### Key Issues:
Critical to an environmentally sensitive scheme alignment was ensuring a truly iterative design influenced by environmental information from the EIA. The key mechanisms were optioneering/sifting stages in the programme and embedding environmental mitigation into the design solution. Following selection of a preferred route corridor, a route alignment optioneering stage commenced. Several different combinations of mainline alignment, junction locations and junction layouts were identified and a sifting exercise undertaken to establish viable options to be taken forward to the route options assessment process. The sifting process considered engineering, environmental and cost factors as well as operational performance. A total of 12 combinations were considered, assessed and documented in the EIA alternatives.

Further design refinement work was then undertaken, with specific scheme constraints and technical standards considered in greater detail to ensure that the most appropriate design solutions were identified for further development as part of the preferred scheme design. Through EIA baseline, it was recognised that the Dalmagarry area was one of the most constrained areas of the scheme with the dualling proposals having potentially significant impacts upon the Highland Main Line railway, Dalmagarry Farm, Dalmagarry Burn and its floodplain. Therefore, five sub-options of the preferred scheme were developed to address these constraints and to optimise the scheme design.

### Purpose of the project:
The project forms a section of the A9 Dualling Programme to improve the A9 between Perth and Inverness. The project has the following objectives:
(i) to improve the operational performance of the A9 by reducing journey times and improving journey time reliability
(ii) to improve safety for motorised and non-motorised users by reducing accident severity and drivers stress
(iii) to facilitate active travel within the corridor
(iv) to improve integration with public transport facilities

### Description of the project:
Upgrading the existing A9 single carriageway road between Tomatin and Moy (a length of approximately 9.6km) to dual carriageway standard. Includes: four new junctions, one grade separated junction and three Left-in/Left-out junctions; new structures to replace existing structures at the A9 Dalmagarry Burn crossing, the A9 Moy railway crossing, the A9 underpass at Lynebeg and the railway underpass at Lynebeg; realignment of a section the Dalmagarry Burn (to accommodate the dual carriageway and avoid impacting the Highland Main Line railway); and a new side road constructed adjacent to the southbound carriageway of the dualled A9 to provide access to an existing local road.

Construction will take an estimated 30 months, on a continuous basis, but sub-divided into separate phases to reduce the impact on road users and neighbouring communities. Sensitive receptors include residential property and farmsteads, ancient woodland, watercourses and floodplain and non-motorised users.
Lessons learnt:
The development of the preferred scheme very much illustrated the importance of design iterations informed by environmental information and assessment.

This involved successive refinement to achieve a solution that addresses issues arising through the collation of new information on constraints or understanding problems identified as the scheme develops. Each design iteration resulted in incremental changes that provided solutions, whilst being mindful of the overall scheme objectives, until an optimum level of design was reached.

Environmental input was essential with EIA co-ordinators and environmental disciplines working in tandem with the scheme designers, and in close collaboration with stakeholders and the client.

Lessons learnt continued:
This provided the opportunity to avoid or lessen potential environmental impacts through changes to the road alignment, land take requirements and the type/location of specific design elements.

The iterative design process involved the following aspects to allow environmental matters to be considered in design solutions:

- Project team meetings at regular intervals so that environmental disciplines had a formalised mechanism to provide feedback on any environmental constraints and on opportunities for addressing potential impacts associated with design proposals/refinements.

- Development and use of an environmental constraints mapping tool, capturing survey data and information held by stakeholders.

- Environmental mitigation workshops focussed on particular aspects of the design where contributions from specific environmental disciplines were required to discuss and influence the design development – themes such as road alignment and landscape fit, road drainage and watercourse crossings, structures, soil and peat management.

- Stakeholder inputs – statutory bodies, landowners and the general public.

Contact details
Rachel McEvan
Associate Environmental Consultant
rachel.mcevan@wsp.com
07799 657886

For access to more EIA case studies and hundreds of non-technical summaries of Environmental Statements visit:
https://www.iema.net/eia-quality-mark/eia-quality-mark-case-studies