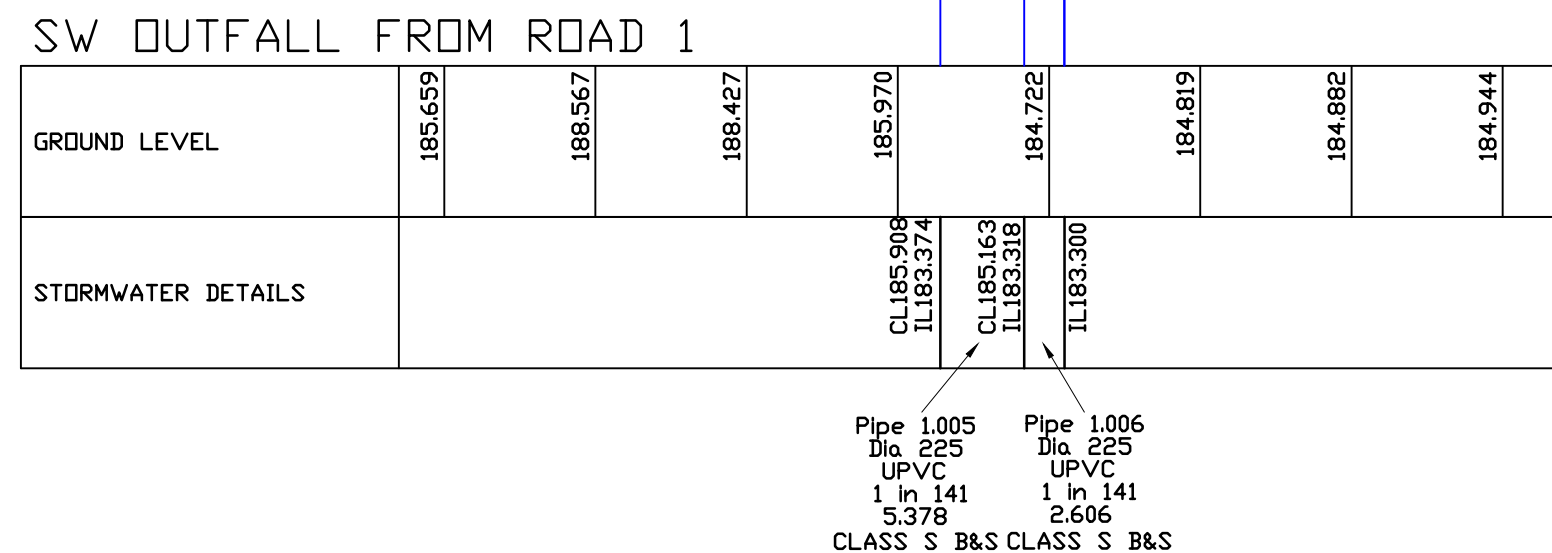
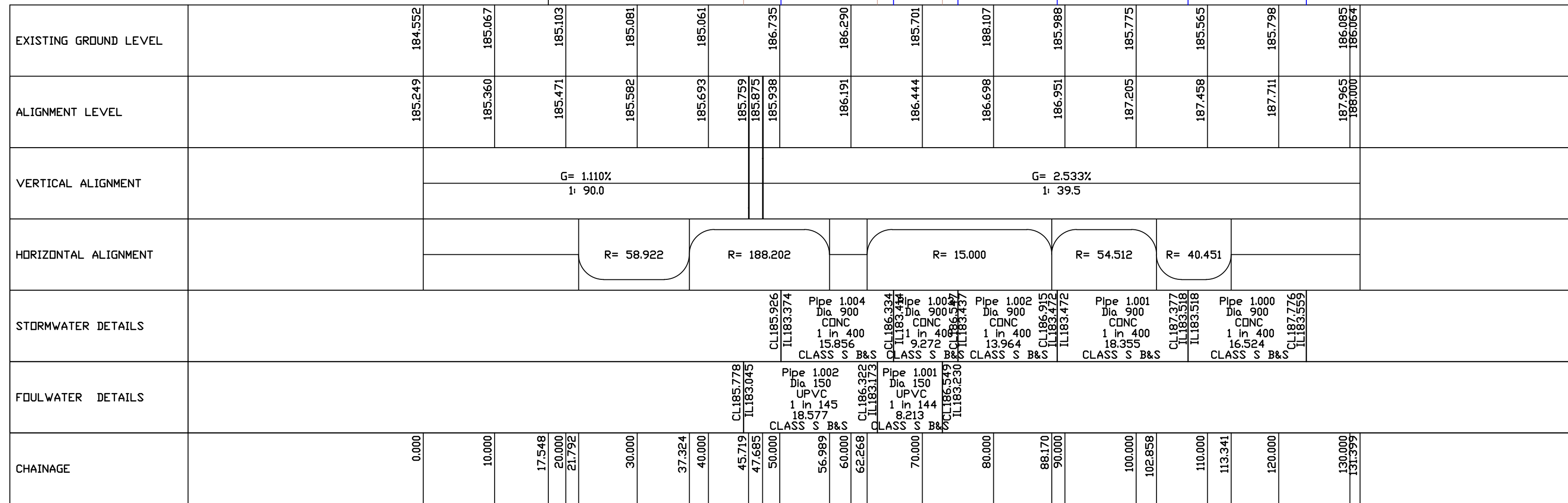
