WATER SERIVCE ANALYSIS

Water Service Analysis

Modera Melrose
Oceanside, California

Southeast Corner of Melrose Drive & Oceanside Boulevard

Date:

July 2022

Prepared for:

MCRT INVESTMENTS LLC.

949 South Coast Drive

Suite 400

Costa Mesa, California 92626

Prepared by:

KIMLEY-HORN AND ASSOCIATES, INC.

401 B Street

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San Diego, California 92101

WATER SERVICE ANALYSIS

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1. PROJECT ANALYSIS

Project Information

The Modera Melrose development (the "Project") is located in the City of Oceanside (the City) on the southeast corner of Melrose Drive and Oceanside Boulevard. The project site consists of two parcels that will be merged for a total project area of 7.40-acres (APN: 161-030-23, 161-030-24). Refer to the appendix for project specific information.

Dexter Wilson Engineering, Inc. (DWE) prepared a Water Service Analysis for the Melrose+Oceanside Project (also known as Melrose Heights) in the City of Oceanside on August 30, 2017 (see **Attachment 1**). This DWE memorandum prepared water modeling for the existing public water lines that the proposed Modera Project would connect to for fire and and domestic water service. The water modeling and analysis has been used as the baseline conditions for the evaluation of the Project on the existing public water lines.

Design Criteria

The design criteria for the potable water system are listed in the *2017 City of Oceanside – Water, Sewer, and Reclaimed Water Design & Construction Manual* and summarized in **Table 1**.

Table 1: Water Design Criteria

Design Criteria	
Average Daily Demand (20-30 DU/ac)	4,100 gpcd
Maximum Daily Demand Factor	2.0 × ADD
Peak Hourly Demand Factor	3.0 × ADD
Fire Flow (Multi-Family Residential)	3000 gpm @ 20 psi
Fire Mains - Max Velocity	7.5 fps
Fire Mains - Max Velocity w/ Fire Flow	10 fps

Proposed Water Service

The proposed on-site water system will consist of a 10-inch looped fire main with two (2) points of connection to the existing 12-inch water main in Oceanside Blvd, as depicted in the Water Exhibit. The fire main will connect to six (6) building points of connection with and four (4) onsite fire hydrants. The onsite fire hydrants will connect to the main line via 10-inch fire hydrant laterals.

Additionally, there will be six (6) potable water service connections from each proposed builing to the existing 12-inch main in Oceanside Blvd.

There are a total of six (6) proposed buildings: five (5) buildings are residential units and one (1) is a mixed-use building with residential units (1,745 square feet of leasing office/mail room and 2,365 square feet of commercial use). A breakdown of total square footage per building is summarized in **Table 2**.

Table 2: Building Area

*Building Area per Architecture Plans**	
Building Identification	***Building Square Footage (SF)***
1	45,397 SF
2	61,961 SF
3	150,790 SF
4	30,210 SF
5	70,520 SF
6	56,826 SF
Total	415,704 SF (9.54 acres)**

*Architecture Plans depict 323 Residential Units are proposed
**Due to mixed use project, the floor area ratio (FAR) exceeds total site area.

Since the project's FAR exceeds 1.0, the area of 9.54 acres corresponding to the total developed area will be used for calculations.

Table 3: Average Daily Water Demand

Calculations			
Acreage	***Demand Factor***	***Gallons per Day (GPD)***	***Gallons per Minute (GPM)***
9.54	4,100 gpd/acre	39,127	27.2

Based on the calculations for average daily demand (ADD), the total of 39,127 gallons per day will be used to analyze the Project's impact on the existing City of Oceanside's water system.

Table 4: Maximum Day and Peak Hourly Water Demand

Calculations		
Peaking Factor	***Gallons per Day (GPD)***	***Gallons per Minute (GPM)***
MDD = ADD * 2.0	78,255	54.3
PHD = ADD * 3.0	234,764	81.5

Table 5: Fire Flow Demand

Calculations	
Scenario	***Gallons per Minute (GPM)***
Maximum Day Demand	53.3
Fire Flow Demand	3,000.0
Maximum Day + Fire Flow Demand	3,053.3

Existing Water Analysis / Basis of Design

Dexter Wilson Engineering, Inc. (DWE) prepared a Water Service Analysis for the Modera Project in the City of Oceanside on August 30, 2017 (see **Attachment 1**). The DWE study was used as a basis of design for the analysis of the proposed water system.

Shown in **Table 6** are the results from the DWE study that were used to calibrate the proposed water model by Kimley-Horn.

Table 6: Basis of Design – Pressures

Existing Study Results			
Model Node	***Elevation***	***Condition 2 (MDD) Pressure***	***Condition 5 (MDD+FF) Pressure***
56	433.00 ft	53.50 psi	38.70 psi
932	455.00 ft	43.97 psi	26.80 psi

Node 56 is located near the northwest corner of the proposed Project, at the intersection of Melrose Drive and West Bobier Drive (Oceanside Blvd). Node 932 is located near the northeast corner of the Project, at the intersection of Sports Park Way and West Bobier Drive. Both Nodes 56 and 932 are part of the existing 12-inch water line in West Bobier Drive that will serve the Project.

Condition No. 2 of the existing DWE study models the Maximum Day Demand (MDD) througout the Peacok Hills 626 Pressure Zone. Condition No. 5 of the exitsting DWE study models the Maximum Day Demand plus Fire Flow (MDD+FF), with fire demand simulated at Node 918. Conditions No. 2 and No. 5 were as selected as a reference points for calibration because of the proximity of Node 918 to the proposed Project area.

Water Analysis

Bentley's WaterCAD program was utilized to analyze residual pressures and flow velocities in the proposed condition. This analysis determines that with the addition of water demands generated by the Project, the water system within the 626 Pressure Zone still operates within the City's standards.

WaterCAD is a dynamic water distribution system modeling software that models multiple fire flow events evaluating velocities, pressures, and headlosses across the entire system. Preparation and calibration of the model was based on the following information:

- System layout (see **Exhibit A** for node and pipe layout)
- Existing DWE Water Service Analysis (see **Attachment 1**)
- Hazen-Williams headloss coefficient (C) of 130 used for all on-site pipes to account for minor losses

In addition to this info, artificial demands were assumed to calibrate the model. Adding these demands allowed the observed field conditions (pressure) to be matched without having to model the entire water system.

Since the off-site water system is looped, the model was set up such that there are two feed pipes to the existing 12-inch waterline. Feed pipes were run from the reservoir to existing Nodes 56 and 932 with artificial demand nodes placed in the middle of the feed pipe runs. The length and size of these pipes, as well as the artificial demands, were adjusted so that the residual pressures at both Nodes matched the residual pressures of the existing DWE model.

WaterCAD inputs consist of node elevations, pipe diameters, pipe roughness coefficients, and flow rates. See **Table 7** and **Table 8** for a summary of the model results for the proposed Project. Detailed model results are provided in **Attachment 2**.

Table 7: Proposed Water System – Maximum Day and Peak Hourly Demand

Summary		
Node	***MDD Residual Pressure (psi)***	***PHD Residual Pressure (psi)***
WATR-POC-1	44.93	44.82
WATR-POC-2	44.81	44.43
WATR-POC-3	44.02	41.41
WATR-POC-4	47.65	47.36
WATR-POC-5	51.23	51.06
WATR-POC-6	46.88	46.76

Table 8: Proposed Fire Water System – Maxiumum Day Plus Fire Flow

Summary		
Node	***Hydrant Residual Pressure (psi)***	***Max Velocity in 10" Fire Main (fps)***
FH-1	21.27	7.74
FH-2	22.98	6.18
FH-3	24.56	8.23
FH-4	24.13	8.44

2. RECOMMENDATIONS & CONCLUSIONS

A 10-inch looped fire main is recommended to to meet the *2017 City of Oceanside – Water, Sewer, and Reclaimed Water Design & Construction Manual* and typical engineering best-practices based on the preliminary design. Pipe size locations are shown on the **Water Exhibit.**

The Projects proposed demand will not require additional improvements to the existing water system. It is recommended that a fire flow test be performed prior to construction to verify the availability of sufficient system pressure.

Davie Cowan, P.E.
CA PE 86803

EXHIBITS

Figure 1 - VICINITY MAP

Source: NearMap, 2022

LEGEND

- BUILDING OUTLINE
- RETAINING WALL
- W — PROP PRIVATE WATER SERVICE
- FW — PROP PRIVATE FIRE SERVICE
- PROJECT BOUNDARY

OCEANSIDE BLVD

MELROSE DRIVE

NCTD SPRINTER ROW

RESERVOIR R-1
FEED PIPE
ARTIFICIAL DEMAND AD-1
J-48 (NODE 56)
EX 12"
J-33
434.6
J-30
434.6
439.9
WATR-POC-5
J-16
438.2
J-17
438.5
FEED PIPE
J-32
445.5
J-28
445.6
450.0
WATR-POC-6
J-32
454.4
J-26
454.5
WATR-POC-1
J-32
456.0
J-32
455.3
ARTIFICIAL DEMAND AD-2
J-35
J-37
J-39
457.2
FEED PIPE
J-21 (NODE 932)
457.7
J-20
J-36
J-38
J-40
456.4
456.3
456.1
456.0
J-2
452.7
J-1
453.2
FIRE-POC-1
FH-1
455.1
BUILDING 1
BUILDING 6
BUILDING 5
FIRE-POC-6
451.6
J-7
J-10
FIRE-POC-5
450.2
FH-4
449.4
449.2
J-4
J-3
J-9
J-6
J-13
453.2
451.4
452.0
WATR-POC-3
452.4
FIRE-POC-3
FH-2
453.4
FIRE-POC-2
454.2
WATR-POC-2
BUILDING 3
BUILDING 2
448.1
FIRE-POC-4
WATR-POC-4
447.8
BUILDING 4
444.8
FH-3

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

CITY PROJECT# D21-00011

REVISIONS					
⚠	SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS

	INITIAL	DATE
PROJECT ENG.		

Kimley»Horn
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PREPARED BY: EUGENE DAVIS COWAN III (FIRST LASTNAME)
R.C.E. NO.: 86803
DATE: 7/26/2022

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	DC
APPROVED:	--
DATE:	7/26/22

CITY OF OCEANSIDE

WATER EXHIBIT

ATTACHMENTS

1. DWE WATER SERVICE ANALYSIS (FOR REFERENCE)

DEXTER WILSON ENGINEERING, INC.

WATER • WASTEWATER • RECYCLED WATER

CONSULTING ENGINEERS

WATER SERVICE ANALYSIS
FOR THE
MELROSE+OCEANSIDE PROJECT
IN THE CITY OF OCEANSIDE

Revised August 30, 2017

2234 FARADAY AVENUE • CARLSBAD, CA • (760) 438-4422

WATER SERVICE ANALYSIS
FOR THE
MELROSE+OCEANSIDE PROJECT
IN THE CITY OF OCEANSIDE

Revised August 30, 2017

8-30-2017

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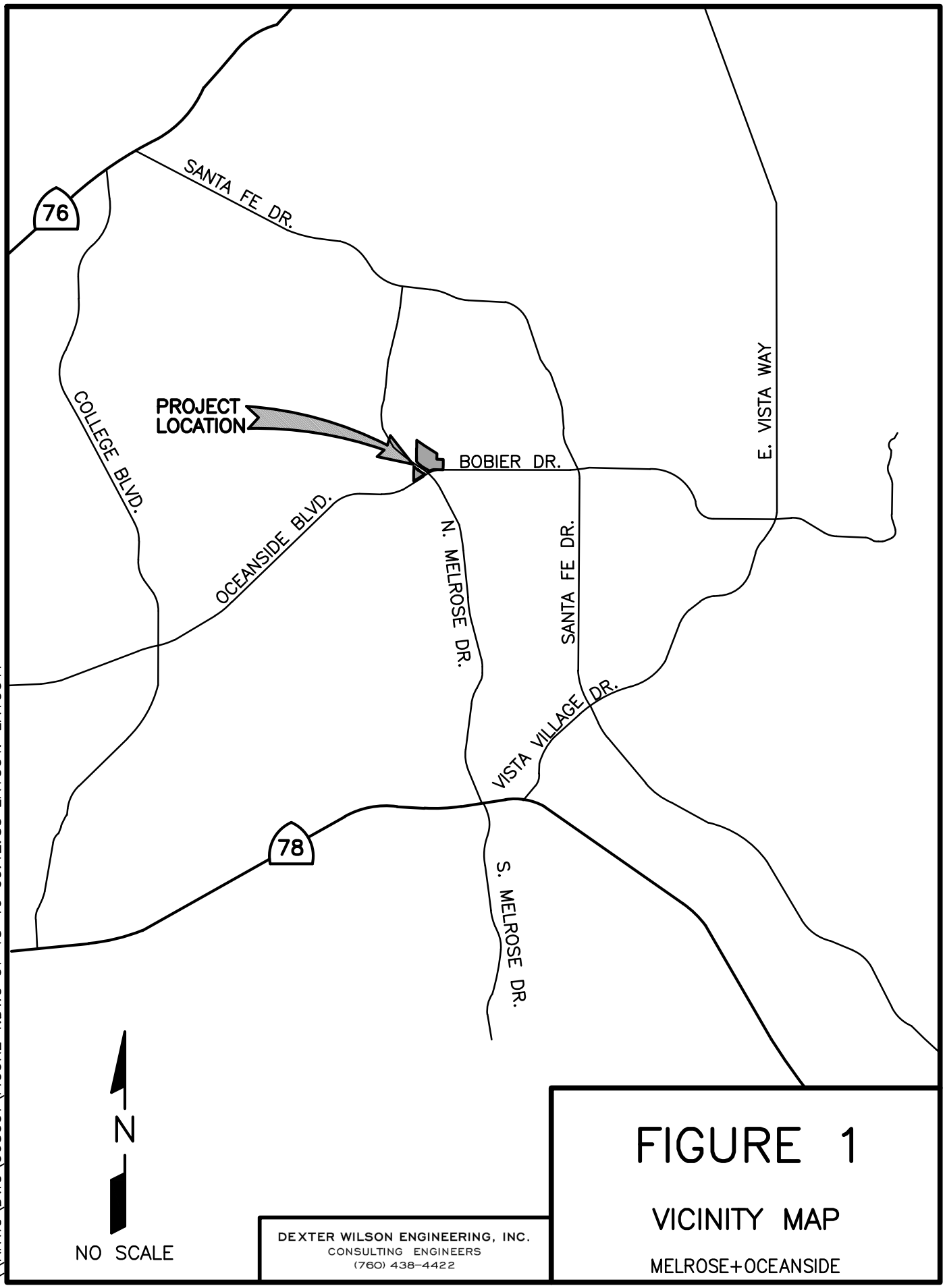
Attention: Mike Lake, Project Manager

Subject: Water Service Analysis for the Melrose+Oceanside Residential Project in the City of Oceanside

Introduction

This report is an update of the February 16, 2016, report for the same project. This update reflects a small reduction in the total number of proposed dwelling units and reflects increasing onsite pipe size for Planning Area 1 from 8-inch to 10-inch as requested by the Water Utilities Department in their October 21, 2016, comments (Comment W30) on the February 16, 2016, water study.

This report provides an analysis of water service to the Melrose+Oceanside project in the City of Oceanside. Melrose+Oceanside is a master-planned residential community on approximately 70.65 acres located in the City of Oceanside's Peacock Hills Neighborhood Area. The Melrose+Oceanside project plan proposes the development of 33 single family and 268 townhouse residential units on 33.5 acres, 20,000 square feet of office/retail space on 1.53 acres, and provides for the conservation of approximately 34.11 acres of natural open space onsite. The existing right-of-way and adjacent landscape for Sports Park Way comprises the remaining 1.51 acres of the Development Plan area. A vicinity map is provided as Figure 1.



\\ARTIC\DWG\965001\FIGURE 1.DWG 01-13-16 09:12:53 LAYOUT: LAYOUT1

DEXTER WILSON ENGINEERING, INC.
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FIGURE 1

VICINITY MAP

MELROSE+OCEANSIDE

Water Service

The Melrose+Oceanside project is within the city limits of the City of Oceanside; water service will be provided by the City. The project is situated at the City's eastern boundary in an area served by the Peacock Hills 626 Pressure Zone which is identified by the City of Oceanside as a subzone of the Guajome 511 Pressure Zone.

Generally the water supply to the 626 Pressure Zone comes from the 800 Pressure Zone aqueduct piping in North Santa Fe Avenue originating at the City of Oceanside Weese Water Treatment Plant off of Gopher Canyon Road west of Interstate 15. At Mesa Drive and North Santa Fe Avenue, a 24" 800 Pressure Zone pipeline extends west and south in Mesa Drive to Old Grove Road. At Old Grove Road, the 24" pipeline turns south and east to just south of Ocean Ranch Boulevard terminating at a pressure regulating station. This pressure regulating station breaks the 800 Pressure Zone down to the 626 Pressure Zone. The station includes a 6" and a 12" pressure regulating valve.

A second source of supply to the 626 Pressure Zone is a pressure regulating station located at the intersection of Crestview Drive and Darwin Drive. Here there is a 24" 800 Pressure Zone pipeline which is the main supply to the two Guajome Tanks located at the intersection of Peacock Boulevard and Temple Heights Drive. This pressure regulating station includes a 4" and a 10" pressure reducing valve.

Existing 626 Pressure Zone distribution piping is located adjacent to the Melrose+Oceanside project. Oceanside Boulevard west of Melrose Drive and West Bobier Drive east of Melrose Drive include existing 12" 626 Pressure Zone pipelines. The pipeline in Melrose Drive extending north to Meadowbrook Drive is also a 12" 626 Pressure Zone water main. Figure 2 shows the existing 626 Pressure Zone water lines in the vicinity of the Melrose+Oceanside project.

TWO EXISTING 24" TRANSMISSION MAINS

CRESTVIEW PRESSURE REDUCING STATION

GUAJOME TANKS

EXISTING PEACOCK HILLS 626 PRESSURE ZONE BOUNDARY

626 ZONE
511 ZONE

511 ZONE
626 ZONE

CITY OF VISTA
CITY OF OCEANSIDE

LEGEND

- EXISTING WATER
- MELROSE+OCEANSIDE PROJECT
- CITY BOUNDARY
- 626 PRESSURE ZONE BOUNDARY

N

SCALE: 1" = 600'

0 600 FEET

FIGURE 2

EXISTING WATER SYSTEM

MELROSE+OCEANSIDE

ARTIC\DWG\965001\WATER\FIGURE-2.DWG 08-30-17 16:42:08 LAYOUT: LAYOUT

Water System Design Criteria

Water system design criteria such as estimating potable water demands and evaluating the capacity of existing transmission and distribution pipes are based on the August 2005 City of Oceanside Water, Sewer, and Reclaimed Water Design and Construction Manual (Rev. 3 December 2010). Based on the design manual, domestic average day water demands are determined using land use acreage and an associated water demand factor, the rates are presented in Table 1.

TABLE 1
AVERAGE DAILY WATER DEMAND FACTORS

Land Use	Gallons Per Day Per Acre
Residential (1-2 DU/ac)	1,200
Residential. (2-4 DU/ac)	2,100
Residential (4-8 DU/ac)	2,400
Residential (8-12 DU/ac)	2,500
Residential (12-15 DU/ac)	2,800
Residential (15-20 DU/ac)	3,200
Residential (20-30 DU/ac)	4,100
Commercial	1,850
Institutional	1,675

The fire flow requirement for the project is estimated to be 4,000 gpm for commercial land use and 3,000 gpm for multi-family residential land use based on the Design & Construction Manual.

During peak hour demands, the public water system must maintain a minimum residual pressure of 35 psi. Residual pressure under maximum day demands plus fire flow must be greater than 20 psi. Pipeline velocity must not exceed 7.5 feet per second (fps) under maximum domestic demands (no fire flow).

Potable Water Demands

Based on the water use factors presented in the City's Design and Construction Manual and the proposed development plan for the Melrose+Oceanside project, the estimated water demand for the project is calculated using the proposed number of dwelling units and the area of the development. The dwelling unit density for the Melrose+Oceanside project is calculated below in Table 2.

TABLE 2
RESIDENTIAL DENSITY FOR MELROSE+OCEANSIDE

Planning Area	DUs	Area (acres)	Density, DU/acre
1	78	8.15[1]	9.6
2	33	6.17	5.3
3	190	19.01	10.0

[1] Note that area for commercial land use is not counted as residential area in PA 1.

The proposed dwelling unit densities correspond to a water demand factor of 2,400 gpd per acre for Planning Area 2 and 2,500 gpd per acre for Planning Areas 1 and 3. The commercial land use water demand is 1,850 gpd per acre. The total estimated average water demand for the Melrose+Oceanside project is calculated below in Table 3.

TABLE 3
WATER DEMANDS FOR MELROSE+OCEANSIDE

Planning Area	Land Use	Water Demand Factor (gpd/acre)	Area (acres)	Average Water Demand, gpd
1	Residential	2,500	8.15	20,375
1	Commercial	1,850	1.53	2,831
2	Residential	2,400	6.17	14,808
3	Residential	2,500	19.01	47,525
TOTAL				**85,539**

Referenced from the City of Oceanside Water Utilities Department Water, Sewer, and Reclaimed Water Design and Construction Manual

The maximum day demand is 2 times the average day demand, and peak hour demand is 3 times the average according to the City's design manual. This corresponds to 171,078 gpd (119 gpm) and 256,617 gpd (178 gpm) respectively.

Fire Flows

Fire hydrant flow requirements vary by the type of land use and are established by the local fire protection agency. The City's Design and Construction Manual identifies the fire flow requirement for multi-family residential development to be 3,000 gpm at 20 psi residual and for commercial development to be 4,000 gpd at 20 psi residual for water system planning purposes. Actual fire hydrant flow requirements for the Melrose+Oceanside project may be reduced based on having fire sprinkler systems installed as part of building construction.

For the Peacock Hills 626 Pressure Zone maximum day demands plus 4,000 gpm fire flow is greater than the peak hour demand; therefore, the maximum day demand plus fire flow requirement will govern the water system sizing.

Available Water System Pressure

Water service to the project will be from the Peacock Hills 626 Pressure Zone of the City's public water system. Elevations on the Melrose+Oceanside property range between 330 feet and 425 feet. This results in a maximum static water pressure range of 94 psi to 135 psi on the property.

Fire Hydrant Flow Testing

In order to obtain a better understanding of the operation of the 626 Zone system and to obtain field data to use in calibrating a computer model for the 626 Zone, we worked with the City of Oceanside Fire Department to conduct three fire hydrant flow tests. The three tests were located within the 626 Pressure Zone. The location of the three tests can be described briefly as follows.

1. Hydrant Flow Test No. 1 – Darwin Drive between Glenhaven Drive and Peacock Boulevard.

2. Hydrant Flow Test No. 2 – Meadowbrook Drive at Melrose Drive.

3. Hydrant Flow Test No. 3 – Oceanside Boulevard at Melrose Drive.

These three hydrant flow tests were performed on the morning of Monday, December 21, 2015. The details for the flow tests and the test results are presented in Appendix A.

One notable result of the hydrant testing is that the measured static pressures at each of the three test sites yielded a calculated hydraulic grade line of 587 to 588 feet. The elevations used for the test hydrants were obtained from Google Earth. The expectation was that the calculated hydraulic grade line would be closer to 626 feet.

Upon bringing this result to the attention of the Water Utilities Department, the Department responded that Water Operations checked the Old Grove Pressure Reducing Station settings and discovered that the regulators were set about 16 psi (37 feet) too low. By raising the setpoint 16 psi, the working hydraulic grade line would be higher by 37 feet, or 588 + 37 = 625 feet which is what would be expected. Water Utilities indicated in an email dated 1-11-2016 that Water Operations was going to adjust upwards the Old Grove Pressure Regulating Station setpoint.

Computer Model Development for 626 Zone System Analysis

The purpose of the three hydrant flow tests was to generate field data which could be used to calibrate a computer model of the 626 Pressure Zone system. The approach was to calibrate the computer model under existing conditions using the hydrant flow test field data, then use that model to analyze the addition of the Melrose+Oceanside project to the 626 Pressure Zone system.

The KYPIPE computer software program developed by the University of Kentucky was used to evaluate the proposed onsite and offsite public water system. The program utilizes the Hazen-Williams equation for determining head loss in pipes and a "C" value of 120 was used for all pipes. Minor fitting losses throughout the system were modeled as equivalent lengths of pipe.

As mentioned earlier in this report, the primary source of supply to the 626 Pressure Zone is a pressure regulating station located near the intersection of Old Grove Road and Ocean Ranch Boulevard. The second source of supply is the existing Crestview Pressure Reducing Station.

A computer model was developed for the entire 626 Pressure Zone in order to analyze existing demand conditions as well as existing plus Melrose+Oceanside project demands. This was done so that any impact of the Melrose+Oceanside project on the 626 Pressure Zone system can be determined. For the computer model of the 626 Pressure Zone system, the available hydraulic grade line at the two sources of supply were set based on the field hydrant testing results.

626 Pressure Zone Demands. The computer model for the 626 Pressure Zone incorporates all of the major piping within the pressure zone. Cul-de-sac piping and short side loops were not included in order to minimize the computer model's complexity and size. Water demands were calculated for the entire 626 Pressure Zone service area based on land use. Table 4 presents a summary of the different land uses within the 626 Pressure Zone and their estimated water demand using the water demand factors from the City of Oceanside Design Guide. The peaking factors used in the model for maximum day demand and peak hour demand are 2 and 3 respectively, per the Design Guide.

TABLE 4 626 PRESSURE ZONE WATER DEMANDS[1]				
Land Use	**Estimated Area, acres**	**Average Water Demand, gpd/acre**	**Average Day Demand, gpd**	**Average Day Demand, gpm**
Residential 4-8 DU/acre	477	2,400	1,144,242	795
Residential 8-12 DU/acre	101	2500	252,112	175
Residential 20-30 DU/acre	42	4100	171,304	119
Commercial	241	1,850	445,461	309
Institutional	11	1,675	18,457	13
Total			**2,031,577**	**1,411**

[1] Based on build-out of existing land uses with the 626 Pressure Zone.

Computer Modeling Analysis of Field Hydrant Flow Testing

Appendix B presents the results of the calibrated computer model for the 626 Pressure Zone simulating the three hydrant flow test performed in the field on December 21, 2015. Two main adjustments were made to the computer model in order to have it simulate closely the field hydrant flow test results. One was to decrease the hydraulic grade setpoints at the Old Grove and Crestview pressure regulating stations. The setpoint grade lines for the four valves were adjusted to the following values.

Old Grove – 6" valve – 614 feet (= 119 psi at elev. 340 ft.) [Pipe 6 in the model]
Old Grove – 12" valve – 598 feet (= 112 psi at elev. 340 ft.) [Pipe 12 in the model]
Crestview – 4" valve – 558 feet (= 69 psi at elev. 400 ft.) [Pipe 4 in the model]
Crestview – 10" valve – 553 feet (= 66 psi at elev. 400 ft.) [Pipe 10 in the model]

The second adjustment that was made was to increase the Hazen-Williams 'C' value for all existing 12" and larger water main from 120 to 130. This assisted in raising the residual pressures for the Hydrant Flow Tests Nos. 2 and 3 but did not bring them up enough to match the field results exactly as will be shown below.

Appendix B shows all the results for the simulation of the three hydrant flow tests. Exhibit A presents the Node and Pipe Diagram for the 626 Pressure Zone computer model. To assist in understanding the modeling results, below is a summary of the Nodes in the computer model which correspond to the hydrant flow tests.

Hydrant Flow Test No. 1 – Darwin Drive

Gauge Hydrant – Node 10
Flow Hydrant – Node 122

Hydrant Flow Test No. 2 – Meadowbrook Drive

Gauge Hydrant – Node 60
Flow Hydrant – Node 46

Hydrant Flow Test No. 3 – Oceanside Boulevard

Gauge Hydrant – Node 114
Flow Hydrant – Node 58

Here are the key results summarized for easy comparison.

Hydrant Flow Test No. 1 – Darwin Drive

Gauge Hydrant Field Static Pressure – 80 psi
Node 10 Average Day Demand Pressure – 80.22 psi

Gauge Hydrant Residual Pressure at 1,186.5 gpm – 67 psi
Node 10 Pressure at Avg. Day plus 1,186.5 gpm – 67.13 psi

Hydrant Flow Test No. 2 – Meadowbrook Drive

Gauge Hydrant Field Static Pressure – 113 psi
Node 60 Average Day Demand Pressure – 112.61 psi

Gauge Hydrant Residual Pressure at 1,162.5 gpm – 105 psi
Node 60 Pressure at Avg. Day plus 1,186.5 gpm – 98.62 psi

Hydrant Flow Test No. 3 – Oceanside Boulevard

Gauge Hydrant Field Static Pressure – 85 psi
Node 114 Average Day Demand Pressure – 84.84 psi
Gauge Hydrant Residual Pressure at 963.9 gpm – 79 psi
Node 114 Pressure at Avg. Day plus 1,186.5 gpm – 72.32 psi

The simulation results have good correlation to the actual field test results.

Computer Modeling of Existing Plus Melrose+Oceanside Project

The next step in the study was to analyze the 626 Pressure Zone system with the addition of the Melrose+Oceanside project. This analysis used the existing 626 Zone computer model which closely simulated the results of the field hydrant testing and added the proposed water system layout and demands for the Melrose+Oceanside project.

Melrose+Oceanside Onsite Water System. The onsite water system for the Melrose+Oceanside project is expected to include public water lines to provide domestic service and fire protection within the development site. In the development west of Melrose Drive, Planning Area 1, a 10" public water line is proposed to loop through the site and connect to the existing 12" water main in Oceanside Boulevard at two locations.

For the Melrose+Oceanside project east of Melrose Drive proposed 8" water lines will loop through Planning Areas 2 and 3. The proposed 8" onsite public water piping will connect to the existing 12" main in Melrose Drive in Planning Area 2 and to the proposed 8" water line extension in Sports Park Way in Planning Area 3. The 8" water line in Sports Park Way is a proposed water line improvement which will be constructed from the terminus of the City of Oceanside's 12" water line in West Bobier Drive. Figure 3 shows the onsite water system for the Melrose+Oceanside project.

Expected finish grade elevations for all areas of the Melrose+Oceanside development project will be such that static pressures will be greater than 80 psi; therefore pressure regulators will be required for all building services within the proposed project.

\\ARTIC\DWG\965001\WATER\FIGURE-3.DWG 08-22-17 10:06:26 LAYOUT: LAYOUT

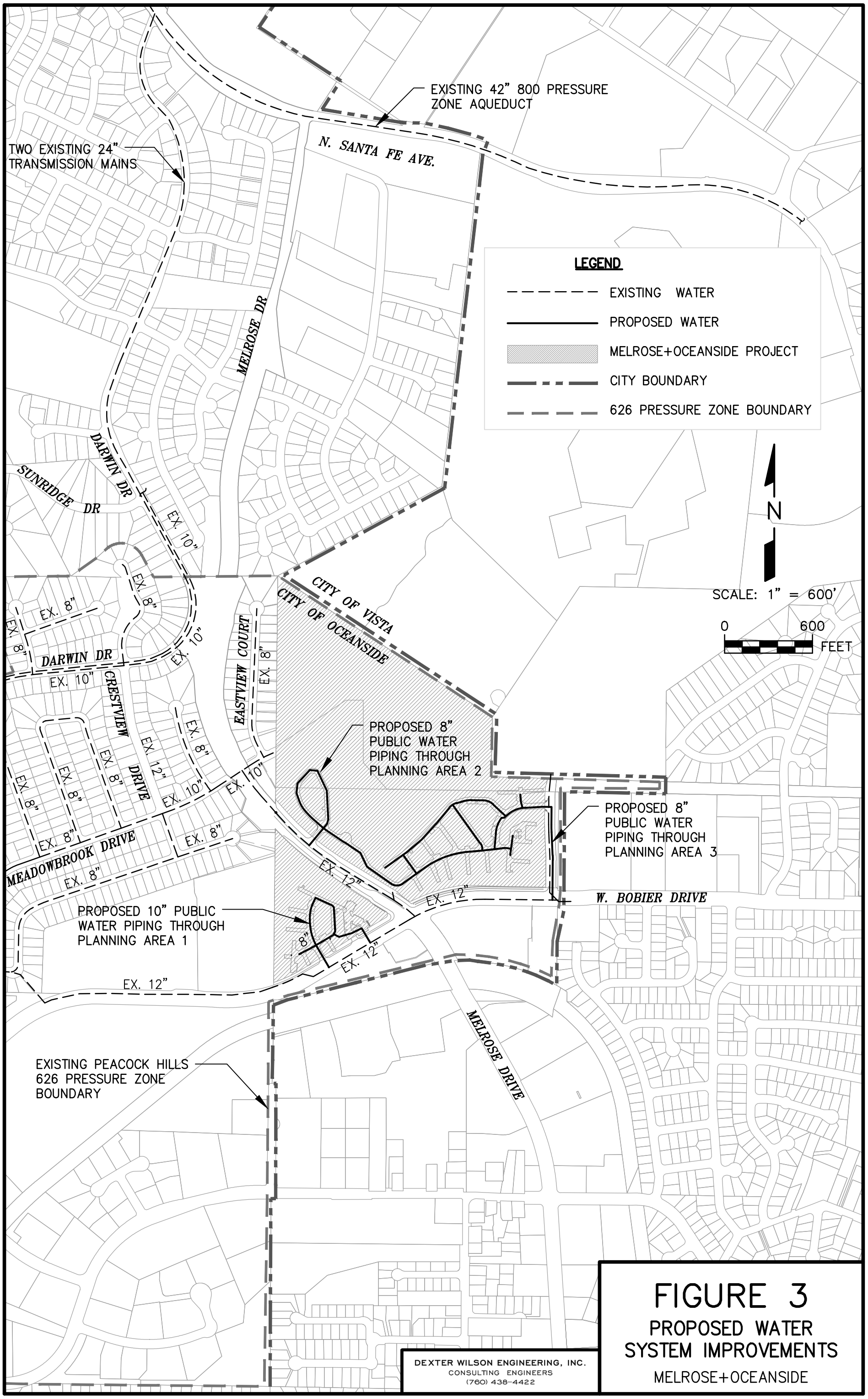

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FIGURE 3

PROPOSED WATER SYSTEM IMPROVEMENTS

MELROSE+OCEANSIDE

Computer Modeling of the Melrose+Oceanside Project

Maximum day demand plus fire flow scenarios were modeled for both the commercial fire flow of 4,000 gpm (for the office building in Planning Area 1) and the multi-family residential fire flow of 3,000 gpm in Planning Area 3. Appendix C includes the computer printout results for these analyses.

A summary of the analysis results is provided below.

Planning Area 1
Multi-Family Residential 3,000 gpm fire flow at Node 944 – 41 psi residual
Office Commercial 4,000 gpm fire flow at Node 940 – 31 psi residual

Planning Area 2
Single Family Residential 1,500 gpm fire flow at Node 908 – 83 psi residual

Planning Area 3
Multi-Family Residential 3,000 gpm fire flow at Node 915 – 31 psi residual
Multi-Family Residential 3,000 gpm fire flow at Node 924 – 29 psi residual

In all cases, the Maximum Day Demand plus Fire Flow is met with greater than 20 psi residual pressure at the fire flow location.

Conclusions and Recommendations

The following conclusions and recommendations are summarized based on the water system analysis prepared for the Melrose+Oceanside development project.

1. The Melrose+Oceanside multi-family and office commercial project will be served by the City of Oceanside Peacock Hills 626 Pressure Zone.

2. Public water system connections for the Melrose+Oceanside project will be made to the existing 12" water lines in Oceanside Boulevard and Melrose Drive. Eight-inch public water lines will loop through each of the three planning areas of the proposed development.

3. At the southeast corner of the Melrose+Oceanside project, a new 8" public water main is proposed to be extended north in Sports Park Way off of Bobier Drive.

4. The fire flow available to the project site meets the City of Oceanside Design Guideline fire flow requirement of 4,000 gpm for office commercial land use, 3,000 gpm for multi-family residential land use, and 1,500 gpm for single family land use. All maximum day demand plus fire flow scenarios are achieved with greater than 20 psi residual.

5. The existing Peacock Hills 626 Pressure Zone has adequate distribution system capacity to provide acceptable service to the proposed Melrose+Oceanside project.

6. The computer modeling performed for this report is based on the available hydraulic grade line as measured on the day of the field hydrant flow testing. Subsequent to that field testing, the Water Utilities Department determined that the pressure setpoints for the 626 Pressure Zone were set too low and they were intending to adjust the setpoints upward. Thus, the results of the computer modeling in this report should be increased by 16 psi to reflect actual operating conditions.

7. Individual pressure regulators for all building services within the Melrose+Oceanside project are recommended to limit service pressures to 80 psi in accordance with the Uniform Plumbing Code and City of Oceanside standards.

8. For PVC pipe to be used for water lines within the project, we recommend the piping specification to be AWWA C900 DR18 PR235.

Thank you for the opportunity to provide water system planning services for this project. Please feel free to contact us to further discuss any aspect of the information presented in this water service analysis for the Melrose+Oceanside project.

Dexter Wilson Engineering, Inc.

Andrew Oven, P.E.

AO:ps

Attachments

APPENDIX A

RESULTS OF FLOW TESTING
OF THREE HYDRANTS
IN THE 626 PRESSURE ZONE

FLOW TEST SUMMARY REPORT page1

LOCATION:1458 Darwin Drive
Oceanside, CA 92056

DATE: 12-21-15
TIME: 9:00am

Static Hydrant Number: 1
Elevation: 1

Flowing Hydrant Number: 2
Elevation: .5

Dist. Between Hydrants: 325

Diameter of Main: 12

Outlet Diameter: 2.50 in

Number flowing: 1 Coeff.: 0.90

Static pressure: 80.00 psi

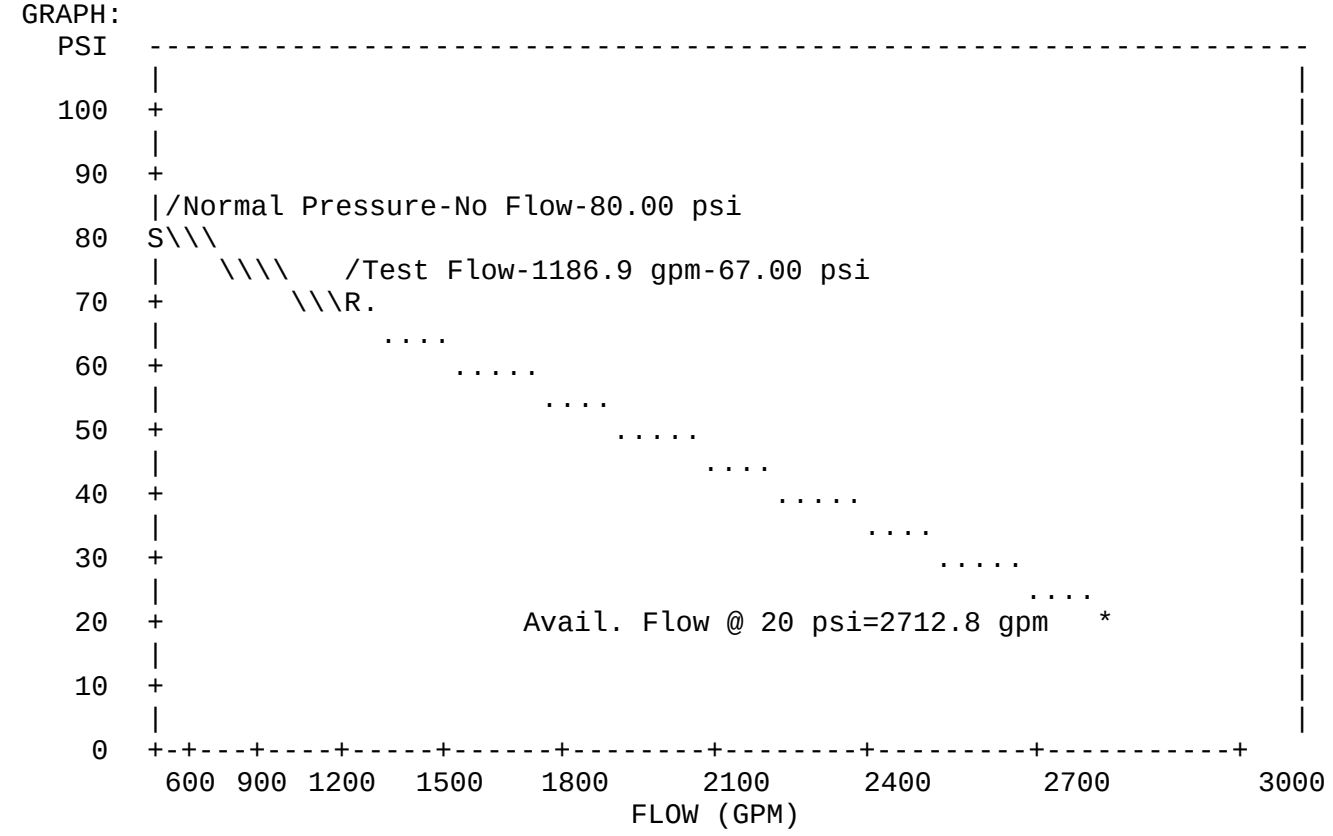
Residual pressure: 67.00 psi

Pitot Reading: 50.00 psi

Flow: 1186.9 gpm

Flow at 20 psi: 2712.8 gpm

GRAPH:

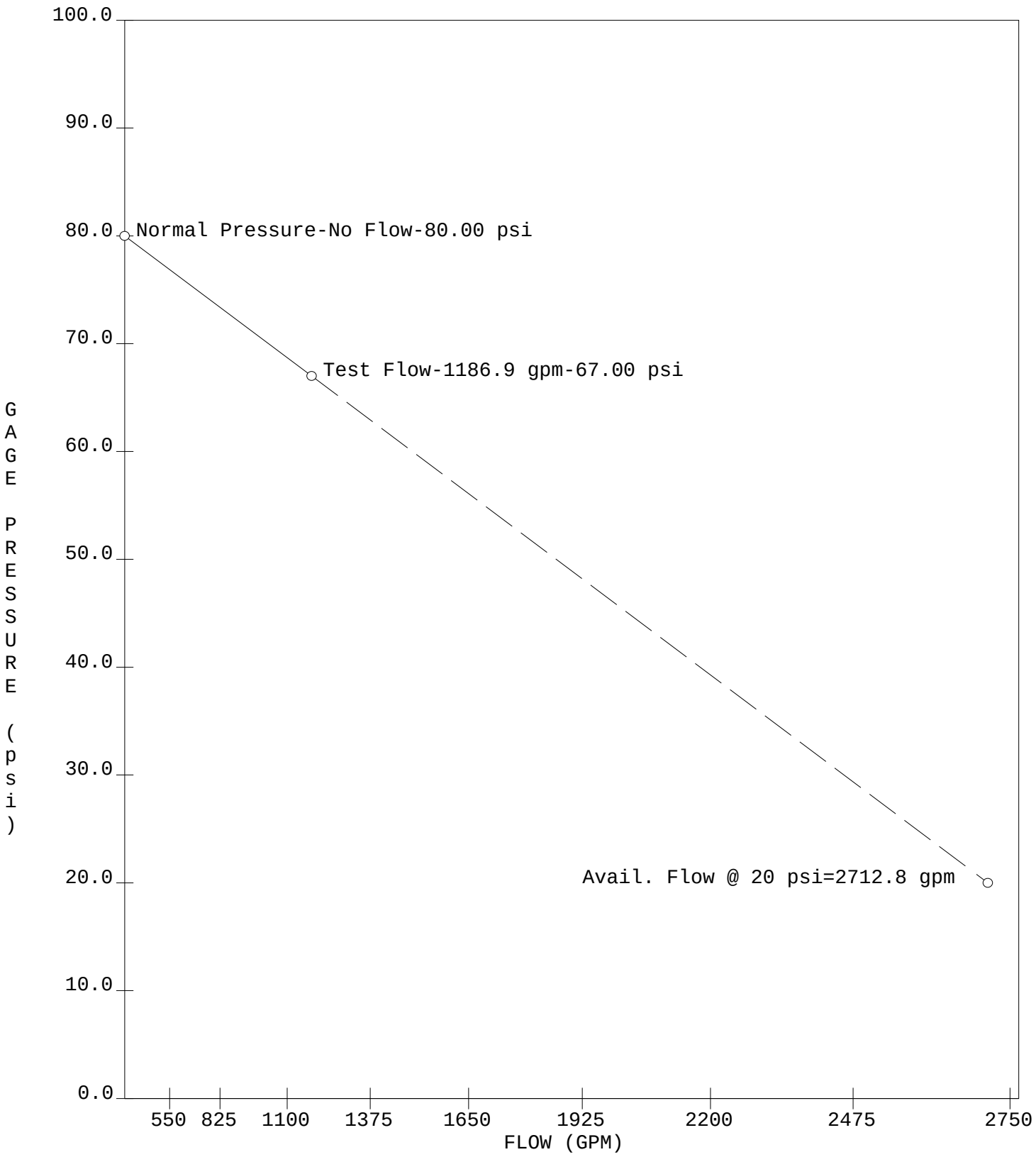


NOTES:

(1) Flowing hydrant is assumed to be on a circulating main or downstream of the pressure test hydrant on a dead-end system.

(2) Flow analysis assumes a gravity flow system with no distribution pumps and having no demand, other than the test flow.

(3) Distance between hydrants, elevations & main diameter are for information only.


100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
GAGE PRESSURE (psi)
Normal Pressure-No Flow-80.00 psi
Test Flow-1186.9 gpm-67.00 psi
Avail. Flow @ 20 psi=2712.8 gpm
550
825
1100
1375
1650
1925
2200
2475
2750
FLOW (GPM)

FLOW TEST SUMMARY REPORT page1

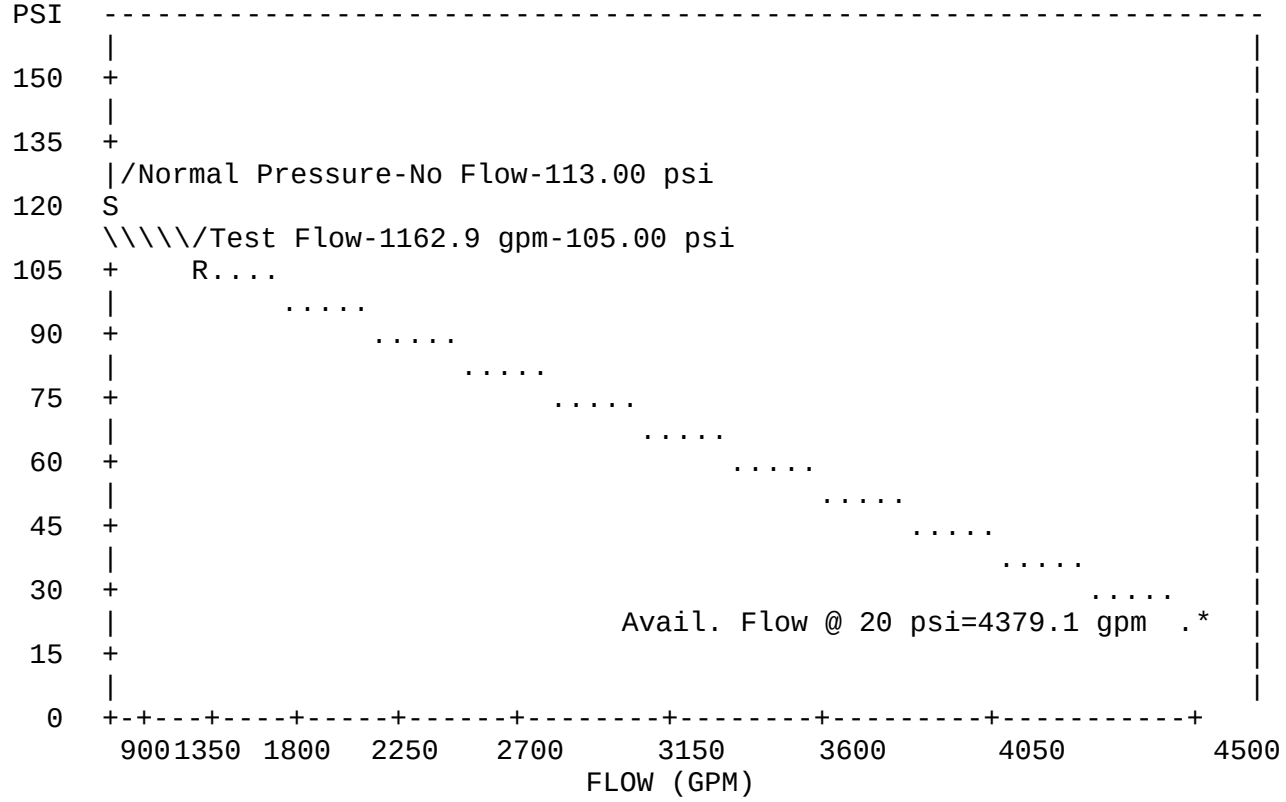
LOCATION:1437 Eastview Court
Oceanside, CA 92056

DATE: 12-21-15
TIME: 9:30am

Static Hydrant Number:	1	Flowing Hydrant Number:	2
Elevation:	0	Elevation:	1.3
Dist. Between Hydrants:	550		
Diameter of Main:	8		
Outlet Diameter:	2.50 in	Number flowing: 1 Coeff.:	0.90
Static pressure:	113.00 psi	Residual pressure:	105.00 psi
Pitot Reading:	48.00 psi	Flow:	1162.9 gpm

Flow at 20 psi: 4379.1 gpm

GRAPH:



NOTES:

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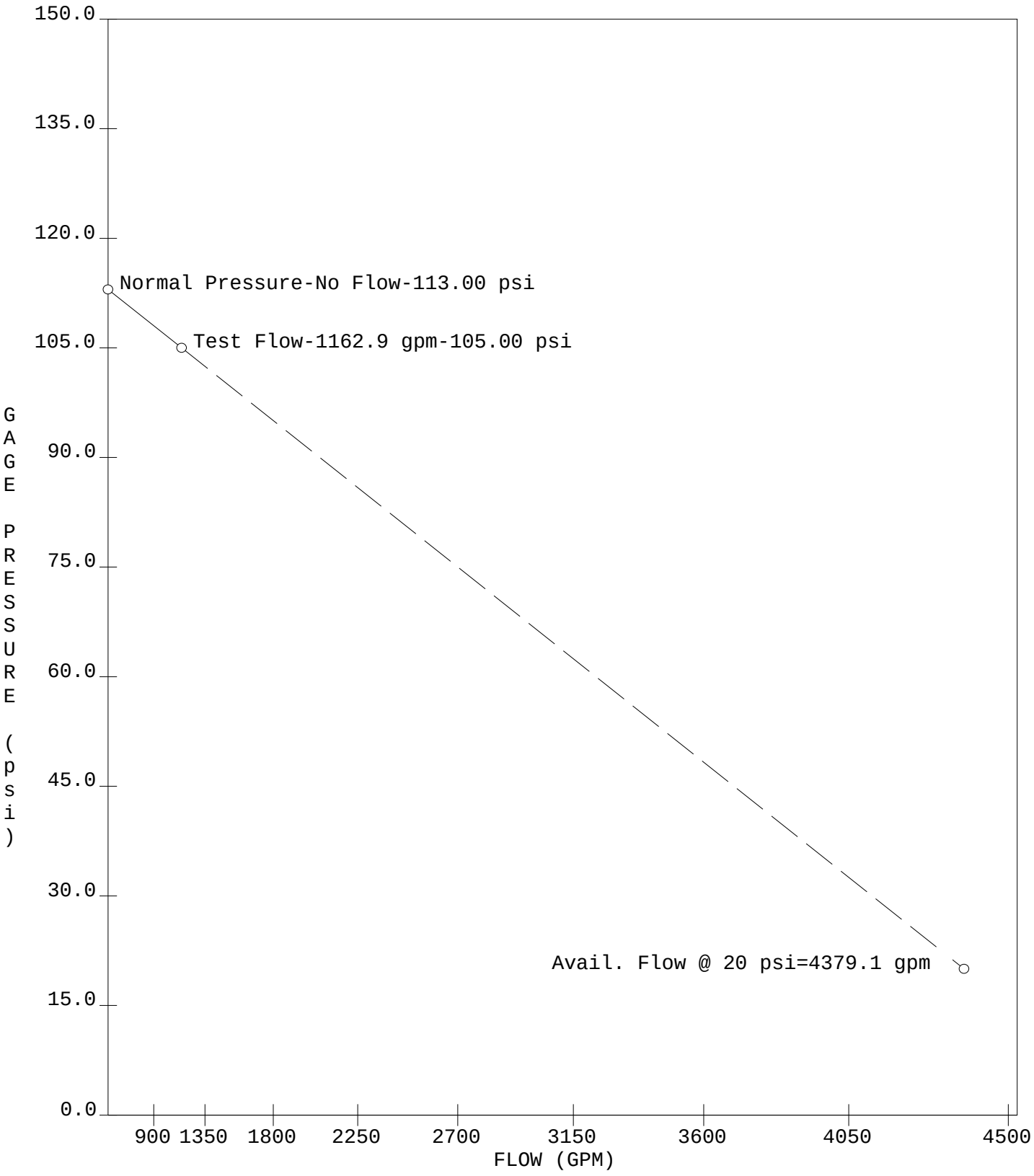
(2) Flow analysis assumes a gravity flow system with no distribution pumps and having no demand, other than the test flow.
(3) Distance between hydrants, elevations & main diameter are for information only.


