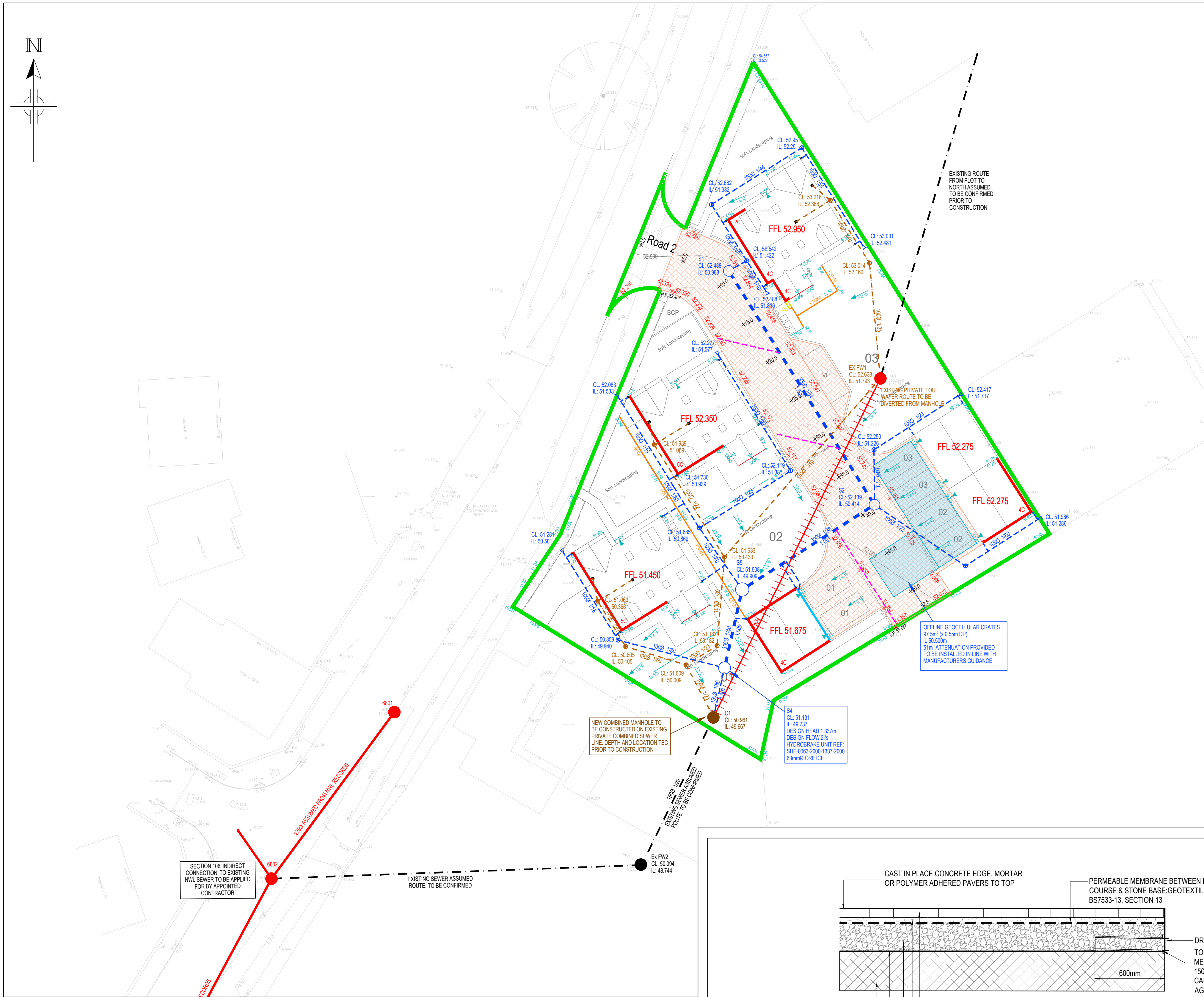
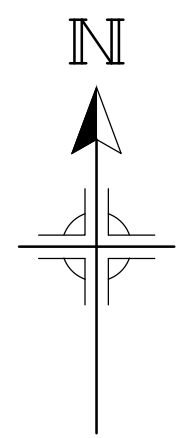




- KEY**
- EXISTING ADOPTED COMBINED SEWER
 - EXISTING PRIVATE FOUL WATER SEWER
 - EXISTING PRIVATE FOUL WATER SEWER TO BE ABANDONED
 - PROPOSED SURFACE WATER SEWER
 - PROPOSED FOUL WATER SEWER
 - PROPOSED FFL
 - PERMEABLE PAVING
 - PRIVATE SURFACE WATER ATTENUATION CRATES

SUNNYSIDE LANE, CLEADON

THIS IS A PRELIMINARY DRAINAGE STRATEGY ONLY. THE PROPOSALS INCLUDED ARE SUBJECT TO RECEIPT OF DETAILED EXISTING UTILITY PLANS, CONFIRMATION OF INVERT LEVELS AT DISCHARGE LOCATIONS, SOUTH TYNESIDE COUNCIL LLFA APPROVAL, SECTION 104 TECHNICAL APPROVAL FROM NWL AND DETAILED DESIGN.

