SPRINGS ROAD

BASELINE ROAD CONDITION SURVEY

Required under Section 106 Agreement for Planning Permission 1/15/01498/CDM

Prepared for: IGas Energy Plc

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1.0 INTRODUCTION

SLR Consulting have been appointed by IGas Energy Plc to undertake a baseline road condition survey of Springs Road and Bank End Road, Nottinghamshire, and Bank End Road Doncaster.

The condition survey is to be undertaken between the development access and the roundabout at the crossroads of the A614 and the B1396 in the village of Blaxton. The survey covers roads managed by two highway authorities, being Doncaster Metropolitan Borough Council and Nottinghamshire County Council.

The aim of the survey is to identify the current road condition, and identify any necessary maintenance works that would be required.

The survey is required as part of the Section 106 agreement required under planning for the development, and is to be used as a baseline survey to determine whether or not future failures of the road infrastructure can be attributed to the development, and the monetary value to be paid by the developer to cover these repairs.

2.0 ROAD CONDITION SURVEY

The road condition survey was undertaken on Friday 15th September 2017. The weather during the survey was overcast with wet ground at the beginning but quickly becoming dry during the survey. The traffic on Springs Road was light, and mainly light vehicles, while traffic on Bank End Road was heavier with a mix of light and heavy vehicles along with a number of agricultural vehicles. Traffic speeds were noticeably higher on Bank End Road.

The survey undertaken was a simple walk over the survey, which only identifies visually apparent issues. No testing to determine pavement strength was requested or undertaken.

The survey was undertaken by David Price IEng F.I.H.E. a Principal Consultant at SLR consulting with 30 years highway design experience, in both the public and private sectors. David was assisted by Luke McNalley a trainee highways Engineer at SLR Consulting.

Photographs have been taken of all the defects noted in this report and some that haven't been, and are provided with this report on an accompanying CD.

The survey has been undertaken in two sections to capture both the inbound lane and the outbound lane separately.

The survey commenced at the L.Jackson & Co. M.O.D Equipment, Rocket Site (unit adjacent to the development site), and headed northbound towards the junction between Springs Road and Bank End Road. At Bank End Road the survey turned left on to Bank End Road and continued westbound towards Blaxton. The survey ended at the small roundabout in Blaxton. The first part of the survey identified issues along the inbound traffic lane.

The survey returned along the same route, starting at the roundabout in Blaxton, heading eastbound along Bank End Road towards the junction with Springs Road. The survey turned into Springs Road and continued south to the development entrance. The second part of the survey identified issues along the outbound traffic lane.

The surveys are undertaken walking along the road edge / lane / verge towards oncoming traffic, in accordance with site safety rules and the Highway Code. Photographs and comments have been taken in both directions and are numbered in order of the walk taken.

2.1 SPRINGS ROAD – INBOUND LANE

The measurement of chainages start at the tangent point at the southern end of the junction bell mouth radius of the existing entrance to L.Jackson & Co. M.O.D Equipment, Rocket Site (photo 001 – 005)

Springs Road has recently been surface dressed between the development entrance and the railway level crossing. The surface dressing will have hidden many of the old pavement repairs that have been undertaken, as such there are no visually apparent defects in the surface apart from scuff marks at access points over this section of road.

Rocket Site entrance (approximate chainage 0 – 26.5). The access bell mouth is constructed in concrete which is fractured and heavily worn.

Around chainage 154 there is a battered warning sign reading 'Sharp bends for 1 mile' in verge. The sign is leaning and is bent out of shape; there is surface growth on the sign which would affect its reflectivity. This could become hazardous for road users.

The verge falls away from road and into a ditch over this section (photo 006).

Around chainage 413 there is a small field entrance. Verge falls away from road and into a ditch (photo 011).

Shortly after the small field entrance is the entrance to the IGas Energy Plc Springs Road Development Site. The entrance starts at approximate chainage 453 and ends at chainage 483. The entrance is kerbed and is initially constructed in tarmac, changing to concrete roughly 8m from the road edge (photos 013 – 023).

