

APPENDIX F: ENVIRONMENTAL CONSTRAINTS REPORT



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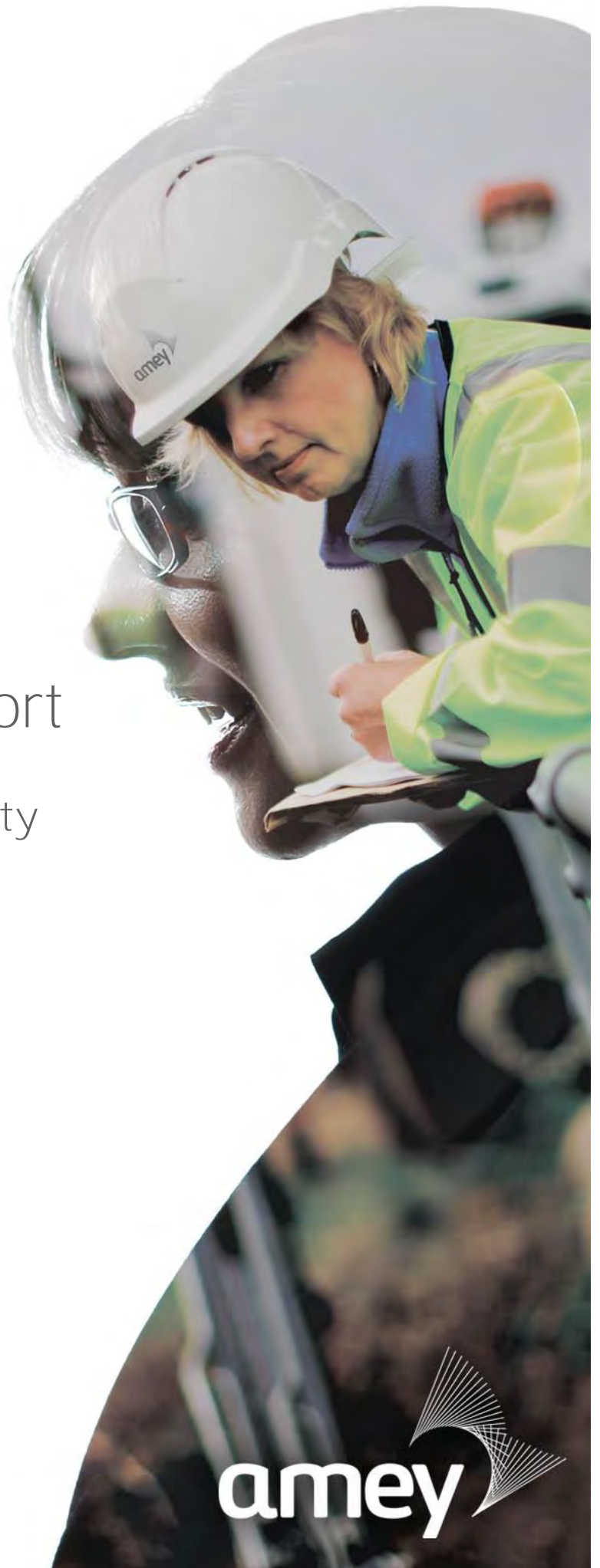
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Environmental Report

Downpatrick Eastern Distributor Road Feasibility Study

CO401425-Rep-01 Revision 0

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1 Introduction

1.1 Background

1.1.1 In November 2016, TransportNI (now Department for Infrastructure-Roads (DfI-Roads)) appointed Amey to undertake a high-level feasibility study of an Eastern Distributor Road in Downpatrick. The key objective of this study is to provide information to assist DfI-Roads in discussions with key stakeholders on the possibility of providing this road in the future.

1.2 Project Brief

1.2.1 The project brief from DfI-Roads requested the completion of a high-level examination into the feasibility of an Eastern Distributor Road in Downpatrick. The aims of this study are to gather existing traffic conditions, establish who would use the proposed distributor road if constructed, and determine what relief it would provide to the town centre. It was also requested that the assessment should provide a high-level engineering constraints review of a preliminary route with the aim to provide a cost estimate that would assist DfI-Roads in future discussions with key stakeholders.

