

Sutherland Road, Dornoch

Name of Tenderer _____

HIGHLAND REGIONAL COUNCIL
DEPARTMENT OF ROADS AND TRANSPORT

SUTHERLAND ROAD IMPROVEMENT, DORNOCH

**FORMS OF TENDER
CONDITIONS OF CONTRACT
SPECIFICATION
BILL OF QUANTITIES**

Engineer for the Works

M.H. Taylor, C.Eng.
Divisional Engineer,
Sutherland Division,
Victoria Road,
Brora.
December 1988

G.K.M. MacFarlane, C.Eng.
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Highland Regional Council,
Regional Buildings,
Glenurquhart Road,
Inverness. IV3 5NX

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**FORM OF TENDER INCORPORATING
COLLUSIVE TENDERING CERTIFICATE**

(Note: The Appendix forms part of the Tender)

SHORT TITLE OF WORKS:

All Permanent and Temporary Works in connection with
SUTHERLAND ROAD IMPROVEMENT, DORNOCH

TO: THE HIGHLAND REGIONAL COUNCIL
REGIONAL BUILDINGS
GLENURQUHART ROAD
INVERNESS
IV3 5NX

Having examined the Drawings, Conditions of Contract, Specification and Bill of Quantities for the construction of the above mentioned Works (and the matters set out in the Appendix hereto), we offer to construct and complete the whole of the said Works and maintain the Permanent Works in conformity with the said Drawings, Conditions of Contract, Specification and Bill of Quantities for such sum as may be ascertained in accordance with the said Conditions of Contract.

We undertake to complete and deliver the whole of the Permanent Works comprised in the Contract within the time stated in the Appendix hereto.

This Tender, together with your written acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any Tender you may receive.

We certify that this is a bona fide tender, and that we have not fixed or adjusted the amount of the tender by or under or in accordance with any agreement or arrangement with any other person. We also certify that we have not done and we undertake that we will not do at any time before the hour and date specified for the return of this tender any of the following acts:

- (a) communicating to a person other than the person calling for those tenders the amount or approximate amount of the proposed tender, except where the disclosure, in confidence, of the approximate amount of the tender was necessary to obtain insurance premium quotations required for the preparation of the tender;
- (b) entering into any agreement or arrangement with any other person that he shall refrain from tendering or as

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to the amount of any tender to be submitted;

- (c) offering or paying or giving or agreeing to pay or give any sum of money or valuable consideration directly or indirectly to any person for doing or having done or causing or having caused to be done in relation to any other tender or proposed tender for the said work any act or thing of the sort described above.

In this certificate, the word "person" includes any persons and any body or association, corporate or unincorporate; and "any agreement or arrangement" includes any such transaction, formal or informal, and whether legally binding or not.

Signed

in the capacity of

duly authorised to sign tenders and give such certificate for and on behalf of (in BLOCK CAPITALS)

.....

Telex No. Postal Address

.....

.....

Tel. No. Date

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APPENDIX TO THE FORM OF TENDER

NOTE: Tenderer to complete Item 6

ITEM	DETAILS	Conditions of Contract Clause No(s).
1. Minimum Amount of Insurance	£250,000 on each of any number of occasions	23(2)
2. Time for Completion	12 weeks	43
3. Liquidated Damages for Delay	£30 per day	47(1)
4. Period of Maintenance	52 weeks	49(1)
5. Percentage of Value of Goods and Materials to be Included in Interim Certificates	97%	60(2)(b)
6. Percentage for Adjustment of Prime Cost Sums	_____ %	59A(2)(b) and 5(c)
7. Minimum Amount of Interim Certificates	£10000	60(2)
8. Method of Measurement adopted in preparation of the Bill of Quantities	The Method of Measurement for Road and Bridge Works published by H.M. Stationery Office 1977 and Supplement No.1 1978	57

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CONDITIONS OF CONTRACT

The Conditions of Contract referred to in the Tender shall be the Conditions of Contract (Fifth Edition) prepared by the Institution of Civil Engineers jointly with the Association of Consulting Engineers and the Federation of Civil Engineering Contractors and dated June 1973, (Revised January 1979) modified and added to below. Any amendments made to the I.C.E. Conditions of Contract (fifth edition) by the Institution of Civil Engineers after January 1979 should not be incorporated.

