Reference	NR/L3/CIV/160
Issue	1
Publication date	6th June 2009
Compliance date	5th September 2009

Level 3

The design of car parks for railway stations and depots

Endorsement and Authorisation

Endorsed by:

.....

K Brady, Senior Policy and Standards Engineer (Civil Engineering)

Authorised by:

.....

T Kersley, Professional Head of Structures Engineering

Accepted for issue by:

.....

M McManus, National Standards Manager

This document is the property of Network Rail. It shall not be reproduced in whole or part nor disclosed to a third party without the written permission of the Standard Owner.
© Copyright 2009 Network Rail.
Uncontrolled copy once printed from its electronic source.
Published and Issued by: Network Rail. Kings Place, 90 York Way, London. N1 9AG.

Network Rail

Documents
Document Sharing Hub

Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

Issue record

Issue	Date	Comments
1	6th June 2009	New standard

Compliance

This Network Rail standard shall be complied with by Network Rail and its Contactors from 5th December 2009.

When this Specification is implemented, it is permissible for all projects, which have formally completed GRIP Level 4, to continue to comply with the issue of any relevant Network Rail Standards current when GRIP Level 4 was reached and not to comply with requirements contained herein.

Reference documentation

Network Rail standards

NR/GN/TEL/50017	*CCTV for Stations – functional, technical and operational requirements.*
NR/L2/TEL/30135	*Technical requirements for security CCTV systems on Network Rail infrastructure.*

Group Standards

GI/GN 7520	*Guidance on lighting of railway premises.*

British Standards

BS 1447: 1988	*Specification for mastic asphalt (limestone fine aggregate) for roads, footways and pavings in building.*
BS 5489 Part 9: 1996	*Road lighting. Code of Practice for lighting for urban centres and public amenity areas.*
BS 6399 Part 1: 1996	*Loading for buildings. Code of Practice for dead and imposed loads.*
BS 6925: 1988	*Specification for mastic asphalt for building and Civil Engineering (limestone aggregate).*
BS 8300: 2001	*Design of buildings and their approaches to meet the needs of Disabled People. Code of Practice.*
BS EN 12056 [various parts]: 2000	*Gravity drainage systems inside buildings.* [various sub-titles]

Documents Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Other publications

Accessible Train and Station Design for Disabled People: A Code of Practice. Department for Transport/Transport Scotland.

Building Regulations.

Building Sight - A handbook of building and interior design solutions to include the needs of visually impaired people (1995). Royal National Institute for the Blind.

Construction (Design and Management) Regulations 2007.

Cycle Friendly Infrastructure (1996). Institute of Highways and Transportation.

Design recommendations for multi-storey and underground car parks (2002). Institution of Structural Engineers and Institution of Highways and Transportation.

Disability Discrimination Act 1995 as amended and extended by the *Disability Discrimination Act* 2005*,* the *Mental Capacity Act 2005* and the *Equality Act 2006.*

Petroleum (consolidation) Act as amended by the Dangerous Substances and Explosive Atmospheres Regulations 2002. Health and Safety Executive.

Railways Act 1993.

Railways Act 2005.

Safer Parking Scheme, Park Mark accreditation. British Parking Association.

The Good Transport Guide (2005). British Council of Shopping Centres.

Traffic Signs Regulations and General Directions (2002). Department for Transport.

Wildlife and Countryside Act 1981.

Wildlife (Northern Ireland) Order 1985.

Disclaimer

In issuing this document for its stated purpose, Network Rail makes no warranties, express or implied, that compliance with all or any documents it issues is sufficient on its own to ensure safe systems of work or operation, Users are reminded of their own duties under health and safety legislation.

Supply

Copies of documents are available electronically, within Network Rail's organisation. Hard copies of this document may be available to Network Rail people on request to the relevant controlled publication distributor. Other organisations may obtain copies of this document from IHS (Technical Indexes Ltd) tel: 01344 328000.

Comments

The applicability and content of this standard will be reviewed on a regular basis. Written comments on the accuracy and utility of this standard will be taken into account when assessing the need for a new issue of the standard; such comments should be sent to the Principal Policy and Standards Engineer (Operational Property) at 40 Melton Street, London NW1 2EE.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

Contents

1 Purpose 6
2 Scope 6
3 Governing principles 6
4 Station change: the franchised station regime 7
5 Closure and minor modification 10
6 Accessible Train and Station Design for Disabled People 14
7 Planning permission 15
8 Building Regulations 16
9 Local Authority approval 16
10 Statutory undertakings 16
11 Planning for sustainability 17
12 Operational considerations 17
13 Car park layout 18
14 Access and parking provision for disabled people 24
15 Accommodation 24
16 Parking equipment 25
17 Internal finishes 26
18 External finishes 27
19 Signage 27
20 Engineering services 29
21 Surfacing and pavement construction 31
22 Drainage and waterproofing 31
23 Fencing, barriers and railings 32
24 Car park security 33
25 Advertising, planting and grit bins 33
26 Existing site conditions 33
Appendix A: Design details 34
A1 Introduction 34
A2 Customer and car park characteristics 34
A3 Integration with external factors 39
A4 Design criteria 46
A5 Liaison requirements 61
A6 Control systems 63
A7 Commercial issues 70
A8 Planning for sustainability 73
Appendix B: Summary of information required by the design team 74
Appendix C: Planning for sustainability 75
C1 Project management 75
C2 Land use 76
C3 Landscaping 77
C4 Ecology and biodiversity 78
C5 Archaeological and cultural heritage 79
C6 Water 80
C7 Energy 80
C8 Material use 81
C9 Transport 82
C10 Nuisance to neighbours 82
C11 Community relations 83

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

C12 References 83
Appendix D: Template for a change proposal involving Works 84
Appendix E: Minor modification 96
E1 Flow chart 96
E2 Template for submitting a proposal for a minor modification 97
E3 Draft letter for submission 101
Appendix F: General determination 102
F1 Checklist 102
F2 Draft letter of notification 104
Appendix G: Dispensation to Accessible Train and Station Design for Disabled People: A Code of Practice 105
G1 Flowchart 105
G2 Template for a submission 105
G3 Draft letter requesting dispensation 116

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

1 Purpose

The purpose of this standard is to provide direction and guidance on the design of car parks for railway stations and depots.

2 Scope

This standard applies to surface car parks, demountable/modular car parks, multi-storey car parks, and changes to existing car parks.

The governing principles of design are defined in **3**, details of the procedures that might be invoked in the planning stage provided in **4** to **11**, whilst operational and construction requirements and considerations are covered in **12** to **26**. Detailed design requirements and considerations are covered in Appendix **A** (with a summary of the information required for a detailed design given in Appendix **B**) and environmental aspects of design in Appendix **C**. Appendices **D** to **G** provide further information, templates and checklists for some of the procedures that might be invoked during the planning stage.

3 Governing principles

The type, size and complexity of car parks covered by this standard are quite diverse, but the following principles apply to the design of all Network Rail car parks.

- The environment of the car park shall be such that customers feel safe and secure and have access to sufficient clear information and signage.
- Customers shall have access to convenient parking.
- The car park shall be designed in sympathy with buildings in its vicinity, including any designated listed buildings, and abide by conservation area restrictions.
- The car park shall be integrated with all other travel modes that use the station, for example public transport, walking and cycling.
- The car park shall provide appropriate access for all potential users such as the emergency services, maintenance teams from Network Rail, the Station Facility Owner (SFO) and the Train Operating Company (TOC), and other train operating staff.
- The design of the car park shall aim to achieve *Park Mark accreditation* from the British Parking Association (BPA).
- The car park shall comply with the requirements of the Disability Discrimination Act, the *Accessible Train and Station Design for Disabled People: A Code of Practice,* and BS 8300: *Design of buildings and their approaches to meet the needs of disabled people*.
- The design and construction of the car park shall meet the legislative requirements of *Building Regulations* and all Health and Safety Regulations, such as *Construction (Design and Management) Regulations*.

