Providence Water Docket 4406

Data Requests of Providence Water
Directed to the
Kent County Water Authority
Set 1 (Issued August 30, 2013)

PW 1 – 1 With regard to Christopher Woodcock's pre-filed testimony, pages 37-39, please provide a copy of the documentation, testimony, reports and/or schedules filed by Kent County Water Authority for a new facility in Docket 3311.

Response: Due to age of Docket, records were destroyed. See Certification of Record Destruction attached.

We have been able to provide the following from records review:

1. Copy of CIP-Update Report, CDM, March 2001
2. Mr. Woodcock's spreadsheets of initial filing.

Prepared by Mr. Brown, records provided by Mr. Brown and Mr. Woodcock

State of Rhode Island and Providence Plantations
Rhode Island State Archives & Public Records Administration

CERTIFICATION OF RECORDS DESTRUCTION

In accordance with the Authority granted by Title 38 of the Rhode Island General Laws these records have met the legal retention requirements and are eligible for destruction on date below.

Department: Kent County Water Authority
Division: P O Box 192, 1072 Main Street
Unit: West Warwick RI 02893-0192

Date: 1/30/12

Record Series Number	Record Series Title	Dates to/from	Volume
LG2.1.6	Cash Receipts	2009-2010 ✓	134
GRS.5.1	General Correspondence	1989-2003 ✓	134
LG2.8.10 (a)	Reports (Daily and Weekly)	2009-2010 ✓ FY 2010	67
LG10.1.8 LG10.3.1(b)	Fuel Summaries Plans, Maps & Drawings (Copies)	2009-2010 ✓ 2008-2010 ✓	18.27 18.27
LG10.1.3 LG10.4.8	Work Order Logs (Dig-Safe) Readings	2005-2008 ✓ 2003-2005 ✓	18.27 18.27
LG2.3.12 LG 2.4.4	Water Service Applications & Agreements (Closings) Purchase Orders	2002-2005 ✓ ✓ 2005 and prior to	18.27 18.27
LG2.6.4 LG2.6.3	Personnel Absentee File Employee Time Sheets and Time Cards	2002-2007 ✓ 2002-2007 ✓	18.27 18.27
LG10.1.4	Vehicle Records (Mileage)	2005-2010 ✓	18.27
GRS.5.1	General Reference File	2009-2010 ✓	18.27

Please sign this certificate and return to the R. I. State Archives, 337 Westminster Street, Providence RI, 02903

I certify that I have reviewed the above listed records and authorize their destruction.

Department Head or Records Custodian: [signature] Date: 1/30/12

State Archivist
& Public Records Administrator: [signature] Date: 1/30/2012

Signed and executed Certificate is a permanent record (RIGL §42-8.1-10.)

Form RI/PRA 003 (Rev. 5/99)

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PUC Docket #3311

KCWA Rate Filing 2001

CDM Camp Dresser & McKee

CIP 2002 - 2005

UPDATED CAPITAL IMPROVEMENT PROGRAM (CIP)

for

Kent County Water Authority

March 2001

Contents

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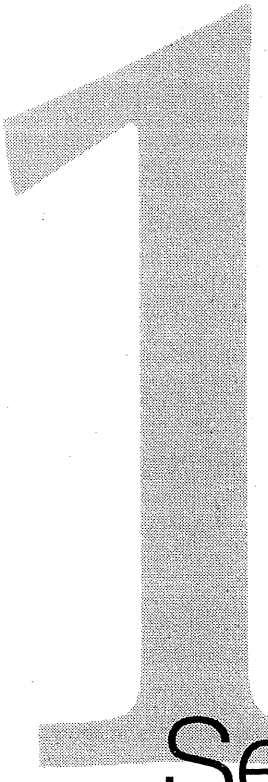
Section 5 Fiscal Year 2005 Improvements



Section One

Section 1
Introduction

Purpose

In November 2000, the Kent County Water Authority (Authority) retained Camp Dresser & McKee Inc. (CDM) to update their Capital Improvement Program (CIP) and prioritize its water system needs over the next four fiscal years (2002-2005). CDM met on several occasions with the Authority's General Manager and Chief Engineer, Mr. Timothy J. Brown, P.E., and the Authority's Board members to discuss the systems overall needs. The Authority wishes to update its CIP for an upcoming rate filing with the Rhode Island Public Utilities Commission (RIPUC). This filing is necessary for the Authority to properly finance and bond their ongoing CIP and portions of this updated CIP.

Background

In 1993, the Authority prepared their 5-year CIP with the assistance of CDM. This CIP identified improvements needed in the Authority's water system to increase supply, to improve transmission and distribution system capacity and reliability, and to meet future customer demands. The 1993 CIP also scheduled projects by prioritizing needs and provided engineering and construction cost estimates.

On December 11, 1995, CDM completed a letter report, which reviewed and updated the Authority's 1993 CIP. In the letter, we reviewed the findings and recommendations of the Wellfield Evaluation Study, the Read School House Road Gradient Study and the System Gradient Study and determined their impact on the 1993 CIP. The referenced studies identified water supply options, which would reduce the Authority's bulk purchase from the Providence Water Supply Board (PWSB), through the expanded use of the Authority's existing and potential groundwater supplies.

As part of our 1995 evaluation, the Authority requested a review of the 1993 CIP to determine if all projects were still needed. CDM also determined whether additional projects were required to optimize the available groundwater supplies and to transport the new supply into the existing transmission and distribution system. The letter provided the Authority with a guide to meeting its goals and optimizing their groundwater resources.

The 1995 CIP Update letter also defined measures that the Authority can take to protect its water resources, improve water supply efficiency, and set forth a plan for the future. This CIP Update supported the Authority's goals such as: optimizing its groundwater resources; improving transmission between existing and future well fields and the existing system; reinforcing the existing transmission and distribution system; and expanding the Authority's system to Coventry, East Greenwich and West Greenwich.

The new 2001 CIP uses information provided in the 1993 CIP and the 1995 letter. The 2001 CIP will prioritize the projects that remain from the previous CIPs and new projects that are necessary for the Authority to meet its current goals. These goals are discussed below.

Goals of Plan

The Authority is committed to providing a safe, reliable, and adequate water supply to its customers in Coventry, East Greenwich West Greenwich, Warwick, and West Warwick, all of which compose Kent County; and small areas of Cranston, North Kingstown and Scituate. This updated 2001 CIP will help the Authority meet its commitment to customers while optimizing its own groundwater resources. The CIP provides the Authority with a plan to improve water supply system efficiency, optimize supply from its existing and proposed wellfields, provide needed redundancy throughout the system and sets forth improvements to meet future system needs.

The 2001 CIP outlines the Authority's plan for improving and modernizing the system.

Summary

Through discussions with the Authority, CDM established improvements to meet the Authority's immediate and future needs. Table 1-1 identifies the thirteen specific projects of the CIP and Figure 1-1 locates the projects. The Authority and CDM have broken some of the larger projects into smaller sub-projects, where possible, which may be advertised as separate contracts. It also provides flexibility that may be needed to accommodate the dynamic conditions and needs of a water utility including the availability of funding to meet system needs of the next five years.

The waterworks industry faces challenging times given the federal Safe Drinking Water Act (SDWA) mandates and the 1991-enacted Water Supply Management Act (WSMA) requirements (RIGL 46-15.4). The Authority is clearly aware of these requirements and has proactively incorporated into this CIP, high priority projects, which will address water supply, transmission, distribution, quality and water availability. The CIP has been designed to be flexible and emphasizes the critical needs of the Authority's system.

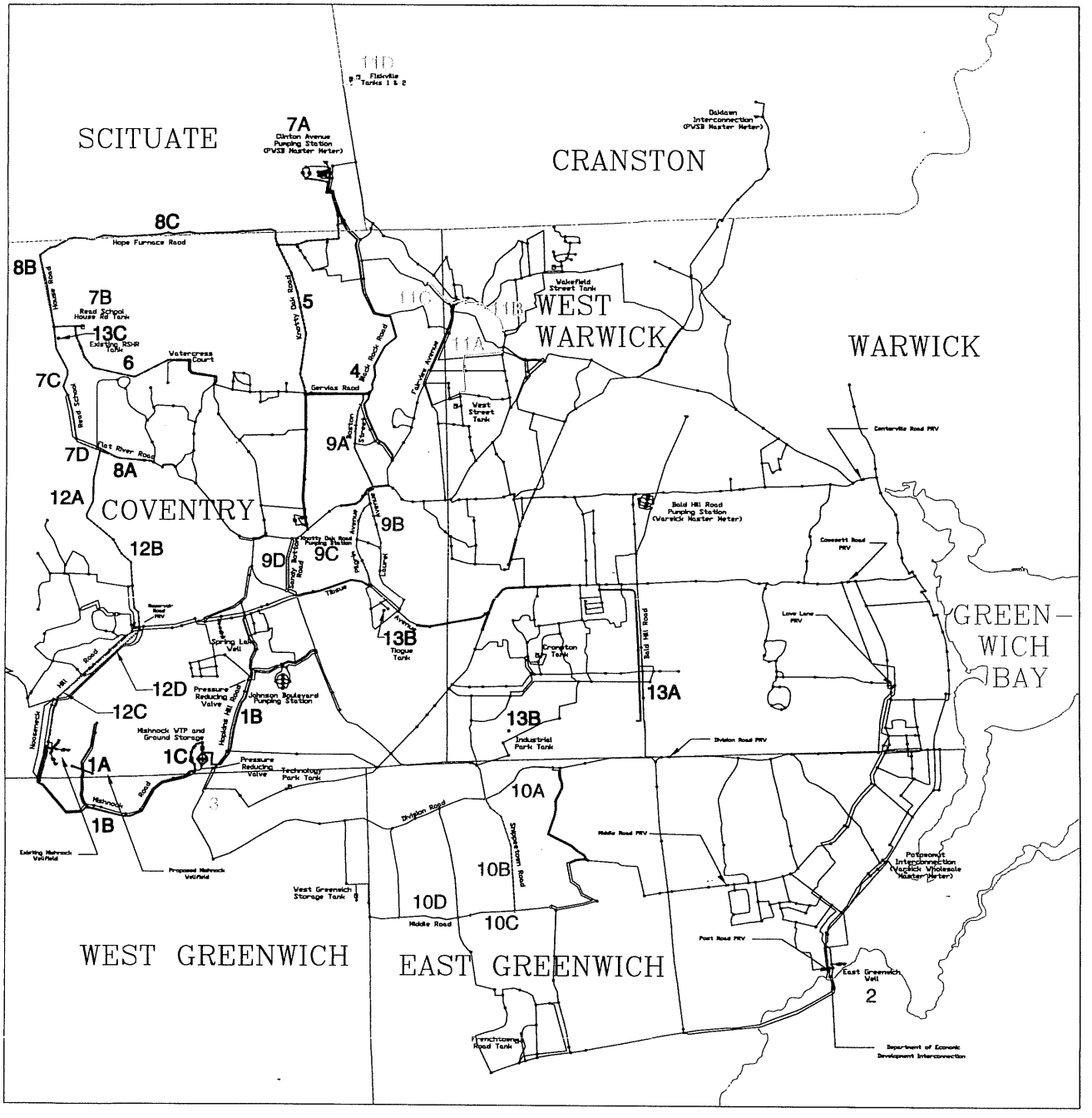
The improvements will reduce system vulnerability, provide supply and storage redundancy and strengthen the operational reliability of the system. The projects were prioritized by first evaluating each supply source's needs, since it is essential that all sources of supply produce the needed quantity of water. This also includes optimizing the Authority's groundwater supplies to cost effectively provide water and reinforce supply redundancy. Once the water supply sources are optimized, CDM and the Authority identified the system's transmission and distribution needs.

Table 1-1
Description of Projects in Updated CIP

Project Number	Description	Reason for Improvement
1a	Mishnock Wellfield Improvements	Optimize water supply from the existing and proposed Mishnock Wellfields to limit reliance on PWSB
1b	Mishnock Transmission Mains	Transports raw water from existing and new wellfields to the Mishnock WTP and from the WTP to the system
1c	Mishnock Water Treatment Plant	Treats water from the existing and new wellfields
2	Upgrade existing East Greenwich Well	Upgrade existing wellfield to meet water quality requirements of the SDWA
3	New KCWA Facility	Replaces existing, antiquated facilities, provides more efficient housing which will help to meet the operational needs for a growing Water Authority
4	Black Rock Road Area Transmission Main	Provides needed transmission capacity from the Clinton Avenue pump station to the low service area
5	Replace 20-inch in Knotty Oak Road	Replaces asbestos cement pipe (history of failure) with new ductile iron pipe for transmission main to be converted to high service
6	16-inch Watercress Court and Cross Country Transmission Main to new Read School House Road (RSHR) tank	Provides more direct connection between Clinton Avenue pump station with new high service pumps and the new Read School House Road (RSHR) tank
7a	Clinton Avenue Pump Station Modifications	Rehabilitates the pump station with comprehensive improvements and new pumps including new RSHR high service pumps and emergency generator
7b	New Read School House Road Tank	Increases gradient in the RSHR high service area to 500'
7c	20-inch main in RSHR from tank to Flat River Road	Improves transmission capacity in RSHR high service area
7d	20-inch main in Flat River Road from RSHR to Reservoir Road	Improves transmission capacity in RSHR high service area
8a	16-inch Flat River Road from Reservoir Road to Colvintown Road	Replaces undersized 12-inch water main to increase transmission capacity
8b	20-inch in RSHR from Hope Furnace Road to RSHR Tank	Reinforces transmission between Clinton Avenue high service pumps and RSHR storage tank
8c	20-inch in Hope Furnace Road from Knotty Oak Road to RSHR	Reinforces transmission between Clinton Avenue high service pumps and RSHR storage tank
9a	12-inch Boston Street and Washington Street from Gervais Road to Laurel Avenue	Extends RSHR high service to the Pilgrim Avenue area
9b	8-inch in Laurel Avenue from Washington Road to Princeton Avenue	Extends RSHR high service to the Pilgrim Avenue area and replaces undersized water mains
9c	8-inch in Pilgrim Avenue between Laurel Avenue and Tiogue	Extends RSHR high service to the Pilgrim Avenue area and replaces undersized water mains

Table 1-1
Description of Projects in Updated CIP

Project Number	Description	Reason for Improvement
9d	16-inch in Sandy Bottom Road from Washington Street to Wood Street	Increases transmission capacity in the low service area
10a	16-inch in Division Road from Shippeetown Road to Signal Ridge	Extends Technology Park High Service Area to currently un served streets in East Greenwich
10b	12-inch in Shippeetown Road from Division Road to Middle Road	Extends Technology Park High Service Area to currently un served streets in East Greenwich
10c	12-inch in Middle Road to Mawney Brook to Tillinghast Road	Extends Technology Park High Service Area to currently un served streets in East Greenwich
10d	12-inch in Middle Road from Moosehorn Road to Westfield Drive	Extends Technology Park High Service Area to currently un served streets in East Greenwich
11a	12-inch in Greene Street and Woodside Avenue from Gough Avenue to Main Street	Increases transmission capacity between West Street tank and Wakefield Street tank
11b	16-inch in Main Street from Fairview Avenue to Clyde Street	Improves transmission capacity between Clinton Avenue pump station and Wakefield Street storage tank
11c	12-inch in Ames Street from Fairview Avenue to Lincoln Avenue	Improves transmission capacity between Clinton Avenue pump station and Wakefield Street and West Street storage tanks
11d	Evaluation of Fiskeville Storage Tanks and Low Service Area Storage	Investigate the feasibility of keeping the Fiskeville storage tanks on-line and determine whether additional low service storage is needed
12a	20-inch Dam Crossing from Flat River Road to Reservoir Road	Connects Technology Park high service area and RSHR high service area
12b	20-inch in Reservoir Road from Dam Crossing to Nooseneck Hill Road	Connects Technology Park high service area and RSHR high service area
12c	20-inch in Nooseneck Hill Road from Reservoir Road to Mishnock Road	Connects Technology Park high service area and RSHR high service area
12d	16-inch in Nooseneck Hill Road from Harkney Hill Road to Reservoir Road	Creates loop for new Technology Park reduce high pressure area near Wood Estates
13a	16-inch in Bald Hill Road and Cowesset Avenue from East Greenwich Avenue to Tampa Street	Creates loop in Technology Park high service area around Crompton tank neighborhood
13b	Demolish West Warwick Industrial Park Tank	Demolishes abandoned storage tank
13c	Demolish existing RSHR Tank (430-foot overflow elevation)	Demolishes abandoned storage tank
13d	Demolish Tiogue Tank	Demolishes abandoned storage tank



Kent County Water Authority
REVISED CAPITAL IMPROVEMENT PROGRAM 2001

Figure 1-1

Table 1-1 prioritizes all 13 projects and sub-projects, which the Authority plans to complete over the next four fiscal years, commencing with fiscal year 2002 (July 2001). The CIP format follows the guidelines presented above where projects are prioritized to strengthen and upgrade system components, improve overall performance, increase redundancy and reduce vulnerability. The projects are prioritized as follows:

1. Water Supply Source Optimization and Improvements

2. Transmission Improvements

3. Distribution Improvements

In the sections that follow, CDM will further describe each project, the need for each improvement and its scheduling.

Cost Estimating

Table 1-2 presents the Authority's updated CIP with CDM's estimated costs for each project. All costs listed in this table represent current day prices and include contractor's 15 percent mark-up.

In December 2000, Mr. Edward Lyons, a CDM cost-estimator visited the Authority's existing facilities and the sites of proposed improvements. These field visits provided Mr. Lyons with specific information about the sites that aided in estimating the costs for the proposed CIP projects. With information provided by the Authority and CDM's project team, Mr. Lyons reviewed construction costs from the Authority's past CIPs, contacted contractors and received quotations from suppliers and manufacturers. This information was used to determine the construction costs listed in Table 1-2.

The American Society of Civil Engineers (ASCE) Manual No. 45 "Consulting Engineering – A Guide for Engaging Engineering Services," 1988 edition, sets fourth general trends for the costing of engineering services expressed as a percentage of construction costs. Although engineering costs depend on the extent of services and the type and magnitude of a project, the ASCE guidelines offer a justifiable basis from which engineering costs can be established. The guidelines suggest the following percentage range of construction cost to establish engineering fees and contingencies for each project in the Authority's CIP.

- Preliminary and Final Design — 4 to 9 percent of Construction Cost
- General Services during Construction — 20 to 40 percent of Design Cost
- Project Representation during Construction — 2.5 to 8 percent of Construction Cost
- Contingencies — 20 percent of Total Project Cost

Table 1-2
Capital Improvement Program 2001
Project Costs

Fiscal Year	Project Number	Description	Construction Costs	Engineering and Contingencies	Sub Total Cost	Total Project Cost	Cumulative Total Cost
2002	1a	Mishnock Wellfield Improvements (1)	$1,488,000	$520,800	$2,008,800		
	1b	Mishnock Transmission Mains (1)	$3,071,000	$1,074,900	$4,145,900		
	1c	Mishnock Water Treatment Plant (1)	$8,613,000	$3,014,600	$11,627,600	$17,782,300	$17,782,300
	2	Upgrade East Greenwich Well	$1,021,500	$510,800	$1,532,300	$1,532,300	$19,314,600
	3	New KCWA Facility	$3,075,000	$1,537,500	$4,612,500	$4,612,500	$23,927,100
2003	4	Black Rock Road Area Transmission Main	$2,191,200	$1,095,600	$3,286,800	$3,286,800	$27,213,900
	5	Replace 20-inch in Knotty Oak Road	$1,507,400	$753,700	$2,261,100	$2,261,100	$29,475,000
	6	16-inch Watercress Court Transmission Main	$729,800	$364,900	$1,094,700	$1,094,700	$30,569,700
	7a	Clinton Avenue Pump Station Modifications	$1,024,800	$512,400	$1,537,200		
	7b	New Read School House Road Tank	$1,271,700	$635,900	$1,907,600		
	7c	20-inch main in RSHR to Flat River Road	$502,100	$251,100	$753,200		
	7d	20-inch main in Flat River Road to Reservoir Road	$143,300	$71,700	$215,000	$4,413,000	$34,982,700
2004	8a	16-inch Flat River from Reservoir to Colvinton	$243,500	$121,800	$365,300		
	8b	20-inch RSHR from Hope Furnace Road to Tank	$360,400	$180,200	$540,600		
	8c	20-inch in Hope Furnace Road	$1,154,300	$577,200	$1,731,500	$2,637,400	$37,620,100
	9a	12-inch Boston Street and Washington Street	$329,800	$164,900	$494,700		
	9b	8-inch in Laurel Avenue	$68,500	$34,300	$102,800		
	9c	8-inch in Pilgrim Avenue	$108,200	$54,100	$162,300		
	9d	16-inch in Sandy Bottom Road	$231,500	$115,800	$347,300	$1,107,100	$38,727,200
	10a	16-inch in Division Road	$299,200	$149,600	$448,800		
	10b	12-inch in Shippeetown Road	$326,500	$163,300	$489,800		
	10c	12-inch in Middle Road from Mawney Brook	$148,000	$74,000	$222,000		
	10d	12-inch in Middle Road from Moosehorn Road	$353,300	$176,700	$530,000	$1,690,600	$40,417,800
2005	11a	12-inch in Greene Street and Woodside Avenue	$281,600	$140,800	$422,400		
	11b	16-inch in Main Street from Fairview Avenue	$301,900	$151,000	$452,900		
	11c	12-inch in Ames Street	$177,500	$88,800	$266,300		
	11d	Low Service Area Storage Evaluation (2)		$60,000	$60,000	$1,201,600	$41,619,400

Table 1-2
Capital Improvement Program 2001
Project Costs

Fiscal Year	Project Number	Description	Construction Costs	Engineering and Contingencies	Sub Total Cost	Total Project Cost	Cumulative Total Cost
	12a	20-inch Reservoir Dam Crossing	$321,300	$160,700	$482,000		
	12b	20-inch in Reservoir Road	$683,900	$342,000	$1,025,900		
	12c	20-inch in Nooseneck Hill Road	$886,700	$443,400	$1,330,100		
	12d	16-inch in Nooseneck Hill Road	$431,500	$215,800	$647,300	$3,485,300	$45,104,700
	13a	16-inch in Bald Hill Road and Cowesset Avenue	$568,000	$284,000	$852,000		
	13b	Demolish West Warwick Industrial Park Tank	$17,800	$8,900	$26,700		
	13c	Demolish existing RSHR Tank	$17,800	$8,900	$26,700		
	13d	Demolish Tiogue Tank	$17,800	$8,900	$26,700	$932,100	$46,036,800
		Sub Totals:	$31,967,800	$14,069,000	$46,036,800	$46,036,800	

Notes:

(1) Project 1 does not include costs for design and engineering support services since these components were funded by the Authority's last rate filing.
(2) The Authority must evaluate their low service area storage to determine whether modifications are necessary. The Fiskeville storage tanks will be investigated to determine the feasibility of taking them off-line.
(3) CDM calculated the subtotals for engineering and contingencies as documented in the text of this section. We have shown a break down of the engineering and contingencies component below. The breakdown does not include design and engineering support services as discussed in Note 1 above.

Design		$1,377,000
Engineering and Support Services		$940,000
General Services during Construction		$639,000
Project Representation during Construction		$1,918,000
Contingencies		$9,195,000
	Total:	$14,069,000

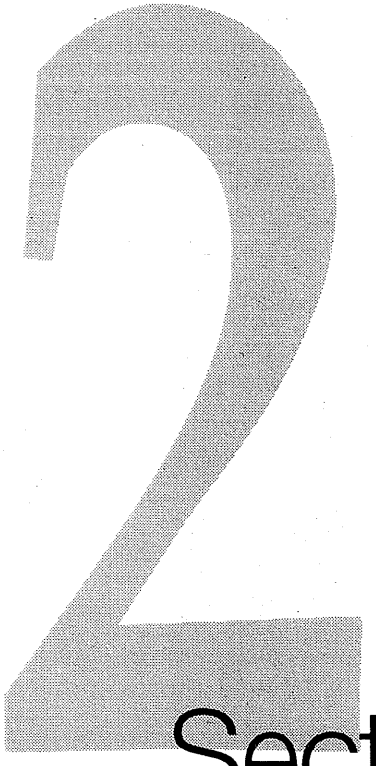
Manual No. 45 does not provide a guideline for "Engineering Support Services", such as geotechnical services, surveying, and permitting. For budgeting purposes, CDM has used the industry standard of 5 percent of construction costs.

Except for engineering support services, CDM has adopted the average of the above percentages rounded to the nearest whole percentage, as follows:

- Design — 7 percent of Construction Cost
- Engineering Support Services — 5 percent of Construction Cost
- General Services during Construction — 2 percent of Construction Cost
- Project Representation during Construction — 6 percent of Construction Cost
- Contingencies — 20 percent of Total Project Cost

Table 1-2 lists our estimated construction costs along with an allowance for engineering and contingencies. CDM used the percentages listed above to calculate the engineering and contingency costs listed in the table. All costs listed in Table 1-2 are current (December 2000) price levels.

CDM organized the report by dedicating one section to each year of the CIP. We have discussed each project which is schedule for each year of the CIP and figures are presented, where applicable, to show the location and limits of each project. The following project descriptions also provide the costs estimates for each project.



Section Two

Section 2
Fiscal Year 2002 Improvements

Project 1 - Mishnock Wellfield Expansion

In April 1996, CDM prepared the Wellfield Facility Evaluation Study for the Authority, which recommended rehabilitation of existing wells and expansion of the Authority Mishnock Wellfield area. The proposed expansion of the Mishnock Wellfield is an important undertaking that will enable the Authority to further develop and optimize its groundwater resources.

For the existing Mishnock wells, CDM recommended a well and pump redevelopment and rehabilitation program, which was undertaken and completed by the Authority in 1995. The Wellfield Facility Evaluation Study also recommended long-term facility expansion and upgrades which will increase groundwater yields, assess treatment requirements and improve conditions of the existing facilities. In 1995, CDM estimated the future capacity of the existing Mishnock Wellfield to be about 1.5 million gallons per day (mgd) with these improvements recommended in the study.

The Wellfield Facility Evaluation Study also considered the development of additional groundwater supply on land acquired by the Authority. The land is located east of the existing Mishnock Wellfield, between Old Hickory Brook and the Mishnock River and encompasses about 300 acres. CDM performed a groundwater exploration program to investigate possible locations for future groundwater production wells. The field exploration program produced hydrogeological and water quality information which aided in the final site selection of these production wells. CDM estimated the future capacities at the new wellfield to be about 3.5 mgd.

Since the Authority receives most of its water from the Providence Water Supply Board (PWSB), CDM performed an economic feasibility analysis in the Wellfield Facility Evaluation Study to determine the cost effectiveness of producing water all the well facilities. The economic analysis included a cost comparison of capital costs, operation and maintenance costs, pump replacement costs and the cost of PWSB water. From this cost comparison, CDM determined that optimizing water production at the well facilities is more cost effective than purchasing water from the PWSB. CDM then developed a groundwater supply program for the Authority, which produced both short- and long-term recommendations for both existing and potential well facilities. These recommended improvements laid the foundation for the Mishnock Wellfield Expansion program. CDM has described these improvements, which are included in Projects 1a through 1c, below.

Project 1a - Mishnock Wellfield Improvements

In December 1999, CDM prepared the Authority's Preliminary Design Report for the Mishnock Wellfield Expansion project. While preparing the report, CDM performed

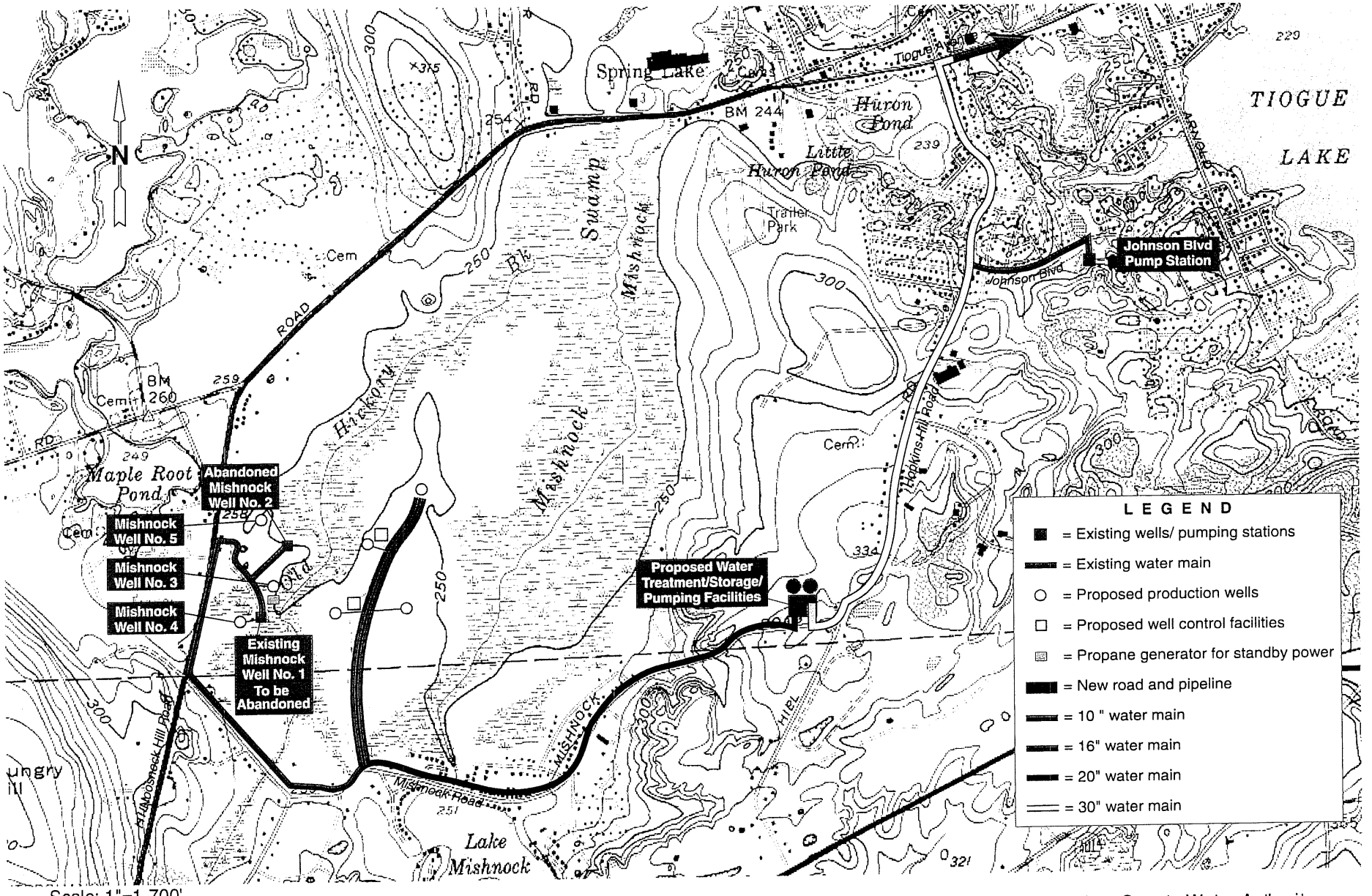
additional groundwater explorations to further document groundwater conditions at the existing and proposed Mishnock Wellfields. The exploration program included an extended duration pump test on an 8-inch test well in the northern portion of the proposed wellfield and water quality assessments throughout both wellfields. The report also included groundwater modeling and an evaluation of possible impacts on wellfield operations and groundwater drawdowns on sensitive environmental receptor. With this thorough evaluation, CDM documented possible sites for future production wells on both the existing and proposed Mishnock Wellfields. Figure 2-1 shows the approximate locations of these production wells and other proposed improvements for the expansion of the Mishnock Wellfield.

In March 2000 on behalf of the Authority, CDM submitted an Application to Alter a Freshwater Wetland for the Mishnock Wellfield project to the Rhode Island Department of Environmental Management (RIDEM). This permit, along with the Preliminary Design Report, provided RIDEM with information regarding the Mishnock Wellfield Expansion project. RIDEM has provided comments on this application and CDM and the Authority are currently addressing their concerns.

While preparing the Preliminary Design Report and the RIDEM permitting, CDM and the Authority understand that the Authority's groundwater resources must be properly managed to limit possible impacts to sensitive receptor. To properly manage these resources, the Authority has decided to perform more groundwater exploration work at the existing wellfield. In February 2001, CDM completed this work and located two additional sites for future groundwater production wells. These two production wells, along with the 1999 Mishnock Well No. 3, may supply up to 2,000 gallons per minute (gpm) for the Authority. CDM must perform additional groundwater model simulations to determine if the Authority can feasibly produce 2,000 gpm with all three future wells operating at the existing Mishnock Wellfield.

The Authority anticipates that maximizing production at the existing wellfield may limit possible impacts to sensitive receptors within the proposed wellfield. The recent groundwater exploration work further documents the need for the Authority to manage its groundwater resources.

The Authority's ultimate goal is to produce a maximum of 5.0 mgd combined from both wellfields. CDM and the Authority will determine the best possible combination of flow from both wellfields pending the results of the on-going groundwater model simulations for optimizing water production at the wellfields. Management of the wellfield will also be fine-tuned with future water quality evaluations. At this point, the Authority plans to install three production wells on the existing Mishnock



Scale: 1"=1,700'

Kent County Water Authority

Figure 2-1

Proposed Improvements for the Mishnock Wellfield Expansion Project.

CDM Camp Dresser & McKee Inc.

Wellfield and four production wells on the proposed wellfield. Using all production wells, the Authority can properly manage their groundwater resources while limiting possible impacts to the sensitive receptors and effectively operate and maintain their wells. CDM estimates the total cost of the Mishnock Wellfield Expansion project to be about $2,008,000.

Project 1b - Mishnock Transmission Mains

CDM's 1999 Preliminary Design Report also recommended transmission main improvements for the Mishnock Wellfield Expansion project. The mains are needed to transport raw water from the existing and proposed Mishnock wellfields to the proposed Mishnock Water Treatment Plan (WTP). The WTP is described in Project 1c of this CIP. Project 1b also includes finished water mains, which convey water from the WTP into the Authority's low service area and Technology Park High Service Area. Table 2-1 provides more detailed information on the Mishnock Transmission Mains. CDM estimates a total project cost of $4,145,850 for Project 1b. This estimate does not include costs for design or engineering support services since these costs are covered under the current bond financing. Figure 2-1 shows the proposed route of the Mishnock Transmission Mains.

Project 1c - Mishnock Water Treatment Plant

To meet the requirements of the Safe Drinking Water Act (SDWA), the Authority must treat their groundwater supply before pumping the water into the distribution system. The 1999 Preliminary Design Report provided a water treatment assessment and piloting of groundwater at the existing and proposed wellfields.

In the report, CDM highlighted several possible future regulations that were believed to be of potential concern for the Authority. The following rules were included:

- Radon Rule
- Lead and Copper Rules
- Disinfection By-Products Rule
- Groundwater Disinfection Rule
- Manganese Rule
- Arsenic Rule

We have briefly discussed below each of these rules along their impact on the Authority treatment of the groundwater at the Mishnock Wellfields.

Radon Rule

In October 1999, the EPA proposed a new radon regulation. The proposed regulation establishes an MCLG of zero and an MCL of 300 picocuries per liter (pCi/L). The

proposed alternative MCL (AMCL) is 4000 pCi/L. This alternative is being offered to municipalities or states that choose to implement a multi media mitigation program aimed at reducing household indoor air health risks from radon coming from soil as well as tap water. The rule will also identify high-performance aeration as the Best Available Technology and declare it to be an affordable small system compliance technology.

The proposed Radon Rule was not finalized by it's scheduled date of August, 2000. No additional time line information has been released. The State of Rhode Island has not implemented any statewide air and water quality programs. Since the Authority supplies water to portions of 8 communities within Rhode Island, CDM believes that implementing such an extensive and interactive program would be logistically challenging. The Authority instead is opting to reduce radon concentrations in the raw water through aeration (i.e., air stripping) for compliance with the proposed radon rule. By using the aeration treatment process, the Authority will also improve the taste of the water and increase the pH. The pH adjustment through aeration will also minimize the amount of potassium hydroxide (KOH) used in the treatment process.

Lead and Copper Rule

In 1991, the EPA promulgated the Lead and Copper Rule (LCR) which regulates lead and copper concentrations in drinking water. Action levels were set for lead and copper at 0.015 ppm and 1.3 ppm, respectively. Treatment technique requirements are triggered when 10 percent of lead and/or copper levels of first draw samples from consumer taps exceed the action levels. The treatment techniques consist of corrosion control, public education, and lead service line replacement.

On April 11, 2000, the Lead and Copper Rule Minor Revisions (LCRMR) became effective. The LCRMR did not change the lead and copper action levels. The minor revisions fall into 4 categories:

1. Demonstrating optimal corrosion control.

2. Monitoring and reporting

3. Public Education

4. Lead service line replacement.

Of note is the new requirement that systems on reduced lead and copper tap monitoring must notify the State in writing no later than 60 days after changing treatment or adding a new source.

Currently, the Authority is in compliance with the Lead and Copper Rules. The Authority has, however, directed CDM to investigate the use of potassium hydroxide (KOH) at all existing and potential groundwater supplies for pH adjustment. The

KOH treatment would replace the addition of lime at the Mishnock Wellfield. Changes in treatment chemicals may cause temporary disruptions to water quality in distribution systems.

Disinfection By-Products Rule

The EPA has currently set the MCL for trihalomethanes (THMs) at 100 ug/L (quarterly running average). In July 1994, a reduced THMMCL of 80 ug/L was proposed (Stage 1). Stage 1 was finalized in November 1998. Future Stage 2 regulations could further reduce the THMMCL to 40 ug/L. The SDWA, as amended in 1996, requires the EPA to finalize a Stage 2 Disinfectant and DBP Rule by 2002. The EPA anticipates proposing these rules in 2001. Since three of the Authority's four wells are disinfected, the possibility of disinfection by-products (DBPs) needs to be considered.

Groundwater Disinfection Rule

The proposed Ground Water Rule was issued on May 10, 2000 and is scheduled to be issued as a final regulation in summer 2001. The proposed rule specifies the appropriate use of disinfection in groundwater and addresses groundwater system components in regard to public health protection. Proposed requirements include:

- Sanitary Surveys
- Hydrogeologic sensitivity assessments for un-disinfected systems.
- Source water microbial monitoring (pertains to un-disinfected systems which either detected fecal indicators within the distribution system or draw from hydrogeologically sensitive aquifers.
- Corrective action as required.
- Compliance monitoring for disinfected systems to ensure achievement of 4-log virus inactivations.

Manganese

The SMCL for manganese is 0.05 mg/L. Manganese in excess of this amount is prone to have negative impacts on both taste and discoloration. Manganese is currently on the EPA's Contaminant Candidate List.

Arsenic and Clarifications to Compliance and New Source Monitoring Rule (Arsenic Rule)

The Arsenic Rule was finalized on January 22, 2001. The final version revises the MCL from 50 mg/L to 10 mg/L, with a MCLG of zero. All community water systems (CWS) and non-transient, non-community water systems (NTNCW) are required to be in compliance by January 23, 2006. Beginning July 1, 2001, systems detecting between 25 mg/L and 50 mg/L of arsenic must include arsenic concentrations and

health information in their Consumer Confidence Reports (CCR). For groundwater systems, the initial sample must be taken between 2005 and 2007. The Executive Branch of the Federal Government has frozen the Arsenic Rule for further study. The ultimate implementation of this rule is currently unknown.

Recommended Treatment Methods/Processes

After reviewing the substantial water quality information collected while preparing the Preliminary Design Report, CDM developed a treatment protocol. This protocol is being followed during the on-going design of the Mishnock Water Treatment Plant (WTP). The WTP protocol is listed in the table below.

Parameter	Treatment Method	Treated Water Quality Objective
Radon	Air Stripping	less than 300 pCi/L
Iron	Sequestration/Filtration	less than 0.3 mg/L soluble
Manganese	Sequestration/Filtration	less than 0.05 mg/L soluble
pH adjustment	Aeration/chemical addition	8.0-9.0
Alkalinity adjustment	Chemical addition	30 mg/L
Corrosion control	pH adjustment/corrosion inhibitor	less than 0.015 mg/L lead less than 0.03 mg/L copper
Disinfection	Sodium hypochlorite	0.2 mg/L chlorine residual leaving treatment plant
Fluoridation	Sodium fluoride	1.0 mg/L within the distribution system
Total Trihalomethanes (THMs)		less than 40 ug/L
Inorganic chemicals		meet MCLs

Figure 2-1 locates the proposed Mishnock WTP. CDM estimates the total cost of this facility to be about $3,014,600.

Project 2 - East Greenwich Well Upgrade

As with the Mishnock Wellfield, the Authority must upgrade their existing East Greenwich well. The East Greenwich well currently supplies water to the southeastern section of the Authority system. The well supplies the low service area, the East Greenwich Reduced Pressure Zone and the Potowamut section of Warwick. Recently, the Authority experienced water quality problems in this area of the system.

The problems may be caused by iron and manganese in the groundwater or flow reversals in the distribution system piping as a result of recent changes in the distribution system (i.e., East Greenwich Reduced Pressure Zone construction). The Authority proactively flushes this area of the system regularly to mitigate their customers concerns about water quality. These water quality issues must be evaluated in more detail to determine whether they are source water or distribution system related.

As part of Project No. 2, CDM recommends that the Authority perform a preliminary design to address these water quality concerns. The preliminary design should include water quality sampling, both at the source and in the distribution system, along with treatment assessment and piloting. This treatment evaluation will determine existing water quality and provide the proper method of treating the raw water.

As discussed for the Mishnock Wellfield, the Authority must be concerned about radon concentrations at the East Greenwich well. The EPA will enforce the Radon Rule in 2003 and the Authority must have treatment in place to limit the levels of radon in all groundwater supplies. This requirement prompted both CDM and the Authority to schedule the East Greenwich well upgrade early in the CIP.

The Authority must also evaluate other Safe Drinking Water Act regulations during the preliminary design phase to ensure that all EPA requirements are met. This project will also alleviate and mitigate the water quality complaints of the Authority's customers. CDM anticipates that the recommended treatment methods and protocol for the East Greenwich well will be similar to the proposed Mishnock WTP as listed in the table above.

CDM has provided a brief summary of the work, which will be required to improve and upgrade the East Greenwich well:

- Size new pumps and motors for the production well to achieve more efficient operation.
- Provide surge control at the well.
- Provide instrumentation for control and operation of the facility using the Authority's existing SCADA system.
- Replace the existing flow meter.
- Provide a stand-by generator (propane or natural gas) and remove existing stand-by motors and diesel fuel tank.
- Modify the building to house chemical feed equipment for chlorination, pH adjustment by potassium hydroxide, and fluoridation.

- Provide additional treatment as determined during the preliminary design phase.

- Bring the facilities up to code (both electrical and chemical feed systems) and install new motor control center. At a minimum, the well requires a new electrical service. With any modifications to the building, the Authority must provide all necessary mechanical, plumbing, and HVAC appurtenances.

The Authority must install an emergency generator to ensure continued operation of the facility and to maximize system reliability.

Figure 2-2 locates the East Greenwich well facility. CDM anticipates the cost of this project to be about $1,532,300.

Project 3 - New Kent County Water Authority Facility

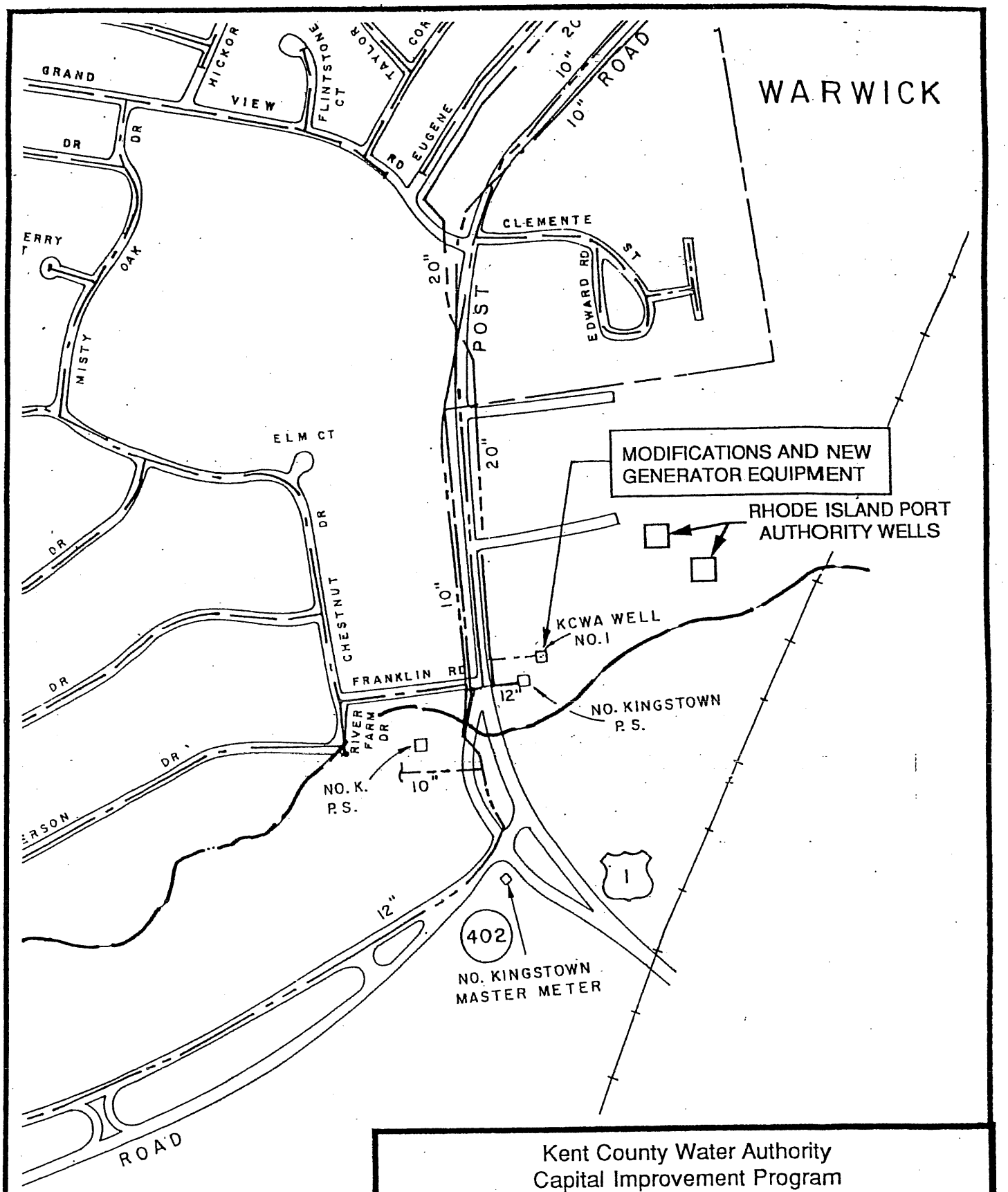
The Authority currently operates out of two buildings located at 1072 Main Street in West Warwick, Rhode Island. The Authority's administration and general maintenance share space in the building that faces Main Street, while vehicles and large equipment storage is housed in an unheated storage building to the rear of the site. Yard storage occupies the space between both buildings and extends laterally on both sides to the limits of the site, which are bounded by chain link fences. Authority personnel estimated the age of the building to be roughly 100 years old.

In February 1997, CDM prepared the Authority's Infrastructure Rehabilitation Plan (IRP) as required by the State of Rhode Island's Infrastructure Replacement Act, Title 46, Chapter 15.6. For the IRP, the regulations require evaluations on all water utility components including the Administration/Maintenance building. Since this building had never been evaluated, CDM's engineering specialists performed a thorough assessment of the building, which included the following disciplines:

- Structural
- Heating, Ventilation and Air Conditioning (HVAC)
- Electrical
- Architectural

From this evaluation, CDM determined that the building requires both short- and long-term improvements. The building is antiquated and too small to satisfy the Authority's current needs. Given the extreme age of the facility, CDM determined that the building has exceeded its original life expectancy. While the Authority has made the best use of the existing buildings and property, CDM's evaluation revealed obvious problems such as:

- Building code violations



Kent County Water Authority
Capital Improvement Program

FIGURE 2 - 2
MODIFICATIONS AND NEW GENERATOR AT EAST GREENWICH WELL FIELD

CDM

- Fire code violations
- Floor arrangements are based on available space and not on user needs
- Inadequate yard space and concomitant inefficiencies

In the previous CIP, CDM recommended that the Authority investigate alternative locations for a new Administration/Maintenance building. The IRP affirmed this recommendation and the Authority decided to pursue the design and construction of a new facility.

In June of 1999, the Authority engaged CDM to evaluate possible sites for a new Kent County Water Authority facility. CDM prepared a report, which included a selection of sites within the Authority's service area and a schematic building design based the Authority's needs. The objective was to locate a number of available sites in the Coventry and West Greenwich locale and prepare a site plan based on one of the sites.

CDM assessed the Authority's programmatic needs and then prepared a schematic floor plan to address these needs. This assessment and floor plan was used to prepare a building 'footprint' and to determine the required area of land suitable for the facility.

The new facility study was prepared using information supplied by the Authority and information ascertained by CDM from site visits to the existing facility. CDM also prepared a questionnaire for Authority personnel to review and provide feedback. CDM used the information generated by this questionnaire and through meetings with the Authority's personnel to further define the Authority's needs for this new facility.

The building spaces were determined by evaluating the current operations and understanding each building space's functional relationships. A square footage was assigned to each space based upon it's intended use and the furniture and personnel to be assigned to each space. CDM estimated the total adequate floor area to be about 26,500 square feet.

The site selection process progressed simultaneously with the assembling of programmatic information and required frequent visits to the towns of West Greenwich, West Warwick, East Greenwich and Coventry. CDM located perspective properties by contacting local real estate agencies and requesting information relative to lot size, location, services available, price, wetlands, etc. The report includes a complete listing of criteria used to select possible sites and also a listing of abutters for Coventry and West Greenwich properties.

CDM estimates the total cost of the facility with site preparation to be $4,612,500.

3 Section Three

Section 3
Fiscal Year 2003 Improvements

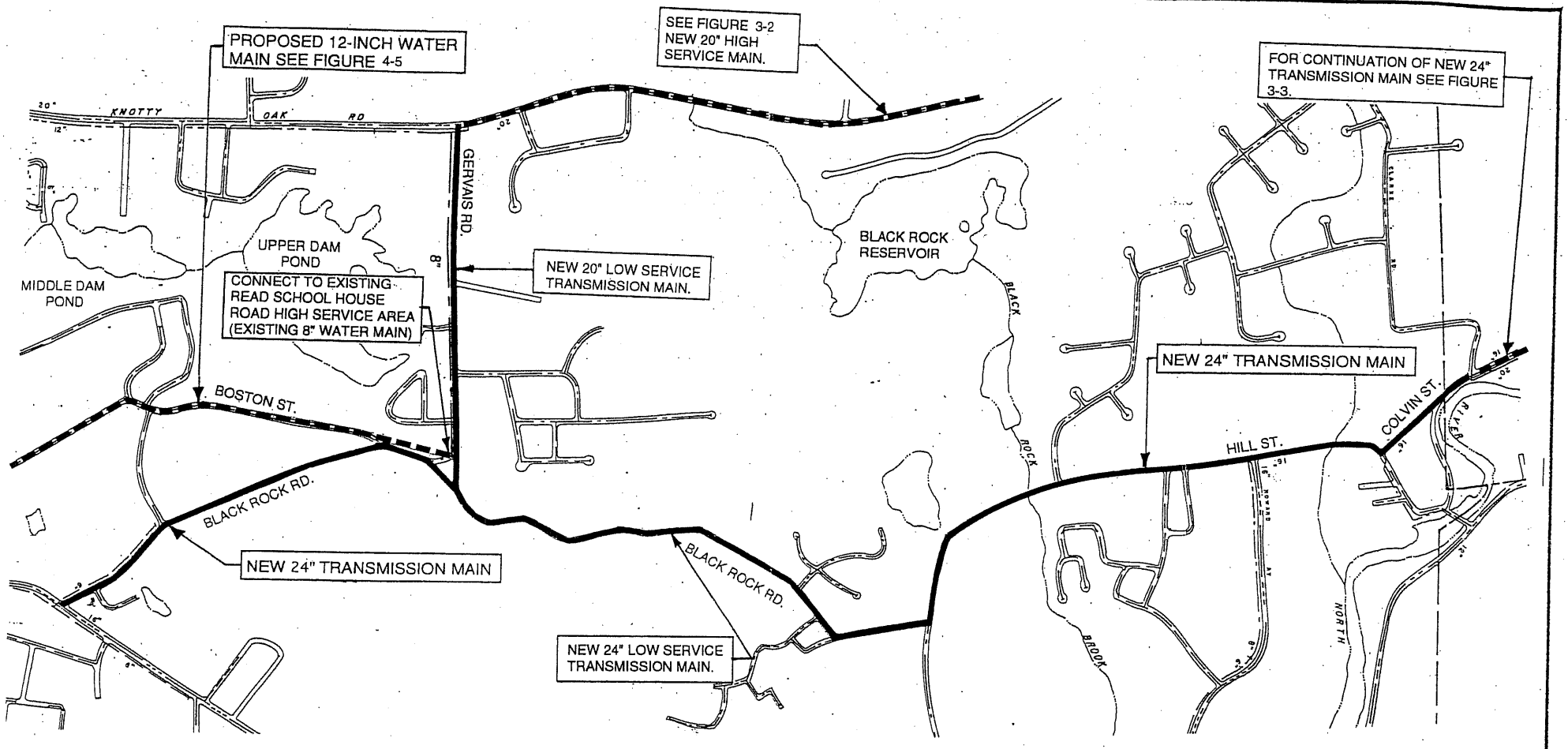
Project 4 - Black Rock Road Area Transmission Main

CDM recommended Project 4 in the Authority's 1993 CIP to reinforce transmission from the Clinton Avenue pump station and into the low service area. Figure 3-1 and 3-3 shows the proposed route of the Black Rock Road Area transmission mains. With the current growth in the Authority's customer base and resulting increases in water demands, this project becomes more important and necessary to properly supply water to the low service area.