CLAUSE 1

Sub-clause (1)(a) is deleted and substituted by the following:-

- (a) "Employer" means THE HIGHLAND REGIONAL COUNCIL, of REGIONAL BUILDINGS, GLENURQUHART ROAD, INVERNESS, and includes the Employer's personal representative or successors;

Sub-clause (1)(c) is deleted and substituted by the following:-

- (c) "Engineer" means the DIRECTOR OF ROADS AND TRANSPORT, for the time being, of the HIGHLAND REGIONAL COUNCIL, REGIONAL BUILDINGS, GLENURQUHART ROAD, INVERNESS, or other Engineer appointed from time to time by the Employer and notified in writing to the Contractor to act as Engineer for the purposes of the Contract in place of the said DIRECTOR OF ROADS AND TRANSPORT.

CLAUSE 28

The existing Clause is deleted and substituted by the following:-

- (1) The Contractor shall save harmless and indemnify the Employer from and against all claims and proceedings for or on account of use of any patent rights design trademark or name or other protected rights in respect of any Constructional Plant machine work or material used for or in connection with the Works and from and against all claims demands proceedings damages costs charges and expenses whatsoever in respect thereof or in relation thereto.
- (2) Except where otherwise specified the Contractor shall pay all tonnage and other royalties rent and other payments or compensation (if any) for getting stone sand gravel clay or other material required for the Works.

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CLAUSE 29

The following sub-clause is added:-

POLLUTION

(3) Subject and without prejudice to any other provision of the Contract the Contractor shall take all reasonable precautions

(a) in connection with rivers, streams, waterways, drains, watercourses, lochs and the like to prevent

- (i) silting
- (ii) erosion of their beds or banks
- (iii) pollution of the water so as to affect adversely the quality of appearance thereof or cause injury or death to animal and plant life

(b) in connection with underground water resources (including percolating water) to prevent

- (i) any interference with supply to or abstraction from such sources
- (ii) pollution of the water so as to affect adversely the quality thereof.

CLAUSE 34

Sub-clause (1) and (2) should be deleted and replaced as follows:

(1) RACIAL DISCRIMINATION

(a) The Contractor shall not unlawfully discriminate within the meaning and scope of the provisions of the Race Relations Act 1976 or any statutory modification or re-enactment thereof relating to discrimination in employment.

(b) The Contractor shall take all reasonable steps to secure the observance of the provisions of sub-clause (1)(a) of this Clause by all servants, employees or agents of the Contractor and all sub-contractors employed in the execution of the Contract.

(2) RATES OF WAGES/HOURS AND CONDITIONS

The Contractor shall in the execution of the Contract where appropriate pay rates of wages and observe the hours and conditions for the employment of operatives not less favourable than those established for the time being in the Working Rule Agreement of the Civil Engineering Construction conciliation Board for Great Britain.

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CLAUSE 52

DAYWORKS

Sub-clause 3 line 7 after "Daywork" add

Provided that the sentence in the Labour Schedule Note 1 of the said Schedules beginning "All payments" shall be deleted and substituted by the following:-

"All payments shall be in accordance with the actual rates of payment made to the workmen concerned".

NOTICE OF CLAIMS

Sub-clause (4)(a) line 2 "Clause 56(2)" is amended to read "Clause 56(3)".

CLAUSE 57 METHOD OF MEASUREMENT

The existing Clause is deleted and substituted by the following:-

Except where any statement or general or detailed description of the work in the Bill of Quantities expressly shows to the contrary Bills of Quantities shall be deemed to have been prepared and measurements shall be made according to the procedure set forth in the Method of Measurement for Road and Bridge Works published by Her Majesty's Stationery Office in 1977 and Supplement Number 1 1978 or such later or amended edition thereof as may be stated in the Appendix to the Form of Tender to have been adopted in its preparation notwithstanding any general or local custom.

CLAUSE 60(6) INTEREST ON OVERDUE PAYMENTS

The existing Clause is deleted and substituted by the following:

- (6) In the event of a failure by the Engineer to certify or the Employer to make payment in accordance with sub-clauses (2), (3) and (5) of this Clause the Employer shall pay to the Contractor interest upon any payment overdue thereunder at a rate per annum equivalent to 1 per cent plus the average of the Base Lending Rates announced by Lloyds, Barclays, National Westminster and Midland Banks which are current on the date upon which such payment first becomes overdue. In the event of any variation in the Base Lending Rates being announced whilst such payment remains overdue the interest payable by the Contractor for the period that such payment remains overdue shall be correspondingly varied from the date of each such variation.