At approximate chainage 543 there is a horse warning sign in good condition (photo 027).

There is an unused field entrance (photo 028), currently fenced off for site security.

There is a small farm access entrance at around chainage 633, the access is constructed in stone and collects water along the road edge (photos 031 - 033).

Between approximate chainage 640 to 644 there are a small number of shallow depressions in the road surface, possibly due to former road repairs showing through the surface dressing. These are visually apparent as they are collecting water in the middle of the road (photos 034 – 035).

Between approximate chainages 650 and 699 there are a number of house and farm access points. At chainage 650 there is a small farm access point with a tarmac surface, across the entrance there are depressions along the road edge that are holding water (photos 036 – 037). Beyond the entrance a former road edge patch repair is showing through and water is being held (photo 038).

There is another access point at approximate chainage 677. Block paving is used here and there is some failure around the road edge (photos 039 – 040).

At approximate chainage 699 there is another farm entrance with a puddle at the road edge just before it. The entrance uses gravel (photos 041 – 043).

The road becomes kerbed immediately north of the farm access, between approximate chainage 703 and 755, with gullies at approximate chainage 727 and 742 (photos 045and 046), both gullies are set back from the road edge, with a kerb surround. Both gullies are clear, but there is weed growth in the recesses and along the kerb edge around these gullies.

At around chainage 850 there is a gravel field access road with a large ditch on the right side and a smaller ditch on the left side of the road. There was a significant amount of standing water around this entrance and on our approach to it, which could cause a hazard to any vehicle entering it. On Springs Road there are scuff marks from vehicles entering and exiting the field access road (photos 049 – 055).

There was a small amount of standing water along the road edge beyond the farm road access (photo 056)

Around chainage 931 there are possible small scuff marks and shadows (photos 057 – 058). A short amount further on at approximate chainage 993 there is a very small patch of delamination of the surface dressing, (photo 059) which would not be unusual.

There is a cottage access driveway at approximate chainage 1025. It has dropped kerbs dividing the driveway and the road and has tarmac paving (photos 060 – 061), there are also road edge markings in this location as we are approaching a narrow bridge.

At approximate chainage 1043 there is a small narrow bridge that can only fit one vehicle width safely, this causes traffic to slow down or stop, and is a natural form of traffic control. The bridge is painted in alternate black and white squares to increase driver's awareness of its presence. There is also a farm entrance road on the outbound lane next to the bridge, which can be difficult to see from the opposite side of the bridge. There are skid marks and scuff marks on the road surface near the bridge and near the farm entrance (photos 060 – 065).

Beyond the bridge there are farm entrances at chainages 1116, 1139, 1150, and 1257. There are scuff marks from turning vehicles on the farm entrance at chainage 1257 (photos 066 – 075) which has worn away some of the surface dressing.

At approximate chainage 1461 there is a culvert for a small stream, with a farm entrance next to it at approximate chainage 1471. There are scuff marks on the road outside the entrance (photos 080 – 086) and some standing water at the road edge over the culvert.

Surface dressing has worn heavily in the centre of the road at approximately 1575 chainage (photos 089 – 093), this is possibly as a result of changes to the road markings in this area.

There is a railway level crossing at approximate chainage 1650, with a small cottage which has an entrance driveway next to it at chainage 1633. The approach to the level crossing has with double yellow lines and dropped kerbs. The level crossing and its approaches have been recently reconstructed and the surfacing and road markings are in good condition with no wear visible (photos 094 – 107).

The Beech Hill Level Crossing is of a standard prefabricated construction with automatic barriers, warning lights and signs. The railway crossed has two lines, and appears to be used by mixed traffic; however a timetable cannot be found for passenger services to determine the frequency of trains. The railway is on an embankment and the road rises up to it. There was a fatal accident at this crossing in December 2012.

