

Appendix H

Utilities Studies and Will Serves

PRELIMINARY HYDROLOGY & HYDRAULICS REPORT

9600 Wilshire Boulevard
Beverly Hills, CA 90212

June 22, 2023

PREPARED FOR:

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Hydraulic Design Manual. Los Angeles County Flood Control District, March 1982.

Section 100: Introduction

100.1 Introduction

The 9600 Wilshire Boulevard Specific Plan (“Specific Plan”) is generally located at 9570 through 9620 Wilshire Boulevard, 128 South Bedford Drive, 133 S. Camden Drive, and 128 and 133 S. Peck Drive (the exact boundaries of which are referred to as the “Specific Plan Area”). The Specific Plan would apply to an approximately four-net acre site located south of Wilshire Boulevard between South Bedford Drive to the west and South Camden Drive to the east, adjacent to the southwestern portion of the City of Beverly Hills. The Specific Plan Area generally consists of two rectangular blocks bisected by South Peck Drive. The Specific Plan would facilitate: the rehabilitation and adaptive reuse of the existing, Sak’s Women’s Building in accordance with the Secretary of the Interior’s Standards for Rehabilitation of Historic Structures; the retention of the existing commercial building at 9570 Wilshire for continued commercial use; and the development of complementary residential, retail, office, hospitality, social club, boutique hotel, open space, and related uses, including privately owned and maintained, but publicly accessible open-air spaces in the form of the Terrace and the Via. The Specific Plan would permit up to 642,000 square feet of floor area within the specific plan boundaries, for a maximum aggregate floor area ratio of 3.7 averaged across the Specific Plan Area. Any new development within the Specific Plan Area would be implemented through the approval from time to time of a conceptual project plan, consistent with the proposed Specific Plan.

For purposes of CEQA review, the current “Project” is composed of both a programmatic review of the proposed Specific Plan and a project-level analysis of the conceptual plan included as part of the part of the current Project application (the “Conceptual Plan”). The Conceptual Plan reflects an FAR of 3.52, which is within the limits of the Specific Plan. The proposed Conceptual Plan development is the basis for the drainage system described below.

100.2 Methodology

The Los Angeles County Department of Public Works Hydrology Map was used to determine the approximate rainfall during a 50-year storm on the site. This hydrology map contains historical rainfall data from the previous 40-80 years at 99 rainfall gauges across the County. HydroCalc was used to determine the pre- and post-development on-site flows. The calculations are included in Appendix A.

100.3 Existing Drainage Conditions

The elevation of the site ranges from approximately 237 to 250 feet above mean sea level (MSL). In the existing condition, stormwater runoff generally flows southwest to the curb and gutters along Peck Drive and South Camden Drive. The slope across the parking lots between Bedford Drive and South Camden Drive is generally 2%.

The runoff from the roof areas of the existing buildings discharges at the curb face of the frontage streets of Wilshire Boulevard, Bedford Drive, Peck Drive, and South Camden Drive via curb and parkway drains respectively. The runoff is then conveyed via a concrete curb and gutter south along forementioned streets into catch basins at the intersections of Charleville Boulevard where it discharges into the public storm drain system.

See Exhibit 1 – Existing Drainage Area Map for details.

100.4 Proposed Drainage Conditions

The Project site improvements will include constructing storm drainage infrastructure, including storm drain inlets internal to the site and within the private driveways, to convey onsite runoff to a stormwater treatment system. The proposed stormwater treatment system will consist of an underground rainwater harvesting cistern which will capture the stormwater runoff and then dispose of it via metered discharge to the City's system. See Table 1 on page 2 for a summary of the Pre- and Post-Development Conditions.

Table 1: Pre- and Post-Development Conditions

Drainage Area	Area (AC)	Site Condition	% Impervious
A	0.34	Pre-Construction	100
		Post-Construction	100
B	0.49	Pre-Construction	100
		Post-Construction	100
C	0.34	Pre-Construction	100
		Post-Construction	100
D	1.15	Pre-Construction	92
		Post-Construction	93
E	1.12	Pre-Construction	93
		Post-Construction	93

Per the ALTA/Topographic Survey provided by Calvada Surveying Inc., dated 4/27/2020, the three parking lots throughout the site sheet flow into the surrounding streets.

A summary of proposed drainage areas and their associated flows are as follows:

Area A: Area A is entirely covered by a portion of the proposed mixed-use building with an access driveway, and therefore area is 100% impervious.

This drainage tributary area has a Q_{50} flow of 1.12 cfs. The onsite runoff will be captured by the roof drains and conveyed via the stormwater pipe network to the stormwater treatment system and associated overflow structure. The overflow from the underground cistern will be discharged to a junction structure and parkway drain at Wilshire Boulevard.

Area B: Area B is entirely covered by a portion of the proposed mixed-use building and therefore area is 100% impervious.

This drainage tributary area has a Q_{50} flow of 1.62 cfs. The onsite runoff will be captured by the roof drains and conveyed via the stormwater pipe network to the stormwater treatment system and associated overflow structure. The overflow from the underground cistern will be discharged to a junction structure and parkway drain at Wilshire Boulevard.

Area C: Area C is entirely covered by a portion of the proposed commercial building and therefore area is 100% impervious.

This drainage tributary area has a Q_{50} flow of 1.12 cfs. The onsite runoff will be captured by the roof drains and conveyed via the stormwater pipe network to the stormwater treatment system and associated overflow structure. The overflow from the underground cistern will be discharged to a junction structure and parkway drain at Wilshire Boulevard.

Area D: Area D consists of a walkway path and landscaping, as well as a multifamily complex and driveway access. The area is 93% impervious.

This drainage tributary area has a Q_{50} flow of 3.79 cfs. The onsite runoff will be captured by the roof drains/catch basins and conveyed via the stormwater pipe network to the stormwater treatment system and associated overflow structure. The overflow from the underground cistern will be discharged to two junction structures and parkway drains at South Bedford Drive.

Area E: Area E consists of a walkway path and landscaping, as well as a multifamily complex and driveway access. The area is 93% impervious.

This drainage tributary area has a Q_{50} flow of 3.70 cfs. The onsite runoff will be captured by the roof drains/catch basins and conveyed via the stormwater pipe network to the stormwater treatment system and associated overflow structure. The overflow from the underground cistern will be discharged to a junction structure and parkway drain at South Camden Drive.

The Project will not increase the total runoff for the Q_{50} from pre-development to post-development conditions. See Table 2 below for a summary of the existing and proposed drainage areas and flows. Refer to Exhibit 1 for the Existing Drainage Area Map, and Exhibit 2 for the Proposed Drainage Area Map.

Table 2: Existing and Proposed Drainage Areas and Flows

Drainage Area Number	Drainage Area (Acres)	50-year Flow (CFS)
EX-A	0.34	1.12
EX-B	0.49	1.62
EX-C	0.34	1.12
EX-D	1.15	3.79
EX-E	1.12	3.70
Total Pre-Dev.	3.44	11.35
DMA-A	0.34	1.12
DMA-B	0.49	1.62
DMA-C	0.34	1.12
DMA-D	1.15	3.79
DMA-E	1.12	3.70
Total Post-Dev.	3.44	11.35

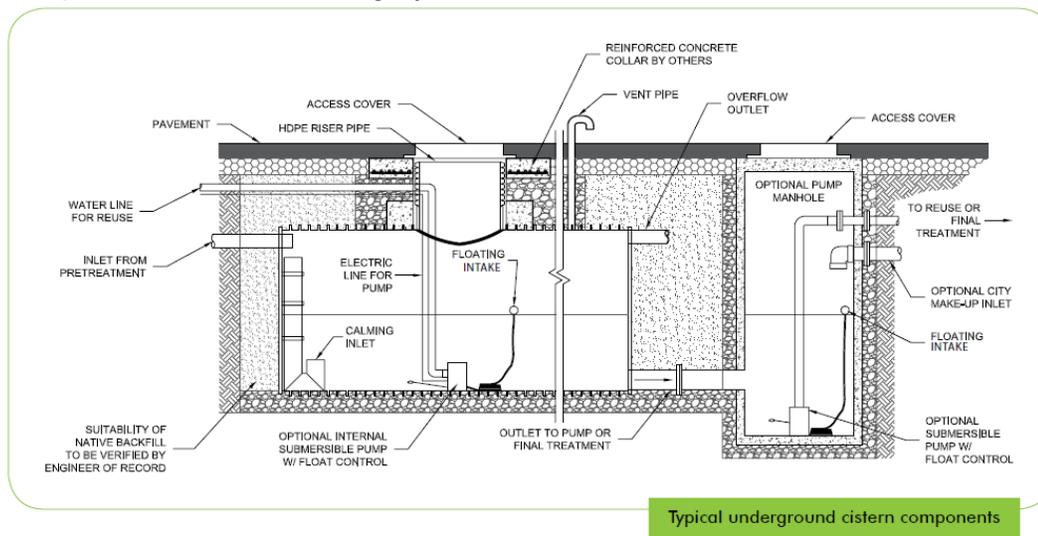
100.5 LID Design Criteria & Feasibility Analysis

Proposed peak mitigated flows and volumes have been calculated using the Los Angeles County HydroCalc Calculator. Per the Los Angeles County Department of Public Works' requirements, the peak mitigated flows and mitigated volumes are based on the 85th Percentile of rainfall or 3/4" rainfall, whichever is greater. Our analysis shows the 85th Percentile to be greater, which shows to be 1.15 inches.

The tributary areas of the site of 3.44 acre site include building areas, proposed paved traffic circulation areas, and landscaping. The peak mitigated discharge volume was calculated to be 1,267 cubic feet (CF) for Area A, 1,843 CF for Area B, 1,267 CF for Area C, 4,018 CF for Area D, and 3,916 CF for Area E per the LA County HydroCalc Calculator.

Per the Geotechnical Engineering Investigation performed by Geocon West, Inc., dated September, 30, 2021, a stormwater infiltration system is not recommended at the site due to the observed groundwater level of 53 feet below the surface, and proposed subgrade parking extending to a total maximum depth of 60 feet. Since a minimum of 10 feet is required from the groundwater level to the bottom of a proposed infiltration device, it is reasonable to assume that infiltration is not feasible for the Project. Thus, a rainwater harvesting system is proposed for the Project. Stormwater will be pre-treated with an approved pretreatment structure prior to entering the cistern. Stormwater will then be metered out to the City storm drain system in coordination with the City, as irrigation for the site will be provided via greywater reuse.

Sample Rainwater Harvesting System



100.6 Conclusions

The Project's proposed drainage system is designed to provide storm water control and quality measures based on the current City of Beverly Hills requirements. The Project has been analyzed for adherence to Low Impact Development (LID) design requirements for stormwater treatment, along with stormwater runoff control for the 50-year (Q50) storm event per the Los Angeles County requirements.

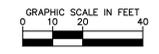
The analysis shows that the proposed development will not increase overall runoff from existing conditions. Overflow in high rain events will ultimately discharge via parkway drains to the surrounding streets of Bedford Drive, Wilshire Boulevard, and South Camden Drive. Since the total runoff from the site will not increase in the post-development condition, it has been determined that the existing storm drain system has adequate capacity for the proposed development.

100.7 Limitations

Kimley-Horn was retained to perform a limited preliminary hydrology analysis and report to support the California Environmental Quality Act analysis that is being prepared by the City of Beverly Hills. Our assessment is based on information provided to Kimley-Horn by others (municipality staff, design team, utility company representatives, etc.) up to the date of this report.

EXHIBIT 1

Existing Drainage Area Map



EXISTING DRAINAGE AREA MAP
SCALE: 1"=20'

DRAINAGE AREA LEGEND

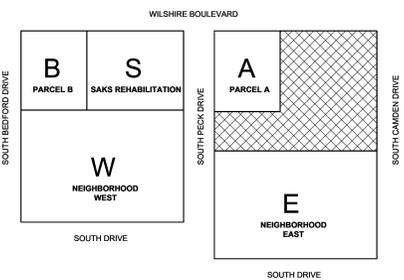
---	EXISTING CONTOUR
---	DRAINAGE AREA
EX-A	DRAINAGE AREA NUMBER
EX-B	DRAINAGE AREA (ACRES)
EX-C	50 YEAR FLOW (CFS)

DRAINAGE CRITERIA

1. EXISTING DRAINAGE RESULTS PER LOS ANGELES COUNTY HYDROCALC 1.0.2

EX ID	TC	C	IR	Q
EX-A	0.0 MIN.	0.90	3.87 NWR	1.12 CFS
EX-B	0.0 MIN.	0.90	3.87 NWR	1.62 CFS
EX-C	0.0 MIN.	0.90	3.87 NWR	1.12 CFS
EX-D	0.0 MIN.	0.90	3.87 NWR	3.75 CFS
EX-E	0.0 MIN.	0.90	3.87 NWR	3.75 CFS
Q _{TOTAL}				11.35 CFS

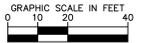
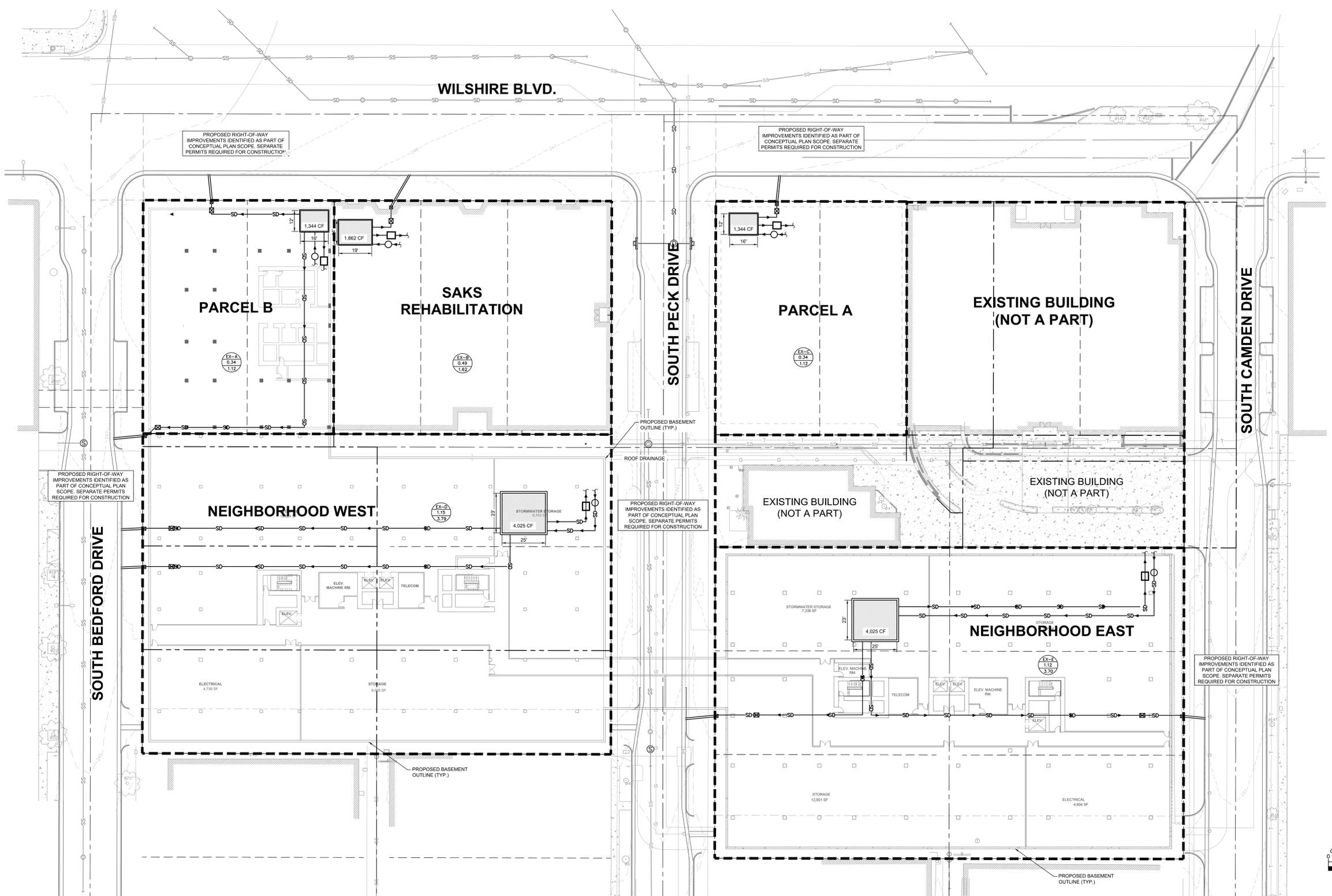
DRAWING: LEGEND & NOTES
SCALE: NTS 10



KEY PLAN
1"=100' 5

EXHIBIT 2

Proposed Drainage Area Map



PROPOSED DRAINAGE AREA MAP
SCALE: 1"=20'

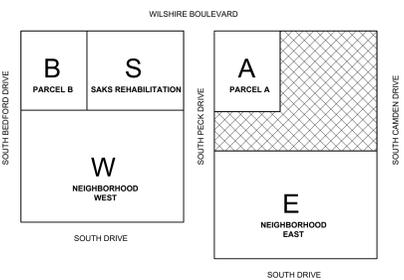
DRAINAGE AREA LEGEND

---	PROPOSED CONTOUR
---	EXISTING CONTOUR
---	DRAINAGE AREA
DA-X X.XX XY	DRAINAGE AREA NUMBER DRAINAGE AREA (ACRES) 50 YEAR FLOW (CFS)

DRAINAGE CRITERIA

1. EXISTING DRAINAGE RESULTS PER LOS ANGELES COUNTY HYDROCALC 1.0.2:

TEST	0.5 MIN.	0.90	3.67 IN/HR	1.12 CFS
EX-A	0.90	3.67 IN/HR	1.12 CFS	
EX-B	0.90	3.67 IN/HR	1.62 CFS	
EX-C	0.90	3.67 IN/HR	1.12 CFS	
EX-D	0.90	3.67 IN/HR	3.79 CFS	
EX-E	0.90	3.67 IN/HR	3.70 CFS	
Q _{10min}	11.30 CFS			



Project By: Samira, Kyle Sheet: MARMOL RADZINER BEVERLY HILLS - Legend.C2.0.LD - CONCEPT - June 22, 2023 03:21:30pm X:\UT\BREV\09939501-Marmol Beverly Hills\CAD\Layouts\2023.06.22 - Proposed Drainage Map\2023.06.22 - Beverly Hills Development - Proposed Drainage Map.dwg

APPENDIX A

HydroCalc Calculations – 50-yr Storm & 85TH Percentile

Peak Flow Hydrologic Analysis

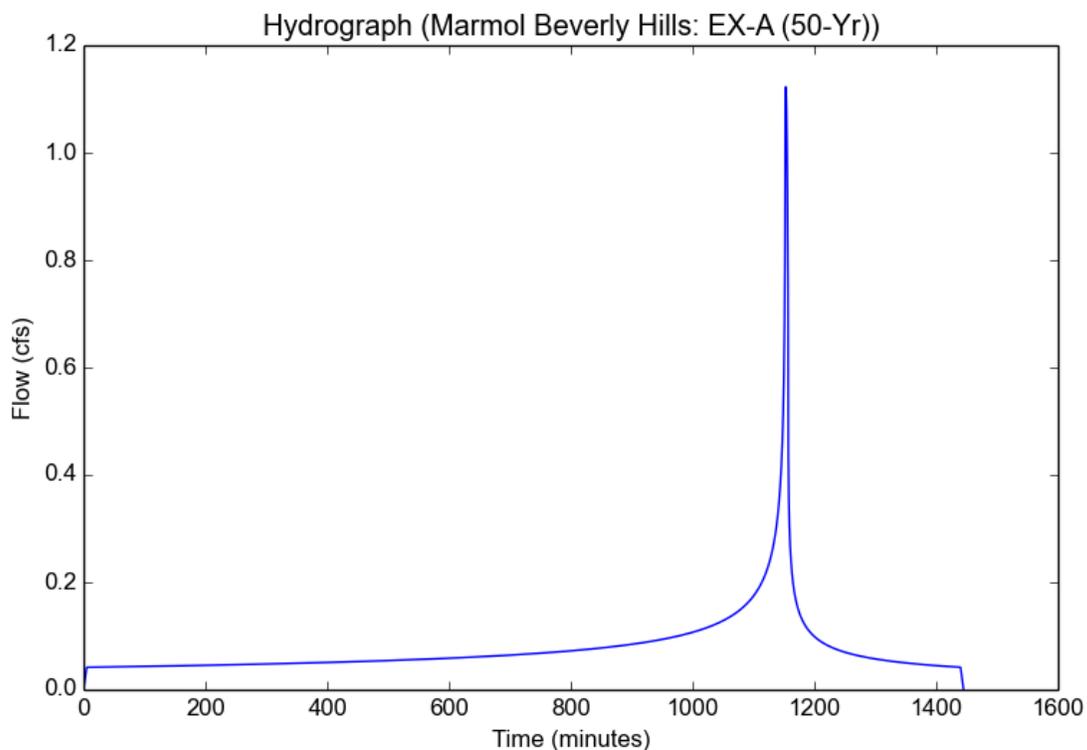
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	EX-A (50-Yr)
Area (ac)	0.34
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.15
Percent Impervious	1.0
Soil Type	16
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.8837
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.1228
Burned Peak Flow Rate (cfs)	1.1228
24-Hr Clear Runoff Volume (ac-ft)	0.1555
24-Hr Clear Runoff Volume (cu-ft)	6774.8421



