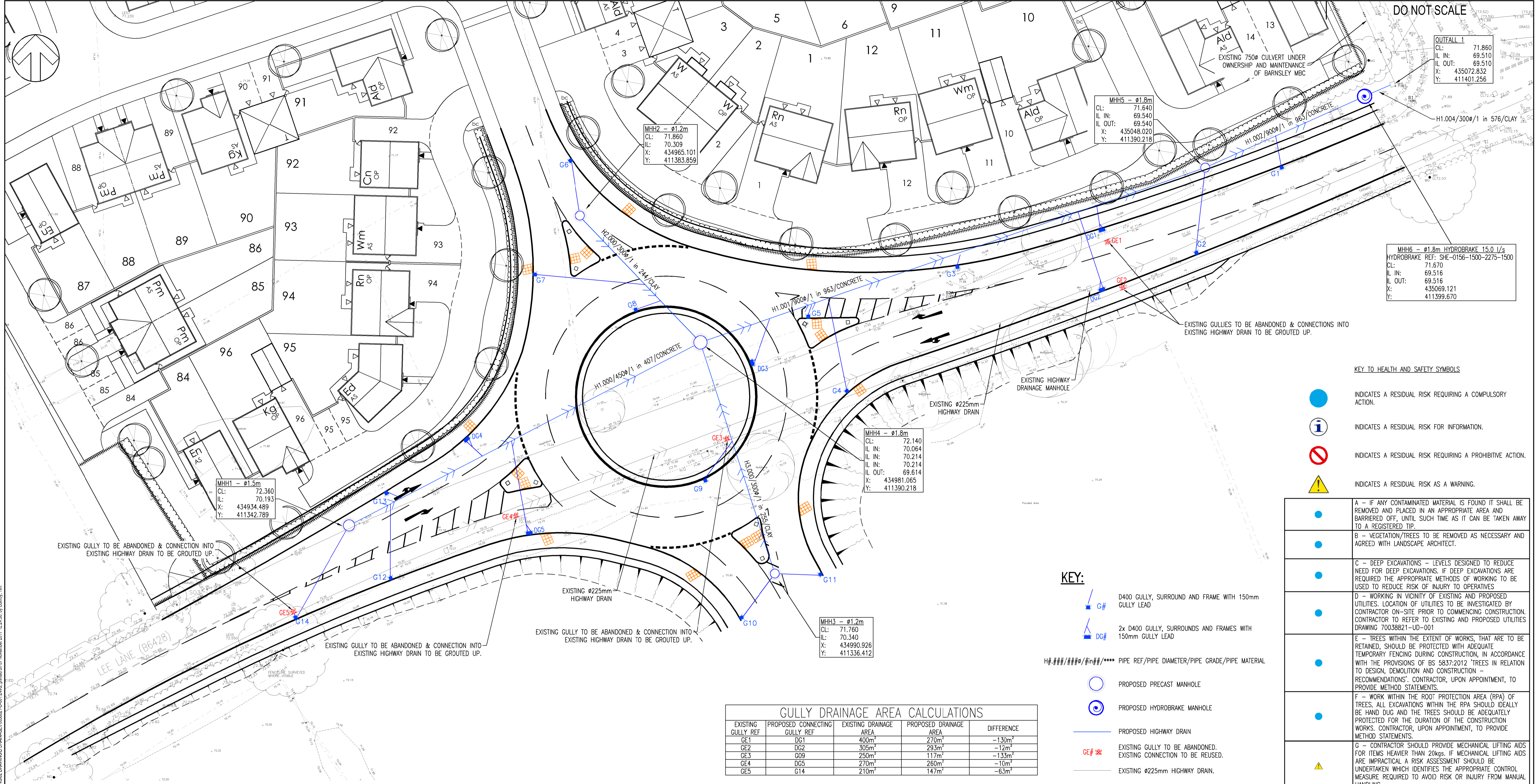


DO NOT SCALE



OUTFALL 1
 CL: 71.860
 IL IN: 69.510
 IL OUT: 69.510
 X: 435072.832
 Y: 411401.256

MHH2 - ø1.2m
 CL: 71.860
 IL: 70.309
 X: 434965.101
 Y: 411383.659

MHH5 - ø1.8m
 CL: 71.640
 IL IN: 69.540
 IL OUT: 69.540
 X: 435048.020
 Y: 411390.218

MHH6 - ø1.8m HYDROBRAKE 15.0 l/s
 HYDROBRAKE REF: SHE-0156-1500-2275-1500
 CL: 71.670
 IL IN: 69.516
 IL OUT: 69.516
 X: 435069.121
 Y: 411399.670

MHH1 - ø1.5m
 CL: 72.360
 IL: 70.193
 X: 434934.489
 Y: 411342.789

MHH4 - ø1.8m
 CL: 72.140
 IL IN: 70.064
 IL IN: 70.214
 IL OUT: 69.614
 X: 434981.065
 Y: 411390.218

MHH3 - ø1.2m
 CL: 71.760
 IL: 70.340
 X: 434990.926
 Y: 411336.412

KEY TO HEALTH AND SAFETY SYMBOLS

- INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
- INDICATES A RESIDUAL RISK FOR INFORMATION.
- INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION.
- INDICATES A RESIDUAL RISK AS A WARNING.

