

SERVICE PLAN
FOR
GREATROCK NORTH
WATER AND SANITATION
DISTRICT
(ADAMS COUNTY, COLORADO)

Dated: January 1998

Prepared by:

McGEADY SISNEROS, P.C.
1675 BROADWAY, SUITE 2100
DENVER, COLORADO 80202
(303) 592-4380

KIRKPATRICK PETTIS
1700 LINCOLN ST., SUITE 1300
DENVER, COLORADO 80203
(303) 764-5737

JR ENGINEERING, LTD.
6020 GREENWOOD PLAZA BLVD.
ENGLEWOOD, COLORADO 80111
(303) 740-9393

TABLE OF CONTENTS

	Page
INTRODUCTION	1
PURPOSE OF THE DISTRICT	2
PROPOSED DISTRICT BOUNDARIES/MAPS	3
PROPOSED LAND USE/POPULATION PROJECTIONS	4
DESCRIPTION OF PROPOSED SERVICES	4
A. Water	4
B. Sewer.	6
C. Other Powers.	6
1. Plan Amendments.	6
2. Phasing, Deferral.	6
3. Additional Services.	7
D. Standards of Construction/Statement of Compatibility.	7
E. Facilities to be Constructed and/or Acquired.	9
ASSESSED VALUATION	9
ESTIMATED COSTS OF FACILITIES	9
OPERATION AND MAINTENANCE/ESTIMATED COSTS	10
FINANCIAL PLAN/PROPOSED INDEBTEDNESS	10
A. Types of Bonds	11
1. General Obligation Bonds.	11
a. Mill Levy	12
2. Revenue Bonds	13
3. Other Debt	14
B. General.	14
C. Projections of Assessed Valuation	15
D. Operations	15
CONCLUSION	16

LIST OF EXHIBITS

EXHIBIT A	Legal Description of Property
EXHIBIT B-1	District Boundary Map
EXHIBIT B-2	District Vicinity Map
EXHIBIT B-3	Potential Future Service Area
EXHIBIT C	Description of Facilities and Costs
EXHIBIT D	Financial Plan
EXHIBIT E	Operations Plan
EXHIBIT F	Greatrock North Subdivision Water Supply Report
EXHIBIT G	List of Interested Parties

SERVICE PLAN FOR GREATROCK NORTH WATER AND SANITATION DISTRICT

INTRODUCTION

Pursuant to the requirements of the Special District Control Act, Section 32-1-201, et seq., Colorado Revised Statutes, this Service Plan consists of a financial analysis and an engineering plan showing how the proposed facilities and services of the proposed Greatrock North Water and Sanitation District ("Greatrock" or "District") will be provided and financed. The following items are included in this Service Plan:

1. A description of the proposed services;
2. A financial plan showing how the proposed services are to be financed, including the proposed operating revenue derived from property taxes for the first budget year of the district;
3. A preliminary engineering or architectural survey showing how the proposed services are to be provided;
4. A map of the proposed District boundaries and an estimate of the population and valuation for assessment of the proposed District;

5. A general description of the facilities to be constructed and the standards of construction, including a statement of how the facility and service standards of the proposed District are compatible with the facility and service standards of Adams County and of any municipalities and special districts which are interested parties pursuant to Section 32-1-204(l), Colorado Revised Statutes;

6. A general description of the estimated cost of acquiring land, engineering services, legal services, administrative services, initial proposed indebtedness and estimated proposed maximum interest rates and discounts, and other major expenses related to the organization and initial operation of the proposed District; and

7. A description of any arrangement or proposed agreement with any political subdivision for the performance of any services between the proposed District and such other political subdivision, and if applicable, a form of the agreement is attached hereto.

PURPOSE OF THE DISTRICT

Greatrock will have one primary function: to provide water service to the Greatrock North development (the "Development"), to additional properties which include within the District, and to other properties in unincorporated Adams County which contract for service . The District will be created pursuant to Section 32-1-101, *et seq.*, C.R.S. Due to the requirements of Adams County for centralized water systems, it is contemplated that the organization of a district which can serve as a water provider to the Development will be in the best interests of the Development and the County.

Greatrock will also have the authority to provide stormwater drainage and detention facilities throughout the Development.

PROPOSED DISTRICT BOUNDARIES/MAPS

The area to be served by the proposed District is located in Adams County (the "County"), generally north of 160th Avenue and west of Hayesmound Road. The total area to be initially included in the District is approximately 320 acres (the "Property"). A legal description of the Property is attached hereto as Exhibit A. A map of the boundaries of the District is attached as Exhibit B-1 and a vicinity map is attached as Exhibit B-2. Areas which may be included within the District boundaries and/or served by Greatrock are delineated on Exhibit B-3 ("Potential Future Service Area").

It is anticipated that the District's boundaries will change from time to time as it undergoes inclusions and exclusions pursuant to parts 4 and 5 of Article 1, Title 32, C.R.S. In the event the District proposes to expand its boundaries, it shall provide forty-five (45) days prior written notice of such expansion to the Board of County Commissioners. In the event the County provides no written response to the forty-five (45) day notice, the District shall proceed with the expansion. In the event the County objects in writing within the forty-five (45) day period, the District shall proceed only with the written consent of the County. The form of written consent shall be determined by the Board of County Commissioners. In the event property owners within the Greatrock subdivision (that subdivision previously developed with individual well systems) or any other properties within the Potential Future Service Area petition the Board of Directors of the District for inclusion of the Greatrock subdivision property into the District, the Board shall consider the petition pursuant to

Section 32-1-401, C.R.S., and shall accept the petition if the Board determines that such inclusion is in the best interests of the District, its residents and taxpayers.

PROPOSED LAND USE/POPULATION PROJECTIONS

At present, the Property within the proposed District and the Development is zoned A1 by the County which allows for rural residential lots of 2.5 to 5 acres depending on availability of water. The Property and the Development currently contain 122 platted lots. In anticipation of the organization of the District, the Developer has begun construction of the necessary water facilities to serve the Property. Water facilities to serve Phase I and a portion of Phase II, as identified on the boundary map (Exhibit B-1), have been completed. Neither the County nor any other special district have any plans to provide such services within a reasonable time and on a comparable basis. See Exhibit G attached hereto which lists other special districts and interested parties as defined by Section 32-1-204(1), C.R.S. The Property within the District and the Development is being developed for residential uses. At an estimated three persons per residence, this would result in a peak daytime population of 366 persons within the Development, based on existing zoning. In order to facilitate the development in Greatrock as planned, organized provision of water facilities and services proposed to be provided by the District will be necessary.

DESCRIPTION OF PROPOSED SERVICES

A. Water. The proposed District shall have the power to provide for the design, acquisition, construction, completion, installation, operation and maintenance of a complete potable

and nonpotable water supply, purification, storage, transmission and distribution system, which may include, but shall not be limited to, wells, water pumps, purification plants, pump stations, transmission lines, distribution mains and laterals, fire hydrants, irrigation facilities, storage facilities, land and easements, and all necessary, incidental, and appurtenant facilities, together with extensions of and improvements to said system within and without the boundaries of the proposed District. The water system currently described in this Service Plan will benefit the Development and will have sufficient capacity to serve the entire Development. The Greatrock North Subdivision Water Supply Report, dated July 31, 1996, and prepared by JR Engineering, Ltd., 6110 Greenwood Plaza Boulevard, Englewood, CO 80111 (and attached hereto as Exhibit F), projects the total water demand for the Development at 65.9 acre feet annually. The quantities of water within the Lower Arapahoe and Laramie-Fox Hills aquifers adjudicated in Case No. 94CW142 provides for 68.2 acre feet annually from the Laramie-Fox Hills aquifer and 54.4 acre feet annually from the Lower Arapahoe aquifer. The report was based on a computer program which incorporates Senate Bill 5 criteria to determine the quantity of water available to the Development. It is contemplated that the owner of the Development will convey all water rights underlying such property to the District. The District shall own, operate and maintain the water systems.

Exhibit C lists each type of improvement currently planned to be provided, the phasing of construction of such facilities, and the costs in current dollars ("Water Improvements"). An explanation of the methods, basis, and/or assumptions used to prepare the above estimates is also included in Exhibit C. The Water Improvements as described in Exhibit C are based upon engineering plans prepared on behalf of the Developer; however, the exact design, subphasing of construction and

location of the Improvements are subject to modification at the time of construction and such decisions shall not be considered to be a material modification of the Service Plan.

B. Sewer. The proposed District shall have the power to provide for the design, acquisition, construction, completion, installation, operation and maintenance of storm sewer, flood and surface drainage facilities and systems, including detention/retention ponds and associated irrigation facilities, and all necessary, incidental and appurtenant facilities, land and easements, together with extensions of and improvements to said system within and without the boundaries of the proposed District ("Drainage Improvements"). At this time, no Drainage Improvements are planned for construction or acquisition by the District.

C. Other Powers. In addition to the enumerated powers, the Board of Directors of the District shall also have the following authority:

1. Plan Amendments. To amend the Service Plan as needed, with the approval of Adams County, subject to the appropriate statutory procedures.

