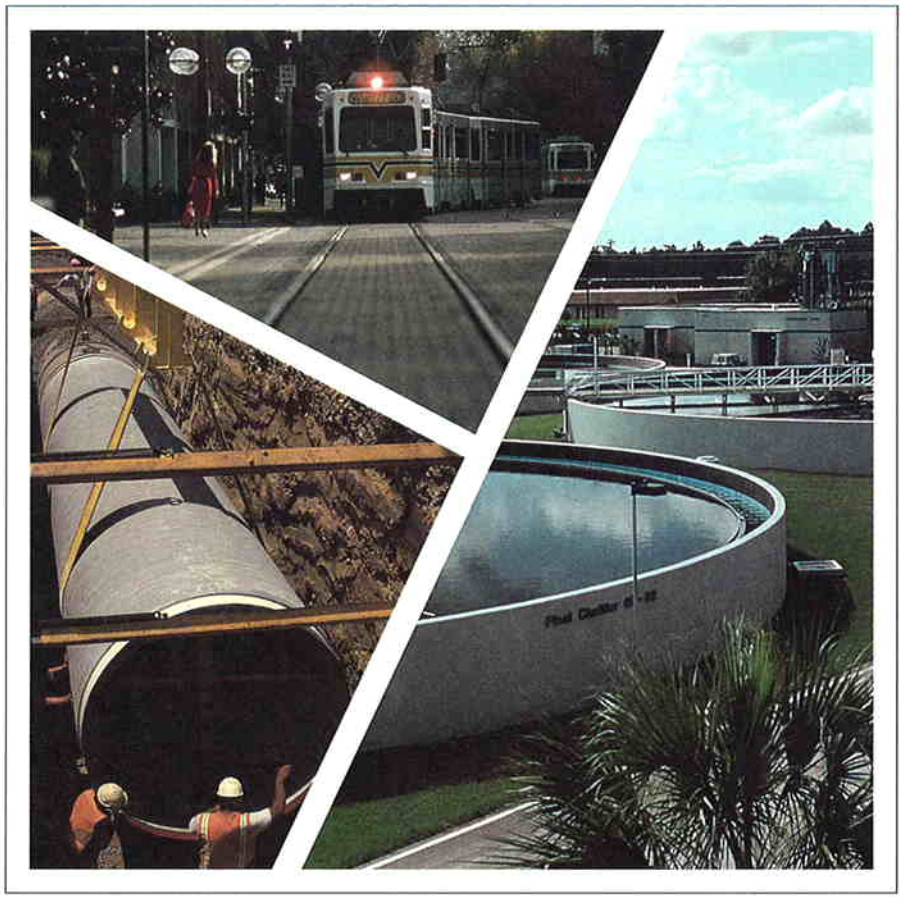
NIPOMO

COMMUNITY SERVICES DISTRICT



Water and Sewer System Master Plan

FINAL REPORT

BOYLE
ENGINEERING CORPORATION

November 6, 1995

VT-N04-100-01

NIPOMO COMMUNITY SERVICES DISTRICT

Water and Sewer System Master Plan

Nipomo Community Services District

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November 6, 1995

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B. Input Files for Water and Sewer Models
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Executive Summary

In April of 1995, the Nipomo Community Services District Board of Directors authorized the preparation of this Water and Sewer System Master Plan. The purpose of this document is to identify improvements to the water distribution and wastewater collection systems to meet existing and projected demands. A facility improvement program is recommended herein, including budget guidelines and priorities associated with the recommended improvements.

Overall, the extent of deficiencies noted in the water system is average for a system of this size and age. The wastewater collection system is considered well designed to meet current needs.

Recommended Improvements to Meet Existing Needs

Water demand is projected to increase from 1,717 AFY to 2,580 AFY with an associated increase in service area population from an estimated 9,650 to 15,000.

Water System: The existing water system was found inadequate in several aspects with regard to meeting existing needs. Regarding water supply, an additional 540 gpm rate of supply is recommended to reliably meet summertime demands. Also, it was noted that the existing well pumps and motors are evidently operating at very low efficiencies. It is recommended that the District embark on a pump and motor replacement program to improve pumping efficiency and save on energy costs.

With regard to storage volume, the District currently has 2 million gallons (MG) of storage at two locations. By the criteria stated herein, an additional 1.0 MG is needed to reliably meet the needs of existing customers.

Overall, $3.6 million in water system improvements are recommended to reliably meet the needs of existing customers.

The water distribution system consists of the central business district and the outlying residential rural areas. These two areas are separated by Highway 101 and Nipomo Creek. Currently, a single 12-inch diameter waterline at Tefft Street connects these two areas. Two additional connections are recommended to improve reliability and distribution. Further, recommendations are made to connect the Black Lake water system to the main distribution system.

Other distribution system improvements are recommended to meet fire flow requirements throughout the service area, noteworthy among which is a recommendation to construct a parallel 12-inch diameter line from the Twin Tanks to the main distribution system.

Overall, $3.6 million in water system improvements are recommended to reliably meet the needs of existing customers. Note that some of the recommended improvements will be provided by developers.

Sewer System: The existing wastewater collection was found to be very well designed to handle existing needs. Two areas of note are the gravity collector in Division Street and the excess capacity of existing lift stations.

The existing wastewater collection was found to be very well designed to handle existing needs.

Regarding Division Street, an existing 8-inch diameter gravity collector transports local flow plus flow from four lift stations to the frontage road main trunk line. To address this situation, a gravity relief line which would in effect eliminate the Nipomo Palms lift station is recommended. The two existing County Service Area No. 1 lift stations could also be routed through the proposed relief line at an estimated cost of $202,000.

Regarding the lift station capacities, it was noted that half of the District's lift stations appear over-sized to meet existing (and projected) needs. The District is advised to evaluate wet well volumes, pump and motor sizes, and on/off levels in the Bracken, North Oakglen, and Gardenia lift stations.

Recommendations for the Master Planned System

Water System: The projected 50 percent increase in water demand coupled with expansion of the service area to the west will require the installation of distribution mains, a total of 2.53 MG additional storage, and additional supplies to reliably meet projected demands. An estimated $1.9 million in system improvements are recommended to meet projected water demands.

Wastewater flow is projected to increase from 0.35 MGD to 1.13 MGD.

Sewer System: Facilities to meet projected community sewering needs include additional gravity collectors, one new lift station near Amado Street, and greater capacity in the Frontage Road trunk line. An additional $1.5 million in sewer system improvements are recommended in addition to the Nipomo Palms lift station relief line mentioned above.

1.0 Introduction

1.1 Overview

The Nipomo Community Services District is located along Highway 101 in the southern portion of San Luis Obispo County, California, as shown on **Figure 1**. The District is situated approximately halfway between the cities of San Francisco and Los Angeles.

The District provides water and sewer service to an unincorporated area of San Luis Obispo County. Land use is regulated by the County. The District currently provides water service to approximately 9,650 people. Approximately 40 percent of the service area is currently sewered.

Nipomo has sustained a fairly brisk rate of development in recent years, a trend which is expected to continue. In order to plan for the orderly expansion of water and sewer facilities, the District selected Boyle Engineering Corporation to prepare this water and sewer system master plan. The result of this master plan is a plan for sewer collection and water distribution and storage facility upgrades to meet the needs of existing and future customers.

The District receives its supply of water exclusively from wells that pump water from the Nipomo subunit of the Santa Maria Ground Water Basin. This master plan quantifies projected water needs, but is not intended to be a water resource management planning document.

The District currently operates two separate water and sewer systems; one serving the main Nipomo area and one serving the Black Lake development. This master plan defines facilities needed to intertie the two water systems. The sewer systems are to remain separate.

Wastewater is treated and disposed at two locations, the main Nipomo wastewater treatment plant located south of the service area, and at the Black Lake development located to the northwest. Both treatment and disposal facilities are to remain in service. This master plan quantifies projected wastewater flows to both plants, but is not intended to define necessary treatment or disposal upgrades.

This master plan reflects a hydraulic planning effort, the purpose of which was not to provide extensive maps of the existing systems. The District's existing set of atlas maps are a good source of information that clearly shows the layout of the existing systems.

1.2 Purpose and Scope

The purpose of this study is to identify improvements to the sewer collection and water distribution systems required to meet existing and projected demands, and to develop a sewer and water facilities improvement program to aid the District in conducting long-term planning. Specific tasks which were undertaken to accomplish this include:

a. ***Collection and Review of Data*** Water data was collected which included distribution system record drawings, water consumption records, water production records, well and storage characteristics, land use plans and topographic mapping.

Sewer data was collected which included records of existing collector diameter, slope, and manhole locations throughout the service area. Additionally, information was reviewed on lift stations, including wet well depth and volume, number and type of pumps in place, and force main diameter and location.

Population and land use information was obtained from the County of San Luis Obispo Department of Planning and Building. District water usage records were also referenced to estimate the number of water service connections in recent years.

b. ***Development of Design Parameters*** Water duty factors for both residential and non-residential land uses were developed using historic water consumption data. Peaking factors for maximum day demand and peak hour demand were estimated. Fire flow requirements were established by comparison with water systems of similar complexity, climate and population.

Sewer duty factors for both residential and non-residential land uses were developed using a ratio of historic water consumption data.

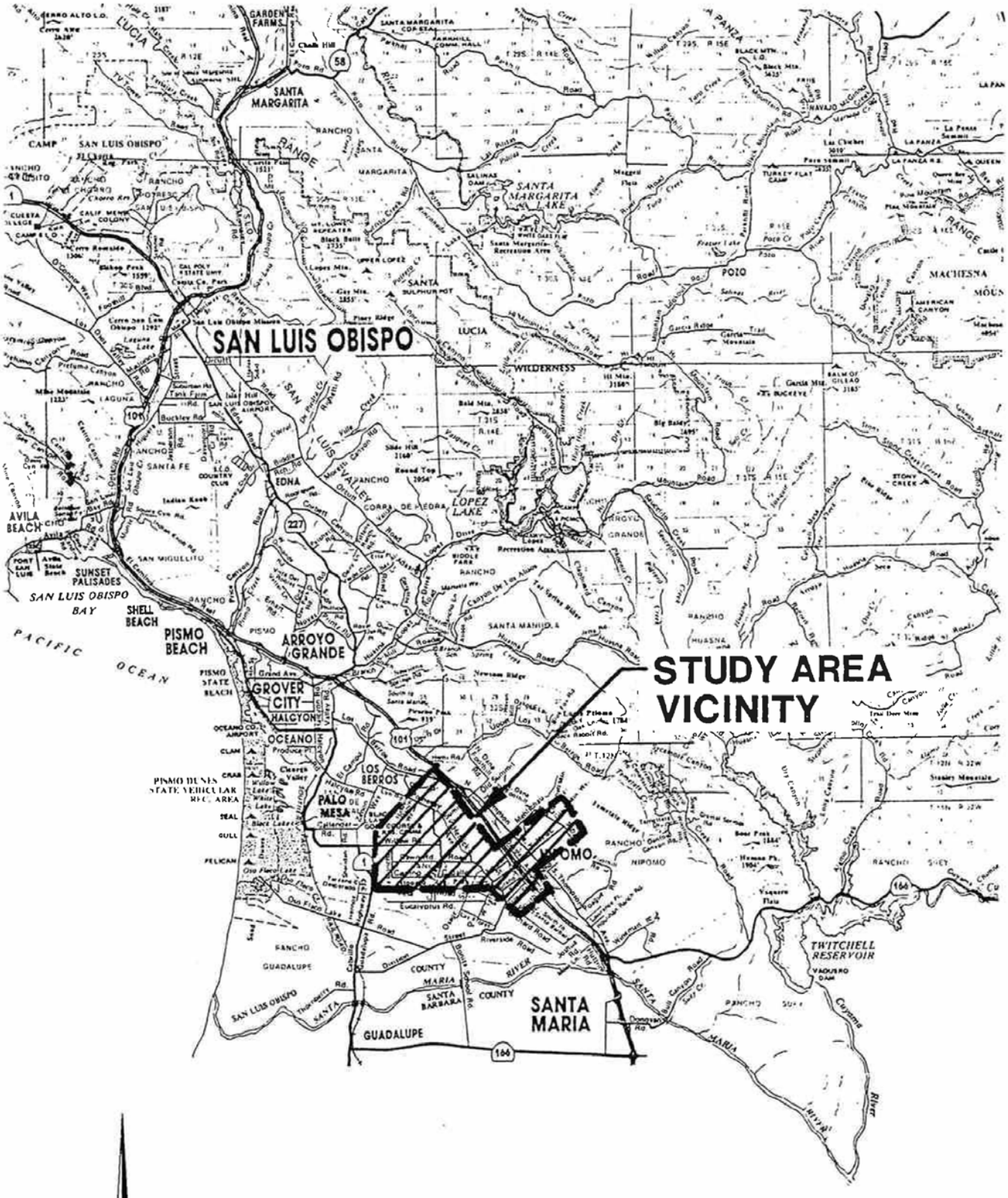
c. ***Estimated Demands*** Existing land use information obtained from the San Luis Obispo County Department of Planning and Building, along with District records, were used to approximate existing and future demand distribution. Existing and future sewer loading was based on similar available information.

d. Development of Computer Models Computer models were developed to simulate the District's sewer and water system performance under both existing and future demands. The District's sewer and water systems were reviewed through as-built and record drawings. Data input files were compiled for use with hydraulic and sewer network software, BoyleNET and BoyleSWAN.

The water model was calibrated using results of fire hydrant flow tests performed by District staff.

e. Identification of Existing Deficiencies and Future Needs Hydraulic analyses were performed to analyze the adequacy of the existing sewage collection and water distribution pipelines under both existing and projected demands. Upgrades were recommended where deficiencies were found. Recommendations for existing and future lift stations, conveyance systems, and storage facilities were made.

f. Prioritization and Cost Estimation for Recommended Improvements The cost and priority of recommended improvements to meet existing and projected water and sewer demands were established and a capital improvement plan was prepared.



NIPOMO COMMUNITY SERVICES DISTRICT

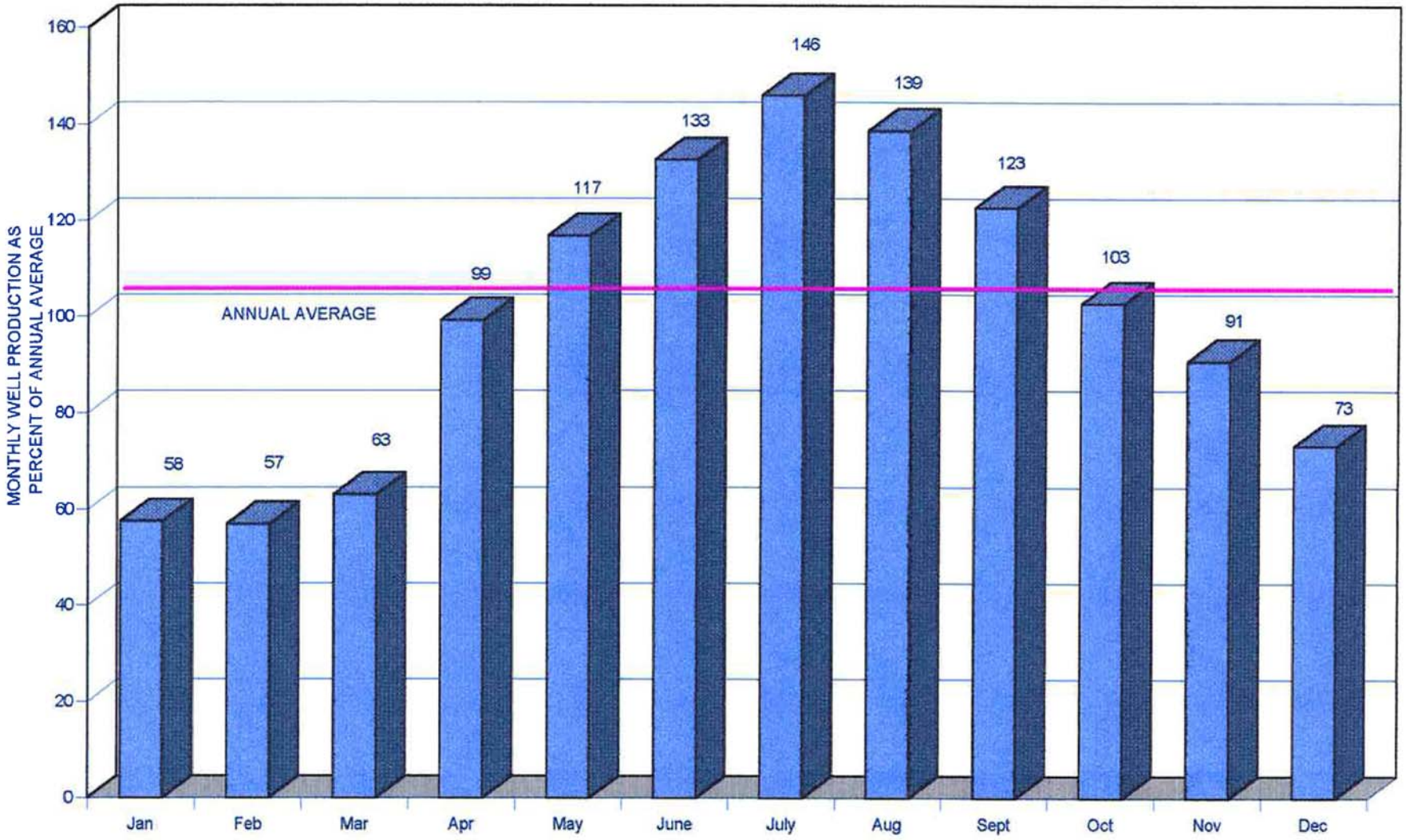
1995 WATER AND SEWER MASTER PLAN

VICINITY MAP

BOYLE ENGINEERING CORPORATION

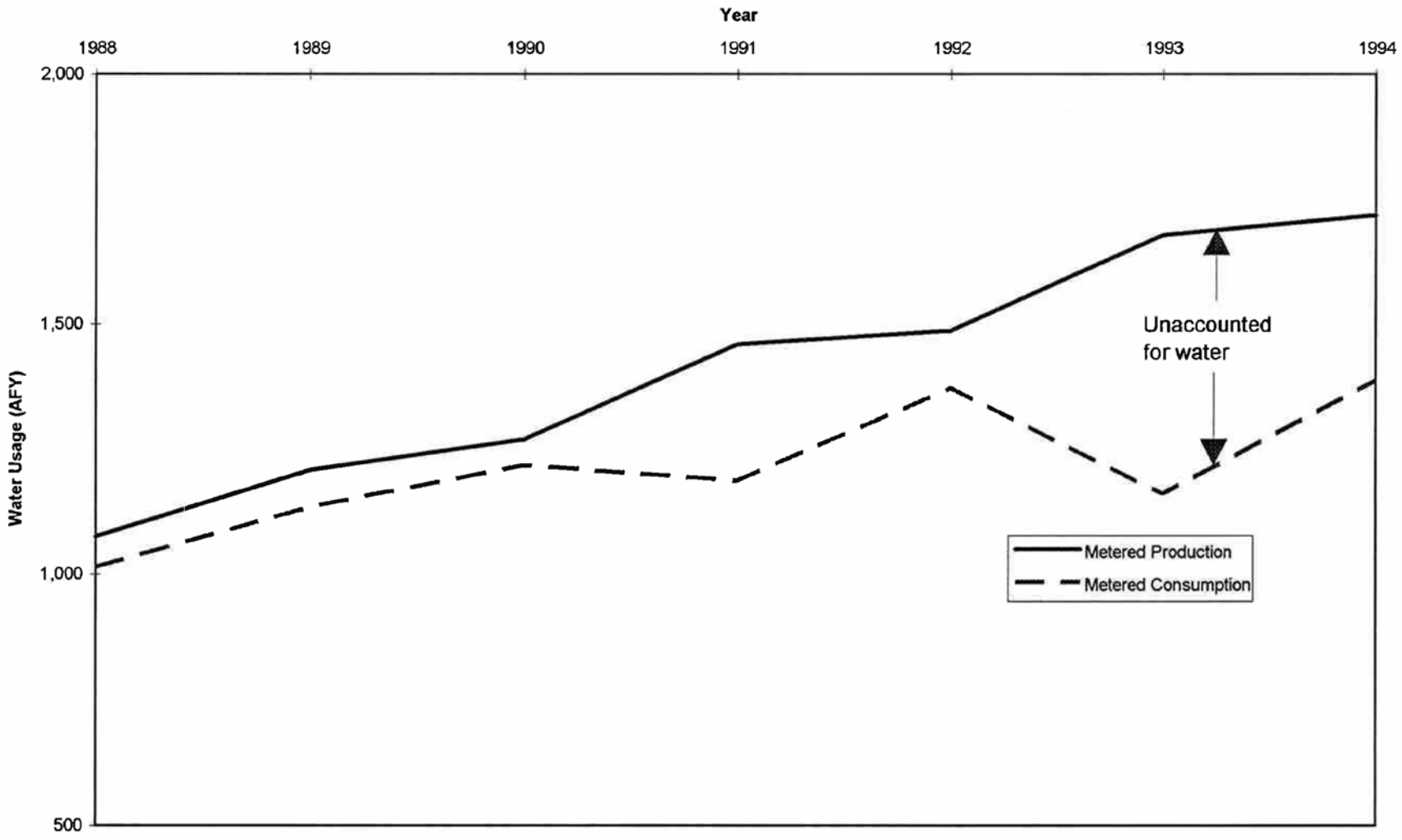
VT-N04-100-01 NOV. 1995 FIGURE 1

FIGURE 2
AVERAGE MONTHLY WELL PRODUCTION
For Years 1988 - 1994



wateruse.xls

FIGURE 3
Nipomo Community Services District
Unaccounted for Water



2.0 Water Demands and Sewer Loading

2.1 Historic Demand

Historic water production and metered consumption data for January 1988 to March 1995 was obtained from District staff. This data is included in **Appendix A**. Water production represents the total metered production from each of the District's wells. Consumption, on the other hand, represents the sum of all metered water sales throughout the service area. From this data, average annual and peak monthly water demands were estimated.

Current average annual water demand is estimated to be 1,717 acre-feet per year (AFY) based on 1993/94 production records. Peak monthly production is estimated to be 220 AF. These estimates include both the main Nipomo system as well as the Black Lake development.

Water demand increases during the hot Summer months as illustrated in **Figure 2**. Typically, summertime demand is up to 1.5 times higher than average annual demand. The peak monthly water demand was July 1994 at which time monthly water use was 1.52 times average annual demand.

The District provided records of treated wastewater volumes at the main treatment plant for 1993 to 1995, with the explanation that some operational problems have plagued the meter. Temporary flow metering information was not made available during the course of this master plan development. Therefore, sewage flows were estimated based on both metered water production and available records of treated wastewater as described in Section 2.3.

2.2 Unaccounted For Water

Both water production and consumption records for the 1988 to 1995 period were reviewed. The difference between metered water production and metered water consumption is known as "unaccounted for water." There is typically unaccounted for water in every domestic water system, comprised of:

- Distribution system and lateral leakage
- Metering inaccuracies
- Hydrant flows
- Unmetered connections to the system

- Other factors

For Nipomo, unaccounted for water has ranged from 4 to 31 percent in the past seven years, as shown in **Figure 3**. Unaccounted for water is typically 15 percent for systems of this size, as discussed in AWWA Manual M32.

Nipomo sustained an average unaccounted for water level of approximately 8 percent from 1988 to 1993, which is considered fair for a system of this size. Significant increases since 1992 may be attributed to widespread failure of service laterals. The District is actively replacing service laterals and is demonstrating a favorable decrease in the amount of unaccounted for water.

2.3 Determination of Water and Sewer Duty Factors

Water Duty Factors

The District's monthly water production and consumption records (**Appendix A**) were used as the basis for estimating water "duty factors." Duty factors are estimates of water demand per residence or per land use category.

The District provided Assessor's Parcel Maps which indicated individual lots receiving water and/or sewer service. This provided both an accurate count of the number of lots receiving service as well as a basis for distributing water demand throughout the service area. Metered consumption data for large users was also provided and was considered in estimating water duty factors for Nipomo.

First, overall water production was compared to estimates of current service area population. Statistics for the South County Planning Area, as published by the County of San Luis Obispo, were referenced. Current water service area population is estimated to be 9,650 based on estimated occupancy rates indicated in **Table 1**. This equates to a gross per capita consumption rate of 160 gallons per capita per day. "Gross" per capita consumption refers to total community water demand, including non-residential water uses.

The District provides water service to businesses, schools, irrigation meters, and other land uses in addition to residences. To estimate the water demand associated with non-residential land uses, water

consumption records for specific users were referenced. Acreages for non-residential users were also estimated based on the Assessor's Parcel Maps provided by the District.

Table 1 indicates the estimated number of residential dwelling units in both the main and Black Lake systems. Similarly, non-residential land uses are also tabulated. Average annual and "summertime demands" (i.e. May through August) are both listed in **Table 1**.

Sewer Duty Factors

As was previously mentioned, the District maintains records of sewage flow at the main wastewater treatment plant, however, the accuracy of the metered data is questionnable due to reported operational problems with the flow meter. Records indicate that:

- Average monthly flow in 1993 was measured at 0.228 MGD
- Average monthly flow in 1994 was measured at 0.273 MGD
- Average monthly flow for the first eight months of 1995 was measured at 0.31 MGD

Metered flow data for the Black Lake wastewater treatment plant is not available.

The District currently operates eight sewage lift stations. Records of monthly electrical use is available at each lift station, however, accurate records of pump capacity are not. The District asked PG&E to conduct pump efficiency tests at each lift station earlier this year, however, PG&E declined to use their flow measurement device on wastewater facilities.

It was determined that the best available data upon which to estimate sewage loading duty factors was water consumption data. Estimates of the ratio of water use that flows to the sewage collection system were made for each land use category. This was compared to available metered flow data for the main treatment plant.

The number of residential units and non-residential development within each of the seven lift station tributary areas were estimated based on the District's Assessor's Parcel Map information. These are tabulated in **Table 2**. Nominal lift station capacities were compared to PG&E

records to estimate the average flows handled at each lift station. Estimates of sewer duty factors were iteratively derived to arrive at the sewage duty factors listed in **Table 2.**

Using this method, average annual flows to the main Nipomo wastewater treatment plant are estimated to be 0.35 MGD. This compares to meter records indicating a 0.31 MGD average monthly flow rate for the first eight months of 1995. The Black Lake treatment plant is estimated to treat an average of 69,000 gpd.

It should be noted that the District's sewage collection system handles sanitary flows only. A separate storm drain system is maintained by the County.

TABLE 1
WATER DUTY FACTORS USED FOR EXISTING SYSTEM ASSESSMENT

MAIN NIPOMO WATER SYSTEM:

User	Est. No. of Units (dwelling units) (1)	Est. Occupancy Rate (persons/unit)	Est. per Capita Consumption (gpcd) (2)	Avg. Annual Demand (gpd) (3)	Summertime Demand (gpd) (3)
Residential Unit - Large Lots	690	4.50	120	372,600	469,500
Residential Unit - Small Lots	1,086	3.50	93	353,500	445,400
Residential Multi-Family	999	2.10	89	186,800	235,400
RESIDENTIAL SUBTOTAL =	2,775			912,900	1,150,300
EST. MAIN SERVICE AREA POPULATION =		9,005			

	Est. No. of Acres (acres)		Est. Consumptio Rate (gal/acre/day)	Avg. Annual Demand (gpd) (3)	Summertime Demand (gpd) (3)
Commercial Service Acreage	30	N/A	1,000	30,300	38,200
Commercial Retail Acreage	152	N/A	1,200	182,300	229,700
Office/Professional Acreage	34	N/A	900	31,000	39,100
Public Facility Acreage	9	N/A	2,200	19,400	24,400
NON-RESID. SUBTOTAL =	226			263,000	331,400
Large Users:					
Nipomo Regional Park				34,400	64,630
Nursery-675 Grande				13,240	17,180
Bar K Mobile Home Park				12,840	16,170
Vons Mobile Home Park				5,720	9,230
Nipomo Recreation Assoc				5,140	8,880
Church-312 Oakglen				4,380	4,510
Swap Meet				4,150	5,430
Buena Vista Mobile Homes				3,880	5,400
Landscape mtr-479 Socios				3,560	5,530
Laundromat-277 Tefft				3,310	4,000
Jockos Restaurant				3,290	3,430
9 units-475 Amado				2,850	3,660
Commercial-Frontage/Sandydale				2,660	3,760
Bank of Santa Maria				2,440	3,520
St. Joseph's Church				2,120	2,510
Grande Apts Landscape Meter				1,830	2,670
Miscellaneous Irrigation Meters				21,480	21,480
LARGE USER SUBTOTAL =				127,290	181,990
TOTAL WATER DEMAND MAIN NIPOMO WATER SYSTEM =				**1,303,190 gpd** 905 gpm 1,460 AFY	**1,663,690 gpd** 1,155

BLACK LAKE WATER SYSTEM:

User	Est. No. of Units (dwelling units) (1)	Est. Occupancy Rate (persons/unit)	Est. per Capita Consumption (gpcd) (2)	Avg. Annual Demand (gpd) (3)	Summertime Demand (gpd) (4)
Black Lake Residences	321	2.00	245	157,100	223,750
Black Lake Irrigation Usage	N/A	N/A	N/A	73,300	87,250
TOTAL BLACK LAKE WATER DEMAND =				230,400 gpd	311,000 gpd
EST. BLACK LAKE POPULATION =		642		160 gpm 258 AFY	216
TOTAL EST. SERVICE AREA POPULATION =		9,647			

(1) Source: Assessor's Parcel Maps provided by District and 1994 Public Water System Statistics.
(2) Est. per capita and non-residential consumption based on metered production data and occupancy rate data provided by District.
(3) Average annual and summertime (May to August)water production data from well production records provided by the District.
Average annual demand = no. of units x occupancy x consumption rate.

