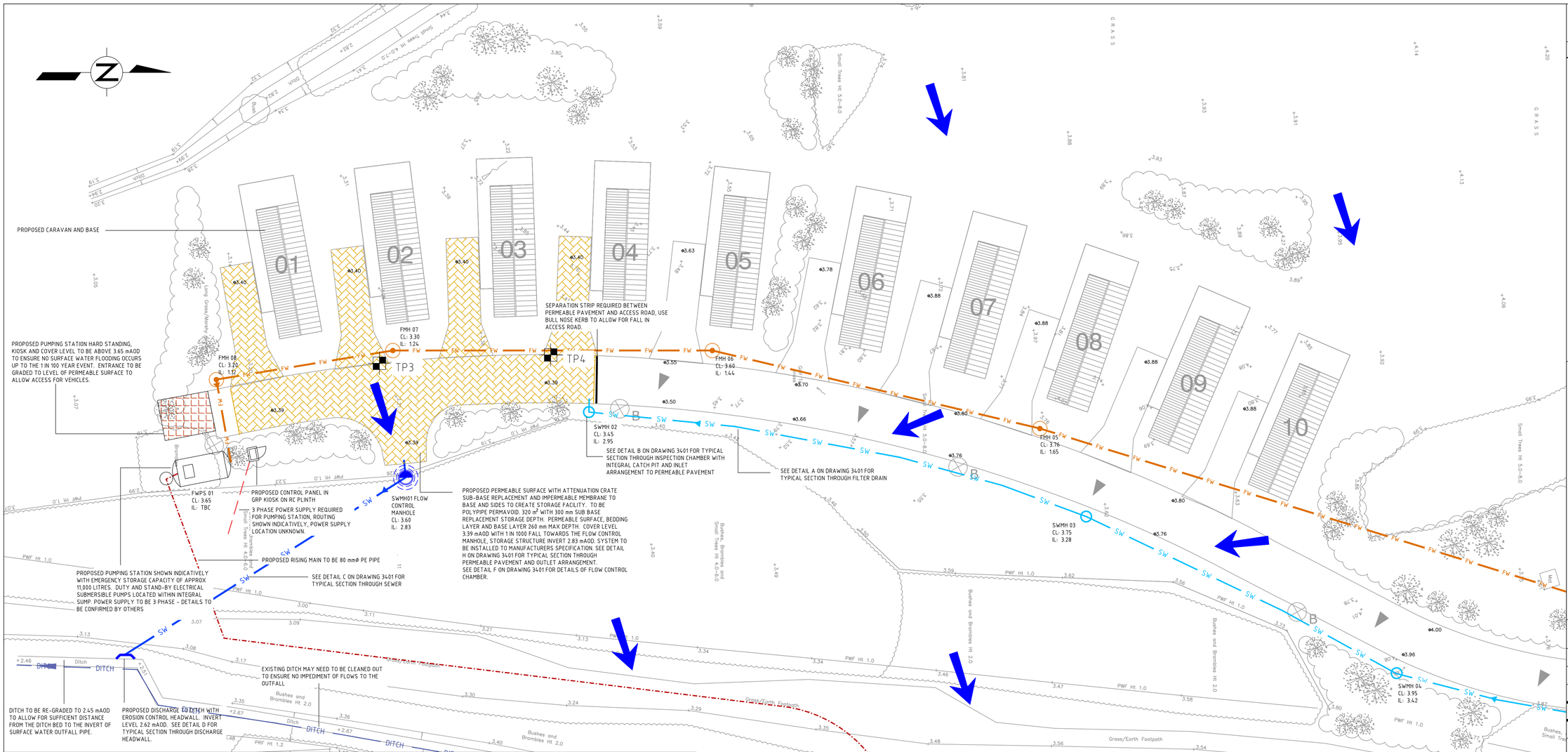

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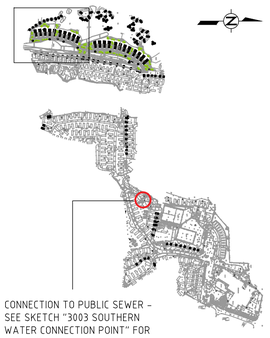
DESIGNER - A WOOLLEY DRAWING REVISION - C
DATE - 19.07.17



DATE.	DRWN.	CHKD.	APPR.	REV.	NOTES.
19.07.17	AW	WOM		C	AMENDMENTS TO SURFACE WATER DESIGN FOR PLANNING
09.05.17	AW	WOM		B	WITH CLIENT AMENDMENTS - PUMPING STATION AND PERMEABLE SURFACE
21.04.17	AW	BD		A	FOR INFORMATION

PROJECT MANAGER:-	DANIEL KENNARD
ASSISTANT:-	ANDY WOOLLEY
DRAWN DATE:-	APRIL 2017
SCALE & SHEET SIZE:-	1:200 @ A1

FOR PLANNING

nijhuis INDUSTRIES i-CONSULT

- Waste to Value (AD/Biogas)
- Industrial Effluent Treatment
- Sewage Treatment
- Flood Risk Management/SUDS
- Design Consultancy
- Service and Maintenance