2. Phasing, Deferral. Without amending this Service Plan, to defer, forego, reschedule, or restructure the financing and construction of certain improvements and facilities, to better accommodate the pace of growth, resource availability, and potential inclusions of property within the District. The County will be notified if any of these actions take place.

3. Additional Services. Except as specifically provided herein, to provide such additional services and exercise such powers as are expressly or impliedly granted by Colorado law.

D. Standards of Construction/Statement of Compatibility.

The Water Improvements are and will continue to be designed, constructed and maintained in accordance with the standards of the Colorado Department of Health, Adams County, and any other jurisdiction, as appropriate.

If the District constructs any Drainage Improvements, such Drainage Improvements will be designed, constructed and maintained in accordance with the standards of the County and any other applicable local, state or federal rules and regulations.

If necessary repairs and replacements to the Water and/or Drainage Improvements require the District to enter upon any Rights of Way of Adams County roadways, the District, as required by the Colorado Revised Statutes, shall notify the Adams County Department of Public Works, Construction Management Section, within twenty-four (24) hours of such entry, of the size and nature of the repair(s) made within the Rights of Way. The District shall obtain a Right of Way Construction Permit for the above repair(s), which Permit must be obtained and signed by a legal representative of the District. The Adams County Department of Public Works, Construction Management Section and the District shall be responsible for keeping and maintaining records of all Right of Way Construction Permits issued to and on behalf of the District for all emergency repairs

made within the Rights of Way of Adams County. If the Right of Way Construction Permit is obtained by a legal representative of the District, there will be no monetary fee charged for the Right of Way Construction Permit.

If needed and necessary improvements to the existing Water and Drainage Improvements require the District to enter upon Rights of Way of Adams County roadways, the District shall submit construction plans as prepared by a Licensed Professional Engineer to the Adams County Department of Public Works for review and approval. No planned improvements which require entry upon Rights of Way of Adams County shall proceed until the approval of the Adams County Department of Public Works has been granted, which approval shall not be unreasonably withheld. Upon approval, the District or its designated representative shall obtain a Right of Way Construction Permit. The Adams County Department of Public Works, Construction Management Section and the District shall be responsible for keeping and maintaining records of all Right of Way Construction Permits issued to and on behalf of the District. If the Right of Way Construction Permit is obtained by a legal representative or agent of the District, no monetary fee shall be charged for the Right of Way Construction Permit.

Based on an analysis of jurisdictions which are interested parties in the Service Plan proceedings as defined in the Colorado Revised Statutes, the District's Engineers have determined that the standards by which the Water Improvements are to be constructed are compatible with the facilities or standards of such other jurisdictions.

E. Facilities to be Constructed and/or Acquired.

The District currently proposes to provide and/or acquire the Water Improvements. A general description and preliminary engineering survey, as appropriate, of the Water Improvements are described in Exhibit C.

The District currently has no plans to construct or acquire any Drainage Improvements.

ASSESSED VALUATION

The property within the District has an assessed valuation as of 1997 of approximately \$51,191.00. The projected build-out for the District is set forth in the Financial Plan in Exhibit D. The projected assessed valuation of the property to be included within the District, based upon existing zoning is set forth in the Financial Plan. At build-out, the assessed valuation is expected to be Two Million Eight Hundred Fifty Two Thousand Two Hundred Seventy Four Dollars (\$2,852,274).

ESTIMATED COSTS OF FACILITIES

The estimated and actual costs of the Water Improvements proposed to be constructed, installed and/or acquired by the proposed District are set forth in Exhibit C.

OPERATION AND MAINTENANCE/ESTIMATED COSTS

The Water Improvements completed by the District shall be owned, operated and/or maintained by the proposed District, pursuant to approvals being obtained from the appropriate jurisdiction(s). Estimated costs for operation and maintenance functions are shown on the Operations Plan, attached hereto as Exhibit E. The District may impose a system of fees, rates, tolls, penalties or charges in connection with its provision of services. The estimated revenues from such fees, rates, tolls, penalties, or charges are reflected in the Operations Plan and demonstrates that the proposed District has the ability to fund the operations and maintenance costs. The earliest the District will be organized will be May 1998, therefore, the Financial Plan assumes no operating expenses will be incurred or bonds issues until June 1998. The Operations Plan assumes the District will incur approximately Eighty Thousand Dollars (\$80,000) per year in operations and maintenance expenses.

FINANCIAL PLAN/PROPOSED INDEBTEDNESS

The Financial Plan shows how acquisition and/or construction of the Water Improvements and the provision of water services are to be financed, including the estimated costs of engineering services, legal services, administrative services, proposed indebtedness and estimated proposed maximum interest rates and discounts, and other major expenses related to the organization and operation of the proposed District. It demonstrates the issuance of the debt and the anticipated repayment based on the projected development in the District's boundaries. The Financial Plan also demonstrates that, at various projected levels of development, the proposed District has the ability to

finance the Water Improvements, and will be capable of discharging the proposed indebtedness on a reasonable basis.

A. Types of Bonds. The provision of facilities by the proposed District will be primarily financed by the issuance of general obligation bonds, secured by the ad valorem taxing authority of the proposed District with limitations as discussed below. The District may also determine that it is in the best interest of its inhabitants and taxpayers to issue revenue bonds financed by revenues from water services provided by the District.

1. General Obligation Bonds.

Pursuant to Section 32-1-1101, C.R.S., general obligation bonds would mature not more than twenty years from the date of issuance, with the first maturity being not later than three years from the date of their issuance. The proposed maximum voted interest rate is estimated at eighteen percent (18%) and the maximum underwriting discount at five percent (5%). The exact interest rates and discounts will be determined at the time the bonds are sold by the proposed District, and will reflect market conditions at the time of sale.

The Financial Plan demonstrates the issuance of limited tax general obligation bonds and the anticipated repayment based on the projected development in the District boundaries. It is anticipated that the first bond issue will occur in 1998. The construction costs for a portion of the Water Improvements are currently being advanced by the developer(s) within the proposed District in anticipation of the organization of the District. Subject to subsequent acquisition by the proposed

District of the completed improvements, the developer(s) shall be reimbursed for such advanced construction costs.

It is proposed that a total maximum amount of One Million One Hundred Thousand Dollars (\$1,100,000) of bonds that are secured by ad valorem property taxes for various purposes be submitted to the electors of the proposed District for their approval. The amount to be voted exceeds the amount of bonds anticipated to be sold, as shown in the Financial Plan, to allow for unforeseen contingencies and increases in construction costs due to inflation, and to cover all issuance costs, including capitalized interest, reserve funds, discounts, legal fees and other incidental costs of issuance.

a. Mill Levy. The proposed District will have a mill levy assessed on all taxable property in the proposed District as a primary source of revenue for repayment of debt service and for operations and maintenance. Although the mill levy may vary depending upon the elected board's decision to fund the projects contemplated in this Service Plan, it is estimated that a mill levy of thirty-five (35) mills will produce revenue sufficient to support the debt retirement throughout the bond repayment period and administrative expenses, together with other revenues. In addition, the proposed District may capitalize interest to permit payment of interest during the time lapse between development of taxable properties and the collection of tax levies therefrom. Interest income through the reinvestment of construction funds, capitalized interest and annual tax receipts will provide additional funds. These revenue sources should be sufficient to retire the proposed indebtedness if growth occurs as projected; otherwise, increases in the mill levy and/or the imposition of rates, tolls, fees and charges may be necessary.

For purposes of this Section "Debt to Assessed Valuation" shall mean the ratio of (i) the District's total outstanding unlimited general obligation debt, including the bonds proposed to be issued, to (ii) the District's assessed valuation and "Mill Levy Cap" shall mean that the mill levy pledged for repayment of the bonds will not exceed 50 mills (adjusted to take into account legislative or constitutionally imposed adjustments in assessed values or the method of their calculation). In the event that the Debt to Assessed Valuation is 50% or greater, general obligation bonds may only be issued if the District's obligation to impose a mill levy sufficient to pay the debt is subject to the Mill Levy Cap. In the event that the Debt to Assessed Valuation is 50% or less, bonds may be issued without limitation as to the District's obligation to impose a mill levy sufficient to pay the debt.

2. Revenue Bonds.

The primary source of revenues to the District will be payments made to it by the inhabitants within the Development. If projections indicate that the payments received from the inhabitants will be sufficient to pay for the operation and maintenance of the facilities and to retire any revenue bonds issued by the District, the District may determine to issue revenue bonds. In the event the bonds are sold as revenue bonds (without a general obligation pledge of the District) such bonds shall be issued in the manner provided by Section 32-1-1101 (1) (d), C.R.S. and shall never constitute debt or indebtedness of the District within the meaning of any provision or limitation of the laws of Colorado or the state constitution and shall not constitute nor give rise to a pecuniary liability of the District or charge against its general credit or taxing powers. The exact interest rates, discounts and their form will be determined at the time the bonds are sold by the District, and will reflect market conditions at the time of sale.

3. Other Debt.

The proposed District may also issue notes, certificates, debentures or other evidences of indebtedness or long-term contracts, subject to the limitations set forth herein.