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CLAUSE 67 APPLICATION TO SCOTLAND

The existing Clause is deleted and substituted by the following:-

If the Works are situated in Scotland the Contract shall in all respects be construed and operate as a Scottish contract and shall be interpreted in accordance with Scots law and where any dispute in connection with the Contract is to be determined by a Court that Court shall be either the Court of Session, Edinburgh or a Sheriff Court in Scotland.

CLAUSE 72 SPECIAL CONDITIONS

The following special conditions form part of the Conditions of Contract.

CLAUSE 73 CORRUPT GIFTS AND PAYMENTS OF COMMISSION

- (1) The Contractor or anyone employed by him or acting on his behalf shall not:-
 - (a) offer to give or agree to the giving to any person in the service of the Employer any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract with the Employer or for showing or forbearing to show favour or disfavour of any person in relation to this or any other Contract with the Employer; or
 - (b) enter into this or any other Contract with the Employer in connection with which commission has been paid or agreed to be paid by him or on his behalf or to his knowledge, unless before the Contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment thereof have been disclosed in writing to the Employer.
- (2) Any breach of the above prohibitions or the commission of any offence under the Prevention of Corruption Acts 1889 to 1916 by the Contractor or anyone employed by him or acting on his behalf (whether such breach or offence is with or without the knowledge of the Contractor) in relation to this or any other Contract with the Employer shall entitle the Employer to enter upon the site under Clause 63 and expel the Contractor therefrom and thereupon the provisions of Clause 63 shall have effect as if such breach or offence as aforesaid were expressed in Clause 63(1) as a ground therefor. In that case the Contractor shall not be entitled to payments on the Contract or Contracts beyond those (if any) provided for

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by Clause 63. In addition to the costs and expenses recoverable by the Employer as provided for in Clause 63(4) the Employer shall also be entitled to recover from the Contractor any other costs or losses incurred by the Employer consequent upon such entry and expulsion under this Clause and to receive from the Contractor such sums which in the opinion of the Employer represents the amount or value of any gift consideration or commission paid or agreed to be paid in breach of this Clause.

- (3) In every sub-contract of any part of the Works the Contractor shall incorporate such provisions as will impose on the sub-contractor liabilities similar to those imposed on the Contractor by this Clause and such provisions as will entitle the Contractor to determine the sub-contract on terms equivalent to those contained in Clause 63. In the event of any breach by the sub-contractor of any such provision the Contractor shall without prejudice to any of his obligations under this Contract take action in accordance with the terms of the sub-contract to exercise his rights against the sub-contractor. Failure by the Contractor to take such action shall be grounds for the exercise by the Employer of his right under paragraph (2) of this Clause to enter the site and expel the Contractor. When the Contractor exercises his rights against a sub-contractor in accordance with the Clause he shall make no claim or agree to any claim being made on his behalf against the Employer in respect of any consequential delays and extra costs arising from the Contract.
- (4) Any dispute to the amount recoverable by the Employer from the Contractor under this Clause shall be settled in the manner provided by Clause 66.

CLAUSE 74 RECOVERY OF SUMS DUE FROM CONTRACTOR

Whenever under the Contract any sum of money shall be recoverable from or payable by the Contractor such sum may be deducted from or reduced by the amount of any sum or sums then due or which at any time thereafter may become due to the Contractor under the Contract or any other contract with the Employer.

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**CLAUSE 75 CONTRACTOR TO COMPLY WITH SPECIAL REQUIREMENTS
IN RELATION TO STATUTORY BODIES**

1. The Contractor shall comply with the Special Requirements in relation to

British Telecom Scotland
North of Scotland Hydro Electric Board
Highland Regional Council, Department of Water and Sewerage

as set out in the pages immediately following these Conditions of Contract. Compliance with such Special Requirements shall not relieve the Contractor of any of his other obligations and liabilities under the Contract and fulfilment of such other obligations and liabilities shall not relieve him of his responsibility to comply with the said Special Requirements.

