Conor Phillips
CSEA Consulting
Seafort Lodge
Castledawson Avenue
Blackrock
Co. Dublin

16 June 2022

Re: Design Submission for Barnhill, Dublin 15, Co. Dublin (the "Development") (the "Design Submission") / 2340790475.

Dear Conor Phillips,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Irish Water has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before you can connect to our network you must sign a connection agreement with Irish Water. This can be applied for by completing the connection application form at www.water.ie/connections. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU) (https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Irish Water's network(s) (the "**Self-Lay Works**"), as reflected in your Design Submission. Acceptance of the Design Submission by Irish Water does not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Irish Water Representative

Name: Dario Alvarez
Email: dalvarez@water.ie

Yours sincerely,

Yvonne Harris

Yvonne Harris

Head of Customer Operations

Appendix A

Document Title & Revision

- 16_053_00_1035 - Proposed Barnhill LAP Watermain Layout - June 2022
- 16_053_00_1037 - Proposed Barnhill LAP Combined Foul & Surface Water Sewer Layout - June 2022
- 16_053_00_1045 - Proposed Barnhill LAP Foul Longsections - Sheet 1 to 8

Standard Details/Code of Practice Exemption: N/A

*For further information, visit **www.water.ie/connections***

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Irish Water will not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

PROPOSED 110mm OUTSIDE DIAMETER SDR 17 PE WATERMAIN TO CONNECT TO FUTURE 110mm ø PE WATERMAIN (CONSTRUCTED AS PART OF THE ONGAR DISTRIBUTOR ROAD SCHEME) AT THIS LOCATION

PROPOSED 225mm OUTSIDE DIAMETER SDR 17 PE WATERMAIN TO CONNECT TO FUTURE 225mm ø PE WATERMAIN (CONSTRUCTED AS PART OF THE ONGAR DISTRIBUTOR ROAD SCHEME) AT THIS LOCATION

PROPOSED 225mm OUTSIDE DIAMETER SDR 17 PE WATERMAIN TO CONNECT TO FUTURE 225mm ø PE WATERMAIN (CONSTRUCTED AS PART OF THE ONGAR DISTRIBUTOR ROAD SCHEME) AT THIS LOCATION

PROPOSED 110mm OUTSIDE DIAMETER SDR 17 PE WATERMAIN TO CONNECT TO FUTURE 110mm ø PE WATERMAIN (CONSTRUCTED AS PART OF THE ONGAR DISTRIBUTOR ROAD SCHEME) AT THIS LOCATION

PROPOSED FUTURE ONGAR-BARNHILL DISTRIBUTOR ROAD

TO EXISTING ONGAR DISTRIBUTOR ROAD

CLONSILLA - PACE RAILWAY LINE

HANSFIELD SDZ LANDS

HANSFIELD TRAIN STATION

VILLAGE CENTRE

PUBLIC OPEN SPACE

EXISTING STREAM

R149 - LEIXLIP TO CLONEE ROAD

PAKENHAM BRIDGE

ROYAL CANAL

DUBLIN - MAYNOOTH RAILWAY LINE

PROPOSED 160mm OUTSIDE DIAMETER SDR 17 PE WATERMAIN TO ALLOW FOR CONNECTION TO PROPOSED FOUL PUMPING STATION

PROPOSED 225mm OUTSIDE DIAMETER SDR 17 PE WATERMAIN TO CONNECT TO FUTURE 225mm ø PE WATERMAIN (CONSTRUCTED AS PART OF THE ONGAR DISTRIBUTOR ROAD SCHEME) AT THIS LOCATION

PROPOSED FUTURE ROUNDABOUT ACCESS TO FUTURE BARNHILL DEVELOPMENT

PROPOSED FUTURE ROUNDABOUT ACCESS TO FUTURE BARNHILL DEVELOPMENT

200mm Ø uPVC 2004

4" Ø uPVC 1965

SV

H

A

B

M

PROPOSED WATERMAIN LEGEND:

- PROPOSED 110mm OUTSIDE ø SDR 17 PE WATERMAIN
- PROPOSED 160mm OUTSIDE ø SDR 17 PE WATERMAIN
- PROPOSED 225mm OUTSIDE ø SDR 17 PE WATERMAIN
- PROPOSED WATERMAIN CONNECTION TO UNITS WITH BOUNDARY BOX
- PROPOSED AIR VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED SLUICE VALVE
- PROPOSED SCOUR VALVE
- PROPOSED WATER METER

EXISTING WATERMAIN LEGEND:

- EXISTING WATERMAIN PIPE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING AIR VALVE
- EXISTING SLUICE VALVE

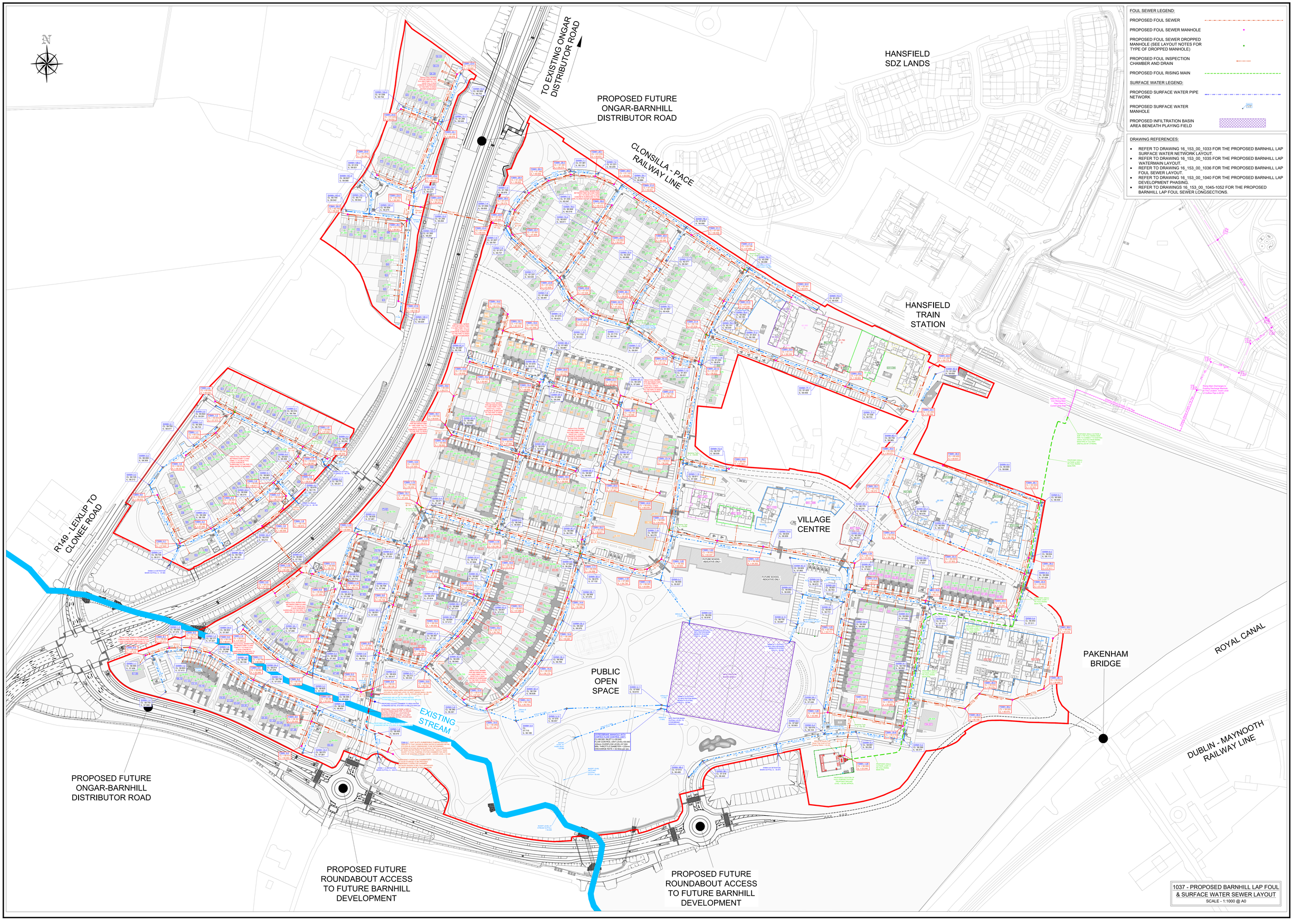
NOTE:

