

**NOTES - (CONT.)**

29. ALL DEMARCATION CHAMBERS TO BE 475mm POLYPROPYLENE INSPECTION CHAMBERS (PPC) & ALL PRECAST CONCRETE CHAMBERS ARE 1200mm UNLESS NOTED OTHERWISE.

30. THE CONTRACTOR MUST ALLOW FOR ANY FEES REQUIRED FOR ROAD AND SEWER OPENING PERMITS.

31. THE CONTRACTOR MUST MAKE PUBLIC SEWER CONNECTION APPLICATION TO RELEVANT WATER AUTHORITY PRIOR TO MAKING CONNECTION, WHEN REQUIRED.

32. ALL MANHOLES LESS THAN 1.5m DEEP ARE CONSIDERED AS NONE MAN ENTRY & SHALL BE MAINTAINED FROM GROUND LEVEL.

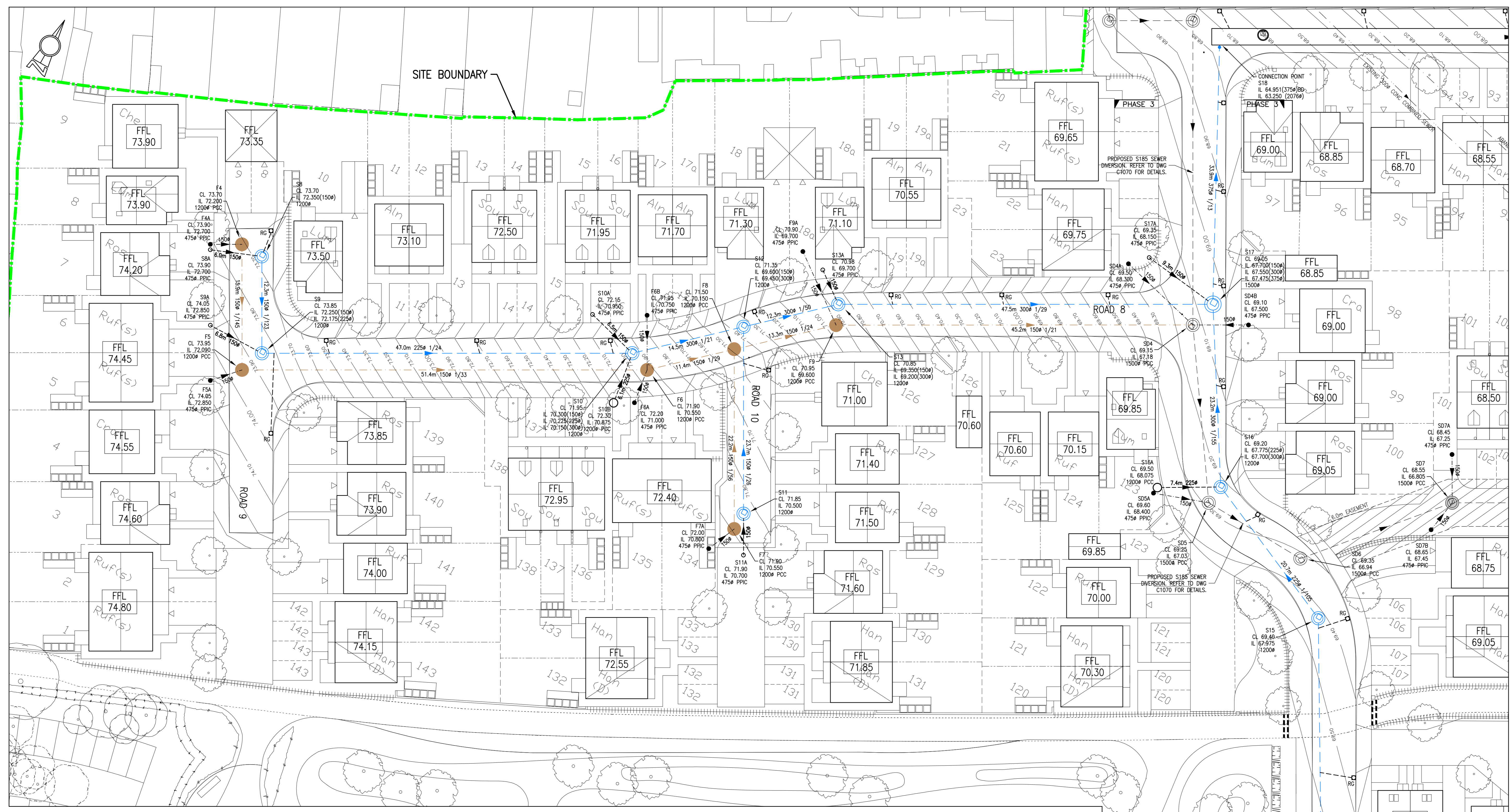
33. YORKSHIRE WATERS IS NOT OBLIGED TO ACCEPT FILTER DRAIN/LAND DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADAPTABLE DRAINAGE SYSTEM. (DIRECTLY OR IN-DIRECTLY) AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LIAISE WITH THE LOCAL AUTHORITY, LAND DRAINAGE SECTION WITH REGARDS TO THE DISPOSAL OF THE FILTER DRAIN/LAND DRAINAGE RUN-OFF.

