



Massachusetts Water Resources Authority

NORTH DORCHESTER BAY CSO PROJECT UPDATE



**Presentation to the Wastewater Advisory
Committee
November 4, 2010**



North Dorchester Bay/South Boston Beaches CSO and Stormwater Control Requirements

Make beach closings a rare event.

CSO Control

Eliminate CSO discharges to the beaches up to the 25-year storm. Current: 16 discharges per year on average.

Stormwater Control

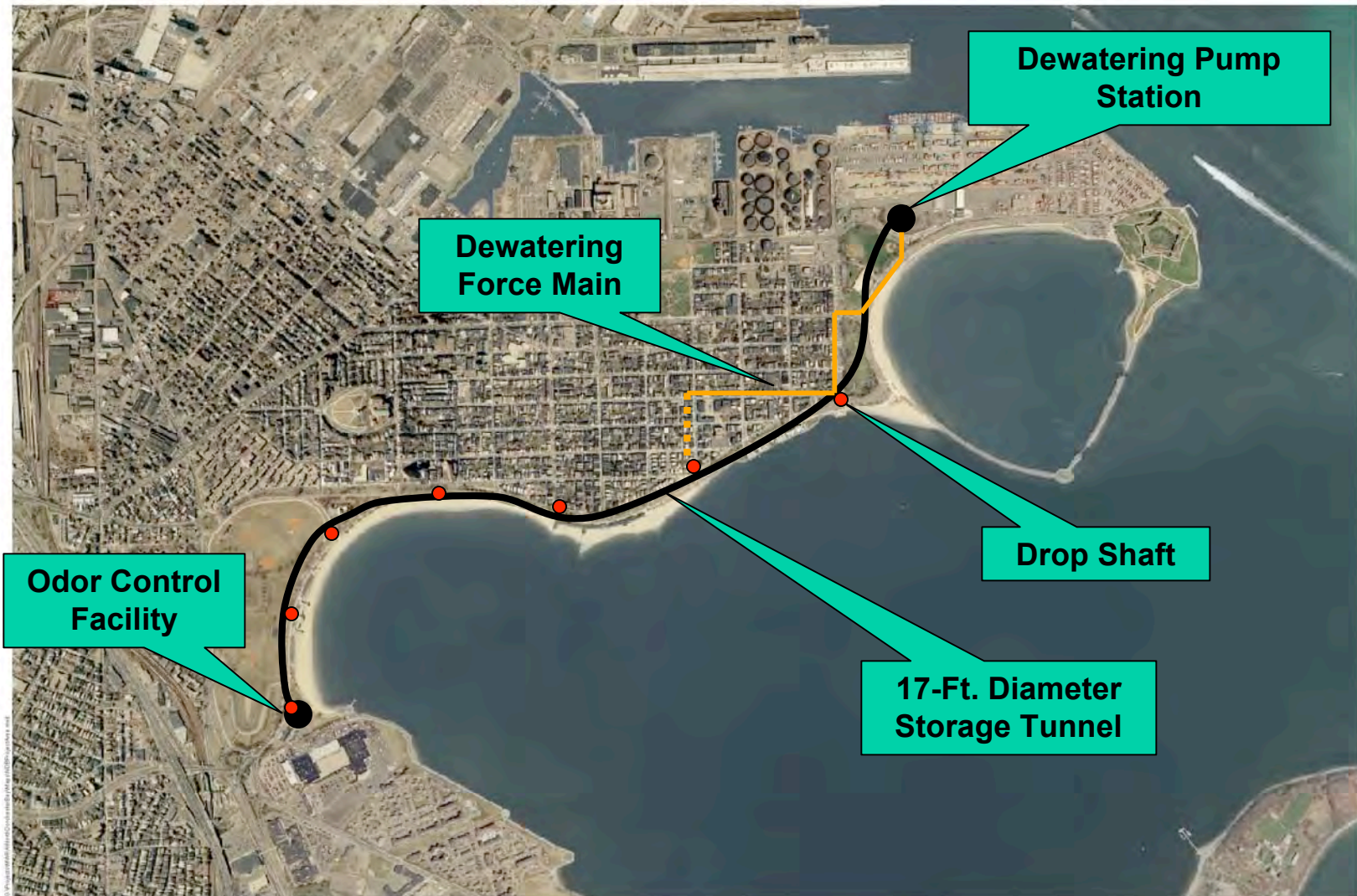
Prevent separate stormwater discharges to the beaches up to the 5-year storm.