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**SPECIAL REQUIREMENTS IN RELATION TO BRITISH TELECOM
SCOTLAND (B.T.S.)**

- (1) Before commencing any work or moving heavy plant or equipment over any portion of the Site the Contractor shall confirm details of the B.T.S. underground plant within the Site with the appropriate Telephone Manager.
- (2) Where such details show that the Contractor's works or the movement of plant or equipment may endanger the B.T.S. plant the Contractor must give the Telephone Manager at least one week's notice of the date on which it is intended to commence such work or movement of plant and equipment in order that the presence of buried plant can be indicated by markers to be supplied by the B.T.S. and placed by the Contractor under the supervision of a B.T.S. representative. The Contractor shall ensure that B.T.S. plant is protected from damage.
- (3) In the event of a B.T.S. marker being disturbed for any reason it shall not be replaced other than in the exact position and to its former depth unless the repositioning is carried out at the direction and under the supervision of a B.T.S. representative.
- (4) The above requirements do not relieve the Contractor of any of his obligations under the Contract.

**SPECIAL REQUIREMENTS IN RELATION TO THE NORTH OF
SCOTLAND HYDRO ELECTRIC BOARD**

- (1) In these Special Requirements the following expressions shall have the meanings assigned to them:
 - (a) "Board" means the North of Scotland Hydro Electric Board;
 - (b) "Board's Engineers" means the Area Engineer or the District Engineer or the Generation Engineer and/or his nominee of the North of Scotland Hydro Electric Board;
 - (c) "Plant or equipment" means any plant, equipment, gear, machinery, apparatus or appliance or any part thereof; as defined in the Construction (General Provisions) Regulations 1961 and the Construction (Lifting Operations) Regulations 1961.
- (2) (a) A distance of 12 metres (40 feet) shall be maintained at all times between any part of any plant or equipment or anything connected to such plant or equipment (e.g. the jib of a crane, hoist,

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rope, load etc.) and the Board's overhead electric lines, except under such restrictions as the Board's Engineers may impose for the safety of persons and the protection of property. The permission of the Board's Engineer must be obtained in writing before plant or equipment is operated or work of any kind is carried out within 12 metres (40 feet) of overhead lines.

- (b) The Contractor shall give at least one week's notice to the Board's Engineers of the dates upon which it is intended to operate plant or equipment or carry out any work for which permission has been given by the Board's Engineers under the preceding paragraph. Such operations or work shall only be carried out in the presence of the Board's Engineers unless notice shall have been obtained in writing from the Board's Engineers that they do not require to be present.
 - (c) In the event of the Board requiring work to be executed on the overhead electric lines or supporting pylons during the period of the Contract the Contractor shall afford all facilities to the Board's contractors or workmen and the Contractor shall amend his programme of working to suit any and all requirements of the Board during such period of working.
 - (d) The Contractor shall consult the Board's Engineers not less than twenty-eight days before it is proposed to commence work to ascertain whether any underground electricity cables or apparatus will be affected by the proposed work in which event the Contractor shall make all necessary arrangements with the Board to safeguard the cables or apparatus.
- (3) The above requirements will not relieve the Contractors of any responsibility for taking every precaution to avoid risk to persons or damage to property. Risk to persons can be avoided by compliance with the Construction (General Provisions) Regulations 1961 and in particular Regulation 44(2).

SPECIAL REQUIREMENTS IN RELATION TO THE HIGHLAND REGIONAL COUNCIL DEPARTMENT OF WATER AND SEWERAGE

- (1) Before commencing any work or moving heavy plant or equipment over any portion of the Site, the Contractor shall confirm details of all underground plant within the Site belonging to the Water and Sewerage Department with the appropriate Superintendent for the area and service involved.

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- (2) Where such details show that the Contractor's works or the movement of plant or equipment may endanger the Water and Sewerage Department's pipes or plant, the Contractor must give the Department adequate notice of the date on which it is intended to commence such work or movement of plant and equipment. The Contractor shall ensure that the Department's plant is protected from damage, but if any damage should occur the appropriate Superintendent should be notified immediately.
- (3) The following requirements must also be adhered to:-
 - (a) Determine the exact location of plant by hand excavation.
 - (b) Allow at least 300mm clearance horizontally and vertically between the respective plant in order to allow repair work to be effected.
 - (c) Effect good consolidation on reinstatement in order to reduce the effect of subsidence on the plant.
 - (d) Do not use mechanical excavation plant close to the plant.
 - (e) Before any blasting work, contact local staff for clearance.
 - (f) When baring the plant ensure it is fully supported and that adequate shoring is carried out to prevent subsidence and reinstatement around the plant with fine granular non-corrosive infill.
 - (g) In the event of a marker being disturbed for any reason, it shall not be replaced other than in the exact position and to its former depth, unless the repositioning is carried out at the discretion and under the supervision of a Water and Sewerage Representative.
- (4) The foregoing will not relieve the Contractor of any of his obligations under the Contract, and should it subsequently be proved that as a result of his activities damage has been caused to the Water and Sewerage Department's pipes or plant, the Contractor shall be notified and charged with the repairs accordingly.

