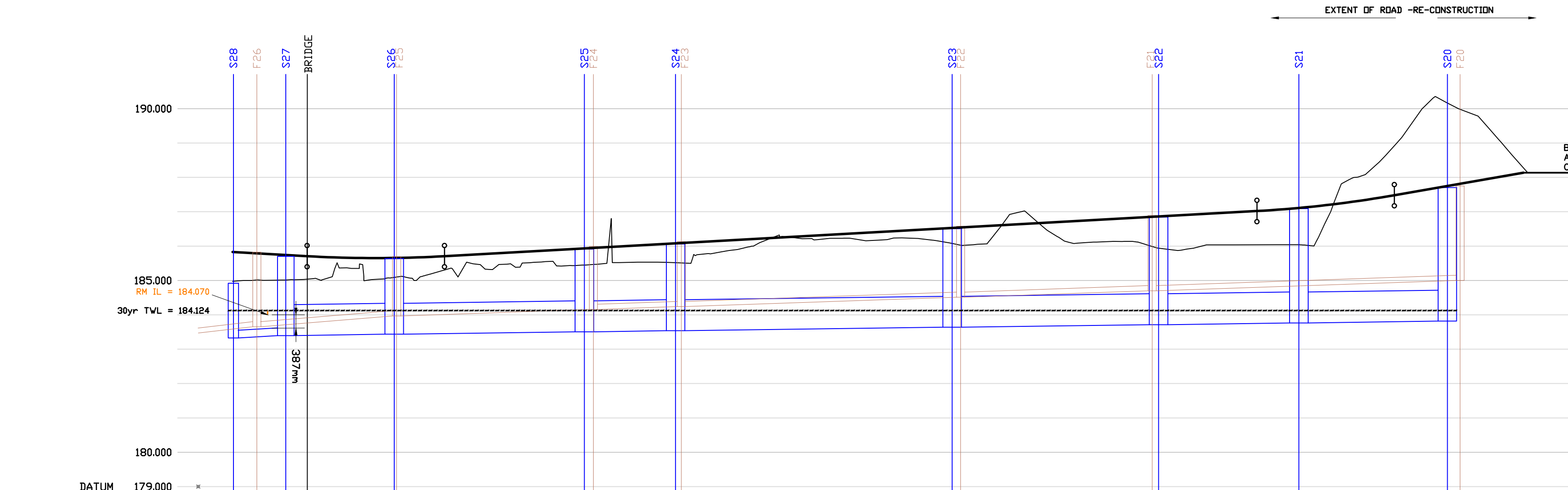
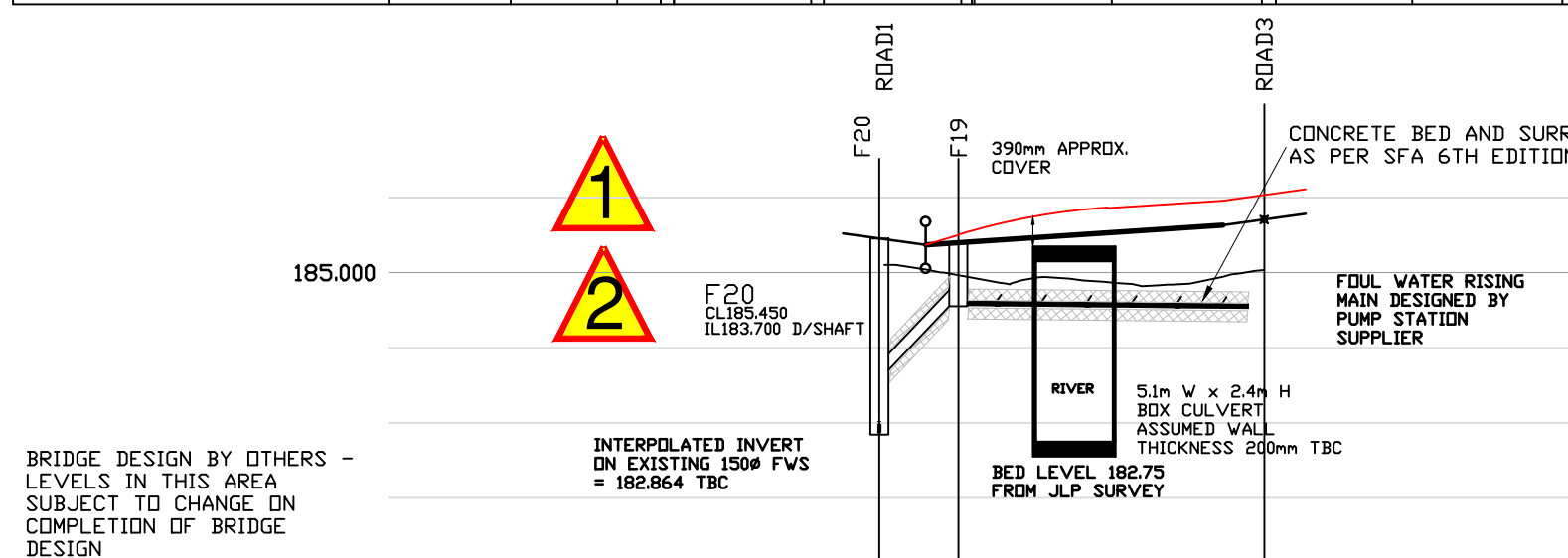


