wellsite Pump	3,351.00	201: Wellsite	Off	3,362.00	3,612.00	0	0.00
Upper Pump	3,808.00	203: Upper	On	3,822.00	3,952.00	4.49	130.00
Fire Pump	3,808.00	204: Upper Fire	Off	3,822.00	3,952.00	0	0.00

PRV Report
Scenario: Final Condition (MDD)

Label	Elevation (ft)	Status (Calculated)	Diameter (in)	Minor Loss	Hydraulic Grade Setting (Initial) (ft)	Pressure Setting (Initial) (psi)	Flow (gpm)	From Hydraulic Grade (ft)	To Hydraulic Grade (ft)	Headloss (ft)	Pressure (To) (psi)	Pressure (From) (psi)
C PRV	3,625	Active	6	6.2	3,717.40	40	40.25	3,821.70	3,717.50	104.26	40	85.1
B PRV (south)	3,520.00	Active	6	6.2	3,612.40	40.00	12.87	3,717.40	3,612.50	104.92	40	85.4
B PRV (north)	3,520	Active	6	6.2	3,612.40	40.00	15.05	3,717.40	3,612.50	104.89	40	85.4
A PRV (south)	3,425	Active	6	6.2	3,517.40	40.00	4.1	3,612.50	3,517.50	94.98	40	81.1
A PRV (north)	3,425	Active	6	6.2	3,517.40	40.00	10.8	3,612.50	3,517.50	94.98	40	81.1
Trans/C PRV	3,600	Closed	6	6.2	3,692.40	40.00	0	3,821.80	3,717.40	0	50.8	95.9

Fire Flow Report
Scenario: Final Condition (MDD + Fire Flow)

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/Minimum Pressure (Zone)	Velocity of Maximum Pipe (ft/s)	Pipe w/Maximum Velocity
J-2	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-4	207: Zone A	1,461.30	20	20	20	40.8	144: J-37	9.62	111: P-56
J-5	208: Zone B	1,495.52	20	20	27.3	20.1	64: J-21	9.84	111: P-56
J-6	208: Zone B	1,495.38	20	20	47.4	20.1	64: J-21	9.84	111: P-56
J-7	208: Zone B	1,496.83	20	20	29.1	20	33: J-8	9.85	111: P-56
J-8	208: Zone B	1,457.62	20	20	20.1	27.3	67: J-22	9.6	111: P-56
J-9	209: Zone C	1,415.20	20	20	24.4	20.1	52: J-16	9.33	111: P-56
J-10	209: Zone C	1,463.03	20	20	20	25.2	52: J-16	9.64	111: P-56
J-11	210: Zone D	1,018.72	20	20	35.2	20	96: J-31	6.8	111: P-56
J-13	211: Zone E	1,531.30	20	20	20	26.1	337: J-66	9.8	192: P-109
J-14	211: Zone E	1,658.90	20	20	23.5	20	339: J-67	10.62	197: P-112
J-15	210: Zone D	1,018.69	20	20	47.3	20	96: J-31	6.8	111: P-56
J-16	209: Zone C	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-17	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-18	209: Zone C	1,296.78	20	20	35.6	20	52: J-16	8.57	111: P-56
J-20	209: Zone C	1,233.82	20	20	20	27.4	52: J-16	8.17	111: P-56
J-21	208: Zone B	1,444.47	20	20	20.1	35.5	33: J-8	9.52	111: P-56
J-22	208: Zone B	1,469.80	20	20	22.5	20.1	33: J-8	9.68	111: P-56
J-24	210: Zone D	1,016.48	20	20	20	20	96: J-31	7.61	97: P-46
J-25	208: Zone B	1,495.98	20	20	31.9	20	64: J-21	9.85	111: P-56
J-26	207: Zone A	1,432.01	20	20	20.1	23.6	91: J-30	9.44	111: P-56
J-27	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-28	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-29	207: Zone A	1,469.46	20	20	25.2	20	144: J-37	9.68	111: P-56
J-30	207: Zone A	1,423.96	20	20	20.1	21.7	80: J-26	9.39	111: P-56
J-31	210: Zone D	1,014.56	20	20	20	20.2	99: J-32	6.77	111: P-56
J-32	210: Zone D	1,019.99	20	20	20	20	96: J-31	6.81	111: P-56
J-33	210: Zone D	1,019.16	20	20	48.2	20	96: J-31	6.8	111: P-56
J-34	210: Zone D	1,019.16	20	20	48.3	20	96: J-31	6.8	111: P-56
J-35	207: Zone A	1,499.98	20	20	23	20	144: J-37	9.87	111: P-56
J-36	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-37	207: Zone A	1,464.50	20	20	20	25.2	80: J-26	9.65	111: P-56
J-38	208: Zone B	1,500.18	20	20	21.9	20	33: J-8	9.87	111: P-56
J-39	209: Zone C	1,415.77	20	20	20.4	20	52: J-16	9.33	111: P-56
J-41	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-47	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)

Fire Flow Report
Scenario: Final Condition (MDD + Fire Flow)

J-48	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-49	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-50	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-51	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-52	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-61	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-62	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-63	207: Zone A	1,426.56	20	20	22.8	20.2	91: J-30	9.4	111: P-56
J-64	207: Zone A	1,407.91	20	20	20	21.8	84: J-28	9.28	111: P-56
J-65	210: Zone D	1,018.74	20	20	31.6	20	96: J-31	6.8	111: P-56
J-66	211: Zone E	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-67	211: Zone E	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-68	207: Zone A	1,426.89	20	20	22.1	20.1	91: J-30	9.41	111: P-56
J-69	210: Zone D	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)

Pipe Report
Scenario: Final Condition (PHD)

Label	Scaled Length (ft)	Length (User Defined) (ft)	Is Open?	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
P-1	46	0.00	TRUE	8	PVC	120	0	0	0
P-4	665	0.00	TRUE	8	PVC	120	-27.36	0.17	0.027
P-5	1,584	0.00	TRUE	8	PVC	120	-10.14	0.06	0.004
P-13	1,335	0.00	TRUE	8	PVC	120	-3.93	0.03	0.001
P-17	7,176	0.00	TRUE	8	PVC	120	0	0	0
P-20	794	0.00	TRUE	8	PVC	120	36.8	0.23	0.047
P-21	426	0.00	TRUE	4	PVC	120	1.95	0.05	0.006
P-26	1,098	0.00	TRUE	8	PVC	120	-15.36	0.1	0.009
P-27	448	0.00	TRUE	8	PVC	120	-18.61	0.12	0.013
P-29	1,811	0.00	TRUE	8	PVC	120	-20.48	0.13	0.016
P-31	1,126	0.00	TRUE	6	PVC	120	-24.87	0.28	0.092
P-34	690	0.00	TRUE	12	PVC	120	18.89	0.05	0.002
P-42	324	0.00	TRUE	8	PVC	120	6.6	0.04	0.002
P-46	685	0	TRUE	6	PVC	120	-27.49	0.31	0.111
P-50	25	0.00	TRUE	8	PVC	120	-29.45	0.19	0.029
P-52	482	0.00	TRUE	6	PVC	120	-18.98	0.22	0.056
P-54	2,297	0.00	TRUE	8	PVC	120	-52.12	0.33	0.089
P-55	25	0.00	TRUE	8	PVC	120	-52.12	0.33	0.096
P-56	2,340	0.00	TRUE	8	PVC	120	-81.57	0.52	0.204
P-60	762	0.00	TRUE	8	PVC	120	-70.44	0.45	0.156
P-61	166	0.00	TRUE	8	PVC	120	-70.44	0.45	0.155
P-64	1,941	0.00	TRUE	8	PVC	120	-32.24	0.21	0.037
P-65	305	0.00	TRUE	8	PVC	120	-26.34	0.17	0.025
P-66	591	0.00	TRUE	8	PVC	120	-26.34	0.17	0.025
P-67	2,052	0.00	TRUE	8	PVC	120	-7.17	0.05	0.002
P-68	540	0.00	TRUE	8	PVC	120	-7.17	0.05	0.002
P-70	2,149	0.00	TRUE	12	PVC	120	17.59	0.05	0.002
P-71	4	0.00	TRUE	8	PVC	120	18.89	0.12	0
P-72	58	0.00	TRUE	12	PVC	120	18.89	0.05	0
P-75	655	0.00	TRUE	8	PVC	120	0	0	0
P-79	344	0	TRUE	12	PVC	120	14.98	0.04	0.001
P-80	627	0.00	TRUE	8	PVC	120	13.68	0.09	0.007
P-81	780	0.00	TRUE	8	PVC	120	-20.57	0.13	0.016
P-82	51	0.00	TRUE	8	PVC	120	-22.52	0.14	0.019
P-83	58	0.00	TRUE	8	PVC	120	-22.52	0.14	0.021
P-84	1,462	0.00	TRUE	8	PVC	120	-26.43	0.17	0.025

P-99	1,282	0.00	TRUE	8	PVC	120	0	0	0
P-101	108	0.00	TRUE	8	PVC	120	0	0	0
P-103	1,217	0.00	TRUE	8	PVC	120	0	0	0
P-106	35	0.00	TRUE	8	PVC	120	0	0	0
P-107	30	0.00	TRUE	8	PVC	120	0	0	0
P-109	6	0	TRUE	8	PVC	120	7.86	0.05	0
P-110	17	0	TRUE	8	PVC	120	7.86	0.05	0
P-111	27	10	TRUE	8	PVC	120	0	0	0
P-112	434	0	TRUE	8	PVC	120	-7.86	0.05	0.003
P-113	16	0	TRUE	8	PVC	120	-7.86	0.05	0
P-114	26	10	TRUE	8	PVC	120	0	0	0
P-115	22	1.00	FALSE	8	PVC	120	0	0	0
P-116	528	0.00	TRUE	8	PVC	120	-67.17	0.43	0.143
P-117	252	0.00	TRUE	8	PVC	120	0	0	0
P-118	48	0.00	TRUE	8	PVC	120	0	0	0
P-119	58	0.00	TRUE	8	PVC	120	0	0	0
P-120	73	0.00	TRUE	8	PVC	120	0	0	0
P-121	71	0.00	TRUE	8	PVC	120	0	0	0
P-134	33	1.00	FALSE	8	PVC	120	0	0	0
P-137	22	1.00	FALSE	8	PVC	120	0	0	0
P-138	16	1	TRUE	8	PVC	120	0	0	0
P-139	8	1	TRUE	8	PVC	120	0	0	0
P-154	231	0	TRUE	4	Ductile Iron	120	-0.57	0.01	0
P-155	996	0	TRUE	4	PVC	120	-0.57	0.01	0.001
P-156	219	0	TRUE	4	PVC	120	-0.57	0.01	0
P-157	207	0	TRUE	4	Ductile Iron	120	-0.57	0.01	0.001
P-158	1,061	0	TRUE	8	PVC	120	5.3	0.03	0.001
P-161	164	0	TRUE	4	PVC	120	-4.56	0.12	0.028
P-162	827	0	TRUE	8	PVC	120	-5.13	0.03	0.001
P-164	357	0	TRUE	8	PVC	120	-2.62	0.02	0
P-165	197	0	TRUE	8	PVC	120	-4.59	0.03	0.001
P-167	354	0	TRUE	4	PVC	120	0.66	0.02	0.001
P-168	109	0	TRUE	4	PVC	120	1.97	0.05	0.004
P-169	135	0	TRUE	8	PVC	120	5.86	0.04	0.002
P-170	411	0	TRUE	4	PVC	120	5.86	0.15	0.046
P-171	495	0	TRUE	4	PVC	120	1.97	0.05	0.006

Junction Report
Scenario: Final Condition (PHD)