Through the expansion of their existing Mishnock Wellfield, the Authority originally anticipated the new wells to provide water to the low service area. With the wellfield supplying more water, CDM expected the Black Rock Road transmission main to be downsized. However, the Authority's customer base has expanded significantly in East Greenwich, West Greenwich and Coventry, mainly in the Technology Park high service area. The Authority had difficulty supplying their customer's water needs due to this expansion and associated increased water demands. This situation forced the Authority to institute a water curtailment program in the summer of 1999 when levels in the Technology Park storage tank dropped to dangerous levels. The Johnson Boulevard high service area pump station was also pushed to its maximum pumping capacity to supply these increased water demands. This increased pumping capacity caused pressure problems in the low service area at the suction side of the pump station.

Because of these increased water demands in East Greenwich, West Greenwich and Coventry, the Authority decided to include additional high service pumps at the proposed Mishnock WTP. These pumps will supplement the supply provided by the Johnson Boulevard pump station. In making this decision, the Authority will limit flow from the proposed Mishnock wellfield to the low service area. Due to this supply limitation, the Authority will need to supplement the low service area with water supply from the PWSB through its Clinton Avenue pump station. CDM, therefore, recommends that the Black Rock Road transmission main remain at 24 inches in diameter as shown in Figure 3-1. This new 24-inch transmission main will reinforce pressures and water supply within the low service area.

This project will also replace the 20-inch low service transmission main from the Clinton Avenue pumping station and in Knotty Oak Road (See Figures 3-2 and 3-3) as discussed in Project No. 5 below. The preliminary route of the Black Rock main involves narrow roads, which will make construction somewhat difficult. CDM anticipates the presents of rock along the route. This condition, along with the narrow roads, will most likely mean expensive construction costs. Once completed, this project will strengthen supply to the system and enhance overall operation of the system. CDM estimates this project will cost about $3,286,800.

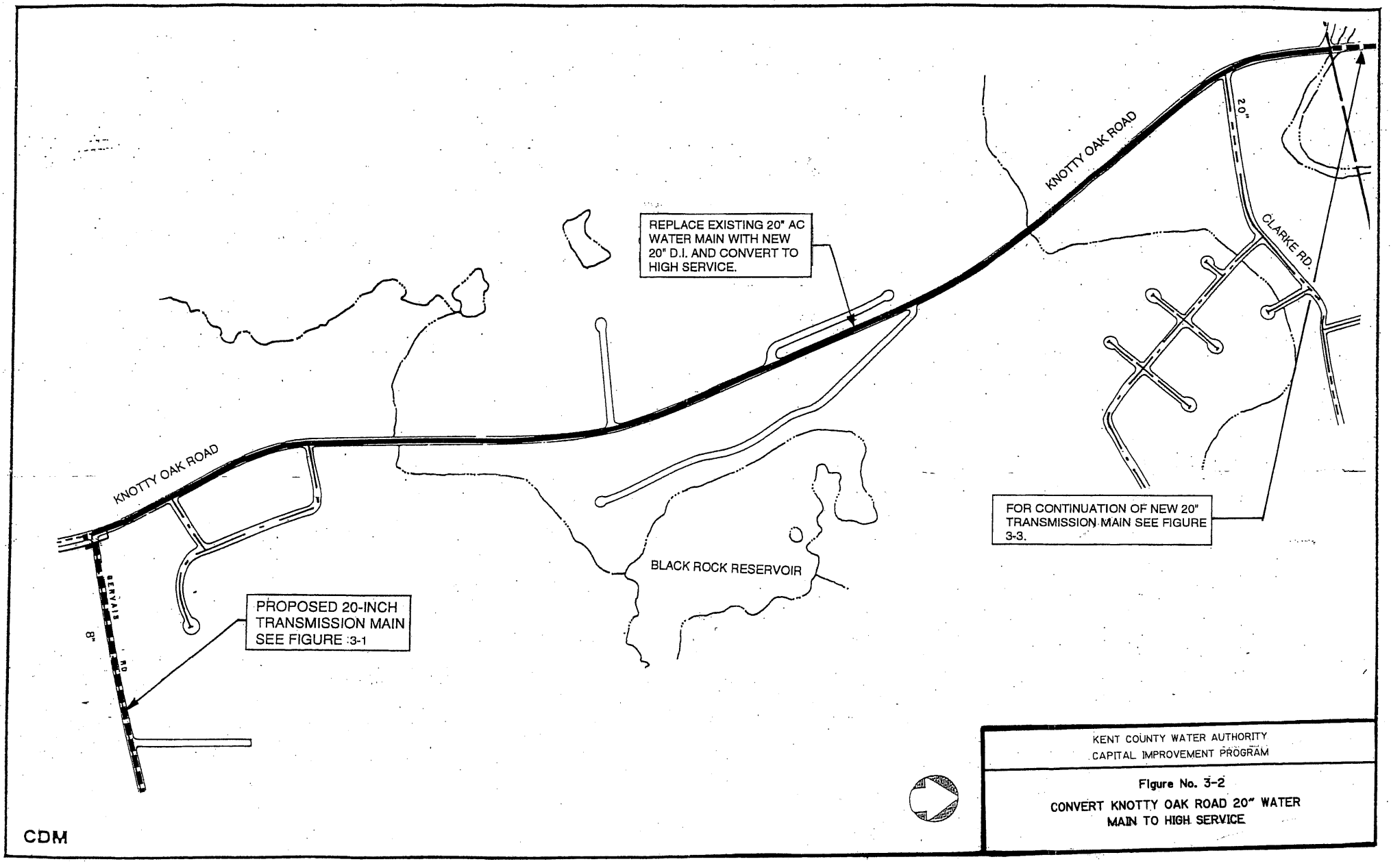


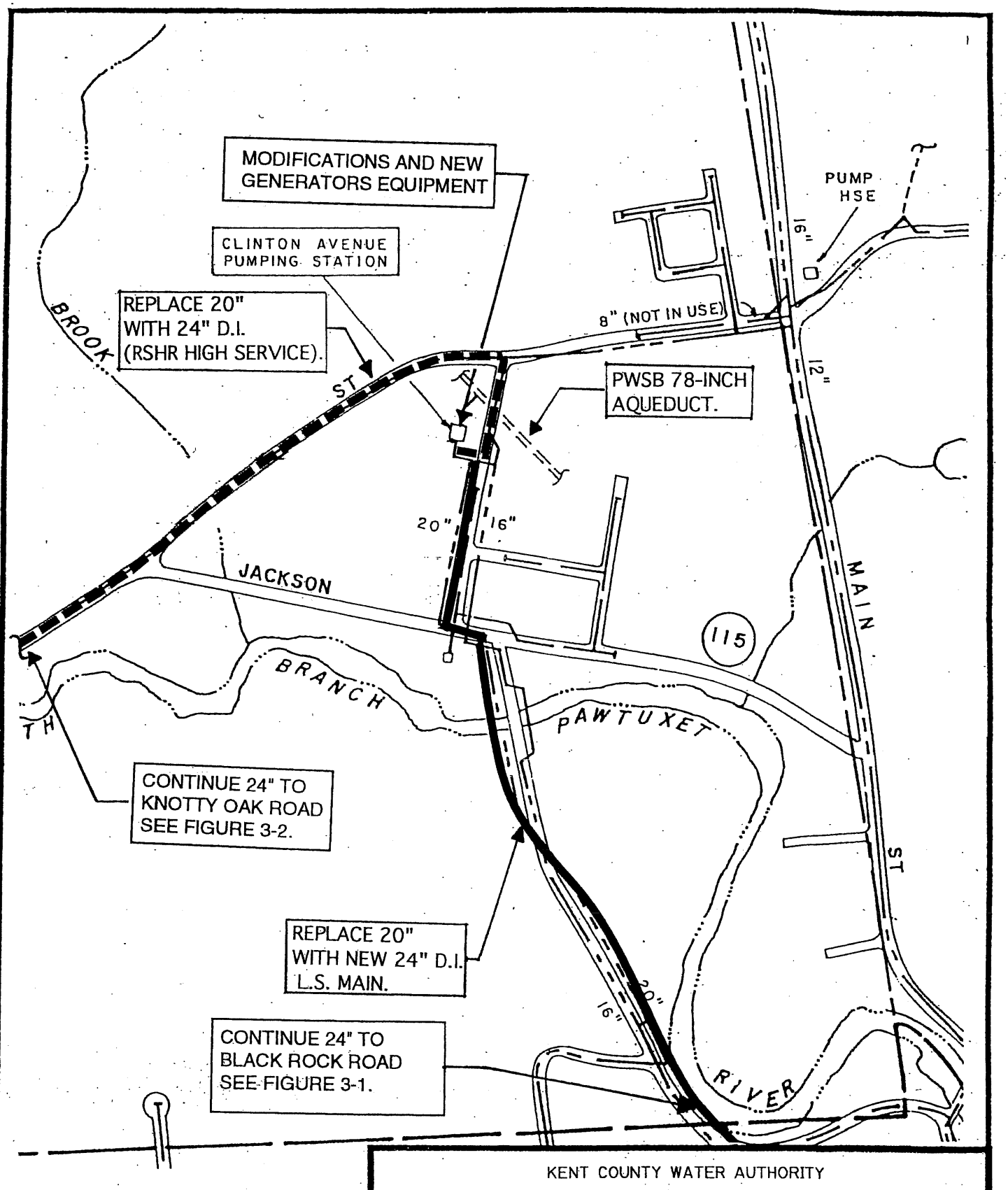
KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 3-1

TRANSMISSION MAIN IN COLVIN STREET, HILL STREET, BLACK ROCK ROAD AND GERVAIS ROAD

CDM


KNOTTY OAK ROAD
REPLACE EXISTING 20" AC WATER MAIN WITH NEW 20" D.I. AND CONVERT TO HIGH SERVICE.
KNOTTY OAK ROAD
20"
CLARKE RD.
FOR CONTINUATION OF NEW 20" TRANSMISSION MAIN SEE FIGURE 3-3.
BLACK ROCK RESERVOIR
PROPOSED 20-INCH TRANSMISSION MAIN SEE FIGURE 3-1
8"
BERWAIS RD
CDM
KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
Figure No. 3-2
CONVERT KNOTTY OAK ROAD 20" WATER MAIN TO HIGH SERVICE



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 3-3

NEW LOW AND HIGH SERVICE TRANSMISSION MAIN FROM THE CLINTON AVENUE PUMPING STATION.

CDM

Project 5 - Knotty Oak Road Area Transmission Mains

The Authority's existing 20-inch main in Knotty Oak Road is located where the ground elevations extend up to 320-feet. These high elevations translate into low system pressures because the maximum static gradeline in the low service area is 334 feet. Figure 3-2 shows the limits of the Knotty Oak Road Area Transmission Main route. The Authority has indicated that pressures along this route vary between 8 and 20 pounds per square inch (psi) depending on system operation (i.e., whether the Clinton Avenue pumps are on or off). These pressures are less than desirable and do not meet the industry standards for fire flow requirements.

To improve these pressures, CDM recommends that the Authority convert a portion of the transmission main to the Read School House Road high service area. Due to its poor condition (i.e., an asbestos cement pipe with a history of failures), the existing water main should be replaced with a new 20-inch, ductile iron pipe prior to its conversion to high service. This recommendation is further reinforced by the fact that the existing water main was install on top of ledge without the proper pipe bedding. This work can only proceed after the new Black Rock Road Area transmission main (Project No. 4) is in service. The estimated cost for this project is about $3,286,800.

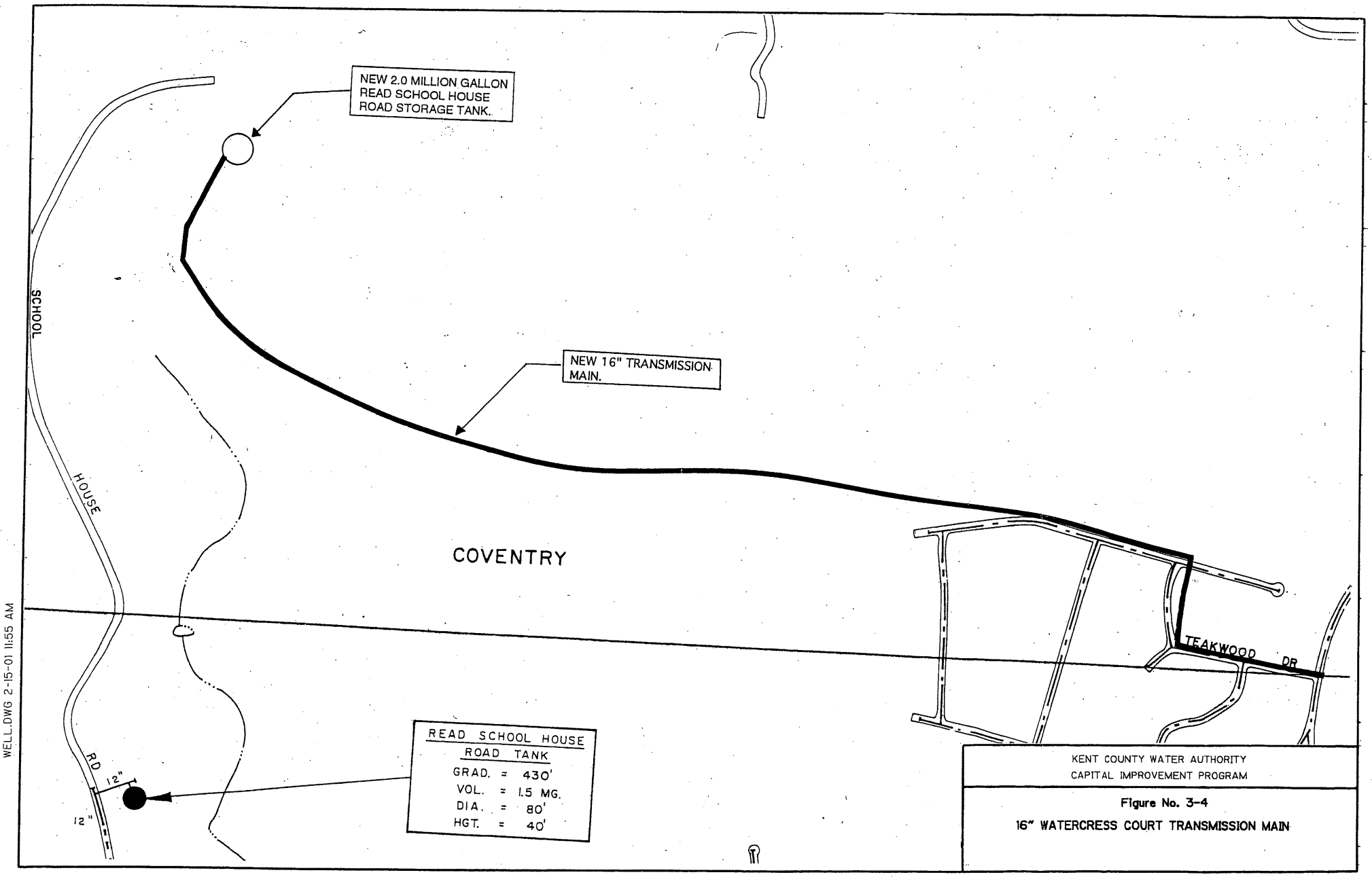
Project 6 - Watercress Court Transmission Main

In September 1995, the Authority retained CDM to prepare an evaluation on increasing the gradient at the Read School House Road (RSHR) high service area from 430-feet to 500-feet. In this study, the Authority and CDM investigated constructing a ground storage tank at a higher operating elevation (500-feet) off Read School House Road (See Figure 3-4) to establish a service area compatible with the Technology Park service area. By increasing the gradient to 500-feet, the Authority would enhance service to the Read School House area and maintain reasonable system operation between both service areas under emergency conditions. This study established many of the projects, which are included in this CIP. The projects include pumping improvements, the new storage tank and reinforcing transmission main capacities.

In the RSHR study, CDM recommended the Watercress Court transmission main project to increase transmission capacity between the Knotty Oak Road 20-inch transmission main (Project 5) and the new RSHR storage tank (Project 7b). Figure 3-4 shows the route of the 16-inch water main, which extends from the existing Remington Farms 16-inch water main to the new RSHR tank site. The Watercress Court transmission main is about 9,100-feet in length with about 3,000 feet in town streets and about 6,100-feet in cross country areas. CDM estimates the total cost of this project to be about $1,094,700.

Project 7 - New Read School House Road High Service Area

In 1995, CDM used the Authority's CYBERNET model to evaluate many options, to increase the RSHR high service area gradient to 500 feet as discussed above. The



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 3-4

16" WATERCRESS COURT TRANSMISSION MAIN

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model was modified to simulate different pumping alternatives with pumping facilities located at the Knotty Oak pump station and the Clinton Avenue pump station. CDM also extended the transmission and distribution system within the limits of the high service. From this evaluation, CDM determined that the Authority could increase the gradient of the Read School House high service area to 500 feet.

In this evaluation, CDM also determined that the RSHR high service area could be connected to the Technology Park high service area. By making this connection, the Authority has flexibility to serve both areas during water supply emergency. Project 7 includes improvements to raise the gradient in the high service area. We have described these improvements below.

Project 7a - Clinton Avenue Pump Station Modifications

To increase the RSHR gradient, the Authority must modify its current mode of supplying the customers in this area of the system. The Knotty Oak pump station currently supplies water to the RSHR high service area. In the 1995 study, CDM presented three options to change pumping to this high service area. These options were:

- Modify the existing pumps at the Knotty Oak pump station (i.e., add an additional bowl assembly to the pumps) to increase the total dynamic head by 70-feet.
- Replace the Knotty Oak pumps with new higher head and higher capacity pumps.
- Provide additional pumping at the Authority's existing Clinton Avenue pump station to serve the RSHR high service area at the higher 500-foot gradient.

All options would provide the necessary pumping requirements to increase the gradient. The Authority selected Option 3 for Project 7a because water supply to the RSHR pumps will be from the PWSB's 78-inch aqueduct. The Knotty Oak pumps are presently supplied from low service which causes supply and pressure problems within the low service system. In 1995, the Authority performed an evaluation on the Clinton Avenue pump station to determine deficiencies and recommend improvements. By preparing this evaluation, the Authority provided a comprehensive plan to upgrade and rehabilitate the pump station. Since improvements are needed at the pump station, the Authority will schedule the installation of the high service pumps for the RSHR area when the Clinton Avenue station is modified. The pump station has ample room to install the high service pumps with the necessary piping improvements within the building.

With the Knotty Oak Area transmission main (Project 6), the Authority will have adequate transmission main capacity between the Clinton Avenue pump station and the RSHR high service area. There are some major advantages to installing high service pumps at Clinton Avenue and they are listed below.

- The RSHR high service area would be served directly from the Authority's connection with the Providence Water Supply Board and double pumping will be eliminated (i.e., pumping at the existing Clinton Avenue and Knotty Oak pump stations).

- By providing high service pumping from Clinton Avenue, the Authority would eliminate low pressures at the higher elevations along Knotty Oak Road. Project 6 will replace the existing 20-inch low service main with a new 24-inch ductile iron water main having adequate structural integrity to withstand the higher pressures.

- The low service area will not be adversely impacted by operation of the Knotty Oak pump station. When the Knotty Oak pump station operates now, the Authority experiences low pressures especially on the suction side of the Johnson Boulevard pump station.

After considering these benefits, the Authority has decided to install the high service area pumps at the Clinton Avenue pump station. CDM estimates the total cost of this project to be about $1,537,200 including the new pumps and the needed modifications to the existing structure. Figure 3-3 locates the existing Clinton Avenue pump station where the modifications will occur.

Project 7b - New Read School House Road Storage Tank

The Authority wishes to construct a ground storage tank off Read School House Road with a maximum operating elevation of 500-feet. With this improvement, the RSHR high service area gradient would be increased by 70-feet from 430-feet as discussed previously. This will enhance water supply with the service area and also allow for its connection to the Technology Park high service area. With this interconnection, the Authority can maintain reasonable system operation between the service areas under emergency conditions.

In the 1995 RSHR gradient study, CDM modeled a 2.0 million gallon storage tank at the proposed tank site off RSHR. The proposed ground storage tank will be 116 feet in diameter and 25-feet high with a 10-foot operating range. The proposed tank will replace the existing RSHR tank, which has a capacity of 1.5 million gallons. Figure 3-4 locates the new storage tank and we estimate the total cost of this project to be about $1,759,500.

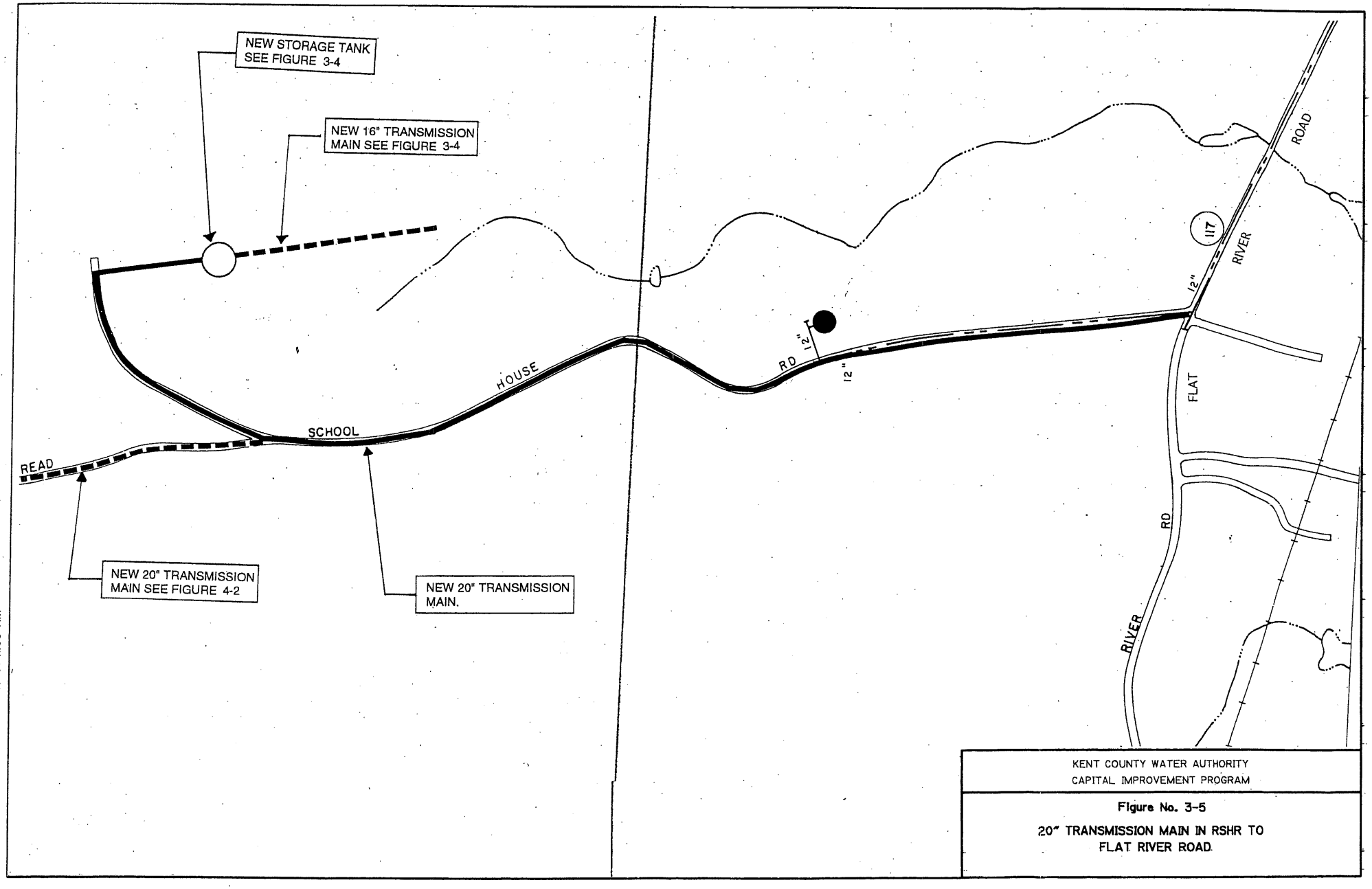
Project 7c - Read School House Road Transmission Main South of New Storage Tank

The RSHR gradient study also recommended needed transmission main improvements to increase capacity for the RSHR high service area and the proposed interconnection with Technology Park. Project 7c installs a 20-inch water main in Read School House Road from the proposed 2.0 million gallon storage tank to Flat River Road. The project includes installation of about 5,580-feet of new 20-inch

ductile iron water main with a total project cost of about $753,200. Figure 3-5 shows the proposed route of this transmission main.

Project 7d – Flat River Road 20-Inch Transmission Main

Project 7d extends the new 20-inch transmission main in Read School House Road along Flat River Road to Reservoir Road and measures about 1,590-feet. This transmission main will ultimately connect to the transmission mains in Project 12 to form the connection with the Technology Park high service area. Figure 3-6 locates Project 7d which will also improves transmission capacity in the RSHR service area. CDM estimates this project to cost about $215,000.



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 3-5

20" TRANSMISSION MAIN IN RSHR TO FLAT RIVER ROAD

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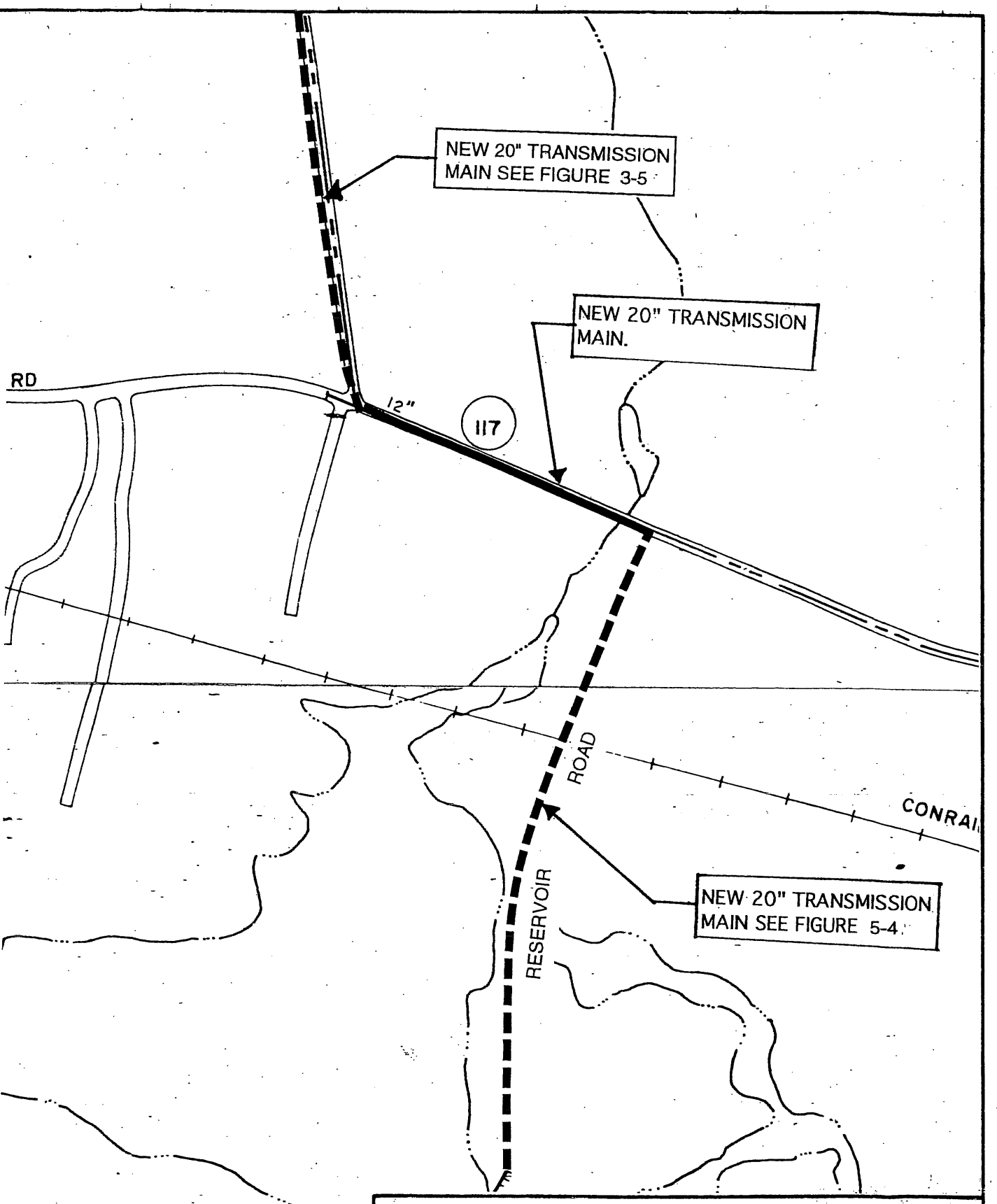

KENT COUNTY WATER AUTHORITY
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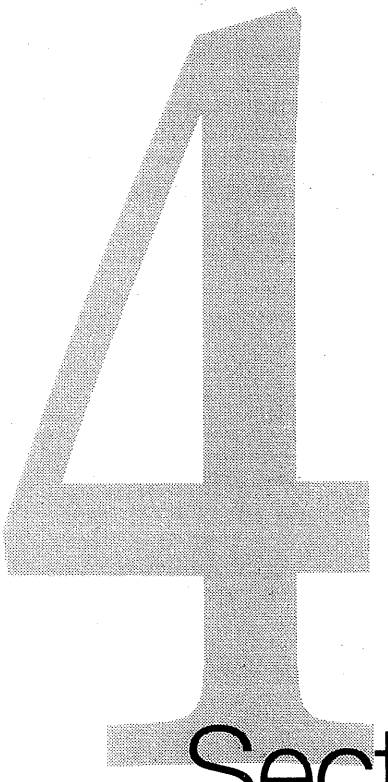
Figure No. 3-6

20" TRANSMISSION MAIN IN FLAT RIVER ROAD TO RESERVOIR ROAD

CDM
environmental engineers, scientists, planners, & management consultants



Section Four

Section 4
Fiscal Year 2004 Improvements

Project 8 - Additional Read School House Road Transmission Mains

Project 8 includes additional water main extension projects, which will improve transmission of water supply from the Clinton Avenue pump station to the new RSHR storage tank. The transmission mains will also provide water service to residents of Coventry who are not currently served by the Authority.

Project 8a – Flat River Road 16-inch Transmission Main

Figure 4-1 presents the route of the Flat River Road transmission main. Project 8a improves transmission capacity on Flat River Road by replacing a 12-inch water main with a new 16-inch ductile iron main. The water main will extend about 3,300-feet from Reservoir Road to Colvinton Road. CDM estimates the total cost of this water main to be about $365,300.

Project 8b – Read School House Road Transmission Main north of New Storage Tank

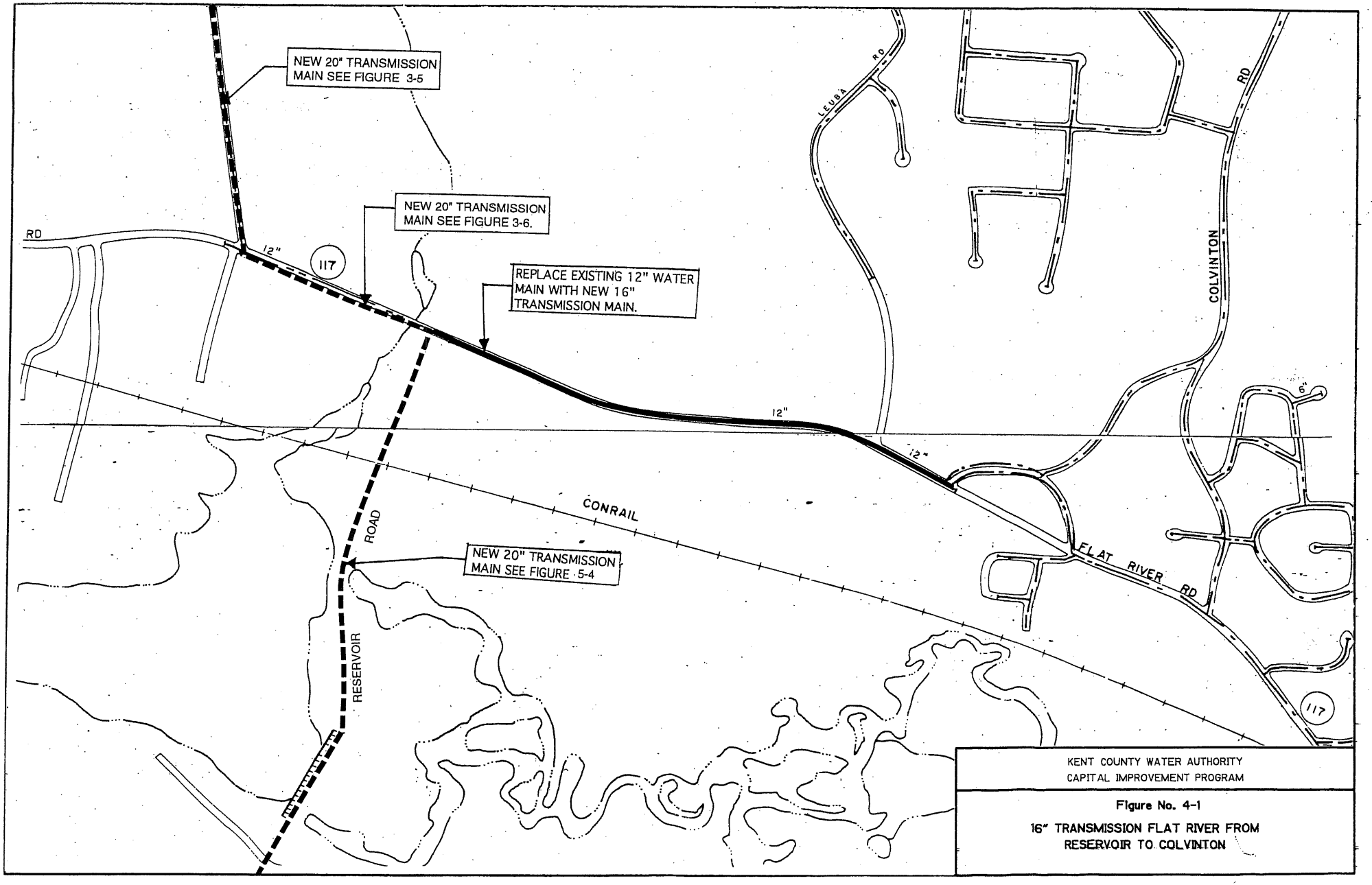
To improve the hydraulic connection to the Clinton Avenue pump station, the 1995 gradient study recommended that a 20-inch main be extended north on Read School House Road from the tank to Hope Furnace Road. Figure 4-2 shows the limits of this project where the 20-inch ductile iron transmission main will provide water supply to new customers in Coventry. The main measures about 3,400-feet in length and will cost the Authority about $540,600. While inspecting this route, CDM located rock outcrops and therefore, we anticipate significant rock excavation along this water main route.

Project 8c – Hope Furnace Road Transmission Main

The Hope Furnace Road transmission main completes the northern loop from Knotty Oak Road to the proposed RSHR storage tank. The main extends from Read School House Road to Knotty Oak Road and will reinforce transmission capacity from the Clinton Avenue pump station to the storage tank. Similar to Project 8b, CDM anticipate that rock will be encountered during the construction of this transmission main. For this project, the Authority will install about 11,600-feet of 20-inch ductile iron water main and we estimate the total cost of the project to be about $1,731,500. Figure 4-3 and 4-4 presents the route of the Hope Furnace Road transmission main.

Project 9 - Extension of High Service to the Oak Haven Manor Area

Project 9 includes recommendations, which will improve water supply to the Oak Haven Manor area. Located in the Authority's low service system, Oak Haven has



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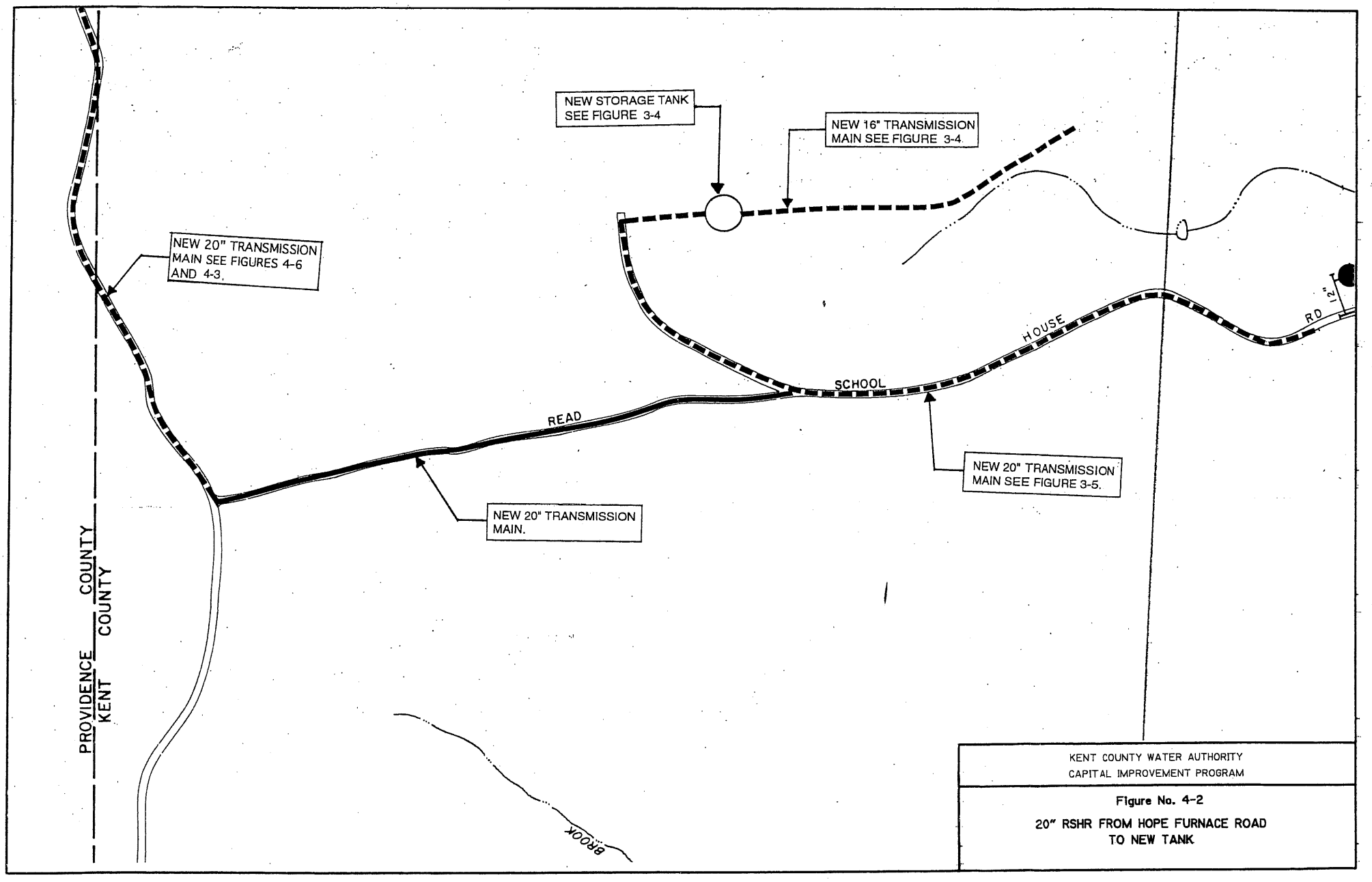

KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-2

20" RSHR FROM HOPE FURNACE ROAD TO NEW TANK

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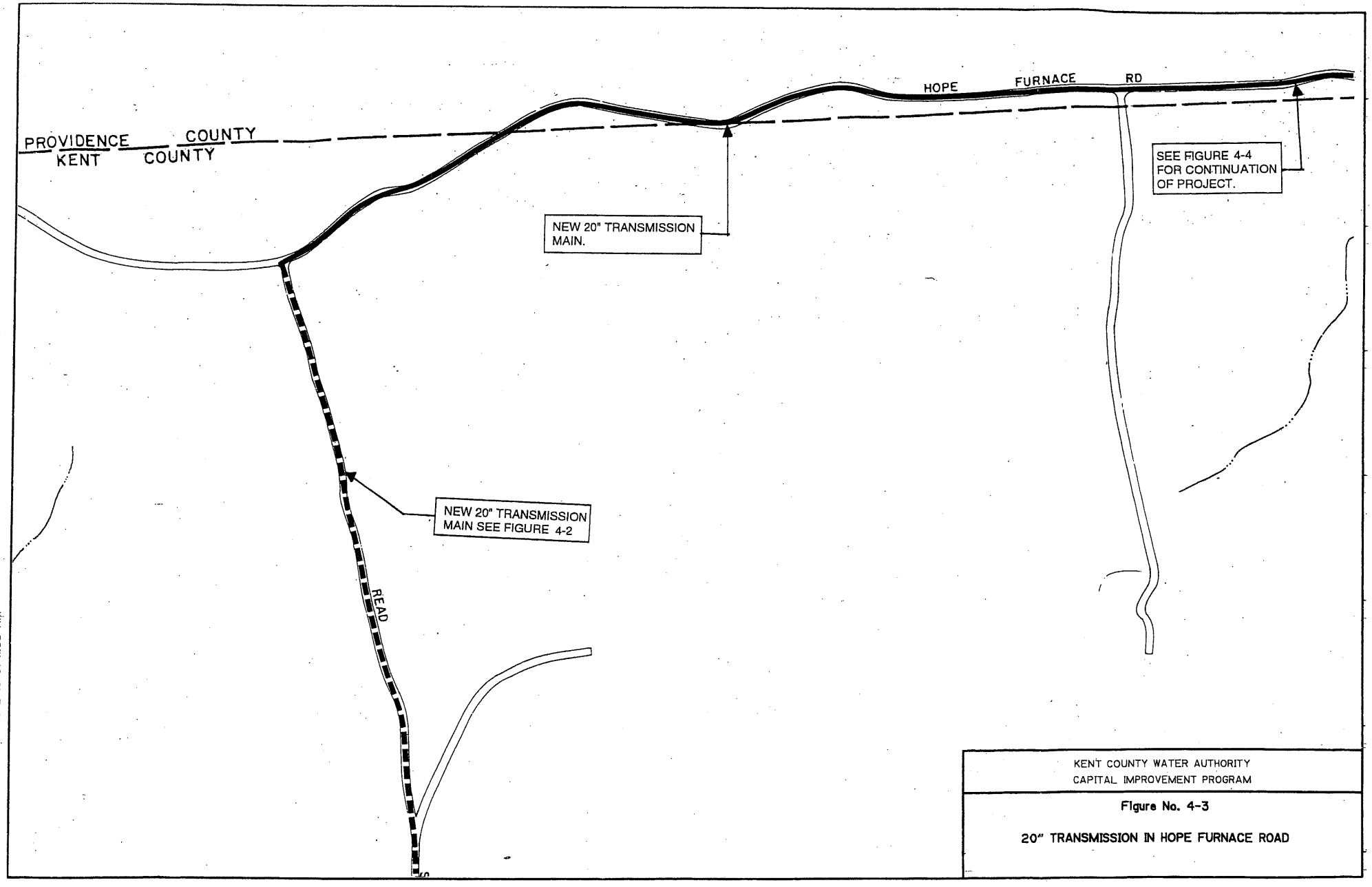

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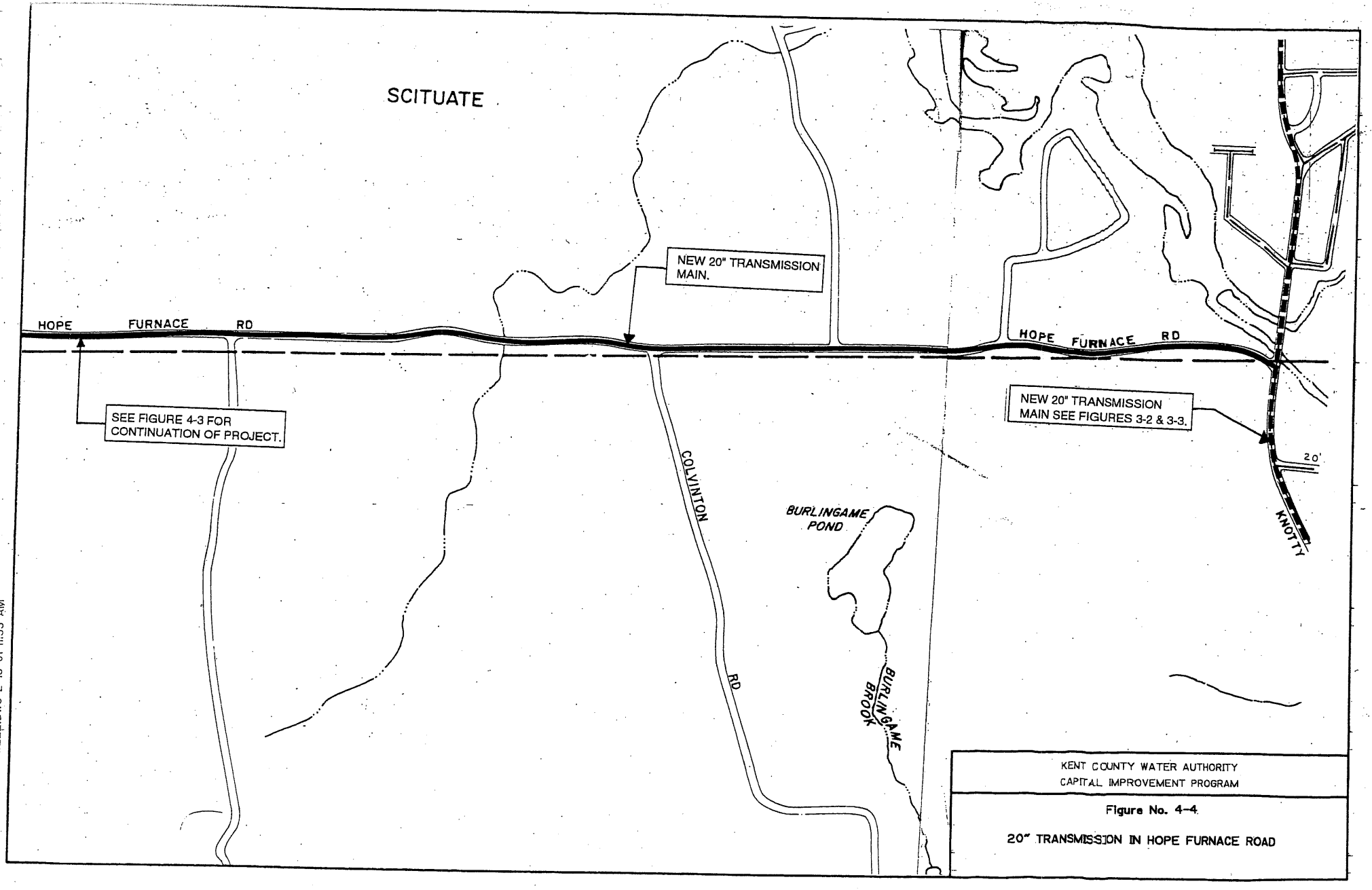

KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-4

20" TRANSMISSION IN HOPE FURNACE ROAD

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continuously experienced low pressure problems because elevations within this area extend up to 310-feet which is just below the maximum operating gradient of low service system (334.0). The Authority plans to eliminate these low-pressure problems by extending the Read School House Road high service area's 500-foot gradient to this neighborhood. CDM has described the improvements, which will extend the higher gradient to the Oak Haven Manor area.

Project 9a - Boston Street Area Water Mains

Project 9a, which is shown in Figure 4-5, has been recommended for two reasons, which are described below.

- Connecting the Oak Haven Manor Plat (northeast of the Tiogue Tank) with the Read School House Road high service area. This connection must be in service when the Tiogue Tank is abandoned (Project 13d) so that acceptable pressures can be maintained in this Oak Haven neighborhood.

- Replacing the existing, asbestos cement 6-inch water main, which has a history of failures.

The new water main extends from in Boston Road and Washington Street from Gervias Avenue to Oak Haven Manor. Project 9a includes 5,400-feet of 12-inch water main and the total project is estimated to cost about $494,500.

Project 9b - Laurel Avenue Water Main

Figure 4-6 presents the limits of the Laurel Avenue water main, which is located in Oak Haven Manor plat. This plat will be served from the Read School House Road high service area once Project 9a has been installed to connect this area with high service.

The 6-inch water line in Laurel Avenue is one of several undersized mains, which will hinder service within Oak Haven Manor. To alleviate this restriction and to improve service to the area, the 6-inch water line will be replaced with about 1,300-feet of 8-inch piping.

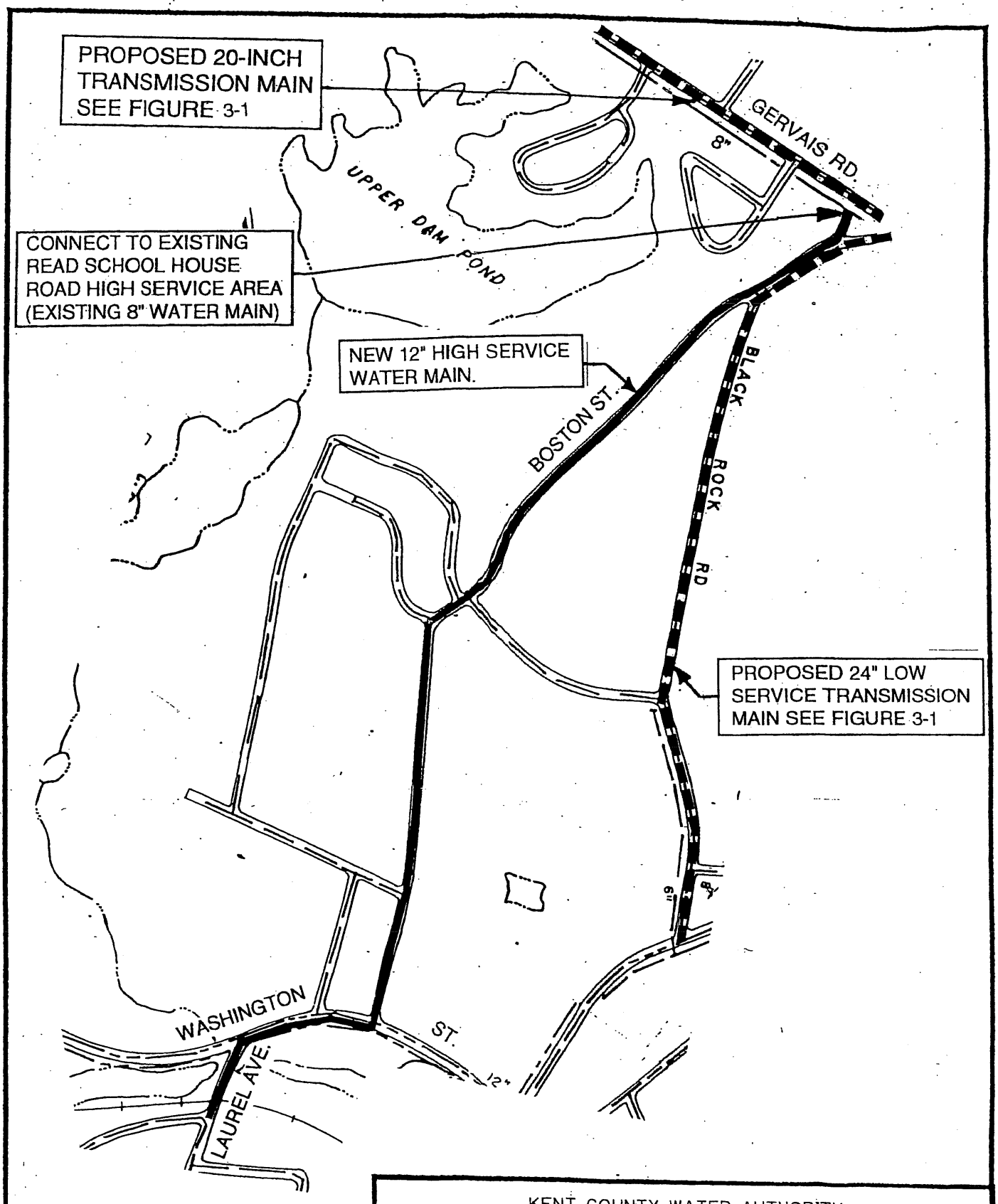
Project 9c - Pilgrim Avenue Water Main

Similar to Project 9b, this project is necessary to replace undersized water mains, which hinder service to the area. Under this project, two sections of 6-inch water line will be replaced with new 8-inch ductile iron water main in Pilgrim Avenue. These sections include:

1. About 1,000-feet from Centre Street to Laurel Avenue

2. About 900-feet from Dexter Street to Tiogue Avenue

The second section will connect with the newly installed Tiogue Avenue water main in Project No. R-CIP-19 of the Authority 's current Capital Improvement Program.