Documents Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

- The car park shall be designed and developed so that its construction, operation, maintenance and eventual demolition have as little detrimental impact on the environment as possible.
- The responsibility for renewing, repairing and maintaining the car park and the equipment within it (such as barriers and ticket machines) shall be defined through a change to the Station Access Conditions (SACs) and the station-specific annexes (see **4**).
- In satisfying the above, the design shall be based on minimum whole life costs.
- All works delivered by or on behalf of Network Rail shall follow Network Rail's approval procedures, and those of other authorities. (Details of the procedures that might be relevant to the design and construction of car parks at stations and depot are given in **4** to **11**.)

4 Station change: the franchised station regime

4.1 Introduction

The franchised station regime has governed relationships between industry parties since 1996. It applies to those stations which Network Rail has let and does not manage directly, and so it does not apply to Network Rail's Managed Stations.

The key regulating documents are the national SACs and their station-specific annexes, which list the assets at the station and the responsibilities for them. The SACs and their annexes can be viewed on the website of the Office of Rail Regulation (ORR) [rail-reg.gov.uk].

These documents interact with;

- station leases - the letting terms for franchised stations include the SACs for those stations,
- station access agreements - the train operator holding the station lease (the SFO) grants rights to other train operators (the beneficiaries) for use of the station through access agreements, which also include the SACs,
- collateral agreements - these are agreements between Network Rail and beneficiaries under which both agree to comply with the SACs.

4.2 Procedure

A proposal for a Station change can be submitted to the ORR by Network Rail, the SFO, or a train operator (who is a beneficiary at the station) when any of them wish to change the relationship between the parties in some way or other; for example, to increase or reduce the area of a station, or carry out physical works on the station.

The procedure for submitting a change is set out in;

Documents Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

- Part B of the SACs where the change is to the documentation - that is to the SACs and/or the annexes for the station,
- Part C of the SACs where the change consists of carrying out Works.

The procedure set out in Part C may be followed where both changes in documentation and Works are involved.

The sponsor of a change is obliged to contribute to the costs incurred by consultees in evaluating and responding to a proposal when either;

- a proposal through Part C is submitted by Network Rail, or
- a 'major' change is proposed by a train operator.

In addition, proposals submitted by Network Rail through Part C have to be accompanied by indemnities against any adverse effect of the change on railway operators.

4.3 Stages of the procedure

Stage 1: Although the sponsor of a change is not obliged to undertake any consultation prior to submitting a change proposal, it would be sensible to capture and cater for any concerns that other parties have when composing the submission.

Stage 2: The sponsor submits the proposal to the SFO, who then circulate it to the interested parties. (Where the SFO is the sponsor, they will circulate the proposal to all interested parties.)

Stage 3: A vote on the proposal is conducted by correspondence: a 'no objection' response is taken to be an acceptance of the proposal. The SFO and the beneficiaries have voting rights, but other consultees have only rights of representation. Although Network Rail does not have a vote, the ORR would wish to have at least a 'no objection' response from Network Rail prior to approving a proposal. (Vetoes and appeals are dealt with at *Stage 5*.)

Stage 4: A 30-day voting period is usual for a change proposed through Part B, and voting will take place at a meeting of all interested parties at the station in question unless this requirement is waived in the proposal and all parties agree to this waiver. A 45-day voting period is usual for a change proposed through Part C. For complex proposals the proposer may choose to extend the voting period, but this might not be necessary where pre-consultation was completed satisfactorily. Each proposal requires the 'specific approval' of the ORR, except where it falls within the scope of the 'general approval' of the ORR[1].

[1] 'Specific approval' is required where it is proposed to amend the regulating documents (SACs and/or annexes), but 'general approval' covers many types of amendment. Where Works are proposed, without any amendment to the documents, specific approval is required where the Works would materially diminish the number of passengers able to use the station for more than 28 days.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

Stage 5: Network Rail has the right to veto proposals submitted through Part B, but the SFO or any beneficiary can appeal against that veto within 35 days of its exercise: the ORR rules on such appeals. An appeal against a proposal submitted through Part C can be made within 30 days of its submission: such appeals are arbitrated through the 'Access Dispute Resolution Rules'.

Stage 6: An accepted change to the regulating documents should be registered with the ORR within 14 days of acceptance. The responsibility for registration lies with the SFO, but the sponsor may agree to undertake the registration.

4.4 Working with the ORR

It would be prudent, if not essential, to liaise with the ORR well in advance of submitting a proposal for a change that included novel features or entailed funding arrangements which were complex and/or fell outside the guidance published by the ORR. The Station and Depot Team at the ORR can be contacted via stations.depots@orr.gsi.gov.uk.

When seeking the approval of the ORR for submitting a proposal for a change it would be helpful to clarify who has the responsibility for submitting the proposal. Furthermore, in discussions with the ORR it should be made clear whether (a) guidance for a proposed change is being sought, or (b) general approval for a change is being sought (guidance on this can be obtained from the website of the ORR [rail-reg.gov.uk], or (c) specific approval for a change is being sought.

For registering a change under general approval and for specific approval of a change, the ORR requires a copy of the 'amending document' that describes the proposal and sets out the changes to the regulating documents. The amending document has to be accompanied by copies of consents and/or acceptances of all relevant parties, or where consent was not obtained an audit trail showing that the parties had the opportunity to comment/object on/to the proposal.

For each submission that requires specific approval, the ORR will consider, inter alia, the following;

- the potential impact of the amendment on the beneficiaries (actual and potential) at the station, including whether or not there will be any discrimination between beneficiaries,
- the veracity of the amendments to the regulating documents,
- the clarity and enforceability of the terms.

Usually, the ORR will take six weeks to reach a decision on a change.

4.5 Interaction with other procedures

For a particular project/scheme the Station change procedure might be invoked along with the following;

- closure - the procedure for this is described in **5.2**,

Documents Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

- network change,
- approval for the disposal of land (by the ORR where disposal is by Network Rail under its network licence).

Any of the above can necessitate consultation with the same parties as required for a Station change; where this is the case it is important to be clear which procedure is being discussed at a meeting with those parties.

4.6 Submission for a Station change

The SACs do not specify the format of a submission for a Station change, but they do provide information on what should be provided in a submission. For efficiency and consistency, Network Rail has developed a template for submitting a proposal, and a version of this that should be suitable for a TOC acting as the proposer for Works is provided in Appendix **D**. There is no compulsion for a TOC to adopt this template, but it does provide a checklist of the required provisions, and comments that address what might otherwise give rise to queries on a proposal.

Also provided in Appendix **D** are templates for (a) a letter of acceptance, and (b) an amending document.

5 Closure and minor modification

5.1 Introduction

The discontinuance or reduction in the level of service or the use of facilities provided by parts of the rail network (including stations) is governed by a statutory procedure that considers the public interest in maintaining the status quo.

The procedure to be followed depends on whether a service or facility is to be withdrawn (full 'closure') or reduced ('minor modification'). Details of the procedures for these are provided in **5.2** and **5.3** respectively. It is essential that the correct procedure is followed, as failure to do so can breach Network Rail's statutory obligations and might result in a substantial fine being imposed on an operator.

A template document for submitting a proposal for a minor modification is provided in Appendix **E**; also provided there is a draft letter for submitting a proposal and a flow chart to help determine the course of action to follow.

The current statutory procedure came in to force on 1 December 2006; prior to that closure was governed by Sections 37 to 49 of the *Railways Act 1993*. The current procedure covering the use of the network, services and stations wholly in Scotland is the responsibility of Transport Scotland.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

5.2 Closure

5.2.1 Network closure

Section 26 of the *Railways Act 2005* requires the closure procedure to be implemented where the use of some part of the network is to be discontinued. Here the term 'network' includes the lines of track and associated installations; with the latter it is necessary to take a view on whether the change is material enough to trigger the need for implementing the closure procedure. Discontinued implies a degree of permanence, as distinct from a temporary suspension of use.

The procedure is not required where the five-year rule applies (this is described in **5.2.3**), or where part of the network is removed for replacement in much the same location.

5.2.2 Station closure

In most cases, Section 29 of the *Railways Act 2005* requires the closure procedure to be implemented where the use of a station, or some part(s) of one, is to be discontinued. Such parts could include toilets, waiting shelters, platform canopies, footbridges, car parks and the approach roads to the station. The term 'station' is defined by the *Railways Act 1993* as 'any land or other property which consists of premises used as, or for the purposes of, or otherwise in connection with, a railway passenger station (including any approaches, forecourt, cycle store or car park)'; thus it is not just the land covered by a station lease.

