



ENGINEERING

SERVING THE PRESENT; DESIGNING FOR THE FUTURE



LA City Wastewater Collection System

- 6500 miles of sewers
- 50+ Lift stations
- Other structures

Venice Pumping Plant

- Largest in the system
- 25,000 gpm PDWF
- Built 1958
- 48-inch RCP force main

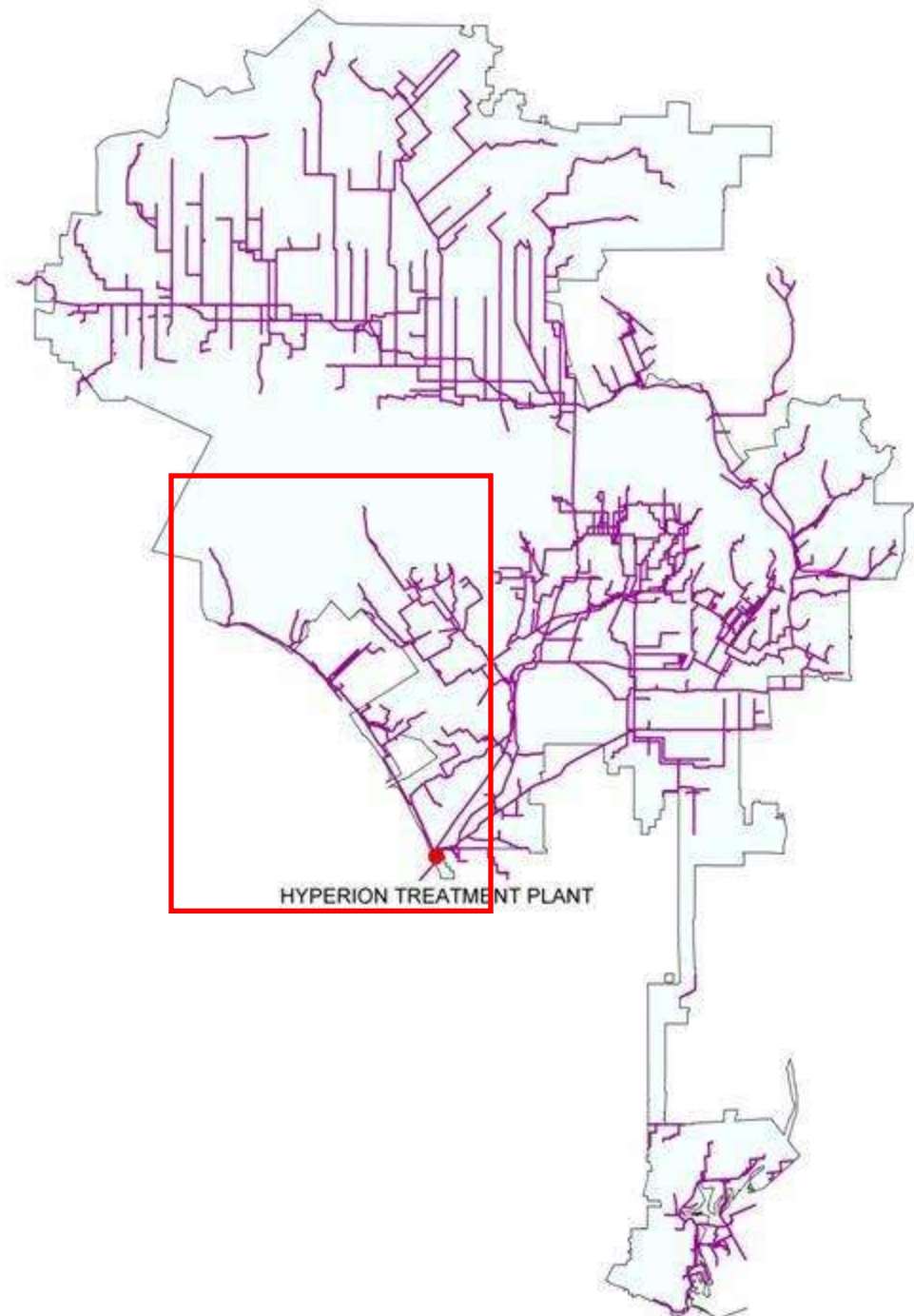
Venice PP Dual Force Main

- What is it?
- Why do we need it?

