Appendix 5.22

Wastewater Appendices

Appendix 5.22A

Sewer Area Study

Alliance Land Planning & Engineering, Inc.

February 2014

SEWER AREA STUDY

ENTRADA SOUTH

TRACT NO. 53295
PC 12056 AS
Santa Clarita, CA

Prepared For:
Newhall Land & Farming
25124 Springfield Court, Suite 300
Valencia, CA 91355
(661) 255-4000

Prepared By:
Alliance Land Planning & Engineering, Inc.
2248 Faraday Ave.
Carlsbad, CA 92008
(760) 431-9896

FEBRUARY 2014

SEWER AREA STUDY
APPROVED

APPROVED BY:__[signature]__ RCE NO. 70745 DATE 02/19/2014

CHECKED BY:_____DATE_____

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

This approval is only good for two years from the date of sewer area study approval.

INTRODUCTION / PROJECT DESCRIPTION

The following area study has been prepared to show that the capacity is adequate for the sewer segments from the proposed development site to the Los Angeles County Sanitation District (LACSD) maintained trunk sewers.

The Entrada South project encompasses 382.3 acres and lies to the west of the intersection of The Old Road and Magic Mountain Parkway in Santa Clarita. Magic Mountain Parkway (MMP) will be extended to the west by the project and will include an 18" LACSD trunk sewer within the roadway. See LACSD letter within this report stating that the 18" sewer line within MMP will be owned and maintained by LACSD.

The developed areas of Entrada South (PA 1-PA 13) flow into the MMP trunk sewer. PA 14 drains into an existing 8" county sewer line (PC 11839) within the Old Road.

SEWER CAPACITY ANALYSIS

The sewer capacity analysis performed for this project includes calculating the proposed flow due to the Entrada Development. See Table 1 for flowrate calculations for each Planning Area. See Appendix A for Kutter Formula Calculations for each flowrate and pipe size. See Sewer Area Study Map in the pocket of this report for sewer layout and flowrate calculations.

The analysis also includes the percentage full of the pipes within the system. For the basis of this study all proposed sewer lines are calculated using a 1.0% slope. The percentage full for each pipe segment is shown on the Sewer Area Study Map in the pocket of this report.

The total flowrate generated by the Entrada South project is 2.466 cfs and enters the MMP trunk sewer at various locations. The flowrate generated by PA 14 is 0.045 cfs and flows into an 8" sewer stub constructed to serve the site (see Appendix B). With the flow from the site, the proposed 8" line which will connect to the existing 8" stub per P.C. 11839 will only be 24% full (see Appendix A for calculation).

TR 61996 (Legacy) was excluded from this sewer area study since it is not part of the natural sewershed. Legacy will be conditioned to provide the analysis if Legacy is approved to discharge by gravity or pump station to the Sanitation District 32 treatment plant through the existing sewer system in the Old Road.

CONCLUSION

The proposed Entrada project generates a flowrate of 2.466 cfs which enters the MMP trunk sewer. The pipe sizing shown on the Sewer Area Study Map is adequate to meet LADPW standards for a maximum of 50% full for each pipe segment.

It can be concluded that sufficient design capacity exists within the proposed LADPW sewer system within the Entrada South project.

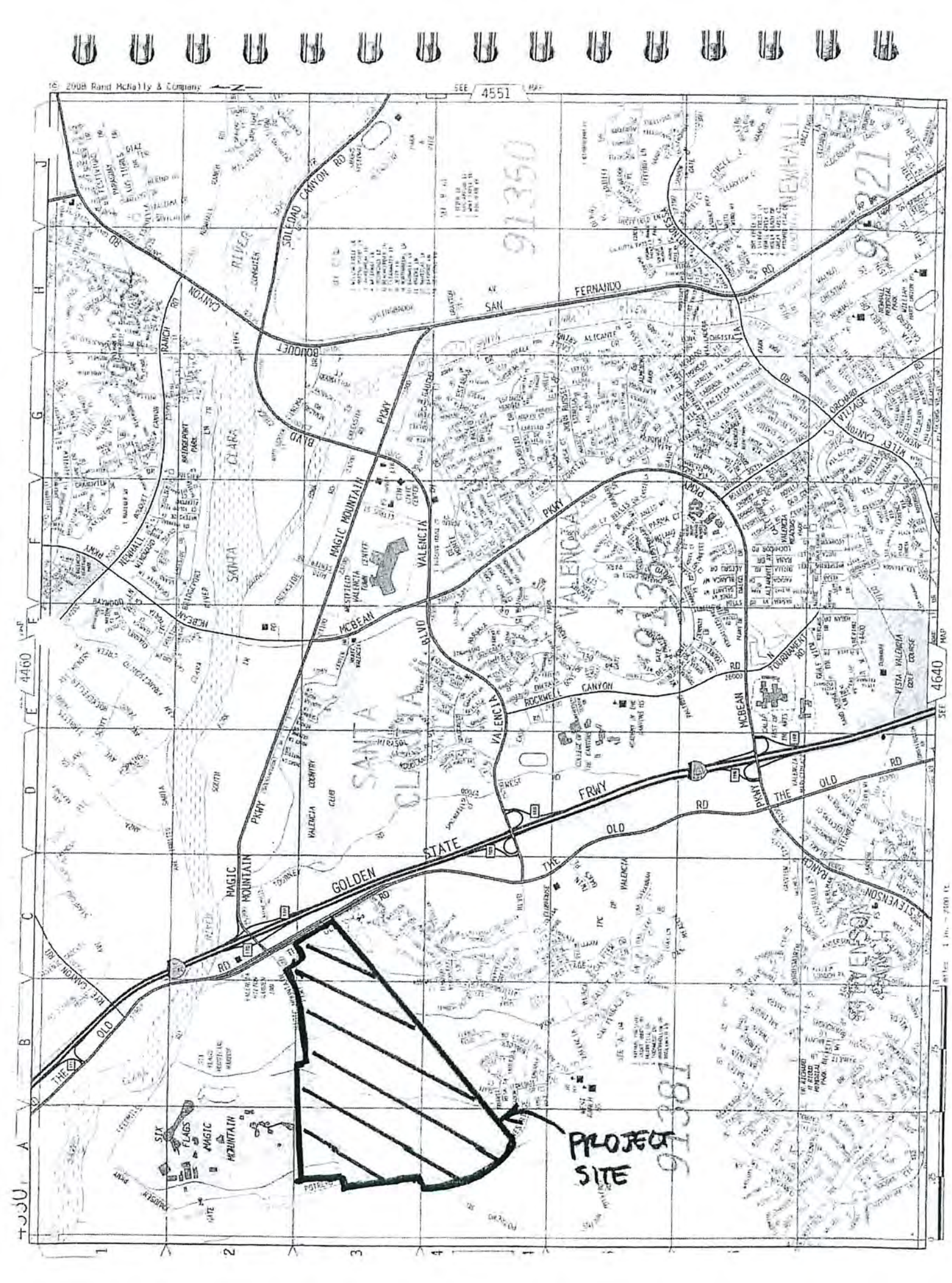

© 2008 Rand McNally & Company
SEE 4551
SEE 4640
SOLEDAD CANYON RD
SAN FERNANDO RD
BOUQUET CANYON RD
NEWHALL RANCH RD
MAGIC MOUNTAIN PKWY
VALENCIA BLVD
MCBEAN PKWY
ROCKWELL CANYON
TOURNAMENT RD
THE OLD RD
GOLDEN STATE FRWY
SIERRA HWY
SANTA CLARA RIVER
SANTA CLARITA
VALENCIA
NEWHALL
SAUGUS
91350
91321
91387
PROJECT SITE
SIX FLAGS MAGIC MOUNTAIN

TABLE 1

SEWER CALCULATIONS

The following table summarizes the flows within the system:

SEWER GENERATION TABLE

PLANNING AREA	LAND USE	AREA OR DWELLING UNITS	PEAK Q COEF.	TOTAL Q
PA - 1-3	COMMERCIAL/OFFICE	53.8 AC	0.015	0.807 CFS
PA-4A	REC AREA	2.1 AC	0.0015	0.00315 CFS
PA-4B	CONDOMINIUM	125 UNITS	0.001	0.125 CFS
PA-4C	CONDOMINIUM	53 UNITS	0.001	0.053 CFS
PA-5A	SINGLE-FAMILY	14 LOTS	0.001	0.014 CFS
PA-5B	SINGLE-FAMILY	30 LOTS	0.001	0.029 CFS
PA-5C	SINGLE-FAMILY	53 LOTS	0.001	0.053 CFS
PA-5D	REC AREA	0.8 AC	0.0015	0.001 CFS
PA-5E	SINGLE-FAMILY	37 LOTS	0.001	0.037 CFS
PA-6A	SINGLE-FAMILY	58 LOTS	0.001	0.058 CFS
PA-6B	SINGLE-FAMILY	57 LOTS	0.001	0.057 CFS
PA-7	SINGLE-FAMILY	90 LOTS	0.001	0.090 CFS
PA-8	ELEMENTARY SCHOOL SITE	750 STUDENTS	10 gal/student/day	0.029 CFS
	PARK SITE	300 PATRONS	15 gal/patron/day	0.007 CFS
PA-9	CONDOMINIUM	255 UNITS	0.001	0.255 CFS
PA-10	CONDOMINIUM	280 UNITS	0.001	0.280 CFS
PA-11	CONDOMINIUM	208 UNITS	0.001	0.208 CFS
PA-12	CONDOMINIUM	120 UNITS	0.001	0.120 CFS
PA-13	CONDOMINIUM	194 UNITS	0.001	0.194 CFS
PA-14	COMMERCIAL/OFFICE	3.0 AC	0.015	0.045 CFS
TOTAL				2.466 CFS

Sewer Area Study Table (BASIN 7 - PA-14)

Street Name	Segment		Pipe		*Capacity		Area (Acres)	Zoning Coeff.	Calculated Flow (cfs)	**Cumulative Calculated Flow (cfs)	Cumulative Depth (in)	PC orCI Construction Plan #	Comment	% Full	
	M.H. #	M.H. #	Size (in.)	Slope (%)	1/2 Full(<15")	3/4 Full(>15")								*** Flow Depth/ (0.5 X Pipe Dia.)	Cummulative Flow / Capacity
PA-14	Proj.	Lat.	8	2.00	0.795		3	0.015	0.045	0.045	0.96	Proposed	PA-14	24.0	5.7
The Old Road	Lat.	233	8	2.00	0.795					0.045	0.96	P.C.11839		24.0	5.7
The Old Road	233	232	8	1.40	0.665					0.045	1.08	P.C.11839		27.0	6.8
The Old Road	232	231	8	1.16	0.605		1.43	0.015	0.021	0.066	1.32	P.C.11839	Exist. Gas Station	33.0	10.9
The Old Road	231	138	8	2.16	0.825					0.066	1.2	P.C.11839		30.0	8.0
The Old Road	138	137	15	3.00		10.1			6.19	6.256	8.16	P.C. 8536	Q Per TM 45433 Sewer Area Study	72.5	61.9
Magic Mtn. Pkwy	137	Trunk	15	9.96		18.4				6.256	5.88	P.C. 8536		52.3	34.0

* Calculated using Kutter's Formula with n=0.013 (as in S-C4 graph in PC Procedural Manual)

** Based on current land use and coefficients per LA County, (Attach supporting calculations)

*** For pipes > 15" % Full should be calculated by taking the flow depth divided by 0.75 times the pipe diameter

COUNTY OF L.A.

BASIS OF FLOW COMPUTATION				AVER. FLOW COEFF.	PEAK FLOW COEFF.
AREA & LAND USE				cfs/acre	cfs/ac
Residential					
Density Type	Average Area Per Dwelling	Dwellings per Acre	Persons per Acre		
Rural 1	5 acres	.2	0.7	.00008	.0002
Rural 2	1½ acres	.8	2.7	.0003	.00075
High Desert	1 acre	1.0	3.3	.0004	.0010
Very Low (R-1)	20,000 sq.ft.	1.7	6	.0006	.0015
Low (R-1)	7,000 sq.ft.	4.9	16	.002	.005
Medium (R-2)	3,200 sq.ft.	10.8	25	.0048	.012
Medium High (R-3)	1,800 sq.ft.	18.8	38	.006	.015
High (R-4)	1,400 sq.ft.	30.0	52	.0092	.023
Commercial				.006	.015
Industrial				.0084	.021
RESIDENTIAL UNIT**				cfs/unit	cfs/unit
1 & 2 bedroom units				.00032	.0008 .0009
3 & 4 bedroom units				.00044	.0011
Mobile Home Parks				.0002	.0005
POPULATION***				cfs/capita	cfs/capita
Resident Population				.00012	.0003

sed on Peak Factor of 2.5, for use up to a peak flow rate of 5.0 cfs. For rger flows, use a lower peak factor per the Average Flow-Peak Flow graph.

hese coefficients are based on the following average flows:

& 2 bedroom - 200 g.p.d./unit; 3 & 4 bedroom - 285 g.p.d./unit; and obile Home - 130 g.p.d./unit

his coefficient based on 80 g.p.d./capita.

USE OF FLOW COEFFICIENTS

general studies based on zoning, use the area coefficients listed. known densities vary from this table, adjust the coefficient accordin hen estimating flows from developments where number and size of esidential units are known, use Residential Unit coefficients. or more of a broad range study based on population use Population

BASIN 7 - PA-14 EXISTING GAS STATION

Estimated Average Daily Sewage Flows for Various Occupancies

Occupancy	Abbreviation	*Average daily flow	
Apartment Buildings:			
Bachelor or Single dwelling units	Apt	100	gal/D.U. → 150
1 bedroom dwelling units	Apt	150	gal/D.U. → 200
2 bedroom dwelling units	Apt	200	gal/D.U. → 250
3 bedroom or more dwelling units	Apt	250	gal/D.U. → use 300 GPD per SMD
Auditoriums, churches, etc.	Aud	5	gal/seat
Automobile parking	P	25	gal/1000 sq ft gross floor area
Bars, cocktails lounges, etc.	Bar	20	gal/seat
Commercial Shops & Stores	CS	100	gal/1000 sq ft gross floor area
Hospitals (surgical)	HS	500	gal/bed
Hospitals (convalescent)	HC	85	gal/bed
Hotels	H	150	gal/room
Medical Buildings	MB	300	gal/1000 sq ft gross floor area
Motels	M	150	gal/unit
Office Buildings	Off	200	gal/1000 sq ft gross floor area
Restaurants, cafeterias, etc.	R	50	gal/seat
Schools:			
Elementary or Jr. High	S	10	gal/student
High Schools	HS	15	gal/student
Universities or Colleges	U	20	gal/student
College Dormitories	CD	85	gal/student

*Multiply the average daily flow by 2.5 to obtain the peak flow

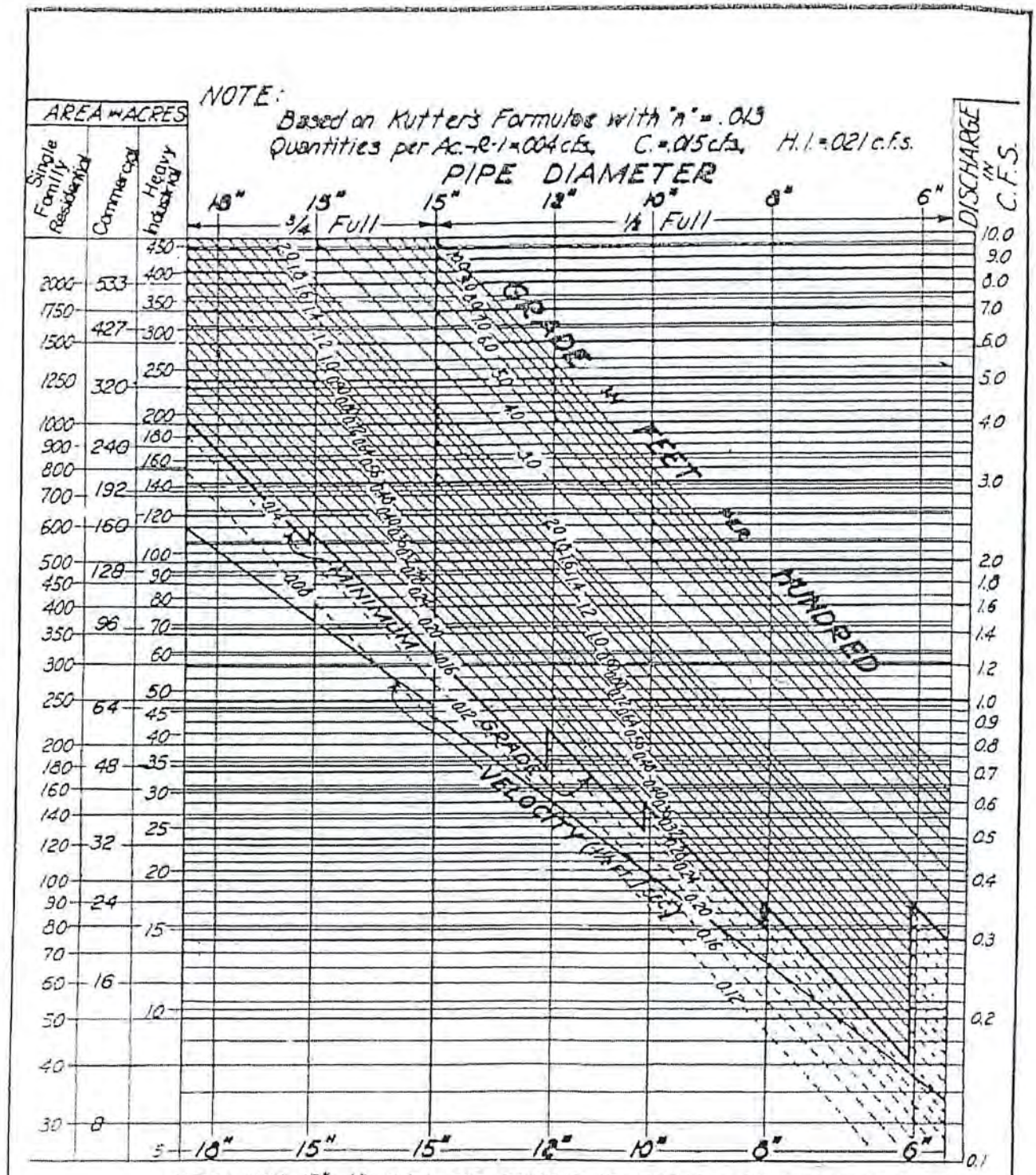
Zoning Coefficients

Zone	Coefficient (cfs/Acre)
Agriculture	**0.001**
Residential+:	
R-1	**0.004**
R-2	**0.008**
R-3	**0.012**
R-4	**0.016***
Commercial:	
C-1 through C-4	**0.015***
Heavy Industrial:	
M1 through M-4	**0.021***

EXISTING GAS STATION ON 1.43 ACRES. USE 0.015. CALCULATED Q = 0.021 cfs.

***Individual building, commercial or industrial plant capacities shall be the determining factor when they exceed the coefficients shown**

+ Use 0.001 (cfs/unit) for condominiums only



NOTE: USE 15" - 1/2 FULL FOR COMPUTING DESIGN CAPACITY OF A NEW SEWER SYSTEM. USE 15" - 3/4" FULL FOR CHECKING CAPACITY OF EXIST. SEWER SYSTEM.

FLOW DIAGRAM FOR THE DESIGN OF CIRCULAR SANITARY SEWERS

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

ASSISTANT DEPUTY

COUNTY ENGINEER

COUNTY ENGINEER STANDARD S-C4

DATE: 3/80

DESIGN RCE 10993

RECEIVED
MAR 02 2006

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

JAMES F. STAI
Chief Engineer and General Manager

February 28, 2006

Dennis Hunter
Assistant Deputy Director
Land Development Division
Los Angeles County Department of Public Works
900 S. Fremont Ave.
Alhambra, CA 91803

Dear Mr. Hunter:

Responsibility for Sanitary Sewers in Proposed Newhall Ranch Development

As you know, the Sanitation Districts have been working with the Department of Public Works to develop a mutually agreeable division of responsibility for the sanitary sewer system for the proposed Newhall Ranch Sanitation District. This effort is intended to support the action taken by the Board of Supervisors to submit formation of the Newhall Ranch Sanitation District to LAFCO. The Newhall Land and Farming Company had previously entered into an Agreement with the Sanitation Districts that establishes the framework for the new sanitation district to potentially become part of the Sanitation Districts of Los Angeles County subject to approval by all existing Sanitation Districts. As stated in this Agreement, the Sanitation Districts would generally take ownership of the regional sewers that are at least 18 inches in diameter and such sewers will be designated as trunk sewers. However, the steep canyon topography of the Newhall Ranch development and the proposed construction of major roads in the center of the canyons provide a unique situation for design of the sanitary sewer system, whereby direct connections from individual users to regional sewers would not be permitted. Therefore, it is appropriate to modify the usual criteria for defining regional sewers to reflect these conditions.

The discussions were based on a conceptual sewer backbone system for eleven drainage basins included within or adjacent to the proposed sanitation district prepared by the engineering consultant for the Newhall Land Company (copy attached). The Sanitation Districts will recommend approval of the following division of responsibilities for the various sewers that was developed in conjunction with Department of Public Works:

Basin 1 - The proposed sewer ranging in size from 12 to 24 inch diameter will be owned and operated by the Sanitation Districts.

Basin 2 - The proposed sewer ranging in size from 12 to 15 inch diameter will be owned and operated by the Sanitation Districts.

Basin 3 - The proposed sewer ranging in size from 8 to 10 inch diameter that terminates into the regional sewer in Basin 2 will be owned and operated by the Department of Public Works.

Basin 4 - The proposed sewer ranging in size from 12 to 18 inch diameter will be owned and operated by the Sanitation Districts.

Basin 5 - The proposed 8 inch diameter sewer that terminates into the regional sewer in Basin 4 will be owned and operated by the Department of Public Works.

Basin 6 - The proposed sewer ranging in size from 12 to 18 inch diameter will be owned and operated by the Sanitation Districts.

Basin 7 - The sewers will be owned and operated by the Department of Public Works.

Basin 8 - The sewers will be owned and operated by the Department of Public Works.

Basin 9 - The proposed 12 inch diameter sewer that may ultimately serve the Val Verde area will be owned and operated by the Sanitation Districts.

Basin 10 - This area is part of the existing Santa Clarita Valley Sanitation District and the sewers in this area are owned and operated by the Department of Public Works. In the future, it would be possible for sewage to flow by gravity into the Newhall Ranch Sanitation District but the sewers in Basin 10 will be owned and operated by the Department of Public Works.

Basin 11 – The sewers will be owned and operated by the Department of Public Works.

Interconnection Sewer – The proposed sewer that runs from the existing Castaic Pumping Plant in the Santa Clarita Valley Sanitation District to the proposed Newhall Ranch Water Reclamation Plant will be owned and operated by the Sanitation Districts.

Please confirm that the Department of Public Works is in agreement with this division of responsibility for the proposed sanitary sewer system.