The procedure is not required for any of the following cases;

- where the five-year rule applies (see **5.2.3**),
- where part of the station is removed for replacement in much the same position (assuming that the replacement is substantially like-for-like, this is usually taken to be within a 3 metre radius of the original position),
- where commercial station outlets are closed,
- where one facility connected with provision of passenger services is discontinued in favour of another; for example, where a waiting room is converted to a ticket office.

5.2.3 The five year rule

Where the part of the network or station that is to be closed has not been used for, or in connection with, the provision of regular scheduled passenger services over the previous five years there is no need to implement the closure procedure. Furthermore, 'Experimental passenger services', which is covered in Section 36 of the *Railways Act 2005*, do not count as usage. Thus, the procedure does not apply to the closure of

--`,,,,,,`,,,,,,`,,`,,,,,,,,`-`-`,,`,,`,`,,`---

Documents
Document Sharing Hub

Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

freight-only networks where there has been no recent passenger-related use.

5.2.4 Procedure

A proposal for closure can be submitted by Network Rail, a train operator, or a rail funding authority (the DfT, Transport Scotland, the Welsh Assembly, a Passenger Transport Executive, and Transport for London).

For the operator of the network subject to closure, the procedure to be followed is set out in Section 26 of the *Railways Act 2005*, and for the operator of the station subject to closure in Section 29 of that Act. Where the organisation promoting the change is not the operator, the organisation requires the operator to submit the proposal on their behalf.

The steps of the procedure for obtaining a change are;

- submission by the operator of a formal notice to the DfT or Transport Scotland that gives details of the facility being closed, the proposed date of the closure (at least 3 months ahead), and a summary of the results of a formal assessment which shows that the proposal satisfies government criteria (which can be obtained from the DfT website),
- the DfT/Transport Scotland decide whether the closure is to be supported and, if so, are then obliged to undertake consultation and advertisement/notification of the change via newspapers and (if still minded to allow the closure) refer the proposal (with or without modifications) to the ORR,
- the ORR reviews whether or not the procedures have been completed correctly and whether the proposal satisfies government criteria; their approach is described on the ORR website [rail-reg.gov.uk],
- provided the ORR is satisfied, it will issue a closure ratification following which the closure may proceed subject to any requirements that ORR have imposed.

5.3 Minor modification

5.3.1 Description

A proposed change can qualify as a minor modification in one of two ways.

1 The change falls within the scope of a ‘general determination’ by the DfT or Transport Scotland.

2 An application is submitted to the DfT using the ‘Submission Template (England and Wales)’ or to Transport Scotland using the ‘Submission Template (Scotland)’ for a ‘specific determination’ that the change can be treated as a minor modification.

--`,,,,,,`,,,,,,`,,`,,,,,,,,`-`-`-,,`,,`,`,,`---

Documents Document Sharing Hub

Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS

Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Whether or not a proposal can be treated as a minor modification, and the procedure to follow in such cases, is explained in guidance that can be obtained from the websites of the DfT [dft.gov.uk] and Transport Scotland [transportscotland.gov.uk].

The guidance includes flowcharts for checking whether a proposal for a change could be treated as a minor modification. The following provides examples of changes to stations which may be treated as a minor modification (provided that the relevant part of the station is not necessary for the operation and use of the station or for the provision of railway passenger services);

- demolition of structures within a station (such as toilets, waiting shelters, platform canopies, and footbridges),
- closure of a station facility (such as locking out-of-use toilets and waiting rooms),
- removal or reduction in the length of a platform,
- relocation or reduction in the size of a station car park (such as can occur when land is sold),
- conversion of part of a station to a non station-related use (such as retail),
- closure of part or all of an approach road or footpath to the station.

General determinations cover generic types of minor modification that have consent in advance, such as the relocation of station facilities and the discontinuation of facilities that have been persistently vandalised. However, there are some requirements to meet; for example, a proposal requires all relevant stakeholders to agree that the change qualifies (although a failure to respond may be taken as consent).

Guidance on whether or not a proposal falls within the scope of a general determination is given in 'process for using the general determination' which can be obtained from the websites of the DfT [dft.gov.uk] and Transport Scotland [transportscotland.gov.uk]. The eligibility of a proposal can be assessed by checking that it meets the criteria of the 'General Determination checklist' as provided in Appendix **E**.

5.3.2 Submission

A general determination should be notified by letter to the DfT or, for services wholly in Scotland, to Transport Scotland. A template for such a letter is provided in Appendix **E**.

Where a proposal for a minor modification does not fall within a general determination, an application for a specific determination has to be submitted to the DfT using the 'Submission Template (England & Wales)', or to Transport Scotland using the 'Submission Template (Scotland)'. These templates are part of the DfT/Transport Scotland 'process for

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

applying to [the Secretary of State] for a Minor Modification determination', which are available from the relevant website. A covering letter to accompany the submission is also available; for the DfT - 'Cover Letter (England & Wales)', and for Transport Scotland - 'Cover Letter (Scotland)'.

The process requires a four-week consultation period of the relevant stakeholders, and a ten-week period for reaching a decision.

The DfT and Transport Scotland have requested Network Rail to retain an audit trail of all proposals for minor modifications, and have reserved the right to audit such proposals. It is important, therefore, that all proposals are recorded for incorporation in a 'Quarterly Closures Return Form'.

5.4 Enforcement

A closure to which the *Railways Act 2005* applies cannot be put into effect unless it is authorised through the appropriate procedure. Authorisation cannot be given after the closure has occurred.

Sections 55 to 57 of the *Railways Act 1993* enable the ORR to enforce a breach of the closure requirements. This can take the form of a substantial fine for the offending operator, or by making an enforcement order for securing compliance; for example, by requiring a facility to be replaced. A breach of an enforcement order can also give rise to a penalty.

Where Network Rail has undertaken to complete the closure process on behalf of a SFO but has failed to obtain the necessary consent, it is the SFO that is liable for the breach and they could be fined (up to 10% of annual turnover) or asked to replace any facility that has been demolished.

6 Accessible Train and Station Design for Disabled People

6.1 Introduction

As a condition of their licence, all licensed passenger train operators and station operators are required to take due regard of *Accessible Train and Station Design for Disabled People: A Code of Practice*. The provision of these facilities and services are in line with the commitments given in an operator's Disabled People's Protection Policy. Operators and Network Rail are expected to meet both the content and the spirit of the Code of Practice.

6.2 Dispensation

It is expected that all new stations will meet the requirements of the Code of Practice, and so dispensations for these will be granted only in exceptional circumstances. It is also expected that station operators will take all reasonable practicable measures to make existing stations comply with the requirements when renewing or enhancing facilities. A dispensation will only be granted following a thorough review and following extensive consultation: each application will be rigorously examined. The DfT/Transport Scotland will

--`,,,,,,`,,,,,,,`,,`,,,,,,,,`-`-`,,`,,`,`,,`---
Documents
Document Sharing Hub

Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

consult, where appropriate, with the Disabled Passengers Transport Advisory Committee (DPTAC) on an application.

An application for a dispensation has to be submitted well in advance of finalising designs and arranging finance, and before planning and other consents have been obtained. The DfT/Transport Scotland will take up to four weeks to process an application, and this should be factored into the project programme. A late application will not be received sympathetically.

Although the responsibility for applying for a dispensation might lie with the station operator, often Network Rail will undertake Works on their behalf and in these cases the station operator should check that, where necessary, Network Rail has applied for a dispensation.

For a station-related application, an applicant for a dispensation from the Code of Practice shall;

1 Assemble details of the proposed dispensation including; why the dispensation is being sought; a dimensioned site plan of the existing and proposed new Works; photographs of the site; and descriptions of how the facility relates to other facilities at the station; alternatives to the proposed Works; and the views of the TOCs whose activities are affected by the dispensation.