TABLE 2
SEWER DUTY FACTORS AND EXISTING FLOWS

Land Use	% of Water Going to Sewer
Res-Lg lot	0.55
Res-Sm lot	0.6
All acreages	0.8
RMF	0.9

	Water Use gpd, or gpd/acre	Sewer Flow at % stated	
Res. Lg. lot	540	297	gpd/lot
Res. Sm lot	325	195	gpd/lot
Comm. Retail	1200	960	gpd/acre
Comm. Service	1000	800	gpd/acre
Office/Prof.	900	720	gpd/acre
Public Facility	2200	1760	gpd/acre
Resid. Multi Family	1870	1683	gpd/acre

MAIN NIPOMO SEWER SYSTEM:

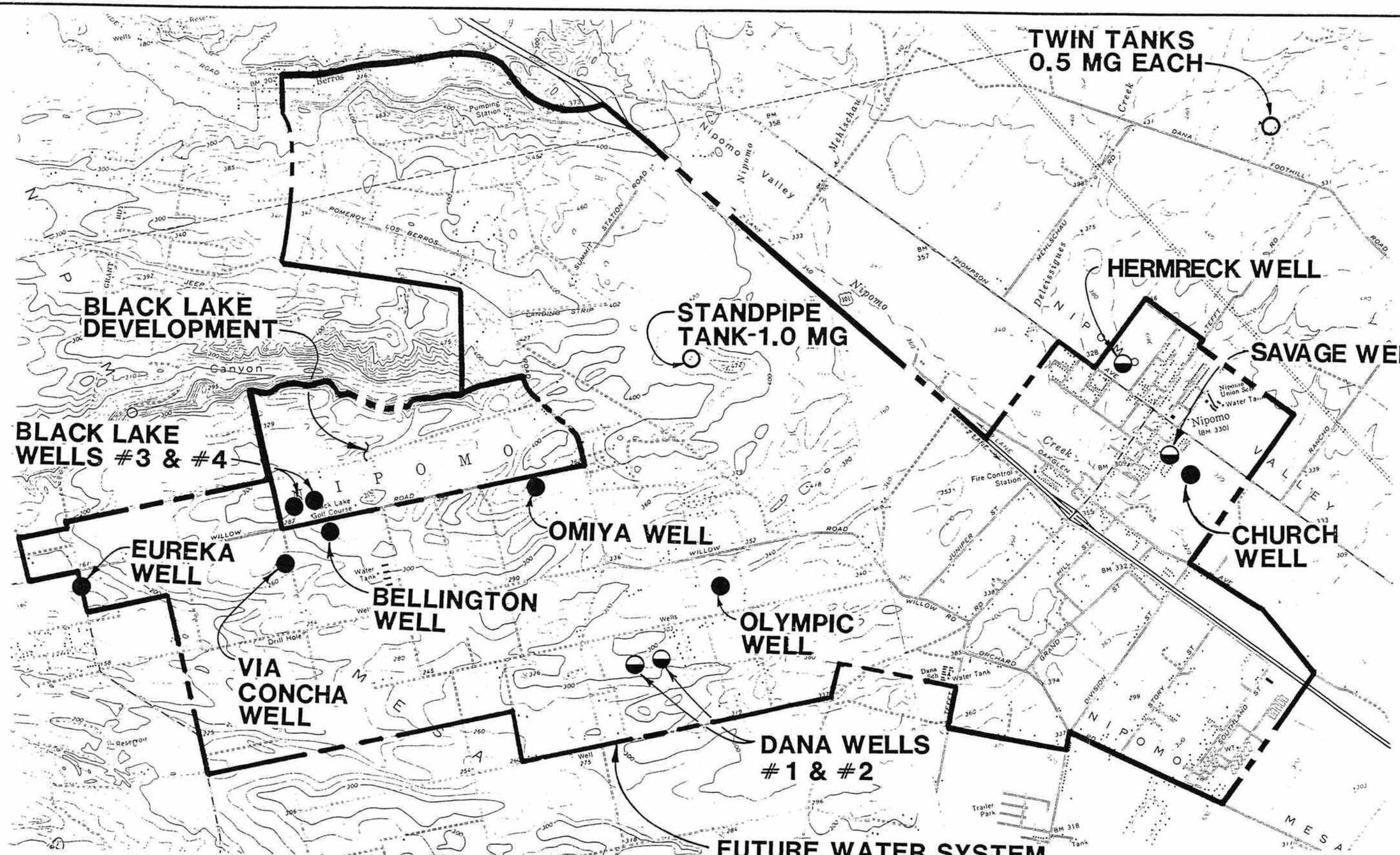
TRIBUTARY AREA	NO. OF LARGE LOTS	NO. OF SMALL LOTS	Commercial Retail (acres)	Commercial Service (acres)	Office/ Professional (acres)	Public Facility (acres)	RMF (acres)	Est. Flow (gpd) (1)	Flow based on run time (gpd) (2)	Diff. (3)
Tefft Street Lift Station	1	368	5.06	0	1.77	6.93	16.98	118,963	129,464	8%
Black Lake Mobile Home Park LS	0	156	0	0	0	0	0	30,420	27,615	-10%
Bracken Lift Station	0	16	0	0	0	0	0	3,120	2,772	-13%
Gardenia Way Lift Station	0	21	0	0	0	0	0	4,095	2,198	-86%
North Oakglen Lift Station	1	18	0	0	0	1.89	0	7,133	7,350	3%
La Mirada Lift Station	0	83	0	0	0	0	0	16,185	13,224	-22%
Nipomo Palms Lift Station	0	92	5.1	0	0	0	0	22,836	20,580	-11%
Gravity flow to Treatment Plant	23	121	21.97	0	0	0	7.66	64,409	64,409	N/A
CSA-1 (4)										
Galaxy Park	-							53,382	53,382	N/A
People's Self Help Lift Station								24,570	24,570	N/A
Totals	**25**	**875**	**32.13**	**0.00**	**1.77**	**8.82**	**24.64**	**345,114**	**345,564**	
								0.35 MGD	**0.35 MGD**	

(1) Estimated flow is average dry weather flow based upon number of tributary residential units at the sewer duty factors stated above and based upon the approximate number of acres of non-residential land use at the sewer duty factors stated above.

(2) Tributary area flow based on lift station run time is the total number of hours of operation for each lift station per month during January thru June 1994 times the nominal lift station flow capacity for each station.

(3) "Difference" is the percentage difference between calculated tributary area flow based on duty factors as compared to actual run time records for 1994. The large difference associated with Gardenia Way lift station represents a relatively small difference in average flow.

(4) Galaxy Park and Peoples Self Help Housing lift station flow estimates based on nominal lift station capacity times estimated station run time.



NIPOMO COMMUNITY SERVICES DISTRICT
1995 WATER AND SEWER MASTER PLAN
EXISTING WATER SYSTEM SCHEMATIC
BOYLE ENGINEERING CORPORATION
VT-N04-100-01 NOV. 1995 FIGURE 5

2.4 Projected Demand

This master plan is based on extending water and sewer service to the future service area boundaries illustrated in **Figures 5 and 6** respectively. Water service area population trends are illustrated in **Figure 4**. From 1988 to 1994, approximately 200 new connections per year have been added to the water system. Many factors affect the pace at which development will continue within Nipomo. **Figure 4** population projections are based on a sustained building rate of approximately 61 residential units per year. At this rate, the projected ultimate service area population of 15,000 would be reached in the year 2020.

The County Land Use Element and Local Coastal Plan was referenced to determine land use zoning within the service area boundaries. Future areas to be served were tabulated in terms of additional residential units and non-residential land use acreages. The water and sewer duty factors shown in **Tables 1 and 2** were used to estimate water demands and sewage loadings within the study area. Areas currently zoned agriculture are presumed to be converted to residential zoning for the purposes of projecting water and sewer needs.

Projected water demand is summarized in **Table 3**.

Based on the total number of acres for residential land uses along with occupancy rates as shown in **Table 1**, projected water demand is estimated to be 2,580 AFY. The distribution pipelines proposed in this master plan have been sized and laid out to accommodate this projected water usage.

Regarding sewer needs, **Table 4** tabulates the projected sewage loading throughout the service area illustrated in **Figure 6**. At full build-out and at 100% occupancy, average annual wastewater flows to the main Nipomo wastewater treatment plant are projected to be 1.13 MGD. Average annual flows to the Black Lake plant are projected to be 120,000 gpd based on 553 occupied units.

FIGURE 4
Nipomo Community Services District
Population Trends

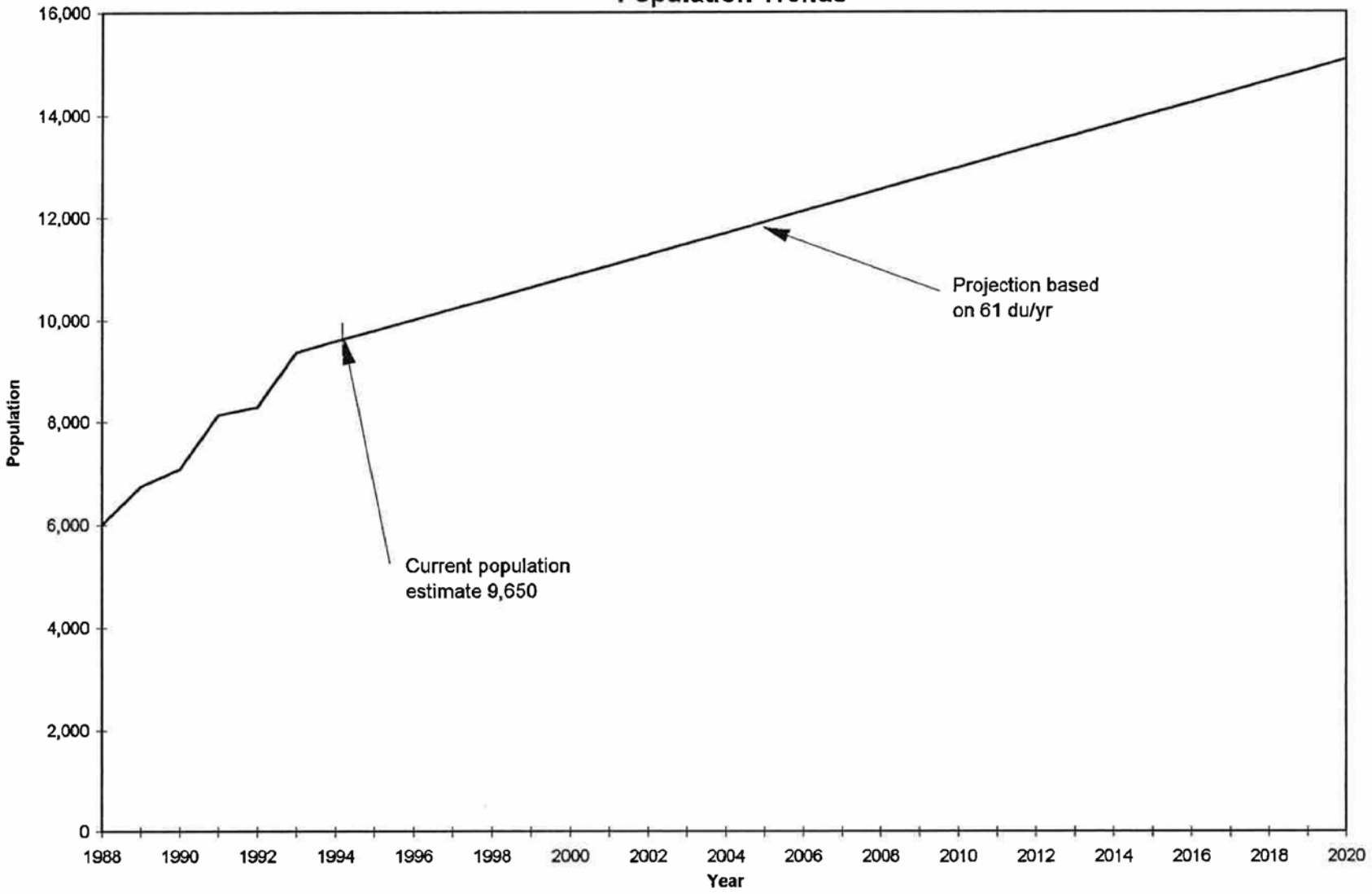


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TABLE 3
FUTURE LAND USE AND WATER DEMAND

MAIN NIPOMO WATER SYSTEM:

User	Est. No. of Units (dwelling units) (1)	Est. Occupancy Rate (persons/unit)	Est. per Capita Consumption (gpcd) (2)	Avg. Annual Demand (gpd) (3)	Summertime Demand (gpd) (3)
Residential Unit - Large Lots	1,405	4.50	120	758,700	956,000
Residential Unit - Small Lots	1,469	3.50	93	478,100	602,400
Residential Multi-Family	1,197	2.10	89	223,800	282,000
RESIDENTIAL SUBTOTAL =	4,071			1,460,600	1,840,400
EST. MAIN SERVICE AREA POPULATION =		13,978			

	Est. No. of Acres (acres)		Est. Consumption Rate (gal/acre/day)	Avg. Annual Demand (gpd) (3)	Summertime Demand (gpd) (3)
Commercial Service Acreage	82	N/A	1,000	81,900	103,200
Commercial Retail Acreage	199	N/A	1,200	239,400	301,600
Office/Professional Acreage	36	N/A	900	32,600	41,100
Public Facility Acreage	9	N/A	2,200	19,400	24,400
NON-RESID. SUBTOTAL =	326			373,300	470,300
Large Users:					
Nipomo Regional Park				34,400	64,630
Nursery-675 Grande				13,240	17,180
Bar K Mobile Home Park				12,840	16,170
Vons Mobile Home Park				5,720	9,230
Nipomo Recreation Assoc				5,140	8,880
Church-312 Oakglen				4,380	4,510
Swap Meet				4,150	5,430
Buena Vista Mobile Homes				3,880	5,400
Landscape mtr-479 Socios				3,560	5,530
Laundromat-277 Tefft				3,310	4,000
Jockos Restaurant				3,290	3,430
9 units-475 Amado				2,850	3,660
Commercial-Frontage/Sandydale				2,660	3,760
Bank of Santa Maria				2,440	3,520
St. Joseph's Church				2,120	2,510
Grande Apts Landscape Meter				1,830	2,670
Miscellaneous Irrigation Meters				21,480	21,480
LARGE USER SUBTOTAL =				127,290	181,990
TOTAL WATER DEMAND MAIN NIPOMO WATER SYSTEM =				**1,961,190 gpd**	**2,492,690 gpd**
				1,362 gpm	1,731 gpm
				2,197 AFY	

BLACK LAKE WATER SYSTEM:

User	Est. No. of Units (dwelling units) (1)	Est. Occupancy Rate (persons/unit)	Est. per Capita Consumption (gpcd) (2)	Avg. Annual Demand (gpd) (3)	Summertime Demand (gpd) (4)
Black Lake Residences	553	2.00	245	270,970	401,036
Black Lake Irrigation Usage	N/A	N/A	N/A	73,300	87,250
TOTAL BLACK LAKE WATER DEMAND =				**344,270**	**488,286**
EST. BLACK LAKE POPULATION =		1,106		**gpd**	**gpd**
				239 gpm	339 gpm
				386 AFY	

COMBINED SYSTEMS:	**Population**	**Avg. Annual Demand**	**Summertime Average**
	15,084	2,582 AFY	2,070 gpm

(1) Source: Exist. no. of units (Table 1) plus infill in developed areas and zoning as defined by SLO County in undeveloped areas.
(2) Per capita consumption estimated to remain at existing levels.
(3) Average annual estimated at duty factors stated above. Summertime (May to August) demand estimated to be 1.27 times average annual demand; 1.48 for Black Lake.

TABLE 4
PROJECTED SEWAGE LOADING

Land Use	% of Water Going to Sewer
Res-Lg lot	55%
Res-Sm lot	60%
All acreages	80%
RMF	90%

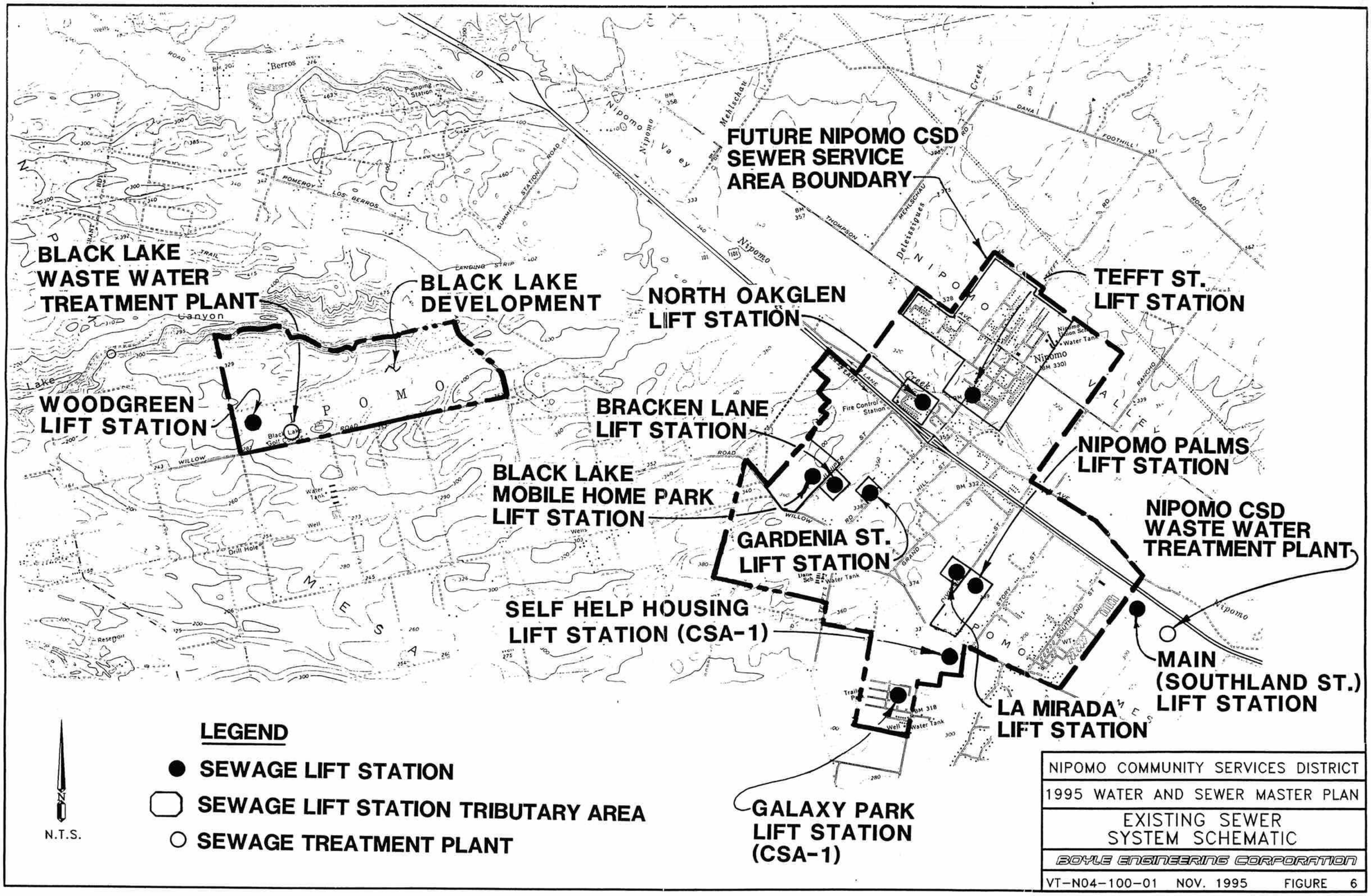
	Water Use gpd, or gpd/acre	Sewer Flow at % stated	
Res. Lg. lot	540	297	gpd/lot
Res. Sm lot	325	195	gpd/lot
Comm. retail	1200	960	gpd/acre
Comm. Service	1000	800	gpd/acre
Office/Prof.	900	720	gpd/acre
Public Facility	2200	1760	gpd/acre
Resid. Multi Family	1870	1683	gpd/acre

MAIN NIPOMO SEWER SYSTEM:

TRIBUTARY AREA	NO. OF LARGE LOTS	NO. OF SMALL LOTS	Commercial Retail (acres)	Commercial Service (acres)	Office/ Professional (acres)	Public Facility (acres)	Resid. Multi Fam (acres)	Est. Flow (gpd) (1)
Tefft Street Lift Station	23	625	47.74	0	12.4	12.55	24.63	247,005
Black Lake Mobile Home Park LS	12	156	0	0	0	0	0	33,984
Bracken Lift Station	19	18	0	0	0	0	0	9,153
Gardenia Way Lift Station	19	24	0	0	6.7	0	0	15,147
North Oakglen Lift Station	39	32	0	15.67	11.84	1.89	0	42,210
La Mirada Lift Station	0	83	0	0	0	0	0	16,185
Nipomo Palms Lift Station	0	92	5.1	0	0	0	0	22,836
Gravity flow to Treatment Plant	357	637	93.97	55	0	0	98.66	530,500
Proposed Amado Street LS	0	229	0	0	0	0	0	44,655
CSA-1								
Galaxy Park (2)	50	275	5	0	0	10	0	144,257
People's Self Help Lift Station	-	-	-	-	-	-	-	24,570
Future Totals	**519**	**2171**	**152**	**71**	**31**	**24**	**123**	**1,130,502**
								1.13 MGD

(1) Estimated flow is average dry weather flow based upon number of tributary residential units at the sewer duty factors stated above and based upon the approximate number of acres of non-residential land use at the sewer duty factors stated above.

(2) Galaxy Park flows include new development listed above plus existing lift station flows.



NIPOMO COMMUNITY SERVICES DISTRICT
1995 WATER AND SEWER MASTER PLAN
EXISTING SEWER SYSTEM SCHEMATIC
BOYLE ENGINEERING CORPORATION
VT-N04-100-01 NOV. 1995 FIGURE 6

2.5 Fire Flow Requirements

It is often the case that meeting fire flow requirements governs the sizing of a community's water distribution system. Thus, it is important to establish realistic fire flow requirements for both existing and future development. The California Department of Forestry provides fire protection services to Nipomo. CDF was contacted for information regarding fire flow requirements throughout Nipomo. CDF reportedly uses the Uniform Fire Code and the Insurance Services Organization guidelines to establish flow requirements.

ISO guidelines state recommended flows based on such factors as structure size, construction type, proximity to adjacent structures, storage of combustible materials, and other factors. Neither ISO guidelines nor CDF records are reduced to specific flow requirements per land use categories.

Planning the water system, however, requires establishment of fire protection guidelines throughout the service area. To establish such planning guidelines for Nipomo, fire flow criteria for neighboring communities was referenced.

Table 5 summarizes recommended fire flow requirements for various types of developments. Water system improvements proposed herein are based on meeting a 1,000 gpm residential fire demand at a minimum residual pressure of 20 psi. Similarly, the system's ability to meet a 3,000 gpm commercial and public facility fire demand at 20 psi minimum pressure was assessed.

TABLE 5
FIRE FLOW CRITERIA

ZONING	REQ. FLOW AT 20 PSI MINIMUM PRESSURE (gpm)	DURATION (hours)	NUMBER OF HYDRANTS FLOWING
Residential Rural	1,000	2	1
Residential Suburban	1,000	2	1
Res. Single Family	1,000	2	1
Summit Station	1,000	2	1
Res. Multiple Family	1,500	2	1
Commercial Retail	3,000	3	2
Commercial Service	3,000	3	2
Office & Professional	1,500	2	1
Public Facility	3,000	3	2

2.6 Peaking Factors

Water

In the preceding sections, water demand and sewage loading were described principally in terms of average annual flows. However, both water demand and sewage flow rates vary throughout the year and throughout the day.

Water demand fluctuates according to the time of year, time of day, level of tourism, and other factors. Seasonal demands are typically the highest in the months of July and August, and the lowest in the months of January and February as shown in **Figure 2.** It is not uncommon for the District to experience a "hot spell" within the summer months resulting in many consecutive days of high water use. Sizing the system to accommodate these "hot spells" is essential in maintaining system reliability.

For Nipomo, average annual water demand is approximately 1,065 gpm, including Black Lake. Average summertime demand is estimated to be 1,370 gpm. For purposes of assessing distribution system needs, the average summertime demands were simulated as the base demand condition.

Two demand conditions typically of interest when sizing components of water systems are the demand during the maximum usage day of the year (referred to as the maximum day demand) and the demand during the maximum usage hour of the day (referred to as the peak hour demand). The District's distribution system should also be capable of supplying the maximum day demand plus fire flow conditions at the minimum pressures stated in **Table 4**.

Purveyors typically do not keep daily or hourly water demand records. Nipomo is typical in this regard.

Based on system assessments in communities with similar populations, land use, and climate, maximum day demand is typically twice the average annual demand. Similarly, peak hourly demand has been found to be twice the maximum day demand.

These typical peaking factors were used to assess Nipomo's water system. For existing water demands, peaking factors are as follows:

Average Annual Demand	1,065 gpm (Main system)
Average Summertime Demand	1,370 gpm (Main system)
Maximum Day Demand	2.0 times Summertime Demand (2,740 gpm)
Peak Hourly Demand	4.0 times Summertime Demand (5,480 gpm)

Sewer

Regarding sewage flows, three flow conditions are of interest in sizing components of the wastewater collection system:

1. **Average Dry Weather Flow** - ADWF refers to the average annual flow conditions in the system which generally occur during the summer at mid-day (i.e. not peak morning or evening flow conditions).

2. **Peak Dry Weather Flow** - PDWF refers to the peak anticipated daily flow which generally occurs in the morning or evening hours at which times residential flows reach their maximum. PDWF conditions do not include an inflow/infiltration component as would be expected during periods of rainfall.

3. **Peak Wet Weather Flow** - PWWF is the maximum anticipated flow rate for a given system. PWWF refers to the peak anticipated daily flow which coincides with the occurrence of inflow and infiltration into the system. Inflow and infiltration is comprised of rainfall and runoff that enters the system through manholes, infiltration into gravity collectors resulting from high ground water, and illegal storm drain connections to the sanitary sewer system.

The District maintains records of monthly high flows as measured at the main treatment plant. For the 1993/95 period, the highest monthly flow recorded at the plant was 0.606 MGD, which is 1.93 times the average recorded monthly flow rate. This was compared to peaking factors referenced in other wastewater collection system assessments.

In general, small collection systems experience wider flow variations than large systems. For example, smaller tributary areas such as residential lift station tributary areas experience high flows in the mornings and early evenings. The collection system must be sized to handle peak flows, particularly peak flows that coincide with incidents of inflow and infiltration.

Sewage loading peaking factors for Nipomo are estimated to be:

Peak Dry Weather Flow	2.0 times ADWF (as compared to peak monthly flow of 1.93)
Peak Wet Weather Flow	3.0 times ADWF

3.0 Existing Water System

3.1 Overview

A schematic of the District water system is shown on **Figure 5**. The water system is a single pressure zone system consisting of:

- Two storage sites (Twin Tanks and the Standpipe) each location with 1 million gallon capacity,
- 6 active wells, and
- A distribution system comprised of 6-, 8-, 10-, 12-, and 16-inch diameter pipes.

The Black Lake development is currently served by a separate water system consisting of:

- One 400,000 gallon storage tank accompanied by a 3,000 gallon hydropneumatic tank and pumping system,
- 2 active wells, and
- A distribution system comprised of 6- and 8-inch diameter pipes.

A significant feature of the existing water distribution system is the fact that the main zone and the Black Lake system currently are not intertied. Further, the central business district and the outlying residential rural areas of the District are separated by Highway 101 and Nipomo Creek. A single 10-inch diameter waterline along Tefft Street connects the two areas of the system.

Also, a new 16-inch diameter pipeline was recently constructed to allow water to be pumped from the Via Concha well to residential areas along Camino Caballo.

As is shown in **Figure 5**, the Twin Tanks are located at the easternmost portion of the District's water system near North Dana Foothill Road. The main downtown area of Nipomo is served by a 10-inch diameter pipe from the Twin Tanks in addition to the Church Well and the Savage Well, which is currently off-line.

The Standpipe is located off of Hetrick Avenue north of Cherokee Place. This area of the system is also supplied by the Bevington, Eureka, Olympic, Omiya, and Via Concha wells as shown in **Figure 5.**

Regarding existing water system operations, it was noted that the Standpipe plays a key role in the hydraulic operations of the system. It fills first because it is closest to the District's largest wells and its water level can drop relatively rapidly at an average rate of emptying. Further, the Standpipe directly influences the available pressure in the Summit Station area. For example, if the Standpipe drops up to one-third, static pressures in Summit Station drop below 40 psi. Operationally, this means that operators try to keep the Standpipe full rather than allowing the tank level to fluctuate throughout the day to meet daytime demands.

3.2 Sources of Supply

Ground water is currently the sole source of water to the District. Historic production from each of the District's wells is tabulated in **Appendix A**.

There are currently six active wells used by the District for water delivery to the main system. The District has three wells that are on standby, and one that is not in operation due to water quality concerns. The Black Lake development area has two wells that support that system. **Table 6** lists data for existing wells.

PG&E tests performed in 1994 and 1995 indicate the flow rate, pumping water level, and motor efficiency for test conditions at each well. In general, pumps with efficiencies greater than approximately 65 percent are considered to be in "good" condition by PG&E. PG&E's pump tests indicate that all of the well pumps operate at efficiencies less than 65 percent.

Pumps with efficiencies in the 40 percent to 65 percent range are considered by PG&E to be in "fair to poor" condition. Pumps with efficiencies in this range included Black Lake #3, Bevington, Eureka, Olympic, and Omiya. Pumps with efficiencies of less than 40 percent were considered in "poor" condition. The Church Well pump fell into this category. PG&E test data was unavailable for the Black Lake #4 and Savage wells.

Upgrading the low efficiency pumps can result in a significant savings in power costs. For example, a PG&E test report indicated that Eureka Well had an efficiency of 62.5 percent. In addition, the

test report stated that improving this efficiency by approximately 6.5 percent could result in an annual power saving of over $8,200.

Recommendations for well pump and motor replacements are included in Section 11.

Further, the Church and Savage Wells are located near Nipomo Creek but not so close that the provisions of the Surface Water Treatment Rule apply.

