SEWER STUDY
GRAMERCY
SAN DIEGO, CALIFORNIA

December 17, 2025

Prepared For:

CITY OF SAN DIEGO DEVELOPMENT SERVICES DEPARTMENT
Development Services Center
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Project No. 360210

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Prepared By: AK
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Introduction:

This report presents a preliminary sewer system analysis for the Gramercy project site, located in the Serra Mesa community of San Diego, California. The site is situated at the northwest corner of the intersection of Gramercy Drive and Ruffin Road. A vicinity map is provided in Figure 1, below.

The proposed Gramercy development will consist of 199 for-sale residential units, 8 of which will be designated as shopkeeper units.

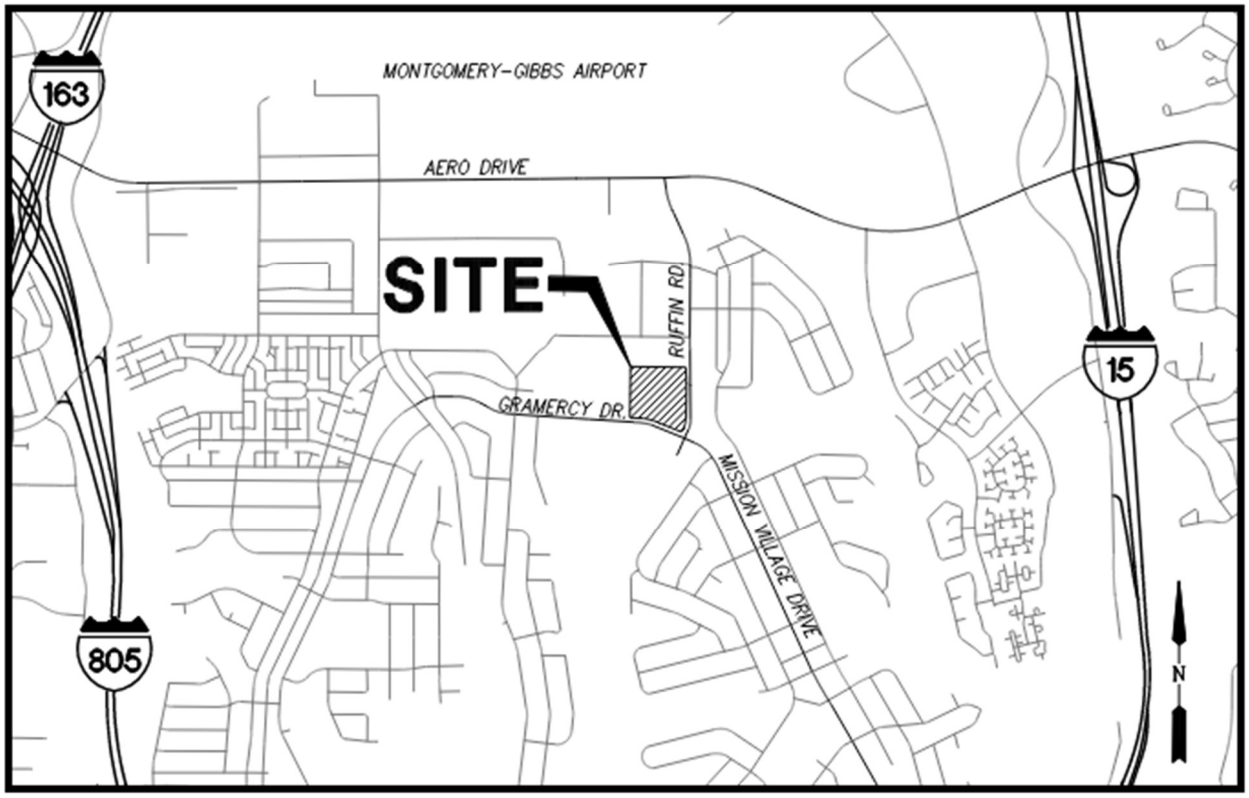


Figure 1: Vicinity Map

Purpose of Study:

The purpose of this study is to provide a preliminary sewer system analysis for the proposed Gramercy project. The intent of said study shall help determine the impact the project has on the existing City of San Diego sewer system. The sewer system analysis has been performed to determine the adequacy of the proposed private sewer systems within the project boundary.

Project Description:

The proposed Gramercy project consists of 199 for-sale dwelling units, 8 of which shall be set aside as shopkeeper units. The sanitary sewer system will be an "engineered sewer system", and the design criteria used for this study is City of San Diego Sewer Design Guide, dated May 2015 and the City of San Diego Regional Standard Drawings for on-site sewer mains. All proposed sewer mains will be private and constructed to be 8-inch in diameter, and manhole spacing shall follow the design guidelines per the Sewer Design Guide.

Design Criteria and Project Flows:

The City of San Diego Sewer Design Guide (Revised May 2015) provided the design criteria applied to the analysis of the sewer system in this report and is summarized below.

Gravity sewer lines are designed to convey peak dry weather flow. Pipes 15" in diameter and smaller are designed to convey this flow with a maximum depth-to-diameter (d/D) ratio of 0.50. Pipes larger than 18" inches in dimeter are designed for a maximum d/D ratio of 0.75. Gravity sewer lines are designed to maintain a minimum velocity of 2.0 feet/second to prevent deposit of solids or have a minimum slope of 1 percent.

Sewage generation estimates were developed in accordance with the Sewer Design Guide for flows of residential condominiums. 1 Residential unit is equivalent to 1 EDU and 1 EDU is equivalent to 280 Gallons per day. The population served per building is 3.5 people per DU.

Existing Sewer System:

Based on available record drawings (17527-D and 17287-1-D, see Appendix H), there is an 8-inch vitrified clay (VCP) line in Gramercy Drive. Additional record drawings (14630-L, see Appendix H) indicate approximately 1,065 linear feet of 8-inch VCP sewer line extending south along Ruffin Road. Offsite flows from 34 apartment complexes within the Serra Mesa community discharge into these sewer mains on Gramercy Drive and Ruffin Road.

No flow monitoring data is available for the existing sewer system in Ruffin Rd. and Gramercy Dr. Existing sewer flows adjacent to the project were estimated using Table 1-1, City of San Diego Sewer Design Guide Density Conversions. The area of existing buildings was estimated using aerial imagery and current zoning to estimate the population of each building resulting peak sewer flow in the existing sewer mains in Ruffin Rd. and Gramercy Drive. It should be noted that these estimates are conservative and likely overestimate existing peak flows.

Existing Flow Contribution estimates

Buildings 1-15 (see Appendix D) flow through a private 4-inch PVC lateral that connects to an existing manhole on Gramercy Drive, southwest of the project site (see Drawing 17527-D). Flow through this private lateral to the 4-inch PVC main was calculated at 0.161 CFS (see Appendix E for existing flow conditions).

Buildings 16-19 (see Appendix D) discharge via an existing private 8-inch VCP lateral that connects to an existing manhole on Gramercy Drive, located east of the previously described lateral (see Drawing 17287-1-D). Flow through this lateral to the 8-inch VCP main on Gramercy Drive was calculated at 0.065 CFS (see Appendix E).

Buildings 20-29 (see Appendix D) discharge to an on-site existing 8-inch VCP sewer line located at the north end of the project site, which connects to the existing manhole on Ruffin Road (see Drawing 14630-L). The flow through this line to the 8-inch VCP main on Ruffin Road was calculated at 0.140 CFS (see Appendix E).

Building 30 (see Appendix D) discharges directly to the 8-inch VCP sewer main on Ruffin Road, between the plug and existing manhole (see Drawing 14630-L). The calculated flow is 0.018 CFS (see Appendix E).

For Buildings 31–34 (see Appendix D), the splash exhibit (see Appendix H) does not indicate sewer laterals servicing the apartments from either street adjacent to it. Therefore, to provide a conservative analysis, it is assumed that Buildings 31–34 discharge directly to the existing 8-inch VCP sewer main along Ruffin Road, between Existing Manhole (Ex. MH) 138 and Ex. MH 131. The corresponding calculated flow contribution is 0.035 CFS (see Appendix E).

Review of record drawings and calculated flow contributions indicates that all adjacent apartment complexes to the Gramercy project site ultimately discharge into the existing 8-inch VCP sewer mains along Gramercy Drive and Ruffin Road. The total existing flow from all adjacent apartment complexes contributing to the system is 0.350 CFS (see Appendix E). This value represents the cumulative discharge from Buildings 1 through 34 (and conservatively assumed flows from Buildings 31–34) and establishes the baseline condition for evaluating downstream sewer capacity in relation to the proposed project.

The method for calculating the existing sewage flow on the project site was obtained using the City of San Diego Public Utilities Department, “Sewer Design Guide”, dated May 2015.

Please see Table 1 below for the summarized existing sewer flow calculations.

TABLE 1							
SEWER FLOW SUMMARY – OFFSITE EXISTING FLOWS							
BUILDING USE	ESTIMATED AREA (SF)**	AREA (ACRES)	FLOORS	EQUIVALENT POPULATION (POP/NET AC)	TOTAL POPULATION	AVERAGE FLOW (GPD)	PEAK FLOW (CFS)
Existing Condition							
Gramercy Apartments (Adjacent to Project Site, serviced by Gramercy Dr. Lateral)	92,000	2.11	2	111.8	472.0	37,779	0.161
Woodbridge Apartments (Serviced by Gramercy Dr. Lateral, Ex. MH 128)	41,800	0.96	2	87	167.0	13,358	0.065
Woodbridge Apartments (Serviced by Ruffin Rd. Lateral, Ex. MH 139)	100,400	2.30	2	87	401.0	32,086	0.140
Taft Middle School (Serviced by lateral on Gramercy)	149,149	3.424	1	31.2	107	8,560	0.045
Commercial Building (Serviced by Lateral on Gramercy)	16422	0.378	1	43.7	17	1,320	0.009
Woodbridge Apartments (Serviced by Ruffin Rd. Sewer)	9,300	0.213	2	87	37	2,972	0.018
Ruffin Road Apartments (Assumed service by Ruffin Rd sewer system.)	20,000	0.459	2	87	80.0	6,389	0.035
Existing Off-Site Total Flow						**102,464**	**0.382***

*Due to the calculation method used to calculate peak flow, and from there the peak dry weather sewage flow (CFS), the sewage flow does not increase linearly. Put another way, when the existing flows from adjacent apartments are combined to estimate a total existing flow, these do not add to 0.473 as would be expected of a linear calculation, rather, using the equations outlined in the "Sewer Design Guide" yields a total existing sewage flow of 0.382 CFS.
**See Appendix D for the square footage of the existing buildings as determined from the Google Earth measuring tool.

Proposed Sewer System Analysis:

The project proposes three permanent points of connection to the existing sewer system for three independent sewer systems, see Appendix B for calculations. Refer to the Sewer System Exhibit for the proposed permanent sewer system in Appendix C.

Point of connection one (MH #100) will connect to the existing 8-inch VCP sewer main on Gramercy Drive. Upstream of MH #100 will be 1591.56 LF of private 8-inch sewer lines. These proposed private 8-inch sewer lines will convey the proposed 74 EDU flow that makes up the first sewer system (System 100). The proposed flow rate of POC #1 is calculated to be 0.096 CFS (see Table 3 in Appendix B). Prior to POC #1, the maximum depth/Diameter (d/D) ratio in this system in the existing 8-inch line is 0.30 (see Table 6 in Appendix E).

Point of connection two (MH #200) will connect to the existing 8-inch VCP sewer main on Gramercy. Upstream of MH #2 will be 1279.15 LF of private 8-inch sewer lines. The POC #2 will include the installation of a 5' sewer manhole. These proposed 8-inch sewer lines will convey the proposed 93 EDU flow that makes up the second sewer system (System 200). The proposed flow rate of POC #2 is calculated to be 0.117 CFS (see Table 4 in Appendix B). Prior to POC #2, the maximum depth/Diameter ratio in this system in the existing 8-inch line is 0.38 (see Table 6 in Appendix E).