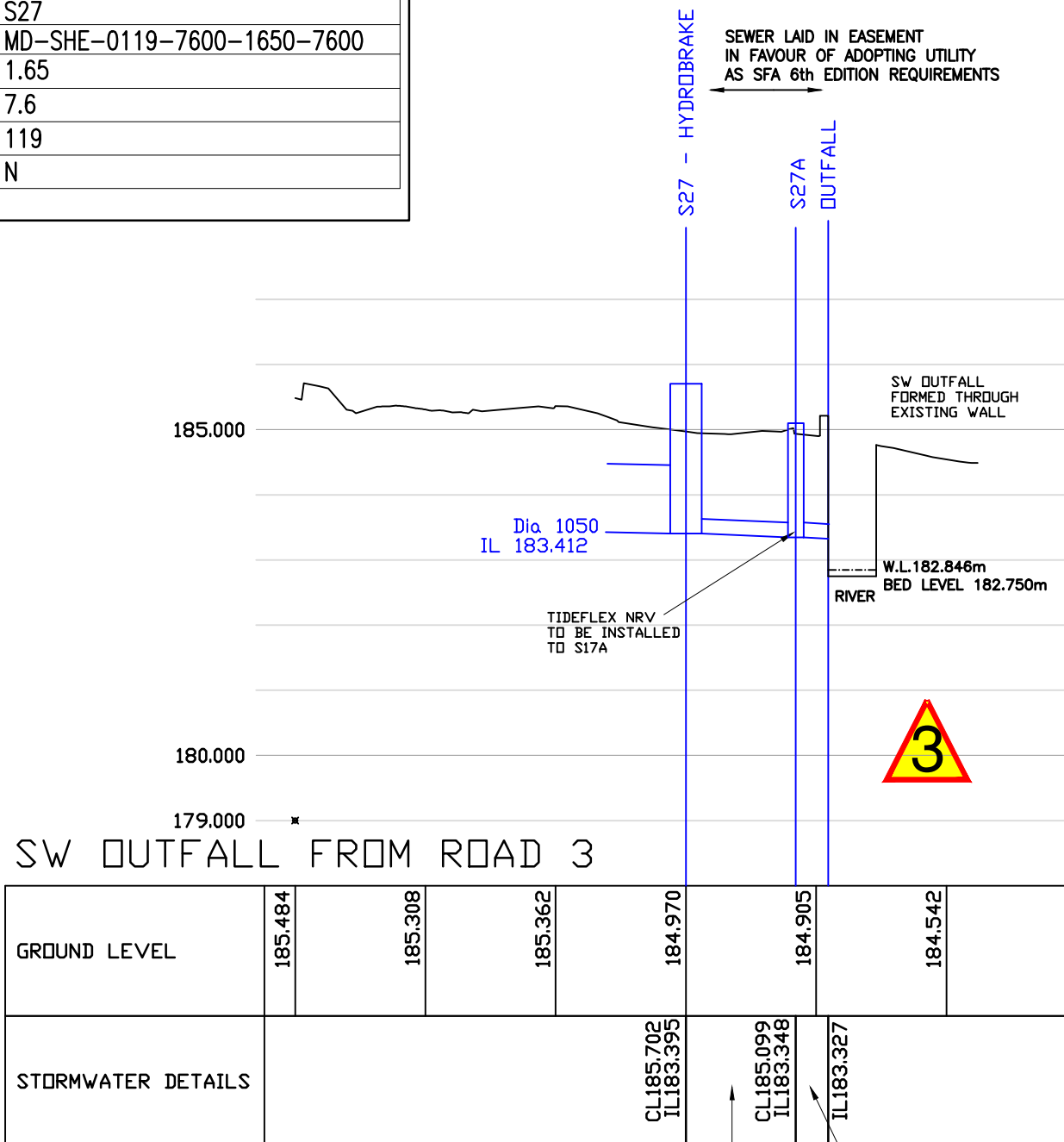


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EXISTING GROUND LEVEL	185.105	185.368	185.465	185.598	185.632	185.037
ALIGNMENT LEVEL						
VERTICAL ALIGNMENT			G= 1.333% 1: 75.0			
HORIZONTAL ALIGNMENT						
FOUL WATER DETAILS						
CHAINAGE	0.000	2.750	10.000	20.000	25.281	

HYDROBRAKE DETAILS	
MH. No.	S27
TYPE	MD-SHE-0119-7600-1650-7600
DESIGN HEAD (m)	1.65
MAX. FLOW (litres/sec)	7.6
ORIFICE DIA. (mm)	119
SURCHARGED OUTFALL PIPE	N



CIVILS DESIGN RISK MANAGEMENT

Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:-



EXISTING SERVICES



WORKING ON EXISTING HIGHWAY ACCESS ROAD RISK TO EXISTING SITE WORKERS / PUBLIC



DANGER OF COLLAPSE TO ALL EXCAVATIONS - RISK TO BE ASSESSED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE



DANGER OF ELECTROCUTION FROM OVERHEAD POWER CABLES

REFA Ltd has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing. Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type

SECTION 104 NOTES

- All adoptable sewer works have been designed and are to be constructed in accordance with "Sewers for Adoption, 6th Edition".
- All clay pipe work shall be Extra Strength Clayware to BS EN 295:1991 Part 1
- All precast concrete pipework shall be to the class stated on the drawings in accordance with BS EN 1916:2002. All manholes and chambers shall be to BS EN 1917:2002
- The Contractor may elect to use reinforced PVC pipes as covered by BS 4660:2000 & BS EN 1401-1-1. Structured wall upvc pipes to comply with wis 4-35-01 up to and including 300mm.(By prior agreement with adopting authority) MAX. PIPE LENGTH TO BE 3.0m
