OHIO COUNTY WATER DISTRICT

OHIO COUNTY, KENTUCKY

ENGINEERING REPORT

SERIES III
WATER SYSTEM IMPROVEMENTS

BOARD OF COMMISSIONERS:

Henry Morgan, Chairman
B. J. Dickens, Secretary
Earnie Wallace, Treasurer
Bernard Ballard
Wayman Cambron
Glendon Gillim
Angie Henry

DISTRICT SUPERINTENDENT:

Walt Beasley
Ohio County Water District
130 East Washington Street
Hartford, KY 42347

ATTORNEY:

Frank Martin, Attorney
408 North Main
Hartford, KY 42347

CERTIFIED PUBLIC ACCOUNTANT:

W. Gerald Watts, CPA
Clements, Guthrie & Robinson, LLP
130 Veller Drive
Beaver Dam, KY 42320

CONSULTING ENGINEER:

Rod H. Martin, P.E.
Hunter Martin & Associates, Inc.
3220 Lone Oak Road
Paducah, KY. 42003

OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY

ENGINEERING REPORT
SERIES III
WATER SYSTEM IMPROVEMENTS

BOARD OF COMMISSIONERS:
Henry Morgan, Chairman
B. J. Dickens, Secretary
Earnie Wallace, Treasurer
Bernard Ballard
Wayman Cambron
Glendon Gillim
Angie Henry

DISTRICT SUPERINTENDENT:
Walt Beasley
Ohio County Water District
130 East Washington Street
Hartford, KY 42347

ATTORNEY:
Frank Martin, Attorney
408 North Main
Hartford, KY 42347

CERTIFIED PUBLIC ACCOUNTANT:
W. Gerald Watts, CPA
Clements, Guthrie & Robinson, LLP
130 Veller Drive
Beaver Dam, KY 42320

CONSULTING ENGINEER:
Rod H. Martin, P.E.
Hunter Martin & Associates, Inc.
3220 Lone Oak Road
Paducah, KY. 42003

OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY

ENGINEERING REPORT
SERIES III
WATER SYSTEM IMPROVEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. GEOGRAPHY AND POPULATION OF OHIO COUNTY:

1.1. Geography.

Ohio County is located in Kentucky's Western Coal Field Region, which is a major coal producing area of the State. The County is bounded on the Southwest by the Green River and lies adjacent to McLean County, Daviess County, Hancock County, Breckinridge County, Grayson County, Butler County, and Muhlenberg County. Ohio County is the fifth largest County in the State of Kentucky with approximately 593 square miles or 379,520 acres of land area.

The topography of the County is hilly and rocky with elevations ranging from approximately 390 MSL along the Green River on the Southwestern side of the County to approximately 700 MSL throughout the Central and Northeastern parts of the County. Several areas throughout the County are reclaimed strip mine ground, which provides a terrain with moderate slopes, but the majority of the County is dominated by terrain having steep slopes and abrupt changes in elevation.

Figure 1 on Page 5 is a General Location Map showing Kentucky Counties and their relationship to Ohio County.

1.2. Population.

Based on the 2000 Census, the population of Ohio County was 22,916 persons or 46th in the State. Hartford, the County Seat, had an estimated population of 2,571 persons in 2000. Beaver Dam, which is located just South of Hartford, had the largest population in the County with approximately 3,033 persons. Other cities within Ohio County, listed in the order of largest population first, are Fordsville (531); Centertown (416); McHenry (324); and Rockport (263).

Population projections for Ohio County and some of the cities located in the County are shown in the following table.

Table 1
OHIO COUNTY, KENTUCKY
POPULATION PROJECTIONS

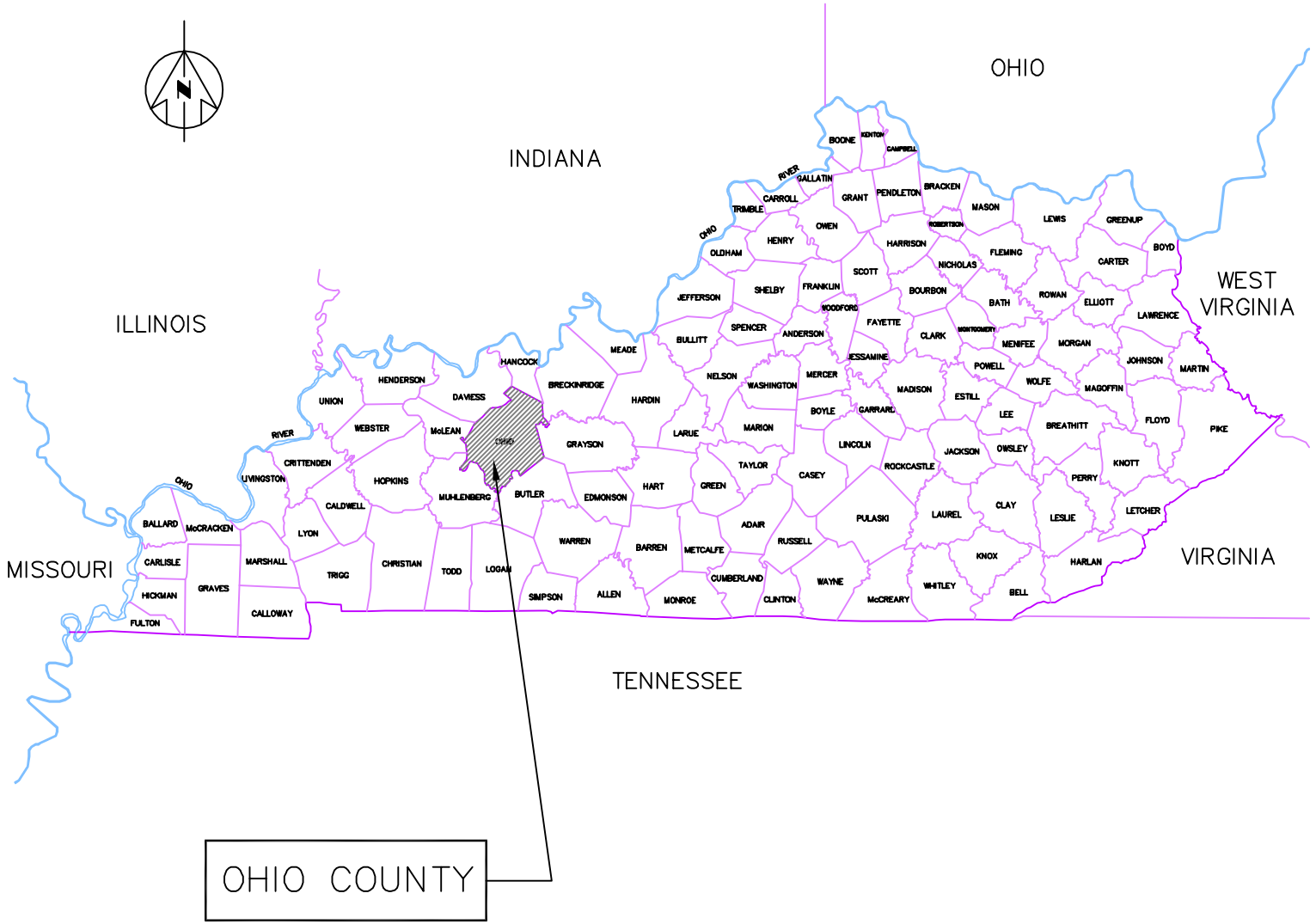
	1980 Census	1990 Census	2000 Census	2005 Projection	2010 Projection	2020 Projection
OHIO COUNTY	21,765	21,105	22,916	24,119	25,271	27,413
MUNICIPALITIES: **						
Beaver Dam	3,185	2,904	3,033	3.192	3.345	3.628
Hartford	2,512	2,532	2,571	2.706	2.835	3.076
Fordsville	561	522	531	559	586	635
Centertown	462	383	416	459	459	498
McHenry	582	414	324	357	357	388
Rockport	511	385	263	290	290	315

** Population projections for Municipalities are based on the same percent of the total population as shown for the 2000 Census.

