

Costa Verde Center Revitalization Project  
Environmental Impact Report  
SCH No. 2016071031; Project No. 477943

Appendix H2

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Sewer Memorandum

March 2020



## MEMORANDUM

To: City of San Diego

From: Tom Eagling, P.E.  
Kimley-Horn and Associates, Inc.

Date: July 18, 2019

Subject: Sewer System Analysis for the Costa Verde Center

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### INTRODUCTION

This analysis provides a summary of an impact of the Costa Verde Center proposed development on the existing sewer system (12-inch line) within Genesee Avenue between La Jolla Village Drive and Nobel Drive (see Attachment A.)

### OVERVIEW

A sewer study titled “Sewer System Analysis for the Monte Verde Project (Formerly Mar Bella)” dated August 2003, by Dexter Wilson Engineering, Inc. (Attachment B) concluded that an 18-inch trunk sewer line was needed to accommodate flows from the Monte Verde Development (four towers) and other future developments in the sewer system reach. The first addendum to this study provided an analysis for a new sewer alignment since it had been determined that a new 18-inch sewer line would be installed adjacent to the existing 12-inch sewer line (to remain in service) instead of upsizing the existing sewer line in place (due to environmental constraints.) The second addendum was prepared to reflect a reduction in flows due to a decrease in the number of proposed units on the Monte Verde project (four towers) and the 2<sup>nd</sup> Hyatt Senior Tower no longer contributing flow to the existing Genesee Avenue sewer. The third addendum—Attachment B--was completed to reflect minor alignment changes and manhole additions to the proposed 18-inch sewer line. All addendums were prepared by engineering firms other than Kimley-Horn & Associates and have been previously approved by the City of San Diego. The addendums discussed in this report are for reference only.

Since the approval of Addendum No. 3, the construction of the aforementioned 18-inch sewer line in Genesee Avenue is now close to complete (with as-builts currently being prepared). Due to field conditions during construction, Leppert Engineering Corporation received direction from the City of San Diego to have the laterals from the Monte Verde, Costa Verde and the existing UTC development to remain connected to the existing 12-inch sewer line between La Jolla Village Drive and Nobel Drive. Now, beginning at Nobel Drive, the contributing flows north of La Jolla Village Drive are being diverted to the new 18-inch line which starts at the La Jolla Village Drive and Genesee Avenue intersection. The 12-inch line then confluences with the new 18-inch line just south of the Nobel Drive and Genesee Avenue intersection.

The purpose of this sewer analysis is to verify that the existing 12-inch sewer line in Genesee Avenue has sufficient capacity for the proposed Costa Verde Center improvements, which include 125,000 square feet of retail space and a 200-room hotel.

**SEWER SYSTEM ANALYSIS**

The sewer study exhibit (Attachment A) shows the existing 12-inch sewer line in Genesee Avenue and the existing and proposed lateral connections. Based on the City of San Diego Sewer Design Guide (May 2015) Table 1-1, a series of calculations were performed to obtain the future Equivalent Population served by the Costa Verde Center Project. The project has been divided into two categories, which reflect the areas occupied by proposed Office buildings, as well as areas occupied by Commercial & Hotel buildings. A summary of the calculations is provided below. For hydraulic analyses, see Attachment C.

From Sewer Design Guide Table 1-1 Density Conversions:

| Zone                     | Max Density (DU/ Net AC) | Population Per DU | Equivalent Population (Pop/ Net AC) |
|--------------------------|--------------------------|-------------------|-------------------------------------|
| <b>Offices</b>           | 10.9                     | 3.5               | 38.2 (per floor)                    |
| <b>Commercial/Hotels</b> | 12.5                     | 3.5               | 43.7 (per floor)                    |

**Offices:**

Building B area = 0.34 AC x 3 floors = 1.02 AC

Building T1 area = 0.85 AC x 6 floors = 5.1 AC

Building T2 area = 0.94 AC x 6 floors = 5.64 AC

Total Office area = 11.76 AC

Equivalent Population = 10.9 (DU/Net AC) x 3.5 (Pop per DU) x 11.76 AC = **448.64 (Pop/ Net AC)**