The crossing has been recently upgraded to current standards, including reconstruction of its approach ramps and the removal of a bridge over a flood plain on the north side of the railway. This work was undertaken in May 2016. It is assumed that the crossing was upgraded at the same time as these roadworks. The surfacing change at chainage 1739, to an older construction that has been surface dressed some time ago and contains visible patch repairs. This construction continues to the junction with Bank End Road.

There are some small cracks along the edges of the road (photo 110).

There is a long patch repair between approximately 1788 and 1804 chainage, around 1 metre in width. There are cracks in the surfacing leading up to the patch. The joints around the patch have worn edges. (Photos 111 – 125).

There are multiple cracks in the road surface between approximate chainage 1821 and 1852. There are cracks in the centre of the road that begin at chainage 1852 and carry on for the length of the farm entrance and end at chainage 1865 (photos 126 – 139).

There is a farm entrance at chainage 1856, which is concrete paved and has cracks along the edge between the road and the entrance (photos 134 – 138) and along the lane centre. The damage along the lane centre could be a former patch joint reappearing. At the northern end of the access the lane centre is heavily crazed and worn (photo 136 - 138).

Multiple road edge patch repairs start at approximate chainage 1866 and end at approximate chainage 2039, the first patch repair has a width of around 1 metre (photo 139), and immediately joins onto a patch repair with a width of around 0.5 metre (photo 143). Beyond the patches the road edge is cracked (photo 150 – 152). There is a small patch repair across a field access, and the road surface is heavily worn (photo 156-160), there is standing water along the road edge approaching this field access due to the verge having been overrun (photo 152-155).

At the end of the field access there is a new patch repair, with a width of around 3.5 metres, taking up the entirety of the inbound lane (photo 159-162). This decreases to about 1 metre width after a short distance (photo 162) and continues to where the patch joins an older patch, with a worn surface (photo 166). Towards the end of this patch the surface is crazed (photo 169). At the end of the patch there is a more recent full road width repair. Beyond this patch there is some cracking in the old road pavement (photo 174). There is another full road width recent repair, however the leading edges of this are worn, and a pothole is forming near the road centre (photos 175 – 178).

There is a small field entrance at chainage 2053. This entrance is an unpaved dirt track (photo 180). The road surface near this access is heavily worn and holding water (photo 181).

There is a drainage ditch alongside the road on its approach to the junction with Bank End Road, with a minimal verge separation. There are some cracks along the road edge along this section (photo 187)

New road surface begins at approximately 2253 chainage, just before the junction between Springs Road and Bank End Road. There are small cracks and potholes at the edge of the road surface joint (photo 188) which would be normal wear given the age of the road pavement, but could develop into potholes in the wheel tracks.

There is heavy wear at the Bank End Road edge line at the junction, this is normal and is due to the stresses created by turning vehicles (photo 190).

2.2 BANK END ROAD – INBOUND LANE

Junction between Springs Road and Bank End Road is at approximate chainage 2260. There are small cracks and small potholes on the junction which can lead to standing water. Light scuffs on road leading from both Springs Road and Misson Bank (photos 189 – 194).

The high friction road surface on Bank End Road is heavily worn at approximate chainage 2270 (photos 194–200) with patches of the high friction surfacing having worn away completely in places.

There is a small filled pothole it the middle of the road where a cast iron cats eye has been removed (photo 198-199)

The coloured road surface warning around the SLOW road marking is also worn at approximate chainage 2280 (photo 201).

Bank End Road has been surface dressed in the past couple of years, the surfacing is in good condition, and there are no signs of heavy wear. The road is kerbed and drained through kerb weirs or gullies; however there is a lot of weed growth in the road channel. The road markings are in good condition, and the cats eyes are the stick on plastic type. There is a drainage ditch along both sides of the road and the verge is in good condition. The road is subject to a 50mph speed limit to the county boundary.

There are some longitudinal cracks near the road edge (photo 210 - 211)

The joint along the road centre has worn under the effects of turning vehicles at a property access (photo 212, 213)

There are some longitudinal cracks near the road edge (photo 215–221 & Photo 228-229), some of this could simply be the surface dressing having not stuck properly near the road edge. A patch repair is showing through (photo 222).

