MINISTRY OF TRANSPORT AND CIVIL AVIATION
AGENT AUTHORITY—LANCASHIRE COUNTY COUNCIL

THE BAMBER BRIDGE—BROUGHTON SPECIAL ROAD
PRESTON BY-PASS

INAUGURATION CEREMONY

TO BE PERFORMED BY

THE RIGHT HON. HAROLD A. WATKINSON, M.P.,
MINISTER OF TRANSPORT AND CIVIL AVIATION

ON

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THE NEW ROAD

HISTORY.

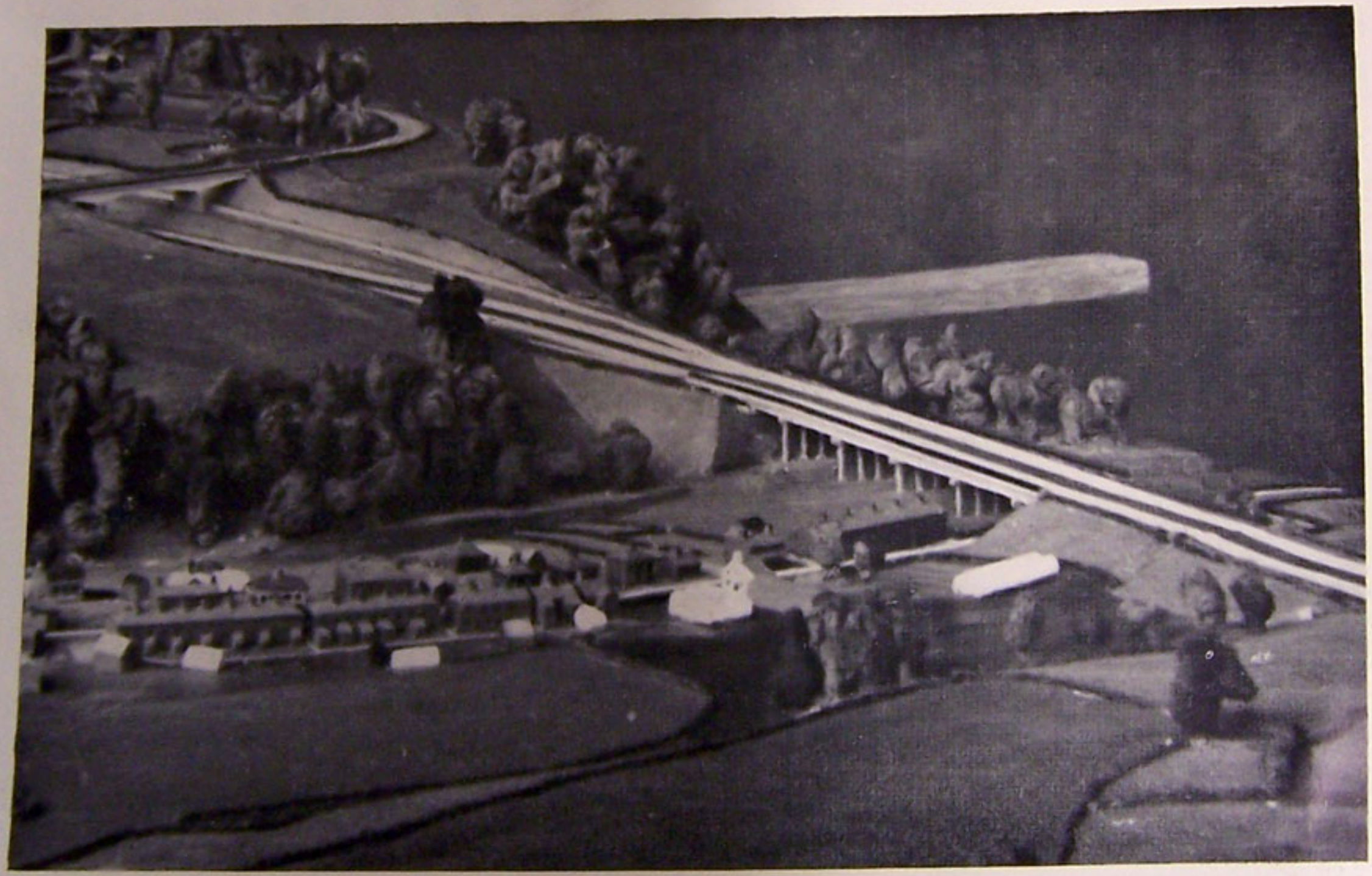
In 1936 the County Council considered proposals for widening the existing North–South road through Lancashire to 120 feet to provide an all-purpose road adequate to meet the needs of the increasing volume of traffic. In 1937, after taking into account the extensive demolition of property involved in widening the existing route, the County Council approved the principle that the North–South Route should be an entirely new road restricted to the use of motor traffic only. The proposal was then submitted to the Minister of Transport for his approval.