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SPECIFICATION

PREAMBLE

1. The Specification referred to in the Tender shall be the 1976 edition of the "Specification for Road and Bridge Works" published by Her Majesty's Stationery Office as modified and extended by Supplement No 1 dated 1978, and as further modified and extended by any substitute Clause or Table or Additional or Cancelled Clause or Table listed below.
2. A Substitute Clause or Table, as indicated by the suffix S, is an amendment of a Clause or Table in the Specification and supersedes the whole of that Clause or Table.
3. An additional Clause or Table is indicated by a number subsequent to the last Clause or Table of its Series in the Specification.
4. A Cancelled Clause or Table as indicated by the suffix 'C', is a Clause or Table entirely deleted from the Specification.
5. A Clause or Table of the Specification amended by 'delete and insert' methods retains its number and is not a Substituted Clause or Table.
6. Any reference in the Contract to a Clause number or Table number shall refer to any Substituted version of that Clause within the Contract.
7. Insofar as any of the Substitute, Additional or amended Clauses or Tables below may conflict, or be inconsistent with any provision of the Specification, the Substitute, Additional or amended Clauses or Tables shall always prevail.
8. A Table in a Substituted Clause shall be deemed to be Substituted.

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LIST OF OTHER SUBSTITUTE, ADDITIONAL AND CANCELLED CLAUSES AND TABLES.

<u>CLAUSE</u>	<u>TITLE</u>
01	List of Drawings
101	Appendix, details of Resident Engineers Office
103	Schedule of road crossings and approaches to the Works
104	Schedule of Temporay Diversions of Traffic
111S	Noise control
112	Maintenance of the existing road
114	Special requirements to maintain traffic flow
203	Location of cables, cable ducts, sewer ducts or water pipes
707	Road categorisation
Table 9/1S	Flexible surfacing materials
1201S	Permanent traffic signs
1205	Street Lighting

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CLAUSE 01 LIST OF CONTRACT DRAWINGS

<u>Title</u>	<u>Drawing No.</u>
<u>Contract Drawings</u>	
Plan and Profile	301/2
Existing Services	301/3
Standard Cross-Sections	301/4
Standard Details	301/5
<u>Standard drawings</u>	
Kerbing Details	SD/C5
Existing Road Tie In Details	SD/C11A
Interlocking Traffic Blocks	SD/C22
Gulley Details	SD/D6A
Offlet Channel Detail	SD/D10
Shallow Precast Concrete Manhole	SD/D11
Pipe Bedding Details	SD/D21
Street Lighting Detail (2)	SD/SL2
Combined Services Trench Details	SD/SL3
Joint Box Type JBF4C	CN13562 Sht2
Joint Box Type JRC11	CN1278 Sht2
Joint Box Type JRC12	CN1709 Sht2

APPENDIX TO CLAUSE 101

The Contractor shall prepare and submit for approval an office layout based on the accommodation description and shall then provide and maintain to the satisfaction of the Engineer for the sole use of the Resident Engineer and his staff an office building of not less than 16 square metres total floor area. The building shall have a five lever mortice lock and four keys are to be provided.

Before erecting the office the area to be used shall be cleared of all turf and vegetation, trimmed to falls and drained to prevent accumulation of surface water. A hard standing for car parking for at least 3 cars shall be provided adjacent to the office with a hard track to the highway.

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The building shall consist of the following accommodation.