Point of connection three (MH #300) will connect to the existing 8-inch VCP sewer main on Ruffin Road. Upstream of MH #3 will be 849.24 LF of private 8-inch sewer lines. These proposed 8-inch sewer lines will convey the proposed 32 EDU flow that makes up the third sewer system (System 300). The proposed flow rate of POC #3 is calculated to be 0.046 CFS (see Table 5 in Appendix B). Prior to POC #3, the maximum depth/Diameter (d/D) ratio in this system in the existing 8-inch line is 0.22 (see Table 6 in Appendix E).

Post Development Sewage Flow Conditions:

The proposed Gramercy Project will discharge 100 percent of its wastewater through new private 8-inch sewer laterals, which will connect to the upstream ends of the existing public 8-inch VCP sewer mains located along Gramercy Drive and Ruffin Road.

Refer to Table 8 in Appendix G for the estimated post-development peak flow calculations within the 8-inch VCP sewer main on Gramercy Drive and the 8-inch VCP sewer main on Ruffin Road, as well as the combined peak flow at the downstream junction where the two mains converge.

See Table 2 below for a summary of the existing conditions of the existing 8-inch VC sewer main at the end of our analysis at Ex. MH 132 in comparison to the proposed conditions once the Gramercy Apartments and its sewer laterals are built.

TABLE 2		
EX. 8-INCH VC SEWER MAIN (EX. MH 132 to 133) SUMMARY EXISTING VS. PROPOSED CONDITIONS		
	EXISTING	PROPOSED
FLOWS (CFS)	0.382	0.556
d_n/D RATIO	0.44	0.55
VELOCITY (FT/S)	2.55	2.80

*Note: The method used to calculate the peak dry weather sewage flow (CFS) does not increase linearly with population. Put another way, while the project site proposes flows of 0.096, 0.117, and 0.046 CFS, the net increase of the project site's flows into the 8-inch VC sewer main where Gramercy Drive and Ruffin Rd converges is 0.174 CFS. However, when the increased flows of 0.174 CFS are combined with the existing 0.382 CFS from the adjacent apartments to receive a total flow using the "Sewer Design Guide," the non-linear calculation yields a total proposed sewage flow of 0.556 CFS.

The results of the analysis indicate that all proposed sewer systems are adequately sized by not exceeding the maximum depth/Diameter (d/D) of 0.5. All proposed sewer sections meet the minimum 2 feet/second velocity requirement or have a minimum slope of 1 percent. However, at the end of the analysis, post-development, the (d/D) ratio exceeds 0.5, requiring a comprehensive sewer study of the area to find the downstream location where the proposed additional average flow is 10% of the existing average flow. Refer to Appendix A for Sewer Design Guide references. Refer to Appendix B for the tabulated proposed sewer system analysis and Appendix C for the corresponding sewer study exhibit.

Required Capacity Down Stream of New Gravity Sewer:

The post-development peak flow analysis of the existing sewer system was analyzed two pipe reaches downstream from POC #2, the lowest point of discharge from the proposed development. The resulting depth-to-diameter ratio (d/D) is slightly above the depth 0.5 criteria for an 8-inch sewer main. This study found the d/D just upstream of existing MH 132 with all additional flow from the proposed development was 0.55. This is primarily a function of the low slope of the existing sewer main in this area. The existing slope of 0.6% based on City of San Diego GIS records.

At the request of City Staff during the review process of this study an additional analysis of the downstream sewer system was evaluated to the point where the estimated average flow contributed by the proposed development is less than 10 percent of the average flow in the existing sewer system.

The proposed project will add 199 equivalent dwelling units (EDUs) to the existing sewer system, resulting in an estimated average flow of 0.086 cubic feet per second (CFS). To satisfy the 10 percent criterion, the downstream sewer system was analyzed to the location where the existing average system flow exceeded 0.86 CFS.

The analysis found that average flow of the existing sewer system exceeds 0.86 (CFS) in a 12-inch main between existing MH 73 and Ex. MH 248. Please see Appendix F for calculations and support exhibit.

Conclusions:

This preliminary sewer system analysis for the Gramercy project evaluates the adequacy of the existing City of San Diego sewer network and the impacts of the proposed development, using the City's Sewer Design Guide (May 2015) for criteria and methods. The project proposes 199 for-sale dwelling units (including 8 shopkeeper units) and three independent points of connection (two to the 8-inch VCP main in Gramercy Drive and one to the 8-inch VCP main in Ruffin Road).

Existing off-site contributors to the Gramercy and Ruffin Road mains were quantified from record drawings and conservative land-use estimates, establishing a baseline peak dry-weather flow of 0.382 CFS at the downstream junction where the two 8-inch mains converge.

Post-development, the combined peak flow at that junction is estimated to increase to 0.556 CFS. At the critical downstream reach analyzed (near Ex. MH 132–133), the depth-to-diameter ratio (d/D) rises from 0.44 to 0.55, attributable primarily to the low existing slope of approximately 0.6%; minimum velocity criteria (≥2 ft/s) are maintained. While all proposed private 8-inch systems satisfy City standards for velocity and slope, the d/D > 0.50 in the public 8-inch segment indicates a localized capacity constraint under peak dry-weather conditions, warranting downstream confirmation per City guidance.

In response to City staff direction, a supplemental downstream analysis was performed to the point where the project's average flow contribution (~0.086 CFS from 199 EDUs) is less than 10% of the existing average flow. That threshold is met within a 12-inch main between Ex. MH 73 and Ex. MH 248, indicating that beyond this reach the system has sufficient capacity to accommodate the project without triggering off-site upsizing.

Overall, the analysis concludes:

The on-site private sewers are adequately sized and compliant with City criteria (velocity, slope, and routing) for the proposed EDUs and connections.

A minor exceedance of the d/D criterion (0.55 in an 8-inch public segment) occurs immediately downstream of the tie-ins due to existing geometry/slope; however, the project's influence diminishes rapidly, and the 10% rule is satisfied within the downstream 12-inch system, where capacity is adequate.

Subject to City concurrence with the supplemental downstream findings and typical conditions of approval, the project wastewater discharge can be accommodated by the existing public system, and no off-site capacity improvements are anticipated within the study limits.

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Appendix A

COPY OF TABLE 1-1 AND FIGURE 1-1

FROM CITY OF SAN DIEGO

SEWER DESIGN GUIDE

TABLE 1-1
CITY OF SAN DIEGO SEWER DESIGN GUIDE
DENSITY CONVERSIONS

Zone	Maximum Density (DU/Net Ac)	Population per DU	Equivalent Population (Pop/Net Ac)
AR-1-1, RE-1-1	0.1	3.5	0.4
RE-1-2	0.2	3.5	0.7
AR-1-2, RE-1-3	1	3.5	3.5
RS-1-1, RS-1-8	1	3.5	3.5
RS-1-2, RS-1-9	2	3.5	7.0
RS-1-3, RS-1-10	3	3.5	10.5
RS-1-4, RS-1-11	4	3.5	14.0
RS-1-5, RS-1-12	5	3.5	17.5
RS-1-6, RS-1-13	7	3.5	24.5
RS-1-7, RS-1-14	9	3.5	31.5
RX-1-1	11	3.4	37.4
RT-1-1	12	3.3	39.6
RX-1-2, RT-1-2, RU-1-1	14	3.2	44.8
RT-1-3, RM-1-2	17	3.1	52.7
RT-1-4	20	3.0	60.0
RM-1-3	22	3.0	66.0
RM-2-4	25	3.0	75.0
RM-2-5	29	3.0	87.0
RM-2-6	35	2.8	98.0
RM-3-7, RM-5-12	43	2.6	111.8
RM-3-8	54	2.4	129.6
RM-3-9	73	2.2	160.6
RM-4-10	109	1.8	196.2
RM-4-11	218	1.5	327.0

TABLE 1-1
CITY OF SAN DIEGO SEWER DESIGN GUIDE
DENSITY CONVERSIONS (Continued)

Zone	Maximum Density (DU / Net Ac)	Population Per DU	Equivalent Population (Pop/Net Ac)
Schools/Public	8.9	3.5	31.2
Offices	10.9	3.5	38.2*
Commercial/Hotels	12.5	3.5	43.7*
Industrial	17.9	3.5	62.5*
Hospital	42.9	3.5	150.0*

Figures with asterisk (*) represent equivalent population per floor of the building.

Definitions:
DU = Dwelling Units
Ac = Acreage
Pop = Population

Net Acreage is the developable lot area excluding areas that are dedicated as public streets in acres. Gross Area is the entire area in acres of the drainage basin, including lots, streets, etc.

For undeveloped areas, assume Net Acreage = 0.8 x Gross Area in Acres

For developed areas, calculate actual Net Acreage.

Tabulated figures are for general case. The tabulated figures shall not be used if more accurate figures are available.

Population is based on actual equivalent dwelling units (EDU) or the maximum estimate obtained from zoning.

Conversion of Fixture Units to Equivalent Dwelling Units (EDU): The Water Meter Data Card, maintained by the Development Services Department, contains a table of plumbing fixtures that should be used for determining the equivalent dwelling units (EDU's) for the purpose of estimating the rate of wastewater generation in residential, commercial, or industrial areas. Currently, the basis for conversion is: 20 fixtures = 1 EDU and 1 EDU = 280 gallons of wastewater per day.

In high rise building areas, flow rates shall be based on the most current, adopted edition of the applicable Plumbing Code, assuming one lateral per area. The most conservative flow rate shall govern.

PUBLIC UTILITIES DEPARTMENT

PEAKING FACTOR FOR SEWER FLOWS
(Dry Weather)

Ratio of Peak to Average Flow*
Versus Tributary Population

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

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

FIGURE 1-1

Appendix B

PROPSOED SEWER SYSTEM
PIPE HYDRAULIC CALCULATIONS

SEWER STUDY SUMMARY: TABLE 3 - PROPOSED CONDITIONS
Gramercy Sewer DESIGN

WBS. NO._____

FOR: CITY OF SAN DIEGO

BY: PROJECT DESIGN CONSULTANTS

SHEET 1 OF 1

DATE: 9/15/2025

REFER TO PLAN SHEET: N/A

FROM	TO		POPULATION SERVED 3.5 per DU		SEWAGE PER CAPITA PER DAY (GPD)	AVERAGE DRY WEATHER FLOW (GPD)	DRY WEATHER PEAKING FACTOR	PEAK DRY WEATHER FLOW (GPD)	PEAK FLOW (DESIGN FLOW)		LINE DIAMETER (D) (in)	DESIGN SLOPE (%)	Calculated			A	V	REMARKS
		EDU	IN-LINE	CUMULATIVE TOTAL					MGD	CFS			dn (FT)	dn/D	theta	(SF)	(FPS)	
SYSTEM 100																		
118	119	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
119	112	0	0	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
117	113	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
116	114	4	14	14	80	1,120	4.42	4,947	0.005	0.008	8	1.00	0.04	0.06	0.96	0.01	0.97	(Private)
115	114	1	4	4	80	280	5.32	1,490	0.001	0.002	8	1.00	0.02	0.03	0.72	0.00	0.67	(Private)
114	113	3	11	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
113	112	0	0	56	80	4,480	3.67	16,430	0.016	0.025	8	1.00	0.07	0.10	1.29	0.02	1.39	(Private)
112	110	0	0	84	80	6,720	3.47	23,340	0.023	0.036	8	1.00	0.08	0.12	1.41	0.02	1.55	(Private)
111	110	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
110	108	0	0	112	80	8,960	3.34	29,941	0.030	0.046	8	1.00	0.09	0.13	1.50	0.03	1.67	(Private)
109	108	18	63	63	80	5,040	3.61	18,194	0.018	0.028	8	1.00	0.07	0.11	1.32	0.02	1.44	(Private)
108	106	0	0	175	80	14,000	3.15	44,063	0.044	0.068	8	1.00	0.11	0.16	1.65	0.04	1.87	(Private)
107	106	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
106	104	0	0	203	80	16,240	3.09	50,105	0.050	0.078	8	1.00	0.11	0.17	1.71	0.04	1.94	(Private)
105	104	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
104	102	0	0	231	80	18,480	3.03	56,036	0.056	0.087	8	1.00	0.12	0.18	1.76	0.04	2.01	(Private)
103	102	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
102	101	0	0	259	80	20,720	2.99	61,871	0.062	0.096	8	1.00	0.13	0.19	1.81	0.05	2.07	(Private)
101	100	0	0	259	80	20,720	2.99	61,871	0.062	0.096	8	1.00	0.13	0.19	1.81	0.05	2.07	(Private)
	Total EDU	74																