B. General.

In addition to revenue from taxable property within the proposed District, the District may impose and pledge tap fees as an additional sources of payment for the bonds. Upon advice from its financial consultants, the District may use credit enhancements in connection with the issuance of the bonds.

The Financial Plan reflects the total amount of bonds to be sold and fees to be imposed to finance the completion, construction, acquisition and/or installation of the proposed facilities, including all costs and expenses related to the anticipated bond issuances. The amount of bonds sold will be based upon the final engineering estimates and/or actual construction costs. Organizational costs, including legal fees, and capitalized engineering costs, are to be paid from the proceeds of the each bond issue. The interest rates as set forth in the Financial Plan are based upon the advice of Kirkpatrick Pettis.

The Financial Plan projects the anticipated flow of funds and is based upon estimates and actual costs of construction and project needs for bond proceeds to finance the proposed District's

improvements. The District's engineer has evaluated the timing and costs of the proposed District's improvements which are necessary to support the proposed absorptions of development as projected in the Financial Plan and has concurred with the assumptions. The Financial Plan sets forth the most reasonable estimate of growth within the proposed District and allows the Board of Directors a measure of flexibility such that the proposed District need not incur debt in excess of what it needs to meet a growing population's demands for facilities and services.

C. Projections of Assessed Valuation. For purposes of developing the Financial Plan set forth herein, it was assumed that residential units within the proposed District would be developed and assessed at various percentages depending upon the year of construction. It is also assumed that the assessed valuation will be realized one year after construction and that tax collections will be realized two years after initial construction.

D. Operations. Annual administrative, operational and maintenance expenses are estimated at One Hundred Thousand Dollars (\$100,000) per year. Administrative and operations and maintenance expenses may be paid from any available revenue sources of the District, including a mill levy on taxable property within the District, revenues from water services provided, advances from the developer(s) within the District, or other additional revenue sources as permitted by law. The Financial Plan anticipates a levy of 5 mills for administrative expenses. The Operations Plan anticipates water charges sufficient to fund operations and maintenance expenses.

The mill levy cap proposed herein for repayment of the bonds does not apply to the District's ability to increase its mill levy as necessary for provision of administrative and operations and

maintenance services to its taxpayers and service users. However, there are statutory and constitutional limits on the District's ability to increase its mill levy for provision of administrative and operations and maintenance services without an election. The maintenance of the water facilities will need to be sustained by the property owners within the boundaries of the District.

The County shall not be held liable for any of the District's obligations as set forth in this Service Plan.

CONCLUSION

It is submitted that this Service Plan for the proposed Greatrock North Water and Sanitation District establishes that:

(a) There is sufficient existing and projected need for organized service in the area to be serviced by the proposed District;

(b) The existing service in the area to be served by the proposed District is inadequate for present and projected needs;

(c) The proposed District is capable of providing economical and sufficient service to the area within the Development;

(d) The area included in the Development does have, and will have, the financial ability to discharge the proposed bonds on a reasonable basis;

(e) Adequate service is not, and will not be, available to the area through the County or other existing municipal or quasi-municipal corporations, including existing special districts, within a reasonable time and on a comparable basis;

(f) The facility and service standards of the proposed District are compatible with the facility and service standards of the County within which the proposed special district is to be located and each municipality which is an interested party under Section 32-1-204(l), Colorado Revised Statutes;

(g) The proposal is in substantial compliance with a master plan adopted pursuant to Section 30-28-106, C.R.S.; and

(h) The proposal is in compliance with any duly adopted County, regional, or state long-range water quality management plan for the area; and

(i) The creation of the proposed District is in the best interests of the area proposed to be served.

EXHIBIT A

Legal Description of the Property

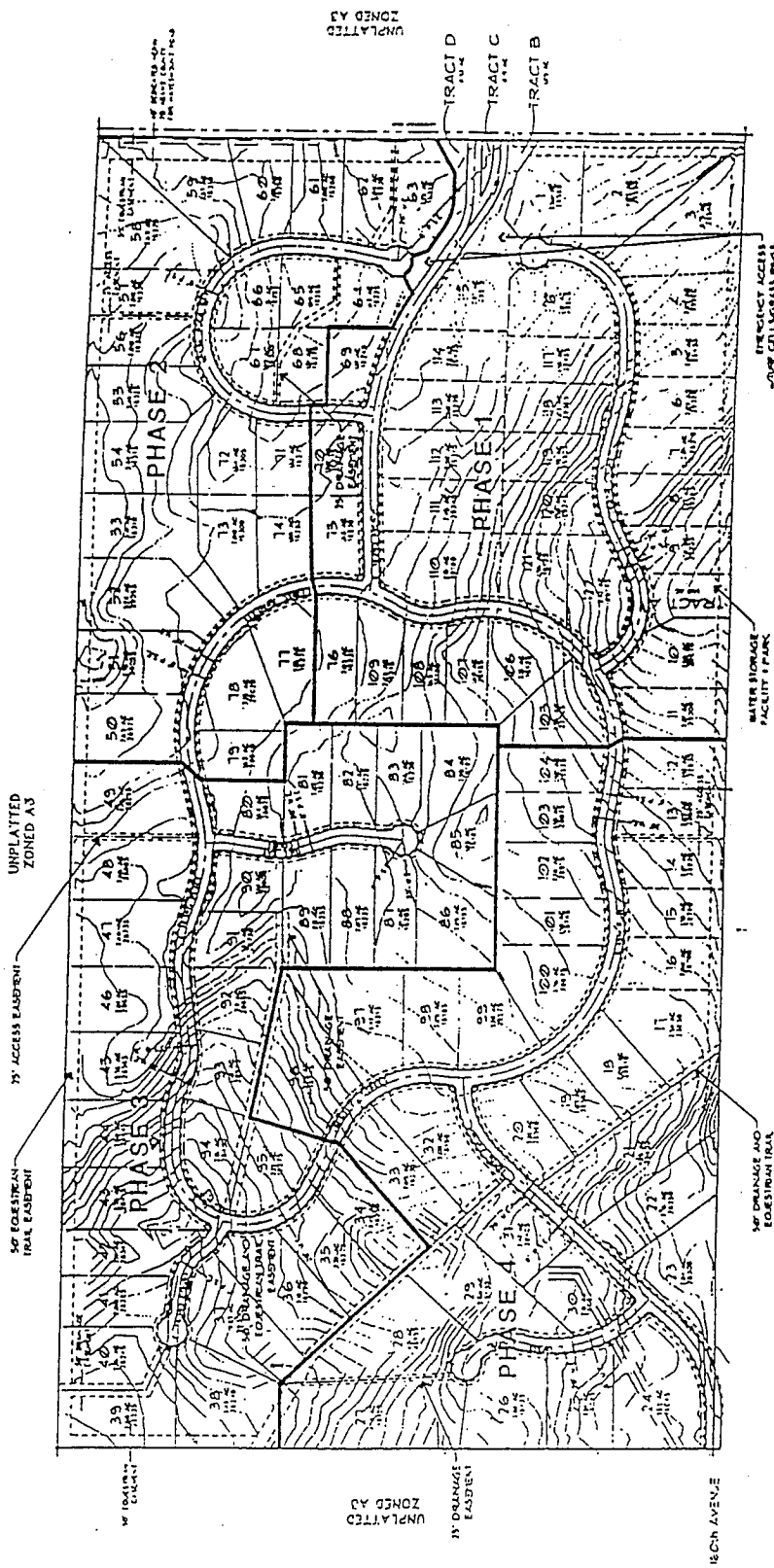
A RESUBDIVISION OF HAYESMOUNT VISTAS LOCATED IN THE SOUTH
1/2 OF SECTION 3, TOWNSHIP 1 SOUTH, RANGE 65 WEST OF SIXTH
PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO

EXHIBIT B - 1

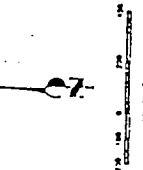
District Boundary Map

EXHIBIT B-1

GENERAL DEVELOPMENT PLAN
 GREAT ROCK NORTH
 A RESUBDIVISION OF RIVERSHOURT VISTAS
 LOCATED IN THE SOUTH 1/2 OF SECTION 3, TOWNSHIP 1 SOUTH,
 RANGE 65 WEST OF SIXTH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO



GENERAL DEVELOPMENT PLAN
 GREAT ROCK NORTH
 SHEET NO. 1 OF 11
JR
 Engineering, Inc.
 1400 East 10th Avenue, Suite 100
 Denver, Colorado 80202
 (303) 733-1111



HOMWOOD ESTATES FILING NO. 1
 ZONED A1

GENERAL DEVELOPMENT PLAN SUMMARY

PHASE 1	17	15.42 AC
PHASE 2	17	15.42 AC
PHASE 3	17	15.42 AC
TOTAL	51	46.26 AC
ROAD LENGTH	1.00	1.00 MI
PARK LOT AREA	1.00	1.00 AC
TOTAL DENSITY	0.21	0.21 DW/AC
DEVELOPABLE LAND	45.26	45.26 AC
UNDEVELOPABLE	1.00	1.00 AC
TOTAL	46.26	46.26 AC

