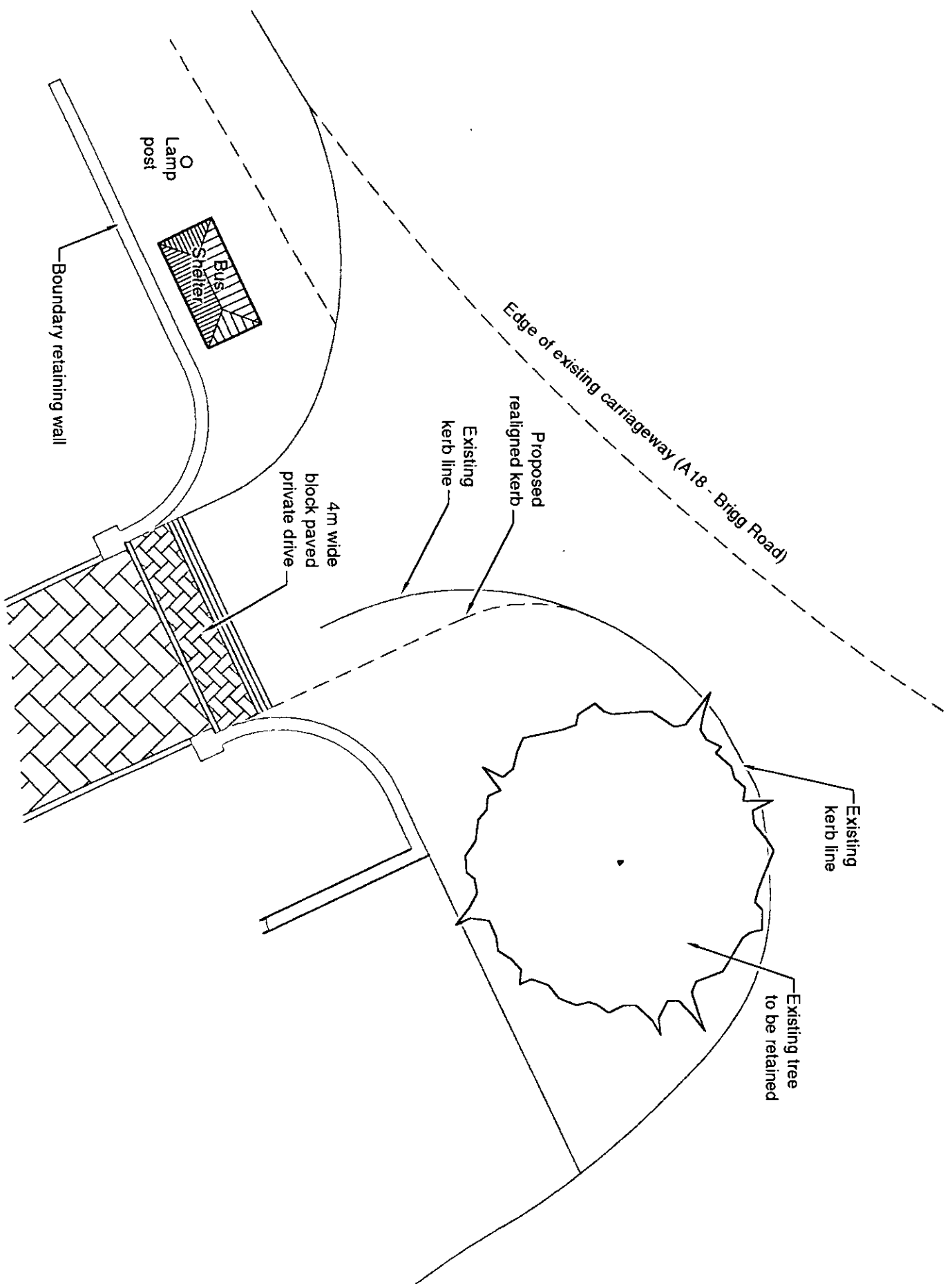


IF IN DOUBT, ASK.

DRAWING NOT TO BE SCALED.



**SCOTT HENDERSON ENGINEERING & CONSULTANTS**  
 DIRECTORATE OF ENVIRONMENT & PUBLIC PROTECTION  
 DEVELOPMENT CONTROL SECTION

**05 JUN 2003**

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**BALMER LINDLEY GROUP LTD**  
 Design, Site Services & Construction  
 11, Warrington Way, Bambergh, Warrington, Cheshire, WA1 4JG  
 Tel: 01724 253113 Fax: 01724 254175

**TIME:** General arrangement of kerb re-alignment  
 Manor Farm, Wrayby

REV.	DATE	REMARKS	DRWN.	CHECKED	APP'D

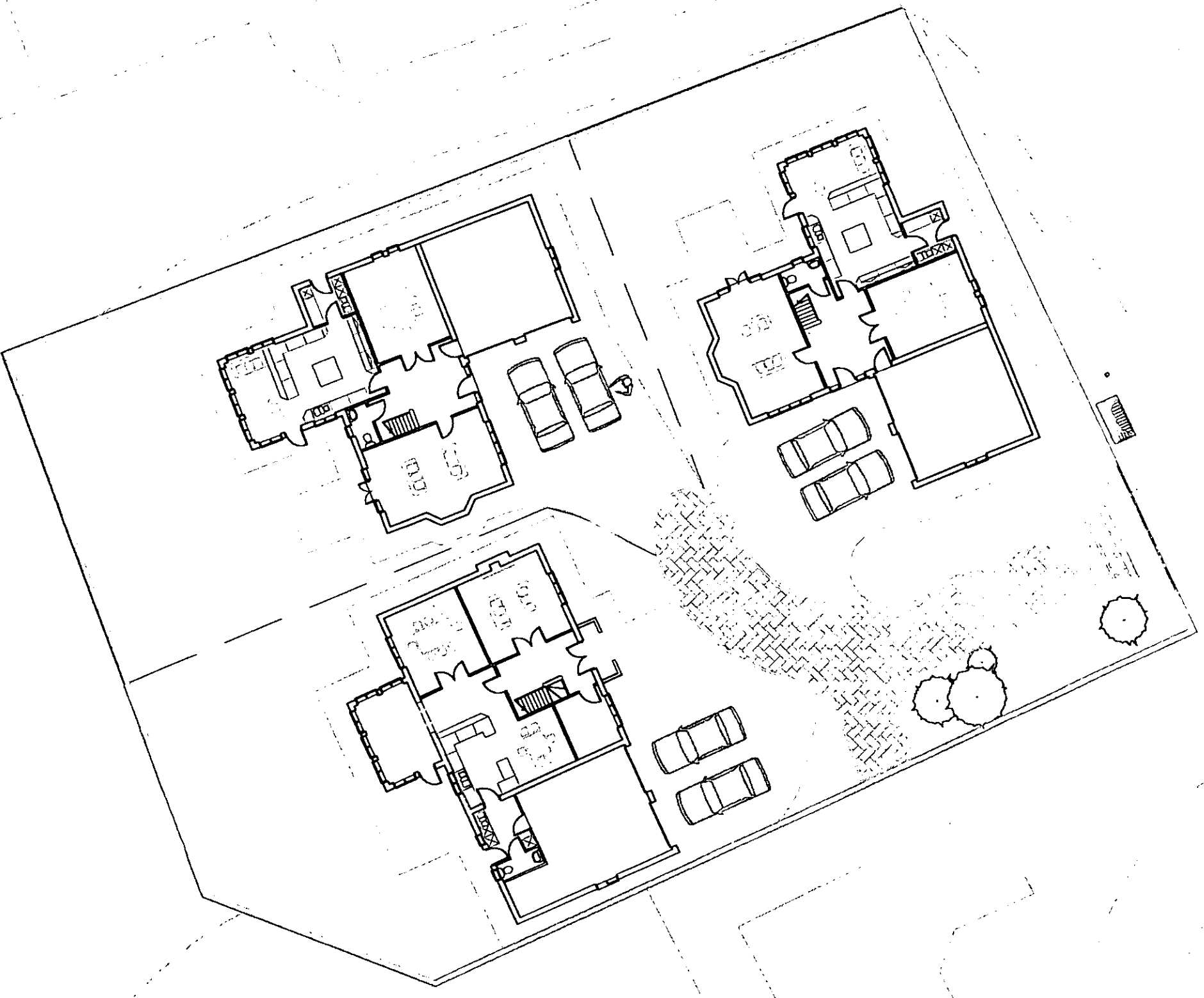
ORDER No.:	ISSUE DATE:	PROJ. NO.:	DATE:	SCALE:	APP'D:
			3-Jun-03	1:100	

20/006

**BALMER LINDLEY  
GROUP LTD**  
 Oregony Vale Enterprise Park  
 Marnborough Way  
 Scamptorp  
 North Lincolnshire, DN15 8XF  
 Tel: 01724 280110 Fax: 01724 281478

