



**TRANSPORT SCOTLAND (Agency of the Scottish Executive)
TRUNK ROAD & BUS OPERATIONS (Bridges & Structures Team)
TS INTERIM AMENDMENT No 45 (Rev01) – Management of Abnormal Loads**

SUMMARY

This Transport Scotland Interim Amendment (TS IA) is intended to provide guidance on the management of abnormal indivisible loads which require structural assessment over and above an initial route assessment.

1. INTRODUCTION

Transport Scotland has a duty to provide a statutory abnormal indivisible load routing and coordination service to hauliers and companies using the Scottish Trunk Road Network on behalf of the Department of Transport.

This is required in order to carefully manage the movement of abnormal indivisible loads so that they only use those parts of the road network that can safely accommodate them.

This interim amendment is intended to provide guidance on the management of abnormal indivisible loads including those which require structural assessment over and above an initial route assessment.

2. REGULATIONS

Movement of abnormal indivisible loads and abnormal vehicles is regulated and controlled by:

- (i) *The Road Vehicles (Construction and Use) Regulations 1986* (SI 1986 No 1078),
- (ii) *The Road Vehicles (Authorised Weight) Regulations 1998* (SI 1998 No 3111),
- (iii) *The Road Vehicles (Authorisation of Special Types) General Order 2003* (SI 2003 No 1998) hereinafter referred to as Special Types General Order 2003,
- (iv) Section 44 of the *Road Traffic Act 1998*, and

any statutory amendment or re-enactment thereof.

3. LOAD ROUTING AND COORDINATION

The Operating (OC) or DBFO Company shall provide advice on the routing of abnormal indivisible loads to Transport Scotland, including the use of the Structures Management System (SMS) provided, when required.

They shall also, on behalf of Transport Scotland, act as the main contact for all communication and correspondence relating to the routing and movement of abnormal indivisible loads within their Unit.

The management of abnormal loads requires coordination between the particular roles as defined below and with local authorities and other interested parties. The following roles must be carried out by appropriately qualified and trained individuals.

- **Abnormal Load Routing Manager** – responsible for managing all aspects relating to the movement of abnormal indivisible loads and abnormal vehicles within the Unit.
- **Network Manager** – responsible for the management of all activities undertaken or occurring on or near the Trunk Road network within the Unit.

It is acknowledged that some of the tasks undertaken by the Abnormal Load and Network Managers may be undertaken by appointed deputies as described below e.g. Abnormal Load Officer. Such deputies must be appropriately qualified, trained, experienced and supervised to undertake the duties required of them. However, final responsibility for the management of Abnormal Loads rests with the Abnormal Load Routing Manager.

4. ROUTE ASSESSMENT

Advice

In addition to the advice contained in this advice note, guidance on the management of abnormal Loads is contained in the following documents: -

- Code of Practice for the Management of Highway Structures Section 8 and Appendix N of the Code of Practice for the Management of Highway Structures, and
- BD86 The Assessment of Highway Bridges and Structures for the Effects of Special Type General Order (STGO) and Special Order (SO) Vehicles.

In particular the Code of Practice lists three particular roles defined as follows: -

- **Abnormal Load Officer** – the person responsible within the authority for receiving notification of movements from hauliers, ensuring that such notifications are assessed and that the haulier is advised if there is any reason why a proposed movement should not take place.
- **Structures Advisor** – a chartered civil or structural engineer within the bridge management organisation, to whom the Abnormal Loads Officer should refer decisions relating to vehicle movements which fall outside the agreed guidelines which otherwise determine whether or not particular vehicle movements should be accepted.
- **Road Space Coordinator** – the person responsible within the relevant roads authority for the coordination of all traffic management on the road network. This responsibility usually includes companies and other external parties. Where appropriate this role may be performed by the traffic manager or network manager.

