Stonestreet Green Solar

Environmental Statement
Volume 4: Appendices
Chapter 10: Water Environment
Appendix 10.2: Flood Risk Assessment (Tracked) Part 2 of 3

PINS Ref: EN010135
Doc Ref. 5.4(A)
Version 2
Deadline 1
December 2024

APFP Regulation 5(2)(a)
Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

604000 605000 606000 607000 608000

139000

138000

425.064837.00001.0066.2 Post Development 1.0% AEP + UE CC 25% FB Flood Depth Change

Mersham
Hythe Road
Bog Farm
Blind Lane
Church Road
Lodge House
Swanton Court
M20
A20
Highfield
Bower Road
Fairbank
Paddock Hill Farm
The Forstal
Littlestock Cottage
Evegate Manor
Stone H
Bower Road Stream
Water Farm
Cooper's
Park Wood Cottage
Elm Tree Farm
The Mill House
Flood Street
East Stour River
Broad Oak
Spring Cottage
Stonestreet Green
Backhouse Wood
Bested House
Bested Hill
Partridge Farm
Lewis Lane
Bank Road
Handen Farm
Becketts Green
The Haven
Calleywell Lane
Hogben Farm
Clap Hill
Bank Farm
Aldington Frith
Frith Road
Lower Park Farm
Priory Road
Dickson's Bourne
Forehead Farm
Church Lane
Bracken Glen
Cherries
Forge Hill
Middle Park Farm
Burch's
Bourne Road
Mill Lane
Roman Road
Aldington
Park Wood
Bonnington
The Priory
Home Farm
New Rd Hill
Cherry Orchard Lane
Ruffin's Hill
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
73
93

0 0.5 1 1.5
Kilometres

N

LEGEND

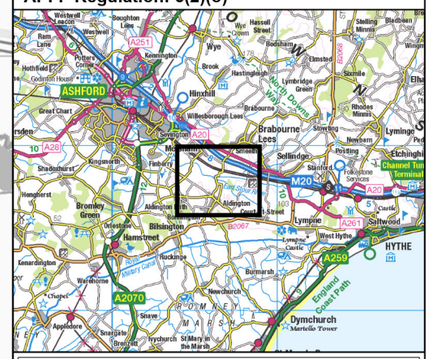
Order limits
Field

Depth Change (mm)

<= -40
-20 to -40
-10 to -20
-10 to -5
-5 to -1
-1 to 1
1 to 5
5 to 10
10 to 20
20 to 40
>= 40

*Baseline vs Post Development 25% Fence Blockage
1:100 - 36.25 hr Rainfall Event - 2 m Grid

APFP Regulation: 5(2)(o)



SLR

STONESTREET GREEN SOLAR

HYDRAULIC MODELLING REPORT

POST DEVELOPMENT 1.0% ANNUAL EXCEEDANCE PROBABILITY AND UPPER END CLIMATE CHANGE 25% FENCE BLOCKAGE FLOOD DEPTHS

HMR Figure 25

Scale 1:15,000 @ A3

Date MAY 2024

604000 605000 606000 607000 608000

139000

138000

N

Swanton Court
Blind Lane
Church Road
Highfield
Bower Road
M20
A20
Fairbank
Paddock Hill Farm
Lodge House
Plain Road
The Forstal
Littlestock Cottage
Evegate Manor
Bower Road Stream
Water Farm
Stone Hill
Cooper's La
Park Wood Cottage
Elm Tree Farm
Flood Street
The Mill House
25
26
27
28
29
19
24
23
16
Broad Oak
Spring Cottage
Stonestreet Green
Backhouse Wood
73
Bested Hill
Bested House
Partridge Farm
1
2
4
5
10
11
14
15
18
17
Bank Road
Lewis Lane
3
6
Beckett's Green
9
12
13
Handen Farm
The Haven
7
8
Bank Farm
Clap Hill
Calleywell Lane
Hogben Farm
21
22
20
Aldington Frith
Frith Road
Priory Road
Dickson's Bourne
Forge Hill
Forehead Farm
Church Lane
Lower Park Farm
Bracken Glen
Cherries
Middle Park Farm
Roman Road
Mill Lane
Bourne Road
Aldington
Park Wood
Bonnington
The Priory Home Farm
New Rd Hl
Cherry Orchard Lane
Priory Lodge
93
Ruf...'s Hill
Postling Green

0 0.5 1 1.5
Kilometres

LEGEND

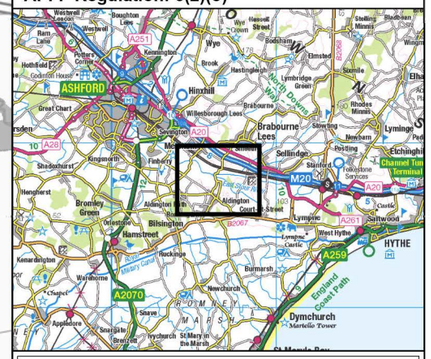
Order limits
Field

Depth Change (mm)

<= -40
-20 to -40
-10 to -20
-10 to -5
-5 to -1
-1 to 1
1 to 5
5 to 10
10 to 20
20 to 40
>= 40

*Baseline vs Post Development 50% Fence Blockage
1:100 - 36.25 hr Rainfall Event - 2 m Grid

APFP Regulation: 5(2)(o)



SLR

STONESTREET GREEN SOLAR

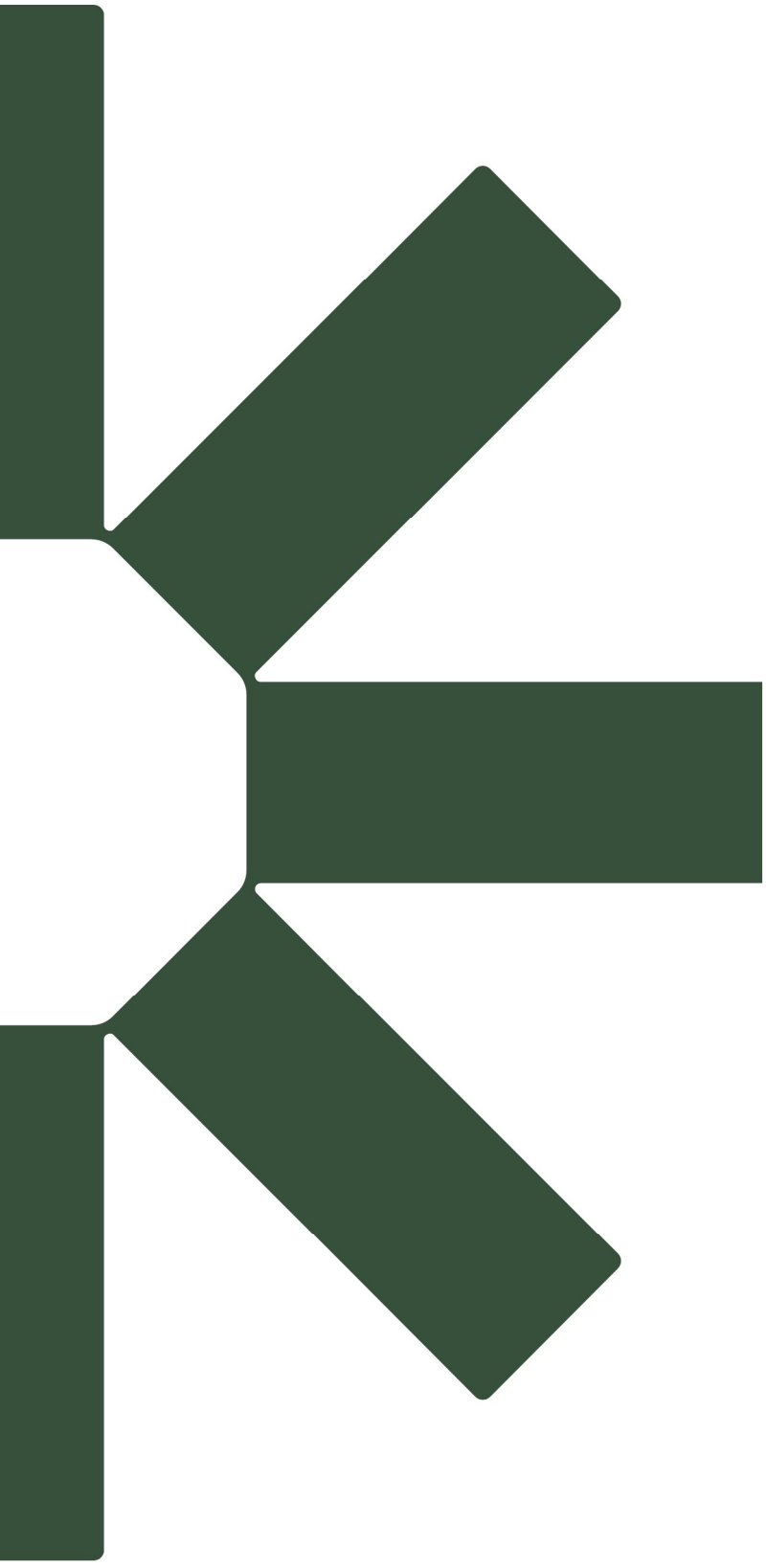
HYDRAULIC MODELLING REPORT

POST DEVELOPMENT 1.0% ANNUAL EXCEEDANCE PROBABILITY AND UPPER END CLIMATE CHANGE 50% FENCE BLOCKAGE FLOOD DEPTHS

HMR Figure 26

Scale	Date
1:15,000 @ A3	MAY 2024

425.064837.00001.0067.2 Post Development 1.0% AEP + UE CC 50% FB Flood Depth Change



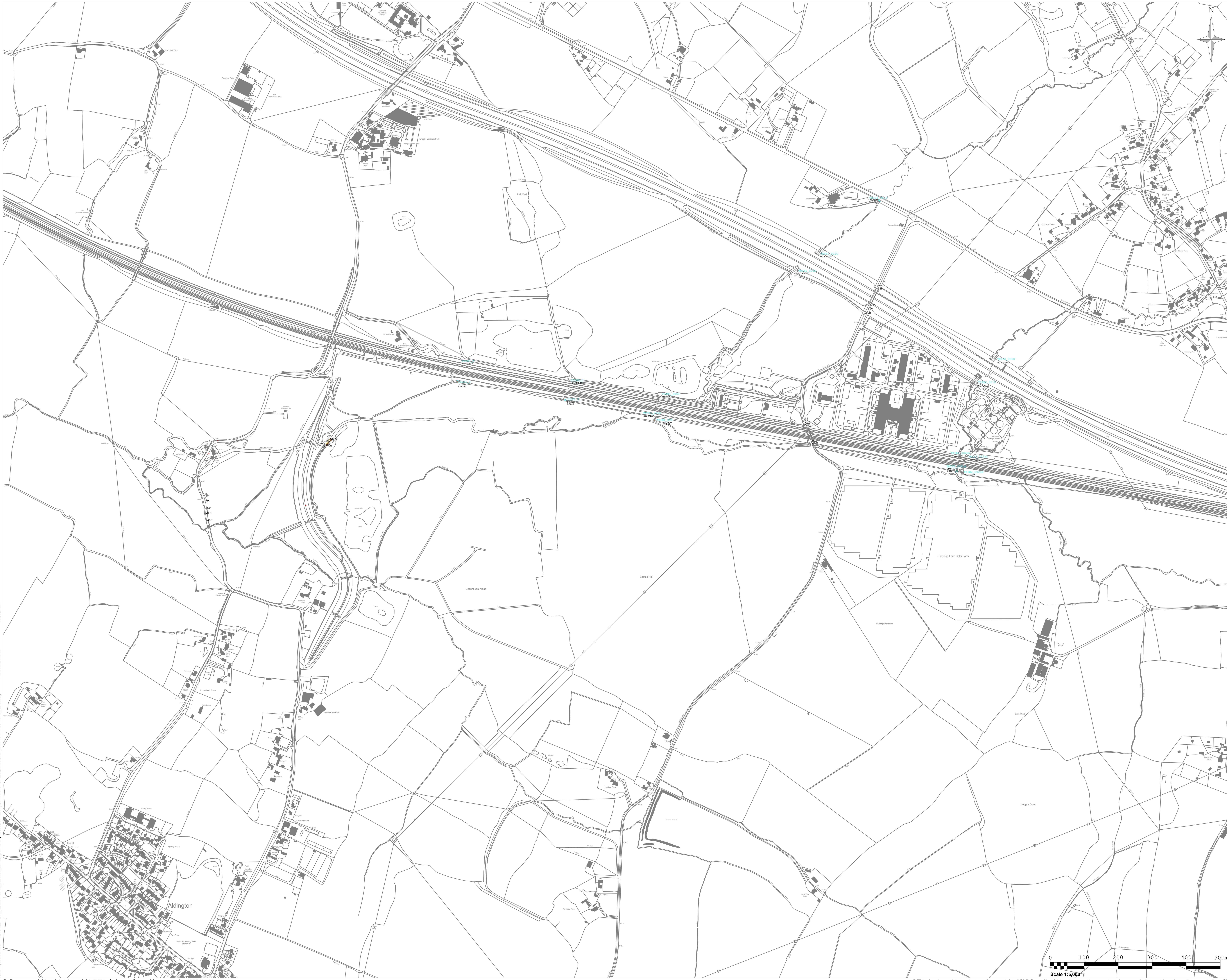
Making Sustainability Happen

Annex A SLR Topographic Survey

Annex B: East Stour Hydraulic Modelling Report

Stonestreet Green Solar Farm

EPL 001 Limited



Notes:

1. TOPOGRAPHICAL SURVEY CARRIED OUT BY SLR CONSULTING 24th-26t JULY 2023.

2. THIS PLAN IS ORIENTATED TO ORDNANCE SURVEY NATIONAL GRID PLAN AND HEIGHT DATUM DERIVED FROM THE ORDNANCE SURVEY ACTIVE NETWORK; OSGB36(OSGM15/OSTN15).

3. WHILST EVERY EFFORT HAS BEEN MADE TO INCLUDE ALL ACCESSIBLE DETAIL, SOME FEATURES MAY NOT BE SHOWN IF OBSCURED AT THE TIME OF SURVEY (e.g. PARKED VEHICLES/BOATS/OVERGROWN AREAS). ONLY MAJOR TREES SURVEYED IN WOODED/OVERGROWN AREAS.

4. THE ACCURACY OF THIS SURVEY IS COMMENSURATE WITH THE DRAWING SCALE SPECIFIED WITHIN THE TITLE BLOCK. ALL CRUCIAL DIMENSIONS SHOULD BE CHECKED ON-SITE.

5. THIS PLAN IS TO OSGB36 DATUM.

Legend:

- SPOT LEVEL
- ST 1 SURVEY CONTROL STATION WITH ID
- KERB BOTTOM
- KERB TOP
- CHANGE IN SURFACE
- WALL BOTTOM
- FENCE
- GATE
- BUILDING HATCH
- FOLIAGE
- CANOPY

BB	Belisha Beacon	LR	Life Ring
BC	Building Canopy	MH	Manhole
BH	Borehole	MKR	Marker
BM	Bench Mark	PO	Post
BDY	Boundary	PTH	Door Threshold Level
BOL	Bollard	IL	Pipe Invert
BT	British Telecom Manhole	RE	Rodding Eye
CCTV	Closed Circuit Television	RL	Ridge Level
CP	Chamber Pit	RNP	Road Name Plate
CTV	Cable Television Manhole	RS	Sign Post
CUL	Culvert	SL	Spot Light
DK	Drop Kerb	SO	Soffit Level
DP	Drain Pipe	ST	Stop Tap
DPC	Damp Proof Course	Stmp	Stump (Tree)
DWB	Dog Waste Bin	SV	Stop Valve
EB	Electricity Box	SVP	Soil Vent Pipe
EL	Eaves Level	SW	Storm Water
EP	Electricity Pole	SY	Stay (e.g. Pylon, TP)
ER	Earthing Rod	TAP	Stand Pipe
IFL	Internal Floor Level	TCB	Telephone Call Box
INV	Invert	TCL	Tactile
FE	Fire Point	THL	Threshold Level
FA	Fire Alarm	TL	Traffic Light
GB	Grit Box	TOD	Top of Deck Level
GV	Gas Valve	TW	Top of Wall
GP	Gate Post	TP	Telegraph Pole
GRIT	Grit Bin	TPT	Trial Pit
G	Gully	U/B	Under Beam
FH	Hydrant	UTL	Unable To Lift
IC	Inspection Chamber	VP	Vent Pipe
IT	Intercom	WSL	Window Sill Level
KO	Kerb Outlet	WHL	Window Head Level
LB	Life Buoy	WL	Water Level
LP	Lamp Post	WM	Water Meter
		WO	Wash Out

Rev	Amendments	Date	By	Chk	Auth
0		28/07/23	JL	GJH	VQ

SLR

www.slrconsulting.com

Drawing Status & Suitability Code

Client
EPL 001 LIMITED

Project
STONESTREET GREEN
ASHFORD

Drawing Title
TOPOGRAPHICAL SURVEY
JULY 2023

Scale		SLR Project No.
1:5000 @ A1		425.064837.00001
Designed	Drawn	Checked	Authorised
	JL	GJH	VQ
Date	Date	Date	Date
	28/07/2023	28/07/2023	28/07/2023

Drawing Number
425.064837.00001.09.01

Rev.

H:\Projects\425.P64837.00001_Stonestreet_Green_Solar_Farm\Input\SLR Survey\425.064837.00001.009.0_STONESTREET_CE.dwg Clement Ehall 22/01/2024

Annex B Environment Agency Supplied Topographic Survey

Annex B: East Stour Hydraulic Modelling Report

Stonestreet Green Solar Farm

EPL 001 Limited

J01058 - East Stour, Ashford to Stanford Channel Survey – C00322

December 2017 - March 2018

1. WRITTEN REPORT

To: [redacted], **Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH**

From: **Maltby Land Surveys Limited**

Our Reference: **17_322**

Survey Site: **East Stour and Tributaries**

Date of Survey: **January-March 2018**

A) Objectives

Further to your instruction, a river channel survey was carried out on the above watercourse in accordance with your survey specification.

Survey Extents

East Stour River (ESTO01) – TQ 0160 4286 Open Channel, Confluence with Great Stour to TQ 1316 3824 Culvert Exit, B2068.
East Stour River Tributary (ESTO02) – TQ 0235 4001 Open Channel, Confluence with ESTO01 to TQ 0298 3966 Open Channel, Confluence with ESTO01.
East Stour River Tributary (ESTO03) – TQ 0340 3938 Open Channel, Confluence with ESTO01 to TQ 0388 3883 Mill Face, Confluence with ESTO01.
East Stour River Tributary (ESTO04) – TQ 0379 3923 Open Channel, Confluence with ESTO01 to TQ 0432 3897 Sluice, Confluence with ESTO01.
East Stour River Tributary (ESTO05) – TQ 0492 3909 Open Channel, Confluence with ESTO01 to TQ 0496 3909 Culvert Entrance, Confluence with ESTO01.
East Stour River Tributary (ESTO05) – TQ 0492 3909 Open Channel, Confluence with ESTO01 to TQ 0496 3909 Culvert Entrance, Confluence with ESTO01.
East Stour River Tributary (ESTO06) – TQ 0620 3806 Open Channel, Confluence with ESTO01 to TQ 0643 3811 Open Channel, Confluence with ESTO01.
East Stour River Tributary (ESTO07) – TQ 0616 3804 Open Channel, Confluence with ESTO01 to TQ 0671 3814 Weir, Confluence with ESTO01.
East Stour River Tributary (ESTO08) – TQ 0471 3898 Open Channel, Confluence with ESTO01 to TQ 0475 3902 Culvert Entrance, Confluence with ESTO01.
Rail Culvert (ESTO09) – TQ 1116 3762 Culvert Entrance to TQ 1115 3756 Open Channel.
East Stour River Tributary (ESTO10) – TQ 0616 3804 Open Channel, Confluence with ESTO01 to TQ 0639 3810 Footbridge, Confluence with ESTO06.
Avocet Way Flood Relief Culvert (AFRC01-AFRC07) - Avocet Way

4) Specified Requirements

The *services* include, but are not limited to, the provision of the items specified in Section 2.

Project Management

Day to day management of project delivery shall be the responsibility of the *Consultant*.

In managing the *services* the *Consultant* shall undertake the following:

1. Maintain weekly contact with the *Employer's* Project Manager such that the *Employer* is fully informed of progress and issues.

Product Delivery

In delivering the *services* the *Consultant* shall:

1. Ensure all deliverables and products show evidence of a quality control system. General quality tolerances should consist of:
   a) All first draft deliverables shall be free from significant error and be consistent with other documents, avoiding repetition.
   b) All first draft products shall tell a logical story with a clear audit trail of consultation and decision making processes, supported by robust evidence, which can be easily transferred and interpreted by future users.
   c) All first draft deliverables shall be grammatically correct and clearly presented, with consistent formatting.
   d) All first draft deliverables shall satisfy the relevant latest guidance and legislative requirements.
   e) All first draft deliverables shall conform to the latest and necessary guidance and meet the template requirements, unless otherwise agreed with the *Employer* in advance of submission.
   f) Products shall be suitable for the audience and written using 'plain English'.
2. Ensure all drawings are produced at the scale described below in Section 2.4.

Previous Studies and Data Sources

The *Consultant* shall obtain Ordnance Survey mapping data and other relevant data products from the Partner Data Portal website and comply with the licensing of that site.

Survey

The *Consultant* shall:

1. Obtain all consents and approvals required for the survey to be undertaken.

2. When on site, carry with them at all times the letter of introduction, or similar, supplied by the *Employer*.
3. Deliver the survey as described in this Scope.
4. Ensure the *Employer's* estates lead is given 4 weeks advance notice of any land entry required.
5. Provide final outputs of the survey to the Employer in a digital format.
6. Ensure that all survey results including the survey report are to be delivered as a zipped file email attachment if the zipped file is smaller than 10Mb or via DEFRA Sharefile (link supplied by Employer upon request).

General Requirements applicable to all surveys, (Section I of Specifications)

The following is to be copied and pasted into the survey report as a record of the survey requirement.

The *Consultant* shall:

Submit all documents with the EA job number in the file name.

Name drawing files A-XXXXXX-BB.dwg where A may be:

Letter	Meaning
L	Long section
X	Cross sections
T	Topographic map
H	Hydrographic chart

BB is a sequential sheet number – 01, 02 etc.

And where XXXXXX is the job number - J01058

Submit weekly progress reports to EA Project Manager by email / telephone.

2.4.1 Survey Control (Section II of specifications)

The *Consultant* shall:

Take GNSS observations at existing stations shown on the contract map to E6 standard.

Establish permanent survey control stations in the approximate locations shown on C00322_Sheet1 to C00322_sheet5.pdf. When it is not possible to take GNSS observations at a permanent station, the surveyor shall establish a temporary station for the GNSS observations and a permanent E5 station on a suitable stable structure. He shall level from the GNSS station to the E5 station to determine the height.

GNSS observations shall be to E6 standard

Number EACS using the numbering system in Paragraph 3.2.5 of the National Technical Survey Specification.

Provide EACS description cards as .doc format files.

2.4.3 Channel Surveys (Section IV of specifications)

The *Consultant* shall:

Allow within their pricing for one day walkover of the site with the EA project manager / consultant.

Use the channel centreline as shown on the contract map.

Supply channel survey data in ISIS, formats. **Tenderers to state in the methodology if they will be supplying structure data automatically from survey data in ISIS format.**

Supply data in EACSD V3.2 format and include CES1 and CES2 data. EACSD shall be passed through the Environment Agency's on-line validator program (www.eacsd.co.uk) and the validation certificate presented in the survey report.

Survey open channel and structure cross sections in approximate locations indicated on the contract mapping.

Survey channel hard bed levels. Separate ISIS digital data files are to be provided for hard and for soft bed data.

Extend cross sections 5m beyond the river bank into the flood plain.

Number cross-sections in the format AAAABBCCCCC where AAAA is an alphanumeric watercourse identifier, BB is braid or side channel number and CCCCC is the cross-section chainage. These are marked on the contract mapping. Chainage for the East Stour is as shown on the contract mapping. For the side channels, chainage shall be 0+000 at the downstream confluence and increase upstream.

Present cross-sections at 1:100 natural scale, longitudinal sections at 1:2500 horizontal and 1:100 vertical scale or as agreed with the EA project manager.

Survey weirs and drop structures if their head of water is 0.2m or greater.

Survey a structure section for all pipes crossing the water course which have a diameter greater than 0.35m.

Survey and show on the long profile outfalls entering the watercourse of 350mm diameter or greater (re: para 9.3.5).

Produce gaugeboard description cards using template gaugeboard_blank.doc.

Survey surveyed in accordance with Clause 9.5 of the specification river banks which are raised above the floodplain.

B) Survey Control

Control for the survey was derived using Global Navigation Satellite Systems (GNSS) utilising Leica 'SmartNet', a Network Real Time Kinematic (RTK) survey method.
Two new Environment Agency Grade Control Stations (EACS) E50733004 & E50733005 were surveyed to E5 grade specification. Seventeen various previously installed EACS have been surveyed to various EA grades, for values relating to checks please see *J01058 – EACS Checks.xls and table B.2 for OSTN15 Check Values*. SmartNet was used to install control throughout the survey catchment where necessary, installing a minimum of two reference pegs for each set up. All supplied data is to the OSTN15.
GNSS techniques were deployed in accordance with the EA specification. Observations have been taken using Leica GS08+ receivers utilising the OSGM15 geoid model and OSTN15 transformation model to obtain OSGB36 co-ordinates. The data is imported into Leica Geo Office so a Mean Co-ordinates and Difference report can be created. The weighted average coordinates from the field are then used to derive the height of newly installed EACS with best fit levelling. See folder '13. Survey Control' for processing data.

Table B.1 –Details of New EACS.

EACS	Easting (NGm)	Northing (NGm)	Hgt (NGm)
E50733004	605042	139000	43.712
E50733005	610656	137517	60.587

Table B.2 –OSTN15 Values of existing EACS.

OSTN15 Values				Comments
Station	Easting	Northing	Hgt	
E20730012	601035.741	141073.248	35.975	
E20730401	601495.721	142538.993	35.267	
E20730403	602222.987	140275.473	38.489	
E20731536			51.806	Levelled only (No Position from Historic Data (OSTN02)
E50730013	601326.653	142026.358	38.489	Position Value Derived from 2 x 3min observation
E50730020	601592.794	140613.787	36.314	Position Derived from Section Resection
E50730021			36.337	Levelled only (No Position from Historic Data (OSTN02)
E50730500			38.486	Levelled only (No Position from Historic Data (OSTN02)
E50730503	603435.819	139359.525	40.259	Position Value Derived from 2 x 3min observation
E50731495	601526.000	140706.000	37.864	Levelled only (Position from Historic Data (OSTN02)
E50731496	601288.000	141992.000	37.732	Levelled only (Position from Historic Data (OSTN02)
E50731537	606676.066	137917.409	47.711	Position Value Derived from 2 x 3min observation
E50731538	606712.362	138424.528	63.022	Position Value Derived from 2 x 3min observation
E50731571	606662.807	138137.856	50.976	Levelled only (Position from Historic Data (OSTN02)
E60731483	601512.490	140701.055	35.916	
E60731484	601332.236	142006.215	37.463	
E60731539	606717.365	138286.468	52.251	

C) Topography

The topography has been surveyed using a Leica TS06 Total Station in accordance with the specification.

D) Digital Data

For list of data provided please see section 4. Deliverables

All data supplied has been run through the latest edition of AVG Anti – Virus software and is, to the best of our knowledge, virus – free.

E) General Comments

As per the contract mapping, reaches ESTO01 to ESTO07 have been completed. Addition reaches ESTO08 to ESTO10 have been created where single sections have been requested.
As previously stated, requested reach ESTO05 located at Hanover Mill has been surveyed as ESTO01 with the ESTO05 now going through the Mill House. See relevant long section drawings.

Numerous additional Structures surveyed to specification

Flood Modeller data which contains structure information is still being completed and will be delivered in due course.

East Stour River (ESTO01)

Requested Crest levels at TQ 0152 4224 have been surveyed and added to drawing L-J01058-01, with XYZ data (EMB01) supplied.

Due to access (Network Rail) historic data has been utilised on section ESTO01_01022, the main opening was surveyed with non-contact survey methods with the historic data referenced to these levels

Requested wall levels at TQ 0125 4164 have been surveyed and added to drawing L-J01058-01, with XYZ data (TOW01) supplied.

A ponding area was located at TQ 0323 3941, additional data has been surveyed to show area, see drawing L-J01058-03 and accompanying XYZ data (EMB02).

Unable to survey full extent of culvert exit at location TQ 1097 3761, this is due to culvert being located on network Rail land, non-contact survey methods have been utilised to collect data on structure with an open channel surveyed at the network rail boundary.

Unable to survey culvert entrance at location TQ 1144 3752, this is due to culvert being located on Network Rail land, non-contact survey methods have been utilised to collect long section structure data.

Unable to survey culvert entrance at TQ 1318 3826, this was due to dense foliage. MLS have surveyed the culvert exit (ESTO01_20131).

East Stour River Tributary (ESTO02))

Additional Access Bridge section ESTO02_0999 has been surveyed, no opening was found, and it appears the bridge is made up of earth which has been dropped in the channel to create an access point between ESTO01 and ESTO02.

East Stour River Tributary (ESTO03)

The water source is from the pipe on the left bank downstream of section ESTO03_0788. We were unable to survey the dimensions of Swanton Mill, due to confined space.

East Stour River Tributary (ESTO04)

Surveyed passed with-out incident.

East Stour River Tributary (ESTO05)

Reach has been surveyed through Hanover Mill.

East Stour River Tributary (ESTO06)

Surveyed passed with-out incident.

East Stour River Tributary (ESTO07)

Water levels were high during the survey. Due to this a large amount of debris were present on the trash screen on section ESTO07_0741. A silt trap and overflow structure were located between section ESTO07_0741 and ESTO07_0750, this is shown on long section and ESTO07_0750 Through Section.

East Stour River Tributary (ESTO08)

Additional reach surveyed to show full channel.

Rail Culvert (ESTO09)

Surveyed passed with-out incident.

East Stour River Tributary (ESTO10)

Surveyed passed with-out incident.

Avocet Way Flood Relief Culvert (AFRC01-AFRC07)

All data has been supplied in a separate folder 11. Flood Relief Culverts.

3 .EQUIPMENT LIST

- Leica GS08+ Series Dual Frequency Geodetic, RTK Receiver (x2)
  Serial numbers: 2884265,2884490
- Leica TS06 Total Station, serial number: 1391964,1392085

4. DELIVERABLES

		Format	File	Contents
1. ESTO01	**1. Cross Sections**	AutoCAD	X-J01058-01-30.dwg X-J01058-01-30.pdf	Cross Section Drawings
	2. Long Section & Location Plan	AutoCAD	L-J01058-01-09.dwg L-J01058-01-09.pdf	Long Section & Location plan
	3. Flood Modeller	.dat	J01058 - ESTO01_FMod_Hard.dat J01058 - ESTO01_FMod_Soft.dat	Flood Modeller
	4. XYZ	Excel	J01058 - ESTO01_XYZ_HardBed.xls J01058 - ESTO01_XYZ_SoftBed.xls J01058 - Additional XYZ Data.xls	XYZ Data
	5. EACSD	Various	J01058 - ESTO01_EACSD.txt J01058 - ESTO01_EACSD_Validator.pdf	EACSD & Validator
	6. Gauge Board	Word	Various	Gauge Board Description Sheet
	7. Photos	JPEG Excel	Various	Photos & Photo Schedule
1. ESTO02	**1. Cross Sections**	AutoCAD	X-J01058-31-32.dwg X-J01058-31-32.pdf	Cross Section Drawings
	2. Long Section & Location Plan	AutoCAD	L-J01058-10.dwg L-J01058-10.pdf	Long Section & Location plan
	3. Flood Modeller	.dat	J01058 - ESTO02_FMod_Hard.dat J01058 - ESTO02_FMod_Soft.dat	Flood Modeller
	4. XYZ	Excel	J01058 - ESTO02_XYZ_HardBed.xls J01058 - ESTO02_XYZ_SoftBed.xls	XYZ Data
	5. EACSD	Various	J01058 – EST002_EACSD.TXT J01058 – EST002_EACSD_Validator.pdf	EACSD & Validator
	6. Photos	JPEG Excel	Various	Photos & Photo Schedule
3. EST003	**1. Cross Sections**	AutoCAD	X-J01058-33.dwg X-J01058-33.pdf	Cross Section Drawings
	2. Long Section & Location Plan	AutoCAD	L-J01058-11.dwg L-J01058-11.pdf	Long Section & Location plan
	3. Flood Modeller	.dat	J01058 - ESTO03_FMod_Hard.dat J01058 - ESTO03_FMod_Soft.dat	Flood Modeller
	4. XYZ	Excel	J01058 - ESTO03_XYZ_HardBed.xls J01058 - ESTO03_XYZ_SoftBed.xls	XYZ Data

	5. EACSD	Various	J01058 – EST003_EACSD.TXT J01058 – EST003_EACSD_Validator.pdf	EACSD & Validator
	6. Photos	JPEG Excel	Various	Photos & Photo Schedule
4. ESTO04	**1. Cross Sections**	AutoCAD	X-J01058-34.dwg X-J01058-34.pdf	Cross Section Drawings
	2. Long Section & Location Plan	AutoCAD	L-J01058-12.dwg L-J01058-12.pdf	Long Section & Location plan
	3. Flood Modeller	.dat	J01058 - ESTO04_FMod_Hard.dat J01058 - ESTO04_FMod_Soft.dat	Flood Modeller
	4. XYZ	Excel	J01058 - ESTO04_XYZ_HardBed.xls J01058 - ESTO04_XYZ_SoftBed.xls	XYZ Data
	5. EACSD	Various	J01058 – EST004_EACSD.TXT J01058 – EST004_EACSD_Validator.pdf	EACSD & Validator
	6. Photos	JPEG Excel	Various	Photos & Photo Schedule
5. ESTO05	**1. Cross Sections, Long Section & Location Plan**	AutoCAD	X-J01058-35.dwg X-J01058-35.pdf	Cross Section, Long Section & Location plan
	2. Flood Modeller	.dat	J01058 - ESTO05_FMod_Hard.dat J01058 - ESTO05_FMod_Soft.dat	Flood Modeller
	3. XYZ	Excel	J01058 - ESTO05_XYZ_HardBed.xls J01058 - ESTO05_XYZ_SoftBed.xls	XYZ Data
	4. EACSD	Various	J01058 – EST005_EACSD.TXT J01058 – EST005_EACSD_Validator.pdf	EACSD & Validator
	5. Photos	JPEG Excel	Various	Photos & Photo Schedule
6. ESTO06	**1. Cross Sections**	AutoCAD	X-J01058-36.dwg X-J01058-36.pdf	Cross Section Drawings
	2. Long Section & Location Plan	AutoCAD	L-J01058-13.dwg L-J01058-13.pdf	Long Section & Location plan
	3. Flood Modeller	.dat	J01058 - ESTO06_FMod_Hard.dat J01058 - ESTO06_FMod_Soft.dat	Flood Modeller
	4. XYZ	Excel	J01058 - ESTO06_XYZ_HardBed.xls J01058 - ESTO06_XYZ_SoftBed.xls	XYZ Data
	5. EACSD	Various	J01058 – EST006_EACSD.TXT J01058 – EST006_EACSD_Validator.pdf	EACSD & Validator

	6. Photos	JPEG Excel	Various	Photos & Photo Schedule
7. ESTO07	**1. Cross Sections**	AutoCAD	X-J01058-37-38.dwg X-J01058-37-38.pdf	Cross Section Drawings
	2. Long Section & Location Plan	AutoCAD	L-J01058-14.dwg L-J01058-14.pdf	Long Section & Location plan
	3. Flood Modeller	.dat	J01058 - ESTO07_FMod.dat	Flood Modeller
	4. XYZ	Excel	J01058 - ESTO07_XYZ.xls	XYZ Data
	5. EACSD	Various	J01058 - ESTO07_EACSD.txt J01058 - ESTO07_EACSD_Validator.pdf	EACSD & Validator
	6. Gauge Board	Word	Various	Gauge Board Description Sheet
	7. Photos	JPEG Excel	Various	Photos & Photo Schedule
8. ESTO08	**1. Cross Sections**	AutoCAD	X-J01058-39.dwg X-J01058-39.pdf	Cross Section Drawings
	2. Long Section & Location Plan	AutoCAD	L-J01058-15.dwg L-J01058-15.pdf	Long Section & Location plan
	3. Flood Modeller	.dat	J01058 - ESTO08_FMod.dat	Flood Modeller
	4. XYZ	Excel	J01058 - ESTO08_XYZ.xls	XYZ Data
	5. EACSD	Various	J01058 – EST008_EACSD.TXT J01058 – EST008_EACSD_Validator.pdf	EACSD & Validator
	6. Photos	JPEG Excel	Various	Photos & Photo Schedule
9. ESTO09	**1. Cross Sections, Long Section & Location Plan**	AutoCAD	X-J01058-40.dwg X-J01058-40.pdf	Cross Section, Long Section & Location plan
	2. Flood Modeller	.dat	J01058 - ESTO09_FMod.dat	Flood Modeller
	3. XYZ	Excel	J01058 - ESTO09_XYZ.xls	XYZ Data
	4. EACSD	Various	J01058 – EST009_EACSD.TXT J01058 – EST009_EACSD_Validator.pdf	EACSD & Validator
	5. Photos	JPEG Excel	Various	Photos & Photo Schedule

10. ESTO10	**1. Cross Sections, Long Section & Location Plan**	AutoCAD	X-J01058-41.dwg X-J01058-41.pdf	Cross Section, Long Section & Location plan
	2. Flood Modeller	.dat	J01058 – ESTO10_FMod_Hard.dat J01058 – ESTO10_FMod_Hard.dat	Flood Modeller
	3. XYZ	Excel	J01058 – ESTO10_XYZ_HardBed.xls J01058 – ESTO10_XYZ_SoftBed.xls	XYZ Data
	4. EACSD	Various	J01058 – EST010_EACSD.TXT J01058 – EST010_EACSD_Validator.pdf	EACSD & Validator
	5. Photos	JPEG Excel	Various	Photos & Photo Schedule
11. Flood Relief Culverts	**1. Cross Sections**	AutoCAD	X-J01058-42-43.dwg X-J01058-42-43.pdf	Cross Section Drawings
	2. Location Plan	AutoCAD	L-J01058-16.dwg L-J01058-16.pdf	Location Plan
	3. Flood Modeller	.dat	AFRC01-07_Mod.dat	Flood Modeller
	4. XYZ	Excel	J01058_AFRC_XYZ	XYZ Data
	5. Photos	JPEG Excel	Various	Photos & Photo Schedule
	6.EACSD	Various	J01058 – AFRC01-07_EACSD.TXT J01058 – AFRC01-07_EACSD_Validator.pdf	EACSD & Validator
12. Survey Control	1. Level Runs & Adjustments	Excel	J01058 – Permanent Control Schedule.xls J01058 - Level Run.xls J01058 - EACS Adjustments.xls J01058 - Temporary Control Schedule.xls J01058 - EACS Checks.xls	E6 Control Data
	2.Description Sheets	Word	Various	Description Sheets
	3.Temporary E6 Photos	.JPG	Various	Photos
	4. GNSS Report	Word	J01058 – GNSS Report (Existing).docx J01058 – GNSS Report (New).docx	GNSS Report
13. Report		Word	J01058 East Stour Survey Report.doc	Written Survey Report

5. Self Certification Forms

ENVIRONMENT AGENCY ISSUE 03/03.2

SELF CERTIFICATION CHANNEL SURVEY CHECK LIST

Job number	J01058	Company	Maltby Land Surveys		
Task	East Stour				
Surveyor	JB-RC	Checker	its	Date	29/03/2018

COPIES OF THE FOLLOWING WILL BE PROVIDED TO THE SURVEYOR'S CHECKER
YES

Survey Brief & mapping	x	Equipment list	x
OS & EA Control Sheets	x	GNSS Report	x
Vertical Control Field Sheets	x		
Channel Profile Sheets	x		

VERTICAL CONTROL
NO YES

Check control values against Control Data		x
Check level comparisons between heighting by GNSS and from BMs		x
Check other level misclosures and Two Peg Test results		x

5)

PLOTS
NO YES

Does survey meet specification? IS IT DOWNSTREAM?		x
Check Title Box is complete and contains the correct Agency Region		x
Check control values and descriptions on longitudinal sections		x
Check for incomplete features		x
Check for correct sequence of section numbers on longitudinal section		x
Check height labels on cross-section for gross errors		x
Check cross-section feature heights with longitudinal section heights		x

CROSS SECTION LABELLING SHEET

Fence type/height	XJ01058_01-43
Bridge widths	XJ01058_01-43
Soffits/Invert heights	XJ01058_01-43
Skew Diagrams	XJ01058_01-43

Bed and Bank Material	XJ01058_01-43

EA Control Stations

Check originating control values _____ and EA CS value _____
Check grid square _____Check diagram _____

CHECK KEY PLAN

NO YES

Correct sequence of sections		x
Do the sections plotted from co-ordinate data fall in the right place on the OS background		x
Co-ordinates, scale, north point		x
Check digital location plan.		x
Legend on longitudinal section		

REPORT NO YES

Standard written format used		x
Landowner plan or schedule		
EACS, TBM and Structure photographs adequate		x
All required appendices present		x

REMEDIAL ACTION

Please action the following:

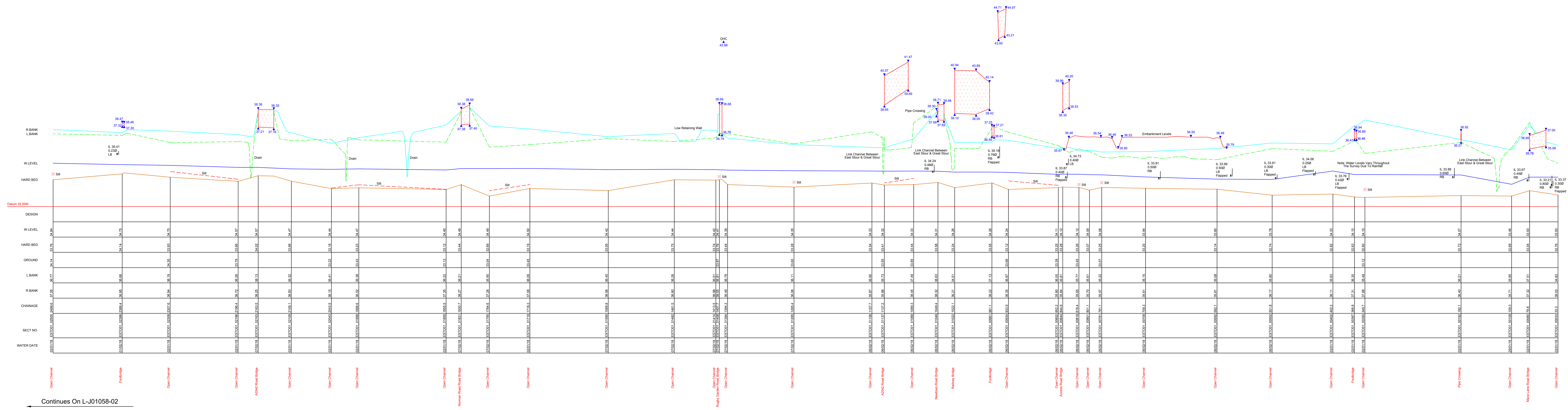
I CERTIFY THAT ALL THE REQUIRED CHECKS HAVE BEEN CARRIED OUT AND ALL REMEDIAL ACTIONS HAVE BEEN COMPLETED.

SIGNED: PRINT NAME: [redacted]

POSITION: COMMERCIAL DIRECTOR

DATE: 29/03/2018

SCALE = 1:2500 H, 1:100 V



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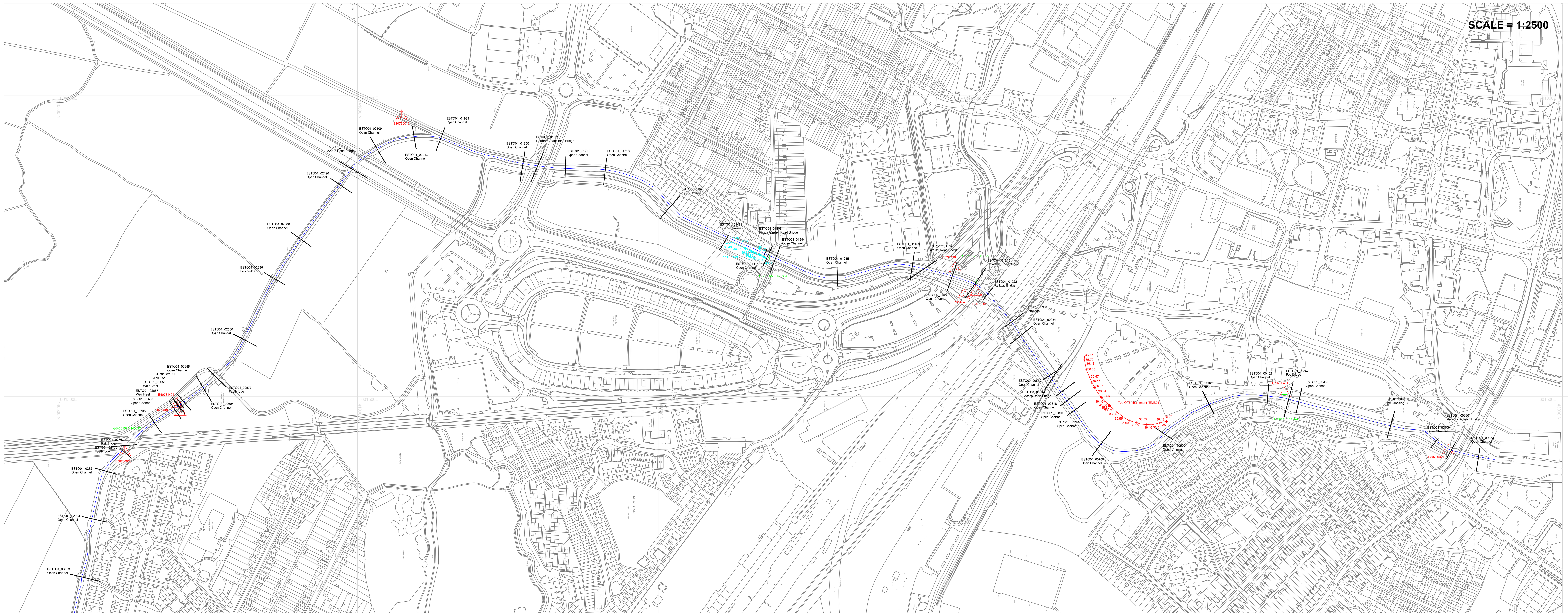


Original Drawing Size: A0

KEY TO SECTIONS:

WATER LEVEL

VISIBLE BED (TOP OF SILT) AND GROUND

HARD BED (DETERMINED BY PROBING)

C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

LEFT BANK CREST

RIGHT BANK CREST

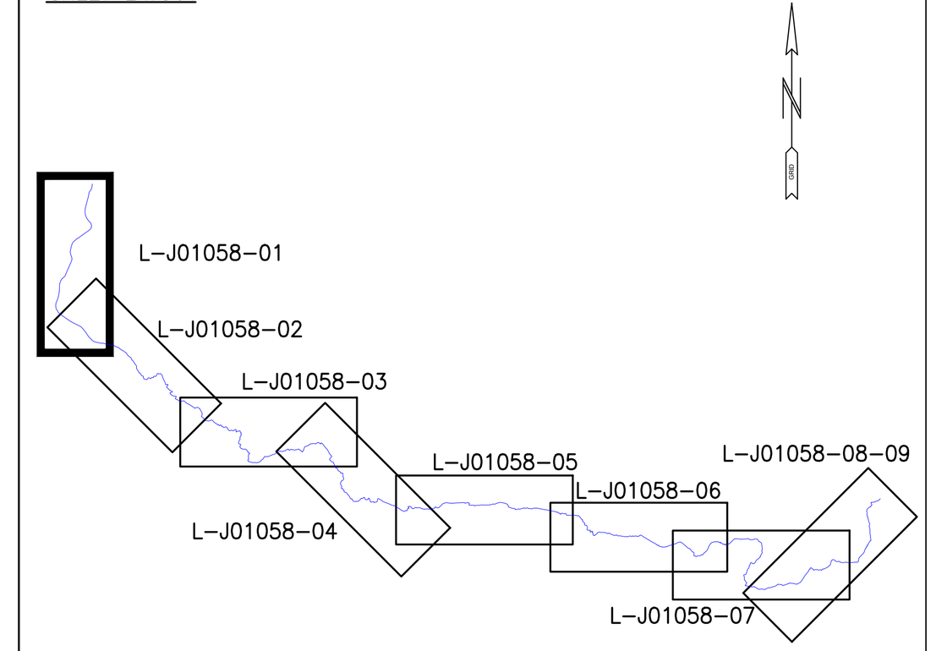
VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

GAUGE BOARD LOCATION

TOP OF WALL

TOP OF EMBANKMENT

SHEET LAYOUT



LOCATION PLAN ORIENTATION

GRID

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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GAUGEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BM	BENCH MARK	GM	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CIF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IWF	INTERWOVEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KIG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOWNPIPE	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOWNSTREAM	MS	MILE STONE	TS	TREE STUMP
DWB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		

(Abbreviations apply to EA survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E50730013	TR 0132 4202	38.489
E50730020	TR 0159 4061	36.314
E50730021	TR 0159 4291	36.337
E50730500	TR 0223 4025	38.486
E50730503	TR 0343 3935	40.259
E50731495	TR 0152 4070	37.864
E50731496	TR 0128 4199	37.732
E50731537	TR 0667 3791	47.711
E50731538	TR 0671 3842	63.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

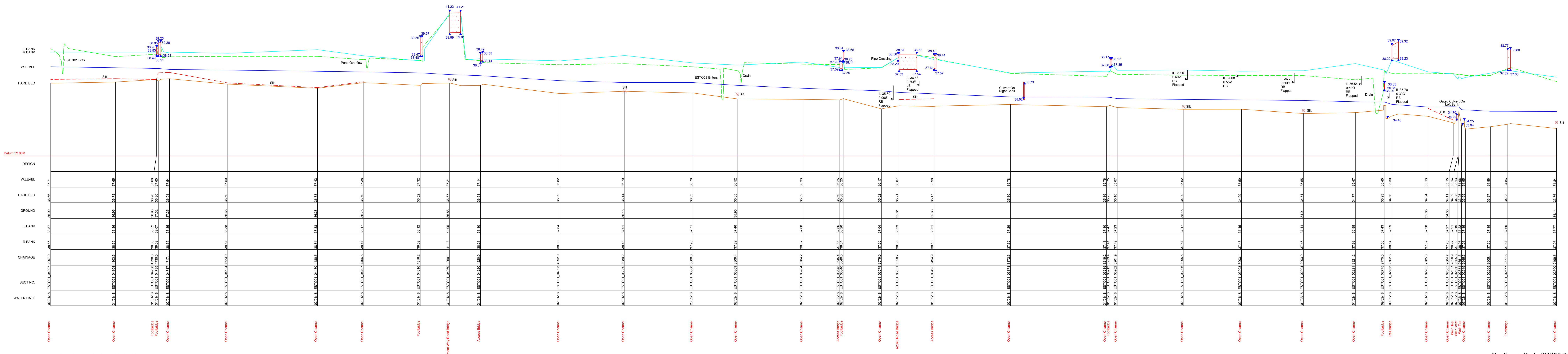
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
LONG SECTION & LOCATION PLAN
EST001_00033 TO EST001_02500

SURVEYED BY: MALTBY LAND SURVEYS LTD	Ref: 17_332	
SURVEY DATE: DECEMBER 2018 – MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L–J01058–01	REV. —
CAD FILENAME: L-J01058-01-09.dwg		

SCALE = 1:2500 H, 1:100 V



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Continues On L-J01058-01

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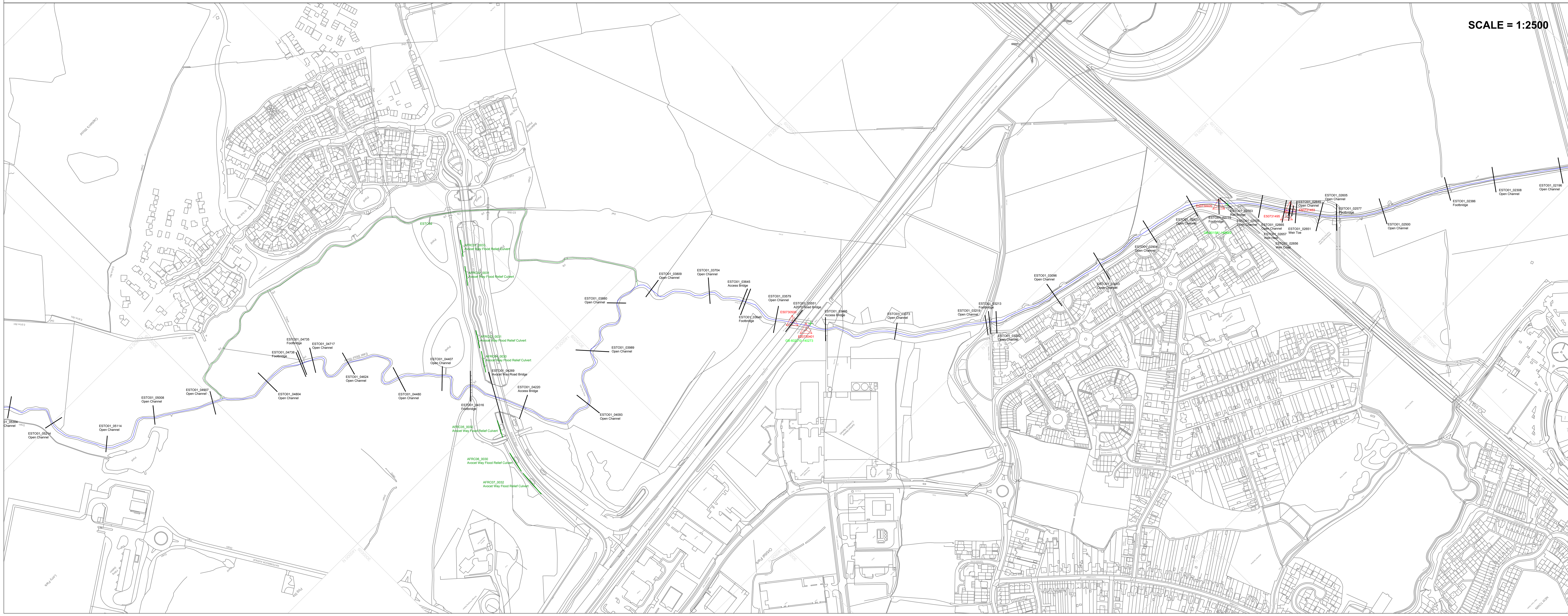


Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

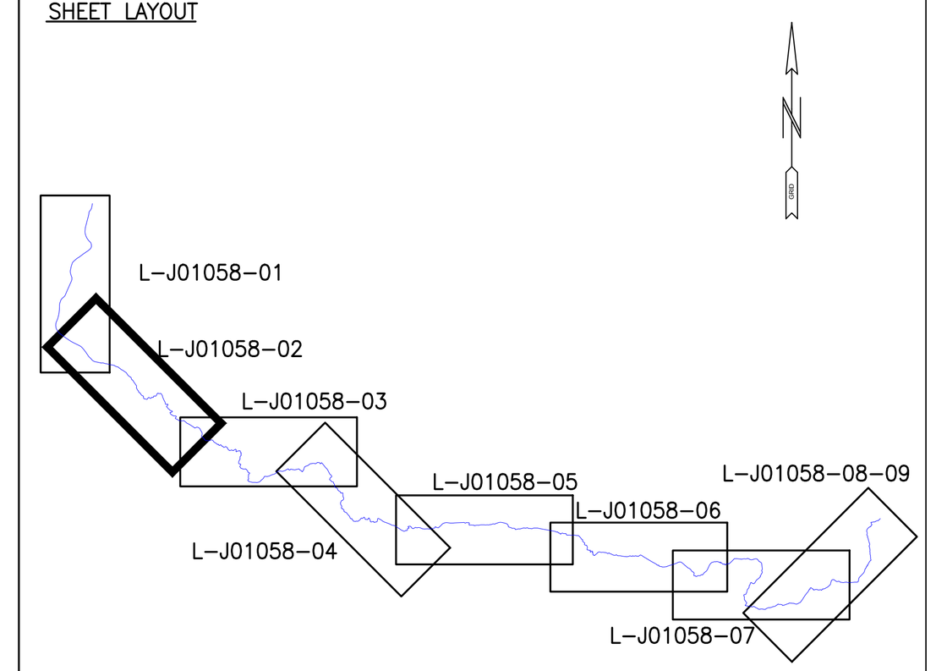
KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

- GAUGE BOARD LOCATION

SHEET LAYOUT



LOCATION PLAN ORIENTATION

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CIF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
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CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KIG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
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CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
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CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
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DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
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ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
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E50730020	TR 0159 4061	36.314
E50730021	TR 0159 4291	36.337
E50730500	TR 0223 4025	38.486
E50730503	TR 0343 3935	40.259
E50731495	TR 0152 4070	37.864
E50731496	TR 0128 4199	37.732
E50731537	TR 0667 3791	47.711
E50731538	TR 0671 3842	63.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

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KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

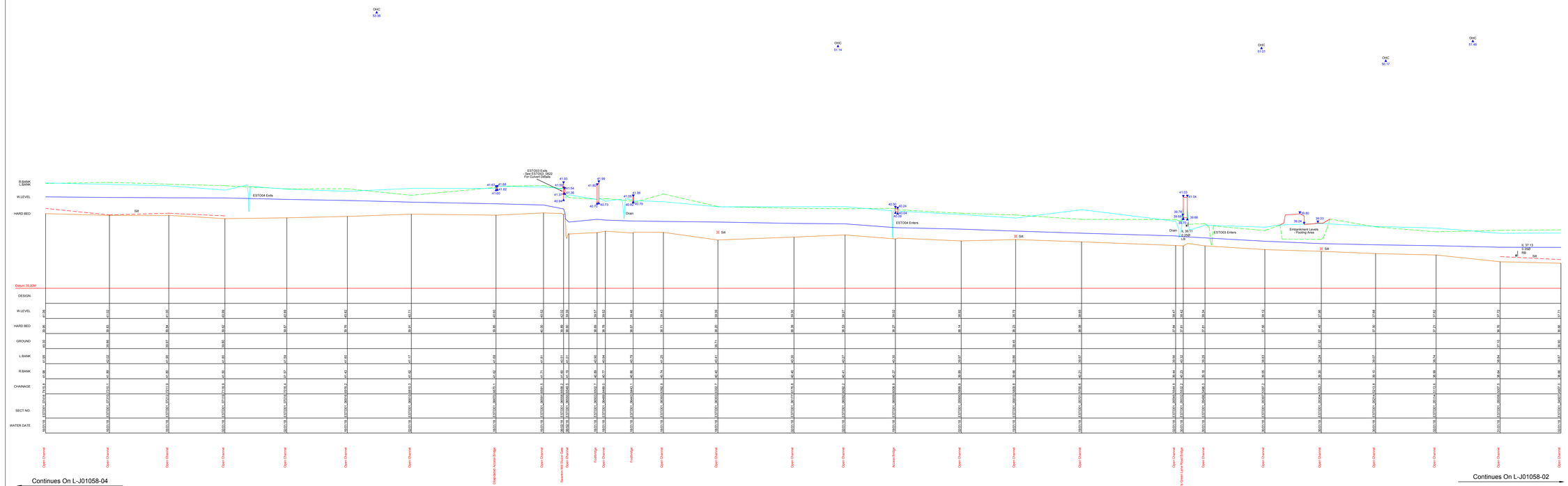
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
LONG SECTION & LOCATION PLAN
EST001_02500 TO EST001_04907

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2018 – MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-02	REV. —
CAD FILENAME: L-J01058-01-09.dwg		

SCALE = 1:2500 H, 1:100 V



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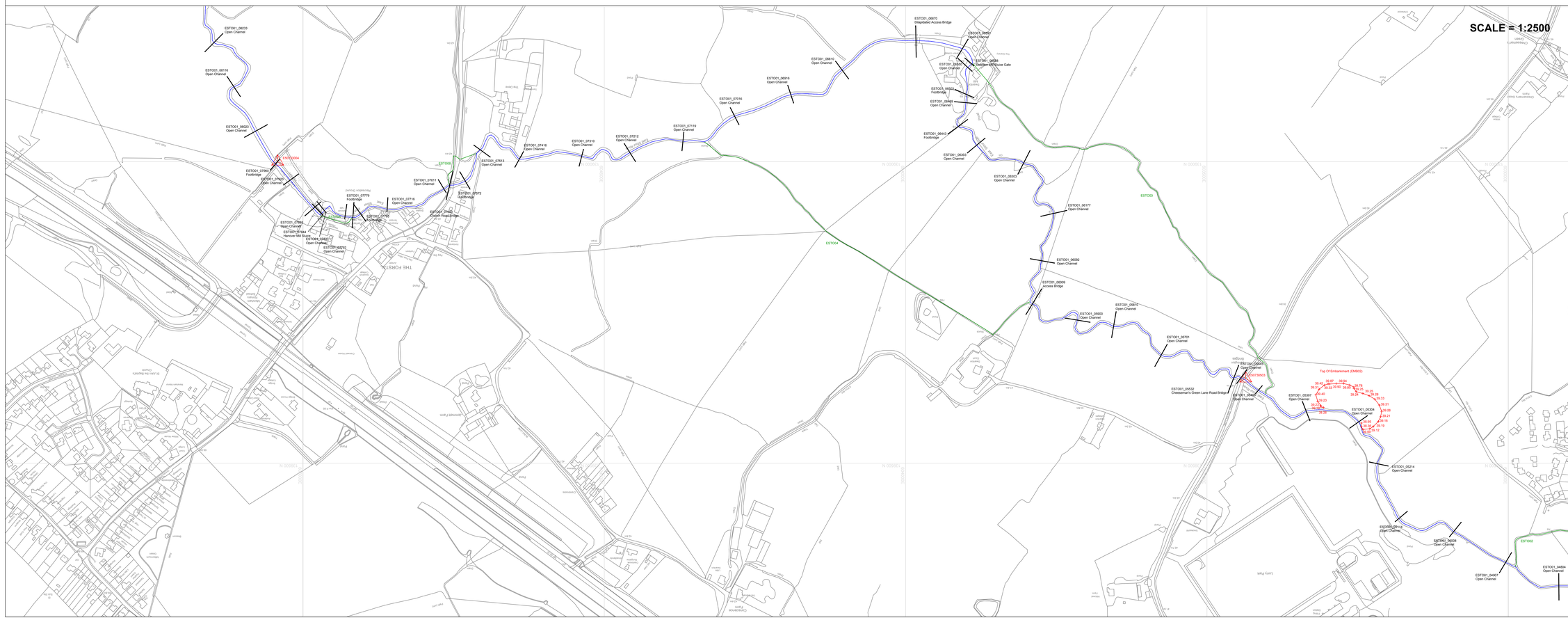


Original Drawing Size: A0

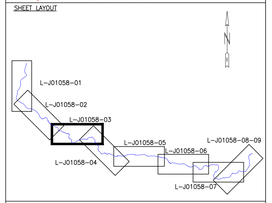
KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

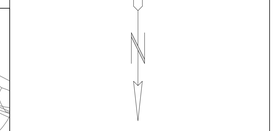
KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST
  (VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS)
- GAUGE BOARD LOCATION
- TOP OF EMBANKMENT

SHEET LAYOUT



LOCATION PLAN ORIENTATION



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SURVEY LEGEND

AB	AIR BIRCH	Fo	FIRE HYDRANT	PB	PARAPET WALL
AV	AIR VALVE	FW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR (LOD)	RC	ROAD CROSS
BL	BOLLARD LOCATION	FS	FLOOR (SOLID)	RJ	RIVET / RIVET JOINT
BDY	BOUNDARY	FWV	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	RWP	RAIN WATER PIPE
BI	BOLLARD	GA	GAS/DRAIN	SP	STOP VALVE
BRK	BRICKWORK	GL	GROUND LEVEL	SWP	STORM PIPE
BW	BRICK WALL	GP	GAS POST	TP	TELEGRAPH POLE
BA	BLOCK WORK	GV	GAS VARIATOR	TV	CATHY LEVEL
BW	BRICK WALL	HW	HEAD WALL	TWV	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	HC	HEAD WALL CHAMBER	UP	UTILITY POLE / PILING
CBP	CLOSE BOARDED FENCE	IL	INVERT LEVEL	VP	VENT PIPE
CF	CORRUGATED IRON FENCE	RF	IRON RAILING FENCE	STATN	STATION
CH	CHAIN LINK	JB	JUNCTION BOX (ELEC)	WV	WATER VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB/ INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LC	LAMP COLUMN	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LI	LEFT SHEET	TELP/BP	TELEPHONE CALL BOX/POST
CB	CYCLE BAR	LP	LAMP POST	TC	TELECOM CABINET
CH	CYCLE HOOP	LB	LANDSCAPED BOLLARD	TL	TELEGRAPH LINE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TRL	THRESHOLD LEVEL
DI	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
EB	ELEC BOX	MP	MARKER POST	TB	TELEPHONE BOX
ES	ESCARPMENT	MF	MCORRIG. PAT.	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
EP	ELEC POST	NP	NOTICE POST	TW	TIMBER WALL
DMB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ELECTRICITY AGENCY	NGC	NATIONAL GRID COMPANY	UA	UNKNOWN AUTHORITY
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTL	UNKNOWN TELE
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EF	ELECTRIC FENCE	PR	PALISADE RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	PT	PILOT	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PH	PILOT HOLE	WP	WOODEN POST
ET	ELECTRICITY (PILL)	PB	PARAPET METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWERBED	PR	POST & RAIL FENCE	WT	WIRE TRAY
FBH	FLOWERBED	PTM	PARKING TICKET MACHINE		(Abbreviations apply to OS survey data only)

AMENDMENT	DRN	CHK'D	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E60730012	TR 0103 4107	35.975
E60730401	TR 0149 4151	35.757
E60730403	TR 0222 4227	38.489
E60731536	TR 0666 3814	51.808
E60730013	TR 0132 4202	38.489
E60730020	TR 0159 4081	38.114
E60730021	TR 0159 4291	38.337
E60730500	TR 0223 4025	38.486
E60730503	TR 0343 3932	40.259
E60731495	TR 0124 4070	37.864
E60731496	TR 0128 4199	37.732
E60731537	TR 0687 3791	47.711
E60731538	TR 0671 3842	53.022
E60731671	TR 0666 3813	50.976
E60733004	TR 0504 3900	43.712
E60733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

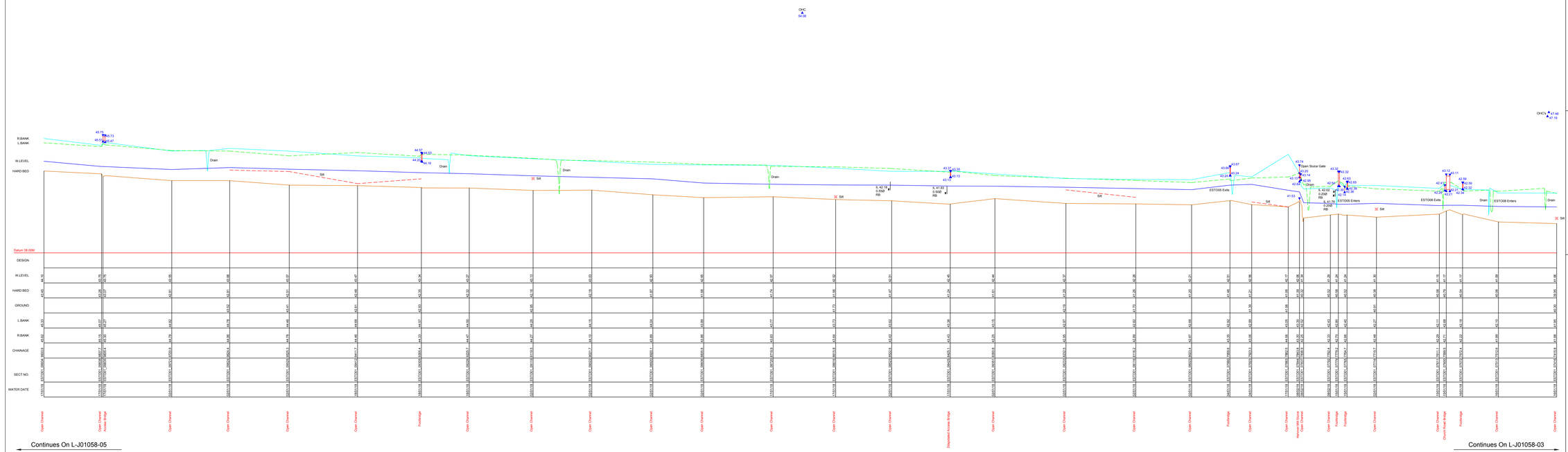
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (ESTO01)
LONG SECTION & LOCATION PLAN
EST001_04907 TO EST001_ 07416

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2018 – MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHK'D: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-03	REV. —
CAD FILENAME: L-J01058-01-09.dwg		

SCALE = 1:2500 H, 1:100 V



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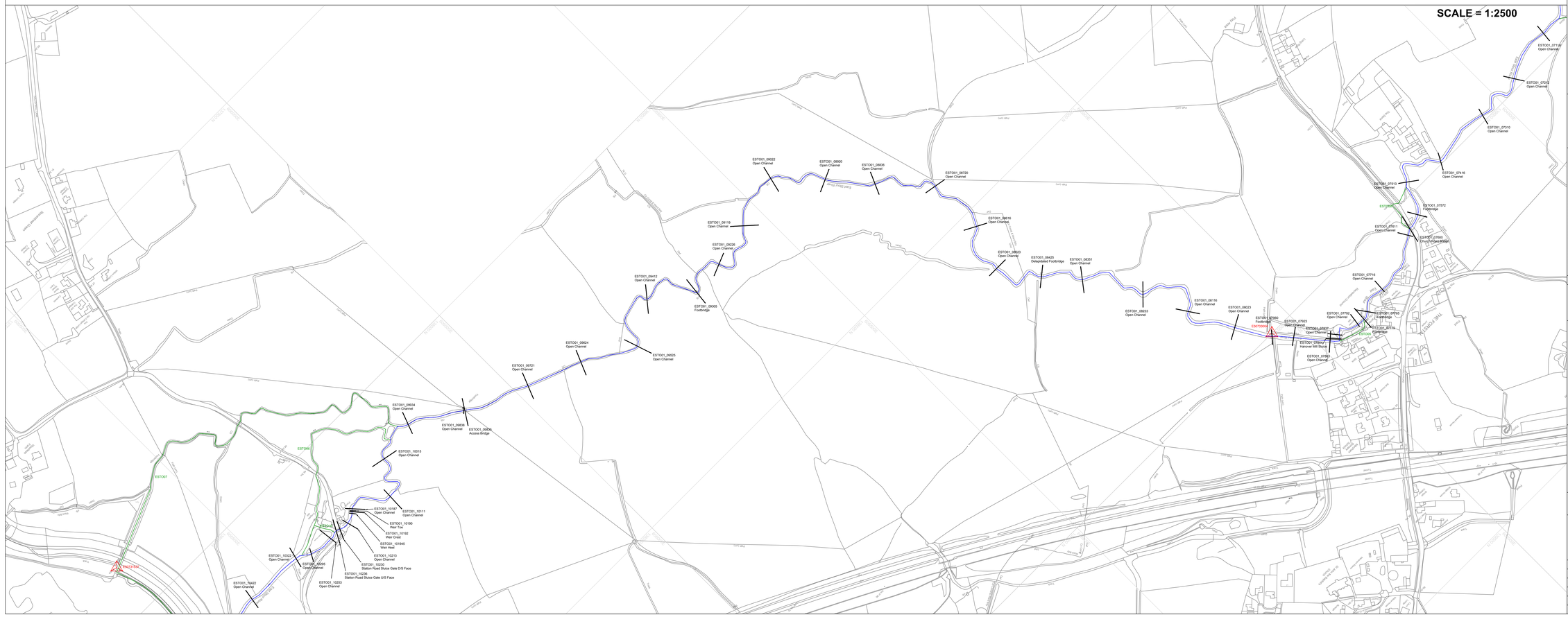


Original Drawing Size: A0

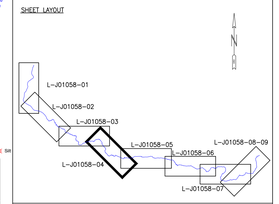
KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST
  } VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS
- GAUGE BOARD LOCATION