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**AMENDED  
DRAWING**



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TITLE:-  
 Site Layout

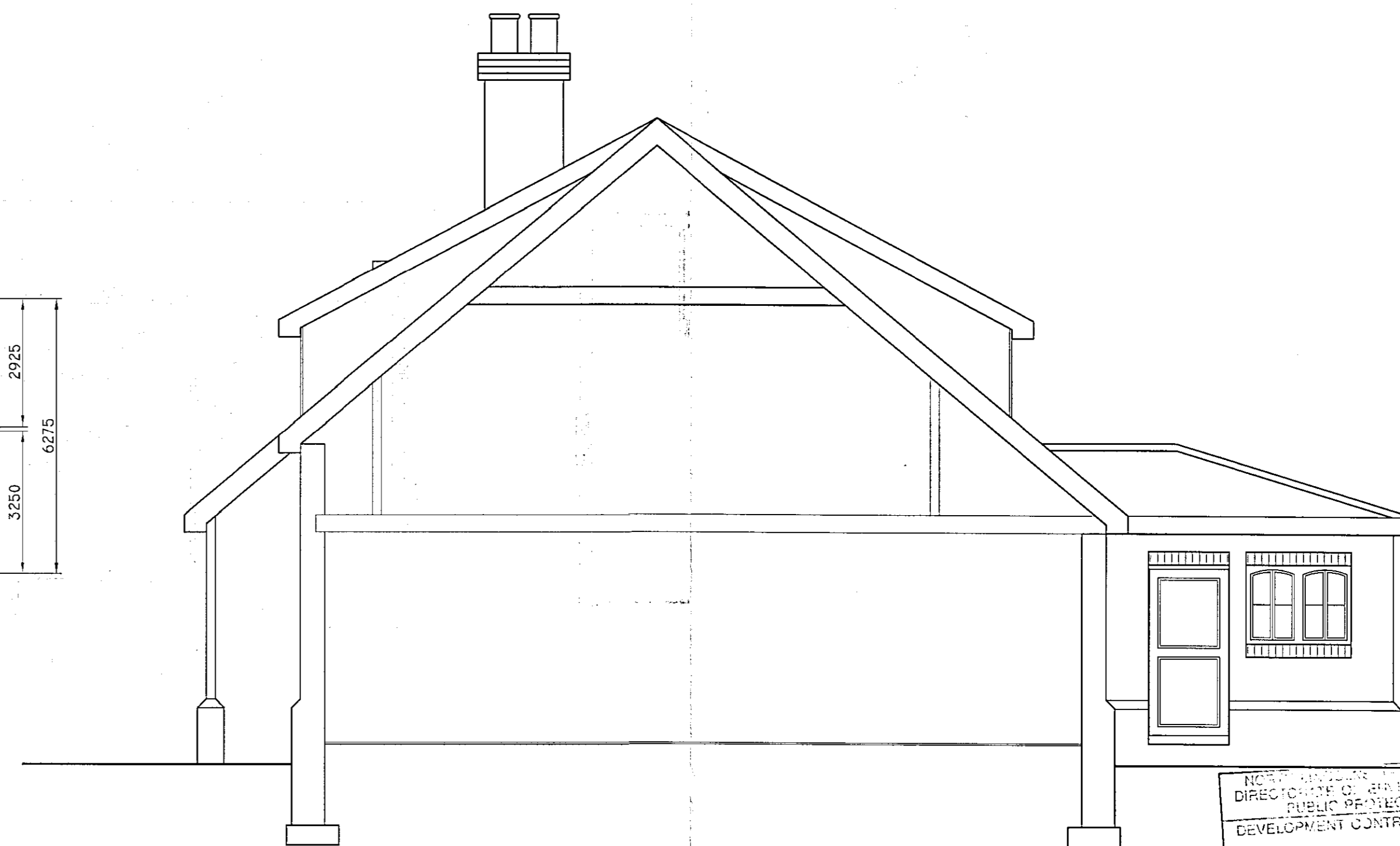
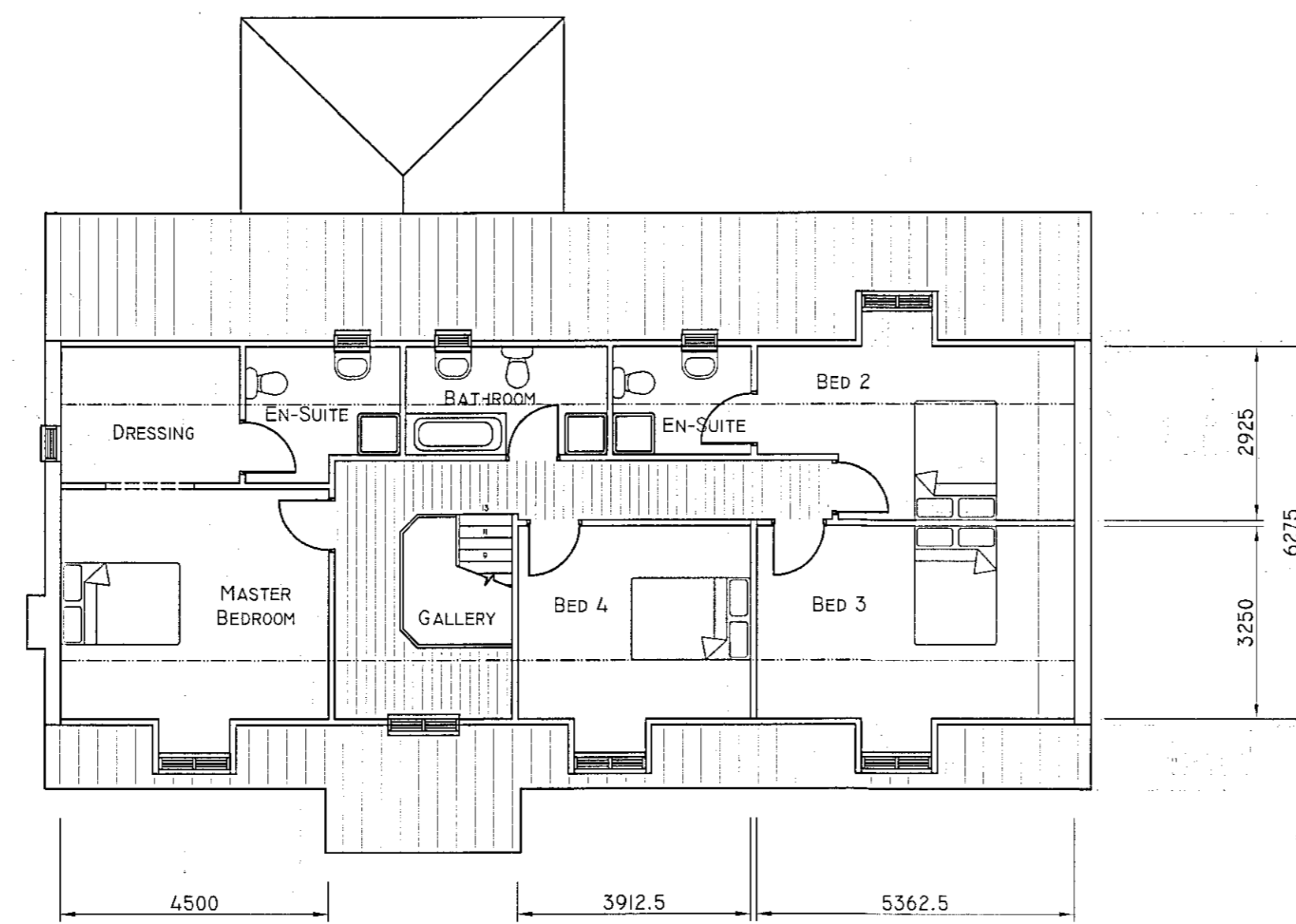
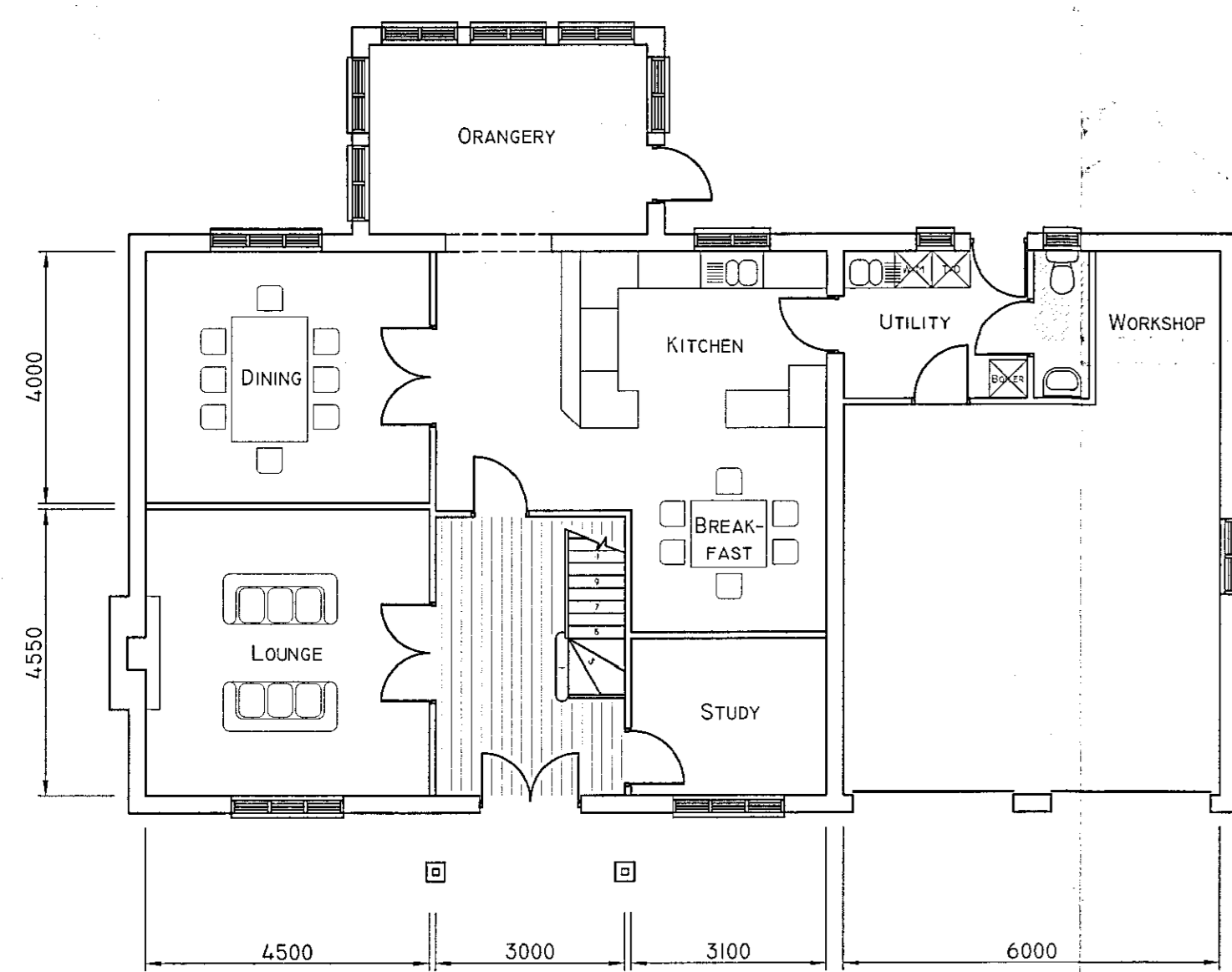
DRAWN:- J. Allcock	CHECKED:-	CHECKED ON:-
DATE:- 20 March 03	SCALE:- 1:250	APPROVED:-
DWG NO:- MFW / 40 / 005		





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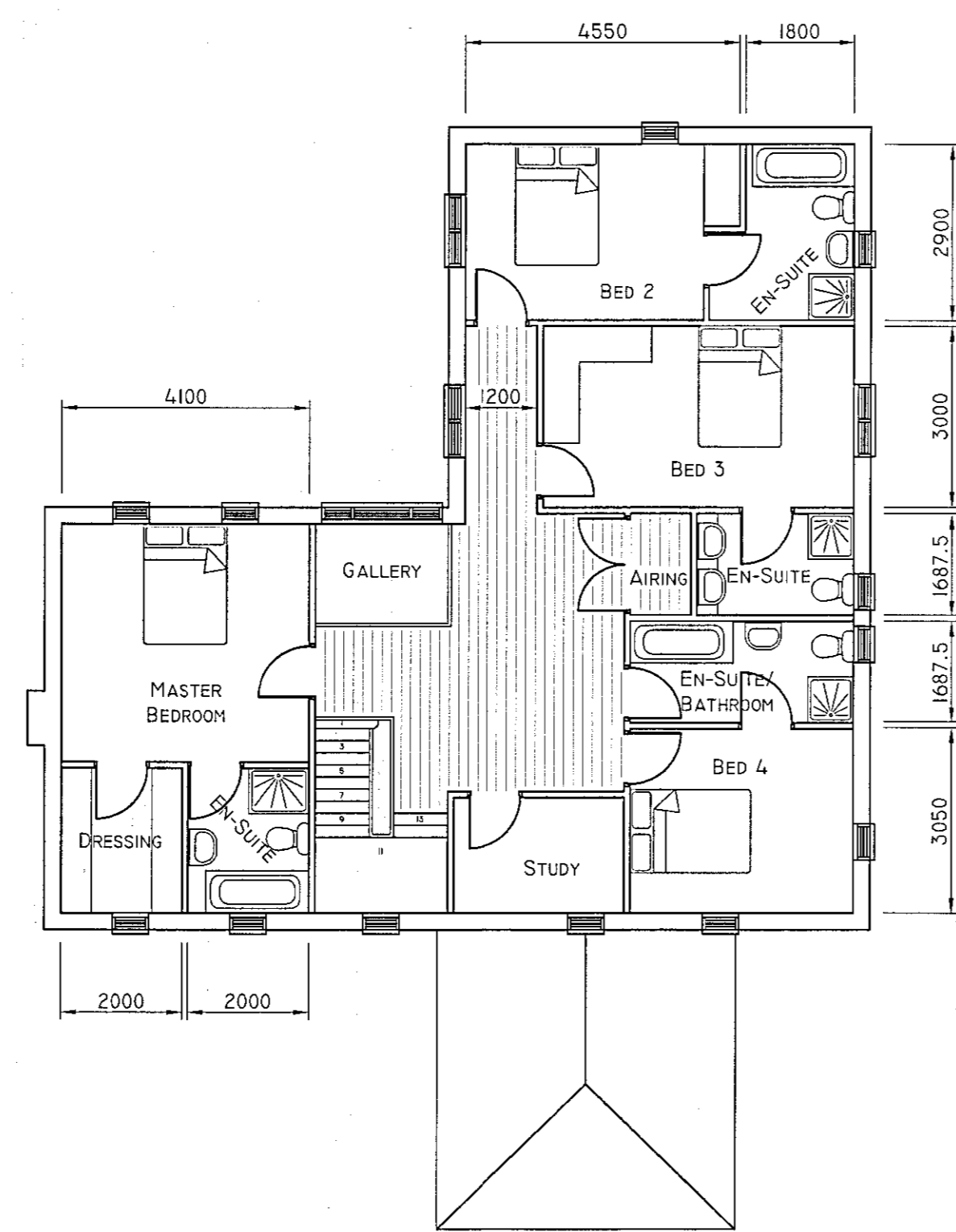
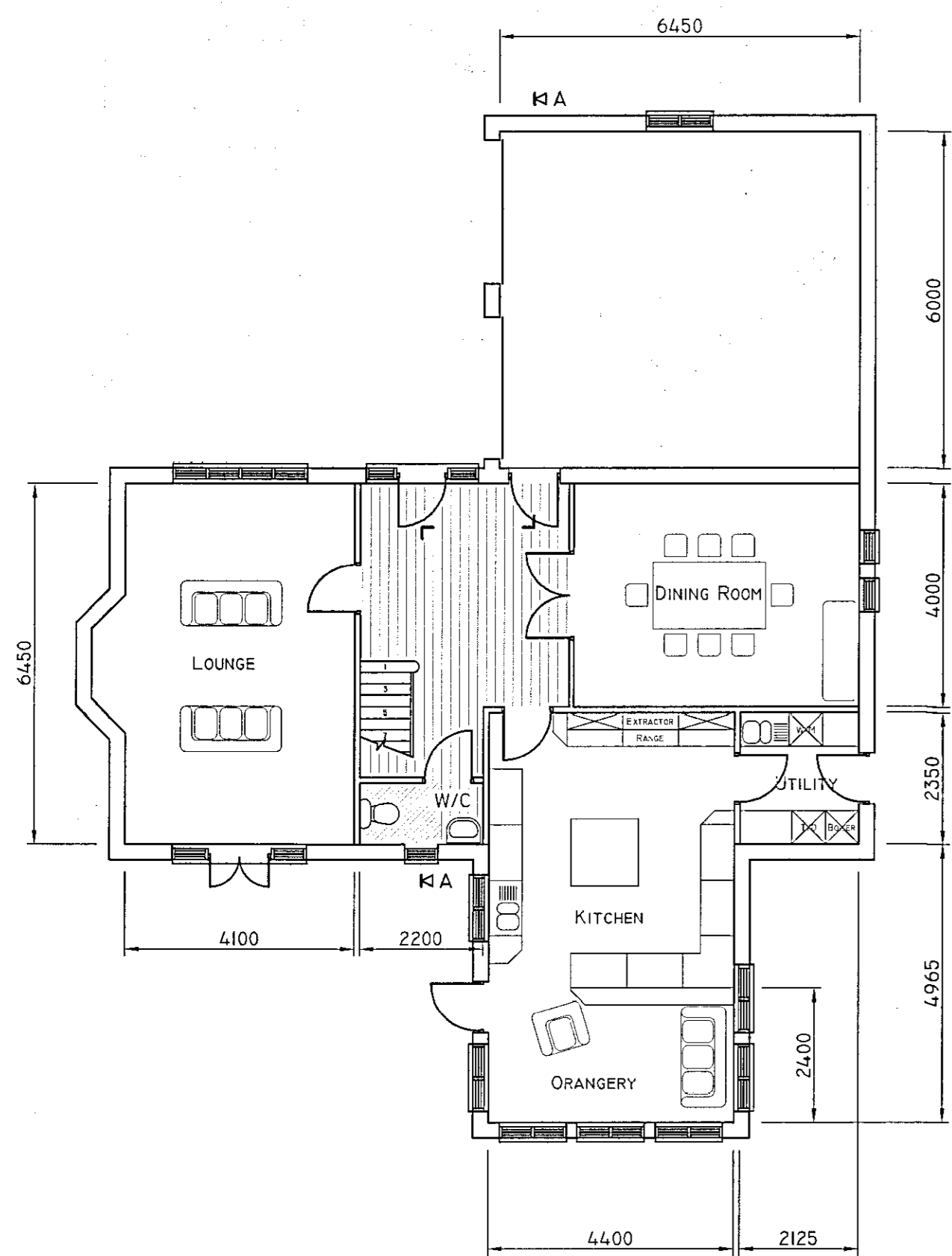


