

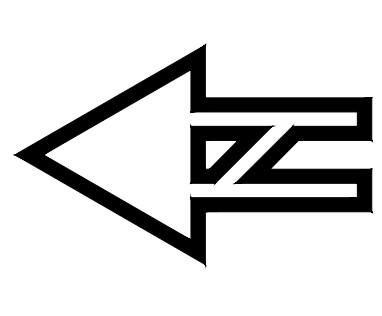
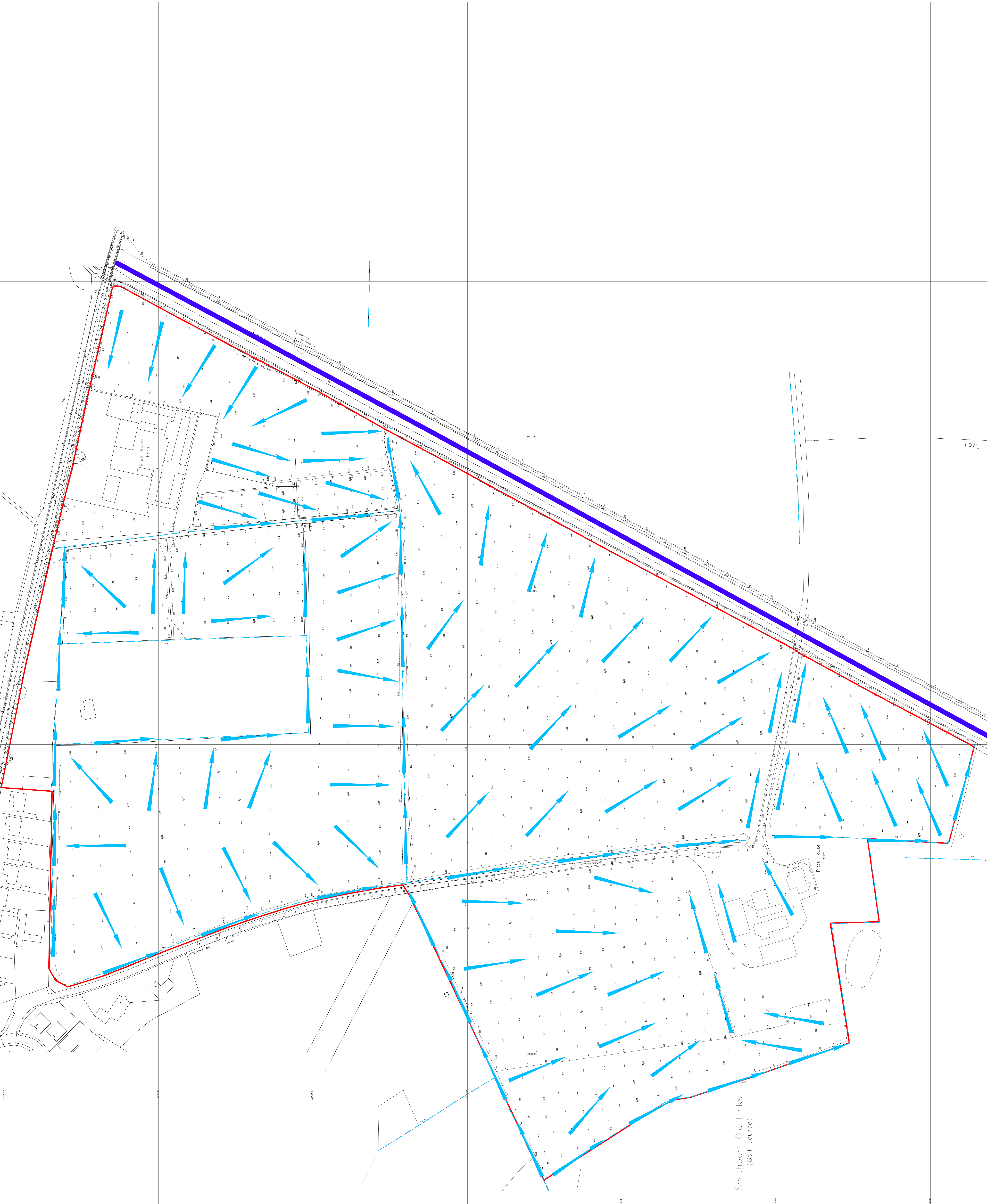
APPENDIX L: OVERLAND FLOOD FLOW ROUTING PLANS

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DO NOT SCALE

LEGEND:

- SITE BOUNDARY
- LAND DRAINAGE
- THREE FOGAS WATERWAY (GA MAIN RIVER)
- PRE-DEVELOPMENT OVERLAND FLOOD FLOW ROUTE



REV	DATE	BY	DESCRIPTION	DN
A	2/19/15	JM	PRELIMINARY ISSUE FOR REVIEW	DNK
DRAWING STATUS: PRELIMINARY				
<p>BETTS ASSOCIATES CIVIL AND ENVIRONMENTAL ENGINEERS 2000 Peachtree Dunwoody Road, Suite 1000, Atlanta, Georgia, USA 30328 Tel: 404.242.8815 Fax: 404.242.8875 www.bettsassociates.com</p>				
PROJECT: MOSS LANE SOUTHPORT				
FILE: OVERLAND FLOOD FLOW ROUTING PLAN (PRE-DEVELOPMENT)				
DATE PLOTTED	SCALE	DRAWN	CHECKED	DATE
SEPT 2015	1:800 @ A0	AW	AW	BON
PROJECT NO.	DRAWING NO.	SHEET NO.		
HYD0008	102	A		

APPENDIX M: EXISTING DRAINAGE SITUATION AERIAL PLAN

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MOSS LANE, SOUTHPORT

EXISTING DRAINAGE SITUATION PLAN

OUR REF. HYD008



Revision 1.1

Date: 23rd September 2015

LEGEND

- Site Extents
- Topographic Fall
- Main River
- Ordinary Watercourse
- Existing Drainage Infrastructure
- Foul Water (Gravity)
- Foul Water (Rising Main)
- Foul Water Pumping Station
- Surface Water (Gravity)
- Surface Water (Rising Main)
- Surface Water Pumping Station
- Combined Sewer (Gravity)
- Combined Sewer (Rising Main)
- Combined Pumping Station

Notes:
 THIS DRAWING IS NOT A DRAINAGE 'DESIGN' IT IS A PRELIMINARY DRAINAGE STRATEGY SHOWING INDICATIVE SEWER LOCATIONS.
 NO HYDRAULIC SIMULATION OR ASSESSMENT OF THESE PROPOSALS HAS BEEN UNDERTAKEN.
 PROPOSED POINTS OF CONNECTION TO THE EXISTING CULVERTS REQUIRE INVERT LEVELS TO BE ACCURATELY ESTABLISHED.
 SURCHARGING OF THE PROPOSED OUTFALL WILL REQUIRE MODELLING TO SATISFY THE REQUIREMENTS OF UNITED UTILITIES ALONG WITH FULL HYDRAULIC ANALYSIS.



APPENDIX N: PRELIMINARY DRAINAGE STRATEGY AERIAL PLAN

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MOSS LANE, SOUTHPORT

Should infiltration not be fully or partly feasible for the management of surface water run-off generated by the site, then the proposed strategy is to discharge surface water flows to the watercourse neighbouring the eastern boundary (Three Pools Waterway). Detailed design will be required to confirm the strategy following more detailed levels and layout review; further discussion with Sefton Council and the Environment Agency will be required.

Discharge to the watercourse will be required to be restricted to mimic the pre-development situation with a minimum of 20% betterment in line with Sefton Councils drainage requirements – further restriction may be required following subsequent discussion with the LPA.

Three Pools Waterway is designated Main River therefore any design proposals will need to consider the requirement to provide a maintenance easement from the watercourse into site; clear and unimpeded access must be provided typically 8m from Top of Bank, such should be confirmed with the EA.

Guidance indicates that for residential development at least two stages of water treatment, are advised prior to discharge to the watercourse. It is recommended that SuDS techniques are considered as part of the proposals; based on the nature and scale there would likely be the opportunity to implement multiple techniques such as ponds, swales, channels, rills and permeable paving; any SuDS proposed should be discussed with the LPA at an early stage.

PRELIMINARY PROPOSED DRAINAGE STRATEGY PLAN

The foul water flows generated by the development site are proposed to outfall to the public foul water gravity sewer (225mm dia.) to the north-west of site. The proposed point of connection from site would be at UU Manhole Ref. 9801 (or alternative downstream location).

It is assumed that a pumped solution will be likely, based on the existing ground levels; however further investigation during detailed design will be required to confirm whether discharging the whole of site under gravity is feasible.

Consents to discharge to the public sewer network will be required from United Utilities prior to approval, furthermore any downstream capacity constraints on the system should be established through early consultations. The preferred point(s) of connection and discharge rates should be discussed and agreed at an early stage.

UU Ref 9801:
CL – 3.66m AOD
IL – Unkn.

