The A30 trunk road runs the length of Cornwall, linking Penzance with Exeter in Devon. The Bodmin to Indian Queens section has formed a bottleneck on the route for many years. The road was a single carriageway and became notorious for accidents caused by the low head-room ‘Iron Bridge’ on Goss Moor.

In 2002 the Highways Agency appointed Alfred McAlpine and their designer Scott Wilson to design and construct the necessary road improvements. The team has now finished building 11.5km of new dual carriageway, nine bridges, 6.5km of side road, as well as extensive landscaping and environmental works.

Through the lifetime of the project, Mouchel Parkman and RPS have provided Highways Agency with expert advice. The ‘Early Contractor Involvement’ scheme has enabled the team to adopt a strong partnering approach, dealing with archaeological and ecological matters in a positive and proactive manner.

Plans for the new road have been under consideration since the 1970s. However, the need for an improvement has grown dramatically over the last 10 years. Daily traffic has increased by 73%, leading to increased congestion and traffic delays, particularly in the holiday periods. Design work on the £93 million road scheme began in earnest in 2002. Our aim was to reduce congestion, improve reliability and road safety, while respecting the environment.

The road scheme had to be built through some important areas for wildlife, including a National Nature Reserve at Goss and Tregoss Moors, which is protected under British and European law. We have taken this as an opportunity to improve the local environment.
considered at the Public Inquiry made it possible for us to re-create a link between Goss and Bodmin, while also satisfying the needs of conservationists.

Our aim has been to ensure the long-term survival of the plants and animals that live alongside the new road, which include rare species in danger of extinction such as the Marsh Fritillary butterfly.

The heritage character and ecology of the modern road has been shaped as much by thousands of years of human activity as by natural processes. The earthwork monuments, fossilised medieval roosts, and the overgrown traces of old tin-mines can all be seen alongside the road. The new road is carefully designed to avoid damaging known monuments, but its construction was also an opportunity to make new discoveries. A team from the Cornwall Archaeology Group has carried out large scale surveys which will help to build up a picture of the human and environmental change in Cornwall over the last 800 years - a venture that would not have been possible without the construction of the new road.

And across Goss Moor has been reduced to a field which will open up the countryside for the enjoyment of everyone, allowing people to experience this part of the rich legacy of this historic moorland.
The Making of the Moors

The impact of man on the landscape of Goss and Tregoss Moors

Goss Moor today is for rare moorland wildlife. Scientific analysis of pollen in waterlogged conditions in stream channels has shown that change and unsustainable activity are not new problems. Areas of Cornwall: As the age ended, around 9,500 BC, tundra conditions gave way and, which spread over much of. Much later, about 3000 BC, farmers began to clear the woodland to make way for agriculture. By the early Bronze Age (about 1800 BC), there were extensive settlements on Bodmin Moor and Dartmoor. In the late Bronze Age (about 1000 BC) the climate became cooler and wetter, making the uplands less attractive for settlement. At the same time, the thin soil was eroded and exhausted as prehistoric farmers brought ever larger areas into cultivation. These developments, and wider changes in society, led to permanent settlements on Dartmoor and Bodmin Moor, being abandoned by the end of the Bronze Age. The A30 excavations suggest a similar pattern on Goss Moor and the surrounding area, although we did find evidence for short-lived or seasonal settlement in the Late Iron Age and Roman periods (about 200 BC - AD 100).
Thereafter the landscape of Goss Moor became damp, open moorland which, by around AD 1300, was used as pasture, and as a source of tin ore and also peat for fuel.

The area around Belowda and Tregoss seems to have remained quite attractive for settlement, as permanent hamlets were established by the early medieval period (about AD 1000 - 1350) surrounded by isolated pockets of open arable strip fields. The pattern of these ancient strip fields was preserved when they were converted into pasture in the late medieval period (about AD 1350 - 1600). They were enclosed with Cornish hedges, which have survived to the present day, providing cover and habitats for wild animals such as dormice and adders.

Rich natural deposits of 'stream tin' on Goss Moor certainly attracted settlers to the area from the 12th century onwards, and may have done so in earlier periods, allowing people to supplement a meagre living from farming by panning or streaming for tin. During the Industrial Revolution, from the late 1700s, the extraction of surface deposits of 'stream tin' and deep mining both became big business. The tin-workings once formed dramatic scars on the landscape, but today the overgrown spoil heaps and settling ponds alongside the old A30 are ideal habitats for a wide range of plant and animal species, particularly reptiles.