HUNTER MARTIN & ASSOCIATES, INC.
ENGINEERS & SURVEYORS
3220 LONGWORTH ROAD • PADUCAH, KENTUCKY 42003
(502) 554-2737 • FAX (502) 554-2738

Drawn by: KH
Checked by: RM
File: KENTUCKY2
Date: 10/16/02
Revised:

FIGURE 1
KENTUCKY COUNTIES
OHIO COUNTY WATER DISTRICT



1.3. Work Force.

Ohio County is basically a rural area with a civilian labor force of approximately 2,394 persons. Agricultural related jobs utilize approximately a third of the work force. The remaining jobs are related to those of manufacturing, government, service, trade and construction industries.

2. INFRASTRUCTURE OF OHIO COUNTY:

2.1. Transportation.

Two major, multi-lane parkways are located in Ohio County. The Wendell H. Ford Parkway (formally Western Kentucky Parkway) runs in an East-West direction through the County and has two interchanges within ten miles of Hartford. It connects with Interstate 24 approximately 85 miles West of Hartford and with Interstate 65 and the Blue Grass Parkway approximately 72 miles East of Hartford.

The William H. Natcher Parkway (formally Green River Parkway) runs in a North-South direction through the County and intersects the Wendell H. Ford Parkway approximately 5 miles East of Beaver Dam and has an interchange approximately 2 miles East of Hartford. This Parkway connects Owensboro, Kentucky and the Audubon Parkway approximately 26 miles Northwest of Hartford and Bowling Green, Kentucky, and Interstate 65 approximately 49 miles Southeast of Hartford.

Other major highways serving Ohio County include U.S. Highway 62, U.S. Highway 231 and Ky. Highway 69. Figure 2 on Page 7 is a General Highway Map showing State and Federal Highways within Ohio County.

The local airport provides chartered air freight services and serves the area with a 4,500 foot lighted runway. The nearest regional airport is located at Owensboro, approximately 29 miles Northwest of Hartford. The nearest scheduled commercial airline service is at Evansville, Indiana, located approximately 66 miles Northwest of Hartford.

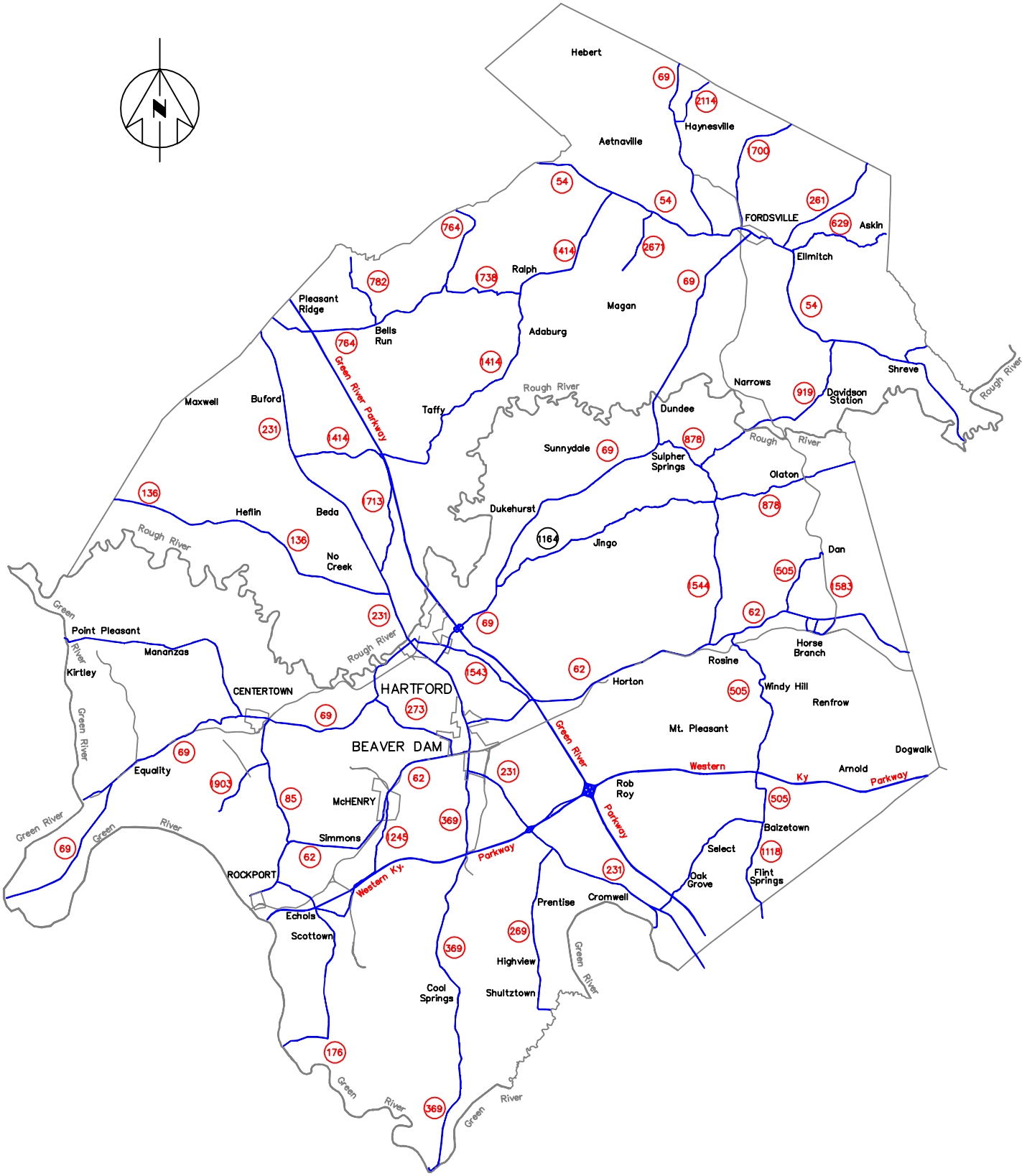
The Green River, located along the Southwestern border of Ohio County, is a nine foot navigation channel that is maintained from Rochester to its confluence with the Ohio River. Several coal-loading docks are located along the river through Ohio County. A public riverport facility is located near Owensboro approximately 26 miles Northwest of Hartford.

2.2. Electricity.

The Northern and Western portions of Ohio County are served with electricity by Green River Electric Corporation and Meade County Rural Electric Cooperative Corporation. The source of power for each of these companies is Big Rivers Electric Corporation.

Beaver Dam, Hartford and portions of Southwestern Ohio County are served with electricity by Kentucky Utilities Company, which has its own source of supply.

The Southern and Eastern portions of Ohio County are served with electricity by Warren Rural Electric Cooperative Corporation, which has as its source of supply the Tennessee Valley Authority.



HUNTER MARTIN & ASSOCIATES, INC. ENGINEERS & SURVEYORS 3220 LONE OAK ROAD * PADUCAH KENTUCKY 42003 (270) 554-2737 * FAX (270) 554-2738	Drawn by: KH	Checked by: RM	File: O-COUNTY	Date: 10/16/02	Revised:	FIGURE 2 GENERAL HIGHWAY MAP OHIO COUNTY WATER DISTRICT

Sheet 2

2.3. Natural Gas.

Beaver Dam, Hartford, and Fordsville are served with natural gas by Western Kentucky Gas Company. The source of supply for Western Kentucky Gas is Texas Gas Transmission Corporation.