- All levels relate to an Ordnance Datum.
- This drawing is to be read in conjunction with all other relevant drawings.
- House drainage connections to sewers must be 150mm ϕ and unless otherwise stated laid to the dropout invert level shown.
- Levels given on drag out chambers are incoming pipe levels.
- House drainage runs to be kept within the curtilage of the plot they serve wherever possible.
- The Contractor shall be responsible for ensuring that any existing invert levels indicated on drawings are correct before work commences.
- The Contractor should satisfy himself as to the position and depth of any existing Statutory Undertakers plant which could effect the works before the works are commenced.
- Road gully connections are to be 150mm ϕ connecting either directly to manholes shown, or to sewer runs using pre-formed junctions.
- All connections to adoptable sewers shall be by manufactured junction pipes. Saddle connections will not be permitted.
- All sewers for adoption with greater than 1.20 metres cover in roads or 0.9m metres cover in fields shall have Class S granular bed and surround.
- Any sewer for adoption with less than 1.2 metres cover in roads or 0.9 metres cover in fields shall have a minimum of 150mm ST4 concrete surround. Flexibility shall be maintained by the provision of flexcell or similar approved joint filler breaks in the concrete surround at each pipe joints
- Pumping Station to be designed and constructed in accordance with Sewers for Adoption 7th Edition with United Utilities Pumping Station Addendum

