

**WATER SYSTEM ANALYSIS FOR THE
MORRIS CERULLO INTERNATIONAL CENTER
MISSION VALLEY CAMPUS PROJECT
IN THE CITY OF SAN DIEGO**

July 16, 2013

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Job No: 537-009



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July 16, 2013

537-009

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Subject: Water System Analysis for the Morris Cerullo International Center Mission Valley Campus Project in the City of San Diego

Introduction

This report provides a water system analysis for the Morris Cerullo International Center project. The Morris Cerullo International Center project is located in the Mission Valley area of the City of San Diego fronting and on the south side of Hotel Circle South. The project area is currently developed with a hotel. The proposed project will remove the existing structures. Figure 1 within this report presents a vicinity map of the Morris Cerullo International Center project.

The proposed development of the Morris Cerullo International Center project includes condominiums and timeshare units, offices, restaurants, a retail area, an amphitheater, theaters, and recreational facilities. Elevations within the project range from a low of 23 feet to a high of 69 feet.

\\PACIFIC\DWG\537009\FIGURE1.DWG 07-12-13 15:53:15 LAYOUT: ANSI A

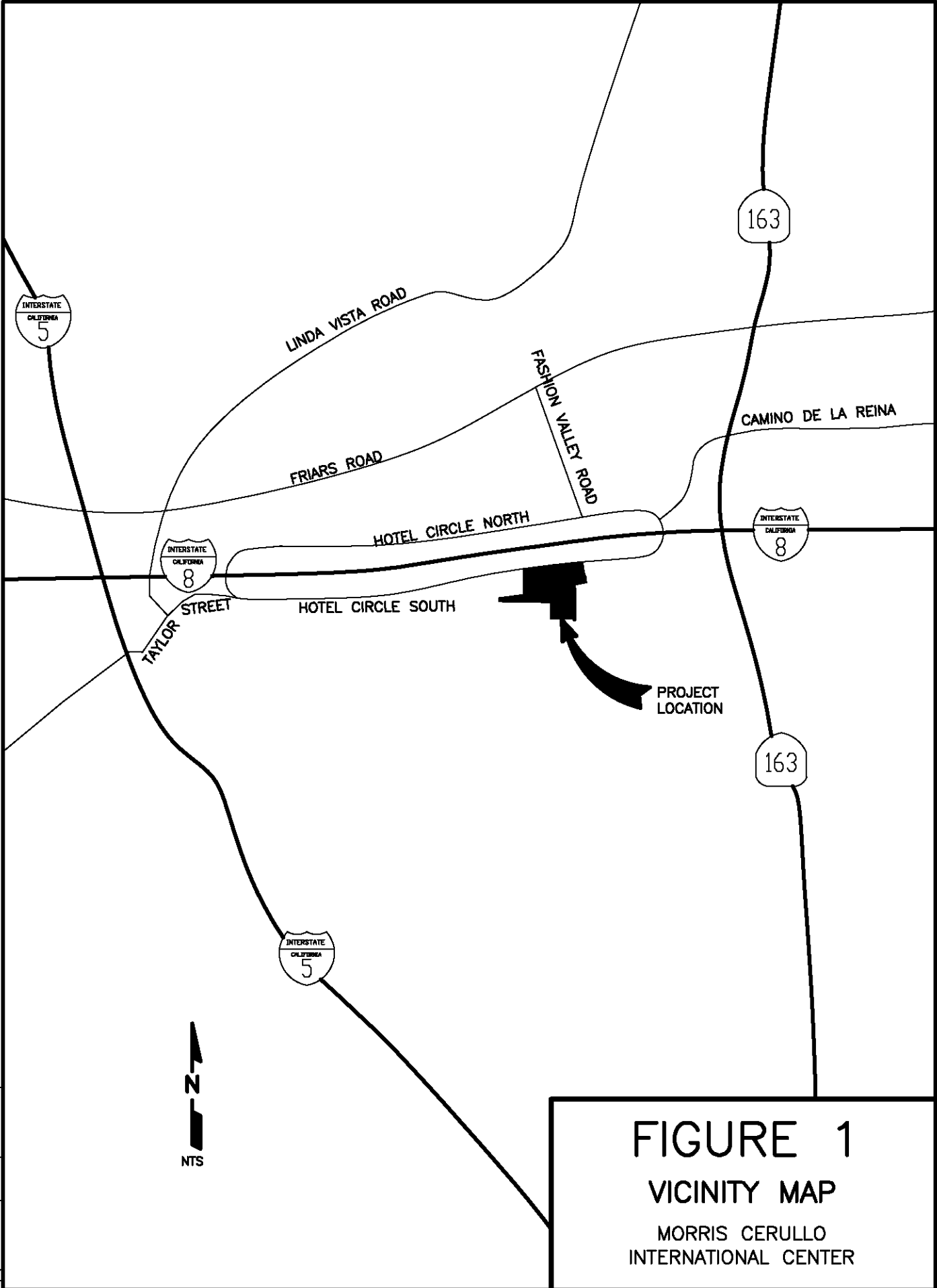


FIGURE 1

VICINITY MAP

MORRIS CERULLO
INTERNATIONAL CENTER

Purpose of Study

The purpose of this study is to analyze and determine if the existing public water system is able to provide adequate domestic and fire protection service for the proposed uses within the Morris Cerullo International Center project. This report will address the offsite (public) water system improvements needed for the development of the Morris Cerullo International Center project so that the offsite water system will be in conformance with the City of San Diego Water Department water system design standards.

Study Area

The study area for this report is the boundary of the Morris Cerullo International Center project and the water system in Hotel Circle North and Hotel Circle South which fronts the project. The extent of the existing water system which was incorporated into the analysis of the project site was based upon the existing water distribution system which serves the area and connects to the existing water transmission main in Hotel Circle South. These water mains were included in the study's computer model to ensure that the dynamics of the existing water system were analyzed as closely as possible in the vicinity of the project.

The Morris Cerullo International Center project onsite domestic and fire protection service will be provided by a private water system. Fire protection service will be provided through looped water lines which will connect in two locations to the offsite water system in the northwest and northeast sections of the project boundary. Domestic service will be provided through two lateral water lines which will connect to the offsite water system in the northwest and northeast sections of the project boundary. The purpose of this study is not to analyze the onsite water system, but to ensure that the offsite water system can provide adequate water service to the Morris Cerullo International Center while conforming to the City of San Diego Water Department water system design standards.

Design Criteria and Water Demands

The design criteria utilized in the analysis of the Morris Cerullo International Center project water system are in accordance with the current City of San Diego Water Department Capital Improvements Program Guidelines and Standards, Book 2, Facility Design Guidelines, Chapter 2, Water Demands and Service Criteria, and Chapter 3, Transmission and Distribution Pipelines, November 2002. The design criteria include a minimum static pressure of 65 pounds per square inch (psi) and maximum static pressure of 120 psi. During maximum day demand and peak hour demand, residual pressure with all pipes open must be a minimum of 40 psi and pressure loss at any location must not exceed 25 psi below static pressure. For one source out of service during maximum day demand and peak hour demand, residual pressures at any location must not be less than 40 psi below static pressure.

For fire flow scenarios occurring simultaneously with maximum day demands, minimum residual pressure must be 20 psi in the area of the fire, and a drop in pressure of no more than 25 psi below static pressure is desirable for the remainder of the water system. Another key criterion is that velocities in the water mains under maximum day plus fire flow demands cannot exceed 15 feet per second (fps). Also, water distribution mains in commercial and industrial areas are to be a minimum of 12" in diameter.

The projected water demand for the Morris Cerullo International Center project is based on a commercial and institutional land use. Peaking factors for maximum day demands and peak hour demands were generated using Figures 2-1, 2-2, and 2-3 from the City of San Diego Water Department Capital Improvements Program Guidelines and Standards, Book 2, Facility Design Guidelines, Chapter 2, Water Demands and Service Criteria, November 2002. Based on Figure 2-3, the Morris Cerullo International Center project area is shown to be in the Coastal/Downtown peaking factor zone. Using the average day demand for the project, the peaking factors determined are 2.3 for maximum day demands, and 6.1 for peak hour demands. Figures 2-1, 2-2, and 2-3 used for determining the peaking factors are provided in Appendix E. Table 1 provides a summary of the Morris Cerullo International Center project water demands.

Demand Scenario	Unit Water Demand (gallons/net acre-day)	Net acres (acres)	Peaking Factor	Average Water Demand, gpd	Average Water Demand, gpm
Average Day	5,000	12.96	1	64,800	45
Maximum Day	5,000	12.96	2.3	149,040	104
Peak Hour	5,000	12.96	6.1	395,280	275

For planning purposes, the fire flow requirement for the Morris Cerullo International Center project is 4,000 gpm. This is based on commercial land use for the project and determining planning level fire flow requirements in accordance with the City of San Diego Water Department Capital Improvements Program Guidelines and Standards, Book 2, Facility Design Guidelines, Chapter 2, Water Demands and Service Criteria, November 2002.

Existing Water System

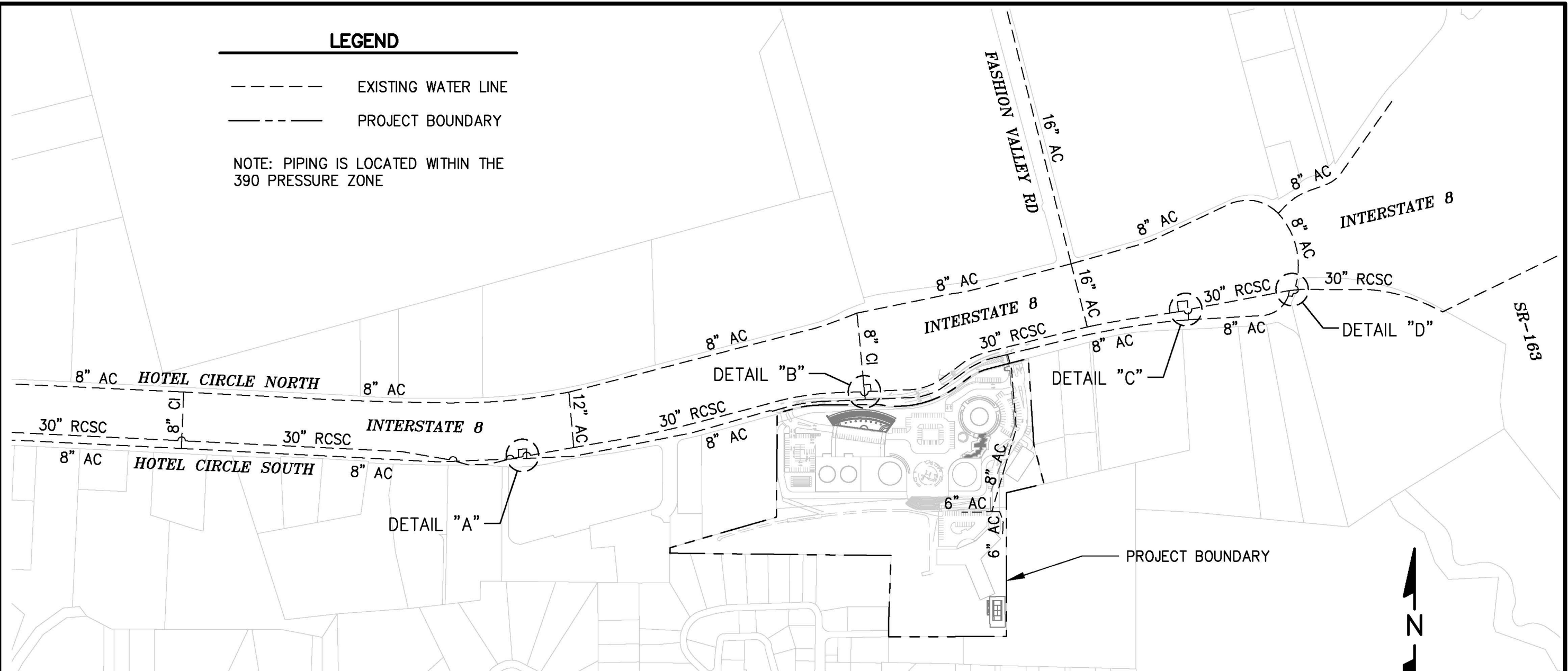
The Morris Cerullo International Center project is within the University Heights 390 Pressure Zone for water service. In the vicinity of the project, this zone is fed from several connections to the 390 Pressure Zone 30" Alvarado 1st Transmission Pipeline which is located in Hotel Circle South. These connections tie directly from the 30" Alvarado 1st Transmission Pipeline to the 8" distribution pipelines in Hotel Circle South and Hotel Circle North. Figure 2 depicts the existing water system in the vicinity of the Morris Cerullo International Center project. There is an existing 8" public water line on the eastern side of the property that runs north-south and connects to the existing 8" distribution pipeline in Hotel Circle South. This 8" water line will be converted into a private water line and will be used to serve domestic water demands for the project.

PACIFIC\DWG\537009\FIGURE 2.DWG 07-15-13 15:43:54 LAYOUT: LAYOUT

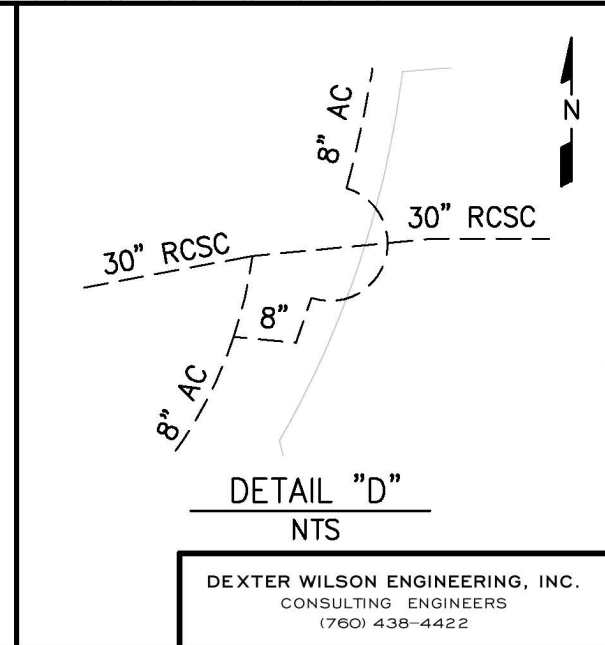
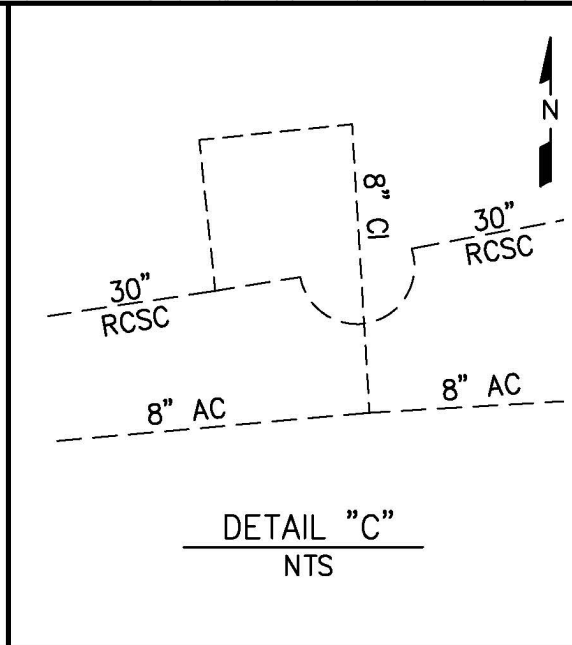
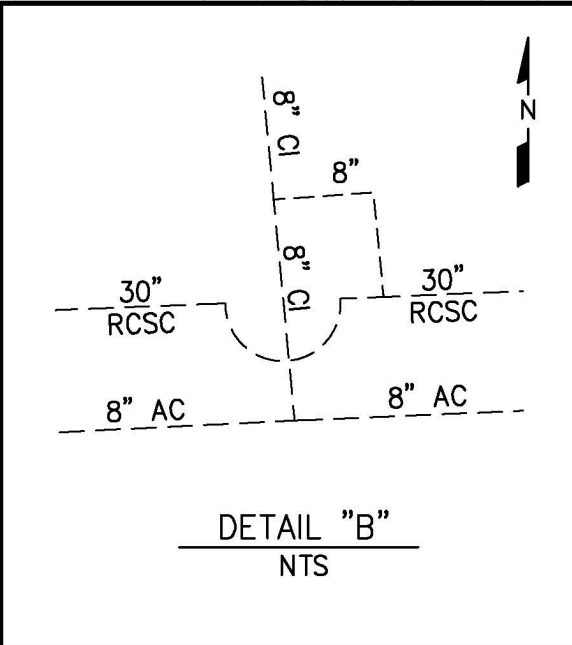
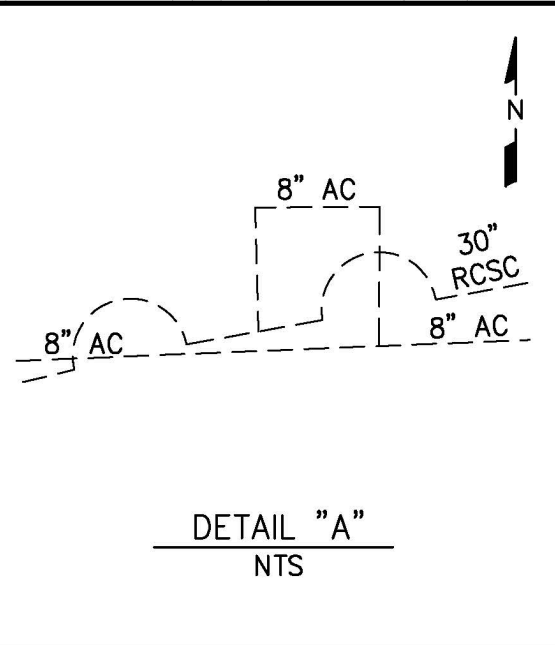
LEGEND

- EXISTING WATER LINE
- - - PROJECT BOUNDARY

NOTE: PIPING IS LOCATED WITHIN THE 390 PRESSURE ZONE



SCALE: 1" = 400'



**FIGURE 2
EXISTING WATER SYSTEM**

MORRIS CERULLO
INTERNATIONAL CENTER

DEXTER WILSON ENGINEERING, INC.
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(760) 438-4422

Water Service Overview

Elevations within the Morris Cerullo International Center project range from a low of 23 feet to a high of 69 feet. This results in static pressures that range from 139 psi to 159 psi within the project boundary. This range is outside the preferred pressure range of the City of San Diego Water Department design guideline for maximum static pressure of 120 psi. However, the University Heights 390 Pressure Zone is the minimum available zone in this area and it currently is providing service to the existing development on the project site as well as serving existing customers along Hotel Circle South and Hotel Circle North. The project site is currently developed and water service is being provided to the site.

The proposed method of providing onsite water service to the Morris Cerullo International Center project is to connect private piping to a proposed 12" water distribution main in Hotel Circle South. Fire protection service will be provided through looped water lines at connection points in the northwest and northeast sections of the project. Domestic service will be provided through two domestic water laterals at connection points in the northwest and northeast sections of the project.

Water System Computer Model

The University of Kentucky KYPIPE computer program was used to model the existing and proposed water system within the study area. This computer program utilizes the Hazen-Williams equation for determining headloss in pipes; the Hazen-Williams "C" value used for all pipes is 120.

The computer model for this analysis includes the offsite public water system in the vicinity of the Morris Cerullo International Center project. The proposed project demands on the public water system are placed at the four points of connection that will provide domestic and fire protection services to the project. The fire flow demand was split equally between its two connection points. The domestic demand was split between its two points of connection based on the expected demand within the project. For the computer modeling performed in this study for the Morris Cerullo International Center project water system, an available hydraulic grade

line of 390 feet was used at the connection points to the local 30" water transmission pipeline in Hotel Circle South.

Water System Analyses and Scenarios

The water system analyses prepared for the Morris Cerullo International Center project include the Node and Pipe Diagram attached as Exhibit A and the computer model printouts which are provided in Appendices A through D. Several analyses were modeled to evaluate the ability of the offsite water system to deliver water to the project under several demand scenarios. These analyses were used to determine what improvements, if any, need to be made to the offsite water system to deliver water to the project while conforming to the City of San Diego Water Department water system design standards.

The demand scenarios analyzed are average day demands, maximum day demands plus fire flow, and peak hour demands. One analysis was performed for these demand scenarios with all the pipes in the offsite water system open, and three analyses were performed for these demand scenarios with one pipe closed in each analysis to simulate a pipe break. The pipe breaks were located at critical points throughout the water distribution system to test the worst possible pipe break scenarios. This tested the soundness of the redundancy in the proposed water system and provided evidence that City of San Diego Water Department water system design standards will be met. The following list presents a summary of the demand scenarios which were analyzed as part of this study; these analyses are presented in the Appendices.

Appendix A - All Pipes Open

Average Day Demands

Maximum Day Demands Plus 4,000 GPM Fire Flow split between Nodes 14 and

20

Peak Hour Demands

Appendix B – Pipe Break in Pipe 29

Average Day Demands with Pipe 29 Closed

Maximum Day Demands Plus 4,000 GPM Fire Flow split between Nodes 14 and
20 with Pipe 29 Closed

Peak Hour Demands with Pipe 29 Closed

Appendix C – Pipe Break in Pipe 19

Average Day Demands with Pipe 19 Closed

Maximum Day Demands Plus 4,000 GPM Fire Flow split between Nodes 14 and
20 with Pipe 19 Closed

Peak Hour Demands with Pipe 19 Closed

Appendix D – Pipe Break in Pipe 26

Average Day Demands with Pipe 26 Closed

Maximum Day Demands Plus 4,000 GPM Fire Flow split between Nodes 14 and
20 with Pipe 26 Closed

Peak Hour Demands with Pipe 26 Closed

Water System Modeling Results

The Node and Pipe Diagram attached as Exhibit A identifies the piping configuration which was used for the water system computer modeling and indicates recommended offsite public water system line size improvements. The computer modeling performed indicated that the existing 8" distribution main in Hotel Circle South directly fronting the Morris Cerullo International Center project is large enough to deliver the required flows to the project without exceeding the City of San Diego Water Department design standard for maximum velocity. The maximum velocity through the existing 8" distribution main in Hotel Circle South directly fronting the project is 13.5 fps during the maximum day and fire flow scenario with a break in Pipe 26. However, the City of San Diego Water Department design standards state that water distribution mains in commercial areas need to be a minimum of 12" in diameter. Upsizing the existing 8" distribution main in Hotel Circle South directly fronting the project to a 12" distribution main to meet this standard will also decrease the maximum velocity in this piping from 13.5 fps to 6.1 fps which occurs during the maximum day and fire flow scenario with a

break in Pipe 26. Therefore, it is recommended that the 8" distribution main in Hotel Circle South directly fronting the project be taken out of service and upsized to a 12" distribution main. Figure 3 depicts the proposed 12" distribution main.

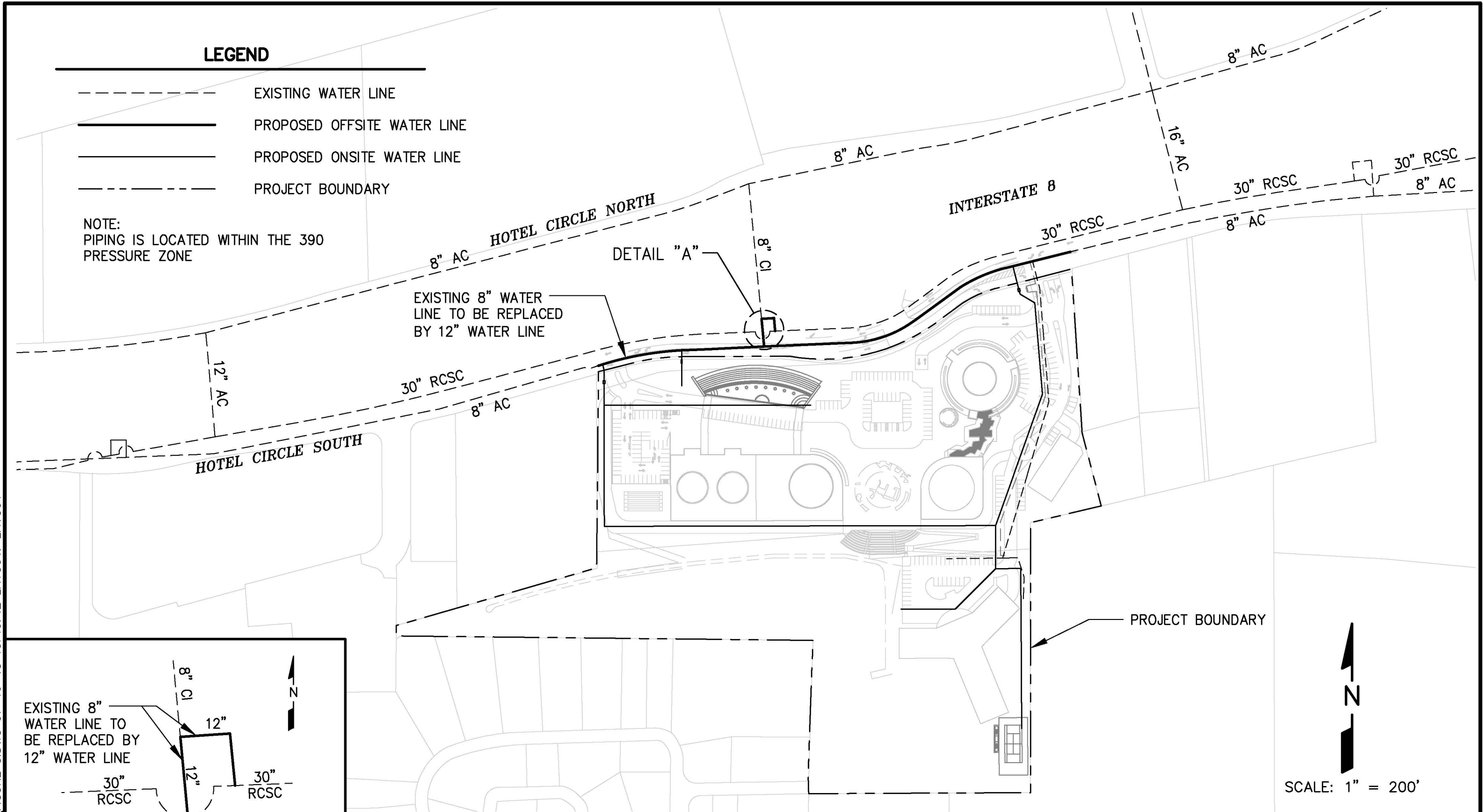
The computer modeling performed also indicates that the existing 8" water distribution piping which connects the existing 30" Alvarado 1st Pipeline to the existing 8" water distribution main in Hotel Circle South must also be upsized to 12" in diameter in order to meet the design standard of 15 fps for maximum velocity. The maximum velocity through the existing 8" water distribution piping is 20.2 fps during the maximum day and fire flow scenario with a break in Pipe 19, and the maximum velocity through the proposed 12" water distribution piping is 10.4 fps during the same scenario. This segment of piping provides a large portion of the fire flow to the Morris Cerullo International Center project because of its proximity to the site. The proposed 12" water distribution piping is depicted on Figure 3.

Appendices A through D present the computer model printouts. Also, preceding each computer printout are spreadsheet tables showing residual pressure at all nodes for each run, the change in pressure from static pressure, and the flowrate and pipeline velocity for each pipe in the system. A review of these spreadsheets shows that the City of San Diego Water Department design standards are being met with respect to a minimum residual pressure of 40 psi with no fire flow, a maximum 25 psi pressure drop below static pressure with all sources in service, a maximum 40 psi pressure drop below static pressure with one source out of service, a minimum residual pressure of 20 psi in the area of a fire flow and a maximum drop below static pressure of 25 psi for the rest of the water system, and a maximum pipe velocity of 15 fps.

LEGEND

- EXISTING WATER LINE
- PROPOSED OFFSITE WATER LINE
- PROPOSED ONSITE WATER LINE
- - - PROJECT BOUNDARY

NOTE:
PIPING IS LOCATED WITHIN THE 390
PRESSURE ZONE



EXISTING 8" WATER
LINE TO BE REPLACED
BY 12" WATER LINE

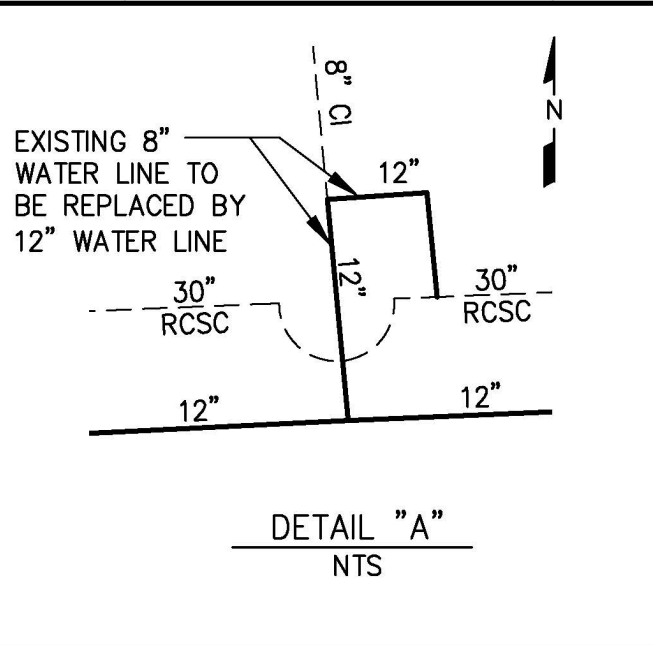
DETAIL "A"

PROJECT BOUNDARY



SCALE: 1" = 200'

PACIFIC\DWG\537009\FIGURE 3.DWG 07-16-13 10:46:42 LAYOUT: LAYOUT



**FIGURE 3
PROPOSED WATER SYSTEM**

MORRIS CERULLO
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Conclusions and Recommendations

The following conclusions and recommendations are summarized based on the water system analysis prepared for the Morris Cerullo International Center project.

1. The Morris Cerullo International Center project will be served by the City of San Diego University Heights 390 Pressure Zone water system. The onsite domestic and fire protection service will be provided by a private water system. Fire protection service will be provided through looped water lines which will connect in two locations to the offsite water system in Hotel Circle South, one in the northwest and one in northeast sections of the property. Domestic service will be provided through two lateral water lines which will connect to the offsite water system in Hotel Circle South in the northwest and northeast sections of the property.
2. Elevations within the Morris Cerullo International Center project range from a low of 23 feet to a high of 69 feet. This results in static pressures that range from 139 psi to 159 psi within the project boundary.
3. Figure 3 in this report provides the layout of the proposed offsite water system improvements necessary to provide adequate water service to the Morris Cerullo International Center project. The existing 8" water distribution main in Hotel Circle South directly fronting the project must be upsized to 12" distribution piping. This improvement is shown on Figure 3.
4. The existing 8" water distribution piping which connects the existing 30" Alvarado 1st Pipeline in Hotel Circle South to the 8" water distribution main in Hotel Circle South must also be upsized to 12" in diameter. This improvement is shown on Figure 3.
5. City of San Diego Water Department design standards are being met with respect to a minimum residual pressure of 40 psi with no fire flow, a maximum 25 psi pressure drop below static pressure with all sources in service, a maximum 40 psi pressure drop below static pressure with one source out of service, a minimum residual pressure of 20 psi in the area of a fire flow and a maximum drop below static pressure of 25 psi for the rest of the water system, and a maximum pipe velocity of 15 fps.

Nicholas Psychogios, P.E.
July 16, 2013

6. New water main construction must be designed for two conditions. Where bottom of pipe elevation is below 44.0 feet, the piping must be rated for 200 psi such as AWWA C900 PVC DR14 Class 305 pipe. For all pipe above elevation 44.0 the piping may be designed as AWWA C900 PVC DR18 Class 235.
7. Individual pressure regulators will need to be installed on building services within the Morris Cerullo International Center project. Service pressures from the 390 Pressure Zone are calculated to be a maximum of 159 psi which is above the 80 psi maximum criteria set in the Uniform Plumbing Code.
8. If any water lines to be constructed by this development are metallic, a California Licensed Corrosion Engineer will be required to perform a soil corrosivity study and to design a corrosion control system.

Please feel free to contact us if you have any questions regarding the information and recommendations presented in this report. We would appreciate the opportunity to discuss the findings of this report with you.

Dexter Wilson Engineering, Inc.



Andrew Owen

Attachments

AO:ps

APPENDIX A

Computer Modeling Results All Pipes Open

For Node and Pipe Diagram, see Exhibit A.