UNPLATTED ZONED A3

UNPLATTED ZONED A3

UNPLATTED ZONED A3

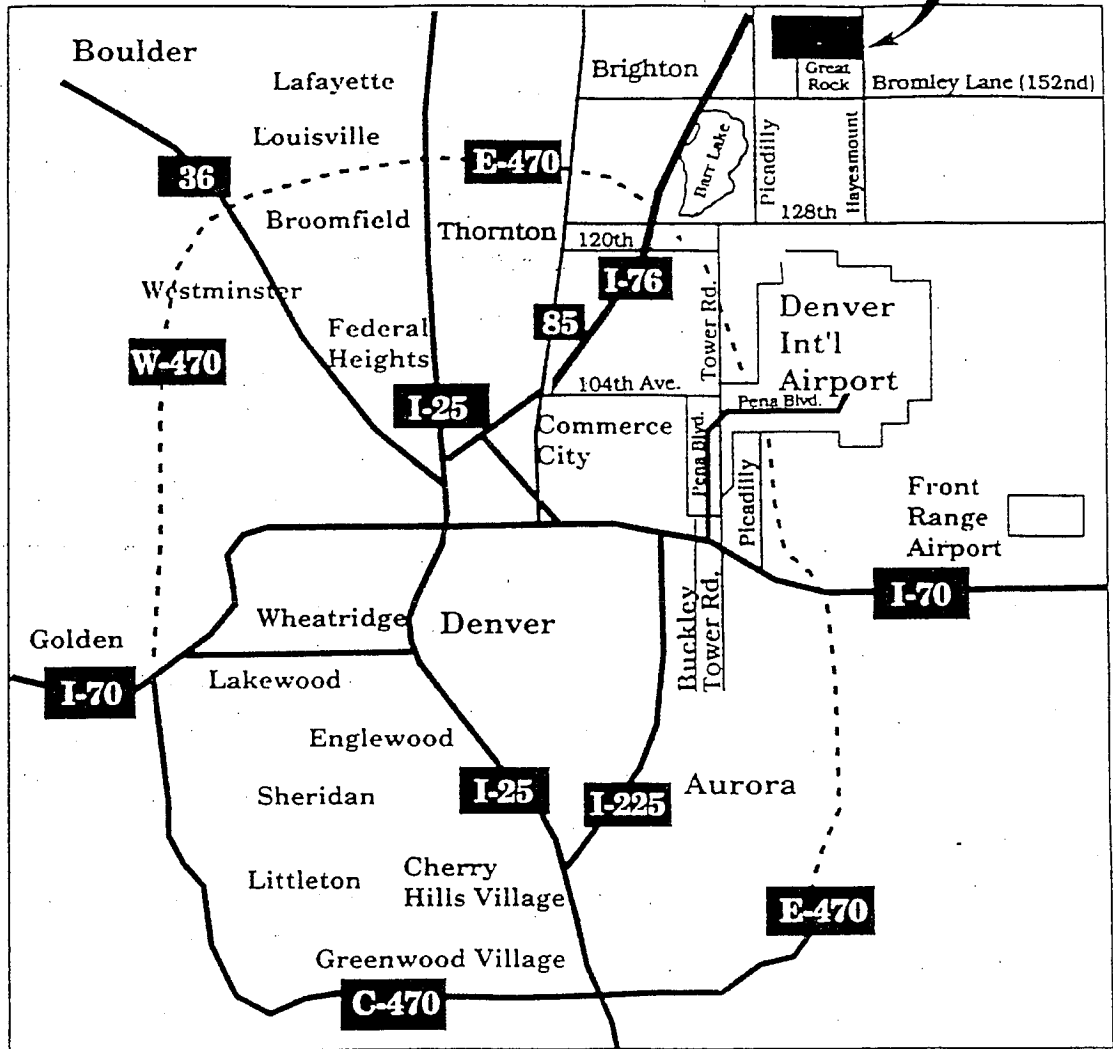
UNPLATTED ZONED A3

UNPLATTED ZONED A3

EXHIBIT B-2

District Vicinity Map

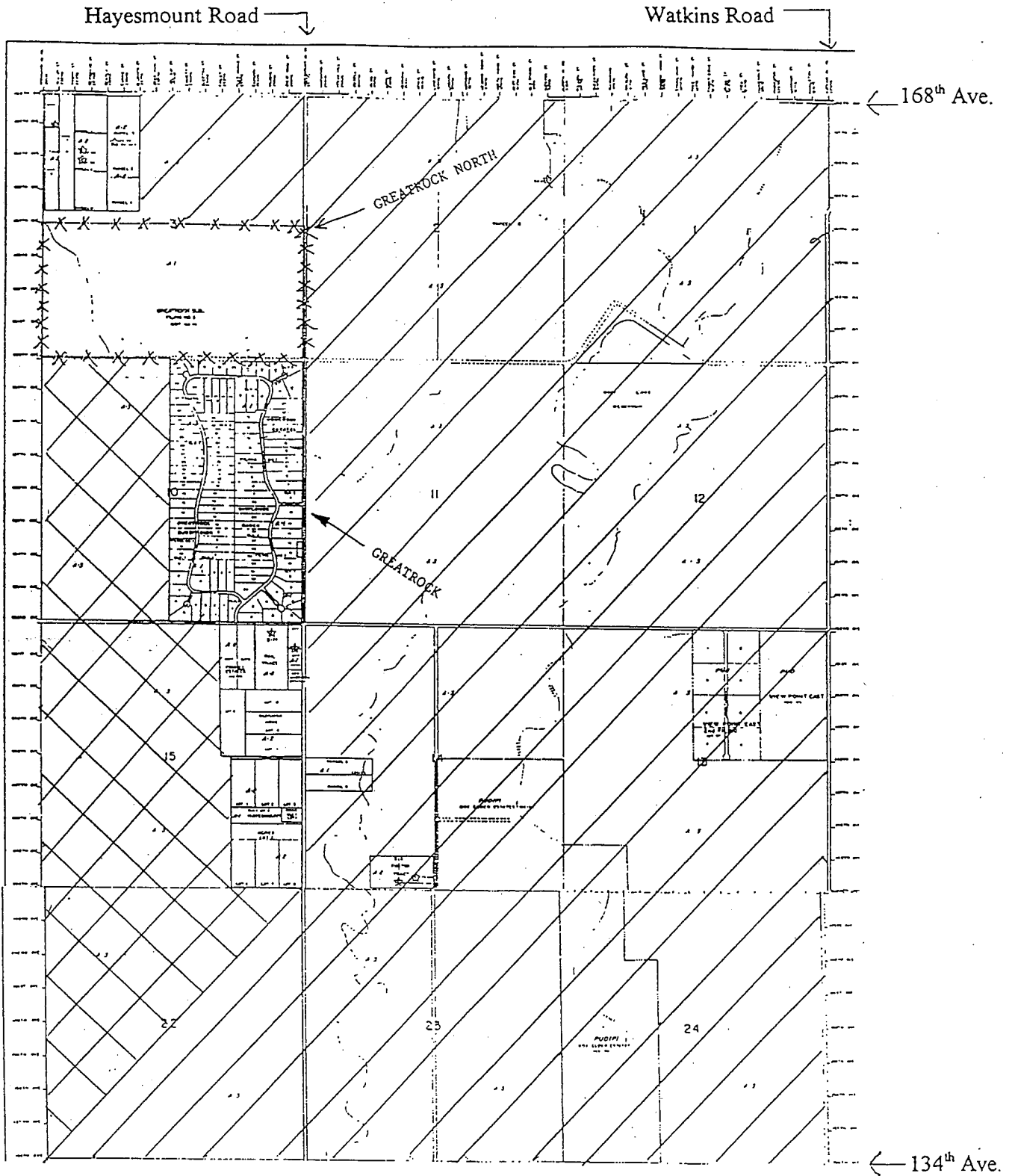
GREATROCK NORTH



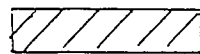
GREATROCK NORTH

EXHIBIT B-3

Potential Future Service Area Map



Potential Future Service Area



DIA Noise Overlay Area

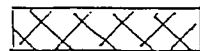


Exhibit B-3

EXHIBIT C

Description of Facilities and Costs

EXHIBIT C

Exhibit B 4

--- HEMCO, INC.
 GREATROCK NORTH WATER DISTRICT
 COST ACTUAL & ESTIMATED - GRN WATER SYSTEM
 October 10, 1997

Description	Actual	Estimated	Date Due	Total
Governmental Fees and Permit	6,189			6,189
System Design & Engineering	41,310	15,000	1997	56,310
Central Well Supply	138,495			138,495
Secondary Well Supply		50,000	1999	50,000
Tanks, Wet Well, Installation	46,965	46,000	1999	92,965
Pump House for Well	25,225	2,000	1997	27,225
Pump & Well Equipment	81,160			81,160
Operating Overhead	75,000	75,000	1997-2000	150,000
Water Well Filter System		13,000	1997	13,000
Water Lines in Service Area	191,000	415,000	1997-2000	606,000
Water District Approval Process		40,000	1998	40,000
Total	605,344	656,000		1,261,344