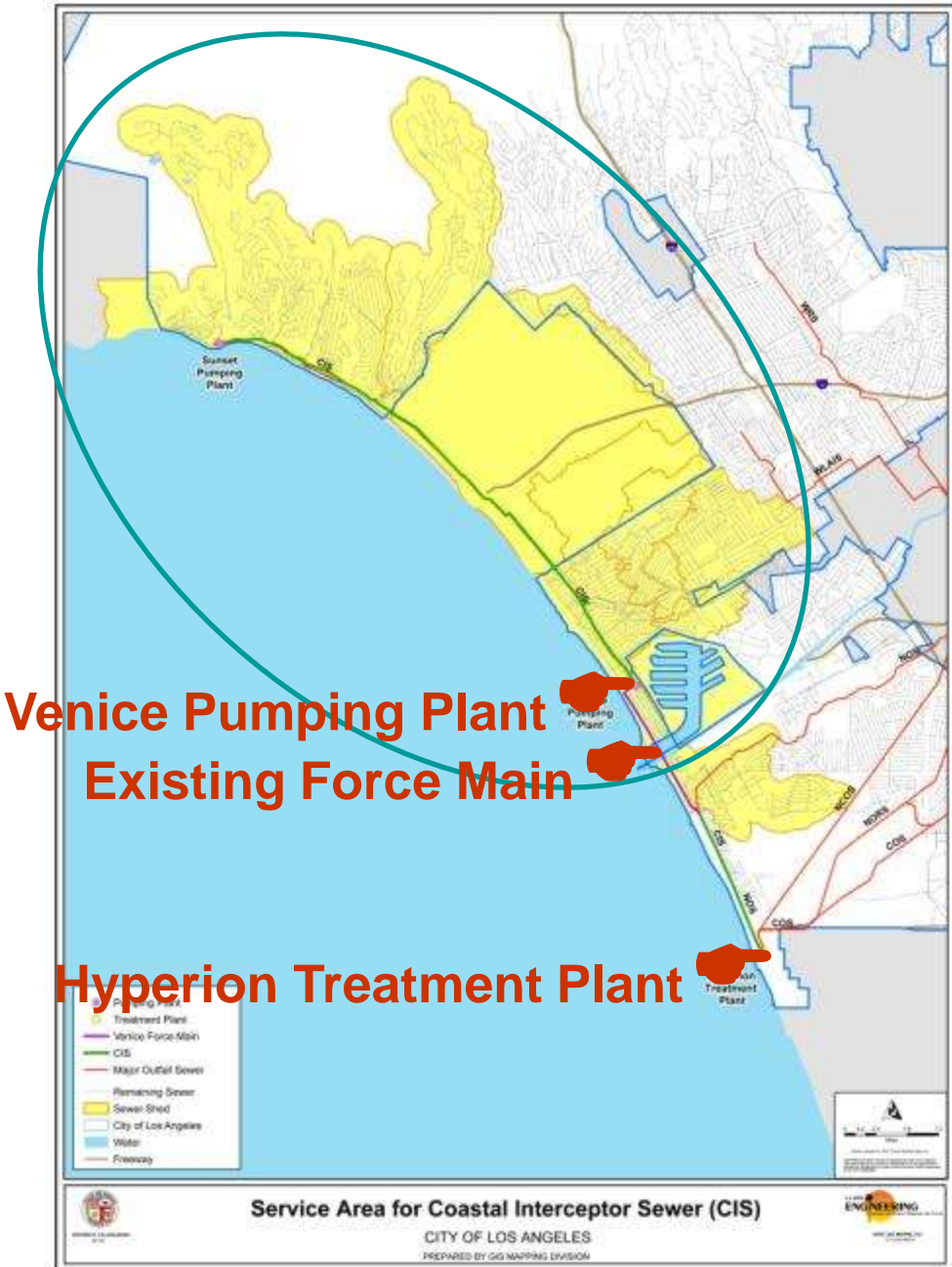
The sewer system operated and maintained by the City of Los Angeles also serves adjacent communities such as Marina del Rey