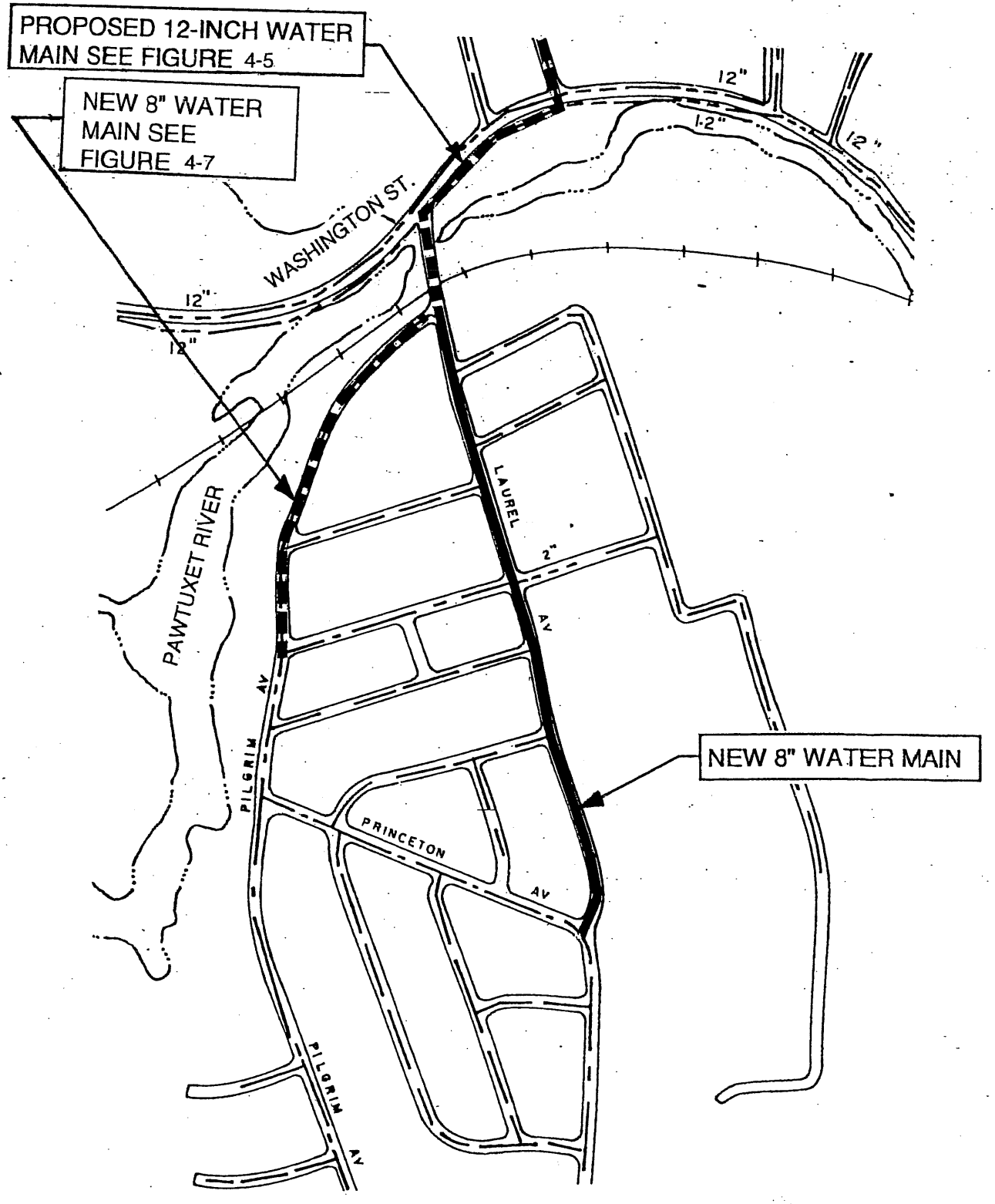


KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-5

BOSTON STREET AND WASHINGTON STREET FROM GERVAIS ROAD TO LAUREL AVENUE

CDM



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-6

LAUREL AVENUE FROM PILGRIM AVENUE TO PRINCETON AVENUE

CDM

The Tiogue Avenue main along with Projects 9b and 9c provide new water mains, which provide a loop around the Oak Haven Manor area. Project 9c closes this loop thereby completing the extension of high service to this neighborhood. CDM estimate the cost of this project to be about $162,300.

Figure 4-7 shows the location of this work.

Project 9d- Sandy Bottom Road Transmission Main

Sandy Bottom Road project will provide for a direct connection with the 16-inch main in Washington Street and the 20-inch main in Tiogue Avenue. By increasing the existing 8-inch main to 16-inch, the Authority will provide a greater transmission capacity to the area. Project 9d would provide a direct connection with the large transmission mains coming from Clinton Avenue (Black Rock Road project) and the Mishnock Wellfield.

Figure 4-8 presents the route of the Sandy Bottom Road transmission main. The project includes 2,500-feet of new 16-inch ductile iron water main and is anticipated to cost about $347,300.

Project 10 -East Greenwich Transmission Mains

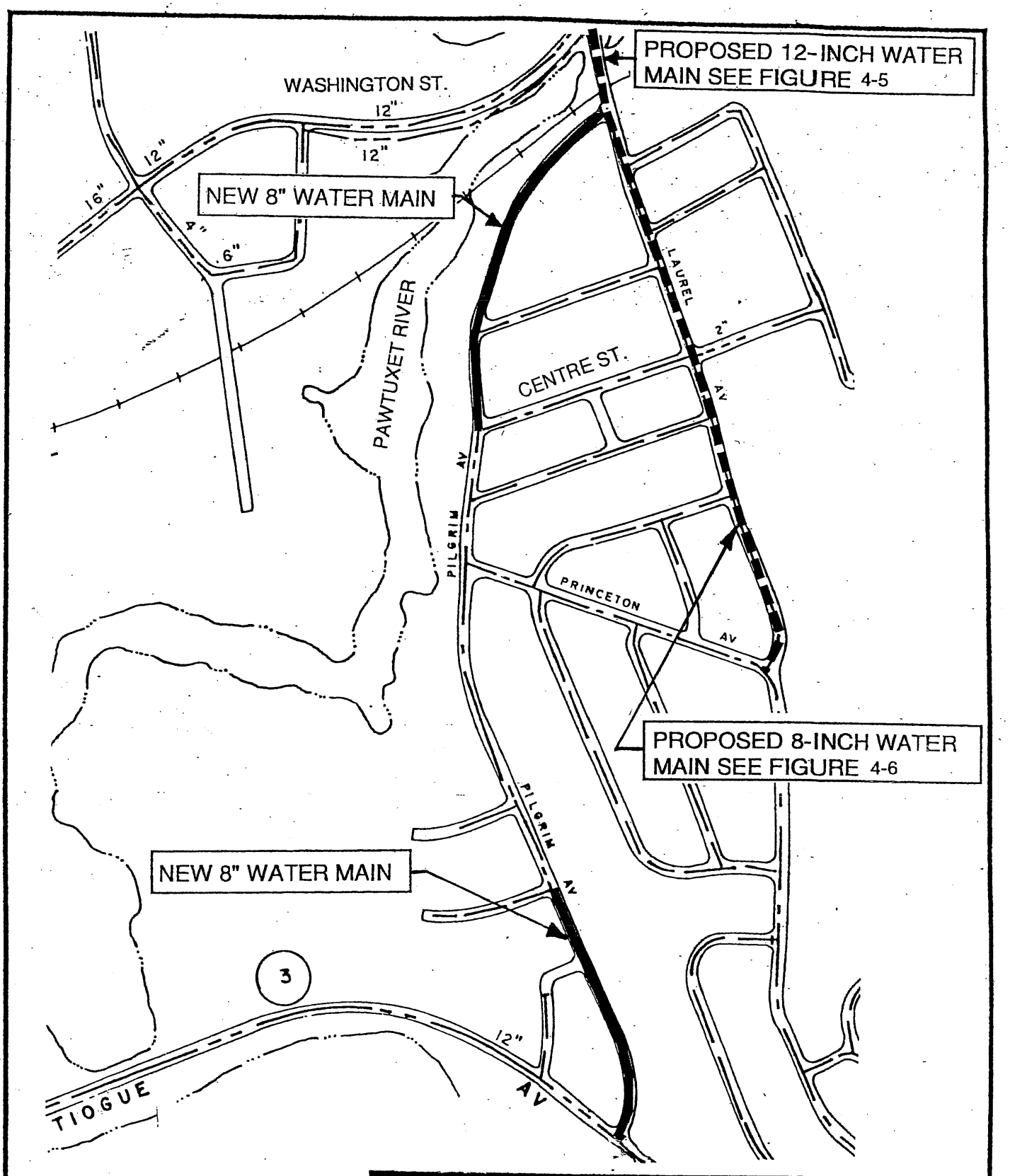
The East Greenwich transmission main project will extend the Authority's system to areas, which do not have water service. The transmission mains will be an extension of recent construction projects by the Authority in Division Road and Middle Road. The new water main will all be connected to the Authority's Technology Park high service area. East Greenwich is one of the communities in the Authority's system, which is expanding and growing rapidly. Under this project the Authority will strength its distribution system in East Greenwich while providing service for expanded growth.

Project 10a – Division Road Transmission Main

The Division Road transmission main project extends from Shippeetown Road east to the Signal Ridge area. Figure 4-9 illustrates this improvement, which includes 4,000-feet of 16-inch ductile iron water main. Project 10a extends the Technology Park high service area 500-foot high service gradient in west from Shippeetown Road to the Signal Ridge area, which has continually low-pressure problems. Signal Ridge currently served by the low service area but is located at higher elevation (approaching 300-feet) which causes the low pressures. This water main extension will provide Signal Ridge will adequate pressures during all domestic and fire flow conditions. With information from recent construction work in this area, the Authority should anticipate that rock and boulder would be encountered during construction. CDM's estimated cost for this project is about $448,800.

Project 10b – Shippeetown Road Water Main

Project 10b will construct about 5,500-feet of new 12-inch ductile iron water main in Shippeetown Road between Division Road and Middle Road in East Greenwich.

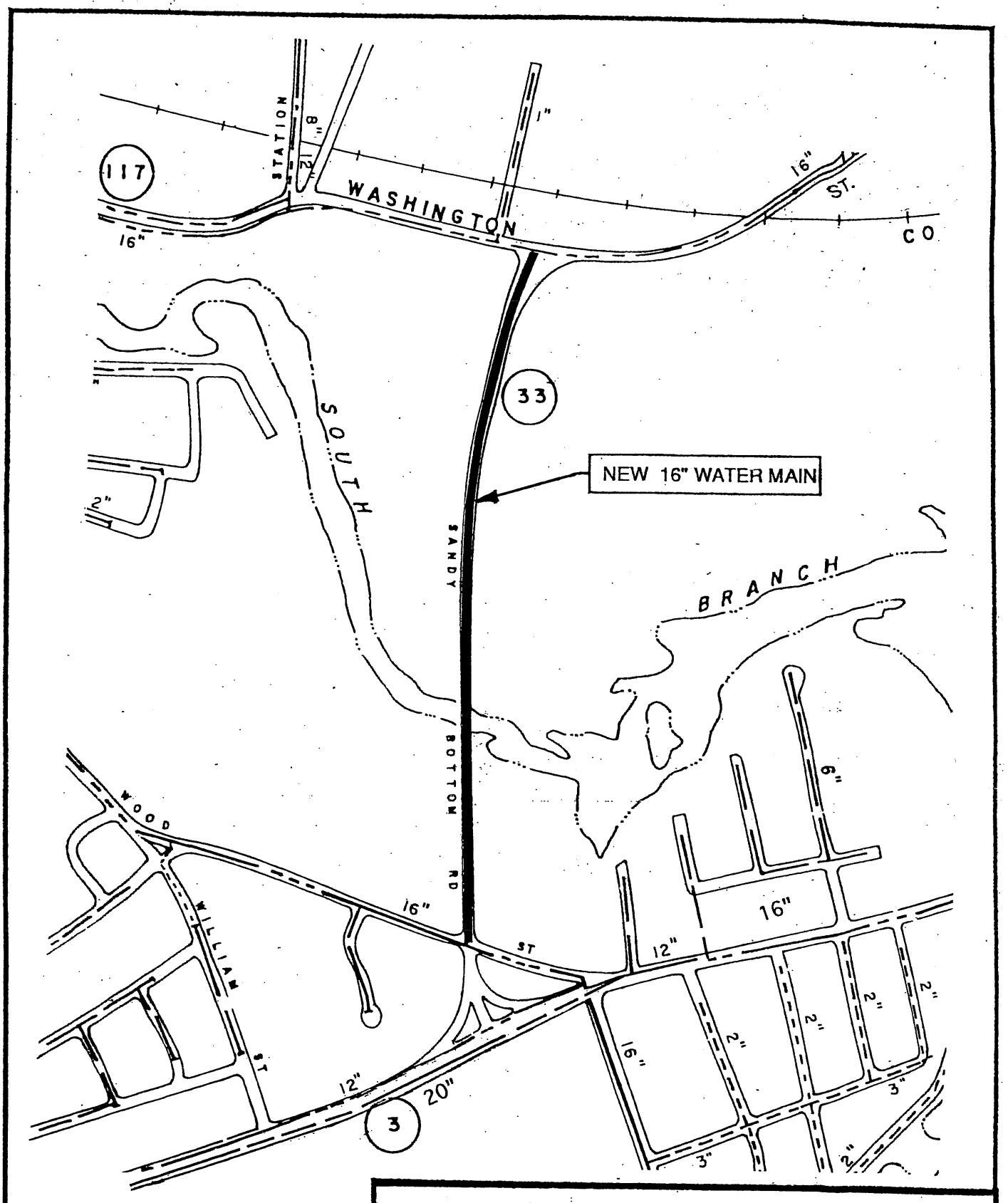


KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-7

PILGRIM AVENUE FROM LAUREL AVENUE TO CENTRE STREET AND FROM DEXTER STREET TO TIOGUE AVENUE

CDM

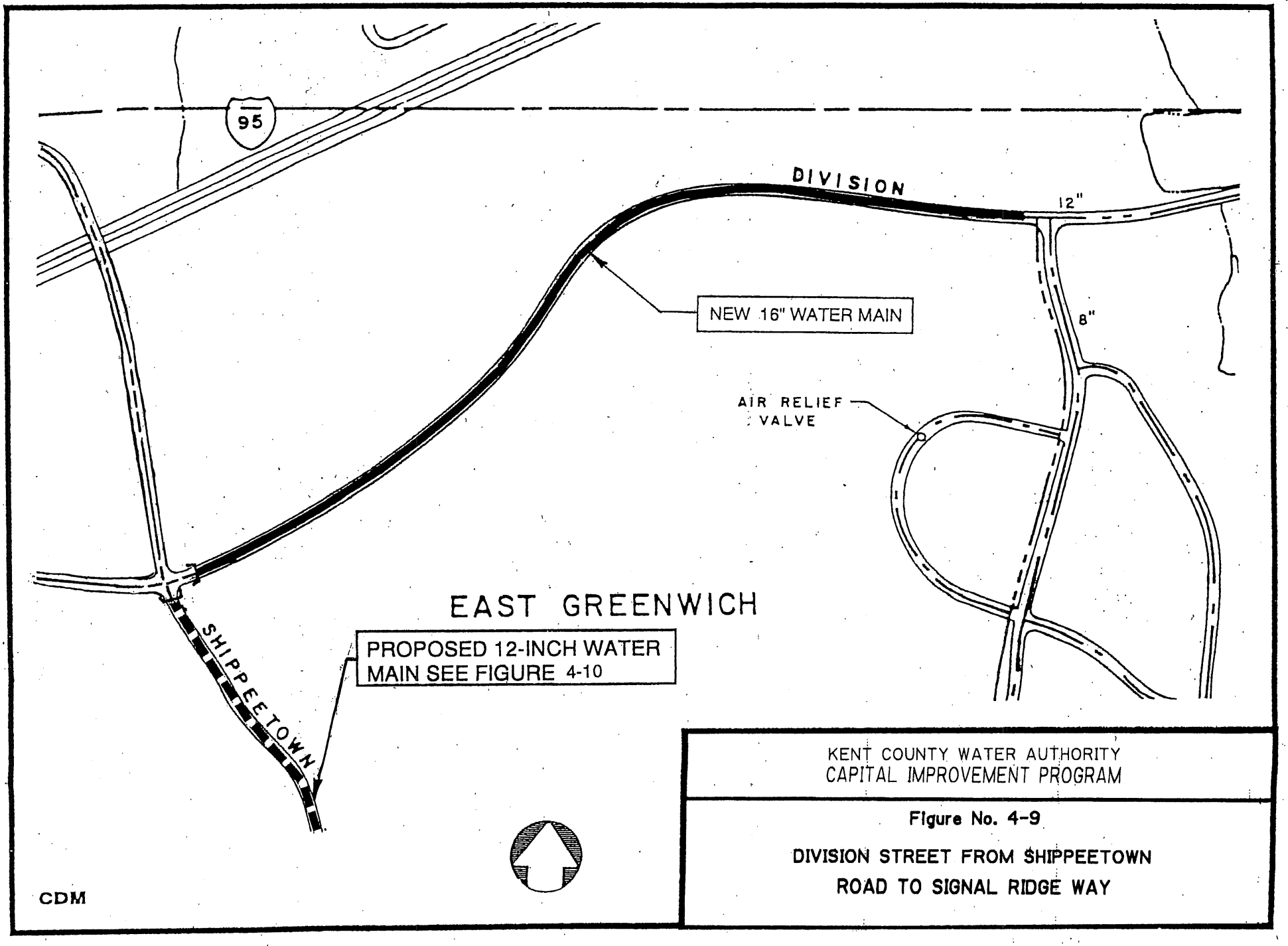


KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-8

SANDY BOTTOM ROAD FROM WASHINGTON STREET TO WOOD STREET

CDM



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-9

DIVISION STREET FROM SHIPPEETOWN ROAD TO SIGNAL RIDGE WAY

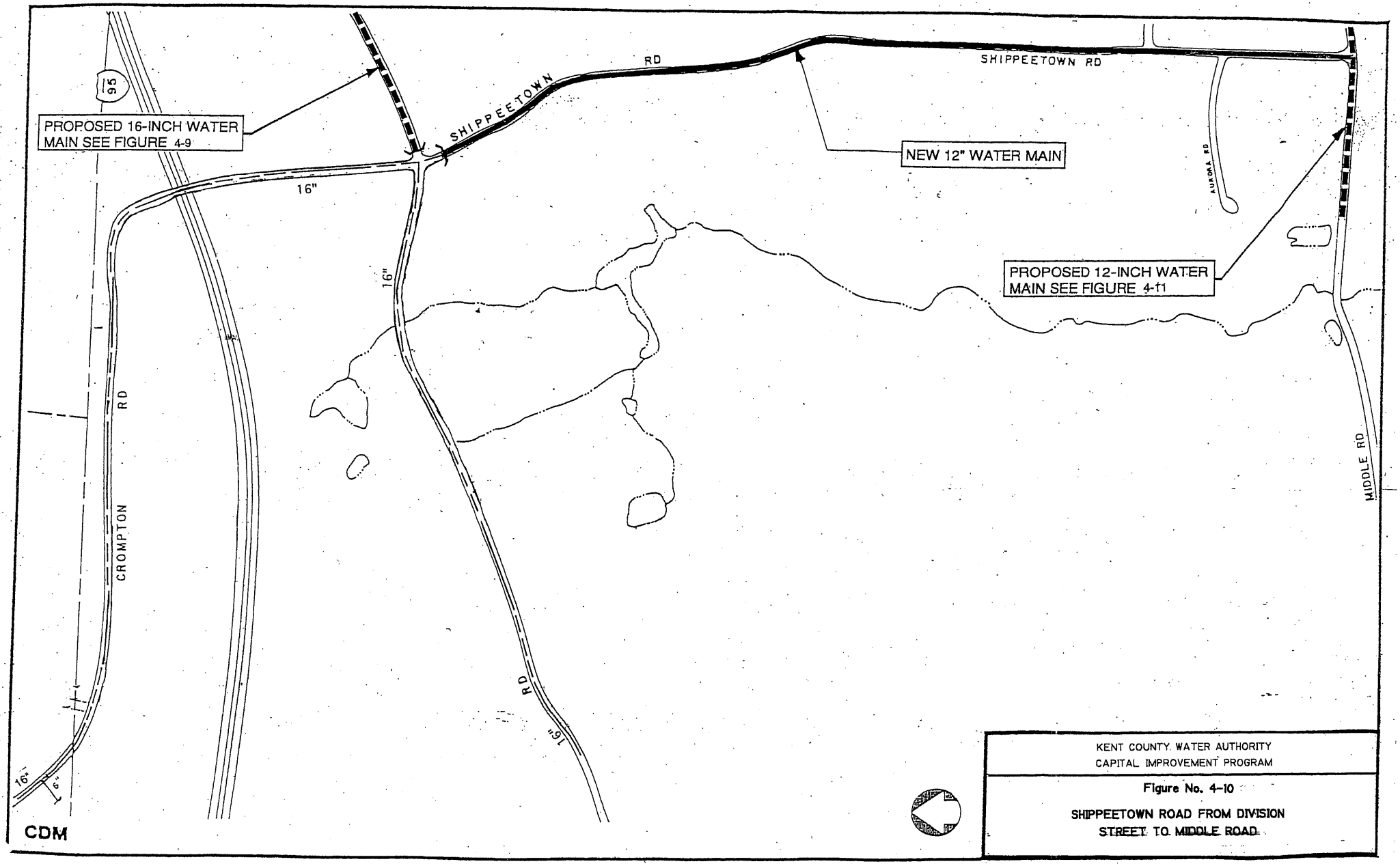
While constructing the Crompton Road and Technology Park Transmission Main project in the 1990s, the Authority made provisions for this water main by extending a stub down Shippeetown Road from Division Road. From this past construction work, CDM anticipates that rock and boulders will be encountered on this construction project. This project will provide service to new customers and extend the Technology Park high service area gradient down Shippeetown Road from Division Road. Figure 4-10 shows the extent of Project 10b which CDM's estimates will cost about $489,800.

Project 10c - Middle Road Water Main from Mawney Brook to Tillinghast Road

Project 10c includes the installation of a water main in Middle Road, which provides a loop to the Signal Ridge area. Figure 4-11 illustrates this improvement, which includes 2,000-feet of 12-inch ductile iron water main. This Middle Road watermain provides needed redundancy to the Signal Ridge area by providing two connections to the Technology Park high service area. The improvement also extends the Authority's system to areas that are not currently served. With information from recent construction work in this area, the Authority should anticipate that rock and boulder would be encountered during construction. CDM's estimated cost for this project is about $222,000.

Project 10d - Middle Road Water Main between Westfield Drive and Moosehorn Road

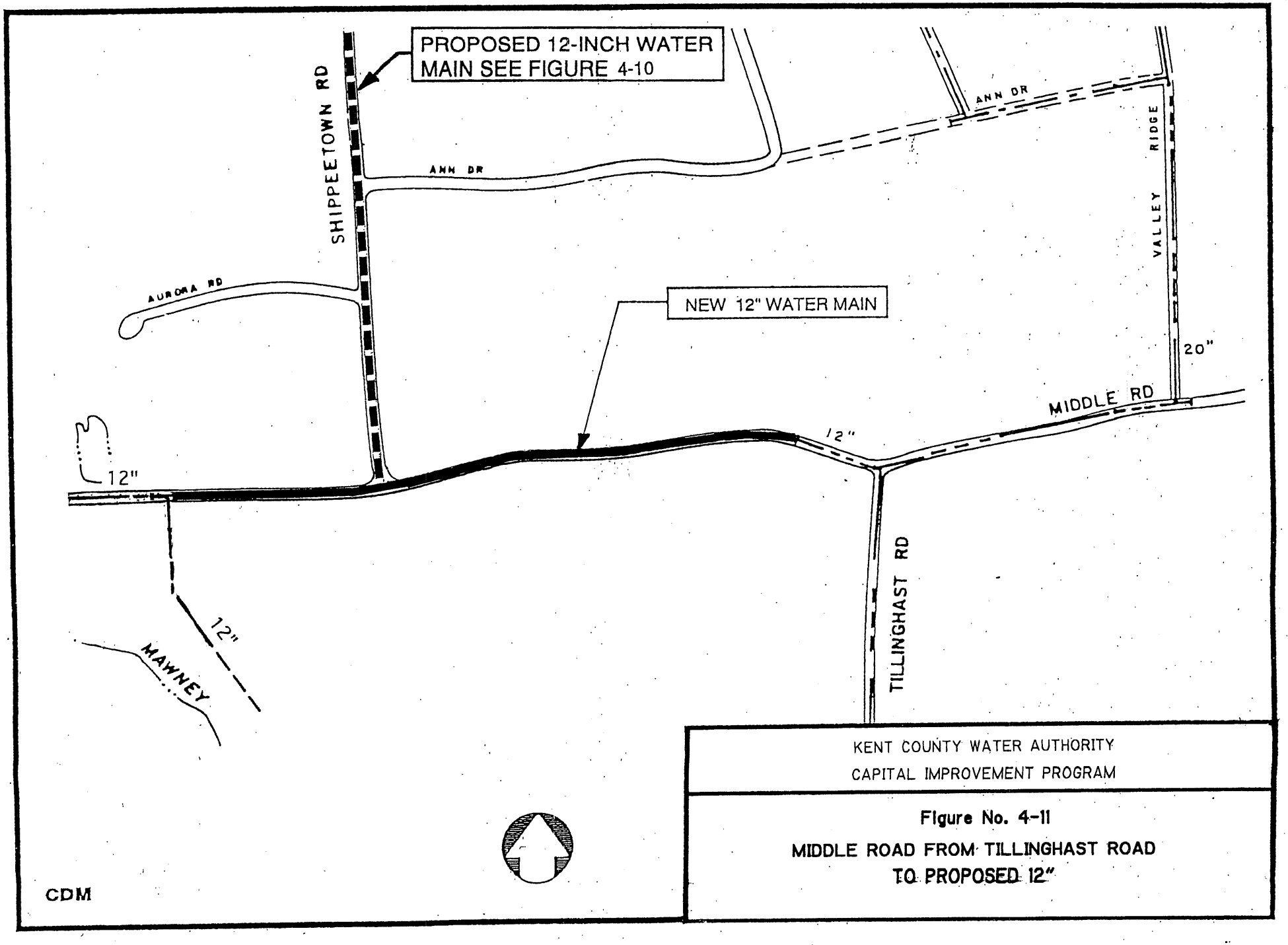
With this project, the Authority has completed its immediate plans to extend the Technology Park high service area to East Greenwich. Project 10d installs a 12-inch water main in Middle Road between Moosehorn Road to Westfield Drive. This pipeline, as shown in Figure 4-12, measures about 5,000-feet in length and will connect to existing water mains, which were recently install by developers through an agreement with the Authority. Similar to other projects in this area, CDM expects that rock and boulders will be encountered long Middle Road. The estimated cost for Project 10d is estimated to be $530,000.



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-10

SHIPPEETOWN ROAD FROM DIVISION STREET TO MIDDLE ROAD

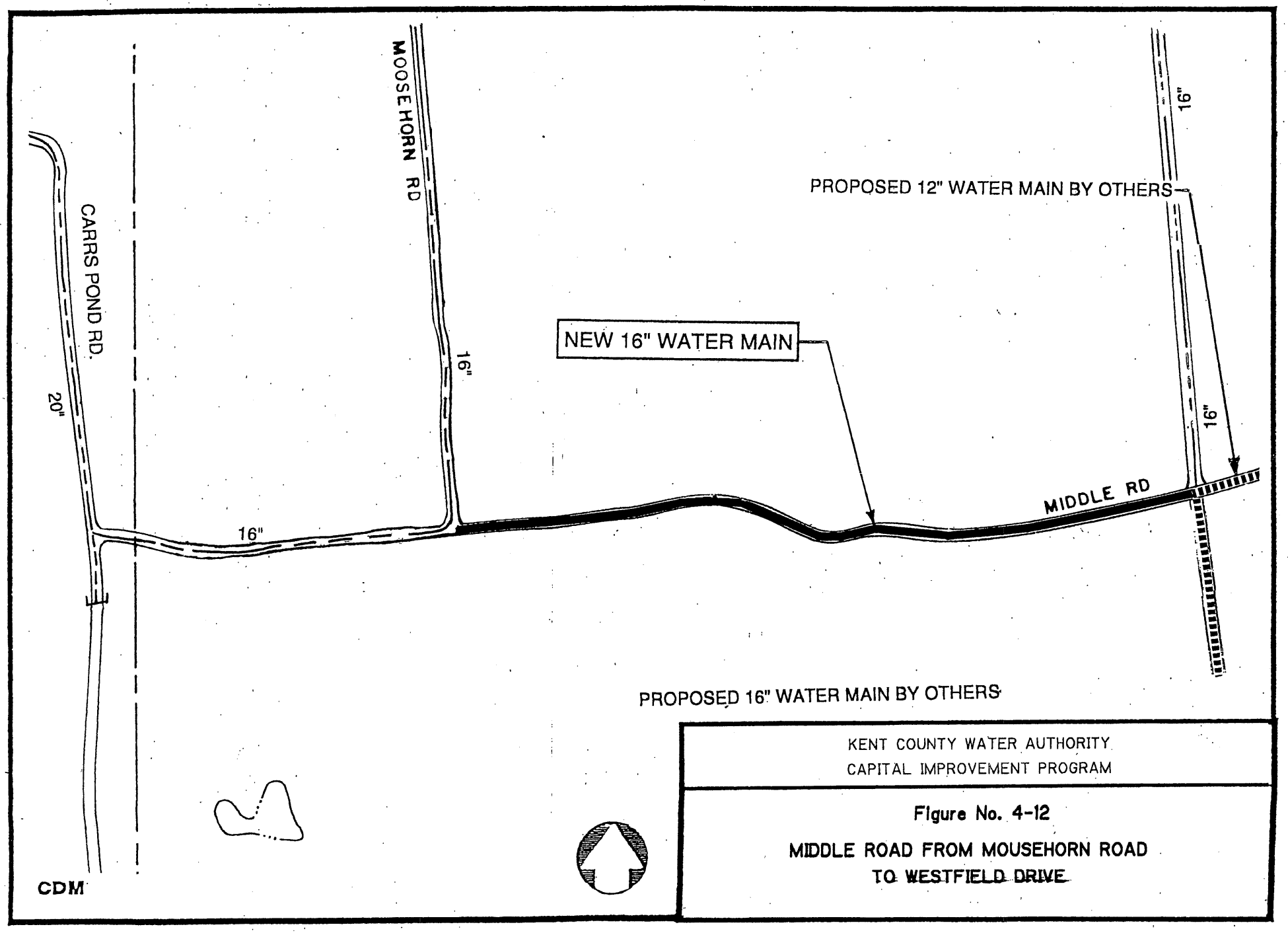


KENT COUNTY WATER AUTHORITY

CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-11

MIDDLE ROAD FROM TILLINGHAST ROAD TO PROPOSED 12"



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 4-12

MIDDLE ROAD FROM MOUSEHORN ROAD TO WESTFIELD DRIVE

5

Section Five

Section 5
Fiscal Year 2005 Improvements

Project 11 - West Street Tank Area Water Mains

The Authority had to remove the West Street storage tank from the system due to the current operation of the Clinton Avenue pump station and the Tiogue Tank. The pump station is now controlled by the Tiogue tank, which has a higher overflow elevation (357.5-feet) than all other low service area tanks although the Tiogue tank has a higher overflow elevation. The Authority operates the tank between elevations 348.5 and 351. The West Street tank is located between the Clinton Avenue station and the Tiogue tank. With the pump station operating at higher total dynamic heads to satisfy the Tiogue tank's taller overflow elevation, the West Street remains in the filled position due to these higher heads. This operating condition prevented the tank from fluctuating .

With the abandonment of the Tiogue storage tank, the Authority may put the West Street storage tank back on-line to operate with other low service storage tanks. The Authority must increase transmission capacity to the storage tank. Project 11 provides the needed improvements to reinforce the Authority's system between the West Street storage tank and both the Clinton Avenue pump station and the Wakefield Street storage tank.

Project 11a - Green Street Area Water Mains

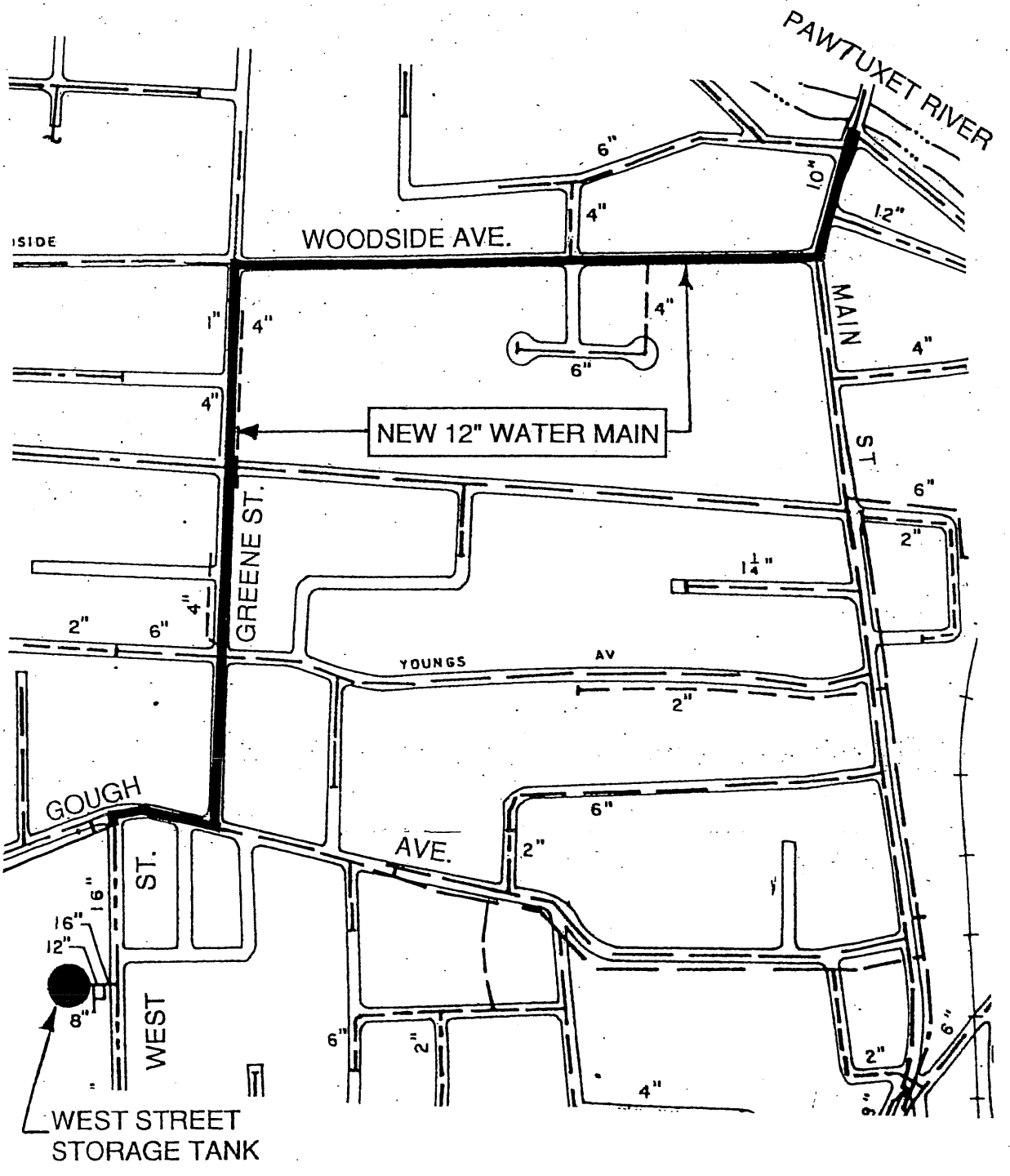
The Green Street Area project will install water mains near the West Street tank to improve the supply of water between the tank and both the Clinton Avenue station and Wakefield Street storage tank. For the Project 11a, the Authority will install 4,600-feet of new 12-inch ductile iron water main in Green Street and Woodside Avenue from Gough Avenue to Main Street. The improvements will help the West Street tank to fluctuate more efficiently. CDM estimates the total cost of this project to be about $422,400. Figure 5-1 shows the route of the Greene Street Area Water Mains.

Project 11b - Main Street Transmission Main

Project 11b includes the installation of about 3,800-feet of 16-inch ductile iron water main in Main Street from Fairview Avenue to Clyde Street. This project will allow the Authority to optimize operation of the water mains at the intersection of Main Street and Fairview Avenue. These improvements are shown in Figure 5-2.

In this area, the Authority has many old mains and valves, which have caused the Authority chronic operation and maintenance problems. This improvement will provide new facilities to allow for proper shutdown of the water mains in this area.

This project will also improve water supply between the Clinton Avenue pump station and both the Wakefield Street and West Street storage tanks. We estimate the total project cost to be $452,900.

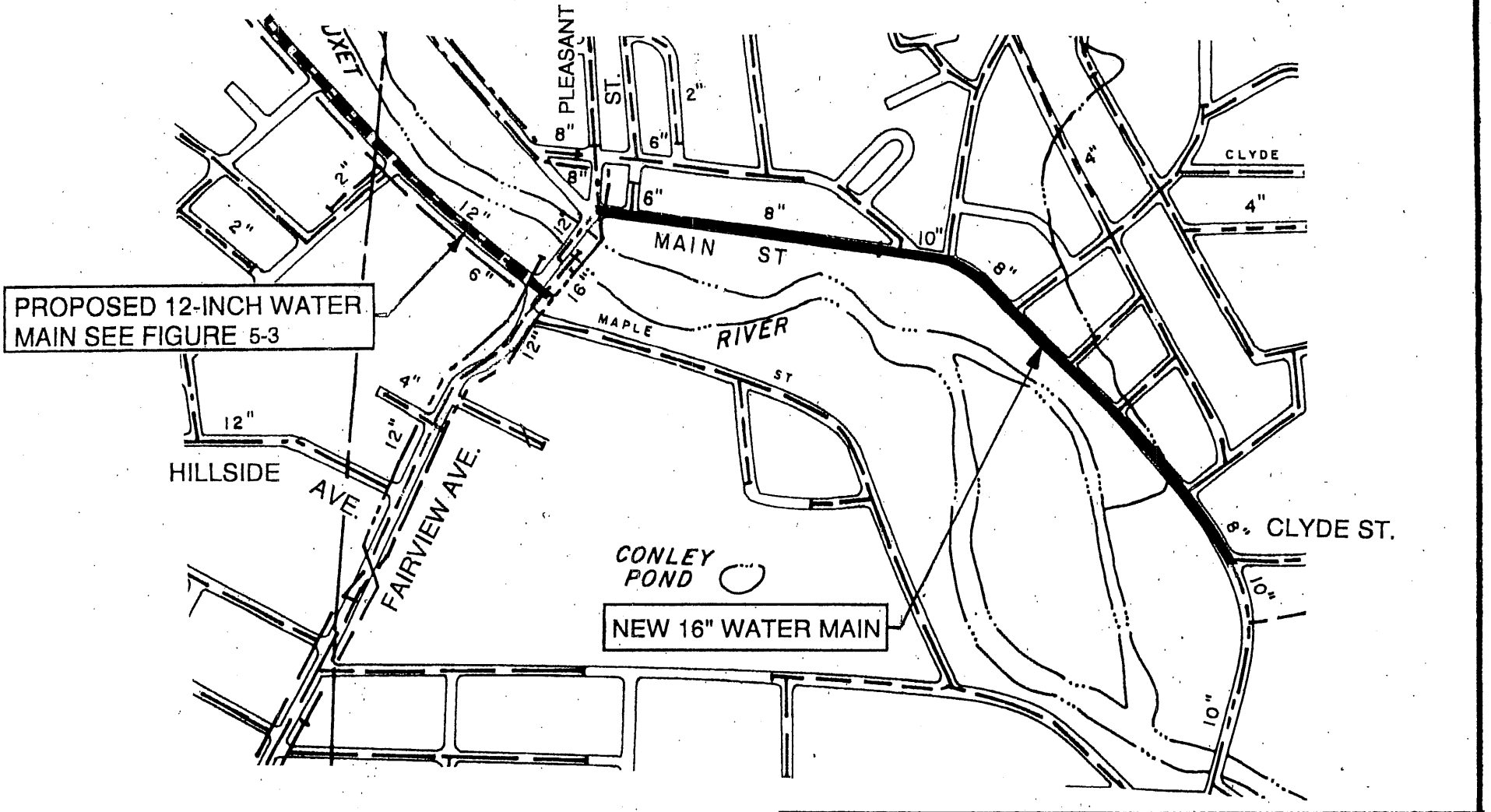


KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 5-1

GREENE STREET AND WOODSIDE AVENUE FROM GOUGH AVENUE TO MAIN STREET

CDM



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 5-2

MAIN STREET FROM PLEASANT STREET TO CLYDE STREET

CDM

Project 11c – Ames Street Water Main

Project 11c will install about 2,300 feet of existing 12-inch water main and will connect to a 16-inch transmission main, which feeds the West Street storage tank area. The new 12-inch main will run parallel to the existing 12-inch, so that together they will function as a larger transmission main. This will improve transmission of water to the West Street tank and through an area that is currently hydraulically restricted. Figure 5-3 shows the Ames Street water main and CDM estimates the cost of the project to be about $266,300.

Project 11d – Low Service Area Storage Analysis

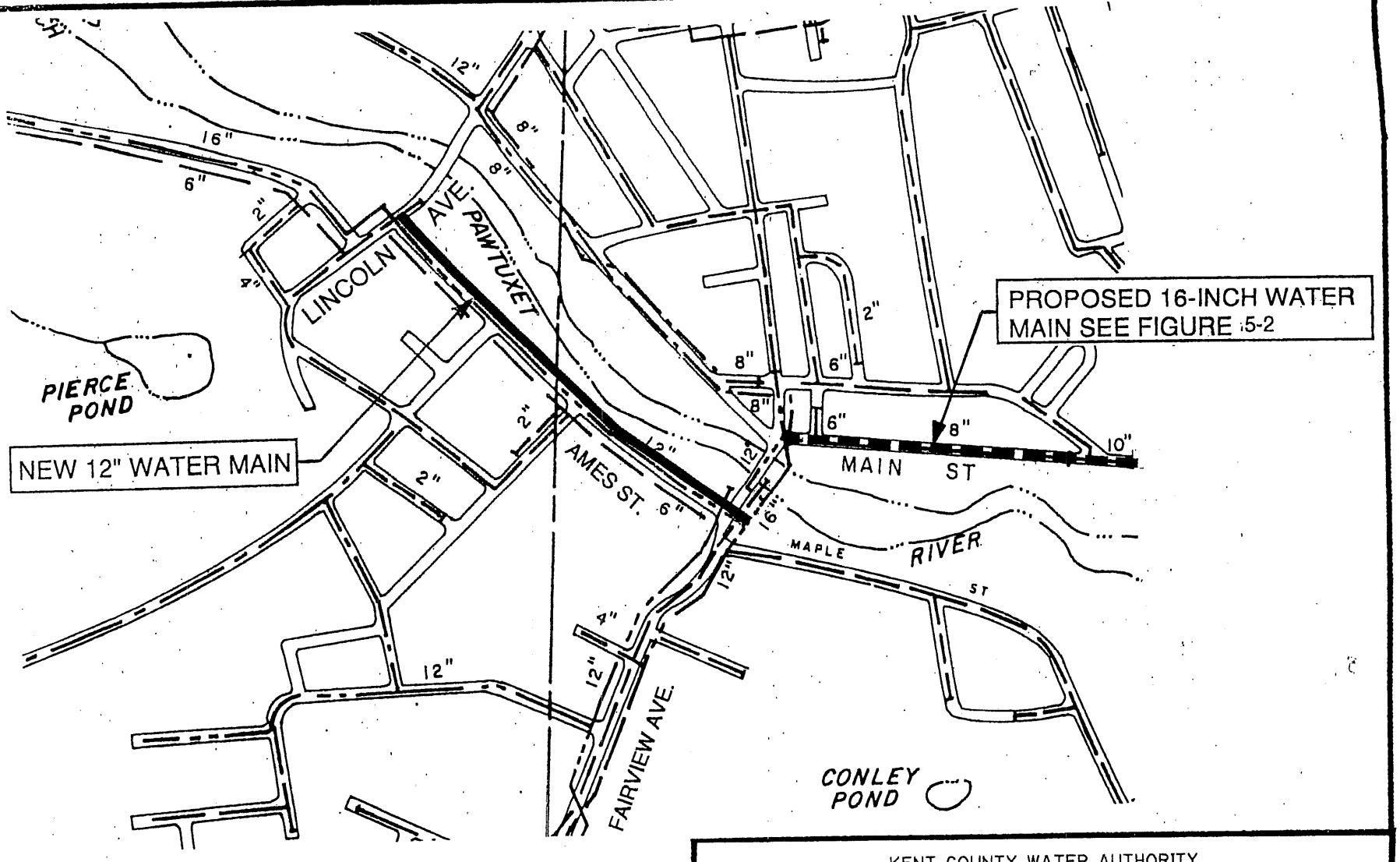
In Project 11d, the Authority wishes to perform a storage evaluation on its low service system. In 1995, CDM performed a System Gradient Study for the Authority, which investigated storage throughout the water supply system using the CYBERNET model. The study determined that the Authority had limited low service area storage. This evaluation included the review of the three major components, which are included in a storage evaluation. These components are:

- Equalization Storage
- Emergency Storage
- Fire Flow Storage

By the year 2005, the Authority should perform another storage evaluation, which reviews these components in the low service area. The Authority should also review the operation of the Fiskeville storage tanks during their slow service area storage evaluation. The Fiskeville tanks do not fluctuate or feed the system regularly. The lack of fluctuation in the tanks is thought to be due to their close proximity to the Clinton Avenue pump station. The level in the tanks may not drop because of the pump discharge heads at the pump station or because of an hydraulic anomoly. CDM recommends that the Authority review the operation of these Fiskeville tanks using the water distribution system computer model. We estimate the cost of this project to be about $60,000.

Project 12 - Read School House Road and Technology Park High Service Areas Connection

In Project 12, the Authority will connect the Read School House Road (RSHR) and the Technology Park high service areas with a transmission main over the Flat River Reservoir dam and with two transmission mains in Noose Neck Hill Road. As discussed previously, the interconnection increases redundancy in both service areas and the Authority will have more flexibility to properly serve its customers during emergency situations. CDM has described the four projects, which will complete this interconnection below.



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 5-3

AMES STREET FROM FAIRVIEW AVENUE TO LINCOLN AVENUE

CDM

Project 12a - Flat River Reservoir Dam Crossing

Project 12a will install a 20-inch ductile iron water main across the Flat River Reservoir dam in Coventry, Rhode Island. This project will connect to the 20-inch water main to be installed in Project 7d. Figure 5-4 presents the route of this transmission main with about 3,100 feet of 20-inch ductile iron water main being installed across the dam. CDM anticipates the total cost of this project to be about $482,000.

The Authority may encounter a major permitting effort for this project because the transmission main will traverse the dam, which contains the Flat River Reservoir. The construction will involve the benching (i.e., mounding) of soil on the downstream side of the dam within or near wetlands. At the project's inception, the Authority must investigate the current State and Federal permitting requirements for modifying a dam and working within wetlands. If constructed properly, the project will have little impact on the dam or the surrounding wetlands but the Authority will be required complete the permitting effort.

Project 12b - Reservoir Road Transmission Main

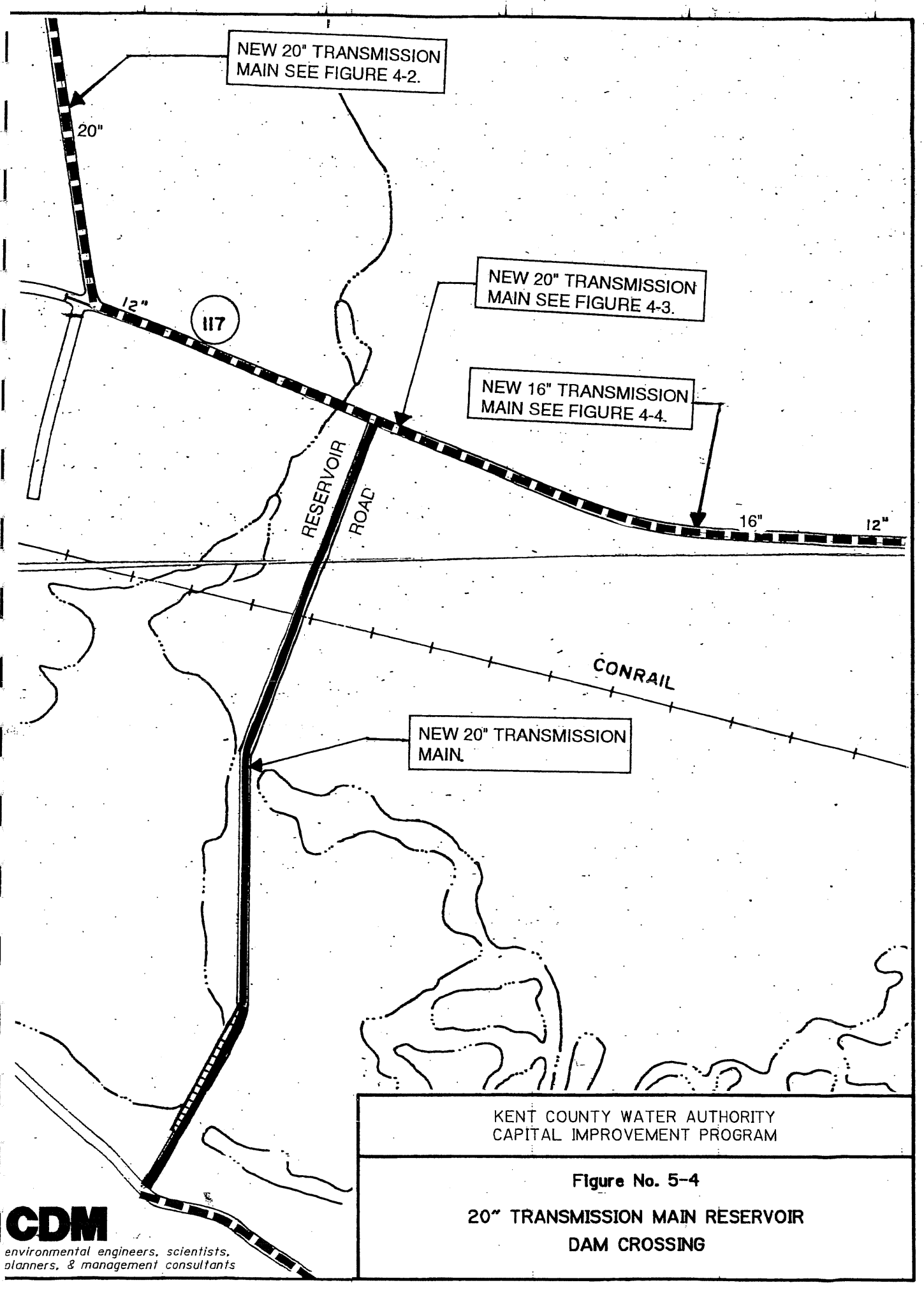
For Project 12b, the Authority will install a 20-inch transmission main in Reservoir Road from the Flat River Reservoir Dam (Project 12a) to Nooseneck Hill Road. Figure 5-5 shows the route of this water main work that includes the installation of 6,500-feet of new 20-inch ductile iron water main. While there will be minimal work in Nooseneck Hill Road (State Highway Route 3), the Authority will be required to file a utility installation permit with the Rhode Island Department of Transportation (RIDOT) for any work within the limits of Route 3. Project 12b is estimated to cost about $1,025,900.

