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RED AMBER & GREEN

RAG lists are practical aides to designers on what to eliminate or avoid and what to encourage working in the Highways Sector.

Design teams shall identify design elements, materials and processes which are either to be avoided because they are judged to represent significant risk to construction personnel, facilities users and/or the environment or to be preferred because they represent a reduction in such risks.

RED LIST ITEMS

Hazardous elements materials or processes, which are effectively prohibited and should be eliminated from the project excepting only where no alternative can be found.

If any Red List item is to be employed, it requires formal justification within the design documentation and shall be subject to specific agreement by the Project Director or similar.

Including a red item would always lead to the provision of information that requires them to be specifically brought to the attention of other designers and/or the Principal Contractor through the Pre-construction information, including Drawings, Approval In Principal (AIP), or Specification etc.

AMBER LIST ITEMS

Hazardous elements, materials and processes which are to be employed in a careful and sparing way because they represent significant risks (although they may be justified on a risk-management basis).

If any item on the Amber List is to be employed, it requires information within the design documentation on its minimisation and shall require advice and guidance to be provided as part of the design for the safe execution of that design. And shall be subject to justification and sign-off by the Design Team Leader or similar.

Including an Amber item would always lead to the provision of information that requires them to be specifically brought to the attention of other designers and/or the Principal Contractor through the Pre-construction information, including Drawings, Approval In Principal (AIP), or Specification etc.

GREEN LIST ITEMS

Elements, materials and processes which are preferred because the represent significant risk reduction. The designer has the potential to incorporate these Green List items into their designs and specifications in their own right, or through liaison with the CDM Coordinator.

When items on the Green List are employed, they shall be identified in the Risk Register.

	Risk Register	Justification and Team Leader Sign Off	Project Director Agreement	Design Information
RED ITEM	✓	✓	✓	✓
AMBER ITEM	✓	✓		✓
GREEN ITEM	✓			✓

This guidance has been adopted by the following companies:

ARUP ATKINS Halcrow Mott MacDonald

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RED

If any item on the following **Red List** is to be employed, it requires formal justification within the design documentation and shall be subject to specific agreement.

Such items will also require additional mitigation incorporated within the design insofar that;

- They are highlighted on the Risk Register;
- Justification for inclusion of the 'Red' item is signed off the by the 'Design Manager';
- An Options Evaluation is undertaken and recorded;
- Agreement for inclusion of the 'Red' item is signed off the by the 'Project Director';
- Relevant information is included within the pre-construction information.

	Risk Register	Justification and Team Leader Sign Off	Project Director Agreement	Design Information
RED ITEM	✓	✓	✓	✓
AMBER ITEM	✓	✓		✓
GREEN ITEM	✓			✓

Red List items - Hazardous elements materials or processes, which are effectively prohibited and should be eliminated from the project excepting only where no alternative can be found.	
	Item
R1	Designs that require demolition by hand-held breakers of the top sections of concrete piles.
R2	Designs that require dry cutting which gives rise to the creation of dust.
R3	Designs or detailing of structural elements (steel, concrete, timber etc) which can not accommodate systems to prevent falls from height.
R4	Designs for the provision of services at height (requiring future access for maintenance, etc), without making provision for safe access (e.g. hard standings and barriers).
R5	Designs which require the Designer to remove or provide advice regarding asbestos or asbestos containing materials.
R6	Designs which do not allow for the segregation of members of public and the site.
R7	Designs for Traffic Management which do not make reference to available information relating, but not limited to, vehicular and/or pedestrian traffic flows, accident history, road speed, forward visibility and the impact of any possible diversions routes.
R8	Designs without obtaining relevant information relating to overhead, underground cables and other utility services.
R9	Designs requiring working at height without making allowance for the provision of a suitable working platform.

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AMBER

If any item on the following **Amber List** is to be employed, it requires formal justification within the design documentation.

Such items will also require additional mitigation incorporated within the design insofar that;

- they are highlighted on the Risk Register;
- justification for inclusion of the Amber item is signed off the by the 'Design Manager';
- relevant information is included within the pre-construction information.

	Risk Register	Justification and Team Leader Sign Off	Project Director Agreement	Design Information
RED ITEM	✓	✓	✓	✓
AMBER ITEM	✓	✓		✓
GREEN ITEM	✓			✓

Amber List items - Hazardous elements, materials and processes which are to be employed in a careful and sparing way because they represent significant risks (although they may be justified on a risk-management basis)	
	Item
A1	Designs which include manholes/inspection chambers in heavily used vehicle access zones.
A2	Designs that require on-site spraying or other application of particulates identified as "Harmful" within the COSHH Regulations and current edition of EH40.
A3	Designs which require Blasting using explosives.
A4	Designs or specification of materials weighing > 20kgs requiring manual handling Note: manual handling includes lifting, carrying, pushing, pulling or moving by bodily force.
A5	Designs that require the chasing out of concrete / brick / blockwork walls or floors for the installation of services.
A6	Designs that require the specification of solvent-based paints and thinners, or isocyanates, particularly for use in confined areas.
A7	Designs that rely on traffic cones to protect personnel from impact by errant vehicles (instead of providing solid barriers).
A8	Designs that have Lifting Operations which are not planned.
A9	Designs that require site traffic routes which will not allow for 'one way' systems and/or vehicular traffic segregated from site personnel.
A10	Designs which have a site layout that does not allow for adequate room for delivery and/or storage of materials.