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Pressure Head (ft)	Fire Flow (Available) (gpm)
J-2	212: Facility	3,356.00	0	110.8	256	(N/A)
J-4	207: Zone A	3,332.00	7.17	80.2	185.48	1,441.28
J-5	208: Zone B	3,440.00	1.3	74.6	172.43	1,464.48
J-6	208: Zone B	3,424.00	3.26	81.5	188.45	1,464.47
J-7	208: Zone B	3,470.00	5.21	61.6	142.46	1,466.17
J-8	208: Zone B	3,516.00	1.95	41.7	96.47	1,428.18
J-9	209: Zone C	3,574.00	3.93	62	143.29	1,381.96
J-10	209: Zone C	3,596.00	3.28	52.5	121.37	1,429.75
J-11	210: Zone D	3,650.00	1.31	74.1	171.34	983.74
J-13	211: Zone E	3,744.00	3.28	90	207.99	574.23
J-14	211: Zone E	3,774.00	1.97	77	177.99	574.4
J-15	210: Zone D	3,610.00	0.66	91.4	211.34	983.66
J-16	209: Zone C	3,584.00	1.95	57.7	133.25	(N/A)
J-17	212: Facility	3,532.00	0	34.6	80	(N/A)
J-18	209: Zone C	3,548.00	2.61	73.2	169.25	1,266.17
J-20	209: Zone C	3,540.00	5.9	76.7	177.18	1,211.75
J-21	208: Zone B	3,510.00	5.86	44.3	102.48	1,415.88
J-22	208: Zone B	3,502.00	3.26	47.8	110.47	1,440.03
J-24	210: Zone D	3,692.00	2.62	56	129.45	982.50
J-25	208: Zone B	3,425.00	0	81.1	187.43	1,465.00
J-26	207: Zone A	3,410.00	1.95	46.5	107.48	1,408.21
J-27	207: Zone A	3,336.00	5.86	78.5	181.46	(N/A)
J-28	207: Zone A	3,390.00	4.56	55.2	127.47	(N/A)
J-29	207: Zone A	3,410.00	2.61	46.5	107.48	1,444.23
J-30	207: Zone A	3,402.00	1.3	50	115.48	1,400.79
J-31	210: Zone D	3,720.00	1.95	43.9	101.52	979.76
J-32	210: Zone D	3,720.00	0	43.9	101.52	985.03
J-33	210: Zone D	3,628.00	0.66	83.6	193.31	984.06
J-34	210: Zone D	3,628.00	0	83.6	193.32	984.05
J-35	207: Zone A	3,415.00	1.3	44.3	102.49	1,473.42
J-36	212: Facility	3,556.00	0	24.2	56	(N/A)
J-37	207: Zone A	3,422.00	1.3	41.3	95.48	1,439.07
J-38	208: Zone B	3,508.00	1.95	45.2	104.49	1,468.76
J-39	209: Zone C	3,524.00	3.91	83.6	193.26	1,382.36
J-41	207: Zone A	3,300.00	0	94.1	217.48	(N/A)
J-47	212: Facility	3,600.00	0	5.2	12	(N/A)
J-48	212: Facility	3,600.00	0	95.8	221.32	(N/A)
J-49	212: Facility	3,807.00	0	6.5	15	(N/A)
J-50	212: Facility	3,804.00	0	64	147.99	(N/A)
J-51	212: Facility	3,600.00	0	50.8	117.37	(N/A)
J-52	212: Facility	3,600.00	0	95.8	221.32	(N/A)
J-61	207: Zone A	3,360.00	0	68.1	157.48	(N/A)
J-62	207: Zone A	3,360.00	0	68.1	157.48	(N/A)
J-63	207: Zone A	3,362.00	0	67.3	155.48	1,403.86
J-64	207: Zone A	3,394.00	0	53.4	123.48	1,385.43
J-65	210: Zone D	3,654.00	1.97	72.4	167.34	983.77
J-66	211: Zone E	3,730.00	0.66	96	221.99	(N/A)
J-67	211: Zone E	3,782.00	1.97	73.5	169.99	(N/A)
J-68	207: Zone A	3,358.00	0	69	159.48	1,404.21
J-69	210: Zone D	3,630.00	1.97	82.8	191.34	(N/A)

Tank Report
Scenario: Final Condition (PHD)

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial Elevation (ft)	Maximum Elevation (ft)	Diameter (ft)	Outflow (gpm)	Hydraulic Grade (ft)	Net Inflow (gpm)
Upper Tank	3,807	3,808.00	3,822.00	3,823.00	47.53	89.43	3,822.00	-89.43
Lower Tank	3,601.00	3,602.00	3,612.00	3,613.00	12.31	0.00	3,612.00	0
Wellsite Tank	3,351	3,352.00	3,362.00	3,363.00	15.39	0.00	3,362.00	0

Pump Report
Scenario: Final Condition (PHD)

Label	Elevation (ft)	Pump Definition	Status	Intake Grade (ft)	Discharge Grade (ft)	Discharge (gpm)	Pump Head (ft)
Lower Pump	3,601	202: Lower	Off	3,612.00	3,821.30	0	0.00
Wellsite Pump	3,351.00	201: Wellsite	Off	3,362.00	3,612.00	0.00	0.00
Upper Pump	3,808	203: Upper	On	3,822.00	3,952.00	7.86	129.99
Fire Pump	3,808	204: Upper Fire	Off	3,822.00	3,952.00	0.00	0

PRV Report
Scenario: Final Condition (PHD)

Label	Elevation (ft)	Status (Calculated)	Diameter (in)	Minor Loss	Hydraulic Grade Setting (Initial) (ft)	Pressure Setting (Initial) (psi)	Flow (gpm)	From Hydraulic Grade (ft)	To Hydraulic Grade (ft)	Headloss (ft)	Pressure (To) (psi)	Pressure (From) (psi)
C PRV	3,625	Active	6	6.2	3,717.40	40	70.44	3,821.30	3,717.50	103.8	40	84.9
B PRV (south)	3,520	Active	6	6.2	3,612.40	40.00	22.52	3,717.30	3,612.50	104.77	40	85.3
B PRV (north)	3,520	Active	6	6.2	3,612.40	40.00	26.34	3,717.20	3,612.50	104.68	40	85.3
A PRV (south)	3,425	Active	6	6.2	3,517.40	40.00	7.17	3,612.40	3,517.50	94.94	40	81.1
A PRV (north)	3,425	Active	6	6.2	3,517.40	40.00	18.89	3,612.40	3,517.50	94.94	40	81.1
Trans/C PRV	3,600	Closed	6	6.2	3,692.40	40.00	0	3,821.30	3,717.40	0	50.8	95.8

Pipe Report
Scenario: Interim Condition (MDD)

Label	Scaled Length (ft)	Length (User Defined) (ft)	Is Open?	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
P-4	665	0.00	TRUE	8	PVC	150	-15.64	0.10	0.01
P-5	1,584.00	0.00	TRUE	8	PVC	150	-17.50	0.11	0.01
P-26	1,098	0.00	TRUE	8	PVC	150	-20.48	0.13	0.01
P-27	448	0.00	TRUE	8	PVC	150	-22.34	0.14	0.01
P-34	690.00	0.00	TRUE	12	PVC	150	10.8	0.03	0.00
P-42	324	0.00	TRUE	8	PVC	150	3.78	0.02	0.00
P-54	2,297	0.00	TRUE	8	PVC	150	-30.92	0.20	0.02
P-56	2,340	0.00	TRUE	8	PVC	150	-30.92	0.20	0.02
P-67	2,052	0.00	TRUE	8	PVC	150	-4.1	0.03	0
P-68	540	0.00	TRUE	8	PVC	150	-4.1	0.03	0.001
P-70	2,149	0.00	TRUE	12	PVC	150	10.05	0.03	0
P-71	4	0.00	TRUE	8	PVC	150	10.8	0.07	0
P-72	58	0.00	TRUE	12	PVC	150	10.8	0.03	0
P-79	344	0.00	TRUE	12	PVC	150	8.56	0.02	0
P-80	627	0.00	TRUE	8	PVC	150	7.82	0.05	0.002
P-81	780	0.00	TRUE	8	PVC	150	-23.45	0.15	0.013
P-82	51	0.00	TRUE	8	PVC	150	-24.57	0.16	0.014
P-83	58	0.00	TRUE	8	PVC	150	-24.57	0.16	0.013
P-84	1,462	0.00	TRUE	8	PVC	150	-26.8	0.17	0.017
P-103	1,217	0.00	TRUE	8	PVC	150	-30.92	0.2	0.022
P-116	528	0.00	TRUE	8	PVC	120	-29.05	0.19	0.03
P-117	252	0.00	TRUE	8	PVC	150	30.92	0.2	0.023
P-118	48	0.00	TRUE	8	PVC	150	-30.92	0.2	0.02
P-119	58	0.00	TRUE	8	PVC	150	30.92	0.2	0.021
P-121	71	0.00	TRUE	8	PVC	150	-30.92	0.2	0.021
P-154	231	0.00	TRUE	4	Ductile Iron	130	-0.31	0.01	0
P-155	996	0.00	TRUE	4	PVC	150	-0.31	0.01	0
P-156	219	0.00	TRUE	4	PVC	150	-0.31	0.01	0
P-157	207	0.00	TRUE	4	Ductile Iron	130	-0.31	0.01	0
P-158	1,061	0.00	TRUE	8	PVC	150	3.04	0.02	0
P-161	164	0.00	TRUE	4	PVC	150	-2.61	0.07	0.007
P-162	827	0.00	TRUE	8	PVC	150	-2.92	0.02	0
P-169	135	0.00	TRUE	8	PVC	150	3.35	0.02	0.002
P-170	411	0.00	TRUE	4	PVC	150	3.35	0.09	0.011

Junction Report
Scenario: Interim Condition (MDD)

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Pressure Head (ft)	Fire Flow (Available) (gpm)
J-4	207: Zone A	3,332.00	4.10	80.3	185.49	1,340.74
J-5	208: Zone B	3,440.00	0.74	74.6	172.44	1,302.94
J-6	208: Zone B	3,424.00	1.86	81.5	188.45	1,336.43
J-7	208: Zone B	3,470.00	2.98	61.6	142.46	1,340.45
J-8	208: Zone B	3,516.00	1.12	41.7	96.47	1,339.89
J-9	209: Zone C	3,574.00	2.25	61.3	141.58	1,435.85
J-10	209: Zone C	3,596.00	1.87	51.7	119.60	1,439.53
J-22	208: Zone B	3,502.00	1.86	47.8	110.47	1,340.45
J-25	208: Zone B	3,425.00	0	81.1	187.44	1,302.33
J-26	207: Zone A	3,410.00	1.12	46.5	107.48	1,272.13
J-27	207: Zone A	3,336.00	3.35	78.5	181.48	(N/A)
J-28	207: Zone A	3,390.00	2.61	55.2	127.48	(N/A)
J-29	207: Zone A	3,410.00	1.49	46.5	107.49	1,277.91
J-30	207: Zone A	3,402.00	0.74	50	115.48	1,272.13
J-32	210: Zone D	3,720.00	0	44.1	101.95	1,302.30
J-34	210: Zone D	3,628.00	0	83.9	193.9	1,302.31
J-35	207: Zone A	3,415.00	0.74	44.3	102.49	1,291.25
J-37	207: Zone A	3,422.00	0.74	41.3	95.49	1,275.82
J-38	208: Zone B	3,508.00	1.12	45.2	104.49	1,398.62
J-39	209: Zone C	3,524.00	2.23	82.9	191.56	1,436.47
J-41	207: Zone A	3,300.00	0	94.1	217.48	(N/A)
J-48	212: Facility	3,600.00	0	96	221.87	(N/A)
J-51	212: Facility	3,600.00	0	50	115.61	(N/A)
J-52	212: Facility	3,600.00	0	96	221.87	(N/A)
J-61	207: Zone A	3,360.00	0	68.1	157.48	(N/A)
J-62	207: Zone A	3,360.00	0	68.1	157.48	(N/A)
J-63	207: Zone A	3,362.00	0	67.3	155.48	1,272.13
J-64	207: Zone A	3,394.00	0	53.4	123.48	1,272.13
J-68	207: Zone A	3,358.00	0	69	159.48	1,272.13

Tank Report
Scenario: Interim Condition (MDD)

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial Elevation (ft)	Maximum Elevation (ft)	Diameter (ft)	Outflow (gpm)	Hydraulic Grade (ft)	Net Inflow (gpm)
Upper Tank	3,807	3,808.00	3,822.00	3,823.00	47.53	30.92	3,822.00	-30.92

PRV Report
Scenario: Interim Condition (MDD)

Label	Elevation (ft)	Status (Calculated)	Diameter (in)	Minor Loss	Hydraulic Grade Setting (Initial) (ft)	Pressure Setting (Initial) (psi)	Flow (gpm)	From Hydraulic Grade (ft)	To Hydraulic Grade (ft)	Headloss (ft)	Pressure (To) (psi)	Pressure (From) (psi)
B PRV (south)	3,520	Active	6	6.2	3,612.40	40.00	24.57	3,715.60	3,612.50	103.07	40	84.6
A PRV (south)	3,425.00	Active	6	6.2	3,517.40	40.00	4.1	3,612.40	3,517.50	94.95	40	81.1
A PRV (north)	3,425	Active	6	6.2	3,517.40	40.00	10.8	3,612.40	3,517.50	94.95	40	81.1
Trans/C PRV	3,600	Active	6	0	3,715.50	50.00	30.92	3,821.90	3,715.60	106.26	50	96

Fire Flow Report
Scenario: Interim Condition (MDD + Fire Flow)