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 25 JAN 2003  
 DATE RECEIVED  
 COPS TO

REV.	DATE	REMARKS	SIG.
Preliminary			
ORDER No:-	MATL:-	DRAWN:- J. Allcock	CHECKED:-
ISSUE DATE:-	PROJECTION:-	DATE:- 24 February 2003	SCALE:- 1:100
		DRG No:- 'The Byrom'	APPROVED:-

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NO. OF DEVELOPMENT & PROTECTION  
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 25 MAR 2003  
 DATE RECEIVED

BALMER LINDLEY GROUP LTD  
 Disbury Vale Enterprise Park  
 Mansbridge Way  
 Southrop  
 North Lincashire, CH15 6SF  
 Tel: 01724 255115 Fax: 01724 255105

TITLE:- General Arrangement - Floor Plan and Elevations  
 'The Armitage'

REV#	DATE	REMARKS	CHECKED	CHECKED ON

ORDER No:-  
 DATE:-  
 ISSUE DATE:-

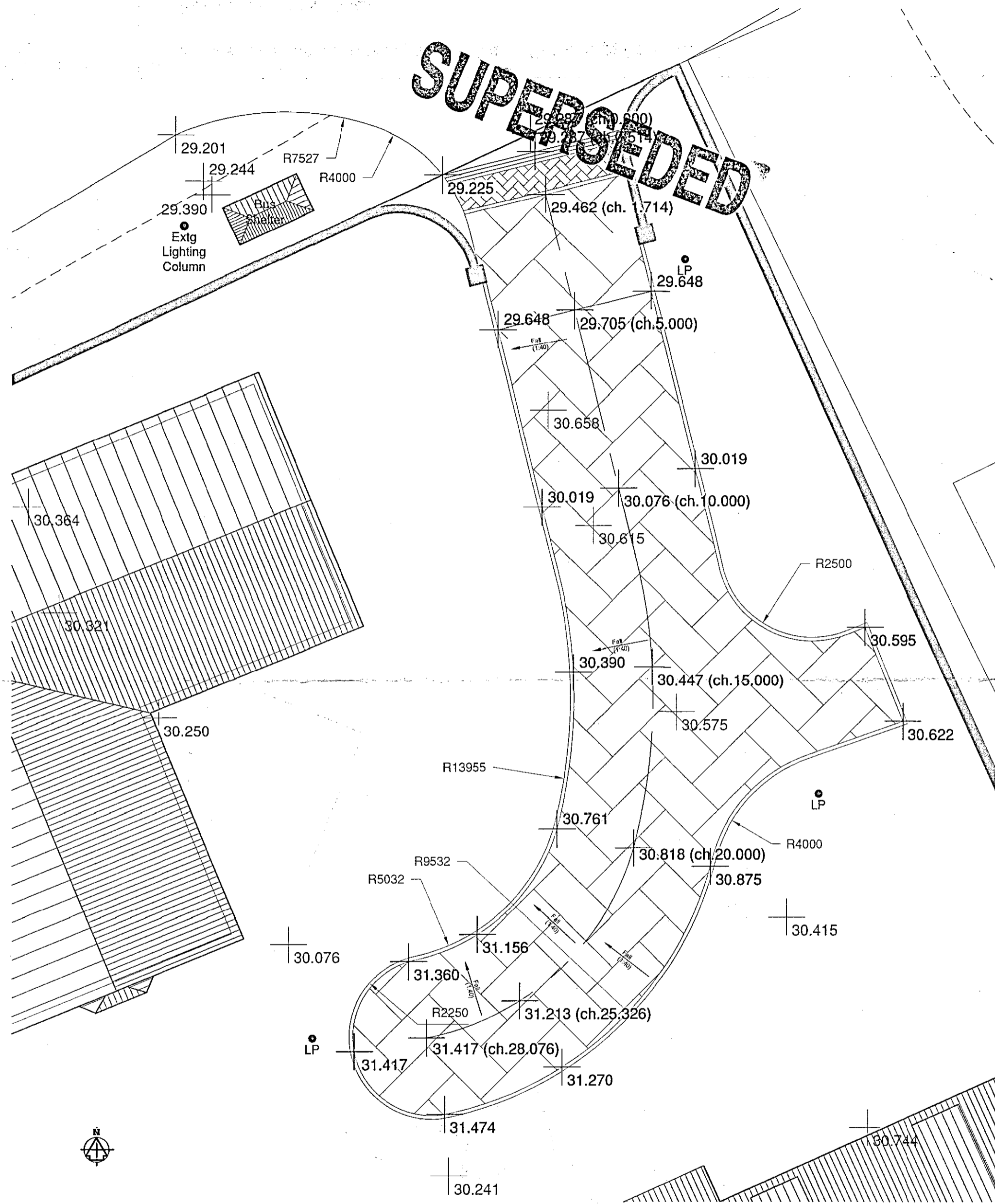
MATL:-  
 PROJECTION:-

DRAWN:- J. Allcock  
 DATE:- 24 February 2003  
 DRG NO:-

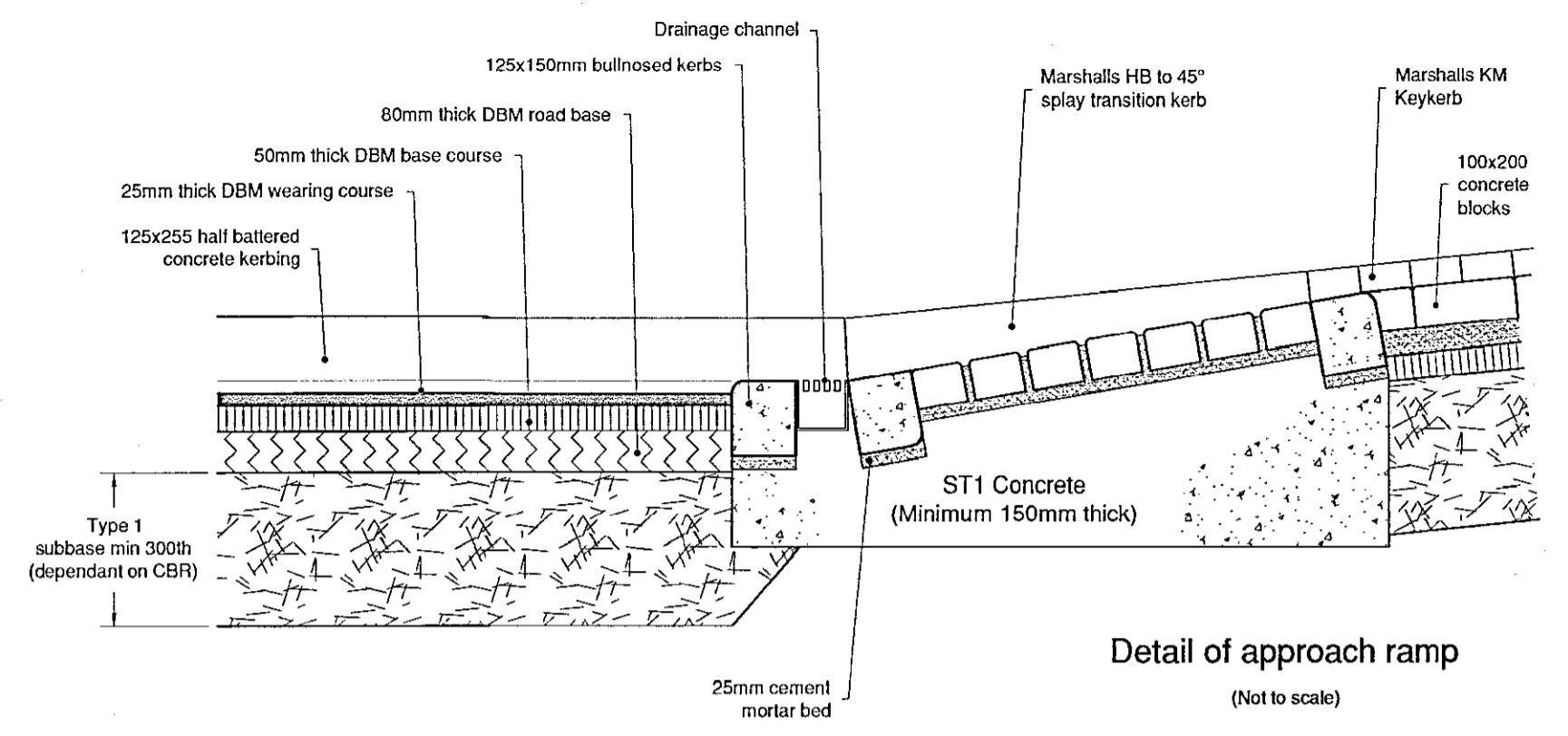
SCALE:- 1:100  
 APPROVED:-

Preliminary

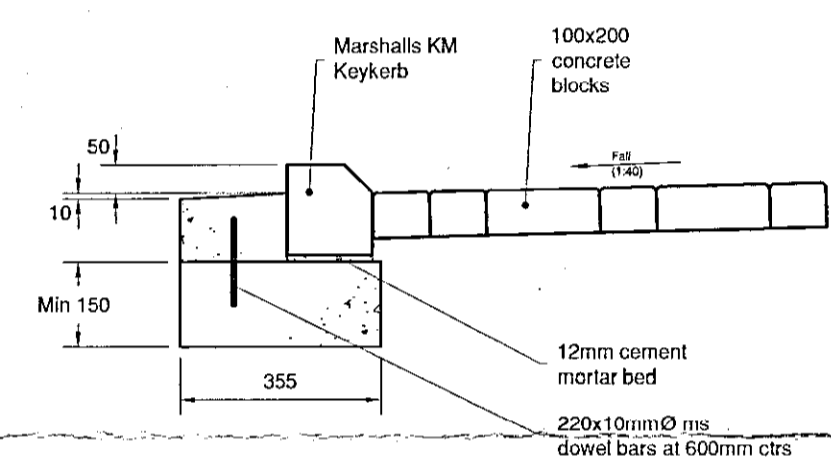
'The Armitage'



IF IN DOUBT, ASK. DRAWING NOT TO BE SCALED.



