

# project update

Issue 5

**Aberdeen**  
roads limited

## Message from Aberdeen Roads Limited



Malcolm Findlay,  
General Manager,  
Aberdeen Roads Limited

The past few months have been exciting with lots of activities taking place, including the Olympics and Paralympics in Rio where the achievements of our British athletes were quite amazing.

The recent months have also seen lots of activities taking place across the AWPR/B-T project, which is very rewarding for us, with major milestones being achieved, many of which are described in further detail in this update.

The most significant of these milestones has been the opening of the Dyce Drive Junction and Craibstone Roundabout. This will provide significant improvements for road users in this busy and important traffic corridor.

Formation of the main carriageway is now under construction and you will start to see glimpses of what looks to be an 'actual road' as you move through the areas adjacent to the project. The benefits of the construction method being used includes long-term performance, which means less disruption to road users in future years due to less frequent maintenance works. Similarly, many works that have been taking place off-line are now starting to become visible; structures are appearing up out of the ground, new access roads and side roads are coming into use, and earthworks materials moved from one area to another to make way for the new road.

As always, we thank you for your patience throughout the duration of these works.



Dyce Drive Junction

## COMPLETION OF WORKS on the A96, Dyce Drive Junction and Craibstone Roundabout

The new junctions at Craibstone Roundabout and Dyce Drive have opened to traffic, providing motorists in the North east of Scotland with access to Aberdeen International Airport via the two new junctions. The infrastructure improvements on the A96 have been put in effect as part of the overall project to reduce congestion and improve journey time reliability for road users.

Dyce Drive Junction has undergone a major transformation over the past seven months. The junction has been remodelled from a roundabout to a signal-controlled crossroads. The north and south bound carriageways on the existing A96 Aberdeen-Inverness trunk road have been upgraded, realigned and widened. The new road layout has also seen the installation of signal-controlled pedestrian crossings.

In addition to ultimately connecting the A96 to the AWPR, the Craibstone Roundabout junction will also connect those routes to Aberdeen International Airport via the new link road which has been constructed on behalf of Aberdeen City Council and is now open for use.

The construction of these two new major junctions presented many challenges as all of the work was undertaken near to or on the existing A96 trunk road. All of the interface works were conducted during off-peak periods to minimise impact to the travelling public. Dyce Drive and Craibstone junctions were mainly constructed overnight due to the high volumes of traffic which use the A96 and A90 either to access the airport or to

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- Beam Movements
- Blasting Operations



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# Aberdeen Western Peripheral Route/Balmedie to Tippetry

continued from the front page



Craibstone Roundabout under construction on the A96

## Headline quantities

100,000 labour hours	41,000m ducting cabling
12,000m kerbing	7,000m drainage installed
8,000m ducting	120m drystone wall
1,700m safety barrier	20,000t asphalt laid to create new road alignment
1,100m pedestrian guardrail	101 street lighting columns
12,000m road markings	4,000m fencing post and wire
2 culverts	50 new traffic signs

commute to work. Lane closures and contraflows to enable works to take place beside the live carriageway on the A96 were also implemented outwith busy periods.

There was also a high volume of underground utility services that made excavation a challenge, especially at the new Craibstone roundabout. The team had two major utility diversions to undertake with the diversion of gas and water mains, along with fibre optic diversions under the existing carriageway.

## PROGRESS OVERVIEW



Tippetry Junction underbridge



Looking south from Milltimber towards the River Dee



Stonehaven Junction progress

### North Section

Earthworks and landscaping continue on the North Section. Road works have commenced on both the mainline and side roads, making good progress.

Construction of structures and culverts is ongoing, with a number of culverts now complete with watercourses now flowing through these.

Major traffic management measures have been installed on the A90 at both the Blackdog and Balmedie junctions, redirecting traffic to allow the safe construction of the over-bridges and underpasses that cross the A90. Various traffic management schemes on side roads are also being implemented to allow for tying-in side roads presently under construction.

### Centre Section

Construction of the pier and abutment bases at the River Dee and River Don Crossings has progressed well. Works on the two structures adjacent to the A93 has commenced following the earlier road diversion. Work is progressing on the new Milltimber junction north of the A93, together with road works to allow the diversion of the Culter House Road and Contlaw Road.