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/Minimum Pressure (Zone)	Velocity of Maximum Pipe (ft/s)	Pipe w/Maximum Velocity
J-4	207: Zone A	1,340.74	20	20	22	20	144: J-37	8.76	181: P-103
J-5	208: Zone B	1,302.94	20	20	20	25.7	33: J-8	8.51	181: P-103
J-6	208: Zone B	1,336.43	20	20	27.1	20.2	27: J-5	8.73	181: P-103
J-7	208: Zone B	1,340.45	20	20	23.3	20	33: J-8	8.75	228: P-118
J-8	208: Zone B	1,339.89	20	20	20.1	26.2	67: J-22	8.75	181: P-103
J-9	209: Zone C	1,435.85	20	20	20.1	20.4	37: J-10	9.36	181: P-103
J-10	209: Zone C	1,439.53	20	20	20	29.5	35: J-9	9.39	181: P-103
J-22	208: Zone B	1,340.45	20	20	21.2	20	33: J-8	8.75	181: P-103
J-25	208: Zone B	1,302.33	20	20	25.7	20.1	27: J-5	8.51	181: P-103
J-26	207: Zone A	1,272.13	20	20	20	20.8	144: J-37	8.32	228: P-118
J-27	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-28	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-29	207: Zone A	1,277.91	20	20	25.2	20	144: J-37	8.35	228: P-118
J-30	207: Zone A	1,272.13	20	20	20.7	20	80: J-26	8.32	181: P-103
J-32	210: Zone D	1,302.30	20	20	20	59.9	106: J-34	8.51	111: P-56
J-34	210: Zone D	1,302.31	20	20	36.1	20	99: J-32	8.51	111: P-56
J-35	207: Zone A	1,291.25	20	20	23	20	144: J-37	8.44	181: P-103
J-37	207: Zone A	1,275.82	20	20	20	25.2	80: J-26	8.34	181: P-103
J-38	208: Zone B	1,398.62	20	20	23.5	20	33: J-8	9.12	181: P-103
J-39	209: Zone C	1,436.47	20	20	23.7	20	35: J-9	9.37	181: P-103
J-41	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-48	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-51	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-52	212: Facility	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-61	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-62	207: Zone A	(N/A)	20	20	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
J-63	207: Zone A	1,272.13	20	20	30.4	20	80: J-26	8.32	181: P-103
J-64	207: Zone A	1,272.13	20	20	20.4	20	80: J-26	8.32	181: P-103
J-68	207: Zone A	1,272.13	20	20	30.9	20	80: J-26	8.32	181: P-103

Pipe Report
Scenario: Interim Condition (PHD)

Label	Scaled Length (ft)	Length (User Defined) (ft)	Is Open?	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
P-4	665	0.00	TRUE	8	PVC	150	-27.36	0.17	0.02
P-5	1,584.00	0.00	TRUE	8	PVC	150	-30.62	0.20	0.02
P-26	1,098	0.00	TRUE	8	PVC	150	-35.83	0.23	0.03
P-27	448	0.00	TRUE	8	PVC	150	-39.09	0.25	0.03
P-34	690.00	0.00	TRUE	12	PVC	150	18.89	0.05	0.00
P-42	324	0.00	TRUE	8	PVC	150	6.62	0.04	0.00
P-54	2,297	0.00	TRUE	8	PVC	150	-54.12	0.35	0.06
P-56	2,340	0.00	TRUE	8	PVC	150	-54.12	0.35	0.06
P-67	2,052	0.00	TRUE	8	PVC	150	-7.17	0.05	0.002
P-68	540	0.00	TRUE	8	PVC	150	-7.17	0.05	0.001
P-70	2,149	0.00	TRUE	12	PVC	150	17.59	0.05	0.001
P-71	4	0.00	TRUE	8	PVC	150	18.89	0.12	0
P-72	58	0.00	TRUE	12	PVC	150	18.89	0.05	0
P-79	344	0.00	TRUE	12	PVC	150	14.98	0.04	0.001
P-80	627	0.00	TRUE	8	PVC	150	13.68	0.09	0.005
P-81	780	0.00	TRUE	8	PVC	150	-41.05	0.26	0.038
P-82	51	0.00	TRUE	8	PVC	150	-43	0.27	0.043
P-83	58	0.00	TRUE	8	PVC	150	-43	0.27	0.042
P-84	1,462	0.00	TRUE	8	PVC	150	-46.91	0.3	0.048
P-103	1,217	0.00	TRUE	8	PVC	150	-54.12	0.35	0.063
P-116	528	0.00	TRUE	8	PVC	150	-50.84	0.32	0.085
P-117	252	0.00	TRUE	8	PVC	150	54.12	0.35	0.064
P-118	48	0.00	TRUE	8	PVC	150	-54.12	0.35	0.061
P-119	58	0.00	TRUE	8	PVC	150	54.12	0.35	0.063
P-121	71	0.00	TRUE	8	PVC	150	-54.12	0.35	0.066
P-154	231	0.00	TRUE	4	Ductile Iron	130	-0.55	0.01	0
P-155	996	0.00	TRUE	4	PVC	150	-0.55	0.01	0
P-156	219	0.00	TRUE	4	PVC	150	-0.55	0.01	0
P-157	207	0.00	TRUE	4	Ductile Iron	130	-0.55	0.01	0.001
P-158	1,061	0.00	TRUE	8	PVC	150	5.31	0.03	0.001
P-161	164	0.00	TRUE	4	PVC	150	-4.56	0.12	0.019
P-162	827	0.00	TRUE	8	PVC	150	-5.11	0.03	0.001
P-169	135	0.00	TRUE	8	PVC	150	5.86	0.04	0.002
P-170	411	0.00	TRUE	4	PVC	150	5.86	0.15	0.03

Junction Report
Scenario: Interim Condition (PHD)

Label	Zone	Elevation (ft)	Demand (gpm)	Pressure (psi)	Pressure Head (ft)	Fire Flow (Available) (gpm)
J-4	207: Zone A	3,332.00	7.17	80.20	185.48	1,320.58
J-5	208: Zone B	3,440.00	1.3	74.6	172.36	1,282.80
J-6	208: Zone B	3,424.00	3.26	81.5	188.37	1,316.37
J-7	208: Zone B	3,470.00	5.21	61.6	142.41	1,318.19
J-8	208: Zone B	3,516.00	1.95	41.7	96.45	1,318.29
J-9	209: Zone C	3,574.00	3.93	61.2	141.54	1,413.12
J-10	209: Zone C	3,596.00	3.28	51.7	119.59	1,416.47
J-22	208: Zone B	3,502.00	3.26	47.8	110.44	1,318.72
J-25	208: Zone B	3,425.00	0	81.1	187.36	1,282.67
J-26	207: Zone A	3,410.00	1.95	46.5	107.48	1,254.01
J-27	207: Zone A	3,336.00	5.86	78.5	181.47	(N/A)
J-28	207: Zone A	3,390.00	4.56	55.2	127.48	(N/A)
J-29	207: Zone A	3,410.00	2.61	46.5	107.48	1,259.27
J-30	207: Zone A	3,402.00	1.3	50	115.48	1,254.01
J-32	210: Zone D	3,720.00	0	44.1	101.85	1,279.07
J-34	210: Zone D	3,628.00	0	83.8	193.71	1,279.11
J-35	207: Zone A	3,415.00	1.3	44.3	102.49	1,272.40
J-37	207: Zone A	3,422.00	1.3	41.3	95.48	1,257.21
J-38	208: Zone B	3,508.00	1.95	45.2	104.48	1,375.86
J-39	209: Zone C	3,524.00	3.91	82.8	191.47	1,412.60
J-41	207: Zone A	3,300.00	0	94.1	217.48	(N/A)
J-48	212: Facility	3,600.00	0	95.9	221.63	(N/A)
J-51	212: Facility	3,600.00	0	50	115.6	(N/A)
J-52	212: Facility	3,600.00	0	95.9	221.63	(N/A)
J-61	207: Zone A	3,360.00	0	68.1	157.48	(N/A)
J-62	207: Zone A	3,360.00	0	68.1	157.48	(N/A)
J-63	207: Zone A	3,362.00	0	67.3	155.48	1,253.19
J-64	207: Zone A	3,394.00	0	53.4	123.48	1,254.01
J-68	207: Zone A	3,358.00	0	69	159.48	1,253.15

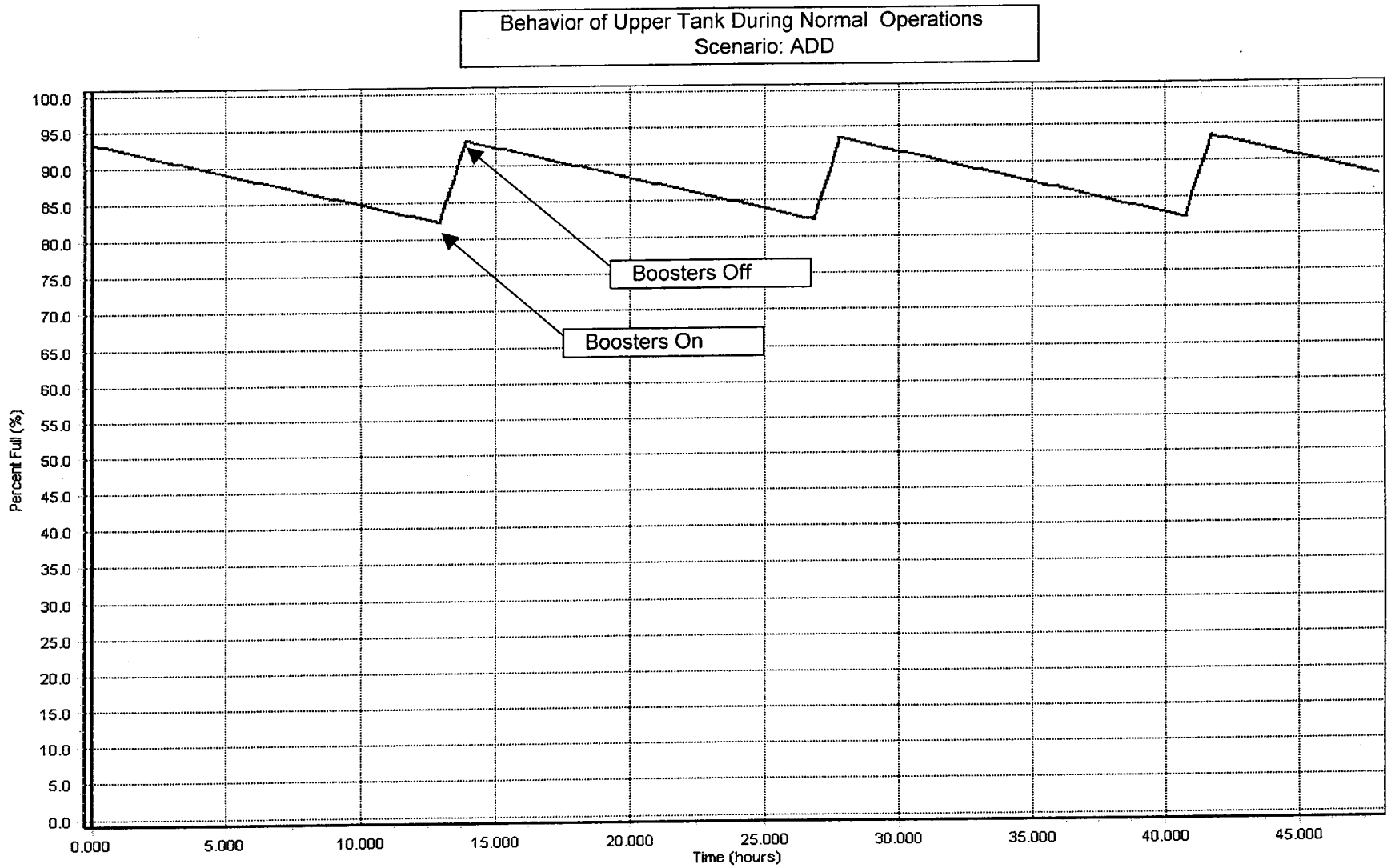
Tank Report
Scenario: Interim Condition (PHD)

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial Elevation (ft)	Maximum Elevation (ft)	Diameter (ft)	Outflow (gpm)	Hydraulic Grade (ft)	Net Inflow (gpm)
Upper Tank	3,807	3,808.00	3,822.00	3,823.00	47.53	54.12	3,822.00	-54.12

