

FURTHER REPORT ON THE SITE VISIT OF THE KRMB TEAM CONSTITUTED BY THE KRMB IN LIGHT OF THE DIRECTIONS OF THE HON'BLE NGT IN I.A. No. 35/2022(SZ) in O.A. No. 148/2021(SZ) and O.A. No. 212/2021(SZ) IN CONNECTION WITH PARAMULU RANGAREDDY LIFT IRRIGATION SCHEME (PR LIS) IN TELANGANA

1. BACKGROUND

Shri D. Chandramouleswara Reddy s/o D. Shankar Reddy, resident of Singapore Township, Puttampally, YSR Kadapa, Andhra Pradesh and 8 (eight) other applicants filed O.A. No. 148/2021 in the Hon'ble National Green Tribunal (SZ), Chennai that the construction of the PalamuruRangareddy Lift Irrigation Scheme in Telangana is taken up in violation of the provisions of environmental laws and against the undertaking given by them in the earlier proceedings.

The Hon'ble National Green Tribunal (NGT) Southern Zone, Chennai, in I.A. No. 35/2022(SZ) in O.A. No. 148/2021(SZ) and O.A. No. 212/2021(SZ) in its order dated 17-02-2022 directed in

Para 4 that "*The Joint Committee, appointed by this Tribunal in O.A. No. 147 of 2021(SZ) who were directed to consider the allegations made in O.A. No. 148/2021(SZ) also, is directed to consider the allegations made in the interlocutory application for contempt and also the nature of undertaking given by the State of Telangana and ascertain the nature of work done by them after the order passed by this Tribunal on 29.10.2021, restraining the State of Telangana from proceeding with the project*"

Also the Hon'ble NGT in para 6 directed that

"The Krishna River Management Board is also directed to file an independent report regarding this aspect before the next hearing date."

2. CONSTITUTION OF THE TEAM

Accordingly, KRMB vide its Office order F.No.02/07/A/2021/KRMB/151, dt. 21.02.2022, constituted a team of officers from KRMB to inspect the areas and ascertain the nature of work done by them after the

order passed by the Hon'ble NGT on 29.10.2021, restraining the State of Telangana from proceeding with the project. The team of officers from KRMB is constituted as follows:

- Sri R. V Prakash, Superintending Engineer, Krishna River Management Board, Hyderabad.
- Sri Y. RaghunadhaRao, Executive Engineer, Krishna River Management Board, Hyderabad.
- Sri. T. Ajay Yadav, Deputy Executive Engineer, Krishna River Management Board, Hyderabad.

The team of KRMB officials visited the PalamuruRangareddy Lift Irrigation Scheme comprising of approach channels, tunnels, pump houses and reservoirs at Narlapur, Yedula, Vattem, Karivena and Uddandapur villages on 23.02.2022 and submitted the report on 07.03.2022

The Hon'ble National Green Tribunal (NGT) Southern Zone, Chennai, in I.A. No. 35/2022(SZ) in O.A. No. 148/2021(SZ) and O.A. No. 212/2021(SZ) in its order dated 09.03.2022 directed in

Para 6 that "The report submitted by the Krishna River Management Board is general in nature and they have not specifically mentioned anything about the stage of the work as on 29.10.2021, when the interim injunction was granted and the nature of work done therefore and whether such work is required for the claimed purpose of bring the works to safety level as contended by the contesting respondents."

Also the Hon'ble NGT in para8 directed that

"The Krishna River Management Board is directed to file a further report as directed by this Tribunal detailing the things described in the earlier paragraphs on or before 24.03.2022 by e-filing."

The Hon'ble National Green Tribunal (NGT) Southern Zone, Chennai, in I.A. No. 35/2022(SZ) in O.A. No. 148/2021(SZ) and O.A. No. 212/2021(SZ) in its order dated 25.03.2022 directed in

Para 2 that "*We have directed the Krishna River Management Board to file a detailed report regarding the nature of work done after the interim injunction order was passed by this Tribunal on 29.10.2021 and whether those things are required for the purpose of substantiating the claim made by the State of Telangana..*"

Further Hon'ble NGT in their order dated 25.03.2022 directed to file the above report on or before 07.04.2022.

Accordingly, the further / detailed report as directed by the Hon'ble NGT is prepared and submitted package wise.

