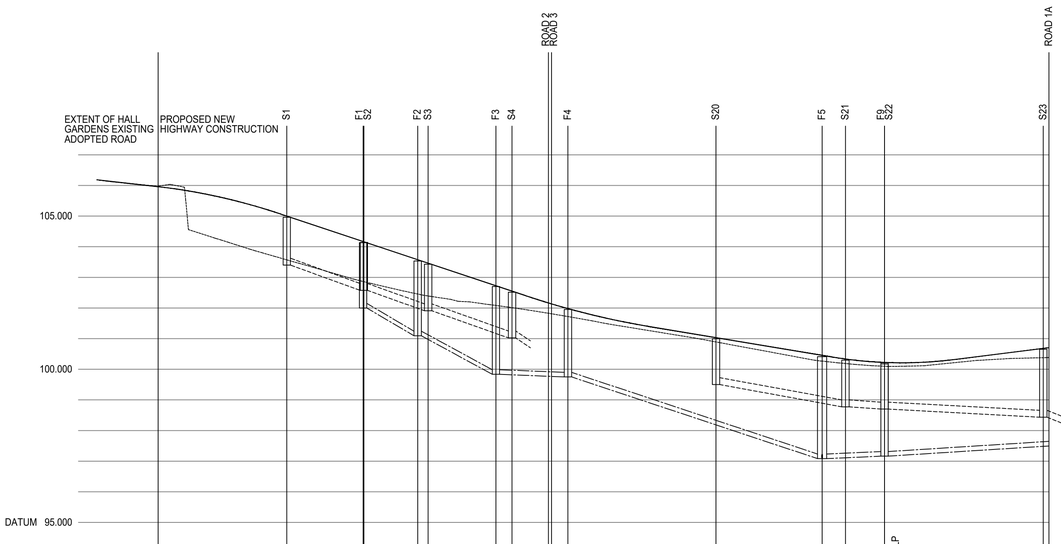
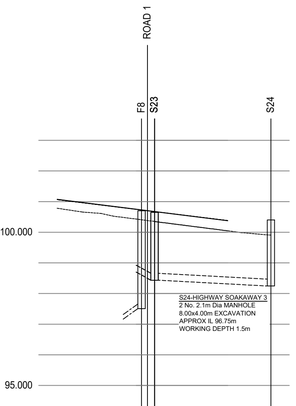


ROAD 1

CHAINAGE	-10.000	-0.000	5.000	9.130	10.000	14.969	15.000	20.000	25.109	30.000	33.463	33.566	40.000	42.380	42.480	50.000	53.978	55.191	57.776	60.000	63.225	64.424	65.000	66.800	70.000	70.191	75.000	80.000	90.000	91.073	100.000	108.255	108.460	110.000	115.000	118.594	120.000	120.201	121.999	125.000	130.000	140.000	144.992	145.427
EXISTING GROUND LEVEL	106.186	105.960		104.236				103.629		103.055			102.557			102.206				101.947						101.611		101.267		100.932		100.560		100.231				100.091			100.215		100.356		100.382
ALIGNMENT LEVEL	106.186	105.960	105.820	105.624			105.374	105.068		104.401			103.735			103.088				102.401		102.089				101.818		101.589	101.401		101.068		100.735	100.401		100.271	100.214	100.211 100.229			100.318		100.568		100.704
VERTICAL ALIGNMENT		G= -2.255% 1: -44.3	L= 20.000 KF= -4.53342				G= -6.667% 1: -15.0															KF= 6.0 L= 20.000						G= -3.333% 1: -30.0							KF= 3.42857 L= 20.000					G= 2.500% 1: 40.0			
HORIZONTAL ALIGNMENT				R= 80.000		R= 25.000			R= 25.000						R= 24.000																						R= 8.750							
STORMWATER COVER LEVEL																					104.963										104.139			104.429					102.517					100.997					100.297		100.175			100.651		
STORMWATER INVERT																					103.400						102.573		102.573			101.910		101.910			101.024					99.500					98.775		98.700			98.435		
STORMWATER DETAILS																					Pipe 1.000 Dia 225 Circular CLAY 1 in 15						Pipe 1.001 Dia 225 Circular CLAY 1 in 15					Pipe 1.002 Dia 225 Circular CLAY 1 in 15										Pipe 1.000 Dia 225 Circular CLAY 1 in 30					Pipe 1.001 Dia 225 Circular CLAY 1 in 100			Pipe 1.002 Dia 225 Circular CLAY 1 in 100			
STORMWATER LENGTHS																					12.408						9.952					13.287										21.752					7.470		26.541					
FOULWATER COVER LEVEL																											104.134					103.535			102.703			101.951					100.410					100.213					
FOULWATER INVERT																											102.000		101.093			101.093			99.835			99.835					99.749					97.083		97.164			
FOULWATER DETAILS																											Pipe 1.000 Dia 150 Circular CLAY 1 in 10					Pipe 1.001 Dia 150 Circular CLAY 1 in 10					Pipe 1.002 Dia 150 Circular CLAY 1 in 130										Pipe 1.003 Dia 150 Circular CLAY 1 in 16					Pipe 2.001 Dia 150 Circular CLAY 1 in 130			Pipe 2.000 Dia 150 Circular CLAY 1 in 80			
FOULWATER LENGTHS																											9.418					13.208			11.132										41.354					10.540					27.530		