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CLIENT
BOURNE LEISURE

PROJECT
CHURCH FARM GOLF DEVELOPMENT, CHURCH FARM HOLIDAY PARK, PAGHAM, PO21 4NR

DRAWING TITLE
CHURCH FARM GOLF DEVELOPMENT DRAINAGE LAYOUT FOR PLANNING 2 OF 2

PROJECT No.	DRAWING No.	REV.
J-11399	3002	C

LEGEND

- TP1 — INFILTRATION TESTING TRIAL PIT LOCATION
- SW — PROPOSED PRIVATE SURFACE WATER FILTER DRAIN WITH VEGETATED FILTER STRIP BETWEEN THE ROAD AND DRAIN. 150 mm Φ TOP PERFORATED PIPE TO CONVEY FLOWS AT 1:225 GRADIENT
- SW — PROPOSED PRIVATE SURFACE WATER UNDERGROUND SEWER 150 mmØ WITH 1:150 MIN GRADIENT - TO BE DUCTILE IRON WITH CONCRETE SURROUND FOR COVER PROTECTION
- PROPOSED INSPECTION CHAMBER WITH SILT TRAP
- PROPOSED FLOW CONTROL MANHOLE INSTALLED TO MANUFACTURERS SPECIFICATION
- PROPOSED PERMEABLE SURFACE WITH SUB-BASE REPLACEMENT ATTENUATION STORAGE POLYPIPE PERMAVOID OR SIMILAR. SEE NOTES ON DRAWING FOR DIMENSIONS. TO BE INSTALLED USING IMPERMEABLE MEMBRANE TO BASE AND SIDES TO CREATE STORAGE TANK.
- ø3.36 — PROPOSED COVER LEVELS
- PROPOSED SURFACE WATER DISCHARGE HEADWALL TO DITCH WITH EROSION CONTROL
- ACCESS ROAD CROSS-FALL TO DIRECT RUNOFF ONTO FILTER STRIP AND DRAIN
- INDICATIVE OVERLAND EXCEEDANCE FLOW ROUTING
- PROPOSED RISING MAIN 80 mm Φ INTERNAL - NOTE WASHOUT AND/OR AIR VALVES MAY BE REQUIRED - TBC IN DETAILED DESIGN.
- FW — PROPOSED PRIVATE FOUL SEWER 100 mm Φ INSTALLED AT MINIMUM 1:80 GRADIENT
- FW — PROPOSED PRIVATE FOUL SEWER 150 mm Φ INSTALLED AT MINIMUM 1:150 GRADIENT
- PROPOSED PRIVATE FOUL PPIC 475 mm Φ
- PROPOSED HARD STANDING FOR PUMP STATION ACCESS
- PROPOSED PUMP STATION AND WASHOUT VALVE WITH EMERGENCY STORAGE PROVISION. NOTE THREE PHASE POWER SUPPLY IS REQUIRED FOR THE PUMP STATION, DETAILS CURRENTLY UNKNOWN.

SURFACE WATER DRAINAGE METHODOLOGY & PHASING SCHEME

DEEP AND SHALLOW SURFACE WATER INFILTRATION TESTS WERE INCONCLUSIVE DURING TESTING, INDICATING INFILTRATION IS NOT VIABLE AS A MEANS OF SURFACE WATER DISCHARGE ON SITE. GROUNDWATER DEPTHS VARIED FROM 1.2 TO 2.3 m DEEP.

POST DEVELOPMENT, THE SURFACE WATER RUNOFF CREATED BY ADDITIONAL IMPERMEABLE AREAS AT THE SOUTHERN EXTENT OF THE SITE SHOWN HERE WILL BE DISCHARGED TO A SuDS CELLULAR ATTENUATION STORAGE STRUCTURE LOCATED BENEATH A PERMEABLE SURFACE. THIS IS TO BE AS A SUB-BASE REPLACEMENT SYSTEM, POLYPIPE PERMAVOID OR SIMILAR. WATER WILL THEN BE DISCHARGED TO A NEARBY DITCH VIA A 150 mm SEWER AT FLOW RATES AS CLOSE AS PRACTICIBLE TO GREENFILED RUNOFF RATES AT LESS THAN 1.5 l/s USING A VORTEX FLOW CONTROL DEVICE, HYDROBRAKE OPTIMIM OR SIMILAR. SURFACE WATER CREATED FROM IMPERMEABLE AREAS UPSTREAM OF THE PERMEABLE SURFACE WILL BE COLLECTED USING A FILTER DRAIN ADJACENT TO THE ACCESS ROAD. THIS SHOULD BE LINED WITH GEOTEXTILE AND A VEGETATED FILTER STRIP SHOULD BE INSTALLED BETWEEN THE ACCESS ROAD AND THE FILTER DRAIN. 150 mm Φ TOP PERFORATED PIPE INSTALLED WITHIN THE FILTER DRAIN WILL CONVEY FLOWS TO THE ATTENUATION STRUCTURE. INSPECTION CHAMBERS WITH INTEGRAL SILT TRAPS WILL BE INSTALLED AT REGULAR INTERVALS TO ALLOW FOR MAINTENANCE.