150.0
135.0
120.0
105.0
90.0
75.0
60.0
45.0
30.0
15.0
0.0
GAGE PRESSURE (psi)
Normal Pressure-No Flow-113.00 psi
Test Flow-1162.9 gpm-105.00 psi
Avail. Flow @ 20 psi=4379.1 gpm
900
1350
1800
2250
2700
3150
3600
4050
4500
FLOW (GPM)

FLOW TEST SUMMARY REPORT page1

LOCATION:1501 N. Melrose Drive
Oceanside, CA 92056

DATE: 12-21-15
TIME: 10:00am

Static Hydrant Number: 1
Elevation: 1

Flowing Hydrant Number: 2
Elevation: .4

Dist. Between Hydrants: 1600

Diameter of Main: 12

Outlet Diameter: 2.50 in

Number flowing: 1 Coeff.: 0.90

Static pressure: 85.00 psi

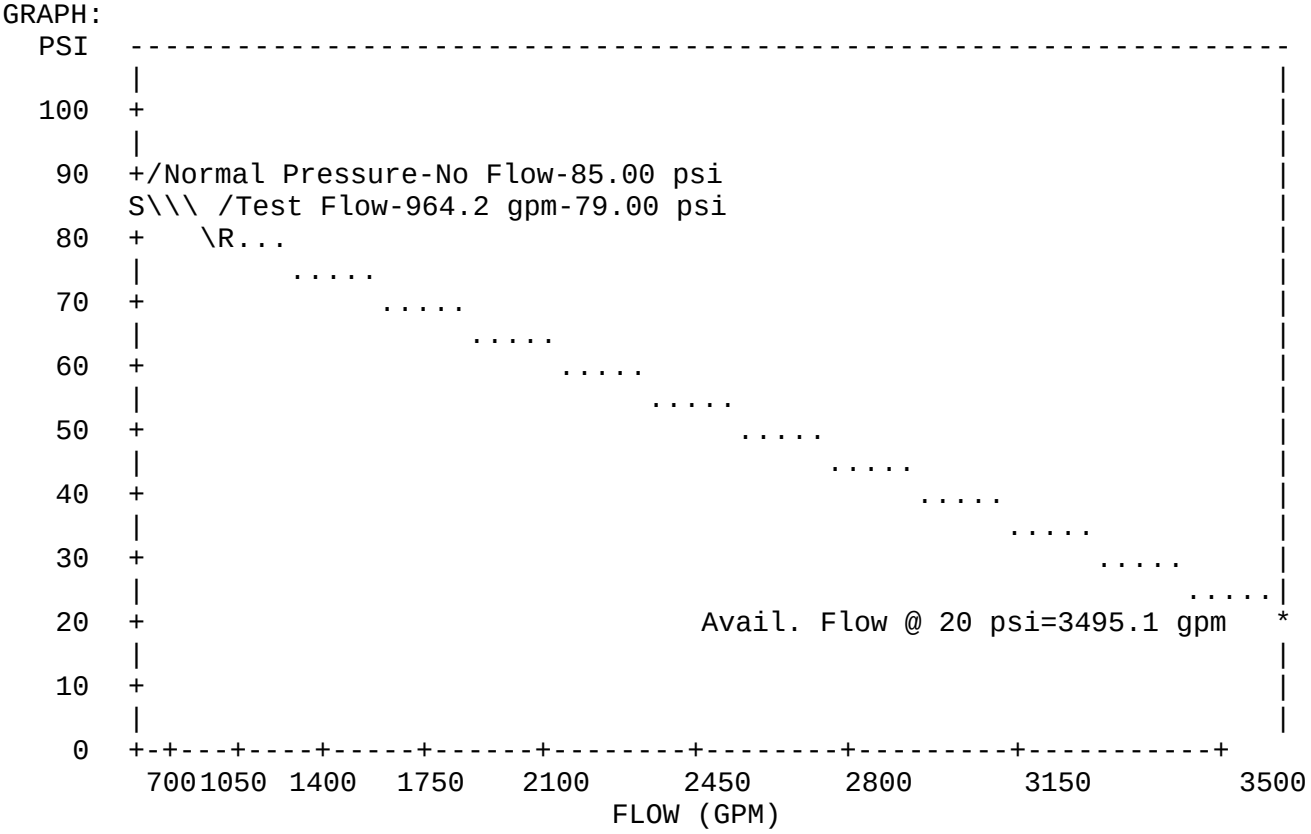
Residual pressure: 79.00 psi

Pitot Reading: 33.00 psi

Flow: 964.2 gpm

Flow at 20 psi: 3495.1 gpm

GRAPH:



NOTES:

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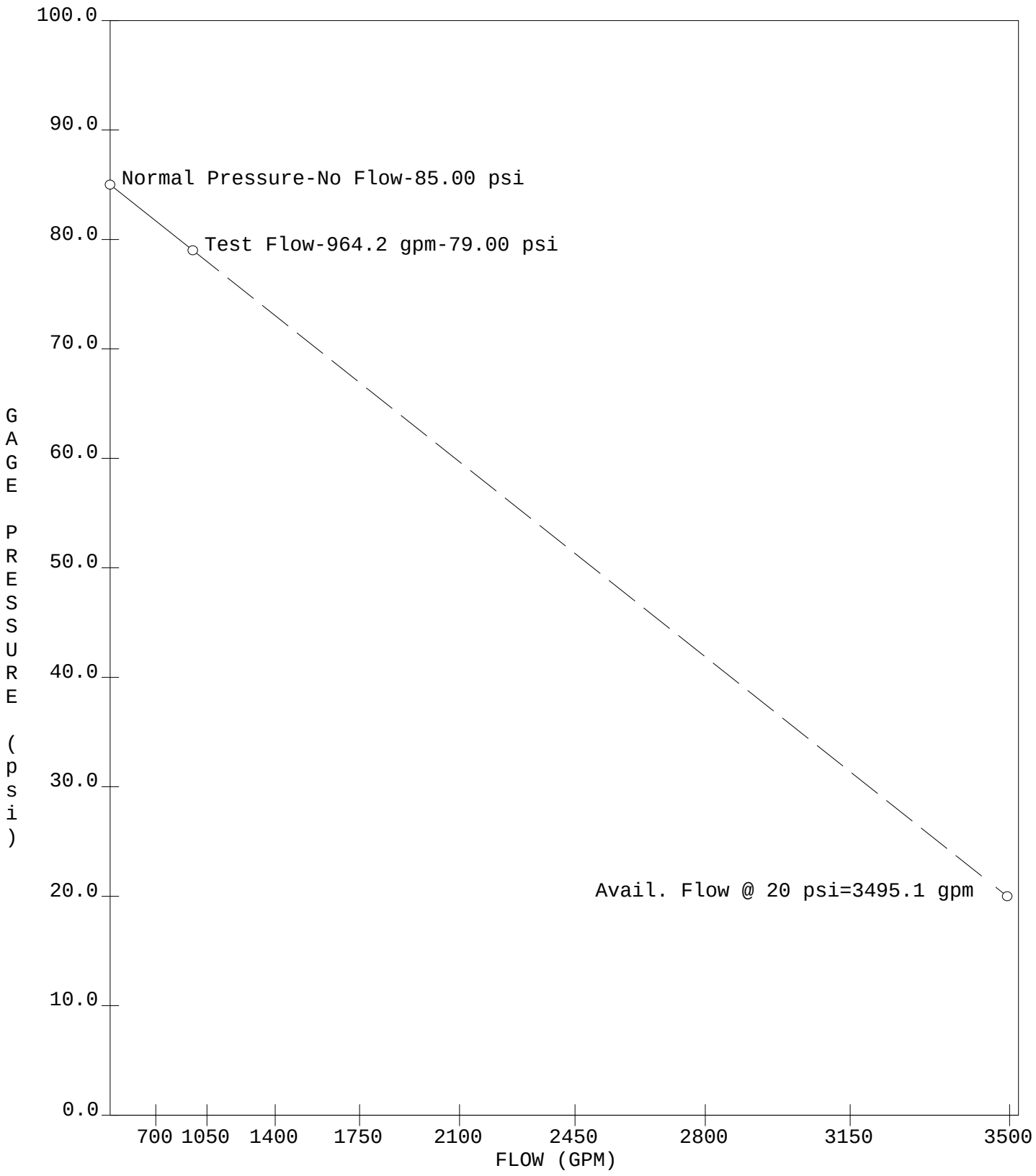
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
GAGE PRESSURE (psi)
Normal Pressure-No Flow-85.00 psi
Test Flow-964.2 gpm-79.00 psi
Avail. Flow @ 20 psi=3495.1 gpm
700
1050
1400
1750
2100
2450
2800
3150
3500
FLOW (GPM)

City of Oceanside
Fire Flow Test Request Form

Today's Date: Nov. 19, 2015 **Request Number:** _____ (Year – Number)

Requester's Name	Project Address or APN #	Contact Phone Number
Andrew Oven	Melrose Drive and Oceanside Blvd (See map attached)	(760) 438-4422
		Email Address: andrew@dwilsoneng.com

Fire Flow Test Requested Date (10 Business-Day Lead Time): Dec. 7, 2015 (or around)
We will try to Accommodate the Requested Date if Possible

Is a Location Available for Water Run-Off? YES [X] NO [ ]

Explain what will be Done with the Discharged Water: Route into street and it will flow into storm drain system.

Public Hydrant(s) Private Hydrant(s) (Circle One)

HYDRANT MAP MUST BE PROVIDED WITH HYDRANT LOCATIONS AND AFFECTED ADDRESS(ES)
(Hydrant Maps may be Requested from the Water-Utilities Department Front Desk)

Administrative Use Only:

Fire Department

1. Fire and Water–Utilities Inspection Fees Paid _____ (Initial) Fire- $119 Water- $_____	2. Hydrant Map Provided _____ (Initial)	3. Deliver a copy of this form and the Hydrant Map to the Water-Utilities Department. Deliver the originals to the Fire Prevention Bureau Plans Review Team.

Water–Utilities Department

4. Write down the Date and Time a Water-Utilities Inspector is available to perform the test; Try to accommodate the Requested Date. _____	5. Email the Inspection Date / Time and the Request Number (Top Right Side of this Form) to the Fire Prevention Bureau. fire-prevention@ci.oceanside.ca.us	6. The Fire Department will contact the customer after ensuring a Fire Inspector is available for the date / time in block #4. If a Fire Inspector is unavailable, the Fire Department will advise the Water Department.

Inspectors

7. Request the Calculation Results to be emailed to: fire-prevention@ci.oceanside.ca.us	8. The Fire Inspector must make an entry into the Hydrant Book after the results are received.	9. The Fire Inspector will email a copy of the results to Water-Utilities at: _____@ci.oceanside.ca.us

Comments

Version- 8-19-14

11/13/2012

- SOURCE: MERRICK 2009 ORTHOPHOTO AND CONTOURS
- THIS MAP PREPARED SOLELY FOR ILLUSTRATION PURPOSE & IS NOT TO BE RELIED UPON FOR ENGINEERING DRAWINGS.
- SOME INFORMATION MAY NOT BE ACCURATE.

Water Map No. P18

PAGE INDEX

O17	P17	Q17
O18	P18	Q18
O19	P19	Q19

N

1" = 200'

P18

Gauge Hydrant #1

Flow Hydrant #1

Fire Flow Test Request #1

DETAIL A

CLOSED

CLOSED

GUAJOME

GUAJOME

DARWIN DR

PEACOCK BLVD

TEMPLE HEIGHTS DR

MYSTIK RD

HIGH RIDGE DR

ROLLING HILLS DR

LIVE OAK CT

JASMINE ST

WESTWOOD PL

NORTHMORE PL

WESTMORE PL

EASTMORE PL

CRESTHAVEN PL

CRESTVIEW DR

MEADOWBROOK DR

GREY OAKS CT

EASTVIEW CT

GLENHAVEN DR

CATALINA CIR

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Water Map No. P18

PAGE INDEX

O17	P17	Q17
O18	P18	Q18
O19	P19	Q19

N

CITY OF ORLANDO INCORPORATED 1875

1" = 200'

P18

Flow Hydrant #2

Gauge Hydrant #2

Fire Flow Test Request #2

DETAIL A

DETAIL A

CLOSED

CLOSED

GUAJOME

GUAJOME

DARWIN DR

PEACOCK BLVD

TEMPLE HEIGHTS DR

MYSTIK RD

HIGH RIDGE DR

JASMINE ST

ROLLING HILLS DR

LIVE OAK CT

WESTWOOD PL

NORTHMORE PL

WESTMORE PL

EASTMORE PL

CRESTHAVEN PL

MEADOWBROOK DR

CRESTVIEW DR

GREY OAKS CT

EASTVIEW CT

GLENHAVEN DR

CATALINA CIR

City of Oceanside
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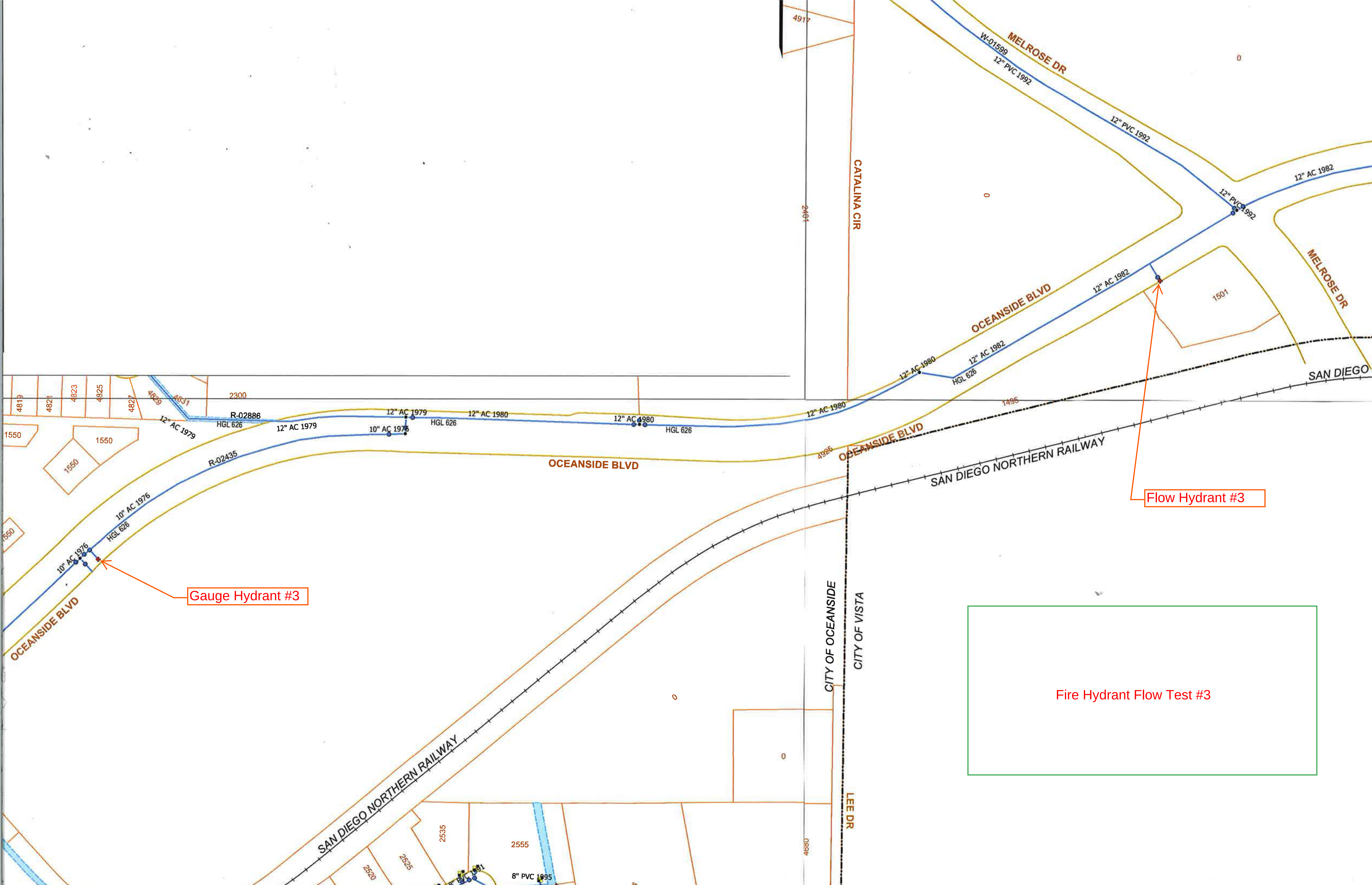
Version- 8-19-14



MELROSE DR
W-01599
12" PVC 1992
CATALINA CIR
12" AC 1982
OCEANSIDE BLVD
12" AC 1980
HGL 626
1501
SAN DIEGO NORTHERN RAILWAY
Flow Hydrant #3
R-02886
12" AC 1979
10" AC 1976
R-02435
Gauge Hydrant #3
CITY OF OCEANSIDE
CITY OF VISTA
LEE DR
Fire Hydrant Flow Test #3
8" PVC 1995

APPENDIX B

COMPUTER MODEL RESULTS

PEACOCK HILLS 626 PRESSURE ZONE

EXISTING SYSTEM

MODELING OF HYDRANT FLOW TESTING TO CHECK MODELING RESULTS AGAINST FIELD TEST RESULTS

Node and Pipe Diagram: See Exhibit A

Conditions Modeled:

1. Average Day Demand
2. Maximum Day Demand (Two times Average Day Demand)
3. Peak Hour Demand (Three times Average Day Demand)
4. Average Day Demand plus 1,186.5 gpm Fire Flow at Node 122, Darwin Drive
5. Average Day Demand plus 1,162.5 gpm Fire Flow Node 46, Meadowbrook Drive
6. Average Day Demand plus 963.9 gpm Fire Flow at Node 58, Oceanside Boulevard

FLOWRATE IS EXPRESSED IN GPM AND PRESSURE IN PSIG

A SUMMARY OF THE ORIGINAL DATA FOLLOWS

PIPE NO.	NODE NOS.		LENGTH (FEET)	DIAMETER (INCHES)	ROUGHNESS	MINOR LOSS K	FIXED GRADE
4	0	32	50.0	4.0	120.0	.00	558.00
THERE IS A CHECK VALVE IN LINE NUMBER 4							
5	4	8	167.0	14.0	130.0	.00	
6	0	438	150.0	6.0	120.0	.00	614.00
9	8	12	760.0	10.0	120.0	.00	
10	0	32	10.0	10.0	120.0	.00	553.00
THERE IS A CHECK VALVE IN LINE NUMBER 10							
12	0	438	150.0	12.0	130.0	.00	598.00
THERE IS A CHECK VALVE IN LINE NUMBER 12							
13	12	16	412.0	10.0	120.0	.00	
17	16	20	306.0	8.0	120.0	.00	
21	20	24	207.0	8.0	120.0	.00	
25	20	28	527.0	8.0	120.0	.00	
29	16	32	632.0	10.0	120.0	.00	
33	32	36	715.0	8.0	120.0	.00	
41	46	44	930.0	8.0	120.0	.00	
43	48	46	150.0	8.0	120.0	.00	
45	48	52	199.0	10.0	120.0	.00	
49	52	900	630.0	12.0	130.0	.00	
53	114	952	1410.0	12.0	130.0	.00	
57	116	114	780.0	12.0	130.0	.00	
61	116	72	1554.0	8.0	120.0	.00	
63	72	76	426.0	8.0	120.0	.00	
67	68	72	312.0	8.0	120.0	.00	
71	68	60	395.0	10.0	120.0	.00	
75	60	52	259.0	10.0	120.0	.00	
79	60	64	642.0	8.0	120.0	.00	
83	32	68	1110.0	12.0	130.0	.00	
87	80	68	299.0	8.0	120.0	.00	
91	80	84	816.0	8.0	120.0	.00	
95	88	84	273.0	8.0	120.0	.00	
99	92	88	854.0	8.0	120.0	.00	
103	92	80	315.0	8.0	120.0	.00	
107	96	92	301.0	8.0	120.0	.00	
111	96	100	864.0	8.0	120.0	.00	
115	104	100	323.0	8.0	120.0	.00	
119	108	104	823.0	8.0	120.0	.00	
123	108	96	319.0	8.0	120.0	.00	
127	112	108	753.0	8.0	120.0	.00	
131	112	116	306.0	12.0	130.0	.00	
135	120	112	302.0	12.0	130.0	.00	
137	10	122	315.0	12.0	130.0	.00	
139	8	10	753.0	12.0	130.0	.00	
141	122	120	330.0	12.0	130.0	.00	

143	120	124	317.0	8.0	120.0	.00
147	124	128	330.0	8.0	120.0	.00
151	132	128	336.0	8.0	120.0	.00
155	192	132	721.0	8.0	120.0	.00
159	4	192	285.0	14.0	130.0	.00
163	192	188	433.0	8.0	120.0	.00
167	188	136	322.0	6.0	120.0	.00
171	136	132	327.0	6.0	120.0	.00
175	136	140	505.0	6.0	120.0	.00
179	144	140	274.0	8.0	120.0	.00
183	128	144	279.0	8.0	120.0	.00
187	144	148	308.0	6.0	120.0	.00
191	148	152	331.0	6.0	120.0	.00
195	140	156	408.0	8.0	120.0	.00
199	156	160	614.0	8.0	120.0	.00
203	160	164	292.0	8.0	120.0	.00
207	164	168	301.0	8.0	120.0	.00
211	168	172	287.0	8.0	120.0	.00
215	176	164	502.0	8.0	120.0	.00
219	180	176	266.0	8.0	120.0	.00
223	180	156	289.0	8.0	120.0	.00
227	180	204	243.0	8.0	120.0	.00
231	184	180	587.0	8.0	120.0	.00
235	188	184	342.0	8.0	120.0	.00
239	188	200	357.0	8.0	120.0	.00
243	196	200	381.0	8.0	120.0	.00
247	192	196	655.0	14.0	130.0	.00
251	196	208	293.0	14.0	130.0	.00
253	208	212	344.0	8.0	120.0	.00
257	212	12	1672.0	8.0	120.0	.00
261	208	216	550.0	8.0	120.0	.00
265	200	216	324.0	8.0	120.0	.00
269	216	204	990.0	8.0	120.0	.00
273	208	260	579.0	14.0	130.0	.00
277	260	268	1257.0	8.0	120.0	.00
281	260	264	296.0	14.0	130.0	.00
285	264	268	337.0	14.0	130.0	.00
289	268	276	726.0	14.0	130.0	.00
293	276	272	261.0	8.0	120.0	.00
297	256	272	1100.0	8.0	120.0	.00
301	260	256	376.0	10.0	120.0	.00
305	256	252	354.0	10.0	120.0	.00
309	252	248	298.0	10.0	120.0	.00
313	248	244	291.0	10.0	120.0	.00
317	244	240	388.0	10.0	120.0	.00
321	240	228	259.0	8.0	120.0	.00
325	228	232	699.0	8.0	120.0	.00
329	232	306	263.0	8.0	120.0	.00
333	236	164	324.0	8.0	120.0	.00
337	224	228	195.0	8.0	120.0	.00
341	220	224	357.0	8.0	120.0	.00
345	216	220	447.0	8.0	120.0	.00
349	236	282	395.0	8.0	120.0	.00
353	282	286	263.0	8.0	120.0	.00

357	286	290	704.0	8.0	120.0	.00
361	290	294	209.0	8.0	120.0	.00
365	294	232	1600.0	10.0	120.0	.00
369	290	298	333.0	8.0	120.0	.00
373	298	302	595.0	8.0	120.0	.00
377	302	306	533.0	8.0	120.0	.00
381	306	236	333.0	8.0	120.0	.00
385	310	114	1840.0	10.0	120.0	.00
389	310	314	1230.0	10.0	120.0	.00
393	314	318	348.0	10.0	120.0	.00
397	318	322	827.0	10.0	120.0	.00
401	322	326	394.0	10.0	120.0	.00
405	322	330	1060.0	10.0	120.0	.00
409	318	330	200.0	10.0	120.0	.00
413	330	334	472.0	10.0	120.0	.00
417	330	334	1450.0	8.0	120.0	.00
419	310	326	595.0	10.0	120.0	.00
423	338	326	1098.0	10.0	120.0	.00
427	338	342	325.0	10.0	120.0	.00
431	342	346	502.0	10.0	120.0	.00
435	342	346	1507.0	8.0	120.0	.00
439	338	350	309.0	10.0	120.0	.00
443	350	354	1090.0	10.0	120.0	.00
447	350	358	1237.0	10.0	120.0	.00
451	212	362	2080.0	8.0	120.0	.00
455	276	366	286.0	10.0	120.0	.00
459	366	370	982.0	8.0	120.0	.00
463	370	374	456.0	8.0	120.0	.00
467	370	378	742.0	8.0	120.0	.00
471	366	382	394.0	10.0	120.0	.00
475	382	386	1159.0	8.0	120.0	.00
479	386	390	904.0	8.0	120.0	.00
483	382	390	1817.0	10.0	120.0	.00
487	390	394	278.0	10.0	120.0	.00
491	394	398	193.0	10.0	120.0	.00
495	398	402	1553.0	10.0	120.0	.00
499	402	406	1075.0	10.0	120.0	.00
503	402	410	1250.0	8.0	120.0	.00
507	276	414	1035.0	14.0	130.0	.00
511	414	416	11998.0	14.0	130.0	.00
513	416	418	464.0	14.0	130.0	.00
515	418	422	734.0	14.0	130.0	.00
519	422	426	541.0	14.0	130.0	.00
523	426	428	835.0	14.0	130.0	.00
525	428	430	1260.0	14.0	130.0	.00
527	430	434	548.0	14.0	130.0	.00
531	434	438	626.0	14.0	130.0	.00
535	434	442	1353.0	8.0	120.0	.00
539	442	446	464.0	8.0	120.0	.00
543	430	446	966.0	10.0	120.0	.00
547	446	450	441.0	10.0	120.0	.00
551	450	428	1631.0	10.0	120.0	.00
555	446	454	866.0	10.0	120.0	.00
559	450	454	1407.0	8.0	120.0	.00

563	454	458	1098.0	10.0	120.0	.00
567	458	462	425.0	12.0	130.0	.00
571	462	466	549.0	12.0	130.0	.00
573	466	468	280.0	12.0	130.0	.00
575	468	470	300.0	12.0	130.0	.00
579	470	474	394.0	12.0	130.0	.00
581	474	476	350.0	12.0	130.0	.00
583	476	478	721.0	12.0	130.0	.00
587	478	426	1577.0	10.0	120.0	.00
591	470	482	1245.0	8.0	120.0	.00
595	466	482	294.0	8.0	120.0	.00
599	462	482	673.0	8.0	120.0	.00
603	414	486	209.0	8.0	120.0	.00
607	486	490	247.0	8.0	120.0	.00
611	490	494	549.0	8.0	120.0	.00
615	494	498	379.0	8.0	120.0	.00
619	498	502	812.0	8.0	120.0	.00
623	502	506	951.0	8.0	120.0	.00
627	506	498	1100.0	8.0	120.0	.00
629	506	416	216.0	8.0	120.0	.00
631	506	490	1097.0	8.0	120.0	.00
635	414	510	193.0	8.0	120.0	.00
639	510	514	603.0	8.0	120.0	.00
643	514	518	255.0	8.0	120.0	.00
647	518	522	271.0	8.0	120.0	.00
651	522	526	727.0	8.0	120.0	.00
655	526	510	1129.0	8.0	120.0	.00
659	526	530	216.0	8.0	120.0	.00
663	530	418	518.0	8.0	120.0	.00
667	530	534	479.0	8.0	120.0	.00
671	534	538	440.0	8.0	120.0	.00
675	538	542	765.0	8.0	120.0	.00
679	542	546	193.0	8.0	120.0	.00
683	546	550	286.0	8.0	120.0	.00
687	550	554	255.0	8.0	120.0	.00
691	554	558	1051.0	8.0	120.0	.00
695	558	562	332.0	8.0	120.0	.00
699	562	422	178.0	8.0	120.0	.00
703	534	566	170.0	8.0	120.0	.00
707	566	570	271.0	8.0	120.0	.00
711	570	554	255.0	8.0	120.0	.00
715	570	574	293.0	8.0	120.0	.00
719	574	578	155.0	8.0	120.0	.00
723	578	582	170.0	8.0	120.0	.00
727	582	562	796.0	8.0	120.0	.00
731	418	586	216.0	10.0	120.0	.00
735	586	590	340.0	10.0	120.0	.00
739	586	594	216.0	8.0	120.0	.00
743	594	598	394.0	8.0	120.0	.00
747	598	422	255.0	8.0	120.0	.00
751	598	602	309.0	8.0	120.0	.00
755	602	604	456.0	8.0	120.0	.00
759	602	604	688.0	8.0	120.0	.00
763	594	604	1800.0	8.0	120.0	.00

945	56	932	950.0	12.0	130.0	.00
949	900	56	950.0	12.0	130.0	.00
951	58	56	250.0	12.0	130.0	.00
953	936	58	160.0	12.0	130.0	.00
977	952	936	350.0	12.0	130.0	.00

JUNCTION NUMBER	DEMAND	ELEVATION	CONNECTING PIPES				
4	3.40	468.00	5	159			
8	8.70	456.00	5	9	139		
10	.00	402.00	137	139			
12	14.20	431.00	9	13	257		
16	5.10	420.00	13	17	29		
20	3.80	444.00	17	21	25		
24	6.10	454.00	21				
28	6.10	476.00	25				
32	6.30	403.00	4	10	29	33	83
36	6.10	427.00	33				
44	8.70	376.00	41				
46	.00	321.00	41	43			
48	6.30	318.00	43	45			
52	.70	321.00	45	49	75		
56	.00	433.00	945	949	951		
58	.00	420.00	951	953			
60	4.40	327.00	71	75	79		
64	4.10	351.00	79				
68	7.80	320.00	67	71	83	87	
72	12.70	359.00	61	63	67		
76	.00	348.00	63				
80	6.90	323.00	87	91	103		
84	7.70	386.00	91	95			
88	7.80	372.00	95	99			
92	6.40	327.00	99	103	107		
96	5.80	347.00	107	111	123		
100	8.40	415.00	111	115			
104	7.70	417.00	115	119			
108	11.20	355.00	119	123	127		
112	6.10	375.00	127	131	135		
114	38.40	391.00	53	57	385		
116	7.00	379.00	57	61	131		
120	8.70	377.00	135	141	143		
122	.00	385.00	137	141			
124	4.80	401.00	143	147			
128	3.80	422.00	147	151	183		
132	6.50	456.00	151	155	171		
136	7.50	446.00	167	171	175		
140	5.70	446.00	175	179	195		
144	5.10	429.00	179	183	187		
148	5.40	415.00	187	191			
152	8.30	390.00	191				
156	7.20	423.00	195	199	223		
160	7.70	393.00	199	203			
164	4.00	426.00	203	207	215	333	
168	6.90	396.00	207	211			

172	12.10	380.00	211			
176	.00	454.00	215	219		
180	5.90	445.00	219	223	227	231
184	7.50	446.00	231	235		
188	5.40	461.00	163	167	235	239
192	5.60	477.00	155	159	163	247
196	4.50	475.00	243	247	251	
200	5.90	454.00	239	243	265	
204	10.50	423.00	227	269		
208	6.20	455.00	251	253	261	273
212	14.80	415.00	253	257	451	
216	6.20	471.00	261	265	269	345
220	6.90	445.00	341	345		
224	10.10	439.00	337	341		
228	9.60	409.00	321	325	337	
232	3.80	397.00	325	329	365	
236	4.10	463.00	333	349	381	
240	5.80	353.00	317	321		
244	5.10	366.00	313	317		
248	7.30	369.00	309	313		
252	10.60	387.00	305	309		
256	12.40	404.00	297	301	305	
260	12.20	427.00	273	277	281	301
264	3.70	443.00	281	285		
268	10.10	453.00	277	285	289	
272	12.90	455.00	293	297		
276	11.20	457.00	289	293	455	507
282	6.90	394.00	349	353		
286	5.80	380.00	353	357		
290	8.90	387.00	357	361	369	
294	24.50	389.00	361	365		
298	7.00	396.00	369	373		
302	7.30	410.00	373	377		
306	5.20	411.00	329	377	381	
310	12.80	358.00	385	389	419	
314	7.50	340.00	389	393		
318	5.50	344.00	393	397	409	
322	9.90	354.00	397	401	405	
326	13.90	359.00	401	419	423	
330	9.80	348.00	405	409	413	417
334	9.90	346.00	413	417		
338	16.20	352.00	423	427	439	
342	9.80	358.00	427	431	435	
346	17.90	382.00	431	435		
350	14.50	344.00	439	443	447	
354	96.10	323.00	443			
358	15.20	372.00	447			
362	.00	364.00	451			
366	7.30	437.00	455	459	471	
370	10.90	406.00	459	463	467	
374	3.50	372.00	463			
378	6.40	377.00	467			
382	13.30	436.00	471	475	483	
386	15.50	380.00	475	479		

390	21.90	367.00	479	483	487	
394	3.50	350.00	487	491		
398	1.20	351.00	491	495		
402	19.60	379.00	495	499	503	
406	6.30	365.00	499			
410	6.90	357.00	503			
414	5.50	464.00	507	511	603	635
416	7.70	434.00	511	513	629	
418	3.40	421.00	513	515	663	731
422	4.40	442.00	515	519	699	747
426	9.40	410.00	519	523	587	
428	44.40	410.00	523	525	551	
430	43.60	397.00	525	527	543	
434	14.90	363.00	527	531	535	
438	.00	315.00	6	12	531	
442	20.10	375.00	535	539		
446	9.20	367.00	539	543	547	555
450	27.00	383.00	547	551	559	
454	24.90	348.00	555	559	563	
458	2.80	366.00	563	567		
462	5.40	373.00	567	571	599	
466	7.60	382.00	571	573	595	
468	.00	385.00	573	575		
470	12.30	387.00	575	579	591	
474	10.90	389.00	579	581		
476	.00	381.00	581	583		
478	21.10	332.00	583	587		
482	13.70	389.00	591	595	599	
486	10.30	459.00	603	607		
490	8.40	450.00	607	611	631	
494	6.40	431.00	611	615		
498	9.30	424.00	615	619	627	
502	4.40	399.00	619	623		
506	11.90	425.00	623	627	629	631
510	9.60	456.00	635	639	655	
514	12.20	415.00	639	643		
518	9.00	409.00	643	647		
522	6.40	407.00	647	651		
526	6.60	399.00	651	655	659	
530	7.50	397.00	659	663	667	
534	.00	399.00	667	671	703	
538	.00	415.00	671	675		
542	.00	393.00	675	679		
546	5.80	386.00	679	683		
550	6.00	381.00	683	687		
554	4.40	382.00	687	691	711	
558	.00	422.00	691	695		
562	.00	435.00	695	699	727	
566	6.00	392.00	703	707		
570	6.40	383.00	707	711	715	
574	5.50	384.00	715	719		
578	5.70	386.00	719	723		
582	5.70	387.00	723	727		
586	4.70	408.00	731	735	739	

590	.00	375.00	735		
594	16.50	417.00	739	743	763
598	9.50	428.00	743	747	751
602	3.40	420.00	751	755	759
604	10.30	402.00	755	759	763
900	.00	345.00	49	949	
932	.00	455.00	945		
936	.00	424.00	953	977	
952	.00	416.00	53	977	

OUTPUT SELECTION: ALL RESULTS ARE OUTPUT EACH PERIOD
10 VALUES ARE OUTPUT FOR MAXIMUM AND MINIMUM PRESSURES

THIS SYSTEM HAS 208 PIPES WITH 163 JUNCTIONS , 42 LOOPS AND 4 FGNS

THE RESULTS ARE OBTAINED AFTER 7 TRIALS WITH AN ACCURACY = .00109

Melrose+Oceanside Project in the City of Oceanside 965001F1
Existing 626 Pressure Zone Analysis - Calibration Using Fire Hydrant Flow Tests
Average Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
THE CHECK VALVE IN LINE NUMBER 4 IS CLOSED								
5	4	8	309.81	.02	.00	.00	.65	.14
6	0	438	1124.70	16.04	.00	.00	12.76	106.92
9	8	12	95.72	.07	.00	.00	.39	.09
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	286.30	.04	.00	.00	.81	.25
13	12	16	151.11	.09	.00	.00	.62	.22
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	130.01	.10	.00	.00	.53	.16
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	8.70	.00	.00	.00	.06	.00
45	48	52	-15.00	.00	.00	.00	-.06	.00
49	52	900	64.45	.01	.00	.00	.18	.02
53	114	952	-64.45	-.02	.00	.00	-.18	-.02
57	116	114	212.95	.11	.00	.00	.60	.14
61	116	72	8.42	.00	.00	.00	.05	.00
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	4.28	.00	.00	.00	.03	.00
71	68	60	88.65	.03	.00	.00	.36	.08
75	60	52	80.15	.02	.00	.00	.33	.07
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	117.61	.05	.00	.00	.33	.05

87	80	68	-16.89	.00	.00	.00	-.11	-.01
91	80	84	7.91	.00	.00	.00	.05	.00
95	88	84	-.21	.00	.00	.00	.00	.00
99	92	88	7.59	.00	.00	.00	.05	.00
103	92	80	-2.07	.00	.00	.00	-.01	.00
107	96	92	11.91	.00	.00	.00	.08	.01
111	96	100	3.35	.00	.00	.00	.02	.00
115	104	100	5.05	.00	.00	.00	.03	.00
119	108	104	12.75	.01	.00	.00	.08	.01
123	108	96	21.06	.01	.00	.00	.13	.02
127	112	108	45.01	.05	.00	.00	.29	.07
131	112	116	228.37	.05	.00	.00	.65	.16
135	120	112	279.49	.07	.00	.00	.79	.24
137	10	122	205.39	.04	.00	.00	.58	.14
139	8	10	205.39	.10	.00	.00	.58	.14
141	122	120	205.39	.04	.00	.00	.58	.14
143	120	124	-82.80	-.07	.00	.00	-.53	-.21
147	124	128	-87.60	-.08	.00	.00	-.56	-.23
151	132	128	60.86	.04	.00	.00	.39	.12
155	192	132	53.81	.07	.00	.00	.34	.09
159	4	192	-313.21	-.04	.00	.00	-.65	-.14
163	192	188	-5.64	.00	.00	.00	-.04	.00
167	188	136	36.12	.06	.00	.00	.41	.18
171	136	132	13.55	.01	.00	.00	.15	.03
175	136	140	15.07	.02	.00	.00	.17	.04
179	144	140	-49.34	-.02	.00	.00	-.31	-.08
183	128	144	-30.54	-.01	.00	.00	-.19	-.03
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-39.97	-.02	.00	.00	-.26	-.05
199	156	160	-1.84	.00	.00	.00	-.01	.00
203	160	164	-9.54	.00	.00	.00	-.06	.00
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	25.83	.01	.00	.00	.16	.02
219	180	176	25.83	.01	.00	.00	.16	.02
223	180	156	45.33	.02	.00	.00	.29	.07
227	180	204	-47.11	-.02	.00	.00	-.30	-.07
231	184	180	29.95	.02	.00	.00	.19	.03
235	188	184	37.45	.02	.00	.00	.24	.05
239	188	200	-84.61	-.08	.00	.00	-.54	-.22
243	196	200	59.80	.04	.00	.00	.38	.11
247	192	196	-366.98	-.12	.00	.00	-.76	-.19
251	196	208	-431.28	-.07	.00	.00	-.90	-.25
253	208	212	84.39	.07	.00	.00	.54	.22
257	212	12	69.59	.25	.00	.00	.44	.15
261	208	216	79.39	.11	.00	.00	.51	.19
265	200	216	-30.71	-.01	.00	.00	-.20	-.03
269	216	204	57.61	.11	.00	.00	.37	.11
273	208	260	-601.26	-.27	.00	.00	-1.25	-.47
277	260	268	-82.91	-.26	.00	.00	-.53	-.21
281	260	264	-564.68	-.12	.00	.00	-1.18	-.42
285	264	268	-568.38	-.14	.00	.00	-1.18	-.42
289	268	276	-661.39	-.40	.00	.00	-1.38	-.56

293	276	272	141.91	.15	.00	.00	.91	.57
297	256	272	-129.01	-.53	.00	.00	-.82	-.48
301	260	256	34.13	.01	.00	.00	.14	.01
305	256	252	150.74	.08	.00	.00	.62	.21
309	252	248	140.14	.06	.00	.00	.57	.19
313	248	244	132.84	.05	.00	.00	.54	.17
317	244	240	127.74	.06	.00	.00	.52	.16
321	240	228	121.94	.11	.00	.00	.78	.43
325	228	232	80.21	.14	.00	.00	.51	.20
329	232	306	42.19	.02	.00	.00	.27	.06
333	236	164	6.71	.00	.00	.00	.04	.00
337	224	228	-32.13	-.01	.00	.00	-.21	-.04
341	220	224	-22.03	-.01	.00	.00	-.14	-.02
345	216	220	-15.13	.00	.00	.00	-.10	-.01
349	236	282	10.30	.00	.00	.00	.07	.00
353	282	286	3.40	.00	.00	.00	.02	.00
357	286	290	-2.40	.00	.00	.00	-.02	.00
361	290	294	-9.72	.00	.00	.00	-.06	.00
365	294	232	-34.22	-.02	.00	.00	-.14	-.01
369	290	298	-1.58	.00	.00	.00	-.01	.00
373	298	302	-8.58	.00	.00	.00	-.05	.00
377	302	306	-15.88	-.01	.00	.00	-.10	-.01
381	306	236	21.11	.01	.00	.00	.13	.02
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.29	.00	.00	.00	.03	.00
417	330	334	2.61	.00	.00	.00	.02	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.64	.00	.00	.00	.06	.00
435	342	346	4.26	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00

507	276	414	-930.80	-1.08	.00	.00	-1.94	-1.05
511	414	416	-368.18	-2.26	.00	.00	-.77	-.19
513	416	418	-702.05	-.29	.00	.00	-1.46	-.62
515	418	422	-762.14	-.53	.00	.00	-1.59	-.72
519	422	426	-1143.70	-.83	.00	.00	-2.38	-1.53
523	426	428	-995.72	-.99	.00	.00	-2.08	-1.19
525	428	430	-888.79	-1.21	.00	.00	-1.85	-.96
527	430	434	-1212.24	-.94	.00	.00	-2.53	-1.71
531	434	438	-1411.00	-1.42	.00	.00	-2.94	-2.26
535	434	442	183.86	1.25	.00	.00	1.17	.92
539	442	446	163.76	.34	.00	.00	1.05	.74
543	430	446	279.85	.65	.00	.00	1.14	.68
547	446	450	229.61	.21	.00	.00	.94	.47
551	450	428	151.33	.35	.00	.00	.62	.22
555	446	454	204.80	.33	.00	.00	.84	.38
559	450	454	51.28	.12	.00	.00	.33	.09
563	454	458	231.18	.52	.00	.00	.94	.47
567	458	462	228.38	.07	.00	.00	.65	.16
571	462	466	173.56	.05	.00	.00	.49	.10
573	466	468	166.62	.03	.00	.00	.47	.09
575	468	470	166.62	.03	.00	.00	.47	.09
579	470	474	189.38	.05	.00	.00	.54	.12
581	474	476	178.48	.04	.00	.00	.51	.10
583	476	478	178.48	.08	.00	.00	.51	.10
587	478	426	157.38	.37	.00	.00	.64	.23
591	470	482	-35.06	-.05	.00	.00	-.22	-.04
595	466	482	-.65	.00	.00	.00	.00	.00
599	462	482	49.42	.05	.00	.00	.32	.08
603	414	486	-275.47	-.41	.00	.00	-1.76	-1.95
607	486	490	-285.77	-.51	.00	.00	-1.82	-2.08
611	490	494	-136.29	-.29	.00	.00	-.87	-.53
615	494	498	-142.69	-.22	.00	.00	-.91	-.58
619	498	502	-65.01	-.11	.00	.00	-.41	-.13
623	502	506	-69.41	-.14	.00	.00	-.44	-.15
627	506	498	86.98	.25	.00	.00	.56	.23
629	506	416	-326.17	-.57	.00	.00	-2.08	-2.66
631	506	490	157.88	.76	.00	.00	1.01	.69
635	414	510	-292.65	-.42	.00	.00	-1.87	-2.18
639	510	514	-121.89	-.26	.00	.00	-.78	-.43
643	514	518	-134.09	-.13	.00	.00	-.86	-.51
647	518	522	-143.09	-.16	.00	.00	-.91	-.58
651	522	526	-149.49	-.46	.00	.00	-.95	-.63
655	526	510	180.37	1.00	.00	.00	1.15	.89
659	526	530	-336.45	-.61	.00	.00	-2.15	-2.82
663	530	418	-191.52	-.51	.00	.00	-1.22	-.99
667	530	534	-152.43	-.31	.00	.00	-.97	-.65
671	534	538	-47.76	-.03	.00	.00	-.30	-.08
675	538	542	-47.76	-.06	.00	.00	-.30	-.08
679	542	546	-47.76	-.01	.00	.00	-.30	-.08
683	546	550	-53.56	-.03	.00	.00	-.34	-.09
687	550	554	-59.56	-.03	.00	.00	-.38	-.11
691	554	558	-96.30	-.29	.00	.00	-.61	-.28
695	558	562	-96.30	-.09	.00	.00	-.61	-.28
699	562	422	-197.93	-.19	.00	.00	-1.26	-1.05

703	534	566	-104.67	-.06	.00	.00	-.67	-.32
707	566	570	-110.67	-.10	.00	.00	-.71	-.36
711	570	554	-32.34	-.01	.00	.00	-.21	-.04
715	570	574	-84.73	-.06	.00	.00	-.54	-.22
719	574	578	-90.23	-.04	.00	.00	-.58	-.25
723	578	582	-95.93	-.05	.00	.00	-.61	-.28
727	582	562	-101.63	-.24	.00	.00	-.65	-.31
731	418	586	-134.83	-.04	.00	.00	-.55	-.17
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-139.53	-.12	.00	.00	-.89	-.55
743	594	598	-114.35	-.15	.00	.00	-.73	-.38
747	598	422	-179.23	-.22	.00	.00	-1.14	-.88
751	598	602	55.38	.03	.00	.00	.35	.10
755	602	604	28.86	.01	.00	.00	.18	.03
759	602	604	23.12	.01	.00	.00	.15	.02
763	594	604	-41.68	-.11	.00	.00	-.27	-.06
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	64.45	.02	.00	.00	.18	.02
951	58	56	-64.45	.00	.00	.00	-.18	-.02
953	936	58	-64.45	.00	.00	.00	-.18	-.02
977	952	936	-64.45	-.01	.00	.00	-.18	-.02

JUNCTION	NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4		3.40	587.24	468.00	51.67
8		8.70	587.21	456.00	56.86
10		.00	587.11	402.00	80.22
12		14.20	587.14	431.00	67.66
16		5.10	587.05	420.00	72.39
20		3.80	587.05	444.00	61.99
24		6.10	587.05	454.00	57.66
28		6.10	587.05	476.00	48.12
32		6.30	586.95	403.00	79.71
36		6.10	586.95	427.00	69.31
44		8.70	586.84	376.00	91.37
46		.00	586.85	321.00	115.20
48		6.30	586.85	318.00	116.50
52		.70	586.85	321.00	115.20
56		.00	586.82	433.00	66.66
58		.00	586.82	420.00	72.29
60		4.40	586.87	327.00	112.61
64		4.10	586.87	351.00	102.21
68		7.80	586.90	320.00	115.66
72		12.70	586.90	359.00	98.76
76		.00	586.90	348.00	103.52
80		6.90	586.89	323.00	114.35
84		7.70	586.89	386.00	87.05
88		7.80	586.89	372.00	93.12
92		6.40	586.89	327.00	112.62
96		5.80	586.90	347.00	103.96
100		8.40	586.90	415.00	74.49
104		7.70	586.90	417.00	73.62
108		11.20	586.90	355.00	100.49
112		6.10	586.95	375.00	91.85

114	38.40	586.79	391.00	84.84
116	7.00	586.90	379.00	90.09
120	8.70	587.02	377.00	91.01
122	.00	587.07	385.00	87.56
124	4.80	587.09	401.00	80.64
128	3.80	587.17	422.00	71.57
132	6.50	587.21	456.00	56.86
136	7.50	587.22	446.00	61.19
140	5.70	587.20	446.00	61.19
144	5.10	587.18	429.00	68.54
148	5.40	587.17	415.00	74.61
152	8.30	587.16	390.00	85.44
156	7.20	587.22	423.00	71.16
160	7.70	587.22	393.00	84.16
164	4.00	587.22	426.00	69.86
168	6.90	587.22	396.00	82.86
172	12.10	587.22	380.00	89.79
176	.00	587.24	454.00	57.74
180	5.90	587.24	445.00	61.64
184	7.50	587.26	446.00	61.21
188	5.40	587.28	461.00	54.72
192	5.60	587.28	477.00	47.79
196	4.50	587.40	475.00	48.71
200	5.90	587.36	454.00	57.79
204	10.50	587.26	423.00	71.18
208	6.20	587.47	455.00	57.40
212	14.80	587.40	415.00	74.71
216	6.20	587.37	471.00	50.43
220	6.90	587.37	445.00	61.69
224	10.10	587.38	439.00	64.30
228	9.60	587.38	409.00	77.30
232	3.80	587.25	397.00	82.44
236	4.10	587.22	463.00	53.83
240	5.80	587.49	353.00	101.61
244	5.10	587.56	366.00	96.01
248	7.30	587.61	369.00	94.73
252	10.60	587.66	387.00	86.95
256	12.40	587.74	404.00	79.62
260	12.20	587.74	427.00	69.66
264	3.70	587.87	443.00	62.78
268	10.10	588.01	453.00	58.50
272	12.90	588.26	455.00	57.75
276	11.20	588.41	457.00	56.95
282	6.90	587.22	394.00	83.73
286	5.80	587.22	380.00	89.80
290	8.90	587.22	387.00	86.76
294	24.50	587.22	389.00	85.90
298	7.00	587.22	396.00	82.86
302	7.30	587.22	410.00	76.80
306	5.20	587.23	411.00	76.37
310	12.80	585.86	358.00	98.74
314	7.50	585.78	340.00	106.50
318	5.50	585.76	344.00	104.76
322	9.90	585.75	354.00	100.42

326	13.90	585.74	359.00	98.25
330	9.80	585.75	348.00	103.03
334	9.90	585.75	346.00	103.89
338	16.20	585.45	352.00	101.16
342	9.80	585.45	358.00	98.56
346	17.90	585.44	382.00	88.16
350	14.50	585.40	344.00	104.61
354	96.10	585.30	323.00	113.66
358	15.20	585.40	372.00	92.47
362	.00	587.40	364.00	96.81
366	7.30	588.37	437.00	65.60
370	10.90	588.36	406.00	79.02
374	3.50	588.36	372.00	93.75
378	6.40	588.36	377.00	91.59
382	13.30	588.34	436.00	66.02
386	15.50	588.31	380.00	90.27
390	21.90	588.30	367.00	95.90
394	3.50	588.30	350.00	103.26
398	1.20	588.29	351.00	102.83
402	19.60	588.27	379.00	90.68
406	6.30	588.27	365.00	96.75
410	6.90	588.27	357.00	100.22
414	5.50	589.50	464.00	54.38
416	7.70	591.75	434.00	68.36
418	3.40	592.04	421.00	74.12
422	4.40	592.57	442.00	65.25
426	9.40	593.40	410.00	79.48
428	44.40	594.40	410.00	79.90
430	43.60	595.61	397.00	86.06
434	14.90	596.54	363.00	101.20
438	.00	597.96	315.00	122.62
442	20.10	595.30	375.00	95.46
446	9.20	594.96	367.00	98.78
450	27.00	594.75	383.00	91.76
454	24.90	594.63	348.00	106.87
458	2.80	594.11	366.00	98.85
462	5.40	594.04	373.00	95.78
466	7.60	593.98	382.00	91.86
468	.00	593.96	385.00	90.55
470	12.30	593.93	387.00	89.67
474	10.90	593.88	389.00	88.78
476	.00	593.85	381.00	92.23
478	21.10	593.77	332.00	113.43
482	13.70	593.98	389.00	88.83
486	10.30	589.90	459.00	56.72
490	8.40	590.42	450.00	60.85
494	6.40	590.71	431.00	69.21
498	9.30	590.93	424.00	72.33
502	4.40	591.04	399.00	83.22
506	11.90	591.18	425.00	72.01
510	9.60	589.92	456.00	58.03
514	12.20	590.18	415.00	75.91
518	9.00	590.31	409.00	78.57
522	6.40	590.46	407.00	79.50

526	6.60	590.92	399.00	83.17
530	7.50	591.53	397.00	84.30
534	.00	591.84	399.00	83.56
538	.00	591.87	415.00	76.64
542	.00	591.93	393.00	86.20
546	5.80	591.95	386.00	89.24
550	6.00	591.97	381.00	91.42
554	4.40	592.00	382.00	91.00
558	.00	592.29	422.00	73.79
562	.00	592.39	435.00	68.20
566	6.00	591.89	392.00	86.62
570	6.40	591.99	383.00	90.56
574	5.50	592.06	384.00	90.16
578	5.70	592.09	386.00	89.31
582	5.70	592.14	387.00	88.89
586	4.70	592.08	408.00	79.77
590	.00	592.08	375.00	94.07
594	16.50	592.20	417.00	75.92
598	9.50	592.35	428.00	71.22
602	3.40	592.32	420.00	74.67
604	10.30	592.31	402.00	82.47
900	.00	586.84	345.00	104.80
932	.00	586.82	455.00	57.12
936	.00	586.82	424.00	70.55
952	.00	586.81	416.00	74.02
	MAXIMUM PRESSURES			
438	.00	597.96	315.00	122.62
48	6.30	586.85	318.00	116.50
68	7.80	586.90	320.00	115.66
52	.70	586.85	321.00	115.20
46	.00	586.85	321.00	115.20
80	6.90	586.89	323.00	114.35
354	96.10	585.30	323.00	113.66
478	21.10	593.77	332.00	113.43
92	6.40	586.89	327.00	112.62
60	4.40	586.87	327.00	112.61
	MINIMUM PRESSURES			
192	5.60	587.28	477.00	47.79
28	6.10	587.05	476.00	48.12
196	4.50	587.40	475.00	48.71
216	6.20	587.37	471.00	50.43
4	3.40	587.24	468.00	51.67
236	4.10	587.22	463.00	53.83
414	5.50	589.50	464.00	54.38
188	5.40	587.28	461.00	54.72
486	10.30	589.90	459.00	56.72
132	6.50	587.21	456.00	56.86

THE NET SYSTEM DEMAND = 1411.00

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
6	1124.70
12	286.30

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 1411.00
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 2.00