Very truly yours,

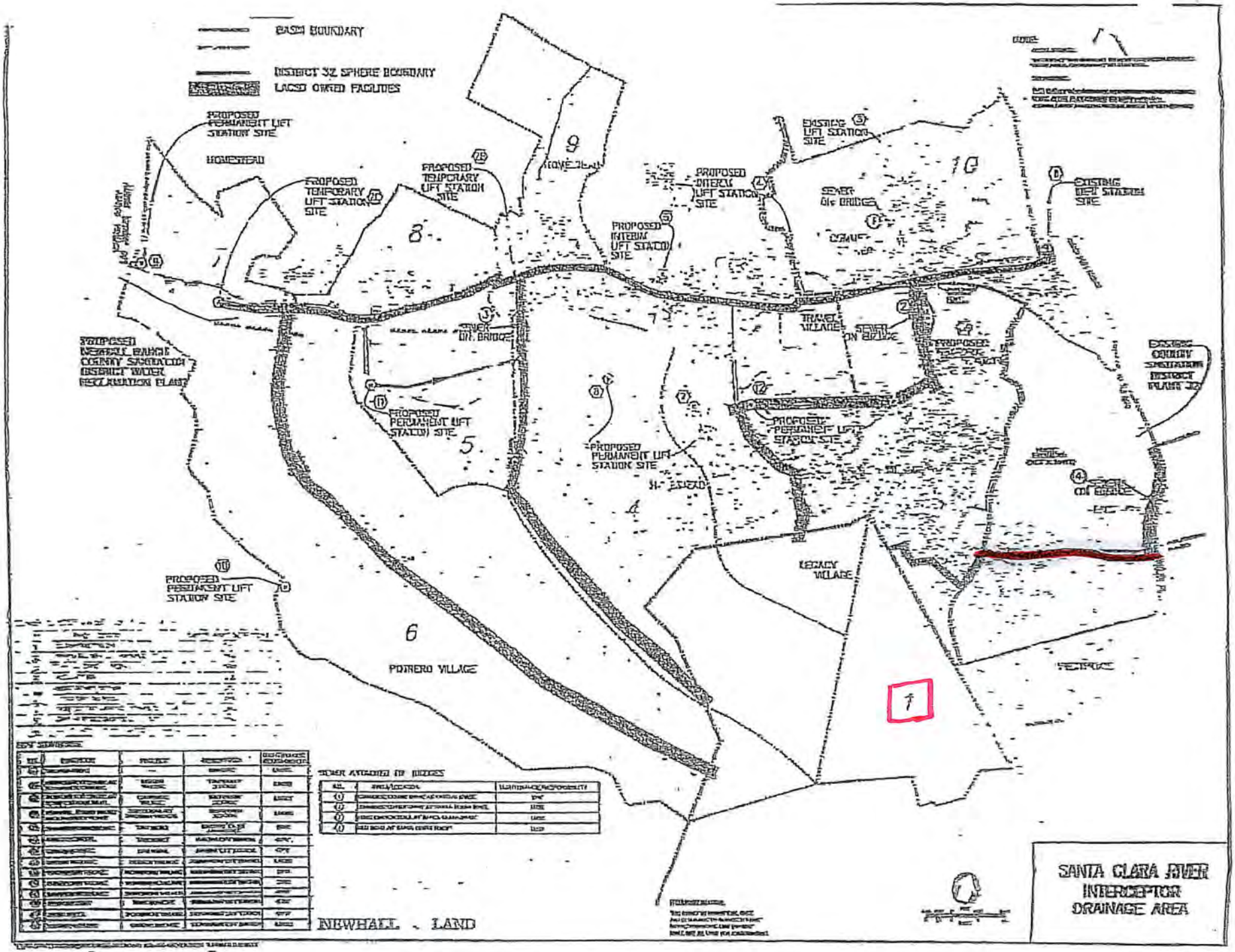
James F. Stahl

Thomas J. LeBrun
Department Head
Financial Management Department

TJL:ee

Enclosure

cc: S. Sheridan, LADPW
K. Lehto, LADPW
M. Subbotin, Newhall Ranch Company
P. Friess
C. Boehmke


BASIN BOUNDARY
DISTRICT SZ SPHERE BOUNDARY
LAGSD OWNED FACILITIES
PROPOSED PERMANENT LIFT STATION SITE
HOMESTEAD
PROPOSED TEMPORARY LIFT STATION SITE
PROPOSED TEMPORARY LIFT STATION SITE
PROPOSED INTERIM LIFT STATION SITE
EXISTING LIFT STATION SITE
PROPOSED INTERIM LIFT STATION SITE
SEWER DIP BRIDGE
EXISTING LIFT STATION SITE
TRAVEL VILLAGE
SEWER DIP BRIDGE
PROPOSED REGIONAL SANTA CLARA COUNTY SANITATION DISTRICT WATER RECLAMATION PLANT
PROPOSED PERMANENT LIFT STATION SITE
PROPOSED PERMANENT LIFT STATION SITE
PROPOSED PERMANENT LIFT STATION SITE
EXISTING COUNTY SANITATION DISTRICT PLANT 30
DIP BRIDGE
PROPOSED PERMANENT LIFT STATION SITE
LEGACY VILLAGE
POTRERO VILLAGE
NEWHALL - LAND
SANTA CLARA RIVER INTERCEPTOR DRAINAGE AREA

WATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON CHAN
Chief Engineer and General Manager

August 19, 2013

Ref File No.: 2692535

Ms. Ashley Luce, Project Coordinator
Alliance Land Planning & Engineering Inc.
2248 Faraday Avenue
Carlsbad, CA 92008

Dear Ms. Luce:

Tract Map No. 53295

This is in response to your request for an updated will serve letter for the subject project, which was received by the County Sanitation Districts of Los Angeles County (Districts) on July 30, 2013. Please accept the following revision and updates:

1. Previous comments submitted by the Districts in correspondence dated July 2, 2010 (copy enclosed), to your agency, still apply the subject project with the following updated information. However it was stated that the project site was located within the jurisdictional boundaries of the Santa Clarita Valley Sanitation District. This is an inaccuracy.

2. The project area is outside the jurisdictional boundaries of the Districts and will require annexation into the Santa Clarita Valley Sanitation District before sewerage service can be provided to the proposed development. For a copy of the Districts' Annexation Information and Processing Fee sheets, go to www.lacsd.org, Wastewater & Sewer Systems, Will Serve Program, and click on the appropriate link. For more specific information regarding the annexation procedure and fees, please contact Ms. Donna Kitt at extension 2708.

3. The 30–inch diameter District's 32 Main Trunk Sewer has a design capacity of 16.1 million gallons per day (mgd) and conveyed a peak flow of 1.6 mgd when last measured in 2011.

4. The Santa Clarita Valley Joint Sewerage System currently processes an average flow of 19.6 mgd.

5. For a copy of the Districts' average wastewater generation factors, go to www.lacsd.org, Wastewater & Sewer Systems, Will Serve Program, and click on the Table 1, Loadings for Each Class of Land Use link.

DOC: #2698678.DSCV

6. For a copy of the Connection Fee Information Sheet, go to www.lacsd.org, Wastewater & Sewer Systems, Will Serve Program, and click on the appropriate link.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Grace Robinson Chan

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar

Enclosure

cc: D. Kitt
M. Tremblay
J. Ganz

DOC: #2698678.DSCV

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

STEPHEN R. MAGUIN
Chief Engineer and General Manager

July 2, 2010

File No: SCV-00.00-00

Mr. Erick Escobedo
Alliance Land Planning and Engineering
2248 Faraday Avenue
Carlsbad, CA 92008

Dear Mr. Escobedo:

Tract No. 53295

This is in response to your request for a will serve letter for the subject project, which was received by the County Sanitation Districts of Los Angeles County (Districts) on June 21, 2010. The proposed development is located within the jurisdictional boundaries of the Santa Clarita Valley Sanitation District. We offer the following comments regarding sewerage service:

1. The wastewater flow originating from the proposed project will discharge directly to the Districts' 32 Main Trunk Sewer, located in the intersection of Magic Mountain Parkway and The Old Road. A direct connection to a Districts' trunk sewer requires a Trunk Sewer Connection Permit, issued by the Districts. For information regarding the permit, please contact the Public Counter at extension 1205. This 30-inch diameter trunk sewer is currently running at full capacity, however, a relief sewer has been constructed and placed in service.

2. The District operates two water reclamation plants (WRPs), the Saugus WRP and the Valencia WRP, which provide wastewater treatment in the Santa Clarita Valley. These facilities are interconnected to form a regional treatment system known as the Santa Clarita Valley Joint Sewerage System (SCVJSS). The SCVJSS has a design capacity of 28.1 mgd and currently processes an average flow of 20.5.

3. The expected average wastewater flow from the project site is 644,200 gallons per day. For a copy of the Districts' average wastewater generation factors, go to www.lacsd.org, Information Center, Will Serve Program, Obtain Will Serve Letter, and click on the appropriate link on page 2.

4. The Districts are authorized by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System or increasing the strength or quantity of wastewater attributable to a particular parcel or operation already connected. This connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the Sewerage System to accommodate the proposed project. Payment of a connection fee will be required before a permit to connect to the sewer is issued. For a copy of the Connection Fee Information Sheet, go to www.lacsd.org, Information Center, Will Serve Program, Obtain Will Serve Letter, and click on the appropriate link on page 2. For more

specific information regarding the connection fee application procedure and fees, please contact the Connection Fee Counter at extension 2727.

5. In order for the Districts to conform to the requirements of the Federal Clean Air Act (CAA), the design capacities of the Districts' wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into clean air plans, which are prepared by the South Coast and Antelope Valley Air Quality Management Districts in order to improve air quality in the South Coast and Mojave Desert Air Basins as mandated by the CAA. All expansions of Districts' facilities must be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend to provide this service up to the levels that are legally permitted and to inform you of the currently existing capacity and any proposed expansion of the Districts' facilities.

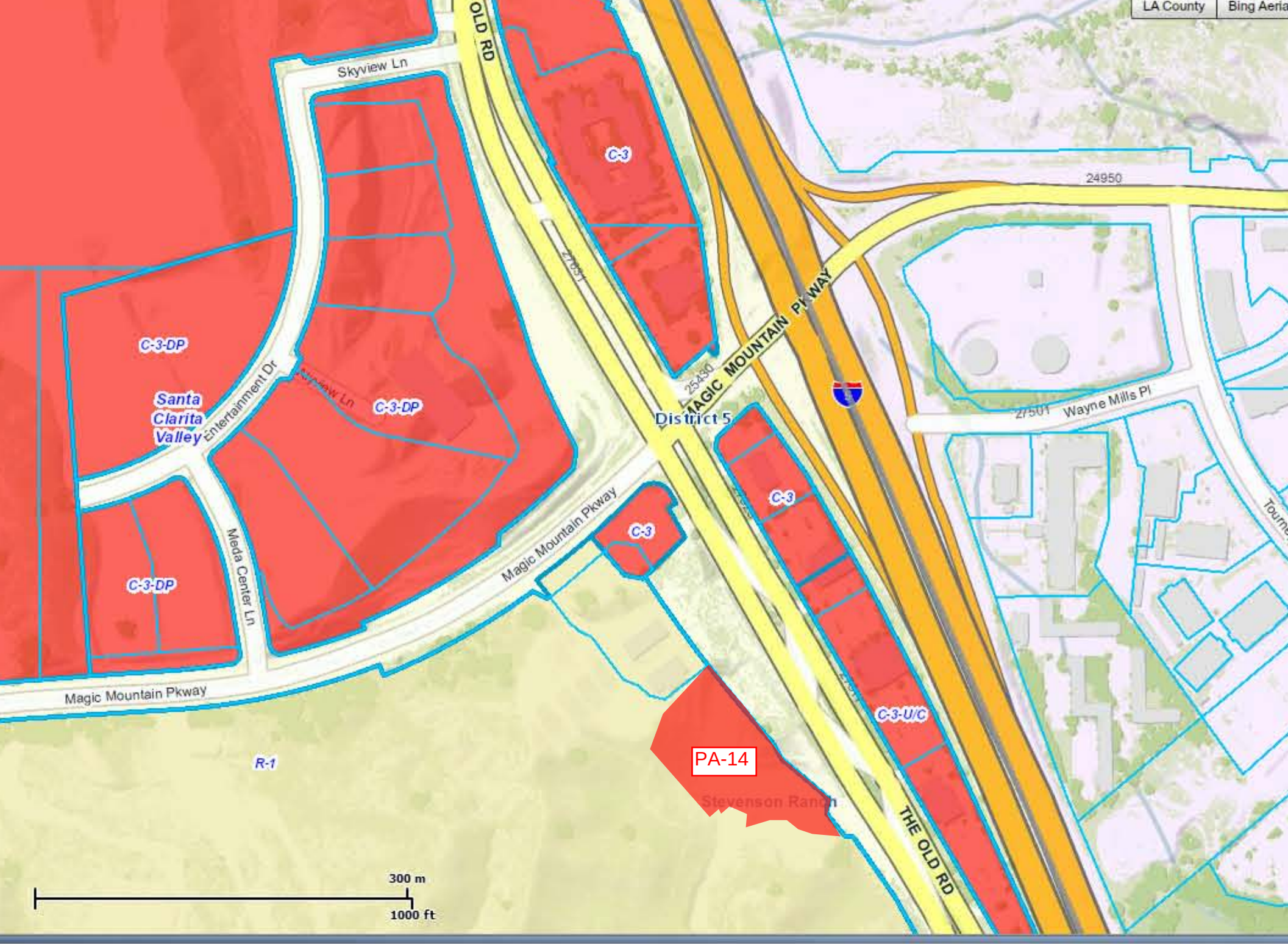
If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Stephen R. Maguin

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar


LA County
Bing Aerial
Skyview Ln
OLD RD
C-3
24950
MAGIC MOUNTAIN PKWAY
C-3-DP
Santa Clarita Valley
Entertainment Dr
C-3-DP
District 5
Wayne Mills Pl
C-3
C-3
Magic Mountain Pkway
Meda Center Ln
C-3-DP
Magic Mountain Pkway
C-3-U/C
PA-14
Stevenson Ranch
THE OLD RD
R-1
300 m
1000 ft

APPENDIX A

Worksheet for BASIN 1 - 8" MAX.

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.56	ft^3/s

Results

Normal Depth	0.34	ft
Flow Area	0.18	ft^2
Wetted Perimeter	1.05	ft
Hydraulic Radius	0.17	ft
Top Width	0.67	ft
Critical Depth	0.35	ft
Percent Full	50.0	%
Critical Slope	0.00854	ft/ft
Velocity	3.18	ft/s
Velocity Head	0.16	ft
Specific Energy	0.49	ft
Froude Number	1.09	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00254	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	50.05	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 8" MAX.

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.34	ft
Critical Depth	0.35	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00854	ft/ft

Worksheet for BASIN 1 - 0.58 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.06	ft^3/s

Results

Normal Depth	0.11	ft
Flow Area	0.04	ft^2
Wetted Perimeter	0.56	ft
Hydraulic Radius	0.07	ft
Top Width	0.50	ft
Critical Depth	0.11	ft
Percent Full	16.5	%
Critical Slope	0.01069	ft/ft
Velocity	1.53	ft/s
Velocity Head	0.04	ft
Specific Energy	0.15	ft
Froude Number	0.97	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00005	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	16.48	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 0.58 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.11	ft
Critical Depth	0.11	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01069	ft/ft

Worksheet for BASIN 1 - 0.087 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.09	ft^3/s

Results

Normal Depth	0.13	ft
Flow Area	0.05	ft^2
Wetted Perimeter	0.62	ft
Hydraulic Radius	0.08	ft
Top Width	0.53	ft
Critical Depth	0.13	ft
Percent Full	19.8	%
Critical Slope	0.00954	ft/ft
Velocity	1.75	ft/s
Velocity Head	0.05	ft
Specific Energy	0.18	ft
Froude Number	1.02	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00009	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	19.83	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 0.087 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.13	ft
Critical Depth	0.13	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00954	ft/ft

Worksheet for BASIN 1 - 0.214 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.21	ft^3/s

Results

Normal Depth	0.20	ft
Flow Area	0.09	ft^2
Wetted Perimeter	0.78	ft
Hydraulic Radius	0.12	ft
Top Width	0.62	ft
Critical Depth	0.21	ft
Percent Full	30.3	%
Critical Slope	0.00837	ft/ft
Velocity	2.37	ft/s
Velocity Head	0.09	ft
Specific Energy	0.29	ft
Froude Number	1.09	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00040	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	30.35	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 0.214 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.20	ft
Critical Depth	0.21	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00837	ft/ft

Worksheet for BASIN 1 - 0.221 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.22	ft³/s

Results

Normal Depth	0.21	ft
Flow Area	0.09	ft²
Wetted Perimeter	0.79	ft
Hydraulic Radius	0.12	ft
Top Width	0.62	ft
Critical Depth	0.22	ft
Percent Full	30.8	%
Critical Slope	0.00833	ft/ft
Velocity	2.39	ft/s
Velocity Head	0.09	ft
Specific Energy	0.30	ft
Froude Number	1.09	
Maximum Discharge	1.23	ft³/s
Discharge Full	1.12	ft³/s
Slope Full	0.00043	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	30.83	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 0.221 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.21	ft
Critical Depth	0.22	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00833	ft/ft

Worksheet for BASIN 1 - 0.280 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.28	ft^3/s

Results

Normal Depth	0.23	ft
Flow Area	0.11	ft^2
Wetted Perimeter	0.84	ft
Hydraulic Radius	0.13	ft
Top Width	0.64	ft
Critical Depth	0.24	ft
Percent Full	34.7	%
Critical Slope	0.00815	ft/ft
Velocity	2.58	ft/s
Velocity Head	0.10	ft
Specific Energy	0.34	ft
Froude Number	1.10	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00067	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	34.68	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 0.280 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.23	ft
Critical Depth	0.24	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00815	ft/ft

Worksheet for BASIN 1 - 0.501 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.50	ft^3/s

Results

Normal Depth	0.31	ft
Flow Area	0.16	ft^2
Wetted Perimeter	1.01	ft
Hydraulic Radius	0.16	ft
Top Width	0.67	ft
Critical Depth	0.33	ft
Percent Full	47.0	%
Critical Slope	0.00830	ft/ft
Velocity	3.08	ft/s
Velocity Head	0.15	ft
Specific Energy	0.46	ft
Froude Number	1.10	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00204	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	46.97	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 0.501 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.31	ft
Critical Depth	0.33	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00830	ft/ft

Worksheet for BASIN 1 - 0.695 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.83	ft
Discharge	0.70	ft^3/s

Results

Normal Depth	0.34	ft
Flow Area	0.21	ft^2
Wetted Perimeter	1.15	ft
Hydraulic Radius	0.18	ft
Top Width	0.82	ft
Critical Depth	0.37	ft
Percent Full	40.7	%
Critical Slope	0.00727	ft/ft
Velocity	3.36	ft/s
Velocity Head	0.18	ft
Specific Energy	0.51	ft
Froude Number	1.18	
Maximum Discharge	2.22	ft^3/s
Discharge Full	2.03	ft^3/s
Slope Full	0.00120	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	40.68	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 0.695 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.34	ft
Critical Depth	0.37	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00727	ft/ft

Worksheet for BASIN 1 - 0.903 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.83	ft
Discharge	0.90	ft^3/s

Results

Normal Depth	0.39	ft
Flow Area	0.25	ft^2
Wetted Perimeter	1.25	ft
Hydraulic Radius	0.20	ft
Top Width	0.83	ft
Critical Depth	0.42	ft
Percent Full	46.8	%
Critical Slope	0.00749	ft/ft
Velocity	3.63	ft/s
Velocity Head	0.21	ft
Specific Energy	0.59	ft
Froude Number	1.17	
Maximum Discharge	2.22	ft^3/s
Discharge Full	2.03	ft^3/s
Slope Full	0.00200	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	46.79	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 0.903 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.39	ft
Critical Depth	0.42	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00749	ft/ft

Worksheet for BASIN 1 - 1.023 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	1.00	ft
Discharge	1.02	ft^3/s

Results

Normal Depth	0.38	ft
Flow Area	0.27	ft^2
Wetted Perimeter	1.33	ft
Hydraulic Radius	0.21	ft
Top Width	0.97	ft
Critical Depth	0.43	ft
Percent Full	38.0	%
Critical Slope	0.00653	ft/ft
Velocity	3.74	ft/s
Velocity Head	0.22	ft
Specific Energy	0.60	ft
Froude Number	1.24	
Maximum Discharge	3.71	ft^3/s
Discharge Full	3.41	ft^3/s
Slope Full	0.00094	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	37.96	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 1 - 1.023 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.38	ft
Critical Depth	0.43	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00653	ft/ft

Worksheet for BASIN 2 - 0.807 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.83	ft
Discharge	0.81	ft^3/s

Results

Normal Depth	0.37	ft
Flow Area	0.23	ft^2
Wetted Perimeter	1.20	ft
Hydraulic Radius	0.19	ft
Top Width	0.82	ft
Critical Depth	0.40	ft
Percent Full	44.0	%
Critical Slope	0.00735	ft/ft
Velocity	3.52	ft/s
Velocity Head	0.19	ft
Specific Energy	0.56	ft
Froude Number	1.18	
Maximum Discharge	2.22	ft^3/s
Discharge Full	2.03	ft^3/s
Slope Full	0.00161	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	43.99	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 2 - 0.807 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.37	ft
Critical Depth	0.40	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00735	ft/ft

Worksheet for BASIN 3 & 8 - 0.003 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.00	ft^3/s

Results

Normal Depth	0.03	ft
Flow Area	0.01	ft^2
Wetted Perimeter	0.29	ft
Hydraulic Radius	0.02	ft
Top Width	0.28	ft
Critical Depth	0.02	ft
Percent Full	4.5	%
Critical Slope	0.02731	ft/ft
Velocity	0.53	ft/s
Velocity Head	0.00	ft
Specific Energy	0.03	ft
Froude Number	0.65	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00000	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	4.54	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 3 & 8 - 0.003 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.03	ft
Critical Depth	0.02	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.02731	ft/ft

Worksheet for BASIN 3 & 8 - 0.056 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.06	ft^3/s

Results

Normal Depth	0.11	ft
Flow Area	0.04	ft^2
Wetted Perimeter	0.56	ft
Hydraulic Radius	0.07	ft
Top Width	0.49	ft
Critical Depth	0.11	ft
Percent Full	16.2	%
Critical Slope	0.01072	ft/ft
Velocity	1.51	ft/s
Velocity Head	0.04	ft
Specific Energy	0.14	ft
Froude Number	0.97	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00005	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	16.22	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 3 & 8 - 0.056 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.11	ft
Critical Depth	0.11	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01072	ft/ft

Worksheet for BASIN 3 & 8 - 0.311 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.31	ft³/s

Results

Normal Depth	0.25	ft
Flow Area	0.12	ft²
Wetted Perimeter	0.87	ft
Hydraulic Radius	0.13	ft
Top Width	0.65	ft
Critical Depth	0.26	ft
Percent Full	36.6	%
Critical Slope	0.00814	ft/ft
Velocity	2.66	ft/s
Velocity Head	0.11	ft
Specific Energy	0.36	ft
Froude Number	1.10	
Maximum Discharge	1.23	ft³/s
Discharge Full	1.12	ft³/s
Slope Full	0.00081	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	36.58	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 3 & 8 - 0.311 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.25	ft
Critical Depth	0.26	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00814	ft/ft

Worksheet for BASIN 4 - 0.113 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.11	ft^3/s

Results

Normal Depth	0.15	ft
Flow Area	0.06	ft^2
Wetted Perimeter	0.66	ft
Hydraulic Radius	0.09	ft
Top Width	0.56	ft
Critical Depth	0.15	ft
Percent Full	22.4	%
Critical Slope	0.00922	ft/ft
Velocity	1.92	ft/s
Velocity Head	0.06	ft
Specific Energy	0.21	ft
Froude Number	1.04	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00013	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	22.38	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 4 - 0.113 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.15	ft
Critical Depth	0.15	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00922	ft/ft

Worksheet for BASIN 4 - 0.193 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.19	ft^3/s

Results

Normal Depth	0.19	ft
Flow Area	0.08	ft^2
Wetted Perimeter	0.76	ft
Hydraulic Radius	0.11	ft
Top Width	0.61	ft
Critical Depth	0.20	ft
Percent Full	28.9	%
Critical Slope	0.00847	ft/ft
Velocity	2.29	ft/s
Velocity Head	0.08	ft
Specific Energy	0.27	ft
Froude Number	1.08	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00033	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	28.90	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 4 - 0.193 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.19	ft
Critical Depth	0.20	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00847	ft/ft

Worksheet for BASIN 4 - 0.280 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.28	ft^3/s

Results

Normal Depth	0.23	ft
Flow Area	0.11	ft^2
Wetted Perimeter	0.84	ft
Hydraulic Radius	0.13	ft
Top Width	0.64	ft
Critical Depth	0.24	ft
Percent Full	34.7	%
Critical Slope	0.00815	ft/ft
Velocity	2.58	ft/s
Velocity Head	0.10	ft
Specific Energy	0.34	ft
Froude Number	1.10	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00067	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	34.68	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 4 - 0.280 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.23	ft
Critical Depth	0.24	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00815	ft/ft