TABLE 6
EXISTING WELL DATA

WELL	FLOW RANGE (1) (gpm)	MEDIAN FLOW (1) (gpm)	TYPICAL DEPTH TO GROUND WATER (feet)(1)	DATE DRILLED	PUMP MODEL	MOTOR TYPE	WELL STATUS
Bevington	392-410	401	317	6/85	Peerless Turbine	General Electric 100 HP	Active
Church	158	158	77	6/85	N/A	N/A 30 HP	Active
Eureka	780-820	800	148	6/79	Anderson Turbine	General Electric 200 HP	Active
Olympic	140-150	145	287	6/85	N/A	N/A 40 HP	Active
Omiya	120	120	312	6/88	N/A Submersible	N/A 30 HP	Active
Savage	125	125	74	6/88	N/A	N/A	Off-Line
Via Concha	703	703	286	N/A	Peerless Turbine	US Motors 150 HP	Active
Dana #1	N/A	N/A	N/A	N/A	N/A	N/A	Stand By
Dana #2	N/A	N/A	N/A	N/A	N/A	N/A	Stand By
Hermreck	N/A	N/A	N/A	N/A	N/A	N/A	Stand By
Black Lake #3	350	350	285	N/A	Peerless	N/A 50 HP	Active
Black Lake #4	400	400	N/A	N/A	N/A	N/A	N/A

N/A = Not Available

(1) Based on PG&E' pump tests performed 1990 and 1995

3.3 Storage Facilities

Two storage facilities currently serve the District's water system: the Twin Tanks, and the Standpipe. These reservoirs provide daily regulatory, fire, and emergency storage.

The Twin Tanks consists of two 0.5 million gallon tanks, with diameters of 30 feet and heights of 24 feet. The reservoirs have a high water elevation of approximately 548 feet. A 10-inch diameter inlet/outlet line along Tefft Street connects the Twin Tanks to the distribution system.

The Standpipe is a 1.0 million gallon welded steel tank, with a diameter of 44 feet and a height of 90 feet. The reservoir has a high water elevation of approximately 548 feet. A 16-inch diameter inlet/outlet line along Hetrick Avenue connects the Standpipe to the distribution system.

3.4 Distribution and Transmission Pipelines

Plate 1 illustrates the existing water distribution and transmission system. The main distribution pipelines in the District are 8-inch diameter, with some 10-inch and 16-inch diameter pipelines. Pipelines extended from the east along Tefft Street, loop along Juniper Street, Division Street, Orchard and Pomeroy Roads. The 10-inch diameter pipeline extends to Hetrick Avenue which ties into the Standpipe. In addition, the 10-inch loops via Osage Road and Ridge Road back to Hetrick Avenue. The system also relies on an 8-inch diameter loop in the northern part of the system to provide water service to residences.

Overall, the water system is well- looped without numerous lengthy dead end pipes. One notable feature is that the main zone and the Black Lake system are not intertied. Also, the central business district and the outlying residential rural areas of the District are separated by Highway 101 and Nipomo Creek. A single 10-inch diameter waterline along Tefft Street connects the two areas of the system.

The material of existing pipelines within the District consist of asbestos cement, cast iron, ductile iron, polyvinyl chloride, and steel. The majority of the pipelines are asbestos cement and polyvinyl chloride.

4.0 Existing Sewer System

4.1 Overview

Approximately 40% of the water service area is connected to the Nipomo community sewer system. The sewage collection system consists primarily of a 10- to 12-inch diameter gravity line which extends along both sides of Highway 101 from Juniper Street south to the main wastewater treatment plant. **Figure 6** illustrates principal features of the sewage collection system.

The District operates seven sewer lift stations in addition to the lift station at the main treatment plant. Wastewater from two areas operated by the County of San Luis Obispo is also introduced into the District's sewer system.

As was previously mentioned, the Black Lake development is on a separate sewage collection and treatment system which is operated by the District.

4.2 Lift Stations

The District's sewer system includes eight lift stations that pump sewage to the main wastewater treatment plant. There is an additional lift station located at the treatment plant headworks plus two lift stations that are operated by the County of San Luis Obispo.

The lift stations and capacities are as listed in **Table 7**. The location of each lift station is shown in **Figure 6.**

TABLE 7
EXISTING SEWAGE LIFT STATIONS[1]

LIFT STATION	CAPACITY (gpm)	HEAD (ft)	FORCE MAIN DIA. (in.)	ESTIMATED ADWF/PWWF (gpm)
Main Plant	630	21	6	45/135
Tefft Street	315	65	6	83/250
Black Lake Mobile Home Park	175	54	4	21/65
Nipomo Palms	175	58	4	16/50
North Oak Glen	175	29	4	5/15
Bracken	110	70	4	2/6
La Mirada	190	41	4	11/35
Gardenia	110	55	4	2/6
Woodgreen[2] (Black Lake)	175	60	4	N/A
Peoples Self Help Housing (CSA 1)[3]	210	-	-	171/515
Galaxy Park[3] (CSA 1)	310	115	6	37/110

1 Information provided by District staff.
2 Part of separate Black Lake sewage system.
3 Peoples Self Help Housing and Galaxy Park Pump Stations are operated by the County and pump to the District's sewage collection system.

All lift stations are equipped with two pumps with each pump capable of pumping the full capacity of the lift station.

4.3 Collection System

The District's sewer system is comprised of approximately 55,000 feet of pipe, including 12-inch diameter gravity collectors. All of the sewer system is polyvinyl chloride sewer pipe and is reportedly in good condition.

The majority of the lift station tributary areas (**Figure 6**) are comprised of 6- and 8-inch diameter PVC gravity collectors. The main collection system is comprised of larger diameter PVC, which takes flow by gravity to the treatment plant in the southern part of the District service area.

Force mains within the system are 4-inch and 6-inch diameter.

The District's sewer system also has approximately 200 sewer access manholes. The sewer system is currently without an operating flow metering in place.

5.0 Computer Modeling

5.1 Model Development

Hydraulic network computer models of the District's water and sewer systems were developed as part of this master plan to aid in analyzing the systems' needs and capabilities. Node and pipe maps for each of the models were submitted to the District in June 1995. Computer diskettes containing model input files will be transmitted with the final report. Background information on each of the models follow.

Water Computer Model

The Boyle developed computer software, BoyleNET, was used to model the District's water system. BoyleNET uses the Hazen-Williams formula as the basis for calculating headloss. Input to the model primarily consists of pipes and "nodes". Pipes are described by the length, size, and Hazen-Williams 'C' factor (or friction coefficient). Nodes are described by elevation and demand. Other water system facilities such as tanks and wells were modeled. Pump curves were available for each well with the exception of the Olympic Well, which was modeled as a fixed supply into the network.

An AutoCAD base map of the District, including streets and lot boundaries, was provided by the District. This was used in laying out the pipeline network and in estimating the demand area for each water system node.

The input file for the District's existing water system is included in **Appendix B.**

The computer model is a tool by which the hydraulic performance of the system can be simulated under various conditions. The District's existing system model was used to assess system adequacy to meet existing and projected demands.

Sewer Computer Model

Similar to the water system, a computer model was also prepared for the sewer system. Using Boyle developed software, BoyleSWAN, the characteristics of the existing sewage collection system were simulated on the computer.

Sewage collectors were described in terms of diameter, length, and roughness coefficient (Mannings 'n' value). Manholes were described in terms of invert elevation.

Sewage loading was estimated for each manhole based on the number of residential units or land use acreage tributary to each reach. The sewage duty factors listed in **Table 2** formed the basis for estimated loading.

Each lift station tributary area was assessed separately. The main gravity collection system to the treatment plant was assessed with fixed flows input to simulate the operation of lift stations.

Appendix B contains input files for the existing sewage collection system.

5.2 Model Calibration

After the computer models were developed, a series of calibration runs were performed to determine how closely the computer models simulate actual field conditions.

For the water system, the District's operations staff conducted a series of fire hydrant tests during June 1995. Fifteen fire hydrants were tested at various locations throughout the system. For each test, the static pressure was measured with a pressure gauge at a water service or other hydrant close to the test hydrant. Then the test hydrant was fit with a pitot measuring device and opened to full flow. At full flow, the pitot measurement and the residual pressure (taken at the same location as the static pressure) were read simultaneously. District staff was also asked to record tank levels and well status at the time of each hydrant test.

The existing demands, as estimated in Section 2.0, were used to simulate demand conditions. The demands were adjusted based on the

time of day and weather during which the tests were taken. Static conditions were first modeled and compared to field measured pressures. The assumed demands were then adjusted to achieve reasonable agreement with the field measurements. Once agreement was achieved, the field measured fire flow was modeled. If the model-computed residual was within five pounds per square inch (psi) of the field measured pressure, then the model was considered in reasonable agreement with the field measurement. Overall agreement with the field measurement is an indication that the computer model is calibrated and is modeling the actual conditions of the system with a reasonable degree of accuracy.

The results of the fire hydrant tests and calibration runs are included in **Appendix C**. Agreement within 5 psi was achieved at the majority of the sites tested. There were several locations where computer simulated pressures varied from field measurements. In these cases, hydrant tests were re-run.

The results of the water calibration exercise confirmed that the computer model is simulating existing water system performance within a reasonable degree of accuracy. Estimates of roughness coefficients and pipe size and layouts simulated in the model are considered representative of the Nipomo system.

Regarding the sewer system computer model, no flow metering was authorized to compare actual rates of flow to estimates. Lift station run time estimates were compared to estimated tributary area flows to achieve a reasonable degree of accuracy for each lift station.

Sewer model "calibration" consisted of an interview with District operations staff to confirm areas of projected capacity problems to staff observation. Computer projections of capacity problems were confirmed by staff observations.

The District may consider temporary flow metering during the rainy season to confirm the peaking factors estimated herein.

6.0 Design Criteria

This section summarizes the criteria that was used as a basis for analyzing the water and sewer systems' adequacy to meet existing and projected demands.

6.1 Water System Design Criteria

Design criteria for the water system is:

Supply facilities should be sized to meet maximum day demand with the second largest well out of service.

Storage capacity is required to provide daily regulatory storage, fire storage, and emergency storage. The following criteria was used to estimate these volume requirements:

- **Regulatory storage** is the volume of storage recommended to meet peak daily demands in excess of what supply is capable of producing. Supply facilities are sized to supply the maximum day demand (MDD) as stated above. For Nipomo, recommended regulatory storage volume is "maximum daytime demand" (i.e. 1.5 x MDD) less the available rate of supply over a 14-hour demand period, as follows:

  Regulatory Storage Volume = (1.5 - 1.0) x (MDD) x 14 hrs.

- **Emergency storage** is the volume of storage recommended to ensure ongoing supply in the event of a water supply emergency. Emergency planning guidelines suggest that water facilities should be capable of sustaining basic sanitary needs for 72-hours. Thus, emergency storage for Nipomo has been estimated as the volume of water needed to provide a minimum of 50 gpcd for 72 hours.

- **Fire storage** is the volume of storage recommended to meet fire flow requirements for the duration indicated by the fire protection agency. The fire flow requirements listed on **Table 5** form the basis for the fire storage requirements in the District water service area. The highest requirement governs the fire storage requirements in that particular zone.

To analyze the adequacy of the **distribution pipelines** the following criteria was used:

- During **average day demand**, a minimum pressure of 40 psi and flow velocities less than 5 feet per second (fps) should be maintained. Maximum desirable static pressure is 100 psi.
- During **peak hour demand** conditions, a minimum system pressure of 30 psi and flow velocities in pipelines of less than 10 feet per second should be maintained.
- During **fire flow** conditions, the system should be sized to accommodate a minimum residual pressure of 20 psi at the flowing hydrant, and flow velocities in pipelines of less than 10 feet per second, at maximum day demand conditions.

The resistance of flow in a pipeline is represented by the **Hazen Williams 'C' coefficient**. 'C' values characterize the friction losses associated with the interior pipe wall and are a function of pipeline material, condition, and age. For pipelines with identical diameters and lengths, the lower the 'C' value, the higher the headloss. 'C' values were estimated based on the following criteria:

- All existing pipes: C = 125
- All proposed pipes: C = 135

These estimates of friction coefficients were used in calibrating the water computer model and found to be reasonable estimates for Nipomo.

Other design criteria utilized in assessing the District's water system is:

- Provide fixed emergency power generators for critical wells, particularly if seeking credit for emergency storage volume.
- Minimum new distribution main diameter 8-inches; 6-inch minimum in cul-de-sac streets that do not serve a fire hydrant.
- Replace all 4-inch diameter waterlines with 6-inch diameter lines or larger. Replace all existing steel pipelines with PVC or other material.
- Establish a goal of limiting unaccounted for water to 15% of production.

6.2 Sewer System Design Criteria

Regarding flow velocities, 2 feet per second minimum velocity should be maintained under peak dry weather flow conditions; 10 feet per second maximum at peak wet weather flow conditions.

Permissible flow depth in terms of depth (d) relative to pipe diameter (D):

- d/D = 0.5 maximum at average dry weather flow
- d/D = 0.75 maximum at peak dry weather flow
- d/D = 0.9 maximum at peak wet weather flow

Pipeline **roughness coefficient** 'n' estimated to be 0.011 for existing collectors.

Limit proposed collector and **manhole depth** to reasonable construction limitations (approximately 15 feet deep). Consider installation of a lift station at greater depths.

Lift stations must have sufficient capacity to handle the peak wet weather flow condition. Small lift stations (100 gpm and less) to be equipped with two pumps. Larger lift stations to be equipped with three pumps. In all cases, lift stations should be capable of handling peak wet weather flow with one pump out of service.

Force mains should be sized to maintain 3 to 7 feet per second flow velocity.

Wet well volumes should be sized to minimize pump start/stops while avoiding septic conditions associated with infrequent purging.

Other design criteria used in assessing the District's sewer system are:

- Provide fixed emergency power generators for lift stations, particularly if alarm system is lacking or if consequences of an overflow would be significant.
- Minimum new gravity collector diameter to be 8-inches.
- Eliminate the need for lift stations where practical.
- Provide telemetric controls among lift stations to a control center.

These criteria were applied to the assessment of the existing water and sewer systems and in making recommendations for future system upgrades.

7.0 Ability of Water System to Meet Existing Demands

7.1 Sources of Supply

The design criteria stated in Section 6.0 indicated that sources of supply should be sized to meet maximum day demands with the second largest well out of service. Sources of supply must keep up with maximum demand during a 24-hour period and should have some redundancy, thus the second largest well out of service criteria.

For Nipomo, current maximum day demand, including Black Lake, is estimated to be 2,740 gpm.

The active wells listed in **Table 6** have a total estimated capacity of 2,900 gpm, including Black Lake Wells #3 and #4. Thus, the District needs nearly all active wells to be operable to meet estimated maximum day demand.

The two largest wells are the Eureka Well (800 gpm) and the Via Concha Well (700 gpm). By the supply source criteria stated herein, the District should have an estimated 540 gpm additional well capacity to reliably meet the needs of existing customers.

Another item of note in examining the existing system performance is the fact that the pump curves and pumping water levels given for the District wells indicate that the majority of the well pumps are operating at low efficiencies. The Eureka, Omiya, and Church wells in particular may be operating at low efficiencies. The District is encouraged to re-evaluate proper pump and motor sizing for all of the active wells.

7.2 Storage Facilities

By the criteria stated in Section 6.0, recommended storage volume to meet existing needs, including the Black Lake development, is:

Storage Component	Criteria	Volume Recommended
Regulatory	(1.5 - 1.0) x MDD over 14 hours	1.15 MG
Emergency	50 gpcd for 3 days Population 9,005	1.35 MG
Fire	3,000 gpm for 3 hours	0.54 MG
TOTAL		3.04 MG

The District currently has a total of 2.0 MG of storage in place. Thus, an additional 1.04 MG of storage is recommended to reliably meet the needs of existing customers.

An option to providing additional above-grade storage is to, in a sense, utilize the ground water basin as emergency storage. To do so reliably, natural gas driven engines or fixed emergency power generators should be maintained at key wells to ensure their availability during a prolonged power outage. At least 940 gpm of well capacity would need to be powered in such a way for reliable emergency back-up.

Further, it was noted in our existing system assessment that the Standpipe plays a key role in the hydraulic operations of the system. It fills first because it is closest to the District's largest wells and its water level can drop relatively rapidly at an average rate of emptying. Further, the Standpipe directly influences the available pressure in the Summit Station area. For example, if the Standpipe drops up to one-third, static pressures in Summit Station drop below 40 psi. Operationally, this means that operators try to keep the Standpipe full rather than allowing the tank level to fluctuate throughout the day to meet daytime demands.

This operational sequence at the Standpipe means that the District cannot make full use of the 1.0 MG volume without significantly dropping system pressures to 40 psi and below.

There is no suitable terrain in the vicinity of Summit Station upon which to construct an elevated storage tank of more conventional proportions (1.5 diameter to 1 height). The District could operate the Summit Station area as a separate hydraulic grade zone and provide a booster station with hydropneumatic tank to serve the residences. Approximately 50 residences lie at elevations that pose water pressure problems under the current configuration. The advantages of serving a portion of Summit Station by a separate booster station are that:

- Fluctuations in water pressure could be minimized,
- Overall pressure could be raised to a hydraulic grade of approximately 570 feet such that minimum static pressure would be raised to 50 psi,
- The existing Black Lake hydropneumatic tank could possibly be relocated to service Summit Station, and
- Fluctuations in the elevation of the Standpipe would not significantly influence water pressure at Summit Station.

Disadvantages of installing a separate booster station are:

- Capital and operations cost associated with the operations of a booster station,
- Unacceptable high pressures (100 + psi) in some areas of the boosted zone,
- Increased system complexity (i.e. operation of a two-zone water system), and
- Level fluctuations at the Standpipe would continue to affect other areas in the eastern service area.

Considering these advantages and disadvantages, it is our opinion that construction of a booster station is not warranted to serve the existing 50 properties. The District may wish to re-evaluate this position as additional properties develop in Summit Station.

7.3 Distribution System Assessment

The BoyleNET hydraulic network computer model was used to simulate the ability of the existing distribution system to meet existing needs.

Following the design criteria stated in Section 6.0, a series of modeling runs were made with results as follows:

1. **Average Day Demand -** Average daily demands were modeled with both tank facilities assumed to be three quarters full (540 feet hydraulic grade line) and the Eureka and Bevington wells operating. Average system pressures were approximately 95 psi, with the lowest pressure of 47 psi in the Summit Station area. Pressures exceeded 100 psi in the vicinity of the wells along Willow Road. No deficiencies were noted with regard to meeting average day demand.

2. **Peak Hour Demand** - Peak hourly demands were simulated throughout the system with tanks set at three-fourths full (540 feet HGL) and the Eureka, Bevington, Omiya, Via Concha, and Church wells operating. Average system pressures dropped to approximately 65 psi, with the lowest pressure of 25 psi along Grande Avenue and north of Juniper Street in the vicinity of Trevino Drive. Flow velocities were favorable throughout the system.

3. **Fire Flow Conditions** - A series of maximum day demand plus fire flows were conducted. Overall, the existing system is found to be well laid-out to meet residential fire flow requirements. The exception to this is some of the high elevation areas in Summit Staion. A flow of 1,000 gpm at 13 psi is projected at Poppy Lane. Twenty psi minimum is recommended.

   Commercial, public facility, and multi-family zoning fire flows presented a different case. Meeting the 3,000 gpm recommended flow in some areas posed a problem. This rate of flow cannot be sustained at the commercial retail property at the intersection of Grande Avenue and Orchard Road. Similarly, improvements would be needed to meet firefighting needs at the school along

Price Street and at the residential multi-family property along Grande Avenue.

In addition to the specific demand conditions stated above, overall system reliability was also assessed. Specifically, the central business district and the outlying residential rural areas of the District are separated by Highway 101 and Nipomo Creek. A single 10-inch diameter waterline along Tefft Street connects the two areas of the system. Additional highway/creek crossings are recommended to improve system reliability as well as to improve distribution.

The Black Lake system intertie is discussed in Section 9.

Recommended improvements to meet existing demands are illustrated on **Plate 1**. A listing of the recommended facilities as well as priorities are included in Section 12.0.

It has been noted that some development throughout the service area consists of structures that lie at a significantly higher elevation than the District's distribution system. For example, a home that rests 15 feet higher than the District's water main will have a static water pressure that is 6 to 7 pounds less than pressure in the main. This has resulted in some pressure complaints and concerns regarding fire fighting.

The District has no control or authority governing building pad elevations. It is therefore recommended that the District continue enforcing its policy of meeting water pressure and fire flow requirements at the main and that owners of structures that lie at higher elevations be alerted to the need to provide private water pumps.

8.0 Ability of Sewer System to Meet Existing Needs

8.1 Lift Stations

Table 7 lists features of the existing lift stations, including estimated average dry weather and peak wet weather flows. Each of the eight lift stations currently operated by the District appear adequate to meet existing sewage flows.

Some of the lift stations appear over-sized to meet existing needs. For example, the Bracken, North Oak Glen, Nipomo Palms, and Gardenia lift stations all appear to have capacities that are far in excess of estimated flows. Operationally, this means that:

1. The wet wells are not permitted to fill and the relatively large pumps run for short periods, or
2. The wet wells are permitted to fill and conditions become septic in the wet well between pump starts. Odor and quality problems result.

In either case, the District should re-evaluate wet well volumes, pump and motor sizes, and on/off levels in the stations listed above.

Section 6.0 listed criteria for lift station design as follows:

- Small stations (up to 100 gpm) should be equipped with two pumps.
- Larger stations should be equipped with three pumps.

In both cases, lift stations should be capable of handling peak wet weather flows with one pump out of service.

The system was also evaluated for the possibility of eliminating one or more existing lift stations. There is an opportunity to eliminate the Nipomo Palms lift station by constructing a gravity line to the southeast. This is discussed as a future system improvement in Section 10.

8.2 Collection System Assessment

The BoyleSWAN sewer model was used to assess the existing collector system capacity. Results of the computer simulations are:

Tributary Area	Results
La Mirada LS	No capacity problems noted
Bracken LS	No capacity problems noted
North Oak Glen LS	No capacity problems noted
Nipomo Palms LS	No capacity problems noted
Gardenia LS	No capacity problems noted
Black Lake Mobile Home Park LS	No capacity problems noted
Tefft Street LS	No capacity problems noted
Main Gravity Zone to the Treatment Plant	Division Street 8" inadequate; Frontage Road 12" from Division Street south inadequate

Overall, the existing collector system has adequate capacity to handle average and peak wastewater flows. The exception to this is an area along Division Street and the Fronage Road as noted above. Capacity problems in this area are proposed to be addressed by routing the CSA 1 lift stations flow through the Nipomo Palms lift station triburary area and constructing new gravity collectors to eliminate the need for the Nipomo Palms lift station. This is illustrated in **Plate 4**.

Regarding the Black Lake collection system, the system was assessed for the projected flows indicated in **Table 4** and found to have adequate collection capacity to handle projected flows. The Black Lake collection and treatment system has been sized for and is intended to serve the Black Lake development only.

9.0 Ability of Water System to Meet Future Demands

9.1 Sources of Supply

Future water demand for build-out within the service area boundary illustrated in **Figure 5 and Plate 2** is estimated to be 2,580 AFY, 50 percent higher than current annual demand. Future maximum day demand is estimated to be 4,140 gpm.

Nipomo's current active wells have an estimated combined capacity of 2,900 gpm, including Black Lake Wells #3 and #4. With the second largest well out of service, available supply is 2,200 gpm.

A new 540 gpm well is recommended to reliably meet the needs of existing consumers, including Black Lake residents. Supplies totaling an additional 1,400 gpm in addition to the recommended 540 gpm are recommended to reliably meet the future needs of the District.

9.2 Distribution and Transmission Pipelines

The water system improvements discussed in Section 8 address the majority of the future distribution system needs. One noteworthy additional system improvements to meet future demands is to construct a new 10-inch diameter transmission main along the Frontage Road from Sandydale Road northwest to Summit Station Road.

Plate 2 illustrates the system improvements recommended to meet future water demands. Recommended facilities to tie in the Black Lake system to the main system are also shown. Further, facilities shown are based on continuing to serve Summit Station off of the main pressure zone and do not reflect facilities needed to install a booster station.

District staff indicated that older, steel waterlines in the area northeast of Highway 101 are in need of replacement. **Plate 2** indicates approximately 4,300' of older, steel lines to be replaced in coming years.

9.3 Storage Facilities

By the criteria stated in Section 6.0, recommended storage volume to meet future water demands, including the Black Lake development, is:

Storage Component	Criteria	Volume Recommended
Regulatory	(1.5 - 1.0) x MDD over 14 hours	1.74 MG
Emergency	50 gpcd for 3 days Population 15,000	2.25 MG
Fire	3,000 gpm for 3 hours	0.54 MG
TOTAL		4.53 MG

The District currently has a total of 2.0 MG of storage in place. Thus, an additional 2.53 MG of storage is recommended to reliably meet the needs of existing and future customers. Additional above-grade storage is recommended to be installed adjacent to the existing Twin Tanks.

An option to providing additional above-grade storage is to, in a sense, utilize the ground water basin as emergency storage. To do so reliably, natural gas driven engines or fixed emergency power generators should be maintained at key wells to ensure their availability during a prolonged power outage. At least 1,550 gpm of well capacity would need to be powered in such a way for reliable emergency back-up.

10.0 Ability of Sewer System to Meet Future Needs

10.1 Lift Stations

As was described in Section 2.0, average daily sewage flow is projected to increase from 0.35 MGD in the main Nipomo system to 1.13 MGD at build-out. Estimated capacities and projected tributary flows to each lift station are listed in **Table 8.**

TABLE 8
PROJECTED LIFT STATION FLOWS

Lift Station	Current Estimated Capacity (gpm)[1]	Projected Flows - ADWF/PWWF (gpm)[2]
La Mirada	190	11 / 33
Bracken	110	6 / 18
North Oakglen	175	30 / 90
Nipomo Palms	175	16 / 48
Gardenia	110	11 / 33
Black Lake Mobile Home Park	175	24 / 72
Tefft Street	315	170 / 510
Proposed Amado Street	N/A	35 / 100
Galaxy Park (CSA 1)	310	100 / 300
Peoples Self Help Housing (CSA 1)	210	17 / 50
Main Gravity Zone to the Treatment Plant	630	370 / 1,110[3]

1 Refer to Table 7
2 Refer to Table 4.
3 Gravity flow only. Excludes allowance for tributary lift station flows.

The tributary areas that correspond to the lift station flows listed above are illustrated on **Plate 3**.

One new lift station is proposed to serve the area shown in **Plate 4.** The proposed Amado Street Lift Station is proposed to serve the residential suburban and agricultural area (based on future conversion to residential zoning) east of Highway 101.

Regarding the Nipomo Palms Lift Station, it is possible to eliminate the lift station by constructing approximately 2,700 feet of 12-inch gravity collector southeast of the lift station to Story Street. The sewer system master plan illustrated in **Plate 4** includes the construction of the replacement gravity lines. Concurrent with the elimination of the Nipomo Palms lift station, the flow from the two CSA 1 lift stations is proposed to be routed through the Beverly Drive residential area. Routing lift station flows in this manner will relieve flows in the Division Street 8-inch collector and along the Frontage Road.

Regarding the Tefft Street Lift Station, District staff has observed that the existing wet well volume is inadequate, particularly to handle flows during power outages. Increased wet well volume or provisions for fixed, emergency power generation are recommended.

10.2 Collection System Capacity

The BoyleSWAN computer model was used to simulate projected wastewater flows throughout the existing collection system. Proposed lift stations and recommendations for capacity upgrades at the Tefft Street Lift Station were simulated.

Again, the only deficiencies noted in the existing collection system was in the gravity collectors that comprise the main zone. Partucularly the gravity collectors south of Division Street to the wastewater treatment plant were found to lack capacity for projected flows.

Improvements needed to meet projected community sewer needs are illustrated in **Plate 4**. Local collectors which will be needed as development occurs will follow future street patterns and therefore cannot be accurately illustrated in a master plan.

Further, a question arose regarding sewering the area between Story Street and Southland Street. There is a depression there which precludes sewering south toward Southland Street. It appears that the

lower elevation areas will need to be served with a small lift station. Bear in mind that 1"=1,000' scale, 20 foot contour interval mapping was used as the basis for this master plan and that design-level facility plans are not presented herein. More detailed topographic mapping is needed to make specific sewering recommendations in this area.

11.0 Recommended Improvements

11.1 Estimated Costs and Priorities

Sections 7.0 through 10.0 discussed improvements needed to meet existing and projected water and sewer needs. Recommended improvements are summarized herein and budgetary cost estimates are provided for recommended facilities.

Boyle recommends that the District embark on a capital improvement program as described herein. Recommended improvements are illustrated on **Plates 1, 2, and 4.**

Cost Estimates

Opinions of probable construction cost are included for recommended pipeline construction and other improvements. The actual costs of specific projects may vary depending on many factors such as site conditions, the extent of existing utilities, environmental impact mitigation, and market conditions that are both unknown and not within the control of the District or Boyle.

Pipeline construction costs include materials, excavation, installation, backfill, valves and fittings (water), manholes (sewer), pavement replacement, and traffic control. A 25 percent contingency for design engineering, and permitting is included in these estimates. Right-of-way acquisition costs are *not* included in the estimates.

Pipeline costs, including contingencies, are based on the following unit costs:

Type	Diameter (inches)	Unit Cost ($/LF)
PVC Waterline - Class 150	8	54
	10	62
	12	67
Gravity Sewer Line	8	60
	10	66
	12	72
	15	85
	18	115
	21	130
Sewer Force Main	4	50
	6	58

The estimated cost to construct additional water storage is $0.50 per gallon which includes site grading, foundation, tank fabrication, erection, perimeter road, and fence. Sites which require mass grading may more than double this cost. Also, site acquisition costs are not included.

For the proposed Amado Street sewer lift station, a capital cost of $50,000 is estimated for this station (approximate capacity = 100 gpm).

The unit costs stated above were utilized in **Tables 9 and 10** to estimate the capital cost of recommended system improvements.

Priorities for System Improvements

Improvements recommended to correct water system deficiencies, in particular, are fairly extensive. Over 5 miles of new distribution lines are recommended as well as replacement of inefficient well pumps and construction of additional storage. Priorities have been assigned as follows:

Priority 1: Two additional Nipomo Creek crossings are recommended as first priority system upgrades because of the current lack of redundancy in the distribution system. A $100,000 budget for well pump replacement is also recommended as a top priority, so that the District can benefit from energy savings.

Priority 2: Paralleling the existing Twin Tank inlet/outlet line is in the second group of priorities. Providing additional storage, augmenting well supply, and completing well pump replacement are also second priority projects.

Priority 3: The final group of projects includes various distribution system upgrades needed to strengthen fire fighting capabilities.

Tables 9 and 10 list recommended water and sewer system improvements to meet existing and projected needs. In all, an estimated $3.8 million in water and sewer improvements are recommended to meet existing systems deficiencies.

