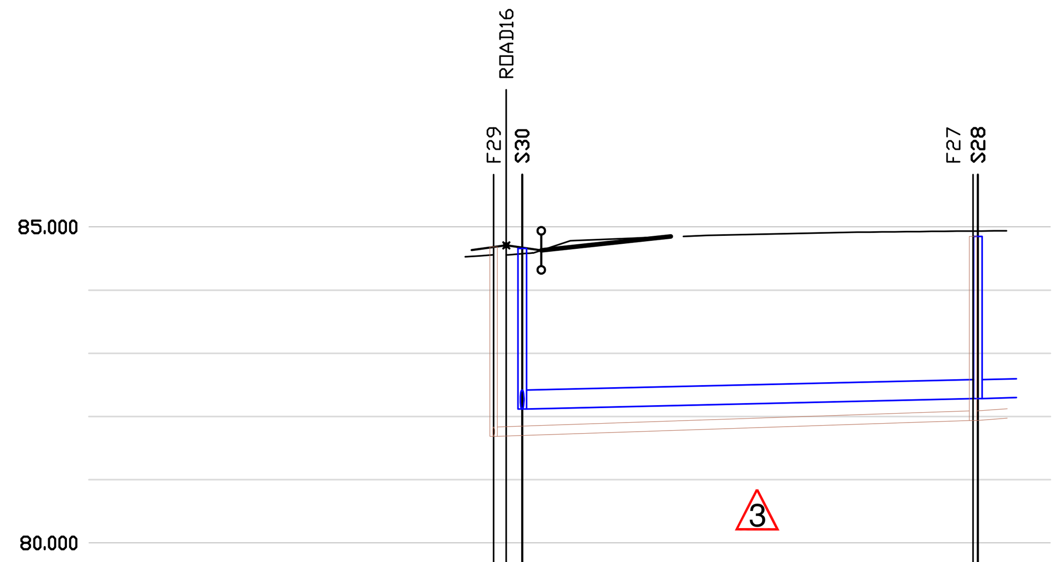
ROAD16A



CHAINAGE	EXISTING GROUND LEVEL	ALIGNMENT LEVEL
0.000	84.555	
2.754		84.630
10.000	84.823	84.784
13.010	84.848	84.848

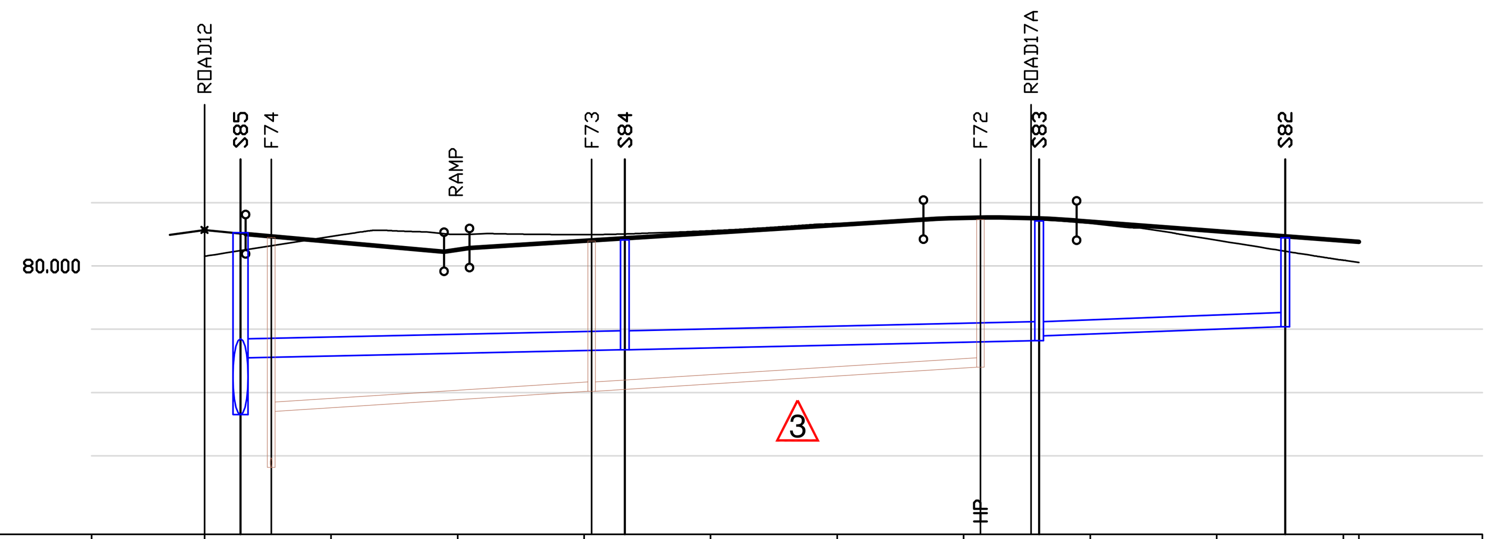
VERTICAL ALIGNMENT: G= 2.130% 1: 46.9

HORIZONTAL ALIGNMENT

STORMWATER DETAILS: CL 84.657 IL 82.120 — Pipe 4.003 Dia 300 Circular UPVC 1 in 220 36.041 — CL 84.850 IL 82.284

FOULWATER DETAILS: CL 84.682 IL 81.685 — Pipe 4.002 Dia 150 Circular UPVC 1 in 150 37.909 — CL 84.850 IL 81.938

ROAD17



