

Angus Council A92 Upgrading - Dundee to Arbroath

Schedule 4: O&M Requirements

Part 2 : O&M Works

Contents	Page Nos
1. Operation	4-2-3
1.1 Duty to Maintain and Operate	4-2-3
1.2 General O&M Requirements.....	4-2-3
1.3 Standard Performance	4-2-4
1.4 Road Classification	4-2-4
1.5 Data Collection	4-2-5
1.6 Materials.....	4-2-5
1.7 Abnormal Load Routeing	4-2-5
1.8 Emergencies	4-2-6
1.9 Consultation, Liaison and Co-ordination	4-2-6
1.10 Road Safety Audit	4-2-6
1.11 Noise Surveys	4-2-7
1.12 Records.....	4-2-7
1.13 Defects and Damage	4-2-8
1.14 [Paragraph not used].....	4-2-8
1.15 Shared Facilities.....	4-2-8
1.16 Development Control	4-2-8
1.17 Additional Traffic Measuring Equipment	4-2-9
2. Routine Maintenance	4-2-10
2.1 General	4-2-10
2.2 Routine Maintenance Strategy	4-2-10
2.3 Routine Maintenance Management System.....	4-2-10
2.4 Inspection Types.....	4-2-12
2.5 Maintenance Requirements.....	4-2-13
2.6 Safety Inspection Requirements.....	4-2-14
2.7 Service Inspection Requirements	4-2-15
2.8 Particular Requirements	4-2-16
2.9 Extent of Maintenance	4-2-29
2.10 Pollution Control Monitoring.....	4-2-29
3. Winter Maintenance	4-2-30
3.1 General	4-2-30
3.2 Overall Performance Requirements	4-2-30
3.3 Planning and Reporting Requirements.....	4-2-31
3.4 Specification.....	4-2-32
4. Maintenance Of Road Pavements.....	4-2-39
4.1 General	4-2-39
4.2 Programming	4-2-39
4.3 Maintenance Assessment Surveys.....	4-2-39
4.4 Performance Criteria.....	4-2-40
4.5 Extent of Maintenance	4-2-40

5.	Maintenance Of Structures	4-2-42
5.1	General.....	4-2-42
5.2	Maintenance Management.....	4-2-42
5.3	Inspection Requirements	4-2-42
5.4	Routine Maintenance	4-2-42
5.5	Remedy of Defects.....	4-2-42
5.6	Repairs	4-2-43
5.7	Technical Appraisal and Certification.....	4-2-43
5.8	Extent of Maintenance	4-2-43
6.	Landscape Maintenance.....	4-2-44
6.1	General.....	4-2-44
6.2	Landscape Action Plan	4-2-44
6.3	Grassed Areas	4-2-59
6.4	Trees, Hedges and other Planted Areas.....	4-2-50
6.5	Biodiversity Action Plan.....	4-2-53
7.	Roadworks Management	4-2-55
7.1	General.....	4-2-55
7.2	Safety and Traffic Management Measures	4-2-55
7.3	Lane Occupations	4-2-58
7.4	Alternative Routes	4-2-59
7.5	Recovery Vehicles for Breakdown	4-2-59
7.6	Publicity	4-2-61
7.7	Driver Information.....	4-2-61
	Annex 1/1 – 'NOT USED'	4-2-62
	Annex 2/1 - List of Inventory Items to be Collected	4-2-63
	Annex 2/2 - Recording of Defects.....	4-2-65
	Annex 2/3 – Accommodation Works Apparatus located within the O & M Site.....	4-2-70
	Annex 5/1 - Principal Inspections	4-2-72
	Annex 7/1 - Recovery Vehicles for Breakdown	4-2-78

Schedule 4: O&M Requirements**Part 2 : O&M Works****1. Operation****1.1 Duty to Maintain and Operate**

Notwithstanding any other provision of this Agreement the Project Roads shall be operated and maintained throughout the Full Service Period in accordance with this Schedule. Without prejudice to the other obligations under this Schedule the Company shall keep the Project Roads sound, free from undue deterioration and undue wear.

Without prejudice to clause 9 of this Agreement, the O&M Works shall comply with: -

- a) the O&M Requirements;
- b) Good Industry Practice;
- c) the other provisions of the Agreement.

1.2 General O&M Requirements

In the design, planning and execution of all works and functions associated with carrying out the O+M Services, the Company shall take all such action and do all such things to ensure and in such a manner as will secure:-

- a) the safety of Users, workers or other persons on the Project Roads or on land adjacent to the Project Roads;
- b) that the ability of Angus Council to perform statutory duties or functions in relation to the Project Roads or other adjoining roads is unimpaired.

and subject to Paragraph 1.2 a) and b) of this Part, that:-

- c) delay to Users is minimised;
- d) the risk of adverse effects on the environment and on the amenity enjoyed by the owners and occupiers of land adjacent to the Project Roads to the Users and to the users of adjoining roads and facilities is minimised;
- e) all accidents and emergencies are responded to as quickly as possible and their adverse effect to Users are minimised in accordance with Paragraph 1.8.3 of this Part;
- f) risk of damage to or destruction of third party property within or outwith the Project Roads is minimised;
- g) members of the public and all other Users are treated with due courtesy and consideration;
- h) Users are given adequate information and forewarning of any events on or any matters affecting the Project Roads such as to enable them to minimise any adverse consequences on themselves of such events or matters;

- i) members of the public and others are given adequate opportunity to bring to the attention of the Company any matters affecting the ability of the Company to meet the O&M Requirements;
- j) traffic data and data relating to the operation and maintenance of the Project Roads and events on the Project Roads shall be collected by the Company and given to Angus Council.

1.3 Standard Performance

Subject to Clause 38 of the Agreement in addition to complying with these O&M Requirements and Good Industry Practice the Company shall also be bound to comply with the following documents in respect of the O&M Works without prejudice to the Company's obligations under the Agreement:

- a) Design Manual for Roads and Bridges (DMRB) published by The Stationery Office and current at 30 November 2001;
- b) Manual of Contract Documents for Highway Works (MCDHW), published by The Stationery Office and current at 30 November 2001;
- c) Traffic Signs Manual (current as at 12th August 2002);
- d) Safety at Roadworks: Notes for Guidance - Published jointly by the Department of Transport County Surveyors' Society and Health and Safety Executive, 1994;
- e) Code Of Practice "The Reduction of Traffic delays at Roadworks" - Published by the Scottish Office and the County Surveyor's Society Scotland (1992); and
- f) Delivering Best Value in Highway Maintenance – Code of Practice for Maintenance Management (July 2001) insofar as relevant to the performance of the O & M Works by the Company.

The Company shall keep abreast of any changes to any standard, manual, code of practice or guidance document and inform Angus Council of such changes and any implications as may arise with regard to the implementation of this Part of this Schedule.

Angus Council shall decide if such changes will be adopted for the purposes of this Part of this Schedule and all such changes shall be dealt with as Angus Council Changes and the provisions of Clause 36 of the Agreement shall apply accordingly.

Any reference to the 'Overseeing Organisation' within DMRB and MCDHW shall be taken as meaning Angus Council.

1.4 Road Classification

For certain types of maintenance, the Project Roads will have varying standards of maintenance. The following are the standards of maintenance which apply to the Project Roads:

- a) Routine Maintenance shall accord with Paragraph 2 of this Part. All Project Roads shall be maintained to the same standard.
- b) Winter Maintenance shall accord with Paragraph 3 of this Part and there are two basic requirements.
 - i) On the New A92 carriageway and its associated slip roads and grade separated junctions this shall be on a 24 hour basis for the duration of the winter season.
 - ii) On the A92 footways and cycletrack/footways this shall be on the same timing basis as Angus Council's Winter Maintenance Policy.

- c) Maintenance of Road Pavements shall accord with Paragraph 4 of this Part and where necessary the road types used shall be:
 - i) New A92 and its associated slip roads and grade separated junctions shall be treated as dual carriageway.
 - ii) New Local Roads shall be treated as single carriageway principal roads.
- d) Maintenance of Structures shall accord with Paragraph 5 of this Part. All Project Roads shall be maintained to the same standard.
- e) Landscape Maintenance shall accord with Paragraph 6 of this Part. All Project Roads shall be maintained to the same standard.

1.5 Data Collection

The Company shall for location referencing on the Project Roads adopt the CHART Referencing System, as currently utilised by Angus Council, for the definition of the road network. Road defects, inventory of road furniture and other information shall be located using this system. Angus Council shall provide the Company with existing information relating to the Sections and Links relevant to the Project Roads.

The start and end of Links and Sections are known as nodes and are indicated by road markers which are installed on both sides of the carriageway. Links form the primary division of the road network and are assigned to lengths of road between major junctions, at local authority boundaries and the like. A Link node is indicated by three road markers. Sections are defined between easily identifiable features constrained by the practical need to keep lengths to a manageable level. A Section node is identifiable by two road markers.

Each Link and Section is allocated a unique numbering reference. Link numbers consist of five digits. The first digit indicates the class of road, the second and third are the route identifier and the fourth and fifth are the Link identifier. Sections are identified by a number between 00 and 99.

The Company shall install cored thermoplastic node markers in accordance with the information provided by Angus Council on the Project Roads. The specification for the node markers is detailed in Appendix 0/1 of Part 5 of this Schedule.

Any change to geometry or the construction of sections additional to the Project Roads shall require an update of the inventory. In this event the Company shall submit a 1/2500 scale scheme layout drawing to enable Angus Council to allocate new Links and Sections. At the locations defined by Angus Council the Company shall provide and install node markers, determine Ordnance Survey grid references and measure accurate Section lengths.

1.6 Materials

All materials used in the O & M Works shall comply with Part 4 and Part 5 of this Schedule. Without prejudice to this requirement, where new materials are used to replace existing materials, they shall have similar colour, texture and form to the existing materials, unless otherwise approved by Angus Council in writing. (Such approval not to be unreasonably withheld).

1.7 Abnormal Load Routing

The minimum headroom clearance for Structures shall be maintained so as to comply with TD27 of the DMRB.

Hauliers moving abnormal loads are required to give notice as described in The Road Traffic Act, The Motor Vehicles (Authorisation of special types) General Order 1979 and Amendment Order 1987.

Hauliers will make an application to Angus Council regarding the suitability of the routes proposed. Angus Council shall consult the Company who shall be required to liaise with Angus Council and provide all necessary information and comments relevant to such application.

Angus Council shall advise the Company of any application it receives of any Abnormal Indivisible Load to be transported over the Project Roads. Following receipt of such notice, the Company shall be responsible for liaison with the police and other Relevant Authorities regarding any Abnormal Indivisible Load.

The Company shall in respect of such applications assess the suitability of bridges and roads on the Project Roads and recommend to Angus Council whether a Special Order or VR1 movement if required can be granted. The Company shall also provide advice on the passage of high loads. All reasonable steps shall be taken by the Company to facilitate the transit of such loads along the Project Roads.

1.8 Emergencies

- 1.8.1 In the event of a Relevant Emergency, Angus Council will undertake emergency measures to ensure that the Site Roads and the New A92 as applicable in accordance with Clause 17.4 of the Agreement are made safe as soon as reasonably practicable. The affected area of the Site Roads and the New A92 as applicable in accordance with Clause 17.4 of the Agreement shall not be reopened to traffic without the clearance of the Police or the Roads Authority as appropriate.
- 1.8.2 Emergency measures for the purpose of this Paragraph 1.8 shall comprise only such action as is reasonably required to make the Site Roads and the New A92 as applicable in accordance with Clause 17.4 of the Agreement safe as a consequence of the emergency and may include inter alia installation of traffic management, road closures, removal and disposal of debris, including animal carcasses, hazardous materials and spillages of chemical and noxious substances, cleaning and sweeping of the road, making safe trees, traffic signs and electrical equipment, general assistance to the emergency services and consultation with other Relevant Authorities, and Interested Parties as may be reasonably required.
- 1.8.3 If any part of the New Works (prior to issue of Permit to Use) or the Project Roads are damaged or destroyed as a consequence of an emergency the Company shall reinstate such damage as soon as practicable in accordance with the Agreement.
- 1.8.4 Angus Council will inform the Company within 24 hours of the occurrence of the emergency of all emergency measures taken and the Company will assume responsibility for all necessary repairs in accordance with the Agreement.

1.9 Consultation, Liaison and Co-ordination

Notwithstanding any requirement contained elsewhere in the Agreement the Company shall consult, liaise and co-ordinate its own activities with those of any Relevant Authority and, where appropriate, any affected Interested Party in accordance with the Liaison Procedures in Part 9 of this Schedule.

The Company shall comply with all the requirements of any Relevant Authority as detailed in Part 8 of this Schedule, insofar as the same relate to the O&M Services. Without limitation to these requirements, the Company shall be responsible for complying with all requirements of any Relevant Authority of which the Company has notice or ought reasonably to be aware from time to time.

1.10 Road Safety Audit

Road Safety Audits (RSAs) for both the O&M Works and associated Temporary Traffic Management Schemes (TTMS) shall be carried out in accordance with the requirements of Paragraph 1.7 of Part 6 of this Schedule.

- a) Notwithstanding the requirements in respect of Road Safety Audits, the Company shall undertake all necessary measures having regard to the Company responsibilities under the Agreement to ensure that for any given calendar year the average accident rate for the Project Roads measured in terms of accidents per million vehicle kilometres over the previous three years is no worse than the average accident rate derived from the figures in respect of similar roads for the same three years contained within 'Transport Statistics Great Britain', published annually by The Stationery Office.

- b) O&M Works

During the Project Period the Company shall be responsible for undertaking the Road Safety Audits. The certification procedures for each RSA shall be as detailed in Part 6 of this Schedule.

The Company shall also undertake a RSA for any Works which may be carried out and necessitate such an audit.

- c) Temporary Traffic Management Schemes

The Company shall arrange to conduct formal RSAs wherever Temporary Traffic Management Schemes (TTMS) are sufficiently complex or major to be specified in advance of the O&M Works of which they form part. In other cases the requirements for a formal RSA will be at the discretion of the Company. The Certification Procedures for the TTMS shall be as detailed in Part 6 of this Schedule.

Where the above requirement is not complied with, the Company shall undertake an additional Road Safety Audit of the Project Roads as described in Paragraph 1.7 of Part 6 of this Schedule to identify any appropriate remedial measures. Such remedial measures shall be implemented in accordance with Paragraph 1.7 of Part 6 of this Schedule.

1.11 Noise Surveys

The Company shall carry out noise surveys/assessments in accordance with the Noise Insulation (Scotland) Regulations 1975 and the Memorandum on the Noise Insulation (Scotland) Regulations 1975 - Regulations 3 & 6 as published by Her Majesty's Stationary Office. These noise surveys/assessments relate to traffic noise generated from the Project Roads at the locations given in Appendix 1/9 of Part 5 of this Schedule.

Year 1 Noise Surveys/assessments will be carried out within the 12 month period after the Permit to Use Date. Reassessments based on the same month shall be made in the 5th, 10th and 15th year following the original surveys.

The Company shall be responsible for and shall have absolute discretion in respect of the settlement of any claims for compensation from affected parties and provision of noise insulation for affected parties required under the Regulations as a result of the noise surveys.

Where any O&M Works are carried out by the Company which have an effect on traffic noise it shall carry out noise surveys in accordance with the Noise Insulation (Scotland) Regulations 1975 and the Memorandum on the Noise Insulation (Scotland) Regulations 1975 - Regulations 3 & 6 on properties as reasonably required by Angus Council. The Company shall be responsible for carrying out the subsequent surveys and shall be responsible for the settlement of any appropriate claims for compensation from affected parties under the Regulations as a result of the noise surveys.

1.12 Records

The Company shall comply with the requirements of Part 7 of this Schedule with regards to records.

A full set of as-built records of the Project Roads shall be maintained by the Company which shall take account of, but not be limited to, the requirements of this Part of this Schedule.

1.13 Defects and Damage

- a) Without prejudice to the other provisions of this Agreement (including Clause 17.2(d)) the Company shall as part of the O & M Services remedy all Defects occurring or manifesting themselves in the Project Roads at any time during the Full Service Period within the appropriate timescale identified in this Schedule (or failing such a timescale as soon as possible).
- b) Subject to Clauses 48.2 (Physical Damage Insurance Proceeds) and 49 (Force Majeure) in the event of any damage to or destruction of the Project Roads or any part thereof at any time during the Project Period then irrespective of the cause of such damage or destruction the Company shall as part of the O&M Services carry out as soon as possible such Works as are necessary to reinstate the Project Roads in accordance with this Schedule to its condition immediately prior to the occurrence of such damage or destruction.
- c) The Company's obligations under this Paragraph 1.13 shall subsist notwithstanding that any Defect existed, or could have been established as existing, prior to the Agreement Date or the issue of any Permit to Use or to the acknowledgement by Angus Council of any Final Completion Certificate.

1.14 Paragraph Not Used

1.15 Shared Facilities

The Company shall be responsible for payment of all electrical supplies and any other service used within the Project Roads. In doing so the Company shall liaise directly with the suppliers involved and establish the scope of the shared facilities involved.

1.16 Development Control

Angus Council Planning & Transport Department and Dundee City Council Planning and Transportation Department, as planning authorities consult with Angus Council Director of Roads on roads aspects before granting planning permission for a development.

The Company shall use reasonable endeavours to assist Angus Council Roads Department in responding to these consultations on those individual planning applications located adjacent to or in the vicinity of the Project Roads.

The system for the processing of planning applications shall be as follows:-

- a) a copy of the planning application will be passed by the planning authority to the Roads Department;
- b) the Roads Department will record details of the application to enable a check on previous application responses in the area and therefore to ensure consistency of approach. The Roads Department will pass a copy of the application to the Company;
- c) the Company shall inspect the site and consider the application. The Company shall supply to the Roads Department any information requested including details relating to traffic flows etc.;
- d) the Company shall provide any information requested and make any comments or recommendations it considers relevant to the Roads Department within 5 Working Days of receipt of the application;

- e) the Company shall inform the Roads Department immediately if the applicant for planning permission has any connection with the Company or with any parent company of the Company, such that there could be any conflict of interest;
- f) The Roads Department will prepare a response and forward to the planning authority with a copy to the Company.

The system set out above shall cover the majority of applications and major applications requiring traffic impact assessments will be dealt with in a similar manner. From time to time applications may result in local public inquiries being held. These will be handled by the Roads Department with technical assistance being provided by the Company where appropriate.

1.17 **Additional Traffic Measuring Equipment**

Angus Council may wish to install additional Traffic Measuring Equipment during the Project Period. The installation of such equipment and all associated costs will be borne by Angus Council. The Company shall provide such access to the O&M Site as Angus Council may require to allow Angus Council to install such equipment.

2. Routine Maintenance

2.1 General

These Paragraphs 2.2 to 2.10 detail the O&M Requirements in relation to routine maintenance. The Company shall meet these requirements to ensure that the Project Roads are maintained in a safe and reasonable working condition and safeguards the environment of the Project Roads.

The requirements of this Paragraph do not apply to the routine inspection of structural elements of bridges or ancillary structures falling within the scope of BD63 (DMRB 3.1.4). The inspection of non structural aspects of bridges or ancillary structures, for example footways, lighting, drainage and the like shall be carried out at the same frequency as inspections for these aspects on the Project Roads under or over which they pass. The requirements of this section also do not cover major capital structural maintenance for the replacement or renewal of worn pavements.

At the Restricted Services Commencement Date Angus Council shall provide all keys to the Company for padlocks and cabinets within the Project Roads. At handback the Company shall return to Angus Council all keys which relate to the current infrastructure within the Project Roads.

The Company shall establish a routine maintenance strategy taking into account Delivering Best Value in Highway Maintenance – Code of Practice for Maintenance Management (current as at 12th August 2002), the requirements of this Paragraph and the minimum inspection and intervention levels given in this Paragraph and Annex 2/2.

2.2 Routine Maintenance Strategy

On or before the 1st August in each year (and no later than 40 Working Days prior to the date upon which the Company expects issue of a New Works Substantial Completion Certificate) a routine maintenance strategy (RMS) shall be formulated by the Company and submitted to Angus Council in accordance with the Review Procedure. The RMS shall contain detailed arrangements for all aspects of Routine Maintenance including, but not limited to:

- (i) management arrangements - including named personnel, detailing staff training and experience with regard to routine maintenance and inspections;
- (ii) Routine Maintenance Management System as detailed below;
- (iii) inspection proposals, frequencies and programmes;
- (iv) the Company's Categorisation of defect proposals, intervention levels and response times;
- (v) labour and resources strategy including proposals to deal with defects;
- (vi) vehicle/plant specification and deployment with location of depots;
- (vii) other relevant topics.

2.3 Routine Maintenance Management System

The Company shall implement the procedures for routine maintenance of the Project Roads using a computerised Routine Maintenance Management System (RMMS). The RMMS shall be designed to implement the routine maintenance requirements.