Primary Sewer System



Coastal Interceptor Sewer Service Area



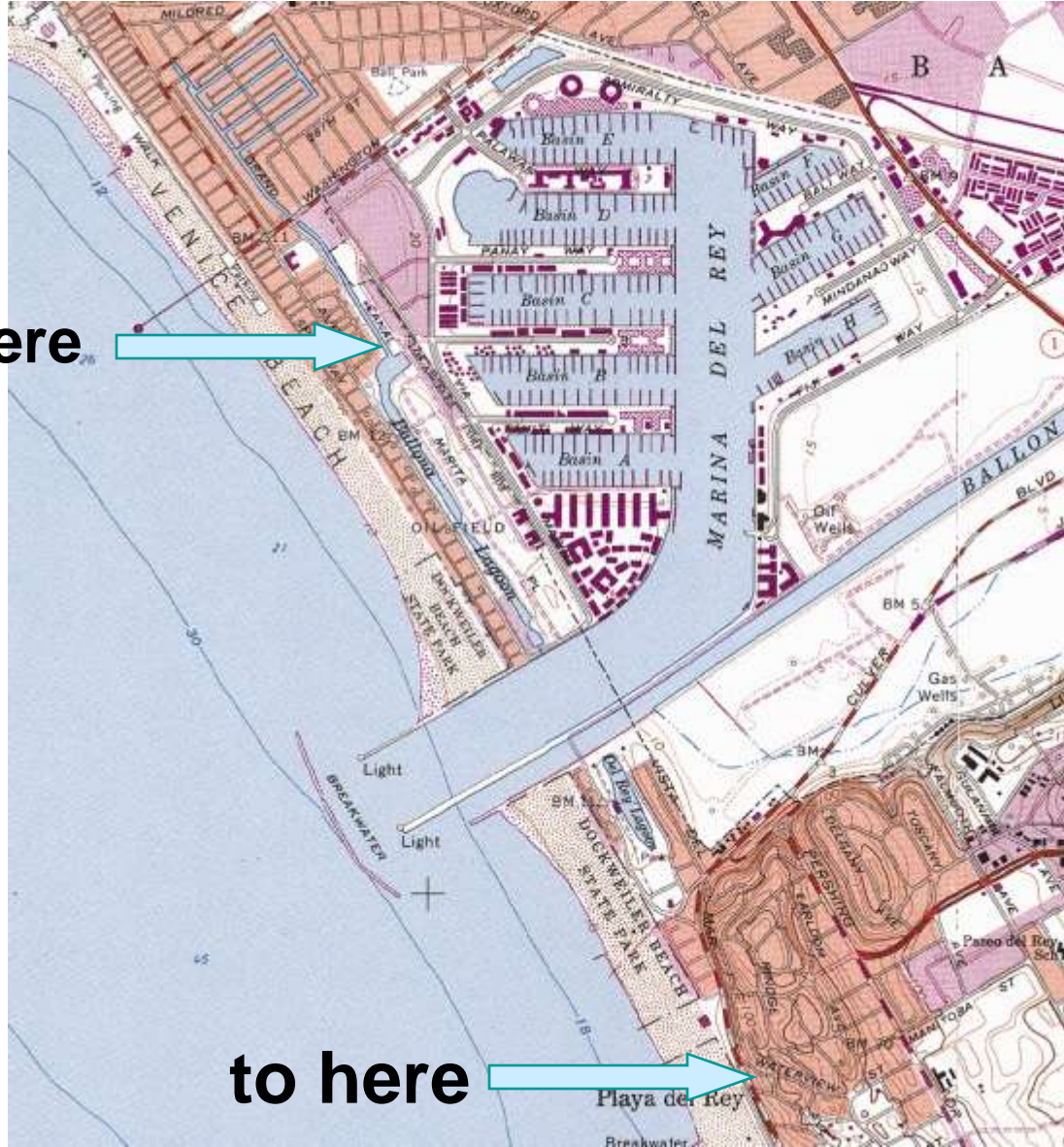
Venice PP Dual Force Main

Why do we need it?

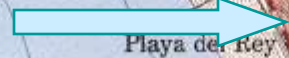
- Critical link in sewer system
- Current force main was built in 1958
- Current force main can't be shut down for inspection or maintenance
- Redundancy – two better than one
- Current force main can only handle 60% of pumping plant's peak capacity

Venice PP Dual Force Main

We need to get from here



to here



Venice PP Dual Force Main

Three ways to get there:

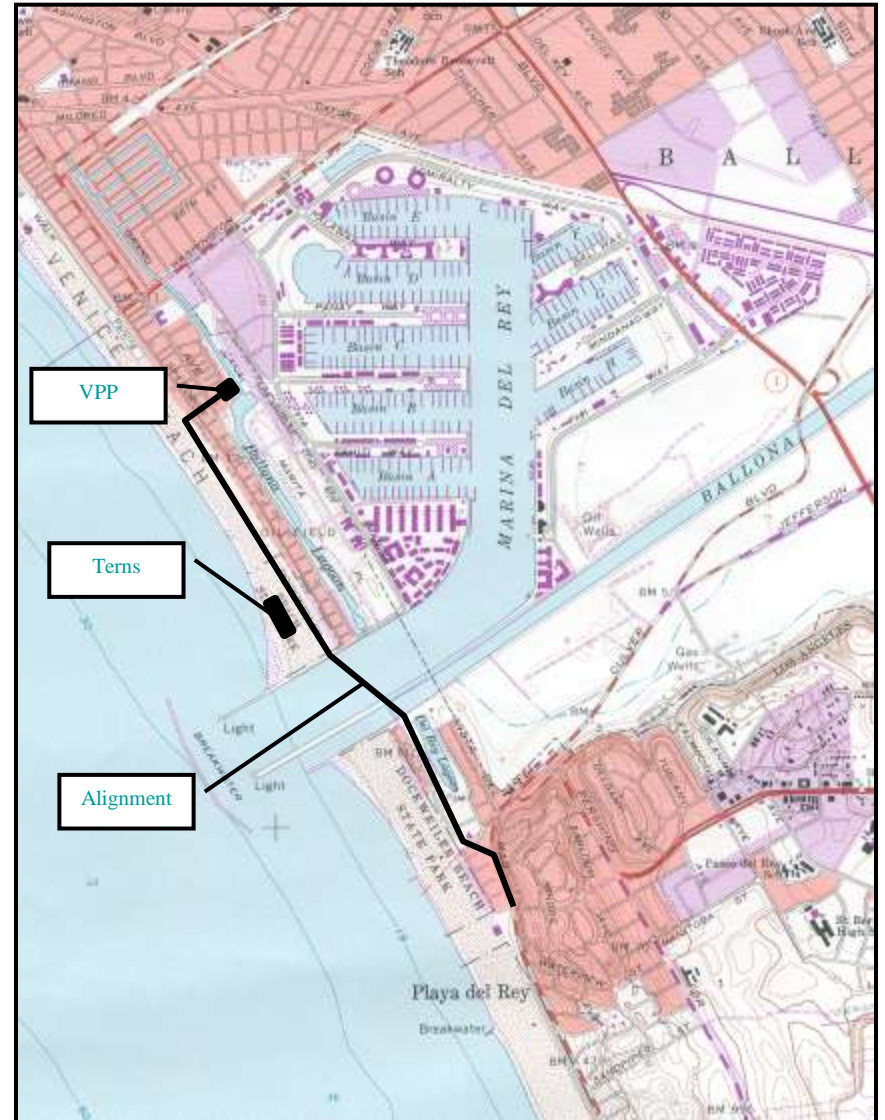
- Beach
- Pacific Avenue
- Marquesas Way/Via Marina

Three ways to build it:

- Cut-and-Cover – fast and cheap, but lots of impacts (e.g., groundwater)
- Mine Boring – least impacts, but slow and very expensive
- Micro-tunneling – good compromise

