DRAFT SEWER STUDY FOR

East Harbor Island Public Infrastructure Improvements

San Diego, CA

Prepared For: Port of San Diego

RICK Job No. 19538F

May 2024

RICK

SEWER STUDY

FOR

EAST HARBOR ISLAND
PUBLIC INFRASTRUCTURE IMPROVEMENTS
SAN DIEGO, CA.

Job Number 19538F

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Date: May 29, 2024

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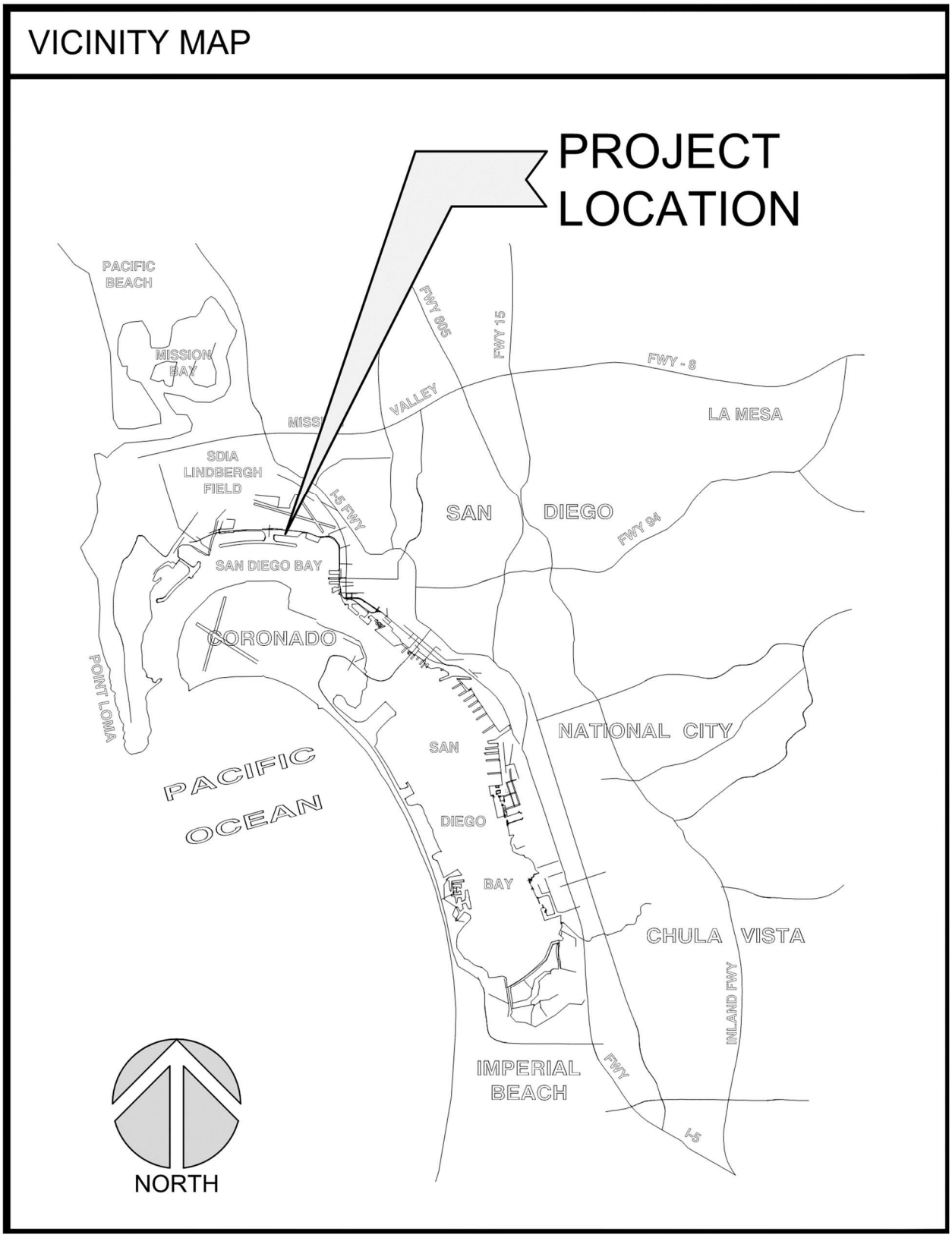
VICINITY MAP



INTRODUCTION

This report provides a comprehensive overview of the proposed sewer services for the East Harbor Island Public Infrastructure Improvements project. Included in this report are projected sewer flow data, preliminary pipe sizing, and discussion of alternative design considerations, their impacts, and factors to consider for final design.

