



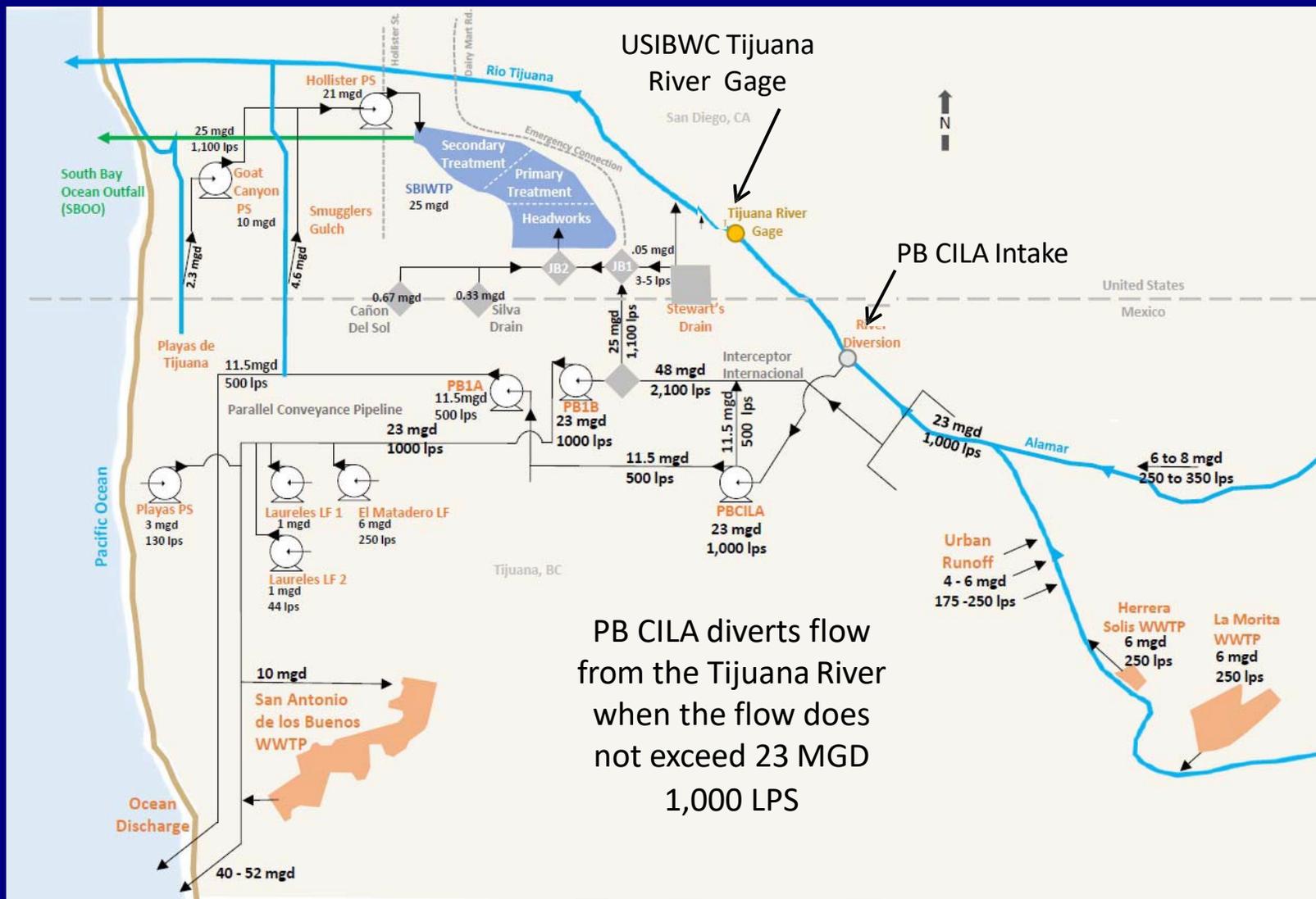
Improvements to Mexico's Wastewater Pumping Infrastructure in the Tijuana River Basin

