

Colin Mckechnie

Principal Design Engineer

Profile

Colin has over 12 years' design experience in alignment design, specialising in rail design over the last seven years.

Colin has experience of a wide variety of railway projects, a senior member of the team, aiding and mentoring junior engineers and apprentices. Colin's main responsibility is primarily project delivery, involved in the full life cycle of the design process.

Colin's expertise lies in the following areas:

- Plain line design, renewals and tamping schemes
- Platform design, extensions, re-coping, new construction
- Gauge clearance assessments, platforms, structures and passing clearance
- Track drainage design.
- S&C Design.
- Level crossing risk assessments.
- Site support and gauging surveys.
- Feasibility to detailed design of depots
- London underground alignment design.

Experience and skills

Bonner Rail: Senior P'way Designer - (2013 – present)

Mott Macdonald: P'way Designer - (2013)

WSP: Assistant P'way Designer – (2012 -2013)

WSP: Alignment Technician (2006 – 2012)

Selected projects

Acton London Underground TMU –

Acting as Track CRE for the Train Maintenance Unit depot at Acton providing assistance and responsible for the alignment design throughout the depot. Attending bi-weekly meetings and presenting the track design to LU.

London Tramlink - Croydon – Rerail schemes through level crossings. Colin was lead designer in the p'way design and detailing of the track fixing arrangement.

Calder Valley – Platform gauging designs associated with the platform extension at Hebden Bridge and the linespeed improvements through Mytholmroyd and Sowerby Bridge stations.

Hook Road – Colin led the alignment design and interface with the contractor, including providing the specification of materials for this long timber replacement scheme.

Knowsley Depot – Feasibility designs for a train storage facility. Several options provided exploring the maximum capacity of the available land including options of covered tracks for higher worth vehicles.

Crossrail Western Platform Works – Platform extension works from Paddington to Maidenhead. Colin was responsible for gauging analysis of platforms, liaising with Civils team support and platform edge setting out data. Extensive platform analysis was required for the installation of a leaky feeder cable along the underside of the coper edge. Colin was involved in most IDC and project meetings supporting the CRE.

Crossrail Stepping and Gauging Works – This project is associated with the platform extension work, Colin built a good relationship with the various stakeholders and they were keen for him to continue providing support. Existing platforms are to be adjusted to

Position
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Language
English

Qualifications
HNC Civil Engineering

Engineering Technician of the Permanent Way Institution

Key skills
Detailed Design

Outline Design

Optioneering

Feasibility studies

Survey analysis

Design Management

Gauging

address existing passenger stepping distances. Colin provided vital support in detailing the options available to rectify the existing non compliance.

Wood Green – London underground proposed track alignment. Colin undertook validation survey checks against existing surveys, speaking to surveyors and LU designers. Updating existing and proposed monument pins offsets following revised survey.

Isle of Man Railway Oak Hill - Track realignment and gauge clearance for the steam railway. Colin undertook detailed track and drainage design along the route, replacing the existing cutting drainage.

Cornbrook Turnout – Metrolink S&C unit renewal outside Cornbrook station. Colin undertook P'way alignment and detailed design of the curved S&C unit on the tram lines, along with assessment of track movements on the OLE system.

Knighton Sidings – A disused and overgrown sidings location identified to house a new OTM stabling facility. Colin was responsible for the P'way alignment design along with S&C. Also providing a design of the access track/vehicle turning area along with cut and fill volume calculations.

Ely Depot – A large 13 siding storage depot, providing an initial feasibility report before progressing the design through to construction. Colin assisted the installation contractor by providing a level scheme that accurately calculated the percentage cut and fill, vastly minimising the cost of the scheme.

Reading Depot Wheel Lathe Facility – S&C remodelling and design of a slab track arrangement within RTCD to provide routes to a new wheel lathe facility. Colin was lead track designer, supporting the track CRE, providing alignment design, gauging assessments, buffer locking assessments and detailed drawings showing the various interfaces and track fixing detail.

IEP Gauging – Several stations and structures around Scotland requiring modification to provide clearance for the new Hitachi train. Colin provided

alignment design, gauging assessments, detailed reports and setting out information for the proposed works. Attended IDCs and IDRs forming a close relationship with the Senior Gauging Engineer.

Wessex Platform Extensions – 57 stations requiring platform extensions. Colin was responsible for the production of the optimised track alignments supporting drawings, geometry calculations and gauging information to complete the Form B submission.

D2I W12 Gauge Clearance – Several stations and structures between Doncaster and Immingham require modification for W12 Clearance. Colin provided alignment design and gauging assessments along with detailed Form A reports for the proposed works.

Parkeston High Output Operations Base- Design engineer responsible for the layout design and gauging requirements for the High Output Operations Base. Working collaboratively with the operator and Network Rail due to extremely tight timescales.

Doncaster to Water Orton Steel Sleeper Relays – Production of track alignment submissions to enable track renewal works. Streamlined design spreadsheets compiled containing the relevant setting out and construction data for use by the installation contractor.

Western Electrification Track Lowering Feasibility – Structures requiring track lowers to provide electrical clearance for electrification works. Colin explored options to determine the most suitable design solution, consisting mainly of track lowering and realignment schemes.

Western and Wales Conventional Plain Line Renewals – P'way designer responsible for over twenty renewal sites, taking the design from survey through to construction. Liaising directly with the contractor providing full setting out and installation details.

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