2 Before submitting an application to the DfT/Transport Scotland consult, as appropriate, with Passenger Focus, London Travelwatch and/or local disability groups (for specific regional advice). The reasons for rejecting advice, proposed amendments, additional requirements etc provided by any of these organisations shall be stated in the submission.

3 Apply to the DfT/Transport Scotland for a dispensation giving a full explanation of why it is not possible to comply with the Code of Practice. The application shall state whether it is a physical or cost constraint that is preventing compliance. For the latter, information on the overall budget for the scheme and the cost of compliance shall be provided: station operators have to demonstrate that practical alternatives have been explored and costed, and are required to provide details of when the next opportunity to provide access in accordance with the Code is likely to occur.

A template submission for a dispensation is provided in Appendix **F**.

7 Planning permission

Where necessary, a proposal for the development or extension of a car park on land not wholly within the demise of a railway station shall be submitted for planning approval. The planning process in England & Wales differs from that in Scotland; the latter involves obtaining Building Warrants (see **8**).

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Proposals shall, as far as is reasonably practicable, complement the local transport policy, the local development policy and the highway policy.

Where required, listed building, conservation area and advertisement consents shall be obtained.

Early consultation with the local Planning Officer is necessary to determine whether or not a formal planning application is required and, if so, to establish the terms and issues associated with the application.

8 Building Regulations

The design and construction of a car park shall comply with the *Building Regulations* where it;

- extends under a building,
- forms part of a building,
- is constructed above ground level and requires structural support, or
- is constructed below ground level.

In all cases where the layout of the car park affects access by emergency service vehicles the access for such vehicles shall comply with the *Building Regulations*.

For Works in England & Wales it is unnecessary to apply to use the *Building Regulations* but all (relevant) Works in Scotland shall comply with the *Regulations* and an application for a building warrant shall be made.

9 Local Authority approval

Local Authority approval shall be obtained for;

- works involving connection to public sewers, and highway and/or other surface water drainage outfalls,
- works involving the public highway, including those to road kerbs and pavements, and where it is necessary to cross a public footway to gain access to a parked vehicle.

Where roads are required to be adopted by the Local Authority, prior consultation and the agreement of all necessary consents shall occur at the planning stage of the project.

10 Statutory undertakings

Proposals to provide or divert public utility services, and works in connection with them, shall comply with current legislation.

Public utility providers shall be consulted on the location, protection and/or diversion of their services affected by any works.

--`,,,,,,`,,,,,,,`,,`,,,,,,,,`-`-`,,`,,`,`,,`---
Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

11 Planning for sustainability

Proposals for a new car park shall be accompanied by an Environmental Plan, which shall include methods of;

- prioritising environmental impacts and the opportunities for environmental enhancements,
- managing environmental issues, impacts and opportunities,
- auditing.

12 Operational considerations

12.1 General

The design of the car park shall meet the specific requirements of the station or depot, and also Network Rail's policy for the infrastructure - including the relevant Route Utilisation Strategy.

The design of the car park shall consider the requirements for station access, parking within the station, and the day to day operations of the car park. Some of these requirements are listed in **12.1.1**, **12.1.2** and **12.1.3**.

12.1.1 Station access

- Taxi set-down and pick-up (which may be shared with a public kiss-and-ride area) – this shall include the needs of disabled passengers.
- Public kiss-and-ride – including the use of people carriers and mini-buses.
- Rail replacement buses and coaches.
- Shuttle-Link or other buses/coaches – for example, for coach-rail excursions.
- General bus services.
- Emergency vehicles.

12.1.2 Parking

- Public parking – both long and short stay.
- Mobility impaired parking.
- Motorcycle and cycle parking.
- Emergency vehicles.
- Regulated parking – for entitlement within the Station Access Agreement.
- Permit/contract/preferential parking – for example, for TOC staff, business passengers, and car hire franchise.
- Parcel collection point parking.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

- Station management/visitor parking.
- Station mobility buggy parking.
- Station contractor/maintenance parking.
- Train crew parking – including out-of-hours access.
- Other TOC operational parking – for example, for station staff.
- Other Network Rail parking – for example, for operational staff.
- British Transport Police parking – including its use for emergency response vehicles, and for accessing custody suites.
- Other tenancy parking – for example, for train catering and postal/parcel operations.
- Retail parking – for station retail/catering outlet staff.
- Lineside maintenance vehicles.

12.1.3 Day to day operations

- Hours of operation.
- Manning/supervision level.
- Revenue collection.
- Reserved space policy.
- Security.

13 Car park layout

13.1 Vehicle entrance and exit

There shall be a minimum of one entry and one exit lane to the car park.

The entry and exit lanes shall be at least 2.3m wide, and they should have a flat and level surface at the location of the parking control equipment. The entry and exit lanes shall be of sufficient length to provide manoeuvring room to allow good vehicular positioning in front of the barrier locations and next to ticket issue/receipt equipment.

The length and number of access lanes from the highway to the entry barriers shall be such that:

1 Entry time is no more than two-minutes.

2 Entry traffic does not obstruct the highway.

To avoid queuing onto the highway, a reservoir space for at least three cars from the highway crossover to the entrance equipment barrier shall be provided.

A tidal flow system shall have a ‘lock-gate’ type arrangement of barriers and equipment provided for the tidal lane. For tidal flow schemes there should be a minimum of three lanes at the entry/exit from the highway; that is providing, for

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

example, two lanes inward in the morning and two lanes outward in the afternoon/evening.

A height restriction bar shall be set sufficiently low over the entrance to prevent entry by oversized vehicles (such as caravans) but at a minimum of 2.6m above the road surface over which it is displayed. Height restriction bars shall be located at the highway crossover so that over-height vehicles can divert away from the entrance. The provision of width restricting bollards should also be considered.

An adjustable barrier shall be included such that individual entry lanes can be isolated for maintenance work. Where barriers are installed, a second barrier pillar on an exit lane shall be provided to allow relocation of the barrier arm should the operation of the first mechanism fail.

At the location of a payment barrier, a marked layover bay shall be provided immediately adjacent to and accessible from the exit barrier to enable a vehicle to pull over and park whilst an exit ticket is obtained.

Access requirements for emergency vehicles and engineering vehicles to the car park and the circulation of such vehicles around and/or through the car park shall be identified and provided for. Where appropriate, a barrier by-pass arrangement at the entrance shall be provided to facilitate access; where necessary, the design shall allow the barrier to be raised or removed altogether to allow access for specialised engineering vehicles.

Station users such as taxis shall, wherever practicable, be segregated from the car park entry, exit and circulation areas.

13.2 Straight ramps

Gradients for short ramps shall be no steeper than 1 in 7, whilst the gradients for long ramps shall not be steeper than 1 in 10. Transition ramps of half the main gradient shall be formed at the top and bottom of ramps that have a gradient steeper than 1 in 10.

The width of ramps for one-way flow shall be 4m between kerbs and they shall have 0.3m clearance to side structures. The width of ramps for two-way flow shall be 7m clear of obstructions (for example column protrusions and the demarcation centre kerb). Two-way ramps shall include a painted central demarcation line.

Connecting ramps across split level junctions shall be separated by a minimum of four car widths.

Where ramps discharge vehicles across a public footway, a level area not less than 3m long shall be formed at the bottom of the ramp behind the building line: this allows drivers to stop and hold position, without the need to keep their brakes applied, to allow pedestrians to pass.

The design shall provide drivers exiting the car park with a clear view of any public footpath that crosses the exit lane.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

13.3 Circular ramps

The radius of a circular vehicle ramp to the outer kerb for one-way flow shall be at least 10m and the road width shall be at least 3.65m; the recommended dimensions are 12m and 4m respectively. The clearance between the outer kerb face and the side structure shall be at least 0.6m; and the distance between the inner kerb and the side structure at least 0.3m - the recommended distance is 0.6m.

The radius of a circular vehicle ramp to the outer kerb for two-way flow shall be at least 13.25m, and the road widths shall be at least 3.65m and be separated by a 0.5m high raised central kerb. The clearance between the outer kerb face and the side structure shall be at least 0.6m; and the distance between the inner kerb and the side structure at least 0.3m - however, the recommended distance is again 0.6m.