Peak Flow Hydrologic Analysis

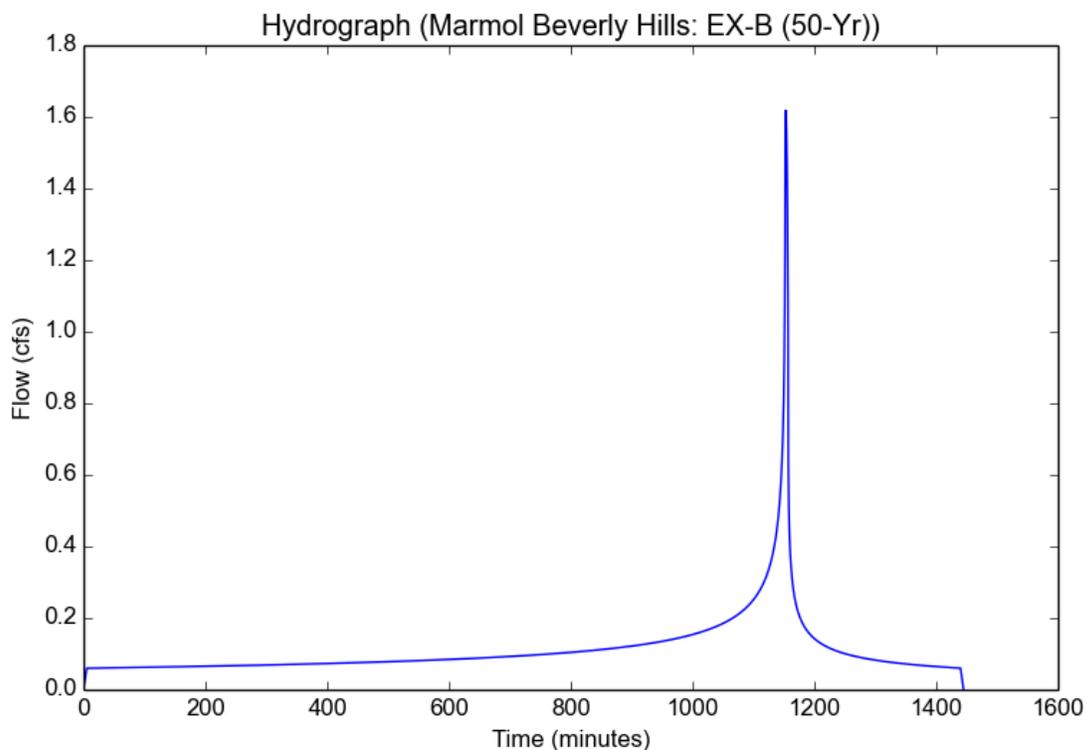
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	EX-B (50-Yr)
Area (ac)	0.49
Flow Path Length (ft)	210.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.15
Percent Impervious	1.0
Soil Type	16
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.8837
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.6181
Burned Peak Flow Rate (cfs)	1.6181
24-Hr Clear Runoff Volume (ac-ft)	0.2241
24-Hr Clear Runoff Volume (cu-ft)	9763.7431



Peak Flow Hydrologic Analysis

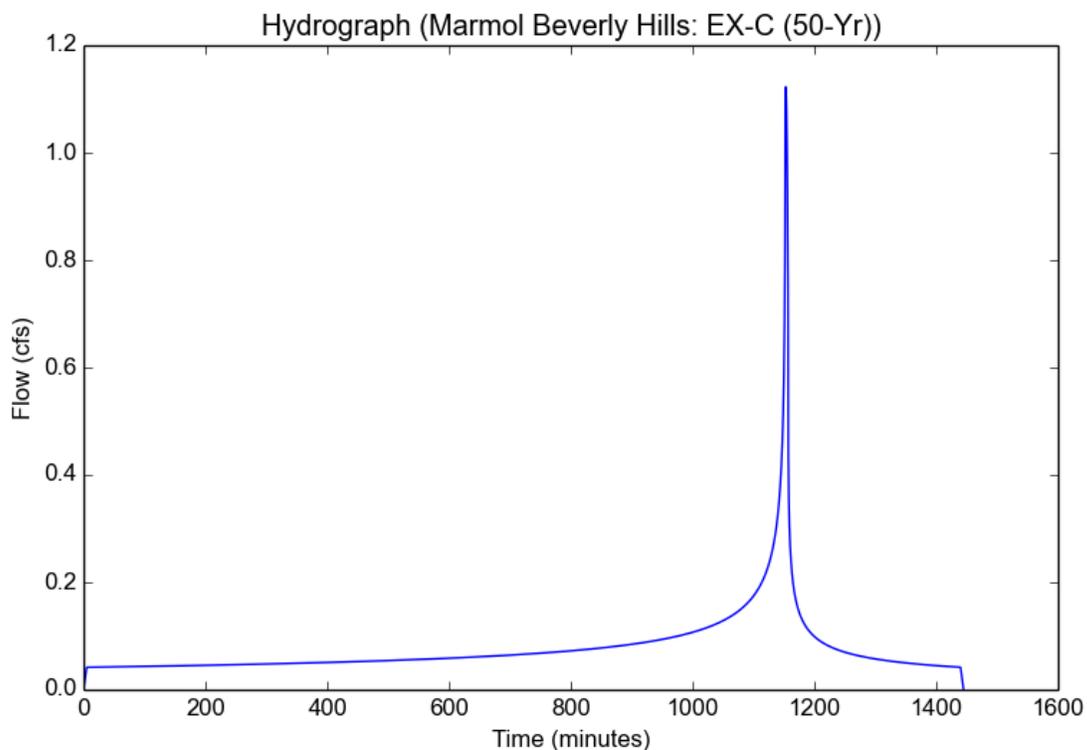
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	EX-C (50-Yr)
Area (ac)	0.34
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.15
Percent Impervious	1.0
Soil Type	17
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.1228
Burned Peak Flow Rate (cfs)	1.1228
24-Hr Clear Runoff Volume (ac-ft)	0.1555
24-Hr Clear Runoff Volume (cu-ft)	6774.8421



Peak Flow Hydrologic Analysis

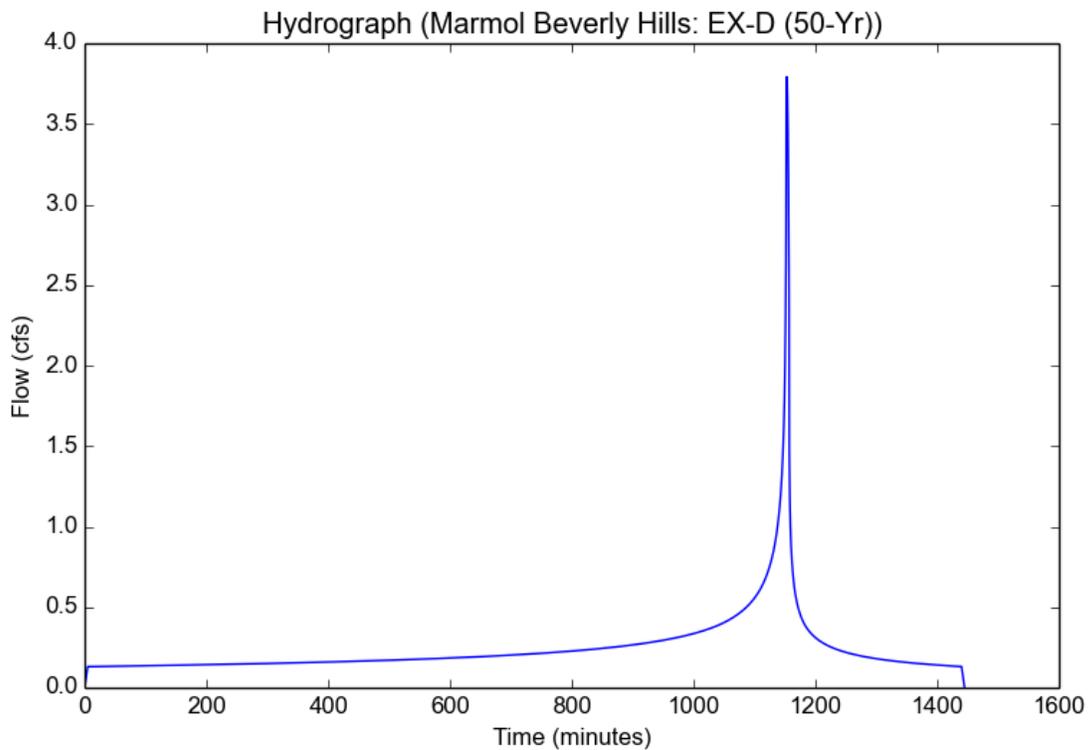
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Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	EX-D (50-Yr)
Area (ac)	1.15
Flow Path Length (ft)	330.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	6.15
Percent Impervious	0.92
Soil Type	16
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.8837
Developed Runoff Coefficient (Cd)	0.8987
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.7922
Burned Peak Flow Rate (cfs)	3.7922
24-Hr Clear Runoff Volume (ac-ft)	0.4934
24-Hr Clear Runoff Volume (cu-ft)	21493.0541



Peak Flow Hydrologic Analysis

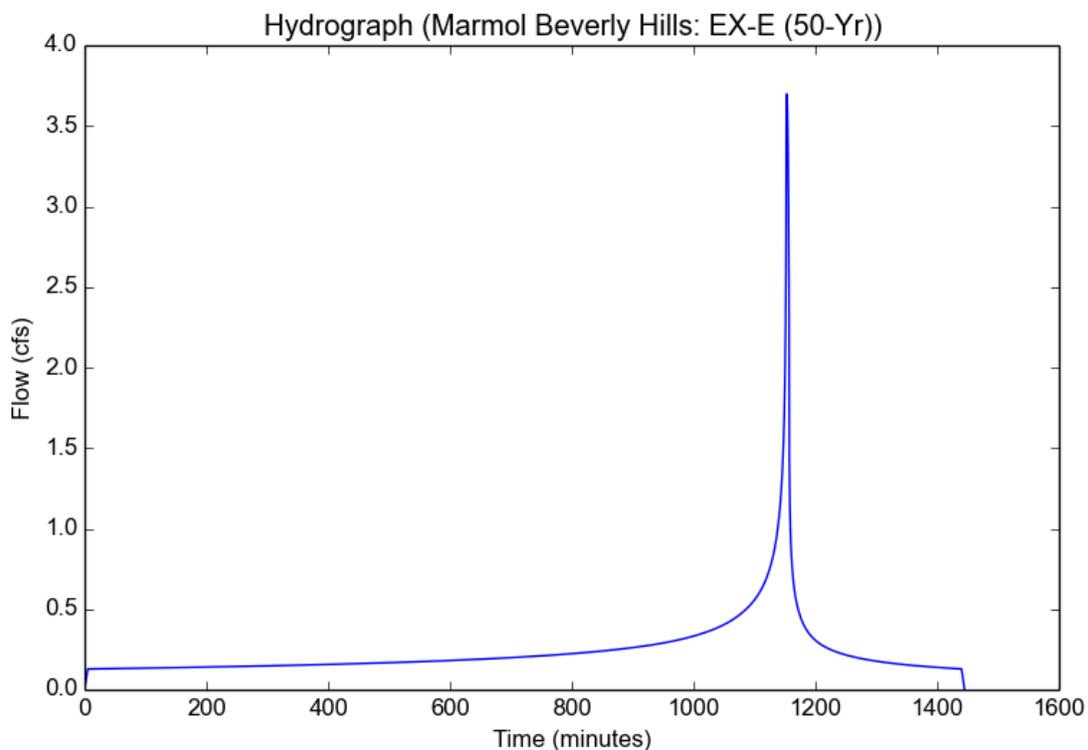
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	EX-E (50-Yr)
Area (ac)	1.12
Flow Path Length (ft)	325.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	6.15
Percent Impervious	0.93
Soil Type	17
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.6986
Burned Peak Flow Rate (cfs)	3.6986
24-Hr Clear Runoff Volume (ac-ft)	0.4869
24-Hr Clear Runoff Volume (cu-ft)	21209.9667



Peak Flow Hydrologic Analysis

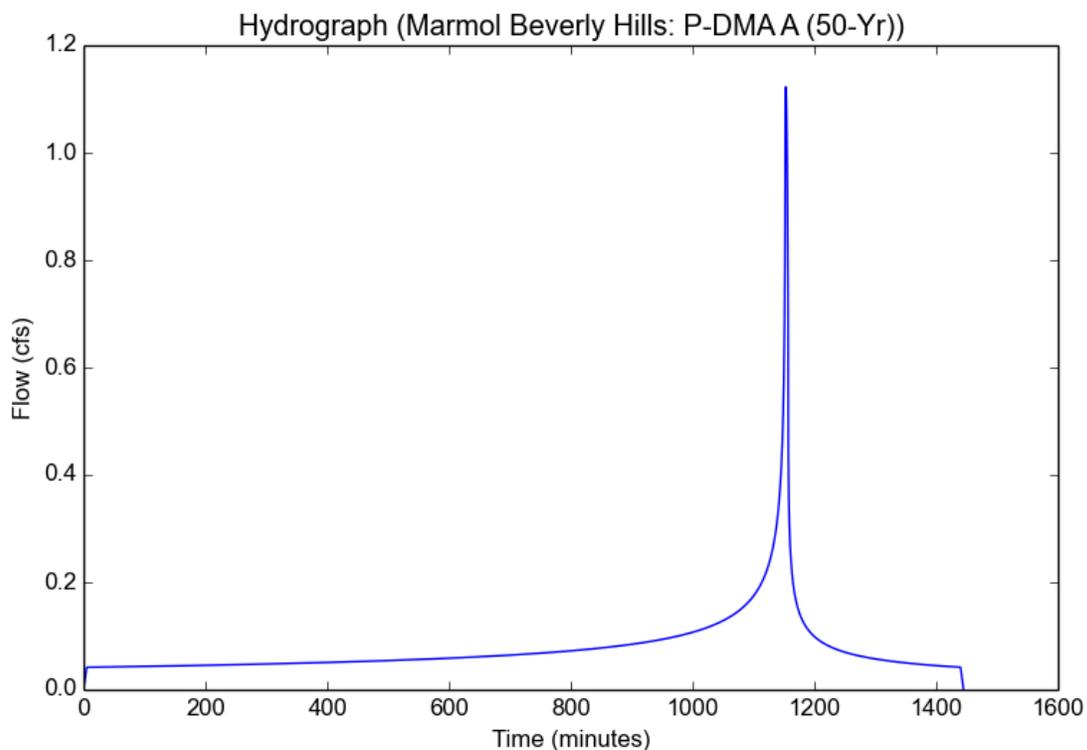
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Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	P-DMA A (50-Yr)
Area (ac)	0.34
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.15
Percent Impervious	1.0
Soil Type	16
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.8837
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.1228
Burned Peak Flow Rate (cfs)	1.1228
24-Hr Clear Runoff Volume (ac-ft)	0.1555
24-Hr Clear Runoff Volume (cu-ft)	6774.8421



Peak Flow Hydrologic Analysis

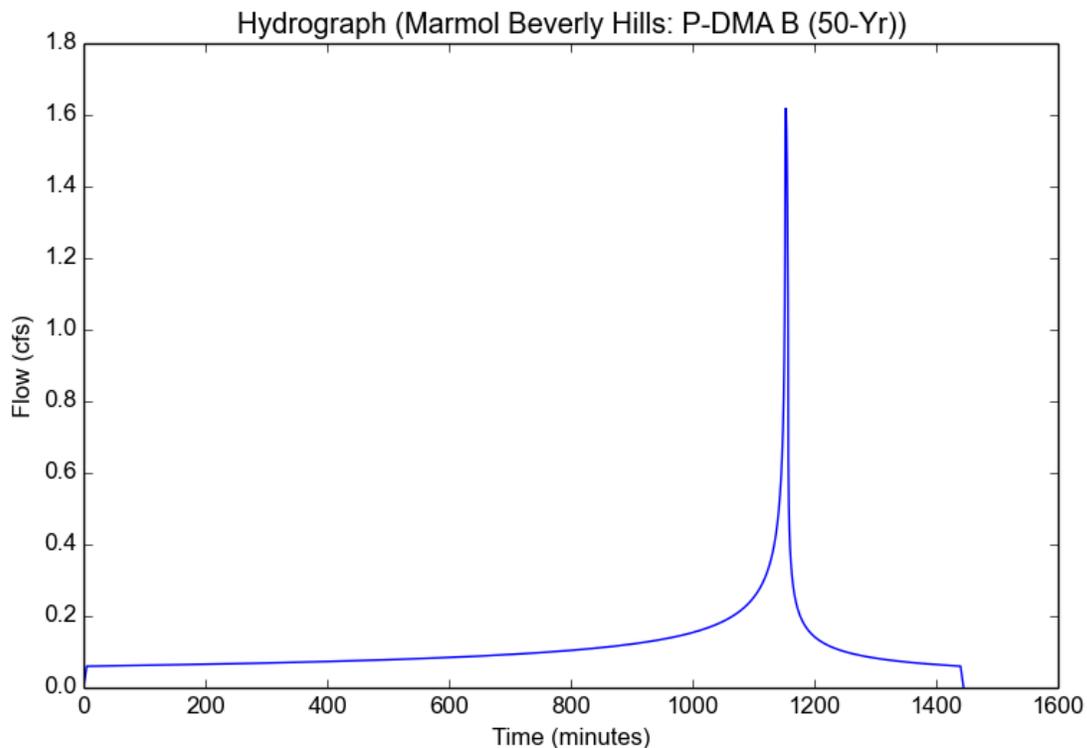
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	P-DMA B (50-Yr)
Area (ac)	0.49
Flow Path Length (ft)	210.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.15
Percent Impervious	1.0
Soil Type	16
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.8837
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.6181
Burned Peak Flow Rate (cfs)	1.6181
24-Hr Clear Runoff Volume (ac-ft)	0.2241
24-Hr Clear Runoff Volume (cu-ft)	9763.7431