The Company shall be responsible for providing a facility which enables Angus Council to access and interrogate the RMMS database remotely. This shall include all software, licensing,

updates, maintenance and appropriate training for 3 number staff. The Company shall provide to Angus Council such computer or other hardware required for remote access including a suitable desktop pc and modem connection.

The requirements of an RMMS shall include, but not be limited to, the following facilities:-

- a) to store and manage inventory data;
- b) to store network information;
- c) to take details of safety and service inspections and programme work;
- d) to produce schedules of inspections and required cyclical activities, based on time frequencies and the inventory items present in the section;
- e) to produce a logical regime of inspections of routine maintenance works which have been identified by the system;
- f) to be able to produce lists of outstanding Defects grouped together by date, category, activity or Defect;
- g) to have the facility to audit performance;
- h) to have an archiving feature to maintain records.

A number of RMMS packages are commercially available for use on a range of hardware platforms including desktop computers and any such system shall comply with the requirements of this section and satisfy an independent data storage and retrieval integrity audit. It shall be for the Company to sponsor the testing of any RMMS package to the satisfaction of Angus Council. Any proposed RMMS shall be capable of outputting all future RMMS data obtained during the Project Period in a recognised standard format (e.g. ASCII, comma separated files).

Features designed into the RMMS database shall allow assessment of performance by means of audit reports.

Network information and all inventory items pertaining to the Project Roads shall be 'date and time stamped' in order that a historic record can be maintained within the database.

All Defects shall be automatically 'date and time stamped' by the data collection software.

All data collected shall be validated for correctness and completeness before it is automatically loaded into the RMMS.

Safety, detailed and ad hoc inspection data shall require to be processed.

The RMMS shall have the facility to re-categorise Defects.

The RMMS shall be required to support evidence for fatal accident inquiries and for the consideration of damages claims which may arise as a result of an alleged Defect in the Project Roads. In this context a nil Defect record is as important as a Defect record.

Any proposed RMMS shall have 6 principal modules which are as follows:-

i) **Project Roads Network**

The Project Roads to be managed shall be defined to enable unique identification of any location. The RMMS shall use the CHART Referencing System which defines any position on the Project Roads by Link identifier, Section number, chainage and cross-sectional position as detailed in Paragraph 1.4 of this Part.

ii) **Inventory**

An inventory of items of road infrastructure and furniture shall be included within the RMMS. The inventory items and details to be collected and stored shall be as detailed in the Routine Maintenance Management System Highways Inventory Survey Site Inspections Manual 1986 published by the Scottish Office and listed in Annex 2/1 of this Part. Electronic data capture devices (DCD) shall be used for collection of inventory data and down-loaded into the RMMS. DCDs shall use standard data capture programs suitably adapted to reflect the requirements of this section. Additional inventory items may be added if the range of infrastructure expands.

The Company shall keep the inventory up to date at all times. A copy of the current inventory shall be submitted from time to time by the Company to Angus Council on request. The Company shall provide a copy of the current inventory at the 31st March each year within 10 Working Days of that date.

iii) **Frequency**

The frequency of safety inspections and service inspections are to be determined by the Company but shall be not less than those detailed in this Paragraph. For cyclic maintenance the frequency is given either as a time interval or as the number of occurrences within a year.

iv) **Inspections**

Inspections and reporting procedures, actions to be taken and standards to be met, shall be as set out in this section. The RMMS shall use standardised records of inspections and shall also record subsequent decisions and actions. The same records shall be used for reports and complaints from the general public, police, motoring organisations and others. DCDs with standard suitably adapted data capture programs shall be used and which enable consistent recording of inspections using check lists which set out the items to be inspected and Defects to be reported.

v) **Cyclic Maintenance**

The RMMS shall be used to record cyclic maintenance undertaken in accordance with the requirements in this section and to prompt subsequent cyclic maintenance.

vi) **Works Order Interface**

A works order interface shall be used to review recorded Defects periodically, to group them together according to appropriate programmes of work and to interact with a works ordering system for instructing Defect repairs. Details of works orders issued and subsequently work done dates and the cost incurred shall be held in the RMMS.

2.4 **Inspection Types**

The Project Roads shall be inspected by the Company for safety reasons and for the purpose of identifying specific routine maintenance needs. Specified intervals between inspections shall be determined by the Company but shall be not greater than those detailed in this Paragraph.

All inspection personnel shall be responsible and competent for the task and shall be suitable trained and be fully conversant with inspection procedures and safety requirements. The training requirements shall include appropriate qualifications (i.e. City and Guilds Highway Inspection Monitoring & Inspection).

In the areas of maintenance activity identified in the routine maintenance requirements detailed within Paragraph 2.9 of this Part two types of inspection shall be required.

a) **Safety Inspections**

Safety inspections shall be required to identify those Defects which constitute an immediate or imminent hazard to the Users and therefore require immediate or urgent attention. Requirements for safety inspections shall be as set out in Paragraph 2.6 of this Part. Additional safety inspections shall be undertaken in the event of reports or complaints from the police, other Relevant Authorities and Users.

Details of Defects to be recorded as part of the safety inspections are given in Annex 2/2 of this Part.

b) **Service inspections**

Service inspections shall be required to establish programmes for those routine maintenance tasks which do not require urgent attention. Requirements for service inspections shall be as set in Paragraph 2.7 of this Part.

Details of Defects to be recorded as part of the service inspections are given in Annex 2/2 of this Part.

2.5 **Maintenance Requirements**

Defects which are identified as a result of safety or service inspections, safety patrols, or following other reports and complaints, shall be placed into one of two categories as below. Categorisation of defects is given in Annex 2/2 as the minimum standard required. The Company shall be responsible for setting its own standards to comply with their design of the Project Roads and in consideration of all safety and structural condition requirements. The Company's standards shall be detailed in the RMS.

a) **Category 1**

Category 1 Defects are those which require prompt attention because they represent an immediate or imminent hazard or because there is a risk of short term structural deterioration. The maintenance requirements identify these specific Defects as Category 1.

Category 1 Defects shall be made safe at the time of inspection. Making safe may constitute displaying warning signs, coning or fencing off or other measures to protect Users. The Company's employee identifying a safety defect on site shall not leave the site until the defect is made safe as above or the appropriate workforce has arrived on site to deal with the defect.

Repairs of a temporary or permanent nature shall be carried out within a maximum period of 24 hours. All temporary repairs shall be inspected regularly and as part of safety inspections and safety patrols. Permanent repairs of all Category 1 defects shall be carried out within 20 Working Days of first identification or notification.

With the approval of Angus Council (not to be unreasonably withheld or delayed) a Category 1 defect which has been subject to an effective temporary repair may if it is deemed appropriate be reclassified as a Category 2 low defect for subsequent permanent repair within a planned maintenance programme. The Company shall forward any such requests for reclassification within 10 Working Days of first identification or notification.

All action taken, including temporary protective measures and repairs, shall be promptly recorded in the RMMS database.

Notwithstanding the foregoing certain activities, as detailed in Paragraph 2.8 of this Part, have shorter response times and these shall be adhered to in accordance with the O & M Requirements.

b) **Category 2**

Category 2 Defects are those which are not Category 1 Defects but involve a risk of structural deterioration or development into a Category 1 Defect prior to the next service inspection; those which constitute a reduction in safety, level of service or amenity; and those which constitute an environmental threat. The Company shall assign levels of priority to all Category 2 Defects - high, medium or low.

With the agreement of Angus Council (not to be unreasonably withheld or delayed) a Category 2 High/Medium defect may if it is deemed appropriate be reclassified as a Category 2 Medium/Low defect for subsequent permanent repair within a planned maintenance programme. The Company shall forward any such requests for reclassification within 10 Working Days of first identification or notification.

Category 2 Defects shall be repaired within planned programmes of work taking account of the relative priority for repair (which shall be assigned via the RMMS) and the requirements of the Code of Practice, "The Reduction of Traffic Delays at Roadworks", published by The Scottish Office (ISBN 0 7480 0573 0)(1992), but in any case such repairs shall be carried out no later than the repair periods detailed in Table 2/1 from the date of inspection which identified the defect. Notwithstanding the foregoing timescale for repairs to Category 2 Defects, certain activities as detailed in Paragraph 2.8 of this Part have shorter response and repair times and these shall be adhered to in accordance with the requirements.

Table 2/1 Defect Repair Periods

Defect Category	Repair Period
Category 2 High Priority	<5 Working Days for a temporary repair <20 Working Days for a permanent repair
Category 2 Medium Priority	<20 Working Days
Category 2 Low Priority	Monitor at successive inspections and repair within planned maintenance

All action taken shall be promptly recorded in the RMMS database.

Details on the recording of Defects are given in Annex 2/2 of this Part.

2.6 Safety Inspection Requirements

The primary function of safety inspections shall be to identify Defects which constitute an imminent or immediate hazard to Users i.e. Category 1 Defects and programme short term works to repair lesser defects i.e. Category 2 High and Category 2 Medium defects. Whenever such Defects are encountered, they shall be dealt with as above. Safety inspection personnel shall also record other Category 2 Low Defects for future monitoring and programming

Safety inspections shall be carried out by trained personnel operating as a 2 person team from a slow moving vehicle fitted with an automatic distance recorder. Where circumstances require (for example in the case of subways, footbridges and at complex road junctions), inspection personnel shall proceed on foot either to confirm suspected faults or to complete the safety inspection. It may be appropriate to undertake safety inspections during off peak periods, at night or by the use of specialist vehicles in order to minimise traffic disruption and secure the safety of both the inspectors and the Users. The inspection programme shall include inspections during or immediately following a period of wet weather.

Safety inspection data shall be collected on DCDs using standard data capture programs adapted to comply with the routine maintenance requirements and shall be downloaded into the RMMS database within 24 hours of the survey having been undertaken. It is essential that all inspections, including those showing a nil return, are entered into the RMMS database promptly.

Reports and complaints received from all other sources shall be similarly recorded and retained together with details of specific inspections and actions taken.

The safety inspection record shall include details of weather conditions, road surface conditions and any other relevant factors.

Safety inspections shall be undertaken with a maximum interval of 20 Working Days between inspections for all parts of the Project Roads including slip roads and link roads within grade-separated junctions. The Company shall establish its own requirements for safety inspections as part of the RMS. In particular the Company shall establish the inspection frequency for temporary repairs and monitoring of Category 2 repairs to ensure that the Defects do not constitute a hazard to Users.

2.7 Service Inspection Requirements

Service inspections shall be carried out to identify the routine maintenance needs of the Project Roads and to enable the efficient programming of the necessary work resulting from such inspections. Details of the forthcoming yearly programme of service inspections shall be submitted by the Company as part of the Annual Report as detailed in Part 7 of this Schedule as well as forming part of the RMS.

Minimum requirements for the service inspection of each activity are set out in Paragraph 2.8.a) to 2.8.z) inclusive of this Part. The Company shall establish its own requirements for service inspections as part of the RMS, using the details below as minimum requirements.

Arrangements for service inspections shall be such as to minimise disruption to traffic whilst ensuring adequate access for proper inspection and a safe working environment for the inspection personnel.

Whenever practicable, service inspections that require lane occupations shall be carried out when lane occupations are in operation for other maintenance work. Where separate lane occupations are necessary, inspections shall be undertaken in off-peak traffic periods. Notwithstanding the provisions of paragraph 16.1 of Part 1 of this Schedule, night-time working may be adopted whenever practicable.

Service inspections shall be carried out from the footway, hardstrip, grass verge or nearside lane as appropriate. The condition of the carriageway surface and all road studs and markings shall be observed from this location at the frequencies laid down in these requirements. Gullies, kerbing and edgings adjacent to the nearside verge and central reservation shall also be inspected from this location at the appropriate frequency, if visible.

At maximum intervals of 2 years, a service inspection shall be carried out from the central reservation with offside lane occupations. This inspection shall cover all items within and adjacent to the central reservation. Any centre lanes and the offside lanes of the carriageway, as well as the road markings and road studs of these lanes, shall also be inspected during these service inspections.

Service inspection data shall be collected on DCDs, using suitably adapted standard data capture programmes which include check lists setting out the various Defects to be noted. The inspection record shall be downloaded promptly into the RMMS database. The service inspection record shall include details of the manner of inspection (for example from an offside lane occupation or hard shoulder), the prevailing weather conditions and any other relevant factors. Nil returns shall also be recorded into the RMMS database.

2.8 Particular Requirements

Maintenance requirements shall be as stated in Paragraph 2.5 of this Part. Where additional maintenance requirements are necessary these are detailed within each grouping of particular requirements.

a) Minor Carriageway Repairs

(i) General

The requirements of this section relate to minor repairs to the carriageway and do not relate to work required to strengthen carriageways which shall be carried out in accordance with Paragraph 4 of this Part.

Prior to carrying out surface dressing or resurfacing/overlay work, the Company shall ensure that the underlying road structure is sound. Where this requires repairs to potholes, open joints, and the like such work shall be classed as routine maintenance. Patching shall also be classed as routine maintenance and shall be carried out whether or not there is strengthening work required.

Some minor carriageway repairs may result from the activities of the Statutory Undertakers. Where the excavation is still within its guarantee period and fails to meet the performance criteria, as defined in paragraph S1.2 and Chapter S2 of the Specification for the Reinstatement of Openings in Highways¹ the Statutory Undertaker shall be informed of the Defect by the Company, using the procedure set out in Chapter 4 of the Code of Practice for Inspections² and the Defect inspection procedure shall be invoked. Where a dangerous reinstatement is discovered the reinstatement shall be protected by signing, lighting and guarding and the Statutory Undertaker's attendance requested. The reinstatement shall require to be made safe as soon as practicable.

Hard edge strips shall be maintained to the same standard as the running carriageway.

- Notes:
- 1 Specification for the Reinstatement of Opening in Highways (Sept 1992) - A Code of Practice approved by the Secretaries of State for Transport, Wales and Scotland under sections 71 and 130 of the New Roads and Street Works Act 1991. HMSO - ISBN 0-11-5511143-1.
 - 2 Code of Practice for Inspections (22 October 1992) - A Code of Practice issued by the Secretaries of State for Transport, Wales and Scotland on behalf of the Highway Authorities and Utilities Committee. HMSO - ISBN 0-11-551148

(ii) Inspection Requirements

Service inspections shall be carried out at maximum intervals of 1 year.

b) Footways and Cycle Facilities

(i) General

The requirements of this section relate to minor repairs to footways and Cycle Facilities. The requirements do not relate to larger scale work which shall be carried out in accordance with the Agreement.

A footway is a paved facility for pedestrians within the road boundary. Footways include the walking surfaces of subways, underbridges and pedestrian rights of way which may form part of the Project Roads.

A Cycle Facility is a paved area available for persons with pedal cycles, with or without a right of way on foot, which may form part of the Project Roads.

(ii) **Inspection Requirements**

Service inspections shall be carried out on footways and Cycle Facilities at maximum intervals of 1 year on foot.

c) **Covers, Gratings, Frames and Boxes**

(i) **General**

The requirements of this section relate to repairs to and the occasional replacement of all types of gratings, covers, frames and boxes that are the direct responsibility of the Company. Although the requirements do not relate to repairs to items that are the responsibility of other parties, Defects shall be treated as a Category 1 Defect and made safe if there is a hazard to Users.

Where there is doubt over the stability of a cracked or broken item, it shall be replaced.

Defects in covers and gratings may pose particular danger to pedal and motor cycle Users and the vulnerability of these Users shall be considered by the Company.

Many covers, gratings, frames and boxes in carriageways, footways and cycle facilities are the responsibility of the Relevant Authorities. Where an inspection identifies a hazardous Defect, it shall be made safe and/or signed and the Company shall give the owner notice to carry out permanent repairs.

(ii) **Inspection Requirements**

Service inspections shall be carried out at maximum intervals of 1 year.

When inspecting the covers, gratings, frames and boxes and other similar surface water catchment items, the opportunity shall be taken to check that the item appears to be functioning satisfactorily and is not, for example, partially or wholly blocked.

d) **Kerbs, Edgings and Pre-formed Channels**

(i) **General**

The requirements of this section relate to minor repairs to kerbs, edgings and pre-formed channels of all types. The requirements do not relate to larger scale Works which shall be carried out in accordance with the other provisions of the Agreement.

(ii) **Inspection Requirements**

Service inspections shall be carried out at maximum intervals of 1 year.

e) **Road Drainage**

The requirements for road drainage relates to all types including piped drainage systems; gullies, catchpits and interceptors; piped grips; grips; ditches; filter drains and soakaways; culverts and small span bridges; balancing ponds and ancillary items. (Paragraph 2.8 f) to Paragraph 2.8 n) inclusive of this Part).

Maintenance of road drainage shall ensure inter alia that:-

- i) surface water does not pond on the running carriageway of the Project Roads to the extent that it affects safety;
- ii) the pavement structure shall be adequately drained; and

- iii) adjoining landowners are not affected by flooding, and polluted effluent from the clearing of road drainage is not discharged into watercourses.

The inspection requirements for road drainage are detailed in Paragraph 2.8(f) to Paragraph 2.8(n) inclusive of this Part.

f) **Piped Drainage System**

i) **General**

The requirements of this section relate to minor repairs and remedies for Defects within all types of piped drainage systems, including slot drains, culverts and small span bridges of less than 2 metres in diameter or span; multi-cell culverts of less than 5 metres cumulative diameter or span; and corrugated metal structures less than 0.9 metres in diameter or span.

Piped drainage systems shall be self cleansing. Maintenance shall be carried out when a blockage or other fault occurs. Parts of a system that habitually require maintenance shall be identified and an investigation carried out. The Company shall rectify any problem resulting from such investigation.

Methods of investigation, which may be appropriate for those parts of the system exhibiting signs of malfunction shall include use of mandrels; flushing; inspections, measurements during rainfall; use of dyes; use of video techniques.

A record of piped drainage systems including outfalls but excluding gully connections, slot drains and piped grip connections shall be prepared and maintained. The record, in the form of record plans, will supplement information held on the RMMS inventory by providing details of pipe runs. Ownership of the drainage systems if appropriate should be established and shown on the record.

Symptoms of blockages or faults that shall prompt investigation shall include: backing up and flooding at the entry points to the piped drainage system; dry outfalls; wet areas on verges; and the presence of particularly lush vegetation.

(ii) **Inspection Requirements**

No service inspections shall be carried out unless there is evidence arising from safety inspections or safety patrols of blockage or some other fault, or reports or complaints are received, in which case an investigation shall be carried out. Use shall be made of gully, catchpit and interceptor emptying and cleansing operations, and inspection procedures, to check that piped drainage systems are operating satisfactorily.

g) **Gullies, Catchpits and Interceptors**

(i) **General**

The requirements of this section for gullies, catchpits and interceptors relate to the removal of silt and other detritus from sumps and traps and so far as possible, to an inspection of the items and their operation. The inspection of frames and gratings, as stated in Paragraph 2.8.c) of this Part, and the cleansing of gratings, as stated in Paragraph 2.8.s) of this Part shall be carried out whenever emptying takes place.

(ii) **Inspection Requirements**

Service inspections of gullies, catchpits and interceptors shall be carried out at maximum intervals of 6 months.

(iii) **Maintenance Requirements**

Gullies, catchpits and interceptors shall be emptied at least once per year or as necessary such that free flow is not impeded and that silt traps and oil interceptors are effective. The frequency of cleansing of oil interceptors will depend upon their design and location and shall be sufficient to avoid any pollution to watercourses.

h) **Piped Grips**

(i) **General**

The requirements of this section relate to repairs to piped grips defined as short lengths of pipe carrying water from a channel across the verge direct to a ditch, filter drain or soakaway, without a gully-pot, but sometimes with a grating. Where pipe lengths exceed 5 metres the requirements in Paragraph 2.8.f) of this Part shall also apply. Gratings, where fitted shall be dealt with as gully gratings as set out in Paragraph 2.8.c) and 2.8.s) of this Part.

(ii) **Inspection Requirements**

Service inspection shall be carried out at maximum intervals of 1 year.

(iii) **Maintenance Requirements**

Piped grips shall be cleared as necessary such that free flow is not impeded.

i) **Grips**

(i) **General**

The requirements of this section relate to repairs to grips, defined as open channels cut across rural verges and leading to ditches or filter drains, ending at an appropriate distance from the carriageway or hard shoulder. The requirements of Paragraph 2.8.h) of this Part shall also apply.

(ii) **Inspection Requirements**

Service inspection shall be carried out at maximum intervals of 1 year.

(iii) **Maintenance Requirements**

Grips shall be recut as necessary such that free flow is not impeded.

j) **Ditches**

(i) **General**

The requirements of this section relate only to the cleansing and minor repairs to ditches.

(ii) **Inspection Requirements**

Service inspections shall be carried out at maximum intervals of 1 year.