The gradients along the centreline of the ramp shall be no steeper than 1 in 12. The super-elevation of the ramp shall be no steeper than 1 in 10.

13.4 Vehicular circulation: general

The circulation pattern through the car park shall be optimised in terms of flow, simplicity, clarity, consistency and shall have minimal decision/hesitation points.

The search and exit routes through the parking areas should be clear, rational and repetitive. The internal vehicle circulation should be planned on a maximum search pattern to pass as many spaces as possible, and have a short exit route.

Two-way circulation should be avoided: the circulation pattern should be one-way, clockwise, have clear simple options, and have predominantly right-hand turns. Wherever possible, bends and dog-legs should be avoided. A peripheral access route to aisles should be provided rather than a continuous zigzag route through aisles.

Priorities shall be clearly established and defined by markings. Signing shall be provided where potential conflicts could occur in vehicle circulation routes. Crossroads within the car park should be avoided wherever possible.

Good sightlines shall be achieved throughout, with particular attention given to areas where potential conflict in circulation could occur, such as at the head and foot of ramps.

For 90 degree parking, the aisles for one-way flow shall not be less than 6.0m wide and aisles for two-way flow shall not be not less than 6.9m wide.

Cul-de-sac arrangements should be avoided, but where they have to be used they should have a maximum length of 15m, that is six car spaces.

The aisles should be straight and aligned to provide a direct route back to the exit of the car park.

Drivers shall be able to re-circulate should a vacant space not be found on the initial circuit or between floors.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Traffic routes for entering and departing vehicles shall not cross.

Where appropriate, speed ramps/humps shall be provided in roadways. Standard signs from the *Traffic Signs Regulations and General Directions* (*TSRGD*) showing a maximum speed of 5 mph shall be positioned on access roads to the car park and within it.

13.5 Vehicular circulation: multi-storey

Split level car parks shall be considered for schemes of less than 500 spaces and flat deck car parks for schemes in excess of 1000 spaces. Both types of arrangement shall be considered for schemes between 500 and 1000 spaces.

The use of two-way circulation and two-way ramp systems should be avoided. The use of scissor-ramp arrangements shall not be used unless the up/down ramps are separated across the parking areas.

In split level car parks, down and up circulation routes should be separated, and should not be interlocked. For car parks that have in excess of 500 spaces, consideration shall be given to providing a fast-up circulation route in addition to the long-up circulation route.

A rapid in-out circulation route shall be provided between parking levels in addition to a wider sweep-and-search route pattern. A return sweep-and-search route back through all parking areas shall be possible from the exits or extremities of the car park.

The long-up circulation route should pass the maximum number of spaces possible.

A clear-span structure giving a consequent ‘bin’ width generally of 15.6m is preferred; columns will then occur at the rear line of parking spaces on a 7.2m grid (3 x 2.4m spaces). Where a shorter span ‘bin’ width is required, intrusive columns will occur to the side of some spaces; where practicable these columns should be spaced 900mm clear from the aisle and 3.6m from the rear of the bay - the minimum spacings shall be 400mm and 3.3m respectively. Intrusive columns should be no more frequent than every 3 bays, and a 7.6m grid should be divided into three bays of 2.6m–2.4m–2.6m between the columns.

13.6 Parking bays

Echelon parking should only be considered for car parks exceeding 500 spaces and where it would be more effective within the available size of the site. Unless factors dictate otherwise, orthogonal parking is the preferred pattern.

In surface car parks, it might be possible to interlock/abut echelon spaces to maximise the density of parking, but this is unlikely to be possible in multi-storey car parks because tapered gaps created by echelon spaces are likely to be needed to accommodate structural supports.

Surplus smaller areas within parking areas should be considered for use by cycles/motorcycles.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Cycle and motorcycle bays shall be located or clustered in one secure parking area, with natural surveillance and good lighting within or adjacent to the area. Each motorcycle parking position shall have a locking post.

Parking bays shall be clear of any obstruction (including barrier restraints, capping to perimeter walls, signs, light fittings and rainwater guards) for their full height and width. Where necessary, the width of the bays shall be increased to accommodate structural columns and other intrusions into the bay area.

Sufficient room shall be provided between any walls and parking bays for the opening of car doors.

13.7 Pedestrian aspects

The design of the parking area shall provide safe, clear and convenient movement for pedestrians, and give minimal contact and conflict with vehicles. Pedestrian entrance and exit routes, as well as designated pedestrian routes to stairways, lifts and exits within the car park, should be defined and segregated from vehicular routes. Such routes shall be clearly defined with markings, colours and warning signs, and protected by a kerb or barrier. The surface of pedestrian routes shall be of a suitable non slip material. Signs for pedestrians shall be differentiated in form and style to vehicular directions.

The layout shall define and facilitate the pedestrian route from any parking bay to access/exit points and, where possible, have designated pedestrian routes. The position of access and exit points, map-points, lifts, stairs, payment machines and trolley points shall be clear and convenient for pedestrian use.

Where pedestrian routes or areas adjoin or emerge onto vehicular areas (for example, from stairs, lift lobbies, and trolley point locations), they shall be prominently identified with hatched warning markings and signing.

Consideration shall be given to providing clearly signed help points (which may be a direct-line telephone link or a nearby staffed location), one of which shall be located conveniently for the car parking area for disabled drivers and at a height accessible by wheelchair users.

The pedestrian route to the station from the car park shall be accessible, well lit and, where appropriate, covered.

Where required, trolley points shall be provided at convenient and safe positions dispersed within the parking areas and levels near to lifts and exits.

Payment machines shall be located in prominent and safe positions, preferably adjacent to every main access/exit from parking areas and levels.

Pedestrian access should be discouraged at vehicle entrance and exit areas, and the design of these areas shall inhibit access by, for example, omitting footpaths.

13.8 Internal height

The minimum headroom under beams, lintels, wall openings, pipes, ducts, signs, hangers and other obstructions should be 2.3m. Including an allowance for structural deflection under live loading, the minimum headroom shall be

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

2.05m; this includes all electrical and mechanical services affixed to the soffit: in most cases this will require services to pass through beams rather than beneath them.

13.9 Columns

The structural configuration on all parking floors shall be designed to have a clear; that is, without columns in parking bays or aisles. Columns are permitted at the back of parking bays so long as these protrude no more than 500mm into the bay. Columns shall be positioned to accommodate the parking layout; that is, the columns are to coincide with bay layout so as not to reduce the size of the bay.

All vulnerable edges of concrete columns and walls shall be protected from damage by vehicular impact, or be rounded/chamfered.

13.10 Bollards and handrails

Bollards and handrails shall be installed to protect vulnerable areas and equipment, such as entry/exit lane equipment, associated barrier equipment and pay station zones.

13.11 Stairways

Stairways shall serve all parking floors, and shall not exit directly onto vehicular areas.

Stairwells shall be able to be secured at any exit and entry point from the car park; including ground level exit to the street and at the access to the station.

Stairways used as a means of escape shall be located to suit the requirements of the Network Rail Fire Safety Policy Engineer and the Local Authority Fire Officer. Where lifts are installed, stairways shall be sited immediately adjacent to them.

Balustrades and handrails to stairs shall meet the requirements of the Building Regulations.

The stairs (treads and risers), landings and walls of staircases shall be tiled to a height of 1.2m.

13.12 Lifts

Consideration shall be given to the provision of lifts in car parks of more than one storey; usually at least two lifts would be provided in a multi-storey car park.

Where a car park is to be constructed in phases, the access/phasing of the lifts shall be such that they are accessible at all times to users of the car park.

The specification for lifts shall be agreed with Network Rail.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

14 Access and parking provision for disabled people

Parking provisions for the disabled shall be in accordance with the *Accessible Train and Station Design for Disabled People: A Code of Practice,* and BS 8300: *Design of buildings and their approaches to meet the needs of Disabled People. Code of Practice.*

Wherever practicable, parking for disabled people shall be provided within 50m of an entrance to the station.

Parking spaces for disabled people shall be marked by the International Symbol for Access on the car park surface, and signs shall also be provided at driver's eye level.

Parking spaces for disabled people shall be incorporated in both short-stay and long-stay parking areas.