Contractors should refer to the residual risks contained in the CDM Pre-Construction Information before carrying out any site operations and should not issue parts of this drawing without including the CDM notes and references. This information will include details of the SIGNIFICANT risks which 3E have considered beyond that which a competent contractor should be aware.

**NOTES -**

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT 3E ARCHITECT'S AND M&E CONSULTANTS DRAWINGS AND PROJECT SPECIFICATIONS.
- ALL ADAPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH "SEWERS FOR ADOPTION" 6TH EDITION THE RELEVANT BRITISH/EUROPEAN AND YORKSHIRE WATERS STANDARDS/REQUIREMENTS/ADDENDUM AND "SIGNMARKED".
- THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS/SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- SEWERS TO BE LAID IN CLASS "D" BEDDING (100mm 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 800mm IN NONE VEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHALL BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
- THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND PROVISION WORKS IS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PUBLIC UTILITIES.
- THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN-OFF INTO EXCAVATIONS AND FROM EXCAVATIONS BY MEANS OF SHAPES, PILING AND DE-WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS PROBABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS. PROTECT PEDESTRIANS AND VEHICLES FROM THE WORKING AREAS.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN/NEAR CONFINED SPACES, DEEP EXCAVATIONS, LIVE SERVICES AND WORKING IN/NEAR OVERHEAD POWER LINES. THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM THE WORKING AREAS.
- ALL PIPES SHALL BE LAID WITH SOFFITS LEVEL AND ALL MANHOLE/INSPECTION CHAMBER INVERT LEVELS SHOWN ARE FOR THE OUTLET PIPE UNLESS OTHERWISE SHOWN. ALL PIPE RINGS SHALL BE LAID TO LEVELS INDICATED. ALL PIPE GRADIENTS INDICATED ARE APPROXIMATE.
- ALL NG10 AND PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH CLASS D51 REQUIREMENTS FOR SULPHATE EXPOSURE IN ACCORDANCE WITH BS SPEC. DIGEST 1, CONCRETE IN AGGRESSIVE GROUND (2001) PART 1: TABLE 2.
- ALL PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE FITTED WITH ALL PRECAST CONCRETE PIPES SHALL BE CLASS 120.
- ALL VERIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE 65% IMPROVED AND BE FITTED WITH ALL PIPES SHALL BE EXTRA STRENGTH TO BS 63 OR EQUIVALENT BS ENDS PIPE CLOSING STRENGTH AND BE OF A SUFFICIENT STRENGTH.
- SELECTED BACKFILL MATERIALS SHALL CONSIST OF UNIFORM S&L FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, TREE ROOTS, CONTAMINATED MATERIAL, SELECTED BACKFILL MATERIAL, E TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS. SHOULD THE EXCAVATED MATERIAL BE UNSTABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A SUITABLE FINER GRANULAR MATERIAL SHALL BE USED.
- GENERAL BACKFILL TO DRAINAGE TRENCHES IN VEHICULAR TRAFFICED AREAS ABOVE THE PIPE BEDDING DETAIL SHALL BE SUITABLY SELECTED MATERIAL (IN ACCORDANCE WITH BS 63) CLASS 5.7.6.1.1) AND BE PLACED IN LAYERS NOT EXCEEDING 200mm, EACH LAYER COMPACTED TO FORM A STABLE TRENCH BACKFILL. SHOULD THE MATERIAL BE UNSTABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A HARD GRANULAR MATERIAL SHALL BE USED UP TO FORMATION LEVEL.