The long haul of bulk earthworks material excavated from the large cutting north of the River Dee has progressed as planned and by its completion during Autumn 2016 we will have moved almost 600,000 m<sup>3</sup> of material. This period has also seen the commencement or continuation of many of our bridges, including the installation of the structural beams over the A96 and the completion of the railway bridge over the Aberdeen-Inverness rail line.

The Dyce Drive and Craibstone junctions are now open to traffic.

### South Section

Rock blasting continues at Kingcausie providing bulk rock for both construction and for processing. The abutments and columns on the Bishopston Access Road Bridge and C34k access track bridge are complete with concrete beams now in place. Duffhill Road has now been closed at the A90 and the new section of road has opened.

As part of the works at Charleston Junction, earthworks to the southbound merge have commenced as well as earthworks for lane widening. A temporary safety barrier has been put in place in this area and the diversion of the water main is nearing completion.

Earthworks have continued from the large cut at Stonehaven North towards the U88K Fishermyme to Clayfolds side road bridge with works on the embankment now well under way. All culverts are either completed or making good progress.

# CONSTRUCTION OF THE MAIN AWPR CARRIAGEWAY UNDER WAY



**The construction of the main carriageway along parts of the AWPR/B-T route is now under way following the completion of the earthworks foundations.**

One of the unusual features of the new road is that the main carriageway is being constructed using a process known as Continuously Reinforced Concrete Pavement (CRCP), rather than the normal bitumen-based form of construction.

CRCP is being used in this project because all the aggregate required to make the concrete is readily available on site by recycling the rock that has been excavated along the route, which makes it far more cost effective and environmentally friendly than having to bring in materials.

Although the use of CRCP is relatively unusual in Scotland, it is often used in other locations around the world and is a well-proven technology. On the AWPR/B-T, the CRCP will be finished with a final layer of bitumen-based thin surface course, which will give the skid resistance and noise-mitigation properties required for the road.

There is a four-step sequence for constructing the AWPR/B-T pavement for the main carriageway, once the earthworks foundation is completed:

1. Placement of a base layer known as Cement Bound Granular Material (CBGM). This layer is 250mm thick, and comprises cement and aggregates. The aggregates have been produced on site by processing the rock excavated to form the cuttings for the new road.
2. After the CBGM has hardened sufficiently, steel mesh is laid on top of it. In total, approximately 11,000 tonnes of steel mesh will be required for the main carriageway pavement works.

3. Once the steel mesh is in place, laying of the CRCP can begin. This layer is 200mm thick and is placed using specialised machines, which are described in more detail below.
4. The works will be completed by the placing of a 35mm bitumen-based thin surface course over the CRCP, which will form the final road surface for traffic.

To construct the CRCP, three WIRTGEN Slipform SP 941 paving machines have been purchased for the project. This will enable road pavement construction works to progress at the same time in different sections of the route

The paving machine operates by agitating the concrete to remove air bubbles and then levelling the wet concrete with a large blade, much like applying icing on a cake. The machines are expected to achieve an average daily output of 375 metres in length for each 9.3 metre-wide carriageway.

At the end of each day it is essential that the machines are washed down thoroughly so that they are ready for use at the start of the following day. The operators spend up to an hour jet washing the machines from top to bottom to clean off any residual concrete, which would harden overnight, and make the equipment inoperable the following morning.

Initial road pavement works have commenced on a trial basis, with early results showing good levels of performance. It is intended to lay around 25km of CBGM and 18km of CRCP during 2016, with road pavement works then pausing during the winter months, before the remaining road pavement works are completed in 2017.

# Community and Sustainability Initiatives

It is important to us that we give something back to the communities in which we are working and, as such, we are engaging with the community and investing in sustainable practices. Some of our recent activities include:

## Donation of Reusable Materials

In each of the North, Centre and South sections of the project we have set aside areas for 'reusable materials'. This can include materials such as disused cable drums, wood, metal, steel and plastic piping. Materials have already been donated to Easter Anguston Farm, Kingswells Primary School, Scolty Hill Community Group, "For the Animals" Animal Rescue Centre, local scout groups, Kingswells Primary School and Pets Corner at Hazlehead Park.