(iii) **Maintenance Requirements**

Ditches shall be cleaned out as necessary such that free flow is not impeded.

k) Filter Drains, Soakaways and Infiltration Trenches**(i) General**

The requirements of this section relate to minor repairs to filter drains, soakaways and Infiltration Trenches which may incorporate a properly formed invert or collection pipe. If pipes are incorporated the requirements in Paragraph 2.8.f) of this Part shall also apply.

(ii) Inspection Requirements

Service inspections of filter drains, soakaways and Infiltration Trenches shall be carried out at the surface at a maximum interval of 2 years. Use shall be made of gully, catchpit and interceptor emptying and cleansing operations and inspection procedures to check that filter drains, soakaways and Infiltration Trenches are operating satisfactorily.

l) Culverts and Small Span Bridges**(i) General**

The requirements of this section relate only to examination for scour and the maintenance of the free flow of water through culverts and small span bridges not covered by Paragraph 2.8.f) of this Part and falling within the scope of BD63/94 (DMRB 3.1.4).

This section refers to the flow of water in culverts and small span bridges with spans or diameters between 2 and 3 metres (inclusive); multi-cell culverts where the cumulative span is greater than or equal to 5 metres; and corrugated metal structures 0.9 metres or more in span. Water courses in smaller Structures are covered by Paragraph 2.8 f) of this Part.

(ii) Inspection Requirements

Service inspections of culverts and small span bridges shall be carried out at maximum intervals of 1 year and shall take place in the spring. Grilles, trash screens and watergates shall receive service inspections at 6 monthly intervals in spring and autumn.

m) Balancing Ponds**(i) General**

The requirements of this section relate to repairs to balancing ponds. They do not relate to associated feeder pipes or ditches which are covered in Paragraph 2.8.f) and j) of this Part.

Balancing ponds and associated feeder pipes or ditches are sometimes provided for flood control purposes where the surface water run-off from road surfaces is too great to be immediately dealt with by the receiving water courses or sewers. This important provision and the need for maintenance shall not be overlooked, since the ponds are often some distance from the road. Flooding and/or damage to installations downstream of the pond can be a serious matter and maintenance shall not be neglected.

The Company shall take all necessary measures to ensure the effective operation of balancing ponds is not impaired by:-

- a) blockage of the feeder pipe or ditch;
- b) silting in the pond causing a loss of storage capacity;
- c) damage or erosion to the pond banks, walls or bunds;

- d) damage or obstruction to the pond outlet, which adversely affects the controlled rate of discharge;
- e) safety aspects including, but not limited to, the maintenance of fences to prevent unauthorised access.

A record of all balancing ponds shall be held on the RMMS. Specific details of each pond, including capacity and means of access shall be included in this record.

Balancing ponds may become important sites for nature conservation. Prior to commencing any maintenance of a balancing pond, the Company shall ascertain from a qualified ecologist if any particular ecological measures shall be taken, and the Company shall be responsible for implementing such measures.

(ii) **Inspection Requirements**

Service inspections of this section balancing ponds with an outfall regulating device shall be carried out at 6 month intervals, once in the spring and once in the autumn.

Service inspection of balancing ponds with no outfall regulating device shall be carried out at maximum intervals of 2 years.

n) **Ancillary Items**

(i) **General**

The requirements of this Paragraph 2.8.n) relate to maintenance and repairs to ancillary drainage items including headwalls, aprons, sluices, tidal flaps, penstocks, valves and pumps.

A schedule of ancillary items for road drainage including all sluices, tidal flaps and pumps shall be maintained on the RMMS.

A complete drainage system may include many ancillary items and these shall be inspected for erosion, mechanical damage and operational efficiency. This shall particularly include sluices, tidal flaps and pumps.

(ii) **Inspection Requirements**

Service inspection of headwalls, aprons and the like where associated with culverts, shall be carried out at maximum intervals of 1 year. Those associated with piped drainage systems shall be carried out at intervals of 2 years.

Service inspection of sluices, tidal flaps and the like shall be carried out at intervals of 6 months, once in the spring and once in the autumn.

Service inspection of pumps and other specialised equipment shall be carried out in accordance with the manufacturers' recommendations.

o) **Flooding**

(i) **General**

The requirements of this section relate to maintenance requirements in the event of flooding of the Project Roads caused by the inadequate provision or operation of road drainage facilities, by abnormally high river and tidal water or by inadequacies in the non-road drainage system.

(ii) **Inspection Requirements**

No programmed service inspections are essential but during periods of very heavy/prolonged precipitation the Company shall identify areas which may be prone to flooding.

(iii) **Maintenance Requirements**

Where flooding occurs, causing hazardous conditions, the appropriate warning signs shall be placed in position immediately and shall be removed promptly when no longer required. Details of such occurrences shall be reported in the annual report.

The cause of the flooding shall be ascertained promptly and the Project Roads restored to a safe condition. Where the flooding is attributable to inadequate infrastructure, measures to permanently relieve the problem shall be identified by the Company, and the Company shall be responsible for the implementation of any O&M Construction required.

If the cause is attributable to the actions of a Third Party, the matter shall be taken up by the Company with the Third Party at the earliest opportunity.

If flooding occurs to land/property owned by a Third Party, which is attributable to the Project Roads, measures to permanently relieve the problem shall be identified by the Company, and the Company shall be responsible for the implementation of any works required.

p) **Embankments and Cuttings**

(i) **General**

The requirements of this section relate only to the inspection regimes and repair timescales for the routine maintenance of earthworks on the Project Roads.

(ii) **Inspection Requirements**

Service inspections of all embankments and cuttings shall be carried out at maximum intervals of 1 year to check for any indication of slippage or rock slides. Where evidence is found by the Company that an embankment or cutting may be unstable in any way the Company shall prepare a report with proposals for investigation or action. The Company shall be responsible for the implementation of any investigations and remedial works required which shall be included in the annual report.

q) **Sweeping and Cleansing**

(i) **General**

The requirements of this section relate to the responsibilities of the Company with regards to the Environmental Protection Act 1990 : Code of Practice on Litter and Refuse, for the sweeping and cleansing of all channels, hard landscaping, footways and cycle facilities, clearing and removal of debris from traffic lanes, footways and cycle facilities, verges and central reservations and the removal of litter generally, including from slopes and embankments. In terms of the above Act, the Company shall carry out Angus Council and Dundee City Council's duties insofar as the same relate to the O&M Site.

The Company shall also be responsible for ensuring the Project Roads are maintained in accordance with the Section 95 of the Roads (Scotland) Act 1984, in respect of mud, spillages etc. which may create a danger or inconvenience to Users. In this respect the Company shall take measures to restore the Project Roads including sweeping or cleansing. The Company may seek to recover such costs where the person responsible

(including Angus Council) can be determined by the Company. It will be the Company's responsibility to recover such costs. Where the person responsible can not be determined or the Company are unable to recover their costs the costs shall be borne by the Company.

(ii) **Inspection Requirements**

No programmed service inspections shall be required. Reliance shall be placed on the safety inspections and safety patrols or notification by the police or public to instigate appropriate action to restore the Project Roads.

(iii) **Maintenance Requirements**

Verges, channels, footways, cycle facilities, central reservations and slopes shall be swept and/or scavenged as the need arises in order to remove detritus and achieve the standards of cleanliness set out in the Environmental Protection Act 1990: Code of Practice on Litter and Refuse. All Project Roads shall be swept at least every six months.

Sweeping and cleaning shall be carried out as necessary to meet the requirements of the Environmental Protection Act.

The removal of detritus and mud, and treatment of spillages etc shall be treated as a Category 1 Defect.

The control of litter and refuse on the Project Roads shall be based on four standards of cleanliness, grade A, B, C and D which are defined as follows:-

- A. grade A means: no litter or refuse;
- B. grade B means: predominantly free of litter and refuse apart from small items;
- C. grade C means: widespread distribution of litter and refuse with minor accumulations;
- D. grade D means: heavily littered with significant accumulations.

On the Project Roads, grade A standard shall be achieved after cleaning. If the standard falls to grade B, the area shall be restored to grade A within 20 Working Days. Where the standard falls to grade C, the area shall be restored to grade A within 5 Working Days. The Company shall ensure grade D standard is never reached.

In the case of central reservations these time limits shall not apply. If the standard falls to grade B central reservations shall be restored to grade A when other work is carried out either on the central reservation itself or in a part of the carriageway immediately adjacent. If the standard falls to grade C then the Company shall take necessary measures to restore it to grade A within one month.

The Company shall maintain to grade A standard any hedge, fence or wall forming a part of the boundary of, or within the Project Roads.

When cleaning litter and refuse from landscape areas, the Company shall avoid damaging wildlife habitats.

The Company shall be responsible for cleaning litter and refuse from land adjoining the Project Roads where the litter or refuse has originated from the Project Roads or Users. The Company shall obtain the approval of each owner and occupier of the adjoining land prior to commencing cleaning operations, and for so long as such approval is unreasonably withheld or delayed by any owner and occupier, shall have no further responsibility in respect of the relevant litter and refuse.

Litter and refuse collected during cleaning operations shall be removed from the Project Roads and disposed of at a licensed tip site by the Company.

The Company shall ensure that all sweeping and cleansing operations are carried out safely and efficiently in line with the requirements of the Code of Practice for "The Reduction of Traffic Delays at Roadworks" (1992).

Where material is deposited by others or by the Company, in order to carry out a cleansing operation (i.e. sanding of oil spillage), the Company shall treat the affected area as a Category 1 Defect.

The Company shall maintain and replace as necessary litter bins on all lay-bys and bus lay-bys in the O & M site. The Company shall ensure that litter bins are emptied with a frequency sufficient to maintain a grade A standard in their environs.

The Company shall remove all graffiti found within the O & M Site within 5 Working Days of such graffiti coming to its attention.

r) **Safety Fences and Barriers**

(i) **General**

The requirements of this section relate to the maintenance of all types of safety fences, barriers and pedestrian guard rails. They do not relate to parapets and guard rails on Structures.

Maintenance of safety fences and barriers shall generally be confined to the repair of damaged sections and ensuring correct assembly and operation. The repair of damaged sections shall usually be instigated by safety inspections or reports from other sources and shall require prompt attention in view of the likelihood of danger to Users.

ii) **Inspection Requirements**

Service inspections of all steel and wire rope safety fence shall be carried out at maximum intervals of 2 years in respect of mounting height, surface protective treatment and structural condition.

Service inspections of tensioning devices of steel tensioned safety fences, including wire rope, shall be carried out at maximum intervals of 4 years. The service inspection shall include resetting to the correct torque.

Service inspections of pedestrian guard rails shall be carried out at maximum intervals of 2 years.

(iii) **Maintenance Requirements**

Damaged sections of safety fences and barriers shall be treated as Category 1 Defects unless damage is superficial with no loss of integrity of the safety fence/barrier. Temporary repairs shall include removal of all remnants of damaged fencing including posts and signing/cones. Permanent repairs shall be carried out as soon as possible and in any case within 8 Working Days of the report or inspection.

Sections of steel safety fence extending to at least one bay, that are found to be mounted at heights outside the limits specified below or to have inadequate surface protection or for which the structural integrity is in doubt, shall be treated as Category 2 Medium Defects and shall be rectified within 20 Working Days.

(iv) **Mounting Heights for Steel Safety Fences**

The specified limits of the mounting heights for the various forms of steel safety fence are as detailed in DMRB (outwith which a Defect shall be recorded).

Where a carriageway works shall be required which affect the mounting heights of safety fences, the mounting heights shall be adjusted during the carriageway works

s) **Fences, Walls, Screens and Noise Barriers**

(i) **General**

The requirements of this section relate to the maintenance of all types of fences (excluding safety fences), walls, screen fences and noise barriers. They do not relate to parapets and guard rails on Structures, including the structural element of noise barriers, which are outside the scope of this section. They do not relate to retaining walls of retained height greater than 1.5 metres, ground level to ground level, which fall within the scope of BD63 (DMRB 3.1.4) and which shall be maintained as Structures.

The replacement of steel, concrete, and timber elements made necessary as a result of long term deterioration is not covered by this section, but the requirements for service inspections are included.

Any fencing, walls, screens or noise barriers, which are the responsibility of Angus Council, along or within the boundaries of the Project Roads shall be the responsibility of the Company.

Any fencing, walls, screens or noise barriers which are the responsibility of third parties, along or within the boundaries of the Project Roads shall be included in the inspections and the Company shall liaise with the third parties if any deterioration of the fencing, walls, screens or noise barriers requires rectification of Defects which constitute an immediate or imminent hazard to the Users

When maintenance is being carried out on small retaining walls the provision of pedestrian protection in accordance with BD48 (DMRB 3.4.7) shall be provided where required.

(ii) **Inspection Requirements**

Service inspections of fences, walls, screens and noise barriers shall be carried out in respect of integrity and where appropriate stockproof qualities, at maximum intervals of 1 year.

Service inspections shall be carried out at maximum intervals of 2 years in respect of structural condition.

In the event that any protected species of fauna, or farm animal, is killed on the Project Roads, the Company shall within 24 hours make good any defective fencing or provide additional measures as recommended by the relevant specialists.

t) **Road Studs**

(i) **General**

The requirements of this section relate to reflective and non-reflective road studs of all types and colours including stainless steel and other studs including those installed as CHART Referencing System Link and Section markers.

To be effective, all types of road studs shall be firmly fixed at the correct level. Reflecting types shall retain their reflectivity. Some reflecting types are designed to be self

cleansing, but the lenses can become dirty or obscured by deposits of detritus and can become less effective by becoming more deeply embedded in the road surface.

Road studs which become loose or displaced are further Defects which need maintenance attention.

(ii) **Inspection Requirements**

Service inspections for reflective conspicuity and lens loss shall be carried out at maximum intervals of 1 year during the hours of darkness. All reflecting road studs shall comply with BS 873: Part 4 (1993). Inspections shall be programmed to ensure all maintenance Works are completed before 31st October each year.

Service inspections for defective or missing road studs shall be carried out at maximum intervals of 1 year.

Defects relating to the general condition of road studs are likely to be detected in the first instance by safety inspections.

(iii) **Maintenance Requirements**

Displaced road studs lying on carriageways, or lay-bys and loose road studs if judged to be a hazard, shall be removed immediately if practicable. Otherwise Users shall be protected as far as possible. As a minimum the Company shall display notices warning of the hazardous conditions and remedy the Defect as soon as possible. Remedial action, including the filling of any cavities following removal of the road studs, shall be completed within the Category 1 response time.

Replacement of defective or missing road studs associated with road markings shall be carried out when there is greater than 10 per cent loss per kilometre on straight or large radius curves, or greater than 10 per cent loss per 100 metres on bends where hazard road markings are present. Replacement shall be completed within 3 months of the appropriate defect threshold being exceeded, or within 5 Working Days if the road studs are required to maintain the legality of prohibitory road markings.

u) **Road Markings**

(i) **General**

The requirements of this section relate to the maintenance of road markings in paint or thermoplastic materials.

The inspection and maintenance requirements for road markings shall be as set out in TD26 (DMRB 8.2).

Many road markings are used to give effect to regulatory provisions. The Company shall ensure that the legal status of the markings is not affected by undue wear or other damage.

All road markings shall require to have a minimum retro-reflectivity value of 100mcd/m²/lux over a functional life of 24 months.

(ii) **Inspection Requirements**

Notwithstanding any provisions within TD26 (DMRB 8.2), service inspections in respect of wear shall be undertaken at maximum intervals of 1 year.

Inspections shall initially be visual and conditions shall be assessed against the criteria set out in TD26 (DMRB 8.2). Any suspect areas identified by the visual inspections shall be subject to further testing as described in TD26 (DMRB 8.2).

Service inspections for retroreflectivity shall be carried out at maximum intervals of 2 years using a method approved by Angus Council. The retroreflectivity criterion of 100mcd/m²/lux noted in TD26 (DMRB 8.2) shall be regarded as an intervention level.

(iii) **Maintenance Requirements**

Requirements shall be as stated in Paragraph 2.4 of this Part and in TD26 (DMRB 8.2).

v) **Road Traffic Signs**

(i) **General**

The requirements of this section relate to the maintenance of permanent road traffic signs, including bollards and marker posts.

The inspection and maintenance requirements for road traffic signs, which are summarised below, are as generally set out in the TD25 (DMRB 8.2), Maintenance of Traffic Signs. The requirements set out below shall take precedence over the DMRB where differences occur.

Any reference in TD25 (DMRB 8.2) to the Traffic Signs Regulations and General Directions 1981 shall be taken to mean "the latest edition of the Traffic Signs Regulations and General Directions".

The Company shall be responsible for the inspection and maintenance of the road signs to Diagram 7018 (New Road Layout type signs) erected as part of the New Works until their removal. These signs shall be removed 6 months after New Works Substantial Completion.

All defects on Traffic Signs shall be treated as Category 1 Defects.

The Company will not be required to maintain the lighting equipment on illuminated signs.

(ii) **Inspection Requirements**

Service inspections shall be carried out at maximum intervals of 2 years in respect of:

- A. Target distance (in daylight and after dark);
- B. Legibility distance (in daylight and after dark);
- C. Average surface luminance (after dark);
- D. Surface colour (in daylight and after dark);
- E. Retroreflectivity (in daylight and after dark);
- F. Surface protective finish to posts and other structural condition;
- G. Security of brackets, bolts and other fittings.

Inspections of sign faces shall be made after the signs have been cleaned. All traffic signs must achieve the minimum permitted levels for retroreflectivity and sign luminance which are set out in Table 1 of TD25/86 (DMRB 8.2).

Inspections shall be visual and condition shall be assessed against the criteria set out in TD25/86 (DMRB 8.2). Further inspection methods, as described in TD25/86 (DMRB 8.2), may also be appropriate and shall be initiated where suspect areas are identified.

(iii) **Maintenance Requirements**

Sign faces shall be cleaned at maximum intervals of 1 year. Some signs shall require to be cleaned more frequently to comply with the requirements of this section.

Moving parts of signs shall be cleaned and lubricated at maximum intervals of 1 year.

Brackets, bolts and fittings shall be tightened and adjusted at maximum intervals of 2 years.

Defects affecting the legality of regulatory or mandatory signs shall be treated as Category 1 Defects.

w) **Road Lighting**

(i) **General**

The Company will not be required to maintain road lighting.

x) **Bus Shelters**

(i) **General**

The requirements of this section relate to the maintenance of all bus shelters on the Project Roads.

(ii) **Inspection Requirements**

Service inspections of all bus shelters shall be carried out on a weekly basis.

(iii) **Maintenance Requirements**

Any damage to the bus shelter shall be repaired within 5 Working Days. This shall include the removal of graffiti. All bus shelters shall be cleaned on a four weekly basis.

y) **Traffic Measuring Equipment**

The Company shall be responsible for the maintenance of all Traffic Measuring Equipment within the New A92, namely that at References T1 to T4 inclusive as shown on the table at paragraph 1.14 of Part 2, Section 3 (Specific Requirements) of Schedule 2.

z) **Accommodation Works Apparatus located within the O & M Site**

The requirements of this section relate to any privately-owned apparatus (including, without limitation, all pipes, ducts, cables, wires, channels and culverts) either:

- (i) those forming part of the Accommodation Works and listed in Annex 2/3 to this Part 2 of Schedule 4; or
- (ii) any other privately-owned apparatus discovered by the Company during the course of the O&M Works

which are located within the boundaries of the O & M Site.

Privately-owned apparatus is that in which no statutory right is vest in an undertaker within the meaning of Part IV of the New Roads and Street Works Act 1991.

Such privately-owned apparatus shall be deemed to form part of the Project Roads and shall require to be operated and maintained accordingly but subject always to the Company using all reasonable endeavours to maintain the continued proper operation of the services provided by or through such apparatus for the benefit of the owner of the apparatus.

aa) **Traffic Signals**

The Company shall be responsible for the maintenance of the fabric of the traffic signals. The maintenance of the electronics and electrical function of the traffic signals shall be included in the term contract which Angus Council has at present.

Any replacement of traffic signals shall remain the responsibility of the Company,

2.9 **Extent of Maintenance**

The Company shall be responsible for carrying out the O&M Works within the boundaries of the O & M Site in accordance with the Agreement. The boundary of the O&M Site is detailed on drawings listed in Appendix 0/4 of Part 5 of this Schedule.

It shall be the responsibility of the Company to liaise with the adjacent maintaining authorities and agree terms for the maintenance of any element of the Project Roads which may overlap or be common to each maintaining body.

The Company shall be responsible for all drainage outfalls. Where no servitude exists, the Company shall be responsible for obtaining access for maintenance. Where drainage outfalls connect into a system maintained by another party, then the Company shall be responsible for obtaining joint maintenance procedures.

2.10 **Pollution Control Monitoring**

The Company shall monitor the water quality of outfall discharges at representative locations throughout the O & M Site. The Company shall agree with the Scottish Environment Protection Agency (SEPA) the sampling regime, methods and analysis for both biological quality and chemical quality before the commencement of monitoring.