Current: 100 discharges per year on average (every time it rains).





Project Location





North Dorchester Bay CSO Plan: \$272 M

- Pleasure Bay Storm Drain (\$3.2 M)
Completed March 2006
- CSO Storage Tunnel (\$147 M)
Completed November 2009
- Pump Station/Force Main (\$26.9 M)
NTP May 2009
Completion May 2011
- Below-Ground Vent Building (\$5.2 M)
NTP November 2009
Completion May 2011
- Morrissey Blvd Drain (\$36.2 M)
Completed July 2009
- Engineering/Land/Permits (\$53.5 M)

Figure 10
North Dorchester Bay and Reserved Channel
Recommended CSO Control Plans



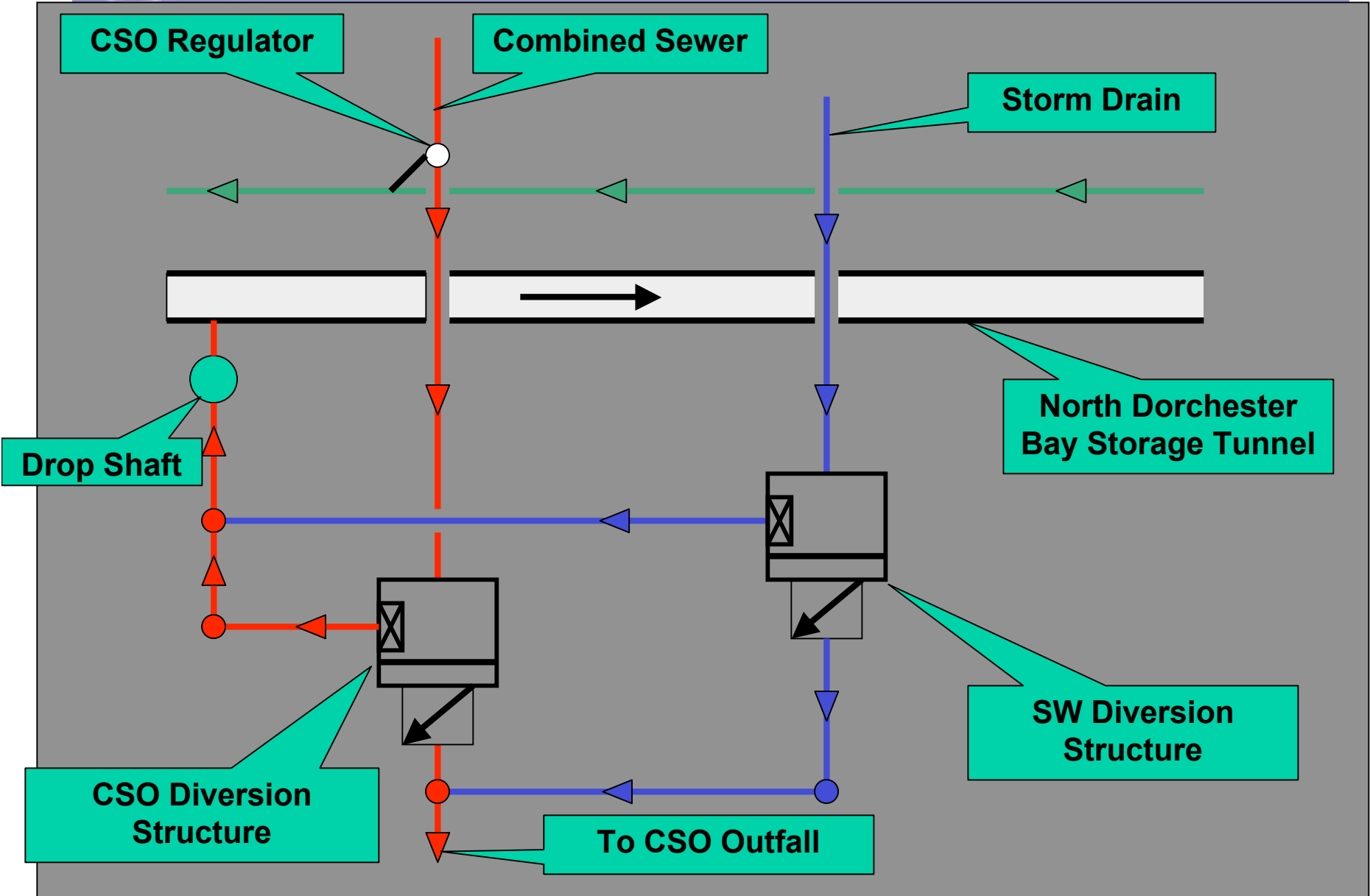


North Dorchester Bay CSO Storage Tunnel and CSO/Stormwater Connections



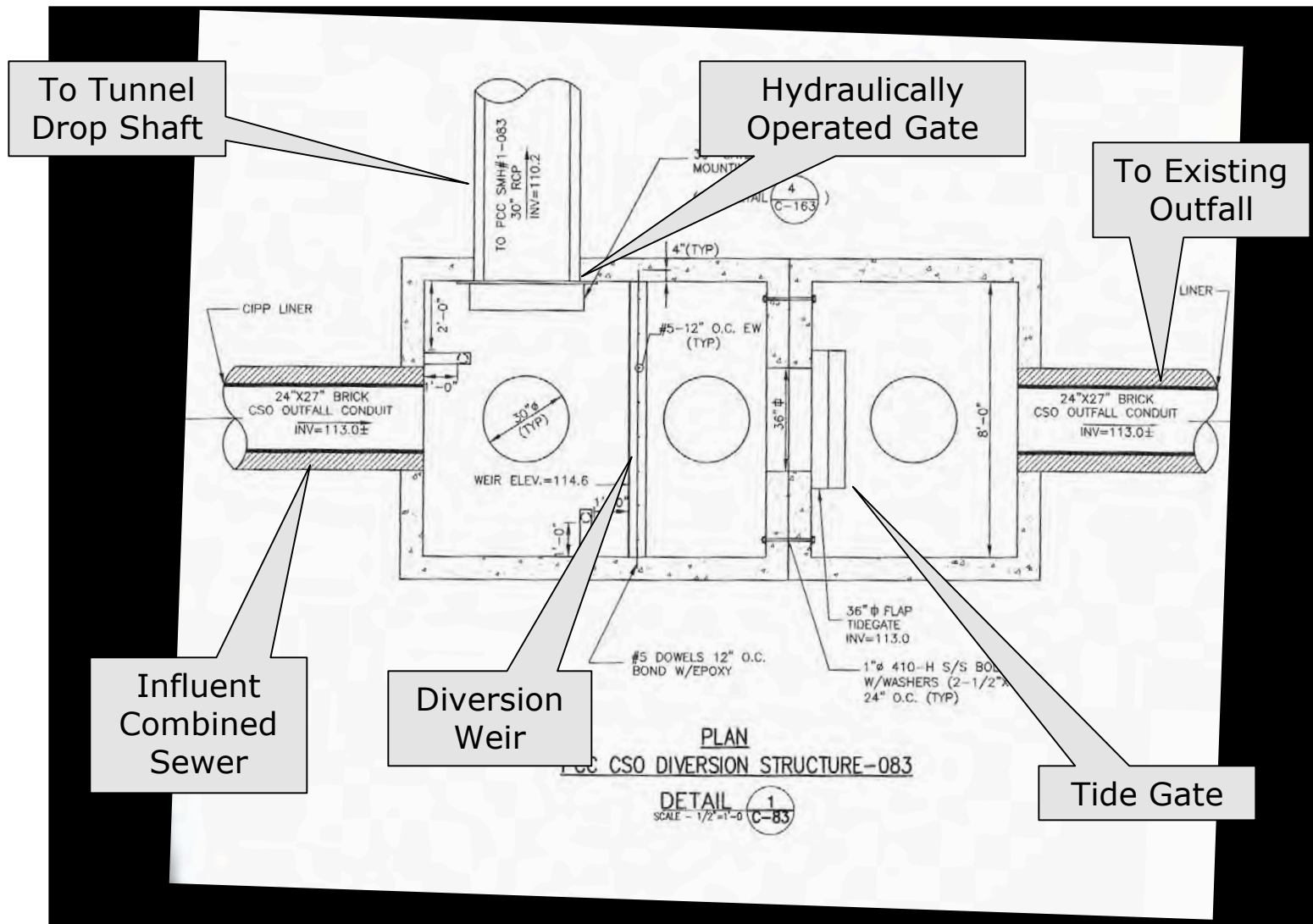


Connecting to the Storage Tunnel





Example of Diversion Structure





North Dorchester Bay CSO Storage Tunnel

17-ft. finish diam.