Service Area 122 homes

Cost per Home	10,339
Annual Cost over 10 years	1,034

EXHIBIT D

Financial Plan

GREATROCK NORTH WATER DISTRICT
Development & Debt Capacity Projection
35 mills, 8.0% coupon 20-yr bond maturities

EXHIBIT D

YEAR	# Homes Sold in District	Assumed Average Home Sales Price/Unit	Blannual Reassessmt @ 2.0%	Cumulative Market Value @ 100.0% of Sales Price	Tot. Cumulative Assd Value @ 9.74% of Market, + Vac. (2-yr lag)	Cap Mill Levy	Total Collections	Sold Homes Counted for Facility Fee	Facility Fees Collected @ \$3,000	Int. Income on Cum. Surplus @ 4.5%	Total Available Revenue	Less District Operations	Net Available for Debt Svc	Less \$600K Ser. 12/1/89 Net Debt Service	Less \$375K Ser. 12/1/01 Net Debt Service	Annual Surplus	Cumulative Surplus
1997	9	\$215,000		\$513,347				0	\$0	\$0	\$0	\$0	\$0			0	\$0
1998	33	225,000		9,873,347	\$50,000	35,000	\$1,750	16	48,000	0	49,750	20,000	29,750			29,750	29,750
1999	33	230,000	197,467	17,660,814	\$238,469	35,000	8,346	33	99,000	1,339	108,685	20,000	88,685			88,685	118,435
2000	33	235,000	25,415,814	961,664	33,658	35,000	33,658	33	99,000	5,330	137,988	20,000	117,988	53,000		64,988	183,423
2001	14	240,000	508,316	1,720,163	60,208	35,000	60,208	14	42,000	8,254	110,460	20,000	90,460	67,600		22,860	206,283
2002			29,284,130	2,475,500	86,643	35,000	86,643	0	0	9,283	95,925	20,000	75,925	51,000		(5,075)	201,208
2003			29,869,813	2,852,274	99,830	35,000	99,830	0	0	9,054	108,884	20,000	88,884	60,600		(1,716)	199,492
2004			29,869,813	2,852,274	99,830	35,000	99,830			8,977	108,807	20,000	88,807	59,400		(5,593)	193,899
2005			30,467,209	2,909,320	101,826	35,000	101,826			8,725	110,552	20,000	90,552	58,200		(2,248)	191,650
2006			30,467,209	2,909,320	101,826	35,000	101,826			8,624	110,450	20,000	90,450	62,000		(5,750)	185,901
2007			31,076,553	2,967,506	103,863	35,000	103,863			8,366	112,228	20,000	92,228	60,400		(1,972)	183,929
2008			31,076,553	2,967,506	103,863	35,000	103,863			8,277	112,140	20,000	92,140	58,800		(5,060)	178,869
2009			31,698,084	3,026,856	105,940	35,000	105,940			8,049	113,989	20,000	93,989	62,200		(811)	178,058
2010			31,698,084	3,026,856	105,940	35,000	105,940			8,013	113,953	20,000	93,953	60,200		(3,447)	174,610
2011			32,332,046	3,087,393	108,059	35,000	108,059			7,857	115,916	20,000	95,916	63,200		(3,684)	170,926
2012			32,332,046	3,087,393	108,059	35,000	108,059			7,692	115,750	20,000	95,750	65,800		(5,650)	165,277
2013			32,978,687	3,149,141	110,220	35,000	110,220			7,437	117,657	20,000	97,657	63,000		(5,143)	160,134
2014			32,978,687	3,149,141	110,220	35,000	110,220			7,206	117,426	20,000	97,426	65,200		(1,374)	158,760
2015			33,638,261	3,212,124	112,424	35,000	112,424			7,144	119,569	20,000	99,569	67,000		(5,231)	153,529
2016			33,638,261	3,212,124	112,424	35,000	112,424			6,909	119,333	20,000	99,333	68,400		(5,667)	147,862
2017			34,311,026	3,276,367	114,673	35,000	114,673			6,654	121,327	20,000	101,327	69,400		(3,473)	144,389
2018			34,311,026	3,276,367	114,673	35,000	114,673			6,497	121,170	20,000	101,170	70,000		(8,030)	136,359
2019			34,997,246	3,341,894	116,966	35,000	116,966			6,136	123,102	20,000	103,102	70,200		(4,698)	131,661
2020			34,997,246	3,341,894	116,966	35,000	116,966			5,925	122,891	20,000	102,891	111,000		(8,109)	123,552
2021			35,697,191	3,408,732	119,306	35,000	119,306			5,560	124,865	20,000	104,865	113,400		(8,535)	115,018
2022			35,697,191	3,408,732	119,306	35,000	119,306			5,176	124,481	20,000	104,481			104,481	219,499
2023			36,411,135	3,476,906	121,692	35,000	121,692			9,877	131,569	20,000	111,569			111,569	331,068
2024			36,411,135	3,476,906	121,692	35,000	121,692			14,898	136,590	20,000	116,590			116,590	447,658
2025			37,139,358	3,546,445	124,126	35,000	124,126			20,145	144,270	20,000	124,270			124,270	571,928
2026			37,139,358	3,546,445	124,126	35,000	124,126			25,737	149,862	20,000	129,862			129,862	701,791
2027			37,882,145	3,617,373	126,608	35,000	126,608			31,581	158,189	20,000	138,189			138,189	839,979
122					2,995,058				288,000		3,557,779	600,000	2,957,779	1,255,600	862,200	839,979	

(dec 99:c2) (dec 01:c2a1)

1.079

SOURCES AND USES OF FUNDS

GREATROCK NORTH WATER DISTRICT
SERIES 1999 G.O. BONDS (v2/Sc 2)
Proportional Solution based on available revenue

Dated Date 12/01/1999
Delivery Date 12/01/1999

Sources:

<hr/>	
Bond Proceeds:	
Par Amount	600,000.00
	<hr/>
	600,000.00
	<hr/>

Uses:

<hr/>	
Project Fund Deposits:	
Net Proceeds from Issue	576,000.00
Delivery Date Expenses:	
Cost of Issuance	12,000.00
Underwriter's Discount	12,000.00
	<hr/>
	24,000.00
	<hr/>
	600,000.00
	<hr/>

BOND DEBT SERVICE

**GREATROCK NORTH WATER DISTRICT
SERIES 1999 G.O. BONDS (v2/Sc 2)
Proportional Solution based on available revenue**

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
12/01/1999	-	-	-	-	-
06/01/2000	-	-	24,000	24,000	-
12/01/2000	5,000	8.000%	24,000	29,000	53,000
06/01/2001	-	-	23,800	23,800	-
12/01/2001	20,000	8.000%	23,800	43,800	67,600
06/01/2002	-	-	23,000	23,000	-
12/01/2002	5,000	8.000%	23,000	28,000	51,000
06/01/2003	-	-	22,800	22,800	-
12/01/2003	15,000	8.000%	22,800	37,800	60,600
06/01/2004	-	-	22,200	22,200	-
12/01/2004	15,000	8.000%	22,200	37,200	59,400
06/01/2005	-	-	21,600	21,600	-
12/01/2005	15,000	8.000%	21,600	36,600	58,200
06/01/2006	-	-	21,000	21,000	-
12/01/2006	20,000	8.000%	21,000	41,000	62,000
06/01/2007	-	-	20,200	20,200	-
12/01/2007	20,000	8.000%	20,200	40,200	60,400
06/01/2008	-	-	19,400	19,400	-
12/01/2008	20,000	8.000%	19,400	39,400	58,800
06/01/2009	-	-	18,600	18,600	-
12/01/2009	25,000	8.000%	18,600	43,600	62,200
06/01/2010	-	-	17,600	17,600	-
12/01/2010	25,000	8.000%	17,600	42,600	60,200
06/01/2011	-	-	16,600	16,600	-
12/01/2011	30,000	8.000%	16,600	46,600	63,200
06/01/2012	-	-	15,400	15,400	-
12/01/2012	35,000	8.000%	15,400	50,400	65,800
06/01/2013	-	-	14,000	14,000	-
12/01/2013	35,000	8.000%	14,000	49,000	63,000
06/01/2014	-	-	12,600	12,600	-
12/01/2014	40,000	8.000%	12,600	52,600	65,200
06/01/2015	-	-	11,000	11,000	-
12/01/2015	45,000	8.000%	11,000	56,000	67,000
06/01/2016	-	-	9,200	9,200	-
12/01/2016	50,000	8.000%	9,200	59,200	68,400
06/01/2017	-	-	7,200	7,200	-
12/01/2017	55,000	8.000%	7,200	62,200	69,400
06/01/2018	-	-	5,000	5,000	-
12/01/2018	60,000	8.000%	5,000	65,000	70,000
06/01/2019	-	-	2,600	2,600	-
12/01/2019	65,000	8.000%	2,600	67,600	70,200
	600,000		655,600	1,255,600	1,255,600