Project 12c - Nooseneck Hill Road 20-inch Transmission Main

Project 12c installs a 20-inch transmission main in Nooseneck Hill Road (Route 3) from Reservoir Road to Mishnock Road. This 20-inch main is needed to allow the new RSHR storage tank and both tanks in the Technology Park high service area to fluctuate together when both service areas are connected. For this project, the Authority will install about 8,450-feet of 20-inch ductile iron water main. CDM estimates the total cost of this project to be about $1,330,100. Figure 5-6 presents the route of this transmission main, which will also require approval by the RIDOT.

Project 12d - Nooseneck Hill Road 16-inch Transmission Main

The Authority currently operates its Technology Park reduced pressure zone with two pressure reducing valve (PRV) vaults at Mishnock Road and Helen Avenue both near Hopkins Hill Road. The PRVs reduce the pressures of the 500-foot gradient, which is established by the Johnson Boulevard pump station and the Technology Park storage tank. In Coventry and West Greenwich, the land west of Hopkins Hill Road drops in elevation along Mishnock Road, Nooseneck Hill Road and in the Wood Estates area.



KENT COUNTY WATER AUTHORITY
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Figure No. 5-4

20" TRANSMISSION MAIN RESERVOIR DAM CROSSING

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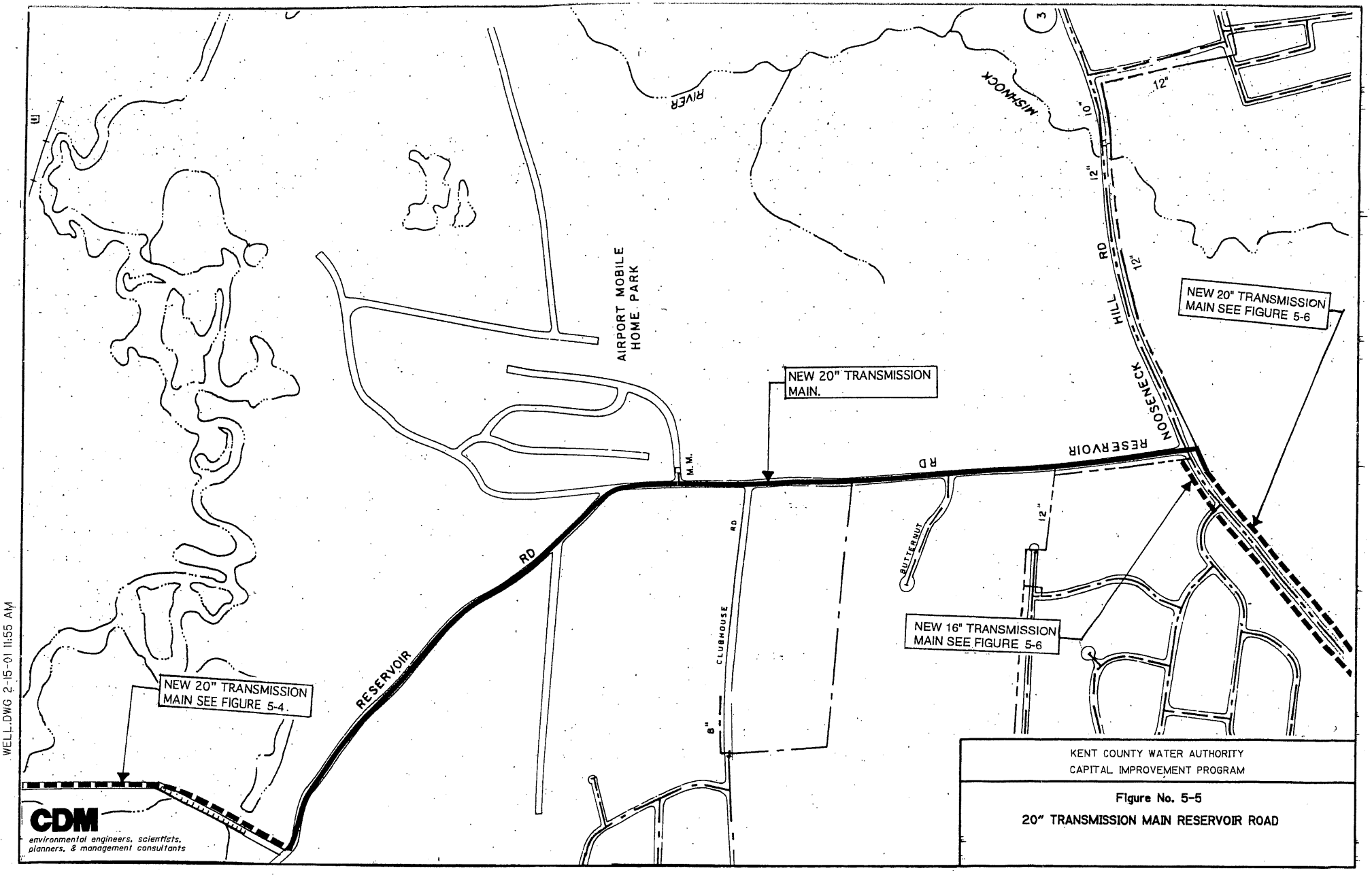

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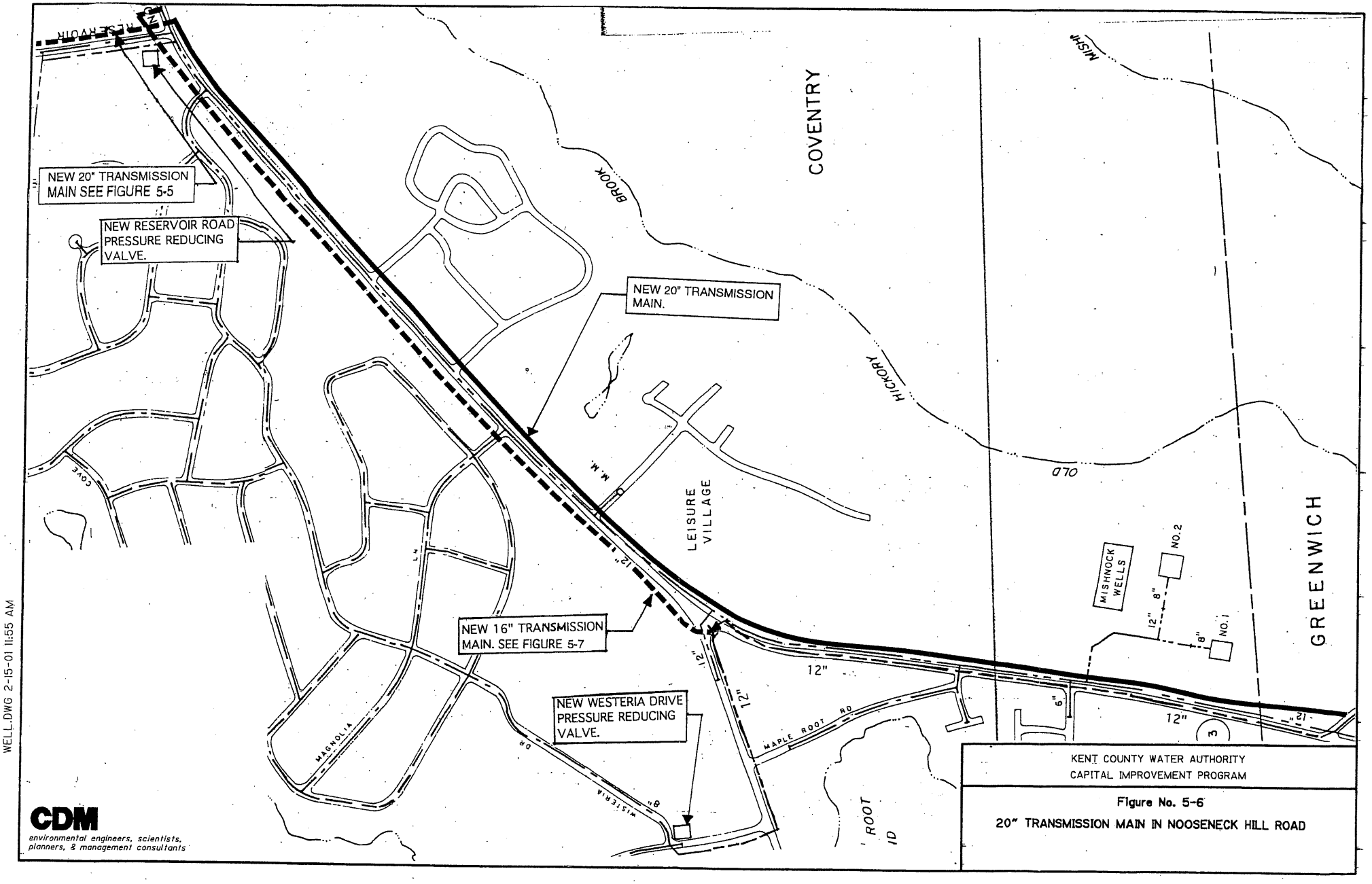

KENT COUNTY WATER AUTHORITY
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Figure No. 5-6

20" TRANSMISSION MAIN IN NOOSENECK HILL ROAD

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environmental engineers, scientists, planners, & management consultants

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To properly connect the service areas, the 12-inch water mains in Mishnock Road and Tiogue Avenue east of Reservoir Road must be converted to the 500-foot gradient. These water mains are currently downstream of the existing PRV and are, therefore in the reduced pressure zone.

During the 1995 RSHR High Service Area Gradient study, CDM performed an investigation on connecting of these service areas that included converting these two 12-inch pipes to high service. CDM used the Authority's distribution system model to simulate the connection and examine system pressures in this area of the Authority's system.

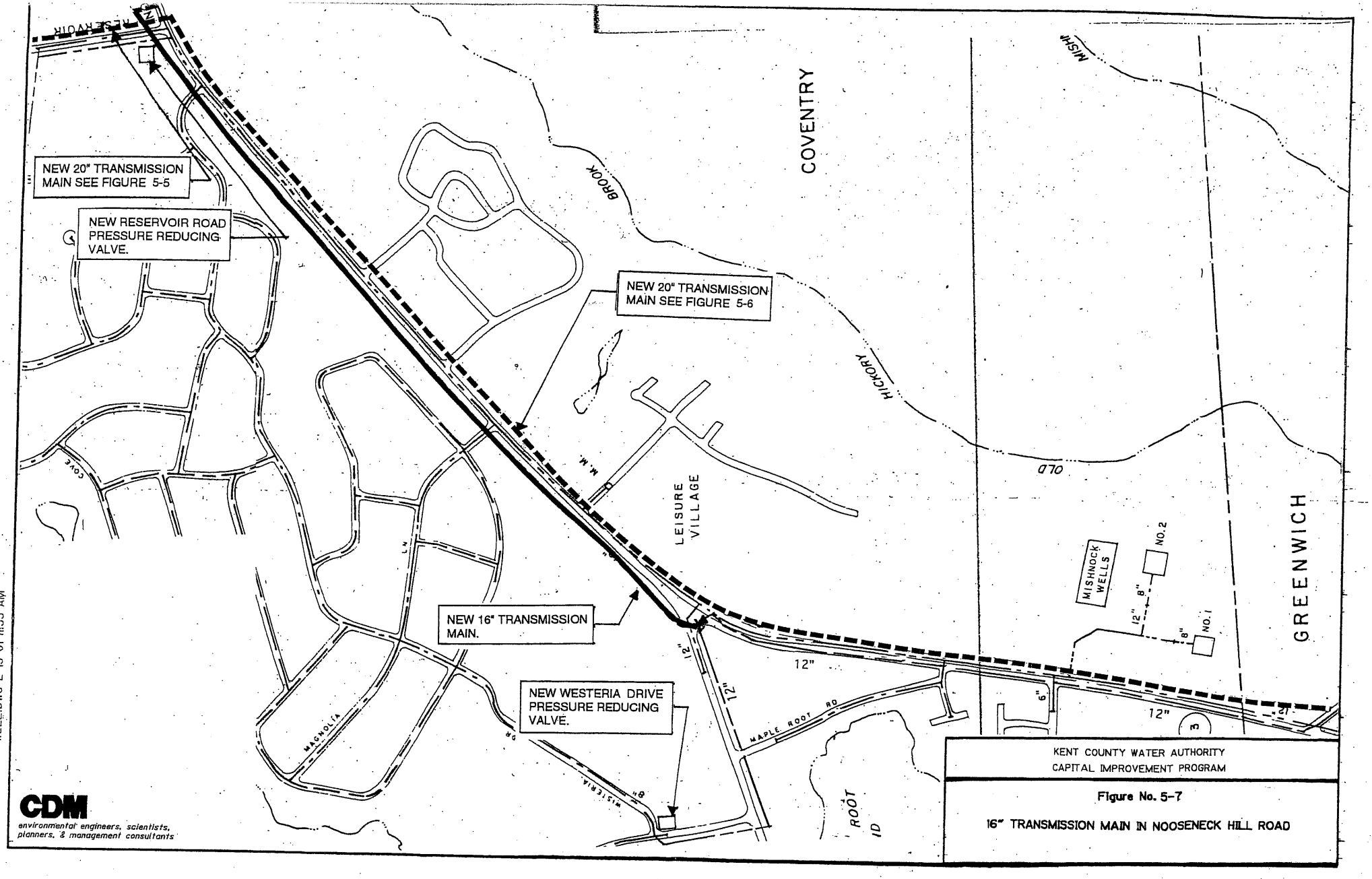
Since the Wood Estates area is not serviced by these two water mains, we moved the PRVs from Helen Avenue and Mishnock Road and installed them on Wisteria Drive and Reservoir Road. By moving the PRVs, service to the Wood Estates area would remain in a smaller reduced pressure zone bounded by Noonseneck Hill Road, Reservoir Road, Harkney Hill Road and the western boundary of the Authority system in Coventry. Since the PRVs would no longer be in Mishnock Road or Helen Avenue, the Tiogue Avenue and Mishnock Road Mains would be converted to the 500-foot gradient. CDM determined that there will be high pressures along these routes at lower elevations. The Authority may have to purchase individual PRVs for customers in these areas where high pressures will be a concern.

To effective isolate the Wood Estates and thereby reducing pressures in this area, the Authority must install a 16-inch water main in Nooseneck Hill Road from Reservoir Road to Harkney Hill Road. This construction involves the installation of about 5,000-feet of new 16-inch water main. When this main is installed and the PRVs are relocated, the Authority will be able to connect both service areas in the event of an emergency. Figure 5-7 presents the route of this water main and also shows the new PRV locations on Wisteria Drive and Reservoir Road. CDM estimates this project to cost about $647,300.

Project 13a - Bald Hill Road Area Transmission Mains

In September 1995, CDM prepared the Authority's System Gradient Study to evaluate pressures throughout the distribution system. A major goal of the study was to determine areas in the system, which experienced either low or high pressures. Industry standards recommend that system pressures fall between 35 and 100 pounds per square inch (psi) during all domestic demand conditions (i.e., average day, maximum day and peak hour conditions).

The Authority has recognized chronic low-pressure problems around the Crompton storage tank in the low service area, consequently CDM targeted this area for our computer model runs as part of the System Gradient Study. We determined that the Crompton neighborhoods experienced these low pressures due to the high ground surface elevations around the tank. To address these low pressures, CDM recommended water main improvements to connect this area with the Technology Park high service area.



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KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 5-7

16" TRANSMISSION MAIN IN NOOSENECK HILL ROAD

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In 1998, the Authority quickly moved forward with a portion of these water main improvements. This project extended a new 16-inch water main from Crompton Road along New London Turnpike and East Greenwich Avenue to the Crompton storage tank area. With these improvements, the Authority closed valves along Bald Hill Road, Cowesett Avenue and around the storage tank to properly isolate the low service area and the tank from Technology Park high service area. By closing these valves, dead end water mains were created on roads that extend away from the storage tank toward both Bald Hill Road and Cowesett Avenue.

The second phase of our recommended improvements includes the installation of a 16-inch water main in Bald Hill Road and Cowesett Avenue from East Greenwich Avenue to Kulas Road off Cowesett Avenue. Figure 5-8 presents this water main route, which includes about 6,600-feet of new 16-inch ductile iron water main. This project will eliminate most of the dead end water mains in this area. CDM estimates the cost of Project 13a to be about $852,000.

Project 13b - West Warwick Industrial Park Tank Demolition

When the Authority extended the Technology Park high service area to the Crompton tank, they also eliminated the West Warwick Industrial Park service area. The industrial park was served by a small booster pump station off Bald Hill Road, which pumped to a 1.0 million-gallon storage tank within the park. This small service area operated at a gradient of 380-feet and served only the West Warwick industrial park. Since the pump station and storage tank served such as small customer base, the Authority decided to extend the Technology Park high service area to the industrial park thereby eliminating the operation and maintenance costs for these facilities.

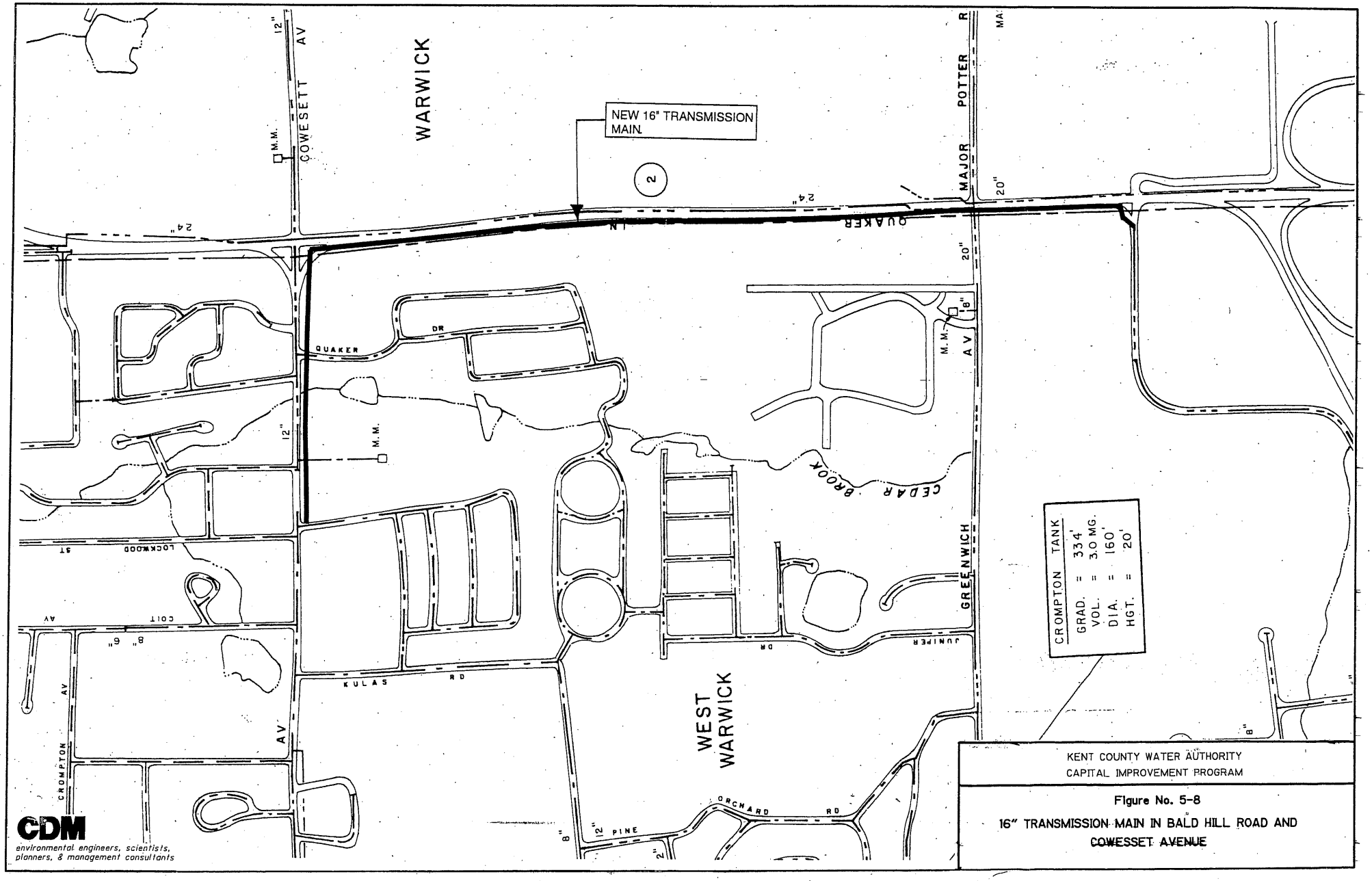
Figure 5-9 locates the West Warwick Industrial Park storage tank. In Project 13b, the Authority plans to demolish this tank since it is no longer in use. The estimated cost for this demolition is about $26,700. CDM anticipates that there will be some salvage value in the tank materials.

Project 13c - Read School House Road Tank Demolition

As discussed in Project 7, the Authority plan to increase the gradient of the Read School House Road (RSHR) high service area from 430-feet to 500-feet. By implementing the improvements recommended in Project 7, the Authority will eliminate the existing RSHR storage tank from their system. Project 13c will demolish this storage tank since is will become obsolete. Figure 5-10 locates the existing RSHR storage tank and CDM anticipates the cost of this demolition to be about $26,700. As with the West Warwick industrial park storage tank, CDM expects that the tank materials removed during the demolition will has some salvage value.

Project 13d - Tiogue Tank Demolition

The Authority plans to abandon the Tiogue Avenue storage tank after constructing the water main improvements in Project 9. By implementing these improvements, the



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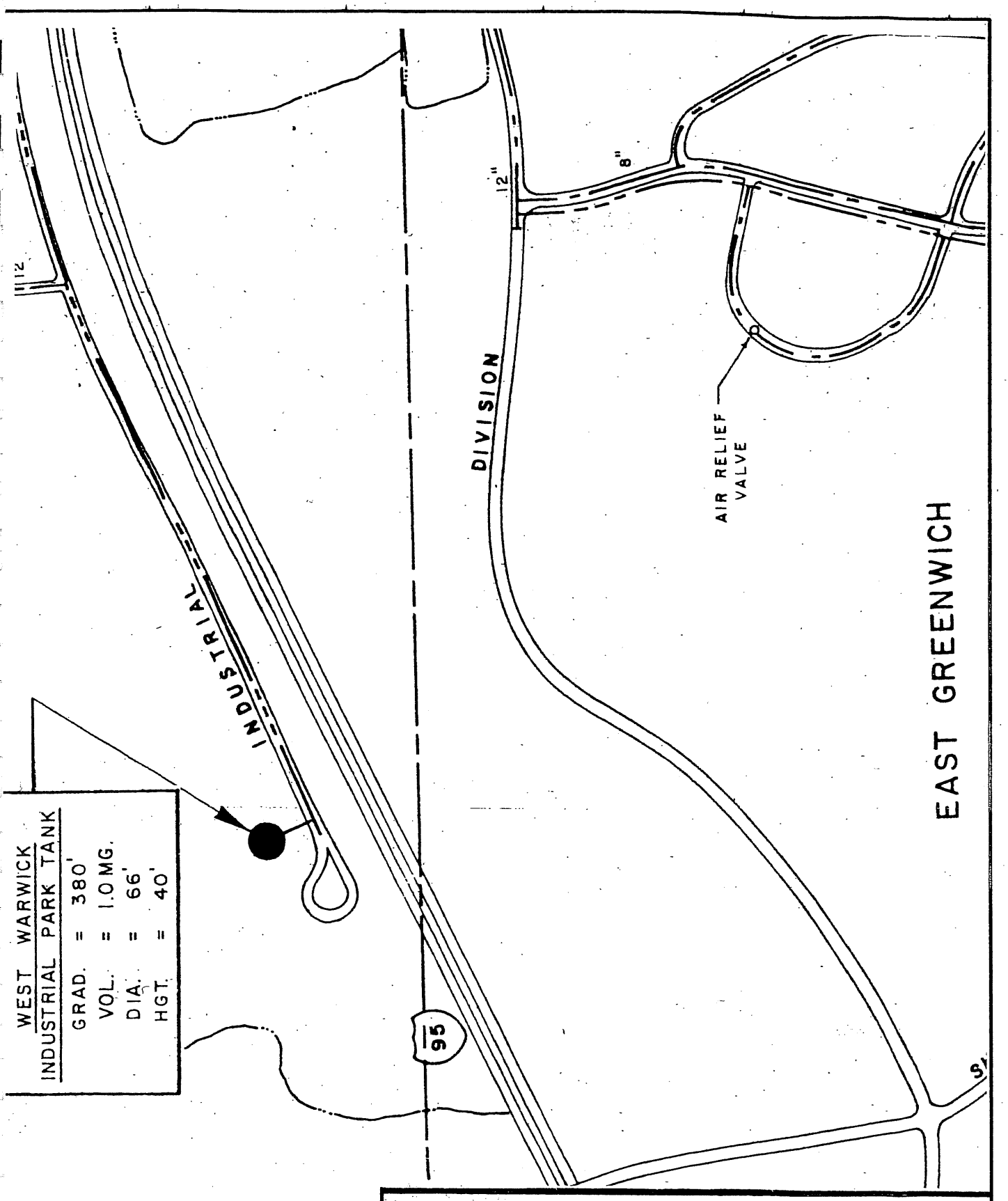

KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 5-9

DEMOLISH WEST WARWICK INDUSTRIAL PARK TANK

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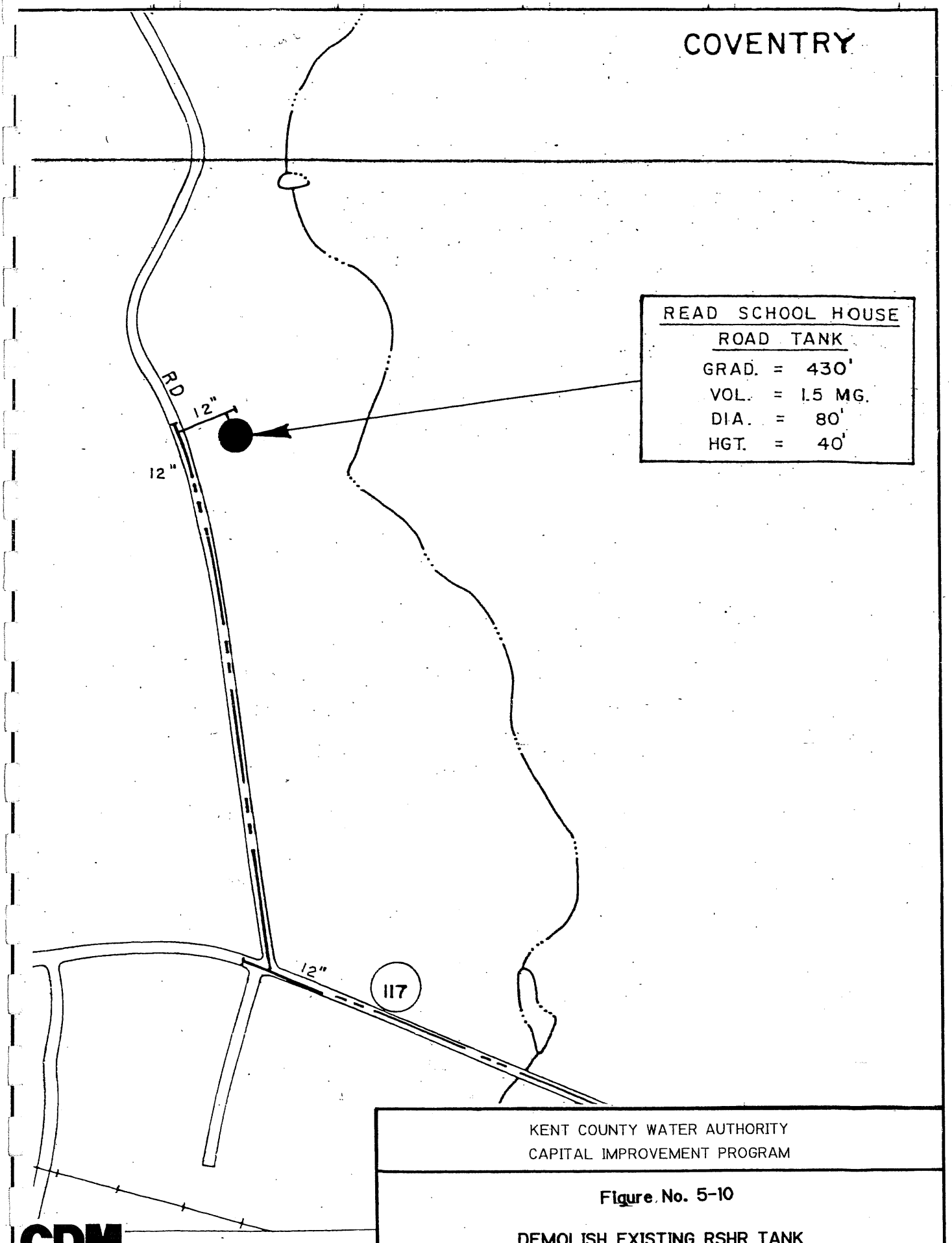
planners, & management consultants



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 5-10

DEMOLISH EXISTING RSHR TANK

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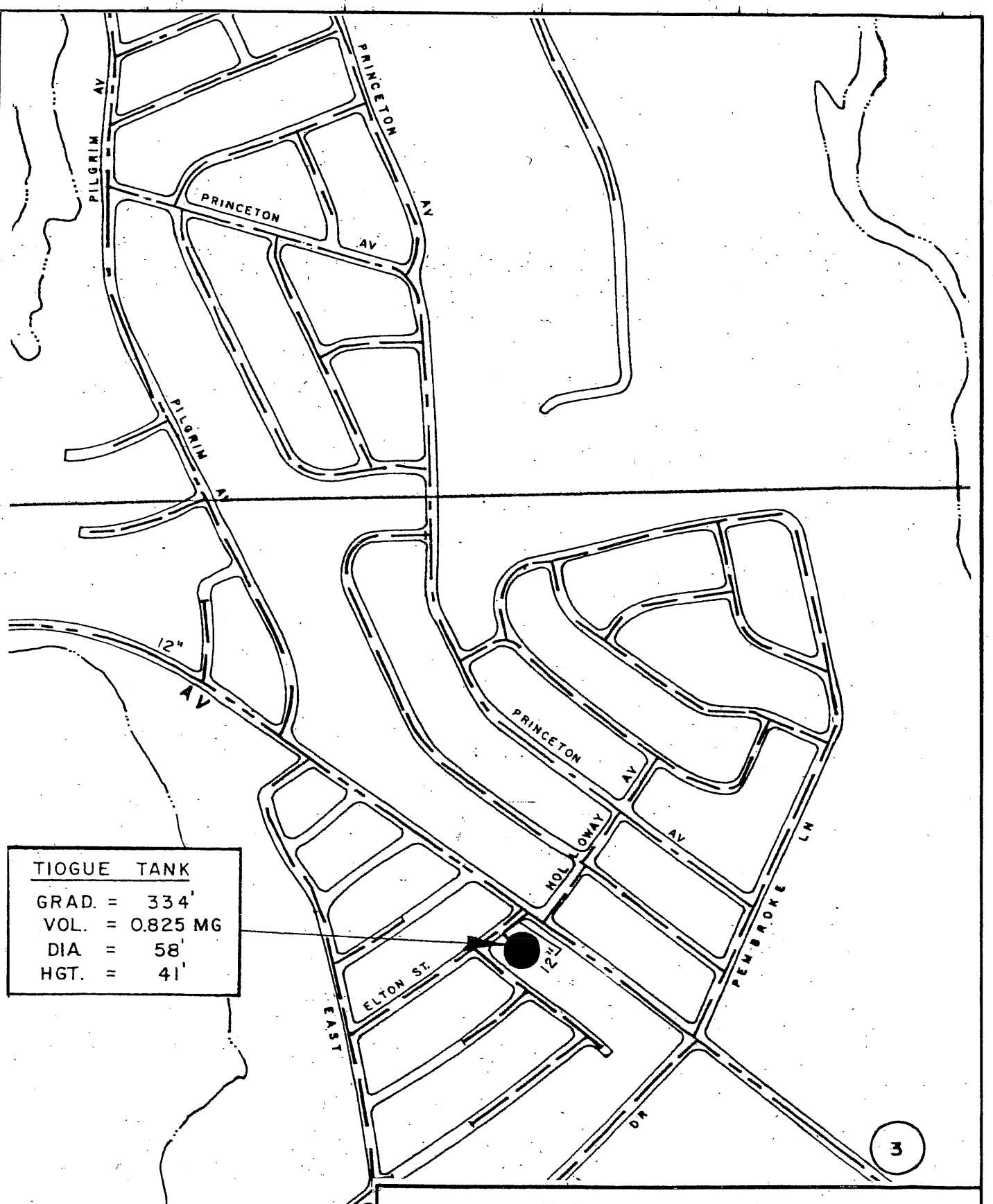
Authority will eliminate the need for the existing Tiogue storage tank. CDM recommends that this tank be demolished in Project 13d. Figure 5-11 locates the Tiogue tank and CDM anticipates the cost of this demolition to be about $26,700. As in Project 13b and 13c, CDM expects that there will be some salvage value in the materials removed during the demolition of the Tiogue storage tank.



KENT COUNTY WATER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM

Figure No. 5-11

DEMOLISH TIOGUE TANK

Appendices

CDM Camp Dresser & McKee Inc.

consulting
engineering
construction
operations

Ten Cambridge Center
Cambridge, Massachusetts 02142
Tel: 617 252-8000 Fax: 617 621-2565

December 14, 1999

Ms. Barbara Graham, Chairwoman
Kent County Water Authority
1072 Main Street
West Warwick, Rhode Island 02893

Subject: Study of New Office and Maintenance Facilities

Dear Ms. Graham:

Camp Dresser & McKee Inc. is pleased to submit twenty (20) copies of our Final Report studying New Office and Maintenance Facilities for the Kent County Water Authority. Our report discusses the needs of the Authority for new building space, outdoor materials storage and parking. It describes several properties available for sale or lease within the Authority's service area, evaluates them, and identifies four with characteristics most favorable as a relocation site. Finally, it illustrates a conceptual building design and generic site plan incorporating the needs with potential for future expansion, and provides our Statement of Probable Construction Cost.

I want to thank KCWA General Manager Tim Brown, who carefully guided this effort, and members of his staff, who participated in compiling the data and offered valuable insight and many practical suggestions as we developed this study.

CDM would welcome the opportunity to offer our assistance as the Kent County Water Authority moves forward with implementation of this much-needed project.

Very truly yours,

CAMP DRESSER & McKEE INC.

Herbert G. Zeller, RA
Vice President
Project Manager

Executive Summary

In June of 1999, Camp Dresser & McKee Inc. (CDM) was engaged by Kent County Water Authority (KCWA) to prepare a report to include a selection of sites within the area served by KCWA and schematic building design based on programmatic material assembled by CDM. The objective was to locate a number of available sites in the Coventry, West Greenwich locale and prepare a site plan based on one of the sites. In addition, a schematic floor plan would be assembled to assess the programmatic needs of KCWA and determine a building 'footprint' to be used as the basis for the required area of land suitable for the building.

The program was prepared from information supplied by KCWA and information ascertained by CDM from site visits to the existing facility, a questionnaire prepared by CDM and evaluated by KCWA and meetings with personnel at KCWA. The building spaces were determined from an evaluation of the existing operation and an understanding of the functional relationships of the components listed in the Program of Spaces. A square footage was assigned to each space based upon the intended use of the space and the furniture and personnel to be assigned to each space. A total floor area of roughly 26,500 sq.ft. was determined to be adequate. Projected construction cost of the facility with site preparation is expected to be $3.6M. A complete estimate can be found under 3.4 Statement of Probable Construction Cost.

The site selection process, a process run concurrently with the assembling of programmatic information, required frequent visits to the towns of West Greenwich, West Warwick, East Greenwich and Coventry. Property was located by contacting local real estate agencies and requesting information relative to lot size, location, services available, price, wetlands, etc. A complete listing of criteria is in the Site Selection Sheets 2.4.1 through 2.4.10. A listing of abutters is contained on 2.4.11 and 2.4.12 for Coventry and West Greenwich.

Property on Hopkins Hill Road in West Greenwich (noted as Site No. 1) was selected for further development. The property is close to Exit 6A and of sufficient size to provide for the immediate needs of KCWA and provide for limited expansion in the future. There are flagged wetlands to the SW of the property. There appears to be approximately 6+ useable acres of the 9.2 available. A site plan was prepared with the information mentioned above and is contained in the report.

Contents

Appendices

Section 1
Programming

1.1 Introduction

Programming consists of evaluating the existing operations and understanding functional relationships, identifying needed improvements and anticipated future growth, and developing the required square footing area of each space. This process included discussions with Board Members during board meetings concerning the existing facility and future growth needs; meetings with Mr. Tim Brown, Executive Director, and discussions with John Duchesneau, Director of Technical Services, and Art Williams, Director of Finance and Administration. In addition, CDM could draw upon its experience in having done an evaluation of the existing facility in 1996.

1.2 Questionnaire

A Facilities Programming Questionnaire was prepared which requested information from each department within Kent County Water Authority. The four departments are; Technical Services, Finance and Administration, Facilities, and Systems. A modified questionnaire was returned by Mr. Brown and incorporated into a preliminary Program of Spaces was developed and returned to KCWA on August 12 for comments. The Program was then revised based on information received by Mr. Brown. Discussions were held with the above individuals concerning:

- Number of offices, space requirements and general relationship of the spaces.
- Personnel space requirements for offices, semi-enclosed workstations, or open work areas.
- Personnel support area requirements for public entry to pay bills, lobby area for display purposes, eating areas, toilet and locker rooms, and storage.
- Vehicle storage and bay sizes
- Shop and storage space requirements, including bay with lift, special shelving requirements, and equipment and parking.
- Outside yard storage area for bulk materials
- Vehicle wash area and vehicle fuel storage area

1.2.1 Organizational Chart

Tim Brown provided two organizational charts. The first chart identifies the present staff and present allocation while the second chart allows for future growth relative to staff positions and allocations. The present staff and current allocations are consistent and set at 32. Future staff allocations are based on a need of 43 personnel. (Please see 1.2.1.1 Current Staff and Allocation and 1.2.1.2 Future Staff Allocations)

1.3 Program Data

The above data was compiled and presented to the Board of Directors and Mr. Brown at Board Meetings in September and October.

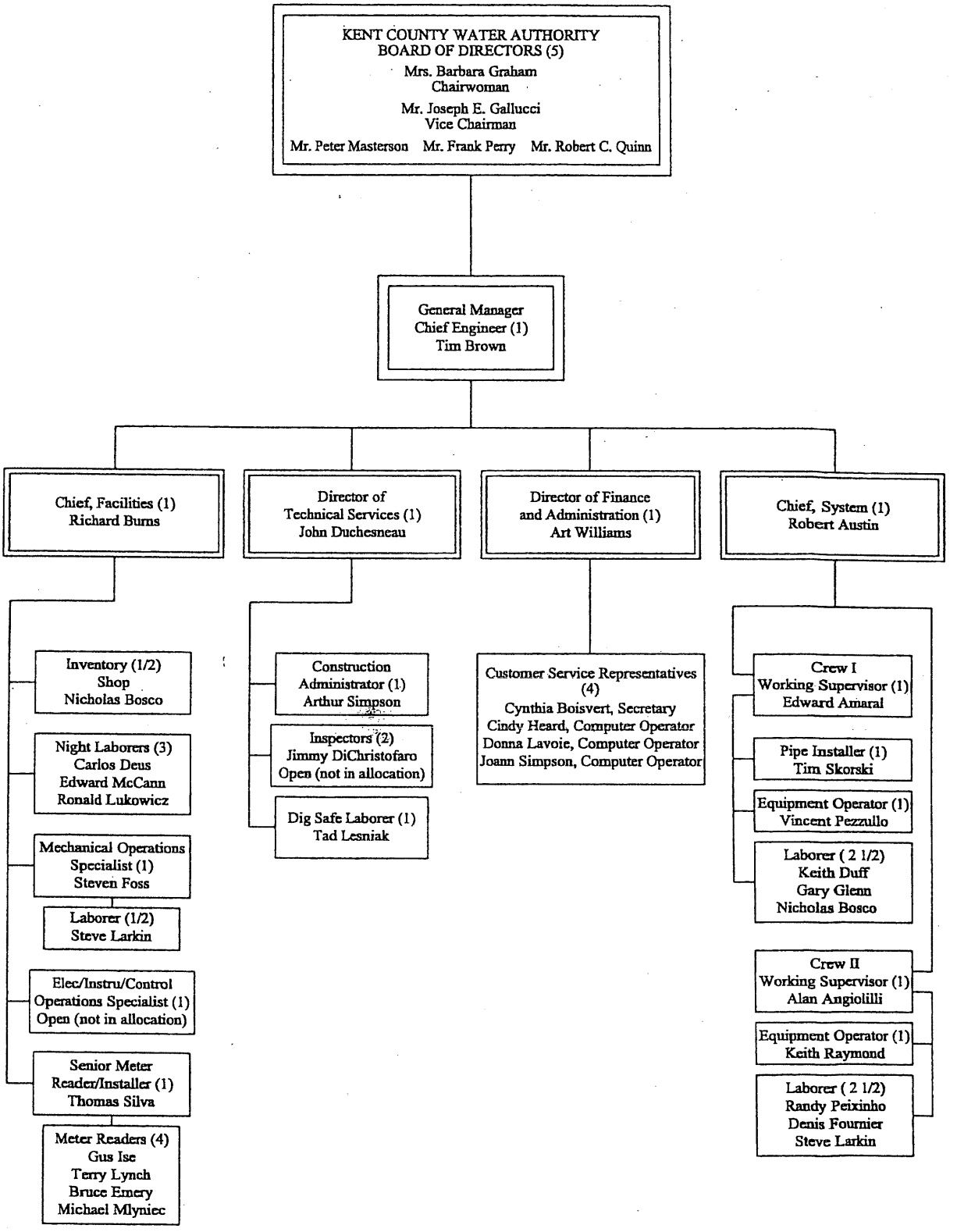
The preliminary results of the site selection process were presented to the Board in September. Site locations were discussed and commented upon regarding the ranking criteria as shown on the Site Matrix (2.3.1). The rankings were re-evaluated and changes were made which are reflected in this report.

1.3.1 Programming Scope and Issues

The Program of Spaces with Comments (1.3.1.1) and Program of Spaces without Comments (1.3.1.2) are similar; the latter being an abbreviated version of the former. A building plan was developed from the Program of Spaces and modified to suit the particular requirements of Site No. 1. The floor plan and site plan were presented at the October Board Meeting. The Board felt a more generic approach to both the building plan and site selection would be appropriate and requested that a Generic Floor Plan and Generic Site Plan be developed. Both plans are contained in this report.

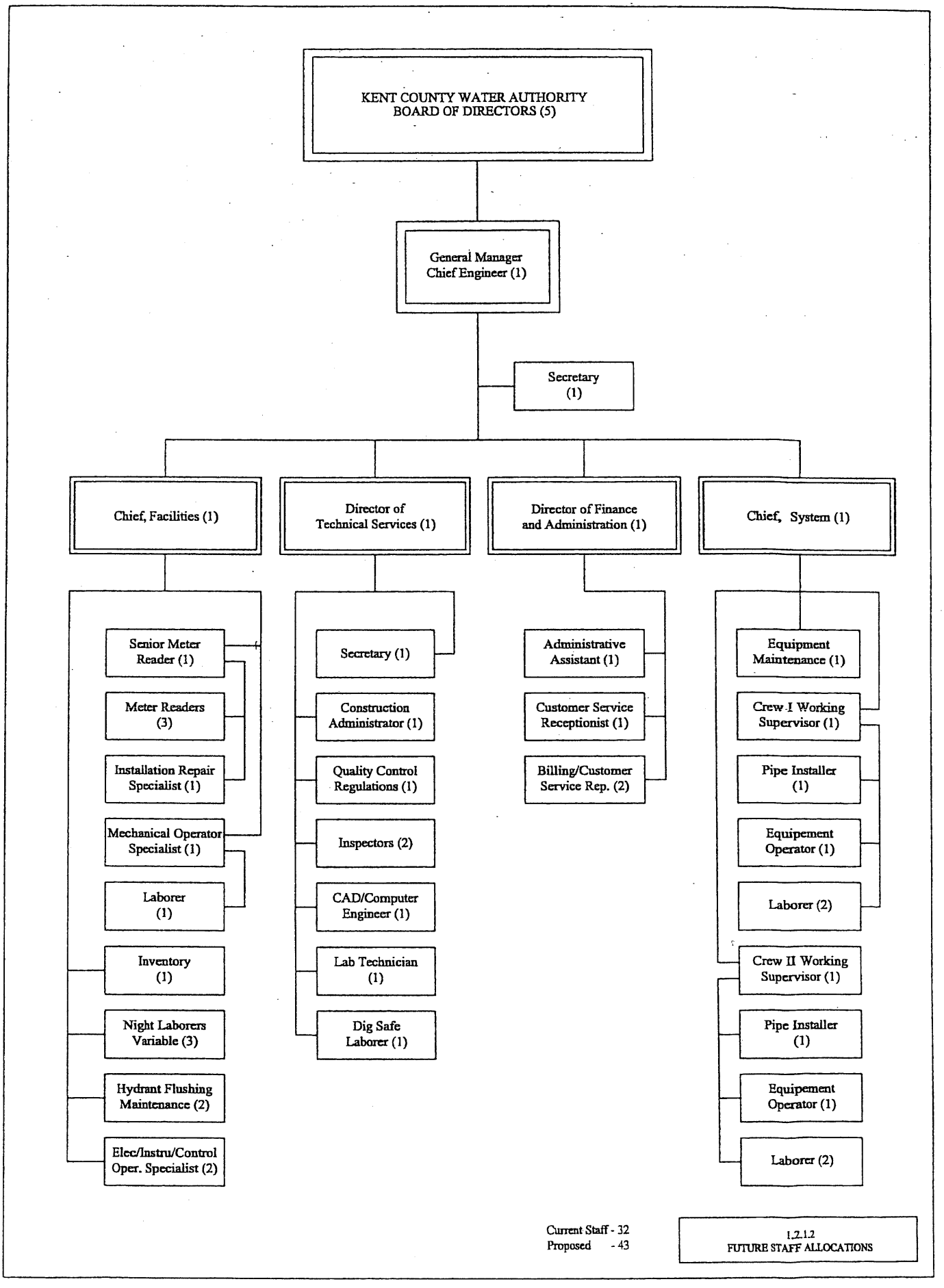
1.4 Program Summary

The generic floor and site plan are based on KCWA's present and future needs. The plan reflects a need to organize the facility into three distinct areas: administrative functions, vehicle storage and mechanical bays, and those spaces common to both of the above (locker/showers, kitchenette area, mechanical services and storage). The plan provides ample room for adequate space for the Board Room and associated functions, an attractive front lobby and areas to expand for future growth. Total square footage for the facility is projected to be 26,500 sq.ft. An estimate was prepared by CDM and is contained in 3.4 statement of probable construction costs.



Current Staff 32
Current Allocation 32
(as of June 1999)

1.2.1.1
CURRENT STAFF AND ALLOCATION


KENT COUNTY WATER AUTHORITY
BOARD OF DIRECTORS (5)
General Manager
Chief Engineer (1)
Secretary
(1)
Chief, Facilities (1)
Director of
Technical Services (1)
Director of Finance
and Administration (1)
Chief, System (1)
Senior Meter
Reader (1)
Meter Readers
(3)
Installation Repair
Specialist (1)
Mechanical Operator
Specialist (1)
Laborer
(1)
Inventory
(1)
Night Laborers
Variable (3)
Hydrant Flushing
Maintenance (2)
Elec/Instru/Control
Oper. Specialist (2)
Secretary (1)
Construction
Administrator (1)
Quality Control
Regulations (1)
Inspectors (2)
CAD/Computer
Engineer (1)
Lab Technician
(1)
Dig Safe
Laborer (1)
Administrative
Assistant (1)
Customer Service
Receptionist (1)
Billing/Customer
Service Rep. (2)
Equipment
Maintenance (1)
Crew I Working
Supervisor (1)
Pipe Installer
(1)
Equipement
Operator (1)
Laborer (2)
Crew II Working
Supervisor (1)
Pipe Installer
(1)
Equipement
Operator (1)
Laborer (2)
Current Staff - 32
Proposed - 43
1.2.1.2
FUTURE STAFF ALLOCATIONS

1.3.1.1 Program of Spaces with Comments

NAME	SIZE	COMMENTS
1. **Customer Foyer**	15' X 20"	Security camera interior and exterior with recording capabilities. Monitor stations: engineering office, receptionist work station and night shift supervisor station. Fencing systems. Motorized gate Lock systems (key card, combination or standard key) Area for display of projects/system components center
2. **Board Room**	20' X 30'	Sized for open public meetings of up to 30 people plus 5 board members and 3 KCWA management. Voice and video recording system, cable TV (News and weather updates) Projection screen. Coat closet
3. **Toilets (Male)**	10' x 12'	1 water closet, 1 urinal, 1 lav, privacy screen
4. **Toilets (Female)**	10' x 12'	1 water closet, 2 lavs, privacy screen
5. **Kitchenette**		Kitchenette with counters (may be part of office employee lunch room), cabinets, sinks, microwave, stove, refrigerator (Dwyer Unit), coat closets. Note: toilets and kitchenette are to be used by office personnel
6. **General Manager/Chief Engineer** Tim Brown	20' X 25'	Sized for comfortable meeting of up to 6 people at table, furnished with an additional couch and chairs. Work station with SCADA access. Reference bookcases (36"W x 72"H), 2 filing cabinets (lateral file), and coat closet . A plan desk is not required. Wood furniture; large 36" x 72" (or larger) desk with 'L' for PC Counter or credenza large enough for video/cable TV hook-up Private toilet (water closet and sink only)
7. **Accounting Office** Art Williams	15' X 15'	Proximity to secretary and Engineering Department Office Sized for meeting of 4 persons around desk (a separate table is not required) Window a must, carpeting on floor, coat closet, two 3-drawer file cabinets Large desk (36" x 72") with PC typing 'L' and SCADA access Shelving for manuals and reference material – one 36"W x 72"H bookcase
8. **Director of Technical Services** John Duchesneau	15' X 15'	Proximity to secretary and Engineering Department Office Sized for meeting of 4 persons around desk (a separate table is not required) Window a must, carpeting on floor, coat closet, two 3-drawer file cabinets Large desk (36" x 72") with PC typing 'L' and SCADA access Shelving for manuals and reference material – one 36"W x 72"H bookcase

9. Engineering Department Office Arthur Simpson (Contract Administrator) Richard Burns (Chief of Facilities) Robert Austin (Chief of System) Edward Amaral (Crew 1 Supervisor) Alan Angiolilli (Crew 2 Supervisor)	15' X 20'	Proximity to secretary and Director of Technical Services Five full-time desks (30" x 66") with typing 'L' Sized to accommodate up to 6 personnel (shared desk) Plan size for expansion of two more desks Movable partitions for privacy Drafting table with plan files and/or hanging files (100 sets @ 36" x 48") Needs to accommodate workspace for the night crews SCADA command and GIS station/operator stations Emergency response command center arrangement, situation status board Weather information (Cable TV), remote radio dispatch capabilities and facilities security/surveillance system monitor Dig Safe Notification Unit
10. Library Reference Area	15' X 15'	Conference Table Storage for all technical reference materials, publications, books, machinery technical manuals, federal and state regulations. Workstation with GIS information system capabilities Bookshelves (6-8 units at 36" x 72" each)
11. File Storage (Active)	15' X 15'	Storage for subdivision and commercial service proposal submissions, annual correspondence, files, and working copy of easements Lateral files (4 drawer) 15 – 20 units required Plan Files (100 sets at 36" x 48")
12. Computer Room	12' X 15'	Proximity to Billing Room Computer network LAN configuration. Capable of supporting multiple workstation Outlets in each office (consider each office design and number of stations) SCADA monitoring and alarm acknowledgement available on workstations in key work area (Engineering, General Manager).
13. Billing Room Cindy Heard JoAnn Simpson	12' X 12'	Proximity to Front Entrance Foyer Sized for 2 employees Movable partition system with half glass walls Multiple workstations. Shelving for reference materials Customer window, counter work area for opening mail, bill printing and handling station.
14. Publishing Room	12' X 15'	Print/plan reproduction, mass mailing brochures (CC, tip sheets, public education manuals, PUC rate case). Proximity to Computer Room
15. Supply Room	15' X 15'	General office supplies and billing materials, 12 months supply capacity.