2.4. Potable Water Facilities.

In addition to the Ohio County Water District, there are other public water supply systems in Ohio County. Hartford, Fordsville, and Rockport each own and maintain their own treatment and distribution facilities. Beaver Dam owns its own distribution system and purchases water from Ohio County Water District. Likewise, Centertown owns its distribution system and purchases its water from Hartford.

Perdue Farms, Inc. owns and operates a 3.0 MGD water treatment plant for its own use. Perdue Farms, Inc. provides Ohio County Water District with up to 1.0 MGD at a cost of $0.00 per 1,000 gallons. The District adds fluoride and boosts the concentration of chlorine before pumping the treated water to the Eastern side of its service area.

2.5. Wastewater Facilities.

Hartford, Beaver Dam, and Centertown each have their own municipally owned wastewater collection and treatment facilities. Perdue Farms, Inc. has its own facility for treatment of the waste from the poultry processing plant. The remaining areas throughout the County are served by individual onsite systems, such as septic tanks with field tile.

3. OHIO COUNTY WATER DISTRICT - GENERAL INFORMATION:

3.1. Formation And Organization.

Ohio County Water District of Ohio County, Kentucky, was created by virtue of Chapter 74 of the Kentucky Revised Statutes, pursuant to Order No. 138 by the County Court of Ohio County, Kentucky, duly entered on April 2, 1962. The regulatory agencies for the District are the Public Service Commission and the Department For Environmental Protection, Division Of Water.

Additional territories in and around Ohio County were annexed as follows:

a. In Ohio County by Orders of the Ohio County Court dated April 27, 1964, and November 21, 1978.
b. In Daviess County by Orders of the Daviess County Court dated September 27, 1965, and July 31, 1976.
c. In Grayson County by Order of the Grayson County Court dated January 29, 1985.
d. In McLean County by Order of the McLean County Court dated January 14, 1985.
e. In Butler County by Order of the Butler County Court dated January 29, 1985.

The governing body of Ohio County Water District consists of 7 Commissioners. Five of the Commissioners are duly appointed by the County Judge Executive of Ohio County with approval of the Fiscal Court. The remaining 2 are appointed by the County Judge Executive of Daviess County with the approval of that Fiscal Court. The present Commissioners are:

Henry Morgan, Chairman	Wayman Cambron
B. J. Dickens, Secretary	Glendon Gillim
Ernie Wallace, Treasurer	Angie Henry
Bernard Ballard	
Wayman Cambron	

3.2. Customer Base.

Table 2
OHIO COUNTY WATER DISTRICT
USAGE FOR YEAR ENDING DECEMBER, 2002

	Annual Customers	Annual Gallons Sold	2,000	18,000	30,000	50,000	100,000
RETAIL:							
First 2,000 Gallons	14,782	12,500,000	12,500,000	1,272,893,000			
Next 18,000 Gallons	44,071	215,431,300	88,142,000	127,289,300			
Next 30,000 Gallons	580	15,184,900	1,160,000	10,440,000	3,584,900		
Next 50,000 Gallons	135	9,429,400	270,000	2,430,000	4,050,000	2,679,400	
Over 100,000 Gallons	82	19,276,400	164,000	1,476,000	2,460,000	4,100,000	11,076,400
SUBTOTAL	59,650	271,822,000	102,236,000	1,414,528,300	10,094,900	6,779,400	11,076,400
LEAK ADJUSTMENTS		12,000,000					
WHOLESALE:							
Beaver Dam		103,815,121					
Fordsville		12,812,115					
North McLean		7,701,800					
SUBTOTAL		124,329,036					
TOTAL	4,865	386,573,300					

Table 3
OHIO COUNTY WATER DISTRICT
REVENUE FOR YEAR ENDING DECEMBER, 2002

	Annual Customers	Annual Gallons Sold	Rate		Revenue
RETAIL:					
First 2,000 Gallons	59,650	102,236,000	17.23	$	1,027,770
Next 18,000 Gallons		141,635,300	7.55	$	1,069,347
Next 30,000 Gallons		10,094,900	6.56	$	66,223
Next 50,000 Gallons		6,779,400	5.56	$	37,693
Over 100,000 Gallons		11,076,400	4.58	$	50,730
SUBTOTAL	59,650	271,822,000		$	2,251,763
LEAK ADJUSTMENTS		12,000,000	1.53	$	18,360
WHOLESALE:					
Beaver Dam		103,815,121	1.53		$158,837.14
Fordsville		12,812,115	1.53		$19,602.54
North McLean		7,701,800	1.53		$11,783.75
SUBTOTAL					
TOTAL					$190,223.43

The Water District continues to grow and adds new customers monthly.

4. FINANCIAL CONDITION OF WATER DISTRICT:

4.1. Current Indebtedness.

The District has entered into several Agreements with the U. S. Department of Agriculture, Farmers Home Administration, pursuant to which revenue bonds were issued in 1966, 1971, 1976, 1980 and 1986.

On May 9, 1989, the District refinanced the Series 1966, 1976, 1980 and 1986 Revenue Bonds through a Loan Agreement with Kentucky Infrastructure Authority. On September 1, 1993, Ohio County Water District entered into a First Supplemental Assistance Agreement with Kentucky Infrastructure Authority amending the original Assistance Agreement. The Amendment retired the original loan of 1989 with a new loan in the amount of $4,079,390. The outstanding balance as of 12/31/94 was $3,987,979. The loan matures 1/01/2015.

Ohio County Water District assumed ownership, operation and maintenance of the Rough River Water System, Inc. in 1996 and the assumption was approved by PSC Case No. 95-459.

Rough River Water System, Inc. financed its initial construction through revenue bonds which are currently held by General Electric Capital Corporation. Of the original issue, $119,437 principal amount remained outstanding as of 12/31/94. The bonds bear interest at 5 per cent per annum and have a maturity date of 1/01/2014. Ohio County Water District has assumed the G.E. Bonds and continues to make annual debt service payments as scheduled.

Series I Revenue Bonds in the amount of $4,000,000 were sold in July, 1998. These bonds financed the first series of the District's Long Range Plan of water system improvements. These bonds mature in the year 2028.

Series II Revenue Bonds in the amount of $4,035,000 were sold in August, 2000. These improvements continued to improve the system in accordance with the District's Long Range Plan.

Table 5 on Page 11 is a summary of the Annual Debt Service Requirements for all of the loans.

4.2. Annual Revenues And Expenses.

The Comparative Operating Statement for the years ending December 31, 2001 and 2002 are presented in Table 6 on Page 12. This information was taken from information presented annually to the Kentucky Public Service Commission.

4.3. Rates - Existing And Proposed.

The District, in accordance with Chapter 278 and 807 KAR 5:001, is currently seeking approval from the Public Service Commission to increase current water rates to fund the Series III Bonds. Adjustments in the rates and fees are needed to meet the increased debt service cost. The current rates and fees have been in effect since February 26, 2001. The following table shows the current rates for Ohio County Water District as well as the proposed rates.

