Armstrong Burton Architects

- 3 OCT 2008

Hinckley & Bosworth Borough Council
Planning Department
Council Offices
Argents Mead
Hinckley
Leicestershire
LE10 1BZ

**Our Ref:** CC/ac/08059.03.05
**Date:** 2nd October 2008

For the Attention of Mrs Louise Forman – Planning Officer

Dear Louise,

**Re: Proposed Residential Development at 84/86 Leicester Road, Hinckley**
**Application No. 08/00780/FUL**

Further to my recent email please find enclosed 3 no. copies of the revised calculations for the restricted outflow on the above development.

The principal has been accepted by Severn Trent however these calculations reflect 'The Actual' situation on site.

We trust the above is in order and will enable you to report this element favourably to Committee.

Yours sincerely,

**Chris Chaplin**
For Armstrong Burton Architects

Enclosures

cc. Mr P Carter, Matthew Homes (West Midlands) Ltd

Milford House, 260 Lichfield Road, Sutton Coldfield, West Midlands B74 2UH
Telephone: 0121 323 2332 Fax: 0121 323 2421 E-Mail: info@armstrongburton.co.uk
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SENIOR ASSOCIATES: TARIQ HAKIM BSc (HONS) ARCH MSc CPMGMT RIBA CIOB PETER WATTS ACIAT GUY POOLE RIBA VICKY SMITH RIBA CDA
ASSOCIATE: DAVID WEDGE. CONSULTANTS: JOHN MANSELL DIP ARCH (BIRM) RIBA TIMOTHY ARMSTRONG DIP ARCH (BIRM) RIBA FRSA

INVESTOR IN PEOPLE
ISO 9001 REGISTERED FIRM

# 84/86 Leicester Road, Hinckley

After an exercise to determine the routing of the current drainage, a revised calculation has been performed.

The impermeable area draining from property number 86 in to the combined sewer is 157m².

The impermeable area draining from property number 84 in to the combined sewer is 90m² with the remaining area of 104m² draining to wells situated at the rear of the property.

Peak Surface Water Runoff (assume 50mm/hr)

Q = 2.78 x 1.0 x 50 x 0.0250 = 3.5l/s

Peak foul flow to combined sewer = 0.1 l/s

Total existing peak flow rate is 3.5 + 0.1 = 3.6 l/s.

Proposed impermeable area is 2096m².
Return period 30 years + 30% climate change.
These figures were used in Micro Drainage software package called WinDes.
The results are attached.

The results indicate that the required storage would be a 2m diameter pipe 20m in length.
This assumes constant pumping rate of 3.6 l/s.

SB 30th September 2008.

Milford House
260 Lichfield Road
Sutton Coldfield B74 2UH

Date 30 September 2008 11:16 | Designed By s.blurton
File leicester road hinckley.SRC | Checked By
Micro Drainage | Source Control W.10.2

