

CASE STUDY REF: 013

ALUMINUM STOP LOGS FOR CHANNEL ISOLATION AT BRITANNIA OUTFALL STORM WATER PUMPING STATION, MCGM, MUMBAI



Location:

Britannia storm water pumping station is located at Reti Bunder Bay, near Reay Road Railway station in south Mumbai, India.

About the project:

Britannia storm water pumping station is a part of Brihanmumbai Storm Water Drain (BRIMSTOWAD) project which is launched by Municipal Corporation of Greater Mumbai after one of the worst floods in Mumbai on 26th July 2005 which took life of hundreds of people.

The construction work of project started in June 2014 after the delay of eight years for want of NOCs from Mumbai Port Trust and Maharashtra Coastal Zone Management Authority, at an estimated cost of 116 Crores (17.8 Million USD). The pumping station became operative in 2016.

The pumping station is housed with 6 VT pumps having pumping capacity of 518 MLD (137 MGD) each. During storm and heavy rains, the pumps can totally discharge 3110 Million liters (821 Million gallon) of storm water every day.

Role of storm water pumping station at Britannia outfall:

In the monsoon, Mumbai gets an average rainfall of 2420 mm (96"). However sometimes rains per day can be as high as 400 mm (15") and if this is accompanied with high tide then gravity flow from the drains to the sea does not take place. This results in to severe flooding which can reach few feet in low lying areas inundating businesses, homes, vehicles and railways stations and costing millions in losses with related loss of life due to drowning.

Role of Aluminum Stop Logs in storm water pumping station:

These Aluminum Stop logs are provided for the isolation of Mitre gates, the entire Silt pit in front of Screens and for the Mechanical front raking Screens during non-monsoon period to facilitate preventive / brake down maintenance of all installed Mitre gates, Mechanical Screens and Pumping facility.

Project Details	
Project	3110 MLD storm water PS at Britannia outfall
Customer	Municipal Corporation of Greater Mumbai
EPC Contractor	Unity-M&P-WPK Consortium
Consultant	Montgomery Watson Harza

Product Details		
Nos. of Stop Logs	6 nos.	2 nos.
Stop Log Size (WXH) in mm	3500 X 6000	3750 X 5250
Channel Size (WXH) in mm	3500 X 6700	3750 X 5700
Applicable Water Head	5.70 meters	4.70 meters
MOC of Stop Logs & Guide Frames	Aluminum Alloy 6061 T6 (Marine Grade)	
Operation through	Lifting Beam with EOT	



Stop Logs under leakage testing at site.



Site photograph of Al Stop Logs

Description of Al Stop Logs:

Multipiece Aluminum stop log segments are provided with side wall embedded Aluminum guide frames for the channel opening of size 3500x6000mm & 3750x5250mm suitable for 5.7 m & 4.7 m water head respectively.

Sectional Stop logs are provided which are manufactured from specially profiled extruded Aluminium alloy material sufficiently ribbed to withstand the designated water head.

Aluminum guide frames are installed at upstream and downstream sides of Mitre gates, Upstream of Silt pit and before Mechanical Screens. Stop logs are common for Silt pit and Screens locations. Stop logs are lowered down in channels guided through these frames to cover entire channel width and height for isolating the equipment of which maintenance/replacement is required.

Salient features:

i). Resilient sealing system: The two vertical guides of the frame are provided with continuous lip type resilient vertical seals on upstream as well as downstream side, mechanically fastened on frame and in forced contact with gliding face of stop logs. These resilient seals are replaceable only during plant shutdown.

Each Stoplog is provided with 2 nos. resilient replaceable seals at the bottom secured in dovetail grooves with a view to achieve flush bottom sealing with the frame invert to offer flushing with the channel and to ensure continuous horizontal sealing between two intermittent log pieces. These resilient seals are replaceable without resorting to plant shutdown.

This sealing system offer great sealing with minimum leakage to make it possible to work within the isolated area without any disturbance or threat due to leakage of water.

ii). Interchangeability: For Silt Pit & Screens locations, sizes of all stop logs are kept same so that they can be interchanged in any manner to form a desired operational height.

(iii) Other than abovesaid features, Stoplogs in multi-piece sections and in Aluminum construction are provided with a view to reduce the hoisting capacity and height as well as to reduce the weight of log for ease in handling at site.

These Aluminum Stop Logs were installed in 2015 and in operation since then.



Stop Logs in Storage Racks when not in use.

In addition to these Stop Logs Jash has also supplied 2 nos. 3991 x 5200 (WxH) mm Mitre Gates, 6 nos. 3500 x 2000 (WxH) mm Cast Iron Sluice Gates and 6 nos. 3500 mm wide Jash Mahr "MM2MM" multi raking screens for this project.

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