The following conditions were modeled:

1. Average Day Demand
2. Maximum Day Demand Plus 4,000 GPM Fire Flow Split Between Nodes 14 and 20
3. Peak Hour Demand

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: All Pipes Open - Average Day Demand

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.87	-0.02
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.13	-0.02
12	34	390	154.25	154.27	-0.02
14	34	390	154.25	154.27	-0.02
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	155.13	-0.02
18	30	390	155.98	156.00	-0.02
20	30	390	155.98	156.00	-0.02
22	30	390	155.98	156.00	-0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: All Pipes Open - Average Day Demand

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	1.46	0.00
3	8	0.32	0.00
5	8	1.14	0.01
6	8	2.49	0.02
7	8	1.35	0.01
9	16	1.60	0.00
11	8	0.25	0.00
13	8	2.45	0.02
15	8	2.70	0.02
17	8	6.12	0.04
19	8	8.82	0.06
21	12	27.18	0.08
23	12	27.18	0.08
24	12	30.87	0.09
25	12	6.18	0.02
26	12	33.36	0.09
27	12	2.82	0.01
29	8	2.82	0.02
31	8	2.50	0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: All Pipes Open - Maximum Day Demand Plus 4,000 GPM Fire Flow
Split Between Nodes 14 & 20

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.86	-0.01
4	30	390	155.98	155.82	0.16
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	154.98	0.13
12	34	390	154.25	151.90	2.35
14	34	390	154.25	151.89	2.36
15	32	390	155.11	154.76	0.35
16	32	390	155.11	154.33	0.78
18	30	390	155.98	154.67	1.31
20	30	390	155.98	154.16	1.82
22	30	390	155.98	155.89	0.09

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: All Pipes Open - Maximum Day Demand Plus 4,000 GPM Fire Flow
Split Between Nodes 14 & 20

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	154.28	0.44
3	8	47.11	0.30
5	8	107.17	0.68
6	8	235.28	1.50
7	8	128.11	0.82
9	16	140.91	0.22
11	8	12.80	0.08
13	8	154.08	0.98
15	8	166.89	1.07
17	8	379.20	2.42
19	8	546.09	3.49
21	12	463.29	1.31
23	12	1,536.71	4.36
24	12	2,919.72	8.28
25	12	1,618.28	4.59
26	12	3,154.99	8.95
27	12	1,597.58	4.53
29	8	402.42	2.57
31	8	355.31	2.27

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: All Pipes Open - Peak Hour Demand

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.87	-0.02
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.13	-0.02
12	34	390	154.25	154.23	0.02
14	34	390	154.25	154.24	0.01
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	155.13	-0.02
18	30	390	155.98	155.99	-0.01
20	30	390	155.98	155.99	-0.01
22	30	390	155.98	156.00	-0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: All Pipes Open - Peak Hour Demand

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	8.89	0.03
3	8	1.95	0.01
5	8	6.94	0.04
6	8	15.19	0.10
7	8	8.25	0.05
9	16	9.69	0.02
11	8	1.44	0.01
13	8	15.01	0.10
15	8	16.45	0.10
17	8	37.36	0.24
19	8	53.81	0.34
21	12	165.79	0.47
23	12	165.79	0.47
24	12	188.30	0.53
25	12	37.70	0.11
26	12	203.49	0.58
27	12	17.20	0.05
29	8	17.20	0.11
31	8	15.25	0.10

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – All Pipes Open**

**Job Number: 537-009
7/16/2013**

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
1	0 2	220.0	12.0	120.0	.00	390.00
3	2 22	3100.0	8.0	120.0	.00	
5	2 4	1180.0	8.0	120.0	.00	
6	4 15	300.0	8.0	120.0	.00	
7	4 6	880.0	8.0	120.0	.00	
9	0 6	270.0	16.0	120.0	.00	390.00
11	6 8	1220.0	8.0	120.0	.00	
13	0 8	20.0	8.0	120.0	.00	390.00
15	8 10	440.0	8.0	120.0	.00	
17	0 10	100.0	8.0	120.0	.00	390.00
19	10 12	740.0	8.0	120.0	.00	
21	12 14	40.0	12.0	120.0	.00	
23	14 16	560.0	12.0	120.0	.00	
24	0 15	40.0	12.0	120.0	.00	390.00
25	16 18	170.0	12.0	120.0	.00	
26	15 16	40.0	12.0	120.0	.00	
27	18 20	170.0	12.0	120.0	.00	
29	20 22	1020.0	8.0	120.0	.00	
31	0 22	80.0	8.0	120.0	.00	390.00

JUNCTION NUMBER	DEMAND	ELEVATION	CONNECTING PIPES
2	.00	28.00	1 3 5
4	.00	30.00	5 6 7
6	.00	32.00	7 9 11
8	.00	32.00	11 13 15
10	.00	32.00	15 17 19
12	36.00	34.00	19 21
14	.00	34.00	21 23
15	.00	32.00	6 24 26
16	.00	32.00	23 25 26
18	9.00	30.00	25 27
20	.00	30.00	27 29
22	.00	30.00	3 29 31

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

THIS SYSTEM HAS 19 PIPES WITH 12 JUNCTIONS , 2 LOOPS AND 6 FGNS

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – All Pipes Open**

**Job Number: 537-009
7/16/2013**

THE RESULTS ARE OBTAINED AFTER 11 TRIALS WITH AN ACCURACY = .00336

AVERAGE DAY DEMAND

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	1.46	.00	.00	.00	.00	.00
3	2 22	.32	.00	.00	.00	.00	.00
5	2 4	1.14	.00	.00	.00	.01	.00
6	4 15	2.49	.00	.00	.00	.02	.00
7	4 6	-1.35	.00	.00	.00	-.01	.00
9	0 6	1.60	.00	.00	.00	.00	.00
11	6 8	.25	.00	.00	.00	.00	.00
13	0 8	2.45	.00	.00	.00	.02	.00
15	8 10	2.70	.00	.00	.00	.02	.00
17	0 10	6.12	.00	.00	.00	.04	.00
19	10 12	8.82	.00	.00	.00	.06	.00
21	12 14	-27.18	.00	.00	.00	-.08	.00
23	14 16	-27.18	.00	.00	.00	-.08	.00
24	0 15	30.87	.00	.00	.00	.09	.00
25	16 18	6.18	.00	.00	.00	.02	.00
26	15 16	33.36	.00	.00	.00	.09	.01
27	18 20	-2.82	.00	.00	.00	-.01	.00
29	20 22	-2.82	.00	.00	.00	-.02	.00
31	0 22	2.50	.00	.00	.00	.02	.00

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	390.00	32.00	155.13
12	36.00	390.00	34.00	154.27
14	.00	390.00	34.00	154.27
15	.00	390.00	32.00	155.13
16	.00	390.00	32.00	155.13
18	9.00	390.00	30.00	156.00
20	.00	390.00	30.00	156.00
22	.00	390.00	30.00	156.00
MAXIMUM PRESSURES				
2	.00	390.00	28.00	156.87
22	.00	390.00	30.00	156.00
MINIMUM PRESSURES				
12	36.00	390.00	34.00	154.27
14	.00	390.00	34.00	154.27

THE NET SYSTEM DEMAND = 45.00

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

PIPE NUMBER	FLOWRATE
1	1.46
9	1.60

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13	2.45
17	6.12
24	30.87
31	2.50

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 45.00
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 = 2.30

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
14	2000.00
20	2000.00

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00084

MAXIMUM DAY DEMAND PLUS 4000 GPM FIRE FLOW SPLIT BETWEEN NODES 14 AND 20

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	154.28	.02	.00	.00	.44	.09
3	2 22	47.11	.23	.00	.00	.30	.07
5	2 4	107.17	.40	.00	.00	.68	.34
6	4 15	235.28	.44	.00	.00	1.50	1.45
7	4 6	-128.11	-.41	.00	.00	-.82	-.47
9	0 6	140.91	.01	.00	.00	.22	.02
11	6 8	12.80	.01	.00	.00	.08	.01
13	0 8	154.08	.01	.00	.00	.98	.66
15	8 10	166.89	.34	.00	.00	1.07	.77
17	0 10	379.20	.35	.00	.00	2.42	3.52
19	10 12	546.09	5.11	.00	.00	3.49	6.91
21	12 14	463.29	.03	.00	.00	1.31	.71
23	14 16	-1536.71	-3.65	.00	.00	-4.36	-6.52
24	0 15	2919.72	.86	.00	.00	8.28	21.40
25	16 18	1618.28	1.22	.00	.00	4.59	7.17
26	15 16	3154.99	.99	.00	.00	8.95	24.70
27	18 20	1597.58	1.19	.00	.00	4.53	7.00
29	20 22	-402.42	-4.00	.00	.00	-2.57	-3.93
31	0 22	355.31	.25	.00	.00	2.27	3.12

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	389.98	28.00	156.86
4	.00	389.58	30.00	155.82
6	.00	389.99	32.00	155.13
8	.00	389.99	32.00	155.13
10	.00	389.65	32.00	154.98
12	82.80	384.53	34.00	151.90

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14	2000.00	384.51	34.00	151.89
15	.00	389.14	32.00	154.76
16	.00	388.16	32.00	154.33
18	20.70	386.94	30.00	154.67
20	2000.00	385.75	30.00	154.16
22	.00	389.75	30.00	155.89

MAXIMUM PRESSURES

2	.00	389.98	28.00	156.86
22	.00	389.75	30.00	155.89

MINIMUM PRESSURES

14	2000.00	384.51	34.00	151.89
12	82.80	384.53	34.00	151.90

THE NET SYSTEM DEMAND = 4103.50

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

PIPE NUMBER	FLOWRATE
1	154.28
9	140.91
13	154.08
17	379.20
24	2919.72
31	355.31

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 4103.50

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 = 6.10

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00225

PEAK HOUR DEMAND

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	8.89	.00	.00	.00	.03	.00
3	2 22	1.95	.00	.00	.00	.01	.00
5	2 4	6.94	.00	.00	.00	.04	.00
6	4 15	15.19	.00	.00	.00	.10	.01
7	4 6	-8.25	.00	.00	.00	-.05	.00
9	0 6	9.69	.00	.00	.00	.02	.00
11	6 8	1.44	.00	.00	.00	.01	.00
13	0 8	15.01	.00	.00	.00	.10	.01
15	8 10	16.45	.00	.00	.00	.10	.01
17	0 10	37.36	.00	.00	.00	.24	.05
19	10 12	53.81	.07	.00	.00	.34	.09

**Morris Cerullo International Center Water Analysis
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21	12	14	-165.79	.00	.00	.00	-.47	-.11
23	14	16	-165.79	-.06	.00	.00	-.47	-.11
24	0	15	188.30	.01	.00	.00	.53	.13
25	16	18	37.70	.00	.00	.00	.11	.01
26	15	16	203.49	.01	.00	.00	.58	.15
27	18	20	-17.20	.00	.00	.00	-.05	.00
29	20	22	-17.20	-.01	.00	.00	-.11	-.01
31	0	22	15.25	.00	.00	.00	.10	.01

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	390.00	32.00	155.13
12	219.60	389.93	34.00	154.23
14	.00	389.93	34.00	154.24
15	.00	389.99	32.00	155.13
16	.00	389.99	32.00	155.13
18	54.90	389.99	30.00	155.99
20	.00	389.99	30.00	155.99
22	.00	390.00	30.00	156.00
MAXIMUM PRESSURES				
2	.00	390.00	28.00	156.87
22	.00	390.00	30.00	156.00
MINIMUM PRESSURES				
12	219.60	389.93	34.00	154.23
14	.00	389.93	34.00	154.24

THE NET SYSTEM DEMAND = 274.50

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

PIPE NUMBER	FLOWRATE
1	8.89
9	9.69
13	15.01
17	37.36
24	188.30
31	15.25

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 274.50
 THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

APPENDIX B

Computer Modeling Results Pipe Break in Pipe 29

For Node and Pipe Diagram, see Exhibit A.

The following conditions were modeled:

1. Average Day Demand with Pipe 29 Closed
2. Maximum Day Demand Plus 4,000 GPM Fire Flow Split Between Nodes 14 and 20 with Pipe 29 Closed
3. Peak Hour Demand with Pipe 29 Closed

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
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Scenario: Pipe 29 Closed - Average Day Demand

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.87	-0.02
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.13	-0.02
12	34	390	154.25	154.27	-0.02
14	34	390	154.25	154.27	-0.02
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	155.13	-0.02
18	30	390	155.98	156.00	-0.02
20	30	390	155.98	156.00	-0.02
22	30	390	155.98	156.00	-0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
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Scenario: Pipe 29 Closed - Average Day Demand

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	1.12	0.00
3	8	0.12	0.00
5	8	1.24	0.01
6	8	2.70	0.02
7	8	1.46	0.01
9	16	1.69	0.00
11	8	0.24	0.00
13	8	2.49	0.02
15	8	2.72	0.02
17	8	6.19	0.04
19	8	8.91	0.06
21	12	27.09	0.08
23	12	27.09	0.08
24	12	33.39	0.09
25	12	9.00	0.03
26	12	36.09	0.10
27	12	0.00	0.00
29	8	Closed	Closed
31	8	0.12	0.00

**Morris Cerullo International Center Water Analysis
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**Job Number: 537-009
7/16/2013**

Scenario: Pipe 29 Closed - Maximum Day Demand Plus 4,000 GPM Fire Flow
Split Between Nodes 14 & 20

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.86	-0.01
4	30	390	155.98	155.78	0.20
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	154.97	0.14
12	34	390	154.25	151.75	2.50
14	34	390	154.25	151.73	2.52
15	32	390	155.11	154.67	0.44
16	32	390	155.11	154.15	0.96
18	30	390	155.98	154.21	1.77
20	30	390	155.98	153.43	2.55
22	30	390	155.98	156.00	-0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 29 Closed - Maximum Day Demand Plus 4,000 GPM Fire Flow
Split Between Nodes 14 & 20

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	112.39	0.32
3	8	9.15	0.06
5	8	121.54	0.78
6	8	264.71	1.69
7	8	143.17	0.91
9	16	155.87	0.25
11	8	12.70	0.08
13	8	159.89	1.02
15	8	172.59	1.10
17	8	392.22	2.50
19	8	564.81	3.60
21	12	482.01	1.37
23	12	1,517.99	4.31
24	12	3,273.98	9.29
25	12	2,020.70	5.73
26	12	3,538.69	10.04
27	12	2,000.00	5.67
29	8	Closed	Closed
31	8	9.15	0.06

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
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Scenario: Pipe 29 Closed - Peak Hour Demand

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.87	-0.02
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.13	-0.02
12	34	390	154.25	154.23	0.02
14	34	390	154.25	154.24	0.01
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	155.13	-0.02
18	30	390	155.98	155.99	-0.01
20	30	390	155.98	155.99	-0.01
22	30	390	155.98	156.00	-0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 29 Closed - Peak Hour Demand

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	6.99	0.02
3	8	0.57	0.00
5	8	7.56	0.05
6	8	16.46	0.11
7	8	8.90	0.06
9	16	10.34	0.02
11	8	1.44	0.01
13	8	15.18	0.10
15	8	16.62	0.11
17	8	37.74	0.24
19	8	54.36	0.35
21	12	165.24	0.47
23	12	165.24	0.47
24	12	203.67	0.58
25	12	54.90	0.16
26	12	220.14	0.62
27	12	0.00	0.00
29	8	Closed	Closed
31	8	0.57	0.00

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 29 Closed**

**Job Number: 537-009
7/16/2013**

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
1	0 2	220.0	12.0	120.0	.00	390.00
3	2 22	3100.0	8.0	120.0	.00	
5	2 4	1180.0	8.0	120.0	.00	
6	4 15	300.0	8.0	120.0	.00	
7	4 6	880.0	8.0	120.0	.00	
9	0 6	270.0	16.0	120.0	.00	390.00
11	6 8	1220.0	8.0	120.0	.00	
13	0 8	20.0	8.0	120.0	.00	390.00
15	8 10	440.0	8.0	120.0	.00	
17	0 10	100.0	8.0	120.0	.00	390.00
19	10 12	740.0	8.0	120.0	.00	
21	12 14	40.0	12.0	120.0	.00	
23	14 16	560.0	12.0	120.0	.00	
24	0 15	40.0	12.0	120.0	.00	390.00
25	16 18	170.0	12.0	120.0	.00	
26	15 16	40.0	12.0	120.0	.00	
27	18 20	170.0	12.0	120.0	.00	
29	20 22	1020.0	8.0	120.0	.00	
31	0 22	80.0	8.0	120.0	.00	390.00

JUNCTION NUMBER	DEMAND	ELEVATION	CONNECTING PIPES
2	.00	28.00	1 3 5
4	.00	30.00	5 6 7
6	.00	32.00	7 9 11
8	.00	32.00	11 13 15
10	.00	32.00	15 17 19
12	36.00	34.00	19 21
14	.00	34.00	21 23
15	.00	32.00	6 24 26
16	.00	32.00	23 25 26
18	9.00	30.00	25 27
20	.00	30.00	27 29
22	.00	30.00	3 29 31

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

THIS SYSTEM HAS 19 PIPES WITH 12 JUNCTIONS , 2 LOOPS AND 6 FGNS

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 29 Closed**

**Job Number: 537-009
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A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
29	20 22	1020.0	8.0	120.0	.00	.00

LINE 29 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 2 TRIALS WITH AN ACCURACY = .00167

AVERAGE DAY DEMAND
PIPE 29 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	1.12	.00	.00	.00	.00	.00
3	2 22	-.12	.00	.00	.00	.00	.00
5	2 4	1.24	.00	.00	.00	.01	.00
6	4 15	2.70	.00	.00	.00	.02	.00
7	4 6	-1.46	.00	.00	.00	-.01	.00
9	0 6	1.69	.00	.00	.00	.00	.00
11	6 8	.24	.00	.00	.00	.00	.00
13	0 8	2.49	.00	.00	.00	.02	.00
15	8 10	2.72	.00	.00	.00	.02	.00
17	0 10	6.19	.00	.00	.00	.04	.00
19	10 12	8.91	.00	.00	.00	.06	.00
21	12 14	-27.09	.00	.00	.00	-.08	.00
23	14 16	-27.09	.00	.00	.00	-.08	.00
24	0 15	33.39	.00	.00	.00	.09	.01
25	16 18	9.00	.00	.00	.00	.03	.00
26	15 16	36.09	.00	.00	.00	.10	.01
27	18 20	.00	.00	.00	.00	.00	.00
LINE 29	IS CLOSED						
31	0 22	.12	.00	.00	.00	.00	.00

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	390.00	32.00	155.13
12	36.00	390.00	34.00	154.27
14	.00	390.00	34.00	154.27
15	.00	390.00	32.00	155.13
16	.00	390.00	32.00	155.13
18	9.00	390.00	30.00	156.00
20	.00	390.00	30.00	156.00
22	.00	390.00	30.00	156.00

MAXIMUM PRESSURES				
2	.00	390.00	28.00	156.87
22	.00	390.00	30.00	156.00

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 29 Closed**

**Job Number: 537-009
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	MINIMUM PRESSURES			
12	36.00	390.00	34.00	154.27
14	.00	390.00	34.00	154.27

THE NET SYSTEM DEMAND = 45.00

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

PIPE NUMBER	FLOWRATE
1	1.12
9	1.69
13	2.49
17	6.19
24	33.39
31	.12

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 45.00
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 = 2.30

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
14	2000.00
20	2000.00

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
29	20 22	1020.0	8.0	120.0	.00	.00

LINE 29 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00021

MAXIMUM DAY DEMAND PLUS 4000 GPM FIRE FLOW SPLIT BETWEEN NODES 14 AND 20
PIPE 29 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	112.39	.01	.00	.00	.32	.05
3	2 22	-9.15	-.01	.00	.00	-.06	.00
5	2 4	121.54	.50	.00	.00	.78	.43
6	4 15	264.71	.54	.00	.00	1.69	1.81
7	4 6	-143.17	-.51	.00	.00	-.91	-.58
9	0 6	155.87	.01	.00	.00	.25	.02
11	6 8	12.70	.01	.00	.00	.08	.01
13	0 8	159.89	.01	.00	.00	1.02	.71
15	8 10	172.59	.36	.00	.00	1.10	.82
17	0 10	392.22	.37	.00	.00	2.50	3.74

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 29 Closed**

**Job Number: 537-009
7/16/2013**

19	10	12	564.81	5.44	.00	.00	3.60	7.36
21	12	14	482.01	.03	.00	.00	1.37	.76
23	14	16	-1517.99	-3.57	.00	.00	-4.31	-6.37
24	0	15	3273.98	1.06	.00	.00	9.29	26.45
25	16	18	2020.70	1.84	.00	.00	5.73	10.82
26	15	16	3538.69	1.22	.00	.00	10.04	30.55
27	18	20	2000.00	1.80	.00	.00	5.67	10.62
LINE	29	IS CLOSED						
31	0	22	9.15	.00	.00	.00	.06	.00

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	389.99	28.00	156.86
4	.00	389.48	30.00	155.78
6	.00	389.99	32.00	155.13
8	.00	389.99	32.00	155.13
10	.00	389.63	32.00	154.97
12	82.80	384.18	34.00	151.75
14	2000.00	384.15	34.00	151.73
15	.00	388.94	32.00	154.67
16	.00	387.72	32.00	154.15
18	20.70	385.88	30.00	154.21
20	2000.00	384.08	30.00	153.43
22	.00	390.00	30.00	156.00

MAXIMUM PRESSURES				
2	.00	389.99	28.00	156.86
22	.00	390.00	30.00	156.00

MINIMUM PRESSURES				
14	2000.00	384.15	34.00	151.73
12	82.80	384.18	34.00	151.75

THE NET SYSTEM DEMAND = 4103.50

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

PIPE NUMBER	FLOWRATE
1	112.39
9	155.87
13	159.89
17	392.22
24	3273.98
31	9.15

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 4103.50

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 = 6.10

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 29 Closed**

**Job Number: 537-009
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PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
29	20 22	1020.0	8.0	120.0	.00	.00

LINE 29 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00007

PEAK HOUR DEMAND
PIPE 29 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	6.99	.00	.00	.00	.02	.00
3	2 22	-.57	.00	.00	.00	.00	.00
5	2 4	7.56	.00	.00	.00	.05	.00
6	4 15	16.46	.00	.00	.00	.11	.01
7	4 6	-8.90	.00	.00	.00	-.06	.00
9	0 6	10.34	.00	.00	.00	.02	.00
11	6 8	1.44	.00	.00	.00	.01	.00
13	0 8	15.18	.00	.00	.00	.10	.01
15	8 10	16.62	.00	.00	.00	.11	.01
17	0 10	37.74	.00	.00	.00	.24	.05
19	10 12	54.36	.07	.00	.00	.35	.10
21	12 14	-165.24	.00	.00	.00	-.47	-.10
23	14 16	-165.24	-.06	.00	.00	-.47	-.10
24	0 15	203.67	.01	.00	.00	.58	.15
25	16 18	54.90	.00	.00	.00	.16	.01
26	15 16	220.14	.01	.00	.00	.62	.18
27	18 20	.00	.00	.00	.00	.00	.00
LINE 29	IS CLOSED						
31	0 22	.57	.00	.00	.00	.00	.00

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	390.00	32.00	155.13
12	219.60	389.92	34.00	154.23
14	.00	389.93	34.00	154.24
15	.00	389.99	32.00	155.13
16	.00	389.99	32.00	155.13
18	54.90	389.98	30.00	155.99
20	.00	389.98	30.00	155.99
22	.00	390.00	30.00	156.00
MAXIMUM PRESSURES				
2	.00	390.00	28.00	156.87
22	.00	390.00	30.00	156.00
MINIMUM PRESSURES				
12	219.60	389.92	34.00	154.23
14	.00	389.93	34.00	154.24

THE NET SYSTEM DEMAND = 274.50

Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 29 Closed

Job Number: 537-009
7/16/2013

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

PIPE NUMBER	FLOWRATE
1	6.99
9	10.34
13	15.18
17	37.74
24	203.67
31	.57

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 274.50
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

APPENDIX C

Computer Modeling Results Pipe Break in Pipe 19

For Node and Pipe Diagram, see Exhibit A.

The following conditions were modeled:

1. Average Day Demand with Pipe 19 Closed
2. Maximum Day Demand Plus 4,000 GPM Fire Flow Split Between Nodes 14 and 20 with Pipe 19 Closed
3. Peak Hour Demand with Pipe 19 Closed

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 19 Closed - Average Day Demand

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.87	-0.02
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.13	-0.02
12	34	390	154.25	154.26	-0.01
14	34	390	154.25	154.26	-0.01
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	155.13	-0.02
18	30	390	155.98	156.00	-0.02
20	30	390	155.98	156.00	-0.02
22	30	390	155.98	156.00	-0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
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Scenario: Pipe 19 Closed - Average Day Demand

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	1.81	0.01
3	8	0.39	0.00
5	8	1.42	0.01
6	8	3.10	0.02
7	8	1.69	0.01
9	16	1.54	0.00
11	8	0.15	0.00
13	8	0.09	0.00
15	8	0.06	0.00
17	8	0.06	0.00
19	8	Closed	Closed
21	12	36.00	0.10
23	12	36.00	0.10
24	12	38.46	0.11
25	12	5.57	0.02
26	12	41.57	0.12
27	12	3.43	0.01
29	8	3.43	0.02
31	8	3.05	0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 19 Closed - Maximum Day Demand Plus 4,000 GPM Fire Flow
Split Between Nodes 14 & 20

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.86	-0.01
4	30	390	155.98	155.76	0.22
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.13	-0.02
12	34	390	154.25	150.43	3.82
14	34	390	154.25	150.43	3.82
15	32	390	155.11	154.64	0.47
16	32	390	155.11	154.07	1.04
18	30	390	155.98	154.43	1.55
20	30	390	155.98	153.93	2.05
22	30	390	155.98	155.88	0.10

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 19 Closed - Maximum Day Demand Plus 4,000 GPM Fire Flow
Split Between Nodes 14 & 20

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	174.82	0.50
3	8	49.93	0.32
5	8	124.89	0.80
6	8	274.24	1.75
7	8	149.35	0.95
9	16	139.43	0.22
11	8	9.92	0.06
13	8	8.41	0.05
15	8	1.51	0.01
17	8	1.51	0.01
19	8	Closed	Closed
21	12	82.80	0.23
23	12	2,082.80	5.91
24	12	3,400.56	9.65
25	12	1,592.00	4.52
26	12	3,674.80	10.42
27	12	1,571.30	4.46
29	8	428.70	2.74
31	8	378.77	2.42

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 19 Closed - Peak Hour Demand

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.87	-0.02
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.13	-0.02
12	34	390	154.25	154.21	0.04
14	34	390	154.25	154.22	0.03
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	155.13	-0.02
18	30	390	155.98	155.99	-0.01
20	30	390	155.98	155.99	-0.01
22	30	390	155.98	156.00	-0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 19 Closed - Peak Hour Demand

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	11.01	0.03
3	8	2.37	0.02
5	8	8.64	0.06
6	8	18.94	0.12
7	8	10.29	0.07
9	16	9.61	0.02
11	8	0.68	0.00
13	8	0.58	0.00
15	8	0.10	0.00
17	8	0.10	0.00
19	8	Closed	Closed
21	12	219.60	0.62
23	12	219.60	0.62
24	12	234.62	0.67
25	12	33.95	0.10
26	12	253.55	0.72
27	12	20.95	0.06
29	8	20.95	0.13
31	8	18.58	0.12

**Morris Cerullo International Center Water Analysis
 Computer Modeling Results – Pipe 19 Closed**

**Job Number: 537-009
 7/16/2013**

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
1	0 2	220.0	12.0	120.0	.00	390.00
3	2 22	3100.0	8.0	120.0	.00	
5	2 4	1180.0	8.0	120.0	.00	
6	4 15	300.0	8.0	120.0	.00	
7	4 6	880.0	8.0	120.0	.00	
9	0 6	270.0	16.0	120.0	.00	390.00
11	6 8	1220.0	8.0	120.0	.00	
13	0 8	20.0	8.0	120.0	.00	390.00
15	8 10	440.0	8.0	120.0	.00	
17	0 10	100.0	8.0	120.0	.00	390.00
19	10 12	740.0	8.0	120.0	.00	
21	12 14	40.0	12.0	120.0	.00	
23	14 16	560.0	12.0	120.0	.00	
24	0 15	40.0	12.0	120.0	.00	390.00
25	16 18	170.0	12.0	120.0	.00	
26	15 16	40.0	12.0	120.0	.00	
27	18 20	170.0	12.0	120.0	.00	
29	20 22	1020.0	8.0	120.0	.00	
31	0 22	80.0	8.0	120.0	.00	390.00

JUNCTION NUMBER	DEMAND	ELEVATION	CONNECTING PIPES
2	.00	28.00	1 3 5
4	.00	30.00	5 6 7
6	.00	32.00	7 9 11
8	.00	32.00	11 13 15
10	.00	32.00	15 17 19
12	36.00	34.00	19 21
14	.00	34.00	21 23
15	.00	32.00	6 24 26
16	.00	32.00	23 25 26
18	9.00	30.00	25 27
20	.00	30.00	27 29
22	.00	30.00	3 29 31

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

THIS SYSTEM HAS 19 PIPES WITH 12 JUNCTIONS , 2 LOOPS AND 6 FGNS

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 19 Closed**

**Job Number: 537-009
7/16/2013**

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
19	10 12	740.0	8.0	120.0	.00	.00

LINE 19 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 2 TRIALS WITH AN ACCURACY = .00237

AVERAGE DAY DEMAND
PIPE 19 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	1.81	.00	.00	.00	.01	.00
3	2 22	.39	.00	.00	.00	.00	.00
5	2 4	1.42	.00	.00	.00	.01	.00
6	4 15	3.10	.00	.00	.00	.02	.00
7	4 6	-1.69	.00	.00	.00	-.01	.00
9	0 6	1.54	.00	.00	.00	.00	.00
11	6 8	-.15	.00	.00	.00	.00	.00
13	0 8	.09	.00	.00	.00	.00	.00
15	8 10	-.06	.00	.00	.00	.00	.00
17	0 10	.06	.00	.00	.00	.00	.00
LINE 19	IS CLOSED						
21	12 14	-36.00	.00	.00	.00	-.10	-.01
23	14 16	-36.00	.00	.00	.00	-.10	-.01
24	0 15	38.46	.00	.00	.00	.11	.01
25	16 18	5.57	.00	.00	.00	.02	.00
26	15 16	41.57	.00	.00	.00	.12	.01
27	18 20	-3.43	.00	.00	.00	-.01	.00
29	20 22	-3.43	.00	.00	.00	-.02	.00
31	0 22	3.05	.00	.00	.00	.02	.00

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	390.00	32.00	155.13
12	36.00	390.00	34.00	154.26
14	.00	390.00	34.00	154.26
15	.00	390.00	32.00	155.13
16	.00	390.00	32.00	155.13
18	9.00	390.00	30.00	156.00
20	.00	390.00	30.00	156.00
22	.00	390.00	30.00	156.00

MAXIMUM PRESSURES

2	.00	390.00	28.00	156.87
22	.00	390.00	30.00	156.00

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 19 Closed**

**Job Number: 537-009
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	MINIMUM PRESSURES			
12	36.00	390.00	34.00	154.26
14	.00	390.00	34.00	154.26

THE NET SYSTEM DEMAND = 45.00

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

PIPE NUMBER	FLOWRATE
1	1.81
9	1.54
13	.09
17	.06
24	38.46
31	3.05

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 45.00
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 = 2.30

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
14	2000.00
20	2000.00

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
19	10 12	740.0	8.0	120.0	.00	.00

LINE 19 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00082

MAXIMUM DAY DEMAND PLUS 4000 GPM FIRE FLOW SPLIT BETWEEN NODES 14 AND 20
PIPE 19 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	174.82	.03	.00	.00	.50	.12
3	2 22	49.93	.26	.00	.00	.32	.08
5	2 4	124.89	.53	.00	.00	.80	.45
6	4 15	274.24	.58	.00	.00	1.75	1.93
7	4 6	-149.35	-.55	.00	.00	-.95	-.63
9	0 6	139.43	.01	.00	.00	.22	.02
11	6 8	-9.92	-.01	.00	.00	-.06	.00
13	0 8	8.41	.00	.00	.00	.05	.00
15	8 10	-1.51	.00	.00	.00	-.01	.00
17	0 10	1.51	.00	.00	.00	.01	.00

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 19 Closed**

**Job Number: 537-009
7/16/2013**

LINE	19	IS	CLOSED						
21	12	14		-82.80	.00	.00	.00	-.23	-.03
23	14	16		-2082.80	-6.41	.00	.00	-5.91	-11.45
24	0	15		3400.56	1.14	.00	.00	9.65	28.38
25	16	18		1592.00	1.18	.00	.00	4.52	6.96
26	15	16		3674.80	1.31	.00	.00	10.42	32.76
27	18	20		1571.30	1.15	.00	.00	4.46	6.79
29	20	22		-428.70	-4.50	.00	.00	-2.74	-4.41
31	0	22		378.77	.28	.00	.00	2.42	3.51

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	389.97	28.00	156.86
4	.00	389.44	30.00	155.76
6	.00	389.99	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	390.00	32.00	155.13
12	82.80	381.14	34.00	150.43
14	2000.00	381.15	34.00	150.43
15	.00	388.86	32.00	154.64
16	.00	387.55	32.00	154.07
18	20.70	386.37	30.00	154.43
20	2000.00	385.22	30.00	153.93
22	.00	389.72	30.00	155.88

MAXIMUM PRESSURES

2	.00	389.97	28.00	156.86
22	.00	389.72	30.00	155.88

MINIMUM PRESSURES

12	82.80	381.14	34.00	150.43
14	2000.00	381.15	34.00	150.43

THE NET SYSTEM DEMAND = 4103.50

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

PIPE NUMBER	FLOWRATE
1	174.82
9	139.43
13	8.41
17	1.51
24	3400.56
31	378.77

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 4103.50

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 = 6.10

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 19 Closed**

**Job Number: 537-009
7/16/2013**

PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
19	10 12	740.0	8.0	120.0	.00	.00

LINE 19 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00213

PEAK HOUR DEMAND
PIPE 19 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	11.01	.00	.00	.00	.03	.00
3	2 22	2.37	.00	.00	.00	.02	.00
5	2 4	8.64	.00	.00	.00	.06	.00
6	4 15	18.94	.00	.00	.00	.12	.01
7	4 6	-10.29	.00	.00	.00	-.07	.00
9	0 6	9.61	.00	.00	.00	.02	.00
11	6 8	-.68	.00	.00	.00	.00	.00
13	0 8	.58	.00	.00	.00	.00	.00
15	8 10	-.10	.00	.00	.00	.00	.00
17	0 10	.10	.00	.00	.00	.00	.00
LINE 19	IS CLOSED						
21	12 14	-219.60	-.01	.00	.00	-.62	-.18
23	14 16	-219.60	-.10	.00	.00	-.62	-.18
24	0 15	234.62	.01	.00	.00	.67	.20
25	16 18	33.95	.00	.00	.00	.10	.01
26	15 16	253.55	.01	.00	.00	.72	.23
27	18 20	-20.95	.00	.00	.00	-.06	.00
29	20 22	-20.95	-.02	.00	.00	-.13	-.02
31	0 22	18.58	.00	.00	.00	.12	.01

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	390.00	32.00	155.13
12	219.60	389.88	34.00	154.21
14	.00	389.88	34.00	154.22
15	.00	389.99	32.00	155.13
16	.00	389.98	32.00	155.13
18	54.90	389.98	30.00	155.99
20	.00	389.98	30.00	155.99
22	.00	390.00	30.00	156.00

MAXIMUM PRESSURES

2	.00	390.00	28.00	156.87
22	.00	390.00	30.00	156.00

MINIMUM PRESSURES

12	219.60	389.88	34.00	154.21
14	.00	389.88	34.00	154.22

THE NET SYSTEM DEMAND = 274.50

Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 19 Closed

Job Number: 537-009
7/16/2013

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

PIPE NUMBER	FLOWRATE
1	11.01
9	9.61
13	.58
17	.10
24	234.62
31	18.58

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 274.50
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

APPENDIX D

Computer Modeling Results Pipe Break in Pipe 26

For Node and Pipe Diagram, see Exhibit A.