- NO MECHANICAL COMPACTION OF FILL MATERIAL SHALL BE PERMITTED WITHIN 300mm ABOVE THE BARREL/CROWN OF THE PIPE.
- BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-59-120 (REV. A2).
- ALL EXCAVATIONS IN AREAS OF HIGH WATER TABLES AND GRANULAR MATERIALS WITH HIGH SAND/SILT CONTENTS SHALL BE WRAPPED WITH A SUITABLE GEOTEXTILE FILTER MEMBRANE TO PREVENT MIXTURE OF SAND/SILT FULL HEIGHT CLAY STAKES ALONG TRENCHES AND/OR AT MANHOLE LOCATIONS AT 25m INTERVALS TO RESTRICT WATER MOVEMENT ALONG THE EXCAVATION.
- ALL EXISTING DRAINAGE STRUCTURES TO BE ABANDONED SHALL BE BROKEN OUT AND REMOVED FROM SITE. THE EXCAVATION SHALL BE BACKFILLED WITH SUITABLE GRANULAR MATERIAL TO THE REQUIRED LEVEL. ALTERNATIVELY, DEEP DRAINS MAY BE CLEANED AND GROUTED WITH A 1:10 EXPANSIVE GROUT, WITH STRUCTURES BROKEN DOWN 1m BELOW FINISHED GROUND LEVEL AND BACKFILLED WITH A SUITABLE GRANULAR MATERIAL.
- FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
- UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAINAGE BY JETTING, REMOVING ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE EXISTING DRAINAGE SYSTEM. THE CONTRACTOR SHALL OBTAIN A COLOUR COPY SURVEY OF ALL THE DRAINAGE SYSTEMS WITHIN THE AREA OF THE WORKS AND PROVIDE THE ENGINEER WITH THE COPIES OF THE CCTV ON CDROM (MP3-C FORMAT) AND REPORT TO M&E CONSULTANT.
- GEOTEXTILE FABRIC TO BE WRAPPED AROUND GRANULAR PIPE BEDDING WHERE SEWER TRENCHES ARE FORMED IN FINISH SAND/SILT MATERIAL WHERE THERE IS A RISK OF FINE MATERIAL ENTERING THE PIPES GRANULAR BEDDING. IN THESE CONDITIONS THE GEOTEXTILE IS TO BE EXTENDED UNDER THE MANHOLE BASES.
- WHERE UTILITY/LAND DRAINAGE TRENCHES CROSS OVER DRAINAGE TRENCHES, THE CONTRACTOR SHALL CONSTRUCT AN IMPERMEABLE BARRIER TO PREVENT GROUNDWATER INFILTRATING INTO THE DRAINAGE TRENCH.
- MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN24. HAVE ROUNDED CLEAR OPENINGS AND BE SIGNMARKED. ALL COVERS TO BE LOAD CLASS D400 WITH 150mm DEEP FRAMES.
- COVER SLABS MUST CARRY THE BS SIGNMARK OR WILL BE REJECTED BY YORKSHIRE WATER INSPECTORS. WHERE THE CLEAR OPENING OF THE SIGNMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOADING BEARING SLAB SHOULD BE FITTED UNDER THE COVER SLAB TO BRING THE SEE DOWN TO 600mm x 600mm FOR THE YORKSHIRE WATER SPECIFIED COVER SIZE. PLEASE REFER TO CONCRETE PIPE SYSTEM ASSOCIATION (CPSA) TECHNICAL BULLETIN ISSUED AUTUMN 2004 FOR RITE MARKED COVER SLAB OPENING SIZES. MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN24 WITH 150mm DEEP FRAMES IN HIGHWAYS.
- SULPHATE RESISTANT CEMENT (C30-DCC) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
- THE ADAPTABLE SEWERS SHOULD BE A MINIMUM OF 1m AND MANHOLES 0.5m FROM KERB FACES AND SERVICE MARGINS.
- SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES. (PLEASE ALSO REFER TO FIGURE 2.1 ON PAGE 33 IN "SEWERS FOR ADOPTION" 6TH EDITION FOR RESTRICTIONS ON TREE PLANTING ADJACENT TO SEWERS).
- THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
- YORKSHIRE WATERS POLICY IS NOT TO ACCEPT TYPE "C" BRICK MANHOLES AND 1200mm DIA MANHOLE RINGS. HOWEVER IT IS PREFERRED THAT YOU USE A TYPE "B" MANHOLE WITH 1200mm DIA OR 1500mm DIA RINGS, WITH THE OPENING SIZED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1-1.5m.
- ALL WORKS ARE ASSUMED TO BE WITHIN PUBLIC HIGHWAY OR WITHIN LAND OWNERS LAND & NO WORKS ARE REQUIRED ON THIRD PARTY LAND OWNERS PROPERTY.