1.3 Methodology

1.3.1 This report will identify environmental constraints within 50m of the proposed route. This study area was chosen as representative of the proposed route and any minor alignment changes that may result during the design process. Environmental constraints were identified through a desk top review of following sources:

- Department of Agriculture, Environment and Rural Affairs Air Quality Management Areas (AQMAS) (Ref. 1.1)
- Google Interactive Map Viewer (Ref. 1.2)
- Department for Communities Historic Environment Map Viewer (Ref. 1.3)
- Department of Agriculture, Environment and Rural Affairs Regional Landscape Character Areas Map Viewer (Ref. 1.4)
- Department of Agriculture, Environment and Rural Affairs Protected Areas Web Viewer (Ref. 1.5)
- Department of Agriculture, Environment and Rural Affairs Noise Map (Ref. 1.6)

- Geological Survey Northern Ireland Map Viewer (Ref. 1.7)
- Walk NI Website (Ref. 1.8)
- Sustrans Website (Ref. 1.9)
- Ards and Down Area Plan (ADAP) 2009 (Ref. 1.10)
- Department of Agriculture, Environment and Rural Affairs River Basin Viewer (Ref. 1.11)
- Department of Infrastructure Flood Maps (Ref. 1.12)

1.3.2 Figure 1.1 illustrates the key environmental constraints located within close proximity to the proposed route.

2 Environmental Assessment

2.1 Air Quality

2.1.1 The scheme does not lie within or close to an Air Quality Management Area.

2.1.2 The scheme is situated in a rural area dominated by agricultural fields and small wooded areas beyond the suburbs of Downpatrick. Sensitive receptors include 24 residential receptors along Rathkeltair Road, Saul Road and Ballyhornan Road. Downe Hospital is located approximately 20m west of the scheme, at Struell Wells Road.

The main source of air pollution is from traffic on neighbouring roads and junctions, particularly the B1 Ardglass Road, Ballyhornan Road, Saul Road and A25 Strangford Road. Table 2.1 outlines traffic flow data collected by Amey between 6-19th March 2017, including the Annual Average Weekday Traffic (AAWT), along nearby link roads.

Table 2.1: Traffic Data for proximate link roads

Link Name	Direction	18 Hr AAWT	% HGV	24 Hr Average Speed (kmph)
Ardglass Road (B1)	Northbound	1913	0.86	41.0
	Southbound	1882	0.96	41.0
Ballyhornan Road	Eastbound	1475	0.68	44.8
	Westbound	1572	0.73	46.4
Saul Road	Northbound	1026	0.29	31.4
	Southbound	1054	0.24	32.7
Strangford Road (A25)	Northbound	1485	0.64	36.0
	Southbound	1423	0.84	38.4

2.2 Cultural Heritage

2.2.1 There are no scheduled monuments or listed buildings located within 50m of the proposed alignment.

2.2.2 The closest site and monument record to the scheme is located approximately 10m north **of the scheme and is described as 'Two Mounds' (SMR DOW038:055). There is another 'Mound' site located 50m east of the scheme (SMR DOW038:001).** These are shown on Figure 1.1.

2.2.3 There are no Industrial Heritage Records within 50m of the scheme. The closest Industrial Heritage Record to the scheme is the remnants of a gasworks building which is located 100m west of the scheme.

2.2.4 There are no registered battlefields or parks within a 50m radius of the scheme.

2.3 Landscape and Visual

2.3.1 The scheme is located within Strangford and Lecale Area of Outstanding Natural Beauty (AONB). This coastal area follows the shores of a nearly landlocked inland sea and extends inland up the Quoile River, dominated by the historic town of Downpatrick, and south along the outward-facing shore of the Irish Sea. The lowland landforms consist of drumlin hilltops poking out from the sea to form hundreds of islets within the Strangford Lough. The landscape comprises a strong contrast between the expansive open lough and sea and the surrounding hill slopes, and at a smaller scale between the marshy hollows and river valleys and the 'basket of eggs' hills that contain them. The character of the shores **varies too, from the Lough's extensive mudflats to rocky bays, sweeping sandy strands and soft low cliffs on coast fringing the Irish Sea.**

2.3.2 The scheme is located within the Strangford, Ards and Lecale Landscape Character Area (LCA). The scheme is located in a rural area to the east of Downpatrick. The surrounding landscape consists of scattered houses of varying sizes and styles, with farms on drumlin tops. White finished buildings stand out in the landscape. Settlements are small scale and clustered, larger settlements are on lower ground at river crossing points or coastal bays. This area is rich in archaeology with a strong sense of history. Slieve Patrick forms a prominent historic landmark within the area.