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Tijuana Diversion System





Pump Station PB - CILA

Before and After

SBIWTP Capacity = 25 MGD



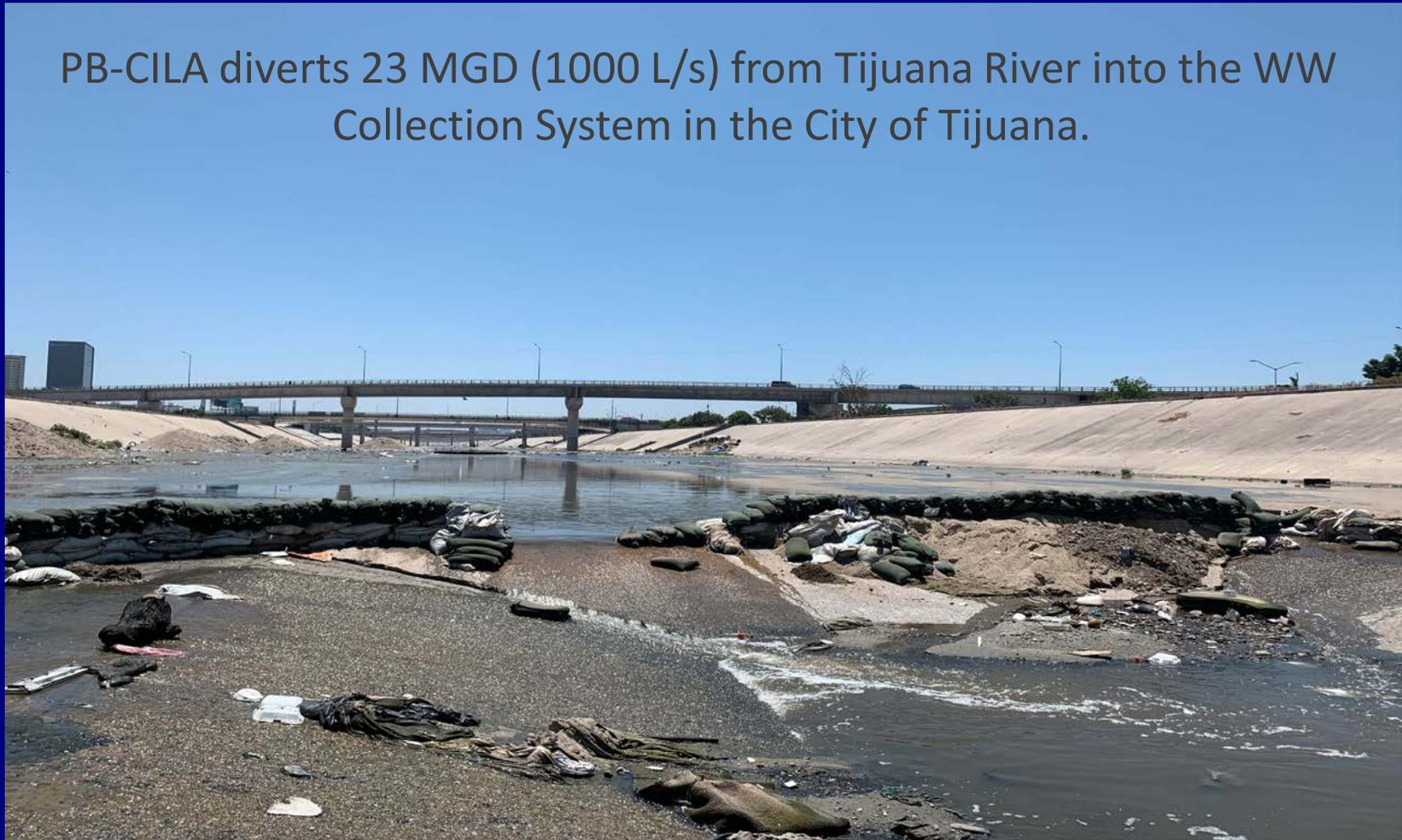
PB - CILA Intake Before





PB - CILA Intake Before

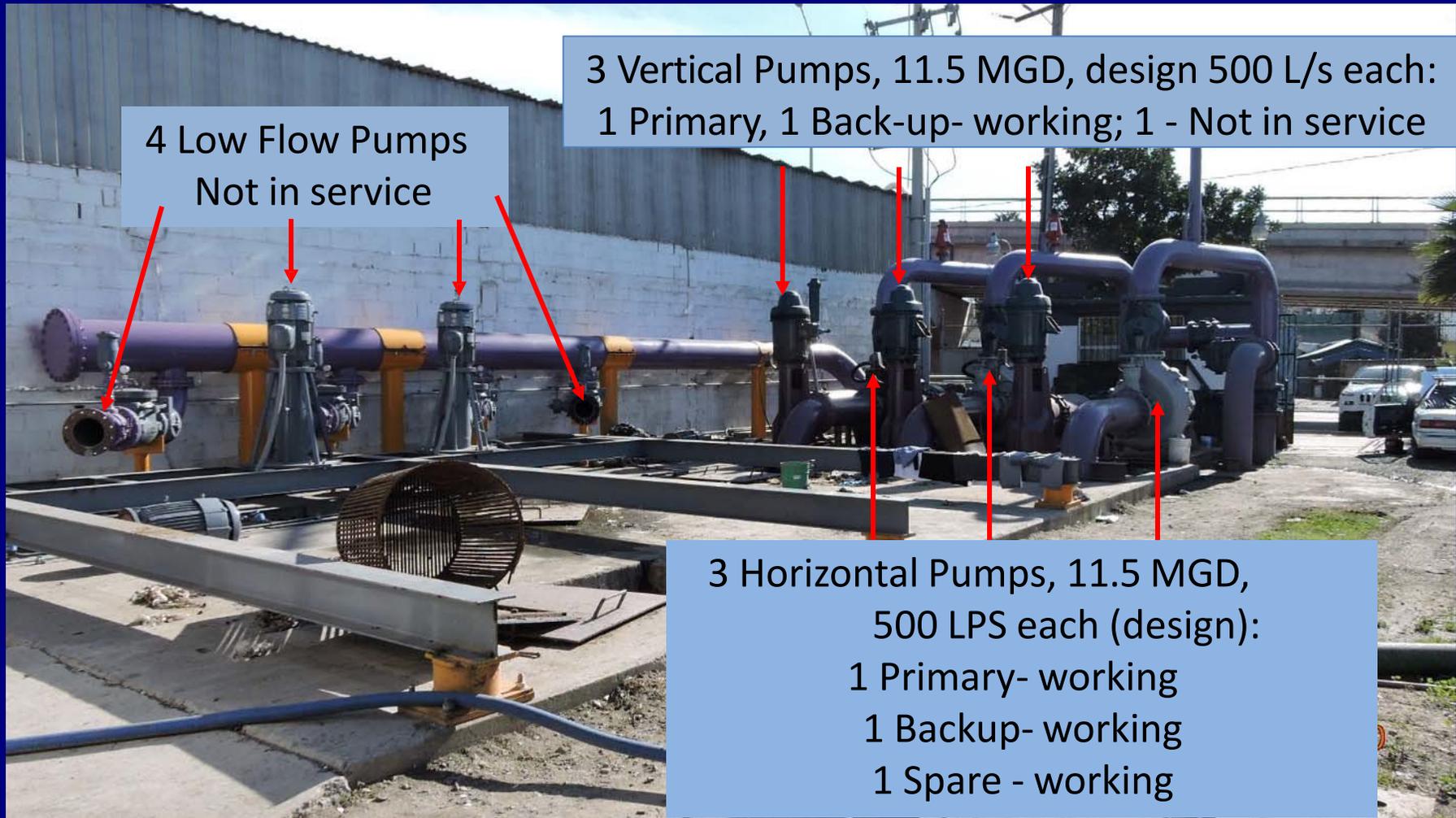
PB-CILA diverts 23 MGD (1000 L/s) from Tijuana River into the WW Collection System in the City of Tijuana.





PB – CILA Before

Conveys 23 MGD, 1000 LPS to International Collector (11.5 MGD, 500 LPS)
and PB-1A (11.5 MGD, 500 LPS) during dry weather season





Before Flow Greater Than 23 MGD (1000 LPS) at Tijuana River

- PB CILA is turned off to prevent pump damage
- Flow continues into the United States

What is that liquid flowing into the U.S?