SEWER STUDY SUMMARY: TABLE 4 - PROPOSED CONDITIONS
Gramercy Sewer DESIGN

WBS. NO._____ SHEET 1 OF 1

FOR: CITY OF SAN DIEGO DATE: 12/17/2025

BY: PROJECT DESIGN CONSULTANTS REFER TO PLAN SHEET: N/A

FROM	TO		POPULATION SERVED 3.5 per DU		SEWAGE PER CAPITA PER DAY (GPD)	AVERAGE DRY WEATHER FLOW (GPD)	DRY WEATHER PEAKING FACTOR	PEAK DRY WEATHER FLOW (GPD)	PEAK FLOW (DESIGN FLOW)		LINE DIAMETER (D) (in)	DESIGN SLOPE (%)	Calculated			A	V	REMARKS
		EDU	IN-LINE	CUMULATIVE TOTAL					MGD	CFS			dn (FT)	dn/D	theta	(SF)	(FPS)	
SYSTEM 200																		
209	207	4	14	14	80	1,120	4.42	4,947	0.005	0.008	8	1.00	0.04	0.06	0.96	0.01	0.97	(Private)
208	207	20	70	70	80	5,600	3.56	19,931	0.020	0.031	8	1.00	0.07	0.11	1.35	0.02	1.48	(Private)
207	203	22	77	161	80	12,880	3.18	40,994	0.041	0.063	8	1.00	0.10	0.16	1.62	0.03	1.83	(Private)
206	204	19	67	67	80	5,320	3.58	19,066	0.019	0.029	8	1.00	0.07	0.11	1.34	0.02	1.46	(Private)
205	204	19	67	67	80	5,320	3.58	19,066	0.019	0.029	8	1.00	0.07	0.11	1.34	0.02	1.46	(Private)
204	202	5	18	151	80	12,040	3.21	38,669	0.039	0.060	8	1.00	0.10	0.15	1.60	0.03	1.80	(Private)
203	202	2	7	168	80	13,440	3.16	42,533	0.043	0.066	8	1.00	0.11	0.16	1.64	0.04	1.85	(Private)
202	201	1	4	322	80	25,760	2.90	74,706	0.075	0.116	8	0.78	0.15	0.22	1.96	0.06	2.00	(Private)
201	200	1	4	326	80	26,040	2.90	75,408	0.075	0.117	8	0.78	0.15	0.22	1.97	0.06	2.01	(Private)
	Total EDU	93																

SEWER STUDY SUMMARY: TABLE 5 - PROPOSED CONDITIONS
Gramercy Sewer DESIGN

WBS. NO._____

FOR: CITY OF SAN DIEGO

BY: PROJECT DESIGN CONSULTANTS

SHEET 1 OF 1

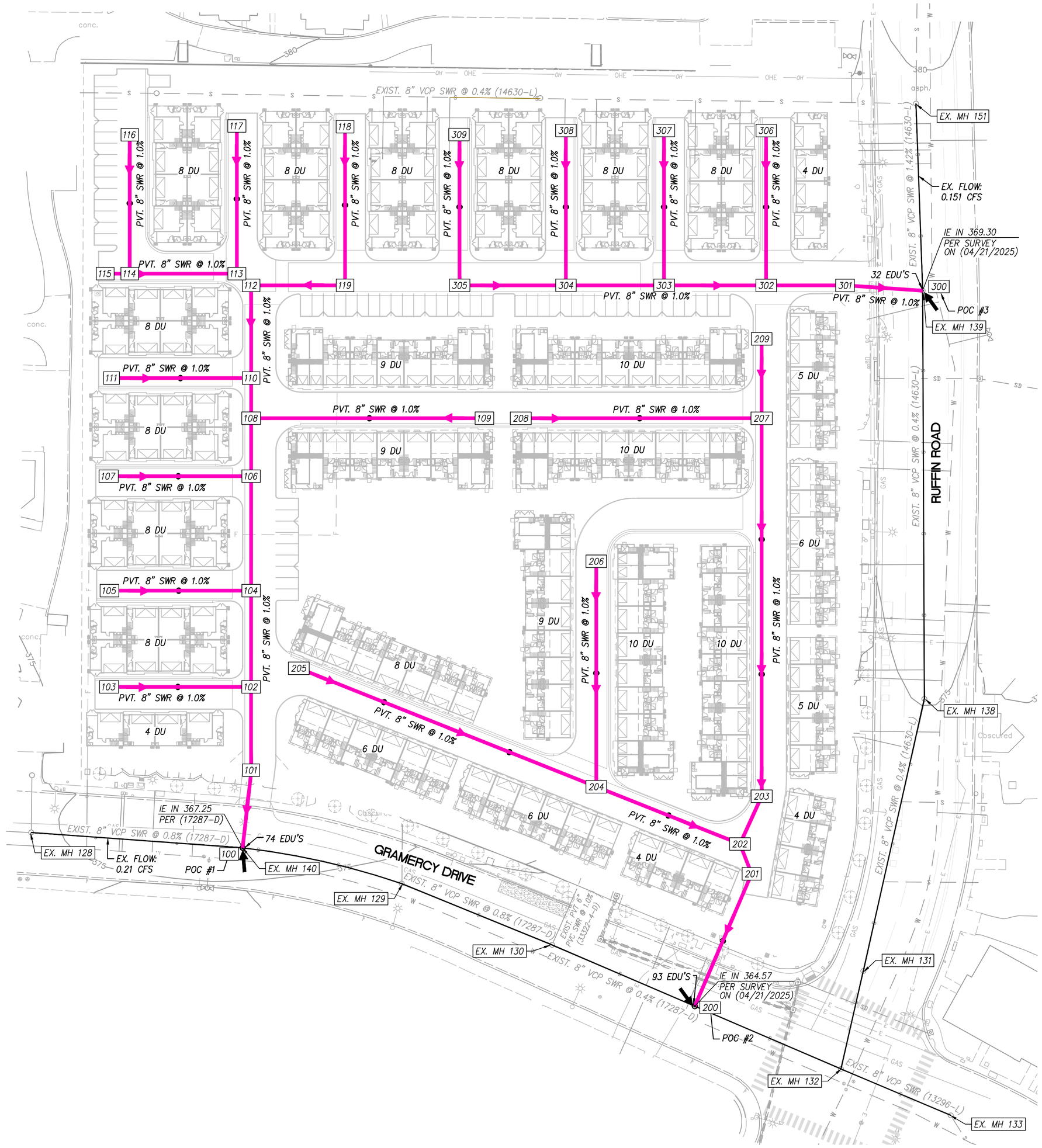
DATE: 9/15/2025

REFER TO PLAN SHEET: N/A

FROM	TO		POPULATION SERVED 3.5 per DU		SEWAGE PER CAPITA PER DAY (GPD)	AVERAGE DRY WEATHER FLOW (GPD)	DRY WEATHER PEAKING FACTOR	PEAK DRY WEATHER FLOW (GPD)	PEAK FLOW (DESIGN FLOW)		LINE DIAMETER (D) (in)	DESIGN SLOPE (%)	Calculated			A	V	REMARKS
		EDU	IN-LINE	CUMULATIVE TOTAL					MGD	CFS			dn (FT)	dn/D	theta	(SF)	(FPS)	
SYSTEM 300																		
309	305	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
305	304	0	0	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
308	304	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
304	303	0	0	56	80	4,480	3.67	16,430	0.016	0.025	8	1.00	0.07	0.10	1.29	0.02	1.39	(Private)
307	303	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
303	302	0	0	84	80	6,720	3.47	23,340	0.023	0.036	8	1.00	0.08	0.12	1.41	0.02	1.55	(Private)
306	302	8	28	28	80	2,240	4.02	9,016	0.009	0.014	8	1.00	0.05	0.08	1.11	0.01	1.16	(Private)
302	301	0	0	112	80	8,960	3.34	29,941	0.030	0.046	8	1.00	0.09	0.13	1.50	0.03	1.67	(Private)
301	300	0	0	112	80	8,960	3.34	29,941	0.030	0.046	8	1.00	0.09	0.13	1.50	0.03	1.67	(Private)
	Total EDU	32																

Appendix C

PROPOSED SEWER SYSTEM EXHIBIT



LEGEND

- PROPOSED POINT OF SEWER CONNECTION
- 330 — SEWER NODE
- PROPOSED PRIVATE SEWER LINE
- EXISTING SEWER LINE

TOTAL FOR-SALE DWELLING UNITS: 199

TOTAL SHOPKEEPER UNITS: 8

50 25 0 50 100 150

SCALE: 1"=50'

SCALE: 1" = 50'

DATE: 9/4/2025

PREPARED BY:

Bowman

Bowman Consulting Group Ltd
701 B Street, Suite 800
San Diego, CA 92101

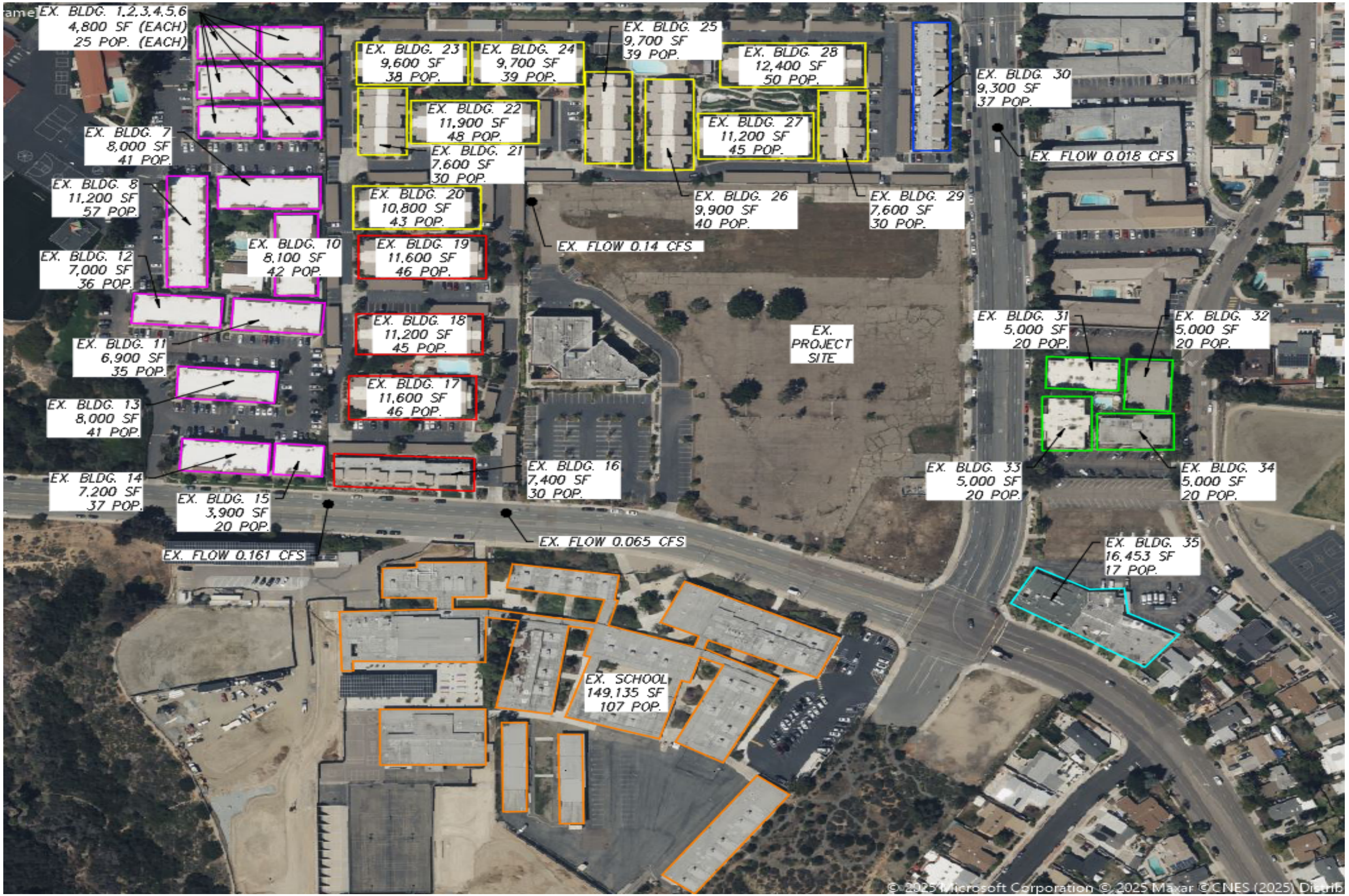
Phone: 619.235.6471
Bowman.com
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KB GRAMERCY