Worksheet for BASIN 5 - 0.053 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.05	ft^3/s

Results

Normal Depth	0.11	ft
Flow Area	0.04	ft^2
Wetted Perimeter	0.55	ft
Hydraulic Radius	0.07	ft
Top Width	0.49	ft
Critical Depth	0.10	ft
Percent Full	15.8	%
Critical Slope	0.01068	ft/ft
Velocity	1.48	ft/s
Velocity Head	0.03	ft
Specific Energy	0.14	ft
Froude Number	0.96	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00004	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	15.82	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 5 - 0.053 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.11	ft
Critical Depth	0.10	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01068	ft/ft

Worksheet for BASIN 5 - 0.097 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.10	ft^3/s

Results

Normal Depth	0.14	ft
Flow Area	0.05	ft^2
Wetted Perimeter	0.64	ft
Hydraulic Radius	0.08	ft
Top Width	0.54	ft
Critical Depth	0.14	ft
Percent Full	20.9	%
Critical Slope	0.00939	ft/ft
Velocity	1.82	ft/s
Velocity Head	0.05	ft
Specific Energy	0.19	ft
Froude Number	1.03	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00011	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	20.85	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 5 - 0.097 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.14	ft
Critical Depth	0.14	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00939	ft/ft

Worksheet for BASIN 6 - 0.014 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.01	ft^3/s

Results

Normal Depth	0.06	ft
Flow Area	0.02	ft^2
Wetted Perimeter	0.40	ft
Hydraulic Radius	0.04	ft
Top Width	0.38	ft
Critical Depth	0.05	ft
Percent Full	8.8	%
Critical Slope	0.01613	ft/ft
Velocity	0.92	ft/s
Velocity Head	0.01	ft
Specific Energy	0.07	ft
Froude Number	0.82	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00001	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	8.78	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 6 - 0.014 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.06	ft
Critical Depth	0.05	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01613	ft/ft

Worksheet for BASIN 6 - 0.030 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.03	ft^3/s

Results

Normal Depth	0.08	ft
Flow Area	0.02	ft^2
Wetted Perimeter	0.48	ft
Hydraulic Radius	0.05	ft
Top Width	0.44	ft
Critical Depth	0.08	ft
Percent Full	12.2	%
Critical Slope	0.01273	ft/ft
Velocity	1.21	ft/s
Velocity Head	0.02	ft
Specific Energy	0.11	ft
Froude Number	0.90	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00002	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	12.25	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 6 - 0.030 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.08	ft
Critical Depth	0.08	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01273	ft/ft

Worksheet for BASIN 6 - 0.044 CFS

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Diameter	0.67	ft
Discharge	0.04	ft^3/s

Results

Normal Depth	0.10	ft
Flow Area	0.03	ft^2
Wetted Perimeter	0.52	ft
Hydraulic Radius	0.06	ft
Top Width	0.47	ft
Critical Depth	0.09	ft
Percent Full	14.6	%
Critical Slope	0.01143	ft/ft
Velocity	1.39	ft/s
Velocity Head	0.03	ft
Specific Energy	0.13	ft
Froude Number	0.94	
Maximum Discharge	1.23	ft^3/s
Discharge Full	1.12	ft^3/s
Slope Full	0.00003	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	14.56	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 6 - 0.044 CFS

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.10	ft
Critical Depth	0.09	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01143	ft/ft

Worksheet for BASIN 7 - PROJ - LAT

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.02000	ft/ft
Diameter	0.67	ft
Discharge	0.05	ft^3/s

Results

Normal Depth	0.08	ft
Flow Area	0.03	ft^2
Wetted Perimeter	0.49	ft
Hydraulic Radius	0.05	ft
Top Width	0.44	ft
Critical Depth	0.10	ft
Percent Full	12.6	%
Critical Slope	0.01140	ft/ft
Velocity	1.75	ft/s
Velocity Head	0.05	ft
Specific Energy	0.13	ft
Froude Number	1.29	
Maximum Discharge	1.74	ft^3/s
Discharge Full	1.59	ft^3/s
Slope Full	0.00003	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	12.57	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 7 - PROJ - LAT

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.08	ft
Critical Depth	0.10	ft
Channel Slope	0.02000	ft/ft
Critical Slope	0.01140	ft/ft

Worksheet for BASIN 7 - LAT - MH233

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.02000	ft/ft
Diameter	0.67	ft
Discharge	0.05	ft³/s

Results

Normal Depth	0.08	ft
Flow Area	0.03	ft²
Wetted Perimeter	0.49	ft
Hydraulic Radius	0.05	ft
Top Width	0.44	ft
Critical Depth	0.10	ft
Percent Full	12.6	%
Critical Slope	0.01140	ft/ft
Velocity	1.75	ft/s
Velocity Head	0.05	ft
Specific Energy	0.13	ft
Froude Number	1.29	
Maximum Discharge	1.74	ft³/s
Discharge Full	1.59	ft³/s
Slope Full	0.00003	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	12.57	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 7 - LAT - MH233

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.08	ft
Critical Depth	0.10	ft
Channel Slope	0.02000	ft/ft
Critical Slope	0.01140	ft/ft

Worksheet for BASIN 7 - MH233 - MH232

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01400	ft/ft
Diameter	0.67	ft
Discharge	0.05	ft^3/s

Results

Normal Depth	0.09	ft
Flow Area	0.03	ft^2
Wetted Perimeter	0.51	ft
Hydraulic Radius	0.06	ft
Top Width	0.46	ft
Critical Depth	0.10	ft
Percent Full	13.6	%
Critical Slope	0.01139	ft/ft
Velocity	1.56	ft/s
Velocity Head	0.04	ft
Specific Energy	0.13	ft
Froude Number	1.10	
Maximum Discharge	1.45	ft^3/s
Discharge Full	1.33	ft^3/s
Slope Full	0.00003	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	13.63	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 7 - MH233 - MH232

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.09	ft
Critical Depth	0.10	ft
Channel Slope	0.01400	ft/ft
Critical Slope	0.01139	ft/ft

Worksheet for BASIN 7 - MH232 - MH231

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01160	ft/ft
Diameter	0.67	ft
Discharge	0.07	ft^3/s

Results

Normal Depth	0.11	ft
Flow Area	0.04	ft^2
Wetted Perimeter	0.57	ft
Hydraulic Radius	0.07	ft
Top Width	0.50	ft
Critical Depth	0.12	ft
Percent Full	16.9	%
Critical Slope	0.01025	ft/ft
Velocity	1.68	ft/s
Velocity Head	0.04	ft
Specific Energy	0.16	ft
Froude Number	1.06	
Maximum Discharge	1.32	ft^3/s
Discharge Full	1.21	ft^3/s
Slope Full	0.00006	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	16.88	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 7 - MH232 - MH231

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.11	ft
Critical Depth	0.12	ft
Channel Slope	0.01160	ft/ft
Critical Slope	0.01025	ft/ft

Worksheet for BASIN 7 - MH231 - MH138

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.02160	ft/ft
Diameter	0.67	ft
Discharge	0.07	ft^3/s

Results

Normal Depth	0.10	ft
Flow Area	0.03	ft^2
Wetted Perimeter	0.53	ft
Hydraulic Radius	0.06	ft
Top Width	0.47	ft
Critical Depth	0.12	ft
Percent Full	14.7	%
Critical Slope	0.01020	ft/ft
Velocity	2.05	ft/s
Velocity Head	0.07	ft
Specific Energy	0.16	ft
Froude Number	1.39	
Maximum Discharge	1.81	ft^3/s
Discharge Full	1.65	ft^3/s
Slope Full	0.00006	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	14.68	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 7 - MH231 - MH138

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.10	ft
Critical Depth	0.12	ft
Channel Slope	0.02160	ft/ft
Critical Slope	0.01020	ft/ft

Worksheet for BASIN 7 - MH138 - MH137

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.03000	ft/ft
Diameter	1.25	ft
Discharge	6.26	ft^3/s

Results

Normal Depth	0.68	ft
Flow Area	0.68	ft^2
Wetted Perimeter	2.07	ft
Hydraulic Radius	0.33	ft
Top Width	1.25	ft
Critical Depth	1.01	ft
Percent Full	54.1	%
Critical Slope	0.00985	ft/ft
Velocity	9.23	ft/s
Velocity Head	1.32	ft
Specific Energy	2.00	ft
Froude Number	2.20	
Maximum Discharge	11.87	ft^3/s
Discharge Full	10.92	ft^3/s
Slope Full	0.00988	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	54.14	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 7 - MH138 - MH137

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.68	ft
Critical Depth	1.01	ft
Channel Slope	0.03000	ft/ft
Critical Slope	0.00985	ft/ft

Worksheet for BASIN 7 - MH137 TO TRUNK

Project Description

Friction Method	Kutter Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.09960	ft/ft
Diameter	1.25	ft
Discharge	6.26	ft^3/s

Results

Normal Depth	0.49	ft
Flow Area	0.44	ft^2
Wetted Perimeter	1.68	ft
Hydraulic Radius	0.26	ft
Top Width	1.22	ft
Critical Depth	1.01	ft
Percent Full	38.8	%
Critical Slope	0.00986	ft/ft
Velocity	14.20	ft/s
Velocity Head	3.13	ft
Specific Energy	3.62	ft
Froude Number	4.16	
Maximum Discharge	21.64	ft^3/s
Discharge Full	19.90	ft^3/s
Slope Full	0.00988	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	38.84	%
Downstream Velocity	Infinity	ft/s

Worksheet for BASIN 7 - MH137 TO TRUNK

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.49	ft
Critical Depth	1.01	ft
Channel Slope	0.09960	ft/ft
Critical Slope	0.00986	ft/ft

APPENDIX B

SEE SHT. NO. N-1255

SEE SHT. NO. N-1217

SEE SHT. NO. N-1295

SEE SHT. NO. N-1257

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD. 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 233

PA-14

CITY OF LOS ANGELES

SANTA CLARITA

COUNTY

UNINC. COUNTY

MAGIC MOUNTAIN

MAGIC MOUNTAIN PKWY

STANFORD AVE

KEARNY AVE

TIBBITTS DR

MENTRY

ROCKEFELLER

SCOTT

ANZA

HOPKINS AVE

FREMONT CT

BEALE CT

CROCKER

RYE CANYON

OLD ROAD

FEEDMILL

TOURNEY RD

WAYNE MILLS PL.

PKWY

FRWY

DRY SEWER

MIRASOL ST

EDISON SUB-STATION

VALENCIA WATER RECLAMATION PLANT

SAN DIST. FORCE MAIN

SAN DIST. TRUNK 66"

GENERAL PETROLEUM CORP.

8" C.I.P.

RYE CANYON TRUNK SEWER SEC.

DIST. 32 MAIN TRUNK SEWER SEC 1A (32-P-18)

AVE TIBBITTS TRUNK SEWER (32-P-17)

2-18" SAN. DIST. NO. 32 TRUNK SEWER

SAN. DIST. TRUNK SEWER

130'-10" C.I.P.
220'-10" V.C.P.

24-8" C.I.P.

C.S.D. 32-P-3

C.S.D. FM 32-P-2

N 4,264,000

E 4,107,000

MAP REV
05-18-10

DATA BASE REV
04-29-11

CONSOLIDATED S.M.D.

7.2609.1256

P.M. 188-90

O.P.A. 85033

See Offsite Sewer Area Study Dated 5-12-00

330 acres

2.64 c.f.s.

OPEN SPACE

VALENCIA MARKET PLACE

GOLDEN STATE FREEWAY

SAND CANYON ROAD

OLD ROAD

THE COUNTY OF LOS ANGELES
WESTRIDGE AT VALENCIA
SEWER AREA STUDY
TENTATIVE TRACT NO. 45433

APPROVAL FOR SEWER AREA STUDY ONLY

OFF SITE PROPERTY ASSUMED COMMERCIAL LAND USE COEFFICIENT (SEE TABLE AT LEFT)

NOTE: PROJECT LIMITED TO 2.64 CFS UNTIL EXIST 15" SEWER UPSTREAM OF MH #1 IS UPSIZED OR IMPROVEMENTS

EXISTING 15" SEWER PER P.C. 6116

EXISTING 30" SEWER AS SHOWN PER TRACT NO. 5113

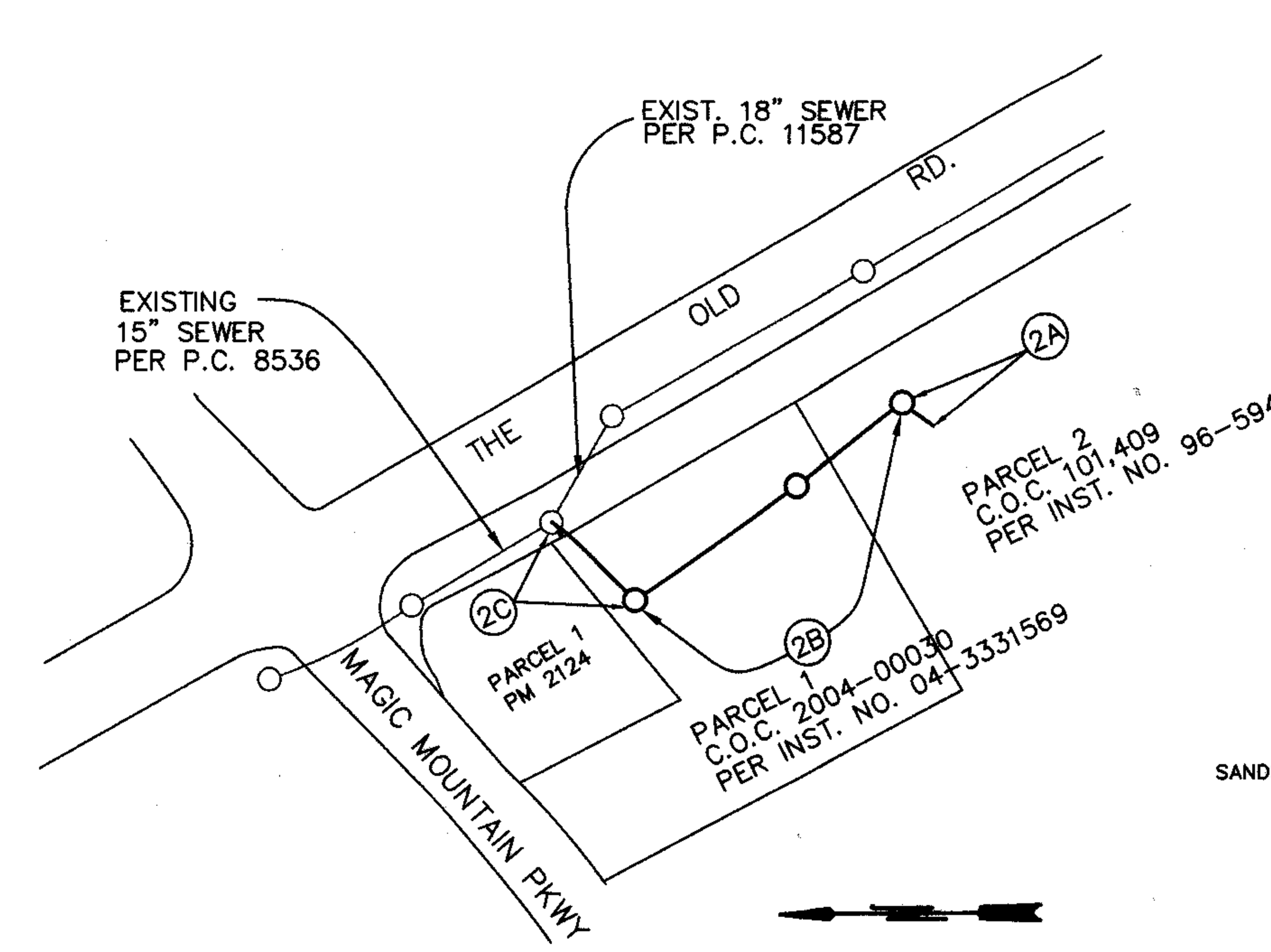
SEWER AREA STUDY DATA TABLE

AREA #	LAND USE	C (CFS/ACRE)	A (ACRE)	Q (CFS)
1	SINGLE FAMILY	0004	2326	0093
2	SINGLE FAMILY	0004	1022	0041
3	SINGLE FAMILY	0004	481	0019
4	SINGLE FAMILY	0004	935	0037
5	SCHOOL SITE	0004	820	0033
6	PARK SITE	0001	920	0009
7	SINGLE FAMILY	0004	935	0037
8	SINGLE FAMILY	0004	1156	0046
9	SINGLE FAMILY	0004	946	0038
10	CONDOMINIUMS	0008	1909	0153
11	SINGLE FAMILY	0004	777	0031
12	SINGLE FAMILY	0004	900	0036
13	SINGLE FAMILY	0004	814	0033
14	SINGLE FAMILY	0004	460	0018
15	SINGLE FAMILY	0004	702	0028
16	TOWNHOMES	0008	1563	0125
17	APARTMENTS	0016	2154	0345

AREA #	LAND USE	C (CFS/ACRE)	A (ACRE)	Q (CFS)
18	SINGLE FAMILY	0004	1490	0060
19	SINGLE FAMILY	0004	811	0032
20	CONDOMINIUMS	0008	1897	0152
21	SINGLE FAMILY	0004	1027	0041
22	CLUB HOUSE	0001	784	0008
23	SINGLE FAMILY	0004	871	0035
24	SINGLE FAMILY	0004	556	0022
25	SINGLE FAMILY	0004	525	0021
26	SINGLE FAMILY	0004	610	0024
27	SINGLE FAMILY	0004	1571	0063
28	SINGLE FAMILY	0004	189	0008
29	SINGLE FAMILY	0004	418	0017
30	COMMERCIAL	0015	615	0092
31	COMMERCIAL	0015	15 10	0 227
32	COMMERCIAL	0015	48.00	0.750
33	SINGLE FAMILY	0.004	5.571	0.022

BENCH MARK

BM L.A. COUNTY B.M. 5402 Elev. 1031.950
RND. HD SPK. TOP OF LOWEST HDWL 24 FT W/O C/L THE OLD ROAD (W. RDWY) & 0.6 MI S/O HENRY MAYO DR.
NEWHALL QUAD 1995



INDEX MAP - 1256

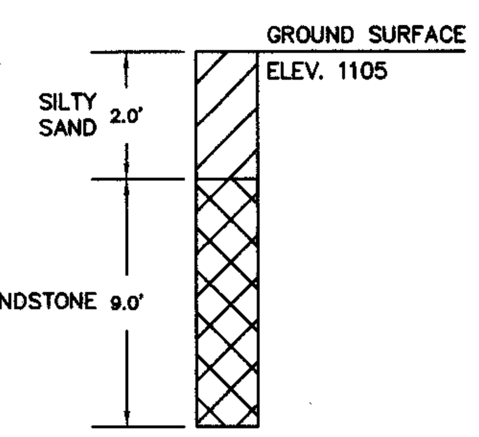
SCALE: 1"=200'

P.C. 11839 - SEWER WITHIN THE OLD ROAD

NOTE: NUMBERS IN CIRCLES INDICATE PAGE NUMBER.

THOMAS GUIDE PAGE: 4550-C2

BSD DISTRICT SANTA CLARITA



TEST PIT DATA

NOTE: PER PROJECT SOILS REPORT, GROUNDWATER LEVEL IS MORE THAN 50' BELOW FINISHED SURFACE.

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	LOWERED SEWER MAIN BY 1.50' DUE TO LOWERING OF RCB PER MTD 1764. ADDED ENCASEMENT DETAIL.	RCE 51929	[signature]	4/6/06

STORMWATER POLLUTION CONTROL REQUIREMENTS FOR SEWER CONSTRUCTION

A. NOTES

1. Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheet flow, swales, area drains, natural drainage courses, or wind.
2. Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
3. Fuels, oils, solvents, and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
4. Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
5. Trash and construction-related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
6. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
7. Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.
8. The following BMP's as outlined in, but not limited to, the Best Management Practice Handbook, California Stormwater Quality Task Force, Sacramento, California 2003, or the latest revised edition, may apply during construction of this project(additional measure may be required if deemed appropriate by the county inspectors):

TEMPORARY SOIL STABILIZATION

SS1 - SCHEDULING
SS2 - PRESERVATION OF EXISTING VEGETATION
SS3 - HYDRAULIC MULCH
SS4 - HYDROSEEDING
SS5 - SOIL BINDERS
SS6 - STRAW MULCH
SS7 - GEOTEXTILES, PLASTIC COVERS, & EROSION CONTROL BLANKETS/MATS
SS8 - WOOD MULCHING
SS9 - EARTH DIKES/DRAINAGE SWALES & LINED DITCHES
SS10 - OUTLET PROTECTION/VELOCITY DISSIPATION DEVICES
SS11 -SLOPE DRAINS
SS12 -STREAMBANK STABILIZATION

WIND EROSION CONTROL

WE1 - WIND EROSION CONTROL

TRACKING CONTROL

TC1 - STABILIZED CONSTRUCTION ENTRANCE/EXIT
TC2 - STABILIZED CONSTRUCTION ROADWAY
TC3 - ENTRANCE/OUTLET TIRE WASH

TEMPORARY SEDIMENT CONTROL

SCI - SILT FENCE
SC2 - SEDIMENT/DESILTING BASIN
SC3 - SEDIMENT TRAP
SC4 - CHECK DAM
SC5 - FIBER ROLLS
SC6 - GRAVEL BAG BERM
SC7 - STREET SWEEPING AND VACUUMING
SC8 - SANDBAG BARRIER
SC9 - STRAW BALE BARRIER
SC10 - STORM DRAIN INLET PROTECTION

WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL

WM1 - MATERIAL DELIVERY AND STORAGE
WM2 - MATERIAL USE
WM3 - STOCKPILE MANAGEMENT
WM4 - SPILL PREVENTION AND CONTROL
WM5 - SOLID WASTE MANAGEMENT
WM6 - HAZARDOUS WASTE MANAGEMENT
WM7 - CONTAMINATED SOIL MANAGEMENT
WM8 - CONCRETE WASTE MANAGEMENT
WM9 - SANITARY/SEPTIC WASTE MANAGEMENT
WM10 - LIQUID WASTE MANAGEMENT

NON-STORMWATER MANAGEMENT

NS1 - WATER CONSERVATION PRACTICES
NS2 - DEWATERING OPERATIONS
NS3 - PAVING AND GRINDING OPERATIONS
NS4 - TEMPORARY STREAM CROSSING
NS5 - CLEAR WATER DIVERSION
NS6 - ILLICIT CONNECTION/ILLEGAL DISCHARGE DETECTION AND REPORTING
NS7 - POTABLE WATER/IRRIGATION
NS8 - VEHICLE AND EQUIPMENT CLEANING
NS9 - VEHICLE AND EQUIPMENT FUELING
NS10 - VEHICLE AND EQUIPMENT MAINTENANCE
NS11 - PILE DRIVING OPERATIONS
NS12 - CONCRETE CURING
NS13 - MATERIAL AND EQUIPMENT USE OVER WATER
NS14 - CONCRETE FINISHING
NS15 - STRUCTURE DEMOLITION/REMOVAL OVER OR ADJACENT TO WATER

STANDARD PLANS:

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE FOLLOWING DEPARTMENT SHALL APPLY IN THE CONSTRUCTION OF THIS PROJECT.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

APWA 208-1	BREAKING INTO EXISTING MANHOLES	2000-0	LEGEND FOR SANITARY SEWER PLANS AND PROFILES AND DISTRICT MAPS.
APWA 220-2	CHIMNEYS		
APWA 222-0	HOUSE CONNECTION SEWER	2021-0	BEDDING FOR SEWER PIPE
APWA 223-0	HOUSE CONNECTION REMODELING	2024-0	WYE OR TEE SUPPORT
		2027-0	ALLOWABLE TRENCH WIDTHS

NOTE: EASEMENT TO THE COUNTY OF LOS ANGELES FOR SANITARY SEWER, INGRESS AND EGRESS TO BE GRANTED OVER ALL PRIVATE STREETS PER FINAL MAP.

NO CONNECTION FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS UNTIL A PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE HAS BEEN ISSUED BY THE SANITATION DISTRICTS FOR SAID CONNECTION.