2.1 miles long

19 MGal storage

**Mined and lined
10,832 feet of
tunnel in 9 mos.,
incl. 1-month
suspension.**

**Contract cost:
\$146.8M**





North Dorchester Bay 15 MGD Pump Station At Massport Conley Terminal

Construction Contract
Commenced: May 2009
Contract Cost \$25.9M

Slurry wall

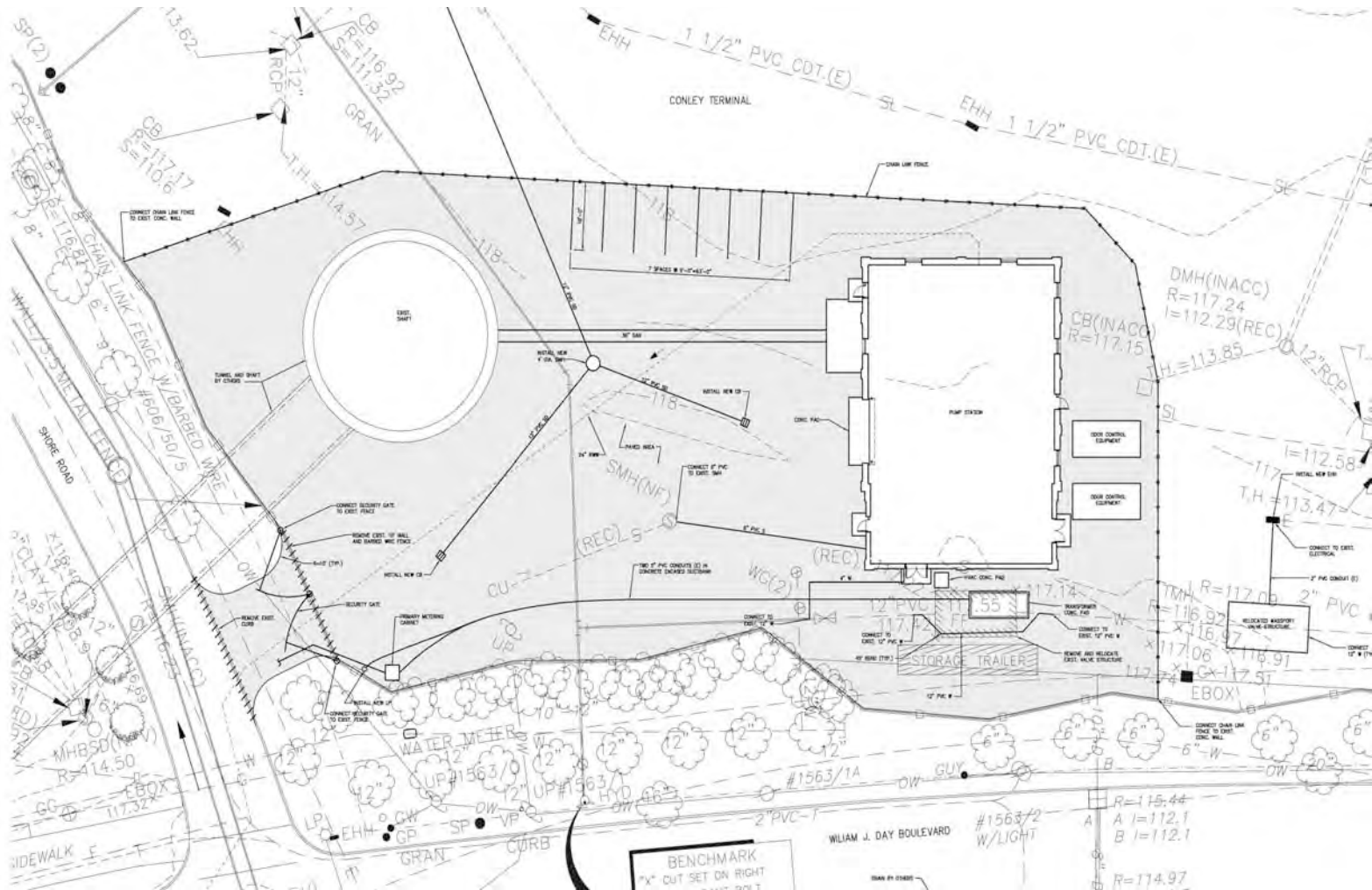


Installation of 43 mini-piles

Slurry wall, foundation piles and excavation are complete. Construction of pumping station structure is underway.



Pump Station Site Plan





CSO/Storm Water Control Goals

Condition	Control Goal
Up to 1-Year, 24-Hour Storm	Capture all CSO and Storm water in Tunnel
1 to 5-Year, 24-Hour Storm	Capture all CSO and Storm water from BOS081 to BOS086; after taking first flush divert BOS087 SW to Morrissey Boulevard Drain
5 to 25-Year, 24-Hour Storm	Capture all CSO in Tunnel



- Predicted CSO and storm water volumes developed by model for range of rainfall conditions
- Depth sensor provides volume available in tunnel
- Control system compares volume needed vs volume available
- Control logic makes gate decisions accordingly



Yearly O&M Costs from LCCA

- Electricity \$174,878
- Water \$ 5,393
- Gas \$ 32,818
- Carbon \$ 59,573*
- Maintenance \$ 10,000
- Labor \$ 73,217
-
- Total O&M \$ 355,879

* Annualized cost, carbon replacement will be required every 4 years at Dewatering Pumping Station and every 7 years at Odor Control Facility



NDB - Training

- Staff will be trained in all aspects of the operation & maintenance of the pumping station, storage tunnel, diversion chambers and odor control facility.