- 13 MGD Effluent from La Morita and Herrera WWTP
- 5-11 MGD Urban Wastewater Runoff
- Excess Flows are Stormwater (Occasional Monsoon)



What is that liquid flowing into the U.S? at the Tijuana River (TJR)

- 13 MGD Treated Effluent from "La Morita" and "Arturo Herrera" WWTPs
- 5-11 MGD of Sewage and Urban Wastewater Runoff
 - Failing WWCS pipelines (collectors & laterals)
 - Failing sprinklers discharging into the TJR
 - Failing drinking water pipelines into the TJR
 - Carwashes, Hydrants, Irrigation, water leaks.
 - Groundwater surfacing into the TJR



PB - CILA Rehab Process



Modifications to install new chopper pumps at PB-CILA



PB - CILA Rehab Process





PB - CILA Rehab Process



3 Chopper Pumps Design Capacity 500 L/s (11.5 MGD) ea.



PB - CILA Rehab Process



Rehabilitation of 2 Vertical Pumps 450 L/s (10.3 MGD) ea.



PB - CILA Rehab Process



2 of 3 New Chopper Pumps installation at PB-CILA



PB – CILA Intake After





PB – CILA Tijuana River Intake After





PB – CILA After



Installing recently rehabilitated Vertical Pump No. 4 at PB-CILA



PB – CILA After





PB – CILA After



Tijuana River Plume Trajectories

For purposes of tracking flow from Tijuana River, the trajectories are only relevant when the river is both flowing and open to the ocean.

*This display is **not** designed determine water quality measurements at the coast. For beach closures, please see the Beach Report Card (link to <http://beachreportcard.org/>)*

Tijuana River Flow Rate

Latest Observations	24hr Maximum	24hr Minimum
0.00 MGD	0.00 MGD	0.00 MGD
0.00 cm/s	0.00 cm/s	0.00 cm/s
2020-10-14 09:45:00 PT	2020-10-14 09:45:00 PT	2020-10-14 09:45:00 PT

MGD = Millions of gallons per day. cm/s = Cubic meters per second.

MGD is a calculated value of an equivalent daily discharge rate based on the single reported discharge value at that time.

Values in red indicate the data is greater than 24 hours old. Otherwise values are displayed in black.



After Flow Greater Than 23 MGD (1000 LPS) at Tijuana River

- PB CILA has not been turned off since Sept. 3rd, 2020
- No **transboundary** flows have crossed into the U.S.
- Pumping capacity has significantly increased w/ upgrades at PB-CILA (3 new pumps and 2 rehabilitated ones).

What is the composition of flows in the Tijuana River?

- 13 MGD Effluent from La Morita and Herrera WWTP
- 2.3 MGD Tecate WWTP Effluent
- 6.4 MGD Urban Wastewater Runoff (Groundwater)
- No Stormwater (Dry Season)



Flow Greater Than 23 MGD (1000 LPS) at Tijuana River

- PB CILA has not been turned off since Sept. 3rd, 2020
- No **transboundary** flows have crossed into the U.S.
- We experienced an exception due to ***force majeure*** circumstances out of our control that resulted in a Transboundary Flows (TFs) into the United States borderline (11/2/20).

However, those short term flows were assessed to be low impact. Those flows did not even make it to the Dairy Mart Road bridge. No TFs reached the IB shores.



Upcoming Improvements for PB - CILA

Proposed improvements for PB-CILA to continue optimal operations performance:

- New Transformer 750 KVA
- Pumps Variable-Speed Controller System
- Complete Feeder Cables Refurbished from Transformer to Pump Station
- New SCADA equipped Operators Room