Where possible, in multi-storey car parks parking spaces for disabled people shall;

- be allocated equally between the first three floors of car parks, including the ground level,
- be as close as possible to the station entrance, and
- include taxi set-down and pick-up places.

The best location for spaces for disabled people depends on the particular circumstances of the car park, such as headroom, circulation within the car park, and proximity and route to station facilities. Preferred locations include clusters at the car park entrance level and at station level. Wherever possible, such spaces shall have covered protection from the weather.

The minimum vertical clearance for vehicles for the disabled travelling from the entrance to the designated parking bays shall be 2.6m. The width of parking bays for disabled people shall be at least 3.75m.

Careful attention shall be given to the nature, positioning and detailing of all car park operating equipment such as barriers and ticket machines.

Consideration shall be given to providing a tactile guidance route from the parking locations for disabled people to the main (or nearest) station entrance/facility.

Electrically operated opening doors shall be provided to entrances for disabled, people with a door system fully compliant with the requirements of the *Disability Discrimination Act*.

15 Accommodation

15.1 General

At manned car parks a location shall be set aside in the vicinity of the entrance/exit for accommodation. This location shall be accessible safely and preferably look out over the access barrier line. The area, of about $20m^2$, should allow for a two person office with toilet and kitchenette, and provision of power, water, drainage, and communications infrastructure including IT network and telephones.

Documents
GB Standards Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

15.2 Store

Consideration shall be given to providing appropriate lockable storage for items and materials required to operate and maintain the car park, such as cones, notice boards, hazard/warning tapes, paint, and graffiti-removal fluids. The floor area of the store should be approximately $10m^2$ and the store shall include power, water and drainage connections. The store shall be adjacent to the office (where provided).

15.3 Staff toilets

Where necessary, staff toilets shall be provided.

15.4 Customer services point

The design shall consider the need for a customer services point.

15.5 Control room

The design shall consider the inclusion of an IT room/server cupboard (as a minimum); ideally this would be located close to the entrance/exit barriers and include a telecom connection facility to allow external connection to CCTV and ticketing facilities.

16 Parking equipment

The location of ticket machines and payment stations shall reflect the payment method, and the day to day operation and management of the car park. All payment stations shall be under cover.

Consideration shall be given to the provision of back-up management/payment systems to cater for machine failure or customer oversight.

Where a Pay and Display system is used, it is recommended that payment machines be provided for every 50 car parking spaces, and the distance to a payment station from any parking bay should be not more than about 50m. Consideration should be given to the central monitoring of payment machines.

Where a Pay on Foot system is used, payment stations should be highly visible, and be located in prominent and convenient positions, preferably adjacent to all main access/exits from parking areas and levels as well as on the return route from the station to the car park. Consideration shall be given to the provision of additional payment stations on key routes to the car park to deal with any short term increase in demand or equipment failure.

For multi-storey car parks, the design shall include all ducting and containment. Ducting shall be provided for a minimum of one payment station on each floor of the car park, (located adjacent to the main access point), plus a minimum of two payment machines within the station (adjacent to the exit nearest to the car park). With surface car parks, provision shall be made for a minimum of two payment machines within the car park (at a location closest to the access route to the station), and a minimum of two payment machines within the station.

--`,,,,,,`,,,,,,`,,`,,,,,,,,`-`-`,,`,,`,`,,`---
Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

In multi-storey car parks, allowance shall be made for the passive provision (ducting and containment) of electrical charge points to some of the proposed parking bays. The minimum number of points required depends upon the demand generated by the use of dual fuel and electric cars. Demand is difficult to predict, but it would seem prudent to provide at least 5% of all parking bays with charge points. The provision of a higher percentage should be considered where it would be particularly costly to retrofit additional charge points into the car park. Wherever possible, such spaces shall have covered protection.

17 Internal finishes

17.1 Car parking decks

The decks shall be self draining to surface water channels at the external perimeter. They shall be provided with a power floated smooth finish, be uniform in appearance, colour and texture and have no depressions or irregularities which will allow ponding of water. All areas shall have a proprietary skid resistant finish. All concrete deck surfaces shall receive a proprietary concrete sealing coat that is laid and applied in accordance with the manufacturer's recommendations.

Surface water channels shall be set below floor level.

The surface of ramps shall have a light brush textured finish at 90 degrees to the direction of traffic flow and 100mm wide smooth trowelled margins to perimeters. This finish shall be achieved after power-floating the concrete.

17.2 Floor markings

The positions of parking bays shall be defined using a suitable proprietary paint. On non bonded surfaces, corners shall be denoted with setts or precast concrete strips. All other vehicle control markings shall conform to the *TSRGD*.

Car space lining and direction arrows shall clearly contrast with the deck surface. Yellow flow direction markings can be more legible and durable on concrete surfaces.

Parking bays shall have a solid 75mm wide line, extending the length of the bay (4.8m) with a 400mm wide end 'T'.

When specified in the design brief, parking bays shall be individually numbered.

Pedestrian routes shall be marked on floors with a sequence of walking pedestrian symbols (DfT, General Symbol Drawing. Pedestrian S2).

Pedestrian circulation areas, stairs, lifts and trolley locations that adjoin or emerge onto vehicular areas shall be prominently identified with hatched warning markings.

Junctions of circulation routes shall be marked similarly to highways, with broken give way markings and solid stop/give way markings as required.

Directional floor markings shall be located away from areas of heavy use such as turning areas and the tops and bottoms of ramps.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Consideration should be given to colour coated floors demarking the parking bays, pedestrian routes and circulation routes.

Where necessary, clearly marked spaces for the use of car club vehicles shall be provided on the ground floor of the car park; these should be close to the location of the parking bays for the disabled. The required number of spaces to be provided will depend on the likely usage of club cars at the location; however, changing the road markings to increase the number provided should not prove to be particularly costly.

Provision shall be made in the floor marking for identifying additional short stay-spaces.

17.3 Walls

Walls and soffits shall be painted to aid illumination; these shall be fair faced concrete/block work finished in 3 coats of white masonry paint.

Fair faced block work shall be flush or bucket handle pointed.

Railings and screens within all areas of the car park shall be coated.

17.4 Floors, landings and stair treads

Floors shall be finished with slip resistant fully vitrified ceramic tiles with matching skirting, non-slip nosings and other fittings. Stainless steel angles and/or division strips shall be fitted at all abutments of the tiled floors with adjacent areas.

In the lobby of a lift, the floor shall fall away from the lift doors and be so designed that water does not drain down the lift shaft.

Walls within lift lobbies shall be tiled to a height of 1.2m.

18 External finishes

The external appearance of a multi-storey car park shall be to as high a visual standard as appropriate to its setting.

The cladding shall be of a type that requires low maintenance and shall be secured to walls with stainless steel fixings and anchors. Cladding panels and fixings shall comply with all statutory requirements and current Codes of Practice.

All forms of cladding shall incorporate appropriate expansion joint details to cater for thermal and differential movement.

Consideration shall be given to the effect of a vehicle impact on perimeter walls to which cladding panels might be secured.

19 Signage

19.1 General

The locational, directional and regulatory signage shall be in accordance with the requirements of the *TSRGD*. In addition, the Contractor shall provide all necessary statutory and health and safety signs and, in accordance with

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

planning conditions, highway signs required for directing vehicles to the site, including appropriate corporate branding and parking 'P' signs.

Within the station boundary, vehicular signing within parking areas, forecourts etc. shall be to the *TSRGD*.

All signs shall be wired independent of general lighting and be clearly visible by drivers using the facilities.

19.2 External signs

Highway signs shall be prominent and give clear direction to (and differentiate between) the types and locations of parking. A signing hierarchy shall be developed.

Signs at the entry and exit of the car park shall be clear and prominent, including (where applicable) responsive signing for tidal flow.

Where appropriate, the façade of the car park shall be provided with clearly visible variable message signs that indicate the capacity utilisation in real time. The need for such information to be displayed on existing city or town variable parking signs shall also be considered.

Notices for car parking charges, relevant legal, by-law and other statutory notices, CCTV surveillance etc. shall be located in a prominent position at the entrance but not so as to cause an obstruction, hesitation or hazard.