ALL PIPES TO HAVE CLASS "S" BED AND SURROUND UNLESS SHOWN OTHERWISE
ALL CONCRETE PIPES TO BE CLASS 120
ALL CLAY PIPES TO BE EXTRA STRENGTH VITRIFIED CLAY
ALL UPVC PIPES TO COMPLY WITH BS 4660:2000 & BS EN 1401-1-1
STRUCTURED WALL UPVC PIPES TO COMPLY WITH WIS 4-35-01
MAX. PIPE LENGTH TO BE 3.0m

FOUNDATIONS TO BE DESIGNED / CONSTRUCTED TO TAKE INTO ACCOUNT THE PROXIMITY AND DEPTH OF ADJACENT SEWERS AND DRAINS IN ACCORDANCE WITH SFA 7TH EDITION PART B

CONTRACTOR TO BE AWARE OF AND TAKE APPROPRIATE ACTION TO ENSURE DE-STABILISATION OF ANY EXISTING STRUCTURES, TREES, EMBANKMENTS OR OTHER FEATURES DOES NOT OCCUR AS A RESULT OF ANY EXCAVATIONS WORKS UNDERTAKEN IN ACCORDANCE WITH THE DESIGNS SHOWN ON THIS DRAWING IF CONTRACTOR IS UNSURE ABOUT ANY ASPECT OF THE ABOVE HE SHOULD SEEK ADVICE BEFORE COMMENCING EXCAVATION WORK.

ALL EXISTING SERVICES TO BE LOCATED AT COMMENCEMENT IN ACCORDANCE WITH UNDERTAKERS REQUIREMENTS AND PROTECTED ACCORDINGLY DURING THE WORKS

ALL EXISTING MANHOLE INVERT LEVELS ARE TO BE LOCATED AND SURVEYED PRIOR TO START ON SITE TO ENSURE THAT THEY ARE CORRECT AND ALSO TO ENSURE THAT LEVEL CLASHES ARE AVOIDED AND THAT INTERPOLATED INVERT LEVELS ARE CORRECT. ANY DISCREPANCY TO BE REPORTED TO REFA PRIOR TO START TO ENABLE ANY CHANGES TO BE MADE TO DESIGN THAT PROVE NECESSARY

TO CATER FOR ANY DEVIATIONS IN THE AS CONSTRUCTED ROAD / FOOTPATH LEVELS IN RELATION TO THE DESIGN LEVELS. THE PROPOSED FLOOR LEVELS SHOWN MUST BE CHECKED ON SITE BY THE SITE AGENT OR ENGINEER IN RELATION TO AS BUILT ROAD LEVELS TO ENSURE COMPLIANCE WITH PART M OF THE BUILDING REGULATIONS

ALL ROAD GULLY CONNECTIONS TO BE 150mm ϕ

CONTRACTOR/CLIENT SHOULD NOTE THE EXISTENCE OF EXISTING BURIED PLANT AND OR OVERHEAD POWER CABLE(S) BEFORE WORK COMMENCES CONTRACTOR MUST UNDERTAKE RISK ASSESSMENT AND PROVIDE METHOD STATEMENT FOR WORKING IN THIS AREA IN ACCORDANCE WITH HSE AND POWER SUPPLIERS GUIDELINES TO SATISFACTION OF THE PRINCIPLE DESIGNER