PRIOR TO ACCEPTANCE FOR PUBLIC USE AND MAINTENANCE ALL SANITARY SEWER EASEMENTS SHALL BE RECORDED AND DEDICATED TO L.A. COUNTY.

MAINTAIN SEWER FLOW AT ALL TIME DURING CONSTRUCTION.

BEFORE BREAKING INTO OR CONSTRUCTING A SANITATION DISTRICT SEWER AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, SANITATION DISTRICT INSPECTOR SHALL BE NOTIFIED BY PHONE (661) 266-4683 SO THAT REQUIRED INSPECTION CAN BE MADE.

* =ISSUE NO PERMITS, MAINLINE MUST BE EXTENDED AND M.H. CONSTRUCTED

PRIVATE CONTRACT SEWER GENERAL NOTES

1. A sewer construction permit shall be obtained and a fee paid for construction inspection and record plans to the Department of Public Works at the Permit Counter, 900 South Fremont Avenue, 8th Floor, Alhambra, at least 72 hours prior to starting work under this permit. Copies of all other required permits, such as Road Excavation, Caltrans, etc., must be filed with the permit application.
2. Prior to issuance of any permit, the contractor shall file a permit for excavations and trenches from the State of California Division of Industrial Safety, and a Certificate of Worker's Compensation Insurance with the Department of Public Works named as the Certificate Holder to be notified 30 days prior to cancellation of policy.
3. If work is done in a State Highway, a permit must be obtained from the State of California Division of Highways, 120 South Spring Street, Los Angeles, California.
4. When work is within a contract city, the contractor must contact the Director of Public Works of that city, to determine the location to pay the inspection fee.
5. The contractor shall contact the district office listed on the "Application for Construction Permit" to arrange for an acceptable construction start date.
6. Approval of this plan by the County of Los Angeles does not constitute a representation as to accuracy of the location of or the existence or non-existence of any underground utility pipe or structure within the limits of this project. This note applies to all pages.
7. All work shall be in accordance with the latest approved edition of the "Standard Specifications for Public Works Construction, including supplements and the latest Special Provisions for the Construction of Sanitary Sewers and shall be prosecuted only in the presence of the Department of Public Works
8. The contractor's attention is directed to Section 7-10.4.1 of the Standard Specifications for Public Works Construction in regard to safety orders and shall conform to the "Minimum Public Safety Requirements" as shown on Los Angeles Department of Public Works' Standard Plan 6008-1.
9. Elevations are in feet above U.S.C. & G.S. sea level datum of 1929.
10. No revisions shall be made in these plans without the approval of the Director of Public Works.
11. No representative of the Department of Public Works will survey or lay out any portion of the work.
12. Grades to which this improvement is to be constructed are shown on plans and profiles. Grade points for top of curbs, centerline of streets, or centerline of alleys, are shown by circles on profiles at all points between said designated points. The grade shall be established so as to conform to a straight line drawn between said design points.
13. The private engineer shall furnish the Department of Public Works with grade sheets and stationing for all house laterals and "Y" or "T" branches and shall provide stakes for them at their proper locations with stationing plainly marked. All house laterals shall be constructed in a straight alignment at right angles from the main line sewer except as shown on the plans. House laterals from chimneys shall not have an angle of less than 45 degrees with the M.L. sewer. Any change in alignment shall be requested in writing by the private engineer.
14. The private engineer shall furnish the house lateral depth at the property line below the top of curb elevation for each house lateral on the grade sheet.
15. An approved backwater valve is required when pad is lower in elevation than the top of the next upstream manhole.

CONSTRUCTION NOTES

1. Provide survey stakes on the property line or property lines produced at right angles to the sewer line at the centerline of each manhole
2. Vitrified clay pipe joints shall be type "D" or "G" per "Standard Specifications for Public Works Construction" section 208-2.
3. If a powerpole is within three feet of the sewer, the sewer shall be encased per LACDPW standard plan 2023-2, case II, two feet on each side from the point of interference.
4. All joints between cast iron pipe and vitrified clay shall be made with a rubber sleeve joint, type "D" (with bushing if necessary) per "standard specifications for Public Works Construction" section 208-2.
5. House laterals to be constructed with inverts at the property line 6 feet below curb grade except as noted.
6. Wye or tee branches may be used for connections to the mainline sewers except as noted.
7. If during the course of construction, it is determined that there is less than four feet of cover over the top of a mainline or house lateral V.C.P. sewer which is not indicated on the plans, the pipes shall be encased per LACDPW standard plan 2023-2, case II, unless otherwise approved by the director of Public Works.
8. All structures shall be either brick sewer manholes per LACDPW standard plan S-3 (APWA 203-0), or precast concrete sewer manholes per LACDPW standard plan S-36 (APWA 200-2), or reinforced precast concrete manhole per LACDPW standard plan 2003-2, except as noted.
9. Resurface all trenches within paved areas to meet Department of Public Works or California State Highway requirements in accordance with the permits.
10. Full compliance with section 306-1.3.4. of the "Standard Specification for Public Works Construction" will be required for backfill in street. Certification of backfill, compaction, and sand equivalents by a qualified civil engineer shall be provided by the permitee prior to the issuance of a certificate of partial acceptance.
11. All backfill and fills outside of the street right of way shall be compacted to 90% of the maximum density as determined by ASTM soil compaction test D 1557-78 method "D" unless otherwise specified. This shall be certified by a qualified civil engineer. This certification shall be submitted to the Construction Division of the Department of Public Works prior to the acceptance of the work by the county.
12. Manhole tops in unimproved rights of way to be six inches above finished grade.
13. Sewers to be tested for leakage per section 306-1.4 of the "Standard Specifications for Public Works Construction" and "Special Provisions for the Construction of Sanitary Sewer".
14. Manhole tops in improved rights of way to be level with finished grade.
15. All wyes and/or house laterals are to be located at least 5' apart and when possible not closer than 5' to any manhole.

PROFILE, ALIGNMENT AND GRADE OF

SANITARY SEWERS

TO BE CONSTRUCTED IN

PC NO. 11839

THE OLD ROAD 200' S/O MAGIC MOUNTAIN PKWY

1 SHEETS: 2 PAGES

COUNTY OF LOS ANGELES CALIFORNIA

INDEX-1256

DONALD L. WOLFE DIRECTOR OF PUBLIC WORKS

APPROVED BY: LAND DEVELOPMENT DIVISION

BY [signature] ASSISTANT DIVISION ENGINEER 1/5/2006 DATE

SUBMITTED BY [signature] SUBDIVISION PLAN CHECKING SECTION 1/5/2006 DATE

APPROVED: COUNTY SANITATION DISTRICT OF LOS ANGELES CALIF.
JAMES F. STAHL - CHIEF ENGINEER and GENERAL MANAGER

COUNTY SANITATION DISTRICT NO. 32

BY for [signature] OFFICE ENGINEER DATE: 1/10/06

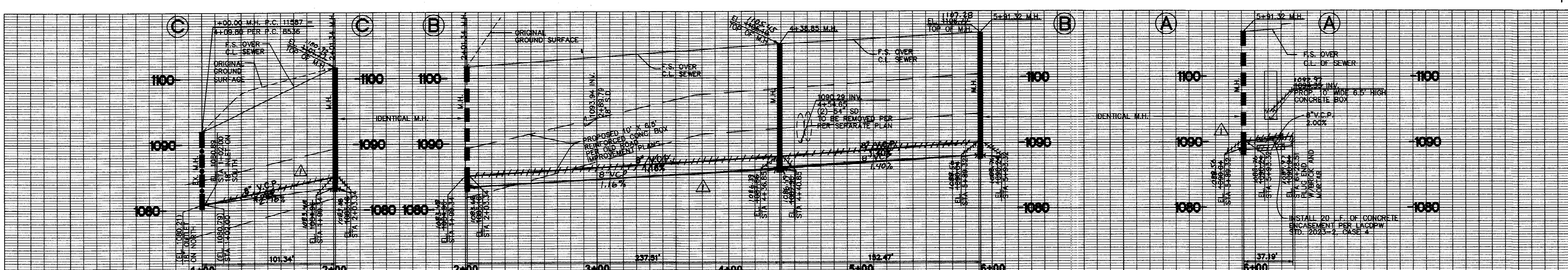
PRIVATE ENGINEERS NOTICE TO CONTRACTORS:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS IS REQUIRED BY A SEARCH OF AVAILABLE RECORDS TO THE BEST OF OUR KNOWLEDGE. THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING. PRIOR TO EXCAVATION THE CONTRACTOR SHALL CALL TOLL FREE 1-800-422-4133 TO VERIFY THE UNDERGROUND LOCATION OF GAS AND TELEPHONE LINES. THE CONTRACTOR SHALL ALSO CALL MR. RAY CUMMINGS OF GENERAL TELEPHONE COMPANY AT 1-805-948 4871 SO THAT THEY CAN MARK THE LOCATION OF UNDERGROUND TELEPHONE LINES.

[signature] RCE NO. 51929 12-16-05 DATE

THE OLD ROAD, 200' S/O MAGIC MOUNTAIN PARKWAY PC 11839

P.C.11839 PAGE 2

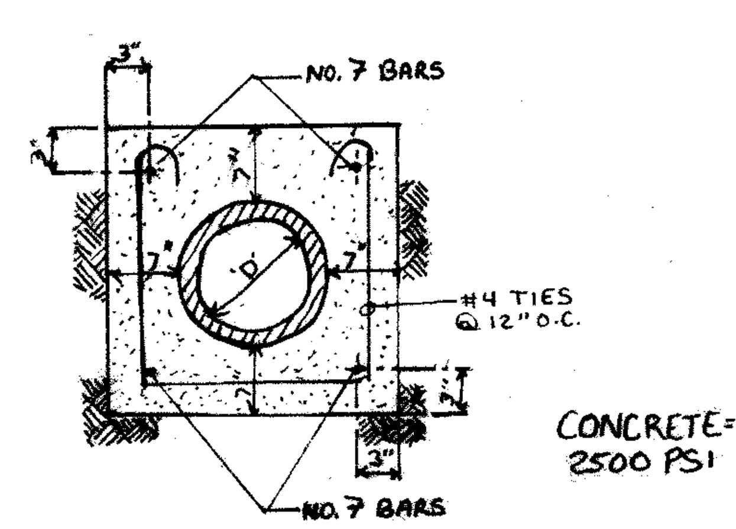


NO. L.A. CO. CHARGES FOR CONNECTION

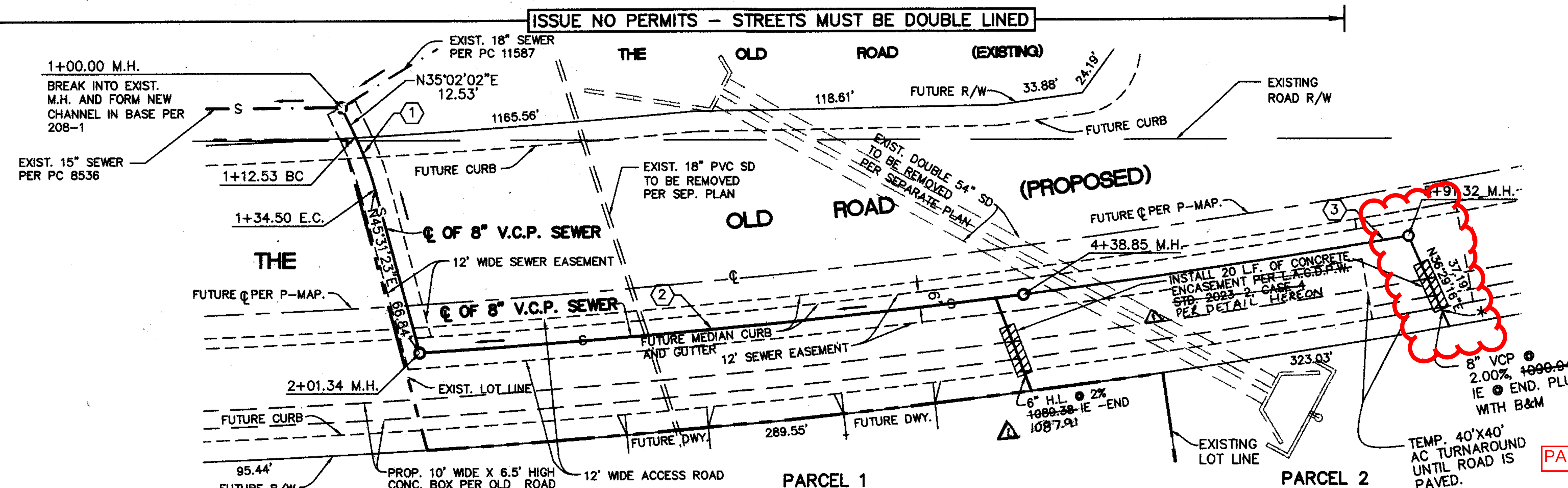
SEE SANITATION DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL (562) 699-7411 EX. 2727

DOUBLE SCALE

ISSUE NO PERMITS - STREETS MUST BE DOUBLE LINED



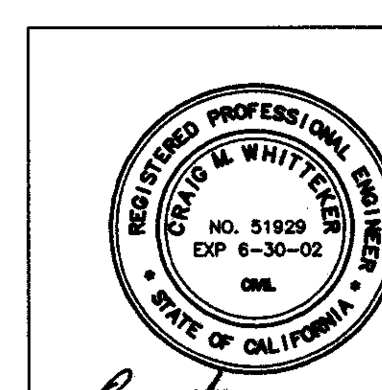
SPECIAL ENCASEMENT DETAIL
EXTEND 3'-0" MIN. BEYOND BOX



PLAN
SCALE: 1" = 40'

C SEWER CURVE DATA

1	R = 120.00' Δ = 10°29'21" L = 21.97' T = 11.02'	
2	R = 3619.00' Δ = 03°45'37" L = 237.51' T = 118.80'	
3	R = 3619.00' Δ = 02°24'50" L = 152.47' T = 76.24'	



PROJECT ENGINEER [signature] 12-16-05 DATE

SANITARY SEWER PLANS IN THE OLD ROAD 200' S/O MAGIC MOUNTAIN PKWY PC NO. 11839

REVIEWED BY LAND DEVELOPMENT DIVISION
BY [signature] SUBDIVISION PLAN CHECKING SECTION 1/4/06 DATE
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

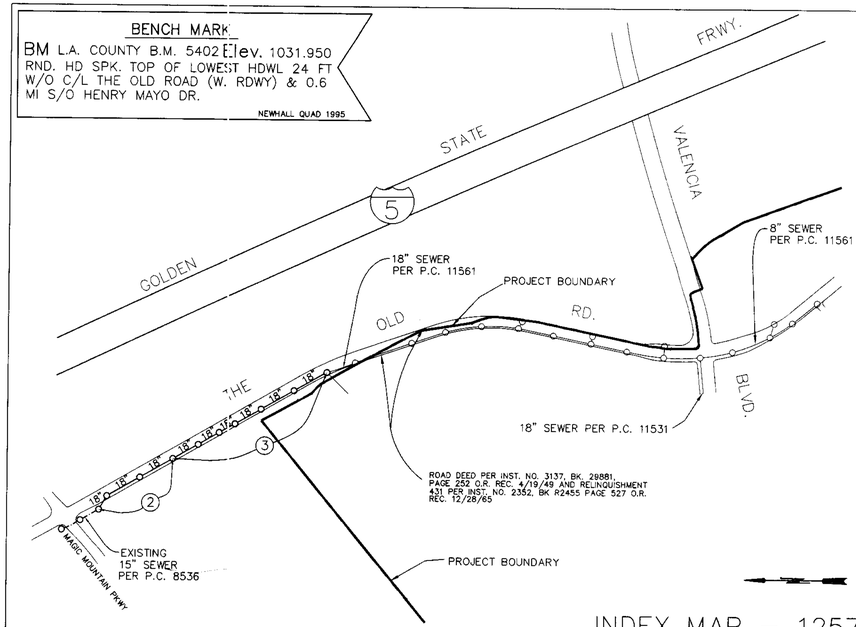
ALLIANCE LAND PLANNING & ENGINEERING INC.
5962 LAPLACE COURT SUITE 130 CARLSBAD, CA 92008
TEL: (760) 431-9896

I:\CAD\0257\SEWER\SEWER SHEET.dwg JN 0257

BENCH MARK

BM L.A. COUNTY B.M. 5402 Elev. 1031.950
RND. HD SPK. TOP OF LOWEST HDWL 24 FT W/O C/L THE OLD ROAD (W. RDWY) & 0.6 MI S/O HENRY MAYO DR.

NEWHALL QUAD 1995



INDEX MAP – 1257

SCALE: 1"=600'

P.C. 11587 – SEWER WITHIN THE OLD ROAD

NOTE: NUMBERS IN CIRCLES INDICATE PAGE NUMBER.

THOMAS GUIDE PAGE: 4550-C4, D4

NO.	REVISION	REVISED BY	APPROVED BY	DATE

STORMWATER POLLUTION CONTROL REQUIREMENTS FOR SEWER CONSTRUCTION

DOUBLE SCALE

1. Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheet flow, swales, area drains, natural drainage courses, or wind.
2. Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
3. Fuels, oils, solvents, and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
4. Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
5. Trash and construction-related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
6. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
7. Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.

CA001 – DEWATERING OPERATIONS
CA002 – PAVING OPERATIONS
CA003 – STRUCTURE CONSTRUCTION AND PAINTING
CA010 – MATERIAL DELIVERY AND STORAGE
CA020 – SOLID WASTE MANAGEMENT
CA021 – HAZARDOUS WASTE MANAGEMENT
CA023 – CONCRETE WASTE MANAGEMENT
CA024 – SANITARY/SEPTIC WASTE MANAGEMENT
CA030 – VEHICLE AND EQUIPMENT CLEANING
CA031 – VEHICLE AND EQUIPMENT FUELING
CA032 – VEHICLE AND EQUIPMENT MAINTENANCE
ESC01 – SCHEDULING
ESC02 – PRESERVATION OF EXISTING VEGETATION
ESC10 – SEEDING AND PLANTING
ESC11 – MULCHING
ESC20 – GEOTEXTILES AND MATS
ESC21 – DUST CONTROLS
ESC22 – TEMPORARY STREAM CROSSING
ESC23 – CONSTRUCTION ROAD STABILIZATION
ESC24 – STABILIZED CONSTRUCTION ENTRANCE
ESC54 – STORM DRAIN INLET PROTECTION

STANDARD PLANS:

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE FOLLOWING DEPARTMENT SHALL APPLY IN THE CONSTRUCTION OF THIS PROJECT.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

APWA 208-0 BREAKING INTO EXISTING MANHOLES
APWA 220-2 CHIMNEYS
APWA 222-0 HOUSE CONNECTION SEWER
APWA 223-0 HOUSE CONNECTION REMODELING
2000-0 LEGEND FOR SANITARY SEWER PLANS AND PROFILES AND DISTRICT MAPS.
2021-0 BEDDING FOR SEWER PIPE
2024-0 WYE OR TEE SUPPORT
2027-0 ALLOWABLE TRENCH WIDTHS

EASEMENT TO THE COUNTY OF LOS ANGELES FOR SANITARY SEWER, INGRESS AND EGRESS
NOTE: TO BE GRANTED OVER ALL PRIVATE STREETS PER FINAL MAP.

NO CONNECTION FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS UNTIL A PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE HAS BEEN ISSUED BY THE SANITATION DISTRICTS FOR SAID CONNECTION.

BEFORE BREAKING INTO OR CONSTRUCTION ON A COUNTY SANITATION DESTRICT SEWER AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, SANITATION DISTRICT INSPECTOR SHALL BE NOTIFIED BY PHONE (661) 286-4683 SO THAT REQUIRED INSPECTION CAN BE MADE.

PRIVATE CONTRACT SEWER GENERAL NOTES

1. A sewer construction permit shall be obtained and a fee paid for construction inspection and record plans to the Department of Public Works at the Permit Counter, 900 South Fremont Avenue, 8th Floor, Alhambra, at least 72 hours prior to starting work under this permit. Copies of all other required permits, such as Road Excavation, Caltrans, etc., must be filed with the permit application.
2. Prior to issuance of any permit, the contractor shall file a permit for excavations and trenches from the State of California Division of Industrial Safety, and a Certificate of Worker's Compensation Insurance with the Department of Public Works named as the Certificate Holder to be notified 30 days prior to cancellation of policy.
3. If work is done in a State Highway, a permit must be obtained from the State of California Division of Highways, 120 South Spring Street, Los Angeles, California.
4. When work is within a contract city, the contractor must contact the Director of Public Works of that city, to determine the location to pay the inspection fee.
5. The contractor shall contact the district office listed on the "Application for Construction Permit" to arrange for an acceptable construction start date.
6. Approval of this plan by the County of Los Angeles does not constitute a representation as to accuracy of the location of or the existence or non-existence of any underground utility pipe or structure within the limits of this project. This note applies to all pages.
7. All work shall be in accordance with the latest approved edition of the "Standard Specifications for Public Works Construction, including supplements and the latest Special Provisions for the Construction of Sanitary Sewers and shall be prosecuted only in the presence of the Department of Public Works
8. The contractor's attention is directed to Section 7-10.4.1 of the Standard Specifications for Public Works Construction in regard to safety orders and shall conform to the "Minimum Public Safety Requirements" as shown on Los Angeles Department of Public Works' Standard S-2.
9. Elevations are in feet above U.S.C. & G.S. sea level datum of 1929.
10. No revisions shall be made in these plans without the approval of the Director of Public Works.
11. No representative of the Department of Public Works will survey or lay out any portion of the work.
12. Grades to which this improvement is to be constructed are shown on plans and profiles. Grade points for top of curbs, centerline of streets, or centerline of alleys, are shown by circles on profiles at all points between designated points. The grade shall be established so as to conform to a straight line drawn between said designated points.
13. The private engineer shall furnish the Department of Public Works with grade sheets and stationing for all house laterals and "Y" or "T" branches and shall provide stakes for them at their proper locations with stationing plainly marked. All house laterals shall be constructed in a straight alignment at right angles from the main line sewer except as shown on the plans. House laterals from chimneys shall not have an angle of less than 45 degrees with the M.L. sewer. Any change in alignment shall be requested in writing by the private engineer.
14. The private engineer shall furnish the house lateral depth at the property line below the top of curb elevation for each house lateral on the grade sheet.

CONSTRUCTION NOTES

1. Provide survey stakes on the property line or property lines produced at right angles to the sewer line at the centerline of each manhole
2. Vitrified clay pipe joints shall be type "O" or "G" per standard specifications section 208-2.
3. If a powerpole is within three feet of the sewer, the sewer shall be encased per standard plan S-23, case II, two feet on each side from the point of interference.
4. All joints between cast iron pipe and vitrified caly shall be made with a rubber sleeve joint, type "D" (with bushing if necessary) per standard specifications section 208-2.
5. House laterals to be constructed with inverts at the property line 6 feet below curb grade except as noted.
6. Wye or tee branches may be used for connections to the mainline sewers except as noted.
7. If during the course of construction, it is determined that there is less than four feet of cover over the top of a mainline or house lateral V.C.P. sewer which is not indicated on the plans, the pipes shall be encased per standard plan S-23, case II, unless otherwise approved by the director of Public Works.
8. All structures shall be either brick sewer manholes per standard plan S-3 or precast concrete sewer manholes per standard plan S-36, or reinforced precast concrete manhole per standard plan S-6, except as noted.
9. Resurface all trenches within paved areas to meet Los Angeles County Public Works or California State Highway requirements in accordance with the permits.
10. Full compliance with section 306-1.3.4. of the standard specification will be required for backfill in street certification of backfill compaction and sand equivalents by a qualified civil engineer shall be provided by the permitee prior to the issuance of a certificate of partial acceptance.
11. All backfill and fills outside of the street right of way shall be compacted to 90% of the maximum density as determined by ASTM soil compaction test D 1557-78 method "D" unless otherwise specified. This shall be certified by a qualified civil engineer. This certification shall be submitted to the Construction Division of the Department of Public Works prior to the acceptance of the work by the county.
12. Manhole tops in Improved rights of way to be level WITH finished grade.
13. Sewers to be tested for leakage per section 306-1/4 of the standard specifications and special provisions.