STAGE OF WORK AS ON 29-10-2021 AND DETAILS OF WORKS PERFORMED BEYOND 29.10.2021 PACKAGE WISE

PRLIS-(Package No.1)

NAME OF WORK:Earth work Excavation of Approach Channel including Intake Structure and Tunnel from Foreshore of Srisailem Reservoir and construction of Stage – 1 Pumping station and Design, Manufacture, Supply, Erection, Testing and Commissioning of Vertical – Stage – Francis Turbine pump and Synchronous motor sets for 8 Nos of 145 MW for Stage – 1 pumping station near Anjanagiri Reservoir at Narlapur (V), Kollapur (M), Nagarkurnool District.

The stage of work as on 29.10.2021 as reported by the field officers

The Slashing work was carried out at +269.000 m in surgepool.

Work done beyond 29-10-2021 to 22.11.2021 as reported by the field officers

The Slashing work on both sides work was carried out in Surgepool from EL +269.000m to EL +258.000m and from EL +250.000m to EL +230.500m to carry out protection works such as fixing of Rock bolts and laying of shotcrete to avoid collapses and slips as per recommendations of NIRM (National Institute of Rock Mechanics) from 30.10.2021 to 22.11.2021 upto safety level to avoid slippage of rock.

Protection works were taken up for Vertical busduct shafts during the period from 30.10.2021 to 22.11.2021 which was imperative to protect against possible slips caused by stress distribution in shafts as per the mapping done by NIRM (National Institute of Rock Mechanics).

Remarks of KRMB team

Rock bolting, shotcrete, and slashing work are needed for safety as recommended by NIRM (National Institute of Rock Mechanics).

Package No. 2

NAME OF WORK: Formation of Anjanagiri Balancing Reservoir, Narlapur (V), Kollapur (M), Mahabubnagar (Dist.)

The stage of work as on 29.10.2021 as reported by the field officers

The formation of embankment works from km 0.200 to km 0.725 are in progress

work done after 29.10.2021 to 06.11.2021 as reported by the field officers

As a measure of safety the agency has executed the embankment work to maintain higher elevation in hearting zone compared to casing zone and to cover undulations in casing zone in certain patches in order to avoid water logging and to maintain proper slopes to drain out the water due to unexpected rains.

Remarks of KRMB team

In the embankment reach from km 0.200 to km 0.725 (525 m bund length), Hearting zone level is raised higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from water logging and to cover undulations in casing zone, the bunds are brought to uniform level with suitable slopes as a safety measure.

Package No. 3

Earthwork excavation of approach channel, open canal including construction of CM & CD works and Head Regulator from Anjanagiri Reservoir at Narlapur(v) i.e; km 0.00 to km 8.325 towards Veeranjaneya Reservoir at Yedula (v) in Mahabubnagar district.

The stage of work as on 29.10.2021 as reported by the field officers

Open canal excavation of above work was going on from Km.5.000 to km.6.500

The Work done after 29.10.2021 to 06.11.2021 as reported by the field officers

As a measure of safety the earthwork excavation of open canal from Km 5.00 to Km 6.50 is carried out by the agency. The blasting work was carried out where the filling with blasting materials were already done, which was unsafe to leave the blasting material in holes for long time.

Remarks of KRMB team

Once blasting materials are placed in holes it cannot be removed or kept for long time (due to chances of exploding), so they have to be fused/blasted.

Package No. 4

NAME OF WORK: Earth Work Excavation & Construction of Tunnel in between Anjanagiri Reservoir at Narlapur (v) and Veeranjaneya Reservoir at Yedula (v) from Km.8.325 to Km.23.235 in Mahabubnagar District-.

The stage of work as on 29.10.2021 as reported by the field officers

Lining work pertaining to sides and arch for Right Main Tunnel from Km 22.002 to 21.900 and Right Main Tunnel Kerb from km 21.877 to km 21.847 was in progress.

The work done after 29.10.2021 to 22.11.2021 as reported by the field officers

To avoid the collapses/slips of already excavated tunnel and to prevent air blasts in the underground tunnel laying of concrete protection layer for tunnel sides & arch in poor reaches was carried out as per the approved drawings and as suggested by Sr. Geologist from Geological Survey of India based on Geological mapping.

Remarks of KRMB team

Rock bolting, shotcrete, and slashing work are needed for safety as recommended by Sr. Geologist of Geological Survey of India.

Package No. 5

NAME OF WORK- Construction of Stage-2 Pumping station near Veeranjanya Reservoir including design, Supply, Erection, Testing and commissioning of Electro Mechanical works such as Vertical single stage Francis turbine pump and synchronous motor sets for 9+1 No's of 145 MW each including all accessories.