SEWER STUDY
POST DEVELOPMENT CONDITION

Appendix D

KEY MAP FOR EXISTING POPULATION QUANTITIES



Existing Population = Building acreage x Equivalent Population x # Floors

EXHIBIT E: KEY MAP FOR EXISTING POPULATION QUANTITIES

(AREAS DETERMINED FROM GOOGLE EARTH MEASURE TOOL)

Appendix E

EXISTING SEWER SYSTEM
PIPE HYDRAULIC CALCULATIONS

SEWER STUDY SUMMARY: TABLE 6 - EXISTING CONDITIONS
Gramercy Sewer DESIGN

WBS. NO._____
FOR: CITY OF SAN DIEGO
BY: PROJECT DESIGN CONSULTANTS

SHEET 1 OF 1
DATE: 12/17/2025
REFER TO PLAN SHEET: N/A

FROM	TO		POPULATION SERVED 3.5 per DU		SEWAGE PER CAPITA PER DAY (GPD)	AVERAGE DRY WEATHER FLOW (GPD)	DRY WEATHER PEAKING FACTOR	PEAK DRY WEATHER FLOW (GPD)	PEAK FLOW (DESIGN FLOW)		LINE DIAMETER (D) (in)	DESIGN SLOPE (%)	Calculated			A	V	Check d/D	REMARKS
		EDU	IN-LINE	CUMULATIVE TOTAL					MGD	CFS			dn (FT)	dn/D	theta	(SF)	(FPS)		
EXISTING SEWER SYSTEM																			
APARTMENTS	GRAMERCY LATERAL (W)	0	0	472	80	37,779	2.75	104,074	0.104	0.161	4	1.00	0.24	0.71	3.99	0.07	2.45	WARNIN	SERVICED BY EXIST. PRIVATE LATERAL ON GRAMERCY SEE REFERENCE DWG. 17527-D
APARTMENTS	EX. MH 128	0	0	167	80	13,358	3.17	42,307	0.042	0.065	8	0.80	0.11	0.17	1.68	0.04	1.71	OK	SERVICED BY EXIST. PRIVATE LATERAL ON GRAMERCY SEE REFERENCE DWG. 17287-D.
EX. MH 128	EX. MH 140 (Prop. POC #1)	0	0	639	80	51,137	2.65	135,263	0.135	0.209	8	0.80	0.20	0.30	2.31	0.09	2.40	OK	EXISTING FLOW AT OUR PROPOSED TIE IN LOCATION (POC #1)
EX. MH 140	EX. MH 129	0	0	639	80	51,137	2.65	135,263	0.135	0.209	8	0.80	0.20	0.30	2.31	0.09	2.40	OK	NO ADDITIONAL FLOW BETWEEN THE 2 CONNECTIONS, HENCE THE SAME DN/D
EX. MH 129	EX. MH 130	0	0	639	80	51,137	2.65	135,263	0.135	0.209	8	0.80	0.20	0.30	2.31	0.09	2.40	OK	
MIDDLE SCHOOL	GRAMERCY LATERAL (E)	0	0	107	80	8,560	3.36	28,780	0.029	0.045	8	0.80	0.09	0.14	1.53	0.03	1.52	OK	SERVICED BY EXIST. PRIVATE LATERAL ON GRAMERCY PER ARCGIS WEBMAP.
EX. MH 130	EX. MH 132	0	0	746	80	59,697	2.59	154,659	0.155	0.239	8	0.40	0.26	0.38	2.67	0.12	1.94	OK	A MH IS PROPOSED TO BE BUILT IN THIS SEGMENT TO TIE OUR PROPOSED SEWER (POC #2).
APARTMENTS	EX. MH 151	0	0	401	80	32,086	2.82	90,348	0.090	0.140	8	0.40	0.19	0.29	2.27	0.08	1.67	OK	SERVICED BY EXIST. ON-SITE SEWER LINE AT THE NORTH END OF THE PROJECT SITE
APARTMENTS	RUFFIN RD PLUG	0	0	37	80	2,972	3.88	11,516	0.012	0.018	8	1.00	0.06	0.08	1.18	0.01	1.25	OK	SERVICED BY SEWER LINE BETWEEN THE PLUG & EXIST. MH ON RUFFIN ROAD
RUFFIN RD PLUG	EX. MH 151	0	0	37	80	2,972	3.88	11,516	0.012	0.018	8	1.70	0.05	0.07	1.11	0.01	1.50	OK	
EX. MH 151	EX. MH 139 (Prop. POC #3)	0	0	438	80	35,058	2.78	97,550	0.098	0.151	8	1.42	0.15	0.22	1.95	0.06	2.67	OK	NO ADDITIONAL FLOW BETWEEN THE 2 CONNECTIONS, HENCE THE SAME DN/D
EX. MH 139	EX. MH 138	0	0	438	80	35,058	2.78	97,550	0.098	0.151	8	0.40	0.20	0.30	2.32	0.09	1.70	OK	
APARTMENTS	RUFFIN RD SEWER	0	0	80	80	6,389	3.50	22,342	0.022	0.035	8	1.00	0.08	0.12	1.39	0.02	1.53	OK	ASSUMED TO BE SERVICED BY DIRECT CONNECTION TO SEWER MAIN ON RUFFIN ROAD
EX. MH 138	EX. MH 131	0	0	518	80	41,447	2.72	112,766	0.113	0.174	8	0.40	0.22	0.32	2.43	0.10	1.77	OK	
EX. MH 131	EX. MH 132	0	0	518	80	41,447	2.72	112,766	0.113	0.174	8	3.76	0.12	0.18	1.78	0.04	3.94	OK	NO ADDITIONAL FLOW BETWEEN THE 2 CONNECTIONS, HENCE THE SAME DN/D
COMMERCIAL	GRAMERCY LATERAL (E)	0	0	17	80	1,320	4.32	5,705	0.006	0.009	8	3.76	0.03	0.04	0.85	0.01	1.60	OK	SERVICED BY EXIST. PRIVATE LATERAL ON GRAMERCY PER ARCGIS WEBMAP.
EX. MH 132	EX. MH 133	0	0	1,281	80	102,464	2.41	246,894	0.247	0.382	8	0.60	0.30	0.44	2.92	0.15	2.55	OK	ACCORDING TO THE CITY OF SAN DIEGO'S GIS, THE SLOPE BETWEEN MH #132 AND MH #133 IS 0.6%
	Total EDU	0																	

EXISTING POPULATION

Area (ac) = (SF/43,560)	Equivalent Population	Floors	Total Pop.
ZONE: RM-3-7			
2.112	111.8	2	472
ZONE: RM-2-5			
0.9596	87	2	167
ZONE: RM-2-5			
2.305	87	2	401
ZONE: RM-2-5			
0.2135	87	2	37
ZONE: RM-2-5			
0.459	87	2	80
ZONE: MIDDLE SCHOOL			
3.424	31.2	1	107
ZONE: CO-1-2 (COMMERCIAL)			
0.3777	43.7	1	17

** SEE APPENDIX D FOR THE SQUARE FOOTAGE OF THE EXISTING BUILDINGS AS DETERMINED FROM THE GOOGLE EARTH MEARUING TOOL.

pop: 401
0.140 cfs

no flow from site in existing condition

pop: 37
0.031 cfs

Ex. Peak Flow
0.151 cfs

POC #3
Ex. MH 139

PROPOSE PROJECT SITE

APN 429-010-34-00

9160 Gramercy Dr

APN 429-010-33-00

pop: 167
0.065 cfs

pop: 472
0.161 cfs

no flow from site in existing condition

POC #2
New MH

POC #1
New MH

pop: 80
0.035 cfs

pop: 17
0.009 cfs

Middle School
pop: 107
0.045 cfs

@ MH 133 Existing
Population: 1,281
Ex. Peak Flow 0.382 cfs

Existing Condition

Appendix F

EXISTING SEWER SYSTEM AVERAGE FLOW ANALYSIS AND EXHIBIT

SEWER STUDY SUMMARY: TABLE 7 - AVERAGE FLOW CONDITIONS
Gramercy Sewer DESIGN

WBS. NO._____
FOR: CITY OF SAN DIEGO
BY: PROJECT DESIGN CONSULTANTS

SHEET 1 OF 1
DATE: 12/17/2025
REFER TO PLAN SHEET: N/A

FROM	TO	EDU	POPULATION SERVED 3.5 per DU		SEWAGE PER CAPITA PER DAY (GPD)	AVERAGE DRY WEATHER FLOW (GPD)	DRY WEATHER PEAKING FACTOR	PEAK DRY WEATHER FLOW (GPD)	PEAK FLOW (DESIGN FLOW)		LINE DIAMETER (D) (in)	DESIGN SLOPE (%)	Calculated dn (FT)	dn/D	theta	A (SF)	V (FPS)	Check d/D	REMARKS
			IN-LINE	CUMULATIVE TOTAL					MGD	CFS									
EXISTING SEWER SYSTEM																			
Residential/Industrial	EX. MH 164	428	0	2,123	80	169,816	1.00	169,816	0.170	0.263	8	0.60	0.24	0.36	2.58	0.11	2.30	OK	SEE TABLES BELOW FOR TOTAL POPULATION & EDU CALC.
EX. MH 164	EX. MH 140	258	903	3,026	80	242,056	1.00	242,056	0.242	0.375	8	0.60	0.29	0.44	2.90	0.15	2.53	OK	
EX. MH 140	EX. MH 246	358	1,253	4,279	80	342,296	1.00	342,296	0.342	0.530	12	0.60	0.30	0.30	2.30	0.20	2.71	OK	
EX. MH 132	EX. MH 133	240	0	1,281	80	102,480	1.00	102,480	0.102	0.159	8	0.60	0.19	0.28	2.22	0.08	2.00	OK	SEE APPENDIX E, TABLE 6 FOR CUMULATIVE POPULATION CALC. & BELOW FOR TOTAL EDU CALC.
EX. MH 133	EX. MH 246	20	70	1,351	80	108,080	1.00	108,080	0.108	0.167	8	0.60	0.19	0.29	2.26	0.08	2.03	OK	
EX. MH 246	EX. MH 225	128	448	6,078	80	486,216	1.00	486,216	0.486	0.752	12	0.60	0.36	0.36	2.56	0.25	2.99	OK	
EX. MH 225	EX. MH 73	173	606	6,683	80	534,656	1.00	534,656	0.535	0.827	10	0.60	0.41	0.49	3.11	0.27	3.09	OK	
EX. MH 73	EX. MH 248	444	1,554	8,237	80	658,976	1.00	658,976	0.659	1.020	12	0.60	0.42	0.42	2.82	0.31	3.25	OK	THE ADDITION OF 444 SINGLE FAMILY HOMES EXCEEDS OUR TARGET FLOW OF 0.86 CFS. THEREFORE, THE SCHOOL, CHURCH. AND APARTMENTS UPSTREAM OF THIS BRANCH IS NOT NEEDED FOR THIS ANAYLSIS.
	Total EDU	2049																	