Future water and sewer system improvements are estimated to cost an additional $3.4 million.

Note that some system improvements will be installed by developers and that not all recommended improvements will need to be financed by the District.

11.2 Additional Recommendations

During the course of working with District staff to compile information for this Master Plan, it was noted that the water meters throughout the Black Lake development have a different unit rating than the rest of the Nipomo system. Black Lake water meters measure in units of gallons while the rest of the system is measured in hundreds of cubic feet.

This difference in meter type has several disadvantages:

- Necessitates additional accounting to bill customers in Black Lake

- Opens up possibility for error in both meter reading and tabulating water usage
- Adds a level of complexity to the water rate structure

We recommend that the Black Lake water meters be replaced with "standard" water meters and that the District consider installing an automatic meter reading system throughout that development.

Estimated Unit Costs:

8-inch dia waterline	$54 per LF	Additional Storage	$0.50
10-inch dia waterline	$62 per LF		per gallon
12-inch dia waterline	$67 per LF		

TABLE 9
RECOMMENDED WATER SYSTEM IMPROVEMENTS

IMPROVEMENTS TO MEET EXISTING NEEDS:

Improvement	Length (feet)	Diameter (inches)	Estimated Capital Cost
Priority 1			
Highway 101 Crossing / Thompson & Sea 10" (Tefft St. Crossing Under Construction)	6,500	10	$403,000
Creek/Highway Crossing South of Knotts Street	3,850	10	$239,000
Budget for Well Pump Replacement	-	-	$100,000
Replace Steel Line on W. Dana Street	1,050	8	$57,000
Replace Steel Line on E. Price Street	1,200	8	$65,000
Replace Steel Line at Bennett Street	1,400	8	$76,000
Replace Steel Line in W. Price/Mallagh	630	8	$34,000
Subtotal Priority 1 =	**14,630**		**$974,000**
Priority 2			
Install Parallel Inlet/Outlet Line to Twin Tanks	9,800	12	$657,000
Install Additional 1.0 MG Storage Tank	-	-	$500,000
Budget for Well Pump Replacement	-	-	$75,000
Pursue Additional Well Capacity	-	-	$200,000
Subtotal Priority 2 =			**$1,432,000**
Priority 3			
Upgrade on Frontage Road	1,300	10	$81,000
Grande Avenue Upgrade	1,910	8	$103,000
Frontage Rd. from Summit Station Rd	4,500	10	$279,000
Frontage Road Upgrade	1,100	8	$59,000
Black Hawk Way Upgrade s/ of Grande	150	8	$8,000
Standpipe Tank to Frontage Rd.	3,000	8	$162,000
Loop Along Pomeroy	5,300	10	$329,000
Upgrade Along Hill St	890	10	$55,000
Loop to Serve Nipomo Elementary School	700	8	$38,000
Bonita Homes to Orchard (Fir Place)	800	8	$43,000
Poppy Lane Upgrade	1,000	10	$62,000
Subtotal Priority 3 =	**20,650**		**$1,219,000**
TOTALS = TO MEET EXISTING SYSTEM NEEDS	**35,280**		**$3,625,000**

IMPROVEMENTS TO MEET FUTURE NEEDS:

Improvement	Length (feet)	Diameter (inches)	Estimated Capital Cost
Provide additional 1.53 MG storage	-	-	$765,000
Black Lake system interties - (3) at $25,000 each	-	-	$75,000
Frontage Road main	5,150	10	$319,300
Frontage Road - Juniper to Tefft	1,400	8	$75,600
Connect to proposed Frontage Rd 10"	1,000	8	$54,000
Leaf Street - Thompson to Cedarwood	1,750	8	$94,500
Cedarwood	1,470	8	$79,380
Bennett Street to new 10"	1,700	8	$91,800
Extend Honey Grove to Southland	1,100	8	$59,400
Twilight Lane	650	8	$35,100
Inga Lane	1,700	8	$91,800
Camino Caballo	700	8	$37,800
Hill Street main	1,000	10	$62,000
	1,200	8	$64,800
TOTALS = TO MEET FUTURE NEEDS	**18,820**		**$1,905,500**

TABLE 10
RECOMMENDED SEWER SYSTEM IMPROVEMENTS

Improvement	Length (feet)	Diameter (Inches)	Estimated Capital Cost
Improvements to Meet Existing Needs:			
Nipomo Palms Lift Station Elimination	2,600	12	$187,000
Tie CSA 1 Lift Stations over to Nipomo Palms	-	-	$15,000
Subtotal Existing Needs =	**2,600**		**$202,000**
Improvements to Meet Future Needs:			
Gravity Line Upgrades:			
Oakglen Ave. Upgrade	1,320	15	$112,000
(Freeway Crossing)	880	15	$75,000
Frontage Road Upgrade	850	12	$61,000
	1,050	15	$89,000
	1,300	18	$150,000
	1,110	21	$144,000
Lift Stations:			
Proposed Amado Street Lift Station			
100 gpm Lift Station	-	-	$50,000
4-inch dia force main	700	4	$35,000
Tefft Street Lift Station Upgrade	-	-	$100,000
New Gravity Collectors:			
Orchard Road Collector	2,600	8	$156,000
Hill Street Collector	1,500	8	$90,000
Railroad Collector N/ of Tefft Street	1,900	8	$114,000
Frontage Road N/ of Juniper Street	2,800	8	$168,000
Story Street	2,800	8	
Tie over Pradera Place Septic System	-	-	$1,500
Southland Street	3,500	8	
Camino Caballo	2,500	8	$150,000
Subtotal Future Needs =	**24,810**		**$1,495,500**
TOTALS TO MEET SEWER SYSTEM NEEDS =			**$1,697,500**

Estimated Unit Costs:

8-inch gravity collector	$60	per LF
10-inch gravity collector	$66	per LF
12-inch gravity collector	$72	per LF
15-inch gravity collector	$85	per LF
18-inch gravity collector	$115	per LF
21-inch gravity collector	$130	per LF
4-inch dia force main	$50	per LF

APPENDIX A

Water Production Records 1988-1995

NIPOMO CSD
WATER AND SEWER MASTER PLAN
VT-N04-100-01, WATERUSE.XLS, CMF 4-26-95

WATER PRODUCTION RECORDS
(GALLONS)

	Eureka	Bevington	Omiya	Olympic	Savage	Church	Silver	Via Concha	SUBTOTAL	B'Lake #3	B'Lake #4	SUBTOTAL	TOTAL PRODUCTION		TOTAL CONSUMPTION		UAW	No. of Service Connections	Gross Water Usage per Conn.
									(gal)				(gal)	(acre-feet	(gal)	(acre-feet			(gal/conn/day)
1988																			
JAN													12,659,152	39	12,056,264			1,333	306
FEB													21,860,300	67	21,389,808			1,345	580
MAR													22,139,304	68	21,494,528			1,350	529
APR													31,321,752	96	30,059,128			1,383	755
MAY													29,715,796	91	28,600,528			1,386	692
JUN													34,308,516	105	32,799,800			1,383	827
JUL													43,099,760	132	39,540,776			1,420	979
AUG													41,935,872	129	38,366,416			1,432	945
SEP													38,668,608	119	35,901,008			1,458	884
OCT													31,465,368	97	29,617,060			1,475	688
NOV													23,562,000	72	22,099,660			1,479	531
DEC													19,685,864	60	18,569,848		6%	1,482	428
1989													*350,422,292*	*1,075*	*330,494,824*	*1,014*			
JAN													15,817,208	49	14,992,912			1,485	344
FEB													18,654,372	57	18,288,600			1,470	453
MAR													23,095,996	71	20,736,056			1,480	503
APR													31,303,800	96	30,151,132			1,490	700
MAY													34,437,920	106	33,104,236			1,514	734
JUN													42,658,440	131	41,262,672			1,497	950
JUL													58,472,656	179	53,644,316			1,514	1,246
AUG													45,194,908	139	41,349,440			1,504	969
SEP													40,677,736	125	37,769,512			1,526	889
OCT													28,347,704	87	26,693,128			1,542	593
NOV													31,622,448	97	29,664,184			1,554	678
DEC													23,315,160	72	21,995,688		6%	1,549	486
1990													*393,598,348*	*1,208*	*369,651,876*	*1,134*			
JAN													20,315,680	62	19,257,260			1,553	422
FEB													19,403,120	60	18,930,384			1,593	435
MAR													22,866,360	70	20,525,868			1,617	456
APR													30,997,120	95	29,862,404			1,644	628
MAY													36,143,360	111	34,753,576			1,649	707
JUN													40,964,968	126	39,617,820			1,687	809
JUL													49,026,164	150	41,638,916			1,678	942
AUG													52,193,944	160	49,454,768			1,702	989
SEP													40,253,620	124	39,231,852			1,704	787
OCT													34,413,984	106	35,028,840			1,708	650
NOV													40,907,372	126	40,647,068			1,735	786
DEC													26,038,628	80	27,567,540		4%	1,736	484
1991													*413,524,320*	*1,269*	*396,516,296*	*1,217*			
JAN													25,176,184	77	18,534,692			1,739	467
FEB													27,941,540	86	25,183,664			1,749	571
MAR													18,886,252	58	15,526,236			1,755	347
APR													36,978,128	113	25,127,564			1,742	708
MAY													48,489,848	149	42,059,292			1,748	895
JUN													56,527,856	173	40,240,156			1,757	1,072
JUL	39,506,368	11,616,440	1,912,636	1,404,744	107,712	306,680	0	0	54,854,580	0	0	0	54,854,580	168	42,297,904			1,763	1,004
AUG	32,494,616	7,951,240	1,682,252	3,583,668	243,100	0	359,768	0	46,314,664				46,314,664	142	45,799,292			1,773	843
SEP	39,584,160	3,908,300	121,176	3,644,256	273,020	0	0	0	47,530,912				47,530,912	146	38,467,396			1,773	694
OCT	33,668,976	4,091,560	2,659,888	3,021,172	877,404	0	0	0	44,319,000				44,319,000	136	35,761,880			1,779	804
NOV	29,649,972	4,710,904	424,864	3,107,940	435,336	0	313,412	0	38,642,428				38,642,428	119	33,575,476			1,799	716
DEC	7,687,944	13126652	2,888,776	4,146,164	1,009,800	0	578,204	0	29,437,540				29,437,540	90	24,171,620		19%	*1,803*	527
1992													*475,098,932*	*1,458*	*386,745,172*	*1,187*			
JAN	2,068,968	15,330,260	1,928,344	3,889,600	1,451,868	0	0	0	24,669,040				24,669,040	76	21,380,000			1,790	445
FEB	3,108,688	13,826,276	1,933,580	2,975,544	656,744	0	0	0	22,502,832				22,502,832	69	21,721,000			1,791	449
MAR	0	15,608,516	1,155,660	3,280,728	780,912	55,352	0	0	20,881,168				20,881,168	64	20,876,000			1,802	374
APR	32,915,740	6,948,920	1,784,728	3,089,240	278,256	59,840	0	0	45,076,724				45,076,724	138	64,512,000			1,823	824
MAY	36,364,020	11,106,304	2,065,228	2,093,652	489,940	313,412	923,780	0	53,356,336				53,356,336	164	34,110,000			1,849	931
JUN	33,983,884	13,282,984	1,985,192	1,746,580	460,020	311,916	11,968	0	51,782,544				51,782,544	159	39,562,000			1,875	921
JUL	33,020,000	10,606,000	2,729,000	3,224,000	343,000	1,009,000	0	0	50,931,000				50,931,000	156	47,493,000			1,917	857
AUG	35,975,000	12,908,000	3,258,000	1,802,000	492,000	727,000	0	0	55,162,000				55,162,000	169	50,797,000			1,917	928
SEP	34,716,000	4,378,000	3,271,000	4,535,000	71,000	313,000	0	0	47,284,000				47,284,000	145	48,491,000			1,917	822
OCT	30,334,000	4,089,000	3,012,000	3,217,000	1,028,000	525,000	0	0	42,205,000				42,205,000	130	51,007,000			1,917	710
NOV	31,116,000	2,256,000	416,000	1,442,000	381,000	83,000	0	0	35,696,000				35,696,000	110	16,488,000			1,917	621
DEC	12,608,000	14,406,000	3,932,000	2,240,000	548,000	819,000	0	0	34,555,000				34,555,000	106	30,359,000			1,917	581

Subtotal =	*286,212,300*	*124,750,260*	*27,470,732*	*33,535,344*	*6,980,740*	*4,216,520*	*935,748*	*0*	*484,101,644*	*0*	*0*	*0*	*484,101,644*	*1,486*	*446,798,000*	*1,371*	*8%*		
1993																			
JAN	133,144	14,302,508	2,395,844	1,334,432	417,384	1,095,072	0	0	19,678,384	507,000	2,057,000	2,564,000	22,242,384	68	15,600,000	48		2,516	285
FEB	1,468,324	13,334,596	2,153,492	0	506,396	858,704	0	0	18,321,512	263,000	1,224,000	1,487,000	19,808,512	61	17,500,000	54		2,516	281
MAR	9,925,960	11,729,388	2,107,864	2,307,580	18,700	667,216	0	0	26,756,708	0	0	0	26,756,708	82	21,700,000	67		2,516	343
APR	31,052,472	5,279,384	1,267,860	3,024,912	3,740	513,876	0	0	41,142,244	606,000	6,451,000	7,057,000	48,199,244	148	31,600,000	97		2,516	639
MAY	36,654,992	11,424,204	982,872	2,914,208	536,316	822,052	0	0	53,334,644	1,891,000	7,185,000	9,076,000	62,410,644	192	43,800,000	134		2,516	800
JUN	33,656,260	12,840,168	3,509,616	2,809,488	904,332	2,675,596	0	0	56,395,460	2,204,000	7,289,000	9,493,000	65,888,460	202	42,700,000	131		2,516	873
JUL	34,260,644	13,213,420	3,081,012	2,321,044	270,776	1,539,384	0	0	54,686,280	2,379,000	7,431,000	9,810,000	64,496,280	198	50,100,000	154		2,516	827
AUG	36,238,356	12,551,440	1,475,056	1,649,056	368,016	825,792	0	0	53,307,716	2,024,000	7,047,000	9,071,000	62,378,716	191	49,900,000	153		2,516	800
SEP	35,247,256	8,302,052	2,025,584	1,303,106	0	1,832,600	0	0	48,710,598	1,273,000	6,895,000	8,168,000	56,878,598	175	12,100,000	37		2,516	754
OCT	29,114,404	7,846,520	2,178,176	790,636	178,772	526,592	0	0	40,635,100	1,919,000	4,837,000	6,756,000	47,391,100	145	45,900,000	141		2,516	608
NOV	25,171,696	5,149,232	1,263,372	937,992	103,972	1,031,492	0	0	33,657,756	5,857,000	0	5,857,000	39,514,756	121	21,200,000	65		2,516	524
DEC	23,463,264	0	35,904	1,396,524	82,280	1,226,720	0	0	26,204,692	1,702,000	2,807,000	4,509,000	30,713,692	94	26,300,000	81		2,516	394
	296,386,772	*115,972,912*	*22,476,652*	*20,988,978*	*3,390,684*	*13,615,096*	*0*	*0*	*472,831,094*	*20,625,000*	*53,223,000*	*73,848,000*	*548,679,094*	*1,678*	*378,400,000*	*1,161*	*31%*		
1994																			
JAN	24,838,088	0	508,640	2,034,000	10,472	1,319,256	0	0	28,710,456	68,000	4,865,000	4,933,000	33,643,456	103	22,800,000	70		2,514	432
FEB	14,186,568	0	1,862,520	2,961,000		1,136,212	0	0	20,146,300	0	2,700,000	2,700,000	22,846,300	70	26,900,000	83		2,514	325
MAR	14,233,692	11,851,312	1,608,000	566,000		866,932	0	0	29,125,936	1,454,000	4,178,000	5,632,000	34,757,936	107	20,400,000	63		2,514	446
APR	27,530,888	6,283,200	882,000	375,000		679,932	0	0	35,751,020	213,000	6,697,000	6,910,000	42,661,020	131	30,600,000	94		2,514	566
MAY	28,087,400	4,876,212	3,439,000	1,932,000		3,225,376	0	0	41,559,988	646,000	6,861,000	7,507,000	49,066,988	151	30,500,000	94		2,514	630
JUN	31,530,444	13,740,012	2,098,000	2,999,000		1,413,720	0	2,822,204	54,603,380	1,963,000	7,412,000	9,375,000	63,978,380	196	56,600,000	174		2,514	848
JUL	37,110,524	16,473,204	5,691,000	915,000		580,448	0	0	60,770,176	2,683,000	7,721,000	10,404,000	71,174,176	218	46,300,000	142		2,514	913
AUG	34,790,976	16,993,812	3,696,000	2,358,000		1,284,316	0	0	59,123,104	2,521,000	7,758,000	10,279,000	69,402,104	213	69,500,000	213		2,514	891
SEP	34,541,892	12,653,916	635,000	1,063,000		0	0	0	48,893,808	2,035,000	7,079,000	9,114,000	58,007,808	178	46,300,000	142		2,514	769
OCT	30,566,272	3,452,768	2,594,000	3,067,000		217,668	0	248,336	40,146,044	460,000	6,957,000	7,417,000	47,563,044	146	37,400,000	115		2,514	610
NOV	25,884,540	1,712,172	485,000	526,000		0	0	154,836	28,762,548	265,000	4,686,000	4,951,000	33,713,548	103	34,800,000	107		2,514	447
DEC	3,312,892	17,339,388	1,666,000	4,880,000		728,552	0	0	27,926,832	5,000	4,875,000	4,880,000	32,806,832	101	29,900,000	92		2,514	421
	306,614,176	*105,375,996*	*25,165,160*	*23,676,000*	*10,472*	*11,452,412*	*0*	*3,225,376*	*475,519,592*	*12,313,000*	*71,789,000*	*84,102,000*	*559,621,592*	*1,718*	*452,000,000*	*1,387*	*19%*		
1995																			
JAN	10,422,632	1,735,360	684,000	4,795,000	0	1,217,744	0	1,309,000	20,163,736	0	2,085,000	2,085,000	22,248,736	68					
FEB	16,923,500	61,336	0	5,536,000	0	0	0	32,164	22,553,000	0	3,340,000	3,340,000	25,893,000	79					
MAR	9,975,328	11,402,512	1,273,000	1,791,000	0	0	0	10,472	24,452,312	507,000	2,698,000	3,205,000	27,657,312	85					
APR																			
MAY																			
JUN																			
													75,799,048		*0*				
7-1/2 YEAR AVERAGES													**450,047,104**	**1,381**	**394,372,024**	**1,210**	**12%**		**673**
													MG/year	**AFY**	**MG/year**	**AFY**	**UAW**		**gal/conn/day**
2-YEAR AVERAGES													**553,150,343**	**1,698**	**415,200,000**	**1,274**	**25%**		

Source: Jan 88 thru Jun 91 - Data sheets provided by Nipomo CSD titled "SLO County Engineering Dept. Water Usage."
Jul 91 thru Mar 95 - Production records provided on Nipomo CSD data forms. Consumption data taken from Dept. of Water Resources "Public Water System Statistics" form.
No. of service connections taken from above references. Water usage per connection based on production records.

