**Appendix 14**

**Accidental Spillage Calculation Sheet**

**Proposed Scheme.**

### Risk of Serious Accidental Spillage - Proposed Road Configuration

| | |
|---|---|
| RL | road length in km |
| SS | serious accidental spillage rate (from DMRB Vol. 11, Part 10, Annex I, Table D.1) |
| AADT | annual average daily traffic |
| %HGV | percentage of heavy goods vehicles |
| $P_{acc}$ | probability of a serious accidental spillage in one year over a given road length |
| $P_{pol}$ | The risk reduction factor (from DMRB Vol. 11, Part 10, Annex I, Table D.2) |

## PROPOSED ROAD CONFIGURATION (2025 AADT FIGURES)

| Mainline >100m from Junctions A68 | | Mainline <100m from Junction A68 | | Side Road C84 | | Side Road D47/5 | | New Side Rd - Mainline >100m from Junctions | | New Side Rd - Mainline <100m from Junctions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RL | 1.700 | RL | 0.400 | RL | 0.100 | RL | 0.100 | RL | 0.900 | RL | 0.100 |
| SS | 0.29 | SS | 0.93 | SS | 0.93 | SS | 0.93 | SS | 0.29 | SS | 0.93 |
| AADT | 11748 | AADT | 11748 | AADT | 1200 | AADT | 96 | AADT | 151 | AADT | 151 |
| %HGV | 8 | %HGV | 8 | %HGV | 3 | %HGV | 3 | %HGV | 3 | %HGV | 3 |

$$P_{acc} = RL \times SS \times (AADT \times 365 \times 10^{-9}) \times (\% \ HGV \div 100)$$

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $P_{acc} =$ | 0.000169 | $P_{acc} =$ | 0.000128 | $P_{acc} =$ | 0.000001 | $P_{acc} =$ | 0.000000 | $P_{acc} =$ | 0.000000 | $P_{acc} =$ | 0.000000 |

$$P_{pol/year} = \sum P_{acc} \times P_{pol} \qquad \boxed{P_{pol} = 0.6}$$

| Ppol/year = | 0.000179 | ≡ | Return Period | 1 in 5581 years for Mainline |
|---|---|---|---|---|

The DMRB indicates that the acceptable risk of a pollution incident should normally be 1 in 100 years for discharges to aquifers and to reaches of sensitive watercourses.

**Existing Road Layout.**

## Risk of Serious Accidental Spillage - Existing Road Configuration

|        |                                                                                      |
|--------|--------------------------------------------------------------------------------------|
| RL     | road length in km                                                                    |
| SS     | serious accidental spillage rate (from DMRB Vol. 11, Part 10, Annex I, Table D.1)     |
| AADT   | annual average daily traffic                                                          |
| %HGV   | percentage of heavy goods vehicles                                                    |
| $P_{acc}$ | probability of a serious accidental spillage in one year over a given road length |
| $P_{pol}$ | The risk reduction factor (from DMRB Vol. 11, Part 10, Annex I, Table D.2)         |

### EXISTING ROAD CONFIGURATION (2025 AADT FIGURES)

| Mainline >100m from Junctions A68 | | Mainline <100m from Junction A68 | | Side Road C84 | | Cross Road C83-D47/5 | |
|---|---|---|---|---|---|---|---|
| RL | 1.700 | RL | 0.400 | RL | 0.100 | RL | 0.200 |
| SS | 0.29 | SS | 0.93 | SS | 0.93 | SS | 0.88 |
| AADT | 11748 | AADT | 11748 | AADT | 937 | AADT | 343.2 |
| %HGV | 8 | %HGV | 8 | %HGV | 3 | %HGV | 3 |

**$P_{acc} = RL \times SS \times (AADT \times 365 \times 10^{-9}) \times (\% \ HGV \div 100)$**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $P_{acc} =$ | 0.000169 | $P_{acc} =$ | 0.000128 | $P_{acc} =$ | 0.000001 | $P_{acc} =$ | 0.000001 |

**$P_{pol/year} = \Sigma \ P_{acc} \times P_{pol}$** | | **$P_{pol} = 0.6$**

**Ppol/year =** 0.000179 ≡ **Return Period** **1 in 5586 years for Mainline**

The DMRB indicates that the acceptable risk of a pollution incident should normally be 1 in 100 years for discharges to aquifers and to reaches of sensitive watercourses.