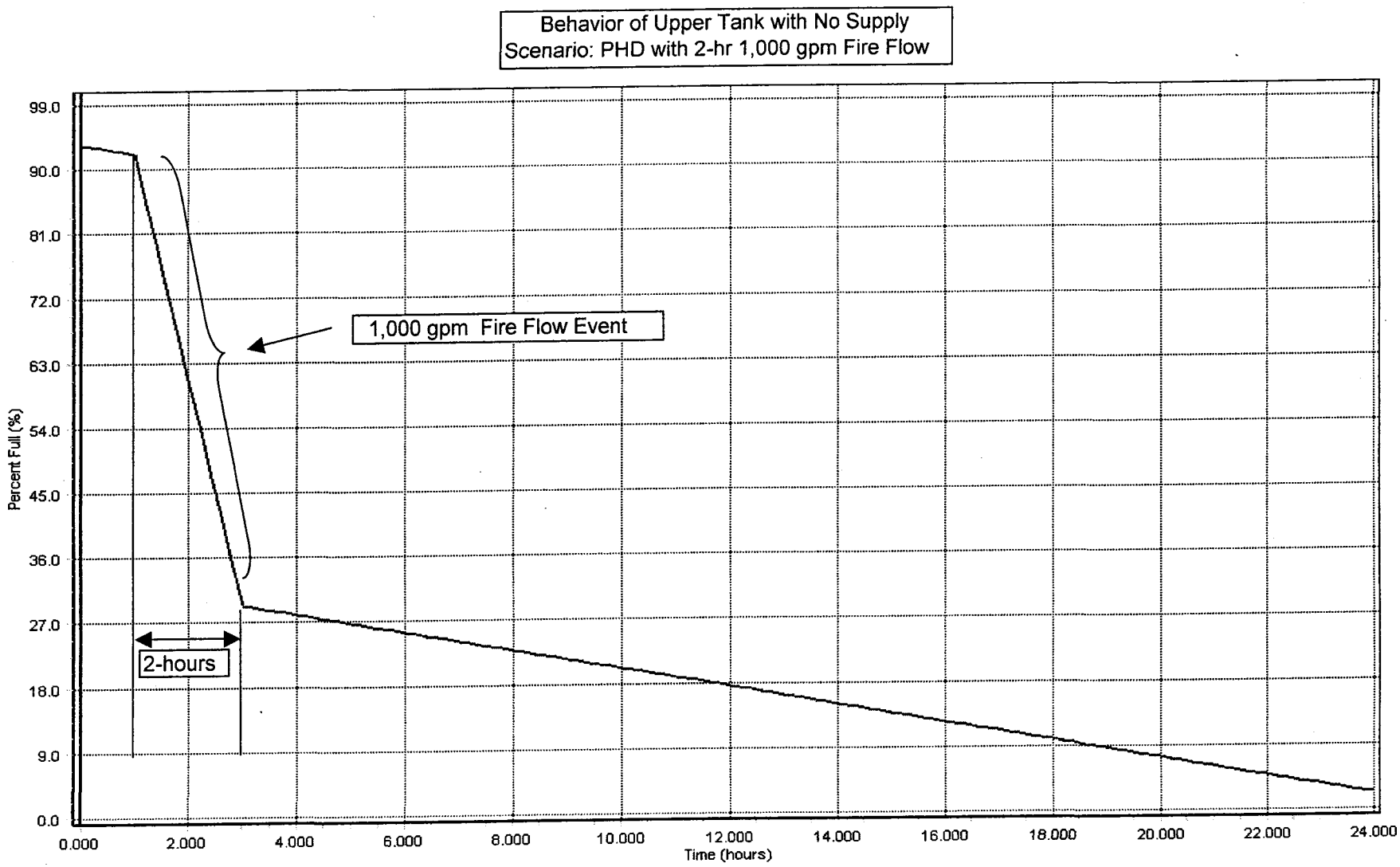
PRV Report
Scenario: Interim Condition (PHD)

Label	Elevation (ft)	Status (Calculated)	Diameter (in)	Minor Loss	Hydraulic Grade Setting (Initial) (ft)	Pressure Setting (Initial) (psi)	Flow (gpm)	From Hydraulic Grade (ft)	To Hydraulic Grade (ft)	Headloss (ft)	Pressure (To) (psi)	Pressure (From) (psi)
B PRV (south)	3,520	Active	6	6.20	3,612.40	40.00	43.00	3,715.50	3,612.50	102.98	40	84.6
A PRV (south)	3,425.00	Active	6	6.2	3,517.40	40.00	7.17	3,612.40	3,517.50	94.87	40	81.1
A PRV (north)	3,425	Active	6	6.2	3,517.40	40.00	18.89	3,612.40	3,517.50	94.87	40	81.1
Trans/C PRV	3,600	Active	6	0	3,715.50	50.00	54.12	3,821.60	3,715.60	106.01	50	95.9

Upper Tank Graph
Scenario: Final Condition (ADD)



Upper Tank Graph
Scenario: Final Condition (PHD + 2-hr Fire Flow)



Appendix D
Hydrogeologist's Letter

CHUCK M. DICKENS
CONSULTING HYDROGEOLOGIST

LICENSED GEOLOGIST
ARIZONA 14510
CALIFORNIA 3647

12330 E. SNYDER ROAD
TUCSON, ARIZONA 85749
PHONE / FAX: 520-749-4124
PHONE: 520-731-6111

May 16, 2007

Western Associates Development Co., LLC
Attn: Mr. Patrick Nikitenko
2102 N. Country Club Road
Suite 4
Tucson, Arizona 85716

Re; Green Valley Project (Elephant Head Area): Preliminary Well Testing Results.

Dear Patrick:

Pursuant to your request, this letter has been prepared to provide a brief summary of the results of the recent test pumping of the two supply / test wells constructed for the above captioned project located in Green Valley and northwest of the Elephant Head area. Both wells were test pumped during early May 2007. Water samples were collected from both wells and submitted to Turner Laboratories in Tucson for analyses of the ADEQ *new source approval* list of chemical constituents as required for prospective public supply wells. The lab results for these well samples should be available no later than July 1, 2007.

Well No. 1

Well No.1 was completed to an approximate depth of 700 feet with six inch diameter steel casing. The static depth to groundwater in the well was measured at about 363 to 364 feet. The well was test pumped at a rate of about 150 gallons per minute (gpm) for a period 48 hours on May 1 thru May 3, 2007. The stabilized pumping level depth measured at the end of the test was 422.25 feet. Total water level decline during the test was 59.2 feet. The specific capacity of the well was calculated to be 2.53 gpm/ft (gallons per minute per foot of water level decline).

Once the well was shut-down, the rise of water levels in the well (recovery) were monitored for a period of two hours. After two hours, the water level in the well had already risen to a level of 363.5 feet indicating a percent recovery of about 99.2 percent.

Water level recovery data was utilized to calculate a moderate aquifer transmissivity of about 25,000 gpd/ft.

Also during the pumping of well no. 1, water levels in well no. 2 located about 700 feet east of well no. 1 were routinely monitored. After pumping well no. 1 for 24 hours at a

rate of 150 gpm, the total water level decline in well no. 2 was only 0.80 feet. After 48 hours of pumping well no. 1, the total drawdown at well no. 2 was measured at 0.90 feet.

The temperature of groundwater pumped from well no. 1 was measured at 80.2 degrees F. No arsenic was reported in water samples collected from well no. 1. Fluoride was detected at a low concentration of 0.24 mg/l.

Well No. 2

Well no. 2 was completed to a depth of about 800 feet with eight inch diameter steel casing. The static depth to groundwater in the well was measured at 412.25 feet. Well no. 2 was test pumped at a rate of about 150 gpm for a period of 24 hours on May 9 and 10, 2007. The stabilized pumping level measured at the end of the test was 458.3 feet, indicating a total water level decline of 46.05 feet. The specific capacity of well no. 2 was calculated to be about 3.26 gpm/ft.

Following the shut-down of well no. 2, the rise of water levels in the well were monitored for a period of about 100 minutes. After 100 minutes of recovery, water levels had already risen to a level of 413.12 feet, indicating a percent recovery of about 98.1 percent.

Water level recovery data was utilized to calculate a moderate aquifer transmissivity value of about 21,500 gpd/ft. This value is slightly lower but comparable to the value calculated at well no. 1 (25,000 gpd/ft).

Also, during the test pumping of well no. 2 water levels in well no. 1 were routinely measured. After 24 hours of pumping well no. 2 at a rate of about 150 gpm, the total water level decline in well no. 1 was measured at about 0.79 feet.

The temperature of groundwater pumped from well no. 2 was measured at 78.4 degrees F.

SUMMARY

A preliminary evaluation of the data compiled during the test pumping of well no. 1 and no. 2 indicate the following.

- Well no. 1 will readily support a pumping rate of 150 gpm. The production rate of this well will be limited to about 150 gpm due to the diameter of the casing (six inches) and the size of the pump unit that can be installed in the well. I would suggest eventually re-installing the pump unit purchased to test pump both wells back into well no. 1 as a permanent pump unit for the well.

- Well no. 2 will probably support a pumping rate approaching 250 gpm. A minimum 40 hp pump motor unit would be required to produce upwards of 250 gpm from well no. 2.

- Data compiled during the test pumping of both wells suggests that the aquifer system beneath the vicinity of the property would readily support the water supply requirements of upwards of 600 single family residential units.

- The two current supply wells should be capable of supporting upwards of 350 single family residential units. In order to serve upwards of 600 homes a third well would eventually be required to ensure the capability of meeting *peak day demand* with one of the wells out of service. This is typically an ADEQ requirement for eventual permitting of public water systems.

If you have any questions or wish further discussion of my preliminary interpretation of the recent test pumping results for the two project test / supply wells please contact me. Once we have received the lab reports for the well - water samples, the hydrology report to support the ADWR assured water supply application should be completed by early July.

Respectfully Submitted,

Chuck M. Dickens

Appendix E
Quantity Take Off / Cost Estimate

Ridgeline Estates Water Distribution System
Boosters and Pumps

Well Capacities

Well	Capacity (gpm)
Well No. 1	150
Well No. 2	250
Total	400

Pump Capacities

	Static Head (ft)	Flow Rate (gpm)	Static Suction Head (ft)	Vapor Pressure Head (ft)	Atmospheric Pressure Head (ft)	NPSHa	Pump Type	Speed	Power HP
Well-Site #1 Booster	251	334	1	0.83	32.3	32.47	Goulds 3655 Group M 2.5x3-9	3500 rpm	30
Well-Site #2 Booster	251	334	1	0.83	32.3	32.47	Goulds 3655 Group M 2.5x3-9	3500 rpm	30
Lower #1 Booster	221	334	1	0.83	32.3	32.47	Goulds 3655 Group M 2.5x3-9	3500 rpm	25
Lower #2 Booster	221	334	1	0.83	32.3	32.47	Goulds 3655 Group M 2.5x3-9	3500 rpm	25
Upper #1 Service Pump	120	350	10	0.83	32.3	41.47	Goulds 3655 Group M 2.5x3-11	1750 rpm	15
Upper #2 Service Pump	120	350	10	0.83	32.3	41.47	Goulds 3655 Group M 2.5x3-11	1750 rpm	15
Upper Fire Pump	120	1050	10	0.83	32.3	41.47	Goulds 3655 Group M 4x6-11H	1750 rpm	35

Pumps listed are those that best fit head/capacity requirements from Goulds Pumps website.

Ridgeline Estates Water Distribution System
Cost Breakdown

Component	Unit	Amount	Unit Cost	Subtotal	Notes
4" PVC	Feet	3,174		0	
6" PVC	Feet	2,293		0	
8" PVC	Feet	37,868		0	15,161 ft of transmission main plus 21707 ft distribution main plus 1,000 feet from Well #1
12" PVC	Feet	3,241		0	
4" DIP	Feet	438			
6" DIP	Feet	920		0	10' per hydrant lateral
8" DIP	Feet	0		0	
12" DIP	Feet	0		0	
8" Steel Facility Piping	Feet	300		0	Assume 100 ft per facility
Isolation Valves	Each	188		0	Max 800' seperation, 2 at tees, 3 at crosses, 1 per hydrant
6" Pressure Reducing Valve	Each	6		0	6" valves on 8" mains with reducers
8" Pressure Reducing Valve	Each	0		0	
4X 8 Reduction	Each Location	6		0	
6 X 8 Reducer	Each	14		0	
8 X 12 Reducer	Each	2		0	
6X 12 Reduction	Each Location	2		0	Reduce to 6 inch PRV on the 12 inch main (Zone A) on each side of valve
4" Tees	Each	0		0	Include 90's 45's and 22.5's
4" Elbows	Each	2		0	
6" Tees	Each	3		0	Include 90's 45's and 22.5's
6" Elbows	Each	1		0	
8" Tees	Each	19		0	Include 90's 45's and 22.5's
8" Elbows	Each	30		0	
12" Tees	Each	0		0	Include 90's 45's and 22.5's
12" Elbows	Each	2		0	
4 X4 cross	Each	0		0	
6 X 6 cross	Each	0		0	
8 X 8 Cross	Each	0		0	
12 X 12 Cross	Each	0		0	
Upper Tank	Gallons	181,200		0	Shows volume required. Nominal Tank Volume =213,991 (From BH Tanks website)
Lower Tank	Gallons	3,400		0	Shows volume required. Nominal Tank Volume =6,008 (From BH Tanks website)
Well-site Tank	Gallons	12,240		0	Shows volume required. Nominal Tank Volume =16,688 (From BH Tanks website)
4" Check Valve	Each	0		0	
6" Check Valve	Each	0		0	
8" Check Valve	Each	3		0	
12" Check Valve	Each	0		0	
Well-site Booster Pump	Each	2		0	See pump worksheet for model. Include motors, brackets, mounts, hardware.
Lower Booster Pump	Each	2		0	See pump worksheet for model. Include motors, brackets, mounts, hardware.
Upper Duty Pump	Each	2		0	See pump worksheet for model. Include motors, brackets, mounts, hardware.
Upper Fire Pump	Each	1		0	See pump worksheet for model. Include motors, brackets, mounts, hardware.
5000 gal Hydro-pneumatic Tank	Each	1		0	
Air Compressor	Each	1		0	
In-line pressure gages	Each	6		0	2 should be installed at booster/pumping stations
In-line flow meters/totalizers	Each	3		0	1 should be installed at booster/pumping stations
Electrical	Lump Sum			0	Must include operational on/off signals from 3 tank sites. Wells will not alternate but will run together. Pumps/boosters will alternate.