TOPOGRAPHIC SURVEY
THE EXISTING TOPOGRAPHIC SURVEY HAS BEEN PROVIDED BY CLEADON PROPERTY DEVELOPMENTS

FOUL WATER
FOUL WATER FLOWS ARE CONFIRMED TO BE ABLE TO DISCHARGE WITHOUT RESTRICTION INTO THE EXISTING 225mm DIAMETER NWL COMBINED SEWER TO THE WEST OF THE SITE VIA MANHOLE 6802. EXACT LOCATIONS AND INVERT LEVELS OF EXISTING SEWERS MUST BE CONFIRMED AS ASSUMPTIONS HAVE BEEN MADE FROM SEWER RECORD PLANS ONLY AT THIS STAGE.

DISCHARGE TO BE MADE VIA EXISTING PRIVATE CONNECTION WITHIN SITE BOUNDARY.

SURFACE WATER
SURFACE WATER FLOWS ARE ASSUMED TO BE ABLE TO DISCHARGE AT A MAXIMUM RATE OF 2L/S FROM SITE INTO THE EXISTING NWL COMBINED SEWER TO THE WEST OF THE SITE VIA MANHOLE 6802. DISCHARGE TO BE MADE VIA EXISTING PRIVATE CONNECTION WITHIN SITE BOUNDARY.

INITIAL CALCULATIONS HAVE INDICATED A QBAR RATE FOR THE WHOLE SITE TO BE 0.4L/S. TO ACHIEVE A RATE AS CLOSE TO THIS AS POSSIBLE, WHILST MAINTAINING A MINIMUM ORIFICE DIAMETER OF 60mm FOR MAINTENANCE PURPOSES AND PREVENTION OF BLOCKAGES, A MAXIMUM RATE OF 2L/S HAS BEEN APPLIED TO THE SCHEME. THIS DISCHARGE RATE IS TO BE CONFIRMED BY SOUTH TYNESIDE COUNCIL LLFA.

EXISTING ADOPTED SEWER LOCATIONS AND DEPTHS HAVE BEEN TAKEN FROM THE PROVIDED TOPOGRAPHIC SURVEY AND SEWER RECORD PLANS. ROUTES OF EXISTING ADOPTED SEWERS TO BE CONFIRMED VIA CCTV SURVEY PRIOR TO CONSTRUCTION.

SURFACE WATER DRAINAGE STRATEGY

CAUSEWAY FLOW MODELING HAS DEMONSTRATED THAT THE FLOW RATES FROM THE DEVELOPMENT AREA FOR A 1440 MINUTE STORM DURATION ARE AS FOLLOWS:

1 IN 2 YEAR:	1.7L/S (TOTAL)
1 IN 30 YEAR#:	1.8L/S (TOTAL)
1 IN 100 YEAR*:	2L/S (TOTAL)

INCLUDING 40% CLIMATE CHANGE
* INCLUDING 45% CLIMATE CHANGE

THESE RATES ARE DERIVED FROM THE CAUSEWAY FLOW SOFTWARE MODEL AND ALL INCLUDE A 10% ALLOWANCE FOR URBAN CREEP. SUMMER & WINTER VOLUMETRIC RUN-OFF COEFFICIENTS HAVE BEEN SET AT 1.00 RESPECTIVELY AS STANDARD.

SURFACE WATER ATTENUATION
SURFACE WATER ATTENUATION FOR UP TO AND INCLUDING THE 1 IN 100 YEAR STORM EVENT (+45% CLIMATE CHANGE AND 10% URBAN CREEP) IS PROVIDED VIA PRIVATE GEOCELLULAR CRATES AND PERMEABLE PAVING SUB BASE AS INDICATED WITHIN THIS PRELIMINARY LAYOUT

NOTE

THIS PRINT AND ANY DESIGN THEREON IS THE PROPERTY OF BECKWITH & HANLON CONSULTING ENGINEERS LIMITED AND IS TO BE RETURNED ON REQUEST. IT IS TO BE USED ONLY FOR THE PURPOSE FOR WHICH IT WAS EXPRESSLY LOANED AND IS NOT TO BE COPIED IN ANY MANNER, NOR IS INFORMATION TAKEN THEREFROM TO BE TRANSMITTED OR PASSED TO OTHERS.

DO NOT SCALE OFF THIS DRAWING.

DO NOT TAKE DIGITAL DIMENSIONS OFF THIS DRAWING.