Preliminary investigations to determine the exact location of the route were commenced but were interrupted by the outbreak of war. In 1944 the Ministry of War Transport considered there was justification for the examination of the proposed North–South route through Lancashire as a motorway, and in the "Road Plan for Lancashire," published in 1949, the North–South Motorway was featured as the backbone of the future road pattern of the County and its construction was considered to be of the highest priority.

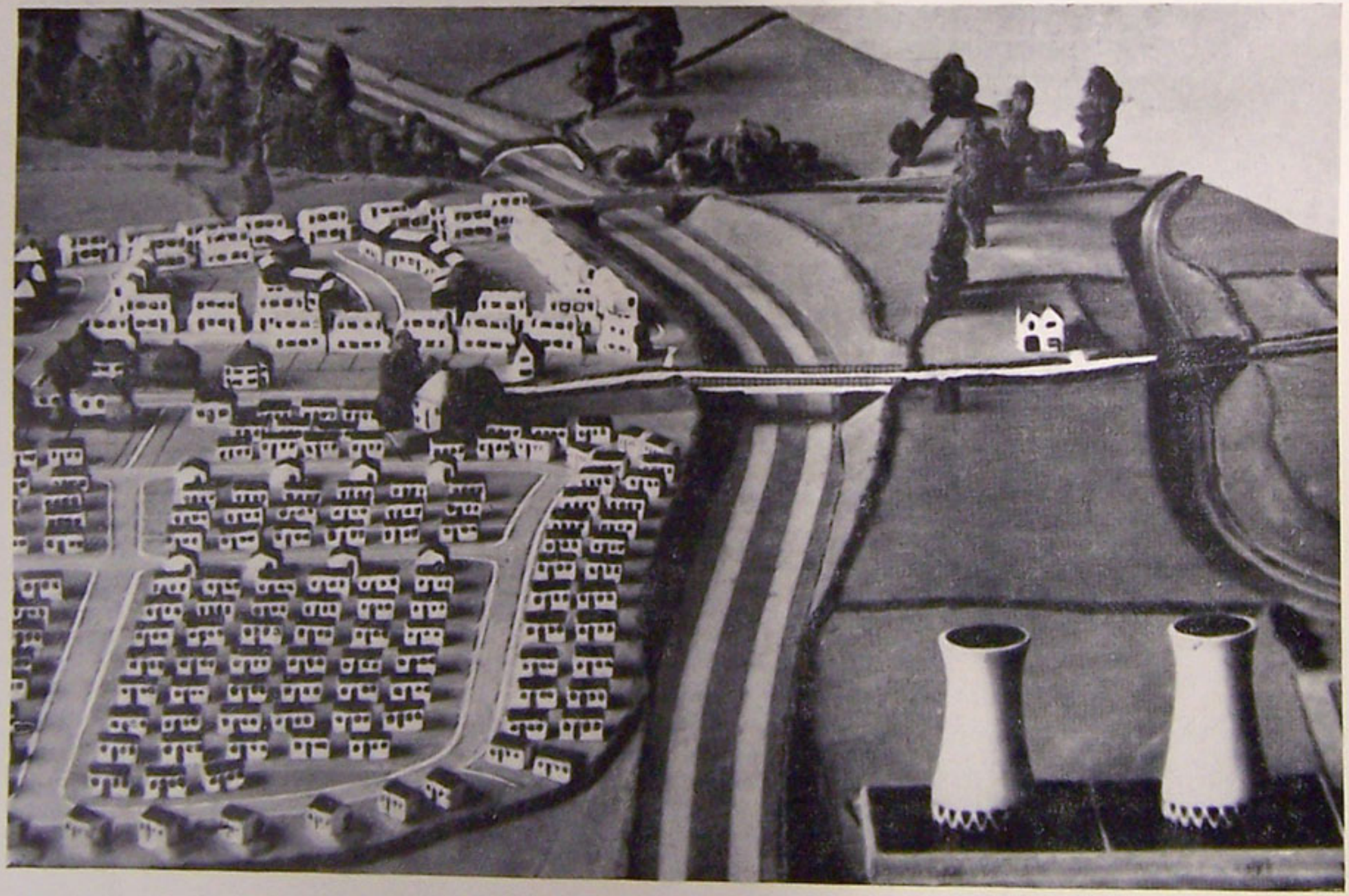
The Special Roads Act, 1949, made available legal powers for the construction of new roads reserved for special classes of traffic, and in May, 1953, the Minister of Transport intimated his intention to make a Scheme under the Act for the Preston By-Pass, *i.e.* the part of the North–South Motorway from Bamber Bridge to Broughton. Plans and documents prepared by the County Surveyor and Bridgemaster were submitted to the Ministry in the following September.