Ridgeline Estates Water Distribution System
Cost Breakdown

Structures	Lump Sum			0	Canopies or enclosures for pumps and valves? Fences, gates, foundations.
2" air valves	Each	5		0	
Mechanical Restraints	Each			0	
Vertical Bends 45/22.5 degrees	Each	20		0	
Drain Valve Assemblies	Each	9		0	Includes 2 for future system expansion and 7 for dead end mains.
Hydrants	Each	87		0	Total length of hydrant-sized distribution piping divided by 500 ft.
Meters	Each	136		0	Total number of lots. No irrigation meters.
Contingency/miscellaneous	Additional	Additional	20%	0	Add percentage of market inflation and percentage for contingency/misc.
Total				**0**	

APPENDIX "H"

(Analysis of Estimated Cost of Construction of Water System, as prepared by Thomas J. Bourassa, C.P.A.)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

Ridgeline Estates Water Company
Plant
Projected Years

Line No.	Account	Description	AIAC Spread	Depreciation Rate	Estimate	Engineering Permits, Etc.	Year 1 Gross Amt	Additions	Depreciation	Balance	A/D Balance
5	301	Organization		0.00%	$ -		$ -	$ -	$ -	$ -	$ -
6	302	Franchises		0.00%	43,788		43,788	43,788	-	43,788	-
7	303	Land and Land Rights		0.00%	152,004		152,004	152,004	-	152,004	-
8	304	Structures and Improvements		3.33%	22,000	-	22,000	22,000	366	22,000	366
9	305	Collecting and Impounding Rese		2.50%	-	-	-	-	-	-	-
10	306	Lake, River and Other Intakes		2.50%	-	-	-	-	-	-	-
11	307	Wells and Springs		3.33%	235,856	-	235,856	235,856	3,927	235,856	3,927
12	308	Infiltration Galleries and Tun		6.67%	-	-	-	-	-	-	-
13	309	Supply Mains		2.00%	-	-	-	-	-	-	-
14	310	Power Generation Equipment		5.00%	-	-	-	-	-	-	-
15	311	Pumping Equipment		12.50%	89,870	-	89,870	89,870	5,617	89,870	5,617
16	320	Water Treatment Equipment		5.00%	-	-	-	-	-	-	-
17	330	Distribution Reservoirs and St		5.00%	344,410	-	344,410	344,410	8,610	344,410	8,610
18	331	Transmission and Distribution		2.00%	2,702,753	-	2,702,753	2,702,753	27,028	2,702,753	27,028
19	331	Transmission and Distribution		2.00%	-	-	-	-	-	-	-
20	333	Services		3.33%	103,143	-	103,143	103,143	1,717	103,143	1,717
21	334	Meters and Meter Installations		3.33%	33,660	-	33,660	33,660	560	33,660	560
22	335	Hydrants		2.00%	191,400	-	191,400	191,400	1,914	191,400	1,914
23	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	-	-
24	339	Other Plant and Miscellaneous		6.67%	-	-	-	-	-	-	-
25	340	Office Furniture and Equipment		6.67%	-	-	-	-	-	-	-
26	341	Transportation Equipment		20.00%	-	-	-	-	-	-	-
27	342	Stores Equipment		4.00%	-	-	-	-	-	-	-
28	343	Tools, Shop and Garage Equipme		5.00%	-	-	-	-	-	-	-
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	-	-
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	-	-
31	346	Communication Equipment		10.00%	-	-	-	-	-	-	-
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-
33	348	Other Tangible Plant		10.00%	9,839	-	9,839	9,839	492	9,839	492
34							-	-	-	-	-
38		Totals			$ 3,928,723	$ -	$ 3,928,723	$ 3,928,723	$ 50,232	$ 3,928,723	$ 50,232
40		Composite Rate with 1/2 yr convention							1.28%		
43		Licenses, Taxes, Permits	0%			$ -					
44		Engineering and Contingency	20%			-					
45		Total				$ -					

Ridgeline Estates Water Company
Plant
Projected Years

Line No.	Account	Description	AIAC Spread	Depreciation Rate	Year 2 Estimate	Engineering Permits, Etc.	Gross Amt	Additions	Depreciation	Balance	A/D Balance
5	301	Organization		0.00%	$ -		$ -	$ -	$ -	$ -	$ -
6	302	Franchises		0.00%	-		-	-	-	43,788	-
7	303	Land and Land Rights		0.00%	-		-	-	-	152,004	-
8	304	Structures and Improvements		3.33%	-	-	-	-	733	22,000	1,099
9	305	Collecting and Impounding Rese		2.50%	-	-	-	-	-	-	-
10	306	Lake, River and Other Intakes		2.50%	-	-	-	-	-	-	-
11	307	Wells and Springs		3.33%	-	-	-	-	7,854	235,856	11,781
12	308	Infiltration Galleries and Tun		6.67%	-	-	-	-	-	-	-
13	309	Supply Mains		2.00%	-	-	-	-	-	-	-
14	310	Power Generation Equipment		5.00%	-	-	-	-	-	-	-
15	311	Pumping Equipment		12.50%	-	-	-	-	11,234	89,870	16,851
16	320	Water Treatment Equipment		5.00%	-	-	-	-	-	-	-
17	330	Distribution Reservoirs and St		5.00%	-	-	-	-	17,221	344,410	25,831
18	331	Transmission and Distribution		2.00%	-	-	-	-	54,055	2,702,753	81,083
19	331	Transmission and Distribution		2.00%	-	-	-	-	-	-	-
20	333	Services		3.33%	-	-	-	-	3,435	103,143	5,152
21	334	Meters and Meter Installations		3.33%	-	-	-	-	1,121	33,660	1,681
22	335	Hydrants		2.00%	-	-	-	-	3,828	191,400	5,742
23	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	-	-
24	339	Other Plant and Miscellaneous		6.67%	-	-	-	-	-	-	-
25	340	Office Furniture and Equipment		6.67%	-	-	-	-	-	-	-
26	341	Transportation Equipment		20.00%	-	-	-	-	-	-	-
27	342	Stores Equipment		4.00%	-	-	-	-	-	-	-
28	343	Tools, Shop and Garage Equipme		5.00%	-	-	-	-	-	-	-
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	-	-
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	-	-
31	346	Communication Equipment		10.00%	-	-	-	-	-	-	-
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-
33	348	Other Tangible Plant		10.00%	-	-	-	-	984	9,839	1,476
34					-	-	-	-	-	-	-
38		Totals			$ -	$ -	$ -	$ -	$ 100,463	$ 3,928,723	$ 150,695
40		Composite Rate with 1/2 yr convention							2.56%		
43		Licenses, Taxes, Permits	0%			$ -					
44		Engineering and Contingency	20%			-					
45		Total				$ -					

Ridgeline Estates Water Company
Plant
Projected Years

Line No.	Account	Description	AIAC Spread	Depreciation Rate	Year 3 Estimate	Engineering Permits, Etc.	Gross Amt	Additions	Depreciation	Balance	A/D Balance
5	301	Organization		0.00%	$ -		$ -	$ -	$ -	$ -	$ -
6	302	Franchises		0.00%	-		-	-	-	43,788	-
7	303	Land and Land Rights		0.00%	-		-	-	-	152,004	-
8	304	Structures and Improvements		3.33%	-	-	-	-	733	22,000	1,832
9	305	Collecting and Impounding Rese		2.50%	-	-	-	-	-	-	-
10	306	Lake, River and Other Intakes		2.50%	-	-	-	-	-	-	-
11	307	Wells and Springs		3.33%	-	-	-	-	7,854	235,856	19,635
12	308	Infiltration Galleries and Tun		6.67%	-	-	-	-	-	-	-
13	309	Supply Mains		2.00%	-	-	-	-	-	-	-
14	310	Power Generation Equipment		5.00%	-	-	-	-	-	-	-
15	311	Pumping Equipment		12.50%	-	-	-	-	11,234	89,870	28,084
16	320	Water Treatment Equipment		5.00%	-	-	-	-	-	-	-
17	330	Distribution Reservoirs and St		5.00%	-	-	-	-	17,221	344,410	43,051
18	331	Transmission and Distribution		2.00%	-	-	-	-	54,055	2,702,753	135,138
19	331	Transmission and Distribution		2.00%	-	-	-	-	-	-	-
20	333	Services		3.33%	-	-	-	-	3,435	103,143	8,587
21	334	Meters and Meter Installations		3.33%	-	-	-	-	1,121	33,660	2,802
22	335	Hydrants		2.00%	-	-	-	-	3,828	191,400	9,570
23	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	-	-
24	339	Other Plant and Miscellaneous		6.67%	-	-	-	-	-	-	-
25	340	Office Furniture and Equipment		6.67%	-	-	-	-	-	-	-
26	341	Transportation Equipment		20.00%	-	-	-	-	-	-	-
27	342	Stores Equipment		4.00%	-	-	-	-	-	-	-
28	343	Tools, Shop and Garage Equipme		5.00%	-	-	-	-	-	-	-
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	-	-
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	-	-
31	346	Communication Equipment		10.00%	-	-	-	-	-	-	-
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-
33	348	Other Tangible Plant		10.00%	-	-	-	-	984	9,839	2,460
34					-		-	-	-	-	-
38		Totals			$ -	$ -	$ -	$ -	$ 100,463	$ 3,928,723	$ 251,158
40		Composite Rate with 1/2 yr convention							2.56%		
43		Licenses, Taxes, Permits	0%			$ -					
44		Engineering and Contingency	20%			-					
45		Total				$ -					

Ridgeline Estates Water Company
Plant
Projected Years

Line No.	Account	Description	AIAC Spread	Depreciation Rate	Year 4 Estimate	Engineering Permits, Etc.	Gross Amt	Additions	Depreciation	Balance	A/D Balance
5	301	Organization		0.00%	$ -		$ -	$ -	$ -	$ -	$ -
6	302	Franchises		0.00%	-		-	-	-	43,788	-
7	303	Land and Land Rights		0.00%	-		-	-	-	152,004	-
8	304	Structures and Improvements		3.33%	-	-	-	-	733	22,000	2,564
9	305	Collecting and Impounding Rese		2.50%	-	-	-	-	-	-	-
10	306	Lake, River and Other Intakes		2.50%	-	-	-	-	-	-	-
11	307	Wells and Springs		3.33%	-	-	-	-	7,854	235,856	27,489
12	308	Infiltration Galleries and Tun		6.67%	-	-	-	-	-	-	-
13	309	Supply Mains		2.00%	-	-	-	-	-	-	-
14	310	Power Generation Equipment		5.00%	-	-	-	-	-	-	-
15	311	Pumping Equipment		12.50%	-	-	-	-	11,234	89,870	39,318
16	320	Water Treatment Equipment		5.00%	-	-	-	-	-	-	-
17	330	Distribution Reservoirs and St		5.00%	-	-	-	-	17,221	344,410	60,272
18	331	Transmission and Distribution		2.00%	-	-	-	-	54,055	2,702,753	189,193
19	331	Transmission and Distribution		2.00%	-	-	-	-	-	-	-
20	333	Services		3.33%	-	-	-	-	3,435	103,143	12,021
21	334	Meters and Meter Installations		3.33%	-	-	-	-	1,121	33,660	3,923
22	335	Hydrants		2.00%	-	-	-	-	3,828	191,400	13,398
23	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	-	-
24	339	Other Plant and Miscellaneous		6.67%	-	-	-	-	-	-	-
25	340	Office Furniture and Equipment		6.67%	-	-	-	-	-	-	-
26	341	Transportation Equipment		20.00%	-	-	-	-	-	-	-
27	342	Stores Equipment		4.00%	-	-	-	-	-	-	-
28	343	Tools, Shop and Garage Equipme		5.00%	-	-	-	-	-	-	-
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	-	-
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	-	-
31	346	Communication Equipment		10.00%	-	-	-	-	-	-	-
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-
33	348	Other Tangible Plant		10.00%	-	-	-	-	984	9,839	3,444
34					-		-	-	-	-	-
38		Totals			$ -	$ -	$ -	$ -	$ 100,463	$ 3,928,723	$ 351,622
40		Composite Rate with 1/2 yr convention							2.56%		
43		Licenses, Taxes, Permits	0%			$ -					
44		Engineering and Contingency	20%			-					
45		Total				$ -					