## Summary of Results for 30 year Return Period (+30%)

| Storm Duration (mins) | Maximum Control (l/s) | Maximum Outflow (l/s) | Maximum Water Level (m OD) | Maximum Depth (m) | Maximum Volume ($m^3$) | Status |
|---|---|---|---|---|---|---|
| 15 Summer | 3.6 | 3.6 | 1.0668 | 1.0668 | 34.8 | O K |
| 30 Summer | 3.6 | 3.6 | 1.2862 | 1.2862 | 43.6 | O K |
| 60 Summer | 3.6 | 3.6 | 1.4542 | 1.4542 | 50.0 | O K |
| 120 Summer | 3.6 | 3.6 | 1.4877 | 1.4877 | 51.3 | O K |
| 180 Summer | 3.6 | 3.6 | 1.4332 | 1.4332 | 49.3 | O K |
| 240 Summer | 3.6 | 3.6 | 1.3797 | 1.3797 | 47.2 | O K |
| 360 Summer | 3.6 | 3.6 | 1.2817 | 1.2817 | 43.4 | O K |
| 480 Summer | 3.6 | 3.6 | 1.1883 | 1.1883 | 39.7 | O K |
| 600 Summer | 3.6 | 3.6 | 1.0978 | 1.0978 | 36.0 | O K |
| 720 Summer | 3.6 | 3.6 | 1.0098 | 1.0098 | 32.4 | O K |
| 960 Summer | 3.6 | 3.6 | 0.8448 | 0.8448 | 25.7 | O K |
| 1440 Summer | 3.6 | 3.6 | 0.5602 | 0.5602 | 14.6 | O K |
| 2160 Summer | 3.6 | 3.6 | 0.2482 | 0.2482 | 4.5 | O K |
| 2880 Summer | 3.5 | 3.5 | 0.0978 | 0.0978 | 1.1 | O K |
| 4320 Summer | 2.5 | 2.5 | 0.0708 | 0.0708 | 0.6 | O K |
| 5760 Summer | 2.0 | 2.0 | 0.0568 | 0.0568 | 0.4 | O K |
| 7200 Summer | 1.7 | 1.7 | 0.0472 | 0.0472 | 0.3 | O K |
| 8640 Summer | 1.5 | 1.5 | 0.0413 | 0.0413 | 0.3 | O K |
| 10080 Summer | 1.3 | 1.3 | 0.0363 | 0.0363 | 0.2 | O K |
| 15 Winter | 3.6 | 3.6 | 1.1818 | 1.1818 | 39.4 | O K |
| 30 Winter | 3.6 | 3.6 | 1.4472 | 1.4472 | 49.8 | O K |
| 60 Winter | 3.6 | 3.6 | 1.6847 | 1.6847 | 57.9 | O K |
| 120 Winter | 3.6 | 3.6 | 1.7937 | 1.7937 | 61.0 | O K |
| 180 Winter | 3.6 | 3.6 | 1.7087 | 1.7087 | 58.6 | O K |
| 240 Winter | 3.6 | 3.6 | 1.6152 | 1.6152 | 55.7 | O K |
| 360 Winter | 3.6 | 3.6 | 1.4587 | 1.4587 | 50.2 | O K |
| 480 Winter | 3.6 | 3.6 | 1.3072 | 1.3072 | 44.4 | O K |
| 600 Winter | 3.6 | 3.6 | 1.1623 | 1.1623 | 38.6 | O K |

| Storm Duration (mins) | Rain (mm/hr) | Time-Peak (mins) |
|---|---|---|
| 15 Summer | 76.03 | 21 |
| 30 Summer | 49.50 | 35 |
| 60 Summer | 30.81 | 64 |
| 120 Summer | 18.61 | 120 |
| 180 Summer | 13.72 | 148 |
| 240 Summer | 10.99 | 178 |
| 360 Summer | 8.03 | 246 |
| 480 Summer | 6.43 | 314 |
| 600 Summer | 5.40 | 382 |
| 720 Summer | 4.69 | 448 |
| 960 Summer | 3.74 | 576 |
| 1440 Summer | 2.72 | 812 |
| 2160 Summer | 1.98 | 1148 |
| 2880 Summer | 1.58 | 1452 |
| 4320 Summer | 1.14 | 2200 |
| 5760 Summer | 0.91 | 2928 |
| 7200 Summer | 0.76 | 3576 |
| 8640 Summer | 0.66 | 4320 |
| 10080 Summer | 0.58 | 4984 |
| 15 Winter | 76.03 | 21 |
| 30 Winter | 49.50 | 35 |
| 60 Winter | 30.81 | 62 |
| 120 Winter | 18.61 | 118 |
| 180 Winter | 13.72 | 170 |
| 240 Winter | 10.99 | 192 |
| 360 Winter | 8.03 | 268 |
| 480 Winter | 6.43 | 342 |
| 600 Winter | 5.40 | 414 |