The following conditions were modeled:

1. Average Day Demand with Pipe 26 Closed
2. Maximum Day Demand Plus 4,000 GPM Fire Flow Split Between Nodes 14 and 20 with Pipe 26 Closed
3. Peak Hour Demand with Pipe 26 Closed

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 26 Closed - Average Day Demand

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.87	-0.02
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.13	-0.02
12	34	390	154.25	154.26	-0.01
14	34	390	154.25	154.26	-0.01
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	155.13	-0.02
18	30	390	155.98	155.99	-0.01
20	30	390	155.98	155.99	-0.01
22	30	390	155.98	156.00	-0.02

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 26 Closed - Average Day Demand

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	2.18	0.01
3	8	2.46	0.02
5	8	0.28	0.00
6	8	0.20	0.00
7	8	0.08	0.00
9	16	0.82	0.00
11	8	0.74	0.00
13	8	6.82	0.04
15	8	7.56	0.05
17	8	17.17	0.11
19	8	24.73	0.16
21	12	11.27	0.03
23	12	11.27	0.03
24	12	0.20	0.00
25	12	11.27	0.03
26	12	Closed	Closed
27	12	20.27	0.03
29	8	20.27	0.13
31	8	17.81	0.11

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 26 Closed - Maximum Day Demand Plus 4,000 GPM Fire Flow
Split Between Nodes 14 & 20

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.85	0.00
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.06	0.05
10	32	390	155.11	153.09	2.02
12	34	390	154.25	122.43	31.82
14	34	390	154.25	122.22	32.03
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	123.07	32.04
18	30	390	155.98	123.93	32.05
20	30	390	155.98	123.93	32.05
22	30	390	155.98	154.14	1.84

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 26 Closed - Maximum Day Demand Plus 4,000 GPM Fire Flow
Split Between Nodes 14 & 20

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	202.28	0.57
3	8	228.56	1.46
5	8	26.28	0.17
6	8	18.39	0.12
7	8	7.89	0.05
9	16	74.15	0.12
11	8	66.26	0.42
13	8	612.99	3.91
15	8	679.25	4.34
17	8	1,542.12	9.84
19	8	2,221.37	14.18
21	12	2,138.57	6.07
23	12	138.57	0.39
24	12	18.39	0.05
25	12	138.57	0.39
26	12	Closed	Closed
27	12	117.87	0.33
29	8	1,882.13	12.01
31	8	1,653.58	10.55

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 26 Closed - Peak Hour Demand

Node No.	Node Elev. (ft)	HGL Zone (ft)	Static P (psi)	Model Run P (psi)	Delta P from Static
2	28	390	156.85	156.87	-0.02
4	30	390	155.98	156.00	-0.02
6	32	390	155.11	155.13	-0.02
8	32	390	155.11	155.13	-0.02
10	32	390	155.11	155.12	-0.01
12	34	390	154.25	154.05	0.20
14	34	390	154.25	154.05	0.20
15	32	390	155.11	155.13	-0.02
16	32	390	155.11	154.92	0.19
18	30	390	155.98	155.79	0.19
20	30	390	155.98	155.79	0.19
22	30	390	155.98	155.99	-0.01

**Morris Cerullo International Center Water Analysis
Computer Printout Summary**

**Job Number: 537-009
7/16/2013**

Scenario: Pipe 26 Closed - Peak Hour Demand

Pipe No.	Pipe Size (inches)	Model Run Flow (gpm)	Model Run V (fps)
1	12	13.29	0.04
3	8	15.02	0.10
5	8	1.73	0.01
6	8	1.21	0.01
7	8	0.51	0.00
9	16	5.01	0.01
11	8	4.50	0.03
13	8	41.62	0.27
15	8	46.12	0.29
17	8	104.72	0.67
19	8	150.84	0.96
21	12	68.76	0.20
23	12	68.76	0.20
24	12	1.21	0.00
25	12	68.76	0.20
26	12	Closed	Closed
27	12	123.66	0.35
29	8	123.66	0.79
31	8	108.64	0.69

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 26 Closed**

**Job Number: 537-009
7/16/2013**

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
1	0 2	220.0	12.0	120.0	.00	390.00
3	2 22	3100.0	8.0	120.0	.00	
5	2 4	1180.0	8.0	120.0	.00	
6	4 15	300.0	8.0	120.0	.00	
7	4 6	880.0	8.0	120.0	.00	
9	0 6	270.0	16.0	120.0	.00	390.00
11	6 8	1220.0	8.0	120.0	.00	
13	0 8	20.0	8.0	120.0	.00	390.00
15	8 10	440.0	8.0	120.0	.00	
17	0 10	100.0	8.0	120.0	.00	390.00
19	10 12	740.0	8.0	120.0	.00	
21	12 14	40.0	12.0	120.0	.00	
23	14 16	560.0	12.0	120.0	.00	
24	0 15	40.0	12.0	120.0	.00	390.00
25	16 18	170.0	12.0	120.0	.00	
26	15 16	40.0	12.0	120.0	.00	
27	18 20	170.0	12.0	120.0	.00	
29	20 22	1020.0	8.0	120.0	.00	
31	0 22	80.0	8.0	120.0	.00	390.00

JUNCTION NUMBER	DEMAND	ELEVATION	CONNECTING PIPES
2	.00	28.00	1 3 5
4	.00	30.00	5 6 7
6	.00	32.00	7 9 11
8	.00	32.00	11 13 15
10	.00	32.00	15 17 19
12	36.00	34.00	19 21
14	.00	34.00	21 23
15	.00	32.00	6 24 26
16	.00	32.00	23 25 26
18	9.00	30.00	25 27
20	.00	30.00	27 29
22	.00	30.00	3 29 31

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

THIS SYSTEM HAS 19 PIPES WITH 12 JUNCTIONS , 2 LOOPS AND 6 FGNS

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 26 Closed**

**Job Number: 537-009
7/16/2013**

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
26	15 16	40.0	12.0	120.0	.00	.00

LINE 26 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 4 TRIALS WITH AN ACCURACY = .00033

AVERAGE DAY DEMAND
PIPE 26 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	2.18	.00	.00	.00	.01	.00
3	2 22	2.46	.00	.00	.00	.02	.00
5	2 4	-.28	.00	.00	.00	.00	.00
6	4 15	-.20	.00	.00	.00	.00	.00
7	4 6	-.08	.00	.00	.00	.00	.00
9	0 6	.82	.00	.00	.00	.00	.00
11	6 8	.74	.00	.00	.00	.00	.00
13	0 8	6.82	.00	.00	.00	.04	.00
15	8 10	7.56	.00	.00	.00	.05	.00
17	0 10	17.17	.00	.00	.00	.11	.01
19	10 12	24.73	.02	.00	.00	.16	.02
21	12 14	-11.27	.00	.00	.00	-.03	.00
23	14 16	-11.27	.00	.00	.00	-.03	.00
24	0 15	.20	.00	.00	.00	.00	.00
25	16 18	-11.27	.00	.00	.00	-.03	.00
LINE 26	IS CLOSED						
27	18 20	-20.27	.00	.00	.00	-.06	.00
29	20 22	-20.27	-.02	.00	.00	-.13	-.02
31	0 22	17.81	.00	.00	.00	.11	.01

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	390.00	32.00	155.13
12	36.00	389.98	34.00	154.26
14	.00	389.98	34.00	154.26
15	.00	390.00	32.00	155.13
16	.00	389.98	32.00	155.13
18	9.00	389.98	30.00	155.99
20	.00	389.98	30.00	155.99
22	.00	390.00	30.00	156.00

MAXIMUM PRESSURES				
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 26 Closed**

**Job Number: 537-009
7/16/2013**

	MINIMUM PRESSURES			
12	36.00	389.98	34.00	154.26
14	.00	389.98	34.00	154.26

THE NET SYSTEM DEMAND = 45.00

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

PIPE NUMBER	FLOWRATE
1	2.18
9	.82
13	6.82
17	17.17
24	.20
31	17.81

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 45.00

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 = 2.30

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
14	2000.00
20	2000.00

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
26	15 16	40.0	12.0	120.0	.00	.00

LINE 26 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00001

MAXIMUM DAY DEMAND PLUS 4000 GPM FIRE FLOW SPLIT BETWEEN NODES 14 AND 20
PIPE 26 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	202.28	.03	.00	.00	.57	.15
3	2 22	228.56	4.27	.00	.00	1.46	1.38
5	2 4	-26.28	-.03	.00	.00	-.17	-.03
6	4 15	-18.39	.00	.00	.00	-.12	-.01
7	4 6	-7.89	.00	.00	.00	-.05	.00
9	0 6	74.15	.00	.00	.00	.12	.01
11	6 8	66.26	.17	.00	.00	.42	.14
13	0 8	612.99	.17	.00	.00	3.91	8.56
15	8 10	679.25	4.55	.00	.00	4.34	10.35
17	0 10	1542.12	4.73	.00	.00	9.84	47.26

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 26 Closed**

**Job Number: 537-009
7/16/2013**

19	10	12	2221.37	68.75	.00	.00	14.18	92.90
21	12	14	2138.57	.48	.00	.00	6.07	12.02
23	14	16	138.57	.04	.00	.00	.39	.08
24	0	15	18.39	.00	.00	.00	.05	.00
25	16	18	138.57	.01	.00	.00	.39	.08
LINE	26	IS	CLOSED					
27	18	20	117.87	.01	.00	.00	.33	.06
29	20	22	-1882.13	-69.71	.00	.00	-12.01	-68.35
31	0	22	1653.58	4.30	.00	.00	10.55	53.78

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	389.97	28.00	156.85
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	389.83	32.00	155.06
10	.00	385.27	32.00	153.09
12	82.80	316.53	34.00	122.43
14	2000.00	316.05	34.00	122.22
15	.00	390.00	32.00	155.13
16	.00	316.01	32.00	123.07
18	20.70	315.99	30.00	123.93
20	2000.00	315.98	30.00	123.93
22	.00	385.70	30.00	154.14

MAXIMUM PRESSURES

2	.00	389.97	28.00	156.85
4	.00	390.00	30.00	156.00

MINIMUM PRESSURES

14	2000.00	316.05	34.00	122.22
12	82.80	316.53	34.00	122.43

THE NET SYSTEM DEMAND = 4103.50

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

PIPE NUMBER	FLOWRATE
1	202.28
9	74.15
13	612.99
17	1542.12
24	18.39
31	1653.58

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 4103.50

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 = 6.10

THE FOLLOWING CHANGES IN PIPE DATA ARE SPECIFIED

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 26 Closed**

**Job Number: 537-009
7/16/2013**

PIPE NO.	NODE NOS.	LENGTH	DIAMETER	ROUGHNESS	MINOR LOSS K	FIXED GRADE
26	15 16	40.0	12.0	120.0	.00	.00

LINE 26 IS CLOSED

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00001

PEAK HOUR DEMAND
PIPE 26 IS CLOSED

PIPE NO.	NODE NOS.	FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
1	0 2	13.29	.00	.00	.00	.04	.00
3	2 22	15.02	.03	.00	.00	.10	.01
5	2 4	-1.73	.00	.00	.00	-.01	.00
6	4 15	-1.21	.00	.00	.00	-.01	.00
7	4 6	-.51	.00	.00	.00	.00	.00
9	0 6	5.01	.00	.00	.00	.01	.00
11	6 8	4.50	.00	.00	.00	.03	.00
13	0 8	41.62	.00	.00	.00	.27	.06
15	8 10	46.12	.03	.00	.00	.29	.07
17	0 10	104.72	.03	.00	.00	.67	.32
19	10 12	150.84	.47	.00	.00	.96	.64
21	12 14	-68.76	.00	.00	.00	-.20	-.02
23	14 16	-68.76	-.01	.00	.00	-.20	-.02
24	0 15	1.21	.00	.00	.00	.00	.00
25	16 18	-68.76	.00	.00	.00	-.20	-.02
LINE 26	IS CLOSED						
27	18 20	-123.66	-.01	.00	.00	-.35	-.06
29	20 22	-123.66	-.45	.00	.00	-.79	-.44
31	0 22	108.64	.03	.00	.00	.69	.35

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00
6	.00	390.00	32.00	155.13
8	.00	390.00	32.00	155.13
10	.00	389.97	32.00	155.12
12	219.60	389.50	34.00	154.05
14	.00	389.50	34.00	154.05
15	.00	390.00	32.00	155.13
16	.00	389.51	32.00	154.92
18	54.90	389.51	30.00	155.79
20	.00	389.52	30.00	155.79
22	.00	389.97	30.00	155.99

MAXIMUM PRESSURES

2	.00	390.00	28.00	156.87
4	.00	390.00	30.00	156.00

MINIMUM PRESSURES

12	219.60	389.50	34.00	154.05
14	.00	389.50	34.00	154.05

THE NET SYSTEM DEMAND = 274.50

**Morris Cerullo International Center Water Analysis
Computer Modeling Results – Pipe 26 Closed**

**Job Number: 537-009
7/16/2013**

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

PIPE NUMBER	FLOWRATE
1	13.29
9	5.01
13	41.62
17	104.72
24	1.21
31	108.64

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 274.50
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

APPENDIX E

Water Demand Calculation References

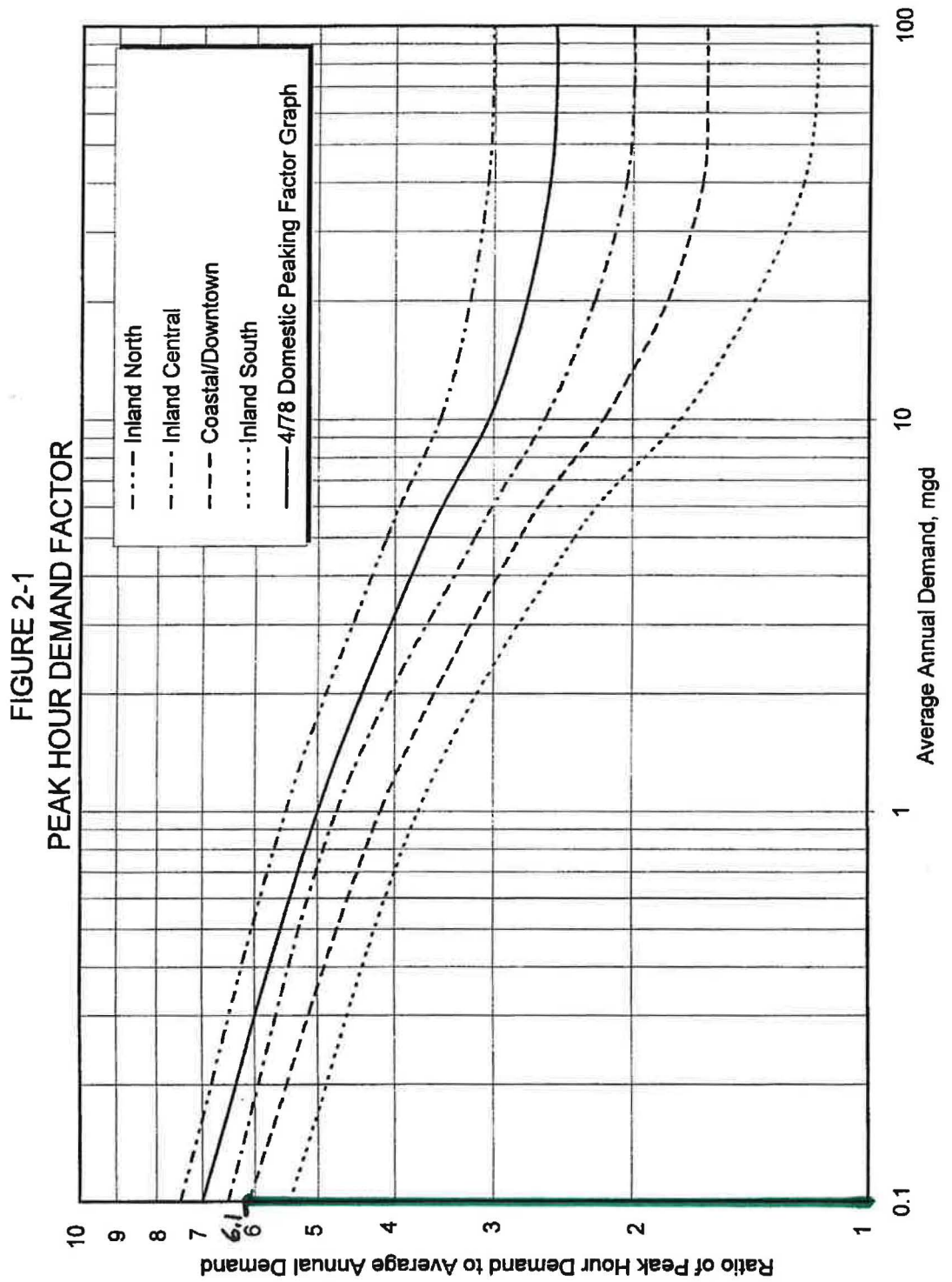
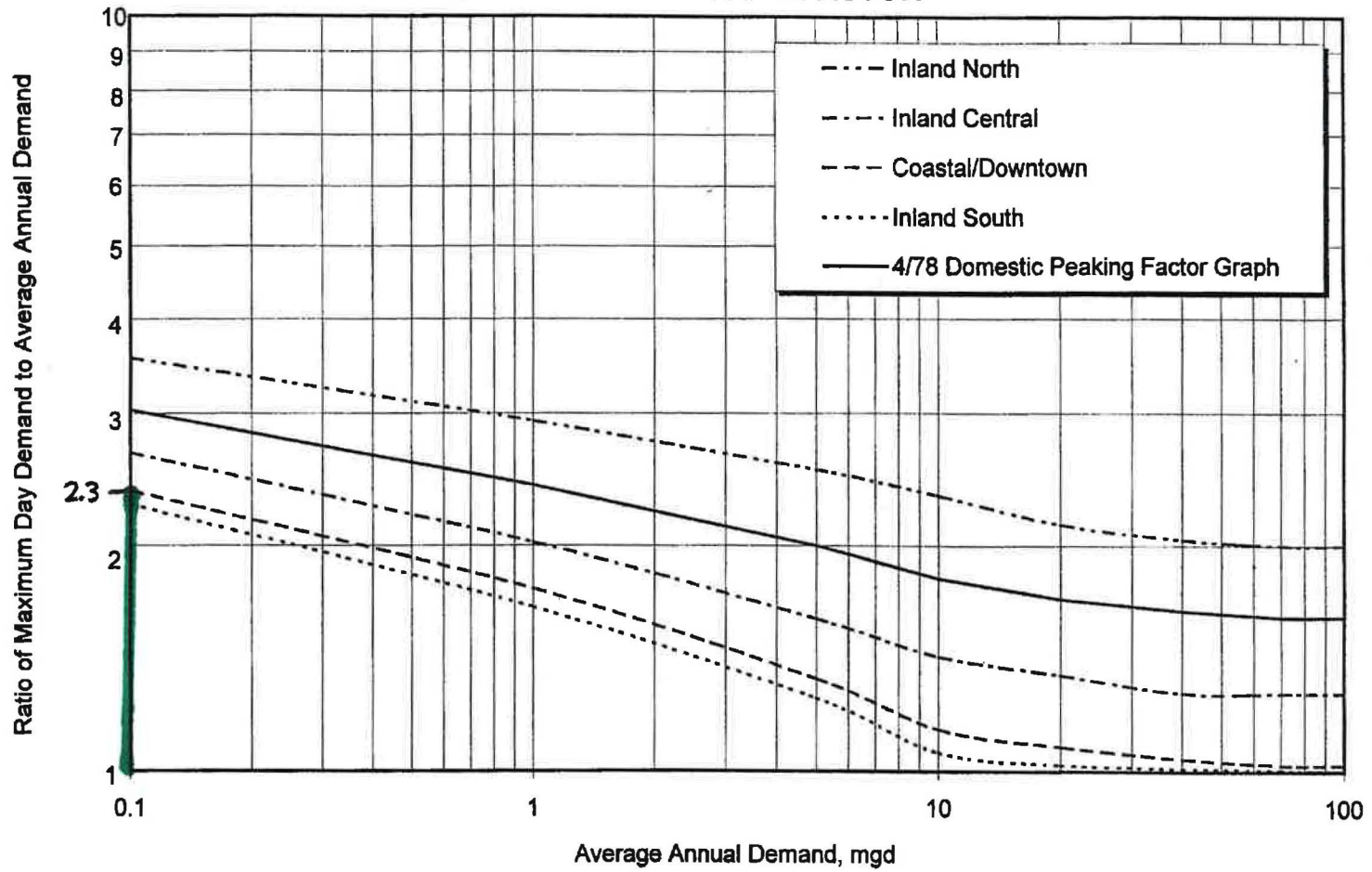
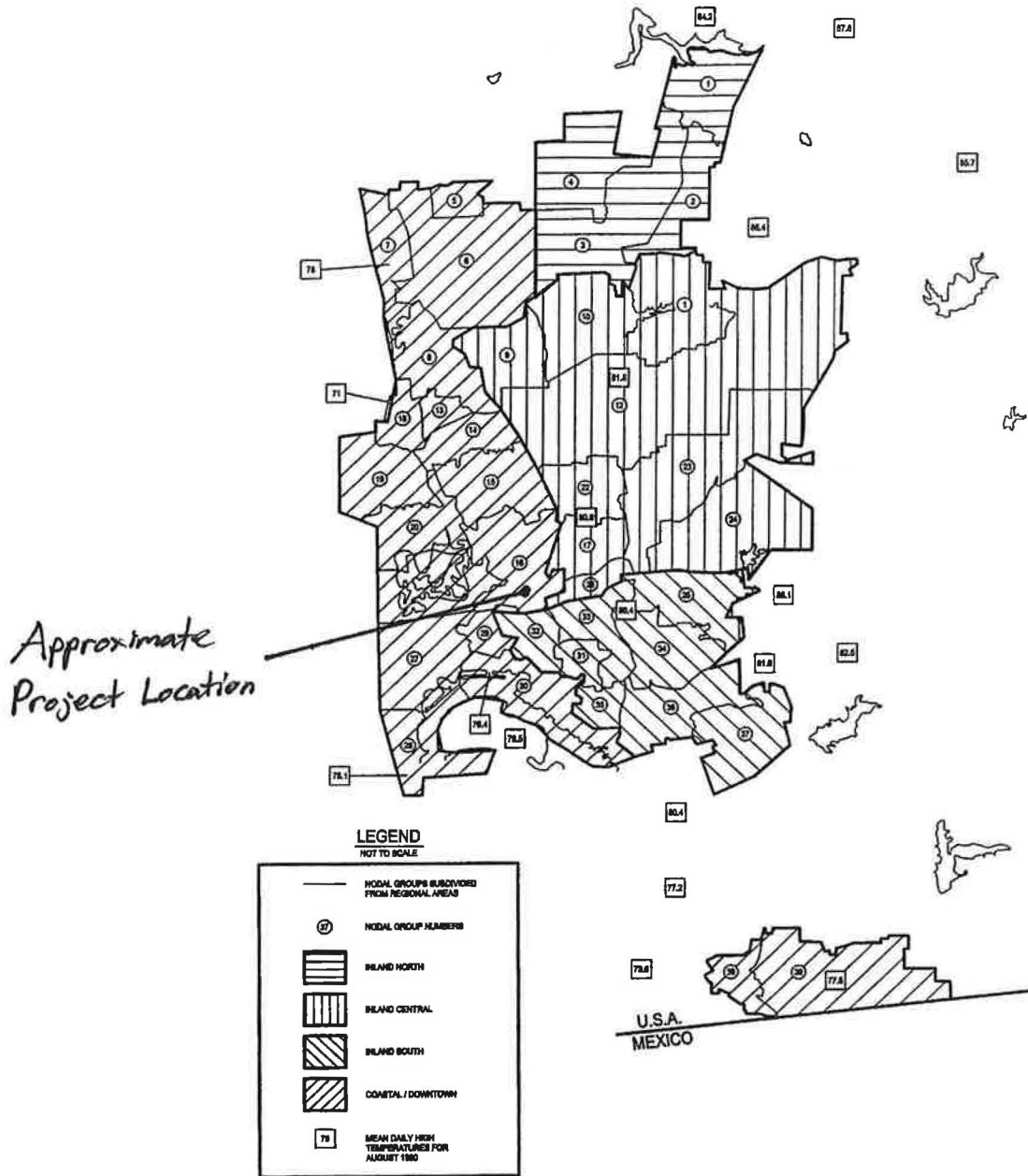


FIGURE 2-2
MAXIMUM DAY DEMAND FACTOR



PEAKING FACTOR ZONES
(BOUNDARIES BASED ON LAND USE GROUPINGS)


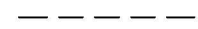

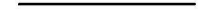


FIGURE 2-3

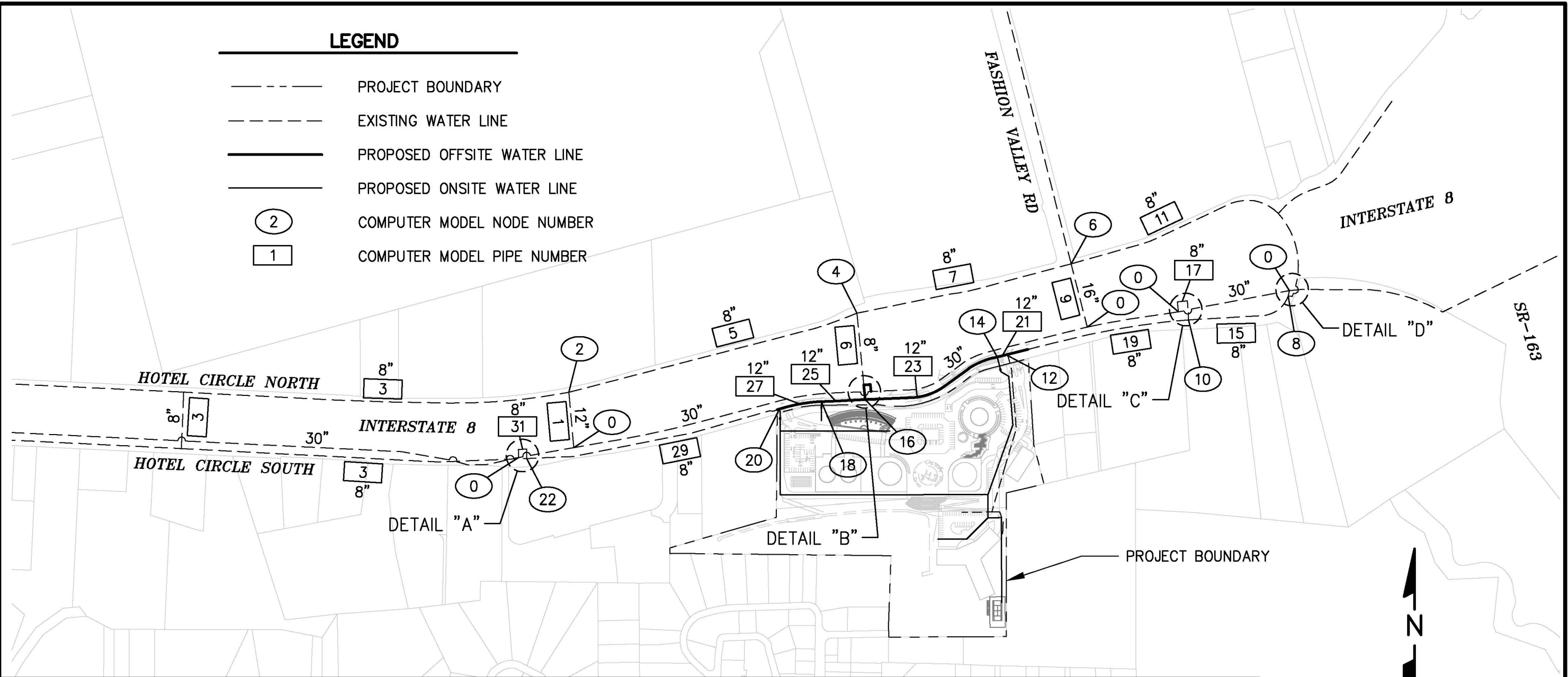


July 1999

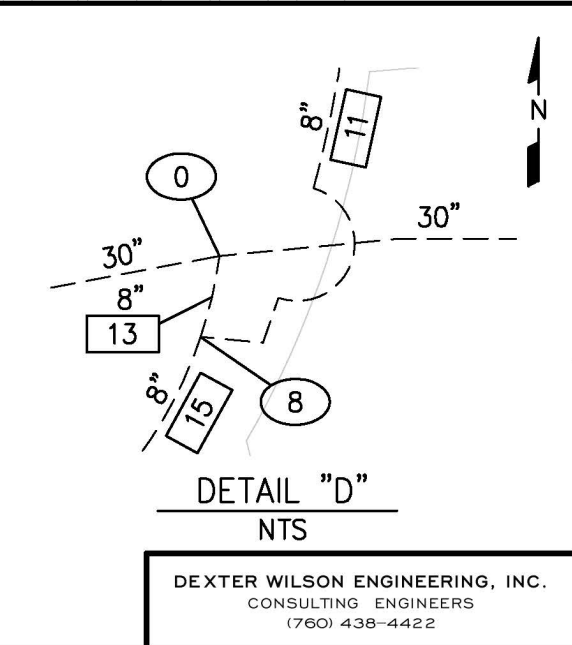
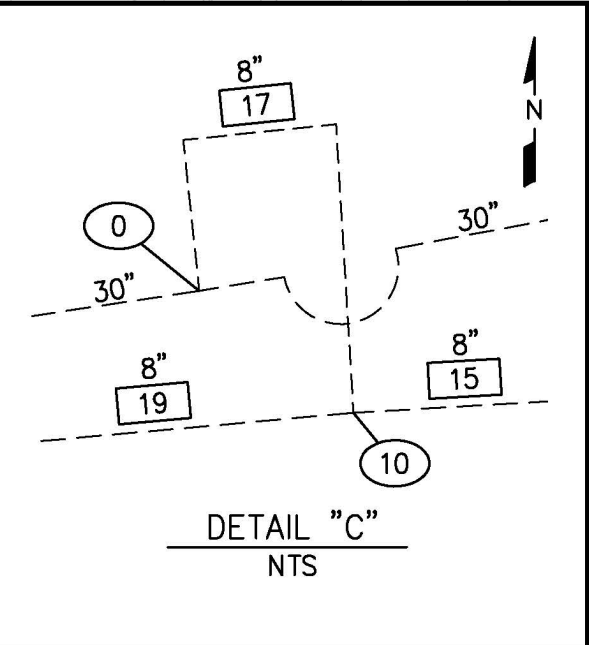
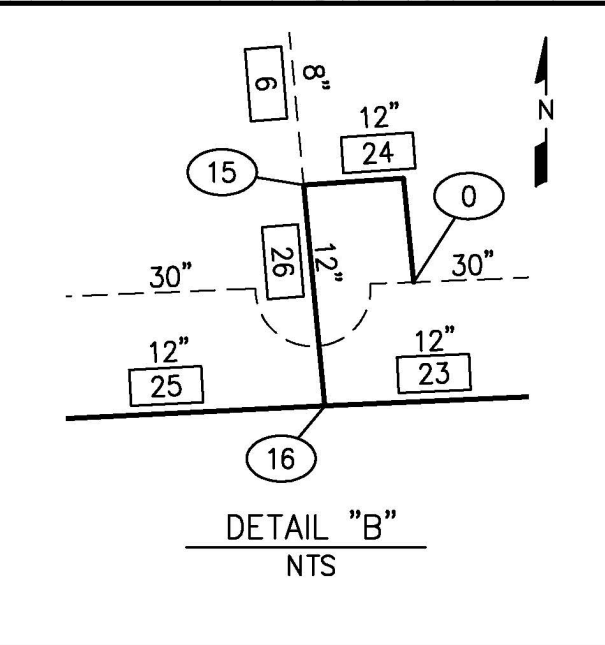
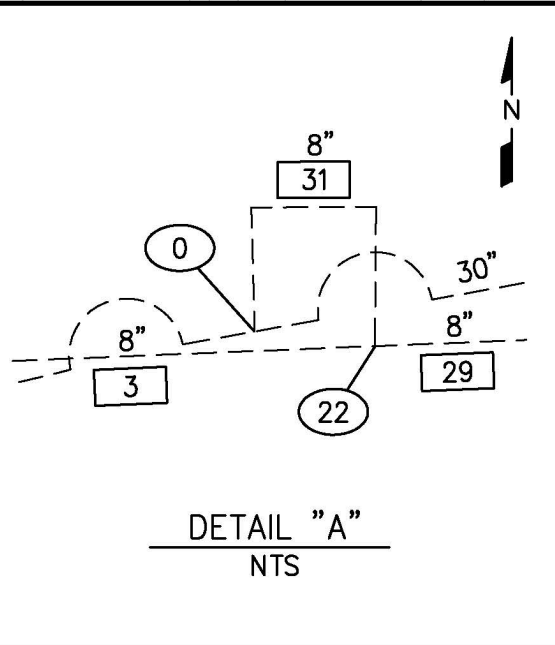
PACIFIC\DWG\537009\EXHIBIT A.DWG 07-16-13 10:09:23 LAYOUT: LAYOUT

LEGEND

-  PROJECT BOUNDARY
-  EXISTING WATER LINE
-  PROPOSED OFFSITE WATER LINE
-  PROPOSED ONSITE WATER LINE
-  COMPUTER MODEL NODE NUMBER
-  COMPUTER MODEL PIPE NUMBER



SCALE: 1" = 400'



DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

EXHIBIT A NODE AND PIPE DIAGRAM

MORRIS CERULLO
INTERNATIONAL CENTER



PROJECT DESIGN CONSULTANTS |

File: 3948.70

September 28, 2016

City of San Diego Development Services Department
PUD – Water and Sewer Services
525 B St.
San Diego, CA 92101

SUBJECT: Addendum #1 to Water System Analysis for Legacy International Center (LIC) for
Alternative Site Plan

To Whom It May Concern:

This letter has been prepared as an Addendum to the report titled "Water System Analysis for the Morris Cerullo International Center", prepared by Dexter Wilson Engineering, Inc and dated July 16, 2013. The water study was approved by the City of San Diego to support the entitlement application. Subsequent to the approval of the water study, the design team has prepared an alternate site plan (the preferred alternative) that has less overall impact than the approved site plan. The purpose of this Addendum is to describe how this alternative site plan is still in compliance with all the design requirements proposed by the original water study provided by Dexter Wilson Inc.