- DRAINAGE NOTES**
- ALL ADOPTABLE DRAINAGE WORKS TO BE IN ACCORDANCE WITH THE WATER AUTHORITIES PUBLICATION "CODES FOR ADOPTION DESIGN AND CONSTRUCTION GUIDE (DCG)" AS WELL AS ANY ADDITIONAL REQUIREMENTS OF THE ADOPTING AUTHORITY AND APPROVED DRAWINGS.
 - PRECAST CONCRETE MANHOLE RINGS TO COMPLY WITH THE RELEVANT PROVISIONS OF BS5911: PART 200.
 - ALL BRICKWORK TO BE CLASS B ENGINEERING COMPLYING WITH THE RELEVANT PROVISIONS OF BS 3921. CONCRETE BRICKS MAYBE USED IF THEIR SPECIFICATION IS THE SAME AS CLASS B ENGINEERING BRICKS. PLEASE SEEK APPROVAL FROM RELEVANT WATER AUTHORITY BEFORE USING.
 - MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BE OF A NON-ROCKING, NON-VENTILATING DESIGN.
 - THE USE OF PRECAST CONCRETE PRODUCTS & SULPHATE RESISTANT CEMENT IS MANDATORY, UNLESS A LABORATORY PROVES SUCH PRECAUTIONS ARE NOT NECESSARY.
 - 150mm CONCRETE SURROUND IS REQUIRED AROUND PIPES WHERE THE DEPTH FROM FINISHED SURFACE TO PIPE SOFFIT IS LESS THAN 1200mm IN HARDSTANDING AREAS AND LESS THAN 900mm WITHIN OPEN SPACE.
 - LOCATIONS OF ALL EXISTING SEWERS ON-SITE TO BE CONFIRMED & DETAILS PROVIDED TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORKS.
 - ALL TRENCHES UNDER EXISTING & PROPOSED PUBLIC HIGHWAYS ARE TO BE BACKFILLED WITH THOROUGHLY COMPACTED DOT TYPE 1 SUB-BASE.
 - ALL STREET WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT LOCAL AUTHORITY DESIGN GUIDE & SPECIFICATION & ARE TO BE THE SUBJECT OF A SECTION 38 AGREEMENT OF THE HIGHWAYS ACT 1980.
 - ROADS AND SEWERS CONTRACTOR MUST INFORM WATER AUTHORITY PRIOR TO WORKS COMMENCING.
 - ALL CONSTRUCTION IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE ADOPTING AUTHORITIES CURRENT STANDARD DETAILS AND UNDER THE SUPERVISION OF THE CLERK OF WORKS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW AND UNDERSTAND THESE STANDARDS AS WELL AS ARRANGE REQUIRED INSPECTIONS.
 - ALL SEWERS TO BE ADOPTED BY THE WATER AUTHORITY ARE TO BE THE SUBJECT OF A SECTION 104 OF THE WATER INDUSTRIES ACT 1991.

- HIGHWAY NOTES**
- ALL CONSTRUCTION IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE ADOPTING AUTHORITIES CURRENT STANDARD DETAILS AND UNDER THE SUPERVISION OF THE CLERK OF WORKS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW AND UNDERSTAND THESE STANDARDS AS WELL AS ARRANGE REQUIRED INSPECTIONS.
 - ALL STREET WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT LOCAL AUTHORITY DESIGN GUIDE & SPECIFICATION & ARE TO BE THE SUBJECT OF A SECTION 38 AGREEMENT OF THE HIGHWAYS ACT 1980.
 - ALL EXCAVATIONS BELOW PROPOSED AND EXISTING HIGHWAYS TO BE BACK FILLED WITH GRANULAR TYPE 1 SUB BASE AND WELL COMPACTED IN LAYERS NOT EXCEEDING 150mm, UNLESS OTHERWISE AGREED.
 - ROADS AND SEWERS CONTRACTOR MUST INFORM HIGHWAY AUTHORITY PRIOR TO WORKS COMMENCING.
 - ALL ROAD MARKINGS TO BE IN ACCORDANCE WITH THE TRAFFIC SIGNS REGULATIONS AND GENERAL DIRECTIONS (TSRGD).

P1	FIRST ISSUE	JH	DR	13/07/26
REV	AMENDMENT	BY	CKD	DATE

CLIENT

CLEADON PROPERTY DEVELOPMENTS

PROJECT

SUNNYSIDE LANE,
CLEADON

DRAWING TITLE

PRELIMINARY ENGINEERING LAYOUT

BH
BECKWITH
& HANLON

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SCALE	1:250	BY	JH	CHECKED	DR	DATE	JULY '26
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DRAWING NO.

24-006 200

STATUS	PRELIMINARY	REV	P1
		SIZE	A1