2.3.3 The land between the Ballyhornan Road and the Ardglass Road is designated as a Local Landscape Policy Area (LLPA2) by the Ards and Down Area Plan 2015, as shown on Figure 2.2. This area contains the Downe Hospital and its attractive gardens and landscaped grounds which provide an attractive entrance to Downpatrick.

2.3.4 Elsewhere the local area is comprised of large agricultural fields which extend over the surrounding rolling hills. The field boundaries are formed by hedgerows and stone walls which in conjunction with the rolling hills, forms short horizons. The local roads are lined by hedgerows and occasional residential property accesses.

2.3.5 Visual receptors include local residents along the Strangford Road, Rathkeltair Road, Saul Road, Ballyhornan Road and Ballysallagh Road.

2.4 Nature Conservation

2.4.1 The study area for nature conservation was extended to identify any Natura 2000 or other designated sites where there may be a potential effect pathway with the scheme. Such effect pathways (source-receptor link) include a watercourse crossing, flight path between bird populations roosting and foraging habitat or offshore foraging habitat for marine mammals.

2.4.2 Following a review of the DAERA Protected Areas Map Viewer, the following Natura 2000 and other designated sites were identified. These are shown on Figure 2.1:

- Strangford Lough Special Area of Conservation (SAC) – is located approximately 3km north of the scheme. It contains a number of species of interest and a diverse range of marine flora and fauna which can be attributed to the immense tidal flow through the Narrows and the resulting physiographical features. The shoreline habitat incorporates large areas of mudflats that are used by internationally important numbers of waders and wintering waterfowl. The site was designated as a SAC due to the presence of the following habitats: mudflats and sandflats not covered by seawater at low tide; coastal lagoons; large shallow inlets and bays; reefs; annual vegetation of drift lines; perennial vegetation of stony banks and saltmarsh. The lough is also important for harbour seal.
- Strangford Lough Special Protection Area (SPA) - is located approximately 0.2km north of the scheme. The SPA is designated for its populations of European important breeding bird species (sandwich tern, common tern and Arctic tern) and wintering bird species (knot, light bellied brent goose and redshank) and its internationally important assemblage of waterfowl.
- Strangford Lough Ramsar – is located approximately 0.2km north of the scheme. Strangford Lough has been designated due to the presence of important wetland features (freshwater habitats and extensive saltmarshes), assemblage of vulnerable

and endangered wetland plants and animal species (including marine sponges, marine hydroids, marine mollusc and sea urchins) and assemblages of international importance and its populations of European important bird species (sandwich tern, common tern, red knot, light bellied brent goose, common redshank and common shelduck).

- Quoile Area of Special Scientific Interest (ASSI) – is located approximately 0.2km north of the scheme. It is designated for the quality and diversity of the vegetation and its associated wildlife within the area.

2.4.3 The Ards and Down Area Plan 2015 has identified two Sites of Local Nature Conservation Importance near Downpatrick, including Downpatrick Marshes (approximately 1.5km from the scheme) and Portulla Wood (0.87km from the scheme). However, given their distance from the scheme, it is considered unlikely that the scheme would result in any significant impacts on them.

2.4.4 The River Quoile is a designated salmonid river and known for being a migratory route for salmon, trout and eel.

2.4.5 The agricultural fields, hedgerows and wooded areas in the study area provide habitat for a variety of terrestrial species.

2.5 Noise and Vibration

2.5.1 The scheme is located to the east of Downpatrick. The main source of noise is from traffic, particularly on the Ballyhornan Road, B1 Ardglass Road and A25 Strangford Road.

2.5.2 A review of the NI Noise Mapping showed that the daytime noise levels along the existing routes adjoining the proposed scheme are less than 50dB.

2.5.3 Sensitive receptors include 24 residential receptors along Rathkeltair Road, Saul Road and Ballyhornan Road and community receptors at the Downe Hospital located approximately 20m west of the scheme.