EXISTING POPULATION (Residential/Industrial)

Area (ac) = (SF/43,560)	Equivalent Population	Floors	Total Pop.
ZONE: INDUSTRIAL			
5.588	62.5	1	349
ZONE: APARTMENTS (RM-2-5)			
2.843	87	2	495
ZONE: APARTMENTS (RM-3-7)			
5.719	111.8	2	1,279
	Total Population		2123

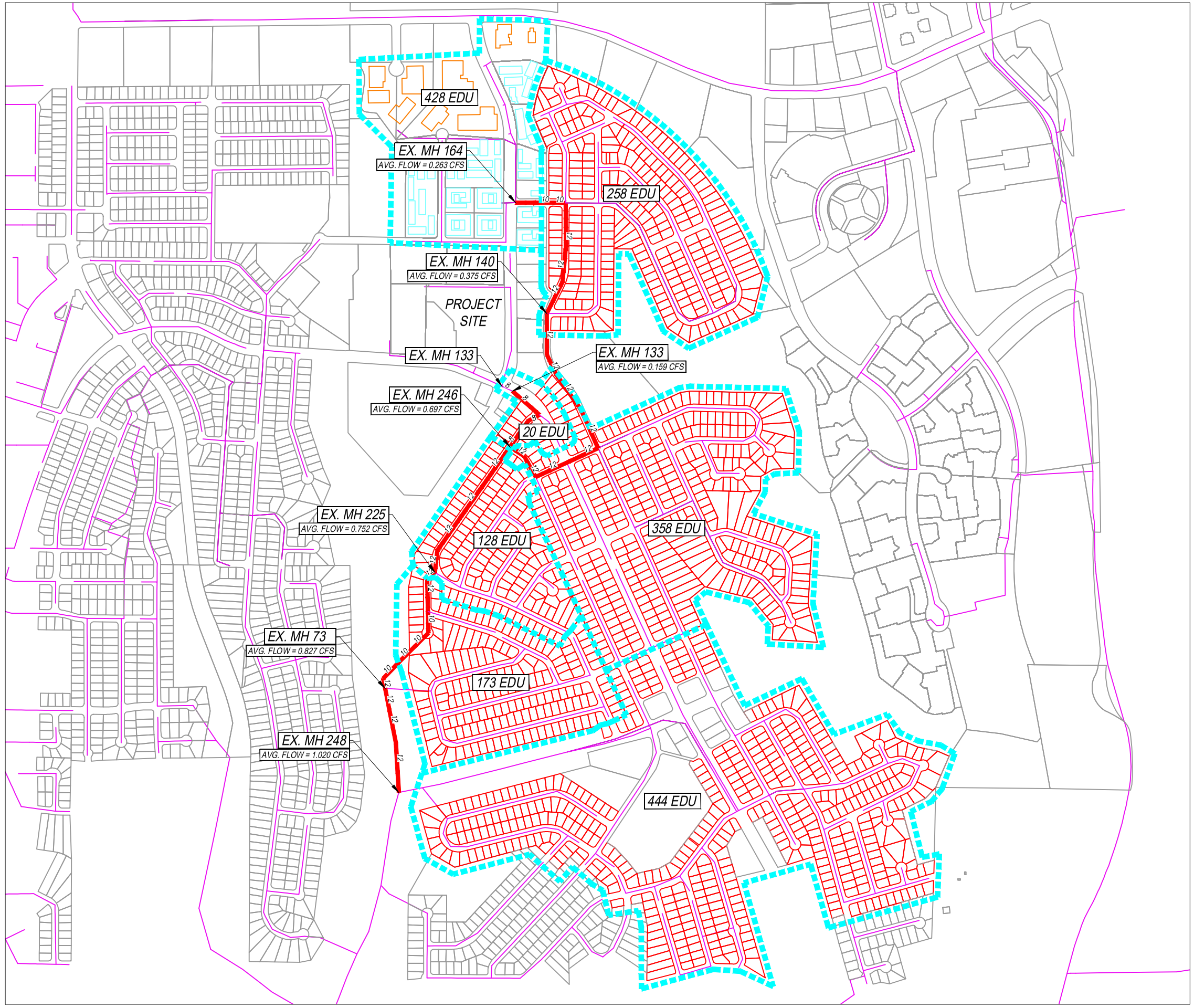
EXISTING EDU (Residential/Industrial)

Area (ac) = (SF/43,560)	Maximum Density (DU/Net Ac)	EDU
ZONE: INDUSTRIAL		
5.588	17.9	100
ZONE: APARTMENTS (RM-2-5)		
2.843	29	82
ZONE: APARTMENTS (RM-3-7)		
5.719	43	246
	Total EDU	428

EXISTING POPULATION (Upstream of MH 133)

Area (ac) = (SF/43,560)	Maximum Density (DU/Net Ac)	EDU
ZONE: RM-3-7		
2.112	43	91
ZONE: RM-2-5		
0.9596	29	28
ZONE: RM-2-5		
2.305	29	67
ZONE: RM-2-5		
0.2135	29	6
ZONE: RM-2-5		
0.459	29	13
ZONE: MIDDLE SCHOOL		
3.424	8.9	30
ZONE: CO-1-2 (COMMERCIAL)		
0.3777	12.5	5
	Total EDU	240

** SEE APPENDIX D FOR THE SQUARE FOOTAGE OF THE EXISTING BUILDINGS AS DETERMINED FROM THE GOOGLE EARTH MEARUING TOOL.



LEGEND

SINGLE FAMILY RESIDENTS . . . . . (CONTRIBUTING FLOW TO THIS ANALYSIS)

INDUSTRIAL . . . . . (CONTRIBUTING FLOW TO THIS ANALYSIS)

APARTMENTS . . . . . (CONTRIBUTING FLOW TO THIS ANALYSIS)

PIPE SIZE XX

SEWER MAIN . . . . . (PER GIS SHOWN FOR REFERNCE)

SEWER MAIN ANALYZED FOR EXISTING AVERAGE FLOW (SHOWN PER GIS) . . . . . .

ADDITIONAL PROPOSED AVG. FLOW = 0.086 CFS

THE PROPOSED FLOW REACHES 10% OF THE EXISTING AVERAGE FLOW AT EXISTING MANHOLE 248.

EXHIBIT F: EXISTING SEWER SYSTEM AVERAGE FLOW ANALYSIS

Appendix G

POST DEVELOPMENT PIPE HYDRAULIC CALCULATIONS

SEWER STUDY SUMMARY: TABLE 8 - POST DEVELOPMENT CONDITIONS
Gramercy Sewer DESIGN

WBS. NO._____
FOR: CITY OF SAN DIEGO
BY: PROJECT DESIGN CONSULTANTS

SHEET 1 OF 1
DATE: 12/17/2025
REFER TO PLAN SHEET: N/A

FROM	TO	EDU	POPULATION SERVED 3.5 per DU		SEWAGE PER CAPITA PER DAY (GPD)	AVERAGE DRY WEATHER FLOW (GPD)	DRY WEATHER PEAKING FACTOR	PEAK DRY WEATHER FLOW (GPD)	PEAK FLOW (DESIGN FLOW)		LINE DIAMETER (D) (in)	DESIGN SLOPE (%)	Calculated dn (FT)	dn/D	theta	A (SF)	V (FPS)	REMARKS
			IN-LINE	CUMULATIVE TOTAL					MGD	CFS								
EXISTING SEWER FLOW/DEPTH POST DEVELOPMENT CONDITION																		
Ex MH 128	100	0	0	639	80	51,120	2.65	135,224	0.135	0.209	8	0.80	0.20	0.30	2.31	0.09	2.40	FLOW FROM BUILDINGS 1-19 (NOTE: NO ADDITIONAL FLOW BETWEEN THE 2 CONNECTIONS, HENCE THE SAME DN/D.)
100	Ex MH 129	74	259	898	80	71,840	2.53	181,551	0.182	0.281	8	0.80	0.23	0.35	2.52	0.11	2.60	Ex. 8" (17287-D) Proposed condition Added Flow from POC#1
Ex MH 129	Ex MH 130	0	0	898	80	71,840	2.53	181,551	0.182	0.281	8	0.80	0.23	0.35	2.52	0.11	2.60	Ex. 8" (17287-D) Proposed condition
EX MH 130	200	0	0	1,005	80	80,386	2.49	200,107	0.200	0.310	8	0.40	0.30	0.44	2.91	0.15	2.07	Ex. 8" (17287-D) Proposed condition. (NOTE: ADDITIONAL FLOW HAS BEEN ADDED DUE TO THE SCHOOL)
200	EX MH 132	93	326	1,330	80	106,426	2.40	255,138	0.255	0.395	8	0.40	0.34	0.51	3.18	0.18	2.21	Ex. 8" (17287-D) Proposed condition Added Flow from POC#2
EX MH 151	300	0	0	438	80	35,058	2.78	97,550	0.098	0.151	8	1.42	0.15	0.22	1.95	0.06	2.67	FLOW FROM BUILDINGS 20-30
300	Ex MH 138	32	112	550	80	44,018	2.70	118,797	0.119	0.184	8	0.40	0.22	0.33	2.46	0.10	1.80	Ex. 8" (14630-D) Proposed condition Added Flow from POC#3
Ex MH 138	Ex MH 131	0	0	630	80	50,407	2.65	133,589	0.134	0.207	8	0.40	0.24	0.36	2.55	0.11	1.86	FLOW FROM BUILDINGS 20-34
Ex MH 131	Ex MH 132	0	0	630	80	50,407	2.65	133,589	0.134	0.207	8	3.76	0.13	0.20	1.86	0.05	4.14	FLOW FROM BUILDINGS 20-34 (NOTE: NO ADDITIONAL FLOW BETWEEN THE 2 EX. MH, HENCE THE SAM DN/D.)
Ex MH 132	Ex MH 133	0	0	1,977	80	158,154	2.27	359,516	0.360	0.556	8	0.60	0.37	0.55	3.36	0.20	2.80	According to the City of San Diego's GIS, The slope of pipe between MH #132 and MH #133 is 0.6%.