55416

PROFILE, ALIGNMENT AND GRADE OF

SANITARY SEWERS

TO BE CONSTRUCTED IN

THE OLD ROAD P.C. 11587

S/O. MAGIC MTN. PARKWAY & N/O. VALENCIA BLVD.

2 SHEETS: 3 PAGES

COUNTY OF LOS ANGELES CALIFORNIA

INDEX-1257

JAMES A. NOYES DIRECTOR OF PUBLIC WORKS

RECOMMENDED LAND DEVELOPMENT DIVISION

BY _____ ASSISTANT DIVISION ENGINEER DATE 6/20/01

SUBMITTED BY _____ SUBDIVISION PLAN CHECKING SECTION DATE 6/26/01

APPROVED: COUNTY SANITATION DISTRICT OF LOS ANGELES CALIF.

JAMES F. STHAL – CHIEF ENGINEER and GENERAL MANAGER

COUNTY SANITATION DISTRICT NO. 32

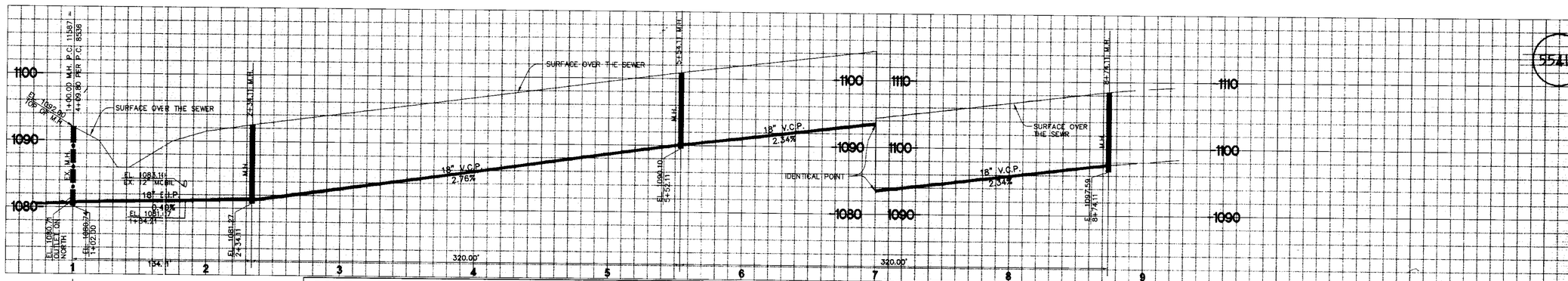
BY _____ OFFICE ENGINEER DATE: 6-21-01

PRIVATE ENGINEERS NOTICE TO CONTRACTORS:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS IS REQUIRED BY A SEARCH OF AVAILABLE RECORDS TO THE BEST OF OUR KNOWLEDGE. THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING. PRIOR TO EXCAVATION THE CONTRACTOR SHALL CALL TOLL FREE 1-800-422-4133 TO VERIFY THE UNDERGROUND LOCATION OF GAS AND TELEPHONE LINES. THE CONTRACTOR SHALL ALSO CALL MR. RAY CUMMINGS OF GENERAL TELEPHONE COMPANY AT 1-805-948 4871 SO THAT THEY CAN MARK THE LOCATION OF UNDERGROUND TELEPHONE LINES.

RCE NO. 51929 5-22-01 DATE

P.C.11587 PAGE 2



55417

NO. L.A. CO. CHARGES FOR CONNECTION

SEE CO. SANITATION DISTRICT FOR SPECIAL CONNECTION CHARGES

TEL. (562) 699-7411 EX. 2727

DOUBLE SCALE

ISSUE NO PERMITS – STREETS MUST BE DOUBLE LINED

PLAN

SCALE: 1" = 40'

25 0 50 100

SCALE: 1" = 40'

PS007252

SANITARY SEWER PLANS IN THE OLD ROAD PC NO. 11587

E/O. MAGIC MTS. PARKWAY & W/O. VALENCIA BLVD.

REVIEWED LAND DEVELOPMENT DIVISION

BY _____ SUBDIVISION PLAN CHECKING SECTION DATE 6-20-01

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER CRAIG W. WHITTEKER NO. 51929 EXP 6-30-02 CIVIL STATE OF CALIFORNIA

PROJECT ENGINEER _____ DATE 5-22-01

ALLIANCE
LAND PLANNING & ENGINEERING INC.

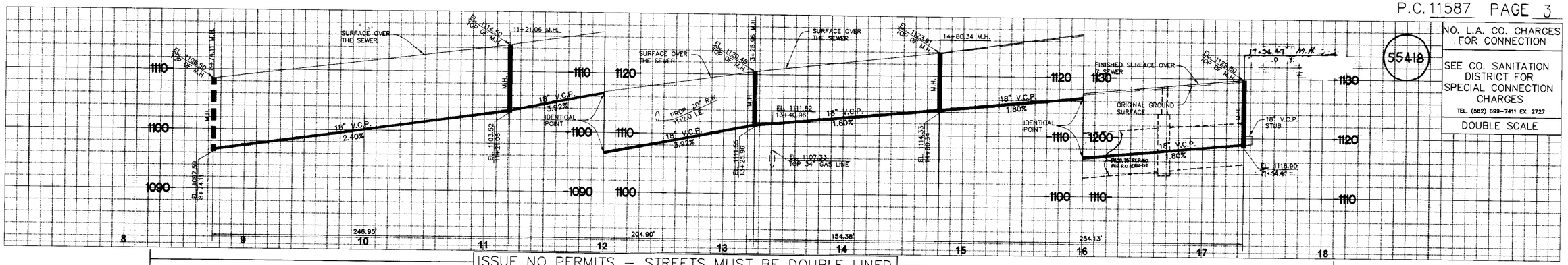
5962 LAPLACE COURT
SUITE 130
CARLSBAD, CA 92008
TEL: (760) 431-9896

93004\SEWER\P.C. 11587\PC11587-SHT2.DWG JN 0031

P.C. 11587

P.C. 11587

P.C. 11587 PAGE 3



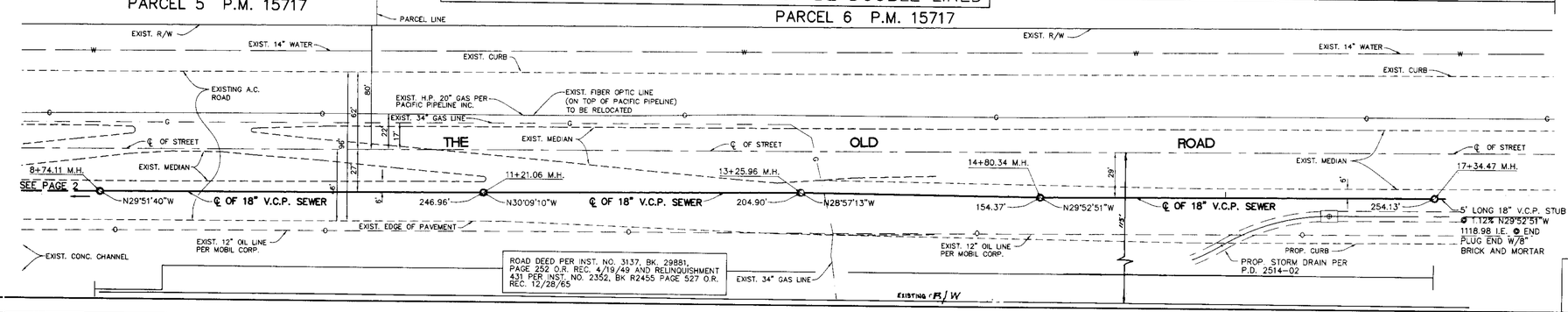
55418

NO. L.A. CO. CHARGES FOR CONNECTION

SEE CO. SANITATION DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EX. 2727

DOUBLE SCALE

ISSUE NO PERMITS – STREETS MUST BE DOUBLE LINED



REGISTERED PROFESSIONAL ENGINEER
CRAIG M. WHITTEN
NO. 51929
EXP. 6-30-02
CIVIL
STATE OF CALIFORNIA

SCALE: 1" = 40'

PLAN
SCALE: 1" = 40'

25 0 50 100

REVIEWED BY LAND DEVELOPMENT DIVISION
BY M.D. Esfandiari 6-20-02
SUBDIVISION PLAN CHECKING SECTION DATE

P.C. 11587 PAGE 4

VOID

NO. L.A. CO. CHARGES FOR CONNECTION

SEE CO. SANITATION DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EX. 2727

DOUBLE SCALE

REGISTERED PROFESSIONAL ENGINEER
CRAIG M. WHITTEN
NO. 51929
EXP. 6-30-02
CIVIL
STATE OF CALIFORNIA

PS007252

PLAN
SCALE: 1" = 40'

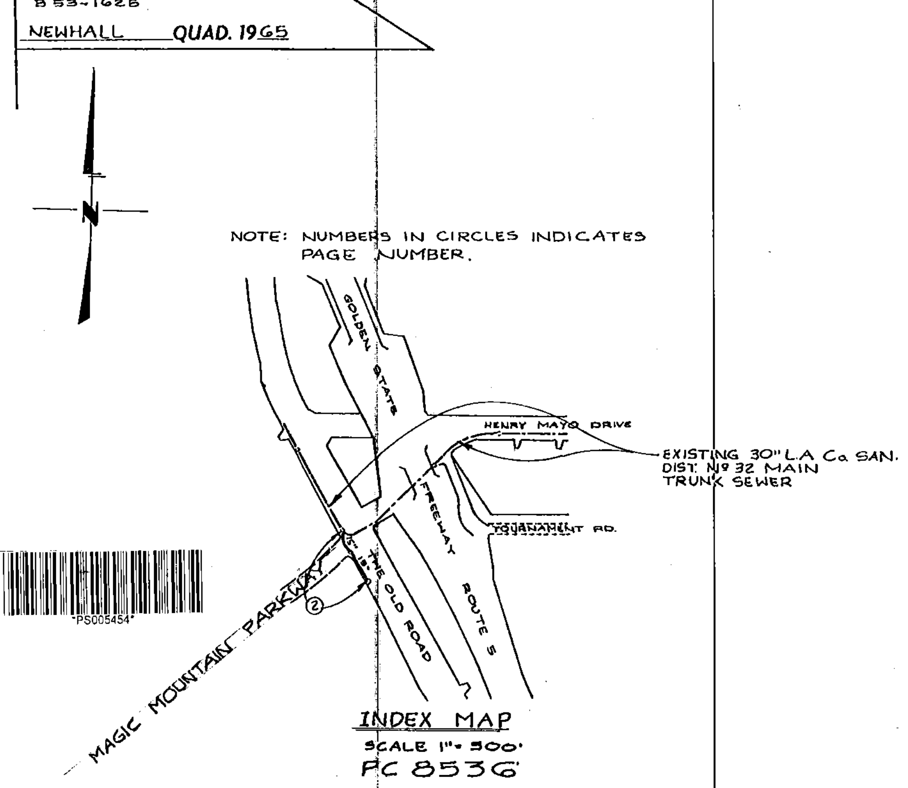
25 0 50 100

REVIEWED BY LAND DEVELOPMENT DIVISION
BY _____
SUBDIVISION PLAN CHECKING SECTION DATE

JN 0031 93004\SEWER\P.C. 11587\PC11587-SHT34.DWG

P.C. 11587

B.M. BL 1774 ELEV. 1078.072
RDBM TAG 9 CB TRAFFIC ISL. 18 FT N ℄ S RDWY HENRY MAYO DR. +70 FT W ℄ GOLDEN ST. FWY BRIDGE B 53-1628
NEWHALL QUAD. 1965



INDEX MAP
SCALE 1" = 500'
PC 8536

PS005454

NOTICE TO CONTRACTOR

The existence and location of any underground utility pipes or structures shown on these plans are obtained by a search of the available records. To the best of my knowledge there are no existing utilities except as shown on these plans.

The contractor is required to take due precautionary measures to protect the utility lines shown and any other lines not of record or not shown on these plans.

Ronald R. Horn
R.C.E. 16913

COLLECT CHARGES AS INDICATED

DOUBLE SCALE
NEWHALL BLDG. DIST. NO. 8.2

NOTES:

1. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE 0 FEET BELOW FINISHED GRADE.
2. PROVIDE STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTER LINE OF EACH MANHOLE.
3. NO REPRESENTATIVE OF THE COUNTY ENGINEER WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
4. THE PRIVATE ENGINEER SHALL FURNISH THE COUNTY ENGINEER WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND "Y" OR "T" BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45° WITH THE MAIN LINE SEWER. ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
5. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE FINISHED GRADE FOR EACH HOUSE LATERAL ON THE GRADE SHEET.
6. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE COUNTY ENGINEER.
7. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE, MADISON 9-4747, EXT. 81551, AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
8. ALL STRUCTURES SHALL BE EITHER BRICK MANHOLES PER S-3 OR PRECAST CONCRETE MANHOLES PER S-36 .. EXCEPT AS NOTED.
9. "Y" OR "T" BRANCHES MAY BE USED FOR CONNECTIONS TO MAINLINE SEWERS EXCEPT AS NOTED.
10. MANHOLE TOPS IN UNIMPROVED RIGHTS OF WAY TO BE SIX INCHES ABOVE FINISHED GRADE.
11. USE EXTRA STRENGTH PIPE. ALL PIPE IS STANDARD DEPTH EXCEPT AS NOTED.
12. VITRIFIED CLAY PIPE JOINTS SHALL BE TYPE "D", "F", OR "G" PER STANDARD SPECIFICATIONS SECTION 208-2.
13. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED, PER S-23, TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
14. IF DURING THE COURSE OF CONSTRUCTION IT IS DETERMINED THAT THERE IS LESS THAN FOUR FEET OF COVER OVER THE TOP OF A MAIN LINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER S-23, UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER.
15. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET L.A. COUNTY ROAD DEPT. OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH PERMITS.
16. SEWERS TO BE TESTED FOR LEAKAGE PER SECTION 306-1.3.7 OF THE STANDARD SPECIFICATIONS.
17. REFER TO SECTION 7-10.4.1 OF THE STANDARD SPECIFICATIONS, REGARDING SAFETY ORDERS.
19. ALL JOINTS BETWEEN CAST IRON PIPE AND VITRIFIED CLAY PIPE SHALL BE MADE WITH A RUBBER SLEEVE JOINT, TYPE "C" OR "D", (WITH BUSHING IF NECESSARY) PER STANDARD SPECIFICATIONS, SECTION 208-5.

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE COUNTY ENGINEER SHALL APPLY IN THE CONSTRUCTION OF THIS PROJECT:

LEGEND	S-5
MINIMUM PUBLIC SAFETY REQUIREMENTS	S-2
BRICK MANHOLE	S-8
NON-REINFORCED PRECAST CONCRETE MANHOLE	S-36
~~REINFORCED PRECAST CONCRETE MANHOLE~~	~~S-6~~
~~MANHOLE FRAME AND COVER~~	S-15
STANDARD MANHOLE STEP	S-17
BEDDING FOR SEWER PIPE	S-21
CRADLING AND ENCASEMENT	S-23
WYE OR TEE SUPPORT	S-20
ALLOWABLE TRENCH WIDTHS	S-33
CHIMNEY PIPE AND BASE	S-27
LOCKING MANHOLE FRAME & COVER	S-35

County Sanitation Districts shall be notified prior to the following so that required inspection can be made (Phone 537-1025 or ~~685-8097~~)

Acceptance of the project.

No connections for the disposal of industrial wastes shall be made to sewers shown on these drawings without written permission from the Chief Engineer and General Manager of the County Sanitation Districts.

PROFILE, ALIGNMENT AND GRADE OF

SANITARY SEWERS

P.C. 8536
PAGE 1

CONSTRUCTED IN

THE OLD ROAD
AT MAGIC MOUNTAIN PARKWAY

PRIVATE CONTRACT NO. 8536

W.S. 63

1 SHEET; 2 PAGES

SCALE: VERT. 1" – 8' HORIZ. 1" – 40' SEPT , 1970

42092

PREPARED IN THE OFFICES OF
SIKAND ENGINEERING ASSOCIATES, INC.
15205 BURBANK BOULEVARD
VAN NUYS, CALIFORNIA 91401 787-8550

By: Ronald R. Horn
REG. C. E. NO. 16913

NOTE:

GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTER LINE OF STREETS, OR CENTER LINE OF ALLEYS ARE SHOWN BY CIRCLES ON PROFILES. AT ALL POINTS BETWEEN DESIGNATED POINTS THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.

ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.

WORK SHALL BE CONSTRUCTED ACCORDING TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (1970 EDITION) AND COUNTY ENGINEER SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWERS DATED APRIL 2, 1970, AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE COUNTY ENGINEER.

BEFORE WORK CAN BE STARTED, THE CONTRACTOR MUST OBTAIN A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE L. A. COUNTY ROAD DEPT., DISTRICT OFFICE NO. ..5..., AND PAY A FEE TO THE COUNTY ENGINEER, ROOM 330, COUNTY ENGINEERING BUILDING, 108 WEST SECOND STREET OR ....NEWHALL.................. REGIONAL OFFICE, SUFFICIENT TO COVER THE COST OF CONSTRUCTION INSPECTION AND RECORD PLANS.

APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE, OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.

IF WORK IS TO BE DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA, DIVISION OF HIGHWAYS, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.

COUNTY OF LOS ANGELES, CALIFORNIA

JOHN A. LAMBIE, COUNTY ENGINEER — J. D. PARKHURST, CHIEF ENGINEER

CO. SAN DIST. NO. 32

APPROVED BY, [signature] 9/24/70 (REGIONAL ENGINEER) (DATE) — APPROVED BY [signature] (OFFICE ENGINEER)

CHECKED BY, [signature] 9-24-70

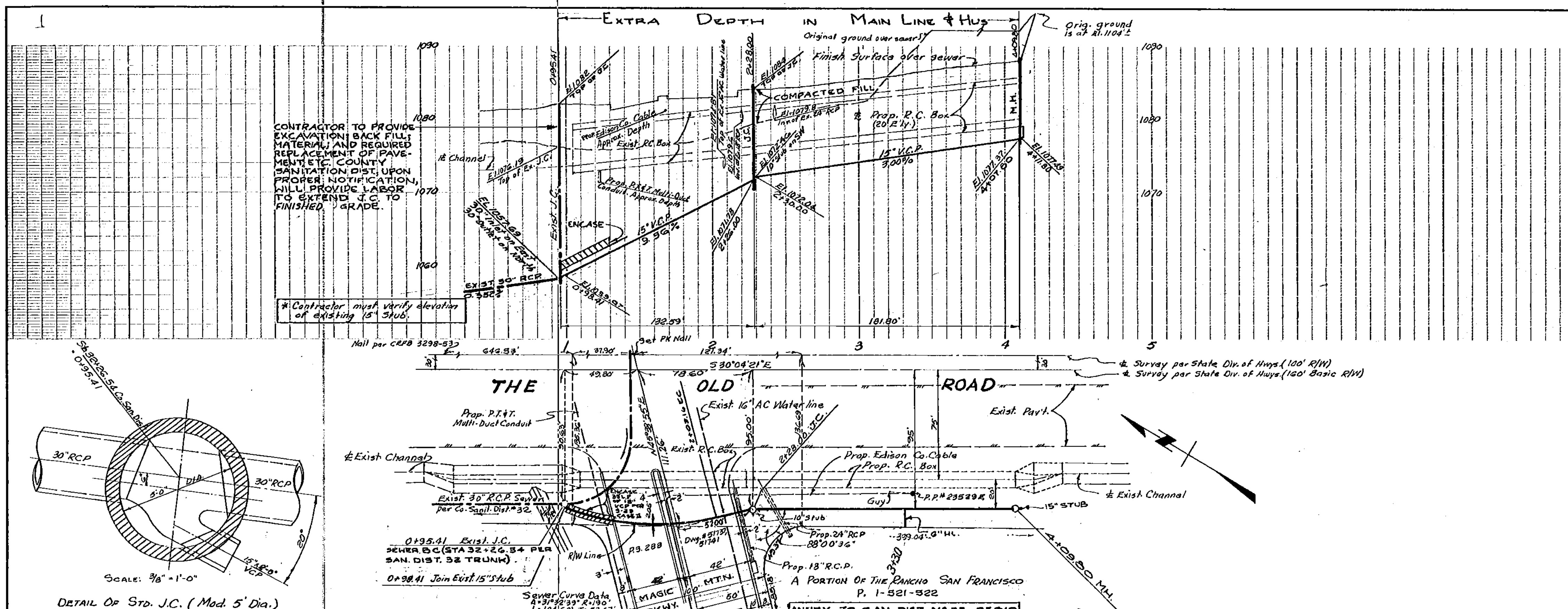
REG. C.E. NO. 15390

J.N. 0370.73

P. C. 8536 PAGE 2

DOUBLE SCALE
NO CHARGE FOR CONNECTIONS

42093



APPENDIX C

PSOMAS

SEWER AREA STUDY

FOR

PC 11831 AS

MISSION VILLAGE - VTTM 061105
LOS ANGELES COUNTY, CALIFORNIA

SEWER AREA STUDY
APPROVED
APPROVED BY: [signature] RCE NO. 65401 DATE 2/25/10
CHECKED BY: _____ DATE _____
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

Prepared for:

NEWHALL LAND
25124 Springfield Court, Suite 300
Valencia, CA 91355
661.225.4000 255.3960 fax

Prepared By:

PSOMAS
3 Hutton Centre Drive., Suite 200
Santa Ana, CA 92707
714.751.7373 714.545.8883 fax

February 2009

STUDY AREA

The purpose of this report is to provide a summary of the proposed sewer options for Mission Village portion of the Newhall Ranch project. The study area is roughly bounded on the east by Magic Mountain, on the north by the Santa Clara River, and on the south by the ridgelines which flow to the north. The study area includes Mission Village and two offsite development areas which contribute flows to the project area; Legacy (VTTM 61996) and Homestead (VTTM 60678). Figures 1 and 1A show the project area and the location of the offsite developments (1A is a duplicate of 1 without the aerial photo for easier reading). Table 1 shows land use data for the study area. The land use presented in Table 1 has been separated into sewer tributary areas based on site topography as described below.

This study is based on options and conclusions provided in the Newhall Ranch conceptual sewer master plan PC 11812AS.

TOPOGRAPHY

The natural topography can be generally described as high hills along the southerly tract border that slope and drain toward the Santa Clara River. There is a small portion of the site along the southeasterly edge that drains easterly towards the westerly terminus of Magic Mountain Parkway. There are a number of finger canyons which start at the southerly hills and drain northerly to be intercepted by the Santa Clara River. Most of the low lying areas along the river are sensitive habitat. These are accentuated by cliffs and bluffs along the south side of the river. Topography makes it difficult to bring all of the sewage together at one location and the sensitivity of the river areas, along with the bluffs, make it improbable to build pipeline along the south side of the river parallel to the river to collect the finger canyons. There are no sewers currently in the area. Because of the topography and the environmental constraints in the project area, the sewering options for this area are quite complex.

SEWER – INTERIM AND ULTIMATE CONDITIONS

The Mission Village project area has been broken into five sewer systems, A, B, B1, B2 and C, as shown on Figure 2. Systems A, B, B1 and B2 all naturally drain northerly towards the Santa Clara River. As discussed above, topography and environmental constraints make it difficult to provide a collection interceptor along the south side of the Santa Clara River. Therefore, flows from these systems will need to be lifted and combined at logical river crossing points for conveyance across the river and collection into a Sanitation District trunk sewer located along the north side of the river. This trunk will either convey the effluent by gravity to the Newhall Ranch County Sanitation District Water Reclamation Plant or be pumped back to Sanitation District 32 Valencia Water Reclamation Plant.