19.3 Internal signs

Level indication signs shall be numbered from 0 at the entry level, using clearly identifiable colour zoning on each level. Such signs shall also be incorporated within stair and lift enclosures.

Circulatory arrows shall be provided to complement surface directions.

Parking signs for disabled people shall be provided.

Clear directional signs for routes to and from the station shall be provided.

Exits and stairs intended for use in the event of an emergency shall be clearly signed (white on green). These signs shall either be wired separately to a stand-by generator, or each item fitted with a stand-by battery.

'Payment on Foot; signs shall be provided at exit and entry points to direct customers to payment machines.

Consideration shall be given to the provision of Customer Information System monitors and the associated ducting, at the entry and exit points from the car park (journey to the station). The entry monitor shall be clearly visible to drivers entering the car park and shall be located to minimise the possibility of accidents.

For large car parks, consideration shall be given to providing electronic variable message signs to direct vehicles to vacant spaces. Where provided, such signs shall be clearly visible to drivers using the facilities. As necessary, consideration shall be given to the provision of bay monitoring equipment.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

20 Engineering services

20.1 General

The design scope shall identify the requirements of the engineering services, including;

- electrical distribution mains and switchgear,
- electrical back-up generation plant and systems,
- general lighting and emergency lighting,
- fire detection and alarm systems,
- lifts,
- security services (CCTV, intruder alarm),
- lightning protection,
- mechanical ventilation (including smoke extractors),
- building energy management systems, such as timer-controlled heating and lighting,
- generator flues,
- thermal insulation to services.

20.2 Electrical distribution mains and switchgear

The electrical switch room shall be located within the footprint of the car park, in close proximity to the exit/stairwell.

20.3 Electrical back-up

Electrical back-up power shall be provided by a generator. The generator shall have a base mounted storage tank sufficient for 8 hours running at full load, and be provided with an acoustic, weatherproof canopy silenced to meet 85 dBA at 1m.

As applicable, the following systems shall be provided with back-up power;

- smoke ventilation panels,
- general extraction panel,
- lifts,
- security and emergency systems,
- barrier control equipment.

20.4 Lighting

The lighting levels shall be in accordance with GI/GN7520: *Guidance on lighting of railway premises*. The lighting design should take into account the location of deserted/isolated areas, car park barriers and payment machines.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Where practicable, car park lighting shall be provided from the perimeter of the car park or from islands within the car park with raising and lowering columns orientated to drop into the perimeter area or onto an island such that maintenance will not be obstructed by parked cars nor interfere with car park usage. Columns mounted within the car park shall be protected against vehicular damage.

External lighting shall be controlled by photocell, either by individual control on each light or by a single circuit control system operating all lights.

The lighting design shall;

- not interfere in any way with the operational railway,
- be such that any light overspill onto adjoining neighbours is minimised.

The general lighting shall be energy efficient and designed to meet the illuminance uniformity ratio of 0.4 (min) and the minimum lighting levels given in BS 5489 Part 9: *Road lighting. Code of practice for lighting for urban centres and public amenity areas.*

The lighting shall be designed to take account of the needs of CCTV installations: the lighting shall not have a detrimental effect on the CCTV coverage but allow the CCTV cameras to operate effectively under all lighting conditions and levels.

Fluorescent luminaries shall be installed with vandal proof diffusers and be positioned within the car park area so that they do not generate glare to drivers.

20.5 CCTV

The design of CCTV systems shall take into account national and industry standards and guidelines, such as NR/L2/TEL/30135: *Technical requirements for security CCTV systems on Network Rail infrastructure*, and NR/GN/TEL/50017: *CCTV for Stations - functional, technical and operational requirements*.

The functional and system performance requirements shall be determined following consultation with the Local Authority and British Transport Police.

The CCTV system shall, as a minimum, cover the main entrance/exit area of the car park and locations of significant risk; for example, pay stations, lifts, lift vestibules and stairwells, as well as cycle and motorcycle parking areas.

The CCTV system shall be able to provide an adequately defined image in both day and night conditions, and not be adversely affected by changing light conditions or light emissions from adjacent installations.

CCTV cameras shall be suitable for the full range of ambient lighting and atmospheric conditions, and shall be provided with appropriate vandal resistant housings, support brackets and fixings.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Supporting columns and brackets shall be corrosion protected and provide a stable support for mounting the cameras. Consideration shall be given to the provision of vandal protection and anti-climb fittings.

Consideration shall be given to the removal of redundant structures (such as hoardings and walls) and the re-positioning of equipment to improve sight lines through the car park, and thereby improve or reduce the need for CCTV coverage. Proposed changes to the services or facilities provided at a station might need to be approved as a closure or minor modification, see **5**.

21 Surfacing and pavement construction

Where necessary, the depth and construction of the roadways, standing areas and turning areas shall be designed to accommodate the loads imposed by any normal vehicle permitted to travel on the public highway (including emergency and commercial vehicles). Particular attention shall be given to the movement of heavy goods vehicles and buses.

The design shall take into account local ground conditions.

Surface materials shall be hard wearing, low maintenance, non-slip, weather resistant, and resistant to attack from oil spillage.

Compacted and bonded surfaces are the preferred form of construction, although concrete and block paving could be used where appropriate.

The surfaces of pedestrian routes shall be even and consistent in colour, texture, and quality, except where differences in colour and texture are used to draw attention to changes such as stairs, ramps and other hazards.

22 Drainage and waterproofing

22.1 Drainage

Storm water run-off shall be directed away from the rail track.

Arrangements for the disposal of storm/surface water shall be agreed with the Water Authority and the Environment Agency. Where appropriate, run-off shall be treated through an appropriate petrol or hydrocarbon interceptor. Where an interceptor is provided it shall be in a location which is easily accessible during normal working hours.

All drainage works shall be designed, installed and tested in accordance with the relevant parts of BS EN 12056 that deal with *Gravity drainage systems inside buildings.* Parking floors and roofs shall be graded with cross falls to surface water drainage channels so that areas of standing water do not form.

Surface channels shall be formed at the bottoms of ramps that are exposed to the weather. Such channels shall also be provided at the base of the ramps from the roof or exposed levels, and at the base of entry level ramps.

The entry/exit lanes shall be fitted with outlet gullies connected to the drainage system. Surface channels leading to rainwater outlets shall be formed at the lower edges of the floor slabs. All lips/steps or trip hazards shall be highlighted in yellow thermoplastic paint.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Provision shall be made on all surfaces open to rainfall (including driven rainfall) for positive water collection via trapped gullies into a piped collection system. Floor drainage shall be provided at each floor level by a pipework system incorporating surface water channels. The pipework system shall collect and discharge into the underground drainage via a suitable petrol/oil interceptor. Any new connections shall be arranged by the Contractor, who shall pay all associated charges for these connections. The location of channels and gradients of floors towards gullies shall be in accordance with the requirements of the *Petroleum (consolidation) Act as amended by the Dangerous Substances and Explosive Atmospheres Regulations*. Trapped floor channels shall also be provided below each wash down point and at the bottom of each staircase.

Suitable robust galvanised steel protection barriers shall be provided where lengths of pipework are at risk of damage by vehicles.

Gullies, sumps and the like that require periodic maintenance shall not be sited in high traffic or circulation areas, and they shall be easily accessible.

Where appropriate, consideration shall be given to the use of open channels and swales, rather than enclosed piped drainage systems, for draining surface car parks and the areas adjacent to a car park.

22.2 Waterproofing

The roof parking deck, exposed deck areas and exposed concrete ramps, such as entry and exit ramps, shall be waterproofed. Suitable coverings include mastic asphalt comprising a wearing course to BS 1447: *Specification for mastic asphalt (limestone fine aggregate) for roads, footways and pavings in building* laid over one coat of waterproofing asphalt complying with BS 6925: *Specification for mastic asphalt for building and Civil Engineering (limestone aggregate)*.

22.3 Heating elements

Consideration shall be given to installing heating elements in the externally exposed ramps of multi-storey car parks.

23 Fencing, barriers and railings

Fences shall be provided to prevent unauthorised pedestrian access to the track or platforms. The minimum height of fencing at the back of platforms shall be 1.5m.