	A - IF ANY CONTAMINATED MATERIAL IS FOUND IT SHALL BE REMOVED AND PLACED IN AN APPROPRIATE AREA AND BARRIRED OFF, UNTIL SUCH TIME AS IT CAN BE TAKEN AWAY TO A REGISTERED TIP.
	B - VEGETATION/TREES TO BE REMOVED AS NECESSARY AND AGREED WITH LANDSCAPE ARCHITECT.
	C - DEEP EXCAVATIONS - LEVELS DESIGNED TO REDUCE NEED FOR DEEP EXCAVATIONS. IF DEEP EXCAVATIONS ARE REQUIRED THE APPROPRIATE METHODS OF WORKING TO BE USED TO REDUCE RISK OF INJURY TO OPERATIVES
	D - WORKING IN VICINITY OF EXISTING AND PROPOSED UTILITIES. LOCATION OF UTILITIES TO BE INVESTIGATED BY CONTRACTOR ON-SITE PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR TO REFER TO EXISTING AND PROPOSED UTILITIES DRAWING 70038821-UD-001
	E - TREES WITHIN THE EXTENT OF WORKS, THAT ARE TO BE RETAINED, SHOULD BE PROTECTED WITH ADEQUATE TEMPORARY FENCING DURING CONSTRUCTION, IN ACCORDANCE WITH THE PROVISIONS OF BS 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION AND CONSTRUCTION - RECOMMENDATIONS'. CONTRACTOR, UPON APPOINTMENT, TO PROVIDE METHOD STATEMENTS.
	F - WORK WITHIN THE ROOT PROTECTION AREA (RPA) OF TREES, ALL EXCAVATIONS WITHIN THE RPA SHOULD IDEALLY BE HAND DUG AND THE TREES SHOULD BE ADEQUATELY PROTECTED FOR THE DURATION OF THE CONSTRUCTION WORKS. CONTRACTOR, UPON APPOINTMENT, TO PROVIDE METHOD STATEMENTS.
	G - CONTRACTOR SHOULD PROVIDE MECHANICAL LIFTING AIDS FOR ITEMS HEAVIER THAN 20kgs. IF MECHANICAL LIFTING AIDS ARE IMPRACTICAL A RISK ASSESSMENT SHOULD BE UNDERTAKEN WHICH IDENTIFIES THE APPROPRIATE CONTROL MEASURE REQUIRED TO AVOID RISK OR INJURY FROM MANUAL HANDLING

KEY:

- D400 GULLY, SURROUND AND FRAME WITH 150mm GULLY LEAD
- 2x D400 GULLY, SURROUNDS AND FRAMES WITH 150mm GULLY LEAD
- PIPE REF/PIPE DIAMETER/PIPE GRADE/PIPE MATERIAL
- PROPOSED PRECAST MANHOLE
- PROPOSED HYDROBRAKE MANHOLE
- PROPOSED HIGHWAY DRAIN
- EXISTING GULLY TO BE ABANDONED. EXISTING CONNECTION TO BE REUSED.
- EXISTING ø225mm HIGHWAY DRAIN.

EXISTING GULLY REF	PROPOSED CONNECTING GULLY REF	EXISTING DRAINAGE AREA	PROPOSED DRAINAGE AREA	DIFFERENCE
GE1	DG1	400m ²	270m ²	-130m ²
GE2	DG2	305m ²	293m ²	-12m ²
GE3	DG9	250m ²	117m ²	-133m ²
GE4	DG5	270m ²	260m ²	-10m ²
GE5	G14	210m ²	147m ²	-63m ²