3. Winter Maintenance

3.1 General

Winter maintenance by the Company shall ensure the safe movement of traffic on the Project Roads and keep to a minimum delays caused by adverse weather.

3.2 Overall Performance Requirements

a) Precautionary Treatment

The whole width of any individual carriageway and slip roads including hardstrips where ice, frost or snow conditions are forecast shall be subject to appropriate precautionary treatment before such conditions occur.

b) Snow

Where precautionary treatment is insufficient to melt snowfall, ploughing, with an appropriate application of de-icing material, and/or blowing as necessary of accumulations of snow shall be carried out.

c) General Planning and Operational Requirements

Winter maintenance on the New A92 carriageway and its associated slip roads and grade-separated junctions shall be provided following the Permit to Use Date on a 24-hour basis for the duration of the winter season. The winter season shall be from (and including) the Monday immediately preceding 1st October to the Friday immediately following the 15th May each year.

Footways and Cycleways shall be treated (pre-cautionary salting, snow clearing etc.) as follows:-

Monday to Saturday (excluding 25 to 26 December and 1 to 2 January)	0600-1800
Sunday, 25 to 26 December and 1 to 2 January	0800-1600

Where treatment is carried out to the Project Roads outside the hours of treatment to cycletrack/footways, the same treatment shall be applied to the cycletrack/footways at the next available treatment time.

Outwith the seasons noted above the Company shall undertake a reactive response to any adverse weather. The Company shall deal with winter conditions if they arise outside these periods by providing winter maintenance to deal with the event after it has occurred in accordance with the requirements of this Part of this Schedule. It is considered that winter maintenance will not be required during the months of June, July and August.

At those points on the Project Roads where responsibility passes from the Company to another maintenance organisation, the Company shall liaise with the adjacent maintenance organisation when defining treatment routes to ensure that no sections of road are left untreated. Treatment and ploughing routes shall be designed to facilitate cross boundary co-operation. Direct communication links shall be established with adjoining road maintenance organisations.

Vehicles carrying out winter maintenance activities shall do so only in the direction of normal traffic movements and shall at no time travel in the opposite direction to the road users. This is also applicable to cycletrack/footways where the winter maintenance vehicles shall travel in the same direction as traffic on the adjacent carriageway and the Company shall plan the routes accordingly.

In normal circumstances, vehicles carrying out winter maintenance activities shall not be permitted to execute U-turns using central reservation crossovers. However, such manoeuvres may be undertaken in exceptional conditions where there are no other moving vehicles on either

carriageway and urgent action is needed to get traffic moving and where specific permission has been granted by Angus Council or Tayside Police.

The Company shall be responsible for all aspects of the winter maintenance service including dealing with Tayside Police and other parties.

3.3 Planning and Reporting Requirements

a) Winter Maintenance Strategy

Nine (9) months prior to the Scheduled Permit to Use Date and thereafter on or before the 1st August in each year a winter maintenance strategy (WMS) shall be formulated by the Company and submitted to Angus Council in accordance with the Review Procedure. The WMS shall contain detailed arrangements for all aspects of winter maintenance including, but not limited to:

- (i) management arrangements - including named personnel, detailing staff training and experience with regard to winter maintenance;
- (ii) collection and management of weather data;
- (iii) ice detection and prediction;
- (iv) monitoring and patrols;
- (v) de-icing materials, storage and loading;
- (vi) labour strategy and resources including standby arrangements;
- (vii) vehicle/plant specification and deployment with location of depots;
- (viii) treatment routes;
- (ix) treatment decision making criteria;
- (x) treatment proposals;
- (xi) lane, slip road , footway etc. clearance strategies;
- (xii) communication and liaison with all interested parties including Angus Council, Dundee City Council, Tayside Police, media and the public;
- (xiii) service and maintenance arrangements for vehicles and plant;
- (xiv) salt reconciliation system;
- (xv) a global positioning system (GPS) as detailed below and accessible by Angus Council;
- (xvi) other relevant topics, including e.g. snowfences, as appropriate.

The Company shall publish on or before the 1st October in each year after the Permit to Use Date a statement detailing its winter maintenance policies and standards in order to inform the general public of the level of service to be provided.

This statement shall be made available for inspection by interested parties at the local offices of the Company Angus Council offices in Forfar, Montrose and Arbroath and Dundee City Council offices. The Company shall place notices in relation to this statement in the local press (Dundee Courier and all Angus Burgh newspapers) for the first publication after the above date.

b) Reporting

The Company shall notify Angus Council, Tayside Police and local radio/media immediately of any major problems encountered on the Project Roads as a result of winter conditions and in particular of any closures to traffic. Details shall include the extent of problems, the exact location and the estimated time for restoring the Project Roads to full use.

c) Records

The Company shall keep accurate records for all winter maintenance activities. The following list identifies the minimum records required:-

- (i) how decisions were taken, when and by whom;
- (ii) treatment records;
- (iii) ice detection records;
- (iv) weather forecasting, and any assessment of accuracy;
- (v) meteorological data;
- (vi) response times achieved;
- (vii) plant equipment deployment records and driver/operator logs;
- (viii) records from individual vehicles, including GPS records and weights prior to and after treatment;
- (ix) quantities of de-icing materials used and in stock;
- (x) logging of calls on two way communication system;
- (xi) plant and equipment downtime and software faults;
- (xii) information to the media;
- (xiii) level and validity of public complaints;
- (xiv) road blockages, giving lengths and times, and resources employed specifically to deal with blockages;
- (xv) material testing.

d) Annual Report

The Company shall submit as part of the Annual Report detailed in Part 7 of this Schedule a review of the performance by the Company of winter maintenance activities and proposals to carry out any future improvements.

3.4 Specification**a) Decision Making**

During the winter maintenance season the Company shall provide suitable, named persons who shall be available at all times and whose function will be to monitor the weather and road conditions. They shall receive, monitor and interpret on a continuous basis meteorological information and take decisions on the implementation of winter maintenance activities based on the totality of the information available to them.

The decision maker shall be suitably trained in the interpretation of the information.

Outside the season, the Company shall provide a reactive response to adverse winter weather if it affects the Project Roads.

The Company shall have access to the ice prediction system from Angus Council and shall provide software and a suitable workstation to interrogate this information. Angus Council undertakes to make available to the Company its ice prediction system. The recorded decision shall be made taking into consideration all the information available and in particular all ice prediction stations and shall not be limited to those on the Project Roads.

The recorded decision shall be communicated to Angus Council, Dundee City Council and Tayside Police.

Angus Council will arrange to obtain thermal mapping for the Project Roads and the Company shall have access to this information.

b) **Response Times**

The maximum time between the decision of the Company to commence any treatment activity and the actual start of work on the Project Roads shall be one hour.

Within the Project Roads on any section of a route identified for treatment, the maximum time permitted for the application of de-icing material as a precautionary treatment shall be two hours (i.e. time taken from the beginning of spreading to completion of spreading.)

c) **De-icing Materials**

Rock salt complying with BS 3247:1991 for fine salt shall be used. In addition to the requirements to comply with BS 3247:1991, salt shall, if required, be treated with sodium ferrocyanide as an anti-caking agent.

Ethylene glycol shall comply with Ministry of Defence Specification 68-118 (De-icing/Anti-Icing Fluid for Runways) unless otherwise agreed by Angus Council

Monthly sample checks shall be carried out by the Company to test materials for conformity.

The Company shall be responsible for ensuring adequate stockpiling of materials before winter in each year. The Company shall establish the minimum level to which the stock may fall before replenishment becomes necessary. The volume of material in store shall be monitored continually and replenished before there is a risk of stocks being exhausted.

Materials, especially salt shall be stored in such a manner as to satisfy all requirements of SEPA. Written confirmation of SEPA's consent to storage arrangements shall be copied to Angus Council.

Ethylene glycol shall be stored in bulk containers.

Urea, ethylene glycol or other approved chemical de-icing substance shall be used where the use of salt is prohibited by a design requirement.

d) **Precautionary Treatment**

Precautionary treatment shall be undertaken to prevent ice forming or snow settling on the Project Roads. When the Project Roads surface temperature falls to plus 1 °C, precautionary treatment shall take place unless:-

- (i) no moisture is forecast on the Project Roads;
- or
- (ii) the latest weather forecast information indicates that the temperature will rise and there will be no period of frost.

Under (i) the Company shall take into account seepage or run off on to the Project Roads.

Forecast predictions of the expected moisture levels and temperatures shall be recorded. Project Roads inspections shall be carried out to confirm information about the road surface condition.

The Company shall establish under 3.3a(x) above its own treatment proposals in order to fulfil its obligations. For the generalised weather conditions detailed, the following treatments are considered the minimum requirements but shall not relieve the Company of their obligations.

The details below are for dry salt stored uncovered outside. The Company may propose alternative techniques including wet on dry salt, urea or ethylene glycol.

For frost and light snow, salt shall be spread at 10 grams/square metre.

Where freezing conditions are expected after rain, salt shall be spread to prevent ice forming at 20 to 40 grams/square metre according to the amount of moisture present and the temperature expected.

Where continuous snow is forecast, salt shall be spread at 20 to 40 grams/square metre according to the severity of the anticipated snowfall. It is essential that enough salt be applied before snow starts to settle on the road surface.

Special attention shall be paid to sections of roads, including bridges, and sections lying in low ground where the local topography results in these sections being more prone to freezing.

Where ice has formed, salt shall be spread up to 40 grams/square metre depending on the amount of ice present and the temperature required to ensure rapid melt. Particular attention shall be paid to lengths that are susceptible to run off water from verges or central reservations.

Melted water from thawing windrows of snow, or from accumulation of snow on the central reservations or verges can spread over the carriageway and re-freeze, particularly at night. Treatment shall be provided to eliminate such hazards.

A summary of spread rates for precautionary treatment is given in Table 3/1.

Table 3/1 - Winter Maintenance Precautionary Treatment Spread Rates.

Weather Conditions	Definition	Spread Rates	
		Dry Salt (gram/square metre)	Urea (gram /square metre)
Light	Frost and/or light snow	10 to 20	20
Moderate	Freezing conditions after rain	20 to 40	20 to 40
Severe	Continuous snow/ freezing rain/ freezing fog	20 to 40	20 to 40

For precautionary treatment when ice or light snow is expected, 0.01 litres/square metre of neat ethylene glycol will provide protection to minus 4°C.

Should temperatures drop significantly or if ice forms, then the application rate shall be increased in line with the application rates applicable to the situation as recommended by the supplier of ethylene glycol.

e) **Snow Clearance**

Snow shall be removed from the Project Roads as soon as it occurs in accordance with the operating times given in Paragraph 3.2 and the response times given in Paragraph 3.4(b).

Snow which falls after precautionary treatment shall be treated when the snow depths is less than 30 millimetres. Treatment shall be salt spread at 20 to 40 grams/square metre. Spread rates below 40 grams/square metre shall only be used when snow has stopped falling and the spread rate will be sufficient on to melt the remaining snow within one hour of application.

Snow which falls after precautionary treatment shall be ploughed when the snow depths exceed 30 millimetres including areas of drifting. Each pass of the plough shall be supplemented by salt spread at 20 to 40 grams/square metre. Spread rates below 40 grams/square metre shall only be used when snow has stopped falling and the spread rate will be sufficient to melt the remaining snow within one hour of application.

If the temperature drops during the ploughing/salting operation, the Company shall monitor the temperature and increase the salt spread to 40 grams/square metre, if necessary. When monitoring temperature, propriety ice sensors shall be placed at road-side sites, or thermometers at suitable sites in compounds.

During prolonged falls of snow, ploughing shall be used continuously from the onset to prevent build-up and compaction by traffic. This shall be supplemented by simultaneous salting as above. Where snow depths reach 120 millimetres, or when tackling drifts, or when vehicles are working on gradients, ploughing may be undertaken without salting so that the weight of the loaded vehicle may aid traction. Salting shall be resumed as soon as possible thereafter.

Where snow falls accumulate and ploughing/salting cannot clear the accumulation within two hours of the accumulation occurring, and the available lanes are reduced to one lane in each direction, the Company shall use a snowblower followed as soon as possible by salt spreading at 40 grams/square metre. Snowblowing shall be required when ploughing has resulted in a built up of snow in the verges and when further ploughing does not result in a cleared width suitable for traffic. Snow blowing shall not be required on footways or cycleways.

Care must be taken in the use of salt for the treatment of hard packed snow/ice as it can result in an uneven and slippery surface. Exceptionally in those circumstances, a single sized abrasive aggregate of particle size up to 6 millimetres, or a 5 millimetres sharp sand having a low fine content shall be added as necessary to the salt in a ratio of 1:1 and spread in successive treatments at a rate of 20 to 40 grams/square metre. The application shall be repeated at least every 6 hours until either hard packed snow/ice conditions are eliminated or ploughing can be recommenced. The particles shall be angular in shape, but not sharp enough to cut vehicle tyres. Cinders may be used, and shall be free from chemicals, such as sulphates, which may damage concrete. Reversion to salt only shall be made as soon as possible and excess aggregate/sand shall be removed from the carriageway by sweeping.

On elevated structures snow shall not be deposited off the carriageway onto the area below.

When planning and carrying out snow clearance operations, particular attention shall be paid to the layout of the carriageway regarding the overall number of lanes and the location of entrance and exit slip lanes, especially where dedicated lanes join and depart the main carriageway at frequent intervals to the left. It shall be necessary to ensure smooth merging of vehicles at these locations. A clear path shall be kept open between those entry and exit points where frequent lane changes are necessary and sufficient capacity maintained to cope with the expected traffic flows. Where necessary echelon ploughing techniques with a requirement for at least 3 vehicles shall be employed.

In very exceptional circumstances of heavy snow (falls in excess of 100mm per hour) on dual carriageways, one lane or the main through lane and slip roads shall be accorded priority. Treatment shall resume to clear any closed lanes as soon as snow ceases to fall. Closure of one lane of the carriageway will only be permitted after discussion with Angus Council.

Irregular windrows caused by ploughing passes, especially those that weave from one lane to another, shall not be permitted. Lanes shall be completely cleared and the windrows of snow remaining shall form a smooth and continuous line without sudden encroachments into the cleared path.

All lanes shall be cleared as soon as possible and the hard strips, road markings and reflective studs cleared thereafter. Clearance work shall proceed continuously within the times given in Table 3/2.

When snow ploughing, the snow from two or more lanes shall not be ploughed onto the central reservation.

Lifting and removal of snow from multi-level and grade separated interchanges and other locations shall be undertaken where necessary.

The Company shall maintain close co-operation with Railtrack and other Relevant Authorities. When ploughing, care shall be taken that snow does not build up across the tracks or against gates, bridge parapets, fences and walls.

A summary of treatment rates for built up ice and snow clearance is given in Table 3/2 for guidance.

Table 3/2 - Ice and Snow Clearance Treatment Rates

Road Surface Conditions	Treatment			
	Spreading gram/square metre		Ploughing	Blowing
	Salt	Urea		
Ice formed	20 to 40 ¹	20 to 50	No	No
Snow covering less than 30 millimetres thick	20 to 40	20 to 50	No	No
Snow covering exceeds 30 up to 50 millimetres thick	20 to 40	20 to 50	Yes	No
Snow covering exceeds 50 mm thick	40	50	Yes	No
Snow accumulations due to prolonged falls	40	50	Yes (continuous)	Where ploughing/salting not successful (see above)
Hard packed snow/ice less than 20 millimetres thick	40 ¹ (successive)	50 (successive)	No	No

Where the use of ethylene glycol is permitted, during prolonged falls of snow, ploughing shall be continuous followed by repeated applications of ethylene glycol up to 0.009 litres/square metre.

f) **Vehicle, Plant and Equipment Requirements**

All spreading vehicles used for winter maintenance purposes shall:-

¹ In these circumstances the application of mixed salt/abrasive aggregate shall be used in accordance with Paragraph 3.4(e)

- (i) be fitted with spreading equipment which complies with BS 1622:1989 Class A1;
- (ii) be equipped with a 2 way communication system which will permit contact to base and to other vehicles, including vehicles in adjacent areas;
- (iii) be fitted with a data collection device and GPS to record and transmit; date and time of start/end of route; start spread/stop spread; distance travelled by mode; spread width; discharge rate and confirmation of spread; and vehicle speed;
- (iv) Prior to each winter be checked for compliance with the discharge performance tests as described in BS1622:1989 Appendices B & C.

Salt or mixed loads on Winter Maintenance vehicles shall be monitored by means of a weighbridge or other means approved by Angus Council.

All carriageway ploughs shall be a minimum width of 3.05 metres and a minimum height of 1.15 metres.

All footway and cycleway ploughs shall be of a size capable of clearing the whole width of the cycletrack/footway in one pass.

Vehicles used for ploughing shall be capable of ploughing and gritting in all conditions using the above minimum ploughs. The number of vehicles/capability/capacity of the vehicles shall be such that ploughing and gritting shall be continuous and any point on the Project Roads shall be ploughed at intervals not exceeding 1 hour 30 minutes.

The minimum net power output of the carriageway vehicles used for ploughing shall be 260kW (350BHP) and 6 x6 all wheel drive.

The Company shall provide sufficient vehicles, plant and equipment along with associated servicing arrangements to ensure that there shall be no shortage of the said vehicles, plant and equipment due to breakdowns, planned servicing etc at any time with the exception of June, July and August

Ethylene glycol shall be applied evenly by jets mounted on booms attached to tanker vehicles that will allow the largest area to be evenly sprayed in the minimum time.

Snow blowers shall have a minimum clearing width of 2.5 metres and a clearing capacity of 1500 tonnes of snow per hour.

The Company shall ensure that adequate stocks of winter grade vehicle fuel are maintained at each depot for the exclusive use of the winter maintenance fleet in order to overcome any unforeseen problem of non-delivery which may occur. Storage systems and vehicle fuel tank and fuel line layouts shall comply with BS6380

g) **GPS**

All vehicles shall be fitted with GPS capable of remotely monitoring, recording and detailing the position and operation of all winter maintenance vehicles. This shall include positioning with an accuracy of +/- 10 metres and salting operations such as start/stop of salting, spread rates, timing of all activities.

The Company shall monitor and record this information as detailed in their WMS.

The Company shall provide Angus Council with remote access to the GPS to allow monitoring, recording, investigation of records and analysis. This shall include all software (including mapping software), licensing, updates maintenance, airtime charges and appropriate training for 3 number staff. The Company shall provide to Angus Council such computer or other hardware required for remote access including a suitable desktop pc and modem connection.

h) **Vehicle, Plant and Equipment Operatives**

Operatives shall be appropriately trained and hold current licenses to operate the vehicles, plant etc as necessary.

The Company shall provide sufficient vehicles, plant, equipment, and operatives to ensure that there shall be no shortage of the said vehicles, plant and equipment due to sickness, holidays etc at any time with the exception of June, July and August.

i) **Communication**

The Company shall be responsible for establishing a communication procedure to keep all the appropriate parties updated of the Project Roads conditions, proposed treatments and resources employed, as part of the WMS.

The Company shall take account of surveillance of road conditions by police road patrols. The Company shall discuss with the local police ways of formulating guidance on the reporting of road conditions by police road patrols. Close liaison shall be established by the Company with the police to enable the Company to make full advantage of police observations and reports.

The Company shall take account of and make full use of opportunities which exist at both national and local level to disseminate information about snow, ice and frost on the roads by broadcasting.

The Company shall work closely with the broadcasting authorities but shall arrange for the police to be the source of such information, especially under emergency conditions.

The Company shall establish a communication system to deal with all enquiries, requests, fault reports and complaints, including from the public, in relation to the winter service. This shall be as detailed in the WMS.

j) **Training**

Prior to carrying out any winter maintenance in accordance with the Agreement following the Permit to Use Date winter maintenance personnel shall be selected, trained and assessed to meet the requirements of the winter maintenance operators qualification (Unit 4970144) awarded by SCOTVEC or equivalent recognised qualification awarded by a state of the European Union. Evidence of the individual's qualification shall be held for inspection at all times. Training records shall be maintained by the Company.

k) **Snow Fences and Shelter Belts**

Where required the Company shall provide snow fences and shelter belts. For guidance in the design and location of snow fences, the Company shall refer to TRRL Report LR 362 "Snow Fences" by L E Hogbin, (January 1970).

l) **Emergencies**

When required the Company shall comply with the requirements of the Police and other emergency services in respect to winter maintenance. Details of the requirements for emergencies are given in Paragraph 1.8 of this Part of this Schedule. In winter conditions, the Company shall respond to specific requests to provide winter maintenance plant, operatives and materials to preserve life and limb. Such circumstances would include pre-gritting/snow clearance in front of an ambulance.

4. Maintenance Of Road Pavements

4.1 General

Apart from routine and safety inspections, as detailed in Paragraph 2 of this Part, maintenance assessment surveys for the road pavement shall be performed to assess:-

- a) surface characteristics;
- b) structural performance.