EXISTING POPULATION

Area (ac) = (SF x 43,560)	Equivalent Population	Floors	Total Pop.	Notes
ZONE: RM-3-7				THESE EDUS ARE SERVICED BY THE SEWER MAIN THAT PROPOSES POINTS OF CONNECTION #1 AND #2. HENCE THE CUMULATIVE POPULATION TOTAL TO BE 639.
2.112	111.8	2	472	
ZONE: RM-2-5				
0.9596	87	2	167	
SCHOOL ZONE: RM-1-1				THE SCHOOL IS SERVICED BY A SEWER LATERAL ON GRAMERCY DRIVE, BETWEEN EX. MH 130 AND MH 200 (POC#2).
3.424	31.2	1	107	
ZONE: RM-2-5				THESE EDUS ARE SERVICED BY THE SEWER MAIN THAT PROPOSES POINT OF CONNECTION #3. HENCE THE CUMULATIVE POPULATION TOTAL TO BE 438.
2.305	87	2	401	
ZONE: RM-2-5				
0.2135	87	2	37	
ZONE: RM-2-5				
0.459	87	2	80	
ZONE: RM-2-5				THIS COMMERCIAL BUILDING IS SERVICED BY A SEWER LATERAL ON GRAMERCY DRIVE, BETWEEN MH 132 AND MH 133. THUS, THE TOTAL POPULATION IS ADDED AT THE END OF OUR ANALYSIS.
0.3777	43.7	1	17	

** SEE APPENDIX D FOR THE SQUARE FOOTAGE OF THE EXISTING BUILDINGS AS DETERMINED FROM THE GOOGLE EARTH MEARUING TOOL.

Appendix H

REDUCED COPIES OF CITY OF SAN DIEGO RECORD DRAWINGS

POC #2
New MH

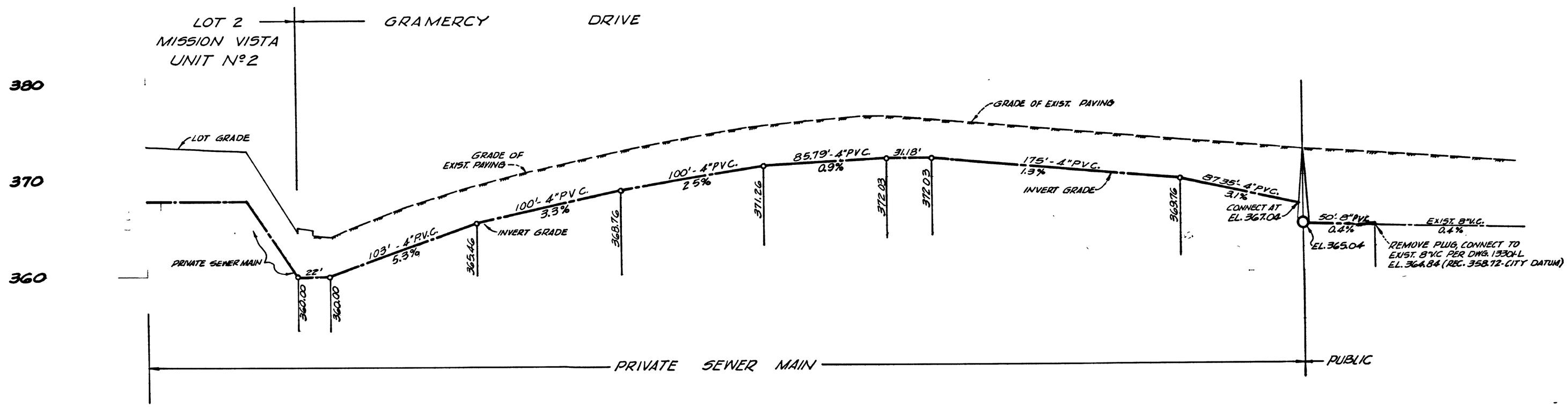
POC #1
New MH

POC #3
Ex. MH 139

PROJECT SITE

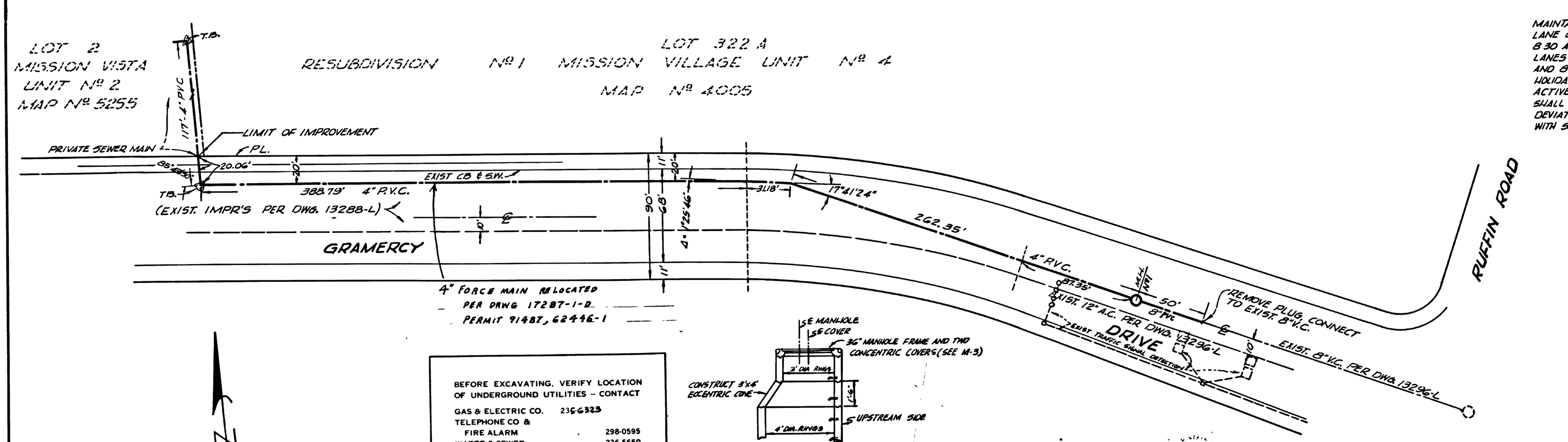
9280 Gramercy Dr
APN 429-010-34-00

9160 Gramercy Dr
APN 429-010-33-00



PROFILE OF FORCE MAIN

SCALES: HOR. 1"=40'
VERT. 1"=6'



BEFORE EXCAVATING, VERIFY LOCATION OF UNDERGROUND UTILITIES - CONTACT

GAS & ELECTRIC CO.	236-6323
TELEPHONE CO & FIRE ALARM	298-0595
WATER & SEWER	236-5650
COMMUNICATIONS DIVISION	236-5505

MODIFIED CONCRETE MANHOLE

CONSTRUCT ALL 4' DIAMETER MANHOLES ON THIS PROJECT AS PER STANDARD DRAWING S-1, EXCEPT MODIFY UPPER PORTION AS SHOWN ABOVE.

NO SCALE

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS AND THE SPECIFICATIONS AND STANDARD DRAWINGS OF THE CITY OF SAN DIEGO.

SPECIFICATIONS

(1.) GREEN BOOK STANDARD SPECIFICATIONS (1976 ED.) DOCUMENT Nº 755163 FILED MAY 10, 1976, AND
(2.) CITY OF SAN DIEGO STANDARD SPECIAL PROVISIONS, DOCUMENT Nº 758403, FILED FEBRUARY 25, 1977.

STANDARD DRAWINGS

(1.) CITY OF SAN DIEGO STANDARD DRAWINGS (1977 ED.) DOCUMENT NO. 758672 FILED MARCH 21, 1977, AND
(2.) ( )* DENOTES CITY OF SAN DIEGO STANDARD DRAWING PER DOCUMENT NO. 735691, FILED APRIL 26, 1971.

IMPROVEMENT	DWG. NO.
SEWER MAIN (JOHNS-MANVILLE)	S-6
SEWER FORCE MAIN (PRIVATE)	
SEWER MANHOLE	S-1, S-3 (SEE DETAIL)
CONCRETE THRUST BLOCK	W-17, W-18

LEGEND: 8"PVC; 4"P.V.C.; TB

PROPERTY RECORDS

NONE

REFERENCE DRAWINGS

IMPROVEMENTS-GRAMERCY DR.-13288-L, 13289-L
SEWER AND WATER PLAN-13296-L
SEWER PROFILES-13301-L
TRAFFIC SIGNAL SYSTEM-14329-3-D

BENCH MARK:
SWBP AT RUFFIN RD. & GRAMERCY DR.
ELEV. 371.09 M.S.L. DATUM

MAINTAINING TRAFFIC: THE CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS OF 8:30 AM TO 3:30 PM AND SHALL MAINTAIN FULL WIDTH OF TRAVEL LANES OF EXISTING ROADWAY DURING THE HOURS OF 3:30 PM AND 8:30 AM. ON SATURDAY, SUNDAY, AND DESIGNATED LEGAL HOLIDAYS, AND WHEN CONSTRUCTION OPERATIONS ARE NOT ACTIVELY IN PROGRESS ON WORKING DAYS THE CONTRACTOR SHALL MAINTAIN ALL TRAVEL LANES OF THE ROADWAY. ANY DEVIATION OF THESE REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 7-10.3 OF THE STANDARD SPECIFICATIONS.

CITY ENG'R'S APP. NO. 62521

PRIVATE CONTRACT

PLANS FOR THE IMPROVEMENT OF
SEWER FORCE MAIN
FOR LOT 2, MISSION VISTA UNIT Nº2

CITY OF SAN DIEGO, CALIFORNIA
SHEET 1 OF 1 SHEETS

W.O. NO. 62521

C.A. Lambert 11-23-77
FOR CITY ENGINEER DATE

Jim Hurlbut 11-29-77

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL				12-29-77
AS BUILT	AT	Arnold	4-6-78	4-18-78

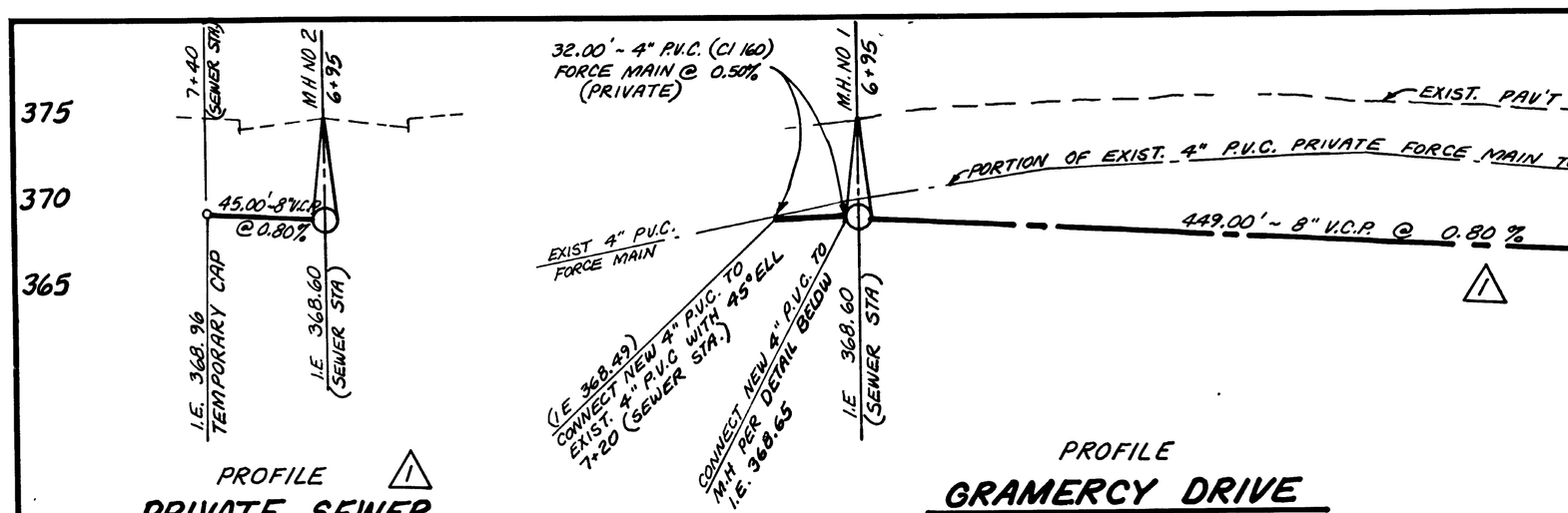
Tracy Parks
CONTROL CERTIFICATION
232-1730
LAMBERT COORDINATES