SHEET LAYOUT



LOCATION PLAN ORIENTATION

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FLOOD LEVEL MARKER	PO	POST (GENERIC)
B	BOLLARD	FM	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FW	FOUL WATER MANHOLE	RWP	RAINWATER PIPE
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
Bk	BED LEVEL	GB	GAZEBO/BOARD	SC	STOP COCK
BO	BOLLARD LIGHT	GI	GRATED INLET	SC	STOP COCK
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BW	BEACH MARK	GR	GAS MARKER	SL	SOFFIT LEVEL
BW	BEACH WELL	GV	GAS VALVE	SMH	STORM WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	ST	SIGN POST
CBF	CLOSE BOARDED PANEL FENCE	MF	METAL RAILING FENCE	SV	SLUICE VALVE
CL	CONIFER LEDGE	MF	MOTORWAY FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CP	CONCRETE POST	JG	JUNCTION BOX / GULLY	TF	TIMBER POST FENCE
CP	CONCRETE POST	LE	LEFT BANK	TBM	TEMPORARY BENCH MARK
CWF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CY	CYCLE STORE	LP	LAMP POST	TH	TRIAL HOLE
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
DLL	DILAPIDATED LEDGE	MF	MISCELLANEOUS FENCING	TRL	THRESHOLD LEVEL
DL	DILAPIDATED	MH	MANHOLE	TS	TRAFFIC SIGNAL
DL	DECK LEDGE	MP	MARKER POST	TSP	TRAFFIC LIGHT SPX
DP	DRAIN PIPE	MW	MISCELLANEOUS WALL	TW	TEMPORARY WEIR
DPC	DAMP PROOF COURSE	MWF	MOORING RAILING FENCE	WG	TELECOM WORKING STRIP
DW	DOMESTIC WELL	NC	NEW CREST	WG	TREE GUARD
EB	ELECTRICITY BOX	NL	NEW LEDGE	WR	WOODEN POST & RAIL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	WS	UPSTREAM
EC	ELECTRIC CABLE	OC	OVERHEAD CABLE	WS	WATER SURFACE
ECF	ELECTRIC CABLE FENCE	OHL	OVERHEAD SUPPLY	WV	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE POT	OSR	OPEN STEEL RAILINGS	WV	WATER METER
EP	ELECTRICITY POLE	P	PILE	WV	WOODEN PALING FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
EX	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
EP	ELECTRICITY TRANSMISSION LINE	PP	POWER POLE	WS	WATER SURFACE
FL	FLOWER BED	PRF	POST & RAIL FENCE	YH	YARD HYDRANT
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to DI survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0868 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0159 4291	36.337
E20730500	TR 0223 4026	38.486
E20730503	TR 0143 3935	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731532	TR 0687 3791	47.711
E20731538	TR 0671 3842	53.062
E20731571	TR 0666 3813	50.976
E20731004	TR 0904 3907	43.719
E20733085	TR 1056 3751	60.587
E20731483	TR 0151 4070	37.916
E20731484	TR 0139 4208	37.951
E20731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

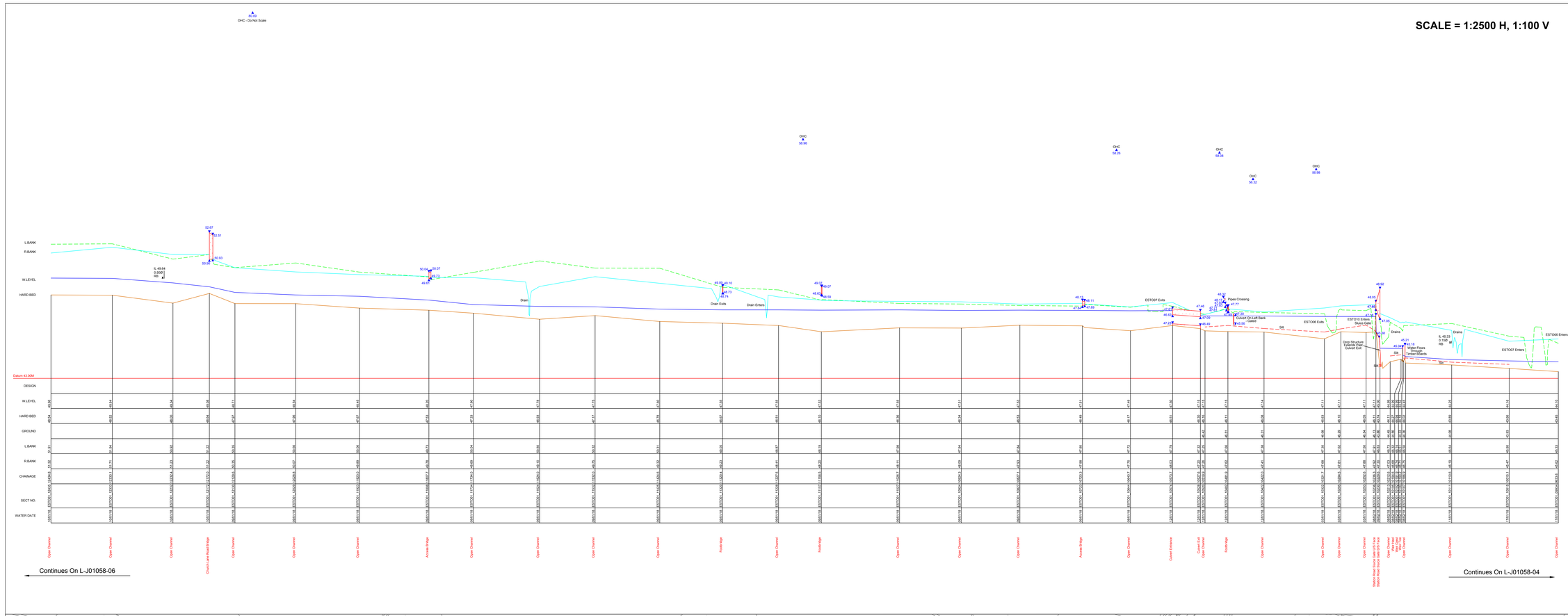
SITE/LIMITS

EAST STOUR (EST001)
LONG SECTION & LOCATION PLAN
EST001_07416 TO EST001_09934

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_157
SURVEY DATE: DECEMBER 2018 - MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-04	REV. —
CAD FILENAME: L-J01058-01-08.dwg		

Original Drawing Size: A0

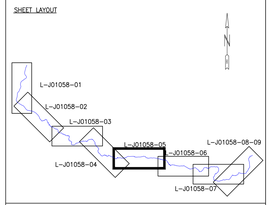
SCALE = 1:2500 H, 1:100 V



SCALE = 1:2500

LOCATION PLAN ORIENTATION

SHEET LAYOUT



KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

- GAUGE BOARD LOCATION

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICH	FH	FIRE HYDRANT	PB	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RL	ROOF LEVEL
BL	BOLLARD LEACH	FS	FLOOD SIGN	SL	SOLE / SEED - JOIST
BDY	BOUNDARY	FWL	FOUL WATER MANHOLE	SRW	RETAINING WALL
BH	BOREHOLE	G	GATE	SW	SURFACE WATER PIPE
BN	BOLLARD	GB	GRASSBOARD	SP	STOP VALVE
BRK	BRICKWORK	GL	GROUND LEVEL	STMP	STAND PIPE
BW	BRICK WALL	GP	GUARD POST	SV	STOP VALVE
BX	BLOCK WORK	GM	GAS MARKER	SVM	SLEEVE VALVE
BW	BRICK WALL	HW	HEAD WALL	SWM	SLEEVE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	IC	INSPECTION CHAMBER	SWP	SURFACE WATER PLUNC
CBF	CLOSE BOARDED FENCE	L	LADDER LEVEL	SP	SIGN POST
CF	CORRUGATED IRON FENCE	MF	IRON RAILING FENCE	STN	STATION
CH	CHAIN LINK FENCE	MH	MANHOLE JUNCTION	TC	TELEPHONE VAULT
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	TJF	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LAMP BASE	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LI	LEFT SHED	TCP/M	TELEPHONE CALL BOX/POST
CR	CYCLE RAIL	LP	LAMP POST	TC	TELECOM CABINET
CV	CAT'S EYE / MARKER	LW	LOOSE WOOD BOARD	TL	TRAFFIC LIGHT POLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TRL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MARKER POST	TP	TELEPHONE BOX
EP	CONCRETE	MP	MOORING POLE	TP	TELEGRAPH POLE
EPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
EW	EARTH WORK	NG	NATIVE GRASS	TW	TIMBER WALL
EWB	SOIL WASTE BIN	NS	NOTICE BOARD	TR	TUBULAR STEEL RAILINGS
EX	ELECTRICITY ACTIVITY	OHC	OVERHEAD CABLE ACTIVITY	UTL	UNKNOWN TYPE
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTL	UTILITIES SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EMF	ELECTRICITY MARKER	PF	PALING FENCING	WB	WATER BOARD
EMP	ELECTRICITY MARKER	PO	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PR	PALING RCH	WP	WOOD POST
ET	ELECTRICITY UNIT	PS	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PT	POST	WV	WATER VALVE
FB	FLOWERBED	PR	POST & RAIL FENCE	WS	WING SLOT
FBR	FLOWERBED	PTM	PARKING TICKET MACHINE		(Abbreviations apply to 1:1 scale plots only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E60730012	TR 0103 4107	35.975
E60730401	TR 0149 4251	36.757
E60730403	TR 0222 4622	38.489
E60730036	TR 0666 3814	51.208
E60730013	TR 0132 4202	38.489
E60730020	TR 0159 4261	38.114
E60730021	TR 0159 4291	38.337
E60730501	TR 0223 4025	38.486
E60730503	TR 0343 3932	40.259
E60731495	TR 0152 4070	37.864
E60731496	TR 0128 4199	37.732
E60731537	TR 0687 3791	47.711
E60731538	TR 0671 3842	53.022
E60731671	TR 0666 3813	50.976
E60733004	TR 0504 3900	43.712
E60733005	TR 1056 3751	60.087
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
LONG SECTION & LOCATION PLAN
EST001_09934 TO EST001_12435

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2018 – MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-05	REV. —
CAD FILENAME: L-J01058-01-09.dwg		

Original Drawing Size: A0

KEY TO SECTIONS:

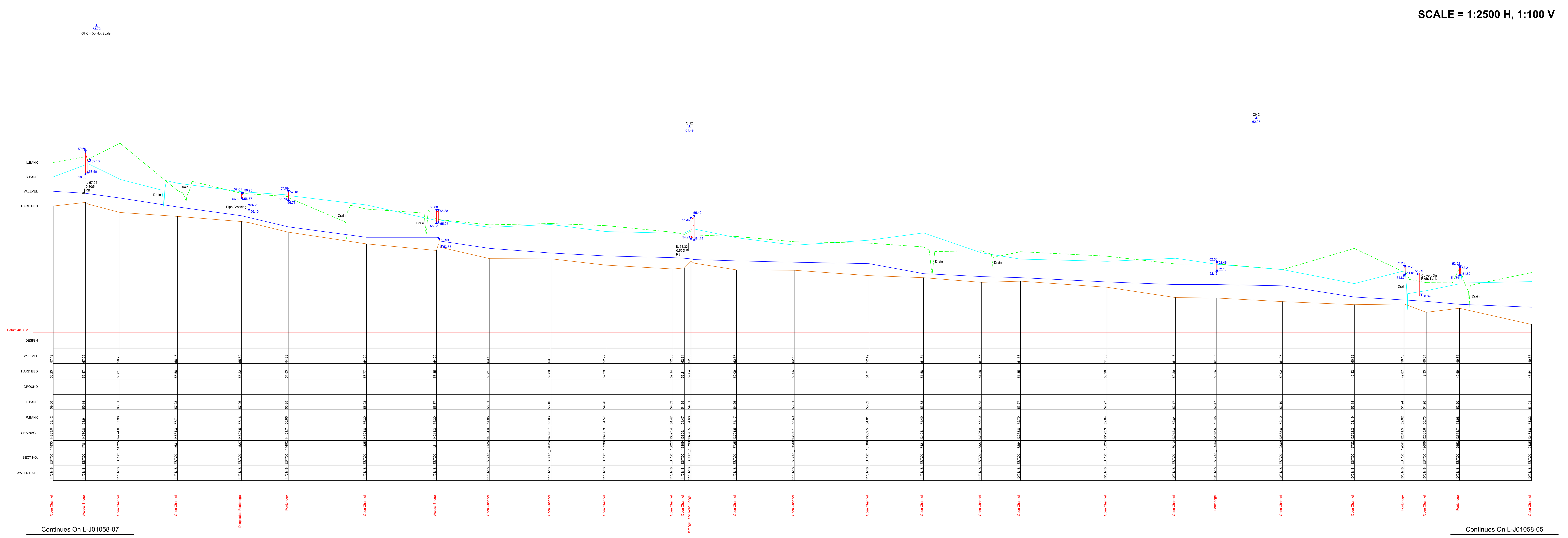
- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST
- GAUGE BOARD LOCATION

VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

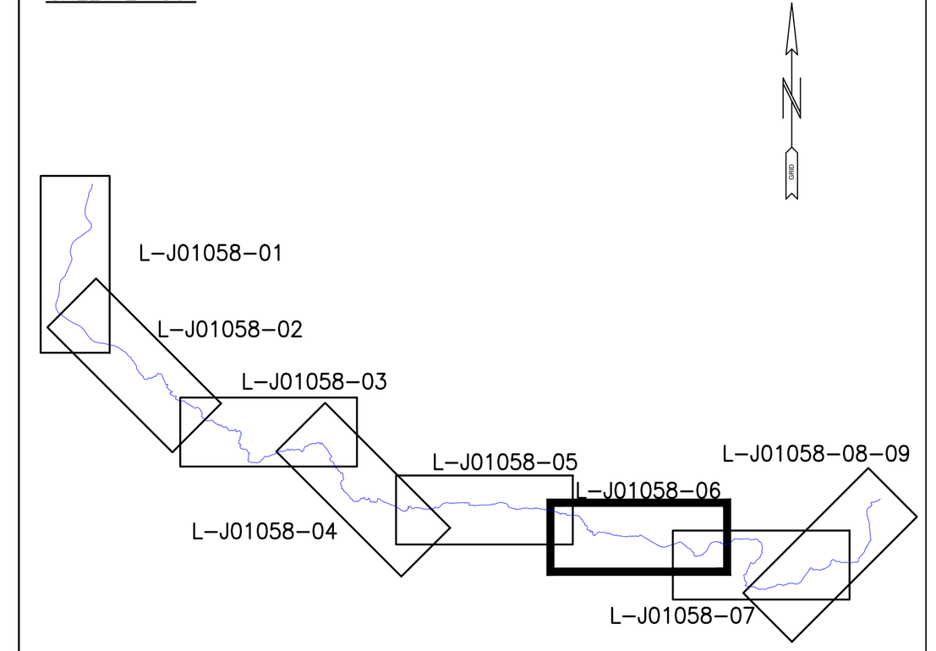
SCALE = 1:2500 H, 1:100 V



Continues On L-J01058-07

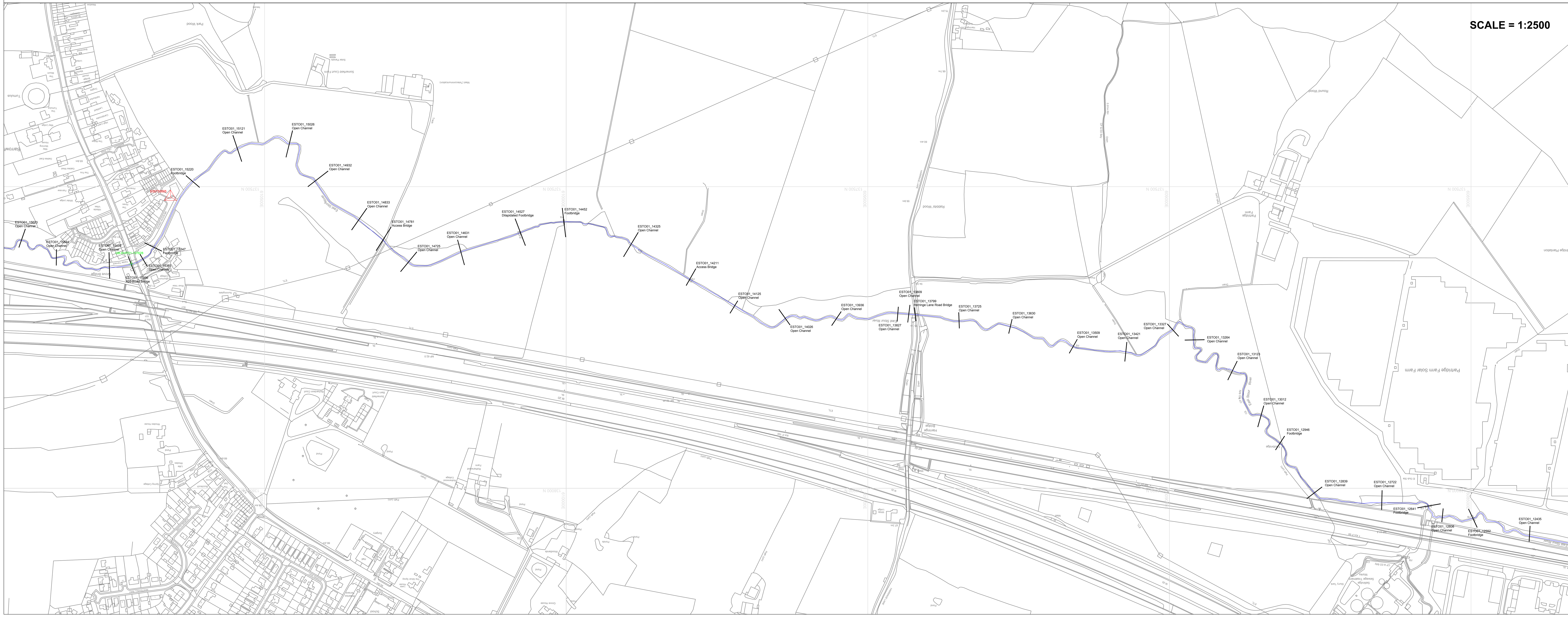
Continues On L-J01058-05

SHEET LAYOUT



LOCATION PLAN ORIENTATION

SCALE = 1:2500



NOTES:

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SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GAUGEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BM	BENCH MARK	GM	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CIF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IWF	INTERWOVEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KIG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOWNPIPE	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOWNSTREAM	MS	MILE STONE	TS	TREE STUMP
DWB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		

(Abbreviations apply to EA survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E50730013	TR 0132 4202	38.489
E50730020	TR 0159 4061	36.314
E50730021	TR 0159 4291	36.337
E50730500	TR 0223 4025	38.486
E50730503	TR 0343 3935	40.259
E50731495	TR 0152 4070	37.864
E50731496	TR 0128 4199	37.732
E50731537	TR 0667 3791	47.711
E50731538	TR 0671 3842	63.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

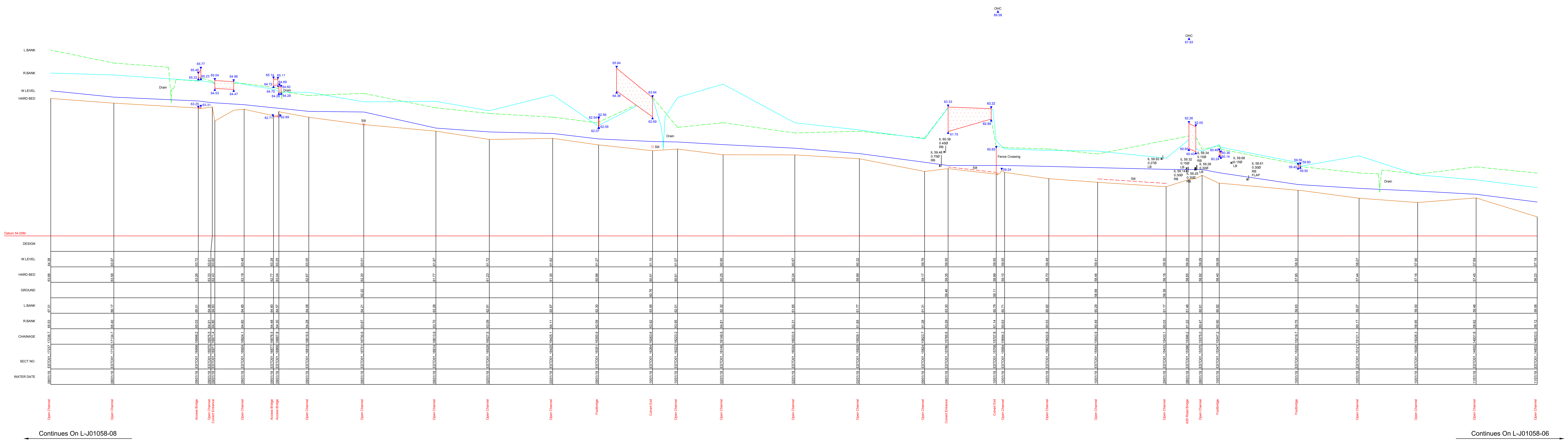
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
LONG SECTION & LOCATION PLAN
EST001_12435 TO EST001_14833

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2018 – MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-06	REV. —
CAD FILENAME: L-J01058-01-09.dwg		

SCALE = 1:2500 H, 1:100 V



Continues On L-J01058-08

Continues On L-J01058-06

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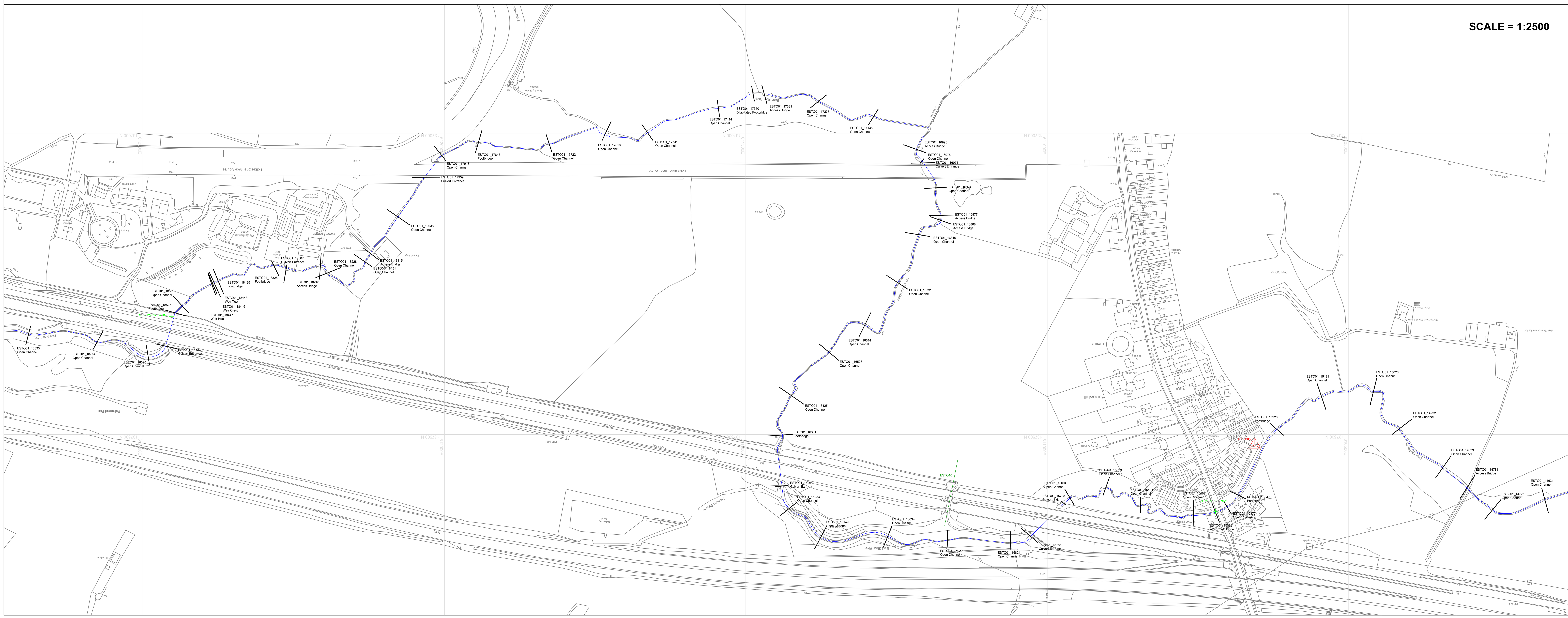


Original Drawing Size: A0

KEY TO SECTIONS:

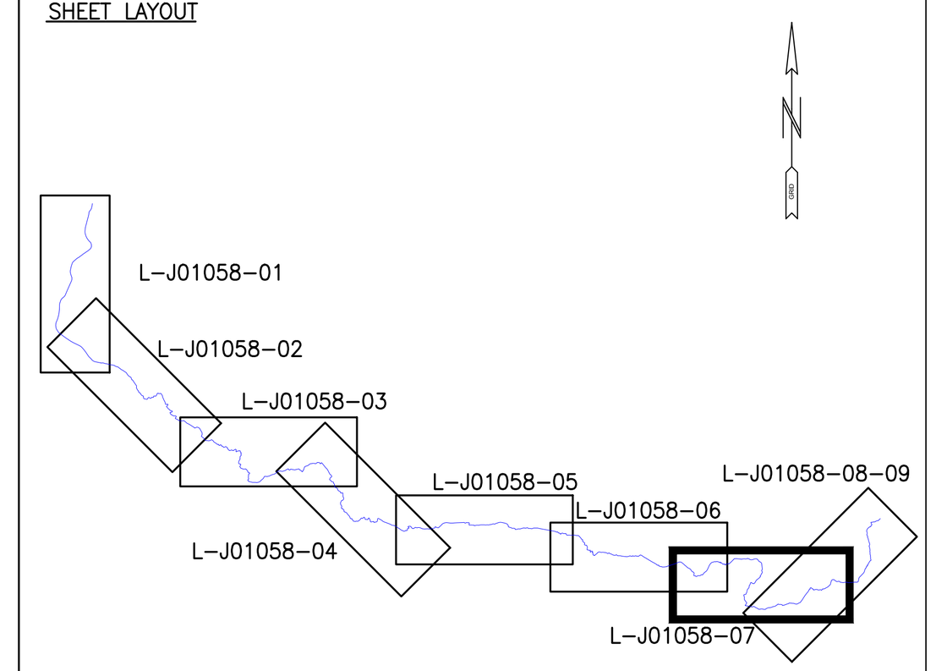
- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST
- GAUGE BOARD LOCATION

VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

SHEET LAYOUT



LOCATION PLAN ORIENTATION

NOTES:
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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GAUGEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BM	BENCH MARK	GM	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CIF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IWF	INTERWOVEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KIG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOWNPIPE	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOWNSTREAM	MS	MILE STONE	TS	TREE STUMP
DWB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		

(Abbreviations apply to EA survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E50730013	TR 0132 4202	38.489
E50730020	TR 0159 4061	36.314
E50730021	TR 0159 4291	36.337
E50730500	TR 0223 4025	38.486
E50730503	TR 0343 3935	40.259
E50731495	TR 0152 4070	37.864
E50731496	TR 0128 4199	37.732
E50731537	TR 0667 3791	47.711
E50731538	TR 0671 3842	63.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

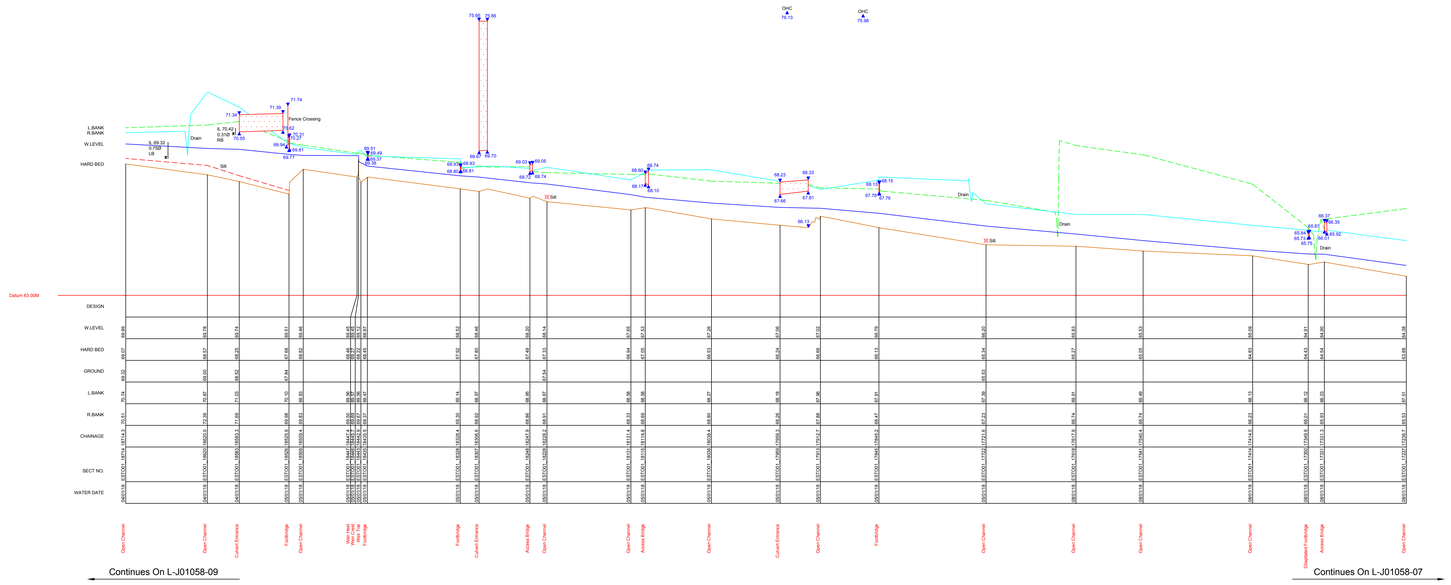
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
LONG SECTION & LOCATION PLAN
EST001_14833 TO EST001_17237

SURVEYED BY: MALTBY LAND SURVEYS LTD	Ref: 17_332	
SURVEY DATE: DECEMBER 2018 – MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L–J01058–07	REV. —
CAD FILENAME: L-J01058-01-09.dwg		

SCALE = 1:2500 H, 1:100 V



Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

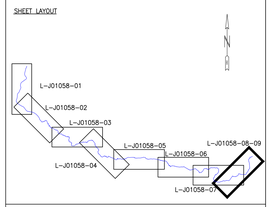
KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

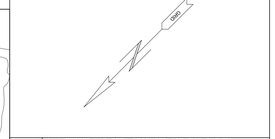
} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

- GAUGE BOARD LOCATION

SHEET LAYOUT



LOCATION PLAN ORIENTATION



NOTES:

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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
BH	BOREHOLE	FP	FLAG POLE/MAST	RC	RAILWAY CABLE
BR	BOLLARD, BEACON	FS	FENCE POST	RJ	ROLLED STEEL JOIST
BCH	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BS	BOUNDARY STONE	G	GATE	SP	SERVICE SUPPLY PIPE
BL	BED LEVEL	GB	GRIDBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SOP	STAND PIPE
BW	BRICK WALL	GP	GUY POLE	SW	SOIL WASTE
BM	BENCH MARK	GM	GAS MARKER	SL	SUPPLY LEVEL
BMP	BARRIER POST	H	HEDGE/TREE	SWM	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SUNKEN METAL PLINIC
CBF	CLOSE BOARDED FENCE	L	WATER LEVEL	SP	SIGN POST
CF	CHAIN LINK/ IRON FENCE	LF	LATTICE/MESH FENCE	SL	SLEEPER
CT	CONCRETE POST	MF	KITCHENDEN FENCE	SV	SLUICE VALVE
CLV	CLOSE LOW FENCE	MH	MANHOLE COVER	SWP	SHEET PILE WALL
CM	CONCRETE	MS	KERB/ VALVE SILL	SWF	SHELF WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CW	CONCRETE WALL/ FENCE	LC	LEFT CREST	TCP	TELEPHONE/ CABLE POST
CR	CYCLE RACK	LP	LAMP POST	TW	TELEGRAPH WIRES
CTX	CABLE TV. MANHOLE	MB	MOORING BOLLARD	TWC	TELEGRAPH MANHOLE
DF	DOG FENCE	MF	MISCELLANEOUS FENCING	TL	TOP OF BANK LEVEL
DK	DROP KERB	MT	MARKER POST	TB	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DS	DOWN SPOUT	MPF	METAL/PLASTIC PILE FENCE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOMESTIC DRAIN	MS	MILE STONE	TS	TREE STUMP
DW	DRY STONE WALL	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UC	UPSTAND CURB
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
EC	ELECTRICITY CABLE FENCE	OP	OPEN PALISADE	WL	WATER SURFACE LINE
ECP	ELECTRICITY CABLE PIT	OR	OPEN STEEL RAILINGS	WV	WATER VALVE
EMH	ELECTRICITY MANHOLE	P	PILLAR	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PARKING BOX	WP	WOOD POST
EX	EXISTING AOD	PM	PARKING METER	WR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PP	POST	WV	WATER VALVE
FB	FOOTBRIDGE	PRF	POST & RAIL /FENCE	XS	CROSS SECTION
FBB	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to the survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	36.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730220	TR 0159 4061	36.314
E20730021	TR 0158 4291	36.137
E20730500	TR 0223 4026	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731539	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.978
E20733004	TR 0504 3900	43.137
E20734703	TR 1099 3751	60.987
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.863
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

GOVERNMENT RESERVING

PROJECT/WATERCOURSE

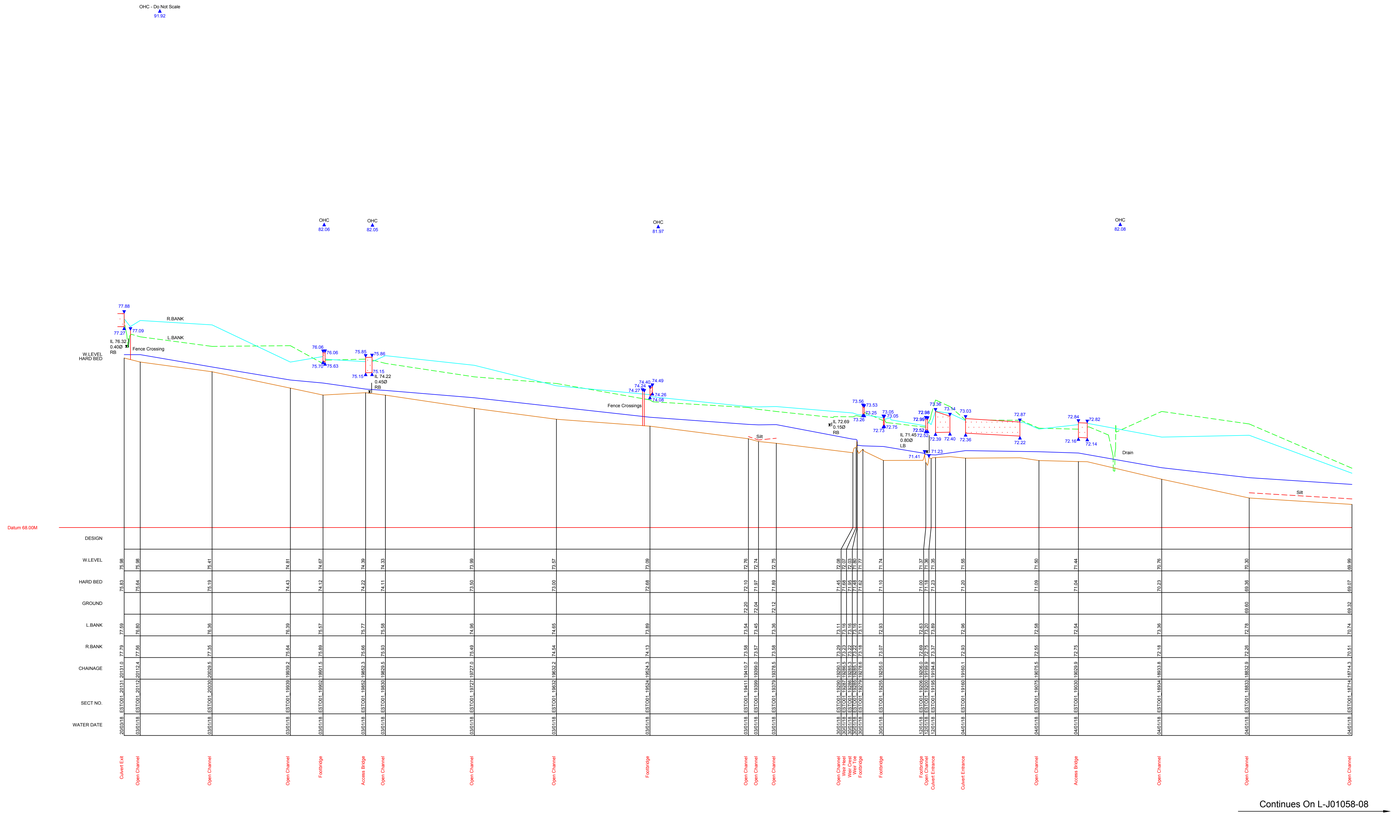
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
LONG SECTION & LOCATION PLAN
EST001_17237 TO EST001_18714

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2018 – MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-08	REV. —
CAD FILENAME: L-J01058-01-09.dwg		

SCALE = 1:2500 H, 1:100 V



Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

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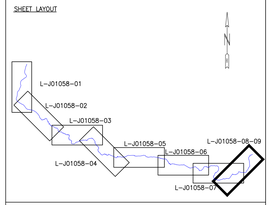
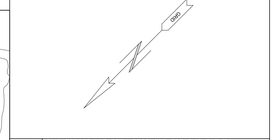
- GAUGE BOARD LOCATION

SHEET LAYOUT



LOCATION PLAN ORIENTATION



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SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
BH	BOREHOLE	FL	FLOOD LIGHT	RC	RECTANGULAR CULV.
BR	BOLLARD BEACON	FP	FENCE POST	RJ	ROLLED STEEL JOIST
BCV	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BW	BOUNDARY WALL	G	GATE	SP	SERVICE SUPPLY PIPE
CL	BED LEVEL	GB	GRIDBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SCP	STAND PIPE
BT	BT MANHOLE	GP	GUARD POST	SF	SUMP FENCE
BM	BENCH MARK	GM	GAS MARKER	SL	SUPPLY LEVEL
BWP	BARRIER POST	H	HEDGE/TREE	SMH	STORM WATER MANHOLE
BWF	BARRIER WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SUNKEN METAL PLINQ
CBF	CLOSE BOARDED FENCE	K	KERB	SP	SIGN POST
CLF	CHAIN LINK WIRE FENCE	KF	KERB/WIRE FENCE	SV	SLUICE VALVE
CT	CONCRETE TOP	MF	KITCHENDEN FENCE	SV	SLUICE VALVE
CLV	CLOSE LOW FENCE	KP	KERB/POST FENCE	SW	SHEET WALL
CM	CONCRETE MARKER	KR	KERB/ RAILS	SWF	SHELF WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CR	CONCRETE RAIL FENCE	LC	LEVEL CROSSING	TCP	TELEPHONE/ELECTRICITY POST
CY	CYCLE RACK	LP	LAMP POST	TL	TELEGRAPH CABINET
CTV	CABLE TV MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
DA	DRAIN	MC	MOORING CHAIN/RAIL	TP	TELEGRAPH POLE
DK	DROP KERB	MF	MARKER POST	TR	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DRAIN PIPE	MPF	METAL PILE FENCE	TRE	TREE (DECIDUOUS)
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOMESTIC RISER	MS	MILE STONE	TS	TREE STUMP
DW	DOMESTIC WATER	NB	NAME BOARD	TSR	TIMBER STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UC	UPSTAND CURB
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
EF	ELECTRICITY FENCE	OP	OPEN POST FENCE	W	WATER SURFACE LINE
ELP	ELECTRICITY CABLE PIT	OR	OPEN STEEL RAILING	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILLAR	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	POST & RAIL BOX	WP	WOOD POST
EX	EXISTING AOD	PM	PARKING METER	WR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PP	POST	WV	WATER VALVE
FB	FOOTBRIDGE	PR	POST & RAIL FENCE	WW	WINGWALL
FBB	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to 3d survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.767
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730220	TR 0159 4061	36.314
E20730021	TR 0158 4291	36.137
E20730500	TR 0223 4026	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731539	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.978
E20733004	TR 0504 3900	43.137
E20734703	TR 1099 3751	60.987
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.863
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

GOVERNMENT RESOURCE

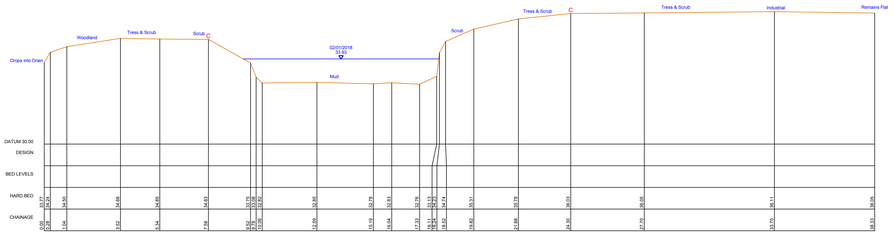
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

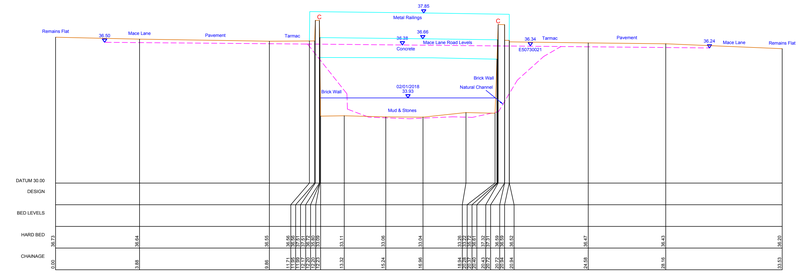
SITE/LIMITS

EAST STOUR (EST001)
LONG SECTION & LOCATION PLAN
EST001_18714 TO EST001_20131

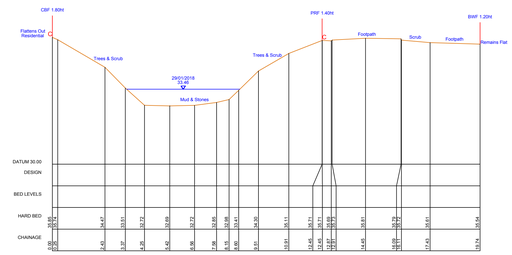
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2018 – MARCH 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-09	REV. —
CAD FILENAME: L-J01058-01-09.dwg		



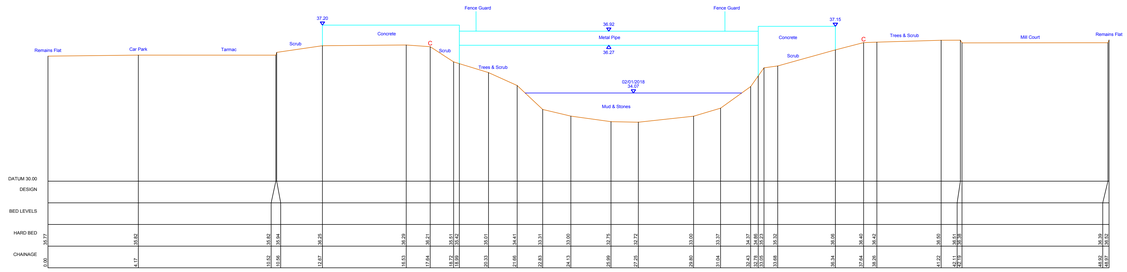
ESTO01_00033
601586.53mE 142862.68mN Brg 99
Open Channel



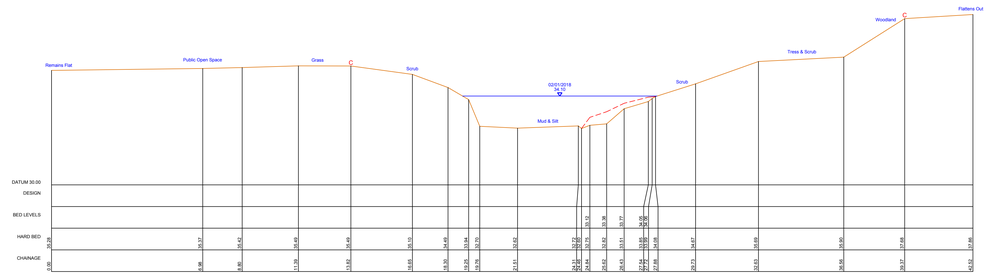
ESTO01_00080
601575.08mE 142823.29mN Brg 119
Mace Lane Road Bridge
Tunnel Length = 26.80m
Skew Angle = 15°



ESTO01_00109
601569.7mE 142793.75mN Brg 128
Open Channel



ESTO01_00192
601523.91mE 142721.49mN Brg 106
Pipe Crossing
Tunnel Length = 0.65m



ESTO01_00350
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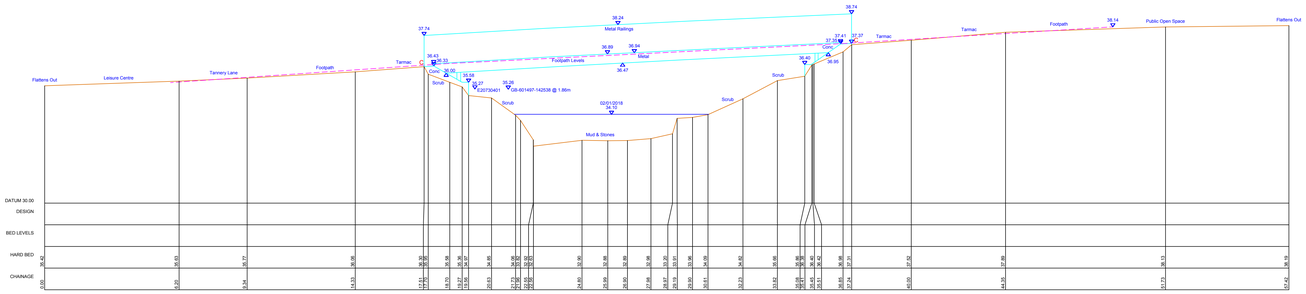
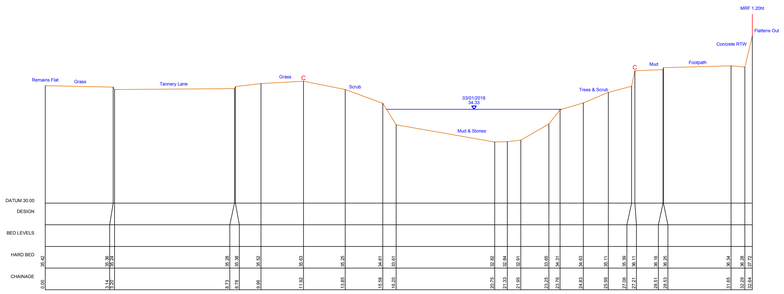
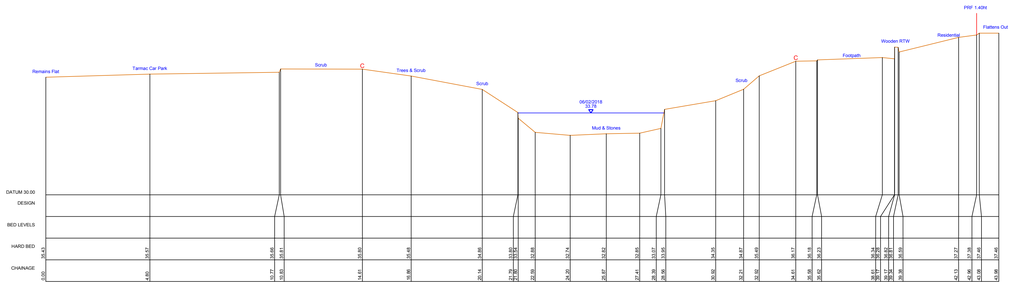
Open Channel



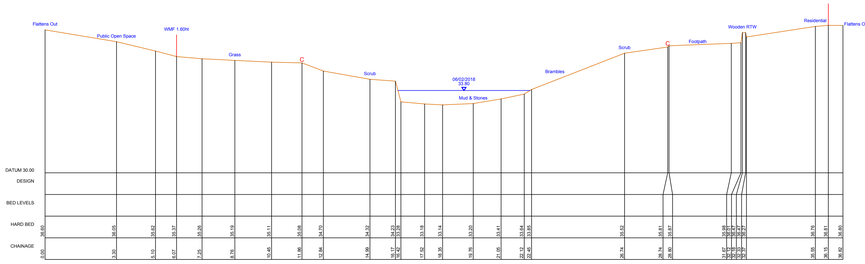
ESTO01_00367
601478.72mE 142552.38mN Brg 105
Footbridge
Tunnel Length = 3.18m



ESTO01_00402
601479.13mE 142512.41mN Brg 95
Open Channel



ESTO01_00502
601490.83mE 142402.14mN Brg 63
Open Channel



ESTO01_00592
601551.61mE 142322.86mN Brg 33
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER
BB	BRICK BASE	FP	FENCE POST
BR	BOLLARD, BEACON	FR	FENCE RAIL
BWC	BOARDED	FWM	FOUL WATER MANHOLE
BY	BOUNDARY	G	GULLY
BL	BED LEVEL	GB	GRASSVERGE
BTL	BOTTOM LOCK	GC	GAS CONTROL
BTS	BUS STOP	GP	GATE POST
BW	BRICK WORK	GV	GAS VALVE
BM	BRICK WALL	HW	HEDGE/WOOD
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER
CH	CHAIN LINK FENCE	IL	INVERT LEVEL
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE
CL	COVER LEVEL	MF	INTERMEDIATE FENCE
CLF	CLOSE BOARD FENCE	KB	KERB BOTTOM
CONC	CONCRETE	KG	KERB INLET GULLY
CP	CONCRETE POST	LS	LEFT SHAW
CPF	CONCRETE POST FENCE	LP	LAMP POST
CY	CYCLE RACK	LT	LAMP POST
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD
DF	DOG FENCE	MF	MISCELLANEOUS FENCING
DK	DROP KERB	MH	MANHOLE
DL	DECK LEVEL	MKR	MARKER
DP	DOWN PIPE	MPF	MESH PANEL FILE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE
DR	DOMESTIC RAIN	MS	MILE STONE
DW	DOMESTIC WATER	NB	NEWS BOARD
EA	ENVIRONMENT AGENCY	NGA	NATIONAL RIVERS AUTHORITY
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE
EF	ELECTRICITY BOX FENCE	OP	OVERHEAD POLE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS
EMH	ELECTRICITY MANHOLE	P	PILLAR
EP	ELECTRICITY POLE	PB	PILLAR BOX
ES	EARTHING SIG	PM	PARKING METER
ETM	ELECTRICITY TRANSMISSION LINE	PP	PIPE
FD	FLOWER BED	PRF	POST & RAIL FENCE
FB	FOOTBRIDGE	PTM	PARKING TICKET MACHINE
PW	PARAPET WALL
RB	RIGHT BANK
RC	RODDING EYE
RSJ	ROLLED STEEL JOIST
RWP	RAINWATER PIPE
RWM	RAINWATER PIPE
S	SPOT LEVEL
SC	STOP COCK
SD	SOAKAWAY
SL	SLUICE VALVE
SMH	SURFACE WATER MANHOLE
SMP	SHEET METAL PILING
SP	SIGN POST
STN	STATION
SV	SLUICE VALVE
SW	SURFACE WATER PIPE
SWF	SHEEP WIRE FENCE
TDM	TEMPORARY BENCH MARK
TFP	TELEGRAPH POLE/TELEPHOT
TC	TELECOM CABINET
TMH	TELECOM MANHOLE
TOP	TELECOM POLE
TL	TRAFFIC LIGHT
TLB	TRAFFIC LIGHT BOX
TP	TELEGRAPH POLE
TRS	TIMBER RUBBING STRIP
TS	TREE STUMP
TSR	TIMBER STEEL RAILINGS
UC	UPTOWN
UPC	UNABLE TO SURVEY
WC	WATER COURSE/WAY LINE
WM	WATER METER
WMP	WOOD MESH PANEL
WPF	WOOD POST FENCE
WR	WOODEN POST & RAIL FENCE
WT	WATER TAP
YB	YARD BOLT

(Abbreviations apply to 01 survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

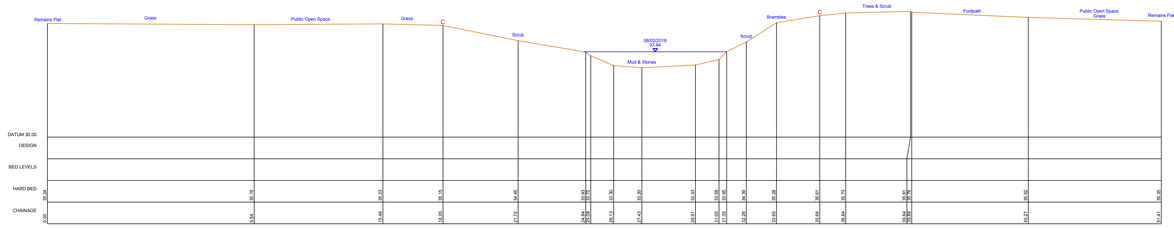
TYPE	DESCRIPTION	LEVEL
FC0730012	TR 0103 4107	35.975
FC0730401	TR 0149 4253	35.267
FC0730403	TR 0222 4027	38.489
FC0731536	TR 0866 3814	51.806
FC0730013	TR 0132 4202	38.489
FC0730020	TR 0129 4061	36.114
FC0730021	TR 0159 4291	36.137
FC0730000	TR 0021 4020	38.996
FC0730503	TR 0343 3930	40.259
FC0731495	TR 0152 4070	37.864
FC0731496	TR 0128 4199	37.732
FC0731497	TR 0087 4291	37.711
FC0731538	TR 0671 3842	52.092
FC0731571	TR 0866 3903	50.975
FC0730004	TR 0004 3900	40.719
FC0731483	TR 0151 4090	36.597
FC0731484	TR 0131 4070	37.915
FC0731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH
GOVERNMENT RESPONSE

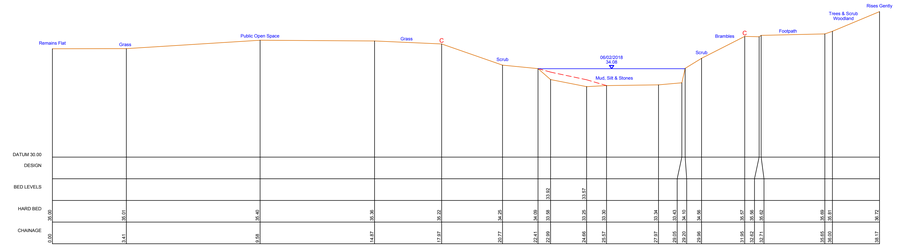
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (ESTO01)
CROSS SECTIONS
ESTO01_00033 TO ESTO01_00592

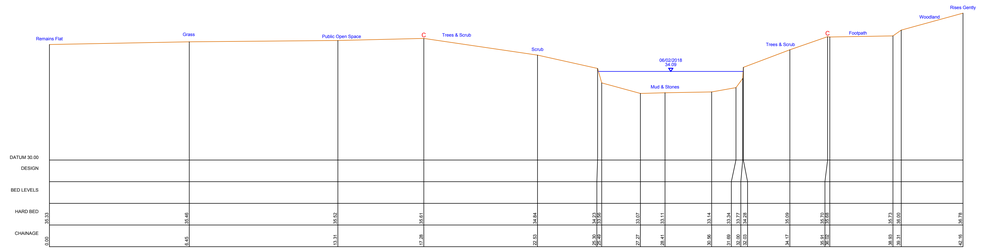
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_XS
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-01	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



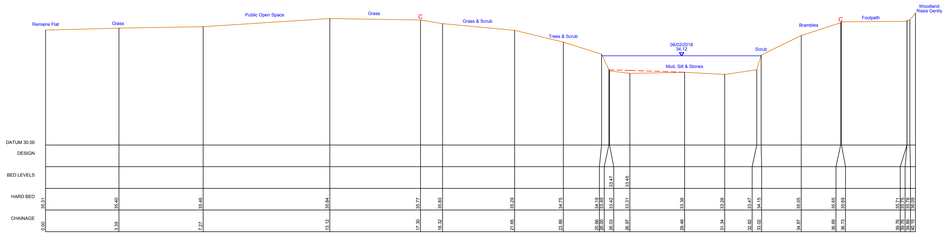
ESTO01_00709
601558.32mE 142250.02mN Brg 127
Open Channel



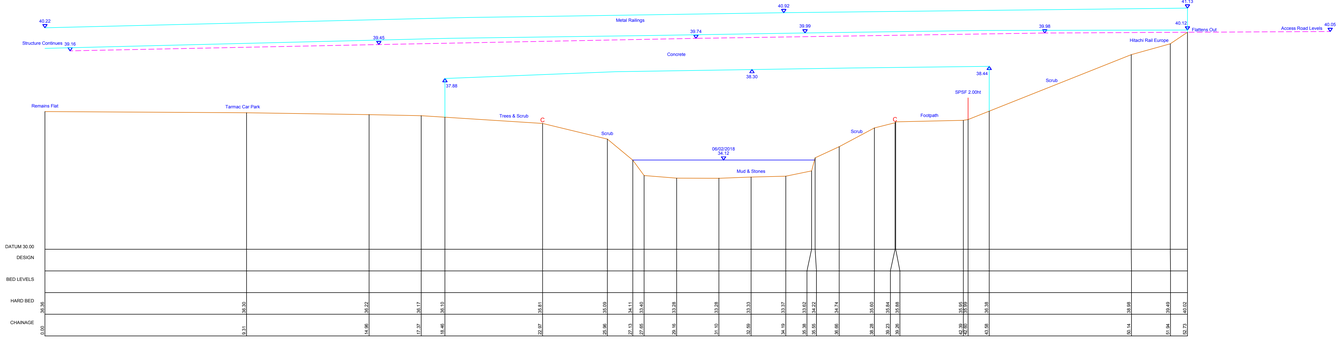
ESTO01_00781
601509.17mE 142209.15mN Brg 144
Open Channel



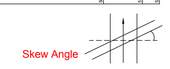
ESTO01_00801
601490.47mE 142200.03mN Brg 143
Open Channel

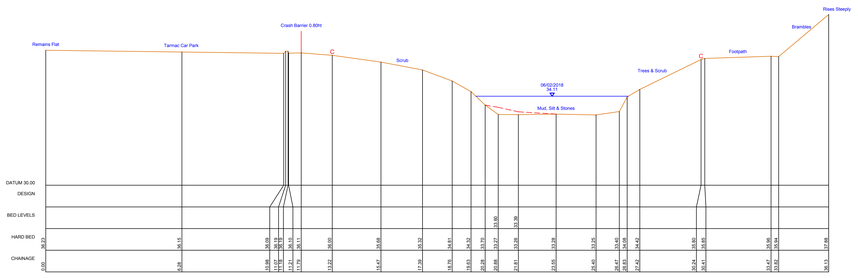


ESTO01_00818
601475.96mE 142190.76mN Brg 143
Open Channel

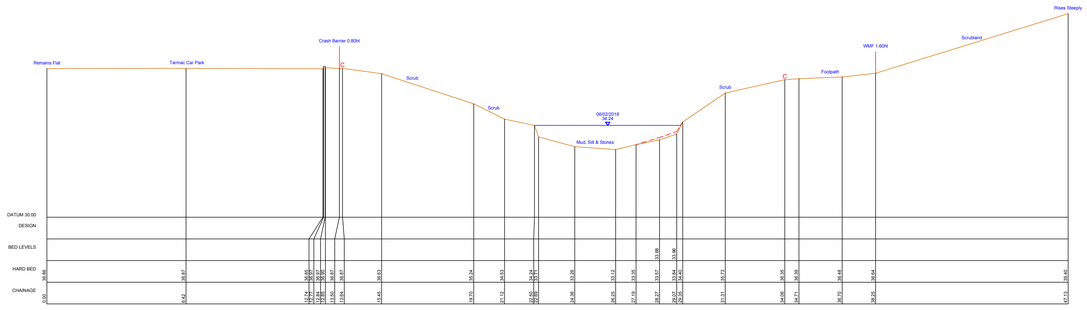


ESTO01_00844
601445.07mE 142169.61mN Brg 123
Access Road Bridge
Tunnel Length = 10.55m
Skew Angle = 20°





ESTO01_00852
601452.72mE 142168.03mN Brg 147
Open Channel



ESTO01_00934
601383.31mE 142120.35mN Brg 141
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM.
POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:

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2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FLOOD MARKER	RB	RAILWAY BRIDGE
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELOW BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FWV	FOUL WATER MANHOLE	RW	RETAINING WALL
BH	BOREHOLE	G	GULLY	SMP	SWIMMING POOL
BL	BED LEVEL	GB	GAS/DIESEL	TC	STOP COCK
BM	BENCH MARK	GP	GATE POST	TP	TELEGRAPH POLE
BS	BUG STOP	GV	GATE POST	TV	CHAMBER
BW	BEACH MARK	GW	GAS MARKER	TW	SLIPPY LEVEL
BW	BEACH WELL	HB	HARD BED	UM	UNDERGROUND MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	VMP	VHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	WC	WATER COCK
CBF	CLOSE BOARDED FENCE	BF	IRON RAILING FENCE	WTA	WATER TANK
CL	COVER LEVEL	KF	KICKBOARD FENCE	WV	SLUICE VALVE
CL	COVER LEVEL	LP	LAMP POST	WW	WOVEN WIRE FENCE
CONC	CONCRETE	KG	KERB INLET GULLY	WWF	WHEEL WIRE FENCE
CP	CONCRETE POST	LC	LEFT CREST	XS	CROSS SECTION MARK
CP	CONCRETE PALING FENCE	LG	LEFT GRID	ZTW	TELEPHONE (BELL IN) POST
CR	CYCLE RACK	LT	LAMP POST	TJ	TELECOM CABINET
CW	CATTLE WELL WINDOLE	LW	LOW WALL BALLARD	TL	TELEGRAPH LINE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TN	THRESHOLD LEVEL
DK	DROP KERB	MH	MARKER	TL	TRAFFIC LIGHT
DP	DOG POST	MP	MOORING PILE	TB	TELECOM BOX
DP	DUMPSTER	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TPS	TIMBER RUBBING STRIP
EL	ELECTRIC BOX	NB	NOTICE BOARD	TS	TIMBER STRUT
EMB	DOG WASTE BIN	NB	NOTICE BOARD	TW	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UT	UPSTREAM
EB	ELECTRIC BOX	OS	ORDNANCE SURVEY	WL	WATER LEVEL SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EDP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EP	ELECTRICITY POLE	P	PILLAR	WPF	WOOD PALING FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
EW	EARTHING WIRE	PM	PARKING METER	WPB	WOODEN POST & RAIL FENCE
EW	ELECTRICITY TRANSMISSION LINE	PO	POST	YC	YARD CLEAR
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to EA survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
F20730012	TR 0103 4107	35.975
F20730401	TR 0149 4253	35.787
F20730403	TR 0222 4027	35.889
F20731536	TR 0666 3814	51.806
F20730013	TR 0132 4202	36.489
F20730020	TR 0159 4061	36.514
F20730021	TR 0129 4091	36.332
F20730500	TR 0221 4026	36.256
F20731007	TR 0564 3813	50.958
F20731495	TR 0152 4070	37.864
F20731496	TR 0126 4199	37.964
F20731497	TR 0084 4191	37.717
F20731938	TR 0671 3842	53.022
F20731071	TR 0561 3813	50.976
F20733004	TR 0509 3900	43.719
F20733005	TR 0564 3751	40.047
F20731483	TR 0151 4070	37.916
F20731484	TR 0133 4200	37.963
F20731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

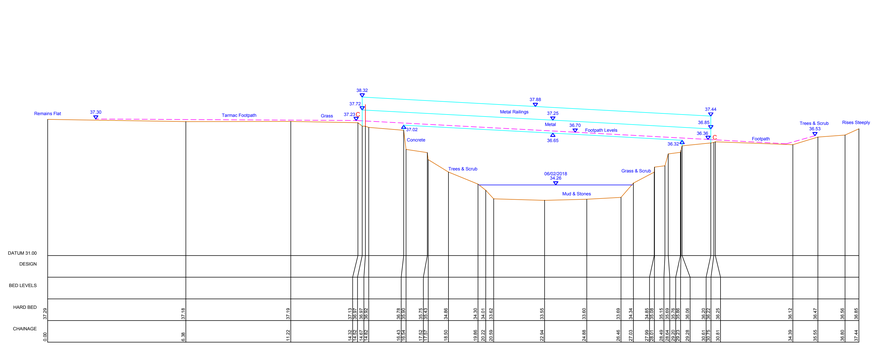
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

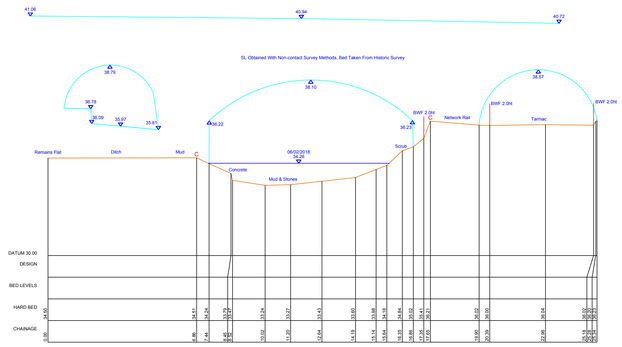
SITE/LIMITS

EAST STOUR (ESTO01)
CROSS SECTIONS
ESTO01_00709 TO ESTO01_00934

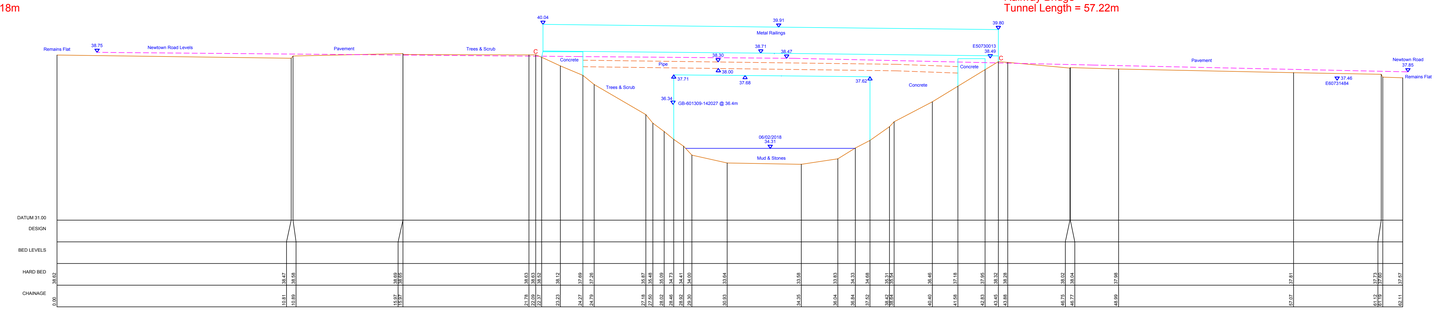
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332	
SURVEY DATE: DECEMBER 2017 – MARCH 2018			
SCALE: 1:100	DRN: RC	CHKD: ITS	
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18	
GRID: NATIONAL GRID	DRAWING NO. X-J01058-02		REV. —
CAD FILENAME: X-J01058-01-30.dwg			



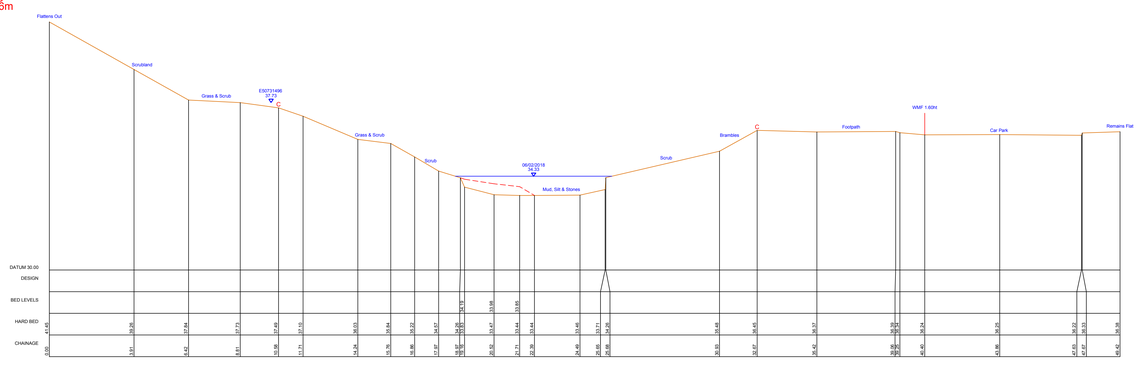
ESTO01_00961
601362.29mE 142104.58mN Brg 143
Footbridge
Tunnel Length = 3.18m



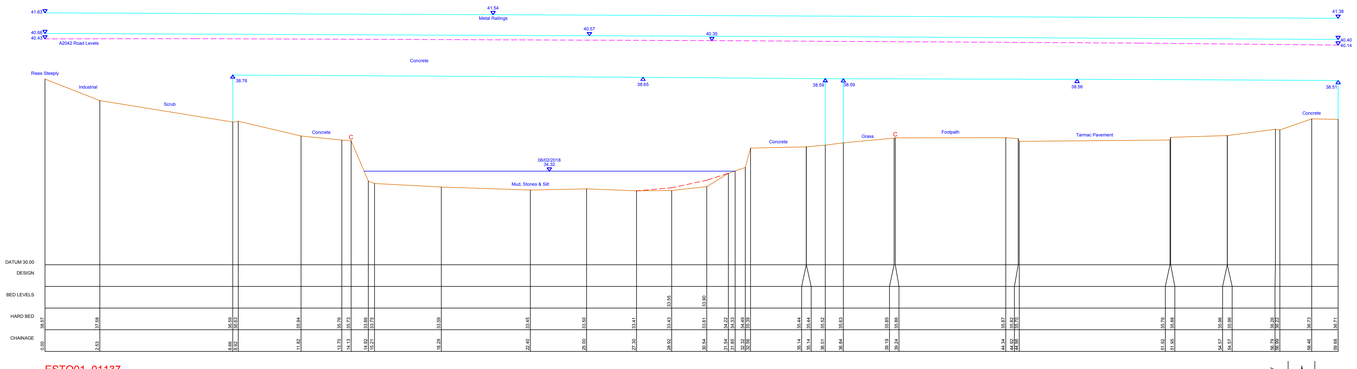
ESTO01_01022
601320.27mE 142054.11mN Brg 129
Railway Bridge
Tunnel Length = 57.22m



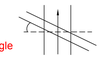
ESTO01_01049
601286.13mE 142043.48mN Brg 125
Newtown Road Bridge
Tunnel Length = 9.88m



ESTO01_01089
601278.73mE 141994.52mN Brg 109
Open Channel



ESTO01_01137
601273.69mE 141962.07mN Brg 146
A2042 Road Bridge
Tunnel Length = 39.02m
Skew Angle = 40°



Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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SURVEY LEGEND

AB	AIR BRICH	FH	FIRE HYDRANT	PB	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RL	ROOF LEVEL
BA	BOLLARD ELEVATION	FS	FLOOD SIGN	RSJ	RSJ/C-SECT. JOIST
BDY	BOUNDARY	FWK	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	RWP	RAINWATER PIPE
BK	BRICK	GB	GASEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUILDING	GP	GUARD POST	SE	SOFFIT LEVEL
BM	BENCH MARK	GV	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
CB	CONCRETE BASE	IC	INSPECTION CHAMBER	SP	SIGN POST/ PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CF	CORRUGATED IRON FENCE	RF	IRON RAILING FENCE	STN	STATION
CH	CHAIN LINK	JB	JUNCTION BOX	SV	STOP VALVE
CLF	CHAIN LINK FENCE	JR	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB/ INLET/ GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	L	LAMP	TBM	TEMPORARY BENCH MARK
CPF	CREOSOTED PALING FENCE	LC	LEFT CREST	TCP/W	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CW	CABLE TV MANHOLE	LT	LIGHTING BOLLARD	TEL	TELEPHONE MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TKL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DP	DOWN PIPE	MPT	METAL POST	TP	TELEGRAPH POLE BOX
EP	ELECTRIC	MP	MOORING PILE	TP	TELEGRAPH POLE
EPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
FE	FENCE	NB	NOTICE BOARD	TS	TRAFFIC SIGNAL
FMB	FOUL WATER BIN	NS	NOTICE BOARD	TW	TUBULAR STEEL RAILINGS
EA	ELECTRICITY AUTHORITY	OHC	OVERHEAD CABLE AUTHORITY	UPS	UPSTAND TO SURVEY
EB	ELECTRIC BOX	OHC	OVERHEAD CABLE	UPS	UPSTAND TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/ WATER LINE
EMH	ELECTRICITY MANHOLE	OR	ORNAMENTAL RAILINGS	WL	WATER LEVEL
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRIC POLE	PB	PILE BOX	WP	WOODEN POST
EP	ELECTRICITY (PYLON)	PB	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWERBED	PR	POST & RAIL FENCE	WV	WATER VALVE
FBH	FLOWERBED	PTM	PARKING TICKET MACHINE		(Abbreviations apply to SV survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

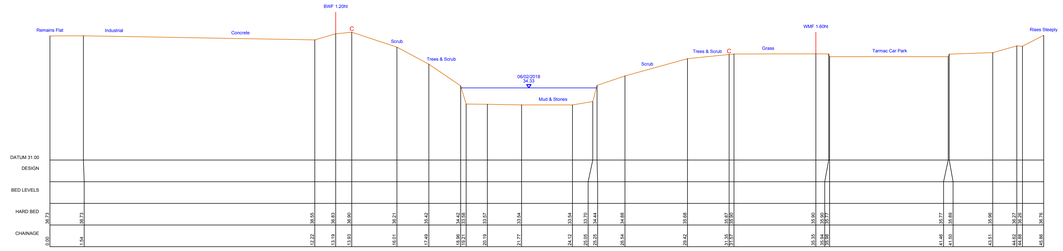
TYPE	DESCRIPTION	LEVEL
E60730012	TR 0103 4107	35.975
E60730401	TR 0149 4251	36.757
E60730403	TR 0222 4223	38.489
E60731536	TR 0666 3814	51.808
E60730013	TR 0132 4202	38.489
E60730020	TR 0159 4081	36.114
E60730021	TR 0159 4291	38.337
E60730501	TR 0223 4025	38.486
E60730503	TR 0343 3932	40.259
E60731495	TR 0152 4070	37.864
E60731496	TR 0128 4199	37.732
E60731537	TR 0687 3791	47.711
E60731538	TR 0671 3842	53.022
E60731671	TR 0666 3813	50.976
E60733004	TR 0504 3900	43.712
E60733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