DESIGN CALCULATIONS INDICATE A STORAGE VOLUME OF 90 m^3 WILL BE REQUIRED TO ATTENUATE RUNOFF UNDERGROUND FOR THE 1 IN 100 YEAR PLUS CLIMATE CHANGE EVENT. CELLULAR STORAGE COMPRISING OF 300 mm TOTAL DEPTH PERMAVOID UNITS WITH A SURFACE AREA OF 320 m^2 WILL PROVIDE THE REQUIRED STORAGE CAPACITY.

THE PERMEABLE SURFACE INFRASTRUCTURE SHOULD BE INSTALLED FOLLOWING THE FOUL WATER PUMPING STATION AND CARAVAN BASES TO REDUCE HEAVY TRAFFIC LOADING ON THE STRUCTURE. SEDIMENT CONTROLS SUCH AS SILT FENCING AND TEMPORARY DRAINAGE FEATURES SHOULD BE INSTALLED DURING THE CONSTRUCTION PHASE TO CONTROL POLLUTION FROM RAINFALL EVENTS.

SURFACE WATER DRAINAGE MAINTENANCE AND MANAGEMENT

THE FOLLOWING MAINTENANCE AND MANAGEMENT PLAN SHALL BE ADHERED TO:

THE PROPOSED DRAINAGE SYSTEMS WILL REMAIN PRIVATE AND WILL BE OPERATED AND MAINTAINED BY THE SITE OWNER/USER OR CARRIED OUT BY A MANAGEMENT COMPANY.

MAINTENANCE INSPECTIONS OF THE DRAINAGE INFRASTRUCTURE INCLUDING ALL FILTER DRAINS, LINEAR DRAINS, INSPECTION CHAMBERS AND ATTENUATION STORAGE UNITS SHOULD BE CARRIED OUT FREQUENTLY. VISUAL INSPECTION SHOULD BE CARRIED OUT ON A MONTHLY BASIS OR AFTER ANY HEAVY RAINFALL EVENT FOR THE FIRST 6 MONTHS, THEN 6 MONTHLY AFTER THAT, PARTICULAR ATTENTION SHOULD BE PAID DURING THE AUTUMN MONTHS WHEN LEAF LITTER AND OTHER DEAD PLANT MATERIAL MAY CAUSE OBSTRUCTION. ANY FILTER MEDIA SHOULD BE CHANGED AS PER MANUFACTURER SPECIFICATIONS.

SEDIMENT, SILT AND OTHER GRANULAR MATERIAL ENTERING THE PERMEABLE SURFACED AREAS SHOULD BE CLEARED ON A REGULAR BASIS, MONTHLY, OR AS REQUIRED.

ANY ISSUES OR FAILURES IDENTIFIED WITH THE SYSTEM SHOULD BE RECTIFIED IMMEDIATELY BY A SUITABLE CONTRACTOR, OBSERVING SUITABLE WORKING PRACTICES.

FOUL DRAINAGE METHODOLOGY

FOUL FLOWS WILL BE FED VIA A GRAVITY SEWER FROM THE PROPOSED 22 STATIC CARAVANS TO A FOUL PUMPING STATION. FLOWS WILL THEN BE PUMPED VIA AN 80 mm INTERNAL DIAMETER RISING MAIN TO THE NEAREST SUITABLE FOUL INSPECTION CHAMBER WITHIN THE EXISTING PARK INFRASTRUCTURE AS INDICATED. FROM THIS LOCATION FLOWS WILL BE CONVEYED AS PER THE EXISTING FOUL DRAINAGE SYSTEM TO THE PUBLIC SEWER.

PEAK FOUL FLOWS ARE CALCULATED AT 10650 l/DAY USING FLOWS AND LOADS 4. THE PEAK FLOW ENTERING THE PUBLIC SEWER WILL BE 4-6 l/s WHEN THE PUMPING STATION IS OPERATING.

THE PUMP STATION IS TO HAVE EMERGENCY STORAGE OF 10.65 m^3 BETWEEN THE HIGH LEVEL ALARM FLOAT SWITCH AND THE LOWEST INCOMING FOUL INSPECTION CHAMBER COVER LEVEL. THIS IS TO PROVIDE 24 HOUR EMERGENCY STORAGE IN THE EVENT OF A SYSTEM FAILURE.

THE FOUL DRAINAGE SYSTEM IS TO REMAIN PRIVATELY OWNED, OPERATED AND MAINTAINED BY THE SITE OWNER/USER.