**Hotel:**

Building area = 0.95 AC x 6 floors = 5.7 AC

Equivalent Population = 12.5 (DU/Net AC) x 3.5 (Pop per DU) x 5.7 AC = **249.38 (Pop/ Net AC)**

**Commercial:**

Building area = 8.77 AC

Equivalent Population = 12.5 (DU/Net AC) x 3.5 (Pop per DU) x 8.77 AC = **383.69 (Pop/ Net AC)**

**CONCLUSIONS**

The proposed Costa Verde Center development anticipated adding an equivalent population of approximately 1,082 to the existing 12-inch sewer trunk line in Genesee Avenue. As shown in Attachment C, the existing 12-inch sewer line has sufficient capacity & velocity for the proposed development. No additional analysis is required at this time.

We are available to discuss any questions that you may have concerning this study.

Kimley-Horn and Associates, Inc.



Tom Eagling, P.E.

Attachments

A – Site Exhibit

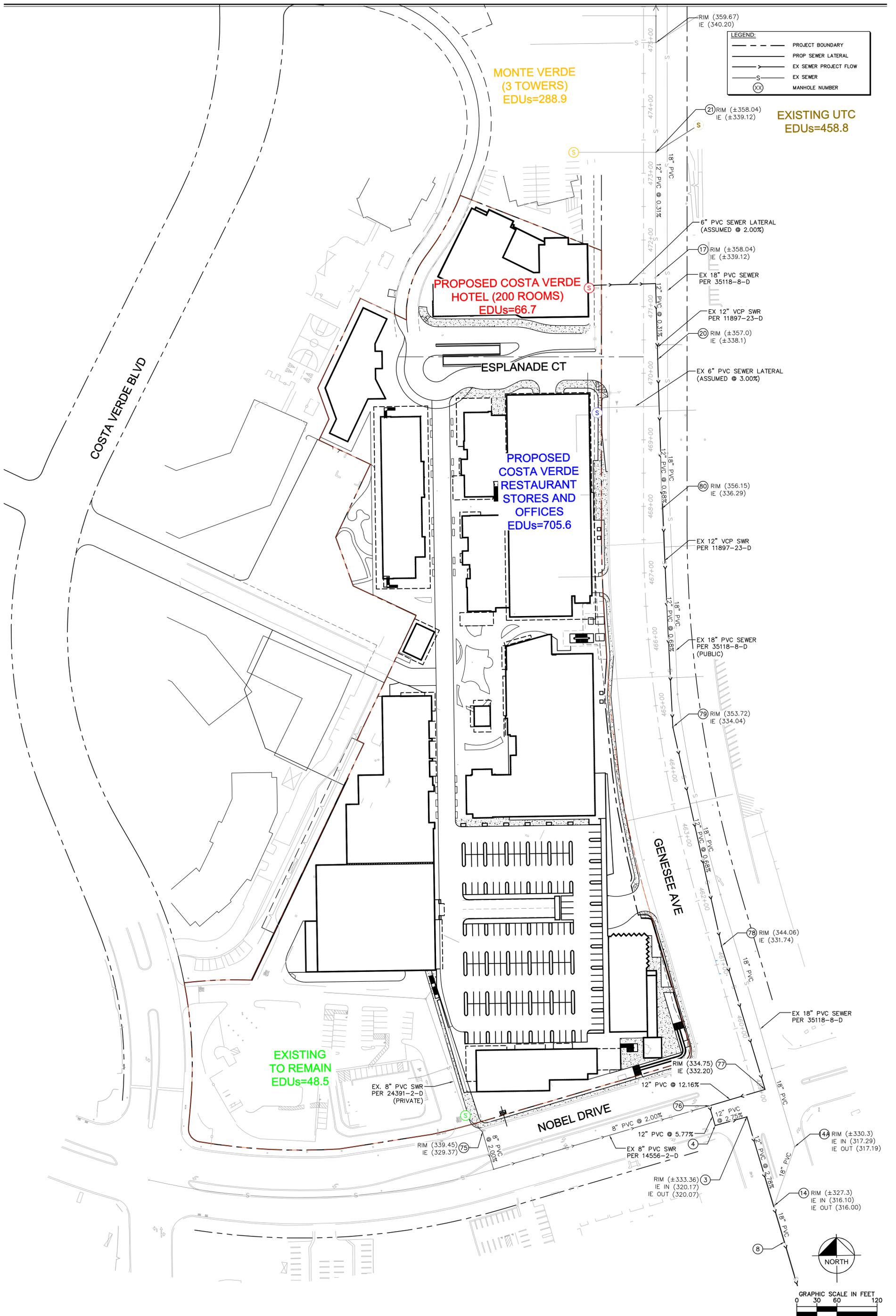
B – Addendum No. 3 Sewer System Analysis for the Monte Verde Project (Formerly Mar Bella) dated June 19, 2006