THE RESULTS ARE OBTAINED AFTER 5 TRIALS WITH AN ACCURACY = .00005

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Maximum Day Demand equals 2 x Avg Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	18.85	.02	.00	.00	.48	.40
5	4	8	607.15	.08	.00	.00	1.27	.48
6	0	438	1159.01	16.96	.00	.00	13.15	113.04
9	8	12	185.07	.24	.00	.00	.76	.31
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1644.14	.96	.00	.00	4.66	6.37
13	12	16	293.06	.30	.00	.00	1.20	.74
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	250.86	.35	.00	.00	1.02	.55
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	130.41	.04	.00	.00	.37	.06
53	114	952	-130.41	-.08	.00	.00	-.37	-.06
57	116	114	424.39	.40	.00	.00	1.20	.52
61	116	72	11.41	.01	.00	.00	.07	.01
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	13.99	.00	.00	.00	.09	.01
71	68	60	178.81	.12	.00	.00	.73	.29
75	60	52	161.81	.06	.00	.00	.66	.25
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	244.91	.21	.00	.00	.69	.19
87	80	68	-36.50	-.01	.00	.00	-.23	-.05
91	80	84	16.02	.01	.00	.00	.10	.01
95	88	84	-.62	.00	.00	.00	.00	.00
99	92	88	14.98	.01	.00	.00	.10	.01
103	92	80	-6.69	.00	.00	.00	-.04	.00

107	96	92	21.10	.01	.00	.00	.13	.02
111	96	100	7.46	.00	.00	.00	.05	.00
115	104	100	9.34	.00	.00	.00	.06	.00
119	108	104	24.74	.02	.00	.00	.16	.02
123	108	96	40.16	.02	.00	.00	.26	.05
127	112	108	87.30	.17	.00	.00	.56	.23
131	112	116	449.80	.18	.00	.00	1.28	.58
135	120	112	549.29	.25	.00	.00	1.56	.84
137	10	122	404.68	.15	.00	.00	1.15	.47
139	8	10	404.68	.36	.00	.00	1.15	.47
141	122	120	404.68	.16	.00	.00	1.15	.47
143	120	124	-162.01	-.23	.00	.00	-1.03	-.73
147	124	128	-171.61	-.27	.00	.00	-1.10	-.81
151	132	128	120.21	.14	.00	.00	.77	.42
155	192	132	106.77	.24	.00	.00	.68	.34
159	4	192	-613.95	-.14	.00	.00	-1.28	-.48
163	192	188	-8.51	.00	.00	.00	-.05	.00
167	188	136	71.67	.21	.00	.00	.81	.65
171	136	132	26.45	.03	.00	.00	.30	.10
175	136	140	30.23	.07	.00	.00	.34	.13
179	144	140	-96.60	-.08	.00	.00	-.62	-.28
183	128	144	-59.00	-.03	.00	.00	-.38	-.11
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-77.77	-.08	.00	.00	-.50	-.19
199	156	160	-2.08	.00	.00	.00	-.01	.00
203	160	164	-17.48	.00	.00	.00	-.11	-.01
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	51.68	.04	.00	.00	.33	.09
219	180	176	51.68	.02	.00	.00	.33	.09
223	180	156	90.09	.07	.00	.00	.58	.25
227	180	204	-93.08	-.06	.00	.00	-.59	-.26
231	184	180	60.49	.07	.00	.00	.39	.12
235	188	184	75.49	.06	.00	.00	.48	.18
239	188	200	-166.47	-.27	.00	.00	-1.06	-.77
243	196	200	118.65	.16	.00	.00	.76	.41
247	192	196	-723.41	-.43	.00	.00	-1.51	-.66
251	196	208	-851.06	-.26	.00	.00	-1.77	-.89
253	208	212	165.99	.26	.00	.00	1.06	.76
257	212	12	136.39	.89	.00	.00	.87	.53
261	208	216	157.25	.38	.00	.00	1.00	.69
265	200	216	-59.62	-.04	.00	.00	-.38	-.11
269	216	204	114.08	.38	.00	.00	.73	.38
273	208	260	-1186.70	-.95	.00	.00	-2.47	-1.64
277	260	268	-163.81	-.93	.00	.00	-1.05	-.74
281	260	264	-1115.65	-.43	.00	.00	-2.33	-1.47
285	264	268	-1123.05	-.50	.00	.00	-2.34	-1.48
289	268	276	-1307.05	-1.43	.00	.00	-2.72	-1.97
293	276	272	280.70	.53	.00	.00	1.79	2.01
297	256	272	-254.90	-1.85	.00	.00	-1.63	-1.69
301	260	256	68.35	.02	.00	.00	.28	.05
305	256	252	298.45	.27	.00	.00	1.22	.76
309	252	248	277.25	.20	.00	.00	1.13	.66

313	248	244	262.65	.17	.00	.00	1.07	.60
317	244	240	252.45	.22	.00	.00	1.03	.56
321	240	228	240.85	.39	.00	.00	1.54	1.52
325	228	232	158.79	.49	.00	.00	1.01	.70
329	232	306	83.22	.06	.00	.00	.53	.21
333	236	164	11.79	.00	.00	.00	.08	.01
337	224	228	-62.86	-.02	.00	.00	-.40	-.13
341	220	224	-42.66	-.02	.00	.00	-.27	-.06
345	216	220	-28.86	-.01	.00	.00	-.18	-.03
349	236	282	21.14	.01	.00	.00	.13	.02
353	282	286	7.34	.00	.00	.00	.05	.00
357	286	290	-4.26	.00	.00	.00	-.03	.00
361	290	294	-18.98	.00	.00	.00	-.12	-.01
365	294	232	-67.98	-.08	.00	.00	-.28	-.05
369	290	298	-3.08	.00	.00	.00	-.02	.00
373	298	302	-17.08	-.01	.00	.00	-.11	-.01
377	302	306	-31.68	-.02	.00	.00	-.20	-.04
381	306	236	41.13	.02	.00	.00	.26	.06
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-1842.76	-3.84	.00	.00	-3.84	-3.71
511	414	416	-729.36	-8.01	.00	.00	-1.52	-.67
513	416	418	-1391.43	-1.02	.00	.00	-2.90	-2.21
515	418	422	-1511.15	-1.89	.00	.00	-3.15	-2.57
519	422	426	-2268.55	-2.95	.00	.00	-4.73	-5.46

523	426	428	-1975.86	-3.53	.00	.00	-4.12	-4.23
525	428	430	-1764.70	-4.32	.00	.00	-3.68	-3.43
527	430	434	-2408.01	-3.34	.00	.00	-5.02	-6.09
531	434	438	-2803.15	-5.05	.00	.00	-5.84	-8.07
535	434	442	365.35	4.44	.00	.00	2.33	3.28
539	442	446	325.15	1.23	.00	.00	2.08	2.65
543	430	446	556.11	2.33	.00	.00	2.27	2.41
547	446	450	455.94	.74	.00	.00	1.86	1.67
551	450	428	299.96	1.25	.00	.00	1.23	.77
555	446	454	406.91	1.17	.00	.00	1.66	1.35
559	450	454	101.98	.43	.00	.00	.65	.31
563	454	458	459.09	1.86	.00	.00	1.88	1.69
567	458	462	453.49	.25	.00	.00	1.29	.59
571	462	466	344.59	.19	.00	.00	.98	.35
573	466	468	330.54	.09	.00	.00	.94	.33
575	468	470	330.54	.10	.00	.00	.94	.33
579	470	474	375.49	.16	.00	.00	1.07	.41
581	474	476	353.69	.13	.00	.00	1.00	.37
583	476	478	353.69	.27	.00	.00	1.00	.37
587	478	426	311.49	1.30	.00	.00	1.27	.82
591	470	482	-69.55	-.19	.00	.00	-.44	-.15
595	466	482	-1.15	.00	.00	.00	-.01	.00
599	462	482	98.11	.19	.00	.00	.63	.29
603	414	486	-545.27	-1.44	.00	.00	-3.48	-6.89
607	486	490	-565.87	-1.82	.00	.00	-3.61	-7.38
611	490	494	-269.88	-1.03	.00	.00	-1.72	-1.87
615	494	498	-282.68	-.77	.00	.00	-1.80	-2.04
619	498	502	-128.85	-.39	.00	.00	-.82	-.48
623	502	506	-137.65	-.51	.00	.00	-.88	-.54
627	506	498	172.43	.90	.00	.00	1.10	.82
629	506	416	-646.67	-2.04	.00	.00	-4.13	-9.45
631	506	490	312.79	2.70	.00	.00	2.00	2.46
635	414	510	-579.13	-1.49	.00	.00	-3.70	-7.70
639	510	514	-241.09	-.92	.00	.00	-1.54	-1.52
643	514	518	-265.49	-.46	.00	.00	-1.69	-1.82
647	518	522	-283.49	-.56	.00	.00	-1.81	-2.05
651	522	526	-296.29	-1.62	.00	.00	-1.89	-2.23
655	526	510	357.24	3.56	.00	.00	2.28	3.15
659	526	530	-666.73	-2.16	.00	.00	-4.26	-10.00
663	530	418	-379.83	-1.83	.00	.00	-2.42	-3.53
667	530	534	-301.90	-1.10	.00	.00	-1.93	-2.31
671	534	538	-94.59	-.12	.00	.00	-.60	-.27
675	538	542	-94.59	-.21	.00	.00	-.60	-.27
679	542	546	-94.59	-.05	.00	.00	-.60	-.27
683	546	550	-106.19	-.10	.00	.00	-.68	-.33
687	550	554	-118.19	-.10	.00	.00	-.75	-.41
691	554	558	-191.13	-1.04	.00	.00	-1.22	-.99
695	558	562	-191.13	-.33	.00	.00	-1.22	-.99
699	562	422	-392.90	-.67	.00	.00	-2.51	-3.76
703	534	566	-207.31	-.20	.00	.00	-1.32	-1.15
707	566	570	-219.31	-.35	.00	.00	-1.40	-1.28
711	570	554	-64.14	-.03	.00	.00	-.41	-.13
715	570	574	-167.97	-.23	.00	.00	-1.07	-.78
719	574	578	-178.97	-.14	.00	.00	-1.14	-.88

723	578	582	-190.37	-.17	.00	.00	-1.22	-.98
727	582	562	-201.77	-.87	.00	.00	-1.29	-1.09
731	418	586	-266.91	-.13	.00	.00	-1.09	-.62
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-276.31	-.42	.00	.00	-1.76	-1.96
743	594	598	-226.72	-.53	.00	.00	-1.45	-1.36
747	598	422	-355.71	-.80	.00	.00	-2.27	-3.12
751	598	602	109.99	.11	.00	.00	.70	.36
755	602	604	57.30	.05	.00	.00	.37	.11
759	602	604	45.89	.05	.00	.00	.29	.07
763	594	604	-82.59	-.38	.00	.00	-.53	-.21
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	130.41	.06	.00	.00	.37	.06
951	58	56	-130.41	-.01	.00	.00	-.37	-.06
953	936	58	-130.41	-.01	.00	.00	-.37	-.06
977	952	936	-130.41	-.02	.00	.00	-.37	-.06

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	558.95	468.00	39.41
8	17.40	558.87	456.00	44.58
10	.00	558.51	402.00	67.82
12	28.40	558.63	431.00	55.31
16	10.20	558.33	420.00	59.94
20	7.60	558.32	444.00	49.54
24	12.20	558.32	454.00	45.20
28	12.20	558.31	476.00	35.67
32	12.60	557.98	403.00	67.16
36	12.20	557.98	427.00	56.76
44	17.40	557.58	376.00	78.68
46	.00	557.59	321.00	102.52
48	12.60	557.59	318.00	103.82
52	1.40	557.59	321.00	102.52
56	.00	557.50	433.00	53.95
58	.00	557.49	420.00	59.58
60	8.80	557.66	327.00	99.95
64	8.20	557.65	351.00	89.55
68	15.60	557.77	320.00	103.03
72	25.40	557.77	359.00	86.13
76	.00	557.77	348.00	90.90
80	13.80	557.76	323.00	101.73
84	15.40	557.75	386.00	74.43
88	15.60	557.75	372.00	80.49
92	12.80	557.76	327.00	100.00
96	11.60	557.76	347.00	91.33
100	16.80	557.76	415.00	61.86
104	15.40	557.76	417.00	61.00
108	22.40	557.78	355.00	87.87
112	12.20	557.95	375.00	79.28
114	76.80	557.37	391.00	72.10
116	14.00	557.78	379.00	77.47
120	17.40	558.21	377.00	78.52
122	.00	558.36	385.00	75.12
124	9.60	558.44	401.00	68.22

128	7.60	558.71	422.00	59.24
132	13.00	558.85	456.00	44.57
136	15.00	558.88	446.00	48.91
140	11.40	558.81	446.00	48.89
144	10.20	558.74	429.00	56.22
148	10.80	558.70	415.00	62.27
152	16.60	558.69	390.00	73.10
156	14.40	558.89	423.00	58.89
160	15.40	558.89	393.00	71.89
164	8.00	558.89	426.00	57.59
168	13.80	558.88	396.00	70.58
172	24.20	558.87	380.00	77.51
176	.00	558.94	454.00	45.47
180	11.80	558.96	445.00	49.38
184	15.00	559.03	446.00	48.98
188	10.80	559.09	461.00	42.51
192	11.20	559.09	477.00	35.57
196	9.00	559.52	475.00	36.62
200	11.80	559.36	454.00	45.66
204	21.00	559.02	423.00	58.94
208	12.40	559.78	455.00	45.40
212	29.60	559.52	415.00	62.62
216	12.40	559.40	471.00	38.31
220	13.80	559.41	445.00	49.58
224	20.20	559.44	439.00	52.19
228	19.20	559.46	409.00	65.20
232	7.60	558.97	397.00	70.19
236	8.20	558.89	463.00	41.55
240	11.60	559.85	353.00	89.64
244	10.20	560.07	366.00	84.10
248	14.60	560.24	369.00	82.87
252	21.20	560.44	387.00	75.16
256	24.80	560.71	404.00	67.91
260	24.40	560.73	427.00	57.95
264	7.40	561.16	443.00	51.20
268	20.20	561.66	453.00	47.09
272	25.80	562.57	455.00	46.61
276	22.40	563.09	457.00	45.97
282	13.80	558.89	394.00	71.45
286	11.60	558.89	380.00	77.52
290	17.80	558.89	387.00	74.48
294	49.00	558.89	389.00	73.62
298	14.00	558.89	396.00	70.59
302	14.60	558.90	410.00	64.52
306	10.40	558.91	411.00	64.10
310	25.60	554.02	358.00	84.94
314	15.00	553.72	340.00	92.61
318	11.00	553.65	344.00	90.85
322	19.80	553.62	354.00	86.50
326	27.80	553.59	359.00	84.32
330	19.60	553.63	348.00	89.11
334	19.80	553.63	346.00	89.97
338	32.40	552.53	352.00	86.90
342	19.60	552.52	358.00	84.29

346	35.80	552.52	382.00	73.89
350	29.00	552.36	344.00	90.29
354	192.20	551.99	323.00	99.23
358	30.40	552.35	372.00	78.15
362	.00	559.52	364.00	84.72
366	14.60	562.95	437.00	54.58
370	21.80	562.90	406.00	67.99
374	7.00	562.90	372.00	82.72
378	12.80	562.89	377.00	80.55
382	26.60	562.84	436.00	54.96
386	31.00	562.71	380.00	79.18
390	43.80	562.69	367.00	84.80
394	7.00	562.67	350.00	92.16
398	2.40	562.66	351.00	91.72
402	39.20	562.59	379.00	79.56
406	12.60	562.59	365.00	85.62
410	13.80	562.58	357.00	89.08
414	11.00	566.93	464.00	44.61
416	15.40	574.94	434.00	61.07
418	6.80	575.96	421.00	67.15
422	8.80	577.85	442.00	58.87
426	18.80	580.80	410.00	74.02
428	88.80	584.33	410.00	75.54
430	87.20	588.65	397.00	83.05
434	29.80	591.99	363.00	99.23
438	.00	597.04	315.00	122.22
442	40.20	587.55	375.00	92.10
446	18.40	586.32	367.00	95.04
450	54.00	585.59	383.00	87.79
454	49.80	585.15	348.00	102.77
458	5.60	583.29	366.00	94.16
462	10.80	583.05	373.00	91.02
466	15.20	582.85	382.00	87.04
468	.00	582.76	385.00	85.70
470	24.60	582.66	387.00	84.79
474	21.80	582.50	389.00	83.85
476	.00	582.37	381.00	87.26
478	42.20	582.10	332.00	108.38
482	27.40	582.85	389.00	84.00
486	20.60	568.38	459.00	47.40
490	16.80	570.20	450.00	52.09
494	12.80	571.23	431.00	60.76
498	18.60	572.00	424.00	64.13
502	8.80	572.39	399.00	75.13
506	23.80	572.90	425.00	64.09
510	19.20	568.42	456.00	48.72
514	24.40	569.34	415.00	66.88
518	18.00	569.80	409.00	69.68
522	12.80	570.36	407.00	70.79
526	13.20	571.98	399.00	74.96
530	15.00	574.14	397.00	76.76
534	.00	575.24	399.00	76.37
538	.00	575.36	415.00	69.49
542	.00	575.57	393.00	79.11

546	11.60	575.62	386.00	82.17
550	12.00	575.71	381.00	84.38
554	8.80	575.82	382.00	83.99
558	.00	576.85	422.00	67.10
562	.00	577.18	435.00	61.61
566	12.00	575.44	392.00	79.49
570	12.80	575.78	383.00	83.54
574	11.00	576.01	384.00	83.20
578	11.40	576.15	386.00	82.40
582	11.40	576.31	387.00	82.04
586	9.40	576.10	408.00	72.84
590	.00	576.10	375.00	87.14
594	33.00	576.52	417.00	69.13
598	19.00	577.06	428.00	64.59
602	6.80	576.95	420.00	68.01
604	20.60	576.90	402.00	75.79
900	.00	557.56	345.00	92.11
932	.00	557.50	455.00	44.42
936	.00	557.48	424.00	57.84
952	.00	557.46	416.00	61.30

MAXIMUM PRESSURES

438	.00	597.04	315.00	122.22
478	42.20	582.10	332.00	108.38
48	12.60	557.59	318.00	103.82
68	15.60	557.77	320.00	103.03
454	49.80	585.15	348.00	102.77
52	1.40	557.59	321.00	102.52
46	.00	557.59	321.00	102.52
80	13.80	557.76	323.00	101.73
92	12.80	557.76	327.00	100.00
60	8.80	557.66	327.00	99.95

MINIMUM PRESSURES

192	11.20	559.09	477.00	35.57
28	12.20	558.31	476.00	35.67
196	9.00	559.52	475.00	36.62
216	12.40	559.40	471.00	38.31
4	6.80	558.95	468.00	39.41
236	8.20	558.89	463.00	41.55
188	10.80	559.09	461.00	42.51
932	.00	557.50	455.00	44.42
132	13.00	558.85	456.00	44.57
8	17.40	558.87	456.00	44.58

THE NET SYSTEM DEMAND = 2822.00

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	18.85
6	1159.01
12	1644.14

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2822.00
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 3.00

THE RESULTS ARE OBTAINED AFTER 5 TRIALS WITH AN ACCURACY = .00483

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Peak Hour Demand equals 3 x Avg Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	374.62	5.03	.00	.00	9.56	100.55
5	4	8	291.61	.02	.00	.00	.61	.12
6	0	438	1180.35	17.54	.00	.00	13.39	116.92
9	8	12	-184.29	-.24	.00	.00	-.75	-.31
10	0	32	551.90	.02	.00	.00	2.25	2.38
12	0	438	2126.15	1.54	.00	.00	6.03	10.25
13	12	16	-168.40	-.11	.00	.00	-.69	-.26
17	16	20	48.00	.02	.00	.00	.31	.08
21	20	24	18.30	.00	.00	.00	.12	.01
25	20	28	18.30	.01	.00	.00	.12	.01
29	16	32	-231.70	-.30	.00	.00	-.95	-.48
33	32	36	18.30	.01	.00	.00	.12	.01
41	46	44	26.10	.02	.00	.00	.17	.02
43	48	46	26.10	.00	.00	.00	.17	.02
45	48	52	-45.00	.00	.00	.00	-.18	-.02
49	52	900	255.78	.13	.00	.00	.73	.20
53	114	952	-255.78	-.29	.00	.00	-.73	-.20
57	116	114	576.42	.71	.00	.00	1.64	.91
61	116	72	-97.99	-.45	.00	.00	-.63	-.29
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	136.09	.16	.00	.00	.87	.53
71	68	60	328.38	.36	.00	.00	1.34	.91
75	60	52	302.88	.20	.00	.00	1.24	.78
79	60	64	12.30	.00	.00	.00	.08	.01
83	32	68	657.61	1.30	.00	.00	1.87	1.17
87	80	68	-169.74	-.24	.00	.00	-1.08	-.79
91	80	84	53.36	.08	.00	.00	.34	.09
95	88	84	-30.26	-.01	.00	.00	-.19	-.03
99	92	88	-6.86	.00	.00	.00	-.04	.00
103	92	80	-95.68	-.09	.00	.00	-.61	-.27
107	96	92	-83.34	-.06	.00	.00	-.53	-.21
111	96	100	29.05	.03	.00	.00	.19	.03
115	104	100	-3.85	.00	.00	.00	-.02	.00
119	108	104	19.25	.01	.00	.00	.12	.01

123	108	96	-36.89	-.01	.00	.00	-.24	-.05
127	112	108	15.96	.01	.00	.00	.10	.01
131	112	116	499.43	.21	.00	.00	1.42	.70
135	120	112	533.69	.24	.00	.00	1.51	.79
137	10	122	449.80	.18	.00	.00	1.28	.58
139	8	10	449.80	.43	.00	.00	1.28	.58
141	122	120	449.80	.19	.00	.00	1.28	.58
143	120	124	-109.99	-.11	.00	.00	-.70	-.36
147	124	128	-124.39	-.15	.00	.00	-.79	-.45
151	132	128	137.43	.18	.00	.00	.88	.54
155	192	132	144.44	.42	.00	.00	.92	.59
159	4	192	-301.81	-.04	.00	.00	-.63	-.13
163	192	188	102.56	.14	.00	.00	.65	.31
167	188	136	83.84	.28	.00	.00	.95	.87
171	136	132	12.49	.01	.00	.00	.14	.03
175	136	140	48.85	.16	.00	.00	.55	.32
179	144	140	-54.76	-.03	.00	.00	-.35	-.10
183	128	144	1.64	.00	.00	.00	.01	.00
187	144	148	41.10	.07	.00	.00	.47	.23
191	148	152	24.90	.03	.00	.00	.28	.09
195	140	156	-23.02	-.01	.00	.00	-.15	-.02
199	156	160	54.73	.06	.00	.00	.35	.10
203	160	164	31.63	.01	.00	.00	.20	.04
207	164	168	57.00	.03	.00	.00	.36	.11
211	168	172	36.30	.01	.00	.00	.23	.05
215	176	164	81.11	.10	.00	.00	.52	.20
219	180	176	81.11	.05	.00	.00	.52	.20
223	180	156	99.34	.09	.00	.00	.63	.29
227	180	204	-93.37	-.06	.00	.00	-.60	-.26
231	184	180	104.78	.19	.00	.00	.67	.32
235	188	184	127.28	.16	.00	.00	.81	.47
239	188	200	-124.75	-.16	.00	.00	-.80	-.45
243	196	200	152.44	.25	.00	.00	.97	.65
247	192	196	-565.61	-.27	.00	.00	-1.18	-.42
251	196	208	-731.55	-.20	.00	.00	-1.52	-.67
253	208	212	102.89	.11	.00	.00	.66	.31
257	212	12	58.49	.18	.00	.00	.37	.11
261	208	216	171.66	.45	.00	.00	1.10	.81
265	200	216	9.98	.00	.00	.00	.06	.00
269	216	204	124.87	.45	.00	.00	.80	.45
273	208	260	-1024.69	-.73	.00	.00	-2.14	-1.25
277	260	268	-150.03	-.79	.00	.00	-.96	-.63
281	260	264	-1019.52	-.37	.00	.00	-2.12	-1.24
285	264	268	-1030.62	-.43	.00	.00	-2.15	-1.27
289	268	276	-1210.96	-1.24	.00	.00	-2.52	-1.71
293	276	272	272.43	.50	.00	.00	1.74	1.91
297	256	272	-233.73	-1.58	.00	.00	-1.49	-1.44
301	260	256	108.27	.04	.00	.00	.44	.12
305	256	252	304.80	.28	.00	.00	1.25	.79
309	252	248	273.00	.19	.00	.00	1.12	.65
313	248	244	251.10	.16	.00	.00	1.03	.55
317	244	240	235.80	.19	.00	.00	.96	.49
321	240	228	218.40	.33	.00	.00	1.39	1.27
325	228	232	176.76	.60	.00	.00	1.13	.86

329	232	306	83.70	.06	.00	.00	.53	.21
333	236	164	-43.74	-.02	.00	.00	-.28	-.06
337	224	228	-12.83	.00	.00	.00	-.08	-.01
341	220	224	17.47	.00	.00	.00	.11	.01
345	216	220	38.17	.02	.00	.00	.24	.05
349	236	282	51.95	.03	.00	.00	.33	.09
353	282	286	31.25	.01	.00	.00	.20	.03
357	286	290	13.85	.01	.00	.00	.09	.01
361	290	294	-8.17	.00	.00	.00	-.05	.00
365	294	232	-81.67	-.11	.00	.00	-.33	-.07
369	290	298	-4.68	.00	.00	.00	-.03	.00
373	298	302	-25.68	-.01	.00	.00	-.16	-.02
377	302	306	-47.58	-.04	.00	.00	-.30	-.08
381	306	236	20.52	.01	.00	.00	.13	.02
385	310	114	-717.00	-7.10	.00	.00	-2.93	-3.86
389	310	314	243.43	.64	.00	.00	.99	.52
393	314	318	220.93	.15	.00	.00	.90	.44
397	318	322	87.69	.07	.00	.00	.36	.08
401	322	326	115.63	.05	.00	.00	.47	.13
405	322	330	-57.64	-.04	.00	.00	-.24	-.04
409	318	330	116.74	.03	.00	.00	.48	.13
413	330	334	22.79	.00	.00	.00	.09	.01
417	330	334	6.91	.00	.00	.00	.04	.00
419	310	326	435.17	.91	.00	.00	1.78	1.53
423	338	326	-509.10	-2.25	.00	.00	-2.08	-2.05
427	338	342	83.10	.02	.00	.00	.34	.07
431	342	346	41.08	.01	.00	.00	.17	.02
435	342	346	12.62	.01	.00	.00	.08	.01
439	338	350	377.40	.36	.00	.00	1.54	1.18
443	350	354	288.30	.78	.00	.00	1.18	.71
447	350	358	45.60	.03	.00	.00	.19	.02
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	348.90	.29	.00	.00	1.43	1.02
459	366	370	62.40	.12	.00	.00	.40	.12
463	370	374	10.50	.00	.00	.00	.07	.00
467	370	378	19.20	.01	.00	.00	.12	.01
471	366	382	264.60	.24	.00	.00	1.08	.61
475	382	386	88.04	.27	.00	.00	.56	.24
479	386	390	41.54	.05	.00	.00	.27	.06
483	382	390	136.66	.33	.00	.00	.56	.18
487	390	394	112.50	.03	.00	.00	.46	.12
491	394	398	102.00	.02	.00	.00	.42	.10
495	398	402	98.40	.15	.00	.00	.40	.10
499	402	406	18.90	.00	.00	.00	.08	.00
503	402	410	20.70	.02	.00	.00	.13	.02
507	276	414	-1865.89	-3.93	.00	.00	-3.89	-3.80
511	414	416	-760.80	-8.66	.00	.00	-1.59	-.72
513	416	418	-1483.54	-1.15	.00	.00	-3.09	-2.49
515	418	422	-1641.32	-2.20	.00	.00	-3.42	-3.00
519	422	426	-2504.59	-3.55	.00	.00	-5.22	-6.55
523	426	428	-2221.73	-4.38	.00	.00	-4.63	-5.25
525	428	430	-2033.43	-5.61	.00	.00	-4.24	-4.46
527	430	434	-2827.14	-4.50	.00	.00	-5.89	-8.20
531	434	438	-3306.49	-6.86	.00	.00	-6.89	-10.96

535	434	442	434.65	6.13	.00	.00	2.77	4.53
539	442	446	374.35	1.59	.00	.00	2.39	3.43
543	430	446	662.91	3.22	.00	.00	2.71	3.34
547	446	450	527.77	.97	.00	.00	2.16	2.19
551	450	428	321.50	1.43	.00	.00	1.31	.87
555	446	454	481.89	1.60	.00	.00	1.97	1.85
559	450	454	125.27	.64	.00	.00	.80	.45
563	454	458	532.46	2.44	.00	.00	2.17	2.22
567	458	462	524.06	.33	.00	.00	1.49	.77
571	462	466	395.23	.25	.00	.00	1.12	.45
573	466	468	366.85	.11	.00	.00	1.04	.40
575	468	470	366.85	.12	.00	.00	1.04	.40
579	470	474	407.06	.19	.00	.00	1.15	.48
581	474	476	374.36	.14	.00	.00	1.06	.41
583	476	478	374.36	.30	.00	.00	1.06	.41
587	478	426	311.06	1.30	.00	.00	1.27	.82
591	470	482	-77.11	-.23	.00	.00	-.49	-.18
595	466	482	5.58	.00	.00	.00	.04	.00
599	462	482	112.64	.25	.00	.00	.72	.37
603	414	486	-547.54	-1.45	.00	.00	-3.49	-6.94
607	486	490	-578.44	-1.90	.00	.00	-3.69	-7.69
611	490	494	-275.93	-1.07	.00	.00	-1.76	-1.95
615	494	498	-295.13	-.84	.00	.00	-1.88	-2.21
619	498	502	-136.97	-.43	.00	.00	-.87	-.53
623	502	506	-150.17	-.60	.00	.00	-.96	-.63
627	506	498	186.06	1.03	.00	.00	1.19	.94
629	506	416	-699.64	-2.36	.00	.00	-4.47	-10.93
631	506	490	327.71	2.94	.00	.00	2.09	2.68
635	414	510	-574.05	-1.46	.00	.00	-3.66	-7.58
639	510	514	-233.62	-.86	.00	.00	-1.49	-1.43
643	514	518	-270.22	-.48	.00	.00	-1.72	-1.88
647	518	522	-297.22	-.61	.00	.00	-1.90	-2.24
651	522	526	-316.42	-1.83	.00	.00	-2.02	-2.52
655	526	510	369.22	3.78	.00	.00	2.36	3.35
659	526	530	-705.45	-2.40	.00	.00	-4.50	-11.10
663	530	418	-416.68	-2.17	.00	.00	-2.66	-4.19
667	530	534	-311.27	-1.17	.00	.00	-1.99	-2.44
671	534	538	-97.07	-.12	.00	.00	-.62	-.28
675	538	542	-97.07	-.22	.00	.00	-.62	-.28
679	542	546	-97.07	-.05	.00	.00	-.62	-.28
683	546	550	-114.47	-.11	.00	.00	-.73	-.38
687	550	554	-132.47	-.13	.00	.00	-.85	-.50
691	554	558	-216.11	-1.30	.00	.00	-1.38	-1.24
695	558	562	-216.11	-.41	.00	.00	-1.38	-1.24
699	562	422	-447.77	-.85	.00	.00	-2.86	-4.78
703	534	566	-214.19	-.21	.00	.00	-1.37	-1.22
707	566	570	-232.19	-.38	.00	.00	-1.48	-1.42
711	570	554	-70.44	-.04	.00	.00	-.45	-.16
715	570	574	-180.95	-.26	.00	.00	-1.15	-.89
719	574	578	-197.45	-.16	.00	.00	-1.26	-1.05
723	578	582	-214.55	-.21	.00	.00	-1.37	-1.22
727	582	562	-231.65	-1.12	.00	.00	-1.48	-1.41
731	418	586	-269.11	-.14	.00	.00	-1.10	-.63
735	586	590	.00	.00	.00	.00	.00	.00

739	586	594	-283.21	-.44	.00	.00	-1.81	-2.05
743	594	598	-245.80	-.62	.00	.00	-1.57	-1.58
747	598	422	-402.31	-1.00	.00	.00	-2.57	-3.92
751	598	602	128.00	.15	.00	.00	.82	.47
755	602	604	65.42	.06	.00	.00	.42	.14
759	602	604	52.39	.06	.00	.00	.33	.09
763	594	604	-86.90	-.41	.00	.00	-.55	-.23
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	255.78	.19	.00	.00	.73	.20
951	58	56	-255.78	-.05	.00	.00	-.73	-.20
953	936	58	-255.78	-.03	.00	.00	-.73	-.20
977	952	936	-255.78	-.07	.00	.00	-.73	-.20

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	10.20	552.35	468.00	36.55
8	26.10	552.33	456.00	41.74
10	.00	551.89	402.00	64.95
12	42.60	552.57	431.00	52.68
16	15.30	552.68	420.00	57.49
20	11.40	552.65	444.00	47.08
24	18.30	552.65	454.00	42.75
28	18.30	552.64	476.00	33.21
32	18.90	552.98	403.00	64.99
36	18.30	552.97	427.00	54.59
44	26.10	551.09	376.00	75.87
46	.00	551.11	321.00	99.71
48	18.90	551.11	318.00	101.02
52	2.10	551.12	321.00	99.72
56	.00	550.80	433.00	51.05
58	.00	550.75	420.00	56.66
60	13.20	551.32	327.00	97.21
64	12.30	551.32	351.00	86.80
68	23.40	551.68	320.00	100.40
72	38.10	551.52	359.00	83.42
76	.00	551.52	348.00	88.19
80	20.70	551.44	323.00	98.99
84	23.10	551.37	386.00	71.66
88	23.40	551.36	372.00	77.72
92	19.20	551.36	327.00	97.22
96	17.40	551.29	347.00	88.53
100	25.20	551.27	415.00	59.05
104	23.10	551.27	417.00	58.18
108	33.60	551.28	355.00	85.05
112	18.30	551.29	375.00	76.39
114	115.20	550.36	391.00	69.06
116	21.00	551.07	379.00	74.56
120	26.10	551.52	377.00	75.63
122	.00	551.71	385.00	72.24
124	14.40	551.64	401.00	65.28
128	11.40	551.78	422.00	56.24
132	19.50	551.96	456.00	41.58
136	22.50	551.97	446.00	45.92
140	17.10	551.81	446.00	45.85

144	15.30	551.78	429.00	53.21
148	16.20	551.71	415.00	59.24
152	24.90	551.68	390.00	70.06
156	21.60	551.82	423.00	55.82
160	23.10	551.76	393.00	68.80
164	12.00	551.75	426.00	54.49
168	20.70	551.72	396.00	67.48
172	36.30	551.70	380.00	74.41
176	.00	551.85	454.00	42.40
180	17.70	551.90	445.00	46.33
184	22.50	552.09	446.00	45.97
188	16.20	552.25	461.00	39.54
192	16.80	552.39	477.00	32.67
196	13.50	552.66	475.00	33.65
200	17.70	552.41	454.00	42.65
204	31.50	551.97	423.00	55.89
208	18.60	552.86	455.00	42.41
212	44.40	552.75	415.00	59.69
216	18.60	552.41	471.00	35.28
220	20.70	552.39	445.00	46.54
224	30.30	552.39	439.00	49.13
228	28.80	552.39	409.00	62.13
232	11.40	551.79	397.00	67.08
236	12.30	551.73	463.00	38.45
240	17.40	552.72	353.00	86.54
244	15.30	552.91	366.00	80.99
248	21.90	553.07	369.00	79.76
252	31.80	553.26	387.00	72.05
256	37.20	553.54	404.00	64.80
260	36.60	553.58	427.00	54.85
264	11.10	553.95	443.00	48.08
268	30.30	554.38	453.00	43.93
272	38.70	555.12	455.00	43.38
276	33.60	555.62	457.00	42.73
282	20.70	551.69	394.00	68.33
286	17.40	551.68	380.00	74.40
290	26.70	551.68	387.00	71.36
294	73.50	551.68	389.00	70.49
298	21.00	551.68	396.00	67.46
302	21.90	551.69	410.00	61.40
306	15.60	551.73	411.00	60.98
310	38.40	543.26	358.00	80.28
314	22.50	542.61	340.00	87.80
318	16.50	542.46	344.00	86.00
322	29.70	542.40	354.00	81.64
326	41.70	542.35	359.00	79.45
330	29.40	542.44	348.00	84.26
334	29.70	542.43	346.00	85.12
338	48.60	540.10	352.00	81.51
342	29.40	540.07	358.00	78.90
346	53.70	540.06	382.00	68.49
350	43.50	539.73	344.00	84.82
354	288.30	538.96	323.00	93.58
358	45.60	539.71	372.00	72.67

362	.00	552.75	364.00	81.79
366	21.90	555.33	437.00	51.27
370	32.70	555.20	406.00	64.65
374	10.50	555.20	372.00	79.39
378	19.20	555.19	377.00	77.22
382	39.90	555.09	436.00	51.60
386	46.50	554.81	380.00	75.75
390	65.70	554.76	367.00	81.36
394	10.50	554.73	350.00	88.71
398	3.60	554.71	351.00	88.27
402	58.80	554.55	379.00	76.07
406	18.90	554.55	365.00	82.14
410	20.70	554.53	357.00	85.60
414	16.50	559.55	464.00	41.40
416	23.10	568.21	434.00	58.16
418	10.20	569.36	421.00	64.29
422	13.20	571.56	442.00	56.14
426	28.20	575.10	410.00	71.55
428	133.20	579.49	410.00	73.45
430	130.80	585.10	397.00	81.51
434	44.70	589.60	363.00	98.19
438	.00	596.46	315.00	121.97
442	60.30	583.47	375.00	90.34
446	27.60	581.88	367.00	93.11
450	81.00	580.91	383.00	85.76
454	74.70	580.28	348.00	100.65
458	8.40	577.84	366.00	91.80
462	16.20	577.51	373.00	88.62
466	22.80	577.26	382.00	84.61
468	.00	577.15	385.00	83.26
470	36.90	577.03	387.00	82.35
474	32.70	576.84	389.00	81.40
476	.00	576.70	381.00	84.80
478	63.30	576.40	332.00	105.91
482	41.10	577.26	389.00	81.58
486	30.90	561.00	459.00	44.20
490	25.20	562.90	450.00	48.92
494	19.20	563.97	431.00	57.62
498	27.90	564.81	424.00	61.02
502	13.20	565.24	399.00	72.04
506	35.70	565.84	425.00	61.03
510	28.80	561.01	456.00	45.51
514	36.60	561.88	415.00	63.65
518	27.00	562.36	409.00	66.45
522	19.20	562.96	407.00	67.58
526	19.80	564.79	399.00	71.84
530	22.50	567.19	397.00	73.75
534	.00	568.36	399.00	73.39
538	.00	568.48	415.00	66.51
542	.00	568.70	393.00	76.14
546	17.40	568.75	386.00	79.19
550	18.00	568.86	381.00	81.41
554	13.20	568.99	382.00	81.03
558	.00	570.30	422.00	64.26

562	.00	570.71	435.00	58.81
566	18.00	568.57	392.00	76.51
570	19.20	568.95	383.00	80.58
574	16.50	569.21	384.00	80.26
578	17.10	569.38	386.00	79.46
582	17.10	569.58	387.00	79.12
586	14.10	569.49	408.00	69.98
590	.00	569.49	375.00	84.28
594	49.50	569.94	417.00	66.27
598	28.50	570.56	428.00	61.78
602	10.20	570.41	420.00	65.18
604	30.90	570.35	402.00	72.95
900	.00	550.99	345.00	89.26
932	.00	550.80	455.00	41.51
936	.00	550.72	424.00	54.91
952	.00	550.64	416.00	58.35
	MAXIMUM PRESSURES			
438	.00	596.46	315.00	121.97
478	63.30	576.40	332.00	105.91
48	18.90	551.11	318.00	101.02
454	74.70	580.28	348.00	100.65
68	23.40	551.68	320.00	100.40
52	2.10	551.12	321.00	99.72
46	.00	551.11	321.00	99.71
80	20.70	551.44	323.00	98.99
434	44.70	589.60	363.00	98.19
92	19.20	551.36	327.00	97.22
	MINIMUM PRESSURES			
192	16.80	552.39	477.00	32.67
28	18.30	552.64	476.00	33.21
196	13.50	552.66	475.00	33.65
216	18.60	552.41	471.00	35.28
4	10.20	552.35	468.00	36.55
236	12.30	551.73	463.00	38.45
188	16.20	552.25	461.00	39.54
414	16.50	559.55	464.00	41.40
932	.00	550.80	455.00	41.51
132	19.50	551.96	456.00	41.58

THE NET SYSTEM DEMAND = 4233.00

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	374.62
6	1180.35
10	551.90
12	2126.15

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 4233.01
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
122	1186.50

THE RESULTS ARE OBTAINED AFTER 4 TRIALS WITH AN ACCURACY = .00079

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Avg Day Demand plus 1186.5 gpm at Test Hydrant Node 122

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	121.78	.63	.00	.00	3.11	12.55
5	4	8	1006.57	.20	.00	.00	2.10	1.21
6	0	438	1147.45	16.64	.00	.00	13.02	110.96
9	8	12	144.43	.15	.00	.00	.59	.20
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1328.26	.64	.00	.00	3.77	4.29
13	12	16	315.67	.35	.00	.00	1.29	.84
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	294.57	.47	.00	.00	1.20	.74
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	8.70	.00	.00	.00	.06	.00
45	48	52	-15.00	.00	.00	.00	-.06	.00
49	52	900	150.39	.05	.00	.00	.43	.08
53	114	952	-150.39	-.11	.00	.00	-.43	-.08
57	116	114	127.01	.04	.00	.00	.36	.06
61	116	72	-83.66	-.33	.00	.00	-.53	-.21
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	96.36	.09	.00	.00	.61	.28
71	68	60	174.59	.11	.00	.00	.71	.28
75	60	52	166.09	.07	.00	.00	.68	.26
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	403.96	.53	.00	.00	1.15	.47
87	80	68	-125.21	-.14	.00	.00	-.80	-.45
91	80	84	37.44	.04	.00	.00	.24	.05
95	88	84	-29.74	-.01	.00	.00	-.19	-.03
99	92	88	-21.94	-.02	.00	.00	-.14	-.02
103	92	80	-80.87	-.06	.00	.00	-.52	-.20
107	96	92	-96.41	-.08	.00	.00	-.62	-.28
111	96	100	29.50	.03	.00	.00	.19	.03
115	104	100	-21.10	-.01	.00	.00	-.13	-.02
119	108	104	-13.40	-.01	.00	.00	-.09	-.01
123	108	96	-61.11	-.04	.00	.00	-.39	-.12
127	112	108	-63.31	-.10	.00	.00	-.40	-.13

131	112	116	50.35	.00	.00	.00	.14	.01
135	120	112	-6.86	.00	.00	.00	-.02	.00
137	10	122	853.45	.60	.00	.00	2.42	1.89
139	8	10	853.45	1.42	.00	.00	2.42	1.89
141	122	120	-333.05	-.11	.00	.00	-.94	-.33
143	120	124	-334.90	-.89	.00	.00	-2.14	-2.79
147	124	128	-339.70	-.95	.00	.00	-2.17	-2.87
151	132	128	182.66	.31	.00	.00	1.17	.91
155	192	132	124.50	.32	.00	.00	.79	.45
159	4	192	-1009.97	-.35	.00	.00	-2.10	-1.22
163	192	188	-129.69	-.21	.00	.00	-.83	-.48
167	188	136	95.09	.35	.00	.00	1.08	1.10
171	136	132	64.66	.18	.00	.00	.73	.54
175	136	140	22.93	.04	.00	.00	.26	.08
179	144	140	-179.63	-.24	.00	.00	-1.15	-.88
183	128	144	-160.83	-.20	.00	.00	-1.03	-.72
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-162.41	-.30	.00	.00	-1.04	-.73
199	156	160	-58.85	-.07	.00	.00	-.38	-.11
203	160	164	-66.55	-.04	.00	.00	-.42	-.14
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	-13.24	.00	.00	.00	-.08	-.01
219	180	176	-13.24	.00	.00	.00	-.08	-.01
223	180	156	110.76	.10	.00	.00	.71	.36
227	180	204	-120.33	-.10	.00	.00	-.77	-.42
231	184	180	-16.91	-.01	.00	.00	-.11	-.01
235	188	184	-9.41	.00	.00	.00	-.06	.00
239	188	200	-220.77	-.46	.00	.00	-1.41	-1.29
243	196	200	107.34	.13	.00	.00	.69	.34
247	192	196	-1010.39	-.80	.00	.00	-2.11	-1.22
251	196	208	-1122.23	-.43	.00	.00	-2.34	-1.48
253	208	212	200.25	.37	.00	.00	1.28	1.08
257	212	12	185.45	1.56	.00	.00	1.18	.93
261	208	216	168.32	.43	.00	.00	1.07	.78
265	200	216	-119.33	-.13	.00	.00	-.76	-.41
269	216	204	130.83	.49	.00	.00	.84	.49
273	208	260	-1496.99	-1.46	.00	.00	-3.12	-2.53
277	260	268	-196.23	-1.31	.00	.00	-1.25	-1.04
281	260	264	-1339.24	-.61	.00	.00	-2.79	-2.06
285	264	268	-1342.94	-.70	.00	.00	-2.80	-2.07
289	268	276	-1549.27	-1.96	.00	.00	-3.23	-2.69
293	276	272	318.74	.67	.00	.00	2.03	2.55
297	256	272	-305.84	-2.60	.00	.00	-1.95	-2.36
301	260	256	26.28	.00	.00	.00	.11	.01
305	256	252	319.72	.31	.00	.00	1.31	.86
309	252	248	309.12	.24	.00	.00	1.26	.81
313	248	244	301.82	.23	.00	.00	1.23	.78
317	244	240	296.72	.29	.00	.00	1.21	.75
321	240	228	290.92	.56	.00	.00	1.86	2.15
325	228	232	176.28	.60	.00	.00	1.13	.85
329	232	306	103.85	.08	.00	.00	.66	.32
333	236	164	102.78	.10	.00	.00	.66	.31

337	224	228	-105.04	-.06	.00	.00	-.67	-.33
341	220	224	-94.94	-.10	.00	.00	-.61	-.27
345	216	220	-88.04	-.11	.00	.00	-.56	-.24
349	236	282	-26.30	-.01	.00	.00	-.17	-.03
353	282	286	-33.20	-.01	.00	.00	-.21	-.04
357	286	290	-39.00	-.04	.00	.00	-.25	-.05
361	290	294	-44.14	-.01	.00	.00	-.28	-.07
365	294	232	-68.64	-.08	.00	.00	-.28	-.05
369	290	298	-3.76	.00	.00	.00	-.02	.00
373	298	302	-10.76	.00	.00	.00	-.07	.00
377	302	306	-18.06	-.01	.00	.00	-.12	-.01
381	306	236	80.58	.07	.00	.00	.51	.20
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.60	.00	.00	.00	.03	.00
417	330	334	2.30	.00	.00	.00	.01	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.69	.00	.00	.00	.06	.00
435	342	346	4.21	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00
507	276	414	-1995.52	-4.45	.00	.00	-4.16	-4.30
511	414	416	-763.79	-8.72	.00	.00	-1.59	-.73
513	416	418	-1418.08	-1.06	.00	.00	-2.96	-2.29
515	418	422	-1504.70	-1.87	.00	.00	-3.14	-2.55
519	422	426	-2208.42	-2.81	.00	.00	-4.60	-5.19
523	426	428	-1877.26	-3.21	.00	.00	-3.91	-3.84
525	428	430	-1618.16	-3.68	.00	.00	-3.37	-2.92
527	430	434	-2143.01	-2.69	.00	.00	-4.47	-4.91
531	434	438	-2475.72	-4.02	.00	.00	-5.16	-6.42
535	434	442	317.80	3.43	.00	.00	2.03	2.54
539	442	446	297.70	1.04	.00	.00	1.90	2.25

543	430	446	481.26	1.78	.00	.00	1.97	1.84
547	446	450	413.80	.61	.00	.00	1.69	1.39
551	450	428	303.50	1.28	.00	.00	1.24	.79
555	446	454	355.96	.91	.00	.00	1.45	1.06
559	450	454	83.30	.30	.00	.00	.53	.21
563	454	458	414.36	1.53	.00	.00	1.69	1.40
567	458	462	411.56	.21	.00	.00	1.17	.49
571	462	466	316.38	.17	.00	.00	.90	.30
573	466	468	317.79	.08	.00	.00	.90	.30
575	468	470	317.79	.09	.00	.00	.90	.30
579	470	474	372.56	.16	.00	.00	1.06	.41
581	474	476	361.66	.13	.00	.00	1.03	.39
583	476	478	361.66	.28	.00	.00	1.03	.39
587	478	426	340.56	1.53	.00	.00	1.39	.97
591	470	482	-67.07	-.18	.00	.00	-.43	-.14
595	466	482	-9.01	.00	.00	.00	-.06	.00
599	462	482	89.78	.16	.00	.00	.57	.24
603	414	486	-595.89	-1.70	.00	.00	-3.80	-8.12
607	486	490	-606.19	-2.07	.00	.00	-3.87	-8.38
611	490	494	-288.94	-1.17	.00	.00	-1.84	-2.13
615	494	498	-295.34	-.84	.00	.00	-1.88	-2.21
619	498	502	-131.68	-.40	.00	.00	-.84	-.50
623	502	506	-136.08	-.50	.00	.00	-.87	-.53
627	506	498	172.96	.90	.00	.00	1.10	.82
629	506	416	-646.59	-2.04	.00	.00	-4.13	-9.45
631	506	490	325.64	2.91	.00	.00	2.08	2.65
635	414	510	-641.34	-1.80	.00	.00	-4.09	-9.31
639	510	514	-273.10	-1.15	.00	.00	-1.74	-1.91
643	514	518	-285.30	-.53	.00	.00	-1.82	-2.08
647	518	522	-294.30	-.60	.00	.00	-1.88	-2.20
651	522	526	-300.70	-1.66	.00	.00	-1.92	-2.29
655	526	510	377.84	3.94	.00	.00	2.41	3.49
659	526	530	-685.14	-2.27	.00	.00	-4.37	-10.52
663	530	418	-373.10	-1.77	.00	.00	-2.38	-3.41
667	530	534	-319.53	-1.23	.00	.00	-2.04	-2.56
671	534	538	-100.58	-.13	.00	.00	-.64	-.30
675	538	542	-100.58	-.23	.00	.00	-.64	-.30
679	542	546	-100.58	-.06	.00	.00	-.64	-.30
683	546	550	-106.38	-.10	.00	.00	-.68	-.33
687	550	554	-112.38	-.09	.00	.00	-.72	-.37
691	554	558	-179.67	-.93	.00	.00	-1.15	-.88
695	558	562	-179.67	-.29	.00	.00	-1.15	-.88
699	562	422	-365.03	-.58	.00	.00	-2.33	-3.28
703	534	566	-218.96	-.22	.00	.00	-1.40	-1.27
707	566	570	-224.96	-.36	.00	.00	-1.44	-1.34
711	570	554	-62.89	-.03	.00	.00	-.40	-.13
715	570	574	-168.47	-.23	.00	.00	-1.08	-.78
719	574	578	-173.97	-.13	.00	.00	-1.11	-.83
723	578	582	-179.67	-.15	.00	.00	-1.15	-.88
727	582	562	-185.37	-.74	.00	.00	-1.18	-.93
731	418	586	-289.88	-.16	.00	.00	-1.18	-.72
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-294.58	-.48	.00	.00	-1.88	-2.20
743	594	598	-225.88	-.53	.00	.00	-1.44	-1.35

747	598	422	-334.28	-.71	.00	.00	-2.13	-2.78
751	598	602	98.91	.09	.00	.00	.63	.29
755	602	604	53.03	.04	.00	.00	.34	.09
759	602	604	42.47	.04	.00	.00	.27	.06
763	594	604	-85.21	-.40	.00	.00	-.54	-.22
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	150.39	.07	.00	.00	.43	.08
951	58	56	-150.39	-.02	.00	.00	-.43	-.08
953	936	58	-150.39	-.01	.00	.00	-.43	-.08
977	952	936	-150.39	-.03	.00	.00	-.43	-.08

JUNCTION	NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4		3.40	558.54	468.00	39.24
8		8.70	558.34	456.00	44.35
10		.00	556.92	402.00	67.13
12		14.20	558.19	431.00	55.12
16		5.10	557.84	420.00	59.73
20		3.80	557.84	444.00	49.33
24		6.10	557.84	454.00	45.00
28		6.10	557.84	476.00	35.46
32		6.30	557.37	403.00	66.89
36		6.10	557.37	427.00	56.49
44		8.70	556.67	376.00	78.29
46		.00	556.67	321.00	102.12
48		6.30	556.67	318.00	103.42
52		.70	556.67	321.00	102.12
56		.00	556.55	433.00	53.54
58		.00	556.53	420.00	59.16
60		4.40	556.74	327.00	99.55
64		4.10	556.74	351.00	89.15
68		7.80	556.85	320.00	102.63
72		12.70	556.76	359.00	85.70
76		.00	556.76	348.00	90.46
80		6.90	556.71	323.00	101.28
84		7.70	556.67	386.00	73.96
88		7.80	556.66	372.00	80.02
92		6.40	556.65	327.00	99.51
96		5.80	556.57	347.00	90.81
100		8.40	556.54	415.00	61.33
104		7.70	556.53	417.00	60.46
108		11.20	556.53	355.00	87.33
112		6.10	556.43	375.00	78.62
114		38.40	556.38	391.00	71.67
116		7.00	556.43	379.00	76.89
120		8.70	556.43	377.00	77.75
122		1186.50	556.32	385.00	74.24
124		4.80	557.32	401.00	67.74
128		3.80	558.26	422.00	59.05
132		6.50	558.57	456.00	44.45
136		7.50	558.74	446.00	48.86
140		5.70	558.71	446.00	48.84
144		5.10	558.46	429.00	56.10
148		5.40	558.45	415.00	62.16