Description	Area (sq. metres)
Office	12
Toilet	2
Lockable Instrument Store	2
	--
	16
	--

The building shall be furnished and equipped as detailed in the schedule below:-

1. 1 drawing bench not less than 2.3m x 0.9m complete with 1 No. drawing board and 1 No. tee square.
2. 1 No. plan chest containing 4 No. drawers.
3. 1 No. desk with at least one drawer provided with lock and key.
4. 1 No. stool.
5. 3 No. chairs.
6. Adequate heating units to achieve the minimum temperature required under the Offices Act 1963.
7. Windows complying both in area and ability to open with Building Standards (Scotland) Regulations 1971 with blinds.
8. Artificial lighting.
- 9 Telephone connected exclusively to STD.
10. 1 No. 1m long spirit level.
11. 100m nylon string line.
12. 1 No. 2Kg hand hammer.
13. Supply of survey stakes, profile timber, paints, paint brushes, nails, etc for the duration of the Contract.
14. 1 No. approved maximum and minimum thermometer graduated in degrees centigrade.
15. Electric kettle or approved alternative.
16. 4 No. cups, saucers, spoons.
17. 1 No. fire extinguisher.

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18. 1 No. KM Thermometer 450 or similar with 1 no. LH450A Therma surface probe type 110 & 1 no. LH45E Therma heavy duty probe 'T' 500mm long available from: Impact, Building 20, Stevenson Industrial Estate, Nylon Works (Ardeer), Stevenson, Ayrshire.
19. 1 No. first aid kit.
20. 2 No. hand towels, tea towels (to be cleaned regularly) also supply of soap, washing up liquid, sink and draining board.
21. Supply of bags/sacks for samples.
22. 2 sets of "Functional Protective Clothing" each comprising coat, belt, hood, trousers and gloves to be retained by the Engineer after the Works, obtainable from Functional Clothing Limited, Causeway Avenue, Wilderspool Causeway, Warrington, WA4 6QQ, telephone no.: 0925 53111.
23. 1 No. automatic level and telescopic tripod.
24. 1 No. telescopic alloy levelling staff 4.0 metres long.
25. 2 No. 3 metres long steel tapes.
26. 1 No. 30 metres long steel tape.
27. 2 No. 30 metres long linen tapes.
28. 1 No. scientific calculator.
29. 1 No. single lens reflex camera.

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SCHEDULE TO CLAUSES 103

ROAD CROSSINGS AND APPROACHES TO THE WORKS USED BY THE PUBLIC

CHAINAGE AND LOCATION	AVERAGE SPEED OF PRIVATE CARS (MPH)	SPEED LIMIT (MPH)	COMMENTS
Sutherland Road	30	30	
Castle Street	30	30	
Church Hall Car Park	20	30	
Roderick Court	20	30	

and those private vehicular and pedestrian access off the works not listed individually.

NOTE :

All private accesses shall be kept serviceable and maintained at all times during the Works.

SCHEDULE TO CLAUSE 104 TEMPORARY DIVERSION OF TRAFFIC

Any temporary diversions required for the construction of the permanent works.

CLAUSE 111S NOISE CONTROL

1. The Contractor shall comply with the general recommendations set out in BS 5228 Code of Practice for Noise Control on Construction and Demolition sites.
2. The Contractor shall ensure that the noise 1 metre outside the nearest building at the window of the occupied room closest to the noise source shall not exceed an equivalent continuous sound level:
 - (a) of Leq of 75db(A) between the daytime hours of 0700 hrs to 1900 hrs;
 - (b) Leq of 55db(A) between the night time hours of 1900 hrs to 0700 hrs and on Sundays if such working is permitted.
3. The Contractor shall provide and maintain suitable acoustic measuring equipment and shall record noise levels as and when required by the Engineer.

CLAUSE 112 MAINTENANCE OF THE EXISTING ROAD

1. The maintenance of the existing road within the limits of the site shall be the responsibility of the Contractor and shall be covered in his rates as a general obligation under paragraph 1(vii) of the Preamble to the Bill of Quantities. For the purposes of this Clause the site shall be defined as the total length of existing road that is being replaced, whether by widening, reconstruction or diversion. As long as any part of the existing road within the site continues in use as a public highway it shall at all times be maintained in a condition satisfactory to the Engineer. Pot holes and the like shall be filled with bitumen macadam as soon as they appear and all repairs shall be carried out expeditiously and with the minimum of interference and inconvenience to the general public.
2. The maintenance of the existing road outwith the limits of the site as herein defined shall remain the responsibility of the Highway Authority, but the Engineer may instruct the Contractor to carry out repairs within a reasonable distance of the site. In this case payment shall be made in accordance with the relevant item in the Bill of Quantities unless in the opinion of the Engineer damage occurs as a result of the Contractor's negligence or by his use of extraordinary traffic when repairs shall be carried out at the Contractor's expense.