C – Hydraulic Analysis



## **Attachment A**

Site Exhibit



**LEGEND:**

|      |                       |
|------|-----------------------|
| ---  | PROJECT BOUNDARY      |
| ---  | PROP SEWER LATERAL    |
| →    | EX SEWER PROJECT FLOW |
| S    | EX SEWER              |
| (XX) | MANHOLE NUMBER        |

**MONTE VERDE  
(3 TOWERS)  
EDUs=288.9**

**EXISTING UTC  
EDUs=458.8**

**PROPOSED COSTA VERDE  
HOTEL (200 ROOMS)  
EDUs=66.7**

**PROPOSED  
COSTA VERDE  
RESTAURANT  
STORES AND  
OFFICES  
EDUs=705.6**

**EXISTING  
TO REMAIN  
EDUs=48.5**



**Attachment B**

Addendum No. 3 Sewer System Analysis for the Monte Verde Project (Formerly Mar Bella) dated June 19, 2006

**ADDENDUM NO. 3  
SEWER SYSTEM ANALYSIS  
FOR THE  
MONTE VERDE PROJECT  
(FORMERLY MAR BELLA)**

**June 19, 2006**

Prepared By:

Dexter Wilson Engineering, Inc.  
703 Palomar Airport Road  
Suite 300  
Carlsbad, CA 92011  
(760) 438-4422

Job No. 786-001

June 19, 2006

786-001

Garden Communities  
8530 Costa Verde Boulevard  
San Diego, CA 92122

Attention: Carol Matson, Project Manager

Subject: Sewer System Analysis for the Monte Verde (formerly Mar Bella)  
Project in the City of San Diego

### **Introduction**

This report provides a third amendment to the August 13, 2003 Sewer System Analysis for the Mar Bella Project. The project has since been re-named as Monte Verde. The August 13, 2003 study was approved by the City of San Diego in a letter dated October 20, 2003. Addendum Number 1 was dated December 15, 2004 and approved by the City of San Diego in a letter dated December 28, 2004. Addendum Number 2 was dated August 31, 2005 and was approved by the City of San Diego in a letter dated September 22, 2005.

## Overview

The August 2003 study concluded that the existing 10-inch and 12-inch gravity sewer lines between the project and the Rose Canyon Interceptor must be replaced with an 18-inch trunk sewer to accommodate flows from Monte Verde and other future developments in the basin. The project initially evaluated replacing the existing sewer line in the same alignment, but this would have significant environmental impacts since a portion of the line is located in the bottom of a canyon. The purpose of the first amended report was to present a hydraulic analysis of a revised alignment that is preferable from an operational and environmental standpoint because it allows a section of canyon sewer to be abandoned. The second sewer study amendment was prepared to reflect the reduction in proposed units on the Monte Verde project from 1,084 units to 800 units. The second amended study also reflects the reduction in flows as a result of the 2nd Hyatt Senior Tower no longer contributing flow to the existing Genesee Avenue Sewer.

The purpose of this amendment is to reflect minor alignment changes and manhole additions to the offsite sewer line in conformance with current City sewer guidelines.