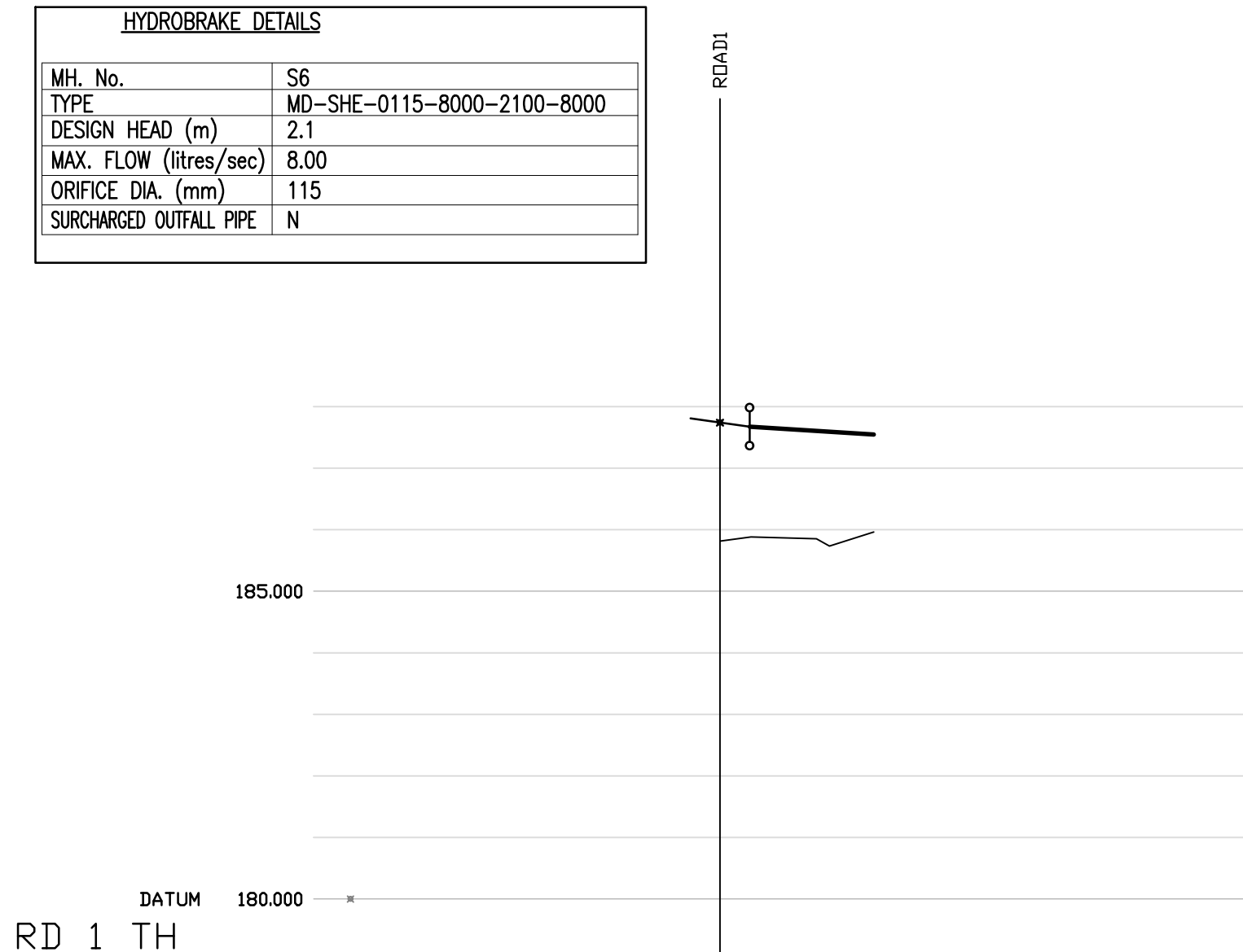