PROJECT OVERVIEW

The East Harbor Island Public Infrastructure Improvements project, situated in San Diego near Harbor Island, involves the realignment of Liberator Way to accommodate visitor-serving attractions bordered by N Harbor Drive, Liberator Way, and Harbor Island Drive. The objective is to transform the area into a vibrant space featuring amenities including a pedestrian promenade and waterfront park. Given the project's unique location, effective coordination between the Port of San Diego, City of San Diego, San Diego International Airport, and the design team will be crucial to the project's success.

The existing conditions include three (3) rental car facilities, set to be vacated to make way for the proposed resorts, and the Harbor Police Station, which will remain. The existing sewer flows are currently divided, with the Harbor Police Station and the western rental car facility draining northwest into an 8-inch Vitrified Clay (VC) pipe along N. Harbor Drive, while the remaining two (2) rental car facilities discharge to the northeast into a separate 8-inch VC pipe, also along N. Harbor Drive.

The ultimate future buildout (which is not a part of the current project) is expected to include one (1) resort with approximately 360 rooms, and two (2) with around 495 rooms each, totaling 1350 rooms across the three properties. The current project, for a Topgolf visitor-serving attraction, will temporarily occupy part of the site during the term of a proposed lease (approximately 40 years). However, as its demand is expected to be surpassed by the future resorts in the ultimate future condition, it will not be analyzed in this report.

Illustrated in the accompanying exhibit, the proposed sewer system consolidates the wastewater from all three (3) properties, directing it to the northeast corner of the site. Upgrades include upsizing the existing 8-inch VC pipe crossing N. Harbor Drive to 12-inch and connecting to the existing system at the manhole north of N. Harbor Drive.

DESIGN METHODOLOGY

The design and sizing criteria for the analysis of the proposed sewer system is based on the City of San Diego Sewer Design Guide (SDG) summarized below:

1. Sewage Generation Factors
    a. Equivalent Population
    The SDG provides input on determining estimated output values depending on zoning and acreage of the site. However, it also states that *"The tabulated figures shall not be used if more accurate figures are available."*
        - Since the estimated number of rooms was available, the analysis utilizes this data to determine the anticipated Equivalent Dwelling Units (EDU)
        - While no value of EDU/room was available in the SDG, our team estimates 0.33 EDU/per room which will be used in this study.

    b. Daily Per Capita Sewer Flows
    The sewer flows for the contributing population is 80 gallons per capita per day (gpcd).

    c. Average Dry Weather Flow
    The equation below was used to determine the average dry weather flow (ADWF). This equation is also used in the spreadsheet included in this report.

    Average Dry Weather Flow = (80 gpcd) x (Equivalent Population)

    d. Peaking Factor
    Figure 1-1 from the City of San Diego Sewer Design Guide was used to determine the peaking factor for sewer flows (dry weather).

    e. Sewer Pipe
    The proposed public gravity flow sewer pipe on the site is also designed to convey peak wet weather flow. Maximum design flow depths are as follows:

        - 50% full design flow for pipes less than 16 inches in diameter
        - Minimum design velocity = 2 feet/second

Assumptions

While our team attempted to coordinate with City of San Diego to determine existing flows, the City staff contacted were not able to provide us with the data necessary for this report. As a result, the amount of flow from the existing laterals connecting to Manhole 9 (MH 9) was estimated using a conservative assumption that the lateral is flowing at maximum design capacity (dn/D = 0.50). This assumption is preliminary and will need to be confirmed during final design. Further coordination and metering of the existing manholes may be required.