CHAINAGE	EXISTING GROUND LEVEL	ALIGNMENT LEVEL
0.000	80.154	
3.247		80.503
10.000	80.466	80.383
18.939		80.225
20.000	80.500	
20.939		80.285
30.000	80.495	80.398
40.000	80.557	80.523
50.000	80.670	80.648
56.819		80.733
59.523	80.757	80.761
60.000		
62.324		80.768
65.321		
68.931		80.718
70.000	80.673	
72.680		80.702
80.000	80.408	80.552
90.000	80.092	80.402
91.244	80.054	80.383

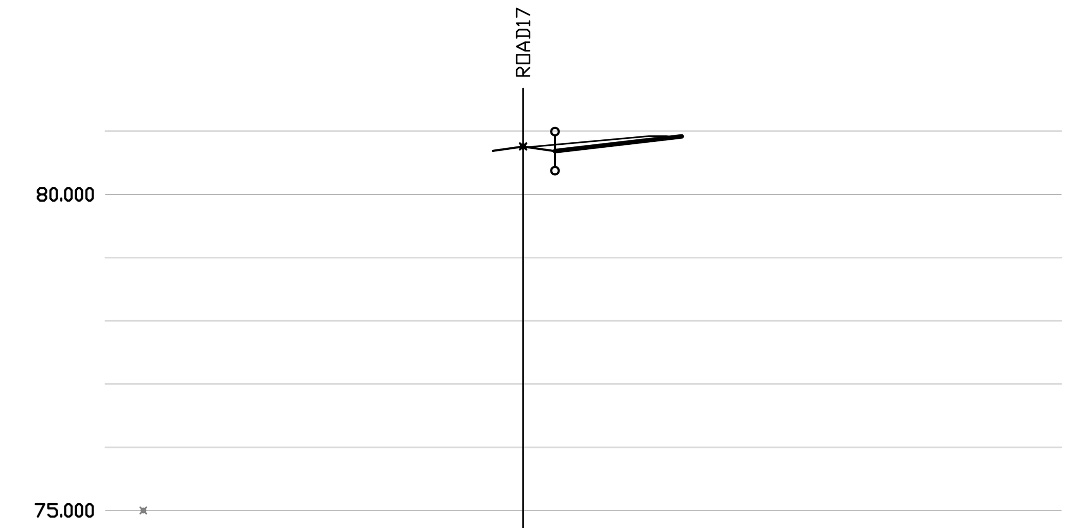
VERTICAL ALIGNMENT: G= -1.776% 1: -56.3 — G= 1.250% 1: 80.0 — L= 12.112 R= -440.451 — G= -1.500% 1: -66.7