<u>HYDROBRAKE DETAILS</u>	
MH. No.	S6
TYPE	MD-SHE-0115-8000-2100-8000
DESIGN HEAD (m)	2.1
MAX. FLOW (litres/sec)	8.00
ORIFICE DIA. (mm)	115
SURCHARGED OUTFALL PIPE	N



EXISTING GROUND LEVEL	185.616		
ALIGNMENT LEVEL	187.672	187.578	185.605
		187.547	185.963
VERTICAL ALIGNMENT		G= -1.250%	
		1' -80.0	
HORIZONTAL ALIGNMENT			
CHAINAGE	0.000	2.400	10.000
			12.469

SECTION 104 NOTES

1. All adoptable sewer works have been designed and are to be constructed in accordance with "Sewers for Adoption, 6th Edition"
2. All clay pipe work shall be Extra Strength Clayware to B.S. EN 295:1981 Part 1
3. All precast concrete pipework shall be to the class stated on the drawings in accordance with BS EN 1916:2002.
4. All manholes and chambers shall be to BS EN 1917:2002
5. The Contractor may elect to use reinforced PVC pipes as covered by BS 4660:2000 & BS EN 1401-1
6. Structured wall upvc pipes to comply with w-4 3-35-01 up to and including 300mm (By prior agreement with adopting authority)
7. MAX. PIPE LENGTH to be 3.0m
8. All levels relate to an Ordnance Datum.
9. This drawing is to be read in conjunction with all other relevant drawings.
10. House drainage connections to sewers must be 150mm Ø and unless otherwise stated laid to the droagout invert level shown.
11. Levels given on drag out chambers are incoming pipe levels.
12. House drainage runs to be kept within the curtilage of the plot they serve wherever possible.
13. The Contractor shall be responsible for ensuring that any existing invert levels shown on drawings are correct before work commences.
14. 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.
15. Road gully connections are to be 150mm Ø connecting either directly to manholes shown, or to sewer runs using pre-formed junctions.
16. All connections to adoptable sewers shall be by manufactured junction pipes. Saddle connections will not be permitted.
17. 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.
18. 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
19. 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
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 SEA 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
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 DRAGOUT CONNECTIONS
FROM MAIN SEWER MANHOLES
TO FIRST INSPECTION CHAMBER
TO BE 150mm Ø UNLESS
INDICATED OTHERWISE

ALL ROAD GULLY
CONNECTIONS TO
BE 150mm Ø

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

1. All adoptable sewers and associated works are to comply fully with 'Sewers for Adoption' 6th Edition.
2. All highway works to be to adoptable standards and to comply fully with the Local Authority specification.
3. All private drainage works are to comply fully with the current British Standards Regulations.
4. 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.
5. All materials to bear the relevant B.S.kitemark and comply fully with the specifications.
All concrete and concrete products must use Sulphate resistant cement (unless the site investigation report proves that sulphate attack from soils and groundwater will not occur)
6. 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. We have taken the necessary steps to ensure that 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 also explicitly 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 REF4 below:-

1. Supporting / treatment for ALL excavation work.
 2. Guarding to edges of excavations to prevent people/materials and vehicles falling into excavation.
 3. Guarding of excavations outside working hours to prevent unauthorised access.
 4. Undermining to adjacent roads or structures.
 5. Confined space operations.
 6. Dealing with existing services.
 7. Traffic management on existing highways.
 8. Procedure to be followed in event of accident or emergency.
 9. Method of working where contaminated ground is present on site.
 10. 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.

Client

**WAINHOMES
LIMITED**

Job title

**FORGE ROAD
CHINLEY PHASE 2**

Drawing title

LONG SECTIONS

DRG 1

REFA

CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Date 10.1.18	Scale 1/500H & 1/100V	Drawn GWH
DRAWING No	17103/12/2	Rev G

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