CLAUSE 114 SPECIAL REQUIREMENTS TO MAINTAIN TRAFFIC FLOW

1. Two-way traffic flow must be maintained at all times on the existing main road, side road or approved diversions, except during localised construction work when one-way traffic flow will be permitted with the approval of the Engineer. Four weeks notice on each and every occasion must be given.
2. One-way traffic flow, controlled by traffic lights on the main road, or approved diversions, shall have a controlled length not exceeding 200m.
3. The location of accesses to the Works from public roads must be clearly signed as Works accesses and the temporary signing must be approved by the Engineer.

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CLAUSE 203 LOCATION OF CABLES, CABLE DUCTS, SEWERS OR WATER PIPES

1. Where directed by the Engineer trial pits shall be dug at various locations on the contract to locate and uncover various underground services.
2. Pits shall be dug by the contractor, using hand tools, if so instructed by the Engineer in any material including existing pavement to a depth not exceeding 1.5 m and having a plan area of 0.25 sq. metres. Services located shall be referenced and protected prior to backfilling.
3. The whole cost of this work shall be included in the appropriate item in the Bill of Quantities.

CLAUSE 707 ROAD CATEGORISATION

1. For purposes of application of Clause 701 Table 7/2 of the Specification for Road and Bridge Works the road category is deemed to be Category A.

TABLE 9/1S FLEXIBLE SURFACING MATERIALS

Surfacing Group	Alternative Materials Permitted	Special Requirements		
		Binder	Coarse Aggregate	Fine Aggregate
Y	<u>Wearing Course</u> Dense Bitumen Macadam to Clause 908	As specified for Category B traffic in BS4987	-	-
Y	<u>Basecourse</u> Dense Bitumen Macadam to Clause 903	-	-	-

The permittivity of bitumen shall be determined in accordance with the test method described in the Transport and Road Research Laboratory Report SR 312.

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CLAUSE 1201S PERMANENT TRAFFIC SIGNS

1. Permanent Traffic Signs shall be either externally or internally illuminated, reflectorised or non-reflecting as described in the Contract and shall comply with the requirements of:
 - (i) BS 873 in respect of quality
 - (ii) The Traffic Signs Regulations and General Directions, as amended, published by HMSO
 - (iii) Traffic Signs Manual as amended, published by HMSO
2. Where illumination is to be provided, this shall be by lamps complying with BS 873. Where reflectorisation is required the means shall be of approved type as described in the Contract.
3. Traffic signs shall be erected with approved fittings on posts as described in the Contract and shall comply with BS 873 and the Traffic Signs Manual. The construction and supports of large signs shall be as described in the Contract.
4. Erection

The erection of signs shall comply with the requirements of Chapter 13 of the Traffic Signs Manual as amended below.

Location - The exact siting of each sign shall be agreed on site by the Engineer.

All posts shall be embedded in concrete of a class not less than 30/20 (Table 16/1 Clause 1601).

The bottoms of all excavations for post sizes of 110mm diameter or signs in excess of 10 sq.m. in area shall be inspected and approved by the Engineer immediately prior to the pouring of concrete into the foundation.

In the case of illuminated signs particular attention should be given to the siting of the posts. Wherever practical the post having the control base housing should be farthest from the edge of the carriageway and where this is not possible the control access opening should always face away from the carriageway.

It will be the responsibility of the Contractor to undertake all work in connection with the illumination of the signs and putting them into service.

CLAUSE 1205 STREET LIGHTING

1. Materials Supplied by the Highland Regional Council

Columns, cables and other materials supplied by the Regional Council will be available at the Department of Roads and Transport Store at Brora where the Contractor shall uplift (unless otherwise stated) and thereafter be responsible for their off loading, handling on site and safety until the contract works are completed. The Contractor shall be responsible, where stated in the Bill of Quantities for returning all surplus columns, cables and other unused materials to the Department of Roads and Transport Store.