ROAD 1A

CHAINAGE	0.000		10.000		13.781	14.755	15.000	20.000		27.672		34.900
EXISTING GROUND LEVEL	100.784		100.504		100.347		100.248		100.301	100.046		
ALIGNMENT LEVEL	101.073		100.823				100.573		100.376			
VERTICAL ALIGNMENT			G= -2.500% 1: -40.0									
HORIZONTAL ALIGNMENT												
STORMWATER COVER LEVEL					100.651					100.400		
STORMWATER INVERT							98.435			98.245		
STORMWATER DETAILS							Pipe 1.003 Dia 225 Circular CLAY 1 in 100					
STORMWATER LENGTHS							18.995					
FOULWATER COVER LEVEL					100.704							
FOULWATER INVERT												
FOULWATER DETAILS												
FOULWATER LENGTHS												

RISK ASSESSMENT: SIGNIFICANT RISKS THAT CANNOT BE DESIGNED OUT		
RISK	LEVEL OF RISK (H/M)	SUGGESTED ACTION
DEEP EXCAVATIONS ASSOCIATED WITH NEW DRAINAGE WORKS	HIGH	ENSURE ALL EXCAVATIONS HAVE ADEQUATE TRENCH SUPPORTS
HANDLING LARGE DIAMETER MANHOLE RINGS AND CIRCULAR PIPES	HIGH	USE CORRECT LIFTING EQUIPMENT AND ENSURE OPERATIVES WEAR APPROPRIATE PROTECTIVE CLOTHING/HARD HATS/CORRECT PPE
CONTACT WITH SEWAGE	MED	OPERATIVES TO USE CORRECT BREATHING EQUIPMENT/CORRECT PPE
NOISE	MED	OPERATIVES TO USE CORRECT EAR PROTECTION/CORRECT PPE
DRAINAGE EXCAVATIONS ADJACENT EXISTING BOUNDARY STRUCTURES	HIGH	ENSURE CORRECT SUPPORTS ARE PROVIDED TO TRENCHES AND BUILDINGS WHERE REQUIRED
DRAINAGE EXCAVATION IN PUBLIC HIGHWAY	HIGH	ENSURE CORRECT USE OF TRENCH SUPPORTS IN EXCAVATION AND SCREEN BARRIERS TO PROTECT MEMBERS OF THE PUBLIC.
MAINTAIN ACCESS TO ADJACENT PROPERTIES AND OCCUPIERS	HIGH	ENSURE WORKS ARE PROTECTED WITH BARRIERS AND SIGNS TO GUIDE THE PUBLIC AWAY FROM THE WORKS
DRAINAGE EXCAVATIONS NEAR TO EXISTING SERVICES	HIGH	ENSURE WORKS ARE PROTECTED WITH BARRIERS AND SIGNS TO GUIDE MEMBERS OF THE PUBLIC AWAY FROM THE AREA
WORKING IN CONFINED SPACES. WORKING IN DRAINS AND MANHOLES	HIGH	CONFINED SPACES WORKING TRAINED PERSONNEL ONLY TO CARRY OUT WORKS UNDER A PERMIT TO WORK SCHEME IMPLEMENTED BY CONTRACTOR. GAS TESTING TO TAKE PLACE BEFORE ALL ENTRIES TO CONFINED SPACES.
WORKING IN HIGHWAYS / RISKS FROM VEHICLE AND PLANT	HIGH	ALL WORKS TO BE SIGNED AND FENCED FROM NORMAL VEHICULAR TRAFFIC. ALL WORKERS TO WEAR HIGH VISIBILITY CLOTHING. ALL PLANT TO HAVE VISUAL AND AUDIBLE WARNING SYSTEMS.
ROAD AND DRAINAGE CONSTRUCTION	HIGH	ALL EXCAVATIONS TO BE ADEQUATELY FENCED OFF AND SUPPORTED DURING CONSTRUCTION. ALL OPERATIVES TO BE TRAINED IN CORRECT METHODS OF LIFTING AND WORK IN ACCORDANCE WITH LOLER REGS
IT IS ASSUMED THAT WORKS ASSOCIATED WITH THIS DESIGN WILL BE UNDERTAKEN BY A PERSON OR PERSONS WHO ARE COMPETANT AND HAVE THE REQUIRED LEVEL OF EXPERIENCE AND EXPERTISE		

1. ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH "CODES FOR ADOPTION" ,THE RELEVANT BRITISH/EUROPEAN AND YORKSHIRE WATER'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
2. MANHOLE COVERS SHALL/MUST HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.
3. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
4. YORKSHIRE WATER IS **NOT** OBLIGED TO ACCEPT FILTER DRAINLAND DRAINAGE RUNOFF INTO THE PUBLIC SEWER NETWORK OR ADOPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUNOFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LIAISE WITH THE LOCAL AUTHORITY, LAND DRAINAGE SECTION WITH REGARD TO THE DISPOSAL OF THE FILTER DRAIN/LAND DRAINAGE RUNOFF.
5. COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY YORKSHIRE WATER INSPECTOR. WHERE THE CLEAR OPENING OF THE KITEMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOADING BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 600x600mm FOR THE YORKSHIRE WATER SPECIFIED COVER SIZE. PLEASE REFER TO CONCRETE PIPE SYSTEMS ASSOCIATION (CPSA), 'TECHNICAL BULLETIN' ISSUED AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.
6. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
7. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1m AND MANHOLES 0.5m FROM KERB FACES AND MARGINS.
8. SEWERS MUST HAVE 5m CLEARANCE FROM TREES AND HEDGES (PLEASE ALSO REFER TO FIGURE 2.3 ON PAGE 33 IN "CODES FOR ADOPTION" FOR RESTRICTION ON TREE PLANTING ADJACENT TO SEWERS).
9. SEWERS TO BE LAID IN CLASS "S" BEDDING (150mm GRANULAR BED AND SURROUND). WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONE VEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB OVER SEWER SHALL BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
10. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).
11. THE CHAMBER SIZE OF MANHOLES WIT HMORE THAN ONE CONNECTION IN THEM MAY NEED OT BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
12. YORKSHIRE WATER POLICY IS NOT TO ACCEPT TYPE "C" BRICK MANHOLES AND 1050mm DIAM. MANHOLE RINGS. INSTEAD IT IS PREFERRED THAT YOU USE A TYPE "B" MANHOLE WITH 1200mm DIAM. OR 1500mm DIAM. RINGS, WITH THE OPENING SIGHTED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1-1.5m.
13. ADOPTABLE PLASTIC SEWER PIPES TO BE BSI KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS/EN13476). ADOPTABLE PLASTIC SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD PREFER CLAYWARE CHANNELS IN MANHOLES. WE HAVE FOUND THAT PLASTIC CHANNELS ARE DIFFICULT TO SET IN CONCRETE BECAUSE THEY FLOAT AND A SATISFACTORY FINISHED CANNOT BE OBTAINED ON THE BENCHING.
14. THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100mm DIA. 40KN/m, 150mm DIA. 40KN/m, 225mm DIA. 45KN/m AND 300mm DIA. 72KN/m.THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE - CLASS 120 TO EN 1916/BS5911-1 2002. PLASTIC PIPES SHOULD CONFORM TO WIS 4-35-01 AND BS EN13476.
15. WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUIABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.
16. ALL HIGHWAY WORKS AND MATERIAL TO CONFORM WITH BARNSLEY MBC SPECIFICATION.
17. GULLY COVER AND FRAMES SHALL BE D400 DUCTILE IRON AND COMPLY WITH EUROPEAN STANDARD BS EN 124. THOSE SIGHTED IN ACCESSWAYS AND MEWS COURTS MUST BE SUITABLE FOR USE IN PEDESTRIAN AREAS.
18. THERE SHOULD BE ENOUGH CLEARANCE TO ACCOMMODATE THE BEDDING FOR BOTH PIPES, APPROX 300mm: IF CROSSOVER IS NEAR THE ROCKER THEN THEN THE CLEARANCE NEEDED MAY BE INCREASED.

Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Rd, Dewsbury, WF12 7BU t 01924 464342 f 01924 450662

e trevor.haigh@haighhuddleston.co.uk

Client
SAUL CONSTRUCTION

Project
HALL GARDENS, BRIERLEY - PHASE 2

Detail
LONGITUDINAL SECTIONS - ROADS 1 & 1A

Dwn	Chkd	Date	Scale	Dwg No.
CM	MD	Apr'21	1/500 Hor 1/100 Ver	E18/7318/05_01

PRELIMINARY