## Sewer System Analysis

Exhibit A provides the recommended sewer system improvements and Appendix A provides the corresponding hydraulic analysis. All sewage flows were taken from the approved August 2005 Amendment Number 2 study and modified to reflect the current sewer and manhole layout. The analysis includes the proposed 18-inch sewer line from the Monte Verde project to the Rose Canyon Interceptor in the preferred alignment and also includes a section of existing 12-inch line between Nobel Drive and Decoro Street. This existing 12-inch line was analyzed to verify

that adequate velocities would be obtained once the proposed 18-inch line is installed. The analysis has been updated to comply with the October 2004 City of San Diego Sewer Design Guide requirements.

### Conclusions

The following conclusions have been made based on the analyses in this report.

1. The proposed 18-inch sewer line alignment will allow a section of canyon sewer to be abandoned and will avoid potential environmental impacts.
2. The existing 12-inch sewer line between Nobel Drive and Decoro Street will still have adequate flows and velocity when the proposed 18-inch sewer is constructed.
3. The downstream section of the proposed 18-inch sewer line will require some special construction techniques including a section that will be installed in a steel casing by boring and jacking beneath the railroad tracks. These details will be reflected on the final design plans for the project.
4. For sewer manholes located outside the paved roadway, an access road alignment that minimizes impacts to coastal sage scrub will be provided. The two proposed manholes adjacent to the Rose Canyon Interceptor (Manholes 1 and 2 on Exhibit A) will not have a permanent access road to them, but will be accessible in an emergency scenario. This is consistent with the City's approach for accessing existing manholes on this section of the Rose Canyon Interceptor.
5. Minimum easement width will be determined per the City of San Diego's Sewer Design Guide for that portion of main that is not located in a public right of way.

Carol Matson  
June 19, 2006

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If you have any questions on this study, we are available to discuss the contents at your convenience.

Dexter Wilson Engineering, Inc.

*Stephen M. Nielsen*

Stephen M. Nielsen

SMN:sr

Attachments



# APPENDIX A

## **Sewer System Analysis**



**SEWER STUDY SUMMARY**

DATE: 5/23/2006  
 JOB NUMBER: 786-001

FOR: Monte Verde Sewer Study Addendum 3  
 BY: Dexter Wilson Engineering

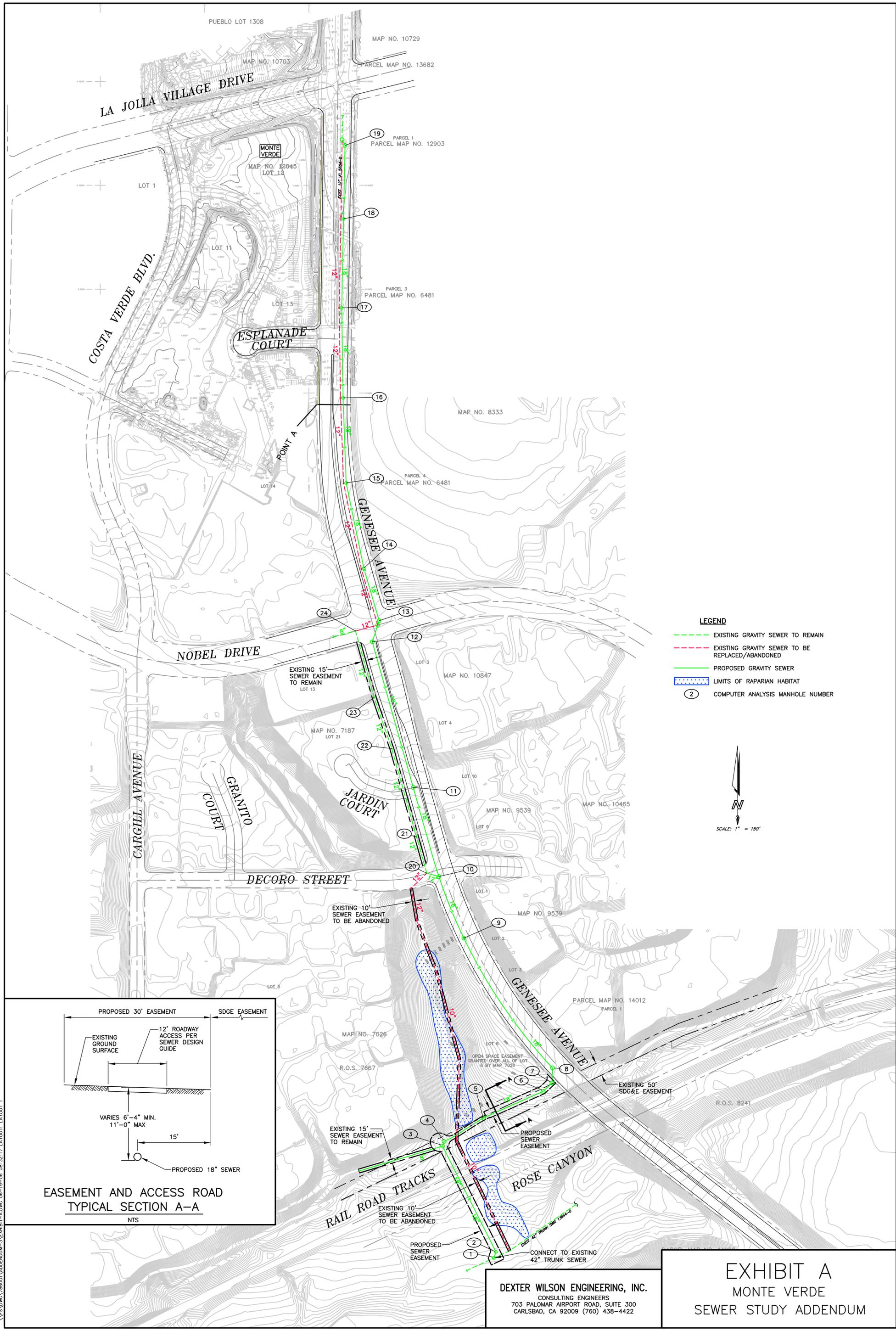
SHEET 2 OF 2  
 REFER TO PLAN SHEET: \_\_\_\_\_