On the 8th December, 1953, the Minister of Transport and Civil Aviation stated in the House of Commons that his expanded road programme provided for the Preston By-Pass to be commenced in 1956–57.

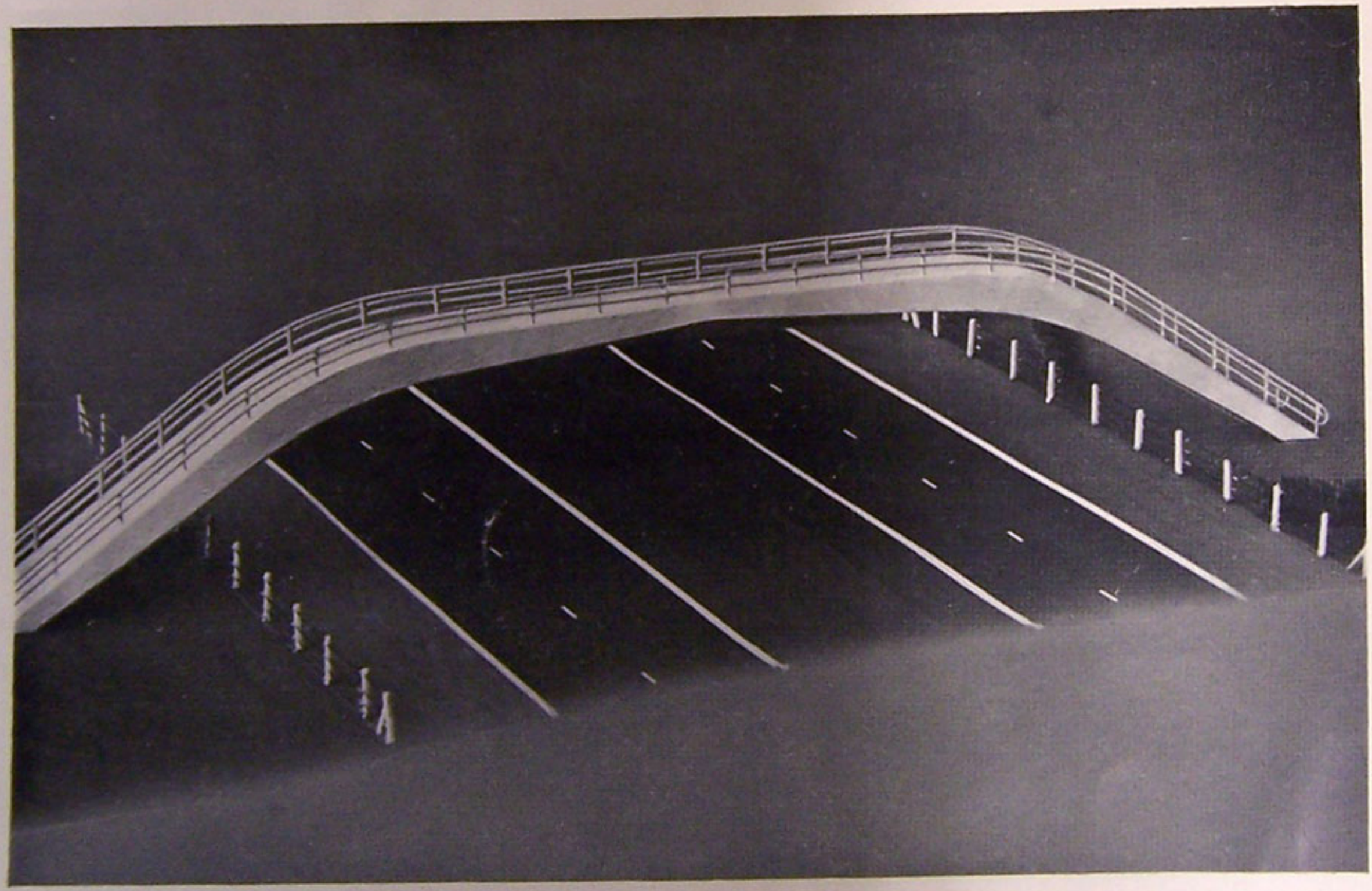
The proposed Scheme was advertised by the Minister in January, 1954, allowing a period of three months for objections. The small number of objectors were interviewed by officials of the Ministry and County Council and the majority of the objections were ultimately withdrawn. The Minister then made the Bamber Bridge–Broughton Special Road Scheme on the 29th April, 1955.