Table 4
OHIO COUNTY WATER DISTRICT
PRESENT AND PROPOSED RATES

			BASIS OF CHARGE	PRESENT CHARGE	PROPOSED CHARGE
First	2,000	Gallons	MINIMUM	**$17.23**	**$20.11**
Next	8,000	Gallons	/1000 GALS.	**$7.55**	**$8.39**
Next	10,000	Gallons	/1000 GALS.	**$6.56**	**$7.26**
Next	30,000	Gallons	/1000 GALS.	**$5.56**	**$6.12**
Over	100,000	Gallons	/1000 GALS.	**$4.58**	**$4.97**
Wholesale Rate			/1000 GALS.	**$1.53**	**$2.55**

Table 7 on Page 12 shows a Budget of Operating Revenues and Expenses for the Pro Forma Period, taking into account the revenue to be generated by the proposed rates. The budget also makes adjustments, as required, for known and measurable increases.

Table 5
OHIO COUNTY WATER DISTRICT
SUMMARY OF ANNUAL DEBT SERVICE REQUIREMENTS

YEAR	KIA LOAN	GMAC LOAN	SERIES I REVENUE BONDS	SERIES II REVENUE BONDS	TOTAL
2004	$273,235	$10,459	$256,505	$274,362	$814,561
2005	$274,371	$10,459	$257,665	$270,950	$813,445
2006	$262,574	$10,459	$253,585	$272,538	$799,156
2007	$266,668	$10,459	$254,505	$273,862	$805,494
2008	$270,896	$10,459	$255,185	$269,925	$806,465
2009	$271,737	$10,459	$255,625	$270,988	$808,809
2010	$275,825	$10,459	$255,825	$271,787	$813,896
2011	$276,375	$10,459	$255,785	$272,325	$814,944
2012	$285,340	$10,459	$255,505	$272,600	$823,904
2013	$285,950	$3,979	$254,985	$272,613	$817,527
2014	$286,830	$0	$254,225	$272,362	$813,417
2015	$2,267,698	$0	$253,225	$271,850	$2,792,773
2016	$0	$0	$256,985	$271,075	$528,060
2017	$0	$0	$255,265	$269,980	$525,245
2018	$0	$0	$253,305	$273,560	$526,865
2019	$0	$0	$256,030	$271,540	$527,570
2020	$0	$0	$253,270	$274,250	$527,520
2021	$0	$0	$255,268	$271,275	$526,543
2022	$0	$0	$256,780	$273,025	$529,805
2023	$0	$0	$252,808	$269,225	$522,033
2024	$0	$0	$253,592	$270,150	$523,742
2025	$0	$0	$253,892	$270,525	$524,417
2026	$0	$0	$253,708	$270,350	$524,058
2027	$0	$0	$253,038	$269,625	$522,663
2028	$0	$0	$256,881	$273,350	$530,231
2029	$0	$0	$0	$271,250	$271,250
2030	$0	$0	$0	$548,600	$548,600
TOTAL	$5,297,499	$98,110	$6,373,442	$7,613,942	$19,382,993

Table 6
OHIO COUNTY WATER DISTRICT
COMPARATIVE OPERATING STATEMENT

	Year Ending 2001	Year Ending 2002
TOTAL OPERATING REVENUES:	**$2,491,030.00**	**$ 2,543,623.00**
UTILITY OPERATING EXPENSES		
OPERATING EXPENSES:	$1,307,790.00	$1,395,120.00
DEPRECIATION EXPENSES:	$364,267.00	$449,040.00
TAXES OTHER THAN INCOME	$51,735.00	$53,284.00
SUBTOTAL - UTILITY OPERATING EXPENSES	$1,723,792.00	$1,897,444.00
UTILITY OPERATING INCOME	**$767,238.00**	**$646,179.00**
GAINS (LOSSES) FROM DISPOSITION OF PROPERTY	**$4,580.00**	**$0.00**
TOTAL UTILITY OPERATING INCOME	**$771,818.00**	**$646,179.00**
OTHER INCOME & DEDUCTIONS	**$161,392.00**	**$129,899.00**
INTEREST EXPENSE	**($544,947.00)**	**($587,451.00)**
NET INCOME	**$388,263.00**	**$188,627.00**

Table 7
OHIO COUNTY WATER DISTRICT
BUDGET OF OPERATING REVENUES AND EXPENSES

	PRO FORMA BUDGET
OPERATING REVENUE:	
Water Sales W/ New Rates and Customers	$3,094,931.00
Miscellaneous Service Revenue	$23,108.00
Penalties	$61,595.00
Other Water Revenues	$2,044.00
SUBTOTAL - OPERATING REVENUE	**$3,027,303.04**
OPERATING EXPENSES:	
Salaries & Wages	$746,502.00
Employee Pensions & Benefits	$159,711.00
Purchased Power	$138,022.00
Chemicals	$38,580.00
Materials & Supplies	$75,460.00
Contractual Services	$216,298.00
Rents	$15,953.00
Transportation Expense	$47,537.00
Insurance	$21,660.00
Bad Debt Expense	$11,817.00
Miscellaneous	$27,195.00
Taxes	$58,894.00
Depreciation - Funded At 67%	$370,113.00
SUBTOTAL - OPERATING EXPENSE	$1,927,742.00
OPERATING INCOME	**$1,099,561.04**
OTHER INCOME & EXPENSES	
Interest Income – Unrestricted	$67,674.00
Interest Expense - Customers Deposits	($188.00)
Debt Service & 20% Coverage	($1,147,362.00)
SUBTOTAL - OTHER INCOME (EXPENSE)	**($1,079,876.00)**
Annual Surplus	**$19,685.04**

5. SYSTEM INVENTORY:

5.1. Supply.

Ohio County Water District operates a 2.08 MGD surface water treatment plant located in the community of Cromwell, Kentucky. The source of supply for the District is the Green River and the river intake structure, constructed in 1992, has the capability of being upgraded to 3.9 MGD.

The District's treatment plant was constructed around 1966 and consists of a mixing chamber, 2 sedimentation basins and 2 gravity sand filters operated in parallel. In 1979, the District added additional length to the sedimentation basins to increase settling times and installed tube settlers. Additional clearwells were added at this time. Several additional improvements have been made to increase the reliability and efficiency of the plant. The plant layout is designed for duplication of units and can be increased to 3.9 MGD.

The plant structures are in relatively good condition and the District has implemented an aggressive maintenance program to make repairs in the areas of most need. The District continues to work closely with Kentucky Division Of Water to comply with all State and Federal regulations and to operate the plant as efficiently as possible.

In 1997 Perdue located in Ohio County and constructed a 3.0 mgd water treatment plant for production of process water. Through negotiations with the County Perdue agreed to provide 1.0 mgd to the Ohio County Water District. The District now has the infrastructure in place to utilize this supply and currently uses about 0.60 mgd from the Perdue WTP.

This combination of supplies gives the District a current design capacity of 3.08 mgd and a future design capacity of 4.9 mgd.

5.2. Distribution System.

The District is divided into 3 different primary service areas or pressure zones. Booster stations supply water into each service area and are operated by radio telemetry from the storage facilities within each respective service area. The District's system is not designed to provide fire flows.