In the early 1800s, large expanses of moorland were enclosed by landlords to provide small-holdings for a growing population of miners and agricultural workers. Many of these farmsteads were abandoned by the late 19th century following the decline of the Cornish tin industry and some of the fields have returned to rough pasture.
Circles in the Landscape
Late Neolithic and Bronze Age monuments

At Royalton we found a circle of posts, enclosed within a ring of larger oval posts. The excavated soil of the pits may have been used to form a low mound around the outside of the monument. The purpose was on the south side.

Among the most exciting new discoveries are the traces of three prehistoric circular monuments, used for ritual purposes about 3000 - 1600 BC.

This kind of grinding stone is called a saddle quern. They were mainly used for grinding corn by hand, but this one is unusually narrow and particularly well-made from very fine sandstone. We can only speculate as to its real use.

Although it was not by any means worn out, the quern was carefully buried in the top of a pit, with the grinding surface upwards. This was probably a ritual activity, perhaps an offering of some kind. The quern stone dates to around 1500 BC, the middle of the Bronze Age.
near the Innis out, is a large oval earthwork enclosure that was probably Neolithic period. The new road junction was designed near the monument or its immediate surroundings. When the monument, the closest areas, no prehistoric round soil was stripped, even though the henge is just across the field. The round near the henge has been reduced by building the

The early farming communities of Britain built such monuments during the Neolithic and early Bronze Age. They vary greatly in size - Stonehenge is the most famous example. The Royalton circle is much smaller by comparison. Some were simple circular or oval enclosures, usually with one or two entrances, and an earth bank around the outside. Others, like the Royalton circle, enclose settings of timber posts or stones.

The purpose of these monuments is still a mystery, although it is generally accepted that they were used as arenas for ceremonial gatherings and rituals, including animal and (rarely) human sacrifice. Some sites also served as cemeteries for human cremation burials. Prehistoric timber circles are sometimes found on their own. Our archaeologists found two circles of pits, again for supporting upright timbers, at Belowda. We have radiocarbon dated the circles to the early Bronze Age - one was built about 1800 BC and the other, possibly a replacement, about 1600 BC.
Roundhouses and Ramparts
Iron Age and early Romano-British settlements

Round the remains of roundhouses, about 800m north of the Belovoda area. The remains of these sites, and the radiocarbon dates, show that the Iron Age have lived in during the 3rd century BC - AD 100. Presumably the same time as Tregoss Moor and Castle-an-Dinas.

Both roundhouses were twenty in diameter, and they had thatched roofs on stone walls with an exit doorway. The roofs may have been made of thatch. At Castle-an-Dinas, fragments of heather were found, both of which were probably suitable for thatching. The large house was a gully to trap water from the caves.

In local folklore Castle-an-Dinas hillfort is associated with tales of the mythical King Arthur; it was reputedly the place from which he rode out to hunt on Tregoss Moor.
archaeology Foundation Course students worked on Roundhouse excavation. A group of 12 students were taking part in a one-week course hosted by our professional archaeologists from Oxford Archaeology. Finds from the excavations included pottery cooking jars and charred grain. This suggests that the houses were lived in, not just used for a short period. They may have been used as seasonal dwellings.

The area was generally damp, open, moorland, and very attractive for agriculture. Nevertheless, as a result of the excavations, we can now say that the area around the hillfort was used and farmed, at least on a seasonal or short-term basis, in the late Iron Age and Roman periods.
A30 follows the main ancient route into west Cornwall. It probably be line of a Roman road, and may even origins in a prehistoric track. In the 1760s was established as a Turnpike road, which straightening and improving the section across Moor, diverting it away from the narrow one through Belowda. An anonymous described it, writing in 1795:

"The road to the Indian Queen - 11 miles of most excellent road mostly upon a level. All moorland, not a tree to be seen on this road."

A30 route passes through a series of ered strip fields which surround the hamlets of Belowda and Tregoss. Strip fields ul of medieval (AD 1066-1550) ‘open-field’ in Cornwall, but rarely survive in the day. The hamlets of Belowda and Tregoss mentioned in documents dating from the 11th century AD, but they may pre-date the man conquest.

