International Journal For Advanced Research In Science & Technology
A peer reviewed international journal www.ijarst.in
ISSN: 2457-0362

A ROAD UNDER BRIDGE CONSTRUCTION AND ITS COURSE OF ACTION DUE TO FEW APPROACHING TECHNIQUES

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ABSTRACT:

The convergence of railroad track and the street at a similar level is alluded to a level intersection. In the urban regions the level crossing are for the most part observed by qualified railroad work force who screen the prepare development and close the level intersection door to stop the meddling street activity yet such shutting of entryways prompts clog in street movement and furthermore makes loss of time street clients. Street under extension and street over scaffold are considered as answers for maintaining a strategic distance from level intersections of streets and railroad track. There are 3 fundamental strategies in development of street under extension by Box pushing technique, Cut and cover strategy, rolling strategy utilizing RH brace. In this we talk about that executes, soil contact, impacts required, limit of jacks and there utilizes, skew points and at square edges.

Keywords: Road Under Bridge, Level Crossing, Box Pushing Method and RUB

I. INTRODUCTION

Level intersections keep on being the weakest connection, generally dangerous component and wellspring of mishaps on Railway track from wellbeing perspective. Because of increment in prepare speed and neglect of guidelines by street clients, these are more basic. In spite of the fact that, the aggregate number of mishaps happening on the Indian Railways is demonstrating a dynamic decay, level crossing mishaps are as yet floating at around the same level. With the developing stimulus on urbanization and increment in the street organize; the interest for giving street under scaffolds by end of level intersections is on the ascent. To develop such openings with minimum interruption not exclusively to the prepare benefits yet in addition to people in general and related foundation is a test to the Railway Engineers

II. METHODOLAGY

ETABS is a sophisticated, yet easy to use, special purpose analysis and design program developed specifically for building systems. ETABS features an intuitive and powerful graphical interface coupled with unmatched modeling, analytical, and design procedures, all integrated using a common database. Although quick and easy for simple structures, ETABS can also handle the largest and most complex building models, including a wide range of geometrical nonlinear behaviors, making it the tool of choice for structural engineers in the building industry (Computers and structures Inc. 2003).The accuracy of analytical modeling of complex Wall Systems has always been of concern to the Structural Engineer. The computer models of these systems are usually idealized as line elements instead of continuum elements. Single walls are modeled as cantilevers and walls with openings are modeled as pier and spandrel systems. For simple systems, where lines of stiffness can be defined, these models can give a reasonable result. However, it has always been recognized that a continuum model based upon the finite element method is more appropriate and desirable. Nevertheless this option has been impractical

for the Structural Engineer to use in practice primarily because such models have traditionally been costly to create, but more importantly, they do not produce information that is directly useable by the Structural Engineer. However, new developments in ETABS using object based modeling of simple and complex wall systems, in an integrated single interface environment, has made it very practical for Structural Engineers to use finite element models routinely in their practice Wall is a vertical load-bearing member whose length exceeds four times its thickness. Un-braced wall is designed to carry lateral loads (horizontal loads) in addition to vertical loads. Braced wall does not carry any lateral loads (horizontal loads). All horizontal loads are carried by principal structural bracings or lateral supports. Reinforced wall contains at least the minimum quantities for reinforcement. Plain walls contain either no reinforcement or less than the minimum quantity of reinforcement. The wall which is investigated in this research is consisting of several separated blocks which are placed in such a way that they form an infill wall for IBS construction. Recently the application of precast components in construction of many structures is accelerating due to its simplicity for fabrication and saving in time and labor force of many construction projects. IBS is a construction technique where components are manufactured in a controlled environment (on or off site), transported, positioned and assembled into a structure with minimal additional site works (CIDB, 2003). IBS is the new way forward in the construction industry. In 2012, the Malaysian government mandated that any governmental project should comprise of 70% IBS Precast frame which is made by combining beam and column is not new, but block work system research must be check to ensure the safety and reliability of the system before put into use for industrialize housing Hence, many research centers and universities turned to contribute to this new born science field and consequently a thorough analyzing with ETABS is also necessary.

Figure 3.1 Bukit Jail Sport Complex

2.1 Expected Finding

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A peer reviewed international journal www.ijarst.in
ISSN: 2457-0362

The expected findings from the research are to expand and contribute to the knowledge about deflection and stresses of an IBS wall block work component system with aid of ETABS computer software. At the end of this study, the failure behavior, deflections, modes of failure and stresses of new IBS wall infill components will be illustrated. The failure behavior and deflection obtained from the analyses was investigated for performance and effectiveness of the components to comply with Codes of Practices.

2.2 Significance of Study

Various construction techniques have been utilized in construction industry with regard to the analytical analysis parts. However, among all those methods, Industrialized Building System (IBS) is the most popular and efficient system that becomes the priority choice of the clients due to a certain advantages on the environment and economy. Thus, a more advanced and economic system like the use of precast components will be extremely essential for this country to move fast forward to a successful developed country. Due to some shortcomings of IBS system, it is important to improve productivity and quality of IBS. Therefore, this research is precious in improving the quality of IBS structure in order to promote this technology and increase the level of confidence among the society. On the other hand, this study will implement new way of construction of Industrialize Building System that resembled an interlocking building block work System.

2.3 Notable FRP Bridges

The following sections looks at some notable bridges constructed partially and fully from FRP Composites in a European context.

2.4 Road Bridges

West Mill Bridge, UK The West Mill Bridge in Oxford shire, UK was the first road traffic bridge to be built in Europe entirely from FRP. The bridges load carrying beams; side paneling and deck were all made from Fiber Reinforced Polymer. The cross section consists of 4 beams (520mm x 480mm) with 34 ASSET deck profiles glued together on top. It was assembled in a temporary factory set up on site. Designer: Mouchel Consulting, U.K Manufacturer: Fiberline Composites, Denmark Construction: Skanska UK

 Year: 2002

 Full FRP

 Deck: ASSET profile, span 10m, width 6.8m

 Total weight: 37 ton

 Vehicles up to 46 ton

Figure 3.2 *Installation of West Mill Bridge*

Designer: Fiber Core Europe, Holland Manufacturer: Fiber Core Europe, Holland Contractor: Heymans, Holland

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- Year: 2012
- FRP/steel hybrid
- Span 140m, width 6.2m
- 72.8 ton weight saved on the deck
- Carrying capacity: vehicles up to 60 ton

Figure 3.3 *A27 Lunette FRP hybrid bridge*

Pedestrian Bridges

Havenbrug Harbour Bridge, Holland Designer: FiberCore Europe, Holland Manufacturer: FiberCore Europe, Holland

- Year: 2012
- Full FRP design
- Spans 19.4 & 12m, Width 1.52m
- Craned into position in one lift

Fig 3.4 *Fiber Core Europe Infra Core Inside Technology*

III. RESULTS

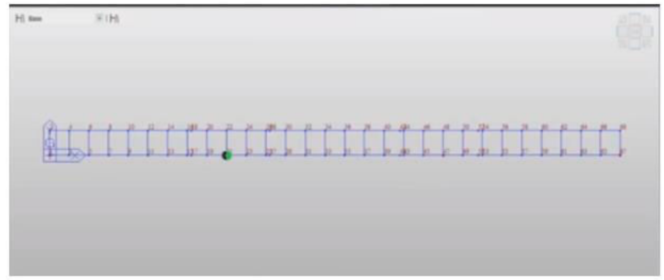

Fig 4.1 shows that plane surface

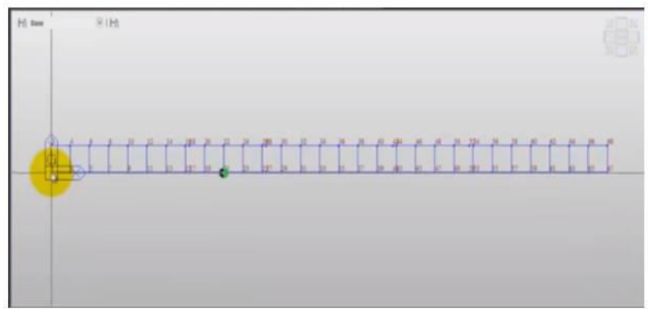

Fig 4.2 shows that initial point of the plan load

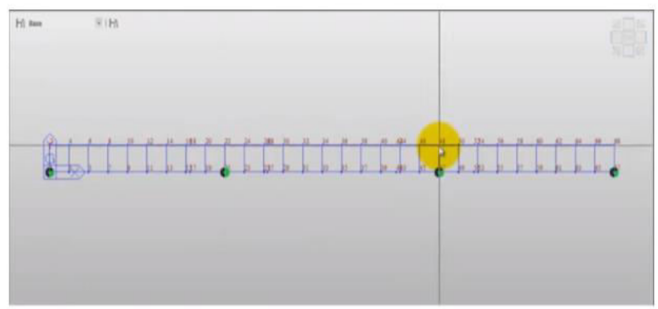

Fig 4.3 shows that third load of the plane surface

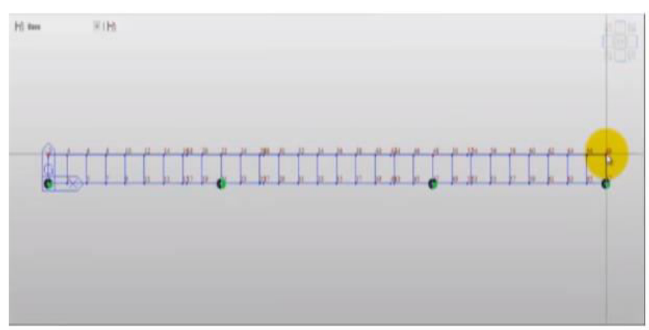

Fig 4.4 shows that final load of the plane surface

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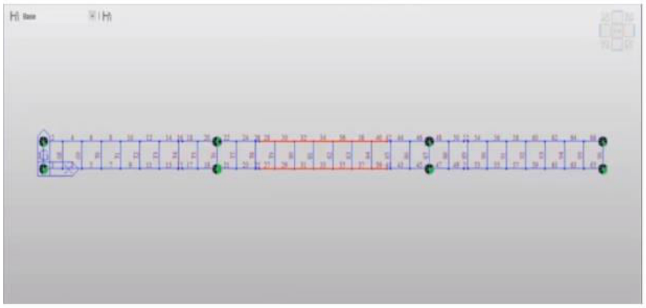

Fig 4.5 shows that load applied to the surface middle point

Fig 4.6 shows that plan surface with scale factor

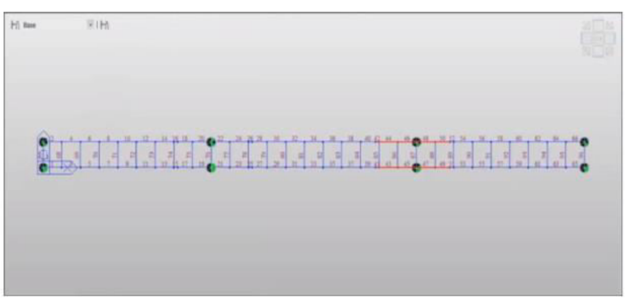

Fig 4.7 shows that applied to the load at third stage

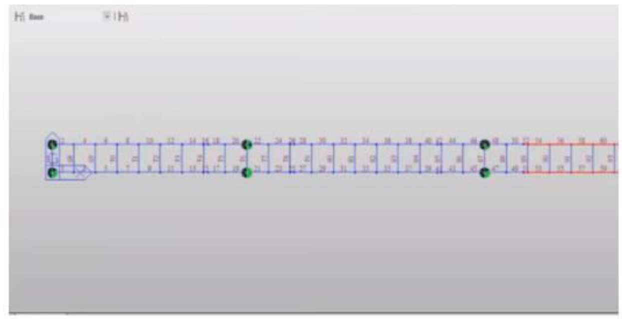

Fig 4.8 shows that applied to the load at final stage

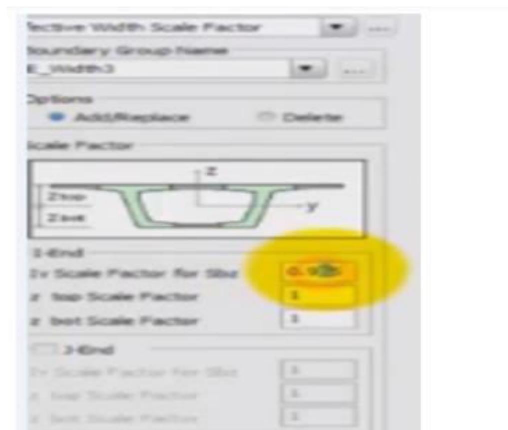

Fig 4.9 shows that plane surface width of the scale factor

IV. CONCLUSION

Pushing work implies in any event mostly working in dazzle, so issues more often than not come up amid execution of work. Box pushing work requires close supervision and checking and regularly the dangerous conditions create at these destinations. Track must be observed consistently to see indications of hurling, settlement, misalignment and so on. LWR must be cut and site secluded amid box pushing. Work must be done under square security/alert arrange as it were.

The presented example illustrates the advantages of using FRP decks in bridge deck replacement projects instead of replacing the entire superstructure. This holds true in terms of both costs and environmental impact, when this option naturally ful fils the technical requirements. In addition, the social impact of the bridge with an FRP deck is reduced due to a shorter construction period, resulting in fewer traffic delays, less air pollution generated by traffic and construction equipment and a safer working zone. Quick construction also implies fewer social costs and carbon emissions due to traffic detours, as verified in this study. It should be mentioned that, in this case study, there is some uncertainty about the unit values of embodied-material carbon emissions, especially for the FRP material and polymer concrete. This creates some degree of uncertainty in the results, which are very sensitive to these input data. In the case of FRP decks, polymer concrete material used as an overlay makes a major contribution to carbon emissions. If asphalt were considered as an overlay, a further reduction of 17% in total carbon footprint would be achieved for the deck replacement alternative. The analysis also confirms that the environmental impact is dependent on several factors (e.g. traffic diversions, transportation, and material) and the results are accordingly very sensitive to these parameters.

This proves the need for life-cycle assessments for various bridge projects in order to identify the best solution since, in a sense, each bridge is unique. It should also be noted that, in this study, the environmental impact is limited by addressing only the carbon emissions, which have a main impact on the global warming potential (GWP). Additional studies are required to assess other environmental impact categories such as: acidification potential (AP), eutrophication Along with these conclusions, FRP decks will probably gain recognition due to improved social sustainability, potential cost savings over the life cycle of the bridge and promising results in terms of the environmental impact.

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