At the farm entrance immediately before the county boundary the surfacing has been heavily worn by turning vehicles (photo 223-227).

The County boundary is at approximate chainage 2990. At the county boundary the kerb changes to ACO drain kerbs along both sides of the road. The cat's eyes also change at the county boundary to glass studs inset to the road surface (photo 232). The amount of weed growth in the road channel remains high, and cracks remain near to the road edge in places (photo 234).

There are two house driveways on the county boundary, both with dropped kerbs, the first house has a gravel driveway and the second uses tarmac paving (photos 230 – 233).

Across the frontage to the sand quarry opposite, the ACO Drain kerb line is not straight and a large number of kerbs are out of line (photo 235-250). This has created a gap between the road pavement and kerb, which has allowed additional weed growth. It also allows water to penetrate the road pavement. Some of the ACO drain kerbs have visible tyre marks (photo 242-249) so it is not sure if this damage is caused by sinking of the embankment / verge or by accidental impact by vehicles turning into and out of the quarry. There is a large accumulation of silt and sand deposits along the channel near the quarry entrance (photo 250-259).

The ACO drain ends and the road continues with standard road gullies, with some recessed from the road. Most are in good condition and all are working, though there is weed growth in some of the recesses.

Across the tarmac entrance to Old Bank End Farm the surfacing joint is worn, there is a small amount of standing water and the road surface is scuffed and worn by turning vehicles (photo 260-264).

There is a scar in in the road surface from approximate chainage 4070 to 4108 (photos 266 – 272).

The surfacing changes on the approach to the crossroads with Wroot Road. Although this surfacing is significantly newer than the rest of Bank End Road, it is open textured and heavily worn and is starting to show signs of delamination (photo 277-307).

At approximate chainage 4705 there are two groups of water service covers in the road (photo 286), both groups have crazed road surfacing around them. (Photos 286–289).

Just after the water service covers there is a staggered crossroads junction, at approximate chainage 4710, with a central turning lane for vehicles turning into the side roads. The road surface around the area is heavily worn and contains crazing and is open textured. There are a number of small scuff marks, cracks and standing water, these are particularly present where Banks End Road and Wroot Road meet. Some of the road markings have begun to fade and become worn. (Photos 289 – 297).

There an area of wear and delamination at chainage 4767. The area of damage is where vehicles would usually be braking when approaching the junction which could possible cause a loss of control for fast moving vehicles (photos 298 – 304).

An illuminated bollard is missing from one end of one of the traffic island in the middle of the road and the bollard at the other end of the traffic island has been displaced (photo 305). The island would appear to have originally included a high level sign / illuminated beacon, but this and its post are missing.

The road surface returns to original, the keep left arrow in the centre of the road was originally painted incorrectly, and has been poorly removed (photo 308).

Drainage along this section of road is ineffective, as gullies are recessed and are completely overgrown by weeds (photo 310-311).

There is a small gravel lay-by at approximate chainage 5210. There is standing water between the lay-by and the road (photos 312–314).

There has been some verge overrun, which has allowed water to stand alongside the road (photo315).

We enter the village of Blaxton at 5411 chainage.

There are a number of driveways onto the road from private residences, some of which are constructed in gravel, and some in tarmac. The gravel accesses have spilled some material onto the road, and there are areas of standing water at some of the accesses. The road surface has become worn across these entrances by the effects of turning vehicles, and there are severe scuff marks in the surface by the tarmac driveway (photo 318-323).

There is a street entrance at approximate chainage 5475 into Hillscroft Road. There are small amounts of delamination where the roads meet and a small area of patch repair in the centre of the left lane exiting Hillscroft Road, which is approximately a 1x1 metres. There is a road gully in the middle of the junction which implies the junction has been widened in the past (photo 324).

Shortly after this is another street entrance into New Street at approximate chainage 5540. New Street junction contains a patchwork of repairs and with crazing and cracks; there are also some service covers in the lane entering New Street. (Photos 327 – 328).