16. Supply Room Nicholas Bosco	15' X 25'	Caged garage bay for large items; valves, couplings, elbows, repair clamps, tap and sleeves, 6 months supply capacity. Stockroom with loading dock for small items; brass fittings, nuts, bolts, fasteners, valves replacement tools E.T. 6 months supply capacity.
17. Storage Area	15' X 15'	Equipment storage, garage bay; pumps, compressors, compactors, backhoes.
18. Storage Area	10' X 12'	Meter storage, various size meters, repair components, 6 months supply capacity.
19. Storage Area	10' X 12'	Laboratory supply and waste control, 6 months capacity.
20. Office Cubicles C.S.R. 3 @ (Secretarial & Administrative Area)	9' X 6'	Office landscaping, movable partitions, computer desk and reference area
21. Staff Cubicles (6) 6 @	9' X 6'	Office landscaping, movable partitions, computer desk and reference area
22. Records Storage (Historical)	20' X 20'	Historic records storage, 3 years capacity to include sketch cards, work slips, billing, metering records. Historic plan storage "as-builts" Laboratory files; water quality testing data, letters of approval
23. Records Vault	12' X 15'	Fire proof and lockable (steel and concrete construction, insulated, fire proof. Vault on site is adequate for size comparison (single door, combination lock, dead bolt Lock in alarm. Climate controlled ventilation. Vault may be a fireproof and secure vault built on site rather than a 'bank' vault. Storage for deeds or record, money, purchase orders, meter books, computer back-up media. Capacity to contain existing records plus 50 year projection (Note: this comment comes from line 10.3.19.1 from information received from Tim Brown dated August 2, 1999.
24. Laboratory	12' X 20'	Lab design by CDM consultant Water testing equipment to meet requirements of Safe Drinking Water Act of State of Rhode Island. Immediate use lab materials/chemical storage
25. Lab Office	10' X 15'	Adjoining laboratory 2-3 person office/administration area with workstations.
26. Lavatories (Male)	10' X 15'	1 water closet, 2 urinals, 2 lavs, privacy screen
27. Lavatories (Female)	10' x 15'	2 water closets, 2 lavs, privacy screen
28. Public Lavatories	See BOARD ROOM above	

29. Kitchenette/Lunch Room	15' x 30'	Seating for 28 with Dwyer Unit and Vending Machines Secondary use as employee training room with Video/Cable TV
31. Mechanical Room	15' X 15'	Accommodate all main services, power distribution, water and telephone, Sewer (depending on site location) pump station or septic system. Heat/cooling main control
32. Fire Pump Room	15' X 15'	Requirements are based on local codes and water pressure. If this space is required, it must be on an outside wall for access by firemen.
33. Garage Wing:		
11 Double back-to-back bays	30' X 15' each	
2 Double back-to-back bays	30' X 15' each	
34. Mechanical Garage Bay with Lift	30' X 15'	
35. Crew Locker Rooms		
35 A. Male	20' X 20'	Proximity to Men's Toilet – Large lockers (24" square)
35 B. Female	20' X 20'	Proximity to Women's Toilet – Large lockers (24" square)
36. Showers		
36 A. Male	10' x 12'	Privacy showers (not gang showers)
36 B. Female	10' x 12'	Privacy showers (not gang showers)
37. Mechanical Shop Tool Room	15' X 30'	Central to garage bays Hand and power too issue, special tool issue, replacement bits/cutters.
38. Instrument/Electrical Shop	15' X 30'	Accommodate one person to repair, calibrate instruments/gauges and small electrical components. Electrical test bench, dielectric floor covering, limited parts storage, work bench, tools and calibration equipment. Desk for administrative work.
39. Meter Test Room **40. Meter Storage Room**	20' X 30' (May vary)	Proximity to Instrument/Electrical Shop Accommodate one person to test, calibrate and repair meters Limited parts storage, work bench, tools and calibration equipment.
41. Meter Storage Room	15' X 20'	Proximity to Instrument/Electrical Shop See SHOP STORAGE and SHOP AREA requirements above.

1.3.1.2 Program of Spaces w/o Comments

NAME		SIZE	AREA
1. Customer Foyer		15' X 20'	300 SF
2. Board Room		20' X 30'	600 SF
3. Toilets (Male)		10' x 12'	120 SF
4. Toilets (Female)		10' x 12'	120 SF
5. Kitchenette (Along one wall of Board Room only)			
6. General Manager's Office		20' X 25'	500 SF
Tim Brown			
7. Accounting Office		15' X 15'	225 SF
Art Williams			
8. Director of Technical Services		15' X 15'	225 SF
John Duchesneau			
9. Engineering Department Office		15' X 20'	300 SF
Arthur Simpson (Contract Administrator)			
Richard Burns (Chief of Facilities)			
Robert Austin (Chief of System)			
Edward Amaral (Crew 1 Supervisor)			
Alan Angiolilli (Crew 2 Supervisor)			
10. Library Reference Area		15' X 15'	225 SF
11. File Storage (Active)		15' X 15'	225 SF
12. Computer Room		12' X 15'	180 SF
13. Billing Room		12' X 12'	150 SF
Cindy Heard			
JoAnn Simpson			
14. Publishing Room		12' X 15'	180 SF
15. Supply Room		15' X 15'	225 SF
16. Supply Room		15' X 25'	375 SF
Nicholas Bosco			
17. Storage Area		15' X 15'	225 SF
18. Storage Area		10' X 12'	120 SF
19. Storage Area		10' X 12'	120 SF
20. Office Cubicles C.S.R. (3)	3 @	9' X 6'	160 SF
(Secretarial & Administrative Area)			
21. Staff Cubicles (6)	6 @	9' X 6'	320 SF
22. Records Storage (Historical)		20' X 20'	400 SF

23. Records Vault		12' X 15'	180 SF
24. Laboratory		12' X 20'	240 SF
25. Lab Office		10' X 15'	150 SF
26. Lavatories (Male)		10' x 15'	150 SF
27. Lavatories (Female)		10' x 15'	150 SF
28. Public Lavatories	See Board Room above		
29. Kitchen/Lunch Room (Both Crew and Administrative Staff)		15' x 30'	450 SF
31. Mechanical Room		15' X 15'	225 SF
32. Fire Pump Room		15' X 15'	225 SF
33. Garage Wing:			
33-A. 11 Double back-to-back bays		30' X 15' each	9900 SF
33-B. 2 Double back-to-back bays		30' X 15' each	1800 SF
34. Mechanical Garage Bay with Lift		30' X 15'	450 SF
35. Crew Locker Rooms			
35-A. Male		20' X 20'	400 SF
35-B. Female		20' X 20'	400 SF
36. Showers			
36-A. Male		10' x 12'	120 SF
36-B. Female		10' x 12'	120 SF
37. Mechanical Shop Tool Room		15' X 30'	450 SF
38. Instrument/Electrical Shop		15' X 30'	450 SF
39. Meter Test Room		20' X 30'	600 SF
40. Meter Storage Room		(May vary)	
41. Meter Storage Room		15' X 20'	300 SF
42. Exterior Stock Caged Area		10,000 SF	
44. Vehicle Equipment Wash Area		2000 SF	

BUILDING NET AREA.....21,730 SF

BUILDING CIRCULATION AND CONSTRUCTION FACTOR @ 20%.....4,346 SF

TOTAL BUILDING AREA (GROSS SF).....26,500 SF

1.3.1.3 Vehicle Inventory as of April 30, 1999

Truck No.	Year	Make	Type	Gross Weight
1	91	GMC	JIMMY GMC	4,850 LBS
2	97	GMC	DUMP (DIESEL)	29,950 LBS
3	99	GMC	UTILITY BODY (DIESEL)	25,950 LBS
4	90	GMC	SAFARI VAN	5,000 LBS
5	88	GMC	UTILITY BODY	7,500 LBS
6	94	GMC	PICKUP ½ TON	5,600 LBS
7	87	GMC	DUMP	23,000 LBS
8	86	GMC	DUMP	19,000 LBS
9	97	FORD	PICKUP ½ TON	6,000 LBS
10	94	GMC	PICKUP ½ TON	5,600 LBS
11	94	GMC	PICKUP ½ TON	5,600 LBS
12	97	FORD	PICKUP ½ TON	6,000 LBS
13	93	GMC	PICKUP SONOMA	4,200 LBS
14	93	GMC	PICKUP ¾ TON (4 WD)	8,600 LBS
15	90	GMC	SAFARI VAN	5,000 LBS
16	92	GMC	SAFARI VAN	5,600 LBS
17	92	GMC	PICKUP SONOMA	4,200 LBS
18	97	CHEVY	VAN	6,100 LBS
#1	89	CASE	DIESEL HOE 680L	
#2	98	DEERE	DIESEL HOE 410E	
#3	88	CASE	DIESEL HOE 580K	
#1	83	ING	COMPRESSOR	2,500 LBS
#2	88	ING	COMPRESSOR	1,400 LBS
PIPE TRAILER	62		TRAILER	
HYDRO STOPS	95	HAUL 1	TRAILER	
GRASS CUT	93	INT	TRAILOR (LANDSCAPE)	410 LBS
	92	ING	LIGHT UNIT	

Section 2
Site Assessment

2.1 Site Location and Preferences

Kent County Water Authority, presently headquartered on Main Street in West Warwick, has outgrown their facility and would like to relocate in an area which they have identified for future growth potential. This area would be to the southwest of their present location towards to Coventry and West Greenwich.

Site selection criteria of importance to the Authority would be to locate the new facility in an area:

- Central to their present and future market and proximity to their well sites.
- Readily accessible to the major highways (primarily Rte. 95)
- Large enough to provide for present needs and future expansion
- Capable of combining administrative, vehicle storage and maintenance, and yard storage within one facility.
- Sufficient property to assure pleasant surroundings with landscaping and provide areas for screening of yard storage materials.

Twelve sites were selected for this report and are highlighted on 2.3.2 Site locations – General Map. Property was sought initially in and around Exit 6 (Nooseneck Hill Road) and Exit 6A (Hopkins Hill Road). Both locations are central to KWCA's projected areas of future growth and provide immediate access to Rte 95. Also, sites were sought and located on Exit 5 (Victory Highway) and Exit 8 (South County Trail). The site at Exit 5 was not included in the report and the property on South County Trail, although contained in the report, is not considered to be suitable for KCWA.

2.2 Zoning Code Review

All property listed in this report is properly zoned for the proposed facility. West Greenwich has limited property available suitable for KCWA; the sites identified on Exits 6 and 6A are the exception. The property setbacks are reasonable and the governing authority will allow encroachment within the setbacks for such things as parking, access drives, and yard storage if required by other site limitations or restrictions.

2.3 Site Selection Criteria

A number of sites were initially located in Coventry but were later deemed unsuitable due to distance from I-95 interchanges. The primary consideration for site selection was proximity to interchanges 5, 6A, 6B, and 8. Exit 5, in West Greenwich, initially showed some promise on the zoning map but was not included in the final analysis due to lack of available land. West Greenwich does not have much suitable land available; most of the property is zoned either "Rural, Farming, Residential" or "Open Space Public Land". What little property is available is located in the vicinity of Exit 6A and is zoned Industrial A (IA). In addition there is property available in the

vicinity of Exit 6B zoned as Highway Business (HB). Property was located on South County Trail in East Greenwich and is included in the report. Individual parcels were located at the site of the old Rocky Hills Fairground, two sites just south of the Fairgrounds, and one parcel well to the south of Frenchtown Road. These parcels were deemed to be too far south of the area of expansion envisioned by KCWA. Three parcels were also located in the West Warwick Industrial Park near Exit 8 and area included as well. The property is being marketed with tax incentives to prospective buyers. KCWA, being tax exempt, would not derive a benefit from these incentives.

2.4 Site Information

Detailed information on Sites 1 through 12 is contained within report. Relevant information was sought and obtained through the listing agents and the town halls, of Conventry, West Greenwich, and East Greenwich. All sites were visited and reviewed as to the following criteira:

Realtor
Listing Agent
Phone Numbers
Town
Street
Frontage
Asking Price
Plat No.
Lot No.
Area
Wetland
Water
Gas
Sewer
Proximity to I-95

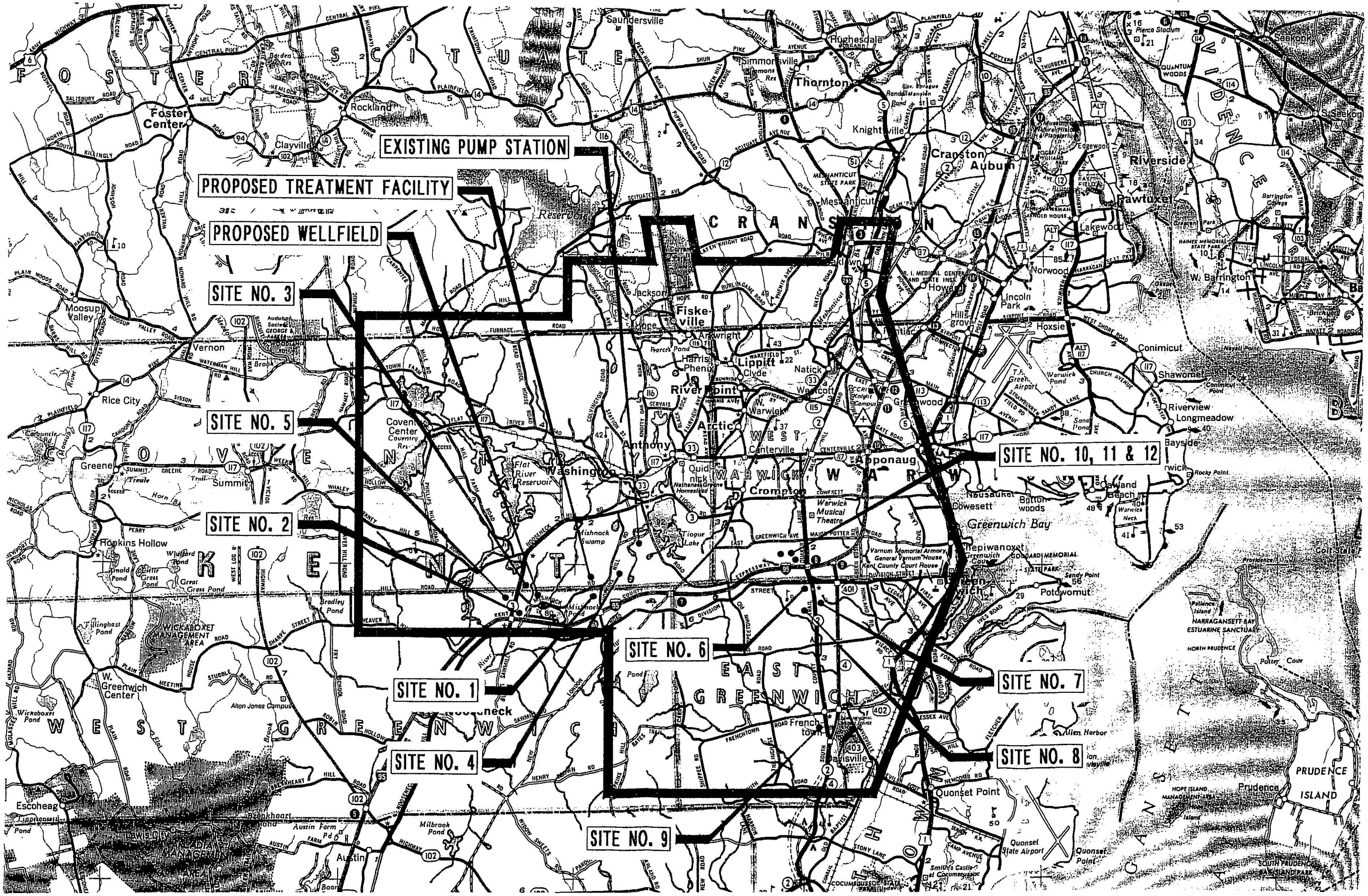
The Site Matrix Chart (2.3.1) rates the sites selected on the following criteria:

- Proximity to I-95 - distance from Exists 6A, 6B and 8
- Size - shape - does property lend itself to the intended use by KCWA
- Topography - relative slope of land from flat to hilly
- Utilities - availability of gas, water, sewer, etc.
- Sale - lease - is property for sale only, lease only or base purchase
- Geotechnical - subsurface condition (ledge, rock, etc.)
- Environmental - wetlands
- Traffic congestion - proximity to I-95 and other intersections
- Location in KCWA System - proximity to existing and future KCWA property
- Price - relative price compared to other property and amenities

		PROXIMITY TO I-95	SIZE - SHAPE	TOPOGRAPHY	UTILITIES	SALE - LEASE	GEOTECHNICAL	ENVIRONMENTAL	TRAFFIC CONGESTION	LOCATION IN KCWA SYSTEM	PRICE
GROUP I	SITE NO. 1 HOPKINS HILL ROAD	E	G	G	E	S/L	G	G	E	E	G
	SITE NO. 2 RTE 3 @ 95	E	G	G	F	S	G	G	E	E	E
	SITE NO. 3 NOOSENECK HILL ROAD	G	G	G	F	S	G	G	F	G	F
	SITE NO. 4 CENTER OF NEW ENGLAND	G	F	G	E	L	G	G	G	G	-
GROUP II	SITE NO. 5 NOOSENECK HILL ROAD	G	G	G	F	S	G	G	F	G	F
	SITE NO. 6 ROCKY HILL FAIR GROUNDS	F	G	G	E	S	G	G	F	F	G
	SITE NO. 7 SOUTH COUNTY TRAIL	F	F	P	G	S	P	F	F	P	G
	SITE NO. 8 SOUTH COUNTY TRAIL	F	F	P	G	S	P	F	F	P	F
GROUP III	SITE NO. 9 SOUTH COUNTY TRAIL	P	G	G	E	S	G	F	F	P	F
	SITE NO.'s 10, 11, & 12 W. WARWICK IND. PARK	F	G	G	E	S	G	G	F	G	P

E - EXCELLENT G - GOOD F - FAIR P - POOR

2.3.1 SITE MATRIX

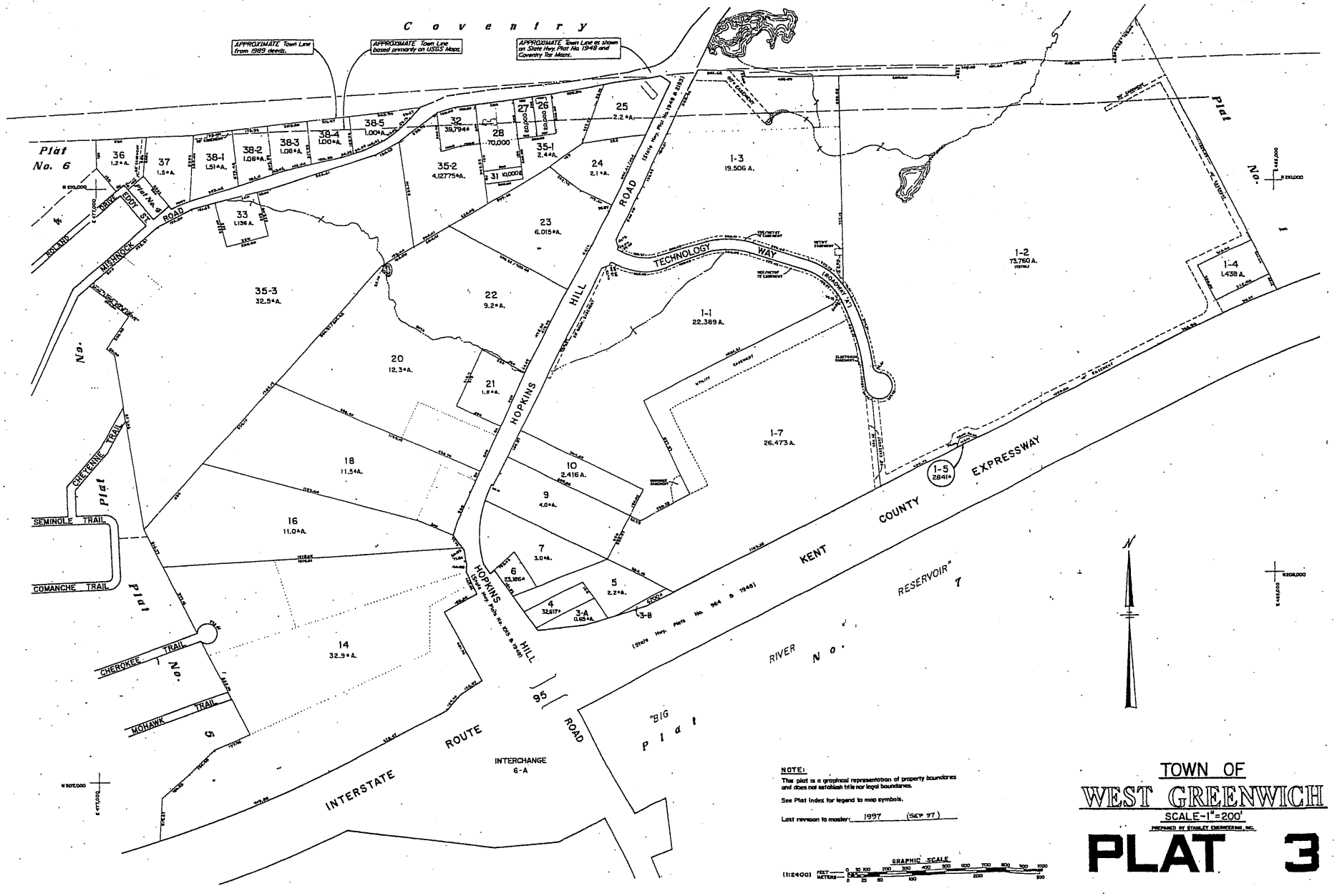

EXISTING PUMP STATION
PROPOSED TREATMENT FACILITY
PROPOSED WELLFIELD
SITE NO. 3
SITE NO. 5
SITE NO. 2
SITE NO. 1
SITE NO. 4
SITE NO. 6
SITE NO. 9
SITE NO. 10, 11 & 12
SITE NO. 7
SITE NO. 8
FOSTER
SCITUATE
CRANSTON
COVENTRY
WEST WARWICK
WARWICK
EAST GREENWICH
WEST GREENWICH
KENT
Greenwich Bay
PRUDENCE ISLAND

2.4.1 Site No. 1 - Hopkins Hill Road
West Greenwich

Realtor	Rodman Realty
Listing Agent	Neil Amper
Phone Number(s)	401/273-2270
Town	West Greenwich
Street	Hopkins Hill Road
Frontage	475-ft
Asking price	$750,000
Plat No.	3
Lot No.	22
Area	9.2 acres
Wetlands	Yes (Flagged)
Water	Yes
Gas	Yes
Sewer	No, but a tie-in can be made at the entrance to G-Tech
Proximity to I-95	Excellent, about ½ to ¾ mile south unimpeded

General Comments

The lot size of 9.2 acres has 6 usable acres. The grade changes from HP of 101-ft at NE corner to LP of 82-ft at opposite corner (diagonal). Wetland flags run up the entire length of the SW property line. The property line described in the field by Sheldon Rodman and Neil Amper conflicts with what is shown on the survey. Both Amper and Rodman felt the property line was the fence -- pavement from the trucking company spilled under the fence to the adjoining property (Lot 22). The survey indicates the property line and the edge of the pavement are the same. Transfer of the parcel can be by direct sale or lease and build-to-suit with an option to buy.



NOTE:
This plat is a graphical representation of property boundaries and does not establish title nor legal boundaries.

See Plat Index for legend to map symbols.

Last revision to master: 1997 (SEPT 97)

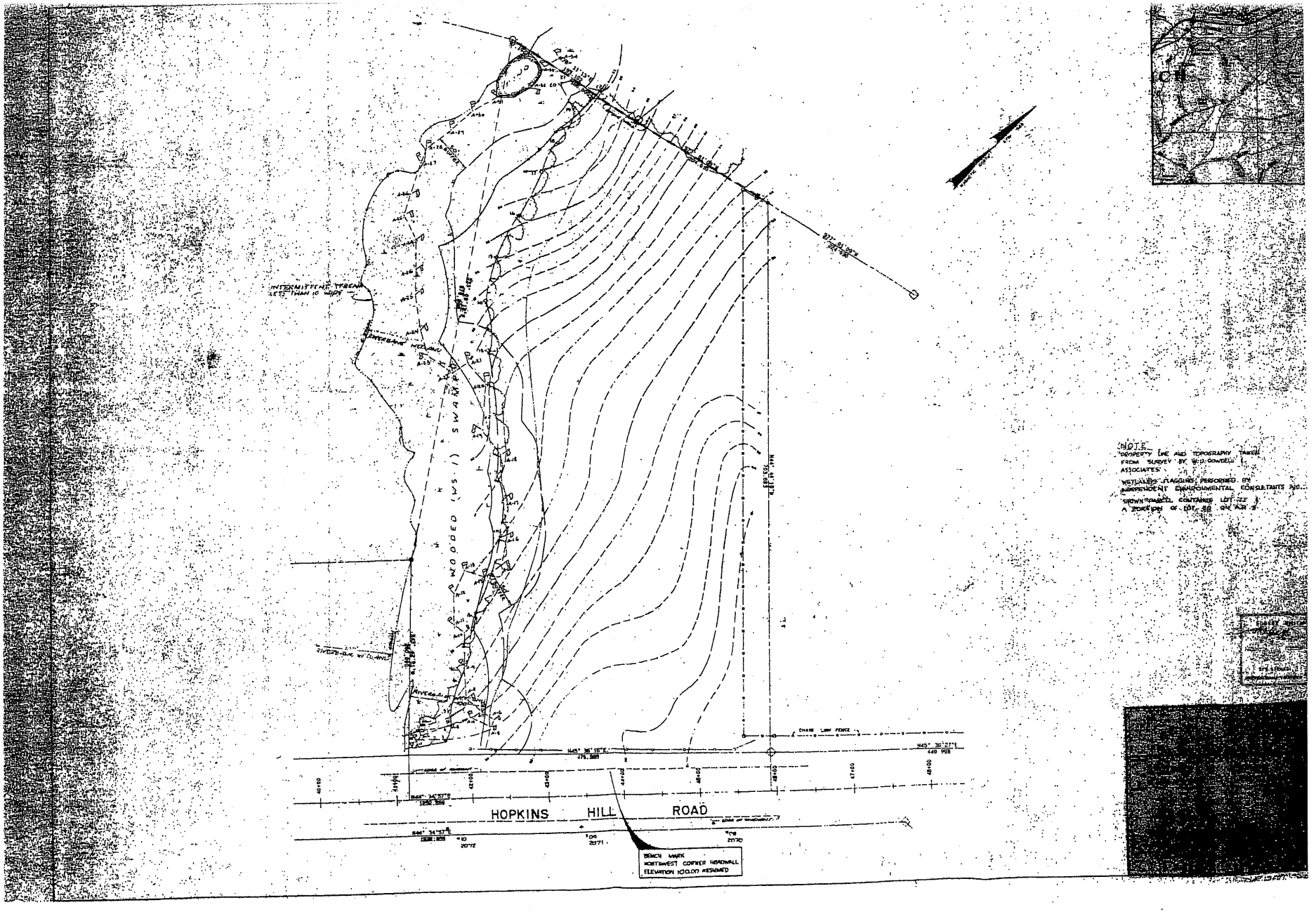
GRAPHIC SCALE
(1:2400) FEET 0 50 100 200 300 400 500 600 700 800 900 1000
METERS 0 25 50 100 200 300

TOWN OF WEST GREENWICH

SCALE-1"=200'

PREPARED BY STANLEY ENGINEERING, INC.

PLAT 3


WOODED (WS I) SWAMP
INTERMITTENT STREAM
LESS THAN 10' WIDE
CHAIN LINK FENCE
HOPKINS HILL ROAD
BENCH MARK
NORTHWEST CORNER HEADWALL
ELEVATION 100.00 ASSUMED
NOTE
PROPERTY LINE AND TOPOGRAPHY TAKEN FROM SURVEY BY W.D. COWDELL ASSOCIATES
WETLANDS FLAGGED, PERFORMED BY INDEPENDENT ENVIRONMENTAL CONSULTANTS INC.
SUBJECT PARCEL CONTAINS LOT 22 & A PORTION OF LOT 38 ON MAP 3

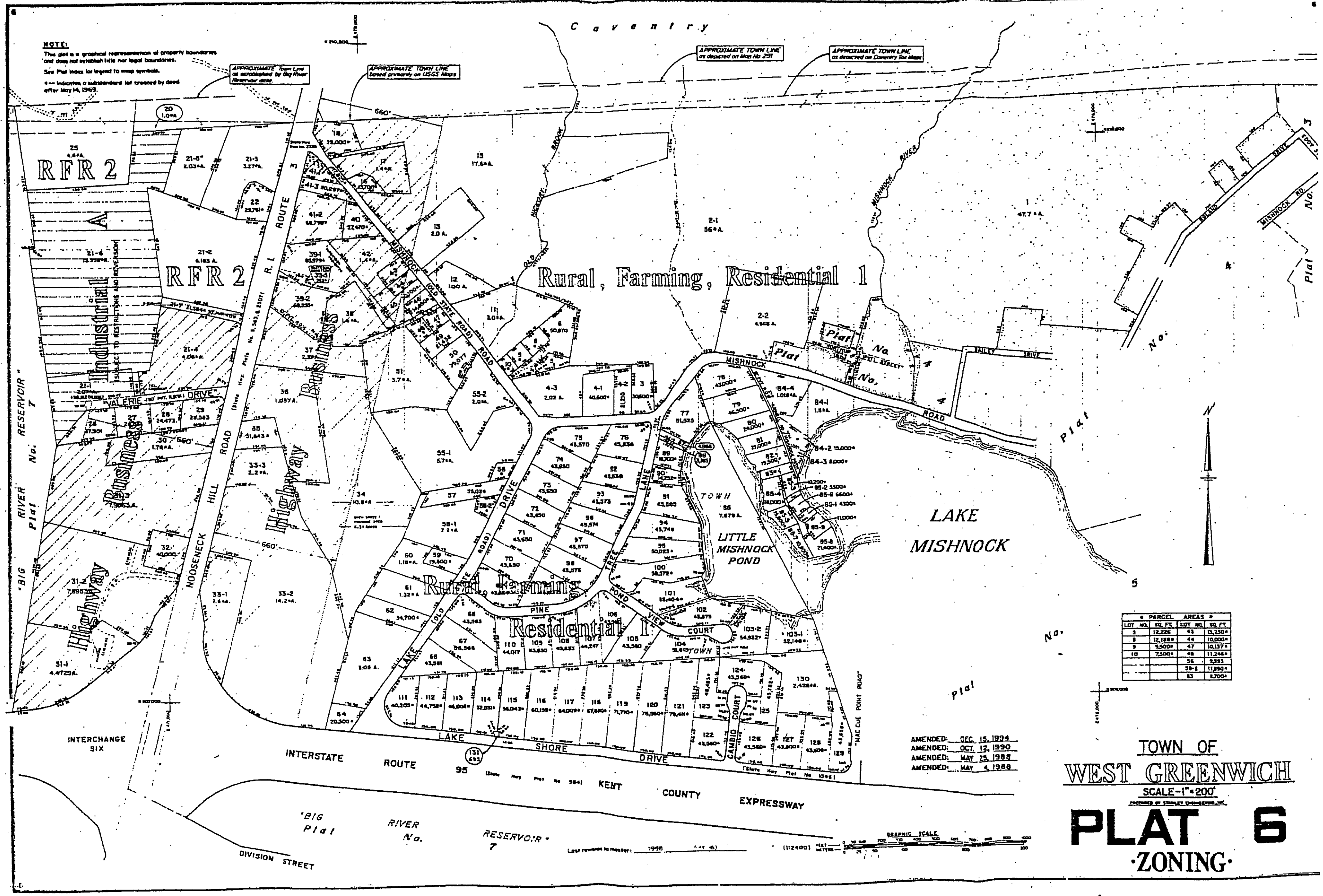
2.4.2 Site No. 2 – Rte 3 @ I-95

West Greenwich

Realtor	Salisbury (not the prime)
Listing Agent	Arthur Yatsko
Phone Number(s)	401/781-6886 (office and car) 401/781-6924 (office only) 401/965-9414 (cell phone)
Town	West Greenwich
Street	Rte 3 And I-95 Intersection
Frontage	360-ft +- On Rte 3 – 630-in +- On Rte 9
Zoning	Highway/Business
Asking price	$695,000
Plat No.	6
Lot No.	33-1
Owner	Green Land Co. LLC (1/2 Interest)
Area:	14.2 acres
Wetlands	Yes (Flagged) 6 Acres Usable Plus Buffer
Water	Yes
Gas	No
Sewer	No
Proximity to I-95	Excellent

General Comments

The property, from outward appearances, should be high on the list of ideal sites. Its proximity to the I-95 interchange and location near KCWA's area of projected growth are ideal with regards to both present operational requirements and future expansion. The property has over half of the acres listed as wetlands and these are reflected in the asking price. This provides KCWA with a buffer space between neighbors at minimal cost. Property of this type may have a limited number of possible buyers.


TOWN OF
WEST GREENWICH
SCALE-1"=200'
PLAT 6
·ZONING·
AMENDED: DEC. 15, 1994
AMENDED: OCT. 12, 1990
AMENDED: MAY 25, 1988
AMENDED: MAY 4, 1988
NOTE:
This plat is a graphical representation of property boundaries and does not establish title nor legal boundaries.
See Plat Index for legend to map symbols.
← Indicates a substandard lot created by deed after May 14, 1969.
APPROXIMATE Town Line as established by Big River Reservoir data.
APPROXIMATE TOWN LINE based primarily on USGS Maps
APPROXIMATE TOWN LINE as depicted on Map No. 291
APPROXIMATE TOWN LINE as depicted on Coventry Tax Maps
Coventry
Rural, Farming, Residential 1
RFR 2
Industrial
Business
Highway
LAKE MISHNOCK
LITTLE MISHNOCK POND
MISHNOCK ROAD
NOOSENECK HILL ROAD
INTERSTATE ROUTE 95
KENT COUNTY EXPRESSWAY
LAKE SHORE DRIVE
PINE TREE LANE
POND VIEW COURT
CAMBIO COURT
VALERIE DRIVE
INTERCHANGE SIX
DIVISION STREET
"BIG RIVER RESERVOIR" Plat No. 7
GRAPHIC SCALE

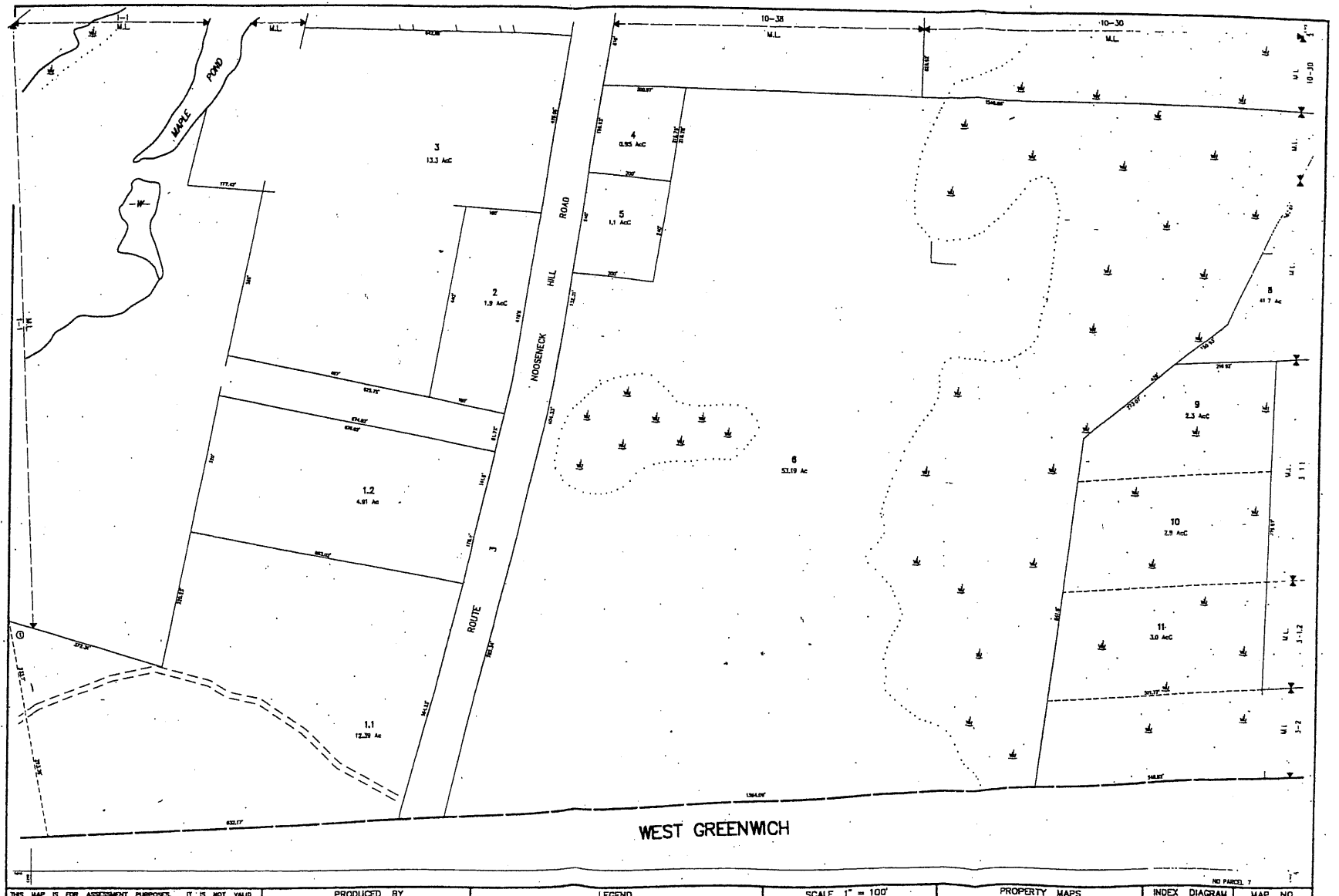
2.4.3 Site No. 3 - Rte 3

Nooseneck Hill Road, Coventry

Realtor	United
Listing Agent	Sam Shapiro
Phone Number(s)	508/676-8247
Town	Coventry
Street	Nooseneck Hill Road - Rte 3
Frontage	616-ft
Asking Price	No price given (negotiable)
Plat No.	10
Lot No.	38 (portion of lot is on Plat 2)
Owner	Sam and Suellen Shapiro
	Area 11.8 acres
Wetlands	None mentioned - property does abut property owned by KCWA which does have significant wetlands
Water	Yes
Gas	No - gas ends at shopping plaza north of property
Sewer	No
Proximity to I-95	Good to excellent

General Comments

Property is in close proximity to the Coventry/West Greenwich town line, thus placing in near the I-95 Interchange. Wetlands could be an issue but a survey has not been produced to identify whether or not wetlands will be encountered.



THIS MAP IS FOR ASSESSMENT PURPOSES. IT IS NOT VALID FOR LEGAL DESCRIPTION OR CONVEYANCE.

THE HORIZONTAL DATUM IS THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM.

PHOTOGRAPHY DATE : MARCH 30, 1998

COMPLETION DATE : JULY 29, 1998

PRODUCED BY
CARTOGRAPHIC ASSOCIATES, INC.
MUNICIPAL MAPPING CONSULTANTS
P.O. BOX 267 LITTLETON, NH 03561

LEGEND
AREA CALCULATED
AREA SURVEYED
COMMON OWNERSHIP
EXEMPT PROPERTY
MATCH LINE
WATER
RECORD DIMENSION
RIGHT OF WAY
SCALED DIMENSION
SUBDIVISION LOT NO.
WETLANDS

SCALE 1" = 100'
FEET 0 100 200 300
METERS 0 30.48 60.96 91.44
REVISED TO : January 1, 1999

PROPERTY MAPS
COVENTRY
RHODE ISLAND

INDEX DIAGRAM
9 10 11
1 3

MAP NO.
2

2.4.4 Site No. 4 - Center of New England

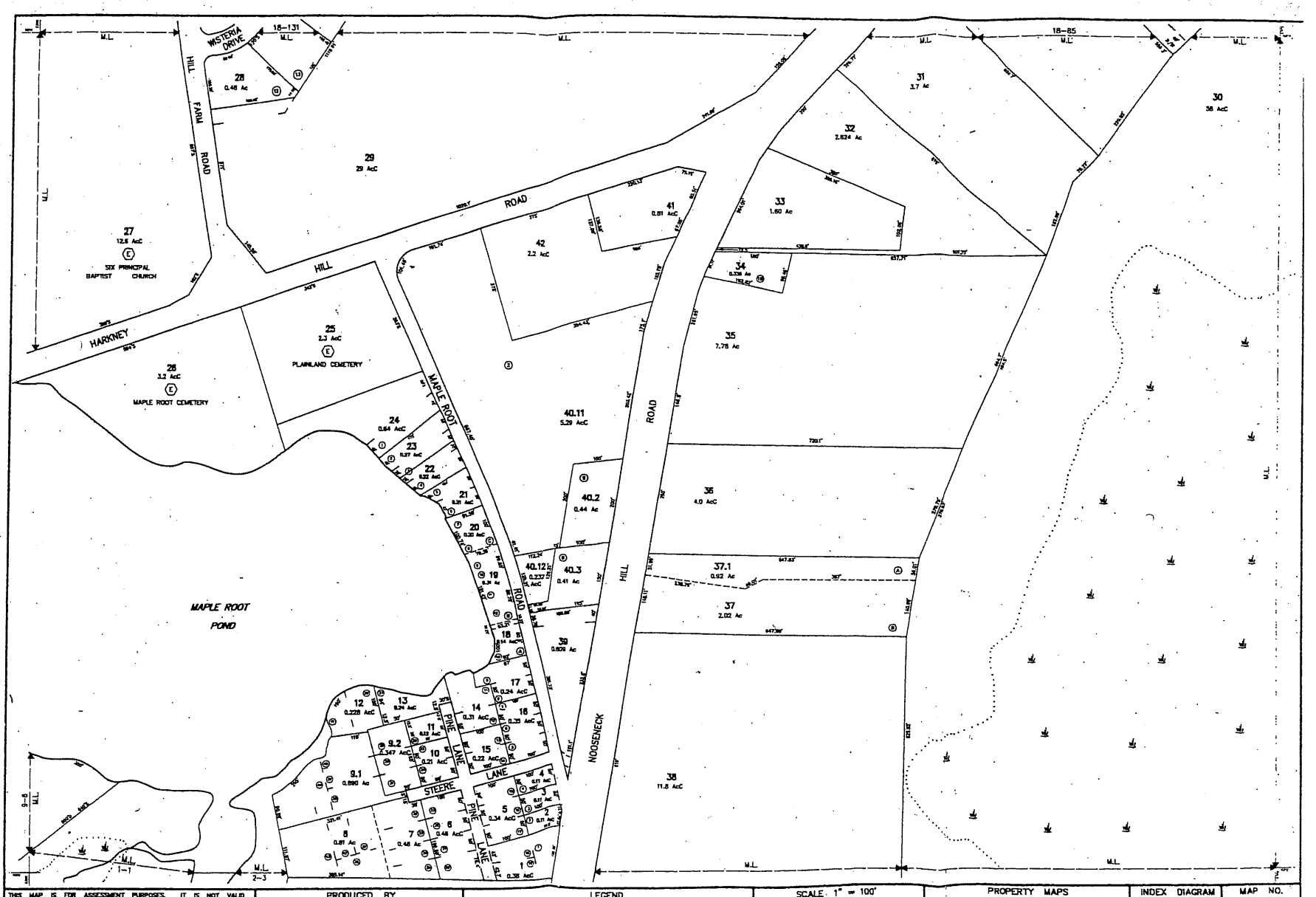
Coventry

Realtor	Universal Properties
Listing Agent	Anthony M. Traini
Phone Number(s)	401/828-3500
Town	Coventry
Street	Center of New England Boulevard off Hopkins Hill Road (across from the Mack Truck Facility)
Frontage	N/A
Asking Price	Not for sale (build to suit and lease only)
Plat No.	N/A
Lot No.	N/A
Area	3.6 acres
Wetlands	N/A
Water	Yes
Gas	Yes
Sewer	Yes
Proximity to I-95	Good

General Comments

The property, at 3.6 acres, appears to be small. Mr. Traini felt that more land could be made available at this location if needed.

Center of New England property is available on a lease basis only, although there may be a possibility to lease/purchase in the future. The property built to date is pleasant with perimeter landscaping. Due to the use of exposed concrete block as the finish material on most buildings, the parcel does have an industrial appearance in spite of the mix of tenants (trucking, day care, medical). Of concern is the amount of traffic, which will flow through the site getting to the shopping center, especially during the holiday season.



THIS MAP IS FOR ASSESSMENT PURPOSES. IT IS NOT VALID FOR LEGAL DESCRIPTION OR CONVEYANCE.

THE HORIZONTAL DATUM IS THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM.

PHOTOGRAPHY DATE : MARCH 30, 1998

COMPLETION DATE : JULY 29, 1998

PRODUCED BY

CARTOGRAPHIC ASSOCIATES, INC.

MUNICIPAL MAPPING CONSULTANTS

P.O. BOX 257 LITTLETON, NH 03561

LEGEND

AREA CALCULATED AcC
AREA SURVEYED Ac
COMMON OWNERSHIP OR
EXEMPT PROPERTY E
MATCH LINE M.L.
WATER
RECORD DIMENSION 100'
RIGHT OF WAY
SCALED DIMENSION 100'S
SUBDIVISION LOT NO.
WETLANDS

SCALE 1" = 100'

FEET 0 100' 200 300

METERS 0 30.48 60.96 91.44

REVISED TO : January 1, 1999

PROPERTY MAPS

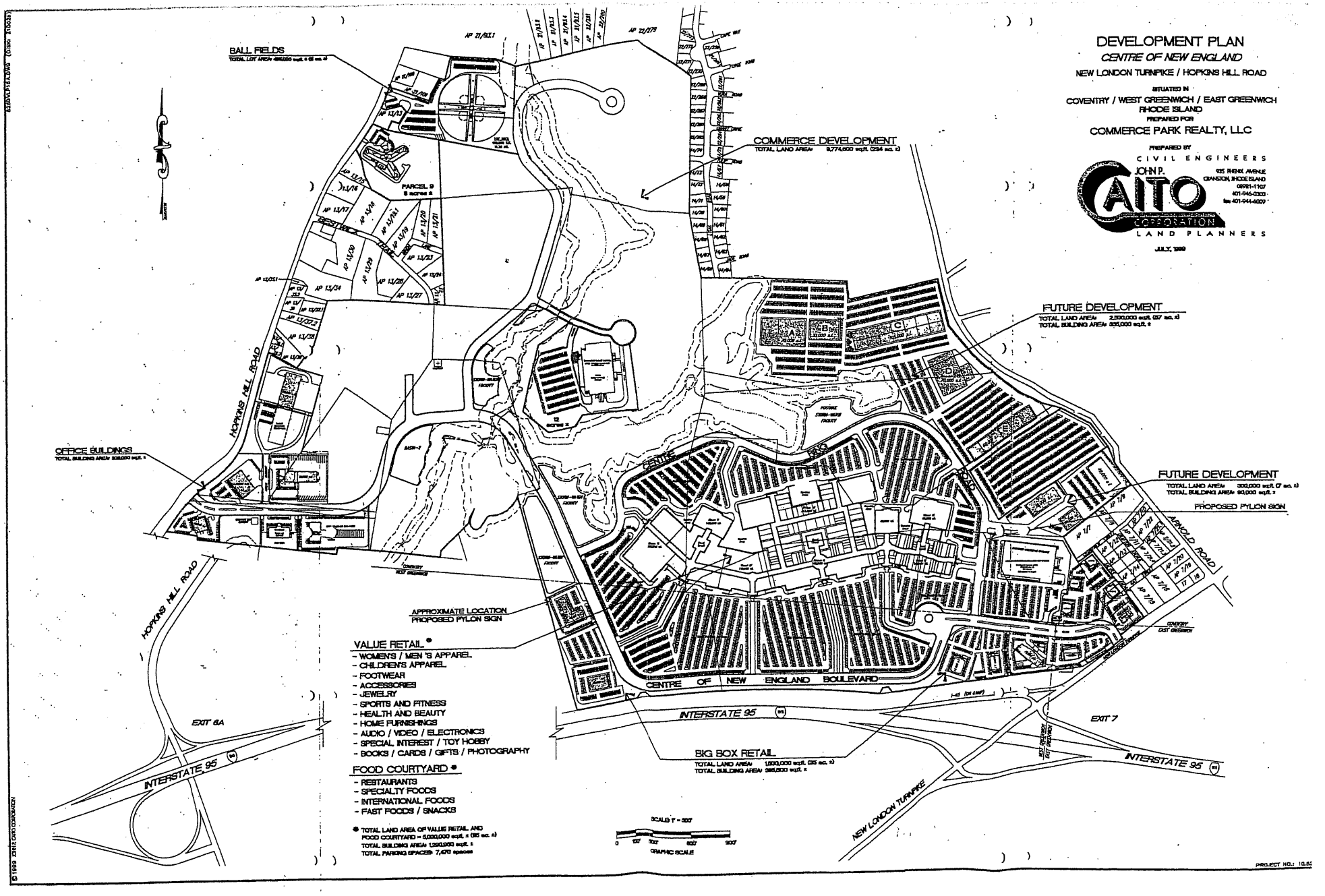
COVENTRY

RHODE ISLAND

INDEX DIAGRAM

17 18 19
9 10 11
1 2 3

MAP NO. 10



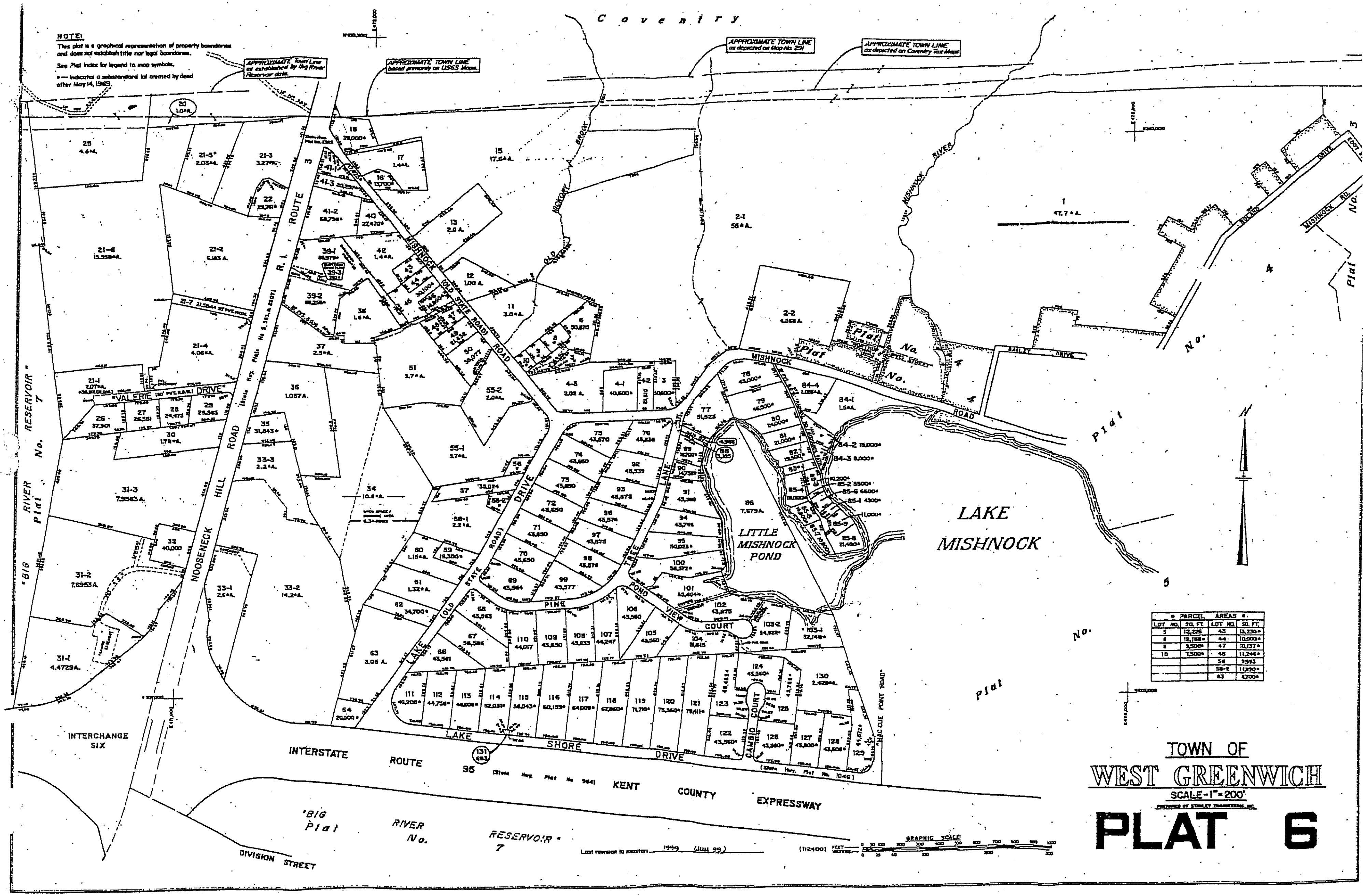
2.4.5 Site No. 5 - Nooseneck Hill Road

West Greenwich

Realtor	Exit 6 Plaza LLC
Listing Agent	Sam Shapiro
Phone Number(s)	508/676-8247
Town	West Greenwich
Street	Nooseneck Hill Road - Rte 3
Frontage	300-ft on Rte 3
Asking Price	No price given negotiable
Plat No.	6
Lot No.	Lots 21-4, 21-6, and 21-7.
Owner	Exit 6 Plaza LLC (John Asalone, Carmine Olivieri, and Sam Shapiro)
Area	20 Acres +-
Wetlands	Abuts the Big River Reservoir to the west
Water	Yes
Gas	No
Sewer	No
Proximity to I-95	Excellent @ Interchange 6

General Comments

Property is zoned industrial 'A'. Information is not yet available on whether wetlands are to be encountered and if so to what extent. The owners are presently preparing an access road to the site (formerly shown as 'Valerie Drive' on Plat Map 6). Property can be subdivided but due to the shape of the two lots combined problems could be encountered in trying to make the best use possible of the acreage available.