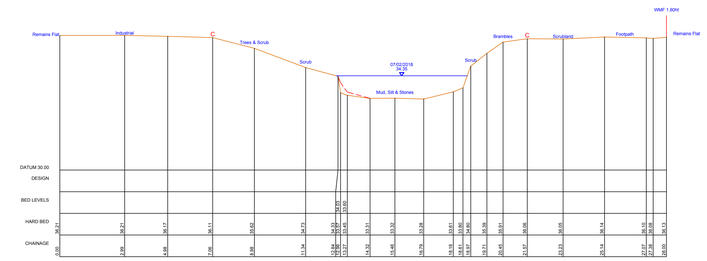
PROJECT/ WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_00961 TO EST001_01137

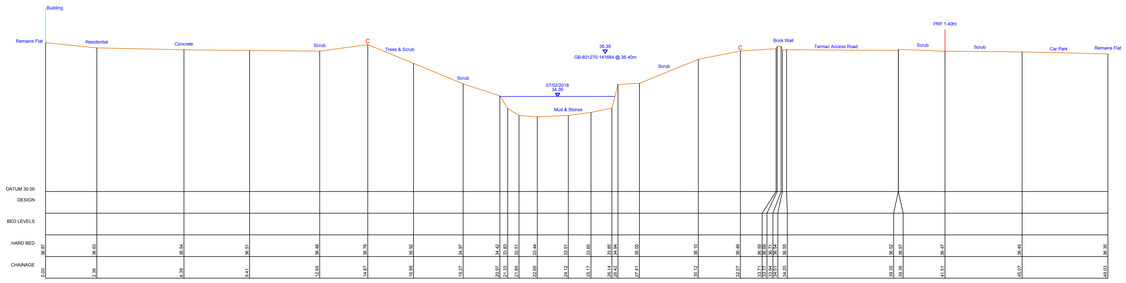
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-03	REV. —
CAD FILENAME: X-J01058-01-3D.dwg		



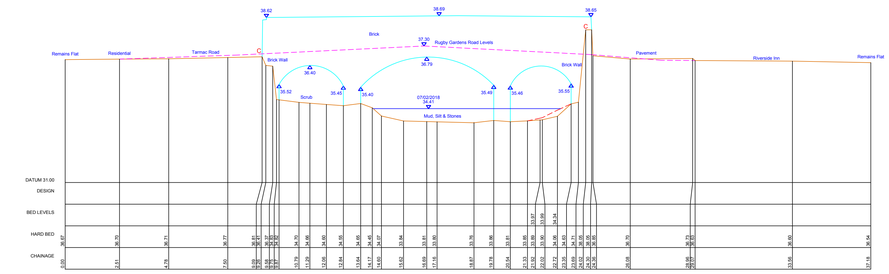
ESTO01_01158
601260.95mE 141924.08mN Brg 98
Open Channel



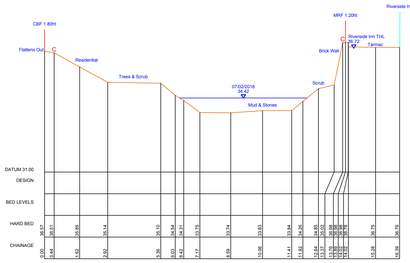
ESTO01_01285
601289.29mE 141796.04mN Brg 88
Open Channel



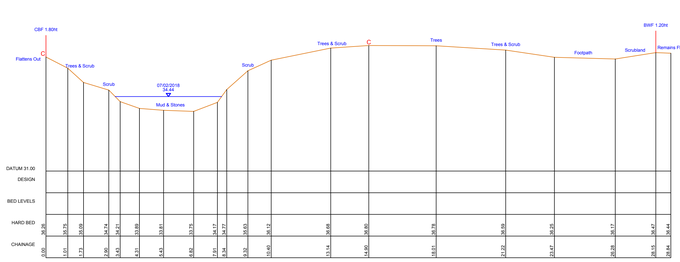
ESTO01_01394
601249.67mE 141702.2mN Brg 111
Open Channel



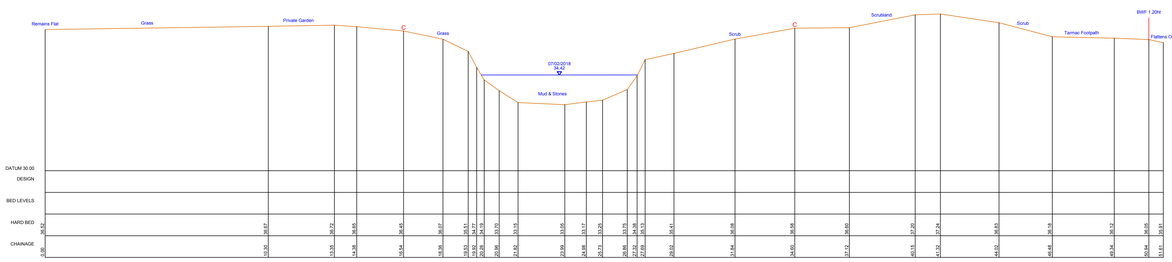
ESTO01_01408
601250.34mE 141688.51mN Brg 115
Rugby Garden Road Bridge
Tunnel Length = 4.33m



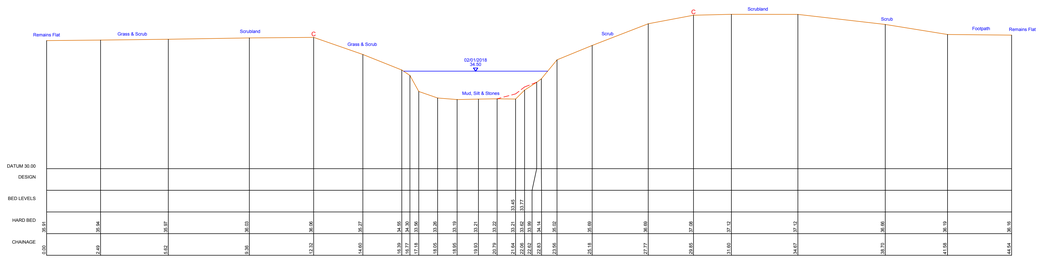
ESTO01_01414
601255.83mE 141679.66mN Brg 115
Open Channel



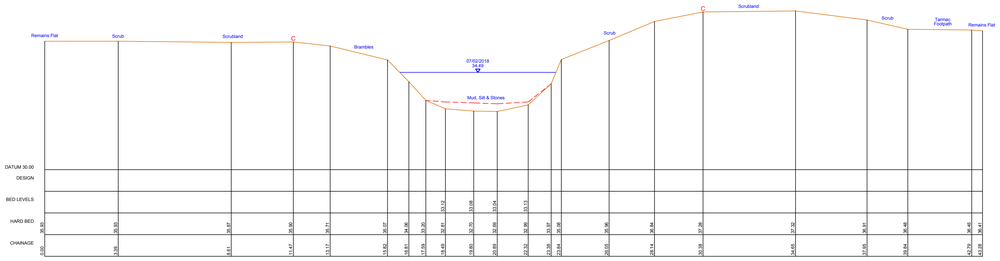
ESTO01_01482
601232.5mE 141615.99mN Brg 121
Open Channel



ESTO01_01590
601166.27mE 141535.55mN Brg 131
Open Channel



ESTO01_01718
601104.58mE 141413.56mN Brg 96
Open Channel



ESTO01_01785
601101.74mE 141345.95mN Brg 92
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICH	FH	FIRE HYDRANT	PB	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	ROOT CROSS
BA	BUILDING MEASON	FP	FLOOR PLATE	RCL	RECTANGULAR CONC. JOINT
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	SP	SURFACE WATER PIPE
BK	BRICK	GB	GRASSBOARD	SR	STEP IRON
BRK	BRICKWORK	GL	GROUND LEVEL	SSP	STONE PIPE
BS	BUS STOP	GP	GUARD POST	TB	TELEGRAPH POLE
BW	BENCH MARK	GM	GAS MARKER	TL	TOP/TOP LEVEL
BW	BRICK WALL	HW	HEAD WALL	TMH	TURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	I	INSPECTION CHAMBER	UP	UNDER PASS / PILING
CBF	CLOSE WARRIED FENCE	IL	INVERT LEVEL	VP	VENT PIPE
CF	CORRUGATED IRON FENCE	RF	IRON RAILING FENCE	STN	STATION
CH	CHIMNEY	JB	JUNCTION BOX FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LC	LEFT CREST	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LE	LEFT BANK	TCP/UP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CW	CATCH PIT / MANHOLE	LPB	LAMP POST BOLLARD	TCB	TELECOM JUNCTION BOX
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TRL	THRESHOLD LEVEL
DK	DROP KERB	MK	MARKER	TL	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MARKER POST	TLB	TRAFFIC LIGHT BOX
EP	EDGE PIPE	MP	MOORING PILE	TP	TELEGRAPH POLE
EPC	DAMP PROOF COURSE	MPF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
FE	FENCE POST	NB	NOTICE BOARD	TS	TIMBER STEPS
FMB	FOUL WATER BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	OHC	OVERHEAD CABLE AUTHORITY	UPS	UPSTREAM
EB	ELECTRIC BOX	OHC	OVERHEAD CABLES	VD	VERTICAL DATUM
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EMH	ELECTRIC MANHOLE	PR	PALISADE RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	PT	PILE	WMF	WIRE MESH FENCE
EP	ELECTRIC POST	PW	PUBLIC ROW	WP	WOODEN POST
LF	ELECTRICITY POLE	RF	RAILING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWERBED	PR	POST & RAIL FENCE	WW	WIRE WALL
FBH	FLOWERBED	PTM	PARKING TICKET MACHINE		(Abbreviations apply to OS Master data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E60730012	TR 0103 4107	35.975
E60730401	TR 0149 4253	36.757
E60730403	TR 0222 4229	38.489
E60731536	TR 0666 3814	51.016
E60730013	TR 0132 4202	38.489
E60730002	TR 0159 4081	36.114
E60730021	TR 0159 4291	38.137
E60730500	TR 0221 4025	38.486
E60730503	TR 0343 3936	40.259
E60731495	TR 0152 4070	37.864
E60731496	TR 0128 4199	37.732
E60731537	TR 0687 3791	47.711
E60731538	TR 0671 3842	53.022
E60731671	TR 0666 3813	50.976
E60733004	TR 0504 3900	43.712
E60733005	TR 1056 3751	60.987
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

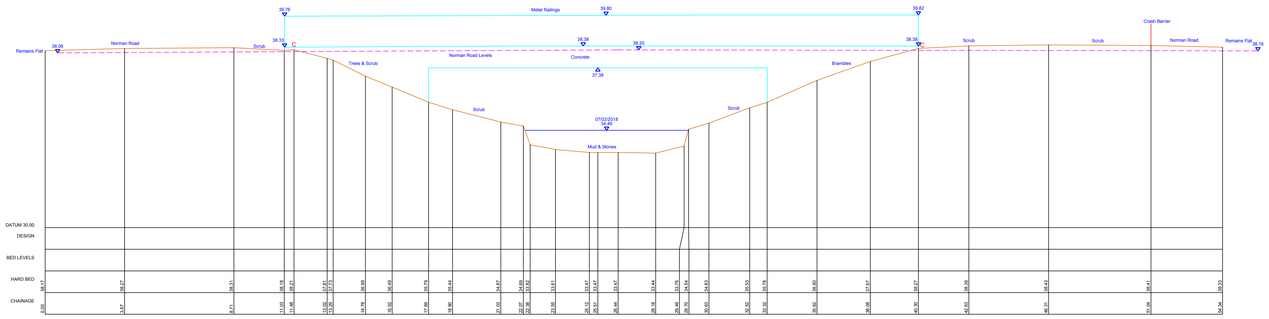
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

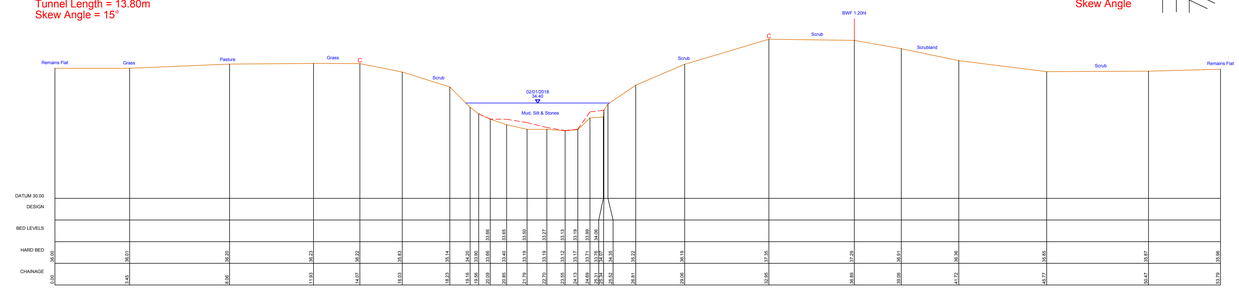
SITE/LIMITS

EAST STOUR (EST001)
CROSS SECTIONS
EST001_01158 TO EST001_01785

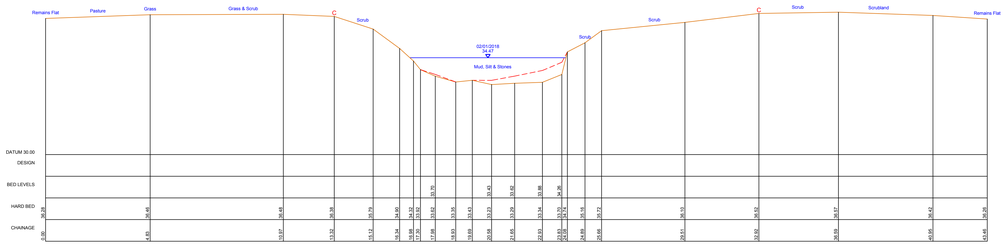
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-04	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



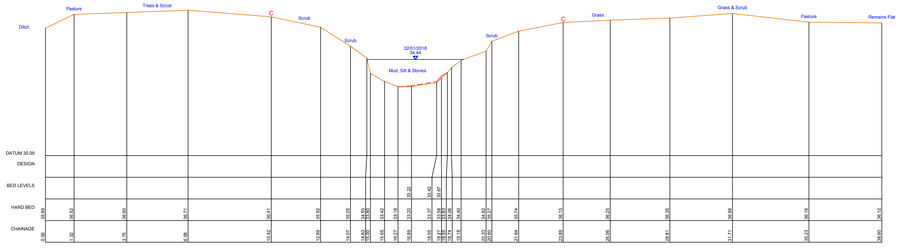
ESTO01_01831
601094.03mE 141309.14mN Brg 113
Norman Road Road Bridge
Tunnel Length = 13.80m
Skew Angle = 15°



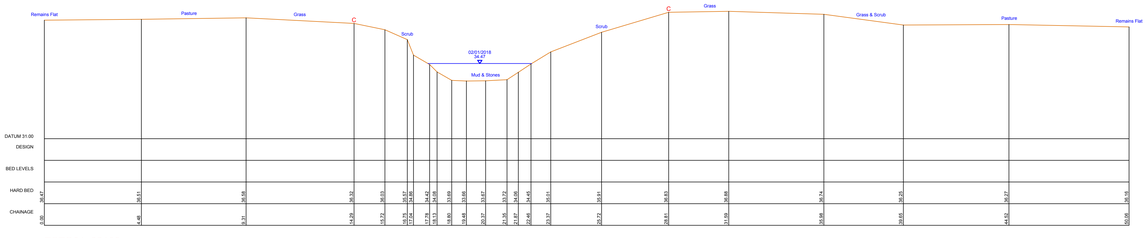
ESTO01_01855
601091.91mE 141278.31mN Brg 99
Open Channel



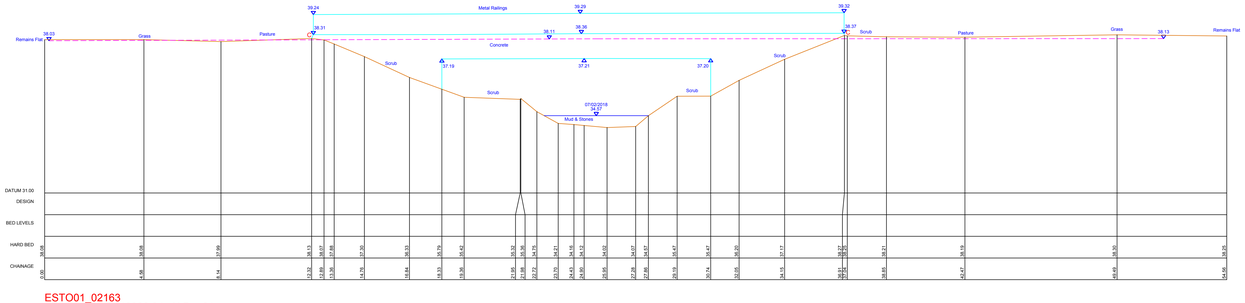
ESTO01_01999
601052.2mE 141145.82mN Brg 111
Open Channel



ESTO01_02043
601050.87mE 141091.15mN Brg 81
Open Channel



ESTO01_02109
601069.74mE 141021.36mN Brg 60
Open Channel



ESTO01_02163
601109.08mE 140968.34mN Brg 31
A2042 Road Bridge
Tunnel Length = 25.53m

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER
B	BOLLARD	FL	FLOOR LEVEL
BCN	BRICK BEACON	FP	FLOOD POST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE
BH	BOREHOLE	G	GULLY
BM	BENCH MARK	GB	GRIDBOARD
BRK	BRICKWORK	GL	GROUND LEVEL
BS	BUS STOP	GP	GATE POST
BW	BRICK WORK	GV	GAS VALVE
BX	BRICK WALL	HW	HEAD WALL
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER
C	CENTRE OF CHANNEL	IL	INVERT LEVEL
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE
CL	CABLE LINE	JB	JUNCTION BOX
CLF	CHAIN LINK FENCE	JC	JUNCTION BOX
CMH	CONCRETE MAST	KG	KERB GULLY GULLY
CONC	CONCRETE POST	LC	LEFT CREST
CPF	CHESTNUT PALING FENCE	LT	LEFT TOEP
CR	CREST LEVEL	MB	MOORING BOLLARD
CV	CABLE TV MANHOLE	MF	MISCELLANEOUS FENCING
CUL	CULVERT	MT	MOORING POST
D	DRAIN PIPE	MWF	MARKER
DL	DECK LEVEL	MP	MOORING PILE
DP	DUMPSITE	MRF	MISCELLANEOUS FENCE
DPC	DAMP PROOF COURSE	MT	MAST
DT	DOWNSTREAM	NG	NEW GRID
DWB	DOG WASTE BIN	NB	NOTICE BOARD
E	ELECTRICITY AGENCY	NRA	NATIONAL RIVERS AUTHORITY
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY
EF	ELECTRIC FENCE POST	PAF	PAVING STEEL RAILINGS
EMH	ELECTRICITY MANHOLE	PT	PILE
EP	ELECTRICITY POLE	PB	PILLAR BOX
ES	ELECTRIC SIGN	PM	PARKING METER
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST
FB	FLOWER BED	PRF	POST & RAIL FENCE
FBR	FISHBRIDGE	PTM	PAYING TICKET MACHINE
PW	PARAPET WALL		
RB	RIGHT BANK		
RC	RIGHT CREST		
RJ	RAILWAY RAIL JOINT		
RTM	RETAINING WALL		
RWP	RAINWATER PIPE		
S	SIGNPOST		
SDN	STAND PIPE		
SK	SCAFFOLD KEY		
SL	SLOPE LEVEL		
SLW	SLOPE WALL		
SMF	SHEEP MESH FENCE		
SMH	SURFACE WATER MANHOLE		
SMP	SHEET METAL PILING		
SP	SIGN POST		
STN	STATION		
SW	SURFACE WATER		
SWP	SLACK WATER PIPE		
TBF	TIMBER BOARD FENCE		
TBM	TEMPORARY BENCH MARK		
TCP	TELEPHONE CALL BOX/POST		
TF	TIMBER FENCE		
TM	TELEGRAM MARKET		
TOL	THRESHOLD LEVEL		
TP	TELEGRAPH POLE		
TR	TRAFFIC LIGHT BOX		
TT	TELEGRAPH POLE		
TW	TOWPATH/PAVING STRIP		
TX	TREE STUMP		
TZB	TUBULAR STEEL RAILINGS		
UP	UTILITY POLE		
US	UNABLE TO SURVEY		
WL	WATER LEVEL/WATER LINE		
WP	WOOD POST		
WPF	WIRE MESH FENCE		
WR	WOODEN RAIL		
WRF	WOODEN POST & RAIL FENCE		
WV	WATER VALVE		
YG	YARD GULLY		

(Abbreviations apply to the survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
FE07330012	TR 0103 4107	35.975
FE07330401	TR 0149 4125	38.267
FE07330403	TR 0227 4037	38.589
FE07331496	TR 0666 3814	51.806
FE07330013	TR 0139 4202	38.480
FE07330020	TR 0159 4061	38.314
FE07330021	TR 0158 4291	38.337
FE07330050	TR 0223 4025	38.486
FE07330503	TR 0143 3935	40.259
FE07331495	TR 0152 4070	37.864
FE07331496	TR 0128 4199	37.732
FE07331537	TR 0687 3791	47.111
FE07331538	TR 0671 3842	53.022
FE07331671	TR 0666 3813	50.976
FE07333004	TR 0504 3900	43.712
FE07333005	TR 1056 3751	60.587
FE07331483	TR 0151 4070	35.916
FE07331484	TR 0133 4200	37.363
FE07331539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

operational address

PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
CROSS SECTIONS
EST001_01831 TO EST001_02163

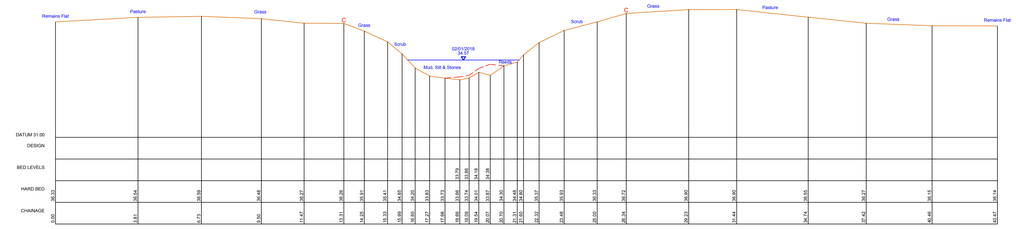
SURVEYED BY: MALTBY LAND SURVEYS LTD — Ref: 17_332

SURVEY DATE: DECEMBER 2017 – MARCH 2018

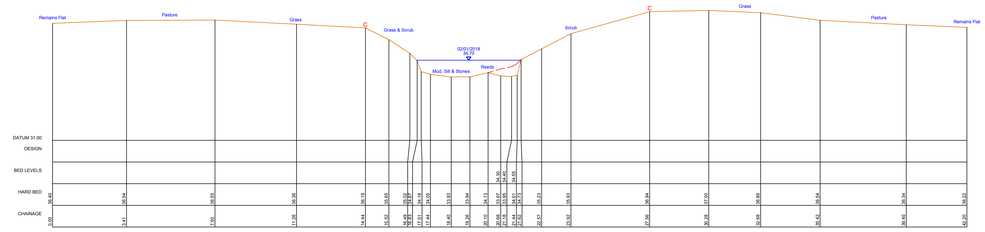
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-05	REV. —

CAD FILENAME: X-J01058-01-30.dwg

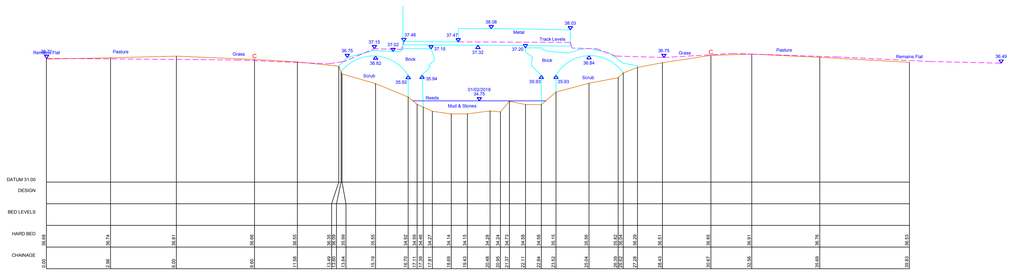
Original Drawing Size: A0



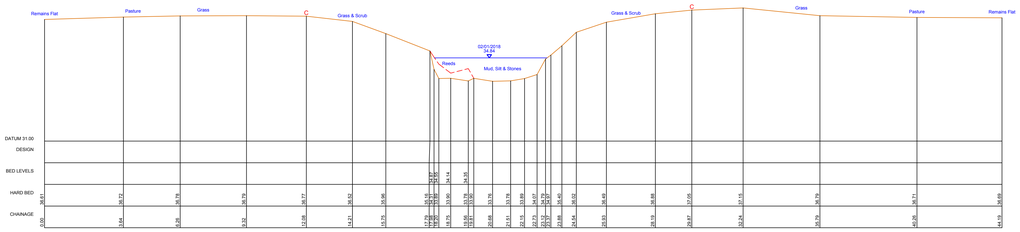
ESTO01_02196
601138.17mE 140955.54mN Brg 34
Open Channel



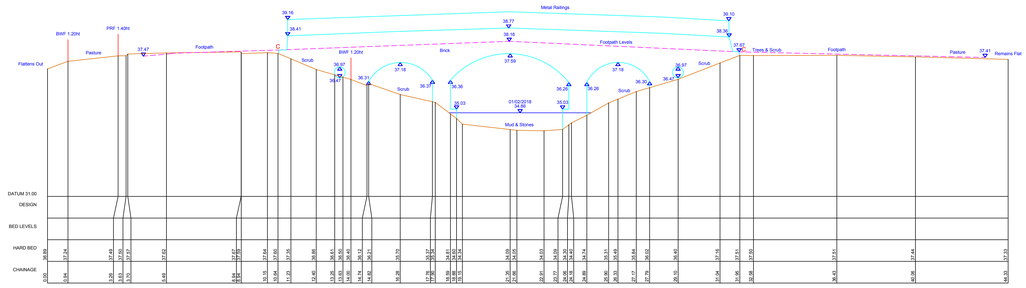
ESTO01_02308
601226.77mE 140889.12mN Brg 36
Open Channel



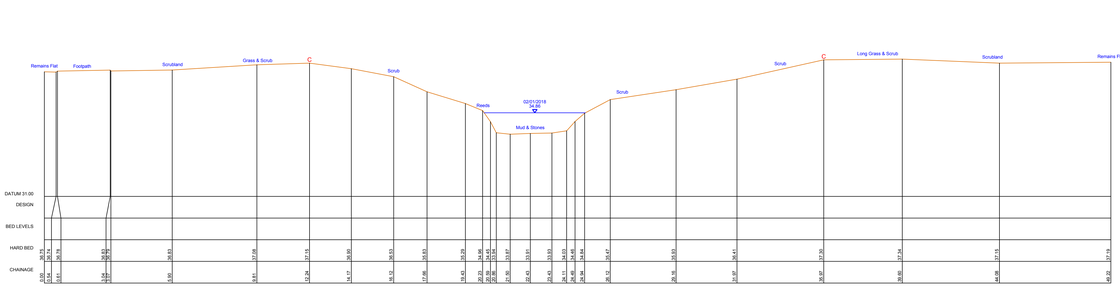
ESTO01_02386
601294.59mE 140845.38mN Brg 30
Footbridge
Tunnel Length = 3.19m



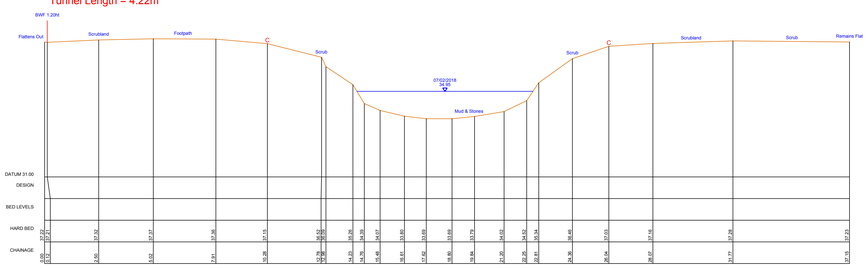
ESTO01_02500
601396.23mE 140793.64mN Brg 28
Open Channel



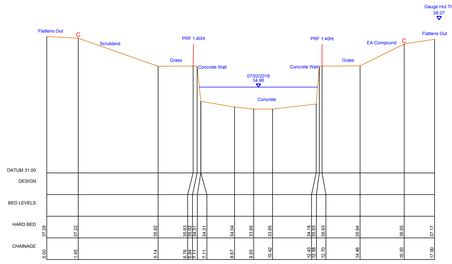
ESTO01_02577
601452.42mE 140750.06mN Brg 45
Footbridge
Tunnel Length = 4.22m



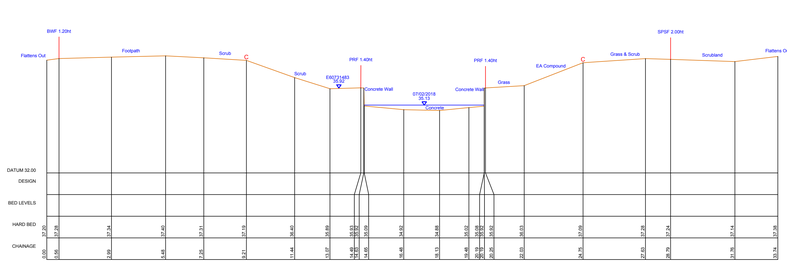
ESTO01_02605
601466.21mE 140732.41mN Brg 59
Open Channel



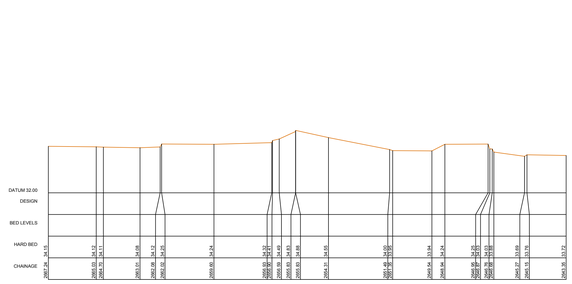
ESTO01_02645
601495.15mE 140699.93mN Brg 50
Open Channel



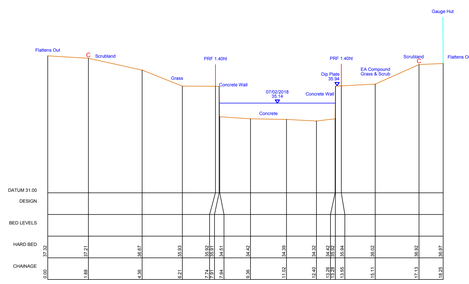
ESTO01_02651
601504.75mE 140701.54mN Brg 56
Weir Toe



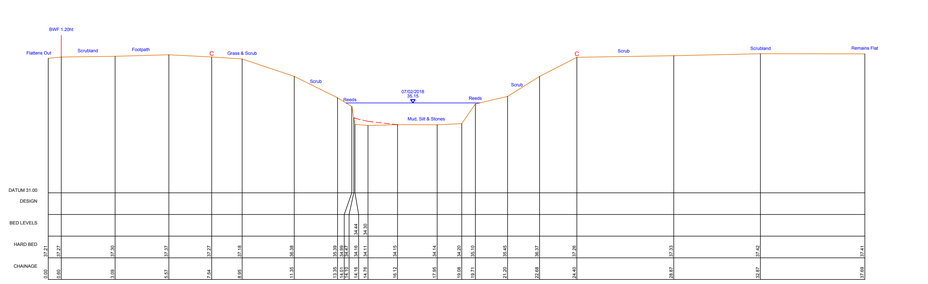
ESTO01_02656
601501.84mE 140692.8mN Brg 52
Weir Crest



Through Section ESTO01_2656
Weir Crest



ESTO01_02657
601507.68mE 140696.48mN Brg 55
Weir Heel



ESTO01_02665
601506.77mE 140686.88mN Brg 56
Open Channel

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:

1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FLOW METER/ MARKER	PC	PRECAST CONC
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FS	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FMH	FOUL MANHOLE	RWP	RAINWATER PIPE
BH	BOREHOLE	G	GALLY	RWP	RAINWATER PIPE
BGL	BED LEVEL	GR	GRATING	SP	STEP IRON
BGL	BED LEVEL	GL	GROUND LEVEL	SW	STORM WATER
BS	BUS STOP	GT	GATE POST	SI	SUNKEN INLET
BW	BRICK WALL	GV	GAS VALVE	SV	SURVEY POINT
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
CHF	CHAIN LINK FENCE	IC	INSPECTION CHAMBER	SPL	SPOT LEVEL PILING
CHF	CLOSE BOARDED FENCE	K	KIOSK	SP	SIGN POST
CF	CORRUGATED IRON FENCE	RF	IRON RAILING FENCE	STN	STATION
CL	CABLE LINK	MF	MESH WIRE FENCE	SW	STORM WATER
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SOL	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB/ SALT GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	L	LAMP POST	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TELP	TELEPHONE (DIAL) WALKPOST
CR	CYCLE RACK	LG	LAMP POST	TC	TELECOM CABINET
DH	DRAIN/ MH/ MANHOLE	LB	LIGHTING BOLLARD	TH	TRIG POINT HOLE
DJL	DILAPIDT	MF	MISCELLANEOUS FENCING	TK	THRESHOLD (CAR)
DK	DECK/ KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DP	DRAIN PIPE	MPF	METAL PALING FENCE	TP	TELEPHONE BOX
DR	DORMPOST	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TBS	TIMBER RUBBING STRIP
EB	ELECTRIC BOX	NP	NOTICE POST	TSF	TIMBER SLEEPER
EMB	EDG MASTIC BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UT	UPSTREAM
ESP	ELECTRIC POST	OS	ORDNANCE SURVEY	VP	VERTICAL POINT SURVEY
ESP	ELECTRIC CABLE POST	OS	ORDNANCE SURVEY	WL	WATER LEVEL/ WATER LINE
ESP	ELECTRICITY CABLE PST	OPR	OPEN STEEL RAILINGS	WM	WATER METER
EP	ELECTRICITY PYLON	P	PIER	WF	WIRE NETTING FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PS	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETR	ELECTRICITY TRANSMISSION LINE	PF	PALING FENCE	WT	WATER TAP
FB	FLOWER BED	PR	POST & RAIL FENCE	WM	WIRE MESH FENCE
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to OS survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E607330012	TR 0103 4107	55.975
E607330401	TR 0149 4229	38.289
E607331196	TR 0222 4014	37.952
E607330015	TR 0159 4052	38.489
E607330020	TR 0159 4097	38.317
E607330021	TR 0159 4091	38.137
E607330501	TR 0021 4076	38.286
E607330503	TR 0341 3935	40.259
E607331495	TR 0152 4070	37.864
E607331496	TR 0128 4199	37.732
E607331537	TR 0687 3791	47.711
E607331538	TR 0671 3842	53.022
E607331571	TR 0666 3813	50.076
E607330004	TR 0504 3900	43.719
E607330005	TR 1054 3791	60.587
E607331483	TR 0151 4070	35.916
E607331484	TR 0133 4200	37.463
E607331539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
CROSS SECTIONS
EST001_02196 TO EST001_02665

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-06	REV. —
CAD FILENAME: X-J01058-01-30.dwg		

Original Drawing Size: A0

KEY TO SECTIONS:

WATER LEVEL

VISIBLE BED (TOP OF SILT) AND GROUND

HARD BED (DETERMINED BY PROBING)

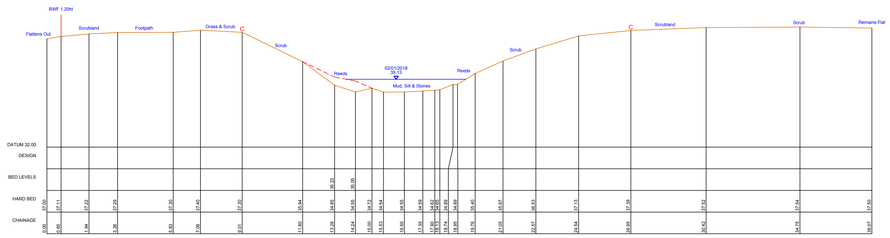
C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

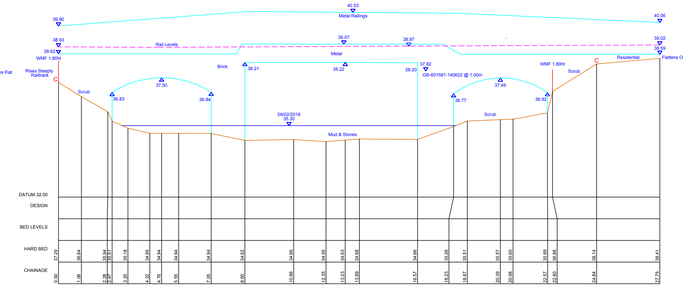
LEFT BANK CREST

RIGHT BANK CREST

VIEWED LOOKING DOWNSTREAM.
POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

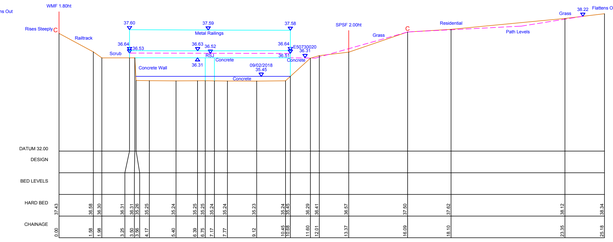


ESTO01_02705
601528.85mE 140653.07mN Brg 56
Open Channel

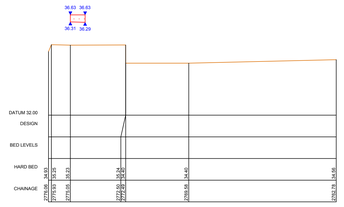


ESTO01_02763
601582.32mE 140606.02mN Brg 356
Rail Bridge
Tunnel Length = 10.55m
Skew Angle = 40°

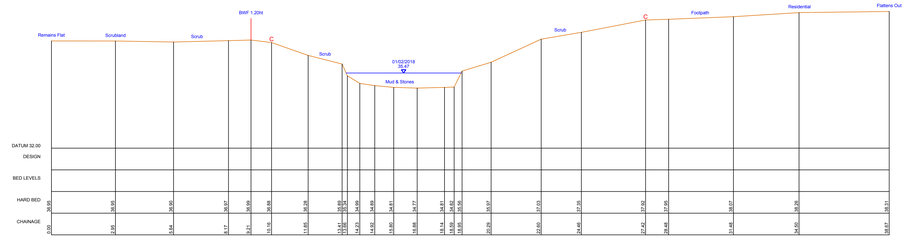
Skew Angle



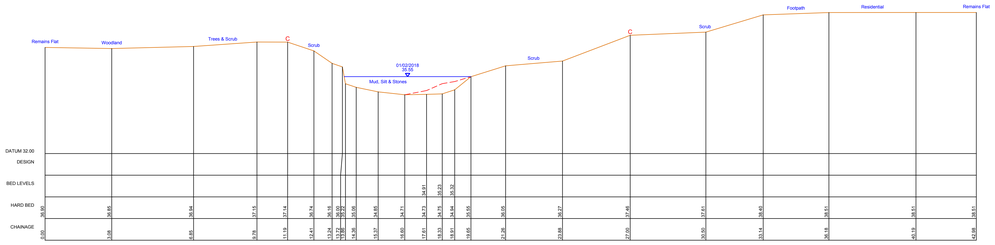
ESTO01_02775
601584.67mE 140605.71mN Brg 43
Footbridge
Tunnel Length = 0.68m



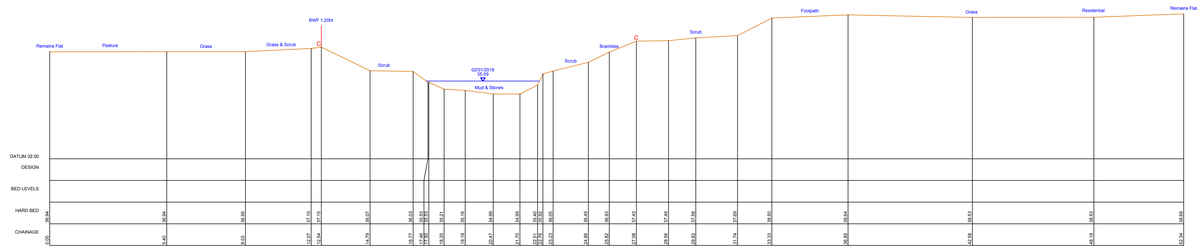
Through Section ESTO01_2775
Footbridge



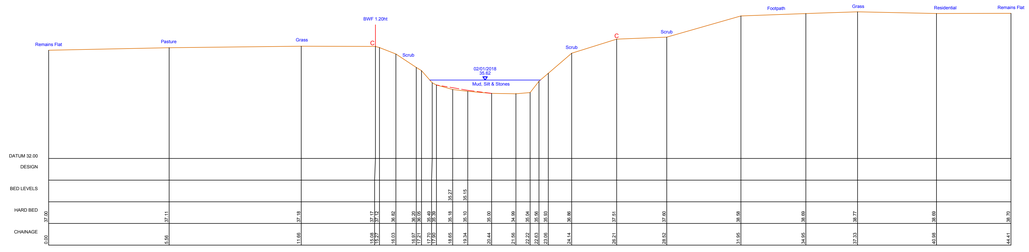
ESTO01_02821
601619.02mE 140564.32mN Brg 16
Open Channel



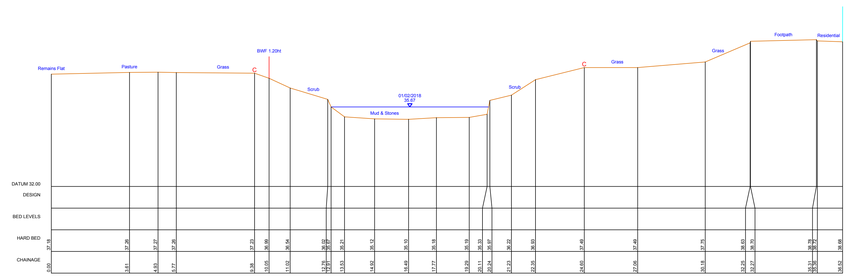
ESTO01_02904
601699.17mE 140542.41mN Brg 13
Open Channel



ESTO01_03003
601794.83mE 140522.01mN Brg 14
Open Channel



ESTO01_03096
601886.59mE 140503.89mN Brg 10
Open Channel



ESTO01_03202
601977.99mE 140476.34mN Brg 43
Open Channel

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FLOW METER MARKER	PC	PEDESTAL CRANE
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT ORDER
BB	BELOW BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FWM	FOUL WATER MANHOLE	RWP	RAINWATER PIPE
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GI	GALVANISED	SC	STOP COCK
BM	BENCH MARK	GP	GUARD RAIL POST	SC	STOP COCK
BS	BUS STOP	GP	GATE POST	SI	SIGNAGE
BM	BEACH MARK	GM	GAS MARKER	SL	SLOPE LEVEL
BW	BRICK WALL	GV	GAS VALVE	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SWF	SHEET METAL FILING
CBF	CLOSE BOARDED FENCE	IP	IRON PEG	SW	SOAKWAY
CBF	CLOSE BOARDED FENCE	IR	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IW	IRONMONGER FENCE	SV	SLUICE VALVE
CL	CHAIN LINK FENCE	KF	KERB FACE	SW	SOAKWAY PIPE
CONC	CONCRETE	KG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LP	LAMP POST	TBM	TEMPORARY BENCH MARK
CPF	CONCRETE PALING FENCE	LT	LEFT TREE	TELPOL	TELEPHONE (BELL) WALKPOST
CR	CYCLE RACK	LV	LAMP POST	TC	TELECOM CABINET
CW	CATCH PIT / MANHOLE	LW	LOW WALL BOLLARD	TC	TELEPHONE CABINET
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TH	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MARKER POST	TP	TELEPHONE BOX
DP	DOMPORT	NF	NURSING FILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	NRF	METAL RAILING FENCE	TPD	TIMBER RUBBING STRIP
EH	ELECTRIC HUT	NS	NOTICE SIGN	TS	TRAFFIC SIGNAL
EMB	EDG MASTIC BIN	NB	NOTICE BOARD	TSB	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UT	UPSTREAM
EB	ELECTRIC BOX	OS	ORDNANCE SURVEY	US	UNDERSIDE OF SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EDP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EP	ELECTRICITY POLE	P	PILLAR	WP	WOODEN PALING FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WT	WATER TAP
FB	FLOWER BED	PRF	POST & RAIL FENCE	YBO	YARD BOLLARD
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to EA survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.787
E20730403	TR 0222 4027	35.899
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	36.489
E20730020	TR 0139 4061	36.314
E20730021	TR 0159 4091	36.332
E20730500	TR 0323 4026	36.456
E20731495	TR 0152 4070	37.884
E20731496	TR 0126 4199	37.732
E20731497	TR 0687 3791	47.717
E20731938	TR 0671 3842	53.022
E20731971	TR 0666 3813	51.796
E20733004	TR 0509 3900	43.715
E20733005	TR 1064 3751	60.587
E20731483	TR 0151 4070	37.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

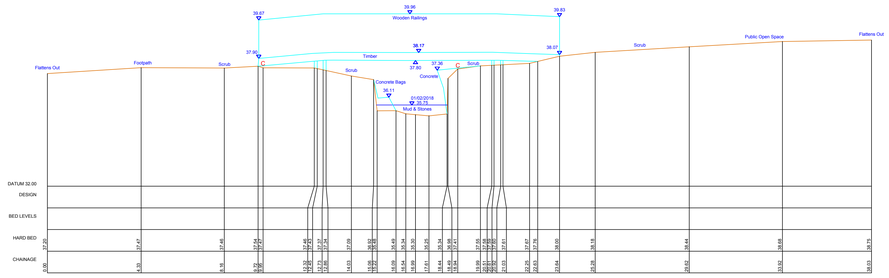
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

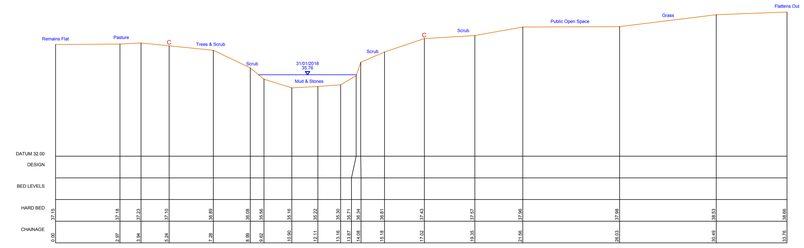
SITE/LIMITS

EAST STOUR (EST001)
CROSS SECTIONS
EST001_02705 TO EST001_03202

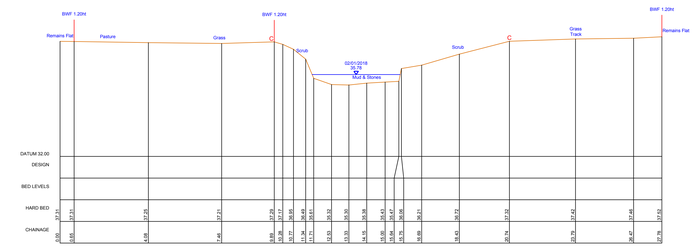
SURVEYED BY: MALTBY LAND SURVEYS LTD			Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018			
SCALE: 1:100	DRN: RC	CHKD: ITS	
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18	
GRID: NATIONAL GRID	DRAWING NO. X-J01058-07		REV. —
CAD FILENAME: X-J01058-01-30.dwg			



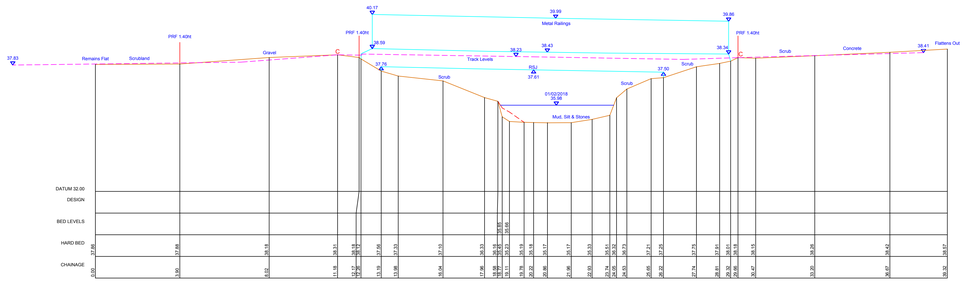
ESTO01_03213
601986.99mE 140467.56mN Brg 39
Footbridge
Tunnel Length = 2.89m



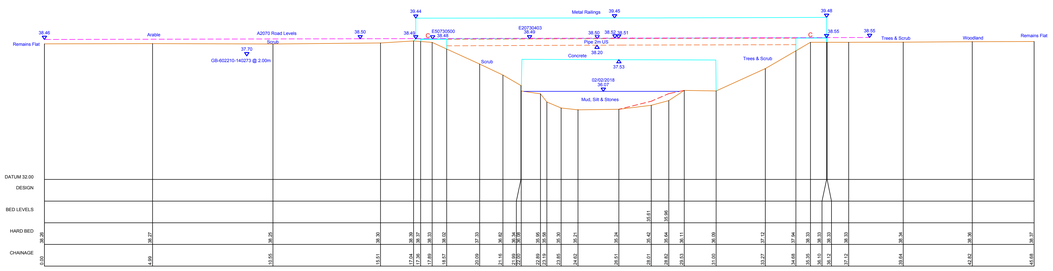
ESTO01_03219
601995.56mE 140468mN Brg 36
Open Channel



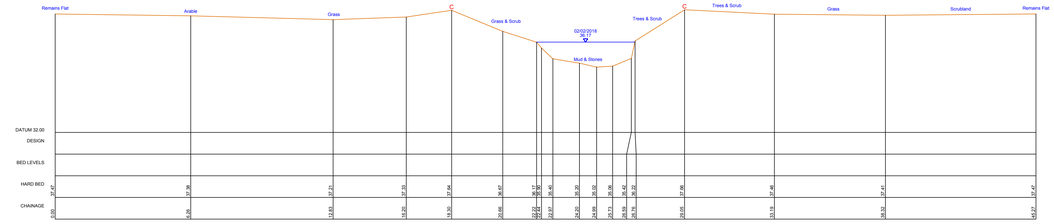
ESTO01_03373
602107.65mE 140373.92mN Brg 54
Open Channel



ESTO01_03495
602185.42mE 140283.38mN Brg 45
Access Bridge
Tunnel Length = 3.24m

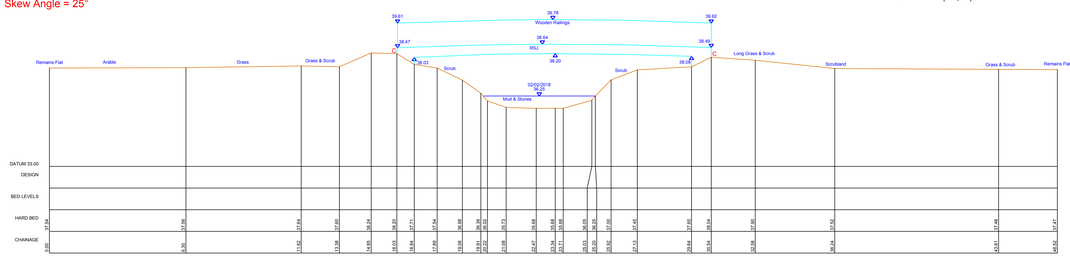


ESTO01_03551
602203.75mE 140247.99mN Brg 83
A2070 Road Bridge
Tunnel Length = 28.36m
Skew Angle = 25°

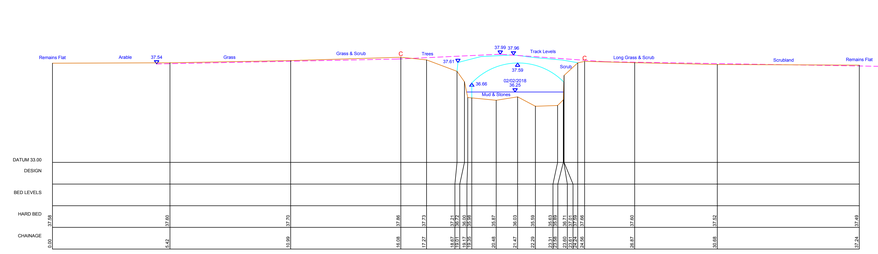


ESTO01_03579
602227.18mE 140215.04mN Brg 56
Open Channel

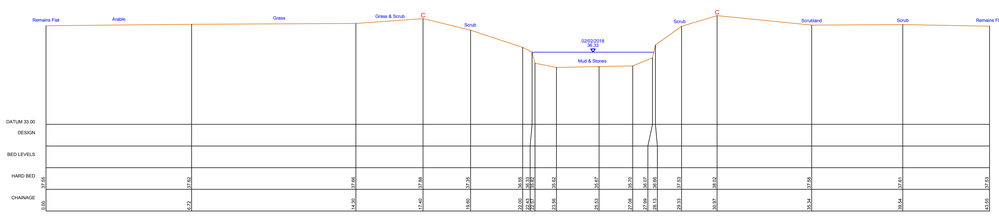
Skew Angle



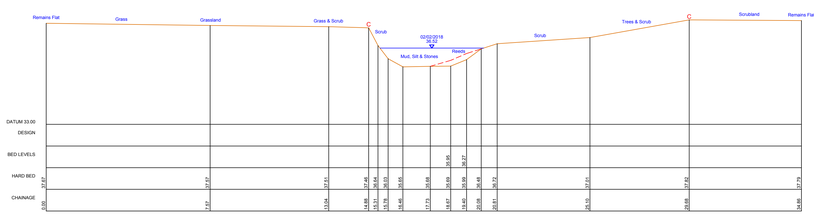
ESTO01_03640
602239.66mE 140162.17mN Brg 66
Footbridge
Tunnel Length = 1.12m



ESTO01_03645
602243.2mE 140158.26mN Brg 67
Access Bridge
Tunnel Length = 3.79m



ESTO01_03704
602276.15mE 140099.23mN Brg 41
Open Channel



ESTO01_03809
602337.75mE 140043.63mN Brg 82
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER
BH	BOREHOLE	FL	FLOOD LIGHT
BR	BOLLARD, BEACON	FN	FENCE POST
BDY	BOUNDARY	FNW	FOUL WATER MANHOLE
BT	BRITISH TELECOM	G	GATE
BL	BUD LEVEL	GB	GRIDSQUARD
BRK	BRICKWORK	GL	GROUND LEVEL
BS	BUS STOP	GP	GUARD POST
BW	BENCH MARK	GV	GAS VARVER
BW	BRICK WALL	HB	HEAD WALL
CF	CONCRETE FENCE	HC	HEDGE CUTTER CHAMBER
CSF	CLOSE BOARDED FENCE	IL	INVERT LEVEL
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE
CL	CABLE TV	JB	JUNCTION BOX
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX
CONC	CONCRETE	KG	KERB INLET GULLY
CP	CONCRETE POST	LC	LAMP COLUMN
CPF	CHESTNUT PALING FENCE	LE	LEFT CREST
CV	CYCLE RACK	LP	LAMP POST
CW	CABLE TV MANHOLE	LS	LANDSCAPED AREA
CUL	CULVERT	MF	MISCELLANEOUS FENCING
DI	DROP KERB	MP	MARKER POST
EL	EDGE LIGHT	MVS	MANHOLE
EP	ELECTRIC POLE	NP	NOTICE BOARD
ES	ESCAPE	NP	NOTICE PILING
FC	FINISHED FLOOR COURSE	OF	ORNAMENTAL FENCE
DH	DOWNSTREAM	PC	PILE STONE
EA	ENVIRONMENT AGENCY	PF	PALISADE FENCE
EA	ENVIRONMENTAL AGENCY	PO	NATIONAL PARKS AUTHORITY
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE
EF	ELECTRICITY BOX FENCE	OP	OPEN PALISADE
ELF	ELECTRICITY CABLE, BT	OSF	OPEN STEEL RAILING
EMH	ELECTRICITY MANHOLE	P	PILE
EP	ELECTRIC POLE	PB	PUMP BOX
ER	EARTHING ROD	PM	PARKING METER
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST
FB	FLOWER BED	PR	PALISADE RAIL FENCE
FBM	FOOTBRIDGE	PTM	PARKING TICKET MACHINE
		PW	PARAPET WALL
		RB	RIGHT BANK
		RC	RIGHT CREST
		RL	ROLLED STEEL JOIST
		RTW	RETAINING WALL
		SA	SURVEY ARROW
		SF	STOP VALVE
		SGP	STAND PIPE
		SL	SIGNAL LIGHT
		SP	SUPPLY LEVEL
		SMH	SURFACE WATER MANHOLE
		SP	SUPPORT PILING
		SPL	SIGN POST
		STN	STATION VALVE
		SW	SOIL VENT PIPE
		SVP	SOIL VENT PIPE
		SWF	SHEEP WIRE FENCE
		TBM	TEMPORARY BENCH MARK
		TCP/TP	TELEPHONE CALL BOX/POST
		TC	TELECOM CABINET
		TM	TELEGRAPH POLE
		TRL	THRESHOLD LEVEL
		TS	TRAFFIC LIGHT
		TSB	TRAFFIC SIGNAL BOX
		TW	TELEGRAPH WIRE
		TWS	TEMPORARY WATER STOP
		TS	TREE STUMP
		UF	UNCLIMBABLE STEEL RAILINGS
		VBA	VERTICAL BOARD AUTHORITY
		UTL	UNABLE TO SURVEY
		WL	WATER LEVEL/WATER LINE
		WP	WATER POST
		WWF	WIRE MESH FENCE
		WP	WOODEN POST
		WPR	WOODEN POST & RAIL FENCE
		WV	WATER VALVE
		WW	WIRE WORK
			(Abbreviations apply to OS survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

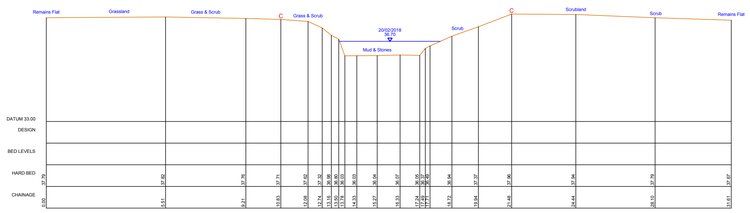
TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	36.767
E20730403	TR 0222 4629	38.489
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0159 4291	36.137
E20730500	TR 0231 4025	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731671	TR 0666 3813	50.976
E20733004	TR 0504 3900	43.712
E20733005	TR 1056 3751	60.987
E20731483	TR 0151 4070	35.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

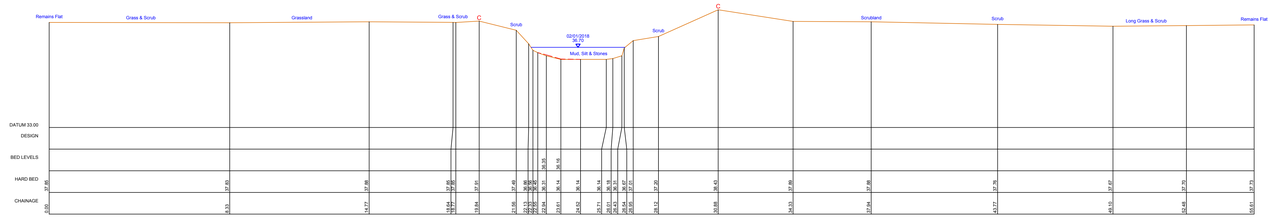
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (ESTO01)
CROSS SECTIONS
EST001_03213 TO ESTO01_03809

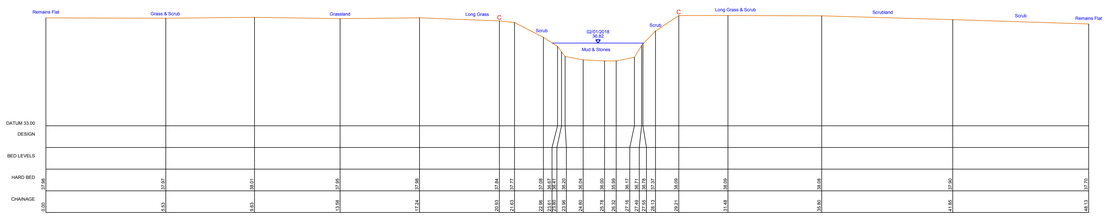
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-08	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



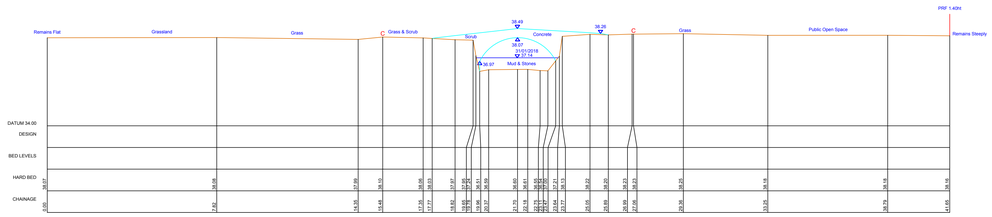
ESTO01_03880
602424.73mE 140010.01mN Brg 316
Open Channel



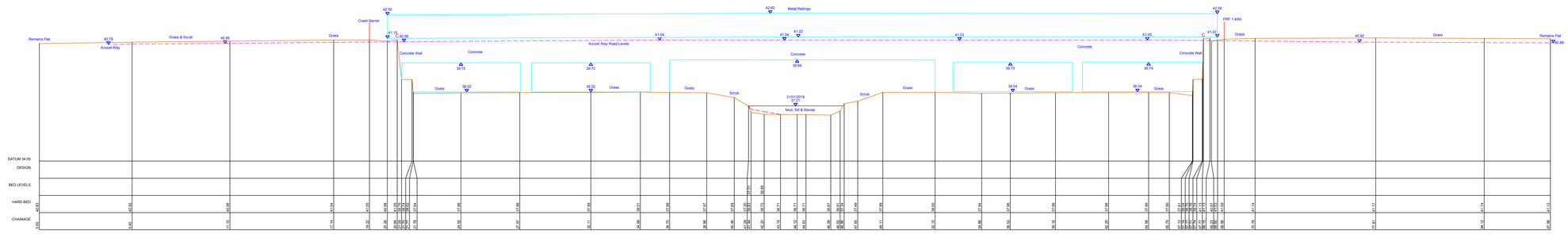
ESTO01_03989
602516.71mE 140028.58mN Brg 318
Open Channel



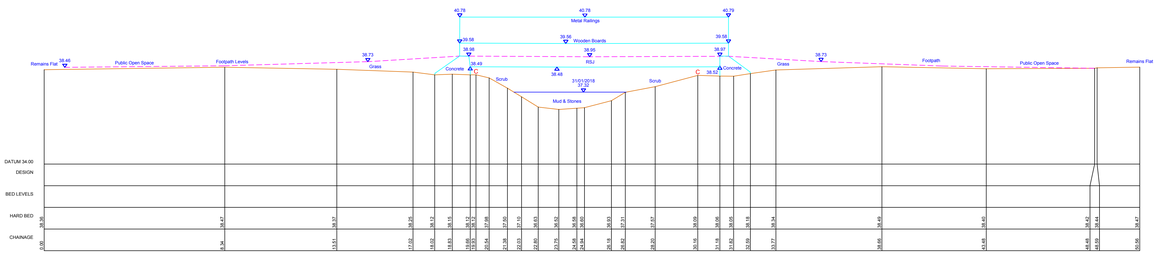
ESTO01_04093
602568.44mE 140082.82mN Brg 353
Open Channel



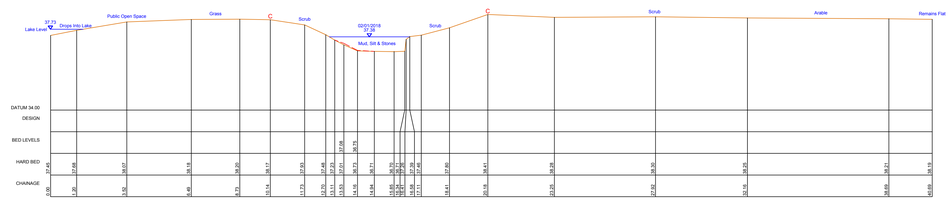
ESTO01_04220
602626.1mE 140024.93mN Brg 64
Access Bridge
Tunnel Length = 3.69m



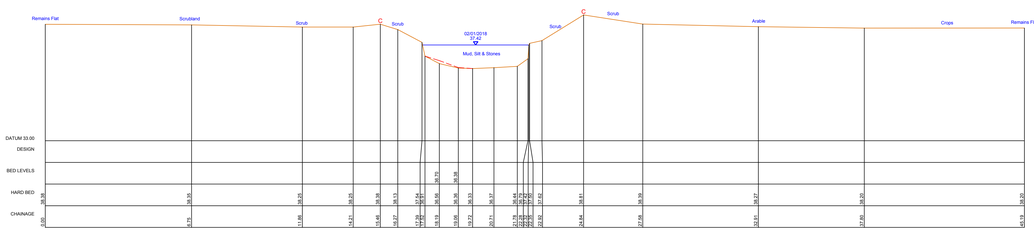
ESTO01_04269
602644.73mE 139952.42mN Brg 30
Avocet Way Road Bridge
Tunnel Length = 17.42m
Skew Angle = 35°



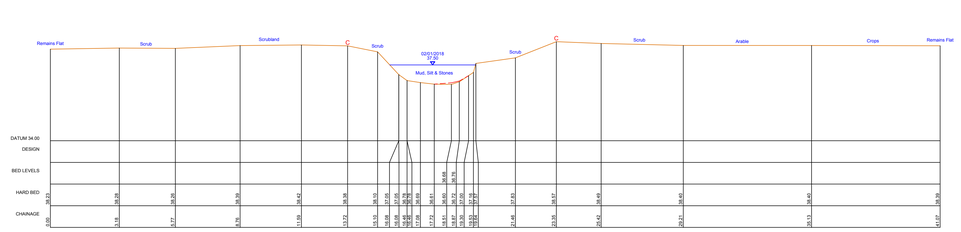
ESTO01_04316
602665mE 139929.58mN Brg 45
Footbridge
Tunnel Length = 3.00m



ESTO01_04407
602692.45mE 139891.45mN Brg 46
Open Channel



ESTO01_04480
602751.53mE 139834.82mN Brg 18
Open Channel



ESTO01_04624
602793.64mE 139758.08mN Brg 16
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FLOOR MOUNTED MARKER	R	RAILWAY LINE
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FW	FOUL WATER MANHOLE	RWP	RAINWATER PIPE
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GI	GAUGEBOARD	SC	STOP COCK
BL	BED LEVELS	GP	GUARD POST/RAIL	SC	STOP COCK
BS	BUS STOP	GT	GATE POST	SI	SIGNAGE
BW	BEACH MARK	GW	GAS MARKER	SL	SLOPE LEVEL
BW	BEACH MARK	HP	HAND PUMP	SW	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SWP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IC	INSPECTION CHAMBER	TP	TOP OF PIPE
CHF	CHAIN LINK/WIRE MESH FENCE	IF	IRON RAILING FENCE	TPA	TRAFFIC LIGHT
CL	COVER LEVEL	IF	IRONMONGER FENCE	TW	TELEGRAPH POLE
CONC	CONCRETE	KB	KERB STONE/EDGE	UMF	SHEEP WIRE FENCE
CP	CONCRETE POST	KG	KERB INLET GULLY	UMF	UNDERGROUND MARK
CPF	CONCRETE PALING FENCE	LC	LEFT CREST	VTM	TELEPHONE (BOX/POST
CR	CYCLE RACK	LL	LEFT LEDGE	VY	YELLOW CABINET
CW	CATCH PIT/ MANHOLE	LP	LAMP POST	WB	WATER BOARD
CX	CULVERT	MF	MISCELLANEOUS FENCING	WL	THRESHOLD LEVEL
DK	DROP KERB	MK	MARKER	WL	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MARKER POST	WM	WATER METER BOX
DP	DOMPETE	MP	MOORING PILE	WP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	WS	TIMBER RUBBING STRIP
EM	ELEC. METER	NB	NOTICE BOARD	WS	TIMBER STEPS
EMB	GAS/ WATER/ ELEC. BOX	NB	NOTICE BOARD	WS	TURNPIKE STEPS
EN	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	WT	UPSTREAM
ET	ELECTRIC BOX	OS	ORDNANCE SURVEY	WT	WATER LEVEL SURVEY
EUT	ELECTRIC CABLE POST	OS	ORDNANCE SURVEY	WTL	WATER LEVEL/WATER LINE
EVP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WW	WATER METER
EVP	ELECTRICITY MANHOLE	P	PILLAR	WW	WOODEN BOARD FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WW	WOODEN POST
EW	EARTHING WIRE	PD	PARKING METER	WPR	WOODEN POST & RAIL FENCE
FB	FIBRE OPTIC TRANSMISSION LINE	PF	PALING FENCE	YC	YELLOW CABINET
FB	FLOWER BED	PP	POST & RAIL FENCE	YW	YARD WALL
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to DI survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.287
E20730403	TR 0222 4027	35.899
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4002	36.483
E20730020	TR 0159 4061	36.314
E20730501	TR 0191 4214	36.332
E20730500	TR 0223 4026	36.456
E20731495	TR 0152 4070	37.884
E20731496	TR 0126 4199	37.732
E20731498	TR 0087 4191	37.717
E20731038	TR 0671 3842	53.022
E20731071	TR 0666 3813	52.076
E20733004	TR 0509 3900	43.715
E20733005	TR 1064 3751	40.047
E20731483	TR 0151 4070	38.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

Environment Agency
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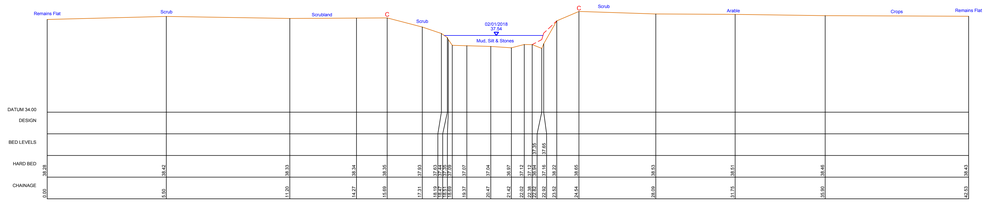
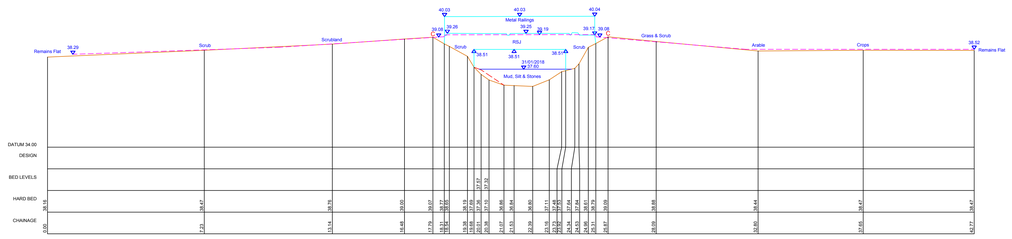
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_03880 TO EST001_04624

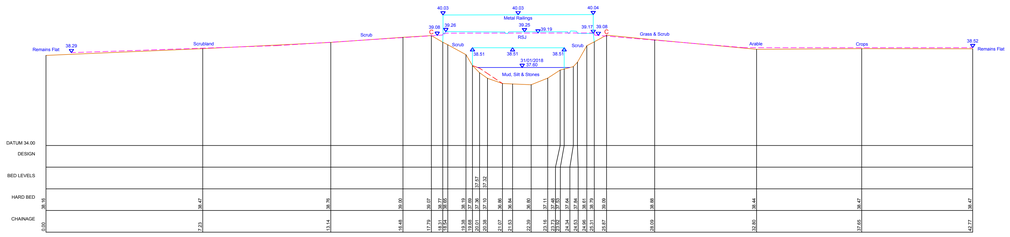
SURVEYED BY: MALTBY LAND SURVEYS LTD			Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018			
SCALE: 1:100	DRN: RC	CHKD: ITS	
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18	
GRID: NATIONAL GRID	DRAWING NO. X-J01058-09		REV. —
CAD FILENAME: X-J01058-01-30.dwg			



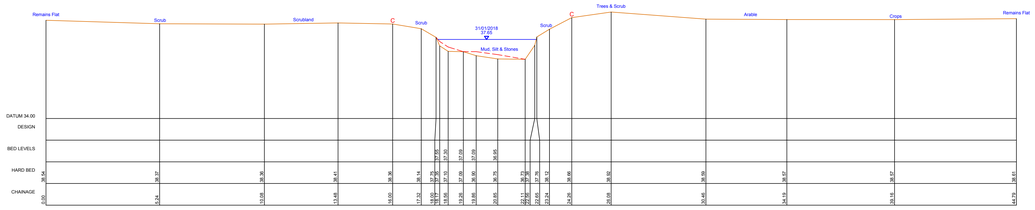
ESTO01_04717
602826.33mE 139713.92mN Brg 31
Open Channel



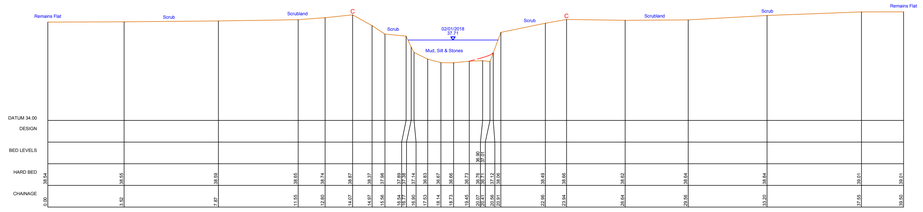
ESTO01_04735
602843.61mE 139702.98mN Brg 24
Footbridge
Tunnel Length = 4.02m