The impact resistance of walls, barriers and railings located at external perimeters and split level perimeters, ramps, etc. shall conform to the requirements of BS 6399 Part 1: *Loading for buildings. Code of Practice for dead and imposed loads* and with the *Building Regulations*.

Where separate vehicle restraint barriers are provided at the ends of bays they shall not reduce the bay length below 4.8m or the width to less than 2.4m.

Where required, a permanent safety barrier of untensioned corrugated beam construction shall be erected along the perimeter of any car park or access road and along the operational track or trackside: this is required in addition to any fencing to prevent access by the public to the operational railway.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

24 Car park security

The design and operation of the car park shall be such that *Park Mark accreditation* will be achieved and maintained.

Lockable gates shall be provided so that the car park can be secured, except where the layout makes this impractical or where 24-hour access is required.

A secure boundary fence shall be provided, ideally with only one point of entry and egress, to prevent illegal vehicle entry.

Stairwells shall be designed so that they can be secured at any exit and entry point from the car park.

Motorcycle and bicycle storage areas provided outside the car park shall be adequately lit and covered by CCTV.

The provision of 'help points' within the car park should be considered in conjunction with the recommendations by the local Police Authority.

Car park alarm systems shall be designed to allow for monitoring and access by station staff.

25 Advertising, planting and grit bins

Advertising hoardings shall not obstruct driving and CCTV sight lines. Consideration shall be given to the removal of existing hoardings to improve sight lines through the car park.

Consideration should be given to the provision of soft landscaping to assist the definition of spaces, boundaries and entrances, and to enhance the appearance of the car park (subject to planning and maintenance agreements). Planting proposals shall be low-maintenance, avoid litter entrapment, and take into account the risk of vandalism, security and CCTV sight lines and leaf fall onto the track and drainage gullies.

The provision of grit bins shall be considered on car park approach roads and close to steep gradients.

26 Existing site conditions

No development work shall affect the operation of the existing infrastructure or the supplies and services to signalling equipment, points heating, existing accommodation etc.

Due care shall be taken at the design stage to eliminate or reduce the risk of accidents in connection with buried and concealed services.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

Appendix A: Design details

A1 Introduction

This Appendix outlines the issues that should be considered by a design team when developing a new car parking scheme. It describes best practice for the key aspects of design to provide a consistent starting point for the site and design teams.

The guidance focuses on the design of car parks for rail stations and depots, and therefore other aspects of design, such as taxi ranks, bus facilities and cycle parking, are only addressed where they impinge on car parking.

A2 Customer and car park characteristics

A2.1 Customer expectations

Table A1 identifies the key characteristics of customer types and attributes relevant to the design of station car parks. The profile and characteristics of customers vary from station to station.

Customer type	Customer characteristics
Leisure	Might not be time constrained, customers could have allowed extra time to purchase a parking ticket. Car park stay could be in excess of 10 hours. Often luggage is carried.
Business	Often time constrained, with high expectations of service provided. Car park stay can be in excess of 10 hours. Often repeat customers. Could have similar requirements and demands to an airport passenger.
First class ticket holder	Might require reserved parking as part of multi-function ticket. Car park stay can be in excess of 10 hours. High expectations of service.
Apex ticket holder	Often an infrequent rail user. Likely to be in possession of a reserved ticket which is constrained to allow travel only on designated train and so delays between car park and platform are undesirable and so regular signing required between the car park and the station.
Season ticket	Uses car park 5+ days per week. Unlikely to accept changes to routine. Often in a hurry and likely to be knowledgeable about rail travel.
Family	Signing to trolley bays important. Consider the provision of wider parking bays for access to vehicles.
Elderly	Signing to trolley bays important. It might be necessary to provide rest points where the walk between the platform and car park is lengthy.
Disabled people	Designated wider car park bays shall be included near the car park (long stay) entrance and at station frontage for short stay purposes. Access to the bays shall be considered via ramps/dropped kerbs from footpaths etc. A range of disabilities should be addressed.
Female	Security important as usage is often early or late in the day when there is little natural surveillance.
Railway staff	Attendance (in unsocial hours) is crucial to the running of the railway.
“Meeters and greeters”	Occasional users might be unfamiliar with the car park layout and so they may need guidance and information.
Opportunist shoppers	Use station as a convenience store open at unsocial hours. Will seek short term parking close to the station.

Table A1: Customer characteristics

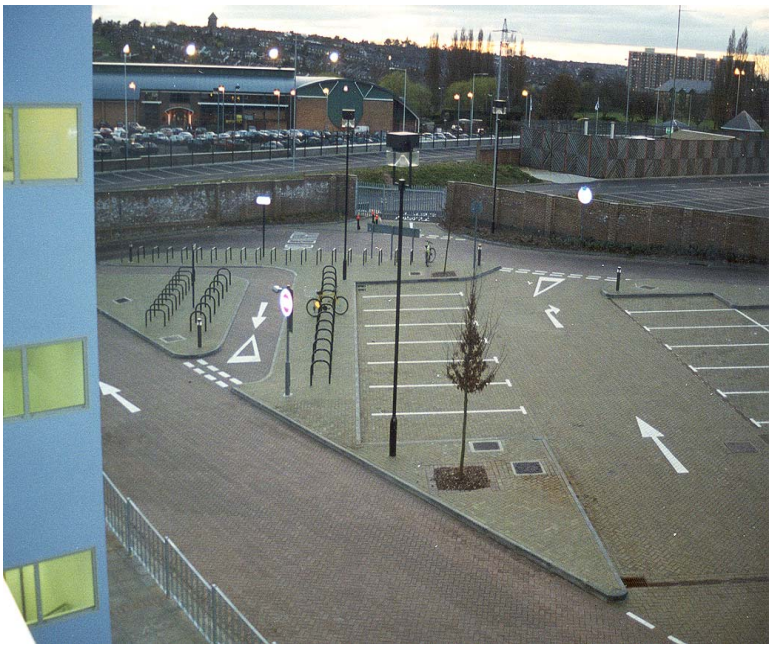
Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009

A2.2 Car park: first impressions

A key point to recognise at the start of the briefing and design process is that the customer's experience of rail travel will, at least in part, be based on their experience of the car park. It is the 'front door' of the rail journey, and so it should make a positive statement to the customer about the reliability, efficiency and attention to detail of the journey.

Research conducted by Network Rail has shown that passengers' primary requirements are to feel safe and secure and to have access to sufficient information.

The layout of a car park should be readily understood by all its users.



Design should be readily understood (Luton Airport Parkway)

Passengers expect their journey, including the use of the car park, to have the quality of an airport or shopping centre environment. They will expect all aspects of the journey to be convenient.

Network Rail recognises the value of gaining and maintaining *Park Mark accreditation* from the BPA, particularly in new commercial developments. The principles of good design detailed in the BPA standard are those which Network Rail wish to be adopted, but this does not detract from the need for a robust business case for the project.

A2.3 Information

Providing accurate and sufficient information is a vital part of giving customers a quality product and also, particularly for less frequent travellers, confidence in using stations. Customers would wish to see the following information provided at station car parks;

- direction signing,

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT

- availability of parking spaces,
- how to pay,
- availability of services at the station,
- access to trolleys,
- assistance staff/help points,
- vehicle and personal security (via CCTV coverage),
- real time information on train services (such as arrival and departure times).

A2.4 Security issues

The specific details of a site can have an effect on the design of a car park and so they should be included in initial survey information: such details include topography and trackside access requirements through the site.

Excessive shadow from buildings or overhanging trees may affect the security of the car park and bright reflections could reduce the efficacy of CCTV imaging.

Many station car parks have a low vehicle turnover and as a result have little pedestrian activity during the day. The safety and security of users are key considerations, and should be addressed by;

- minimising the number of columns and potential hiding places,
- providing lift and stair areas with good lines of sight and few opportunities for concealment,
- the installation of CCTV throughout the car park,
- locating the management area(s) of the car park within sight of the exit(s),
- providing, where appropriate, secure fencing along the boundaries of the car park.

Documents
Document Sharing Hub
Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-L3-CIV-160 ISSUE 1 2009
Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 22:11:41 MDT