The surveys shall be referenced to the CHART Referencing System described in Paragraph 1.4 of this Part.

Maintenance assessment surveys requiring traffic management shall, wherever possible, be carried out at the same time as other surveys which require similar traffic management measures. In addition, all surveys shall be arranged to minimise disruption and delays to Users and priority shall be given to all aspects of safety.

The survey methods described within this section represent current technology and practice. Similar or enhanced technology may be used subject to the Review Procedure.

Minimum pavement performance levels during the O&M Services shall be in accordance with DMRB.

4.2 Programming

A programme of surveys of the road pavement, other than for purposes of routine maintenance, shall be planned on or before the 1st January of each year for implementation in the following spring. A copy of this programme shall be submitted as part of the Annual Report as detailed in Part 7 of this Schedule. Maintenance assessment data shall be collected, recorded and analysed on a systematic and regular basis. All records shall be available for inspection by Angus Council when requested during working hours of Working Days.

The programme of surveys shall be such as to ensure the level of service specified in this section. Irrespective of the extent of the surveys proposed in any year, the programme shall be reviewed to take account of events which could lead to sudden deterioration of parts of the Project Roads, such as a severe winter.

4.3 Maintenance Assessment Surveys

Maintenance assessment surveys shall be undertaken by an independent qualified contractor.

Maintenance assessment surveys which relate to the surface characteristics shall include the following:-

- a) skidding resistance, assessed by a SCRIM survey as detailed in HD 28 (DMRB 7.3.1);
- b) ride quality and rutting, assessed by a high speed survey (HRM) as detailed in HD29 (DMRB 7.3.1).

The criteria for these surveys shall be as detailed in Volume 7 of DMRB.

Maintenance assessment surveys which relate to the structural performance shall comply with the following:-

- c) visual defects including cracking and spalling shall be recorded by a visual condition survey;

- d) residual life of a flexible pavement, assessed by a Deflectograph survey as detailed in HD29 (DMRB 7.3.2);
- e) residual life of a rigid pavement, assessed by a Falling Weight Deflectometer (FWD) survey as detailed in HD29 (DMRB 7.3.2),
- f) where the pavement layer thickness requires to be established it shall be assessed by ground radar as detailed in HD29 (DMRB 7.3.4);
- g) where the investigatory levels are reached, surveys may be required to be carried out on existing drainage provisions and effectiveness including the use of closed circuit television surveys. Material testing shall also be undertaken as required to supplement the above surveys.

The criteria for the structural performance surveys c) to e) detailed above are in Volume 7 of DMRB.

Maintenance assessment surveys for skidding resistance involving a SCRIM survey shall be carried out every two years for all Project Roads.

Pavement construction maintenance assessment surveys involving a high speed survey (HRM) for the New A92 shall be carried out on an annual basis and for other roads every three years.

4.4 Performance Criteria

The performance criteria for the road pavement which shall be maintained during the Project Period shall be as detailed in Volume 7 of DMRB.

Unless stated otherwise in the relevant standard, investigatory levels and minimum performance levels shall apply to each 1 kilometre length of lane measured from the CHART studs at the start of the Project Roads.

Where the levels for skidding resistance are approaching or have reached the investigatory levels detailed in HD 28 (of DMRB) the Company shall carry out the following:-

- a) place appropriate warning signs;
- b) carry out additional investigations;
- c) prepare recommendations for maintenance and implement accordingly.

Where the pavement reaches the investigatory levels for rutting and cracking or residual life, the detailed assessment, interpretation and treatment procedures described in the HD 30 (of the DMRB) shall be carried out.

Where the pavement falls below the investigatory levels detailed in DMRB Volume 7, the Company shall implement the requirements of this paragraph and the recommendations of Volume 7 of DMRB. In the event of such defects increasing in severity or extent, such that there is a potential risk to the safety of Users, the Company shall place suitable warning signs and remedy such Defects within 20 Working Days. Procedures for dealing with emergencies are detailed in Paragraph 1.7 of this Part.

4.5 Extent of Maintenance

The Company shall be responsible for the maintenance of all road pavements within the O&M Site in accordance with the Agreement.

The limit of the maintenance responsibility of the Company relating to road pavements shall be taken as the CHART Referencing System studs unless otherwise shown on the series of drawings as listed in Appendix 0/4 of Part 5 of this Schedule.

5. Maintenance Of Structures

5.1 General

The requirements of this section define the inspection and routine maintenance for all Structures within the Project Roads for which the Company shall be responsible.

5.2 Maintenance Management

Management procedures shall be developed and implemented by the Company to produce inputs to and general reports from a Project Roads Bridges Database.

The Company shall develop a Bridges Database to suit the maintenance management of the Structures within the Project Roads. In doing so, the Company shall update and modify the procedures to comply with all subsequent revisions, amendments or substitutions to the database. A copy of the database shall be submitted to Angus Council, prior to implementation.

The Company shall prepare input sheets for any new Structures in accordance with Part 2 of this Schedule and this information shall be entered into the database.

Structures which fall within the scope of these requirements are:-

- a) bridges which allow obstacles to be crossed over, under or alongside the Project Roads and are Structures with spans or diameters greater than 3.0 metres;
- b) footbridges which are ancillary Structures which carry pedestrians, cyclists, or equestrians over or alongside the Project Roads and have spans greater than 3.0 metres;
- c) culverts which convey water or make provision for pedestrian or livestock movements under or alongside the Project Roads and are Structures with spans or diameters in the range of 0.9 to 3.0 metres inclusive;
- d) service ducts which are also deemed to be culverts for database purposes;
- e) underpasses which are deemed to be Structures which allow pedestrians, cyclists, equestrians, livestock or farm vehicles to pass under the Project Roads. They are deemed to be culverts if their spans are in the range of 0.9 to 3.0 metres inclusive;
- f) retaining walls which are Structures constructed as components of the Project Roads which retain heights of fill material or natural ground greater than 1.5 metres (ground level to ground level);
- g) Such other structures which are instructed over the period of the concession.

Details of all maintenance, replacements and repairs carried out during the Project Period shall be included within the database. At the end of the Project Period the database shall be handed over to Angus Council.

5.3 Inspection Requirements

a) General

The Company shall carry out inspections in accordance with the DMRB 3.1, and the procedure detailed in this section.

Certain Structures will have specific inspection requirements and these shall be prepared by the company for approval by Angus Council. The Company shall carry out these specific inspections in addition to the requirements of this Part.

The Company shall give Angus Council reasonable notice of any general or principal inspection or any other inspection of Structures to be conducted in accordance with this section.

b) **Principal Inspections**

Principal inspections (PIs) shall be carried out by the Company in accordance with Annex 5/1 of this Part and the Company shall prepare the necessary reports. The Company shall produce a database of all structures on the Projects Road showing the date of the next PI, to the approval of Angus Council.

The Company shall plan and implement a programme of PIs.

PI reports shall be prepared in accordance with the procedure detailed in Annex 5/1 of this Part so that their results can be prioritised for a programme of maintenance works. The Company shall agree with Angus Council the format of the PI report.

c) **General Inspections**

The Company shall plan and implement a programme of general inspections of Structures by competent personnel to take place at intervals of no more than two years after the last general or principal inspection.

A general inspection shall consist of a visual inspection of representative parts of the Structure in accordance with The Bridge Inspection Guide, HMSO, and the DMRB Volume 3.1.4.

d) **Special Inspections**

The Company shall from time to time require to conduct special inspections of particular areas or Defects causing concern. Details of special inspections are given in DMRB 3.1.4. These inspections shall be subject to the Review Procedure.

Records shall be maintained on the database of special inspections and shall contain details of the action taken in the conduct of the inspection of the treatment of any Defect or potential Defect discovered as a result of the inspection.

5.4 **Routine Maintenance**

a) **General**

These Requirements do not cover the repair or renewal of structural elements or components which have become unserviceable because of general wear and tear or have deteriorated for other reasons. Programmes for such work shall be generated by the PIs.

b) **Routine Maintenance Schedules and Frequencies**

For each Structure a routine maintenance schedule shall be prepared by the Company which shall also include any specific requirements identified in the individual Structure maintenance manual. The schedule shall include the frequencies at which routine maintenance operations are to be carried out. A copy of this schedule shall be retained on the Structures record file.

5.5 **Remedy of Defects**

Where Defects in the Structure, which constitute an imminent or immediate hazard to Users, are revealed by inspections immediate steps shall be taken to provide suitable protection measures for the safety of the public and of the Structures and to alert the public to the hazard.

After measures have been taken to ensure safety, further steps shall be taken to:-

- a) assess the serviceability of the Structure;
- b) temporarily or permanently repair as soon as possible thereafter;
- c) replace temporary repairs by permanent repairs as soon as possible;
- d) maintain suitable protection measures until temporary or permanent repairs have been carried out.

5.6 Repairs

Structures shall be maintained in a safe condition at all times.

Where elements of the Structure are identified as requiring maintenance, repair or replacement by inspections appropriate steps shall be taken as soon as possible. No maintenance, repair or replacement shall affect the temporary or permanent structural integrity of any Structure.

Replacement elements shall comply with the standards contained in this Schedule as the same may be amended from time to time, and with the procedure for the technical appraisal and certification of Structures in Paragraph 5.7 of this Part.

Maintenance painting shall comply with the requirements of the Manual of Contract Documents for Highway Works, Volume 5, Section 6, Parts 1 to 6 inclusive.

5.7 Technical Appraisal and Certification

In all cases where structural integrity is affected (but excluding situations where emergency measures are required) the procedure for the technical appraisal and certification of Structures given in Part 6 of this Schedule shall be met before any work is carried out on site.

5.8 Extent of Maintenance

The Company shall be responsible for the maintenance of all Structures within the boundaries of the O & M Site. The Company shall also be responsible for Defects as defined in Paragraph 1.13 of this Part.

Where a Structure forms part of a private or accommodation works access the Company shall be responsible for all elements of the Structure. The Company shall be responsible for arranging access for the maintenance of these Structures with the Interested Party concerned. Where a servitude for access to these Structures exists it is shown on the series of drawings listed in Appendix 0/4 of Part 5 of this Schedule.

Certain Structures for which the Company has overall responsibility carry services of Relevant Authorities. The Company shall consult and comply with the requirements of the Relevant Authorities regarding the effects any required maintenance may have on their plant or apparatus.

6. Landscape Maintenance

6.1 General

The requirements of this section define the inspection, maintenance and other requirements for all landscape areas within the O & M Site. All areas within the O & M Site which do not form part of the carriageway surface or the surface of footway or cycle facilities shall be deemed to be landscape areas. This shall include all verges, open areas, central reserves, visibility splays, embankments and cuttings and the like whether vegetated, stone filled or paved.

6.2 Landscape Action Plan

- a) The Company shall prepare and comply with a Landscape Action Plan in accordance with this Paragraph. The purpose of the Landscape Action Plan shall be to collate all landscape topics within a comprehensive series of documents to identify an annual programme of routine and cyclic operations to maintain the landscape resource and any additional affordable enhancements.
- b) The Landscape Action Plan shall be prepared by the Company using a chartered landscape architect by 1 October in the year it is anticipated New Works Final Completion will be achieved. Further updated Landscape Action Plans shall be produced by the Company in the same manner every year until the Agreement Expiry Date and submitted to Angus Council in accordance with the Review Procedure by October each year.
- c) Subject to the other provisions of the Agreement each Landscape Action Plan shall be developed by the Company in accordance with Cost Effective Landscape: Learning From Nature (CEL:LFN) published by The Stationery Office, February 1998 and the Project Specific Biodiversity Action Plan developed by the Company during the New Works period. The Landscape Action Plan shall also take cognisance of the information contained in the Inventory of Wildlife Mitigation Measures produced by the Scottish Executive in February 2000. The Landscape Action Plan shall be a comprehensive multi- volume document based on a 5 year landscape strategy as referred to in paragraph 6.2(e) of this section. The Landscape Action Plan shall contain the following principal interrelated documents:
 - (i) Landscape Inventory
 - (ii) Landscape Maintenance Plan
 - (iii) Landscape Development Plan
 - (iv) Annual Programme of Landscape Operations
- d) Subject to the other provisions of the Agreement the following flow chart indicates the interrelationship between the various documents of the Landscape Action Plan.

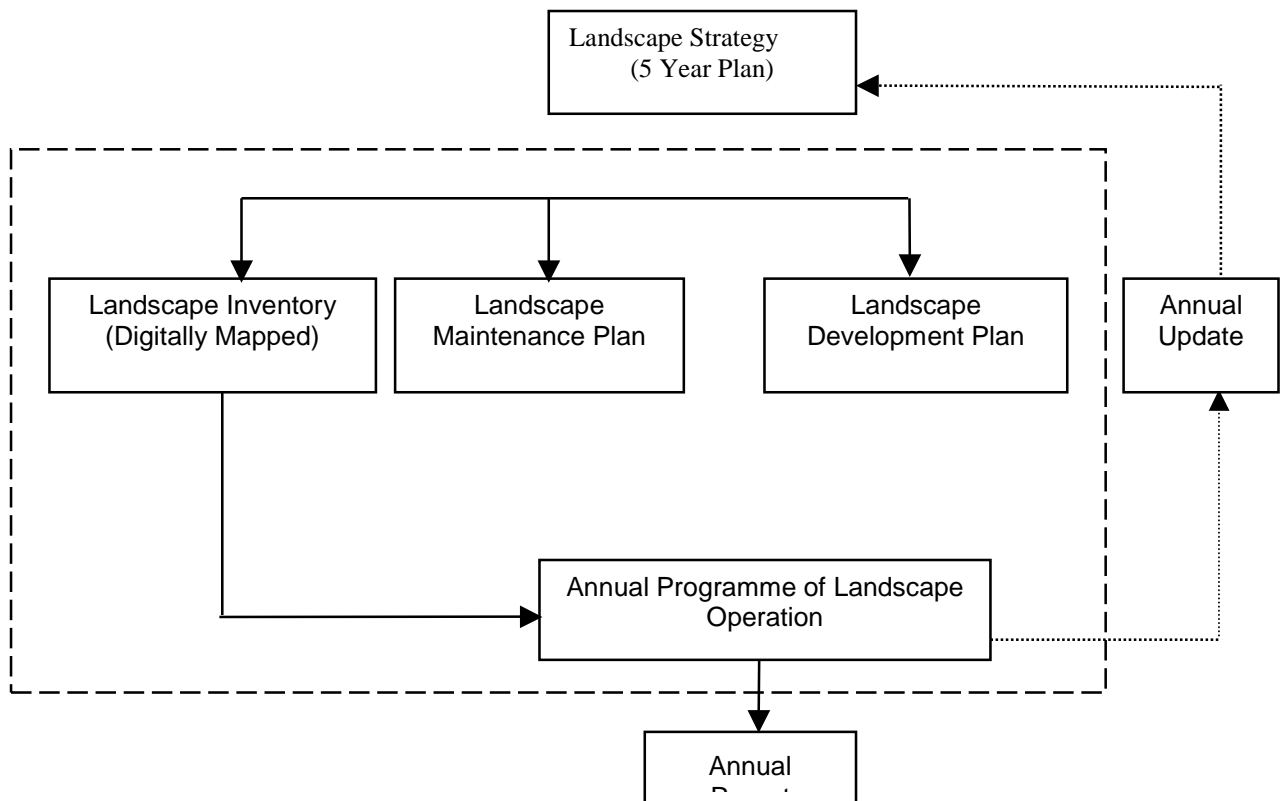


Figure 6/1: Landscape Maintenance Flow Chart

e) Five Year Strategy

Subject to the other provisions of the Agreement the Company shall submit to Angus Council a statement outlining the proposed 5 year landscape management and maintenance strategy within the O&M Site. This strategy will be submitted prior to the production of the Landscape Action Plan, in accordance with the Review Procedure, at the following intervals:

- by 1 October in the year in which it is anticipated New Works Final Completion shall occur and by 1st October in each of the four following years
- by 1 October every five years thereafter up to the Agreement Expiry Date.

Once approved by Angus Council in accordance with the Review Procedure, the said strategy shall guide the development of the Landscape Maintenance Plan and the Landscape Development Plan and Annual Programme of Landscape Operations which shall form the composite Landscape Action Plan.

f) LAP: Landscape Inventory

Subject to the other provisions of the Agreement the Landscape Inventory shall be prepared by the Company and shall contain the following information.

- (i) A digitally produced coloured plan at 1:1,250. The said plans shall be reproduced to A3 size and shall be legible for the Company to include within the Landscape Action Plan. The plans shall be marked and referenced to show landscape areas classified according to vegetation type and maintenance regime. Visibility splays and verges to be identified as an individual category.

- (ii) A general description of each classified area shall include the following information:
- a) General characteristics, appearance and value of area.
 - b) Predominant species and condition of all vegetation.
 - c) Comments on the quality of landscape and ecological elements.
 - d) The Landscape Inventory shall be submitted to Angus Council by 1 October once every 5 years through the O&M period.
- g) LAP: Landscape Maintenance Plan
- (i) Subject to the other provisions of the Agreement the Landscape Maintenance Plan shall be prepared by the Company and shall be directly cross-referenced to the Landscape Inventory specified in paragraph 6.2f of this Part of this Schedule. The Landscape Maintenance Plan shall be integrated with the Landscape Inventory.
- The purpose of the Landscape Maintenance Plan shall be to determine and record all of the routine and cyclic landscape maintenance operations. The Landscape Maintenance Plan shall also include any items of intermittent maintenance operations which may be required to ensure the healthy management of the O&M Site.
- The maintenance operations activities shall be integrated with the Landscape Inventory by means of a numbered key system cross-referenced to a maintenance schedule detailing the following information
- a) Area and plan reference
 - b) Description – including prominent species
 - c) Environmental Functions and Landscape Elements
 - d) Maintenance requirements
 - e) Timing of maintenance operations.
 - f) Summary of maintenance operations
- (ii) The Company shall thereafter review the Landscape Maintenance Plan annually for the first five years and every 5 years for the following years up to the Agreement Expiry Date based on the experience of the previous years and shall report in writing to Angus Council by 1 October of that year on any proposed changes and update the schedule pages accordingly.
- (iii) Each Landscape Maintenance Plan prepared by the Company shall also include the following:
- a) the specific objective of any planted area
 - b) a Pesticide Reduction Plan specifying instances of existing herbicide use and targets for reduction in use through alternative but equally effective proposals.
 - c) The overall objectives of the Landscape Maintenance Plan shall be to maintain the safety of the road network and promote and sustain healthy growth to maximise planting objectives to minimise problems to encourage biodiversity and to ensure all planting becomes as self reliant as possible within the O & M Site.
 - d) Where there are specially designated conservation sites on or adjacent to the O & M Site the requirements of Scottish Natural Heritage shall be included within the Landscape Maintenance Plan.

- e) Where within the O&M Site flora and fauna of local or national interest exist which have been identified by the Scottish Wildlife Trust Scottish Natural Heritage or the Project Specific Biodiversity Action Plan as being of nature conservation value the specified requirements as consented to in writing by Angus Council shall be included within the Landscape Maintenance Plan.
 - f) The Company shall adopt methods by which data on the landscape and ecological features of the O&M Site shall be collected coded and presented within the Landscape Maintenance Plan. It enables the physical nature of various elements of the O&M Site to be described in sufficient detail for comparison with other parts whilst defining the function (primary or secondary) the element has within the O&M Site context.
- iv) The Landscape Maintenance Plan shall cover inter-alia the following specific requirements:
- Grassed Areas:
- a) Preservation of clear sightlines throughout the Works.
 - b) Frequency of grass cutting.
 - c) Control and eradication of pernicious weeds.
 - d) Repair and re-seeding of damaged or failed areas of grass.
 - e) Maintenance and enhancement of grass and wildflower areas outwith the planted areas including pernicious weed removal and an annual cut.
- Woodland, Trees and Shrubs and Other Planted Areas
- a) Clearance of litter and extraneous material
 - b) Weed control to maintain a minimum of 250mm radius area around trees and shrubs free from all other vegetation for the first 2 years following New Works Final Completion.
 - c) Re-firming of plants and adjustment of supports and ties.
 - d) Formative pruning.
 - e) Disease and pest control
 - f) Watering
 - g) Maintenance and enhancement of grass and wildflower areas within planted areas including pernicious weed removal.
 - h) Checking and repair of protective fencing, shelters and guards
 - i) Removal of planting supports and protective measures within 5 years of New Works Final Completion or earlier if no longer recommended by the Company's Landscape Architect.
 - j) The replacement of failed plants
 - k) All other relevant matters necessary to achieve the intended appearance and maintenance requirements for the landscape Works for twenty years.
- h) LAP: Landscape Development Plan
- (i) Subject to the other provisions of the Agreement the Landscape Development Plan shall be prepared by the Company during the first year following New Works Final Completion and shall identify areas where there is scope to improve O&M Site landscape in terms of general amenity, reduced maintenance improved biodiversity or any other issues identified as significant by the Company. Cost Effective Landscape: Learning from Nature and the Project Specific Biodiversity Action Plan shall be used to identify possible opportunities for the Landscape Development Plan.