DESIGN ALTERNATIVES

This attached exhibit and spreadsheet analyze the proposed design which routes flows to the northeast corner of the site and includes upsizing the existing 8-inch VC pipe crossing N. Harbor Drive to remain within the design requirements outlined in the City of San Diego Sewer Design Guide.

To mitigate the need to perform construction operations crossing N. Harbor Drive, an alternative design may also be considered in which the flows of the two (2) westernmost resorts are routed southwest near the existing Sheraton San Diego Hotel driveway to an existing 8-inch VC pipe, while the remaining flows from the other resort is routed northeast, similar to the original design. This alternative would include roughly an additional 1000' of PVC pipe but would avoid the need to impact N. Harbor Drive. Further analysis will need to be performed to determine the feasibility and pipe size required for this alternative.

CONCLUSION

This study was performed to determine that the proposed sewer system meets the requirements outlined in the City of San Diego Sewer Design Guide. Further coordination between the City of San Diego, Port of San Diego, San Diego International Airport, and RICK will be required to ensure the system functions as designed and serves the anticipated needs of the project.

					EAST HARBOR ISLAND PUBLIC INFRASTRUCTURE IMPROVEMENTS SEWER STUDY								
JOB NO.	**19538F**												**DATE: 5/29/2024**
FILE:C:\RICK\Projects\C19500\19538F_East Harbor Island					**BY: RICK ENGINEERING**								**PREPARED BY:CSC**
\Sewer Study\East Harbor Island Sewer Study.xls													**checked: EW**
													= assumed value