The original waster study analysis was based on a site with a mix of uses, including religious, lodging, administrative offices, recreational and commercial uses, a learning center, a wellness center, a 300 seat theater and a five story condo with 127 timeshare suites. In total the site was proposing a total of 346,963 sf of building area.

The new site plan reduces the number of facilities which will reduce the water demand needed for the site. The new site plan consist of a Museum, a 500 seat theater, training/lecture facilities, office space and a 127 room hotel with a total building area of 191,782 sf. The new site proposes a total of 1278 water fixture units.

Based on this new site plan, we can say with confidence that we can follow the same assumptions and guidelines from the original report to ensure the offsite water system can still provide adequate water service.

Thank you,

Gregory M. Shields, PE
CEO
Project Design Consultants



File: 3948.70

September 28, 2016

**City of San Diego Development Services Department
PUD – Water and Sewer Services**

525 B St.
San Diego, CA 92101

SUBJECT: Addendum #1 to Private Fire Protection System and Private Domestic Water System Study for Legacy International Center (LIC) for Alternative Site Plan

To Whom It May Concern:

This letter has been prepared as an Addendum to the report titled "Private Fire Protection System and Private Domestic Water System analysis for the Morris Cerullo International Center", prepared by Dexter Wilson Engineering, Inc and dated July 30, 2013. The water study was approved by the City of San Diego to support the entitlement application. Subsequent to the approval of the water study, the design team has prepared an alternate site plan (the preferred alternative) that has less overall impact than the approved site plan. The purpose of this Addendum is to describe how this alternative site plan is still in compliance with all the design requirements proposed by the original water study provided by Dexter Wilson Inc.

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Thank you,

Gregory M. Shields, PE
CEO
Project Design Consultants

SANITARY SEWER STUDY
FOR

Legacy International Center
San Diego, California

January 18, 2017
PDC Project No. 3948.70

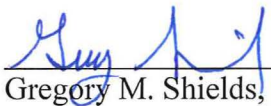
Prepared for:

Morris Cerullo Legacy Center Foundation, LLC
3545 Aero Court
San Diego, CA 92123

Prepared by:

Project Design Consultants
701 B Street, Suite 800
San Diego, California 92101





Gregory M. Shields, PE

Registration Expires 03/31/18

RCE 42951

Prepared By: RR
Checked By: GS

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APPENDIX A	EXISTING CONDITIONS SEWER FLOWS
APPENDIX B	PROPOSED CONDITIONS SEWER FLOWS

1.0 INTRODUCTION

This sewer report documents the design and calculations of the sanitary sewer facilities associated with the Legacy International Center Project. The Legacy International Center Project is a re-development project consisting of a mixed-use development with religious, lodging, recreational, and commercial uses. Total Project area is 18.13 acres, of which approximately 11.6 acres is to be disturbed during re-development. The project is located to the south of Interstate 8 and to the west of Interstate 163, and is bounded on the north by Hotel Circle Street, on the east by existing hotel facilities and steep slopes, on the south by steep slopes and canyons, and on the west by existing hotel facilities. The existing site zoning is MVPD-MV-M/SP. The proposed rezoning is MVPD-MV-CV.

Calculations provided herein were prepared under the guidelines stipulated by the City of San Diego “Sewer Design Guide” (2015).

2.0 EXISTING CONDITIONS

The existing Hotel and Gas Station convey sewer flows through an onsite 8-inch sewer main that laterals into the existing 27-inch VC sewer main located within Hotel Circle South. Approximately 0.19 MGD peak flow is generated by the existing project site. The offsite flows from the existing subdivision located south of the project directly uphill is approximately 0.24 MGD. The offsite flows are conveyed through a secondary sewer facility which runs along the southerly and westerly ends of the existing developed site and also laterals into the existing 27-inch within Hotel Circle South.

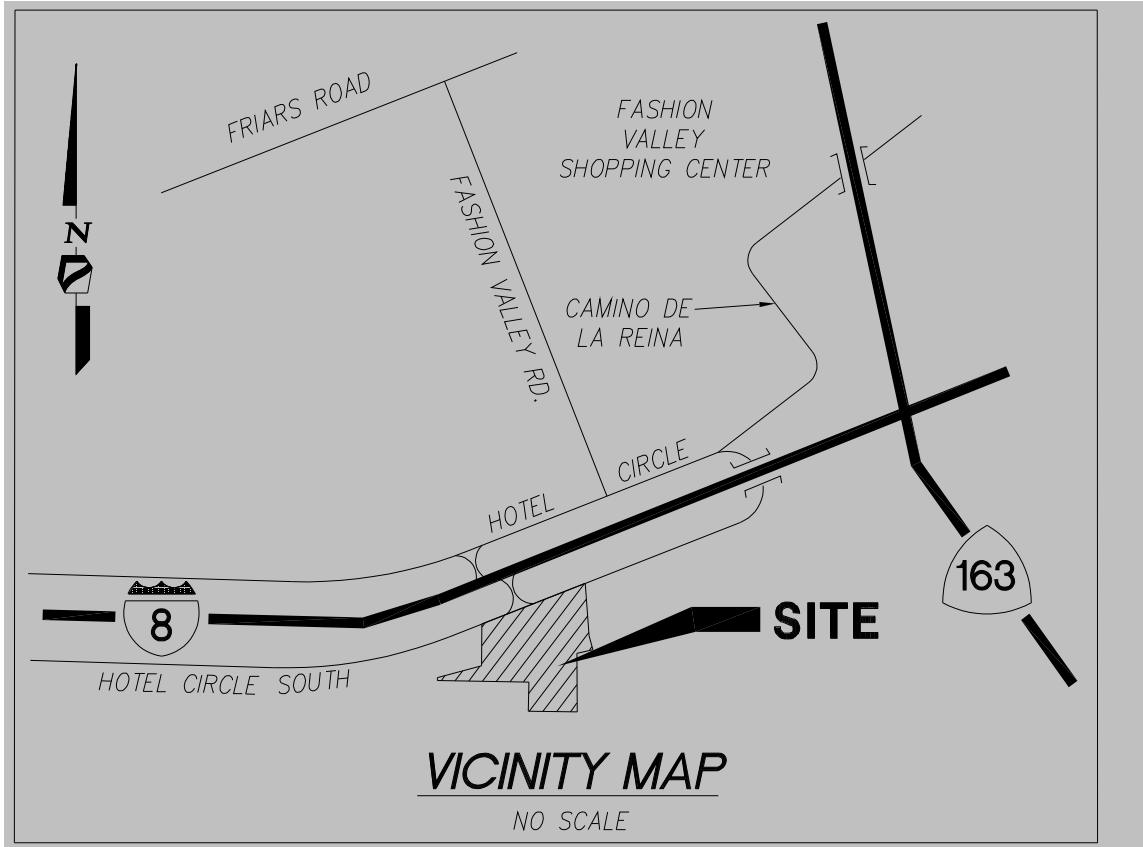


FIGURE 1.
PROJECT LOCATION MAP

3.0 PROPOSED CONDITIONS

The Exhibit “A” provides the sewer facility layout for existing off-site and proposed on-site sewer facility layout. The proposed system will connect to the existing sewer main at Manhole #62 and at proposed Manhole #17 in Hotel Circle South.

The majority of the existing sewer on the west side of the project will remain in place and a new onsite gravity sewer lateral from building number 2 will tie into the existing lines. These flows are conveyed through a connection point at MH #21 and conveying the total flow into the existing 27-inch sewer main at existing manhole no 62. Portion of the existing 8-inch sewer on the east side of the project will be removed and redirected to a new 10” PVC main that will run along the east side of the project. The new system will consist of 10-inch pipes maintaining the minimum 1.0 percent slope and a velocity greater to 2.0 fps. The onsite and offsite sewer flows are combined and conveyed through the existing 8-inch and proposed 10-inch sewer facility within the proposed streets and running towards the northern end of the project site. Line ‘A3’ is a public sewer line that will be conveying sewer flows from Buildings 1 and 3. These total flows are conveyed into the existing 27-inch sewer at proposed Manhole # 17. There will be a portion of sewer within the existing trail that will be abandoned and capped in place.

Estimated flows were calculated for the proposed mixed-use site. Approximately 0.258 MGD peak flow will be generated by the proposed project and is conveyed into the existing sewer facilities within Hotel Circle South. This is an increase of approximately 0.068 MGD peak flow compared to the existing site.

A computer spreadsheet has been generated to evaluate the impacts to the existing sewer facility in Hotel Circle South. Proposed sanitary sewer average daily and peak daily flow rates were computed based on the City of San Diego “Sewer Design Guide” (2015). Calculations are provided in Appendix B (Proposed Conditions Sewer Flows). The calculation results indicate that the existing project to the south and proposed development will produce an estimated peak flow of 0.258 MGD for an equivalent population of 1193 residents.

This study assumed that the Legacy International Center site would generate sewage from 64 Dwelling Units in the future.

Totals to Sewer Mains	
	Totals
Total Flows to MH #17	0.205 MGD
Total Flows to MH #62	0.053 MGD
Totals	0.258 MGD

4.0 CONCLUSIONS

From the results of the analysis of the proposed on-site sewer facilities and existing facilities in Hotel Circle (see Appendix B), it is clear that the proposed Legacy International Center will not adversely affect the existing sewer system downstream of the confluence at Hotel Circle South sewer main. The result of the analysis confirms that the proposed sewer system will adequately convey the peak flows generated by the developed site. The project also meets all required sewer design parameter (A slope greater than 1.0%, with a velocity of 2.0 fps or greater and a Dn/D value less than 0.5).

EXISTING CONDITIONS FLOWS TO HOTEL CIRCLE SOUTH FROM SITE	PROPOSED CONDITIONS FLOWS TO HOTEL CIRCLE SOUTH FROM SITE
0.190 MGD	0.258 MGD

Per e-mail correspondence with the City of San Diego Water and Sewer Development Department (Ms. Irina Itkin) on May 12, 2015, The City of San Diego did a detailed evaluation and modeling study of the existing 27” trunk sewer and determined that the additional flow is only 1% of the flow in the trunk sewer at the point of discharge. Because of this analysis, the Legacy International Project does not have to upsize the existing trunk sewer.

5.0 REFERENCES

City of San Diego Water Services Department, "Sewer Design Guide" 2015

PUBLIC UTILITIES DEPARTMENT
PEAKING FACTOR FOR SEWER FLOWS
(Dry Weather)

Ratio of Peak to Average Flow*
Versus Tributary Population

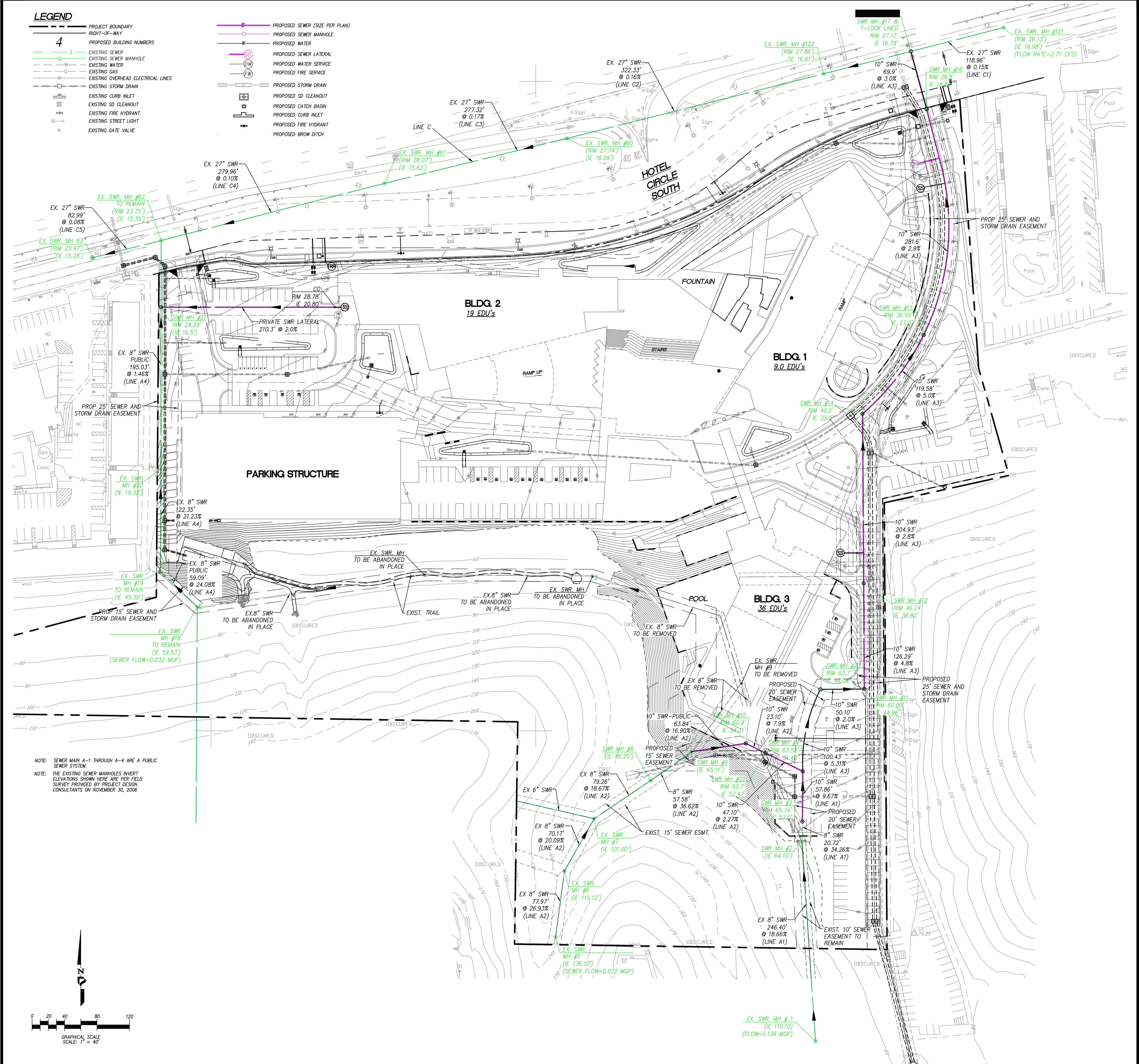
<u>Population</u>	<u>Ratio of Peak to Average Flow</u>	<u>Population</u>	<u>Ratio of Peak to Average Flow</u>
200	4.00	4,800	2.01
500	3.00	5,000	2.00
800	2.75	5,200	1.99
900	2.60	5,500	1.97
1,000	2.50	6,000	1.95
1,100	2.47	6,200	1.94
1,200	2.45	6,400	1.93
1,300	2.43	6,900	1.91
1,400	2.40	7,300	1.90
1,500	2.38	7,500	1.89
1,600	2.36	8,100	1.87
1,700	2.34	8,400	1.86
1,750	2.33	9,100	1.84
1,800	2.32	9,600	1.83
1,850	2.31	10,000	1.82
1,900	2.30	11,500	1.80
2,000	2.29	13,000	1.78
2,150	2.27	14,500	1.76
2,225	2.25	15,000	1.75
2,300	2.24	16,000	1.74
2,375	2.23	16,700	1.73
2,425	2.22	17,400	1.72
2,500	2.21	18,000	1.71
2,600	2.20	18,900	1.70
2,625	2.19	19,800	1.69
2,675	2.18	21,500	1.68
2,775	2.17	22,600	1.67
2,850	2.16	25,000	1.65
3,000	2.14	26,500	1.64
3,100	2.13	28,000	1.63
3,200	2.12	32,000	1.61
3,500	2.10	36,000	1.59
3,600	2.09	38,000	1.58
3,700	2.08	42,000	1.57
3,800	2.07	49,000	1.55
3,900	2.06	54,000	1.54
4,000	2.05	60,000	1.53
4,200	2.04	70,000	1.52
4,400	2.03	90,000	1.51
4,600	2.02	100,000+	1.50

*Based on formula: $\text{Peak Factor} = 6.2945 \times (\text{pop})^{-0.1342}$
(Holmes & Narver, 1960)

EXHIBIT 'A'

LEGEND

- | | | | |
|---|------------------------------------|---|--------------------------------|
| — | PROJECT BOUNDARY | — | PROPOSED SEWER (SIZE PER PLAN) |
| — | RIGHT-OF-WAY | — | PROPOSED SEWER MANHOLE |
| 4 | PROPOSED BUILDING NUMBERS | — | PROPOSED WATER |
| S | EXISTING SEWER | — | PROPOSED WATER LATERAL |
| — | EXISTING SEWER MANHOLE | — | PROPOSED WATER SERVICE |
| — | EXISTING WATER | — | PROPOSED FIRE SERVICE |
| — | EXISTING GAS | — | PROPOSED STORM DRAIN |
| — | EXISTING OVERHEAD ELECTRICAL LINES | — | PROPOSED SD CLEANOUT |
| — | EXISTING STORM DRAIN | — | PROPOSED CATCH BASIN |
| — | EXISTING CURB INLET | — | PROPOSED CURB INLET |
| — | EXISTING SD CLEANOUT | — | PROPOSED FIRE HYDRANT |
| — | EXISTING FIRE HYDRANT | — | PROPOSED BROW DITCH |
| — | EXISTING STREET LIGHT | | |
| — | EXISTING GATE VALVE | | |



NOTE: SEWER MAIN A-1 THROUGH A-4 ARE A PUBLIC SEWER SYSTEM.
 NOTE: THE EXISTING SEWER MANHOLES INVERT ELEVATIONS SHOWN HERE ARE PER FIELD SURVEY PROVIDED BY PROJECT DESIGN CONSULTANTS ON NOVEMBER 30, 2006

SCALE: 1"=40'
 JOB #: 3948.70
 CREATED: 01/17/17

PROJECT DESIGN CONSULTANTS
 Planning | Landscape Architecture | Engineering | Survey

100 N. River, Suite 400
 San Diego, CA 92101
 619.236.6011
 www.pdc.com

CITY OF SAN DIEGO
LEGACY INTERNATIONAL CENTER
EXHIBIT 'A'
PROPOSED CONDITIONS SEWER MAP

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APENDIX 'A'

HYDRAULIC ANALYSIS OF EXIST. 27" SEWER SYSTEM IN HOTEL CIRCLE SOUTH

Line	From	To	Upstream		Downstream		Pipe Length	Pipe Diameter	Pipe Slope	Max Velocity	Max Depth	Max d/D(%)	Max Flow	CFS
			Manhole Elevation	Manhole Elevation	Manhole Elevation									
C1	121	122	16.98	16.61	16.61	229	27	0.0016	3.23	14.79	54.77	4.66	7.210586255	
C2	122	60	16.61	16.09	16.09	326	27	0.0016	3.15	15.09	55.89	4.66	7.210586255	
C3	60	61	16.09	15.62	15.62	231	27	0.0017	3.15	15.09	55.89	4.66	7.210586255	
C4	61	62	15.62	15.35	15.35	284	27	0.001	3.16	15.17	56.19	4.7	7.272479699	
C5	62	63	15.35	15.28	15.28	87	27	0.0008	3	15.094	59.04	4.73	7.318899782	

APENDIX 'B'

PROJECT DESIGN CONSULTANTS
 701 'B' STREET, SUITE 800
 SAN DIEGO, CA 92101

PDC JOB: 3948.70

DATE: 1/14/17

APENDIX 'C'
 PROPOSED CONDITION SEWER FLOW CALCULATIONS
 LEGACY INTERNATIONAL CENTER

MH / CO		POP PER D.U.	DWELLING UNITS		POPULATION		PEAK/AVE RATIO	PEAK DESIGN FLOW		LINE SIZE(D) (INCH.)	"FROM"	"TO"	PIPE LENGTH	DESIGN SLOPE %	dn (in)	dn/D	n	VELOCITY
FROM	TO		IN LINE	TOTAL	IN LINE	TOTAL		GAL/DAY	C.F.S.		INVERT EL.	INVERT EL.						F.P.S.
Line A1																		
1	2	3.5				579.0	2.93	135,718	0.210	8.00	110.10	64.10	246.40	18.66%	1.100	0.14	0.013	7.30
2	3	3.5				579.0	2.93	135,718	0.210	10.00	64.10	57.00	20.72	34.62%	0.880	0.09	0.013	8.79
3	4	3.5				579.0	2.93	135,718	0.210	10.00	57.00	51.40	57.86	9.67%	1.200	0.12	0.013	5.63
Line A2																		
5	6	3.5				290.0	3.10	71,920	0.111	8.00	136.10	115.10	77.97	26.93%	0.739	0.09	0.013	6.86
6	7	3.5				290.0	3.10	71,920	0.111	8.00	115.10	101.00	70.17	20.09%	0.793	0.10	0.013	6.19
7	8	3.5				290.0	3.10	71,920	0.111	8.00	101.00	86.20	79.26	18.67%	0.807	0.10	0.013	6.03
8	9	3.5				290.0	3.10	71,920	0.111	8.00	86.20	65.11	57.58	36.63%	0.688	0.09	0.013	7.63
9	10	3.5				290.0	3.10	71,920	0.111	10.00	65.11	54.31	63.84	16.92%	0.778	0.08	0.013	5.65
10	22	3.5				290.0	3.10	71,920	0.111	10.00	54.31	52.47	23.10	7.97%	0.930	0.09	0.013	4.34
22	4	3.5				290.0	3.10	71,920	0.111	10.00	52.47	51.40	47.10	2.27%	1.250	0.13	0.013	2.80
Junction A1 and A3																		
4	4	3.5				869.0	2.64	183,533	0.284	10.00								
Line A3																		
4	23	3.5				869.0	2.64	183,533	0.284	10.00	51.38	46.06	100.43	5.30%	1.619	0.16	0.013	4.95
23	11	3.5				869.0	2.64	183,533	0.284	10.00	46.06	45.06	50.10	2.00%	2.040	0.20	0.013	3.54
11	12	3.5				869.0	2.64	183,533	0.284	10.00	44.96	38.80	126.29	4.88%	1.643	0.16	0.013	4.84
12	14	3.5	36	36.0	126.0	995.0	2.51	199,796	0.309	10.00	38.80	33.00	204.93	2.83%	1.870	0.19	0.013	4.00
14	15	3.5				995.0	2.51	199,796	0.309	10.00	33.00	27.00	119.58	5.02%	1.630	0.16	0.013	4.89
15	16	3.5				995.0	2.51	199,796	0.309	10.00	27.00	18.80	281.60	2.91%	1.860	0.19	0.013	4.04
16	17	3.5	9	9.0	31.5	1026.5	2.49	204,479	0.316	10.00	18.88	16.79	69.90	2.99%	1.850	0.19	0.013	4.08
Line A4																		
18	19							32,000	0.050	8.00	59.53	45.30	59.09	24.08%	0.520	0.07	0.013	5.18
19	20					100.0	4.00	32,000	0.050	8.00	45.30	19.32	122.35	21.23%	0.537	0.07	0.013	4.96
20	21	3.5	19	19.0	66.5	166.5	4.00	53,280	0.082	8.00	19.32	16.50	195.03	1.45%	1.290	0.16	0.013	2.25
21	62					166.5	4.00	53,280	0.082	8.00	16.50	15.35	78.18	1.47%	1.290	0.16	0.013	2.26
Line C																		
121	17							1,751,176	2.710	27.00	16.98	16.79	118.96	0.16%	8.580	0.32	0.013	2.49
17	122					1026.5	2.49	1,955,655	3.026	27.00	16.79	16.61	107.07	0.17%	8.940	0.33	0.013	2.63
122	60							1,955,655	3.026	27.00	16.61	16.09	322.33	0.16%	9.090	0.34	0.013	2.57
60	61							1,955,655	3.026	27.00	16.09	15.62	277.32	0.17%	8.950	0.33	0.013	2.63
61	62							1,955,655	3.026	27.00	15.62	15.35	279.96	0.10%	10.302	0.38	0.013	2.17
62	63							2,008,935	3.108	27.00	15.35	15.28	82.99	0.08%	11.110	0.41	0.013	2.02

* Green= Existing Sewer System (To Remain In Place)
 * Magenta = Proposed Sewer System



Waste Management Plan for the Legacy International Center, San Diego, California

Prepared for

Caribou Industries LLC
1103 North Broadway
Santa Ana, CA 92701
Mr. Mike Harrah

Prepared by

RECON Environmental, Inc.
1927 Fifth Avenue
San Diego, CA 92101-2358
P 619.308.9333 F 619.308.9334
RECON Number 6919
June 2, 2015

A handwritten signature in black ink that reads "Lance Unverzagt".

Lance Unverzagt, AICP CEP
Senior Project Manager

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ATTACHMENTS

1:	Demolition Quantity Estimate
2:	2015 Certified Construction & Demolition Recycling Facility Directory
3:	Photographs of Typical Furniture, Fixtures, and Equipment

1.0 Introduction

The purpose of this Waste Management Plan (WMP) for the Legacy International Center project (proposed project) is to identify the solid waste impacts that would be generated by demolition, construction, and operation of the project and measures to reduce those impacts.

The project would redevelop the existing Mission Valley Resort Hotel property located south of Interstate 8 at 875 Hotel Circle South. The project site consists of two parcels: Assessor's Parcel Numbers 444-060-10 and 444-060-11 totaling approximately 18.1 acres. Eleven resort hotel buildings would be demolished, including 210 hotel rooms, fitness and maintenance/housekeeping buildings, lobby and restaurant complex, identity tower, and Frog's Fitness building. In addition, all of the existing asphalt paving, parking spaces, and tennis courts would be removed. Figure 1 shows the regional location of the project site. Figure 2 shows an aerial photograph of the project site and vicinity. Figure 3 shows the proposed site plan.

The project would construct a mixed-use development with religious, lodging, administrative, recreational, and commercial uses. The direct impact threshold of significance for projects in the city of San Diego (City) is 1,500 tons of waste per year, which will likely be reached when developments are over 1 million square feet. Projects that generate more than 60 tons of waste per year would have a cumulative impact on solid waste services and are required to prepare a WMP to demonstrate how the project would reduce solid waste impacts to below a level of significance (City of San Diego 2011). The WMP consists of four sections corresponding to the progress of site development. These are the Demolition Phase, Grading Phase, Construction Phase, and Occupancy (post-construction) Phase. Each phase addresses the amount of waste that would be generated by project activities, waste reduction goals, and the recommended techniques to achieve the waste reduction goals. More specifically, for each phase, the WMP includes:

- Tons of waste anticipated to be generated.
- Material/type and amount of waste anticipated to be diverted.
- Project features that would reduce the amount of waste generated.
- Project features that would divert or limit the generation of waste.
- Source separation techniques for waste generated.
- How materials shall be reused on-site.
- Name and location of recycling, reuse, or landfill facilities where waste shall be taken.



 Project Location

FIGURE 1

Regional Location



0 Feet 150

Project Boundary

FIGURE 2
Aerial Photograph of Project Vicinity

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PROJECT COMPONENTS

1. Welcoming Center
2. "History Dome" Theater
3. Catacombs
4. Training Center Pavilion
- 4a. Learning Center
- 4b. Theater
- 4c. Learning Center
- 4d. Wellness Center
5. Village (127 Timeshare Units)
6. Executive Offices
7. Subterranean Parking
8. Parking Structure
9. Amphitheater
10. Outdoor Pool
11. Timeshare Lagoon Pool
12. Water Feature
13. Western Wall/Wailing Wall
14. Entry Arches
15. Central Plaza (Retail)
16. Underground Parking Pedestrian Entrance
17. Trails
18. Sidewalk Paths
19. Streets & Surface Parking
20. Plaza Deck Area



FIGURE 3
Site Plan

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2.0 Background

In 1989, the California Legislature passed Assembly Bill 939 (AB 939): Integrated Waste Management Act, which—as modified by Senate Bill 1016—mandated that all local governments reduce waste disposed of in landfills from generators within their borders by 50 percent by the year 2000 (State of California 1989). AB 341, approved in October 2011, sets a policy goal of 75 percent waste diversion by the year 2020 (State of California 2011).

The City of San Diego Environmental Services Department (ESD) developed the Source Reduction and Recycling Element, which describes waste management policies and programs.

The City's Recycling Ordinance, adopted November 2007, requires on-site recyclables collection for all single- and multi-family residential and commercial uses (City of San Diego 2007). The ordinance requires recycling of plastic and glass bottles and jars, paper, newspaper, metal containers, and cardboard. The focus of the ordinance is on education, with responsibility shared between the ESD, haulers, and building owners/managers. ESD is to provide on-site technical assistance, educational materials, templates, and service provider lists. Property owners/managers are to provide on-site recycling services and educational materials annually and to new tenants. Effective July 1, 2011, residents, commercial properties, and institutional properties must also recycle rigid plastics including clean food waste containers, jugs, tubs, trays, pots, buckets, and toys. On July 1, 2008, the Construction and Demolition (C&D) Debris Deposit Ordinance was adopted by the City (City of San Diego 2008). The ordinance requires that the majority of construction, demolition, and remodeling projects requiring building, combination, and demolition permits pay a refundable C&D Debris Recycling Deposit and divert at least 50 percent of their debris by recycling, reusing, or donating usable materials. The required diversion rate will increase to 75 percent under certain circumstances. The ordinance is designed to keep C&D materials out of local landfills and ensure they get diverted from disposal.