The stage of work as on 29.10.2021 as reported by the field officers

The benching works in surgepool and pump house are in progress

The work done after 29.10.2021 to 20.11.2021 as reported by the field officers

Concrete laid in Pump House , Draft Tubes & Busduct Shafts

M-25 Grade Cement concrete RCC Lining for Vertical busduct shaft-5 was completed during the period from 29.10.2021 to 16.11.2021 since the slipform shuttering is erected for concreting and cannot be dismantled as heavy structural supports are used for slipform.

Dewatering was carried out to avoid inundation of executed works.

Remarks of KRMB team

Unable to ascertain the purpose of RCC lining for vertical busduct and concrete for pump house, draft tubes and busduct shafts as safety measures.

Package No. 6

NAME OF WORK- Formation of Veeranjaneya Reservoir and Earth work Excavation of approach channel, open canal including CM& CD works, intake structure from KM 0.00 to Km 6.40 between Veeranjaneya Reservoir at Yedula (V) to Venkatadri Reservoir at Vattem (V).

The stage of work as on 29.10.2021 as reported by the field officers

The blasting works was going on from km 5.200 to km 6.00.

The work done after 29.10.2021 to 11.11.2021 as reported by the field officers

Blasting works were taken up in canal excavation where the drilling of bore holes filling with blasting material were already done which was unsafe to leave the blasting material in holes for long time

Remarks of KRMB team

Once blasting materials are placed in holes it cannot be removed or kept for long time (due to chances of exploding), so they have to be fused/blasted.

Package No. 7

PRLIS- (Package – 7)-Construction of Tunnel from Km.6.400 to Km.25.400 between Veeranjaneya Reservoir at Yedula (V) to Venkatadri Reservoir at Vattem (V) in Mahaboobnagar District.

The stage of work as on 29.10.2021 as reported by the field officers

The concrete lining work was going on from km 17.949 to km 18.105.

The work done after 29.10.2021 to 20.11.2021 as reported by the field officers

The Underground excavation work from km.15.890 to km.16.365. As per the geologist instructions, the safety work carried out to the approved drawing section and strengthened immediately by drilling 25 mm dia and 4m length resin capsule rock bolts in staggered pattern otherwise it may fall down.

In poor reaches of already excavated tunnel portion cement concrete protection layer for a length of 156 m from Km 17.949 to Km 18.102 is carried out to avoid further slipping of sides as per the recommendations of the geologist of Geological survey of India.

Remarks of KRMB team

Rock bolting and protection layer for a length of 156 m from Km 17.949 to Km 18.102 carried out to avoid further slipping of sides, are needed for safety as recommended by geologist of Geological survey of India.

Package No. 8

PRLIS-(Package No.8)- Construction of Stage-3 Pumping station near Venkatadri Reservoir including design, Supply, Erection, Testing and commissioning of Electro Mechanical works such as Vertical single stage Francis turbine pump and synchronous motor sets for 9+1 No's of 145 MW each including all accessories.

The stage of work as on 29.10.2021 as reported by the field officers

The concrete work for Tunnels, Pump house, Surgepool, Draft Tube, Delivery Mains was in progress and reinforcement for pump house, Draft tubes are also in progress.

The work done after 29.10.2021 to 19.11.2021 as reported by the field officers

Protection works, such as 25 mm dia-2.5 / 4 m long rock bolting was done after scaling of exposed surfaces in underground components of Delivery mains and tunnels.

Dewatering was carried out to avoid inundation of executed works.

Remarks of KRMB team

Rock bolting work is needed for safety.

Package No. 9

Package 09: Formation of Venkatadri Reservoir Bund from Km 0.000Km to 6.900 at Vатtem (V) , Bijinepally (M), Nagarkurnool Dist.

Formation of Venkatadri Reservoir Bund

The stage of work as on 29.10.2021 as reported by the field officers

The Banking work was going on from km 3.100 to km 4.750.

The work done after 29.10.2021 to 18.11.2021 as reported by field officers

As a measure of safety the agency has executed the embankment formed from Km 3.100 to Km 4.750 to maintain higher elevation in hearting zone compared to casing zone and to cover undulations in casing zone in certain patches in order to avoid water logging and to maintain proper slopes to drain out the water due to unexpected rains.

Revetment was constructed from Km3.270 to Km4.380.