2. Excavation of Track and Column Holes

The normal depths of excavation shall be as follows:-

L.V. Cable	

Unmade Ground	525mm
Footways	525mm
Roadways	825mm

Planting Depth	

4 M Columns	650mm
5 M Columns	686mm
6 M Columns	1067mm
8 M Columns	1220mm
10 M Columns	1525mm
12 M Columns	1830mm

The location of each trench or column hole will be settled on site with the Engineer and trenches and holes shall be excavated to the approved formations and dimensions and be timbered and sheeted as necessary to avoid subsidence and drainage. The edges of trenches and column holes in paved surfaces should be cut in straight lines, normally by a power operated cutting tool or equivalent. Once the surface is cut the trench or hole shall be excavated by hand unless the Engineer specifically authorises the use of mechanical excavation. If a bucket excavator is permitted the bucket used must be smaller than the agreed finished trench or hole width. The finished trench or hole must be free from sharp stones and other objects liable to damage the cable or column.

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3. Obstructions

Where an obstruction is encountered, necessitating a change in trench or hole dimensions, or track route or hole position, such work as the Engineer considers necessary will be carried out.

No tunnel or heading shall be driven under the footway or roadway without the sanction of the Engineer, in writing.

4. Rock

No rock excavation shall be carried out without the sanction of the Engineer who shall be informed immediately rock is encountered.

The measurement of rock volume shall be computed on the basis of the size of trench specified in the drawings.

5. Cable Laying

All cables shall be bedded in suitable material free from stones or other detrimental items as follows:

Earth riddled through a screen having 12.5mm max. mesh shall be placed at the bottom of the trench and punned down to a depth of 75mm to form a bed for the cable. After the cables have been laid, they shall be covered with similarly riddled earth well punned over and around the cables to a level of 75mm above the top of the cable. Where sufficient riddled material cannot be found to provide the required 75mm bedding around the cable, river washed or quarry sand or quarry dust provided by the Contractor, shall be used as an alternative, when approved by the Engineer. When reeling cables of drum, cable jacks must be used to prevent kinking.

6. Ducts

Ducts shall be laid out and jointed in a manner approved by the Engineer. PVC ducting will be supplied by the Regional Council. After laying, the ducts shall be thoroughly cleaned and, if required by the Engineer, a mandrel slightly less than the internal diameter of the duct, shall be drawn through. Where required by the Engineer a galvanised steel draw wire shall be left in the duct and the ends sealed in an approved manner.

7. Backfilling of Track

After the cables have been installed and bedded, the trenches shall be backfilled in 150mm layers, each layer being well rammed and consolidated. The first layer shall be of selected boulder free material and the remaining layers shall be replaced in sequence of

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excavation to restore the original composition of the track. Where the excavated material is unsuitable for proper compaction, due to its composition or to weather conditions, it shall be removed and approved moisture stable backfill, provided by the Contractor, shall be imported.

At a depth below ground level of 200mm a PVC marker tape supplied by the Regional Council shall be placed centrally in the trench throughout the cable route. Tracks wider than 500mm shall have two such tapes placed 150mm from each side of the trench.

8. Erection of Lighting Columns

Columns shall be erected, complete with bracket, in a hole excavated to a depth specified in Item 2 of this specification and so that the ground line marked on the columns corresponds with the finished surface level of the footway or verge. After excavation of the required hole the column shall be placed in the hole and surrounded with concrete of class 22.5/37.5 to the depth specified in the drawing. The remainder of the hole shall be backfilled in 150mm layers with excavated material each layer being rammed and consolidated. Where the excavated material is unsuitable for proper compaction, due to its composition or to weather conditions, it shall be removed and approved moisture stable backfill, provided by the Contractor, shall be imported.

Where columns are erected before cable laying care should be taken to ensure that the cable entry hole in the column base is kept free of concrete or excavated material. The Contractor must ensure that the column is so positioned that the lighting head is correctly orientated to the road.

9. Erection of Service Pillars

Service pillars shall be erected in a hole excavated to the depth specified in the drawing provided with this specification. After excavation of the required hole the service pillar shall be placed in the hole and surrounded with concrete of class 22.5/37.5 to the depth specified. The remainder of the hole shall be backfilled in 150mm layers with excavated material each layer being rammed and consolidated. Where the excavated material is unsuitable for proper compaction, due to its composition or to weather conditions, it shall be removed and approved moisture stable backfill, provided by the Contractor, shall be imported. Where service pillars are erected before cable laying care should be taken to ensure that the cable entry hole in the servicing pillar is kept free of concrete or excavated material.