**Calculation of Watering Efficiency**

With reference to Cowherd et al., "Control of Open Fugitive Dust Sources, EPA-450/3-88-008, U.S. Environmental Protection Agency, Research Triangle Park, NC, percentage of dust mitigation efficiency is calculated from Equation (3-2) :

$$C = 100 - \frac{0.8pdt}{i}$$

where

p = Potential average hourly daytime evaporation rate, mm/hour = 0.25916 [1]

d = Average hourly daytime traffic rate per hour = 66 per hour [2]

I = Application intensity = 1.7 L/m2 [3]

Note:

[1] p = 0.0049 x 52.8898 inch, where 52.8898inch is equivalent to the total evaoporation of 1343.4mm obtained from Hong Kong Observatory (http://www.weather.gov.hk/cis/normal/1971_2000/normals_e.htm)

[2] The material to be transported in year 2025 in FLN is the most in the whole NDA development.

| | | |
|---|---|---|
| The total material to be transport in year 2025 in FLN (A) | 794,942 | $m^3$ |
| Total working area (B): | 875,464 | sq.m |
| Average material to be transport per unit working area (C) = (A) / (B) | 0.91 | $m^3$/sq.m |
| Area of largest site in 2025 (WC22) (D) | 370,120 | sq.m |
| The total material to be transport in year 2025 under WC22 (E) = (C) x (D) | 336,078 | $m^3$ |
| Trip generation (2 ways) | 65.3 | veh/hr |

(F) = (E) / 5.5 / 12 /26 / 6 * 2

Assumptions:

1. Assume the construction traffic is generated between 10am and 4pm (6hours)
2. Assume 26 working days per month
3. Assume 5.5$m^3$ per truck

[3] The assumptions provided are for the purpose of assessment predictions only. Actual figures would be defined in the detailed design stage.

By applying the Equation (3-2) with the above assumptions,

Dust suppression efficiency = 100 – 0.8 x (0.25916 x 66 x t) / 1.7 [t = time between application, hr]

Therefore,

For watering once per hour (i.e. t =1 hour), the estimated dust suppression efficiency is 92.1%.