TABLE 1
STUDY AREA LAND USE

Tributary Area	Land Use		DU	Area (ac)
A	SFD 65X110	R-1	95	
	Estates (avg. 1ac)	Estate	118	
	SFD/Duplex	Condo	146	
	Condominium	Condo	152	
	Offsite – LV3*	Residential	455	
	Offsite – Homestead*	Residential	1,430	
	Park			15.3
B	Condominium	Condo	677	
	Park			21.0
	Office/Retail	C-1		38.0
	Recreation Center			6.9
B1	SFD 55x110	R-1	214	
	Estates (avg. 1 ac)	Estate	28	
	Park			5.2
B2	Condominium	Condo	1,816	
	Elem. School	School	900 students	
	Commercial / Library	C-1		3.3
C	Condo	Condo	1,239	
	Office/Retail	C-1		22.6
	Offsite – LV1*	Residential	435	
	Recreation Lot			4.6
	Fire Station	C-1		1.5

* Offsite demands have been increased by 10% of current preliminary TTM's (provided in Appendix) to account for changes during review.

System C drains naturally towards the current terminus in Magic Mountain Parkway. This system will be sewered through the extension of sewer lines in Magic Mountain Parkway with a tie-in to an existing trunk sewer in The Old Road that is connected to the Sanitation District 32 Valencia Water Reclamation Plant via an existing 30" siphon under the Santa Clara River adjacent to The Old Road bridge.

The following will discuss the proposed sewer systems for the ultimate project build-out and interim condition prior to construction of the Commerce Center Drive bridge as shown on sheet 9 of Vesting Tentative Tract Map 61105.

Ultimate Condition

The ultimate condition as shown on the Vesting Tentative Tract Map is illustrated on Figure 3.

System A will be combined with future offsite flows from VTTM 61996 (LV3) and gravity flow to pump station DPW 2 located near Lion Canyon. Offsite flows from VTTM 60678 (Homestead) will be pumped via lift station DPW3 to pump station DPW 2 (elevation 1,010) and then pumped again to System B2. This combined effluent will then flow to Commerce Center Drive within System B. System B will be conveyed via gravity flow down Commerce Center Drive in a Sanitation District Trunk Line, the flow from the DPW 1 lift station will be added and then gravity across the Bridge to a connection with the Sanitation District Santa Clara River Interceptor located on the north side of the Santa Clara River.

Also shown on Figure 3 are lettered alternatives for getting the flow from the Commerce Center Drive Bridge to either the Newhall Ranch Water Reclamation Plant (NRWRP) or the Valencia Water Reclamation Plant (VWRP) as presented in PC 11812AS. In Alternative A, the Sanitation District Santa Clara River Interceptor will connect to the NRWRP via gravity.

Alternative B shows that if Landmark Village VTTM 53108 is developed before this project and the NRWRP is delayed, the ultimate Sanitation District gravity trunk main would be constructed along the SR126 from Commerce Center Drive to the temporary offsite Sanitation District lift station LACSD 3T proposed as part of the Landmark Village development. This lift station will pump the Mission Village and Landmark Village effluent through a Sanitation District force main to the existing pump at Henry Mayo Drive/The Old Road intersection and then on to the Sanitation District 32 Valencia Water Reclamation Plant.

In Alternative C, should completion of the NRWRP and Landmark Village VTTM 53108 be delayed, a temporary offsite Sanitation District lift station LACSD 2T would be required near the intersection of Commerce Center Drive and Henry Mayo Drive along with a force main to pump the effluent to an existing pump station at Henry Mayo/The Old Road intersection which pumps directly to the Sanitation District 32 Valencia Water Reclamation Plant.

In Alternative D, should completion of the NRWRP and Landmark Village be delayed, an alternative temporary offsite sanitation district lift station LACSD 4T at NRWRP would be required along with a force main to pump the effluent to the existing pump at Henry Mayo Drive/The Old Road intersection and then on to the Sanitation District 32 VWRP.

System C flows will be combined with future offsite flows from VTTM 61996 (LV1) and drained via gravity sewer in the extension of Magic Mountain Parkway and connect to an existing Sanitation District 30" trunk main that siphons under the Santa Clara River at The Old Road Bridge to Sanitation District 32 Valencia Water Reclamation Plant.

Interim Condition – (Prior to completion of CCD Bridge)
The interim condition accounts for the Commerce Center Drive (CCD) Bridge not yet in place and the maximum allowable development (3,866 units) that the project is entitled prior to completion of Commerce Center Drive per the Mission Village Traffic Impact Analysis by Austin Foust. Consequently, lift station LACSD 2T would be located on the south side of the Santa Clara River and will be sized to handle systems B1, B2 and part of B to pump flows back to Magic Mountain Pkwy and ultimately to the VWRP. Note on Figure 4 that area B(3) has been left white to signify that this area would not contribute flows in the interim condition until the Commerce Center Drive Bridge is built allowing sewer to gravity across the river in the ultimate condition. The applicant reserves the right to change which areas not to develop before the Bridge is constructed as long as they meet the requirements of the Traffic Impact Analysis. Such changes may require that this sewer area study be revised unless the applicant can show that the changes have no impact to the size of any permanent or temporary DPW facilities.

As shown on Figure 4, the interim system will operate the same as the ultimate condition with four notable exceptions. First, a portion of the Mission Village tract (area B(3)) will not contribute flows due to the Traffic limitations discussed above. Second, Homestead (VTTM 60678) will be conditioned to not contribute flows to lift station DPW 2 until the Bridge is constructed. Third, instead of the System B sewer main gravity flowing across the bridge it will stop at lift station LACSD 2T on the south side of the river and will be pumped back up Commerce Center Drive (high point elevation 1,244') to System C for conveyance to Sanitation District 32 Valencia Water Reclamation Plant. Fourth, the force main from Pump DPW 2 will temporarily connect to the gravity line in System C to minimize the demands on lift station LACSD 2T. A portion of this force main will be temporary and will be abandoned upon ultimate conditions.

System C flows will be combined with future offsite flows from VTTM 61996 (LV1), drain via gravity sewer to the proposed San District Trunk main in the extension of Magic Mountain Parkway which will connect to an existing Sanitation District 30" trunk main that siphons under the Santa Clara River at The Old Road Bridge to the VWRP.

Gravity sewer lines and force mains will be sized based on the larger of two flows, interim vs ultimate. If the ultimate flow is greater than the interim condition for a particular reach then the pipe will be sized for that larger flow and constructed in the interim condition. If the interim flow is larger than ultimate, then the interim condition will control the pipe size and the ultimate condition will result in a sewer main with excess capacity.

ABANDONMENT OF INTERIM FACILITIES

As discussed above, a temporary DPW force main is needed prior to installation of the Commerce Center Drive Bridge to enable Systems A to sewer to the existing Valencia WRP via Magic Mountain Parkway. The line in Magic Mountain Parkway will be sized to handle the larger interim flows and will remain that way in the ultimate condition. The

force main for System A will be built to ultimate size and alignment but will be disconnected in the interim condition from the portion in B street within a manway (or large manhole) at the intersection of B and C Streets to the high point of elevation 1287 along B street. A temporary force main will connect within this manway and direct the interim flow to the Magic Mountain Pkwy line.

Once the Sanitation District Line is constructed over the Santa Clara River on the Commerce Center Drive Bridge and is made operational the interim force main for System A will be abandoned by the applicant. Then the connection will be made to the ultimate force main in B Street at the manway without disturbance to the surface improvements. The applicant is responsible for abandonment of all temporary facilities. Any temporary lift stations will be demolished and temporary sewer lines will be slurry filled.

The approved Mission Village Traffic Study defines the maximum development (3,866 units) allowed prior to construction of the Commerce Center Drive Bridge and has been partially accounted for in this sewer area study by removing area B(3) from the interim condition calculations.

SEWAGE GENERATION FACTORS

Sewer flow generation rates are based on Los Angeles County Zoning Coefficients included in Appendix A. The anticipated sewer discharge, Q, is calculated for each tributary area using the Zoning Coefficients and land use data (acres or dwelling units) for the development areas presented in Table 1. Land use for the project area is also illustrated on Figure 2. Sewer pipes are sized in accordance with Los Angeles County Design Chart Standard No. S-C4, included in Appendix B.

SEWER AREA STUDY

Offsite Development Areas

Legacy Village (VTTM 61996) lies south of the Mission Village development. Three roads connect from Legacy Village to Mission Village. Sewage from basins in Legacy will be collected into the Mission Village project area through sewer lines within these three roads. Table 2 below shows sewage generation from the two of these three tributary areas within Legacy Village. The third most easterly area (LV2) connects directly into the proposed Sanitation District Trunk Line.

Homestead VTTM 60678 lies to the west of this project and a portion of the development will be pumped to Lift Station DPW2.

All flows are based on the County zoning coefficients and land use statistics from each of the offsite tentative tract maps currently under review at the County. Approved land use statistics are not expected to be available prior to approval of this project's sewer area study, however, estimated flows are included in Table 2 per current available data, plus

10% to be conservative. Exhibits of the offsite developments are provided in the Appendix for reference. Should these estimated values change, a revision to this sewer area study will be submitted.

Mission Village

The sewer area study has been developed for Mission Village using the sewer collection system alternatives described above. The site is divided into five sewer systems (A, B, B1, B2, and C). Each of these systems was further divided into tributary sub-areas as shown on Figures 3 and 4. The sewer area study also includes flow from the two offsite areas identified above. Table 3 shows a summary of the total calculated sewer flow from each of the five sewer systems and the two offsite developments that are tributary to the project.

TABLE 2
SEWER FLOWS FOR OFFSITE DEVELOPMENT AREAS

Tributary Area	Land Use	Acres or DU's	Coefficient	Flow (cfs)
Legacy Village – VTTM 61996				
LV1	Residential	435 DU	0.001	0.43
LV3	Residential	455 DU	0.001	0.46
			Subtotal	**0.89**
Homestead – VTTM 60678				
Homestead	Residential	1,430 DU	0.001	**1.43**
	Park	15.3 AC		**0.02**
			Subtotal	**1.45**
			X1.3 Pump Factor	**1.89**

TABLE 3
SEWER FLOW BY TRIBUTARY AREA
(Excluding pumps)

Tributary Area	Flow (cfs)
A	0.58
B	0.80
B1	0.26
B2	1.90
C	1.64
Offsite – Legacy Village	0.89
Offsite - Homestead	1.89

Sewer discharge calculations and accumulated flow for each condition are shown in Tables 4 and 5. The sewer reach numbering and sub-area designations used in the calculations are illustrated for each ultimate and interim conditions on Figures 3 and 4. Pipe sizes for local collection within each sub-area are evaluated on the total flow generated by that sub-area.

Sewer flows are accumulated for the main pipe segments within each sewer system. For the purposes of this study, all accumulated flows for a specific sub-area are assumed to be carried by the main pipe segment through the entire sub-area. Pipe sizes are identified accordingly. Since final design is not yet prepared, pipe sizes are based on the minimum surface slope along each reach. This approach is conservative and will provide maximum pipe sizes. The sewer area study and related pipe sizes can be revised and refined once the sewer collection system is designed as part of the subdivision improvement plans.

SERIES PUMP

For calculating sewer demand with a series of pumps, refer to Appendix B for a diagrammatic explanation of the flow calculation procedure. To account for the effect of the first pump, P2, the initial sewer demand (F8) needs to be increased by 50% as it passes through P2, F8 x 1.5 = Q_{P2OUT}. Then, as Q_{P2OUT} passes through the second pump, P1, the flow will then need to be revised to a 30% increase of flows to P2 along with any other flow (E8) that enters and exits through pump P1. The combined flow will need to be increased by 50%. The resulting sewer demand (Q_{P1OUT}) through two pumps in series would then be:

$$Q_{P1OUT} = (F8 \times 1.3 + E8) \times 1.5$$

TABLE 4
SEWER AREA STUDY ANALYSIS
ULTIMATE CONDITION

Line No.	Tributary Area	Land Use	Area (acres)	No. of Units	Coeff.	Flow (cfs)	Accumulated Flow (cfs)	Slope ft/ft	Pipe Size (inches)	Capacity*** (cfs)
	A(1)	Condo		146	0.001	0.15				
		Estates*****		10	0.0015	0.02				
	LV3	**Offsite-LV3***								
a-1		Residential		455	0.001	0.46	0.46	0.013	8	0.6
1-2					Flow Sub-Total	0.62	0.62	0.025	8	0.9
	A(2)	R-1		95	0.001	0.10				
		Estates*****		48	0.0015	0.07				
14-2					Flow Sub-Total	0.17	0.17	0.012	8	0.6
	A(2)	Condo		152	0.001	0.15				
		Estates*****		60	0.0015	0.09				
2 to Lift Station DPW 2					Flow Sub-Total	0.24	1.03	0.012	10	1.2
	Homestead	**Offsite-Homestead***								
		Residential		1,430	0.001	1.43				
		Park	15.3	0.001 cfs/ac		0.02				
	****	Off-site Flow Sub-Total X 1.3 For Pump Cycle =				1.89				
Lift Station DPW 2 to 9 (Force Main)					Flow Sub-Total	2.91				
		Flow Sub-Total X 1.5 for Pump Cycle =				4.37	4.37			
	B(1)	Condo		351	0.001	0.35				
		Community Center	6.9	0.009 cfs/ac		0.06				
		C-1	2.4		0.015	0.04				
		Park	2.9	0.001 cfs/ac		0.00				
3-4					Flow Sub-Total	0.45	0.45	0.012	8	0.6
	B(2)	Condo		326	0.001	0.33				
		Park	21.0	0.001 cfs/ac		0.02				
Direct Connections to San District Line					Flow Sub-Total	0.35	0.35	0.014	8	0.6
	B2(1)	Condo		707	0.001	0.71				
		**Elementary School	900	student	0.00004	0.03				
9-6					Flow Sub-Total	0.74	5.11	0.013	18	10
	B2(1)	Condo		695	0.001	0.70				
		C-1*******	3.3		0.015	0.05				
	B2(2)	Condo		414	0.001	0.41				
6-7					Flow Sub-Total	1.16	6.27	0.027	18	15.6
7-5							6.27	0.013	18	10
14 to Pump DPW 1		Estates*****		28	0.0015	0.04	0.04	0.013	8	0.6
	B1	R-1		214	0.001	0.21				
		Park	5.2	0.001 cfs/ac		0.01				
Lift Station DPW 1 to 8 (Force Main)					Flow Sub-Total	0.26		******	******	******
		Flow Sub-Total X 1.5 for Pump Cycle =				0.39	0.39	0.012	8	0.6
	B(3)	C-1	35.6		0.015	0.53				
Direct Connections to San District Line					Flow Sub-Total	0.53	0.53	0.014	8	0.6
	C(1)	Condo		247	0.001	0.25				
		Recreation Lot	4.6	0.009 cfs/ac		0.04				
	LV1	**Offsite-LV1***								
b-10		Residential		435	0.001	0.43	0.43	0.030	8	0.9
10-16					Flow Sub-Total	0.72	0.72	0.012	10	1.2
	C(2)	Condo		659	0.001	0.66				
		C-1	6.7		0.015	0.10				
16-18					Flow Sub-Total	0.76	1.49	0.012	18	10
	C(2)	C-1	9.3		0.015	0.14				
Direct Connections to San District Line					Flow Sub-Total	0.14	0.14	0.012	8	0.6
	C(3)	Condo		333	0.001	0.33				
		C-1	6.6		0.015	0.10				
		Fire Station	1.5		0.015	0.02				
Direct Connections to San District Line					Flow Sub-Total	0.45	0.45	0.012	8	0.6

* No. of Units have been increased by 10% of the current preliminary offsite TTM unit counts to be conservative in the event demands increase during the TTM approval process for Legacy or Homestead.

** Per County Std., use 10gal/student/day for elementary school (1 gal/day = 1.547^-6 cfs, X 2.5 for peak flow) Coeff. = 0.000039

*** Capacity is calculated using 50% full pipe with Kutter's formula.

**** Offsite Flow is proposed to be pumped from lift station DPW 3 in Homestead, and then pumped again at Lift Station DPW2

***** Number of units shown for estates includes two units per lot.

****** Pipe sizing applies to gravity portion of sewer only

******* Assumes 3.3 AC of library.

TABLE 5
SEWER AREA STUDY ANALYSIS
INTERIM CONDITION (before CCD Bridge)

Line No.	Tributary Area	Land Use	Area (acres)	No. of Units	Coeff.	Flow (cfs)	Accumulated Flow (cfs)	Slope ft/ft	Pipe Size (inches)	Capacity*** (cfs)
	A(1)	Condo		146	0.001	0.15				
		Estates*****		10	0.0015	0.02				
	LV3	Offsite-LV3*								
a-1		Condo		455	0.001	0.46	0.46	0.013	8	0.6
1-2				Flow Sub-Total		0.62	0.62	0.025	8	0.9
	A(2)	R-1		95	0.001	0.10				
		Estates*****		48	0.0015	0.07				
14-2				Flow Sub-Total		0.17	0.17	0.012	8	0.6
	A(2)	Condo		152	0.001	0.15				
		Estates*****		60	0.0015	0.09				
2 to Lift Station DPW 2				Flow Sub-Total		0.24	1.03	0.012	10	1.2
Lift Station DPW 2 to 16 (Force Main)				Flow Sub-Total		1.03		******	******	******
		Flow Sub-Total X 1.5 for Pump Cycle =				1.54	1.54	0.012	10	1.6
	B(1)	Condo		351	0.001	0.35				
		Community Center	6.9	0.009 cfs/ac		0.06				
		C-1	2.4		0.015	0.04				
		Park	2.9	.001 cfs/ac		0.00				
3-4				Flow Sub-Total		0.45	0.45	0.012	8	0.6
	B(2)	Condo		326	0.001	0.33				
		Park	21.0	.001 cfs/ac		0.02				
Direct Connections to San District Line				Flow Sub-Total		0.35	0.35	0.014	8	0.6
	B2(1)	Condo		707	0.001	0.71				
		**Elementary School	900	student	0.00004	0.03				
9-6				Flow Sub-Total		0.74	0.74	0.013	18	10
	B2(1)	Condo		695	0.001	0.70				
		C-1*******	3.3		0.015	0.05				
	B2(2)	Condo		414	0.001	0.41				
6-7				Flow Sub-Total		1.16	1.90	0.027	18	15.6
7-5							1.90	0.013	18	10
14-DPW1		Estates*****		28	0.0015	0.04	0.02	0.013	8	0.9
	B1	R-1		214	0.001	0.21				
		Park	5.2	.001 cfs/ac		0.01				
Lift Station DPW 1 to 8 (Force Main)				Flow Sub-Total		0.26		******	******	******
		Flow Sub-Total X 1.5 for Pump Cycle =				0.39	0.39	0.013	8	0.6
	C(1)	Condo		247	0.001	0.25				
		Recreation Lot	4.6	0.009 cfs/ac		0.04				
	LV1	Offsite-LV1*								
b-10		Residential		435	0.001	0.43	0.43	0.030	8	0.9
10-16				Flow Sub-Total		0.72	0.72	0.012	10	1.2
	C(2)	Condo		659	0.001	0.66				
		C-1	6.7		0.015	0.10				
16-18				Flow Sub-Total		0.76	3.02	0.012	18	10
	C(2)	C-1	9.3		0.015	0.14				
Direct Connections to San District Line				Flow Sub-Total		0.14	0.14	0.012	8	0.6
	C(3)	Condo		333	0.001	0.33				
		C-1	6.6		0.015	0.10				
		Fire Station	1.5		0.015	0.02				
Direct Connections to San District Line				Flow Sub-Total		0.45	0.45	0.012	8	0.6

* No. of Units have been increased by 10% of the current preliminary offsite TTM unit counts to be conservative in the event demands increase during the TTM approval process for Legacy or Homestead.

** Per County Std., use 10gal/student/day for elementary school (1 gal/day = 1.547^-6 cfs, X 2.5 for peak flow) Coeff. = 0.000039

*** Capacity is calculated using 50% full pipe with Kutter's formula.

***** Number of units shown for estates includes two units per lot.

******* Pipe sizing applies to gravity portion of sewer only

******** Assumes 3.3 AC of library

NOTE: Pump station DPW 2 and force main will be sized for ultimate conditions. DPW 2 shall be designed to function with the lower flows.

LEGEND

SANITATION DISTRICT:
- FORCE MAIN
- GRAVITY TRUNK SEWER
- EXISTING FORCE MAIN
- EXISTING GRAVITY TRUNK
- EXISTING SIPHON
- LIFT STATION

DPW SEWER:
- FORCE MAIN
- GRAVITY SEWER
- NODE NUMBERS
- LIFT STATION

UPSIZE EX. PUMP STATION ALTERNATIVES B, C and D

(ALT B) FORCE MAIN FROM LANDMARK VILLAGE TO VALENCIA WRP

(ALT C) FORCE MAIN FROM COMMERCE CENTER DR. TO VALENCIA WRP

(ALT D) FORCE MAIN FROM NEWHALL RANCH WRP TO VALENCIA WRP

JOIN SANITATION DISTRICT LINE

(ALT A) TRUNK SEWER TO NEWHALL WRP (GF)

(ALT B) TRUNK SEWER TO LANDMARK VILLAGE PUMP STATION (GF)

(ALT C) SANITATION DISTRICT PUMP STATION IN LIEU OF LANDMARK VILLAGE PUMP STATION FORCE MAIN TO VALENCIA WRP

(ALT D) FORCE MAIN FROM NEWHALL RANCH WRP TO VALENCIA WRP

ALT C FM TO VWRP

ALT C - INTERIM LIFT STATION LACSD 21 EL. ± 1000

(ALT A) TRUNK SEWER TO NEWHALL WRP

(ALT B) TRUNK SEWER TO LANDMARK PUMP STATION

(ALT B AND D) FORCE MAIN FROM LANDMARK VILLAGE TO VALENCIA WRP

SANITATION DISTRICT

LIFT STATION DPW 1 EL. ± 1086

LIFT STATION DPW 2 EL. ± 1010

LIFT STATION DPW 3 (NOT A PART)

HOMESTEAD VTTM 60678 (OFFSITE)

LV1 (OFFSITE)

LEGACY VILLAGE VTTM 60680

LV2 (OFFSITE)

LV3 (OFFSITE)

(ALT A) TRUNK SEWER TO VALENCIA WRP

EX. FORCE MAIN TO VALENCIA WRP

EXISTING SANITATION DISTRICT GRAVITY TRUNK SEWER TO VALENCIA WRP

DISTRICT 32 VALENCIA WATER RECLAMATION PLANT

EXISTING SIPHON ACROSS RIVER

SYSTEM A

SYSTEM B

SYSTEM B1

SYSTEM B2

SYSTEM C

ALT B - INTERIM LIFT STATION LACSD 3T

(ALT D) FORCE MAIN FROM NEWHALL RANCH WRP TO VALENCIA WRP

NEWHALL RANCH WATER RECLAMATION PLANT

ALT D NEWHALL RANCH WRP ALT. PUMP STATION LACSD 4T

NEWHALL LAND

1"=2000'

