

Healthier and Safer Design WG

PDWG Task And Finish Group

Populating a matrix that describes how design could apply the principles of prevention for a given hazardous activity with potential harm arising from vibration noise and dust hazards.

Introduction to the Healthier and Safer Design and Delivery Working Group

Chair: Ian Spellacey

ian.spellacey@atkinsglobal.com

Members:

Jonathan Giles: jonathan.giles@ramboll.co.uk

Toria Thomas: toria.thomas@arup.com

David Shaw: dshaw@hwmartin.com

Sam Allin: sam.allin@Jacobs.com

Richard Wilson:

richard.wilson2@highwaysengland.co.uk

• **Vision:**

To develop an understanding of the healthier and safer by design improvements to National Highways HSW Hub and monitor the effectiveness of their implementation.

T&F Group Objective / Constraints

The objective of each T&F group is identify as many possible **design treatments** to prevent harm from the health hazards:

- Vibration
- Noise
- Dust

for the given hazardous activity type.

1. Do not include treatments already in DMRB.
2. Do not include treatments that are put in place by a construction management team.
3. Include innovative treatments, even if they seem impossible today.

The Matrix

1. There is one worksheet for each hazardous activity type.
2. Column A (coloured yellow) is titled 'Details of Hazardous Activities' and contains detailed descriptions of the hazardous activities to be considered.
3. Row 1 (coloured purple /pink) is titled 'Health Hazard' and includes the health hazards Vibration, Noise and Dust.

	A	B	F	J
1	Health Hazard	Vibration	Noise	Dust
2		Eliminate	Eliminate	Eliminate
3	Detailed			
4	Hazardous			
5	Activities			
6	Grinding & surface preparation for coatings, recycling materials, painting, surface treatments, welding, crushing aggregates			
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

The Matrix

4. Row 2 titled (coloured blue) includes the CDM2015 principles of prevention categories, enhanced with text from ISO 45001.

Note: The principles of prevention categories are made visible by ungroup the columns.

	A	B	C	D	E	F
1	Health Hazard	Vibration				Noise
2		Eliminate	Reduce (through substitution)	Engineering Controls	Administrative Controls (Information to be provided on drawings etc)	Eliminate
3	Detailed					
4	Hazardous					
5	Activities					
6	Piling, sheet piling,					
7						
8						
9						
10						
11						

Process

1. In cell A6 (yellow cell) review, amend and develop detailed hazardous activity descriptions, separated by a comma.
2. Ungroup the columns for the health hazard so the principles of prevention categories can be seen
3. Insert a description of the treatment a design could apply for each of the health hazards within the relevant treatment category.
*The description should include the **detailed hazardous activity description**, in bold, which should match the text in cell A6. Separate the hazardous activity description and description of the treatment with a comma. See example on slide.*

Example - Vegetation design for vibration

	A	B	C	D	E	F
1	Health Hazard	Vibration				Noise
2		Eliminate	Reduce (through substitution)	Engineering Controls	Administrative Controls (Information to be provided on drawings etc)	Eliminat
3	Detailed					
4	Hazardous					
5	Activities					
6	trees, hedges, bushes, grasses), vation, Balancing ponds, Culvert	Hard surface / substrate, Design to specify substrate which vegetation is unable to grow on. that eliminates growth of vegetation	Landscaping, Planting, Design and selection of planting species that is suitable for the setting (IDEA - create a design standard) (Challenge SES)	Cutting, Embankment, Design an access track for in-cab equipment to cut and maintain vegetation (Challenge SES)	Planting, Health and safety file to identify HAV as a significant risk and provide details of how vegetation could be maintained that avoids exposure to HAV in a maintenance manual.	
		Planting, Locate trees,	Cutting, Embankment,			

Example - Vegetation design for vibration

	A	B	C	D	E
1	Health Hazard	Vibration			
2		Eliminate	Reduce (through substitution)	Engineering Controls	Administrative Controls (Information to be provided on drawings etc)
3	Detailed Hazardous Activities				
4					
5					
6					
7	Substrate, Landscaping, Cutting, Embankments, Landscaping, Planting, (trees, hedges, bushes, grasses), Verge, Shoulder, Boundary, Greened bridge, Central reservation, Balancing ponds, Culvert	Hard surface / substrate, Design to specify substrate which vegetation is unable to grow on. that eliminates growth of vegetation	Landscaping, Planting, Design and selection of planting species that is suitable for the setting (IDEA - create a design standard) (Challenge SES)	Cutting, Embankment, Design an access track for in-cab equipment to cut and maintain vegetation (Challenge SES)	Planting, Health and safety file to identify HAV as a significant risk and provide details of how vegetation could be maintained that avoids exposure to HAV in a maintenance manual.
8		Planting, Locate trees, bushes and hedges away from signage / roadside equipment / access routes.	Cutting, Embankment, Reduce gradients to facility use of in-cab equipment (Challenge SES)		
9		Cutting, Embankment, Design an access track for in-cab equipment to apply vegetation suppressants	Cutting, Embankment, Reduce gradients to facility use of robotic equipment (Challenge SES)		
10			Verge, Design to provide vegetation control membranes around signage and roadside equipment and structures. (Challenge SES)		
11			Hard surface / substrate, Design to incorporate automated vegetation suppressants		

Matrix Allocation Plan

- AECOM – Vegetation
- Arcadis – Coring and Boring
- Arup – Drilling and fixing
- Atkins – Planing
- Capita – Cleaning & Sweeping
- Cowi – Cutting and Breaking
- Jacobs – Groundworks
- Lower Thames Crossing – Mixing material
- Mott McDonald – Material processing
- Ramboll – Piling
- WSP – Handling products & materials

NH Suppliers who may be able to provide construction management knowledge

- Skanska
- Kier
- Telent Costain
- Galliford Try
- Amey
- VolkerFitzpatrick
- Balfour Beatty

Timings

- Confirm that the business is content to support the T&F group scope by 7th April.
- Matrix to be populated and returned to Ian Spellacey by Friday 19th May.

ian.spellacey@atkinsglobal.com