NOTES

- ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.
- ANY DESIGN DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF WSP
- ALL STATUTORY UNDERTAKERS EQUIPMENT IN FOOTWAY AND CARRIAGEWAY TO BE LOCATED AND DIVERTED BEFORE WORK COMMENCES.
- A PEDESTRIAN ROUTE THROUGH THE WORKS SHALL BE MAINTAINED AT ALL TIMES AND CLEARLY DEFINED BY SUITABLE BARRIERS AND LIGHTS WHERE NECESSARY.
- THE CONTRACTOR IS OBLIGED TO OBTAIN NECESSARY ROAD OPENING AND/OR SEWER CONNECTION LICENSES PRIOR TO COMMENCEMENT OF THE WORKS.
- ONE VERTICAL JOINT PER COURSE OF BRICK WORK SHALL BE LEFT OPEN TO ALLOW DRAINAGE DURING CONSTRUCTION.
- ALL STATUTORY UNDERTAKERS COVERS AND FRAMES TO BE ADJUSTED TO SUIT NEW CARRIAGEWAY LEVELS PRIOR TO SURFACING.
- ALL EXISTING GULLIES AND DRAIN RUNS TO BE CLEANED OF DEBRIS AND HIGH PRESSURE WATER JETTED PRIOR TO COMMENCEMENT OF WORKS.
- THE EXISTING SEWERS AND CULVERTS SHOWN ON THIS DRAWING ARE TAKEN FROM VARIOUS ARCHIVES, DRAINAGE PLANS AND SEWER RECORDS. SOME OF THIS INFORMATION IS CONTRADICTORY AND THE LOCATIONS SHOWN ARE INTERPRETED USING EXISTING FEATURES AND MANHOLE LOCATIONS SHOWN ON THE SURVEY. THE EXACT DEPTH AND LOCATION SHOULD BE VERIFIED ON-SITE PRIOR TO COMMENCING CONSTRUCTION.
- ALL HARD STANDING AND IMPERMEABLE AREAS OUTSIDE THE ADOPTED HIGHWAY BOUNDARY TO BE DRAINED AND COLLECTED IN PRIVATE DRAINAGE SYSTEMS AND DISCHARGED INTO THE SURFACE WATER SEWER BEFORE WATER ENCRACHES ONTO THE PUBLIC HIGHWAY.
- GULLIES SHOULD NOT BE LOCATED IN THE AREA OF DROPPED CROSSINGS.
- THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AND INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
- 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 SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND. REFER TO TABLE 2.4 IN SEWERS FOR ADOPTION, 7TH EDITION FOR PROTECTION MEASURES.
- GRANULAR BEDDING FOR PIPES SHALL CONSIST OF AGGREGATES FROM NATURAL SOURCES COMPLYING WITH THE RELEVANT PROVISIONS OF BS 882 SIZED IN ACCORDANCE WITH THE TABLE ACROSS.
- ALL PIPES WITH A DIAMETER LARGER OR EQUAL TO 450MM SHALL BE CONCRETE. PIPES WITH A DIAMETER LESS THAN 450MM SHALL BE CLAY.
- VITRIFIED CLAY PIPES AND FITTINGS FOR SEWERS SHALL HAVE FLEXIBLE MECHANICAL JOINTS. SURFACE WATER SEWERS SHALL COMPLY WITH RELEVANT REQUIREMENTS OF BS EN295 AND BS 65 (SURFACE WATER PIPES ONLY).

- 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.
- FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF BMBC BEFORE ANY SEWER WORKS ARE CARRIED OUT.
- COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY BMBC INSPECTORS. 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 600MM X 600MM 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.
- SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
- THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARGINS.
- SEWERS MUST HAVE 5.0M CLEARANCE FROM TREES AND HEDGES. (REFER TO FIGURE 2.3 ON PAGE 33 IN SEWERS FOR ADOPTION 7TH EDITION FOR RESTRICTIONS ON TREE PLANTING ADJACENT TO SEWERS).
- YORKSHIRE WATER POLICY IS NOT TO ACCEPT TYPE 'C' BRICK MANHOLES AND 1050MM DIA RINGS. INSTEAD IT IS PREFERRED THAT YOU USE TYPE 'B' MANHOLE WITH 1200MM DIA OR 1500MM DIA RINGS, WITH THE OPENING SITED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1 TO 1.5M.
- NO BUILDING TO TAKE PLACE WITHIN 3.0M OF AN ADOPTABLE SEWER.
- WHERE ADOPTABLE PIPES HAVE 150MM CONCRETE BED AND SURROUND PROTECTION, ALL JOINTS TO BE PROVIDED WITH 18MM THICK FLEXIBLE FILLER.
- NO SERVICES TO BE SITED OVER OR WITHIN 1.0M OF AN ADOPTABLE SEWER.
- ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH 'SEWERS FOR ADOPTION' 7TH EDITION, THE RELEVANT BRITISH/EUROPEAN AND YORKSHIRE WATER'S STANDARDS/REQUIREMENTS/ADDENDUM AND KITEMARKED.
- BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF BMBC SPECIFICATION.
- EXACT LOCATIONS OF GULLY TIE INS TO BE AGREED ON SITE WITH BMBC ENGINEER
- MANHOLE CO-ORDINATES TO CENTRE OF MANHOLE RING
- ROAD MARKINGS REMOVED FROM DRAWING FOR CLARITY
- REFER TO DRAWING 70038821-SD-003 FOR DRAINAGE STANDARD DETAILS

PO2	07/11/2017	TC	LATEST LAYOUT ADDED & DRAINAGE DESIGN AMENDED FOLLOWING BMBC COMMENTS 6/11/2017	✓	✓
PO1	03/10/2017	TC	FIRST ISSUE	✓	✓
REV	DATE	BY	DESCRIPTION	CHK	APP
DRAWING STATUS: S3 - FOR REVIEW					

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ARCHITECT:

PROJECT: LEE LANE, ROYSTON S278 WORKS

TITLE: PROPOSED DRAINAGE LAYOUT

SCALE @ A1: 1:250	CHECKED: DB	APPROVED: JM
PROJECT NO: 70038821	DESIGNED: TC	DATE: November 17
DRAWING NO: 70038821-D-001	DATE: November 17	REV: P02
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