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भारत सरकार-रेल मंत्रालय  
अनुराधान अभिकल्प और मानक संगठन  
लखनऊ - 226011  
Government of India-Ministry of Railways  
Research Designs & Standards Organisation  
Lucknow- 226011

No. CBS/DWF

Dated: 08.08.2013

The General Manager (Const.)/ CAO (Const.),

1. Central Railway, Mumbai CST-400 001.
2. Eastern Railway, Fairlie Place, Kolkata-700 001.
3. CAO/South, East Central Railway, Mahendrugahal Patna (Bihar)-800 004.
4. CAO/North, East Central Railway, Mahendrugahal, Patna (Bihar)-800 004.
5. East Coast Railway, Bhubaneswar, (Orissa).
6. CAO/Cons-I, Northern Railway, Kashmere Gate, Delhi-110 006.
7. CAO/Cons-II, Northern Railway, Kashmere Gate, Delhi-110 006.
8. USBRL Project, Northern Railway, Satyam Complex, Trikuta Nagar - Extn., Jammu-180 020.
9. North Central Railway, Allahabad, (U.P.).
10. North Eastern Railway, Gorakhpur-273 001.
11. North Western Railway, Jaipur, (Rajasthan).
12. Southern Railway, 18, Miller Road, Bangalore - 560 046.
13. South Central Railway, DRM/Secunderabad Office Compound, Secunderabad-500 371.
14. South Eastern Railway, Garden Reach, Kolkata-700043
15. South East Central Railway, Bilaspur.
16. South Western Railway, No. 18 Miller Road, Bangalore, (Karnataka).
17. Western Railway, Mumbai-400 020.
18. West Central Railway, Jabalpur. (M.P.).
19. Northeast Frontier Railway, Maligaon, Guwahati 781 011.

The Chief Bridge Engineer:

1. Central Railway, Mumbai CST-400 001
2. Eastern Railway, Fairlie Place, Kolkata-700 001
3. East Central Railway, Hazipur - 844101
4. East-Coast Railway, Bhubaneshwar- 751 016
5. Northern Railway, Baroda House, New Delhi- 110 001
6. North-Central Railway, Allahabad.211 001
7. North Eastern Railway, Gorakhpur-273 001
8. North-Western Railway, Jaipur 302 001
9. Northeast Frontier Railway, Maligaon, Guwahati-781 011
10. Southern Railway, Park Town, Chennai-600 003
11. South Central Railway, Rail Nilayam, Secunderabad-500 371
12. South East Central Railway, Bilaspur 495 004
13. South Eastern Railway, Garden Reach, Kolkata-700 043
14. South-West Railway, Hubli 580 023
15. Western Railway, Mumbai-400 020
16. West-Central Railway, Jabalpur- 482 001

**Sub: Design of pile foundation for Railway Bridges.**

Deep foundations are normally provided for bridges constructed in alluvial rivers where large scour depths are anticipated. Mostly well foundations have been provided as deep foundations in case of Railway Bridges. Now with the availability of

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new technology for providing large diameter piles, pile foundations are also being provided as deep foundations for railway bridges by many Zonal Railways.

Selection of specific type of foundation is taken on number of considerations in a specific project and some of factors are:


- soil parameters, design discharge and scour depth
- stiffness of structure and limitations of deflection from track-bridge interaction considerations
- availability of construction technology/ constraints
- speed of construction (which is more in pile foundation)
- distance between adjacent bridges and their span lengths
- site specific requirements / constraints and
- finally the cost of the structure to meet the targeted objectives etc.

However, deflection at deck level becomes more in pile foundation than in well foundation if the scour depth is more. Therefore, while deciding the safe lateral load on piles of railway bridges, limiting the deflection at deck level from track point of view is important.

In view of above, it is advised that type of deep foundation for railway bridges in alluvial rives should be decided judiciously. In case of pile foundation, while assessing lateral load capacity of piles as per IS:2911 (Part4)-1985 (Reaffirmed-2000), clause 7.4 (c) should also be considered i.e. "load corresponding to any other specified displacement as per performance requirements" alongwith all other considerations so that the allowable deflection at deck level from track bridge interaction considerations is taken in to account.

This is for information and necessary action please

Encl.: Nil.

  
(Rajesh Agarwal)  
Executive Director/Structures  
for Director General/B&S

Copy to : Executive Director/CE(B&S), Room No. 126, Railway Board, Rail Bhawan, New Delhi - 110 001.