Peak Flow Hydrologic Analysis

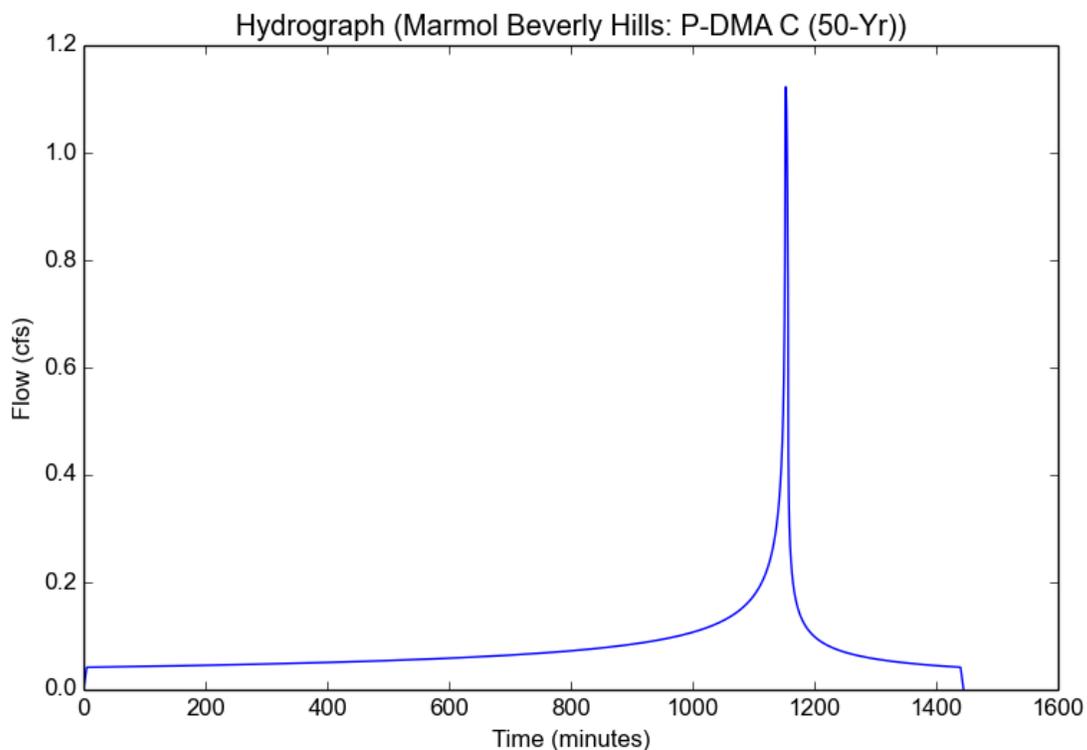
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Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	P-DMA C (50-Yr)
Area (ac)	0.34
Flow Path Length (ft)	175.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.15
Percent Impervious	1.0
Soil Type	17
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.1228
Burned Peak Flow Rate (cfs)	1.1228
24-Hr Clear Runoff Volume (ac-ft)	0.1555
24-Hr Clear Runoff Volume (cu-ft)	6774.8421



Peak Flow Hydrologic Analysis

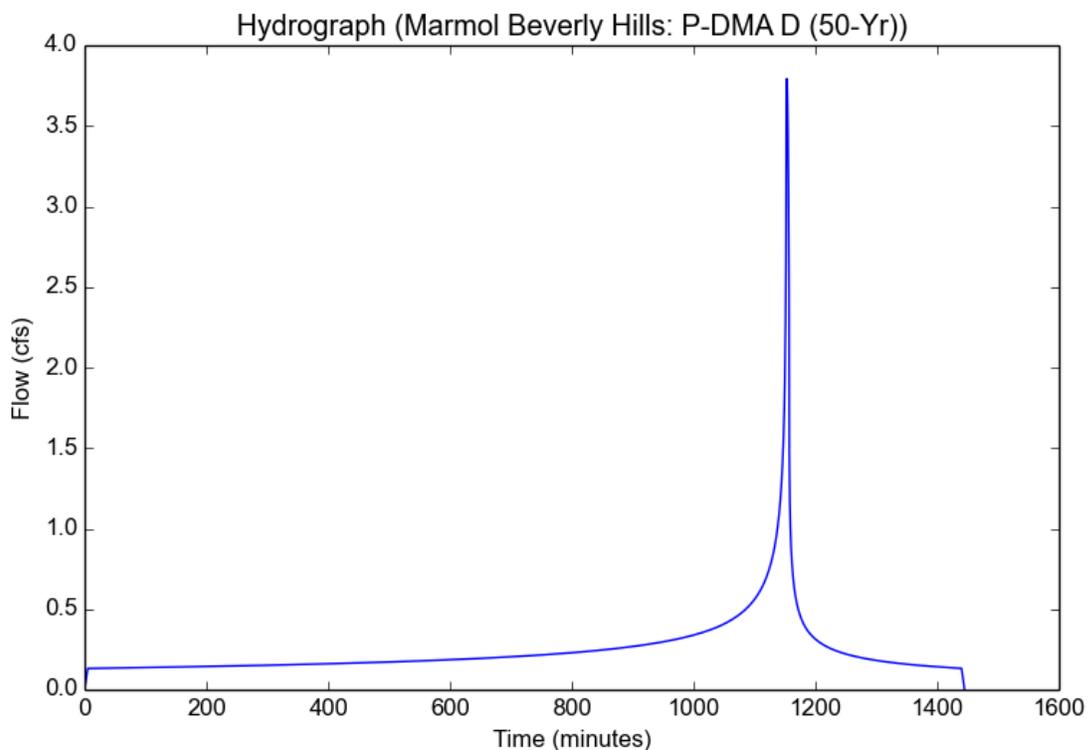
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Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	P-DMA D (50-Yr)
Area (ac)	1.15
Flow Path Length (ft)	330.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.15
Percent Impervious	0.93
Soil Type	16
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.8837
Developed Runoff Coefficient (Cd)	0.8989
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.7929
Burned Peak Flow Rate (cfs)	3.7929
24-Hr Clear Runoff Volume (ac-ft)	0.4975
24-Hr Clear Runoff Volume (cu-ft)	21670.7858



Peak Flow Hydrologic Analysis

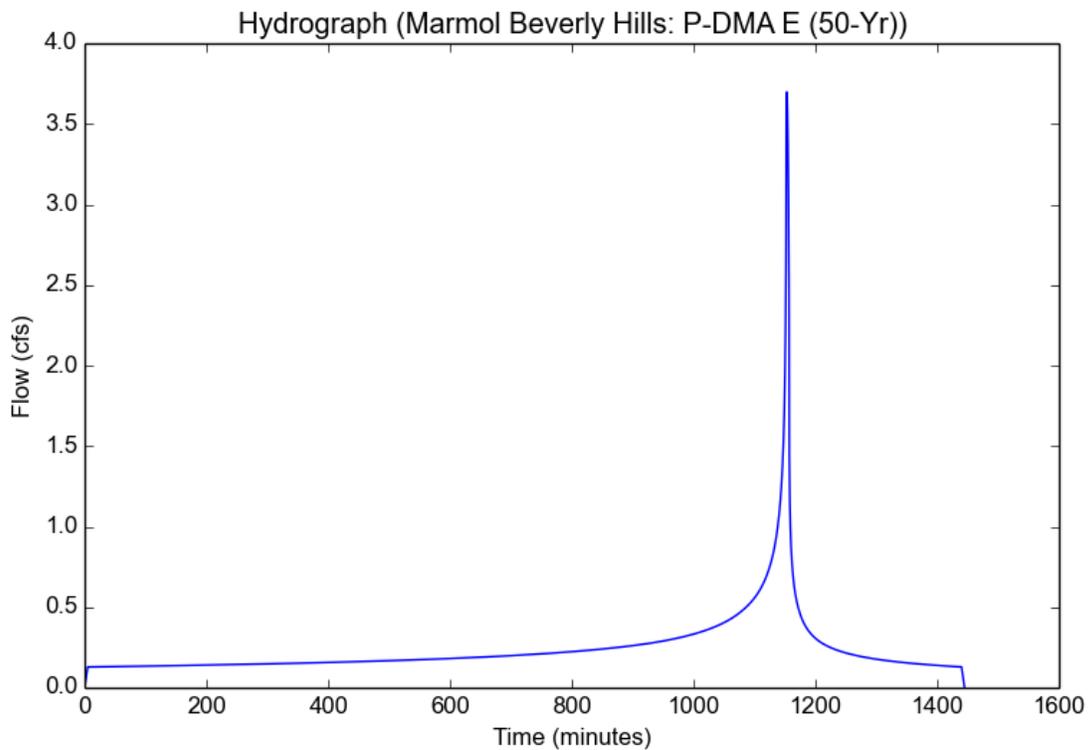
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Input Parameters

Project Name	Marmol Beverly Hills
Subarea ID	P-DMA E (50-Yr)
Area (ac)	1.12
Flow Path Length (ft)	325.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.15
Percent Impervious	0.93
Soil Type	17
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.15
Peak Intensity (in/hr)	3.6693
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.6986
Burned Peak Flow Rate (cfs)	3.6986
24-Hr Clear Runoff Volume (ac-ft)	0.4869
24-Hr Clear Runoff Volume (cu-ft)	21209.9667



SEWER AREA STUDY

PROJECT ADDRESS:

9600 Wilshire Boulevard
Beverly Hills, CA 90212

DATE:

July 14th, 2023

PREPARED FOR:

Streetworks Development / Saks & Company
225 Liberty Street
New York, NY 10007

PREPARED BY:

Kimley»»Horn

660 South Figueroa Street, Suite 2050
Los Angeles, CA 90017
(213) 261-4040

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KHA Project #099395001



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ACRONYMS

AC	Acre
APN	Assessor’s Parcel Number
APT	Apartment
CFS	Cubic Feet Per Second
EDU	Equivalent Dwelling Units
GPD/AC	Gallons per Day per Acre
GPM	Gallons per Minute
HDR	High Density Residential
IN	Inch
LF	Linear Feet
MG	Million Gallons
MGD	Million Gallons per Day
MDR	Medium Density Residential
MHDR	Medium High Density Residential
OS-CH	Open Space-Conservation Habitat
OS-R	Open Space Recreation
OS-R/Basin	Open Space Recreation/Basin
PA	Planning Area
POC	Point of Connection
SP	Specific Plan

9600 Wilshire Boulevard
Sewer Area Study
July 14, 2023

1. INTRODUCTION

The 9600 Wilshire Boulevard Specific Plan (“Specific Plan”) is generally located at 9570 through 9620 Wilshire Boulevard, 128 South Bedford Drive, 133 S. Camden Drive, and 128 and 133 S. Peck Drive (the exact boundaries of which are referred to as the “Specific Plan Area”). The Specific Plan would apply to an approximately four-net acre site located south of Wilshire Boulevard between South Bedford Drive to the west and South Camden Drive to the east, adjacent to the southwestern portion of the City of Beverly Hills. The Specific Plan Area generally consists of two rectangular blocks bisected by South Peck Drive. The Specific Plan would facilitate: the rehabilitation and adaptive reuse of the existing, Saks Women’s Building in accordance with the Secretary of the Interior’s Standards for Rehabilitation of Historic Structures; the retention of the existing commercial building at 9570 Wilshire for continued commercial use; and the development of complementary residential, retail, office, hospitality, social club, boutique hotel, open space, and related uses, including privately owned and maintained, but publicly accessible open-air spaces in the form of the Terrace and the Via. The Specific Plan would permit up to 642,000 square feet of floor area within the specific plan boundaries, for a maximum aggregate floor area ratio of 3.7 averaged across the Specific Plan Area. Any new development within the Specific Plan Area would be implemented through the approval from time to time of a conceptual project plan, consistent with the proposed Specific Plan.

For purposes of CEQA review, the current “Project” is composed of both a programmatic review of the proposed Specific Plan and a project-level analysis of the conceptual plan included as part of the current Project application (the “Conceptual Plan”). The Conceptual Plan reflects an FAR of 3.52, which is within the limits of the Specific Plan. The Proposed Conceptual Plan development provides the basis for the physical configuration of the drainage system described below because this physical configuration would not change under any of the various build-out scenarios of the Specific Plan.

2. PROJECT INFORMATION

Kimley-Horn was tasked with analyzing the existing and proposed sewer facilities, which would serve the range of uses authorized by build-out of the Specific Plan, in order to verify the capacity of the facilities to accommodate the wastewater flows generated by the build-out of the Specific Plan. Analysis is performed to evaluate the greatest sewage generation that could foreseeably result from build-out of the Specific Plan (which necessarily includes construction and operation of the proposed Conceptual Plan), including under scenarios that consider construction and occupancy both with and without the Residential Conversion Units. After analyzing each such build-out scenario, the maximum sewage generation scenario was determined to be maximum build-out with no Residential Conversion Units (described in this Study, including Appendix A, as Scenario 1). Scenario 1 is therefore the focus of the following write-up. This methodology, analysis and discussion is intended to provide a conservative (worst-case) environmental analysis of build-out of the Specific Plan.

The Project is a proposed mixed-use development located near the intersection of Wilshire Boulevard and Peck Drive. It is bounded by Wilshire Boulevard to the north, Bedford Drive to the west, South Drive to the south, and Camden Drive to the east. The existing site consists of a commercial development. The Project location and surrounding vicinity are depicted in **Figure 1**.



Figure 1 – Project Vicinity

In addition to continued commercial use of approximately 107,000 square feet at 9570 Wilshire (an existing condition), the proposed Specific Plan permits a mix of residential and commercial uses, including up to: 213,000 square feet of development and tenant improvement on “Parcel B” and “Saks Rehabilitation”, 80,000 square feet of development on “Parcel A”, and 242,000 square feet of development across Neighborhood West and Neighborhood East, of which 2,000 square feet must be and up to 15,000 square feet may be Small Shop/Boutique Retail. The project also consists of subterranean parking, ancillary and loading docks, amenity spaces and public space redevelopment.

3. EXECUTIVE SUMMARY

The results of this report indicate that all the existing City sewer mains to be protected or reconstructed in place are sufficient to accommodate the proposed flow generated from the 9600 Wilshire Boulevard "Project".

4. METHODOLOGY

This report evaluates the sewer capacities in the Bedford Drive and Peck Drive to accommodate the proposed sewer peak flow from the developments and assesses the need for City sewer system improvements and upgrades.

The Manning Equation is the most commonly used equation to analyze gravity liquid flow within a pipe. It was applied to determine the normal depth (d) in each pipe with a certain diameter (D) by adding the existing and new flows (cfs) to each pipe segment from one manhole to another. The software, Bentley FlowMaster, was used to generate flow results, specifically for d/D, based on Manning’s equation.

Existing dry and wet weather sewer flows were referenced from the “d/D for Sewers s/o Wilshire Blvd. between Bedford Dr. & Camden Dr. and Alley s/o Wilshire Blvd. within the City of Beverly Hills” dated May

9, 2023 and the existing flows are shown in Table 1 and 2 below. These maps provide full flow pipe capacity, normal depth and pipe size. First, slopes are computed from these three values. Next, existing pipe flow is computed for total analysis.

Table 1 – City Existing Sewer Flow Rates (Dry Weather)

Alley S/O Wilshire Boulevard	554	560	0.02	8	1.05
Alley S/O Wilshire Boulevard	560	560A	0.05	8	1.31
Peck Drive	560A	560B	0.08	10	1.42
Peck Drive	560B	560C	0.07	10	2.42
Bedford Drive	592	593	0.27	18	9.52

*Slope was computed using full flow capacity data and assumed n=0.014

**Existing flow rate is computed using the normal depth, pipe diameter, and computed depth

Table 2 – City Existing Sewer Flow Rates (Wet Weather)

Alley S/O Wilshire Boulevard	554	560	0.03	8	1.05
Alley S/O Wilshire Boulevard	560	560A	0.07	8	1.31
Peck Drive	560A	560B	0.12	10	1.42
Peck Drive	560B	560C	0.09	10	2.42
Bedford Drive	592	593	0.38	18	9.52

*Slope was computed using full flow capacity data and assumed n=0.014

**Existing flow rate is computed using the normal depth, pipe diameter, and computed depth

Proposed sewer flows were calculated utilizing the County of Los Angeles estimated average daily sewage flow rates in Appendix A to estimate the proposed sewer flows for various land uses and occupancy types. A sewer exhibit is provided in Appendix A that details the manholes reconstructed or reconstructed in place for the purposes of this analysis.

The City of Beverly Hills Sewer System Management Plan identifies criteria for determining the action categories for existing pipeline based on d/D values and these status categories are Ok, Watch, Schedule, and Replace as listed in Table 2 below. If the new d/D values are greater than 0.75 in the existing City sewer mains, City sewer system upgrade will be required. Additionally, new sewer pipes were sized to have less than 0.50 d/D values.

Table 3 – Design Criteria for Existing Pipelines

< 18" diameter	Watch	Schedule	Replace
≥ 18" diameter	Ok	Watch	Replace

5. EXISTING CITY SEWER SYSTEM

Based on Appendix C d/D dry and wet weather flows provided by Public Works and Transportation Department in City of Beverly Hills dated May 9, 2023, the existing d/D and full flow rate (Q) in the cubic feet per second (cfs) are listed in 3 below. There are no adjacent developments anticipated to increase existing flows.

Table 4 – City Existing Sewer Flow Rates (Dry Weather)

Alley S/O Wilshire Boulevard	554	560	0.02	8	1.05	0.90	0.01
Alley S/O Wilshire Boulevard	560	560A	0.05	8	1.31	1.40	0.01
Peck Drive	560A	560B	0.08	10	1.42	0.50	0.02
Peck Drive	560B	560C	0.08	10	2.42	1.40	0.03
Bedford Drive	592	593	0.27	18	9.52	1.00	1.56

*Slope was computed using full flow capacity data and assumed n=0.014

**Existing flow rate is computed using the normal depth, pipe diameter, and computed depth

Table 5 – City Existing Sewer Flow Rates (Wet Weather)

Alley S/O Wilshire Boulevard	554	560	0.03	8	1.05	0.90	0.01
Alley S/O Wilshire Boulevard	560	560A	0.07	8	1.31	1.40	0.01
Peck Drive	560A	560B	0.12	10	1.42	0.50	0.04
Peck Drive	560B	560C	0.09	10	2.42	1.40	0.04
Bedford Drive	592	593	0.38	18	9.52	1.00	2.99

*Slope was computed using full flow capacity data and assumed n=0.014

**Existing flow rate is computed using the normal depth, pipe diameter, and computed depth

6. PROPOSED SEWER FLOW RATES

The proposed sewer flow rates generated from the Project were calculated utilizing the County of Los Angeles estimated average daily sewage flow rates in Appendix A to estimate the flows for various occupancy types. Each proposed occupancy type is assigned to a corresponding occupancy type from the County of Los Angeles estimated average daily sewage flow rates as shown in Tables 6-10. A peaking factor of 2.5 is applied for analysis.

Proposed redevelopment includes demolishing part of the existing 8” sewer main from MH 554 to 560, reconstructing the 8” sewer main from MH 560A to MH 560B in its existing place, and reconstructing the 8” main from MH 560B to MH 560C in its existing place. Proposed MH 560 will be a drop manhole diverting E-W flows within the alley to the main in Bedford Drive between MH 592 and 593. Refer to Figure 2 for the map of the proposed sewer network below.

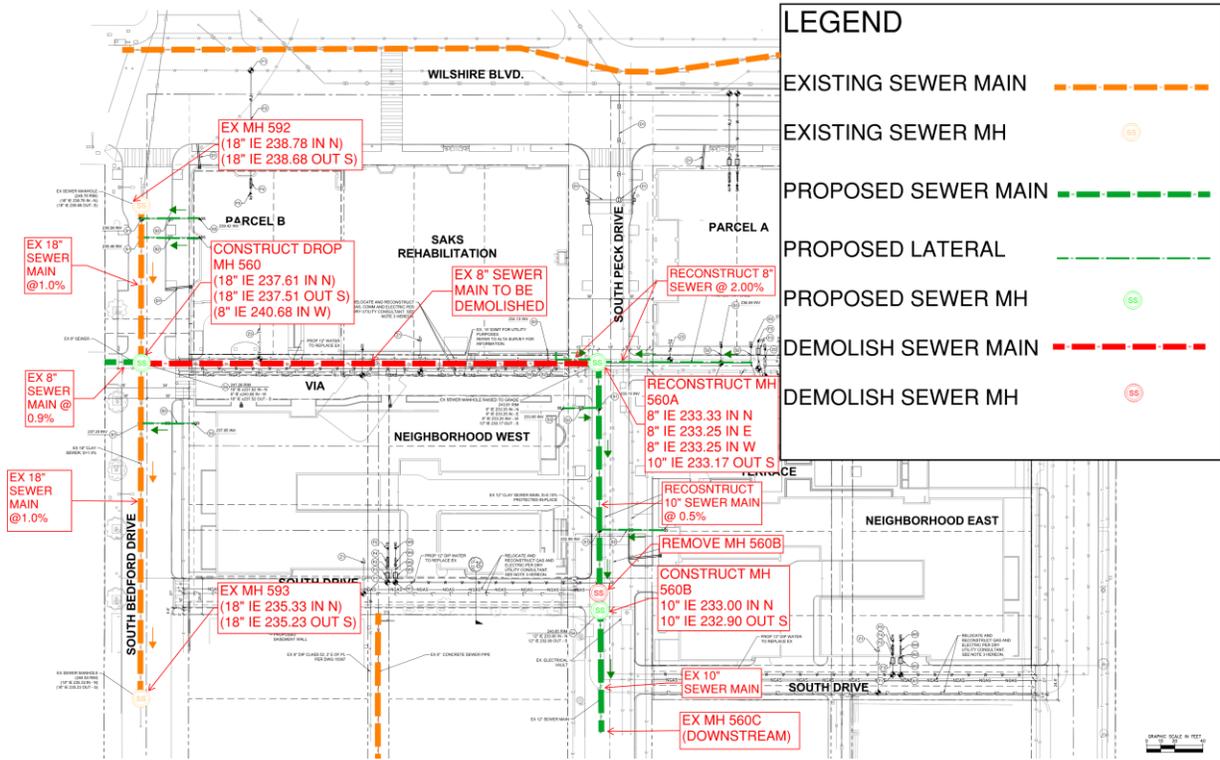


Figure 2 – Proposed Sewer Map

The proposed sewer flow generated from Parcel B building into the existing 18" sewer main within Bedford Drive between MH 592 and constructed MH 560 is shown in Table 6 below.