There is an ACO slot drainage along the road channel beginning at approximate chainage 5700 and carries on for around 30 metres (photo 337 - 340). This channel is heavily silted up and is unlikely to work.

At approximate 5844 chainage the inbound survey ended at the roundabout in Blaxton. There are minimal defects in this area (photo 345).

2.3 RETURN SURVEY - BANK END ROAD – OUTBOUND LANE

The road is surveyed in the opposite direction along the development traffic outbound lane, as some issues can be more apparent when viewed from the opposite direction. The return survey also assists with the safety of the surveyors, as they only need to concentrate on the one traffic lane at a time, and are therefore more aware of traffic. As this is a return survey, some of the observations made may include issues that have been raised when surveying the inbound lane.

Chainages start at the roundabout in Blaxton, and are measured along the road channel.

ACO drainage channel starts at approximate chainage 11 and carries on for 50 metres. (Photos 347 – 352). The drain is heavily silted up and is unlikely to operate effectively.

The road over this section has been surface dressed, and there are few defects that are showing through the surface.

There is a manhole cover at approximate chainage 31 which has become polished and smooth under the effect of traffic; this could lead to a decreased amount of traction (photo 350).

There are a small; number of roadside cracks, and evidence of vehicle overrunning opposite some of the private residence driveways (photo 354, 358-361, 364-365).

There is a manhole cover in the middle of the lane that is beginning to sink (photo 362).

Leaving the village, gullies are recessed from the road channel, and many have weed growth (photo363, 372, 373) not all have been photographed. There is evidence of vehicles overrunning the verge in a small number of locations (photo 365, 369, 374-375).

The surfacing changes for the staggered crossroads with Wroot Road. The crossroads have a new surface that is very open textured (photo 377-379). There are numerous cracks in the surfacing (photo 381). Across the junction bell mouth the joint is starting to fail (photo 384-388). The road markings throughout this junction are heavily faded.

The surface returns to a surface dressed road and passes an access to a former sand quarry (photo 393). The road remains kerbed and drained through grips and gullies, which are often blocked by weed growth (photo 404,405).

There is a lot of sediment / silt in the road channel which encourages weed growth. In places this hides the kerbs.

The approach to the sand quarry the kerbs are out of line similar to the other side of the road, the kerbs change to ACO drains which are out of line (photo 407-409). Along this section the verge falls away from the road into a drainage ditch. There remains an excessive amount of silt and sediment in the road channel (photo 409-411). The quarry access is a tarmac road, and is in reasonable condition. There are a lot of turning marks on the road surface indicating that departing lorries are not clean and are carrying small amounts of debris onto the public road, which accounts for the high levels of silt in the road channel (photo 411-414).

Between the quarry access and the fishery access, the kerb is ACO drain, with a significant amount of weed growth in the road channel (photo 416-417). The fishery access is tarmac and in good condition (photo 418-420).

Following the fisheries access the road is kerbed with ACO drains which are significantly out of line, with substantial weed growth in the road channel (photo 422-430) which extends to the county boundary. Although there is virtually no verge to support these kerbs, as the verge falls towards a drainage ditch quite steeply, the damage appears to have been caused by slippage of the embankment. It is in this location when driving that a small depression in the road surface at the channel can be seen.

The county boundary is at approximate chainage 2765 between Doncaster and Nottinghamshire.

There are turning scuff marks from the field access opposite Bank Farm at the county boundary (photo 431,432) the welcome to Doncaster sign is also slightly leaning (photo 433). This shows that there is some slippage of the embankment.

Road becomes drained by recessed gullies, some with weed growth, however the gullies appear clear of debris.

There is wear of the surface dressing alongside a field access (photo 438) caused by turning vehicles.

There is wear of the surface dressing alongside a field access (photo 445-447) caused by turning vehicles.

Shortly following the country boundary there is a severely leaning T-junction warning sign, which is leaning away from the road. This could make it more difficult for road users to see and understand and also increases the chances of it falling over entirely (Photo448, 449). The sign is leaning possibly due to slippage of the embankment.