CONTRACTOR DEMPSEY DATE STARTED 3-78
INSPECTOR BRUCKART DATE COMPLETED 4-78

17527-D

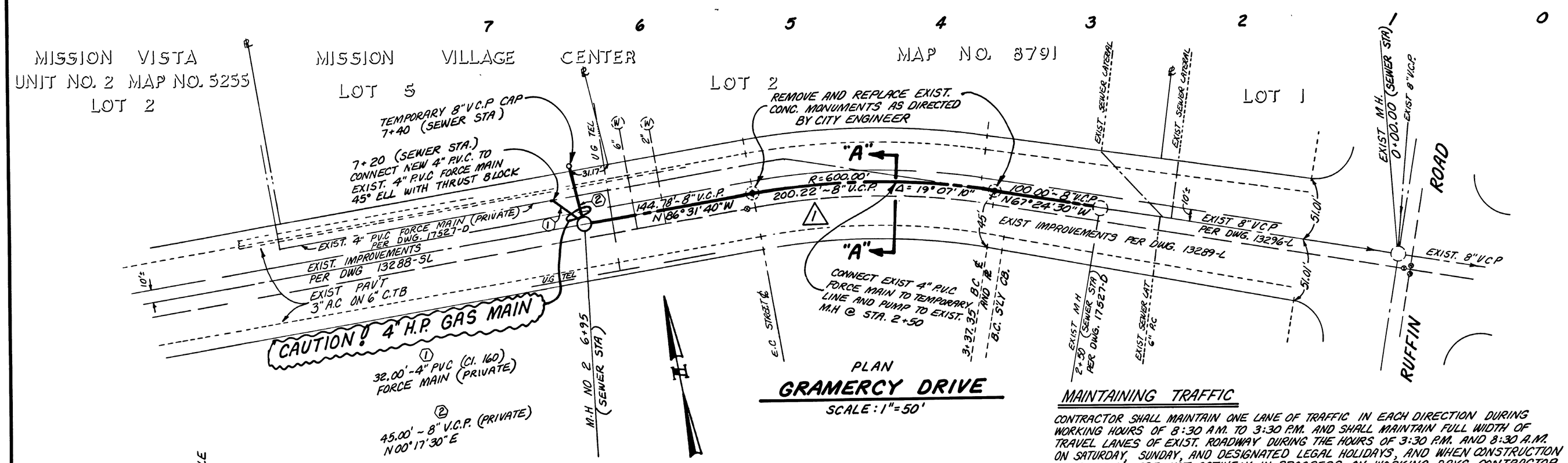
DESIGN ENGINEER Byrl D. Phelps RCE 1534
BYRL D. PHELPS - MUNICIPAL ENGINEERS INC.
615 ASH ST. SUITE 202 239-8171
SAN DIEGO, CA. 92101 JOB Nº 7277

AS BUILT



PROFILE
PRIVATE SEWER
SCALE: HORIZ. 1"=40'; VERT. 1"=6'

PROFILE
GRAMERCY DRIVE
SCALE: HORIZ. 1"=40'; VERT. 1"=6'



PLAN
GRAMERCY DRIVE
SCALE: 1"=50'

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS AND THE FOLLOWING STANDARD DRAWINGS AND SPECIFICATIONS OF THE CITY OF SAN DIEGO.

STANDARD SPECIFICATIONS:
"GREEN BOOK ST'D. SPECS" (1976 ED.) DOC. NO. 755163, FILED MAY 10, 1976, AND THE CITY'S SUPPLEMENT TO "GREEN BOOK" FOR USE WITH SUBDIVISIONS AND PUBLIC IMPROVEMENT PERMITS (DATED NOV. 24, 1976) ON FILE IN CITY ENGINEER'S OFFICE.

STANDARD DRAWINGS:
"REGIONAL ST'D DWGS." (DEC. 24, 1976 ED.) DOC. NO. 758672 FILED MARCH 21, 1977.

IMPROVEMENTS	ST'D. DWG.	SYMBOL
V.C.P. SEWER MAIN	S-4	
CONCRETE MANHOLE (MODIFIED) (SEE DETAIL BELOW)	S-1, M-3	

NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE RESPECTIVE UTILITY COMPANIES PRIOR TO GRADING OR TRENCHING.
2. THE CONTRACTOR SHALL UNCOVER EXIST SEWER MAINS AND SEWER LATERALS, TELEPHONE AND ELECTRIC CONDUITS, WATER MAINS AND WATER SERVICES, GAS MAINS, CABLE T.V., FIRE ALARM AND OTHER EXIST. UTILITIES AT LEAST TWO HUNDRED (200) FEET IN ADVANCE OF TRENCHING OPERATIONS TO PERMIT GRADE OR ALIGNMENT CHANGES.
3. CONTRACTOR SHALL REPLACE AND REPAIR ALL PAVEMENT OR OTHER EXISTING IMPROVEMENTS DAMAGED OR REMOVED DURING CONSTRUCTION TO THE SATISFACTION OF THE CITY ENGINEER.

MAINTAINING TRAFFIC

CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS OF 8:30 A.M. TO 3:30 P.M. AND SHALL MAINTAIN FULL WIDTH OF TRAVEL LANES OF EXIST. ROADWAY DURING THE HOURS OF 3:30 P.M. AND 8:30 A.M. ON SATURDAY, SUNDAY, AND DESIGNATED LEGAL HOLIDAYS, AND WHEN CONSTRUCTION OPERATIONS ARE NOT ACTIVELY IN PROGRESS ON WORKING DAYS CONTRACTOR SHALL MAINTAIN ALL TRAVEL LANES OF ROADWAY.

REFERENCE DRAWINGS

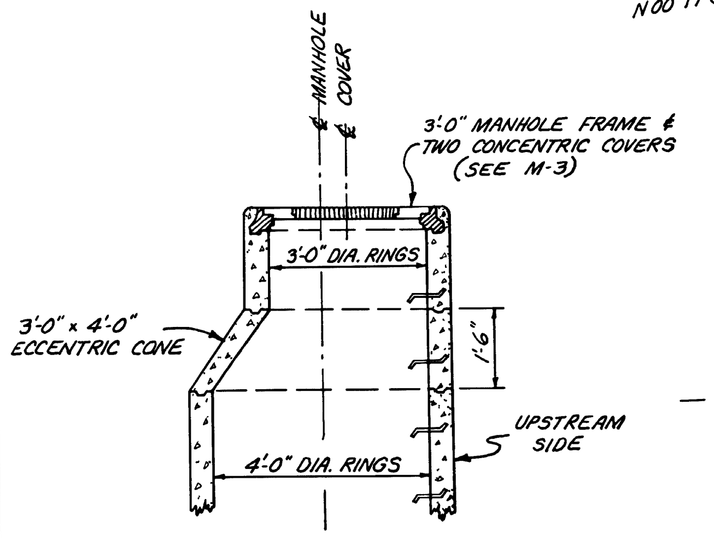
13288-SL ; 13289-L ; 13296-L ; 17527-D

BENCH MARK

N.E.B.P. ANGWIN DRIVE AT LOCKWOOD DRIVE
ELEV. = 392.77 M.S.L. DATUM

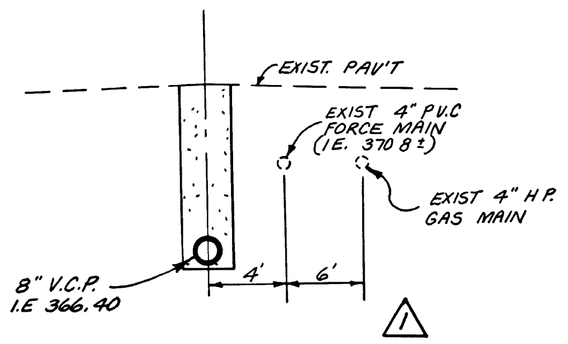
CITY PERMIT APPL. 62446

PRIVATE CONTRACT

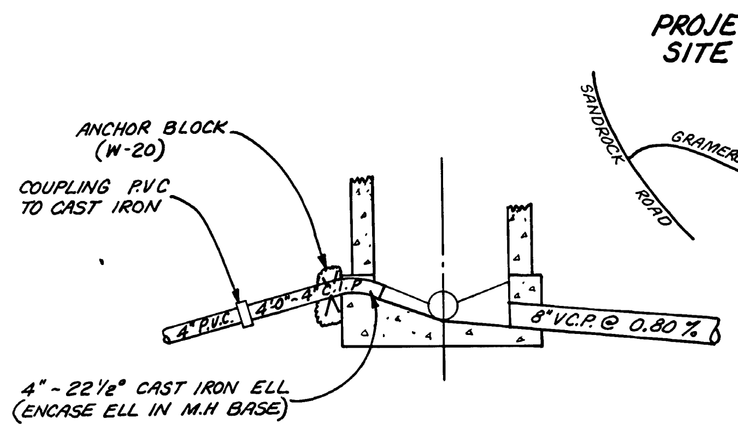


CONSTRUCT ALL 4'-0" DIAMETER MANHOLES ON THIS PROJECT PER STANDARD DRAWING S-1, EXCEPT MODIFY UPPER PORTION AS SHOWN ABOVE.

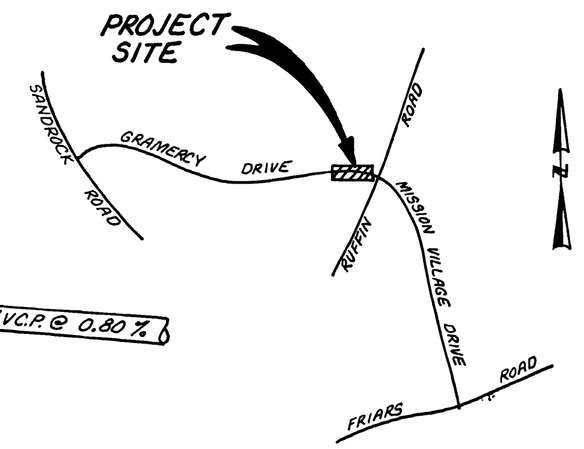
MODIFIED CONCRETE MANHOLE
NO SCALE



SECTION "A"-"A"
SEWER STA. 4+20
NO SCALE



MANHOLE CONNECTION DETAIL
NO SCALE



VICINITY MAP
NO SCALE

BEFORE EXCAVATION, VERIFY LOCATION OF UNDERGROUND UTILITIES - CONTACT

S.D.G & E	235-6323
TELEPHONE CO. & FIRE ALARM	298-0595
WATER & SEWER	236-5650
COMMUNICATIONS	236-5505
BUILDINGS & IRRIGATION	236-5500

THE BARBOUR ENGINEERING COMPANY, INC.
3066 ROSECRANS PLACE SUITE 201
SAN DIEGO, CALIFORNIA 92110
(714) 225-8537

ENGR.	DWN.	CK'D.	DATE	APPROVED
RLS	BHS	HLU	MARCH 22, 1977	RCE 10284

SEWER MAIN EXTENSION IN GRAMERCY DRIVE
WEST OF RUFFIN ROAD

CITY OF SAN DIEGO, CALIFORNIA
SHEET 1 OF 1 SHEETS

W.O. NO. 62446

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL				
1 REV. SEWER LAYOUT		[illegible]	7-14-77	
AS BUILT				