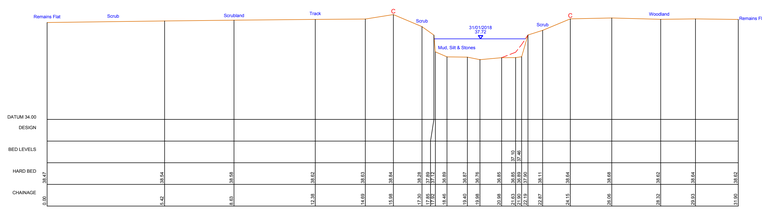
ESTO01_04738
602847.64mE 139703mN Brg 23
Footbridge
Tunnel Length = 0.88m



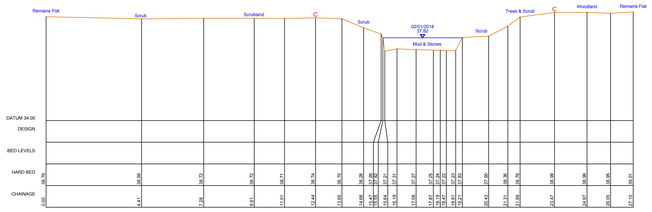
ESTO01_04804
602916.24mE 139682.68mN Brg 360
Open Channel



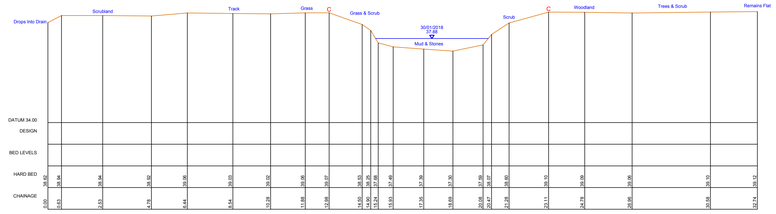
ESTO01_04907
602994.42mE 139648.03mN Brg 31
Open Channel



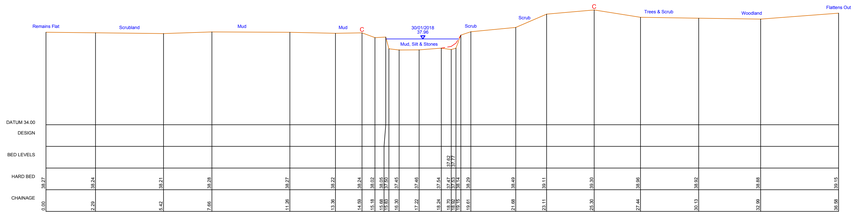
ESTC01_05008
603077.68mE 139597.7mN Brg 39
Open Channel



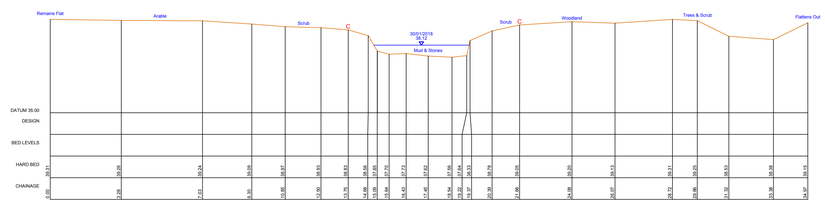
ESTO01_05114
603167.19mE 139579.68mN Brg 50
Open Channel



ESTO01_05214
603198.86mE 139504.82mN Brg 102
Open Channel



ESTO01_05304
603233.45mE 139421.06mN Brg 55
Open Channel



ESTO01_05397
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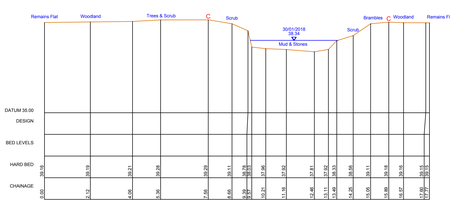
Open Channel



ESTO01_05496
603408.01mE 139371.32mN Brg 41
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
BH	BOREHOLE	FP	FLOOD PLAIN	RJ	ROAD JUNCTION
BR	BOLLARD, BEACON	FS	FENCE POST	RSJ	ROLLED STEEL JOIST
BOU	BOUNDARY	FWK	FOUL WATER MANHOLE	RTW	RETAINING WALL
BW	BRICK WALL	G	GATE	SAT	SATELLITE DISH
BL	BED LEVEL	GB	GRADEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SOP	STAND PIPE
BT	BT MANHOLE	GP	GUY POST	SP	SPOT HEIGHT
BM	BENCH MARK	GV	GAS MARKER	SPT	SUPPLY TAP
BWP	BARBED WIRE FENCE	HT	HEDGE TRIMMED	SWK	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SUNKEN METAL PILING
CBF	CLOSE BOARDED FENCE	K	KERB	SIGN	SIGN POST
CF	CLOSE LEAD RIN FENCE	KF	KERB AND FENCE	SV	SLUICE VALVE
CY	COVER LEVEL	MF	KITEMARKEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	LP	LAMP POST	SHR	SHRUBS / HEDGE
CMP	CORRUGATED METAL PIPE	KS	KERB SALT SILLY	SMF	SHOLT MESH FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CONCRETE POST AND FENCE	LC	LEVEL CROSSING	TOP	TOPOGRAPHICAL SURVEY POINT
CR	CYCLE RACK	LT	LAMP POST	TF	TELEGRAPH FARMER
CTV	CABLE TV. MANHOLE	MB	MOORING BOLLARD	TWK	TELEGRAPH MANHOLE
DF	DOG FENCE	MF	MOORING POST AND FENCING	TL	TRAFFIC LIGHT
DK	DROP KERB	MK	MARKER	TLC	TRAFFIC LIGHT BOX
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DRAIN PIPE	MP	MARKER POST	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MSF	METAL RAILING FENCE	TSS	TIMBER RUBBING STRIP
DR	DOMESTIC RAIN	MS	MILE STONE	TS	TREE STUMP
DW	DOMESTIC WATER	NF	NEW FENCE	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UC	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
EC	ELECTRICITY CABLE	OHL	OVERHEAD ELECTRIC LINE	VC	VITRIFIED CLAY PIPE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILING	WA	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMP	WMC MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WATER POST
ER	EARTHING ROD	PM	PARKING METER	WR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	POF	POST	WV	WATER VALVE
FB	FLOWER BED	PR	POST & RAIL FENCE	WW	WOODEN WALL
FBB	FOOTBRIDGE	PTM	PARKING TICKET MACHINE	(Abbreviations apply to 1st survey data only)	

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

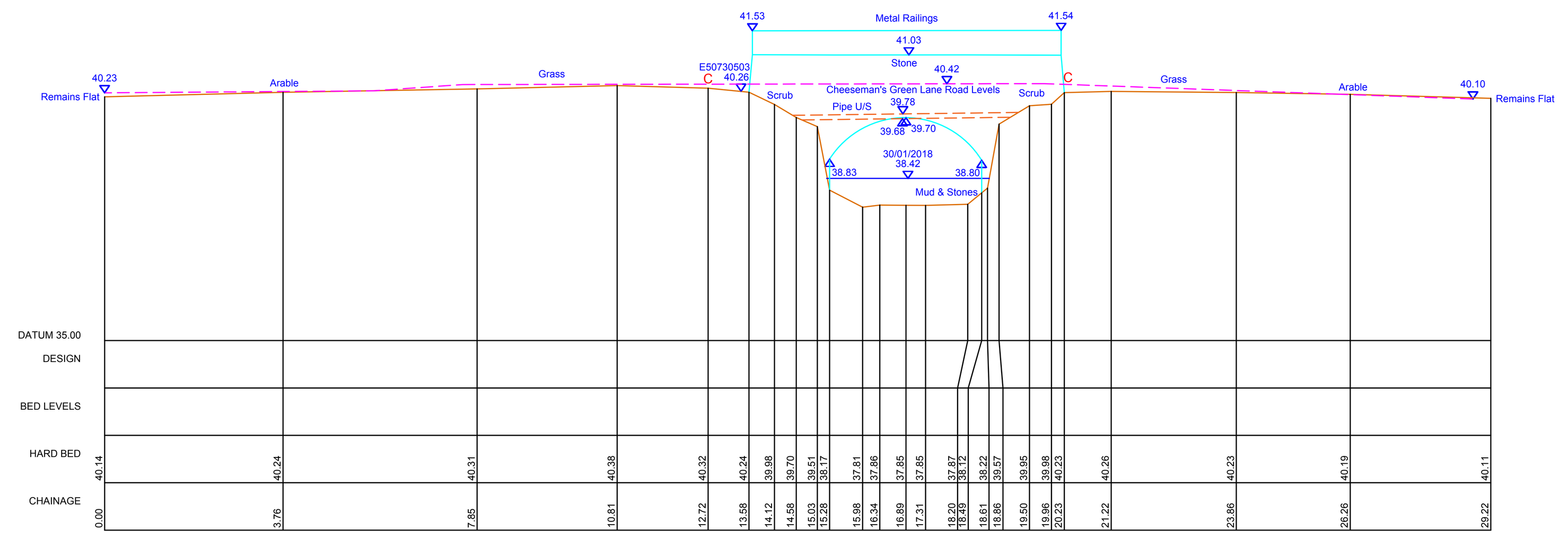
TYPE	DESCRIPTION	LEVEL
F20730012	TR 0103 4107	35.975
F20730401	TR 0149 4253	35.967
F20730403	TR 0222 4027	38.489
F20730436	TR 0666 3814	51.806
F20730013	TR 0132 4202	38.489
F20730020	TR 0159 4061	36.314
F20730021	TR 0158 4291	36.137
F20730000	TR 0223 4026	38.486
F20730503	TR 0343 3936	40.259
F20731495	TR 0152 4070	37.864
F20731496	TR 0128 4199	37.732
F20731527	TR 0687 3791	47.711
F20731539	TR 0671 3842	63.022
F20731571	TR 0666 3813	50.978
F20733004	TR 0504 3900	43.137
F20733003	TR 1095 3751	60.987
E60731483	TR 0131 4070	35.916
E60731494	TR 0132 4200	37.863
E60731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH
GOVMAIL READING

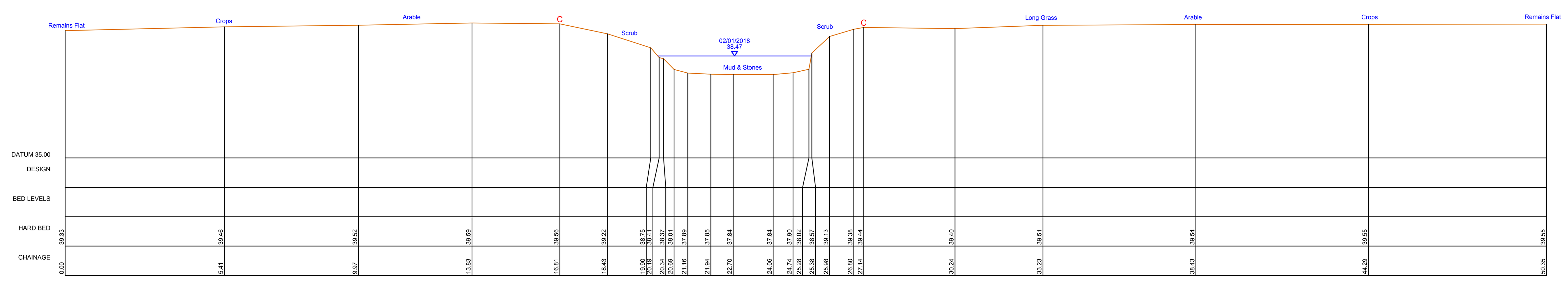
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_04717 TO EST001_05496

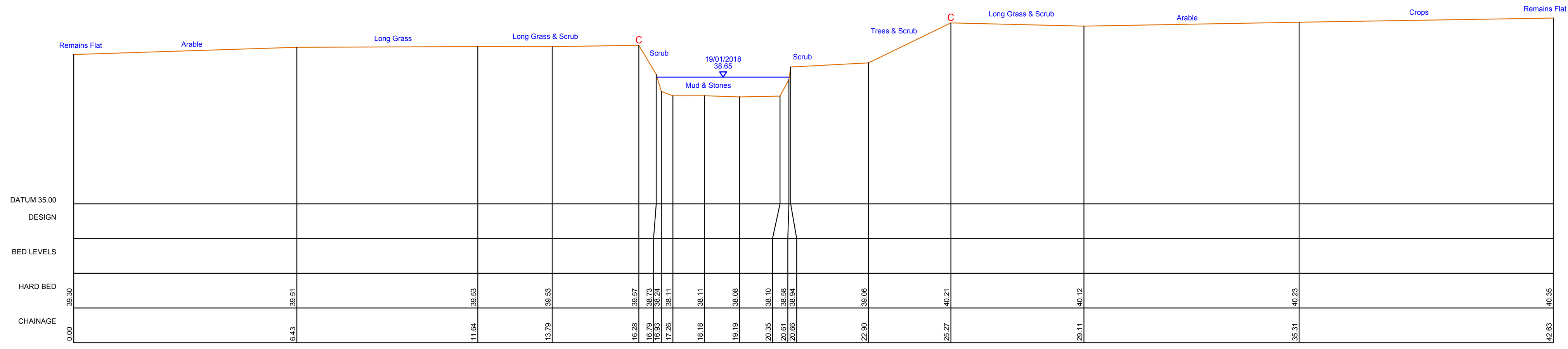
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-10	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



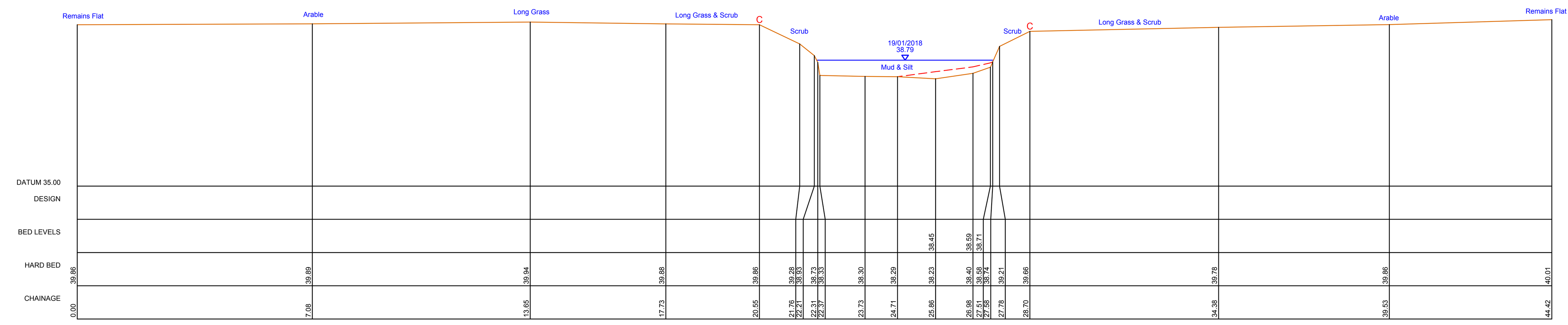
ESTO01_05532
603433.35mE 139344.64mN Brg 37
Cheeseman's Green Lane Road Bridge
Tunnel Length = 6.66m



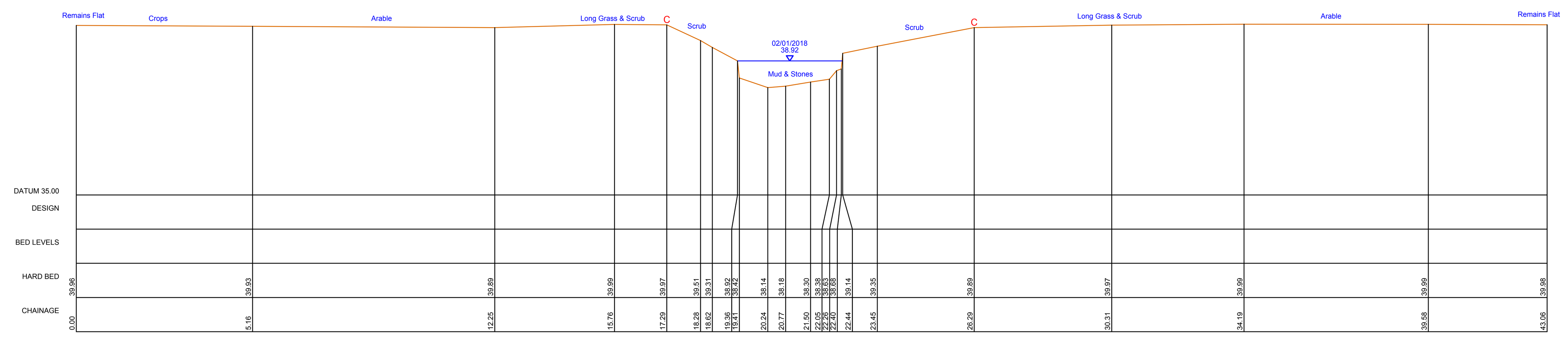
ESTO01_05545
603447.16mE 139337.31mN Brg 21
Open Channel



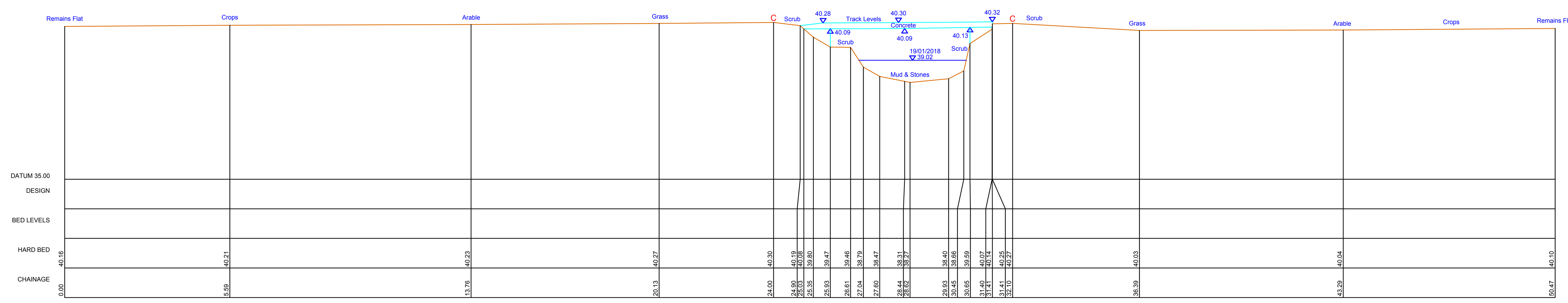
ESTO01_05701
603565.78mE 139302.6mN Brg 29
Open Channel



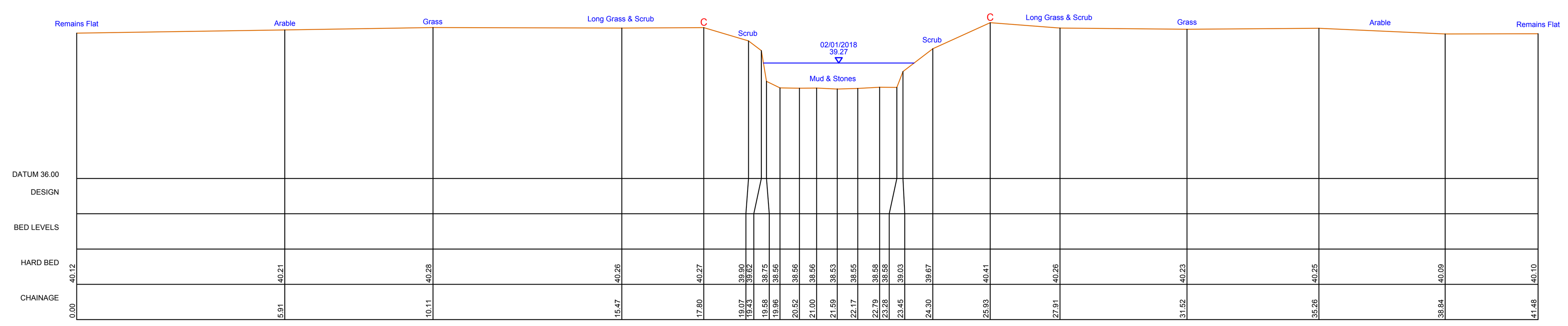
ESTO01_05810
603650.6mE 139248.34mN Brg 10
Open Channel



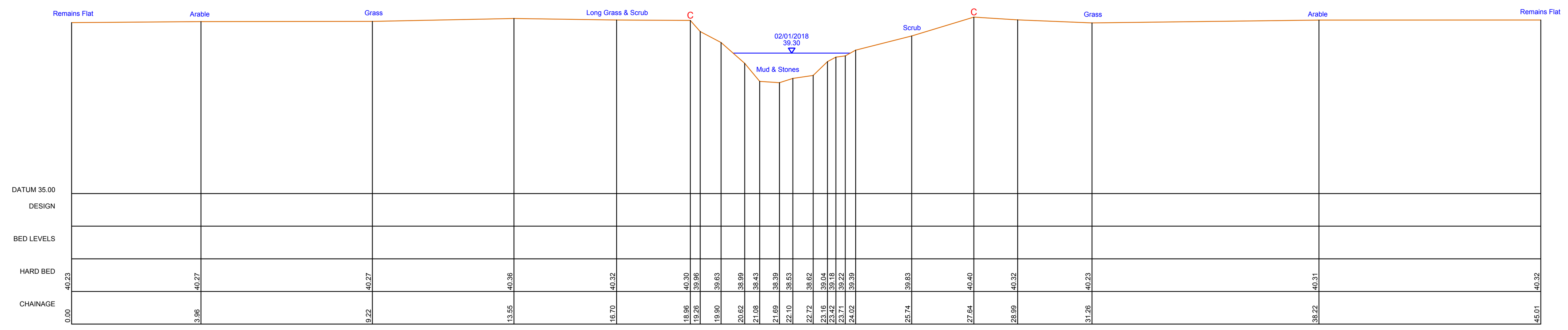
ESTO01_05900
603693.52mE 139266.37mN Brg 100
Open Channel



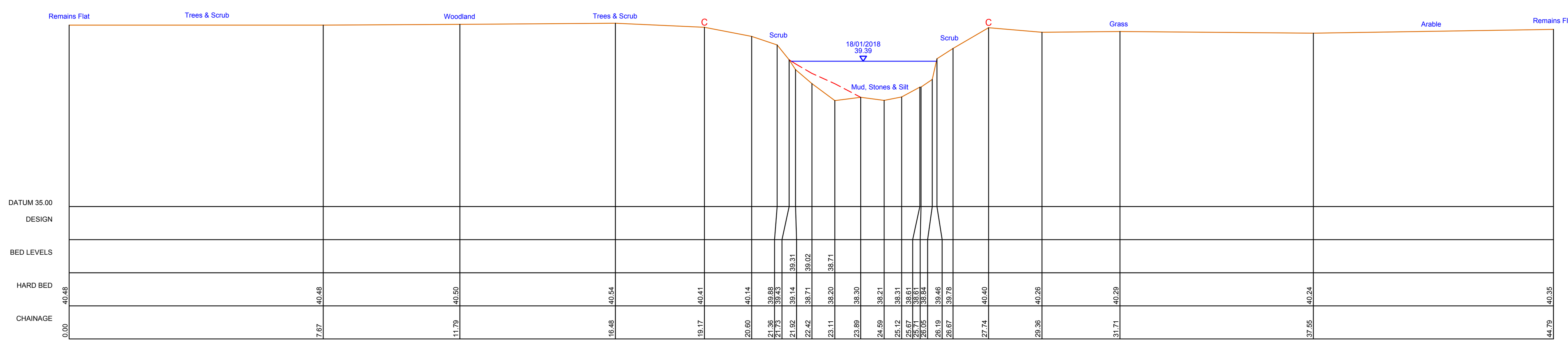
ESTO01_06009
603774.16mE 139210.72mN Brg 32
Access Bridge
Tunnel Length = 3.84m



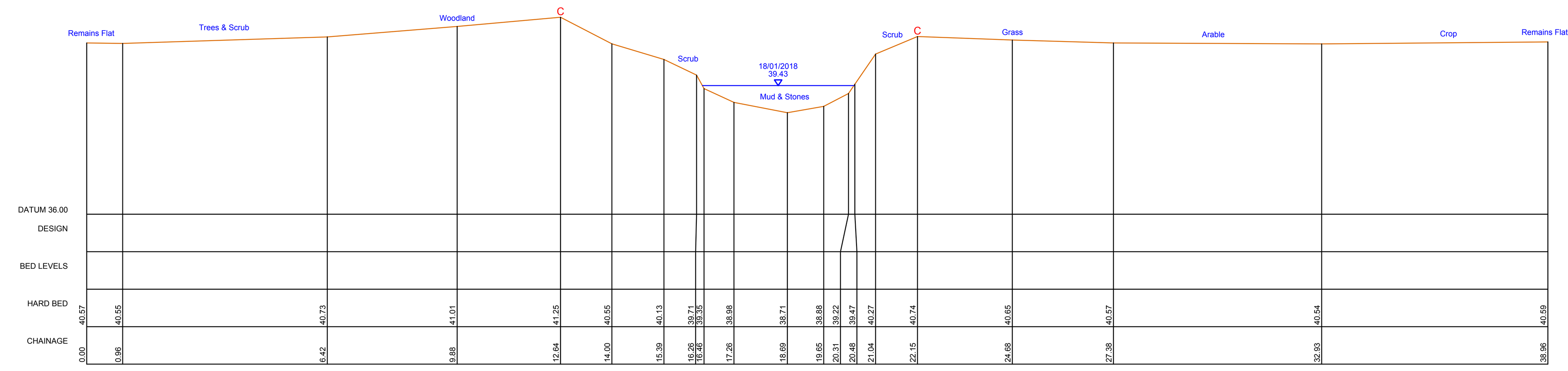
ESTO01_06092
603752.67mE 139168.23mN Brg 100
Open Channel



ESTO01_06177
603732.18mE 139080.8mN Brg 77
Open Channel



ESTO01_06303
603793.36mE 138981.13mN Brg 27
Open Channel



ESTO01_06393
603867.82mE 138960.82mN Brg 50
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.

3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GAUGEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BM	BENCH MARK	GM	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CIF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IWF	INTERWOVEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KIG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOWNPIPE	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOWNSTREAM	MS	MILE STONE	TS	TREE STUMP
DWB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		

(Abbreviations apply to EA survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E50730013	TR 0132 4202	38.489
E50730020	TR 0159 4061	36.314
E50730021	TR 0159 4291	36.337
E50730500	TR 0223 4025	38.486
E50730503	TR 0343 3935	40.259
E50731495	TR 0152 4070	37.864
E50731496	TR 0128 4199	37.732
E50731537	TR 0667 3791	47.711
E50731538	TR 0671 3842	63.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST001)
CROSS SECTIONS
EST001_05532 TO EST001_06393

SURVEYED BY: MALTBY LAND SURVEYS LTD		*Ref: 17_332*
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X–J01058–11	REV. —
CAD FILENAME: X-J01058-01-30.dwg		

Original Drawing Size: A0

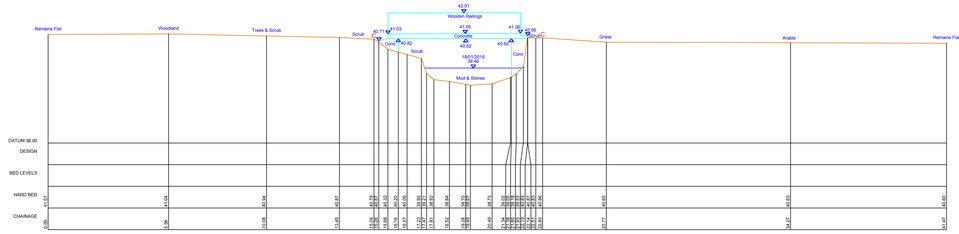
KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

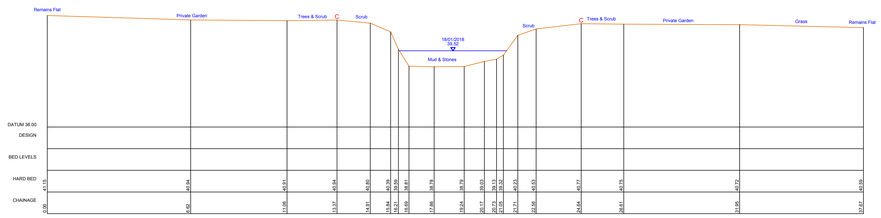
KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

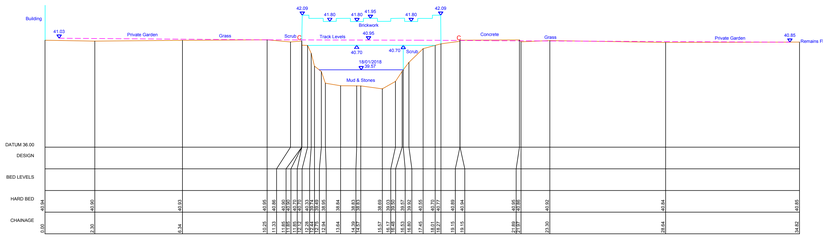
} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS



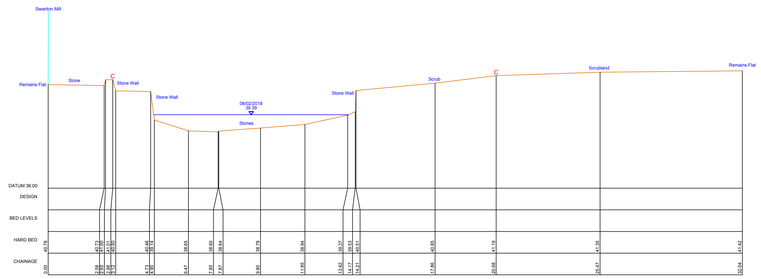
ESTO01_06443
603896.67mE 138929.83mN Brg 54
Footbridge
Tunnel Length = 0.46m



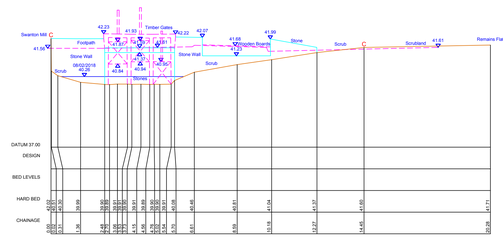
ESTO01_06489
603881.83mE 138903.75mN Brg 95
Open Channel



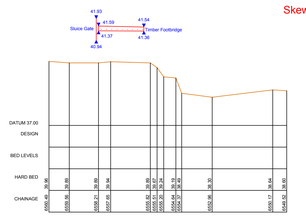
ESTO01_06503
603886.5mE 138893.88mN Brg 113
Footbridge
Tunnel Length = 2.83m
Skew Angle = 20°



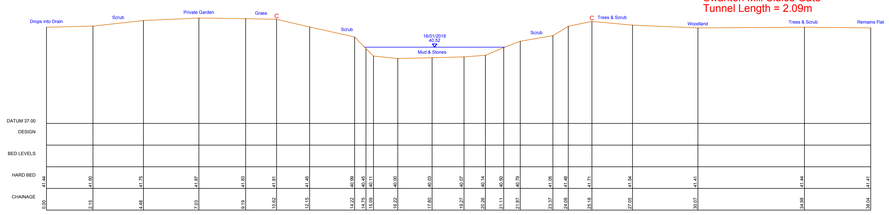
ESTO01_06550
603889.69mE 138850.16mN Brg 132
Open Channel



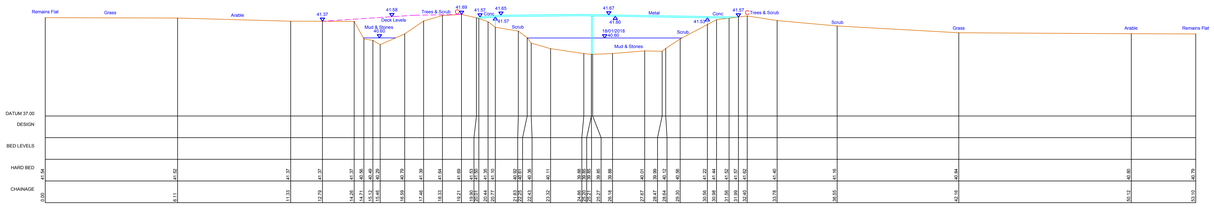
ESTO01_06558
603886.62mE 138841.11mN Brg 131
Swanton Mill Sluice Gate
Tunnel Length = 2.09m



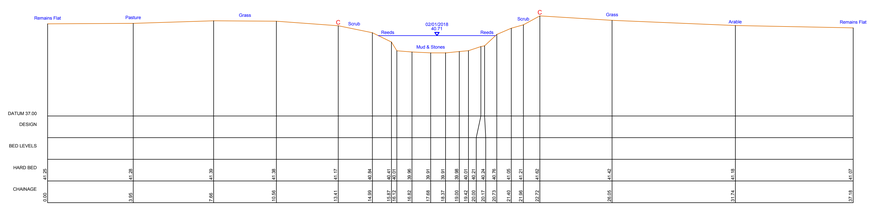
Through Section ESTO01_06558
Swanton Mill Sluice Gate



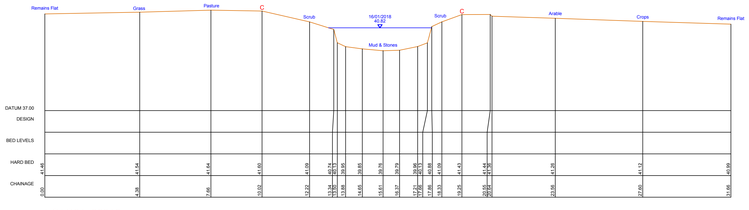
ESTO01_06591
603896.12mE 138796.5mN Brg 31
Open Channel



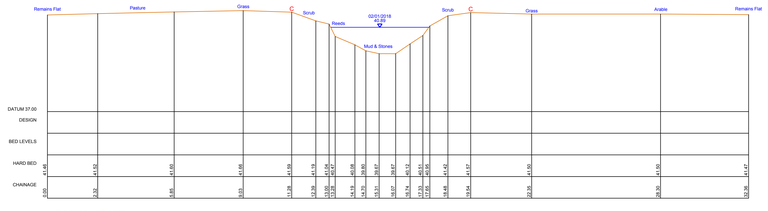
ESTO01_06670
603983.29mE 138774.17mN Brg 359
Dilapidated Access Bridge
Tunnel Length = 2.27m



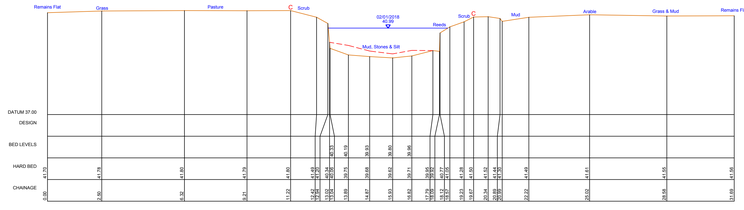
ESTO01_06810
604116.42mE 138833.12mN Brg 324
Open Channel



ESTO01_06916
604195.62mE 138872.97mN Brg 342
Open Channel



ESTO01_07016
604291.07mE 138910.06mN Brg 333
Open Channel



ESTO01_07119
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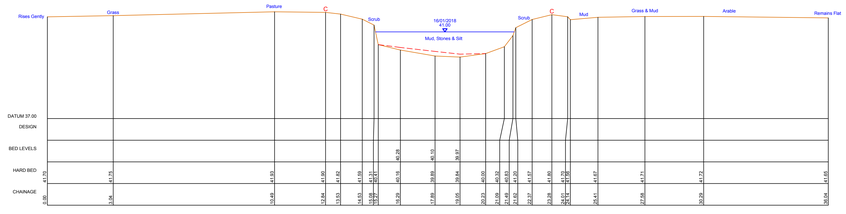
Open Channel



ESTO01_07212
604467.12mE 138969.56mN Brg 328
Open Channel

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FP	FLOOD POST	RC	RIGHT BANK CREST
BB	BELISHA BEACON	FT	FENCE POST	RF	ROLLED STEEL JOIST
BDY	BOUNDARY	FWH	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	SAT	SATELLITE DISH
BL	BUS LEVEL	GB	GASHBOARD	SB	STOP BLOCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BT	BT MANHOLE	GM	GAS MANHOLE	SL	SLOPE LEVEL
BW	BENCH MARK	GV	GAS VARIATOR	SM	SOFFIT LEVEL
BW	BRICK WALL	HB	HEAD WALL	SMH	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	HC	HEDGE CUTTING CHAMBER	SP	SPOT HEIGHT PILING
CBF	CLOSE BOARDED FENCE	HL	HANDY LEVEL	SP	SIGN POST
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STA	STATION VALVE
CH	CHAIN LINK FENCE	JB	JUNCTION BOX	STB	STOP BLOCK
CLF	CHAIN LINK FENCE	JP	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB INLET GULLY	SWF	SWEEP WIRE FENCE
CP	CONCRETE POST	LC	LEVEL CROSSING	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LG	LEFT GRILLE	TELP/W	TELEPHONE (BT) WALLPOST
CR	CYCLE RACK	LP	LAMP POST	TP	TELEGRAPH POLE
CV	CCTV CAMERA	LPB	LAMP POST BOLLARD	TW	TELEGRAPH WIRE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TX	TRANSFORMER
D	DECK LEVEL	MH	MANHOLE	TYP	TRAFFIC LIGHT
DA	DRAIN OUTLET	MKR	MARKER	TJB	TELEPHONE JUNCTION BOX
DP	DOWNPIPE	MP	MECHANICAL PILE	UP	UNKNOWN PIPE
DPC	DAMP PROOF COURSE	MPF	MECHANICAL PILING FENCE	VC	VERTICAL CURVE STOP
DR	DOMESTIC/RAIN	MS	MILE STONE	WB	TREE STUMP
DW	DOMESTIC/WASTE	NB	NATIONAL BOUNDARY	WF	WROUGHT IRON RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	WM	WATER METER
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	WS	UNABLE TO SURVEY
EBF	ELECTRICITY BOARD FENCE	OP	OPEN PIPE (SIZE)	WT	WATER TOWER/ WATER LINE
ECF	ELECTRICITY CABLE/ PIT	OSF	OPEN STEEL PALING	WV	WATER VALVE
EMH	ELECTRICITY MANHOLE	P	PILE	WWF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PUMP BOX	WWF	WIRE MESH FENCE
ER	EARTHING ROD	PM	PARKING METER	WPB	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PR	POST & RAIL FENCE	WW	WIRE WALL
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations may be in survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	36.767
E20730403	TR 0222 4629	38.489
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0159 4291	36.337
E20730500	TR 0023 4025	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731671	TR 0666 3813	50.976
E20733004	TR 0504 3900	43.712
E20733005	TR 1056 3751	60.587
E20731483	TR 0151 4070	35.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
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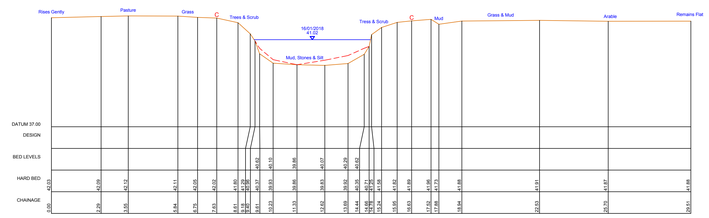
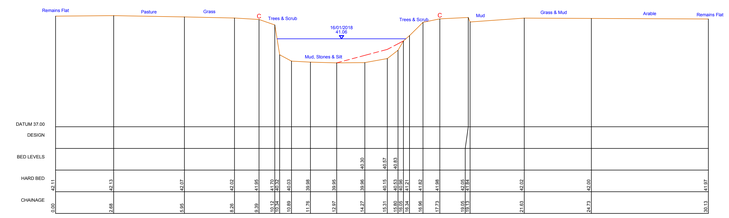
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (ESTO01)
CROSS SECTIONS
ESTO01_06443 TO ESTO01_07212

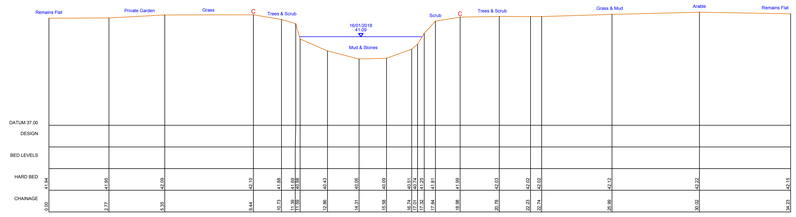
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-12	REV. –
CAD FILENAME: X-J01058-01-30.dwg		



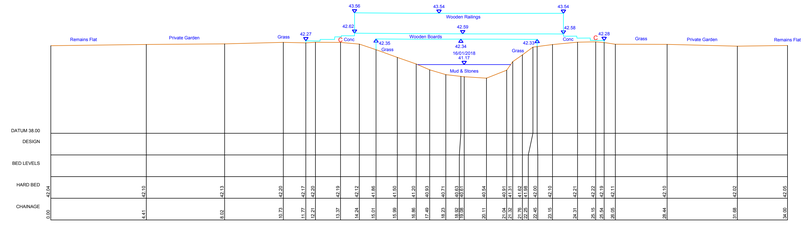
ESTO01_07310
604534.44mE 138979.21mN Brg 15
Open Channel



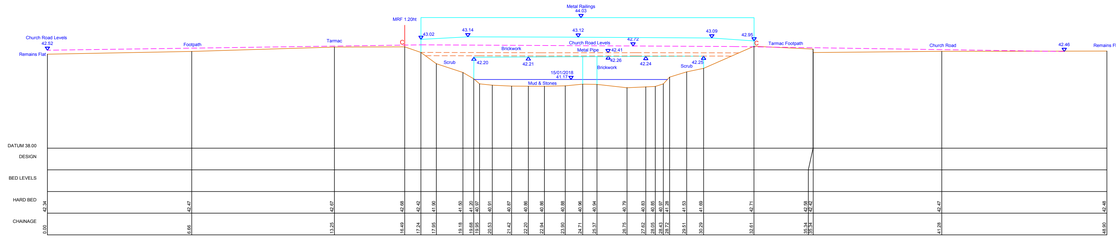
ESTO01_07416
604633.97mE 138983.07mN Brg 29
Open Channel



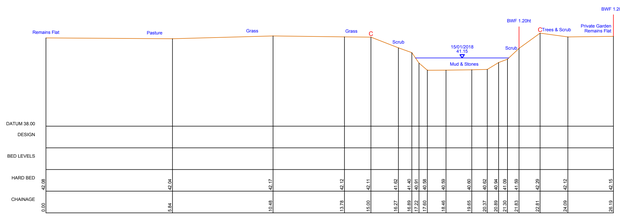
ESTO01_07513
604716.71mE 138972.35mN Brg 306
Open Channel



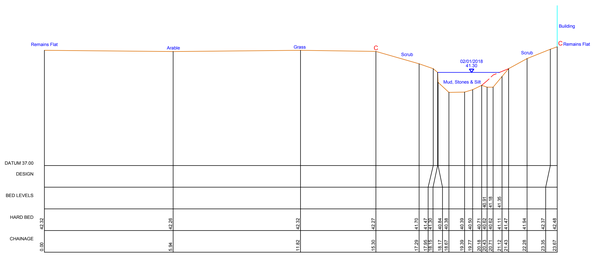
ESTO01_07572
604739.82mE 139016.46mN Brg 330
Footbridge
Tunnel Length = 0.86m



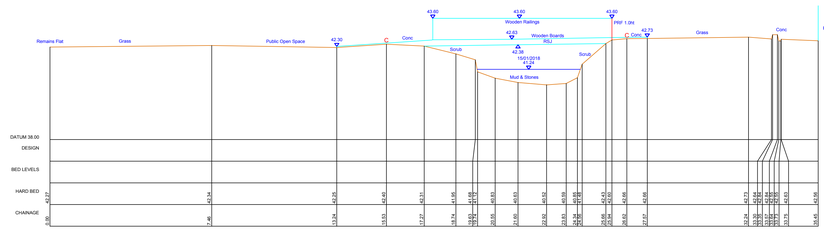
ESTO01_07600
604751.12mE 139016.01mN Brg 13
Church Road Bridge
Tunnel Length = 6.06m



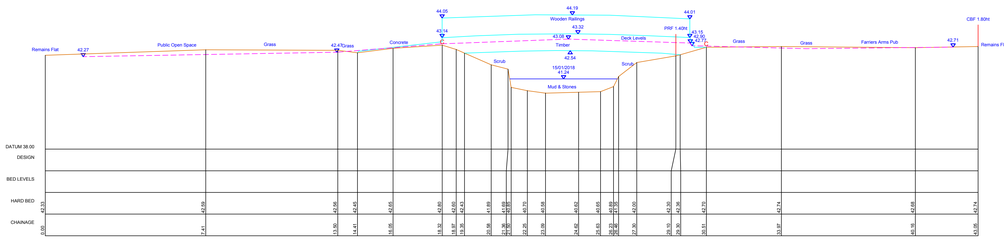
ESTO01_07611
604775.54mE 139029.42mN Brg 329
Open Channel



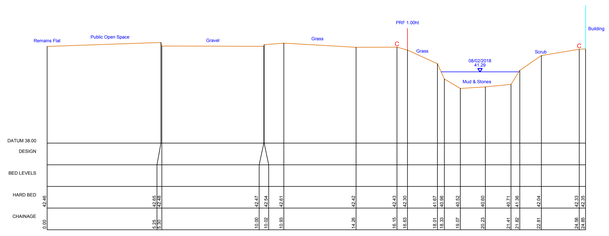
ESTO01_07716
604859.11mE 139059.32mN Brg 4
Open Channel



ESTO01_07765
604916.22mE 139070.08mN Brg 324
Footbridge
Tunnel Length = 1.09m



ESTO01_07779
604915.42mE 139067.22mN Brg 4
Footbridge
Tunnel Length = 2.10m



ESTO01_07792
604927.17mE 139070.26mN Brg 8
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
BB	BOUNDARY BOLLARD	FP	FENCE POST	RJ	RODDING EYE
BR	BELLMOUTH BEACON	FR	FENCE POST	RSJ	ROLLED STEEL JOIST
BOY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BT	BOUNDARY STONE	G	GATE	SB	SOFT SPOT BED
BL	BRICK LEVEL	GB	GRASSBANK	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BW	BRICK WALL	GP	GUY POST	SF	SOFT FENCE
BM	BENCH MARK	GW	GAS MARKER	SL	SUPPLY LEVEL
BMP	BARRIER POST	HM	HOLLOW MARKER	SMH	STORM WATER MANHOLE
BMF	BARRIER METAL FENCE	IC	INSPECTION CHAMBER	SMP	SUNDRY METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CLF	CLOSE LINK IRON FENCE	K	KERB/KERBING - FENCE	SR	SOFT ROCK
CT	COVER LEVEL	KF	KITZINGEN FENCE	SV	SLUICE VALVE
CWF	CONCRETE WALL	KP	KERB POINT	TCP	TRAFFIC CONE POST
CLV	CLOSE LINK FENCE	KS	KERB SALET SLILLY	THF	THICK HEDGE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CONCRETE POST FENCE	LC	LEFT CROSS SECTION	TOP	TOP OF BANK/SLOPE/POST
CR	CYCLE RACK	LP	LAMP POST	TY	TELEGRAPH CABINET
CTV	CABLE TV MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
DA	DRAIN	MF	MOORING FENCING/RAILING	TP	TELEGRAPH POLE
DK	DROP KERB	MH	MANHOLE	TS	TRAFFIC LIGHTS
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DRAIN POINT	MP	MARKER POST	TW	TIMBER WALLING
DPC	DAMP PROOF COURSE	MPF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOMESTIC RISER	NS	MILE STONE	TS	TREE STUMP
E	ELECTRICITY BOX	NT	NATIONAL TRUST	UB	UNIVERSAL BEAM
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UC	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTL	UNABLE TO SURVEY
EBF	ELECTRICITY BOX FENCE	OHL	OVERHEAD POWER LINE	VL	VISIBLE BED LEVEL
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WA	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMP	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOOD POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PP	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YB	YORKSTONE BOLLARD
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to 1st survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

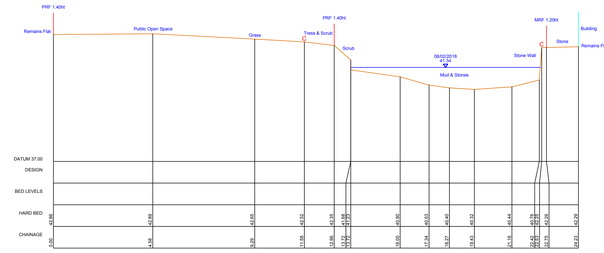
TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4053	36.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0158 4291	36.137
E20730000	TR 0223 4026	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.978
E20733004	TR 0504 3900	43.147
E20733005	TR 1099 3731	60.987
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.863
E60731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH
GOVMAIL ROUTING

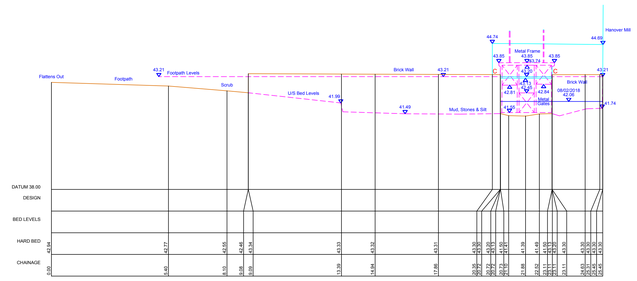
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_07310 TO EST001_07792

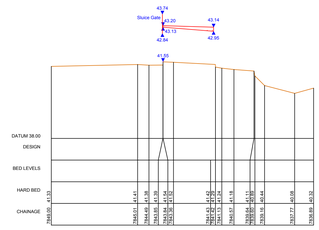
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-13	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



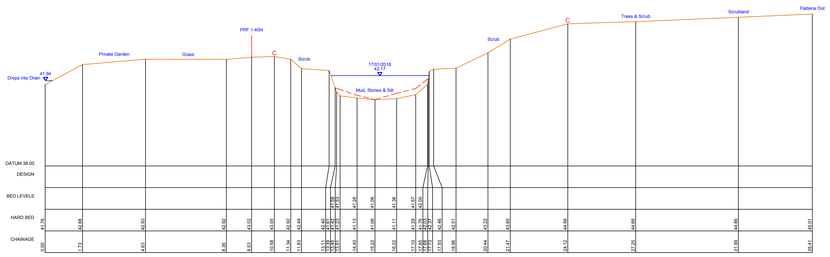
ESTO01_07837
604976.6mE 139066.07mN Brg 321
Open Channel



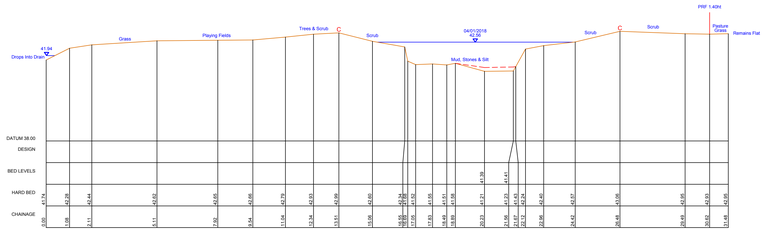
ESTO01_07844
604984.47mE 139069.87mN Brg 317
Hanover Mill Sluice
Tunnel Length = 2.33m



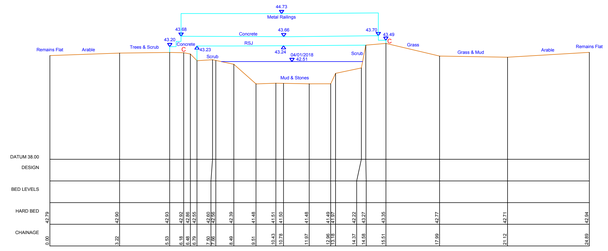
Through Section ESTO01_07844
Hanover Mill Sluice



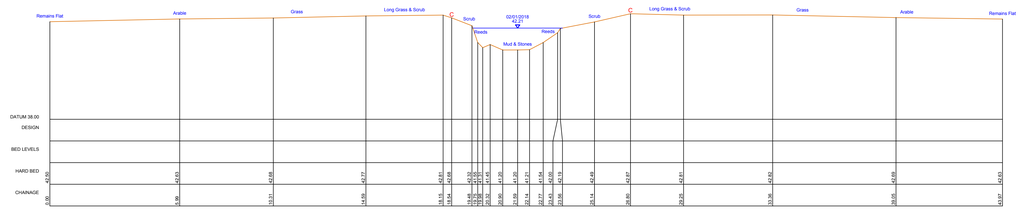
ESTO01_07863
604970.25mE 139066.76mN Brg 49
Open Channel



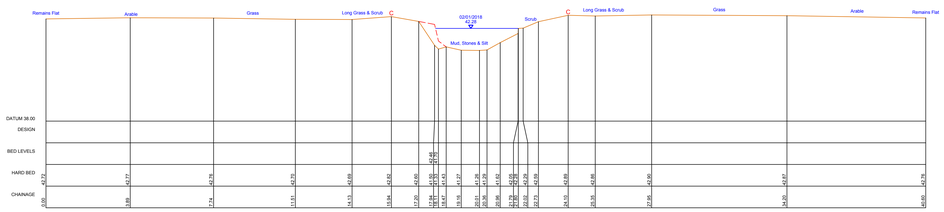
ESTO01_07923
605007.05mE 139020.32mN Brg 54
Open Channel



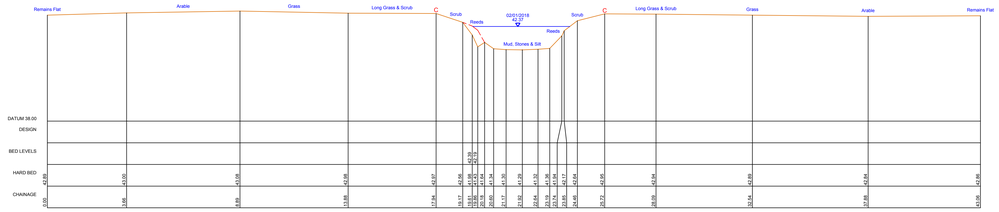
ESTO01_07960
605038.27mE 138995.2mN Brg 40
Footbridge
Tunnel Length = 0.80m



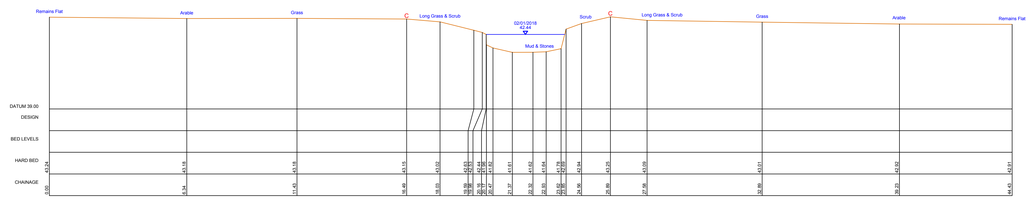
ESTO01_08023
605058.75mE 138938.48mN Brg 61
Open Channel



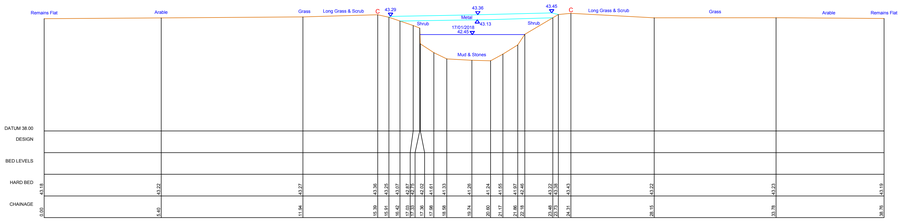
ESTO01_08116
605103.76mE 138892.19mN Brg 147
Open Channel



ESTO01_08233
605132.61mE 138787.35mN Brg 45
Open Channel



ESTO01_08351
605188.17mE 138696.5mN Brg 38
Open Channel



ESTO01_08425
605230.82mE 138649.98mN Brg 51
Dilapidated Footbridge
Tunnel Length = 0.91m

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PB	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RW	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RL	ROOF LEVEL
BA	BUILDING ABEACON	FO	FLOOD OUTLET	RS	ROCK PISTE JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RWM	RETAINING WALL
BH	BOREHOLE	G	GATE	RWP	RAIN WATER PIPE
BL	BOLLARD	GB	GRASSBOARD	S	STEP
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STONE DUCK
BS	BUS STOP	GP	GUY POLE	SP	STONE PIPE
BW	BLOCK WORK	GW	GAS MARKER	SL	SLOPE LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	I	INSPECTION CHAMBER	SW	SURFACE WATER PIPE
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	T	TOP
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CH	CHAINAGE	JB	JUNCTION BOX	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	L	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CONCRETE PALING FENCE	LC	LEFT CREST	TCP/UP	TELEPHONE CALL BOX/POST
CV	CYCLE BAY	LP	LAMP POST	TC	TELECOM CABINET
DM	DRAIN MANHOLE	LSP	LIGHTING BOLLARD	TL	TOP OF LEVEL (BANK)
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TOL	THRESHOLD LEVEL
DK	DROP KERB	MK	MARKER	TL	TRAFFIC LIGHT
DP	DRAIN PIPE	MP	MARKER POST	TP	TELEPHONE BOX
DT	DOMPETE	MP	MOORING PILE	UP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MPF	METAL PALING FENCE	TRS	TIMBER RUBBING STRIP
EB	ELECTRIC BOX	MW	METAL WALL	TW	TOP OF WALL
EMB	EDG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NAVIGATION AUTHORITY	UTL	UPSTREAM TOE
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	VS	VERTICAL TO SURVEY
ESF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EWF	ELECTRIC WIRE FENCE	PR	PALING RAILINGS	WM	WATER METER
EWR	ELECTRICITY MARKER	PT	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PW	PILE RICH	WP	WOOD POST
ET	ELECTRICITY METER	PWF	PANERAI METAL	WPF	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PT	POST	WV	WATER VALVE
F	FENCE	PR	POST & RAIL FENCE	WS	WIRE STRAINER
FBM	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations may be in lower case also)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

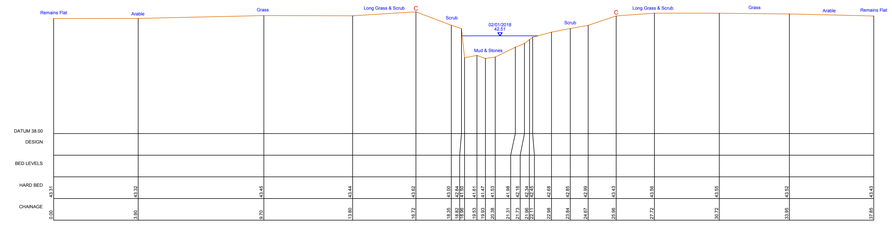
TYPE	DESCRIPTION	LEVEL
E607300I2	TR 0103 4107	35.975
E607304I01	TR 0148 4154	36.757
E607304I03	TR 0222 4222	38.489
E607315I36	TR 0666 3814	51.806
E607330I3	TR 0132 4202	38.489
E607330I20	TR 0159 4081	36.314
E607330I21	TR 0159 4291	38.337
E607330I50	TR 0221 4026	38.486
E607330I03	TR 0343 3932	40.259
E607331495	TR 0152 4070	37.864
E607331496	TR 0128 4199	37.732
E607331537	TR 0687 3791	47.711
E607331538	TR 0671 3842	53.022
E607331671	TR 0666 3813	50.976
E607333004	TR 0504 3900	43.712
E607333005	TR 1056 3751	60.987
E607331483	TR 0151 4070	35.916
E607331484	TR 0133 4200	37.463
E607331539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

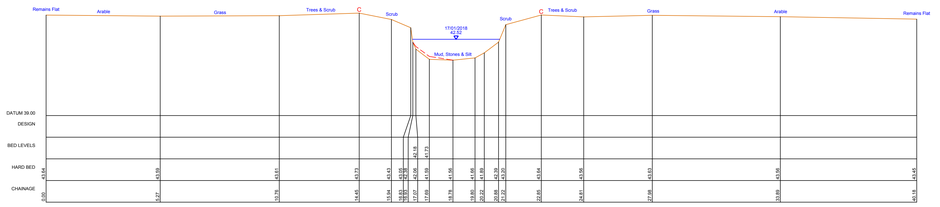
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_07837 TO EST001_08425

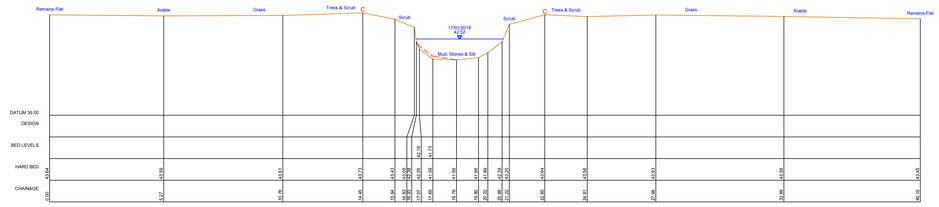
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-14	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



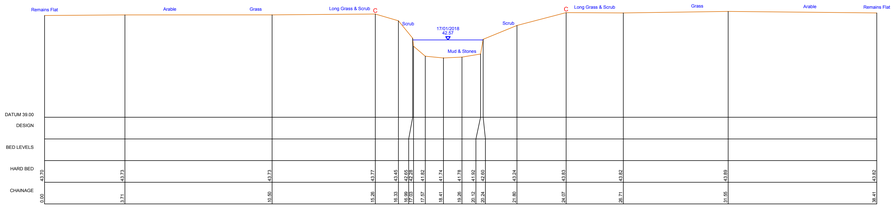
ESTO01_08523
605268.65mE 138600.04mN Brg 90
Open Channel



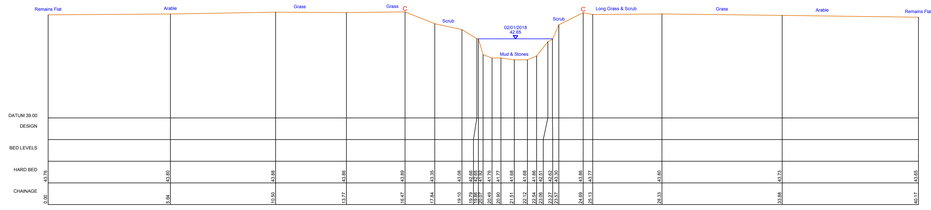
ESTO01_08616
605247.32mE 138535.28mN Brg 118
Open Channel



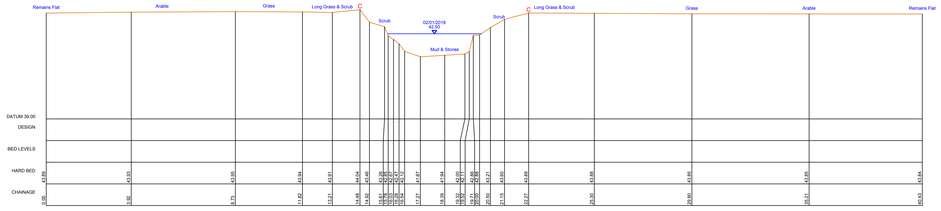
ESTO01_08616
605247.32mE 138535.28mN Brg 118
Open Channel



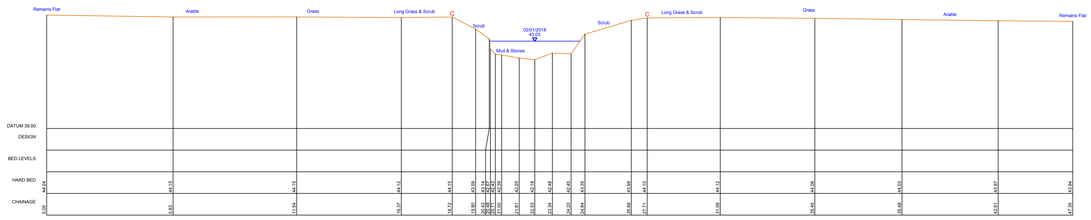
ESTO01_08720
605245.76mE 138434.22mN Brg 100
Open Channel



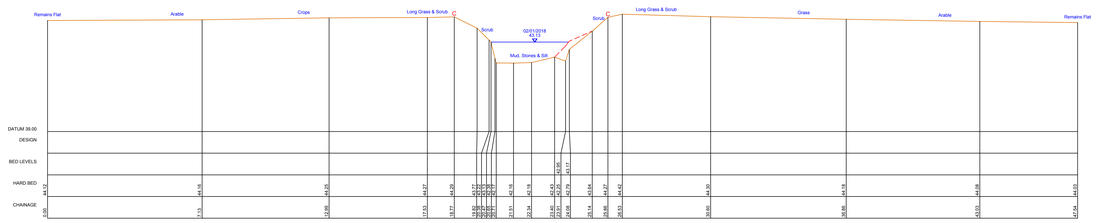
ESTO01_08836
605324.09mE 138337.94mN Brg 24
Open Channel



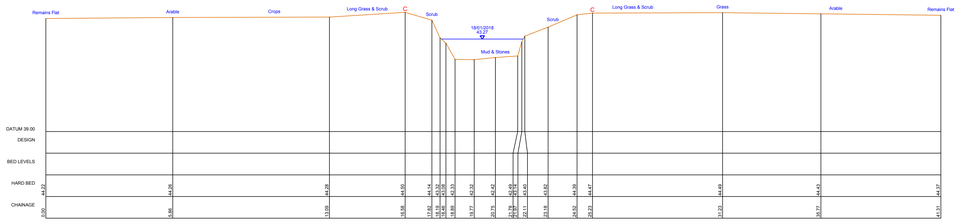
ESTO01_08920
605369.51mE 138286.12mN Brg 66
Open Channel



ESTO01_09022
605443.6mE 138207.2mN Brg 14
Open Channel



ESTO01_09119
605553.15mE 138237.24mN Brg 312
Open Channel



ESTO01_09226
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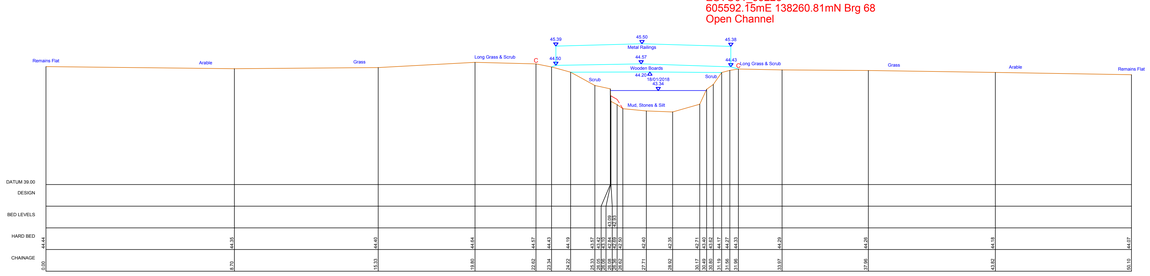
Open Channel



ESTO01_09305
605666.94mE 138248.56mN Brg 7
Footbridge
Tunnel Length = 1.33m

Original Drawing Size: A0

KEY TO SECTIONS:

WATER LEVEL

VISIBLE BED (TOP OF SILT) AND GROUND

HARD BED (DETERMINED BY PROBING)

C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

LEFT BANK CREST

RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:

1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AP	ACCESS PATH	FM	FLOW METER/ MARKER	R	RIVER LEVEL
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RJ	ROLLED STEEL JOIST
BC	BRICK CHIMNEY	FW	FENCE POST - WINDCLOSE	RW	RETAINING WALL
BH	BOREHOLE	G	GATE	SMP	SAMARITER PIPE
BL	BED LEVEL	Gr	GRATING	STP	STOP TAPS
BLg	BILLBOARD	GL	GROUND LEVEL	SW	SURFACE WATER
BS	BUS STOP	GP	GATE POST	TK	TANK/SILO
BW	BRICK WALL	GW	GUARD WIRE/RAIL	TP	TELEGRAPH POST
BWP	BRICK WALL PIERS	HW	HEAD WALL	TMH	SURFACE WATER MANHOLE
CBF	CATTLE BARRIER/FENCE	IC	INSPECTION CHAMBER	UP	UTILITY POLE
CHF	CHAIN LINK FENCE	IL	INVERT LEVEL	VP	VENT PIPE
CF	CORRUGATED IRON FENCE	RF	IRON RAILING FENCE	STA	STATION
CH	CHIMNEY POST	JB	JUNCTION BOX/POST	SV	SLUICE VALVE
CLV	CHAIN LINK FENCE	JP	JUNCTION PITCH	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB/ SALT GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	L	LAMP POST	TBM	TEMPORARY BENCH MARK
CPT	CHESTNUT PALING FENCE	LC	LEFT CREST	TELPOLE	TELEPHONE POLE/ MAILPOST
CR	CYCLE RACK	LG	LAMP POST	TC	TELECOM CABINET
CS	CATCH PIT/ MANHOLE	LB	LAMP POST/ BOLLARD	TF	TIMBER FENCE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TH	THRESHOLD LEVEL
DK	DROP KERB	MK	MARKER	TL	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MARKER POST	TLB	TELECOM JUNCTION BOX
DR	DOMESTIC	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
EL	ELECTRICITY	NB	NOTICE BOARD	TSF	TIMBER SLEEPER
EMB	EDG WASTE BIN	NG	NOTICE BOARD	TSR	TUBULAR STEEL RAILING
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UC	UPSTREAM
ES	ELECTRIC SIGN	OS	ORDNANCE SURVEY	US	UNDERSIDE SURVEY
ESF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ESP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EP	ELECTRICITY PYLON	P	PIER	WMF	WIRE MESH FENCE
EV	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
EX	EARTHING ROD	PC	PARKING METER	WPR	WOODEN POST & RAIL FENCE
FL	FLOOR LEVEL/ TRANSMISSION LINE	PF	PALE FENCE	YG	YARD GULLY
FS	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE	(Abbreviations apply to DI survey data only)	

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
FE07300012	TR 0103 4107	55.975
FE07304401	TR 0149 4229	52.709
FE07314196	TR 0222 4021	38.489
FE07314015	TR 0189 3914	34.489
FE07300013	TR 0160 4005	36.489
FE07300021	TR 0152 4047	38.111
FE07300020	TR 0159 4091	38.137
FE07300501	TR 0221 4074	38.286
FE07300503	TR 0343 3935	40.259
FE07314495	TR 0152 4070	37.864
FE07314496	TR 0128 4199	37.732
FE07315137	TR 0687 3791	47.711
FE07315138	TR 0671 3842	53.022
FE07315171	TR 0666 3815	52.976
FE07330004	TR 0504 3900	43.719
FE07330005	TR 1054 3791	60.587
FE07314483	TR 0151 4070	35.916
FE07314484	TR 0133 4200	37.463
FE07315139	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

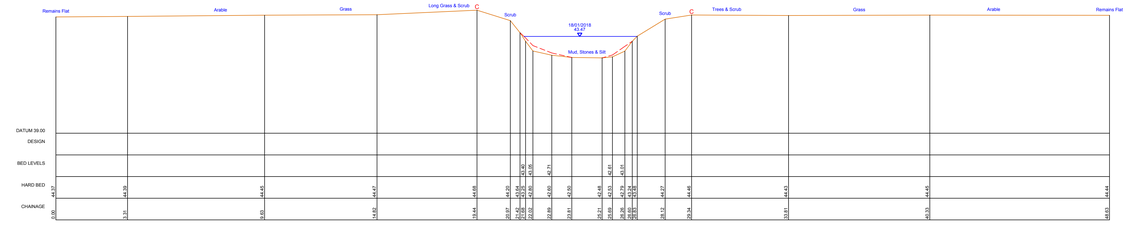
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

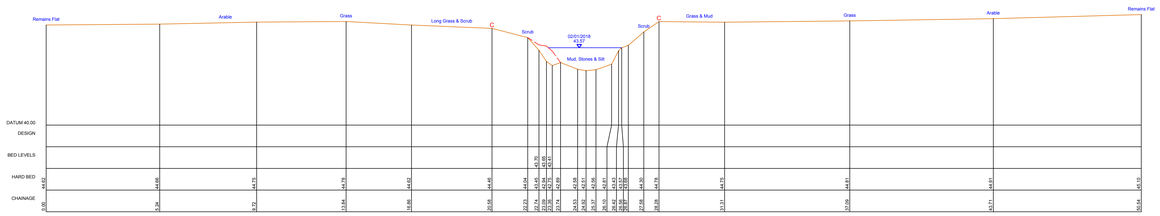
SITE/LIMITS

EAST STOUR (EST001)
CROSS SECTIONS
EST001_08532 TO EST001_09305

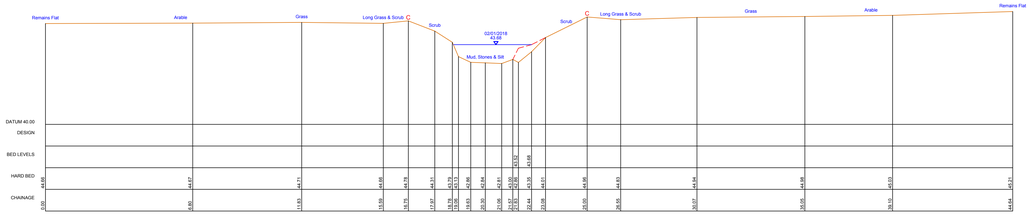
SURVEYED BY: MALTBY LAND SURVEYS LTD			Ref: TT_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018			
SCALE: 1:100	DRN: RC	CHKD: ITS	
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18	
GRID: NATIONAL GRID	DRAWING NO. X-J01058-15		REV. —
CAD FILENAME: X-J01058-01-30.dwg			