Table 6 – Parcel B Estimated Sewage Generation

RESTAURANT	Restaurant	275 Seats	50 gal / seat	13,750	0.021
OFFICE	Office Buildings	75,000 SF	200 gal / 1000 SF	15,000	0.023

Half of the proposed sewer flow generated from Neighborhood West is discharged into the existing 18” sewer main within Bedford Drive between constructed manhole 560 and 593. Table 7 shows the estimated sewer generation from West Residential.

Table 7 – Neighborhood West Estimated Sewage Generation

RESIDENTIAL – 3 BDR UNIT	3 Bedroom or more dwelling units	39 DU	300 gal / DU	11,700	0.018
SMALL SHOP / BOUTIQUE RETAIL	Restaurant	188 Seats	50 gal / seat	9,400	0.015

Discharge from Saks Rehabilitation development, Parcel A, Neighborhood East building, and half of the discharge from Neighborhood West building connect into the reconstructed 10” sewer main between MH 560A and MH 560B. Table 8 shows the estimated sewage generation for Saks Rehabilitation, Table 9 for Parcel A generation, and Table 10 for Neighborhood East.

Table 8 – Saks Rehabilitation Estimated Sewage Generation

BOUTIQUE HOTEL	Hotels	50 Rooms	150 gal / room	7,500	0.012
SOCIAL / SPA	Restaurant	250 Seats	50 gal / seat	12,500	0.019
RESTAURANT / RETAIL	Restaurant	825 Seats	50 gal / seat	41,250	0.064
New Average Flow				61,250	0.095
New Peak Flow				153,125	0.237

Table 9 – Parcel A Estimated Sewage Generation

RESTAURANT / RETAIL	Restaurant	1,000 Seats	50 gal / seat	50,000	0.077
OFFICE	Office Buildings	40,000 SF	200 gal / 1000 SF	8,000	0.012

Table 10 – Neighborhood East Estimated Sewage Generation

RESIDENTIAL – 3 BDR UNIT	3 bedroom or more dwelling units	31 DU	300 gal / DU	9,300	0.014
SMALL SHOP / BOUTIQUE RETAIL	Restaurant	188 Seats	50 gal / seat	9,400	0.015

7. SUMMARY

A summary of new d/D are listed in Table 11 and 12 below based on the proposed sewer flow rates in dry and wet weather, respectively.

The new peak flow in dry weather discharged to existing MH 560C in Peck Drive is 0.604 cfs and the new peak flow in dry weather discharged to existing MH 593 in Bedford Drive is 1.722 cfs. The new peak flow

in wet weather discharged to existing MH 560C in Peck Drive is 0.614 cfs and the new peak flow in wet weather discharged to existing MH 593 in Bedford Drive is 3.152 cfs.

The new d/D values were compared to the criteria listed in Table 3 to determine the necessity of City sewer system upgrades. The results indicate that all the existing City sewer mains assessed in this report are sufficient to accommodate the proposed flow generated from the 9600 Wilshire Boulevard project with less than 0.5 d/D value. Figure 3-6 shows the normal depth in the ultimate downstream discharge points in Bedford Drive and Peck Drive, MH 560-3 to MH 560C and MH 592 to MH 593, in both wet and dry conditions.

Table 11 – City Proposed Sewer Flow Rates (Dry Weather)

Alley S/O Wilshire Boulevard	554	560*	8	0.02	0.01	0.075	0.010
Alley S/O Wilshire Boulevard	560*	560A**	8	0.05	0.01	-	-
Peck Drive	560A**	560B**	10	0	0	0.44	0.574

*MH 560 is reconstructed in Bedford Drive

**MH 560A and 560B are reconstructed in place within Peck Drive.

Table 12 – City Proposed Sewer Flow Rates (Wet Weather)

Alley S/O Wilshire Boulevard	554	560*	8	0.03	0.01	0.075	0.010
Alley S/O Wilshire Boulevard	560*	560A**	8	0.07	0.01	-	-
Peck Drive	560A**	560B**	10	0	0	0.44	0.574

Figure 3 – City Proposed Sewer Flow Rates in Pipe MH 560B to MH 560C (Dry Weather)

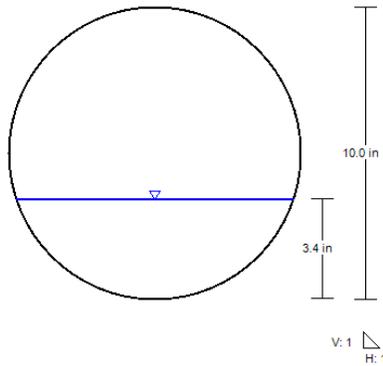


Figure 4 – City Proposed Sewer Flow Rates in Pipe MH 560B to MH 560C (Wet Weather)

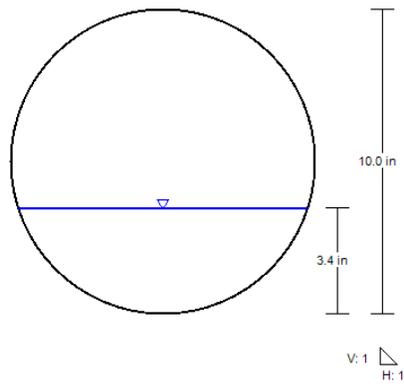


Figure 5 – City Proposed Sewer Flow Rates in Pipe MH 592 to MH 560 (Dry Weather)

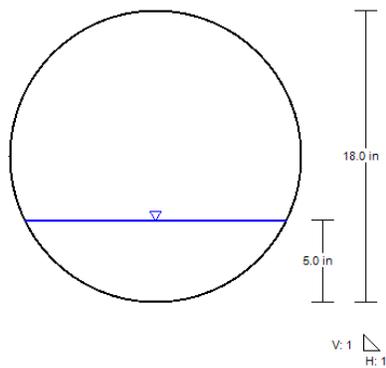


Figure 6 – City Proposed Sewer Flow Rates in Pipe MH 592 to MH 560 (Wet Weather)

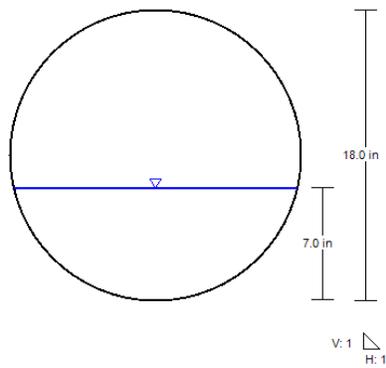


Figure 7 – City Proposed Sewer Flow Rates in Pipe MH 560 to MH 593 (Dry Weather)

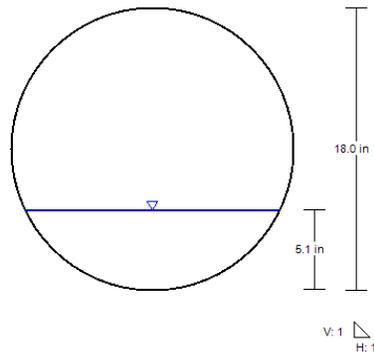
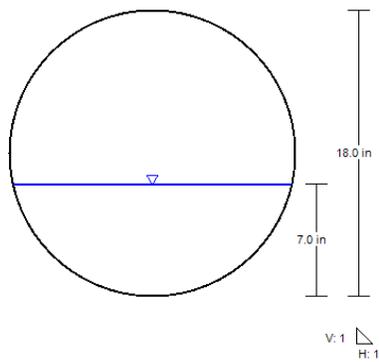


Figure 8 – City Proposed Sewer Flow Rates in Pipe MH 560 to MH 593 (Wet Weather)



APPENDIX A

County of Los Angeles Estimated Average Daily Sewage Flows

9600 Wilshire Boulevard
Sewer Area Study
July 14, 2023

kimley-horn.com

660 South Figueroa Street, Suite 2050, Los Angeles, CA 90017

213 261 4040

Development Scenarios for Sewer Impact Study

Building Area	Land Use	Conceptual Plan Buildout Scenario 3 (From PD Table 2-5)		Maximum Buildout of the Specific Plan with Residential Conversion Scenario 2		Maximum Buildout of the Specific Plan with No Residential Conversion Scenario 1	
		Square Footage	Residential Units/ Boutique Hotel Rooms	Square Footage	Residential Units/ Boutique Hotel Rooms	Square Footage	Residential Units/ Boutique Hotel Rooms
Parcel A	Restaurant/Retail	11,657		40,000		40,000	
	Office	58,796		40,000		40,000	
	Circulation ¹	3,161		0		0	
	Total	73,614	0	80,000	0	80,000	0
Parcel B	Restaurant/Retail	3,046		11,000		11,000	
	Office	67,108		0		75,000	
	Lobby	4,034		0		0	
	Circulation	2,553		0		0	
	<i>porte-cochere/valet space</i> ²	2,777		0		0	
	Total-	79,518	0	11,000	0	86,000	0
Saks Rehabilitation	Restaurant/Retail	28,998		33,000		33,000	
	Boutique Hotel	41,356	40	0	0	55,000	50
	Social Club	14,965		0		16,000	
	Spa	17,215		19,000		23,000	
	Circulation	6,056		0		0	
	Total	108,590	40	52,000	0	127,000	50
Parcel B/Saks Rehab	Dwellings	0	0	150,000	75	0	0
Parcel B/Saks Rehab TOTAL		188,108		213,000		213,000	
Neighborhood East	Dwellings	101,303	30		31		31
	Small Shop/Boutique Retail	5,041		7,500		7,500	
	Lobby/Amenity	3,262					
	Circulation	6,299					
	Total	115,905	30		31		31
Neighborhood West	Dwellings	101,030	38		39		39
	Small Shop/Boutique Retail	5,540		7,500		7,500	
	Lobby/Amenity	3,294					
	Circulation	6,440					
	Total	116,304	38		39		39
	Total Wilshire District Commercial (3) - Boutique Hotel or Social Club Suites	261,722	40	143,000	0	293,000	50
	Total Wilshire District - Residential Conversion Units		0		75		0
	Total Neighborhood District Residential Dwelling Units + Small Shop/Boutique Retail	10,581	68	15,000	70	15,000	70
Scenario Description from PD Section			In addition to continued commercial use of approximately 107,000 SF at 9570 Wilshire, the Wilshire Boulevard District would have 261,722 sf of commercial; the Neighborhood District would have 68 residential units and 10,581 sf of ground floor Small Shop/Boutique Retail. LU totals above match this description.	In addition to continued commercial use of approximately 107,000 SF at 9570 Wilshire, the Wilshire Boulevard District would have (i) 143,000 sf of commercial and (ii) 75 residential units located above the ground floor within the Saks Rehabilitation and Parcel B subareas; the Neighborhood District would have 70 residential units and 15,000 sf of ground floor Small Shop/Boutique Retail . LU totals above match this description.		In addition to continued commercial use of approximately 107,000 SF at 9570 Wilshire, the Wilshire Boulevard District would have 293,000 sf of commercial; the Neighborhood District would have 70 residential units and 15,000 sf of ground floor Small Shop/Boutique Retail. LU totals above match this description.	

Notes:

¹ As used throughout this table, "Circulation" refers to building areas such as corridors, ground floor lobby, ground floor lobby amenities, stair vestibules.

² For information purposes, this figure includes 2,777 sf associated with the porte-cochere/valet space which do not constitute floor area under the BHMC or the proposed Specific Plan.

⁽³⁾ In addition to continued commercial use of approximately 107,000 SF at 9570 Wilshire.

Estimated Average Daily Sewage Flows for Various Occupancies

Occupancy	Abbreviation	*Average daily flow
Apartment Buildings:		
Bachelor or Single dwelling units	Apt	150 gal/D.U.
1 bedroom dwelling units	Apt	200 gal/D.U.
2 bedroom dwelling units	Apt	250 gal/D.U.
3 bedroom or more dwelling units	Apt	300 gal/D.U.
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	MB	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

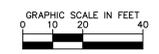
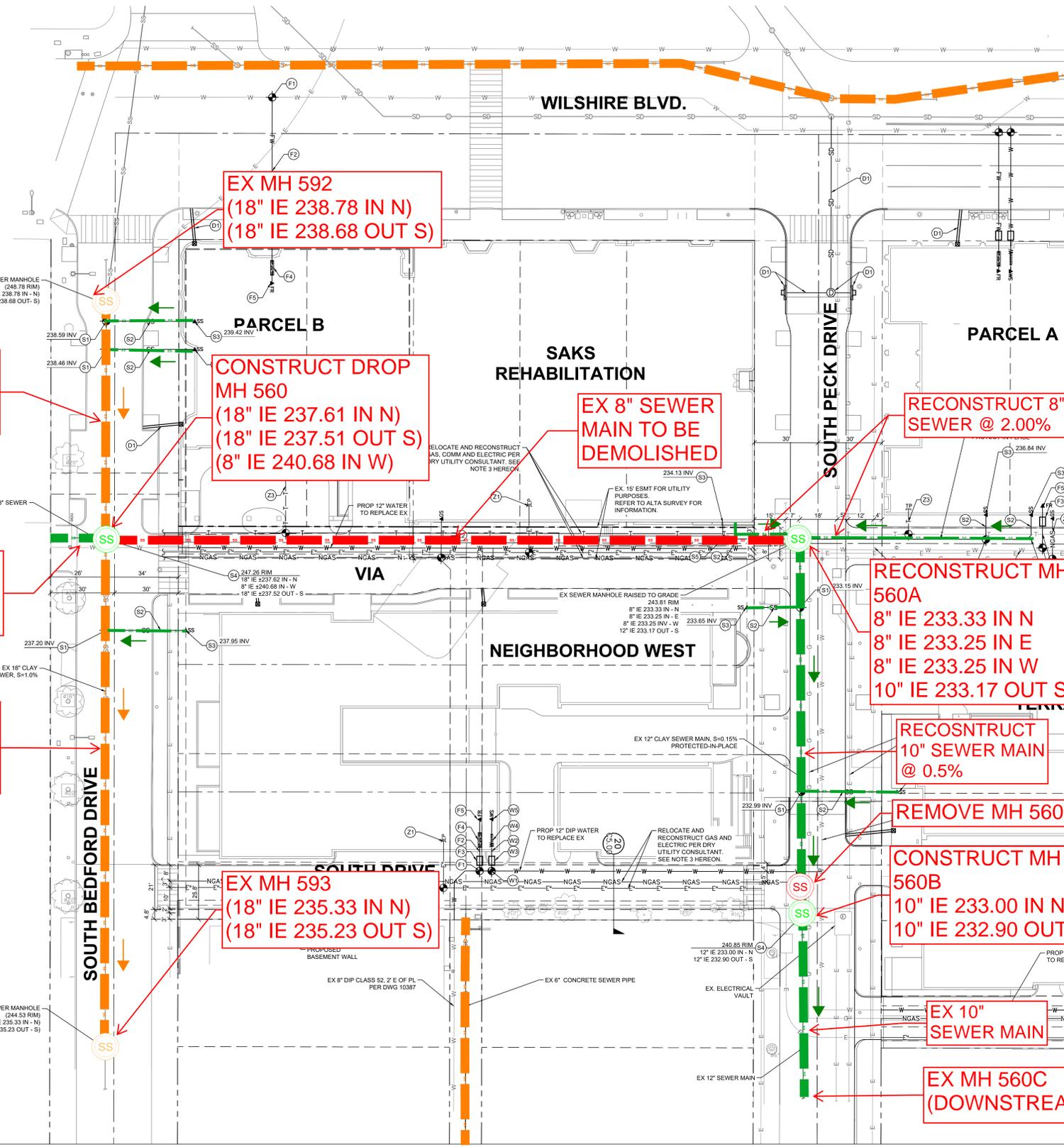
Zone	Coefficient (cfs/Acre)
Agriculture -----	0.001
Residential*:	
R-1 -----	0.004
R-2 -----	0.008
R-3 -----	0.012
R-4 -----	0.016*
Commercial:	
C-1 through C-4 -----	0.015*
Heavy Industrial:	
M-1 through M-4 -----	0.021*

* 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

LEGEND

- EXISTING SEWER MAIN 
- EXISTING SEWER MH 
- PROPOSED SEWER MAIN 
- PROPOSED LATERAL 
- PROPOSED SEWER MH 
- DEMOLISH SEWER MAIN 
- DEMOLISH SEWER MH 



OVERALL UTILITY PLAN
SCALE: 1"=20'

4

ABBREVIATIONS

BLDG	- BUILDING	MH	- MANHOLE
CB	- CATCH BASIN	N	- NORTH
CDS	- CONTINUOUS DEFLECTION SEPARATION	NTS	- NTS
CIL	- CENTERLINE	PCC	- PORTLAND CEMENT CONCRETE
CONC.	- CONCRETE	PL	- PROPERTY LINE
CONST.	- CONSTRUCT, CONSTRUCTION	PVC	- POLYVINYL CHLORIDE
DI	- DRAIN INLET	RD	- ROOF DRAIN
DIP	- DUCTILE IRON PIPE	R/W	- RIGHT-OF-WAY
DW	- DOMESTIC WATER	S	- SEWER
ELEC	- ELECTRIC	SD	- STORM DRAIN
FW	- FIRE WATER	STA	- STATION
G	- GAS	SS	- SANITARY SEWER
INV	- INVERT	SPPWC	- STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
IRR	- IRRIGATION WATER	T	- TELEPHONE
		W	- WATER

GENERAL NOTES

- ALL SURVEY MONUMENTS, STREET LIGHTS, PARKING METERS, AND UNDERGROUND UTILITIES, AND ANY OFF-SITE IMPROVEMENTS AFFECTED BY DEMOLITION SHALL BE RE-ESTABLISHED PER CITY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.
- OFF-SITE IMPROVEMENTS CONSIST OF REMOVAL AND REPLACEMENT THAT IS NOT LIMITED TO: CURB AND GUTTER, CURB DRAINS, DRIVEWAY APPROACHES, SIDEWALK, AND ASPHALT PAVEMENT IN ACCORDANCE WITH CITY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.
- OFF-SITE IMPROVEMENTS MUST CONFORM TO CURRENT ADA AND APPLICABLE CITY STANDARDS.

EXISTING UTILITY NOTE

- THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.
- MEANS AND METHODS OF PROTECTING IN PLACE EXISTING UTILITIES WITHIN PECK DRIVE PER CONTRACTOR IN COORDINATION WITH THE CITY OF BEVERLY HILLS AND APPLICABLE AUTHORITIES HAVING JURISDICTION.
- RELOCATION OR RECONSTRUCTION OF EXISTING UTILITIES SHALL REQUIRE ADJUSTMENT OF EXISTING EASEMENTS PER SEPARATE INSTRUMENT. LOCATION OF EXISTING UTILITIES SHALL BE POTHOLED AND VERIFIED PRIOR TO CONSTRUCTION. UTILITY RECONSTRUCTION SHALL MEET THE SEPARATION REQUIREMENT OF UTILITY AGENCIES/COMPANIES AND ANY VARIANCE REQUIREMENT SHALL BE COORDINATED PRIOR TO CONSTRUCTION.