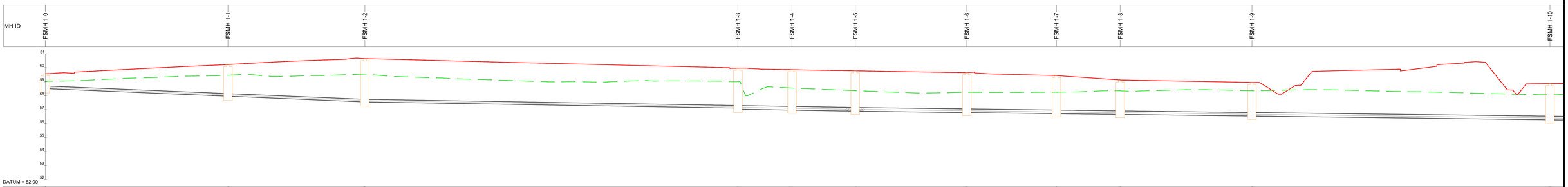
- THE PROPOSED FUTURE WATERMAIN SHOWN IN MAGENTA ON THIS DRAWING IS TO BE CONSTRUCTED AS PART OF THE ONGAR TO BARNHILL DISTRIBUTOR ROAD SCHEME BY FINGAL COUNTY COUNCIL. THE ONGAR TO BARNHILL DISTRIBUTOR ROAD IS TO BE DELIVERED PRIOR TO THE CONSTRUCTION OF THE BARNHILL LAP DEVELOPMENT. THE WATERMAIN SHOWN IN MAGENTA ON THIS DRAWING WILL, THEREFORE BE PART OF THE FUTURE RECEIVING ENVIRONMENT FOR THE BARNHILL LAP DEVELOPMENT TO ALLOW WATERMAIN CONNECTIONS. BULK FLOW METERS HAVE BEEN SHOWN AT EACH CONNECTION POINT TO THIS WATERMAIN.
- NO HYDRANTS ARE CLOSER THAN 6m TO A PROPOSED OR EXISTING STRUCTURE. NO PROPERTY WITHIN THIS PROPOSED DEVELOPMENT IS MORE THAN 46m FROM A FIRE HYDRANT.
- NO NEW WATERMAIN WITHIN THE PROPOSED DEVELOPMENT UP TO AND INCLUDING 150mmØ IS LAID WITHIN 3m OF AN EXISTING OR PROPOSED STRUCTURE. NO NEW WATERMAIN WITHIN THE PROPOSED DEVELOPMENT BETWEEN 200mm Ø & 600mmØ DIAMETERS ARE LAID WITHIN 5m OF AN EXISTING OR PROPOSED STRUCTURE.
- GAS MAINS ARE NOT PROPOSED TO BE CONSTRUCTED AS PART OF THE PROPOSED BARNHILL LAP DEVELOPMENT.
- ALL WATERMAIN "T" JUNCTIONS HAVE BEEN SHOWN AT 90 DEGREE ANGLES.
- BOOSTED WATER SUPPLY SYSTEMS SHALL BE USED AT THE PROPOSED APARTMENT BUILDING WITHIN THE BARNHILL LAP DEVELOPMENT. BOOSTED WATER SUPPLY SYSTEMS AT THE APARTMENTS WILL BE DESIGNED BY THE M&E FOR THE DEVELOPMENT DURING DETAILED DESIGN OF THE DEVELOPMENT.
- SCOUR VALVES, THAT WILL BE CONSTRUCTED TO IRISH WATER STANDARDS HAVE BEEN SHOWN AT THE LOCALISED LOW POINTS OF THE PROPOSED DEVELOPMENT WATERMAIN. SCOUR VALVES ARE SHOWN AS BEING OFFLINE AND ARE CONNECTED TO A SURFACE WATER MANHOLE.
- ALL COMMERCIAL PREMISES PROPOSED WITHIN THE BARNHILL LAP DEVELOPMENT HAVE INDIVIDUAL SERVICE CONNECTIONS AND BULK FLOW METERS. METER TO BE SELECTED, SUPPLIED, AND FITTED BY IRISH WATER.

DRAWING REFERENCES:

- REFER TO DRAWING 16_153_00_1033 FOR THE PROPOSED BARNHILL LAP SURFACE WATER NETWORK LAYOUT.
- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT.
- REFER TO DRAWING 16_153_00_1037 FOR THE PROPOSED BARNHILL LAP FOUL & SURFACE WATER SEWER LAYOUT.
- REFER TO DRAWING 16_153_00_1040 FOR THE PROPOSED BARNHILL LAP DEVELOPMENT PHASING.
- REFER TO DRAWINGS 16_153_00_1045-1052 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LONGSECTIONS.

1035 - PROPOSED BARNHILL LAP WATERMAIN LAYOUT
SCALE - 1:1000 @ A0

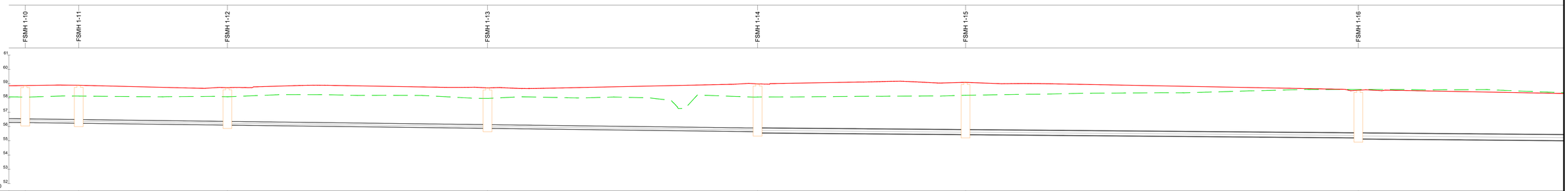

TO EXISTING ONGAR DISTRIBUTOR ROAD
PROPOSED FUTURE ONGAR-BARNHILL DISTRIBUTOR ROAD
CLONSILLA - PACE RAILWAY LINE
HANSFIELD SDZ LANDS
HANSFIELD TRAIN STATION
VILLAGE CENTRE
PUBLIC OPEN SPACE
EXISTING STREAM
R149 - LEIXLIP TO CLONEE ROAD
PROPOSED FUTURE ONGAR-BARNHILL DISTRIBUTOR ROAD
PROPOSED FUTURE ROUNDABOUT ACCESS TO FUTURE BARNHILL DEVELOPMENT
PROPOSED FUTURE ROUNDABOUT ACCESS TO FUTURE BARNHILL DEVELOPMENT
PAKENHAM BRIDGE
ROYAL CANAL
DUBLIN - MAYNOOTH RAILWAY LINE
FUTURE SCHOOL INDICATIVE ONLY
FOUL SEWER LEGEND:
PROPOSED FOUL SEWER
PROPOSED FOUL SEWER MANHOLE
PROPOSED FOUL SEWER DROPPED MANHOLE (SEE LAYOUT NOTES FOR TYPE OF DROPPED MANHOLE)
PROPOSED FOUL INSPECTION CHAMBER AND DRAIN
PROPOSED FOUL RISING MAIN
SURFACE WATER LEGEND:
PROPOSED SURFACE WATER PIPE NETWORK
PROPOSED SURFACE WATER MANHOLE
PROPOSED INFILTRATION BASIN AREA BENEATH PLAYING FIELD
DRAWING REFERENCES:
REFER TO DRAWING 16_153_00_1033 FOR THE PROPOSED BARNHILL LAP SURFACE WATER NETWORK LAYOUT.
REFER TO DRAWING 16_153_00_1035 FOR THE PROPOSED BARNHILL LAP WATERMAIN LAYOUT.
REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT.
REFER TO DRAWING 16_153_00_1040 FOR THE PROPOSED BARNHILL LAP DEVELOPMENT PHASING.
REFER TO DRAWINGS 16_153_00_1045-1052 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LONGSECTIONS.
1037 - PROPOSED BARNHILL LAP FOUL & SURFACE WATER SEWER LAYOUT
SCALE - 1:1000 @ A0