Notifications

Registers of haulier insurance indemnities (refer to section 8 below) and vehicle movements notifications shall be maintained. In respect of each notification the following information shall be advised to and retained by the OC and DBFO Company: -

- Date of Notification
- Name of Haulier
- Date of Planned Movement
- Expiry date of relevant indemnity (which may be valid for a full year or for a specific movement).
- Key features of route.
- Gross weight of vehicle.
- Axle weights and spacings.
- Width of vehicle.
- Length of vehicle.
- Height of vehicle.
- Either acceptance of notification or date of response and reasons given for rejection.

The OC or DBFO company should receive notifications from hauliers within the timescales specified within Annex A of this Part, and shall, if the movements are unacceptable, reply within 24 hours for loads not exceeding 80,000 kg and within 48 hours for loads exceeding 80,000 kg and all Special Order loads.

Elementary and Advanced Abnormal Load Systems

The key features of an Elementary and an Advanced Abnormal Load Systems are described in Section 8.6 of the Code of Practice and shall be followed. The Advanced System is a semi-automated comparison between the structural effects of the notified loads(s) and the design or the assessed capacity of the structure, e.g. Transport Scotland's ALR tool within the SMS.

The OC and DBFO Companies shall provide an Elementary System consisting of a procedural guidance schedule for each route to permit the Abnormal Load Officer to check that the load details above certain thresholds are notified to others such as the Road Space Co-ordinator or Structures Advisor as necessary. If the notification is referred to the Structures Advisor, in making a decision the Structures Advisor should make use of any available database defining capacities of individual structures and of records and knowledge of historic information of similar vehicle movements.

The OC and DBFO Companies shall keep records of all abnormal load movements over structures including any assessment information and upload any assessment information and procedural guidance into SMS. For General Order Vehicles, a detailed assessment of individual structures is seldom required.

The OC and DBFO Companies shall use SMS within the Integrated Roads Information System (IRIS) to undertake route assessments for proposed movements. In all cases the movement of abnormal loads should be managed in such a way as to ensure that the load effects induced by the abnormal loads do not exceed the load carrying capacity of the structures on the route. The route assessment shall identify Structures that may be affected by the movement of a given abnormal indivisible load.

The OC and DBFO Companies shall review the records within SMS to identify Structures that may be affected by the movement of an abnormal indivisible load.

In addition to reviewing the records, the Abnormal Load Routing (ALR) tool within SMS can be used to assist the assessment of certain structural forms on a given route. Further, the ALR's Structure Investigation tool can be used to assist the assessment of individual bridges of certain structural forms.

The advanced ALR tool within SMS is currently only capable of running a comparison on approximately 50% of the structures designed or assessed to HB loading. It is currently being developed to allow a comparison to be run on other structural types such as boxes and portals, and in addition on structures designed for SV loading.

Structural Assessment

When it is identified that a structure cannot or does not have the capacity to carry the load with the initial vehicle configuration, then alternative vehicle configurations, as submitted by the haulier, may be checked until a suitable configuration is found.

If an alternative suitable configuration cannot be found or the load sub-divided then an alternative route using Transport Scotland managed trunk roads, where available, should be identified by the OC or DBFO company or put forward by the haulier. Alternative routes which involve traversing non-trunk road networks may be available to the haulier. Where these are suggested it must be made clear to the haulier that they must consult with the relevant Local Authorities and responsible parties.

For structures that have not passed an assessment using the SMS ALR tool or for those where an alternative route cannot be found, the structure will require a structural assessment to establish its capability of carrying the proposed abnormal indivisible load. This may typically happen where improvements to the load carrying capacity are sought and considered likely to be beneficial by undertaking further structural assessment. At this stage, the OC or DBFO company must make recommendations in writing to Transport Scotland Unit Bridge Manager or Major Bridges Manager on the suitability of the proposed movement and need for further structural assessment.