(c)1982-2006 Micro Drainage

## Summary of Results for 30 year Return Period (+30%)

| Storm Duration (mins) | Maximum Control (l/s) | Maximum Outflow (l/s) | Maximum Water Level (m OD) | Maximum Depth (m) | Maximum Volume (m³) | Status |
|---|---|---|---|---|---|---|
| 720 Winter | 3.6 | 3.6 | 1.0253 | 1.0253 | 33.0 | O K |
| 960 Winter | 3.6 | 3.6 | 0.7723 | 0.7723 | 22.8 | O K |
| 1440 Winter | 3.6 | 3.6 | 0.3432 | 0.3432 | 7.2 | O K |
| 2160 Winter | 3.2 | 3.2 | 0.0888 | 0.0888 | 0.9 | O K |
| 2880 Winter | 2.5 | 2.5 | 0.0708 | 0.0708 | 0.6 | O K |
| 4320 Winter | 1.8 | 1.8 | 0.0512 | 0.0512 | 0.4 | O K |
| 5760 Winter | 1.5 | 1.5 | 0.0407 | 0.0407 | 0.2 | O K |
| 7200 Winter | 1.2 | 1.2 | 0.0342 | 0.0342 | 0.2 | O K |
| 8640 Winter | 1.1 | 1.1 | 0.0297 | 0.0297 | 0.1 | O K |
| 10080 Winter | 0.9 | 0.9 | 0.0262 | 0.0262 | 0.1 | O K |

| Storm Duration (mins) | Rain (mm/hr) | Time-Peak (mins) |
|---|---|---|
| 720 Winter | 4.69 | 482 |
| 960 Winter | 3.74 | 610 |
| 1440 Winter | 2.72 | 828 |
| 2160 Winter | 1.98 | 1100 |
| 2880 Winter | 1.58 | 1452 |
| 4320 Winter | 1.14 | 2192 |
| 5760 Winter | 0.91 | 2904 |
| 7200 Winter | 0.76 | 3624 |
| 8640 Winter | 0.66 | 4344 |
| 10080 Winter | 0.58 | 5016 |

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## Rainfall Details

| | | | | | |
|---|---|---|---|---|---|
| Region | ENG+WAL | Cv (Summer) | 0.750 | Summer Storms | Yes |
| Return Period (years) | 30 | Cv (Winter) | 0.840 | Winter Storms | Yes |
| M5-60 (mm) | 20.000 | Shortest Storm (mins) | 15 | Climate Change % | +30 |
| Ratio-R | 0.400 | Longest Storm (mins) | 10080 | | |

## Time / Area Diagram

Total Area (ha) = 0.210

| Time from: | (mins) to: | Area (ha) | Time from: | (mins) to: | Area (ha) |
|---|---|---|---|---|---|
| 0 | 4 | 0.105 | 4 | 8 | 0.105 |

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## Circular Pipe Details

Diameter (m) 2.000 Length (m) 20.000 Cover Level (m) 10.000
Slope (1:x) 1000.0 Invert Level (m) 0.000

## Pump Outflow Control

Invert Level of Control 0.000

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.10 | 3.6 | 0.60 | 3.6 | 1.60 | 3.6 | 2.60 | 3.6 | 5.00 | 3.6 | 7.50 | 3.6 |
| 0.20 | 3.6 | 0.80 | 3.6 | 1.80 | 3.6 | 3.00 | 3.6 | 5.50 | 3.6 | 8.00 | 3.6 |
| 0.30 | 3.6 | 1.00 | 3.6 | 2.00 | 3.6 | 3.50 | 3.6 | 6.00 | 3.6 | 8.50 | 3.6 |
| 0.40 | 3.6 | 1.20 | 3.6 | 2.20 | 3.6 | 4.00 | 3.6 | 6.50 | 3.6 | 9.00 | 3.6 |
| 0.50 | 3.6 | 1.40 | 3.6 | 2.40 | 3.6 | 4.50 | 3.6 | 7.00 | 3.6 | 9.50 | 3.6 |

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