The City's Refuse and Recyclable Materials Storage Regulations (City of San Diego Municipal Code Sections 142.0801 through 142.0830) indicate the minimum exterior refuse and recyclable material storage areas. These are intended to provide permanent, adequate, and convenient space for the storage and collection of refuse and recyclable materials; encourage recycling of solid waste to reduce the amount of waste material entering landfills; and meet the recycling goals established by the City Council and mandated by the State of California. These regulations are discussed further in Section 6.3, Exterior Storage.

3.0 Existing Conditions

The 18.1-acre project site is located at 875 Hotel Circle South in the city of San Diego, California. The majority of the site (72 percent) is developed with the fourteen buildings that comprise the existing Mission Valley Resort, including the vacant Frog's Fitness building. The gas station/convenience store, which previously existed at the northeast corner of the site, has been demolished and an underground storage tank removed. The project site is surrounded by commercial development to the north and west and partially to the east. Undeveloped land borders the site on the southeast and southwest corners. There are approximately 5 acres of hillside within the southwestern portions of the site (27.7 percent) that are undeveloped and vegetated with southern mixed chaparral and non-native grassland.

4.0 Proposed Conditions

The project includes requests to process a Mission Valley Community Plan Amendment (CPA), Atlas Specific Plan Amendment (SPA), Site Development Permit (SDP), Planned Development Permit (PDP), Rezone, Vesting Tentative Map, and Conditional Use Permit (CUP) in order to construct a mixed-use development with religious, lodging, administrative, recreational, and commercial uses. Commercial, lodging, and religious uses include a 105,104 square-foot pavilion (with restaurant, gift shops, learning center, theater, and TV studio), a two-level 17,012-square-foot welcoming center rotunda, a 29,940-square-foot outreach pavilion that has an entrance to catacombs, 5,992 square feet of underground catacombs passage and a welcoming center leading to outreach pavilion passages and adjoining display rooms, an approximately 8,200-square-foot outdoor retail bazaar, and a five-story 136,160-square-foot "tri-wing" tower containing 127 timeshare suites. Recreational components would include a trail system, a 300-seat outdoor amphitheater, pedestrian plazas and a fountain, and a wellness center with a workout room, sauna, hot tub, steam room, restrooms, showers, and an Olympic-size seven-lane pool. Executive offices would be housed in a three-story, 23,028-square-foot administration building including a subterranean basement with private parking spaces.

There would be a total of 878 parking stalls, including 195 surface parking spaces and 683 spaces that would be either subterranean, or housed within the five-story west parking structure. The single-level subterranean parking would be located beneath most of the northern portion of the site and would have an access point at the northeastern corner, near the welcoming center rotunda. The west parking structure would have both a surface access and access to the subterranean parking. Demolition and construction practices would comply with local, state, and federal regulations regarding the handling of building materials to ensure that waste minimization goals and requirements are met.

5.0 Demolition, Grading, and Construction

According to the *Waste Composition Study* prepared by the ESD, construction and demolition waste constituted the largest single component of disposed waste in San Diego in 2000. With almost 590,000 tons of waste being disposed of, construction/demolition waste composed 34 percent of the total mass of waste disposed of that year (City of San Diego 2000).

AB 939 requires the diversion of 50 percent of all solid waste, including construction and demolition waste. AB 341, approved in October 2011, sets a policy goal of 75 percent waste diversion by the year 2020. These measurements and goals for all phases would be communicated to grading contractors through contract documents, the certified California Environmental Quality Act document and corresponding Mitigation Monitoring and Reporting Program, and the Solid Waste Management Coordinator (SWMC) for the project.

5.1 Demolition

Demolition activities would be required to remove the fourteen existing Mission Valley Resort buildings including the Frog's Fitness building. A survey of the on-site buildings was performed by KCM Group (Attachment 1), and a summary of the estimated tonnage of material that would be generated during the demolition phase is provided in Table 1. As shown in the table, 97 percent of the demolition material would be diverted from the landfill. Painted wood and roofing materials would be classified as mixed C&D materials (65% diversion). Along with stucco (0% diversion), these would be the only materials that would be sent to facilities that achieve less than 100 percent diversion rates. All other materials would be source separated and trucked to facilities that achieve a 100 percent diversion rate (Attachment 2). It should be noted that of the 19,806 total tons of material, 12,343 tons result from the site rather than from the buildings and include approximately 9,300 cubic yards of asphalt/concrete from the parking lot, pools, tennis courts, and retaining walls. Salvageable furniture, fixtures, and equipment (FFE) materials, which are not permanent parts of the structures or the site, are discussed in the following section.

As shown on Table 1, any vegetation that is removed would be taken to the Miramar Greenery facility for diversion and would result in a 100 percent diversion rate.

**TABLE 1
PROJECTED MATERIALS GENERATED BY DEMOLITION ACTIVITIES AND THE ANTICIPATED PERCENT DIVERTED**

Material	Amount Generated ³	Tons per Unit ¹	Tons Generated	Percent Diverted	Facility ²	Tons Diverted	Tons Disposed
Concrete	12,280 CY	1.3	15,964	100%	Hanson Aggregates West -- Miramar	15,964	0
Brick/Masonry/Tile	2,661 CY	0.6	395	100%	Vulcan Carol Canyon Landfill and Recycle Site	395	0
Cabinets, Doors, Fixtures, Windows	1,406 units	0.15	211	100%	Reconstruction Warehouse -- Hancock Street	211	0
Carpet	140,087 SF	0.0005	70	100%	DFS Flooring	70	0
Carpet Padding/Foam	140087 SF	0.000125	18	100%	DFS Flooring	18	0
Ceiling Tile	3,600 CY	0.0003	1	100%	AMS	1	0
Drywall	206,699 CY	0.00105	217	100%	EDCO -- Dalbergia Street	217	0
Landscape Debris	995 CY	0.15	149	100%	Miramar Greenery	149	0
Mixed C&D Debris	1,845 CY	1.19	471	65%	EDCO -- Dalbergia Street	306	165
Mixed Inerts	71 CY	0.6	43	100%	Vulcan Carol Canyon Landfill and Recycle Site	43	0
Metals	1,512 CY	0.51	771	100%	SA Recycling	771	0
Clean Wood	6,494 LF	0.15	974	100%	Miramar Greenery	974	0
Roofing Material	904 CY	0.22	199	65%	EDCO -- Dalbergia Street	129	70
Stucco	64,540 SF	0.005	323	0%	Vulcan Carol Canyon Landfill and Recycle Site	0	323
TOTAL			19,806			19,249 (97%)	558 (3%)

¹ Source: City of San Diego Construction & Demolition (C&D) Debris Conversion Rate Table.

² City of San Diego ESD 2014 Certified Recycling Facility Directory. A complete list of facilities, including addresses and phone numbers, is included in Attachment 1.

³ Data collected by KCM Group in May 2015

5.2 Salvageable Materials

The existing resort buildings planned to be demolished are currently in use for lodging and contain FFE that are both of relatively high value and relatively easy to remove from the site. Figure 4 provides a diagram of a standard hotel room at the resort, along with a listing of the typical FFE found therein. Attachment 3 includes photographs of typical FFE as well as doors, windows, safes, and other items expected to be salvageable.

The FFE shown in Attachment 3 would be multiplied by the 202 individual motel rooms located on-site to obtain the total quantity of salvageable FFE (e.g., 202 television sets, 202 chairs, 404 framed pictures, etc.). The FFE is expected to be 100 percent diverted (would not be sent to the landfill) as it would be removed by a salvage contractor and resold or reused in other locations. There is no overlap between the source separated building materials (97 percent diversion) listed in Table 1 and the FFE salvage materials shown on Figure 4.

5.3 Grading

As discussed in Section 3.0, the majority of the site has been developed. Following cleanup and demolition activities, implementation of the project would require approximately 51,420 cubic yards (66,846 tons) of cut soil and 53,398 cubic yards (69,417 tons) of fill. Therefore, project grading would result in a net import of 1,977 cubic yards (2,570 tons); thus, the grading phase would not generate any materials to be disposed of as shown in Table 2.

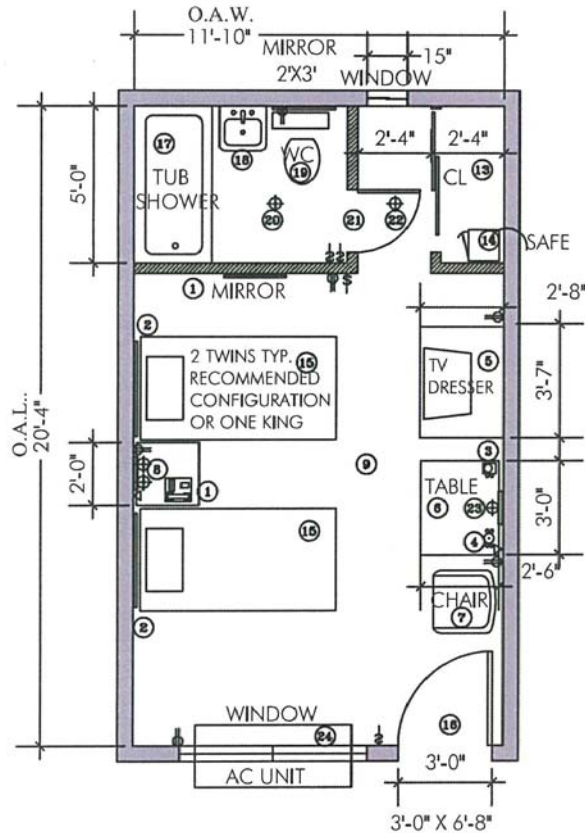
**TABLE 2
GRADING WASTE GENERATION AND DIVERSION**

Amount of Export (cubic yards)	Generation Rate (tons per cubic yard)	Tons Exported	Percent Diverted	Tons Diverted	Tons Disposed
0	1.3	0	100%	0	0

Approximately 1 acre of native vegetation on the steep hillsides would require removal during the grading phase; the remaining 4 acres would remain undisturbed and there is very little other vegetation within the project site that would need to be removed. Some landscaping (estimated at less than 20 tons) would require removal, source separation, and recycling at the Miramar Greenery facility as green waste during the demolition phase. Diversion goals will be communicated to grading contractors through contract documents, the certified California Environmental Quality Act document and corresponding Mitigation Monitoring and Reporting Program, and the SWMC for the project.

FURNITURE, FIXTURE & EQUIPMENT (FFE) - (TYPICAL HOTEL ROOM - BUILDINGS 1-10)

(SEE PHOTO CATALOG ATTACHED)



1. Wall Mirror 2'x3'
2. 2 Pictures (Framed) 2'x3'
3. Coffee maker
4. Ice Bucket - 4 glasses
5. TV in Dresser 32'x42"
6. Table 30" x 3'
7. Chair
8. Night stand 24" with replacement Fluorescent lamps mounted on wall (2 / one per bed)
9. New carpeting (5 years ago)
10. All interiors were upgraded 5 years ago.
11. Ceiling HGT. 8'-1", acoustic ceiling (sprayed) Non Friable Asbestos typical.
12. All Modernized plumbing and fixtures.
13. 5' closet with mirrored doors
14. Personal Safe
15. 2 Twin beds typical or on King size bed.
16. Front Door - Replacement 1 HR rated door assembly (3' x 6'-8" door) hardware - (Modernized) Electronic Computer Electronic Card Key Activated Compliant Lock Hardware
17. Bathroom: Tub / shower (pressed steel replacement tub/ new shower valve & shower head)
18. Replacement wall sink (with new drain and faucet).
19. Replacement Water Closet-Top flush valve Vacuum Toilet
20. Recessed replacement compact Fluorescent's mounted Light in Ceiling.
21. Bath room door - 24" x 6'-8"
22. Hallway recessed replacement Fluorescent Light in ceiling
23. Replacement Fluorescent light mounted above table.
24. AC - Through wall / under front window: AC unit system / 6,000 B.T.U. Typical. Installed in 1986.
25. New Plumbing Installed 1985 - 1986.

FIGURE 4

Furniture, Fixtures, and Equipment (Typical Hotel Room)

5.4 Construction

According to the U.S. Environmental Protection Agency, commercial construction projects typically generate 3.9 pounds of construction waste per square feet of building construction, and multi-family residential units (e.g. the timeshare units) generate 4.0 pounds per square foot. Based on the project square footage, it is estimated that the project would generate 1,061 tons of waste during construction. The types of construction waste anticipated to be generated would include materials such as:

- Inert granule products (asphalt and concrete)
- Wood waste products
- Ferrous metals
- Cardboard
- Carpet
- Dirt
- Glass
- Plaster
- Plastics
- Roofing and insulation materials
- Tile
- Wallboard
- Miscellaneous trash

Construction activities would generate packaging materials and unpainted wood, including wood pallets and cardboard. These types of construction debris would be separated on-site into material-specific containers to facilitate reuse and recycling. This type of waste diversion is referred to as “source separated” and it achieves a nearly 100 percent diversion rate. Source separation of materials at the construction site is essential to (1) ensure appropriate waste diversion rate, (2) minimize costs associated with transportation and disposal, and (3) facilitate compliance with the C&D ordinance.

The second type of waste diversion is called mixed debris, whereby material waste is disposed of in a single container heading to a mixed C&D transfer station or facility. The City-certified C&D recycling facilities directory (2015) is included as Attachment 1 to this document. As shown in Attachment 1, most of the mixed debris facilities achieve less than a 68 percent diversion rate – meaning that co-mingled materials sent to a mixed debris facility would not meet the 75 percent diversion goal established by AB 341. To ensure that the overall diversion goal is attained, at least some materials must be separated and trucked to facilities with higher diversion rates, such as aggregate and metal recyclers.

5.5 Waste Diversion

The following paragraphs discuss the two waste diversion strategies in greater detail. As described below, the source separation strategy would be the primary implementation method during project construction, and materials listed above would be separated and taken to source-separation facilities that achieve almost a 100 percent diversion rate. However, the City recognizes that some types of C&D debris are difficult to source separate. Therefore, ESD staff shall be invited by the applicant (or applicant's successor in interest) to attend any Development Services Department-required preconstruction meetings. During the preconstruction meetings, strategies for waste diversion shall be discussed, and source separation (Section 5.5.2) shall be utilized to the greatest extent feasible.

5.5.1 Mixed Debris

Mixed debris recycling, where all material waste is disposed of in a single container at a mixed C&D transfer station or facility, would be implemented by the project for disposal of items that are difficult to separate (e.g., some types of roofing materials; painted wood; trash/garbage). Recycling areas shall be clearly identified with large signs. Lists of acceptable/unacceptable materials shall be posted on recycling bins and throughout the project site, and all recycled material signage shall be visible on at least two sides of haul containers. Recycling bins shall be placed in areas that shall be readily accessible and shall minimize misuse or contamination. The Solid Waste Management Coordinator (discussed below) shall be responsible for these efforts, and the WMP shall be reviewed at the preconstruction meeting. Materials for recycling shall be redirected to appropriate recipients selected from ESD's directory of facilities that recycle demolition and construction materials, scrap metal, and yard waste.

5.5.2 Source Separation

Source separation of construction debris on the project site would facilitate reuse and recycling of materials. Recycling, salvage, reuse, and disposal options would be determined before the job begins. Inert granule products (asphalt and concrete), wood waste products, cardboard, and ferrous materials are categories of recyclable construction materials that will be diverted to an approved recycler on the City of San Diego's list of 2013 Certified Construction & Demolition Recycling Facility Directory. These items have higher diversion rates at specialized recycling facilities than other materials.

Recycling areas shall be clearly identified with large signs. Containers of various sizes would be provided for source separation. Materials that would be collected in source-separated containers include, but are not limited to, metals, clean wood, concrete, asphalt-mixed inerts (e.g., dirt, rock, brick), drywall, and corrugated cardboard. Materials

collected as source-separated materials would be taken to specialized source-separated facilities that achieve a 100 percent diversion rate.

The contractors shall be responsible for evaluating the materials during construction for reuse on-site. Materials that are determined not suitable for reuse shall be deposited into separate source bins to be taken to the appropriate facilities for recycling.

Contractors will be required to comply with the following methods and procedures below:

1. Construction containers will be provided for waste that is to be recycled. Containers shall be clearly labeled, with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.
2. The collection containers for recyclable construction waste must contain no more than 10 percent non-recyclable materials, by volume.
3. Use detailed material estimates to reduce risk of unplanned and potentially wasteful material cuts.
4. Conduct daily visual inspections of dumpsters and recycling bins to remove contaminants.
5. Remove demolition and construction waste materials from the project site at least once every week to ensure no over-topping of waste bins. The accumulation and burning of on-site construction, demolition, and land-clearing waste materials will be prohibited.

Furthermore, the proposed project will be required to meet the following state law and City Municipal Code requirements:

1. The City's C&D Debris Diversion Deposit Program, which requires a refundable deposit based on the tonnage and value of the expected recyclable waste materials as part of the building permit requirements.
2. The City's C&D Recycling Ordinance, which requires identification and sorting of Demolition and Construction waste materials to be diverted to the appropriate recycling facility.
3. The City's Recycling Ordinance, which requires that collection of recyclable materials must be provided.
4. The City's Storage Ordinance, which requires that areas for recyclable material collection must be provided.
5. The project construction manager will be responsible for compliance actions with the aforementioned guidelines and will make adjustments as needed to maintain conformance. The name and contact information of the waste contractor will be

provided to ESD at least 10 days prior to the start of any work and updated within 5 days of any changes.

Table 3a shows how much project construction waste (1,061 tons) would be generated by these uses. Table 3b provides a breakdown of the 1,061 tons by types of material and also provides the most likely handling facility. As shown in Table 3b, use of the source separation method for most of the material types (where feasible) would result in the total diversion of approximately 874 tons; resulting in only the 81 tons of drywall (65% recyclable) and 106 tons of trash/garbage to be disposed of in the landfill.

**TABLE 3a
CONSTRUCTION PHASE WASTE GENERATION**

Building	Land Use	Amount (square feet)	Generation Rate (pounds per square foot)	Tons Generated
Building 1 Pavilion	Commercial	105,104	3.9 ¹	205
Building 2 Welcoming Center	Commercial	17,012	3.9	33
Building 3 History Center	Commercial	29,940	3.9	58
Building 4 Timeshares	Multi-family Residential	136,160	4.0	272
Structure 5 Amphitheatre	Commercial	6,889	3.9	13
Building 6 Executive Offices	Office/Admin	23,028	3.9	45
Structure 9 Central Plaza	Commercial/Retail	8,200	3.9	16
Structure 10 Catacombs	Commercial	5,992	3.9	12
Structure 12 Subterranean Parking	Commercial	114,113	3.9	223
Structure 14 Parking Structure	Commercial	93,940	3.9	183
Total				1,061

¹ U.S. Environmental Protection Agency 1998

**TABLE 3b
CONSTRUCTION WASTE DIVERSION AND DISPOSAL BY MATERIAL TYPE**

Material Type	Estimated Waste Quantity (tons)	Handling Facility	Estimated Diversion (tons)	Estimated Disposal (tons)
Asphalt and Concrete	191	Hanson Aggregates West – Miramar 9229 Harris Plant Road San Diego, CA 92126 (100% diversion)	191	0
Metals	149	SA Recycling 3055 Commercial Street San Diego, CA 92113 (100% diversion)	149	0
Brick/Masonry/Tile	138	Vulcan Carol Canyon Landfill and Recycle Site 10051 Black Mountain Road San Diego, CA 92126 (100% diversion)	138	0
Clean Wood	95	Miramar Greenery 5480 Convoy Street San Diego, CA 92111 (100% diversion)	95	0
Carpet, Padding/Foam	85	DFS Flooring 10178 Willow Creek Road San Diego, CA 92131 (100% diversion)	85	0
Drywall	233	EDCO Recovery & Transfer 3660 Dalbergia Street San Diego, CA 92113 (65% diversion)	152	81
Corrugated Cardboard	64	IMS Recycling Services 2740 Boston Avenue San Diego, CA 92113 (100% diversion)	64	0
Trash/Garbage	106	Miramar Landfill 5480 Convoy Street San Diego, CA 92111 (0% diversion)	0	106
Total	1,061		874 (82%)	187 (18%)

5.5.3 Contractor Education and Responsibilities

Contractors would be educated about the solid WMP. Solid WMP would be distributed to all entities when they first begin work on-site and when training workers, subcontractors, and suppliers on proper waste management procedures applicable to the project. The WMP requirements shall be discussed at all pre-construction meetings.

5.5.4 Solid Waste Management Coordinator

A SWMC for the project shall be designated to ensure that the contractors and subcontractors are educated and that procedures for waste reduction and recycling efforts are implemented. Specific responsibilities of the SWMC include:

- Review the solid waste management plan, including the SWMC responsibilities.
- Work with the contractors to estimate the quantities of each type of material that would be salvaged, recycled, or disposed of as waste, then assist in documentation.
- Review and enforce procedures for materials separation and verify availability and signage of containers.
- Coordinate solid waste mitigation implementation with other requirements, such as storm water requirements, which may specify related measures, such as the placement of bins to minimize the possibility of runoff contamination.
- Review and enforce procedures for transportation of materials to recycling and disposal facilities.
- Return or reuse excess materials and packaging.

5.5.5 Total Diversion

Table 4 summarizes the amount of waste generated and diverted by each phase. A comprehensive survey of the quantity of recyclable building material that would be generated by the demolition phase was performed by KCM Group (Attachment 1), who estimates that 19,806 tons of material would be generated, approximately 96 percent of which is estimated to be source separable and recyclable. In addition, as discussed in Section 5.2, salvageable FFE from each of the 202 hotel rooms would be removed by a salvage contractor and resold and would be considered 100 percent diverted.

**TABLE 4
TOTAL DEMOLITION/GRADING/CONSTRUCTION WASTE
GENERATED, DIVERTED, AND DISPOSED OF BY PHASE**

Phase	Tons Generated	Tons Diverted	Tons Disposed
Demolition	19,806	19,249 (97%)	558 (3%)
Grading	0	0 (100%)	0 (0%)
Construction	1,061	874 (82%)	187 (18%)
TOTAL	20,867	20,123 (96%)	745 (4%)

The grading phase would involve approximately 2,570 tons of net import. All 66,846 tons of cut would be reused on-site; thus, the project would achieve 100 percent diversion during grading.

The construction phase would generate approximately 1,061 tons of debris. Assuming the debris would be recycled using the mixed debris method, the construction phase would divert about 874 tons (82 percent).

As shown in Table 4, an overall total of approximately 20,867 tons of material would be generated, and 20,123 tons of material would be diverted through reduction, reuse, and recycling in the demolition, grading, and construction phases. This amounts to about a 96 percent reduction in solid waste, which would be diverted from the landfill. A SWMC would be designated and contractor education would occur to ensure that these methods would be carried out adequately.

6.0 Occupancy Phase

Unlike demolition, grading, and construction, occupancy is an ongoing process. Therefore, it requires an ongoing plan to manage and reduce waste in order to meet the waste reduction goals established by local and state policy.

6.1 Waste Generation

The expected annual waste to be generated during occupancy of the project was calculated using ESD waste generation factors. Table 4 summarizes the occupancy phase waste generation. As shown, the project would generate a total of about 798 tons of waste per year.

**TABLE 5
OCCUPANCY PHASE ANNUAL WASTE GENERATION**

Land Use	Amount (square feet)	Generation Rate	Waste Generated (tons)
Restaurant	10,000	0.0122 tons per year per square foot	122
Office	23,028	0.0017 tons per year per square foot	39
General Retail	29,192	0.0028 tons per year per square foot	82
Timeshare	127 units	1.2 tons per year per unit	153
Education	45,432	0.0013 tons per year per square foot	59
Unclassified	81,624	0.0042 tons per year per square foot	343
Total			798

SOURCE: California Department of Resources Recycling and Recovery 2009

6.2 Waste Reduction Measures

The applicant (or applicant's successor in interest) shall be responsible for implementing a long-term solid waste management program that shall ensure that the development meets or exceeds the requirements set forth in AB 939 and future requirements of AB 341. This program shall include providing sufficient interior and exterior storage space for refuse and recyclable materials and a means of handling landscaping and green waste materials. Specific program measures shall include the following:

- The applicant (or applicant's successor in interest) shall provide recycling services that include all of the following provisions:
 1. Collection of recyclable materials required by and in accordance with applicable City Ordinances.
 2. Provide dedicated recycling collection and storage areas required by and in accordance with applicable City Ordinances.
 3. Provide signage required by and in accordance with applicable City Ordinances.
- The applicant (or applicant's successor in interest) shall educate tenants about the recycling services as follows:
 1. Information, including the types of recyclable materials accepted, the location of recycling containers, and the tenants' responsibility to recycle, shall be distributed to all tenants annually.
 2. All new tenants shall be given educational information on recycling programs and procedures and instructions upon occupancy.
 3. All tenants shall be given information and instructions upon any change in recycling service to the facility.

6.3 Exterior Storage

This WMP follows the guidelines set by the City of San Diego's Municipal Code (§142.0810–142.0830) designating on-site refuse and recyclable material storage space requirements. Table 6 shows exterior storage area requirements for commercial developments pursuant to the City's guidelines.

Because the project proposes a total of 317,236 square feet of non-residential uses, the project is required to provide a minimum of approximately 624 square feet of refuse

storage area and a minimum of approximately 624 square feet of recyclable material storage (Table 6). The total exterior refuse/recyclable material storage requirement for the proposed project is approximately 1,248 square feet.

**TABLE 6
MINIMUM EXTERIOR REFUSE AND RECYCLABLE MATERIAL STORAGE AREAS
FOR NON-RESIDENTIAL DEVELOPMENT**

Gross Floor Area per Development (square feet)	Minimum Refuse Storage Area per Development (square feet)	Minimum Recyclable Material Storage Area per Development (square feet)	Total Minimum Storage Area per Development (square feet)
0-5,000	12	12	24
5,001-10,000	24	24	48
10,001-25,000	48	48	96
25,001-50,000	96	96	192
50,001-75,000	144	144	288
75,001-100,000	192	192	384
100,000+	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	384 plus 96 square feet for every 25,000 square feet of building area above 100,001

SOURCE: City of San Diego Municipal Code, Chapter 14, Article 2, Division 8: Refuse and Recyclable Material Storage Regulations, §142.0830, Table 142-08C; effective, January 1, 2000.

As shown on Table 5, during occupancy, the expected annual waste to be generated from the proposed building would be approximately 798 tons. An ongoing plan to manage waste disposal in order to meet state/city certification waste reduction goals shall be implemented by the property manager through a WMP. Included in this program shall be the provision of a minimum of 624 square feet of exterior refuse storage area and 624 square feet of exterior recyclable material storage area, as required by the Municipal Code.

Upon completion, the property manager for the proposed project shall implement a long-term WMP that would ensure that the development meets or exceeds the requirements set forth in AB 939. This program shall include providing sufficient interior and exterior storage space for refuse and recyclable materials, and a means of handling landscaping and green waste materials. Specific program measures shall include the following:

- Tenant education and appropriate interior and exterior signage in recycling areas.
- Policies designed to shift behaviors, such as no janitorial collection of office waste, copiers set to automatically print double sided, charges per copy, no provision of disposable products, and mandatory post-consumer content purchasing requirements.

These measures would be required of the property manager via contract stipulation.

6.4 Landscaping and Green Waste Recycling

The proposed project would require some landscaping and landscape maintenance. Drought-tolerant plants would be used to reduce the amount of green waste produced. Collection of green waste and its disposal at recycling centers that accept green waste (e.g. the Miramar Greenery facility) would help further reduce the waste generated by the project during the occupancy phase.

7.0 Conclusion

7.1 Demolition, Grading, and Construction

As discussed above, a total of approximately 20,867 tons of material would be generated and 20,123 tons of material would be diverted through recycling and salvaging in the demolition, grading, and construction phases. This amounts to about a 96 percent reduction in solid waste, which would be diverted from the landfill. This results from recycling asphalt, concrete, metals, clean wood, carpet, cardboard, and vegetation materials at source-separated facilities that achieve a 100 percent diversion rate from landfills.

7.2 Occupancy

The project proposes a total of up to 317,236 square feet of non-residential uses. Therefore, the project is required to provide a minimum of 1,248 square feet of total exterior refuse/recyclable material storage area. In addition, as discussed in Section 6.0, the site manager shall implement measures to ensure that the operations phase of the project complies with the City of San Diego Recycling Ordinance.

In conclusion, the proposed project would recycle 96 percent of the demolition, grading, and construction material generated, and would comply with all applicable City ordinances regarding construction debris. During occupancy, the WMP shall include provision of sufficient interior and exterior storage space for refuse and recyclable materials, and a means of handling and recycling landscaping and green waste materials. By incorporating these waste management strategies, the project would not only meet, but would exceed the requirements for waste diversion. Significant solid waste impacts would not result from the construction and implementation of the project.

8.0 References Cited

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- 2000 *Waste Composition Study 1999-2000. Final Report*. San Diego Environmental Services Department. November 2000.

- 2007 *Recycling Ordinance*. San Diego Municipal Code. Article 6, Division 7. November 13, 2007.

- 2008 Construction and Demolition Debris Diversion Deposit Program. San Diego Municipal Code. Article 6, Division 6.

- 2011 *Significance Determination Thresholds*. California Environmental Quality Act. January 2011.

- 2015 2013 Certified Recycling Facility Directory, San Diego Environmental Services Department, November 30.

U.S. Environmental Protection Agency EPA

- 1998 Characterization of Building-Related Construction and Demolition Debris in the United States. Municipal and Industrial Solid Waste Division. Office of Solid Waste. Report No. EPA530-R-98-010. June.

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ATTACHMENTS

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ATTACHMENT 1

Demolition Quantity Estimate

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Construction Management and Consulting Services

1940 Garnet Ave., Suite 300
San Diego, CA 92109
Tel: 858 273 5400
Fax: 858 273 5455
www.kcmgroup.net

May 19, 2015

Michael Harrah - President
Caribou Industries
1103 N. Broadway
Santa Ana, CA 92701

Re: Mission Valley Resort Demolition Quantity Estimate

Dear Mr. Harrah

Attached please find the completed Mission Valley Resort Demolition Quantity Estimate. Please note that the data is presented at both the summary level, which includes all buildings and the site, and separated by individual component. As directed by RECON Environmental, the debris categories are consistent with those included on the City of San Diego's Waste Management Form and were obtained using takeoffs and the City of San Diego's Construction & Demolition (C&D) Debris Conversion Rate Table.

Thank you again for the opportunity to provide these services. Please let me know if you have any questions or would like to discuss further.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Gordon Kovtun', written in a cursive style.

Gordon Kovtun
Principal
KCM Group, Inc.