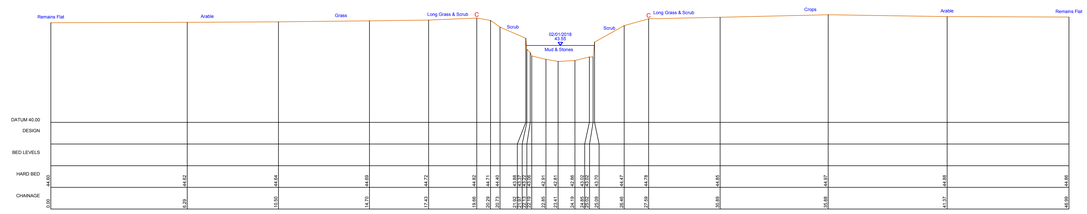
ESTO01_09412
605721.04mE 138206.05mN Brg 39
Open Channel



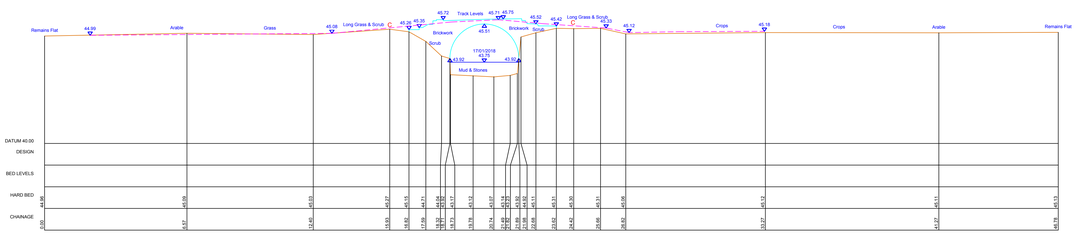
ESTO01_09525
605810.82mE 138245.99mN Brg 342
Open Channel



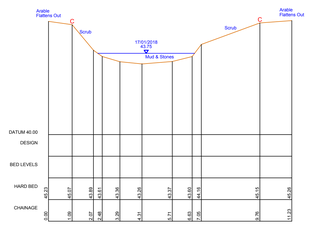
ESTO01_09624
605879.99mE 138201.69mN Brg 23
Open Channel



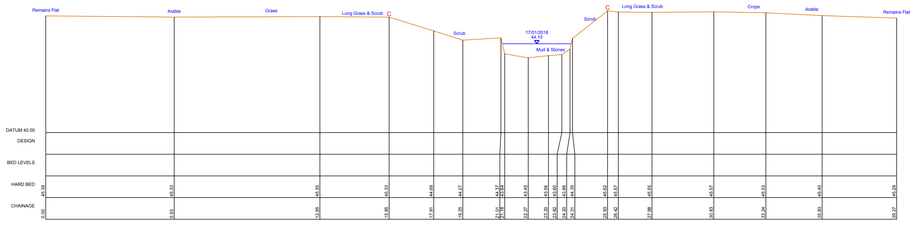
ESTO01_09721
605969.66mE 138165.25mN Brg 22
Open Channel



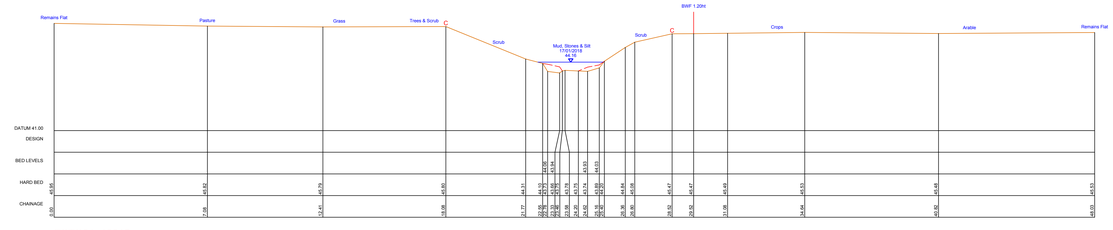
ESTO01_09835
606070.61mE 138124.4mN Brg 33
Access Bridge
Tunnel Length = 3.60m



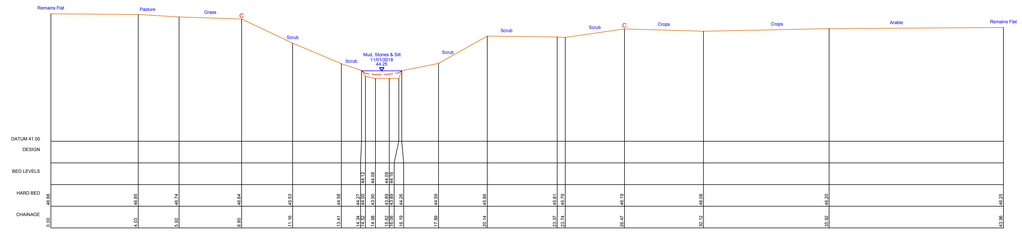
ESTO01_09838
606080.08mE 138135.55mN Brg 37
Open Channel



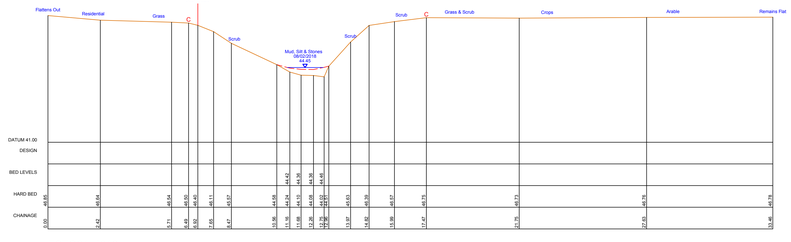
ESTO01_09934
606156.99mE 138070.58mN Brg 21
Open Channel



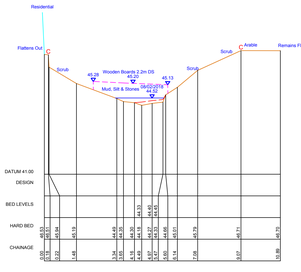
ESTO01_10015
606256.5mE 138099.24mN Brg 281
Open Channel



ESTO01_10111
606270.02mE 138139.7mN Brg 2
Open Channel



ESTO01_10187
606337.98mE 138116.22mN Brg 318
Open Channel



ESTO01_10190
606335.1mE 138124.18mN Brg 318
Weir Toe

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT
B	BENCH MARK	FM	FLOOD MONITOR MARKER
BL	BOLLARD	FL	FLOOR LEVEL
BR	BELOW BEACON	FP	FENCE POST
BT	BOREHOLE	FW	FOUL WATER MANHOLE
BY	BOREHOLE	G	GULLY
BL	BED LEVEL	GB	GAZEBO/BAND
BS	BUILDING SEAL	GL	GROUND LEVEL
BS	BLG STOP	GP	GATE POST
BM	BEACH MARK	GM	GAS MARKER
BW	BELOW WATER	GV	GAS VALVE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL
CF	CHAIN LINK/WIRE FENCE	KF	KICKBOARD FENCE
CL	COVER LEVEL	KF	KICKBOARDS FENCE
CLF	CHAIN LINK FENCE	JC	JUNCTION BOX
CP	CONCRETE POST	KG	KERB GUTTER / GULLY
CP	CONCRETE POST	LD	LIFT DOOR
CPF	CHEESTAD PALING FENCE	LT	LAMP POST
CTV	CCTV CAMERA	LV	LIFT VENT
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD
DF	DRAIN	MF	MESH/WIRE/RAIL FENCING
DK	DEEP KERB	MH	MANHOLE
DL	DOOR LEVEL	MK	MARKER
DS	DEEP SEAL	MP	MOORING PILE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE
EL	ELEVATION	NB	NOTICE BOARD
EWB	EXC. WASTE BIN	NS	NOTICE BOARD
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY
EC	ELECTRIC CABLE	OB	OBSERVATION BOX
ECP	ELECTRIC CABLE POT	OS	ORDNANCE SURVEY
EOP	ELECTRICITY CABLE POT	OSR	OPEN STEEL RAILINGS
EP	ELECTRICITY POLE	P	POST
EP	ELECTRICITY POLE	PB	PILLAR BOX
EX	EARTHING ROD	PM	PARKING METER
EW	ELECTRICITY TRANSMISSION LINE	PO	POST
FB	FLOWER BED	PRF	POST & RAIL FENCE
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE
PW	PARAPET WALL		
RC	RODDING POINT		
RE	RIGHT EREC		
RSJ	ROLLED STEEL JOIST		
RWP	RAIN WATER PIPE		
SM	SEAMASTER PIPE		
SC	STOP COCK		
SD	SOFFIT DRAIN		
SG	SOMAMPT		
SL	SOFFIT LEVEL		
SMH	STORM WATER MANHOLE		
SWF	SHEET METAL FILING		
ST	SIGN POST		
SV	SLUICE VALVE		
TP	TOILET VENT PIPE		
SWF	SOIL VENT PIPE		
TF	TEMPORARY FENCE		
TBM	TEMPORARY BENCH MARK		
TOETOP	TELEPHONE CABLE MH/POST		
TP	TELEGRAPH POLE		
TM	TELEGRAM MANHOLE		
TW	TELEPHONE MANHOLE		
TL	TRAFFIC LIGHT		
TL	TRAFFIC LIGHT BOX		
TP	TELEGRAPH POLE		
TPO	TIMBER RUBBING STRIP		
TS	TRIAL SECTION		
TSR	TUBULAR STEEL RAILINGS		
US	UPSTREAM		
VP	VERTICAL PT. SURVEY		
W	WATER LEVEL/WATER LINE		
WM	WATER METER		
WF	WOODEN FENCE		
WP	WOODEN POST		
WPR	WOODEN POST & RAIL FENCE		
WT	WATER TAP		
WV	VARD VALVE		

(Abbreviations apply to CX survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.889
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0159 4231	36.337
E20730500	TR 0221 4025	38.456
E20731494	TR 0143 3930	40.899
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4189	37.732
E20731497	TR 0691 3791	47.711
E20731536	TR 0671 3814	50.062
E20731537	TR 0666 3810	50.976
E20731004	TR 0664 3701	47.047
E20731483	TR 0157 4070	36.916
E20731484	TR 0151 4069	37.185
E20731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (ESTO01)
CROSS SECTIONS
EST001_09412 TO EST001_10190

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_132
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X–J01058–16	REV. —
CAD FILENAME: X-J01058-07-30.dwg		

Original Drawing Size: A0

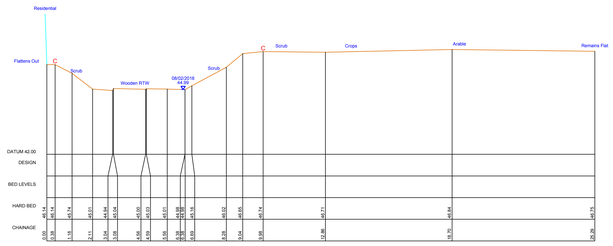
KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

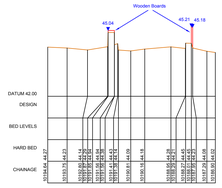
KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

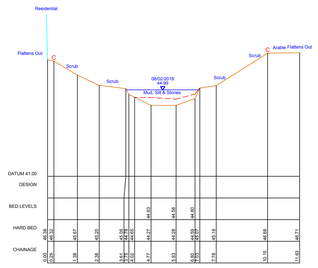
} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS



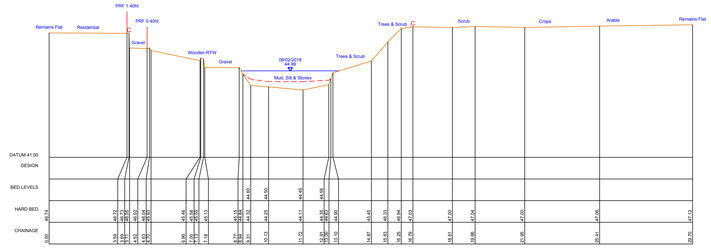
ESTO01_10192
606336.38mE 138125.1mN Brg 320
Weir Crest



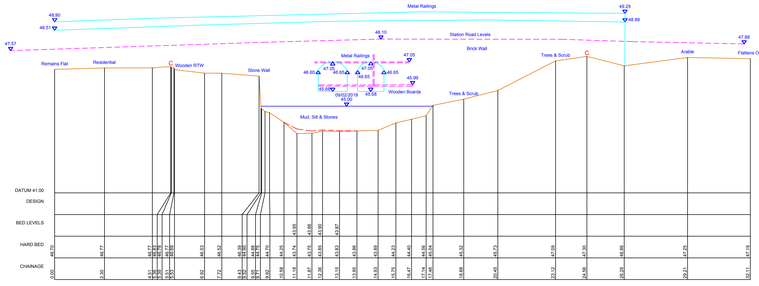
Through Section ESTO01_10192
Weir Crest



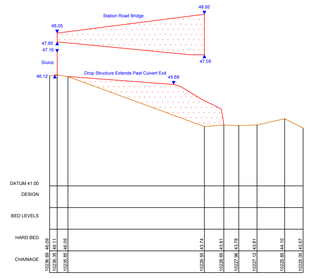
ESTO01_10195
606338.54mE 138126.57mN Brg 322
Weir Heel



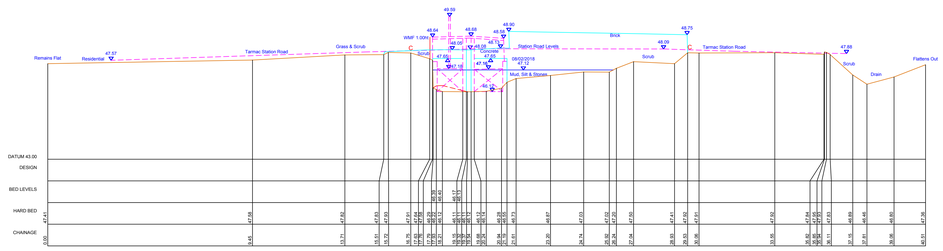
ESTO01_10213
606354.58mE 138127.04mN Brg 346
Open Channel



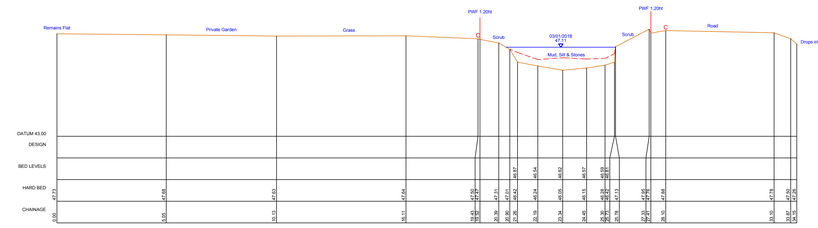
ESTO01_10230
606362.43mE 138121.98mN Brg 25
Station Road Sluice Gate D/S Face
Tunnel Length = 6.80m



Through Section ESTO01_10230
Station Road Sluice Gate D/S Face



ESTO01_10236
606365.24mE 138115.21mN Brg 29
Station Road Sluice Gate U/S Face
Tunnel Length = 6.80m



ESTO01_10253
606393.06mE 138112mN Brg 353
Open Channel

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

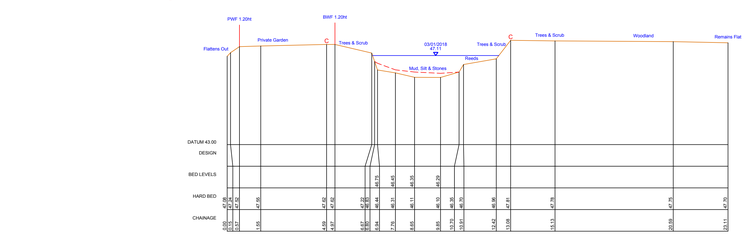
SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RD	RIGHT DRIED
B	BOLLARD	FP	FENCE POST	RE	RIGHT EMBED
BB	BELLOW BEACON	FS	FENCE STUD	RJ	ROLLED STEEL JOIST
BCP	BOARDED	FWH	FOUL WATER MANHOLE	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GRASSBANK	S	STOP VALVE
BS	BUS STOP	GC	GRASS CONCRETE	SC	STOP VALVE
BTS	BUS STOP	GF	GATE POST	SK	SOAKAWAY
BW	BRICK WORK	GM	GAS MARKER	SL	SLOPE LEVEL
BW	BRICK WALL	GP	HEAD WALL	SM	SUPPLY METER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SHEET METAL PILING
C	CONCRETE BANK	IL	INVERT LEVEL	SP	SIGN POST
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	MF	KITCHENDEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	MH	MANHOLE COVER	SWP	SOIL WASTE PIPE
CONC	CONCRETE	OG	OGEE INLET GULLY	SWF	SHELF MISC FENCE
CP	CONCRETE POST	LS	LEFT SWAY	TEMP	TEMPORARY BENCH MARK
CPF	CONCRETE POST FENCE	LP	LAMP POST	TGP	TELEGRAPH POLE/POST
CY	CYCLE RACK	LT	LAMP POST	TP	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
D	DRAIN	MF	MISCELLANEOUS FENCING	TW	TOP OF WALL
DH	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DRAINPIPE	MP	MARKER POST	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRP	TIMBER RUBBING STRIP
DR	DOMESTIC RAIN	MS	MILE STONE	TS	TIES STUMP
DW	DOMESTIC WATER	NG	NATURAL GROUND	TSR	TIMBER STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NSA	NATIONAL RIVERS AUTHORITY	UC	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTL	UNABLE TO SURVEY
EF	ELECTRICITY FENCE	OHL	OVERHEAD LINE	W	WATER MAIN/WATER LINE
EOP	ELECTRICITY CABLE PIT	OPS	OPEN STEEL RAILING	WA	WATER VALVE
EMH	ELECTRICITY MANHOLE	P	PILLAR	WF	WOOD MISC FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WMP	WOOD MISC POST
ER	EARTHING ROD	PM	PREPAYMENT METER	WPF	WOODEN POST & RAIL FENCE
ET	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WASH VALVE
FD	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FIB	FOOTBRIDGE	PTM	PARKING TICKET MACHINE	(Abbreviations apply to GI survey data only)	

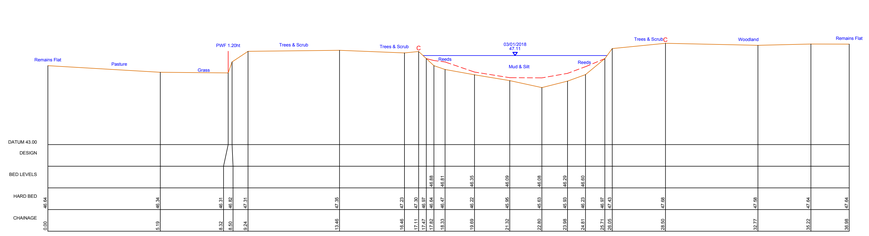
AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

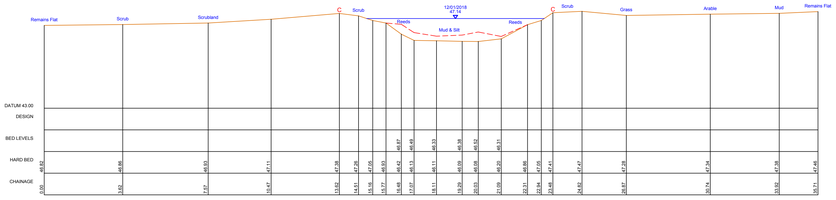
TYPE	DESCRIPTION	LEVEL
FC0730012	TR 0103 4107	35.975
FC0730401	TR 0149 4253	35.967
FC0730403	TR 0222 4027	38.489
FC0730406	TR 0666 3814	51.806
FC0730013	TR 0132 4202	38.489
FC0730020	TR 0159 4061	36.314
FC0730021	TR 0159 4291	38.137
FC0730500	TR 0021 4052	38.996
FC0730503	TR 0343 3930	40.259
FC0731495	TR 0152 4070	37.864
FC0731496	TR 0128 4199	37.732
FC0731497	TR 0067 4291	47.711
FC0731538	TR 0671 3842	52.092
FC0731471	TR 0666 3903	52.975
FC0723004	TR 0004 3900	40.587
FC0731483	TR 0159 4070	37.915
FC0731484	TR 0131 4070	37.915
FC0731539	TR 0671 3828	52.251



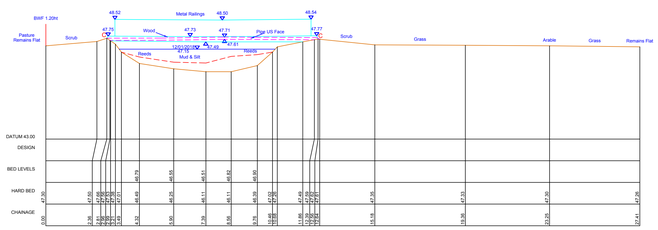
ESTO01_10295
606426.49mE 138121.71mN Brg 29
Open Channel



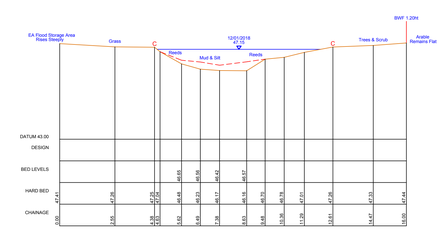
ESTO01_10322
606449.35mE 138097.42mN Brg 14
Open Channel



ESTO01_10422
606551.02mE 138095.61mN Brg 10
Open Channel



ESTO01_10482
606614.1mE 138115.26mN Brg 352
Footbridge
Tunnel Length = 0.69m



ESTO01_10520
606648.01mE 138140.08mN Brg 297
Open Channel

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_10192 TO EST001_10520

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-17	REV. —
CAD FILENAME: X-J01058-01-30.dwg		

Original Drawing Size: A0

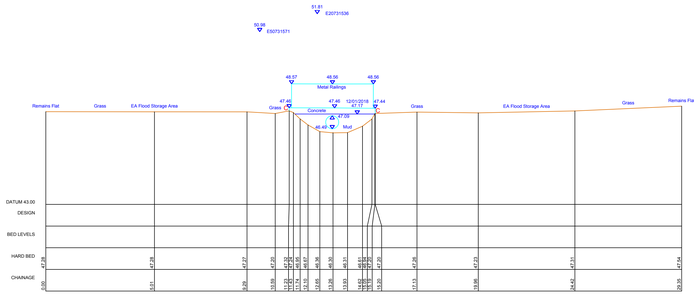
KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

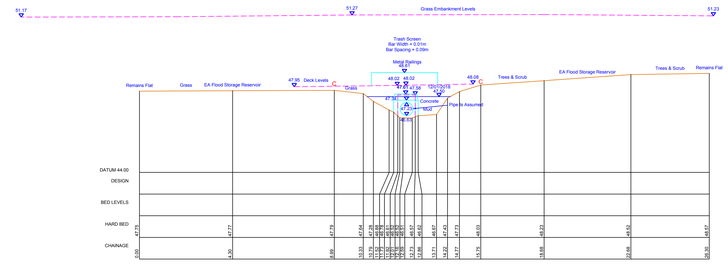
KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

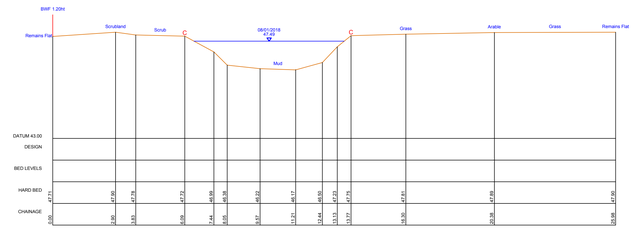
} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS



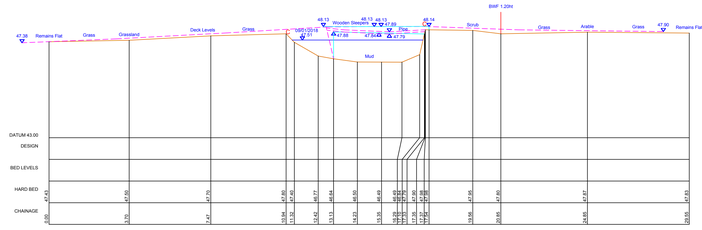
ESTO01_10528
606641.23mE 138134.91mN Brg 19
Culvert Exit
Tunnel Length = 46.12m



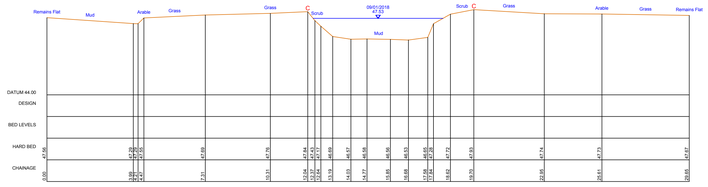
ESTO01_10574
606682.98mE 138121.79mN Brg 22
Culvert Entrance
Tunnel Length = 46.12m



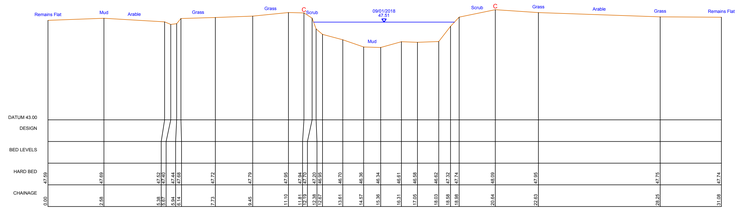
ESTO01_10644
606745.39mE 138172.99mN Brg 314
Open Channel



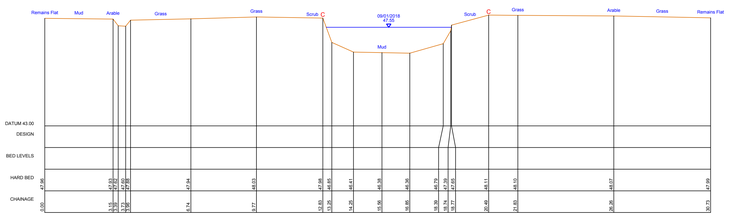
ESTO01_10723
606813.14mE 138194.15mN Brg 347
Access Bridge
Tunnel Length = 3.82m



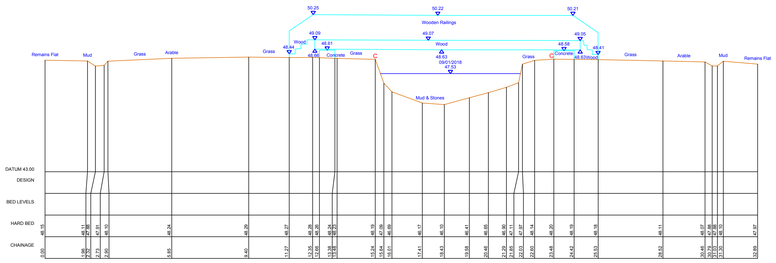
ESTO01_10827
606913.96mE 138188.67mN Brg 357
Open Channel



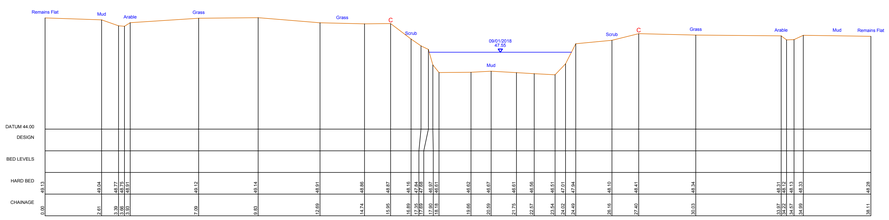
ESTO01_10924
607011.05mE 138191.23mN Brg 358
Open Channel



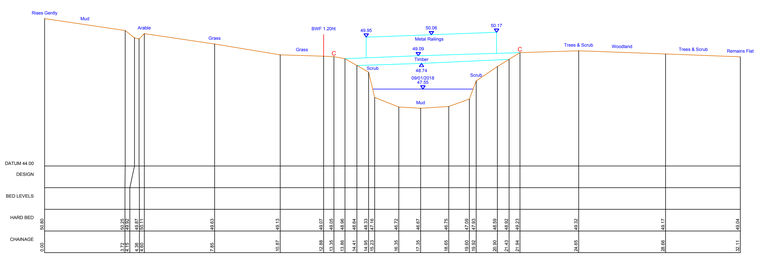
ESTO01_11027
607108.44mE 138191.63mN Brg 359
Open Channel



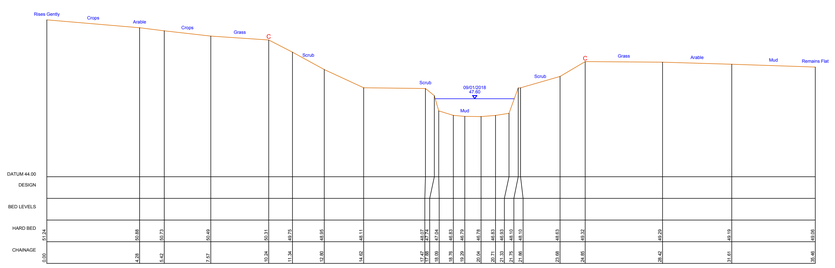
ESTO01_11157
607200.26mE 138153.29mN Brg 3
Footbridge
Tunnel Length = 1.14m



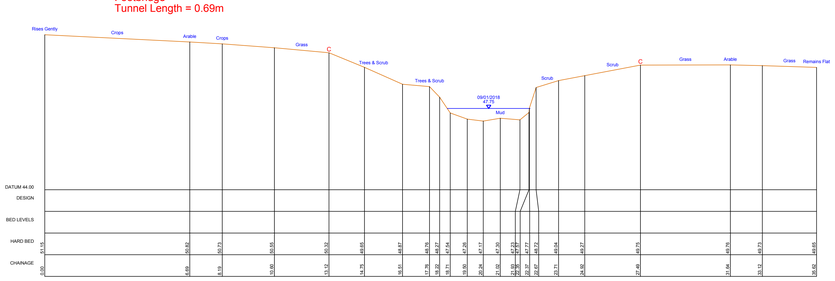
ESTO01_11228
607271.21mE 138151.68mN Brg 349
Open Channel



ESTO01_11320
607358.95mE 138158.66mN Brg 1
Footbridge
Tunnel Length = 0.69m



ESTO01_11425
607467.31mE 138161.04mN Brg 347
Open Channel



ESTO01_11532
607573.38mE 138186.09mN Brg 335
Open Channel

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PM	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	ROOT CROWN
BL	BOLLARD (BEACON	FO	FOUL MANHOLE	RCJ	RECTANGULAR JOINT
BDY	BOUNDARY	FRW	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	RWP	RAINWATER PIPE
BK	BRICK	GB	GRASSBANK	SP	SIGN POST
BRK	BRICKWORK	GL	GROUND LEVEL	SWP	STORM PIPE
BW	BRICK WALL	GP	GUARD POST	TC	TOP CROWN
BK	BUCKLE MARK	GV	GAS VARVER	TL	TOPSOIL LEVEL
BW	BRICK WALL	HW	HEAD WALL	TMH	TELEPHONE METER MANHOLE
CH	CHAINAGE - FENCE	IC	INSPECTION CHAMBER	TP	TELEGRAPH POLE/ PILING
CHF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	UP	UNDERPASS
CF	CORRUGATED IRON FENCE	RF	IRON RAILING FENCE	STN	STATION
CH	CHAIN LINK FENCE	JB	JUNCTION BOX FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB/ INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LP	LAMP POST	TBM	TEMPORARY BENCH MARK
CPF	CONCRETE PALING FENCE	LS	LEFT SIDE/ST	TCP/UP	TELEPHONE CALL BOX/POST
CR	CYCLE RAIL	LT	LAMP POST	TC	TELECOM CABINET
CV	CYCLE SHELTER	LV	LAMP POST BOLLARD	TL	TOPSOIL LEVEL/ TOE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TRL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MILE POST	TB	TELEPHONE JUNCTION BOX
EP	EDGE/PEG	MP	MOORING PILE	TP	TELEGRAPH POLE
EPC	EMAP PROOF COURSE	MPF	METAL PALING FENCE	TRS	TIMBER RUBBING STRIP
EW	EARTH WORK	NF	NET FENCE	TS	TRAFFIC SIGNAL
EWB	EDG WASTE BIN	NG	NOTICE BOARD	TW	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	OHC	OVERHEAD CABLE AUTHORITY	UPS	UPSTREAM
ES	ELECTRIC BOX	OHC	OVERHEAD CABLE	VD	VERTICAL DATUM TO SURVEY
ESF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	VP	WATER LEVEL/ WATER LINE
EWF	ELECTRIC WIRE FENCING	PR	PALING FENCING	WB	WATER BOARD
EWH	ELECTRICITY MANHOLE	PT	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	POST & RCH	WP	WOOD POST
ET	ELECTRICITY STILE	PW	PANEL METER	WS	WOODEN STILE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOOD BOARD	PR	POST & RAIL FENCE	WR	WIRE RAILING
FBH	FLOORBOARD	PTM	PARKING TICKET MACHINE		(Abbreviations may be in lower case also only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E50730012	TR 0103 4107	35.975
E50730401	TR 0149 4253	36.757
E50730403	TR 0222 4229	38.489
E50731436	TR 0666 3814	51.806
E60730013	TR 0132 4202	38.489
E60730020	TR 0159 4081	36.114
E60730021	TR 0159 4291	38.137
E60730500	TR 0223 4025	38.486
E60730503	TR 0343 3932	40.259
E60731495	TR 0152 4070	37.864
E60731496	TR 0128 4199	37.732
E60731537	TR 0687 3791	47.711
E60731538	TR 0671 3842	53.022
E60731571	TR 0666 3813	50.076
E60733004	TR 0504 3900	43.712
E60733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

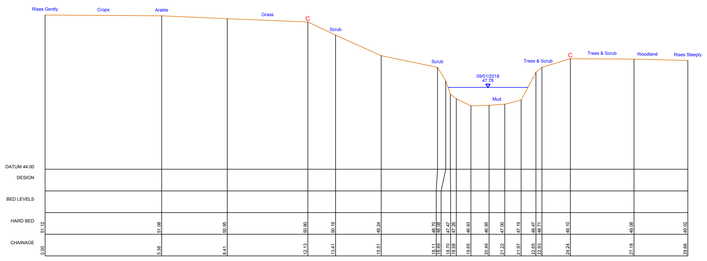
KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

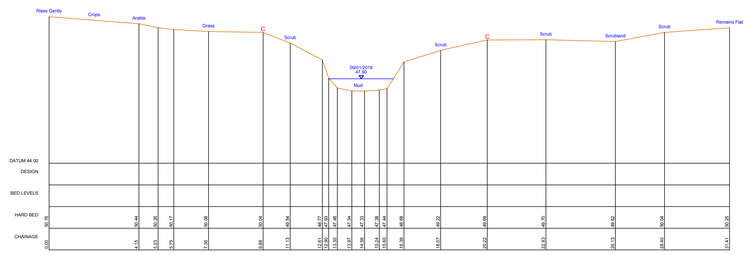
PROJECT/WATERCOURSE:
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS:
EAST STOUR (EST001)
CROSS SECTIONS
EST001_10528 TO EST001_11532

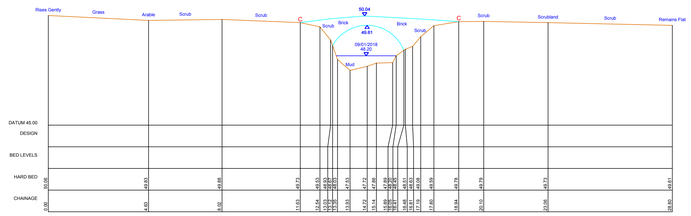
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-18	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



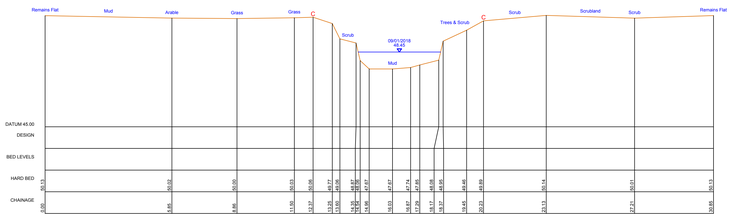
ESTO01_11624
607651.01mE 138184.49mN Brg 10
Open Channel



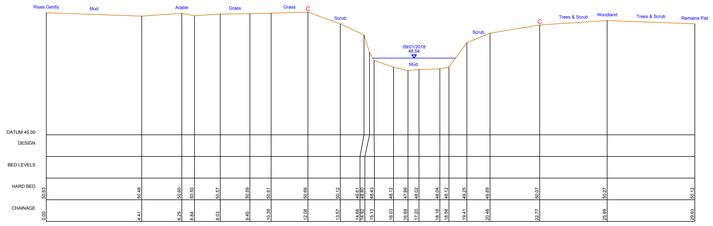
ESTO01_11734
607728.02mE 138126.74mN Brg 13
Open Channel



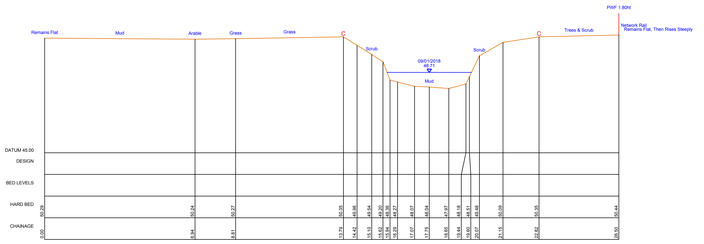
ESTO01_11808
607799.87mE 138110.6mN Brg 8
Access Bridge
Tunnel Length = 3.38m



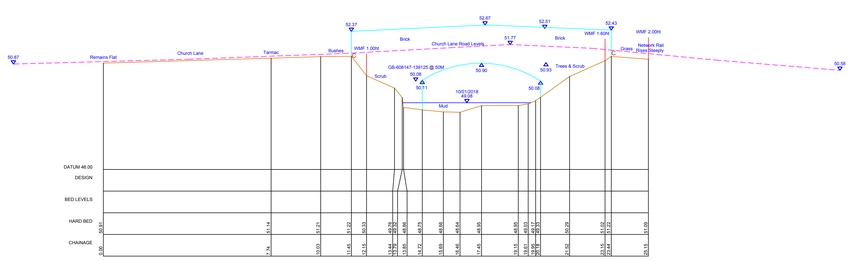
ESTO01_11923
607906.14mE 138103.68mN Brg 353
Open Channel



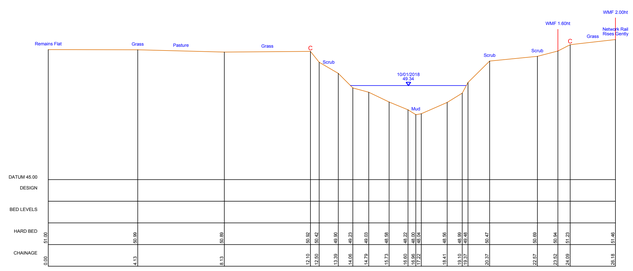
ESTO01_12029
607994.38mE 138116.03mN Brg 43
Open Channel



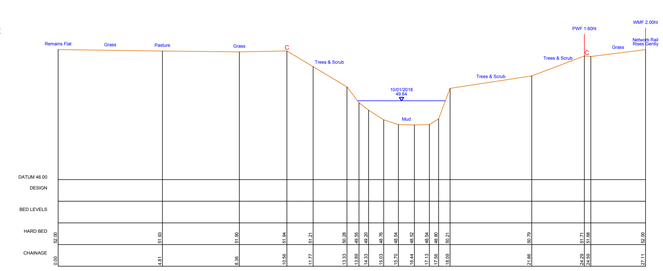
ESTO01_12130
608100.21mE 138110.23mN Brg 7
Open Channel



ESTO01_12172
608151.79mE 138111.42mN Brg 339
Church Lane Road Bridge
Tunnel Length = 5.78m
Skew Angle = 25°

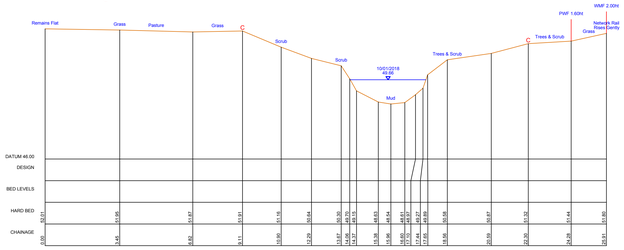


ESTO01_12232
608199.43mE 138099.36mN Brg 16
Open Channel

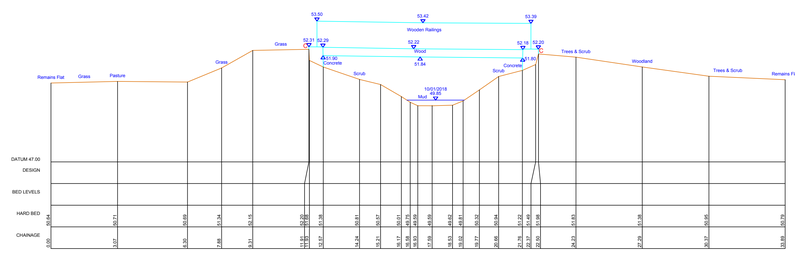


ESTO01_12333
608299.86mE 138080.43mN Brg 10
Open Channel

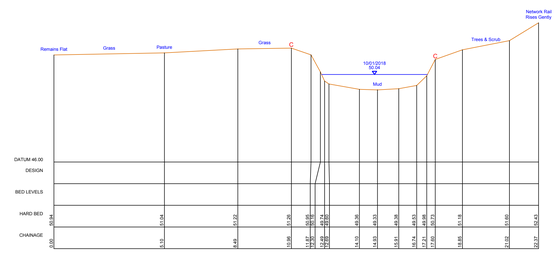
Skew Angle



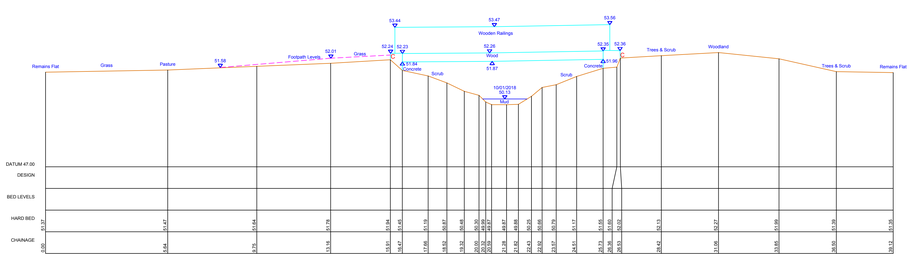
ESTO01_12435
608402.12mE 138062.55mN Brg 3
Open Channel



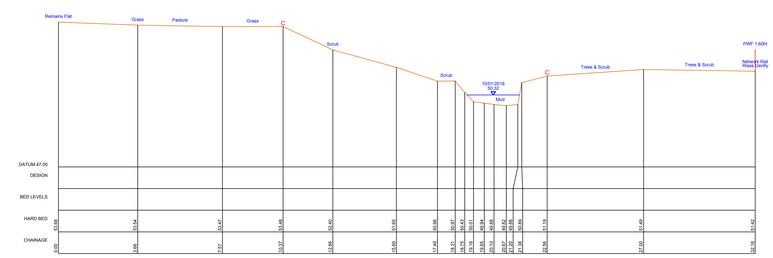
ESTO01_12552
608504.16mE 138034.25mN Brg 335
Footbridge
Tunnel Length = 1.84m



ESTO01_12606
608546.17mE 138033.58mN Brg 6
Open Channel



ESTO01_12641
608550.36mE 138025.77mN Brg 80
Footbridge
Tunnel Length = 1.78m



ESTO01_12722
608647.41mE 138003.44mN Brg 2
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FP	FENCE POST	RC	RODDING EYE
BB	BELISHA BEACON	FS	FENCE STAKE	RSJ	ROLLED STEEL JOIST
BCP	BOREHOLE	FWM	FOUL WATER MANHOLE	RWP	RAINWATER PIPE
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GI	GRATED/MUD	SI	STOP VALVE
BOL	BOLLARD	GM	GAS MARKER POST	SO	SOCKET/POST
BS	BUS STOP	GP	GATE POST	SV	SLUICE/WEIR
BSW	BUS SHELTER	GV	GAS VALVE	SW	SOFT WATER
BW	BRICK WALL	HW	HEDGE WALL	SWL	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SWP	SHEET METAL PILING
CB	CONCRETE BLOCK	IL	INVERT LEVEL	TB	TRIAL BOREHOLE
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	TN	TENNIS NET
CL	COVER LEVEL	MF	INTERMEDIATE FENCE	TV	SLUICE VALVE
CLF	CHAIN LINK FENCE	MH	MANHOLE COVER	UP	UNDER PIPE
CONC	CONCRETE	MG	HORSE GULLY GULLY	WF	WHEEL WIRE FENCE
CP	CONCRETE POST	LS	LEFT SHAW	TEM	TEMPORARY BENCH MARK
CR	CONCRETE POST & WIRE FENCE	LT	LEFT TOP OF BANK	TP	TELEGRAPH POLE/POST
CX	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
D	DRAIN	MF	MESH/CHAINLINK FENCING	TP	TELEGRAPH POLE
DH	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
EP	ELECTRIC POST	MP	MARKER POST/ PILE	TR	TRAFFIC LIGHT
EPC	EMAP PROOF COURSE	MRF	METAL RAILING FENCE	TRP	THREE RUBBING STRIP
EW	EARTH WORK	MS	MILE STONE	TS	TREE STUMP
FB	FOOT BRIDGE	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EX	ENVIRONMENT AGENCY	NGA	NATIONAL GRIDS AUTHORITY	UC	UNDER CUT
ES	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTL	UNABLE TO SURVEY
ESF	ELECTRICITY FENCE	OHL	OVERHEAD POWER LINE	V	VALVE/VENT/WATER LINE
ESP	ELECTRICITY CABLE/ PIT	OP	OPEN STEEL RAILING	WB	WATER BOARD
ESM	ELECTRICITY MANHOLE	P	PILLAR	WF	WOOD/MESH FENCE
ET	ELECTRICITY POLE	PB	PILLAR BOX	WM	WATER METER
EX	EARTHING ROD	PM	PARKING METER	WP	WOOD POST/ POST & RAIL FENCE
FD	FLOOD DEFENCE	PP	POST & RAIL FENCE	YG	YARD GULLY
FB	FLOWER BED	PM	PARKING TICKET MACHINE	(Abbreviations may or may not be survey data only)	

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

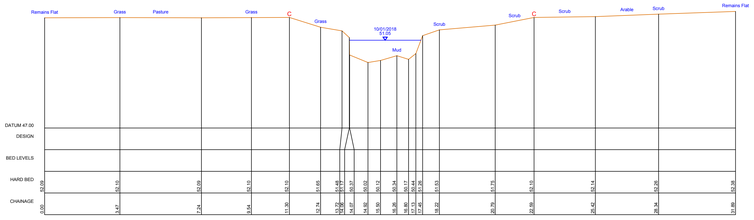
TYPE	DESCRIPTION	LEVEL
FC0730012	TR 0103 4107	35.975
FC0730401	TR 0149 4253	35.267
FC0730403	TR 0222 4027	38.489
FC0730536	TR 0866 3814	51.806
FC0730013	TR 0132 4202	38.489
FC0730020	TR 0158 4061	36.114
FC0730021	TR 0159 4291	38.137
FC0730500	TR 0023 4050	38.996
FC0730503	TR 0343 3930	40.259
FC0731495	TR 0152 4070	37.864
FC0731496	TR 0128 4199	37.732
FC0731497	TR 0087 4291	37.711
FC0731538	TR 0671 3842	52.092
FC0731471	TR 0666 3913	52.179
FC0730004	TR 0604 3900	52.347
FC0731483	TR 0151 4070	36.915
FC0731484	TR 0131 4200	37.915
FC0731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

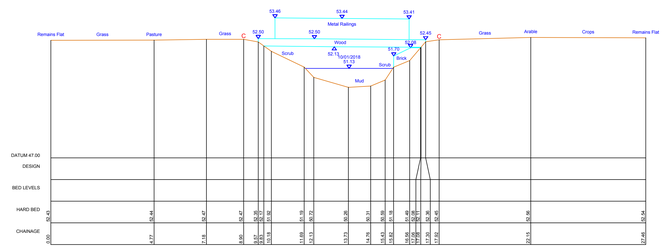
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_11624 TO EST001_12722

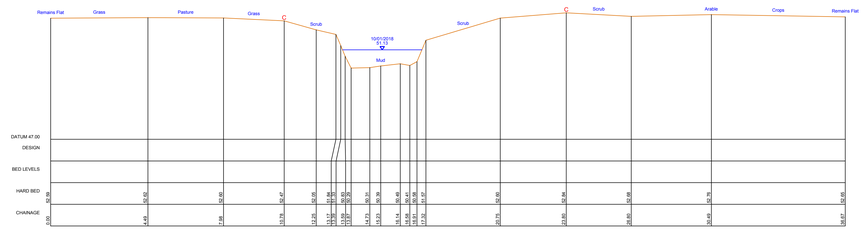
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO.	REV.
CAD FILENAME: X-J01058-01-30.dwg	X-J01058-19	—



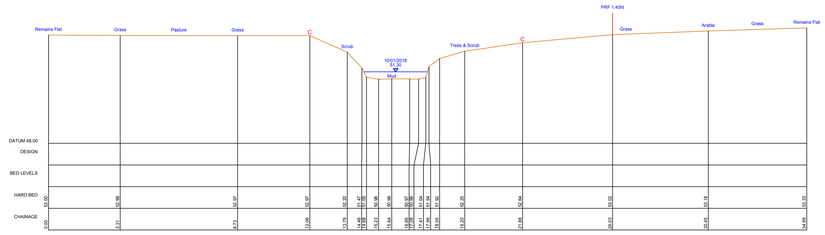
ESTO01_12839
608746.93mE 137997.83mN Brg 53
Open Channel



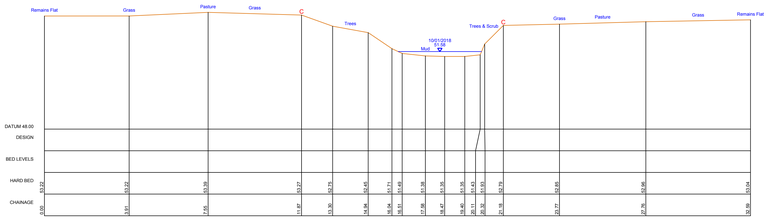
ESTO01_12946
608809.06mE 137913.52mN Brg 33
Footbridge
Tunnel Length = 0.81m



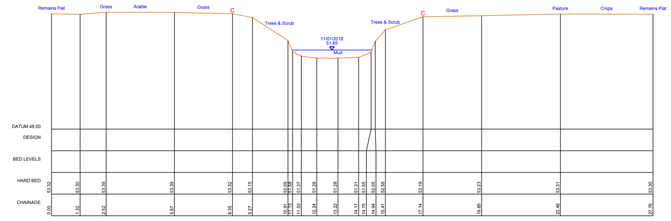
ESTO01_13012
608843.58mE 137863.14mN Brg 16
Open Channel



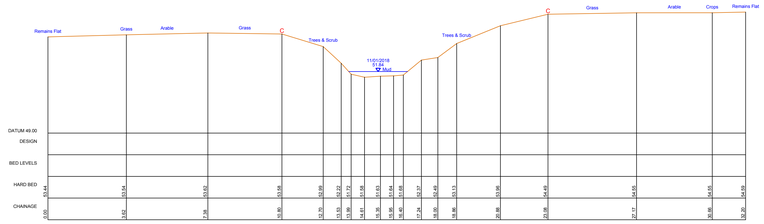
ESTO01_13123
608887.63mE 137789.22mN Brg 26
Open Channel



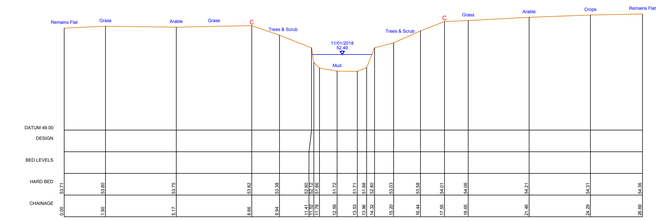
ESTO01_13264
608941.92mE 137753.79mN Brg 89
Open Channel



ESTO01_13327
609003.38mE 137727.55mN Brg 318
Open Channel



ESTO01_13421
609070.6mE 137757.72mN Brg 6
Open Channel



ESTO01_13509
609152.74mE 137753.04mN Brg 30
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER
BH	BOREHOLE	FP	FENCE POST
BR	BOLLARD BEACON	FS	FENCE POST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE
BT	BT MANHOLE	G	GATE
BL	BED LEVEL	GB	GRIDBOARD
BRK	BRICKWORK	GL	GROUND LEVEL
BW	BRICK WALL	GP	GUARD POST
BM	BENCH MARK	GM	GAS MARKER
BW	BRICK WALL	HB	HEAD WALL
CBF	CLOSE BOARDED FENCE	HC	HIGHWAY DRAIN CHAMBER
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE
CH	CHAIN LINK FENCE	JB	JUNCTION BOX
CLF	CHAIN LINK FENCE	JC	JUNCTION BOX
CONC	CONCRETE	KG	KERB INLET GULLY
CP	CONCRETE POST	LC	LAMP COLUMN
CHF	CHESTNUT PALING FENCE	LE	LEFT EDGE
CK	CYCLE RACK	LV	LAMP VOLT
CM	CABLE TV MANHOLE	MB	MOORING BOLLARD
CUL	CULVERT	MF	MISCELLANEOUS FENCING
DL	DECK LEVEL	MH	MANHOLE
DI	DRAIN INLET	MW	MARKER
DP	DOMPOST	MP	MOORING PILE
DCF	DOMESTIC COURSE	MF	MISCELLANEOUS FENCE
DR	DOMESTIC RAIL	NS	NEAR SIDE
DW	DRAINAGE WELL	NG	NEW GROUND
EN	ENGINEERS' AGENCY	NRA	NATIONAL RIVERS AUTHORITY
ES	ELECTRICITY BOX	OHC	OVERHEAD CABLE
EF	ELECTRICITY BOX FENCE	OP	OVERHEAD POWER
ELV	ELECTRICITY CABLE JNT	OSF	OPEN STEEL RAILING
EMH	ELECTRICITY MANHOLE	P	PILE
EP	ELECTRICITY POLE	PB	PUMP BOX
ER	EARTHING ROD	PM	PARKING METER
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST
FB	FLOOD BOARD	PR	PIPE & RAIL FENCE
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE
PW	PARAPET WALL		
RB	RIGHT BANK		
RE	RIGHT EDGE		
RSJ	ROLLED STEEL JOIST		
RTW	RETAINING WALL		
SBF	SHEEP BOARD FENCE		
SC	STOP COCK		
SDP	STAND PIPE		
SF	SHEEP FENCE		
SL	SOFFIT LEVEL		
SMH	SURFACE WATER MANHOLE		
SPF	SPILE OR TIMBER PILING		
SP	SIGN POST		
STN	STATION YARD		
SV	SCOUR VALVE		
SVP	SOIL VENT PIPE		
SWF	SHEEP WIRE FENCE		
TBM	TEMPORARY BENCH MARK		
TELP/M	TELEPHONE CALL BOX/POST		
TC	TELECOM CABINET		
TF	TIMBER FENCE		
THL	THRESHOLD LEVEL		
TL	TRAFFIC LIGHT		
TP	TELEGRAPH POLE		
TB	TELEGRAPH BOX		
TS	TRAFFIC SIGNAL STOP		
TS	TREE STUMP		
TR	TUBULAR STEEL RAILINGS		
UB	UPSTAND		
UTL	UNABLE TO SURVEY		
WL	WATER LEVEL/WATER LINE		
WA	WATER METER		
WMF	WIRE MESH FENCE		
WP	WOOD POST		
WPR	WOODEN POST & RAIL FENCE		
WV	WATER VALVE		
WW	WIRE WORK		

(Abbreviations apply to OS survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	36.767
E20730403	TR 0222 4629	38.489
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0159 4291	36.337
E20730500	TR 0223 4525	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.976
E20733004	TR 0504 3900	43.712
E20733005	TR 1056 3751	60.087
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE:
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS:
EAST STOUR (ESTO01)
CROSS SECTIONS
ESTO01_12839 TO ESTO01_13509

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO.	REV.
CAD FILENAME: X-J01058-01-30.dwg	X-J01058-20	–

Original Drawing Size: A0

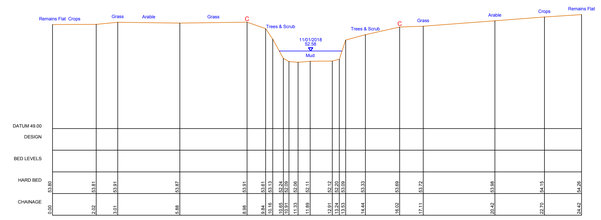
KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

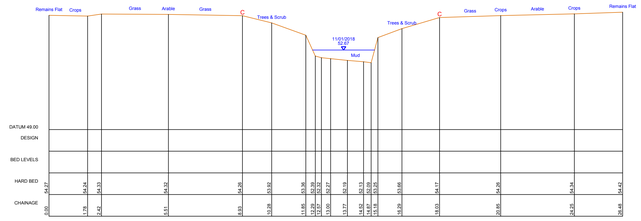
KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

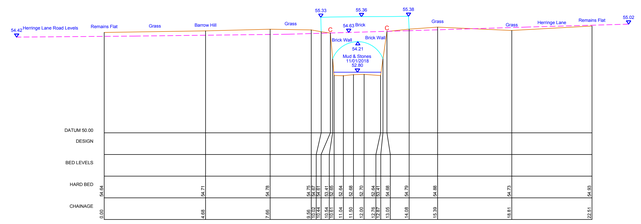
} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS



ESTO01_13630
609260.79mE 137719.68mN Brg 13
Open Channel

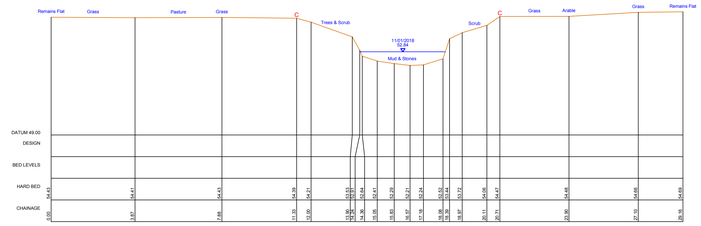


ESTO01_13725
609349.24mE 137708.42mN Brg 358
Open Channel

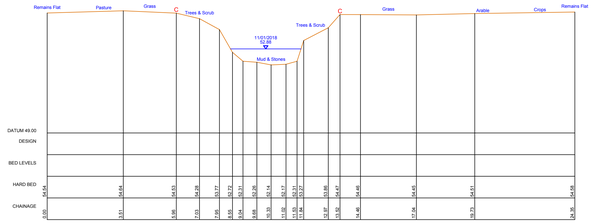


ESTO01_13799
609422.83mE 137700.4mN Brg 353
Herringe Lane Road Bridge
Tunnel Length = 5.35m
Skew Angle = 15°

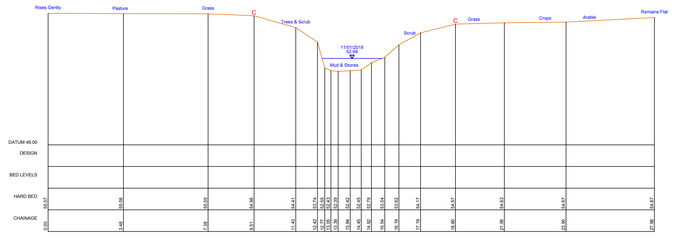
Skew Angle



ESTO01_13809
609430.13mE 137696.15mN Brg 7
Open Channel



ESTO01_13827
609449.37mE 137699.27mN Brg 5
Open Channel



ESTO01_13936
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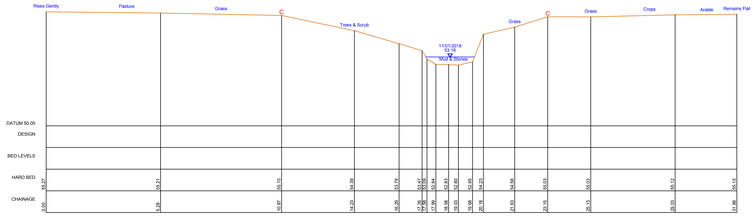
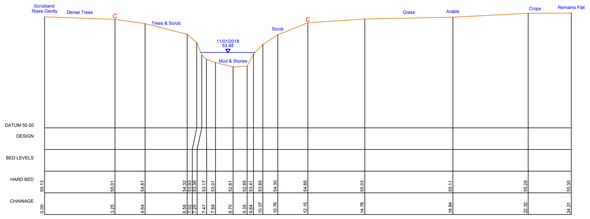
Open Channel



ESTO01_14026
609647.41mE 137703.38mN Brg 324
Open Channel



ESTO01_14125
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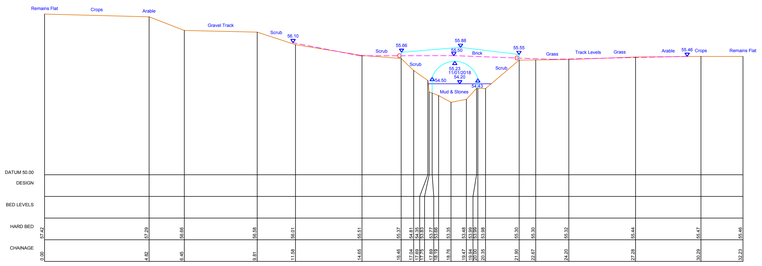
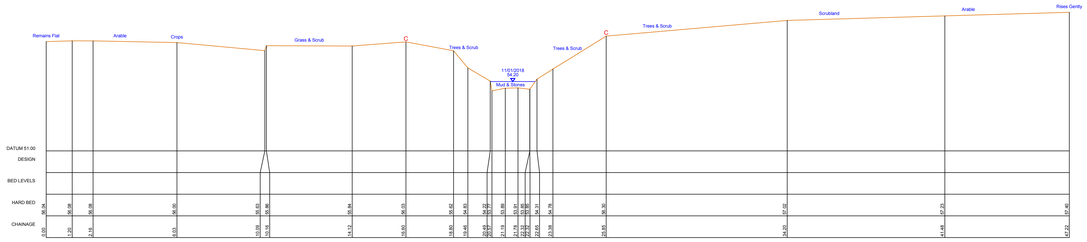
Open Channel



ESTO01_14211
609785.08mE 137635.94mN Brg 30
Access Bridge
Tunnel Length = 3.13m



ESTO01_14325
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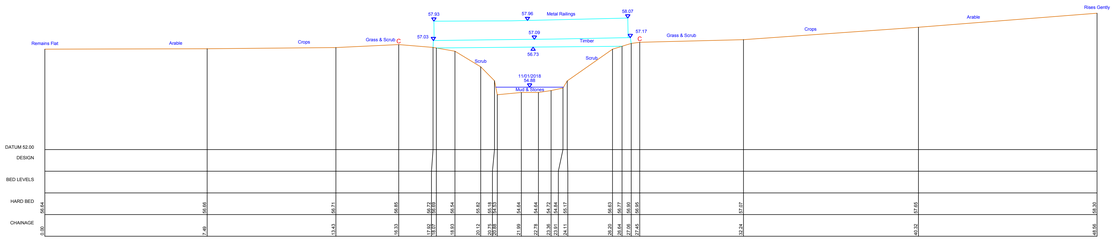
Open Channel



ESTO01_14452
610006.46mE 137535.41mN Brg 353
Footbridge
Tunnel Length = 0.43m

NOTES:

1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FOOTBRIDGE MARKER	RC	RIGHT CREST
B	BOLLARD	FL	FLOOR LEVEL	RI	RIGHT BANK
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FWM	FOUL WATER MANHOLE	RWP	RAINWATER PIPE
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GRADEBOARD	SC	STOP COCK
BM	BENCH MARK	GI	GAS INSPECTION	SC	STOP COCK
BT	BUS STOP	GP	GATE POST	SD	SOAKAWAY
BM	BENCH MARK	GM	GAS MARKER	SL	SUPPLY LINE
BW	BRICK WALL	GV	GAS VALVE	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	ST	SIGN POST
CF	CHAIN LINK FENCE	MF	METAL RAILING FENCE	TL	TELEGRAPH
CL	COVER LEVEL	MF	WIDEMOUTH FENCE	TV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JC	JUNCTION BOX	UMP	SOIL VENT PIPE
CP	CONCRETE POST	JG	JUNCTION GULLY	UPF	UNDERGROUND FENCE MARK
CP	CONCRETE POST	LT	LOFT MAST	TBM	TEMPORARY BENCH MARK
CPF	CHEQUER PALING FENCE	LT	LOFT TRUST	TCP/TP	TELEGRAPH POLE/POST
CS	CABLE TV STAND	LW	LOW WALL	TL	TELEGRAPH LINE
CTA	CABLE T.V. MARKER	MB	MOORING BOLLARD	TM	TELEGRAPH MARKER
CW	CATTLE WIRE	MF	MESH PANEL FENCING	TP	TELEGRAPH POLE
DK	DROP KERB	MR	MARKER	TL	TRAFFIC LIGHT
DL	DOOR LEVEL	MT	MOORING TILE	TV	TELEVISION BOX
DL	SILL LEVEL	MP	MOORING POST	TV	TELEVISION POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DW	DRAIN WELL	NB	NOTICE BOARD	TW	TIMBER WALL
DWB	DOG WASTE BIN	NS	NOTICE SIGNS	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRIC BOX	OB	OBSERVATION BOX	VS	VERTICAL SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	W	WATER LEVEL/WATER LINE
EDP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EM	ELECTRICITY METER	P	PIER	WMF	WOODEN MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WT	WATER TAP
FB	FLOWER BD	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to CX survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.889
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	36.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0159 4231	36.337
E20730500	TR 0221 4025	38.486
E20730502	TR 0143 3930	40.697
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4189	37.732
E20731497	TR 0691 3791	47.771
E20731538	TR 0671 3814	52.052
E20731537	TR 0666 3830	50.978
E20731004	TR 1064 3761	47.147
E20731005	TR 0757 4070	32.916
E20731484	TR 0131 4200	37.215
E20731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

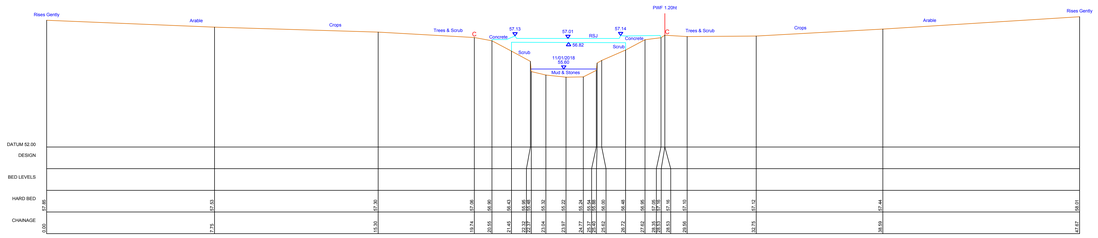
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

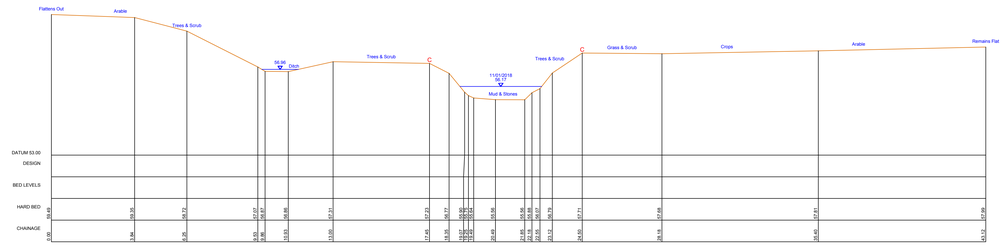
SITE/LIMITS

EAST STOUR (EST001)
CROSS SECTIONS
EST001_13630 TO EST001_14452

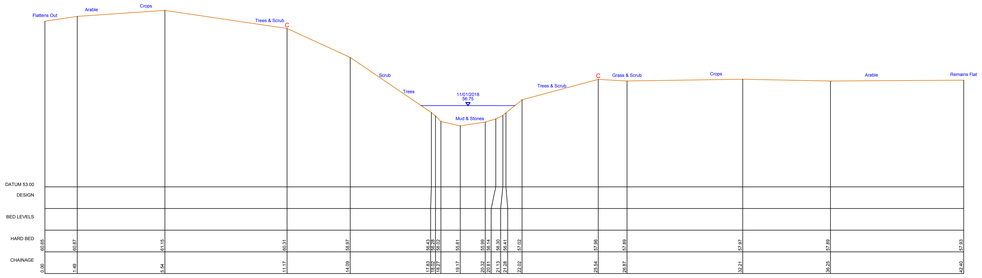
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_157
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO.	REV.
CAD FILENAME: X-J01058-SF-30.dwg	X–J01058–21	—



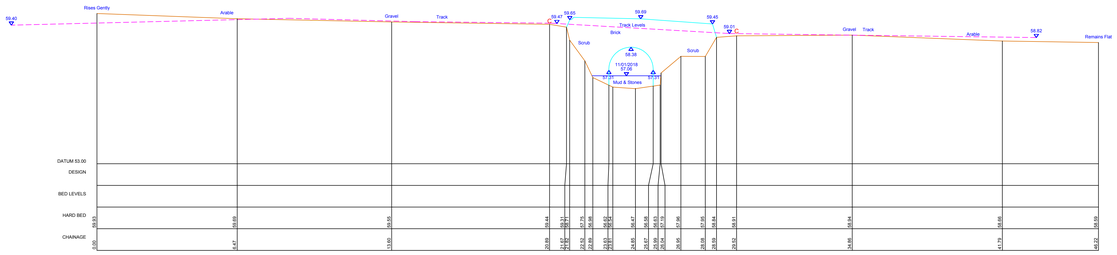
ESTO01_14527
610084.61mE 137553.17mN Brg 339
Dilapidated Footbridge
Tunnel Length = 2.14m



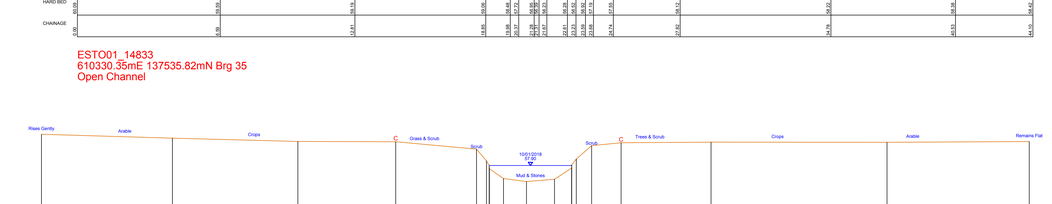
ESTO01_14631
610180.01mE 137588.2mN Brg 345
Open Channel



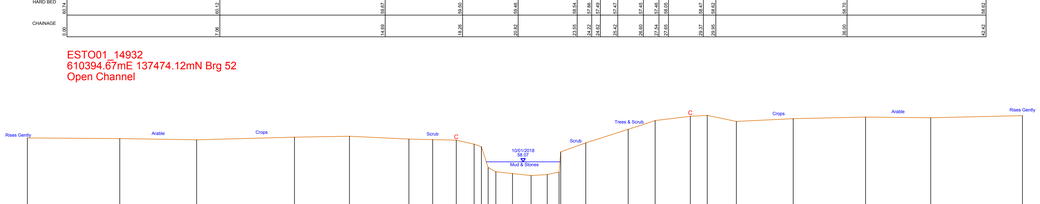
ESTO01_14725
610247.58mE 137608.18mN Brg 39
Open Channel



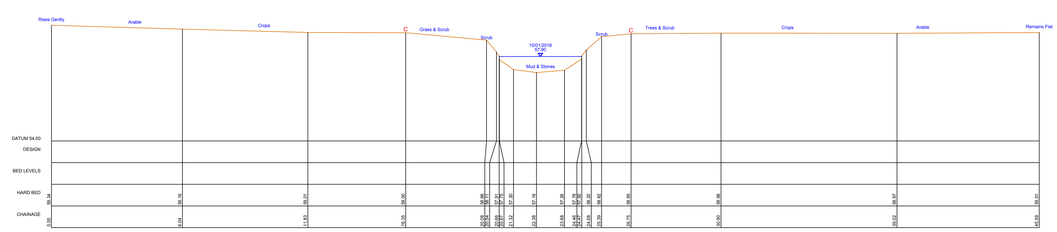
ESTO01_14781
610290.22mE 137567.02mN Brg 32
Access Bridge
Tunnel Length = 3.92m



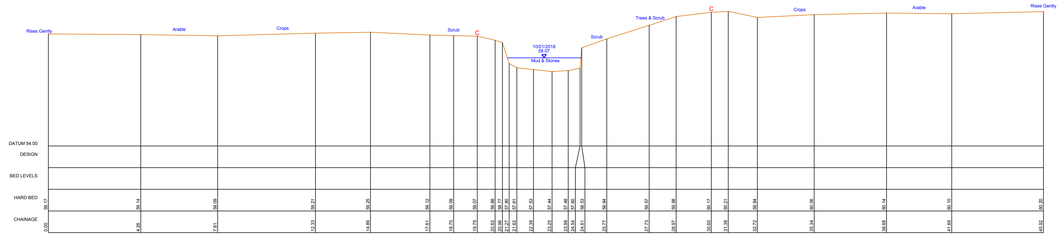
ESTO01_14833
610330.35mE 137535.82mN Brg 35
Open Channel



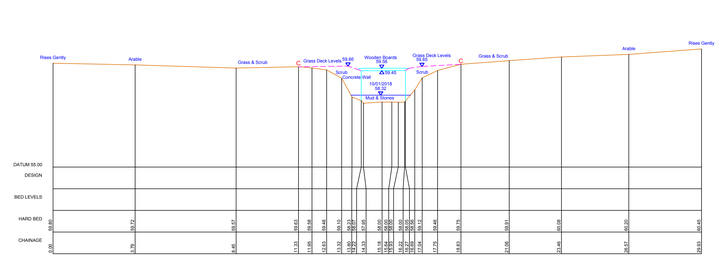
ESTO01_14932
610394.67mE 137474.12mN Brg 52
Open Channel