Ridgeline Estates Water Company
Plant
Projected Years

Line No.	Account	Description	AIAC Spread	Depreciation Rate	Year 5 Estimate	Engineering Permits, Etc.	Gross Amt	Additions	Depreciation	Balance	A/D Balance
5	301	Organization		0.00%	$ -		$ -	$ -	$ -	$ -	$ -
6	302	Franchises		0.00%	-		-	-	-	43,788	-
7	303	Land and Land Rights		0.00%	-		-	-	-	152,004	-
8	304	Structures and Improvements		3.33%	-	-	-	-	733	22,000	3,297
9	305	Collecting and Impounding Rese		2.50%	-	-	-	-	-	-	-
10	306	Lake, River and Other Intakes		2.50%	-	-	-	-	-	-	-
11	307	Wells and Springs		3.33%	-	-	-	-	7,854	235,856	35,343
12	308	Infiltration Galleries and Tun		6.67%	-	-	-	-	-	-	-
13	309	Supply Mains		2.00%	-	-	-	-	-	-	-
14	310	Power Generation Equipment		5.00%	-	-	-	-	-	-	-
15	311	Pumping Equipment		12.50%	-	-	-	-	11,234	89,870	50,552
16	320	Water Treatment Equipment		5.00%	-	-	-	-	-	-	-
17	330	Distribution Reservoirs and St		5.00%	-	-	-	-	17,221	344,410	77,492
18	331	Transmission and Distribution		2.00%	-	-	-	-	54,055	2,702,753	243,248
19	331	Transmission and Distribution		2.00%	-	-	-	-	-	-	-
20	333	Services		3.33%	-	-	-	-	3,435	103,143	15,456
21	334	Meters and Meter Installations		3.33%	-	-	-	-	1,121	33,660	5,044
22	335	Hydrants		2.00%	-	-	-	-	3,828	191,400	17,226
23	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	-	-
24	339	Other Plant and Miscellaneous		6.67%	-	-	-	-	-	-	-
25	340	Office Furniture and Equipment		6.67%	-	-	-	-	-	-	-
26	341	Transportation Equipment		20.00%	-	-	-	-	-	-	-
27	342	Stores Equipment		4.00%	-	-	-	-	-	-	-
28	343	Tools, Shop and Garage Equipme		5.00%	-	-	-	-	-	-	-
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	-	-
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	-	-
31	346	Communication Equipment		10.00%	-	-	-	-	-	-	-
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-
33	348	Other Tangible Plant		10.00%	-	-	-	-	984	9,839	4,428
34					-		-	-	-	-	-
38		Totals			$ -	$ -	$ -	$ -	$ 100,463	$ 3,928,723	$ 452,085
40		Composite Rate with 1/2 yr convention							2.56%		
43		Licenses, Taxes, Permits	0%			$ -					
44		Engineering and Contingency	20%			-					
45		Total				$ -					

APPENDIX "I"

(Projected Balance Sheet for Years 1 through 5,
as prepared by Thomas J. Bourassa, C.P.A.)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

Ridgeline Estates Water Company
Projected Balance Sheets
For the Years Ended

APPENDIX I
Page 1

Line No.		Beginning of Year	Label	1st year Changes	Year 1	Year 2	Year 3	Year 4	Year 5
3	**Assets**								
5	Utility Plant	-	(a)	3,928,723	3,928,723	3,928,723	3,928,723	3,928,723	3,928,723
6	Accumulated Depreciation	-	(b)	(50,232)	(50,232)	(150,695)	(251,158)	(351,622)	(452,085)
8	Cash	25,000	(c)	9,361	34,361	119,389	257,004	441,609	629,618
11	**Total Assets**	$ 25,000		$ 3,887,852	$ 3,912,852	$ 3,897,417	$ 3,934,568	$ 4,018,710	$ 4,106,255
13	Equity and Liabilities			-					
15	**Equity**								
17	Common Stock, Net of	25,000	(d)	1,757,758	1,782,758	1,782,758	1,782,758	1,782,758	1,782,758
19	Retained Earnings		(e)	(40,870)	(40,870)	(68,803)	(35,720)	52,783	169,029
20	**Total Equity**	$ 25,000		$ 1,716,888	$ 1,741,888	$ 1,713,956	$ 1,747,039	$ 1,835,541	$ 1,951,788
22	**Liabilities & Deferred Credits**			-					
23	Advances in Aid of Construction		(f)	2,170,964	2,170,964	2,183,461	2,187,529	2,183,169	2,154,468
24	Contributions in Aid of			-					
25	Construction		(g)	-	-	-	-	-	-
26	Less: Amortization		(g)	-	-	-	-	-	-
27	Customer Deposits			-					
28	Long-Term Debt								
31	**Total Liabilities and**								
32	**Deferred Credits**	-		2,170,964	2,170,964	2,183,461	2,187,529	2,183,169	2,154,468
35	**Total Equity & Liab.**	$ 25,000		$ 3,887,852	$ 3,912,852	$ 3,897,417	$ 3,934,568	$ 4,018,710	$ 4,106,255

(a) Plant Additions ((See Appendix H, pages 1 through 5)
(b) Depreciation Computations (See Appendix H, pages 1 through 5)
(c) Cash flows (See Appendix I, page 6)
(d) Financing (See Appendix I, page 2)
(e) Profit or loss from operations (See Appendix K, page 1)
(f) Advances-in-Aid of Construction (See Appendix I, pages 3 and 5)
(g) Contibutions-in-Aid of Construction (See Appendix I, page 4)

Ridgeline Estates Water Company
Schedule of Developer Advances and Refunds
Projected Years

Line No.		Year 1	Year 2	Year 3	Year 4	Year 5
1						
2						
3						
4						
5	**Developer Advances Collected**					
6	Developer Advances - Trans & Dist.	$ 2,153,284	$ -	$ -	$ -	$ -
7						
8						
9						
10	Total Collected	$ 2,153,284	$ -	$ -	$ -	$ -
11						
12	Cummulative Collected	$ 2,153,284	$ 2,153,284	$ 2,153,284	$ 2,153,284	$ 2,153,284
13						
14						
15	**Developer Advances Refunded (a)**					
16	Based on Revenues		3,415	10,076	16,737	23,397
17						
18						
19						
20						
21	Total Refunds	$ -	$ 3,415	$ 10,076	$ 16,737	$ 23,397
22						
23	Cummulative Refunds	$ -	$ 3,415	$ 13,491	$ 30,228	$ 53,625
24						
25	Cummulative Balance	$ 2,153,284	$ 2,149,869	$ 2,139,793	$ 2,123,057	$ 2,099,660
26						
27						
28	(a) Refund Rate per Year	10% based on revenues.				
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						

Ridgeline Estates Water Company
Schedule of Contributions-in-Aid of Construction
Projected Years

APPENDIX I
Schedule 4

Line No.		Year 1	Year 2	Year 3	Year 4	Year 5
5	**Contributions**					
6	Residential	-	-	-	-	-
7	Commercial	-	-	-	-	-
8	Irrigation	-	-	-	-	-
10	**Developer Contributions**					
11	Developer Contributions - On-site	$ -	$ -	$ -	$ -	$ -
12	Developer Contributions - Off-site	-				
14	Total Collected	$ -	$ -	$ -	$ -	$ -
16	Cummulative Collected	$ -	$ -	$ -	$ -	$ -
18	**Amortization**					
19	Composite Rate (1/2 Yr Conv.)	1.28%	2.56%	2.56%	2.56%	2.56%
21	Amortization	$ -	$ -	$ -	$ -	$ -
23	Cummulative Amortization	$ -	$ -	$ -	$ -	$ -
25	Cummulative Balance	$ -	$ -	$ -	$ -	$ -

Ridgeline Estates Water Company
Schedule of Service Line and Meter Installation Refunds
Projected Years

APPENDIX I
Schedule 5

Line No.			Year 1	Year 2	Year 3	Year 4	Year 5
5	**Service Line and Meter Installations**						
6	Residential		$ 17,680	$ 17,680	$ 17,680	$ 17,680	$ -
7	Commercial		-	-	-	-	-
8	School		-	-	-	-	-
10	Total Collected		$ 17,680	$ 17,680	$ 17,680	$ 17,680	$ -
12	Cummulative Collected		$ 17,680	$ 35,360	$ 53,040	$ 70,720	$ 70,720
14	**Service Line and Meter Installations Refunded (a)**						
15	Service Line & Meter Install. from	1		1,768	1,768	1,768	1,768
16	Service Line & Meter Install. from	2			1,768	1,768	1,768
17	Service Line & Meter Install. from	3				1,768	1,768
18	Service Line & Meter Install. from	4					-
19	Service Line & Meter Install. from	5					
20	Total Refunds		$ -	$ 1,768	$ 3,536	$ 5,304	$ 5,304
22	Cummulative Refunds		$ -	$ 1,768	$ 5,304	$ 10,608	$ 15,912
24	Cummulative Balance		$ 17,680	$ 33,592	$ 47,736	$ 60,112	$ 54,808

(a) Refund Rate per Year 10%

Ridgeline Estates Water Company
Projected Cash Flows
For the Years Ended

Line No.		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
3	**Cash from Operations**						
4	Beginning Cash Balance	$ -	$ 25,000	$ 34,361	$ 119,389	$ 257,004	$ 441,609
6	Income from Operations		(40,870)	(27,932)	33,083	88,502	116,246
7	Add Depreciation expense		50,232	100,463	100,463	100,463	100,463
9	**Total Cash From Operations**	$ -	$ 9,361	$ 72,531	$ 133,547	$ 188,966	$ 216,710
11	**Cash from Financing**						
13	Deposits (security) collected	$ -	$ -	$ -	$ -	$ -	$ -
14	Long-Term Debt	-	-	-	-	-	-
15	Common Equity	25,000	1,757,758	-	-	-	-
16	Advances in Aid of Const.	-	2,153,284	-	-	-	-
17	Contribution in Aid of Const.	-	-	-	-	-	-
18	Meter Deposits Collected	-	17,680	17,680	17,680	17,680	-
21	**Total Cash from Financing**	$ 25,000	$ 3,928,723	$ 17,680	$ 17,680	$ 17,680	$ -
25	**Uses of Cash:**						
28	Long-term debt Repayment						
29	Advances Refunded	$ -	$ -	$ 5,183	$ 13,612	$ 22,041	$ 28,701
30	Meter Deposit Refunded						
31	Deposit (Security) refunded						
32	Capital Improvements - Plant	-	3,928,723	-	-	-	-
34	**Total Cash Uses**	$ -	$ 3,928,723	$ 5,183	$ 13,612	$ 22,041	$ 28,701
36	**Ending Cash Balance**	$ 25,000	$ 34,361	$ 119,389	$ 257,004	$ 441,609	$ 629,618
39	Interest Income: Assuming Earning Equal to Inflation Factor on Average Cash Balance						
40	Average Cash Balance	$ 12,500	$ 29,681	$ 76,875	$ 188,196	$ 349,306	$ 535,613
41	Interest Earned	$ 375	$ 890	$ 2,306	$ 5,646	$ 10,479	$ 16,068

APPENDIX "J"

(Proposed rates and charges for water service to and within the proposed service area, as prepared by Thomas J. Bourassa, C.P.A.)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

Ridgeline Estates Water Company
WATER TARIFF SCHEDULE

APPENDIX J
Page 1
Prepared by: Bourassa

PROPOSED RATES

LINE NO.	METER SIZE	AWWA Factor	MONTHLY MINIMUM	GALLONS IN MINIMUM
1				
2				
3	MONTHLY MINIMUMS:			
4	5/8 x 3/4 And	1.00	$ 105.50	-
5	3/4	1.50	$ 158.25	-
6	1	2.50	$ 263.75	-
7	1 1/2	5.00	$ 527.50	-
8	2	8.00	$ 844.00	-
9	3	16.00	$ 1,688.00	-
10	4	25.00	$ 2,637.50	-
11	6	50.00	$ 5,275.00	-
12				
13	COMMODITY CHARGE PROPOSED RATES:			
14				
15	All Meter Sizes and Classes, except Standpipe			
16	Charge per 1,000 gallons for usage		All gallons	$ 5.00
17				
18				
19	Standpipe or bulk water per 1,000 gallons		All gallons	$ -
20				
21				
22				
23				

Ridgeline Estates Water Company
WATER TARIFF SCHEDULE
STATEMENT OF CHARGES

APPENDIX J
Page 2
Prepared by: Bourassa

LINE NO.		Proposed
1	A. Establishment of Service per Rule R14-2-403.D	$ 25.00
2	Establishment of Service, after hours	$ 40.00
3	per rule R14-2-403.D.2	
4	B. Re-establishment of Service per Rule 14-2-403.D	see (a)
5	C. Reconnection of service per Rule R14-2-403.D.1	$ 25.00
6	D. Charge for moving meter at customer request per	
7	Rule R14-2-405.B.5	@ Cost
8	E. After hours service charge, per hour, R14-2-403.D	$ 40.00
9	F. Minimum Deposit per Rule R-14-2-403.B	
10	H. Meter Reread per Rule R14-2-408	$ 15.00
11	I. Charge for NSF Check per Rule R14-2-409.F.1	$ 15.00
12	J. Late payment charge for delinquent bills	
13	as defined in Rule R14-2-409.C.1	1.50%
14	K. Deferred Payment Finance Charge, R14-2-409.G	1.50%
15	L. Service Line and Meter Installation per R14-12-405.B	

16		Service Line	Meter	Total
17	5/8 x 3/4 inch	$ 385	$ 135	$ 520.00
18	3/4 inch	$ 385	$ 215	$ 600.00
19	1 inch	$ 435	$ 255	$ 690.00
20	1 1/2 inch	$ 470	$ 465	$ 935.00
21	2 Inch Turbo	$ 630	$ 965	$ 1,595.00
22	2 Inch Compound	$ 630	$ 1,690	$ 2,320.00
23	3 inch Turbo	$ 805	$ 1,470	$ 2,275.00
24	3 Inch Compound	$ 845	$ 2,265	$ 3,110.00
25	4 Inch Turbo	$ 1,170	$ 2,350	$ 3,520.00
26	4 Inch Compound	$ 1,230	$ 3,245	$ 4,475.00
27	6 Inch Turbo	$ 1,730	$ 4,545	$ 6,275.00
28	6 Inch Compound	$ 1,770	$ 6,280	$ 8,050.00

29
30 M. Main Extension and additional facilities agreements,
31 per Rule R14-2-406.B @ COST (b)
32 N. All Revenue related taxes will be charged customers.
33
34 RULES AND REGULATIONS
35 * The Company has adopted the Rules and Regulation established by the Commission
36 as the basis for its operating procedures. AAC R14-204-01 Through ACC R14-2-411
37 will be controlling of Company procedures, unless specific Commission Orders
38 provide otherwise.
39 (a) Monthly minimum times months off the system
40 (b) Cost to include parts, labor, overhead, and all applicable taxes, including income tax.
41 (c) If meter is reading correct per rule.

