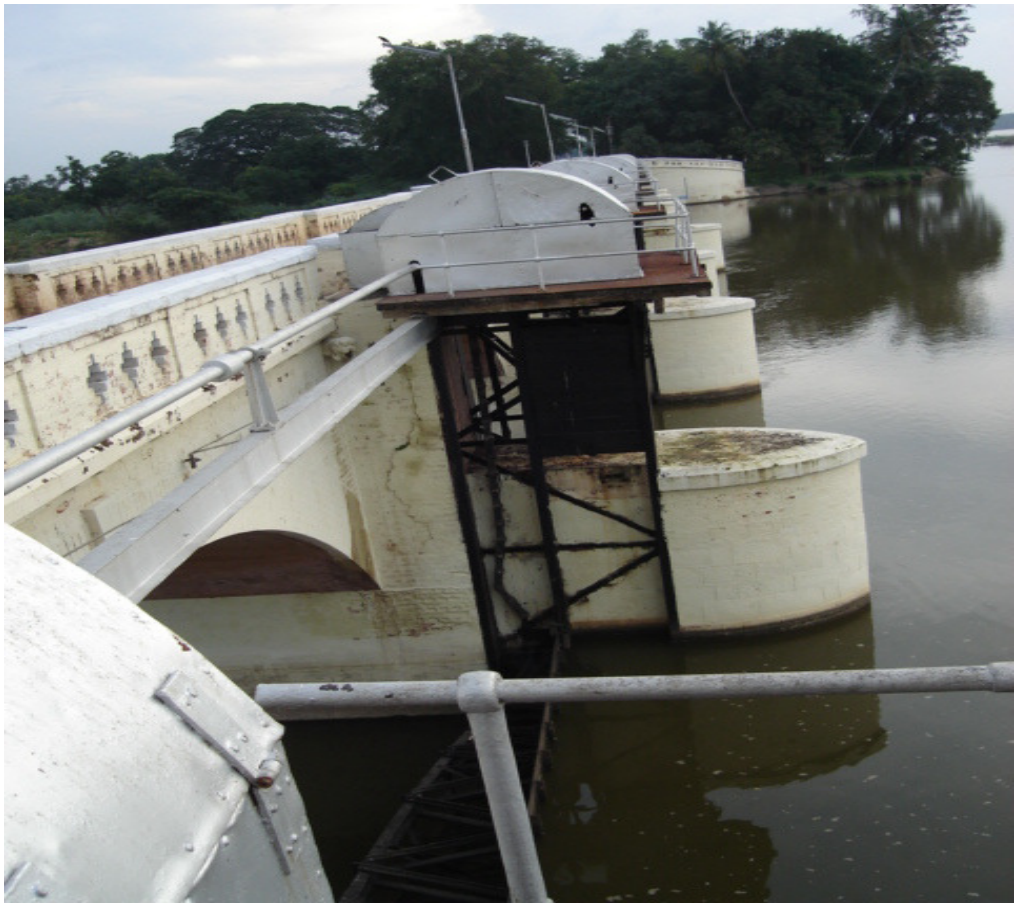
TECHNY CHEMY

New Era Construction Chemicals



ANALYSIS REPORT FOR

CONSTRUCTION CHEMICAL AIDED REPAIRS TO DAM STRUCTURE

ANALYSIS:

The Site conditions along with the photographs taken at site were studied closely and the following assessment made. Based on the assessment the subsequent repair plan is being proposed.

CRACK DEVELOPMENT SEQUENCE

Stage 1: Stress

Stage 2: Initiation

Stage 3: Widening

Stage 4: Damage to pointing

- The process of crack initiation, the subsequent widening of the crack and the later damage to brick joint pointing have occurred over a prolonged period of time and the process has been long drawn out.

- The initiation and subsequent de-lamination may have been caused by the shear stress due to upward and downward movement of the counter weights provided (highlighted in the picture) for easy movement of shutters.

- The pointing mortars may have been removed by the impact of flood waters entering the widened cracks.

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REPAIR AND STRENGHTENING:

Structural Support:

- The movement of the counterweights creating stress at the column may be minimized by providing additional structural support between the pier top and the edge of the Chequered plate platform as shown in the picture.

CRACK STITCHING:

- Holes of dimension 4”x4” and depth 9” shall be cut at a spacing of 6” on either side of the cracks. The two holes shall then be connected by cutting a groove of 4” width and 4” depth.
- A ‘C’ shaped reinforcement arrangement shall then be fabricated to fit into the cut groove and holes. 8mm RTS rods may be used for the purpose.
- Prior to placing the reinforcement the holes should be cleaned with an air blower and then be saturated with water.
- The gap should then be packed with **TEC^{R} GROUT MC** Mix preparation. The mix preparation shall contain 1 Part **TEC^{R} GROUT MC** and ½ part 12mm aggregate and adequate water to obtain stiff mortar consistency. Proper compaction is vital for optimum performance of **TEC^{R} GROUT MC**. The mortar shall be finished flush with the existing wall.
- The treated area should be adequately cured for a period of 7 days from casting. As an alternative **TEC^{R} CURE WB**- curing membrane may be applied.
- The above stitches should be done at a spacing of 18” along the cracks.

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CRACK FILLING AND PRESSURE GROUTING:

- All cracks shall be cut to form a neat 'V' shaped groove and then cleaned to be free of dust and loose particles.
- The crack should then be saturated with water and a stiff bond coat of **TEC^R BOND SBR** (prepared by mixing 1 Part **TEC^R BOND SBR** with 1 Part cement) slurry preparation shall be applied over the exposed crack.
- Crack filling mortar prepared by mixing 450gms of **TEC^R SWELL** to 1:4 Cement Mortar mix should then be filled into the cracks while the bond coat is still tacky. The mortar should be well compacted and finished neatly flush with the existing wall.
- While the crack filling mortar is being placed 4-6" long PVC nozzles shall be fixed along the cracks at a spacing of 2'.
- The treated area should be adequately cured for a period of 7 days from casting. As an alternative **TEC^R CURE WB**- curing membrane may be applied.
- Through the nozzles provided, neat cement slurry admixed with **TEC^R SWELL** (@ 225gms per bag of cement) shall be pumped with a hand operated grouting pump. Pumping should continue till the nozzle is filled and the pressure grouting shall be sequenced from bottom to top.

BRICK JOINTS POINTING:

- All joints shall be cleaned to be free of dust and loose particles.
- The joints should then be saturated with water and a stiff bond coat of **TEC^R BOND SBR** (prepared by mixing 1 Part **TEC^R BOND SBR** with 1 Part cement) slurry preparation shall be provided.
- Mortar prepared by mixing adequate water with **TEC^R GROUT MC** should then be filled into the joints while the bond coat is still tacky. The mortar should be well compacted and finished neatly, flush with the existing wall.
- The treated area should be adequately cured for a period of 7 days from casting. As an alternative **TEC^R CURE WB**- curing membrane may be applied.