APPENDIX B

Input Files for Water and Sewer Models

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* FILE NAME NIPLOOP.DTA  11/3/95
* EXISTING NIPOMO CSD WATER DISTRIBUTION SYSTEM, CURRENT DEMANDS.  UPGRADES
* RECOMMENDED TO CORRECT EXISTING DEFICIENCIES INCLUDED.
* THIS IS THE FINAL FILE FOR THE EXISTING SYSTEM
NEW    c:\engr\net\nip.wrk
OUTPUT c:\engr\net\niploop.out
TITLE
NIPOMO WATER MASTER PLAN VT-N04-100-01 CMF/JAL 8/26/95
BASE MODEL
UNITS      0  0  0  0  0  0  0
FACTORS    2.0  1.000
LIMITS     50   1.000   0.50  5.00    0.0  15.0     20.0  125.0  1918.0   50
LINES      80
UNKNOWNS
        101     541.6                       * TWIN TANKS
        199     540                         * STANDPIPE
        178     -15     1                   * EUREKA WELL PUMP
        181     -10.2   2                   * BEVINGTON WELL PUMP
        185     23      3                   * OMIYA WELL PUMP
        169     -65     5                   * VIA CONCHA WELL PUMP
        244     222     4                   * CHURCH WELL PUMP
CHECK VALVES
BOOSTER PUMPS
PRV
PUMP CURVE
1       0       990     400     910     650     840     850     740     1020    680     * EUREKA
2       0       875     200     875     300     830     416     677     450     600     * BEVINGTON
3       0       952     40      924     80      826     100     749     120     630     * OMIYA
4       0       774     100     608     200     440     225     391     250     340     * CHURCH
5       0       936     200     888     400     856     700     696     800     576     * VIA CONCHA
PIPES
101     101     102     5610    10      125
102     102     103     1560    10      125
103     103     104     510     10      125
104     104     105     520     10      125
105     105     106     350     10      125
106     106     107     430     10      125
107     107     108     500     10      125
108     108     109     830     10      125
109     109     110     860     10      125
110     110     111     1080    10      125
111     111     112     1030    10      125
112     112     113     830     10      125
113     113     114     320     10      125
114     114     115     200     10      125
115     115     116     60      10      125
116     116     117     250     10      125
117     117     120     360     10      125
118     120     121     30      10      125
119     121     122     260     10      125
120     122     123     340     10      125
121     123     124     25      10      125
122     124     125     440     10      125
123     125     126     10      10      125
124     126     127     320     10      125
125     127     130     190     10      125
126     130     131     30      10      125
127     131     701     330     10      125
128     118     700     200     10      125
129     701     132     120     10      125
130     118     134     700     10      125
131     134     135     1150    10      125
132     135     136     870     10      125
133     136     702     420     10      125
134     137     138     800     10      125
135     138     139     710     10      125
136     139     140     710     10      125
137     109     141     1340    10      125
138     141     142     490     10      125
139     142     143     620     10      125
140     143     144     530     10      125
141     144     145     270     10      125
142     145     146     510     10      125
143     146     147     340     10      125
144     147     150     250     10      125
145     150     151     470     10      125
146     151     140     440     10      125
```

147	140	152	760	10	125
148	152	153	700	10	125
149	153	154	540	10	125
150	154	155	160	10	125
151	155	168	700	10	125
152	156	157	650	10	125
153	157	158	630	10	125
154	158	159	25	10	125
155	159	160	650	10	125
156	160	161	40	10	125
157	161	162	510	10	125
158	162	163	80	10	125
159	163	164	370	10	125
160	164	165	240	10	125
161	165	166	150	10	125
162	166	167	510	10	125
163	167	170	370	10	125
164	170	171	2160	16	125
165	171	172	3650	16	125
166	172	173	1800	16	125
167	173	169	1700	12	125
168	174	175	900	10	125
169	174	176	900	10	125
170	178	177	198	10	125
171	177	176	5974	10	125
172	176	175	10	10	125
173	175	179	1130	10	125
174	181	180	335.2	8	125
175	180	179	200	10	125
176	179	182	5110	10	125
177	185	184	357	8	125
178	184	183	250	8	125
179	183	182	10	8	125
180	183	187	1260	8	125
181	183	186	1260	8	125
182	393	395	1350	8	125
183	190	191	40	8	125
184	191	192	870	8	125
185	192	193	1130	10	125
186	193	198	3516	10	125
187	194	195	3480	8	125
188	194	196	950	10	125
189	196	197	500	10	125
190	200	201	500	10	125
191	201	203	1800	10	125
192	202	203	540	10	125
193	203	204	650	10	125
194	204	205	330	8	125
195	205	206	60	8	125
196	206	207	900	8	125
197	207	208	20	8	125
198	208	209	810	8	125
199	209	210	80	8	125
200	210	211	370	8	125
201	211	212	330	8	125
202	212	213	1470	8	125
203	213	214	1450	8	125
204	214	215	1070	8	125
205	215	216	960	8	125
206	216	217	130	8	125
207	217	196	1400	8	125
208	202	220	150	10	125
209	220	221	910	10	125
210	221	154	100	10	125
211	107	222	440	8	125
212	222	223	20	6	125
213	222	230	830	6	125
214	223	230	430	6	125
215	223	224	430	6	125
216	224	225	430	6	125
217	224	231	440	6	125
218	225	226	450	6	125
219	225	232	440	6	125
220	226	227	520	6	125
221	226	234	370	6	125
222	227	228	520	6	125
223	227	235	370	6	125
224	228	229	370	6	125
225	229	240	370	6	125
226	230	231	430	6	125
227	231	241	270	6	125
228	231	232	430	6	125
229	232	242	270	6	125
230	232	233	450	6	125
231	233	247	290	6	125
232	233	234	70	6	125
233	234	235	520	6	125
234	235	236	550	6	125
235	236	237	70	6	125
236	237	255	200	6	125
237	255	256	600	6	125
238	255	257	150	6	125
239	257	258	520	8	125
240	240	258	370	8	125
241	258	250	370	8	125
242	241	242	420	6	125
243	242	218	150	6	125
244	244	243	89	8	125
245	243	218	750	8	125
246	242	245	380	6	125
247	246	247	80	8	125
248	247	249	880	8	125
249	246	248	280	8	125
250	248	249	520	8	125
251	249	219	650	8	125
252	219	250	500	8	125
253	250	254	350	8	125
254	248	251	430	8	125
255	251	252	490	8	125
256	252	253	590	8	125
257	253	254	460	8	125
258	102	259	1320	8	125
259	259	265	370	6	125
260	259	265	370	6	125
261	260	103	370	6	125
262	260	261	300	6	125
263	261	262	200	6	125
264	262	104	370	8	125
265	262	270	370	8	125
266	262	263	450	6	125
267	263	271	370	6	125
268	263	264	430	6	125
269	264	272	370	6	125
270	265	266	520	6	125
271	265	267	480	6	125
272	267	270	620	6	125
273	270	273	480	8	125
274	270	271	450	6	125
275	271	274	480	6	125
276	271	272	430	6	125
277	272	275	480	6	125
278	273	276	470	6	125
279	273	274	450	6	125
280	274	277	470	6	125
281	274	275	430	6	125
282	275	278	470	6	125
283	276	279	480	8	125
284	276	277	450	6	125
285	277	278	430	6	125
286	278	281	480	6	125
287	279	283	450	8	125
288	279	280	450	6	125
289	280	282	480	6	125
290	280	281	430	6	125
291	281	282	910	6	125
292	113	284	780	6	125
293	284	285	580	6	125
294	284	268	340	6	125
295	268	285	240	6	125
296	285	286	300	6	125
297	286	287	110	6	125
298	287	290	1980	6	125
299	290	291	250	6	125
300	291	292	530	6	125
301	292	293	360	6	125
302	293	294	200	6	125

303	294	295	510	6	125
304	295	296	530	6	125
305	296	297	860	6	125
306	297	298	1000	6	125
307	298	299	200	6	125
308	299	300	300	8	125
309	300	301	540	8	125
310	301	118	480	8	125
311	299	302	770	6	125
312	302	303	560	6	125
313	303	304	400	6	125
314	303	269	450	6	125
315	269	304	830	6	125
316	304	305	380	6	125
317	305	306	780	6	125
318	112	307	200	8	125
319	307	308	500	8	125
320	306	310	520	6	125
321	310	309	300	6	125
322	309	116	570	6	125
323	121	311	520	6	125
324	311	312	670	6	125
325	312	122	200	6	125
326	123	313	300	6	125
327	313	314	630	6	125
328	126	314	540	6	125
329	127	315	590	6	125
330	131	315	340	6	125
331	315	316	160	6	125
332	316	317	675	6	125
333	316	320	760	6	125
334	317	320	180	6	125
335	320	133	398	6	125
336	320	301	500	6	125
337	135	321	560	6	125
338	321	322	160	6	125
339	322	323	150	6	125
340	323	324	260	8	125
341	324	326	430	8	125
342	323	325	440	8	125
343	325	326	260	8	125
344	325	327	210	8	125
345	327	132	930	8	125
346	327	130	980	8	125
347	322	328	470	6	125
348	328	329	360	6	125
349	329	330	360	6	125
350	330	331	1020	8	125
351	331	332	360	8	125
352	332	333	210	8	125
353	332	318	800	6	125
354	318	116	550	6	125
355	333	319	200	6	125
356	319	114	900	6	125
357	138	342	660	8	125
358	342	343	330	8	125
359	343	344	1220	8	125
360	344	345	820	8	125
361	345	346	890	8	125
362	346	347	900	6	125
363	346	338	420	8	125
364	338	347	600	8	125
365	347	330	1970	8	125
366	152	348	520	6	125
367	348	349	170	6	125
368	349	350	270	6	125
369	349	351	600	6	125
370	350	351	410	6	125
371	351	352	560	6	125
372	350	352	220	6	125
373	352	151	130	6	125
374	348	353	860	6	125
375	353	354	200	6	125
376	354	357	950	6	125
377	354	355	150	6	125
378	355	356	600	6	125
379	355	360	260	6	125
380	360	361	400	6	125
381	360	362	260	6	125
382	362	363	400	6	125
383	362	364	660	6	125
384	357	356	260	6	125
385	356	361	280	6	125
386	361	363	260	6	125
387	363	364	260	6	125
388	150	357	150	6	125
389	145	364	150	6	125
390	353	369	680	6	125
391	144	365	140	6	125
392	365	367	640	6	125
393	365	366	260	6	125
394	366	367	370	6	125
395	366	368	260	6	125
396	367	703	450	6	125
397	143	368	140	6	125
398	153	370	1800	6	125
399	369	370	380	6	125
400	221	371	570	8	125
401	371	372	1000	8	125
402	372	373	1620	8	125
403	373	374	280	8	125
404	374	375	310	8	125
405	375	376	650	8	125
406	374	377	650	8	125
407	376	377	230	8	125
408	376	339	800	6	125
409	339	141	1240	6	125
410	155	380	850	6	125
411	220	380	390	6	125
412	380	381	940	6	125
413	381	157	760	6	125
414	381	203	750	6	125
415	381	382	640	6	125
416	382	158	770	6	125
417	382	383	370	6	125
418	383	204	380	6	125
419	383	206	780	6	125
420	163	384	450	6	125
421	384	385	320	6	125
422	385	386	600	6	125
423	386	208	170	6	125
424	165	378	590	6	125
425	378	387	210	8	125
426	387	388	600	8	125
427	388	210	350	8	125
428	170	389	180	8	125
429	389	390	430	8	125
430	390	391	590	8	125
431	391	212	310	8	125
432	160	392	720	6	125
433	163	393	780	8	125
434	165	394	620	8	125
435	394	395	550	8	125
436	209	397	1210	6	125
437	397	400	600	8	125
438	400	207	980	6	125
439	400	401	910	8	125
440	401	205	980	6	125
441	401	201	510	10	125
442	397	402	420	10	125
443	402	217	470	8	125
444	402	200	1660	10	125
445	190	403	2530	8	125
446	403	404	1230	8	125
447	404	407	2150	8	125
448	404	405	1020	8	125
449	405	406	390	8	125
450	406	407	1270	8	125
451	406	408	1100	8	125
452	405	410	3700	8	125
453	408	704	500	8	125
454	192	411	1630	8	125
455	411	410	80	8	125
456	410	409	1600	8	125
457	411	412	950	8	125
458	412	413	350	8	125

459	412	430	1030	8	125	
460	414	193	1730	8	125	
461	191	421	1120	8	125	
462	403	422	560	8	125	
463	407	423	670	8	125	
464	408	424	1000	8	125	
465	414	425	480	8	125	
466	147	420	590	6	125	
467	420	419	380	6	125	
468	419	139	570	6	125	
469	146	416	640	6	125	
470	416	417	40	6	125	
471	417	418	330	6	125	
472	418	419	300	6	125	
473	417	415	220	6	125	
474	415	343	470	6	125	
475	418	342	690	8	125	
476	125	334	180	6	125	
477	334	335	440	6	125	
478	334	336	250	6	125	
479	336	337	700	6	125	
480	124	335	150	6	125	
481	335	427	290	6	125	
482	427	337	230	6	125	
483	337	426	440	6	125	
484	427	428	440	6	125	
485	426	428	220	6	125	
486	428	122	400	6	125	
487	426	340	240	6	125	
488	340	120	570	6	125	
489	340	341	580	6	125	
490	341	117	290	6	125	
491	399	398	348	8	125	
492	398	385	200	8	125	
493	169	174	332.6	8	125	
500	700	133	230	10	125	
501	133	132	400	10	125	
502	702	137	200	10	125	
503	703	368	190	6	125	
504	704	409	2760	8	125	
505	168	156	700	10	125	
506	156	168	750	6	125	
507	194	198	2084	12	125	
508	198	199	2049	16	125	
509	159	392	1642	6	125	
510	104	226	410	8	125	
511	103	227	410	6	125	
512	106	224	410	6	125	
513	409	430	1100	8	125	* DALE AVE
514	430	710	2570	8	125	* FRISCO WAY
575	710	414	1890	8	125	* SUMMIT STATION RD
NODES						
101	0	523.8	0	0	0	
102	0	360	0	0	0	
103	0	342	0	0	0	
104	0	336	0	0	0	
105	0	329	0	0	0	
106	0	324	0	0	0	
107	0	316	0	0	0	
108	0	320	0	0	0	
109	0	328	0	0	0	
110	0	334	0	0	0	
111	0	331	0	0	0	
112	0	310	0	0	0	
113	0	333	0	0	0	
114	0	343	0	0	0	
115	0	350	0	0	0	
116	0	351	0	0	0	
117	0	357	0	0	0	
118	0	329	0	0	0	
120	0	356	0	0	0	
121	0	355	0	0	0	
122	0	343	0	0	0	
123	0	337	0	0	0	
124	0	337	0	0	0	
125	0	333	0	0	0	
126	0	333	0	0	0	
127	0	327	0	0	0	

130	0	326	0	0	0	
131	0	326	0	0	0	
132	0	343	0	0	0	
133	0	338	0	0	0	
134	0	349	0	0	0	
135	0	368	0	0	0	
136	0	389	0	0	0	
137	0	395	0	0	0	
138	0	362	0	0	0	
139	0	358	0	0	0	
140	0	365	0	0	0	
141	0	346	0	0	0	
142	0	357	0	0	0	
143	0	370	0	0	0	
144	0	367	0	0	0	
145	0	372	0	0	0	
146	0	373	0	0	0	
147	0	356	0	0	0	
150	0	353	0	0	0	
151	0	360	0	0	0	
152	0	374	0	0	0	
153	0	347	0	0	0	
154	0	365	0	0	0	
155	0	361	0	0	0	
156	0	343	0	0	0	
157	0	322	0	0	0	
158	0	330	0	0	0	
159	0	330	0	0	0	
160	0	340	0	0	0	
161	0	340	0	0	0	
162	0	340	0	0	0	
163	0	340	0	0	0	
164	0	340	0	0	0	
165	0	335	0	0	0	
166	0	330	0	0	0	
167	0	315	0	0	0	
168	0	340	0	0	0	
169	0	-65.6	0	0	0	* VIA CONCHA WELL
170	0	306.4	0	0	0	
171	0	305	0	0	0	
172	0	225	0	0	0	
173	0	254	0	0	0	
174	0	267	0	0	0	* VIA CONCHA WELL DISCHARGE
175	0	283	0	0	0	
176	0	283	0	0	0	
177	0	183	0	0	0	* EUREKA WELL DISCHARGE
178	0	-15	0	0	0	* EUREKA WELL
179	0	322	0	0	0	
180	0	325	0	0	0	* BEVINGTON WELL DISCHARGE
181	0	-10.2	0	0	0	* BEVINGTON WELL
182	0	394	0	0	0	
183	0	394	0	0	0	
184	0	380	0	0	0	* OMIYA WELL DISCHARGE
185	0	23	0	0	0	* OMIYA WELL
186	0	362	0	0	0	
187	0	362	0	0	0	
190	0	410	0	0	0	
191	0	410	0	0	0	
192	0	430	0	0	0	
193	0	428	0	0	0	
194	0	404	0	0	0	
195	0	410	0	0	0	
196	0	380	0	0	0	
197	0	367	0	0	0	
198	0	400	0	0	0	
199	0	459.63	0	0	0	* STANDPIPE TANK
200	0	370	0	0	0	
201	0	357	0	0	0	
202	0	357	0	0	0	
203	0	343	0	0	0	
204	0	340	0	0	0	
205	0	347	0	0	0	
206	0	347	0	0	0	
207	0	345	0	0	0	
208	0	345	0	0	0	
209	0	330	0	0	0	
210	0	328	0	0	0	
211	0	327	0	0	0	

212	0	325	0	0	0	
213	0	336	0	0	0	
214	0	361	0	0	0	
215	0	370	0	0	0	
216	0	359	0	0	0	
217	0	359	0	0	0	
218	0	313	0	0	0	
219	0	350	0	0	0	
220	0	360	0	0	0	
221	0	368	0	0	0	
222	0	317	0	0	0	
223	0	317	0	0	0	
224	0	317	0	0	0	
225	0	319	0	0	0	
226	0	325	0	0	0	
227	0	331	0	0	0	
228	0	337	0	0	0	
229	0	347	0	0	0	
230	0	307	0	0	0	
231	0	311	0	0	0	
232	0	315	0	0	0	
233	0	321	0	0	0	
234	0	321	0	0	0	
235	0	327	0	0	0	
236	0	337	0	0	0	
237	0	338	0	0	0	
240	0	361	0	0	0	
241	0	308	0	0	0	
242	0	313	0	0	0	
243	0	311	0	0	0	* CHURCH WELL DISCHARGE
244	0	222	0	0	0	* CHURCH WELL
245	0	316	0	0	0	
246	0	318	0	0	0	
247	0	318	0	0	0	
248	0	315	0	0	0	
249	0	320	0	0	0	
250	0	379	0	0	0	
251	0	316	0	0	0	
252	0	323	0	0	0	
253	0	335	0	0	0	
254	0	370	0	0	0	
255	0	361	0	0	0	
256	0	338	0	0	0	
257	0	361	0	0	0	
258	0	377	0	0	0	
259	0	336	0	0	0	
260	0	331	0	0	0	
261	0	329	0	0	0	
262	0	328	0	0	0	
263	0	324	0	0	0	
264	0	321	0	0	0	
265	0	353	0	0	0	
266	0	362	0	0	0	
267	0	345	0	0	0	
268	0	313	0	0	0	
269	0	285	0	0	0	
270	0	334	0	0	0	
271	0	328	0	0	0	
272	0	320	0	0	0	
273	0	336	0	0	0	
274	0	330	0	0	0	
275	0	323	0	0	0	
276	0	338	0	0	0	
277	0	332	0	0	0	
278	0	325	0	0	0	
279	0	337	0	0	0	
280	0	335	0	0	0	
281	0	330	0	0	0	
282	0	339	0	0	0	
283	0	346	0	0	0	
284	0	316	0	0	0	
285	0	313	0	0	0	
286	0	313	0	0	0	
287	0	312	0	0	0	
290	0	317	0	0	0	
291	0	319	0	0	0	
292	0	319	0	0	0	
293	0	320	0	0	0	
294	0	318	0	0	0	
295	0	320	0	0	0	
296	0	320	0	0	0	
297	0	320	0	0	0	
298	0	319	0	0	0	
299	0	319	0	0	0	
300	0	318	0	0	0	
301	0	319	0	0	0	
302	0	310	0	0	0	
303	0	302	0	0	0	
304	0	305	0	0	0	
305	0	304	0	0	0	
306	0	306	0	0	0	
307	0	318	0	0	0	
308	0	322	0	0	0	
309	0	314	0	0	0	
310	0	309	0	0	0	
311	0	328	0	0	0	
312	0	335	0	0	0	
313	0	324	0	0	0	
314	0	306	0	0	0	
315	0	312	0	0	0	
316	0	312	0	0	0	
317	0	314	0	0	0	
318	0	359	0	0	0	
319	0	348	0	0	0	
320	0	310	0	0	0	
321	0	397	0	0	0	
322	0	398	0	0	0	
323	0	404	0	0	0	
324	0	397	0	0	0	
325	0	398	0	0	0	
326	0	399	0	0	0	
327	0	362	0	0	0	
328	0	397	0	0	0	
329	0	358	0	0	0	
330	0	354	0	0	0	
331	0	344	0	0	0	
332	0	340	0	0	0	
333	0	337	0	0	0	
334	0	337	0	0	0	
335	0	340	0	0	0	
336	0	347	0	0	0	
337	0	350	0	0	0	
338	0	342	0	0	0	
339	0	360	0	0	0	
340	0	374	0	0	0	
341	0	364	0	0	0	
342	0	326	0	0	0	
343	0	320	0	0	0	
344	0	350	0	0	0	
345	0	360	0	0	0	
346	0	360	0	0	0	
347	0	353	0	0	0	
348	0	372	0	0	0	
349	0	371	0	0	0	
350	0	362	0	0	0	
351	0	342	0	0	0	
352	0	361	0	0	0	
353	0	361	0	0	0	
354	0	370	0	0	0	
355	0	387	0	0	0	
356	0	360	0	0	0	
357	0	360	0	0	0	
360	0	401	0	0	0	
361	0	374	0	0	0	
362	0	408	0	0	0	
363	0	372	0	0	0	
364	0	370	0	0	0	
365	0	370	0	0	0	
366	0	370	0	0	0	
367	0	400	0	0	0	
368	0	381	0	0	0	
369	0	348	0	0	0	
370	0	358	0	0	0	
371	0	380	0	0	0	
372	0	389	0	0	0	
373	0	360	0	0	0	

374	0	360	0	0	0	
375	0	360	0	0	0	
376	0	360	0	0	0	
377	0	360	0	0	0	
378	0	380	0	0	0	
380	0	380	0	0	0	
381	0	360	0	0	0	
382	0	369	0	0	0	
383	0	360	0	0	0	
384	0	340	0	0	0	
385	0	359	0	0	0	
386	0	320	0	0	0	
387	0	342	0	0	0	
388	0	317	0	0	0	
389	0	317	0	0	0	
390	0	339	0	0	0	
391	0	316	0	0	0	
392	0	317	0	0	0	
393	0	311	0	0	0	
394	0	322	0	0	0	
395	0	303	0	0	0	
397	0	347	0	0	0	
398	0	362	0	0	0	* OLYMPIC WELL DISCHARGE
399	0	14	0	0	0	* OLYMPIC WELL
400	0	343	0	0	0	
401	0	350	0	0	0	
402	0	370	0	0	0	
403	0	372	0	0	0	
404	0	357	0	0	0	
405	0	398	0	0	0	
406	0	390	0	0	0	
407	0	350	0	0	0	
408	0	424.7	0	0	0	
409	0	360	0	0	0	
410	0	445	0	0	0	
411	0	444	0	0	0	
412	0	420	0	0	0	
413	0	440	0	0	0	
414	0	447	0	0	0	
415	0	350	0	0	0	
416	0	358	0	0	0	
417	0	358	0	0	0	
418	0	356	0	0	0	
419	0	356	0	0	0	
420	0	357	0	0	0	
421	0	407	0	0	0	
422	0	380	0	0	0	
423	0	320	0	0	0	
424	0	452	0	0	0	
425	0	455	0	0	0	
426	0	377	0	0	0	
427	0	354	0	0	0	
428	0	360	0	0	0	
430	0	340	0	0	0	
700	0	332.2	0	0	0	
701	0	330.4	0	0	0	
702	0	396.4	0	0	0	
703	0	380	0	0	0	
704	0	432.3	0	0	0	
710	0	360	0	0	0	

DEMANDS

102	-0.45
103	-2.26
104	-42.28
105	-2.6
106	-4.67
107	-6.42
108	-20.47
109	-19.87
110	-11.78
111	-34.27
112	-1.5
113	-9.64
114	-6.62
115	-5.87
116	-2.03
117	-2.48
118	-2.98
120	-1.58
121	-1.81
122	-2.48
123	-1.81
124	-1.58
125	-36.68
126	-1.81
127	-2.26
130	-3.38
131	-1.35
132	-1.5
133	-5.36
134	-3.91
136	-2.63
137	-0.75
138	-1.5
139	-26.14
141	-24.75
142	-9.78
143	-7.7
144	-1.58
145	-0.9
146	-2.25
147	-1.35
150	-36.23
151	-1.5
152	-37.21
153	-4.88
154	-1.13
155	-2.63
156	-2.63
158	-0.38
159	-1.5
160	-0.75
161	-3.75
163	-4.13
165	-2.63
167	-1.5
170	-1.5
187	-1.88
190	-0.75
192	-0.75
193	-1.88
196	-1.13
200	-2.63
201	-2.63
202	-1.13
203	-3.75
204	-2.25
205	-4.13
206	-1.13
207	-2.25
208	-38.33
209	-1.13
210	-2.63
211	-3
212	-1.13
214	-1.5
215	-1.5
217	-1.5
219	-3.75
221	-2.25
222	-1.43
223	-1.43
224	-1.43
225	-1.43
226	-2.29
227	-6.27
228	-4.51
229	-2.26
230	-1.58
231	-1.81
232	-1.58
233	-4.11
234	-2.29
235	-3.16
236	-1.35
237	-2.26

240	-2.26
241	-1.58
242	-1.58
245	-1.58
246	-1.81
247	-1.81
248	-1.81
249	-2.26
250	-2.26
251	-0.9
252	-2.26
253	-2.26
254	-1.13
255	-3.53
256	-3.53
257	-3.53
258	-2.26
259	-2.26
260	-4.29
261	-1.58
262	-3.79
263	-2.29
264	-1.34
265	-1.57
266	-1.13
267	-1.58
270	-2.29
271	-1.81
272	-1.81
273	-0.45
274	-2.48
275	-1.13
276	-1.13
277	-2.03
278	-1.35
279	-0.45
280	-2.26
281	-1.13
282	-2.26
283	-0.68
284	-2.93
285	-2.93
286	-1.13
287	-3.23
290	-5.85
291	-3
292	-3
293	-4.88
295	-7.13
296	-1.5
297	-1.5
299	-0.38
300	-1.5
301	-3.29
302	-4.5
303	-4.88
304	-1.13
305	-4.5
306	-5.03
307	-1.13
308	-1.5
309	-2.03
310	-2.03
311	-3.16
312	-2.26
313	-5.42
314	-6.77
315	-5.54
316	-3.29
317	-3.29
318	-7.59
319	-5.6
320	-3.29
321	-2.25
323	-2.71
324	-3.84
325	-2.71
326	-3.16
327	-3.08
329	-3.75
330	-45.12
331	-5.6
332	-5.6
333	-8
334	-1.58
335	-2.03
336	-5.87
337	-3.39
338	-8.63
339	-14.19
340	-3.39
341	-4.51
342	-2.63
343	-6.48
344	-19.53
345	-30.34
346	-12.76
347	-3.02
348	-1.5
349	-1.81
350	-1.81
351	-2.93
352	-2.48
353	-3.38
354	-2.48
355	-2.48
356	-2.93
357	-3.16
360	-2.03
361	-2.48
362	-3.39
363	-2.48
364	-2.26
365	-1.58
366	-1.81
367	-4.74
368	-1.81
369	-8.25
370	-7.13
371	-2.63
372	-9
373	-5.63
374	-2.33
375	-11.09
376	-5.26
377	-5.26
380	-3
381	-2.63
382	-1.13
383	-1.88
385	-3
387	-1.88
390	-4.13
391	-3.38
392	-1.5
393	-1.13
394	-0.75
395	-1.13
397	-2.63
400	-2.63
401	-3.38
402	-3.38
406	-0.75
407	-0.75
408	-1.88
409	-1.5
410	-36.83
412	-2.25
414	-4.13
415	-2.48
416	-1.35
417	-1.13
418	-2.48
419	-0.75
420	-2.26
421	-0.75

```
425             -1.13
426             -1.35
427             -2.71
428             -2.48
FIXED DEMANDS
139 -44.88
330 -11.93
318 -3.84
333 -1.85
399 145         * OLYMPIC WELL
425 -1000
AREA DEMANDS
MODIFY
PIPES
* THESE ARE UPGRADES TO MEET EXISTING SYSTEM DEFICIENCIES
409     339     141     1240    10      135     * UPGRADE ON FRONTAGE RD
515     275     141     1760    10      135     * CREEK & HWY 101 XING
516     251     307     3660    10      135     * CREEK XING SOUTH OF KNOTTS ST.
264     104     262     370     10      135     * UPGRADE TO SUPPORT 101 XING (THOMPSON AVE)
265     262     270     370     10      135     * UPGRADE TO SUPPORT 101 XING (THOMPSON AVE)
273     270     273     480     10      135     * UPGRADE TO SUPPORT 101 XING (THOMPSON AVE)
279     273     274     450     10      135     * UPGRADE TO SUPPORT 101 XING (BEE ST.)
281     274     275     430     10      135     * UPGRADE TO SUPPORT 101 XING (BEE ST.)
318     307     112     200     12      135     * NEW 12" ACROSS 101
510     104     226     410     10      135     * UPGRADE TO SUPPORT 101 XING (THOMPSON AVE)
221     226     234     370     10      135     * UPGRADE TO SUPPORT 101 XING (THOMPSON AVE)
232     234     233     70      10      135     *       "       "       "       "
231     233     247     290     10      135     *       "       "       "       "
247     247     246     80      10      135     *       "       "       "       "
249     246     248     280     10      135     *       "       "       "       "
254     248     251     360     10      135     *       "       "       "       "
517     109     345     700     12      135     * TEFFT ST. HWY 101 CROSSING
337     135     321     560     8       135     * GRANDE AVE UPGRADE
338     321     322     160     8       135     *       "       "
347     322     328     470     8       135     *       "       "
348     328     329     360     8       135     *       "       "
349     329     330     360     8       135     *       "       "
355     333     319     200     8       135     * CONCEPCION ST. UPGRADE
356     319     114     900     8       135     *       "       "
519     101     102     5610    12      135     * TWIN TANK TEFFT ST. PARALLEL
520     102     103     1560    12      135     *    "           "
521     103     104     510     12      135     *    "           "
339     323     322     150     8       135     * UPGRADE ON BLACK HAWK WAY
527     187     190     5300    10      135     * LOOP ALONG POMEROY
361     345     346     890     10      135     * UPGRADE ALONG HILL ST.
528     247     256     700     8       135     * LOOP TO INCLUDE NIPOMO EL. SCHOOL
529     326     134     800     8       135     * LOOP-BONITA HOMES TO ORCHARD
464     408     424     1000    10      135     * POPPEY LANE UPGRADE
801     199     800     2500    10      135     * TIE FROM STANDPIPE TANK TO FRONTAGE RD
713     710     800     3650    10      135     * FRONTAGE RD SO OF SUMMIT STATION
NODES
800     0       381
run
keep EXISTWTR.KEP
endfile
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NEW  c:\engr\net\fblklake.wrk
OUTPUT  c:\engr\net\fblklake.out
TITLE
NIPOMO WATER MASTER PLAN VTN0410001 JAL 8/16/95 Black Lake
* FBLKLAKE.DTA
* MODELED WITH WELLS TURNED OFF AND THE HYDROPNUEMATIC TANK SET AT AN
* HGL OF 40 PSI PLUS 384 FT. WHICH IS THE HIGHEST NODE ELEVATION.
* THIS FILE HAS A TOTAL OF 167 GPM DEMAND WITH 51 GPM IRRIGATION
* AND 116 GPM RESIDENTIAL DEMAND TO REPRESENT FUTURE BUILDOUT.
BASE MODEL
UNITS   0  0    0  0    0  0  0
FACTORS    1.00        1
LIMITS  50       1        0.5      5.00     0.0  15.0      40.0  125.0  1918.0   50
LINES   80
UNKNOWNS
        650      476.4
CHECK VALVES
BOOSTER PUMPS
PRV
PUMP CURVE
PIPES
601      601      602      355      8        125      * BLACK LAKE #4
602      602      603      250      8        125
603      604      605      330      8        125      * BLACK LAKE #3
604      605      603      50       8        125
605      603      606      90       10       125
606      606      607      1030     8        125
607      607      608      770      8        125
608      608      609      350      8        125
609      608      613      620      8        125
610      607      610      340      8        125
611      610      611      400      8        125
612      610      611      840      8        125
613      611      612      220      8        125
614      612      613      220      8        125
615      612      614      730      8        125
616      613      614      980      8        125
617      614      615      180      8        125
618      616      617      80       8        125
619      616      619      1080     8        125
620      620      621      60       8        125
621      621      622      280      8        125
622      621      623      950      8        125
623      623      624      60       8        125
624      624      625      50       8        125
625      625      626      270      8        125
626      616      627      800      8        125
627      627      626      320      8        125
628      626      628      600      8        125
629      627      629      330      8        125
630      628      629      530      8        125
631      628      630      360      8        125
632      629      618      250      8        125
633      618      631      610      8        125
634      606      618      3340     8        125
635      631      632      200      8        125
636      630      631      650      8        125
637      630      633      570      8        125
638      633      634      400      8        125
639      633      635      450      8        125
640      633      636      350      8        125
641      625      637      1180     8        125
642      637      640      1380     8        125
643      640      641      1040     8        125
644      640      642      830      8        125
645      642      643      245      8        125
646      642      644      720      8        125
647      641      644      930      8        125
648      606      651      2600     8        125
649      650      651      170      8        125      * TANK
650      651      652      170      8        125
651      652      618      710      8        125
652      652      631      600      8        125
653      619      620      1100     8        125
654      509      519      450      8        125
NODES
601      0        -38      0        0        0
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602	0	317	0	0	0
603	0	321	0	0	0
604	0	-10	0	0	0
605	0	320	0	0	0
606	0	322	0	0	0
607	0	322	0	0	0
608	0	330	0	0	0
609	0	328	0	0	0
610	0	330	0	0	0
611	0	311	0	0	0
612	0	317	0	0	0
613	0	322	0	0	0
614	0	335	0	0	0
615	0	350	0	0	0
616	0	360	0	0	0
617	0	360	0	0	0
618	0	345	0	0	0
620	0	360	0	0	0
621	0	361	0	0	0
622	0	362	0	0	0
623	0	369	0	0	0
624	0	370	0	0	0
625	0	374	0	0	0
626	0	362	0	0	0
627	0	345	0	0	0
628	0	363	0	0	0
629	0	350	0	0	0
630	0	365	0	0	0
631	0	353	0	0	0
632	0	361	0	0	0
633	0	362	0	0	0
634	0	381	0	0	0
635	0	341	0	0	0
636	0	352	0	0	0
637	0	384	0	0	0
640	0	380	0	0	0
641	0	359	0	0	0
642	0	373	0	0	0
643	0	381	0	0	0
644	0	376	0	0	0
650	0	320	0	0	0
651	0	330	0	0	0
652	0	360	0	0	0

DEMANDS

606	-3.82
607	-7.65
608	-7.65
609	-1.91
610	-4.78
611	-4.14
612	-4.46
613	-6.69
614	-10.84
616	-2.87
625	-3.19
626	-1.91
627	-4.46
628	-6.05
629	-5.42
630	-4.46
631	-5.74
633	-3.06
634	-2.29
635	-2.29
637	-8.60
640	-4.78
641	-2.87
642	-1.91
643	-4.14

FIXED DEMANDS

606	-1.65
607	-0.58
608	-1.65
609	-0.89
614	-0.34
615	-1.88
616	-10.67
618	-1.90

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621      -3.76
626      -1.02
629      -4.08
630      -12.19
631      -6.82
633      -3.57
*601      400
*604      350
AREA DEMANDS
MODIFY
PIPES
750      606      750      80       8        135      * TIE IN ON WILLOW RD NEAR BEVINGTON WELL
652      652      751      450      8        125      * TIE NEAR HYDRO TANK
751      631      751      150      8        125      * TIE FROM BARBERRY WAY
752      751      752      80       8        135      * TIE BARBERRY WAY TO WILLOW RD
753      650      652      250      8        135      * HYDROTANK BYPASS
173      175      750      640      10       125      * WILLOW RD TIE IN
754      750      179      490      10       125      * WILLOW RD TIE IN
176      179      752      2700     10       125      * WILLOW RD/BARBERRY WAY TIE IN
527      752      182      2410     10       125      *  "     "       "       "
755      187      754      1700     10       135      * POMEROY TIE IN
756      754      753      850      10       135      *       "
757      753      190      2750     10       135      *       "
758      641      753      60       8        135      * "K" ST. TIE IN
759      644      754      60       8        135      * "N" ST. TIE IN
NODES
750      0        322      0        0        0
751      0        353      0        0        0
752      0        353      0        0        0
753      0        359      0        0        0
754      0        376      0        0        0
run
endfile
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* JNIPMPLN.DTA  9-10-95 CMF. THIS FILE IS THE ONE USED TO MODEL THE NIPOMO CSD WATER SYSTEM FOR
* MASTER PLANNED IMPROVEMENTS.  PUMP CURVES WERE AVAILABLE FOR THE WELLS SHOWN
* UNDER UNKNOWNS, THE OLYMPIC WELL WAS ENTERED AS FIXED SOURCE OF SUPPLY.
* IMPROVEMENTS WERE INPUT IN THE MODIFICATIONS SECTION OF FILE.
* DEMANDS ARE FUTURE AVERAGE ANNUAL DEMANDS.
* THIS FILE HAS BLACK LAKE TIED INTO THE MAIN SYSTEM
NEW    C:\ENGR\NET\JNIPMPLN.WRK
OUTPUT C:\engr\net\FIRUN.OUT
TITLE
NIPOMO WATER MASTER PLAN VT-N04-100-01 CMF 9-10-95 MASTER PLAN RUNS
BASE MODEL
UNITS      0  0  0  0  0  0  0
FACTORS    2.5  1.000
LIMITS     50   1.000   0.00  5.00    0.0  15.0     30.0  125.0  550.0   50
LINES      80
UNKNOWNS
        101     542.00                      * TWIN TANKS
        199     542.00                      * STANDPIPE
        178     -15     1                   * EUREKA WELL PUMP
        181     -10.2   2                   * BEVINGTON WELL PUMP
*       185     23      3                   * OMIYA WELL PUMP
        169     -65     5                   * VIA CONCHA WELL PUMP
*       244     222     4                   * CHURCH WELL PUMP
CHECK VALVES
BOOSTER PUMPS
PRV
PUMP CURVE
1       0       990     400     910     650     840     850     740     1020    680     * EUREKA
2       0       875     200     875     300     830     416     677     450     600     * BEVINGTON
3       0       952     40      924     80      826     100     749     120     630     * OMIYA
4       0       774     100     608     200     440     225     391     250     340     * CHURCH
5       0       936     200     888     400     856     700     696     800     576     * VIA CONCHA
PIPES
101     101     102     5610    10      125
102     102     103     1560    10      125
103     103     104     510     10      125
104     104     105     520     10      125
105     105     106     350     10      125
106     106     107     430     10      125
107     107     108     500     10      125
108     108     109     830     10      125
109     109     110     860     10      125
110     110     111     1080    10      125
111     111     112     1030    10      125
112     112     113     830     10      125
113     113     114     320     10      125
114     114     115     200     10      125
115     115     116     60      10      125
116     116     117     250     10      125
117     117     120     360     10      125
118     120     121     30      10      125
119     121     122     260     10      125
120     122     123     340     10      125
121     123     124     25      10      125
122     124     125     440     10      125
123     125     126     10      10      125
124     126     127     320     10      125
125     127     130     190     10      125
126     130     131     30      10      125
127     131     132     450     10      125
128     118     133     430     10      125
130     118     134     700     10      125
131     134     135     1150    10      125
132     135     136     870     10      125
133     136     137     620     10      125
134     137     138     800     10      125
135     138     139     710     10      125
136     139     140     710     10      125
137     109     141     1340    10      125
138     141     142     490     10      125
139     142     143     620     10      125
140     143     144     530     10      125
141     144     145     270     10      125
142     145     146     510     10      125
143     146     147     340     10      125
144     147     150     250     10      125
145     150     151     470     10      125
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146	151	140	440	10	125
147	140	152	760	10	125
148	152	153	700	10	125
149	153	154	540	10	125
150	154	155	160	10	125
151	155	168	700	10	125
152	156	157	650	10	125
153	157	158	630	10	125
154	158	159	25	10	125
155	159	160	650	10	125
156	160	161	40	10	125
157	161	162	510	10	125
158	162	163	80	10	125
159	163	164	370	10	125
160	164	165	240	10	125
161	165	166	150	10	125
162	166	167	510	10	125
163	167	170	370	10	125
164	170	171	2160	16	125
165	171	172	3650	16	125
166	172	173	1800	16	125
167	173	174	1700	12	125
168	174	175	900	10	125
169	174	176	900	10	125
170	178	177	198	10	125
171	177	176	5974	10	125
172	176	175	10	10	125
173	175	179	1130	10	125
174	181	180	335.2	8	125
175	180	179	200	10	125
176	179	182	5110	10	125
177	185	184	357	8	125
178	184	183	250	8	125
179	183	182	10	8	125
180	183	187	1260	8	125
181	183	186	1260	8	125
182	393	395	1350	8	125
183	190	191	40	8	125
184	191	192	870	8	125
185	192	193	1130	10	125
186	193	198	3516	10	125
187	194	195	3480	8	125
188	194	196	950	10	125
189	196	197	500	10	125
190	200	201	500	10	125
191	201	203	1800	10	125
192	202	203	540	10	125
193	203	204	650	10	125
194	204	205	330	8	125
195	205	206	60	8	125
196	206	207	900	8	125
197	207	208	20	8	125
198	208	209	810	8	125
199	209	210	80	8	125
200	210	211	370	8	125
201	211	212	330	8	125
202	212	213	1470	8	125
203	213	214	1450	8	125
204	214	215	1070	8	125
205	215	216	960	8	125
206	216	217	130	8	125
207	217	196	1400	8	125
208	202	220	150	10	125
209	220	221	910	10	125
210	221	154	100	10	125
211	107	222	440	8	125
212	222	223	20	6	125
213	222	230	830	6	125
214	223	230	430	6	125
215	223	224	430	6	125
216	224	225	430	6	125
217	224	231	440	6	125
218	225	226	450	6	125
219	225	232	440	6	125
220	226	227	520	6	125
221	226	234	370	6	125
222	227	228	520	6	125
223	227	235	370	6	125
224	228	229	370	6	125
225	229	240	370	6	125
226	230	231	430	6	125
227	231	241	270	6	125
228	231	232	430	6	125
229	232	242	270	6	125
230	232	233	450	6	125
231	233	247	290	6	125
232	233	234	70	6	125
233	234	235	520	6	125
234	235	236	550	6	125
235	236	237	70	6	125
236	237	255	200	6	125
237	255	256	600	6	125
238	255	257	150	6	125
239	257	258	520	8	125
240	240	258	370	8	125
241	258	250	370	8	125
242	241	242	420	6	125
243	242	218	150	6	125
244	244	243	89	8	125
245	243	218	750	8	125
246	242	245	380	6	125
247	246	247	80	8	125
248	247	249	880	8	125
249	246	248	280	8	125
250	248	249	520	8	125
251	249	219	650	8	125
252	219	250	500	8	125
253	250	254	350	8	125
254	248	251	430	8	125
255	251	252	490	8	125
256	252	253	590	8	125
257	253	254	460	8	125
258	102	259	1320	8	125
259	259	265	370	6	125
260	259	265	370	6	125
261	260	103	370	6	125
262	260	261	300	6	125
263	261	262	200	6	125
264	262	104	370	8	125
265	262	270	370	8	125
266	262	263	450	6	125
267	263	271	370	6	125
268	263	264	430	6	125
269	264	272	370	6	125
270	265	266	520	6	125
271	265	267	480	6	125
272	267	270	620	6	125
273	270	273	480	8	125
274	270	271	450	6	125
275	271	274	480	6	125
276	271	272	430	6	125
277	272	275	480	6	125
278	273	276	470	6	125
279	273	274	450	6	125
280	274	277	470	6	125
281	274	275	430	6	125
282	275	278	470	6	125
283	276	279	480	8	125
284	276	277	450	6	125
285	277	278	430	6	125
286	278	281	480	6	125
287	279	283	450	8	125
288	279	280	450	6	125
289	280	282	480	6	125
290	280	281	430	6	125
291	281	282	910	6	125
292	113	284	780	6	125
293	284	285	580	6	125
294	284	268	340	6	125
295	268	285	240	6	125
296	285	286	300	6	125
297	286	287	110	6	125
298	287	290	1980	6	125
299	290	291	250	6	125
300	291	292	530	6	125
301	292	293	360	6	125