DOMESTIC WATER

- HOT TAP EXISTING WATER MAIN. COORDINATE TAP WITH THE CITY OF BEVERLY HILLS.
- INSTALL DOMESTIC WATER LATERAL.
- INSTALL DOMESTIC WATER METER. COORDINATE WITH CITY OF BEVERLY HILLS.
- INSTALL REDUCED PRESSURE ASSEMBLY, OR APPROVED EQUAL. COORDINATE INSTALLATION WITH CITY OF BEVERLY HILLS.
- BUILDING POINT OF CONNECTION (5-FT FROM BUILDING FACE). REFER TO PLUMBING PLANS FOR CONTINUATION.

FIRE WATER

- HOT TAP EXISTING WATER MAIN. COORDINATE TAP WITH THE CITY OF BEVERLY HILLS.
- INSTALL FIRE WATER LATERAL.
- INSTALL FIRE WATER METER. COORDINATE WITH CITY OF BEVERLY HILLS.
- INSTALL DOUBLE DETECTOR CHECK ASSEMBLY, OR APPROVED EQUAL. SIZE PER PLAN. COORDINATE WITH CITY OF BEVERLY HILLS.
- BUILDING POINT OF CONNECTION (5-FT FROM BUILDING FACE). REFER TO PLUMBING PLANS FOR CONTINUATION.

SEWER KEYNOTES

- CONNECT TO EXISTING SEWER MAIN.
- INSTALL PVC SEWER LATERAL (S=2.0% MN.).
- BUILDING POINT OF CONNECTION (5-FT FROM BUILDING FACE). REFER TO PLUMBING PLANS FOR CONTINUATION.
- CONSTRUCT NEW SEWER MANHOLE.
- CONSTRUCT NEW SEWER CLEANOUT.

STORM DRAIN KEYNOTES

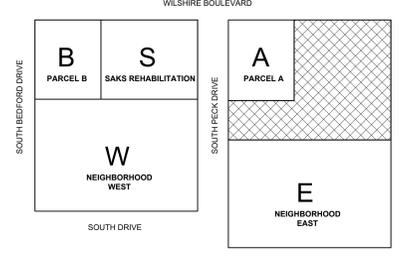
- PROPOSED STORM DRAIN PIPING AND APPURTENANCES. REFER TO C3.01 - OVERALL GRADING AND DRAINAGE PLAN FOR DESIGN INFORMATION.

DRY UTILITY KEYNOTES

- NOTE: DRY UTILITIES ARE SHOWN FOR REFERENCE ONLY. REFER TO DRAWINGS AND SPECS BY OTHERS FOR MORE INFORMATION. SHOWN FOR COORDINATION PURPOSES ONLY.
- ELECTRICAL CONDUIT PER DRY UTILITY CONSULTANT
 - GAS PIPE PER DRY UTILITY CONSULTANT
 - TELECOM SERVICE PER DRY UTILITY CONSULTANT

LEGEND

- PROPERTY LINE
- CENTER LINE
- EASEMENT OR SETBACK LINE
- CIVIL LIMIT OF WORK LINE
- PROPOSED SANITARY SEWER PIPE (< 12")
- PROPOSED STORM DRAIN PIPE (< 12")
- PROPOSED WATER PIPE
- PROPOSED DOMESTIC WATER PIPE
- PROPOSED FIRE WATER PIPE
- POINT OF CONNECTION TO EXISTING UTILITY LINES OR MAINS
- BUILDING POINT OF CONNECTION



KEY PLAN
1"=100'

5

SOUTH DRIVE SECTION
SCALE: 1"=5'

20

DRAWING: LEGEND & NOTES
SCALE: NTS

10

APPENDIX B

FlowMaster Flow Calculation Results

9600 Wilshire Boulevard
Sewer Area Study
July 14, 2023

kimley-horn.com

660 South Figueroa Street, Suite 2050, Los Angeles, CA 90017

213 261 4040

MH 559-560 EX Dry Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.010 ft/ft
Normal Depth	8.0 in
Diameter	8.0 in
Discharge	1.13 cfs
Results	
Channel Slope	0.010 ft/ft
Normal Depth	8.0 in
Flow Area	0.3 ft ²
Wetted Perimeter	2.1 ft
Hydraulic Radius	2.0 in
Top Width	0.00 ft
Critical Depth	6.1 in
Percent Full	100.0 %
Critical Slope	0.012 ft/ft
Velocity	3.25 ft/s
Velocity Head	0.16 ft
Specific Energy	0.83 ft
Froude Number	(N/A)
Maximum Discharge	1.22 cfs
Discharge Full	1.13 cfs
Slope Full	0.010 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	0.8 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.0 in
Critical Depth	6.1 in
Channel Slope	0.010 ft/ft
Critical Slope	0.012 ft/ft

MH 560-560A EX Dry Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	8.0 in
Diameter	8.0 in
Discharge	1.41 cfs
Results	
Channel Slope	0.016 ft/ft
Normal Depth	8.0 in
Flow Area	0.3 ft ²
Wetted Perimeter	2.1 ft
Hydraulic Radius	2.0 in
Top Width	0.00 ft
Critical Depth	6.7 in
Percent Full	100.0 %
Critical Slope	0.015 ft/ft
Velocity	4.05 ft/s
Velocity Head	0.26 ft
Specific Energy	0.92 ft
Froude Number	(N/A)
Maximum Discharge	1.52 cfs
Discharge Full	1.41 cfs
Slope Full	0.016 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.0 in
Critical Depth	6.7 in
Channel Slope	0.016 ft/ft
Critical Slope	0.015 ft/ft

MH 560A-560B EX Dry Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.006 ft/ft
Normal Depth	10.0 in
Diameter	10.0 in
Discharge	1.53 cfs
Results	
Channel Slope	0.006 ft/ft
Normal Depth	10.0 in
Flow Area	0.5 ft ²
Wetted Perimeter	2.6 ft
Hydraulic Radius	2.5 in
Top Width	0.00 ft
Critical Depth	6.7 in
Percent Full	100.0 %
Critical Slope	0.009 ft/ft
Velocity	2.81 ft/s
Velocity Head	0.12 ft
Specific Energy	0.96 ft
Froude Number	(N/A)
Maximum Discharge	1.65 cfs
Discharge Full	1.53 cfs
Slope Full	0.006 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	10.0 in
Critical Depth	6.7 in
Channel Slope	0.006 ft/ft
Critical Slope	0.009 ft/ft

MH 560B-560C EX Dry Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	10.0 in
Diameter	10.0 in
Discharge	2.61 cfs
Results	
Channel Slope	0.016 ft/ft
Normal Depth	10.0 in
Flow Area	0.5 ft ²
Wetted Perimeter	2.6 ft
Hydraulic Radius	2.5 in
Top Width	0.00 ft
Critical Depth	8.6 in
Percent Full	100.0 %
Critical Slope	0.015 ft/ft
Velocity	4.78 ft/s
Velocity Head	0.36 ft
Specific Energy	1.19 ft
Froude Number	(N/A)
Maximum Discharge	2.81 cfs
Discharge Full	2.61 cfs
Slope Full	0.016 ft/ft
Flow Type	Undefined
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	10.0 in
Critical Depth	8.6 in
Channel Slope	0.016 ft/ft
Critical Slope	0.015 ft/ft

MH 592-593 EX Dry Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	18.0 in
Diameter	18.0 in
Discharge	12.41 cfs
Results	
Channel Slope	0.016 ft/ft
Normal Depth	18.0 in
Flow Area	1.8 ft ²
Wetted Perimeter	4.7 ft
Hydraulic Radius	4.5 in
Top Width	0.00 ft
Critical Depth	16.0 in
Percent Full	100.0 %
Critical Slope	0.014 ft/ft
Velocity	7.02 ft/s
Velocity Head	0.77 ft
Specific Energy	2.27 ft
Froude Number	(N/A)
Maximum Discharge	13.35 cfs
Discharge Full	12.41 cfs
Slope Full	0.016 ft/ft
Flow Type	Undefined
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	18.0 in
Critical Depth	16.0 in
Channel Slope	0.016 ft/ft
Critical Slope	0.014 ft/ft

MH 559-560 EX Dry Q Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.010 ft/ft
Normal Depth	0.5 in
Diameter	8.0 in
Results	
Discharge	0.01 cfs
Flow Area	0.0 ft ²
Wetted Perimeter	0.3 ft
Hydraulic Radius	0.3 in
Top Width	0.32 ft
Critical Depth	0.5 in
Percent Full	6.0 %
Critical Slope	0.010 ft/ft
Velocity	0.93 ft/s
Velocity Head	0.01 ft
Specific Energy	0.05 ft
Froude Number	0.997
Maximum Discharge	1.21 cfs
Discharge Full	1.12 cfs
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	6.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.5 in
Critical Depth	0.5 in
Channel Slope	0.010 ft/ft
Critical Slope	0.010 ft/ft

MH 560-560A EX Dry Q Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	0.7 in
Diameter	8.0 in
Results	
Discharge	0.02 cfs
Flow Area	0.0 ft ²
Wetted Perimeter	0.4 ft
Hydraulic Radius	0.5 in
Top Width	0.38 ft
Critical Depth	0.8 in
Percent Full	9.0 %
Critical Slope	0.009 ft/ft
Velocity	1.52 ft/s
Velocity Head	0.04 ft
Specific Energy	0.10 ft
Froude Number	1.327
Maximum Discharge	1.52 cfs
Discharge Full	1.41 cfs
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	9.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.7 in
Critical Depth	0.8 in
Channel Slope	0.016 ft/ft
Critical Slope	0.009 ft/ft

MH 560A-560B EX Dry Q Calc

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.014
Channel Slope	0.006 ft/ft
Normal Depth	1.0 in
Diameter	10.0 in

Results	
Discharge	0.03 cfs
Flow Area	0.0 ft ²
Wetted Perimeter	0.5 ft
Hydraulic Radius	0.6 in
Top Width	0.49 ft
Critical Depth	0.9 in
Percent Full	9.6 %
Critical Slope	0.008 ft/ft
Velocity	1.10 ft/s
Velocity Head	0.02 ft
Specific Energy	0.10 ft
Froude Number	0.830
Maximum Discharge	1.65 cfs
Discharge Full	1.53 cfs
Slope Full	0.000 ft/ft
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.0 in
Critical Depth	0.9 in
Channel Slope	0.006 ft/ft
Critical Slope	0.008 ft/ft

MH 560B-560C EX Dry Q Calc

Project Description	
Friction Method	Manning Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	0.7 in
Diameter	10.0 in
Results	
Discharge	0.03 cfs
Flow Area	0.0 ft ²
Wetted Perimeter	0.5 ft
Hydraulic Radius	0.5 in
Top Width	0.43 ft
Critical Depth	0.8 in
Percent Full	7.2 %
Critical Slope	0.008 ft/ft
Velocity	1.56 ft/s
Velocity Head	0.04 ft
Specific Energy	0.10 ft
Froude Number	1.361
Maximum Discharge	2.81 cfs
Discharge Full	2.61 cfs
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	7.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.7 in
Critical Depth	0.8 in
Channel Slope	0.016 ft/ft
Critical Slope	0.008 ft/ft

MH 592-593 EX Dry Q Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	7.9 in
Diameter	18.0 in
Results	
Discharge	4.97 cfs
Flow Area	0.7 ft ²
Wetted Perimeter	2.2 ft
Hydraulic Radius	4.1 in
Top Width	1.49 ft
Critical Depth	10.3 in
Percent Full	44.0 %
Critical Slope	0.007 ft/ft
Velocity	6.63 ft/s
Velocity Head	0.68 ft
Specific Energy	1.34 ft
Froude Number	1.649
Maximum Discharge	13.35 cfs
Discharge Full	12.41 cfs
Slope Full	0.003 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	44.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.9 in
Critical Depth	10.3 in
Channel Slope	0.016 ft/ft
Critical Slope	0.007 ft/ft

MH 554 - 560 PROP Dry d/D Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.009 ft/ft
Diameter	8.0 in
Discharge	0.01 cfs
Results	
Normal Depth	0.6 in
Flow Area	0.0 ft ²
Wetted Perimeter	0.4 ft
Hydraulic Radius	0.4 in
Top Width	0.34 ft
Critical Depth	0.5 in
Percent Full	6.9 %
Critical Slope	0.010 ft/ft
Velocity	0.95 ft/s
Velocity Head	0.01 ft
Specific Energy	0.06 ft
Froude Number	0.955
Maximum Discharge	1.15 cfs
Discharge Full	1.06 cfs
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	6.7 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.6 in
Critical Depth	0.5 in
Channel Slope	0.009 ft/ft
Critical Slope	0.010 ft/ft

MH 560A - 560B PROP Dry d/D Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.005 ft/ft
Diameter	10.0 in
Discharge	0.57 cfs
Results	
Normal Depth	4.4 in
Flow Area	0.2 ft ²
Wetted Perimeter	1.2 ft
Hydraulic Radius	2.3 in
Top Width	0.83 ft
Critical Depth	4.0 in
Percent Full	43.9 %
Critical Slope	0.007 ft/ft
Velocity	2.49 ft/s
Velocity Head	0.10 ft
Specific Energy	0.46 ft
Froude Number	0.832
Maximum Discharge	1.55 cfs
Discharge Full	1.44 cfs
Slope Full	0.001 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	2.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.4 in
Critical Depth	4.0 in
Channel Slope	0.005 ft/ft
Critical Slope	0.007 ft/ft

MH 560B - 560C PROP Dry d/D Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.014 ft/ft
Diameter	10.0 in
Discharge	0.60 cfs
Results	
Normal Depth	3.4 in
Flow Area	0.2 ft ²
Wetted Perimeter	1.0 ft
Hydraulic Radius	1.9 in
Top Width	0.79 ft
Critical Depth	4.1 in
Percent Full	34.2 %
Critical Slope	0.007 ft/ft
Velocity	3.67 ft/s
Velocity Head	0.21 ft
Specific Energy	0.49 ft
Froude Number	1.418
Maximum Discharge	2.59 cfs
Discharge Full	2.41 cfs
Slope Full	0.001 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	34.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.4 in
Critical Depth	4.1 in
Channel Slope	0.014 ft/ft
Critical Slope	0.007 ft/ft

MH 592 - 560 PROP Dry d/D Calc

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.010 ft/ft
Diameter	18.0 in
Discharge	1.67 cfs
Results	
Normal Depth	5.0 in
Flow Area	0.4 ft ²
Wetted Perimeter	1.7 ft
Hydraulic Radius	2.9 in
Top Width	1.35 ft
Critical Depth	5.8 in
Percent Full	28.0 %
Critical Slope	0.006 ft/ft
Velocity	4.13 ft/s
Velocity Head	0.26 ft
Specific Energy	0.68 ft
Froude Number	1.327
Maximum Discharge	10.49 cfs
Discharge Full	9.75 cfs
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	28.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.0 in
Critical Depth	5.8 in
Channel Slope	0.010 ft/ft
Critical Slope	0.006 ft/ft

MH 560 - 593 PROP Dry d/D Calc

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.010 ft/ft
Diameter	18.0 in
Discharge	1.72 cfs
Results	
Normal Depth	5.1 in
Flow Area	0.4 ft ²
Wetted Perimeter	1.7 ft
Hydraulic Radius	2.9 in
Top Width	1.35 ft
Critical Depth	5.9 in
Percent Full	28.5 %
Critical Slope	0.006 ft/ft
Velocity	4.16 ft/s
Velocity Head	0.27 ft
Specific Energy	0.70 ft
Froude Number	1.324
Maximum Discharge	10.49 cfs
Discharge Full	9.75 cfs
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	28.5 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.1 in
Critical Depth	5.9 in
Channel Slope	0.010 ft/ft
Critical Slope	0.006 ft/ft

MH 559-560 EX Wet Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.010 ft/ft
Normal Depth	8.0 in
Diameter	8.0 in
Discharge	1.13 cfs
Results	
Channel Slope	0.010 ft/ft
Normal Depth	8.0 in
Flow Area	0.3 ft ²
Wetted Perimeter	2.1 ft
Hydraulic Radius	2.0 in
Top Width	0.00 ft
Critical Depth	6.1 in
Percent Full	100.0 %
Critical Slope	0.012 ft/ft
Velocity	3.25 ft/s
Velocity Head	0.16 ft
Specific Energy	0.83 ft
Froude Number	(N/A)
Maximum Discharge	1.22 cfs
Discharge Full	1.13 cfs
Slope Full	0.010 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	0.8 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.0 in
Critical Depth	6.1 in
Channel Slope	0.010 ft/ft
Critical Slope	0.012 ft/ft

MH 560-560A EX Wet Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	8.0 in
Diameter	8.0 in
Discharge	1.41 cfs
Results	
Channel Slope	0.016 ft/ft
Normal Depth	8.0 in
Flow Area	0.3 ft ²
Wetted Perimeter	2.1 ft
Hydraulic Radius	2.0 in
Top Width	0.00 ft
Critical Depth	6.7 in
Percent Full	100.0 %
Critical Slope	0.015 ft/ft
Velocity	4.05 ft/s
Velocity Head	0.26 ft
Specific Energy	0.92 ft
Froude Number	(N/A)
Maximum Discharge	1.52 cfs
Discharge Full	1.41 cfs
Slope Full	0.016 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.0 in
Critical Depth	6.7 in
Channel Slope	0.016 ft/ft
Critical Slope	0.015 ft/ft

MH 560A-560B EX Wet Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.006 ft/ft
Normal Depth	10.0 in
Diameter	10.0 in
Discharge	1.53 cfs
Results	
Channel Slope	0.006 ft/ft
Normal Depth	10.0 in
Flow Area	0.5 ft ²
Wetted Perimeter	2.6 ft
Hydraulic Radius	2.5 in
Top Width	0.00 ft
Critical Depth	6.7 in
Percent Full	100.0 %
Critical Slope	0.009 ft/ft
Velocity	2.81 ft/s
Velocity Head	0.12 ft
Specific Energy	0.96 ft
Froude Number	(N/A)
Maximum Discharge	1.65 cfs
Discharge Full	1.53 cfs
Slope Full	0.006 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	10.0 in
Critical Depth	6.7 in
Channel Slope	0.006 ft/ft
Critical Slope	0.009 ft/ft

MH 560B-560C EX Wet Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	10.0 in
Diameter	10.0 in
Discharge	2.61 cfs
Results	
Channel Slope	0.016 ft/ft
Normal Depth	10.0 in
Flow Area	0.5 ft ²
Wetted Perimeter	2.6 ft
Hydraulic Radius	2.5 in
Top Width	0.00 ft
Critical Depth	8.6 in
Percent Full	100.0 %
Critical Slope	0.015 ft/ft
Velocity	4.78 ft/s
Velocity Head	0.36 ft
Specific Energy	1.19 ft
Froude Number	(N/A)
Maximum Discharge	2.81 cfs
Discharge Full	2.61 cfs
Slope Full	0.016 ft/ft
Flow Type	Undefined
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	10.0 in
Critical Depth	8.6 in
Channel Slope	0.016 ft/ft
Critical Slope	0.015 ft/ft

MH 592-593 EX Wet Slope Calc

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Slope
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	18.0 in
Diameter	18.0 in
Discharge	12.41 cfs
Results	
Channel Slope	0.016 ft/ft
Normal Depth	18.0 in
Flow Area	1.8 ft ²
Wetted Perimeter	4.7 ft
Hydraulic Radius	4.5 in
Top Width	0.00 ft
Critical Depth	16.0 in
Percent Full	100.0 %
Critical Slope	0.014 ft/ft
Velocity	7.02 ft/s
Velocity Head	0.77 ft
Specific Energy	2.27 ft
Froude Number	(N/A)
Maximum Discharge	13.35 cfs
Discharge Full	12.41 cfs
Slope Full	0.016 ft/ft
Flow Type	Undefined
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	18.0 in
Critical Depth	16.0 in
Channel Slope	0.016 ft/ft
Critical Slope	0.014 ft/ft