| LINE | FROM | TO | POP. PER D.U. | IN-LINE D.U.'S | POPULATION SERVED |         | SEWAGE PER CAPITA/DAY (gpd) | AVG. DRY WEATHER FLOW | DRY WEATHER PEAKING FACTOR | PEAK DRY WEATHER FLOW | WET WEATHER PEAKING FACTOR | PEAK WET WEATHER FLOW (DESIGN FLOW) |        | LINE SIZE (inches) | DESIGN SLOPE (%) | DEPTH K' <sup>(1)</sup> | dn (feet) | dn/D <sup>(2)</sup> | C <sub>s</sub> for Velocity <sup>(3)</sup> | VELOCITY (f.p.s.) | Remarks               |
|------|------|----|---------------|----------------|-------------------|---------|-----------------------------|-----------------------|----------------------------|-----------------------|----------------------------|-------------------------------------|--------|--------------------|------------------|-------------------------|-----------|---------------------|--|-------------------|-----------------------|
|      |      |    |               |                | IN-LINE           | TOTAL   |                             |                       |                            |                       |                            | M.G.D.                              | C.F.S. |                    |                  |                         |           |                     |  |                   |                       |
|      | 19   | 18 |               |                | 11040.0           | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 0.30             | 0.245552                | 0.78000   | 0.52                | 0.41                                       | 3.30652           | 8/05 Addendum 2 study |
|      | 18   | 17 |               |                | 0.0               | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 0.68             | 0.163099                | 0.61500   | 0.41                | 0.30                                       | 4.51891           |                       |
|      | 17   | 16 |               |                | 0.0               | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 0.68             | 0.163099                | 0.61500   | 0.41                | 0.30                                       | 4.51891           |                       |
|      | 16   | 15 |               |                | 0.0               | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 0.68             | 0.163099                | 0.61500   | 0.41                | 0.30                                       | 4.51891           |                       |
|      | 15   | 14 |               |                | 0.0               | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 0.68             | 0.163099                | 0.61500   | 0.41                | 0.30                                       | 4.51891           |                       |
|      | 14   | 13 |               |                | 0.0               | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 4.40             | 0.064118                | 0.39000   | 0.26                | 0.16                                       | 8.47296           |                       |
|      | 13   | 12 |               |                | 0.0               | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 0.67             | 0.164311                | 0.63000   | 0.42                | 0.30                                       | 4.51891           |                       |
|      | 12   | 11 |               |                | 0.0               | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 3.77             | 0.069268                | 0.40500   | 0.27                | 0.17                                       | 7.97456           |                       |
|      | 11   | 10 |               |                | 0.0               | 11040.0 | 80                          | 883,200               | 1.80                       | 1,589,760             | 1.24                       | 1.97                                | 3.05   | 18                 | 3.83             | 0.068723                | 0.40500   | 0.27                | 0.27                                       | 5.02102           |                       |
|      | 10   | 9  |               |                | 3413.5            | 14453.5 | 80                          | 1,156,280             | 1.76                       | 2,035,053             | 1.24                       | 2.52                                | 3.90   | 18                 | 3.83             | 0.087973                | 0.45000   | 0.30                | 0.19                                       | 9.13368           | from 12" sewer line   |
|      | 9    | 8  |               |                | 0.0               | 14453.5 | 80                          | 1,156,280             | 1.76                       | 2,035,053             | 1.24                       | 2.52                                | 3.90   | 18                 | 4.24             | 0.083611                | 0.43500   | 0.29                | 0.19                                       | 9.13368           |                       |
|      | 8    | 7  |               |                | 0.0               | 14453.5 | 80                          | 1,156,280             | 1.76                       | 2,035,053             | 1.24                       | 2.52                                | 3.90   | 18                 | 1.20             | 0.157166                | 0.60000   | 0.40                | 0.29                                       | 5.98414           |                       |
|      | 7    | 6  |               |                | 0.0               | 14453.5 | 80                          | 1,156,280             | 1.76                       | 2,035,053             | 1.24                       | 2.52                                | 3.90   | 18                 | 2.20             | 0.116075                | 0.51000   | 0.34                | 0.24                                       | 7.23083           |                       |
|      | 6    | 5  |               |                | 0.0               | 14453.5 | 80                          | 1,156,280             | 1.76                       | 2,035,053             | 1.24                       | 2.52                                | 3.90   | 18                 | 14.40            | 0.045370                | 0.31500   | 0.21                | 0.12                                       | 14.46166          |                       |
|      | 5    | 4  |               |                | 0.0               | 14453.5 | 80                          | 1,156,280             | 1.76                       | 2,035,053             | 1.24                       | 2.52                                | 3.90   | 18                 | 1.00             | 0.172167                | 0.63000   | 0.42                | 0.31                                       | 5.59806           |                       |
|      | 4    | 3  |               |                | 0.0               | 14453.5 | 80                          | 1,156,280             | 1.76                       | 2,035,053             | 1.24                       | 2.52                                | 3.90   | 18                 | 11.00            | 0.051910                | 0.34500   | 0.23                | 0.13                                       | 13.34923          |                       |
|      | 3    | 2  |               |                | 2901.7            | 17355.2 | 80                          | 1,388,416             | 1.72                       | 2,388,076             | 1.24                       | 2.96                                | 4.58   | 18                 | 5.80             | 0.083889                | 0.43500   | 0.29                | 0.19                                       | 10.71811          | 8/05 Addendum 2 Study |
|      | 2    | 1  |               |                | 0.0               | 17355.2 | 80                          | 1,388,416             | 1.72                       | 2,388,076             | 1.24                       | 2.96                                | 4.58   | 18                 | 6.40             | 0.079860                | 0.43500   | 0.29                | 0.19                                       | 10.71811          |                       |