Detail of approach ramp (Not to scale)



Kerb detail (Not to scale)

- General Notes:**
1. Wearing course to be 200x100x80mm thick red concrete block pavers.
  2. All drainage gullies and manhole covers to have single course detailing directly abutting the cover frame.
  3. Road perimeter drainage channel to be laid as two courses of stretcher bond.
  4. All other areas to be laid as herringbone bond.
  5. All block pavers to be laid on 50mm thick well compacted grit sand, on 50mm thick dense bitumen macadam base course, on minimum 300 thick type consolidated hardcore (rolled in max. 150mm thick layers) all in accordance with North Lincolnshire Council approved data sheets.
  6. Kerb setts to be Marshall's KM Keykerb or equivalent approved.
  7. All concrete beds and haunches to be minimum ST1.
  8. Highway crossfalls to be minimum 1:40.
  9. LP = 4m high victorian lantern with low energy luminare on PIR activation, positioned 1m behind rear of kerb sett. 1 light to be wired to each residence consumer panel.

**BALMER LINDLEY GROUP LTD**  
 Dragonby Vale Enterprise Park  
 Mannenberg Way  
 Scunthorpe  
 North Lincolnshire, DN15 8XF  
 Tel: 01724 289119 Fax: 01724 281478

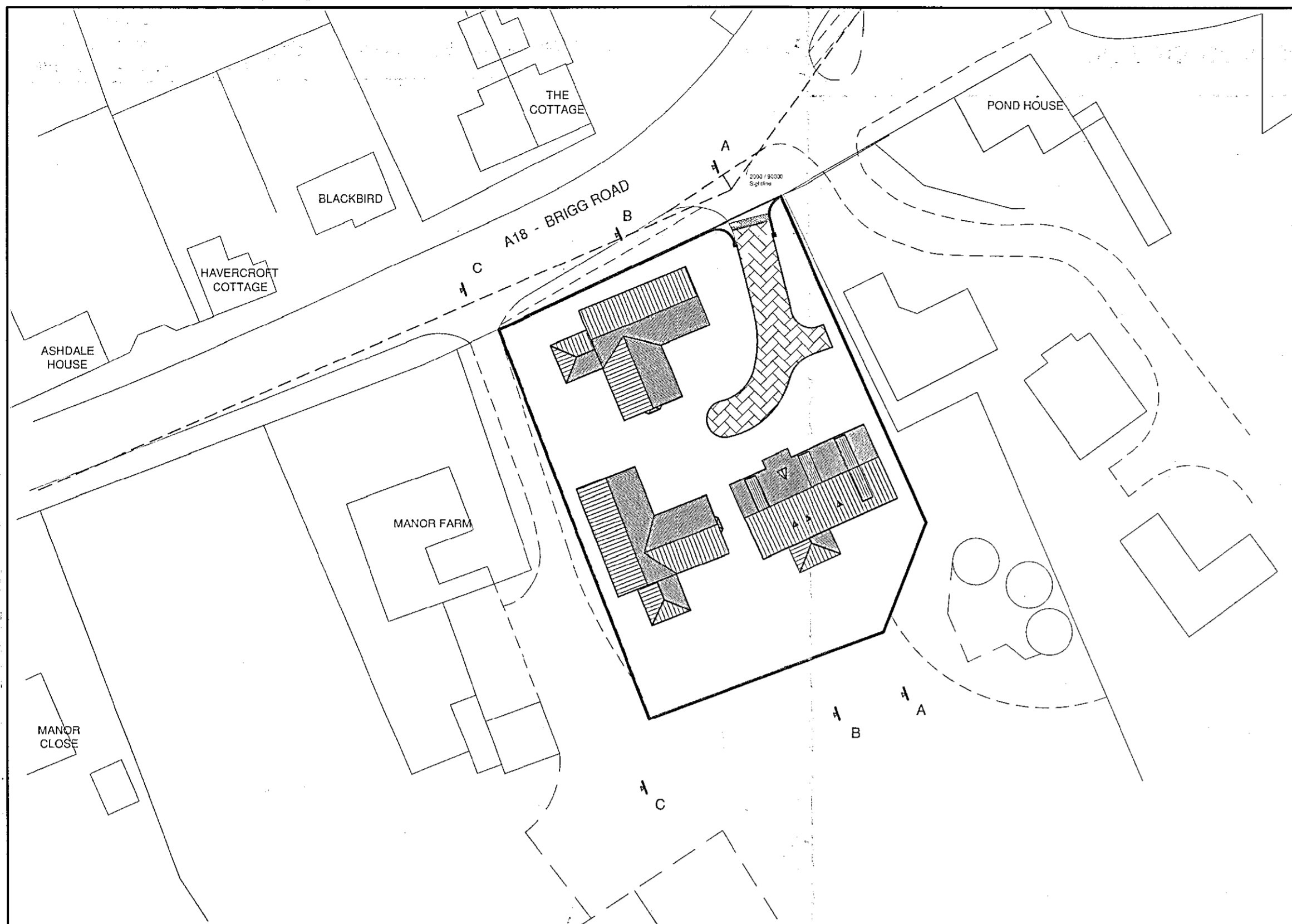
TITLE: **Proposed Residential Development at Manor Farm, Brigg Road, Wrawby**  
**Road Construction Details**

Issued for Planning Approval

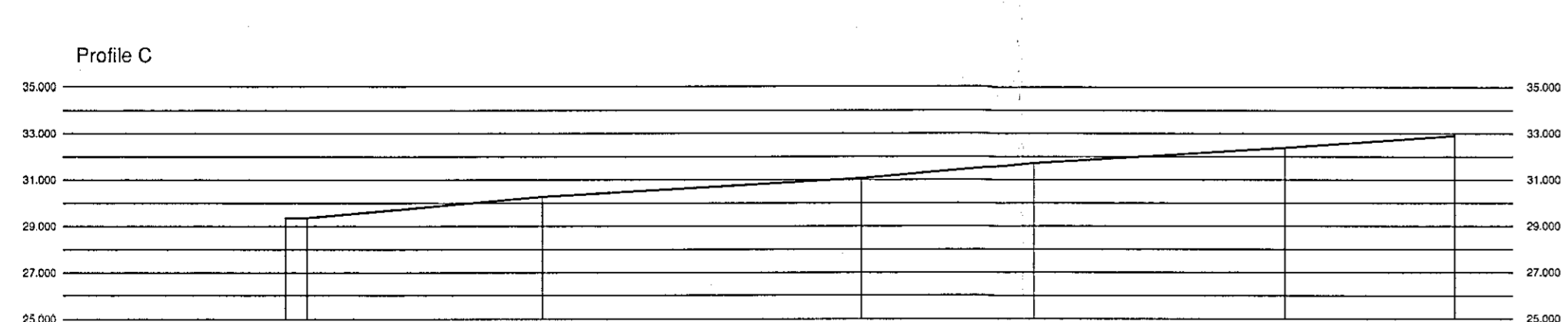
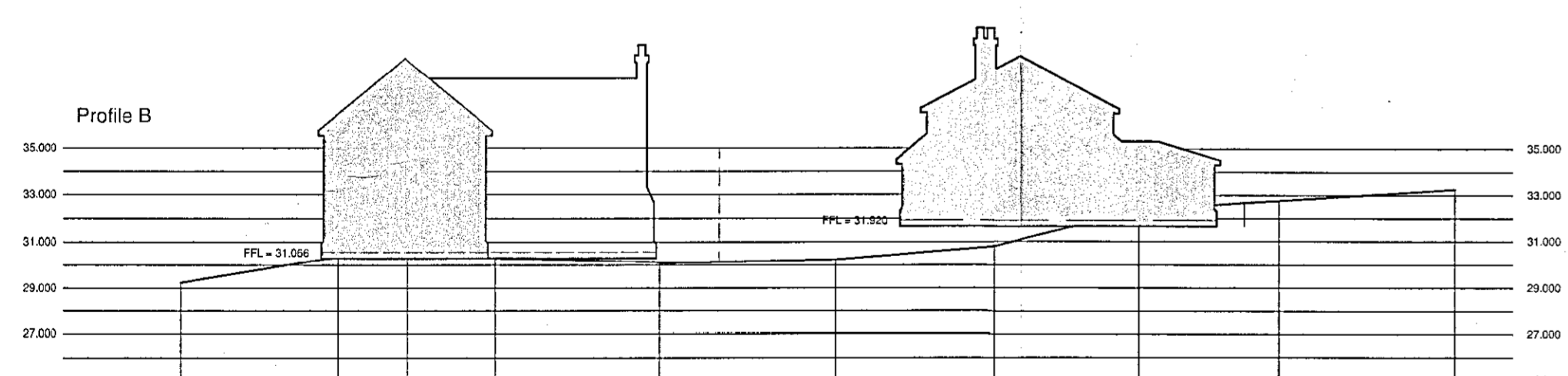
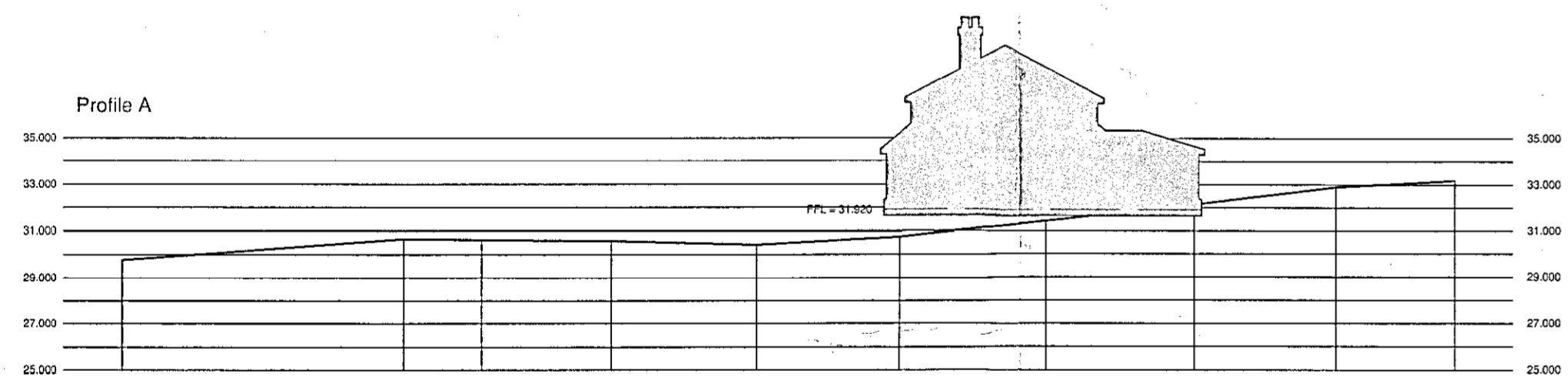
Preliminary		ORDER No:--	MATL:--	DRAWN:-- J. Alcock	CHECKED:--	CHECKED QA:--
ISSUE DATE:--	PROJECTION:-- 	DATE:-- 20 March 2003	SCALE:-- 1 : 100	APPROVED:--		
		DRC No:--		20 / 003		