GENERAL

- All adoptable sewers and associated works are to comply fully with "Sewers for Adoption" 6th Edition
- All highway works to be to adoptable standards and to comply fully with the Local Authority specification.
- All private drainage works are to comply fully with part H of the Building Regulations
- All existing invert levels to be checked by the Contractor at the start of works and any discrepancies notified to REFA. All levels are based on topographical survey information provided by others.
- All materials to bear the relevant B.S.Kitemark and comply fully with the specifications. All concrete & concrete products must use Sulphate resistant cement (unless the site investigation report proves that sulphate attack from soils and groundwater will not occur)
- All opening notices etc. as required under highways acts etc. are to be obtained prior to commencement of works. All works are to be inspected by LA, NHBC or Relevant Water Authority as applicable.

C.D.M. REGULATIONS 2015

In line with the above regulations we are obliged to inform the Client of their responsibilities under section CDM 15/1, and residual risks that may be encountered in the construction of these works. All design work has been carried out with Health and Safety aspects given full consideration. Wherever possible risks have been eliminated from the design, however due to the very nature of this type of work it is not possible to remove all the risks from the design. We would also respectfully remind the Client of his obligations to take all reasonable steps in ensuring that only competent Contractors who have a valid safety policy are employed. They should also provide satisfactory responses at tender stage as to the manner in which they will deal with the elements of risk involved in this type of work and in particular those highlighted by REFA below:-

- Support / treatment for ALL excavation work.
- Guarding to edges of excavations to prevent people, materials and vehicles falling into excavation.
- Guarding of excavations outside working hours to prevent unauthorised access.
- Undermining to adjacent roads or structures.
- Confined space operations.
- Dealing with existing services.
- Traffic management on existing highways.
- Procedure to be followed in event of accident or emergency.
- Method of working where contaminated ground is present on site.
- Confirmation will be required that all operatives are adequately trained, copies of relevant training certificates to be supplied.

The above list is by no means exhaustive but it does highlight operations that present a risk to contractors and the general public.

For clarification on any item please contact REFA.

Rev	Revision details	RevBy	Date
L	ROAD 3 UPDATED TO PLANNING LAYOUT REV Y	RW	03/03/20
K	BRIDGE LEVELS REVISED FOR CLIENT	FT	20.12.21
J	UPDATED TO LATEST LAYOUT AND FIXED BRIDGE LEVEL	FT	20.05.21
I	REVISED LAYOUT DUE TO PLOTS 108-109 MOVED	AS	24.01.20
H	REVISED TO LATEST ARCHITECTS LAYOUT	JAR	11.08.19
G	BED DETAILS ADDED	JAR	10.07.19
F	REVISED TO S104 COMMENTS	JAR	24.05.19
E	FURTHER REVISION BACK TO LAYOUT REV G	JAR	20.05.19
D	REVERTED TO LAYOUT REV G	JAR	24.04.19
C	DRAINAGE REDESIGN	JAR	20.05.19
B	REVISED TO LATEST ARCHITECTS LAYOUT	JAR	24.03.19
A	ADDITIONAL ROAD ADDED	GWH	16.11.18

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Drawing Stage	Drawing Status
● Draft	● Tender
● Issued	● Construction
● Approval	● As Built

Client
WAINHOMES LIMITED

Job title
FORGE ROAD CHINLEY PHASE 2

Drawing title
LONG SECTIONS DRG 2

REFA CONSULTING ENGINEERS CIVIL • STRUCTURAL GEOTECHNICAL • ENVIRONMENTAL			45 Bridgeman Terrace Wigan, Lancs WN1 1TT Tel: (01942) 826020 Fax: (01942) 230816
Date 10.1.18	Scale 1/500H & 1/100V	Drawn GWH	
DRAWING No 17103/12/3	Rev L		
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