APPENDIX "K"

(Schedules for Years 1 through 5 of the estimated annual number of customers and associated operating revenues and expenses for Ridgeline, as prepared by Thomas J. Bourassa, C.P.A.)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

Ridgeline Estates Water Company
Projected Statements of Income
For the 12 Months Ended

Line No.		Cost Per	Description	Minimum	Year 1	Year 2	Year 3	Year 4	Year 5
3	Metered Water Revenues(g)				$ 34,153	$ 100,759	$ 167,365	$ 233,971	$ 266,424
4	Unmetered Water Revenues								
5	Other Water Revenues								
6	**Total estimated Revenues**				$ 34,153	$ 100,759	$ 167,365	$ 233,971	$ 266,424
7	**Variable Expenses**								
8	Pumping Power (per 1,000 gallons)(b)	0.40	per 1,000 gals		942	2,912	4,999	7,209	8,486
9	Purchased Water				-	-	-	-	-
10	Repairs & Maint.(a)(b)	0.25	/month/customer		53	158	271	390	459
11	Gen. Insurance (a)(b)	0.80	/month/customer	$ 1,500	1,500	1,545	1,591	1,639	1,688
12	Water Treatment & Testing (d)(b)	0.10	/1,000 gallon	$ 1,000	1,000	1,030	1,250	1,802	2,122
13	Billing, Postage, Operations (a)(b)	16.00	/month/customer	$ 15,000	15,000	15,450	17,314	24,967	29,389
14					$ 18,495	$ 21,095	$ 25,425	$ 36,007	$ 42,144
15	**Other Expenses**								
16	Depreciation net of Amortization of CIAC (h)				50,232	100,463	100,463	100,463	100,463
17	Office (b)	$ 1,000			1,000	1,030	1,093	1,194	1,344
18	Legal & Accounting (b)	$ 2,500			2,500	2,575	2,732	2,985	3,360
19	Miscellenous Expenses (b) (e)	$ 1,200			1,200	1,236	1,311	1,433	1,613
20	Income Taxes				-	-	-	-	-
21	Property Taxes (f)	See Property Tax			1,972	3,183	5,564	9,032	11,733
22									
23	**Total Other Expense**				$ 56,903	$ 108,487	$ 111,163	$ 115,107	$ 118,512
24									
25	**Total Operating Expenses**				$ 75,398	$ 129,582	$ 136,588	$ 151,114	$ 160,657
26									
27	**Operating income (loss)**				$ (41,245)	$ (28,823)	$ 30,777	$ 82,857	$ 105,767
28	Less:								
29	Interest (Expense)Income on Work. Cap. (c)				375	890	2,306	5,646	10,479
30	Interest Expense Long-term Debt (c)				-	-	-	-	-
31	**Net Income**				$ (40,870)	$ (27,932)	$ 33,083	$ 88,502	$ 116,246
32									
33	(a) Per customer per month								
34	(b) Annual Inflation of:	3.00%							
35	(c) If Applicable								
36	(d) ADEQ based on per 1,000 gallons sold								
37	(e) Miscellaneous Expenses of $100 per month								
38	(f) Property Tax Calculation (Appendix U, page 5)								
39	(g) Revenues (see Appendix K, page 2)								
40	(h) Depreciation and amortization (see Appendix H, pages 1 to 1 and Appendix I, page 1.3)								
41									

Ridgeline Estates Water Company
Schedule of Projected Revenues
For the Years Ended

Line No.		Year 1	Year 2	Year 3	Year 4	Year 5
1						
2		1	2	3	4	5
3	Residential					
4	5/8 Inch	$ 34,153	$ 100,759	$ 167,365	$ 233,971	$ 266,424
5	3/4 Inch					
6	1 Inch					
7	2 Inch					
8	3 inch					
9						
10	Commercial					
11	5/8 Inch					
12	1 Inch	-	-	-	-	-
13	2 Inch	-	-	-	-	-
14	3 Inch					
15						
16						
17	Irrigation					
18	3/4 Inch	-	-	-	-	-
19	1 Inch	-	-	-	-	-
20	2 Inch					
21	3 Inch					
22	School	-	-	-	-	-
23	Construction Water	-	-	-	-	-
24						
25	Total	$ 34,153	$ 100,759	$ 167,365	$ 233,971	$ 266,424
26						
27						
28						
29						
30	See supporting schedules (Appendix U, pages 2.2, 2.3, 2.5 to 2.12)					
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						

Ridgeline Estates Water Company
Customer Counts
For Projected Years Ended

APPENDIX K
Page 3

Line No.		Year				
1						
2	**Year Ended**	**1**	**2**	**3**	**4**	**5**
3	Residential					
4	5/8 Inch	34	68	102	136	136
5	3/4 Inch					
6	1 Inch					
7	2 Inch					
8	3 inch					
9	Commercial					
10	5/8 Inch					
11	3/4 Inch					
12	1 Inch	-	-	-	-	-
13	2 Inch	-	-	-	-	-
14	3 inch					
15	Irrigation					
16	5/8 Inch					
17	3/4 Inch	-	-	-	-	-
18	1 Inch	-	-	-	-	-
19	2 Inch					
20						
21	Total	34	68	102	136	136
22						
23	1/2 Year Convention			Year		
24	**Year Ended**	**1**	**2**	**3**	**4**	**5**
25	Residential					
26	5/8 Inch	17.00	51.00	85.00	119.00	136.00
27	3/4 Inch					
28	1 Inch					
29	2 Inch					
30	3 inch					
31	Commercial					
32	5/8 Inch					
33	3/4 Inch					
34	1 Inch	-	-	-	-	-
35	2 Inch	-	-	-	-	-
36	3 inch					
37	Irrigation					
38	5/8 Inch					
39	3/4 Inch	-	-	-	-	-
40	1 Inch	-	-	-	-	-
41	2 Inch					
42	3 inch					
43						
44	Total	17.00	51.00	85.00	119.00	136.00

Ridgeline Estates Water Company
Gallons Sold (1,000's)
For Projected Years Ended

Line No.		Year				
1						
2	**Year Ended**	**1**	**2**	**3**	**4**	**5**
3	Residential					
4	5/8 Inch	2,356	7,069	11,781	16,493	18,850
5	3/4 Inch					
6	1 Inch					
7	2 Inch					
8	3 inch					
9	Commercial					
10	5/8 Inch					
11	3/4 Inch					
12	1 Inch	-	-	-	-	-
13	2 Inch	-	-	-	-	-
14	3 inch					
15	Irrigation					
16	5/8 Inch					
17	3/4 Inch	-	-	-	-	-
18	1 Inch	-	-	-	-	-
19	2 Inch					
20						
21						
22						
23						
24						
25	Total	2,356	7,069	11,781	16,493	18,850
26						

Ridgeline Estates Water Company
Schedule for the Computation of Projected
Property Taxes for the Years Ended

Line No.		Year 1	Year 2	Year 3	Year 4	Year 5
1						
2						
3	Revenue Component 1	$ 34,153	$ 34,153	$ 34,153	$ 100,759	$ 167,365
4	Revenue Component 2	34,153	34,153	100,759	167,365	233,971
5	Revenue Component 3	34,153	100,759	167,365	233,971	266,424
6						
7	Average 3 years of revenue	34,153	56,355	100,759	167,365	222,587
8						
9	Average 3 years of revenue times 2	$ 68,306	$ 112,710	$ 201,518	$ 334,730	$ 445,173
10	Add:					
11	Construction Work in Progress at 10%	0	0	0	0	0
12	Deduct:					
13	Book Value of Transportation Equipment	0	0	0	0	0
14						
15	Full Cash Value	$ 68,306	$ 112,710	$ 201,518	$ 334,730	$ 445,173
16						
17						
18	Times Assessment Ratio	23.00%	22.50%	22.00%	21.50%	21.00%
19						
20	Assessed Value	$ 15,710	$ 25,360	$ 44,334	$ 71,967	$ 93,486
21						
22	Property Tax Rate	12.55%	12.55%	12.55%	12.55%	12.55%
23						
24	**Computed Property Tax**	$ 1,972	$ 3,183	$ 5,564	$ 9,032	$ 11,733
25						
26						
27						
28						
29						
30						

Ridgeline Estates Water Company
Schedule of Projected Revenues
For the Years Ended

Line No.						Year 1	Year 2	Year 3	Year 4	Year 5
1										
2	**Projected Customers / Residential 5/8 Inch Meter**									
3										
4										
5						1	2	3	4	5
6	Estimated connections installed by year end									
7	(Cumulative)					34	68	102	136	136
8	Estimated connection installed during the year					34	34	34	34	-
9										
10	1/2 Year Convention for Revenue					17.00	51.00	85.00	119.00	136.00
11										
12	**Projected Revenue**									
13										
14	Annual gallonage delivered (in 1,000's)					2,356	7,069	11,781	16,493	18,850
15	Assuming average usage per month of:				11,550					
16	Daily Gallons					6,545	19,635	32,725	45,815	52,360
17	Residential:									
18	Monthly Mins.	$ 105.50		Minimum Charge		$ 21,522	$ 64,566	$ 107,610	$ 150,654	$ 172,176
19	Commodity Rev.	-		Gals. in minimum						
20		$ 5.00		Charge per/1,000		11,781	35,343	58,905	82,467	94,248
21	from	-	gals	up to	9,999,999,999 gals					
22		$ 5.00		Charge per/1,000						
23	from	9,999,999,999	gals	up to	9,999,999,999 gals					
24		$ 5.00		Charge per/1,000						
25				Over	9,999,999,999 gals					
26										
27	Establishment Fees at			$	25.00	$ 850	$ 850	$ 850	$ 850	$ -
28	Total Revenue					$ 34,153	$ 100,759	$ 167,365	$ 233,971	$ 266,424
29										
30										
31	AWWA factor used	1.00								
32										
33										
34										
35										
36										
37										
38										

APPENDIX "L"

(February 14, 2008 Analysis of Assured Water Supply, as issued by the Arizona Department of Water Resources)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

ARIZONA DEPARTMENT OF WATER RESOURCES
Office of Assured and Adequate Water Supply
2nd Floor, 3550 N. Central Ave., Phoenix, AZ 85012
Telephone (602) 771-8585
Fax (602) 771-8689

JANET NAPOLITANO
Governor

HERB GUENTHER
Director

ANALYSIS OF ASSURED WATER SUPPLY

February 14, 2008

File Number:	28-700397.0000
Development:	Ridgeline Estates
Location:	Township 19 South, Range 14 East, Sections 18, 19, 20, 29, 30 Pima County, Arizona Tucson AMA
Land Owner:	Pollux Properties, L.L.C., an Arizona limited liability company Lotocka, L.L.C., an Oklahoma limited liability company

The Arizona Department of Water Resources has evaluated the Analysis of Assured Water Supply application for Ridgeline Estates pursuant to A.A.C. R12-15-703. The proposed development includes 166 single-family residential lots and 35.25 non-residential acres containing roads. The proposed development will include no common areas. Conclusions of the review are indicated below based on the assured water supply criteria referenced in A.R.S. § 45-576 and A.A.C. R12-15-701 *et seq.*

- **Physical, Continuous, and Legal Availability of Water for 100 Years**
  On the basis of the hydrologic study submitted and the Department's review, the Department has determined that 78.28 acre-feet per year of groundwater will be physically and continuously available. The development is not located within any current service area. Applications for Certificates of Assured Water Supply that follow the Analysis of Assured Water Supply will need to provide a detailed plan of how water service will be established. This may include use of Type 1 or Type 2 water rights or recovery of long term storage credits to create a new or satellite service area, or extension of existing service area lines to include the proposed development. Individual Notices of Intent to Serve will be required for each application for a Certificate of Assured Water Supply.

- **Adequate Water Quality**
  This requirement will be evaluated according to the criteria in A.A.C. R12-15-719 at the time an application for a Certificate of Assured Water Supply is filed. Prior to preparing an application for a Certificate of Assured Water Supply for an individual subdivision plat, the Office of Assured Water Supply may be contacted for further guidance.

- **Consistency with Management Plan for the Tucson Active Management Area**
  The estimated annual water demand for the development is consistent with the Third Management Plan for the Tucson AMA. All plumbing fixtures will comply with the statewide Low Flow Plumbing Code.

- **Consistency with Management Goal of the Tucson Active Management Area**
  The Assured and Adequate Water Supply Rules (A.A.C. R12-15-722 through R12-15-727) allocate an allowance of groundwater to each new subdivision in an AMA to allow for the phasing in of renewable supplies. Extinguishing grandfathered groundwater rights may increase this groundwater allowance. Applicants may also demonstrate that groundwater use is consistent with the management goal by enrolling the subdivision as member land in the Central Arizona Groundwater Replenishment District (CAGRD).