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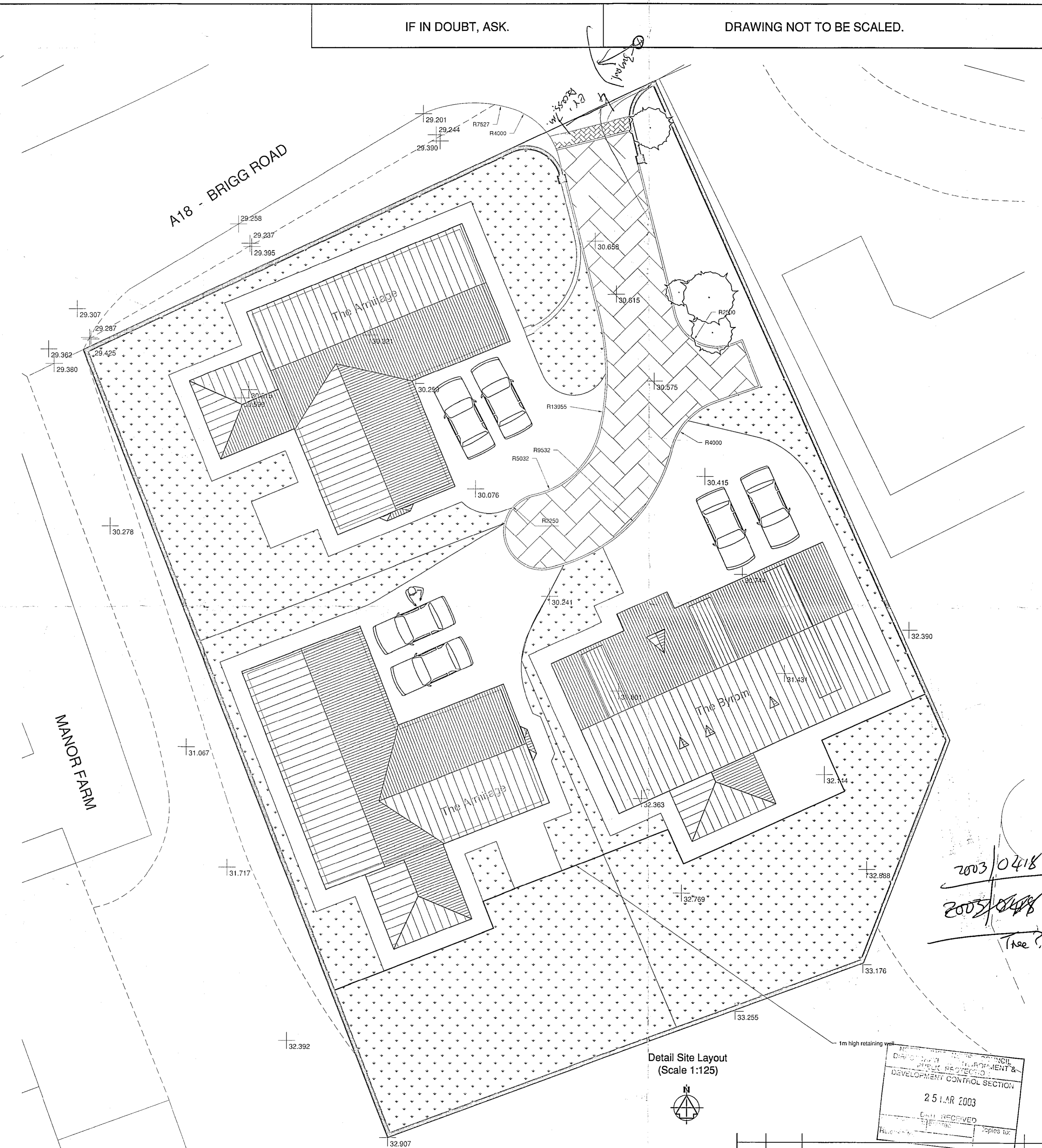
DRAWING NOT TO BE SCALED.



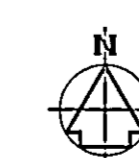
Block Plan  
(Scale 1:500)



Longitudinal Profile of Existing Ground Level  
(Scale 1:250)



Detail Site Layout  
(Scale 1:125)



Preliminary

REV.	DATE	REMARKS	CHECKED-	CHECKED QA-

BALMER LINDLEY GROUP LTD  
 Design: V&A Enterprise Park  
 Mansfield Way  
 Southrop  
 North Lincolnshire, DN15 9JF  
 Tel: 01724 285118 Fax: 01724 284878

TITLE: Proposed Residential Development at Manor Farm, Brigg Road, Wrawby  
 Proposed Site Layout

Issued for Planning Approval

2003/0418  
 2005/0418  
 Tree??

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 25 MAR 2003  
 DEVELOPMENT CONTROL SECTION

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ANY DISCREPANCIES TO BE NOTIFIED TO C.R. PARROTT CONSULTANTS LIMITED AS SOON AS POSSIBLE

**NOTES**

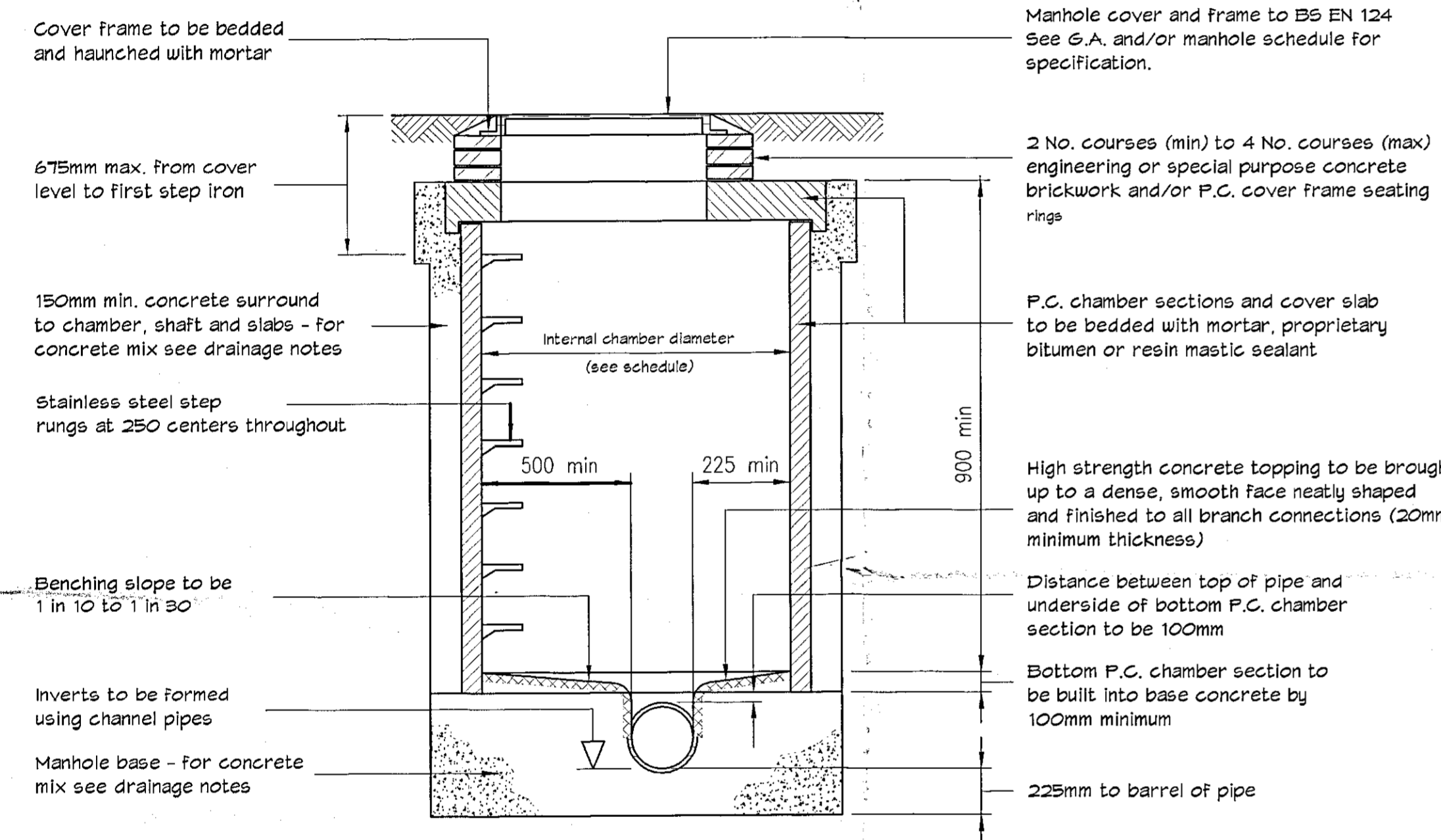
- Drainage Notes.**
- The base specification for drainage works shall be the Water Authorities Association Sewers for Adoption (Latest Edition.)
  - This drawing is to be read in conjunction with all other relevant Engineers and Architects Details.
  - All external building and car park drainage to be constructed in accordance with BS8001 - Code of Practice and Part H of the Building Regulations (Latest Edition).
  - The following pipe strengths shall be adopted unless noted otherwise:-  
Pipes up to and including 150mm dia to be 28kN/m strength to BS EN245 -1  
Pipes between 225 - 300mm dia to be class 160 to BS EN245 -1  
Pipes above 300mm dia to be class M concrete.
  - All pipe runs to be laid with flexi-joints.
  - All pipes entering and exiting manholes are to be connected with pipe soffits level unless shown otherwise.
  - Bedding and backing to be as follows :-
- | Location                                | Cover to Soffit | Bedding   |
|---|-----------------|---|
| Roads.                                  | >1.2m           | Class 5 granular bed and surround. Concrete surround. |
|   | <1.2m           | Class 5 granular bed and surround. Concrete surround. |
| Non-adoptable sewers below car parking. | >0.9m           | Class 5 granular bed and surround. Concrete surround. |
|   | <0.9m           | Concrete surround.                                    |
| Hard and soft landscaping.              | >0.6m           | Class 5 granular bed and surround. Concrete surround. |
|   | <0.6m           | Concrete surround.                                    |
- 6) The following concrete mixes are to be used (all in accordance with BS8928) :-
- | Location                                | Mix Reference | Details (where applicable) |
|---|---------------|----------------------------|
| Concrete surround to pipes.             | ST4           |                            |
| Concrete base and surround to manholes. | ST4           |                            |
- The above concrete mixes have been selected for BRE 365 Class 1 Sulphates.
- All precast concrete products (ie pipes, manholes, rings etc.) shall be of suitable concrete mix to cater for Class 1 sulphates.
  - Pre-formed channels are to be used at manholes.
  - Granolithic concrete benching to be steel trowelled to a dense smooth face neatly shaped and finished to all branch connections and laid in accordance with the Specification.
  - All dimensions are in millimetres unless noted otherwise.
  - Pipe bends to suit direction of flow.
  - Manhole covers and frames to be ductile iron heavy duty Grade D400 double triangular to BS EN124 and are to be Grade A standard in vehicular trafficked areas.
  - Manhole covers and frames to be ductile iron medium duty Grade B125 circular or rectangular to BS EN124 positions outside vehicular trafficked areas.
  - First flexible joint in pipes adjacent to a manhole shall be a maximum of 600mm from inside face of manhole, connecting to rocker pipe. The minimum length of rocker pipe is as follows:-  

Pipe Diameter	Length of Rocker pipe.
150mm-450mm	500mm-1500mm
451mm-675mm	750mm-1000mm
  - Manholes with outgoing pipes greater than 600mm dia shall be fitted with guard bars, safety chains or other safety devices.

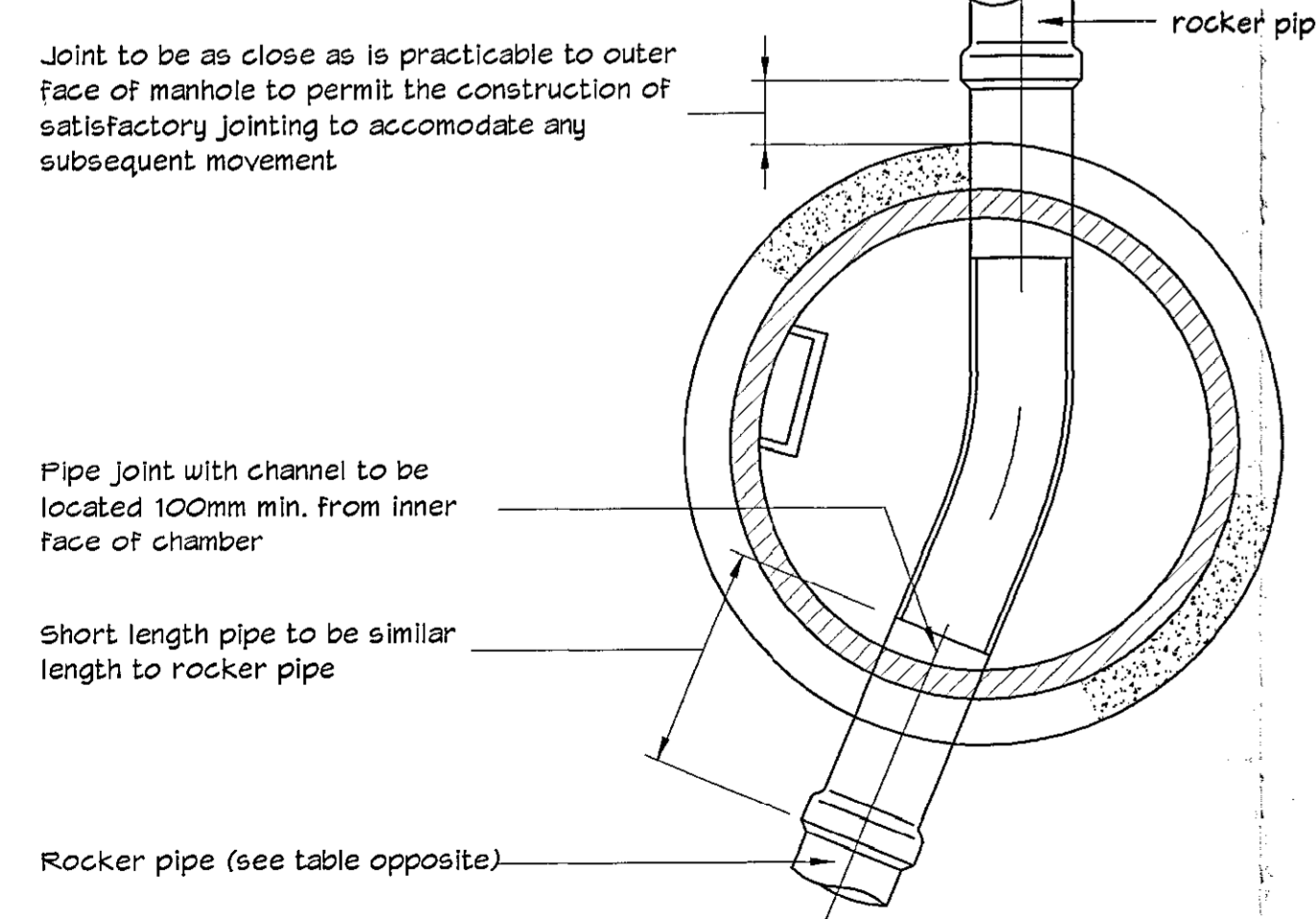
The sizes quoted are the minimum. If two or more pipes enter the manhole the manhole size should be sufficient to accommodate adequate benching in accordance with Engineers.