MH 559-560 EX Wet Q Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.010 ft/ft
Normal Depth	0.7 in
Diameter	8.0 in
Results	
Discharge	0.02 cfs
Flow Area	0.0 ft ²
Wetted Perimeter	0.4 ft
Hydraulic Radius	0.5 in
Top Width	0.38 ft
Critical Depth	0.7 in
Percent Full	9.0 %
Critical Slope	0.009 ft/ft
Velocity	1.21 ft/s
Velocity Head	0.02 ft
Specific Energy	0.08 ft
Froude Number	1.053
Maximum Discharge	1.21 cfs
Discharge Full	1.12 cfs
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	9.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.7 in
Critical Depth	0.7 in
Channel Slope	0.010 ft/ft
Critical Slope	0.009 ft/ft

MH 560-560A EX Wet Q Calc

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	1.0 in
Diameter	8.0 in

Results	
Discharge	0.04 cfs
Flow Area	0.0 ft ²
Wetted Perimeter	0.5 ft
Hydraulic Radius	0.6 in
Top Width	0.43 ft
Critical Depth	1.1 in
Percent Full	12.0 %
Critical Slope	0.008 ft/ft
Velocity	1.82 ft/s
Velocity Head	0.05 ft
Specific Energy	0.13 ft
Froude Number	1.374
Maximum Discharge	1.52 cfs
Discharge Full	1.41 cfs
Slope Full	0.000 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	12.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.0 in
Critical Depth	1.1 in
Channel Slope	0.016 ft/ft
Critical Slope	0.008 ft/ft

MH 560A-560B EX Wet Q Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.006 ft/ft
Normal Depth	1.2 in
Diameter	10.0 in
Results	
Discharge	0.05 cfs
Flow Area	0.0 ft ²
Wetted Perimeter	0.6 ft
Hydraulic Radius	0.8 in
Top Width	0.54 ft
Critical Depth	1.1 in
Percent Full	12.0 %
Critical Slope	0.008 ft/ft
Velocity	1.26 ft/s
Velocity Head	0.02 ft
Specific Energy	0.12 ft
Froude Number	0.852
Maximum Discharge	1.65 cfs
Discharge Full	1.53 cfs
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.2 in
Critical Depth	1.1 in
Channel Slope	0.006 ft/ft
Critical Slope	0.008 ft/ft

MH 560B-560C EX Wet Q Calc

Project Description	
Friction Method	Manning Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	1.0 in
Diameter	10.0 in
Results	
Discharge	0.05 cfs
Flow Area	0.0 ft ²
Wetted Perimeter	0.5 ft
Hydraulic Radius	0.6 in
Top Width	0.50 ft
Critical Depth	1.2 in
Percent Full	10.0 %
Critical Slope	0.008 ft/ft
Velocity	1.92 ft/s
Velocity Head	0.06 ft
Specific Energy	0.14 ft
Froude Number	1.419
Maximum Discharge	2.81 cfs
Discharge Full	2.61 cfs
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	10.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.0 in
Critical Depth	1.2 in
Channel Slope	0.016 ft/ft
Critical Slope	0.008 ft/ft

MH 592-593 EX Wet Q Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.016 ft/ft
Normal Depth	6.7 in
Diameter	18.0 in
Results	
Discharge	3.62 cfs
Flow Area	0.6 ft ²
Wetted Perimeter	2.0 ft
Hydraulic Radius	3.6 in
Top Width	1.45 ft
Critical Depth	8.7 in
Percent Full	37.0 %
Critical Slope	0.006 ft/ft
Velocity	6.09 ft/s
Velocity Head	0.58 ft
Specific Energy	1.13 ft
Froude Number	1.677
Maximum Discharge	13.35 cfs
Discharge Full	12.41 cfs
Slope Full	0.001 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	37.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	6.7 in
Critical Depth	8.7 in
Channel Slope	0.016 ft/ft
Critical Slope	0.006 ft/ft

MH 554 - 560 PROP Wet d/D Calc

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.009 ft/ft
Diameter	8.0 in
Discharge	0.01 cfs
Results	
Normal Depth	0.6 in
Flow Area	0.0 ft ²
Wetted Perimeter	0.4 ft
Hydraulic Radius	0.4 in
Top Width	0.34 ft
Critical Depth	0.5 in
Percent Full	6.9 %
Critical Slope	0.010 ft/ft
Velocity	0.95 ft/s
Velocity Head	0.01 ft
Specific Energy	0.06 ft
Froude Number	0.955
Maximum Discharge	1.15 cfs
Discharge Full	1.06 cfs
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	9.5 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.6 in
Critical Depth	0.5 in
Channel Slope	0.009 ft/ft
Critical Slope	0.010 ft/ft

MH 560A to 560B PROP Wet d/D Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.005 ft/ft
Diameter	10.0 in
Discharge	0.57 cfs
Results	
Normal Depth	4.4 in
Flow Area	0.2 ft ²
Wetted Perimeter	1.2 ft
Hydraulic Radius	2.3 in
Top Width	0.83 ft
Critical Depth	4.0 in
Percent Full	43.9 %
Critical Slope	0.007 ft/ft
Velocity	2.49 ft/s
Velocity Head	0.10 ft
Specific Energy	0.46 ft
Froude Number	0.832
Maximum Discharge	1.55 cfs
Discharge Full	1.44 cfs
Slope Full	0.001 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	2.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.4 in
Critical Depth	4.0 in
Channel Slope	0.005 ft/ft
Critical Slope	0.007 ft/ft

MH 560B - 560C PROP Wet d/D Calc

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.014 ft/ft
Diameter	10.0 in
Discharge	0.61 cfs
Results	
Normal Depth	3.4 in
Flow Area	0.2 ft ²
Wetted Perimeter	1.0 ft
Hydraulic Radius	1.9 in
Top Width	0.79 ft
Critical Depth	4.1 in
Percent Full	34.5 %
Critical Slope	0.007 ft/ft
Velocity	3.69 ft/s
Velocity Head	0.21 ft
Specific Energy	0.50 ft
Froude Number	1.418
Maximum Discharge	2.59 cfs
Discharge Full	2.41 cfs
Slope Full	0.001 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	34.5 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.4 in
Critical Depth	4.1 in
Channel Slope	0.014 ft/ft
Critical Slope	0.007 ft/ft

MH 592 - 560 PROP Wet d/D Calc

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.010 ft/ft
Diameter	18.0 in
Discharge	3.10 cfs
Results	
Normal Depth	7.0 in
Flow Area	0.6 ft ²
Wetted Perimeter	2.0 ft
Hydraulic Radius	3.8 in
Top Width	1.46 ft
Critical Depth	8.0 in
Percent Full	38.8 %
Critical Slope	0.006 ft/ft
Velocity	4.90 ft/s
Velocity Head	0.37 ft
Specific Energy	0.95 ft
Froude Number	1.313
Maximum Discharge	10.49 cfs
Discharge Full	9.75 cfs
Slope Full	0.001 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.8 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.0 in
Critical Depth	8.0 in
Channel Slope	0.010 ft/ft
Critical Slope	0.006 ft/ft

MH 560 - 593 PROP Wet d/D Calc

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.014
Channel Slope	0.010 ft/ft
Diameter	18.0 in
Discharge	3.15 cfs
Results	
Normal Depth	7.0 in
Flow Area	0.6 ft ²
Wetted Perimeter	2.0 ft
Hydraulic Radius	3.8 in
Top Width	1.46 ft
Critical Depth	8.1 in
Percent Full	39.1 %
Critical Slope	0.006 ft/ft
Velocity	4.92 ft/s
Velocity Head	0.38 ft
Specific Energy	0.96 ft
Froude Number	1.312
Maximum Discharge	10.49 cfs
Discharge Full	9.75 cfs
Slope Full	0.001 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	39.1 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.0 in
Critical Depth	8.1 in
Channel Slope	0.010 ft/ft
Critical Slope	0.006 ft/ft

APPENDIX C

d/D Dry and Wet Weather Flows

d/D for Sewer From Wilshire Blvd. to Charleville Blvd
Between
Roxbury Dr. & Alley E/O El Camino Dr.
Within

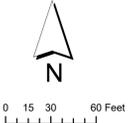
THE CITY OF
BEVERLY HILLS



PUBLIC WORKS & TRANSPORTATION
DEPARTMENT
345 FOOTHILL ROAD
BEVERLY HILLS, CA 90210

2023

Date:05/09/2023



Legend

- SEWER MANHOLES
- d/D DRY
- 05 - 760.88 - 10"**
d/D FULL FLOW PIPE DIAM.
 (G.P.M.)

d/D for Sewer From Wilshire Blvd. to Charleville Blvd
Between
Roxbury Dr. & Alley E/O El Camino Dr.
Within

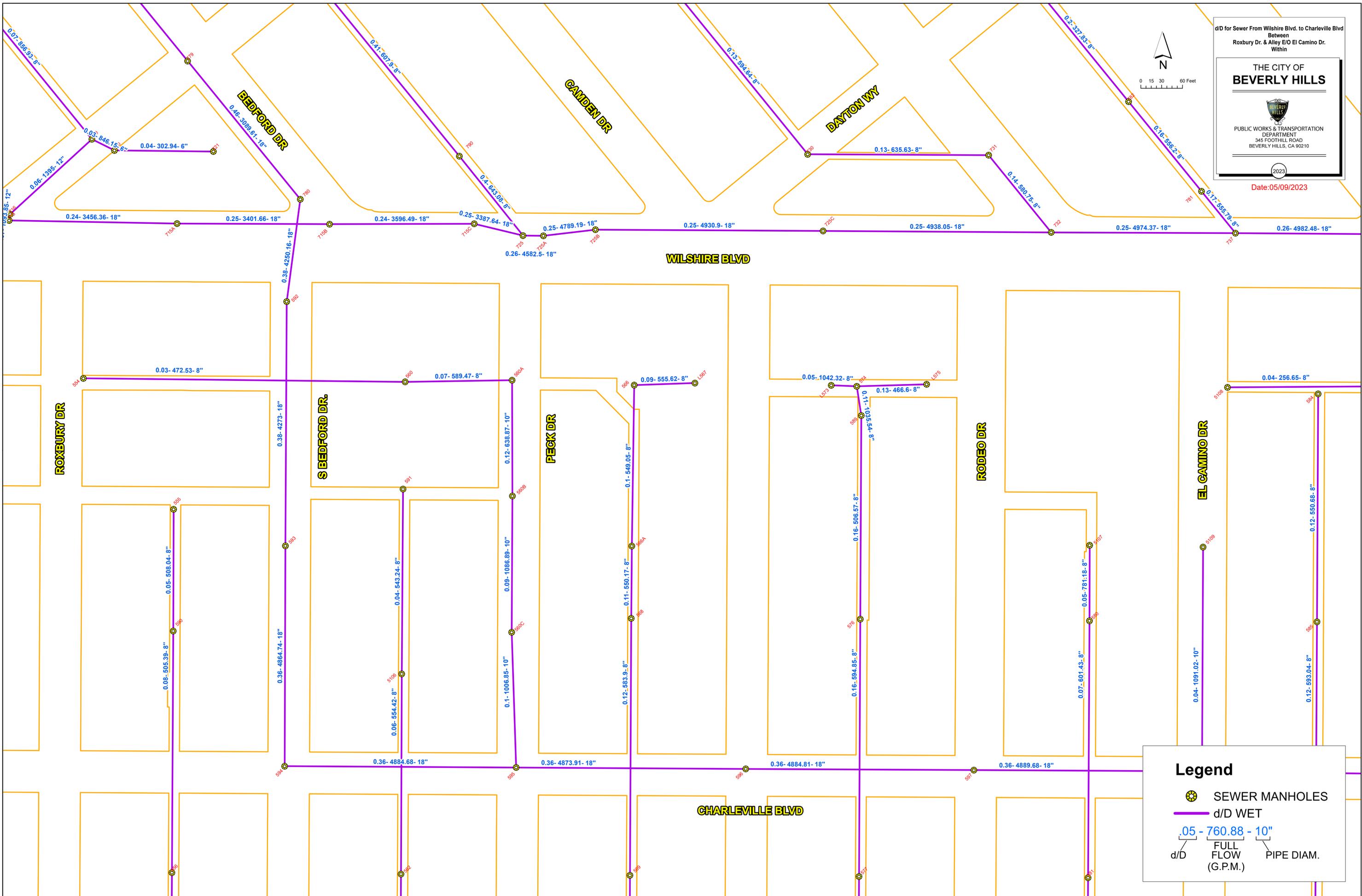
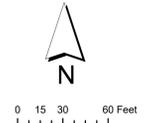
THE CITY OF
BEVERLY HILLS



PUBLIC WORKS & TRANSPORTATION
DEPARTMENT
345 FOOTHILL ROAD
BEVERLY HILLS, CA 90210

2023

Date:05/09/2023



Legend

- SEWER MANHOLES
- d/D WET
-

d/D FULL FLOW (G.P.M.) PIPE DIAM.

APPENDIX D

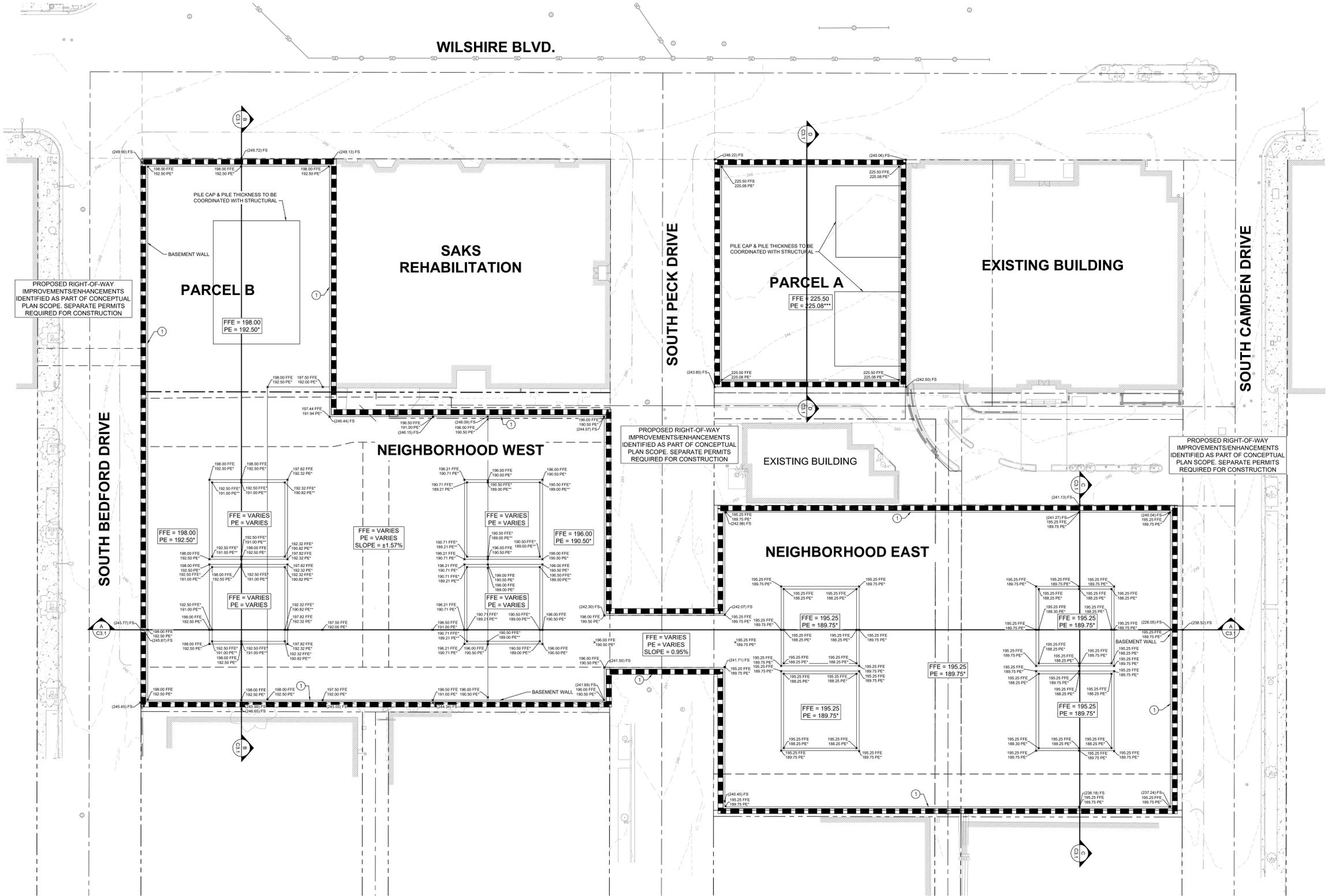
Site Plans

9600 Wilshire Boulevard
Sewer Area Study
July 14, 2023

kimley-horn.com

660 South Figueroa Street, Suite 2050, Los Angeles, CA 90017

213 261 4040



LEGEND

- PROPERTY LINE
- - - RIGHT-OF-WAY LINE
- CENTER LINE
- - - EASEMENT LINE
- - - GRADE BREAK LINE
- PROPOSED 3' SHORING WALL
- (XXX.X) EXISTING SPOT ELEVATION
- XXX.XX PROPOSED SPOT ELEVATION
- - - EXISTING CONTOUR
- FFE FINISHED FLOOR ELEVATION
- FS FINISHED SURFACE ELEVATION
- PE PAD ELEVATION
- ** 5/4" PAD THICKNESS PER STRUCTURAL PLANS
- *** 5" SLAB PER STRUCTURAL PLANS

MASS GRADING GENERAL NOTES:

1. CONTRACTOR TO LOCATE TEMPORARY CONSTRUCTION ACCESS RAMP FROM STREET TO EXCAVATED SITE.
2. COORDINATE WITH SHORING PLANS BY OTHERS FOR PROPOSED SHORING SYSTEM. SHORING PER SEPARATE PERMIT.
3. GRADING QUANTITIES AND FINISH GRADE DO NOT ACCOUNT FOR ADDITIONAL EXCAVATION FOR FOOTING, PITS, REMOVAL AND RECOMPACTION OR TRENCHES. REFER TO ARCHITECTURAL PLANS FOR DETAILS.
4. REFER TO DEMOLITION PLAN AND UTILITY PLAN FOR INFORMATION PERTAINING TO THE PROTECTION OF EXISTING UTILITIES.
5. CONTRACTOR SHALL CONSULT WITH OWNER REGARDING HAUL ROUTE AND LOCATION OF DISPOSAL OF EXCAVATED MATERIALS.
6. HAUL ROUTE PER SEPARATE PERMIT.
7. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS.
8. SEE ARCHITECTURAL PLANS FOR DETAIL GRIDLINES AND DIMENSIONS.
9. SEE OFF-SITE PLANS FOR DETAILS ON FEATURES WITHIN PROPOSED STREET RIGHT-OF-WAY.

EARTHWORK QUANTITIES:

THE QUANTITIES LISTED BELOW ARE APPROXIMATE AND FOR PERMIT PROCESS ONLY. QUANTITIES HAVE BEEN CALCULATED FROM EXISTING FINISHED GRADES TO PROPOSED SUBGRADE. THEY DO NOT REFLECT SHRINKAGE, SWELL, SUBSIDENCE AND REMOVAL OF EXISTING BUILDING STRUCTURES AND SURFACE IMPROVEMENTS. REMOVAL QUANTITIES FOR POSSIBLE SOIL CONTAMINATION OR EXISTING ABANDONED SUBSTRUCTURES HAVE NOT BEEN INCLUDED BECAUSE THEY ARE UNKNOWN AT THIS TIME. FIELD CONDITIONS DURING CONSTRUCTION MAY VARY RESULTING IN ACTUAL EARTHWORK QUANTITIES DIFFERENT FROM THOSE ESTIMATED BELOW. THE CONTRACTOR SHALL MAKE HIS OWN DETERMINATION OF THE QUANTITIES INVOLVED AND BASE HIS BID ON HIS OWN ESTIMATE.