The service areas, as they exist today, are shown in Figure 3, Schematic Of Existing Service Areas on Page 14 and are identified as follows:

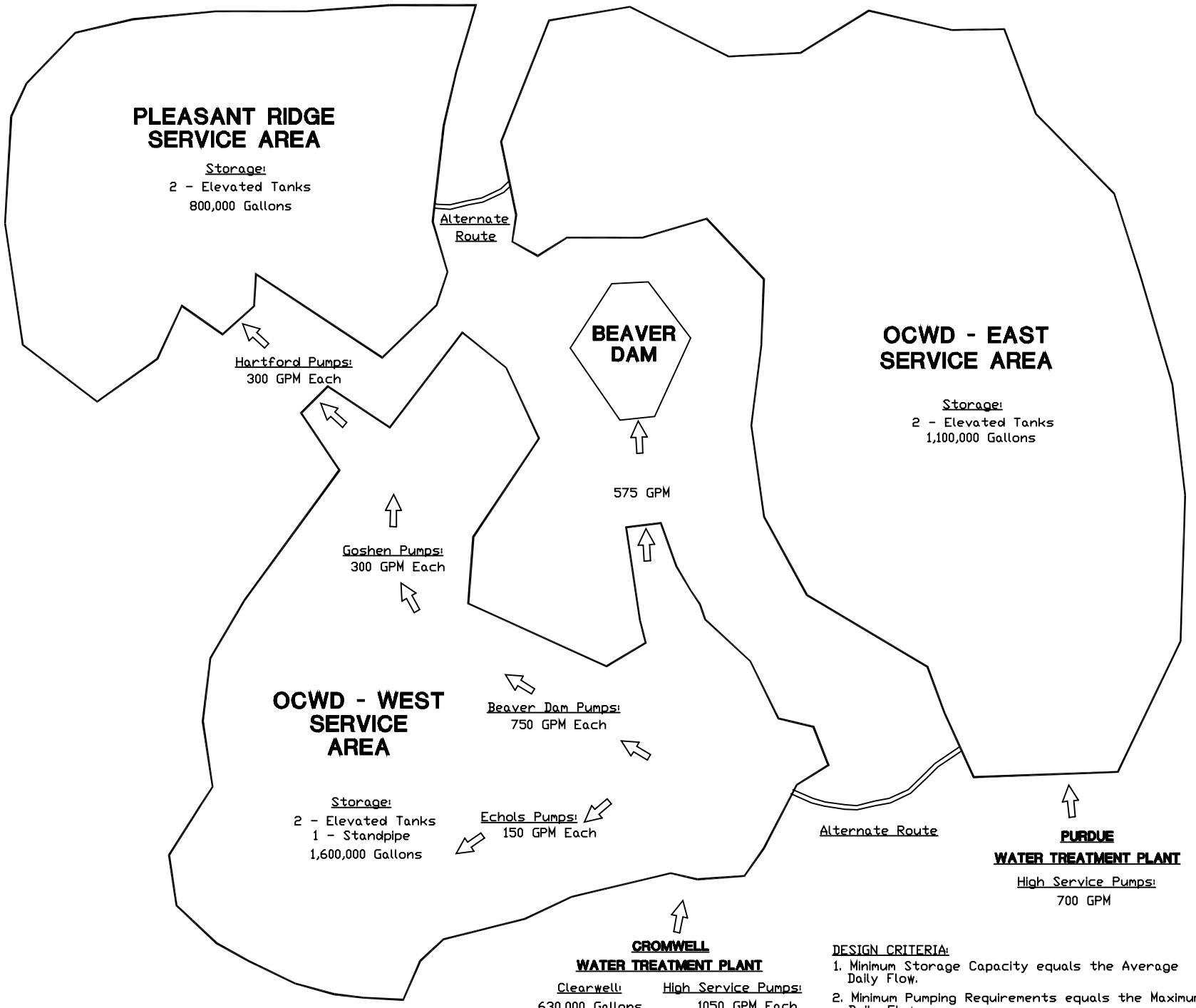
OCWD - EAST SERVICE AREA
OCWD - WEST SERVICE AREA
PLEASANT RIDGE SERVICE AREA

HUNTER MARTIN & ASSOCIATES, INC.
ENGINEERS & SURVEYORS
3220 LONE OAK ROAD • PADUCAH KENTUCKY 42003
(270) 554-2737 • FAX (270) 554-2738

Drawn by: JRJ
Checked by: RHM
File: LRP-SERV
Date: 2-17-03
Revised:

FIGURE 3
SCHEMATIC OF EXISTING SERVICE AREAS
OHIO COUNTY WATER DISTRICT

Sheet



DESIGN CRITERIA:
1. Minimum Storage Capacity equals the Average Daily Flow.
2. Minimum Pumping Requirements equals the Maximum Daily Flow.

5.3. Pumping Facilities.

The Schematic Of Existing Service Areas shows the available capacity of each pump station. A summary follows:

Table 8
OHIO COUNTY WATER DISTRICT
SUMMARY OF PUMPING FACILITIES

Service Area	Station Name	Number Of Pumps	Capacity, GPM
SUPPLY	Cromwell Water Treatment Plant	1 – High Service Pumps	1,050
	Perdue Water Treatment Plant	2 - High Service Pumps	700
OCWD – WEST	Beaver Dam	2 Pumps	750
	Goshen Rd.	2 Pumps	750
	Echols	2 Pumps	150
OCWD – EAST	Rough River	2 Pumps	Phasing Out
PLEASANT RIDGE	Hartford	2 Pumps	300

5.4. Storage Facilities.

The Schematic Of Existing Service Areas shows the available capacity in each service area. A summary follows:

Table 9
OHIO COUNTY WATER DISTRICT
SUMMARY OF STORAGE FACILITIES

Service Area	Tank Name	Type	Capacity, Gallons	Overflow Elevation, MSL
OCWD – WEST	Bluegrass Crossings	Elevated	1,000,000	685
	Industrial Park East	Elevated	500,000	685
	Echols	Standpipe	100,000	685
OCWD – EAST	Windy Hill	Elevated	500,000	860
	Olaton	Elevated	500,000	860
	Rough River	Standpipe	100,000	666.5
PLEASANT RIDGE	Bells Run	Elevated	300,000	739.5
	Hoover Hill	Elevated	500,000	739.5

6. DESIGN FLOWS:

Average Daily Flows (ADF) created by existing users are computed & analyzed by two different methods. The first analyzes the system based on actual demands, as determined from meter readings. The second method considers the theoretical demand based on design criteria of 300 gpd per customer for residential users.

Maximum Daily Flows (MDF) are computed at 150% of the Average Daily Flows.

Flows that are expected long term were computed based on a 2% annual growth for 20 years and assuming the theoretical demand of 300 gpd per customer for residential users.

The Summary Of Design Flows for both wholesale and retail customers are summarized in Table 10 on Page 17

7. SYSTEM DEFICIENCIES:

7.1. Distribution Facilities.

In recent years the District has implemented major improvements to the distribution system. These have taken place primarily in the OCWD – East Service Area and currently this service area is strong. Improvements have also been made to the distribution system leading from each treatment plant to facilitate the supply of water into both the OCWD – East Service Area and the OCWD – West Service Area.

Of major concern are the remaining areas of the District that have occurrences of pressures below 30 psi during even moderate flow demands. The areas in the northern end of the Pleasant Ridge Service Area and these deficiencies occur at existing maximum demands. These problems are magnified as the projected 20 year design flows are imposed upon the system.

Several factors within the District combine to create these low pressure problems. Small lines have been extended throughout the District and, in time, new customers have been added. The result is low pressure due to friction loss created by the larger demands.

Friction loss is also the major cause of low pressures on the suction side of some of the pump stations. Typically, these stations have been upgraded to meet increased demands, but the supply lines to the stations are simply not large enough, creating high friction losses. The result is low suction pressure.

Other problems include large fluctuations in ground elevations within a given service area.

7.2. Pumping Facilities.

Pumping facilities within the system are for the most part in good shape. A summary of stations that will need attention in the not to distant future is as follows:

1. **Cromwell Water Treatment Plant - High Service Pumps**. The high service pumps at Cromwell meet today's demands. However, due to their age & condition a new building at the water treatment plant is planned for the future to house new high service pumps and filter backwash pumps. The new pumps will be designed for the long range flows.

2. **Echols Pump Station**. As the existing pumps in this station are replaced they need to be upsized slightly to meet the long range demands for the OCWD – West Service Area.