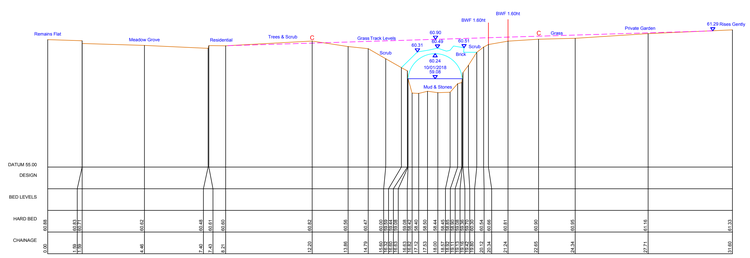
ESTO01_15026
610453.59mE 137407.07mN Brg 14
Open Channel



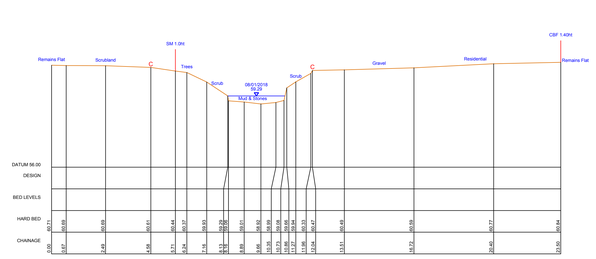
ESTO01_15121
610552.52mE 137414.87mN Brg 341
Open Channel



ESTO01_15220
610630.35mE 137481.74mN Brg 311
Footbridge
Tunnel Length = 3.69m



ESTO01_15347
610698.75mE 137593.18mN Brg 296
Footbridge
Tunnel Length = 2.64m



ESTO01_15375
610706.45mE 137612.14mN Brg 329
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
BH	BOREHOLE	FL	FLOOR LEVEL	RC	RECTANGULAR
BR	BOLLARD, BEACON	FO	FENCE POST	RJ	ROLLED STEEL JOIST
BOY	BOUNDARY	FWK	FOUL WATER MANHOLE	RTW	RETAINING WALL
BW	BOUNDARY WALL	G	GATE	SC	SURVEY CONTROL
BL	BED LEVEL	GB	GASHOLDER	SCK	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BT	BT MANHOLE	GU	GULLY	SF	SAFETY FENCE
BM	BENCH MARK	GV	GAS VALVER	SH	SUPPLY HEAD
BMP	BARRIER POST	HB	HEDGE/BUSH	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SURFACE METAL PLINIC
CBF	CLOSE BOARDED FENCE	K	KERB/ KERBING	SNK	SINK
CF	CHAIN LINK/ PVC FENCE	KP	KINGPOST	SP	SIGN POST
CV	COVER LEVEL	MF	KITCHENDEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	LP	LAMP POST	SWK	SOAKAWAY PIT
CLV	CLEAN OUT	LPG	LPG TANK	SWF	SHELF WIRE FENCE
CP	CONCRETE POST	LS	LEFT SHAW	TBM	TEMPORARY BENCH MARK
CPF	CONCRETE POST & WIRE FENCE	LT	LEFT TOP OF BANK	TCP	TELEPHONE CABLE/POST
CR	CYCLE RACK	LV	LAMP POST	TF	TELEGRAPH FARMER
CTV	CABLE TV MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
DA	DRAIN	MBF	MOORING BOLLARD/RAIL FENCING	TP	TELEGRAPH POLE
DK	DROP KERB	MK	MARKER	TR	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DRAIN POINT	MP	MARKER POST, PILE	TOB	TOP OF BANK
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TSL	TIMBER PILE/SHEET STRIP
DR	DOWNSTREAM	MS	MILE STONE	TS	TREE STUMP
EA	ENVIRONMENT AGENCY	NB	NEW BRICKWORK	TSP	TUBULAR STEEL RAILINGS
EN	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UP	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTL	UNABLE TO SURVEY
EF	ELECTRICITY FENCE	OHL	OVERHEAD POWER LINE	WL	WATER LEVEL/ WATER LINE
EOF	ELECTRICITY CABLE/ PIT	OR	OPEN STEEL RAILING	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PARKING BOX	WP	WOOD POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	POF	POST & RAIL FENCE	WV	WATER VALVE
FB	FOOTBRIDGE	PP	POWER POLE	WW	WOOD WALL
FBB	FOOTBRIDGE	PTM	PARKING TICKET MACHINE	(Abbreviations apply to 3d survey data only)	

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

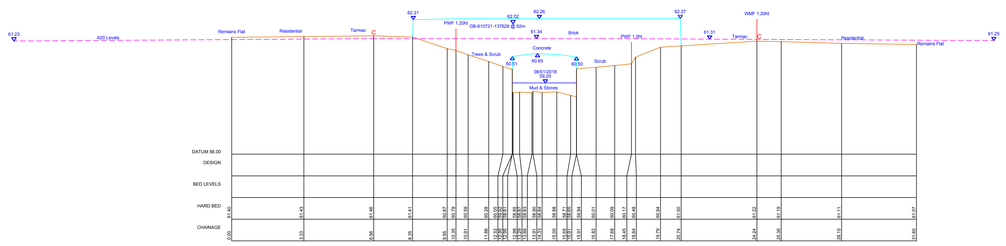
TYPE	DESCRIPTION	LEVEL
F20730012	TR 0103 4107	35.975
F20730401	TR 0149 4253	52.267
F20730403	TR 0222 4027	38.489
F20730536	TR 0159 3814	51.806
F20730013	TR 0132 4202	38.489
F20730002	TR 0159 4061	36.314
F20730021	TR 0158 4291	36.137
F20730500	TR 0223 4026	38.486
F20730503	TR 0343 3936	40.259
F20731495	TR 0152 4070	37.864
F20731496	TR 0128 4199	37.732
F20731537	TR 0687 3791	47.711
F20731538	TR 0671 3842	63.022
F20731471	TR 0666 3813	50.375
F20733004	TR 0504 3900	43.137
F20733003	TR 1096 3751	60.987
E20731483	TR 0151 4070	35.916
E20731484	TR 0153 4200	37.863
E60731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH
GOVMAP RSDMNS

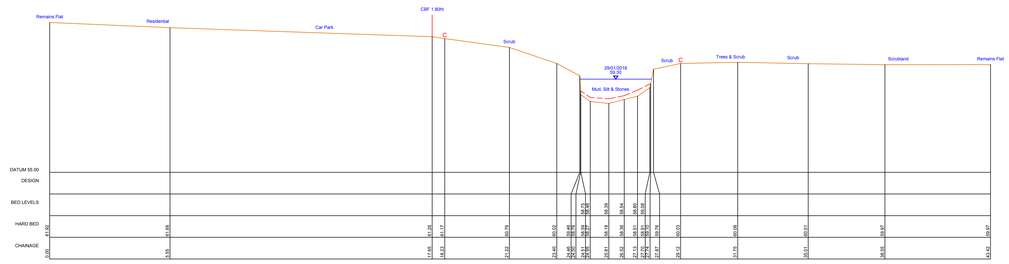
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_14527 TO EST001_15375

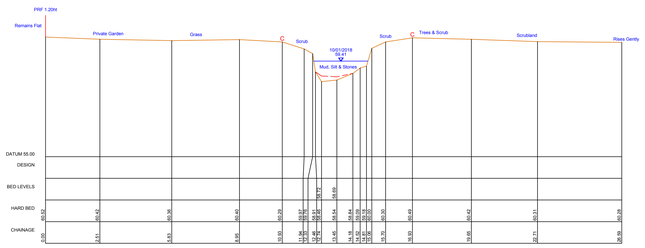
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-22	REV. —
CAD FILENAME: X-J01058-01-3D.dwg		



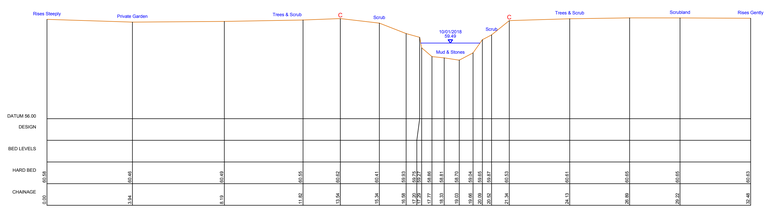
ESTO01_15396
610725.93mE 137615.86mN Brg 339
A20 Road Bridge
Tunnel Length = 11.14m



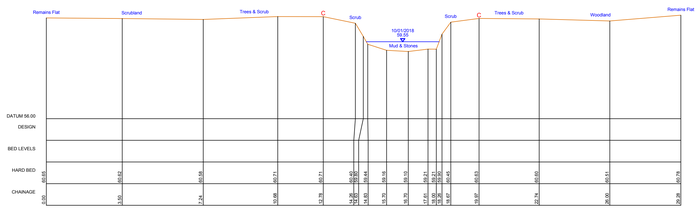
ESTO01_15433
610757.81mE 137608.84mN Brg 359
Open Channel



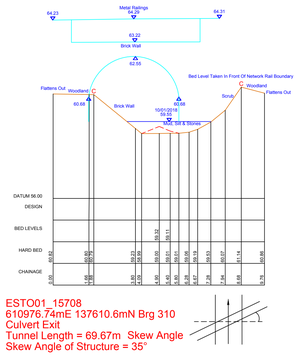
ESTO01_15544
610844.96mE 137604.03mN Brg 1
Open Channel



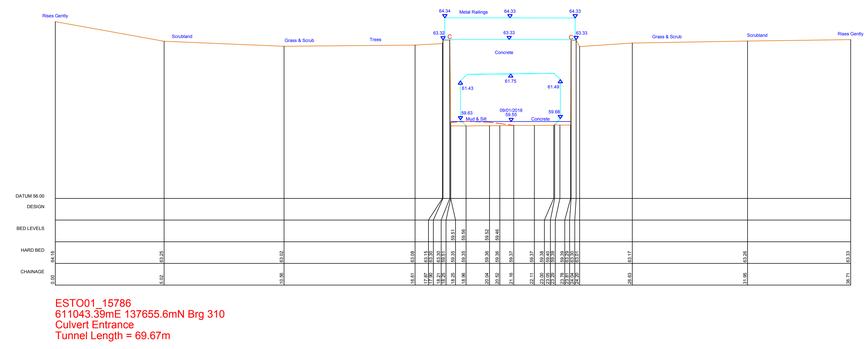
ESTO01_15623
610896.51mE 137570.16mN Brg 19
Open Channel



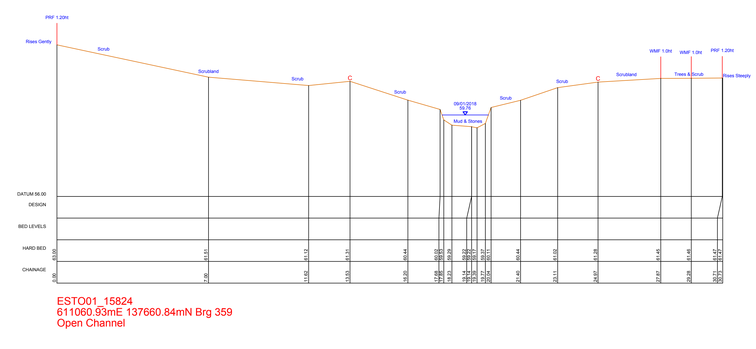
ESTO01_15694
610970.65mE 137591.07mN Brg 329
Open Channel



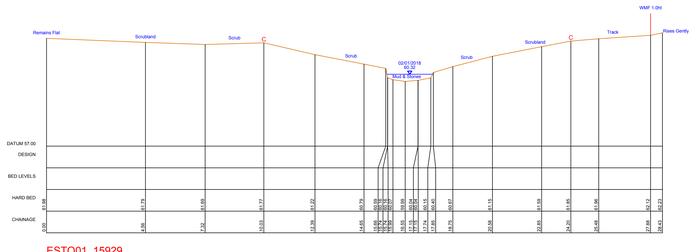
ESTO01_15708
610976.74mE 137610.6mN Brg 310
Culvert Exit
Tunnel Length = 69.67m Skew Angle
Skew Angle of Structure = 35°



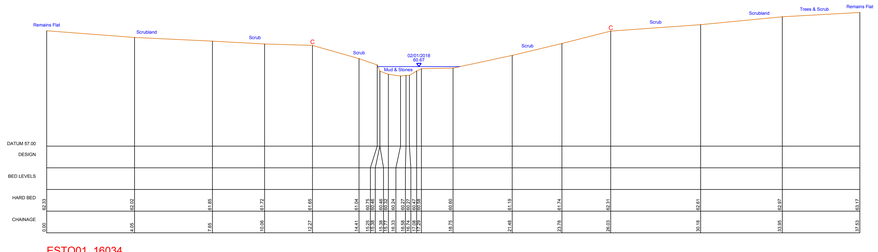
ESTO01_15786
611043.39mE 137655.6mN Brg 310
Culvert Entrance
Tunnel Length = 69.67m



ESTO01_15824
611060.93mE 137660.84mN Brg 359
Open Channel



ESTO01_15929
611165.61mE 137658.74mN Brg 359
Open Channel



ESTO01_16034
611257.5mE 137651.78mN Brg 22
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY "C" ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER
BH	BOREHOLE	FL	FLOOR LEVEL
BR	BOLLARD, BEACON	FP	FENCE POST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE
BT	BT MANHOLE	G	GATE
BL	BOG LEVEL	GB	GRIDBOARD
BRK	BRICKWORK	GL	GROUND LEVEL
BW	BACK OF WALL	GP	GUARD POST
BM	BENCH MARK	GM	GAS MARKER
BW	BRICK WALL	HW	HEAD WALL
CHF	CHAIN LINK FENCE	IC	INSPECTION CHAMBER
CHF	CLOSE BOARDED FENCE	IL	INVERT LEVEL
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE
CH	CATCH PIT	JB	JUNCTION BOX
CLV	CHAIN LINK FENCE	JB	JUNCTION BOX
CONC	CONCRETE	KG	KERB INLET GULLY
CP	CONCRETE POST	LC	LAMP COLUMN
CHF	CHESTNUT PALING FENCE	LE	LEFT EDGE
CK	CYCLE RACK	LM	LAMP MARKER
DM	DRAIN MANHOLE	LB	LIGHTING BOLLARD
CUL	CULVERT	MF	MISCELLANEOUS FENCING
DI	DROP KERB	MH	MANHOLE
DI	DROP KERB	MW	MARKER
DP	DOMPOTS	MP	MOORING PILE
EP	ELECTRICITY COURSE	MF	MISCELLANEOUS FENCE
EM	DOMESTIC/PM	NS	MILE STONE
EM	ELECTRICITY MH	NT	NETTING TO BE
EN	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY
ES	ELECTRICITY BOX	OHC	OVERHEAD CABLE
EF	ELECTRICITY BOX FENCE	OHL	OVERHEAD LINE
ELE	ELECTRICITY CABLE, BT	OSF	OPEN STEEL RAILING
EMH	ELECTRICITY MANHOLE	P	PILE
EP	ELECTRICITY POLE	PB	PHONE BOX
ET	EARTHING ROD	PM	PARKING METER
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST
FB	FLOWER BED	PR	PARAPET & RAIL FENCE
FM	FOOTBRIDGE	PTM	PARKING TICKET MACHINE
PW	PARAPET WALL		
RB	RIGHT BANK		
RC	RODDING EYE		
RSJ	ROLLED STEEL JOIST		
RTW	RETAINING WALL		
SA	SERVICE ACCESS		
SCP	STOP COCK POST		
SP	STAND PIPE		
SP	SUMP PIT		
SOF	SOFFIT LEVEL		
SWI	SURFACE WATER MANHOLE		
SWF	SWEET CHESTNUT PALING FENCE		
SF	SIGN POST		
STN	STATION MARK		
SV	STOP VALVE		
SVP	SOIL VENT PIPE		
SWF	SWEET WIRE FENCE		
TBM	TEMPORARY BENCH MARK		
TELPOL	TELEPHONE CALL MAST/POST		
TC	TELECOM CABINET		
TH	TELEGRAPH HOLE		
TEL	THREADED LEVEL		
TP	TRAFFIC LIGHT		
TB	TELEPHONE BOX		
TP	TELEGRAPH POLE		
TR	TRAFFIC SIGN POST		
TS	TRIG STUMP		
TW	TIMBER WALL		
UP	UPRIGHT		
WA	UNABLE TO SURVEY		
UTL	UNABLE TO SURVEY		
VC	VEGETATION, WATER LINE		
WL	WATER LEVEL		
WMF	WIRE MESH FENCE		
WP	WOOD POST		
WPR	WOODEN POST & RAIL FENCE		
WV	WATER VALVE		
WW	WIRE WORK		
(Abbreviations may be in survey data only)			

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	36.767
E20730403	TR 0222 4627	38.489
E20731536	TR 0666 3814	51.856
E20733013	TR 0132 4202	38.489
E20733020	TR 0159 4061	36.314
E20733021	TR 0159 4291	36.337
E20733000	TR 0223 4025	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731671	TR 0666 3813	50.976
E20733004	TR 0504 3900	43.712
E20733005	TR 1056 3751	60.087
E20731483	TR 0151 4070	35.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

Environment Agency

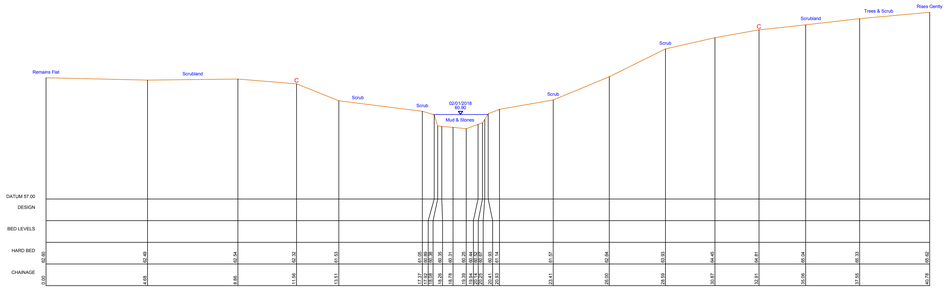
KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

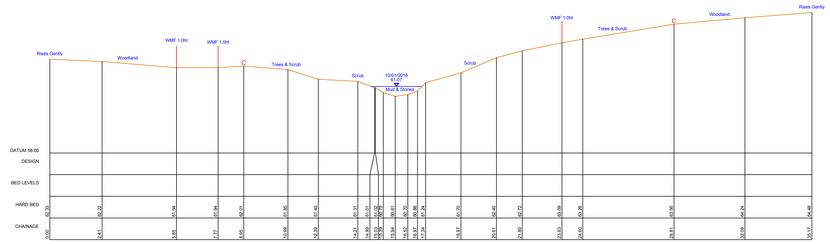
PROJECT/WATERCOURSE:
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS:
EAST STOUR (ESTO01)
CROSS SECTIONS
ESTO01_15396 TO ESTO01_16034

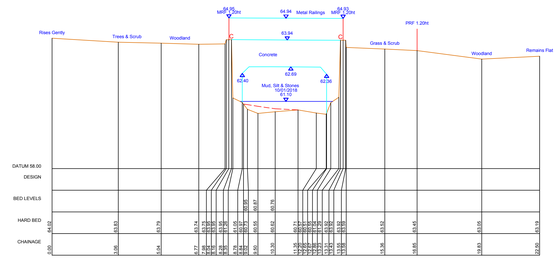
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO.	REV.
CAD FILENAME: X-J01058-01-30.dwg	X-J01058-23	–



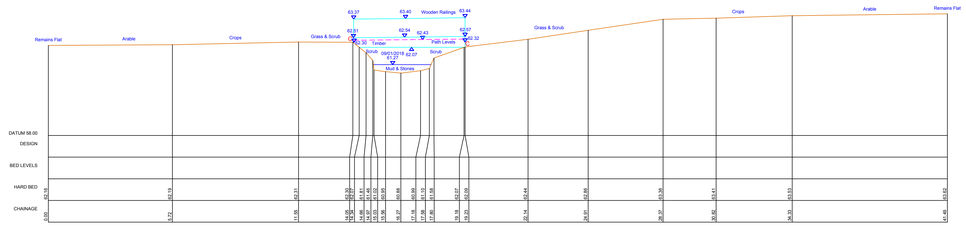
ESTO01_16149
611366.81mE 137653.97mN Brg 28
Open Channel



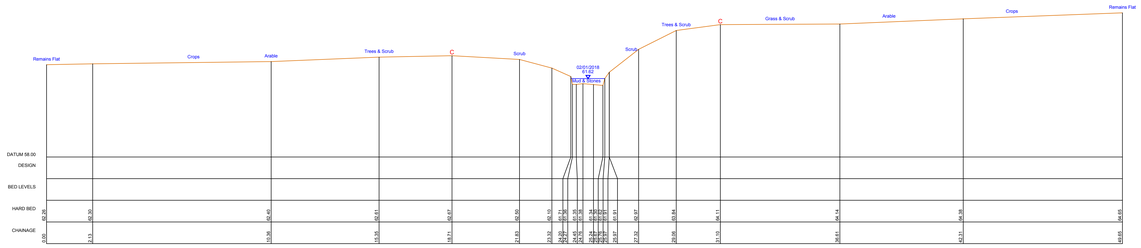
ESTO01_16223
611415.08mE 137612.25mN Brg 51
Open Channel



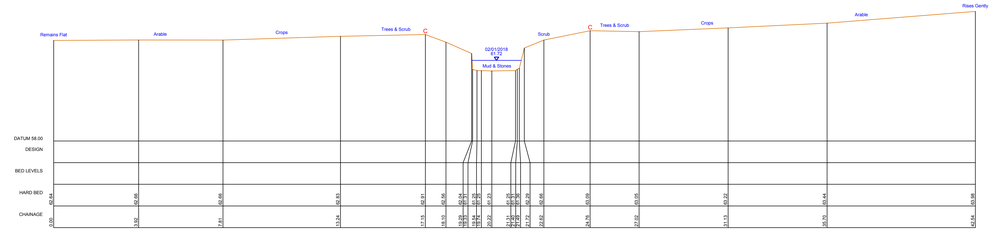
ESTO01_16264
611429.34mE 137584.38mN Brg 84
Culvert Exit
Tunnel Length = 58.13m



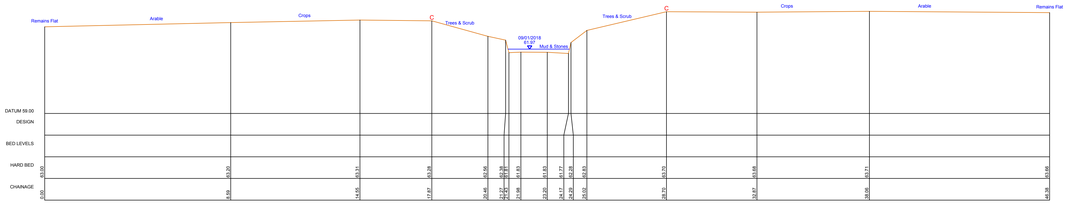
ESTO01_16351
611422.38mE 137499.73mN Brg 86
Footbridge
Tunnel Length = 0.62m



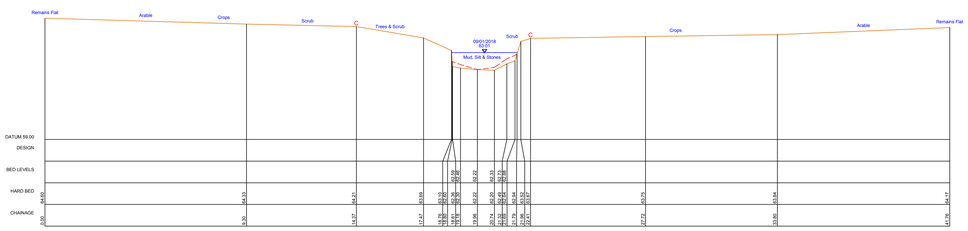
ESTO01_16425
611403.45mE 137449.93mN Brg 125
Open Channel



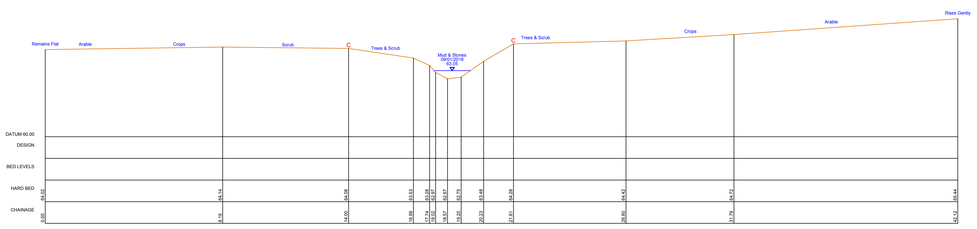
ESTO01_16528
611345.72mE 137376.98mN Brg 130
Open Channel



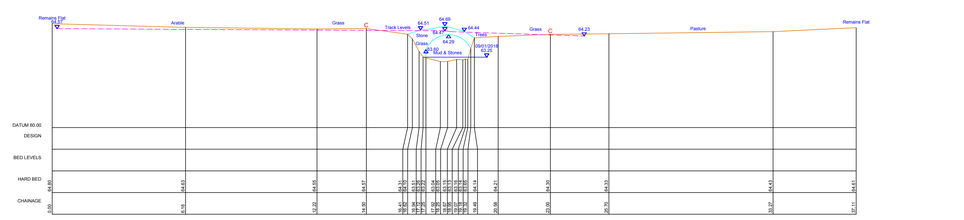
ESTO01_16614
611312.52mE 137338.53mN Brg 206
Open Channel



ESTO01_16731
611231.41mE 137258.81mN Brg 123
Open Channel



ESTO01_16819
611194.52mE 137171.57mN Brg 99
Open Channel



ESTO01_16868
611158.83mE 137151.07mN Brg 109
Access Bridge
Tunnel Length = 3.65m

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICH	FH	FIRE HYDRANT	PB	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	ROAD CENTRE
BA	BOLLARD MEASON	FO	FOUL MANHOLE	RJ	RECTANGULAR JOINT
BDY	BOUNDARY	FWI	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	RWP	RAIN WATER PIPE
BI	BICYCLE	GB	GRASSBOARD	SP	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SPP	STAND PIPE
BW	BRICK WALL	GP	GUIDE POST	SV	SLUICE VALVE
BK	BLOCK WORK	GT	GAS MARKER	TL	COPPER LEVEL
BW	BRICK WALL	HW	HEAD WALL	TMH	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	IC	INSPECTION CHAMBER	TP	TELEGRAPH POLE
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	UP	UNKNOWN PIPE
CF	CORRUGATED IRON FENCE	RF	IRON RAILING FENCE	STN	STATION
CH	CATCH PIT	JB	JUNCTION BOX FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LC	LAMP COLUMN	TBM	TEMPORARY BENCH MARK
CPF	CONSTRUCT PALING FENCE	LE	LEFT CREST	TCP/KP	TELEPHONE CALL BOX/POST
CR	CYCLE RAIL	LI	LAMP POST	TC	TELECOM CABINET
CW	CYCLE RAIL MANHOLE	LP	LAMP POST BOLLARD	TCP	TELEGRAPH POLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TL	THRESHOLD LEVEL
DK	DROP KERB	MK	MARKOUT	TL	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MARKER POST	TMH	TELECOM MH BOX
EP	EDGE PIN	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MPF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DW	DOOR WAY	NG	NATIVE GRID	TS	TIMBER STEPS
DWB	DOG WASTE BIN	NS	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	OHC	OVERHEAD CABLE AUTHORITY	UPS	UPSTREAM
EB	ELECTRIC BOX	OHC	OVERHEAD CABLE	UTL	UTILITIES SURVEY
ESF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EWF	ELECTRIC WIRE FENCE	PC	PALING FENCE RAILINGS	WM	WATER METER
EWP	ELECTRICITY MARKER POST	PF	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY PYLON	PI	PLAN INCH	WP	WOOD POST
EV	ELECTRICITY VALVE	PR	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PST	POST	WV	WATER VALVE
FB	FLOWERBED	PW	POST & RAIL FENCE	WW	WIRE WALL
FBH	FLOWERPOT	PYM	PARKING TICKET MACHINE		(Abbreviations apply to 3rd survey only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E*0730012	TR 0103 4107	35.975
E*0730401	TR 0149 4155	36.257
E*0730403	TR 0222 4227	38.489
E*0731536	TR 0666 3814	51.806
E*0733013	TR 0132 4202	38.489
E*0730020	TR 0159 4061	36.114
E*0730021	TR 0159 4291	38.337
E*0730500	TR 0023 4025	38.486
E*0730503	TR 0343 3932	40.259
E*0731495	TR 0152 4070	37.864
E*0731496	TR 0128 4199	37.732
E*0731537	TR 0667 3791	47.711
E*0731538	TR 0671 3842	53.022
E*0731671	TR 0666 3813	50.976
E*0733004	TR 0504 3900	43.712
E*0733005	TR 1056 3751	60.987
E*0731483	TR 0151 4070	35.916
E*0731484	TR 0133 4200	37.863
E*0731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

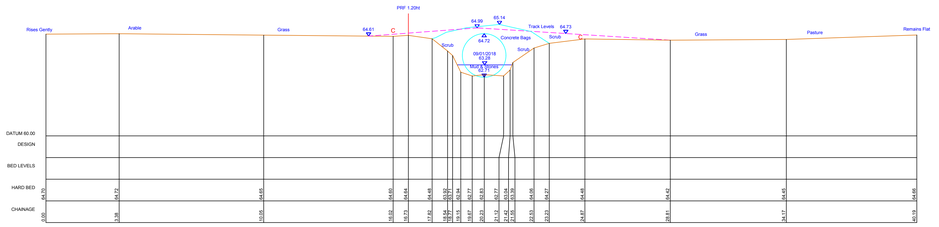
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

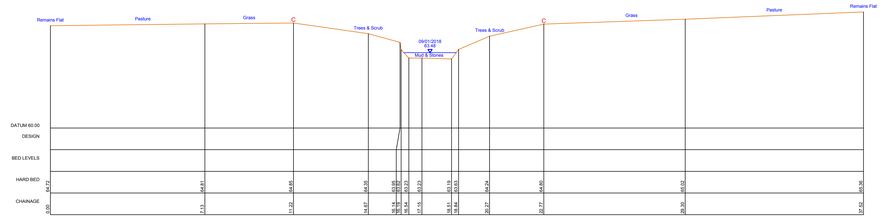
SITE/LIMITS

EAST STOUR (EST001)
CROSS SECTIONS
EST001_16149 TO EST001_16868

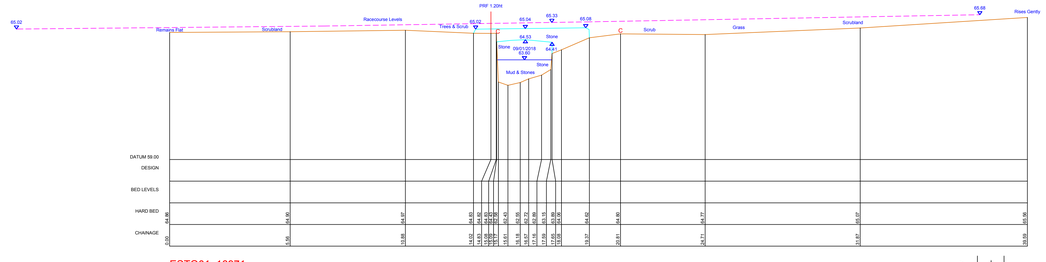
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-24	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



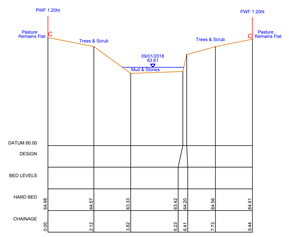
ESTO01_16877
611155.54mE 137135.87mN Brg 88
Access Bridge
Tunnel Length = 7.11m



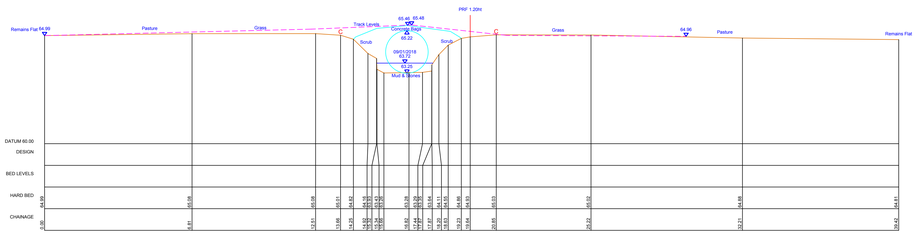
ESTO01_16924
611166.19mE 137089.73mN Brg 87
Open Channel



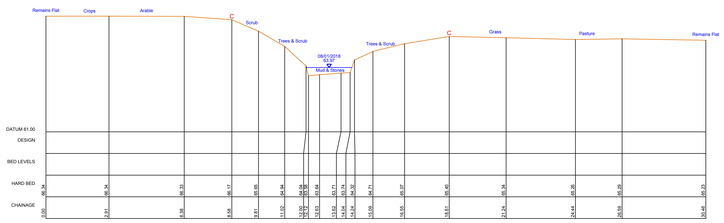
ESTO01_16971
611186.23mE 137049.03mN Brg 89
Culvert Entrance
Tunnel Length = 30.52m
Skew Angle = 35°



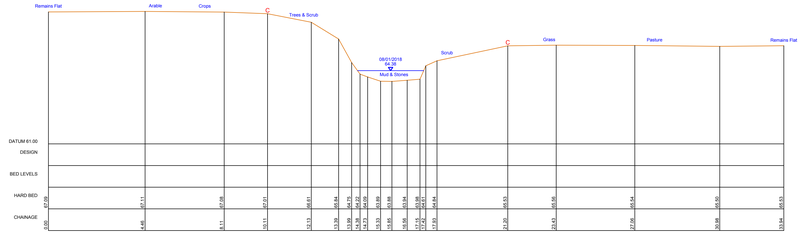
ESTO01_16975
611204.32mE 137042.13mN Brg 41
Open Channel



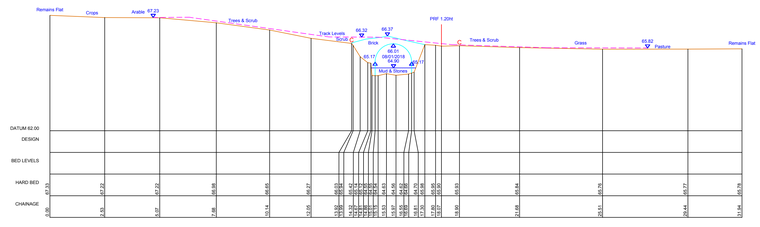
ESTO01_16998
611201.32mE 137032.56mN Brg 110
Access Bridge
Tunnel Length = 4.18m



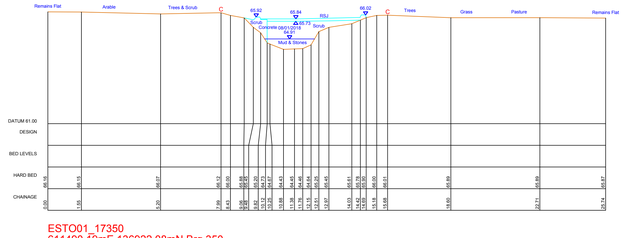
ESTO01_17135
611280.33mE 136960.24mN Brg 32
Open Channel



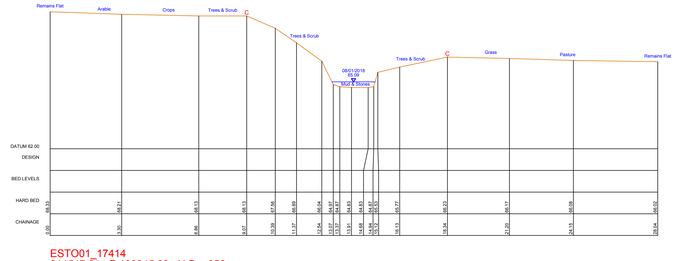
ESTO01_17237
611365.92mE 136936.66mN Brg 51
Open Channel



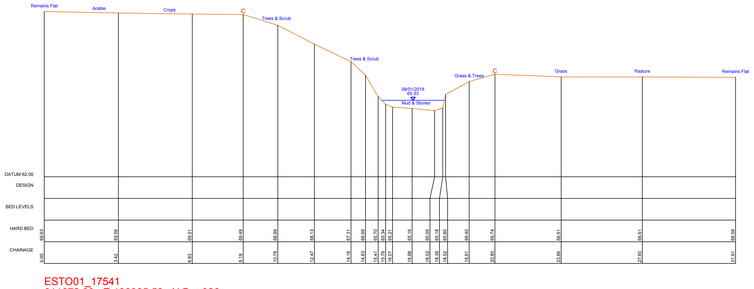
ESTO01_17331
611473.32mE 136920.38mN Brg 345
Access Bridge
Tunnel Length = 2.85m



ESTO01_17350
611490.19mE 136922.08mN Brg 350
Dilapidated Footbridge
Tunnel Length = 1.37m



ESTO01_17414
611547.21mE 136945.09mN Brg 352
Open Channel



ESTO01_17541
611672.29mE 136985.58mN Brg 326
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FLOOD MARKER	PC	PEDESTAL CRANE
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELOW BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FW	FRESH WATER MANHOLE	RWP	RAIN WATER PIPE
BH	BOREHOLE	G	GULLY	SMP	SAMARITER PIPE
BL	BED LEVEL	GB	GAUGEBOARD	SC	STOP COCK
BL	BOLLARD LIGHT	GI	GRATED INLET	SD	SOUNDING
BS	BULL STOP	GV	GATE POST	SI	SOUNDING
BM	BENCH MARK	GM	GAS MARKER	SL	SUPPLY LINES
BW	BARBED WIRE	IC	INSPECTION CHAMBER	SW	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SWP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	ST	SIGN POST
CF	CHAIN LINK FENCE	IRF	IRON RAILING FENCE	SV	SLUICE VALVE
CL	COVER LEVEL	IW	INTERMEDIATE WEIR	SLV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SMP	SOIL VENT PIPE
CP	CONCRETE POST	JG	JUNCTION GULLY	SWF	STOCK PROOF FENCE
CP	CONCRETE POST	LC	LOFT DOOR	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LP	LAMP POST	TOETOE	TELEGRAPH POLE/POST
CTF	CATTLE FENCE	LT	LIGHT UNIT	TP	TELEPHONE POLE
CTX	CABLE T.V. MARKER	MB	MOORING BOLLARD	TM	TELEPHONE MANHOLE
DF	DEER FENCE	MF	MESH RAILING FENCING	TW	TEMPORARY WEIR
DFX	DROP KERB	MR	MARKER	TL	TRAFFIC LIGHT
DL	DEAD LEVEL	MS	MOORING	TB	TELEPHONE BOX
DI	DEAD LEVEL	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
EB	ELECTRIC BOX	NB	NOTICE BOARD	TS	TIMBER STAKE
EMB	EXC. WASTE MN.	NS	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRIC BOX	OB	OBSERVATION BOX	VP	VERTICAL POINT - SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EDP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EP	ELECTRICITY POLE/PYLON	P	PIER	WPF	WOODEN PALING FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
EX	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
EW	ELECTRICITY TRANSMISSION LINE	PW	PARAPET WALL	WT	WATER TANK
FB	FLOWER BED	PWF	POST & RAIL FENCE	YC	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to CS survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

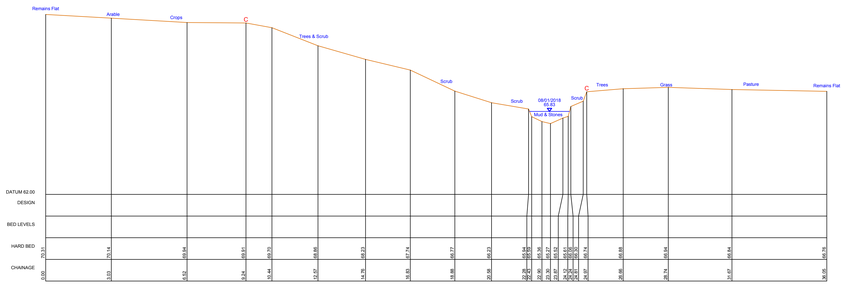
TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.889
E20731536	TR 0668 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0158 4291	36.337
E20730500	TR 0221 4025	38.486
E20731494	TR 0143 3930	40.859
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731538	TR 0691 3791	47.771
E20731537	TR 0671 3814	52.052
E20731539	TR 0668 3828	50.978
E20730004	TR 0104 3900	42.147
E20731483	TR 0157 4070	36.916
E20731484	TR 0131 4020	37.845
E20731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

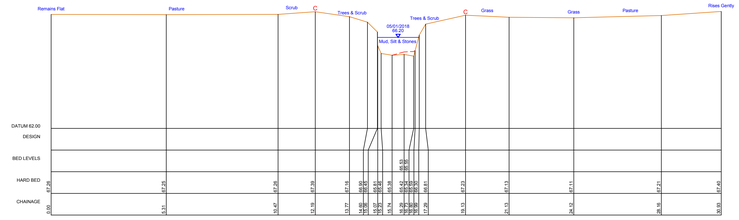
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (ESTO01)
CROSS SECTIONS
EST001_16877 TO EST001_17541

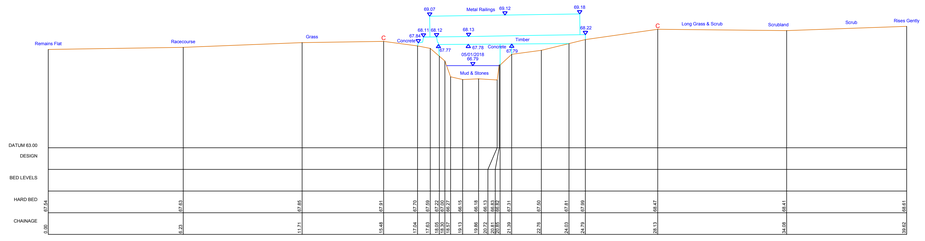
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_132
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO.	REV.
CAD FILENAME: X-J01058-SF-XS.dwg	X-J01058-25	—



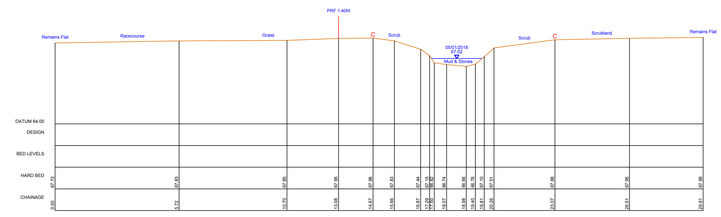
ESTO01_17618
611723.33mE 136980.71mN Brg 25
Open Channel



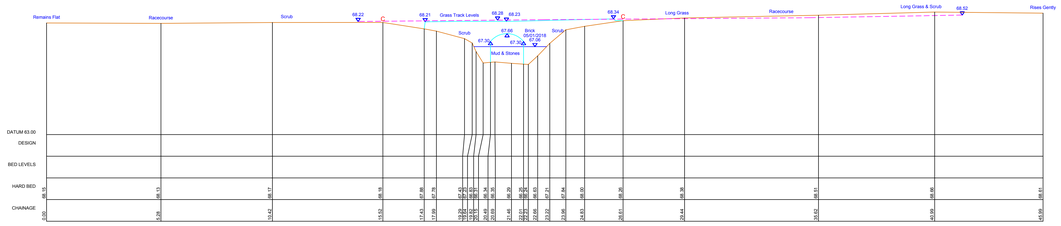
ESTO01_17722
611831.15mE 137002.2mN Brg 342
Open Channel



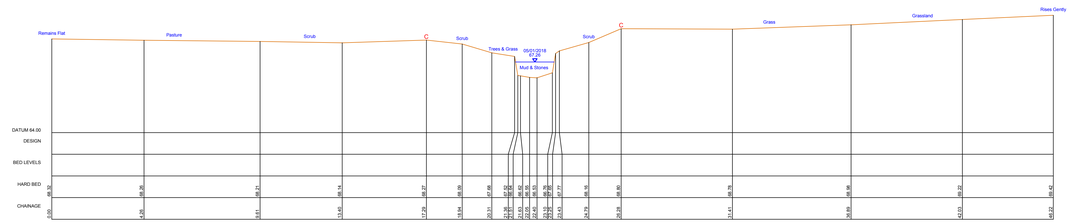
ESTO01_17845
611937.45mE 136995.18mN Brg 16
Footbridge
Tunnel Length = 0.78m



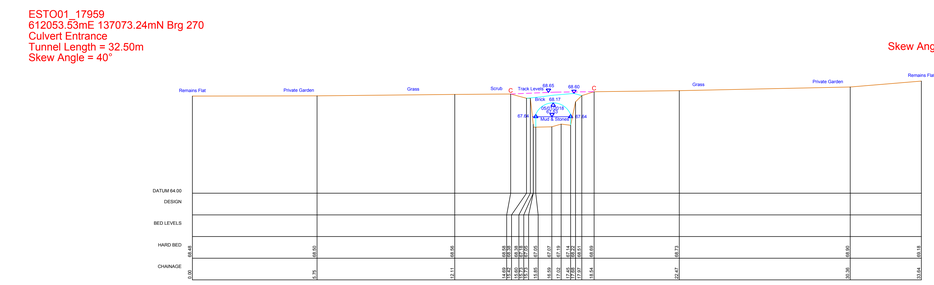
ESTO01_17913
612016.3mE 137022.01mN Brg 322
Open Channel



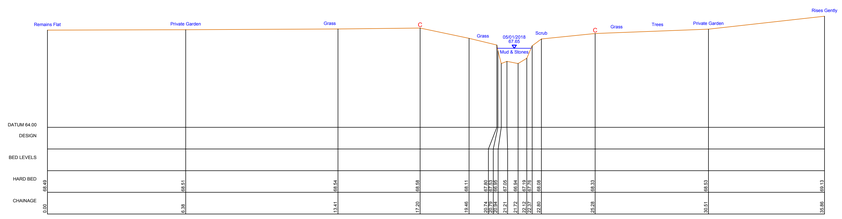
ESTO01_17959
612053.53mE 137073.24mN Brg 270
Culvert Entrance
Tunnel Length = 32.50m
Skew Angle = 40°



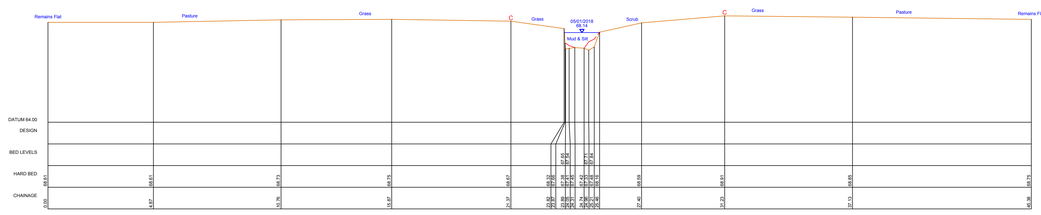
ESTO01_18038
612095.02mE 137126.58mN Brg 304
Open Channel



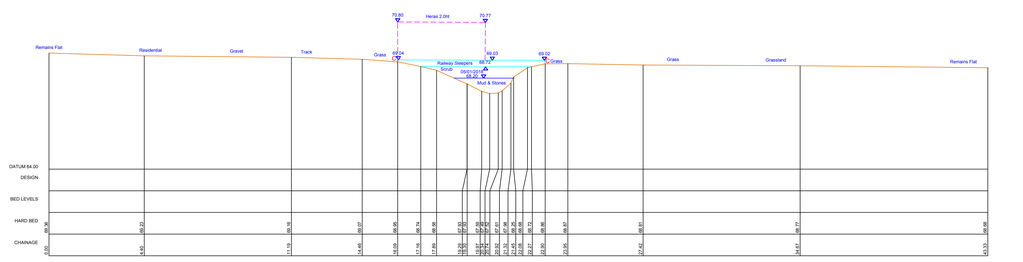
ESTO01_18115
612135.36mE 137189.81mN Brg 307
Access Bridge
Tunnel Length = 3.75m



ESTO01_18131
612149.29mE 137201.32mN Brg 305
Open Channel



ESTO01_18228
612171.31mE 137223mN Brg 68
Open Channel



ESTO01_18248
612204.25mE 137199.54mN Brg 4
Access Bridge
Tunnel Length = 3.07m

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB AIR BRICK	FV FIRE HYDRANT	PW PARAPET WALL
AV AIR VALVE	FW FIRE HYDRANT MARKER	RB RIVET BANK
B BOREHOLE	FZ FENCE POST	RG RAILWAY GUARD
BB BOLLARD BEACON	G GUIDE POST	RJ ROLLED STEEL JOIST
BH BOREHOLE	FWM FULL WATER MARKER	RW RETAINING WALL
BO BOLLARD	G GATE	SA SLUICE GATE
BL BED LEVEL	GB GAUGEBOARD	SC STOP COCK
BR BRANCH	GC GAUGE CONTROL	SD SOAKAWAY
BW BUOYANCY	GV GATE VALVE	SL CONCRETE
BM BENCH MARK	GW GAS MARKER	SP SUPER LEVEL
BP BOLLARD POST	HC HEDGE CUT	SW SURFACE WATER MANHOLE
BWF BARBED WIRE FENCE	IC INSPECTION CHAMBER	SWP SHEET METAL PILING
CBF CLOSE BOARDED FENCE	L INVERT LEVEL	TP SIGN POST
CF CHAIN LINK FENCE	MF MESH FENCE	TS TRIAL PIT
CL COVER LEVEL	MP INTERMEDIATE POINT	TV SLUICE VALVE
CLF CHAIN LINK FENCE	JC JUNCTION BOX	UP SOIL VENT PIPE
CM CONCRETE MARK	KG KERB GRATING / GULLY	VP VENTILATION PIPE
CP CONCRETE POST	LT LUTT DRAIN	WB TEMPORARY BENCH MARK
CPF CHESTNUT PALING FENCE	LC LEFT CREST	WCT/TCP TELEPHONE CALL BOX/POST
CS CABLE STAY	LP LEFT POINT	WH WATER HYDRANT
CTV CABLE T.V. MANHOLE	MB MOORING BOLLARD	WM TELECOM MANHOLE
CUL CULVERT	MF MISCELLANEOUS FENCING	WSL THRESHOLD LEVEL
D DRAIN RUN	MH MANHOLE	WT WATER TAP
DL DECK LEVEL	MK MARKER	WTP TRAFFIC LIGHT BOX
DP DUMPIPE	MP MOORING PILE	YP TELEGRAPH POLE
DW DRY STACK COURSE	MW MATURE WALLING FENCE	1F/2F TEMPORARY FENCING STRIP
EK EXPANSION KNEE	NC NET STAKE	TL TREE LEVEL
HMB DOG WASTE BIN	NS NOTICE BOARD	TSR TUBULAR STEEL RAILINGS
E ELECTRICITY AGENCY	NWA NORTHUMBRIAN WATER AUTHORITY	UT UNKNOWN TYPE
ES ELECTRICITY BOX	OHC OVERHEAD CABLE	UTL UNABLE TO SURVEY
ECF ELECTRIC CABLE FENCE	OHL OVERHEAD LINE	WL WATER LEVEL/WATER LINE
EF ELECTRIC FENCE POST	OSR ORNAMENTAL RAILINGS	WR WATER RISER
EMV ELECTRICITY MANHOLE	P PILE	WMF MIXED METAL FENCE
EP ELECTRICITY POLE	PA PARKING AREA	WMP WOOD MARKER POST
ER EARTHING ROD	PM PARKING METER	WPR WOODEN POST & RAIL FENCE
ET ELECTRICITY TRANSMISSION LINE	PO POST	WV WATER VALVE
FL FLOOR LEVEL	PRF POST & RAIL FENCE	WW WIRE FENCE
FBR FOOTBRIDGE	PTM PARKING TICKET MACHINE	(Abbreviations apply to EA survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

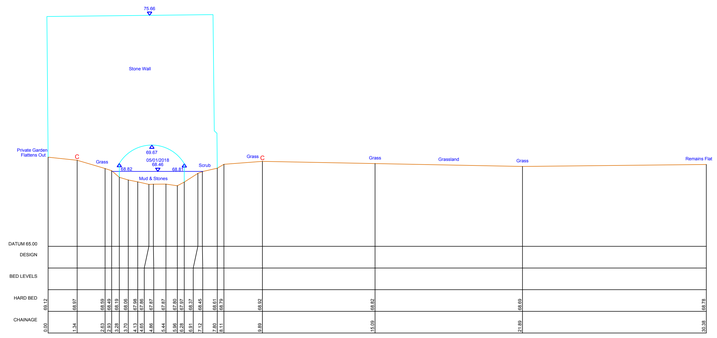
TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4255	35.267
E20730403	TR 0222 4027	38.389
E20731936	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0159 4291	36.337
E20730500	TR 0223 4026	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0667 3791	47.711
E20731538	TR 0671 3842	53.022
E20731571	TR 0666 3813	50.976
E20733004	TR 0904 3900	43.712
E20733005	TR 1056 3751	60.587
E20731483	TR 0151 4070	35.916
E20731484	TR 0133 4200	37.451
E20731539	TR 0671 3826	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

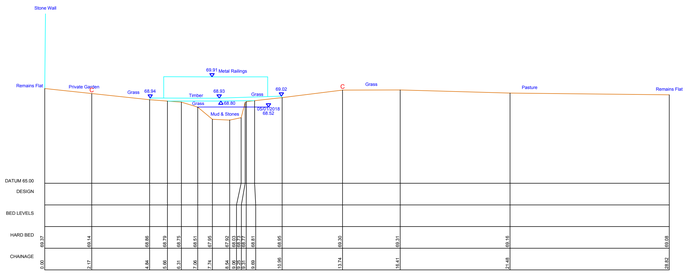
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_17618 TO EST001_18248

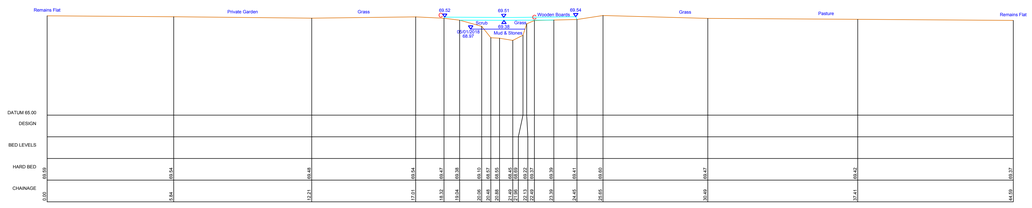
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-26	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



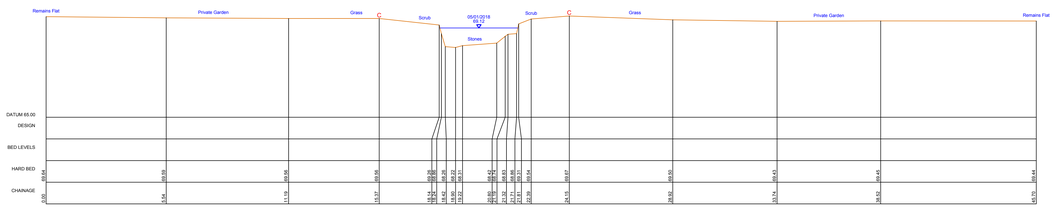
ESTO01_18307
612261.1BmE 137218.29mN Brg 9
Culvert Entrance
Tunnel Length = 9.58m



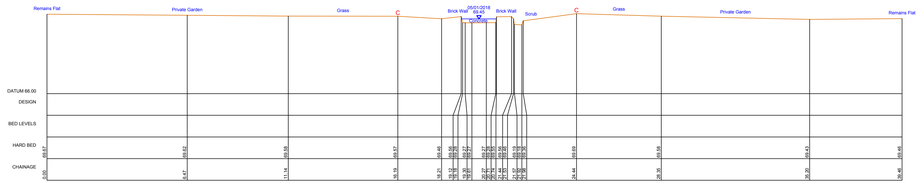
ESTO01_18328
612286.77mE 137211.57mN Brg 334
Footbridge
Tunnel Length = 0.81m



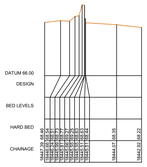
ESTO01_18435
612382.99mE 137225.92mN Brg 338
Footbridge
Tunnel Length = 0.93m



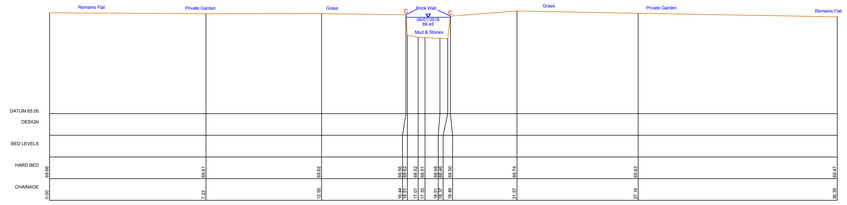
ESTO01_18443
612389.51mE 137230.47mN Brg 336
Weir Toe



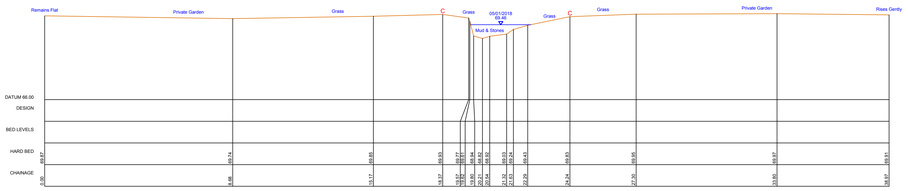
ESTO01_18446
612392.04mE 137231.05mN Brg 337
Weir Crest



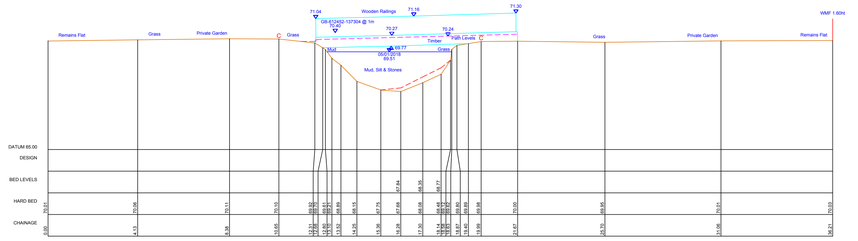
Through Section ESTO01_18446
Weir Crest



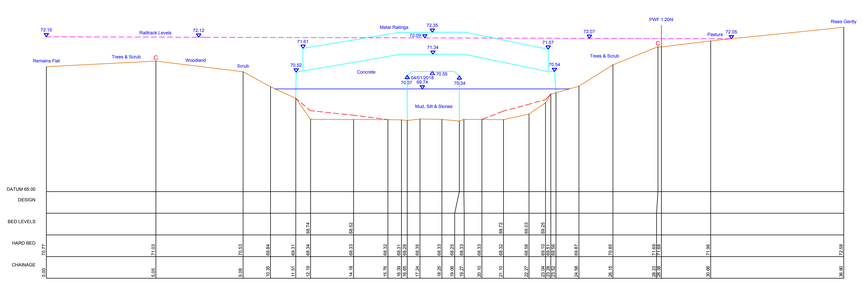
ESTO01_18447
612391.62mE 137233.89mN Brg 340
Weir Heel



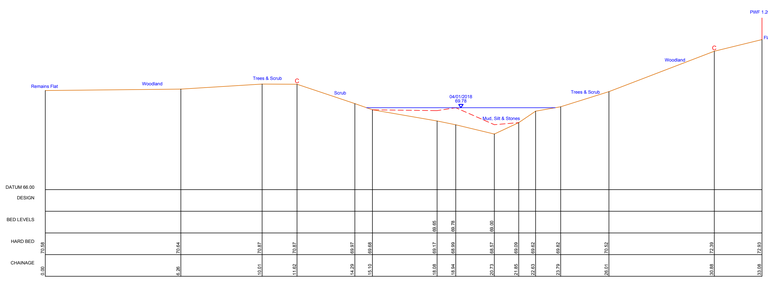
ESTO01_18509
612449.6mE 137270.65mN Brg 317
Open Channel



ESTO01_18526
612462.48mE 137293.66mN Brg 286
Footbridge
Tunnel Length = 0.76m



ESTO01_18583
612479.25mE 137349.56mN Brg 283
Culvert Entrance
Tunnel Length = 50.42m



ESTO01_18620
612494.24mE 137352.33mN Brg 351
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FLOOD MARKER	RC	RIGHT CREST
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FMH	FOUL MANHOLE	RW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GP	GUARD POST	STP	STOP TAP
BL	BED LEVEL	GL	GROUND LEVEL	STP	STOP TAP
BS	BILL STOP	GT	GATE POST	SV	SLUICE VALVE
BW	BRICK WALL	GV	GAS VALVE	SW	SURFACE WATER
BW	BRICK WALL	HW	HEAD WALL	SWM	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	IC	INSPECTION CHAMBER	TBM	TEMPORARY BENCH MARK
CBF	CLOSE BOARDED FENCE	K	KERB	TEL	TELEGRAPH POLE
CF	CORRUGATED IRON FENCE	RF	IRON RAILING FENCE	STA	STATION
CH	CATTLE HOOK	JC	JUNCTION CHAMBER	TP	TELEPHONE POLE
CJ	CHAIN LINK FENCE	JP	JUNCTION PIPE	TV	TOTAL VISIT POINT
CONC	CONCRETE	KG	KERB INLET GULLY	UMF	SHEEP WIRE FENCE
CP	CONCRETE POST	LC	LEFT CREST	UMF	UNDERGROUND MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TELP/UP	TELEPHONE (BAL.MK)/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CV	CHAMBER ONLY MANHOLE	LB	LIGHTING BOLLARD	TC	TELECOM CABINET
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TH	THRESHOLD LEVEL
DK	DECK EDGE	MH	MANHOLE	TL	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MARKER POST	TLB	TRAFFIC LIGHT BOX
DP	DOMESTIC	MP	MOORING POLE	UP	UTILITY POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TBS	TIMBER RUBBING STRIP
EH	ELECTRIC HUT	NB	NOTICE BOARD	TW	TIMBER WALL
EMB	EDG WATER BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILING
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRIC BOX	OS	ORDNANCE SURVEY	VP	VERTICAL SURVEY
ESF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ESP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EP	ELECTRICITY PYLON	P	PILLAR	WMF	WOODEN METAL FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PF	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETM	ELECTRICITY TRANSMISSION LINE	PP	POST	WT	WATER TAP
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to EA survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
FE07330012	TR 0103 4107	55.975
FE07330401	TR 0149 4229	38.489
FE07314482	TR 0222 4014	38.489
FE07330015	TR 0189 4204	38.489
FE07330020	TR 0155 4007	38.113
FE07330021	TR 0159 4291	38.137
FE07330501	TR 0021 4026	38.286
FE07330503	TR 0343 3930	40.259
FE07314495	TR 0152 4070	37.864
FE07331496	TR 0128 4199	37.732
FE07315137	TR 0687 3791	47.711
FE07331638	TR 0671 3842	53.022
FE07331671	TR 0666 3811	52.976
FE07334004	TR 0504 3900	43.719
FE07333005	TR 1056 3791	60.587
FE07331483	TR 0151 4070	35.916
FE07314484	TR 0133 4200	37.463
FE07315139	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_18307 TO EST001_18620

SURVEYED BY: MALTBY LAND SURVEYS LTD	Ref: 17_332	
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-27	REV. —
CAD FILENAME: X-J01058-01-30.dwg		

Original Drawing Size: A0

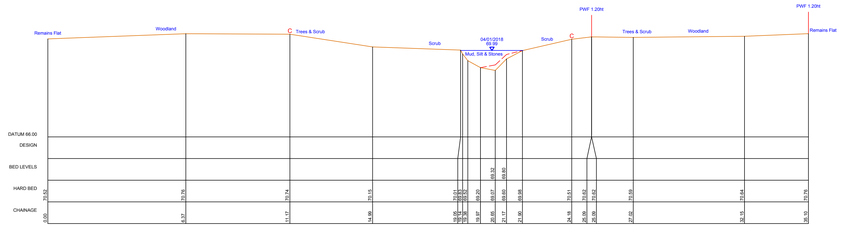
KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

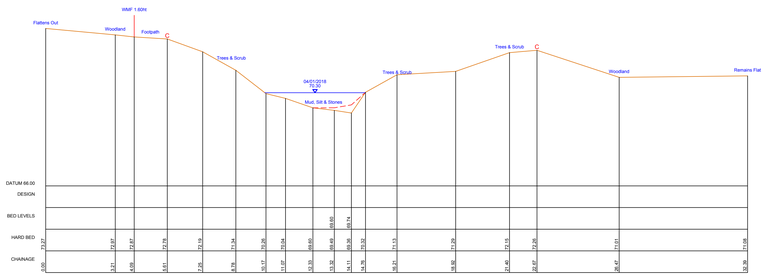
KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

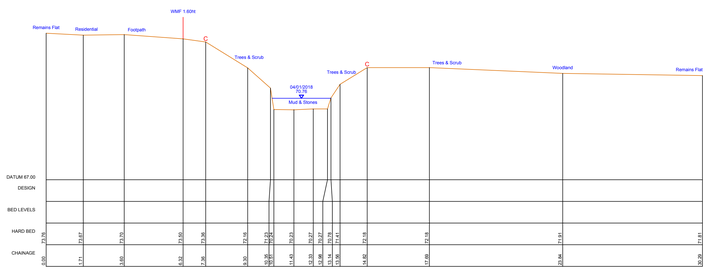
} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS



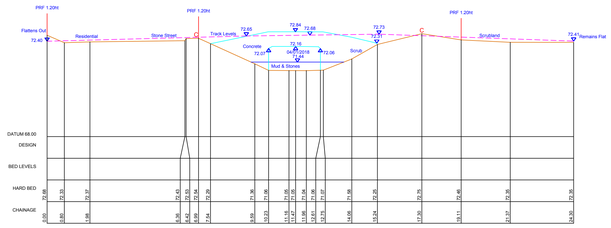
ESTO01_18714
612566.21mE 137328.91mN Brg 29
Open Channel



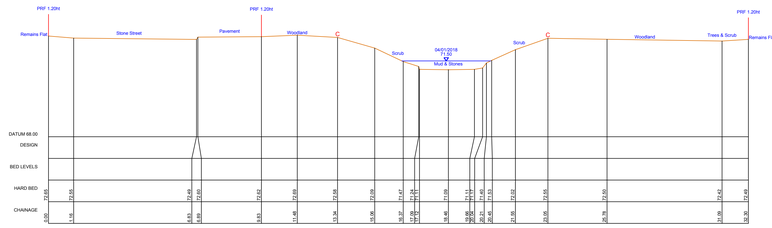
ESTO01_18833
612686.29mE 137320.65mN Brg 14
Open Channel



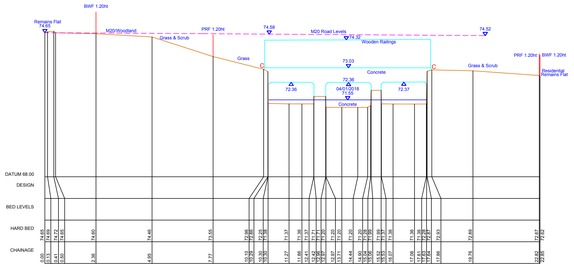
ESTO01_18934
612790.59mE 137318.62mN Brg 355
Open Channel



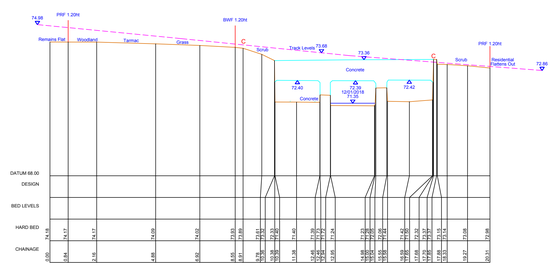
ESTO01_19030
612873.27mE 137365.91mN Brg 283
Access Bridge
Tunnel Length = 10.21m



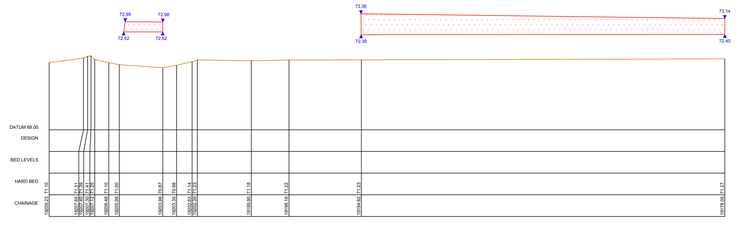
ESTO01_19075
612892.39mE 137397.78mN Brg 310
Open Channel



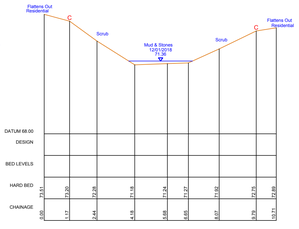
ESTO01_19160
612947.08mE 137461.37mN Brg 312
Culvert Entrance
Tunnel Length = 62.69m



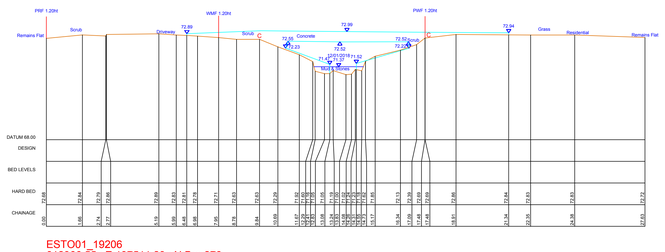
ESTO01_19195
612963.13mE 137498.32mN Brg 288
Culvert Entrance
Tunnel Length = 16.53m



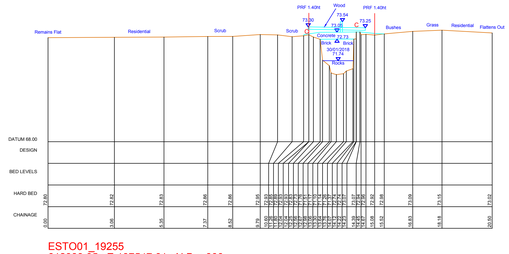
Through Section ESTO01_19195
Culvert Entrance



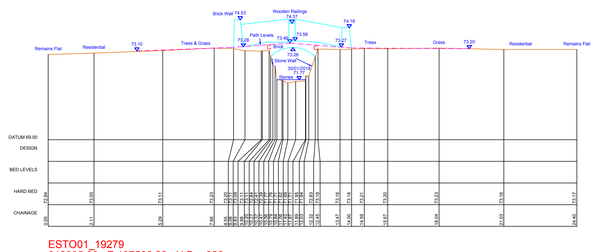
ESTO01_19200
612956.74mE 137505.6mN Brg 289
Open Channel



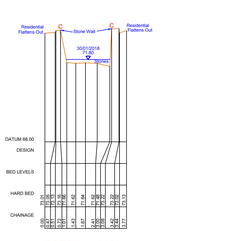
ESTO01_19206
612966.55mE 137511.23mN Brg 278
Footbridge
Tunnel Length = 2.05m



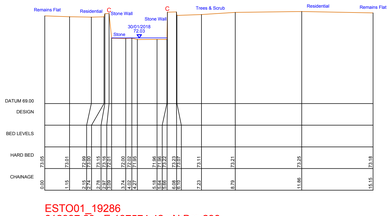
ESTO01_19255
612989.35mE 137547.61mN Brg 300
Footbridge
Tunnel Length = 1.07m



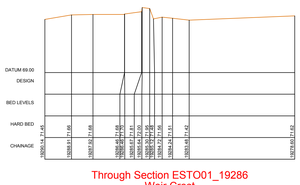
ESTO01_19279
612995.36mE 137562.22mN Brg 328
Footbridge
Tunnel Length = 1.60m



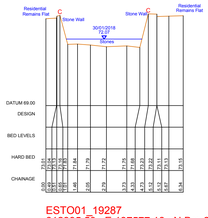
ESTO01_19285
612995.27mE 137575.66mN Brg 290
Weir Toe



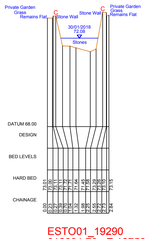
ESTO01_19286
612997.29mE 137574.42mN Brg 298
Weir Crest