HORIZONTAL ALIGNMENT: R= 8.400

STORMWATER DETAILS: CL 80.525 IL 78.550 — Pipe 15.002 Dia 300 Circular UPVC 1 in 240 30.380 — CL 80.412 IL 78.677 IL 78.677 — Pipe 15.001 Dia 300 Circular UPVC 1 in 240 34.840 — CL 80.714 IL 78.822 IL 78.897 — Pipe 15.000 Dia 225 Circular UPVC 1 in 151 21.559 — CL 80.445 IL 79.040

FOULWATER DETAILS: CL 80.450 IL 77.702 — Pipe 14.001 Dia 150 Circular UPVC 1 in 80 25.330 — CL 80.395 IL 78.019 IL 78.019 — Pipe 14.000 Dia 150 Circular UPVC 1 in 80 30.486 — CL 80.735 IL 78.400

ROAD17A

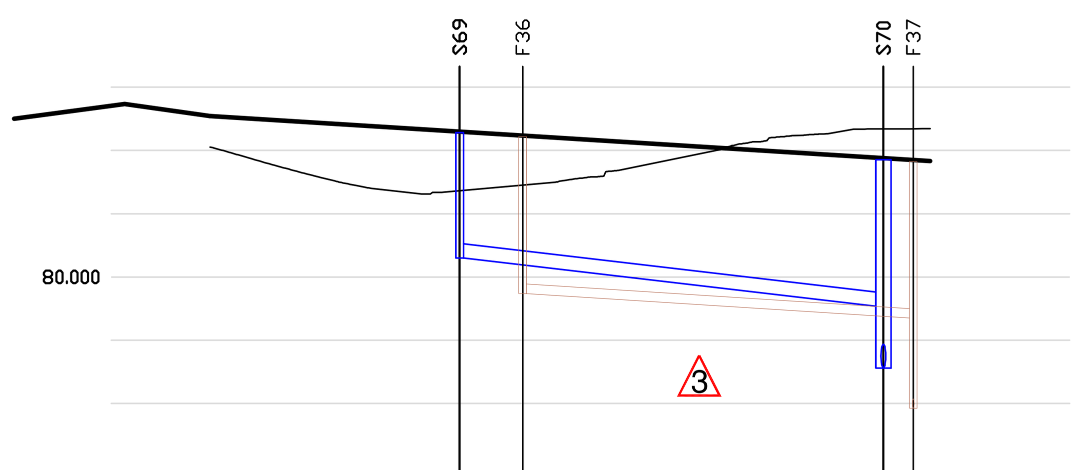


CHAINAGE	EXISTING GROUND LEVEL	ALIGNMENT LEVEL
0.000	80.742	
2.520		80.685
10.000	80.922	80.858
12.527	80.916	80.916

VERTICAL ALIGNMENT: G= 2.300% 1: 43.5

HORIZONTAL ALIGNMENT

ROAD18



CHAINAGE	EXISTING GROUND LEVEL	ALIGNMENT LEVEL
0.000	82.054	82.545
10.000	81.511	82.420
20.000	81.367	82.295
30.000	81.579	82.170
40.000	82.001	82.045
50.000	82.306	81.920
56.930	82.345	81.833

VERTICAL ALIGNMENT: G= -1.250% 1: -80.0

HORIZONTAL ALIGNMENT

STORMWATER DETAILS: CL 82.279 IL 80.300 — Pipe 12.000 Dia 225 Circular UPVC 1 in 44 33.506 — CL 81.855 IL 79.537

FOULWATER DETAILS: CL 82.218 IL 79.738 — Pipe 7.000 Dia 150 Circular UPVC 1 in 80 30.894 — CL 81.824 IL 79.352

HYDROBRAKE DETAILS

MH. No.	S70
TYPE	MD-SHE-0301-5500-1500-5500
DESIGN HEAD (m)	1.50
MAX. FLOW (litres/sec)	55.00
ORIFICE DIA. (mm)	301
SURCHARGED OUTFALL PIPE	NO

PLEASE NOTE THAT THIS DRAWING IS ISSUED FOR INFORMATION/TENDER PURPOSES ONLY UNTIL TECHNICAL APPROVAL HAS BEEN GRANTED. ANY WORK UNDERTAKEN PRIOR TO TECHNICAL APPROVAL BEING GRANTED IS AT THE CLIENTS RISK.