<sup>1</sup> K' based on n = 0.013

<sup>2</sup> dn/D using K' in Brater King Table 7-14

<sup>3</sup> From Brater King Table 7-4 based on dn/D



\\FS\DW\766001\ADDENDUM-3\EXHIBIT-A.DWG 06-19-06 08:32:17 LAYOUT: LAYOUT 1



**Attachment C**

Hydraulic Analysis

JOB NO. 095930000

DATE: 7/18/2019

PROJECT ENGINEER: Tom Eagling

PREPARED BY: TRE

*Update*

*Calculate*

| ENTER NUMBER OF NODES TO ANALYZE: |             |       |                            |          |                                |             |              |                  |        |                    |                   |                  |        |      |                |          |                              |
|-----------------------------------|-------------|-------|----------------------------|----------|--------------------------------|-------------|--------------|------------------|--------|--------------------|-------------------|------------------|--------|------|----------------|----------|------------------------------|
| 10                                |             |       |                            |          |                                |             |              |                  |        |                    |                   |                  |        |      |                |          |                              |
| REACH                             | FROM MH     | TO MH | # OF EQUIV. DWELLING UNITS | DENSITY* | POP. PER EDU / ACRE (LAND USE) | POP. INLINE | SERVED TOTAL | PEAK DESIGN FLOW |        | LINE SIZE (INCHES) | MINIMUM SLOPE (%) | DESIGN SLOPE (%) | dn(ft) | dn/D | VELOCITY (fps) | COMMENTS |                              |
|                                   |             |       |                            |          |                                |             |              | PEAK/AVG RATIO   | M.G.D. |                    |                   |                  |        |      |                |          | CFS                          |
| 1                                 | EX UTC      | 21    | 458.8                      | 0.0      | 3.5                            | 1,605.8     | 1,605.8      | 2.34             | 0.300  | 0.463              | 8                 | 0.587%           | 2.00   | 0.24 | 0.36           | 4.16     | Existing UTC Flows           |
| 2                                 | Proposed MV | 21    | 288.9                      | 0.0      | 2.2                            | 635.6       | 2,241.4      | 2.24             | 0.401  | 0.618              | 12                | 0.230%           | 2.00   | 0.24 | 0.24           | 4.35     | Proposed MV (3 Towers)       |
| 3                                 | 21          | 17    | 0.0                        | 0.0      | 0.0                            | 0.0         | 2,241.4      | 2.24             | 0.401  | 0.618              | 12                | 0.230%           | 0.68   | 0.31 | 0.31           | 2.96     |                              |
| 4                                 | 17          | 20    | 0.0                        | 71.3     | 3.5                            | 249.4       | 2,490.8      | 2.20             | 0.439  | 0.677              | 12                | 0.215%           | 3.00   | 0.22 | 0.22           | 5.16     | Prop CV Hotel                |
| 5                                 | 20          | 80    | 0.0                        | 237.8    | 3.5                            | 832.3       | 3,323.1      | 2.12             | 0.564  | 0.869              | 12                | 0.238%           | 0.68   | 0.37 | 0.37           | 3.26     | Prop CV Offices + Commercial |
| 6                                 | 80          | 77    | 0.0                        | 0.0      | 0.0                            | 0.0         | 3,323.1      | 2.12             | 0.564  | 0.869              | 12                | 0.238%           | 3.00   | 0.25 | 0.25           | 5.55     |                              |
| 7                                 | 77          | 76    | 0.0                        | 0.0      | 0.0                            | 0.0         | 3,323.1      | 2.12             | 0.564  | 0.869              | 12                | 0.238%           | 3.00   | 0.25 | 0.25           | 5.55     |                              |
| 8                                 | 75          | 76    | 48.5                       | 0.0      | 3.5                            | 169.8       | 3,492.8      | 2.11             | 0.588  | 0.908              | 12                | 0.260%           | 5.77   | 0.22 | 0.22           | 7.09     | Existing Costa Verde from 8" |
| 9                                 | 76          | 14    | 0.0                        | 0.0      | 0.0                            | 0.0         | 3,492.8      | 2.11             | 0.588  | 0.908              | 12                | 0.260%           | 0.30   | 0.48 | 0.48           | 2.44     |                              |
| 10                                | 14          | 8     | 2062.2                     | 0.0      | 3.5                            | 7,217.7     | 10,710.5     | 1.81             | 1.553  | 2.394              | 18                | 0.094%           | 0.30   | 0.67 | 0.45           | 3.11     | Confluence with 18"          |

\* DENSITY = MAX DENSITY x AREA (AC)

REACH 4:  
 Hotel Density = 12.5 x 5.7 AC = 71.3

REACH 5:  
 Office Density = 10.9 x 11.76 AC = 128.18  
 Commercial Density = 12.5 x 8.77 AC = 109.63  
 Total Density = 237.81