5/13/77 DATE

5-13-77

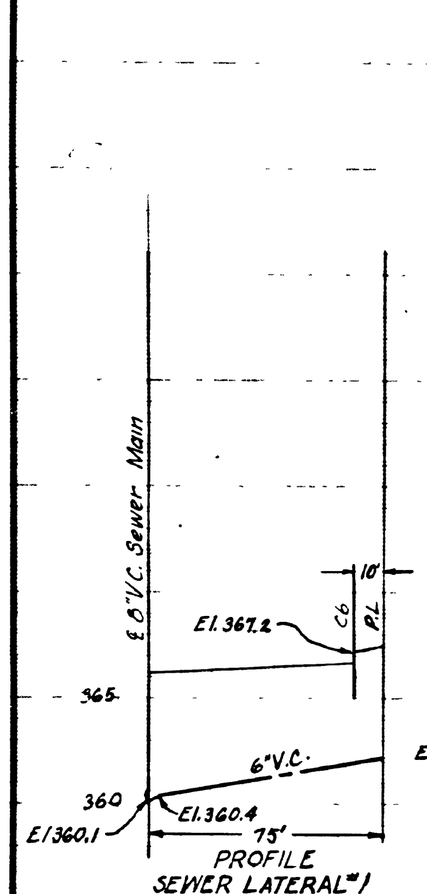
5-18-77
CONTROL CERTIFICATION
232-1729
LAMBERT COORDINATES

CONTRACTOR FRONTIER DATE STARTED AUG 78
INSPECTOR BRUCKART DATE COMPLETED Dec 78

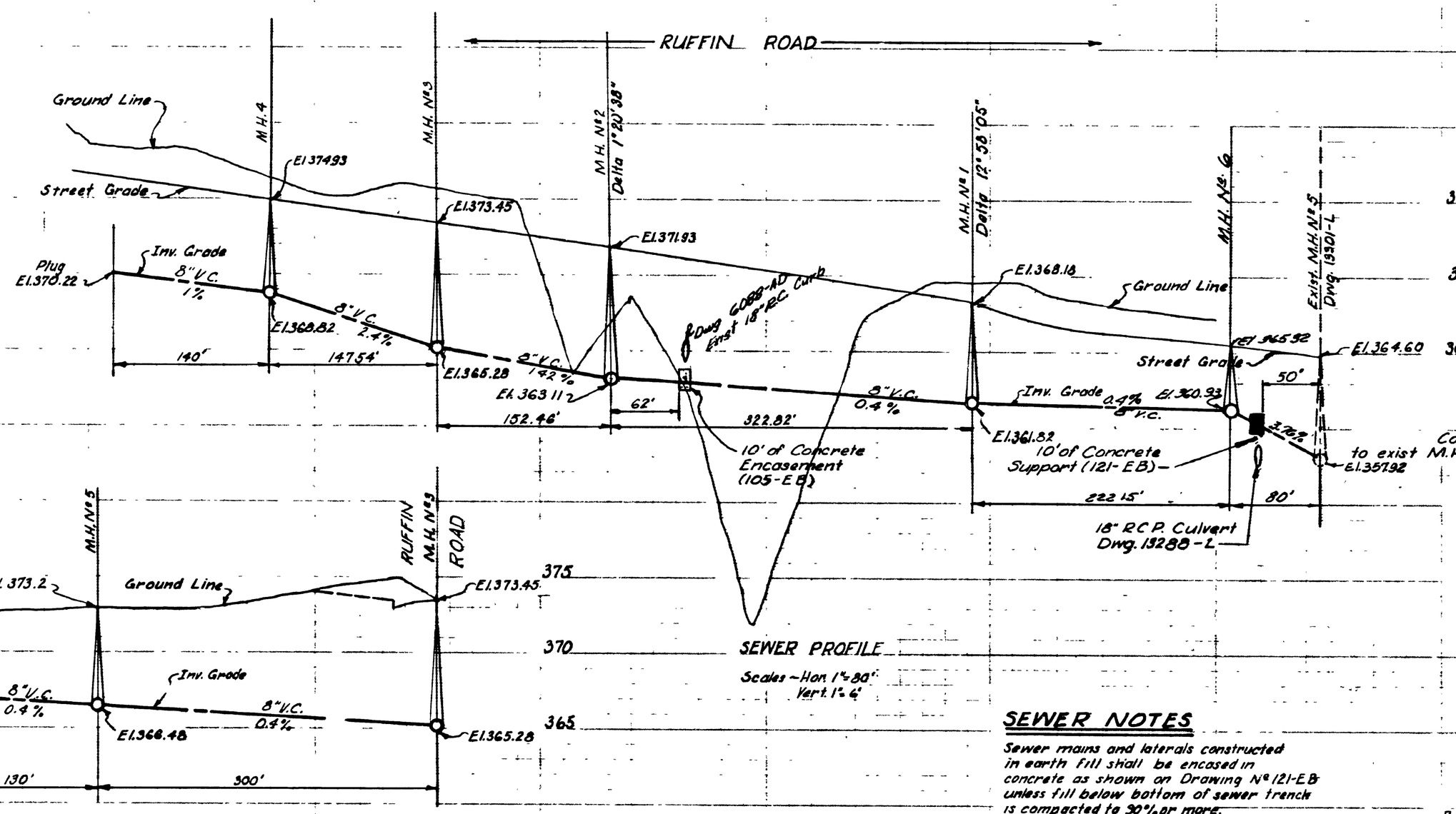
17287-1-D

CA 347.10
CA 396.10

Happy birthday to you



PROFILE
SEWER LATERAL "1"
Scales — Hor. 1"=40'
Vert. 1"= 6'



SEWER PROFILE
Scales — Hor. 1"=80'
Vert. 1"= 4'

WORK TO BE DONE

The improvement consist of the following work to be done according to these plans and specifications of the City of San Diego.

Limits of Graded Area shown thus: _____

The construction of vitrified clay pipe sewer main shown thus _____

The construction of 6" vitrified clay sewer laterals as shown thus _____

The construction of concrete manholes as shown thus _____ M.H.

The construction of concrete support (121-EB) as shown thus _____

The construction of concrete encasement (105-EB) as shown thus _____

EXISTING WORK

Existing water main as shown thus. _____

Existing sewer main as shown thus _____

Existing manholes as shown thus. _____

SPECIFICATIONS

Standard Specifications filed: Part I 4/1/58, including amendment filed April 8, 1959; Part II 6/1/58; General Conditions for Private Contract Work

REFERENCE DRAWINGS

6305 B, 13295 L, 13301 L, 6088 D.

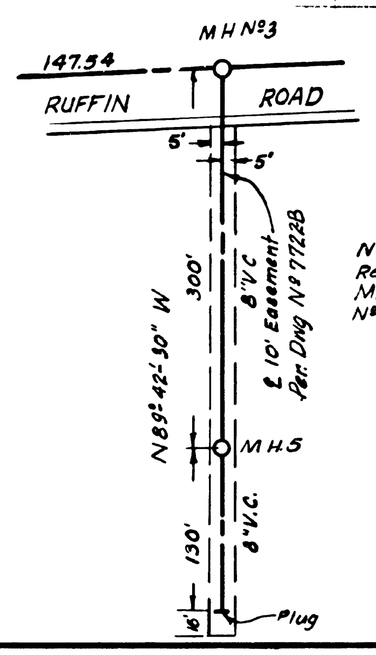
STANDARD DRAWINGS

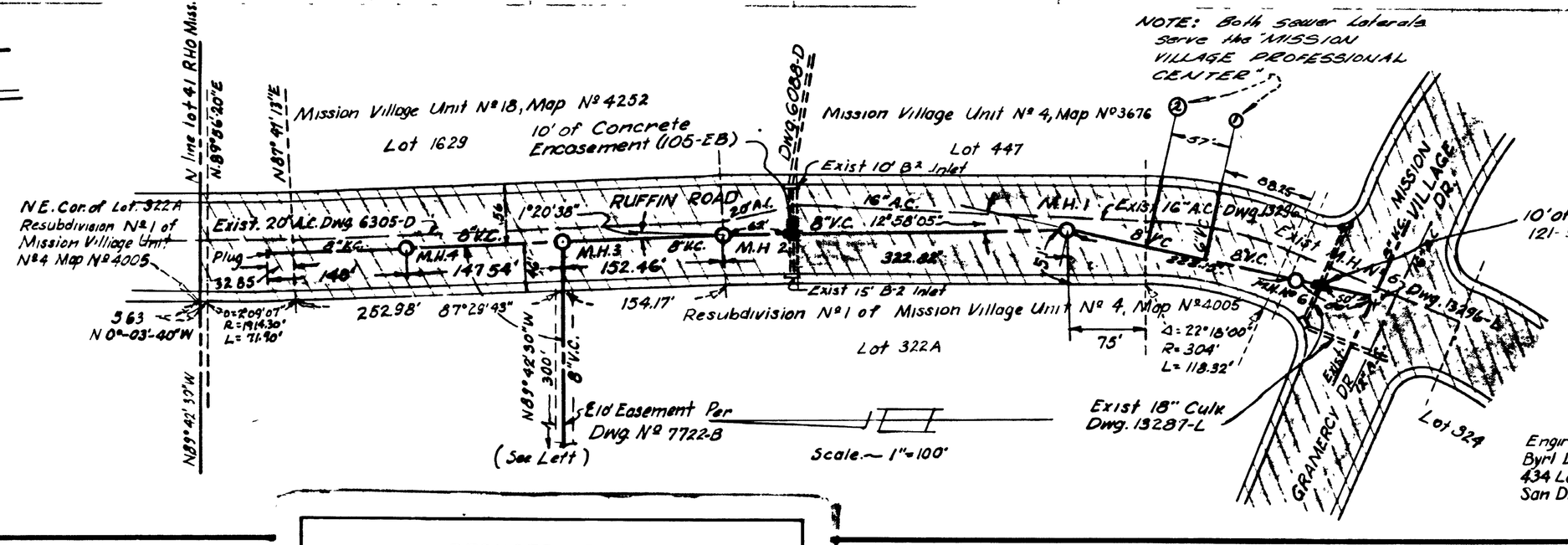
101-E B, 107-E B, 108-E B, 122 E B, 702-E B, 105-E B, 121-E B

SEWER NOTES

Sewer mains and laterals constructed in earth fill shall be encased in concrete as shown on Drawing N° 121-E B unless fill below bottom of sewer trench is compacted to 90% or more.

Bench Mark is End of Curb on East side of Ruffin Road in Mission Village Unit N°4 adjacent to Lot 447 per. Dwg. 13267-L
Elev 370.98





CITY DATUM

ADD 6.119 FEET TO CONVERT TO MEAN SEA LEVEL

Engineer of Works Byrl D. Phelps RCE 1534
Byrl D. Phelps
434 Land Title Bldg.
San Diego 1, Calif
MUNICIPAL ENGR INC
BE 9-6131
Job. N°3916

10/23/59 In 165
F. L. A.

PRIVATE CONTRACT

Sheet 1	CITY OF SAN DIEGO ENGINEERING DEPARTMENT		1 Sheet
Sewer Main in Ruffin Road in Mission Village Unit N°4			
APPROVED E. F. Jewett CITY MANAGER		CITY ENGINEER	DATE 9/30/59 SCALE
DRAWN BY TRACED BY CHECKED BY FIELD BOOKS	CHANGED	DATE O.K.	DRAWING NUMBER 14630-L

WATER DEPARTMENT	Harry Leach	9-30-59	
SEWER DEPARTMENT	Chas. Pierce	9-30-59	
DRAINAGE	C. E. Wood	9-30-59	
FIELD CHECK	C. E. Wood	9-30-59	
OFFICE CHECK	Wm. Hall	9-30-59	
PLANNING COMMISSION	Approved 9-30-59		
GRADES	Contract		

CONSTRUCTION RECORD		W O No 80045
CONTRACTOR Cameron Bros.	INSPECTOR Milliken	
DATE STARTED 10-23-59	REVISIONS As Built Date 12-28-59 Ewd.	
DATE COMPLETED 11-23-59		

REDUCED PLAN
USE SCALE BELOW
0 1 2 3 4
1" ON ORIGINAL SCALE

INDEXED