GENERAL

1. All adoptable sewers and associated works are to comply fully with "Sewers for Adoption" 7th.Edition dated August 2012.
2. All highway works to be to adoptable standards and to to comply fully with the Local Authority specification.
3. All private drainage works are to comply fully with part H of the Building 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 & 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 L.A., 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:-

1. Support / 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.

Note 1- SFA 7th Footnote

The Developer must self-vet and certify that the design criteria, material standards and workmanship specifications for the proposed adoptable sewers are in accordance with those set out in "Sewers for Adoption" 7th Edition and the requirements of DCWW as the Statutory Sewerage Undertaker, and the Welsh Ministers Build Standards.

Note 2 - Connection

"A Section 106 application to connect to adopted sewers must be made to DCWW, the developer shall give 21 days notice prior to connection, the works may only be undertaken by a DCWW Health & Safety approved contractor."

Note - 3 Materials

All materials are to comply fully with the requirements of clause "E" in Sewers for Adoption 7th Edition, of which the contractor must fully acquaint himself with to ensure compliance.

SCALE IN METRES 0 5 10 20 50

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

CIVILS DESIGN RISK MANAGEMENT

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

1. EXISTING SERVICES
2. WORKING ON EXISTING HIGHWAY WORKING IN AREAS WHERE MEMBERS OF THE PUBLIC HAVE ACCESS
3. DANGER OF COLLAPSE TO ALL EXCAVATIONS - RISK TO BE ASSESSED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE

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

THE OFF SITE SEWER CONNECTIONS HAVE BEEN DESIGNED TO TIE IN WITH THE EXISTING SEWERS AND WHILST IT IS ANTICIPATED NO CLASHES WITH EXISTING SERVICES WILL OCCUR DUE TO THE INHERENT INACCURACIES IN DEPTHS OF EXISTING SERVICES THIS CANNOT BE GUARANTEED.

REFA WOULD ADVISE THE CLIENT TO EMPLOY A SUITABLY EXPERIENCED COMPANY TO UNDERTAKE A SURVEY ALONG THE ROUTE OF THE CONNECTIONS TO ASCERTAIN THE EXISTENCE AND PROXIMITY OF ANY SERVICES AND ADVISE REFA OF ANY POTENTIAL CLASHES TO ASCERTAIN IF DESIGN CHANGES CAN BE MADE.

DUE TO THE NEED FOR OFF SITE SEWER WORKS IT IS STRONGLY ADVISED THAT THESE ARE CONSTRUCTED PRIOR TO ANY WORKS ON SITE TO ALLOW DESIGN CHANGES ON SITE TO BE MADE IN THE EVENT THAT THE OFF SITE DESIGNS REQUIRE REVISION. REFA WILL NOT BE HELD RESPONSIBLE FOR ANY ABORTIVE WORKS IF THIS PROCEDURE IS NOT FOLLOWED

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

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 STORAGE MANHOLES ON THE TANK SEWER WILL NEED TO BE CONCRETE SURROUNDED AS THEY ARE WATER RETAINING.

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

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

BENCH MARK INFORMATION

HORIZONTAL AND VERTICAL CONTROL ESTABLISHED USING SMARTNET GPS NETWORK AND OSGB36(02) COORDINATE SYSTEM

rev	Revision details	Rev.By	Date
A	TD PLANNING REV P	GWH	28.8.18

smas worksafe consultant www.smasltd.com SSIP SAFETY SCHEMES IN PROCUREMENT

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

Client
ANWYL HOMES
BELLWAY HOMES

Job title
GRESFORD ROAD
LLAY, WREXHAM

Drawing title
ROAD AND MAIN
LONG SECTIONS DRG 6

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CONSULTING ENGINEERS
CIVIL• STRUCTURAL
GEOTECHNICAL• ENVIRONMENTAL

Date	Scale	Drawn
12.2.18	1/500H &1/100V	GWH

DRAWING No 17040/08/13 Rev A

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A1 SHEET