THE MOTORWAY CROSSING OF THE RIVER DARWEN AND THE PRESTON BELMONT ROAD A675.



THE MOTORWAY PASSING UNDER LONGRIDGE ROAD B6243.



TYPICAL FOOTBRIDGE OVER THE MOTORWAY.

GENERAL DESCRIPTION OF THE BY-PASS.

The By-Pass will be a dual carriageway Motorway 8·26 miles long, of which 1·65 miles lie within the County Borough of Preston ; 2·54 miles within the Urban District of Walton-le-Dale ; 1·77 miles within the Urban District of Fulwood ; and 2·30 miles within the Rural District of Preston.

The road will commence at a point on the Manchester–Chorley–Preston Trunk Road A6 approximately 550 yards south-east of its junction with the Warrington–Wigan–Preston Trunk Road A49, passing east of Bamber Bridge to cross the River Ribble at Samlesbury about 600 yards east of Brockholes Bridge, thence by-passing Preston on the north-easterly side and terminating at the Preston–Lancaster–Carlisle Trunk Road A6, 190 yards south of D'Urton Lane at Broughton. The last mile will deviate from the line of the North–South Motorway. This length is the future north link to Preston as well as forming part of the future Blackpool Motorway and is necessary at this stage to complete the by-passing of Preston.

In the interests of safety the Motorway has been so designed that there will be no cross traffic, no right-hand turns, no steep gradients and no sharp curves. The northbound carriageway will be separated from the southbound carriageway by a wide centre island and specially hardened shoulders will be provided along the near edge of each carriageway for emergency use. There will also be frequent lay-bys for parking purposes.

In addition to the two terminal junctions, access will be provided at Samlesbury on the Preston–Whalley Road, A59, and ultimately there will be an additional access point near Higher Walton for the future Preston Southern By-Pass and the link to the Preston–Belmont Road, A675. Accesses from land or property adjoining the road will not be permitted.

To avoid long lengths of straight road which are apt to give drivers a feeling of drowsiness, the horizontal and vertical alignments have been co-ordinated to give a smooth curving ribbon effect with ever-changing panoramas.