Enclosure

cc: Lance Unverzagt – RECON Environmental

Mission Valley Resort Demolition Quantity Summary

Mission Valley Resort Demolition

San Diego, CA

Caribou Industries

17-May-15

Perimeter:	Area:	# Of Units:		
<u>Demo Item</u>	<u>Quantity</u>	<u>Unit Conv.</u>	<u>Tons</u>	<u>Assumptions</u>
Concrete (Slab/footing)	12,280	1.30000	15,963.71	SEE Individual Building
Brick/Masonry/Tile	2,661	0.60000	395.35	SEE Individual Building
Cabinets, Doors, Fixtures, Windows	1,406	0.15000	210.90	SEE Individual Building
Cardboard	0	0.05000	0.00	SEE Individual Building
Carpet	140,087	0.00050	70.04	SEE Individual Building
Carpet Padding/Foam	140,087	0.000125	17.51	SEE Individual Building
Ceiling Tile (acoustic)	3,600	0.00030	1.08	SEE Individual Building
Dirt	0	1.20000	0.00	SEE Individual Building
Drywall	206,699	0.00105	217.03	SEE Individual Building
Landscape Debris	995	0.15000	149.25	SEE Individual Building
Mixed C&D Debris	1,845	1.19000	471.04	SEE Individual Building
Mixed Inerts	71	0.60000	42.77	SEE Individual Building
Roofing Materials	904	0.22000	198.85	SEE Individual Building
Scrap Metal	1,512	0.51000	771.02	SEE Individual Building
Stucco	64,540	0.00500	322.70	SEE Individual Building
Unpainted Wood & Pallets	6,494	0.15000	974.03	SEE Individual Building
Garbage/Trash	0	0.18000	0.00	SEE Individual Building
Other	0	0.00000	0.00	SEE Individual Building
Total:			19,805.29	SEE Individual Building

Building A

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		395	Area (ft ²):		4430	# Of Units: 22	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	109	1.30000	142.27	8" concrete equivalent for slab, fng, grade beams			
Brick/Masonry/Tile	886	0.00175	1.55	Assumed 10% of floor area to be 3/8" tile			
Cabinets, Doors, Fixtures, Windows	88	0.15000	13.20	4 CY/Unit allowance			
Cardboard	0	0.05000	0.00	N/A			
Carpet	7,974	0.00050	3.99	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	7,974	0.000125	1.00	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	17,952	0.00105	18.85	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	55	0.15000	8.25	Includes landscape debris at Buildings A-F allocated equallally among buildings			
Mixed C&D Debris	82	0.18000	14.77	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	41	0.22000	9.02	Built up roof. Assumed 3" thickness			
Scrap Metal	22	0.51000	11.22	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit allowance)			
Stucco	3,160	0.00500	15.80	10lb/SF allowance, 40% exterior appeared stucco			
Unpainted Wood & Pallets	328	0.15000	49.22	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			289.14				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building B

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		280	Area (ft ²):		2805	# Of Units: 14	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	69	1.30000	90.08	8" concrete equivalent for slab, fng, grade beams			
Brick/Masonry/Tile	561	0.00175	0.98	Assumed 10% of floor area to be tile. 3/8" tile			
Cabinets, Doors, Fixtures, Windows	56	0.15000	8.40	4 CY/Unit Allowance			
Cardboard	0	0.05000	0.00	N/A			
Carpet	5,049	0.00050	2.52	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	5,049	0.000125	0.63	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	11,424	0.00105	12.00	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	55	0.15000	8.25	Estimated based on Vegetation surrounding BuildingsA-F, divided out by the number of buildings and applied quantity equally			
Mixed C&D Debris	52	0.18000	9.35	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	26	0.22000	5.71	Built up roof. Assumed 3" thickness			
Scrap Metal	14	0.51000	7.14	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit)			
Stucco	2,240	0.00500	11.20	10lb/SF allowance, 40% exterior appeared stucco			
Unpainted Wood & Pallets	208	0.15000	31.17	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			187.44				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building C

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		280	Area (ft ²):		2805	# Of Units: 14	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	69	1.30000	90.08	8" concrete equivalent for slab, fng, grade beams			
Brick/Masonry/Tile	561	0.00175	0.98	Assumed 10% of floor area to be 3/8" tile			
Cabinets, Doors, Fixtures, Windows	56	0.15000	8.40	4 CY/Unit Allowance			
Cardboard	0	0.05000	0.00	N/A			
Carpet	5,049	0.00050	2.52	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	5,049	0.000125	0.63	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	11,424	0.00105	12.00	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	55	0.15000	8.25	Estimated based on Vegetation surrounding BuildingsA-F, divided out by the number of buildings and applied quantity equally			
Mixed C&D Debris	52	0.18000	9.35	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	26	0.22000	5.71	Built up roof. Assumed 3" thickness			
Scrap Metal	14	0.51000	7.14	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit)			
Stucco	2,240	0.00500	11.20	10lb/SF allowance, 40% exterior appeared stucco			
Unpainted Wood & Pallets	208	0.15000	31.17	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			187.44				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building D

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		280	Area (ft ²):		2805	# Of Units: 14	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	69	1.30000	90.08	8" concrete equivalent for slab, fng, grade beams			
Brick/Masonry/Tile	1	0.60000	0.39	Assumed 10% of floor area to be 3/8" tile			
Cabinets, Doors, Fixtures, Windows	56	0.15000	8.40	4 CY/Unit Allowance			
Cardboard	0	0.05000	0.00	N/A			
Carpet	5,049	0.00050	2.52	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	5,049	0.000125	0.63	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	11,424	0.00105	12.00	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	55	0.15000	8.25	Estimated based on Vegetation surrounding BuildingsA-F, divided out by the number of buildings and applied quantity equally			
Mixed C&D Debris	52	0.18000	9.35	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	26	0.22000	5.71	Built up roof. Assumed 3" thickness			
Scrap Metal	9	0.51000	4.46	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (.625CY/Unit)			
Stucco	2,240	0.00500	11.20	10lb/SF, 40% of building appeared to be stucco			
Unpainted Wood & Pallets	208	0.15000	31.17	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			184.17				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building E

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		395	Area (ft ²):		4430	# Of Units: 22	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	109	1.30000	142.27	8" concrete equivalent for slab, fng, grade beams			
Brick/Masonry/Tile	1	0.60000	0.62	Assumed 10% of floor area to be 3/8" tile			
Cabinets, Doors, Fixtures, Windows	88	0.15000	13.20	4 CY/Unit allowance			
Cardboard	0	0.05000	0.00	N/A			
Carpet	7,974	0.00050	3.99	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	7,974	0.000125	1.00	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	17,952	0.00105	18.85	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partition wall. Assumed 5/8" drywall			
Landscape Debris	55	0.15000	8.25	Includes landscape debris at Buildings A-F allocated equally among buildings			
Mixed C&D Debris	82	0.18000	14.77	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	41	0.22000	9.02	Built up roof. Assumed 3" thickness			
Scrap Metal	14	0.51000	7.01	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit allowance)			
Stucco	3,160	0.00500	15.80	10lb/SF allowance, 40% exterior appeared stucco			
Unpainted Wood & Pallets	328	0.15000	49.22	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			283.99				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building F

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		280	Area (ft ²):		2805	# Of Units: 14	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	69	1.30000	90.08	8" concrete equivalent for slab, fng, grade beams			
Brick/Masonry/Tile	1	0.60000	0.39	Assumed 10% of floor area to be 3/8" tile			
Cabinets, Doors, Fixtures, Windows	56	0.15000	8.40	4 CY/Unit allowance			
Cardboard	0	0.05000	0.00	N/A			
Carpet	5,049	0.00050	2.52	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	5,049	0.000125	0.63	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	11,424	0.00105	12.00	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	55	0.15000	8.25	Includes landscape debris at Buildings A-F allocated equallally among buildings			
Mixed C&D Debris	52	0.18000	9.35	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	26	0.22000	5.71	Built up roof. Assumed 3" thickness			
Scrap Metal	14	0.51000	7.14	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit allowance)			
Stucco	2,240	0.00500	11.20	10lb/SF allowance, 40% exterior appeared stucco			
Unpainted Wood & Pallets	208	0.15000	31.17	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			186.84				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building G

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft): 698.37		Area (ft ²): 10745		# Of Units:
Demo Item	Quantity	Unit Conv.	Tons	Assumptions
Concrete (Slab/footing)	265	1.30000	345.07	8" concrete equivalent for slab, fng, grade beams
Brick/Masonry/Tile	1	0.60000	0.75	Assumed 10% of floor area to be 3/8" tile
Cabinets, Doors, Fixtures, Windows	160	0.15000	24.00	Estimated
Cardboard	0	0.05000	0.00	N/A
Carpet	9,671	0.00050	4.84	Assumed 90% of floor area to be carpet
Carpet Padding/Foam	9,671	0.000125	1.21	Assumed 90% of floor area to be carpet
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A
Dirt	0	1.20000	0.00	Included in landscape debris
Drywall	8,380	0.00105	8.80	Perimeter of building with 12' Walls
Landscape Debris	20	0.15000	3.00	Estimated
Mixed C&D Debris	20	0.18000	3.60	Painted wood, Misc
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.
Roofing Materials	99	0.22000	21.89	Built up roof. Assumed 3" thickness
Scrap Metal	20	0.51000	10.20	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail
Stucco	0	0.00500	0.00	N/A
Unpainted Wood & Pallets	478	0.15000	71.63	Studs, roofing joists, etc. per building
Garbage/Trash	0	0.18000	0.00	N/A
Other	0	0.00000	0.00	N/A
Total:			494.98	

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building H

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		350	Area (ft ²):		5960	# Of Units: 18	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	147	1.30000	191.40	8" concrete equivalent for slab, ftng, grade beams			
Brick/Masonry/Tile	45	0.60000	27.07	Assumed 10% of floor area to be 3/8" tile			
Cabinets, Doors, Fixtures, Windows	72	0.15000	10.80	4 CY/Unit allowance			
Cardboard	0	0.05000	0.00	N/A			
Carpet	7,120	0.00050	3.56	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	7,120	0.000125	0.89	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	14,688	0.00105	15.42	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	50	0.15000	7.50	Includes landscape debris at Buildings H-K allocated equallally among buildings			
Mixed C&D Debris	88	0.18000	15.89	Painted wood, Misc			
Mixed Inerts	18	0.60000	10.69	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	34	0.22000	7.44	Built up roof. Assumed 3" thickness			
Scrap Metal	18	0.51000	9.18	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit)			
Stucco	1,200	0.00500	6.00	10lb/SF allowance, 1200 SF of building stucco			
Unpainted Wood & Pallets	353	0.15000	52.98	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			358.83				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building I

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		350	Area (ft ²):		5960	# Of Units: 18	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	147	1.30000	191.40	8" concrete equivalent for slab, ftng, grade beams			
Brick/Masonry/Tile	45	0.60000	27.07	Assumed 10% of floor area to be 3/8" tile			
Cabinets, Doors, Fixtures, Windows	72	0.15000	10.80	4 CY/Unit allowance			
Cardboard	0	0.05000	0.00	N/A			
Carpet	7,120	0.00050	3.56	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	7,120	0.000125	0.89	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	14,688	0.00105	15.42	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	50	0.15000	7.50	Includes landscape debris at Buildings H-K allocated equallally among buildings			
Mixed C&D Debris	88	0.18000	15.89	Painted wood, Misc			
Mixed Inerts	18	0.60000	10.69	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	34	0.22000	7.44	Built up roof. Assumed 3" thickness			
Scrap Metal	18	0.51000	9.18	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit)			
Stucco	1,200	0.00500	6.00	10lb/SF allowance, 1200 SF of building stucco			
Unpainted Wood & Pallets	353	0.15000	52.98	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			358.83				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building J

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft): 350		Area (ft ²): 5960		# Of Units: 18
Demo Item	Quantity	Unit Conv.	Tons	Assumptions
Concrete (Slab/footing)	147	1.30000	191.40	8" concrete equivalent for slab, ftng, grade beams
Brick/Masonry/Tile	45	0.60000	27.07	Assumed 10% of floor area to be 3/8" tile
Cabinets, Doors, Fixtures, Windows	72	0.15000	10.80	4 CY/Unit allowance
Cardboard	0	0.05000	0.00	N/A
Carpet	7,120	0.00050	3.56	Assumed 90% of floor area to be carpet
Carpet Padding/Foam	7,120	0.000125	0.89	Assumed 90% of floor area to be carpet
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A
Dirt	0	1.20000	0.00	Included in landscape debris
Drywall	14,688	0.00105	15.42	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall
Landscape Debris	50	0.15000	7.50	Includes landscape debris at Buildings H-K allocated equallally among buildings
Mixed C&D Debris	88	0.18000	15.89	Painted wood, Misc
Mixed Inerts	18	0.60000	10.69	Clay Tile roof. Assumed Brick/Masonry/Tile conv.
Roofing Materials	34	0.22000	7.44	Built up roof. Assumed 3" thickness
Scrap Metal	18	0.51000	9.18	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit)
Stucco	1,200	0.00500	6.00	10lb/SF allowance, 1200 SF of building stucco
Unpainted Wood & Pallets	353	0.15000	52.98	Studs, roofing joists, etc. per building
Garbage/Trash	0	0.18000	0.00	N/A
Other	0	0.00000	0.00	N/A
Total:			358.83	

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building K

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		350	Area (ft ²):		5960	# Of Units: 18	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	147	1.30000	191.40	8" concrete equivalent for slab, ftng, grade beams			
Brick/Masonry/Tile	45	0.60000	27.07	Assumed 10% of floor area to be tile. 3/8" tile			
Cabinets, Doors, Fixtures, Windows	72	0.15000	10.80	4 CY/Unit			
Cardboard	0	0.05000	0.00	N/A			
Carpet	7,120	0.00050	3.56	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	7,120	0.000125	0.89	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	14,688	0.00105	15.42	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partition wall. Assumed 5/8" drywall			
Landscape Debris	50	0.15000	7.50	Includes landscape debris at Buildings H-K allocated equally among buildings			
Mixed C&D Debris	88	0.18000	15.89	Painted wood, Misc			
Mixed Inerts	18	0.60000	10.69	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	34	0.22000	7.44	Built up roof. Assumed 3" thickness			
Scrap Metal	18	0.51000	9.18	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit)			
Stucco	1,200	0.00500	6.00	10lb/SF allowance, 1200 SF of building stucco			
Unpainted Wood & Pallets	353	0.15000	52.98	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			358.83				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building L

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		Area (ft ²):		25150	# Of Units:
Demo Item	Quantity	Unit Conv.	Tons	Assumptions	
Concrete (Slab/footing)	625	1.30000	812.89	8" concrete equivalent for slab, ftng, grade beams	
Brick/Masonry/Tile	191	0.60000	114.40	Assumed 10% of floor area to be 3/8" tile, Partial block exterior	
Cabinets, Doors, Fixtures, Windows	380	0.15000	57.00	Estimated	
Cardboard	0	0.05000	0.00	N/A	
Carpet	40,240	0.00050	20.12	Assumed 90% of floor area to be carpet	
Carpet Padding/Foam	40,240	0.000125	5.03	Assumed 90% of floor area to be carpet	
Ceiling Tile (acoustic)	3,600	0.00030	1.08	Assumed in conference rooms	
Dirt	0	1.20000	0.00	Included in landscape debris	
Drywall	15,974	0.00105	16.77	Estimated based on perimeter of building footprint with 20% added	
Landscape Debris	0	0.15000	0.00	Included in "Site" landscape debris	
Mixed C&D Debris	590	0.18000	106.13	Painted wood, Misc	
Mixed Inerts	0	0.60000	0.00		
Roofing Materials	244	0.22000	53.75	Built up roof. Assumed 3" thickness	
Scrap Metal	60	0.51000	30.60		
Stucco	18,560	0.00500	92.80	10lb/SF allowance	
Unpainted Wood & Pallets	2,236	0.15000	335.33	Studs, roofing joists, etc. per building	
Garbage/Trash	0	0.18000	0.00	N/A	
Other	0	0.00000	0.00	N/A	
Total:			1645.90		

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building M

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		290	Area (ft ²):		3365	# Of Units: 16	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	83	1.30000	108.07	8" concrete equivalent for slab, fng, grade beams			
Brick/Masonry/Tile	100	0.60000	59.76	Assumed 10% of floor area to be 3/8" tile. CMU walls and Brick			
Cabinets, Doors, Fixtures, Windows	64	0.15000	9.60	4 CY/Unit			
Cardboard	0	0.05000	0.00	N/A			
Carpet	6,057	0.00050	3.03	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	6,057	0.000125	0.76	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	13,056	0.00105	13.71	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	20	0.15000	3.00	Includes landscape debris at Building M			
Mixed C&D Debris	50	1.19000	59.32	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	26	0.22000	5.71	Built up roof. Assumed 3" thickness			
Scrap Metal	16	0.51000	8.16	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit)			
Stucco	0	0.00500	0.00				
Unpainted Wood & Pallets	199	0.15000	29.91	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			301.02				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building N

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		285	Area (ft ²):		3400	# Of Units:
Demo Item	Quantity	Unit Conv.	Tons	Assumptions		
Concrete (Slab/footing)	84	1.30000	109.19	8" concrete equivalent for slab, ftng, grade beams		
Brick/Masonry/Tile	0	0.60000	0.00	Assumed 10% of floor area to be 3/8" tile, CMU Walls, Brick		
Cabinets, Doors, Fixtures, Windows	10	0.15000	1.50			
Cardboard	0	0.05000	0.00			
Carpet	0	0.00050	0.00			
Carpet Padding/Foam	0	0.000125	0.00			
Ceiling Tile (acoustic)	0	0.00030	0.00			
Dirt	0	1.20000	0.00	Included in landscape debris		
Drywall	2,280	0.00105	2.39			
Landscape Debris	5	0.15000	0.75			
Mixed C&D Debris	38	1.19000	44.96	Painted wood, Misc		
Mixed Inerts	0	0.60000	0.00			
Roofing Materials	31	0.22000	6.93	Built up roof. Assumed 3" thickness		
Scrap Metal	5	0.51000	2.55			
Stucco	0	0.00500	0.00			
Unpainted Wood & Pallets	201	0.15000	30.22			
Garbage/Trash	0	0.18000	0.00			
Other	0	0.00000	0.00			
Total:			198.49			

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building O

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		290	Area (ft ²):		3365	# Of Units: 16	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	83	1.30000	108.07	8" concrete equivalent for slab, ftng, grade beams			
Brick/Masonry/Tile	8	0.60000	4.91	Assumed 10% of floor area to be 3/8" tile, CMU Walls, Brick			
Cabinets, Doors, Fixtures, Windows	64	0.15000	9.60	4 CY/Unit			
Cardboard	0	0.05000	0.00	N/A			
Carpet	6,057	0.00050	3.03	Assumed 90% of floor area to be carpet			
Carpet Padding/Foam	6,057	0.000125	0.76	Assumed 90% of floor area to be carpet			
Ceiling Tile (acoustic)	0	0.00030	0.00	N/A			
Dirt	0	1.20000	0.00	Included in landscape debris			
Drywall	13,056	0.00105	13.71	816ft ² Drywall/Unit; 25'x13' unit with 8' ceilings, and 1 partician wall. Assumed 5/8" drywall			
Landscape Debris	40	0.15000	6.00	Includes landscape debris at Buildings O			
Mixed C&D Debris	50	1.19000	59.32	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00	Clay Tile roof. Assumed Brick/Masonry/Tile conv.			
Roofing Materials	26	0.22000	5.71	Built up roof. Assumed 3" thickness			
Scrap Metal	16	0.51000	8.16	Estimated based on assumed metal inside unit in addition to exterior metal stairs and handrail (1 CY/Unit)			
Stucco	5,500	0.00500	27.50	90% of the exterior is stucco			
Unpainted Wood & Pallets	199	0.15000	29.91	Studs, roofing joists, etc. per building			
Garbage/Trash	0	0.18000	0.00	N/A			
Other	0	0.00000	0.00	N/A			
Total:			276.68				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Building P

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		544	Area (ft ²):		16800	# Of Units: GYM	
Demo Item	Quantity	Unit Conv.	Tons	Assumptions			
Concrete (Slab/footing)	676	1.30000	879.26	8" concrete equivalent for slab, ftng, grade beams			
Brick/Masonry/Tile	16	0.60000	9.33	Assumed 10% of floor area to be 3/8" tile, CMU Walls, Brick			
Cabinets, Doors, Fixtures, Windows	40	0.15000	6.00				
Cardboard	0	0.05000	0.00				
Carpet	13,440	0.00050	6.72				
Carpet Padding/Foam	13,440	0.000125	1.68				
Ceiling Tile (acoustic)	0	0.00030	0.00				
Dirt	0	1.20000	0.00				
Drywall	13,600	0.00105	14.28				
Landscape Debris	60	0.15000	9.00				
Mixed C&D Debris	373	0.18000	67.20	Painted wood, Misc			
Mixed Inerts	0	0.60000	0.00				
Roofing Materials	156	0.22000	34.22	Built up roof. Assumed 3" thickness			
Scrap Metal	1,213	0.51000	618.80				
Stucco	20,400	0.00500	102.00				
Unpainted Wood & Pallets	280	0.15000	42.00				
Garbage/Trash	0	0.18000	0.00				
Other	0	0.00000	0.00				
Total:			1,790.50				

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

Site

Mission Valley Resort Demolition
San Diego, CA
Caribou Industries
17-May-15

Perimeter (ft):		Area (ft ²):		# Of Units:
Demo Item	Quantity	Unit Conv.	Tons	Assumptions
Asphalt & Concrete	9,377	1.30000	12,191	6" Asphalt, 4" Site Concrete, Pools, Courts
Brick/Masonry/Tile	155	0.60000	93	Retaining Walls
Cabinets, Doors, Fixtures, Windows	0	0.15000	0	
Cardboard	0	0.05000	0	
Carpet	0	0.00050	0	
Carpet Padding/Foam	0	0.000125	0	
Ceiling Tile (acoustic)	0	0.00030	0	
Dirt	0	1.20000	0	
Drywall	0	0.00105	0	
Landscape Debris	320	0.15000	48	Misc Vegetaion at Site and Parking Lot
Mixed C&D Debris	0	1.19000	0	
Mixed Inerts	0	0.60000	0	
Roofing Materials	0	0.22000	0	
Scrap Metal	23	0.51000	12	Light Poles
Stucco	0	0.00500	0	
Unpainted Wood & Pallets	0	0.15000	0	
Garbage/Trash	0	0.18000	0	
Other	0	0.00000	0	
Total:			12,343	

Notes:

- FFE (appliances, dressers, beds, lamps, etc.) not included
- Earth removal below asphalt and concrete not included
- Subsurface utilities not included

EASEMENTS/ENCUMBRANCES

AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED MAY 14, 1945 IN BOOK 1869, PAGE 241 OF OFFICIAL RECORDS.

GRANTED TO: SAN DIEGO GAS AND ELECTRIC COMPANY, A CORPORATION, ITS SUCCESSORS AND ASSIGNS
AFFECTS: THE LAND

THE LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION.

AN EASEMENT FOR THE PURPOSES SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT.

GRANTED TO: CITY OF SAN DIEGO
PURPOSE: STORM DRAIN
RECORDED: FEBRUARY 13, 1952 IN BOOK 4371, PAGE 369 OF OFFICIAL RECORDS
AFFECTS: SAID LAND MORE PARTICULARLY DESCRIBED THEREIN.

ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM PORTIONS OF CAMINO DE RIO NOW HOTEL CIRCLE SOUTH AND THE 25 FOOT STRIP SHOWN AS 25 FEET RESERVED FOR FUTURE STREET, HAVE BEEN DEDICATED OR RELINQUISHED ON THE FILED MAP.

AN EASEMENT FOR THE PURPOSES SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SHOWN OR AS OFFERED FOR DEDICATION ON THE RECORDED MAP SHOWN BELOW.

MAP: 3347
RECORDED: DECEMBER 28, 1955
PURPOSE: PUBLIC UTILITIES
AFFECTS: AS SHOWN ON SAID MAP

AN OFFER AND THE REJECTION OF SAID OFFER SUBJECT TO THE PROVISIONS OF SECTION 64472.2 OF THE GOVERNMENT CODE OF THE STATE OF CALIFORNIA FOR THE DEDICATION OF 25 FOOT RESERVED FOR FUTURE STREET AS SHOWN ON MAP 3347, WHICH PROVIDES THAT A REJECTED OFFER OF DEDICATION SHALL REMAIN GREEN AND SUBJECT TO FUTURE ACCEPTANCE BY THE CITY OF SAN DIEGO.

AN EASEMENT FOR THE PURPOSES SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT.

GRANTED TO: CITY OF SAN DIEGO
PURPOSE: STORM DRAIN
RECORDED: JUNE 22, 1956 IN BOOK 6151, PAGE 534 OF OFFICIAL RECORDS
AFFECTS: SAID LAND MORE PARTICULARLY DESCRIBED THEREIN.

AN EASEMENT FOR AERIAL AND UNDERGROUND PUBLIC UTILITIES AND PURPOSES INCIDENTAL THERETO AS GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY, BY DEED RECORDED JULY 11, 1957 IN BOOK 6658, PAGE 369 OF OFFICIAL RECORDS.

AFFECTS: THE LOCATION OF SAID EASEMENT IS SET FORTH IN SAID DOCUMENT.

A LEASE DATED APRIL 1, 1958, EXECUTED BY MISSION VALLEY INN, INC., A CALIFORNIA CORPORATION AS LESSOR AND STANDARD OIL COMPANY OF CALIFORNIA, WESTERN OPERATIONS INC. AS LESSEE, RECORDED NOVEMBER 13, 1958 IN BOOK 7349, PAGE 102 OF OFFICIAL RECORDS.

DEFECTS, LIENS, ENCUMBRANCES OR OTHER MATTERS AFFECTING THE LEASEHOLD ESTATE, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.

DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED NOVEMBER 13, 1958 IN BOOK 7349, PAGE 104; MARCH 6, 1959 IN BOOK 7335, PAGE 25 AND FEBRUARY 28, 1972 AS INSTRUMENT NO. 47192 ALL OF OFFICIAL RECORDS.

AN EASEMENT FOR THE PURPOSES SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT.

GRANTED TO: THE CITY OF SAN DIEGO
PURPOSE: FOR SEWERS
RECORDED: SEPTEMBER 25, 1961 AS INSTRUMENT NO. 18679 OF OFFICIAL RECORDS
AFFECTS: SAID LAND MORE PARTICULARLY DESCRIBED THEREIN.

AN EASEMENT FOR AERIAL AND UNDERGROUND PUBLIC UTILITIES AND PURPOSES INCIDENTAL THERETO AS GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY, BY DEED RECORDED JANUARY 10, 1964 AS INSTRUMENT NO. 5598 OF OFFICIAL RECORDS.

AFFECTS: THE LOCATION OF SAID EASEMENT IS SET FORTH IN SAID DOCUMENT.

AN EASEMENT FOR AERIAL AND UNDERGROUND PUBLIC UTILITIES AND PURPOSES INCIDENTAL THERETO AS GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY, BY DEED RECORDED DECEMBER 10, 1969 AS INSTRUMENT NO. 22422 OF OFFICIAL RECORDS.

AFFECTS: THE LOCATION OF SAID EASEMENT IS SET FORTH IN SAID DOCUMENT.

THE TERMS, PROVISIONS AND EASEMENT(S) CONTAINED IN THE DOCUMENT ENTITLED "ELECTRIC EASEMENT" RECORDED SEPTEMBER 23, 1975 AS INSTRUMENT NO. 258974 OF OFFICIAL RECORDS.

AN EASEMENT AS CONTAINED IN THE ABOVE DOCUMENT.

FOR: PUBLIC UTILITIES AND INCIDENTAL PURPOSES

THE LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION.

17 AN EASEMENT FOR THE PURPOSES SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT

GRANTED TO: CITY OF SAN DIEGO
PURPOSE: OPEN SPACE
RECORDED: MARCH 16, 1976 AS INSTRUMENT NO. 76-080114 OF OFFICIAL RECORDS
AFFECTS: SAID LAND MORE PARTICULARLY DESCRIBED THEREIN.

18 AN EASEMENT FOR RIGHT TO CONSTRUCT, PLACE, OPERATE, REPAIR, INSPECT, MAINTAIN, REPLACE AND REMOVE SUCH AERIAL AND UNDERGROUND COMMUNITY ANTENNA TELEVISION EQUIPMENT AS GRANTEE MAY REQUIRE FROM TIME TO TIME, CONSISTING OF CABLES, WIRES, CONDUITS, PEDESTALS, PILES, COTS, ANCHORS AND NECESSARY FIXTURES AND APPURTENANCES TOGETHER WITH THE RIGHT OF INGRESS THERETO AND EGRESS THEREFROM AND INCIDENTAL PURPOSES, RECORDED APRIL 29, 1976 AS INSTRUMENT NO. 129096 OF OFFICIAL RECORDS.

IN FAVOR OF: MISSION CABLE TV, INC., A CORPORATION

AFFECTS: THE LAND

THIS DESCRIPTION APPEARS TO HAVE AN ERROR IN THAT CERTAIN COURSE 516'4"20"72" 196.30' VS. 136.85' (PER MAP 3347), THIS WOULD PUT SAID EASEMENT OFFSITE AND NOT ON THE EXISTING POLE.

19 AN EASEMENT FOR THE PURPOSES SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT

GRANTED TO: CITY OF SAN DIEGO
PURPOSE: STORM DRAIN, WATER AND SEWERS
RECORDED: MAY 6, 1976 AS INSTRUMENT NO. 76-136705 OF OFFICIAL RECORDS
AFFECTS: SAID LAND MORE PARTICULARLY DESCRIBED THEREIN.

20 AN EASEMENT FOR AERIAL AND UNDERGROUND PUBLIC UTILITIES AND PURPOSES INCIDENTAL THERETO AS GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY, BY DEED RECORDED SEPTEMBER 12, 1979 AS INSTRUMENT NO. 29-38298 OF OFFICIAL RECORDS.

AFFECTS: THE LOCATION OF SAID EASEMENT IS SET FORTH IN SAID DOCUMENT.

22 ENCROACHMENT REMOVAL AGREEMENT

BY AND BETWEEN: CITY OF SAN DIEGO AND W.H. "BILL" STORMES, CHEVRON U.S.A. INC., OWNER

REGARDING THE INSTALLATION, MAINTENANCE AND POSSIBLE REMOVAL OF: CONCRETE SLABS, PAVING, LANDSCAPING AND SERVICE STATION APPURTENANCES
RECORDED: DECEMBER 6, 1984 AS INSTRUMENT NO. 84-45503 OF OFFICIAL RECORDS

AN EXCLUSIVE PERPETUAL EASEMENT AND RIGHT OF WAY AND AN AGREEMENT UPON THE TERMS AND CONDITIONS THEREIN AFFECTING SAID LAND, FOR CONSTRUCTION, INSTALLATION, USE, MAINTENANCE, ALTERATION, ADDITION, REPAIR, REPLACEMENT, REMOVAL, SERVICE AND OTHER OPERATIONS WITH RESPECT TO COMMUNITY ANTENNA TELEVISION SYSTEMS, INCLUDING BUT NOT LIMITED TO ALL CABLE EQUIPMENT, TELEPHONE DATA TRANSMISSION AND/OR OTHER TELECOMMUNICATIONS SERVICE, RELATED SYSTEMS AND INCIDENTAL PURPOSES.

GRANTED TO: COX CABLE SAN DIEGO, INC.
RECORDED: JUNE 18, 1985 AS INSTRUMENT NO. 1993-038537 OF OFFICIAL RECORDS
AFFECTS: THE EXACT LOCATION AND/OR EXTENT OF SAID EASEMENT IS NOT DISCLOSED BY THE PUBLIC RECORDS.

ENCROACHMENT REMOVAL AGREEMENT

BY AND BETWEEN: CITY OF SAN DIEGO AND THE OWNER REGARDING THE INSTALLATION, MAINTENANCE AND POSSIBLE REMOVAL OF: FOUR (4) 4'X6' MONUMENT SIGNS TO BE SET BACK 5' FROM EXISTING CURB
RECORDED: APRIL 9, 1997 AS INSTRUMENT NO. 1997-0162207 OF OFFICIAL RECORDS

NO SPECIFIC LOCATION IS GIVEN AND THEREFORE HAS NOT BEEN PLOTTED HEREON.

INTERSTATE 8

HOTEL CIRCLE SOUTH

Valley Liquor/Mini Mart

Mission Valley Resort Motel

Frogs Fitness

Existing Motel

**MISSION VALLEY INN
MAP NO. 3347**

**CLOSED
TWO STORY STUCCO
NO. 901 HOTEL CIRCLE
SOUTH
FROGS CLUB ONE
FITNESS CLUB**

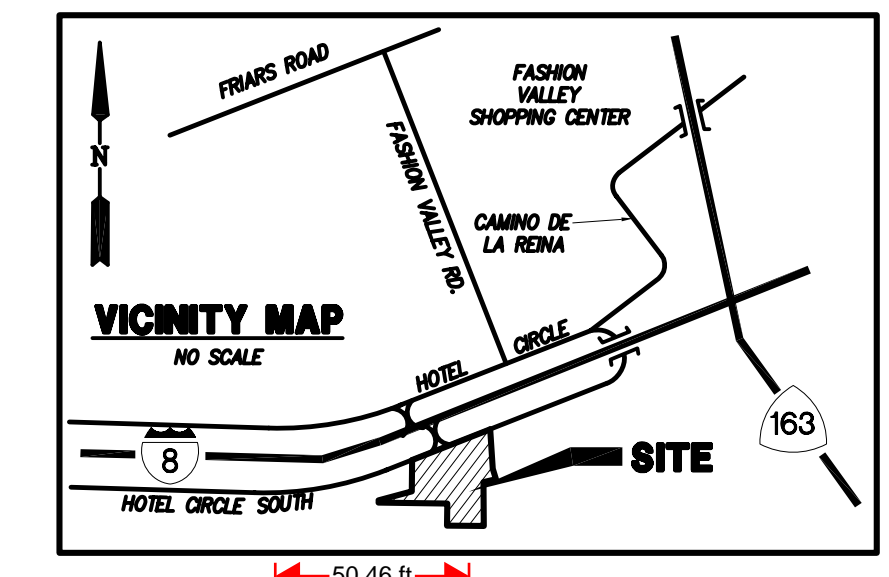
Fitness Club

**AVALON HEIGHTS
MAP NO. 1800**

FRANKLIN COURT

LEGEND

- INDICATES FOUND MONUMENT AS NOTED.
- () INDICATES RECORD VALUE PER MAP 3347
- INDICATES A.L.T.A. FEE TITLE BOUNDARY
- INDICATES FEMA FLOOD ZONE DELINEATION
- INDICATES UNDERGROUND SEWER LINE
- INDICATES UNDERGROUND WATER LINE
- INDICATES UNDERGROUND STORM DRAIN
- INDICATES UNDERGROUND POWER LINE
- INDICATES OVERHEAD LINE
- INDICATES CHAINLINK FENCE
- x 364.7 INDICATES EXISTING SPOT ELEVATION IN FEET
- ① INDICATES ITEM NO. OF THE PRELIMINARY REPORT PLOTTED
- TS INDICATES TRAFFIC SIGNAL
- ASPH INDICATES ASPHALT
- FH INDICATES FIRE HYDRANT
- ★ INDICATES STREET & PARKING LOT LIGHTS
- HH INDICATES HAND HOLE
- WM INDICATES WATER METER
- MH INDICATES MANHOLE
- SMH INDICATES SEWER MANHOLE
- SDMH INDICATES STORM DRAIN MANHOLE
- SC INDICATES SEWER CLEAN-OUT
- MHW INDICATES MONITORING WELL
- GV INDICATES GAS VALVE
- WV INDICATES WATER VALVE
- INDICATES TREES AND/OR SHRUBS
- INDICATES EXISTING BUILDING
- INDICATES ACCESS RIGHTS RELINQUISHED



PROJECT DESIGN CONSULTANTS
PLANNING & SURVEYING
701 B Street, Suite 600, San Diego, CA 92101
619-231-6471 FAX 619-231-6430



CARIBOU INDUSTRIES, INC.
1103 N. BROADWAY
SANTA ANA, CA
(714)543-9484
FAX (714)543-9972

ADDRESS
MORRIS CERULLO WORLD OUTREACH LEGACY PAVILION
MISSION VALLEY — SAN DIEGO, CA

TITLE
Existing Site

Project File: PSP MCWE
Date: 02/13/12
DRWN. BY: LJJ
Scale: 1"= 50'
△ Revision
△ Revision
△ Revision
△ Revision

Sheet
1 of 3
Existing Site

Existing Site

ATTACHMENT 2

2015 Certified Construction & Demolition Recycling Facility Directory

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THE CITY OF SAN DIEGO



2015 Certified Construction & Demolition Recycling Facility Directory

These facilities are certified by the City of San Diego to accept materials listed in each category. Hazardous materials are not accepted. The diversion rate for these materials shall be considered 100%, except mixed C&D debris which updates quarterly. The City is not responsible for changes in facility information. Please call ahead to confirm details such as accepted materials, days and hours of operation, limitations on vehicle types, and cost. For more information visit: www.recyclingworks.com.