DISTURBED AREA: 2.44 ACRES
 CUT: 179,000 CUBIC YARDS
 FILL: 0.00 CUBIC YARDS
 NET(CUT): 179,000 CUBIC YARDS (EXPORT)
 NET(FILL): 250,800 CUBIC YARDS (EXPORT)

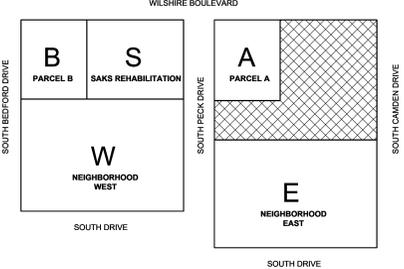
*A CONTINGENCY FACTOR OF 40% HAS BEEN ADDED TO ACCOUNT FOR SOIL VARIATIONS IN EXCAVATION PER GEOTECHNICAL ENGINEER RECOMMENDATIONS. FINAL DETERMINATION OF EARTHWORK QUANTITIES WILL BE ASSESSED BY THE CONTRACTOR. CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION IN ACCOUNTING FOR SHRINKAGE, SWELL AND SUBSIDENCE FACTORS. EARTHWORK QUANTITIES SHALL BE USED FOR PLAN CHECK PURPOSES ONLY.

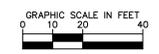
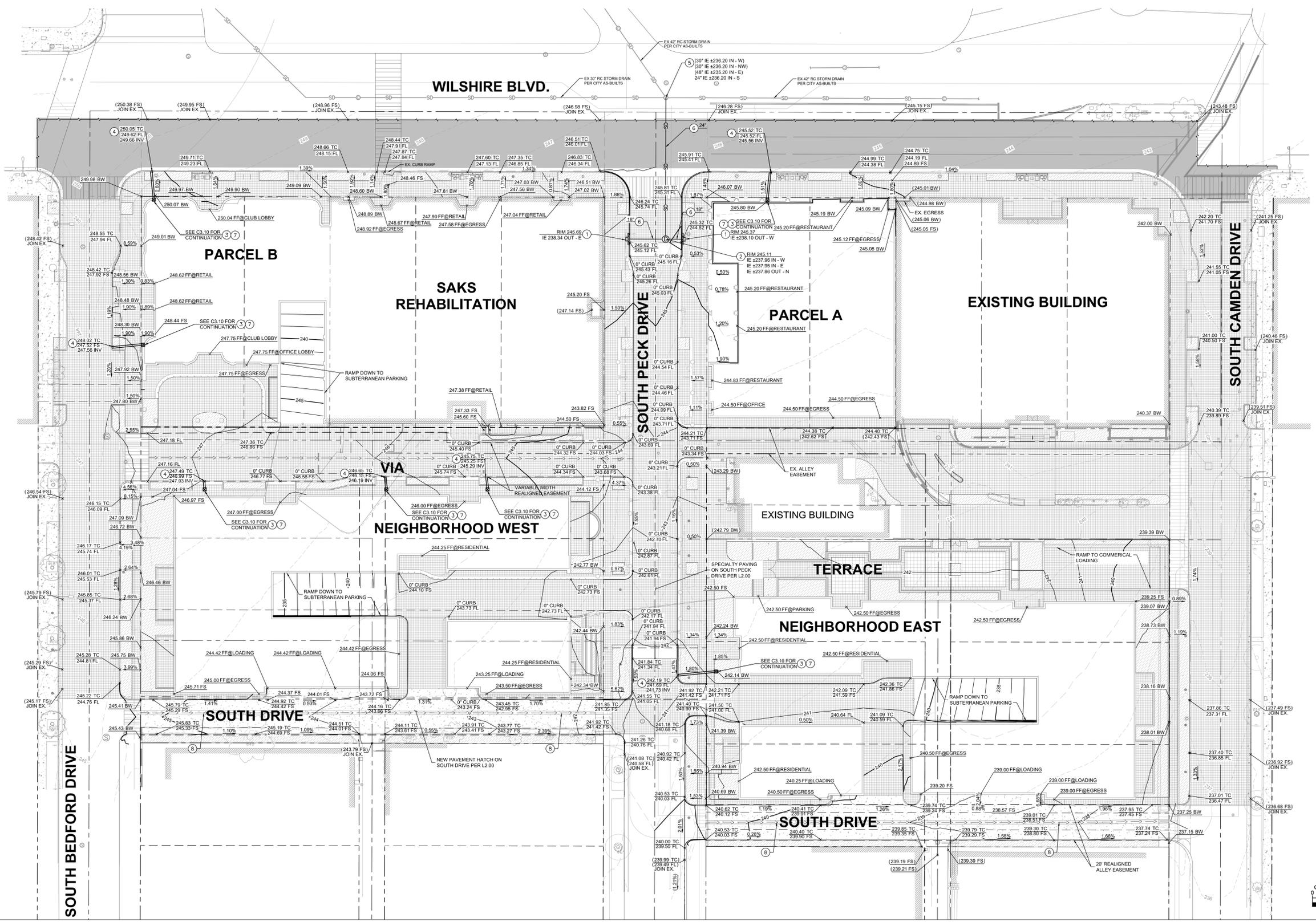
MASS GRADING KEYNOTES

- ① SHORING WALL PER SEPARATE PERMIT BY OTHERS.

GENERAL NOTES

1. ALL SURVEY MONUMENTS, STREET LIGHTS, PARKING METERS, AND UNDERGROUND UTILITIES, AND ANY OFF-SITE IMPROVEMENTS AFFECTED BY DEMOLITION SHALL BE RE-ESTABLISHED PER CITY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.
2. OFF-SITE IMPROVEMENTS CONSIST OF REMOVAL AND REPLACEMENT THAT IS NOT LIMITED TO: CURBS AND GUTTER, CURB DRAINS, DRIVEWAY APPROACHES, SIDEWALK, AND ASPHALT PAVEMENT IN ACCORDANCE WITH CITY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.
3. OFF-SITE IMPROVEMENTS MUST CONFORM TO CURRENT ADA AND APPLICABLE CITY STANDARDS.
4. UNLESS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN, THE APPLICANT WILL NOT CONSTRUCT IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY WITHOUT AN ENCROACHMENT PERMIT APPROVED BY CITY COUNCIL.
5. WRITTEN APPROVAL IS REQUIRED BY ENGINEERING DIVISION FOR APPROVAL OF ANY TYPE OF TEMPORARY CONSTRUCTION ENCROACHMENT WITHIN PUBLIC RIGHT-OF-WAY AND IN ACCORDANCE WITH CITY COUNCIL RESOLUTION TR-16-0269. SHORING IS PROHIBITED FROM PROJECTING INTO ALLEYS.
6. INDEMNITY BOND MUST BE SUBMITTED AND APPROVED BY CITY ATTORNEY PRIOR TO EXCAVATION.
7. TRAFFIC CONTROL PLANS ARE TO BE REVIEWED AND APPROVED BY CITY'S TRAFFIC ENGINEERING PRIOR TO CONSTRUCTION.





OVERALL GRADING AND DRAINAGE PLAN
SCALE: 1"=20'

GENERAL NOTES

- ALL SURVEY MONUMENTS, STREET LIGHTS, PARKING METERS, AND UNDERGROUND UTILITIES, AND ANY OFF-SITE IMPROVEMENTS AFFECTED BY DEMOLITION SHALL BE RE-ESTABLISHED PER CITY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.
- OFF-SITE IMPROVEMENTS CONSIST OF REMOVAL AND REPLACEMENT THAT IS NOT LIMITED TO: CURB AND GUTTER, CURB DRAINS, DRIVEWAY APPROACHES, SIDEWALK, AND ASPHALT PAVEMENT IN ACCORDANCE WITH CITY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.
- OFF-SITE IMPROVEMENTS MUST CONFORM TO CURRENT ADA AND APPLICABLE CITY STANDARDS.
- UNLESS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN, THE APPLICANT WILL NOT CONSTRUCT IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY WITHOUT AN ENCROACHMENT PERMIT APPROVED BY CITY COUNCIL.
- WRITTEN APPROVAL IS REQUIRED BY ENGINEERING DIVISION FOR APPROVAL OF ANY TYPE OF TEMPORARY CONSTRUCTION ENCROACHMENT WITHIN PUBLIC RIGHT-OF-WAY AND IN ACCORDANCE WITH CITY COUNCIL RESOLUTION 714-2019. SHORING IS PROHIBITED FROM PROJECTING INTO ALLEYS.
- INDEMNITY BOND MUST BE SUBMITTED AND APPROVED BY CITY ATTORNEY PRIOR TO EXCAVATION.
- TRAFFIC CONTROL PLANS ARE TO BE REVIEWED AND APPROVED BY CITY'S TRAFFIC ENGINEERING PRIOR TO CONSTRUCTION.

EXISTING UTILITY NOTE

THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.

DRAINAGE NOTES

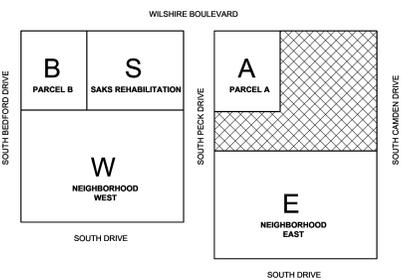
- STORM DRAIN PIPES AND APPURTENANCES ARE DESIGNED BASED ON AS-BUILTS PROVIDED BY CITY OF BEVERLY HILLS DATED DECEMBER 12, 2021.
- REFER TO LID SHEET C4.00 - OVERALL LID CONCEPT FOR RAINWATER HARVESTING CISTERN AND ASSOCIATED STRUCTURES INSIDE THE BUILDING.

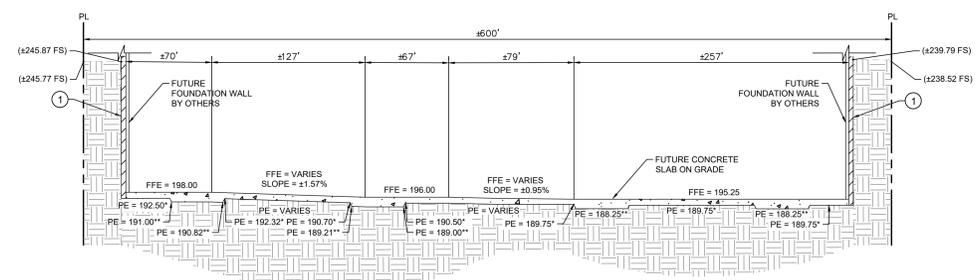
GRADING AND DRAINAGE KEYNOTES

- CONSTRUCT CURB OPENING CATCH BASIN.
- CONSTRUCT STORM DRAIN MANHOLE.
- PROPOSED PVC SLUMP PUMP FORCE MAIN TO CURB DRAIN TRANSITION STRUCTURE.
- PROPOSED CURB DRAIN OVERFLOW TO CURB FACE PER SPPV STD. PLAN 150-4.
- CONNECT TO EXISTING MANHOLE.
- CONSTRUCT RCP STORM DRAIN LINE.
- SEE PLUMBING PLANS FOR CONTINUATION AND INVERT INFORMATION.
- CONSTRUCT CONCRETE LONGITUDINAL GUTTER PER CITY OF BEVERLY HILLS ALLEY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.

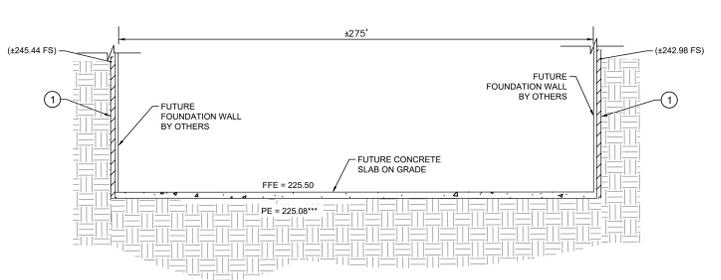
LEGEND

	PROPERTY LINE		CONSTRUCT PAVEMENT AND BASE TO MATCH EXISTING PER B.H. STANDARDS
	RIGHT-OF-WAY LINE		CONSTRUCT CAST-IN-PLACE CONCRETE PAVING PER LANDSCAPE PLANS
	CENTER LINE		CONSTRUCT SPECIALTY PAVEMENT PER LANDSCAPE PLANS
	EASEMENT LINE		CONSTRUCT PLANTING AREA PER LANDSCAPE PLANS
	CIVIL LIMIT OF WORK LINE		FLOW LINE
	PROPOSED STORM DRAIN PIPE (< 12'0")		SAWCUT LINE
	PROPOSED STORM DRAIN PIPE (> 12'0")		STORM DRAIN AND SANITARY SEWER MANHOLE
	CATCH BASIN INLET		CURB DRAIN INLET

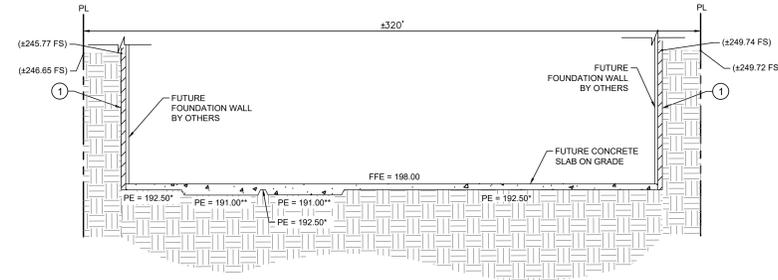




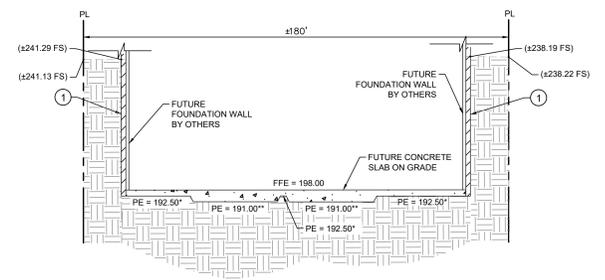
A SECTION A-A
 C3.0 NOT TO SCALE



D SECTION D-D
 C3.0 NOT TO SCALE



B SECTION B-B
 C3.0 NOT TO SCALE



C SECTION C-C
 C3.0 NOT TO SCALE

GENERAL NOTES

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- WRITTEN APPROVAL IS REQUIRED BY ENGINEERING DIVISION FOR APPROVAL OF ANY TYPE OF TEMPORARY CONSTRUCTION ENCROACHMENT WITHIN PUBLIC RIGHT-OF-WAY AND IN ACCORDANCE WITH CITY COUNCIL RESOLUTION 71-R-4289. SHORING IS PROHIBITED FROM PROJECTING INTO ALLEYS.
- INDEMNITY BOND MUST BE SUBMITTED AND APPROVED BY CITY ATTORNEY PRIOR TO EXCAVATION.
- TRAFFIC CONTROL PLANS ARE TO BE REVIEWED AND APPROVED BY CITY'S TRAFFIC ENGINEERING PRIOR TO CONSTRUCTION.
- LANDSCAPE PLANS WITHIN PUBLIC RIGHT-OF-WAY ARE TO BE REVIEWED AND APPROVED BY CITY'S ARBORIST. TREE REMOVALS MUST BE AUTHORIZED BY THE CITY.

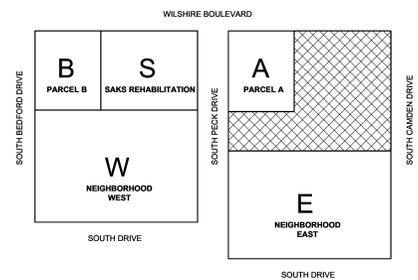
MASS GRADING KEYNOTES

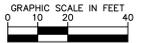
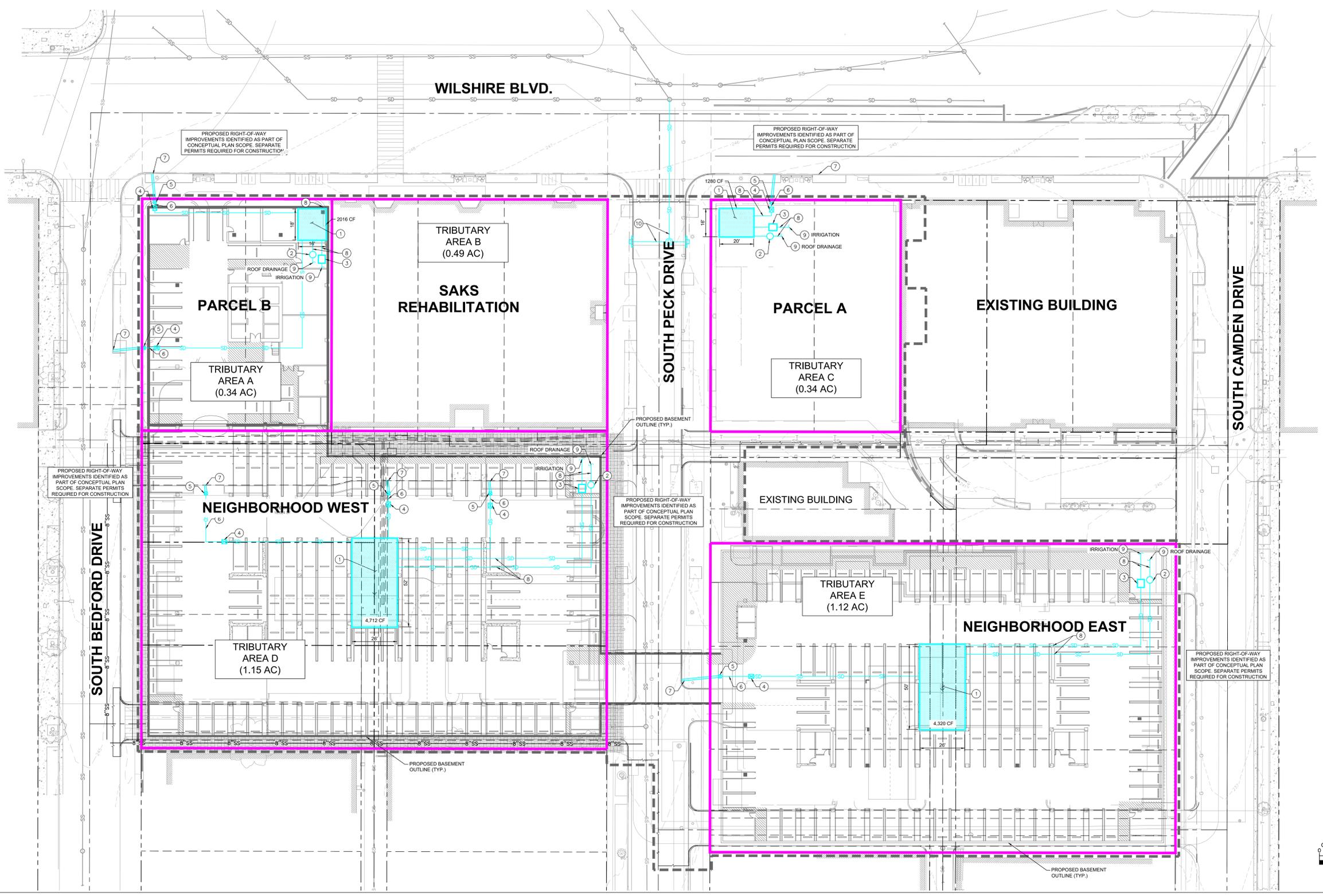
- SHORING WALL PER SEPARATE PERMIT BY OTHERS.

LEGEND

---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	CENTER LINE
---	EASEMENT LINE
---	GRADE BREAK LINE
█	PROPOSED 3" SHORING WALL
(XX.XX)	EXISTING SPOT ELEVATION
XX.XX	PROPOSED SPOT ELEVATION
---	EXISTING CONTOUR
FFE	FINISHED FLOOR ELEVATION
FS	FINISHED SURFACE ELEVATION
PE	PAD ELEVATION
*	4" PAD THICKNESS PER STRUCTURAL PLANS
**	5" PAD THICKNESS PER STRUCTURAL PLANS
***	5" SLAB PER STRUCTURAL PLANS

MASS GRADING PLAN SECTIONS
 SCALE: NTS





OVERALL LID CONCEPT
SCALE: 1"=20'

- LID KEYNOTES:**
- PROPOSED RAINWATER HARVESTING CISTERNS.
 - PROPOSED CONTECH CDS PRE-TREATMENT UNIT PER MEP.
 - PROPOSED CONTECH MECHANICAL SKID AND IRRIGATION PUMP PER MEP. SEE ARCHITECTURAL PLANS FOR LOCATION WITHIN P1 AND PLUMBING PLANS FOR DETAIL.
 - PROPOSED SUMP PUMP PER MEP.
 - PROPOSED SUMP PUMP OUTLET CONTROL STRUCTURE.
 - PROPOSED PVC SUMP PUMP FORCE MAIN TO CURB DRAIN TRANSITION STRUCTURE.
 - PROPOSED CURB DRAIN OVERFLOW TO CURB FACE.
 - PROPOSED PVC STORM DRAIN PIPING, STRUCTURES, AND APPURTENANCES PER PLUMBING.
 - SEE PLUMBING PLANS FOR CONTINUATION AND INVERT INFORMATION.
 - PROPOSED STORM DRAIN PIPE, STRUCTURES AND APPURTENANCES IN PECK DRIVE REFER TO SHEET C3.01 - OVERALL GRADING AND DRAINAGE PLAN FOR MORE DETAILS.