2.5.4 The main source of noise pollution is from traffic on neighbouring roads and junctions, particularly the B1 Ardglass Road, Ballyhornan Road, Saul Road and A25 Strangford Road. Table x.1 outlines the traffic flows along the proximate link roads.

2.6 Geology, Soils and Contaminated Land

2.6.1 There are no designated geological sites within 50m of the proposed scheme.

- 2.6.2 The bedrock geology underlying the study area is a combination of Hawick Group Sandstone and Gala Group Sandstone, while superficial geology is composed of till (diamicton).
- 2.6.3 The UKSO soils map viewer indicates the presence of cambisol soils in the study area. Cambisol soils are considered relatively fertile and are generally used for arable farming and as grazing land.
- 2.6.4 There are no active quarries in close proximity to the scheme.
- 2.6.5 Aerial imagery and street maps do not indicate any potentially contaminative land uses. Historic OS maps indicate that the only potentially contaminative land use within 50m of the proposed scheme includes agricultural farming practices. However, there are remnants of a gas works located 100m west of the scheme along the Struell Wells Road.

2.7 Materials

- 2.7.1 Existing material resources within the study area include railings, kerbs, signs and street lights along the existing road infrastructure (Rathkeltair Road, Saul Road, Ballyhornan Road, Struell Wells Road and Ardglass Road).
- 2.7.2 The scheme may result in the loss of virgin soil materials and the utilisation of finite materials such as aggregates, bitmac and new kerbs.
- 2.7.3 Waste generated by the scheme is likely to include organic matter, road planings, kerbs and excavated spoil.

2.8 People and Communities

- 2.8.1 There are public walkways located in close proximity to the scheme (including the Lecale Way and a pathway at the Downshire Hospital). The scheme has the potential to sever these pedestrian routes.
- 2.8.2 There are pedestrian pathways along the Ardglass Road, the Struell Wells Road and along parts of the Saul Road. The pathways along the Ardglass Road and the Struell Wells Road connect to the wider footpath network into Downpatrick town centre. Pedestrian facilities include numerous crossing points on main roads.
- 2.8.3 Although there are no national cycle routes within the study area, it is possible that the scheme could affect local cycle ways along the Ballyhornan Road / Struell Wells Road.

- 2.8.4 There are residential properties located adjacent to the proposed scheme along Rathkeltair Road, Ardfern Road, Saul Road and Ballyhornan Road.
- 2.8.5 The extant development plan for the area is the Ards and Down Area Plan (ADAP) 2015. According to the area plan, two areas of land have been zoned for phase 1 housing (DK 07 - 51.63 Hectares between Saul Road and Ballyhornan Road (1290 houses) and DK08 – 10.66 north off Ardenlee Gardens and Saul Road (266 houses)) and two areas of land have been zoned for phase 2 housing (DK12 - 13.03 Hectares between Ballyhornan Road and Struell Wells Road (325 houses) and DK13 – 6.21 hectares south east of Struell Wells Road (124 houses)). These development areas are shown on Figure 1.1.
- 2.8.6 Community receptors in the vicinity include the Downe Hospital located 20m west of the scheme, at the Struell Wells Road.
- 2.9 Road Drainage and the Water Environment
- 2.9.1 The Quoile River is located 220m north of the scheme and flows in a northerly direction into Strangford Lough. Under the Water Framework Directive, the Quoile River (Waterbody ID UKGBNI1NE050505115) has been classified as having a Poor overall WFD status.
- 2.9.2 The Quoile Pondage is located downstream of the Quoile River. The Quoile Pondage is a transitional waterbody and is designated as having Moderate Ecological Potential.
- 2.9.3 The groundwater underlying the scheme is the Downpatrick groundwater body and is classed as having poor water quality.
- 2.9.4 The bedrock geology underlying the scheme area is a combination of Hawick Group Sandstone and Gala Group Sandstone, while superficial geology is composed of till (diamicton). There are no superficial aquifers. The bedrock aquifer is classed as B1 (f) – an aquifer with limited productivity and fracture flow.
- 2.9.5 According to the Rivers Agency, the area is not affected by present day or future predicted (climate change) river or sea flooding. The area is affected by small areas of present day surface water flooding. Future climate change predictions reveal that surface water flood risks will not be exacerbated.
- 2.9.6 Existing road drainage is in the form of pipes and gullies. Land drainage within the greenfield areas is likely to comprise drainage channels along field boundaries. There are numerous ponds located within the study area.