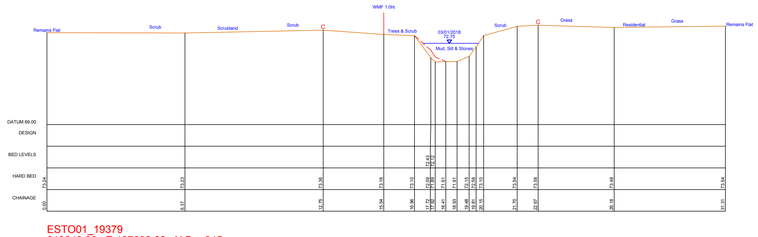
Through Section ESTO01_19286
Weir Crest



ESTO01_19287
612995.59mE 137577.18mN Brg 284
Weir Heel



ESTO01_19290
612991.79mE 137581.28mN Brg 232
Open Channel



ESTO01_19379
613040.36mE 137632.62mN Brg 345
Open Channel

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FV	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FVM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FI	FLOOR LEVEL	RC	RIGHT CREST
BM	BENCH MARK	FM	FLOOR MARK	RJ	RODDING EYE JOINT
BV	BOUNDARY	FMH	FOUL WATER MANHOLE	RTM	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BW	BRICK WALL	GB	GULLY/KERB	S	SPOT LEVEL
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUS STOP	GP	GUARD POST	SL	STREET LIGHT
BU	BLOCK WORK	GM	GAS MARKER	SL	SUPPORT LEVEL
BW	BRICK WALL	HP	HAND RAIL	SM	SURFACE MARK
CBF	CLOSE BOARDED FENCE	HC	HAND RAIL CHAMBER	SMH	SURFACE WATER MANHOLE
CBP	CLOSE BOARDED PANEL	IL	INVERT LEVEL	SP	SIGN POST
CF	CHAIN LINK IRON FENCE	KF	KICKBOARD FENCE	TP	TELEGRAPH POLE
CF	CHAIN LINK FENCE	MF	MOTORBOOM FENCE	TV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	UHP	SOIL VENT PIPE
CMH	CATCH PIT	JG	JUNCTION BOX / GULLY	UMH	UNKNOWN MANHOLE
CP	CONCRETE POST	LE	LEFT BANK	TBM	TEMPORARY BENCH MARK
CHF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CV	CONCRETE VEE	LP	LAMP POST	TH	TELEGRAPH HOLE
CH	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TM	TELEGRAPH MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
D	DOOR STEPS	MP	MOORING POST	TL	TOP OF LEVEL
DL	DECK LEVEL	MKR	MARKER	TL	TRAFFIC LIGHT BOX
DP	DUMPIRE	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MPF	MOORING POST FENCE	TS	TRAFFIC SIGNALLING STRIP
DK	DOMESTIC/KERB	NC	NET CURVE	TC	TOE CURVE
DMB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
E	ELECTRICITY AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UG	UNDERGROUND
ES	ELECTRICITY BOX	OHC	OVERHEAD CABLE	US	UNABLE TO SURVEY
ESF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/ WATER LINE
EWF	ELECTRIC WIRE FENCE	PR	PARAPET STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	PT	PIT	WMK	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WPP	WOODEN POST
ET	ELECTRICITY TRANSFORMER	PS	PLANTING SIGN	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PF	POST & RAIL FENCE	YG	YARD GULLY
FM	FOOTBRIDGE	PM	PARKING TICKET MACHINE	(Abbreviations apply to CS survey data only)	

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

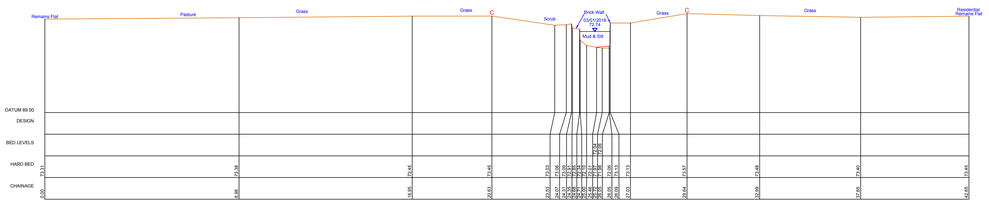
TYPE	DESCRIPTION	LEVEL
FC0730012	TR 0103 4107	56.975
FC0730401	TR 0149 4253	58.267
FC0730403	TR 0227 4027	58.489
FC0731536	TR 0666 3814	51.806
FC0730213	TR 0159 4202	58.489
FC0730020	TR 0159 4061	58.314
FC0730021	TR 0159 4291	58.337
FC0730500	TR 0223 4025	58.486
FC0730503	TR 0343 3935	60.259
FC0731495	TR 0152 4070	57.864
FC0731496	TR 0128 4199	57.732
FC0731537	TR 0687 3791	47.711
FC0731538	TR 0671 3842	53.022
FC0731571	TR 0666 3813	50.976
FC0733004	TR 0504 3900	43.712
FC0733005	TR 1056 3751	60.587
FC0731483	TR 0151 4070	57.916
FC0731484	TR 0133 4200	57.563
FC0731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH
consult ecomog

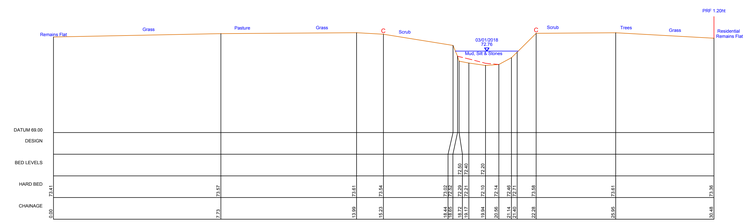
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (ESTO01)
CROSS SECTIONS
ESTO01_18714 TO ESTO01_19379

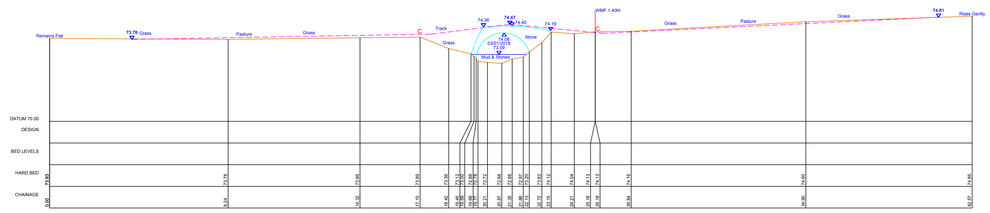
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_552
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-28	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



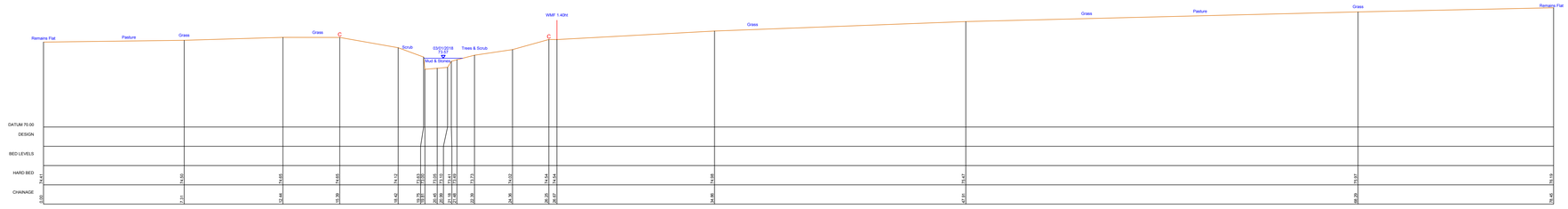
ESTO01_19399
613068.21mE 137672.01mN Brg 256
Open Channel



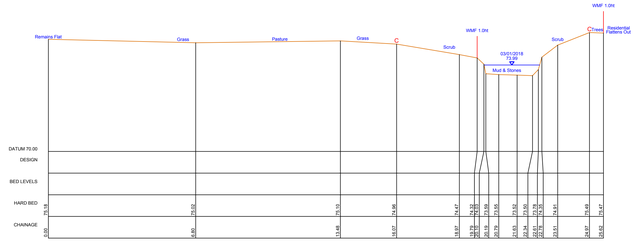
ESTO01_19411
613056.71mE 137681.38mN Brg 254
Open Channel



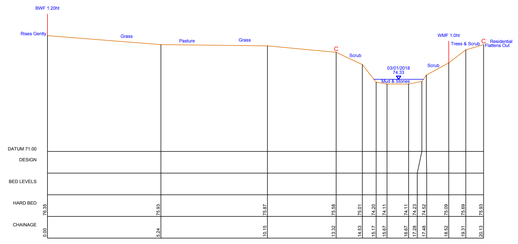
ESTO01_19524
613050.39mE 137784.9mN Brg 276
Footbridge
Tunnel Length = 2.82m



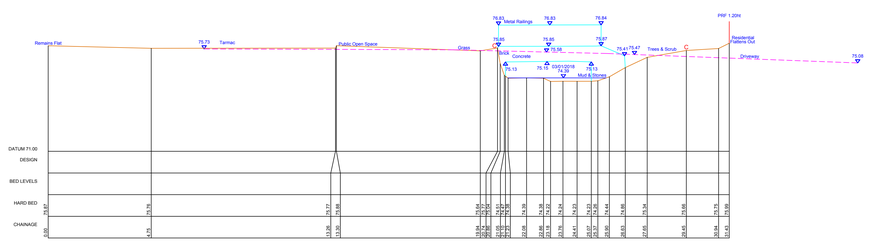
ESTO01_19632
613045.39mE 137890.96mN Brg 274
Open Channel



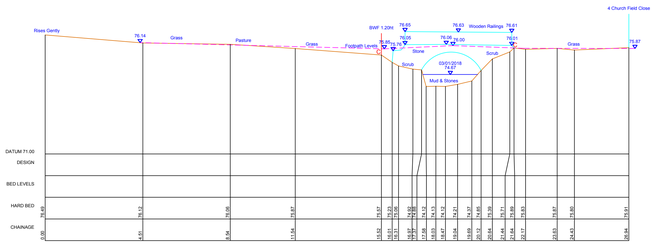
ESTO01_19727
613017.93mE 137992.94mN Brg 241
Open Channel



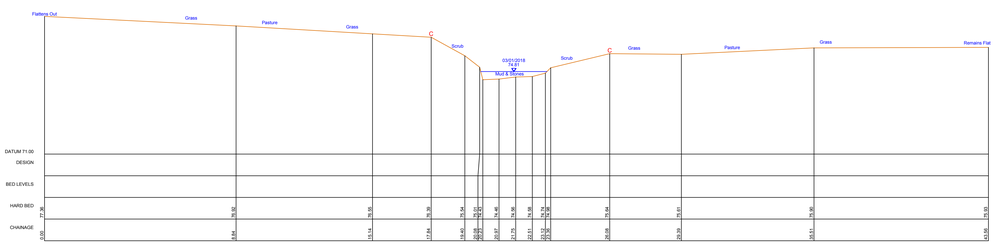
ESTO01_19830
612999.06mE 138078.28mN Brg 269
Open Channel



ESTO01_19852
613003.96mE 138087.48mN Brg 303
Access Bridge
Tunnel Length = 7.37m



ESTO01_19902
613028.95mE 138129.15mN Brg 300
Footbridge
Tunnel Length = 2.35m



ESTO01_19939
613064.37mE 138144.86mN Brg 295
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LOAD	RC	RIGHT CREST
BCN	BRICK BEACON	FP	FLOOD POST	RSJ	RAILWAY RSJ JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BOLLARD	GB	GRASS BANK	S	SPOT HEIGHT
BRK	BRICKWORK	GL	GROUND LEVEL	STW	STONE WALL
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BW	BRICK WORK	GV	GAS VALVE	SL	STREET LIGHT
BW	BRICK WALL	HW	HEDGE WALL	SWP	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SWP	SHEET METAL PILING
C	CONCRETE CHANNEL	IL	INVERT LEVEL	TH	TREE HOLE
CF	CORRUGATED IRON FENCE	MF	IRON RAILING FENCE	TN	STATION
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	TP	TELEGRAPH POLE
CLV	CLOSE VALVE	JC	JUNCTION BOX	TSP	SLACK TIDE SIGN
CONC	CONCRETE	KG	KERB INLET GULLY	TWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LC	LEFT CREST	TWM	TELEPHONE MANHOLE MARK
CPF	CHESTNUT PALING FENCE	LT	LEFT CREST	TX/TCP	TELEPHONE CALL BOX/POST
CPW	CONCRETE PARAPET WALL	M	MANHOLE	UC	UNDERGROUND CABLE
CV	CABLE TV MANHOLE	MB	MOORING BOLLARD	VC	VEGETATION CREST
CUL	CULVERT	MF	MISCELLANEOUS FENCING	WL	THRESHOLD LEVEL
D	DRAIN INLET	MH	MANHOLE	WP	WATER POST
DL	DECK LEVEL	MKR	MARKER	WV	WATER VALVE
DP	DUMPSITE	MP	MOORING PILE	TP	TELEGRAPH POLE
DW	DOUBLE WOOF COURSE	MWF	METAL WIRE MESHING STRIP	TR	TREE TRUNK
EK	EDMONSTON	NG	NEW GRASS	TS	TREE STUMP
DMB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
E	ELECTRICITY AGENCY	OHA	OVERHEAD CABLES (ELEC AUTHORITY	TW	TIMBER WALL
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EF	ELECTRIC FENCE POST	PSR	PALISADE STEEL RAILING	WM	WATER METER
EMV	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ET	ELECTRIC TOWER	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	Y	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to OS survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

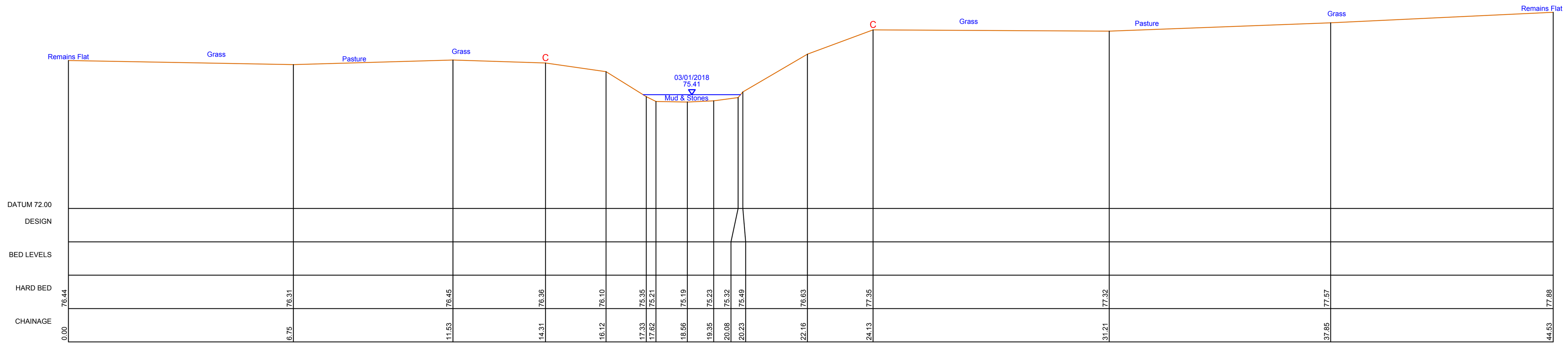
TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	36.075
E20730401	TR 0149 4125	38.267
E20730404	TR 0222 4029	38.289
E20731496	TR 0666 3814	51.806
E20730013	TR 0139 4202	38.489
E20730020	TR 0159 4061	38.314
E20730021	TR 0158 4291	38.337
E20730000	TR 0223 4026	38.486
E20730003	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.111
E20731536	TR 0671 3842	53.022
E20731671	TR 0666 3813	50.976
E20733004	TR 0904 3900	43.712
E20733005	TR 1056 3751	60.587
E20731483	TR 0151 4070	35.916
E20731484	TR 0133 4200	37.363
E20731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH
operational address

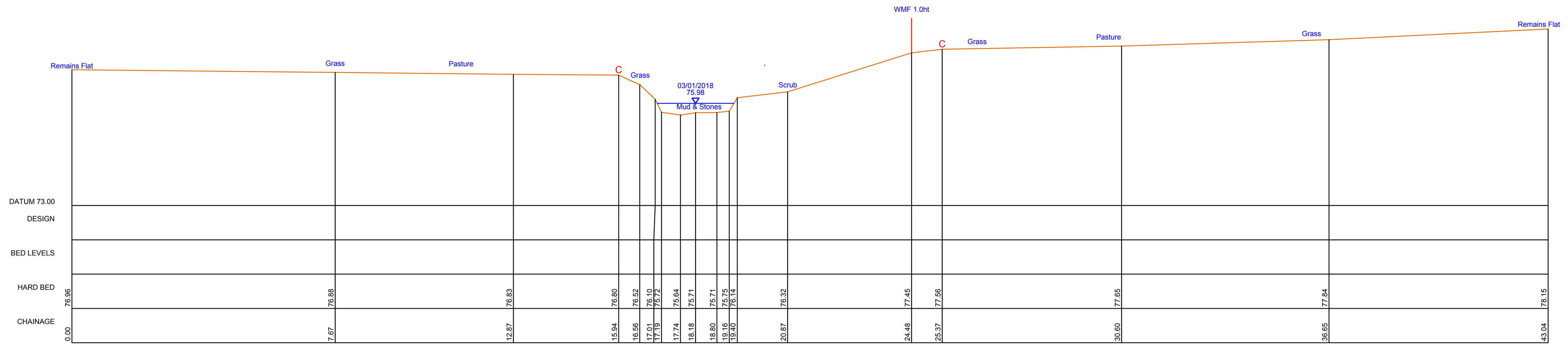
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_19399 TO EST001_19939

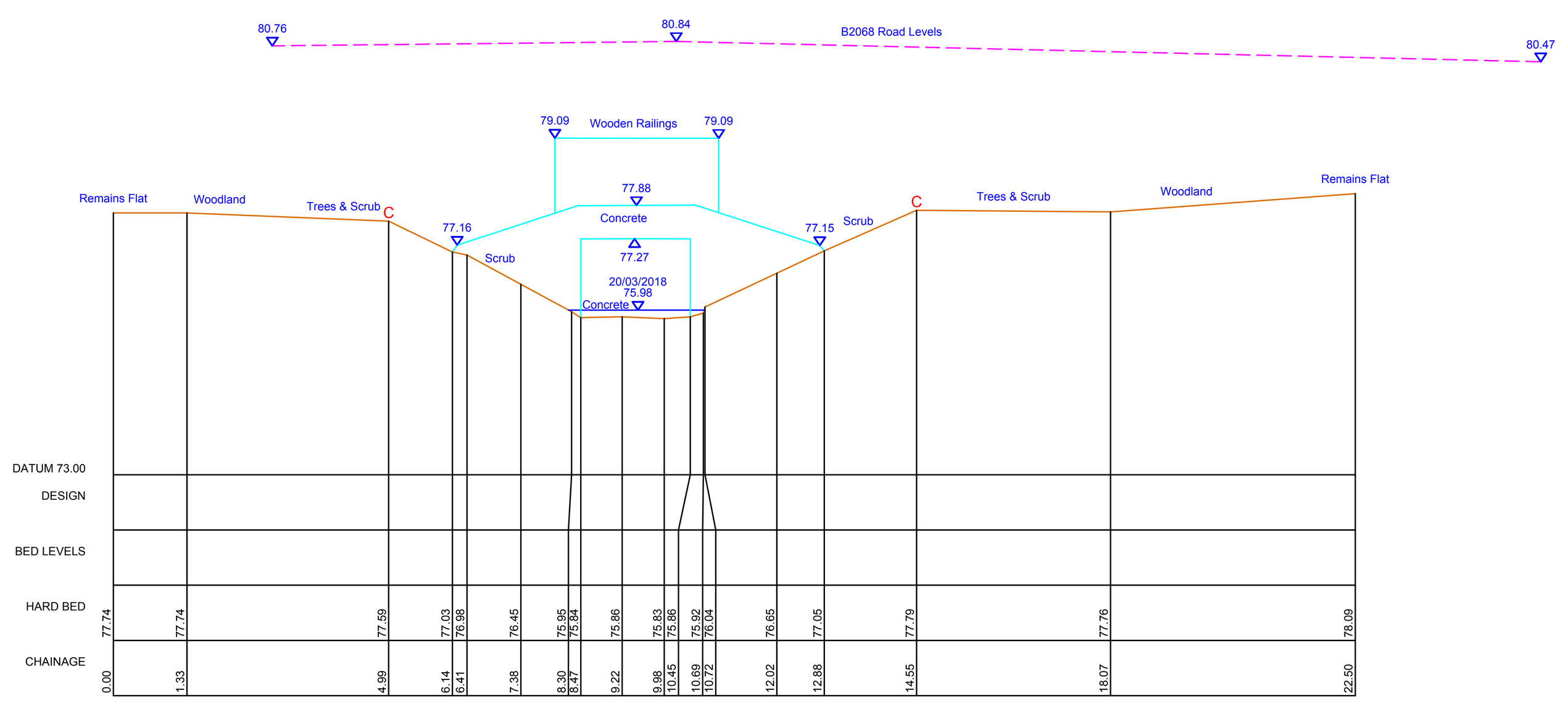
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-29	REV. —
CAD FILENAME: X-J01058-01-30.dwg		



ESTO01_20030
613070.39mE 138197.34mN Brg 352
Open Channel



ESTO01_20112
613149.06mE 138219.64mN Brg 348
Open Channel



ESTO01_20131
613168.27mE 138239.29mN Brg 314
Culvert Exit
Tunnel Length = 7.30m

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GAUGEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BM	BENCH MARK	GM	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CIF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IWF	INTERWOVEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KIG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOWNPIPE	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOWNSTREAM	MS	MILE STONE	TS	TREE STUMP
DWB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		

(Abbreviations apply to EA survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E50730013	TR 0132 4202	38.489
E50730020	TR 0159 4061	36.314
E50730021	TR 0159 4291	36.337
E50730500	TR 0223 4025	38.486
E50730503	TR 0343 3935	40.259
E50731495	TR 0152 4070	37.864
E50731496	TR 0128 4199	37.732
E50731537	TR 0667 3791	47.711
E50731538	TR 0671 3842	63.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

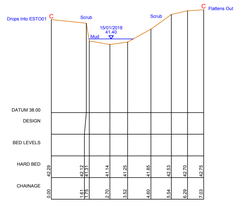
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST001)
CROSS SECTIONS
EST001_20030 TO EST001_20131

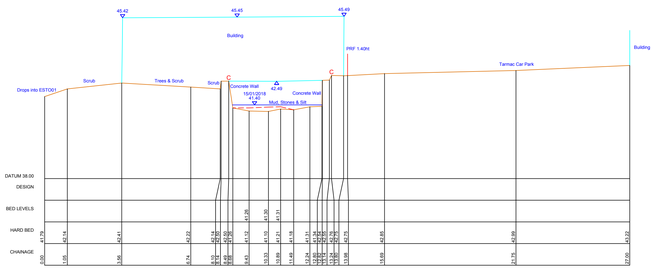
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: DECEMBER 2017 – MARCH 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X–J01058–30	REV. —
CAD FILENAME: X–J01058–01–30.dwg		

Original Drawing Size: A0

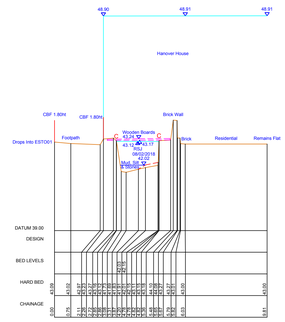
SCALE = 1:100



ESTO05_0013
604927.92mE 139098.33mN Brg 334
Open Channel

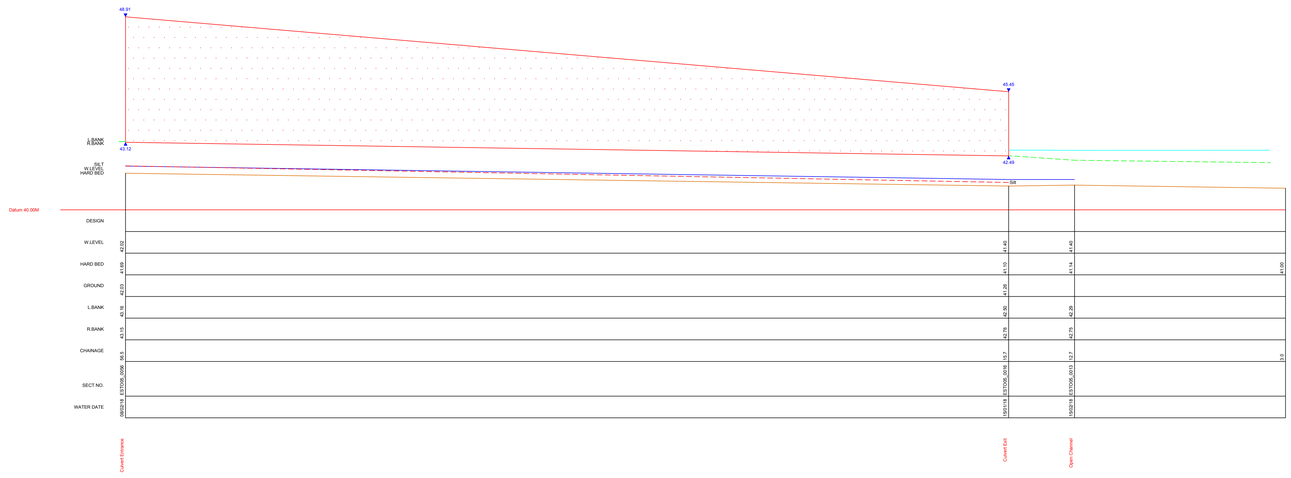


ESTO05_0016
604926.51mE 139092.5mN Brg 17
Culvert Exit
Tunnel Length = 40.76m



ESTO05_0056
604966.14mE 139086.6mN Brg 31
Culvert Entrance
Tunnel Length = 40.76m

SCALE = 1:100 H, 1:100 V



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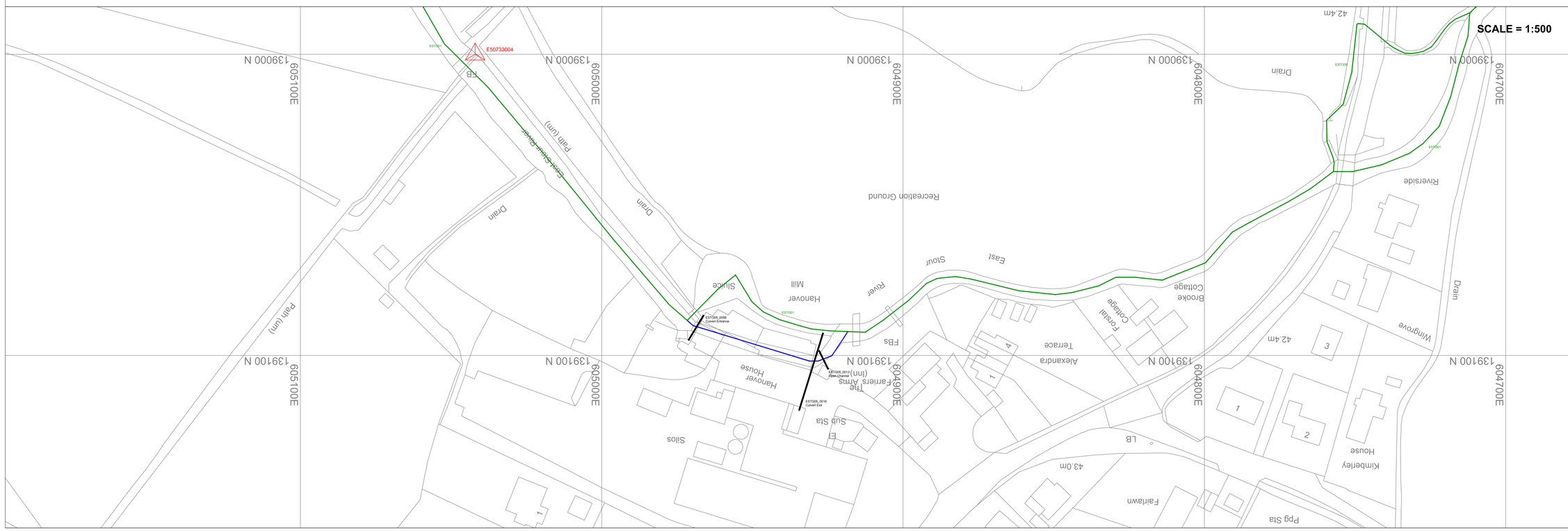

LOCATION PLAN ORIENTATION

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

VIEWED LOOKING DOWNSTREAM.
POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER WALL	RD	RIGHT DAM
B	BOREHOLE	FL	FLOOR LEVEL	RJ	ROCK JETTY
BB	BOLLARD BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	S	SPOT HEIGHT
BL	BED LEVEL	GB	GRIDBOARD	SB	STOP BOARD
BMK	BENCHMOK	GL	GROUND LEVEL	SDP	STAND PIPE
BP	BOLLARD POST	GP	GUARD POST	SL	SLUICE GATE
BM	BENCH MARK	GR	GAS MARKER	SP	SUPPLY LEVEL
BW	BRICK WALL	HB	HEAD WALL	SMH	SURFACE WATER MANHOLE
CAM	CAMERA CHAMBER	HC	HAND CLEARED CHAMBER	SPL	SHEET PILING
CBF	CLOSE BOARDED FENCE	HL	HAUNT LEVEL	SQ	SQUARE
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STK	STOCK HOLE
CH	CHAIN LINK FENCE	JB	JUNCTION BOX	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JC	JUNCTION BOX	TCP	TOP, UNIT PIPE
CMH	CONCRETE MAN HOLE	LG	LEFT GRAT GULLY	TEL	TELEPHONE PEDAL
CP	CONCRETE POST	LS	LEFT SHAFT	TBM	TEMPORARY BENCH MARK
CPF	CONCRETE PALING FENCE	LU	LEFT UNIT	TELPOL	TELEPHONE CALL BOX/POST
CW	CONCRETE WALL	M	MANHOLE	TP	TELEGRAPH POLE
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TWC	TELECOM MANHOLE
DA	DAM	MF	MESH/CHAINLINK FENCING	TL	TOP OF LEVEL
DH	DOOR HOOD	MH	MANHOLE	TS	TIMBER SLEEPER
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOOR POST	MP	MOORING PILE	TLP	TRAFFIC LIGHT POST
DPC	DAMP PROOF COURSE	MPF	METAL PALING FENCE	TRP	TIMBER RUBBING STRIP
DR	DOMESTIC RAIN	MS	MILE STONE	TS	TREE STAMP
E	EAST GRID	NB	NAME BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UL	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTL	UNABLE TO SURVEY
EF	ELECTRICITY BOX FENCE	OP	OBSERVATION POST	W	WATER LEVEL/ WATER LINE
EGP	ELECTRICITY CABLE POT	OSR	OPEN STEEL RAILINGS	WA	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PUMP BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	POT	POST	WV	WATER VALVE
F	FENCE	PR	POST & RAIL FENCE	WY	WATER GAUGE
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE	(Abbreviations apply to 04 survey data only)	

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

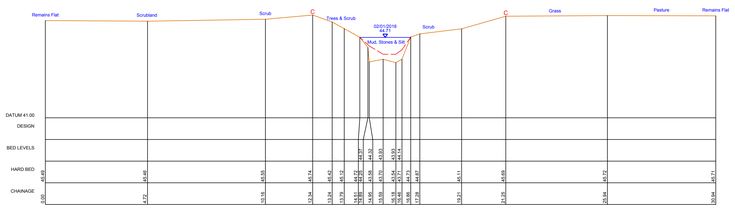
TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	38.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	38.489
E20730020	TR 0159 4061	38.314
E20730021	TR 0159 4291	38.337
E20730500	TR 0221 4026	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.976
E20733004	TR 0504 3900	43.719
E20733005	TR 1056 3751	60.567
E20731483	TR 0151 4070	35.916
E20731484	TR 0153 4200	37.863
E60731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH
comment RE8PRO

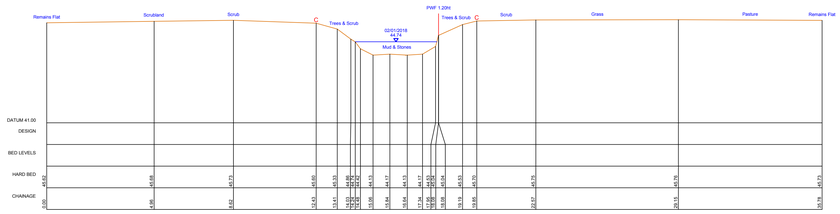
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST005)
CROSS SECTIONS, LONG SECTION
& LOCATION PLAN
EST005_0013 TO EST005_0056

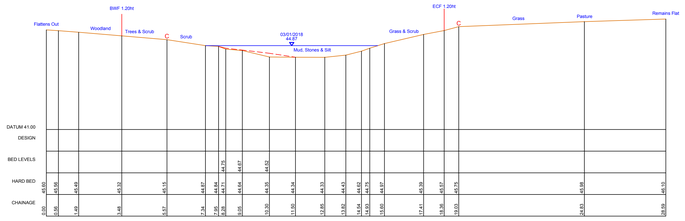
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: JANUARY – FEBRUARY 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: FEB 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X–J01058–35	REV. —
CAD FILENAME: X–J01058–35.dwg		



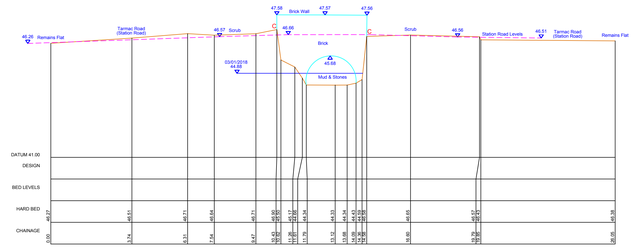
ESTO06_0036
606187.2mE 138053.63mN Brg 58
Open Channel



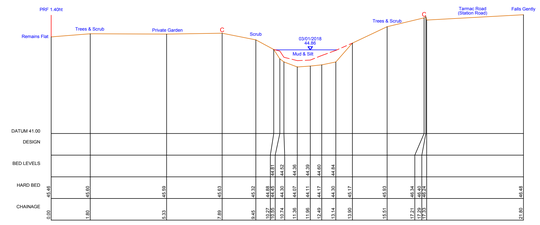
ESTO06_0096
606234.48mE 138025.55mN Brg 77
Open Channel



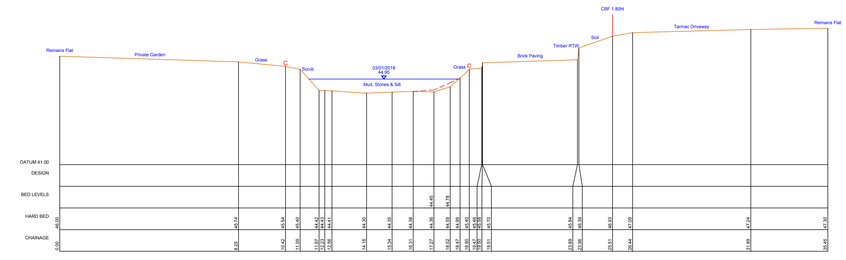
ESTO06_0216
606330.75mE 138029.61mN Brg 312
Open Channel



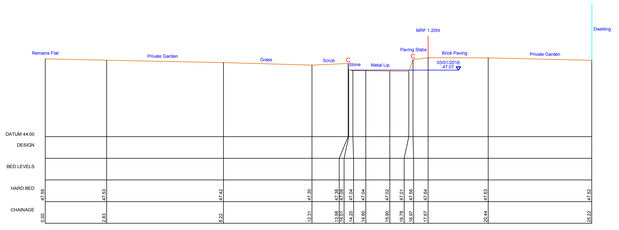
ESTO06_0229
606336.68mE 138031.05mN Brg 346
Station Road Bridge
Tunnel Length = 5.86m



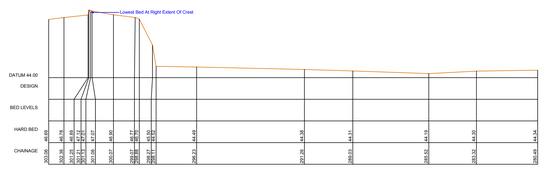
ESTO06_0242
606347.2mE 138047.84mN Brg 310
Open Channel



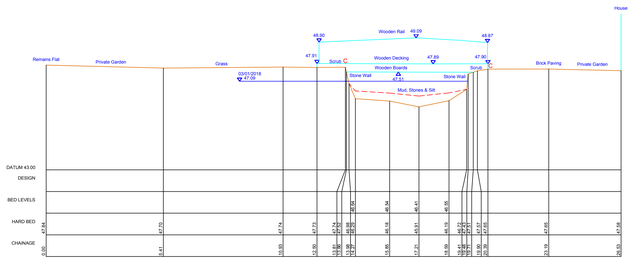
ESTO06_0280
606375.64mE 138067.88mN Brg 324
Open Channel



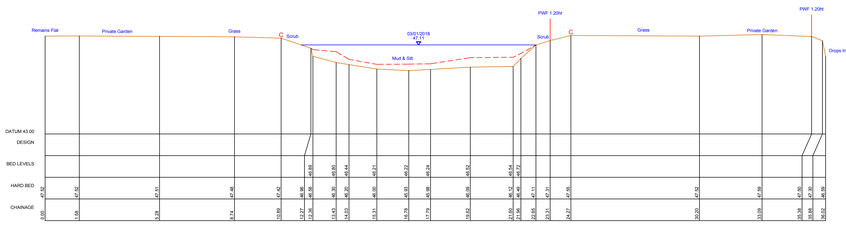
ESTO06_0301
606391.28mE 138081.53mN Brg 322
Disused Mill Wheel



ESTO06_0301
Disused Mill Wheel



ESTO06_0307
606394.92mE 138081.79mN Brg 331
Footbridge
Tunnel Length = 1.88m



ESTO06_0350
606433.86mE 138101.48mN Brg 328
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY "C" ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER
BH	BOREHOLE	FL	FLOOD LIGHT
BR	BOLLARD BEACON	FP	FENCE POST
BDY	BOUNDARY	FWV	FOUL WATER MANHOLE
BS	BUS STOP	GA	GATE
BL	BED LEVEL	GB	GRIDBOARD
BRK	BRICKWORK	GL	GROUND LEVEL
BW	BRICK WALL	GP	GUIDE POST
BM	BENCH MARK	GV	GAS VARIENT
BW	BRICK WALL	HB	HEAD WALL
CBF	CLOSE BOARDED FENCE	HC	HIGHWAY CHAMBER
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL
CW	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE
CH	CHAIN LINK FENCE	JB	JUNCTION BOX
CLF	CHAIN LINK FENCE	JN	JUNCTION BOX
CONC	CONCRETE	KG	KERB INLET GULLY
CP	CONCRETE POST	LC	LAMP COLUMN
CHF	CHESTNUT PALING FENCE	LE	LEFT EDGE
CK	CYCLE RACK	LP	LAMP POST
CV	CIRCULAR VALVE MANHOLE	MB	MARKER BOLLARD
CUL	CULVERT	MF	MISCELLANEOUS FENCING
DI	DROP KERB	MH	MANHOLE
DP	DRAIN POINT	MW	MARKER
DT	DOMPOTE	MWP	MOORING PILE
EC	ELECTRICITY COURSE	NF	NEW PALING FENCE
EM	DOMESTIC/M	NT	NEW STONE
EP	ELECTRIC POLE	OB	OIL BOOM
EN	ENVIRONMENT AGENCY	ONA	NATIONAL PARKS AUTHORITY
ES	ELECTRICITY BOX	OHC	OVERHEAD CABLE
EWF	ELECTRICITY BOX FENCE	OHL	OVERHEAD LINE
ELE	ELECTRICITY CABLE JNT	OSF	OPEN STEEL RAILING
EMH	ELECTRICITY MANHOLE	P	PILE
ET	ELECTRICITY TOWER	PB	PHONE BOX
EX	EARTHING ROD	PM	PARKING METER
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST
FB	FLOWER BED	PR	POST & RAIL FENCE
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE
PW	PARAPET WALL
RD	RIGHT BANK
RE	RIGHT EDGE
RSJ	ROLLED STEEL JOIST
RTW	RETAINING WALL
SCP	SCAFFOLD POLE
SD	STOP VALVE
SDP	STAND PIPE
SF	SECURITY FENCE
SP	SOFFIT LEVEL
SMH	SURFACE WATER MANHOLE
SPF	STEEL PALISADE PILING
SP	SIGN POST
STN	STATION VALVE
SW	SOLID WALL
SVP	SOIL VENT PIPE
SWF	SHEEP WIRE FENCE
TBM	TEMPORARY BENCH MARK
TSP/TSP	TELEPHONE POLE/TELEPHONE POLE
TC	TELECOM CABINET
TP	TELEGRAPH POLE
TRL	THRESHOLD LEVEL
TL	TRAFFIC LIGHT
TLB	TRAFFIC LIGHT BOX
TB	TELEGRAPH POLE
TSP	TELEGRAPH POLE/STOP
TS	TREE STUMP
TR	TUBULAR STEEL RAILINGS
UP	UPRIGHT
UWL	UNABLE TO SURVEY
WL	WATER LEVEL/WATER LINE
WC	WATER CRESS
WMF	WIRE MESH FENCE
WP	WOODEN POST
WPR	WOODEN POST & RAIL FENCE
WV	WATER VALVE
WW	WIRE WALL

(Abbreviations apply to OS survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	42.767
E20730403	TR 0222 4627	38.489
E20731536	TR 0666 3814	51.856
E20733013	TR 0732 4202	38.489
E20730220	TR 0159 4061	36.314
E20730021	TR 0159 4291	36.337
E20730000	TR 0223 4025	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.976
E20733004	TR 0504 3900	43.712
E20733005	TR 1056 3751	60.987
E20731483	TR 0151 4070	35.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

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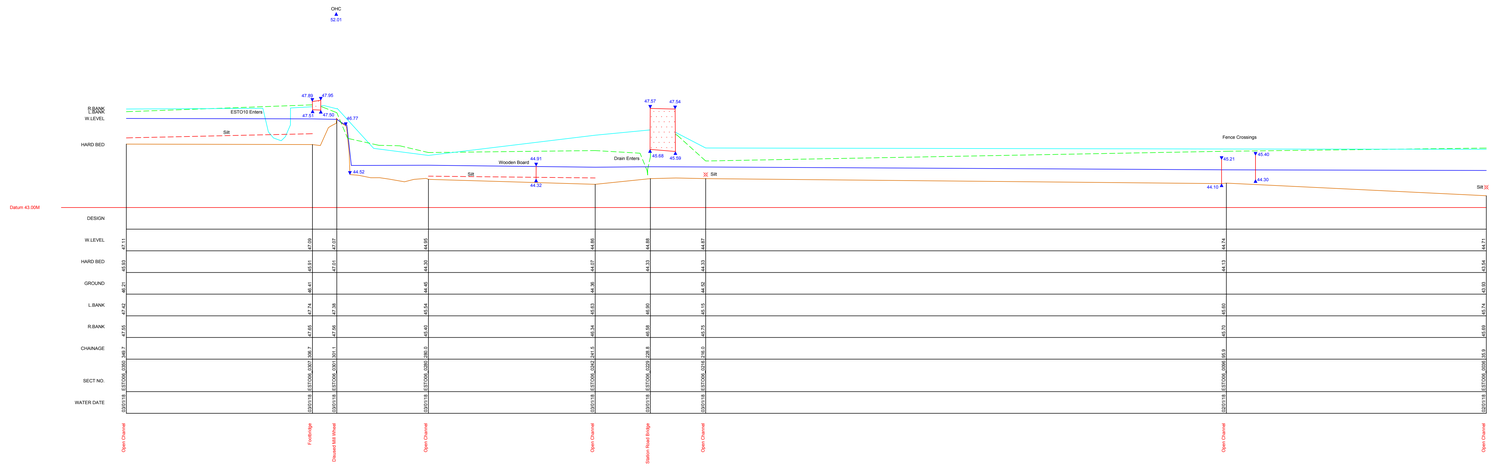
PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR (EST006)
CROSS SECTIONS
EST006_0036 TO EST006_0350

SURVEYED BY: MALTBY LAND SURVEYS LTD	Ref: 17_332	
SURVEY DATE: JANUARY 2018		
SCALE: 1:100	DRN: RP	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: JAN 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-36	REV. —
CAD FILENAME: X-J01058-36.dwg		

SCALE = 1:500 H, 1:100 V



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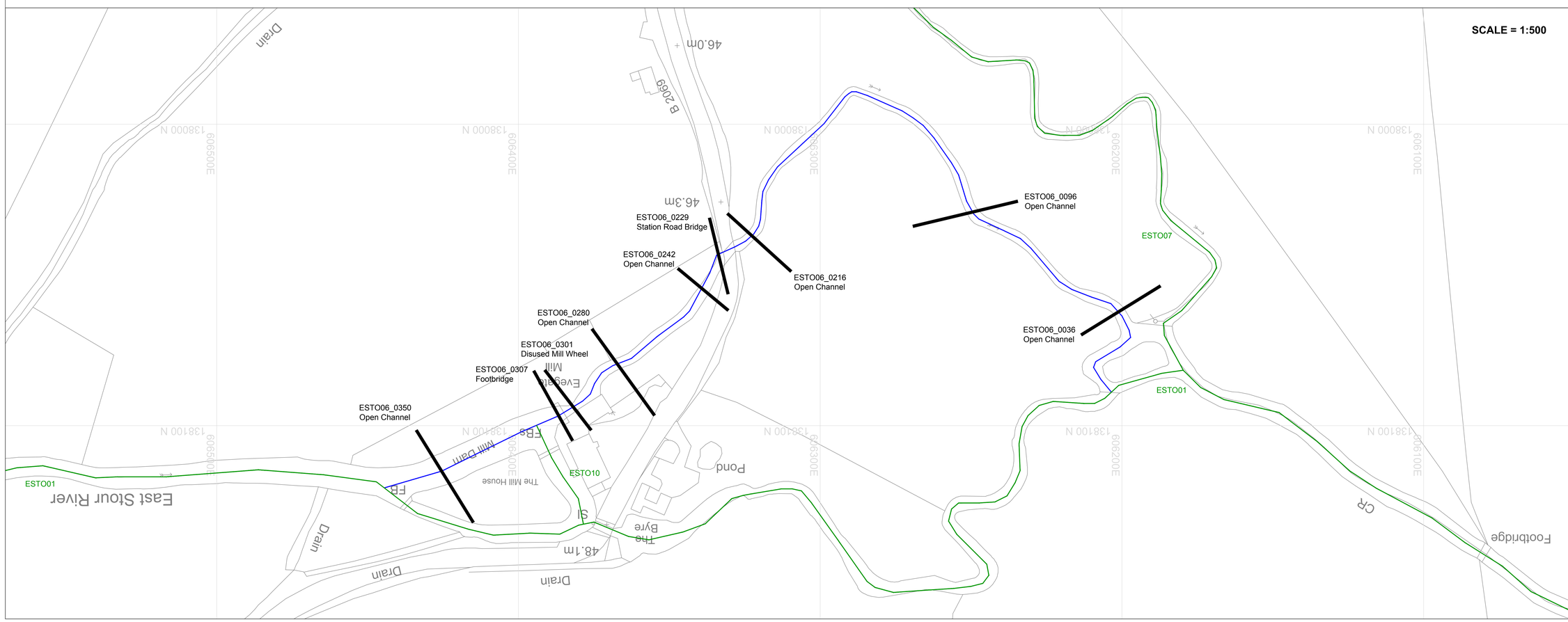

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

LOCATION PLAN ORIENTATION

NOTES:
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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
B	BOLLARD	FM	FIRE MAIN MARKER	PC	PEDESTAL CRANE
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BH	BOREHOLE	FWM	FOUL WATER MANHOLE	RWP	RAINWATER PIPE
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GASOMBOMB	SC	STOP COCK
BL	BED LEVEL	GI	GRID INSPECTION	SC	STOP COCK
BS	BUS STOP	GP	GATE POST	SY	SYCAMORE
BM	BENCH MARK	GM	GAS MARKER	SL	SLOPE LEVEL
BW	BRICK WALL	GV	GAS VALVE	SWMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	H	INSPECTION CHAMBER	SHP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	HH	HANDHOLE	SP	SIGNPOST
CBF	CLOSE BOARDED FENCE	IF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IM	IRONMONGER MARKER	SL	SLOPE LEVEL
CL	COVER LEVEL	IP	IRONMONGER POST	SW	SILVER WILLOW
CONC	CONCRETE	KG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LETTER BOX	TBM	TEMPORARY BENCH MARK
CP	CONCRETE PALING FENCE	LC	LEFT CREST	TELEPOL	TELEPHONE BEACH MUPPET
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CV	CAT'S EYE / MANHOLE	LPB	LAMP POST BOLLARD	TL	TOP OF LEVEL
CYA	CULVERT	MF	MISCELLANEOUS FENCING	TW	THRESHOLD (DAC)
DK	DROP KERB	MK	MARKER	TL	TRAFFIC LIGHT
DP	DOOR POST	MP	MOORING POST	TLB	TELECOM LINE BOX
DP	DOMPOST	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TPS	TIMBER RUBBING STRIP
DW	DOOR WAY	NB	NEW BOARD	TS	TIMBER SLEEPER
DWB	DOG WASTE BIN	NG	NOTICE BOARD	TR	TUBULAR STEEL RAILING
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UT	UPSTREAM
EB	ELECTRICITY BOX	OB	OBSERVATION BOX	VB	VISIBILITY SURVEY
EF	ELECTRIC CABLE FENCE	OL	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EOP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EP	ELECTRICITY POLE	P	PILLAR	WM	WATER MANHOLE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETM	ELECTRICITY TRANSMISSION LINE	PP	PYLON	WT	WATER TAP
FB	FLOWER BED	PRF	POST & RAIL FENCE	YV	YARD VALVE
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to EA survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	38.287
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E20730013	TR 0132 4202	36.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0139 4291	38.232
E20730500	TR 0121 4036	36.298
E20730501	TR 0143 4075	37.864
E20731495	TR 0152 4070	37.864
E20731496	TR 0126 4199	37.732
E20731499	TR 0087 4191	37.717
E20731038	TR 0671 3842	53.022
E20731071	TR 0666 3813	50.976
E20733004	TR 0509 3900	43.719
E20733005	TR 1064 3751	60.047
E20731483	TR 0151 4070	38.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE

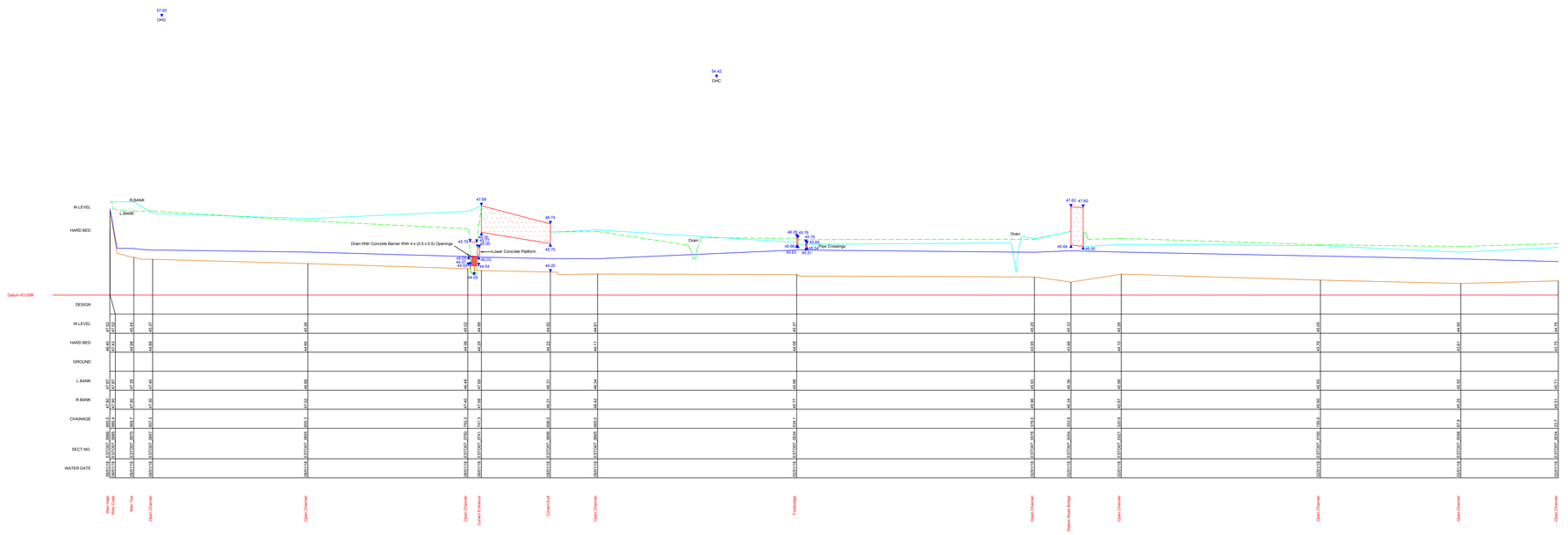
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST006)
LONG SECTION & LOCATION PLAN
EST006_0036 TO EST006_0350

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_XX
SURVEY DATE: JANUARY 2018		
SCALE: AS SHOWN	DRN: RP	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: JAN 18	DATE: MAR 17
GRID: NATIONAL GRID	DRAWING NO. L-J01058-13	REV. —
CAD FILENAME: L-J01058-13.dwg		

SCALE = 1:1250 H, 1:100 V



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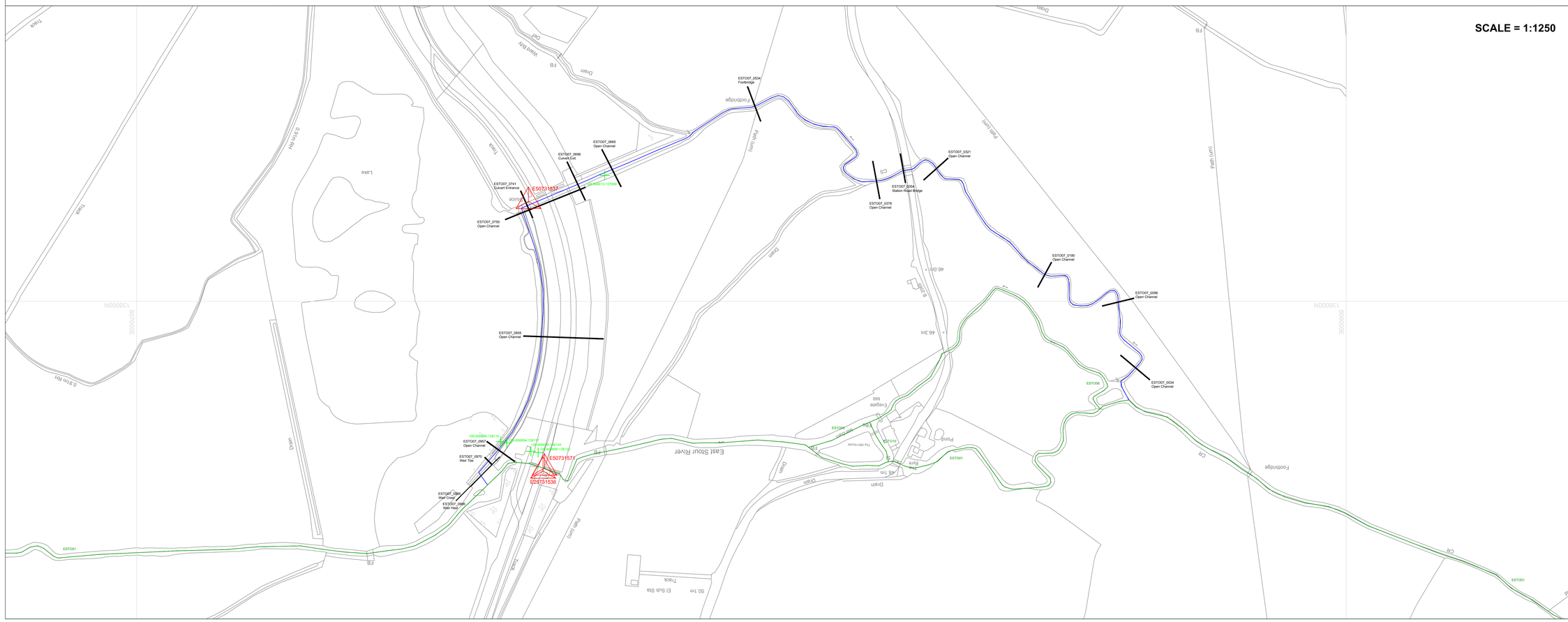


Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

- GAUGE BOARD

LOCATION PLAN ORIENTATION

NOTES:

1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PM	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RE	RIVER EDGE
BL	BUILDING LOCATION	FS	FLOOD SIGN	RVG	REVET/VEG. JOINT
BDY	BOUNDARY	FWL	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	SD	STORM DRAIN
BS	BOLLARD	GB	GRASS/BOARD	SP	STOP VALVE
BRK	BRICKWORK	GL	GROUND LEVEL	SWP	STAND PIPE
BW	BRICK WALL	GP	GUIDE POST	TP	TELEGRAPH POLE
BK	BLOCK WORK	GV	GAS VALVE	TV	CUTOFF LEVEL
BW	BRICK WALL	HW	HEAD WALL	TWV	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	IC	INSPECTION CHAMBER	UP	UNDERGROUND PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	VP	VENT PIPE
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CH	CATCH PIT	IWF	IRON WORK FENCE	WV	WATER VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB/ INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	L	LAMP POST	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LE	LEFT BANK	TCP/KP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CV	CAT'S EYE/ MARKER	LS	LANDSCAPED BOARD	TL	TELEGRAPH LINE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TRL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TS	TRAFFIC LIGHT
DP	DOWN PIPE	MP	MARKER POST	TSB	TELEPHONE SERVICE BOX
EP	EXPANSION	MP	MOORING PILE	TT	TELEGRAPH POLE
EPC	DAMP PROOF COURSE	MPF	METAL PALING FENCE	TRS	TIMBER RUBBING STRIP
ES	ELECTRIC SIGN	MRF	METAL RAIL FENCE	TW	TOP OF WALL
EWB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UP	UPRIGHT
EB	ELECTRIC BOX	OHC	OVERHEAD CABLE	UTL	UTILITIES TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/ WATER LINE
EMH	ELECTRICITY MANHOLE	PR	PEDESTRIAN RAILINGS	WM	WATER METER
EMP	ELECTRICITY MINIPOLE	PT	PILOT	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	RB	RAIL BUS RICH	WP	WOOD POST
ET	ELECTRICITY (OIL)	RF	RAILING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	RP	POST	WV	WATER VALVE
FB	FOOTBRIDGE	RR	POST & RAIL FENCE	WRS	WIRE RAILS
FBR	FLOODBOARD	PTM	PARKING TICKET MACHINE		(Abbreviations apply to OS survey data only)

AMENDMENT	DRN	CHK'D	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E50730012	TR 0103 4107	35.975
E50730401	TR 0149 4251	36.757
E50730403	TR 0222 4223	38.489
E50731536	TR 0666 3814	51.806
E50730013	TR 0132 4202	38.489
E50730020	TR 0159 4081	36.114
E50730021	TR 0159 4291	38.337
E50730050	TR 0223 4026	38.486
E50730503	TR 0343 3932	40.259
E50731495	TR 0152 4070	37.864
E50731496	TR 0128 4199	37.732
E50731537	TR 0687 3791	47.711
E50731538	TR 0671 3842	53.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
E50731483	TR 0151 4070	35.916
E50731484	TR 0133 4200	37.463
E50731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

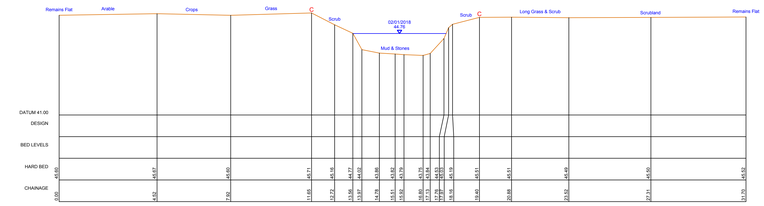
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST007)
LONG SECTION & LOCATION PLAN
EST007_0034 TO EST007_0986

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: JANUARY 2018		
SCALE: AS SHOWN	DRN: JB	CHK'D: ITS
DATUM: OS GPS ACTIVE	DATE: JAN 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-14	REV. —
CAD FILENAME: L-J01058-14.dwg		



ESTO07_0034
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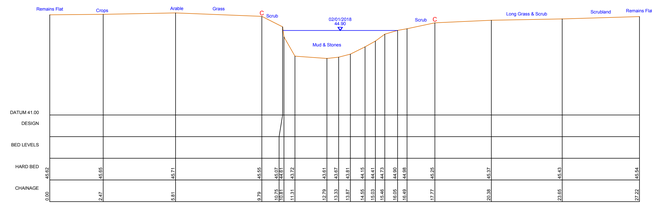
Open Channel



ESTO07_0098
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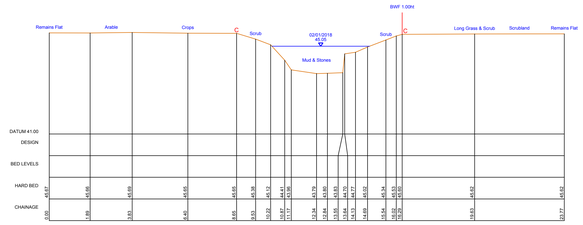
Open Channel



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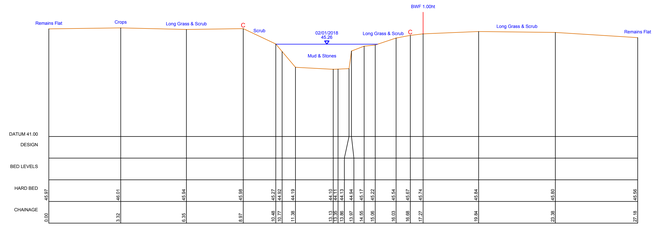
Open Channel



ESTO07_0321
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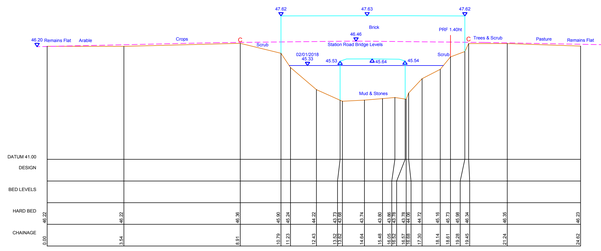
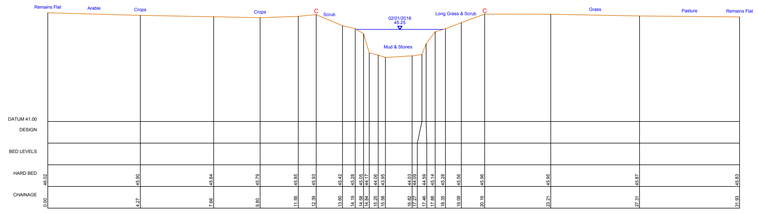
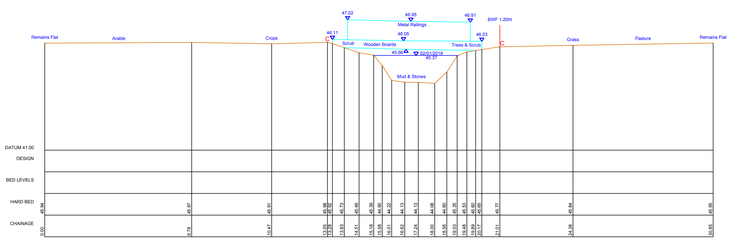
Open Channel



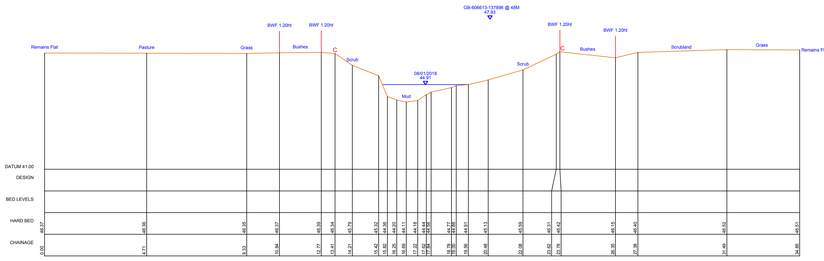
ESTO07_0354
606368.55mE 137877.88mN Brg 350
Station Road Bridge
Tunnel Length = 7.96m



ESTO07_0378
606391.4mE 137884.07mN Brg 349
Open Channel



ESTO07_0534
606494.95mE 137822.45mN Brg 339
Footbridge
Tunnel Length = 0.81m



ESTO07_0665
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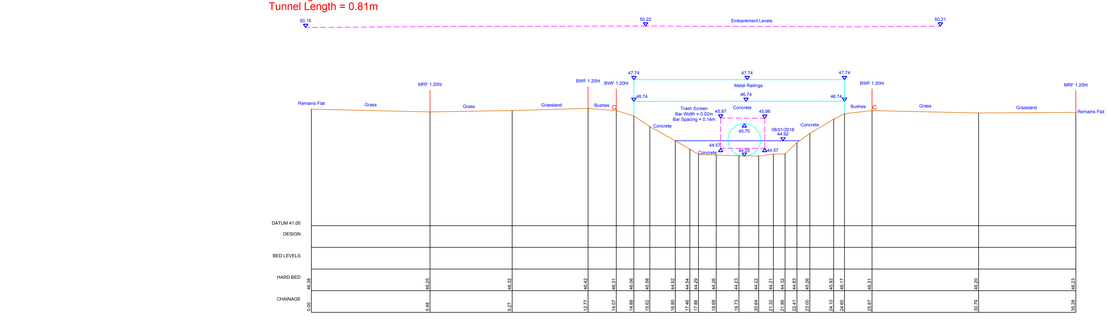
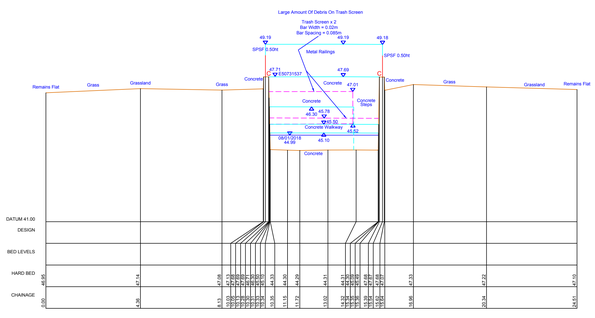
Open Channel



ESTO07_0696
606644.13mE 137884.64mN Brg 335
Culvert Exit
Tunnel Length = 45.33m



ESTO07_0741
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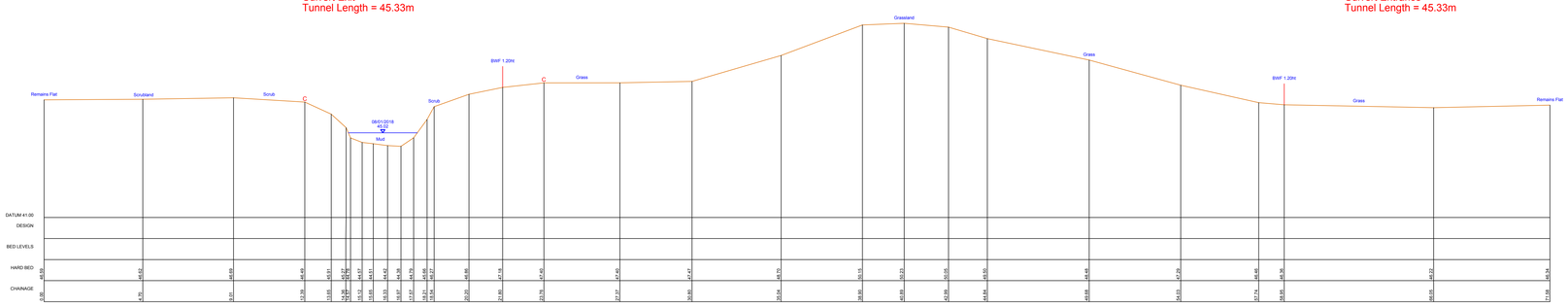
Culvert Entrance
Tunnel Length = 45.33m



ESTO07_0750
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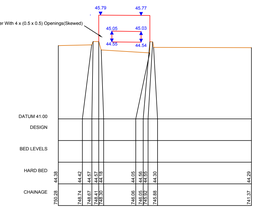
Open Channel



Through Section ESTO07_0750
Open Channel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER
BH	BOREHOLE	FL	FENCE LINE
BR	BOLLARD BEACON	FP	FENCE POST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE
BT	BT MANHOLE	GA	GATE
BL	BUS LEVEL	GB	GRASSBOARD
BRK	BRICKWORK	GL	GROUND LEVEL
BW	BRICK WALL	GP	GUIDE POST
BM	BENCH MARK	GM	GAS MARKER
BW	BRICK WALL	HW	HEAD WALL
CBF	CLOSE BOARDED FENCE	HC	HIGHWAY CHAMBER
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE
CH	CHAIN LINK	JB	JUNCTION BOX
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX
CONC	CONCRETE	KG	KERB INLET GULLY
COP	CONCRETE POST	LC	LEFT CREST
CPF	CONCRETE PALING FENCE	LC	LEFT CREST
CV	CYCLE BAR	LP	LAMP POST
DM	DRAIN MANHOLE	MB	MARKER BOLLARD
CUL	CULVERT	MF	MISCELLANEOUS FENCING
DI	DROP LEVEL	MP	MARKER POST
DI	DROP KERB	MR	MARKER
DP	DOMPOST	MP	MOORING PILE
DPC	DAMPCOURSE	MPF	MOORING PALING FENCE
DR	DOMESTIC RW	MS	MILE STONE
DW	DOMESTIC WM	NB	NATIONAL BOUNDARY
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE
EF	ELECTRICITY BOX FENCE	OHL	OVERHEAD LINE
ELF	ELECTRICITY CABLE RT	OSF	OPEN STEEL RAILING
EMH	ELECTRICITY MANHOLE	P	PILE
EP	ELECTRICITY POLE	PB	PUMP BOX
EL	EARTHING ROD	PM	PARKING METER
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST
FB	FLOOD BOARD	PR	PALISADE RAIL FENCE
FBM	FOOTBRIDGE	PTM	PARKING TICKET MACHINE
PM	PARAPET WALL
RB	RIGHT BANK
RC	RIGHT CREST
RSJ	ROLLED STEEL JOIST
RTW	RETAINING WALL
SPF	SHEET PILING FENCE
SC	STOP COCK
SDP	STAND PIPE
SL	SLOPE LEVEL
SP	SOFFIT LEVEL
SMH	SURFACE WATER MANHOLE
SPF	SHEET PILING FENCE
SP	SIGN POST
STN	STATION WALL
SW	SURFACE WATER
SJP	SOIL VENT PIPE
SWF	SHEEP WIRE FENCE
TBM	TEMPORARY BENCH MARK
TELP/M	TELEPHONE CALL BOX/POST
TC	TELECOM CABINET
TF	TIMBER FENCING
TPL	THRESHOLD LEVEL
TW	TRAFFIC LIGHT
TB	TELEWORK BOX
TP	TELEWORK POLE
TS	TRAFFIC SIGNAL STOP
TW	TREE STUMP
VRS	VEHICLE RESTR. STEEL RAILINGS
WB	WATER BOARD
WS	UNABLE TO SURVEY
WL	WATER LEVEL/WATER LINE
WM	WATER METER
WMF	WIRE MESH FENCE
WP	WOODEN PILE
WPR	WOODEN POST & RAIL FENCE
WV	WATER VALVE
WW	WIRE WORK

(Abbreviations apply to 1:A survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

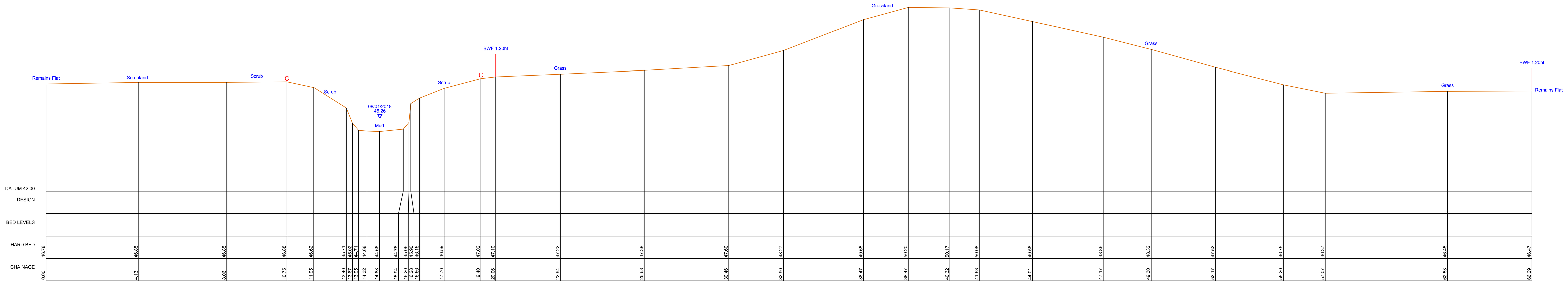
TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	37.767
E20730403	TR 0222 4029	38.489
E20731536	TR 0666 3814	51.856
E20733013	TR 0132 4202	38.489
E20730020	TR 0159 4061	36.314
E20730021	TR 0159 4291	36.337
E20730500	TR 0221 4025	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.976
E20733004	TR 0504 3900	43.712
E20733005	TR 1056 3751	60.987
E20731483	TR 0151 4070	35.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE:
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS:
EAST STOUR (ESTO07)
CROSS SECTIONS
EST007_0034 TO EST007_0750

SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: JANUARY 2018		
SCALE: 1:100	DRN: JB	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: JAN 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-37	REV. —
CAD FILENAME: X-J01058-37-38.dwg		



ESTO07_0855
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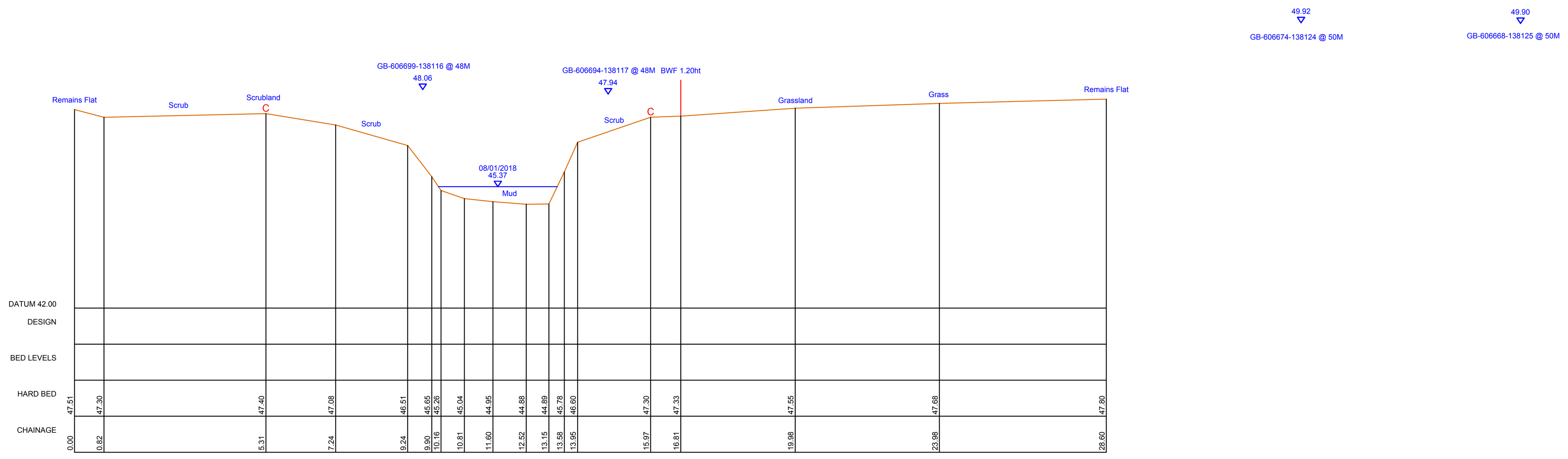
Open Channel



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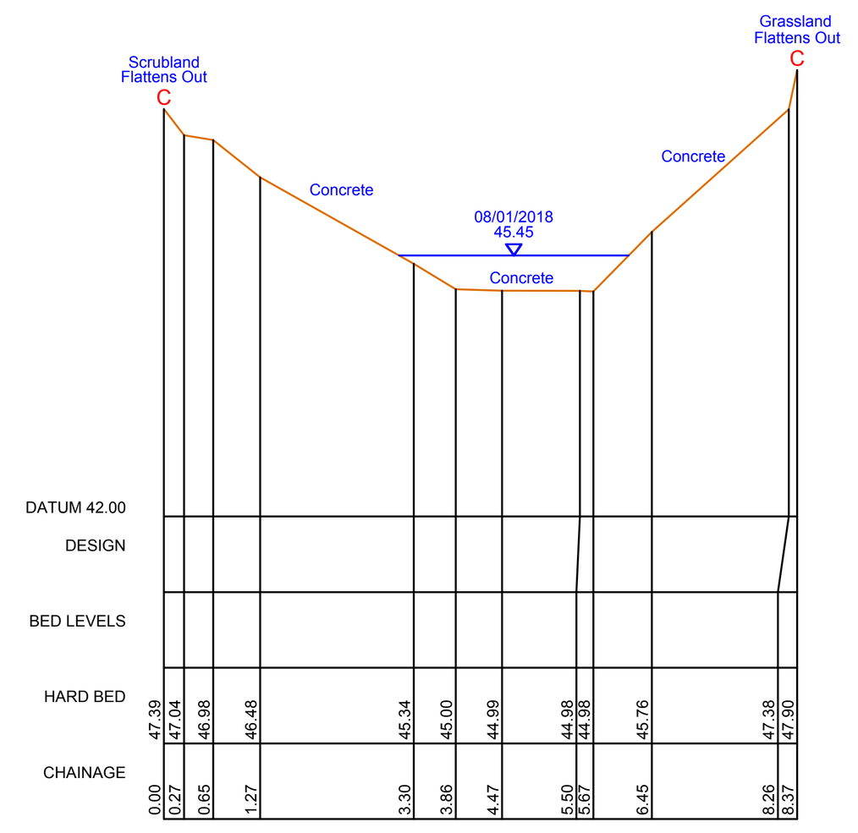
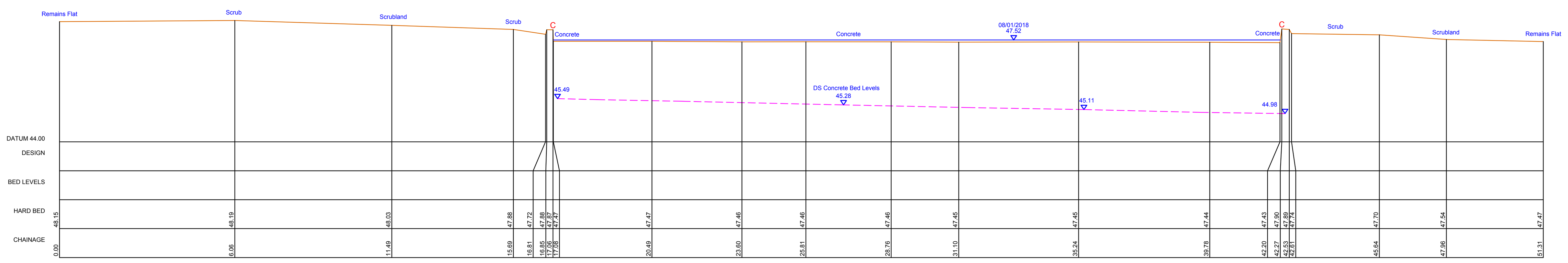
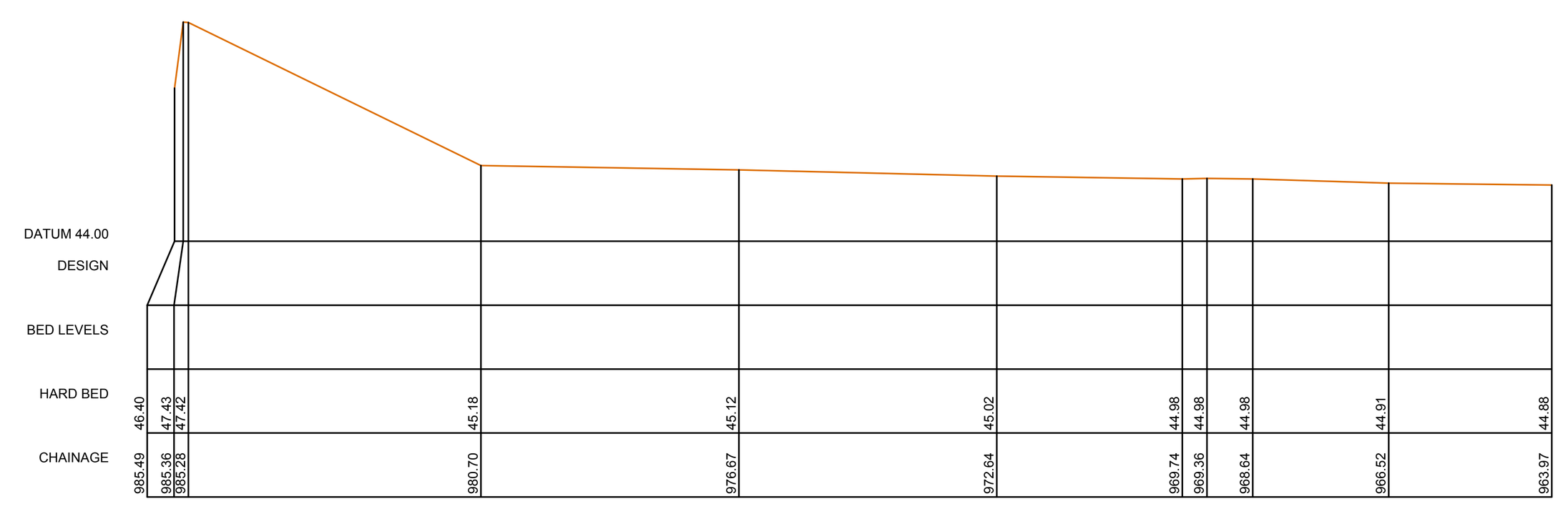
Open Channel



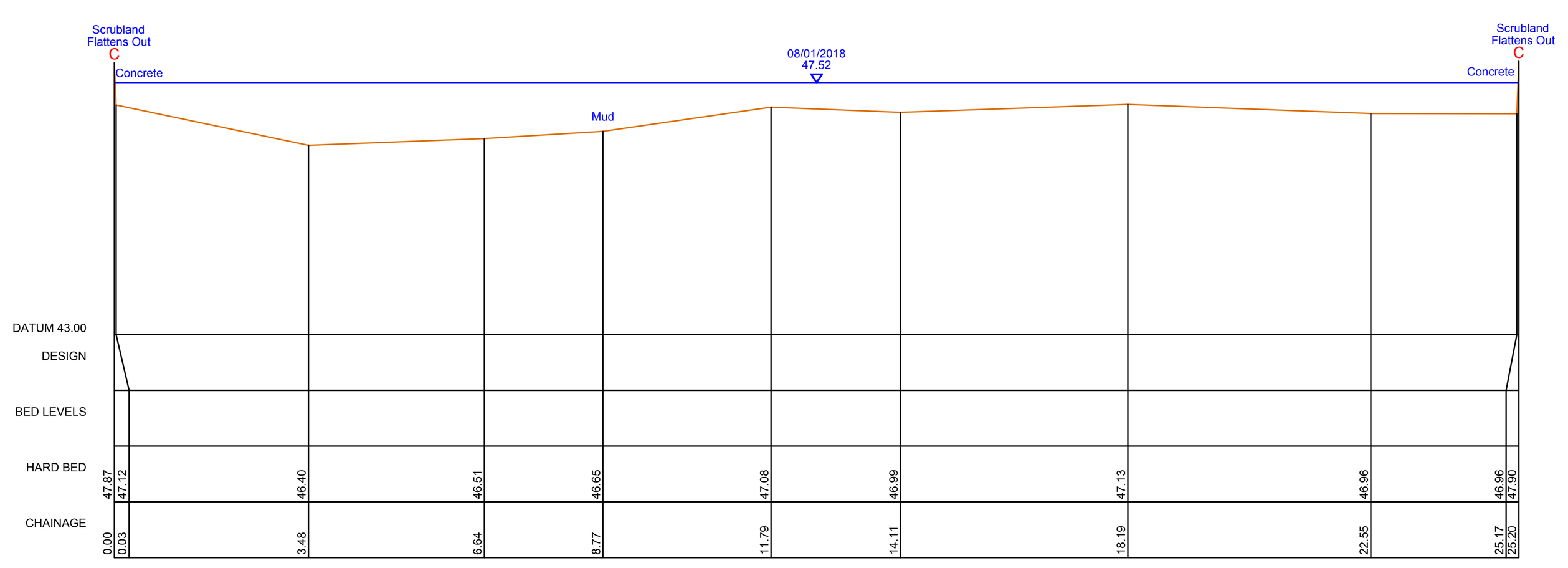
ESTO07_0970
606712.21mE 138128.89mN Brg 315
Weir Toe



ESTO07_0985
606736.02mE 138164.9mN Brg 225
Weir Crest



Through Section ESTO07_0985
Weir Crest



ESTO07_0986
606723.87mE 138152.92mN Brg 225
Weir Heel

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.