Beach Alignment

- 10,300 feet
- \$47-\$68 million



Beach Alignment

Pros: Minimal impact to traffic, parking, utilities

Cons: Least tern colony

Recreational impacts to beachgoers

State rights of way

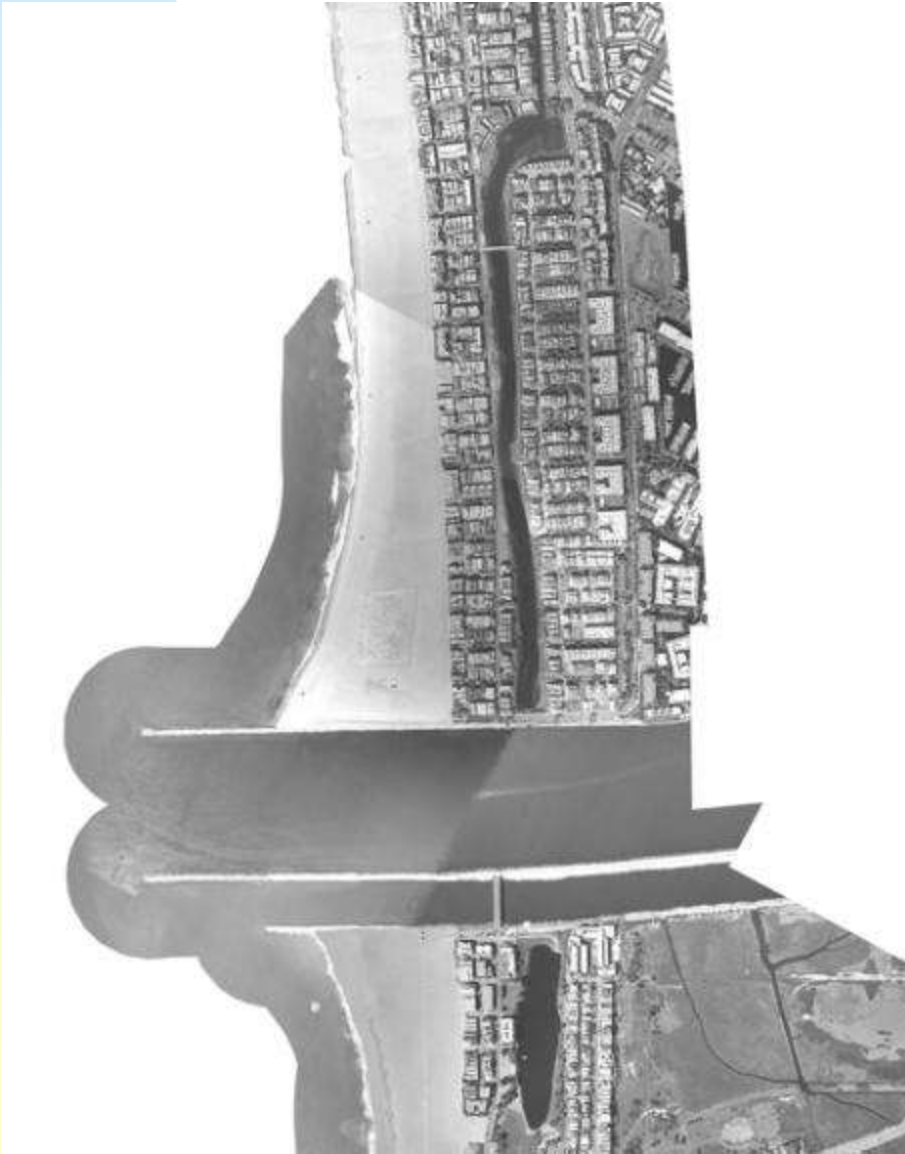
Co-location reduces redundancy benefit

Future beach erosion

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Beach Width

Today's wide beach



1947 -- Before adding sand



Pacific Avenue Alignment

- 10,100 feet
- \$37-\$68 million



Pacific Avenue Alignment

A street-level photograph of Pacific Avenue. The road is paved and has a yellow dashed center line. On the left side, there are palm trees and modern, multi-story buildings. On the right side, there are more trees and parked cars. The sky is clear and blue. The overall scene is a typical urban residential street.

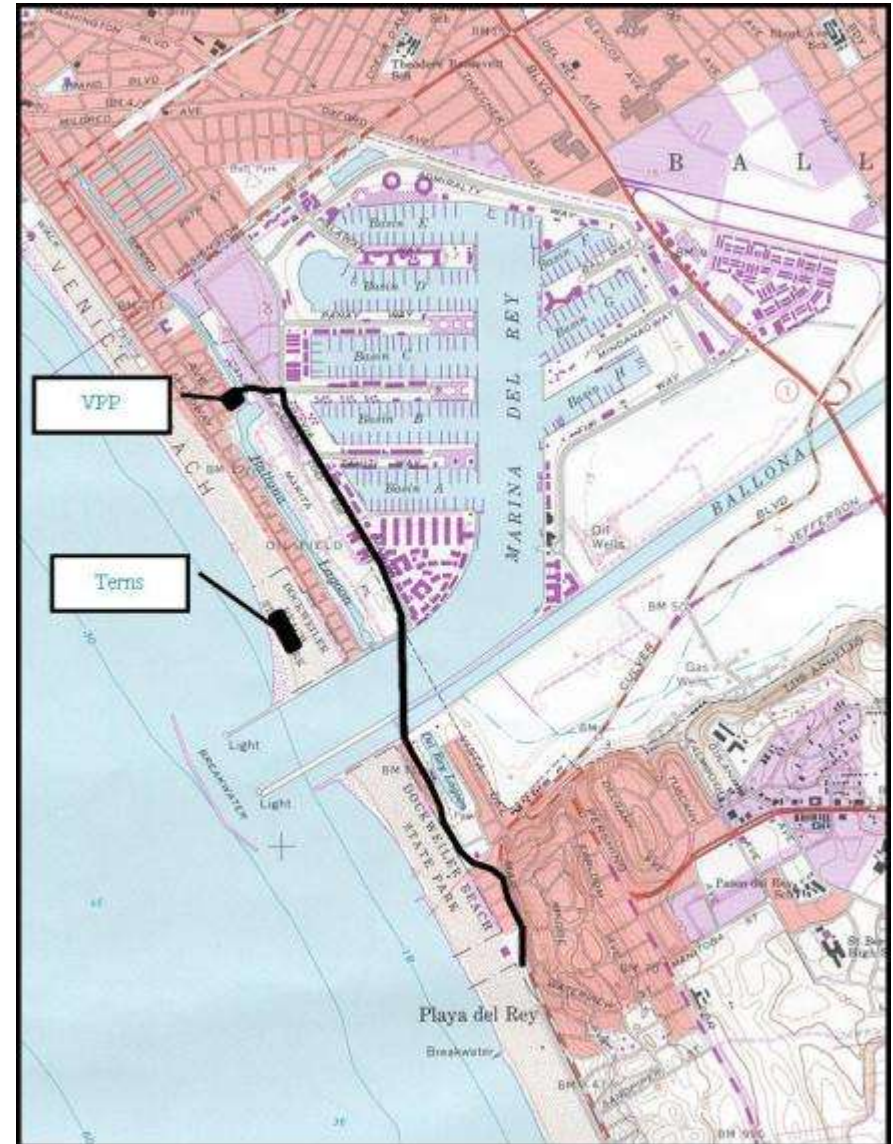
**Pros: Shortest route,
Uses existing city rights-of-way,
Avoids Least tern colony & beach erosion issues**