Figure 1
OVERALL MAP

PSOMAS

DATE: 02/17/10 REVISED ON:
JOB No: 1NLF010200

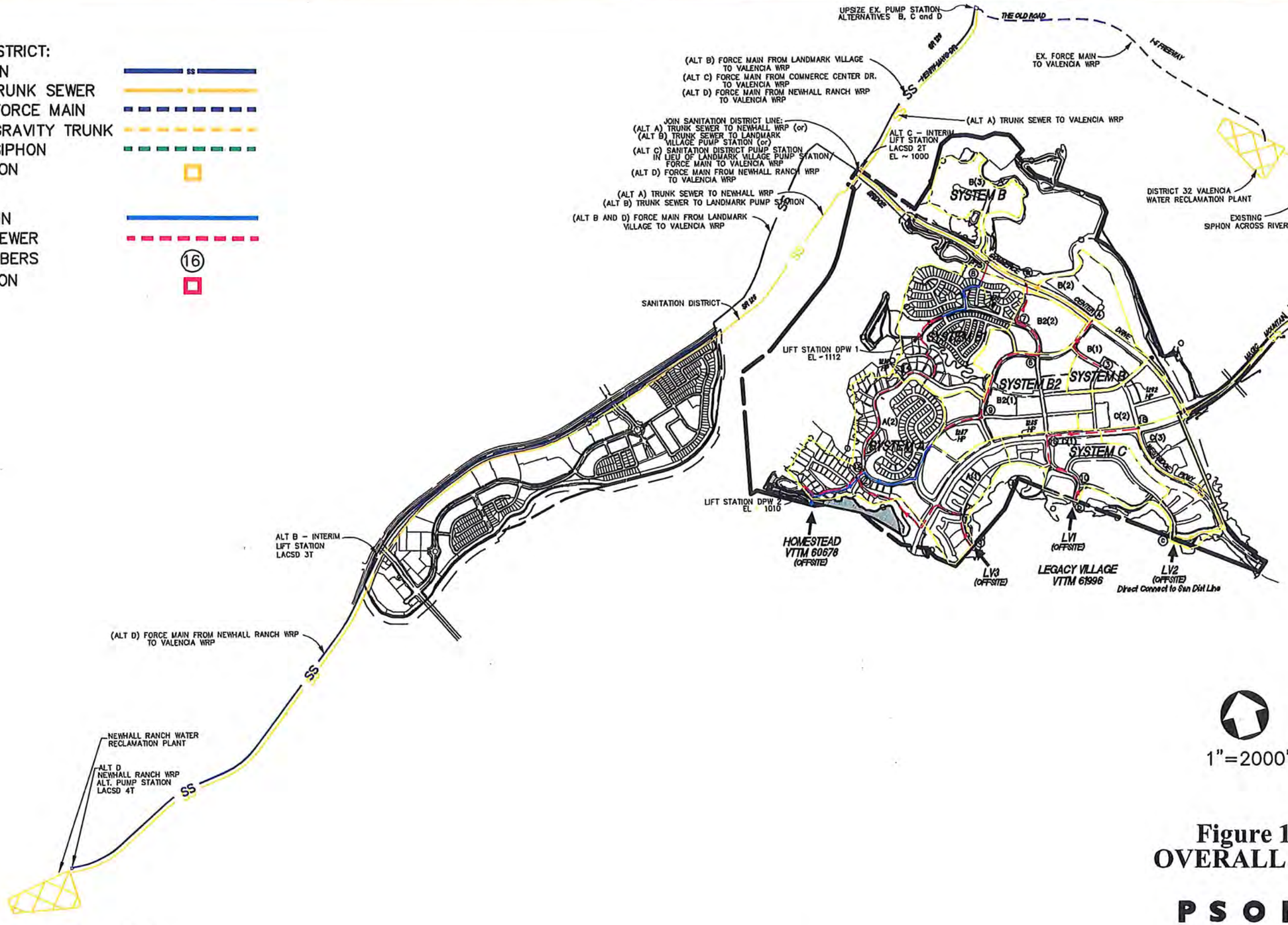
ME039-01.dwg

Feb 17, 2010 - 5:00PM - M:\NEWHALL\PRODDATA\MESASEAST-MP\ENGR\DESIGN\SSWR\PL\ME039-01.DWG

LEGEND

SANITATION DISTRICT:
- FORCE MAIN
- GRAVITY TRUNK SEWER
- EXISTING FORCE MAIN
- EXISTING GRAVITY TRUNK
- EXISTING SIPHON
- LIFT STATION

DPW SEWER:
- FORCE MAIN
- GRAVITY SEWER
- NODE NUMBERS (16)
- LIFT STATION



1"=2000'

Figure 1A
OVERALL MAP

NEWHALL LAND

PSOMAS

DATE: 02/17/10 REVISED ON:
JOB No: 1NLF010200

ME039-01A.dwg

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JOIN SANITATION DISTRICT LINE:
(ALT A) TRUNK SEWER TO NEWHALL WRP (or)
(ALT B) TRUNK SEWER TO LANDMARK VILLAGE PUMP STATION (or)
(ALT C) SANITATION DISTRICT PUMP STATION IN LIEU OF LANDMARK VILLAGE PUMP STATION/ FORCE MAIN TO VALENCIA WRP
(ALT D) FORCE MAIN FROM NEWHALL RANCH WRP TO VALENCIA WRP

(ALT A) TRUNK SEWER TO NEWHALL WRP
(ALT B) TRUNK SEWER TO LANDMARK PUMP STATION

(ALT B) FORCE MAIN FROM LANDMARK VILLAGE TO VALENCIA WRP

SANITATION DISTRICT

SR 126

ALT C
FM TO VWRP

(ALT A) TRUNK SEWER TO VALENCIA WRP

ALT C - INTERIM
LIFT STATION
LACSD 2T
EL - 1000

BRIDGE

B(3)
SYSTEM B

EX. FORCE MAIN
TO VALENCIA WRP

DISTRICT 32 VALENCIA
WATER RECLAMATION PLANT

EXISTING
SANITATION DISTRICT
GRAVITY TRUNK SEWER
TO VALENCIA WRP

EXISTING
SIPHON ACROSS RIVER

THE OLD ROAD

PARKWAY

MOUNTAIN

MAGIC

COMMERCE

CENTER

DRIVE

B(2)

B2(2)

SYSTEM B1

SYSTEM B

B(1)

SYSTEM B2

B2(1)

A STREET

B STREET

C STREET

1216 HP

1244 HP

1262 HP

1285 HP

1287 HP

A(2)

A(1)

SYSTEM A

C(2)

C(3)

SYSTEM C

C(1)

WESTRIDGE PKWY

LIFT STATION DPW 1
EL -1086

LIFT STATION DPW 2
EL - 1010

LIFT STATION DPW 3
(NOT A PART)

HOMESTEAD
VTTM 60678
(OFFSITE)

LV1
(OFFSITE)

LV3
(OFFSITE)

LEGACY VILLAGE
VTTM 61996

LV2
(OFFSITE)
Direct Connect to San Dist Line

1"=1000'

NEWHALL LAND

LEGEND

SANITATION DISTRICT:
- FORCE MAIN
- GRAVITY TRUNK SEWER
- EXISTING FORCE MAIN
- EXISTING GRAVITY TRUNK
- EXISTING SIPHON
- LIFT STATION

DPW SEWER:
- FORCE MAIN
- GRAVITY SEWER
- NODE NUMBERS
- LIFT STATION

Figure 3
Ultimate Condition

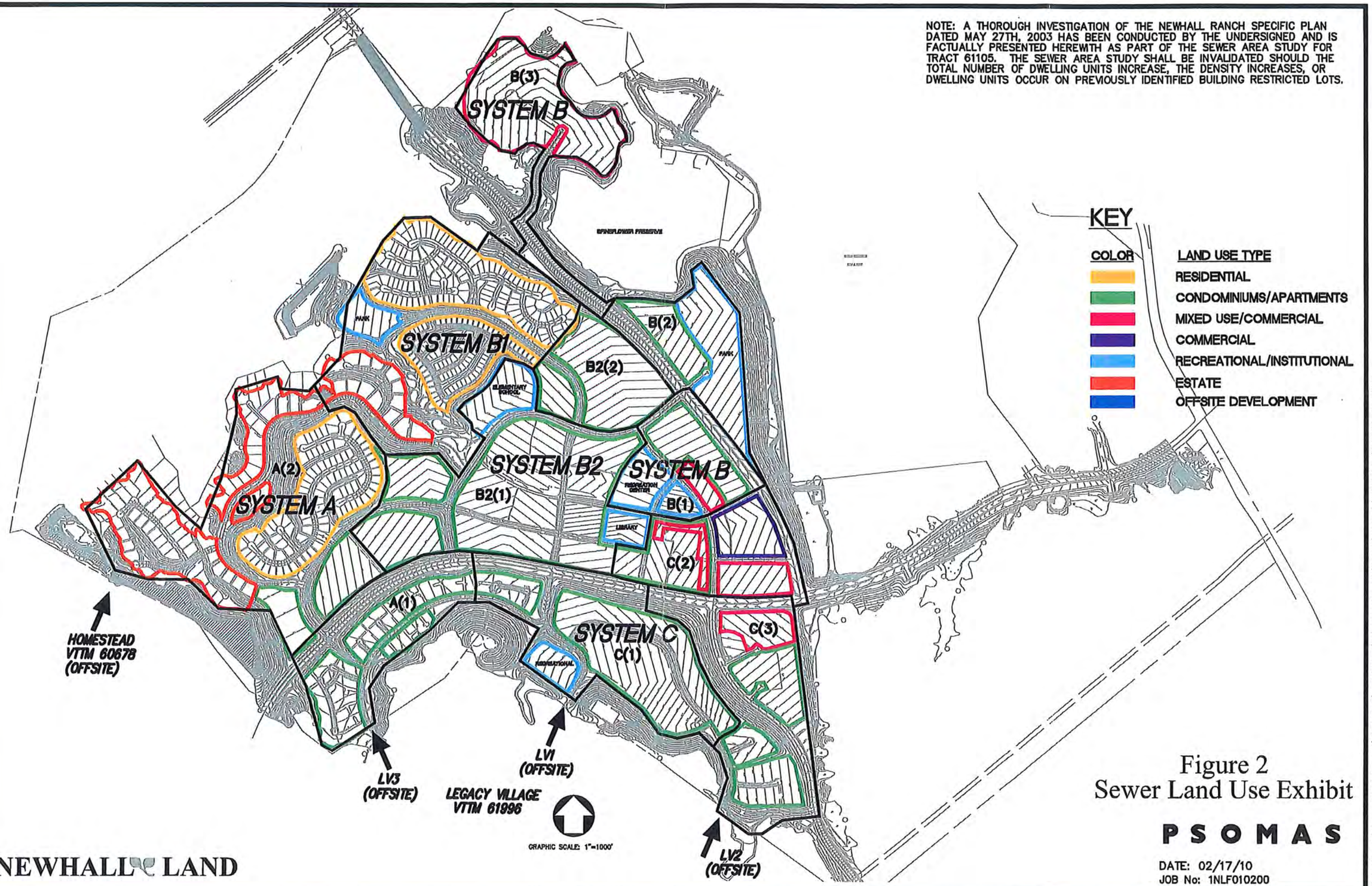
PSOMAS

DATE: 02/17/10 REVISED ON:
JOB No: 1NRC0120.00

Feb 17, 2010 - 5:31PM - M:\NEWHALL\PRODDATA\MESASEAST-MP\ENGR\DESIGN\SSWR\PL\ME039-02.DWG

ME039-02.dwg

NOTE: A THOROUGH INVESTIGATION OF THE NEWHALL RANCH SPECIFIC PLAN DATED MAY 27TH, 2003 HAS BEEN CONDUCTED BY THE UNDERSIGNED AND IS FACTUALLY PRESENTED HEREWITH AS PART OF THE SEWER AREA STUDY FOR TRACT 61105. THE SEWER AREA STUDY SHALL BE INVALIDATED SHOULD THE TOTAL NUMBER OF DWELLING UNITS INCREASE, THE DENSITY INCREASES, OR DWELLING UNITS OCCUR ON PREVIOUSLY IDENTIFIED BUILDING RESTRICTED LOTS.



NEWHALL LAND

Figure 2
Sewer Land Use Exhibit

PSOMAS

DATE: 02/17/10
JOB No: 1NLF010200

ME041-01

Feb 17, 2010 - 5:28PM - M:\NEWHALL\PRODDATA\MESASEAST-MP\ENGR\DESIGN\SSWR\PL\ME041-01.DWG

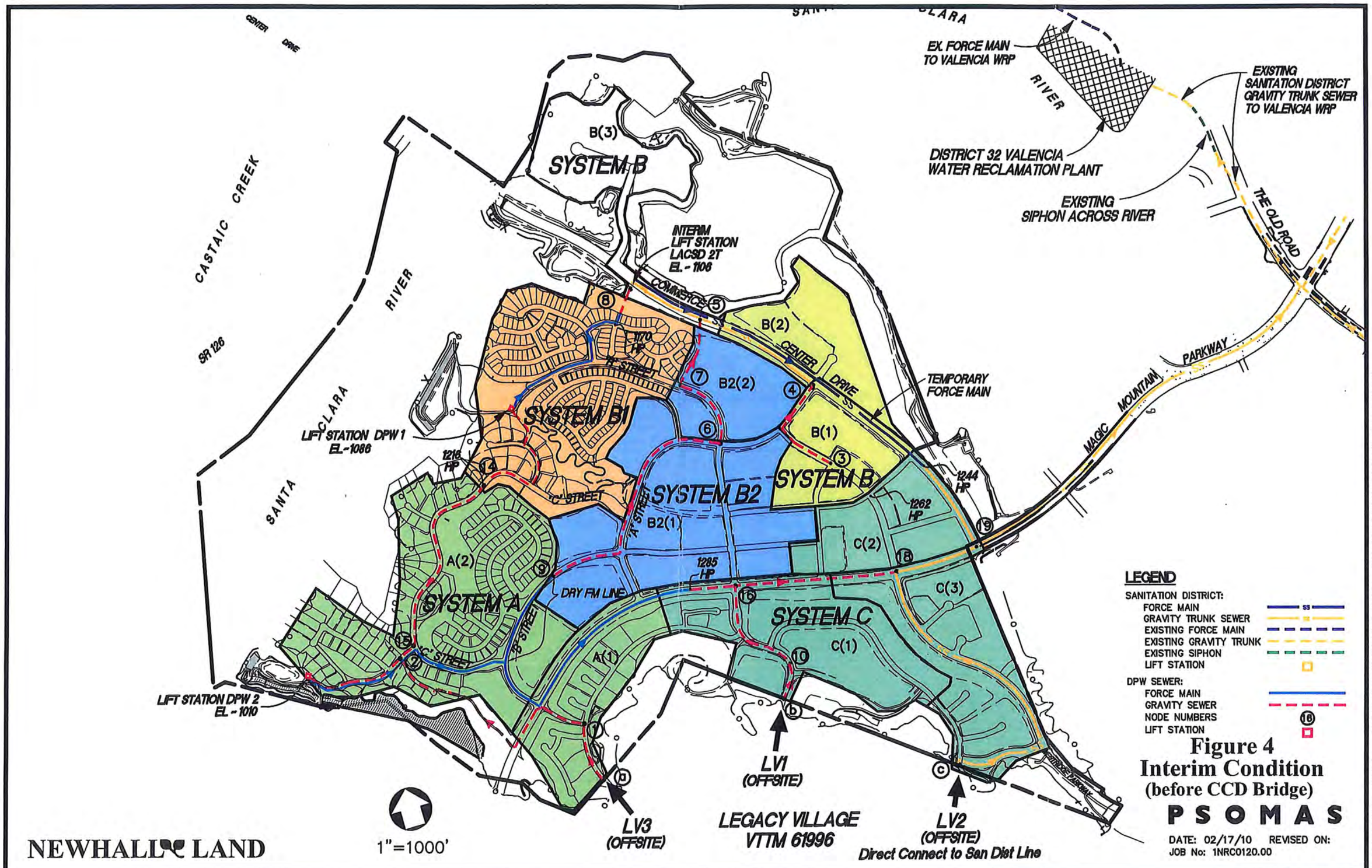


Figure 4
Interim Condition
(before CCD Bridge)

PSOMAS

DATE: 02/17/10 REVISED ON:
JOB No: 1NRC0120.00

ME039-03.dwg

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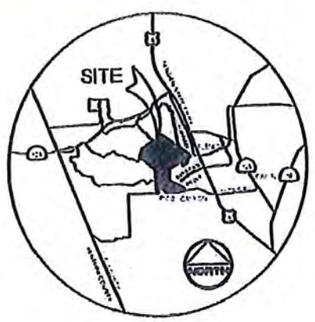
APPENDIX A



VICINITY MAP
NOT TO SCALE

LEGEND

- PROJECT BOUNDARY
- PROPOSED SEWER TRIBUTARY AREA
- SEWER STUDY NODE
- SFD-ESTATE
- SFD-6600
- SFD-6050
- SFD-6000
- SFD-5250
- SFD-5000
- SFD-4500
- M.F.-CONDO
- M.F.-APARTMENT
- COMM-BUSINESS PARK
- O.S. WATER QUALITY
- O.S. DESILTING INLETS
- S.D. CHANNEL
- O.S. TRAIL
- O.S. WATER TANK
- OPEN SPACE
- PARK
- RECREATION
- O.S. CORNER CUTTOFFS
- O.S.-NAT
- RV PARKING
- SD & SS EASEMENT
- ROAD-PVT DR
- PUBLIC STREET
- DENSITY TRANSFER AREA

N
W E
S

0 500 1,000 2,000
Feet

LEGACY VILLAGE VTTM 061996
SEWER AREA STUDY
TRIBUTARY AREAS

STEVENSON RANCH
VENTURE, LLC

23823 WEST VALENCIA BOULEVARD
VALENCIA, CALIFORNIA 91355
TEL.: (661) 255-4000

HUNSAKER & ASSOCIATES
LOS ANGELES, INC.
PLANNING ▪ ENGINEERING ▪ SURVEYING
26074 Avenue Hall, Suite 22 • Valencia, CA 91355 • PH: (661) 294-2211 • FX: (661) 294-9690

DATE 05/03/06 REVISED ON
WORK ORDER C015-29-2 SHEET 1 OF 2

HSR071-1.mxd

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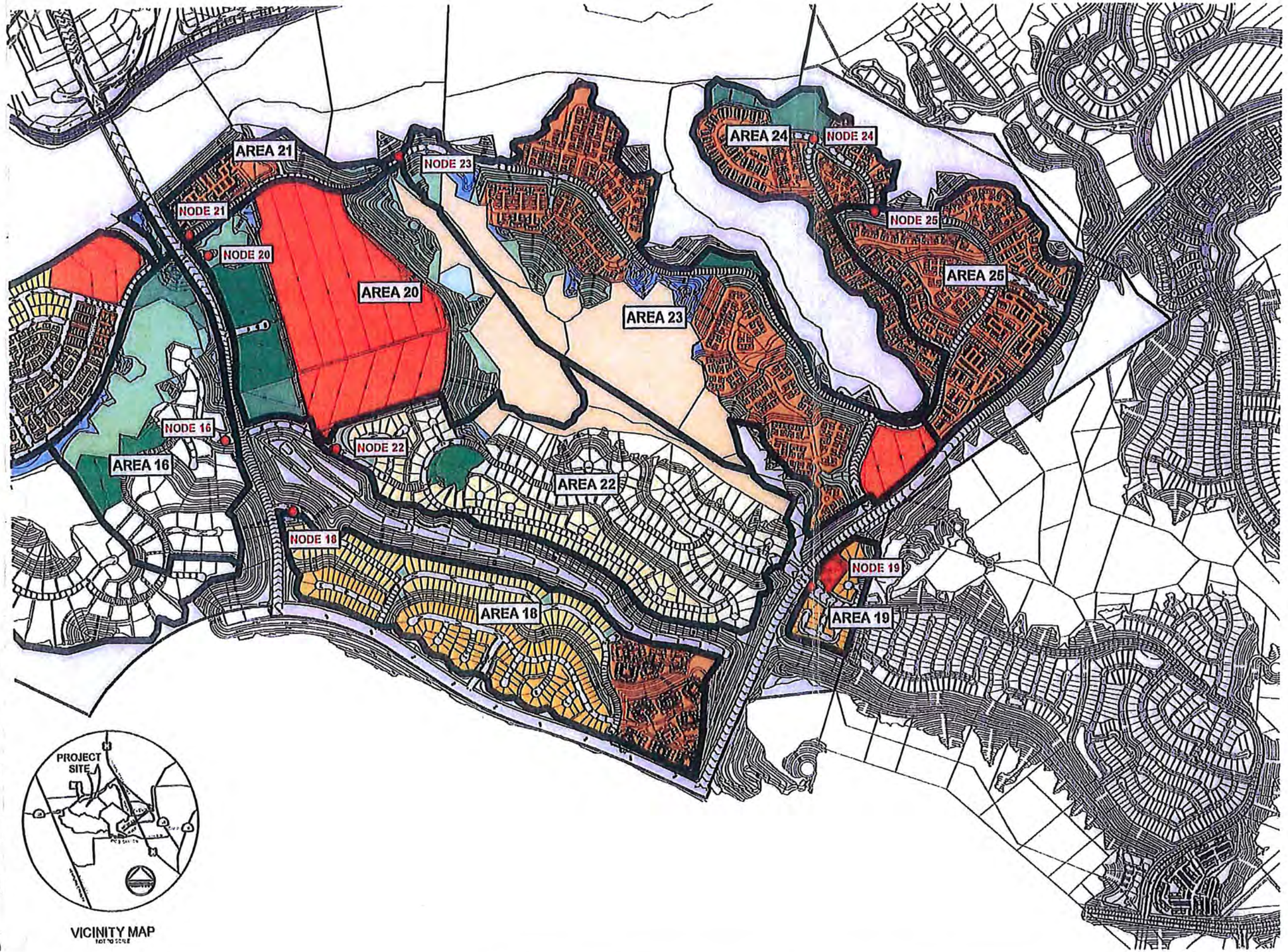

VICINITY MAP
NOT TO SCALE

LEGEND

- PROJECT BOUNDARY
- SEWER STUDY NODE
- LACSD TRUNK SEWER
- PROPOSED SEWER TRIBUTARY AREA
- S.F.-DETACHED (AVG. 1.0 AC. 2.5 AC
- S.F.-DETACHED (AVG. 1.0 AC)
- S.F.-DETACHED (AVG. 2.5 AC)
- SFD-ESTATE
- ESTATE RESIDENTIAL
- SFD-10000
- SFD-7500
- LOW RESIDENTIAL
- SFD-6600
- LOW-MEDIUM RESIDENTIAL
- MEDIUM RESIDENTIAL
- SFD-6050
- SFD-6000
- SFD-5800
- SFD-5500
- SFD-5000
- M.F.-DETACHED
- M.F.-ATTACHED
- M.F.-CONDO
- COMM-BUSINESS PARK
- MIXED-USE
- FIRE STATION
- O.S.-DRAINAGE FACILITY-DEBRIS BASIN
- O.S.-DRAINAGE FACILITY-WATER QUALITY
- ED & SS EASEMENT
- O.S. TRAIL LDZ
- O.S.-LDZ
- PUBLIC FACILITY
- OPEN SPACE
- O.S.-NAT.
- OPEN AREA
- OPEN AREA-OFFSITE
- HIGH COUNTRY
- RECREATION
- PARK
- SCHOOL
- PUBLIC ROAD
- ROAD-PVT-DR
- WATER RECLAMATION PLANT
- OFFSITE

N
W E
S

0 500 1,000 2,000
Feet

HOMESTEAD VTTM 060678
SEWER AREA STUDY
TRIBUTARY AREAS

HUNSAKER & ASSOCIATES
LOS ANGELES, INC.
PLANNING • ENGINEERING • SURVEYING
26074 Avenue Hall, Suite 22 • Valencia, CA 91355 • PH (661) 294-2111 • FX (661) 294-9930

DATE 05/10/06 REVISED ON
WORK ORDER C015-23-3 SHEET 5 OF 5

HNR159-05.mxd

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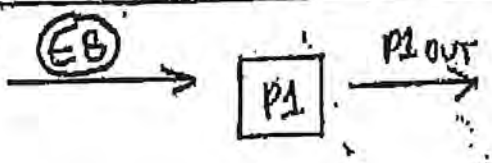
APPENDIX B

LOS ~~VAQUES~~
~~TR~~ 32584 **SAMPLE**

PUMP STATION FLOW CALCULATIONS

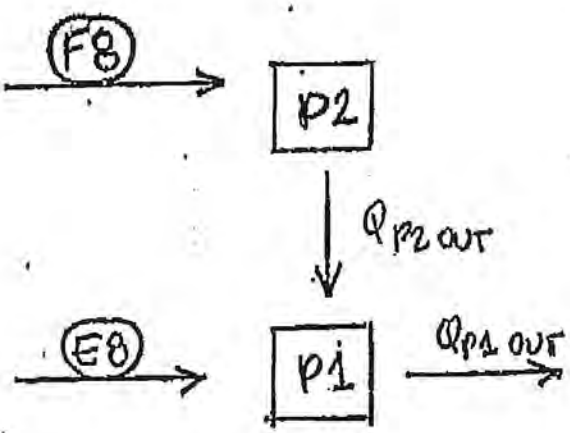
EXISTING CONDITION PUMP STA NO. 1 (PS 1)



$Q_{IN1} = E8 = 2.73$ CFS.