REFER TO DRAWING C1011 FOR DETAILS OF PHASE 2



**PROPOSED DRAINAGE LAYOUT - PHASE 3**  
(SCALE 1:250)

WHERE ADOPTED/ADAPTABLE DRAINAGE IS LOCATED IN CLOSE PROXIMITY TO EXISTING OR PROPOSED TREES THE EXISTING TREES ARE TO BE REMOVED WITHIN THE STANDOFF DISTANCES & NO PROPOSED TREES ARE TO BE PLANTED WITHIN THE STANDOFF DISTANCES STATED BELOW AS REQUIRED BY SEWERS FOR ADOPTION 6TH EDITION

1m FROM CENTRELINE OF SEWER CLEAR PATH

3m FROM CENTRELINE OF SEWER SHRUB BUSHES FOR SCREENING:- BLACKTHORN, BROOM, COTONEASTER, ELDER, HAZEL, LAUREL, PRIVET, QUITCHORN, SMOKEBERRY

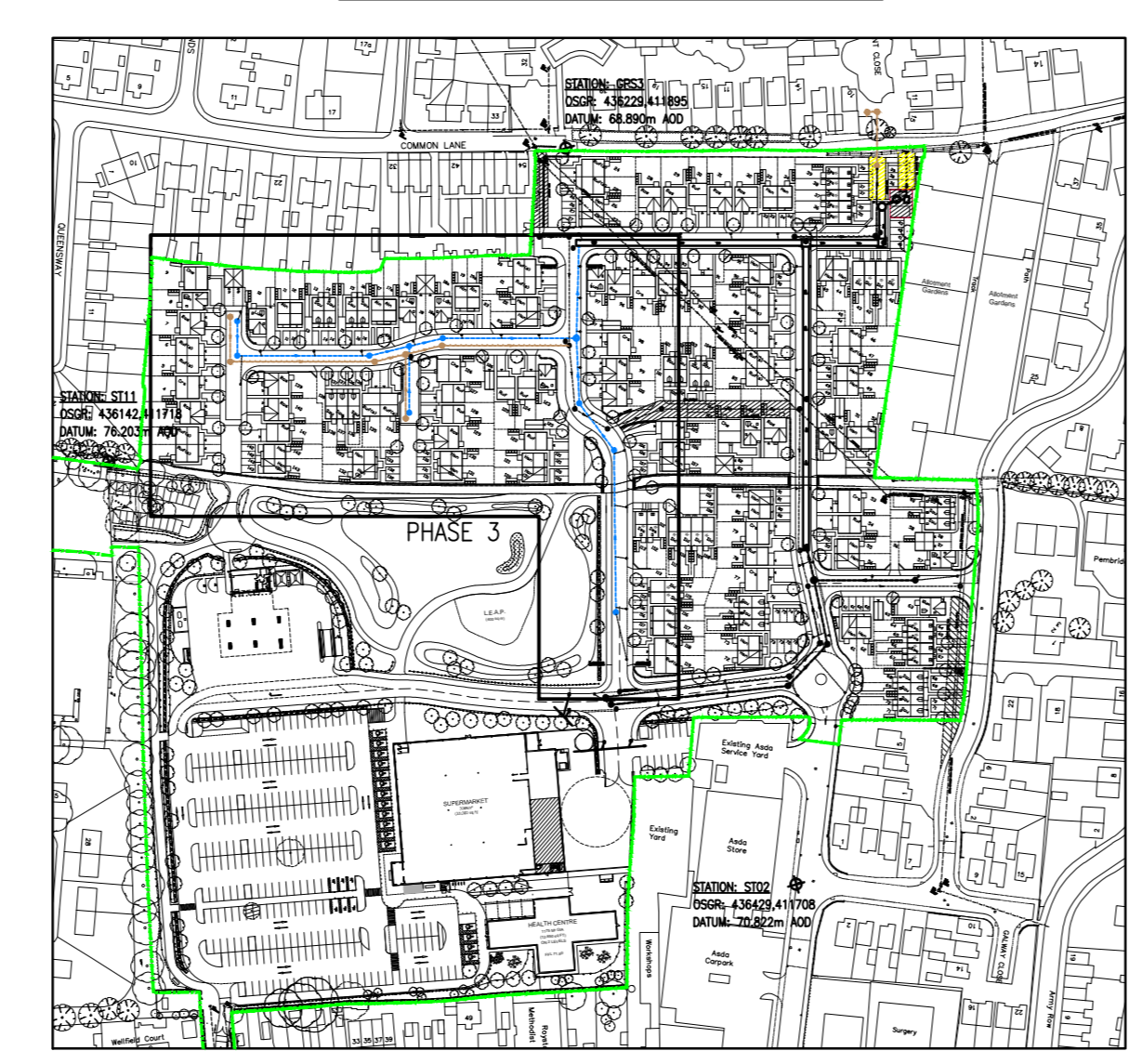
MOST ORNAMENTAL FLOWERING SHRUBS:- BLACKCURRANTS, RASPBERRIES, GOOSEBERRIES, CHRISTMAS TREES, CLEAR FELLED AT INTERVALS NOT EXCEEDING 7 YEARS