302	293	294	200	6	125
303	294	295	510	6	125
304	295	296	530	6	125
305	296	297	860	6	125
306	297	298	1000	6	125
307	298	299	200	6	125
308	299	300	300	8	125
309	300	301	540	8	125
310	301	118	480	8	125
311	299	302	770	6	125
312	302	303	560	6	125
313	303	304	400	6	125
314	303	269	450	6	125
315	269	304	830	6	125
316	304	305	380	6	125
317	305	306	780	6	125
318	112	307	200	8	125
319	307	308	500	8	125
320	306	310	520	6	125
321	310	309	300	6	125
322	309	116	570	6	125
323	121	311	520	6	125
324	311	312	670	6	125
325	312	122	200	6	125
326	123	313	300	6	125
327	313	314	630	6	125
328	126	314	540	6	125
329	127	315	590	6	125
330	131	315	340	6	125
331	315	316	160	6	125
332	316	317	675	6	125
333	316	320	760	6	125
334	317	320	180	6	125
335	320	133	398	6	125
336	320	301	500	6	125
337	135	321	560	6	125
338	321	322	160	6	125
339	322	323	150	6	125
340	323	324	260	8	125
341	324	326	430	8	125
342	323	325	440	8	125
343	325	326	260	8	125
344	325	327	210	8	125
345	327	132	930	8	125
346	327	130	980	8	125
347	322	328	470	6	125
348	328	329	360	6	125
349	329	330	360	6	125
350	330	331	1020	8	125
351	331	332	360	8	125
352	332	333	210	8	125
353	332	318	800	6	125
354	318	116	550	6	125
355	333	319	200	6	125
356	319	114	900	6	125
357	138	342	660	8	125
358	342	343	330	8	125
359	343	344	1220	8	125
360	344	345	820	8	125
361	345	346	890	8	125
362	346	347	900	6	125
363	346	338	420	8	125
364	338	347	600	8	125
365	347	330	1970	8	125
366	152	348	520	6	125
367	348	349	170	6	125
368	349	350	270	6	125
369	349	351	600	6	125
370	350	351	410	6	125
371	351	352	560	6	125
372	350	352	220	6	125
373	352	151	130	6	125
374	348	353	860	6	125
375	353	354	200	6	125
376	354	357	950	6	125
377	354	355	150	6	125
378	355	356	600	6	125
379	355	360	260	6	125
380	360	361	400	6	125
381	360	362	260	6	125
382	362	363	400	6	125
383	362	364	660	6	125
384	357	356	260	6	125
385	356	361	280	6	125
386	361	363	260	6	125
387	363	364	260	6	125
388	150	357	150	6	125
389	145	364	150	6	125
390	353	369	680	6	125
391	144	365	140	6	125
392	365	367	640	6	125
393	365	366	260	6	125
394	366	367	370	6	125
395	366	368	260	6	125
396	367	368	640	6	125
397	143	368	140	6	125
398	153	370	1800	6	125
399	369	370	380	6	125
400	221	371	570	8	125
401	371	372	1000	8	125
402	372	373	1620	8	125
403	373	374	280	8	125
404	374	375	310	8	125
405	375	376	650	8	125
406	374	377	650	8	125
407	376	377	230	8	125
408	376	339	800	6	125
409	339	141	1240	6	125
410	155	380	850	6	125
411	220	380	390	6	125
412	380	381	940	6	125
413	381	157	760	6	125
414	381	203	750	6	125
415	381	382	640	6	125
416	382	158	770	6	125
417	382	383	370	6	125
418	383	204	380	6	125
419	383	206	780	6	125
420	163	384	450	6	125
421	384	385	320	6	125
422	385	386	600	6	125
423	386	208	170	6	125
424	165	378	590	6	125
425	378	387	210	8	125
426	387	388	600	8	125
427	388	210	350	8	125
428	170	389	180	8	125
429	389	390	430	8	125
430	390	391	590	8	125
431	391	212	310	8	125
432	160	392	720	6	125
433	163	393	780	8	125
434	165	394	620	8	125
435	394	395	550	8	125
436	209	397	1210	6	125
437	397	400	600	8	125
438	400	207	980	6	125
439	400	401	910	8	125
440	401	205	980	6	125
441	401	201	510	10	125
442	397	402	420	10	125
443	402	217	470	8	125
444	402	200	1660	10	125
445	190	403	2530	8	125
446	403	404	1230	8	125
447	404	407	2150	8	125
448	404	405	1020	8	125
449	405	406	390	8	125
450	406	407	1270	8	125
451	406	408	1100	8	125
452	405	410	3700	8	125
453	408	409	3260	8	125
454	192	411	1630	8	125
455	411	410	80	8	125
456	410	409	1600	8	125
457	411	412	950	8	125

458	412	413	350	8	125	
459	412	430	1030	8	125	
460	414	193	1730	8	125	
461	191	421	1120	8	125	
462	403	422	560	8	125	
463	407	423	670	8	125	
464	408	424	1000	8	125	
465	414	425	480	8	125	
466	147	420	590	6	125	
467	420	419	380	6	125	
468	419	139	570	6	125	
469	146	416	640	6	125	
470	416	417	40	6	125	
471	417	418	330	6	125	
472	418	419	300	6	125	
473	417	415	220	6	125	
474	415	343	470	6	125	
475	418	342	690	8	125	
476	125	334	180	6	125	
477	334	335	440	6	125	
478	334	336	250	6	125	
479	336	337	700	6	125	
480	124	335	150	6	125	
481	335	427	290	6	125	
482	427	337	230	6	125	
483	337	426	440	6	125	
484	427	428	440	6	125	
485	426	428	220	6	125	
486	428	122	400	6	125	
487	426	340	240	6	125	
488	340	120	570	6	125	
489	340	341	580	6	125	
490	341	117	290	6	125	
491	399	398	348	8	125	
492	398	385	200	8	125	
493	169	174	332	8	125	
501	133	132	400	10	125	
505	168	156	700	10	125	
506	156	168	750	6	125	
507	194	198	2084	12	125	
508	198	199	2049	16	125	
509	159	392	1642	6	125	
510	104	226	410	8	125	
511	103	227	410	6	125	
512	106	224	410	6	125	
513	409	430	1100	8	125	* DALE AVE
514	430	414	4460	8	125	* FRISCO WAY
* THIS IS THE BLAKE LAKE SYSTEM						
601	601	602	355	8	125	* BLACK LAKE #4
602	602	603	250	8	125	
603	604	605	330	8	125	* BLACK LAKE #3
604	605	603	50	8	125	
605	603	606	90	10	125	
606	606	607	1030	8	125	
607	607	608	770	8	125	
608	608	609	350	8	125	
609	608	613	620	8	125	
610	607	610	340	8	125	
611	610	611	400	8	125	
612	610	611	840	8	125	
613	611	612	220	8	125	
614	612	613	220	8	125	
615	612	614	730	8	125	
616	613	614	980	8	125	
617	614	615	180	8	125	
618	616	617	80	8	125	
619	616	619	1080	8	125	
620	620	621	60	8	125	
621	621	622	280	8	125	
622	621	623	950	8	125	
623	623	624	60	8	125	
624	624	625	50	8	125	
625	625	626	270	8	125	
626	616	627	800	8	125	
627	627	626	320	8	125	
628	626	628	600	8	125	
629	627	629	330	8	125	
630	628	629	530	8	125	

631	628	630	360	8	125	
632	629	618	250	8	125	
633	618	631	610	8	125	
634	606	618	3340	8	125	*OLD DEDICATED WELL LINE
635	631	632	200	8	125	
636	630	631	650	8	125	
637	630	633	570	8	125	
638	633	634	400	8	125	
639	633	635	450	8	125	
640	633	636	350	8	125	
641	625	637	1180	8	125	
642	637	640	1380	8	125	
643	640	641	1040	8	125	
644	640	642	830	8	125	
645	642	643	245	8	125	
646	642	644	720	8	125	
647	641	644	930	8	125	
648	606	651	2600	8	125	
649	650	651	170	8	125	* OLD HYDRO TANK
650	651	652	170	8	125	
651	652	618	710	8	125	
652	652	631	600	8	125	
653	619	620	1100	8	125	
654	609	619	450	8	125	
NODES						
101	0	523.8	0	0	0	
102	0	360	0	0	0	
103	0	342	0	0	0	
104	0	336	0	0	0	
105	0	329	0	0	0	
106	0	324	0	0	0	
107	0	316	0	0	0	
108	0	320	0	0	0	
109	0	328	0	0	0	
110	0	334	0	0	0	
111	0	331	0	0	0	
112	0	310	0	0	0	
113	0	333	0	0	0	
114	0	343	0	0	0	
115	0	350	0	0	0	
116	0	351	0	0	0	
117	0	357	0	0	0	
118	0	329	0	0	0	
120	0	356	0	0	0	
121	0	355	0	0	0	
122	0	343	0	0	0	
123	0	337	0	0	0	
124	0	337	0	0	0	
125	0	333	0	0	0	
126	0	333	0	0	0	
127	0	327	0	0	0	
130	0	326	0	0	0	
131	0	326	0	0	0	
132	0	343	0	0	0	
133	0	338	0	0	0	
134	0	349	0	0	0	
135	0	368	0	0	0	
136	0	389	0	0	0	
137	0	395	0	0	0	
138	0	362	0	0	0	
139	0	358	0	0	0	
140	0	365	0	0	0	
141	0	346	0	0	0	
142	0	357	0	0	0	
143	0	370	0	0	0	
144	0	367	0	0	0	
145	0	372	0	0	0	
146	0	373	0	0	0	
147	0	356	0	0	0	
150	0	353	0	0	0	
151	0	360	0	0	0	
152	0	374	0	0	0	
153	0	347	0	0	0	
154	0	365	0	0	0	
155	0	361	0	0	0	
156	0	343	0	0	0	
157	0	322	0	0	0	
158	0	330	0	0	0	

159	0	330	0	0	0	
160	0	340	0	0	0	
161	0	340	0	0	0	
162	0	340	0	0	0	
163	0	340	0	0	0	
164	0	340	0	0	0	
165	0	335	0	0	0	
166	0	330	0	0	0	
167	0	315	0	0	0	
168	0	340	0	0	0	
169	0	-65.6	0	0	0	* VIA CONCHA WELL
170	0	306.4	0	0	0	
171	0	305	0	0	0	
172	0	225	0	0	0	
173	0	254	0	0	0	
174	0	267	0	0	0	* VIA CONCHA WELL DISCHARGE
175	0	283	0	0	0	
176	0	283	0	0	0	
177	0	183	0	0	0	* EUREKA WELL DISCHARGE
178	0	-15	0	0	0	* EUREKA WELL
179	0	322	0	0	0	
180	0	325	0	0	0	* BEVINGTON WELL DISCHARGE
181	0	-10.2	0	0	0	* BEVINGTON WELL
182	0	394	0	0	0	
183	0	394	0	0	0	
184	0	380	0	0	0	* OMIYA WELL DISCHARGE
185	0	23	0	0	0	* OMIYA WELL
186	0	362	0	0	0	
187	0	362	0	0	0	
190	0	410	0	0	0	
191	0	410	0	0	0	
192	0	430	0	0	0	
193	0	428	0	0	0	
194	0	404	0	0	0	
195	0	410	0	0	0	
196	0	380	0	0	0	
197	0	367	0	0	0	
198	0	400	0	0	0	
199	0	459.63	0	0	0	* STANDPIPE TANK
200	0	370	0	0	0	
201	0	357	0	0	0	
202	0	357	0	0	0	
203	0	343	0	0	0	
204	0	340	0	0	0	
205	0	347	0	0	0	
206	0	347	0	0	0	
207	0	345	0	0	0	
208	0	345	0	0	0	
209	0	330	0	0	0	
210	0	328	0	0	0	
211	0	327	0	0	0	
212	0	325	0	0	0	
213	0	336	0	0	0	
214	0	361	0	0	0	
215	0	370	0	0	0	
216	0	359	0	0	0	
217	0	359	0	0	0	
218	0	313	0	0	0	
219	0	350	0	0	0	
220	0	360	0	0	0	
221	0	368	0	0	0	
222	0	317	0	0	0	
223	0	317	0	0	0	
224	0	317	0	0	0	
225	0	319	0	0	0	
226	0	325	0	0	0	
227	0	331	0	0	0	
228	0	337	0	0	0	
229	0	347	0	0	0	
230	0	307	0	0	0	
231	0	311	0	0	0	
232	0	315	0	0	0	
233	0	321	0	0	0	
234	0	321	0	0	0	
235	0	327	0	0	0	
236	0	337	0	0	0	
237	0	338	0	0	0	
240	0	361	0	0	0	

241	0	308	0	0	0	
242	0	313	0	0	0	
243	0	311	0	0	0	* CHURCH WELL DISCHARGE
244	0	222	0	0	0	* CHURCH WELL
245	0	316	0	0	0	
246	0	318	0	0	0	
247	0	318	0	0	0	
248	0	315	0	0	0	
249	0	320	0	0	0	
250	0	379	0	0	0	
251	0	316	0	0	0	
252	0	323	0	0	0	
253	0	335	0	0	0	
254	0	370	0	0	0	
255	0	361	0	0	0	
256	0	338	0	0	0	
257	0	361	0	0	0	
258	0	377	0	0	0	
259	0	336	0	0	0	
260	0	331	0	0	0	
261	0	329	0	0	0	
262	0	328	0	0	0	
263	0	324	0	0	0	
264	0	321	0	0	0	
265	0	353	0	0	0	
266	0	362	0	0	0	
267	0	345	0	0	0	
268	0	313	0	0	0	
269	0	285	0	0	0	
270	0	334	0	0	0	
271	0	328	0	0	0	
272	0	320	0	0	0	
273	0	336	0	0	0	
274	0	330	0	0	0	
275	0	323	0	0	0	
276	0	338	0	0	0	
277	0	332	0	0	0	
278	0	325	0	0	0	
279	0	337	0	0	0	
280	0	335	0	0	0	
281	0	330	0	0	0	
282	0	339	0	0	0	
283	0	346	0	0	0	
284	0	316	0	0	0	
285	0	313	0	0	0	
286	0	313	0	0	0	
287	0	312	0	0	0	
290	0	317	0	0	0	
291	0	319	0	0	0	
292	0	319	0	0	0	
293	0	320	0	0	0	
294	0	318	0	0	0	
295	0	320	0	0	0	
296	0	320	0	0	0	
297	0	320	0	0	0	
298	0	319	0	0	0	
299	0	319	0	0	0	
300	0	318	0	0	0	
301	0	319	0	0	0	
302	0	310	0	0	0	
303	0	302	0	0	0	
304	0	305	0	0	0	
305	0	304	0	0	0	
306	0	306	0	0	0	
307	0	318	0	0	0	
308	0	322	0	0	0	
309	0	314	0	0	0	
310	0	309	0	0	0	
311	0	328	0	0	0	
312	0	335	0	0	0	
313	0	324	0	0	0	
314	0	306	0	0	0	
315	0	312	0	0	0	
316	0	312	0	0	0	
317	0	314	0	0	0	
318	0	359	0	0	0	
319	0	348	0	0	0	
320	0	310	0	0	0	

321	0	397	0	0	0	
322	0	398	0	0	0	
323	0	404	0	0	0	
324	0	397	0	0	0	
325	0	398	0	0	0	
326	0	399	0	0	0	
327	0	362	0	0	0	
328	0	397	0	0	0	
329	0	358	0	0	0	
330	0	354	0	0	0	
331	0	344	0	0	0	
332	0	340	0	0	0	
333	0	337	0	0	0	
334	0	337	0	0	0	
335	0	340	0	0	0	
336	0	347	0	0	0	
337	0	350	0	0	0	
338	0	342	0	0	0	
339	0	360	0	0	0	
340	0	374	0	0	0	
341	0	364	0	0	0	
342	0	326	0	0	0	
343	0	320	0	0	0	
344	0	350	0	0	0	
345	0	360	0	0	0	
346	0	360	0	0	0	
347	0	353	0	0	0	
348	0	372	0	0	0	
349	0	371	0	0	0	
350	0	362	0	0	0	
351	0	342	0	0	0	
352	0	361	0	0	0	
353	0	361	0	0	0	
354	0	370	0	0	0	
355	0	387	0	0	0	
356	0	360	0	0	0	
357	0	360	0	0	0	
360	0	401	0	0	0	
361	0	374	0	0	0	
362	0	408	0	0	0	
363	0	372	0	0	0	
364	0	370	0	0	0	
365	0	370	0	0	0	
366	0	370	0	0	0	
367	0	400	0	0	0	
368	0	381	0	0	0	
369	0	348	0	0	0	
370	0	358	0	0	0	
371	0	380	0	0	0	
372	0	389	0	0	0	
373	0	360	0	0	0	
374	0	360	0	0	0	
375	0	360	0	0	0	
376	0	360	0	0	0	
377	0	360	0	0	0	
378	0	380	0	0	0	
380	0	380	0	0	0	
381	0	360	0	0	0	
382	0	369	0	0	0	
383	0	360	0	0	0	
384	0	340	0	0	0	
385	0	359	0	0	0	
386	0	320	0	0	0	
387	0	342	0	0	0	
388	0	317	0	0	0	
389	0	317	0	0	0	
390	0	339	0	0	0	
391	0	316	0	0	0	
392	0	317	0	0	0	
393	0	311	0	0	0	
394	0	322	0	0	0	
395	0	303	0	0	0	
397	0	347	0	0	0	
398	0	362	0	0	0	* OLYMPIC WELL DISCHARGE
399	0	14	0	0	0	* OLYMPIC WELL
400	0	343	0	0	0	
401	0	350	0	0	0	
402	0	370	0	0	0	
403	0	372	0	0	0	
404	0	357	0	0	0	
405	0	398	0	0	0	
406	0	390	0	0	0	
407	0	350	0	0	0	
408	0	424.7	0	0	0	
409	0	360	0	0	0	
410	0	445	0	0	0	
411	0	444	0	0	0	
412	0	420	0	0	0	
413	0	440	0	0	0	
414	0	447	0	0	0	
415	0	350	0	0	0	
416	0	358	0	0	0	
417	0	358	0	0	0	
418	0	356	0	0	0	
419	0	356	0	0	0	
420	0	357	0	0	0	
421	0	407	0	0	0	
422	0	380	0	0	0	
423	0	320	0	0	0	
424	0	452	0	0	0	
425	0	455	0	0	0	
426	0	377	0	0	0	
427	0	354	0	0	0	
428	0	360	0	0	0	
430	0	340	0	0	0	
* THIS IS THE BLACK LAKE SYSTEM						
601	0	-38	0	0	0	
602	0	317	0	0	0	
603	0	321	0	0	0	
604	0	-10	0	0	0	
605	0	320	0	0	0	
606	0	322	0	0	0	
607	0	322	0	0	0	
608	0	330	0	0	0	
609	0	328	0	0	0	
610	0	330	0	0	0	
611	0	311	0	0	0	
612	0	317	0	0	0	
613	0	322	0	0	0	
614	0	335	0	0	0	
615	0	350	0	0	0	
616	0	360	0	0	0	
617	0	360	0	0	0	
618	0	345	0	0	0	
619	0	328	0	0	0	
620	0	360	0	0	0	
621	0	361	0	0	0	
622	0	362	0	0	0	
623	0	369	0	0	0	
624	0	370	0	0	0	
625	0	374	0	0	0	
626	0	362	0	0	0	
627	0	345	0	0	0	
628	0	363	0	0	0	
629	0	350	0	0	0	
630	0	365	0	0	0	
631	0	353	0	0	0	
632	0	361	0	0	0	
633	0	362	0	0	0	
634	0	381	0	0	0	
635	0	341	0	0	0	
636	0	352	0	0	0	
637	0	384	0	0	0	
640	0	380	0	0	0	
641	0	359	0	0	0	
642	0	373	0	0	0	
643	0	381	0	0	0	
644	0	376	0	0	0	
650	0	320	0	0	0	
651	0	330	0	0	0	
652	0	360	0	0	0	
DEMANDS						
102		-2.48				
103		-2.71				
104		-5.93	* INCS JOCKOS			
105		-3.02				