DATUM = 52.00

Cover Levels	59.578	60.225	60.653	59.988	59.868	59.796	59.682	59.446	59.125	59.930	58.870
Invert Levels	55.83	57.98 57.98	57.57 57.57	57.13 57.13	56.89 56.89	56.81 56.81	56.81 56.81	56.73 56.73	56.67 56.67	56.56 56.56	55.29 55.29
Manhole Depth	1.12	2.32	3.16	2.92	2.88	2.88	2.84	2.71	2.45	2.39	2.58
Pipe Length	32.7m	24.5m	66.9m	9.7m	11.3m	20.0m	16.1m	11.4m	23.6m	53.4m	
Pipe Dia.	∅150mm WITH CONCRETE SURROUND	∅150mm	∅150mm	∅225mm	∅225mm	∅225mm	∅225mm	∅225mm	∅225mm	∅225mm	
Slope	1:60	1:60	1:150	1:150	1:150	1:200	1:200	1:200	1:200	1:200	

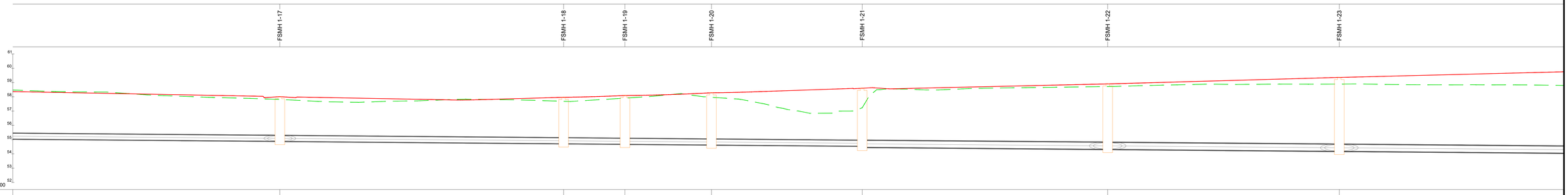
FSMH 1-0 TO FSMH 1-28 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 52.00

Cover Levels	59.870	59.888	59.714	59.703	59.961	59.950	59.837	
Invert Levels	56.29 56.29	56.24 56.24	56.11 56.11	55.88 55.88	55.65 55.51	55.45 55.45	55.22 55.15	
Manhole Depth	2.68	2.65	2.60	2.82	3.41	3.64	3.59	
Pipe Length	9.4m	26.0m	45.5m	47.3m	36.4m	68.8m		
Pipe Dia.	∅225mm	∅225mm	∅225mm	∅225mm	∅300mm	∅300mm		
Slope	1:200	1:200	1:200	1:200	1:300	1:300		

FSMH 1-0 TO FSMH 1-28 - PROFILE (CONTINUED)
SCALE: H 1:250,V 1:100



DATUM = 52.00

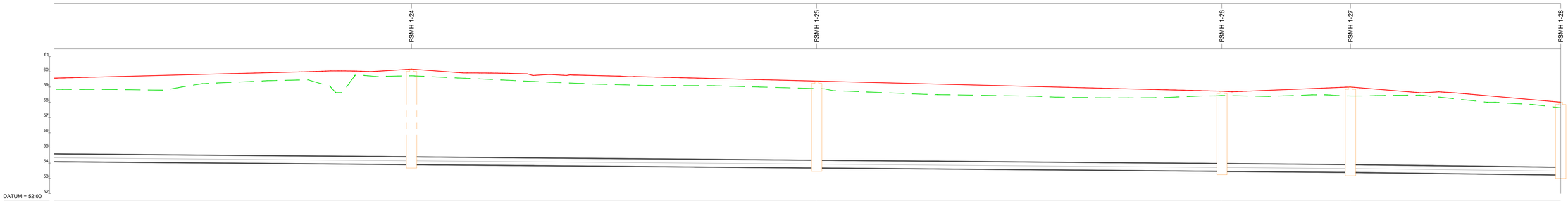
Cover Levels	59.008	57.965	58.091	58.082	58.099	59.092	59.308	
Invert Levels	54.96 54.96	54.13 54.13	54.89 54.89	54.84 54.84	54.65 54.48	54.34 54.34	54.20 54.20	
Manhole Depth	3.11	3.24	3.40	3.64	4.12	4.57	5.16	
Pipe Length	75.6m	49.8m	10.8m	15.2m	26.5m	43.1m	40.6m	
Pipe Dia.	∅375mm	∅375mm	∅375mm	∅375mm	∅375mm	∅450mm	∅450mm	
Slope	1:300	1:300	1:300	1:300	1:300	1:300	1:300	

FSMH 1-0 TO FSMH 1-28 - PROFILE (CONTINUED)
SCALE: H 1:250,V 1:100

LEGEND:
EXISTING GROUND PROFILE
PROPOSED GROUND PROFILE

DRAWING REFERENCES:
- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT

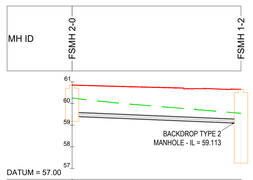
1045 - PROPOSED BARNHILL LAP FOUL
LONGSECTIONS SHEET 1 OF 8
SCALE - 1:1000 @ A0



DATUM = 52.00

Cover Levels	60.175	59.388	58.725	59.000	58.900
Invert Levels	53.93 / 53.93	53.71 / 53.71	53.49 / 53.49	53.42 / 53.42	53.25
Manhole Depth	6.24	5.68	5.23	5.58	4.75
Pipe Length	81.2m	66.4m	66.4m	21.1m	34.4m
Pipe Dia.	∅450mm	∅450mm	∅450mm	∅450mm	∅450mm
Slope	1:300	1:300	1:300	1:300	1:200

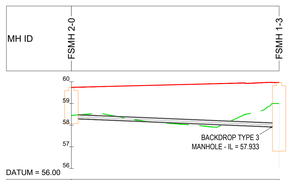
FSMH 1-0 TO FSMH 1-28 - PROFILE (CONTINUED)
SCALE: H 1:250,V 1:100



DATUM = 57.00

Cover Levels	60.830	60.653
Invert Levels	59.42	59.13
Manhole Depth	1.42	3.16
Pipe Length	19.5m	
Pipe Dia.	∅150mm	
Slope	1:60	

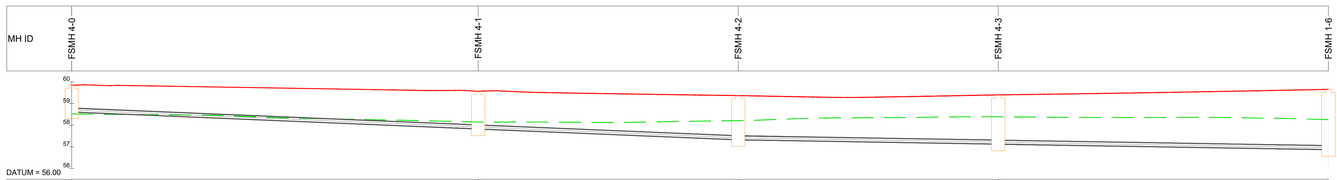
FSMH 2-0 TO FSMH 1-2 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 56.00

Cover Levels	59.745	59.999
Invert Levels	58.32	57.62
Manhole Depth	1.42	2.92
Pipe Length	24.0m	
Pipe Dia.	∅150mm	
Slope	1:60	

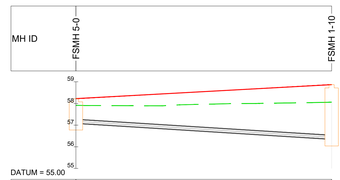
FSMH 3-0 TO FSMH 1-3 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 56.00

Cover Levels	59.849	59.564	59.365	59.597	59.602
Invert Levels	58.62	57.84	57.34	57.14	56.89
Manhole Depth	1.30	1.80	2.10	2.33	2.84
Pipe Length	46.9m	30.0m	30.0m	38.1m	
Pipe Dia.	∅150mm	∅150mm	∅150mm	∅150mm	
Slope	1:60	1:60	1:150	1:150	