OUR REF. HYD008

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LEGEND

- Site Extents
- Topographic Fall
- Main River
- Ordinary Watercourse/Land Drain
- Prop. Indicative Main River Easement

Existing Drainage Infrastructure

- Foul Water (Gravity)
- Foul Water (Rising Main)
- Foul Water Pumping Station
- Surface Water (Gravity)
- Surface Water (Rising Main)
- Surface Water Pumping Station
- Combined Sewer (Gravity)
- Combined Sewer (Rising Main)

Proposed Drainage Connection(s)/Outfall(s)

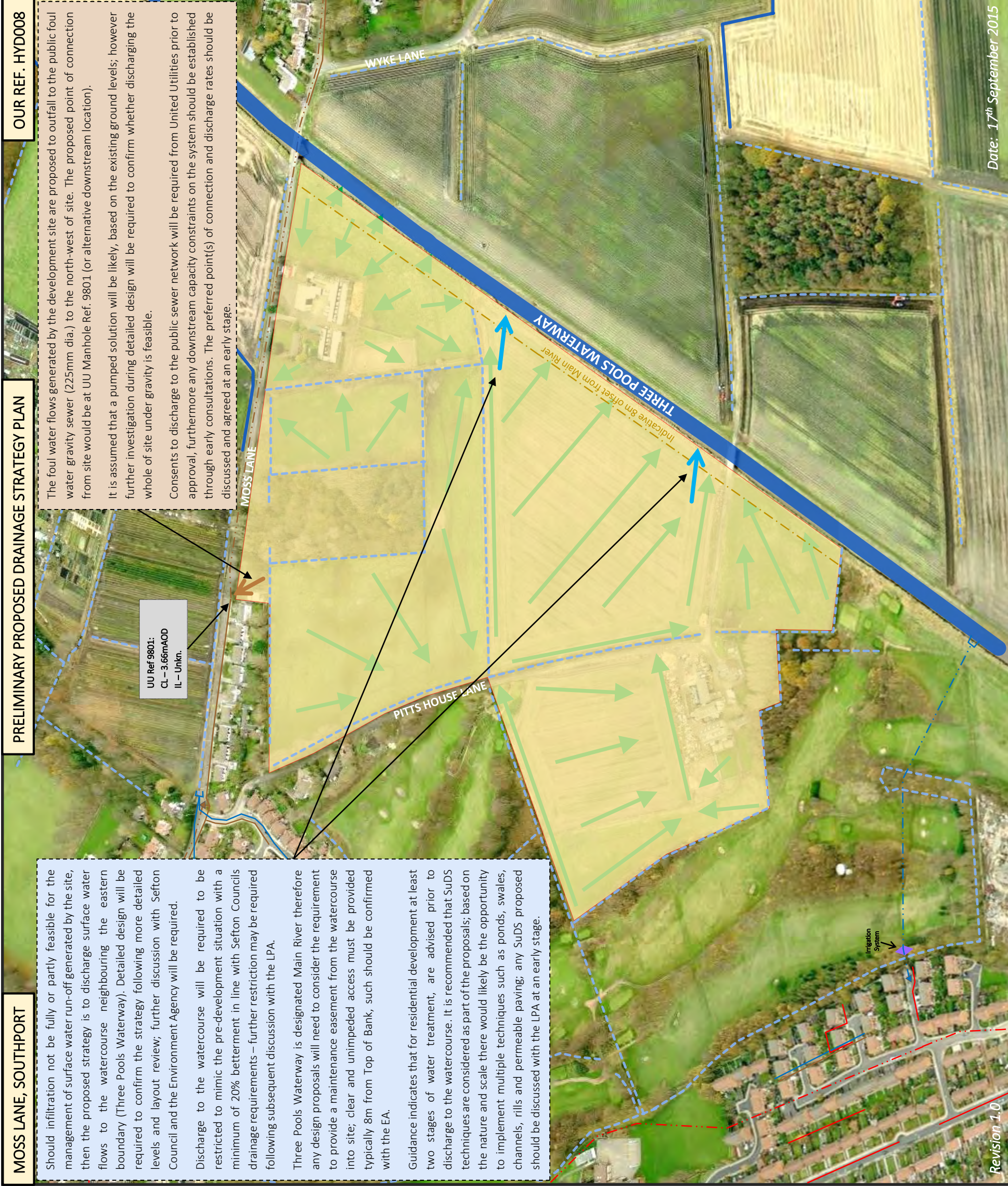
- Foul Water
- Surface Water

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PROPOSED POINTS OF CONNECTION TO THE EXISTING CULVERTS REQUIRE INVERT LEVELS TO BE ACCURATELY ESTABLISHED.

SURCHARGING OF THE PROPOSED OUTFALL WILL REQUIRE MODELLING TO SATISFY THE REQUIREMENTS OF UNITED UTILITIES ALONG WITH FULL HYDRAULIC ANALYSIS.



APPENDIX O: PHOTOGRAPHS

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