106	-5.08	
107	-10.85	
108	-23.6	* INCS LAUNDROMAT
109	-28.62	* INCS BUENA VISTA MHP
110	-23.47	
111	-26.64	*INCS BAR K MHP USAGE AND CHURCH
112	-3.0	
113	-7.12	* INCS APTS ON AMADO
114	-8.43	
115	-5.87	
116	-2.03	
117	-2.48	
118	-2.98	
120	-1.58	
121	-1.81	
122	-2.48	
123	-1.81	
124	-1.58	
125	-1.35	
126	-1.81	
127	-2.26	
130	-3.38	
131	-1.35	
132	-1.5	
133	-5.36	
134	-8.41	
135	-6.75	
136	-7.13	
137	-4.58	* NEED TO ADD DANA ELEM SCHOOL DEMAND
138	-1.95	
139	-2.25	
141	-35.98	* INCS SWAP MEET
142	-11.37	
143	-7.7	
144	-1.58	
145	-0.9	
146	-2.63	
147	-1.35	
150	-0.9	
151	-1.5	
152	-1.88	
153	-4.88	
154	-4.13	* +3 GPM IRRIG
155	-2.63	
156	-4.16	
157	-2.33	
158	-1.33	
159	-3.04	
160	-2.25	
161	-3.75	
163	-4.88	
165	-2.63	
166	-1.33	
167	-4.88	
170	-6.0	
171	-16.13	
172	-10.88	
173	-10.13	
175	-13.13	
183	-10.13	
187	-4.69	
190	-7.65	
192	-2.25	
193	-6.94	
194	-7.99	
195	-23.4	
196	-1.13	
200	-7.58	
201	-7.50	
202	-6.00	
203	-3.75	
204	-2.25	
205	-4.13	
206	-1.13	
207	-2.25	
208	-3.00	
209	-1.13	
210	-2.63	
211	-3.75	
212	-1.13	
213	-10.13	
214	-1.5	
215	-1.5	
217	-1.5	
219	-3.75	
221	-2.25	
222	-1.55	
223	-1.43	
224	-1.43	
225	-1.93	
226	-2.29	
227	-6.27	
228	-4.74	
229	-2.26	
230	-1.58	
231	-2.03	
232	-1.58	
233	-2.37	* INCS ST. JOSEPHS CHURCH
234	-2.29	
235	-3.16	
236	-1.35	
237	-2.26	
240	-2.26	
241	-1.58	
242	-3.38	
245	-1.58	
246	-3.84	
247	-1.81	
248	-4.06	
249	-5.26	* +3 GPM IRRIG
250	-2.26	
251	-4.06	
252	-9.03	
253	-9.03	
254	-4.29	
255	-4.43	
256	-3.53	
257	-3.53	
258	-2.26	
259	-2.26	
260	-4.29	
261	-1.58	
262	-5.37	
263	-5.00	
264	-3.35	
265	-3.15	
266	-1.13	
267	-3.61	
270	-3.19	
271	-2.03	
272	-1.81	
273	-1.35	
274	-3.16	
275	-2.63	
276	-2.03	
277	-3.84	
278	-4.88	
279	-0.45	
280	-2.26	
281	-2.63	
282	-2.26	
283	-0.68	
284	-2.93	
285	-2.93	
286	-2.40	
287	-6.74	
290	-9.17	
291	-3	
292	-5.26	
293	-7.81	
295	-8.70	
296	-4.43	
297	-3.68	
298	-0.75	
299	-1.50	
300	-1.5	

```
301          -3.29
302          -5.10
303          -6.91
304          -1.13
305          -5.25
306          -5.03
307          -1.13
308          -14.14
309          -2.03
310          -2.03
311          -3.53
312          -2.26
313          -5.42
314          -6.77
315          -5.54
316          -3.29
317          -3.29
318          -7.59
319          -7.54
320          -3.29
321          -3.25  * +3 GPM IRRIG
323          -2.71
324          -3.84
325          -2.71
326          -3.16
327          -3.08
329          -3.75
330          -39.86
331          -6.9
332          -10.06
333          -6.73
334          -1.58
335          -2.03
336          -5.87
337          -3.39
338          -12.80
339          -33.71
340          -3.39
341          -4.51
342          -3.75
343          -6.48
344          -23.44
345          -21.87    * INCS VONS AND BANK
346          -6.59     * INCS RECREATION USAGE
347          -3.02
348          -1.88
349          -1.81
350          -2.18
351          -2.93
352          -2.48
353          -3.38
354          -2.48
355          -2.48
356          -2.93
357          -3.16
360          -2.03
361          -2.48
362          -3.39
363          -2.48
364          -2.26
365          -1.58
366          -1.81
367          -4.74
368          -1.81
369          -9.00
370          -7.13
371          -2.63
372          -13.95
373          -5.63
374          -2.33
375          -8.48   * INCS COMMERCIAL USAGE
376          -5.26
377          -5.26
380          -3
381          -2.63
382          -2.63
383          -1.88
385          -3
387          -1.88
390          -4.13
391          -3.38
392          -6.38
393          -3.38
394          -4.50   *+3 GPM IRRIG
395          -1.50
397          -2.63
399              0   *OLYMPIC WELL DISCHARGE
400          -2.63
401          -4.88
402          -3.38
403          -5.44
405          -2.63
404          -2.06
406          -1.13
407          -1.95
408          -5.63
409          -6.00
410          -2.25
411          -1.88
413          -3.75     * +3 GPM IRRIG
412          -2.25
414          -6.38
415          -2.48
416          -1.35
417          -1.13
418          -2.48
419          -0.75
420          -2.26
421          -0.75
422          -1.13
423          -1.2
424          -1.61
425          -1.13
426          -1.35
427          -2.71
428          -2.48
* THIS IS THE BLAKE LAKE SYSTEM
606      -3.82
607      -7.65
608      -7.65
609      -1.91
610      -4.78
611      -4.14
612      -4.46
613      -6.69
614      -10.84
616      -2.87
625      -3.19
626      -1.91
627      -4.46
628      -6.05
629      -5.42
630      -4.46
631      -5.74
633      -3.06
634      -2.29
635      -2.29
637      -8.60
640      -4.78
641      -2.87
642      -1.91
643      -4.14
FIXED DEMANDS
139 -23.88   * NIPOMO REGIONAL PARK
330 -9.19    * NURSERY ON GRANDE
318 -2.47    * LANDSCAPE METER
333 -1.27    * GRANDE APTS LANDSCAPE METER
604  350     * BLACK LAKE WELL #3
* THIS IS THE BLACK LAKE IRRIGATION DEMANDS
606      -1.65
607      -0.58
608      -1.65
609      -0.89
614      -0.34
615      -1.88
616      -10.67
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618     -1.90
621     -3.76
626     -1.02
629     -4.08
630     -12.19
631     -6.82
633     -3.57
*99 145         * OLYMPIC WELL
237   -3000     * FIRE FLOW
AREA DEMANDS
MODIFY
PIPES
* THESE UPGRADES NEEDED TO MEET EXISTING SYSTEM DEFICIENCIES.
409     339     141     1240    10      135     * UPGRADE ON FRONTAGE RD
515     275     141     1760    10      135     * CREEK & HWY 101 XING
516     251     703     2660    10      135     * CREEK XING SOUTH OF KNOTTS ST.
264     104     262     370     10      135     * NEW 10" ACROSS 101
265     262     270     370     10      135     * NEW 10" ACROSS 101
273     270     273     480     10      135     * NEW 10" ACROSS 101
279     273     274     450     10      135     * NEW 10" ACROSS 101
281     274     275     430     10      135     * NEW 10" ACROSS 101
318     307     112     200     12      135     * NEW 12" ACROSS 101
510     104     226     410     10      135     * NEW 10" ACROSS 101
221     226     234     370     10      135     * NEW 101 10"
232     234     233     70      10      135     * NEW 101 10"   "       "       "
231     233     247     290     10      135     * NEW 101 10"  "       "       "
247     247     246     80      10      135     * NEW 101 10" "       "       "
249     246     248     280     10      135     * NEW 101 10""       "       "
254     248     251     360     10      135     * NEW 101 10"  "       "       "
517     109     345     700     10      135     * TEFFT ST. HWY 101 CROSSING
337     135     321     560     8       135     * GRANDE AVE UPGRADE
338     321     322     160     8       135     * GRANDE AVE UPGRADE
347     322     328     470     8       135     * GRANDE AVE UPGRADE
348     328     329     360     8       135     * GRANDE AVE UPGRADE
349     329     330     360     8       135     * GRANDE AVE UPGRADE
355     333     319     200     8       135     * CONCEPCION ST. UPGRADE
356     319     114     900     8       135     * CONCEPCION ST UPGRADE
519     101     102     5610    12      135     * TWIN TANK TEFFT ST. PARALLEL
520     102     702     400     12      135     * NEW TANK LINE
521     103     104     510     12      135     * NEW TANK LINE
339     323     322     150     8       135     * UPGRADE ON BLACK HAWK WAY
527     187     190     5300    10      135     * LOOP ALONG POMEROY
361     345     346     890     10      135     * UPGRADE ALONG HILL ST.
528     247     256     700     8       135     * LOOP TO INCLUDE NIPOMO EL. SCHOOL
529     326     134     800     8       135     * LOOP-BONITA HOMES TO ORCHARD
464     408     424     1000    10      135     * POPPEY LANE UPGRADE
801     199     800     2500    10      135     * TIE FROM STANDPIPE TANK TO FRONTAGE RD
713     710     800     3650    10      135     * FRONTAGE RD SO OF SUMMIT STATION
*THESE UPGRADES ARE TO MEET FUTURE SYSTEM DEMANDS
700     141     345     1400    8       135     *FRONTAGE RD JUNIPER TO TEFFT
701     273     700     1750    8       135     *LEAF ST THOMPSON TO CEDARWOOD
702     700     266     730     8       135     *CEDARWOOD
703     266     701     370     8       135     *CEDARWOOD
704     701     702     370     8       135     *CEDARWOOD
705     241     703     1700    8       135     *BENNETT ST TO NEW 10"
706     303     295     1600    8       135     *EXTEND HONEY GROVE TO SOUTHLAND
707     291     705     1260    6       125     *EXIST ASHLAND LANE
708     705     704     650     8       135     *TWILIGHT LANE
709     321     707     730     6       125     *EXIST BET GRANDE AND HILL
710     370     377     1700    8       135     *INGA LANE
711     369     708     1100    6       125     *EXIST CAMINO CABALLO
712     708     339     700     8       135     *CAMINO CABALLO
713     710     712     6650    10      135     *FRONTAGE RD SO OF SUMMIT STATION
714     712     375     3000    10      135     *FRONTAGE RD
715     711     713     3500    8       125     *EXIST 8 INCH
716     713     712     1000    8       135     *CONNECT TO NEW FRONTAGE RD 10 INCH
102     102     702     400     10      125     *
717     702     103     1160    10      125     *
718     702     103     1160    12      125     *PARALLEL LINE
258     102     701     800     8       125     *
719     701     259     520     8       125     *
720     703     307     1000    10      135     *
317     305     704     390     6       125     *
721     704     306     398     6       125     *
365     330     706     990     8       125     *
722     706     347     980     8       125     *
514     430     710     2570    8       125     *
723     710     414     1890    8       125     *
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740     197     200     200     10      135     * EXIST 10"
741     707     706    1200      8      135     * NEW HILL ST 8"
* THIS IS THE BLACK LAKE TIE IN
750     606     750     80      8       135     * TIE IN ON WILLOW RD NEAR BEVINGTON WELL
652     652     751     450     8       125     * TIE NEAR HYDRO TANK
751     631     751     150     8       125     * TIE FROM BARBERRY WAY
752     636     752     800     8       135     * TIE MISTY RIDGE TO WILLOW RD
753     650     652     250     8       135     * HYDROTANK BYPASS
173     175     750     640     10      125     * WILLOW RD TIE IN
754     750     179     490     10      125     * WILLOW RD TIE IN
176     179     752     3750    10      125     * WILLOW RD/BARBERRY WAY TIE IN
527     752     182     1200    10      125     *  "    "       "       "
755     187     754     1700    10      135     * POMEROY TIE IN
756     754     753     850     10      135     *       "
757     753     190     2750    10      135     *       "
758     641     753     60      8       135     * "K" ST. TIE IN
*759     644     754     60      8       135     * "N" ST. TIE IN
NODES
700     0   365         *LEAF AND CEDARWOOD
701     0   360         *CEDARWOOD AND BRANCH
702     0   363         *CEDARWOOD AND TEFFT
703     0   290         *ALONG NEW 10" AT AMADO ST
704     0   320         *STORY ST AT TWILIGHT
705     0   320         *TWILIGHT
706     0   390         *HILL ST
707     0   403         *HILL ST
708     0   360         *CAMINO CABALLO
710     0   400         *SUMMIT STA RD AT FRISCO WAY
711     0   360
712     0   362
713     0   370
800     0   381         *FRONTAGE RD LINE TO STANDPIPE TANK
* THIS IS THE BLACK LAKE TIE IN NODES
750     0       322     0       0       0
751     0       353     0       0       0
752     0       353     0       0       0
753     0       359     0       0       0
754     0       376     0       0       0
DEMANDS
700     -3.74
701     -2.48
710     -5.63
712     -20.25
run
KEEP MPLANWTR.KEP
endfile
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*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM - MAIN ZONE TO WWTP
*WWTP1.DTA
PAGESIZE 84
DESIGN CRITERIA 0.9 15 0.9 21 0.9 999
ANALYSIS CRITERIA 0.9 15 0.9 21 0.9 999
PEAKING 2.0     0.9
OUTPUT runrit.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
*1068   349.5   100     500     325.26  0.011   4
*1066   348.5   1190    400     311     0.011   4
1005    289.57  50      1006    290.54  0.011   15
1006    290.54  290     1007    291.41  0.011   15
1007    291.41  400     1008    292.81  0.011   15
1008    292.81  420     1009    294.03  0.011   15
1009    294.03  1300    1010    302.14  0.011   15
1010    302.14  360     1011    305.1   0.011   15
1011    305.1   370     1012    313.33  0.011   12
1012    313.33  950     1013    315.72  0.011   12
1013    315.72  1060    1014    318.64  0.011   12
1014    318.64  1130    1015    336.22  0.011   10
1015    336.22  850     1016    338.61  0.011   10
1016    338.61  250     1017    339.09  0.011   10
1017    339.09  350     1020    339.99  0.011   10
1020    339.99  370     1021    340.88  0.011   10
1021    340.88  340     1022    341.79  0.011   10
1022    341.79  280     1023    342.96  0.011   8
1023    342.96  280     1024    344.14  0.011   8
1024    344.14  280     1025    351.13  0.011   8
1025    351.13  280     1026    357.33  0.011   8
1026    357.33  220     1027    359.83  0.011   8
1027    359.83  500     1028    368.47  0.011   8
1011    305.1   460     1029    306.16  0.011   12
1029    306.16  420     1030    307.19  0.011   12
1030    307.19  1320    1031    309.97  0.011   12
1031    309.97  340     1032    314.36  0.011   8
1032    314.36  300     1033    315.71  0.011   8
1031    309.97  25      1035    329.68  0.011   8
1035    329.68  130     1036    331.34  0.011   8
1035    329.68  520     1037    331.6   0.011   8
1034    312.86  1040    1038    315.29  0.011   10
1031    309.97  784     1034    312.86  0.011   12
1034    312.86  304     1038    315.29  0.011   10
1038    315.29  400     1039    319.12  0.011   8
1038    315.29  750     1040    320.58  0.011   10
1040    320.58  330     1041    324.85  0.011   10
1041    324.85  252     1042    327.28  0.011   8
1041    324.85  585     1045    329.44  0.011   10
1045    329.44  309     1043    339.98  0.011   8
1043    339.98  227     1044    341.32  0.011   8
1044    341.32  380     1046    352.06  0.011   8
1011    305.1   380     1047    306.02  0.011   12
1047    306.02  110     1048    306.35  0.011   12
1047    306.02  300     1049    311.83  0.011   8
1049    311.83  320     1050    314.99  0.011   8
1049    311.83  240     1051    312.98  0.011   8
1051    312.98  310     1052    314.8   0.011   8
1013    316.21  350     1053    331.75  0.011   8
1053    331.75  190     1054    333.34  0.011   8
1054    333.34  600     1055    334.99  0.011   8
1054    334.99  260     1056    335.51  0.011   8
1056    335.51  50      513     337.83  0.011   8
513     337.84  50      1057    340.16  0.011   8
1057    340.16  250     1060    342.55  0.011   8
1060    342.55  50      1061    342.69  0.011   8
1061    342.69  280     1062    346.8   0.011   8
1062    346.8   270     1063    364     0.011   8
1063    364     100     1064    366.86  0.011   8
1063    364     100     1065    364.5   0.011   8
1061    342.69  630     1066    348.5   0.011   8
1066    348.5   50      1067    349     0.011   8
1067    349     50      1068    349.5   0.011   8
1016    347.08  50      1069    347.42  0.011   8
1069    347.42  360     1070    348.89  0.011   8
1070    348.89  280     1071    351     0.011   8
1071    351     400     1072    356.67  0.011   8
1072    356.67  400     1073    359.5   0.011   8
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*1066    348.5   530     1058    353.8   0.011   6
SANITARY LOADING
1014    1               1.431672
1015    1               4.820112
1016    1               1.39128
1028    1               0.991848
1028    0       0       175.0000#       *LOADING FROM BLACK LAKE MH PARK LS
1028    0       0       110.0000#       *LOADING FROM BRACKEN LS
1033    1               0.300000
1034    1               0.318648
1035    1               0.660432
1036    1               0.300000
1037    1               0.660432
1038    1               1.588752
1039    1               1.588752
1041    1               0.937992
1042    1               0.498168
1043    1               0.911064
1043    0       0       315.0000#       *LOADING FROM TEFFT LS
1044    1               1.068144
1045    1               0.911064
1046    1               0.318648
1046    0       0       175.0000#       *LOADING FROM N. OAKGLEN LS
1047    1               0.74052
1048    1               0.74052
1049    1               0.619344
1050    1               0.991848
1051    1               0.870672
1052    1               0.74052
1053    1               1.808664
1054    1               2.450448
1055    1               3.550008
1056    1               0.251328
1057    1               0.870672
1061    1               0.498168
1062    1               0.870672
1063    1               0.870672
1064    1               0.251328
1065    1               1.238688
1066    0       0       175.0000#       *LOADING FROM NIPOMO PALMS LS
*1066    0       0       310.0000#       *LOADING FROM CSA 1
1068    0       0       190.0000#       *LOADING FROM LA MIRADA LS
1069    1               1.39128
1070    1               1.39128
1071    1               1.39128
1072    1               1.377816
1073    0       0       111.0000#       *LOADING FROM GARDENIA LS
1057    1               0.870672
1061    1               0.498168
1062    1               0.870672
1063    1               0.870672
1064    1               0.251328
1065    1               1.238688
1069    1               1.39128
1070    1               1.39128
1071    1               1.39128
1072    1               1.377816
ENDFILE
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*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM - TEFFT ST LS AREA
*TEFFT.DTA
PAGESIZE 84
DESIGN CRITERIA 0.90 15 0.90 21 0.90 999
ANALYSIS CRITERIA 0.90 15 0.90 21 0.90 999
PEAKING 3.0 0.9
OUTPUT TEFFT3.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
100     293.7   300     101     300.58  0.011   8
555     291.41  100     100     293.7   0.011   8 *TO TEFFT LS
100     293.7   60      156     294.02  0.011   8
101     300.58  450     102     303.6   0.011   8
102     303.6   400     103     305.26  0.011   8
103     305.26  360     104     306.78  0.011   8
104     306.78  250     105     307.87  0.011   8
105     307.87  240     106     308.98  0.011   8
106     308.98  470     107     311.19  0.011   8
107     311.19  220     118     312.32  0.011   8
118     312.32  260     108     314.73  0.011   8
108     314.73  270     150     317.86  0.011   8
108     314.73  430     151     319.54  0.011   8
151     319.54  400     152     330     0.011   8
151     319.54  200     153     320.35  0.011   8
153     320.35  260     154     325.62  0.011   8
154     325.62  460     155     335.08  0.011   8
102     303.6   400     109     309.41  0.011   8
109     309.41  160     110     310.81  0.011   8
110     310.81  310     111     321.09  0.011   8
111     321.09  280     112     322.39  0.011   8
111     321.09  250     113     322.11  0.011   8
111     321.09  175     114     322.96  0.011   8
114     322.96  320     115     325.06  0.011   8
115     325.06  260     116     326.44  0.011   8
115     325.06  375     117     331.99  0.011   8
117     331.99  300     120     338.48  0.011   8
120     338.48  230     121     339.97  0.011   8
121     339.97  175     122     344.11  0.011   8
122     344.11  410     123     362.87  0.011   8
103     305.26  220     140     309.84  0.011   8
140     309.84  200     141     312.89  0.011   8
141     312.89  260     142     316.24  0.011   8
103     305.26  430     124     316.44  0.011   8
124     316.44  460     125     319.18  0.011   8
125     319.18  400     126     327.42  0.011   8
126     327.42  410     127     332.43  0.011   8
127     332.43  400     128     338.23  0.011   8
128     338.23  370     129     342.43  0.011   8
125     319.18  370     130     320.72  0.011   8
130     320.72  250     131     322.09  0.011   8
131     322.09  230     132     334.82  0.011   8
132     334.82  350     133     344.1   0.011   8
133     344.1   260     134     345.18  0.011   8
134     345.18  330     135     346.64  0.011   8
135     346.64  250     136     357.1   0.011   8
136     357.1   330     137     367.96  0.011   8
106     308.98  430     143     311.76  0.011   8
143     311.76  190     144     314.93  0.011   8
143     311.76  460     145     314.33  0.011   8
145     318.37  110     146     319.36  0.011   8
107     311.19  420     147     315.62  0.011   8
147     315.62  370     148     319.95  0.011   8
147     315.62  340     149     319.21  0.011   8
100     293.7   70      156     294.02  0.011   8
156     294.2   370     157     305.66  0.011   8
157     305.66  180     160     311.11  0.011   8
160     311.11  80      161     311.67  0.011   8
161     311.67  180     162     325.4   0.011   8
100     293.7   330     200     299.4   0.011   8
200     299.4   470     201     301.31  0.011   8
201     301.31  190     202     302.5   0.011   8
202     302.5   220     203     309.42  0.011   8
202     302.5   430     204     305.2   0.011   8
204     305.2   230     205     319.92  0.011   8
204     305.2   270     206     306.59  0.011   8
206     306.59  260     207     307.43  0.011   8
206     306.59  420     208     317.78  0.011   8
208     317.78  250     209     320     0.011   8
204     305.2   430     210     316.63  0.011   8
210     316.63  330     211     319     0.011   8
210     316.63  380     212     319.9   0.011   8
212     319.9   110     213     320.41  0.011   8
213     320.41  440     214     325.67  0.011   8
214     325.67  780     215     332.26  0.011   8
215     332.26  390     216     343.45  0.011   8
216     343.45  400     217     355.58  0.011   8
200     299.4   250     220     306.55  0.011   8
220     306.55  430     221     309.67  0.011   8
221     309.67  430     222     314.72  0.011   8
222     314.72  460     223     321.86  0.011   8
223     321.86  420     224     323.79  0.011   8
224     323.79  410     225     330.54  0.011   8
225     330.54  400     226     336.66  0.011   8
226     336.66  380     227     343.49  0.011   8
213     320.41  360     230     321.02  0.011   8
230     321.02  430     231     327     0.011   8
230     321.02  580     232     322.97  0.011   8
232     322.97  360     233     323.85  0.011   8
233     323.85  400     234     326.56  0.011   8
234     326.56  400     235     334.49  0.011   8
235     334.49  400     236     341.76  0.011   8
236     341.76  170     237     370.9   0.011   8
232     322.97  400     238     325.61  0.011   8
238     325.61  400     239     333.14  0.011   8
239     333.14  400     240     355.65  0.011   8
240     355.65  170     241     379.43  0.011   8
240     355.65  370     242     358.93  0.011   8
242     358.93  430     243     383.5   0.011   8
SANITARY LOADING
101     1               1.36884
102     1               0.228888
103     1               0.368016
104     1               0.869344
105     1               0.251328
106     1               0.498168
107     1               0.619344
108     1               0.498168
110     1               0.251328
111     1               0.251328
112     1               0.350064
113     1               0.15
114     1               0.978384
115     1               1.198296
116     1               0.498168
117     1               0.870672
120     1               0.870672
121     1               0.870672
122     1               0.121176
123     1               0.2
124     1               0.498168
126     1               0.959104
127     1               0.991848
128     1               0.991848
129     1               0.498168
131     1               0.457776
135     1               0.619344
136     1               0.368016
137     1               0.251328
140     1               0.498168
141     1               0.498168
142     1               0.368016
143     1               0.251328
144     1               0.3
146     1               0.3
147     1               0.74052
148     1               0.870672
149     1               0.251328
150     1               0.251328
151     1               0.74052
152     1               0.870672
153     1               0.368016
155     1               0.498168
160     1               0.309672
162     1               0.5
161     1               0.5
```

```
200     1               6.458232
201     1               3.020424
202     1               0.929016
203     1               0.691152
204     1               2.297856
205     1               0.520608
206     1               0.991848
207     1               0.619344
208     1               0.870672
209     1               0.251328
210     1               3.271752
211     1               0.08976
212     1               0.601392
213     1               1.148232
214     1               4.06164
215     1               3.689136
216     1               4.191792
217     1               0.991848
220     1               0.552024
221     1               0.170544
222     1               0.08976
224     1               2.890272
225     1               1.490016
226     1               1.122
227     1               0.74052
230     1               0.991848
231     1               0.991848
232     1               1.238688
233     1               0.870672
234     1               0.870672
235     1               1.122
236     1               0.74052
237     1               0.5
238     1               2.230536
239     1               2.230536
241     1               1.490016
242     1               1.238688
243     1               1.238688
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM - NIPOMO PALMS LS AREA
*NIPPALMS.DTA
*CSA-1 SANITARY LOADING ADDED 10/18/95
PAGESIZE 84
DESIGN CRITERIA 0.9 15 0.9 21  0.9 999
ANALYSIS CRITERIA 0.9 15 0.9 21 0.9 999
PEAKING 3.0 0.9
OUTPUT PALM1.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
400     311     50      401     311.1   0.011   8
401     311.10  50      402     312.49  0.011   8
402     312.49  240     403     321.7   0.011   8
403     321.7   200     404     325.8   0.011   8
403     321.7   220     405     328.01  0.011   8
405     328.01  90      406     330.36  0.011   8
406     330.36  110     407     331.32  0.011   8
407     331.32  240     408     332.8   0.011   8
405     328.01  150     409     329.05  0.011   8
409     329.05  130     410     329.55  0.011   8
410     329.55  450     411     334.1   0.011   6
411     334.1   400     412     352.43  0.011   6
412     352.43  200     413     353.72  0.011   6
400     311.00  140     430     311.25  0.011   8
430     311.25  30      431     314     0.011   6
431     314     200     432     332     0.011   6
432     332     220     433     339.7   0.011   6
431     314     430     434     322.46  0.011   6
434     322.46  200     435     326.4   0.011   6
435     326.4   260     436     342     0.011   6
435     326.4   260     437     340.35  0.011   6
437     340.35  370     438     340.52  0.011   6
402     312.49  370     414     313.55  0.011   8
414     313.55  110     415     314.09  0.011   8
415     314.09  130     416     333     0.011   8
415     314.09  70      417     314.48  0.011   8
417     314.78  380     420     315.95  0.011   8
420     315.95  120     421     316.74  0.011   8
421     316.74  240     422     317.52  0.011   8
422     317.52  220     423     322.7   0.011   8
423     322.7   180     424     331     0.011   8
423     322.7   220     425     331     0.011   8
422     317.52  200     426     318.53  0.011   8
426     318.53  140     427     319.39  0.011   8
422     317.52  180     428     318.7   0.011   8
428     318.7   120     429     330     0.011   8
SANITARY LOADING
402     1               0.619344
403     1               0.498168
404     1               0.74052
405     1               1.602216
406     1               0.848232
407     1               0.848232
408     1               0.848232
409     1               0.74052
410     1               0.251328
410     1               310.0000# * CSA-1
412     1               0.457776
413     1               0.457776
414     1               0.848232
414     1               0.74052 *PREVIOU        SLY W   AS AT NODE 439
415     1               0.848232
416     1               0.848232
417     1               0.848232
420     1               0.848232
421     1               0.848232
422     1               0.848232
423     1               0.848232
424     1               0.457776
425     1               0.848232
426     1               1.041216
427     1               1.041216
429     1               0.457776
430     1               0.619344
432     1               0.74052
433     1               0.991848
434     1               1.611192
435     1               0.74052
436     1               1.122
437     1               0.870672
438     1               0.368016
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM - BRACKEN LS AREA
*BRACKEN.DTA
PAGESIZE 84
DESIGN CRITERIA 0.9 15 0.9 21 0.9 999
ANALYSIS CRITERIA 0.9 15 0.9 21 0.9 999
PEAKING 3.0 1
OUTPUT BRACKEN3.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
330     333.8   150             331     336.51  0.011   8
331     336.51  60              332     337.6   0.011   8
332     337.6   230             333     339.46  0.011   8
332     337.6   80              334     339.24  0.011   8
SANITARY LOADING
331     1               0.368016
331     1               0.368016
332     1               0.251328
333     1               0.74052
334     1               0.251328
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM - NORTH OAK GLEN LS AREA
*NOAKGLEN.DTA
PAGESIZE 84
DESIGN CRITERIA 0.9 15 0.9 21  0.9 999
ANALYSIS CRITERIA 0.9 15 0.9 21 0.9 999
PEAKING 3.0 1
OUTPUT NOAK3.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
163     332.85  140             164     341.3   0.011   8
163     332.85  230             165     333.76  0.011   8
222     326.81  100             163     332.85  0.011   8
165     333.76  380             166     335.4   0.011   8
166     335.4   310             167     336.95  0.011   8
167     336.95  600             168     346.48  0.011   8
SANITARY LOADING
164     1       0.251328
164     1       0.318648
165     1       0.498168
166     1       0.498168
167     1       2.31132
168     1       0.991848
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM - BLACK LAKE MHP LS AREA
*MHPBLAK.DTA
PAGESIZE 84
DESIGN CRITERIA   0.9 15 0.90 21  0.90 999
ANALYSIS CRITERIA 0.9 15 0.90 21  0.90 999
PEAKING 3.0 0.9
OUTPUT MHPBL3.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
300     343.73  60      301     349.01  0.011   8
999     334.93  100     300     343.73  0.011   8 *TO BLACK LAKE LS @ MHP
301     349.01  400     302     350.58  0.011   8
302     350.58  130     303     351.22  0.011   8
303     351.22  300     304     352.72  0.011   8
304     352.72  140     305     353.55  0.011   8
305     353.55  120     306     354.05  0.011   8
306     354.05  230     307     356.37  0.011   8
307     356.37  300     308     378.7   0.011   8
306     354.05  190     309     355.22  0.011   8
309     355.22  100     310     362     0.011   8
300     343.73  90      250     345.09  0.011   8
250     345.09  150     311     350.46  0.011   8
*250     345.09  342    251     348     0.011   8      *NO SAN. LOADING
311     350.46  10      312     351.08  0.011   8
312     351.08  280     313     367.02  0.011   6
313     367.02  280     314     369.17  0.011   6
*315     357.02  380    314     369.17  0.011   6       *REDUNDANT
315     357.02  120     316     357.26  0.011   6
312     351.08  260     317     352.18  0.011   6
317     352.18  100     329     354.98  0.011   8
329     354.98  330     327     356.22  0.011   8
327     356.22  150     315     357.02  0.011   6
327     356.22  470     328     367.22  0.011   6
317     352.18  280     320     361.13  0.011   6
320     361.13  280     321     375.33  0.011   6
320     361.13  260     322     377.75  0.011   6
322     377.75  260     323     390.93  0.011   6
322     377.75  280     324     379.05  0.011   6
324     379.05  380     325     398.32  0.011   6
325     398.32  200     326     403     0.011   6
SANITARY LOADING
303     1       0.619344
304     1       0.74052
305     1       0.368016
306     1       3.044344
307     1       0.870672
308     1       0.74052
309     1       0.498168
310     1       0.498168
311     1       0.619344
313     1       1.611192
314     1       0.991848
315     1       0.870672
316     1       0.251328
317     1       0.870672
320     1       0.870672
321     1       0.870672
322     1       0.870672
323     1       0.74052
324     1       1.238688
325     1       1.238688
326     1       0.619344
327     1       0.870672
328     1       1.238688
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM - LA MIRADA LS AREA
*LAMIRADA.DTA
PAGESIZE 84
DESIGN CRITERIA 0.90 15 0.90 21  0.95  999
ANALYSIS CRITERIA 0.90 15 0.90 21 0.95 999
PEAKING 3.0 0.9
OUTPUT LAMIRAD3.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
500     325.26  440     501     327.13  0.011    8
501     327.13  100     502     332     0.011    6
501     327.13  250     503     329.1   0.011    8
503     329.1   200     504     334.5   0.011    8
503     329.1   470     505     348.7   0.011    8
505     348.7   170     506     349.8   0.011    8
500     325.26  280     507     336     0.011    8
507     336     290     508     350.86  0.011    8
507     336     230     509     338.62  0.011    8
509     338.62  120     510     339.99  0.011    8
555     326.70  100     500     327.13  0.011    8 *INTO LA MIRADA LS
SANITARY LOADING
500     1               0.77
501     1               1.122   * PREVIOUSLY AT NODE 500
501     1               2.13884
502     1               0.251328
503     1               1.611192
504     1               0.870672
505     1               0.991848
506     1               0.619344
507     1               1.122
508     1               0.498168
509     1               0.991848
510     1               0.251328
*511     1               1.238688       * TO WWTP DIRECTLY
*512     1               1.36884        *       "
*513     1               0.251328       *       "
*514     1               0.870672       *       "
*515     1               0.74052        *       "
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM-BLACK LAKE DEVELOPMENT
*WOODGRN.DTA
PAGESIZE 84
DESIGN CRITERIA 0.5 15
ANALYSIS CRITERIA 0.5 15
PEAKING 2.0 1
OUTPUT BLACKLKE.OUT
GEOMETRY
601             100     602     314     .011    8
602     314     570     603     332     .011    8
602     314     320     616     312     .011    8
616     312     300     317     322     .011    8
616     312     400     604     308     .011    8
604     308     315     607     319     .011    8
607     319     170     605     322     .011    8
604     308     220     606     310     .011    8
606     310     240     608     315     .011    8
608     315     580     609     333     .011    8
609     333     320     610     341     .011    8
609     333     100     611     334     .011    8
608     315     970     612     330     .011    8
612     330     130     613     335     .011    8
606     310     630     614     330     .011    8
614     330     230     615     340     .011    8
SANITARY LOADING
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM - GARDENIA LS AREA
*GARDENIA.DTA
PAGESIZE 84
DESIGN CRITERIA 0.9 15 0.90 21  0.90 999
ANALYSIS CRITERIA 0.9 15 0.90 21 0.90 999
PEAKING 3.0 0.9
OUTPUT GARDEN3.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
169     338.6   430             170     361.5   0.11    8
170     361.5   180             171     375.52  0.11    8
170     361.5   220             172     362.76  0.11    8
172     362.76  270             173     363.44  0.11    8
172     362.76  280             174     363.48  0.11    8
SANITARY LOADING
170     1               0.498168
170     1               0.619344
171     1               0.74052
172     1               0.498168
173     1               0.2
174     1               0.251328
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM, FUTURE FLOWS 9/8/95
*FWWTP1.DTA
PAGESIZE 84
DESIGN CRITERIA 0.90 15 0.90 21 0.90 999
ANALYSIS CRITERIA 0.90 15 0.90 21 0.90 999
PEAKING 3.0     0.9
OUTPUT FWWTP.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
*1068   349.5   100     500     325.26  0.011   4
*1066   348.5   1190    400     311     0.011   4
1005    289.57  50      1006    290.54  0.011   15
1006    290.54  290     1007    291.41  0.011   15
1007    291.41  400     1008    292.81  0.011   15
1008    292.81  420     1009    294.03  0.011   15
1009    294.03  1300    1010    302.14  0.011   15
1010    302.14  360     1011    305.1   0.011   15
1011    305.1   370     1012    313.33  0.011   12
1012    313.33  950     1013    315.72  0.011   12
1013    315.72  1060    1014    318.64  0.011   12
1014    318.64  1130    1015    336.22  0.011   10
1015    336.22  850     1016    338.61  0.011   10
1016    338.61  250     1017    339.09  0.011   10
1017    339.09  350     1020    339.99  0.011   10
1020    339.99  370     1021    340.88  0.011   10
1021    340.88  340     1022    341.79  0.011   10
1022    341.79  280     1023    342.96  0.011   8
1023    342.96  280     1024    344.14  0.011   8
1024    344.14  280     1025    351.13  0.011   8
1025    351.13  280     1026    357.33  0.011   8
1026    357.33  220     1027    359.83  0.011   8
1027    359.83  500     1028    368.47  0.011   8
1011    305.1   460     1029    306.16  0.011   12
1029    306.16  420     1030    307.19  0.011   12
1030    307.19  1320    1031    309.97  0.011   12
1031    309.97  340     1032    314.36  0.011   8
1032    314.36  300     1033    315.71  0.011   8
1031    309.97  25      1035    329.68  0.011   8
1035    329.68  130     1036    331.34  0.011   8
1035    329.68  520     1037    331.6   0.011   8
1034    312.86  1040    1038    315.29  0.011   10
1031    309.97  784     1034    312.86  0.011   12
1034    312.86  304     1038    315.29  0.011   10
1038    315.29  400     1039    319.12  0.011   8
1038    315.29  750     1040    320.58  0.011   10
1040    320.58  330     1041    324.85  0.011   10
1041    324.85  252     1042    327.28  0.011   8
1041    324.85  585     1045    329.44  0.011   10
1045    329.44  309     1043    339.98  0.011   8
1043    339.98  227     1044    341.32  0.011   8
1044    341.32  380     1046    352.06  0.011   8
1011    305.1   380     1047    306.02  0.011   12
1047    306.02  110     1048    306.35  0.011   12
1047    306.02  300     1049    311.83  0.011   8
1049    311.83  320     1050    314.99  0.011   8
1049    311.83  240     1051    312.98  0.011   8
1051    312.98  310     1052    314.8   0.011   8
1013    316.21  350     1053    331.75  0.011   8
1053    331.75  190     1054    333.34  0.011   8
1054    333.34  600     1055    334.99  0.011   8
1054    334.99  260     1056    335.51  0.011   8
1056    335.51  50      513     337.83  0.011   8
513     337.84  50      1057    340.16  0.011   8
1057    340.16  250     1060    342.55  0.011   8
1060    342.55  50      1061    342.69  0.011   8
1061    342.69  280     1062    346.8   0.011   8
1062    346.8   270     1063    364     0.011   8
1063    364     100     1064    366.86  0.011   8
1063    364     100     1065    364.5   0.011   8
1061    342.69  630     1066    348.5   0.011   8
1066    348.5   50      1067    349     0.011   8
1067    349     50      1068    349.5   0.011   8
1016    347.08  50      1069    347.42  0.011   8
1069    347.42  360     1070    348.89  0.011   8
1070    348.89  280     1071    351     0.011   8
1071    351     400     1072    356.67  0.011   8
1072    356.67  400     1073    359.5   0.011   8
```