6m FROM CENTRELINE OF SEWER ASH, BEECH, BIRCH, CONIFER, ELM, CHESTNUT, MAPLE, OAK, SYCAMORE, APPLE, PEAR.

12m FROM CENTRELINE OF SEWER POPLAR, WILLOW.

- KEY**
- X --- X --- X --- EXISTING SEWER TO BE ABANDONED
  - - - - - PROPOSED SEWER DIVERSION (s185) (REFER TO DWG C1070)
  - - - - - PROPOSED ADAPTABLE SURFACE WATER DRAINAGE
  - ○ ○ ○ ○ PROPOSED ADAPTABLE SURFACE WATER MANHOLE
  - ○ ○ ○ ○ PROPOSED ADAPTABLE FOUL WATER DRAINAGE
  - ○ ○ ○ ○ PROPOSED ADAPTABLE FOUL WATER MANHOLE

YORKSHIRE WATER REF:  
H-3-262-900



**PHASE LOCATION PLAN**  
(SCALE 1:2500)

REFER TO DRAWING C1010 FOR DETAILS OF PHASE 1

DO NOT SCALE.

SUBJECT TO THE APPROVAL OF ALL RELEVANT AUTHORITIES

10.03.15	REVISED TO SUIT LATEST APPROVED PLANNING LAYOUT.	JM	P6
23.10.13	SITE BOUNDARY COLOURED GREEN.	JM	P5
02.10.13	REVISED TO SUIT 'M' COMMENTS	JM	P4
20.07.13	REVISED TO SHOW 2.1m DIA CONCRETE ATTENUATION PIPES.	JM	P3
22.07.13	REVISED TO SUIT 'M' COMMENTS, LOCATION PLAN & GRID REFERENCE ADO.	JM	P2
	INITIAL ISSUE		P1
Date	Revisions	Drawn	Rev.

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Client: **Kier Property Development Limited**

Project: **Midland Road, Royston**

Title: **Proposed Drainage Layout Phase 3**

Scale: 1:250  
Drawn: JM  
Checked: JAF  
Date: APR 13

Drawing Status: **Preliminary**

Job No.: 11120  
Drawing No.: C1012  
Revision: P6