AMBER

A11	Designs where it is likely to be difficult to provide minimum welfare facilities (in accordance with schedule 2 CDM2007) on site.
A12	Designs that requires traffic management vehicles to stop in live traffic lanes.
A13	Designs which require manual work which may lead to Musculoskeletal Disorders (MSD) for example, drilling into concrete.
A14	Designs which require the specification of construction processes or equipment and machinery which will exceed the threshold limits of the Noise at Work Regulations.
A15	Designs which require entry into a 'confined space'.
A16	Designs which require the Scabbling of concrete ('stop ends', etc).
A17	Designs for new structures which require on-site welding.
A18	Designs which require Hydro Demolition.
A19	Designs for Traffic Management which require 'narrow lanes' (due to constraints on space) without considering their impact on, but not limited to, wide loads, winter maintenance and non motorised users (NMU's).
A20	Designs for Traffic Management which requires the manual carrying of equipment across live traffic on high speed roads, of 2 or more lanes, for example traffic cones and/or traffic signs.
A21	Designs which require potentially unstable excavations.

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GREEN

If any item on the following **Green List** is to be employed, within the design they shall be;

- highlighted in the Risk Register; and
- identified in the pre-construction information

	Risk Register	Justification and Team Leader Sign Off	Project Director Agreement	Design Information
RED ITEM	✓	✓	✓	✓
AMBER ITEM	✓	✓		✓
GREEN ITEM	✓			✓

Green list items – elements, materials and processes which are preferred because the represent significant risk reduction.	
	Item
G1	Consider adequate access for construction vehicles to minimise reversing requirements (one-way systems and turning radii).
G2	Consider provision of adequate access and headroom for maintenance and adequate provision for replacing heavy components.
G3	Thoughtful location of mechanical and/or electrical equipment, light fittings, security devices etc. to facilitate access away from crowded areas.
G4	The specification of concrete products with pre-cast fixings to avoid drilling.
G5	Early installation of permanent means of access, with hand rails or edge protection.
G6	Provision for early installation of edge protection at permanent works where there is a forseeable risk of falls.
G7	Recommend appointment of a Temporary Works Coordinator.
G8	Off-site timber treatment where PPA and CCA based preservatives are used (Boron or copper salts can be used for cut ends on site).
G9	Design into the scheme safe stopping places for vehicles that will carry out known routine maintenance operations.
G10	Consideration (with the contractor, if possible) of the construction sequence and layout of intersections of existing carriageway with new to minimize the exposure of the workforce to live traffic.
G11	Consider using the latest technology (for example remote controlled signs in high risk areas) or other equipment to help mitigate risks when designing traffic management layouts.
G12	Encourage the use of mechanical means for all manual handling operations.

GREEN

G13	Consider consultation with the police, local authorities and goods vehicle trade associations and other interested parties for all Traffic Management Schemes.
G14	Provision for Plant or Materials not to be left unnecessarily and uncontrolled on the hard-shoulder, central reserve, verge or other roadside areas outside the works area where they could be a hazard to vehicles that fail to keep to the carriageway.
G15	Take into account the needs of vulnerable road users. The disabled, blind or partially sighted people when delineating the areas reserved for the public.
G16	Avoid unhelpful reliance on paper based systems, rather than actually focusing on reducing risk. Ensure the right people for the right job are appointed at the right time to reduce risk, reduce paperwork and encourage teamwork. Ensure the focus is on effective planning and reducing risk and not the production of paperwork.
G17	Ensure that Traffic Management designs consider taper positions as part of the planning and design as their position will be influenced by factors including road features such as slip road, the need to provide a longitudinal safety zone, vertical and horizontal sight lines.
G18	Consider off-site or construction at grade of bridges to prevent working at height.
G19	Designer to consider feasibility of and risks associated with lifting operations.
G20	Use of site transport consider 'one way' systems and vehicular traffic segregated from pedestrians.
G21	Consider minimum welfare facilities needed for contract.
G22	Wherever possible, design out the necessity to stop traffic management vehicles in live traffic lanes. Consider using a crash cushion with additional information from Matrix and Variable Message Signs.
G23	Consider Traffic Management schemes on Motorways and Trunk Roads which include temporary speed limits enforced by average speed cameras.
G24	Consider Traffic Management schemes on all non Motorway and Trunk Roads which are designed to Chapter 8 of the Traffic Signs Manual which include closure of the road or temporary speed limits enforced by convoy working or average speed cameras.
G25	Designs that will reduce the impact of noise on residential properties.
G26	Preparation of Temporary Traffic Regulation Orders (TTRO) in good time and provisions considered for enforcing them (for example speed cameras and convoy working).