<i>Please note: In order to receive recycling credit, Mixed C&D Facility and transfer station receipts must: -be coded as construction & demolition (C&D) debris -have project address or permit number on receipt *Make sure to notify weighmaster that your load is subject to the City of San Diego C&D Ordinance. Note about landfills: Miramar Landfill and other landfills do not recycle mixed C&D debris.</i>	Mixed C&D Debris	Asphalt / Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile / Porcelain	Clean Fill Dirt	Clean Wood / Green Waste	Drywall	Industrial Plastics	Lamps / Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks
EDCO Recovery & Transfer 3660 Dalbergia St, San Diego, CA 92113 619-234-7774 www.edcodisposal.com/public-disposal	65%											•					
EDCO Station Transfer Station & Buy Back Center 8184 Commercial St, La Mesa, CA 91942 619-466-3355 www.edcodisposal.com/public-disposal	65%				•							•			•		
EDCO CDI Recycling & Buy Back Center 224 S. Las Posas Rd, San Marcos, CA 92078 760-744-2700 www.edcodisposal.com/public-disposal	89%				•										•		
Escondido Resource Recovery 1044 W. Washington Ave, Escondido 760-745-3203 www.edcodisposal.com/public-disposal	65%																
Fallbrook Transfer Station & Buy Back Center 550 W. Aviation Rd, Fallbrook, CA 92028 760-728-6114 www.edcodisposal.com/public-disposal	65%				•										•		
Otay C&D/Inert Debris Processing Facility 1700 Maxwell Rd, Chula Vista, CA 91913 619-421-3773 www.sd.disposal.com	66%																
Ramona Transfer Station & Buy Back Center 324 Maple St, Ramona, CA 92065 760-789-0516 www.edcodisposal.com/public-disposal	65%				•										•		
SANCO Resource Recovery & Buy Back Center 6750 Federal Blvd, Lemon Grove, CA 91945 619-287-5696 www.edcodisposal.com/public-disposal	65%				•										•		
All American Recycling 10805 Kenney St, Santee, CA 92071 619-508-1155 (Must call for appointment)						•											
Allan Company 6733 Consolidated Wy, San Diego, CA 92121 858-578-9300 www.allancompany.com/facilities.htm					•										•		
Allan Company Miramar Recycling 5165 Convoy St, San Diego, CA 92111 858-268-8971 www.allancompany.com/facilities.htm					•										•		
Allan Company 8514 Mast Blvd, Santee, CA 92701 619-448-4295 www.allancompany.com/facilities.htm					•										•		
AMS 4674 Cardin St, San Diego, CA 92111 858-541-1977 www.a-m-s.com								•									
AMS 1120 West Mission Ave, Escondido, CA 92025 858-541-1977 www.a-m-s.com								•									
Armstrong World Industries, Inc. 300 S. Myrida St, Pensacola, FL 32505 877-276-7876 (Press 1, Then 8) www.armstrong.com/commceilingsna								•									
Cactus Recycling 8710 Avenida De La Fuente, San Diego, CA 92154 619-661-1283 www.cactusrecycling.com					•								•		•		•

	Mixed C&D Debris	Asphalt /Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile / Porcelain	Clean Fill Dirt	Clean Wood / Green Waste	Drywall	Industrial Plastics	Lamps / Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks
DFS Flooring 10178 Willow Creek Road, San Diego, CA 92131 858-630-5200 www.dfsflooring.com						•	•										
Enniss Incorporated 12421 Vigilante Rd, Lakeside, CA 92040 619-443-9024 www.enniss.net		•	•						•	•							
Escondido Sand and Gravel 500 N. Tulip St, Escondido, CA 92025 760-432-4690 www.weirasphalt.com/esg		•															
Habitat for Humanity ReStore 10222 San Diego Mission Rd, San Diego, CA 92108 619-516-5267 www.sdhfh.org/restore.php				•													
Hanson Aggregates West – Lakeside Plant 12560 Highway 67, Lakeside, CA 92040 858-547-2141		•															
Hanson Aggregates West – Miramar 9229 Harris Plant Rd, San Diego, CA 92126 858-974-3849		•								•							
Hidden Valley Steel & Scrap, Inc. 1342 Simpson Wy, Escondido, CA 92029 760-747-6330															•		
HVAC Exchange 2675 Faivre St, Chula Vista, CA 91911 619-423-1855 www.thehvacexchange.com															•		
IMS Recycling Services 2740 Boston Ave, San Diego, CA 92113 619-231-2521 www.imsrecyclingservices.com					•								•				
IMS Recycling Services 2697 Main St, San Diego, CA 92113 619-231-2521 www.imsrecyclingservices.com													•	•			
Inland Pacific Resource Recovery 12650 Slaughterhouse Canyon Rd, Lakeside, CA 92040 619-390-1418											•						
Lakeside Land Co., Inc. 10101 Riverford Rd, Lakeside, CA 92040 619-449-9083 www.lakesideland.com		•														•	
Lamp Disposal Solutions 8248 Ronson Ct, San Diego, CA 92111 858-569-1807 www.lampdisposalsolutions.com														•			
Lights Out Disposal 1097 Palm Ave, Ste 100, El Cajon, CA 92020 619-438-1093 www.lightsoutdisposal.com														•			
Los Angeles Fiber Company 4920 S. Boyle Ave, Vernon, CA 90058 323-589-5637 www.lafiber.com						•	•										
Miramar Greenery, City of San Diego 5180 Convoy St, San Diego, CA 92111 858-694-7000 www.sandiego.gov/environmental-services/miramar/greenery.shtml											•						
Moody's 3210 Oceanside Blvd., Oceanside, CA 92056 760-433-3316		•								•						•	
Otay Valley Rock, LLC 2041 Heritage Rd, Chula Vista, CA 91913 619-591-4717 www.otayrock.com		•															
Pacific Steel, Inc. 1700 Cleveland Ave, National City, CA 91950 619-474-7081															•		
Reclaimed Aggregates Chula Vista 855 Energy Wy, Chula Vista, CA 91913 619-656-1836		•														•	

	Mixed C&D Debris	Asphalt /Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile / Porcelain	Clean Fill Dirt	Clean Wood / Green Waste	Drywall	Industrial Plastics	Lamps / Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks
Reconstruction Warehouse 3341 Hancock St., San Diego, CA 92110 619-795-7326 www.recowarehouse.com				•													
Robertson's Ready Mix 2094 Willow Glen Dr, El Cajon, CA 92019 619-593-1856		•								•						•	
Romero General Construction Corp. 8354 Nelson Wy, Escondido, CA 92026 760-749-9312 www.romerogc.com/crushing/nelsonway.htm		•															
SA Recycling 3055 Commercial St., San Diego, CA 92113 619-238-6740 www.sarecycling.com															•		
SA Recycling 1211 S. 32 nd St., San Diego, CA 92113 619-234-6691 www.sarecycling.com															•		
Vulcan Carol Canyon Landfill and Recycle Site 10051 Black Mountain Rd, San Diego, CA 92126 858-530-9465 www.vulcanmaterials.com/carrollcanyon		•	•							•						•	

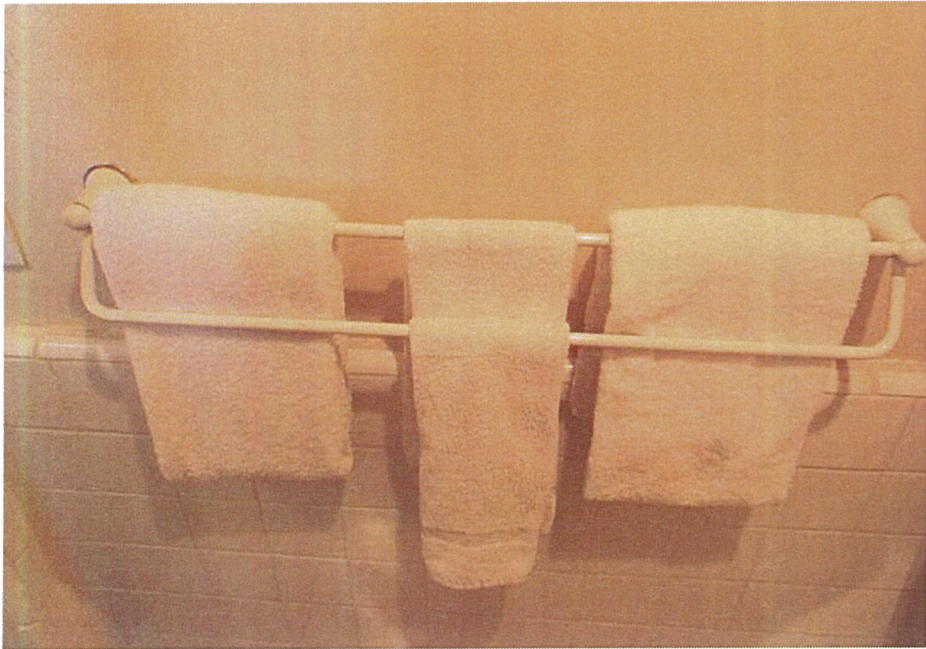
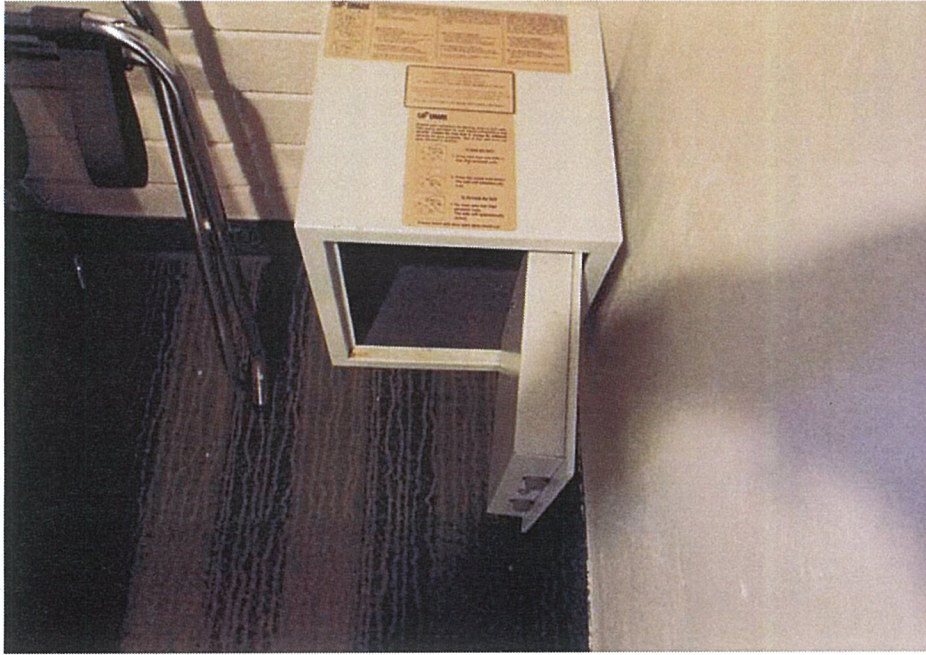
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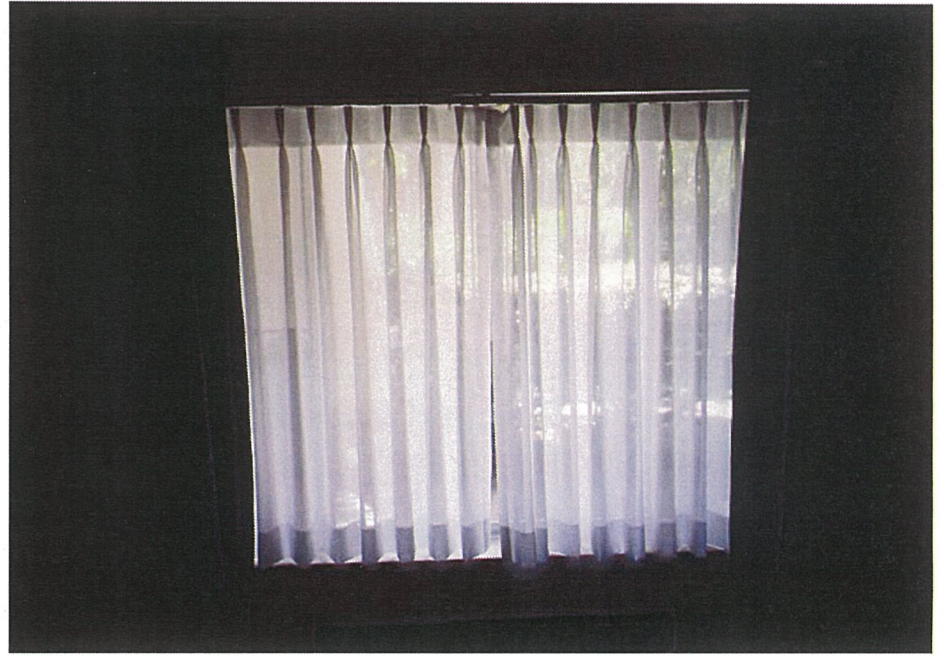
ATTACHMENT 3

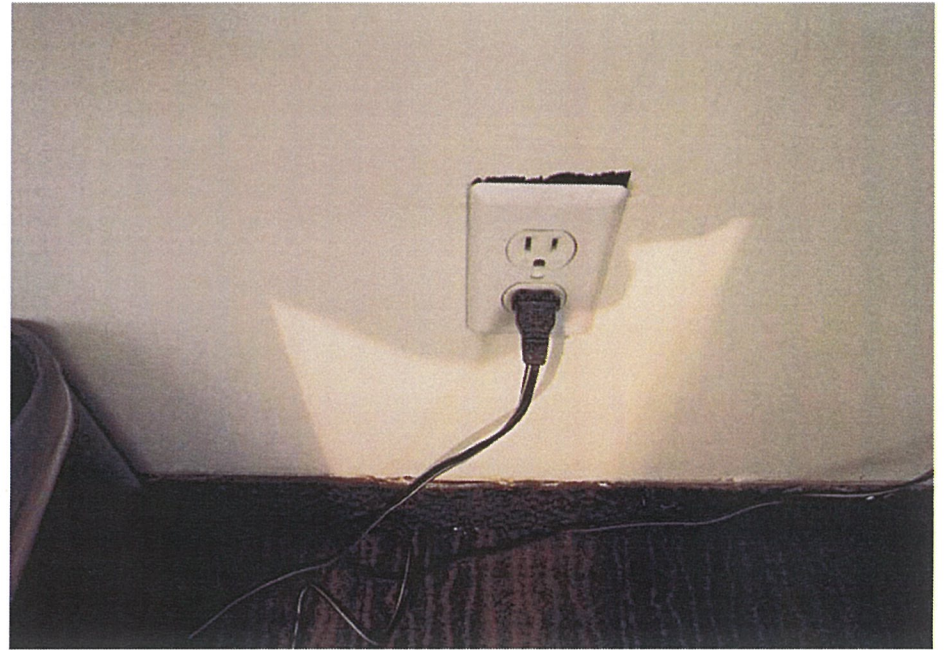
Photographs of Typical Furniture, Fixtures,
and Equipment

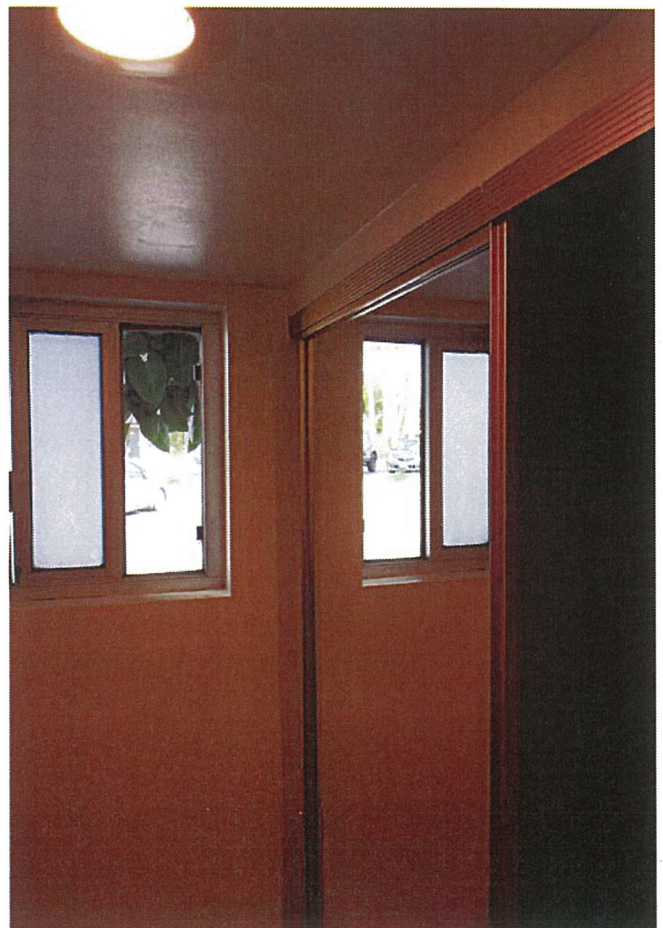
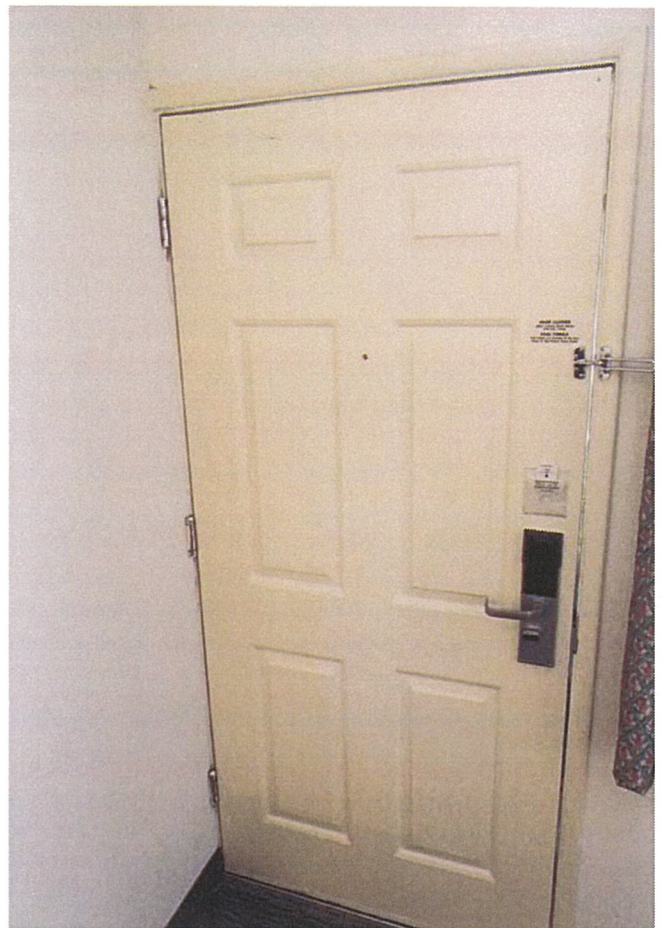
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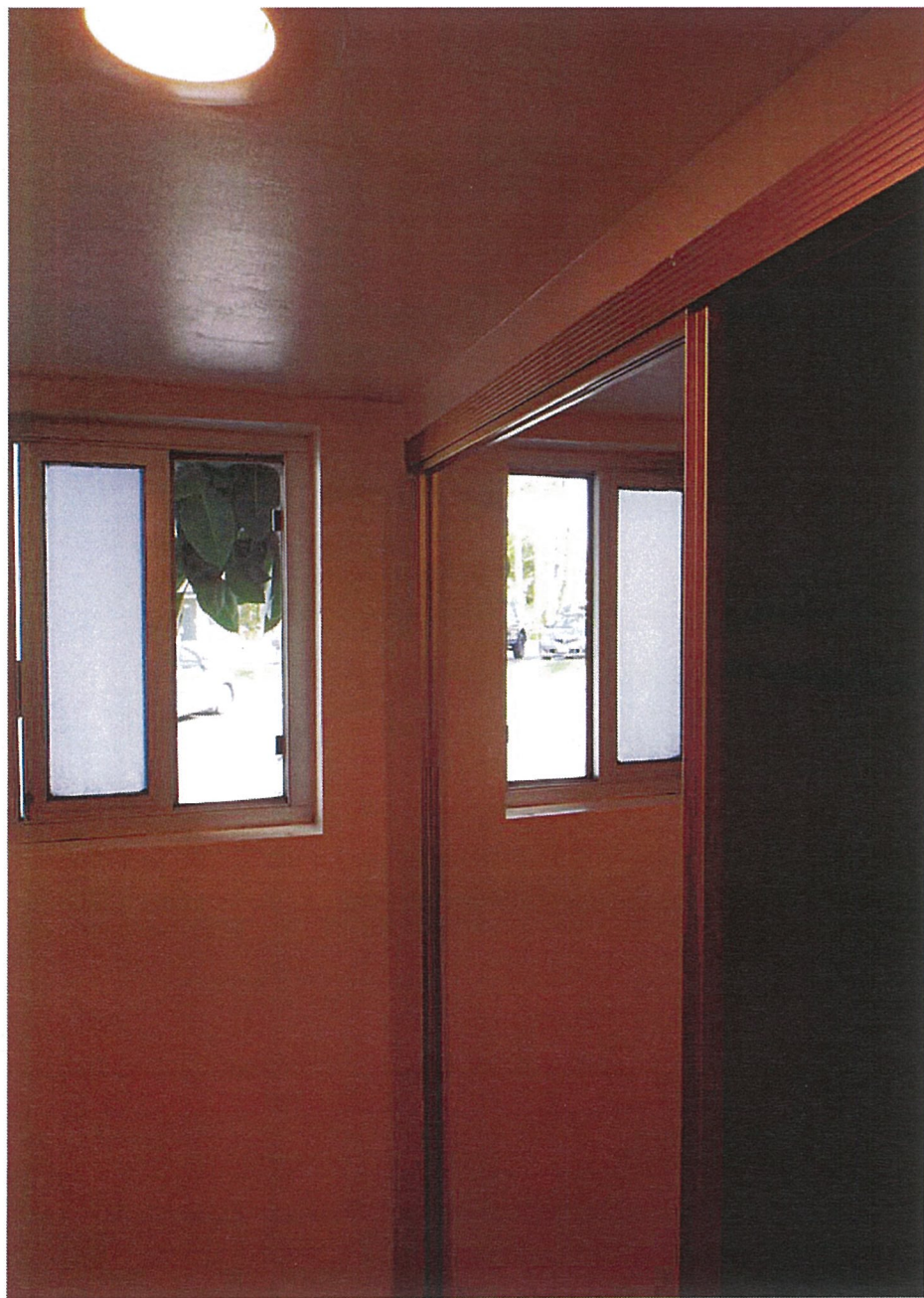




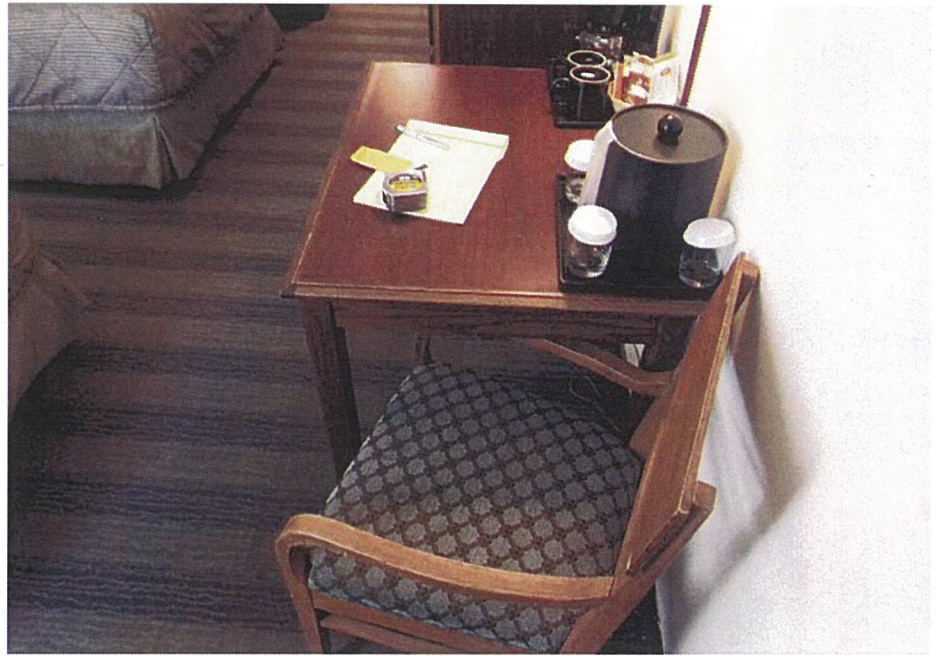












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THE CITY OF SAN DIEGO

MEMORANDUM

DATE: January 10, 2017

TO: Morris Dye, Development Project Manager, Development Services Department

FROM: Kenneth Impellizeri, Acting Police Lieutenant, Operational Support

SUBJECT: Legacy International Center Project No. 332401.

Listed below are the Police Department's findings for the Legacy International Center Project No. 332401.

Area Station

Police service for the Legacy International Center Project No. 332401 will be provided by officers from Western Division located at 5215 Gaines Street in the City of San Diego. The service area for the project is Beat 623. Western Division provides police services to the following communities: Linda Vista, Morena, Mission Valley West, University Heights, North Park, Burlingame, Hillcrest, Midtown, Mission Hills, Midway District, Loma Portal, Point Loma Heights, Ocean Beach, Sunset Cliffs, Roseville/Fleet Ridge, La Playa and Wooded Area.

The San Diego Police Department has mutual aid agreements with all other Law Enforcement Agencies in San Diego County.

Current Staffing / Officer Availability

Western Division is currently staffed with 112 sworn personnel and two civilian employees. Officers work ten-hour shifts. Staffing is comprised of three shifts which operate from 6:00 a.m. - 4:00 p.m. (First Watch), 2:00 p.m. - Midnight (Second Watch) and from 9:00 p.m. - 7:00 a.m. (Third Watch). Using the Department's recommended staffing guidelines, Western Division currently deploys a minimum of 14 patrol officers on First Watch, 16 patrol officers on Second Watch, and 13 patrol officers on Third Watch.

The San Diego Police Department does not staff individual stations based on ratios of sworn officers per 1,000 population ratio. The goal citywide is to maintain 1.48 officers per 1,000 population ratio.

Current Response Times

Legacy International Center Project is currently located in the City of San Diego; within the boundaries of police beat 623. The 2015 average response times for Beat 623 are 6.5 minutes for emergency calls, 12.3

2 of 2
Morris Dye
January 10, 2017

minutes for priority one calls, 33 minutes for priority two calls, 89.5 minutes for priority three calls and 106.3 minutes for priority four calls.

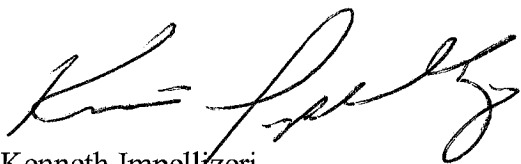
The San Diego Police Department's Citywide response time goals are 7 minutes for emergency calls, 12 minutes for priority one calls, 25 minutes for priority two calls, 60 minutes for priority three calls and 70 minutes for priority four calls. The citywide average response times, for the same period, were 7 minutes for emergency calls, 14.3 minutes for priority one calls, 35 minutes for priority two calls, 87.1 minutes for priority three calls and 119.4 minutes for priority four calls during that same time period. The Department strives to maintain the response time goals as one of various other measures used to assess the level of service to the community.

Potential Mitigation Measures to Response Time

The Department is currently reaching a staffing ratio of 1.34 sworn officers per 1,000 residents based on 2015 estimate residential population of 1,311,882. The ratio is calculated to take into account all support and investigative positions within the Department. This ratio does not include the significant population increase resulting from citizens who commute to work from outside of the city of San Diego or those visiting.

Legacy International Plan Update

There are no current plans for additional police sub-stations in the immediate area. Police response times in this community will continue to increase with the build-out of community plans and the increase of traffic generated by new growth. A Crime Prevention through Environmental Design (CPTED) review is recommended by the Department to address general security concerns.



Kenneth Impellizzeri
Acting Police Lieutenant

cc: Charles Kaye, Assistant Chief, Special Operations
Stephanie Rose, Captain, Operational Support

Distribution of Fire Stations

To treat medical patients and control small fires, the first-due unit should arrive within 7:30 minutes, 90 percent of the time from the receipt of the 911 call in fire dispatch. This equates to 1-minute dispatch time, 1:30 minutes/seconds company turnout time and 5 minutes drive time in the most populated areas.

Multiple-Unit Effective Response Force for Serious Emergencies

To confine fires near the room of origin, to stop wildland fires to under 3 acres when noticed promptly and to treat up to 5 medical patients at once, a multiple-unit response of at least 17 personnel should arrive within 10:30 minutes/seconds from the time of 911-call receipt in fire dispatch, 90 percent of the time. This equates to 1-minute dispatch time, 1:30 minutes/seconds company turnout time and 8 minutes drive time spacing for multiple units in the most populated areas.

Adopted Fire Station Location Measures

To direct fire station location timing and crew size planning as the community grows, the adopted fire unit deployment performance measures based on population density zones are listed in the table below:

Deployment Measures for San Diego City Growth

By Population Density Per Square Mile

	Structure Fire Urban Area	Structure Fire Rural Area	Structure Fire Remote Area	Wildfires Populated Areas
	>1,000- people/sq. mi.	1,000 to 500 people/sq. mi.	500 to 50 people/sq. mi. *	Permanent open space areas
1 st Due Travel Time	5	12	20	10
Total Reflex Time	7.5	14.5	22.5	12.5
1 st Alarm Travel Time	8	16	24	15
1 st Alarm Total Reflex	10.5	18.5	26.5	17.5

Aggregate Population Definitions:

Where more than one square mile is not populated at similar densities, and/or a contiguous area with different zoning types aggregates into a population “cluster,” these measures guide the determination of response time measures and the need for fire stations:

Area	Aggregate Population	First-Due Unit Travel Time Goal
Metropolitan	> 200,000 people	4 minutes
Urban-Suburban	< 200,000 people	5 minutes
Rural	500 - 1,000 people	12 minutes
Remote	< 500	> 15 minutes

MEMORANDUM



To: Mr. Jim Penner
Legacy Center Foundation

Date: ~~November 23,~~
~~2015~~ March 23,
2017

From: Walter B. Musial, P.E. / Shankar R., P.E.
LLG Engineers

LLG Ref: 3-12-2194

Subject: Legacy International Center – EIR Alternatives Traffic Analysis

Engineers & Planners
Traffic
Transportation
Parking

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Greenspan, Engineers**
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Pasadena
Irvine
San Diego
Woodland Hills

Linscott, Law & Greenspan Engineers (LLG) has prepared the following traffic analysis memo for the Legacy International Center (LIC) project. This memo includes the traffic analysis for EIR alternatives that are required per California Environmental Quality Act (CEQA). A brief background on CEQA EIR alternatives is provided below followed by a summary of the project alternatives, methodology, traffic analysis and findings.