5. ASSESSMENT REQUIREMENT

The OC or DBFO Company shall discuss and agree with the haulier, or its representative, on whether further structural assessment of the structure(s) or structures is required to be undertaken and whether it is considered to be beneficial.

Once the need for structural assessment has been agreed, a decision shall be made by the haulier or its representative on how to procure the work.

The work can be undertaken by a third party (consultant with relevant technical qualifications and experience approved by Transport Scotland) or by means of a separate agreement between the haulier and the OC or DBFO Company outwith the Scottish Minister's contract. Irrespective of the hauliers decision, Transport Scotland's Unit Bridge Manager or Major Bridges Manager shall be informed.

Should the haulier request a price from the OC or DBFO Company, this shall be provided with a detailed breakdown, including timescale for completion of the assessment, within 10 working days of such a request.

6. TECHNICAL APPROVAL AND CERTIFICATION

Irrespective of who undertakes the structural assessment(s), technical approval is required from the Technical Approval Authority (TAA). The TAA will explain and agree the scope and category of the assessment with the haulier or their representatives and what is required in terms of documentation. In general, although subject to the discretion of the TAA, an Assessment Approval In Principle (AIP), Assessment Report and Assessment and Assessment Check Certificates will be required.

The Technical Approval Procedure for Assessment of Structures can be found in Fig.1. In accordance with this procedure, the requirements of the Design Manual for Roads and Bridge document "BD 2/12 Technical Approval of Highway Structures" shall be complied with.

The OC or DBFO company shall provide assistance to the haulier or its representative by giving access to relevant drawings, calculations and other appropriate records held by the OC or DBFO company.

Dependent upon the condition of the structure and nature of the proposed movements, the TAA may, in consultation with the OC or DBFO company, insist upon pre-assessment and post movement inspections to record the condition of the structure.

Subject to the agreement of the TAA it may be acceptable to undertake a limited structural assessment comparing the load effects of the abnormal vehicle with the design or assessment load effects. Where an initial assessment using the SMS ALR tool or otherwise indicates the load effects induced by an abnormal load marginally exceed the capacity of the structure, it may be possible for the abnormal load to safely cross the bridge provided a limited structural assessment as described above is undertaken, the speed of the vehicle is restricted and other normal traffic is kept clear of the structure when the abnormal load crosses it under caution. This would require a police escort to control traffic which must be discussed with the haulier and arranged by the OC or DBFO company on behalf of the haulier and at the hauliers expense.



Upon completion of the assessment, the Assessment Report, Assessment Certificates and Assessment Check Certificates shall be issued to the TAA for approval. Once approved these will be forwarded to the OC or DBFO company. (Refer to 4G OC Contract Part 6 Annex 7.6/G).

ANNEX 7.6/G – Technical Approval Procedures for Assessment of Structures in Scotland

Assessor shall agree AIP with the TAA. This shall embrace all relevant documents from the TAS including the UK Design Manual for Roads and Bridges, and may include departures from standards or aspects not covered by standards.
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Assessment and check shall be carried out and the TAA shall be consulted on those aspects of the assessment which do not comply with the AIP. If further amendments to the AIP shall be required, either by the assessor or the Checker, these shall be approved by the TAA and an addendum to the AIP submitted.
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Assessor shall give recommendations on and agree with the TAA any substandard features identified by the assessment which are not to be upgraded. Any interim measures shall also be agreed at this stage.
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Assessment report submitted to the TAA with list of all substandard features identifying those which shall not be upgraded and giving recommendations for any Special Inspection or studies needed prior to the design of strengthening and/or improvement Operations.
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Assessor shall submit assessment and check certificates on which shall be recorded all agreed and/or approved departures from standards.
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TAA/OD accepts assessment and check certificates endorsing all departures from standards or aspects not covered by standards.
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END OF ASSESSMENT

DEFINITION

Assessment includes:

1. Load carrying capacity of deck and substructure
2. Parapets
3. Pier impact resistance
4. Safety fencing
5. Visibility
6. Vertical and Horizontal Clearances
7. Central reserve, carriageway, footway, and verge provision
8. Scour risk
9. All other aspects relative to the AIP

ABBREVIATIONS

- TAA = Technical Approval Authority
 TAS = Technical Approval Schedule
 AIP = Approval in Principle
 OD = Overseeing Department

NOTE:

1. For strengthening and or improvement works, Technical Approval procedures shall be the same as for new Structures.

Fig. 1 - Technical Approval Procedure for Assessment of Structures

7. RECOMMENDATIONS

Upon receipt of the Assessment Report and Certification, the OC or DBFO Company shall make recommendations in writing to Transport Scotland’s Unit Bridge Manager or Major Bridges Manager regarding the suitability of the proposed movement.

The recommendations shall include the results of the assessment, details of any restrictions placed upon the abnormal load movement and any further requirements such as post movement inspections or any strengthening proposals, which would be funded by the haulier.



The OC or DBFO Company shall make clear to the haulier that the load carrying capacity certified is only applicable for that point in time as the structural condition and hence capacity may change. However, at the discretion of the OC or DBFO Company, similar loads moved after the certified load may be permitted without the need for a separate assessment.

8. STRENGTHENING

Where temporary or permanent strengthening of a structure is considered feasible in order to permit a specific abnormal load to pass over a structure, then OC or DBFO Company shall discuss the matter with Transport Scotland's Unit Bridge Manager or Major Bridges Manager and the haulier. Any temporary or permanent strengthening of a structure shall be subject to the Technical Approval procedures in accordance with BD2/12.

Any costs associated with the temporary and permanent strengthening of a structure (including investigation, inspection, design, checking, construction, installation, demounting, removal and supervision) shall be borne by the haulier, and may be undertaken by the OC or DBFO Company, or by third parties (Consultant and Contractor) approved by Transport Scotland. In the event that the work is undertaken by third parties then the OC or DBFO Company shall undertake periodic inspection of the works on behalf of Transport Scotland with all costs borne by the haulier.

9. INDEMNIFICATION

The requirements for the provision of Indemnities for any given movement are reiterated below (Refer to 4G OC Contract Schedule 8 Part 1 Section 3).

The OC or DBFO Company shall, on behalf of Transport Scotland, request indemnification, in the format specified in the Special Types General Order 2003, from any haulier or company whose abnormal indivisible loads are expected to travel within the Unit.

The OC or DBFO Company shall immediately notify Transport Scotland's Unit Bridge Manager or Major Bridges Manager if it has not received any requested indemnity in advance of any movement of abnormal indivisible loads.

The OC or DBFO Company shall keep the indemnity forms received at its Central Office and shall prepare and maintain a list of hauliers and companies for whom indemnity forms are held. Indemnity forms shall be kept within the Central Office for a minimum period of 12 months after the indemnified movement has taken place. Should the 12 month period extend beyond the Contract Expiry Date, any indemnity forms held shall be passed to the incoming Operating Company.

10. RECORDS

All records in relation to Abnormal Load Movements shall be retained for a period of 10 years after the date of the record. Should this period extend beyond the contract expiry date, any records held shall be passed to the incoming OC or DBFO Company.

11. IMPLEMENTATION

This TS IA should be implemented with immediate effect.

12. FURTHER INFORMATION

Any questions regarding the use or content of this document should, in the first instance, be addressed to the relevant Transport Scotland Unit Bridge Manager or Major Bridges Manager

13. REFERENCES

- Management of Highway Structures, A Code of Practice, September 2005, UK Bridges Board.
- DMRB Volume 3, Section 4, Part 19, BD86/11 The Assessment OF Highway Bridges and Structures for the Effects of Special Type General Order (STGO) and Special Order (SO) Vehicles
- DMRB Volume 1, Section 1, BD2/12, Technical approval of Highway Structures.
- 4th Generation Term Contract for the Management and Maintenance of the Scottish Trunk Road Network