- (ii) The Landscape Development Plan shall be prepared by the Company using a chartered landscape architect and shall include the following for each specified proposal:
- a) Large scale plan showing the general context of the area
 - b) More detailed plans/drawings identifying the specific proposal
 - c) Written description of the objective(s)
 - d) Description of the operations to be undertaken
 - e) Reasons for the action
 - f) Approximate cost estimate
 - g) Priority rating (Year 1, 2 or 3 plus)
 - h) Supporting sketches and photographs

The Landscape Development Plan shall be updated annually for the first five years and every five years for the following years up to the Agreement Expiry Date and submitted to Angus Council on 1 October of that year.

- (i) LAP: Annual Programme of cyclic Landscape operations

Through combining the proposed routine and cyclic landscape maintenance operations contained in the previous Annual Programme of Landscape Operations with the priority Landscape Development Plan Operations the Company shall produce an Annual Programme of Landscape Operations identifying the intended deliverable landscape maintenance and management works for the forthcoming annual period.

At the end of each annual period the Company shall review and update the Landscape Inventory, Landscape Maintenance Plan and Landscape Development Plan in the context of the overall 5 Year Strategy and the operations carried out over the preceding annual period. This review shall form the basis for production of the updated Landscape Action Plan for the next annual period.

- (j) LAP: Annual Report

On or before 1 October in each year during the Full Service Period the Company shall deliver to Angus Council a written report detailing the Operations undertaken within the O & M Site during the previous year (or, if appropriate, any applicable shorter period).

The report shall include but not be limited to the following:

- (i) A general statement notifying the extent to which the routine and cyclic landscape maintenance operations shall have been carried out in accordance with the requirements of the Landscape Maintenance Plan.
- (ii) A resume of the Landscape Development Works carried out in accordance with the Landscape Development Plan.
- (iii) Comment on the success or otherwise of the Pesticide Reduction Plan and proposals for any necessary improvements.
- (iv) Details of the operations undertaken in support of enhancing biodiversity within the O&M Site in accordance with the Project Specific Biodiversity Action Plan
- (v) Details of any operations undertaken to repair improve or create any Wildlife Mitigation Measures in accordance with the inventory.
 - (a) general statement of any problems or specific, unforeseen issues which may have arisen during the course of the year and recommendations for action required thereafter.
 - (b) Details of any amendments to the landscape inventory.

6.3 Grassed Areas

a) Introduction

- (i) The requirements of this section shall apply to the maintenance of all locations which were seeded or otherwise planted with grasses or other herbaceous vegetation by the Company or areas of natural regeneration contained within the O&M Site. They also relate to those areas where the growth of vegetation requires to be prevented or eliminated. They do not relate to trees, hedges and planted areas which are covered in Paragraph 6.4 of this Part. The principal reasons for cutting roadside grass are
 - (a) to ensure that vegetation does not impair safety or cause reasonably foreseeable damage or nuisance.
 - (b) to provide attractive swards and grasslands and contribute to landscape character enhancement
 - (c) to provide grassland habitats.
- (ii) All planted and seeded areas within the O & M Site together with features such as ponds, open ditches, swales and wetlands shall be managed to encourage sustainable development and the conservation and promotion of biological diversity.
- (iii) Maintenance should take into consideration the objective and function of the planting as described in the Environmental Statement and Addendum.
- (iv) The Company shall Consult, and Comply with the requirements of, the Relevant Authorities where any designated site of natural/ ecological, cultural or historical interest or its curtilage is affected by the O&M Works.

b) Inspection Requirements

The Company's Landscape Architect or Landscape Clerk of Works shall inspect all grassed areas as follows:

- i) At a maximum of 2 month intervals during the first year following New Works Final Completion.
- ii) At least three times a year in the following four years.
- iii) At least one inspection, each year, shall be carried out in sufficient time to allow the Company to undertake the plant replacements.
- iv) Thereafter in the summer at maximum intervals of 1 year up to the Agreement Expiry Date.

The Company's Landscape Architect shall make written recommendations to the Company within 5 Working Days of each inspection regarding deficiencies and opportunities for improving the landscape maintenance and exploiting environmental opportunities that become apparent. In particular the Company's Landscape Architect shall confirm the requirements for plant replacement or remedial works associated with the landscape Design. Any recommendations shall be incorporated in the Landscape Maintenance Plan and carried out by the Company during the earliest appropriate planting season.

c) Maintenance Requirements

- (i) Grass verges, a minimum 1.2 metre strip from the carriageway, and all areas of required visibility shall be maintained such that the grass height shall not exceed 300mm.

- (ii) Central reservations shall be maintained such that the grass height shall not exceed 500mm at any point including around service posts, sign posts and the like.
- (iii) Swales shall be maintained such that the grass height shall not exceed 150mm.
- (iv) All other grass areas shall be maintained such that the grass height shall not exceed 500mm.

All grass cutting and weed control is to be carried out in accordance with the specification Appendix 30/7

- (v) Road Safety
 - a) Visibility at junctions, accesses and bends shall not be obstructed by vegetation. The criterion shall be to maintain desirable minimum stopping sight distances and the full overtaking sight distance.
 - b) Visibility of signs shall be such that the minimum clear visibility distances defined in the Traffic Signs Manual Chapter 4 and Local Transport Note 1/94 shall be maintained. The visibility of marker post reflective strips and numbers shall not be obstructed.
 - c) Siding or ploughing may be necessary to prevent overburden material being washed into drainage channels, obscuring road markings or narrowing available carriageway or footway width.
- (vi) Nuisance
 - a) Weeds listed in the Weeds Act 1959 and in Part 2 Schedule 9 of the Wildlife and Countryside Act 1981 and other pernicious weeds shall be controlled by uprooting, cutting or chemicals to prevent them becoming a nuisance.
 - b) Inflammable plants and materials such as gorse, tall grasses or dead wood shall be cut back or otherwise controlled to ensure they do not become a fire risk or nuisance.
 - c) Other plants may occasionally cause a nuisance and appropriate control shall be taken when necessary.
- (vii) Chemical Weed Control
 - a) The use of herbicides shall be avoided where practicable and only the minimum amount of herbicides necessary to meet with the O&M Requirements shall be used. All herbicide use is to be as per specification
 - b) Grass growth retarders shall not be permitted.
 - c) Blanket applications of herbicides shall only be permitted with the Approval of Angus Council.
- (viii) Any seeding which requires to be undertaken within the O & M period is to be as per Schedule 4 Part 4

6.4 Trees, Hedges and other Planted Areas

- a) Introduction
 - (i) The requirements of this section shall apply to the maintenance and control of trees, hedges and other planting within the O&M Site, excluding grasses and other herbaceous vegetation. They also relate to trees and shrubs beyond the O & M Site where they

create an actual or potential hazard, nuisance or obstruction to users in which case the matter shall be reported to Angus Council without delay.

- (ii) All planted areas within the O & M Site together with features such as ponds, open ditches and wetlands shall be managed to encourage sustainable development and the conservation and promotion of biological diversity. Maintenance operations should take into consideration the objective and function of the planting as described in the Environmental Statement.
- (iii) The Company shall Consult, and Comply with the requirements of, the Relevant Authority where any designated site of natural/ ecological or historical interest or its curtilage is affected by the O & M Work.
- (iv) The Company shall consult the relevant planning authority prior to carrying out maintenance of trees within areas covered by a Tree Preservation Order.
- (v) The maintenance of the planting shall be undertaken to consolidate and enhance the surrounding landscape character, to encourage biological diversity, to provide for the safety and enjoyment of users and to achieve all the O & M Requirements which include the intended function of the planting such as screening, visual separation, habitat creation and landscape enhancement.

b) Inspection Requirements

The Company's Landscape Architect or Landscape Clerk of Works shall inspect all planted areas as follows:

- i) At a maximum of 2 month intervals during the first year following New Works Final Completion.
- ii) At least three times a year in the following four years.
- iii) At least one inspection, each year for the first five years shall be carried out in sufficient time to allow the Company to undertake the plant replacements.
- iv) Thereafter, detailed inspections shall be carried out at maximum intervals of 18 months with alternate summer and winter inspections. Inspections shall also identify any dead or dying trees or trees which are a hazard to users within the O & M Site.
- v) All measures to protect planting from rabbits, hares, deer and livestock shall be inspected at a minimum of four weekly intervals during the first 12 months after planting and thereafter at not less than three monthly intervals until five years after New Works Final Completion. The Company shall prepare a written report detailing the date of the inspection, the condition of protective measures and proposals for remedial action not more than 5 Working Days after each inspection.

c) Maintenance Requirements

- i) The Company shall take all necessary measures to act as required to promote and sustain healthy growth, to minimise problems, and to encourage all planting to become as self-reliant as possible. Maintenance shall be carried out as necessary to keep the Project Roads operating in a safe condition and to prevent nuisance. Trees, hedges or planted areas shall be trimmed as necessary or removed to prevent the desirable minimum stopping line of sight being impeded. Maintenance requirements are applicable to the following:
 - a) Existing trees, hedges not planted by the Company but for which the Company is responsible including those retained during the New Works or any other Works.
 - b) Trees shrubs and hedges planted by the Company

- c) Naturally propagated areas induced by the creation of amenable conditions or spontaneous emergence;
- d) All planting ancillaries
- ii) Maintenance operations are to be carried out as detailed in the Specification and so as to ensure that all maintenance, repair and replacement work as required. This is to be listed in the detailed inspection reports as being necessary and is to be completed within the appropriate timescale and season. The maintenance operations should also take into recognition the different original objectives of planting.
- iii) Not less than one maintenance visit shall be made after each detailed inspection during which all the maintenance, repair and replacement work stated in the report as being necessary prior to the next detailed inspection shall be completed. The maintenance work shall be completed not more than 2 months after the detailed inspection except for those elements which are restricted by season such as the replacement of failed plants. These shall be completed within 1 month of the commencement of the appropriate season and, in any event, prior to the next detailed inspection.
- iv) Road Safety
 - a) Visibility at junctions, accesses and bends shall not be obstructed. The criterion shall be to maintain desirable minimum stopping distances and the full overtaking sight distance.
 - b) Trees and shrubs, particularly those which have self-propagated or outgrown their positions may also encroach upon the carriageway, restrict available road width or otherwise pose a potential hazard. Appropriate action shall be taken to eliminate hazards.
- (v) Pests and Disease
 - a) Action to prevent and control the spread of serious pests and diseases shall be taken as soon as their presence is identified.
- (vi) Browsing Animals and Vermin
 - a) All planting shall be adequately protected against browsing animals and vermin. If damage is identified action to prevent and control effects shall be taken as soon as possible.
- (viii) Chemical Weed Control
 - a) The use of herbicides shall be avoided where practicable and only the minimum amount of herbicides necessary to meet the O & M Requirements shall be used. Herbicide use shall be as per specification.
- d) Replacement Planting
 - (i) All plants in the O & M Site shall exhibit visible signs of growth, shoot or branch extension and increased height and spread at the end of each growing season, which is typical for their age and respective species given the general climatic conditions within Angus.
 - (ii) Notwithstanding any other requirement of the Agreement all planted areas in the O & M Site shall be inspected to identify dead, dying and unhealthy plant material which has fallen below the original Specification and the establishment criteria listed below. Replacement Planting shall be as follows:

- a) All dead and defective plants shall be replaced once each year for a period of 5 years following the completion of planting. The age of replacement plants shall equal the age of the original stock at planting plus the number of years elapsed following New Works Final Completion. The Company shall be liable for replacement of all plants damaged or killed by rabbits, hares, deer or livestock.
- b) Tree and shrub planting
 - 1) not exhibiting annual, healthy growth consistent with the species selection and the prevailing site conditions
 - 2) not exhibiting a firm attachment of the roots to the soil;
 - 3) in which the crown of the tree is not visibly greater than when planted; and
 - 4) trees and shrubs exhibiting die-backwill be regarded as defective
- (iii) Any planting which requires to be undertaken within the O & M period is to be as per Schedule 4 part 4.

6.5 Biodiversity Action Plan

- a) The Company shall, update and comply with the project specific Biodiversity Action Plan as required according to the occurrence of material changes in circumstances within the O&M Site. This Action Plan shall be of a similar nature to the Trunk Road Biodiversity Action Plan produced by the Scottish Executive and shall be submitted to Angus Council in accordance with the Review Procedure. The Biodiversity Action Plan shall be developed from, and be consistent with the Biodiversity Action Plan prepared for the New Works. Without limitation to any update required, the Company shall review the Biodiversity Action Plan on not less than a (5) yearly basis from its first preparation.
- b) The Company shall:
 - (i) carry out a survey of the O&M Site in advance of any O&M Services as required by SNH which is to be carried out by Specialist(s) approved by SNH to ensure that no protected species are present within the proposed working corridor. The Company shall be aware of the likelihood of encountering otters and bats and the subsequent duties that fall upon them under the Wildlife and Countryside Act 1981.
 - (ii) programme all works to avoid disturbance of the habitat of species as required by SNH.
 - (iii) protect all areas of habitat which is of wildlife value as identified by the Ecologist approved by SNH, against accidental damage during any O&M Services. Such areas shall be clearly fenced and protected throughout the construction period. No temporary works, compounds, storage areas, or structures will be located within the boundaries of such sites.
 - (iv) clearly indicate within their programme, in advance of any O&M Services being undertaken, areas of existing vegetation which are proposed to be removed. All such losses of vegetation, felling of trees and shrubs should occur outwith the main breeding season of spring and summer.
 - (v) keep to an absolute minimum the removal of mature specimens which are to be felled only with the agreement of the Company's ecologist and landscape architect. Mature trees which have to be felled, provide opportunity for a wide range of species (insects and decomposers) if left in-situ to decay. Wherever practicable and desirable for habitat

enhancement, felled trees are to be roughly sawn and left to decay in existing nearby woodland areas to the approval of the ecologist.

- (vi) obtain permission of the relevant local authority where the works shall adversely affect trees which are protected by a Tree Preservation Order.
- (vii) shall assess and mitigate the potential effect of windthrow on any existing planting.
- (viii) erect a temporary fence around areas of existing vegetation to be protected that lie within the site of any O&M Services in accordance with BS 4428. The Company shall not enter these fenced areas during the course of the O&M Services other than to erect and remove the temporary fencing. Subject to the provisions of the Agreement the Company shall ensure that no damage to existing vegetation or ground conditions occurs in such protected areas during the construction and maintenance of the O&M Services. Should damage occur, the Company shall undertake at its own cost those remedial works that are assessed as being required by Angus Council (acting reasonably) following inspection of the damage. Such remedial works for damage may include removal and reinstatement of the ground plus the replacement, as above, of any vegetation that may be affected. Following completion of the O&M Services the Company shall remove the fence. Should access to the protected areas be necessary for the construction and maintenance of the O&M Services, the Company shall obtain the approval of Angus Council (not to be unreasonably withheld or delayed).
- (ix) Replace any tree or shrub which is mistakenly uprooted, destroyed or damaged beyond reasonable chance of survival due to the Company's negligence by alternatives of similar type and age.
- (x) Not allow water quality or water habitats to be detrimentally affected by untreated run-off such as at river crossings and where road alignments pass close to other water habitats.
- (xi) Not allow fuel oil, liquid chemicals or other potential contaminants to be handled or used in such a manner which could adversely impact on flora, fauna or groundwater/watercourses within or outwith the O&M Site.

7. Roadworks Management

7.1 General

The provisions of this section apply to all works on the Project Roads. They shall be read in conjunction with the other sections of this Part and the other Parts of this Schedule as appropriate to the nature of the works to be carried out.

7.2 Safety and Traffic Management Measures

Safety of Users and all other persons operating within the Project Roads shall be the primary consideration in the Design, implementation, maintenance and removal of the traffic management arrangements.

Before deciding on the type of traffic management to be used for particular works, the Company shall undertake a risk assessment to determine the safest option. This shall particularly be used to determine the timing of the works and whether a mobile or a static closure is the most appropriate method. It shall include not only the possible risk to those directly involved in the traffic management and the subsequent works on site but also the possible risk to Users who will be affected both within and on the approaches to the traffic management measures (for example queuing traffic outwith the signed area). In addition the risk assessment shall also consider, but not be restricted to, the road type, the location, the time of day, the time of year, the anticipated volume of traffic, the nature of the works and the method of carrying out the works.

Notwithstanding any advice given in the forgoing, the Company shall consider in each risk assessment, what additional measures might be appropriate to enhance safety in the particular circumstances which prevail for these works at the location in question.

a) General Requirements

The Company shall comply with the requirements of any Relevant Authority regarding traffic safety and management.

The Company shall be responsible for traffic safety and management and associated work including erection, alteration, covering, uncovering and taking down of signs.

The erection and removal of any traffic management installation or temporary diversion shall not be carried out on any local or national holiday unless previously agreed in writing by Angus Council.

The Company shall be responsible for obtaining from Angus Council any statutory orders required to be made or notices required to be published in connection with its traffic safety management and diversion proposals. Notice required by the Relevant Authority for the arrangement of:

- (i) Amending or making traffic orders - not less than 40 Working Days;
- (ii) Authorising temporary traffic signals - not less than 40 Working Days.

Traffic safety and management measures shall be in accordance, where applicable, with the requirements and advice of Chapter 8 of the Traffic Signs Manual or any amendments thereto, and any relevant Scottish Executive publications including those in the DMRB.

The Company shall comply with the requirements of the Agreement with particular regard to Safety Audits for Temporary Traffic Management Schemes.

All temporary traffic signs shall conform to the requirements of the Traffic Signs Regulations and General Directions 1994 or any subsequent alterations or revisions.

The Company shall comply with the Code of Practice 'Safety at Streetworks and Roadworks' (published by The Stationery Office 2001) issued under the New Roads and Streetworks Act, 1991, when planning and undertaking any work on the Project Roads.

The Company shall take all necessary steps to minimise disruption of traffic. The Company shall comply with the Code of Practice "The Reduction of Traffic Delays at Roadworks" jointly published by the County Surveyors Society: Scotland and the Scottish Office (first published 1992), ISBN 0 7480 05730. Traffic restraints on any section of any road shall be removed immediately the work which they are designed to facilitate is completed or ceases for whatever reason.

The Company shall not open any area to traffic unless the following requirements are met:

- (i) appropriate road markings have been laid or removed;
- (ii) the carriageway has been fully swept and cleared of all items of plant, personnel, materials and debris;
- (iii) adjacent safety barriers and parapets where required have been erected and tensioned;
- (iv) the Company will not have to impose future traffic restrictions on the section of carriageway to undertake works which could have reasonably been completed under the preceding traffic control period;
- (v) all temporary or permanent signing and lighting is in place.

A Road Safety Audit (RSA) of completed roads and substantial temporary diversions may be undertaken prior to opening and the Company may be required to undertake remedial measures. The Company shall allow adequate time for both the RSA and for any remedial works that may be instructed as a consequence.

The Company shall assist the Relevant Authorities in the removal and replacement of signs, traffic delineators, etc. to facilitate the movement of Abnormal Indivisible Loads.

In the event of an accident occurring within any restricted or traffic controlled area, the Relevant Authorities may direct operations including instructions to the breakdown vehicles detailed in paragraph 7.5 of this Part. The Company shall attend such accidents in accordance with the requirements for recovery set out in Paragraph 7.5 of this Part. The Company shall remove any debris from the road to restore the road surface to a serviceable condition and shall then carry out any interim repairs or reinstatement that is required to reinstate the traffic control to its original layout. In any event the Company shall use its best endeavours to procure that complete reinstatement shall be made within 24 hours of the accident. The Company shall ensure that sufficient personnel and a sufficient stock of spare signs and cones etc., are available at all times to make good damage to any traffic control layout.

b) **Maintenance of Access**

The needs and safety of pedestrians shall be considered at all times. The Company shall comply with the advice of Paragraph 2.3.10 of Chapter 8 of the Traffic Signs Manual. All pedestrian diversions shall have a hard surface and adequate drainage to prevent flooding or ponding. They shall be kept clean and free from all materials, plant and stationary vehicles. Excessively long lengths should be avoided where possible to avoid 'shortcuts'. Care should be taken to avoid crossing areas regularly traversed by heavy plant. All diversions of pedestrian routes which are normally lit shall be provided with a standard of lighting at least equal to that of the original route.

c) **Traffic Safety and Control Officer**

The Company shall appoint a senior member of its staff to act as Traffic Safety and Control Officer. This person shall be responsible for all traffic safety and control during the Project Period

and shall liaise with Angus Council and Tayside Police as required. The Traffic Safety and Control Officer shall take instructions direct from Angus Council and, in the case of emergency, from the police where they have assumed control. Radio contact shall be maintained at all times with the Traffic Safety and Control Officer.