PIPE DIA.	MANHOLE DIA.
less than 375mm	1200 (1050 where depth to soffit is 1350mm - 1500mm).
375-450	1350
500-100	1500
150-400	1800
1050-1200	To be agreed with Engineers

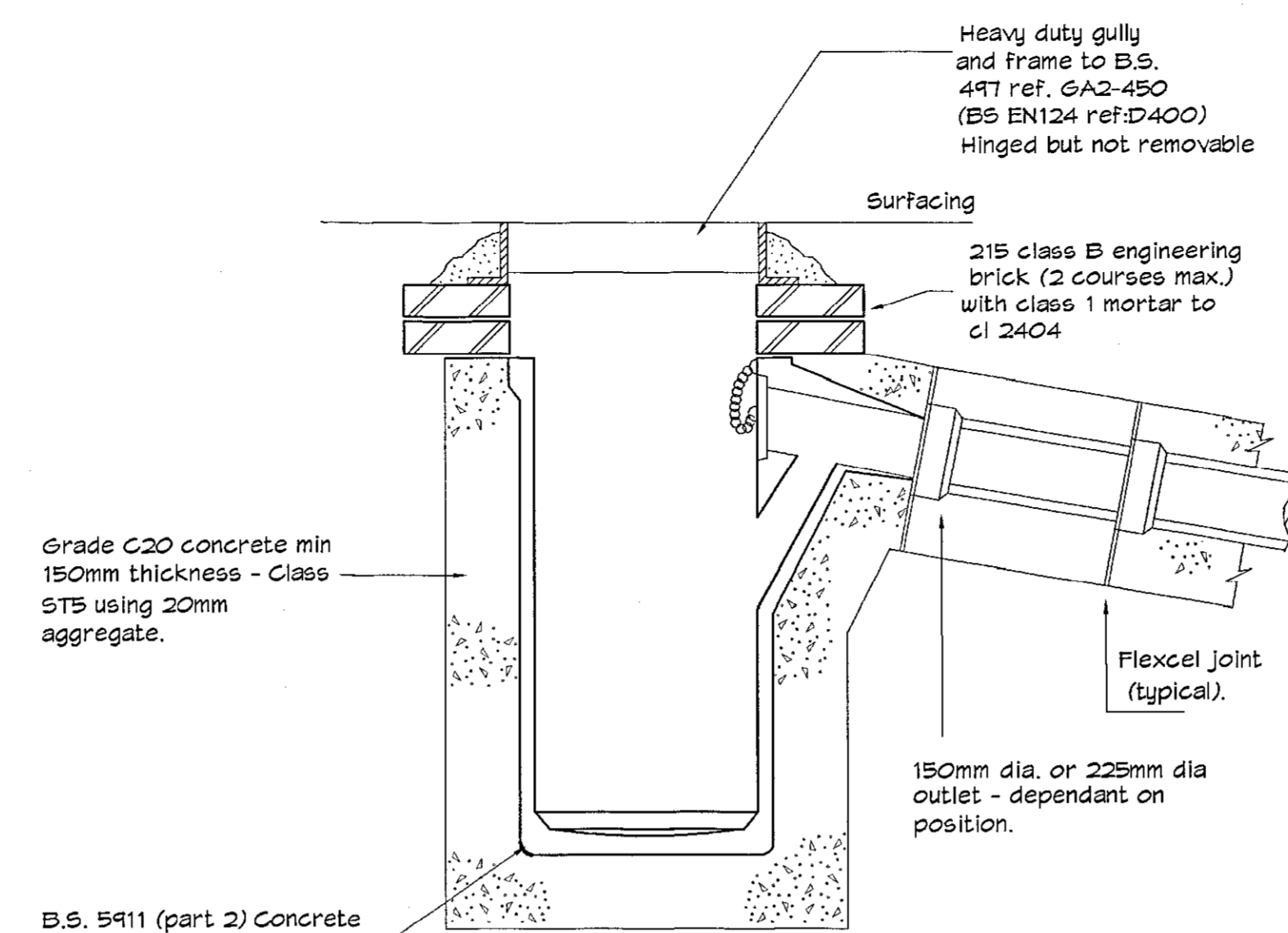
**MANHOLE CHAMBER DIAMETERS**



**SECTION**

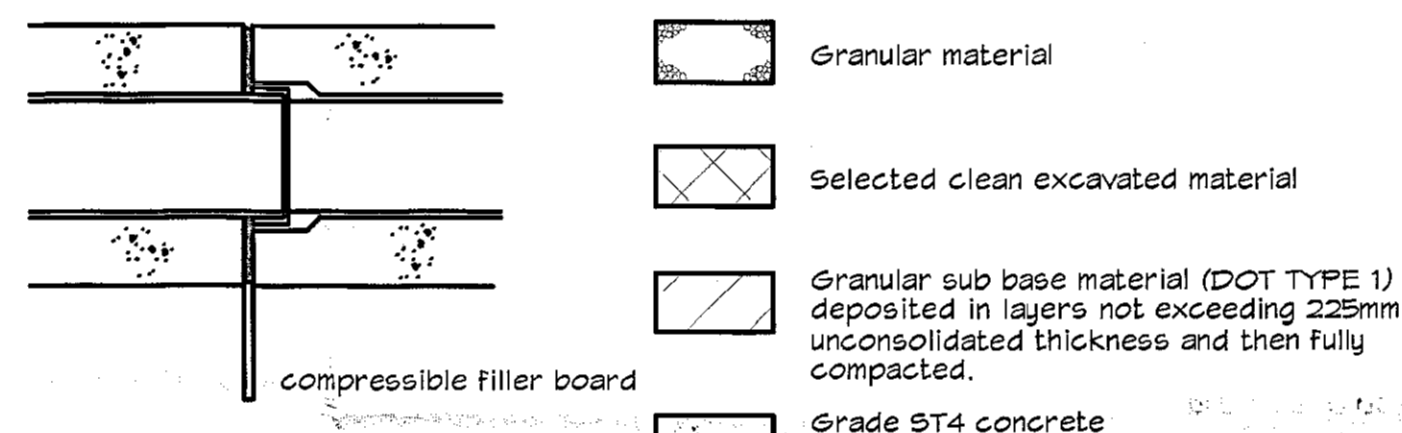


**PLAN  
TYPICAL MANHOLE DETAIL TYPE B**



**PRECAST CONCRETE ROAD GULLY**

N.T.S.  
Double gully configuration to comprise two single gully units positioned back-to-back.



**SECTION ON DRAIN WITH BED TYPE Z @ PIPE JOINTS**

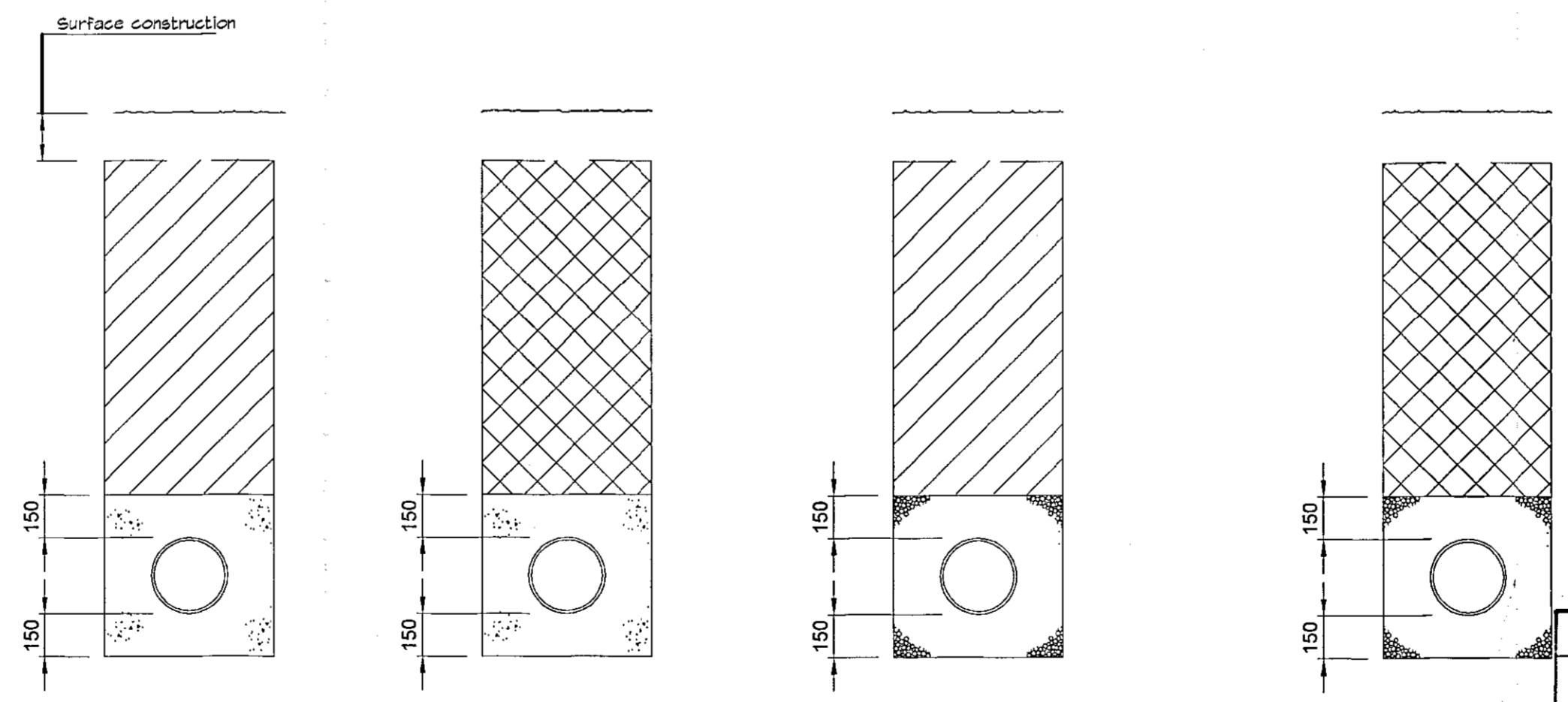
NOTE: No mechanical compaction within 500mm of crown of pipe.  
NOTE: Where drains are laid under buildings refer to engineer for further details.