- Standard Operating Procedures (SOPs) are currently being developed by consultant, reviewed by MWRA and will be used to train Authority staff.
- SOPs include; SCADA control and monitoring, wet weather operation, tunnel dewatering and carbon monitoring/replacement.



Maintenance Program

- A maintenance/inspection program for all NDB Facilities will be in place when the facility is turned over to the Authority.
- Staff will be trained on preventive and corrective maintenance activities.
- Current Status – MWRA has received the preventive maintenance program (1080s) for the diversion structures.
- Awaiting preventive maintenance programs for the Dewatering Pumping Station, Odor Control Facility and Storage Tunnel.
- All maintenance activities will be tracked and documented in Maximo.



Maintenance Program

- Routine maintenance will be performed on a regular basis, some examples are:
- Daily - inspections of Dewatering Pumping Station and Odor Control Facility
- Monthly –inspection of pumps, diversion structures and hydraulic systems
- Quarterly – inspection of motors and HVAC systems
- Semi-Annually – inspection of tide gates



NDB - Service Contracts

The following service contracts will be required to operate and maintain the NDB facilities:

- Grit & Screenings Removal
- Fire Alarm and Fire Sprinkler Systems
- Crane Maintenance
- Boiler and Water Heater
- Hydraulic Equipment
- Weather Service for SCADA Programming