152	8.30	558.45	390.00	73.00
156	7.20	559.00	423.00	58.93
160	7.70	559.07	393.00	71.96
164	4.00	559.11	426.00	57.68
168	6.90	559.11	396.00	70.68
172	12.10	559.11	380.00	77.61
176	.00	559.11	454.00	45.55
180	5.90	559.11	445.00	49.45
184	7.50	559.10	446.00	49.01
188	5.40	559.10	461.00	42.51
192	5.60	558.89	477.00	35.49
196	4.50	559.69	475.00	36.70
200	5.90	559.56	454.00	45.74
204	10.50	559.21	423.00	59.02
208	6.20	560.12	455.00	45.55
212	14.80	559.75	415.00	62.73
216	6.20	559.69	471.00	38.43
220	6.90	559.80	445.00	49.75
224	10.10	559.90	439.00	52.39
228	9.60	559.96	409.00	65.42
232	3.80	559.36	397.00	70.36
236	4.10	559.21	463.00	41.69
240	5.80	560.52	353.00	89.92
244	5.10	560.81	366.00	84.42
248	7.30	561.04	369.00	83.22
252	10.60	561.28	387.00	75.52
256	12.40	561.58	404.00	68.29
260	12.20	561.59	427.00	58.32
264	3.70	562.20	443.00	51.65
268	10.10	562.89	453.00	47.62
272	12.90	564.18	455.00	47.31
276	11.20	564.85	457.00	46.73
282	6.90	559.22	394.00	71.60
286	5.80	559.23	380.00	77.67
290	8.90	559.27	387.00	74.65
294	24.50	559.28	389.00	73.79
298	7.00	559.27	396.00	70.75
302	7.30	559.27	410.00	64.69
306	5.20	559.28	411.00	64.26
310	12.80	555.46	358.00	85.56
314	7.50	555.37	340.00	93.33
318	5.50	555.35	344.00	91.59
322	9.90	555.34	354.00	87.25
326	13.90	555.34	359.00	85.08
330	9.80	555.35	348.00	89.85
334	9.90	555.35	346.00	90.72
338	16.20	555.04	352.00	87.99
342	9.80	555.04	358.00	85.38
346	17.90	555.04	382.00	74.98
350	14.50	555.00	344.00	91.43
354	96.10	554.89	323.00	100.49
358	15.20	554.99	372.00	79.30
362	.00	559.75	364.00	84.83
366	7.30	564.81	437.00	55.38

370	10.90	564.79	406.00	68.81
374	3.50	564.79	372.00	83.54
378	6.40	564.79	377.00	81.38
382	13.30	564.78	436.00	55.80
386	15.50	564.74	380.00	80.06
390	21.90	564.74	367.00	85.69
394	3.50	564.73	350.00	93.05
398	1.20	564.73	351.00	92.62
402	19.60	564.71	379.00	80.47
406	6.30	564.71	365.00	86.54
410	6.90	564.71	357.00	90.01
414	5.50	569.30	464.00	45.63
416	7.70	578.02	434.00	62.41
418	3.40	579.08	421.00	68.50
422	4.40	580.95	442.00	60.21
426	9.40	583.76	410.00	75.30
428	44.40	586.97	410.00	76.69
430	43.60	590.65	397.00	83.91
434	14.90	593.34	363.00	99.81
438	.00	597.36	315.00	122.35
442	20.10	589.91	375.00	93.13
446	9.20	588.87	367.00	96.14
450	27.00	588.25	383.00	88.94
454	24.90	587.95	348.00	103.98
458	2.80	586.42	366.00	95.51
462	5.40	586.21	373.00	92.39
466	7.60	586.05	382.00	88.42
468	.00	585.96	385.00	87.08
470	12.30	585.87	387.00	86.18
474	10.90	585.71	389.00	85.24
476	.00	585.57	381.00	88.65
478	21.10	585.30	332.00	109.76
482	13.70	586.05	389.00	85.39
486	10.30	571.00	459.00	48.53
490	8.40	573.07	450.00	53.33
494	6.40	574.24	431.00	62.07
498	9.30	575.08	424.00	65.47
502	4.40	575.48	399.00	76.47
506	11.90	575.98	425.00	65.42
510	9.60	571.10	456.00	49.88
514	12.20	572.25	415.00	68.14
518	9.00	572.78	409.00	70.97
522	6.40	573.38	407.00	72.10
526	6.60	575.04	399.00	76.28
530	7.50	577.31	397.00	78.14
534	.00	578.54	399.00	77.80
538	.00	578.67	415.00	70.92
542	.00	578.90	393.00	80.56
546	5.80	578.96	386.00	83.62
550	6.00	579.06	381.00	85.82
554	4.40	579.15	382.00	85.43
558	.00	580.08	422.00	68.50
562	.00	580.37	435.00	62.99
566	6.00	578.76	392.00	80.93

570	6.40	579.12	383.00	84.98
574	5.50	579.35	384.00	84.65
578	5.70	579.48	386.00	83.84
582	5.70	579.63	387.00	83.47
586	4.70	579.24	408.00	74.20
590	.00	579.24	375.00	88.50
594	16.50	579.71	417.00	70.51
598	9.50	580.24	428.00	65.97
602	3.40	580.15	420.00	69.40
604	10.30	580.11	402.00	77.18
900	.00	556.62	345.00	91.70
932	.00	556.55	455.00	44.00
936	.00	556.52	424.00	57.42
952	.00	556.49	416.00	60.88
	MAXIMUM PRESSURES			
438	.00	597.36	315.00	122.35
478	21.10	585.30	332.00	109.76
454	24.90	587.95	348.00	103.98
48	6.30	556.67	318.00	103.42
68	7.80	556.85	320.00	102.63
52	.70	556.67	321.00	102.12
46	.00	556.67	321.00	102.12
80	6.90	556.71	323.00	101.28
354	96.10	554.89	323.00	100.49
434	14.90	593.34	363.00	99.81
	MINIMUM PRESSURES			
28	6.10	557.84	476.00	35.46
192	5.60	558.89	477.00	35.49
196	4.50	559.69	475.00	36.70
216	6.20	559.69	471.00	38.43
4	3.40	558.54	468.00	39.24
236	4.10	559.21	463.00	41.69
188	5.40	559.10	461.00	42.51
932	.00	556.55	455.00	44.00
8	8.70	558.34	456.00	44.35
132	6.50	558.57	456.00	44.45

THE NET SYSTEM DEMAND = 2597.50

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	121.78
6	1147.45
12	1328.26

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2597.50
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
46	1162.50

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00033

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Avg Day Demand plus 1162.5 gpm at Test Hydrant Node 46

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	133.68	.75	.00	.00	3.41	14.91
5	4	8	974.01	.19	.00	.00	2.03	1.14
6	0	438	1146.31	16.61	.00	.00	13.01	110.75
9	8	12	292.52	.56	.00	.00	1.19	.73
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1293.51	.61	.00	.00	3.67	4.08
13	12	16	478.86	.75	.00	.00	1.96	1.83
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	457.76	1.06	.00	.00	1.87	1.68
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	1171.20	4.26	.00	.00	7.48	28.39
45	48	52	-1177.50	-1.92	.00	.00	-4.81	-9.67
49	52	900	-438.84	-.35	.00	.00	-1.24	-.55
53	114	952	438.84	.78	.00	.00	1.24	.55
57	116	114	716.24	1.07	.00	.00	2.03	1.37
61	116	72	88.89	.37	.00	.00	.57	.24
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	-76.19	-.06	.00	.00	-.49	-.18
71	68	60	747.86	1.65	.00	.00	3.05	4.17
75	60	52	739.36	1.06	.00	.00	3.02	4.09
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	579.04	1.02	.00	.00	1.64	.92
87	80	68	100.43	.09	.00	.00	.64	.30
91	80	84	-22.98	-.02	.00	.00	-.15	-.02
95	88	84	30.68	.01	.00	.00	.20	.03
99	92	88	38.48	.04	.00	.00	.25	.05
103	92	80	84.36	.07	.00	.00	.54	.22
107	96	92	129.23	.14	.00	.00	.82	.48
111	96	100	-30.24	-.03	.00	.00	-.19	-.03
115	104	100	38.64	.02	.00	.00	.25	.05
119	108	104	46.34	.06	.00	.00	.30	.07
123	108	96	104.79	.10	.00	.00	.67	.32
127	112	108	162.33	.55	.00	.00	1.04	.73

131	112	116	812.13	.53	.00	.00	2.30	1.72
135	120	112	980.56	.74	.00	.00	2.78	2.45
137	10	122	672.78	.38	.00	.00	1.91	1.22
139	8	10	672.78	.92	.00	.00	1.91	1.22
141	122	120	672.78	.40	.00	.00	1.91	1.22
143	120	124	-316.48	-.80	.00	.00	-2.02	-2.52
147	124	128	-321.28	-.85	.00	.00	-2.05	-2.59
151	132	128	172.99	.28	.00	.00	1.10	.82
155	192	132	117.93	.29	.00	.00	.75	.40
159	4	192	-977.41	-.33	.00	.00	-2.04	-1.15
163	192	188	-125.17	-.20	.00	.00	-.80	-.45
167	188	136	90.85	.33	.00	.00	1.03	1.01
171	136	132	61.56	.16	.00	.00	.70	.49
175	136	140	21.79	.04	.00	.00	.25	.07
179	144	140	-170.89	-.22	.00	.00	-1.09	-.80
183	128	144	-152.09	-.18	.00	.00	-.97	-.65
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-154.80	-.27	.00	.00	-.99	-.67
199	156	160	-55.97	-.06	.00	.00	-.36	-.10
203	160	164	-63.67	-.04	.00	.00	-.41	-.13
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	-11.51	.00	.00	.00	-.07	-.01
219	180	176	-11.51	.00	.00	.00	-.07	-.01
223	180	156	106.03	.10	.00	.00	.68	.33
227	180	204	-116.08	-.10	.00	.00	-.74	-.39
231	184	180	-15.67	-.01	.00	.00	-.10	-.01
235	188	184	-8.17	.00	.00	.00	-.05	.00
239	188	200	-213.26	-.43	.00	.00	-1.36	-1.21
243	196	200	103.67	.12	.00	.00	.66	.32
247	192	196	-975.76	-.75	.00	.00	-2.03	-1.14
251	196	208	-1083.93	-.41	.00	.00	-2.26	-1.39
253	208	212	215.34	.42	.00	.00	1.37	1.23
257	212	12	200.54	1.81	.00	.00	1.28	1.08
261	208	216	162.47	.40	.00	.00	1.04	.73
265	200	216	-115.49	-.13	.00	.00	-.74	-.39
269	216	204	126.58	.46	.00	.00	.81	.46
273	208	260	-1467.94	-1.41	.00	.00	-3.06	-2.44
277	260	268	-192.42	-1.26	.00	.00	-1.23	-1.00
281	260	264	-1313.14	-.59	.00	.00	-2.74	-1.98
285	264	268	-1316.84	-.67	.00	.00	-2.74	-1.99
289	268	276	-1519.35	-1.89	.00	.00	-3.17	-2.60
293	276	272	312.77	.64	.00	.00	2.00	2.46
297	256	272	-299.87	-2.50	.00	.00	-1.91	-2.28
301	260	256	25.41	.00	.00	.00	.10	.01
305	256	252	312.88	.29	.00	.00	1.28	.83
309	252	248	302.28	.23	.00	.00	1.23	.78
313	248	244	294.98	.22	.00	.00	1.20	.75
317	244	240	289.88	.28	.00	.00	1.18	.72
321	240	228	284.08	.53	.00	.00	1.81	2.06
325	228	232	171.68	.57	.00	.00	1.10	.81
329	232	306	100.86	.08	.00	.00	.64	.30
333	236	164	98.18	.09	.00	.00	.63	.29

337	224	228	-102.80	-.06	.00	.00	-.66	-.31
341	220	224	-92.70	-.09	.00	.00	-.59	-.26
345	216	220	-85.80	-.10	.00	.00	-.55	-.22
349	236	282	-24.73	-.01	.00	.00	-.16	-.02
353	282	286	-31.63	-.01	.00	.00	-.20	-.04
357	286	290	-37.43	-.03	.00	.00	-.24	-.05
361	290	294	-42.52	-.01	.00	.00	-.27	-.06
365	294	232	-67.02	-.08	.00	.00	-.27	-.05
369	290	298	-3.81	.00	.00	.00	-.02	.00
373	298	302	-10.81	.00	.00	.00	-.07	.00
377	302	306	-18.11	-.01	.00	.00	-.12	-.01
381	306	236	77.55	.06	.00	.00	.49	.19
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.60	.00	.00	.00	.03	.00
417	330	334	2.30	.00	.00	.00	.01	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.69	.00	.00	.00	.06	.00
435	342	346	4.21	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00
507	276	414	-1959.62	-4.31	.00	.00	-4.08	-4.16
511	414	416	-750.45	-8.44	.00	.00	-1.56	-.70
513	416	418	-1393.93	-1.03	.00	.00	-2.91	-2.21
515	418	422	-1479.65	-1.82	.00	.00	-3.08	-2.47
519	422	426	-2172.52	-2.72	.00	.00	-4.53	-5.04
523	426	428	-1847.52	-3.12	.00	.00	-3.85	-3.73
525	428	430	-1593.55	-3.57	.00	.00	-3.32	-2.84
527	430	434	-2111.63	-2.62	.00	.00	-4.40	-4.78
531	434	438	-2439.82	-3.91	.00	.00	-5.08	-6.24
535	434	442	313.29	3.34	.00	.00	2.00	2.47
539	442	446	293.19	1.01	.00	.00	1.87	2.18

543	430	446	474.48	1.74	.00	.00	1.94	1.80
547	446	450	407.60	.60	.00	.00	1.66	1.36
551	450	428	298.37	1.24	.00	.00	1.22	.76
555	446	454	350.88	.89	.00	.00	1.43	1.03
559	450	454	82.23	.29	.00	.00	.52	.21
563	454	458	408.20	1.49	.00	.00	1.67	1.36
567	458	462	405.40	.20	.00	.00	1.15	.48
571	462	466	311.57	.16	.00	.00	.88	.29
573	466	468	312.71	.08	.00	.00	.89	.29
575	468	470	312.71	.09	.00	.00	.89	.29
579	470	474	366.40	.16	.00	.00	1.04	.39
581	474	476	355.50	.13	.00	.00	1.01	.37
583	476	478	355.50	.27	.00	.00	1.01	.37
587	478	426	334.40	1.48	.00	.00	1.37	.94
591	470	482	-66.00	-.17	.00	.00	-.42	-.14
595	466	482	-8.73	.00	.00	.00	-.06	.00
599	462	482	88.43	.16	.00	.00	.56	.24
603	414	486	-585.09	-1.64	.00	.00	-3.73	-7.85
607	486	490	-595.39	-2.00	.00	.00	-3.80	-8.11
611	490	494	-283.80	-1.13	.00	.00	-1.81	-2.06
615	494	498	-290.20	-.81	.00	.00	-1.85	-2.14
619	498	502	-129.43	-.39	.00	.00	-.83	-.48
623	502	506	-133.83	-.49	.00	.00	-.85	-.51
627	506	498	170.06	.88	.00	.00	1.09	.80
629	506	416	-635.79	-1.98	.00	.00	-4.06	-9.16
631	506	490	319.99	2.82	.00	.00	2.04	2.57
635	414	510	-629.59	-1.74	.00	.00	-4.02	-8.99
639	510	514	-268.01	-1.12	.00	.00	-1.71	-1.85
643	514	518	-280.21	-.51	.00	.00	-1.79	-2.01
647	518	522	-289.21	-.58	.00	.00	-1.85	-2.13
651	522	526	-295.61	-1.61	.00	.00	-1.89	-2.22
655	526	510	371.18	3.82	.00	.00	2.37	3.38
659	526	530	-673.39	-2.20	.00	.00	-4.30	-10.19
663	530	418	-366.98	-1.71	.00	.00	-2.34	-3.31
667	530	534	-313.91	-1.19	.00	.00	-2.00	-2.48
671	534	538	-98.80	-.13	.00	.00	-.63	-.29
675	538	542	-98.80	-.22	.00	.00	-.63	-.29
679	542	546	-98.80	-.06	.00	.00	-.63	-.29
683	546	550	-104.60	-.09	.00	.00	-.67	-.32
687	550	554	-110.60	-.09	.00	.00	-.71	-.36
691	554	558	-176.86	-.90	.00	.00	-1.13	-.86
695	558	562	-176.86	-.28	.00	.00	-1.13	-.86
699	562	422	-359.41	-.57	.00	.00	-2.29	-3.18
703	534	566	-215.11	-.21	.00	.00	-1.37	-1.23
707	566	570	-221.11	-.35	.00	.00	-1.41	-1.30
711	570	554	-61.86	-.03	.00	.00	-.39	-.12
715	570	574	-165.65	-.22	.00	.00	-1.06	-.76
719	574	578	-171.15	-.12	.00	.00	-1.09	-.81
723	578	582	-176.85	-.15	.00	.00	-1.13	-.86
727	582	562	-182.55	-.72	.00	.00	-1.17	-.91
731	418	586	-284.66	-.15	.00	.00	-1.16	-.70
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-289.36	-.46	.00	.00	-1.85	-2.13
743	594	598	-222.12	-.51	.00	.00	-1.42	-1.31

747	598	422	-329.06	-.69	.00	.00	-2.10	-2.70
751	598	602	97.44	.09	.00	.00	.62	.28
755	602	604	52.22	.04	.00	.00	.33	.09
759	602	604	41.82	.04	.00	.00	.27	.06
763	594	604	-83.74	-.39	.00	.00	-.53	-.21
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	-438.84	-.52	.00	.00	-1.24	-.55
951	58	56	438.84	.14	.00	.00	1.24	.55
953	936	58	438.84	.09	.00	.00	1.24	.55
977	952	936	438.84	.19	.00	.00	1.24	.55

JUNCTION	NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4		3.40	559.82	468.00	39.79
8		8.70	559.63	456.00	44.91
10		.00	558.71	402.00	67.91
12		14.20	559.07	431.00	55.50
16		5.10	558.32	420.00	59.94
20		3.80	558.31	444.00	49.54
24		6.10	558.31	454.00	45.20
28		6.10	558.31	476.00	35.67
32		6.30	557.25	403.00	66.84
36		6.10	557.25	427.00	56.44
44		8.70	547.34	376.00	74.25
46		1162.50	547.34	321.00	98.08
48		6.30	551.60	318.00	101.23
52		.70	553.52	321.00	100.76
56		.00	554.40	433.00	52.61
58		.00	554.53	420.00	58.30
60		4.40	554.58	327.00	98.62
64		4.10	554.58	351.00	88.22
68		7.80	556.23	320.00	102.37
72		12.70	556.29	359.00	85.49
76		.00	556.29	348.00	90.26
80		6.90	556.32	323.00	101.11
84		7.70	556.34	386.00	73.81
88		7.80	556.35	372.00	79.88
92		6.40	556.39	327.00	99.40
96		5.80	556.53	347.00	90.80
100		8.40	556.56	415.00	61.34
104		7.70	556.58	417.00	60.48
108		11.20	556.64	355.00	87.38
112		6.10	557.19	375.00	78.95
114		38.40	555.59	391.00	71.32
116		7.00	556.66	379.00	76.99
120		8.70	557.93	377.00	78.40
122		.00	558.33	385.00	75.11
124		4.80	558.72	401.00	68.35
128		3.80	559.58	422.00	59.62
132		6.50	559.85	456.00	45.00
136		7.50	560.01	446.00	49.41
140		5.70	559.98	446.00	49.39
144		5.10	559.76	429.00	56.66
148		5.40	559.75	415.00	62.72

152	8.30	559.74	390.00	73.56
156	7.20	560.25	423.00	59.48
160	7.70	560.31	393.00	72.50
164	4.00	560.35	426.00	58.22
168	6.90	560.35	396.00	71.22
172	12.10	560.35	380.00	78.15
176	.00	560.35	454.00	46.08
180	5.90	560.35	445.00	49.98
184	7.50	560.34	446.00	49.55
188	5.40	560.34	461.00	43.05
192	5.60	560.14	477.00	36.03
196	4.50	560.89	475.00	37.22
200	5.90	560.77	454.00	46.27
204	10.50	560.44	423.00	59.56
208	6.20	561.30	455.00	46.06
212	14.80	560.88	415.00	63.21
216	6.20	560.90	471.00	38.96
220	6.90	561.00	445.00	50.27
224	10.10	561.09	439.00	52.91
228	9.60	561.15	409.00	65.93
232	3.80	560.59	397.00	70.89
236	4.10	560.44	463.00	42.23
240	5.80	561.69	353.00	90.43
244	5.10	561.97	366.00	84.92
248	7.30	562.18	369.00	83.71
252	10.60	562.42	387.00	76.01
256	12.40	562.71	404.00	68.77
260	12.20	562.71	427.00	58.81
264	3.70	563.30	443.00	52.13
268	10.10	563.97	453.00	48.09
272	12.90	565.21	455.00	47.76
276	11.20	565.86	457.00	47.17
282	6.90	560.45	394.00	72.13
286	5.80	560.46	380.00	78.20
290	8.90	560.50	387.00	75.18
294	24.50	560.51	389.00	74.32
298	7.00	560.50	396.00	71.28
302	7.30	560.50	410.00	65.22
306	5.20	560.51	411.00	64.79
310	12.80	554.67	358.00	85.22
314	7.50	554.58	340.00	92.99
318	5.50	554.56	344.00	91.24
322	9.90	554.55	354.00	86.91
326	13.90	554.55	359.00	84.74
330	9.80	554.56	348.00	89.51
334	9.90	554.56	346.00	90.37
338	16.20	554.25	352.00	87.64
342	9.80	554.25	358.00	85.04
346	17.90	554.25	382.00	74.64
350	14.50	554.20	344.00	91.09
354	96.10	554.10	323.00	100.14
358	15.20	554.20	372.00	78.95
362	.00	560.88	364.00	85.31
366	7.30	565.82	437.00	55.82

370	10.90	565.80	406.00	69.25
374	3.50	565.80	372.00	83.98
378	6.40	565.80	377.00	81.81
382	13.30	565.79	436.00	56.24
386	15.50	565.75	380.00	80.49
390	21.90	565.74	367.00	86.12
394	3.50	565.74	350.00	93.49
398	1.20	565.74	351.00	93.05
402	19.60	565.72	379.00	80.91
406	6.30	565.72	365.00	86.98
410	6.90	565.71	357.00	90.44
414	5.50	570.16	464.00	46.00
416	7.70	578.60	434.00	62.66
418	3.40	579.63	421.00	68.74
422	4.40	581.44	442.00	60.43
426	9.40	584.17	410.00	75.47
428	44.40	587.29	410.00	76.82
430	43.60	590.86	397.00	84.01
434	14.90	593.48	363.00	99.87
438	.00	597.39	315.00	122.37
442	20.10	590.14	375.00	93.23
446	9.20	589.12	367.00	96.25
450	27.00	588.53	383.00	89.06
454	24.90	588.23	348.00	104.10
458	2.80	586.74	366.00	95.65
462	5.40	586.54	373.00	92.53
466	7.60	586.38	382.00	88.56
468	.00	586.30	385.00	87.23
470	12.30	586.21	387.00	86.32
474	10.90	586.05	389.00	85.39
476	.00	585.92	381.00	88.80
478	21.10	585.65	332.00	109.92
482	13.70	586.38	389.00	85.53
486	10.30	571.80	459.00	48.88
490	8.40	573.81	450.00	53.65
494	6.40	574.94	431.00	62.37
498	9.30	575.75	424.00	65.76
502	4.40	576.14	399.00	76.76
506	11.90	576.62	425.00	65.70
510	9.60	571.90	456.00	50.22
514	12.20	573.01	415.00	68.47
518	9.00	573.53	409.00	71.29
522	6.40	574.10	407.00	72.41
526	6.60	575.71	399.00	76.58
530	7.50	577.92	397.00	78.40
534	.00	579.10	399.00	78.04
538	.00	579.23	415.00	71.17
542	.00	579.45	393.00	80.80
546	5.80	579.51	386.00	83.85
550	6.00	579.60	381.00	86.06
554	4.40	579.69	382.00	85.67
558	.00	580.59	422.00	68.72
562	.00	580.88	435.00	63.21
566	6.00	579.31	392.00	81.17

570	6.40	579.66	383.00	85.22
574	5.50	579.88	384.00	84.88
578	5.70	580.01	386.00	84.07
582	5.70	580.16	387.00	83.70
586	4.70	579.78	408.00	74.44
590	.00	579.78	375.00	88.74
594	16.50	580.24	417.00	70.74
598	9.50	580.76	428.00	66.19
602	3.40	580.67	420.00	69.62
604	10.30	580.63	402.00	77.40
900	.00	553.87	345.00	90.51
932	.00	554.40	455.00	43.07
936	.00	554.62	424.00	56.60
952	.00	554.82	416.00	60.15
	MAXIMUM PRESSURES			
438	.00	597.39	315.00	122.37
478	21.10	585.65	332.00	109.92
454	24.90	588.23	348.00	104.10
68	7.80	556.23	320.00	102.37
48	6.30	551.60	318.00	101.23
80	6.90	556.32	323.00	101.11
52	.70	553.52	321.00	100.76
354	96.10	554.10	323.00	100.14
434	14.90	593.48	363.00	99.87
92	6.40	556.39	327.00	99.40
	MINIMUM PRESSURES			
28	6.10	558.31	476.00	35.67
192	5.60	560.14	477.00	36.03
196	4.50	560.89	475.00	37.22
216	6.20	560.90	471.00	38.96
4	3.40	559.82	468.00	39.79
236	4.10	560.44	463.00	42.23
188	5.40	560.34	461.00	43.05
932	.00	554.40	455.00	43.07
8	8.70	559.63	456.00	44.91
132	6.50	559.85	456.00	45.00

THE NET SYSTEM DEMAND = 2573.50

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	133.68
6	1146.31
12	1293.51

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2573.50
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
58	963.90

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00044

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Avg Day Demand plus 963.9 gpm at Test Hydrant Node 58

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
THE CHECK VALVE IN LINE NUMBER 4 IS CLOSED								
5	4	8	932.29	.18	.00	.00	1.94	1.05
6	0	438	1144.29	16.56	.00	.00	12.98	110.39
9	8	12	282.41	.52	.00	.00	1.15	.69
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1230.61	.56	.00	.00	3.49	3.72
13	12	16	460.83	.70	.00	.00	1.88	1.70
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	439.73	.99	.00	.00	1.80	1.56
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	8.70	.00	.00	.00	.06	.00
45	48	52	-15.00	.00	.00	.00	-.06	.00
49	52	900	475.62	.40	.00	.00	1.35	.64
53	114	952	488.28	.95	.00	.00	1.39	.67
57	116	114	765.68	1.21	.00	.00	2.17	1.55
61	116	72	28.32	.04	.00	.00	.18	.03
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	-15.62	.00	.00	.00	-.10	-.01
71	68	60	499.82	.78	.00	.00	2.04	1.98
75	60	52	491.32	.50	.00	.00	2.01	1.92
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	427.33	.58	.00	.00	1.21	.53
87	80	68	64.67	.04	.00	.00	.41	.13
91	80	84	-13.00	-.01	.00	.00	-.08	-.01
95	88	84	20.70	.00	.00	.00	.13	.02
99	92	88	28.50	.02	.00	.00	.18	.03
103	92	80	58.57	.03	.00	.00	.37	.11
107	96	92	93.47	.08	.00	.00	.60	.26
111	96	100	-20.43	-.01	.00	.00	-.13	-.02
115	104	100	28.83	.01	.00	.00	.18	.03
119	108	104	36.53	.04	.00	.00	.23	.05
123	108	96	78.84	.06	.00	.00	.50	.19
127	112	108	126.57	.35	.00	.00	.81	.46

131	112	116	801.00	.51	.00	.00	2.27	1.68
135	120	112	933.67	.67	.00	.00	2.65	2.23
137	10	122	641.18	.35	.00	.00	1.82	1.11
139	8	10	641.18	.84	.00	.00	1.82	1.11
141	122	120	641.18	.37	.00	.00	1.82	1.11
143	120	124	-301.19	-.73	.00	.00	-1.92	-2.30
147	124	128	-305.99	-.78	.00	.00	-1.95	-2.36
151	132	128	165.44	.25	.00	.00	1.06	.76
155	192	132	113.54	.27	.00	.00	.72	.38
159	4	192	-935.69	-.30	.00	.00	-1.95	-1.06
163	192	188	-118.01	-.18	.00	.00	-.75	-.40
167	188	136	87.02	.30	.00	.00	.99	.93
171	136	132	58.40	.15	.00	.00	.66	.45
175	136	140	21.12	.03	.00	.00	.24	.07
179	144	140	-163.14	-.20	.00	.00	-1.04	-.74
183	128	144	-144.34	-.16	.00	.00	-.92	-.59
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-147.72	-.25	.00	.00	-.94	-.61
199	156	160	-53.13	-.06	.00	.00	-.34	-.09
203	160	164	-60.83	-.03	.00	.00	-.39	-.12
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	-8.51	.00	.00	.00	-.05	.00
219	180	176	-8.51	.00	.00	.00	-.05	.00
223	180	156	101.79	.09	.00	.00	.65	.31
227	180	204	-111.59	-.09	.00	.00	-.71	-.37
231	184	180	-12.42	.00	.00	.00	-.08	-.01
235	188	184	-4.92	.00	.00	.00	-.03	.00
239	188	200	-205.51	-.40	.00	.00	-1.31	-1.13
243	196	200	101.06	.12	.00	.00	.64	.30
247	192	196	-936.82	-.69	.00	.00	-1.95	-1.06
251	196	208	-1042.38	-.38	.00	.00	-2.17	-1.29
253	208	212	207.43	.40	.00	.00	1.32	1.15
257	212	12	192.63	1.68	.00	.00	1.23	1.00
261	208	216	157.19	.38	.00	.00	1.00	.69
265	200	216	-110.36	-.12	.00	.00	-.70	-.36
269	216	204	122.09	.43	.00	.00	.78	.43
273	208	260	-1413.20	-1.32	.00	.00	-2.95	-2.27
277	260	268	-185.51	-1.18	.00	.00	-1.18	-.94
281	260	264	-1265.92	-.55	.00	.00	-2.64	-1.85
285	264	268	-1269.62	-.63	.00	.00	-2.65	-1.86
289	268	276	-1465.22	-1.76	.00	.00	-3.05	-2.43
293	276	272	301.98	.60	.00	.00	1.93	2.31
297	256	272	-289.08	-2.34	.00	.00	-1.84	-2.13
301	260	256	26.03	.00	.00	.00	.11	.01
305	256	252	302.71	.28	.00	.00	1.24	.78
309	252	248	292.11	.22	.00	.00	1.19	.73
313	248	244	284.81	.20	.00	.00	1.16	.70
317	244	240	279.71	.26	.00	.00	1.14	.68
321	240	228	273.91	.50	.00	.00	1.75	1.93
325	228	232	165.85	.53	.00	.00	1.06	.76
329	232	306	97.07	.07	.00	.00	.62	.28
333	236	164	92.35	.08	.00	.00	.59	.26

337	224	228	-98.46	-.06	.00	.00	-.63	-.29
341	220	224	-88.36	-.08	.00	.00	-.56	-.24
345	216	220	-81.46	-.09	.00	.00	-.52	-.20
349	236	282	-22.73	-.01	.00	.00	-.15	-.02
353	282	286	-29.63	-.01	.00	.00	-.19	-.03
357	286	290	-35.43	-.03	.00	.00	-.23	-.04
361	290	294	-40.48	-.01	.00	.00	-.26	-.06
365	294	232	-64.98	-.07	.00	.00	-.27	-.05
369	290	298	-3.86	.00	.00	.00	-.02	.00
373	298	302	-10.86	.00	.00	.00	-.07	.00
377	302	306	-18.16	-.01	.00	.00	-.12	-.01
381	306	236	73.71	.06	.00	.00	.47	.17
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.60	.00	.00	.00	.03	.00
417	330	334	2.30	.00	.00	.00	.01	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.69	.00	.00	.00	.06	.00
435	342	346	4.21	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00
507	276	414	-1894.70	-4.05	.00	.00	-3.95	-3.91
511	414	416	-726.32	-7.94	.00	.00	-1.51	-.66
513	416	418	-1350.27	-.97	.00	.00	-2.81	-2.09
515	418	422	-1434.36	-1.71	.00	.00	-2.99	-2.33
519	422	426	-2107.60	-2.58	.00	.00	-4.39	-4.76
523	426	428	-1793.73	-2.95	.00	.00	-3.74	-3.53
525	428	430	-1549.04	-3.39	.00	.00	-3.23	-2.69
527	430	434	-2054.87	-2.49	.00	.00	-4.28	-4.54
531	434	438	-2374.90	-3.72	.00	.00	-4.95	-5.94
535	434	442	305.13	3.18	.00	.00	1.95	2.35
539	442	446	285.03	.96	.00	.00	1.82	2.07

543	430	446	462.23	1.65	.00	.00	1.89	1.71
547	446	450	396.38	.57	.00	.00	1.62	1.29
551	450	428	289.09	1.17	.00	.00	1.18	.72
555	446	454	341.68	.85	.00	.00	1.40	.98
559	450	454	80.29	.28	.00	.00	.51	.20
563	454	458	397.07	1.42	.00	.00	1.62	1.29
567	458	462	394.27	.19	.00	.00	1.12	.45
571	462	466	302.89	.15	.00	.00	.86	.28
573	466	468	303.52	.08	.00	.00	.86	.28
575	468	470	303.52	.08	.00	.00	.86	.28
579	470	474	355.27	.15	.00	.00	1.01	.37
581	474	476	344.37	.12	.00	.00	.98	.35
583	476	478	344.37	.25	.00	.00	.98	.35
587	478	426	323.27	1.39	.00	.00	1.32	.88
591	470	482	-64.05	-.16	.00	.00	-.41	-.13
595	466	482	-8.23	.00	.00	.00	-.05	.00
599	462	482	85.98	.15	.00	.00	.55	.23
603	414	486	-565.55	-1.54	.00	.00	-3.61	-7.37
607	486	490	-575.85	-1.88	.00	.00	-3.68	-7.62
611	490	494	-274.49	-1.06	.00	.00	-1.75	-1.93
615	494	498	-280.89	-.76	.00	.00	-1.79	-2.02
619	498	502	-125.37	-.37	.00	.00	-.80	-.45
623	502	506	-129.77	-.46	.00	.00	-.83	-.48
627	506	498	164.82	.83	.00	.00	1.05	.75
629	506	416	-616.25	-1.87	.00	.00	-3.93	-8.64
631	506	490	309.76	2.65	.00	.00	1.98	2.42
635	414	510	-608.33	-1.63	.00	.00	-3.88	-8.44
639	510	514	-258.79	-1.05	.00	.00	-1.65	-1.73
643	514	518	-270.99	-.48	.00	.00	-1.73	-1.89
647	518	522	-279.99	-.54	.00	.00	-1.79	-2.01
651	522	526	-286.39	-1.52	.00	.00	-1.83	-2.09
655	526	510	359.14	3.59	.00	.00	2.29	3.18
659	526	530	-652.13	-2.07	.00	.00	-4.16	-9.60
663	530	418	-355.91	-1.62	.00	.00	-2.27	-3.13
667	530	534	-303.73	-1.12	.00	.00	-1.94	-2.33
671	534	538	-95.58	-.12	.00	.00	-.61	-.27
675	538	542	-95.58	-.21	.00	.00	-.61	-.27
679	542	546	-95.58	-.05	.00	.00	-.61	-.27
683	546	550	-101.38	-.09	.00	.00	-.65	-.31
687	550	554	-107.38	-.09	.00	.00	-.69	-.34
691	554	558	-171.78	-.85	.00	.00	-1.10	-.81
695	558	562	-171.78	-.27	.00	.00	-1.10	-.81
699	562	422	-349.23	-.54	.00	.00	-2.23	-3.02
703	534	566	-208.15	-.20	.00	.00	-1.33	-1.16
707	566	570	-214.15	-.33	.00	.00	-1.37	-1.22
711	570	554	-60.00	-.03	.00	.00	-.38	-.12
715	570	574	-160.55	-.21	.00	.00	-1.02	-.72
719	574	578	-166.05	-.12	.00	.00	-1.06	-.76
723	578	582	-171.75	-.14	.00	.00	-1.10	-.81
727	582	562	-177.45	-.69	.00	.00	-1.13	-.86
731	418	586	-275.22	-.14	.00	.00	-1.12	-.66
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-279.92	-.43	.00	.00	-1.79	-2.00
743	594	598	-215.32	-.49	.00	.00	-1.37	-1.23

747	598	422	-319.62	-.65	.00	.00	-2.04	-2.56
751	598	602	94.79	.08	.00	.00	.61	.27
755	602	604	50.75	.04	.00	.00	.32	.08
759	602	604	40.64	.04	.00	.00	.26	.06
763	594	604	-81.09	-.36	.00	.00	-.52	-.20
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	475.62	.61	.00	.00	1.35	.64
951	58	56	-475.62	-.16	.00	.00	-1.35	-.64
953	936	58	488.28	.11	.00	.00	1.39	.67
977	952	936	488.28	.24	.00	.00	1.39	.67

JUNCTION	NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4		3.40	562.01	468.00	40.74
8		8.70	561.84	456.00	45.86
10		.00	561.00	402.00	68.90
12		14.20	561.32	431.00	56.47
16		5.10	560.61	420.00	60.93
20		3.80	560.61	444.00	50.53
24		6.10	560.61	454.00	46.20
28		6.10	560.61	476.00	36.66
32		6.30	559.63	403.00	67.87
36		6.10	559.63	427.00	57.47
44		8.70	557.76	376.00	78.76
46		.00	557.77	321.00	102.60
48		6.30	557.77	318.00	103.90
52		.70	557.77	321.00	102.60
56		.00	556.76	433.00	53.63
58		963.90	556.60	420.00	59.19
60		4.40	558.26	327.00	100.21
64		4.10	558.26	351.00	89.81
68		7.80	559.05	320.00	103.59
72		12.70	559.05	359.00	86.69
76		.00	559.05	348.00	91.45
80		6.90	559.09	323.00	102.30
84		7.70	559.09	386.00	75.01
88		7.80	559.10	372.00	81.07
92		6.40	559.12	327.00	100.59
96		5.80	559.20	347.00	91.95
100		8.40	559.21	415.00	62.49
104		7.70	559.22	417.00	61.63
108		11.20	559.26	355.00	88.51
112		6.10	559.61	375.00	80.00
114		38.40	557.89	391.00	72.32
116		7.00	559.09	379.00	78.04
120		8.70	560.28	377.00	79.42
122		.00	560.65	385.00	76.11
124		4.80	561.01	401.00	69.34
128		3.80	561.79	422.00	60.58
132		6.50	562.04	456.00	45.95
136		7.50	562.19	446.00	50.35
140		5.70	562.16	446.00	50.33
144		5.10	561.95	429.00	57.61
148		5.40	561.94	415.00	63.68

152	8.30	561.94	390.00	74.51
156	7.20	562.41	423.00	60.41
160	7.70	562.46	393.00	73.43
164	4.00	562.50	426.00	59.15
168	6.90	562.49	396.00	72.15
172	12.10	562.49	380.00	79.08
176	.00	562.50	454.00	47.01
180	5.90	562.50	445.00	50.91
184	7.50	562.49	446.00	50.48
188	5.40	562.49	461.00	43.98
192	5.60	562.32	477.00	36.97
196	4.50	563.01	475.00	38.14
200	5.90	562.89	454.00	47.19
204	10.50	562.58	423.00	60.49
208	6.20	563.39	455.00	46.97
212	14.80	562.99	415.00	64.13
216	6.20	563.01	471.00	39.87
220	6.90	563.10	445.00	51.18
224	10.10	563.19	439.00	53.81
228	9.60	563.24	409.00	66.84
232	3.80	562.71	397.00	71.81
236	4.10	562.58	463.00	43.15
240	5.80	563.74	353.00	91.32
244	5.10	564.00	366.00	85.80
248	7.30	564.21	369.00	84.59
252	10.60	564.42	387.00	76.88
256	12.40	564.70	404.00	69.64
260	12.20	564.70	427.00	59.67
264	3.70	565.25	443.00	52.98
268	10.10	565.88	453.00	48.91
272	12.90	567.04	455.00	48.55
276	11.20	567.64	457.00	47.95
282	6.90	562.59	394.00	73.06
286	5.80	562.60	380.00	79.13
290	8.90	562.63	387.00	76.11
294	24.50	562.64	389.00	75.24
298	7.00	562.63	396.00	72.21
302	7.30	562.63	410.00	66.14
306	5.20	562.64	411.00	65.71
310	12.80	556.96	358.00	86.22
314	7.50	556.87	340.00	93.98
318	5.50	556.85	344.00	92.24
322	9.90	556.85	354.00	87.90
326	13.90	556.84	359.00	85.73
330	9.80	556.85	348.00	90.50
334	9.90	556.85	346.00	91.37
338	16.20	556.55	352.00	88.64
342	9.80	556.54	358.00	86.04
346	17.90	556.54	382.00	75.63
350	14.50	556.50	344.00	92.08
354	96.10	556.40	323.00	101.14
358	15.20	556.49	372.00	79.95
362	.00	562.99	364.00	86.23
366	7.30	567.61	437.00	56.60

370	10.90	567.59	406.00	70.02
374	3.50	567.59	372.00	84.76
378	6.40	567.59	377.00	82.59
382	13.30	567.57	436.00	57.02
386	15.50	567.54	380.00	81.27
390	21.90	567.53	367.00	86.90
394	3.50	567.53	350.00	94.26
398	1.20	567.52	351.00	93.83
402	19.60	567.50	379.00	81.69
406	6.30	567.50	365.00	87.75
410	6.90	567.50	357.00	91.22
414	5.50	571.69	464.00	46.67
416	7.70	579.63	434.00	63.11
418	3.40	580.60	421.00	69.16
422	4.40	582.32	442.00	60.80
426	9.40	584.89	410.00	75.79
428	44.40	587.84	410.00	77.06
430	43.60	591.23	397.00	84.17
434	14.90	593.72	363.00	99.98
438	.00	597.44	315.00	122.39
442	20.10	590.54	375.00	93.40
446	9.20	589.58	367.00	96.45
450	27.00	589.01	383.00	89.27
454	24.90	588.73	348.00	104.32
458	2.80	587.31	366.00	95.90
462	5.40	587.12	373.00	92.79
466	7.60	586.97	382.00	88.82
468	.00	586.89	385.00	87.49
470	12.30	586.81	387.00	86.58
474	10.90	586.66	389.00	85.65
476	.00	586.54	381.00	89.07
478	21.10	586.28	332.00	110.19
482	13.70	586.97	389.00	85.79
486	10.30	573.23	459.00	49.50
490	8.40	575.11	450.00	54.22
494	6.40	576.17	431.00	62.91
498	9.30	576.94	424.00	66.27
502	4.40	577.31	399.00	77.27
506	11.90	577.77	425.00	66.20
510	9.60	573.32	456.00	50.84
514	12.20	574.36	415.00	69.06
518	9.00	574.84	409.00	71.87
522	6.40	575.39	407.00	72.97
526	6.60	576.91	399.00	77.09
530	7.50	578.98	397.00	78.86
534	.00	580.10	399.00	78.48
538	.00	580.22	415.00	71.60
542	.00	580.43	393.00	81.22
546	5.80	580.48	386.00	84.28
550	6.00	580.57	381.00	86.48
554	4.40	580.66	382.00	86.08
558	.00	581.51	422.00	69.12
562	.00	581.78	435.00	63.60
566	6.00	580.30	392.00	81.59

570	6.40	580.63	383.00	85.64
574	5.50	580.84	384.00	85.30
578	5.70	580.95	386.00	84.48
582	5.70	581.09	387.00	84.11
586	4.70	580.74	408.00	74.86
590	.00	580.74	375.00	89.16
594	16.50	581.18	417.00	71.14
598	9.50	581.66	428.00	66.59
602	3.40	581.58	420.00	70.02
604	10.30	581.54	402.00	77.80
900	.00	557.36	345.00	92.02
932	.00	556.76	455.00	44.09
936	.00	556.70	424.00	57.51
952	.00	556.94	416.00	61.07
	MAXIMUM PRESSURES			
438	.00	597.44	315.00	122.39
478	21.10	586.28	332.00	110.19
454	24.90	588.73	348.00	104.32
48	6.30	557.77	318.00	103.90
68	7.80	559.05	320.00	103.59
52	.70	557.77	321.00	102.60
46	.00	557.77	321.00	102.60
80	6.90	559.09	323.00	102.30
354	96.10	556.40	323.00	101.14
92	6.40	559.12	327.00	100.59
	MINIMUM PRESSURES			
28	6.10	560.61	476.00	36.66
192	5.60	562.32	477.00	36.97
196	4.50	563.01	475.00	38.14
216	6.20	563.01	471.00	39.87
4	3.40	562.01	468.00	40.74
236	4.10	562.58	463.00	43.15
188	5.40	562.49	461.00	43.98
932	.00	556.76	455.00	44.09
8	8.70	561.84	456.00	45.86
132	6.50	562.04	456.00	45.95

THE NET SYSTEM DEMAND = 2374.90

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
6	1144.29
12	1230.61

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2374.90
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

APPENDIX C

COMPUTER MODEL RESULTS

PEACOCK HILLS 626 PRESSURE ZONE

EXISTING SYSTEM

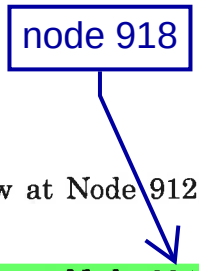
PLUS

SYSTEM LAYOUT AND NEW DEMANDS FOR THE MELROSE+OCEANSIDE PROJECT

Node and Pipe Diagram: See Exhibit A

Conditions Modeled:

1. Average Day Demand
2. Maximum Day Demand
3. Peak Hour Demand
4. Maximum Day Demand plus 3,000 gpm Fire Flow at Node 912, Planning Area 3, Multi-Family Residential
5. Maximum Day Demand plus 3,000 gpm Fire Flow at Node ~~924,~~ Planning Area 3, Multi-Family Residential
6. Maximum Day Demand plus 4,000 gpm Fire Flow at Node 940, Planning Area 1, Office Commercial
7. Maximum Day Demand plus 1,500 gpm Fire Flow at Node 908, Planning Area 2, Single Family Residential
8. Maximum Day Demand plus 3,000 gpm Fire Flow at Node 944, Planning Area 1, Multi-Family Residential



FLOWRATE IS EXPRESSED IN GPM AND PRESSURE IN PSIG

A SUMMARY OF THE ORIGINAL DATA FOLLOWS

PIPE NO.	NODE NOS.		LENGTH (FEET)	DIAMETER (INCHES)	ROUGHNESS	MINOR LOSS K	FIXED GRADE
4	0	32	50.0	4.0	120.0	.00	558.00
THERE IS A CHECK VALVE IN LINE NUMBER 4							
5	4	8	167.0	14.0	130.0	.00	
6	0	438	150.0	6.0	120.0	.00	614.00
9	8	12	760.0	10.0	120.0	.00	
10	0	32	10.0	10.0	120.0	.00	553.00
THERE IS A CHECK VALVE IN LINE NUMBER 10							
12	0	438	150.0	12.0	130.0	.00	598.00
THERE IS A CHECK VALVE IN LINE NUMBER 12							
13	12	16	412.0	10.0	120.0	.00	
17	16	20	306.0	8.0	120.0	.00	
21	20	24	207.0	8.0	120.0	.00	
25	20	28	527.0	8.0	120.0	.00	
29	16	32	632.0	10.0	120.0	.00	
33	32	36	715.0	8.0	120.0	.00	
41	46	44	930.0	8.0	120.0	.00	
43	48	46	150.0	8.0	120.0	.00	
45	48	52	199.0	10.0	120.0	.00	
49	52	900	630.0	12.0	130.0	.00	
53	114	952	1410.0	12.0	130.0	.00	
57	116	114	780.0	12.0	130.0	.00	
61	116	72	1554.0	8.0	120.0	.00	
63	72	76	426.0	8.0	120.0	.00	
67	68	72	312.0	8.0	120.0	.00	
71	68	60	395.0	10.0	120.0	.00	
75	60	52	259.0	10.0	120.0	.00	
79	60	64	642.0	8.0	120.0	.00	
83	32	68	1110.0	12.0	130.0	.00	
87	80	68	299.0	8.0	120.0	.00	
91	80	84	816.0	8.0	120.0	.00	
95	88	84	273.0	8.0	120.0	.00	
99	92	88	854.0	8.0	120.0	.00	
103	92	80	315.0	8.0	120.0	.00	
107	96	92	301.0	8.0	120.0	.00	
111	96	100	864.0	8.0	120.0	.00	
115	104	100	323.0	8.0	120.0	.00	
119	108	104	823.0	8.0	120.0	.00	
123	108	96	319.0	8.0	120.0	.00	
127	112	108	753.0	8.0	120.0	.00	
131	112	116	306.0	12.0	130.0	.00	
135	120	112	302.0	12.0	130.0	.00	
137	10	122	315.0	12.0	130.0	.00	
139	8	10	753.0	12.0	130.0	.00	
141	122	120	330.0	12.0	130.0	.00	
143	120	124	317.0	8.0	120.0	.00	
147	124	128	330.0	8.0	120.0	.00	
151	132	128	336.0	8.0	120.0	.00	
155	192	132	721.0	8.0	120.0	.00	
159	4	192	285.0	14.0	130.0	.00	
163	192	188	433.0	8.0	120.0	.00	
167	188	136	322.0	6.0	120.0	.00	
171	136	132	327.0	6.0	120.0	.00	
175	136	140	505.0	6.0	120.0	.00	
179	144	140	274.0	8.0	120.0	.00	

183	128	144	279.0	8.0	120.0	.00
187	144	148	308.0	6.0	120.0	.00
191	148	152	331.0	6.0	120.0	.00
195	140	156	408.0	8.0	120.0	.00
199	156	160	614.0	8.0	120.0	.00
203	160	164	292.0	8.0	120.0	.00
207	164	168	301.0	8.0	120.0	.00
211	168	172	287.0	8.0	120.0	.00
215	176	164	502.0	8.0	120.0	.00
219	180	176	266.0	8.0	120.0	.00
223	180	156	289.0	8.0	120.0	.00
227	180	204	243.0	8.0	120.0	.00
231	184	180	587.0	8.0	120.0	.00
235	188	184	342.0	8.0	120.0	.00
239	188	200	357.0	8.0	120.0	.00
243	196	200	381.0	8.0	120.0	.00
247	192	196	655.0	14.0	130.0	.00
251	196	208	293.0	14.0	130.0	.00
253	208	212	344.0	8.0	120.0	.00
257	212	12	1672.0	8.0	120.0	.00
261	208	216	550.0	8.0	120.0	.00
265	200	216	324.0	8.0	120.0	.00
269	216	204	990.0	8.0	120.0	.00
273	208	260	579.0	14.0	130.0	.00
277	260	268	1257.0	8.0	120.0	.00
281	260	264	296.0	14.0	130.0	.00
285	264	268	337.0	14.0	130.0	.00
289	268	276	726.0	14.0	130.0	.00
293	276	272	261.0	8.0	120.0	.00
297	256	272	1100.0	8.0	120.0	.00
301	260	256	376.0	10.0	120.0	.00
305	256	252	354.0	10.0	120.0	.00
309	252	248	298.0	10.0	120.0	.00
313	248	244	291.0	10.0	120.0	.00
317	244	240	388.0	10.0	120.0	.00
321	240	228	259.0	8.0	120.0	.00
325	228	232	699.0	8.0	120.0	.00
329	232	306	263.0	8.0	120.0	.00
333	236	164	324.0	8.0	120.0	.00
337	224	228	195.0	8.0	120.0	.00
341	220	224	357.0	8.0	120.0	.00
345	216	220	447.0	8.0	120.0	.00
349	236	282	395.0	8.0	120.0	.00
353	282	286	263.0	8.0	120.0	.00
357	286	290	704.0	8.0	120.0	.00
361	290	294	209.0	8.0	120.0	.00
365	294	232	1600.0	10.0	120.0	.00
369	290	298	333.0	8.0	120.0	.00
373	298	302	595.0	8.0	120.0	.00
377	302	306	533.0	8.0	120.0	.00
381	306	236	333.0	8.0	120.0	.00
385	310	114	1840.0	10.0	120.0	.00
389	310	314	1230.0	10.0	120.0	.00
393	314	318	348.0	10.0	120.0	.00
397	318	322	827.0	10.0	120.0	.00
401	322	326	394.0	10.0	120.0	.00
405	322	330	1060.0	10.0	120.0	.00
409	318	330	200.0	10.0	120.0	.00
413	330	334	472.0	10.0	120.0	.00
417	330	334	1450.0	8.0	120.0	.00
419	310	326	595.0	10.0	120.0	.00
423	338	326	1098.0	10.0	120.0	.00
427	338	342	325.0	10.0	120.0	.00

431	342	346	502.0	10.0	120.0	.00
435	342	346	1507.0	8.0	120.0	.00
439	338	350	309.0	10.0	120.0	.00
443	350	354	1090.0	10.0	120.0	.00
447	350	358	1237.0	10.0	120.0	.00
451	212	362	2080.0	8.0	120.0	.00
455	276	366	286.0	10.0	120.0	.00
459	366	370	982.0	8.0	120.0	.00
463	370	374	456.0	8.0	120.0	.00
467	370	378	742.0	8.0	120.0	.00
471	366	382	394.0	10.0	120.0	.00
475	382	386	1159.0	8.0	120.0	.00
479	386	390	904.0	8.0	120.0	.00
483	382	390	1817.0	10.0	120.0	.00
487	390	394	278.0	10.0	120.0	.00
491	394	398	193.0	10.0	120.0	.00
495	398	402	1553.0	10.0	120.0	.00
499	402	406	1075.0	10.0	120.0	.00
503	402	410	1250.0	8.0	120.0	.00
507	276	414	1035.0	14.0	130.0	.00
511	414	416	11998.0	14.0	130.0	.00
513	416	418	464.0	14.0	130.0	.00
515	418	422	734.0	14.0	130.0	.00
519	422	426	541.0	14.0	130.0	.00
523	426	428	835.0	14.0	130.0	.00
525	428	430	1260.0	14.0	130.0	.00
527	430	434	548.0	14.0	130.0	.00
531	434	438	626.0	14.0	130.0	.00
535	434	442	1353.0	8.0	120.0	.00
539	442	446	464.0	8.0	120.0	.00
543	430	446	966.0	10.0	120.0	.00
547	446	450	441.0	10.0	120.0	.00
551	450	428	1631.0	10.0	120.0	.00
555	446	454	866.0	10.0	120.0	.00
559	450	454	1407.0	8.0	120.0	.00
563	454	458	1098.0	10.0	120.0	.00
567	458	462	425.0	12.0	130.0	.00
571	462	466	549.0	12.0	130.0	.00
573	466	468	280.0	12.0	130.0	.00
575	468	470	300.0	12.0	130.0	.00
579	470	474	394.0	12.0	130.0	.00
581	474	476	350.0	12.0	130.0	.00
583	476	478	721.0	12.0	130.0	.00
587	478	426	1577.0	10.0	120.0	.00
591	470	482	1245.0	8.0	120.0	.00
595	466	482	294.0	8.0	120.0	.00
599	462	482	673.0	8.0	120.0	.00
603	414	486	209.0	8.0	120.0	.00
607	486	490	247.0	8.0	120.0	.00
611	490	494	549.0	8.0	120.0	.00
615	494	498	379.0	8.0	120.0	.00
619	498	502	812.0	8.0	120.0	.00
623	502	506	951.0	8.0	120.0	.00
627	506	498	1100.0	8.0	120.0	.00
629	506	416	216.0	8.0	120.0	.00
631	506	490	1097.0	8.0	120.0	.00
635	414	510	193.0	8.0	120.0	.00
639	510	514	603.0	8.0	120.0	.00
643	514	518	255.0	8.0	120.0	.00
647	518	522	271.0	8.0	120.0	.00
651	522	526	727.0	8.0	120.0	.00
655	526	510	1129.0	8.0	120.0	.00
659	526	530	216.0	8.0	120.0	.00

