Another milestone in the year 2018 is publishing the second Newsletter for the year - Issue 31 in the Month of September 2018. Completing this goal with a positive remark, I appreciate the efforts of everyone who contributed in achieving this success among their busy schedules.

At this juncture, I would say that this is a mere collective effort and a team work that the council and the members will have to put forward as a team. Therefore, I take this opportunity to invite all our members to contribute to the Newsletters of ACESL.

Hope you will share your thoughts, expertise knowledge and new ideas in the field of Engineering as well as in any other area which you find relevant to this newsletter. This could be focused through effective articles that could be published in the upcoming Newsletters.

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**PRESIDENT’S MESSAGE**

Dear Members,

I take pleasure to forward the second issue of Newsletter for the year that gives some information on FIDIC and our recent activities with FIDIC.

In September 2017 I formally informed the FIDIC ASPAC Secretariat about our intention to host the FIDIC Asia Pacific Conference in 2019.

Within a few weeks, Eng. Dr. Kamal Laksiri, who was then attending the ASPAC Executive Committee Meeting in Jakarta, brought us the good news that ACESL is entrusted to host the conference in 2018, one year ahead of what we desired.

It was a big challenge to organize everything within several months by a group of otherwise very busy professionals. Once again, ACESL has proven that collaborated efforts of a dedicated team can achieve any goal as seen in this extremely successful four-day event presented to the world by the Organizing Committee that was chaired by Eng. Dr. Laksiri and supported by Young Professionals Forum and many others.

Our members who missed to attend the ASPAC Conference have definitely missed a great opportunity brought to your doorstep. I invite you to actively involve yourselves in such events right from the planning stage.

I take pleasure to produce here a few messages including some important information received from FIDIC/ASPAC officials.

The annual general meeting and get together will be held in December 2018. I request all the members to ensure that you have paid arrears, if any, in your membership subscriptions.

Eng. Kirthi Sri Senanayake

President, ACESL
Dear ASPAC Colleagues,

We just had a wonderful ASPAC 2018 Conference in Colombo, I would like express my sincere thanks to Association of Consulting Engineers Sri Lanka and the Conference organizing committee for their great contribution to the success of the conference. I'm also very appreciative of all speakers and participants; it's them that bring much more wonderful energy to the conference.

On 26th June, 2018, ASPAC 2018 GAM was very successfully held in Colombo, there are many issues that need to get approved and reviewed, and minutes of GAM will be sent to all of you once it is ready. There is one important issue to the GAM is appointing new Chairman, at the GAM, I completed my tenure as ASPAC Chairman and shift the responsibility to Mr. Irawan Koesoemo from Indonesia.

As the immediate past chairman, I'm very proud, during the past three years, the Executive Committee worked very hard on various projects and initiatives on sustaining development of ASPAC, with the support from EC members, Member Associations, our ASPAC annual conferences well organized, Seminars successfully implemented, our working committees well established and efficiently operated. We faced more challenges and achieved a lot with our joint efforts.

I fully understood it's your patience, contribution and support helping me accomplish my mission as ASPAC Chairman and hope all of you will consistently support Mr. Irawan Koesoemo and the new team of ASPAC Board to bring ASPAC to a much more bright future.

The current Executive Committee members are:

Chairman: Irawan Koesoemo (Indonesia)
Members: - Mohd Adnan Mohd Nor (Malaysia)
- Toshio Kurashige (Japan)
- Mirye Park (Korea)
- Kamal Laksiri (Sri Lanka)
- Sudhir Dhawan (India)
- Qiao Feng (China)

Thanks again for your support and hope all of you continue to support me on my responsibility of FIDIC EC Member.

Best Regards
Liu Luobing
Immediate Past Chairman, ASPAC
2nd July 2018

MESSAGE FROM FIDIC BOARD MEMBER

Dear Kamal and Kirthi,

I would like to express my deep appreciation for the great job ACESL has done in taking on the organisation of the ASPAC Conference 2018. It was an excellent event, with much rich content and fantastic social events. You might well be the first to be able to entertain us with Music Engineers!

Please pass on my thanks to your team.

I very much enjoyed the presentations by the young professionals and my interactions with them. Their talent and eloquence was very evident.

It is wonderful to see the development journey Sri Lanka is on and to witness the great contribution engineers are making to its development. I have been to many cities in 8 countries this year and can tell you, there are few with as much building activity underway as Colombo.

Your welcoming and courteous nature is an element of your culture which is a national treasure.

I have enjoyed being in Sri Lanka and will definitely return for a holiday with my wife.

Again, thank you.

Warm regards
Tony Anthony Barry
Senior Consultant, Aurecon Committee
Board Member, International Federation of Consulting Engineers
26th June 2018
MESSAGE FROM THE MANAGING DIRECTOR, FIDIC

Dear Kamal,

Somewhat belatedly, may I also add my thanks and congratulations to you and your colleagues for a successful conference. It was a pleasure to participate, and meet many friends and colleagues, and to share the experiences of this vibrant group from the consulting engineering industry.

Best wishes to all, and hope to see you soon in Berlin.

Best regards
Enrico

Enrico Vink
Special Advisor
International Federation of Consulting Engineers (FIDIC)
16th July 2018

ANNUAL GENERAL MEETING

The Annual General Meeting for the Year 2018 will be held in December 2018. A large gathering of you, Members and Member Firms are expected at this event to cherish the happy moments and get updated with the ACESL activities of the year.

INTERNATIONAL WORKSHOPS/SEMINARS

IN JUNE 2018

ORGANIZING COMMITTEE

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<th>Chairman</th>
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<td>Eng. Kirithi Sri Senanayake</td>
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It is a pleasure to announce that Sri Lanka hosted the FIDIC Asia – Pacific Conference ASPAC 2018, under the theme Infrastructure Connectivity in the ASPAC Region very successfully. This year’s event was held from 24th to 27th June in Colombo with the leadership of the Eng. Dr. Kamal Laksiri, Chairman Organizing Committee and the Immediate Past President of the Association of Consulting Engineers Sri Lanka. The occasion was graced by many delegates and, the Guest of Honour of the day was Hon. Patali Champika Ranawaka – Minister of Mega polis and Western Development.
The event was well attended by about 200 both foreign and local members representing 12 member countries in the Asia Pacific region and conducted at BMICH, Colombo from 24th to 27th June 2018.

The opportunity to hold this event in Colombo was decided in the previous FIDIC ASPAC conference held in Jakarta, Indonesia during 2017. According to the original arrangements of the FIDIC ASPAC, Kazakhstan was decided as the venue for 2018 event and we, Sri Lanka made an application for the 2019 event. However due to their own reasons Kazakhstan declined to hold the event at the last moment. On this difficult situation the Executive Committee of the FIDIC ASPAC made a request from ACESL to hold the event in Colombo in 2018. This was discussed in detail in the Executive Committee held in Jakarta attended by Dr.Kamal Laksiri FIDIC ASPAC Executive member representing ACESL. Amidst the limited time available, finally in consultation with the ACESL Council it was agreed to hold the event in Colombo. The FiDIC ASPAC Executive Committee appreciated ACESL for accepting to hold the event in 2018 in Colombo amidst the limited time available.

Program Summary of FIDIC-ASPAC Conference 2018
Day 1: 24.06.2018

Registration
YPF SC Meeting
ASPAC EC Meeting
Business Forum organized by ACESL in association with EDB
YP Meet and Greet – Welcome Reception at Quadrangle Garden, BMICH

Day 2: 25.06.2018

Registration
Welcome Addresses
Address by the Guest of Honour Hon. Patali Champika Ranawaka – Minister of Mega polis and Western Development
Targeting ‘BEST VALUE’ Sustainable Infrastructure – Amidst National & International Pressures & Priorities - Prof. Mohan Kumaraswamy – Professor, Hong Kong University
Resources Growth Logistic Centers and the Challenge for staple reproduction of sustainable regional infrastructure connectivity- Indra Budiman Syawil – INKINDO, Indonesia
Implications due to an Integration of Public Transport Terminals for overall Efficiency of Transport Network- Dr. Tissa Liyanage – Managing Director, Master Hales Consultants
Day 3: 26.06.2018

**Marmaray Rail way Project**- Atsushi Nishikori- Oriental Consultants Global Co Ltd. Japan

**How Infrastructures benefit the Community-** From Hong Kong Experience- Ir. Ian Chung – Senior Vice President, PRC Leader, AECOM

**Carrying the Legacy Forward-** Prof. Rangika Halwatura – University of Moratuwa, Sri Lanka

**The role of Consulting Engineer in the Construction and Operation of Large-scale Infrastructure**- Dr. Qiao Feng – Engineering & Construction Project Management CO. LTD.

**Green Technology in the Infrastructure Development**- Prof. Ranjith Dissanayake – Green Building Council Sri Lanka

**YP Open Forum**

**Future Infrastructure for Regional Connectivity – Road Ahead**- Amitabha Ghoshal – Consulting Engineers Association of India

**Construction material evolution towards the sustainable infrastructure development**- Dr. Moussa Baalbaki – Head of Products & Solutions portfolio, INSEE

**Closing ceremony and conference closing**

ASPAC GAM

GALA Dinner

Business Forum in Live

In parallel with the Conference, a Business Forum and an Exhibition were also conducted. The Business Forum, attended by the local industry representatives along with foreign counterparts was a very successful event and it gave the opportunity for local participants to interact with the foreign participants on new business developments.
YPF SC Meeting
There was also an important session organized by the ACESL Young Professionals Forum (YPF), which included a paper presentations session and also a cultural evening depicting traditional dancing and sport such as "Anganpora", which drew the special attention of the foreign participants.

Cultural Event “Anganpora”
An evening reception was held to welcome the participants on the first day of the conference at BMICH. The cultural items were also included in the reception and they were sponsored by the Sri Lanka Convention Bureau (SLCB).

Cultural Dance

Gala Dinner
On the last day of the Conference, a Gala Dinner was held for the participants at the Cinnamon Grand Hotel. In this evening, a cultural show was performed by a team from a famous dancing professional in the country, Rajini Selvanayagam and entertained by the Music Engineers of IESL led by the ACESL Council Member Eng Prabodha Jinasena.

Music Engineers Lead by Eng. Prabodha
As the last item of the event, two site visits for the foreign participants were conducted to the Port City Project in Colombo and to the Moragahakanda multipurpose Development Project. Those who attended the latter visit stayed one night in Kandy and on their way they visited Pinnawela Elephant Orphanage.

Eng. Dr. Kamal Laksiri, Chairman Organizing Committee Addressing the Gathering At Gala Dinner
In parallel with the Event, an accompanying persons programme was also conducted and as a part of it the participants visited Galle area in a day tour.

**Extract from the 2017/ 2018 ANNUAL REPORT – FIDIC “ASPAC”**

“Sri Lanka hosted this year’s successful event 25-27 June. It is forecast that the Asia’s infrastructure market will show an annual growth rate of 7% – 8% in the coming years. At this growth rate the total infrastructure market, will reach US$5.3 trillion by 2025, accounting to 60% of the world total.

In acknowledging the growth and potential within the Asia Pacific region, the conference focused on the vast demand for quality infrastructure, and the need to offer more sustainable solutions, for economic growth, and better quality of life. Speakers from many countries looked in detail at sectors such as power & energy infrastructure, rail & road transport, air ports and harbours, schools, healthcare facilities and communication technology. These are seen as influencing priorities and investments in regional infrastructure development. In this context, the importance of strong regional connectivity was under scored. FIDIC board members Liu Luobing and Tony Barry were in attendance, as well as FIDIC MD Enrico Vink, helping to cement the close relationship between FIDIC and its regional group”.

### IN JULY 2018

A Two-full Day Workshop was organized by the ACESL on 7th and 14th July 2018 in Colombo and FIDIC Accredited Trainer Eng. Malith Mendis FIESL FICE CEng, Past President, ACESL provided the training on Practical Use of FIDIC Design and Build Conditions of Contracts (Yellow Book) and Essential contractual know-how for working on today's International projects.
IN SEPTEMBER 2018

FIDIC INTERNATIONAL INFRASTRUCTURE CONFERENCE

FIDIC organized the annual International Infrastructure Conference in Berlin at Hotel Intercontinental during 4th September to 11th September 2018. This conference is the major international event of the Consulting Engineering Industry. The venue of the International Infrastructure Conference changes continent and region every year to ensure global representation. Conference participants are professionals from the Infrastructure industry such as industry leaders and decision makers.

Other FIDIC events that took place during the FIDIC International Conference were the FIDIC Best Practice Forum, the FIDIC Awards Gala, B2B sessions, and the Young Professional Management Training Programme.

Mobility & Smart Infrastructure

Urban mobility and smart city design offers tremendous business opportunities for both public and private investment. Economic growth and rapid urban expansion has put tremendous strain on infrastructure, and new solutions are demanded. We believe that governments and private investors may find significant economic benefits in the new business models emerging in the investment, construction and civil engineering work.

Technology is also directly impacting public and private transport, healthcare, energy, retail, tourism and many other industries, which will in turn impact infrastructure and our cities. How will these changes and the increased digital inter-connectivity, impact our future infrastructure, our offices and our homes?

The consulting engineering industry is rising to the challenge and is exploring new ways to partner with clients, investors and constructors.

Note: Dr Kamal Laksiri, Immediate Past President and the Council Member of the Association of Consulting Engineers Sri Lanka and Eng (Mrs) Kamala Gunawardena, Editor/ Council Member of ACESL participated in this major event representing the ACESL for the year 2018.
Council Meetings and Activities

The members of the Council who were selected in the first Council Meeting for the Session 2018 are serving up to now.

Monthly meetings were held on every 3rd Friday of the month and nine (9) meetings have been held until September so far.

TECHNICAL PAPERS

Design and Construction of Longest Via-Duct in Southern Railway Extension
By
Eng. (Major) Jayantha Gunathilake
Dy. Team Leader – C.E.C.B.
Matara – Beliatta Railway Project

The History of Railway – Sri Lanka
The Sri Lanka Railways completer 153 years of service to the country as it enters the next millennium. The first Railway line was constructed from Colombo to Ambepussa and first train operated on this line on December 27th 1864. In later years the Railway system emanating from the capital Colombo in a radial pattern came to be established in the country. The growth of the Railway system contributed to significant development of the country.

It was during the British rule the Railway was introduced. The prime aim of the British was to provide access to the uplands of Ceylon, where they started coffee and tea plantation. It was the railways that essentially helped to reach the remote areas of the hill country.

As we enter the next Millennium, the Sri Lanka Railways have to provide the people a reliable and comfortable mode of transport. With its modernization programme, the Sri Lanka Railways has introduced a Colour, Light Signalling system, replaced the original steam engine with Diesel engines, and fast express trains, Inter City services and improved passenger amenities. All Railway men must endeavor to provide a better service to the travelers and face the challenges of the new Millennium.

Today after 153 years of its birth the railways performs a tremendous task of carrying passengers and significant load of goods, thereby contributing immensely its share and responsibility to the economic and social development of the country. Its existence as a nationalized service is a historical one amongst the changes that has been made in the transport services if the country during the last few decades.

The time has come for the Railways to utilize modern techniques and systems to modernize itself to upgrade the services. In many parts of the world, the railway networks have been the back bone for urbanization and development. It is so in Sri Lanka too, where certain towns such as Veyangoda, Polgahawela, Maho, Nawalapitiya and Nanuoya are termed as “Railway Towns” and have development due to rail transport.

Present & Future Task
Railways have been restructured in several countries to be commercially oriented. Sri Lanka Railways will have to find a system most suited to fulfill the aspirations of the customers. We have a comparatively small railway network which makes it easier to handle. From the travelers’ point of view, it is definitely a better way to travel. From the national point of view rail transport should be encouraged over other forms of transport as it is more environmental friendly, is more economical on energy and space and can contribute largely to ease traffic congestion of the roads.

It is the duty of all railway men to make it a more customer friendly service, by ensuring a safe, reliable, punctual, comfortable and economical mode of transport.

The new century could probably see unmanned trains and stations, Automatic Train Protection Systems and many more innovations. However high speeds of 550 kph achieved by the Maglev trains although not directly applicable to a small network as ours could have a considerable impact on our system as well.

Look Forward
The age – old problem of providing transportation, suitable and sufficient to meet social and economic needs, has taken on new dimensions in our present-day industrialized society. In particular, shortcomings and difficulties of transport in cities have focused attention on what is vaguely called the “urban transportation problem”. In spite of greater mobility than had ever before been possible in all of history, the combination of more people, geographic expansion of the urbanized regions, changing activities and changing societal goals
and values, has vastly complicated the provision of transport facilities and service; at the same time there is widespread dissatisfaction on how the overall transportation system functions.

Past Experience
In the pre-independence are around 60% of the freight was transported by rail, it has dropped to 30% freight and 20% passengers respectively by 1975. If the railway is to exist without being a burden to the national economy, it should gear itself to break even on passenger and freight transport and achieve set targets within the available infrastructure, rolling stock, locomotives, etc.

Transport is not usually regarded as an objective or goal in its own right, like food, clothing, shelter, entertainment, etc. Transport is thought of as the bonding agent or link between all other economic and social activities. Hence, some degree of accessibility and mobility should be increasingly recognized as a basic need for its own sake. The transport sector has to carry for various distances, the output of agriculture and industry as well as goods imported into the country and exported from the country.

Minimized Traffic
The most common traffic problems of large urban areas are well known as condition-poor public transport and the lack of finances for project implementation. Traffic Engineers and Managers would have important roles to pay in reducing these traffic problems. Much traffic congestion can be due inefficient use of road spaces, and accident problems arise from uncontrolled conflicts and poor design of traffic and pedestrian facilities. To alleviate these problems traffic management techniques have to be demonstrated in a highly cost-effective way. In determining traffic demand, capacity may be considered a function of the number of lanes on a road, the number of tracks on a railway, and on a number of buses on a fleet, or by other measures. In determining how much capacity should be provided, if any at all, it should be remembered that provision of too much capacity is a costly waste of resources and the provisions of too little capacity results in traffic congestion. Hence forecasting traffic demands is therefore a vital step in planning a transport system.

Development of Infrastructure
Design and development to infrastructure should be on the requirement of the operating department of the Railway. Such requirements should be based on a market study which should evaluate the present market and future increases or decreases in demand of passenger and freight transport according to government policies, land use patterns and internal policies of the department. The improvement of the infrastructure depends on the density of trains, axle load of locomotives, permissible speed and length of trains. The maintenance of infrastructure has to be closely monitored on order to obtain the maximum life cycle from infrastructure components which have to be imported at enormous costs.

Extension of Southern Rail Network
The Matara – Kataragama rail line will add to the existing 1550km of national rail network. The new rail line aims to facilitate efficient and economic transport services in the region by promoting competition between rail and road transport. It will also benefit commuters travelling to remote areas of Matara while increasing the number of pilgrims visiting the sacred places in the southern province the project is being built in collaboration with China.

The project if being carried out in three stages.

It involves the laying of rail track in the entire route.

Stage I consists of a 26.75km long railway route from Matara to Beliatta.
Stage II consists of a 48km long railway route from Beliatta to Hambantota.
Stage III consists of a 40km long railway route from Hambantota to Kataragama.

Bridges and viaduct
The Matara – Beliatta section will have 12 bridges. A new 170m long bridge across the Nilwala Ganga situated a 2km away from the Matara railway station was completed in 2008 after two years construction period. It is longest railway bridge seen by the country.
The longest railway viaduct completed in 2018 by the contractor M/S China National Machinery Import & Export Corporation. It is the longest railway via-duct for Sri Lanka Railway network which has 1495m length. A via-duct is a bridge composed of several spans for crossing a valley, dryer wetland or forming an overpass or flyover, via-duct are commonly used in many cities that are rail road centers such as London and Manchester. These via-duct cross the large rail road yard that are needed for freight trains there, and also cross the multi-track railroad lines that are needed for heavy railroad traffic. Many via-ducts over land connect point of similar height in landscape, usually by bridging a river valley or other eroded opening in an otherwise flat area.

In Matara – Beliatta Railway line longest viaduct located 14.5km away from Matara Railway station and the railway station between Bambarenda and Wawurukannala. The number of spans are 58 in different lengths. (2×25+1×20+11×25+1×20+6×25+18×25+1×32+1×20+17×25) Numbers and spans of via-ducts comprises as indicated numerically.

**Geological and Social consideration**

CECB assessed existing drainage patterns across proposed deviation, design alternative, assessed flood peak values, inundation levels, inundation periods for different events, identified existing irrigational/ drainage/ flood protection schemes, detention areas, marshy lands, water bodies, assessed drainage capacity of waterways and floodways across proposed deviation, identified present flood detention capacity on either side of the railroad present uses of ground and surface water, water quality assessed general geology of the area, ecological resources. Assessed socio-economic aspects including willingness to relocate, considered development alternatives, identified environmental impacts including water quality impacts, erosion, siltation and sediment run off, impacts on irrigation and flood protection works, impacts on flood plain and proposed mitigation measures for the pre-construction, construction and implementation phases.

**Bored and Cast In – Situ Piles**

The activities describe in this method consist of drilling holes: furnishing, installing and removing temporary casing; furnishing and installing steel reinforcement cage; placing concrete; and all other things necessary for installing cast in Place concrete bored piles in accordance with specifications.

In sites where soft materials lies, additional filling for platform which adequate enough to facilities movement of pilling equipment and other required machinery without hindering.

Pile location setting out will be carried out as per the coordinates given in the detailed design drawings.

Temporary casing will be of 8mm thick and diameter 1.2m, the length will be depend on the location and not exceed to 4M. The casing will be drive using vibrant-hammer.

A U shaped steel bar will be welded to reinforcement cage above cut-off level to provide sufficient cover to R/F cage inside the casing Zone.

In Soft soils where liable to flow into bore holes temporary casing will be used. The casing will be water tight steel tubes, and the joints in the tubes will be water tight too if there is any.

The bentonite powder will be dissolved to portable water. The bentonite pond will be divided to at least two parts for avoiding contamination of excavated particles with bentonite slurry.

**Drilling**

Drilling will be started after pouring bentonite gel in to casing. At the beginning, slow rate of hammering will be adopted. The weight of the hammer is 4.4 to 4.5 tons, hollow type and solid type respectively.

The deviation of the drill hole from its original position will be checked regularly with certain time interval or at certain drilling depth. The deviation will be checked and adjusted, every 5m intervals and every day before the drilling starts as to be informed and with the knowledge of the Engineer.

**Identification of Hard rock**

The samples will be collected in every 0.5m intervals. When sample shows fresh and particles with flaky edges indicating that drilling has been reached to hard rock, joint inspection will be called upon and the elevation of the hard rock with the agreement of the Engineer and the contractor. Samples will be collected at 0.5m intervals throughout the socked length.

**Rock socketing**

When deciding hard rock top elevation levels of adjacent piles will be taken in to consideration. If significant level difference occurs, the Designer and Engineer will be informed and pile termination depth will be decided and agreed.

When the pile boring reached to design level or agreed level, cleaning of the bore will be stared promptly. During the cleaning operation the
slurry level will be kept remain 1.0-1.5m above the ground water table or the water level of the river to prevent any falling-in of pile bore. The reinforcement cage will be prepared at site during the boring operation. The reinforcement cage will be checked by the Engineer to ensure that it is in accordance with the design drawings.

- The dimensions of the steel bars.
- Geometry, completeness and stability of reinforcement cage.
- Spacing, material, dimension, position and fastening.

**Concreting**

When concrete mix is supplied to the placing site, uniformity, temperature and slump of concrete will be checked. If it does not conform to the requirements as specified in approved mix design, it will be rejected.

Care will be taken during concreting to prevent as far as possible the segregation of the ingredients. The displacement or distortion of R/F during concreting and also while extracting the tube will be avoided.

The concrete will be placed continuously as the casing is extracted until the desired head of concrete is obtained.

Care will be taken during general excavations that piles would not be damaged. The concrete down to cut-off level will be removed using light hammer drills.

**Pile cap construction**

Scope of works shall be responsible for referred construction activities in related to construction of pile caps. Chiseling of pile head shall meet the requirement and designed elevation with neat and clean furnishing. After finished, reinforcement steel shall be transited to construction site and installed; Lapping length off reinforcement steel shall follow the requirement of the construction drawing.

The pile cap concreting will be carried out in two steps. Initially, concrete will be placed to a 1m height following the methods and procedure stipulated in this method statement. After top surface of concrete sufficiently hardened, it will be roughened adequately. To ensure curing water tank shall be placed at site of the newly completed pier and worker will be arranged to maintain and spray to gunny rolls to keep the concrete surface wet.

**T Girder Launching and erection Process**

Installation of bridge erection machine, T girder transport, T girder launching work had planned to continue the launching and erection operation. The T girder travelling trailer and the bridge erection machine are the man machine used for this operation. After installation of the bridge erection machine, beam trailer with the T girder id reached to the launching location.

Beam trailer should be stopped at the line of 2m before the rear supporting leg. Then the front end of the T girder is bound and hoists by the lifting trolley. Head apart of the beam trailer and the lifting trolley is moved forward synchronously. After reaching the T girder to the correct position, the T girder is lowered by using lifting trolley. Anchor bolts and sleeve nuts of the spherical bearing are fixed.

The T girder is supported on the four numbers of temporary screw jacks (capacity 50ton each) which placed on top of the cap of the pier. The T girder loads are transferred to the screw jacks through timber logs to avoid stress concentration on the girder bottom. The T girder should be aligned with longitudinal, transverse and vertical directions before starting the grouting work.

After completion of launching and erection of T girders in particular span, Launching is moved to the next successive span. Movement of launching to next span is same as the installation of the launcher.
After movement of the bridge erection machine, beam trailer with the T girder is reached to the launching location which is on the erected T girders. Beam trailer should be stopped at the line of 2m before the rear supporting leg. There should be a clear mark on the bridge deck which is 2m away from the rear supporting legs of the bridge erection machine so that easily visible to the trailer driver.

Then the launching and erection process of T Girder is repeated for next successive spans same as described.

**Advantage of new structures**

New structure should be designed in accordance with an acceptable code of practice. The loads will need to be modified depending upon the actual gauge and maximum rolling stock axle load chosen. The structures should be designed to carry the heaviest locomotives which are running currently or are projected to run in the foreseeable future. For the following reasons this is not a financially wasteful decision.

- Major structures are built to last for at least 100 years.
- The live load to dead weight ratio is usually less than unity in the case of concrete structures.
- A large increase in axle load produces a relatively smaller increase in bridge cost.
- The cost of strengthening a bridge in service will in many cases be found to be prohibitive.

All existing structure should be assessed to determine their condition and strength. In the case of reinforced concrete bridges it will be necessary to obtain as-built concrete and reinforcement drawings in order to calculate the safe working loads. The cost of strengthening bridges without interrupting the railway traffic can be considerable and it is often more economical to build a new structure alongside the existing one. This can have an impact on the choice of axle load where it is desired to use a strengthened railway line.
FUTURE EVENTS / UPCOMING EVENTS

ASPAC 2019 Delhi
“Quality Infrastructure for Clean and Sustainable Development”
7th to 9th July 2019
www.fidicaspac2019delhi.com

Mexico 2019 International Infrastructure Conference held at Presidente InterContinental Mexico Polanco
8th to 10th September 2019

The Year in Infrastructure 2018 Conference
October 15th to 18th October, 2018 at Hilton London Metropole, London, UK.
https://yii.bentley.com/

International Workshop on ‘The Role of Consulting Engineers in Driving growth in African Economies’ to be held in Uganda Kampala Gama 2019 (12th to 15th May 2019)

EFCA Conference Dublin 2019
“Future Trends: Talent, Tools & Technologies”
From the 9th to 11th May 2019
https://www.acei.ie/events/efca-conference-2019

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