Annex A – A Guide to Notification and Authorisation of Abnormal Indivisible Load Movements

A Guide to Notification and Authorisation of Abnormal Indivisible Load Movements

The following is a guide to notification and authorisation requirements for the movement of abnormal indivisible loads: (Refer to 4G OC Contract Schedule 8 Part 1 Annex 8.1/A)

ANNEX 8.1/A – A Guide to Notification and Authorisation of Abnormal Indivisible Load Movements

The following is a guide to notification and authorisation requirements for the movement of abnormal indivisible loads:

A. Dimensions within "Construction & Use Regulations"

Laden dimensions not exceeding:

2.90m (9'6") overall width,
18.75m (61'6") rigid length or
40,000kgs (40t) gross weight

No requirement for notice to Transport Scotland, the Police or for notice with indemnity to Road & Bridge Authorities

The Secretary of State's authorisation is not required for the movement of abnormal indivisible loads with laden dimensions as stated above.

B. Dimensions within "Special Types General Order"

Laden dimensions in excess of "Construction & Use Regulations" but not exceeding:

6.1m (20'0") overall width *

2 Clear Working Days notice to Police

* Secretary of State "VR1" authorisation is required for the movement of abnormal indivisible loads with an overall width in excess of 5.0m (16'5") but not exceeding 6.1m (20'0"). The VR1 authorisation requires 10 days notice to the Highways Agency in addition to the timeframe stated above.

30.0m (98'4") rigid length

2 Clear Working Days notice to Police

80,000kgs (80t) gross weight

2 Clear Working Days notice with indemnity to Road & Bridge Authorities

over 80,000kgs (80t) but not exceeding
150,000kgs (150t) gross weight

5 Clear Working Days notice with indemnity to Road & Bridge Authorities and
2 Clear Working Days notice to Police

C. Dimensions requiring Special Order

Laden dimensions exceeding:

6.1m (20'0") overall width**	5 Clear Working Days notice with indemnity to Road & Bridge Authorities and 5 Clear Working Days notice to Police
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** Secretary of State "HA form BE 16" authorisation is required for the movement of loads with an overall width in excess of 6.1m (20'0"). The **BE16** authorisation requires 8 weeks notice to the Highways Agency in addition to the timeframes outlined above

30.0m (98'4") rigid length***	5 Clear Working Days notice with indemnity to Road & Bridge Authorities and 5 clear Working Days notice to Police
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*** Secretary of State "HA form BE 16" authorisation is required for the movement of loads with an overall length in excess of 30.0m (98'5"). The **BE16** authorisation requires 8 weeks notice to the Highways Agency in addition to the timeframes outlined above

150,000kgs (150t) gross weight and/or 16,500kgs (16.5t) per axle****	5 Clear Working Days notice with indemnity to Road & Bridge Authorities and 5 Clear Working Days notice to Police
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**** Secretary of State "HA form BE 16" authorisation is required for the movement of loads with an overall weight exceeding 150,000kgs (150t) and/or 16,500kgs (16.5t) per axle. The **BE16** authorisation requires 8 weeks notice to the Highways Agency in addition to the timeframes outlined above

Secretary of State's "Special Order" authorisation is required for the movement of abnormal indivisible loads with laden dimensions as stated above.

NOTES

1. At present there is no legislation governing the overall laden height of a vehicle but in order that the maximum possible use is made of the motorway and Trunk Road network the overall laden height should not exceed 4.95m (16'3").
2. "Clear Working Days notice" excludes Saturdays, Sundays, bank holidays or public holidays.
3. The Transport Scotland Bridges Section offers an advisory service to the operating companies on the routing of abnormal indivisible loads on the Trunk Road network, including those loads within the laden dimensions stated in Part A of this Annex which do not require the Secretary of State's authorisation or notification to Transport Scotland.