Table 10
OHIO COUNTY WATER DISTRICT
SUMMARY OF DESIGN FLOWS

RETAIL FLOWS

		ACTUAL FLOWS				*EXISTING THEORETICAL*				*LONG RANGE PLAN*			
		AVERAGE DAILY FLOW		MAXIMUM DAILY FLOW		AVERAGE DAILY FLOW		MAXIMUM DAILY FLOW		AVERAGE DAILY FLOW		AVERAGE DAILY FLOW	
		Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd
OCWD EAST	34.75%	316.75	456,121	475.13	684,181	364.19	524,438	546.29	786,657	490.52	706,342	735.77	1,059,513
OCWD WEST	38.54%	351.33	505,922	527.00	758,883	403.96	581,699	605.94	872,548	544.07	783,464	816.11	1,175,196
PLEASANT RIDGE	26.71%	243.46	350,588	365.20	525,882	279.93	403,099	419.90	604,649	377.03	542,916	565.54	814,374
TOTAL	100.00%	911.55	1,312,631	1,367.32	1,968,947	1,048.08	1,509,236	1,572.12	2,263,854	1,411.61	2,032,722	2,117.42	3,049,083

WHOLESALE FLOWS

		ACTUAL FLOWS				*EXISTING THEORETICAL*				*LONG RANGE PLAN*			
		AVERAGE DAILY FLOW		MAXIMUM DAILY FLOW		AVERAGE DAILY FLOW		MAXIMUM DAILY FLOW		AVERAGE DAILY FLOW		AVERAGE DAILY FLOW	
		Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd
Beaver Dam	WEST	227.3	327,312	341.0	490,968	227.3	327,312	341.0	490,968	383.3	552,000	575.0	828,000
Fordsville	EAST	18.0	25,920	27.0	38,880	18.0	25,920	27.0	38,880	100.0	144,000	150.0	216,000
Centertown	WEST	0.0	0	0.0	0	0.0	0	0.0	0	133.3	192,000	200.0	288,000
McLean Co	PRIDGE	12.4	17,856	18.6	26,784	12.4	17,856	18.6	26,787	35.0	50,400	52.5	75,600
Grayson Co	WEST	0.0	0	0.0	0	0.0	0	0.0	0	35.0	50,400	52.5	75,600
TOTAL		257.7	371,088	386.6	556,632	257.7	371,088	386.6	556,635	686.7	988,800	1,030.0	1,483,200

TOTAL FLOWS

		ACTUAL FLOWS				*EXISTING THEORETICAL*				*LONG RANGE PLAN*			
		AVERAGE DAILY FLOW		MAXIMUM DAILY FLOW		AVERAGE DAILY FLOW		MAXIMUM DAILY FLOW		AVERAGE DAILY FLOW		AVERAGE DAILY FLOW	
		Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd	Rate, gpm	Daily, gpd
OCWD EAST	28.6%	334.8	482,041	505.5	727,987	382.2	550,408	573.3	825,612	625.2	900,342	1,035.8	1,491,513
OCWD WEST	49.5%	578.6	833,234	527.0	758,883	631.2	908,990	946.9	1,363,485	1,060.7	1,527,464	1,591.1	2,291,196
PRIDGE	21.9%	255.9	368,444	365.2	525,882	292.3	420,957	438.5	631,436	411.7	592,916	715.5	1,030,374
TOTAL	100.0%	1,169.2	1,683,719	1,397.7	2,012,753	1,305.8	1,880,355	1,958.7	2,820,533	2,097.7	3,020,722	3,342.4	4,813,083
PLANT CAPACITY		**3.08 MGD**				**3.08 MGD**				**4.9 MGD**			

3. **Goshen Road Pump Station**. This station serves as a booster station to provide additional flow to the Hartford Pump Station. It's capacity will need to be increased as demands increase. It should be re-evaluated periodically with regard to its capacity.

4. **Hartford Pump Station**. This station, which serves the Pleasant Ridge Service Area, is adequate for the existing demands but needs to be increased to meet the 20 year demands. This station should be re-evaluated periodically with regard to its capacity.

7.3. Storage Facilities.

The District has 3.5 million gallons of available storage which will provide an excess of 24 hours of supply at the average daily demand. No major additions are planned for now but this will be re-evaluated periodically as flow patterns increase and change.

8. LONG RANGE PLAN:

In June, 1995 a study was completed for the Ohio County Water District that identified system deficiencies and developed a Long Range Plan for making improvements within the District's system. The Long Range Plan presented a general concept for serving both existing and future customers taking into account the age and capacity of the existing facilities.

The District considered several alternatives for implementation of the needed improvements. Lengthy discussions took place with County officials to determine sources of funding, methods of phasing construction and additional areas of need such as poor groundwater quality in some areas that were unserved.

To implement the Long Range Plan, the District developed the following schedule of improvements:

8.1. Series I.

Series I Improvements have been completed and all new facilities are in service. These improvements were accomplished through 7 contracts and included mains, storage facilities, high service pumps at Perdue's water treatment facility and radio telemetry equipment for monitoring and controlling the system.

The total project cost for this Series was $4,000,000 funded by Revenue Bonds. Sale of the Bonds were completed in 1998 and the District was authorized to proceed with Series I funding and to adjust rates to pay for the additional indebtedness by PSC Order dated 8/19/98 in Case No. 98-015.

Generally, Series I Improvements included connection to Perdue's Water Treatment Plant and installation of a transmission main to a new 500,000 gallon elevated tank at Windy Hill (approximately 10 miles Northeast of the Perdue Facilities). A new tank was also constructed in the Northwest section of the District at Hoover Hill. The communities of Taffy, Adaburg and Beech Valley were plagued with contaminated ground water (oil) and Series I Improvements extended water mains to these unserved communities. There were also several small areas where lines were added to either eliminate system deficiencies and/or serve new customers.

8.2. Series II.

These improvements have been completed and are also in service. They were funded by a second Revenue Bond Issue in the amount of $4,035,000 denoted as Series II.

Improvements included a continuation of the transmission main constructed in Series I Northeastwardly through Narrows, Dundee, and Olaton to Rough River. Improvements included an additional 500,000 gallon elevated storage tank at Olaton The improvements extended mains into some unserved areas and reinforced the existing system and eliminate deficiencies.

8.3. Governor's Grant.

The District received $500,000 from the Governor's Office for Policy and Management which designated the monies to be used for new mains. The District completed these improvements which targeted an area located along U.S. Highway 978 from Rough River Northeastwardly through Davidson Station to Shrieve, located on KY Highway 54. This was an unserved area of the District.

9. PROPOSED IMPROVEMENTS:

Plans and Specifications for the Series III Water System Improvements were prepared and submitted to Kentucky Division Of Water for review. Approval was received in December, 2002 and the work was advertised for bidding in January, 2003. Bids were received on February 14, 2003.

Series III is a part of Ohio County's Long-Range Plan to (1) supply water to the City Of Fordsville; (2) supply water to parts of Ohio County that do not have potable water; and (3) close loops and increase main sizes to create a hydraulically sound system.

The proposed improvements are shown in Figure 4 at the end of this report and fall into 3 different areas. The first area serves new customers along KY Hwy 54 from KY Hwy 919 eastwardly to the Ohio-Breckinridge county line. Also served is an area north of KY Hwy 54 known as Askin.

The second area designated for improvements lies just west of KY Hwy 69. This main will provide an alternate route for water supply to the Pleasant Ridge Service Area. This is particularly important because currently the Pleasant Ridge Service area is fed by a single connection just north of Hartford.