The line of the road has been so chosen as to keep property demolition to the minimum and over the length of the By-Pass only one farmhouse and three dwellinghouses will require demolition. The corresponding figure for the whole of the North–South Motorway through Lancashire is sixty-eight.

The topography of the area through which the road passes is generally level, but at the Rivers Ribble and Darwen deep valleys are crossed, and in order to avoid steep gradients deep cuttings and high embankments will be required at these points.

In all twenty-four bridges will be built over or under the Motorway, of which :—

Two will carry the Motorway over both a river and a road.
Six will carry the Motorway over roads or streams.
Six will carry roads over the Motorway.
One will carry the Motorway over a railway.
One will carry a railway over the Motorway.
Eight will carry occupation roads and footpaths over the Motorway.

The designs for the main bridges have received the approval of the Fine Arts Commission.

Special provision will be made for the landscaping of slopes where deep cuttings occur and the new road will be merged into its surroundings by the planting of suitable trees and shrubs. The fencing of the By-Pass will generally be by means of a quick thorn hedge and the central reserve will be planted to eliminate dazzle from headlights.

ENGINEERING FEATURES.

As the By-Pass is the first length of the National Motorway System many new problems of road and bridge design have been encountered. The organisation of the County Surveyor and Bridgemaster's Department both in personnel and equipment, in close conjunction with the staff of the Chief Engineer, Roads Section, of the Ministry of Transport and Civil Aviation, has been able to solve these problems without recourse to outside technical assistance.

Roadworks.—In general the overall width of the By-Pass is 112 feet with dual carriageways 24 feet wide. A contrasting marginal strip 1 foot wide flanks each carriageway providing an effective width of 26 feet.

The outer verges are 14 feet wide including an 8 foot width constructed to form a hard shoulder abutting on to the carriageway. A central reserve, 32 feet wide, is provided to allow for an ultimate widening of carriageways from two-lane to three-lane and still leave a central reserve 12 feet wide.

Earthworks amounting to two and a quarter million cubic yards of excavation are necessary to form the cuttings and embankments. The maximum depth of cutting encountered is 62 feet and the maximum height of embankment is 56 feet.

The preliminary soil survey carried out by the Committee's Soils Testing Laboratory gave the soil types encountered as predominantly clays, with wet sand and silt veins occurring at the deep cuttings and a more detailed soils investigation was made at the sites of these cuttings and also at the sites of high embankments. This work involved the sinking of boreholes up to a maximum depth of 80 feet whilst the whole soil survey involved a total length of over 5,000 feet of boreholes.

The design of the slopes of cuttings and embankments together with special provisions for face drainage and stabilisation is based on the findings of the soil survey.

The weak clay sub-soils and the exceptionally heavy loads for which this road is designed necessitates in places a deeper form of construction than normal. The greater part of this consists of a local waste product, burnt colliery shale, which will vary in depth from 4 inches to 19 inches. The shale sub-base is covered with a 9 inch thickness of premixed waterbound macadam and the road initially surfaced with ¾ inch asphalt on a 2½ inch tarmacadam base course. Later, after settlement has taken place, a rolled asphalt wearing coat will be laid. Kerbs will not be provided except at bridges and rain water will run off on to the side verges and central reserve where it will be collected into precast concrete channels or french drains. This form of surface water drainage enables the road to be constructed to flatter gradients.

Bridgeworks.—The two most important bridges are at Samlesbury and Higher Walton.

Samlesbury Bridge carries the Motorway over the River Ribble and Trunk Road A59 at a point east of Preston. The bridge is designed as a three span, curved soffit, continuous steel girder of spans 120 feet, 180 feet, and 120 feet, giving a total overall length of 420 feet between abutments and a width of 94 feet between parapets. The steel girders will be supported on masonry faced piers and abutments.

Higher Walton Bridge carries the Motorway over the River Darwen and the Class I Road A675 in Walton-le-Dale and is a multi-span continuous steel girder bridge with four main spans of 97 feet 6 inches each and two end spans of 42 feet, giving an overall length of 474 feet. The width of the bridge is 94 feet between parapets.