**Cons: Major transportation/parking impacts
Very difficult to locate pit n/o channel**

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Marquesas Way/Via Marina

- 10,400 feet
- \$47-\$54 million



Marquesas Way/Via Marina

Pros: Wide roadway (4+1 lanes)

Enough room for pit n/o channel

Avoids Least tern colony & beach erosion issues

Cons: Cost

County rights of way and permit

Coordination with Marina construction

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Venice PP Dual Force Main Micro-Tunneling

- 9700 feet total drive
- 12 jacking and receiving pits
- Pit depths from 15 feet to 70 feet
- Two-pass under the MdR and Ballona Channels
- Reaches from 250 to 1760 feet

Venice PP Dual Force Main Micro-Tunneling

VENICE DUAL FORCE MAIN (SZC11631)

	Location	Sheet No.	Station	Drive Length	Shaft Type	Shaft Depth (ft)	Shape	Shaft Dim.
NORTH REACH	Pumping Plant	C-24	10396		Jacking	40	Cir.	24' DIA
	Marquesas - Via Dolce	C-23	10149	247	Receiving	45	Cir.	16' DIA
	Marquesas - Via Marina	C-22	9788	361	Jacking	50	L-Shape	14'X40'
	Via Marina - Tahiti Way	C-20	8843	945	Receiving	45	Cir.	16' DIA
	Via Marina-N/O Bora Bora	C-18	7823	1020	Jacking	50	Rec.	16'X30'
	Via Marina-Via Dolce	C-16	6986	837	Receiving	50	Cir.	16' DIA
	B&H Lot	C-15	6080	906	Receiving and Jacking	70	Cir.	27' DIA
SOUTH REACH	Pacific Ave – 62nd Ave	C-11	4316	1764	Jacking	65	Cir.	27' DIA
	Pacific Ave – 66th Ave	C-9	3431	885	Receiving	45	Cir.	16' DIA
	Pacific Ave – Culver Blvd.	C-7	2434	997	Jacking	30	Cir.	24' DIA
	Trolley Pl. – Vista Del Mar	C-6	1871	563	Jacking and Receiving	25	L-Shape	14'X34'
	Vista Del Mar. – Surf St.	C-4	1000	871	Receiving	15	Rec.	10' x 22'
Open Trench Section								
	Start Location	Ending Location	Length (ft)	Depth (ft)				
	Vista Del Mar. – Surf St.	Vista Del Mar. – Waterview	1000	15 to 20				

Venice PP Dual Force Main

Open Trench

- 1000 feet
- Concrete encased
- Invert 12-15 feet below grade

Venice PP Dual Force Main

Pipe Materials Considered

- DIP
- Plastic
- RCCP

Venice PP Dual Force Main Public Relations

- CEQA mandated public hearings
- Marina Peninsula Neighborhood Assoc.
- LA County Small Craft Harbor Commissn.
- MdR Design Control Board
- MdR Lessee's Association
- Other community groups
- EIR website
- Project website
- Project video on Youtube

Thank You

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<http://eng.lacity.org/projects/vpp>