Tinners’ settlements on4erra Moor are recorded for the first time in 13th century documents. Although the rich tin deposits were probably being exploited long before that. By the early 16th century many inhabitants of the area were tanners first and farmers second. A document of 1369 tells us that the parson Ralph de Arundell, one of the major landowners in the area, was forced to take refuge in the Parsonage at St. Columb from an angry mob of tanners from Ruthvoes and Trevarren, after he tried to enforce the payment of dues on tin ore.
The heyday of large-scale Cornish tin extraction was between 1840 and 1860. A slump in the worldwide price of tin from the 1860s led to a collapse in the Cornish market and the mass emigration of miners from Cornwall. Deserted mining features from the most intensive phase of tin extraction can be clearly seen beside the new A30 road, including the scars of large-scale streamworks around the headwaters of the River Fal on Goss Moor, the Royalton Mine buildings, and engine houses on the slopes of Belvedere Beacon and Castle-an-Dinas.

After the Industrial Revolution, most Cornish tin was "streamed" or "reeveding." This involved mining, usually by digging trial pits and down by streams. Some miners locate promising spots. Once an ore was discovered, the tinners excavated the unwanted material leaving the heavy pebbles of tin ore (cassiterite) on the bottom of settling ponds. The new A30 route carefully avoided the well-preserved streamworks on Goss Moor, but our archaeology team discovered three groups of prospecting pits nearby, one of which was radiocarbon dated to the medieval period.
The rare marsh fritillary butterfly lives in heathland and grassland areas around the A30. We sown numerous seeds and seedlings of a plant called devil’s bit scabious, which is the only food eaten by the marsh fritillary caterpillars. They weave a web around the plant while they feed, to protect themselves from predators.

The caterpillars spend all winter in clumps of grass and emerge as butterflies in May or June. Marsh fritillaries only travel short distances, remaining in their home patch for their entire adult life. Both the heathland and grassland derive from man’s past activities, particularly tree clearance and agriculture.
wed wildflower and heather seeds along the sides of the new road, 
itats for the marsh fritillary. By downgrading the old road, we 
ble to join two areas of Goss Moor, reuniting two habitat areas.
Rehousing Reptiles

Four types of reptile were found along the A30 corridor: adder, common lizard, slowworm and grass snake. These are all protected species, and we captured and moved them carefully, by hand, to more favourable areas.
Fenced off large areas on a number of "tins" - metal sheets, were used during the project. Reptiles like to hide under these tins, making it easier for us to capture and study new or improved habitats using logs, stones and creating new wildlife ponds.
Dormice and Otters

we in scrub and hedgerow areas, so we searched these by hand, before using machinery to clear vegetation. This was the dormice were active (they hibernate in the winter) but not during the breeding season, allowing them to move to other from the road building. We linked dormice habitats by planting Cornish hedges, including their favourite food plants, put up some dormouse nest boxes. Our ongoing conservation work will include monitoring of the nest boxes.
The Goss and Tregoss Moors as part of their home range. A male or dog otter can occupy a territory of up to 6 kilometres. The otter is a predatory animal, crossing roads where they cross their territory. In the past, otters have been killed on the A30. It is proposed to build permanent otter tunnels under the new road, with fencing to keep them away from the traffic.
Badgers and Bats

We needed to move some badger sets away from the new road, so we used the sets that allowed badgers to leave but not re-enter. The badgers respond to this by exploring other nearby sets, choosing one to settle in. The road can divide feeding areas, so we built special badger underpasses, fitted with fencing to keep them off the dual carriageway.
of bat

...use the fields and hedgerows around the A30 pipistrelle, brown long-eared bat, natterer's bat's (or whiskered) bat. It was important that

...Trees and hedgerows to replace any that were

...are used by bats to find their way to feeding...up in trees, for bats to roost in summer months. As part of our ongoing...conservation work we will be monitoring...these bats.
The A30 Bodmin to Indian Queens road improvement scheme has shown that positive conservation benefits can be achieved as part of a major road development.

By improving access to the west of Cornwall the road scheme has created opportunities for tourism, industry and rural communities in the South-West. At the same time, engineers, ecologists and archaeologists have worked together to safe-guard rare and protected wildlife species and ancient monuments. In doing so we have taken the opportunity to improve the environment for the benefit of wildlife conservation, cultural heritage and public enjoyment.