BOND SUMMARY STATISTICS

**GREATROCK NORTH WATER DISTRICT
SERIES 1999 G.O. BONDS (v2/Sc 2)
Proportional Solution based on available revenue**

Dated Date	12/01/1999
Delivery Date	12/01/1999
Last Maturity	12/01/2019
Arbitrage Yield	8.000000%
True Interest Cost (TIC)	8.259992%
Net Interest Cost (NIC)	8.146431%
All-In TIC	8.528290%
Average Coupon	8.000000%
Average Life (years)	13.658
Duration of Issue (years)	8.048
Par Amount	600,000.00
Bond Proceeds	600,000.00
Total Interest	655,600.00
Net Interest	667,600.00
Bond Years from Dated Date	8,195,000.00
Bond Years from Delivery Date	8,195,000.00
Total Debt Service	1,255,600.00
Maximum Annual Debt Service	70,200.00
Average Annual Debt Service	62,780.00
Underwriter's Fees (per \$1000)	
Average Takedown	-
Other Fee	20.000000
Total Underwriter's Discount	20.000000
Bid Price	98.000000

Bond Component	Par Value	Price	Average Coupon	Average Life
Term Bonds	600,000.00	100.000	8.000%	13.658
	600,000.00			13.658

SOURCES AND USES OF FUNDS

GREATROCK NORTH WATER DISTRICT
SERIES 2001 G.O. BONDS (v 3/Sc 2)
Proportional Solution based on available revenue,
wrapped around Ser. 1999 issue

Dated Date 12/01/2001
Delivery Date 12/01/2001

Sources:

Bond Proceeds:	
Par Amount	375,000.00
	<hr/>
	375,000.00

Uses:

Project Fund Deposits:	
Net Proceeds from Issue	355,500.00
Delivery Date Expenses:	
Cost of Issuance	12,000.00
Underwriter's Discount	7,500.00
	<hr/>
	19,500.00
	<hr/>
	375,000.00

BOND DEBT SERVICE

**GREATROCK NORTH WATER DISTRICT
SERIES 2001 G.O. BONDS (v 3/Sc 2)
Proportional Solution based on available revenue,
wrapped around Ser. 1999 issue**

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
12/01/2001	-	-	-	-	-
06/01/2002	-	-	15,000	15,000	-
12/01/2002	-	-	15,000	15,000	30,000
06/01/2003	-	-	15,000	15,000	-
12/01/2003	-	-	15,000	15,000	30,000
06/01/2004	-	-	15,000	15,000	-
12/01/2004	5,000	8.000%	15,000	20,000	35,000
06/01/2005	-	-	14,800	14,800	-
12/01/2005	5,000	8.000%	14,800	19,800	34,600
06/01/2006	-	-	14,600	14,600	-
12/01/2006	5,000	8.000%	14,600	19,600	34,200
06/01/2007	-	-	14,400	14,400	-
12/01/2007	5,000	8.000%	14,400	19,400	33,800
06/01/2008	-	-	14,200	14,200	-
12/01/2008	10,000	8.000%	14,200	24,200	38,400
06/01/2009	-	-	13,800	13,800	-
12/01/2009	5,000	8.000%	13,800	18,800	32,600
06/01/2010	-	-	13,600	13,600	-
12/01/2010	10,000	8.000%	13,600	23,600	37,200
06/01/2011	-	-	13,200	13,200	-
12/01/2011	10,000	8.000%	13,200	23,200	36,400
06/01/2012	-	-	12,800	12,800	-
12/01/2012	10,000	8.000%	12,800	22,800	35,600
06/01/2013	-	-	12,400	12,400	-
12/01/2013	15,000	8.000%	12,400	27,400	39,800
06/01/2014	-	-	11,800	11,800	-
12/01/2014	10,000	8.000%	11,800	21,800	33,600
06/01/2015	-	-	11,400	11,400	-
12/01/2015	15,000	8.000%	11,400	26,400	37,800
06/01/2016	-	-	10,800	10,800	-
12/01/2016	15,000	8.000%	10,800	25,800	36,600
06/01/2017	-	-	10,200	10,200	-
12/01/2017	15,000	8.000%	10,200	25,200	35,400
06/01/2018	-	-	9,600	9,600	-
12/01/2018	20,000	8.000%	9,600	29,600	39,200
06/01/2019	-	-	8,800	8,800	-
12/01/2019	20,000	8.000%	8,800	28,800	37,600
06/01/2020	-	-	8,000	8,000	-
12/01/2020	95,000	8.000%	8,000	103,000	111,000
06/01/2021	-	-	4,200	4,200	-
12/01/2021	105,000	8.000%	4,200	109,200	113,400
	375,000		487,200	862,200	862,200

AGGREGATE DEBT SERVICE
GREATROCK NORTH WATER DISTRICT
SERIES 2001 G.O. BONDS (v 3/Sc 2)
Proportional Solution based on available revenue,
wrapped around Ser. 1999 issue

Period Ending	SERIES 2001 G.O. BONDS (v 3/Sc 2)	Ser. 1999 Net D.S.	Aggregate Debt Service
12/01/2002	30,000	51,000	81,000
12/01/2003	30,000	60,600	90,600
12/01/2004	35,000	59,400	94,400
12/01/2005	34,600	58,200	92,800
12/01/2006	34,200	62,000	96,200
12/01/2007	33,800	60,400	94,200
12/01/2008	38,400	58,800	97,200
12/01/2009	32,600	62,200	94,800
12/01/2010	37,200	60,200	97,400
12/01/2011	36,400	63,200	99,600
12/01/2012	35,600	65,800	101,400
12/01/2013	39,800	63,000	102,800
12/01/2014	33,600	65,200	98,800
12/01/2015	37,800	67,000	104,800
12/01/2016	36,600	68,400	105,000
12/01/2017	35,400	69,400	104,800
12/01/2018	39,200	70,000	109,200
12/01/2019	37,600	70,200	107,800
12/01/2020	111,000	-	111,000
12/01/2021	113,400	-	113,400
	862,200	1,135,000	1,997,200

GREATROCK NORTH WATER AND SANITATION DISTRICT

Overlapping Jurisdictions	Mill Levy	Bonds Outstanding
Adams County	26.528	\$ -0-
Adams County Library	1.385	-0-
Brighton Fire District No. 6	5.005	-0-
Urban Drainage & Flood Control District	0.668	-0-
Urban Drainage & Flood - South Platte	0.081	-0-
Adams County School District No. 27	51.008	29,480,000
Proposed Greatrock North Water District	35.000	-0-
TOTAL	119.675	\$ 29,480,000

EXHIBIT E

Operations Plan

EXHIBIT E

HEMCO, INC.
 GREATROCK NORTH WATER DISTRICT
 WATER SYSTEM
 PROPOSED OPERATING BUDGET

Exhibit B 5

INCOME:			
	\$	%	
1	Water Usage Fees	80,000.00	100%
	Total	80,000.00	100%
EXPENSE:			
2	Maintenance Contract	18,000.00	23%
3	Water Tests	775.00	1%
4	Chemicals	800.00	1%
5	Utilities	12,000.00	15%
6	Liability Insurance	9,000.00	11%
7	Repair & Maintenance	2,000.00	3%
8	Management	18,000.00	23%
9	Professional Fees	18,000.00	23%
10	Other	1,425.00	2%
11	Reserve for Replacement	0.00	0%
	Total	80,000.00	100%

ASSUMPTIONS:

- 1 Water rate @ 122 homes = \$35 monthly base rate
 plus 10,001 - 15,000 gallons @ \$ 3.50 per 1,000 gallons.
 plus 15,001 - 25,000 gallons @ \$ 7.50 per 1,000 gallons.
 plus 25,001 - 35,000 gallons @ \$11.50 per 1,000 gallons.
 plus 35,001+ gallons @ \$40.00 per 1,000 gallons.
 Estimated average monthly billing = \$55. or 15,500 gallons
- 2 Per Quote - CET Environmental
- 3 Per Quote - Treatment Technology
- 4 Per Quote - Treatment Technology
- 5 Per Quote - Treatment Technology
- 6 Per Quote for Liability plus Director Liability estimated
- 7 Per Quote - Treatment Technology
- 8 Per Quote - CET Environmental
- 9 Legal and Audit Fees estimated
- 10 Unanticipated Occurrences
- 11 Reserve for Major Component Replacement covered by Bond Issue

EXHIBIT F

Greatrock North Subdivision Water Supply Report

**Greatrock North Subdivision
Water Supply Report**

Prepared for:

HEMCO INC.
751 Chambers Road, Suite 201
Aurora, Colorado 80111
(303) 344-3073
Contact: Gregg Moran

Prepared by:

JR ENGINEERING, LTD.
6110 Greenwood Plaza Boulevard
Englewood, Colorado 80111
(303) 740-9393

July 31, 1996
Project Number 3687.00

TABLE OF CONTENTS

INTRODUCTION	1
Purpose and Scope	1
ANNUAL WATER DEMANDS	1
AVAILABLE GROUNDWATER	1
Figure 1 - Vicinity Map	2
Table 1 - Ground Water Availability Using SB-5 Criteria	3
SYSTEM COMPONENTS	3
Figure 2 - Underlying Aquifers	4
Water Supply	5
Water Treatment	5
Storage Tank	5
Distribution Network	5
WATER SYSTEM MODELING	5
REFERENCES	7

INTRODUCTION

Purpose and Scope

This report was prepared to describe the water supply availability and the water distribution system for the Greatrock North Subdivision. Topics addressed by this report include water demands, available groundwater, and the water distribution system.