$Q_{OUT1} = Q_{IN1}(1.5) = 2.73$ CFS $(1.5) =$ 4.10 CFS

FUTURE CONDITION PUMP STA NO. 1 (PS1) + PUMP STA NO. 2 (PS 2)



$Q_{P2IN} = F8 = 1.05$ CFS

$Q_{P2\,OUT} = Q_{P2IN} \times 1.5 = 1.05$ CFS $\times 1.5 = 1.58$ CFS

$Q_{P1IN} = E8 + (Q_{P2IN} \times 1.3) = 2.73 + 1.05(1.3) = 4.10$ CFS

$Q_{P1\,OUT} = Q_{P1IN} \times 1.5 = 4.10$ CFS $(1.5) =$ 6.15 CFS

LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

AREA STUDY

An area study must be made for all private contract sewer projects. See attached sample. The area study must include the following items:

1. Area being served - In Acres
2. Determined Tributary area to main line being designed (incl. areas of future deval.)- In Acres
3. Existing and Land Use Zoning
4. Anticipated Sewer Discharge in cfs of total area based on zoning, and/or heavy water users
5. Existing or proposed utilities if in conflict
6. Existing and proposed sewers showing pipe size and grade leading up to the trunk line in order for you to evaluate the impact of your proposed development on the existing system
7. Direction of sewer flow
8. Contour lines
9. Scale not to be less than 1"=600'
10. North arrow pointing up or to the left

ZONING COEFFICIENTS

ZONE	COEFFICIENT (cfs/Acre)
Agriculture	0.001
Residential	
R-1	0.004
R-2	0.008
R-3	0.012
R-4	0.016 *
Commerical	
C-1 through C-4	0.015 *
Heavy Industrial	
M-1 through M-4	0.021 *

Use 0.001 cfs/unit for Condo and all residential Per County direction

* Individual building, commercial or industrial plant capacities shall be the determining factor when they exceed the coefficients shown.

The coefficient to be used for any zoned areas not listed will be determined by the County based upon the intended development and use.

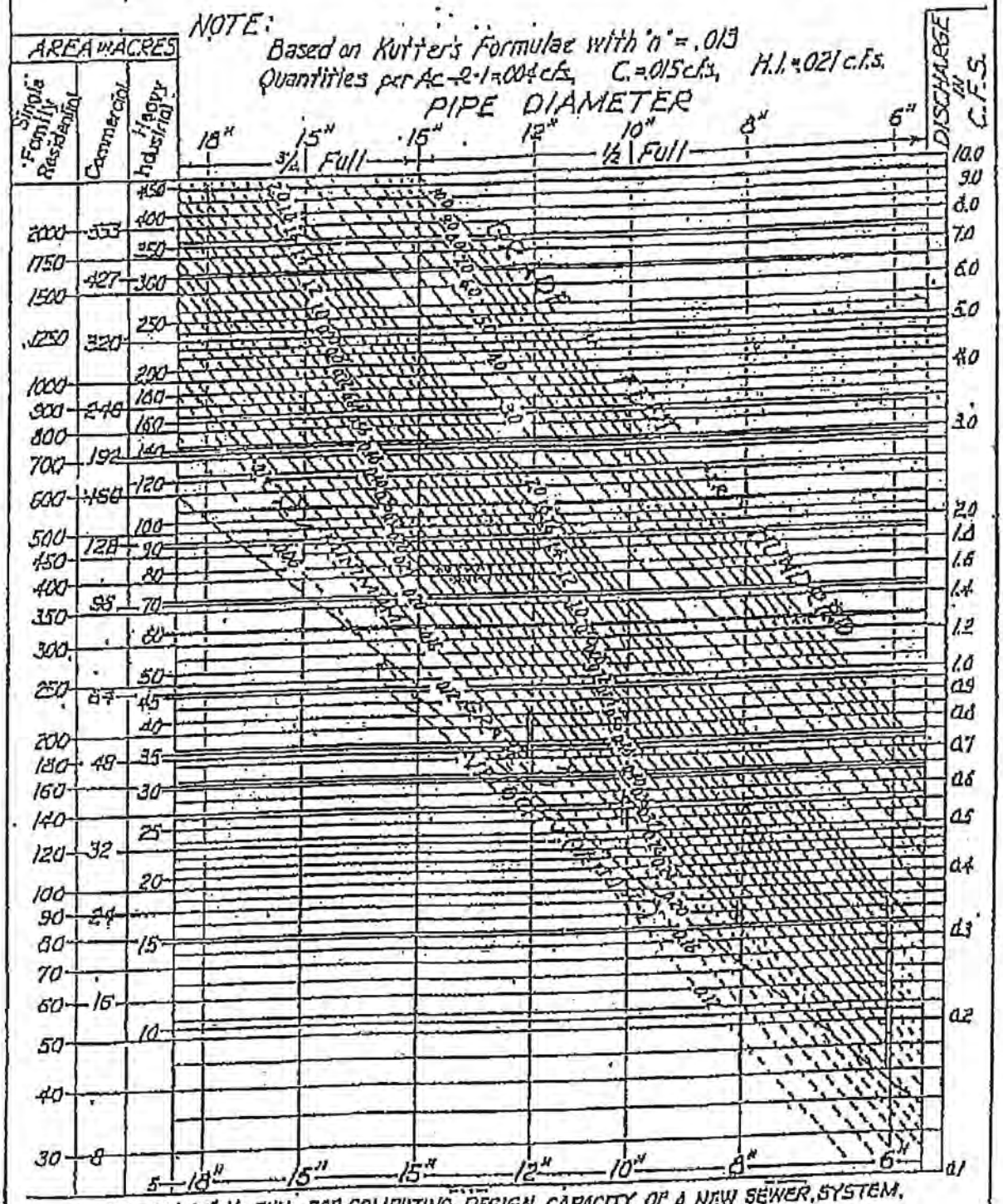
The County shall determine which of the coefficients or combination of coefficients shall be used for design as determined by the established or proposed zoning in the study area. Any modifications to these coefficients due to topography, development, or hazard areas, shall be approved by the Department of Public Works.

TABLE OF FLOW COEFFICIENTS

ZONE SYMBOL	ZONE USE	PEAK FLOW COEFFICIENT (cfs/acre)
R1	Single family residence	0.004
R2	Two family residential	0.006
R3	Mult. dwelling (apartment houses)	0.008
R4	Mult. dwelling (churches, hotels)	0.012
R5	Mult. dwelling (clubs, hospitals, lodges)	0.012
R6	Mult. dwelling (high rise residential)	0.012
RA	Single family agricultural	0.004
RTP	Residential trailer park	0.012
C1	Restricted neighborhood commercial	0.008
C2	Neighborhood commercial (community centers)	0.009
C3	General commercial	0.010
C4	Highway commercial (shopping malls)	0.011
C5	Specified highway comm. (high rise office)	0.012
M1	Light manufacturing	0.010
M2	General manufacturing	0.013
M3	Heavy manufacturing	0.016
M4	Unlimited manufacturing (slaughter houses)	0.020
A1	Light agricultural (parks, poultry)	0.004
A2	Heavy agricultural (packing houses)	0.006
E	Estates-residential (1/2 acre minimum)	0.001

NOTE! Parks use 0.001 CFS/Ac peak Flow rate For this project per County direction.

NOTE:
Based on Kutter's Formulae with "n" = .013
Quantities per Ac - 2·1 = 004 c.f.s. C. = 015 c.f.s. H.I. = 021 c.f.s.



FLOW DIAGRAM FOR THE DESIGN OF CIRCULAR SANITARY SEWERS

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

COUNTY ENGINEER
STANDARD S-C4
DATE: 3/80

ASSISTANT DEPUTY

COUNTY ENGINEER

DESIGN

Appendix 5.22B

Sewer Area Study Map

Alliance Land Planning & Engineering, Inc.

February 19, 2014

SEWER AREA STUDY FOR ENTRADA SOUTH TM 53295

LAND USE/SEWER GENERATION SUMMARY					
PLANNING AREA	SEWER AREA BASIN	LAND USE	AREA OR DWELLING AREA	PEAK Q/AC	TOTAL Q
PA-1-3	2	COMMERCIAL/ OFFICE	53.8 AC	0.015	0.807 CFS
PA-4A	3	REC. AREA	2.1 AC	0.0015	0.00315 CFS
PA-4B	4	CONDOMINIUM	125 UNITS	0.001	0.125 CFS
PA-4C	3	CONDOMINIUM	53 UNITS	0.001	0.053 CFS
PA-5A	6	SINGLE-FAMILY	14 LOTS	0.001	0.014 CFS
PA-5B	6	SINGLE-FAMILY	30 LOTS	0.001	0.030 CFS
PA-5C	5	SINGLE-FAMILY	53 LOTS	0.001	0.053 CFS
PA-5D	4	REC. AREA	0.8 AC	0.0015	0.001 CFS
PA-5E	1	SINGLE-FAMILY	37 LOTS	0.001	0.037 CFS
PA-6A	1	SINGLE-FAMILY	58 LOTS	0.001	0.058 CFS
PA-6B	4	SINGLE-FAMILY	57 LOTS	0.001	0.057 CFS
PA-7	1	SINGLE-FAMILY	90 LOTS	0.001	0.090 CFS
PA-8	1	SCHOOL SITE	750 STUDENTS	10 gal/student/day	0.029 CFS
	1	PARK SITE	300 PATRONS	15 gal/patron/day	0.007 CFS
PA-9	8	CONDOMINIUM	255 UNITS	0.001	0.255 CFS
PA-10	1	CONDOMINIUM	280 UNITS	0.001	0.280 CFS
PA-11	1	CONDOMINIUM	208 UNITS	0.001	0.208 CFS
PA-12	1	CONDOMINIUM	120 UNITS	0.001	0.120 CFS
PA-13	1	CONDOMINIUM	194 UNITS	0.001	0.194 CFS
PA-14	7	COMM./OFFICE	3.0 AC	0.015	0.045 CFS
TOTAL Q FOR SEWER AREA BASINS:				BASIN 1:	1.023 CFS
				BASIN 2:	0.807 CFS
				BASIN 3:	0.056 CFS
				BASIN 4:	0.183 CFS
				BASIN 5:	0.053 CFS
				BASIN 6:	0.044 CFS
				BASIN 7:	0.045 CFS
				BASIN 8:	0.255 CFS
TOTAL Q PRODUCED BY PROJECT:					2.466 CFS

SEWER AREA STUDY
APPROVED
APPROVED BY: _____ RCE NO. 70745 DATE 2/19/2014
CHECKED BY: _____ DATE _____
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION
This approval is only good for two years from the date of sewer area study approval.

LEGEND:
- SEWER AREA BASIN
- PLANNING AREA
- PROPOSED SEWER
- SEWER PER PC 11831 SEWER AREA STUDY
- PROPOSED DISTRICT 32 TRUNK SEWER
- EXISTING DISTRICT 32 TRUNK SEWER
- EXISTING COUNTY SEWER

MISSION VILLAGE VTTM 61105
SEWER AREA STUDY FOR PC 11831

MAGIC MOUNTAIN THEME PARK

BASIN 2
PA 1-3
OFFICE/COMMERCIAL
ΣQ=0.280cfs
8" PIPE PIPE SLOPE= 1.0% Q= 0.280cfs 34.7% FULL 69.0% FULL PER COUNTY METHOD
ΣQ= 0.280 cfs Q= 0.087cfs
Q= 0.087 cfs
PROPOSED 18" TRUNK SEWER (DISTRICT 32)
MAGIC
MOUNTAIN
PARKWAY
8" PIPE PIPE SLOPE= 1.0% Q= 0.193cfs 28.9% FULL 57.0% FULL PER COUNTY METHOD
ΣQ= 0.193 cfs Q= 0.080cfs
PA-4B
8" PIPE PIPE SLOPE= 1.0% Q= 0.113cfs 22.4% FULL 45.0% FULL PER COUNTY METHOD
ΣQ= 0.113 cfs Q= 0.016cfs
Q= 0.016 cfs
BASIN 4
ΣQ= 0.044 cfs
8" PIPE PIPE SLOPE= 1.0% Q= 0.097cfs 20.9% FULL 42.0% FULL PER COUNTY METHOD
ΣQ= 0.097 cfs Q= 0.053cfs
PA-6B
PA-4C
BASIN 3
8" PIPE PIPE SLOPE= 1.0% Q= 0.056cfs 16.2% FULL 33.0% FULL PER COUNTY METHOD
Q= 0.003cfs
PA-4A REC. AREA
8" PIPE PIPE SLOPE= 1.0% Q= 0.044cfs 14.6% FULL 30.0% FULL PER COUNTY METHOD
PA-5D
PARKWAY
8" PIPE PIPE SLOPE= 1.0% Q= 0.053cfs 15.8% FULL 33.0% FULL PER COUNTY METHOD
ΣQ= 0.044 cfs Q= 0.030 cfs
PA-5C
PA-6A
8" PIPE PIPE SLOPE= 1.0% Q= 0.030cfs 12.2% FULL 24.0% FULL PER COUNTY METHOD
BASIN 5
WES TRIDGE
BASIN 6
PA-5B
Q= 0.014 cfs
8" PIPE PIPE SLOPE= 1.0% Q= 0.014cfs 8.8% FULL 18.0% FULL PER COUNTY METHOD
PA - 5A
PA-5E
PA-7
BASIN 1
Q= 0.058 cfs
8" PIPE PIPE SLOPE= 1.0% Q= 0.058cfs 16.3% FULL 33.0% FULL PER COUNTY METHOD
ΣQ= 0.214 cfs Q= 0.127 cfs
Q= 0.255 cfs
PA-9 CONDOMINIUMS
BASIN 8
PA-10 CONDOMINIUMS
8" PIPE PIPE SLOPE= 1.0% Q= 0.280cfs 34.7% FULL 69.0% FULL PER COUNTY METHOD
PARK SITE
8" PIPE PIPE SLOPE= 1.0% Q= 0.221cfs 30.8% FULL 63.0% FULL PER COUNTY METHOD
ΣQ= 0.221 cfs Q= 0.007 cfs
PA-8
SCHOOL SITE
8" PIPE PIPE SLOPE= 1.0% Q= 0.087cfs 19.8% FULL 39.0% FULL PER COUNTY METHOD
ΣQ= 0.087 cfs Q= 0.029 cfs
ΣQ= 0.311cfs
10" PIPE PIPE SLOPE= 1.0% Q= 0.807cfs 44.0% FULL 88.6% FULL PER COUNTY METHOD
Q=0.807cfs
ΣQ=0.807cfs
Q= 0.280 cfs
ΣQ= 0.501 cfs
8" PIPE PIPE SLOPE= 1.0% Q= 0.501cfs 47.0% FULL 93.0% FULL PER COUNTY METHOD
8" PIPE PIPE SLOPE= 1.0% Q= 0.214cfs 30.3% FULL 60.0% FULL PER COUNTY METHOD
ΣQ= 0.695 cfs Q= 0.194 cfs
PA-11 CONDOMINIUMS
ΣQ= 1.023 cfs Q= 0.120 cfs
ΣQ= 0.903 cfs Q= 0.208 cfs
10" PIPE PIPE SLOPE= 1.0% Q= 0.903cfs 46.8% FULL 93.6% FULL PER COUNTY METHOD
10" PIPE PIPE SLOPE= 1.0% Q= 0.695cfs 40.7% FULL 81.6% FULL PER COUNTY METHOD
PA-12 CONDOMINIUMS
PA-13 CONDOMINIUMS
OPEN SPACE
ΣQ= 1.023 cfs
12" PIPE PIPE SLOPE= 1.0% Q= 1.023cfs 38.0% FULL 76.0% FULL PER COUNTY METHOD
PROPOSED 18" TRUNK SEWER (DISTRICT 32)
PM 18654 NOT A PART
BASIN 7
PA-14
Q= 0.045 cfs
8" PIPE PIPE SLOPE= 2.16% Q= 0.066cfs 30.0% FULL PER COUNTY METHOD
EXISTING GAS STATION
8" PIPE PIPE SLOPE= 1.16% Q= 0.066cfs 33.0% FULL PER COUNTY METHOD
Q= 0.021 cfs
8" PIPE PIPE SLOPE= 1.40% Q= 0.045cfs 27.0% FULL PER COUNTY METHOD
8" PIPE PIPE SLOPE= 2.00% Q= 0.045cfs 24.0% FULL PER COUNTY METHOD
EXISTING 30" TRUNK SEWER (DISTRICT 32)
EXIST. 15" SEWER PER PC 8536
15" PIPE PIPE SLOPE= 9.96% Q= 6.256cfs 52.3% FULL PER COUNTY METHOD
15" PIPE PIPE SLOPE= 3.00% Q= 6.256cfs 77.5% FULL PER COUNTY METHOD
EXIST. 8" SEWER PER P.C.11839
EXIST. 18" SEWER 6.19 cfs PER TM 45433 SEWER AREA STUDY
MH 137
MH 138
MH 231
MH 232
MH 233
THE OLD ROAD
OLD ROAD
SANTA CLARA RIVER
INTERSTATE 5
WRP DIST. 32
OUTLET POINT

SEWER AREA STUDY TABLE - BASIN 7, PA-14													
STREET NAME	SEGMENT		PIPE		CAPACITY	AREA (ACRES)	ZONING COEFF.	CALCULATED FLOW (cfs)	CUMULATIVE CALCULATED FLOW (cfs)	CUMULATIVE DEPTH (in)	PC OR CI CONSTRUCTION PLAN #	COMMENTS	CUMULATIVE	
	MH#	MH#	SIZE (IN)	SLOPE (%)	1/2 FULL (<15")								FLOW DEPTH/ (0.5xPIPE DIA.)	CUMMULATIVE FLOW/ CAPACITY
PA-14	PROJ.	LAT.	8	2.00	0.795	3.0	0.015	0.045	0.045	0.96	PROPOSED	PA - 14	24.0	5.7
THE OLD ROAD	LAT.	233	8	2.00	0.795				0.045	0.96	PC 11839		24.0	5.7
THE OLD ROAD	233	232	8	1.40	0.665				0.045	1.08	PC 11839		27.0	6.8
THE OLD ROAD	232	231	8	1.16	0.605	1.43	0.015	0.021	0.066	1.32	PC 11839	Exist. Gas Station	33.0	10.9
THE OLD ROAD	231	138	8	2.16	0.825				0.066	1.20	PC 11839		30.0	8.0
THE OLD ROAD	138	137	15	3.00	10.100			6.19	6.256	8.16	PC 8536	Q per TM45433 SAS	72.5	61.9
MAGIC MTN. PKWY.	137	TRUNK	15	9.96	18.400				6.256	5.88	PC 8536		52.3	34.0

ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE. CARLSBAD, CA 92008 TEL: (760) 431-9896 FAX: (760) 431-8802
27433 TOURNEY ROAD SUITE 250 SANTA CLARITA, CA 91355 TEL: (661) 799-2760 FAX: (661) 254-1929
CIVIL ENGINEERING • LAND PLANNING • HILLSIDE DESIGN • SURVEYING

PREPARED FOR:
NEWHALL LAND & FARMING CO.
23823 WEST VALENCIA BOULEVARD
VALENCIA, CA 91355
(661)255-4000

PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 — 2/18/14 DATE

REGISTERED PROFESSIONAL ENGINEER CRAIG M. WHITTEKER NO. 51929 EXP 6-30-14 CIVIL STATE OF CALIFORNIA

NO.	DATE		BY	APPR

1 | COUNTY OF LOS ANGELES | 1 SHEET

SEWER AREA STUDY FOR ENTRADA SOUTH TM 53295

h:\CAD\0930\SEWER\SAS\0930-SEWER-AREA-STUDY-EXHIBIT.dwg

Appendix 5.22C

Will Serve Letter

County Sanitation Districts of Los Angeles County
April 19, 2013

WATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON CHAN
Chief Engineer and General Manager

August 19, 2013

Ref File No.: 2692535

Ms. Ashley Luce, Project Coordinator
Alliance Land Planning & Engineering Inc.
2248 Faraday Avenue
Carlsbad, CA 92008

Dear Ms. Luce:

Tract Map No. 53295

This is in response to your request for an updated will serve letter for the subject project, which was received by the County Sanitation Districts of Los Angeles County (Districts) on July 30, 2013. Please accept the following revision and updates:

1. Previous comments submitted by the Districts in correspondence dated July 2, 2010 (copy enclosed), to your agency, still apply the subject project with the following updated information. However it was stated that the project site was located within the jurisdictional boundaries of the Santa Clarita Valley Sanitation District. This is an inaccuracy.

2. The project area is outside the jurisdictional boundaries of the Districts and will require annexation into the Santa Clarita Valley Sanitation District before sewerage service can be provided to the proposed development. For a copy of the Districts' Annexation Information and Processing Fee sheets, go to www.lacsd.org, Wastewater & Sewer Systems, Will Serve Program, and click on the appropriate link. For more specific information regarding the annexation procedure and fees, please contact Ms. Donna Kitt at extension 2708.

3. The 30–inch diameter District's 32 Main Trunk Sewer has a design capacity of 16.1 million gallons per day (mgd) and conveyed a peak flow of 1.6 mgd when last measured in 2011.

4. The Santa Clarita Valley Joint Sewerage System currently processes an average flow of 19.6 mgd.

5. For a copy of the Districts' average wastewater generation factors, go to www.lacsd.org, Wastewater & Sewer Systems, Will Serve Program, and click on the Table 1, Loadings for Each Class of Land Use link.

DOC: #2698678.DSCV

6. For a copy of the Connection Fee Information Sheet, go to www.lacsd.org, Wastewater & Sewer Systems, Will Serve Program, and click on the appropriate link.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Grace Robinson Chan

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar

Enclosure

cc: D. Kitt
M. Tremblay
J. Ganz

DOC: #2698678.DSCV

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

STEPHEN R. MAGUIN
Chief Engineer and General Manager

July 2, 2010

File No: SCV-00.00-00

Mr. Erick Escobedo
Alliance Land Planning and Engineering
2248 Faraday Avenue
Carlsbad, CA 92008

Dear Mr. Escobedo:

Tract No. 53295

This is in response to your request for a will serve letter for the subject project, which was received by the County Sanitation Districts of Los Angeles County (Districts) on June 21, 2010. The proposed development is located within the jurisdictional boundaries of the Santa Clarita Valley Sanitation District. We offer the following comments regarding sewerage service:

1. The wastewater flow originating from the proposed project will discharge directly to the Districts' 32 Main Trunk Sewer, located in the intersection of Magic Mountain Parkway and The Old Road. A direct connection to a Districts' trunk sewer requires a Trunk Sewer Connection Permit, issued by the Districts. For information regarding the permit, please contact the Public Counter at extension 1205. This 30-inch diameter trunk sewer is currently running at full capacity, however, a relief sewer has been constructed and placed in service.

2. The District operates two water reclamation plants (WRPs), the Saugus WRP and the Valencia WRP, which provide wastewater treatment in the Santa Clarita Valley. These facilities are interconnected to form a regional treatment system known as the Santa Clarita Valley Joint Sewerage System (SCVJSS). The SCVJSS has a design capacity of 28.1 mgd and currently processes an average flow of 20.5.

3. The expected average wastewater flow from the project site is 644,200 gallons per day. For a copy of the Districts' average wastewater generation factors, go to www.lacsd.org, Information Center, Will Serve Program, Obtain Will Serve Letter, and click on the appropriate link on page 2.

4. The Districts are authorized by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System or increasing the strength or quantity of wastewater attributable to a particular parcel or operation already connected. This connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the Sewerage System to accommodate the proposed project. Payment of a connection fee will be required before a permit to connect to the sewer is issued. For a copy of the Connection Fee Information Sheet, go to www.lacsd.org, Information Center, Will Serve Program, Obtain Will Serve Letter, and click on the appropriate link on page 2. For more

specific information regarding the connection fee application procedure and fees, please contact the Connection Fee Counter at extension 2727.

5. In order for the Districts to conform to the requirements of the Federal Clean Air Act (CAA), the design capacities of the Districts' wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into clean air plans, which are prepared by the South Coast and Antelope Valley Air Quality Management Districts in order to improve air quality in the South Coast and Mojave Desert Air Basins as mandated by the CAA. All expansions of Districts' facilities must be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend to provide this service up to the levels that are legally permitted and to inform you of the currently existing capacity and any proposed expansion of the Districts' facilities.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Stephen R. Maguin

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar