

FREE!

Hi-VIZ

EVERYONE GETS HOME SAFE EVERY DAY!



Over the August bank holiday, approximately 3,000 staff completed the penultimate stage of High Level (HL) works at London Bridge: HL15. By untangling the rails at the country-end of the station and opening the flyover part of the Bermondsey Dive-Under (BDU – see *Hi-Viz* February 2017), trains can come and go to and from Kent, Surrey, and Sussex with comparative ease and passengers will find that their journey is less susceptible to delays.

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Improving Operational Safety – The New Approach To Signaller Training

Article by Michael Kelly,
Programme Manager (Operations),
Network Rail

As part of our commitment to safety the Thameslink High Capacity Infrastructure project focuses on all aspects of safety including occupational, operational and system safety. Specifically this article describes how over a period of ten months the project collaborated with other functions of Network Rail to improve operational safety by ensuring all staff responsible for a new and novel task are trained and competent to do so.

The Thameslink High Capacity Infrastructure (HCI) team is responsible for developing and delivering high capacity infrastructure scope to support the introduction of the enhanced train service through the Thameslink Core Area of 24 trains per hour in December 2018, and to support the planned interim timetable change to 20 trains per hour planned for May 2018.

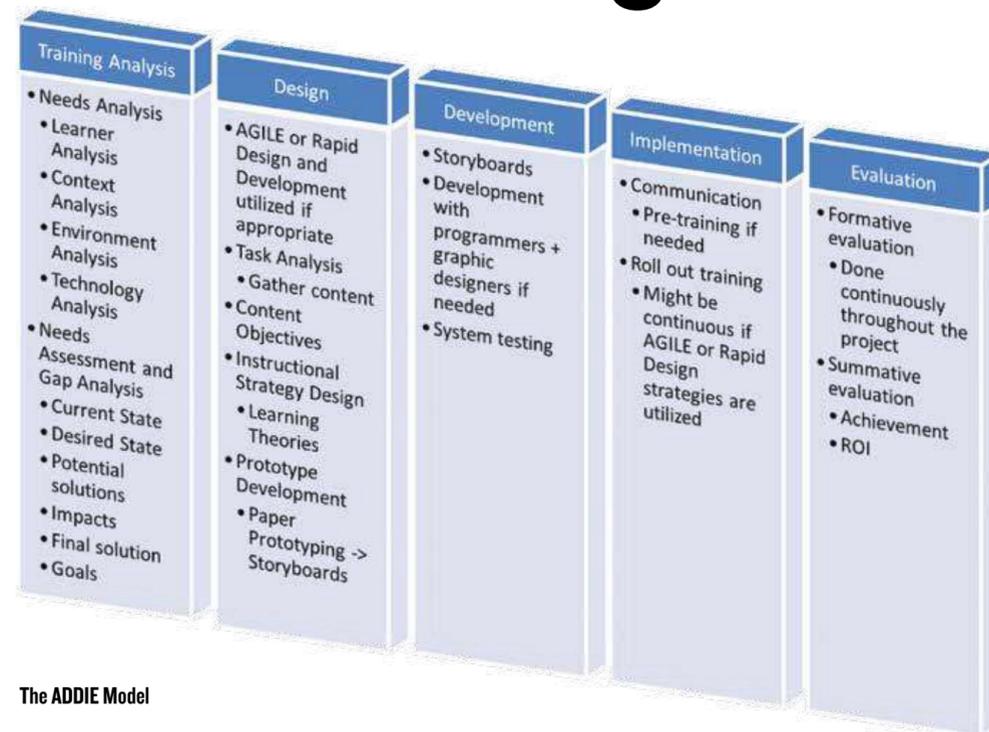
The Thameslink route between Kentish Town and Elephant and Castle and subsequently London Bridge Lines 4 and 5 are to be signalled with European Train Control System (ETCS) Level 2 overlay and Automatic Train Operation (ATO). This will enable the increase of line capacity through the Thameslink core.

The signalling is controlled by Three Bridges Rail Operating Centre (TBROC) therefore the HCI project in conjunction with the Network Rail People and Capability team identified that the Signallers from the two workstations which control the Thameslink core would require a conversion course on ETCS/ATO signalling operations.

As this method of operation is a world first on a mainline railway a robust approach to training was required in order to develop competent Signalling staff to ensure the safety of track workers and passengers alike.

New Method of Operation in ETCS/ATO

In principle, normal signalling operations for the Signaller will not change in that they will continue to set routes from the conventional colour light signals as they do today. However, the current signal block sections will be divided into a number of ETCS block sections separated by block markers. To the Signaller, these will be regarded as automatic route setting positions and they will act in a similar manner to a group of automatic signals in conventional signalling which are operated by the passage of trains. The signaller will have no direct control over the automatic



The ADDIE Model

route setting positions, but these are crucial, along with ATO, to provide the means to increase the line capacity for 24 trains per hour.

Route setting by the Signaller will not change with the introduction of ETCS Level 2 overlay or the implementation of ATO. However, there will be material changes to the Signaller operations when dealing with degraded, abnormal and emergency situations.

Training Purpose

Due to the aforementioned novel nature of the technology, HCI are introducing a robust training programme needed to be developed to ensure that all staff required to operate ETCS and ATO have the necessary knowledge, skills, abilities and behaviours for effective and safe use of the system. This process began in October 2016 and recently culminated in August 2017 with the Network Rail Professional Head of Operations giving authority for training to commence.

Training Process

To ensure effective training and resultant competent staff the Network Rail People and Capability team have recently introduced a new training methodology along with a governance structure to assure the various training packages around the company. Along with the Romford Traffic Management deployment, Thameslink HCI were one of the first projects to go through this process.

The Network Rail accepted methodology for training development and delivery utilises the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) Model.

The five elements of the ADDIE model are described below:

- Analysis** – evaluate end user landscape, task analysis, difficulty, importance, frequency, assessments, rules, impacts & constraints identified, develop training approach

- Design** – methods, media, event objectives, delivery requirements, training and enabling objectives
- Develop** – develop training content, validate and refine end-user training
- Implement** – pilot training program, deliver training
- Evaluate** – measure and evaluate training effectiveness (learning, performance and perception)

Development

Despite having the People and Capability team on board to validate and advise the HCI project, it was quickly identified that a subject matter expert (SME) in ETCS operations training development was required. Fortunately for the project an individual who had worked on the Cambrian ERTMS and ETCS National Integration Facility (ENIF) projects was available to work with the operational and technical subject matter experts within HCI.

Work began on the analysis phase in October 2016, specifically the Learning Needs Analysis, which involved the HCI SME working closely with the Thameslink HCI and SRA Engineers to understand how the system will technically operate and map against current operations to understand the difference.

Due to the novel nature of this emerging technology and a lack of familiarity with the comprehensive People and Capability process, the analysis phase took four months to complete. However, throughout this phase the output from the HCI project was being supported and assured by the People & Capability team so we knew we were conforming.

At the end of the analysis phase the project team and the People and Capability team attended the Operations Competence Development Group (CDG), chaired by the Network Rail Professional Head of Operations, to seek approval and authority to move onto the next phase.

After successful attendance, we moved onto the design and development phase and things began to get interesting! It was at this point we could start to document our thoughts for the best way to deliver our chosen content. It was decided to take a modular approach and deliver it via a mix of classroom and practical based activities.

The course was made up of the following modules:

- Foundation Knowledge of ETCS
- Normal Conditions / Operations
- Abnormal Conditions / Operations
- Degraded Conditions / Operations
- Emergency Conditions / Operations

Some of the course content was also derived from the Thameslink driven changes to the Rule Book and subsequent local operational instructions developed with GTR.

The HCI project made various trips to the SRA offices in Chippenham during this phase to gain a better understanding of the system operation by running scenarios on the test rig and refining the content. Close collaboration was also required with the Learning and Development Specialist to ensure the format was acceptable and the content matched the areas identified in the Learning Needs Analysis.

A fundamental part of the training implementation phase is to have a functionally representative training simulator. During the design and development phase, concurrent development work took place between Siemens Rail Automation and the HCI project to ensure delivery in time for the pilot course. Due to the fact that this simulator for the two Thameslink Core workstations being a first of its kind, a more concerted effort than usual was required to develop and agree the requirements and manage the build.

Equally due to a new, larger room, being required to accommodate the ETCS/ATO simulator and its eventual integration with the Traffic Management simulator a significant amount of cross Network Rail cooperation was required. Based on Ergonomic assessment the only suitable room at TBROC was occupied by the SCADA programme therefore delicate negotiations needed to take place between the South East route, Thameslink and the SCADA programme to agree dates that would not adversely affect either programmes schedule.

Before the pilot course could be run a contingent of five local TBROC staff, trainers and managers, plus a

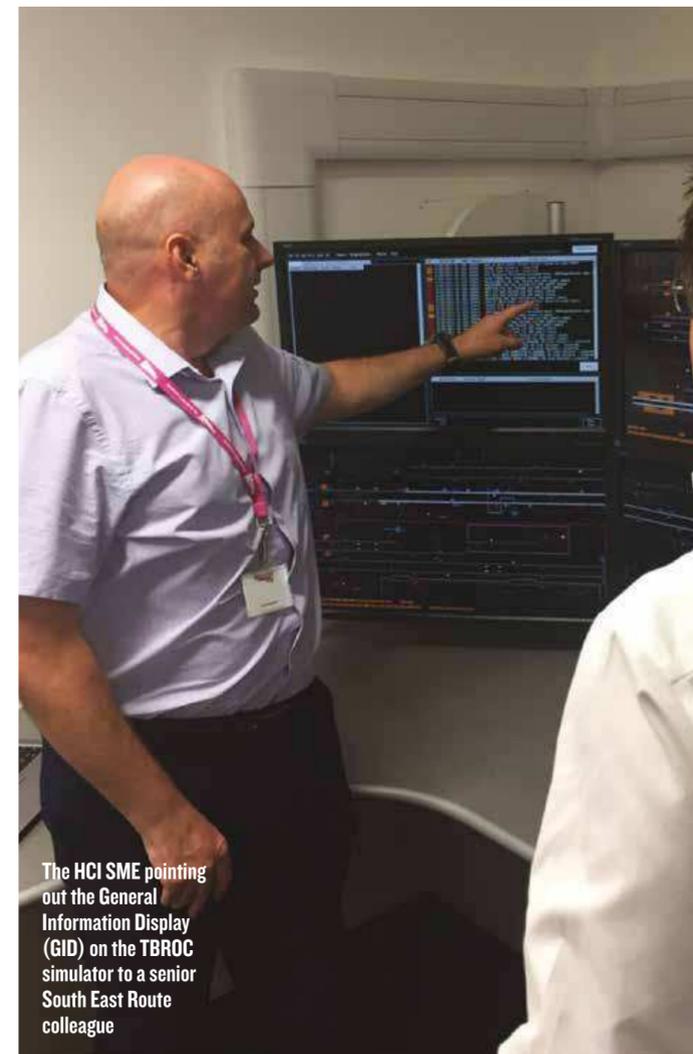
People and Capability trainer needed to be trained on how the system worked and how it would be operated. These sessions are known as 'train the trainer' and the HCI SME ran a three day course in Paddington to impart the operational theory to the delegates.

A few weeks later the delegates travelled to the SRA offices in Chippenham to attend the technical train the trainer course lead by SRA trainers and the simulator designers. This provided the trainers with the opportunity learn how the simulator functioned and test operational scenarios.

“It was decided to take a modular approach”

All delegates were successfully assessed and passed due to the success of the train the trainer courses the pilot course could take place in early August 2017 as planned. The pilot course was run by the People and Capability team trainer with two Signallers with no previous exposure to ETCS acting as guinea pigs and was evaluated by a Learning and Development Specialist.

The pilot course received very positive feedback from the two delegates and the pilot evaluation report recommended that CDG approve the three day course for implementation. Therefore on the 8th August 2017 after ten months of development the Professional Head of Operations gave his approval for the course to start. As a result all identified Signalling staff and managers will be trained by the 31st October 2017 in readiness to safely and competently support GTR ETCS Driver training and subsequently ETCS/ATO passenger operations in early 2018.



The HCI SME pointing out the General Information Display (GID) on the TBROC simulator to a senior South East Route colleague



Train the trainer taking place at the SRA offices in Chippenham

AUGUST BLOCKADE

By Calvin Trill & Greg Waller, Railway Systems, Network Rail



Checking position of the new track

The key works in this stage, which took place from Saturday 26 August through to Monday 4 September, involved altering the track layout of both ends of London Bridge to enable connection to platform 6, which means platforms 6, 7, 8 and 9 are now available for Charing Cross services. This stage will allow for the final track construction worksite for lines 3, 4, and 5 (and thus platforms 3, 4, and 5) ahead of final commissioning at HLI17 – this year's Christmas and New Year works.

The lead-in

Leading up to the commissioning, all the teams involved worked together to ensure that all of the necessary track, signalling power, civil engineering and telecoms infrastructure was installed in a safe, efficient and integrated manner. The Railway Systems teams worked closely with the station team to ensure that both the railway and the station were able to be constructed on programme.

The blockade

In the early hours of Saturday 26 August, signalling teams signed the existing system "out of use," with track work removed immediately at two of the three track-renewal sites, enabling the replacement of ballast and new track to be installed to connect the lines in the new alignment. Once these two sites were almost complete, works began on the third track work site. As works to the track progressed, the electrical traction teams fitted the new conductor rail and cabling, before Signalling teams installed and commissioned the new signalling system – quite a task given it consisted of 53 signals, 63 track circuits, 11 REBs, and 27 sets of points to commission. The electrical traction system



HLI15 panel testing at TBROC

was tested prior to empty passenger trains being bought in under controlled conditions to test the integrity of the signalling system.

Following an intense 10 day blockade, on Sunday 3rd September the new infrastructure opened to operational traffic.

Stations work

Of course not all the work in the blockade was out on track, as Costain continued working hard inside the station. During the first 52hrs of the overall blockade, a mobile crane in Tooley Street was used to remove Tower Crane TC4. As the last remaining tower crane,

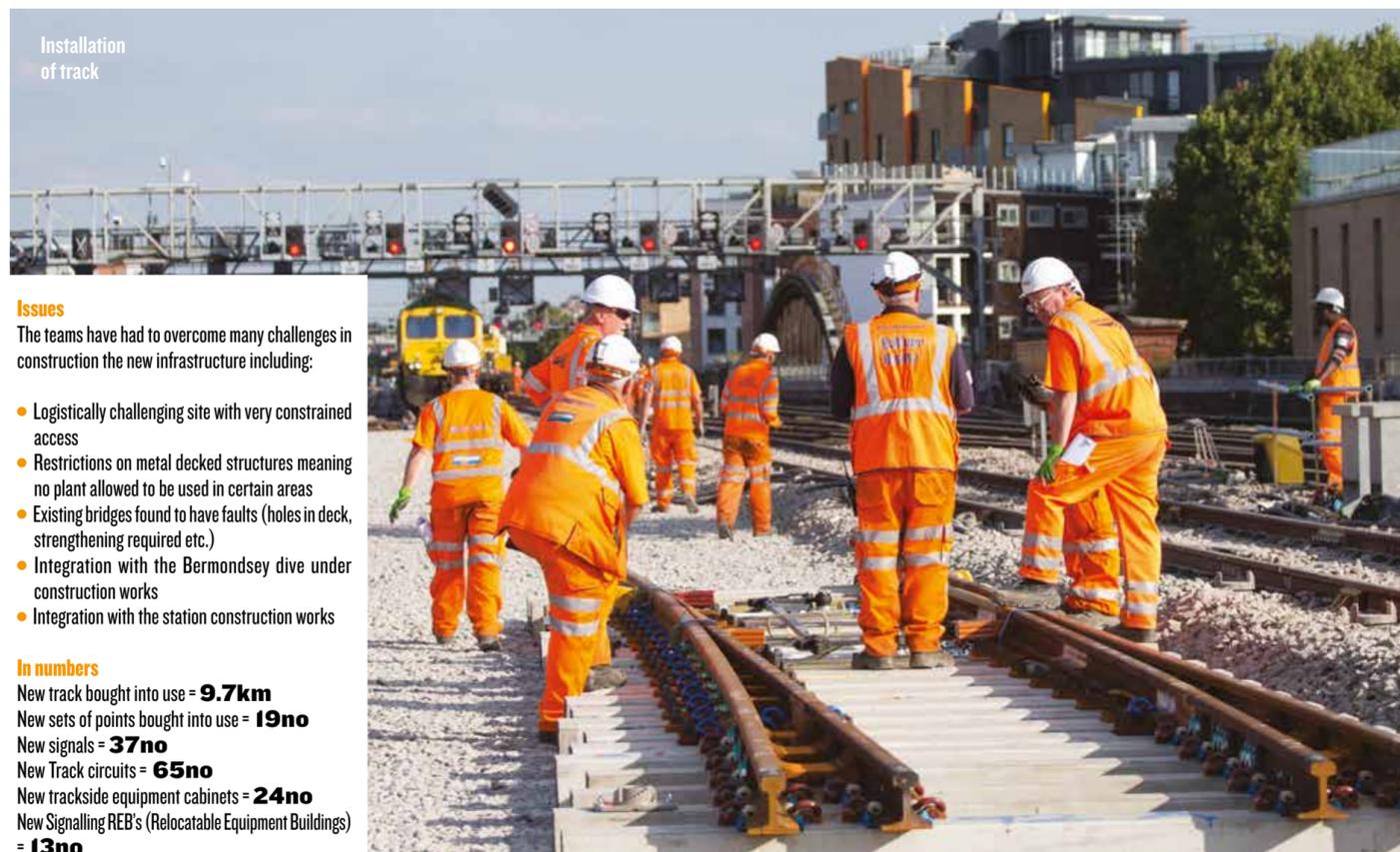
TC4 sat mid-way through Platform 1 and its removal facilitates completion of the platform ahead of the Christmas opening. In addition to this, an intensive programme of construction to the stations central services spine (adjacent to platform 9) was integrated with the railway systems works to enable progression of this complex work, whilst outside the station a mobile crane completed the outstanding glazing at the Shard entrance to the station.

Safety

Throughout the construction of the new lines between London Bridge and New Cross, Railway Systems teams have worked between operational railway lines, with access only from the former Bermondsey Dive Under site or under possession from London Bridge station or the former Spa Road terminus station platforms. This not only created a logistical challenge, but also brought safety and performance risks due to operational infrastructure and construction staff and equipment working at close quarters. By careful planning and scheduling of the works, this risk was successfully mitigated, and is a testament to the dedication of all staff project-wide to get everyone home safe every day.



20m set of points being craned in



Installation of track

Issues

The teams have had to overcome many challenges in construction the new infrastructure including:

- Logistically challenging site with very constrained access
- Restrictions on metal decked structures meaning no plant allowed to be used in certain areas
- Existing bridges found to have faults (holes in deck, strengthening required etc.)
- Integration with the Bermondsey dive under construction works
- Integration with the station construction works

In numbers

New track bought into use = **9.7km**
 New sets of points bought into use = **19no**
 New signals = **37no**
 New Track circuits = **65no**
 New trackside equipment cabinets = **24no**
 New Signalling REB's (Relocatable Equipment Buildings) = **13no**

Making a Difference through Personal Responsibility!

Article by Seye Otegbayo, EHS&S Specialist - Thameslink, Siemens

There is no doubt that all personnel working on behalf of Siemens Rail Automation want the same outcome; Effective project delivery!

During a recent visit to the regional office, the Siemens Rail Automation Managing Director -Paul Copeland, used to opportunity to thank all "people managers"; this included Team leaders, Installation Supervisors, Construction Managers, Project Engineers, Senior Testers, Project Managers on their efforts in ensuring everyone went home safe everyday".

He reminded everyone that whilst working towards our common goal, we should never lose sight of our respective roles, and must continue our relentless mission of sustaining a culture in which zero incidents is the only acceptable objective.

During the discussions, he talked about his experiences and how he became keen on safety: "We do not need a major incident to help us change our perspective on how we work! We can't let everyone kill someone so that they can have the same attitude

to safety."

His message to everyone at SRA was simple:

- We must lead by example.
- We must be leaders in safety – not managers of safety!
- We must work on the basis that every accident is avoidable.
- We must build trust with our workforce and our supply chain.
- We can never let our guard down or compromise on safety – ever!

We are all working together to achieve Zero Harm and as individuals we must each take personal responsibility for the safety of what we do. Whatever we are doing!

Our safety culture must become second nature. In leading by example, we can transform the behaviour of our teams, to develop a deep interest and the desire to embrace safety in everything we do. We can make a difference!



Time2Focus

By Sharon Fink, H&S Manager, Network Rail

Taking Time Out

The London Bridge Project have commenced with a series of Lunch & Launch events called time2focus which are aimed at educating people in the team on a particular subject matter in terms of processes, standards, events that have occurred on our project, actions already taken etc.

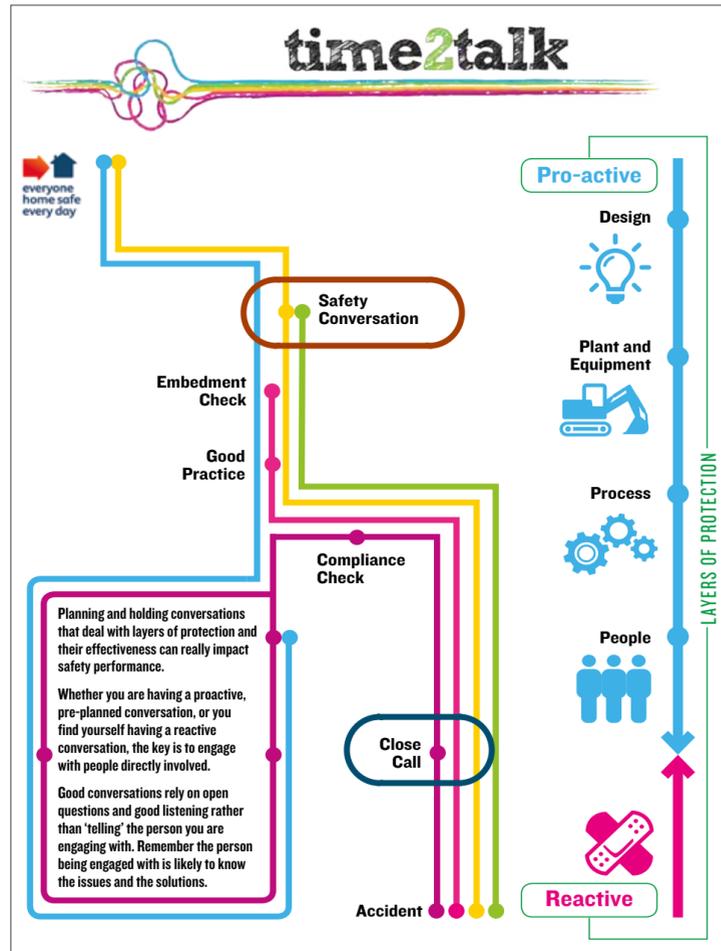
The launch event then shares with those in attendance how they can personally help verify these standards and give them an opportunity to investigate and report on their findings so that lessons can be learnt and improvements can be identified.

It is also being used as a way to celebrate success and recognise the difference people have made during the period through their efforts.

The first subject covered was 'temporary works' which took place on 27th June and was attended by approximately 60 people from the Network Rail and Costain teams working together at London Bridge.

As a result of the focus on temporary works there were 155 close calls raised and 51 conversations held.

We learnt that whilst some improvements can be done on improving the processes around temporary works that the main issue is on behaviours around implementing the process.



We held a follow up session to pinpoint what can be done to improve this going forward.

Work at Height
During July & August our focus was on Work at Height. The time2focus launch session was kicked off with some education around work at height and a demonstration on site of how to put people to work at height safely.

Each period there is a specific focus. So far we have had:
Period 4: Temporary Works
Period 5: Working at Height
Period 6: Lifting

The launch events take place on the 1st Tuesday of every period. At the same session feedback is provided on what has been found during the previous focus period and what will be done going forward.

Anyone in the team is welcome to attend. Contact Cathryn Gander (Network Rail) or Julie Nelson (Costain) if you would like any more information about attending.

Going forward, future focus will be on:
Period 7: Utilities
Period 8: Small tools
Period 9: Electrical System
Period 10: Controls (ops systems)
Period 11: Logistics/Site Control
Period 12: STF/Housekeeping
Period 13: Small Tools

By focusing our attention and talking with people in the office and out on site, we are working together to continually improve safety at London Bridge.

We're highlighting what works well and taking actions where we find things need improving.

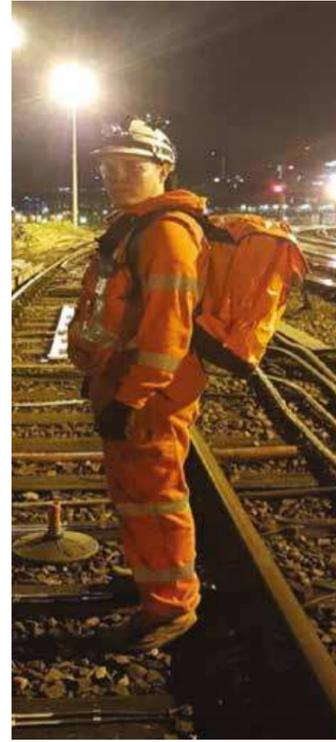
Layers of Protection – Learning from Temporary Works

CRE Brief	Design Approval	Design Check	PtL Form 3	PtL R.E.	PtL TWS	PtL TWC
Missing Permits	16					
Process Not Followed	44					
Design Lacking/Missing	34					
Design Not Followed	7					
Behaviours						



Bridgeway Bag a Winner For Safety

By Steve Diksa, Corporate HSQE & Sustainability Director, Bridgeway



Bridgeway's possession staff and safety team have designed a Strapman's for the carrying of Conductor Rail Earthing Straps and associated equipment such as Testers.

Because the carrying of Earthing Straps are such a key part of the work on Thameslink, we wanted the bag to tick all the right boxes with regards to safety, specification and functionality. The feedback from staff was really important, so a prototype was developed and then modifications were made based upon staff comments.

The feedback on the finished product has been extremely positive and we are really pleased with the quality and functionality of the bag – which make the carrying of Straps and equipment easier, but more importantly to help reduce the risk of accidents due to potential trips, slips and falls.



Bridgeway Hero Reaches Out

By Robert Wilkinson, TLP Delivery Manager, Bridgeway



In the early hours of the 19th July 2017, Bridgeway Possession Support Neil Clemence (pictured) was advised by his PICOP that he had received phone call from Cambridge Panel A Signaller. It was reported that a member of the public was causing problems with the Level Crossing at Shepreth Station. Neil drove to Shepreth Station to find a troubled young lad on the Level Crossing phone to the Cambridge Signaller. When Neil contacted the Signaller he was advised that the lad in question was indeed on the phone to him and it became apparent that the lad was suffering from mental health problems.

He asked Neil to arrest him or section him as he explained that he was struggling to cope with life and was contemplating suicide. Neil showed great empathy and foresight by sitting with the youth, listening to him and engaging him in conversation. During this time Neil contacted the Signaller and the British Transport Police for their help and support. The police arrived very soon after and the individual agreed to leave with them and go to Cambridge hospital to be examined. A successful outcome to a sad situation with a potentially tragic outcome was avoided – thanks to Neil's actions.

Getting to know you Isaac, Network Rail Apprentice

The United Nations' (UN) International Youth Day is celebrated on August 12 each year to recognize efforts of the world's youth in enhancing global society. It also aims to promote ways to engage them in becoming more actively involved in making positive contributions to their communities. In recognition of the day, Hi-Viz caught up with Network Rail apprentice Isaac Jones to find out more about his role and how he got started on the Network Rail apprenticeship scheme.



What was your reason or reasons for choosing to go down the apprentice route?
Isaac Jones: I was hesitant about going to university as I was unsure what I would achieve. From here I looked into apprenticeships and found the combination of work and study interesting. I felt, for me personally, I would achieve more by learning on the job and being immersed in the industry.

The apprenticeship has a combined duration of six years; built up of four elements. The first two years are spent completing a Level 3 Diploma in Quantity Surveying and becoming an Associate member of the RICS. Following success in both, I shall enrol onto a Level 6 Diploma in Quantity Surveying (Degree Equivalent) as well as becoming a Member of the RICS which has duration of 4 years.

What did the application process consist of and how long did it take you from applying to starting?
I.J: I applied around March 2016. I was required to submit answers for various questions explaining why I wanted the job, why I felt it was right for me and how previous experiences could be helpful. After completing this, I was contacted in June asking if I would be available to come for an interview at Westwood. After this, I got a call around the end of July offering me the job with a start date of August 15th.

What do the post-apprenticeship prospects look like?
I.J: Assuming I achieve my studies, there are a number of post apprenticeship opportunities. I have the opportunity to find a role in Network Rail, or work for a supplier. By obtaining my RICS membership I will have opened the door to the potential of working abroad as well.

What does your current role entail?
I.J: Currently I am working in a commercial team. I am involved in a variety of different activities, from raising invoices to project close out tasks. As part of the apprenticeship scheme, I rotate team every 6 months as a way of gaining a variety of experiences. I move into my next team at the end of August.

You've been involved in the Thameslink Health & Wellbeing group which has recently been nominated for an aspire award. It must be satisfying that the group is getting recognition for its work?
I.J: This is great; the team has benefited me in a number of ways. From joining, I was able to meet new people, developing new skills and establish a positive reputation through some materials I create.

What have been your highlights so far?
I.J: There have been a number of highlights; my first site visit was definitely one.

Finally, if any parents reading have children considering an apprenticeship, what would say to them and their children about it?
I.J: Go for it! I would recommend looking into apprenticeship as your learning your trade by doing it, you studies link to the work you are doing which assists in understanding a topic or concept and you get paid without accruing a debt!

What qualifications will you come away with on completion of the apprenticeship?

Natural Born Griller

By Alex Madgwick, HSEA Specialist, Network Rail

In the British summer (or what we get of it), a barbecue is great way to socialise and enjoy some really good food. Kate Cook, our regular contributor of nutrition advice, is on hiatus writing a new book and in her absence we have enlisted some wannabe chefs (!?!!) to provide a few tips to avoid a bad stomach ruining your barbecue.

Every summer the number of reported cases of food poisoning almost doubles. While some of this may be as a result of people returning home from holiday having picked something up, the cause of the majority of these cases is probably much closer to home.

But these reported cases could be just the tip of the iceberg – it’s been said for every one case of food poisoning that’s reported as many as 10 won’t be.

And what of all those people who attribute mild food poisoning symptoms to simply drinking too much while preparing the grill?

The risk of suffering a bout of food poisoning from a barbecue comes as a result of two main problems – undercooked meat and the transfer of germs from raw meat to food that’s ready to eat.

Raw or undercooked meat can contain germs that cause food poisoning, such as salmonella, E.coli O157 and campylobacter. These germs are only killed by cooking meat until it’s piping hot throughout. Germs on raw meat can also move easily onto your hands and then anything else you touch, including food that is cooked and ready to eat – a process commonly referred to as cross contamination.

Cross contamination can occur if raw meat touches anything, including plates, cutlery, tongs and chopping boards, that then comes into contact with other food. Potentially nasty E.coli O157 or campylobacter infections – both common causes of food poisoning – can be caused by a relatively small number of bacteria.

Here’s a few tips to avoid falling foul of food poisoning and enjoy the grilled delights you’ve prepared:

- Keep all your perishable ingredients in the fridge until you’re ready to serve them. Often with a barbecue



people are grazing over a period of time so you want to avoid taking food out before it’s necessary.

- All frozen meat should be thoroughly thawed out before you put it on the barbecue otherwise it may appear to be cooked on the outside but will be raw on the inside.
- Wash your hands before handling food to avoid any cross-contamination. If you touch raw meat or fish, wash your hands before touching ready-to-eat foods and do not put ready-to-eat foods on plates that have been used to carry raw meat or fish. You also want to avoid using any utensils for both raw and ready-to-eat foods.
- Make sure your barbecue is hot enough before you start and turn your meat during cooking time so that it cooks evenly throughout.
- For extra safety, ensure all meat, particularly chicken, pork, sausages and burgers is cooked throughout. You can be less concerned with steaks and lamb chops. Ensure fish is cooked throughout too.
- Watch out for dripping meat and fish juices, avoid trailing raw meat or fish over cooked and do not use leftover marinade as a sauce.
- Don’t leave food out in direct sunlight, pick a shady spot or indoors for your buffet table. Don’t leave food out for more than two hours.
- If you are planning to be serving food over the course of an afternoon, put salads, meats and other perishable foods out in batches in fresh bowls.

Wordsearch

A wordsearch puzzle: It’s all kicking off! The following 29 words are hidden in the grid above. Words can appear forwards or backwards

- | | |
|-------------------|-------------------|
| Watford | Soccer |
| Chelsea | Leicester |
| Swansea | Brighton And Hove |
| Spurs | Arsenal |
| Wbromich | Burnley |
| Huddersfield Town | Saints |
| West Ham | Crystal Palace |
| Stoke City | Possessed |
| Bournemouth | Shinpad |
| Manchester United | Everton |
| Newcastle | Penalty |
| Liverpool | Headers |
| Manchester City | Card |
| Divers | Serious Foul |
| Goals | |

D	A	P	N	I	H	S	O	C	C	E	R	B	H	H
E	E	C	A	L	A	P	L	A	T	S	Y	R	C	U
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A	M	M	O	R	C	H	E	L	S	E	A	E	E	W
M	A	N	C	H	E	S	T	E	R	C	I	T	Y	N

Wordsearch by Tim Witcomb, Network Rail