There are a number of areas of worn road surface at approximate chainage 3009 (Photos 451-453).

There is a small crack near to the road edge by a gully (photo 454).

In general Bank End Road outbound lane is in very good condition with minimal visual defects.

2.4 RETURN SURVEY - SPRINGS ROAD – OUTBOUND LANE

There are small areas of cracking just after the turn into Springs Road, and the surface dressing / high friction surfacing is heavily worn at the junction (photo 460-462).

The surfacing changes from the main road surfacing to the side road surfacing and there is a small pothole on the worn joint (photo 464). Springs Road is a much older surface, which has also been surface dressed, but some time ago. There are minor surface cracks in places and at field and farm access there are scuff marks from turning vehicles.

Adjacent to the tree there is some crazing of the surfacing (photo 468-469)

There are cracks along the road (photo 470-478, 482-484, 489)

The joint at the end of the full width road repair is failing near the channel and road centre (photo 480,481)

The joint at the start and end of the full width road repair is failing near the channel (photo 485,487). At approximate chainage 3864 there is a small field access track; the track is unpaved, using only loose gravel and stones. There are a few points of delamination just outside of the access (photo 490,492). There are also some small areas of crazing and worn road surface just after the field access road (photo493-506) and surface water is standing in the road channel (photo 497).

Patch repair begins at approximate chainage 3936 patch repair begins with a width of around 0.5 metre. At approximate chainage 3941, the patch repair joins with another patch repair which has a width of around 1 metre. The patch repair ends at approximate chainage 3957. The road surface around the patch repair has become slightly worn (photos 507516).

Another patch repair starts at approximate chainage 3969. This patch repair carries on until approximate chainage 4092. The surface on the patch is worn, especially near the farm entrance. The patch repair then joins onto a newer patch repair of the same width (photos 518-538).

There is a small farm entrance at approximate chainage 4011, the entrance is paved with tarmac and is slightly worn (photo 529).

There is a small patch repair with a width of 1 metre just before the rail crossing, which is at approximate chainage 4175 (photo 545) the joint at the end of the patch is worn (photo 546).

The railway level crossing and its approaches are in good condition and are relatively new.

Beyond the level crossing there is a small area of damage to the road surface dressing (photo 565,566).

There is a small field entrance at approximate chainage 4408. The entrance is old and heavily fractured with a large amount of crazing, especially near the edge of the entrance where it meets the road (photo 567)).

There is turning damage to the surface dressing opposite a field entrance (photo 570-572) and a turning tractor has overrun the verge.

At approximate chainage 4728 there is a small fire hydrant (photos 573-574).

There is a damaged road warning sign at approximate chainage 4974. The warning sign warns about the small single lane bridge where vehicles are forced into the middle of the road. A damaged warning sign could be potentially very hazardous, especially to those that do not know the road (photo581-582).

There is a small amount of standing water around the bends in the road channel (photo 584-586).

There is a small farm access road at approximate chainage 5129. The entrance is gravel and there are a number of small potholes at the entrance of the entrance (photo 587).

There is a small scar in the surface dressing (photo 589-590).

Site survey ends at approximately 5825 chainage.

3.0 SUMMARY

In general all the roads surveyed are in good condition for rural lanes, and they demonstrate a high level of maintenance by both local highway authorities. However there are some deficiencies highlighted below.

3.1 Springs Road

Springs Road can be split into three sections.

The first section lies between the development entrance and the railway level crossing the road has been recently surface dressed, possibly earlier this year or during last year when the road was closed for reconstruction of the railway level crossing. The surfacing appears relatively new and there is still a high amount of loose stones along the side of the road.