The responsibilities of the Traffic Safety and Control Officer shall include but not be limited to the following:

- (i) all traffic management measures associated with the Works;
- (ii) ensuring that all equipment is in place and in full working order at all times;
- (iii) enforcement of all relevant Health and Safety directives, relating to operations and live traffic;
- (iv) strict enforcement of site access requirements;
- (v) liaison with Angus Council and Tayside Police and continued monitoring of the traffic management measures adopted;
- (vi) arranging for watchmen and other staff so that the site is patrolled and inspected at all times and equipment attended to and maintained and in the case of accidents have replacement signs, cones, bollards and lights etc. erected without delay.

The Company shall notify Angus Council and the Tayside Police with the name and 24 hour contact telephone number of the Traffic Safety and Control Officer appointed in respect of this Schedule 4 by the Permit to Use Date.

d) **Access to O&M Works**

All accesses to the O & M Site shall be provided with signing as described in Section 2.3.8 of Chapter 8 of the Traffic Signs Manual.

During the hours of darkness no vehicle shall be driven with headlights switched on when travelling towards oncoming traffic on a closed section of carriageway or within any site adjacent to live traffic. Hazard warning lights are not an acceptable alternative to roof mounted flashing or rotating lamps, but may be used in addition.

Any construction - related operation which either involves danger to the public or Users, or risk of damage to vehicles including, but not limited to, bridge deck waterproofing silane impregnation, and painting must either be carried out within enclosures to protect the public, or alternatively the Company must provide and sign an alternative means of passage.

The Company will be responsible for maintaining the running carriageway and pedestrian routes adjacent to the works in a clean and safe condition at all times.

e) **Safety of Personnel**

No employee of the Company other than the recovery vehicle drivers or personnel erecting and removing signs, shall work on any part of the Project Roads which is not properly signed and coned off unless specifically rendering assistance to the Relevant Authorities and working under their direction.

All employees must be individually and specifically warned not to step into any part of the carriageway outside the cones.

The Health and Safety Executive, under the Health and Safety at Work Act 1974 requires the Company engaged on roadworks to have a safety buffer zone between any working area and the remaining section of carriageway used by works traffic. The minimum dimensions of this safety buffer zone shall be as per Chapter 8 of the Traffic Signs Manual, Volume 1, Topic 2.5.3 - 5.

Angus Council has the right to instruct workmen on any matter relating to safety of personnel and traffic safety and control, including signing and coning.

All drivers including those delivering plant and materials will be given clear instructions regarding the traffic arrangements applicable at a particular time.

All personnel working on or adjacent to trafficked roads shall be issued with printed copies of appropriate safety instructions and receive training as necessary.

No personnel or items of plant (other than that required for signing and coning operations) shall enter a newly closed off area until such times as the traffic has been satisfactorily diverted.

Staff of the Company whose duties require them to carry out surveys, censuses, inspections and investigations on the Project Roads in connection with any O&M Works thereof shall require to be in possession of a "identity pass" which shall be notified to Angus Council.

f) **Requirements for Vehicles used on the O&M Works**

Only essential vehicles shall be allowed to enter that part of the O&M Site on which the O&M Works are being carried out. Any vehicles deemed to be non-essential (especially private cars), or any vehicle not complying with the requirements below will not be permitted to remain on such part of the O&M Site.

All vehicles and plant used by the Company and Suppliers, for the execution of O&M Works shall have signboards reading "Highway Maintenance" fixed at the front and rear. The lettering shall be 150 millimetres high for lorries and plant and 100 millimetres high for light vans and cars. The signboards shall be supplied by the Company and must be removed by the Company when the vehicle is no longer used on works.

All vehicles, including light vans and cars, and plant used by the Company in the execution of the O&M Works shall be fitted with flashing amber rotary lamps and shall comply with Road Vehicle Lighting Regulations 1989 and amendments thereof. The lamps shall be mounted externally on the vehicles and shall be fully visible to all oncoming and following traffic. The lamps must function at the following times:

- (i) while operating or moving within the O&M Works;
- (ii) while stationary adjacent to a normal traffic lane;
- (iii) while preparing to leave or rejoin the Project Roads;
- (iv) while installing, maintaining, and removing traffic safety equipment;
- (v) at any other time as directed by Angus Council.

All vehicles and plant must be free from oil and fuel leaks and if refuelled on the Project Roads care must be taken to prevent spillage.

All heavy goods vehicles used on the Project Sites by the Company, or suppliers must be fitted with an audible reversing warning device.

Side tipper vehicles shall be used where Angus Council considers it necessary to limit turning manoeuvres alongside trafficked lanes.

7.3 **Lane Occupations**

"Lane Occupation" means any individual closure or other restriction which reduces the width of any individual lane on the Project Roads to a width which results in the said lane becoming unavailable for use by all normal class of vehicles and includes traffic management approach tapers where they are used.

Except during emergencies, carriageways shall remain open unless Lane Occupation arrangements have been made in accordance with the O&M Requirements. A comprehensive

record of all Lane Occupations on the Project Roads shall be kept by the Company and be accessible to Angus Council.

One traffic lane in each direction capable of catering for all normal classes of traffic shall be provided as a minimum at all times on the New A92.

One traffic lane capable of catering for all normal classes of traffic shall be provided as a minimum at all times on all other roads.

The minimum distance between Works sites shall be as set out in Table F in Chapter 8 of the Traffic Signs Manual.

In addition to any other requirements imposed, where a Lane Occupation and the use of a diversion route is proposed it shall be discussed at an early stage with Angus Council, with the Relevant Authorities affected by the diversion route and the police pursuant to the Liaison Procedures. Written confirmation of a road authority's consent to use the diversion route on the dates proposed shall accompany every request for a Lane Occupation pursuant to the O&M Requirements.

Wherever possible Lane Occupations shall take place in such a way as to minimise the impact on Users.

The dates and times of all approved Lane Occupations for major works shall be clearly signed at least 20 Working Days before implementation, to enable Users to choose an alternative route.

7.4 **Alternative Routes**

When alternative routes are being used, all conflicting route signs within and outwith the Project Roads shall be covered at the expense of the Company, and route signs outside the area of the Project Roads shall make it clear to Users how to rejoin the Project Roads. Section 2.3.9 of Chapter 8 of the Traffic Signs Manual defines the minimum standard of signing required for a diversion.

Signs encouraging the use of alternative routes away from the Project Roads to a road of a lesser standard shall only be proposed when absolutely necessary to avoid severe delays (i.e. in excess of 30 minutes). The use of a signed alternative route shall only be considered if its use would not significantly affect road safety and the approval of the road authorities concerned has been obtained.

7.5 **Recovery Vehicles for Breakdown**

a) **General**

During the circumstances described in paragraphs 2.3.14.8 and 2.6.10 of Chapter 8 of the Traffic Signs Manual, after the Permit to Use Date a free vehicle recovery service shall be provided and operated by the Company so as to promptly remove broken-down, accident damaged, abandoned vehicles or shed loads.

The Company shall, when required, have immediately available on the Project Roads sufficient experienced personnel capable of operating all the recovery vehicles provided. The personnel shall wear high visibility jackets complying with BS 6629, Class A incorporating the recommendation of Appendix G whenever engaged in any activity on the Project Roads.

When moving broken down or damaged vehicles the Company shall take all reasonable measures to prevent further damage to the vehicles and notwithstanding shall indemnify and keep indemnified Angus Council against all Losses and claims arising therefrom.

The Company shall assist when required by the police in the removal of loads accidentally deposited in the Project Roads.

b) **Recovery Vehicles to be Provided**

The Company shall provide a heavy and a light recovery vehicle for the circumstances described in this section. The requirements for these vehicles shall be in accordance with Annex 7/1 to this Part.

c) **Testing Requirements**

The Company shall arrange for all recovery vehicles to be inspected by the Freight Transport Association and Tayside Police. Each person manning the vehicles shall have attended an appropriate course of instruction on vehicle recovery and have obtained a sufficient level of competency so as to be able to operate the vehicles safely and efficiently, each shall have a certificate of competency to operate the vehicle issued by an independent assessor.

d) **Locations for Recovery Vehicles**

The recovery vehicles shall be positioned on the Project Roads for 24 hours a day, 7 days a week whenever they are required under paragraph 7.5a). They shall be situated within the coned off area.

The heavy recovery vehicle shall be operated by two operatives and the light recovery vehicle by one operative.

e) **Limits of Service and Leaflets**

The vehicle recovery service shall be limited to these vehicles requiring assistance within the traffic management system that is between the "2 mile ahead" advance signs and the "end of Works" sign on each carriageway. Any broken down or accident damaged vehicles on the operating carriageway of the Project Roads shall be removed immediately clear of the works or off the Project Roads at an interchange, whichever is the nearer.

No charge shall be made to the owner or driver of a vehicle so assisted for this service. All drivers so assisted shall be informed by means of a handout leaflet, see sample in Table 6/1 below, supplied by the Company that the tow is free to a point clear of the length of the Project Roads on which traffic management arrangements are in operation and that the recovery vehicle is not able to provide a tow to a garage for repairs as it has to remain stationed in the Project Roads to deal with further incidents.

Table 7/1 - Sample of Handout Leaflet

VEHICLE RECOVERY SERVICE	
1.	The Roadworks operations commence at the "Roadworks Ahead - 2 miles" sign and end of the "Road Clear" sign.
2.	The recovery service provided along the extent of the roadworks operations is free.
3.	Subject to police directions, vehicles will be towed clear of the roadworks operations.
4.	It will be at the discretion of individual drivers to arrange for assistance or the removal of their vehicle to a garage of their choice.

f) **Communication**

The communication system utilised by the recovery vehicles shall be provided for the purpose of enhancing the recovery service. The communication system shall be operational prior to any Works being undertaken which require recovery vehicles.

7.6 Publicity

Advance publicity and the provision of up to date information to the local and national radio, other media and motoring organisations shall be used to communicate to Users details of roadworks, possible delays and any alternative routes. Other methods of providing information to the public shall be used as appropriate.

The Company shall use all reasonable endeavours to ensure that prior written notice shall be given to those Relevant Authorities and Interested Parties who, to the Company's knowledge regularly use the Project Roads affected by roadworks.

Information on Lane Occupations shall be made available to the media on a daily, weekly, monthly basis as appropriate to enable inclusion in bulletins and reports.

7.7 Driver Information

Notwithstanding the requirement to supply information on Works for the Project Roads pursuant to the other requirements of this Schedule, all queries and complaints received which concern the Project Roads shall be promptly dealt with.

The Company shall respond direct to correspondence, enquiries and complaints received from any source. Where the Company considers that policy is involved or a precedent may be established, or in cases of doubt, the matter shall be referred to Angus Council. The originator shall receive a response within 8 Working Days of receipt. Where it is anticipated that a reply will not be possible within that period an acknowledgement shall be sent indicating the likely timescale for a full response.

The Company shall provide to Angus Council on request draft responses and briefing material to correspondence. Under the terms of the Citizens Charter Angus Council operates under a very tight timescale and the normal response period shall be within 3 Working Days of receipt by the Company of a request from Angus Council. All such information shall be submitted, in the first instance, by fax.

Where verbal communication is involved the originator shall be treated with due courtesy and consideration.

All communications, whether written or verbal, shall be logged in a register recording full details and including actions required and taken with a copy made available monthly to Angus Council. The Company shall provide a customer contact telephone number, which shall be manned by an operator competent to deal with members of the public in a courteous and helpful manner. The telephone shall be manned from 0800 hours to 2000 hours daily except Saturdays, Sundays, Christmas Day and New Years Day. Outwith these hours callers are to be diverted to the Duty Officer as detailed in Paragraph 1.7 of this Part. The customer contact number shall be accessible as a "local call" from all points within the Project Roads and shall be appropriately sequenced for easy memory retention.

The Company shall, prior to the Permit to Use Date, erect signs on the New A92 in the vicinity of each major junction which can be seen by Users in either direction of travel to a design approved by Angus Council. The signs shall identify the name of the Company, the customer contact telephone number and other such information. Signs shall be located in positions proposed by the Company and approved by Angus Council. The signs shall be removed by the Company 22 Working Days following the Agreement Expiry Date.

Annex 1/1

Emergency Procedures

'NOT USED'

Annex 2/1

List of Inventory Items to be Collected

Annex 2/1 - List of Inventory Items to be Collected

ITEM	MNEMONIC
Balancing Pond	BP
Bollards (Safety)	SB
Bridge (Over)	BO
Bridge (Under)	BU
Carriageway	CW
Camera	*
Catchpit	CP
Central Island	CI
Central Reserve	CR
Channel	CH
Counterfort Drain	CD
Crossover	XO
Culvert	CV
Cycle Track / Facility	CT
Ditch	DI
Embankments and Cuttings	EC
Emergency Telephone	*
Fences and Barriers	FB
Footway	FW
Filter Drain	FD
Gantry	*
Grip	GP
Gully	GY
Hard Shoulder	HS
Hedge	HG
Ice sensor	IS
Interceptor	IN
Kerb	KB
Lighting Point	LP
Lay-by	LB
Manhole	MH
Pedestrian Crossing	PX
Pedestrian Guard-rail	PR
Piped Grip	PG
Reference Marker Point	RF
Retaining Wall	RW
Road Markings (Hatched)	LH
Road Markings (Longitudinal)	LL
Road Markings (Transverse/Special)	RM
Road Studs	RS
Safety Fence	SF
Signs	SG
Traffic Control Barrier	CB
Traffic Detector	*
Traffic Signals	TS
Trees	TR
Verge	VG
Verge VMS	

AI - Ancillary Items - record using Notebook (NT) facility

Grassed Areas
Wildflower Areas
Shrubs

Note: * - No mnemonic for this item

Annex 2/2

The Recording of Defects

The following Defects are examples of the type which shall be reported. The criteria given in Section 2.8, the tables included in this Annex and the Company's RMS shall be used to determine the Category of Defects. The list shall not be regarded as exhaustive:

Minor Carriageway Repairs

- Localised cracking;
- Localised edge deterioration;
- Surfacing joints;
- Cracking around ironwork;
- Patch - adjacent cracking;
- Patch - loss of material;
- Patch - difference in level;
- Trench reinstatement - adjacent cracking;
- Trench reinstatement - loss of material;
- Trench reinstatement - difference in level;
- Pothole.

Footways and Cycle Facilities

- Standing water;
- Slab profile - uneven/trips/gap;
- Slab cracked;
- Slab rocking;
- Block profile;
- Black top - pothole;
- Black top - local cracking;
- Black top - extensive cracking;
- Black top - fretting;
- Failed patch - adjacent cracking;
- Failed patch - loss of material;
- Failed patch - difference in level;
- Overgrown by vegetation.

Covers, Gratings, Frames and Boxes

- Difference in level with road;
- Difference in component levels;
- Rocking under load;
- Cracked or broken;
- Missing;
- Parallel gratings;
- Smooth surface;
- Blockage.

Kerbs, Edging and Pre-formed Channels

- Vertical projection;
- Horizontal projection;
- Loose/rocking;
- Damaged;
- Channel block alignment;
- Missing;
- Impeded water flow (detritus);
- Spalling of concrete.

Road Drainage: Piped Drainage Systems

Blockage;
Other malfunction;
Flooding;
Drainage damage to road/verge;
Flood nuisance to properties;
Flood nuisance to services.

Road Drainage: Gullies, Catchpits and Interceptors

Damaged;
Collapsed;
Silted;
Blockage.

Road Drainage: Piped Grips

Blockage;
Detritus;
Broken.

Road Drainage: Grips

Weed growth;
Detritus "refuse";
Blockage;
Flooding.

Road Drainage: Ditches

Weed growth;
Collapsed bank;
Obstruction;
Deposited rubbish;
Silted;
Flooding.

Road Drainage: Filter Drains

Weed growth;
Filter material damaged;
Filter material displaced;
Silted;
Flooding.

Road Drainage: Culverts

Scour;
Obstruction.

Road Drainage: Balancing Ponds

Function of outfall regulating device;
Blockage of inlet;
Blockage of outlets;
Silted;
Erosion of banks/walls/bunds;
Surcharge.

Road Drainage: Ancillary Items

- Pump function;
- Sluice function;
- Tidal flap function;
- Headwall/apron condition.

Road Drainage: Flooding

- Flood;

Grassed Areas

- Inadequate visibility;
- Risk to pedestrians;
- Overgrowing footway/carriageway;
- Noxious weeds.

Hedges and Trees

- Unstable/overgrown;
- Dead tree;
- Dying/diseased tree;
- Dying/dead branch;
- Obstructed sightline;
- Obstructed sign/lamp post etc.;
- Hedges not stockproof.

Sweeping and Cleansing

- Mud;
- Spillages;
- Need for herbicide;
- Debris.

Fences and Barriers

- Rotten - wooden fence;
- Rotten - wooden post (fence/barrier);
- Corroded - metal (fence/barrier);
- Corroded - metal post (fence/barrier);
- Corroded - concrete fence;
- Corroded - concrete post;
- Missing;
- Damaged/deformed;
- Loose panels;
- Loose anchors;
- No tension;
- Not stockproof

Road Studs

- Loose "Catseye" casing;
- Loose "Catseye" rubber;
- Loose studs;
- Poor reflective conspicuity/"Catseye";
- Poor reflective conspicuity/stud;
- Damaged "Catseye";
- Damaged stud;

Missing "Catseye";
Missing stud.

Road Markings

Wear;
Retroreflectivity.

Road Traffic Signs

Target distance (warning/regulatory);
Legibility distance (directional etc.);
Surface luminance;
Surface colour;
Physical condition of fittings;
Physical condition of frame;
Lamp failures;
Moving parts;
Exposed wiring;
Surface corrosion;
Accident damage;
Missing;
Damaged.

Miscellaneous

Embankments/cuttings –Movement/cracking/slipping;
Utilities Equipment/reinstatements defects;
Graffiti.