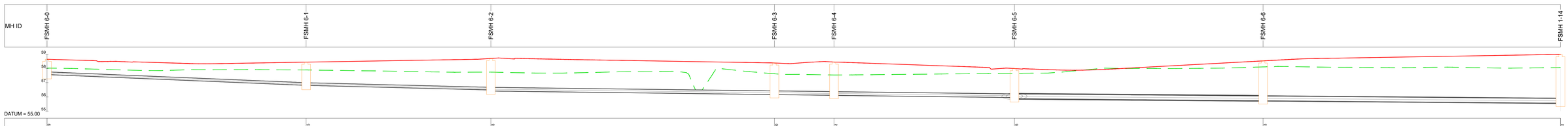
FSMH 4-0 TO FSMH 1-6 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 55.00

Cover Levels	58.225	58.370
Invert Levels	57.10	56.38
Manhole Depth	1.20	2.58
Pipe Length	29.5m	
Pipe Dia.	∅150mm	
Slope	1:40	

FSMH 5-0 TO FSMH 1-10 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 55.00

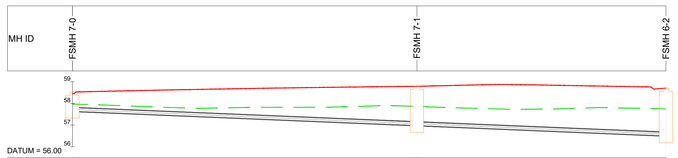
Cover Levels	58.649	58.445	58.703	58.390	58.457	57.995	58.533	58.861
Invert Levels	57.39	56.83 / 56.83	56.51 / 56.43	56.18 / 56.18	56.13 / 56.13	55.87 / 55.89	55.75 / 55.75	55.57
Manhole Depth	1.13	1.69	2.27	2.21	2.32	2.10	2.79	3.41
Pipe Length	45.7m	32.6m	50.0m	10.5m	31.8m	43.8m	52.4m	
Pipe Dia.	∅150mm WITH CONCRETE SURROUND	∅150mm	∅225mm	∅225mm	∅225mm	∅300mm	∅300mm	
Slope	1:60	1:100	1:200	1:200	1:200	1:300	1:300	

FSMH 6-0 TO FSMH 1-14 - PROFILE
SCALE: H 1:250,V 1:100

LEGEND:
EXISTING GROUND PROFILE
PROPOSED GROUND PROFILE

DRAWING REFERENCES:
- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT

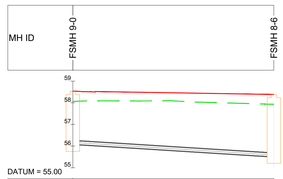
1046 - PROPOSED BARNHILL LAP FOUL
LONGSECTIONS SHEET 2 OF 8
SCALE - 1:1000 @ A0



DATUM = 56.00

Cover Levels	58.534	58.788	59.703
Invert Levels	57.65	56.98 56.99	56.51
Manhole Depth	0.95	1.88	2.27
Pipe Length	39.7m		28.7m
Pipe Dia.	∅150mm WITH CONCRETE SURROUND		∅150mm
Slope	1:60		1:60

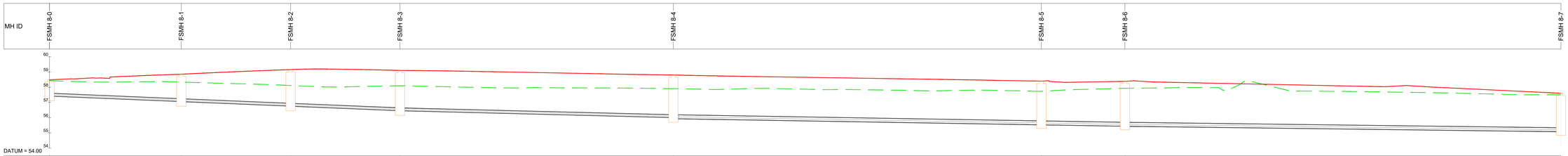
FSMH 7-0 TO FSMH 6-2 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 55.00

Cover Levels	58.537	58.387
Invert Levels	55.69	55.53
Manhole Depth	2.85	2.93
Pipe Length	23.2m	
Pipe Dia.	∅150mm	
Slope	1:40	

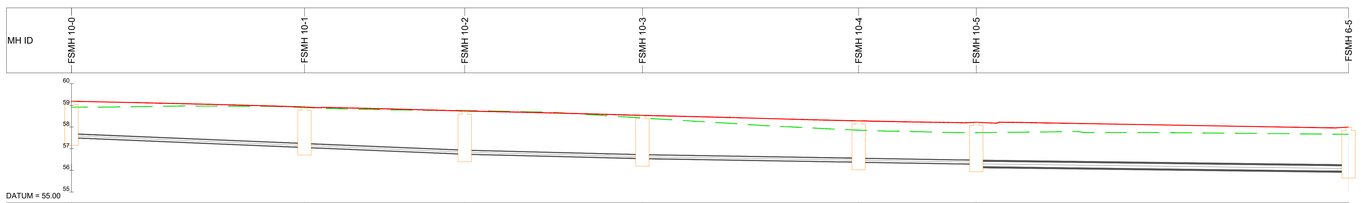
FSMH 9-0 TO FSMH 8-6 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 54.00

Cover Levels	58.483	58.600	58.153	59.100	58.600	58.396	58.381	57.600
Invert Levels	57.43	57.07 57.07	56.77 56.77	56.47 56.47	56.02 55.95	55.54 55.54	55.45 55.45	55.09
Manhole Depth	1.13	1.85	2.46	2.70	2.85	2.85	2.93	2.51
Pipe Length	21.7m	18.0m	18.0m	45.0m	60.6m	13.8m	71.8m	
Pipe Dia.	∅150mm WITH CONCRETE SURROUND	∅150mm	∅150mm	∅150mm	∅225mm	∅225mm	∅225mm	
Slope	1:60	1:60	1:60	1:100	1:150	1:150	1:200	

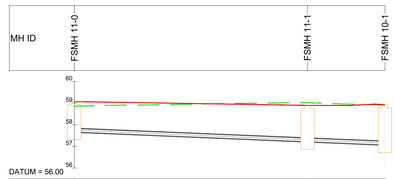
FSMH 8-0 TO FSMH 8-7 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 55.00

Cover Levels	58.180	58.823	58.670	58.834	58.284	58.218	57.995
Invert Levels	57.30	57.07 57.07	56.76 56.76	56.56 56.56	56.39 56.39	56.35 56.18	55.97
Manhole Depth	1.79	1.97	2.09	2.09	2.01	2.03	2.10
Pipe Length	26.9m	18.5m	20.5m	25.0m	13.6m	43.0m	
Pipe Dia.	∅150mm	∅150mm	∅150mm	∅150mm	∅150mm	∅225mm	
Slope	1:60	1:60	1:100	1:150	1:150	1:200	

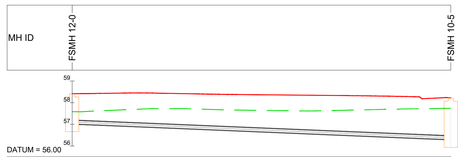
FSMH 10-0 TO FSMH 6-5 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 56.00

Cover Levels	58.067	58.888	58.603
Invert Levels	57.07	57.22 57.22	56.07
Manhole Depth	1.52	1.78	1.97
Pipe Length	26.9m	8.9m	
Pipe Dia.	∅150mm	∅150mm	
Slope	1:60	1:60	

FSMH 11-0 TO FSMH 10-1 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 56.00

Cover Levels	58.412	58.218
Invert Levels	57.03	56.30
Manhole Depth	1.50	2.03
Pipe Length	43.7m	
Pipe Dia.	∅225mm	
Slope	1:60	

FSMH 12-0 TO FSMH 10-5 - PROFILE
SCALE: H 1:250,V 1:100

LEGEND:

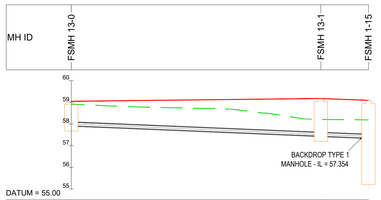
EXISTING GROUND PROFILE

PROPOSED GROUND PROFILE

DRAWING REFERENCES:

- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT

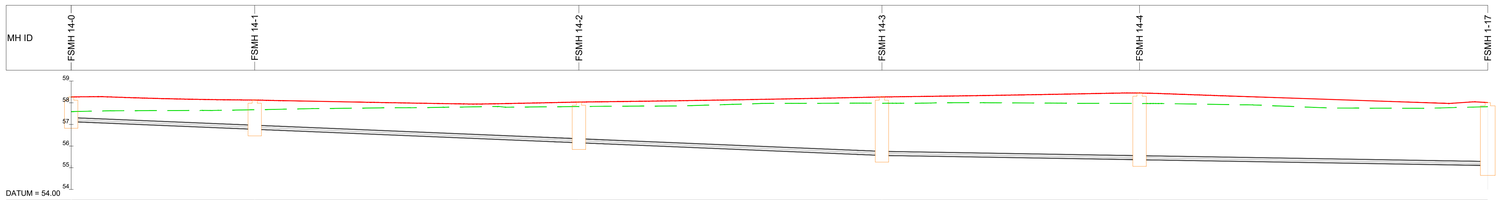
1047 - PROPOSED BARNHILL LAP FOUL
LONGSECTIONS SHEET 3 OF 8
SCALE - 1:1000 @ A0



DATUM = 55.00

Cover Levels	59.000	59.175	59.000
Invert Levels	57.82	57.44	57.35
Manhole Depth	1.12	1.73	3.64
Pipe Length	28.8m	5.5m	
Pipe Dia.	∅150mm	∅150mm	
Slope	1:60	1:60	

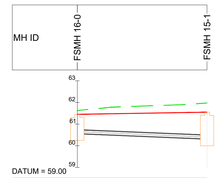
FSMH 13-0 TO FSMH 1-15 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 54.00

Cover Levels	58.289	58.126	58.033	58.048	58.449	58.008
Invert Levels	57.15	56.79	56.17	55.99	55.39	55.12
Manhole Depth	1.20	1.41	1.94	2.76	3.14	3.11
Pipe Length	21.2m	37.4m	35.0m	29.7m	40.2m	
Pipe Dia.	∅150mm WITH CONCRETE SURROUND	∅150mm	∅150mm	∅150mm	∅150mm	
Slope	1:60	1:60	1:60	1:150	1:150	

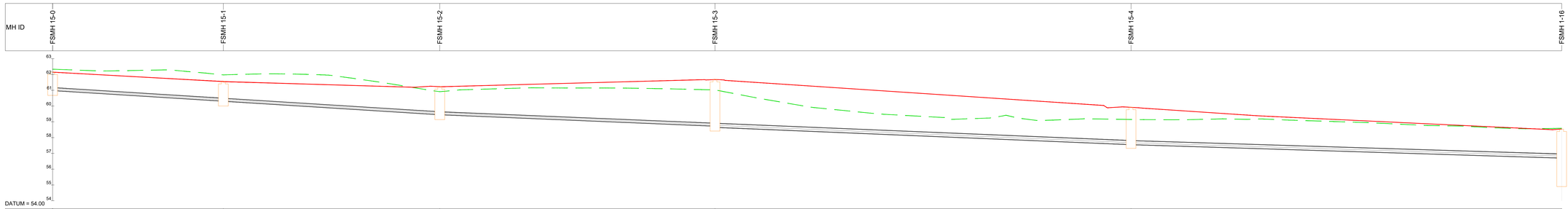
FSMH 14-0 TO FSMH 1-17 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 59.00

Cover Levels	61.400	61.350
Invert Levels	60.07	60.32
Manhole Depth	0.95	1.30
Pipe Length	15.0m	
Pipe Dia.	∅150mm	
Slope	1:60	

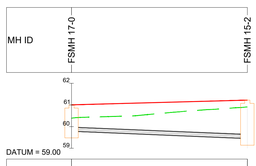
FSMH 16-0 TO FSMH 15-1 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 54.00

Cover Levels	62.150	61.560	61.293	61.681	59.919	59.537
Invert Levels	61.00	60.32	59.47	58.74	57.57	56.72
Manhole Depth	1.22	1.30	1.83	3.02	2.25	3.39
Pipe Length	27.0m	34.3m	43.6m	65.9m	68.2m	
Pipe Dia.	∅150mm	∅150mm	∅150mm	∅225mm	∅225mm	
Slope	1:40	1:40	1:60	1:60	1:80	

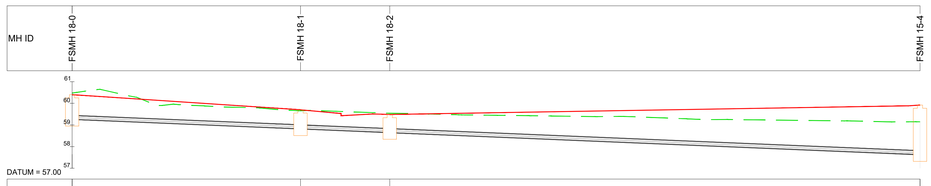
FSMH 15-0 TO FSMH 1-16 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 59.00

Cover Levels	61.605	61.823
Invert Levels	59.73	59.47
Manhole Depth	1.28	1.63
Pipe Length	20.3m	
Pipe Dia.	∅150mm WITH CONCRETE SURROUND	
Slope	1:60	

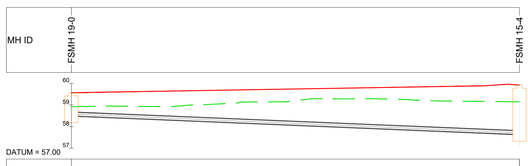
FSMH 17-0 TO FSMH 15-2 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 57.00

Cover Levels	60.400	59.700	59.465	58.919
Invert Levels	59.07	58.84	58.66	57.74
Manhole Depth	1.20	0.94	0.90	2.35
Pipe Length	26.3m	10.3m	61.2m	
Pipe Dia.	∅150mm	∅150mm WITH CONCRETE SURROUND	∅150mm WITH CONCRETE SURROUND	
Slope	1:60	1:60	1:60	

FSMH 18-0 TO FSMH 15-4 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 57.00

Cover Levels	59.987	59.919
Invert Levels	58.51	57.64
Manhole Depth	1.14	2.35
Pipe Length	51.7m	
Pipe Dia.	∅150mm WITH CONCRETE SURROUND	
Slope	1:60	

FSMH 19-0 TO FSMH 15-4 - PROFILE
SCALE: H 1:250,V 1:100

LEGEND:
EXISTING GROUND PROFILE
PROPOSED GROUND PROFILE

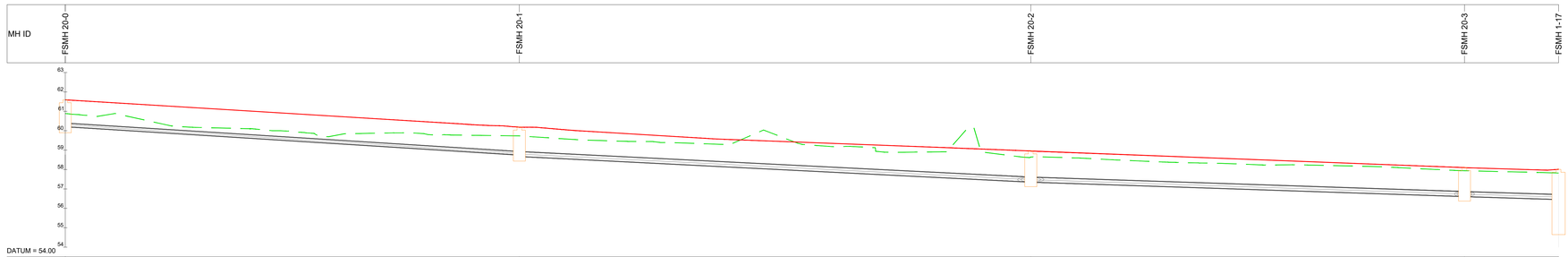
DRAWING REFERENCES:
- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT

1048 - PROPOSED BARNHILL LAP FOUL
LONGSECTIONS SHEET 4 OF 8
SCALE - 1:1000 @ A0

1049 - PROPOSED BARNHILL LAP FOUL
LONGSECTIONS SHEET 5 OF 8
SCALE - 1:1000 @ A0

LEGEND:
EXISTING GROUND PROFILE
PROPOSED GROUND PROFILE

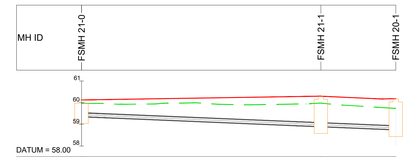
DRAWING REFERENCES:
- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT



DATUM = 54.00

Cover Levels	61.500	65.181	66.865	68.099	68.008
Invert Levels	60.03	59.76 59.69	57.27 57.27	56.65 56.62	56.47
Manhole Depth	1.44	1.50	1.59	1.48	3.11
Pipe Length	58.6m		66.0m	55.9m	12.1m
Pipe Dia.	∅150mm		∅225mm	∅225mm	∅225mm
Slope	1:40		1:50	1:75	1:80

FSMH 20-0 TO FSMH 1-17 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 58.00

Cover Levels	60.125	60.500	65.181
Invert Levels	59.57	58.91 58.91	59.76
Manhole Depth	0.83	1.47	1.50
Pipe Length	27.6m		8.6m
Pipe Dia.	∅150mm WITH CONCRETE SURROUND		∅150mm
Slope	1:60		1:60

FSMH 21-0 TO FSMH 20-1 - PROFILE
SCALE: H 1:250,V 1:100

DATUM = 57.00

Cover Levels	60.402	58.900
Invert Levels	58.39	57.44
Manhole Depth	1.15	1.59
Pipe Length	56.2m	
Pipe Dia.	∅150mm	
Slope	1:60	

FSMH 22-0 TO FSMH 20-2 - PROFILE
SCALE: H 1:250,V 1:100

DATUM = 54.00

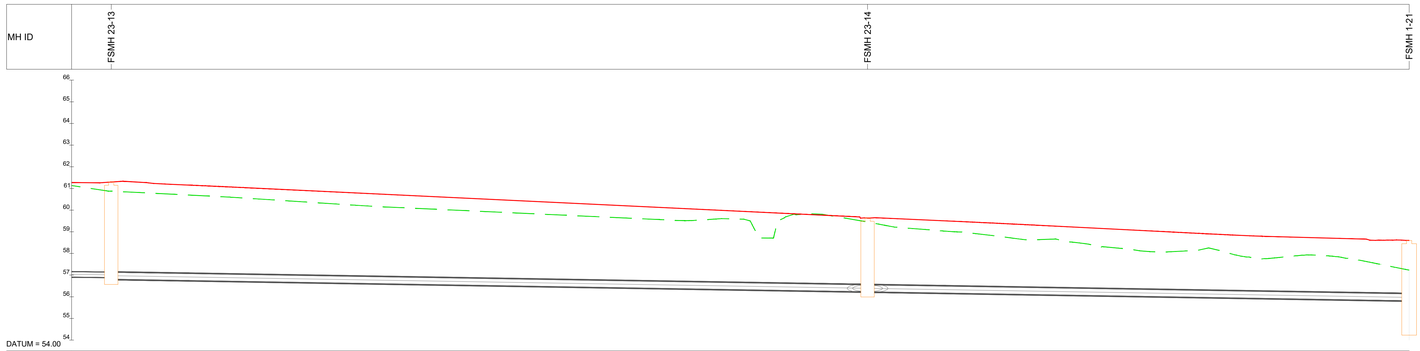
Cover Levels	61.513	61.281	61.128	60.700	60.585	61.144
Invert Levels	59.80	58.88 58.88	58.57 58.49	58.39 58.39	58.34 58.34	58.02 58.02
Manhole Depth	1.19	2.38	2.64	2.31	2.24	3.12
Pipe Length	46.2m	61.4m	14.6m	10.0m	64.7m	
Pipe Dia.	∅150mm WITH CONCRETE SURROUND	∅150mm	∅225mm	∅225mm	∅225mm	
Slope	1:50	1:150	1:150	1:200	1:200	

FSMH 23-0 TO FSMH 1-21 - PROFILE
SCALE: H 1:250,V 1:100

DATUM = 54.00

Cover Levels	61.144	61.001	61.081	61.430	61.573	61.733	61.888	61.415	61.267
Invert Levels	58.02 58.02	57.96 57.96	57.91 57.91	57.63 57.63	57.53 57.53	57.41 57.41	57.25 57.25	57.02 57.02	56.90 56.82
Manhole Depth	3.12	3.05	3.15	3.80	4.05	4.32	4.44	4.40	4.47
Pipe Length	14.4m	7.8m	55.9m	20.5m	23.4m	31.1m	47.3m	23.8m	
Pipe Dia.	∅225mm	∅225mm	∅225mm	∅225mm	∅225mm	∅225mm	∅225mm	∅225mm	
Slope	1:200	1:200	1:200	1:200	1:200	1:200	1:200	1:200	

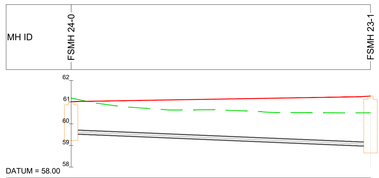
FSMH 23-0 TO FSMH 1-21 - PROFILE (CONTINUED)
SCALE: H 1:250,V 1:100



DATUM = 54.00

Cover Levels	61.397	59.633	58.599
Invert Levels	56.90 56.82	56.24 56.24	55.82
Manhole Depth	4.47	3.39	4.12
Pipe Length	87.3m	62.5m	
Pipe Dia.	∅300mm	∅300mm	
Slope	1:150	1:150	

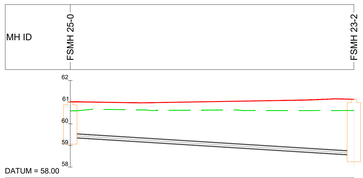
FSMH 23-0 TO FSMH 1-21 - PROFILE (CONTINUED)
SCALE: H 1:250,V 1:100



DATUM = 58.00

Cover Levels	61.825	61.381
Invert Levels	59.93	59.98
Manhole Depth	1.55	2.58
Pipe Length	34.5m	
Pipe Dia.	∅150mm	
Slope	1:60	

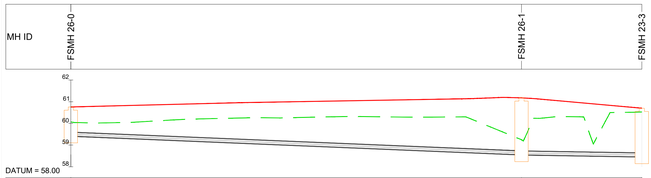
FSMH 24-0 TO FSMH 23-1 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 58.00

Cover Levels	61.619	61.126
Invert Levels	59.38	58.57
Manhole Depth	1.71	2.64
Pipe Length	32.7m	
Pipe Dia.	∅150mm	
Slope	1:40	

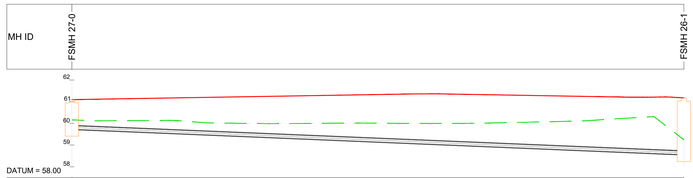
FSMH 25-0 TO FSMH 23-2 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 58.00

Cover Levels	60.760	61.178	60.700
Invert Levels	59.43	58.56 58.56	58.47
Manhole Depth	1.41	2.69	2.31
Pipe Length	52.0m	13.9m	
Pipe Dia.	∅150mm	∅150mm	
Slope	1:60	1:150	

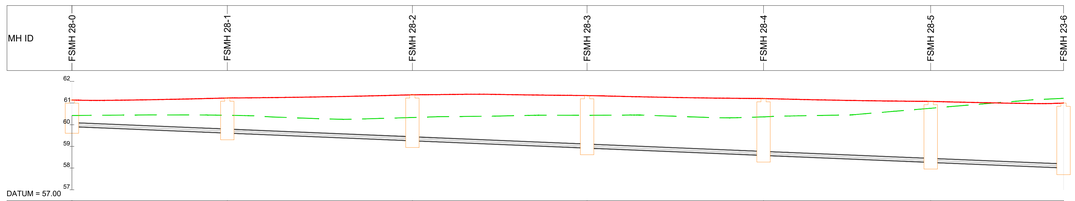
FSMH 26-0 TO FSMH 23-3 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 58.00