**TRENCH WIDTHS**

DIA. OF DRAIN	WIDTH
100	550
150	600
225	700
300	750
375	1050
750	1500

**GRANULAR MATERIAL**

DIA. OF DRAIN	AGGREGATE
100	10mm SINGLE SIZE
150	10 OR 14mm SINGLE SIZE 14-5mm GRADED
150-500	10, 14 OR 20mm SINGLE SIZE OR 20-5mm GRADED
OVER 500	10, 14, 20 OR 40mm SINGLE SIZE OR 40-5mm GRADED



**BEDDING & TRENCH DETAILS**

UNIVERSITY OF SHEFFIELD  
PUBLIC PROTECTION  
DEVELOPMENT CONTROL SECTION  
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D			
C			
B			
A	-	-	-
	Date	Drawn	Revision

**C. R. Parrott Consultants Limited**  
Prince House, Queensway Court,  
Arkwright Way, Scunthorpe, DN16 1AL  
Consulting Engineers  
Project Management

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Tel: 01724 278155  
Fax: 01724 278158

**PROPOSED DRAINAGE LAYOUT at  
MANOR RISE DEVELOPMENT,  
WRANBY, By BRIGG  
by BALMER HOMES**

**GENERAL DETAILS**

Drawn: Mike Upton	Date: 10.09.03	Scale: AS SHOWN
Checked:	Drawing No. 4486-11	Revision:
Approved:		



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The sizes quoted are the minimum. If two or more pipes enter the manhole the manhole size should be sufficient to accommodate adequate benching in accordance with Engineers

PIPE DIA.	MANHOLE DIA.
less than 375mm	1200 (1050 where depth to soffit is 1950mm - 1500mm)
375-450	1350
500-700	1500
750-900	1800
1050-1200	To be agreed with Engineers

**MANHOLE CHAMBER DIAMETERS**  
(ADOPTABLE WORKS)

Cover frame to be bedded and haunched with mortar

675mm max. from cover level to first step iron

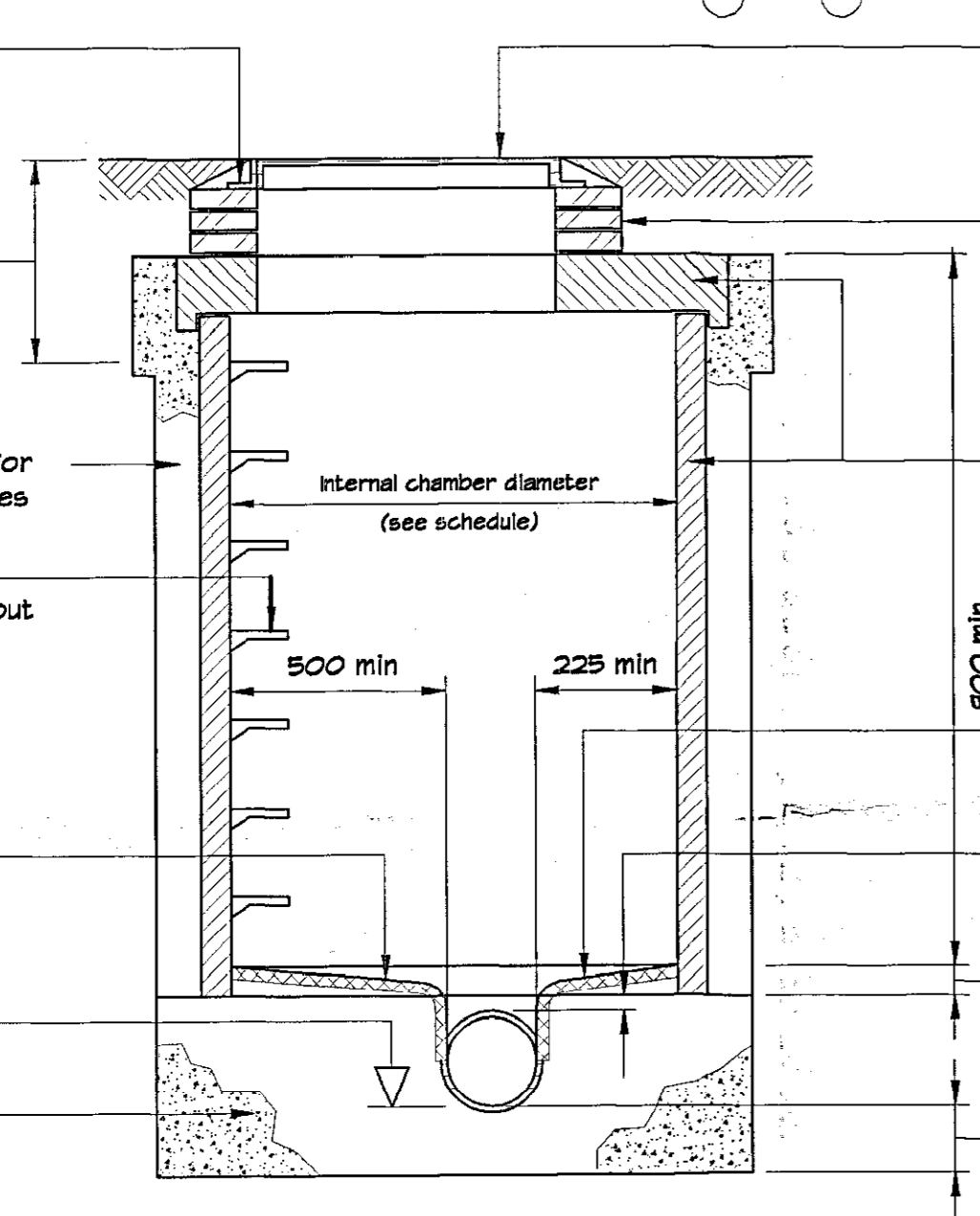
150mm min. concrete surround to chamber, shaft and slabs - for concrete mix see drainage notes

Stainless steel step rungs at 250 centers throughout

Benching slope to be 1 in 10 to 1 in 30

Inverts to be formed using channel pipes

Manhole base - for concrete mix see drainage notes



Manhole cover and frame to BS EN 124 See G.A. and/or manhole schedule for specification.

2 No. courses (min) to 4 No. courses (max) engineering or special purpose concrete brickwork and/or P.C. cover frame seating ring

P.C. chamber sections and cover slab to be bedded with mortar, proprietary bitumen or resin mastic sealant

High strength concrete topping to be brought up to a dense, smooth face neatly shaped and finished to all branch connections (20mm minimum thickness)

Distance between top of pipe and underside of bottom P.C. chamber section to be 100mm

Bottom P.C. chamber section to be built into base concrete by 100mm minimum

225mm to barrel of pipe

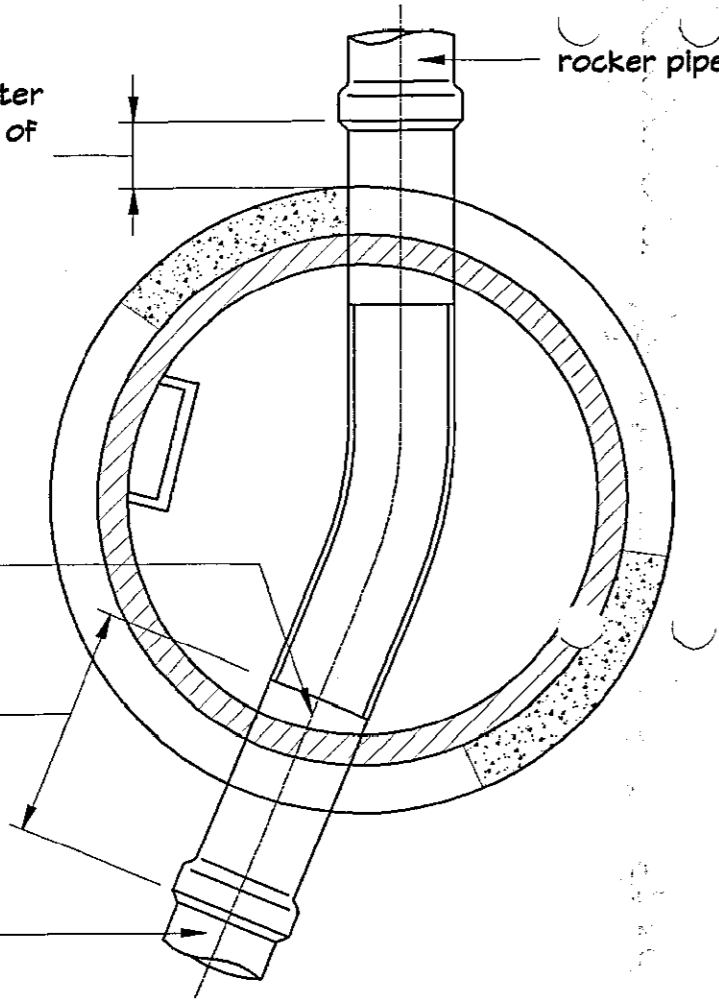
**SECTION TYPICAL MANHOLE DETAIL TYPE B**

Joint to be as close as is practicable to outer face of manhole to permit the construction of satisfactory jointing to accommodate any subsequent movement

Pipe joint with channel to be located 100mm min. from inner face of chamber

Short length pipe to be similar length to rocker pipe

Rocker pipe (see table opposite)



**PLAN TYPICAL MANHOLE DETAIL TYPE B**

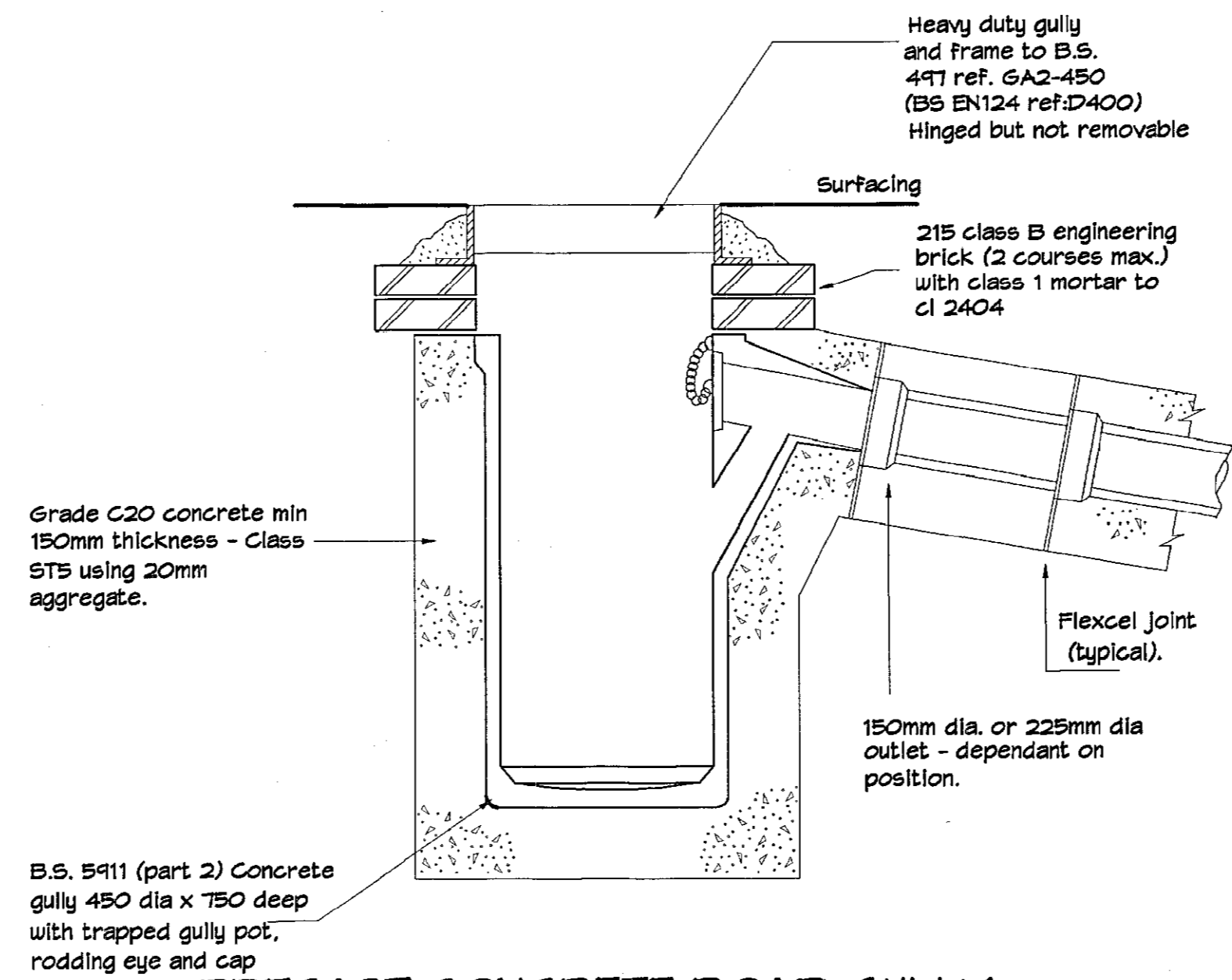
**NOTES**

Chambers with outgoing pipes greater than 600mm dia. shall be fitted with guard bars, safety chains or other safety devices.