The third area designated for improvements lies in the Pleasant Ridge Service Area and will eliminate pressure deficiencies that occur during maximum demands. For the most part the mains will not serve new customers but will reinforce existing mains and connect dead end lines.

10. PROJECT COSTS - SERIES III:

On February 14, 2003, Ohio County Water District received and opened ten bids for the Series III improvements. The low bid was submitted by Stotts Construction Company, Inc.

All Bids were checked to determine if they were responsive and responsible and a Bid Tabulation was completed and distributed to all Bidders, the District and the Public Service Commission.
The Contractor has sufficient equipment to do the work; has the expertise for this type work; and has worked on another project with the Engineer.

The Contractor is satisfied with his Bid in relation to other Bids and there should be no problem with bonding.

The District has issued the Notice of Award (Subject to Public Service Commission Approval) to Stotts Construction Company, Inc. in the amount of $1,147,520.25.

A breakdown of Project Costs for the proposed improvements in Series III is shown in Table 11, on Page 21. This information shows an estimate of construction, technical, financing, and administrative costs associated with the proposed improvements. It is noted that the type of funding that is eventually secured for this work will affect the amount required for interest during construction, administrative, and legal.

11. SOURCE OF FUNDING:

Ultimately, all indebtedness must be paid for through user charges. The proposed improvements will increase the debt service requirements on a "per customer" basis by an average of $3.05 per month. A typical rate structure has been calculated, along with the effect of the new rate on different monthly bills. This information is compared with the current rate as well as the rate pending PSC approval.

12. CONSTRUCTION PROBLEMS:

Ohio County has several areas where rock formations are within 12 - 48 inches of the surface. Much of the work proposed will be in these areas, and Contractors have adjusted prices accordingly. Encountering rock for this type of utility work is normal for the area and will not unduly affect the project.

Several small creek crossings required and the Contractor will have to plan these crossings accordingly to avoid delays caused by temporary flooding of these areas. It is not anticipated that the project will be affected by high groundwater.

13. ENVIRONMENTAL EFFECTS:

There will be no displacement of households, businesses or any buildings required for the implementation of this project. The quality of both groundwater and surface water will not be diminished in any way by the proposed facilities and there will be no adverse effects on the topography, climate or soil.

No marketable timber will be affected by the project and there are no known unique or endangered plant or animal species in the area. Minor local noises and air pollution will result from construction, but shall be minimized by construction methods and will not be objectionable. There will be no reduction in the value of adjacent property and no adverse effects on the recreational potential of the area.

Table 11
OHIO COUNTY WATER DISTRICT
SERIES III PROJECT COSTS

CONSTRUCTION COSTS (LOW BID FOR LABOR & MATERIALS)				
AVERAGE OF $6.35833 PER LF FOR A TOTAL OF 180,475 LF OF 4", 6", 8" & 10" PIPE				1,147,520.25
TECHNICAL				
Basic Engineering Fee				
Preliminary Basic (10% Of Basic)	7.960%		$9,134.26	
Design Basic (60% Of Basic)	7.960%		$54,805.57	
Bidding/Award (10% Of Basic)	7.960%		$9,134.26	
Construction Basic (20 % Of Basic)	7.960%		$18,268.52	
Inspection	4.252%		$48,792.56	
Extra (Hourly As Needed)				
Surveys		$ 3,000		
Easements		$ 2,000		
Permits		$ 1,000		
Shop Drawings Manual		$ 500		
Financing Assistance		$ 7,000		
Psc Rate & Construction Case		$ 10,500		
Subtotal - Extra			$24,000.00	
TOTAL TECHNICAL				164,135.17
PLANNING & ADMINISTRATIVE				15,000.00
DISTRICT IN-HOUSE EXPENSES:				
Furnish Meter, Boxes, & Valves For Reconnects	124 Estimated	$ 350.00	$43,400.00	43,400.00
FINANCING & BOND EXPENSES				245,017.00
LAND, EASEMENTS & PERMITS				9,000.00
LEGAL				15,000.00
CONTINGENCIES	21.87% OF CONSTRUCTION			250,927.58
TOTAL PROJECT COSTS				1,890,000.00
Approximate Number Of Customers				4,864
Annual Debt Service Estimated for Next 5 Years w/ 20% Coverage				$177,973
Surcharge Per Customer Per Month				$3.05

14. CONCLUSIONS AND RECOMMENDATIONS:

The foregoing report has been prepared for use by the:

1. Ohio County Water District Board Of Commissioners
2. Public Service Commission
3. Kentucky Division Of Water

This report is intended to provide a comprehensive analysis of the proposed improvements; provide cost estimates that are realistic; and provide a conservative projection of the revenue that must be generated to finance the work.

The improvements described herein are worthwhile and urgently needed for the health, welfare and economic development of the entire Water District. It is, therefore, recommended that the District submit this report and supporting documentation to the Public Service Commission for issuance of a Certificate Of Public Convenience and Necessity for the proposed improvements and authorization to adjust the water rates to finance the indebtedness.

We trust that you will find this report complete in every respect and that it meets the planning and financial needs of the District.

Respectfully Submitted,

HUNTER MARTIN & ASSOCIATES, INC.

Rod H. Martin, P.E.