The bridge carrying the railway over the Motorway at Ribbleton is being designed by the British Transport Commission, the deck being of steel girder construction with a square span of 99 feet.

The above three bridges are being constructed under separate contracts whilst the remaining bridges form part of the main contract for the By-Pass.

For the bridges in the main contract it is worthy of note that more than half, in fact twelve, will have prestressed concrete decks, this being the first time that prestressed concrete has been used to this extent in any major road scheme in this Country. Two other bridges will be constructed in steelwork and the four footbridges and three culverts in reinforced concrete. Various types of design have been adopted including bridges of single, three and four spans.

In general the parapets are of the open railing type except in the case of the bridge over the railway at Bamber Bridge.

The facework to the piers, abutments and wing walls varies and includes facings in brickwork, plain and treated concrete surfaces, reconstructed stone and precast blockwork.

COMPARISON BETWEEN THE NEW BY-PASS AND THE EXISTING ROUTE.

	North–South Motorway. (Preston By-Pass.)	Existing Route.
Minimum width	112 feet	31 feet.
Minimum radius	3,015 feet	50 feet.
Maximum gradient	1 : 25	1 : 14.
30 m.p.h. Speed limit	Nil	97 per cent.
Length (i.)	Excluding north link to A6.—7·26 miles	6·76 miles.
(ii.)	Including north link to A6.—8·26 miles	—
Access points	2	1,898.
Estimated car travelling time	8 to 12 minutes	17 to 90 minutes.
Accident rate per million vehicle miles	0·40 (estimated)	5·80 (actual).

Casualties between April, 1946, and April, 1956, on the existing route proposed to be by-passed total 1,170.

NEW FEATURES.

The design of the Preston By-Pass has involved, and its construction will include, a number of features which are an entirely new departure from normal highway practice in Great Britain or in Lancashire.

(*a*) NEW TO GREAT BRITAIN.—The construction of a motorway with fly-over crossings and two level junctions. (It is the first link in the network of national motorways in Great Britain.)

The use on a major road project of scientifically graded, premixed and mechanically laid waterbound macadam which has been developed for road construction by the County Council.

The provision on the entire length of a major road of a specially hardened verge designed to Ministry of Transport specification, flush with the carriageway and of sufficient width to enable vehicles to draw off the carriageway in case of breakdown or to enable a driver in an emergency to travel on the verge without loss of control.

(*b*) NEW TO LANCASHIRE.—The building (in their own time) by members of the County Surveyor and Bridgemaster's staff of a scale model of the full length of the By-Pass, which has been very useful in discussions with interested parties.

The extensive use of prestressed concrete in bridgeworks—in fact the number of prestressed concrete road bridges in the County will be more than trebled.