663	530	418	518.0	8.0	120.0	.00
667	530	534	479.0	8.0	120.0	.00
671	534	538	440.0	8.0	120.0	.00
675	538	542	765.0	8.0	120.0	.00
679	542	546	193.0	8.0	120.0	.00
683	546	550	286.0	8.0	120.0	.00
687	550	554	255.0	8.0	120.0	.00
691	554	558	1051.0	8.0	120.0	.00
695	558	562	332.0	8.0	120.0	.00
699	562	422	178.0	8.0	120.0	.00
703	534	566	170.0	8.0	120.0	.00
707	566	570	271.0	8.0	120.0	.00
711	570	554	255.0	8.0	120.0	.00
715	570	574	293.0	8.0	120.0	.00
719	574	578	155.0	8.0	120.0	.00
723	578	582	170.0	8.0	120.0	.00
727	582	562	796.0	8.0	120.0	.00
731	418	586	216.0	10.0	120.0	.00
735	586	590	340.0	10.0	120.0	.00
739	586	594	216.0	8.0	120.0	.00
743	594	598	394.0	8.0	120.0	.00
747	598	422	255.0	8.0	120.0	.00
751	598	602	309.0	8.0	120.0	.00
755	602	604	456.0	8.0	120.0	.00
759	602	604	688.0	8.0	120.0	.00
763	594	604	1800.0	8.0	120.0	.00
901	900	904	160.0	8.0	130.0	.00
905	904	908	500.0	8.0	130.0	.00
909	904	908	480.0	8.0	130.0	.00
913	904	912	600.0	8.0	130.0	.00
917	916	912	440.0	8.0	130.0	.00
918	915	914	165.0	8.0	130.0	.00
919	916	915	175.0	8.0	130.0	.00
920	915	919	530.0	8.0	130.0	.00
921	916	918	535.0	8.0	130.0	.00
922	917	919	235.0	8.0	130.0	.00
923	918	917	170.0	8.0	130.0	.00
924	923	919	300.0	8.0	130.0	.00
925	918	920	90.0	8.0	130.0	.00
927	920	921	125.0	8.0	130.0	.00
929	924	920	285.0	8.0	130.0	.00
931	924	923	150.0	8.0	130.0	.00
933	926	924	140.0	8.0	130.0	.00
937	928	926	215.0	8.0	130.0	.00
941	932	928	680.0	8.0	130.0	.00
945	56	932	950.0	12.0	130.0	.00
949	900	56	950.0	12.0	130.0	.00
951	58	56	250.0	12.0	130.0	.00
953	936	58	160.0	12.0	130.0	.00
957	936	940	500.0	10.0	130.0	.00
961	940	944	340.0	10.0	130.0	.00
965	948	944	360.0	10.0	130.0	.00
969	948	940	160.0	10.0	130.0	.00
973	952	948	200.0	10.0	130.0	.00
977	952	936	350.0	12.0	130.0	.00

JUNCTION NUMBER	DEMAND	ELEVATION	CONNECTING PIPES		
4	3.40	468.00	5	159	
8	8.70	456.00	5	9	139
10	.00	402.00	137	139	
12	14.20	431.00	9	13	257
16	5.10	420.00	13	17	29

20	3.80	444.00	17	21	25		
24	6.10	454.00	21				
28	6.10	476.00	25				
32	6.30	403.00	4	10	29	33	83
36	6.10	427.00	33				
44	8.70	376.00	41				
46	.00	321.00	41	43			
48	6.30	318.00	43	45			
52	.70	321.00	45	49	75		
56	.00	433.00	945	949	951		
58	.00	420.00	951	953			
60	4.40	327.00	71	75	79		
64	4.10	351.00	79				
68	7.80	320.00	67	71	83	87	
72	12.70	359.00	61	63	67		
76	.00	348.00	63				
80	6.90	323.00	87	91	103		
84	7.70	386.00	91	95			
88	7.80	372.00	95	99			
92	6.40	327.00	99	103	107		
96	5.80	347.00	107	111	123		
100	8.40	415.00	111	115			
104	7.70	417.00	115	119			
108	11.20	355.00	119	123	127		
112	6.10	375.00	127	131	135		
114	38.40	391.00	53	57	385		
116	7.00	379.00	57	61	131		
120	8.70	377.00	135	141	143		
122	.00	385.00	137	141			
124	4.80	401.00	143	147			
128	3.80	422.00	147	151	183		
132	6.50	456.00	151	155	171		
136	7.50	446.00	167	171	175		
140	5.70	446.00	175	179	195		
144	5.10	429.00	179	183	187		
148	5.40	415.00	187	191			
152	8.30	390.00	191				
156	7.20	423.00	195	199	223		
160	7.70	393.00	199	203			
164	4.00	426.00	203	207	215	333	
168	6.90	396.00	207	211			
172	12.10	380.00	211				
176	.00	454.00	215	219			
180	5.90	445.00	219	223	227	231	
184	7.50	446.00	231	235			
188	5.40	461.00	163	167	235	239	
192	5.60	477.00	155	159	163	247	
196	4.50	475.00	243	247	251		
200	5.90	454.00	239	243	265		
204	10.50	423.00	227	269			
208	6.20	455.00	251	253	261	273	
212	14.80	415.00	253	257	451		
216	6.20	471.00	261	265	269	345	
220	6.90	445.00	341	345			
224	10.10	439.00	337	341			
228	9.60	409.00	321	325	337		
232	3.80	397.00	325	329	365		
236	4.10	463.00	333	349	381		
240	5.80	353.00	317	321			
244	5.10	366.00	313	317			
248	7.30	369.00	309	313			
252	10.60	387.00	305	309			
256	12.40	404.00	297	301	305		

260	12.20	427.00	273	277	281	301
264	3.70	443.00	281	285		
268	10.10	453.00	277	285	289	
272	12.90	455.00	293	297		
276	11.20	457.00	289	293	455	507
282	6.90	394.00	349	353		
286	5.80	380.00	353	357		
290	8.90	387.00	357	361	369	
294	24.50	389.00	361	365		
298	7.00	396.00	369	373		
302	7.30	410.00	373	377		
306	5.20	411.00	329	377	381	
310	12.80	358.00	385	389	419	
314	7.50	340.00	389	393		
318	5.50	344.00	393	397	409	
322	9.90	354.00	397	401	405	
326	13.90	359.00	401	419	423	
330	9.80	348.00	405	409	413	417
334	9.90	346.00	413	417		
338	16.20	352.00	423	427	439	
342	9.80	358.00	427	431	435	
346	17.90	382.00	431	435		
350	14.50	344.00	439	443	447	
354	96.10	323.00	443			
358	15.20	372.00	447			
362	.00	364.00	451			
366	7.30	437.00	455	459	471	
370	10.90	406.00	459	463	467	
374	3.50	372.00	463			
378	6.40	377.00	467			
382	13.30	436.00	471	475	483	
386	15.50	380.00	475	479		
390	21.90	367.00	479	483	487	
394	3.50	350.00	487	491		
398	1.20	351.00	491	495		
402	19.60	379.00	495	499	503	
406	6.30	365.00	499			
410	6.90	357.00	503			
414	5.50	464.00	507	511	603	635
416	7.70	434.00	511	513	629	
418	3.40	421.00	513	515	663	731
422	4.40	442.00	515	519	699	747
426	9.40	410.00	519	523	587	
428	44.40	410.00	523	525	551	
430	43.60	397.00	525	527	543	
434	14.90	363.00	527	531	535	
438	.00	315.00	6	12	531	
442	20.10	375.00	535	539		
446	9.20	367.00	539	543	547	555
450	27.00	383.00	547	551	559	
454	24.90	348.00	555	559	563	
458	2.80	366.00	563	567		
462	5.40	373.00	567	571	599	
466	7.60	382.00	571	573	595	
468	.00	385.00	573	575		
470	12.30	387.00	575	579	591	
474	10.90	389.00	579	581		
476	.00	381.00	581	583		
478	21.10	332.00	583	587		
482	13.70	389.00	591	595	599	
486	10.30	459.00	603	607		
490	8.40	450.00	607	611	631	
494	6.40	431.00	611	615		

498	9.30	424.00	615	619	627	
502	4.40	399.00	619	623		
506	11.90	425.00	623	627	629	631
510	9.60	456.00	635	639	655	
514	12.20	415.00	639	643		
518	9.00	409.00	643	647		
522	6.40	407.00	647	651		
526	6.60	399.00	651	655	659	
530	7.50	397.00	659	663	667	
534	.00	399.00	667	671	703	
538	.00	415.00	671	675		
542	.00	393.00	675	679		
546	5.80	386.00	679	683		
550	6.00	381.00	683	687		
554	4.40	382.00	687	691	711	
558	.00	422.00	691	695		
562	.00	435.00	695	699	727	
566	6.00	392.00	703	707		
570	6.40	383.00	707	711	715	
574	5.50	384.00	715	719		
578	5.70	386.00	719	723		
582	5.70	387.00	723	727		
586	4.70	408.00	731	735	739	
590	.00	375.00	735			
594	16.50	417.00	739	743	763	
598	9.50	428.00	743	747	751	
602	3.40	420.00	751	755	759	
604	10.30	402.00	755	759	763	
900	.00	345.00	49	901	949	
904	7.40	346.00	901	905	909	913
908	7.40	339.00	905	909		
912	8.30	366.00	913	917		
914	.00	388.00	918			
915	.00	389.00	918	919	920	
916	8.30	391.00	917	919	921	
917	.00	395.00	922	923		
918	.00	397.00	921	923	925	
919	.00	393.00	920	922	924	
920	8.30	398.00	925	927	929	
921	.00	396.00	927			
923	.00	396.00	924	931		
924	8.30	400.00	929	931	933	
926	.00	406.00	933	937		
928	.00	412.00	937	941		
932	.00	455.00	941	945		
936	.00	420.00	953	957	977	
940	5.40	421.00	957	961	969	
944	5.40	417.00	961	965		
948	5.40	422.00	965	969	973	
952	.00	416.00	53	973	977	

OUTPUT SELECTION: ALL RESULTS ARE OUTPUT EACH PERIOD
10 VALUES ARE OUTPUT FOR MAXIMUM AND MINIMUM PRESSURES

THIS SYSTEM HAS 232 PIPES WITH 181 JUNCTIONS , 48 LOOPS AND 4 FGNS

THE RESULTS ARE OBTAINED AFTER 7 TRIALS WITH AN ACCURACY = .00184

Melrose+Oceanside Project in the City of Oceanside **96501MO1**
Existing 626 Pressure Zone Plus Melrose+Oceanside Project Demands
Average Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
THE CHECK VALVE IN LINE NUMBER 4 IS CLOSED								
5	4	8	351.08	.03	.00	.00	.73	.17
6	0	438	1125.34	16.05	.00	.00	12.77	107.03
9	8	12	108.65	.09	.00	.00	.44	.12
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	349.86	.05	.00	.00	.99	.36
13	12	16	172.20	.11	.00	.00	.70	.27
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	151.10	.14	.00	.00	.62	.22
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	8.70	.00	.00	.00	.06	.00
45	48	52	-15.00	.00	.00	.00	-.06	.00
49	52	900	96.90	.02	.00	.00	.27	.03
53	114	952	-32.70	-.01	.00	.00	-.09	.00
57	116	114	244.70	.15	.00	.00	.69	.19
61	116	72	13.06	.01	.00	.00	.08	.01
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	-.36	.00	.00	.00	.00	.00
71	68	60	121.10	.06	.00	.00	.49	.14
75	60	52	112.60	.03	.00	.00	.46	.13
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	138.70	.07	.00	.00	.39	.07
87	80	68	-10.16	.00	.00	.00	-.06	.00
91	80	84	7.58	.00	.00	.00	.05	.00
95	88	84	.12	.00	.00	.00	.00	.00
99	92	88	7.92	.00	.00	.00	.05	.00
103	92	80	4.32	.00	.00	.00	.03	.00
107	96	92	18.64	.00	.00	.00	.12	.01
111	96	100	1.34	.00	.00	.00	.01	.00
115	104	100	7.06	.00	.00	.00	.05	.00
119	108	104	14.76	.01	.00	.00	.09	.01
123	108	96	25.77	.01	.00	.00	.16	.02
127	112	108	51.74	.07	.00	.00	.33	.09
131	112	116	264.76	.07	.00	.00	.75	.22
135	120	112	322.60	.09	.00	.00	.92	.31
137	10	122	233.73	.05	.00	.00	.66	.17
139	8	10	233.73	.13	.00	.00	.66	.17
141	122	120	233.73	.06	.00	.00	.66	.17
143	120	124	-97.57	-.09	.00	.00	-.62	-.28
147	124	128	-102.37	-.10	.00	.00	-.65	-.31
151	132	128	67.47	.05	.00	.00	.43	.14
155	192	132	57.74	.08	.00	.00	.37	.11
159	4	192	-354.48	-.05	.00	.00	-.74	-.18
163	192	188	-13.87	.00	.00	.00	-.09	-.01
167	188	136	38.78	.07	.00	.00	.44	.21
171	136	132	16.23	.01	.00	.00	.18	.04
175	136	140	15.05	.02	.00	.00	.17	.04
179	144	140	-57.50	-.03	.00	.00	-.37	-.11
183	128	144	-38.70	-.01	.00	.00	-.25	-.05
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-48.15	-.03	.00	.00	-.31	-.08
199	156	160	-7.24	.00	.00	.00	-.05	.00

203	160	164	-14.94	.00	.00	.00	-.10	-.01
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	25.51	.01	.00	.00	.16	.02
219	180	176	25.51	.01	.00	.00	.16	.02
223	180	156	48.11	.02	.00	.00	.31	.08
227	180	204	-51.22	-.02	.00	.00	-.33	-.09
231	184	180	28.30	.02	.00	.00	.18	.03
235	188	184	35.80	.02	.00	.00	.23	.04
239	188	200	-93.85	-.09	.00	.00	-.60	-.26
243	196	200	63.14	.05	.00	.00	.40	.13
247	192	196	-403.96	-.15	.00	.00	-.84	-.22
251	196	208	-471.60	-.09	.00	.00	-.98	-.30
253	208	212	92.55	.09	.00	.00	.59	.26
257	212	12	77.75	.31	.00	.00	.50	.19
261	208	216	84.75	.12	.00	.00	.54	.22
265	200	216	-36.61	-.02	.00	.00	-.23	-.05
269	216	204	61.72	.12	.00	.00	.39	.12
273	208	260	-655.09	-.32	.00	.00	-1.37	-.55
277	260	268	-89.74	-.31	.00	.00	-.57	-.24
281	260	264	-611.40	-.14	.00	.00	-1.27	-.48
285	264	268	-615.10	-.16	.00	.00	-1.28	-.49
289	268	276	-714.94	-.47	.00	.00	-1.49	-.64
293	276	272	152.56	.17	.00	.00	.97	.65
297	256	272	-139.66	-.61	.00	.00	-.89	-.55
301	260	256	33.84	.01	.00	.00	.14	.01
305	256	252	161.11	.09	.00	.00	.66	.24
309	252	248	150.51	.06	.00	.00	.61	.21
313	248	244	143.21	.06	.00	.00	.58	.20
317	244	240	138.11	.07	.00	.00	.56	.18
321	240	228	132.31	.13	.00	.00	.84	.50
325	228	232	85.93	.16	.00	.00	.55	.22
329	232	306	45.78	.02	.00	.00	.29	.07
333	236	164	12.43	.00	.00	.00	.08	.01
337	224	228	-36.78	-.01	.00	.00	-.23	-.05
341	220	224	-26.68	-.01	.00	.00	-.17	-.03
345	216	220	-19.78	-.01	.00	.00	-.13	-.01
349	236	282	7.75	.00	.00	.00	.05	.00
353	282	286	.85	.00	.00	.00	.01	.00
357	286	290	-4.95	.00	.00	.00	-.03	.00
361	290	294	-11.85	.00	.00	.00	-.08	-.01
365	294	232	-36.35	-.02	.00	.00	-.15	-.02
369	290	298	-2.00	.00	.00	.00	-.01	.00
373	298	302	-9.00	.00	.00	.00	-.06	.00
377	302	306	-16.30	-.01	.00	.00	-.10	-.01
381	306	236	24.28	.01	.00	.00	.15	.02
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.29	.00	.00	.00	.03	.00
417	330	334	2.61	.00	.00	.00	.02	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.64	.00	.00	.00	.06	.00
435	342	346	4.26	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00
507	276	414	-995.00	-1.23	.00	.00	-2.07	-1.19
511	414	416	-392.02	-2.54	.00	.00	-.82	-.21
513	416	418	-745.21	-.32	.00	.00	-1.55	-.69
515	418	422	-806.88	-.59	.00	.00	-1.68	-.80
519	422	426	-1207.90	-.92	.00	.00	-2.52	-1.70
523	426	428	-1048.82	-1.09	.00	.00	-2.19	-1.31
525	428	430	-932.71	-1.33	.00	.00	-1.94	-1.05
527	430	434	-1268.35	-1.02	.00	.00	-2.64	-1.86
531	434	438	-1475.20	-1.54	.00	.00	-3.07	-2.46
535	434	442	191.95	1.35	.00	.00	1.23	1.00
539	442	446	171.85	.38	.00	.00	1.10	.81
543	430	446	292.04	.71	.00	.00	1.19	.73
547	446	450	240.74	.23	.00	.00	.98	.51
551	450	428	160.51	.39	.00	.00	.66	.24
555	446	454	213.95	.36	.00	.00	.87	.41
559	450	454	53.24	.13	.00	.00	.34	.09
563	454	458	242.28	.57	.00	.00	.99	.52
567	458	462	239.48	.08	.00	.00	.68	.18
571	462	466	182.21	.06	.00	.00	.52	.11
573	466	468	175.79	.03	.00	.00	.50	.10
575	468	470	175.79	.03	.00	.00	.50	.10
579	470	474	200.48	.05	.00	.00	.57	.13
581	474	476	189.58	.04	.00	.00	.54	.12
583	476	478	189.58	.08	.00	.00	.54	.12
587	478	426	168.48	.42	.00	.00	.69	.26
591	470	482	-37.00	-.06	.00	.00	-.24	-.05
595	466	482	-1.18	.00	.00	.00	-.01	.00
599	462	482	51.87	.06	.00	.00	.33	.09
603	414	486	-294.79	-.46	.00	.00	-1.88	-2.21
607	486	490	-305.09	-.58	.00	.00	-1.95	-2.35
611	490	494	-145.50	-.33	.00	.00	-.93	-.60
615	494	498	-151.90	-.24	.00	.00	-.97	-.65
619	498	502	-69.04	-.12	.00	.00	-.44	-.15
623	502	506	-73.44	-.16	.00	.00	-.47	-.17
627	506	498	92.16	.28	.00	.00	.59	.26
629	506	416	-345.49	-.64	.00	.00	-2.21	-2.96
631	506	490	167.99	.85	.00	.00	1.07	.78
635	414	510	-313.69	-.48	.00	.00	-2.00	-2.48
639	510	514	-131.02	-.30	.00	.00	-.84	-.49
643	514	518	-143.22	-.15	.00	.00	-.91	-.58
647	518	522	-152.22	-.18	.00	.00	-.97	-.65
651	522	526	-158.62	-.51	.00	.00	-1.01	-.70
655	526	510	192.27	1.13	.00	.00	1.23	1.00
659	526	530	-357.49	-.68	.00	.00	-2.28	-3.15
663	530	418	-202.46	-.57	.00	.00	-1.29	-1.10
667	530	534	-162.53	-.35	.00	.00	-1.04	-.73
671	534	538	-50.96	-.04	.00	.00	-.33	-.09
675	538	542	-50.96	-.07	.00	.00	-.33	-.09
679	542	546	-50.96	-.02	.00	.00	-.33	-.09

683	546	550	-56.76	-.03	.00	.00	-.36	-.10
687	550	554	-62.76	-.03	.00	.00	-.40	-.13
691	554	558	-101.34	-.32	.00	.00	-.65	-.31
695	558	562	-101.34	-.10	.00	.00	-.65	-.31
699	562	422	-208.03	-.21	.00	.00	-1.33	-1.16
703	534	566	-111.57	-.06	.00	.00	-.71	-.36
707	566	570	-117.57	-.11	.00	.00	-.75	-.40
711	570	554	-34.18	-.01	.00	.00	-.22	-.04
715	570	574	-89.79	-.07	.00	.00	-.57	-.24
719	574	578	-95.29	-.04	.00	.00	-.61	-.27
723	578	582	-100.99	-.05	.00	.00	-.64	-.30
727	582	562	-106.69	-.27	.00	.00	-.68	-.34
731	418	586	-144.19	-.04	.00	.00	-.59	-.20
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-148.89	-.13	.00	.00	-.95	-.62
743	594	598	-121.08	-.17	.00	.00	-.77	-.42
747	598	422	-188.59	-.25	.00	.00	-1.20	-.96
751	598	602	58.01	.03	.00	.00	.37	.11
755	602	604	30.33	.01	.00	.00	.19	.03
759	602	604	24.29	.01	.00	.00	.16	.02
763	594	604	-44.31	-.12	.00	.00	-.28	-.07
901	900	904	36.66	.01	.00	.00	.23	.04
905	904	908	3.66	.00	.00	.00	.02	.00
909	904	908	3.74	.00	.00	.00	.02	.00
913	904	912	21.86	.01	.00	.00	.14	.02
917	916	912	-13.56	.00	.00	.00	-.09	-.01
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	2.23	.00	.00	.00	.01	.00
920	915	919	2.23	.00	.00	.00	.01	.00
921	916	918	3.03	.00	.00	.00	.02	.00
922	917	919	-1.86	.00	.00	.00	-.01	.00
923	918	917	-1.86	.00	.00	.00	-.01	.00
924	923	919	-.37	.00	.00	.00	.00	.00
925	918	920	4.89	.00	.00	.00	.03	.00
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	3.41	.00	.00	.00	.02	.00
931	924	923	-.37	.00	.00	.00	.00	.00
933	926	924	11.34	.00	.00	.00	.07	.00
937	928	926	11.34	.00	.00	.00	.07	.00
941	932	928	11.34	.00	.00	.00	.07	.00
945	56	932	11.34	.00	.00	.00	.03	.00
949	900	56	60.24	.01	.00	.00	.17	.01
951	58	56	-48.90	.00	.00	.00	-.14	-.01
953	936	58	-48.90	.00	.00	.00	-.14	-.01
957	936	940	16.57	.00	.00	.00	.07	.00
961	940	944	4.28	.00	.00	.00	.02	.00
965	948	944	1.12	.00	.00	.00	.00	.00
969	948	940	-6.89	.00	.00	.00	-.03	.00
973	952	948	-.37	.00	.00	.00	.00	.00
977	952	936	-32.32	.00	.00	.00	-.09	.00

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	3.40	586.00	468.00	51.13
8	8.70	585.97	456.00	56.32
10	.00	585.84	402.00	79.67
12	14.20	585.88	431.00	67.12
16	5.10	585.77	420.00	71.83
20	3.80	585.77	444.00	61.43
24	6.10	585.77	454.00	57.10
28	6.10	585.77	476.00	47.57
32	6.30	585.63	403.00	79.14
36	6.10	585.63	427.00	68.74

44	8.70	585.47	376.00	90.77
46	.00	585.47	321.00	114.60
48	6.30	585.47	318.00	115.90
52	.70	585.47	321.00	114.61
56	.00	585.44	433.00	66.06
58	.00	585.44	420.00	71.69
60	4.40	585.51	327.00	112.02
64	4.10	585.51	351.00	101.62
68	7.80	585.56	320.00	115.08
72	12.70	585.56	359.00	98.18
76	.00	585.56	348.00	102.94
80	6.90	585.56	323.00	113.78
84	7.70	585.56	386.00	86.48
88	7.80	585.56	372.00	92.54
92	6.40	585.56	327.00	112.04
96	5.80	585.57	347.00	103.38
100	8.40	585.57	415.00	73.91
104	7.70	585.57	417.00	73.05
108	11.20	585.57	355.00	99.92
112	6.10	585.64	375.00	91.28
114	38.40	585.43	391.00	84.25
116	7.00	585.57	379.00	89.52
120	8.70	585.73	377.00	90.45
122	.00	585.79	385.00	87.01
124	4.80	585.82	401.00	80.09
128	3.80	585.93	422.00	71.03
132	6.50	585.97	456.00	56.32
136	7.50	585.99	446.00	60.66
140	5.70	585.97	446.00	60.65
144	5.10	585.94	429.00	68.01
148	5.40	585.93	415.00	74.07
152	8.30	585.93	390.00	84.90
156	7.20	586.00	423.00	70.63
160	7.70	586.00	393.00	83.63
164	4.00	586.01	426.00	69.34
168	6.90	586.00	396.00	82.33
172	12.10	586.00	380.00	89.27
176	.00	586.02	454.00	57.21
180	5.90	586.02	445.00	61.11
184	7.50	586.04	446.00	60.68
188	5.40	586.06	461.00	54.19
192	5.60	586.05	477.00	47.26
196	4.50	586.20	475.00	48.19
200	5.90	586.15	454.00	57.27
204	10.50	586.04	423.00	70.65
208	6.20	586.29	455.00	56.89
212	14.80	586.20	415.00	74.19
216	6.20	586.17	471.00	49.90
220	6.90	586.17	445.00	61.17
224	10.10	586.18	439.00	63.78
228	9.60	586.19	409.00	76.78
232	3.80	586.03	397.00	81.91
236	4.10	586.01	463.00	53.30
240	5.80	586.32	353.00	101.11
244	5.10	586.39	366.00	95.50
248	7.30	586.45	369.00	94.23
252	10.60	586.51	387.00	86.45
256	12.40	586.60	404.00	79.13
260	12.20	586.60	427.00	69.16
264	3.70	586.75	443.00	62.29
268	10.10	586.91	453.00	58.03
272	12.90	587.21	455.00	57.29
276	11.20	587.38	457.00	56.50

282	6.90	586.01	394.00	83.20
286	5.80	586.01	380.00	89.27
290	8.90	586.01	387.00	86.24
294	24.50	586.01	389.00	85.37
298	7.00	586.01	396.00	82.34
302	7.30	586.01	410.00	76.27
306	5.20	586.01	411.00	75.84
310	12.80	584.50	358.00	98.15
314	7.50	584.41	340.00	105.91
318	5.50	584.40	344.00	104.17
322	9.90	584.39	354.00	99.83
326	13.90	584.38	359.00	97.66
330	9.80	584.39	348.00	102.44
334	9.90	584.39	346.00	103.30
338	16.20	584.09	352.00	100.57
342	9.80	584.08	358.00	97.97
346	17.90	584.08	382.00	87.57
350	14.50	584.04	344.00	104.02
354	96.10	583.94	323.00	113.07
358	15.20	584.03	372.00	91.88
362	.00	586.20	364.00	96.29
366	7.30	587.34	437.00	65.15
370	10.90	587.32	406.00	78.57
374	3.50	587.32	372.00	93.31
378	6.40	587.32	377.00	91.14
382	13.30	587.31	436.00	65.57
386	15.50	587.27	380.00	89.82
390	21.90	587.26	367.00	95.45
394	3.50	587.26	350.00	102.81
398	1.20	587.26	351.00	102.38
402	19.60	587.24	379.00	90.24
406	6.30	587.24	365.00	96.30
410	6.90	587.23	357.00	99.77
414	5.50	588.60	464.00	53.99
416	7.70	591.14	434.00	68.09
418	3.40	591.46	421.00	73.87
422	4.40	592.05	442.00	65.02
426	9.40	592.97	410.00	79.29
428	44.40	594.06	410.00	79.76
430	43.60	595.39	397.00	85.97
434	14.90	596.41	363.00	101.14
438	.00	597.95	315.00	122.61
442	20.10	595.06	375.00	95.36
446	9.20	594.68	367.00	98.66
450	27.00	594.46	383.00	91.63
454	24.90	594.32	348.00	106.74
458	2.80	593.76	366.00	98.69
462	5.40	593.68	373.00	95.63
466	7.60	593.62	382.00	91.70
468	.00	593.59	385.00	90.39
470	12.30	593.56	387.00	89.51
474	10.90	593.51	389.00	88.62
476	.00	593.47	381.00	92.07
478	21.10	593.39	332.00	113.27
482	13.70	593.62	389.00	88.67
486	10.30	589.06	459.00	56.36
490	8.40	589.65	450.00	60.51
494	6.40	589.97	431.00	68.89
498	9.30	590.22	424.00	72.03
502	4.40	590.34	399.00	82.91
506	11.90	590.50	425.00	71.72
510	9.60	589.08	456.00	57.67
514	12.20	589.38	415.00	75.56

518	9.00	589.53	409.00	78.23
522	6.40	589.70	407.00	79.17
526	6.60	590.21	399.00	82.86
530	7.50	590.89	397.00	84.02
534	.00	591.24	399.00	83.30
538	.00	591.28	415.00	76.39
542	.00	591.34	393.00	85.95
546	5.80	591.36	386.00	88.99
550	6.00	591.39	381.00	91.17
554	4.40	591.42	382.00	90.75
558	.00	591.74	422.00	73.56
562	.00	591.85	435.00	67.97
566	6.00	591.30	392.00	86.36
570	6.40	591.41	383.00	90.31
574	5.50	591.48	384.00	89.91
578	5.70	591.53	386.00	89.06
582	5.70	591.58	387.00	88.65
586	4.70	591.50	408.00	79.52
590	.00	591.50	375.00	93.82
594	16.50	591.64	417.00	75.68
598	9.50	591.81	428.00	70.98
602	3.40	591.77	420.00	74.43
604	10.30	591.76	402.00	82.23
900	.00	585.45	345.00	104.20
904	7.40	585.45	346.00	103.76
908	7.40	585.45	339.00	106.79
912	8.30	585.44	366.00	95.09
914	.00	585.43	388.00	85.55
915	.00	585.43	389.00	85.12
916	8.30	585.43	391.00	84.25
917	.00	585.43	395.00	82.52
918	.00	585.43	397.00	81.65
919	.00	585.43	393.00	83.39
920	8.30	585.43	398.00	81.22
921	.00	585.43	396.00	82.09
923	.00	585.43	396.00	82.09
924	8.30	585.43	400.00	80.35
926	.00	585.43	406.00	77.75
928	.00	585.44	412.00	75.16
932	.00	585.44	455.00	56.52
936	.00	585.44	420.00	71.69
940	5.40	585.43	421.00	71.25
944	5.40	585.43	417.00	72.99
948	5.40	585.43	422.00	70.82
952	.00	585.43	416.00	73.42
	MAXIMUM PRESSURES			
438	.00	597.95	315.00	122.61
48	6.30	585.47	318.00	115.90
68	7.80	585.56	320.00	115.08
52	.70	585.47	321.00	114.61
46	.00	585.47	321.00	114.60
80	6.90	585.56	323.00	113.78
478	21.10	593.39	332.00	113.27
354	96.10	583.94	323.00	113.07
92	6.40	585.56	327.00	112.04
60	4.40	585.51	327.00	112.02
	MINIMUM PRESSURES			
192	5.60	586.05	477.00	47.26
28	6.10	585.77	476.00	47.57
196	4.50	586.20	475.00	48.19
216	6.20	586.17	471.00	49.90

4	3.40	586.00	468.00	51.13
236	4.10	586.01	463.00	53.30
414	5.50	588.60	464.00	53.99
188	5.40	586.06	461.00	54.19
8	8.70	585.97	456.00	56.32
132	6.50	585.97	456.00	56.32

THE NET SYSTEM DEMAND = 1475.20

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
6	1125.34
12	349.86

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 1475.20
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 2.00

THE RESULTS ARE OBTAINED AFTER 6 TRIALS WITH AN ACCURACY = .00016

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand equals 2 x Avg Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	126.10	.67	.00	.00	3.22	13.38
5	4	8	618.38	.08	.00	.00	1.29	.49
6	0	438	1159.82	16.98	.00	.00	13.16	113.18
9	8	12	173.26	.21	.00	.00	.71	.28
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1664.48	.98	.00	.00	4.72	6.52
13	12	16	281.47	.28	.00	.00	1.15	.68
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	239.27	.32	.00	.00	.98	.51
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	202.55	.08	.00	.00	.57	.13
53	114	952	-74.15	-.03	.00	.00	-.21	-.02
57	116	114	480.65	.51	.00	.00	1.36	.65
61	116	72	-11.44	-.01	.00	.00	-.07	-.01
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	36.84	.01	.00	.00	.24	.05
71	68	60	250.95	.22	.00	.00	1.03	.55
75	60	52	233.95	.13	.00	.00	.96	.48
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	340.58	.38	.00	.00	.97	.34
87	80	68	-37.18	-.01	.00	.00	-.24	-.05
91	80	84	16.08	.01	.00	.00	.10	.01
95	88	84	-.68	.00	.00	.00	.00	.00
99	92	88	14.92	.01	.00	.00	.10	.01
103	92	80	-7.30	.00	.00	.00	-.05	.00
107	96	92	20.42	.00	.00	.00	.13	.02
111	96	100	7.65	.00	.00	.00	.05	.00
115	104	100	9.15	.00	.00	.00	.06	.00
119	108	104	24.55	.02	.00	.00	.16	.02
123	108	96	39.66	.02	.00	.00	.25	.05
127	112	108	86.62	.17	.00	.00	.55	.23
131	112	116	483.21	.20	.00	.00	1.37	.66
135	120	112	582.02	.28	.00	.00	1.65	.93
137	10	122	427.71	.17	.00	.00	1.21	.53
139	8	10	427.71	.40	.00	.00	1.21	.53
141	122	120	427.71	.17	.00	.00	1.21	.53
143	120	124	-171.71	-.26	.00	.00	-1.10	-.81
147	124	128	-181.31	-.30	.00	.00	-1.16	-.90
151	132	128	124.96	.15	.00	.00	.80	.45
155	192	132	110.00	.26	.00	.00	.70	.36
159	4	192	-625.18	-.14	.00	.00	-1.30	-.50
163	192	188	-9.69	.00	.00	.00	-.06	.00
167	188	136	73.59	.22	.00	.00	.83	.69
171	136	132	27.96	.04	.00	.00	.32	.11
175	136	140	30.63	.07	.00	.00	.35	.14
179	144	140	-101.55	-.08	.00	.00	-.65	-.31
183	128	144	-63.95	-.04	.00	.00	-.41	-.13
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-82.33	-.08	.00	.00	-.53	-.21
199	156	160	-4.88	.00	.00	.00	-.03	.00

203	160	164	-20.28	.00	.00	.00	-.13	-.02
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	52.07	.04	.00	.00	.33	.09
219	180	176	52.07	.02	.00	.00	.33	.09
223	180	156	91.84	.07	.00	.00	.59	.25
227	180	204	-94.91	-.07	.00	.00	-.61	-.27
231	184	180	60.80	.07	.00	.00	.39	.12
235	188	184	75.80	.06	.00	.00	.48	.18
239	188	200	-169.87	-.28	.00	.00	-1.08	-.79
243	196	200	120.27	.16	.00	.00	.77	.42
247	192	196	-736.69	-.45	.00	.00	-1.54	-.68
251	196	208	-865.96	-.27	.00	.00	-1.80	-.92
253	208	212	166.21	.26	.00	.00	1.06	.76
257	212	12	136.61	.89	.00	.00	.87	.53
261	208	216	159.57	.39	.00	.00	1.02	.71
265	200	216	-61.40	-.04	.00	.00	-.39	-.12
269	216	204	115.91	.39	.00	.00	.74	.39
273	208	260	-1204.13	-.98	.00	.00	-2.51	-1.69
277	260	268	-166.06	-.96	.00	.00	-1.06	-.76
281	260	264	-1131.03	-.45	.00	.00	-2.36	-1.50
285	264	268	-1138.43	-.51	.00	.00	-2.37	-1.52
289	268	276	-1324.69	-1.46	.00	.00	-2.76	-2.01
293	276	272	284.21	.54	.00	.00	1.81	2.06
297	256	272	-258.41	-1.90	.00	.00	-1.65	-1.73
301	260	256	68.55	.02	.00	.00	.28	.05
305	256	252	302.16	.28	.00	.00	1.23	.78
309	252	248	280.96	.20	.00	.00	1.15	.68
313	248	244	266.36	.18	.00	.00	1.09	.62
317	244	240	256.16	.22	.00	.00	1.05	.57
321	240	228	244.56	.40	.00	.00	1.56	1.56
325	228	232	161.21	.50	.00	.00	1.03	.72
329	232	306	84.76	.06	.00	.00	.54	.22
333	236	164	14.21	.00	.00	.00	.09	.01
337	224	228	-64.15	-.03	.00	.00	-.41	-.13
341	220	224	-43.95	-.02	.00	.00	-.28	-.06
345	216	220	-30.15	-.01	.00	.00	-.19	-.03
349	236	282	20.14	.01	.00	.00	.13	.02
353	282	286	6.34	.00	.00	.00	.04	.00
357	286	290	-5.26	.00	.00	.00	-.03	.00
361	290	294	-19.86	.00	.00	.00	-.13	-.01
365	294	232	-68.86	-.08	.00	.00	-.28	-.05
369	290	298	-3.20	.00	.00	.00	-.02	.00
373	298	302	-17.20	-.01	.00	.00	-.11	-.01
377	302	306	-31.80	-.02	.00	.00	-.20	-.04
381	306	236	42.55	.02	.00	.00	.27	.06
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-1863.90	-3.93	.00	.00	-3.88	-3.79
511	414	416	-737.21	-8.17	.00	.00	-1.54	-.68
513	416	418	-1405.64	-1.04	.00	.00	-2.93	-2.25
515	418	422	-1525.88	-1.92	.00	.00	-3.18	-2.62
519	422	426	-2289.70	-3.00	.00	.00	-4.77	-5.55
523	426	428	-1993.35	-3.59	.00	.00	-4.15	-4.29
525	428	430	-1779.16	-4.38	.00	.00	-3.71	-3.48
527	430	434	-2426.49	-3.39	.00	.00	-5.06	-6.18
531	434	438	-2824.30	-5.13	.00	.00	-5.89	-8.19
535	434	442	368.01	4.50	.00	.00	2.35	3.33
539	442	446	327.81	1.25	.00	.00	2.09	2.69
543	430	446	560.13	2.36	.00	.00	2.29	2.44
547	446	450	459.61	.75	.00	.00	1.88	1.69
551	450	428	302.98	1.28	.00	.00	1.24	.78
555	446	454	409.92	1.19	.00	.00	1.67	1.37
559	450	454	102.63	.44	.00	.00	.66	.31
563	454	458	462.75	1.88	.00	.00	1.89	1.72
567	458	462	457.15	.25	.00	.00	1.30	.60
571	462	466	347.44	.20	.00	.00	.99	.36
573	466	468	333.56	.09	.00	.00	.95	.33
575	468	470	333.56	.10	.00	.00	.95	.33
579	470	474	379.15	.17	.00	.00	1.08	.42
581	474	476	357.35	.13	.00	.00	1.01	.38
583	476	478	357.35	.27	.00	.00	1.01	.38
587	478	426	315.15	1.33	.00	.00	1.29	.84
591	470	482	-70.19	-.19	.00	.00	-.45	-.15
595	466	482	-1.33	.00	.00	.00	-.01	.00
599	462	482	98.92	.20	.00	.00	.63	.29
603	414	486	-551.63	-1.47	.00	.00	-3.52	-7.04
607	486	490	-572.23	-1.86	.00	.00	-3.65	-7.54
611	490	494	-272.91	-1.05	.00	.00	-1.74	-1.91
615	494	498	-285.71	-.79	.00	.00	-1.82	-2.08
619	498	502	-130.17	-.39	.00	.00	-.83	-.49
623	502	506	-138.97	-.52	.00	.00	-.89	-.55
627	506	498	174.14	.92	.00	.00	1.11	.83
629	506	416	-653.03	-2.08	.00	.00	-4.17	-9.62
631	506	490	316.12	2.75	.00	.00	2.02	2.51
635	414	510	-586.06	-1.52	.00	.00	-3.74	-7.88
639	510	514	-244.10	-.94	.00	.00	-1.56	-1.56
643	514	518	-268.50	-.47	.00	.00	-1.71	-1.86
647	518	522	-286.50	-.57	.00	.00	-1.83	-2.09
651	522	526	-299.30	-1.65	.00	.00	-1.91	-2.27
655	526	510	361.16	3.63	.00	.00	2.31	3.21
659	526	530	-673.66	-2.20	.00	.00	-4.30	-10.19
663	530	418	-383.43	-1.86	.00	.00	-2.45	-3.59
667	530	534	-305.22	-1.13	.00	.00	-1.95	-2.35
671	534	538	-95.64	-.12	.00	.00	-.61	-.27
675	538	542	-95.64	-.21	.00	.00	-.61	-.27
679	542	546	-95.64	-.05	.00	.00	-.61	-.27

683	546	550	-107.24	-.10	.00	.00	-.68	-.34
687	550	554	-119.24	-.11	.00	.00	-.76	-.41
691	554	558	-192.78	-1.06	.00	.00	-1.23	-1.00
695	558	562	-192.78	-.33	.00	.00	-1.23	-1.00
699	562	422	-396.22	-.68	.00	.00	-2.53	-3.81
703	534	566	-209.58	-.20	.00	.00	-1.34	-1.17
707	566	570	-221.58	-.35	.00	.00	-1.41	-1.30
711	570	554	-64.74	-.03	.00	.00	-.41	-.13
715	570	574	-169.64	-.23	.00	.00	-1.08	-.79
719	574	578	-180.64	-.14	.00	.00	-1.15	-.89
723	578	582	-192.04	-.17	.00	.00	-1.23	-1.00
727	582	562	-203.44	-.88	.00	.00	-1.30	-1.11
731	418	586	-269.99	-.14	.00	.00	-1.10	-.63
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-279.39	-.43	.00	.00	-1.78	-2.00
743	594	598	-228.94	-.54	.00	.00	-1.46	-1.38
747	598	422	-358.79	-.81	.00	.00	-2.29	-3.17
751	598	602	110.86	.11	.00	.00	.71	.36
755	602	604	57.78	.05	.00	.00	.37	.11
759	602	604	46.27	.05	.00	.00	.30	.07
763	594	604	-83.46	-.38	.00	.00	-.53	-.21
901	900	904	74.59	.02	.00	.00	.48	.15
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	44.99	.04	.00	.00	.29	.06
917	916	912	-28.39	-.01	.00	.00	-.18	-.02
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	5.08	.00	.00	.00	.03	.00
920	915	919	5.08	.00	.00	.00	.03	.00
921	916	918	6.71	.00	.00	.00	.04	.00
922	917	919	-3.38	.00	.00	.00	-.02	.00
923	918	917	-3.38	.00	.00	.00	-.02	.00
924	923	919	-1.70	.00	.00	.00	-.01	.00
925	918	920	10.09	.00	.00	.00	.06	.00
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	6.51	.00	.00	.00	.04	.00
931	924	923	-1.70	.00	.00	.00	-.01	.00
933	926	924	21.41	.00	.00	.00	.14	.01
937	928	926	21.41	.00	.00	.00	.14	.01
941	932	928	21.41	.01	.00	.00	.14	.01
945	56	932	21.41	.00	.00	.00	.06	.00
949	900	56	127.96	.05	.00	.00	.36	.06
951	58	56	-106.55	-.01	.00	.00	-.30	-.04
953	936	58	-106.55	-.01	.00	.00	-.30	-.04
957	936	940	35.20	.01	.00	.00	.14	.01
961	940	944	9.80	.00	.00	.00	.04	.00
965	948	944	1.00	.00	.00	.00	.00	.00
969	948	940	-14.60	.00	.00	.00	-.06	.00
973	952	948	-2.80	.00	.00	.00	-.01	.00
977	952	936	-71.35	-.01	.00	.00	-.20	-.02

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	558.23	468.00	39.10
8	17.40	558.14	456.00	44.26
10	.00	557.75	402.00	67.49
12	28.40	557.93	431.00	55.00
16	10.20	557.65	420.00	59.65
20	7.60	557.64	444.00	49.24
24	12.20	557.64	454.00	44.91
28	12.20	557.64	476.00	35.38
32	12.60	557.33	403.00	66.88
36	12.20	557.33	427.00	56.47

44	17.40	556.59	376.00	78.26
46	.00	556.60	321.00	102.09
48	12.60	556.60	318.00	103.39
52	1.40	556.60	321.00	102.10
56	.00	556.47	433.00	53.50
58	.00	556.46	420.00	59.13
60	8.80	556.73	327.00	99.55
64	8.20	556.73	351.00	89.15
68	15.60	556.95	320.00	102.68
72	25.40	556.93	359.00	85.77
76	.00	556.93	348.00	90.54
80	13.80	556.93	323.00	101.37
84	15.40	556.93	386.00	74.07
88	15.60	556.93	372.00	80.13
92	12.80	556.93	327.00	99.64
96	11.60	556.94	347.00	90.97
100	16.80	556.94	415.00	61.51
104	15.40	556.94	417.00	60.64
108	22.40	556.95	355.00	87.51
112	12.20	557.13	375.00	78.92
114	76.80	556.42	391.00	71.68
116	14.00	556.92	379.00	77.10
120	17.40	557.41	377.00	78.18
122	.00	557.58	385.00	74.79
124	9.60	557.66	401.00	67.89
128	7.60	557.96	422.00	58.92
132	13.00	558.11	456.00	44.25
136	15.00	558.15	446.00	48.60
140	11.40	558.08	446.00	48.57
144	10.20	558.00	429.00	55.90
148	10.80	557.96	415.00	61.95
152	16.60	557.95	390.00	72.78
156	14.40	558.17	423.00	58.57
160	15.40	558.17	393.00	71.57
164	8.00	558.17	426.00	57.27
168	13.80	558.16	396.00	70.27
172	24.20	558.15	380.00	77.20
176	.00	558.22	454.00	45.16
180	11.80	558.24	445.00	49.07
184	15.00	558.31	446.00	48.67
188	10.80	558.37	461.00	42.19
192	11.20	558.37	477.00	35.26
196	9.00	558.81	475.00	36.32
200	11.80	558.65	454.00	45.35
204	21.00	558.30	423.00	58.63
208	12.40	559.08	455.00	45.10
212	29.60	558.82	415.00	62.32
216	12.40	558.69	471.00	38.00
220	13.80	558.71	445.00	49.27
224	20.20	558.73	439.00	51.88
228	19.20	558.76	409.00	64.89
232	7.60	558.25	397.00	69.88
236	8.20	558.17	463.00	41.24
240	11.60	559.16	353.00	89.34
244	10.20	559.38	366.00	83.80
248	14.60	559.56	369.00	82.58
252	21.20	559.77	387.00	74.86
256	24.80	560.04	404.00	67.62
260	24.40	560.06	427.00	57.66
264	7.40	560.50	443.00	50.92
268	20.20	561.02	453.00	46.81
272	25.80	561.94	455.00	46.34
276	22.40	562.48	457.00	45.71

282	13.80	558.17	394.00	71.14
286	11.60	558.17	380.00	77.21
290	17.80	558.17	387.00	74.17
294	49.00	558.17	389.00	73.31
298	14.00	558.17	396.00	70.27
302	14.60	558.17	410.00	64.21
306	10.40	558.19	411.00	63.78
310	25.60	553.06	358.00	84.53
314	15.00	552.76	340.00	92.20
318	11.00	552.69	344.00	90.43
322	19.80	552.66	354.00	86.09
326	27.80	552.63	359.00	83.91
330	19.60	552.68	348.00	88.69
334	19.80	552.68	346.00	89.56
338	32.40	551.57	352.00	86.48
342	19.60	551.56	358.00	83.88
346	35.80	551.56	382.00	73.48
350	29.00	551.40	344.00	89.87
354	192.20	551.03	323.00	98.82
358	30.40	551.39	372.00	77.73
362	.00	558.82	364.00	84.42
366	14.60	562.34	437.00	54.32
370	21.80	562.29	406.00	67.72
374	7.00	562.28	372.00	82.46
378	12.80	562.28	377.00	80.29
382	26.60	562.23	436.00	54.70
386	31.00	562.10	380.00	78.91
390	43.80	562.08	367.00	84.53
394	7.00	562.06	350.00	91.89
398	2.40	562.05	351.00	91.46
402	39.20	561.98	379.00	79.29
406	12.60	561.98	365.00	85.36
410	13.80	561.97	357.00	88.82
414	11.00	566.41	464.00	44.38
416	15.40	574.57	434.00	60.91
418	6.80	575.61	421.00	67.00
422	8.80	577.54	442.00	58.73
426	18.80	580.54	410.00	73.90
428	88.80	584.13	410.00	75.45
430	87.20	588.51	397.00	82.99
434	29.80	591.90	363.00	99.19
438	.00	597.02	315.00	122.21
442	40.20	587.40	375.00	92.04
446	18.40	586.15	367.00	94.96
450	54.00	585.40	383.00	87.71
454	49.80	584.96	348.00	102.68
458	5.60	583.08	366.00	94.07
462	10.80	582.83	373.00	90.92
466	15.20	582.63	382.00	86.94
468	.00	582.54	385.00	85.60
470	24.60	582.44	387.00	84.69
474	21.80	582.27	389.00	83.75
476	.00	582.14	381.00	87.16
478	42.20	581.87	332.00	108.28
482	27.40	582.63	389.00	83.91
486	20.60	567.88	459.00	47.18
490	16.80	569.74	450.00	51.89
494	12.80	570.79	431.00	60.57
498	18.60	571.58	424.00	63.95
502	8.80	571.97	399.00	74.95
506	23.80	572.49	425.00	63.91
510	19.20	567.93	456.00	48.50
514	24.40	568.86	415.00	66.67

518	18.00	569.34	409.00	69.48
522	12.80	569.90	407.00	70.59
526	13.20	571.55	399.00	74.77
530	15.00	573.76	397.00	76.59
534	.00	574.88	399.00	76.22
538	.00	575.00	415.00	69.33
542	.00	575.21	393.00	78.96
546	11.60	575.27	386.00	82.02
550	12.00	575.36	381.00	84.22
554	8.80	575.47	382.00	83.84
558	.00	576.52	422.00	66.96
562	.00	576.86	435.00	61.47
566	12.00	575.08	392.00	79.34
570	12.80	575.43	383.00	83.39
574	11.00	575.67	384.00	83.06
578	11.40	575.80	386.00	82.25
582	11.40	575.97	387.00	81.89
586	9.40	575.75	408.00	72.69
590	.00	575.75	375.00	86.99
594	33.00	576.18	417.00	68.98
598	19.00	576.73	428.00	64.45
602	6.80	576.62	420.00	67.87
604	20.60	576.57	402.00	75.65
900	.00	556.52	345.00	91.66
904	14.80	556.50	346.00	91.22
908	14.80	556.50	339.00	94.25
912	16.60	556.46	366.00	82.53
914	.00	556.45	388.00	73.00
915	.00	556.45	389.00	72.56
916	16.60	556.45	391.00	71.70
917	.00	556.45	395.00	69.96
918	.00	556.45	397.00	69.10
919	.00	556.45	393.00	70.83
920	16.60	556.45	398.00	68.66
921	.00	556.45	396.00	69.53
923	.00	556.45	396.00	69.53
924	16.60	556.45	400.00	67.80
926	.00	556.45	406.00	65.20
928	.00	556.46	412.00	62.60
932	.00	556.47	455.00	43.97
936	.00	556.45	420.00	59.13
940	10.80	556.44	421.00	58.69
944	10.80	556.44	417.00	60.43
948	10.80	556.44	422.00	58.26
952	.00	556.44	416.00	60.86
	MAXIMUM PRESSURES			
438	.00	597.02	315.00	122.21
478	42.20	581.87	332.00	108.28
48	12.60	556.60	318.00	103.39
454	49.80	584.96	348.00	102.68
68	15.60	556.95	320.00	102.68
52	1.40	556.60	321.00	102.10
46	.00	556.60	321.00	102.09
80	13.80	556.93	323.00	101.37
92	12.80	556.93	327.00	99.64
60	8.80	556.73	327.00	99.55
	MINIMUM PRESSURES			
192	11.20	558.37	477.00	35.26
28	12.20	557.64	476.00	35.38
196	9.00	558.81	475.00	36.32
216	12.40	558.69	471.00	38.00

4	6.80	558.23	468.00	39.10
236	8.20	558.17	463.00	41.24
188	10.80	558.37	461.00	42.19
932	.00	556.47	455.00	43.97
132	13.00	558.11	456.00	44.25
8	17.40	558.14	456.00	44.26

THE NET SYSTEM DEMAND = 2950.40

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	126.10
6	1159.82
12	1664.48

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2950.40
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 3.00

