Technical calc Sheet

Company - The Graham Bolton Planning Partnership Limited - re Redferns of Flagg
Contact- Graham Bolton
Date - May 2016

To calculate the stack height using D1 Technical guidance note

First calculate the Pollution index (Pi)using the D1 calc.

This is calculated for SO_x,NO_x and particulates assumes the full output rate of the boiler and a zero background concentration. Using the equation (1) - $Pi = D/(G_d-B_c) \times 1000$.

The Pi calculates to 112 m^3/s^{-1}

Second using the 2 D1 calculations for determining U_b or U_m.

U_b is the uncorrected stack height for a buoyant plume.

U_m is the uncorrected stack height for a plume with efflux momentum.

I have calculated the heat release at 1.56 MW and using Fig 2 to calculate U_b it is below the reliable chart result and therefore I have used U_m below.

To find U_m use the chart in fig 4.

M is calculated using equation (11) with a stack efflux velocity of 12 m/s and the volume being 1.45 m^3/s.

U_m result is 1.5m. or the uncorrected stack height.

Third - to find the corrected stack height C use equation (17).

H is 8.2
U is 1.5

C result is 9.7 metres above ground level or 1.5M above the proposed new ridge height. This should be taken as the minimum height above the new proposed ridge.

This calculation takes into account the hide building and the existing building containing the incinerators.