Remarks of KRMB team

Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed, it needs to be protected from cracking and to protect from unexpected rains. To avoid water logging and to maintain proper slopes to drain out the water due to unexpected rains to protect from waterlogging and to maintain proper slopes to drain water and to cover undulations the bunds are brought to uniform level.

Revetment is to protect the slope to the bund

Package No. 10

Package 10: Formation of Venkatadri Reservoir Bund from Km 6.770 to 10.750 at Vattem (V) , Bijinepally (M), Nagarkurnool Dist.

The stage of work as on 29.10.2021 as reported by the field officers

Banking work was going on from km 8.625 to km 10.750

The work done after 29.10.2021 to 16.11.2021 as reported by field officers

As a measure of safety the agency has executed the embankment formed from Km 8.625 to Km 10.750 to maintain higher elevation in hearting zone compared to casing zone and to cover undulations in casing zone in certain patches in order to avoid water logging and to maintain proper slopes to drain out the water due to unexpected rains.

Revetment was constructed to protect the slopes of bund

Remarks of KRMB team

Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed, it needs to be protected from cracking and to protect from unexpected rains. To avoid water logging and to maintain proper slopes to drain out the water due to unexpected rains to protect from waterlogging and to maintain proper slopes to drain water and to cover undulations the bunds are brought to uniform level.

Revetment is to protect the slope to the bund

Package No. 11

Package 11: Formation of Venkatadri Reservoir Bund from Km10.750 to 15.230 at Vатtem (V), Bijinepally (M), Nagarkurnool Dist.

The stage of work as on 29.10.2021 as reported by the field officers

The Embankment work was going on from km 10.75 to km 11.200 and km 11.350 to km 15.125, the revetment work from km 11.600 to km 12.300, km 13.230 to km 13.830 and km 13.890 to km 15.120.

The work done after 29.10.2021 to 17.11.2021 as reported by field officers

Embankment was formed from km 12.350 to km 14.400 to maintain the uniform level in various components of bund and to avoid the rain gullies if it rains on bund.

Revetment was constructed from km 12.300 to km 12.480 to protect the slopes of bund on upstream side.

Remarks of KRMB team

Raising of embankment to maintain uniform level in various components can be treated as a safety measure.

Revetment is to protect the slope of the bund and is a safety measure

Package No. 12

PRLIS - Package No.12 - Earth Work Excavation of approach Channel and Open Canal from Venkatadri Reservoir at Vattem (V) to Kurmurthraya Reservoir at Karvena (v) from Km -1.300 to Km 10.750 including construction of CM & CD works and Head Regulator at Karvena (V), Bhoothpur (M), Mahaboobnagar District.

The stage of work as on 29.10.2021 as reported by the field officers

The Head Regulator cum off take sluice concrete work was going on

The work done after 29.10.2021 to 13.11.2021 as reported by field officers

Concrete was laid in Head Regulator Cum Off Take Sluice.

Blasting works were taken up in canal excavation from Km 0.275 to Km 0.500 and Km 2.150 to Km 2.400 where the drilling of boreholes filling with blasting material were already done which was unsafe to leave the blasting material in holes for long time, since the above reaches are very near to habitation. Hence, blasting was done.

Remarks of KRMB team

Concrete laid in Head Regulator cum Offtake sluice work cannot ascertained as safety work.

Once blasting materials are placed in holes it cannot be removed or kept for long time (due to chances of exploding), so they have to be fused/blasted.

Package No. 13

PRLIS - Package No.13 - Formation of Kurumurthyraya Reservoir from Km 0.000 to Km 4.500 at Karvena(V), Bhoothpur(M), Mahabubnagar(Dist.)

The stage of work as on 29.10.2021 as reported by the field officers

The embankment work was carried from km 3.100 to km 4.300

The work done after 29.10.2021 to 23.11.2021 as reported by field officers

The embankment work is executed to bring uniform level throughout the bund area in casing zone and also to maintain higher elevation in hearting zone compare to casing zone to avoid erosion & slipping of bund due to water logging.

To maintain proper slopes of bund to drain out the water if any, due to unprecedented rains.

Remarks of KRMB team

Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging, the bunds are brought to uniform level with suitable slopes.

Package No. 14

PRLIS - Package No.14 - Formation of Kurumurthyraya Reservoir from Km 4.500 to Km 8.000 at Karvena(V), Bhoothpur(M), Mahabubnagar(Dist.)