Cover Levels	61.100	61.178
Invert Levels	59.74	58.66
Manhole Depth	1.44	2.69
Pipe Length	70.6m	
Pipe Dia.	∅150mm	
Slope	1:60	

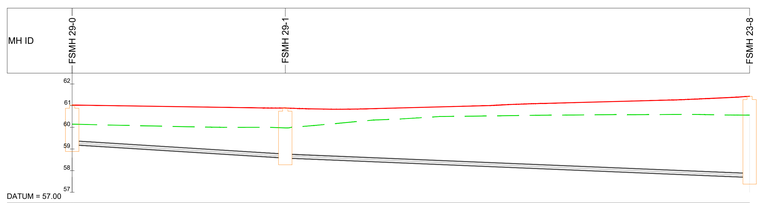
FSMH 27-0 TO FSMH 26-1 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 57.00

Cover Levels	61.142	61.235	61.381	61.348	61.269	61.037	61.001
Invert Levels	59.93	59.63 59.63	59.28 59.28	58.94 58.94	58.60 58.60	58.28 58.28	58.02
Manhole Depth	1.29	1.68	2.18	2.48	2.68	2.87	2.95
Pipe Length	17.9m	21.4m	20.2m	20.4m	19.3m	15.3m	
Pipe Dia.	∅150mm WITH CONCRETE SURROUND	∅150mm	∅150mm	∅150mm	∅150mm	∅150mm	
Slope	1:60	1:60	1:60	1:60	1:60	1:60	

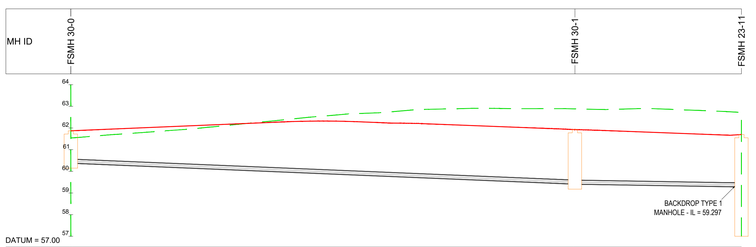
FSMH 28-0 TO FSMH 23-6 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 57.00

Cover Levels	61.037	60.892	61.430
Invert Levels	59.21	58.65 58.65	57.70
Manhole Depth	1.69	2.37	3.60
Pipe Length	24.6m	53.6m	
Pipe Dia.	∅150mm	∅150mm	
Slope	1:40	1:60	

FSMH 29-0 TO FSMH 23-8 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 57.00

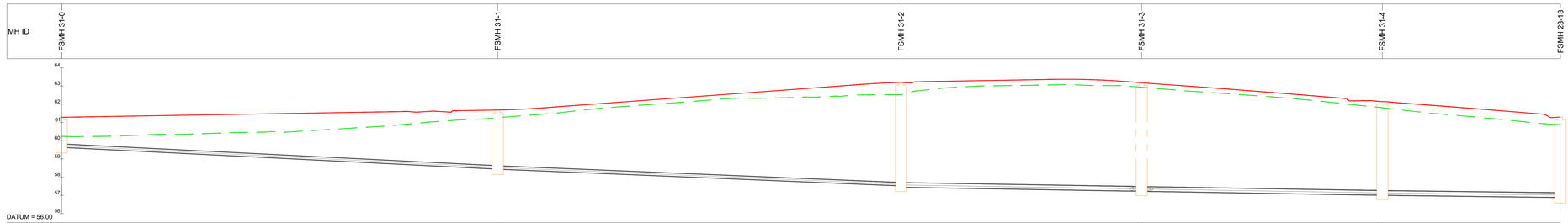
Cover Levels	61.831	61.936	61.886
Invert Levels	60.40	59.45 59.43	59.36
Manhole Depth	1.48	2.50	4.44
Pipe Length	58.2m	19.2m	
Pipe Dia.	∅225mm	∅225mm	
Slope	1:60	1:150	

FSMH 30-0 TO FSMH 23-11 - PROFILE
SCALE: H 1:250,V 1:100

LEGEND:
EXISTING GROUND PROFILE
PROPOSED GROUND PROFILE

DRAWING REFERENCES:
- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT

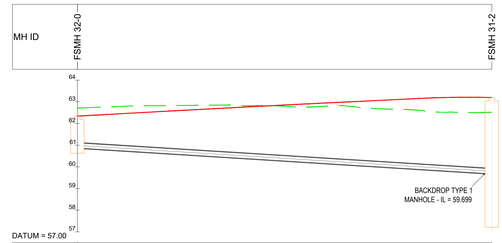
1050 - PROPOSED BARNHILL LAP FOUL
LONGSECTIONS SHEET 6 OF 8
SCALE - 1:1000 @ A0



DATUM = 56.00

Cover Levels	61.359	61.681	63.196	63.177	62.145	61.297
Invert Levels	59.65	58.46 / 58.46	57.53 / 57.46	57.24 / 57.24	57.02 / 57.02	56.90
Manhole Depth	1.71	3.30	5.74	5.94	5.13	4.47
Pipe Length	59.8m	55.3m	33.0m	33.0m	24.4m	
Pipe Dia.	∅150mm	∅150mm	∅225mm	∅225mm	∅225mm	
Slope	1:50	1:60	1:150	1:150	1:200	

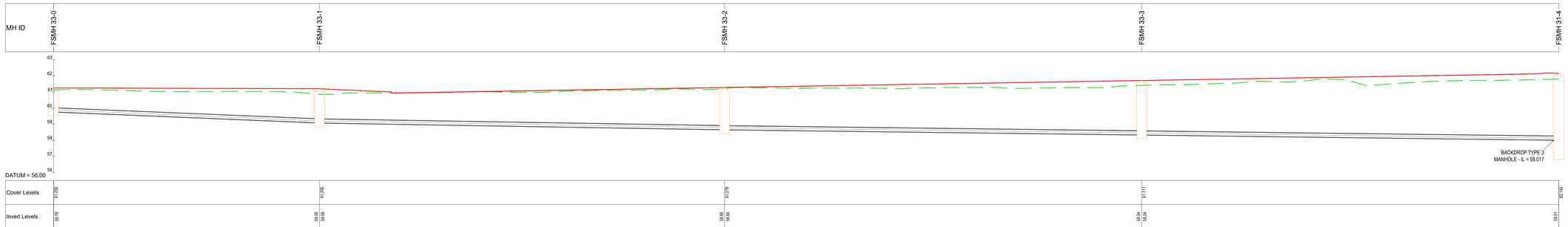
FSMH 31-0 TO FSMH 23-13 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 57.00

Cover Levels	62.341	63.196
Invert Levels	60.88	59.68
Manhole Depth	1.47	5.74
Pipe Length	47.8m	
Pipe Dia.	∅225mm	
Slope	1:40	

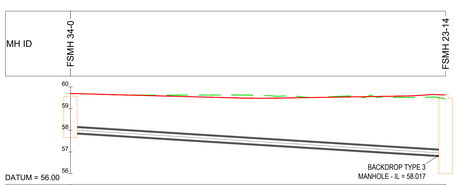
FSMH 32-0 TO FSMH 31-2 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 56.00

Cover Levels	61.250	61.330	61.278	61.711	62.142
Invert Levels	59.78	59.08 / 59.08	58.66 / 58.66	58.34 / 58.34	58.01
Manhole Depth	1.47	2.12	2.61	3.37	5.13
Pipe Length	41.4m	63.1m	65.0m	65.0m	
Pipe Dia.	∅225mm	∅225mm	∅225mm	∅225mm	
Slope	1:60	1:150	1:200	1:200	