  The application indicates that the proposed development will enroll the lands of the entire development, including the roads and other non-residential areas, in the CAGRD to meet this requirement. The membership documents must be executed and recorded before a Certificate of Assured Water Supply will be issued.

  Prior to preparing an application for a Certificate of Assured Water Supply for an individual subdivision plat, the Office of Assured Water Supply may be contacted for further guidance.

- **Financial Capability of the Owner to Construct the Necessary Distribution System**
  This requirement will be evaluated according to the criteria in A.A.C. R12-15-720 at the time an application for a Certificate of Assured Water Supply is filed. Prior to preparing an application for a Certificate of Assured Water Supply for an individual subdivision plat, the Office of Assured Water Supply may be contacted for further guidance.

The term of this Analysis of Assured Water Supply is ten years from the date of this letter and may be renewed upon request, subject to approval by the Department. See A.A.C. R12-15-703. Throughout the term of this determination, the projected demand of this development will be considered when reviewing other requests for assured water supply in the area.

Prior to obtaining plat approval by the local platting authority and approval of the public report by the Department of Real Estate, a Certificate of Assured Water Supply must be obtained for each subdivision plat. The findings of this Analysis of Assured Water Supply may be used to demonstrate that certain requirements for a Certificate have been met. This determination may be invalidated if the development plan or other conditions change prior to filing for a Certificate of Assured Water Supply.

Questions may be directed to the Office of Assured Water Supply at (602) 771-8585.

Sandra Fabritz-Whitney, Assistant Director
Water Management Division

cc: Kenneth Seasholes, Tucson Active Management Area

ARIZONA DEPARTMENT OF WATER RESOURCES

NOTICE OF RIGHT TO APPEAL AGENCY ACTION

I. Right to Request Hearing

You have the right to request a hearing on the agency action described in the enclosed letter. To request a hearing, you must file a notice of appeal with the Docket Supervisor, Arizona Department of Water Resources, 3550 North Central Avenue, Fourth Floor, Phoenix, Arizona 85012 within thirty (30) days from the date of your receipt of this letter. A Notice of Appeal form is enclosed. Pursuant to A.R.S. § 41-1092.03, the grounds for appeal by a party who will be adversely affected by the agency action and who exercised a right to comment on the action provided by law or rule is limited to the issues raised in the party's comments.

If you file a timely notice of appeal, a hearing will be scheduled and you will be given written notice of the time and place for the hearing at least thirty (30) days before the hearing date. The date scheduled for the hearing may be advanced or delayed on the agreement of the Department and the parties to the action or on a showing of good cause. **If no party files a notice of appeal within thirty days from the date of receipt of the enclosed letter, the agency action described in the letter will become final and will not be subject to judicial review.**

II. Right to Request Informal Settlement Conference

If you file a timely notice of appeal as described above, you will have the right to request an informal settlement conference. A request for an informal settlement conference must be in writing and must be filed with the Docket Supervisor, Arizona Department of Water Resources, 3550 North Central Avenue, Fourth Floor, Phoenix, Arizona 85012 not later than twenty (20) days before the hearing date. The enclosed Notice of Appeal form includes a place for you to request an informal settlement conference. If you file a timely request for an informal settlement conference, the Department will give you written notice of the time and place for the settlement conference. An informal settlement conference must be held within fifteen (15) days after the request is filed.

If an informal settlement conference is held, a person with the authority to act on behalf of the Department will represent the Department at the conference. The parties participating in the settlement conference will waive their right to object to the participation of the Department's representative in the final administrative decision. Statements, either written or oral, made by the appellant at the conference, including a written document, created or expressed solely for the purpose of settlement negotiations, are inadmissible in any subsequent administrative hearing.

III. Agency Contact Person

If you have any questions regarding the appeals process, or the process for requesting an informal settlement conference, please contact Kathleen Donoghue, Docket Supervisor, at (602) 771-8472.

APPENDIX "M"

(Page 11 and 12 of an August 10, 2007 Hydrogeologic Report prepared for Pollux Properties, L.L.C. by Chuck M. Dickens, Consulting Hydrogeologist)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

CHUCK M. DICKENS
CONSULTING HYDROGEOLOGIST

LICENSED GEOLOGIST
ARIZONA 14510
CALIFORNIA 3647

12330 E. SNYDER ROAD
TUCSON, ARIZONA 85749
PHONE / FAX: 520-749-4124
PHONE: 520-731-6111

HYDROGEOLOGIC REPORT

In Support of Application for
Analysis of Assured Water Supply

RIDGELINE ESTATES SUBDIVISION

PIMA COUNTY, ARIZONA

Prepared for

POLLUX PROPERTIES , Inc.
Mr. Patrick Nikitenko
Project Manager
Tucson, Arizona

August 10, 2007

WATER RESOURCE INVESTIGATIONS • WATER SUPPLY DEVELOPMENT • ENVIRONMENTAL HYDROLOGY

contribution from the pumped well was about 7.25 feet and drawdown contribution from the distance image well was limited to 0.76 feet.

Assuming a static water level depth of 412 feet and a computed drawdown of 8 feet, the projected maximum water level depth would be limited to about 420 feet. Based on the fact that minimal groundwater pumpage currently - occurs within a five mile radius of the project supply well, it is assumed that no declining trend in groundwater levels should be considered. This projected depth is well above the ADWR depth limit of 1,000 feet.

CHEMICAL CHARACTER OF GROUNDWATER

Groundwater samples were collected from both project supply wells and submitted to Turner Laboratories in Tucson for analysis of the ADEQ *new source approval* list of constituents. Groundwater samples were collected from well no. 1 on May 2, 2007 and well no. 2 on May 10, 2007. Samples were collected from both wells after pumping each well for about 24 hours at a rate of 150 gpm. A copy of the new source approval lab reports are presented in Appendix C.

Well No. 1

Laboratory Analysis of samples collected from well no. 1 indicate that the groundwater is good in quality and will meet federal and state drinking water standards. Groundwater pumped from well no. is a calcium – bicarbonate type water, with calcium being the predominant cation and bicarbonate the predominant anion. The total dissolved solids content of the groundwater pumped from well no. 1 was reported at 250 milligrams per liter (mg/l).

No arsenic or nitrate (as N) were detected in the groundwater pumped from well no. 1. Fluoride was reported at a low concentration of 0.17 mg/l. The drinking water limit for fluoride is 4.0 mg/l.

No synthetic organic compounds were detected. No elevated concentrations of radiochemical compounds were reported.

The temperature of the groundwater pumped from well no. 1 was measured at 78 degrees F, and the field pH measured at 7.2.

Well No. 2

Laboratory analyses of samples collected from well no. 2 indicate that he groundwater pumped from well no. 2 is good in quality and will meet federal and state drinking water standards. Groundwater pumped from well no. 2 is a calcium – bicarbonate type water. The total dissolved solids content of the groundwater pumped from well no. 2 was reported at 270 mg/l.

No arsenic or nitrate were detected. Fluoride was detected at a low concentration of 0.25 mg/l.

No synthetic organic compounds were detected other than a very low concentration of toluene at 0.0014 mg/l. The drinking water limit (maximum contaminant level – MCL) for toluene is 1.0 mg/l. The occurrence of low level concentrations of toluene in the groundwater is undoubtedly a residual of the well drilling and test pumping process.

No elevated concentrations of radiochemical compounds were reported.

The temperature of the groundwater pumped from well no. 2 stabilized at about 80 degrees F. The field pH stabilized at about 7.0.

APPENDIX "N"

(Curtailment Plan Tariff)

Ridgeline Water Company, L.L.C.
Docket No. W-_____

TARIFF SCHEDULE

Utility: Ridgeline Water Company
Docket No.: W-
Phone No.: (520) 545-0108

Tariff Sheet No.: Page 1 of 4
Decision No.: _____
Effective: _____

CURTAILMENT PLAN FOR RIDGELINE WATER COMPANY, L.L.C.

ADEQ Public Water System No: _____

Ridgeline Water Company, L.L.C. ("Company"), is authorized to curtail water service to all customers within its certificated area under the terms and conditions listed in this tariff.

This curtailment plan shall become part of the Arizona Department of Environmental Quality Emergency Operations Plan for the Company.

The Company shall notify its customers of this new tariff as part of its next regularly scheduled billing after the effective date of the tariff no later than sixty (60) days after the effective date of the tariff.

The Company shall provide a copy of the curtailment tariff to any customers, upon request.

Stage 1 Exists When:

Company is able to maintain water storage in the system at 100 percent of capacity and there are no known problems with its well production or water storage in the system.

Restrictions: Under Stage 1, Company is deemed to be operating normally and no curtailment is necessary.

Notice Requirements: Under Stage 1, no notice is necessary.

Stage 2 Exists When:

Unless the context otherwise requires, the definitions set forth in R14-2-401 of the Arizona Corporation Commission's rules and regulations governing water utilities shall apply in interpreting this tariff schedule.

a. Company's water storage or well production has been less than 80 percent of capacity for at least 48 consecutive hours, and

b. Company has identified issues such as a steadily declining water table, increased draw down threatening pump operations, or poor water production, creating a reasonable belief the Company will be unable to meet anticipated water demand on a sustained basis.

Restrictions: Under Stage 2, the Company may request the customers to voluntarily employ water conservation measures to reduce water consumption by approximately 50 percent. Outside watering should be limited to essential water, dividing outside water on

some uniform basis (such as even and odd days) and eliminating outside watering on weekends and holidays.

Notice Requirements: Under Stage 2, the Company is required to notify customers by delivering written notice door to door at each service address, or by United States first class mail to the billing address or, at the Company's option, both. Such notice shall notify the customers of the general nature of the problem and the need to conserve water.

Stage 3 Exists When:

a. Company's total water storage or well production has been less than 50 percent of capacity for at least 24 consecutive hours, and

b. Company has identified issues such as a steadily declining water table, increased draw down threatening pump operations, or poor water production, creating a reasonable belief the Company will be unable to meet anticipated water demand on a sustained basis.

Restrictions: Under Stage 3, the Company shall request the customers to voluntarily employ water conservation measures to reduce water consumption by approximately 50 percent. All outside watering should be eliminated, except livestock, and indoor water conservation techniques should be employed whenever possible. Standpipe service shall be suspended.

Notice Requirements:

1. Company is required to notify customers by delivering written notice to each service address, or by United Dates first class mail to the billing address or, at the Company's option, both. Such notice shall notify the customers of the general nature of the problem and the need to conserve water.

2. Beginning with Stage 3, Company shall post at least 4 signs showing the curtailment stage. Signs shall be posted at noticeable locations, like at the well sites and at the entrance to major subdivisions served by the Company.

3. Company shall notify the Customer Services Section of the Utilities Division of the Corporation Commission at least 12 hours prior to entering Stage 3.

Once Stage 3 has been reached, the Company must begin to augment the supply of water by either hauling or through an emergency interconnect with an approved water supply in an attempt to maintain the curtailment at a level no higher than Stage 3 until a permanent solution has been implemented.

Stage 4 Exists When:

a. Company's total water storage or well production has been less than 25 percent of capacity for at least 12 consecutive hours, and

b. Company has identified issues such as a steadily declining water table, increased draw down threatening pump operations, or poor water production, creating a reasonable belief the Company will be unable to meet anticipated water demand on a sustained basis.

Restrictions: Under Stage 4, Company shall inform the customers of a **mandatory** restriction to employ water conservation measures to reduce water consumption. Failure to comply will result in customer disconnection. The following uses of water shall be prohibited:

- Irrigation of outdoor lawns, trees, shrubs, or any plant life is prohibited
- Washing of any vehicle is prohibited
- The use of water for dust control or any outdoor cleaning uses is prohibited
- The use of drip or misting systems of any kind is prohibited
- The filling of any swimming pool, spas, fountains or ornamental pools is prohibited
- The use of construction water is prohibited
- Restaurant patrons shall be served water only upon request
- Any other water intensive activity is prohibited
- The addition of new service lines and meter installations is prohibited

Notice Requirements:

1. Company is required to notify customers by delivering written notice to each service address, or by United Dates first class mail to the billing address or, at the Company's option, both. Such notice shall notify the customers of the general nature of the problem and the need to conserve water.

2. Company shall post at least 4 signs showing the curtailment stage. Signs shall be posted at noticeable locations, like at the well sites and at the entrance to major subdivisions served by the Company.

3. Company shall notify the Customer Services Section of the Utilities Division of the Corporation Commission at least 12 hours prior to entering Stage 4.

Customers who fail to comply with the above restrictions will be given a written notice to end all outdoor use. Failure to comply within two (2) working days of receipt of the notice will result in temporary loss of service until an agreement can be made to end unauthorized use of outdoor

water. To restore service, the customer shall be required to pay all authorized reconnection fees. If a customer believes he/she has been disconnected in error, the customer may contact the Commission's Consumer Services Section at 1-800-222-7000 to initiate an investigation.

Once Stage 4 has been reached, the Company must augment the supply of water by hauling or through an emergency interconnect from an approved supply or must otherwise provide emergency drinking water for its customers until a permanent solution has been implemented.