NOTE:
This plat is a graphical representation of property boundaries and does not establish title nor legal boundaries.
See Plat Index for legend to map symbols.
Indicates a substandard lot created by deed after May 14, 1969.
APPROXIMATE Town Line as established by Big River Reservoir drive.
APPROXIMATE TOWN LINE based primarily on USGS Maps.
APPROXIMATE TOWN LINE as depicted on Map No. 251
APPROXIMATE TOWN LINE as depicted on Coventry Tax Maps
Coventry
LAKE MISHNOCK
LITTLE MISHNOCK POND
MISHNOCK (OLD STATE ROAD) ROAD
NOOSENECK HILL ROAD
R.I. ROUTE 3
LAKE (OLD STATE ROAD) DRIVE
PINE TREE LANE
POND VIEW COURT
CAMBIO COURT
LAKE SHORE DRIVE
VALERIE DRIVE
BAILEY DRIVE
HICKORY BROOK
MISHNOCK RIVER
"MAC CUE POINT ROAD"
INTERSTATE ROUTE 95 KENT COUNTY EXPRESSWAY
INTERCHANGE SIX
DIVISION STREET
"BIG RIVER RESERVOIR" Plat No. 7
Plat No. 4
Plat No. 5
Last revision to master: 1999 (JUN 99)
GRAPHIC SCALE
TOWN OF
WEST GREENWICH
SCALE-1"=200'
PLAT 6

2.4.6 Site No. 6 – South County Trail
East Greenwich
Rocky Hill Fairgrounds

Realtor	Albert Realtors
Listing Agent	Al Scarelia
Phone Number(s)	401/738-6020 / 401-944-3377
Town	East Greenwich
Street	Major Frontage on Division Road Minor Frontage on South County Trail
Frontage	N/A
Asking Price	$150,000/acre from 100 acre parcel Price negotiable
Plat No.	12-A
Lot No.	Lot 75
Area	96.80 Acres
Wetlands	No (none mentioned on observed)
Water	Yes
Gas	Yes
Sewer	Yes
Proximity to I--95	Good (access to I-95 is not direct in certain directions)

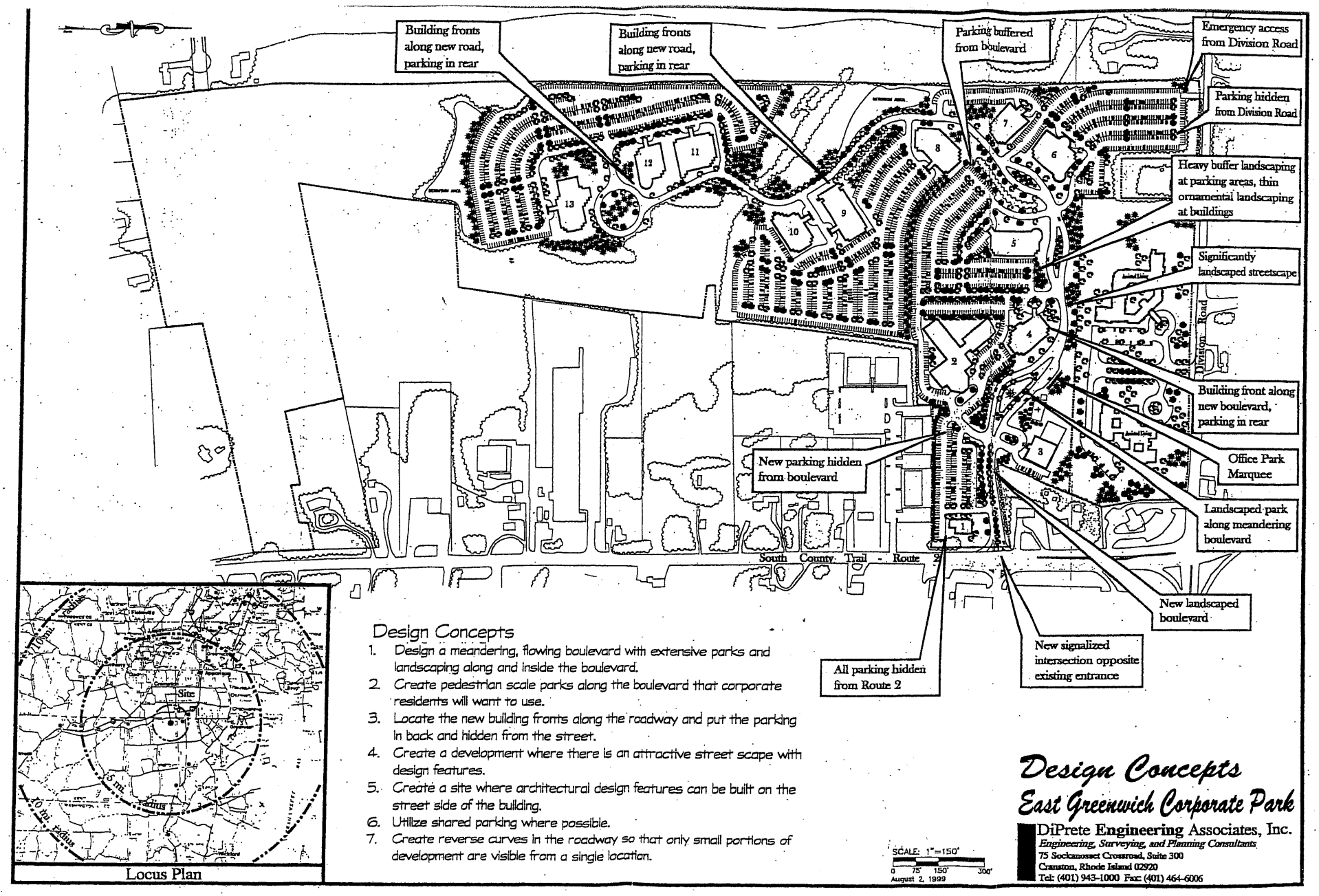
General Comments

This parcel of approximately 100 acres has a master plan encompassing the entire site. The developer has shelved the master plan for the time being and is marketing the property to individual buyers. The only commitment to date is for assisted living units on the part of the site fronting on division road. Ledge and rocks could be expected when excavating.

The property sits on top of a hill formerly known as Rocky Hill fair grounds and later as Rocky Hill flea market. The siting is picturesque with few trees and areas of relatively flat, level land. The neighbor to the north on the other side of Division Road is Amtrol Corporation with their headquarters situated in a park like setting.

The neighbors at the intersection of Division Road and South County Trail are a strip shopping plaza to the southeast, a movie theatre complex to the northeast, new Dunkin Donuts on the northwest and a medical building on the southwest corner. Traffic could be a problem during rush hours, when the theatres empty, and during holiday shopping.

Access to I-95 north from the property is not directly at the intersection. One has to travel east on Division Road, through two traffic lights, to find the entrance to I-95 north at the Junction of Rte 4 . In addition, to get onto I-95 south from the fair grounds, the approach is from South County trail north with a left-hand turn into oncoming traffic just under the I-95 overpass.



Locus Plan

Design Concepts

1. Design a meandering, flowing boulevard with extensive parks and landscaping along and inside the boulevard.
2. Create pedestrian scale parks along the boulevard that corporate residents will want to use.
3. Locate the new building fronts along the roadway and put the parking in back and hidden from the street.
4. Create a development where there is an attractive street scape with design features.
5. Create a site where architectural design features can be built on the street side of the building.
6. Utilize shared parking where possible.
7. Create reverse curves in the roadway so that only small portions of development are visible from a single location.

SCALE: 1"=150'
0 75' 150' 300'
August 2, 1999

Design Concepts
East Greenwich Corporate Park

DiPrete **Engineering** Associates, Inc.
Engineering, Surveying, and Planning Consultants
75 Sockanosset Crossroad, Suite 300
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

2.4.7 Site No. 7 - South County Trail

East Greenwich

Realtor	Butler Realty
Phone Number(s)	401/886-7800
Listing Agent	Jeff Butler
Town	East Greenwich
Street	South County Trail
Frontage	152-ft (panhandle)
Asking Price	$750,000
Plat No.	10-D
Lot No.	378 also noted as Parcel 'C'
Area	17.05 acres
Wetlands	Yes (flagged) 7.02 plus wetlands buffer
Water	Yes
Gas	Yes
Sewer	Yes
Proximity to I-95	Fair to good

General Comments

The property is less than desirable due to ledge outcroppings midway into the site, wetlands just beyond the midpoint, and a minimal amount of usable acreage to the rear. The wetlands would have to be 'bridged' to gain access to the rear of the site. The site has a natural drop of approximately 20' - 30' from the front to the rear. The owner has begun to 'level' the site by pushing the gravel, dirt, and boulders from the front to the center essentially changing the configuration of the wetlands. The drop from the edge of the line of fill to the wetlands below is between 10' - 15'. All of the fill is laden with rocks from the ledge; engineering costs necessary to create a buildable area on site would have to be reflected in the sale price. Presently, it is not.

BUTLER BUSINESS REALTY SPECIALISTS, INC.

Worldwide Web Listing Service

Rocky Hill Commons

1480 South County Trail, East Greenwich, Rhode Island, 02818

Land For Sale, or Build to Suit

PRIME ! Frontage on RT. 2 *and* Rt. 4, less than 1 mile south of Rt. 95 exit 8.

Parcel A – Not available, 2 acres. (lot 10) Reserved for future development.

Parcel B – (Lot 377) **approx. 3.643 acres, $600,000.**, Zoned Lt. Industrial/Office and approved for 22,000* sq. ft. office building, *(2 story on 11,000' footprint, lot is suitable for additional 20,000+')

Parcel C – (Lot 378) **approx.17 acres, $750,000.** 5.48 upland west of wetland, plus 2.72 upland east of wetland, Zoned Lt. Industrial/Office, Prime for zoned use, apartments, or senior housing by exception. This former farmland offers a campus setting, plenty of trees, walking paths, and brook.

Assessors Plat 10D Lots 377 & 378, 20.5 acres total land area, 11.843 acres upland for sale together at **$1,250,000.** Topographic, wetland, and survey maps available. Other lot configurations may be considered

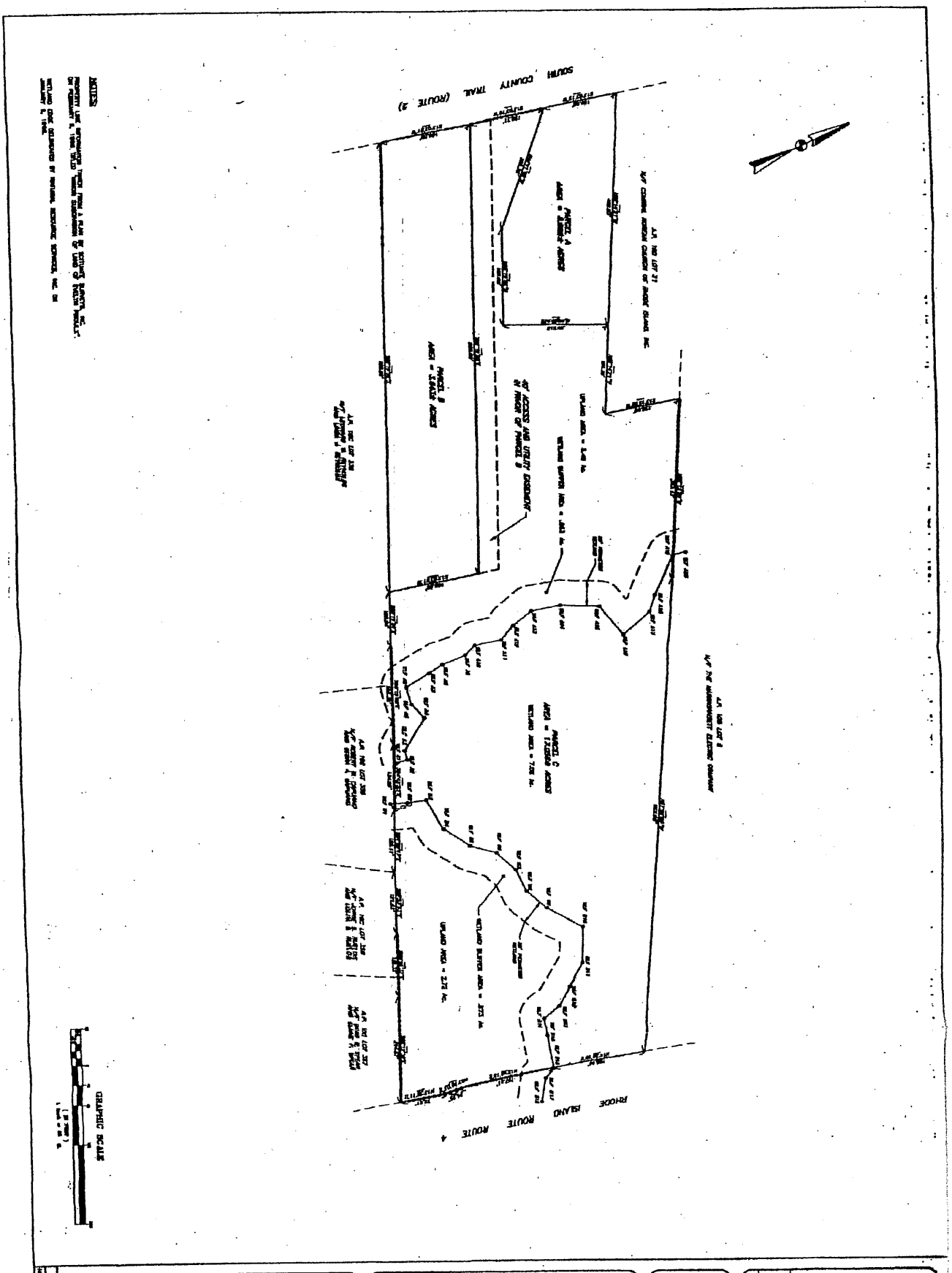
Sewers, city water, and natural gas available. This development is in preliminary planning stage and is still very flexible. Owner is considering proposals for sale, leasing, and co-development of site. Targets include medical and professional users, high tech or clean light industrial, a bank or credit union, government offices, and various senior-care and living concepts. No retail uses are currently allowed in this zone district.

State traffic maps show daily traffic count of approx. 23,000 on this area of Rt.2., 70,000 on Rt.4 (abutting the rear of subject property), and 80,000 on Rt.95 just south of the Rt.4 split. **Demographics** for a 5 mile radius indicate a population of 100,000- 16% over age 65, 25% over age 55, 40,000 households, average family income of $65-75,000.

Area information: Center of the State with regional access within minutes. This is currently one of the hottest areas in the suburbs. Site is is opposite K-Feeders/Response Technologies and next to Roofing Concepts, 1/4 mile south from East Greenwich Square (Walgreens, Rojacks, several restaurants etc.) Showcase Cinemas, and bus line. Major employers like Bostich, Gulton Industries, Cherry Semiconductor, Amtrol, American Power Conversion, Metropolitan, Beacon Mutual, Meridian Printing are all within 2 miles of site. New 60,000'+ medical/office complex under construction on Rt.2, ¼ mile northwest of subject. Former Rocky Hill Fairgrounds, 100 acres, slated for mixed-use development

Changes to this offering may be made without prior notice. Seller hereby rejects any sub-agency.

For further details contact exclusive agent: Jeffrey A. Butler Phone #: 886-7800



WETLAND DELINEATION PLAN

FOR A PARCEL OF LAND

SOUTH COUNTY TRAIL (RT. 2) EAST GREENWICH, R.I.

PREPARED FOR:

RMG MANAGEMENT

120 Sawin Village Way, Jupiter, Florida 33458

FILE NO.: 850-WLRA | DATE: JANUARY, 1998 | SCALE: 1"=80' | SHEET 1 OF 1

CROSSMAN ENGINEERING, INC.

Civil - Transportation - Environmental - Site Planning - Land Surveying

151 Centerville Road

Warwick, Rhode Island 02886

Phone: (401) 739-8660 - Fax: (401) 736-8187 - Email: CROSSMANRI@aol.com

NO.	DATE	REVISION

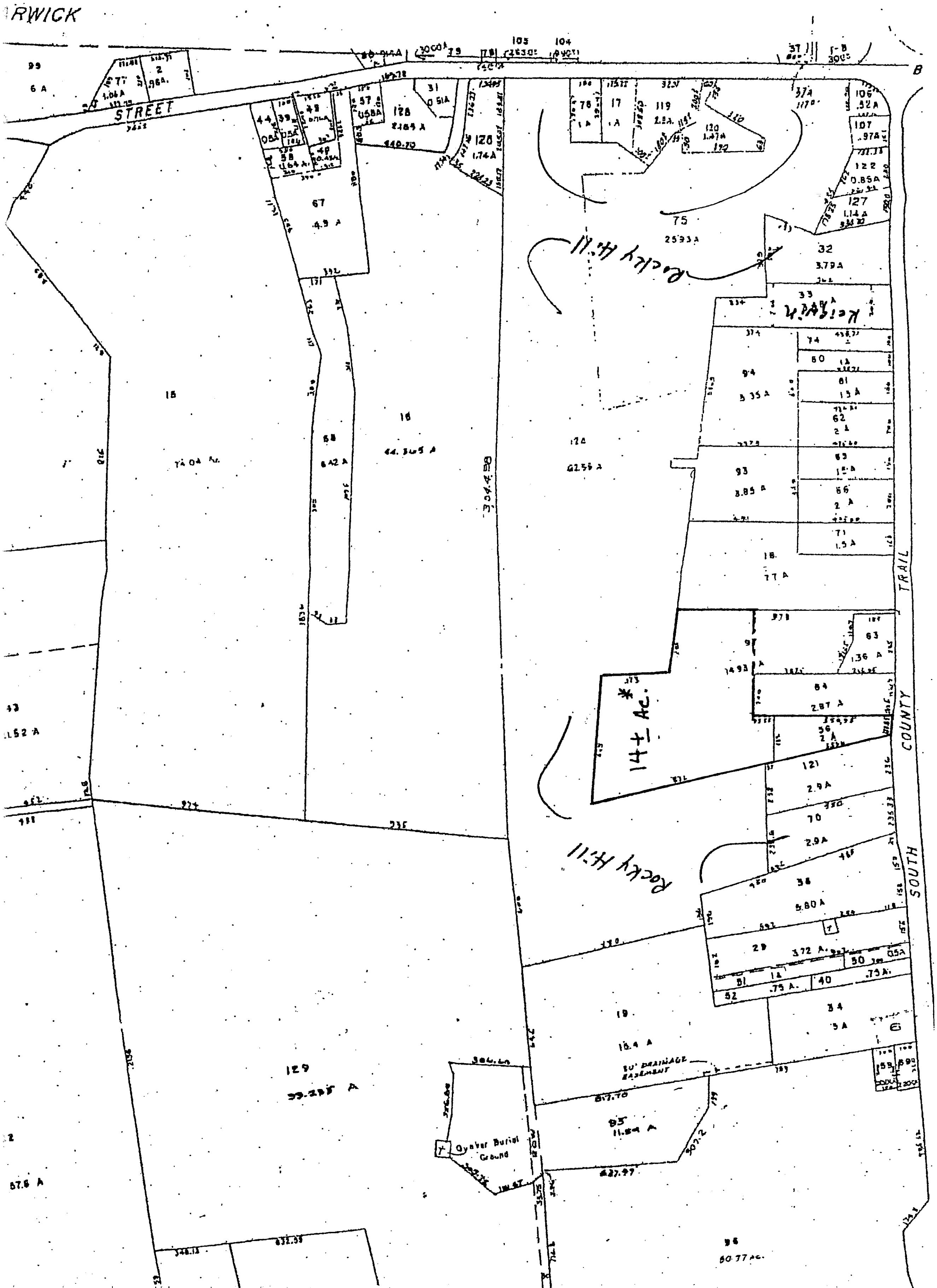
2.4.8 Site No. 8 - South County Trail

East Greenwich

Realtor	Butler Realty
Listing Agent	Jeff Butler
Phone Number(s)	410/886-7800
Town	East Greenwich
Street	South County Trail
Frontage	100-ft (Panhandle)
Asking Price	N/A
Plat No.	12-A
Lot No.	97
Area	14 Acres +
Wetlands	No
Water	Yes
Gas	N/A
Sewer	N/A
Proximity to I-95	Fair to good

General Comments

This property has a number of the failings of Site Selection No. 6 but in reverse. Where Site Selection No. 6 drops in elevation to wetlands below, this site rises sharply and crests on top to an area of ledge outcroppings. It then runs for a distance at a fairly level distance and then drops sharply into the woods where it runs for a fairly level distance to the property line beyond. The parcel is irregular in shape creating areas of unusable land. Once again the engineering costs necessary to create a buildable area on site would have to be reflected in the sale price. Presently it is not.


RWICK
STREET
SOUTH COUNTY TRAIL
Rocky Hill
Keigwin
14± Ac.*
Rocky Hill
50' DRAINAGE EASEMENT
Quaker Burial Ground
75
25.93 A
124
62.56 A
129
18
74.04 Ac.
68
6.42 A
16
44.345 A
19
16.4 A
85
11.84 A
96
50.77 Ac.
334.4.58
Ct 817.70
437.97

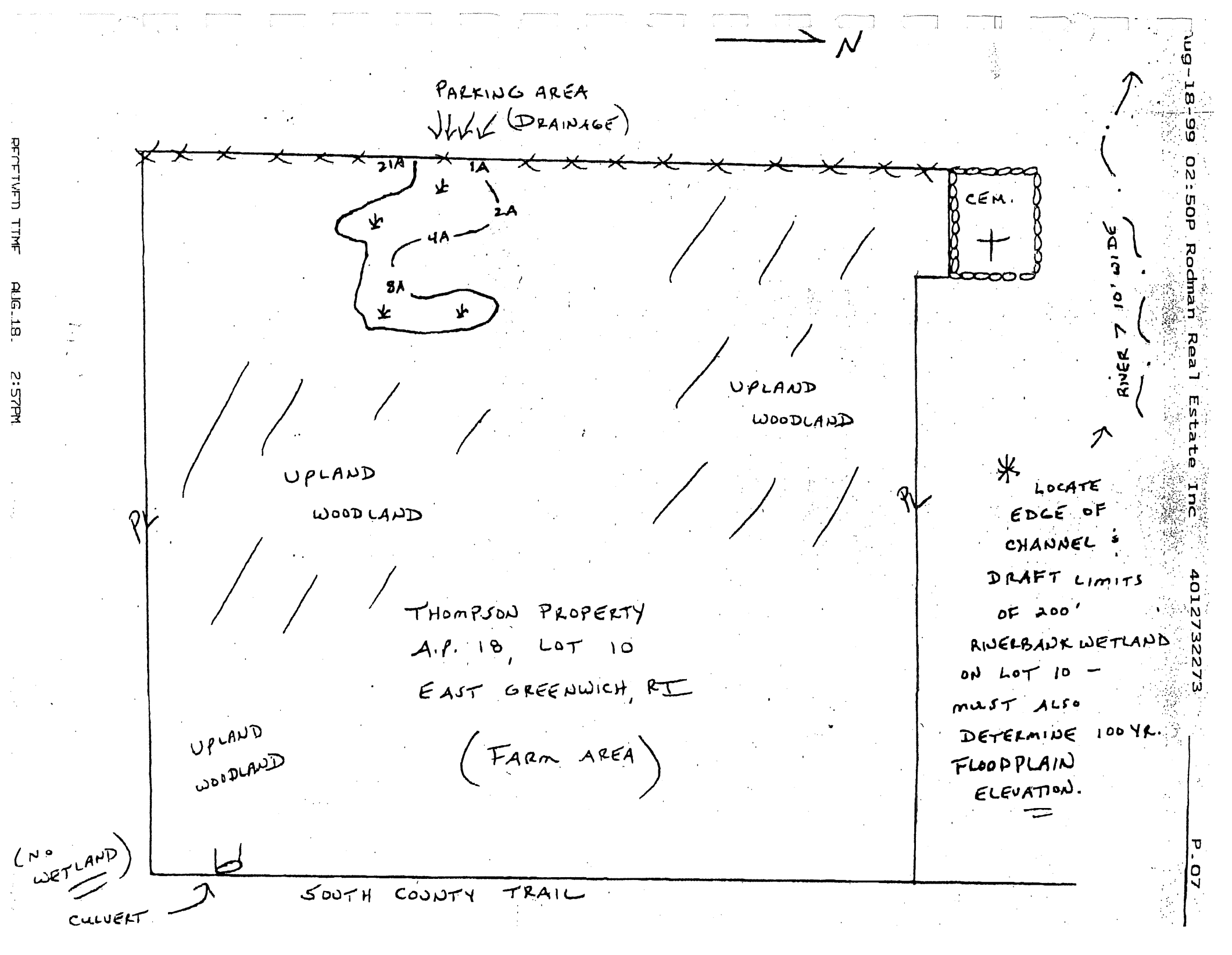
2.4.9 Site No. 9 - South County Trail

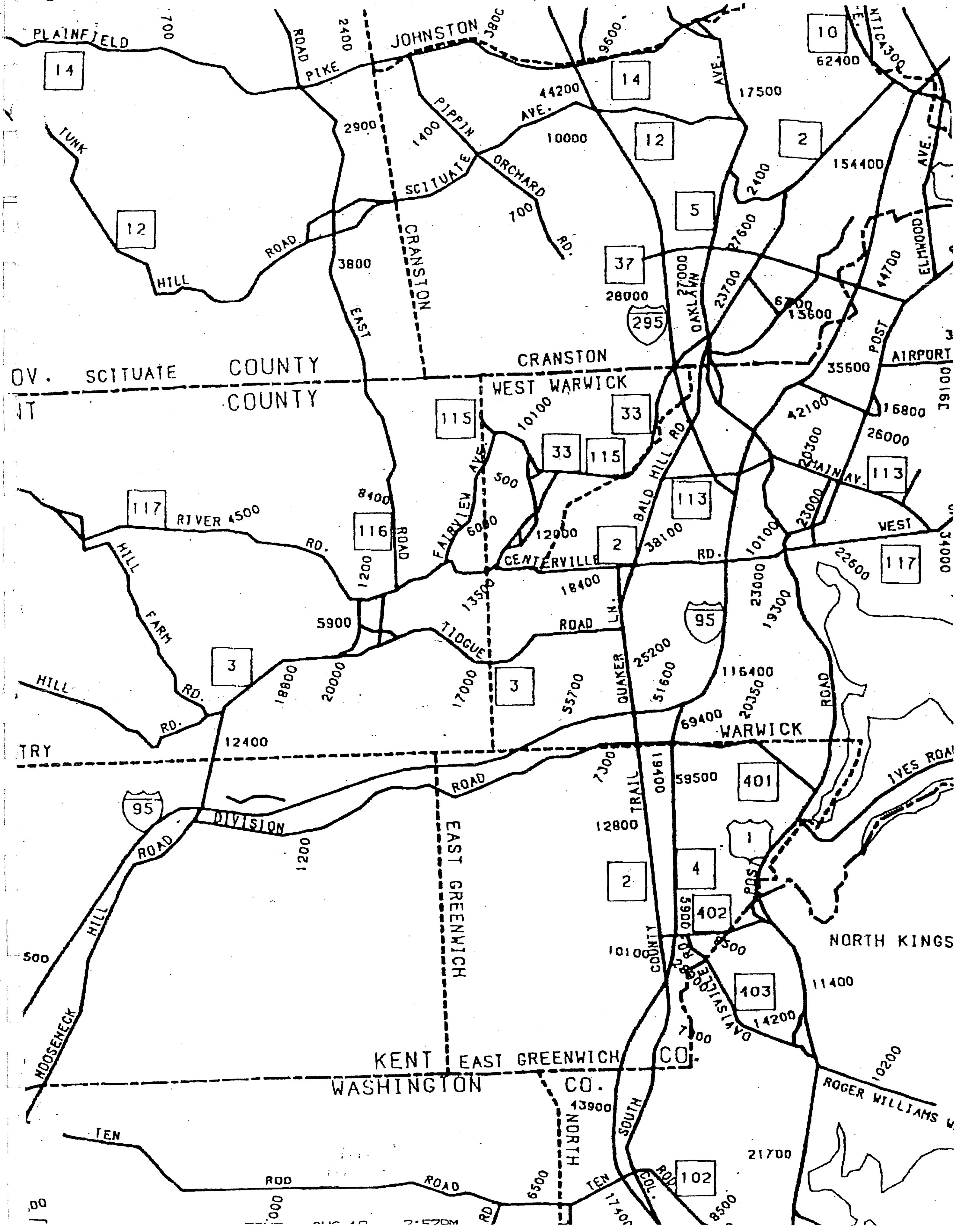
East Greenwich

Realtor	Rodman Realty
Listing agent	Neil Amper
Phone Number(s)	401/273-2270
Town	East Greenwich
Street	South County Trail South of Frenchtown Road
Frontage	252-ft
Asking Price	$1,000,000
Plat No.	18-C
Lot No.	10
Area	9.75 acres
Wetlands	Yes (flagged)
Water	Yes
Gas	Yes
Sewer	No
Proximity to I-95	Poor

General Comments

This property is considered to be too far south of the KCWA District and not in the direction of expansion considered desirable by KCWA.


N
PARKING AREA
(DRAINAGE)
21A
1A
2A
4A
8A
CEM.
RIVER 10' WIDE
UPLAND
WOODLAND
UPLAND
WOODLAND
LOCATE
EDGE OF
CHANNEL &
DRAFT LIMITS
OF 200'
RIVERBANK WETLAND
ON LOT 10 -
MUST ALSO
DETERMINE 100 YR.
FLOODPLAIN
ELEVATION.
THOMPSON PROPERTY
A.P. 18, LOT 10
EAST GREENWICH, RI
(FARM AREA)
UPLAND
WOODLAND
(NO WETLAND)
CULVERT
SOUTH COUNTY TRAIL


PLAINFIELD
JOHNSTON
PIKE
ROAD
PIPPIN
AVE.
ORCHARD
RD.
SCITUATE
TUNK
HILL
ROAD
CRANSTON
EAST
OAKLAWN
ELMWOOD
POST
AVE.
AIRPORT
SCITUATE
COUNTY
CRANSTON
WEST WARWICK
COUNTY
RIVER
RD.
HILL
FARM
RD.
FAIRVIEW
AVE.
CENTERVILLE
RD.
BALD HILL RD
MAIN AV.
WEST
TIOGUE
ROAD
LN.
QUAKER
TRAIL
WARWICK
IVES ROAD
DIVISION
ROAD
HILL
NOOSENECK
EAST GREENWICH
COUNTY
DAVISVILLE
NORTH KINGS
ROGER WILLIAMS
KENT
EAST GREENWICH
CO.
WASHINGTON
CO.
NORTH
SOUTH
TEN
ROD
ROAD
TEN
COL.
14
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295
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403
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700
2400
380C
9600
44200
17500
62400
2900
1400
10000
154400
2400
700
3800
27600
28000
27000
23700
6700
15600
44700
35600
10100
42100
16800
26000
500
20300
8400
4500
6000
12000
38100
10100
23000
1200
13500
18400
22600
5900
23000
19300
18800
20000
17000
55700
25200
51600
116400
20350
69400
12400
7300
19400
59500
1200
12800
5900
8500
10100
11400
14200
7200
43900
10200
21700
6500
17400
8500
500

2.4.10 Sites 10, 11 and 12

Three other sites were briefly looked at in addition to the previous nine sites just described. All three are in the West Warwick industrial park.

Site No. 10 - West Warwick Industrial Park
West Warwick

Salisbury Realty has a parcel listed in the industrial park between Arpin Van Lines and the KCWA water tower. Due to the tax incentives being offered by West Warwick, the property asking price is high. In addition, a large gaming casino is being proposed in the vicinity of the water tower to include its own on/off ramps from I-95. In order to avail themselves of the tax incentives, KCWA would have to lease the building from third party who would be eligible for the tax break. Since building and owning is the preferred way to go, we do not feel that further investigation into the West Warwick industrial park is warranted.

Site No. 11 - West Warwick Industrial Park
West Warwick

La Croix Realty has a 6-acre parcel listed for $900,000 in the industrial park. Due to the tax incentives being offered by West Warwick, the property asking price is high. In addition, a large gaming casino is being proposed in the vicinity of the water tower to include its own on/off ramps from I-95. In order to avail themselves of the tax incentives, KCWA would have to lease the building from third party who would be eligible for the tax break. Since building and owning is the preferred way to go, we do not feel that further investigation into the West Warwick industrial park is warranted.

Site No. 12 - West Warwick Industrial Park
West Warwick

Silva Realty has a 5.95 acre parcel listed in the industrial park. Due to the tax incentives being offered by West Warwick, the property asking price is high. In addition, a large gaming casino is being proposed in the vicinity of the water tower to include its own on/off ramps from I-95. In order to avail themselves of the tax incentives, KCWA would have to lease the building from third party who would be eligible for the tax break. Since building and owning is the preferred way to go, we do not feel that further investigation into the West Warwick industrial park is warranted.

2.4.11 Lot Owners from Tax Assessor's Lists

Coventry

Plat Map No. 2

Lot 1.1	Ralph Albro, 2501 Nooseneck Hill Road, West Greenwich	
Lot 1.2	same as above	
Lot 2	Sam Shapiro	
Lot 3	Mapleroot Corporation	
Lot 4	Sam Shapiro	
Lot 5	Waltonen,Thaylen H., 610 Weaver Hill Road, Coventry, RI	
Lot 6	KCWA	53.19 Acres
Lot 9	KCWA	2.3 Acres
Lot 10	KCWA	2.9 Acres
Lot 11	KCWA	3.0 Acres

Plat Map No. 10

Lot 29	Koszela, John Sr. % John Koszela Jr., 1315 Victory Hgwy, Greene, RI
Lot 30	Leisure Village, Inc., ASCO Group (58 acres, wet, assessed at $934,900)
Lot 31	Vaccaro, Daniel A & Peter P. Borghesani
Lot 32	Specific Properties
Lot 33	G Tech Corporation
Lot 34	
Lot 35	Durand (?), Michael, 2020 Nooseneck Hill Rd, Coventry
Lot 36	Rossi, David A & Paula E (4.0 acres valued At $212,400)
Lots 37&37.1	Raptakis, Peter D and Evangelia (2.94 acres valued at $184,800)
Lot 38	Shapiro, Samuel and Suellen, 35 Sharon Road, Coventry (11.8 acres valued at $383,000)
Lot 39	Raptakis Revocable Living Trust and Demosthenes
Lot 40.11	St. Pierre, Elwin E. et.al, %Pete St. Pierre, 8712 North Johnn Miller Drive, Tucson AZ (5.29 acres)
Lot 40.3	Karen Guilfoyle
Lot 41	Leung, Kai & Yuk Kwai et.al.
Lot 42	Iannotti Funeral Home, Inc., 415 Washington, Coventry, RI

2.4.12 Property Owners from Tax Assessor's Lists

West Greenwich

Plat Map 6

Lot 1	KCWA
Lot 2.1	KCWA
Lot 2.2	St. Amand
Lot 3	Weaver
Lot 15	Waltonen, Thayden and Linda
Lot 55-1	Carpenter, Norman and Shelley N.
Lot 17	Marsocci, Loretta L
Lot 18	Pimental, Antoinette E
Lot 21-1	Exit 6 Plaza LLC
Lot 21-2	Gospel Temple Assembly of God
Lot 21-3	Izzi, Albert N Jr and Antonetta G
Lot 21-4	Exit 6 Plaza LLC
Lot 21-5	Izzi, Albert N andWilliam O
Lot 21-6	Exit 6 Plaza LLC
Lot 21-7	Exit 6 Plaza LLC
Lot 30	Gary French
Lot 31-1	Congress Inn
Lot 31-2	Best Western West Greenwich Inn Corporation
Lot 31-3	Hungry Hill Development
Lot 32	Motiva Enterprises
Lot 33-1	Sun Oil Co Of PA
Lot 33-2	Green Land Co LLC ½ Int (From Depco)
Lot 33-3	Louis Gencarelli, Sr
Lot 34	Beaudoin, Wayne D and Robin
Lot 35	Pynnonen, Neil & Rose
Lot 36	Beaudoin, Wayne D and Robin Mishnock Trailer Park
Lot 37	Coventry West Greenwich Lodge BPOE #2285
Lot 38	Lerch, Robert N. & Theresa, Easement
Lot 39-1	Specific Properties LLC
Lot 39-2	Specific Properties LLC

Section 3
Facility Description

3.1 Architectural

The proposed structure is divided into three unequal areas - Administrative area, Mechanical area, and Vehicle Storage/Garage Bay areas.

3.1.1 Administrative

The proposed administrative area will be single story construction (height approximately 12' to under side of structure) with steel post and beam frame bearing on conventional concrete foundation walls and spread footings. Exterior walls will be brick veneer with horizontal wall reinforcing and wall ties, two inch cavity and 6" (16 gauge) galvanized steel studs at 16" o.c. for a nominal thickness of 12 inches. Exterior wall insulation will be 5 ½" batt insulation with vapor barrier set in the stud cavity. Steel studs will have one half inch cement board sheathing on the cavity side and 5/8" gypsum board on the interior side. Foundation walls are assumed to be 12" thick by nominal 4' deep (as dictated by the Rhode Island Building Code) reinforced concrete bearing on 12" deep x 24" wide x continuous reinforced concrete footings. Floor slab is assumed to be 6" thick reinforced concrete slab on grade over vapor barrier on compacted gravel fill. Actual sizes of the above to be based on engineered design based on borings from locations as determined by a structural engineer. Roof consists of structural steel framing, metal deck, rigid roof insulation, and ballasted EPDM membrane pitched to interior drains. Windows are thermally broken aluminum with operable (awning) sections and insulating tinted glass, with stained hardwood interior sills and aprons and perforated vertical blinds in dark color. Exterior doors and sidelights to be aluminum storefront type.

Interior partitions 3 5/8" steel studs @ 16" o.c. w/ 5/8" gypsum board both sides. All fire rated partitions to have firecode gypsum board; thickness as per Underwriters Laboratories. Toilet rooms shall have ceramic tile walls and floors. Executive office areas to have vinyl wall covering, hardwood base and carpet flooring. Lobby shall have granite tile flooring and base, vinyl wall covering, coffered gypsum board and acoustical tile ceiling. Board room shall be same as lobby except carpet floor, recessed projection screen and white board. Other office spaces to have painted gypsum board walls, rubber base and carpet flooring. Storage areas, printing and reproduction rooms to have vinyl composition tile flooring. All areas to have suspended acoustical tile ceiling except toilet rooms which shall have suspended gypsum board painted. All doors shall be solid core wood (stained) set in hollow metal (galvanized) frames painted with best quality US26D finish locksets and hardware.

Built-in furniture and equipment shall include:

- Publishing Room -- built in plastic laminate counters with base and wall cabinets
- Computer Area -- built in plastic laminate counters with base and wall cabinets
- Library Reference -- hardwood wall shelving to 84" above floor
- Records Vault -- reinforced concrete floor, walls and ceiling with vault door, 16" deep x 84" high heavy duty steel shelving
- Supply Room -- heavy duty steel shelving on four walls 16" deep x 84" high
- Board Room -- five foot kitchenette unit on end wall, with sink, coffeemaker, refrigerator, base and wall cabinets
- Historical File Room and File Storage (active) -- 16" deep x 84" high heavy duty steel shelving
- Lab Storage -- epoxy shelving and lab chemical and glassware storage cabinets
- Laboratory -- fully equipped laboratory including base and wall cabinets, fume hood, glass washer, water purification unit, sterilizer, refrigerator, oven, titrator, incubators, spectophotometer, turbidometer, settling cones, balances, and vacuum pump as designed by lab consultant based on specific needs of KCWA
- Kitchenette -- manufactured unit with sink, microwave oven, full height refrigerator, garbage disposal, coffee maker
- Toilet Rooms -- toilet room fixtures and stainless steel toilet accessories
- Locker Rooms -- lockers 50 - 15"w x 72" h x 18"deep lockers per locker room with benches. Showers for both male and female are to be privacy showers (not gang showers as shown)

The above areas to be fully air-conditioned and heated, natural gas fired glycol and/or forced air zoned systems.

3.1.2 Mechanical Areas

The floor area between the vehicle storage/garage bay portion of the building and the administrative offices should house the Mechanical Room, Fire Pump Room, Janitors Room, Kitchenette, Toilet/Locker Rooms, Meter Test and Meter Storage Room, Meter Storage, General Storage, Supply Room, and Instrument and Electrical Shop. Height and general type of construction should be the same as the Administrative Area with the exception of the following: exterior walls will be brick veneer, 4" cavity with 2 ½" rigid insulation, and 8" CMU backup for a nominal wall thickness of 16 inches. Exterior doors (insulated) and frames shall be hollow metal (galvanized and painted).

Interior partitions shall be 8" CMU with epoxy paint finish except for Toilet/Locker Rooms with ceramic tile wall finish. Ceilings shall be exposed structure painted

except for the Toilet/Locker Rooms which shall have suspended gypsum board painted and Kitchenette and Corridor/Entry which shall have suspended acoustical tile ceiling. Floors shall be exposed concrete with sealer and painted finish except for Toilet/Locker Rooms with ceramic tile floor finish, and Kitchenette and Corridor/Entry with rubber base and vinyl composition tile. Interior doors and frames shall be hollow metal galvanized and painted.

Built-in furniture and equipment shall include:

- Mechanical Tool Room -- 16 lf x 84" h x 16" deep heavy-duty steel shelving, tackboard and whiteboard
- Fire Pump Room -- fire pump to be determined by water pressure.
- Janitor's Room -- wall mounted service sink, wall mounted mop hooks, and wall mounted shelving.
- Kitchenette -- manufactured kitchenette unit with sink, microwave oven, full height refrigerator, garbage disposal, coffee maker, base and wall cabinets
- Meter Test and Meter Storage Room -- workbenches with 6-ft long stainless steel sink, plug moulding strip continuous at bench height. Heavy duty steel shelving with range of depths for optimum equipment storage. Compressed air service to room.
- Meter Storage Room and Storage Area -- heavy duty steel shelving
- Toilet Rooms -- toilet room fixtures and stainless steel toilet/shower accessories
- Supply Room -- heavy duty steel shelving, whiteboard and tackboard
- Instrument and Electrical Shop -- workbenches with plug moulding strip continuous at bench height. Steel shelving with range of depths for optimum equipment storage, white board and tackboard.

The above areas to be fully air-conditioned and heated, gas-fired glycol and/or forced air zoned system.

3.1.3 Vehicle Storage/Mechanical Bays

The proposed vehicle storage/mechanical bay area will be single story construction (height approximately 16' to under side of structure) with steel post and beam frame bearing on conventional concrete foundation walls and spread footings. Exterior walls will be 4" brick veneer, 4" cavity with 2 ½" rigid insulation and 12" CMU backup for a nominal wall thickness of 20 inches. Foundations are assumed to be 20 inch thick by nominal 4' deep (as dictated by the Rhode Island Building Code) reinforced concrete bearing on 16" deep x 30" wide x continuous reinforced concrete footings. Floor slab is assumed to be 6" thick reinforced concrete slab on grade over vapor barrier on compacted gravel fill. Actual sizes of the above to be based on

engineered design based on borings from locations as determined by a structural engineer. Roof consists of structural steel framing, metal deck, rigid roof insulation, and ballasted EPDM membrane pitched to interior drains. Provide one 4x4 double dome skylight in each vehicle bay.

Interior partitions (where required) shall be 8" CMU epoxy painted. Sealer on garage floor slab. Ceiling shall be underside of exposed structure above painted. All exposed structural steel shall be painted. Windows thermally broken aluminum with operable (awning) sections and insulating tinted glass. Exterior doors and frames to be hollow metal galvanized and painted. Sectional overhead painted foam insulated steel service doors shall be motorized. Twenty-three two doors are required; eleven doors at 10' wide by 10' high and twelve doors at 10' wide by 12' high.

Built-in furniture and equipment shall include:

- Mechanical Tool Room -- steel shelving, whiteboard and tackboard
- Mechanical Bay with Lift -- vehicle lift (6K) and associated equipment. Tire changing equipment. Steel shelving, whiteboard and tackboard. Compressed air system.
- Gas fired unit heaters and air handling units for tempered ventilation air sufficient to remove vehicle exhaust fumes. Human comfort conditions except minimum 50 degrees (winter) in garage bays 3-22. Gas and oil separator tied to floor drains. Emergency eyewash and shower.
- A wet sprinkler system is to be included in the above areas.
- Exterior building mounted yard lighting.

3.1.4 Site Work

- Fence -- perimeter 6-foot black vinyl coated chain link fence with two gates as indicated on site plan.
- Pavement/landscaping -- bituminous concrete access roads and parking, concrete walkways, granite curbing of entrance road up to gates and adjoining building and visitor parking, 4 foot high x 8" concrete filled pipe bollards at overhead door jambs, building corners in paved areas. Loam/seed, low maintenance ground covers, perennials, shrubs, flowering trees, deciduous and coniferous trees for screening yard areas and shading outdoor areas adjoining office areas.
- Above Ground Concrete Fuel Storage Vaults -- gasoline (1500-gallon capacity) and diesel fuel (1000-gallon capacity) with vapor recovering capacity. State of the art electronic monitoring system with digital read-out and data recording printout. Monitoring system capabilities to include level sensing indicator, lead detection, keypad programmable, multi-operator security codes, vehicle identification code, use code for fuel card.

- Metal canopy 14 feet clear covering fueling station including lighting and fire suppression system.
- Vehicle/Equipment Wash Area - Hot Box enclosure with 1000 psi water pressure washer, with hot water and soap injection. Sewered drain or oil trap catch basin design. Concrete pad 5000 psi compressive strength. Vacuum cleaning accommodations. Away from building, near fuel storage area.
- Exterior Stock Caged Area: -- approximate size 100' x 100' for storage of construction material in separate stock piles process gravel 100 CY, cold patch 30 CY, trap rock CY. Pipe stock storage area (sizes 6-30 inch x 20 feet long) and hydrants, large valve storage area with concrete (5000 psi) pads. Separately fenced and gated area.
- CCTV/video security system covering all exterior yard and parking areas
- Site lighting of parking and stock storage areas
- Sewer, storm drainage, natural gas, telephone, cable, fiber optic communications, water and fire service to serve facility

3.2 Building Plan and Site Plan - Generic

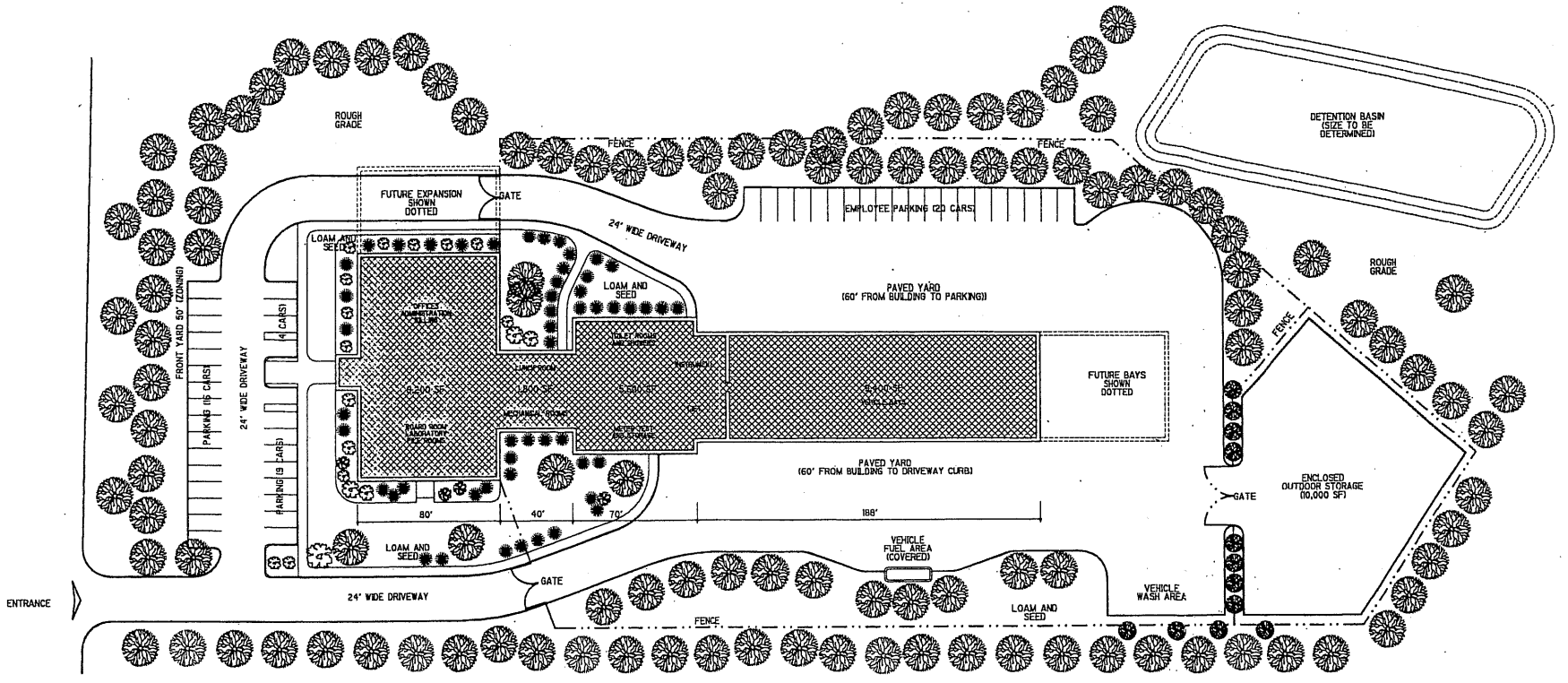
A floor plan of the proposed building was prepared to determine the size of the facility with site amenities. Please see attached Site Plan 3.2.1 and Floor Plan 3.2.2.

3.3 Building Plan and Site Plan – Site No. 1

The proposed floor plan was placed on Site No. 2 with site amenities. Please see attached Site Plan 3.3.1 and Floor Plan 3.3.2.

3.4 Statement of Probable Construction Costs

A comprehensive estimate of construction costs, including site preparation, was prepared by CDM. The cost of building construction and site preparation is projected to be $3.6M. Please see attached estimate.



SITE PLAN
1" = 60'

1" = 60'
0 15 30 45 60

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SCHLEYER
DRAWN BY: J. SCHLEYER
SHEET CHK'D BY: H. ZELLER
CROSS CHK'D BY:
APPROVED BY:
DATE: NOVEMBER 24, 1998

CDM Camp Dresser & McKee Inc.