THE RESULTS ARE OBTAINED AFTER 4 TRIALS WITH AN ACCURACY = .00276

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Peak Hour Demand equals 3 x Avg Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	375.28	5.04	.00	.00	9.58	100.88
5	4	8	293.18	.02	.00	.00	.61	.12
6	0	438	1180.79	17.55	.00	.00	13.40	117.00
9	8	12	-226.98	-.35	.00	.00	-.93	-.46
10	0	32	734.20	.04	.00	.00	3.00	4.03
12	0	438	2135.32	1.55	.00	.00	6.06	10.33
13	12	16	-224.25	-.18	.00	.00	-.92	-.45
17	16	20	48.00	.02	.00	.00	.31	.08
21	20	24	18.30	.00	.00	.00	.12	.01
25	20	28	18.30	.01	.00	.00	.12	.01
29	16	32	-287.55	-.45	.00	.00	-1.17	-.71
33	32	36	18.30	.01	.00	.00	.12	.01
41	46	44	26.10	.02	.00	.00	.17	.02
43	48	46	26.10	.00	.00	.00	.17	.02
45	48	52	-45.00	.00	.00	.00	-.18	-.02
49	52	900	366.19	.25	.00	.00	1.04	.39
53	114	952	-173.59	-.14	.00	.00	-.49	-.10
57	116	114	658.61	.91	.00	.00	1.87	1.17
61	116	72	-107.67	-.53	.00	.00	-.69	-.34
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	145.77	.19	.00	.00	.93	.60
71	68	60	438.79	.61	.00	.00	1.79	1.55
75	60	52	413.29	.36	.00	.00	1.69	1.39
79	60	64	12.30	.00	.00	.00	.08	.01
83	32	68	784.73	1.80	.00	.00	2.23	1.62
87	80	68	-176.77	-.26	.00	.00	-1.13	-.86
91	80	84	55.51	.08	.00	.00	.35	.10
95	88	84	-32.41	-.01	.00	.00	-.21	-.04
99	92	88	-9.01	.00	.00	.00	-.06	.00
103	92	80	-100.56	-.09	.00	.00	-.64	-.30
107	96	92	-90.37	-.07	.00	.00	-.58	-.25
111	96	100	30.65	.03	.00	.00	.20	.03
115	104	100	-5.45	.00	.00	.00	-.03	.00
119	108	104	17.65	.01	.00	.00	.11	.01
123	108	96	-42.32	-.02	.00	.00	-.27	-.06
127	112	108	8.93	.00	.00	.00	.06	.00
131	112	116	571.94	.28	.00	.00	1.62	.90
135	120	112	599.17	.30	.00	.00	1.70	.98
137	10	122	494.06	.22	.00	.00	1.40	.69
139	8	10	494.06	.52	.00	.00	1.40	.69
141	122	120	494.06	.23	.00	.00	1.40	.69
143	120	124	-131.21	-.16	.00	.00	-.84	-.49
147	124	128	-145.61	-.20	.00	.00	-.93	-.60
151	132	128	146.43	.20	.00	.00	.93	.60
155	192	132	151.28	.46	.00	.00	.97	.64
159	4	192	-303.38	-.04	.00	.00	-.63	-.13
163	192	188	106.24	.14	.00	.00	.68	.33
167	188	136	87.92	.31	.00	.00	1.00	.95
171	136	132	14.65	.01	.00	.00	.17	.03
175	136	140	50.76	.17	.00	.00	.58	.34
179	144	140	-66.98	-.04	.00	.00	-.43	-.14
183	128	144	-10.58	.00	.00	.00	-.07	.00
187	144	148	41.10	.07	.00	.00	.47	.23
191	148	152	24.90	.03	.00	.00	.28	.09
195	140	156	-33.32	-.02	.00	.00	-.21	-.04
199	156	160	50.98	.05	.00	.00	.33	.09

203	160	164	27.88	.01	.00	.00	.18	.03
207	164	168	57.00	.03	.00	.00	.36	.11
211	168	172	36.30	.01	.00	.00	.23	.05
215	176	164	81.44	.10	.00	.00	.52	.20
219	180	176	81.44	.05	.00	.00	.52	.20
223	180	156	105.90	.10	.00	.00	.68	.33
227	180	204	-96.92	-.07	.00	.00	-.62	-.28
231	184	180	108.12	.20	.00	.00	.69	.34
235	188	184	130.62	.17	.00	.00	.83	.49
239	188	200	-128.50	-.17	.00	.00	-.82	-.47
243	196	200	156.08	.26	.00	.00	1.00	.68
247	192	196	-577.70	-.28	.00	.00	-1.20	-.43
251	196	208	-747.28	-.20	.00	.00	-1.56	-.70
253	208	212	89.72	.08	.00	.00	.57	.24
257	212	12	45.32	.12	.00	.00	.29	.07
261	208	216	175.57	.46	.00	.00	1.12	.84
265	200	216	9.88	.00	.00	.00	.06	.00
269	216	204	128.42	.47	.00	.00	.82	.47
273	208	260	-1031.17	-.73	.00	.00	-2.15	-1.27
277	260	268	-151.05	-.80	.00	.00	-.96	-.64
281	260	264	-1026.48	-.37	.00	.00	-2.14	-1.26
285	264	268	-1037.58	-.43	.00	.00	-2.16	-1.28
289	268	276	-1218.94	-1.25	.00	.00	-2.54	-1.73
293	276	272	274.08	.50	.00	.00	1.75	1.93
297	256	272	-235.38	-1.60	.00	.00	-1.50	-1.45
301	260	256	109.77	.04	.00	.00	.45	.12
305	256	252	307.95	.29	.00	.00	1.26	.81
309	252	248	276.15	.20	.00	.00	1.13	.66
313	248	244	254.25	.16	.00	.00	1.04	.57
317	244	240	238.95	.20	.00	.00	.98	.50
321	240	228	221.55	.34	.00	.00	1.41	1.30
325	228	232	180.18	.62	.00	.00	1.15	.89
329	232	306	86.15	.06	.00	.00	.55	.23
333	236	164	-40.32	-.02	.00	.00	-.26	-.06
337	224	228	-12.57	.00	.00	.00	-.08	-.01
341	220	224	17.73	.00	.00	.00	.11	.01
345	216	220	38.43	.02	.00	.00	.25	.05
349	236	282	51.19	.03	.00	.00	.33	.09
353	282	286	30.49	.01	.00	.00	.19	.03
357	286	290	13.09	.00	.00	.00	.08	.01
361	290	294	-9.13	.00	.00	.00	-.06	.00
365	294	232	-82.63	-.11	.00	.00	-.34	-.07
369	290	298	-4.48	.00	.00	.00	-.03	.00
373	298	302	-25.48	-.01	.00	.00	-.16	-.02
377	302	306	-47.38	-.04	.00	.00	-.30	-.07
381	306	236	23.17	.01	.00	.00	.15	.02
385	310	114	-717.00	-7.10	.00	.00	-2.93	-3.86
389	310	314	243.43	.64	.00	.00	.99	.52
393	314	318	220.93	.15	.00	.00	.90	.44
397	318	322	87.69	.07	.00	.00	.36	.08
401	322	326	115.63	.05	.00	.00	.47	.13
405	322	330	-57.64	-.04	.00	.00	-.24	-.04
409	318	330	116.74	.03	.00	.00	.48	.13
413	330	334	22.79	.00	.00	.00	.09	.01
417	330	334	6.91	.00	.00	.00	.04	.00
419	310	326	435.17	.91	.00	.00	1.78	1.53
423	338	326	-509.10	-2.25	.00	.00	-2.08	-2.05
427	338	342	83.10	.02	.00	.00	.34	.07
431	342	346	41.08	.01	.00	.00	.17	.02
435	342	346	12.62	.01	.00	.00	.08	.01
439	338	350	377.40	.36	.00	.00	1.54	1.18
443	350	354	288.30	.78	.00	.00	1.18	.71
447	350	358	45.60	.03	.00	.00	.19	.02

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	348.90	.29	.00	.00	1.43	1.02
459	366	370	62.40	.12	.00	.00	.40	.12
463	370	374	10.50	.00	.00	.00	.07	.00
467	370	378	19.20	.01	.00	.00	.12	.01
471	366	382	264.60	.24	.00	.00	1.08	.61
475	382	386	88.04	.27	.00	.00	.56	.24
479	386	390	41.54	.05	.00	.00	.27	.06
483	382	390	136.66	.33	.00	.00	.56	.18
487	390	394	112.50	.03	.00	.00	.46	.12
491	394	398	102.00	.02	.00	.00	.42	.10
495	398	402	98.40	.15	.00	.00	.40	.10
499	402	406	18.90	.00	.00	.00	.08	.00
503	402	410	20.70	.02	.00	.00	.13	.02
507	276	414	-1875.52	-3.97	.00	.00	-3.91	-3.84
511	414	416	-764.37	-8.73	.00	.00	-1.59	-.73
513	416	418	-1490.01	-1.16	.00	.00	-3.11	-2.51
515	418	422	-1648.01	-2.22	.00	.00	-3.43	-3.02
519	422	426	-2514.22	-3.57	.00	.00	-5.24	-6.60
523	426	428	-2229.67	-4.41	.00	.00	-4.65	-5.28
525	428	430	-2040.00	-5.65	.00	.00	-4.25	-4.48
527	430	434	-2835.55	-4.52	.00	.00	-5.91	-8.25
531	434	438	-3316.12	-6.90	.00	.00	-6.91	-11.02
535	434	442	435.87	6.16	.00	.00	2.78	4.55
539	442	446	375.57	1.60	.00	.00	2.40	3.45
543	430	446	664.75	3.24	.00	.00	2.72	3.35
547	446	450	529.45	.97	.00	.00	2.16	2.20
551	450	428	322.87	1.44	.00	.00	1.32	.88
555	446	454	483.27	1.61	.00	.00	1.97	1.86
559	450	454	125.58	.64	.00	.00	.80	.45
563	454	458	534.15	2.46	.00	.00	2.18	2.24
567	458	462	525.75	.33	.00	.00	1.49	.77
571	462	466	396.54	.25	.00	.00	1.12	.46
573	466	468	368.24	.11	.00	.00	1.04	.40
575	468	470	368.24	.12	.00	.00	1.04	.40
579	470	474	408.75	.19	.00	.00	1.16	.48
581	474	476	376.05	.15	.00	.00	1.07	.41
583	476	478	376.05	.30	.00	.00	1.07	.41
587	478	426	312.75	1.31	.00	.00	1.28	.83
591	470	482	-77.41	-.23	.00	.00	-.49	-.19
595	466	482	5.50	.00	.00	.00	.04	.00
599	462	482	113.01	.25	.00	.00	.72	.37
603	414	486	-550.44	-1.47	.00	.00	-3.51	-7.01
607	486	490	-581.34	-1.92	.00	.00	-3.71	-7.76
611	490	494	-277.31	-1.08	.00	.00	-1.77	-1.97
615	494	498	-296.51	-.85	.00	.00	-1.89	-2.23
619	498	502	-137.58	-.44	.00	.00	-.88	-.54
623	502	506	-150.78	-.61	.00	.00	-.96	-.64
627	506	498	186.84	1.04	.00	.00	1.19	.95
629	506	416	-702.54	-2.38	.00	.00	-4.48	-11.02
631	506	490	329.23	2.97	.00	.00	2.10	2.71
635	414	510	-577.21	-1.48	.00	.00	-3.68	-7.66
639	510	514	-235.00	-.87	.00	.00	-1.50	-1.45
643	514	518	-271.60	-.48	.00	.00	-1.73	-1.90
647	518	522	-298.60	-.61	.00	.00	-1.91	-2.26
651	522	526	-317.80	-1.84	.00	.00	-2.03	-2.54
655	526	510	371.01	3.81	.00	.00	2.37	3.38
659	526	530	-708.61	-2.42	.00	.00	-4.52	-11.20
663	530	418	-418.32	-2.18	.00	.00	-2.67	-4.22
667	530	534	-312.79	-1.18	.00	.00	-2.00	-2.46
671	534	538	-97.56	-.13	.00	.00	-.62	-.28
675	538	542	-97.56	-.22	.00	.00	-.62	-.28
679	542	546	-97.56	-.05	.00	.00	-.62	-.28

683	546	550	-114.96	-.11	.00	.00	-.73	-.39
687	550	554	-132.96	-.13	.00	.00	-.85	-.50
691	554	558	-216.87	-1.31	.00	.00	-1.38	-1.25
695	558	562	-216.87	-.41	.00	.00	-1.38	-1.25
699	562	422	-449.29	-.86	.00	.00	-2.87	-4.81
703	534	566	-215.23	-.21	.00	.00	-1.37	-1.23
707	566	570	-233.23	-.39	.00	.00	-1.49	-1.43
711	570	554	-70.72	-.04	.00	.00	-.45	-.16
715	570	574	-181.72	-.26	.00	.00	-1.16	-.90
719	574	578	-198.22	-.16	.00	.00	-1.27	-1.06
723	578	582	-215.32	-.21	.00	.00	-1.37	-1.23
727	582	562	-232.42	-1.13	.00	.00	-1.48	-1.42
731	418	586	-270.52	-.14	.00	.00	-1.10	-.63
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-284.62	-.45	.00	.00	-1.82	-2.07
743	594	598	-246.81	-.63	.00	.00	-1.58	-1.59
747	598	422	-403.72	-1.01	.00	.00	-2.58	-3.95
751	598	602	128.40	.15	.00	.00	.82	.47
755	602	604	65.64	.06	.00	.00	.42	.14
759	602	604	52.56	.06	.00	.00	.34	.09
763	594	604	-87.30	-.42	.00	.00	-.56	-.23
901	900	904	121.98	.06	.00	.00	.78	.37
905	904	908	10.98	.00	.00	.00	.07	.00
909	904	908	11.22	.00	.00	.00	.07	.00
913	904	912	77.58	.10	.00	.00	.50	.16
917	916	912	-52.68	-.03	.00	.00	-.34	-.08
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	12.57	.00	.00	.00	.08	.01
920	915	919	12.57	.00	.00	.00	.08	.01
921	916	918	15.21	.00	.00	.00	.10	.01
922	917	919	-4.37	.00	.00	.00	-.03	.00
923	918	917	-4.37	.00	.00	.00	-.03	.00
924	923	919	-8.20	.00	.00	.00	-.05	.00
925	918	920	19.58	.00	.00	.00	.12	.01
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	5.32	.00	.00	.00	.03	.00
931	924	923	-8.20	.00	.00	.00	-.05	.00
933	926	924	22.02	.00	.00	.00	.14	.02
937	928	926	22.02	.00	.00	.00	.14	.02
941	932	928	22.02	.01	.00	.00	.14	.02
945	56	932	22.02	.00	.00	.00	.06	.00
949	900	56	244.21	.18	.00	.00	.69	.19
951	58	56	-222.19	-.04	.00	.00	-.63	-.16
953	936	58	-222.19	-.03	.00	.00	-.63	-.16
957	936	940	71.88	.02	.00	.00	.29	.05
961	940	944	21.68	.00	.00	.00	.09	.01
965	948	944	-5.48	.00	.00	.00	-.02	.00
969	948	940	-34.00	.00	.00	.00	-.14	-.01
973	952	948	-23.28	.00	.00	.00	-.10	-.01
977	952	936	-150.32	-.03	.00	.00	-.43	-.08

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	10.20	552.00	468.00	36.40
8	26.10	551.98	456.00	41.59
10	.00	551.46	402.00	64.77
12	42.60	552.33	431.00	52.57
16	15.30	552.51	420.00	57.42
20	11.40	552.49	444.00	47.01
24	18.30	552.48	454.00	42.68
28	18.30	552.48	476.00	33.14
32	18.90	552.96	403.00	64.98
36	18.30	552.95	427.00	54.58

44	26.10	550.16	376.00	75.47
46	.00	550.18	321.00	99.31
48	18.90	550.18	318.00	100.61
52	2.10	550.19	321.00	99.32
56	.00	549.76	433.00	50.60
58	.00	549.72	420.00	56.21
60	13.20	550.55	327.00	96.87
64	12.30	550.54	351.00	86.47
68	23.40	551.16	320.00	100.17
72	38.10	550.98	359.00	83.19
76	.00	550.98	348.00	87.96
80	20.70	550.91	323.00	98.76
84	23.10	550.83	386.00	71.42
88	23.40	550.82	372.00	77.49
92	19.20	550.81	327.00	96.99
96	17.40	550.74	347.00	88.29
100	25.20	550.71	415.00	58.81
104	23.10	550.71	417.00	57.94
108	33.60	550.72	355.00	84.81
112	18.30	550.72	375.00	76.15
114	115.20	549.53	391.00	68.70
116	21.00	550.45	379.00	74.29
120	26.10	551.02	377.00	75.41
122	.00	551.24	385.00	72.04
124	14.40	551.17	401.00	65.08
128	11.40	551.37	422.00	56.06
132	19.50	551.57	456.00	41.41
136	22.50	551.58	446.00	45.75
140	17.10	551.41	446.00	45.68
144	15.30	551.37	429.00	53.03
148	16.20	551.30	415.00	59.06
152	24.90	551.27	390.00	69.88
156	21.60	551.43	423.00	55.65
160	23.10	551.37	393.00	68.63
164	12.00	551.37	426.00	54.33
168	20.70	551.33	396.00	67.31
172	36.30	551.32	380.00	74.24
176	.00	551.47	454.00	42.24
180	17.70	551.52	445.00	46.16
184	22.50	551.72	446.00	45.81
188	16.20	551.89	461.00	39.39
192	16.80	552.04	477.00	32.52
196	13.50	552.32	475.00	33.51
200	17.70	552.06	454.00	42.49
204	31.50	551.59	423.00	55.72
208	18.60	552.52	455.00	42.26
212	44.40	552.44	415.00	59.56
216	18.60	552.06	471.00	35.13
220	20.70	552.04	445.00	46.38
224	30.30	552.03	439.00	48.98
228	28.80	552.03	409.00	61.98
232	11.40	551.41	397.00	66.91
236	12.30	551.35	463.00	38.28
240	17.40	552.37	353.00	86.39
244	15.30	552.57	366.00	80.85
248	21.90	552.73	369.00	79.62
252	31.80	552.93	387.00	71.90
256	37.20	553.21	404.00	64.66
260	36.60	553.26	427.00	54.71
264	11.10	553.63	443.00	47.94
268	30.30	554.06	453.00	43.79
272	38.70	554.81	455.00	43.25
276	33.60	555.32	457.00	42.60

282	20.70	551.31	394.00	68.17
286	17.40	551.31	380.00	74.23
290	26.70	551.30	387.00	71.20
294	73.50	551.30	389.00	70.33
298	21.00	551.30	396.00	67.30
302	21.90	551.32	410.00	61.24
306	15.60	551.36	411.00	60.82
310	38.40	542.43	358.00	79.92
314	22.50	541.79	340.00	87.44
318	16.50	541.64	344.00	85.64
322	29.70	541.57	354.00	81.28
326	41.70	541.52	359.00	79.09
330	29.40	541.61	348.00	83.90
334	29.70	541.61	346.00	84.76
338	48.60	539.27	352.00	81.15
342	29.40	539.25	358.00	78.54
346	53.70	539.24	382.00	68.14
350	43.50	538.91	344.00	84.46
354	288.30	538.13	323.00	93.22
358	45.60	538.88	372.00	72.31
362	.00	552.44	364.00	81.66
366	21.90	555.03	437.00	51.14
370	32.70	554.90	406.00	64.52
374	10.50	554.90	372.00	79.26
378	19.20	554.89	377.00	77.09
382	39.90	554.79	436.00	51.47
386	46.50	554.51	380.00	75.62
390	65.70	554.46	367.00	81.23
394	10.50	554.42	350.00	88.58
398	3.60	554.40	351.00	88.14
402	58.80	554.25	379.00	75.94
406	18.90	554.25	365.00	82.01
410	20.70	554.23	357.00	85.47
414	16.50	559.29	464.00	41.29
416	23.10	568.02	434.00	58.07
418	10.20	569.18	421.00	64.21
422	13.20	571.40	442.00	56.07
426	28.20	574.97	410.00	71.49
428	133.20	579.38	410.00	73.40
430	130.80	585.03	397.00	81.48
434	44.70	589.55	363.00	98.17
438	.00	596.45	315.00	121.96
442	60.30	583.39	375.00	90.30
446	27.60	581.79	367.00	93.07
450	81.00	580.82	383.00	85.72
454	74.70	580.18	348.00	100.61
458	8.40	577.72	366.00	91.75
462	16.20	577.39	373.00	88.57
466	22.80	577.14	382.00	84.56
468	.00	577.03	385.00	83.21
470	36.90	576.91	387.00	82.30
474	32.70	576.72	389.00	81.35
476	.00	576.58	381.00	84.75
478	63.30	576.28	332.00	105.85
482	41.10	577.14	389.00	81.53
486	30.90	560.75	459.00	44.09
490	25.20	562.67	450.00	48.82
494	19.20	563.75	431.00	57.53
498	27.90	564.60	424.00	60.92
502	13.20	565.03	399.00	71.95
506	35.70	565.64	425.00	60.94
510	28.80	560.76	456.00	45.40
514	36.60	561.64	415.00	63.54

518	27.00	562.12	409.00	66.35
522	19.20	562.73	407.00	67.48
526	19.80	564.58	399.00	71.75
530	22.50	567.00	397.00	73.66
534	.00	568.17	399.00	73.31
538	.00	568.30	415.00	66.43
542	.00	568.52	393.00	76.06
546	17.40	568.57	386.00	79.11
550	18.00	568.68	381.00	81.33
554	13.20	568.81	382.00	80.95
558	.00	570.12	422.00	64.19
562	.00	570.54	435.00	58.73
566	18.00	568.38	392.00	76.43
570	19.20	568.77	383.00	80.50
574	16.50	569.04	384.00	80.18
578	17.10	569.20	386.00	79.39
582	17.10	569.41	387.00	79.04
586	14.10	569.32	408.00	69.90
590	.00	569.32	375.00	84.20
594	49.50	569.76	417.00	66.20
598	28.50	570.39	428.00	61.70
602	10.20	570.24	420.00	65.11
604	30.90	570.18	402.00	72.88
900	.00	549.94	345.00	88.81
904	22.20	549.88	346.00	88.35
908	22.20	549.88	339.00	91.38
912	24.90	549.78	366.00	79.64
914	.00	549.75	388.00	70.09
915	.00	549.75	389.00	69.66
916	24.90	549.75	391.00	68.79
917	.00	549.75	395.00	67.06
918	.00	549.75	397.00	66.19
919	.00	549.75	393.00	67.92
920	24.90	549.74	398.00	65.76
921	.00	549.74	396.00	66.62
923	.00	549.75	396.00	66.62
924	24.90	549.74	400.00	64.89
926	.00	549.75	406.00	62.29
928	.00	549.75	412.00	59.69
932	.00	549.76	455.00	41.06
936	.00	549.70	420.00	56.20
940	16.20	549.68	421.00	55.76
944	16.20	549.67	417.00	57.49
948	16.20	549.67	422.00	55.33
952	.00	549.67	416.00	57.92
	MAXIMUM PRESSURES			
438	.00	596.45	315.00	121.96
478	63.30	576.28	332.00	105.85
48	18.90	550.18	318.00	100.61
454	74.70	580.18	348.00	100.61
68	23.40	551.16	320.00	100.17
52	2.10	550.19	321.00	99.32
46	.00	550.18	321.00	99.31
80	20.70	550.91	323.00	98.76
434	44.70	589.55	363.00	98.17
92	19.20	550.81	327.00	96.99
	MINIMUM PRESSURES			
192	16.80	552.04	477.00	32.52
28	18.30	552.48	476.00	33.14
196	13.50	552.32	475.00	33.51
216	18.60	552.06	471.00	35.13

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         4            10.20      552.00      468.00       36.40
       236            12.30      551.35      463.00       38.28
       188            16.20      551.89      461.00       39.39
       932              .00      549.76      455.00       41.06
       414            16.50      559.29      464.00       41.29
       132            19.50      551.57      456.00       41.41

 THE NET SYSTEM DEMAND =   4425.60

 SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

    PIPE NUMBER    FLOWRATE
         4          375.28
         6         1180.79
        10          734.20
        12         2135.32

 THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES =   4425.59
 THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES =       .00



 A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS


 THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR =   2.00

 THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :
 JUNCTION NUMBER       DEMAND
       915           3000.00


 THE RESULTS ARE OBTAINED AFTER  3 TRIALS WITH AN ACCURACY =  .00385
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Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 3000 gpm Fire Flow at Node 915 in M+O Multi-Fam Res

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	388.54	5.38	.00	.00	9.92	107.58
5	4	8	738.24	.11	.00	.00	1.54	.68
6	0	438	1171.11	17.28	.00	.00	13.29	115.23
9	8	12	-531.12	-1.68	.00	.00	-2.17	-2.21
10	0	32	2461.42	.38	.00	.00	10.05	37.90
12	0	438	1929.32	1.28	.00	.00	5.47	8.56
13	12	16	-595.67	-1.13	.00	.00	-2.43	-2.74
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-637.87	-1.96	.00	.00	-2.61	-3.11
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	1747.69	4.49	.00	.00	4.96	7.13
53	114	952	1380.71	6.50	.00	.00	3.92	4.61
57	116	114	1935.51	6.72	.00	.00	5.49	8.62
61	116	72	-217.31	-1.95	.00	.00	-1.39	-1.25
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	242.71	.48	.00	.00	1.55	1.54
71	68	60	1796.09	8.35	.00	.00	7.34	21.14
75	60	52	1779.09	5.38	.00	.00	7.27	20.77
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	2187.30	11.99	.00	.00	6.20	10.81
87	80	68	-132.90	-.15	.00	.00	-.85	-.50
91	80	84	41.56	.05	.00	.00	.27	.06
95	88	84	-26.16	-.01	.00	.00	-.17	-.02
99	92	88	-10.56	.00	.00	.00	-.07	.00
103	92	80	-77.55	-.06	.00	.00	-.49	-.19
107	96	92	-75.30	-.05	.00	.00	-.48	-.18
111	96	100	24.22	.02	.00	.00	.15	.02
115	104	100	-7.42	.00	.00	.00	-.05	.00
119	108	104	7.98	.00	.00	.00	.05	.00
123	108	96	-39.49	-.02	.00	.00	-.25	-.05
127	112	108	-9.10	.00	.00	.00	-.06	.00
131	112	116	1732.21	2.15	.00	.00	4.91	7.01
135	120	112	1735.30	2.13	.00	.00	4.92	7.04
137	10	122	1251.97	1.21	.00	.00	3.55	3.84
139	8	10	1251.97	2.90	.00	.00	3.55	3.84
141	122	120	1251.97	1.27	.00	.00	3.55	3.84
143	120	124	-500.74	-1.87	.00	.00	-3.20	-5.89
147	124	128	-510.34	-2.01	.00	.00	-3.26	-6.10
151	132	128	299.64	.76	.00	.00	1.91	2.27
155	192	132	235.05	1.05	.00	.00	1.50	1.45
159	4	192	-745.04	-.20	.00	.00	-1.55	-.69
163	192	188	26.32	.01	.00	.00	.17	.03
167	188	136	146.32	.79	.00	.00	1.66	2.45
171	136	132	77.59	.25	.00	.00	.88	.76
175	136	140	53.73	.19	.00	.00	.61	.38
179	144	140	-255.90	-.47	.00	.00	-1.63	-1.70
183	128	144	-218.30	-.35	.00	.00	-1.39	-1.26
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-213.57	-.50	.00	.00	-1.36	-1.21
199	156	160	-63.01	-.08	.00	.00	-.40	-.13

203	160	164	-78.41	-.06	.00	.00	-.50	-.19
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	58.30	.06	.00	.00	.37	.11
219	180	176	58.30	.03	.00	.00	.37	.11
223	180	156	164.96	.22	.00	.00	1.05	.75
227	180	204	-142.38	-.14	.00	.00	-.91	-.57
231	184	180	92.68	.15	.00	.00	.59	.26
235	188	184	107.68	.12	.00	.00	.69	.34
239	188	200	-238.48	-.53	.00	.00	-1.52	-1.49
243	196	200	165.48	.29	.00	.00	1.06	.76
247	192	196	-1017.61	-.81	.00	.00	-2.12	-1.24
251	196	208	-1192.10	-.49	.00	.00	-2.48	-1.66
253	208	212	-6.54	.00	.00	.00	-.04	.00
257	212	12	-36.14	-.08	.00	.00	-.23	-.05
261	208	216	219.54	.70	.00	.00	1.40	1.28
265	200	216	-84.80	-.07	.00	.00	-.54	-.22
269	216	204	163.38	.73	.00	.00	1.04	.74
273	208	260	-1417.50	-1.32	.00	.00	-2.95	-2.28
277	260	268	-195.40	-1.29	.00	.00	-1.25	-1.03
281	260	264	-1331.59	-.60	.00	.00	-2.78	-2.03
285	264	268	-1338.99	-.69	.00	.00	-2.79	-2.06
289	268	276	-1554.59	-1.97	.00	.00	-3.24	-2.71
293	276	272	330.44	.71	.00	.00	2.11	2.73
297	256	272	-304.64	-2.58	.00	.00	-1.94	-2.34
301	260	256	85.10	.03	.00	.00	.35	.07
305	256	252	364.94	.39	.00	.00	1.49	1.10
309	252	248	343.74	.29	.00	.00	1.40	.99
313	248	244	329.14	.27	.00	.00	1.34	.91
317	244	240	318.94	.33	.00	.00	1.30	.86
321	240	228	307.34	.62	.00	.00	1.96	2.38
325	228	232	213.11	.85	.00	.00	1.36	1.21
329	232	306	117.47	.11	.00	.00	.75	.40
333	236	164	66.11	.04	.00	.00	.42	.14
337	224	228	-75.03	-.03	.00	.00	-.48	-.17
341	220	224	-54.83	-.03	.00	.00	-.35	-.10
345	216	220	-41.03	-.03	.00	.00	-.26	-.06
349	236	282	-2.12	.00	.00	.00	-.01	.00
353	282	286	-15.92	.00	.00	.00	-.10	-.01
357	286	290	-27.52	-.02	.00	.00	-.18	-.03
361	290	294	-39.04	-.01	.00	.00	-.25	-.05
365	294	232	-88.04	-.13	.00	.00	-.36	-.08
369	290	298	-6.27	.00	.00	.00	-.04	.00
373	298	302	-20.27	-.01	.00	.00	-.13	-.02
377	302	306	-34.87	-.02	.00	.00	-.22	-.04
381	306	236	72.19	.05	.00	.00	.46	.16
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2140.04	-5.07	.00	.00	-4.46	-4.90
511	414	416	-839.75	-10.39	.00	.00	-1.75	-.87
513	416	418	-1591.29	-1.31	.00	.00	-3.32	-2.83
515	418	422	-1718.33	-2.39	.00	.00	-3.58	-3.26
519	422	426	-2565.84	-3.71	.00	.00	-5.35	-6.85
523	426	428	-2221.75	-4.38	.00	.00	-4.63	-5.25
525	428	430	-1968.09	-5.28	.00	.00	-4.10	-4.19
527	430	434	-2667.84	-4.04	.00	.00	-5.56	-7.37
531	434	438	-3100.44	-6.09	.00	.00	-6.46	-9.73
535	434	442	402.80	5.32	.00	.00	2.57	3.93
539	442	446	362.60	1.50	.00	.00	2.31	3.24
543	430	446	612.55	2.79	.00	.00	2.50	2.88
547	446	450	507.49	.90	.00	.00	2.07	2.04
551	450	428	342.47	1.60	.00	.00	1.40	.98
555	446	454	449.25	1.41	.00	.00	1.84	1.62
559	450	454	111.03	.51	.00	.00	.71	.36
563	454	458	510.48	2.26	.00	.00	2.09	2.06
567	458	462	504.88	.30	.00	.00	1.43	.72
571	462	466	384.62	.24	.00	.00	1.09	.43
573	466	468	372.97	.11	.00	.00	1.06	.41
575	468	470	372.97	.12	.00	.00	1.06	.41
579	470	474	426.88	.21	.00	.00	1.21	.52
581	474	476	405.08	.17	.00	.00	1.15	.48
583	476	478	405.08	.34	.00	.00	1.15	.48
587	478	426	362.88	1.72	.00	.00	1.48	1.09
591	470	482	-78.51	-.24	.00	.00	-.50	-.19
595	466	482	-3.56	.00	.00	.00	-.02	.00
599	462	482	109.47	.24	.00	.00	.70	.35
603	414	486	-634.74	-1.91	.00	.00	-4.05	-9.13
607	486	490	-655.34	-2.39	.00	.00	-4.18	-9.69
611	490	494	-312.51	-1.35	.00	.00	-1.99	-2.46
615	494	498	-325.31	-1.00	.00	.00	-2.08	-2.65
619	498	502	-147.47	-.50	.00	.00	-.94	-.61
623	502	506	-156.27	-.65	.00	.00	-1.00	-.68
627	506	498	196.44	1.14	.00	.00	1.25	1.04
629	506	416	-736.14	-2.59	.00	.00	-4.70	-12.01
631	506	490	359.62	3.50	.00	.00	2.30	3.19
635	414	510	-676.55	-1.98	.00	.00	-4.32	-10.28
639	510	514	-283.37	-1.24	.00	.00	-1.81	-2.05
643	514	518	-307.77	-.61	.00	.00	-1.96	-2.39
647	518	522	-325.77	-.72	.00	.00	-2.08	-2.65
651	522	526	-338.57	-2.07	.00	.00	-2.16	-2.85
655	526	510	412.38	4.64	.00	.00	2.63	4.11
659	526	530	-764.15	-2.78	.00	.00	-4.88	-12.87
663	530	418	-430.51	-2.30	.00	.00	-2.75	-4.45
667	530	534	-348.64	-1.44	.00	.00	-2.23	-3.01
671	534	538	-109.37	-.15	.00	.00	-.70	-.35
675	538	542	-109.37	-.27	.00	.00	-.70	-.35
679	542	546	-109.37	-.07	.00	.00	-.70	-.35

683	546	550	-120.97	-.12	.00	.00	-.77	-.42
687	550	554	-132.97	-.13	.00	.00	-.85	-.50
691	554	558	-214.44	-1.29	.00	.00	-1.37	-1.22
695	558	562	-214.44	-.41	.00	.00	-1.37	-1.22
699	562	422	-439.64	-.82	.00	.00	-2.81	-4.62
703	534	566	-239.27	-.25	.00	.00	-1.53	-1.50
707	566	570	-251.27	-.44	.00	.00	-1.60	-1.64
711	570	554	-72.67	-.04	.00	.00	-.46	-.16
715	570	574	-191.40	-.29	.00	.00	-1.22	-.99
719	574	578	-202.40	-.17	.00	.00	-1.29	-1.10
723	578	582	-213.80	-.21	.00	.00	-1.36	-1.22
727	582	562	-225.20	-1.07	.00	.00	-1.44	-1.34
731	418	586	-310.26	-.18	.00	.00	-1.27	-.82
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-319.66	-.55	.00	.00	-2.04	-2.56
743	594	598	-257.89	-.68	.00	.00	-1.65	-1.72
747	598	422	-399.06	-.99	.00	.00	-2.55	-3.87
751	598	602	122.18	.13	.00	.00	.78	.43
755	602	604	64.07	.06	.00	.00	.41	.13
759	602	604	51.31	.06	.00	.00	.33	.09
763	594	604	-94.78	-.49	.00	.00	-.60	-.27
901	900	904	1599.86	6.98	.00	.00	10.21	43.62
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	1570.26	25.28	.00	.00	10.02	42.13
917	916	912	-1553.66	-18.18	.00	.00	-9.92	-41.31
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	1914.79	10.65	.00	.00	12.22	60.84
920	915	919	-1085.21	-11.27	.00	.00	-6.93	-21.26
921	916	918	-377.74	-1.61	.00	.00	-2.41	-3.01
922	917	919	337.69	.57	.00	.00	2.16	2.45
923	918	917	337.69	.42	.00	.00	2.16	2.45
924	923	919	747.51	3.20	.00	.00	4.77	10.66
925	918	920	-715.43	-.88	.00	.00	-4.57	-9.83
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	732.03	2.92	.00	.00	4.67	10.25
931	924	923	747.51	1.60	.00	.00	4.77	10.66
933	926	924	1496.15	5.39	.00	.00	9.55	38.53
937	928	926	1496.15	8.28	.00	.00	9.55	38.53
941	932	928	1496.15	26.20	.00	.00	9.55	38.53
945	56	932	1496.15	5.08	.00	.00	4.24	5.35
949	900	56	147.83	.07	.00	.00	.42	.07
951	58	56	1348.31	1.10	.00	.00	3.82	4.41
953	936	58	1348.31	.71	.00	.00	3.82	4.41
957	936	940	-379.02	-.51	.00	.00	-1.55	-1.02
961	940	944	-117.21	-.04	.00	.00	-.48	-.12
965	948	944	128.01	.05	.00	.00	.52	.14
969	948	940	272.61	.09	.00	.00	1.11	.56
973	952	948	411.42	.24	.00	.00	1.68	1.19
977	952	936	969.29	.84	.00	.00	2.75	2.39

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	547.96	468.00	34.65
8	17.40	547.85	456.00	39.80
10	.00	544.95	402.00	61.95
12	28.40	549.53	431.00	51.36
16	10.20	550.66	420.00	56.62
20	7.60	550.65	444.00	46.21
24	12.20	550.64	454.00	41.88
28	12.20	550.64	476.00	32.35
32	12.60	552.62	403.00	64.84
36	12.20	552.62	427.00	54.43

44	17.40	526.88	376.00	65.38
46	.00	526.89	321.00	89.22
48	12.60	526.89	318.00	90.52
52	1.40	526.90	321.00	89.22
56	.00	522.33	433.00	38.71
58	.00	523.44	420.00	44.82
60	8.80	532.28	327.00	88.95
64	8.20	532.27	351.00	78.55
68	15.60	540.63	320.00	95.61
72	25.40	540.15	359.00	78.50
76	.00	540.15	348.00	83.26
80	13.80	540.48	323.00	94.24
84	15.40	540.43	386.00	66.92
88	15.60	540.42	372.00	72.98
92	12.80	540.42	327.00	92.48
96	11.60	540.36	347.00	83.79
100	16.80	540.35	415.00	54.32
104	15.40	540.35	417.00	53.45
108	22.40	540.35	355.00	80.32
112	12.20	540.34	375.00	71.65
114	76.80	531.48	391.00	60.87
116	14.00	538.20	379.00	68.99
120	17.40	542.47	377.00	71.70
122	.00	543.74	385.00	68.79
124	9.60	544.34	401.00	62.11
128	7.60	546.35	422.00	53.88
132	13.00	547.11	456.00	39.48
136	15.00	547.36	446.00	43.92
140	11.40	547.17	446.00	43.84
144	10.20	546.70	429.00	51.00
148	10.80	546.67	415.00	57.06
152	16.60	546.65	390.00	67.88
156	14.40	547.66	423.00	54.02
160	15.40	547.74	393.00	67.05
164	8.00	547.79	426.00	52.78
168	13.80	547.78	396.00	65.77
172	24.20	547.77	380.00	72.70
176	.00	547.85	454.00	40.67
180	11.80	547.88	445.00	44.58
184	15.00	548.03	446.00	44.21
188	10.80	548.15	461.00	37.76
192	11.20	548.16	477.00	30.84
196	9.00	548.97	475.00	32.05
200	11.80	548.68	454.00	41.03
204	21.00	548.02	423.00	54.17
208	12.40	549.45	455.00	40.93
212	29.60	549.45	415.00	58.26
216	12.40	548.75	471.00	33.69
220	13.80	548.78	445.00	44.97
224	20.20	548.81	439.00	47.58
228	19.20	548.84	409.00	60.60
232	7.60	548.00	397.00	65.43
236	8.20	547.84	463.00	36.76
240	11.60	549.46	353.00	85.13
244	10.20	549.80	366.00	79.64
248	14.60	550.06	369.00	78.46
252	21.20	550.36	387.00	70.79
256	24.80	550.75	404.00	63.59
260	24.40	550.77	427.00	53.64
264	7.40	551.38	443.00	46.96
268	20.20	552.07	453.00	42.93
272	25.80	553.33	455.00	42.61
276	22.40	554.04	457.00	42.05

282	13.80	547.84	394.00	66.66
286	11.60	547.84	380.00	72.73
290	17.80	547.86	387.00	69.71
294	49.00	547.87	389.00	68.84
298	14.00	547.86	396.00	65.81
302	14.60	547.87	410.00	59.74
306	10.40	547.89	411.00	59.32
310	25.60	528.13	358.00	73.72
314	15.00	527.82	340.00	81.39
318	11.00	527.75	344.00	79.63
322	19.80	527.72	354.00	75.28
326	27.80	527.70	359.00	73.10
330	19.60	527.74	348.00	77.89
334	19.80	527.74	346.00	78.75
338	32.40	526.64	352.00	75.68
342	19.60	526.63	358.00	73.07
346	35.80	526.62	382.00	62.67
350	29.00	526.46	344.00	79.07
354	192.20	526.10	323.00	88.01
358	30.40	526.45	372.00	66.93
362	.00	549.45	364.00	80.36
366	14.60	553.90	437.00	50.66
370	21.80	553.84	406.00	64.07
374	7.00	553.84	372.00	78.80
378	12.80	553.84	377.00	76.63
382	26.60	553.79	436.00	51.04
386	31.00	553.66	380.00	75.25
390	43.80	553.63	367.00	80.87
394	7.00	553.62	350.00	88.23
398	2.40	553.61	351.00	87.80
402	39.20	553.54	379.00	75.63
406	12.60	553.53	365.00	81.70
410	13.80	553.53	357.00	85.16
414	11.00	559.11	464.00	41.21
416	15.40	569.50	434.00	58.72
418	6.80	570.81	421.00	64.92
422	8.80	573.21	442.00	56.86
426	18.80	576.92	410.00	72.33
428	88.80	581.30	410.00	74.23
430	87.20	586.59	397.00	82.15
434	29.80	590.62	363.00	98.64
438	.00	596.72	315.00	122.08
442	40.20	585.30	375.00	91.13
446	18.40	583.80	367.00	93.95
450	54.00	582.90	383.00	86.62
454	49.80	582.39	348.00	101.57
458	5.60	580.13	366.00	92.79
462	10.80	579.83	373.00	89.63
466	15.20	579.59	382.00	85.62
468	.00	579.48	385.00	84.27
470	24.60	579.36	387.00	83.35
474	21.80	579.15	389.00	82.40
476	.00	578.98	381.00	85.79
478	42.20	578.64	332.00	106.88
482	27.40	579.59	389.00	82.59
486	20.60	561.02	459.00	44.21
490	16.80	563.41	450.00	49.14
494	12.80	564.76	431.00	57.96
498	18.60	565.76	424.00	61.43
502	8.80	566.26	399.00	72.48
506	23.80	566.91	425.00	61.49
510	19.20	561.09	456.00	45.54
514	24.40	562.33	415.00	63.84

518	18.00	562.94	409.00	66.71
522	12.80	563.66	407.00	67.88
526	13.20	565.73	399.00	72.25
530	15.00	568.51	397.00	74.32
534	.00	569.95	399.00	74.08
538	.00	570.11	415.00	67.21
542	.00	570.37	393.00	76.86
546	11.60	570.44	386.00	79.93
550	12.00	570.56	381.00	82.14
554	8.80	570.69	382.00	81.77
558	.00	571.98	422.00	64.99
562	.00	572.38	435.00	59.53
566	12.00	570.21	392.00	77.22
570	12.80	570.65	383.00	81.32
574	11.00	570.94	384.00	81.01
578	11.40	571.11	386.00	80.21
582	11.40	571.32	387.00	79.87
586	9.40	570.99	408.00	70.63
590	.00	570.99	375.00	84.93
594	33.00	571.54	417.00	66.97
598	19.00	572.22	428.00	62.50
602	6.80	572.09	420.00	65.91
604	20.60	572.03	402.00	73.68
900	.00	522.40	345.00	76.87
904	14.80	515.42	346.00	73.42
908	14.80	515.42	339.00	76.45
912	16.60	490.14	366.00	53.80
914	.00	461.32	388.00	31.77
915	3000.00	461.32	389.00	31.34
916	16.60	471.97	391.00	35.09
917	.00	473.16	395.00	33.87
918	.00	473.58	397.00	33.18
919	.00	472.59	393.00	34.49
920	16.60	474.46	398.00	33.13
921	.00	474.46	396.00	34.00
923	.00	475.78	396.00	34.57
924	16.60	477.38	400.00	33.53
926	.00	482.77	406.00	33.27
928	.00	491.06	412.00	34.26
932	.00	517.25	455.00	26.98
936	.00	524.14	420.00	45.13
940	10.80	524.65	421.00	44.92
944	10.80	524.69	417.00	46.67
948	10.80	524.74	422.00	44.52
952	.00	524.98	416.00	47.22
	MAXIMUM PRESSURES			
438	.00	596.72	315.00	122.08
478	42.20	578.64	332.00	106.88
454	49.80	582.39	348.00	101.57
434	29.80	590.62	363.00	98.64
68	15.60	540.63	320.00	95.61
80	13.80	540.48	323.00	94.24
446	18.40	583.80	367.00	93.95
458	5.60	580.13	366.00	92.79
92	12.80	540.42	327.00	92.48
442	40.20	585.30	375.00	91.13
	MINIMUM PRESSURES			
932	.00	517.25	455.00	26.98
192	11.20	548.16	477.00	30.84
915	3000.00	461.32	389.00	31.34
914	.00	461.32	388.00	31.77

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      196              9.00      548.97      475.00       32.05
       28             12.20      550.64      476.00       32.35
      920             16.60      474.46      398.00       33.13
      918               .00      473.58      397.00       33.18
      926               .00      482.77      406.00       33.27
      924             16.60      477.38      400.00       33.53

THE NET SYSTEM DEMAND =   5950.40

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

   PIPE NUMBER    FLOWRATE
        4         388.54
        6        1171.11
       10        2461.42
       12        1929.32

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES =   5950.40
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES =       .00



A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS


THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR =   2.00

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :
JUNCTION NUMBER       DEMAND
      918           3000.00


THE RESULTS ARE OBTAINED AFTER  3 TRIALS WITH AN ACCURACY =  .00159
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Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 3000 gpm Fire Flow at Node 918 in M+O Multi-Fam Res

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	388.54	5.38	.00	.00	9.92	107.58
5	4	8	738.26	.11	.00	.00	1.54	.68
6	0	438	1171.12	17.28	.00	.00	13.29	115.23
9	8	12	-531.26	-1.68	.00	.00	-2.17	-2.22
10	0	32	2461.37	.38	.00	.00	10.05	37.89
12	0	438	1929.38	1.28	.00	.00	5.47	8.56
13	12	16	-595.80	-1.13	.00	.00	-2.43	-2.74
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-638.00	-1.96	.00	.00	-2.61	-3.11
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	1746.30	4.49	.00	.00	4.95	7.12
53	114	952	1382.10	6.51	.00	.00	3.92	4.62
57	116	114	1936.90	6.73	.00	.00	5.49	8.63
61	116	72	-217.64	-1.95	.00	.00	-1.39	-1.26
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	243.04	.48	.00	.00	1.55	1.54
71	68	60	1794.70	8.34	.00	.00	7.33	21.11
75	60	52	1777.70	5.37	.00	.00	7.26	20.74
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	2187.11	11.99	.00	.00	6.20	10.80
87	80	68	-133.77	-.15	.00	.00	-.85	-.51
91	80	84	41.82	.05	.00	.00	.27	.06
95	88	84	-26.42	-.01	.00	.00	-.17	-.03
99	92	88	-10.82	.00	.00	.00	-.07	.00
103	92	80	-78.15	-.06	.00	.00	-.50	-.19
107	96	92	-76.17	-.05	.00	.00	-.49	-.18
111	96	100	24.41	.02	.00	.00	.16	.02
115	104	100	-7.61	.00	.00	.00	-.05	.00
119	108	104	7.79	.00	.00	.00	.05	.00
123	108	96	-40.16	-.02	.00	.00	-.26	-.05
127	112	108	-9.97	.00	.00	.00	-.06	.00
131	112	116	1733.26	2.15	.00	.00	4.92	7.02
135	120	112	1735.49	2.13	.00	.00	4.92	7.04
137	10	122	1252.11	1.21	.00	.00	3.55	3.85
139	8	10	1252.11	2.90	.00	.00	3.55	3.85
141	122	120	1252.11	1.27	.00	.00	3.55	3.85
143	120	124	-500.78	-1.87	.00	.00	-3.20	-5.89
147	124	128	-510.38	-2.01	.00	.00	-3.26	-6.10
151	132	128	299.68	.76	.00	.00	1.91	2.27
155	192	132	235.09	1.05	.00	.00	1.50	1.45
159	4	192	-745.06	-.20	.00	.00	-1.55	-.69
163	192	188	26.24	.01	.00	.00	.17	.02
167	188	136	146.33	.79	.00	.00	1.66	2.45
171	136	132	77.59	.25	.00	.00	.88	.76
175	136	140	53.74	.19	.00	.00	.61	.38
179	144	140	-255.90	-.47	.00	.00	-1.63	-1.70
183	128	144	-218.30	-.35	.00	.00	-1.39	-1.26
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-213.56	-.50	.00	.00	-1.36	-1.21
199	156	160	-63.03	-.08	.00	.00	-.40	-.13

203	160	164	-78.43	-.06	.00	.00	-.50	-.19
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	58.30	.06	.00	.00	.37	.11
219	180	176	58.30	.03	.00	.00	.37	.11
223	180	156	164.93	.22	.00	.00	1.05	.75
227	180	204	-142.40	-.14	.00	.00	-.91	-.57
231	184	180	92.62	.15	.00	.00	.59	.26
235	188	184	107.62	.12	.00	.00	.69	.34
239	188	200	-238.51	-.53	.00	.00	-1.52	-1.49
243	196	200	165.52	.29	.00	.00	1.06	.76
247	192	196	-1017.58	-.81	.00	.00	-2.12	-1.24
251	196	208	-1192.10	-.49	.00	.00	-2.48	-1.66
253	208	212	-6.54	.00	.00	.00	-.04	.00
257	212	12	-36.14	-.08	.00	.00	-.23	-.05
261	208	216	219.57	.70	.00	.00	1.40	1.28
265	200	216	-84.80	-.07	.00	.00	-.54	-.22
269	216	204	163.40	.73	.00	.00	1.04	.74
273	208	260	-1417.53	-1.32	.00	.00	-2.95	-2.28
277	260	268	-195.41	-1.29	.00	.00	-1.25	-1.03
281	260	264	-1331.63	-.60	.00	.00	-2.78	-2.03
285	264	268	-1339.03	-.69	.00	.00	-2.79	-2.06
289	268	276	-1554.64	-1.97	.00	.00	-3.24	-2.71
293	276	272	330.45	.71	.00	.00	2.11	2.73
297	256	272	-304.65	-2.58	.00	.00	-1.94	-2.34
301	260	256	85.11	.03	.00	.00	.35	.07
305	256	252	364.96	.39	.00	.00	1.49	1.11
309	252	248	343.76	.29	.00	.00	1.40	.99
313	248	244	329.16	.27	.00	.00	1.34	.91
317	244	240	318.96	.33	.00	.00	1.30	.86
321	240	228	307.36	.62	.00	.00	1.96	2.38
325	228	232	213.13	.85	.00	.00	1.36	1.21
329	232	306	117.48	.11	.00	.00	.75	.40
333	236	164	66.13	.04	.00	.00	.42	.14
337	224	228	-75.03	-.03	.00	.00	-.48	-.17
341	220	224	-54.83	-.03	.00	.00	-.35	-.10
345	216	220	-41.03	-.03	.00	.00	-.26	-.06
349	236	282	-2.12	.00	.00	.00	-.01	.00
353	282	286	-15.92	.00	.00	.00	-.10	-.01
357	286	290	-27.52	-.02	.00	.00	-.18	-.03
361	290	294	-39.05	-.01	.00	.00	-.25	-.05
365	294	232	-88.05	-.13	.00	.00	-.36	-.08
369	290	298	-6.26	.00	.00	.00	-.04	.00
373	298	302	-20.26	-.01	.00	.00	-.13	-.02
377	302	306	-34.86	-.02	.00	.00	-.22	-.04
381	306	236	72.21	.05	.00	.00	.46	.16
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2140.09	-5.07	.00	.00	-4.46	-4.90
511	414	416	-839.77	-10.39	.00	.00	-1.75	-.87
513	416	418	-1591.33	-1.31	.00	.00	-3.32	-2.83
515	418	422	-1718.37	-2.39	.00	.00	-3.58	-3.26
519	422	426	-2565.89	-3.71	.00	.00	-5.35	-6.85
523	426	428	-2221.80	-4.38	.00	.00	-4.63	-5.25
525	428	430	-1968.13	-5.29	.00	.00	-4.10	-4.19
527	430	434	-2667.89	-4.04	.00	.00	-5.56	-7.37
531	434	438	-3100.49	-6.09	.00	.00	-6.46	-9.73
535	434	442	402.81	5.32	.00	.00	2.57	3.93
539	442	446	362.61	1.50	.00	.00	2.31	3.24
543	430	446	612.56	2.79	.00	.00	2.50	2.88
547	446	450	507.50	.90	.00	.00	2.07	2.04
551	450	428	342.47	1.60	.00	.00	1.40	.98
555	446	454	449.26	1.41	.00	.00	1.84	1.62
559	450	454	111.03	.51	.00	.00	.71	.36
563	454	458	510.49	2.26	.00	.00	2.09	2.06
567	458	462	504.89	.30	.00	.00	1.43	.72
571	462	466	384.62	.24	.00	.00	1.09	.43
573	466	468	372.98	.11	.00	.00	1.06	.41
575	468	470	372.98	.12	.00	.00	1.06	.41
579	470	474	426.89	.21	.00	.00	1.21	.52
581	474	476	405.09	.17	.00	.00	1.15	.48
583	476	478	405.09	.34	.00	.00	1.15	.48
587	478	426	362.89	1.72	.00	.00	1.48	1.09
591	470	482	-78.51	-.24	.00	.00	-.50	-.19
595	466	482	-3.56	.00	.00	.00	-.02	.00
599	462	482	109.47	.24	.00	.00	.70	.35
603	414	486	-634.75	-1.91	.00	.00	-4.05	-9.13
607	486	490	-655.35	-2.39	.00	.00	-4.18	-9.69
611	490	494	-312.52	-1.35	.00	.00	-1.99	-2.46
615	494	498	-325.32	-1.00	.00	.00	-2.08	-2.65
619	498	502	-147.47	-.50	.00	.00	-.94	-.61
623	502	506	-156.27	-.65	.00	.00	-1.00	-.68
627	506	498	196.45	1.14	.00	.00	1.25	1.04
629	506	416	-736.15	-2.60	.00	.00	-4.70	-12.01
631	506	490	359.63	3.50	.00	.00	2.30	3.19
635	414	510	-676.57	-1.98	.00	.00	-4.32	-10.28
639	510	514	-283.38	-1.24	.00	.00	-1.81	-2.05
643	514	518	-307.78	-.61	.00	.00	-1.96	-2.39
647	518	522	-325.78	-.72	.00	.00	-2.08	-2.65
651	522	526	-338.58	-2.07	.00	.00	-2.16	-2.85
655	526	510	412.39	4.64	.00	.00	2.63	4.11
659	526	530	-764.17	-2.78	.00	.00	-4.88	-12.87
663	530	418	-430.52	-2.30	.00	.00	-2.75	-4.45
667	530	534	-348.65	-1.44	.00	.00	-2.23	-3.01
671	534	538	-109.37	-.15	.00	.00	-.70	-.35
675	538	542	-109.37	-.27	.00	.00	-.70	-.35
679	542	546	-109.37	-.07	.00	.00	-.70	-.35