- GENERAL NOTES**
- ALL SURVEY MONUMENTS, STREET LIGHTS, PARKING METERS, AND UNDERGROUND UTILITIES, AND ANY OFF-SITE IMPROVEMENTS AFFECTED BY DEMOLITION SHALL BE RE-ESTABLISHED PER CITY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.
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 - OFF-SITE IMPROVEMENTS MUST CONFORM TO CURRENT ADA AND APPLICABLE CITY STANDARDS.

- LID CONCEPT GENERAL NOTES:**
- SEE PLUMBING PLANS FOR ROUTING OF STORM DRAIN INTERNAL TO THE BUILDING STRUCTURE.
 - SEE C3.01 - OVERALL GRADING AND DRAINAGE PLAN FOR CONSTRUCTION INFORMATION.
 - CONTRACTOR SHALL TAKE PICTURES AT EACH PHASE OF BMP CONSTRUCTION. CONTRACTOR SHALL TAKE PICTURES BEFORE, DURING, AND AFTER CONSTRUCTION. THESE PICTURES SHALL BE SUBMITTED TO THE ENGINEER-OF-RECORD.
 - CONTRACTOR SHALL SCHEDULE A BMP MEETING BEFORE THE INSTALLATION OF BMPs.
 - TESTS FOR BMPs SHALL BE CONDUCTED BY CONTRACTOR AT THE CONCLUSION OF CONSTRUCTION TO VERIFY PERFORMANCE AND ENSURE IT MEETS DESIGN STANDARDS. TEST RESULTS SHALL BE SENT TO THE ENGINEER-OF-RECORD FOR REVIEW AND APPROVAL.
 - CONTRACTOR SHALL PREPARE CLOSOUT PROCEDURES FOR BMPs.
 - CONTRACTOR SHALL COMPLY WITH THE LA COUNTY PLUMBING CODE - CHAPTER 16 - NON-POTABLE RAINWATER CATCHMENT SYSTEMS.
 - ANY CHANGES (TYPE, SIZE, LOCATION) TO APPROVED STORMWATER BEST MANAGEMENT PRACTICES (BMPs) MUST OBTAIN WRITTEN APPROVAL FROM LOS ANGELES, DEPARTMENT OF PUBLIC WORKS, BUREAU OF SANITATION PRIOR TO CONSTRUCTION OF BMPs.
 - ALL DRAINAGE INLETS TO BE LABELED WITH "NO DUMPING - DRAINS TO OCEAN".
 - SEE LANDSCAPE PLANS FOR LOCATION OF IRRIGATED LANDSCAPE ON ROOF.

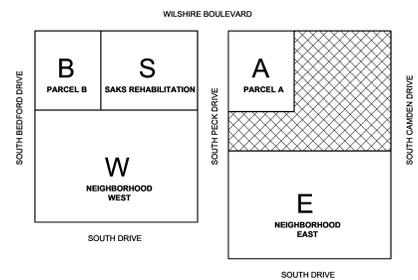
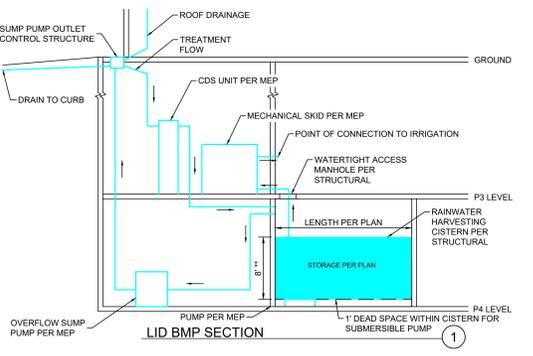
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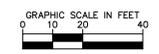
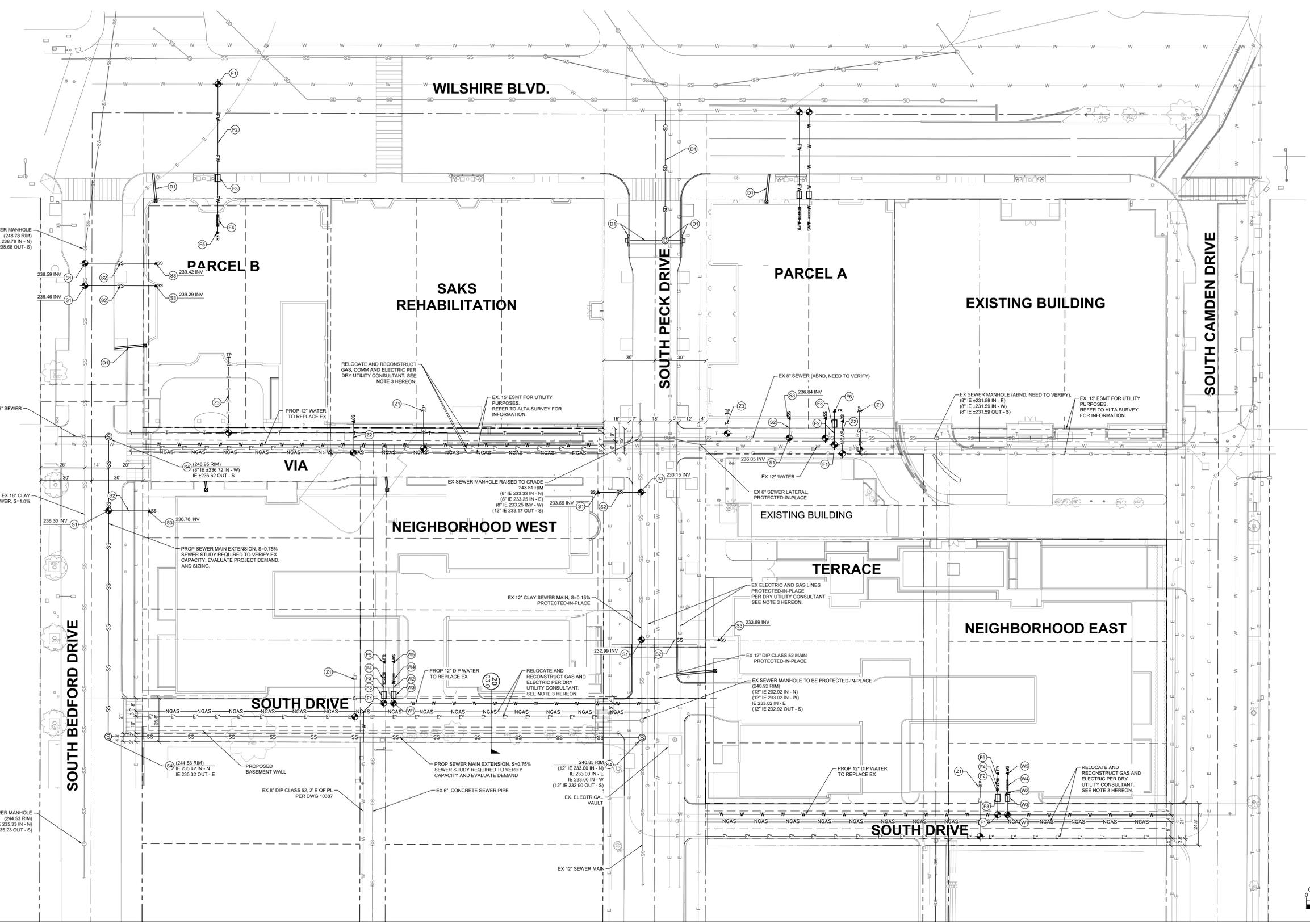
LID TABULATION

TRIBUTARY AREA	BMP	SITE AREA (SF)	IMPERVIOUS AREA (SF)	PERVIOUS AREA PROVIDED (SF)	MITIGATION VOLUME REQUIRED (CF)	REQUIRED LANDSCAPE AREA (SF)
A	RAINWATER HARVESTING CISTERNS	14,863	13,716	1,147	1,177	493
B	RAINWATER HARVESTING CISTERNS	21,612	19,687	1,925	1,714	465
C	RAINWATER HARVESTING CISTERNS	14,878	12,767	2,111	1,101	0
D	RAINWATER HARVESTING CISTERNS	51,558	46,509	5,049	4,006	521
E	RAINWATER HARVESTING CISTERNS	50,233	43,350	6,883	3,798	0

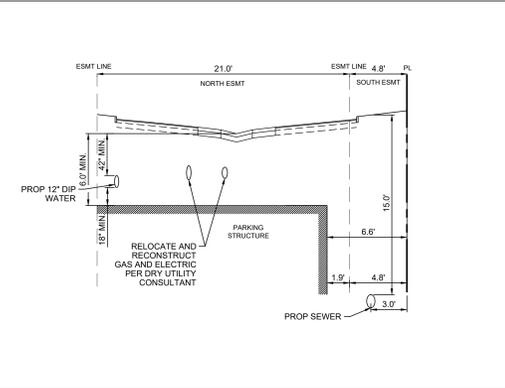
* PERVIOUS AREAS WERE ASSESSED BASED ON THE LANDSCAPE PLANS ISSUED ON 4/21/2022. IT ASSUMES THE CITY WILL PERMIT OFFSITE LANDSCAPE AREA TO BE USED FOR IRRIGATION AND LID TREATMENT. THIS WILL BE VERIFIED IN DESIGN.

- LEGEND**
- EXISTING PROPERTY LINE
 - PROPOSED PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - LOT LINE
 - CENTER LINE
 - TOTAL TRIBUTARY AREA
 - CISTERNS LOCATION
 - PROPOSED PRE-TREATMENT
- ABBREVIATIONS**
- AC - ASPHALT CONCRETE
 - BMP - BEST MANAGEMENT PRACTICES
 - CDS - CONTINUOUS DEFLECTION SEPARATION
 - CF - CUBIC FEET
 - FS - FINISHED SURFACE
 - FW - FIRE WATER
 - G - GAS
 - GB - GRADE BREAK
 - HP - HIGH POINT
 - INV - INVERT
 - IRR - IRRIGATION WATER
 - LID - LOW IMPACT DEVELOPMENT
 - NTS - NOT TO SCALE
 - PVC - POLYVINYL CHLORIDE
 - SF - SQUARE FEET





OVERALL UTILITY PLAN
SCALE: 1"=20'



SOUTH DRIVE SECTION
SCALE: 1"=5'

ABBREVIATIONS

BLDG - BUILDING	CB - CATCH BASIN	CDS - CONTINUOUS DEFLECTION SEPARATION	CIL CONC. - CONCRETE	CONST. - CONSTRUCT, CONSTRUCTION	DI - DRAIN INLET	DIP - DUCTILE IRON PIPE	DW - DOMESTIC WATER	ELEC - ELECTRIC	FW - FIRE WATER	G - GAS	INV - INVERT	IRR - IRRIGATION WATER	MH - MANHOLE	N - NORTH	NTS - NTS	PCC - PORTLAND CEMENT CONCRETE	PL - PROPERTY LINE	PL - POLYVINYL CHLORIDE	R/W - RIGHT-OF-WAY	S - SEWER	SD - STORM DRAIN	STA - STATION	SS - SANITARY SEWER	SSPWC - STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION	T - TELEPHONE	W - WATER
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GENERAL NOTES

- ALL SURVEY MONUMENTS, STREET LIGHTS, PARKING METERS, AND UNDERGROUND UTILITIES, AND ANY OFF-SITE IMPROVEMENTS AFFECTED BY DEMOLITION SHALL BE RE-ESTABLISHED PER CITY STANDARDS, OR AS OTHERWISE PERMITTED BY THE CITY AS PERMITTED BY THE SPECIFIC PLAN AND SHALL BE PAID FOR BY THE APPLICANT.
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- OFF-SITE IMPROVEMENTS MUST CONFORM TO CURRENT ADA AND APPLICABLE CITY STANDARDS.

EXISTING UTILITY NOTE

- THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.
- MEANS AND METHODS OF PROTECTING IN-PLACE EXISTING UTILITIES WITHIN PECK DRIVE PER CONTRACTOR IN COORDINATION WITH THE CITY OF BEVERLY HILLS AND APPLICABLE AUTHORITIES HAVING JURISDICTION.
- RELOCATION OR RECONSTRUCTION OF EXISTING UTILITIES SHALL REQUIRE ADJUSTMENT OF EXISTING EASEMENT PER SEPARATE INSTRUMENT. LOCATION OF EXISTING UTILITIES SHALL BE POTHOLED AND VERIFIED PRIOR TO CONSTRUCTION. UTILITY RECONSTRUCTION SHALL MEET THE SEPARATION REQUIREMENT OF UTILITY AGENCIES/COMPANIES AND ANY VARIANCE REQUIREMENT SHALL BE COORDINATED PRIOR TO CONSTRUCTION.

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DOMESTIC WATER

- (W1) HOT TAP EXISTING WATER MAIN. COORDINATE TAP WITH CITY OF BEVERLY HILLS.
- (W2) INSTALL DOMESTIC WATER LATERAL.
- (W3) INSTALL DOMESTIC WATER METER. COORDINATE WITH CITY OF BEVERLY HILLS.
- (W4) INSTALL REDUCED PRESSURE ASSEMBLY, OR APPROVED EQUAL. COORDINATE INSTALLATION WITH CITY OF BEVERLY HILLS.
- (W5) BUILDING POINT OF CONNECTION (5-FT FROM BUILDING FACE). REFER TO PLUMBING PLANS FOR CONTINUATION.

FIRE WATER

- (F1) HOT TAP EXISTING WATER MAIN. COORDINATE TAP WITH THE CITY OF BEVERLY HILLS.
- (F2) INSTALL FIRE WATER LATERAL.
- (F3) INSTALL FIRE WATER METER. COORDINATE WITH CITY OF BEVERLY HILLS.
- (F4) INSTALL DOUBLE DETECTOR CHECK ASSEMBLY, OR APPROVED EQUAL. SIZE PER PLAN. COORDINATE WITH CITY OF BEVERLY HILLS.
- (F5) BUILDING POINT OF CONNECTION (5-FT FROM BUILDING FACE). REFER TO PLUMBING PLANS FOR CONTINUATION.

SEWER KEYNOTES

- (S1) CONNECT TO EXISTING SEWER MAIN.
- (S2) INSTALL PVC SEWER LATERAL (S=2.0% MN.). REFER TO PLUMBING PLANS FOR CONTINUATION.
- (S3) BUILDING POINT OF CONNECTION (5-FT FROM BUILDING FACE). REFER TO PLUMBING PLANS FOR CONTINUATION.
- (S4) CONSTRUCT NEW SEWER MANHOLE.

STORM DRAIN KEYNOTES

- (D1) PROPOSED STORM DRAIN PIPING AND APPURTENANCES. REFER TO C2.0 - PRELIMINARY GRADING AND DRAINAGE PLAN FOR DESIGN INFORMATION.

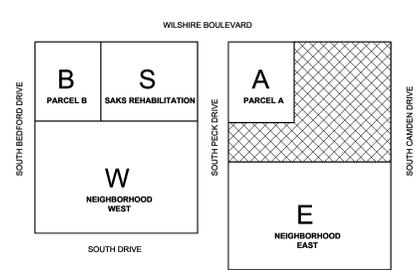
DRY UTILITY KEYNOTES

NOTE: DRY UTILITIES ARE SHOWN FOR REFERENCE ONLY. REFER TO DRAWINGS AND SPECS BY OTHERS FOR MORE INFORMATION. SHOWN FOR COORDINATION PURPOSES ONLY.

- (Z1) ELECTRICAL CONDUIT PER DRY UTILITY CONSULTANT
- (Z2) GAS PIPE PER DRY UTILITY CONSULTANT
- (Z3) TELECOM SERVICE PER DRY UTILITY CONSULTANT

LEGEND

---	PROPERTY LINE
---	CENTER LINE
---	EASEMENT OR SETBACK LINE
---	CIVIL LIMIT OF WORK LINE
SS	PROPOSED SANITARY SEWER PIPE
SD	PROPOSED STORM DRAIN PIPE (< 12")
---	PROPOSED STORM DRAIN PIPE (> 12")
W	PROPOSED WATER PIPE
DW	PROPOSED DOMESTIC WATER PIPE
FW	PROPOSED FIRE WATER PIPE
+	POINT OF CONNECTION TO EXISTING UTILITY LINES OR MANS
ASS	BUILDING POINT OF CONNECTION



KEY PLAN
1"=100'

DRAWING: LEGEND & NOTES
SCALE: NTS



701 N. Bullis Rd.
Compton, CA 90224-9099

December 15, 2022

Burns & Bouchard, Inc.
9619 National Blvd
Los Angeles, CA 90034
Attn: Jonathan Lonner

Subject: Will Serve - 9600 Wilshire Blvd. Beverly Hills, CA 90212

Thank you for inquiring about the availability of natural gas service for your project. We are pleased to inform you that Southern California Gas Company (SoCalGas) has facilities in the area where the above named project is being proposed. The service would be in accordance with SoCalGas' policies and extension rules on file with the California Public Utilities Commission (CPUC) at the time contractual arrangements are made.

This letter should not be considered a contractual commitment to serve the proposed project, and is only provided for informational purposes only. The availability of natural gas service is based upon natural gas supply conditions and is subject to changes in law or regulation. As a public utility, SoCalGas is under the jurisdiction of the Commission and certain federal regulatory agencies, and gas service will be provided in accordance with the rules and regulations in effect at the time service is provided. Natural gas service is also subject to environmental regulations, which could affect the construction of a main or service line extension (for example, if hazardous wastes were encountered in the process of installing the line). Applicable regulations will be determined once a contract with SoCalGas is executed.

If you need assistance choosing the appropriate gas equipment for your project, or would like to discuss the most effective applications of energy efficiency techniques, please contact our area Service Center at 800-427-2200.

Thank you again for choosing clean, reliable, and safe natural gas, your best energy value.

Sincerely,

Jason Sum

Planning Associate

SoCalGas - Compton HQ

Will Serve Letter Only



DATE: 12/13/22

COMPANY: Burns & Bouchard, Inc.

SUBJECT: 9600 Wilshire Blvd Beverly Hills

Your project is located in Southern California Edison (SCE) service territory. SCE will serve the above subject project's electrical requirements per the California Public Utilities Commission and Federal Energy Regulatory Commission tariffs.

SCE may need to conduct utility studies, where applicable, to assess whether additions or modifications to the existing electric infrastructure are required to serve this project. Where applicable, SCE has attached Appendix (B) which not only describes the study, and permitting, but includes a Project Information Sheet that will need to be completed by you and submitted to SCE if your project is at a point where SCE has to determine the required electrical utility work. This Will-Serve letter does not imply that either: (i) these studies have been completed, or (ii) that any required California Environmental Quality Act (CEQA) analysis of project-related electric utility impacts has been conducted.

I am the SCE Design Representative currently assigned to this project. SCE or Applicant will design and construct all required electrical infrastructure to serve this project provided you enter into the applicable contractual agreements with SCE identify scope of electrical utility work required, and supply the following information:

- Site plans as required
- Required contracts and agreements (fully executed)
- Applicable fees
- Local permits
- Required easement documents

Your project will be scheduled for construction once SCE has all the necessary information for your project and you have submitted or agreed to the applicable requirements as stated above, and paid any necessary fees.

If your project will not require SCE services, please notify us so that we can update our records.

SCE appreciates your business. If you have any questions, please feel free to call me at (310) 956-9032

Sincerely,

Eric Jeronimo

SCE Design Representative

Enclosure: Appendix B, where applicable