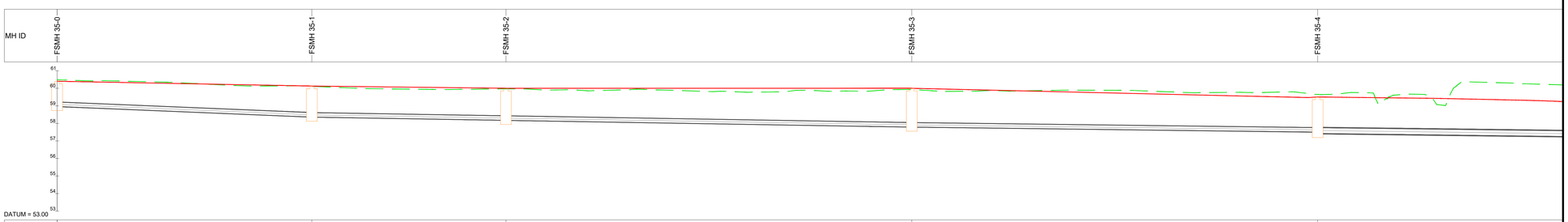
FSMH 33-0 TO FSMH 31-4 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 56.00

Cover Levels	59.100	59.833
Invert Levels	57.91	56.62
Manhole Depth	1.79	3.39
Pipe Length	43.3m	
Pipe Dia.	∅225mm	
Slope	1:40	

FSMH 34-0 TO FSMH 23-14 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 53.00

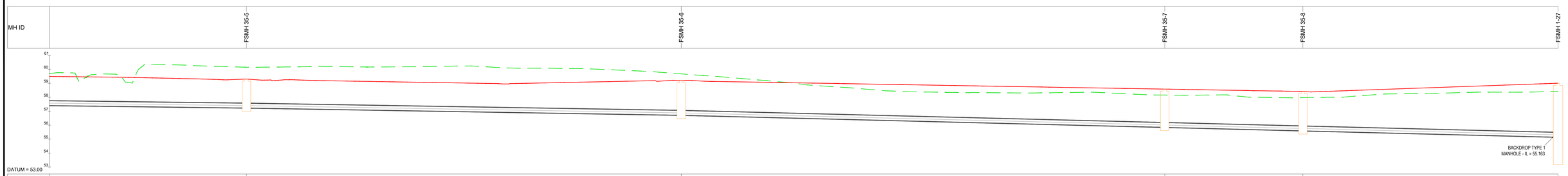
Cover Levels	60.400	60.125	60.000	60.000	59.583
Invert Levels	58.95	58.37 / 58.37	58.19 / 58.19	57.80 / 57.80	57.21 / 57.14
Manhole Depth	1.42	1.75	1.81	2.20	2.06
Pipe Length	36.2m	27.6m	57.7m	57.7m	38.6m
Pipe Dia.	∅225mm	∅225mm	∅225mm	∅225mm	∅300mm
Slope	1:60	1:150	1:150	1:200	1:200

FSMH 35-0 TO FSMH 1-27 - PROFILE
SCALE: H 1:250,V 1:100

LEGEND:
EXISTING GROUND PROFILE
PROPOSED GROUND PROFILE

DRAWING REFERENCES:
- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT

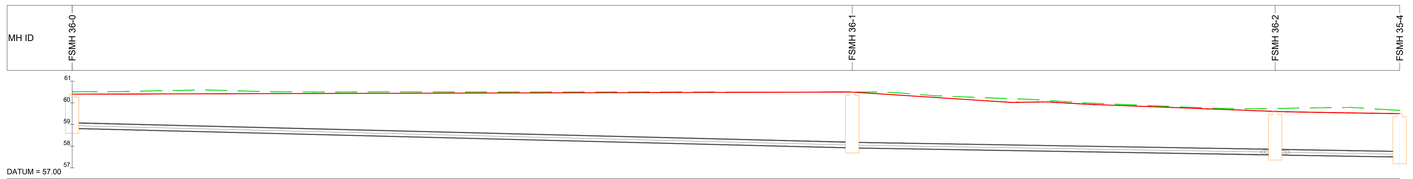
1051 - PROPOSED BARNHILL LAP FOUL
LONGSECTIONS SHEET 7 OF 8
SCALE - 1:1000 @ A0



DATUM = 53.00

Cover Levels	59.300	59.177	59.079	58.410	59.000
Invert Levels	57.25 / 57.25	56.73 / 56.73	55.86 / 55.86	55.61 / 54.61	55.15
Manhole Depth	2.05	2.45	2.72	2.80	3.85
Pipe Length	38.6m	78.0m	86.7m	24.8m	45.8m
Pipe Dia.	∅300mm	∅300mm	∅300mm	∅300mm	∅300mm
Slope	1:200	1:150	1:100	1:100	1:100

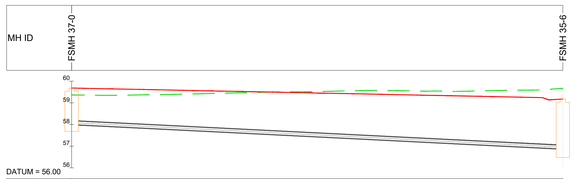
FSMH 35-0 TO FSMH 1-27 - PROFILE (CONTINUED)
SCALE: H 1:250,V 1:100



DATUM = 57.00

Cover Levels	60.600	60.500	59.604	59.503
Invert Levels	58.64	57.94 / 57.94	57.61 / 57.61	57.42
Manhole Depth	1.96	2.56	1.99	2.06
Pipe Length	90.0m	48.8m	14.4m	
Pipe Dia.	∅225mm	∅225mm	∅225mm	
Slope	1:100	1:150	1:150	

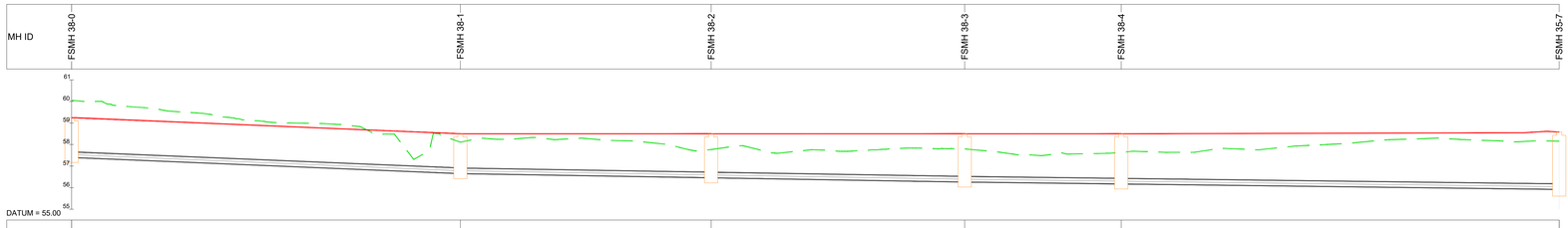
FSMH 36-0 TO FSMH 35-4 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 56.00

Cover Levels	59.683	59.177
Invert Levels	58.01	56.88
Manhole Depth	1.75	2.45
Pipe Length	56.7m	
Pipe Dia.	∅150mm	
Slope	1:50	

FSMH 37-0 TO FSMH 35-6 - PROFILE
SCALE: H 1:250,V 1:100



DATUM = 55.00

Cover Levels	59.255	59.500	59.500	59.500	59.500	59.079
Invert Levels	57.42	56.67 / 56.67	56.48 / 56.47	56.28 / 56.28	56.19 / 56.19	55.94
Manhole Depth	1.63	1.63	2.03	2.22	2.31	2.72
Pipe Length	45.0m	29.0m	29.3m	18.1m	50.7m	
Pipe Dia.	∅225mm	∅225mm	∅225mm	∅225mm	∅225mm	
Slope	1:60	1:150	1:150	1:200	1:200	

FSMH 38-0 TO FSMH 35-7 - PROFILE
SCALE: H 1:250,V 1:100

LEGEND:
EXISTING GROUND PROFILE
PROPOSED GROUND PROFILE

DRAWING REFERENCES:
- REFER TO DRAWING 16_153_00_1036 FOR THE PROPOSED BARNHILL LAP FOUL SEWER LAYOUT

1052 - PROPOSED BARNHILL LAP FOUL
LONGSECTIONS SHEET 8 OF 8
SCALE - 1:1000 @ A0