Project Location and Description

Greatrock North is located in the south one-half of Section 3, Township 1 South, Range 65 West of the Sixth Principal Meridian, Adams County, Colorado. Figure 1 shows the site which contains approximately 320 acres of undeveloped land bounded on the east by Hayesmount Road and is one mile north of 152nd Avenue. The site is bounded on the south by an existing development known as Homewood Estates Filing No. 1 and bounded to the North and West by unplatted land.

The Greatrock North Subdivision consists of 122 lots averaging 2.5 acres in size with the minimum lot size being 1.5 acres. Each lot will be serviced by a central supply potable water system and individual septic systems.

ANNUAL WATER DEMANDS

The water requirement for each lot is calculated using presumptive use values for rural, single family residences. Lawn and garden irrigation is to be limited by covenants to a maximum of 4,000 square feet. Livestock watering will be allowed, but restricted by covenants to 4 head per lot. Presumptive use values are 0.3 acre feet per year for in-house domestic use and 0.05 acre feet per year per 1,000 square feet of lawn and garden irrigation and 0.01 acre feet per year per head of livestock. Therefore, each developed lot will require 0.54 acre feet per year.

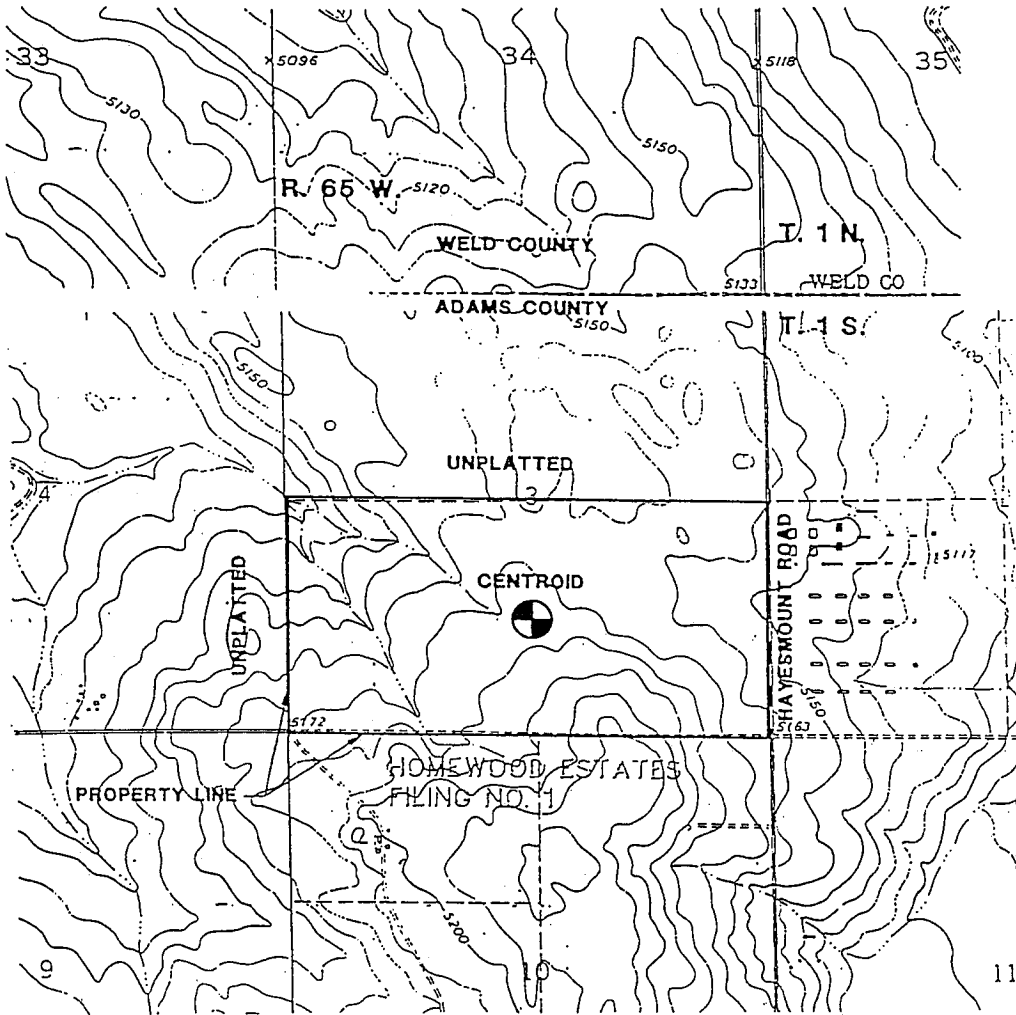
In-house	0.3 acre feet
Lawn	$4 \times 0.05 = 0.2$ acre feet
Livestock	$4 \times 0.01 = 0.04$ acre feet
Total	$0.3 + 0.2 + 0.04 = 0.54$ acre feet/lot/year

This equates to a total demand of 65.9 acre feet annually, (122 lots x 0.54 acre feet/lot = 65.9 acre feet), for all 122 lots within the development.

AVAILABLE GROUNDWATER

The quantities of water within the Lower Arapahoe and Laramie-Fox Hills aquifers were adjudicated in Case No. 94CW142 as follows:

GREATROCK NORTH VICINITY MAP



PLOT SCALE 1=2000, DATE 07/30/96, TIME 10:30, FILE X:\368700\ACAD\VICINITY.DWG



SCALE: 1" = 2000'



VICINITY MAP
GREATROCK NORTH
DATE 07/29/96

JR

Engineering, Ltd.
6110 Greenwood Plaza Blvd.
Englewood, Colorado 80111
Tel. (303) 740-9393
FAX (303) 721-9019

<u>Aquifer</u>	<u>Saturated Thickness</u>	<u>Annual Amount</u>
Lower Arapahoe	100 feet	54.4 acre feet
Laramie-Fox Hills	142 feet	68.2 acre feet

JR Engineering, Ltd. used a computer program from the State Engineers Office (SEO) to verify the quantities of water available to this development. This program uses Senate Bill 5 criteria to determine the quantities of water available to the development in each individual aquifer. Figure 2 displays a block diagram of the aquifers underlying the development. The following table summarizes the available quantities.

Table 1 - Ground Water Availability Using SB-5 Criteria

LOCATION: CENTER OF S1/2 OF SEC. 3, T.1S., R.65W. (1320 SSL, 2640 WSL)

Ground Elevation: 5170

Number of Acres: 320

AQUIFER	ELEVATION		NET SAND	DEPTH TO		ANNUAL APPROP A-F	STATUS
	BOT.	TOP		BOT.	TOP		
UPPER DAWSON	---	---	---	---	---	---	---
LOWER DAWSON	---	---	---	---	---	---	---
DENVER	5005	5090	32.0	165	80	17.41	NNT
UPPER ARAPAHOE	4774	4971	35.0	396	199	19.04	NNT
LOWER ARAPAHOE	4421	4699	98.8	749	471	53.72	NT
LARAMIE-FOX HILLS	3798	4055	143.8	1373	1115	69.00	NT