EIR Alternatives Background

The CEQA Guidelines require that an EIR address alternatives to the proposed project. The purpose of addressing alternatives is to identify if there are ways to avoid or reduce the significant impacts associated with the proposed project.

Project Alternatives Considered

The LIC project has identified the following three (3) alternatives to be reviewed:

- *No Project (No Development) Alternative* – Under this alternative, the site is assumed to remain in its current condition. The existing site includes 202 rooms, 7,000 SF of banquet space, a 5,300 SF Valley Kitchen restaurant and a 1,200 SF liquor store. **Table 1-1** shows the trip generation table for the existing site which generates 2,596 ADT. Since no development is proposed under this alternative, no additional traffic over existing condition would be generated. Therefore, no traffic impacts are calculated.
- *No Project (Development under the Adopted Plan) Alternative* – This alternative addresses what could occur on the site under the Mission Valley Community Plan. The Atlas Specific Plan/ Community Plan for this site designates 306 rooms, 20,000 SF of banquet space and 27,000 SF of health club. The difference between the existing site and the Community Plan include the addition of 104 hotel rooms and 13,000 SF of banquet space. Given the size of banquet space, based on research conducted between hotels and banquet space, 50 SF/room is considered the threshold over which banquet space attracts independent trips as a standalone land use. Therefore, under this alternative, 15,300 SF (306 rooms x 50 SF/room) of banquet space

is considered ancillary and included in the hotel trip rate. The remaining 11,300 SF of banquet space is included as a separate trip generating land use.

- *Reduced Project Alternative* – This alternative assumes reduce project land uses and thereby reduced project trip generation. This alternative includes a 10 percent density reduction of the outdoor Souk area and all uses in Buildings 1 and 2. The densities of uses in Building 3: Legacy Hotel were assumed to be the same as the proposed project. ~~This alternative includes 39,432 SF of training center, 4,846 SF of warehouse storage, 6,000 SF of grand foyer, 10,717 SF of grand foyer/welcoming/registration, 330 seat theater and artifact museum, 127 timeshare rooms, 140-seat amphitheater, 23,028 SF executive office and 5,992 SF of retail.~~

Traffic Analysis Methodology

The traffic analysis for the above alternatives was conducted using a three-step process. Based on the City of San Diego Trip Generation Manual (May 2003, a trip generation forecast was prepared for each alternative. Secondly, the trips were assigned and lastly a traffic analysis was conducted to check if the project alternatives cause any change (reduction or addition) in impacts.

The traffic analysis for these EIR alternatives were conducted for impacted ~~facilities, intersections and street segments~~. As shown in the trip generation tables, the No Project (No Development) and Reduced Project EIR alternatives are calculated to generate less traffic than the proposed LIC project. However, the No Project (Development under the Adopted Plan) would generate more traffic than the proposed project. Given that the proposed LIC project is calculated with no freeway impacts, it can be expected that no freeway impacts will be calculated for the EIR alternatives as well. Therefore, no freeway analysis/impact determination was conducted for the EIR alternatives.

Project Alternative Analysis

The following describes the traffic analysis for the three (3) project alternatives.

- *No Project (No Development) Alternative* – Since no development is proposed under this alternative, no additional traffic over existing condition would be generated. Therefore, no traffic impacts are calculated.
- *No Project (Development under the Adopted Plan) Alternative* – The trip generation for this alternative is calculated as 1,379 ADT (cumulative). The total existing site plus the entitled uses us calculated to generate a total of 3,975 ADT (2,596 existing + 1,379 entitled). *Table 2-1* shows the trip generation table for this alternative.

Under this alternative, 106 AM/130 PM peak hour trips and 1,379 ADT was assigned to the project study area. Intersection and street segment analyses were conducted to determine if any changes in impacts were identified. *Tables 2-2* and *2-3* show the near-term and long-term intersection analysis. *Tables 2-4* and *2-5* show the near-term and long-term street segment analysis.

As shown in *Tables 2-2, 2-3, 2-4* and *2-5*, **the No Project (Development under the Adopted Plans) alternative is calculated with the same five (5) new Near-Term (direct) and Long-Term (cumulative) street segment impacts as compared to the Proposed pProject. The intersection impacts also remain under this alternative.**

- *Reduced Project Alternative* – This Reduced Project Alternative generates a net new ~~304-120~~ (cumulative) ADT. *Table 3-1* shows the trip generation table for this alternative. LLG conducted intersection ~~and street segment~~ analyses as shown in *Tables 3-2, and 3-3, 3-4* and *3-5*. Given that the proposed project is calculated with no Near-Term or Long-Term street segment impacts and that the Reduced Project alternative generates less traffic than the proposed project, it can be assumed that no street segment impacts will be calculated for the Reduced Project alternative. Therefore, no street segment analysis was conducted for the Reduced Project alternative.

As shown in Tables 3-2 through 3-5, all the direct street segment impacts are avoided under this alternative.

As shown in Tables 3-2 and 3-3, However, the direct intersection impact at Hotel Circle S. / I-8 EB ramps remains under the Reduced Project Alternative. However, In addition, the long-term cumulative intersection impact at Hotel Circle N/ I-8 WB ramps is eliminated and street segment impacts also remain under this alternative in the AM peak hour. The cumulative impact during the PM peak hour remains.

cc: File

**TABLE 1-1
EXISTING (CURRENT OPERATING USES) TRIP GENERATION**

Land Use/ Trip Generator	Total Area	External Trip Productions/ Attraction	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour			
				Rate	Volume	% of ADT	In:Out	In	Out	% of ADT	In:Out	In	Out
Resort Hotel ^a	202 Room	100%	202 Room	10 /room	2,020	6	60:40	73	48	8	60:40	97	65
Cumulative (100%)					2,020			73	48			97	65
Pass-By (0%)					0			0	0			0	0
Driveway (100%)					2,020			73	48			97	65
Valley Kitchen Restaurant ^b	5,300 SF	50%	2,650 SF	130 SF	345	8	50:50	14	14	8	60:40	17	11
Cumulative (80%)					276			11	11			14	9
Pass-By (20%)					69			3	3			3	2
Driveway (100%)					345			14	14			17	11
Liquor Store ^c	1,200 SF	100%	1,200 SF	500 /KSF	600	8	50:50	24	24	8	50:50	24	24
Cumulative (50%)					300			12	12			12	12
Pass-By (50%)					300			12	12			12	12
Driveway (100%)					600			24	24			24	24
Total Existing Trips													
Cumulative					2,596			96	71			123	86
Pass-By					369			15	15			15	14
Driveway					2,965			111	86			138	100

Footnotes:

- a. The City of San Diego trip rate of 10 trips per room was used.
- b. The City of San Diego trip rate for "high turnover restaurant (sit-down)" used.
- c. The City of San Diego trip rate for "convenience market chain" used.



**TABLE 2-1
NO PROJECT (DEVELOPMENT UNDER THE ADOPTED PLAN) ALTERNATIVE TRIP GENERATION**

Land Use/ Trip Generator	Total Area	External Trip Productions/ Attraction	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour			
				Rate	Volume	% of ADT	In:Out	In	Out	% of ADT	In:Out	In	Out
Resort Hotel ^a	104 rooms	100%	104 rooms	10 /room	1,040	6	60:40	37	25	8	60:40	50	33
Cumulative (100%)					1,040			37	25			50	33
Pass-By (0%)					0			0	0			0	0
Driveway (100%)					1,040			37	25			50	33
Banquet Space ^{b,c}	11,300 SF	100%	11,300 SF	30 /KSF	339	13	90:10	40	4	14	20:80	9	38
Cumulative (100%)					339			40	4			9	38
Pass-By (0%)					0			0	0			0	0
Driveway (100%)					339			40	4			9	38
Total Trips													
Cumulative					1,379			77	29			59	71
Pass-By					0			0	0			0	0
Driveway					1,379			77	29			59	71

Footnotes:

- The City of San Diego trip rate of 10 trips per room was used.
- 30 trips/ 1,000 SF calculated based on historical traffic count data at the project site as a part of the approved Atlas Specific Plan.
- The *City of San Diego Trip Generation Manual* does not include trip rates for Convention Space. Therefore, peak hour splits for Convention Space assumed to be similar to Commercial Office with heavy AM inbound and PM outbound trips. The AM splits are 13 % ADT with 90:10 (In:Out). PM splits are 14% ADT with 20:80 (In:Out).

General Notes:

- This table excludes existing site trips.



TABLE 2-2
NEAR-TERM INTERSECTION OPERATIONS
NO PROJECT (DEVELOPMENT UNDER THE ADOPTED PLAN) ALTERNATIVE
DIRECT IMPACT LOCATIONS ONLY (FROM TIA ADDENDUM)

Intersection	Control Type	Peak Hour	Near-Term (Opening Day 2017)		Near-Term (Opening Day 2017) With Project EIR Alt (Adopted Plan)		Δ^c	Sig	Proposed Project Impacts (from TIA <u>ADDENDUM</u>)
			Delay ^a	LOS ^b	Delay	LOS			
5. Hotel Circle S. / I-8 EB Ramps	AWSC	AM	14.2	B	15.3	C	1.1	No	Yes <u>No</u>
		PM	62.5	F	74.7	F	12.2	Yes	Yes

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. “ Δ ” denotes the project-induced increase in delay.

UN SIGNALIZED	
DELAY/LOS THRESHOLDS	
Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 2-3
YEAR 2035 INTERSECTION OPERATIONS
NO PROJECT (DEVELOPMENT UNDER THE ADOPTED PLAN) ALTERNATIVE
CUMULATIVE IMPACT LOCATIONS ONLY (FROM TIA ADDENDUM)

Intersection	Control Type	Peak Hour	Year 2035 (Horizon Year)		Year 2035 (Horizon Year) With Project EIR Alt (Adopted Plan)		Δ^c	Sig	Proposed Project Impacts (from TIA <u>ADDENDUM</u>)
			Delay ^a	LOS ^b	Delay	LOS			
1. Hotel Circle N. / I-8 WB Ramps	AWSC	AM	57.6	F	65.8	F	8.2	Yes	Yes
		PM	49.2	E	54.5	F	5.3	Yes	Yes

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. “ Δ ” denotes the project-induced increase in delay.

UN SIGNALIZED	
DELAY/LOS THRESHOLDS	
Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 2-4
 NEAR-TERM STREET SEGMENT OPERATIONS
 NO PROJECT (DEVELOPMENT UNDER THE ADOPTED PLAN) ALTERNATIVE
 DIRECT IMPACT LOCATIONS ONLY (FROM TIA)

Street Segment	Functional Classification	Capacity (LOS E) ^a	Near-Term (Opening Day 2017)			No Project Alternative ADT Δ 1,379		Near-Term (Opening Day 2017) + Project at 1,379 ADT			V/C Increase	Sig	Proposed Project Impacts (from TIA Addendum)
			ADT ^b	LOS ^c	V/C ^d	% Dist.	Land Use ADT	ADT	LOS	V/C			
Hotel Circle N.													
I-8 WB Ramps to Fashion Valley Road	3-Lane Collector <i>(no center lane)</i>	15,000	17,230	F	1.149	48%	660	17,890	F	1.193	0.044	Yes	Yes No
Fashion Valley Road to Camino De La Reina	2-Lane Collector <i>(continuous left-turn lane)</i>	15,000	13,640	E	0.909	50%	690	14,330	E	0.955	0.046	Yes	Yes No
Hotel Circle S.													
I-8 EB Ramps to Project Driveway (E)	2-Lane Collector <i>(continuous left-turn lane)</i>	15,000	14,830	E	0.989	43%	590	15,420	F	1.028	0.039	Yes	Yes No
Project Driveway (E) to Bachman Place	2-Lane Collector <i>(continuous left-turn lane)</i>	15,000	14,830	E	0.989	52%	720	15,550	F	1.037	0.048	Yes	Yes No
Bachman Place to Camino De La Reina	2-Lane Collector <i>(continuous left-turn lane)</i>	15,000	14,830	E	0.989	51%	700	15,530	F	1.035	0.046	Yes	Yes No

Footnotes:

- a. Capacities based on City of San Diego Roadway Classification Table.
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.



TABLE 2-5
 YEAR 2035 STREET SEGMENT OPERATIONS
 NO PROJECT (DEVELOPMENT UNDER THE ADOPTED PLAN) ALTERNATIVE
 CUMULATIVE IMPACT LOCATIONS ONLY (FROM TIA)

Street Segment	Functional Classification	Capacity (LOS E) ^a	Year 2035 (Horizon Year)			No Project Alternative ADT Δ 1,379		Year 2035 (Horizon Year) + Project at 1,379 ADT			V/C Increase	Sig	Proposed Project Impacts (from TIA Addendum)
			ADT ^a	LOS ^c	V/C ^b	% Dist	Land Use ADT	ADT	LOS	V/C			
Hotel Circle N.													
I-8 WB Ramps to Fashion Valley Road	3-Lane Collector (no center lane)	15,000	31,220	F	2.081	48%	660	31,880	F	2.125	0.044	Yes	Yes <u>No</u>
Fashion Valley Road to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	21,260	F	1.417	50%	690	21,950	F	1.463	0.046	Yes	Yes <u>No</u>
Hotel Circle S.													
Project Driveway (E) to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	20,750	F	1.383	52%	720	21,470	F	1.431	0.048	Yes	Yes <u>No</u>
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	19,520	F	1.301	51%	700	20,220	F	1.348	0.047	Yes	Yes <u>No</u>

Footnotes:

- a. Capacities based on City of San Diego Roadway Classification Table.
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.



**MORRIS CERULLO INTERNATIONAL CENTER
TRIP GENERATION - REDUCED PROJECT**

March 23, 2017 (10% reduction in uses except Bldg 3)

Land Use	Total Area	External Trip Productions / Attraction ^a	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour				
				Rate	Volume	% of ADT	In:Out	Volume		% of ADT	In:Out	Volume		
								In	Out			In	Out	
Bldg 1: Welcome Center / HiStory Dome														
Grand Lobby (ancillary use)	8,459 SF	0%	0 SF	80 /KSF	0	0	0:0	0	0	0	0	0	0	0
	Cumulative (100%)				0			0	0			0	0	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				0			0	0			0	0	
Exhibit Gallery	14,567 SF	20%	2,913 SF	80 /KSF	233	4	60:40	6	4	8	70:30	13	6	
	Cumulative (100%)				233			6	4			13	6	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				233			6	4			13	6	
Resort and Souk Retail	7,991 SF	40%	3,196 SF	40 /KSF	128	3	60:40	2	2	9	50:50	6	6	
	Cumulative (90%)				115			2	2			5	5	
	Pass-By (10%)				13			0	0			1	1	
	Driveway (100%)				128			2	2			6	6	
BOH/Public Facilities (ancillary use)														
BOH/Public Facilities (ancillary use)	4,107 SF	0%	0 SF	80 /KSF	0	0	0	0	0	0	0	0	0	
	Cumulative (100%)				0			0	0			0	0	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				0			0	0			0	0	
Catacombs	3,051 SF	40%	1,220 SF	40 /KSF	49	3	60:40	1	1	9	50:50	2	2	
	Cumulative (90%)				44			1	1			2	2	
	Pass-By (10%)				5			0	0			0	0	
	Driveway (100%)				49			1	1			2	2	
HiStory Dome Theater (6,206 SF)	90 seats	20%	18 seats	1.8 /seat	32	4	80:20	1	0	8	50:50	1	1	
	Cumulative (100%)				32			1	0			1	1	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				32			1	0			1	1	
Circulation (ancillary use)	1,138 SF	0%	0 seats	0 / SF	0	0	0:0	0	0	0	0:0	0	0	
	Cumulative (100%)				0			0	0			0	0	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				0			0	0			0	0	
Bldg 2: Pavilion														
Retail ^b	947 SF	40%	379 SF	40 /KSF	15	3	60:40	0	0	9	50:50	1	1	
	Cumulative (90%)				14			0	0			1	1	
	Pass-By (10%)				1			0	0			0	0	
	Driveway (100%)				15			0	0			1	1	
Restaurant ^c	7,712 SF	30%	2,314 SF	100 /KSF	231	1	60:40	1	1	8	70:30	13	6	
	Cumulative (90%)				208			1	1			12	5	
	Pass-By (10%)				23			0	0			1	1	
	Driveway (100%)				231			1	1			13	6	
Theater ^d	450 seats	20%	90 seats	1.8 /seat	162	4	60:40	4	3	8	70:30	9	4	
	Cumulative (100%)				162			4	3			9	4	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				162			4	3			9	4	
Learning Center ^e	12,460 SF	40%	4,984 SF	60 /KSF	299	4	80:20	10	2	8	50:50	12	12	
	Cumulative (100%)				299			10	2			12	12	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				299			10	2			12	12	
BOH/Public Facility (ancillary use)														
BOH/Public Facility (ancillary use)	4,323 SF	0%	0 SF	80 /KSF	0	0	0	0	0	0	0	0	0	
	Cumulative (90%)				0			0	0			0	0	
	Pass-By (10%)				0			0	0			0	0	
	Driveway (100%)				0			0	0			0	0	
Foyer Lobby/Circulation (ancillary use)	7,480 SF	0%	0 SF	80 /KSF	0	0	0	0	0	0	0	0	0	
	Cumulative (90%)				0			0	0			0	0	
	Pass-By (10%)				0			0	0			0	0	
	Driveway (100%)				0			0	0			0	0	
Office ^f	15,121 SF	100%	15,121 SF	formula	405	13	90:10	47	5	14	20:80	11	45	
	Cumulative (100%)				405			47	5			11	45	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				405			47	5			11	45	
Bldg 3: Legacy Hotel														
Hotel Rooms ^g	127 Rooms	100%	127 Units	8 /room	1,016	5	60:40	30	20	7	40:60	28	43	
	Cumulative (100%)				1,016			30	20			28	43	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				1,016			30	20			28	43	
Spa + Fitness	2,517 SF	50%	1,259 SF	40 /KSF	50	4	60:40	1	1	9	60:40	3	2	
	Cumulative (100%)				50			1	1			3	2	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				50			1	1			3	2	
Grand Plaza Steps Gathering Space	110 people	70%	77 people	1.8 /perso	139	0	0	0	0	50	80:20	55	14	
	Cumulative (100%)				139			0	0			55	14	
	Pass-By (0%)				0			0	0			0	0	
	Driveway (100%)				139			0	0			55	14	
Total Project Trips														
	Cumulative				2,717			103	39			152	140	
	Pass-By				42			0	0			2	2	
	Driveway				2,759			103	39			154	142	

Existing Land Uses													
Resort Hotel ^h	202 Rooms	100%	202 Rooms	10 /room	2,020	6	60:40	73	48	8	60:40	97	65
	Cumulative (100%)				2,020			73	48			97	65
	Pass-By (0%)				0			0	0			0	0
	Driveway (100%)				2,020			73	48			97	65
Valley Kitchen Restaurant	5300 SF	50%	2,650 SF	130 KSF	345	8	50:50	14	14	8	60:40	17	11
	Cumulative (80%)				276			11	11			14	9
	Pass-By (20%)				69			3	3			3	2
	Driveway (100%)				345			14	14			17	11
Gas Station	8 pumps	100%	8 pumps	0 /pump	0	7	50:50	0	0	11	50:50	0	0
	Cumulative (20%)				0			0	0			0	0
	Pass-By (80%)				0			0	0			0	0
	Driveway (100%)				0			0	0			0	0
Frog's Health Club	28,000 SF	100%	28,000 SF	0 /KSF	0	4	60:40	0	0	9	60:40	0	0
	Cumulative (100%)				0			0	0			0	0
	Pass-By (0%)				0			0	0			0	0
	Driveway (100%)				0			0	0			0	0
Liquor Store ⁱ	1,200 SF	100%	1,200 SF	500 /KSF	600	8	50:50	24	24	8	50:50	24	24
	Cumulative (50%)				300			12	12			12	12
	Pass-By (50%)				300			12	12			12	12
	Driveway (100%)				600			24	24			24	24
Total Existing Trips													
	Cumulative				2,596			96	71			123	86
	Pass-By				369			15	15			15	14
	Driveway				2,965			111	86			138	100

Net New Project Trips													
	Cumulative				121			7	-32			29	54
	Pass-By				-327			-15	-15			-13	-12
	Driveway				-206			-8	-47			16	42

Footnotes:

- a. External trip production / attraction (%) indicates external primary trips attracted to the project site. The balance of the land use SF is assumed to be captured internally as an ancillary use.
- b. Trip rate for "specialty retail" used.
- c. City of San Diego trip rate for "quality restaurant" used.
- d. City of San Diego trip rate for "theater" used. City of San Diego trip rates show 0% AM ADT. AM assumed as 4% to be conservative.
- e. City of San Diego trip rate for "religious assembly" used.
- f. City of San Diego trip rate for "commercial office" used.
- g. City of San Diego trip rate for hotel was used.
- h. Existing hotel includes 202 guest rooms and 7,000 SF convention space. Hence, City of San Diego trip rate of 10 trips per room was used.
- i. Square-footage measured from aerial photos. City of San Diego trip rate for "convenience market chain" used.

General Notes:

- 1. Green font represents 10% reduction in uses.

**TABLE 3-1
MORRIS CERULLO INTERNATIONAL CENTER
TRIP GENERATION—REDUCED PROJECT**

Land-Use	Total Area	Impact Avoidance	External-Trip-Productions-/Attraction ^a	Size	Daily-Trip-Ends (ADTs)		AM-Peak-Hour				PM-Peak-Hour			
					Rate	Volume	%of		Volume		%of		Volume	
							ADT	In/Out	In	Out	ADT	In/Out	In	Out
Morris Cerullo World Outreach Legacy Pavilion (Bldg #1)														
Wellness Center (Gym)	0 SF	0	50%	0 SF	40 /KSF	0	4	60:40	0	0	9	60:40	0	0
Cumulative (100%)						0			0	0			0	0
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Secondary-Generator														
Gift Shops (Retail) ^b	0 SF	0	40%	0 SF	40 /KSF	0	3	60:40	0	0	9	50:50	0	0
Cumulative (90%)						0			0	0			0	0
Pass-By (10%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Third Floor Restaurant ^c	0 SF	0	30%	0 SF	100 /KSF	0	1	60:40	0	0	8	70:30	0	0
Cumulative (90%)						0			0	0			0	0
Pass-By (10%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Theater ^d	0 seats	0	20%	0 seats	1.8 /seat	0	4	60:40	0	0	8	70:30	0	0
Cumulative (100%)						0			0	0			0	0
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Training Center ^e	39,432 SF	39,432	40%	15,773 SF	60 /KSF	947	4	80:20	30	8	8	50:50	38	38
Cumulative (100%)						947			30	8			38	38
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						947			30	8			38	38
Secondary-Generator														
Warehouse Storage (ancillary-use)	4,846 SF	4,846	0%	0 SF	80 /KSF	0	0	0	0	0	0	0	0	0
Cumulative (90%)						0			0	0			0	0
Pass-By (10%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Grand Foyer (ancillary-use)	6,000 SF	6,000	0%	0 SF	80 /KSF	0	0	0	0	0	0	0	0	0
Cumulative (90%)						0			0	0			0	0
Pass-By (10%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Morris Cerullo Welcome Center Rotunda (Bldg #2)														
Grand Foyer, Welcoming and Registration (ancillary-use)	10,717 SF	10,717	0%	0 SF	80 /KSF	0	0	0:0	0	0	0	0	0	0
Cumulative (100%)						0			0	0			0	0
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Presentation Gallery	0 SF	0	20%	0 SF	80 /KSF	0	4	60:40	0	0	8	70:30	0	0
Cumulative (100%)						0			0	0			0	0
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
The Inter-Faith World Legacy Outreach Pavilion (Bldg #3)														
Theater and Artifact Museum	330 seats	330	20%	66 seats	1.8 /seat	119	4	80:20	4	1	8	50:50	5	5
Cumulative (100%)						119			4	1			5	5
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						119			4	1			5	5
The Tri-Wing "Legacy Village" (Bldg #4)														
Timeshare Rooms ^f	127 Rooms	127	100%	127 Units	8 /room	1,016	5	60:40	30	20	7	40:60	28	43
Cumulative (100%)						1,016			30	20			28	43
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						1,016			30	20			28	43
Primary-Generator														
"Mount Horeb" Out Door Amphitheater (Bldg #5)														
140 Seat Amphitheater ^g	140 Seats	140	70%	98 Seats	1.8 /seat	176	0	0:0	0	0	50	80:20	71	18
Cumulative (100%)						176			0	0			71	18
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						176			0	0			71	18
Secondary-Generator														
Morris Cerullo International Center Executive Offices (Bldg #6)														
Executive Office ^h	23,028 SF	23,028	100%	23,028 SF	In-formula	556	13	90:10	65	7	14	20:80	16	62
Cumulative (100%)						556			65	7			16	62
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						556			65	7			16	62
Primary-Generator														
Retail Bazaar														
Retail Bazaar	0 SF	0	40%	0 SF	40 /KSF	0	3	60:40	0	0	9	50:50	0	0
Cumulative (90%)						0			0	0			0	0
Pass-By (10%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Catacombs														
Retail	5,992 SF	5,992	40%	2,397 SF	40 /KSF	96	3	60:40	2	1	9	50:50	4	4
Cumulative (90%)						86			2	1			4	4
Pass-By (10%)						10			0	0			0	0
Driveway (100%)						96			2	1			4	4
Total Project Trips														
Cumulative						2,900			131	37			162	170
Pass-By						10			0	0			0	0
Driveway						2,910			131	37			162	170
Existing Land Uses														
Resort Hotel ⁱ	202 Rooms		100%	202 Rooms	10 /room	2,020	6	60:40	73	48	8	60:40	97	65
Cumulative (100%)						2,020			73	48			97	65
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						2,020			73	48			97	65
Valley Kitchen Restaurant	5300 SF		50%	2,650 SF	130 SF	345	8	50:50	14	14	8	60:40	17	11
Cumulative (80%)						276			11	11			14	9
Pass-By (20%)						69			3	3			3	2
Driveway (100%)						345			14	14			17	11
Gas Station	8 pumps		100%	8 pumps	0 /pump	0	7	50:50	0	0	11	50:50	0	0
Cumulative (20%)						0			0	0			0	0
Pass-By (80%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Frog's Health Club	28,000 SF		100%	28,000 SF	0 /KSF	0	4	60:40	0	0	9	60:40	0	0
Cumulative (100%)						0			0	0			0	0
Pass-By (0%)						0			0	0			0	0
Driveway (100%)						0			0	0			0	0
Liquor Store ^j	1,200 SF		100%	1,200 SF	500 /KSF	600	8	50:50	24	24	8	50:50	24	24
Cumulative (50%)						300			12	12			12	12
Pass-By (50%)						300			12	12			12	12
Driveway (100%)						600			24	24			24	24
Total Existing Trips														
Cumulative						2,596			0	0	96	71	0	0
Pass-By						369			0	0	15	15	0	0
Driveway						2,965			0	0	111	86	0	0
Net New Project Trips														
Cumulative						304			35	-34			39	84
Pass-By						-359			-15	-15			-15	-14
Driveway						-55			20	-49			24	70

Footnotes:

- a. External-trip production /attraction (%) indicates external-primary-trips attracted to the project site. The balance of the land-use SF is assumed to be captured internally as an ancillary use.
- b. Trip rate for "specialty retail" used.
- c. City of San Diego trip rate for "quality restaurant" used.
- d. City of San Diego trip rate for "theater" used. City of San Diego trip rates show 0% AM ADT. AM assumed as 4% to be conservative.
- e. City of San Diego trip rate for "religious assembly" used.
- f. No City of San Diego trip rate for "timeshare". Hence, City of San Diego for "resort" hotel was used.
- g. No City of San Diego trip rate for "amphitheater". A trip rate of 1.8 /seat was used based on City trip rates. No AM peak hour trips assumed and majority of PM peak hour trips assumed to arrive within the hour.
- h. City of San Diego trip rate for "commercial office" used.
- i. Existing hotel includes 202 guest rooms and 7,000 SF convention space. Hence, City of San Diego trip rate of 10 trips per room was used.
- j. Square footage measured from aerial photos. City of San Diego trip rate for "convenience market chain" used.

TABLE 3-2
NEAR-TERM INTERSECTION OPERATIONS
REDUCED PROJECT ALTERNATIVE
DIRECT IMPACT LOCATIONS ONLY (FROM TIA ADDENDUM)

Intersection	Control Type	Peak Hour	Near-Term (Opening Day 2017)		Near-Term (Opening Day 2017) With Project EIR Alt (Direct Impact Avoidance)		Δ^c	Sig	Proposed Project Impacts (from TIA <u>ADDENDUM</u>)
			Delay ^a	LOS ^b	Delay	LOS			
5. Hotel Circle S. / I-8 EB Ramps	AWSC	AM	14.2	B	14.5 <u>14.3</u>	B	0.3 <u>0.1</u>	No	Yes <u>No</u>
		PM	62.5	F	75.2 <u>70.6</u>	F	12.7 <u>8.1</u>	Yes	Yes

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. “ Δ ” denotes the project-induced increase in delay.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 3-3
YEAR 2035 INTERSECTION OPERATIONS
REDUCED PROJECT ALTERNATIVE
CUMULATIVE IMPACT LOCATIONS ONLY (FROM TIA ADDENDUM)

Intersection	Control Type	Peak Hour	Year 2035 (Horizon Year)		Year 2035 (Horizon Year) With Project EIR Alt (Direct Impact Avoidance)		Δ^c	Sig	Proposed Project Impacts (from TIA <u>ADDENDUM</u>)
			Delay ^a	LOS ^b	Delay	LOS			
1. Hotel Circle N. / I-8 WB Ramps	AWSC	AM	57.6	F	61.4 <u>58.4</u>	F	3.8 <u>0.8</u>	Yes <u>No</u>	Yes
		PM	49.2	E	55.2 <u>53.1</u>	F	6.0 <u>3.9</u>	Yes	Yes

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. “ Δ ” denotes the project-induced increase in delay.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 3-4
NEAR-TERM STREET SEGMENT OPERATIONS
REDUCED PROJECT ALTERNATIVE
DIRECT IMPACT LOCATIONS ONLY (FROM TIA)

Street Segment	Functional Classification	Capacity (LOS-E) ^a	Near-Term (Opening Day 2017)			Assumed Project ADT: 304		Near-Term (Opening Day 2017) + Project at 304 ADT			V/C Increase	Sig	Proposed Project Impacts (from TIA)
			ADT ^b	LOS ^e	V/C ^d	% Dist.	Project ADT	ADT	LOS	V/C			
Hotel Circle N:													
I-8 WB Ramps to Fashion Valley Road	3-Lane Collector (no center lane)	15,000	17,230	F	1.149	48%	150	17,380	F	1.159	0.010	No	Yes
Fashion Valley Road to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	13,640	E	0.909	50%	150	13,790	E	0.919	0.010	No	Yes
Hotel Circle S:													
I-8 EB Ramps to Project Driveway (E)	2-Lane Collector (continuous left-turn lane)	15,000	14,830	E	0.989	43%	130	14,960	E	0.997	0.008	No	Yes
Project Driveway (E) to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	14,830	E	0.989	52%	160	14,990	E	0.999	0.010	No	Yes
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	14,830	E	0.989	51%	160	14,990	E	0.999	0.010	No	Yes

Footnotes:

- a. — Capacities based on City of San Diego Roadway Classification Table.
- b. — Average Daily Traffic Volumes.
- e. — Level of Service.
- d. — Volume to Capacity.

General Notes:

- 1. Critical street segment.

TABLE 3-5
YEAR 2035 STREET SEGMENT OPERATIONS
REDUCED PROJECT ALTERNATIVE
CUMULATIVE IMPACT LOCATIONS ONLY (FROM TIA)

Street Segment	Functional Classification	Capacity (LOS-E) ^a	Year 2035 (Horizon Year)			Assumed Project ADT: 304		Year 2035 (-Horizon Year)+ Project at 304 ADT			V/C Increase	Sig	Proposed Project Impacts (from TIA)
			ADT ^a	LOS ^e	V/C ^b	% Dist	Project ADT	ADT	LOS	V/C			
Hotel Circle N.	-												
I-8 WB Ramps to Fashion Valley Road	3-Lane Collector (no center lane)	15,000	31,220	F	2.081	48%	150	31,370	F	2.091	0.010	No	Yes
Fashion Valley Road to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	21,260	F	1.417	50%	150	21,410	F	1.427	0.010	No	Yes
Hotel Circle S.	-												
Project Driveway (E) to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	20,750	F	1.383	52%	160	20,910	F	1.394	0.011	Yes	Yes
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	19,520	F	1.301	51%	160	19,680	F	1.312	0.011	Yes	Yes

Footnotes:

- a.— Capacities based on City of San Diego Roadway Classification Table.
- b.— Average Daily Traffic Volumes.
- e.— Level of Service.
- d.a. Volume to Capacity.