683	546	550	-120.97	-.12	.00	.00	-.77	-.42
687	550	554	-132.97	-.13	.00	.00	-.85	-.50
691	554	558	-214.44	-1.29	.00	.00	-1.37	-1.22
695	558	562	-214.44	-.41	.00	.00	-1.37	-1.22
699	562	422	-439.65	-.82	.00	.00	-2.81	-4.62
703	534	566	-239.28	-.25	.00	.00	-1.53	-1.50
707	566	570	-251.28	-.44	.00	.00	-1.60	-1.64
711	570	554	-72.67	-.04	.00	.00	-.46	-.16
715	570	574	-191.41	-.29	.00	.00	-1.22	-.99
719	574	578	-202.41	-.17	.00	.00	-1.29	-1.10
723	578	582	-213.81	-.21	.00	.00	-1.36	-1.22
727	582	562	-225.21	-1.07	.00	.00	-1.44	-1.34
731	418	586	-310.27	-.18	.00	.00	-1.27	-.82
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-319.67	-.55	.00	.00	-2.04	-2.56
743	594	598	-257.89	-.68	.00	.00	-1.65	-1.72
747	598	422	-399.07	-.99	.00	.00	-2.55	-3.87
751	598	602	122.18	.13	.00	.00	.78	.43
755	602	604	64.07	.06	.00	.00	.41	.13
759	602	604	51.31	.06	.00	.00	.33	.09
763	594	604	-94.78	-.49	.00	.00	-.60	-.27
901	900	904	1539.96	6.50	.00	.00	9.83	40.64
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	1510.36	23.52	.00	.00	9.64	39.21
917	916	912	-1493.76	-16.90	.00	.00	-9.53	-38.41
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	482.31	.83	.00	.00	3.08	4.73
920	915	919	482.31	2.51	.00	.00	3.08	4.73
921	916	918	994.85	9.68	.00	.00	6.35	18.09
922	917	919	-920.75	-3.68	.00	.00	-5.88	-15.68
923	918	917	-920.75	-2.67	.00	.00	-5.88	-15.68
924	923	919	438.44	1.19	.00	.00	2.80	3.97
925	918	920	-1084.40	-1.91	.00	.00	-6.92	-21.23
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	1101.00	6.22	.00	.00	7.03	21.83
931	924	923	438.44	.60	.00	.00	2.80	3.97
933	926	924	1556.04	5.80	.00	.00	9.93	41.43
937	928	926	1556.04	8.91	.00	.00	9.93	41.43
941	932	928	1556.04	28.17	.00	.00	9.93	41.43
945	56	932	1556.04	5.46	.00	.00	4.41	5.75
949	900	56	206.34	.13	.00	.00	.59	.14
951	58	56	1349.70	1.10	.00	.00	3.83	4.42
953	936	58	1349.70	.71	.00	.00	3.83	4.42
957	936	940	-379.43	-.51	.00	.00	-1.55	-1.02
961	940	944	-117.34	-.04	.00	.00	-.48	-.12
965	948	944	128.14	.05	.00	.00	.52	.14
969	948	940	272.89	.09	.00	.00	1.11	.56
973	952	948	411.83	.24	.00	.00	1.68	1.19
977	952	936	970.28	.84	.00	.00	2.75	2.40

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	547.96	468.00	34.65
8	17.40	547.84	456.00	39.80
10	.00	544.95	402.00	61.94
12	28.40	549.53	431.00	51.36
16	10.20	550.66	420.00	56.62
20	7.60	550.64	444.00	46.21
24	12.20	550.64	454.00	41.88
28	12.20	550.64	476.00	32.34
32	12.60	552.62	403.00	64.84
36	12.20	552.62	427.00	54.43

44	17.40	526.90	376.00	65.39
46	.00	526.91	321.00	89.23
48	12.60	526.92	318.00	90.53
52	1.40	526.92	321.00	89.23
56	.00	522.30	433.00	38.70
58	.00	523.41	420.00	44.81
60	8.80	532.29	327.00	88.96
64	8.20	532.29	351.00	78.56
68	15.60	540.63	320.00	95.61
72	25.40	540.15	359.00	78.50
76	.00	540.15	348.00	83.26
80	13.80	540.48	323.00	94.24
84	15.40	540.43	386.00	66.92
88	15.60	540.42	372.00	72.98
92	12.80	540.42	327.00	92.48
96	11.60	540.36	347.00	83.79
100	16.80	540.34	415.00	54.32
104	15.40	540.34	417.00	53.45
108	22.40	540.35	355.00	80.32
112	12.20	540.34	375.00	71.65
114	76.80	531.46	391.00	60.87
116	14.00	538.19	379.00	68.98
120	17.40	542.47	377.00	71.70
122	.00	543.74	385.00	68.79
124	9.60	544.33	401.00	62.11
128	7.60	546.35	422.00	53.88
132	13.00	547.11	456.00	39.48
136	15.00	547.36	446.00	43.92
140	11.40	547.16	446.00	43.84
144	10.20	546.70	429.00	51.00
148	10.80	546.66	415.00	57.05
152	16.60	546.65	390.00	67.88
156	14.40	547.66	423.00	54.02
160	15.40	547.74	393.00	67.05
164	8.00	547.79	426.00	52.78
168	13.80	547.78	396.00	65.77
172	24.20	547.77	380.00	72.70
176	.00	547.85	454.00	40.67
180	11.80	547.88	445.00	44.58
184	15.00	548.03	446.00	44.21
188	10.80	548.15	461.00	37.76
192	11.20	548.16	477.00	30.83
196	9.00	548.97	475.00	32.05
200	11.80	548.68	454.00	41.03
204	21.00	548.02	423.00	54.17
208	12.40	549.45	455.00	40.93
212	29.60	549.45	415.00	58.26
216	12.40	548.75	471.00	33.69
220	13.80	548.77	445.00	44.97
224	20.20	548.81	439.00	47.58
228	19.20	548.84	409.00	60.60
232	7.60	548.00	397.00	65.43
236	8.20	547.84	463.00	36.76
240	11.60	549.46	353.00	85.13
244	10.20	549.79	366.00	79.64
248	14.60	550.06	369.00	78.46
252	21.20	550.35	387.00	70.79
256	24.80	550.75	404.00	63.59
260	24.40	550.77	427.00	53.64
264	7.40	551.38	443.00	46.96
268	20.20	552.07	453.00	42.93
272	25.80	553.32	455.00	42.61
276	22.40	554.04	457.00	42.05

282	13.80	547.84	394.00	66.66
286	11.60	547.84	380.00	72.73
290	17.80	547.86	387.00	69.71
294	49.00	547.87	389.00	68.84
298	14.00	547.86	396.00	65.81
302	14.60	547.87	410.00	59.74
306	10.40	547.89	411.00	59.32
310	25.60	528.11	358.00	73.72
314	15.00	527.81	340.00	81.38
318	11.00	527.74	344.00	79.62
322	19.80	527.71	354.00	75.27
326	27.80	527.68	359.00	73.10
330	19.60	527.73	348.00	77.88
334	19.80	527.72	346.00	78.75
338	32.40	526.62	352.00	75.67
342	19.60	526.61	358.00	73.06
346	35.80	526.61	382.00	62.66
350	29.00	526.45	344.00	79.06
354	192.20	526.08	323.00	88.00
358	30.40	526.44	372.00	66.92
362	.00	549.45	364.00	80.36
366	14.60	553.90	437.00	50.66
370	21.80	553.84	406.00	64.06
374	7.00	553.84	372.00	78.80
378	12.80	553.84	377.00	76.63
382	26.60	553.79	436.00	51.04
386	31.00	553.66	380.00	75.25
390	43.80	553.63	367.00	80.87
394	7.00	553.62	350.00	88.23
398	2.40	553.61	351.00	87.80
402	39.20	553.53	379.00	75.63
406	12.60	553.53	365.00	81.70
410	13.80	553.53	357.00	85.16
414	11.00	559.11	464.00	41.21
416	15.40	569.50	434.00	58.72
418	6.80	570.81	421.00	64.92
422	8.80	573.21	442.00	56.86
426	18.80	576.92	410.00	72.33
428	88.80	581.30	410.00	74.23
430	87.20	586.58	397.00	82.15
434	29.80	590.62	363.00	98.64
438	.00	596.72	315.00	122.08
442	40.20	585.30	375.00	91.13
446	18.40	583.80	367.00	93.95
450	54.00	582.90	383.00	86.62
454	49.80	582.39	348.00	101.57
458	5.60	580.13	366.00	92.79
462	10.80	579.83	373.00	89.63
466	15.20	579.59	382.00	85.62
468	.00	579.48	385.00	84.27
470	24.60	579.36	387.00	83.35
474	21.80	579.15	389.00	82.40
476	.00	578.98	381.00	85.79
478	42.20	578.64	332.00	106.88
482	27.40	579.59	389.00	82.59
486	20.60	561.01	459.00	44.21
490	16.80	563.41	450.00	49.14
494	12.80	564.76	431.00	57.96
498	18.60	565.76	424.00	61.43
502	8.80	566.26	399.00	72.48
506	23.80	566.90	425.00	61.49
510	19.20	561.09	456.00	45.54
514	24.40	562.33	415.00	63.84

518	18.00	562.94	409.00	66.71
522	12.80	563.65	407.00	67.88
526	13.20	565.73	399.00	72.25
530	15.00	568.51	397.00	74.32
534	.00	569.95	399.00	74.08
538	.00	570.10	415.00	67.21
542	.00	570.37	393.00	76.86
546	11.60	570.44	386.00	79.92
550	12.00	570.56	381.00	82.14
554	8.80	570.69	382.00	81.77
558	.00	571.98	422.00	64.99
562	.00	572.38	435.00	59.53
566	12.00	570.20	392.00	77.22
570	12.80	570.65	383.00	81.31
574	11.00	570.94	384.00	81.01
578	11.40	571.11	386.00	80.21
582	11.40	571.32	387.00	79.87
586	9.40	570.99	408.00	70.63
590	.00	570.99	375.00	84.93
594	33.00	571.54	417.00	66.97
598	19.00	572.22	428.00	62.50
602	6.80	572.09	420.00	65.90
604	20.60	572.03	402.00	73.68
900	.00	522.43	345.00	76.89
904	14.80	515.93	346.00	73.64
908	14.80	515.93	339.00	76.67
912	16.60	492.41	366.00	54.78
914	.00	474.68	388.00	37.56
915	.00	474.68	389.00	37.13
916	16.60	475.50	391.00	36.62
917	.00	468.49	395.00	31.85
918	3000.00	465.82	397.00	29.82
919	.00	472.17	393.00	34.31
920	16.60	467.73	398.00	30.22
921	.00	467.73	396.00	31.09
923	.00	473.36	396.00	33.52
924	16.60	473.96	400.00	32.05
926	.00	479.76	406.00	31.96
928	.00	488.67	412.00	33.22
932	.00	516.84	455.00	26.80
936	.00	524.11	420.00	45.12
940	10.80	524.63	421.00	44.90
944	10.80	524.67	417.00	46.66
948	10.80	524.72	422.00	44.51
952	.00	524.95	416.00	47.21

MAXIMUM PRESSURES

438	.00	596.72	315.00	122.08
478	42.20	578.64	332.00	106.88
454	49.80	582.39	348.00	101.57
434	29.80	590.62	363.00	98.64
68	15.60	540.63	320.00	95.61
80	13.80	540.48	323.00	94.24
446	18.40	583.80	367.00	93.95
458	5.60	580.13	366.00	92.79
92	12.80	540.42	327.00	92.48
442	40.20	585.30	375.00	91.13

MINIMUM PRESSURES

932	.00	516.84	455.00	26.80
918	3000.00	465.82	397.00	29.82
920	16.60	467.73	398.00	30.22
192	11.20	548.16	477.00	30.83

921	.00	467.73	396.00	31.09
917	.00	468.49	395.00	31.85
926	.00	479.76	406.00	31.96
924	16.60	473.96	400.00	32.05
196	9.00	548.97	475.00	32.05
28	12.20	550.64	476.00	32.34

THE NET SYSTEM DEMAND = 5950.40

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	388.54
6	1171.12
10	2461.37
12	1929.38

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 5950.40
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 2.00

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
940	4010.80

THE RESULTS ARE OBTAINED AFTER 5 TRIALS WITH AN ACCURACY = .00079

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 4000 gpm Fire Flow at Node 940 in M+O Office Area

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	399.46	5.66	.00	.00	10.20	113.24
5	4	8	837.77	.14	.00	.00	1.75	.86
6	0	438	1176.57	17.43	.00	.00	13.35	116.23
9	8	12	-735.51	-3.08	.00	.00	-3.00	-4.05
10	0	32	3326.98	.66	.00	.00	13.59	66.22
12	0	438	2047.39	1.43	.00	.00	5.81	9.56
13	12	16	-901.87	-2.43	.00	.00	-3.68	-5.90
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-944.07	-4.06	.00	.00	-3.86	-6.42
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	2005.04	5.79	.00	.00	5.69	9.20
53	114	952	2123.36	14.42	.00	.00	6.02	10.23
57	116	114	2678.16	12.26	.00	.00	7.60	15.72
61	116	72	-360.47	-4.98	.00	.00	-2.30	-3.20
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	385.87	1.13	.00	.00	2.46	3.63
71	68	60	2053.44	10.70	.00	.00	8.39	27.09
75	60	52	2036.44	6.91	.00	.00	8.32	26.68
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	2757.57	18.42	.00	.00	7.82	16.60
87	80	68	-302.66	-.69	.00	.00	-1.93	-2.32
91	80	84	89.31	.20	.00	.00	.57	.24
95	88	84	-73.91	-.05	.00	.00	-.47	-.17
99	92	88	-58.31	-.09	.00	.00	-.37	-.11
103	92	80	-199.55	-.34	.00	.00	-1.27	-1.07
107	96	92	-245.06	-.47	.00	.00	-1.56	-1.57
111	96	100	73.50	.15	.00	.00	.47	.17
115	104	100	-56.70	-.03	.00	.00	-.36	-.10
119	108	104	-41.30	-.05	.00	.00	-.26	-.06
123	108	96	-159.96	-.23	.00	.00	-1.02	-.71
127	112	108	-178.86	-.66	.00	.00	-1.14	-.87
131	112	116	2331.69	3.72	.00	.00	6.61	12.16
135	120	112	2165.03	3.20	.00	.00	6.14	10.60
137	10	122	1555.88	1.81	.00	.00	4.41	5.75
139	8	10	1555.88	4.33	.00	.00	4.41	5.75
141	122	120	1555.88	1.90	.00	.00	4.41	5.75
143	120	124	-626.55	-2.83	.00	.00	-4.00	-8.91
147	124	128	-636.15	-3.03	.00	.00	-4.06	-9.17
151	132	128	366.62	1.11	.00	.00	2.34	3.30
155	192	132	282.63	1.47	.00	.00	1.80	2.04
159	4	192	-844.57	-.25	.00	.00	-1.76	-.88
163	192	188	25.86	.01	.00	.00	.17	.02
167	188	136	174.07	1.09	.00	.00	1.98	3.38
171	136	132	96.99	.37	.00	.00	1.10	1.14
175	136	140	62.08	.25	.00	.00	.70	.50
179	144	140	-314.72	-.68	.00	.00	-2.01	-2.49
183	128	144	-277.12	-.55	.00	.00	-1.77	-1.97
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-264.05	-.73	.00	.00	-1.69	-1.80
199	156	160	-83.46	-.13	.00	.00	-.53	-.21

203	160	164	-98.86	-.09	.00	.00	-.63	-.29
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	56.90	.05	.00	.00	.36	.10
219	180	176	56.90	.03	.00	.00	.36	.10
223	180	156	194.99	.30	.00	.00	1.24	1.03
227	180	204	-163.30	-.18	.00	.00	-1.04	-.74
231	184	180	100.39	.18	.00	.00	.64	.30
235	188	184	115.39	.13	.00	.00	.74	.39
239	188	200	-274.40	-.69	.00	.00	-1.75	-1.93
243	196	200	186.50	.36	.00	.00	1.19	.94
247	192	196	-1164.26	-1.04	.00	.00	-2.43	-1.59
251	196	208	-1359.76	-.62	.00	.00	-2.83	-2.11
253	208	212	-108.36	-.12	.00	.00	-.69	-.35
257	212	12	-137.96	-.90	.00	.00	-.88	-.54
261	208	216	248.41	.88	.00	.00	1.59	1.61
265	200	216	-99.70	-.10	.00	.00	-.64	-.30
269	216	204	184.30	.92	.00	.00	1.18	.92
273	208	260	-1512.21	-1.49	.00	.00	-3.15	-2.57
277	260	268	-208.53	-1.46	.00	.00	-1.33	-1.16
281	260	264	-1421.29	-.68	.00	.00	-2.96	-2.30
285	264	268	-1428.69	-.78	.00	.00	-2.98	-2.32
289	268	276	-1657.42	-2.22	.00	.00	-3.45	-3.05
293	276	272	351.14	.80	.00	.00	2.24	3.05
297	256	272	-325.34	-2.91	.00	.00	-2.08	-2.65
301	260	256	93.20	.03	.00	.00	.38	.09
305	256	252	393.75	.45	.00	.00	1.61	1.27
309	252	248	372.55	.34	.00	.00	1.52	1.15
313	248	244	357.95	.31	.00	.00	1.46	1.07
317	244	240	347.75	.39	.00	.00	1.42	1.01
321	240	228	336.15	.73	.00	.00	2.15	2.81
325	228	232	234.96	1.01	.00	.00	1.50	1.45
329	232	306	131.43	.13	.00	.00	.84	.49
333	236	164	87.96	.08	.00	.00	.56	.23
337	224	228	-81.99	-.04	.00	.00	-.52	-.21
341	220	224	-61.79	-.04	.00	.00	-.39	-.12
345	216	220	-47.99	-.03	.00	.00	-.31	-.08
349	236	282	-10.82	.00	.00	.00	-.07	.00
353	282	286	-24.62	-.01	.00	.00	-.16	-.02
357	286	290	-36.22	-.03	.00	.00	-.23	-.05
361	290	294	-46.93	-.02	.00	.00	-.30	-.07
365	294	232	-95.93	-.15	.00	.00	-.39	-.09
369	290	298	-7.09	.00	.00	.00	-.05	.00
373	298	302	-21.09	-.01	.00	.00	-.13	-.02
377	302	306	-35.69	-.02	.00	.00	-.23	-.04
381	306	236	85.34	.07	.00	.00	.54	.22
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2263.56	-5.62	.00	.00	-4.72	-5.43
511	414	416	-885.63	-11.47	.00	.00	-1.85	-.96
513	416	418	-1674.34	-1.44	.00	.00	-3.49	-3.11
515	418	422	-1804.44	-2.62	.00	.00	-3.76	-3.57
519	422	426	-2689.36	-4.05	.00	.00	-5.60	-7.48
523	426	428	-2323.96	-4.76	.00	.00	-4.84	-5.71
525	428	430	-2052.63	-5.71	.00	.00	-4.28	-4.53
527	430	434	-2775.80	-4.35	.00	.00	-5.78	-7.93
531	434	438	-3223.96	-6.55	.00	.00	-6.72	-10.46
535	434	442	418.35	5.71	.00	.00	2.67	4.22
539	442	446	378.15	1.62	.00	.00	2.41	3.50
543	430	446	635.97	2.99	.00	.00	2.60	3.09
547	446	450	528.90	.97	.00	.00	2.16	2.20
551	450	428	360.13	1.76	.00	.00	1.47	1.08
555	446	454	466.83	1.51	.00	.00	1.91	1.74
559	450	454	114.77	.54	.00	.00	.73	.38
563	454	458	531.80	2.44	.00	.00	2.17	2.22
567	458	462	526.20	.33	.00	.00	1.49	.77
571	462	466	401.23	.26	.00	.00	1.14	.47
573	466	468	390.57	.12	.00	.00	1.11	.44
575	468	470	390.57	.13	.00	.00	1.11	.44
579	470	474	448.20	.23	.00	.00	1.27	.57
581	474	476	426.40	.18	.00	.00	1.21	.52
583	476	478	426.40	.38	.00	.00	1.21	.52
587	478	426	384.20	1.92	.00	.00	1.57	1.22
591	470	482	-82.23	-.26	.00	.00	-.52	-.21
595	466	482	-4.54	.00	.00	.00	-.03	.00
599	462	482	114.17	.26	.00	.00	.73	.38
603	414	486	-671.91	-2.12	.00	.00	-4.29	-10.15
607	486	490	-692.51	-2.65	.00	.00	-4.42	-10.73
611	490	494	-330.23	-1.49	.00	.00	-2.11	-2.72
615	494	498	-343.03	-1.11	.00	.00	-2.19	-2.92
619	498	502	-155.21	-.55	.00	.00	-.99	-.67
623	502	506	-164.01	-.71	.00	.00	-1.05	-.74
627	506	498	206.42	1.25	.00	.00	1.32	1.14
629	506	416	-773.31	-2.84	.00	.00	-4.94	-13.16
631	506	490	379.09	3.86	.00	.00	2.42	3.51
635	414	510	-717.02	-2.21	.00	.00	-4.58	-11.44
639	510	514	-300.93	-1.38	.00	.00	-1.92	-2.29
643	514	518	-325.33	-.68	.00	.00	-2.08	-2.65
647	518	522	-343.33	-.79	.00	.00	-2.19	-2.93
651	522	526	-356.13	-2.28	.00	.00	-2.27	-3.13
655	526	510	435.29	5.13	.00	.00	2.78	4.54
659	526	530	-804.62	-3.06	.00	.00	-5.14	-14.17
663	530	418	-451.57	-2.52	.00	.00	-2.88	-4.86
667	530	534	-368.05	-1.59	.00	.00	-2.35	-3.33
671	534	538	-115.51	-.17	.00	.00	-.74	-.39
675	538	542	-115.51	-.30	.00	.00	-.74	-.39
679	542	546	-115.51	-.08	.00	.00	-.74	-.39

683	546	550	-127.11	-.13	.00	.00	-.81	-.46
687	550	554	-139.11	-.14	.00	.00	-.89	-.55
691	554	558	-224.12	-1.40	.00	.00	-1.43	-1.33
695	558	562	-224.12	-.44	.00	.00	-1.43	-1.33
699	562	422	-459.05	-.89	.00	.00	-2.93	-5.01
703	534	566	-252.54	-.28	.00	.00	-1.61	-1.66
707	566	570	-264.54	-.49	.00	.00	-1.69	-1.81
711	570	554	-76.21	-.05	.00	.00	-.49	-.18
715	570	574	-201.13	-.32	.00	.00	-1.28	-1.09
719	574	578	-212.13	-.19	.00	.00	-1.35	-1.20
723	578	582	-223.53	-.22	.00	.00	-1.43	-1.32
727	582	562	-234.93	-1.15	.00	.00	-1.50	-1.45
731	418	586	-328.27	-.20	.00	.00	-1.34	-.91
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-337.67	-.61	.00	.00	-2.16	-2.84
743	594	598	-270.83	-.74	.00	.00	-1.73	-1.89
747	598	422	-417.07	-1.07	.00	.00	-2.66	-4.19
751	598	602	127.24	.14	.00	.00	.81	.47
755	602	604	66.88	.06	.00	.00	.43	.14
759	602	604	53.56	.06	.00	.00	.34	.09
763	594	604	-99.84	-.53	.00	.00	-.64	-.30
901	900	904	383.47	.50	.00	.00	2.45	3.10
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	353.87	1.60	.00	.00	2.26	2.67
917	916	912	-337.27	-1.07	.00	.00	-2.15	-2.44
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	148.38	.09	.00	.00	.95	.53
920	915	919	148.38	.28	.00	.00	.95	.53
921	916	918	172.29	.38	.00	.00	1.10	.70
922	917	919	-1.87	.00	.00	.00	-.01	.00
923	918	917	-1.87	.00	.00	.00	-.01	.00
924	923	919	-146.51	-.16	.00	.00	-.94	-.52
925	918	920	174.16	.06	.00	.00	1.11	.72
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	-157.56	-.17	.00	.00	-1.01	-.60
931	924	923	-146.51	-.08	.00	.00	-.94	-.52
933	926	924	-287.47	-.25	.00	.00	-1.83	-1.82
937	928	926	-287.47	-.39	.00	.00	-1.83	-1.82
941	932	928	-287.47	-1.23	.00	.00	-1.83	-1.82
945	56	932	-287.47	-.24	.00	.00	-.82	-.25
949	900	56	1621.56	5.90	.00	.00	4.60	6.21
951	58	56	-1909.04	-2.10	.00	.00	-5.42	-8.40
953	936	58	-1909.04	-1.34	.00	.00	-5.42	-8.40
957	936	940	1704.84	8.28	.00	.00	6.96	16.55
961	940	944	-712.58	-1.12	.00	.00	-2.91	-3.29
965	948	944	723.38	1.22	.00	.00	2.95	3.38
969	948	940	1593.38	2.34	.00	.00	6.51	14.60
973	952	948	2327.56	5.89	.00	.00	9.51	29.46
977	952	936	-204.20	-.05	.00	.00	-.58	-.13

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	542.91	468.00	32.46
8	17.40	542.77	456.00	37.60
10	.00	538.44	402.00	59.12
12	28.40	545.85	431.00	49.77
16	10.20	548.28	420.00	55.59
20	7.60	548.27	444.00	45.18
24	12.20	548.27	454.00	40.85
28	12.20	548.26	476.00	31.31
32	12.60	552.34	403.00	64.71
36	12.20	552.33	427.00	54.31

44	17.40	516.29	376.00	60.79
46	.00	516.30	321.00	84.63
48	12.60	516.30	318.00	85.93
52	1.40	516.31	321.00	84.63
56	.00	504.61	433.00	31.03
58	.00	502.52	420.00	35.76
60	8.80	523.22	327.00	85.03
64	8.20	523.21	351.00	74.63
68	15.60	533.92	320.00	92.70
72	25.40	532.78	359.00	75.31
76	.00	532.78	348.00	80.07
80	13.80	533.22	323.00	91.10
84	15.40	533.03	386.00	63.71
88	15.60	532.98	372.00	69.76
92	12.80	532.89	327.00	89.22
96	11.60	532.42	347.00	80.35
100	16.80	532.27	415.00	50.82
104	15.40	532.24	417.00	49.94
108	22.40	532.19	355.00	76.78
112	12.20	531.53	375.00	67.83
114	76.80	515.55	391.00	53.97
116	14.00	527.81	379.00	64.48
120	17.40	534.73	377.00	68.35
122	.00	536.63	385.00	65.71
124	9.60	537.56	401.00	59.17
128	7.60	540.58	422.00	51.39
132	13.00	541.69	456.00	37.13
136	15.00	542.07	446.00	41.63
140	11.40	541.81	446.00	41.52
144	10.20	541.13	429.00	48.59
148	10.80	541.10	415.00	54.64
152	16.60	541.08	390.00	65.47
156	14.40	542.55	423.00	51.80
160	15.40	542.68	393.00	64.86
164	8.00	542.76	426.00	50.60
168	13.80	542.75	396.00	63.59
172	24.20	542.74	380.00	70.52
176	.00	542.82	454.00	38.49
180	11.80	542.84	445.00	42.40
184	15.00	543.02	446.00	42.04
188	10.80	543.15	461.00	35.60
192	11.20	543.16	477.00	28.67
196	9.00	544.20	475.00	29.99
200	11.80	543.84	454.00	38.93
204	21.00	543.02	423.00	52.01
208	12.40	544.82	455.00	38.92
212	29.60	544.94	415.00	56.31
216	12.40	543.94	471.00	31.61
220	13.80	543.97	445.00	42.89
224	20.20	544.02	439.00	45.51
228	19.20	544.06	409.00	58.52
232	7.60	543.04	397.00	63.29
236	8.20	542.84	463.00	34.60
240	11.60	544.79	353.00	83.11
244	10.20	545.18	366.00	77.64
248	14.60	545.49	369.00	76.48
252	21.20	545.83	387.00	68.83
256	24.80	546.28	404.00	61.65
260	24.40	546.31	427.00	51.70
264	7.40	546.99	443.00	45.06
268	20.20	547.77	453.00	41.07
272	25.80	549.19	455.00	40.82
276	22.40	549.99	457.00	40.30

282	13.80	542.84	394.00	64.50
286	11.60	542.85	380.00	70.57
290	17.80	542.88	387.00	67.55
294	49.00	542.90	389.00	66.69
298	14.00	542.88	396.00	63.65
302	14.60	542.89	410.00	57.59
306	10.40	542.91	411.00	57.16
310	25.60	512.19	358.00	66.82
314	15.00	511.89	340.00	74.49
318	11.00	511.82	344.00	72.72
322	19.80	511.79	354.00	68.38
326	27.80	511.76	359.00	66.20
330	19.60	511.81	348.00	70.98
334	19.80	511.81	346.00	71.85
338	32.40	510.70	352.00	68.77
342	19.60	510.69	358.00	66.17
346	35.80	510.69	382.00	55.76
350	29.00	510.53	344.00	72.16
354	192.20	510.16	323.00	81.10
358	30.40	510.52	372.00	60.02
362	.00	544.94	364.00	78.41
366	14.60	549.85	437.00	48.90
370	21.80	549.79	406.00	62.31
374	7.00	549.79	372.00	77.04
378	12.80	549.79	377.00	74.88
382	26.60	549.74	436.00	49.29
386	31.00	549.61	380.00	73.50
390	43.80	549.59	367.00	79.12
394	7.00	549.57	350.00	86.48
398	2.40	549.56	351.00	86.04
402	39.20	549.49	379.00	73.88
406	12.60	549.49	365.00	79.94
410	13.80	549.48	357.00	83.41
414	11.00	555.61	464.00	39.70
416	15.40	567.08	434.00	57.67
418	6.80	568.53	421.00	63.93
422	8.80	571.15	442.00	55.96
426	18.80	575.19	410.00	71.58
428	88.80	579.96	410.00	73.65
430	87.20	585.67	397.00	81.76
434	29.80	590.02	363.00	98.37
438	.00	596.57	315.00	122.01
442	40.20	584.31	375.00	90.70
446	18.40	582.69	367.00	93.46
450	54.00	581.72	383.00	86.11
454	49.80	581.18	348.00	101.04
458	5.60	578.74	366.00	92.19
462	10.80	578.41	373.00	89.01
466	15.20	578.15	382.00	85.00
468	.00	578.03	385.00	83.65
470	24.60	577.90	387.00	82.72
474	21.80	577.67	389.00	81.76
476	.00	577.49	381.00	85.14
478	42.20	577.11	332.00	106.21
482	27.40	578.15	389.00	81.97
486	20.60	557.73	459.00	42.79
490	16.80	560.38	450.00	47.83
494	12.80	561.88	431.00	56.71
498	18.60	562.99	424.00	60.23
502	8.80	563.53	399.00	71.30
506	23.80	564.24	425.00	60.34
510	19.20	557.82	456.00	44.12
514	24.40	559.20	415.00	62.49

518	18.00	559.88	409.00	65.38
522	12.80	560.67	407.00	66.59
526	13.20	562.95	399.00	71.04
530	15.00	566.01	397.00	73.24
534	.00	567.60	399.00	73.06
538	.00	567.77	415.00	66.20
542	.00	568.07	393.00	75.86
546	11.60	568.15	386.00	78.93
550	12.00	568.28	381.00	81.15
554	8.80	568.42	382.00	80.78
558	.00	569.81	422.00	64.05
562	.00	570.26	435.00	58.61
566	12.00	567.88	392.00	76.22
570	12.80	568.37	383.00	80.33
574	11.00	568.69	384.00	80.03
578	11.40	568.88	386.00	79.25
582	11.40	569.10	387.00	78.91
586	9.40	568.72	408.00	69.65
590	.00	568.72	375.00	83.95
594	33.00	569.33	417.00	66.01
598	19.00	570.08	428.00	61.57
602	6.80	569.93	420.00	64.97
604	20.60	569.87	402.00	72.74
900	.00	510.51	345.00	71.72
904	14.80	510.02	346.00	71.07
908	14.80	510.02	339.00	74.11
912	16.60	508.42	366.00	61.71
914	.00	507.25	388.00	51.67
915	.00	507.25	389.00	51.24
916	16.60	507.34	391.00	50.41
917	.00	506.97	395.00	48.52
918	.00	506.97	397.00	47.65
919	.00	506.97	393.00	49.39
920	16.60	506.90	398.00	47.19
921	.00	506.90	396.00	48.06
923	.00	506.81	396.00	48.02
924	16.60	506.73	400.00	46.25
926	.00	506.48	406.00	43.54
928	.00	506.09	412.00	40.77
932	.00	504.85	455.00	21.60
936	.00	501.17	420.00	35.17
940	4010.80	492.90	421.00	31.15
944	10.80	494.01	417.00	33.37
948	10.80	495.23	422.00	31.73
952	.00	501.12	416.00	36.89
	MAXIMUM PRESSURES			
438	.00	596.57	315.00	122.01
478	42.20	577.11	332.00	106.21
454	49.80	581.18	348.00	101.04
434	29.80	590.02	363.00	98.37
446	18.40	582.69	367.00	93.46
68	15.60	533.92	320.00	92.70
458	5.60	578.74	366.00	92.19
80	13.80	533.22	323.00	91.10
442	40.20	584.31	375.00	90.70
92	12.80	532.89	327.00	89.22
	MINIMUM PRESSURES			
932	.00	504.85	455.00	21.60
192	11.20	543.16	477.00	28.67
196	9.00	544.20	475.00	29.99
56	.00	504.61	433.00	31.03

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       940           4010.80      492.90      421.00       31.15
        28             12.20      548.26      476.00       31.31
       216             12.40      543.94      471.00       31.61
       948             10.80      495.23      422.00       31.73
         4              6.80      542.91      468.00       32.46
       944             10.80      494.01      417.00       33.37

 THE NET SYSTEM DEMAND =   6950.40

 SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

    PIPE NUMBER    FLOWRATE
         4         399.46
         6        1176.57
        10        3326.98
        12        2047.39

 THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES =   6950.40
 THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES =       .00



 A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS


 THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR =   2.00

 THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :
 JUNCTION NUMBER       DEMAND
       908           1514.80


 THE RESULTS ARE OBTAINED AFTER  4 TRIALS WITH AN ACCURACY =  .00144
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Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 1500 gpm Fire Flow at Node 908 in M+O Single Fam Res

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	376.85	5.08	.00	.00	9.62	101.66
5	4	8	641.53	.09	.00	.00	1.34	.53
6	0	438	1166.39	17.16	.00	.00	13.23	114.37
9	8	12	-225.59	-.34	.00	.00	-.92	-.45
10	0	32	1085.03	.08	.00	.00	4.43	8.31
12	0	438	1822.14	1.16	.00	.00	5.17	7.70
13	12	16	-140.85	-.08	.00	.00	-.58	-.19
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-183.05	-.19	.00	.00	-.75	-.31
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	970.15	1.51	.00	.00	2.75	2.40
53	114	952	658.25	1.65	.00	.00	1.87	1.17
57	116	114	1213.05	2.83	.00	.00	3.44	3.63
61	116	72	-125.82	-.71	.00	.00	-.80	-.46
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	151.22	.20	.00	.00	.97	.64
71	68	60	1018.55	2.92	.00	.00	4.16	7.39
75	60	52	1001.55	1.86	.00	.00	4.09	7.17
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	1254.03	4.28	.00	.00	3.56	3.86
87	80	68	-68.66	-.04	.00	.00	-.44	-.15
91	80	84	21.86	.01	.00	.00	.14	.02
95	88	84	-6.46	.00	.00	.00	-.04	.00
99	92	88	9.14	.00	.00	.00	.06	.00
103	92	80	-32.99	-.01	.00	.00	-.21	-.04
107	96	92	-11.06	.00	.00	.00	-.07	-.01
111	96	100	14.49	.01	.00	.00	.09	.01
115	104	100	2.31	.00	.00	.00	.01	.00
119	108	104	17.71	.01	.00	.00	.11	.01
123	108	96	15.03	.00	.00	.00	.10	.01
127	112	108	55.14	.07	.00	.00	.35	.10
131	112	116	1101.23	.93	.00	.00	3.12	3.03
135	120	112	1168.57	1.02	.00	.00	3.31	3.38
137	10	122	849.72	.59	.00	.00	2.41	1.88
139	8	10	849.72	1.41	.00	.00	2.41	1.88
141	122	120	849.72	.62	.00	.00	2.41	1.88
143	120	124	-336.25	-.89	.00	.00	-2.15	-2.81
147	124	128	-345.85	-.98	.00	.00	-2.21	-2.97
151	132	128	212.02	.40	.00	.00	1.35	1.20
155	192	132	172.47	.59	.00	.00	1.10	.82
159	4	192	-648.33	-.15	.00	.00	-1.35	-.54
163	192	188	17.17	.00	.00	.00	.11	.01
167	188	136	109.97	.46	.00	.00	1.25	1.44
171	136	132	52.55	.12	.00	.00	.60	.37
175	136	140	42.42	.12	.00	.00	.48	.25
179	144	140	-179.03	-.24	.00	.00	-1.14	-.88
183	128	144	-141.43	-.16	.00	.00	-.90	-.57
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-148.01	-.25	.00	.00	-.94	-.62
199	156	160	-35.62	-.03	.00	.00	-.23	-.04

203	160	164	-51.02	-.03	.00	.00	-.33	-.09
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	57.29	.05	.00	.00	.37	.11
219	180	176	57.29	.03	.00	.00	.37	.11
223	180	156	126.79	.13	.00	.00	.81	.46
227	180	204	-116.80	-.10	.00	.00	-.75	-.40
231	184	180	79.08	.11	.00	.00	.50	.19
235	188	184	94.08	.09	.00	.00	.60	.27
239	188	200	-197.68	-.38	.00	.00	-1.26	-1.05
243	196	200	138.85	.21	.00	.00	.89	.55
247	192	196	-849.17	-.58	.00	.00	-1.77	-.88
251	196	208	-997.01	-.35	.00	.00	-2.08	-1.19
253	208	212	142.74	.20	.00	.00	.91	.58
257	212	12	113.14	.63	.00	.00	.72	.37
261	208	216	183.94	.51	.00	.00	1.17	.92
265	200	216	-70.63	-.05	.00	.00	-.45	-.16
269	216	204	137.80	.53	.00	.00	.88	.54
273	208	260	-1336.09	-1.19	.00	.00	-2.78	-2.05
277	260	268	-183.53	-1.15	.00	.00	-1.17	-.92
281	260	264	-1250.41	-.54	.00	.00	-2.61	-1.81
285	264	268	-1257.81	-.62	.00	.00	-2.62	-1.83
289	268	276	-1461.54	-1.75	.00	.00	-3.05	-2.42
293	276	272	311.59	.64	.00	.00	1.99	2.44
297	256	272	-285.79	-2.29	.00	.00	-1.82	-2.08
301	260	256	73.44	.02	.00	.00	.30	.06
305	256	252	334.43	.33	.00	.00	1.37	.94
309	252	248	313.23	.25	.00	.00	1.28	.83
313	248	244	298.63	.22	.00	.00	1.22	.76
317	244	240	288.43	.28	.00	.00	1.18	.71
321	240	228	276.83	.51	.00	.00	1.77	1.96
325	228	232	186.73	.66	.00	.00	1.19	.95
329	232	306	100.83	.08	.00	.00	.64	.30
333	236	164	39.73	.02	.00	.00	.25	.05
337	224	228	-70.90	-.03	.00	.00	-.45	-.16
341	220	224	-50.70	-.03	.00	.00	-.32	-.08
345	216	220	-36.90	-.02	.00	.00	-.24	-.05
349	236	282	9.17	.00	.00	.00	.06	.00
353	282	286	-4.63	.00	.00	.00	-.03	.00
357	286	290	-16.23	-.01	.00	.00	-.10	-.01
361	290	294	-29.30	-.01	.00	.00	-.19	-.03
365	294	232	-78.30	-.10	.00	.00	-.32	-.06
369	290	298	-4.73	.00	.00	.00	-.03	.00
373	298	302	-18.73	-.01	.00	.00	-.12	-.01
377	302	306	-33.33	-.02	.00	.00	-.21	-.04
381	306	236	57.10	.04	.00	.00	.36	.11
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2028.12	-4.59	.00	.00	-4.23	-4.43
511	414	416	-798.19	-9.46	.00	.00	-1.66	-.79
513	416	418	-1516.04	-1.20	.00	.00	-3.16	-2.59
515	418	422	-1640.33	-2.20	.00	.00	-3.42	-2.99
519	422	426	-2453.92	-3.41	.00	.00	-5.11	-6.31
523	426	428	-2129.17	-4.05	.00	.00	-4.44	-4.85
525	428	430	-1891.50	-4.91	.00	.00	-3.94	-3.90
527	430	434	-2570.02	-3.77	.00	.00	-5.36	-6.88
531	434	438	-2988.52	-5.69	.00	.00	-6.23	-9.09
535	434	442	388.70	4.98	.00	.00	2.48	3.68
539	442	446	348.50	1.40	.00	.00	2.22	3.01
543	430	446	591.31	2.61	.00	.00	2.42	2.70
547	446	450	488.10	.83	.00	.00	1.99	1.89
551	450	428	326.46	1.47	.00	.00	1.33	.90
555	446	454	433.32	1.32	.00	.00	1.77	1.52
559	450	454	107.63	.48	.00	.00	.69	.34
563	454	458	491.15	2.10	.00	.00	2.01	1.92
567	458	462	485.55	.28	.00	.00	1.38	.67
571	462	466	369.56	.22	.00	.00	1.05	.40
573	466	468	357.02	.11	.00	.00	1.01	.38
575	468	470	357.02	.11	.00	.00	1.01	.38
579	470	474	407.55	.19	.00	.00	1.16	.48
581	474	476	385.75	.15	.00	.00	1.09	.43
583	476	478	385.75	.31	.00	.00	1.09	.43
587	478	426	343.55	1.56	.00	.00	1.40	.99
591	470	482	-75.14	-.22	.00	.00	-.48	-.18
595	466	482	-2.66	.00	.00	.00	-.02	.00
599	462	482	105.20	.22	.00	.00	.67	.33
603	414	486	-601.05	-1.72	.00	.00	-3.84	-8.25
607	486	490	-621.65	-2.17	.00	.00	-3.97	-8.78
611	490	494	-296.46	-1.22	.00	.00	-1.89	-2.23
615	494	498	-309.26	-.91	.00	.00	-1.97	-2.41
619	498	502	-140.46	-.45	.00	.00	-.90	-.56
623	502	506	-149.26	-.59	.00	.00	-.95	-.63
627	506	498	187.40	1.05	.00	.00	1.20	.95
629	506	416	-702.45	-2.38	.00	.00	-4.48	-11.02
631	506	490	341.99	3.19	.00	.00	2.18	2.90
635	414	510	-639.88	-1.79	.00	.00	-4.08	-9.27
639	510	514	-267.46	-1.11	.00	.00	-1.71	-1.84
643	514	518	-291.86	-.55	.00	.00	-1.86	-2.17
647	518	522	-309.86	-.66	.00	.00	-1.98	-2.42
651	522	526	-322.66	-1.90	.00	.00	-2.06	-2.61
655	526	510	391.62	4.21	.00	.00	2.50	3.73
659	526	530	-727.48	-2.54	.00	.00	-4.64	-11.75
663	530	418	-411.43	-2.12	.00	.00	-2.63	-4.09
667	530	534	-331.05	-1.31	.00	.00	-2.11	-2.73
671	534	538	-103.81	-.14	.00	.00	-.66	-.32
675	538	542	-103.81	-.24	.00	.00	-.66	-.32
679	542	546	-103.81	-.06	.00	.00	-.66	-.32

683	546	550	-115.41	-.11	.00	.00	-.74	-.39
687	550	554	-127.41	-.12	.00	.00	-.81	-.47
691	554	558	-205.66	-1.19	.00	.00	-1.31	-1.13
695	558	562	-205.66	-.38	.00	.00	-1.31	-1.13
699	562	422	-422.05	-.76	.00	.00	-2.69	-4.29
703	534	566	-227.24	-.23	.00	.00	-1.45	-1.36
707	566	570	-239.24	-.41	.00	.00	-1.53	-1.50
711	570	554	-69.45	-.04	.00	.00	-.44	-.15
715	570	574	-182.59	-.27	.00	.00	-1.17	-.91
719	574	578	-193.59	-.16	.00	.00	-1.24	-1.01
723	578	582	-204.99	-.19	.00	.00	-1.31	-1.13
727	582	562	-216.39	-.99	.00	.00	-1.38	-1.24
731	418	586	-293.94	-.16	.00	.00	-1.20	-.74
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-303.34	-.50	.00	.00	-1.94	-2.33
743	594	598	-246.15	-.62	.00	.00	-1.57	-1.58
747	598	422	-382.74	-.91	.00	.00	-2.44	-3.58
751	598	602	117.59	.12	.00	.00	.75	.40
755	602	604	61.52	.06	.00	.00	.39	.12
759	602	604	49.27	.06	.00	.00	.31	.08
763	594	604	-90.19	-.44	.00	.00	-.58	-.25
901	900	904	1271.50	4.56	.00	.00	8.12	28.50
905	904	908	749.05	5.35	.00	.00	4.78	10.70
909	904	908	765.75	5.35	.00	.00	4.89	11.14
913	904	912	-258.10	-.89	.00	.00	-1.65	-1.49
917	916	912	274.70	.73	.00	.00	1.75	1.67
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	-134.98	-.08	.00	.00	-.86	-.45
920	915	919	-134.98	-.24	.00	.00	-.86	-.45
921	916	918	-156.32	-.31	.00	.00	-1.00	-.59
922	917	919	-9.34	.00	.00	.00	-.06	.00
923	918	917	-9.34	.00	.00	.00	-.06	.00
924	923	919	144.32	.15	.00	.00	.92	.51
925	918	920	-146.98	-.05	.00	.00	-.94	-.52
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	163.58	.18	.00	.00	1.04	.64
931	924	923	144.32	.08	.00	.00	.92	.51
933	926	924	324.50	.32	.00	.00	2.07	2.27
937	928	926	324.50	.49	.00	.00	2.07	2.27
941	932	928	324.50	1.55	.00	.00	2.07	2.27
945	56	932	324.50	.30	.00	.00	.92	.32
949	900	56	-301.35	-.26	.00	.00	-.85	-.28
951	58	56	625.85	.27	.00	.00	1.78	1.06
953	936	58	625.85	.17	.00	.00	1.78	1.06
957	936	940	-172.47	-.12	.00	.00	-.70	-.24
961	940	944	-53.09	-.01	.00	.00	-.22	-.03
965	948	944	63.89	.01	.00	.00	.26	.04
969	948	940	130.18	.02	.00	.00	.53	.14
973	952	948	204.87	.07	.00	.00	.84	.33
977	952	936	453.38	.21	.00	.00	1.29	.59

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	552.39	468.00	36.57
8	17.40	552.30	456.00	41.73
10	.00	550.89	402.00	64.52
12	28.40	552.64	431.00	52.71
16	10.20	552.72	420.00	57.51
20	7.60	552.71	444.00	47.11
24	12.20	552.71	454.00	42.77
28	12.20	552.71	476.00	33.24
32	12.60	552.92	403.00	64.96
36	12.20	552.91	427.00	54.56

44	17.40	543.84	376.00	72.73
46	.00	543.86	321.00	96.57
48	12.60	543.86	318.00	97.87
52	1.40	543.86	321.00	96.57
56	.00	542.61	433.00	47.50
58	.00	542.88	420.00	53.25
60	8.80	545.72	327.00	94.78
64	8.20	545.71	351.00	84.38
68	15.60	548.64	320.00	99.08
72	25.40	548.44	359.00	82.09
76	.00	548.44	348.00	86.86
80	13.80	548.59	323.00	97.76
84	15.40	548.58	386.00	70.45
88	15.60	548.58	372.00	76.52
92	12.80	548.58	327.00	96.02
96	11.60	548.58	347.00	87.35
100	16.80	548.57	415.00	57.88
104	15.40	548.57	417.00	57.01
108	22.40	548.58	355.00	83.89
112	12.20	548.66	375.00	75.25
114	76.80	544.90	391.00	66.69
116	14.00	547.73	379.00	73.12
120	17.40	549.68	377.00	74.83
122	.00	550.30	385.00	71.63
124	9.60	550.57	401.00	64.81
128	7.60	551.55	422.00	56.14
132	13.00	551.95	456.00	41.58
136	15.00	552.07	446.00	45.96
140	11.40	551.95	446.00	45.91
144	10.20	551.71	429.00	53.17
148	10.80	551.67	415.00	59.22
152	16.60	551.66	390.00	70.05
156	14.40	552.20	423.00	55.99
160	15.40	552.22	393.00	69.00
164	8.00	552.25	426.00	54.71
168	13.80	552.23	396.00	67.70
172	24.20	552.23	380.00	74.63
176	.00	552.30	454.00	42.60
180	11.80	552.33	445.00	46.51
184	15.00	552.44	446.00	46.13
188	10.80	552.54	461.00	39.67
192	11.20	552.54	477.00	32.73
196	9.00	553.12	475.00	33.85
200	11.80	552.91	454.00	42.86
204	21.00	552.43	423.00	56.09
208	12.40	553.47	455.00	42.67
212	29.60	553.27	415.00	59.92
216	12.40	552.96	471.00	35.52
220	13.80	552.98	445.00	46.79
224	20.20	553.01	439.00	49.41
228	19.20	553.04	409.00	62.42
232	7.60	552.38	397.00	67.33
236	8.20	552.27	463.00	38.68
240	11.60	553.55	353.00	86.91
244	10.20	553.83	366.00	81.39
248	14.60	554.05	369.00	80.19
252	21.20	554.30	387.00	72.50
256	24.80	554.63	404.00	65.27
260	24.40	554.65	427.00	55.32
264	7.40	555.19	443.00	48.62
268	20.20	555.81	453.00	44.55
272	25.80	556.92	455.00	44.17
276	22.40	557.56	457.00	43.58

282	13.80	552.27	394.00	68.58
286	11.60	552.27	380.00	74.65
290	17.80	552.27	387.00	71.62
294	49.00	552.28	389.00	70.75
298	14.00	552.27	396.00	67.72
302	14.60	552.28	410.00	61.66
306	10.40	552.30	411.00	61.23
310	25.60	541.55	358.00	79.54
314	15.00	541.24	340.00	87.21
318	11.00	541.17	344.00	85.44
322	19.80	541.14	354.00	81.10
326	27.80	541.12	359.00	78.92
330	19.60	541.16	348.00	83.70
334	19.80	541.16	346.00	84.57
338	32.40	540.06	352.00	81.49
342	19.60	540.05	358.00	78.89
346	35.80	540.04	382.00	68.48
350	29.00	539.89	344.00	84.88
354	192.20	539.52	323.00	93.82
358	30.40	539.87	372.00	72.74
362	.00	553.27	364.00	82.02
366	14.60	557.42	437.00	52.18
370	21.80	557.37	406.00	65.59
374	7.00	557.37	372.00	80.33
378	12.80	557.36	377.00	78.16
382	26.60	557.31	436.00	52.57
386	31.00	557.18	380.00	76.78
390	43.80	557.16	367.00	82.40
394	7.00	557.14	350.00	89.76
398	2.40	557.13	351.00	89.32
402	39.20	557.06	379.00	77.16
406	12.60	557.06	365.00	83.22
410	13.80	557.05	357.00	86.69
414	11.00	562.15	464.00	42.53
416	15.40	571.61	434.00	59.63
418	6.80	572.81	421.00	65.79
422	8.80	575.01	442.00	57.64
426	18.80	578.42	410.00	72.98
428	88.80	582.47	410.00	74.74
430	87.20	587.39	397.00	82.50
434	29.80	591.15	363.00	98.87
438	.00	596.84	315.00	122.13
442	40.20	586.17	375.00	91.51
446	18.40	584.78	367.00	94.37
450	54.00	583.94	383.00	87.07
454	49.80	583.46	348.00	102.03
458	5.60	581.36	366.00	93.32
462	10.80	581.07	373.00	90.17
466	15.20	580.85	382.00	86.17
468	.00	580.75	385.00	84.82
470	24.60	580.64	387.00	83.91
474	21.80	580.45	389.00	82.96
476	.00	580.29	381.00	86.36
478	42.20	579.98	332.00	107.46
482	27.40	580.85	389.00	83.14
486	20.60	563.88	459.00	45.45
490	16.80	566.05	450.00	50.29
494	12.80	567.27	431.00	59.05
498	18.60	568.18	424.00	62.48
502	8.80	568.64	399.00	73.51
506	23.80	569.23	425.00	62.50
510	19.20	563.94	456.00	46.77
514	24.40	565.05	415.00	65.02