Iris Leask from the For the Animals Animal Rescue Centre said: "On behalf of the animals (and the birds), I would like to thank you very much for the items you gave us, they will be put to good use. We are very grateful to you. Enclosures, pens, sheds, fencing materials are always needed, there is never enough. You are all so kind."



AWPR operatives in action

**Maryculter Woodland Trust** is another community group which has benefited from recycled waste materials. Over a period of years, members of the local community in Maryculter raised funds to take advantage of the Scottish Land Fund. This allowed a grant to be paid alongside the funds raised by the community in order for them to buy the woodland, which was no longer financially viable, from the Forestry Commission. The community's efforts were successful and they now own the woodland. To assist with this initiative, the CJV donated a wide variety of waste materials including piping, fencing materials, wood and metal. In addition, the project donated some stone and assistance from our construction workers to create a car park area that allows visitors to access the woodlands.

Basia Jascot-Smolka, Sustainability Assistant said: "We are delighted that our waste materials from the project can be reused, rather than being sent off site for recycling or disposal. Should any community groups wish to contact me to discuss how we can help I would be very happy to hear from them."

## Schools Art Competition

Designing an AWPR/B-T mascot is no mean feat but the nursery, primary and secondary schools in Aberdeen and Aberdeenshire rose to the challenge in creative style. We received over 200 entries and winners were split into seven categories, including a special recognition award. An awards ceremony was held at the Town and County Hall in Aberdeen where the winners and runners-up received inscribed trophies as well as arts and craft sets. Councillor Tauqeer Malik, Aberdeen City Council Education Committee member and Councillor Charles Buchan, the vice chair of Aberdeenshire Council's Education, Learning and Leisure Committee presented the awards.

## Aberdeen's Annual Charity Kilt Walk

AWPR/B-T operatives were delighted to assist as marshals at the annual Kiltwalk which took place in June. The walk is just under 26 miles and mainly sticks to existing footpaths, parks and natural walking routes. As the route passed through the construction site in Milltimber, our operatives Alistair Russell and Chris Todd were on hand to assist the walkers along the temporary Deeside Way diversion which was constructed to give the local community a safe passage around the construction works. Chris Todd said: "It was a pleasure to assist at such a worthwhile event, which raises money for children's charities across Scotland."



L to R - AWPR representatives Alistair Russell, Brendan Fieldhouse and Chris Todd with some of the Kiltwalk organisers

**For further information on use of recycled waste materials and involvement in community projects and events please call us on 0800 058 8350 or email [enquiries@aberdeenroads.com](mailto:enquiries@aberdeenroads.com)**

## Employment and Training Benefits



Ewan Sinclair, WorkingRite Coordinator with Laura Gunn, Trainee CSR Administrator

We place great emphasis on offering employment and training opportunities to new entrants to the construction industry and those with existing experience.

Working with us guarantees training opportunities to help ensure skills are kept up to date and developed, wherever possible. Training has the specific goal of delivering improvements in workforce capability, capacity, productivity and performance.

Additional benefits are demonstrable in the retention of staff; job satisfaction; a safer, healthier workplace; competence to undertake set tasks and an increased resilience when dealing with the various challenges encountered on a major construction project, such as this one.

External training providers have delivered more than 22,000 hours of training in a range of specialist topics, including, but not limited to, the following:-

- First Aid at Work
- Slinger Signaller
- ISO9001 Quality Management
- Crane Supervisor
- Site Management Safety Training Scheme
- Water Hygiene/Distribution Operations Maintenance Strategy
- Site Environmental Awareness Training Scheme
- Lifting Appointed Person
- Site Supervisors Safety Training Scheme

In addition to the external training, we have offered more than 8,000 hours of work placement experience to young people either through the WorkingRite training programme or as a university/college placement, in line with coursework.

# BEAM MOVEMENTS



**One of the main features of the AWPR/B-T project is the large number of structures being constructed along the route. There are no fewer than 75 principal bridges and underpasses, including two major crossings of the Rivers Dee and Don along with a crossing over the Aberdeen-Inverness rail line. In addition, there are more than 70 culverts.**

These structures will require more than 1,100 beams during construction, with the beams ranging in size from 8m to 45m long. The largest beams are 1.8m deep and weigh 50-tonnes each.