3 Conclusions

3.1 Air Quality

3.1.1 Due to the close proximity of highly sensitive residential receptors, a dust risk assessment should be conducted for the construction phase and the appropriate level of mitigation adhered to.

3.1.2 Given that the proposed route has the potential to re-distribute traffic flows within Downpatrick; it is recommended that a simple assessment of air quality assessment is undertaken in accordance with DMRB HA207/07. This will require air quality modelling using predicted traffic flows.

3.2 Cultural Heritage

3.2.1 Given the close proximity of sites and monuments to the scheme, it is recommended that a site visit is undertaken and that a simple assessment is undertaken in accordance with DMRB HA208/07. As part of the assessment, it is recommended that consultation with the Department for Communities Historic Environment Division is undertaken.

3.3 Landscape and Visual Impacts

3.3.1 Given the scale of this scheme and the greenfield nature of the scheme location, it is recommended that a Landscape and Visual Impact Assessment is undertaken in accordance with DMRB Volume 11 Section 3 Part 5 to explore the impacts on the landscape and visual receptors.

3.4 Nature Conservation

3.4.1 There is a high potential for the study area to include protected habitats and species, thus further ecological assessment will be required. This will include a phase 1 habitat survey to identify habitats and also areas where there is potential for protected species. Targeted surveys will be undertaken for protected species following the results of the phase 1 habitat survey.

3.4.2 Under the Habitats Regulations, a screening assessment will need to be undertaken to assess the potential impacts on Strangford Lough SAC/SPA/Ramsar.

3.5 Noise and Vibration

- 3.5.1 During construction of the scheme, there is potential for noise disturbance to residents. Consultation with the Newry, Mourne and Down District Council Environmental Health Department is recommended to agree working times and noise limits.
- 3.5.2 Given that the proposed route has the potential to re-distribute traffic flows within Downpatrick it is recommended that a simple noise assessment is undertaken in accordance with DMRB 213/11 to determine short term and long term impacts. This will involve making comparisons between **'Do-Minimum'** and **'Do-Something'** scenarios in the baseline year and the future assessment year.

3.6 Geology and Soils

- 3.6.1 In light of the potential contaminated land risks and the potential loss of high fertility soils within the study area, it is recommended that a simple assessment is undertaken in accordance with DMRB Volume 11 Section 3 Part 11.

3.7 Materials

- 3.7.1 Given the potential volume of materials to be imported and the amount of waste materials to be created by the scheme, it is recommended that simple assessment of material resources is undertaken in accordance with DMRB Interim Advice Note (IAN) 153/11.

3.8 People and Communities

- 3.8.1 Given the possibility of community severance and the loss of development / agricultural land within the community, it is recommended that a simple assessment is undertaken in accordance with DMRB IAN 125/15.