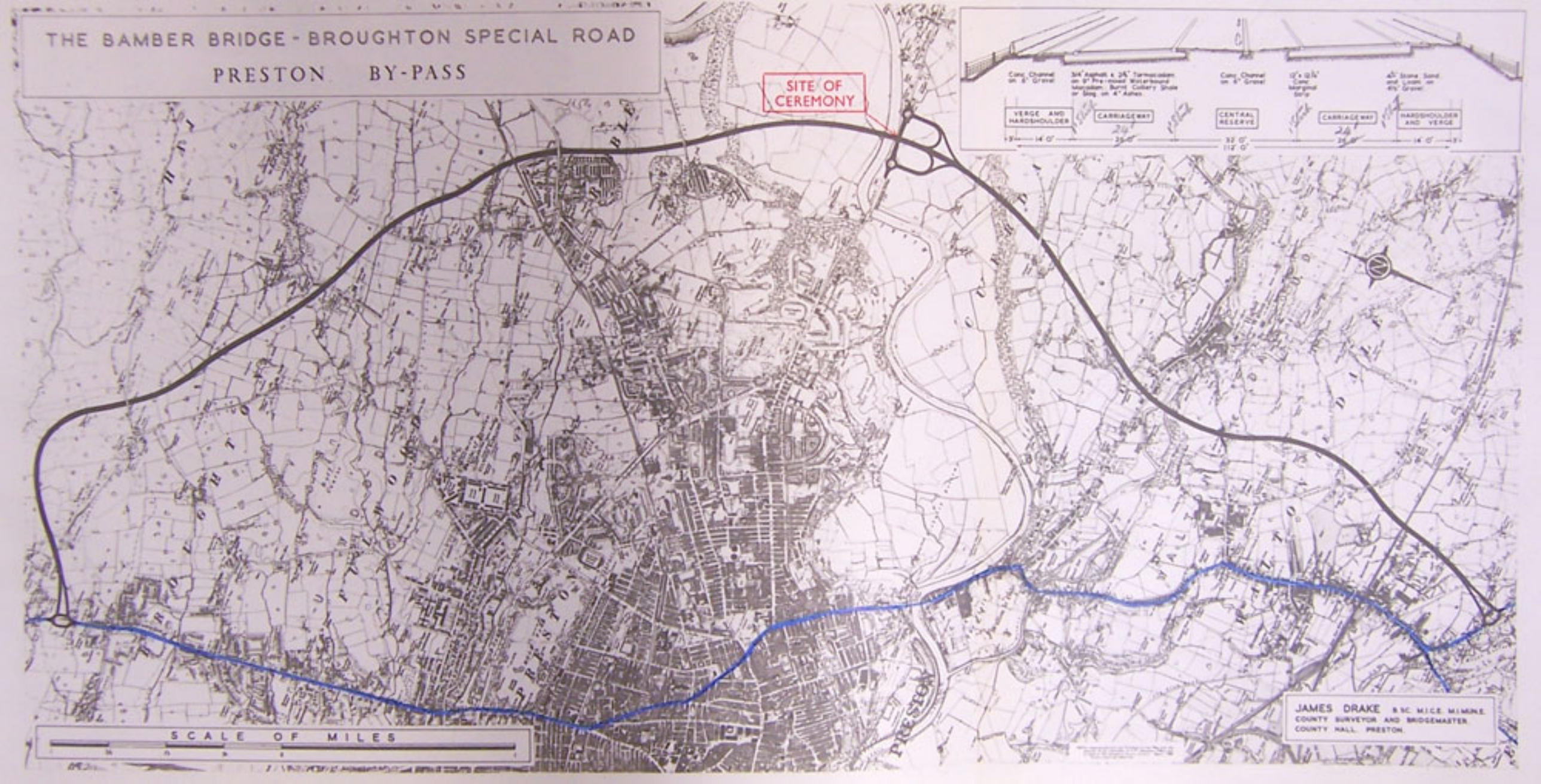
The preparation of a specification for the roadworks which will allow the utmost possible degree of mechanisation and will result in the scheme being completed in two years.

ACKNOWLEDGMENT.

From the inception of the scheme to the completion of its design, the greatest possible co-operation and assistance has been given to the County Surveyor and Bridgemaster by the Chief Engineer and the Divisional Road Engineer of the Ministry of Transport and Civil Aviation and their staffs. In addition, recognition should be afforded of the contribution made by officials of Preston County Borough, the Urban Districts of Walton-le-Dale and Fulwood, the Rural District of Preston, the Lancashire River Board, the Statutory Undertakers and a number of representative associations.

There should be special mention of the Lancashire County Branch of the National Farmers' Union and of the Lancashire Agricultural Executive Committee, a Sub-Committee of which, led by their Chairman, walked the whole length of the Motorway to help advise upon the necessary accommodation works. Finally, the work could not have been commenced so soon but for the expeditious manner in which the District Valuer and his staff have carried through the land negotiations.

16th May, 1956.


THE BAMBER BRIDGE - BROUGHTON SPECIAL ROAD
PRESTON BY-PASS
SITE OF CEREMONY
VERGE AND HARDSHOULDER
CARRIAGEWAY
CENTRAL RESERVE
CARRIAGEWAY
HARDSHOULDER AND VERGE
14' 0"
24'
32' 0"
112' 0"
SCALE OF MILES
JAMES DRAKE
COUNTY SURVEYOR AND BRIDGEMASTER
COUNTY HALL, PRESTON