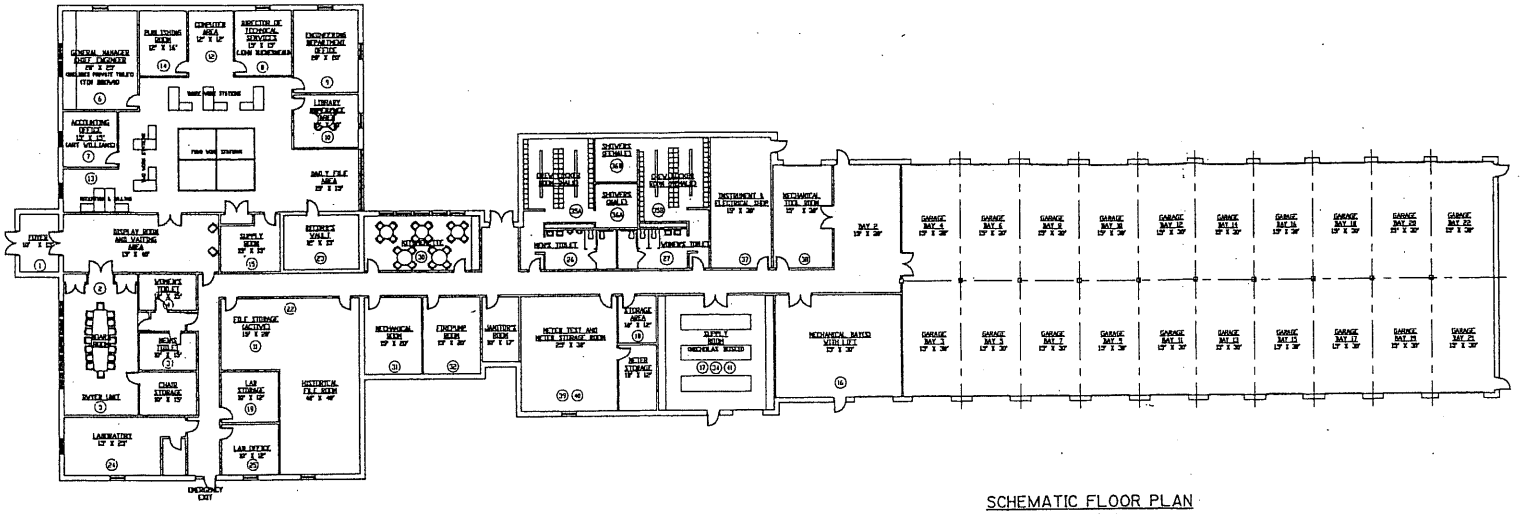
KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

FACILITIES STUDY

ADMINISTRATION AND MAINTENANCE BUILDING GENERIC SITE PLAN

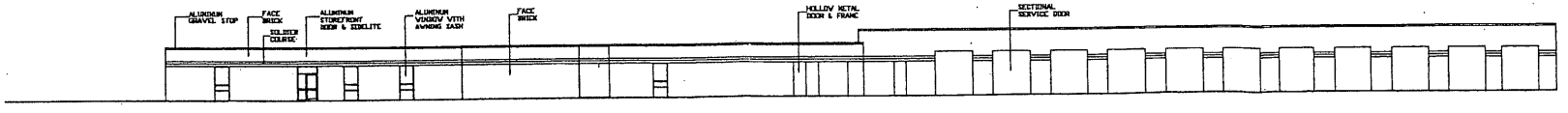
PROJECT NO.
FILE NAME: siteplan.dwg

SHEET NO.
3.2.1



SCHEMATIC FLOOR PLAN

1/32" = 1'-0"



SCHEMATIC ELEVATION

1/32" = 1'-0"

1" = 32'

0 8 16 24 32

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SCHLEYER
DRAWN BY: J. SCHLEYER
SHEET CHK'D BY: H. ZELLER
CROSS CHK'D BY:
APPROVED BY:
DATE: NOVEMBER 24, 1999

CDM Camp Dresser & McKee Inc.

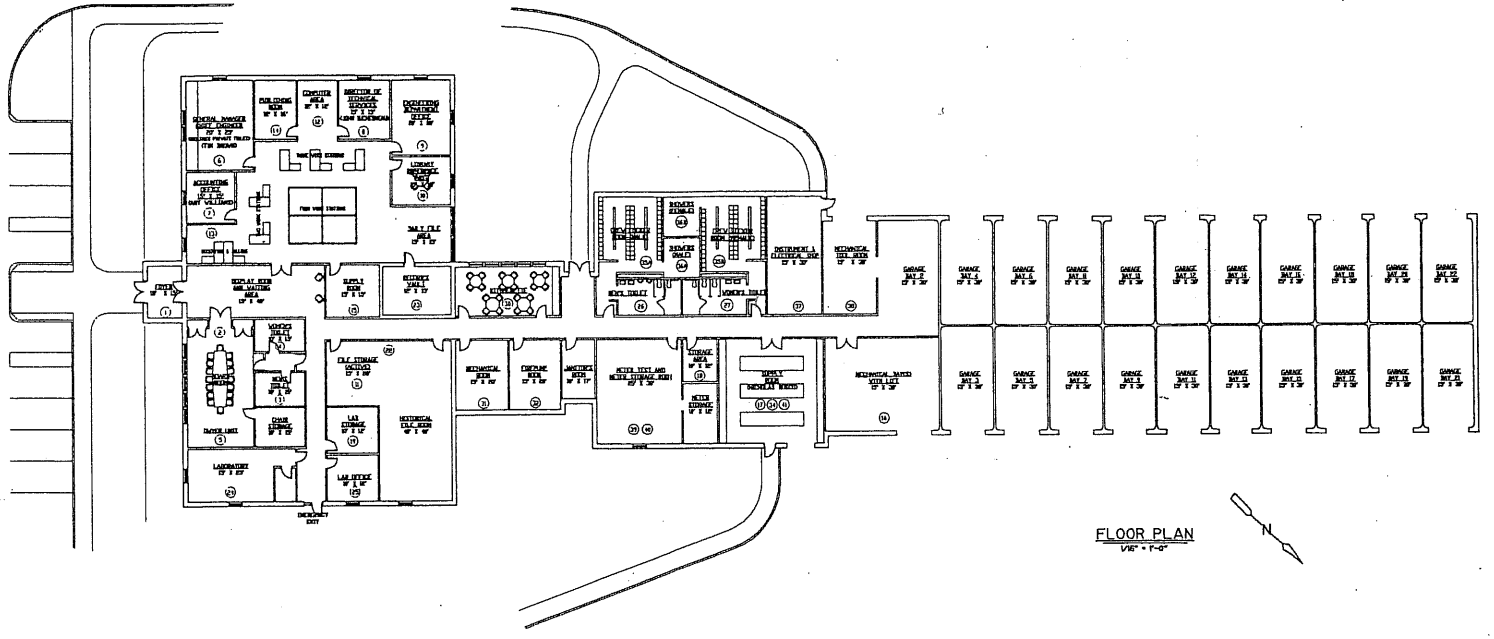
KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

FACILITIES STUDY

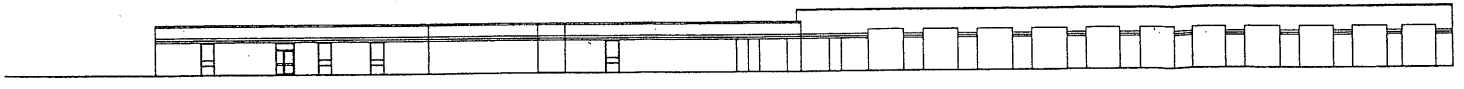
ADMINISTRATION AND MAINTENANCE BUILDING SCHEMATIC FLOOR PLAN

PROJECT NO.
FILE NAME: sfloplan.dw

SHEET NO.
3.2.2



FLOOR PLAN
1/16" = 1'-0"



NORTHEAST ELEVATION (SCHEMATIC)
1/16" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SCHLEYER
DRAWN BY: J. SCHLEYER
SHEET CHK'D BY: H. TELLER
CROSS CHK'D BY:
APPROVED BY:
DATE: NOVEMBER 3, 1999

CDM Camp Dresser & McKee Inc.

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

FACILITIES STUDY

ADMINISTRATION AND MAINTENANCE BUILDING SCHEMATIC FLOOR PLAN - SITE NO. 1

PROJECT NO.
FILE NAME: sfloplan.dwg

SHEET NO.
3.3.2

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-23-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost		Unit Cost	Amount	
SUMMARY						PAGE REF.		$	$
DIV. NO. 2 - SITEWORK						5 OF 14			335,900
DIV. NO. 3 - CONCRETE						6 " "			428,100
DIV. NO. 4 - MASONRY						7 " "			251,400
DIV. NO. 5 - METALS						8 " "			605,500
DIV. NO. 7 - THERMAL & MOISTURE PROTECTION						9 " "			143,700
DIV. NO. 8 - DOORS & WINDOWS						10 " "			125,600
DIV. NO. 9 - FINISHES						12 " "			202,200
DIV. NO. 10 - SPECIALTIES						13 " "			37,700
DIV. NO. 15 - MECHANICAL						14 " "			260,200
DIV. NO. 16 - ELECTRICAL						14 " "			160,400
S/T - DIRECT COSTS								$	2,550,700
INDIRECT COSTS									
• GENERAL CONDITIONS & GENERAL CONTRACTOR'S OH&P @ 15%								=	382,600
• CONTINGENCY @ 25% OF DIRECT COSTS								=	637,700
TOTAL PROBABLE CONSTR. COST - PRESENT DAY								$	3,571,000

(NOTE: ASSUMED SALES TAX EXEMPT)

USE → $ 3,600,000

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-18-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 2 - SITEWORK								$	$
1. CLEAR & GRUB - LIGHT TREES 6 USABLE ACRES	6	ACRE					3,100 00	18,600	18,600
2. EXCAVATION - SLAB-ON-GRADE 82'x128'x1'D x1.10÷27 = 428 CY 80'x128'x1'D x1.10÷27 = 417 CY 64'x175'x1.25'D x1.10÷27 = 570 CY	1,415	CY					12 50	17,700	17,700
3. EXCAVATION - CONTINUOUS FOOTINGS & CONCRETE FOUNDATION WALLS									
1085'L x 1'TH. x 2'W x 1.10÷27 =	88	CY							
1,085'L x 1'TH. x 3'H x 1.10÷27 =	132	CY							
	220	CY					8 50	1,900	1,900
4. EXCAVATION - WATER, SEWER, DRAINAGE & GAS LINES 1,100'x 3'AV. WIDTH x 5'D x 1.10 ÷ 27 =	670	CY					8 50	5,700	5,700
5. BACKFILL - COMPACTED	120	CY					10 00	1,200	1,200
6. GRAVEL FILL - COMPACTED									
82'x128'x.67'D x1.05÷27 =	273	CY							
80'x128'x.67'D x1.05÷27 =	267	CY							
64'x175'x.67'D x1.05÷27 =	290	CY							
	830	CY					21 00	17,430	17,400
PAGE TOTAL								$	62,500

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-18-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 2 - SITEWORK								$	$
7. SITE UTILITIES									
• GAS SERVICE - TAR COATED & WRAPPED 4"Ø SCH. 40, CS	400	LF					30.00	12,000	12,000
• WATER SERVICE - 4"Ø D.I., MJ	300	LF					14.50	4,400	4,400
• SEWER - TIE-IN AT ENTRANCE TO G-TECH	1	LS						12,000	12,000
• DRAINAGE LINES & DETENTION BASIN	1	LS						20,000	20,000
• UNDERGROUND ELECTRICAL DUCT BANKS	1	LS						5,000	5,000
8. ASPHALTIC CONCRETE PAVEMENT - PAVED YARD AREA & DRIVEWAYS									
60'x 161' = 9,660SF÷9	= 1,073	SY							
24'x 340' = 8,160" ÷9	= 907	SY							
24'x 340' = 8,160" ÷9	= 907	SY							
60'x 263' = 15,780" ÷9	= 1,753	SY							
60'x 206' = 12,360" ÷9	= 1,373	SY							
101'x 154' = 15,554" ÷9	= 1,728	SY							
	7,741	SY							
X 1.05 =	8,100	SY					9.50	77,000	77,000
								$	130,400

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-18-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 2 - SITEWORK								$	$
9. PAVEMENT STRIPING	1,200	LF					1.25	1,500	1,500
10. GRAVEL PAVEMENT - ENCLOSED OUTDOOR STORAGE AREA 100'x100'x.67'x1.05÷27=	260	CY					21.00	5,500	5,500
11. LANDSCAPING									
• TREES - DECIDUOUS & CONIFERS (3" TO 3 1/2" CAL.)	120	EA					180.00 (AVG. COST)	21,600	21,600
• SHRUBS	90	EA					40.00 (AVG. COST)	3,600	3,600
• LOAM & SEED - AREA AROUND BUILDINGS EXCLUDING MAINT. BLDG	1	LS						8,000	8,000
• HYDRO SEEDING W/MULCH & FERTIL. - AREA OF ROUGH GRADING	1	LS						15,000	15,000
• SPRINKLER IRRIGATION SYSTEM	60,000	SF					.85	51,000	51,000
PAGE TOTAL								$	106,200

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-18-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 2 - SITEWORK								$	$
12. FENCING - CHAIN LINK 6 GA WIRE, GALV. STEEL 6'H W/O BARB WIRE	1,800	LF					19 00	34,200	34,200
13. DOUBLE SWING GATES INCL. POSTS & HARDWARE 6'H	2	EA					1,300 00	2,600	2,600
TOTAL - PAGE 5 OF 14								$	36,800
" ÷ " 4 " "									106,200
" - " 3 " "									130,400
" - " 2 " "									62,500
TOTAL DIV. NO. 2 - SITEWORK								$	335,900

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-22-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 3 - CONCRETE								$	$
1. CONTINUOUS WALL FOOTINGS 1,085'L x 2'W x 1'TH. x 1.05 ÷ 27 =	84	CY					480 00	40,300	40,300
2. CONCRETE FOUNDATION WALLS 1,085'L x 1'TH. x 3'H x 1.05 ÷ 27 =	127	CY					500 00	63,500	63,500
3. CONCRETE - SLAB-ON-GRADE									
• ADMINISTRATION AREA 4" TH. REINFORCED CONCRETE SLAB-ON-GRADE W/6x6 6/6 WWF.	215	CY					550 00	118,300	118,300
• VEHICLE MAINTENANCE BAYS - 6" TH. REINFORCED CONCRETE SLAB-ON GRADE	185	CY					550 00	101,800	101,800
4. FLOOR HARDENER - EXPOSED CONCRETE	11,200	SF					1 30	14,600	14,600
5. ROOF DECK CONCRETE	320	CY					280 00	89,600	89,600
TOTAL DIV. NO. 3 - CONCRETE								$	428,100
NOTE: CONCRETE UNIT COST INCL. ALLOW. FOR FORMS & REBAR.									

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-22-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 5 - METALS								$	$
1. STRUCTURAL STEEL FRAMING									
• OFFICE, LUNCH ROOM, MECH. ROOMS, TOILET ROOMS & SHOWERS									
15#/SF X 16,600 SF ÷ 2,000 LBS =	125	TON					1,900 00		237,500
• VEHICLE BAYS									
20#/SF X 9,400 SF ÷ 2,000 LBS =	94	TON					1,800 00	169,200	169,200
2. OPEN WEB JOISTS	3400	LF					12 00	40,800	40,800
3. METAL DECKING - CELLULAR UNITS - GALVANIZED	26000	SF					5 50	143,000	143,000
4. MISC. METALS - ALLOW.	1	LS						15,000	15,000
TOTAL DIV. NO. 5 - METALS								$	605,500

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-22-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 7 - THERMAL & MOISTURE PROTECTION								$	$
1. SINGLE-PLY MEMBRANE ROOFING - EPDM 60 MILS - FULLY ADHERED W/ADHESIVE	27,300	SF					3 20	87,400	87,400
2. ROOF INSULATION - 3" TH. POLYISOCY - ANURATE R21.74	27,300	SF					1 60	43,700	43,700
3. FLASHING - ALUMINUM	2,800	SF					4 50	12,600	12,600
TOTAL DIV. NO. 7 - THERMAL & MOIST. PROTECTION								$	143,700
DIV. NO. 8 - DOORS & WINDOWS									
1. EXTERIOR DOORS & FRAMES INCL. HARDWARE									
• ALUMINUM DOOR W/SIDELIGHTS 6'X10'	2	EA					1,800 00	3,600	3,600
• ALUMINUM DOOR -3'X7'	3	EA					950 00	2,900	2,900
2. INTERIOR DOORS & FRAMES INCL. HARDWARE									
• ADMIN. AREA GALV. H.M. FRAMES W/SOLID CORE WOOD DOORS - 3'X7'	23	EA					650 00	15,000	15,000
PAGE TOTAL - DIV. NO. 8								$	21,500

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-22-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 8 - DOORS & WINDOWS								$	$
2. INTERIOR DOORS & FRAMES INCL. HARDWARE (CONT.)									
• MAINTENANCE AREA GALV. H.M. DOORS & FRAMES 3'x7'	2	EA					750.00	1,500	1,500
GALV. H.M. DOORS & FRAMES 6'x7'	2	EA					1,100.00	2,200	2,200
• GARAGE DOORS - STEEL INCL. FRAMES, HDWE & M.O. 10'x12'	22	EA					3,100.00	68,200	68,200
• ADMIN. AREA GALV. H.M. FRAMES W/ SOLID CORE WOOD DOORS - 6'x7'	4	EA					1,300.00	5,200	5,200
3. WINDOWS - ALUMINUM INCL. GLAZING									
• WINDOWS - ALUMINUM INCL. INSULATED GLAZING	900	SF					30.00	27,000	27,000
TOTAL - PAGE 10 OF 14								$	104,100
TOTAL - " 9 " "									21,500
TOTAL DIV. NO. 8 - DOORS & WINDOWS								$	125,600

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-22-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 9 - FINISHES								$	$
1. INTERIOR PARTITION WALLS									
ADMIN. AREA									
• 1/2" INTERIOR GYPSUM DRYWALL, TAPED BOTH SIDES - INSTALLED ON 3 5/8" METAL STUDS @ 16" O.C.	18,400	SF					2 80	51,500	51,500
• VINYL WALL COVERING - OFFICES	5,100	SF					1 50	7,700	7,700
• RUBBER BASE - 6" HIGH	1,300	LF					2 00	2,600	2,600
• PAINTING - GYPSUM WALLS	13,300	SF					.90	12,000	12,000
2. MAINTENANCE AREA									
• PAINTING - 8" CMU	2,800	SF					.70	2,000	2,000
• PAINTING - H.M. GALV. DOORS & FRAMES	84	SF					1 20	100	100
3. CERAMIC TILE - TOILET AREAS									
• CERAMIC TILE - 4 1/4" X 4 1/4" THIN SET	1,200	SF					5 60	6,700	6,700
PAGE TOTAL								$	82,600

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-22-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 9 - FINISHES								$	$
4. CARPETING - ADMIN. AREA	700	SY					35.00	24,500	24,500
5. VINYL COMPOSITION TILE - KITCHEN & STORAGE AREAS	3,400	SF					1.80	6,100	6,100
6. CERAMIC FLOOR TILE - TOILET AREAS & LAB,	2,600	SF					8.50	22,100	22,100
7. CEILINGS									
• SUSPENDED ACOUSTICAL CEILINGS - ADMIN. AREA	16,600	SF					3.80	63,100	63,100
• PAINTING - EXPOSED STRUCTURE - VEHICLE BAYS	9,400	SF					.40	3,800	3,800
TOTAL - PAGE 12 OF	14							$	119,600
TOTAL - " " "	"								82,600
TOTAL DIV. 9 - FINISHES								$	202,200

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-22-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
								$	$
DIV. NO. 10 – SPECIALTIES									
1. TOILET PARTITIONS -WALL HUNG	10	EA					600.00	6,000	6,000
2. URINAL SCREEN -WALL HUNG	4	EA					380.00	1,500	1,500
3. LOUVERS -ALUMINUM W/ BIRD SCREEN	150	SF					25.00	3,800	3,800
4. FIRE EXTINGUISHERS -20 LB	14	EA					310.00	4,300	4,300
5. LOCKERS	110	EA					190.00	20,900	20,900
6. DOOR SIGNAGE - ALLOW.	1	LS						1,200	1,200
TOTAL DIV. NO. 10 – SPECIALTIES								$	37,700
DIV. NO. 15 – MECHANICAL									
• HVAC									
ADMIN. AREA	14,300	SF					6.40	91,500	91,500
MAINT. & VEHICLE BAYS	11,700	SF					4.70	55,000	55,000
• PLUMBING									
ADMIN. AREA	14,300	SF					3.20	45,800	45,800
MAINTENANCE & VEHICLE BAYS	11,700	SF					3.70	43,300	43,300
PAGE TOTAL – DIV. 15 MECHANICAL								$	235,600

Project : FACILITIES STUDY
CDM Job # : 1016-26865-RT. CONCEPT
Date : 11-23-99

KENT COUNTY WATER AUTHORITY
WEST WARWICK, RHODE ISLAND

Estimators : TONY FURIA
Checked by:

Description	Quantity	Unit	Labor		Material		Sub-Contract		Total
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	
DIV. NO. 15 - MECHANICAL								$	$
• FIRE PROTECTION									
MAINTENANCE & VEHICLE BAYS (SPRINKLER SYSTEM)	11,700	SF					2 10	24,600	24,600
TOTAL - PAGE 14 OF 14								$	24,600
" - " 13 " "									235,600
TOTAL DIV. 15 - MECHANICAL								$	260,200
DIV. NO. 16 - ELECTRICAL									
• LIGHTING & POWER									
ADMIN. AREA	14,300	SF					6 80	97,200	97,200
MAINTENANCE & VEHICLE BAYS	11,700	SF					5 40	63,200	63,200
								$	160,400

Docket No.

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PRO FORMA EXPENSES

Expense Item		Test Year CY 2000	Summary of Adjustments	Rate Year CY 2002	Labor Increase (CPNW Sch 1B)	Adjustments Detail: One Time Costs	Adjustments Detail: Other Adjustments	Adjustments Detail: Supporting Schedule	Non-Labor Inflation	Derivation of Test Year (CY 2000 Costs): check	+ 6 mo to 12/00	+ 12 mo to 6/00	- 6 mo to 12/99	Test Year
SOURCE OF SUPPLY														
operations		$24,270	$34,557	$58,827	202	$33,028		Sch. 1C, 1D	1,327		$10,922	13,348	0	$24,270
purchased water		2,760,625	92,768	2,853,393	0		92,768	Sch. 1C			1,542,121	2,814,771	1,596,267	2,760,625
	Subtotal	2,784,895	127,325	2,912,220	202	33,028	92,768		1,327	1.000	1,553,043	2,828,119	1,596,267	2,784,895
PUMPING OPERATIONS														
fuel for pumping		199	$12	211	0				12		0	515	317	199
power-pumping		316,804	$0	316,804	0				0		173,557	306,569	183,341	316,804
labor-pumping		50,296	$4,092	54,388	4,055				37		25,272	51,256	26,232	50,296
pumping expense		3,184	$194	3,378	0				194		951	3,456	1,226	3,184
maint. - pumping equip		6,695	$1,234	7,929	3,256				(2,023)		4,280	6,053	3,638	6,695
diesel oil		0	$0	0	0				0		0	0	0	0
maint. - structure		46,336	$2,934	49,272	442				2,492		21,496	53,572	28,730	46,336
	Subtotal	423,517	8,466	431,982	7,753	0	0		712	1.000	225,556	421,444	223,483	423,517
WATER TREATMENT														
chemicals		36,419	$1,989	38,408	0		205	Sch. 1D	1,784		5,113	51,360	20,055	36,419
labor		55,940	$43,530	99,470	43,529				1		30,528	49,401	23,988	55,940
operating		53,468	$3,256	56,724	0				3,256		26,537	50,388	23,451	53,468
maint. - water treat. equip		3,326	$227	3,552	95				132		386	2,866	12	3,326
maint. - structure		12,266	$747	13,013	0				747		3,162	10,457	1,352	12,266
	Subtotal	161,418	49,749	211,167	43,624	0	205		5,920	1.000	65,702	164,573	68,858	161,418
TRANS & DISTR. EXPENSE														
storage facilities exp.		634	$39	673	0				39		634	714	714	634
labor		6,620	$540	7,160	540				(0)		3,267	6,202	5,869	6,620
supplies		34,397	$2,095	36,492	0				2,095		16,471	27,009	11,033	34,397
labor-meter		5,831	$611	6,442	1,008				(397)		3,020	5,918	3,104	5,831
material-meter		7,022	$428	7,450	0				428		3,338	6,702	3,019	7,022
cust. install.		0	$0	0	0				0		0	0	0	0
misc.		12,803	$780	13,583	0				780		6,596	12,657	6,452	12,803
maint - struct. & improv.		1,159	$71	1,230	0				71		105	1,054	0	1,159
maint.- res & stdp		14,120	$1,073	15,193	838				234		6,401	10,398	2,679	14,120
maint. - mains		504,791	$78,293	583,084	69,723				6,570		245,775	434,040	175,024	504,791
maint. - service		61,294	$12,534	73,828	11,767				767		26,006	56,180	25,895	61,294
maint. - meters		26,716	$2,347	31,062	2,356				(10)		12,877	20,861	5,052	26,716
maint. - hydrants		65,633	$8,601	74,234	6,685				1,916		15,186	106,089	55,645	65,633
construction labor		(9,396)	(572)	(9,968)	0				(572)		(7,701)	(8,452)	(6,757)	(9,396)
	Subtotal	733,625	106,837	840,461	92,918	0	0		13,918	1.000	336,958	684,400	287,729	733,625
CUSTOMER ACCOUNT														
labor- meter read		88,427	$7,216	95,643	7,216				0		43,589	91,615	46,978	88,427
cust record labor		119,304	$9,735	129,039	9,735				0		56,956	111,986	51,638	119,304
cust records exp		20,432	$2,288	22,719	0		1,043	Sch. 1D	1,244		19,788	644	0	20,432
meter read supplies		25,230	$1,536	26,766	0			Sch. 1D	1,536		0	44,710	19,480	25,230
uncollectible		10,118	$616	10,734	0				616		0	10,118	0	10,118
	Subtotal	263,511	21,391	284,902	16,951	0	1,043		3,397	1.000	122,333	259,273	118,096	263,511
ADMIN. & GENERAL														
salaries		183,778	$60,423	244,201	60,423				(0)		89,674	176,827	82,923	183,778
office supplies & expenses		71,066	$4,585	75,650	0		257	Sch. 1D	4,328		34,511	73,113	36,559	71,066
insurance		59,339	$3,614	62,953	0				3,614		23,142	70,913	34,716	59,339
injuries & damages		1,313	$80	1,393	0				80		0	1,313	0	1,313
employee benefits		357,721	$477	358,199	477				0		170,009	364,970	197,258	357,721
fee & expense		0	$0	0	0				0		0	0	0	0
maint. - plant		103,221	$7,915	111,136	6,421				1,494		50,152	96,362	43,303	103,221
maint. - vehicles		61,459	$4,067	65,526	1,277				2,790		24,601	64,265	27,427	61,459
miscellaneous		48,935	$77,980	126,915	0	75,000		Sch. 1D	2,980		38,231	(73,610)	(84,314)	48,935
vacation, holiday, sick		156,165	$12,721	168,887	12,657				64		87,983	148,314	80,132	156,165
regul. exp.		104,923	($11,275)	93,648	0		(11,275)	Sch. 1E	0		79,272	70,936	45,288	104,923
hsc. agent fee		0	$0	0	0				0		0	0	0	0
outside service		91,006	$5,542	96,549	0				5,542		36,461	107,376	55,833	91,006
	Subtotal	1,236,927	166,130	1,405,057	81,256	75,000	(11,018)		20,892	1.000	637,245	1,120,806	519,125	1,236,927
TOTAL O&M		$5,605,893	$479,897	$6,085,789	$242,704	$108,028	$82,998		$46,157	1.000	$2,940,834	$5,476,614	$2,813,555	$5,605,893

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PRO FORMA EXPENSES

Expense Item	Test Year CY 2000	Summary of Adjustments	Rate Year CY 2002	Labor Increase (CPNW Sch.1B)	Adjustments Detail: One Time Costs	Other Adjustments	Supporting Schedule	Non-Labor Inflation					
FIXED CHARGES													
Debt Service													
Existing	$1,443,673	$430,165	$1,873,838			430,165	Sch. 1D						
New	0	$2,414,145	2,414,145			2,414,145	Sch. 1D						
Reserves and Coverage													
O&M Reserve	::	89,065	89,065			89,065	Sch. 1D						
R&R Reserve	::	170,720	170,720			170,720	Sch. 1D						
Renewal & Replacement	175,000	0	175,000										
Infrastructure Replacement	3,500,000	0	3,500,000			0	Sch. 1D						
Payroll Taxes	99,223	21,676	120,899			21,676	Sch. 1D						
PILOT	23,172	0	23,172			0	Sch. 1D						
SUBTOTAL FIXED	$5,241,067	$3,125,771	$8,366,838	$0	$0	$3,125,771		$0	1.000				
OPERATING REVENUE	$0	$0	$125,503										
TOTAL EXPENSES	$10,846,960	$3,605,666	$14,576,130	$242,704	$106,026	$3,208,786		$46,167	1.000				
Less:													
Miscellaneous Income	($44,094)	$0	($44,094)										
Merchand & Jobbing	(19,717)	0	($19,717)										
7.8% of Water Prot Fee	(4,694)	0	($4,694)										
RATE REVENUE REQU.*	$10,778,455	$3,605,666	$14,508,625										
MAX										13,188	14,871	8,442	19,717
										2,721	4,962	3,008	4,694

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TEST YEAR & PRO FORMA REVENUES

Revenues	Test Year Revenues	Adjustments	Normalized Test Year		Derivation of Test Year (CY 2000 Costs) + 6 mo to 12/00	+ 12 mo to 6/00	- 6 mo to 12/99	Test Year
Miscellaneous								
Miscellaneous Income	$44,094	$0	$44,094					
Merchand & Jobbing	19,717	0	$19,717					
7.8% of Water Prod Fee	4,694	0	$4,694					
Total Misc.	$68,505		$68,505					
Metered Rates	9,779,462	$835,259	10,614,721	(1)	5,730,800	9,435,643	5,386,981	9,779,462
Public Fire	676,720	$3,329	$680,049	(1)	338,207	506,635	256,122	676,720
Private Fire	120,776	$887	$121,463	(1)	60,541	107,282	47,047	120,776
Total Revenue	$10,645,463	$839,274	$11,484,737					
Required Revenue			$14,576,130	see CPNW Sch. 1				
Required Revenue from Rates			$14,569,625					
Rate Increase Needed (2)			$3,093,393					

NOTES:
(1) Rate Year Revenues at Current Rates based on CPNW Sch. 11 - current rates for full year.
(2) Normalized Test Year Revenues (Sch. 11) = $11,484,737

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TEST YEAR & RATE YEAR LABOR COSTS

	EXPENSE ITEM	Test Year CY 2000	Adjustments (1)	Rate Year CY 2002
	SOURCE OF SUPPLY			
601	operations	$2,475	202	$2,677
602	purchased water	$0	0	$0
0	PUMPING OPERATIONS			
0	fuel for pumping	$0	0	$0
623	power-pumping	$0	0	$0
624A	labor-pumping	$49,696	4,055	$53,751
624B	pumping expense	$0	0	$0
633	maint. - pumping equip	$39,906	3,256	$43,162
0	diesel oil	$0	0	$0
631	maint. - structure	$5,411	442	$5,853
0	WATER TREATMENT			
641	chemicals	$0	0	$0
642A	labor	$55,928	43,529	$99,457
642B	operating	$0	0	$0
652	maint. - water treat. equip	$1,164	95	$1,258
651	maint. - structure	$0	0	$0
0	TRANS & DISTR. EXPENSE			
0	storage facilities exp.	$0	0	$0
662A	labor	$6,620	540	$7,160
662B	supplies	$0	0	$0
663A	labor-meter	$12,356	1,008	$13,365
0	material-meter	$0	0	$0
0	cust. install.	$0	0	$0
0	misc.	$0	0	$0
0	maint - struct. & improv.	$0	0	$0
672	maint.- res & stdp	$10,272	838	$11,111
673	maint. - mains	$364,077	69,722	$433,799
675	maint. - service	$48,702	11,787	$60,489
676	maint. - meters	$28,875	2,356	$31,231
677	maint. - hydrants	$34,176	6,685	$40,862
0	construction labor	$0	0	$0
0	CUSTOMER ACCOUNT			
902	labor- meter read	$88,427	7,216	$95,643
903	cust record labor	$119,304	9,735	$129,039
903B	cust records exp	$0	0	$0
902B	meter read supplies	$0	0	$0
0	uncollectible	$0	0	$0
0	ADMIN. & GENERAL			
920	salaries	$193,778	50,423	$244,201
0	office supplies & expenses	$0	0	$0
924	insurance	$0	0	$0
925	injuries & damages	$0	0	$0
926	employee benefits	$5,850	477	$6,327
930	fee & expense	$0	0	$0
932A	maint. - plant	$78,688	6,421	$85,109
932B	maint. - vehicles	$15,648	1,277	$16,925
679	miscellaneous	$0	0	$0
933	vacation, holiday, sick	$155,115	12,657	$167,773
0	regul. exp.	$0	0	$0
0	fisc. agent fee	$0	0	$0
0	outside service	$0	0	$0
0	SUBTOTAL LABOR	$1,306,468	$242,704	$1,549,172
	Capitalized Labor	$31,204	$0	$31,204.09
	TOTAL LABOR COSTS	$1,337,672	$242,704	$1,580,376

(1) See Schedule 1D

CY Labor	Jan	Feb	Mar	Apr
	5,322	3,418	4,016	4,236
	3,861	3,643	2,950	4,793
	178	138	655	343
	4,360	4,121	3,643	5,266
	212			
	196			1,210
	1,074	937	1,149	1,273
	289	78		414
	31,135	25,864	23,252	41,724
	2,730	5,211	5,467	4,717
	1,505	2,423	2,526	3,456
	10,504	4,430	6,646	1,519
	9,211	7,816	5,951	9,760
	12,380	9,766	10,735	8,906
	20,243	14,255	13,675	17,739
			1,050	
	8,256	5,646	6,821	6,821
	3,119	2,527	1,255	2,157
	30,422	5,383	6,720	6,556
	$144,780.53	$95,881.35	$96,515.56	$120,893.33
	2,510	313		1,899
	$147,290.66	$96,194.05	$96,515.56	$122,792.37

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WHOLESALE WATER COSTS

Wholesale Water Purchases

	Rate ($/mg)	Purchases (mg)	Cost
PWSB Rate (/mg)	$1,017.00	2,805.70	$2,853,393
Net Wholesale Purchases (gallons) - 3 yr avg			
Warwick Purchases		439,054,856	
PWSB Purchases		2,455,420,820	
Total Purchases		2,894,475,456	
Sales To Warwick		(88,779,173)	
Net Purchases		2,805,696,315	

Fiscal Yr -- >	1994	1995	1996	1997	1998	1999	2000	3 yr avg
KCWA Production (1000 gal)	574,325	498,392	490,986	541,548	630,196	640,398	577,085	682,559
Warwick Purch (1000 gal)	816,815	668,267	789,936	525,260	450,650	376,370	488,145	439,055
PWSB Purch (1000 gal)	2,406,876	2,336,334	2,414,896	2,503,836	2,461,527	2,453,892	2,451,043	2,455,421
Total	3,801,016	3,503,992	3,695,824	3,570,646	3,542,373	3,672,456	3,516,273	3,577,035
Total Purchased	3,226,694	3,004,601	3,204,838	3,029,096	2,912,177	2,832,062	2,939,188	2,894,475
Unmetered to Warwick *	0	0	0	89,678	0	0	0	0
Sales To Warwick	97,100	82,214	77,085	78,201	87,005	84,375	84,956	88,776
Net Purchases	3,129,595	2,942,386	3,127,753	2,861,218	2,825,172	2,737,687	2,854,230	2,805,696

* Unmetered supply to Warwick for PWSB Main break

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EXPLANATION OF ADJUSTMENTS TO TEST YEAR COSTS

Adjustment to:	Explanation	lbs or gal/yr	$/lb or gal	Pro Forma Cost
Treatment: Chemicals				
	Lime			
	Bulk (lbs)*	52,986	$0.0715	$3,789
	Bags (lbs)	10,000	$0.1198	$1,198
	Pot. Hydrox. (lbs)	196,332	$0.1531	$30,054
	Chlorine (gal)	1,055	$1.4960	$1,578
			Normal Year Amount	$36,623
			Plus Inflation	$1,784
				$38,408
	* Includes pallets			

Fixed Charges Associated with Debt Service:

			Allowed in last docket
O&M Reserve	Set to achieve reserve level equal to 25% of operating costs.		
	"O&M" Costs (Sch. 1) =	$6,085,789	
	Payroll Taxes	$120,899	
	PILOT	$23,172	
	Total Operating	$6,229,860	
	Required O&M Reserve	$1,557,465	
	Balance 12/30/00	$1,468,400	0
	Required deposit =	$89,065	
R&R Reserve	Set to equal 1% of Net Utility Plant (NUP)		
	NUP Value (12/31/00)	$37,430,987	
	Estimated Additions	$10,000,000	
	Pro Forma NUP	$47,430,987	
	Required Balance (1%)	$474,310	
	Balance 12/30/00	$303,590	55,000
	Addition to Reserve Required	$170,720	

Debt Service

Refin. Existing Bonds (estim)	CY 2000 - Exist	CY 2001 Exist	CY 2002 Refin	
Principal	$605,000	$640,000	$810,000	860,000
Interest	$838,673	$806,910	$1,063,838	1,409,791
Total	$1,443,673	$1,446,910	$1,873,838	2,269,791

NOTE: Existing bonds to be refinanced including $10 million of new money in 2001

Proposed Bond Issue

			2002	2003	2004
Amount	$32,150,000				
Annual Interest Rate	4.88%	Term 20 yrs			
Principal			$1,065,000	$1,100,000	$1,140,000
Interest			$1,474,845	$1,439,168	$1,400,118
Less DSR Interest			($125,700)	($125,700)	($125,700)
Total			$2,414,145	$2,413,468	$2,414,418

Postage Increase

Increase in postage cost of $0.01 assigned as follows:

Customer Accts - Exp	$1,043	(based on number of water billings)
A&G Expenses	$257	(consumer confidence reports - 1 each account)

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EXPLANATION OF ADJUSTMENTS TO TEST YEAR COSTS

Water Supply Management Plan (Source of Supply Opx)

Cost to update plan = $66,055
Amortize over 2 yrs $33,028

Misc. Gen'l & Admin Expense

Authority required to pay back license fee assessments to Dept. of Health of $150,000 amortized over 2 years for rate year adjustment of $75,000

Payroll Taxes set at 7.65% of salaries

Pension Payment due for CY 2000 was not made until Feb. 2001= $106,086.00 shown as adjustment, plus added $4,172 $89,258.00 for additional benefit costs based on additional labor costs.

PILOT based on following payments in lieu of taxes:

	Totals
City & Towns	
W. Warwick	$8,264.82
Warwick	$106.61
Coventry	$12,813.37
Scituate	$260.05
W. Greenwich	$364.43
Fire Districts	
Coventry	$302.50
Harris	$50.00
Tiogue	$121.29
Cent Coventry	$346.51
Hopkins Hills	$540.18
	$23,171.96

Labor Adjustments - Based on Test Year Labor costs

A. All items labor increased by 4.0% per year for 2 years

B. Vacancy in T&D from July - Oct in test year is Mec = $692.80 per week for 17 weeks added to T&D Mains Labor $11,778

C. New Dig Safe Employee at	$36,026	per year split:		
		T&D Mains	70%	$25,218
		T&D Services	20%	$7,205
		T&D Hydrants	10%	$3,603
D. Jr Engineer (CAD/GIS/GPR)	$42,000	Assigned to Admin Salary		$42,000
E. Plant Operator	$36,026	Assigned to Water Treatment Labor		$36,026
F. Laborers (2) for flush, valve &	$72,051	per year split:		
hydrant maintenance/excercise program		T&D Mains	75%	$54,038
		T&D Hydrants	25%	$18,013
Total New Labor				$197,880

Non-Labor Inflation Non-labor items were increased from the test year by 3.0% per year or 6.09% over 2 years to account for inflation.

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SUPPLEMENTAL DATA

Regulatory Expenses

Fiscal Year	PUC	Legal	Consultants	Other	Assessment	Total
1991	80,689	30,819	78,405	6,991		196,905
1992	4,209	26,355	53,396	1,829		85,792
1993	409	47,670	148,102	6,529		202,710
1994	57,648	45,014	102,216	3,744		208,623
1995	184	8,585	26,091	0		37,820
1996	1,471	26,579	43,067	2,753		75,870
1997	1,579	14,654	60,776	7,378		84,387
1998	20,786	19,524	18,716	324		59,336
1999	17,345	25,745	26,135	5,909		75,134
2000	15,215	16,442	22,536	198	16,546	70,936
5 Year Average	11,276	20,989	34,847	3,312	16,546	86,970
Estimated RY	11,276	20,989	34,847	3,312	23,224	93,648

Note - Rate Year based on average of most recent five years plus actual 2000 assessment from PUC

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Employee Benefit Costs

		Benefits		Vacation/Holiday	
Fiscal Year	Labor Costs	Cost	Percent	Cost	Vac/Holiday
1992	847,508	0	0.00%	0	0.00%
1993	923,268	0	0.00%	0	0.00%
1994	984,540	0	0.00%	0	0.00%
1995	1,017,987	0	0.00%	0	0.00%
1996	1,044,306	0	0.00%	0	0.00%

4. Purchases, sales, etc.

PWSB Purchases - 1000 gallons

	1993		1994		1995		1996		1997		1998		1999
	Clinton	Oaklawn	Clinton	Oaklawn	Clinton	Oaklawn	Clinton	Oaklawn	Clinton	Oaklawn	Clinton	Oaklawn	Clinton
Jan			195,023	11,077	176,459	7,326	214,462	7,956	193,332	6,705	202,163	7,360	172,678
Feb			195,320	11,114	164,717	6,154	164,183	8,031	167,821	6,031	199,022	6,587	157,996
Mar			166,232	9,269	173,853	6,231	177,944	6,705	173,106	9,445	183,176	1,208	177,118
Apr			192,326	11,571	176,401	7,331	173,692	8,422	188,125	6,747	198,689	6,162	217,453
May			166,733	7,329	202,889	6,717	190,037	7,430	192,523	6,726	157,486	5,835	183,306
Jun			237,963	13,598	183,621	9,056	210,971	11,267	235,296	6,941	257,290	11,342	245,782
Jul	240,841	20,053	217,100	13,285	238,977	12,075	217,676	11,396	283,671	17,041	256,131	12,794	250,531
Aug	212,645	16,497	231,129	11,922	216,908	9,306	214,503	4,684	196,101	9,349	227,825	11,447	255,117
Sep	185,686	12,796	181,095	8,264	196,514	6,372	216,202	5,662	161,525	7,567	207,303	1,526	189,603
Oct	179,121	12,108	195,047	7,667	204,040	4,308	188,858	7,688	199,286	8,223	196,626	8,223	167,963
Nov	116,520	7,483	160,484	6,415	205,442	3,399	198,693	7,359	143,568	5,302	146,079	5,572	163,266
Dec	172,341	12,011	173,451	6,720	136,117	4,321	227,731	7,785	167,512	6,032	196,851	5,317	194,822
1st six mo.	0	0	1,156,617	63,958	1,088,946	42,617	1,131,261	45,831	1,150,006	44,594	1,197,836	38,494	1,154,342
2nd six mo.	1,106,354	80,949	1,158,305	54,272	1,197,997	39,781	1,264,664	44,575	1,171,663	53,534	1,232,615	44,879	1,221,331
total	1,106,354	80,949	2,314,922	118,230	2,276,936	82,398	2,395,955	90,406	2,321,669	98,128	2,430,451	83,373	2,375,674

Warwick Purchases/Sales (1000 gals.)

	1993		1994		1995		1996		1997		1998		1999
	Purch From	Sales to	Purch From	Sales to	Purch From	Sales to	Purch From	Sales to	Purch From	Sales to	Purch From	Sales to	Purch From
Jan			32,522		27,971		44,229		6,796		25,487		25,867
Feb			29,326		17,457		27,896		16,578		16,001		22,441
Mar			35,980	10,716	25,237	4,884	25,147	9,280	19,125	12,355	14,822	13,957	38,024
Apr			32,640		26,758		34,902		31,659		961		21,555
May			51,117		60,947		54,621		35,976		16,105		21,892
Jun			136,847	24,547	94,450	14,250	96,475	22,241	87,485	21,964	17,113	20,147	54,545
Jul	130,856		123,033		123,402		116,460		162,023		75,324		86,539
Aug	123,677		120,568		157,484		95,936		58,133		69,974		90,736
Sep	112,449	41,809	62,450	32,104	100,059	34,893	57,557	24,999	51,399	35,056	33,310	33,854	75,045
Oct	54,366		43,955		61,232		43,311		31,617		14,573		44,845
Nov	38,177		31,553		32,026		14,392		25,771		870		41,318
Dec	37,868	20,228	33,868	10,977	32,463	10,671	0	18,883	31,388	17,843	0	19,987	32,193
1st six mo.	0	0	318,432	35,263	252,820	19,134	283,272	31,521	197,601	34,319	90,319	34,104	184,319
2nd six mo.	498,364	61,837	415,447	43,081	506,666	45,564	327,659	43,882	360,331	52,901	194,051	53,841	370,676
total	498,364	61,837	733,879	78,343	759,486	64,698	610,931	75,402	557,932	87,220	284,370	87,945	554,995

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June	July	August	September	October	November	December	Total
	882	383	324	215	324	386	2,475
							0
							0
							0
3,215	5,414	4,104	4,202	4,194	3,308	4,050	49,866
							0
2,922	3,625	3,183	3,027	4,018	2,064	2,566	36,908
							0
0	637	112	246	216	868	1,936	5,411
							0
4,144	6,203	4,955	4,733	5,667	4,264	4,692	55,928
							0
116	37	72	417	72	200	37	1,164
							0
							0
0	79	0	0	35	3,173	0	6,620
							0
1,230	866	661	1,442	1,495	663	893	12,356
							0
							0
							0
							0
1,776	936	749	986	682	168	348	10,272
30,238	33,624	29,259	29,630	36,971	23,688	29,807	364,877
3,248	4,493	3,702	3,750	5,173	2,036	5,293	46,702
2,145	3,545	2,218	1,307	1,825	2,253	2,389	28,875
1,042		91	72	4,296	1,321	2,721	34,176
7,329	7,799	6,045	5,461	9,415	6,164	6,667	86,427
7,813	9,706	6,460	9,871	11,613	8,126	11,159	119,304
							0
							0
							0
13,532	16,828	13,353	12,030	17,401	13,002	17,260	183,776
							0
							0
							0
						4,800	5,850
							0
5,320	7,534	5,850	4,907	7,564	5,510	6,897	78,088
461	1,264	303	1,110	405	956	1,312	15,646
							0
12,444	15,012	14,290	12,181	11,265	18,239	16,966	155,115
							0
							0
							0
$96,974.28	$117,865.99	$97,796.31	$95,717.83	$122,518.87	$96,157.96	$124,236.22	
2,637	5,814	2,787	2,127	1,731	2,673	8,083	31,204
$99,611.08	$123,679.83	$100,585.75	$97,844.62	$124,250.17	$98,831.32	$132,319.53	

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Total Use (cu ft) 4,235,215

UNITS OF SERVICE

	Test Year Actual	Adjustments	Rate Year	Explanation	3 yr avg	Docket 2556
Metered Water Sales (100 cubic feet)						
Small (5/8-2" meters)	3,346,044	179,687	3,525,730	3 Year Avg	3,526,730	3,380,987
Medium (3&4" meters)	403,325	19,964	423,288	3 Year Avg	423,288	425,440
Large (6" & up meters)	400,167	(2,013)	396,154	3 Year Avg	396,154	553,573
	4,152,536		4,350,173		4,350,173	4,360,000
Meters By Size (as of 12/31/00)						
Quarterly						
5/8 & 3/4	22,072	0	22,072	No Change		
1	2,892	0	2,892	No Change		
1 1/2	291	0	291	No Change		
2	462	0	462	No Change		
3	15	0	15	No Change		
4	46	0	46	No Change		
6	54	0	54	No Change		
8 & up	30	0	30	No Change		
Monthly						
5/8 & 3/4	3	0	3	No Change		
1	0	0	0	No Change		
1 1/2	5	0	5	No Change		
2	10	0	10	No Change		
3	2	0	2	No Change		
4	3	0	3	No Change		
6	4	0	4	No Change		
8 & up	3	0	3	No Change		
Public Fire Service (as of 12/31/00)						
Public Fire Hydrants	2,208	0	2,208	No Change		
Bills	52	0	52	No Change		
Private Fire Service						
Size (in)						
4	16	0	16	No Change		
6	114	0	114	No Change		
8	29	0	29	No Change		
10	1	0	1	No Change		
12	1	0	1	No Change		
Hydrants	154	0	154	No Change		

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METERED SALES

	CY 1996	CY 1997	CY 1998	CY 1999	CY 2000	Avg 96-200	Dif From Avg	CY 1992		CY 1993	CY 1994	CY 1995
Jan	23,580,123	26,052,036	25,458,474	25,861,555	23,731,269	25,016,433	(1,285,164)			25,537,227	26,296,593	20,679,605
Feb	24,733,927	22,578,329	23,478,052	22,441,046	22,755,843	22,891,680	(135,737)			22,316,756	28,427,927	23,656,833
Mar	36,514,529	34,868,672	38,990,985	38,024,154	36,490,196	37,835,112	(1,344,916)			44,660,864	40,893,366	37,036,327
Apr	22,730,356	24,825,556	20,438,109	21,555,324	25,712,868	22,568,767	3,144,101			22,673,353	22,382,478	23,320,696
May	24,519,804	23,886,407	22,332,549	21,891,584	22,273,998	22,166,044	107,954			25,854,585	23,813,216	27,463,278
Jun	43,342,216	47,564,590	44,313,170	54,545,016	43,561,262	47,473,148	(3,911,887)			46,407,782	44,118,844	50,378,656
July	31,573,998	34,937,263	32,568,148	42,296,456	36,095,030	36,986,545	(891,515)	32,099,849	424,161,437	32,709,158	36,641,078	32,843,884
Aug	32,167,080	34,813,313	32,847,245	36,663,213	31,785,713	33,765,390	(1,979,677)			41,378,677	38,202,004	33,402,374
Sep	63,139,730	76,764,576	72,321,074	77,835,359	75,268,348	75,174,927	93,421			83,312,315	78,025,720	87,883,476
Oct	32,854,917	35,415,906	37,798,096	34,441,707	32,222,332	34,820,712	(2,598,380)	36,081,366		33,768,015	36,016,310	32,924,737
Nov	26,381,846	25,146,893	27,726,240	27,008,873	24,540,746	26,758,620	(5,217,874)	25,611,551		29,176,222	27,234,706	29,488,883
Dec	44,495,642	42,274,345	50,851,991	48,211,648	40,815,859	46,559,899	(5,744,040)	40,887,148		43,634,782	43,995,891	53,451,002
Totals	410,034,168	426,730,888	436,922,135	450,876,135	415,253,564	435,017,278	(19,763,714)	134,679,914		454,449,778	445,847,936	452,529,754

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SUPPLEMENTAL USE DATA

Meters By Size		1993	2000	Annual Increase
	Quarterly			
	5/8 & 3/4	21,758	22,072	0.2%
	1	999	2,692	24.2%
	1 1/2	230	281	3.8%
	2	423	462	1.3%
	3	14	15	1.0%
	4	17	46	24.4%
	6	64	54	-2.1%
	8 & up	9	30	33.3%
	Monthly			
	5/8 & 3/4	1	3	26.8%
	1	0	0	ERR
	1 1/2	4	5	3.6%
	2	13	10	-3.3%
	3	3	2	-4.8%
	4	3	3	0.0%
	6	14	4	-10.2%
	8 & up	4	3	-3.6%
Total		23,556	25,692	1.3%
Public Fire Service				
Public Fire Hydrants		2,031	2,206	1.2%
Bills		40	52	4.3%
Private Fire Service				
	Size (in)			
	4	17	16	-0.8%
	6	140	114	-2.7%
	8	30	29	-0.5%
	10	2	1	-7.1%
	12	1	1	0.0%
	Hydrants	150	154	0.4%
Total		340	315	-1.1%

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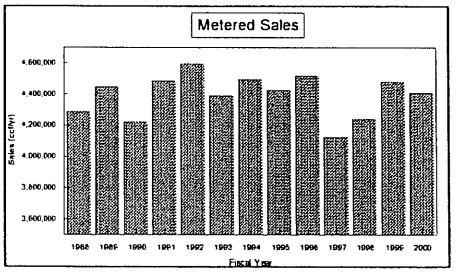
Historic Water Use (100 cu ft)

Fiscal Year	Sales to Warwick	Metered Sales (excl. Warwick)	Total Sales
1988		4,288,000	
1989		4,449,000	
1990		4,224,000	
1991		4,487,000	
1992		4,595,723	
1993	98,394	4,391,039	
1994	134,225	4,497,116	4,631,341
1995	83,174	4,426,509	4,509,683
1996	103,048	4,518,835	4,621,883
1997	104,545	4,125,402	4,229,947
1998	116,316	4,241,614	4,357,930
1999	652,600	4,482,315	
2000		4,410,830	
Average		4,395,266	
Avg 7 yrs		4,366,103	
Avg 6 yrs		4,367,801	
Avg 5 yrs		4,355,616	
Avg 4 yrs		4,315,040	
Avg 3 yrs		4,378,253	



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IFR Allocated to Fire? (1=yes)? 0

ALLOCATION OF RATE YEAR EXPENSES TO GENERAL WATER, FIRE, AND CUSTOMER SERVICE

EXPENSE ITEM	PRO FORMA EXPENSE	ALLOC. SYMBOL (1)	GENERAL WATER %	GENERAL WATER AMOUNT	FIRE SERVICE %	FIRE SERVICE AMOUNT	CUST. SERVICE %	CUST. SERVICE AMOUNT
SOURCE OF SUPPLY								
operations	$58,827	A	99.5%	$58,533	0.5%	$294	0.0%	$0
purchased water	$2,853,393	A	99.5%	$2,839,126	0.5%	$14,267	0.0%	$0
PUMPING OPERATIONS								
fuel for pumping	$211	A	99.5%	$210	0.5%	$1	0.0%	$0
power-pumping	$316,804	A	99.5%	$315,220	0.5%	$1,584	0.0%	$0
labor-pumping	$54,388	P	84.4%	$45,892	15.6%	$8,495	0.0%	$0
pumping expense	$3,378	P	84.4%	$2,850	15.6%	$528	0.0%	$0
maint. - pumping equip	$7,929	P	84.4%	$6,691	15.6%	$1,239	0.0%	$0
diesel oil	$0	P	84.4%	$0	15.6%	$0	0.0%	$0
maint. - structure	$49,272	P	84.4%	$41,576	15.6%	$7,696	0.0%	$0
WATER TREATMENT								
chemicals	$38,406	A	99.5%	$36,216	0.5%	$192	0.0%	$0
labor	$99,470	A	99.5%	$98,973	0.5%	$497	0.0%	$0
operating	$56,724	A	99.5%	$56,440	0.5%	$284	0.0%	$0
maint. - water treat. equip.	$3,552	A	99.5%	$3,534	0.5%	$18	0.0%	$0
maint. - structure	$13,013	A	99.5%	$12,948	0.5%	$65	0.0%	$0
TRANS & DISTR. EXPENSE								
storage facilities exp.	$673	D	75.0%	$505	25.0%	$168	0.0%	$0
labor	$7,160	E	80.6%	$5,771	19.4%	$1,389	0.0%	$0
supplies	$36,492	B	80.6%	$29,412	19.4%	$7,079	0.0%	$0
labor-meter	$6,442	C	0.0%	$0	0.0%	$0	100.0%	$6,442
material-meter	$7,450	C	0.0%	$0	0.0%	$0	100.0%	$7,450
cust. install	$0	C	0.0%	$0	0.0%	$0	100.0%	$0
misc.	$13,583	F	61.9%	$8,409	23.9%	$3,241	14.2%	$1,932
maint - struct. & improv.	$1,230	F	61.9%	$762	23.9%	$294	14.2%	$175
maint - res & stor	$15,193	D	75.0%	$11,395	25.0%	$3,798	0.0%	$0
maint. - mains	$583,084	B	80.6%	$469,965	19.4%	$113,118	0.0%	$0
maint. - service	$73,828	C	0.0%	$0	0.0%	$0	100.0%	$73,828
maint. - meters	$31,062	C	0.0%	$0	0.0%	$0	100.0%	$31,062
maint. - hydrants	$74,234	E	0.5%	$371	99.5%	$73,863	0.0%	$0
construction labor	($9,966)	F	61.9%	($6,171)	23.9%	($2,379)	14.2%	($1,416)
CUSTOMER ACCOUNT								
labor- meter read	$95,643	C	0.0%	$0	0.0%	$0	100.0%	$95,643
cust record labor	$129,039	C	0.0%	$0	0.0%	$0	100.0%	$129,039
cust records exp.	$22,719	C	0.0%	$0	0.0%	$0	100.0%	$22,719
meter read supplies	$26,766	C	0.0%	$0	0.0%	$0	100.0%	$26,766
uncollectible	$10,734	C	0.0%	$0	0.0%	$0	100.0%	$10,734
ADMIN. & GENERAL								
salaries	$244,201	G	78.0%	$190,356	7.7%	$18,645	14.3%	$35,001
office supplies & expenses	$75,650	G	78.0%	$58,970	7.7%	$5,838	14.3%	$10,843
insurance	$62,953	G	78.0%	$49,072	7.7%	$4,858	14.3%	$9,023
injuries & damages	$1,393	G	78.0%	$1,086	7.7%	$108	14.3%	$200
employee benefits	$358,199	H	61.9%	$221,773	12.0%	$42,938	26.1%	$93,488
fee & expense	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
maint. - plant	$111,136	G	78.0%	$86,631	7.7%	$8,576	14.3%	$15,929
maint. - vehicles	$65,526	G	78.0%	$51,078	7.7%	$5,056	14.3%	$9,392
miscellaneous	$126,915	G	78.0%	$98,931	7.7%	$9,794	14.3%	$18,190
vacation, holiday, sick	$168,867	H	61.9%	$104,563	12.0%	$20,245	26.1%	$44,078
regul. exp.	$93,648	G	78.0%	$72,999	7.7%	$7,227	14.3%	$13,422
fisc. agent fee	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
outside service	$96,549	G	78.0%	$75,260	7.7%	$7,450	14.3%	$13,838
SUBTOTAL O&M	$6,085,789	G	83.0%	$5,051,346	6.0%	$366,666	11.0%	$667,777

PUC Fire Protection Curve Analysis

# of customers (5/8 inch)
Population @ 3.3 /household
"Required" Fire Flow (per formula) =

Peak Hour

Ratio for Curve = Peak Hour / Requ'd Fire

Percent Fire From PUC Curve =
vs. Calculated Allocation of

Docket No.