3.9 Road Drainage and Water Environment

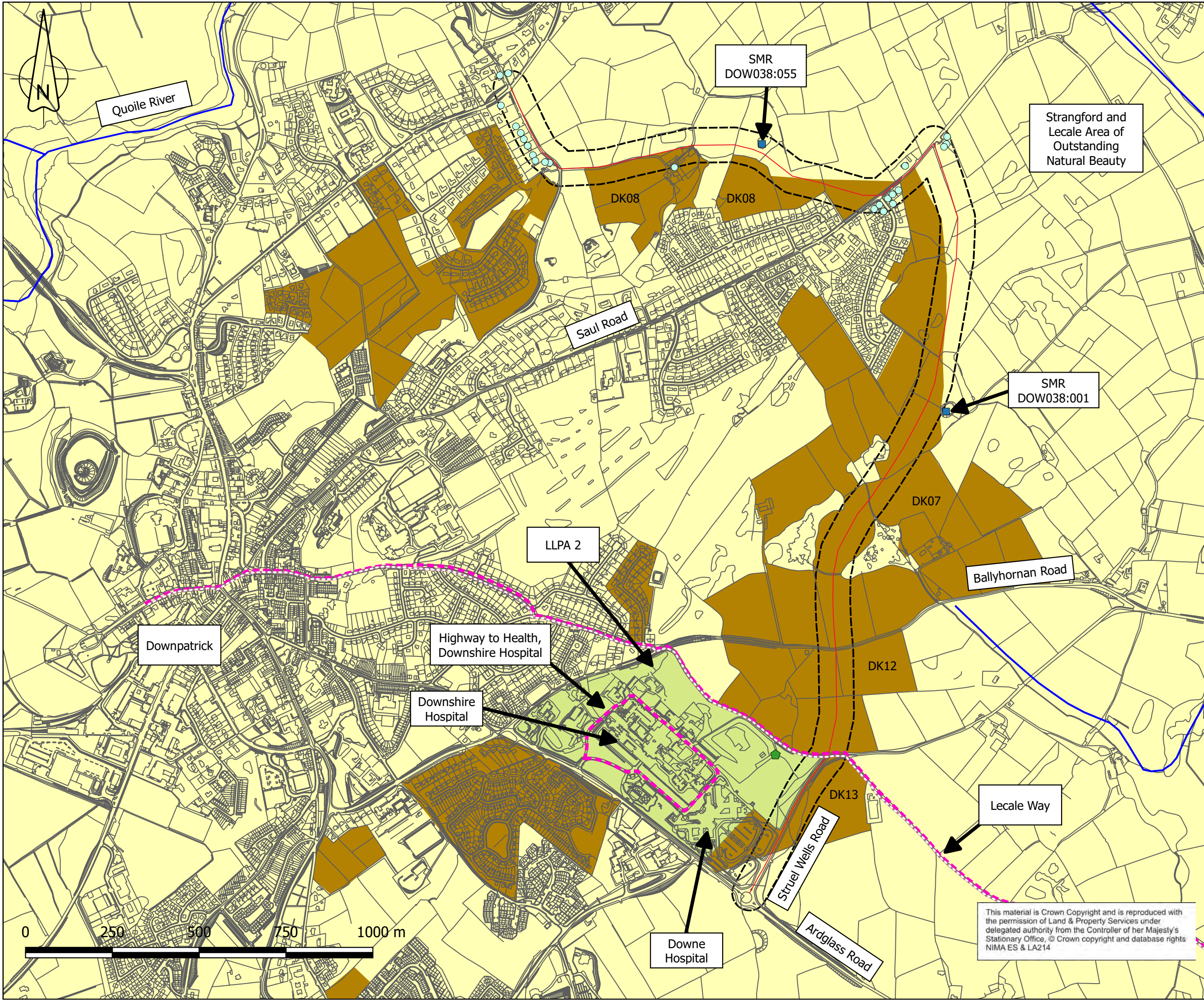
- 3.9.1 Given potential impacts on surface water and groundwater features within the study area, it is recommended that a simple assessment is undertaken in accordance with DMRB HD45/09.

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- 1.12 Department of Infrastructure (2017) *Flood Maps*. Available at: <http://riversagency.maps.arcgis.com/apps/webappviewer/index.html?id=fd6c0a01b07840269a50a2f596b3daf6> [Last accessed 23/05/2017]

Figure 1.1



Legend

- Scheme Extents
- Buffer 50m
- Residential Receptor
- Sites and Monuments
- ◆ Industrial Heritage Record (IHR)
- River Quiole
- - - Local Walking Route
- · - · - Local Cycle Route
- Local Landscape Policy Area (LLPA)
- Land zoned for Housing in Local Area Plan
- Area of Outstanding Natural Beauty (AONB)

Rev	Revision Details	Chkd/Appd	Date
Drawn:	KMC		Preliminary
Design:	RMK		For Comment
Chkd:	RMK		For tender
Appd:	HC		For construction
Date:	May 2017		As constructed
			Other