In the table below the following abbreviations are used:

Cat 1 Category 1 Defect
Cat 2H Category 2 High Defect
Cat 2M Category 2 Medium Defect
Cat 2L Category 2 Low Defect

Table of Minimum Categorisation of Defects

Pothole in carriageway or cycleway					
	Size, equivalent Diameter mm				
Depth mm	>1000	>600	>300	>150	>75
>85	Cat 1	Cat 1	Cat 1	Cat 1	Cat 1
>60	Cat 1	Cat 1	Cat 1	Cat 2H	Cat 2H
>40	Cat 2H	Cat 2H	Cat 2H	Cat 2M	Cat 2M
All others	Cat 2L				

Pothole in footway					
	Size, equivalent Diameter mm				
Depth mm	>1000	>600	>300	>150	>75
>60	Cat 1	Cat 1	Cat 1	Cat 1	Cat 1
>40	Cat 1	Cat 1	Cat 1	Cat 2H	Cat 2H
>20	Cat 2H	Cat 2H	Cat 2H	Cat 2M	Cat 2M
All others	Cat 2L				

Trip In Footway/Cycleway			
	Height mm		
	<13	>13<20	>20
All trips (including ironwork)	Cat 2L	Cat 2M	Cat 1

Ironwork			
	Height mm		
	<13	>13<20	>20
Depression	Cat 2L	Cat 2M	Cat 1
Missing	Cat 1		

Kerbing, Edging, Channel Defects			
	Height mm		
	<13	>13<40	>40
All trips /depressions	Cat 2L	Cat 2M	Cat 1
Missing at Channel	Cat 1		
Missing at rear of footway/cycleway	Cat 1		

Flooding	
Water flowing across the carriageway	Cat 2H
Standing Water	Cat 2M

Embankments and Cuttings
As per 2.8

Sweeping and Cleansing
As per 2.8

Safety Fences, Barriers, fences
As per 2.8

Road Studs/Road Markings/Road traffic signs
As per 2.8

Bus shelters
As per 2.8

Annex 2/3

Accommodation Works Apparatus located within the O & M Works

Annex 2/3 – Accommodation Works Apparatus located within the O & M Site

Name	Service	Chainage	Drawing Number
Barbour, Mr. & Mrs.	Pipe to septic tank under new access road	n/a	A92/ACW/BAR
Osbourne, Mr. & Mrs.	Pipe to septic tank under new access road	n/a	A92/ACW/OSB
Balcathie Farms Ltd.	Existing water pipe may need relocation and protection	16600m	A92/ACW/BFL
Balcathie Farms Ltd.	Existing water pipe may need relocation and protection	16930m	A92/ACW/BFL
Balcathie Farms Ltd.	Existing irrigation pipe north of farm cottage under new access road	n/a	A92/ACW/BFL
Balcathie Farms Ltd.	Existing irrigation pipe north of farm cottage under road at agricultural underpass	n/a	A92/ACW/BFL
Balcathie Farms Ltd.	Existing irrigation pipe may need relocation and protection	17270m	A92/ACW/BFL
Balcathie Farms Ltd.	Sewage pipe under road at agricultural underpass extended	n/a	A92/ACW/BFL
Balcathie Farms Ltd.	Existing irrigation pipe may need relocation and protection	17310m	A92/ACW/BFL
Balcathie Farms Ltd.	Sewage pipe extended	17320m	A92/ACW/BFL
Batchelor, GM & FM	Existing 150mm dia. irrigation pipe extended on U507 Hatton Road	980m	A92/ACW/GMB
Booth, Stuart	500mm duct for irrigation pipe	5160m	A92/ACW/SCB
Booth, Stuart	500mm duct for irrigation pipe on B962 to Newbigging	40m	A92/ACW/SCB
Booth, Stuart	500mm duct for irrigation pipe on B962 to Monifieth	1160m	A92/ACW/SCB
Booth, Stuart	500mm duct for irrigation pipe on B962 to Monifieth	1470m	A92/ACW/SCB
Booth, Stuart	500mm duct for irrigation pipe on Balhungie Farm access road	n/a	A92/ACW/SCB
Booth, Stuart	500mm duct for irrigation pipe	5650m	A92/ACW/SCB
'Not Used'			
'Not Used'			
'Not Used'			
Galloway, G & RG	Irrigation pipe	8720m	A92/ACW/GAL
Galloway, G & RG	Irrigation pipe on Upper Victoria Link	10m	A92/ACW/GAL
'Not Used'			
'Not Used'			
Gray, Elizabeth & H Stewart	300mm dia. drainage pipe	15000m	A92/ACW/EHSG
Gray, Elizabeth & H Stewart	Disused sewage pipe	15530m	A92/ACW/EHSG
Gray, Elizabeth & H Stewart	50mm private water supply pipe	15580m	A92/ACW/EHSG
Gray, James	300mm dia. duct and irrigation pipe	11520m	A92/ACW/JGRAY
Gray, James	300mm dia. duct and irrigation pipe on existing A92 approaching Muirdrum	n/a	A92/ACW/JGRAY
Mackie, Janette	500mm dia. duct for water main and irrigation pipe	4390m	A92/ACW/MAC
Mackie, Janette	500mm dia. duct for water main and irrigation pipe under new access to Ardownie Farm	n/a	A92/ACW/MAC
Mackie, Janette	500mm dia. duct for water main and irrigation pipe under new access to Ardownie Cottages	n/a	A92/ACW/MAC
Panmure Farming Company Ltd.	Existing culvert to be extended and duct placed in culvert	10600m	A92/ACW/PFC
Porter, John Gray	1m x1m stone conduit acting as drainage and carrying irrigation pipe	5870m	A92/ACW/JP/1
Porter, John Gray	Existing drain culverted	7830m	A92/ACW/JP/2
Porter, John Gray	Duct for irrigation pipe	7950m	A92/ACW/JP/3
Porter, William	Existing stone culvert extended (approximate equivalent of 1m dia.)	13390m	A92/ACW/WP
Watson, Messrs J Scott	Existing water supply pipe under underpass to Balhousie Farm	n/a	A92/ACW/JSW

Annex 5/1

Principal Inspections

Annex 5/1 - Section 1**Principal Inspections - Preparation Of Reports And Maintenance Works Prioritisation****1. Principal Inspection Reports and Prioritisation****a) Introduction**

This Annex explains how principal inspection (PI) reports shall be prepared. The Bridge Inspection Guide (HMSO 1983) contains useful general advice on the inspection of Structures.

PIs involve close examination of all visible parts of Structures and reports on their condition, procedures for which are described in Volume 3 Section 1 of the Design Manual for Roads and Bridges (DMRB). Particularly relevant are BD63 (DMRB 3.1.4) and BA63 (DMRB 3.1.5), both entitled "Inspection of Highway Structures". BD63 (DMRB 3.1.4), contains an Appendix B, "Special Requirement: Scotland" in which Clause 3.4 refers to the introduction of PIs for maintenance works prioritisation.

b) Scope

PI reports shall give recommendations and priorities for actions, from which detailed maintenance works programmes shall be generated by the Company. All PI Reports shall be prepared to a standardised format. The PI system for maintenance works prioritisation shall only apply to routine works of varying degrees of urgency. Emergency works shall continue to be carried out by the Company on an ad-hoc basis; these shall include repairs due to vehicle impact damage, scour or flood damage, serious deck joint leakage or structural instability reported following superficial or general inspections described in BD63 (DMRB 3.1.4), or as a result of accidents.

c) PI Personnel

The PI engineer employed by the Company who signs/countersigns a PI report shall be a chartered civil or structural engineer with a background in design or construction of road Structures. For Structures with spans greater than 10 metres or retained heights greater than 6 metres, unless otherwise agreed by Angus Council the PI engineer shall carry out the site inspections and prepare the PI reports. For minor bridges and ancillary Structures these responsibilities may be delegated to trained inspectors, provided they act under the supervision of the PI engineer who shall countersign the PI report. Suitable training and experience shall be available in the PI engineer's organisation. If other parties are employed to assist with PI workload this shall be agreed by Angus Council (such agreement not to be unreasonably withheld or delayed) and the PI engineer shall countersign PI reports to indicate agreement with their contents.

d) PI 6-Year Cyclic Programme

All current Structures on the Project Road which are eligible for PIs and the years in which they are due to be inspected within a 6 year cyclic programme shall be recorded on the database.

For a new Structure, the first PI year shall be based on the Year of Completion plus 3 years (Reference. BD63 (DMRB 3.1.4), Clause 3.7, thereafter PIs will be programmed every 6 years in a rigid cycle.

With the agreement of Angus Council, a PI year can be amended where there are justifiable reasons for re-programming.

By the first of November of each year, the Company shall have prepared a detailed programme of PIs for the following year. This shall identify the Structures involved (structure reference number, structure name) and show the month proposed for each PI. A copy of the programme shall be submitted to Angus Council.

e) **PI Preparations**

When planning a PI and before going on site the PI engineer shall retrieve from bridge records and study inter alia:-

- (i) a BDB full text inventory report (for information and verification);
- (ii) drawings;
- (iii) previous PI reports;
- (iv) maintenance records;
- (v) special investigation reports;
- (vi) silane impregnation records.

When on site the PI engineer shall carry out his inspection with the PI location system and proposed report contents in mind. Site notes shall be taken to record photographs, diagrams and location numbering or identification of defective main elements and parts. This Annex shall therefore be studied before undertaking a PI for Maintenance Works Prioritisation for the first time.

f) **PI Report : Contents and Preparation**

The bridge database shall provide a management system for "PIs for Maintenance Works Prioritisation", the outputs from which constitute the PI report pages. These are:

- 1. No Defects: Principal inspection report complete;
- 2. Defects Found:
- 3. No Change Since Last PI.

The PI report shall contain or be accompanied by the following where relevant:-

- (i) Defect descriptions and locations (with photographs and diagrams);
- (ii) Prioritisation rankings;
- (iii) Recommended action, with estimate (if applicable);
- (iv) PI REPORT APPENDICES (where applicable):-

***Appendix GA** General arrangement drawing showing:

- A. the UPLINK reference direction;
- B. the locations of Defect photographs and diagrams by arrows and reference numbers;
- C. the location of the measured minimum headroom dimension, the actual dimension and the date measured.

***Appendix PH** Photographs

Appendix DI Diagrams

***Appendix FT** Full text inventory report

Appendix DR Diving report in accordance with BA63 (DMRB 3.1.5).

- *Appendix PW** Permits to enter and work in Confined Spaces - Safe Working Procedures (copies), in accordance with BD63 (DMRB 3.1.4), and BA63 (DMRB 3.1.5).
- Appendix HM** High Mast Lighting Column tube section thickness report.
- Enclosure** Special Investigation Report resulting from Action 3 in Appendix H.

g) **Concrete Investigations**

If the PI engineer considers that a special investigation into concrete Defects is required to determine their cause and/or extent, action shall be taken by the Company after informing Angus Council.

h) **Main Elements and Parts of a Structure**

The main elements of a Structure are:-

Foundation	(for each support)
Substructure	(for each support)
Superstructure	(for each span)
Component	(for the whole bridge)
Watercourse	
Earthworks Adjoining	

For ancillary Structures there is only one main element which comprises the whole Structure. Ancillary Structures are those with spans or diameters in the range of 2.0 to 3.0 metres or which retain heights greater than 1.5 metres. Additionally, all corrugated metal culverts 0.9 metres or more in span are deemed to be ancillary Structures. For inspection purposes all bridges with a structural form of a pipe or pipe arch, footbridges, sign/signal gantries and high mast lighting columns are also deemed to be ancillary Structures.

A defective main element shall contain a defective part or parts, each of which may contain various Defects. Each defective part shall be selected and its Defects described in the PI report. Irrespective of the number of Defects, the PI engineer must allocate only one maintenance prioritisation ranking 1,2,3 or 4 to each defective main element as a whole (see section m) of this Annex).

i) **Location System**

Identification of defective main elements and parts of a Structure shall be based on a comprehensive location system. The methods which shall be used are described in the document entitled "Location System: Principal Inspections: Trunk Road Structures", published by The Scottish Office Development Department. The PI engineer must be fully familiar with this document and shall take a copy on site during PIs for ease of reference.

j) **Defect Description**

In general, Defects shall be described by the following.

Material Containing Defect	}	Compulsory
Defect Type		
Extent of Defect		
Severity of Defect		
Cause of Defect	}	Optional
Effect of Defect		
Photograph Reference No		
Diagram Reference No.		

the PI report shall describe and locate visible Defects. Where many similar Defects occur in a defective part of a Structure, it is not necessary to give individual descriptions of each visible crack, spalled area, dampness, corrosion, and the like. A global description can be given for the length of area affected.

The PI engineer for a Structure shall ensure before compiling the PI report that full and accurate data is held in the database. The quality of information will ensure the accuracy of future PI reports.

A full text inventory report from the database shall be included in Appendices of future PI reports to describe the Structure and demonstrate that full information is held in the database.

All PI reports shall be stored permanently within the database and can be inspected for historical examination at any time.

k) **Photographs and Diagrams**

An original colour photograph shall be mounted on the frontispiece of the PI report, showing the main elevation of the Structure.

Other colour photographs (or colour photocopies) shall be included in Appendix PH to illustrate reports on seriously defective main elements (prioritisation ranking of 3 or 4). An object such as a coin or scale introduced to indicate dimensions shall be incorporated.

Photographs or colour photocopies shall be added to Appendix PH showing other elevations, the road carried, parapets, watercourses, other obstacles under, and the like at the discretion of the PI engineer.

Diagrams shall be added to Appendix DI where required to assist in Defect description and location.

The database shall contain facilities for the PI engineer to allocate reference numbers to photographs and diagrams when reporting on Defects.

l) **Prioritisation Ranking of Defective Main Elements**

The suggested extent and severity rankings in Clause 1.5 of the Bridge Inspection Guide are superseded by this Section on principal inspection. The 4 alternative maintenance prioritisation rankings now to be used for defective main elements of a Structure shall be:

INSIGNIFICANT	= 1	Nothing to worry about:- leave for further examination at next PI. Defects not likely to deteriorate significantly within 6 years;
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MINOR	= 2	Nothing to worry about, but Defects likely to get worse and significantly more expensive to repair within 6 years;
UNACCEPTABLE	= 3	Not to be left for 6 years until the next PI. Deterioration of Defects and escalation of repair cost inevitable if left unrepaired. Could become severe enough to affect integrity of Structure;
SEVERE - ACTION NEEDED	= 4	Currently affecting the integrity of the Structure. Essential to repair Defects at an early date. Could become hazardous if left. Cost of repair/damage to Structure escalating rapidly.

A prioritisation ranking of 4 allocated to any main element will generate a very high priority for maintenance Works in the following year's programme. Photographs and reports on defective main elements with a ranking of 4 shall illustrate the clear necessity for this high priority.

Prioritisation rankings of only 1 or 2 in a PI report will result in monitoring of Defects during further general inspections until prioritisation rankings are reviewed at the next PI 6 years later.

m) **Maintenance Works Prioritisation**

PI reports shall contain prioritisation rankings for main elements with defective parts and estimates. PI reports will be analysed by the Company in September of each year to generate the maintenance works programme for the following year. This analysis shall re-examine priorities for any maintenance Works which were not carried out in previous years. The method of analysis shall be as shown in section 6 of this Annex.

n) **Action Proposed**

The PI engineer shall end his report with a recommendation for action. Before making the recommendation, the results of the PI and any relevant investigation shall be taken into account. A list of actions are contained within section 2 of this Annex.

o) **Special Investigation**

If a special investigation is required to complete the PI, the SI may involve a pre-specification overall survey in advance of maintenance painting of structural steelwork (SD7 in Manual of Contract Documents for Highway Works (5.2.2)) or a special concrete investigation to determine the reasons for and extent of concrete Defects.

The results of the SI should be reported as soon as possible, at which time the PI engineer must submit an edited PI Report, enclosing the SI Report, recording the cost of the SI, specifying the action now proposed and giving any relevant detailed estimate for a recommended maintenance works package. The report may if required alter the prioritisation ranking for defective main elements if warranted by the SI findings. The Structure shall then be included in the next analysis of PI reports for maintenance works prioritisation.

p) **Silane Impregnation**

A PI report on a Structure shall indicate when it contains concrete Structures which are eligible for silane impregnation and whether or not these have been impregnated. If not, a separate estimate of cost for impregnation shall be given at the end of the PI Report. This will provide a means of monitoring progress in the preventative programme of impregnation.

Annex 5/1 - Section 2

Principal Inspections - List of Actions

Annex 5/1 - Section 2**Principal Inspections - List of Actions**

- 1 No maintenance Works required; no defective main elements with maintenance prioritisation ranking greater than 2. (General inspections to monitor)
- 2 Maintenance Works should proceed as soon as possible; defective main elements having maintenance prioritisation ranking greater than 2. (General inspections to monitor if repairs delayed)
- 3 Special investigation required next financial year to determine the nature and extent of Works required.
- 4 Await programmed strengthening or other upgrading and carry out any structural maintenance concurrently with these Works.
- 5 Where an improvement scheme is involved, postpone maintenance Works until opening of new road to minimise traffic disruption.
- 6 Postpone maintenance Works so that they can be phased with other future Works to be carried out on the route or with land acquisition. Angus Council consulted. (General inspections to monitor until works commence)
- 7 Demolition as part of road scheme planned : Structure can safely be neglected. (Inspections to monitor until demolition takes place)
- 8 Beyond economical repair - Replace.

List of Actions from which a selection shall be made by the PI Engineer at the conclusion of the PI Report

Annex 7/1

Recovery Vehicles for Breakdown

Annex 7/1

Recovery Vehicles for Breakdown

1. The minimum requirements for the heavy and light recovery vehicles to be provided shall be as follows:-
 - a) **Heavy Recovery Vehicles**
 - (i) 1 No. heavy recovery vehicle shall be provided which shall be capable of suspend towing a loaded 44 Tonnes vehicle up a slope of 4° and shall comply with all appropriate current legislation including Motor Vehicle Construction and Use Regulations, Road Transport Act and Road Traffic Acts. The vehicle shall be equipped with suitable chains, wire ropes and shackles to recover a fully laden 44 Tonnes GVW vehicle.
 - (ii) The vehicle shall be fitted with the following as a minimum requirement:-
 - A. appropriate width warning light bar with amber and red flashing lights;
 - B. 2 No. fully adjustable lights to illuminate both sides and rear of the vehicle;
 - C. 2 No. fire extinguishers (general purpose type BCS);
 - D. No. 1-10 person first aid kit;
 - E. 2 No. 30 foot 12 Tonne nylon straps;
 - F. 2 No. 30 metres x 13 mm polypropylene rope;
 - G. 1 No. 44 Tonne straight tow pole;
 - H. 1 No. 44 Tonne cranked tow pole;
 - I. 10 No. 1000 millimetre cones;
 - J. 1 No. proof loaded tested crane;
 - K. 1 No. suitable socket set including AF/Metric and BA sizes;
 - L. 1 No. suitable tool kit;
 - M. 1 No. 12 Tonne bottle jack;
 - N. 1 No. suitable wheelbrace, or 1 No. suitable socket set to fit HGV's in common use;
 - O. 1 No. suitable jump lead set;
 - P. 1 No. explosion and flameproof hand lamp;
 - Q. 1 No. crowbar;
 - R. 1 No. copper hammer;

- S. the necessary fittings for connection, from the air braking system of a broken down or accident damaged vehicle, to the air braking system each heavy recovery vehicle;
 - T. 1 No. broom and shovel;
 - U. 2 No. wheel chocks of the HGV size;
 - V. 4 No. suitable lengths of wood block skidding;
 - W. 1 No. rear light board incorporating the "On Tow" legend in lettering or not less than 70 millimetres on conspicuously coloured background to conform with the size, colour and type illustrated in Diagram 5, Section B, Schedule 19 of the Road Vehicles Lighting Regulations 1989. The board shall be fitted with lights, reflectors and indicators. When required the recovery vehicle index number or trade licence plate shall be fitted.
- (iii) The vehicle shall also have available on site as a minimum requirement:-
- A. 4 No. 'D' shackles SWL 12 Tonnes each;
 - B. 4 No. 'D' shackles SWL 3 Tonnes each;
 - C. 2 No. suitable length chains SWL 12 Tonnes each;
 - D. 2 No. suitable length chains SWL 5 Tonnes each;
 - E. 2 No. suitable length chains SWL 3 Tonnes each;
 - F. 2 No. ratchet jacks SWL 10 Tonnes each, or hydraulic equivalent;
- (iv) The vehicle shall have available, and use when necessary, approved and purpose built equipment to lock the steering of the broken down or accident damaged vehicle on order to tow in a reverse direction.
- (v) The vehicle shall have available equipment to enable the recovery crew to remove the drive line or shafts of the broken down or accident damaged vehicle.
- b) **Light Recovery Vehicle**
- (i) 1 No. light recovery vehicle shall be provided which shall be capable of suspend towing a loaded 6 tonne vehicle up a slope of 4° and shall comply with all appropriate current legislation including Motor Vehicle Construction and Use Regulations, Road Transport Act and Road Traffic Acts. To also have a cab to accommodate a minimum of 5 passengers.
 - (ii) Be capable of recovering motorcycles.
 - (iii) The vehicle shall be fitted with the following as a minimum requirement:-
 - A. appropriate width warning light bar with amber and red flashing lights;

- B. 2 No. fully adjustable lights to illuminate both the sides and rear of the vehicle;
 - C. 2 No. fire extinguishers (general purpose type BCS);
 - D. 1 No. 1-10 person first aid kit;
 - E. 1 No. 30 metres x 13 millimetres polypropylene rope;
 - F. 1 No. 6 Tonnes suitable length rope/cable SWL 10 Tonnes;
 - G. 1 No. suitable length tow rope/cable SWL 2 Tonnes;
 - H. 10 No. 2000 millimetres cones;
 - I. 1 No. proof load tested crane;
 - J. 1 No. suitable socket set including AF/Metric and BA sizes;
 - K. 1 No. suitable tool kit;
 - L. 1 No. 6 Tonne bottle jack
 - M. 1 No. suitable wheelbrace to fit cars and light goods vehicle in common use;
 - N. 1 No. suitable jump lead;
 - O. 1 No. explosion and flameproof hand lamp;
 - P. 1 No. quick change towing hitch suitable for 50 millimetres, 2 inches or jaw type fittings;
 - Q. 1 No. broom and shovel;
 - R. 1 No. wheel chock of light commercial size;
 - S. 4 No. suitable lengths of wood block skidding;
 - T. 1 No. rear lighting board incorporating the 'On Tow' legend in lettering of not less than 70 millimetres on conspicuously coloured background to conform with the size, colour and type illustrated in Diagram 5, Section B, Schedule 19 of the Road Vehicles Lighting Regulations 1989. the board shall be fitted with lights, reflectors and indicators. When required the recovery vehicle index number or trade licence plate shall be fitted.
 - U. Total lift facility - 6 tonne slideback deck (7.6 metres minimum).
- (iv) The vehicle shall also have available on site as a minimum requirement:-
- A. 4 No. 'D' shackles SWL 6 Tonnes each;
 - B. 4 No. 'D' shackles SWL 3 Tonnes each;
 - C. 2 No. suitable lengths chains SWL 6 Tonnes each;

D. 2 No. suitable lengths chains SWK 3 Tonnes each;

E. 2 No. ratchet jacks SWL 6 Tonnes each, or hydraulic equivalent.

Note: All lifting chains and equipment must be fully certificated to comply with all current legislation.

(v) The vehicle shall have available, and use when necessary, approved and purpose built equipment to lock the steering of the broken down or accident damaged vehicle in order to tow in a reverse direction.