The stage of work as on 29.10.2021 as reported by the field officers

The embankment work was carried from km 6.350 to km 7.900

The work done after 29.10.2021 to 23.11.2021 as reported by field officers

The embankment work is executed to bring uniform level throughout the bund area in casing zone and also to maintain higher elevation in hearting zone compare to casing zone to avoid erosion & slipping of bund due to water logging.

To maintain proper slopes of bund to drain out the water if any, due to unprecedented rains.

Revetment was constructed to protect the slopes of bund on upstream side.

Remarks of KRMB team

Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging, the bunds are brought to uniform level with suitable slopes.

Revetment is for the safety of the bund slopes.

Package No. 15

PRLIS - Package No.15 - Formation of Kurumurthyraya Reservoir from Km 8.000 to Km 14.125 at Karvena(V), Bhoothpur(M), Mahabubnagar(Dist.)

The stage of work as on 29.10.2021 as reported by the field officers

The embankment work was carried from km 12.175 to km 12.650

The work done after 29.10.2021 to 21.11.2021 as reported by field officers

The embankment work is executed to bring uniform level throughout the bund area in casing zone and also to maintain higher elevation in hearting zone compare to casing zone to avoid erosion & slipping of bund due to water logging.

To maintain proper slopes of bund to drain out the water if any, due to unprecedented rains.

Revetment was constructed to protect the slopes of bund on upstream side.

Remarks of KRMB team

Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging, the bunds are brought to uniform level with suitable slopes.

Revetment is for the safety of the bund slopes.

Package No. 16

PRLIS - Package No.16 - Construction of Stage - IV pumping station including Canal & Tunnel at Udandapur Reservoir and Design, Manufacture, Supply, Erection, Testing and Commissioning of Vertical Single Stage Francis Turbine Pump and Synchronous Motor sets for 5 Nos. of 145 MW Capacity for Stage - IV Pumping near Udandapur (V), Jadcherla (M), Mahabubnagar District.

The stage of work as on 29.10.2021 as reported by the field officers

Pump House and surge pool excavation was in progress

The work done after 29.10.2021 to 29.11.2021 as reported by field officers

In case of the Surge Pool, Pump House, these are the huge underground excavated caverns which will be excavated with heading and benching method. The size of Surge Pool is 233x20x92 mt. and Pump House is 257x25x67 mt. As per the recommendations of the NIRM geologists it is to be supported with rock bolts and Shotcreting after completion of every bench excavation. It is dangerous to leave the bench portion in the middle of the length, so the balance benching portion was excavated after 29.10.2021 and taken the entire bench to a safe level. Rock bolting and Shotcreting work is completed as supporting system for the excavated bench.

Remarks of KRMB team

Rock bolting and shotcrete work are needed for safety as recommended by the NIRM (National Institute of Rock Mechanics).

Package No. 17

PRLIS - Package No.17 - Formuuation of Formation of Udandapur Reservoir bund from Km 0.000 to Km 6.300 at Udandapur Village, Jadcherla (M), Mahabubnagar Dist.

The stage of work as on 29.10.2021 as reported by the field officers

The embankment work was carried from km 1.300 to km 1.800 and km 2.100 to km 2.500 & Head Sluice @ km 7.00.

The work done after 29.10.2021 to 19.11.2021 as reported by field officers

The embankment work is executed to bring uniform level throughout the bund area in casing zone and also to maintain higher elevation in hearting zone compare to casing zone to avoid erosion & slipping of bund due to water logging.

To maintain proper slopes of bund to drain out the water if any, due to unprecedented rains.

Remarks of KRMB team

Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging during unprecedented rains, the bunds are brought to uniform level with suitable slopes.

Package No. 18

PRLIS - Package No.18 - Formation of Formation of Udandapur Reservoir bund from Km 6.300 to Km 15.875 at Udandapur Village, Jadcherla (M), Mahabubnagar Dist.,

The stage of work as on 29.10.2021 as reported by the field officers

The embankment work was taken from km 10.400 to km 11.125 and km 11.700 to km 12.700.

The work done after 29.10.2021 to 13.11.2021 as reported by field officers

The embankment work is executed to bring uniform level throughout the bund area in casing zone and also to maintain higher elevation in hearting zone compare to casing zone to avoid erosion & slipping of bund due to water logging.

To maintain proper slopes of bund to drain out the water if any, due to unprecedented rains.

Remarks of KRMB team

Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging during unprecedented rains, the bunds are brought to uniform level with suitable slopes.