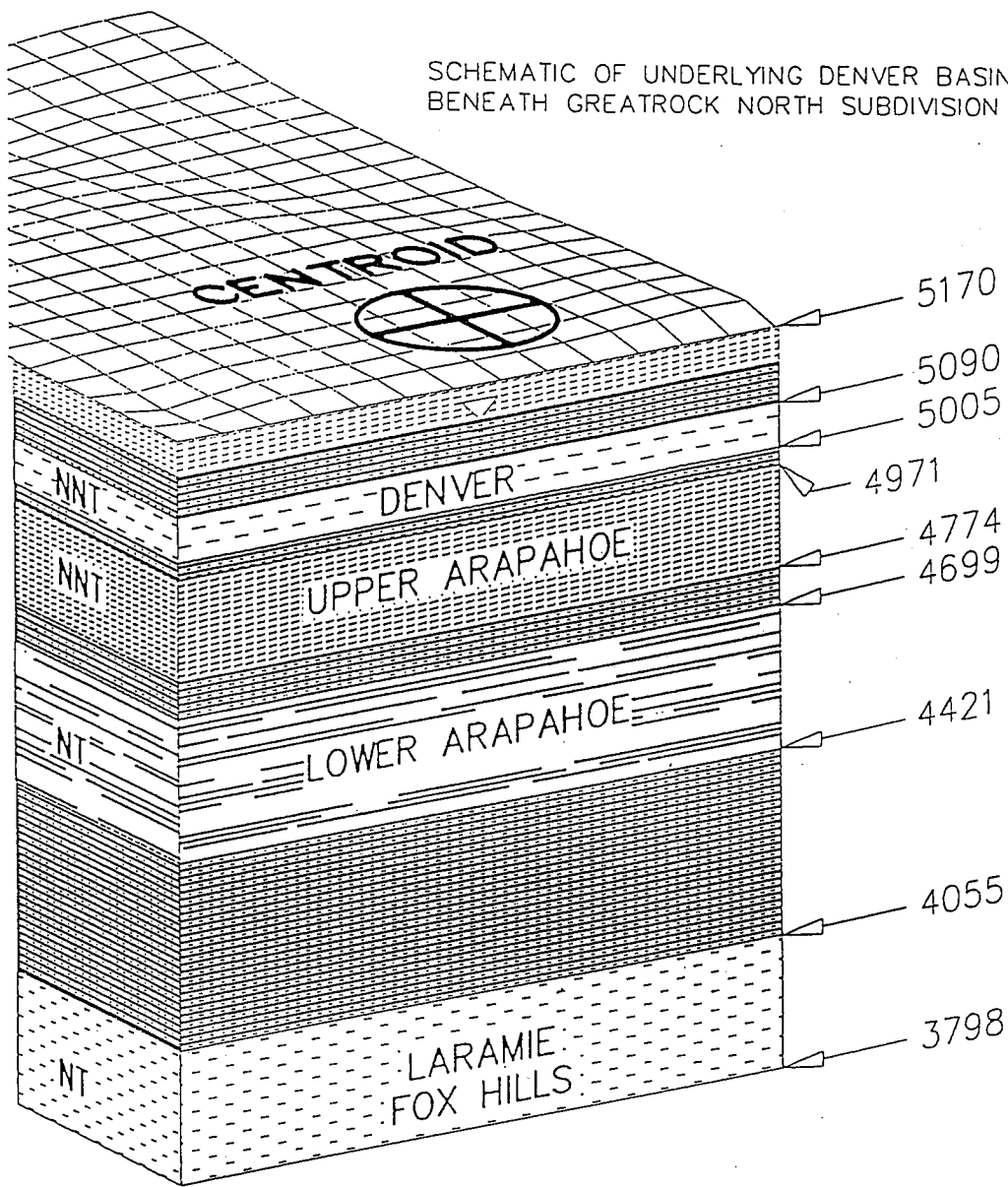
It is anticipated that a Laramie-Fox Hills well will be utilized to supply the Greatrock North subdivision. The Laramie-Fox Hills aquifer has an adequate annual supply to meet the demands of the development. This well will be the primary water supply during the initial phases of the development. Due to the uncertainty of the quality of the sands in the Lower Arapahoe, a geophysical log will be performed on the initial Laramie-Fox Hills well. Depending upon the results of the geophysical log a second well will be completed after 50% build out in either the Lower Arapahoe or the Laramie-Fox Hills aquifers. The second well will serve as a back-up to the main well.

SYSTEM COMPONENTS

The water distribution system for Greatrock North consists of central supply wells, a water storage tank, water treatment, an in-line booster pump, and a distribution network. The tank, well, booster pump and water treatment will occur on a tract of land being platted as part of this subdivision. The subdivision will establish a special improvement district to operate and maintain the water distribution system as well as to establish and maintain other public improvements.

The Greatrock North Subdivision is located in the South Adams County Fire Protection District. The district requires Fire Hydrants capable of operating at a flow rate of 1500 gpm or individual sprinkler systems within the houses. The individual sprinkler systems were opted for by the developer. A fire

SCHEMATIC OF UNDERLYING DENVER BASIN AQUIFERS
BENEATH GREATROCK NORTH SUBDIVISION



PLOT SCALE 1=1, DATE 07/31/96, TIME 11:27, FILE X:\368700\ACAD\3D-BLOCK.DWG

Figure 2

LEGEND

- NT NONTRIBUTARY
- NNT NOT NONTRIBUTARY

ELEVATION DATA FROM STATE ENGINEER MAPS
DENVER BASIN ATLAS, NUMBERS 1-4, 1988
COLORADO DIVISION OF WATER RESOURCES

GREATROCK NORTH WATER SUPPLY
3687.00
07/31/96

JR

Engineering, Ltd.

6857 S. Spruce Street
Englewood, Colorado 80112
Tel. (303) 740-9393
FAX (303) 721-9019

hydrant will be located within the subdivision that can be used to fill equipment in an emergency situation. The design was developed incorporating individual sprinkler systems for all residences within the development.

Water Supply

The Greatrock North subdivision will employ the use of central supply wells drafting the adjudicated Lower Arapahoe and Laramie-Fox Hills aquifers to supply this development. The water in the two aquifers is considered nontributary. The return flows from the individual septic systems will far exceed the 2% relinquishment associated with the use of nontributary water. The annual decreed amounts available from these nontributary aquifers are 54.4 acre feet (Lower Arapahoe) and 68.2 acre feet (Laramie-Fox Hills) respectively.

The expected quality of water in these aquifers is considered to be fair to good with Total Dissolved Solids in the range of 500-700 mg/l and hardness is expected to be less than 60 mg/l.

Water Treatment

The water treatment system for Greatrock North will be by direct chlorination. The water will be chlorinated at the well head before the water enters the storage facility. This will allow for the necessary 30 minute chlorine contact time required by the Colorado Department of Health.

Storage Tank

The storage facility consists of two single-wall fiberglass underground storage tanks designed for potable water storage with each tank having a nominal capacity of 20,000 gallons. The total storage for the subdivision will be 40,000 gallons. The storage capacity will be capable of expansion by the installation of additional tanks, if necessary. The water consumption will be monitored during the initial phases of the development to determine if additional storage capacity is necessary.

Distribution Network

The water distribution network for Greatrock North consists of a loop type system with an in-line booster pump to pressurize the system. The water distribution system consists entirely of 4", 6", and 10" PVC lines. The distribution network has valves located throughout the system in order to minimize the number of lots without service in the case of a line failure.

WATER SYSTEM MODELING

In order to appropriately size the supply and distribution system components, a water system model was prepared and optimized. The modeled system consists of a domestic well, storage tank, booster pump, and distribution network. The majority of the distribution network consists of a loop system with the exception of three dead end lines. The loop system will provide adequate fire flows and

serve as a precaution against service interruption. Exhibit "A" (back pocket) graphically depicts the water system model.

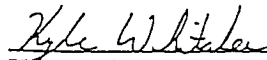
The following is a brief outline of the preliminary water system analysis for the Greatrock Subdivision Filing No. 3.

- * System and service node elevations were based upon topographic maps of the area.
- * Each lot was modeled as a separate service node.
- * Demands:


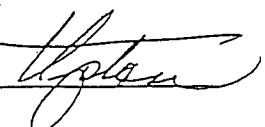
Ave. day per dwelling in gpm (150x3.5/24/60)	0.365 gpm
Peak Day (Average Day x 8)	2.92 gpm
Peak Hour (Average Day x 13)	4.75 gpm
Fire Flow	Peak Day + 30 gpm For Sprinkler System
Emergency Fire Hydrant	1500 gpm
- * System load calculations performed were average day (1 gpm), peak day (3 gpm), peak hour (5 gpm), and fire flow (the 30 gpm was applied to every node in the system during peak day conditions).
- * System analysis was performed utilizing CYBERNET software from Haestad Methods which uses the KYPIPE2 algorithm.

The Greatrock North Subdivision water system model was optimized in order to achieve efficient delivery of water during fire flow requirements (30 gpm) and maintain necessary residual pressures (40 psi) throughout the system.

This Water Supply Report for Greatrock North Subdivision was completed under my direct supervision.



Kyle Whitaker, E.I.
Project Engineer

Dieter R. Uphoff, P.E.
Director of Engineering and Water Resources

REFERENCES

1. Sizing Water Service Lines and Meters (1975) American Water Works Association M22
2. CYBERNET Version 2 User Guide (1992) Haestad Methods, Inc.
3. Denver Basin Atlas No. 1-4 (1988) Colorado Division of Water Resources

EXHIBIT G

List of Interested Parties

GREATROCK NORTH WATER AND SANITATION DISTRICT
(special districts and municipalities
located within a three mile radius)

Adams County
450 South 4th Avenue
Brighton, CO 80601

Adams County Library
c/o Nancy Buchanan
8992 North Washington
Thornton, CO 80229

Brighton Fire District No. 6
425 South Main Street
Brighton, CO 80601

Urban Drainage & Flood Control District
Urban Drainage & Flood - South Platte
c/o Scott Tucker
2480 West 26th Avenue, Suite 156-B
Denver, CO 80211

Brighton 27 J School District
630 South 8th Street
Brighton, CO 80601-3295

South Adams County Water & San. District
6595 East 70th Avenue
P.O. Box 597
Commerce City, CO 80037-0597

Hudson Fire Protection District
c/o Sharon L. Layne
P.O. Box 7
Hudson, CO 80642

Lochbuie
703 WCR 37
Lochbuie, CO 80601

City of Brighton
22 South 4th Avenue
Brighton, CO 80601

C4\452\distmunic.lab