All the beams need a major logistical operation to deliver them to the project site. This involves close co-operation and co-ordination between the contractors, local authorities, Police Scotland and Transport Scotland. For safety reasons, and to minimise disruption to road users, the beams are transported during daylight hours outwith peak travelling times.

The majority of the beams are delivered with a transport escort provided by the contractors. Larger beams are transported under a police escort with advance notification given to drivers and the public about the abnormal load movements.

So far more than 400 beams have been delivered to the AWPR/B-T in what is the biggest continuous movement of beams for a roads project in the UK, which will continue into 2017.

A recent key beam delivery sequence was for the Milltimber Junction overbridge where 48 beams were delivered. These included 14 beams at 31m long each, which were escorted by the police.

With a significant number of beam deliveries still to take place, the patience of road users and local communities is greatly appreciated. Every effort is made to minimise any potential disruption.

**Further information about forthcoming beam deliveries can be found on the AWP/B-T website at: <http://www.transport.gov.scot/road/aberdeen-western-peripheral-route/traffic-management>**

## Blasting operations nearing completion



**Due to the nature of the ground being traversed by the AWPR/B-T route, around three million cubic metres of rock – approximately seven million tonnes – will be excavated during the project. That is more than all the granite dug from the Rubislaw Quarry in Aberdeen during the 200-years it was in operation.**

In many locations around the project it has been necessary to use blasting techniques, which are particularly suitable for enabling large quantities of hard and intact rock to be broken up before excavation.

Blasting work is now largely complete throughout the project other than in localised areas such as Cleanhill, and it has proven very successful in safely and quickly breaking up large quantities of rock. The patience of the local community during these works has been greatly appreciated.

All of the material excavated following blasting was transferred to our on-site processing facilities where it was crushed into specific grades and sizes for a range of uses including fill material, drainage stone and concrete and asphalt aggregates. This approach significantly reduces our reliance on importing materials to our site which takes a huge amount of traffic off of the local road network.

In preparation for the blasting operations, information flyers were prepared on the project website with thousands of copies distributed to the communities in the vicinity of the works. Letters were also sent to properties within 500m of the blasting operation to inform them of the timing and arrangements for works in those areas

Blasting works on the project so far have involved:

- Blasting at 12 different locations
- Initiation of 212 blasts
- Use of approximately 500t of explosives
- Over 1 million cubic metres of rock blasted

## Works coming soon

The North Section will see the continuation of the recently started road pavement construction on the mainline and some side roads. Parts of these side roads will be opened in phases for the public shortly to allow mainline works to be completed.

Further structures will be completed in the Centre Section, allowing the diversion of local access roads over the line of the AWPR. Work is also just beginning in the centre part of the section to lay the first 6km of main carriageway pavement in a process already outlined elsewhere in this project update.

Local earthworks will continue through the autumn with a relatively smaller amount of work until the end of the year. This period will also see the formation of access roads at Craibstone, North Kingswells Junction and at the A944.

On the C5K side road near Charleston, services will be diverted over the completed bridge to allow surfacing works to be completed. In addition, a temporary diversion onto the northbound merge to divert traffic off the Charleston northbound slip lane will be built. Rock excavation will continue in the Charleston area.

In the South Section, the C25K Muchalls to Burnhead Road bridge and the C5K Auchlunies to Nigg side road bridge structures will be progressed. The concrete base layer for the road pavement has commenced with the aim of completing an initial 3.5km of works. CRCP works will follow on from the completion of the base layer. Earthworks will progress in the Cookney area to the section heading south towards Netherley and surfacing will be completed to some local roads including West Stoneyhill and the U88K.

## Contact Us

Should you wish to know more about the project please visit our project website at [www.transport.gov.scot/awpr-bt](http://www.transport.gov.scot/awpr-bt), where you can sign up for the Ezine, Route Ahead, as well as project-related alerts. Alternatively, call us on 0800 058 8350 or email [enquiries@aberdeenroads.com](mailto:enquiries@aberdeenroads.com).