MAIN ZONE TO WWTP

```
1080    325.49 2200     1081    358.69  0.011   8  *GRANDE AVE
1014    318.64  800     1080    325.49  0.011   8
*1066    348.5   530     1058    353.8   0.011   6
* NIPOMO PALMS LS ELIMINATION PIPELINE
*1100    310.75  150     400     311.0   .011    8
*1101    310.04  470     1100    310.75  .011    8
*1102    309.2   560     1101    310.04  .011    8
1103    308.51  360     1102    309.20  .011    8
1104    307.95  350     1103    308.51  .011    8
1105    307.10  500     1104    307.95  .011    8
1048    306.35  500     1105    307.10  .011    8
SANITARY LOADING
1009    1               36.96           *Added-new: Southland Street
1011    1               14.81           *Added-new: Story Street
1012    1               7.84            *Added-new
1013    1               10.74           *Added-new: Division Street
1014    1               49.411672       *Grand Ave
1015    1               53.380112
1016    1               5.07128
1017    1               3.68            *Added-new
1020    1               3.68            *Added-new
1021    1               4.71            *Added-new
1022    1               31.93           *Added-new
1023    1               1.55            *Added-new
1024    1               12.50           *Added-new:Tie in Pradera Septic
1025    1               1.55            *Added-new
1026    1               0.0             *Added-new
1028    1               0.991848
1028    0       0       175.0000#         *LOADING FROM BLACK LAKE MH PARK LS
1028    0       0       110.0000#         *LOADING FROM BRACKEN LS
1030    1               10.31           *Added-new
1031    1               0.41            *Added-new
1032    1               0.21            *Added-new
1033    1               0.710000
1034    1               11.828648
1035    1               1.070432
1036    1               0.300000
1036    1              100.000000#      *PROPOSED AMADO ST LS
1037    1               0.660432
1038    1               1.588752
1039    1               1.998752
1040    1               6.22            *Added-new
1041    1               6.067992
1042    1               0.708168
1043    1               4.851064
1043    0       0       600.0000#         *LOADING FROM UPGRADED TEFFT LS
1044    1               1.068144
1045    1               0.911064
1046    1               0.318648
1046    0       0       175.0000#         *LOADING FROM N. OAKGLEN LS
1047    1               0.74052
1048    1               0.74052
1048    1               5.0               *LOADING FROM MONTECITO VERDE I
1049    1               0.619344
1050    1               0.991848
1051    1               0.870672
1052    1               0.74052
1053    1               1.808664
1054    1               3.400448
1055    1               3.550008
1056    1               1.061328
1057    1               0.870672
1061    1               0.498168
1062    1               0.870672
1063    1               0.870672
1064    1               0.251328
1065    1               1.238688
*1066    0       0       175.0000#      *LOADING FROM NIPOMO PALMS LS
*1066    0       0       310.0000#      *LOADING FROM CSA 1
1066    0       0       190.0000#      *PROPOSED MERCURY COURT LS
1068    0       0       190.0000#      *LOADING FROM LA MIRADA LS
1069    1               5.07128
1070    1               1.39128
1071    1               1.39128
1072    1               1.377816
1073    1               1.72
1073    0       0       111.0000#     *LOADING FROM GARDENIA LS
1081    1               12.94         *Added-new
```

```
1057    1               0.870672
1061    1               0.498168
1062    1               0.870672
1063    1               0.870672
1064    1               0.251328
1065    1               1.238688
1069    1               1.39128
1070    1               1.39128
1071    1               1.39128
1072    1               1.377816
1102    1               5.2             *LOADING FROM MONTECITO VERDE II
1104    1               11.13           *LOADING FROM EAST OF CRYSTAL WAY BOTH SIDES OF STORY ST.
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM, FUTURE FLOWS
*FTEFFT.DTA                                    TEFFT  ST  LS AREA
PAGESIZE 84
DESIGN CRITERIA 0.90 15 0.90 21 0.90 999
ANALYSIS CRITERIA 0.90 15 0.90 21 0.90 999
PEAKING 3.0 0.9
OUTPUT FTEFFT.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
100     293.7   300     101     300.58  0.011   8
555     291.41  100     100     293.7   0.011   8 *TO TEFFT LS
100     293.7   60      156     294.02  0.011   8
101     300.58  450     102     303.6   0.011   8
102     303.6   400     103     305.26  0.011   8
103     305.26  360     104     306.78  0.011   8
104     306.78  250     105     307.87  0.011   8
105     307.87  240     106     308.98  0.011   8
106     308.98  470     107     311.19  0.011   8
107     311.19  220     118     312.32  0.011   8
118     312.32  260     108     314.73  0.011   8
108     314.73  270     150     317.86  0.011   8
108     314.73  430     151     319.54  0.011   8
151     319.54  400     152     330     0.011   8
151     319.54  200     153     320.35  0.011   8
153     320.35  260     154     325.62  0.011   8
154     325.62  460     155     335.08  0.011   8
102     303.6   400     109     309.41  0.011   8
109     309.41  160     110     310.81  0.011   8
110     310.81  310     111     321.09  0.011   8
111     321.09  280     112     322.39  0.011   8
111     321.09  250     113     322.11  0.011   8
111     321.09  175     114     322.96  0.011   8
114     322.96  320     115     325.06  0.011   8
115     325.06  260     116     326.44  0.011   8
115     325.06  375     117     331.99  0.011   8
117     331.99  300     120     338.48  0.011   8
120     338.48  230     121     339.97  0.011   8
121     339.97  175     122     344.11  0.011   8
122     344.11  410     123     362.87  0.011   8
103     305.26  220     140     309.84  0.011   8
140     309.84  200     141     312.89  0.011   8
141     312.89  260     142     316.24  0.011   8
103     305.26  430     124     316.44  0.011   8
124     316.44  460     125     319.18  0.011   8
125     319.18  400     126     327.42  0.011   8
126     327.42  410     127     332.43  0.011   8
127     332.43  400     128     338.23  0.011   8
128     338.23  370     129     342.43  0.011   8
125     319.18  370     130     320.72  0.011   8
130     320.72  250     131     322.09  0.011   8
131     322.09  230     132     334.82  0.011   8
132     334.82  350     133     344.1   0.011   8
133     344.1   260     134     345.18  0.011   8
134     345.18  330     135     346.64  0.011   8
135     346.64  250     136     357.1   0.011   8
136     357.1   330     137     367.96  0.011   8
106     308.98  430     143     311.76  0.011   8
143     311.76  190     144     314.93  0.011   8
143     311.76  460     145     314.33  0.011   8
145     318.37  110     146     319.36  0.011   8
107     311.19  420     147     315.62  0.011   8
147     315.62  370     148     319.95  0.011   8
147     315.62  340     149     319.21  0.011   8
100     293.7   70      156     294.02  0.011   8
156     294.2   370     157     305.66  0.011   8
157     305.66  180     160     311.11  0.011   8
160     311.11  80      161     311.67  0.011   8
161     311.67  180     162     325.4   0.011   8
100     293.7   330     200     299.4   0.011   8
200     299.4   470     201     301.31  0.011   8
201     301.31  190     202     302.5   0.011   8
202     302.5   220     203     309.42  0.011   8
202     302.5   430     204     305.2   0.011   8
204     305.2   230     205     319.92  0.011   8
204     305.2   270     206     306.59  0.011   8
206     306.59  260     207     307.43  0.011   8
206     306.59  420     208     317.78  0.011   8
```

208	317.78	250	209	320	0.011	8
204	305.2	430	210	316.63	0.011	8
210	316.63	330	211	319	0.011	8
210	316.63	380	212	319.9	0.011	8
212	319.9	110	213	320.41	0.011	8
213	320.41	440	214	325.67	0.011	8
214	325.67	780	215	332.26	0.011	8
215	332.26	390	216	343.45	0.011	8
216	343.45	400	217	355.58	0.011	8
200	299.4	250	220	306.55	0.011	8
220	306.55	430	221	309.67	0.011	8
221	309.67	430	222	314.72	0.011	8
222	314.72	460	223	321.86	0.011	8
223	321.86	420	224	323.79	0.011	8
224	323.79	410	225	330.54	0.011	8
225	330.54	400	226	336.66	0.011	8
226	336.66	380	227	343.49	0.011	8
213	320.41	360	230	321.02	0.011	8
230	321.02	430	231	327	0.011	8
230	321.02	580	232	322.97	0.011	8
232	322.97	360	233	323.85	0.011	8
233	323.85	400	234	326.56	0.011	8
234	326.56	400	235	334.49	0.011	8
235	334.49	400	236	341.76	0.011	8
236	341.76	170	237	370.9	0.011	8
232	322.97	400	238	325.61	0.011	8
238	325.61	400	239	333.14	0.011	8
239	333.14	400	240	355.65	0.011	8
240	355.65	170	241	379.43	0.011	8
240	355.65	370	242	358.93	0.011	8
242	358.93	430	243	383.5	0.011	8

SANITARY LOADING

100	1	13.54	*Added-new
101	1	5.16884	
102	1	3.168888	
103	1	2.448016	
104	1	0.869344	
105	1	0.251328	
106	1	0.638168	
107	1	0.759344	
108	1	0.498168	
109	1	1.81	*Added-new
110	1	1.141328	
111	1	1.141328	
112	1	1.220064	
113	1	1.33	
114	1	2.468384	
115	1	2.068296	
116	1	1.838168	
117	1	1.950672	
118	1	0.14	*Added-new
120	1	1.140672	
121	1	0.870672	
122	1	0.661176	
123	1	1.01	
124	1	3.018168	
125	1	0.87	*Added-new
126	1	2.569104	
127	1	1.801848	
128	1	1.531848	
129	1	2.938168	
130	1	0.75	*Added-new
131	1	1.417776	
132	1	1.16	*Added-new
133	1	1.02	*Added-new
134	1	0.68	*Added-new
135	1	0.829344	
136	1	0.708016	
137	1	0.731328	
140	1	0.498168	
141	1	1.308168	
142	1	0.908016	
143	1	0.791328	
144	1	0.84	
145	1	1.86	*Added-new
146	1	1.73	
147	1	3.58052	
148	1	0.870672	*No new flow
149	1	1.201328	
150	1	0.521328	
151	1	1.01052	
152	1	0.870672	*No new flow
153	1	0.368016	*No new flow
154	1	0.27	*Added-new
155	1	0.498168	
156	1	3.43	*Added-new
157	1	2.43	*Added-new
160	1	4.239672	
161	1	2.01	
162	1	2.01	
200	1	9.888232	
201	1	3.630424	
202	1	2.149016	
203	1	0.691152	*No new flow
204	1	2.907856	
205	1	0.520608	*No new flow
206	1	1.131848	
207	1	0.759344	
208	1	1.280672	
209	1	0.391328	
210	1	3.271752	
211	1	0.94976	
212	1	0.601392	
213	1	1.148232	
214	1	4.33164	
215	1	3.829136	
216	1	4.331792	
217	1	0.991848	
220	1	1.782024	
221	1	2.010544	
222	1	0.94976	
223	1	2.51	*Added-new
224	1	3.180272	
225	1	2.300016	
226	1	1.532	
227	1	0.88052	
230	1	0.991848	
231	1	0.991848	
232	1	1.238688	
233	1	0.870672	
234	1	0.870672	
235	1	1.122	
236	1	0.74052	
237	1	0.5	
238	1	2.230536	
239	1	2.230536	
241	1	1.490016	
242	1	1.238688	
243	1	1.238688	
251	1	0.41	*Added-new

ENDFILE

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM, FUTURE FLOWS
*FBRACKEN.DTA                                    BRACKEN  LS AREA
PAGESIZE 84
DESIGN CRITERIA 0.9 15 0.9 21 0.9 999
ANALYSIS CRITERIA 0.9 15 0.9 21 0.9 999
PEAKING 3.0 1
OUTPUT FBRACKEN.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
330     333.8   150             331     336.51  0.011   8
331     336.51  60              332     337.6   0.011   8
332     337.6   230             333     339.46  0.011   8
332     337.6   80              334     339.24  0.011   8
SANITARY LOADING
331     1               4.926
332     1               0.251328
333     1               0.74052
334     1               0.251328
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM, FUTURE FLOWS
*FNOAKGLN.DTA                                    N. OAKGLEN  LS  AREA
PAGESIZE 84
DESIGN CRITERIA 0.9 15 0.9 21  0.9 999
ANALYSIS CRITERIA 0.9 15 0.9 21 0.9 999
PEAKING 3.0 0.9
OUTPUT FNOAK.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
163     332.85  140             164     341.3   0.011   8
163     332.85  230             165     333.76  0.011   8
222     326.81  100             163     332.85  0.011   8
165     333.76  380             166     335.4   0.011   8
166     335.4   310             167     336.95  0.011   8
167     336.95  600             168     346.48  0.011   8
SANITARY LOADING
164     1       0.251328
164     1       0.318648
165     1       0.498168
166     1      22.968168
167     1       3.94132
168     1       1.261848
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM, FUTURE FLOWS
*FMHPBLAK.DTA                                    BLACK LAKE MHP LS AREA
PAGESIZE 84
DESIGN CRITERIA   0.9 15 0.90 21  0.90 999
ANALYSIS CRITERIA 0.9 15 0.90 21  0.90 999
PEAKING 3.0 0.9
OUTPUT FMHPBL.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
300     343.73  60      301     349.01  0.011   8
999     334.93  100     300     343.73  0.011   8 *TO BLACK LAKE LS @ MHP
301     349.01  400     302     350.58  0.011   8
302     350.58  130     303     351.22  0.011   8
303     351.22  300     304     352.72  0.011   8
304     352.72  140     305     353.55  0.011   8
305     353.55  120     306     354.05  0.011   8
306     354.05  230     307     356.37  0.011   8
307     356.37  300     308     378.7   0.011   8
306     354.05  190     309     355.22  0.011   8
309     355.22  100     310     362     0.011   8
300     343.73  90      250     345.09  0.011   8
250     345.09  150     311     350.46  0.011   8
*250     345.09  342     251     348     0.011   8       *NO SAN. LOADING
311     350.46  10      312     351.08  0.011   8
312     351.08  280     313     367.02  0.011   6
313     367.02  280     314     369.17  0.011   6
*315     357.02  380     314     369.17  0.011   6       *REDUNDANT
315     357.02  120     316     357.26  0.011   6
312     351.08  260     317     352.18  0.011   6
317     352.18  100     329     354.98  0.011   8
329     354.98  330     327     356.22  0.011   8
327     356.22  150     315     357.02  0.011   6
327     356.22  470     328     367.22  0.011   6
317     352.18  280     320     361.13  0.011   6
320     361.13  280     321     375.33  0.011   6
320     361.13  260     322     377.75  0.011   6
322     377.75  260     323     390.93  0.011   6
322     377.75  280     324     379.05  0.011   6
324     379.05  380     325     398.32  0.011   6
325     398.32  200     326     403     0.011   6
SANITARY LOADING
301     1       0.41
303     1       1.029344
304     1       0.74052         *No new flow
305     1       0.368016        *No new flow
306     1       3.044344        *No new flow
307     1       0.870672        *No new flow
308     1       0.74052         *No new flow
309     1       0.498168        *No new flow
310     1       0.498168        *No new flow
311     1       0.619344        *No new flow
313     1       1.611192        *No new flow
314     1       0.991848        *No new flow
315     1       0.870672        *No new flow
316     1       0.251328        *No new flow
317     1       0.870672        *No new flow
320     1       0.870672        *No new flow
321     1       0.870672        *No new flow
322     1       0.870672        *No new flow
323     1       0.74052         *No new flow
324     1       1.238688        *No new flow
325     1       1.648688
326     1       0.829344
327     1       1.280672
328     1       1.448688
329     1       0.41            *Added-new
ENDFILE
```

```
*NIPOMO CSD SEWER MODEL OF EXISTING SYSTEM, FUTURE FLOWS
*FGARDENA.DTA                                    GARDENIA LS AREA
PAGESIZE 84
DESIGN CRITERIA 0.9 15 0.90 21  0.90 999
ANALYSIS CRITERIA 0.9 15 0.90 21 0.90 999
PEAKING 3.0 0.9
OUTPUT FGARDEN.OUT
UNITS 0 0 1 0 0 0 0
GEOMETRY
169     338.6   430             170     361.5   0.11    8
170     361.5   180             171     375.52  0.11    8
170     361.5   220             172     362.76  0.11    8
172     362.76  270             173     363.44  0.11    8
172     362.76  280             174     363.48  0.11    8
SANITARY LOADING
170     1               4.877
171     1               0.74052     *No new flow
172     1               1.328168
173     1               2.06
174     1               1.491328
ENDFILE
```

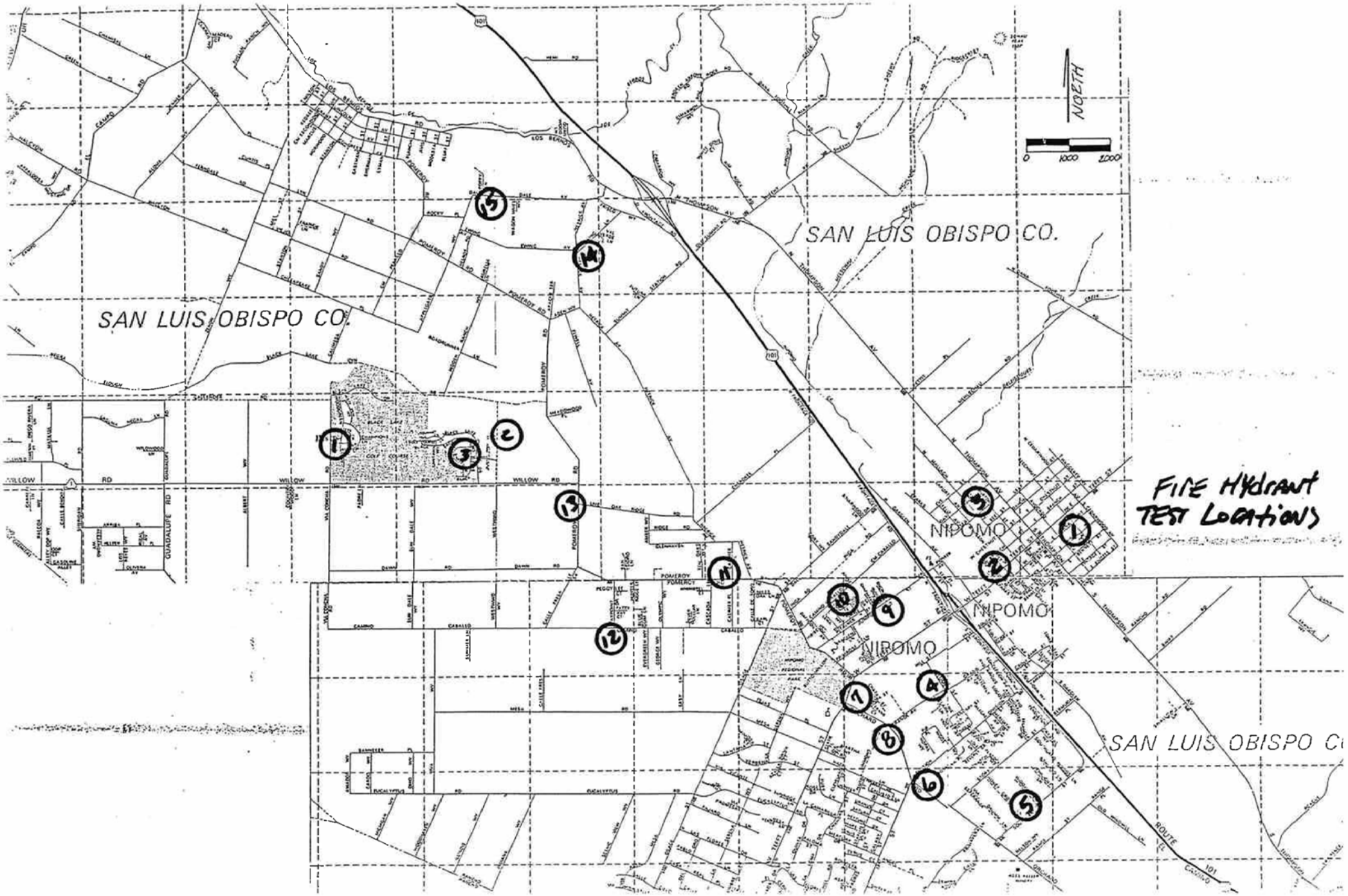
APPENDIX C

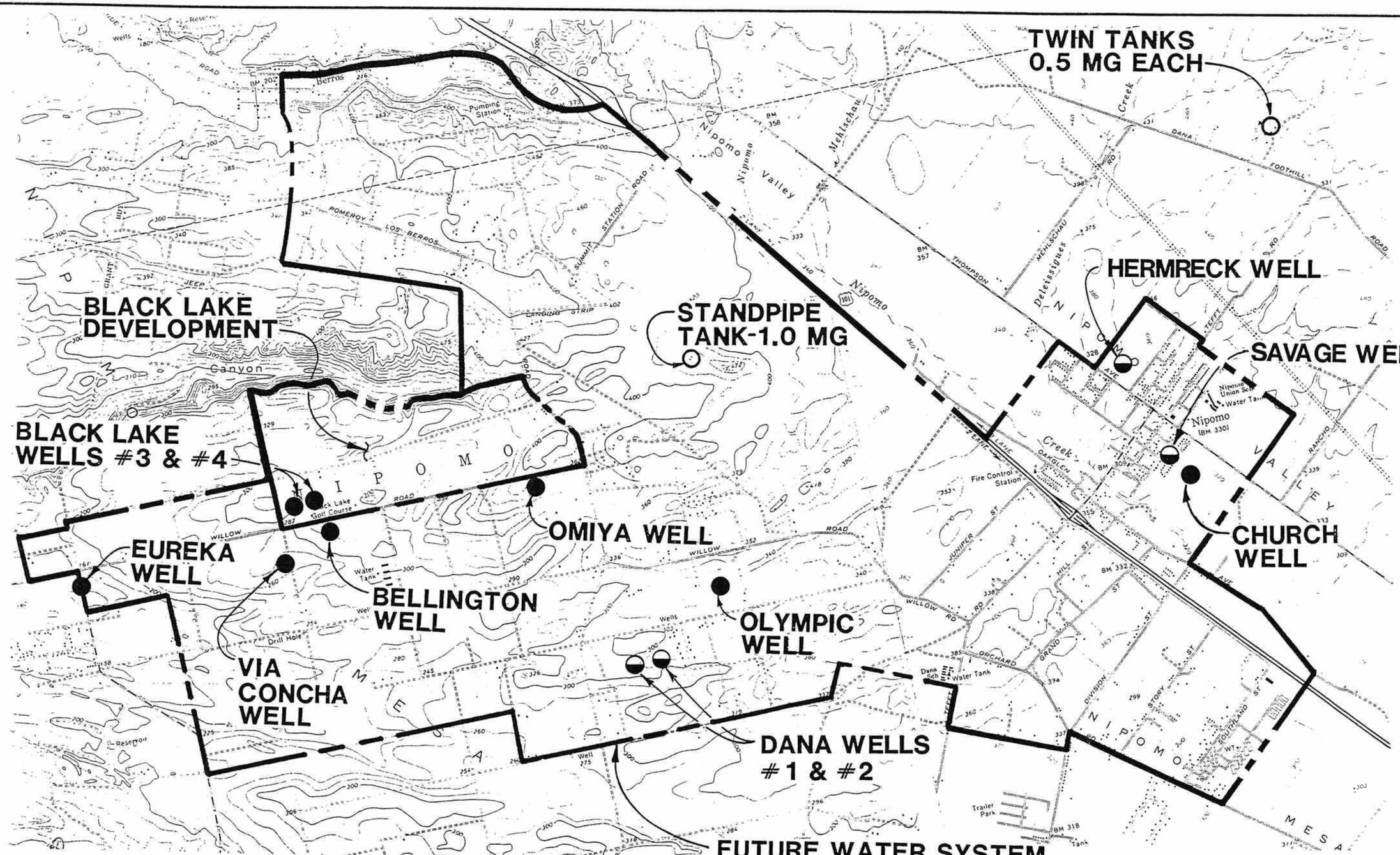
Hydrant Tests/Calibration Results

NIPOMO CSD
Nipomo CSD Water and Sewer Master Plan
VT-N04-100-01, jal/cmf 7-18-95 firedata.xls
Hydrant Flow Test Results Used to Calibrate the Existing Water Model

TEST LOCATION			FIELD MEASUREMENTS			MODELED RESULTS		DIFFERENCE		COMMENT
Map	Node No. at Flowing Hydrant	Node No. at Resid.	Static (psi)	Flow (gpm)	Residual (psi)	Static (psi)	Residual (psi)	Static (psi)	Residual (psi)	
Initial Runs:										
1	(1)	(1)	72	1,330	62	(1)	(1)			Request re-test
2	(1)	(1)	95	1,560	70	(1)	(1)			Request re-test
3	(1)	(1)	88	1,430	58	(1)	(1)			Request re-test
4	(1)	(1)	76	1,150	38	(1)	(1)			Request re-test
5	(1)	(1)	90	1,088	34	(1)	(1)			Request re-test
6	700	701	85	1,088	60	88	73	3	13	Request re-test
7	137	702	65	1,150	40	60	46	-5	6	Request re-test
8	322	323	68	1,180	47	56	39	-12	-8	Request re-test
9	143	703	70	1,180	53	67	55	-3	2	Good run
10	362	361	82	1,055	60	70	58	-12	-2	Modeled static low; concurs with measured hydrant flow
11	203	204	93	1,430	74	87	76	-6	2	Modeled static slightly low
12	167	166	105	1,460	83	93	81	-12	-2	Modeled static low; concurs with measured hydrant flow
13	215	216	90	1,360	70	79	69	-11	-1	Modeled static low; concurs with measured hydrant flow
14	410	410	50	932	32	43	31	-7	-1	Modeled static low; concurs with measured hydrant flow
15	408	704	56	834	32	48	34	-8	2	Modeled static low; concurs with measured hydrant flow
Hydrant Re-Tests:										
1	236	228	80	1,237	67	87	51	7	-16	Checked modeling input. No evident modeling problems.
2	108	274	91	1,500	76	94	78	3	2	Good run
3	277	108	88	1,320	69	91	70	3	1	Good run
4	329	330	80	1,180	56	80	60	0	4	Good run
5	295	293	92	1,022	44	94	47	2	3	Good run
6	132	701	85	1,237	55	90	71	5	16	Checked modeling input. No evident modeling problems.
7	137	321	60	1,150	40	62	47	2	7	Adjust 'C' values of pipes in vicinity
8	329	702	70	1,022	40	61	48	-9	8	Adjust 'C' values of pipes in vicinity

(1) - Hydrants tested with residual taken at same hydrant as flow recorded, disregard.


NORTH
0
1000
2000
SAN LUIS OBISPO CO.
SAN LUIS OBISPO CO.
NIPOMO
NIPOMO
NIPOMO
SAN LUIS OBISPO CO.
WILLOW RD
WILLOW RD
WILLOW RD
GUADALUPE RD
POMEROY RD
ROUTE 101
FIRE HYDRANT TEST LOCATIONS



NIPOMO COMMUNITY SERVICES DISTRICT
1995 WATER AND SEWER MASTER PLAN
EXISTING WATER SYSTEM SCHEMATIC
BOYLE ENGINEERING CORPORATION
VT-N04-100-01 NOV. 1995 FIGURE 5