5. CONCLUSION/FURTHER REPORT

On the day of the visit, no work was being carried out at the various sites of the project.

It is observed that approach canals, tunnels, pump houses and reservoirs works have been stopped in various stages of construction.

The following are the observations made package wise as per the field visit and reports and information furnished by the field officers.

Package No.	Observations of the team
1	Rock bolting, shotcrete, and slashing work are needed for safety as recommended by NIRM (National Institute of Rock Mechanics).
2	In the embankment reach from km 0.200 to km 0.725 (525 m bund length), Hearting zone level is raised higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from water logging and to cover undulations in casing zone, the bunds are brought to uniform level with suitable slopes as a safety measure.
3	Once blasting materials are placed in holes it cannot be removed or kept for long time (due to chances of exploding), so they have to be fused/blasted.
4	Rock bolting, shotcrete, and slashing work are needed for safety as recommended by Sr. Geologist of Geological Survey of India.
5	Unable to ascertain the purpose of RCC lining for vertical busduct and concrete for pump house, draft tubes and busduct shafts as safety measures.
6	Once blasting materials are placed in holes it cannot be removed or kept for long time (due to chances of exploding), so they have to be fused/blasted.

7	Rock bolting and protection layer for a length of 156 m from Km 17.949 to Km 18.102 carried out to avoid further slipping of sides, are needed for safety as recommended by geologist of Geological survey of India.
8	Rock bolting work is needed for safety.
9	<p>Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed, it needs to be protected from cracking and to protect from unexpected rains. To avoid water logging and to maintain proper slopes to drain out the water due to unexpected rains to protect from waterlogging and to maintain proper slopes to drain water and to cover undulations the bunds are brought to uniform level.</p> <p>Revetment is to protect the slope to the bund</p>
10	<p>Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed, it needs to be protected from cracking and to protect from unexpected rains. To avoid water logging and to maintain proper slopes to drain out the water due to unexpected rains to protect from waterlogging and to maintain proper slopes to drain water and to cover undulations the bunds are brought to uniform level.</p> <p>Revetment is to protect the slope to the bund</p>
11	<p>Raising of embankment to maintain uniform level in various components can be treated as a safety measure.</p> <p>Revetment is to protect the slope of the bund and is a safety measure</p>

12	Concrete laid in Head Regulator cum Offtake sluice work cannot ascertained as safety work. Once blasting materials are placed in holes it cannot be removed or kept for long time (due to chances of exploding), so they have to be fused/blasted.
13	Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging, the bunds are brought to uniform level with suitable slopes.
14	Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging, the bunds are brought to uniform level with suitable slopes. Revetment is for the safety of the bund slopes.
15	Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging, the bunds are brought to uniform level with suitable slopes. Revetment is for the safety of the bund slopes.
16	Rock bolting and shotcrete work are needed for safety as recommended by the NIRM (National Institute of Rock Mechanics).
17	Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging during unprecedented rains, the bunds are brought to uniform level with suitable slopes.

P. V. B...
07/4/22

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07/04/2022

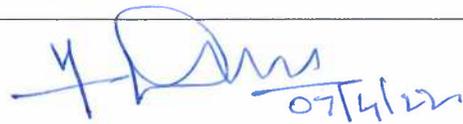
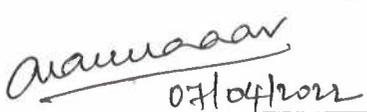
18	Hearting zone level is raised uniformly throughout the length, higher than the casing zone, as the clay has a tendency to crack when exposed and it needs to be protected from cracking. To protect from erosion & slipping due to water logging during unprecedented rains, the bunds are brought to uniform level with suitable slopes.
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Based on the above, we are of the opinion that except in 2 packages (i.e., in package no. 5 & 12) the works carried out may be considered as having been carried out for safety purposes. In packages No. 5 & 12, we are unable to ascertain the purpose of laying RCC and concrete as a safety measure or not .

Report dated : April 07, 2022

Place : Hyderabad, Telangana

Signatures of the Team Members

S.No	Name and Designation	Signature
1	R. V. Prakash, Superintending Engineer, KRMB, Hyderabad	 07/4/22
2	Y. Raghunath Rao, Executive Engineer, KRMB, Hyderabad	 07/4/22
3	T. Ajay Yadav, Deputy Executive Engineer, KRMB, Hyderabad	 07/04/2022