Client

Infrastructure
Bonnegair

Project Name
Downpatrick Eastern Distributor

Drawing Title
General Constraints

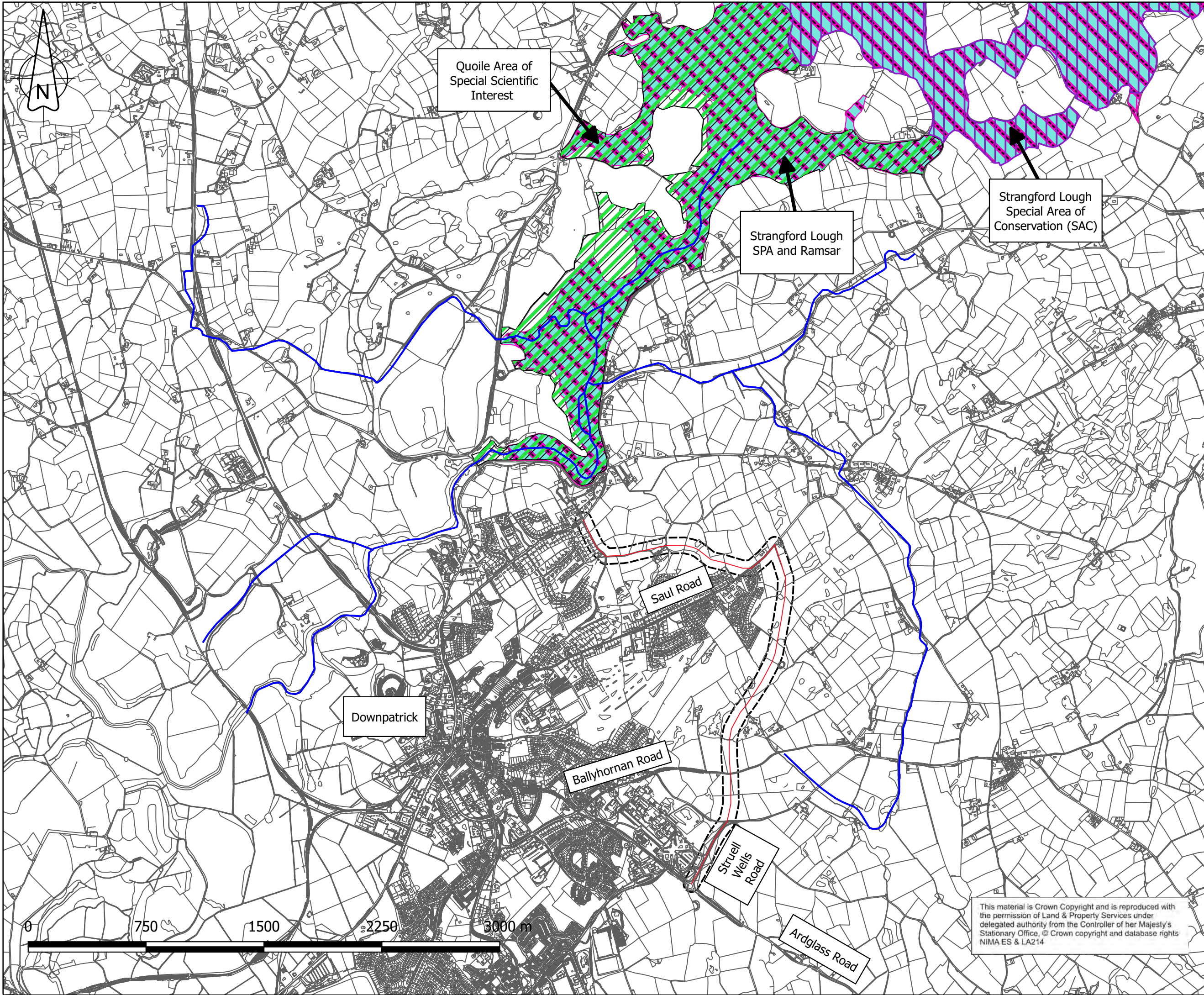
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Figure 1.2



Legend

- Scheme Extents
- Buffer 50m
- River Quoile
- Area of Special Scientific Interest (ASSI)
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar

Rev	Revision Details	Chkd	Appd	Date
Drawn:	KMC			Preliminary
Design:	RMK			For Comment
Chkd:	RMK			For tender
Appd:	HC			For construction
Date:				As constructed
				Other



Client **transportni**
 Infrastructure
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Project Name
 Downpatrick Eastern Distributor

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