518	18.00	565.60	409.00	67.86
522	12.80	566.26	407.00	69.01
526	13.20	568.15	399.00	73.30
530	15.00	570.69	397.00	75.27
534	.00	572.00	399.00	74.97
538	.00	572.14	415.00	68.10
542	.00	572.39	393.00	77.73
546	11.60	572.45	386.00	80.79
550	12.00	572.56	381.00	83.01
554	8.80	572.68	382.00	82.63
558	.00	573.87	422.00	65.81
562	.00	574.25	435.00	60.34
566	12.00	572.23	392.00	78.10
570	12.80	572.64	383.00	82.18
574	11.00	572.91	384.00	81.86
578	11.40	573.06	386.00	81.06
582	11.40	573.26	387.00	80.71
586	9.40	572.97	408.00	71.49
590	.00	572.97	375.00	85.79
594	33.00	573.47	417.00	67.81
598	19.00	574.10	428.00	63.31
602	6.80	573.97	420.00	66.72
604	20.60	573.92	402.00	74.50
900	.00	542.35	345.00	85.52
904	14.80	537.79	346.00	83.11
908	1514.80	532.44	339.00	83.82
912	16.60	538.68	366.00	74.83
914	.00	539.49	388.00	65.65
915	.00	539.49	389.00	65.21
916	16.60	539.41	391.00	64.31
917	.00	539.73	395.00	62.72
918	.00	539.73	397.00	61.85
919	.00	539.73	393.00	63.58
920	16.60	539.78	398.00	61.44
921	.00	539.78	396.00	62.30
923	.00	539.88	396.00	62.35
924	16.60	539.96	400.00	60.65
926	.00	540.28	406.00	58.19
928	.00	540.77	412.00	55.80
932	.00	542.31	455.00	37.83
936	.00	543.05	420.00	53.32
940	10.80	543.16	421.00	52.94
944	10.80	543.17	417.00	54.67
948	10.80	543.19	422.00	52.51
952	.00	543.25	416.00	55.14
	MAXIMUM PRESSURES			
438	.00	596.84	315.00	122.13
478	42.20	579.98	332.00	107.46
454	49.80	583.46	348.00	102.03
68	15.60	548.64	320.00	99.08
434	29.80	591.15	363.00	98.87
48	12.60	543.86	318.00	97.87
80	13.80	548.59	323.00	97.76
52	1.40	543.86	321.00	96.57
46	.00	543.86	321.00	96.57
92	12.80	548.58	327.00	96.02
	MINIMUM PRESSURES			
192	11.20	552.54	477.00	32.73
28	12.20	552.71	476.00	33.24
196	9.00	553.12	475.00	33.85
216	12.40	552.96	471.00	35.52

```
         4              6.80      552.39      468.00       36.57
       932               .00      542.31      455.00       37.83
       236              8.20      552.27      463.00       38.68
       188             10.80      552.54      461.00       39.67
       132             13.00      551.95      456.00       41.58
         8             17.40      552.30      456.00       41.73

 THE NET SYSTEM DEMAND =   4450.40

 SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

    PIPE NUMBER    FLOWRATE
         4         376.85
         6        1166.39
        10        1085.03
        12        1822.14

 THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES =   4450.41
 THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES =       .00



 A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS


 THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR =   2.00

 THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :
 JUNCTION NUMBER       DEMAND
       944           3010.80


 THE RESULTS ARE OBTAINED AFTER  4 TRIALS WITH AN ACCURACY =  .00320
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Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 3000 gpm Fire Flow at Node 944 in M+O Multi-Fam Res

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	388.45	5.38	.00	.00	9.92	107.53
5	4	8	748.16	.12	.00	.00	1.56	.70
6	0	438	1171.50	17.30	.00	.00	13.29	115.30
9	8	12	-547.61	-1.78	.00	.00	-2.24	-2.34
10	0	32	2452.69	.38	.00	.00	10.02	37.65
12	0	438	1937.77	1.30	.00	.00	5.50	8.63
13	12	16	-624.22	-1.23	.00	.00	-2.55	-2.99
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-666.42	-2.13	.00	.00	-2.72	-3.37
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	1544.40	3.57	.00	.00	4.38	5.67
53	114	952	1584.00	8.38	.00	.00	4.49	5.94
57	116	114	2138.80	8.09	.00	.00	6.07	10.37
61	116	72	-278.21	-3.08	.00	.00	-1.78	-1.98
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	303.61	.73	.00	.00	1.94	2.33
71	68	60	1592.80	6.69	.00	.00	6.51	16.92
75	60	52	1575.80	4.30	.00	.00	6.44	16.59
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	2149.91	11.62	.00	.00	6.10	10.47
87	80	68	-237.90	-.44	.00	.00	-1.52	-1.48
91	80	84	71.40	.13	.00	.00	.46	.16
95	88	84	-56.00	-.03	.00	.00	-.36	-.10
99	92	88	-40.40	-.05	.00	.00	-.26	-.06
103	92	80	-152.70	-.21	.00	.00	-.97	-.65
107	96	92	-180.30	-.27	.00	.00	-1.15	-.89
111	96	100	55.49	.09	.00	.00	.35	.10
115	104	100	-38.69	-.02	.00	.00	-.25	-.05
119	108	104	-23.29	-.02	.00	.00	-.15	-.02
123	108	96	-113.20	-.12	.00	.00	-.72	-.37
127	112	108	-114.10	-.29	.00	.00	-.73	-.38
131	112	116	1874.58	2.48	.00	.00	5.32	8.12
135	120	112	1772.69	2.21	.00	.00	5.03	7.32
137	10	122	1278.37	1.26	.00	.00	3.63	4.00
139	8	10	1278.37	3.01	.00	.00	3.63	4.00
141	122	120	1278.37	1.32	.00	.00	3.63	4.00
143	120	124	-511.72	-1.94	.00	.00	-3.27	-6.13
147	124	128	-521.32	-2.09	.00	.00	-3.33	-6.34
151	132	128	305.48	.79	.00	.00	1.95	2.36
155	192	132	239.19	1.08	.00	.00	1.53	1.50
159	4	192	-754.96	-.20	.00	.00	-1.57	-.71
163	192	188	25.98	.01	.00	.00	.17	.02
167	188	136	148.73	.81	.00	.00	1.69	2.52
171	136	132	79.28	.26	.00	.00	.90	.79
175	136	140	54.45	.20	.00	.00	.62	.39
179	144	140	-261.04	-.48	.00	.00	-1.67	-1.76
183	128	144	-223.44	-.37	.00	.00	-1.43	-1.32
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-217.99	-.51	.00	.00	-1.39	-1.26
199	156	160	-64.86	-.08	.00	.00	-.41	-.13

203	160	164	-80.26	-.06	.00	.00	-.51	-.20
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	58.20	.05	.00	.00	.37	.11
219	180	176	58.20	.03	.00	.00	.37	.11
223	180	156	167.54	.22	.00	.00	1.07	.77
227	180	204	-144.27	-.14	.00	.00	-.92	-.59
231	184	180	93.27	.15	.00	.00	.60	.26
235	188	184	108.27	.12	.00	.00	.69	.35
239	188	200	-241.82	-.55	.00	.00	-1.54	-1.53
243	196	200	167.51	.30	.00	.00	1.07	.77
247	192	196	-1031.33	-.83	.00	.00	-2.15	-1.27
251	196	208	-1207.84	-.50	.00	.00	-2.52	-1.70
253	208	212	-18.61	.00	.00	.00	-.12	-.01
257	212	12	-48.21	-.13	.00	.00	-.31	-.08
261	208	216	222.31	.72	.00	.00	1.42	1.31
265	200	216	-86.11	-.07	.00	.00	-.55	-.23
269	216	204	165.27	.75	.00	.00	1.05	.76
273	208	260	-1423.94	-1.33	.00	.00	-2.97	-2.30
277	260	268	-196.34	-1.31	.00	.00	-1.25	-1.04
281	260	264	-1337.99	-.61	.00	.00	-2.79	-2.05
285	264	268	-1345.39	-.70	.00	.00	-2.80	-2.07
289	268	276	-1561.93	-1.98	.00	.00	-3.26	-2.73
293	276	272	331.93	.72	.00	.00	2.12	2.75
297	256	272	-306.13	-2.60	.00	.00	-1.95	-2.37
301	260	256	86.00	.03	.00	.00	.35	.08
305	256	252	367.33	.40	.00	.00	1.50	1.12
309	252	248	346.13	.30	.00	.00	1.41	1.00
313	248	244	331.53	.27	.00	.00	1.35	.92
317	244	240	321.33	.34	.00	.00	1.31	.87
321	240	228	309.73	.63	.00	.00	1.98	2.42
325	228	232	215.05	.86	.00	.00	1.37	1.23
329	232	306	118.70	.11	.00	.00	.76	.41
333	236	164	68.05	.05	.00	.00	.43	.15
337	224	228	-75.48	-.03	.00	.00	-.48	-.18
341	220	224	-55.28	-.04	.00	.00	-.35	-.10
345	216	220	-41.48	-.03	.00	.00	-.26	-.06
349	236	282	-2.91	.00	.00	.00	-.02	.00
353	282	286	-16.71	.00	.00	.00	-.11	-.01
357	286	290	-28.31	-.02	.00	.00	-.18	-.03
361	290	294	-39.75	-.01	.00	.00	-.25	-.05
365	294	232	-88.75	-.13	.00	.00	-.36	-.08
369	290	298	-6.36	.00	.00	.00	-.04	.00
373	298	302	-20.36	-.01	.00	.00	-.13	-.02
377	302	306	-34.96	-.02	.00	.00	-.22	-.04
381	306	236	73.34	.06	.00	.00	.47	.17
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2148.86	-5.11	.00	.00	-4.48	-4.94
511	414	416	-843.03	-10.47	.00	.00	-1.76	-.87
513	416	418	-1597.22	-1.32	.00	.00	-3.33	-2.85
515	418	422	-1724.49	-2.41	.00	.00	-3.59	-3.28
519	422	426	-2574.66	-3.73	.00	.00	-5.37	-6.90
523	426	428	-2229.06	-4.41	.00	.00	-4.65	-5.28
525	428	430	-1974.13	-5.32	.00	.00	-4.11	-4.22
527	430	434	-2675.55	-4.06	.00	.00	-5.58	-7.41
531	434	438	-3109.26	-6.12	.00	.00	-6.48	-9.78
535	434	442	403.91	5.35	.00	.00	2.58	3.95
539	442	446	363.71	1.51	.00	.00	2.32	3.26
543	430	446	614.22	2.80	.00	.00	2.51	2.90
547	446	450	509.02	.90	.00	.00	2.08	2.05
551	450	428	343.73	1.61	.00	.00	1.40	.99
555	446	454	450.51	1.41	.00	.00	1.84	1.63
559	450	454	111.30	.51	.00	.00	.71	.36
563	454	458	512.01	2.27	.00	.00	2.09	2.07
567	458	462	506.41	.31	.00	.00	1.44	.72
571	462	466	385.80	.24	.00	.00	1.09	.43
573	466	468	374.23	.12	.00	.00	1.06	.41
575	468	470	374.23	.12	.00	.00	1.06	.41
579	470	474	428.41	.21	.00	.00	1.22	.53
581	474	476	406.61	.17	.00	.00	1.15	.48
583	476	478	406.61	.35	.00	.00	1.15	.48
587	478	426	364.41	1.74	.00	.00	1.49	1.10
591	470	482	-78.78	-.24	.00	.00	-.50	-.19
595	466	482	-3.63	.00	.00	.00	-.02	.00
599	462	482	109.80	.24	.00	.00	.70	.35
603	414	486	-637.39	-1.92	.00	.00	-4.07	-9.20
607	486	490	-657.99	-2.41	.00	.00	-4.20	-9.76
611	490	494	-313.78	-1.36	.00	.00	-2.00	-2.48
615	494	498	-326.58	-1.01	.00	.00	-2.08	-2.67
619	498	502	-148.02	-.50	.00	.00	-.94	-.62
623	502	506	-156.82	-.65	.00	.00	-1.00	-.69
627	506	498	197.15	1.15	.00	.00	1.26	1.05
629	506	416	-738.79	-2.61	.00	.00	-4.72	-12.09
631	506	490	361.01	3.52	.00	.00	2.30	3.21
635	414	510	-679.44	-2.00	.00	.00	-4.34	-10.36
639	510	514	-284.63	-1.25	.00	.00	-1.82	-2.07
643	514	518	-309.03	-.61	.00	.00	-1.97	-2.41
647	518	522	-327.03	-.72	.00	.00	-2.09	-2.67
651	522	526	-339.83	-2.09	.00	.00	-2.17	-2.87
655	526	510	414.02	4.67	.00	.00	2.64	4.14
659	526	530	-767.04	-2.80	.00	.00	-4.90	-12.96
663	530	418	-432.01	-2.32	.00	.00	-2.76	-4.48
667	530	534	-350.03	-1.45	.00	.00	-2.23	-3.03
671	534	538	-109.81	-.16	.00	.00	-.70	-.35
675	538	542	-109.81	-.27	.00	.00	-.70	-.35
679	542	546	-109.81	-.07	.00	.00	-.70	-.35

683	546	550	-121.41	-.12	.00	.00	-.77	-.43
687	550	554	-133.41	-.13	.00	.00	-.85	-.51
691	554	558	-215.13	-1.29	.00	.00	-1.37	-1.23
695	558	562	-215.13	-.41	.00	.00	-1.37	-1.23
699	562	422	-441.03	-.83	.00	.00	-2.81	-4.65
703	534	566	-240.22	-.26	.00	.00	-1.53	-1.51
707	566	570	-252.22	-.45	.00	.00	-1.61	-1.65
711	570	554	-72.92	-.04	.00	.00	-.47	-.17
715	570	574	-192.10	-.29	.00	.00	-1.23	-1.00
719	574	578	-203.10	-.17	.00	.00	-1.30	-1.11
723	578	582	-214.50	-.21	.00	.00	-1.37	-1.22
727	582	562	-225.90	-1.07	.00	.00	-1.44	-1.35
731	418	586	-311.55	-.18	.00	.00	-1.27	-.82
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-320.95	-.56	.00	.00	-2.05	-2.58
743	594	598	-258.81	-.68	.00	.00	-1.65	-1.73
747	598	422	-400.35	-.99	.00	.00	-2.56	-3.89
751	598	602	122.54	.13	.00	.00	.78	.43
755	602	604	64.27	.06	.00	.00	.41	.13
759	602	604	51.47	.06	.00	.00	.33	.09
763	594	604	-95.14	-.49	.00	.00	-.61	-.27
901	900	904	307.73	.33	.00	.00	1.96	2.06
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	278.13	1.02	.00	.00	1.78	1.71
917	916	912	-261.53	-.67	.00	.00	-1.67	-1.52
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	113.36	.06	.00	.00	.72	.32
920	915	919	113.36	.17	.00	.00	.72	.32
921	916	918	131.57	.23	.00	.00	.84	.43
922	917	919	-2.82	.00	.00	.00	-.02	.00
923	918	917	-2.82	.00	.00	.00	-.02	.00
924	923	919	-110.54	-.09	.00	.00	-.71	-.31
925	918	920	134.39	.04	.00	.00	.86	.44
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	-117.79	-.10	.00	.00	-.75	-.35
931	924	923	-110.54	-.05	.00	.00	-.71	-.31
933	926	924	-211.73	-.14	.00	.00	-1.35	-1.03
937	928	926	-211.73	-.22	.00	.00	-1.35	-1.03
941	932	928	-211.73	-.70	.00	.00	-1.35	-1.03
945	56	932	-211.73	-.14	.00	.00	-.60	-.14
949	900	56	1236.67	3.57	.00	.00	3.51	3.76
951	58	56	-1448.40	-1.26	.00	.00	-4.11	-5.04
953	936	58	-1448.40	-.81	.00	.00	-4.11	-5.04
957	936	940	1170.61	4.12	.00	.00	4.78	8.25
961	940	944	1515.77	4.53	.00	.00	6.19	13.31
965	948	944	1495.03	4.67	.00	.00	6.11	12.98
969	948	940	355.95	.15	.00	.00	1.45	.91
973	952	948	1861.79	3.90	.00	.00	7.60	19.48
977	952	936	-277.79	-.08	.00	.00	-.79	-.24

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	547.60	468.00	34.49
8	17.40	547.48	456.00	39.64
10	.00	544.47	402.00	61.74
12	28.40	549.26	431.00	51.25
16	10.20	550.49	420.00	56.55
20	7.60	550.48	444.00	46.14
24	12.20	550.48	454.00	41.81
28	12.20	550.48	476.00	32.27
32	12.60	552.62	403.00	64.84
36	12.20	552.62	427.00	54.43

44	17.40	530.01	376.00	66.74
46	.00	530.02	321.00	90.58
48	12.60	530.02	318.00	91.88
52	1.40	530.02	321.00	90.58
56	.00	522.88	433.00	38.95
58	.00	521.62	420.00	44.04
60	8.80	534.32	327.00	89.84
64	8.20	534.32	351.00	79.44
68	15.60	541.01	320.00	95.77
72	25.40	540.28	359.00	78.55
76	.00	540.28	348.00	83.32
80	13.80	540.56	323.00	94.28
84	15.40	540.43	386.00	66.92
88	15.60	540.41	372.00	72.98
92	12.80	540.36	327.00	92.45
96	11.60	540.09	347.00	83.67
100	16.80	540.00	415.00	54.17
104	15.40	539.99	417.00	53.29
108	22.40	539.97	355.00	80.15
112	12.20	539.68	375.00	71.36
114	76.80	529.11	391.00	59.85
116	14.00	537.20	379.00	68.55
120	17.40	541.90	377.00	71.45
122	.00	543.21	385.00	68.56
124	9.60	543.84	401.00	61.90
128	7.60	545.93	422.00	53.70
132	13.00	546.72	456.00	39.31
136	15.00	546.98	446.00	43.76
140	11.40	546.78	446.00	43.67
144	10.20	546.30	429.00	50.83
148	10.80	546.26	415.00	56.88
152	16.60	546.25	390.00	67.71
156	14.40	547.30	423.00	53.86
160	15.40	547.38	393.00	66.90
164	8.00	547.44	426.00	52.62
168	13.80	547.42	396.00	65.62
172	24.20	547.41	380.00	72.55
176	.00	547.49	454.00	40.51
180	11.80	547.52	445.00	44.43
184	15.00	547.67	446.00	44.06
188	10.80	547.79	461.00	37.61
192	11.20	547.80	477.00	30.68
196	9.00	548.63	475.00	31.91
200	11.80	548.34	454.00	40.88
204	21.00	547.66	423.00	54.02
208	12.40	549.13	455.00	40.79
212	29.60	549.13	415.00	58.12
216	12.40	548.41	471.00	33.54
220	13.80	548.44	445.00	44.82
224	20.20	548.47	439.00	47.44
228	19.20	548.51	409.00	60.45
232	7.60	547.65	397.00	65.28
236	8.20	547.48	463.00	36.61
240	11.60	549.13	353.00	84.99
244	10.20	549.47	366.00	79.50
248	14.60	549.74	369.00	78.32
252	21.20	550.04	387.00	70.65
256	24.80	550.43	404.00	63.46
260	24.40	550.46	427.00	53.50
264	7.40	551.07	443.00	46.83
268	20.20	551.77	453.00	42.80
272	25.80	553.04	455.00	42.48
276	22.40	553.75	457.00	41.93

282	13.80	547.48	394.00	66.51
286	11.60	547.49	380.00	72.58
290	17.80	547.51	387.00	69.55
294	49.00	547.52	389.00	68.69
298	14.00	547.51	396.00	65.65
302	14.60	547.52	410.00	59.59
306	10.40	547.54	411.00	59.17
310	25.60	525.76	358.00	72.70
314	15.00	525.46	340.00	80.37
318	11.00	525.39	344.00	78.60
322	19.80	525.36	354.00	74.25
326	27.80	525.33	359.00	72.08
330	19.60	525.38	348.00	76.86
334	19.80	525.37	346.00	77.73
338	32.40	524.27	352.00	74.65
342	19.60	524.26	358.00	72.05
346	35.80	524.26	382.00	61.64
350	29.00	524.10	344.00	78.04
354	192.20	523.73	323.00	86.98
358	30.40	524.09	372.00	65.90
362	.00	549.13	364.00	80.22
366	14.60	553.62	437.00	50.53
370	21.80	553.56	406.00	63.94
374	7.00	553.56	372.00	78.68
378	12.80	553.55	377.00	76.51
382	26.60	553.50	436.00	50.92
386	31.00	553.38	380.00	75.13
390	43.80	553.35	367.00	80.75
394	7.00	553.33	350.00	88.11
398	2.40	553.32	351.00	87.67
402	39.20	553.25	379.00	75.51
406	12.60	553.25	365.00	81.58
410	13.80	553.24	357.00	85.04
414	11.00	558.86	464.00	41.11
416	15.40	569.33	434.00	58.64
418	6.80	570.65	421.00	64.85
422	8.80	573.06	442.00	56.79
426	18.80	576.80	410.00	72.28
428	88.80	581.21	410.00	74.19
430	87.20	586.52	397.00	82.13
434	29.80	590.58	363.00	98.62
438	.00	596.70	315.00	122.07
442	40.20	585.23	375.00	91.10
446	18.40	583.72	367.00	93.91
450	54.00	582.82	383.00	86.59
454	49.80	582.31	348.00	101.53
458	5.60	580.04	366.00	92.75
462	10.80	579.73	373.00	89.58
466	15.20	579.49	382.00	85.58
468	.00	579.38	385.00	84.23
470	24.60	579.25	387.00	83.31
474	21.80	579.05	389.00	82.35
476	.00	578.88	381.00	85.75
478	42.20	578.53	332.00	106.83
482	27.40	579.49	389.00	82.55
486	20.60	560.79	459.00	44.11
490	16.80	563.20	450.00	49.05
494	12.80	564.56	431.00	57.87
498	18.60	565.57	424.00	61.35
502	8.80	566.07	399.00	72.40
506	23.80	566.72	425.00	61.41
510	19.20	560.86	456.00	45.44
514	24.40	562.11	415.00	63.75

518	18.00	562.72	409.00	66.61
522	12.80	563.45	407.00	67.79
526	13.20	565.53	399.00	72.16
530	15.00	568.33	397.00	74.24
534	.00	569.79	399.00	74.01
538	.00	569.94	415.00	67.14
542	.00	570.21	393.00	76.79
546	11.60	570.28	386.00	79.86
550	12.00	570.40	381.00	82.07
554	8.80	570.53	382.00	81.70
558	.00	571.83	422.00	64.92
562	.00	572.24	435.00	59.47
566	12.00	570.04	392.00	77.15
570	12.80	570.49	383.00	81.25
574	11.00	570.78	384.00	80.94
578	11.40	570.95	386.00	80.15
582	11.40	571.16	387.00	79.80
586	9.40	570.83	408.00	70.56
590	.00	570.83	375.00	84.86
594	33.00	571.39	417.00	66.90
598	19.00	572.07	428.00	62.43
602	6.80	571.94	420.00	65.84
604	20.60	571.88	402.00	73.61
900	.00	526.45	345.00	78.63
904	14.80	526.12	346.00	78.05
908	14.80	526.12	339.00	81.09
912	16.60	525.10	366.00	68.94
914	.00	524.37	388.00	59.09
915	.00	524.37	389.00	58.66
916	16.60	524.43	391.00	57.82
917	.00	524.20	395.00	55.99
918	.00	524.20	397.00	55.12
919	.00	524.20	393.00	56.85
920	16.60	524.16	398.00	54.67
921	.00	524.16	396.00	55.53
923	.00	524.10	396.00	55.51
924	16.60	524.08	400.00	53.77
926	.00	523.94	406.00	51.11
928	.00	523.72	412.00	48.41
932	.00	523.02	455.00	29.47
936	.00	520.82	420.00	43.69
940	10.80	516.69	421.00	41.47
944	3010.80	512.17	417.00	41.24
948	10.80	516.84	422.00	41.10
952	.00	520.73	416.00	45.38
	MAXIMUM PRESSURES			
438	.00	596.70	315.00	122.07
478	42.20	578.53	332.00	106.83
454	49.80	582.31	348.00	101.53
434	29.80	590.58	363.00	98.62
68	15.60	541.01	320.00	95.77
80	13.80	540.56	323.00	94.28
446	18.40	583.72	367.00	93.91
458	5.60	580.04	366.00	92.75
92	12.80	540.36	327.00	92.45
48	12.60	530.02	318.00	91.88
	MINIMUM PRESSURES			
932	.00	523.02	455.00	29.47
192	11.20	547.80	477.00	30.68
196	9.00	548.63	475.00	31.91
28	12.20	550.48	476.00	32.27

216	12.40	548.41	471.00	33.54
4	6.80	547.60	468.00	34.49
236	8.20	547.48	463.00	36.61
188	10.80	547.79	461.00	37.61
56	.00	522.88	433.00	38.95
132	13.00	546.72	456.00	39.31

THE NET SYSTEM DEMAND = 5950.40

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	388.45
6	1171.50
10	2452.69
12	1937.77

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 5950.40
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

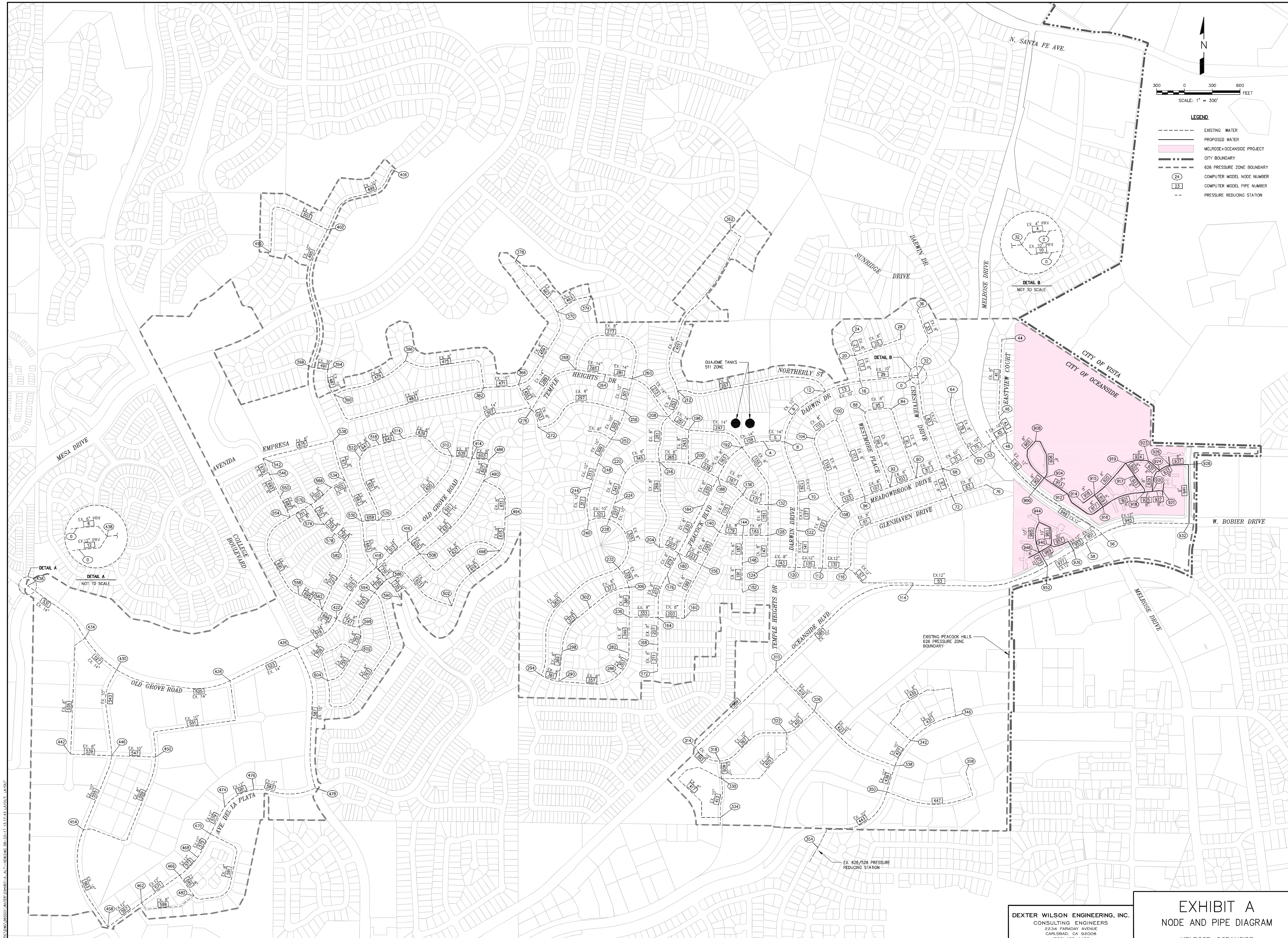

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EXHIBIT A
NODE AND PIPE DIAGRAM

MELROSE+OCEANSIDE

2. CALCULATIONS

Scenario Summary	
ID	129
Label	1.0 Existing Model MDD
Notes	
Active Topology	1. Existing Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	1. Calibration MDD
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	53.42
AD-2	500.00	457.7	43.58
J-15	0.00	456.0	44.43
J-16	0.00	438.2	52.19
J-21 (932)	0.00	457.7	43.68
J-32	0.00	445.5	49.01
J-33	0.00	434.6	53.76
J-34	0.00	454.4	45.13
J-35	0.00	457.2	43.90
J-37	0.00	457.2	43.90
J-39	0.00	457.2	43.90
J-48 (56)	0.00	435.7	53.34

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	338.42	0.96
FEED-2	AD-1	R-1	1,000	12.0	130.0	1,000.00	2.84
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	338.42	2.16
FEED-4	AD-2	AD-1	1,200	8.0	130.0	161.58	1.03
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	338.42	0.96
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	338.42	0.96
V-WATR-38	J-16	J-33	79	12.0	130.0	338.42	0.96
V-WATR-39	J-32	J-16	167	12.0	130.0	338.42	0.96
V-WATR-40	J-34	J-32	207	12.0	130.0	338.42	0.96
V-WATR-41	J-15	J-34	52	12.0	130.0	338.42	0.96
V-WATR-42	J-39	J-15	52	12.0	130.0	338.42	0.96
V-WATR-43	J-37	J-39	3	12.0	130.0	338.42	0.96
V-WATR-44	J-35	J-37	3	12.0	130.0	338.42	0.96

Scenario Summary	
ID	130
Label	2.0 Existing Model MDD + FF
Notes	
Active Topology	1. Existing Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	2. Calibration MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	1,500.00	435.7	40.22
AD-2	2,500.00	457.7	24.32
J-15	0.00	456.0	27.38
J-16	0.00	438.2	36.31
J-21 (932)	0.00	457.7	26.41
J-32	0.00	445.5	32.67
J-33	0.00	434.6	38.10
J-34	0.00	454.4	28.22
J-35	0.00	457.2	26.69
J-37	0.00	457.2	26.70
J-39	0.00	457.2	26.71
J-48 (56)	0.00	435.7	38.77

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	1,692.11	4.80
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,000.00	11.35
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	1,692.11	10.80
FEED-4	AD-2	AD-1	1,200	8.0	130.0	807.89	5.16
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	1,692.11	4.80
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	1,692.11	4.80
V-WATR-38	J-16	J-33	79	12.0	130.0	1,692.11	4.80
V-WATR-39	J-32	J-16	167	12.0	130.0	1,692.11	4.80
V-WATR-40	J-34	J-32	207	12.0	130.0	1,692.11	4.80
V-WATR-41	J-15	J-34	52	12.0	130.0	1,692.11	4.80
V-WATR-42	J-39	J-15	52	12.0	130.0	1,692.11	4.80
V-WATR-43	J-37	J-39	3	12.0	130.0	1,692.11	4.80
V-WATR-44	J-35	J-37	3	12.0	130.0	1,692.11	4.80

Scenario Summary	
ID	132
Label	3.1 Proposed Model MDD
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	3.1 Project MDD
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	53.30
AD-2	500.00	457.7	43.45
FH-1	0.00	455.1	44.69
FH-2	0.00	452.4	45.87
FH-3	0.00	444.8	49.17
FH-4	0.00	450.2	46.84
FIRE-POC-1	0.00	455.1	44.69
FIRE-POC-2	0.00	453.4	45.43
FIRE-POC-3	0.00	452.0	46.04
FIRE-POC-4	0.00	448.1	47.74
FIRE-POC-5	0.00	450.0	46.92
FIRE-POC-6	0.00	451.6	46.23
J-1	0.00	453.2	45.51
J-2	0.00	452.7	45.73
J-3	0.00	449.4	47.18
J-4	0.00	449.4	47.18
J-6	0.00	452.3	45.91
J-7	0.00	449.2	47.27
J-9	0.00	451.8	46.13
J-10	0.00	450.0	46.92
J-13	0.00	453.2	45.52
J-14	0.00	455.3	44.60
J-15	0.00	456.0	44.30
J-16	0.00	438.2	52.04
J-17	0.00	438.5	51.90
J-20	0.00	456.4	44.12
J-21 (932)	0.00	457.7	43.56
J-26	0.00	454.4	44.97
J-28	0.00	445.6	48.79
J-30	0.00	434.6	53.56
J-32	0.00	445.5	48.86
J-33	0.00	434.6	53.61
J-34	0.00	454.4	44.99
J-35	0.00	457.2	43.77
J-36	0.00	456.3	44.14
J-37	0.00	457.2	43.77
J-38	0.00	456.1	43.85
J-39	0.00	457.2	43.77
J-40	0.00	456.0	44.21
J-48 (56)	0.00	435.7	53.21
WATR-POC-1	5.93	454.5	44.93
WATR-POC-2	8.10	454.2	44.81
WATR-POC-3	19.71	451.4	44.02
WATR-POC-4	3.95	447.8	47.65
WATR-POC-5	9.22	439.9	51.23
WATR-POC-6	7.43	450.0	46.88

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	119.71	0.49
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	119.71	0.49
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	119.71	0.49
C-FIRE-27	J-2	J-20	62	10.0	130.0	119.71	0.49
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	119.71	0.49
C-FIRE-29	J-17	J-10	104	10.0	130.0	119.71	0.49
C-FIRE-30	J-10	J-7	26	10.0	130.0	119.71	0.49
C-FIRE-31	J-4	J-9	248	10.0	130.0	119.71	0.49
C-FIRE-32	J-3	J-4	9	10.0	130.0	119.71	0.49
C-FIRE-33	J-9	J-6	29	10.0	130.0	119.71	0.49
C-FIRE-34	J-6	J-13	36	10.0	130.0	119.71	0.49
C-FIRE-35	J-13	J-1	203	10.0	130.0	119.71	0.49
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	390.09	1.11
FEED-2	AD-1	R-1	1,000	12.0	130.0	1,054.34	2.99
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	335.74	2.14
FEED-4	AD-2	AD-1	1,200	8.0	130.0	164.26	1.05
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	216.03	0.61
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	390.09	1.11
V-WATR-38	J-16	J-33	79	12.0	130.0	380.87	1.08
V-WATR-39	J-32	J-16	167	12.0	130.0	261.15	0.74
V-WATR-40	J-34	J-32	207	12.0	130.0	253.72	0.72
V-WATR-41	J-15	J-34	52	12.0	130.0	247.79	0.70
V-WATR-42	J-39	J-15	52	12.0	130.0	247.79	0.70
V-WATR-43	J-37	J-39	3	12.0	130.0	239.69	0.68
V-WATR-44	J-35	J-37	3	12.0	130.0	219.98	0.62

Scenario Summary	
ID	152
Label	3.2 Proposed Model PHD
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	3.2 Project PHD
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	53.25
AD-2	500.00	457.7	43.37
FH-1	0.00	455.1	44.61
FH-2	0.00	452.4	45.79
FH-3	0.00	444.8	49.09
FH-4	0.00	450.2	46.76
FIRE-POC-1	0.00	455.1	44.61
FIRE-POC-2	0.00	453.4	45.35
FIRE-POC-3	0.00	452.0	45.96
FIRE-POC-4	0.00	448.1	47.67
FIRE-POC-5	0.00	450.0	46.85
FIRE-POC-6	0.00	451.6	46.15
J-1	0.00	453.2	45.43
J-2	0.00	452.7	45.65
J-3	0.00	449.4	47.10
J-4	0.00	449.4	47.10
J-6	0.00	452.3	45.83
J-7	0.00	449.2	47.19
J-9	0.00	451.8	46.05
J-10	0.00	450.0	46.85
J-13	0.00	453.2	45.44
J-14	0.00	455.3	44.52
J-15	0.00	456.0	44.22
J-16	0.00	438.2	51.96
J-17	0.00	438.5	51.83
J-20	0.00	456.4	44.04
J-21 (932)	0.00	457.7	43.48
J-26	0.00	454.4	44.87
J-28	0.00	445.6	48.67
J-30	0.00	434.6	53.43
J-32	0.00	445.5	48.78
J-33	0.00	434.6	53.53
J-34	0.00	454.4	44.91
J-35	0.00	457.2	43.69
J-36	0.00	456.3	44.04
J-37	0.00	457.2	43.69
J-38	0.00	456.1	43.32
J-39	0.00	457.2	43.69
J-40	0.00	456.0	44.04
J-48 (56)	0.00	435.7	53.14
WATR-POC-1	8.90	454.5	44.82
WATR-POC-2	12.15	454.2	44.43
WATR-POC-3	29.57	451.4	41.41
WATR-POC-4	5.92	447.8	47.36
WATR-POC-5	13.83	439.9	51.06
WATR-POC-6	11.14	450.0	46.76

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	124.07	0.51
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	124.07	0.51
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	124.07	0.51
C-FIRE-27	J-2	J-20	62	10.0	130.0	124.07	0.51
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	124.07	0.51
C-FIRE-29	J-17	J-10	104	10.0	130.0	124.07	0.51
C-FIRE-30	J-10	J-7	26	10.0	130.0	124.07	0.51
C-FIRE-31	J-4	J-9	248	10.0	130.0	124.07	0.51
C-FIRE-32	J-3	J-4	9	10.0	130.0	124.07	0.51
C-FIRE-33	J-9	J-6	29	10.0	130.0	124.07	0.51
C-FIRE-34	J-6	J-13	36	10.0	130.0	124.07	0.51
C-FIRE-35	J-13	J-1	203	10.0	130.0	124.07	0.51
C-WATR-1	J-35	J-36	79	2.0	130.0	5.92	0.60
C-WATR-2	J-37	J-38	85	2.0	130.0	29.57	3.02
C-WATR-3	J-39	J-40	92	2.0	130.0	12.15	1.24
C-WATR-4	J-34	J-26	43	2.0	130.0	8.90	0.91
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	8.90	0.91
C-WATR-6	J-32	J-28	42	2.0	130.0	11.14	1.14
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	11.14	1.14
C-WATR-8	J-33	J-30	42	2.0	130.0	13.83	1.41
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	13.83	1.41
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	12.15	1.24
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	29.57	3.02
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	5.92	0.60
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	412.11	1.17
FEED-2	AD-1	R-1	1,000	12.0	130.0	1,081.51	3.07
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	330.60	2.11
FEED-4	AD-2	AD-1	1,200	8.0	130.0	169.40	1.08
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	206.53	0.59
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	412.11	1.17
V-WATR-38	J-16	J-33	79	12.0	130.0	398.28	1.13
V-WATR-39	J-32	J-16	167	12.0	130.0	274.21	0.78
V-WATR-40	J-34	J-32	207	12.0	130.0	263.07	0.75
V-WATR-41	J-15	J-34	52	12.0	130.0	254.17	0.72
V-WATR-42	J-39	J-15	52	12.0	130.0	254.17	0.72
V-WATR-43	J-37	J-39	3	12.0	130.0	242.02	0.69
V-WATR-44	J-35	J-37	3	12.0	130.0	212.45	0.60

Scenario Summary	
ID	133
Label	4.1 Proposed Model MDD + FF (FH-1)
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	4.1 Project MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	39.86
AD-2	500.00	457.7	22.70
FH-1	3,000.00	455.1	21.27
FH-2	0.00	452.4	24.57
FH-3	0.00	444.8	28.74
FH-4	0.00	450.2	26.48
FIRE-POC-1	0.00	455.1	22.70
FIRE-POC-2	0.00	453.4	24.02
FIRE-POC-3	0.00	452.0	24.83
FIRE-POC-4	0.00	448.1	27.39
FIRE-POC-5	0.00	450.0	26.65
FIRE-POC-6	0.00	451.6	25.83
J-1	0.00	453.2	23.46
J-2	0.00	452.7	23.74
J-3	0.00	449.4	26.78
J-4	0.00	449.4	26.75
J-6	0.00	452.3	24.61
J-7	0.00	449.2	26.91
J-9	0.00	451.8	24.92
J-10	0.00	450.0	26.65
J-13	0.00	453.2	24.11
J-14	0.00	455.3	23.79
J-15	0.00	456.0	23.49
J-16	0.00	438.2	32.23
J-17	0.00	438.5	31.96
J-20	0.00	456.4	22.68
J-21 (932)	0.00	457.7	22.56
J-26	0.00	454.4	24.28
J-28	0.00	445.6	28.58
J-30	0.00	434.6	34.27
J-32	0.00	445.5	28.66
J-33	0.00	434.6	34.32
J-34	0.00	454.4	24.30
J-35	0.00	457.2	22.82
J-36	0.00	456.3	23.20
J-37	0.00	457.2	22.83
J-38	0.00	456.1	22.91
J-39	0.00	457.2	22.84
J-40	0.00	456.0	23.27
J-48 (56)	0.00	435.7	36.50
WATR-POC-1	5.93	454.5	24.24
WATR-POC-2	8.10	454.2	23.87
WATR-POC-3	19.71	451.4	23.08
WATR-POC-4	3.95	447.8	26.70
WATR-POC-5	9.22	439.9	31.94
WATR-POC-6	7.43	450.0	26.68

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	1,104.70	4.51
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	1,104.70	4.51
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	3,000.00	12.25
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	1,895.31	7.74
C-FIRE-27	J-2	J-20	62	10.0	130.0	1,895.31	7.74
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	1,895.31	7.74
C-FIRE-29	J-17	J-10	104	10.0	130.0	1,104.70	4.51
C-FIRE-30	J-10	J-7	26	10.0	130.0	1,104.70	4.51
C-FIRE-31	J-4	J-9	248	10.0	130.0	1,104.70	4.51
C-FIRE-32	J-3	J-4	9	10.0	130.0	1,104.70	4.51
C-FIRE-33	J-9	J-6	29	10.0	130.0	1,104.69	4.51
C-FIRE-34	J-6	J-13	36	10.0	130.0	1,104.69	4.51
C-FIRE-35	J-13	J-1	203	10.0	130.0	1,104.69	4.51
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	2,664.08	7.56
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,054.34	11.50
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	390.26	2.49
FEED-4	AD-2	AD-1	1,200	8.0	130.0	890.26	5.68
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	1,505.04	4.27
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	2,664.08	7.56
V-WATR-38	J-16	J-33	79	12.0	130.0	2,654.86	7.53
V-WATR-39	J-32	J-16	167	12.0	130.0	1,550.17	4.40
V-WATR-40	J-34	J-32	207	12.0	130.0	1,542.73	4.38
V-WATR-41	J-15	J-34	52	12.0	130.0	1,536.80	4.36
V-WATR-42	J-39	J-15	52	12.0	130.0	1,536.80	4.36
V-WATR-43	J-37	J-39	3	12.0	130.0	1,528.70	4.34
V-WATR-44	J-35	J-37	3	12.0	130.0	1,508.99	4.28

Scenario Summary	
ID	146
Label	4.2 Proposed Model MDD + FF (FH-2)
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	4.2 Project MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	39.86
AD-2	500.00	457.7	23.08
FH-1	0.00	455.1	23.41
FH-2	3,000.00	452.4	22.98
FH-3	0.00	444.8	28.13
FH-4	0.00	450.2	25.93
FIRE-POC-1	0.00	455.1	23.46
FIRE-POC-2	0.00	453.4	23.02
FIRE-POC-3	0.00	452.0	23.59
FIRE-POC-4	0.00	448.1	26.84
FIRE-POC-5	0.00	450.0	26.16
FIRE-POC-6	0.00	451.6	25.24
J-1	0.00	453.2	24.24
J-2	0.00	452.7	24.49
J-3	0.00	449.4	26.19
J-4	0.00	449.4	26.14
J-6	0.00	452.3	23.30
J-7	0.00	449.2	26.36
J-9	0.00	451.8	23.68
J-10	0.00	450.0	26.16
J-13	0.00	453.2	23.11
J-14	0.00	455.3	24.11
J-15	0.00	456.0	23.80
J-16	0.00	438.2	32.12
J-17	0.00	438.5	31.74
J-20	0.00	456.4	23.24
J-21 (932)	0.00	457.7	22.96
J-26	0.00	454.4	24.55
J-28	0.00	445.6	28.64
J-30	0.00	434.6	34.17
J-32	0.00	445.5	28.72
J-33	0.00	434.6	34.21
J-34	0.00	454.4	24.57
J-35	0.00	457.2	23.20
J-36	0.00	456.3	23.57
J-37	0.00	457.2	23.21
J-38	0.00	456.1	23.28
J-39	0.00	457.2	23.21
J-40	0.00	456.0	23.65
J-48 (56)	0.00	435.7	36.44
WATR-POC-1	5.93	454.5	24.50
WATR-POC-2	8.10	454.2	24.24
WATR-POC-3	19.71	451.4	23.45
WATR-POC-4	3.95	447.8	27.08
WATR-POC-5	9.22	439.9	31.84
WATR-POC-6	7.43	450.0	26.73

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	1,513.41	6.18
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	3,000.00	12.25
C-FIRE-16	J-7	J-3	14	10.0	130.0	1,513.41	6.18
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	1,486.59	6.07
C-FIRE-27	J-2	J-20	62	10.0	130.0	1,486.59	6.07
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	1,486.59	6.07
C-FIRE-29	J-17	J-10	104	10.0	130.0	1,513.41	6.18
C-FIRE-30	J-10	J-7	26	10.0	130.0	1,513.41	6.18
C-FIRE-31	J-4	J-9	248	10.0	130.0	1,513.41	6.18
C-FIRE-32	J-3	J-4	9	10.0	130.0	1,513.41	6.18
C-FIRE-33	J-9	J-6	29	10.0	130.0	1,513.41	6.18
C-FIRE-34	J-6	J-13	36	10.0	130.0	1,486.59	6.07
C-FIRE-35	J-13	J-1	203	10.0	130.0	1,486.59	6.07
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	2,688.41	7.63
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,054.34	11.50
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	365.93	2.34
FEED-4	AD-2	AD-1	1,200	8.0	130.0	865.93	5.53
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	1,120.65	3.18
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	2,688.41	7.63
V-WATR-38	J-16	J-33	79	12.0	130.0	2,679.19	7.60
V-WATR-39	J-32	J-16	167	12.0	130.0	1,165.78	3.31
V-WATR-40	J-34	J-32	207	12.0	130.0	1,158.35	3.29
V-WATR-41	J-15	J-34	52	12.0	130.0	1,152.42	3.27
V-WATR-42	J-39	J-15	52	12.0	130.0	1,152.41	3.27
V-WATR-43	J-37	J-39	3	12.0	130.0	1,144.31	3.25
V-WATR-44	J-35	J-37	3	12.0	130.0	1,124.60	3.19

Scenario Summary	
ID	147
Label	4.3 Proposed Model MDD + FF (FH-3)
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	4.3 Project MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	39.86
AD-2	500.00	457.7	23.42
FH-1	0.00	455.1	24.12
FH-2	0.00	452.4	24.67
FH-3	3,000.00	444.8	24.56
FH-4	0.00	450.2	25.13
FIRE-POC-1	0.00	455.1	24.14
FIRE-POC-2	0.00	453.4	24.33
FIRE-POC-3	0.00	452.0	24.77
FIRE-POC-4	0.00	448.1	26.03
FIRE-POC-5	0.00	450.0	25.47
FIRE-POC-6	0.00	451.6	24.38
J-1	0.00	453.2	24.95
J-2	0.00	452.7	25.18
J-3	0.00	449.4	25.33
J-4	0.00	449.4	25.25
J-6	0.00	452.3	24.72
J-7	0.00	449.2	25.56
J-9	0.00	451.8	24.86
J-10	0.00	450.0	25.47
J-13	0.00	453.2	24.42
J-14	0.00	455.3	24.39
J-15	0.00	456.0	24.09
J-16	0.00	438.2	32.02
J-17	0.00	438.5	31.46
J-20	0.00	456.4	23.74
J-21 (932)	0.00	457.7	23.31
J-26	0.00	454.4	24.78
J-28	0.00	445.6	28.69
J-30	0.00	434.6	34.07
J-32	0.00	445.5	28.77
J-33	0.00	434.6	34.12
J-34	0.00	454.4	24.81
J-35	0.00	457.2	23.54
J-36	0.00	456.3	23.91
J-37	0.00	457.2	23.54
J-38	0.00	456.1	23.61
J-39	0.00	457.2	23.54
J-40	0.00	456.0	23.98
J-48 (56)	0.00	435.7	36.39
WATR-POC-1	5.93	454.5	24.74
WATR-POC-2	8.10	454.2	24.58
WATR-POC-3	19.71	451.4	23.79
WATR-POC-4	3.95	447.8	27.42
WATR-POC-5	9.22	439.9	31.74
WATR-POC-6	7.43	450.0	26.78

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	2,014.35	8.23
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	2,014.35	8.23
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	3,000.00	12.25
C-FIRE-26	J-1	J-2	8	10.0	130.0	985.65	4.03
C-FIRE-27	J-2	J-20	62	10.0	130.0	985.65	4.03
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	985.65	4.03
C-FIRE-29	J-17	J-10	104	10.0	130.0	2,014.35	8.23
C-FIRE-30	J-10	J-7	26	10.0	130.0	2,014.35	8.23
C-FIRE-31	J-4	J-9	248	10.0	130.0	985.65	4.03
C-FIRE-32	J-3	J-4	9	10.0	130.0	2,014.35	8.23
C-FIRE-33	J-9	J-6	29	10.0	130.0	985.65	4.03
C-FIRE-34	J-6	J-13	36	10.0	130.0	985.65	4.03
C-FIRE-35	J-13	J-1	203	10.0	130.0	985.65	4.03
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	2,710.58	7.69
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,054.34	11.50
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	343.76	2.19
FEED-4	AD-2	AD-1	1,200	8.0	130.0	843.76	5.39
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	641.89	1.82
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	2,710.58	7.69
V-WATR-38	J-16	J-33	79	12.0	130.0	2,701.36	7.66
V-WATR-39	J-32	J-16	167	12.0	130.0	687.01	1.95
V-WATR-40	J-34	J-32	207	12.0	130.0	679.58	1.93
V-WATR-41	J-15	J-34	52	12.0	130.0	673.65	1.91
V-WATR-42	J-39	J-15	52	12.0	130.0	673.65	1.91
V-WATR-43	J-37	J-39	3	12.0	130.0	665.55	1.89
V-WATR-44	J-35	J-37	3	12.0	130.0	645.84	1.83

Scenario Summary	
ID	148
Label	4.4 Proposed Model MDD + FF (FH-4)
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	4.4 Project MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	39.86
AD-2	500.00	457.7	23.45
FH-1	0.00	455.1	24.18
FH-2	0.00	452.4	24.79
FH-3	0.00	444.8	27.43
FH-4	3,000.00	450.2	24.13
FIRE-POC-1	0.00	455.1	24.20
FIRE-POC-2	0.00	453.4	24.44
FIRE-POC-3	0.00	452.0	24.89
FIRE-POC-4	0.00	448.1	25.94
FIRE-POC-5	0.00	450.0	25.39
FIRE-POC-6	0.00	451.6	24.46
J-1	0.00	453.2	25.00
J-2	0.00	452.7	25.24
J-3	0.00	449.4	25.42
J-4	0.00	449.4	25.44
J-6	0.00	452.3	24.83
J-7	0.00	449.2	25.47
J-9	0.00	451.8	24.98
J-10	0.00	450.0	25.39
J-13	0.00	453.2	24.53
J-14	0.00	455.3	24.41
J-15	0.00	456.0	24.11
J-16	0.00	438.2	32.01
J-17	0.00	438.5	31.43
J-20	0.00	456.4	23.78
J-21 (932)	0.00	457.7	23.34
J-26	0.00	454.4	24.80
J-28	0.00	445.6	28.70
J-30	0.00	434.6	34.06
J-32	0.00	445.5	28.77
J-33	0.00	434.6	34.11
J-34	0.00	454.4	24.82
J-35	0.00	457.2	23.56
J-36	0.00	456.3	23.93
J-37	0.00	457.2	23.56
J-38	0.00	456.1	23.64
J-39	0.00	457.2	23.57
J-40	0.00	456.0	24.00
J-48 (56)	0.00	435.7	36.38
WATR-POC-1	5.93	454.5	24.76
WATR-POC-2	8.10	454.2	24.60
WATR-POC-3	19.71	451.4	23.81
WATR-POC-4	3.95	447.8	27.44
WATR-POC-5	9.22	439.9	31.74
WATR-POC-6	7.43	450.0	26.79

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	2,065.97	8.44
C-FIRE-14	J-7	FH-4	44	10.0	130.0	3,000.00	12.25
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	934.03	3.82
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	934.03	3.82
C-FIRE-27	J-2	J-20	62	10.0	130.0	934.03	3.82
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	934.03	3.82
C-FIRE-29	J-17	J-10	104	10.0	130.0	2,065.97	8.44
C-FIRE-30	J-10	J-7	26	10.0	130.0	2,065.97	8.44
C-FIRE-31	J-4	J-9	248	10.0	130.0	934.03	3.82
C-FIRE-32	J-3	J-4	9	10.0	130.0	934.03	3.82
C-FIRE-33	J-9	J-6	29	10.0	130.0	934.03	3.82
C-FIRE-34	J-6	J-13	36	10.0	130.0	934.03	3.82
C-FIRE-35	J-13	J-1	203	10.0	130.0	934.03	3.82
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	2,712.33	7.69
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,054.34	11.50
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	342.01	2.18
FEED-4	AD-2	AD-1	1,200	8.0	130.0	842.01	5.37
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	592.02	1.68
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	2,712.33	7.69
V-WATR-38	J-16	J-33	79	12.0	130.0	2,703.11	7.67
V-WATR-39	J-32	J-16	167	12.0	130.0	637.14	1.81
V-WATR-40	J-34	J-32	207	12.0	130.0	629.71	1.79
V-WATR-41	J-15	J-34	52	12.0	130.0	623.78	1.77
V-WATR-42	J-39	J-15	52	12.0	130.0	623.78	1.77
V-WATR-43	J-37	J-39	3	12.0	130.0	615.68	1.75
V-WATR-44	J-35	J-37	3	12.0	130.0	595.97	1.69