ALLOCATION OF RATE YEAR EXPENSES TO
GENERAL WATER, FIRE, AND CUSTOMER SERVICE

EXPENSE ITEM	PRO FORMA EXPENSE	ALLOC. SYMBOL (1)	GENERAL WATER %	GENERAL WATER AMOUNT	FIRE SERVICE %	FIRE SERVICE AMOUNT	CUST. SERVICE %	CUST. SERVICE AMOUNT
FIXED CHARGES								
Debt Service	$4,287,983	J	80.1%	$3,436,136	19.9%	$851,844	0.0%	$0
O&M Reserve	$89,065	G	78.0%	$69,427	7.7%	$6,873	14.3%	$12,765
R&R Reserve	$170,720	J	80.1%	$136,805	19.9%	$33,915	0.0%	$0
Renewal & Replacement	$175,000	J	80.1%	$140,235	19.9%	$34,765	0.0%	$0
Infrastructure Replacement	$3,500,000	I	100.0%	$3,500,000	0.0%	$0	0.0%	$0
Payroll Taxes	$120,899	H	61.9%	$74,852	12.0%	$14,492	26.1%	$31,554
PILOT	$23,172	L	81.0%	$18,775	18.2%	$4,208	0.8%	$191
SUBTOTAL FIXED	$8,366,838		86.2%	$7,376,232	11.3%	$946,096	0.5%	$44,510
OPERATING REVENUE	$125,503	K	85.5%	$107,302	6.2%	$7,842	8.3%	$10,359
TOTAL EXPENSES	$14,578,130	K	85.5%	$12,534,880	6.2%	$1,320,804	8.3%	$722,646
Less: Miscellaneous Income	($44,064)	K	85.5%	($37,696)	6.2%	($2,755)	8.3%	($3,639)
Merchand & Jobbing	($19,717)	K	85.5%	($16,857)	6.2%	($1,232)	8.3%	($1,627)
7.8% of Water Prof Fee	($4,894)	K	85.5%	($4,013)	6.2%	($783)	8.3%	($387)
Total Revenue Requirement	$14,509,625	K	86.0%	$12,476,310	9.1%	$1,316,323	4.9%	$716,992

(1) See CPNW Sch. 3B

Docket No.

CPNW Sch. 3A
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ALLOCATION OF TEST YEAR LABOR EXPENSE TO
GENERAL WATER, FIRE & CUST. SERVICE

ACCT #	EXPENSE ITEM	Rate Year Labor	ALLOC. SYMBOL (1)	GENERAL WATER %	GENERAL WATER AMOUNT	FIRE SERVICE %	FIRE SERVICE AMOUNT	CUST. SERVICE %	CUST. SERVICE AMOUNT
	SOURCE OF SUPPLY								
601	operations	$2,677	A	99.5%	$2,663	0.5%	$13	0.0%	$0
602	purchased water	$0	A	99.5%	$0	0.5%	$0	0.0%	$0
	PUMPING OPERATIONS								
	fuel for pumping	$0	A	99.5%	$0	0.5%	$0	0.0%	$0
623	power-pumping	$0	A	99.5%	$0	0.5%	$0	0.0%	$0
624A	labor-pumping	$53,751	F	84.4%	$45,355	15.6%	$8,396	0.0%	$0
624B	pumping expense	$0	F	84.4%	$0	15.6%	$0	0.0%	$0
633	maint. - pumping equip	$43,182	F	84.4%	$36,420	15.6%	$6,742	0.0%	$0
	diesel oil	$0	F	84.4%	$0	15.6%	$0	0.0%	$0
631	maint. - structure	$5,853	F	84.4%	$4,939	15.6%	$914	0.0%	$0
	WATER TREATMENT	$0							
641	chemicals	$0	A	99.5%	$0	0.5%	$0	0.0%	$0
642A	labor	$99,457	A	99.5%	$98,960	0.5%	$497	0.0%	$0
642B	operating	$0	A	99.5%	$0	0.5%	$0	0.0%	$0
652	maint. - water treat. equip.	$1,258	A	99.5%	$1,252	0.5%	$6	0.0%	$0
651	maint. - structure	$0	A	99.5%	$0	0.5%	$0	0.0%	$0
	TRANS & DISTR. EXPENSE	$0							
	storage facilities exp.	$0	D	75.0%	$0	25.0%	$0	0.0%	$0
662A	labor	$7,188	B	80.6%	$5,771	19.4%	$1,388	0.0%	$0
662B	supplies	$0	B	80.6%	$0	19.4%	$0	0.0%	$0
663A	labor-meter	$13,365	C	0.0%	$0	0.0%	$0	100.0%	$13,365
	material-meter	$0	C	0.0%	$0	0.0%	$0	100.0%	$0
	cust. install.	$0	C	0.0%	$0	0.0%	$0	100.0%	$0
	misc.	$0	F	61.8%	$0	23.9%	$0	14.2%	$0
	maint - struct. & improv.	$0	F	61.8%	$0	23.9%	$0	14.2%	$0
672	maint - res & stdp	$11,111	D	75.0%	$8,333	25.0%	$2,778	0.0%	$0
673	maint - mains	$433,796	E	80.6%	$349,642	19.4%	$84,157	0.0%	$0
675	maint. - service	$60,466	C	0.0%	$0	0.0%	$0	100.0%	$60,466
676	maint - meters	$31,231	C	0.0%	$0	0.0%	$0	100.0%	$31,231
677	maint - hydrants	$40,862	E	0.5%	$204	99.5%	$40,657	0.0%	$0
	construction labor	$0	F	61.8%	$0	23.9%	$0	14.2%	$0
	CUSTOMER ACCOUNT	$0							
902	labor - meter read	$95,643	C	0.0%	$0	0.0%	$0	100.0%	$95,643
903	cust record labor	$126,036	C	0.0%	$0	0.0%	$0	100.0%	$126,036
903B	cust records exp	$0	C	0.0%	$0	0.0%	$0	100.0%	$0
902B	meter read supplies	$0	C	0.0%	$0	0.0%	$0	100.0%	$0
	uncollectible	$0	C	0.0%	$0	0.0%	$0	100.0%	$0
	ADMIN. & GENERAL	$0							
920	salaries	$244,201	G	78.0%	$190,356	7.7%	$18,845	14.3%	$35,001
	office supplies & expenses	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
924	insurance	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
925	injuries & damages	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
926	employee benefits	$6,327	G	78.0%	$4,932	7.7%	$488	14.3%	$907
930	fee & expense	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
932A	maint. - plant	$85,109	G	78.0%	$66,343	7.7%	$6,566	14.3%	$12,198
932B	maint. - vehicles	$16,925	G	78.0%	$13,193	7.7%	$1,306	14.3%	$2,426
679	miscellaneous	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
933	vacation, holiday, sick	$167,773	G	78.0%	$130,778	7.7%	$12,947	14.3%	$24,046
	regul. exp.	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
	fisc. agent fee	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
	outside service	$0	G	78.0%	$0	7.7%	$0	14.3%	$0
	TOTAL LABOR	$1,549,172	H	61.9%	$959,144	12.0%	$185,703	26.1%	$404,325

(1) See CPNW Sch. 3E

Docket No.

CPNW Sch. 3B
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ALLOCATION SYMBOLS

	ALLOCATION SYMBOL	GEN'L WATER	FIRE SERVICE	CUST SERVICE	
100.00%	A	99.50%	0.50%	0.00%	Supply & Treatment
100.00%	B	80.60%	19.40%	0.00%	T&D Mains
100.00%	C	0.00%	0.00%	100.00%	Meters
100.00%	D	75.00%	25.00%	0.00%	Storage
100.00%	E	0.50%	99.50%	0.00%	Hydrants
100.00%	F	61.91%	23.86%	14.23%	Misc T&D
100.00%	G	77.95%	7.72%	14.33%	Direct O&M (50% of Purch Water) Benefits & Vacation
100.00%	H	61.91%	11.99%	26.10%	Labor
100.00%	I	100.00%	0.00%	0.00%	IFR Costs
100.00%	J	80.13%	19.87%	0.00%	Debt/Capital
100.00%	K	85.50%	6.25%	8.25%	Total Expense
100.00%	L	81.02%	18.15%	0.82%	PILOT
0.00%	M	-	-	-	Not Used
100.00%	P	84.38%	15.62%	0.00%	Pumping Facilities

Symbol B

	Gal/Min	%
Highest Max. Day	14,544	80.60%
Fire Demand	3,500	19.40%
Max. Day Plus Fire	18,044	100.00%

Symbol J - Debt Service/CIF

Plant Value From IFR Report 1997	Repl. Value	Symbol	Gen Water	Fire	Cust A	Cust B
Source of Supply	2,282,766	A	$2,271,352	$11,414	$0	$0
Pumping Plant	2,842,488	A	$2,828,276	$14,212	$0	$0
Water Treat. Plant	306,598	A	$305,065	$1,533	$0	$0
T&D Storage	6,384,651	D	$4,788,488	$1,596,163	$0	$0
T&D Mains	240,875,794	B	$194,145,890	$46,729,904	$0	$0
T&D Hydrants	2,318,400	E	$11,592	$2,306,808	$0	$0
T&D Meters	0	C	$0	$0	$0	$0
General Plant	559,423	J	$448,286	$111,134	$0	$0
Total	255,570,120		204,798,852	50,771,168	0	$0
Percent			80.13%	19.87%	0.00%	0.00%
			80.17%	19.83%	0.00%	0.00%

Symbol L - PILOT

	Total	Symbol	Gen Water	Fire	Cust A	Cust B
Storage	$7,263	D	$5,448	$1,816	$0	$0
Office	$1,311	G	$1,022	$101	$94	$94
PS/Wells/Treatment	$14,236	P	$12,014	$2,224	$0	$0
Total	$22,813		$18,484	$4,141	$94	$94
Percent			81.02%	18.15%	0.41%	0.41%

Symbol P - Pumping Facilities (per Decision in Dockets 2098 & 2555)

	Percent	Symbol	Gen Water	Fire	Cust A	Cust B
Supply Well Pumps	20.0%	A	19.9%	0.1%	0.0%	0.0%
Distribution Pumps	80.0%	B	64.5%	15.5%	0.0%	0.0%
Total	100.0%	P	84.4%	15.6%	0.0%	0.0%

2.9(E) PILOT on land

	Totals	Storage Tanks	Office	PS/Wells
City & Towns				
W. Warwick	$8,265	$6,953	$1,311	$0
Warwick	$107	$0	$0	$107
Coventry	$12,813	$96	$0	$12,717
Scituate	$260	$0	$0	$260
W. Greenwich	$364	$0	$0	$364
Fire Districts				
Coventry	$303	$208	$0	$95
Harris	$50	$0	$0	$30
Washington FD	$121	$5	$0	$115
Cent Coventry	$349	$1	$0	$282
Hopkins Hills	$540	$0	$0	$286
	$23,172	$7,263	$1,311	$14,236

Docket No.

PROPOSED FIRE SERVICE CHARGES

PUBLIC FIRE SERVICE

Quarterly Charge/Hydrant =	$130.61
Plus Billing Charge =	$4.80

PRIVATE FIRE SERVICE

SERVICE SIZE (inches)	QUARTERLY CHARGE
4	$47.54
6	$126.95
8	$269.37
10	$460.56
12	$773.32
HYDRANT	$126.95

Docket No.

CPNW Sch. 4A
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ALLOCATION OF FIRE SERVICE EXPENSES
TO PUBLIC AND PRIVATE FIRE SERVICE

	NUMBER	DEMAND FACTOR (1)	NO. OF EQUIVS.	PERCENT OF DEMAND	NON-HYDR. REQUIRED	DIRECT HYDRANT	TOTAL
PUBLIC FIRE SERVICE							
Hydrants	2,208	111.31	245,774.5	86.48%	$1,040,952	$112,566	$1,153,518
PRIVATE FIRE SERVICE							
SIZE (IN)							
4	16	36.32	613.1				
6	114	111.31	12,686.4				
8	29	237.21	6,879.0				
10	1	426.56	426.6				
12	1	669.04	669.0				
HYDRANTS	154	111.31	17,141.6				
TOTAL-PRIV.	315		38,436.0	13.52%	$162,805	$0	$162,805
GRAND TOTALS	2,523		284,213.6	100.00%	$1,203,757	$112,566	$1,316,323

Total Fire Allocation	$1,316,323
Less Direct Hydrant Related	
O&M	($73,863)
Debt	($36,704)
Net Non-Hydrant	$1,203,757

(1) Based on size to the 2.63 power.

Docket No.

DETERMINATION OF FIRE SERVICE CHARGES

			CALCULATED CHARGE
PUBLIC FIRE PROTECTION			
PUBLIC FIRE ALLOCATION (1)		$1,153,519	
	=	=	$522.43
NUMBER OF PUBLIC HYDRANTS		2,208	
	TOTAL QUARTERLY		$130.61
	+ BILLING		$4.80
PRIVATE FIRE PROTECTION			
PRIVATE FIRE ALLOCATION (1,2)		$171,490	
	=	=	$4.46 /EQUIV.
NO. OF EQUIV. UNITS		38,439.05	

SIZE (IN)	DEMAND FACTOR	ANNUAL CHARGE	QUARTERLY CHARGE	BILLING CHARGE	CALCULATED CHARGE
4	38.32	$170.96	$42.74	$4.80	$47.54
6	111.31	$496.80	$124.15	$4.80	$128.95
8	237.71	$1,056.26	$264.57	$4.80	$269.37
10	426.58	$1,903.12	$475.78	$4.80	$480.58
12	689.04	$3,074.07	$768.52	$4.80	$773.32
HYDRANTS	111.31	$496.80	$124.15	$4.80	$128.95

(1) Allocation from CPNW Sch 4A.
(2) Private Fire includes allocated service maintenance costs as detailed below.

Service Line Maintenance Cost =	$73,826	
Addtnl Allocation to Fire Service =	$8,686	(11.76%)

Service Line Equivalents

Meter Size (in)	Service Size (in)	Equivalents *	Metered Water Service Number	Metered Water Service Equivalents	Private Fire Service Number	Private Fire Service Equivalents
5/8 & 3/4	1	1.0	22,075	22,075		
1	1.5	1.5	2,892	4,646		
1 1/2	2	3.3	296	977		
2	3	4.6	472	2,171		
3	4	6.3	17	107	16	101
4	6	9.6	46	470	114	1,094
6	8	16.9	56	960	183	3,093
>8	10	29.6	33	977	2	59
Total				32,603		4,347
				88.24%		11.76%

* From Docket No. 2096

Docket No.

CPNW Sch. 5
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PROPOSED SERVICE CHARGES

METER SIZE (inches)	QUARTERLY ACCOUNTS	MONTHLY ACCOUNTS
5/8 & 3/4	$6.39	$5.33
1	$7.66	$5.76
1 1/2	$10.05	$6.55
2	$12.12	$7.24
3	$14.82	$8.14
4	$20.07	$9.89
6	$31.88	$13.76
>6	$51.88	$20.50

Docket No.

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ALLOCATION OF CUSTOMER SERVICE EXPENSES

EXPENSE ITEM	TOTAL CUST. SERV.	ALLOC. SYMBOL (1)	<-CUST. METER-> %	<-CUST. METER-> AMOUNT	<--CUST. BILL--> %	<--CUST. BILL--> AMOUNT
TRANS & DISTR. EXPENSE						
labor	$0	AA	100.0%	$0	0.0%	$0
supplies	$0	AA	100.0%	$0	0.0%	$0
labor-meter	$6,442	AA	100.0%	$6,442	0.0%	$0
material-meter	$7,450	AA	100.0%	$7,450	0.0%	$0
cust. install.	$0	AA	100.0%	$0	0.0%	$0
misc.	$1,932	AA	100.0%	$1,932	0.0%	$0
maint - struct. & improv.	$175	AA	100.0%	$175	0.0%	$0
maint - res & sidp	$0	AA	100.0%	$0	0.0%	$0
maint. - mains	$0	AA	100.0%	$0	0.0%	$0
maint. - service	$73,826	AA	100.0%	$73,826	0.0%	$0
maint. - meters	$31,062	AA	100.0%	$31,062	0.0%	$0
maint. - hydrants	$0	AA	100.0%	$0	0.0%	$0
construction labor	($1,418)	AA	100.0%	($1,418)	0.0%	$-0
CUSTOMER ACCOUNT						
labor- meter read	$95,643	BB	0.0%	$0	100.0%	$95,643
cust record labor	$129,039	BB	0.0%	$0	100.0%	$129,039
cust records exp	$22,719	BB	0.0%	$0	100.0%	$22,719
meter read supplies	$26,766	BB	0.0%	$0	100.0%	$26,766
uncollectible	$10,734	BB	0.0%	$0	100.0%	$10,734
ADMIN. & GENERAL						
salaries	$35,001	CC	30.1%	$10,526	69.9%	$24,475
office supplies & expenses	$10,843	CC	30.1%	$3,261	69.9%	$7,582
insurance	$9,023	CC	30.1%	$2,714	69.9%	$6,309
injuries & damages	$200	CC	30.1%	$60	69.9%	$140
employee benefits	$93,488	DD	31.6%	$29,569	68.4%	$63,919
fee & expense	$0	CC	30.1%	$0	69.9%	$0
maint - plant	$15,929	CC	30.1%	$4,790	69.9%	$11,139
maint - vehicles	$9,392	CC	30.1%	$2,824	69.9%	$6,567
miscellaneous	$16,190	CC	30.1%	$5,471	69.9%	$12,720
vacation, holiday, sick	$44,076	DD	31.6%	$13,941	68.4%	$30,137
regul. exp.	$13,422	CC	30.1%	$4,037	69.9%	$9,386
fisc. agent fee	$0	CC	30.1%	$0	69.9%	$0
outside service	$13,838	CC	30.1%	$4,162	69.9%	$9,676
SUBTOTAL O&M	$667,777	CC	30.1%	$200,825	69.9%	$466,952
FIXED CHARGES						
Debt Service	$0	JJ	100.0%	$0	0.0%	$0
O&M Reserve	$12,765	CC	30.1%	$3,839	69.9%	$8,926
R&R Reserve	$0	JJ	100.0%	$0	0.0%	$0
O&M Reserve	$0	JJ	100.0%	$0	0.0%	$0
Infrastructure Replacement	$0	JJ	100.0%	$0	0.0%	$0
Payroll Taxes	$31,554	DD	31.6%	$9,980	68.4%	$21,574
PILOT	$191	EE	30.1%	$56	69.9%	$133
SUBTOTAL FIXED	$44,510			$13,877		$30,634
OPERATING REVENUE	$10,359	EE	30.1%	$3,122	69.9%	$7,236
TOTAL EXPENSES	$722,646	EE	30.1%	$217,824	69.9%	$504,822
ellaneous Income	($3,630)	EE	30.1%	($1,087)	69.9%	($2,542)
rchand & Jobbing	($1,627)	EE	30.1%	($491)	69.9%	($1,137)
of Water Prof Fee	($387)	EE	30.1%	($117)	69.9%	($271)
Total Revenue Requirement	$716,992	EE	30.1%	$216,120	69.9%	$500,872

(1) See CPNW Sch. 5C

Docket No.

CPNW Sch. 5B
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ALLOCATION OF CUSTOMER SERVICE LABOR

EXPENSE ITEM	TOTAL CUST. SERV.	ALLOC. SYMBOL (1)	<-CUST. METER-> %	<-CUST. METER-> AMOUNT	<-CUST. BILL-> %	<-CUST. BILL-> AMOUNT
TRANS & DISTR. EXPENSE						
labor	$0	AA	100.0%	$0	0.0%	$0
supplies	$0	AA	100.0%	$0	0.0%	$0
labor-meter	$13,365	AA	100.0%	$13,365	0.0%	$0
material-meter	$0	AA	100.0%	$0	0.0%	$0
cust. install	$0	AA	100.0%	$0	0.0%	$0
misc.	$0	AA	100.0%	$0	0.0%	$0
maint - res & sldp	$0	AA	100.0%	$0	0.0%	$0
maint - mains	$0	AA	100.0%	$0	0.0%	$0
maint - service	$60,469	AA	100.0%	$60,469	0.0%	$0
maint - meters	$31,231	AA	100.0%	$31,231	0.0%	$0
maint - hydrants	$0	AA	100.0%	$0	0.0%	$0
construction labor	$0	AA	100.0%	$0	0.0%	$0
CUSTOMER ACCOUNT						
labor- meter read	$95,643	BB	0.0%	$0	100.0%	$95,643
cust records labor	$129,039	BB	0.0%	$0	100.0%	$129,039
cust records exp	$0	BB	0.0%	$0	100.0%	$0
meter read supplies	$0	BB	0.0%	$0	100.0%	$0
uncollectible	$0	BB	0.0%	$0	100.0%	$0
ADMIN & GENERAL						
salaries	$35,001	CC	30.1%	$10,526	69.9%	$24,475
office supplies & expenses	$0	CC	30.1%	$0	69.9%	$0
insurance	$0	CC	30.1%	$0	69.9%	$0
injuries & damages	$0	CC	30.1%	$0	69.9%	$0
employee benefits	$907	DD	31.6%	$287	68.4%	$620
fee & expense	$0	CC	30.1%	$0	69.9%	$0
maint - plant	$12,198	CC	30.1%	$3,669	69.9%	$8,530
maint - vehicles	$2,426	CC	30.1%	$730	69.9%	$1,696
miscellaneous	$0	CC	30.1%	$0	69.9%	$0
vacation, holiday, sick	$24,046	DD	31.6%	$7,605	68.4%	$16,441
regul. exp	$0	CC	30.1%	$0	69.9%	$0
fisc. agent fee	$0	CC	30.1%	$0	69.9%	$0
outside service	$0	CC	30.1%	$0	69.9%	$0
TOTAL LABOR	$404,325	DD	31.6%	$127,861	68.4%	$276,464

(1) See CPNW Sch. 5C

Docket No.

ALLOCATION SYMBOLS - CUSTOMER SERVICE

ALLOCATION SYMBOL	CUSTOM METER	CUSTOM BILL	TOTAL	
AA	100.00%	0.00%	100.00%	Meters
BB	0.00%	100.00%	100.00%	Billing
CC	30.07%	69.93%	100.00%	O&M
DD	31.63%	68.37%	100.00%	Labor
EE	30.14%	69.86%	100.00%	All Expenses
JJ	100.00%	0.00%	100.00%	Capital/Debt

Docket No.

CPNW Sch. 5D
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DETERMINATION OF EQUIVALENT METERS

METER SIZE (IN)	NUMBER	EQUIVALENCY FACTOR (1)	EQUIV. 5/8 IN METERS
5/8 & 3/4	22,875	1.0	22,875
1	2,892	1.5	4,846
1 1/2	296	3.3	977
2	472	4.6	2,171
3	17	6.3	107
4	49	9.6	470
6	58	16.9	980
>6	33	29.6	977
TOTALS	25,892		32,803

(1) From Docket #2098 & 2555

Docket No.

DETERMINATION OF PROPOSED SERVICE CHARGES

BILLING CHARGE

CUST. BILLING ALLOC. (1)		$500,872	
	*		= $4.80 PER BILLING
NUMBER OF BILLINGS		104,320	

METER CHARGE

CUST. METER ALLOC. (1,3))		$207,434	
	*		= $6.36 / EQ. METER/YR
NO. EQUIV. METERS (2)		32,603	

TOTAL SERVICE CHARGES

	QUARTERLY ACCOUNTS			MONTHLY ACCOUNTS		
METER SIZE (IN)	METER CHARGE	BILLING CHARGE	TOTAL CHARGE	METER CHARGE	BILLING CHARGE	TOTAL CHARGE
5/8 & 3/4	$1.59	$4.80	$6.39	$0.53	$4.80	$5.33
1	$2.86	$4.80	$7.66	$0.95	$4.80	$5.75
1 1/2	$5.25	$4.80	$10.05	$1.75	$4.80	$6.55
2	$7.32	$4.80	$12.12	$2.44	$4.80	$7.24
3	$10.02	$4.80	$14.82	$3.34	$4.80	$8.14
4	$15.27	$4.80	$20.07	$5.09	$4.80	$9.89
6	$26.86	$4.80	$31.66	$8.96	$4.80	$13.76
>6	$47.06	$4.80	$51.86	$15.69	$4.80	$20.50

(1) See CPNW Sch. 5A
(2) See CPNW Sch. 5D
(3) Less allocation of Service Maintenance Costs to Private Fire Service - see CPNW Sch. 4B

Docket No.

CPNW Sch 8
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ALLOCATION OF GENERAL WATER EXPENSES TO
BASE AND EXTRA CAPACITY

EXPENSE ITEM	TOTAL GEN'L WATER	ALLOC. SYMBOL (1)	BASE %	BASE AMOUNT	EXTRA CAP.-MAX DAY %	EXTRA CAP.-MAX DAY AMOUNT	EXTRA CAP.-PEAK HR %	EXTRA CAP.-PEAK HR AMOUNT
SOURCE OF SUPPLY								
operations	$58,533	aa	100.0%	$58,533	0.0%	$0	0.0%	$0
purchased water	$2,839,126	aa	100.0%	$2,839,126	0.0%	$0	0.0%	$0
PUMPING OPERATIONS								
fuel for pumping	$210	aa	100.0%	$210	0.0%	$0	0.0%	$0
power-pumping	$315,220	aa	100.0%	$315,220	0.0%	$0	0.0%	$0
labor-pumping	$45,892	pp	57.4%	$26,361	42.6%	$19,532	0.0%	$0
pumping expense	$2,850	pp	57.4%	$1,637	42.6%	$1,213	0.0%	$0
maint. - pumping equip	$6,891	pp	57.4%	$3,843	42.6%	$2,848	0.0%	$0
diesel oil	$0	pp	57.4%	$0	42.6%	$0	0.0%	$0
maint. - structure	$41,576	pp	57.4%	$23,881	42.6%	$17,695	0.0%	$0
WATER TREATMENT								
chemicals	$38,216	aa	100.0%	$38,216	0.0%	$0	0.0%	$0
labor	$98,973	aa	100.0%	$98,973	0.0%	$0	0.0%	$0
operating	$56,440	aa	100.0%	$56,440	0.0%	$0	0.0%	$0
maint. - water treat. equip	$3,534	aa	100.0%	$3,534	0.0%	$0	0.0%	$0
maint. - structure	$12,948	aa	100.0%	$12,948	0.0%	$0	0.0%	$0
TRANS & DISTR. EXPENSE								
storage facilities exp.	$505	dd	0.0%	$0	0.0%	$0	100.0%	$505
labor	$5,771	bb	46.8%	$2,701	53.2%	$3,070	0.0%	$0
supplies	$29,412	bb	46.8%	$13,765	53.2%	$15,647	0.0%	$0
labor-meter	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
material-meter	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
cust. install.	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
misc.	$8,409	ff	45.8%	$3,852	52.0%	$4,372	2.2%	$185
maint - struct. & improv.	$762	ff	45.8%	$349	52.0%	$396	2.2%	$17
maint.- res & stdp	$11,395	dd	0.0%	$0	0.0%	$0	100.0%	$11,395
maint. - mains	$469,886	bb	46.8%	$219,944	53.2%	$250,022	0.0%	$0
maint. - service	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
maint. - meters	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
maint. - hydrants	$371	aa	100.0%	$371	0.0%	$0	0.0%	$0
construction labor	($6,171)	ff	45.8%	($2,827)	52.0%	($3,208)	2.2%	($136)
CUSTOMER ACCOUNT								
labor- meter read	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
cust record labor	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
cust records exp	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
meter read supplies	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
W/P Reimbursement	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
ADMIN. & GENERAL								
salaries	$190,356	gg	85.0%	$161,880	14.4%	$27,451	0.5%	$1,045
office supplies & expenses	$58,970	gg	85.0%	$50,142	14.4%	$8,504	0.5%	$324
insurance	$49,072	gg	85.0%	$41,726	14.4%	$7,077	0.5%	$269
injuries & damages	$1,086	gg	85.0%	$923	14.4%	$157	0.5%	$6
employee benefits	$221,773	hh	66.8%	$147,785	32.2%	$71,346	1.2%	$2,643
fee & expense	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
maint. - plant	$86,831	gg	85.0%	$73,863	14.4%	$12,493	0.5%	$475
maint. - vehicles	$51,078	gg	85.0%	$43,431	14.4%	$7,366	0.5%	$280
miscellaneous	$96,931	gg	85.0%	$84,121	14.4%	$14,267	0.5%	$543
vacation, holiday, sick	$104,563	hh	66.8%	$69,678	32.2%	$33,639	1.2%	$1,246
regul. exp.	$72,999	gg	85.0%	$62,071	14.4%	$10,527	0.5%	$401
fisc. agent fee	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
outside service	$75,260	gg	85.0%	$63,994	14.4%	$10,853	0.5%	$413
SUBTOTAL O&M	$5,051,346	gg	89.4%	$4,516,470	10.2%	$515,265	0.4%	$19,611

Docket No.

ALLOCATION OF GENERAL WATER EXPENSES TO
BASE AND EXTRA CAPACITY

EXPENSE ITEM	TOTAL GEN'L WATER	ALLOC. SYMBOL (1)	BASE %	BASE AMOUNT	EXTRA CAP.-MAX DAY %	EXTRA CAP.-MAX DAY AMOUNT	EXTRA CAP.-PEAK HR %	EXTRA CAP.-PEAK HR AMOUNT
FIXED CHARGES								
Debt Service	$3,436,139	jj	46.5%	$1,598,642	51.1%	$1,756,979	2.3%	$80,518
O&M Reserve	$69,427	gg	85.0%	$59,034	14.4%	$10,012	0.5%	$381
R&R Reserve	$136,805	jj	46.5%	$63,646	51.1%	$69,952	2.3%	$3,206
Renewal & Replacement	$140,235	jj	46.5%	$65,243	51.1%	$71,705	2.3%	$3,286
Infrastructure Replacement	$3,500,000	ii	46.5%	$1,626,353	51.1%	$1,789,633	2.3%	$82,014
Payroll Taxes	$74,852	hh	66.8%	$49,880	32.2%	$24,081	1.2%	$892
PILOT	$16,775	ii	40.8%	$7,677	29.8%	$5,548	29.8%	$5,550
SUBTOTAL FIXED	$7,376,232			$3,472,475	50.5%	$3,727,910	2.4%	$175,847
OPERATING REVENUE	$107,302	kk	64.3%	$68,978	34.1%	$36,636	1.6%	$1,688
TOTAL EXPENSES	$12,534,880	kk	64.3%	$8,057,923	34.1%	$4,279,611	1.6%	$197,146
Less: Miscellaneous Income	($37,698)	kk	64.3%	($24,235)	34.1%	($12,872)	1.6%	($593)
Merchand & Jobbing	($16,857)	kk	64.3%	($10,837)	34.1%	($5,756)	1.6%	($265)
7.8% of Water Prof Fee	($4,013)	kk	64.3%	($2,580)	34.1%	($1,370)	1.6%	($63)
Total Revenue Requirement	$12,476,310	kk	64.3%	$8,020,272	34.1%	$4,259,614	1.6%	$196,225

(1) See CPNW Sch. 6E

Docket No.

CPNW Sch. 6A
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ALLOCATION OF GENERAL WATER LABOR EXPENSE TO
BASE AND EXTRA CAPACITY

EXPENSE ITEM	TOTAL GEN'L WATER	ALLOC. SYMBOL (1)	BASE %	BASE AMOUNT	EXTRA CAP.-MAX DAY %	EXTRA CAP.-MAX DAY AMOUNT	EXTRA CAP.-PEAK HR %	EXTRA CAP.-PEAK HR AMOUNT
SOURCE OF SUPPLY								
operations	$2,663	aa	100.0%	$2,663	0.0%	$0	0.0%	$0
purchased water	$0	aa	100.0%	$0	0.0%	$0	0.0%	$0
PUMPING OPERATIONS								
power-pumping	$0	aa	100.0%	$0	0.0%	$0	0.0%	$0
labor-pumping	$45,355	pp	57.4%	$26,052	42.6%	$19,303	0.0%	$0
pumping expense	$0	pp	57.4%	$0	42.6%	$0	0.0%	$0
maint. - pumping equip	$36,420	pp	57.4%	$20,920	42.6%	$15,500	0.0%	$0
diesel oil	$0	pp	57.4%	$0	42.6%	$0	0.0%	$0
maint. - structure	$4,936	pp	57.4%	$2,837	42.6%	$2,102	0.0%	$0
WATER TREATMENT								
chemicals	$0	aa	100.0%	$0	0.0%	$0	0.0%	$0
labor	$96,960	aa	100.0%	$96,960	0.0%	$0	0.0%	$0
operating	$0	aa	100.0%	$0	0.0%	$0	0.0%	$0
maint. - water treat. equip.	$1,252	aa	100.0%	$1,252	0.0%	$0	0.0%	$0
maint. - structure	$0	aa	100.0%	$0	0.0%	$0	0.0%	$0
TRANS & DISTR. EXPENSE								
labor	$5,771	bb	46.8%	$2,701	53.2%	$3,070	0.0%	$0
supplies	$0	bb	46.8%	$0	53.2%	$0	0.0%	$0
labor-meter	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
material-meter	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
cust. install.	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
misc.	$0	ff	45.8%	$0	52.0%	$0	2.2%	$0
maint. - res. & stdg.	$8,333	dd	0.0%	$0	0.0%	$0	100.0%	$8,333
maint. - mains	$349,842	bb	46.8%	$163,633	53.2%	$186,010	0.0%	$0
maint. - service	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
maint. - meters	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
maint. - hydrants	$204	aa	100.0%	$204	0.0%	$0	0.0%	$0
construction labor	$0	ff	45.8%	$0	52.0%	$0	2.2%	$0
CUSTOMER ACCOUNT								
labor- meter read	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
cust record labor	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
cust records exp	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
meter read supplies	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
uncollectible	$0	cc	0.0%	$0	0.0%	$0	0.0%	$0
ADMIN. & GENERAL								
salaries	$190,356	gg	85.0%	$161,860	14.4%	$27,451	0.5%	$1,045
office supplies & expenses	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
insurance	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
injuries & damages	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
employee benefits	$4,932	hh	66.8%	$3,287	32.2%	$1,587	1.2%	$59
fee & expense	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
maint. - plant	$66,343	gg	85.0%	$56,411	14.4%	$9,567	0.5%	$364
maint. - vehicles	$13,193	gg	85.0%	$11,218	14.4%	$1,903	0.5%	$72
miscellaneous	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
vacation, holiday, sick	$130,776	hh	66.8%	$87,148	32.2%	$42,073	1.2%	$1,556
regul. exp.	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
fisc. agent fee	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
outside service	$0	gg	85.0%	$0	14.4%	$0	0.5%	$0
TOTAL LABOR	$959,144	hh	66.8%	$636,146	32.2%	$308,566	1.2%	$11,432

(1) See CPNW Sch. 6B

Docket No.

ALLOCATION SYMBOLS - GENERAL WATER

ALLOCATION SYMBOL	BASE %	EXTRA CAPACITY MAX DAY %	EXTRA CAPACITY PEAK HOUR %	TOTAL	
aa	100.00%	0.00%	0.00%	100.00%	Supply & Treatment
bb	46.80%	53.20%	0.00%	100.00%	T&D Mains
cc	0.00%	0.00%	0.00%	0.00%	Meters
dd	0.00%	0.00%	100.00%	100.00%	Storage
ee	0.00%	0.00%	0.00%	0.00%	Not Used
ff	45.81%	51.99%	2.20%	100.00%	Misc. T&D
gg	85.03%	14.42%	0.55%	100.00%	Direct O&M plus 50% Purch Water
hh	66.84%	32.17%	1.19%	100.00%	Labor
ii	46.52%	51.13%	2.34%	100.00%	IFR - same as capital
jj	46.52%	51.13%	2.34%	100.00%	Debt/Capital
kk	54.28%	34.14%	1.57%	100.00%	All Expenses
ll	40.89%	29.55%	29.56%	100.00%	PILOT
pp	57.44%	42.56%	0.00%	100.00%	Pumping Facilities

Symbol bb

	Gal/Min	%
Average Day	6,806	46.79%
Max Day Increment	7,738	53.21%
Maximum Day	14,544	100.00%

Symbol jj

Item	Amount (1)	Symbol	BASE	EXTRA CAPACITY MAX DAY	EXTRA CAPACITY PEAK HOUR
Source of Supply	$2,271,352	aa	$2,271,352	$0	$0
Pumping Plant	$2,826,276	pp	$1,624,561	$1,203,714	$0
Water Treat. Plant	$305,065	aa	$305,065	$0	$0
T&D Storage	$4,786,488	dd	$0	$0	$4,786,488
T&D Mains	$194,145,890	bb	$90,860,277	$103,285,613	$0
T&D Hydrants	$11,592	aa	$11,592	$0	$0
T&D Meters	$0	cc	$0	$0	$0
General Plant	$448,286	jj	$208,564	$229,221	$10,505
Total	$204,796,952		$95,281,411	$104,718,548	$4,796,993
Percent			46.5%	51.1%	2.3%

(1) See CPNW Sch. 3B

Symbol ll

Item	Amount (1)	Symbol	BASE	EXTRA CAPACITY MAX DAY	EXTRA CAPACITY PEAK HOUR
Storage	$5,448	dd	$0	$0	$5,448
Office	$1,022	kk	$657	$349	$16
PS/Wells	$12,014	pp	$6,901	$5,113	$0
Total	$18,484		$7,558	$5,462	$5,464
Percent			40.9%	29.6%	29.6%

(1) See CPNW Sch. 3B

Symbol pp

Item	%	Symbol	BASE	EXTRA CAPACITY MAX DAY	EXTRA CAPACITY PEAK HOUR
Supply Wells	20.0%	aa	20.0%	0.0%	0.0%
Distribution	80.0%	bb	37.4%	42.6%	0.0%
Total	100.0%	pp	57.4%	42.6%	0.0%

Docket No.

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ALLOCATION OF GENERAL WATER EXPENSES
TO CUSTOMER CLASSES

Class Demands

CUSTOMER CLASS	AVERAGE DEMANDS (GALS/DAY)	PERCENT	MAX DAY EXTRA CAPACITY FACTOR [1]	MAX DAY EXTRA CAPACITY TOTAL GAL/DAY	MAX DAY EXTRA CAPACITY EXTRA GAL/DAY	MAX DAY EXTRA CAPACITY PERCENT
Small	7,231,480	81.12%	2.7	19,524,997	12,293,517	91.15%
Medium	867,451	9.73%	2.0	1,734,903	867,451	6.43%
Large	815,943	9.15%	1.4	1,142,320	326,377	2.42%
Total	8,914,875	100.00%		22,402,220	13,487,345	100.00%

CUSTOMER CLASS	AVERAGE DEMANDS (GALS/DAY)	PERCENT	PEAK HOUR EXTRA CAPACITY FACTOR	PEAK HOUR EXTRA CAPACITY TOTAL GAL/DAY	PEAK HOUR EXTRA CAPACITY EXTRA GAL/DAY	PEAK HOUR EXTRA CAPACITY PERCENT
Small	7,231,480	81.12%	3.4	24,587,033	5,062,036	90.84%
Medium	867,451	9.73%	2.4	2,081,884	346,981	6.23%
Large	815,943	9.15%	1.6	1,305,509	163,186	2.93%
Total	8,914,875	100.00%		27,974,426	5,572,205	100.00%

[1] - Described in the April, 1992 Cost of Service Study and as used in the Dockets # 2098 and 2555.

Allocation of Costs to Classes

CUSTOMER CLASS	BASE COSTS PERCENT	BASE COSTS AMOUNT	MAX. DAY EXTRA CAPACITY PERCENT	MAX. DAY EXTRA CAPACITY AMOUNT	PEAK HR. EXTRA CAPACITY PERCENT	PEAK HR. EXTRA CAPACITY AMOUNT	TOTAL AMOUNT
Small	81.12%	$6,505,805	91.15%	$3,882,757	90.84%	$178,259	$10,566,822
Medium	9.73%	$780,403	6.43%	$273,674	6.23%	$12,219	$1,066,596
Large	9.15%	$734,063	2.42%	$103,062	2.93%	$5,747	$842,882
Total	100.00%	$8,020,272	100.00%	$4,259,814	100.00%	$196,225	$12,476,310

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METERED WATER RATES

Small (5/8-2" meters)

Total Expense (2)	$10,566,822		
Metered Sales (HCF) (1)	3,526,730	=	$2.995

Medium (3&4" meters)

Total Expense (2)	$1,066,596		
Metered Sales (HCF) (1)	423,288	=	$2.520

Large (6" & up meters)

Total Expense (2)	$842,897		
Metered Sales (HCF) (1)	396,154	=	$2.117

(1) See CPNW Sch 2
(2) See CPNW Sch 7

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COMPARISON TO CURRENT RATES

		Current	Proposed	% Change
Metered Rates				
Small (5/8-3" meters)		$2.398	$2.996	24.9%
Medium (3&4" meters)		$1.966	$2.520	28.0%
Large (6" & up meters)		$1.804	$2.117	32.0%
Service Charges				
Quarterly	5/8 & 3/4	$6.23	$6.39	2.6%
	1	$7.37	$7.66	3.9%
	1 1/2	$9.50	$10.05	5.8%
	2	$11.35	$12.12	6.8%
	3	$13.77	$14.82	7.6%
	4	$18.46	$20.07	8.7%
	6	$26.83	$31.06	9.9%
	8 & up	$46.86	$51.86	10.7%
Monthly	5/8 & 3/4	$5.28	$5.33	0.9%
	1	$5.66	$5.76	1.8%
	1 1/2	$6.37	$6.55	2.8%
	2	$6.96	$7.24	3.6%
	3	$7.80	$8.14	4.4%
	4	$9.36	$9.89	5.7%
	6	$12.62	$13.76	7.3%
	8 & up	$18.83	$20.50	8.9%
Fire Service (per quarter)				
Public	/hydrant	$76.97	$130.61	69.7%
	/bill	$4.61	$4.80	-0.2%
Private (per quarter)				
	4 in	$33.56	$47.54	41.5%
	6 in	$88.40	$128.95	45.9%
	8 in	$182.40	$269.37	47.7%
	10 in	$325.15	$480.58	47.8%
	12 in	$522.24	$773.32	48.1%
	hydrant	$88.40	$128.95	45.9%

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IMPACT OF PROPOSED RATES

	METER SIZE	QUARTERLY USE - CU FT	CURRENT RATES	PROPOSED NEW BILL	PROPOSED $ INCREASE	% INCREASE
Small						
	5/8	2,000	$54.19	$66.29	$12.10	22.33%
	5/8	2,500	$66.18	$81.27	$15.09	22.79%
	5/8	3,500	$90.16	$111.22	$21.06	23.35%
	5/8	4,000	$102.15	$126.19	$24.04	23.53%
	5/8	5,000	$126.13	$156.14	$30.01	23.79%
	5/8	6,000	$150.11	$186.09	$35.98	23.97%
	5/8	6,666	$166.08	$206.04	$39.96	24.06%
	5/8	8,000	$198.07	$245.99	$47.92	24.19%
	5/8	10,000	$246.03	$305.89	$59.86	24.33%
	5/8	12,000	$293.99	$365.79	$71.80	24.42%
	5/8	14,000	$341.95	$425.69	$83.74	24.49%
	5/8	15,000	$365.93	$455.64	$89.71	24.52%
	5/8	20,000	$485.83	$605.39	$119.56	24.61%
	5/8	25,000	$605.73	$755.14	$149.41	24.67%
	1	30,000	$726.77	$906.16	$179.39	24.68%
	1	40,000	$966.67	$1,205.66	$238.99	24.74%
	1	46,666	$1,126.42	$1,405.31	$278.89	24.76%
	1	75,000	$1,805.87	$2,253.91	$448.04	24.81%
	2	100,000	$2,406.35	$3,007.12	$567.77	24.81%
	2	200,000	$4,807.35	$6,002.12	$1,194.77	24.85%
	2	300,000	$7,205.35	$8,997.12	$1,791.77	24.87%
	2	400,000	$9,603.35	$11,992.12	$2,388.77	24.87%
	2	600,000	$14,399.35	$17,962.12	$3,562.77	24.88%
Medium						
	3	700,000	$3,951.77	$5,054.82	$1,103.05	27.91%
	3	400,000	$7,889.77	$10,094.82	$2,205.05	27.95%
	3	600,000	$11,827.77	$15,134.82	$3,307.05	27.96%
	4	800,000	$15,770.46	$20,180.07	$4,409.61	27.96%
	4	1,000,000	$19,708.46	$25,220.07	$5,511.61	27.97%
	4	1,200,000	$23,646.46	$30,260.07	$6,613.61	27.97%
Large						
	6	400,000	$6,444.83	$8,499.68	$2,054.85	31.88%
	6	600,000	$9,652.83	$12,733.68	$3,080.85	31.92%
	6	800,000	$12,860.83	$16,967.68	$4,106.85	31.93%
	6	1,200,000	$19,276.83	$25,435.68	$6,158.85	31.95%
	6	1,333,333	$21,415.45	$28,258.34	$6,842.85	31.95%
	8	2,000,000	$32,126.88	$42,391.88	$10,265.00	31.95%
	8	5,000,000	$80,246.88	$105,901.88	$25,655.00	31.97%
	8	10,000,000	$160,446.88	$211,751.88	$51,305.00	31.98%
	8	24,000,000	$385,006.88	$508,131.88	$123,125.00	31.98%
Municipal Fire Service		300 hydrants	$23,095.61	$39,186.63	$16,091.02	69.67%
Private Fire Service		6 Inch Service	$88.40	$128.95	$40.55	45.87%

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REVENUE RECONCILIATION

		<---- Current ---->		<---- Proposed ---->		
Service Charge:						
Quarterly	Number	Rate	Revenue	Rate	Revenue	
5/8 & 3/4	88,288	$6.23	$550,034.24	$6.38	$564,160.32	
1	10,788	$7.37	$79,360.16	$7.66	$82,482.88	
1 1/2	1,164	$9.50	$11,058.00	$10.05	$11,698.20	
2	1,848	$11.35	$20,974.80	$12.12	$22,397.76	
3	80	$13.77	$826.20	$14.82	$889.20	
4	164	$18.46	$3,396.64	$20.07	$3,692.88	
6	216	$28.83	$6,227.28	$31.68	$6,842.88	
8 & up	120	$46.88	$5,625.60	$51.88	$6,225.60	
Monthly						
5/8 & 3/4	36	$5.28	$190.08	$5.33	$191.88	
1	0	$5.66	$0.00	$5.76	$0.00	
1 1/2	68	$5.37	$362.20	$5.55	$393.00	
2	120	$6.99	$838.80	$7.24	$868.80	
3	24	$7.80	$187.20	$8.14	$195.36	
4	36	$9.36	$336.96	$9.89	$356.04	
6	48	$12.82	$615.36	$13.76	$660.48	
8 & up	36	$18.83	$677.88	$20.50	$738.00	
Consumption Charge:	100/cu.ft.					
Proposed:						
Small (5/8-2" meters)	3,528,730	$2.398	$8,461,895.43	$2.995	$10,568,547.46	
Medium (3&4" meters)	423,288	$1.969	$833,455.03	$2.520	$1,066,666.99	
Large (6" & up meters)	396,154	$1.604	$638,638.86	$2.117	$842,891.86	
Fire Protection:						
Public Hydrants	2,208	$307.88	$679,799.04	$522.43	$1,153,518.82	
# bills	52	$4.81	$250.12	$4.80	$249.60	
Private Fire Protection						
4 in	16	$134.36	$2,149.76	$190.16	$3,042.56	
6 in	114	$353.60	$40,310.40	$515.80	$58,801.52	
8 in	26	$729.60	$21,156.40	$1,077.47	$31,246.57	
10 in	1	$1,300.60	$1,300.60	$1,922.33	$1,922.33	
12 in	1	$2,088.96	$2,088.96	$3,093.27	$3,093.27	
hydrant	154	$353.60	$54,454.40	$515.60	$79,433.64	
			==========		==========	
Total			$11,416,232		$14,511,226	
Plus: Misc Revenues			$68,505		$68,505	
			==========		==========	
Pro Forma Revenue			$11,484,737		$14,579,732	
Required Revenue			$14,578,130		$14,578,130	
Difference			($3,093,393)		$1,602	0.0%
Increase in Revenues					$3,094,995	
Percent Increase in Revenues					26.9%	