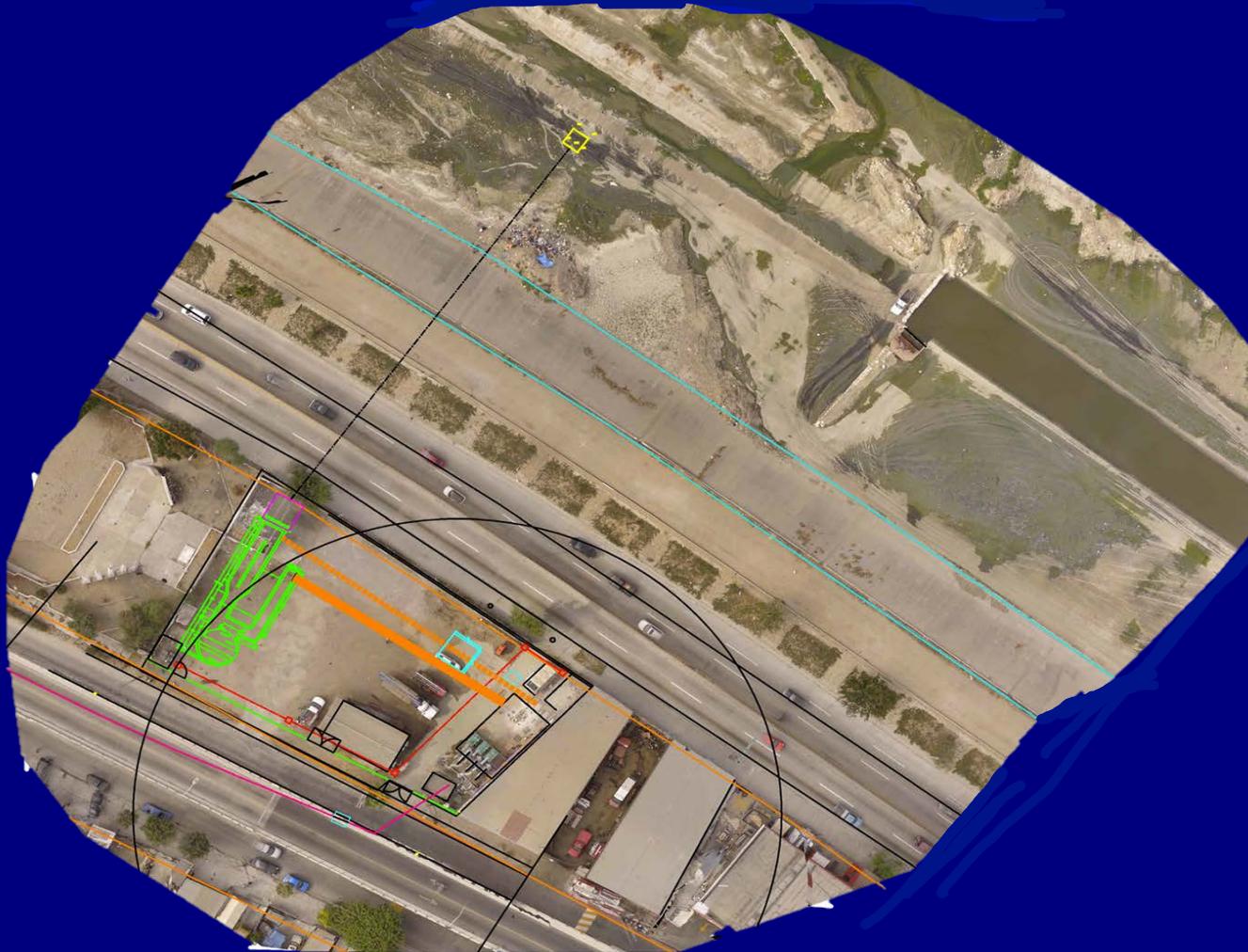


PB – CILA Rehabilitation Project





PB – CILA Rehabilitation Project





PB – CILA Rehabilitation Project



PB – CILA project site location



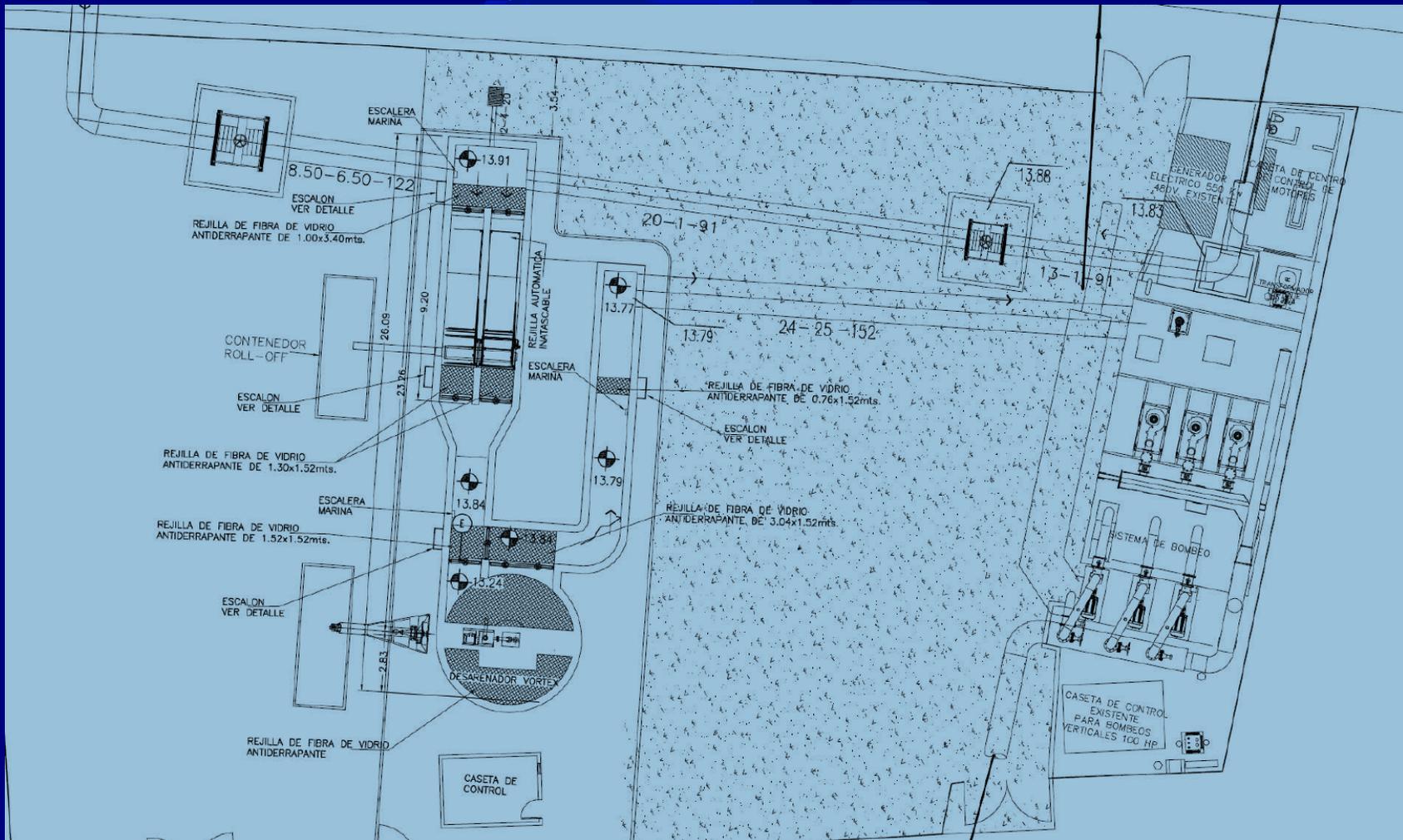
PB – CILA Rehabilitation Project



PB – CILA proposed improvements layout

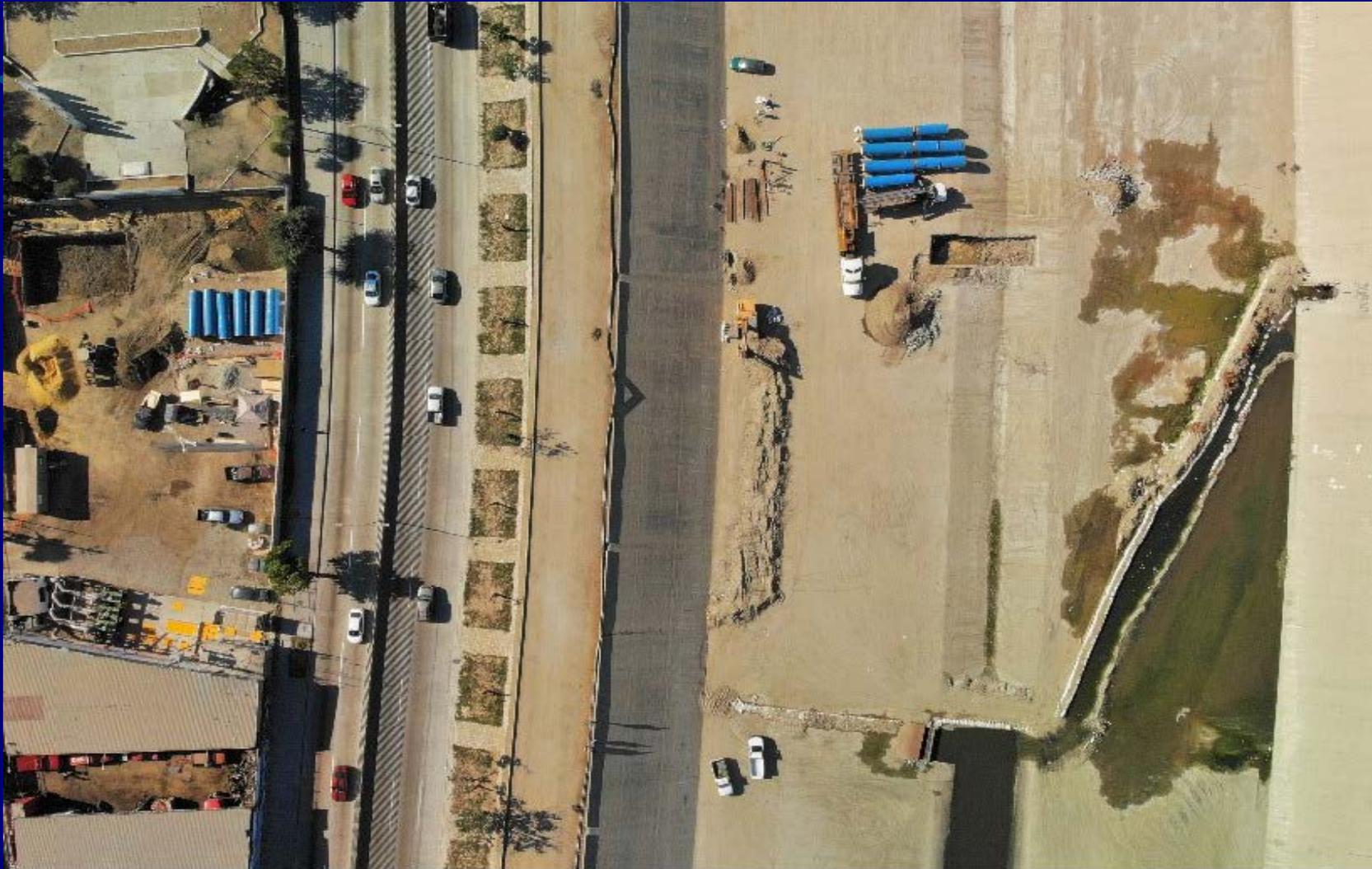


PB – CILA Rehabilitation Project





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PB – CILA Rehabilitation Project





Conclusions Before and After

PB – CILA Improvements



PB – CILA Before

- 700 L/s max pumping capacity
- Intake screens cleaning up to 3 times per day
- Intake screens cleaning up to 1 time per night
- No operations personnel assigned
- Maintenance depended of CESPT personnel availability
- Water Distribution came first as a priority (CESPT)
- Manual Operations (sometimes by the security guard)
- Conventional Electro-Levels
- Frequent Shutdowns / Mostly Undefensive
- Transboundary Flows into the U.S.



PB – CILA After

- Exceeds the required 1,000 L/s pumping capacity
- Intake screens cleaning every hour 24/7
- New operations management in charge (IDBC)
- Assigned skilled operations personnel 24/7
- Electro-Mechanical Maintenance available 24/7
- Semi-automatic Pumping Station Software
- Equipped w/PC Energy & Power Management System
- Equipped with Ultra-Sonic sub-metered systems
- Defensive System meeting purpose and expectations
- No more Transboundary Flows into the U.S. (9/3/2020)



QUESTIONS