However, the safety policy of individual sewerage undertakers may require a larger minimum clear opening into manholes and the fitting of guard bars, safety chains or other safety devices in manholes with outgoing pipes of less than 600mm diameter.

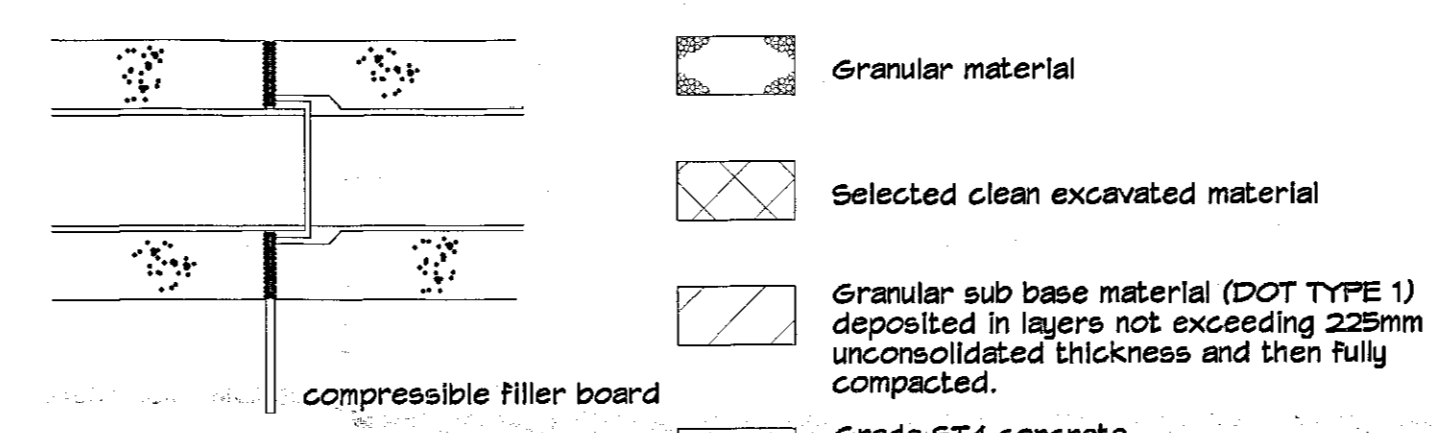
Self cleaning toe holes to be provided in benching of sewer greater than 600mm diameter for access to invert.

Manholes to be constructed in accordance with 'Sewers for Adoption' - Latest Edition



**PRECAST CONCRETE ROAD GULLY**  
N.T.S.

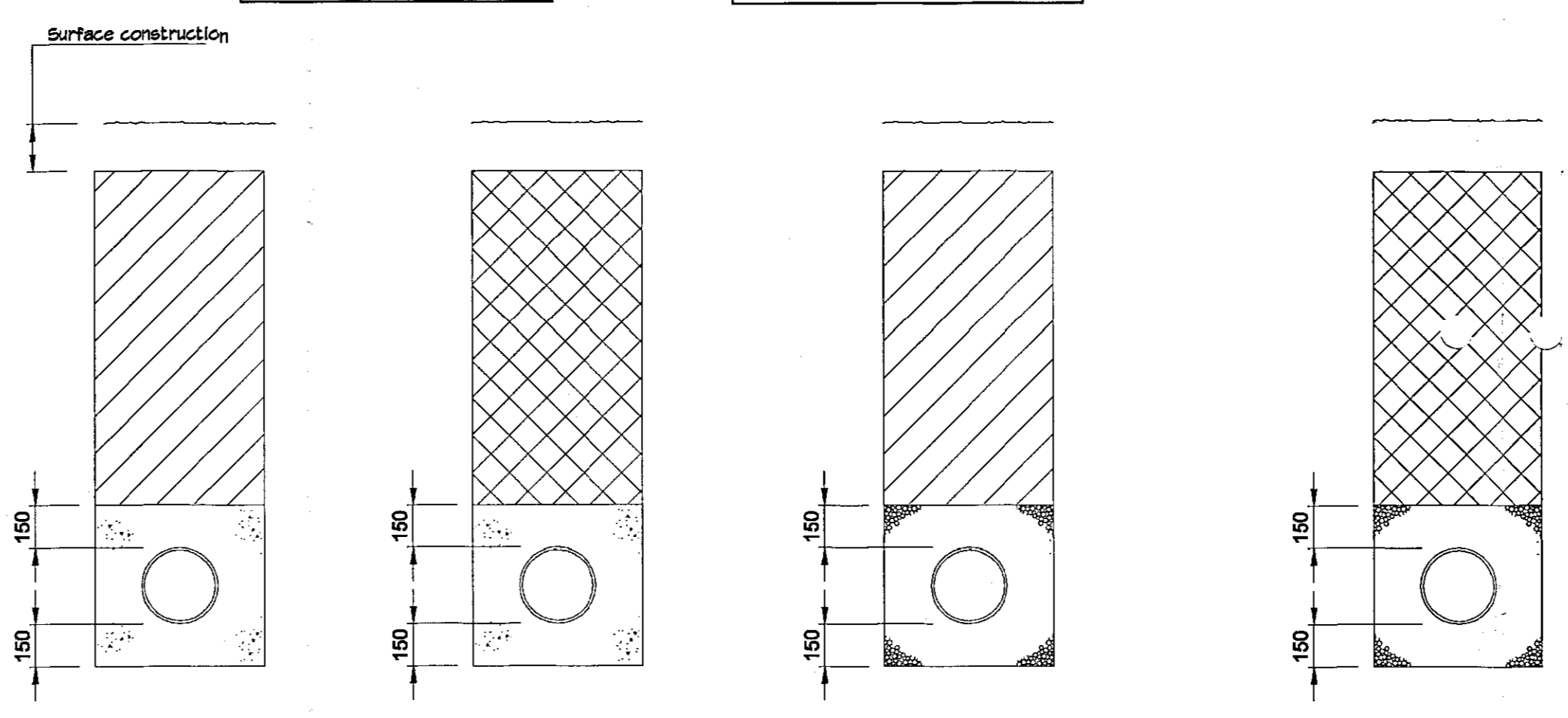
Double gully configuration to comprise two single gully units positioned back-to-back.



**SECTION ON DRAIN WITH BED TYPE Z @ PIPE JOINTS**

NOTE: No mechanical compaction within 300mm of crown of pipe.

NOTE: Where drains are laid under buildings refer to engineer for further details.



**Drains with Concrete Bed and Surround**

Type Z  
Applicable under roads / service yards where drains have less than 1200 cover (if adopted) or less than 600 cover (if not adopted)

Type Z  
Applicable under footpaths verges and other non-trafficked areas where drains have less than 400 cover (if adopted) or less than 600 cover (if not adopted)

Type W  
Applicable under roads / service yards where drains have more than 1200 cover (if adopted) or more than 600 cover (if not adopted)

**Drains with Flexible Bed & Surround**

Type W  
Applicable under footpaths verges and other non-trafficked areas where drains have more than 400 cover (if adopted) or more than 600 cover (if not adopted) 100 dia. rigid pipe can have min. cover of 500mm.

**BEDDING & TRENCH DETAILS**

**NOTE:**

ALL MAIN DRAINAGE WITHIN THE SITE TO BE 110mm UPVC UNLESS OTHERWISE NOTED

DROP MANHOLE CONNECTION TO EXISTING ANGLIAN WATER MANHOLE IN BRIGG ROAD TO BE UNDERTAKEN IN 150 DIA. HEPWORTH HEPSEAL OR EQUIVALENT AGREED

ALL WORKS TO ROAD CROSSING TO BE UNDERTAKEN BY LICENCED CONTRACTOR & TO THE SATISFACTION OF ANGLIAN WATER, NLG ROADS AUTHORITY & BCO.

**TRENCH WIDTHS**

DIA. OF DRAIN	WIDTH
100	550
150	600
225	700
300	750
375	1050
750	1500

**GRANULAR MATERIAL**

DIA. OF DRAIN	AGGREGATE
100	10mm SINGLE SIZE
150	10 OR 14mm SINGLE SIZE 14-5mm GRADED
150-300	10, 14 OR 20mm SINGLE SIZE OR 20-5mm GRADED
OVER 300	10, 14, 20 OR 40mm SINGLE SIZE OR 40-5mm GRADED

DIRECTORATE OF ENVIRONMENT & PUBLIC PROTECTION  
DEVELOPMENT CONTROL SECTION  
11 NOV 2003  
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**NOTES**

- Drainage Notes.**
- The base specification for drainage works shall be the Water Authorities Association 'Sewers for Adoption' (Latest Edition).
  - This drawing is to be read in conjunction with all other relevant Engineers and Architects Details.
  - All external building and car park drainage to be constructed in accordance with BS5931 - Code of Practice and Part H of the Building Regulations (Latest Edition).
  - The following pipe strengths shall be adopted unless noted otherwise:-  
Pipes up to and including 150mm dia to be 28kN/m strength to BS EN285 -1  
Pipes between 225 - 300mm dia to be class 160 to BS EN285 -1  
Pipes above 300mm dia to be class M concrete.

- All pipe runs to be laid with Flex-Joints.
- All pipes entering and exiting manholes are to be connected with pipe soffits level unless shown otherwise.
- Bedding and backing to be as follows:-

Location	Cover to Soffit	Bedding
Roads	>1.2m	Class 5 granular bed and surround. Concrete surround.
Non-adoptable sewers below car parking.	<1.2m	Concrete surround.
	>0.9m	Class 5 granular bed and surround. Concrete surround.
Hard and soft landscaping.	>0.6m	Class 5 granular bed and surround.
	<0.6m	Concrete surround or under slatted path

8) The following concrete mixes are to be used (all in accordance with BS5920) -

Location	Mix Reference	Details (where applicable)
Concrete surround to pipes.	ST4	
Concrete base and surround to manholes.	ST4	

The above concrete mixes have been selected for BRE 365 Class 1 Sulphates.

- All precast concrete products (ie pipes, manholes, rings etc.) shall be of suitable concrete mix to cater for Class 1 sulphates.
- Pre-formed channels are to be used at manholes.
- Granolithic concrete benching to be steel trowelled to a dense smooth face neatly shaped and finished to all branch connections and laid in accordance with the specification.
- All dimensions are in millimetres unless noted otherwise.
- Pipe bends to suit direction of flow.
- Manhole covers and frames to be ductile iron heavy duty grade D400 double triangular to BS EN124 and are to be Grade A standard in vehicular trafficked areas.
- Manhole covers and frames to be ductile iron medium duty grade B125 circular or rectangular to BS EN124 positions outside vehicular trafficked areas.
- First flexible joint in pipes adjacent to a manhole shall be a maximum of 600mm from inside face of manhole, connecting to rocker pipe.  
The minimum length of rocker pipe is as follows:-  
Pipe Diameter: Length of Rocker pipe.  
150mm-450mm: 500mm-750mm  
450mm-675mm: 750mm-1000mm
- Manholes with outgoing pipes greater than 600mm dia shall be fitted with guard bars, safety chains or other safety devices.

Date	Drawn	Revision

**C. R. Parrott Consultants Limited**  
Prince House, Queensway Court,  
Arkwright Way, Southorpe, DN16 1AL  
Consulting Engineers  
Project Management

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**PROPOSED DRAINAGE LAYOUT at MANOR RISE DEVELOPMENT, WRAMBY, By BRIGG by BALMER HOMES**

**GENERAL DETAILS**

Drawn: Mike Upton	Date: 10.04.03	Scale: AS SHOWN
Checked:	Drawing No. 4486-11	Revision:
Approved:		

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EXAM (9500C)

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E		
D		
C	10.04.03	Mike Upton RAINWATER RELIEF FOR ADJ. PROPERTY & HHS CHANGED ON PLOT 3 FW
B	04.04.03	Mike Upton RAINWATER & GULLY POSITIONS ADDED
A	04.04.03	Mike Upton ISSUE FOR APPROVAL
	Date	Drawn
		Revision

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 Arkwright Way, Scunthorpe, DN16 1AL  
 Consulting Engineers  
 Project Management  
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Proposed Drainage Layout at  
 Manor Rise Development at Wraaby  
 by Balmer Homes

FOUL LAYOUT (& SM POSITIONS)

Drawn: Mike Upton	Date: 01.04.03	Scale: 1:125
Checked:	Drawing No. 4486-10	Revision: C
Approved:		