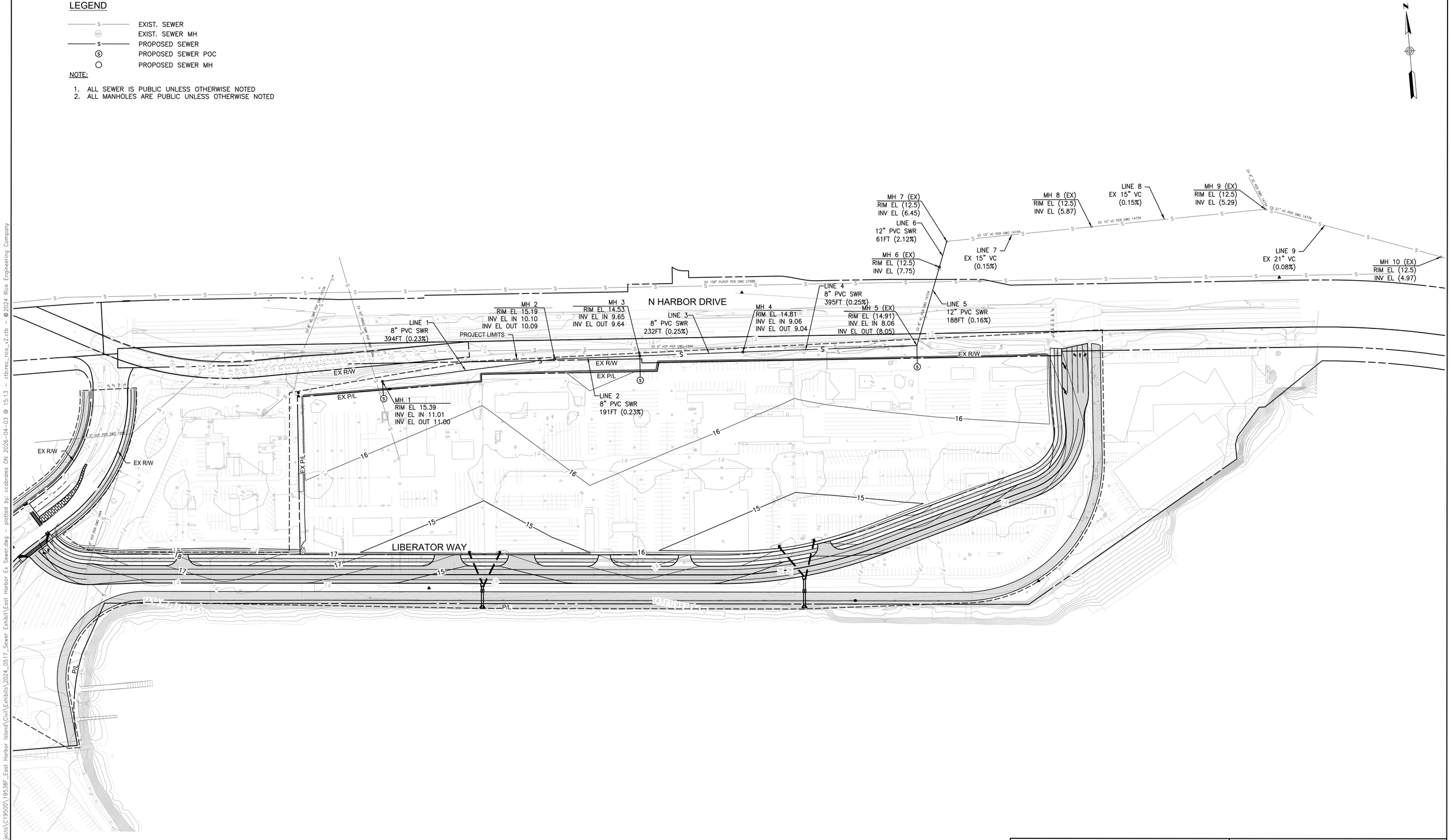
	FROM	TO	CUMM. EDU	IN LINE	CUMM	CUMM.	PEAK DESIGN FLOW			LINE	DESIGN	dn(FT)		
LINE	M.H.	M.H.	UPSTREAM	D.U.'S	DU's	POP.	PEAK/AVG			SIZE	SLOPE	n=	dn/D	VELOCITY
NO.			MANHOLE			SERVED	RATIO	M.G.D.	CFS	(INCHES)	(%)	0.013		(fps)
1	1	2	0	120	120	420.0	3.27	0.110	0.170	8	0.23	0.25	0.37	1.4
2	2	3	120	0	120	420.0	3.27	0.110	0.170	8	0.23	0.25	0.37	1.4
3	3	4	120	165	285	997.5	2.50	0.200	0.309	8	0.25	0.33	0.50	1.7
4	4	5	285	0	285	997.5	2.50	0.200	0.309	8	0.25	0.33	0.50	1.7
5	5	6	285	165	450	1,575.0	2.37	0.298	0.461	12	0.16	0.39	0.39	1.6
6	6	7	450	0	450	1,575.0	2.37	0.298	0.461	12	2.12	0.20	0.20	4.1
7	7	8	450	0	450	1,575.0	2.37	0.298	0.461	15	0.15	0.36	0.29	1.6
8	8	9	450	0	450	1,575.0	2.37	0.298	0.461	15	0.15	0.36	0.29	1.6
9	9	10	450	425	875	3,062.5	2.13	0.523	0.809	21	0.08	0.49	0.28	1.4

LEGEND

- EXIST. SEWER
- EXIST. SEWER MH
- PROPOSED SEWER
- PROPOSED SEWER POC
- PROPOSED SEWER MH

NOTE:

1. ALL SEWER IS PUBLIC UNLESS OTHERWISE NOTED
2. ALL MANHOLES ARE PUBLIC UNLESS OTHERWISE NOTED



GRAPHIC SCALE: 1"=100'

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EAST HARBOR ISLAND PUBLIC INFRASTRUCTURE DEVELOPMENT

SEWER STUDY EXHIBIT

PROJECT NO:	19538F	SCALE:	1"=100'
DRAWN BY:	EN/CSC	DATE:	5/29/24

\\cp.rickeng.com\projects\C19500\19538F_East Harbor Island\Civil\Exhibits\2024_0517_Sewer Exhibit\East Harbor Ex Sewer.dwg - plotted by: ccabrales ON 2026-04-03 @ 15:13 - ctbres_rces_v2.ctb - © 2024 Rick Engineering Company