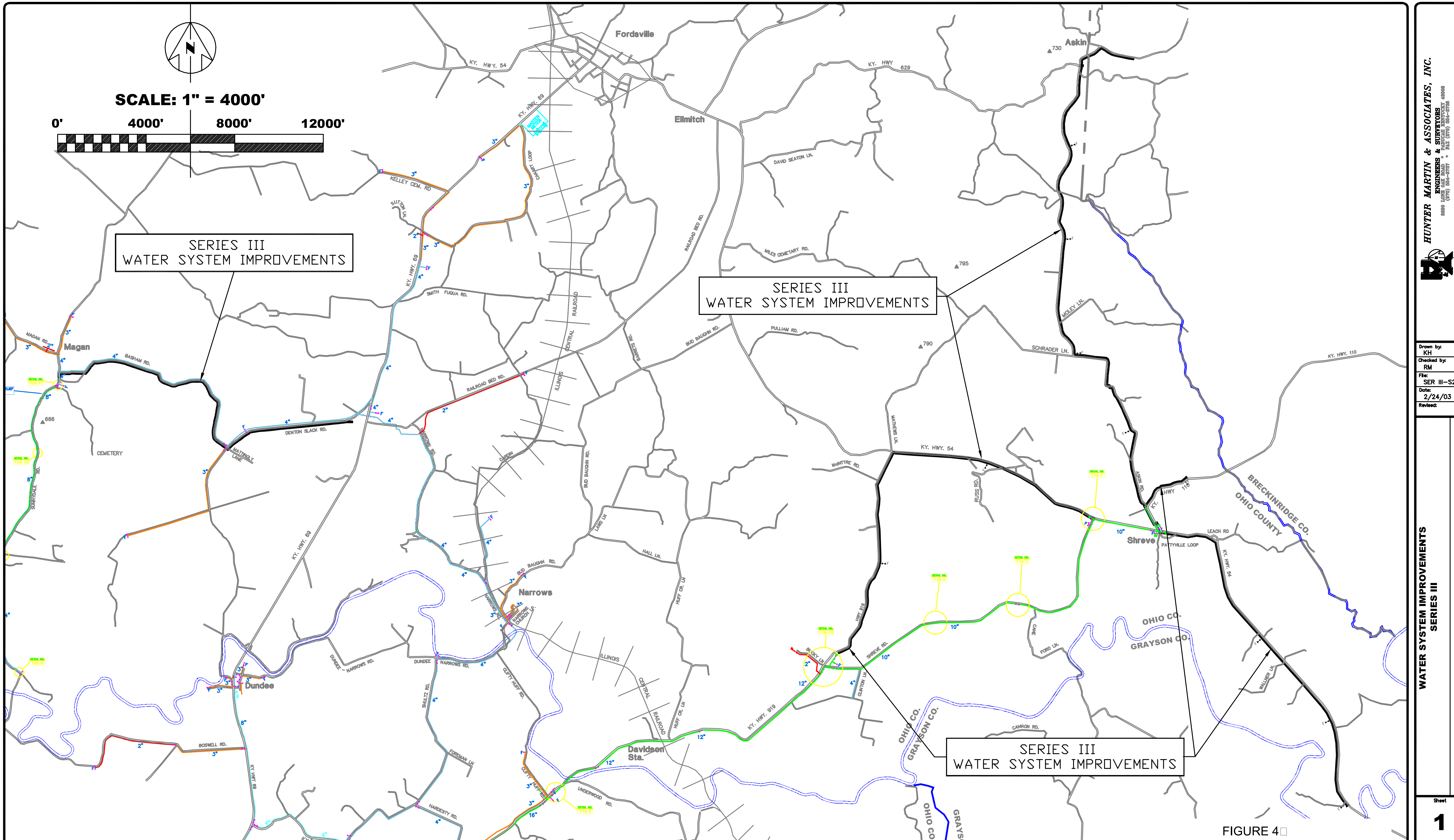


FIGURE 4
OHIO COUNTY WATER DISTRICT
PROPOSED IMPROVEMENTS

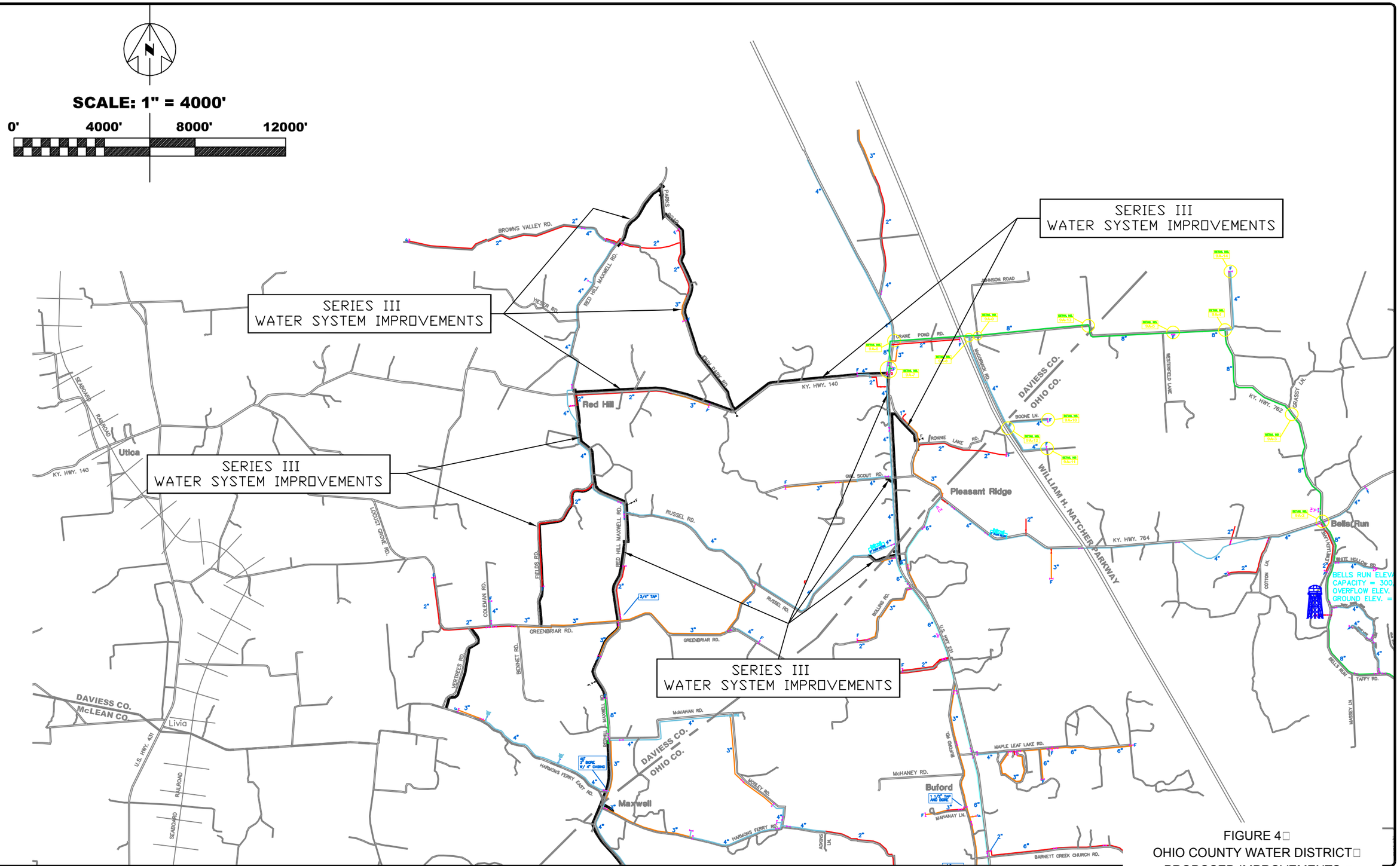


FIGURE 4□
OHIO COUNTY WATER DISTRICT□
PROPOSED IMPROVEMENTS □

HUNTER MARTIN & ASSOCIATES, INC.
ENGINEERS & SURVEYORS
8880 TAYLOR CREEK ROAD, PADUCAH, KENTUCKY 42003
(270) 554-2727 • FAX (270) 554-2726

Drawn by: KH
Checked by: RM
File: SERIII-S2
Date: 2/24/03
Revised:

WATER SYSTEM IMPROVEMENTS
SERIES III

OHIO COUNTY WATER DISTRICT

Sheet
2

SCALE: 1" = 4000'

0' 4000' 8000' 12000'

SERIES III
WATER SYSTEM IMPROVEMENTS

SERIES III
WATER SYSTEM IMPROVEMENTS

SERIES III
WATER SYSTEM IMPROVEMENTS

BELLS RUN ELEVATED TANK
CAPACITY = 300,000 GAL.
OVERFLOW ELEV. = 739.5
GROUND ELEV. = 617

HOOVER HILL EL.TANK
CAPACITY = 500,000 GAL.
OVERFLOW ELEV. = 739.5
GROUND ELEV. = 664

Utica
Red Hill
Pleasant Ridge
Bells Run
Maxwell
Buford
Livia
Nuckols
TUCKER HOLLOW

DAVIESS CO.
OHIO CO.
DAVIESS CO.
McLEAN CO.
McLEAN CO.
OHIO CO.

KY. HWY. 140
KY. HWY. 764
KY. HWY. 782
KY. HWY. 1414
KY HWY 1080
U.S. HWY. 431
U. S. HWY. 231
WILLIAM H. NATCHER PARKWAY
SEABOARD RAILROAD

HUNTER MARTIN & ASSOCIATES, INC.
ENGINEERS & SURVEYORS
3880 TATE CREEK ROAD, SUITE 200, LEXINGTON, KENTUCKY 40509
(859) 554-2727 • FAX (859) 554-2728

Drawn by: KH
Checked by: RM
File: SERIII-S2
Date: 2/24/03
Revised:

WATER SYSTEM IMPROVEMENTS
SERIES III

OHIO COUNTY WATER DISTRICT

Sheet 3

FIGURE 4□
OHIO COUNTY WATER SYSTEM □
PROPOSED IMPROVEMENTS□