Surface dressing consists of applying a cost of bituminous liquid to the road surface and then covering it with small stones. The intention is to restore skidding resistance. The bitumen seals all cracks in the old surface below and allows the stones to stick to the surface. The stones provide a good skidding resistance surface. Surface dressing can be easily damaged by turning vehicles, as it is a very thin layer that cannot take the stresses created by turning vehicles. This is evident at some of the farm and field entrances. It can also be damaged by heavy braking, which is not evident on this site. Surface dressing also can hide many faults in the road surface, such as crazing, cracking and the joints around old patch repairs, and eventually these may show through. On the roads surveyed only a small number of patch repairs are showing through.

The second section is the railway level crossing and its approaches. These were reconstructed during May 2016, and there are no visible defects over this section.

The third section is between the railway level crossing and Bank End Road, over this section the road has been surface dressed, but a long time ago. The surfacing is old and worn, but remains serviceable. There are a number of patch repairs along this section and a number of cracks in the road surface. There are a very small number of potholes, of which none are of concern.

Springs Road is in an area that is drained, as such there are deep ditches alongside the road. The stability of the road and its verges is not in question, as there are no signs of movement. The ride along the road is comfortable.

Overall the road pavement is sound, and of little concern.

3.2 Bank End Road

Bank End road can be split into a number of sections

The first section lies between the junction and the county boundary, at Bank Farm. Over this section the road has been surface dressed during the last couple of years (but not as recent as the bottom end of Springs Road). There are very few defects showing through the surface dressing. The high friction surfacing at the junction of Springs Road is heavily worn and needs replacement. This section is kerbed with the drainage being undertaken by kerb outlets and gullies.

The second section lies between the county boundary and the crossroads junction with Wroots Road, this section passes a fisheries and aggregates quarry. Over this section the road has been surface dressed during the last couple of years (but not as recent as the bottom end of Springs Road). There are very few defects showing through the surface dressing. There is a lot of silt and sediment along the road channels in this area, which will affect the efficiency of the drainage system. This section is drained by a combined kerb and drainage system (ACO drain) which has started to fail along the embankment by the fisheries and quarry. Over this section the road verge is slowly sliding into the drainage ditch and is taking the kerb system with it. Generally the road pavement is not affected, but there is a small area that has sunk in this location, which is just evident

when driving along the road. The failure of the kerb drain has created a gap which will allow water to enter the road pavement, and would accelerate the slippage over time.

The third section of Bank End Road is the crossroads junction with Wroot Road. This junction has been resurfaced with modern materials (possibly SMA), but is showing heavy signs of wear for a young surface, where vehicles are braking and turning. This has resulted in delamination, cracking and open textured surfacing. The road markings have completely worn away in places. One of the central traffic islands is showing signs of impact damage and utility covers in the road have significant cracking around them. This section is kerbed with drainage through gullies.

The fourth section of Bank End Road is between the crossroads junction with Wroot Road and the village of Blaxton. Over this section the road has been surface dressed during the last couple of years (but not as recent as the bottom end of Springs Road). There are very few defects showing through the surface dressing. This section is kerbed with the drainage being undertaken by kerb outlets and gullies.

The final section is in the village of Blaxton up to the roundabout, over this section the road remains surface dressed, but there is more surface scuffing and marking from vehicles turning at private driveways. There is a linear ACO drain near to the roundabout, however this is so silted up it is unlikely to work.

Overall the road pavement of Bank End Road is sound and good. There is one location where there is excessive wear of the surfacing material (Wroot Road crossroads), and a length where the embankment is slipping and kerbs are out of place (near the fishery and quarry). This has resulted in one very minor depression in the road.

No concerns are raised with the skidding resistance of the road surface. There are no skid marks present, and no evidence of vehicles having left the carriageway.

Sediment build up in the road channel is a concern as this affects the ability of drainage to work correctly, and allows weed growth to occur. The quarry needs to control this better than it does at present.

Drainage is a concern along the Bank End Road with significant lengths of the kerb drain system being out of line, allowing water to escape into the structure of the road pavement, where it could cause unseen damage. Where the road gullies are clear of weed growth they were working, and are clean, but a number of road gullies and drainage grips were inundated with weed growth, which could allow water to bypass them and remain on the road surface, being a hazard to road users.

APPENDIX 01

Photographs

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