3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GAUGEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BM	BENCH MARK	GM	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CIF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IWF	INTERWOVEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KIG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOWNPIPE	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOWNSTREAM	MS	MILE STONE	TS	TREE STUMP
DWB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		

(Abbreviations apply to EA survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	35.267
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
E50730013	TR 0132 4202	38.489
E50730020	TR 0159 4061	36.314
E50730021	TR 0159 4291	36.337
E50730500	TR 0223 4025	38.486
E50730503	TR 0343 3935	40.259
E50731495	TR 0152 4070	37.864
E50731496	TR 0128 4199	37.732
E50731537	TR 0667 3791	47.711
E50731538	TR 0671 3842	63.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
E60731483	TR 0151 4070	35.916
E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

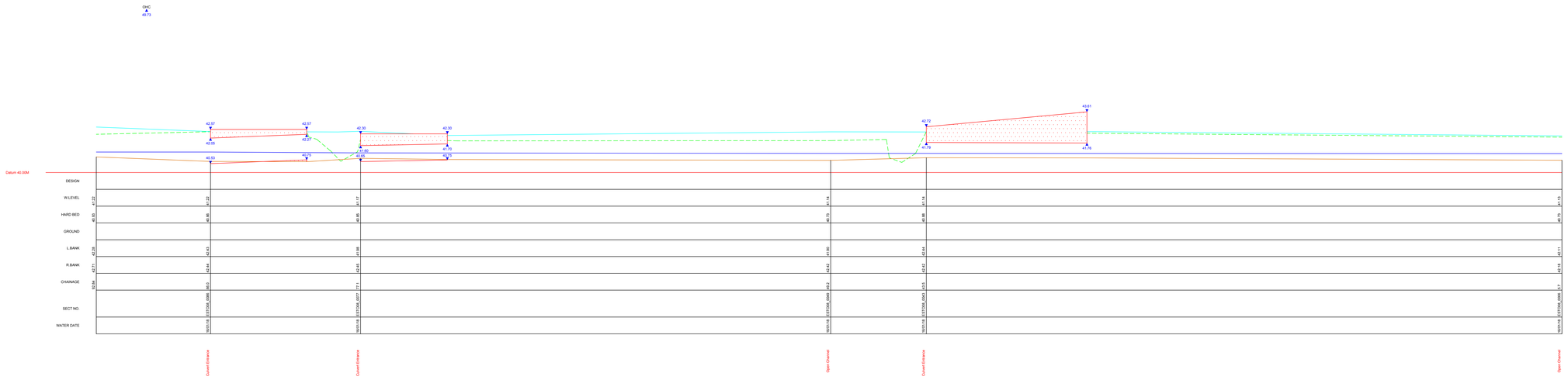
SITE/LIMITS
EAST STOUR (EST007)
CROSS SECTIONS
EST007_0855 TO EST007_0986

SURVEYED BY: MALTBY LAND SURVEYS LTD — Ref: 17_332

SURVEY DATE: DECEMBER 2017

SCALE: 1:100	DRN: JB	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: JAN 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-38	REV. —
CAD FILENAME: X-J01058-37-38.dwg		

SCALE = 1:100 H, 1:100 V



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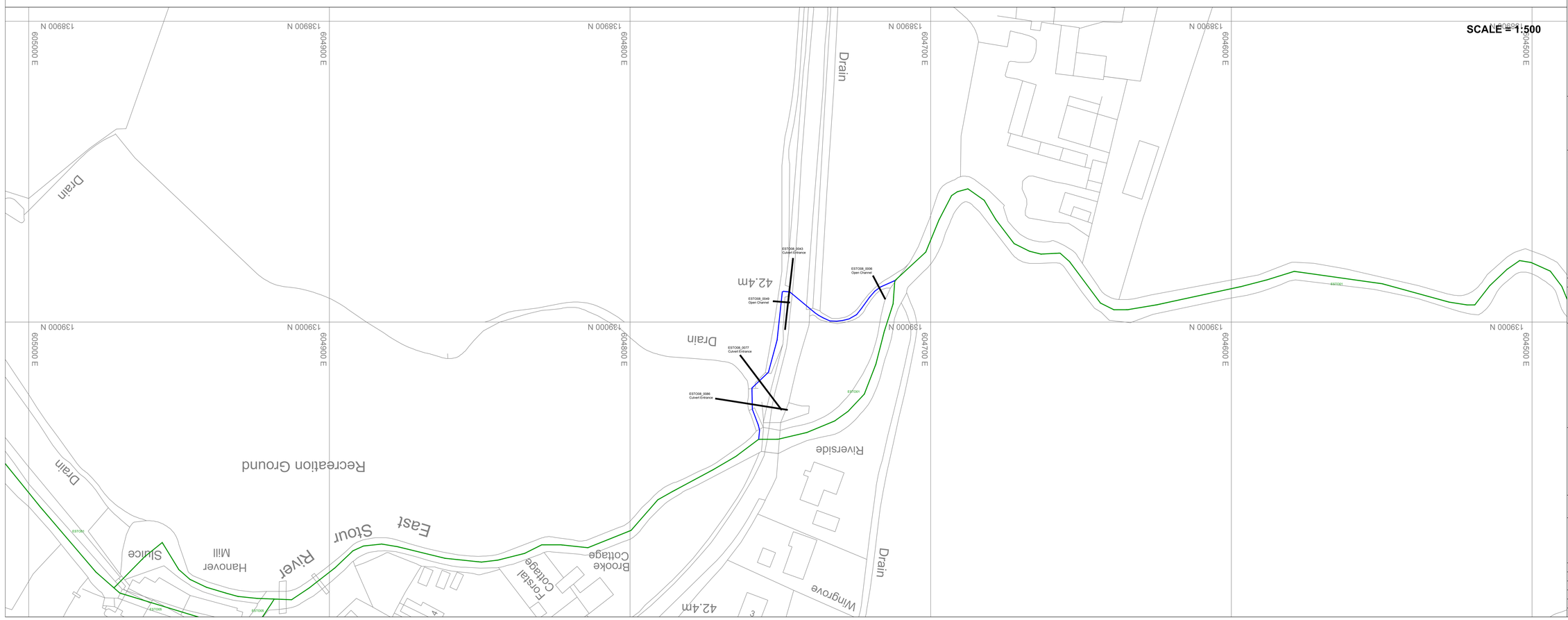


Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

- GAUGE BOARD

LOCATION PLAN ORIENTATION

CHIC

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RE	RAILWAY LINE
BA	BOLLARD ARCADION	FS	FLOOR SILL	RJ	ROCK JOISTS, JOIST
BDY	BOUNDARY	FWV	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	RWP	RAINWATER PIPE
BL	BOLLARD	GB	GRASSBOARD	SI	STEP IRON
BRK	BRICKWORK	GL	GROUND LEVEL	SWP	STAND PIPE
BW	BRICK WALL	GP	GUARD POST	TB	TELEGRAPH
BM	BENCH MARK	GV	GAS MARKER	TL	CUTOFF LEVEL
BW	BRICK WALL	HW	HEAD WALL	TMH	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	IC	INSPECTION CHAMBER	TP	TELEGRAPH POLE/ PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	TP	TOP
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	TS	STATION
CH	CHAIN LINK	JB	JUNCTION BOX	TV	TELEVISION VAULT
CLF	CHAIN LINK FENCE	JE	JUNCTION BOX	UP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB INLET GULLY	WBF	WHEEL WIRE FENCE
CP	CONCRETE POST	L	LAMP POST	WM	WATER MANAGEMENT MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	WP	WOOD POST
CR	CYCLE RACK	LV	LAMP POST	WPO	TELEPHONE CALL BOX/POST
CV	CABLE TV VAULT	LVB	LAMP POST BOLLARD	YL	YELLOW CABINET
CVL	CULVERT	MF	MISCELLANEOUS FENCING	TBL	TIMBER BOLLARD
DH	DROP KERB	MH	MANHOLE	TRL	THRESHOLD LEVEL
DP	DOWN PIPE	MP	MARKER POST	TS	TRAFFIC LIGHT
EP	EXPANSION	MPT	MOORING POST	TV	TELEVISION BOX
EPC	DAMP PROOF COURSE	MPF	MOORING PILE	UC	UNDERGROUND CABLE
FB	FLOWERBED	MRF	METAL RAILING FENCE	WS	TIMBER RUBBING STRIP
FCL	FENCE CORNER	NB	NOTICE BOARD	WT	WATER TANK
FWB	FOUL WATER BIN	NC	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	OA	OVERHEAD CABLE AUTHORITY	UP	UPRIGHT
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UPS	UPRIGHT SQUARE
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
EMH	ELECTRICITY MANHOLE	PA	PALISADE RAILINGS	WM	WATER METER
EMP	ELECTRICITY MARKER POST	PC	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PI	PILLAR BOX	WP	WOOD POST
ETL	ELECTRICITY TRANSMISSION LINE	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
FB	FLOWERBED	PO	POST	WV	WATER VALVE
FBI	FLOWERBED	PR	POST & RAIL FENCE	WG	WIRE GUARD
FBI	FLOWERBED	PTM	PARKING TICKET MACHINE		(Abbreviations may be in any order only)

AMENDMENT	DRN	CHK'D	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
FE07300I2	TR 0103 4107	35.975
FE07304O1	TR 0149 4251	42.757
FE07304O3	TR 0222 4622	38.489
FE07315J6	TR 0666 3814	51.806
FE07330I3	TR 0132 4202	38.489
FE07330I9	TR 0159 4081	36.114
FE07330J1	TR 0159 4291	38.337
FE07330O0	TR 0021 4026	38.486
FE07330O3	TR 0343 3932	40.259
FE07331495	TR 0152 4070	37.864
FE07331496	TR 0128 4199	37.732
FE07331537	TR 0687 3791	47.711
FE07331538	TR 0671 3842	53.022
FE07331571	TR 0666 3813	50.976
FE07333004	TR 0504 3900	43.712
FE07333005	TR 1056 3751	60.587
FE07331483	TR 0151 4070	35.916
FE07331484	TR 0133 4200	37.463
FE07331539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

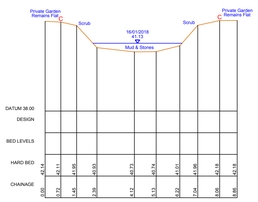
PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

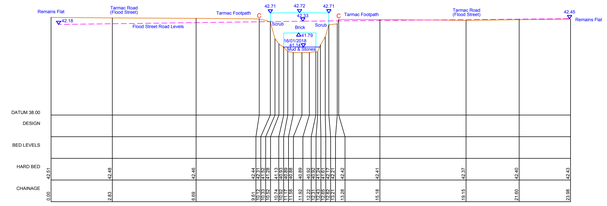
SITE/LIMITS

EAST STOUR (EST008)
LONG SECTION & LOCATION PLAN
EST008_0006 TO EST008_0086

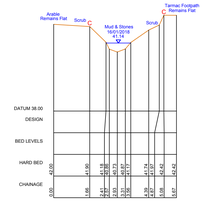
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: JANUARY 2018		
SCALE: AS SHOWN	DRN: RC	CHK'D: ITS
DATUM: OS GPS ACTIVE	DATE: JAN 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. L-J01058-15	REV. —
CAD FILENAME: L-J01058-15.dwg		



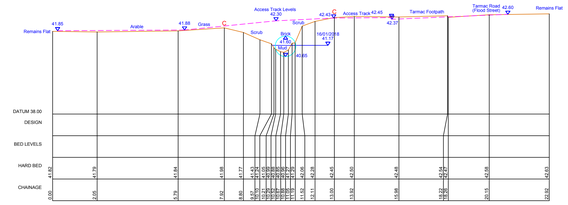
ESTO08_0006
604719.21mE 138984.56mN Brg 332
Open Channel



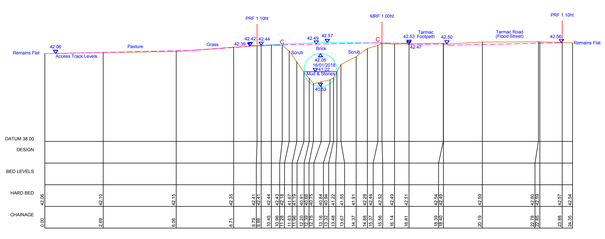
ESTO08_0043
604745.77mE 138978.73mN Brg 6
Culvert Entrance
Tunnel Length = 9.55m



ESTO08_0049
604752.47mE 138993.05mN Brg 275
Open Channel



ESTO08_0077
604763.41mE 139010.95mN Brg 323
Culvert Entrance
Tunnel Length = 5.16m



ESTO08_0086
604771.63mE 139025.41mN Brg 279
Culvert Entrance
Tunnel Length = 5.72m

Original Drawing Size: A0

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

NOTES:
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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHW	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOREHOLE	FL	FLOOD LIGHT	RC	RODDING EYE
BB	BOLLARD BEACON	FP	FENCE POST	RJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FRW	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GATE	SCP	SCAFFOLD TUBE
BL	BED LEVEL	GB	GRIDSBOARD	SE	STOP KOCK
BRK	BRICKWORK	GL	GROUND LEVEL	SGP	STAND PIPE
BT	BT MANHOLE	GM	GAS MANHOLE	SL	STREET LIGHT
BW	BENCH MARK	GW	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HB	HEAD WALL	SMH	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	HC	HIGHWAY DRAIN CHAMBER	SP	SIGN POST (TRAFFIC FILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION VALVE
CH	CHAIN LINK FENCE	JB	JUNCTION BOX	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JK	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LAMP BOLLARD	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCP/TP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LF	LAMP POST	TC	TELECOM CABINET
CV	CABLE TV MANHOLE	LP	LAMP POST BOLLARD	TCP	TELEPHONE POLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	TEL	THRESHOLD LEVEL
D	DECK LEVEL	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DRIP LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOMPOTE	MP	MOORING PILE	TP	TELEGRAPH POLE
DR	DOMESTIC COURSE	MPF	METAL PALING FENCE	TR	TRAFFIC RADIO STOP
DS	DOMESTIC SILL	MS	MILE STONE	TS	TREE STUMP
EB	ELECTRIC BOX	MSF	METAL STEEL RAILINGS	UB	UTILITIES BOX
EH	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UP	UPSTAND
ER	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTL	UNABLE TO SURVEY
ERF	ELECTRICITY BOX FENCE	OHL	OVERHEAD LINE	WL	WATER LEVEL/WATER LINE
ESF	ELECTRICITY CABLE JNT	OSF	OPEN STEEL RAILING	WL	WATER METER
EWM	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PHONE BOX	WP	WOODEN POST
ET	EARTHING BOLT	PM	PARKING METER	WR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
F	FENCE	PR	POST & RAIL FENCE	WWL	WIRE WORK LINE
FBB	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to 1st survey date only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
E20730401	TR 0149 4253	42.267
E20730403	TR 0222 4627	38.489
E20731536	TR 0666 3814	51.808
E20733013	TR 0132 4202	38.489
E20733020	TR 0159 4061	36.314
E20733021	TR 0159 4291	36.337
E20730500	TR 0023 4025	38.486
E20730503	TR 0343 3936	40.259
E20731495	TR 0152 4070	37.864
E20731496	TR 0128 4199	37.732
E20731537	TR 0687 3791	47.711
E20731538	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.976
E20733004	TR 0504 3900	43.712
E20733005	TR 1056 3751	60.087
E20731483	TR 0151 4070	35.916
E20731484	TR 0133 4200	37.463
E20731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

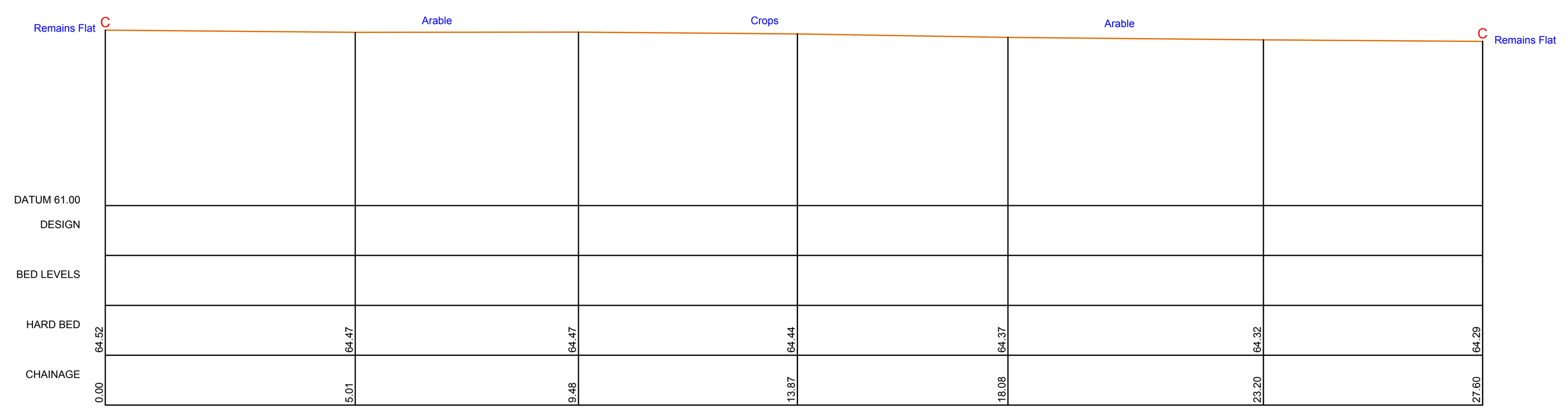
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE:
EAST STOUR, ASHFORD TO STANFORD

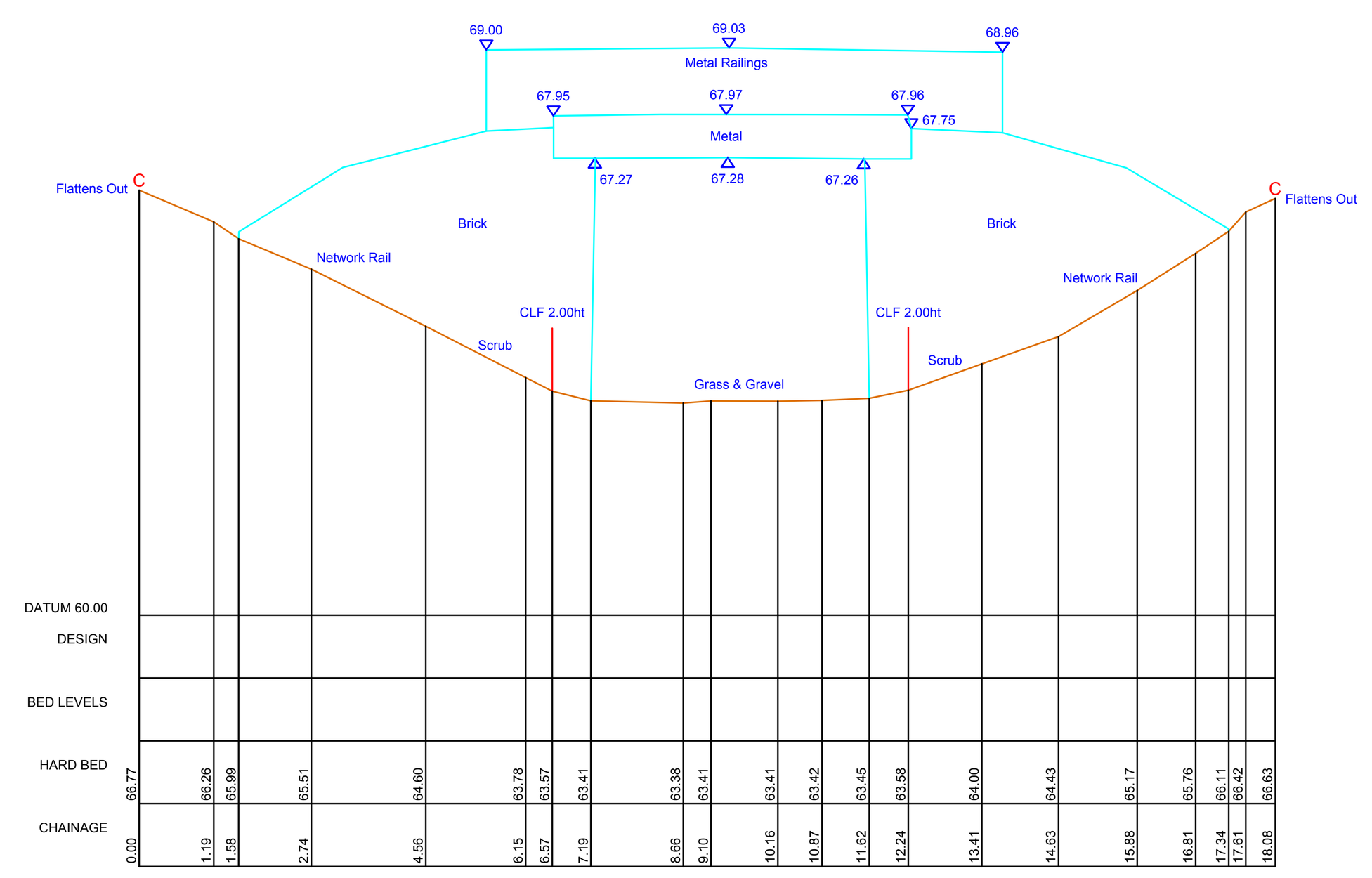
SITE/LIMITS:
EAST STOUR (ESTO08)
CROSS SECTIONS
ESTO08_0006 TO ESTO08_0086

SURVEYED BY: MALTBY LAND SURVEYS LTD	Ref: 17_332	
SURVEY DATE: JANUARY 2018		
SCALE: 1:100	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: JAN 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-39	REV. —
CAD FILENAME: X-J01058-39.dwg		

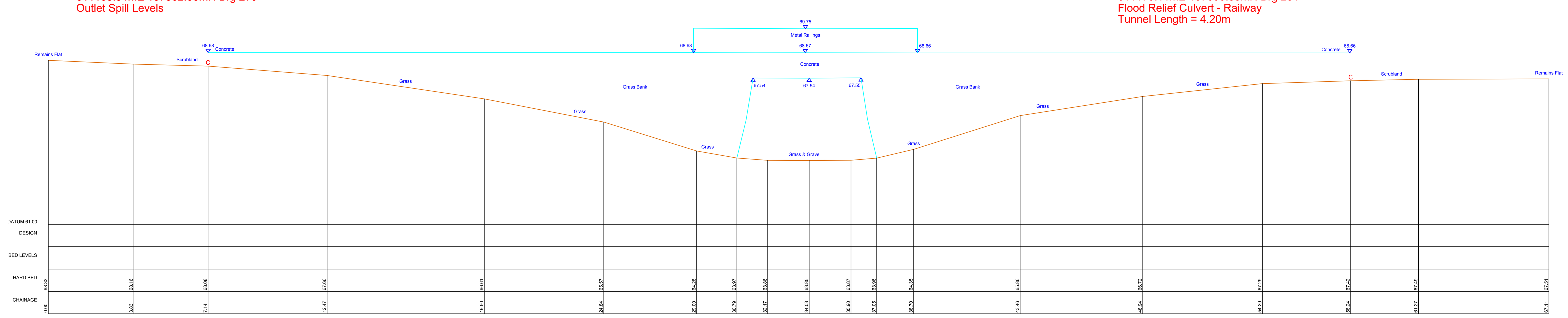
SCALE = 1:100



ESTO09_0024
611168.34mE 137562.38mN Brg 279
Outlet Spill Levels

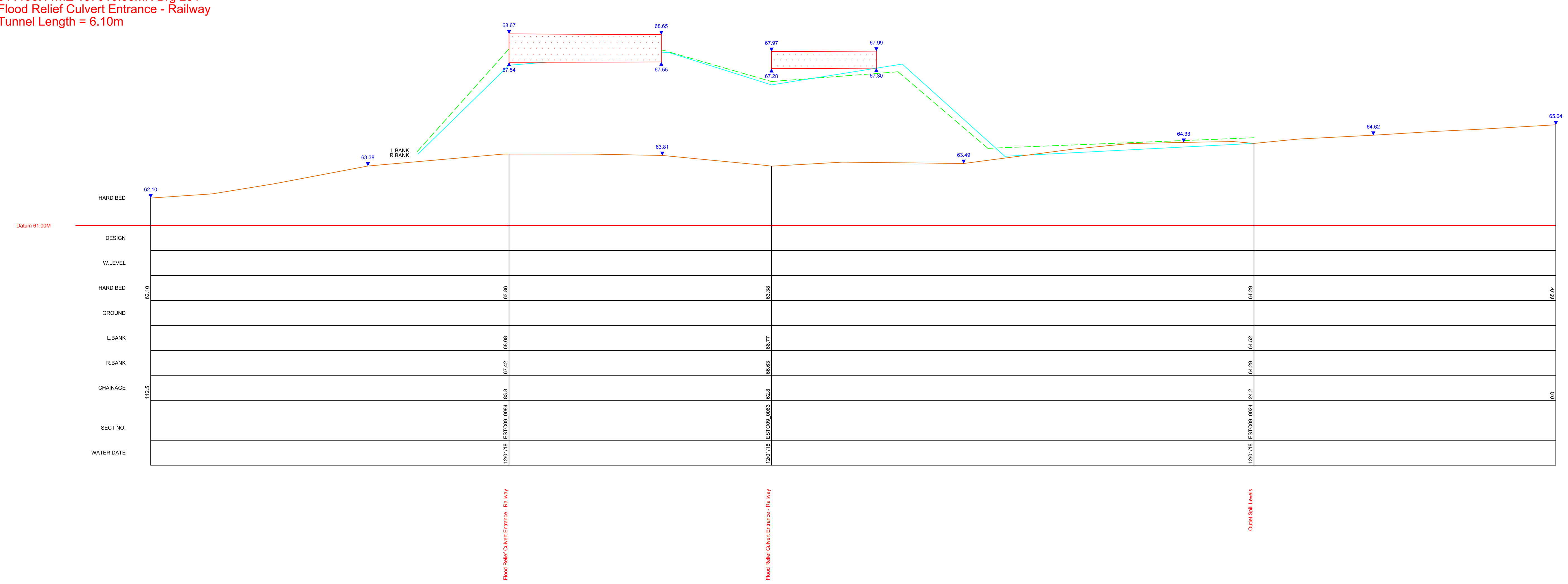


ESTO09_0063
611170.11mE 137600.83mN Brg 281
Flood Relief Culvert - Railway
Tunnel Length = 4.20m



ESTO09_0084
611198.11mE 137616.55mN Brg 281
Flood Relief Culvert Entrance - Railway
Tunnel Length = 6.10m

SCALE = 1:200 H, 1:100 V



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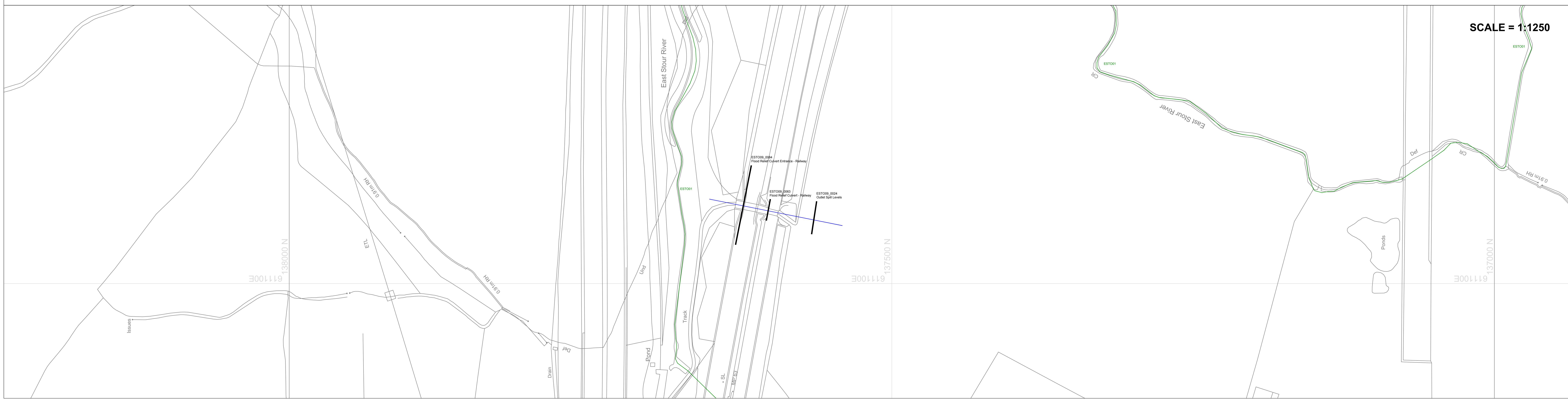


Original Drawing Size: A0

KEY TO SECTIONS:

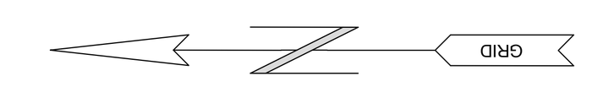
- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

LOCATION PLAN ORIENTATION



NOTES:
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3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
B	BOLLARD	FL	FLOOR LEVEL	RC	RIGHT CREST
BB	BELISHA BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BH	BOREHOLE	G	GULLY	RWP	RAINWATER PIPE
BL	BED LEVEL	GB	GAUGEBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BS	BUS STOP	GP	GATE POST	SK	SOAKAWAY
BM	BENCH MARK	GM	GAS MARKER	SL	SOFFIT LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SMP	SHEET METAL PILING
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	SP	SIGN POST
CIF	CORRUGATED IRON FENCE	IRF	IRON RAILING FENCE	STN	STATION
CL	COVER LEVEL	IWF	INTERWOVEN FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	SVP	SOIL VENT PIPE
CONC	CONCRETE	KIG	KERB INLET GULLY	SWF	SHEEP WIRE FENCE
CP	CONCRETE POST	LB	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CHESTNUT PALING FENCE	LC	LEFT CREST	TCB/TCP	TELEPHONE CALL BOX/POST
CR	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE T.V. MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
CUL	CULVERT	MF	MISCELLANEOUS FENCING	THL	THRESHOLD LEVEL
DK	DROP KERB	MH	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOWNPIPE	MP	MOORING PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DOWNSTREAM	MS	MILE STONE	TS	TREE STUMP
DWB	DOG WASTE BIN	NB	NOTICE BOARD	TSR	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	US	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
ECF	ELECTRIC CABLE FENCE	OS	ORDNANCE SURVEY	WL	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
FB	FLOWER BED	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		

(Abbreviations apply to EA survey data only)

	AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
E20730012	TR 0103 4107	35.975
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E50731496	TR 0128 4199	37.732
E50731537	TR 0667 3791	47.711
E50731538	TR 0671 3842	63.022
E50731571	TR 0666 3813	50.976
E50733004	TR 0504 3900	43.712
E50733005	TR 1056 3751	60.587
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E60731484	TR 0133 4200	37.463
E60731539	TR 0671 3828	52.251

Environment Agency
KENT & SOUTH LONDON REGION
Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

PROJECT/WATERCOURSE
EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS
EAST STOUR FLOOD RELIEF CULVERTS (EST009)
CROSS SECTIONS, LONG SECTION
& LOCATION PLAN
ESTO09_0024 TO ESTO09_0084

SURVEYED BY: MALTBY LAND SURVEYS LTD	Ref: 17_332	
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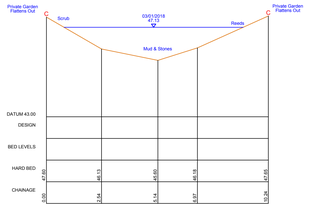

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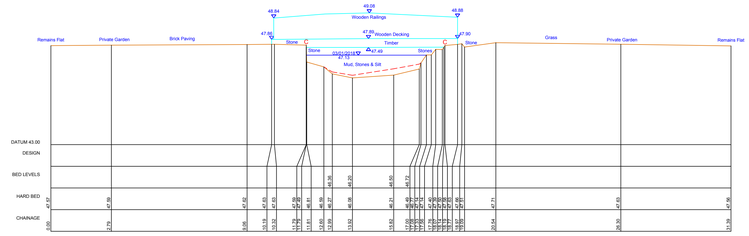
Open Channel



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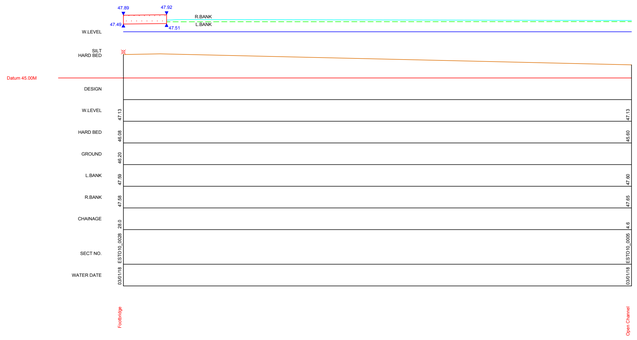

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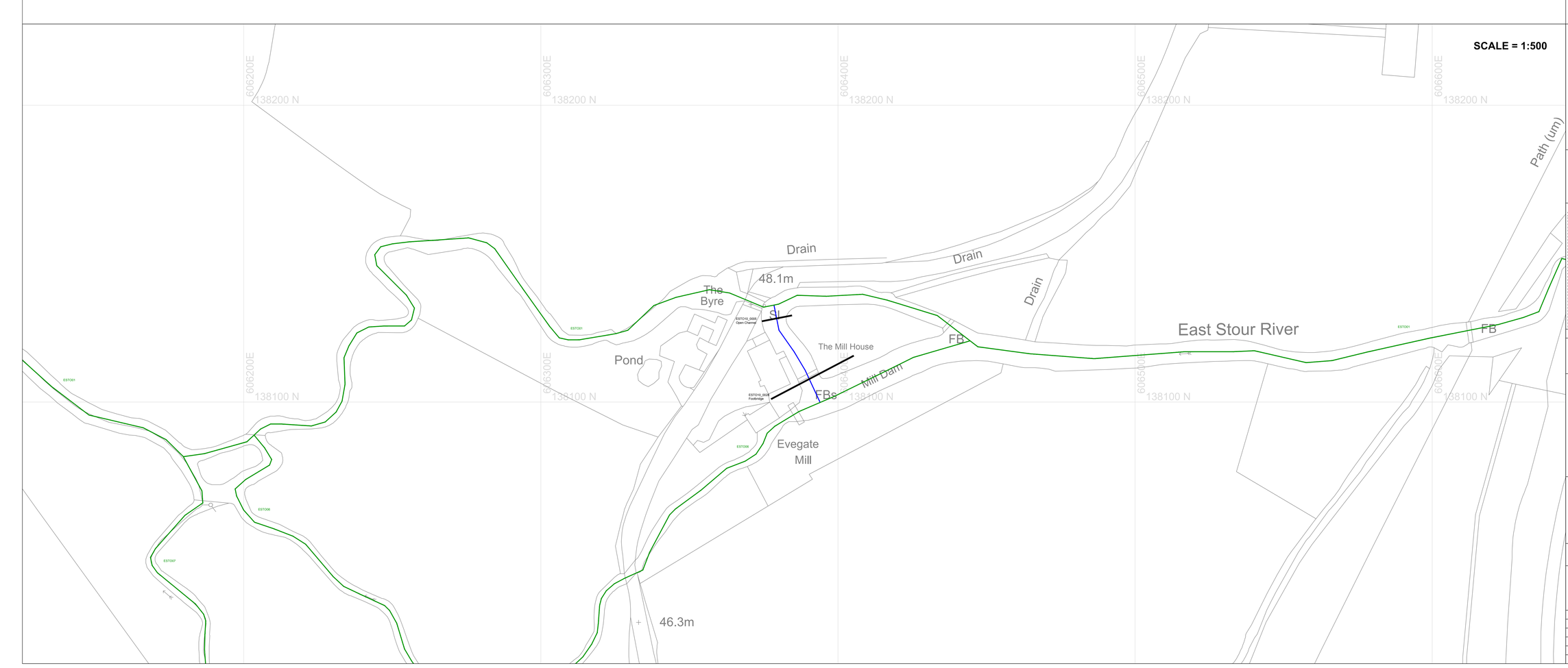

KEY TO SECTIONS:

- WATER LEVEL
- VISIBLE BED (TOP OF SILT) AND GROUND
- HARD BED (DETERMINED BY PROBING)
- C — BANK CREST

KEY TO LONGITUDINAL SECTION ONLY:

- LEFT BANK CREST
- RIGHT BANK CREST

} VIEWED LOOKING DOWNSTREAM. POINTS INDICATED BY 'C' ON CROSS SECTIONS AND ADDITIONAL POINTS BETWEEN SECTIONS

LOCATION PLAN ORIENTATION

GRID

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. THIS MAP IS REPRODUCED FROM THE OS MAP BY THE ENVIRONMENT AGENCY WITH PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE, © CROWN COPYRIGHT LICENCE. ALL RIGHTS RESERVED. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LICENCE NO. 100026380.
3. UNLESS OTHERWISE STATED ALL SECTIONS ARE VIEWED DOWNSTREAM.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PW	PARAPET WALL
A	AIR VALVE	FHM	FIRE HYDRANT MARKER	RD	RIGHT DRIED
BH	BOREHOLE	FL	FLOOD LIGHT	RS	RIGHT SPRING
BR	BOLLOW BEACON	FP	FENCE POST	RSJ	ROLLED STEEL JOIST
BOY	BOUNDARY	FMH	FOUL WATER MANHOLE	RTW	RETAINING WALL
BW	BOUNDARY WALL	G	GATE	RWP	RAIN WATER PIPE
BL	BED LEVEL	GB	GRASSBOARD	SC	STOP COCK
BRK	BRICKWORK	GL	GROUND LEVEL	SDP	STAND PIPE
BT	BT MANHOLE	GU	GULLY	SP	SOIL PIPE
BM	BENCH MARK	GM	GAS MARKER	SL	SUPPLY LEVEL
BWM	BRICK WALL	GV	GAS VALVE	SMH	STORM WATER MANHOLE
BWP	BARBED WIRE FENCE	H	INSPECTION CHAMBER	SMP	SUNKEN METAL PILING
CHF	CLOSE BOARDED FENCE	HR	HAND RAIL	SP	SIGN POST
CPF	CHAIN LINK OPEN MESH FENCE	IL	INVERT LEVEL	SS	SOIL STACK
CL	COVER LEVEL	MF	INTERMEDIATE FENCE	SV	SLUICE VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	TBM	TEMPORARY BENCH MARK
CLV	CLOSE VALVE	KR	KERB HALF SLAB	TWF	TIMBER WIRE FENCE
CP	CONCRETE POST	LS	LEFT SIDE	TEMP	TEMPORARY BENCH MARK
CRF	CROSS RAIL FENCE	LB	LEFT BANK	TP/TOP	TOP OF POST/TOP OF PILE/POST
CY	CYCLE RACK	LP	LAMP POST	TC	TELECOM CABINET
CTV	CABLE TV MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
D	DRAIN	MPF	METAL PALISADES FENCING	TP	TELEGRAPH POLE
DA	DROP KERB	MV	MARKER VALVE	TA	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DOWN PIPE	MP	METAL MOORING PILE	TOW	TOWING PATH WALL
DPC	DAMP PROOF COURSE	MWF	METAL RAILING FENCE	TSS	TIMBER RUBBING STRIP
DR	DOMESTIC RAIN	NS	MILE STONE	TS	TREE STUMP
E	ELECTRICITY	NT	NATIONAL TRUST	TRS	TUBULAR STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UC	UPSTREAM
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	UTS	UNABLE TO SURVEY
EC	ELECTRICITY CABLE	OHL	OVERHEAD POWER LINE	WL	WATER LEVEL/WATER LINE
ECP	ELECTRICITY CABLE PIT	OSR	OPEN STEEL RAILING	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WWF	WIRE MESH FENCE
ES	ELECTRICITY SUPPLY	PB	PILLAR BOX	WP	WOOD POST
ET	EARTHING BOLT	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	PO	POST	WV	WATER VALVE
F	FENCE	PSF	POST & RAIL FENCE	WY	WATER WAY
FBB	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to the survey data only)

AMENDMENT	DRN	CHKD	DATE

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
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E20730401	TR 0149 4253	32.567
E20730403	TR 0222 4027	38.489
E20731536	TR 0666 3814	51.806
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E20730021	TR 0158 4291	36.137
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E20731539	TR 0671 3842	63.022
E20731571	TR 0666 3813	50.978
E20733004	TR 0504 3900	43.147
E20731705	TR 1099 3751	60.967
E20731483	TR 0131 4070	35.916
E20731484	TR 0133 4200	37.863
E20731539	TR 0671 3828	52.251

Environment Agency

KENT & SOUTH LONDON REGION

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH

LOWMAP REGIONS

PROJECT/WATERCOURSE

EAST STOUR, ASHFORD TO STANFORD

SITE/LIMITS

EAST STOUR (EST010)
CROSS SECTIONS, LONG SECTION
& LOCATION PLAN
EST010_0005 TO EST010_0028

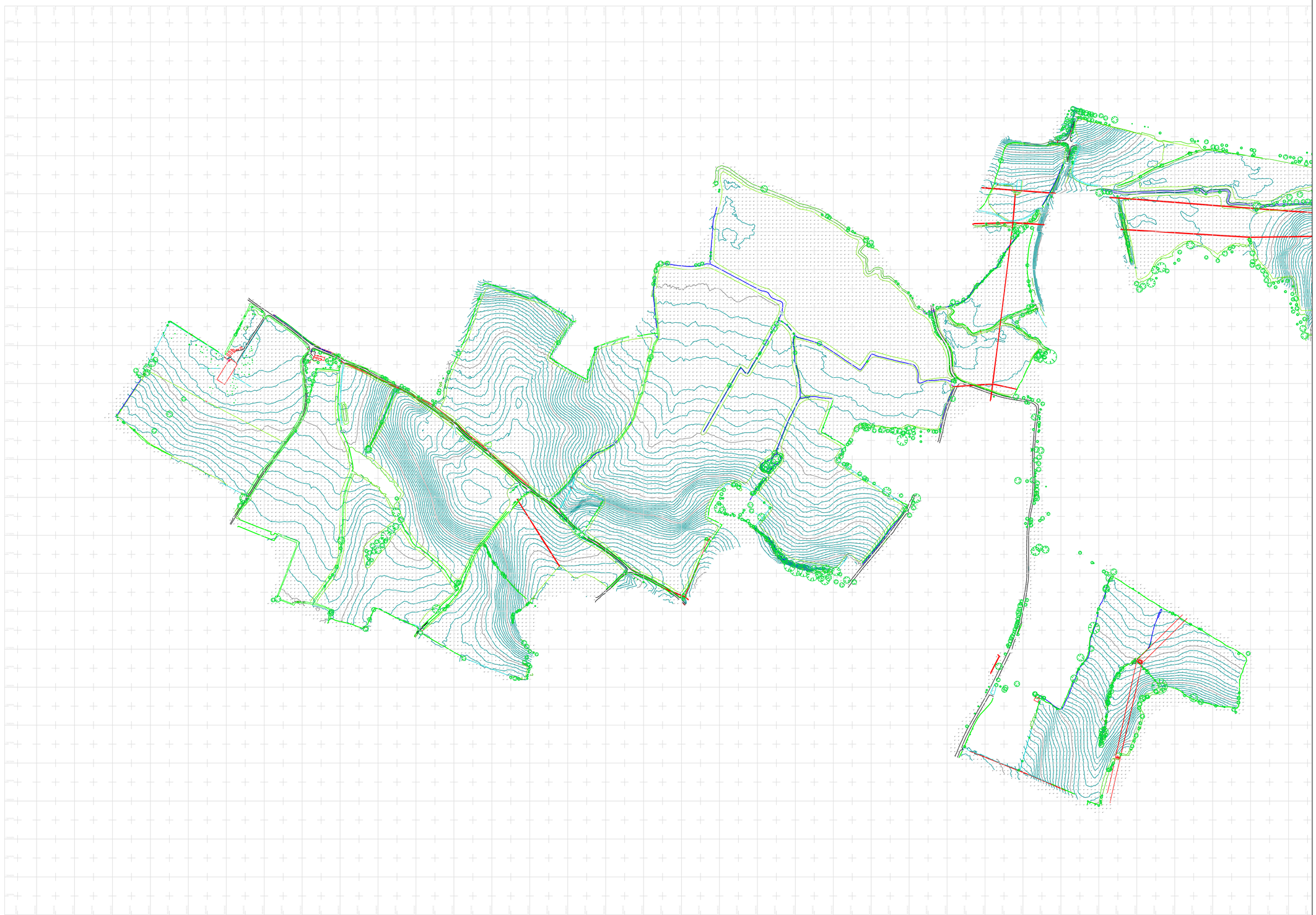
SURVEYED BY: MALTBY LAND SURVEYS LTD		Ref: 17_332
SURVEY DATE: JANUARY 2018		
SCALE: AS SHOWN	DRN: RC	CHKD: ITS
DATUM: OS GPS ACTIVE	DATE: MAR 18	DATE: MAR 18
GRID: NATIONAL GRID	DRAWING NO. X-J01058-41	REV. —
CAD FILENAME: X-J01058-41.dwg		

Annex C Sensat Topographic Survey

Annex B: East Stour Hydraulic Modelling Report

Stonestreet Green Solar Farm

EPL 001 Limited



Legend

- Building
- Bottom of Bank
- Concrete
- Drainage Ditch
- Fence
- Foot Path
- Grass Edge
- Hedge (Edge)
- Hedge Polyline
- KerbChannel
- KerbTop
- Overhead Wires
- Tarmac
- Top of Bank
- Edge of Tree Canopy Left
- Edge of Tree Canopy Right
- Verge
- Wall
- Waters Edge
- White Line
- Gate
- Tree 2Pt Canopy
- EP — Electricity Pole

Issue	Date	By	Chkd	Appd
01	28/01/22	CW	BC	CW

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Sensat, 160 Old St, London EC1V 9BP
www.sensat.co.uk
contact@sensat.co.uk
+44 (0) 20 3488 2645

Client
EPL 001 Ltd

Job Title
Stonestreet Solar Farm

Drawing Title
Topographic Survey derived from UAV Photogrammetry & Lidar Point Clouds
Grid: OSGB36NG & OSGM15

Scale at A1 1:5000

Plot ID

Drawing Status
For Information

Job No	Drawing No	Issue
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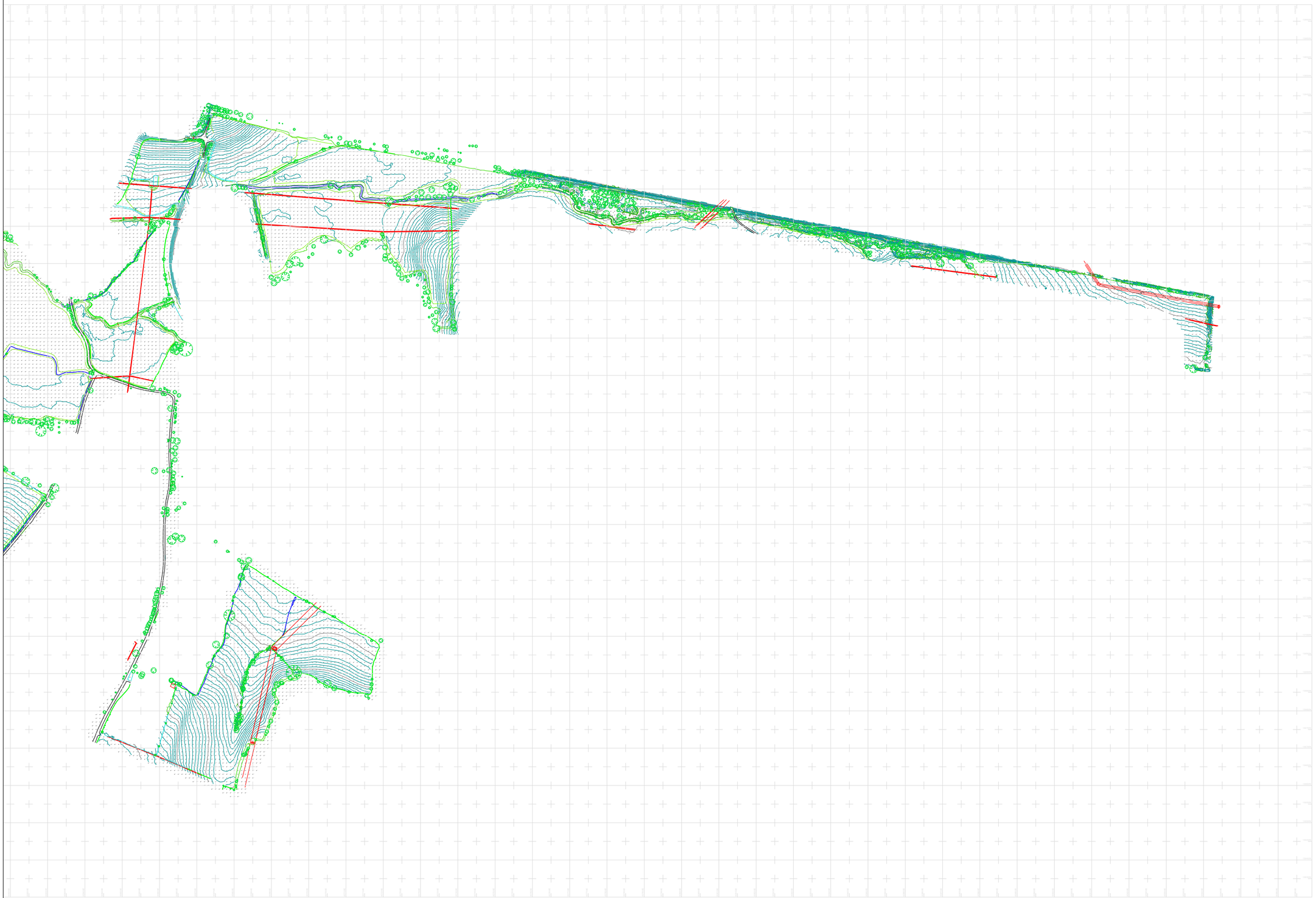

Legend

- Building
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- Fence
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Issue	Date	By	Chkd	Appd
01	28/01/22	CW	BC	CW

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Client
EPL 001 Ltd

Job Title
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Drawing Title
Topographic Survey derived from UAV Photogrammetry & Lidar Point Clouds
Grid: OSGB36NG & OSGM15

Scale at A1 1:5000

Plot ID

Drawing Status
For Information

Job No	Drawing No	Issue
S22213-00	**Sheet 2 of 2**	**01**

Annex D Hydrology Report
(provided as standalone report)

Annex B: East Stour Hydraulic Modelling Report

Stonestreet Green Solar Farm

EPL 001 Limited

Hydrology Report

Stonestreet Green Solar Farm

EPL 001 Limited

2nd Floor, Regis House, 45 King William Street, London, United Kingdom, EC4R 9AN

Prepared by:

SLR Consulting Limited

Ground Floor Helmont House , Churchill Way, Cardiff,
CF10 2HE

SLR Project No.: 425.064837.00001

24 January 2024

Revision: 00

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
Method Statement	24 August 2023	[redacted]	[redacted]	[redacted]
Calculations Revision 1	25 January 2024	[redacted]	[redacted]	[redacted]

Basis of Report

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Appendices

Digital Files – Input Data

FEH_Catchment_Descriptors_609400_137700_v5_0_1.xml
FEH_Catchment_Descriptors_608350_138850_v5_0_1.xml
FEH_Catchment_Descriptors_608900_138550_v5_0_1.xml
FEH_Catchment_Descriptors_607250_137150_v5_0_1.xml
FEH_Catchment_Descriptors_605300_138600_v5_0_1.xml
FEH_Point_Descriptors_605897_137543_v5_0_1.xml

Digital File – Project or Calculation Files

ReFH2_and_WINFAP_Design_Flow_Estimation_Summary_Sheet_v2.xlsx
Stat – WINFAP Projects and Non Flood Years Adjustment Spreedsheets
ReFH – ReFH Projects and CSV ouputs

Digital Files – Output Data

ESUS Scaled Hydrographs.xlsx
ICHL Scaled Hydrographs.xlsx
ICULV1 Scaled Hydrographs.xlsx
ICULV2 Scaled Hydrographs.xlsx
IES1 Scaled Hydrographs.xlsx
IES2 Scaled Hydrographs.xlsx
ITRIB1a Scaled Hydrographs.xlsx
ITRIB1b Scaled Hydrographs.xlsx
ITRIB2a Scaled Hydrographs.xlsx
ITRIB2b Scaled Hydrographs.xlsx
ITRIB3 Scaled Hydrographs.xlsx
TRIB1 Scaled Hydrographs.xlsx
TRIB2 Scaled Hydrographs.xlsx
TRIB3 Scaled Hydrographs.xlsx

Other Supporting Information

Upper Stour hydrological assessment by continuous simulation. Draft V3. JBA, May 2023
RPs_DesignFlows20230512.xlsx (JBA, 2023)

Autumn 2000 Great Stour flood rarity. JBA, July 2014.

2013-2014 Post Flood Analysis: Kent & South London Area. JBA, December 2014.

Acronyms and Abbreviations

AEP	Annual exceedance probability
AMAX	Annual Maximum
AREA	Catchment area (km2)
BFI	Base Flow Index
BFIHOST19	Base Flow Index derived using the HOST soil classification, revised in 2019
CSM	Continuous Simulation Modelling
FARL	FEH index of flood attenuation due to reservoirs and lakes
FEH	Flood Estimation Handbook
FSA	Flood Storage Area
GEV	Generalised Extreme Value
GLO	Generalised Logistic
HOST	Hydrology of Soil Types
IF	Impervious Fraction
IRF	Impervious Runoff Factor
LF	Low flow statistics (flow duration curve)
LiDAR	Light Detecting and Ranging
NRFA	National River Flow Archive
POT	Peaks Over a Threshold
QMED	Median Annual Flood (with return period 2 years)
ReFH	Revitalised Flood Hydrograph method
ReFH2	Revitalised Flood Hydrograph 2 method
SAAR	Standard Average Annual Rainfall (mm)
Tp	Time to peak of the instantaneous unit hydrograph
URBAN	Flood Studies Report index of fractional urban extent
URBEXT1990	FEH index of fractional urban extent
URBEXT2000	Revised index of urban extent, measured differently from URBEXT1990
WINFAP	Windows Frequency Analysis Package (software that can be used for FEH statistical method)

1.0 Summary of Assessment

1.1 Introduction

This report has been prepared inline with the Environment Agency's Flood Estimation Guidelines (LIT 11832) and follows the format of the Environment Agency's Flood Estimation Report Template (LIT 65087). It provides a record of the hydrological context, the method statement, the calculations, the decisions made, and the results of flood estimation.

1.1.1 Catchment location

East Stour River and Tributaries.

Stonestreet Green, Ashford, Kent E 605285 N 138611.

1.1.2 Purpose of study and complexity

Inflows for hydraulic model of the East Stour River in Stonestreet Green, Kent in relation to the Development Consent Order (DCO) application for Stonestreet Green Solar ("the Project"). The land within the Order limits is known as the 'Site'. The Main Rivers and Ordinary Watercourses in the vicinity of the Site are shown in the accompanying **HR Figure 1**. Hydrologic estimation consists of;

- Downstream lumped catchment - East Stour River E 605300 N 138600;
- Four upstream lumped catchments - East Stour River E 609400 N 137700, Unnamed Tributary 1 E 608350 N 138850, Unnamed Tributary 2 E 608900 N 138550 and Unnamed Tributary 3 E 607250 N 137150;
- Ten intervening sub-catchments.

1.1.3 Key catchment features

Geology: Headwaters to the north at the border of the Gault and Lower Chalk formations, middle catchment underlain by intergranually permeable sedimentary bedrocks consisting of Mudstone, Sandstone, Limestone and Siltstone. Lower catchment underlain by Weald Clay formation. Hydraulic model includes the Aldington Flood Storage Area (FSA).

1.1.4 Flooding mechanisms

Risk of fluvial flooding from the East Stour River.

1.1.5 Gauged / ungauged

Ungauged catchment. East Stour at South Willesborough is present downstream, however due to presence of FSA upstream not suitable for QMED or Pooling. The following local gauges have been reviewed:

- **East Stour at South Willesborough (NRFA - 40023)** 15-min flow data available. Upstream flood alleviation scheme truncates peaks.
- **Stage Gauge - Aldington Upstream (EA Gauge - E4351)** 15-min stage data available.
- **Old Mill Stream at Alyesford (NRFA - 40035)** Suitable for QMED, local catchment to the north of the East Stour River.
- **Great Stour at Chart Leacon (NRFA – 40022)** Suitable for QMED, local catchment to the west of Ashford with similar geology to the East Stour River.

- **Great Stour at Horton (NRFA – 40011)** Suitable for QMED and Pooling, catchment is downstream of site.
- **Hexden Channel at Hopemill (NRFA – 40021)** Suitable for QMED, local catchment with similar geology to Unnamed Tributary 3.
- **Rainfall Gauge – Sellindge (EA Gauge – E4510)** 15-min rainfall data. Within East Stour River catchment to the northeast of Aldington FSA.

1.1.6 Final choice of method

Hybrid method, Rainfall Runoff scaled to peak flow from Statistical method for lumped catchments up to and including the 1 in 100 year event. 1 in 1000 year peak flows scaled from Statistical 1 in 100 year peak flow using Rainfall Runoff 1 in 100 year to 1 in 1000 year peak flow uplift.

1.1.7 Key limitations / uncertainties in results

Lack of gauge data suitable for peak flow estimates for the East Stour.

1.2 Flood Frequencies

- The frequency of a flood can be quoted in terms of a return period, which is defined as the average time between years with at least one larger flood, or as an annual exceedance probability (AEP), which is the inverse of the return period.
- Return periods are output by the Flood Estimation Handbook (FEH) software and can be expressed more succinctly than AEP. However, AEP can be helpful when presenting results to members of the public who may associate the concept of return period with a regular occurrence rather than an average recurrence interval.
- Results tables in this document contain both return period and AEP titles.
- The table below is provided to enable quick conversion between return periods and annual exceedance probabilities.

AEP	50	20	10	5	3.33	2	1.33	1	0.5	01
AEP	0.5	0.2	0.1	0.05	0.033	0.02	0.013	0.01	0.005	0.001
Return period (yrs)	2	5	10	20	30	50	75	100	200	1,000

2.0 Method Statement

2.1 Requirements for Flood Estimates

2.1.1 Overview and Project Scope

The purpose of the study is to provide inflows to the hydraulic model of the reaches of the East Stour River and associated tributaries shown in the accompanying **HR Figure 2**. Both peak flow and hydrographs are required.

Design flows of the 5.0%, 3.3%, 1.0% and 0.1% annual exceedance probability (AEP) have been estimated to reflect Environment Agency (EA) Flood Zones[1]. The 30% uplift for the higher central and 55% uplift for the upper end 2050s epoch climate change allowances[2] have been applied to the 1% AEP event to account for the impact of climate change during the 40 year lifetime of development (starting in 2026).

Five catchments have been analysed as part of this hydrological study:

- East Stour River at E 609400 N 137700 – Upstream lumped catchment.
- Unnamed Tributary 1 at E 608350 N 138850 – Upstream lumped catchment.
- Unnamed Tributary 2 at E 608900 N 138550 – Upstream lumped catchment.
- Unnamed Tributary 3 at E 607250 N 137150 – Upstream lumped catchment.
- East Stour at E 605300 N 138600 – Downstream lumped catchment.

The overall project aim is to provide an updated assessment of flood risk to the Site. Part of the Site is within the 2016 South Ashford flood study however new hydrological estimates are required to improve the understanding of flood risk to the Site.

2.2 The Catchment

2.2.1 Maps:

The catchment and gauging stations are shown in **HR Figure 2**.

2.2.2 Catchment Description

2.2.2.1 East Stour

Catchment geology consists of Lower Chalk (high permeability) formations and Gault (low permeability) formation consisting of Clay, Mudstone and Siltstone in the headwaters, Sedimentary bedrocks consisting of Mudstone, Sandstone, Limestone and Siltstone (mixed permeability) in the middle catchment and Weald Clay (low permeability) formation in the lower catchment. Includes the Aldington FSA, with two unnamed tributaries flowing in from the north, the East Stour headwaters are steep peaking in the north of unnamed Tributary 2 at approximately 180mAOD. The middle and lower catchment have a shallow gradient with the downstream extent of the catchment at approximately 40mAOD. The catchment is essentially rural with limited small areas of urbanisation.

[1] GOV.UK, https://www.gov.uk/guidance/flood-risk-and-coastal-change accessed 4th August 2023

[2] GOV.UK https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances accessed 4th August 2023

2.2.2.2 Unnamed Tributary 1

Catchment geology consists of Lower Chalk formations and Gault formation consisting of Clay, Mudstone and Siltstone in the upper catchment and Sedimentary bedrocks consisting of Sandstone, Siltstone and Mudstone in the lower catchment. The headwaters are steep peaking in the north at approximately 180mAOD. The downstream extent of the catchment is at approximately 50mAOD. The catchment is slightly urbanised containing the villages of Bradbourne, East Bradbourne, Bradbourne Lees and Lily Vale.

2.2.2.3 Unnamed Tributary 2

Catchment geology consists of Lower Chalk formations and Gault formation consisting of Clay, Mudstone and Siltstone in the upper catchment and Sedimentary bedrocks consisting of Sandstone, Siltstone and Mudstone in the lower catchment. The headwaters are steep peaking in the north at approximately 180mAOD. The catchment is essentially rural.

2.2.2.4 Unnamed Tributary 3

Catchment geology consists of the Hythe Formation interbedded Sandstone and Limestone in the upper catchment and Weald Clay formation in the lower catchment. The catchment is gently sloping, reaching approximately 100mAOD to the south east with the downstream extent of the catchment at approximately 50mAOD. The catchment is essentially rural.

2.3 Hydrometric Data

2.3.1 Source of flood peak data

NRFA peak flows dataset, Version 11.1, released March 2023. This contains data up to water year 2021.

2.3.2 Gauging stations (flow and level)

Table 2-1: Gauging stations (flow and level)

Watercourse	Station Name	Gauging Authority Number	NRFA Number	Catchment area (km^2)	Type (Rated/ ultrasonic/ level)	Start of Record and end (if station closed)
East Stour	South Willesborough	654210001	40023	58.8	Flat V	01/1979
Old Mill Stream	Aylesford	654220001	40035	18.0	Velocity-area	12/2003
Great Stour	Chart Leacon	654110001	40022	72.5	Flat V	01/1967
Great Stour	Horton	654400001	40011	345	Broad-crested weir/Velocity-area	01/1964
Hexden Channel	Hopemill	556710001	40021	32.4	Flume	01/1973

2.3.3 Data available at each flow gauging station

Table 2-2: Data available at each flow gauging station

Station Name	Start and end of flood peak record	Update for this study?	OK for QMED?	OK for pooling?	Data quality check needed?	Station and flow data quality summary
South Willesborough	1975 – 2022	No	No	No	No	Upstream flood alleviation scheme truncates peak flows therefore not suitable for QMED or Pooling estimate.
Aylesford	2003 – Present	No	Yes	No	No	Peak flow gauging's are good. Water year 2005/2006 and 2012/2012 rejected as AMAX likely occurred during period of missing data.
Chart Leacon	1980 – 2021	No	Yes	No	No	Theoretical rating at high flows. Rating extended to 1.8m using hydraulic modelling but low confidence beyond 1.13m as flow is out of bank.
Horton	1964 – 2021	No	Yes	Yes	No	Gauged beyond AMAX3. Rating is reliable.

2.3.4 Rating Equations

Table 2-3: Rating Equations

Station name	Type of rating e.g., theoretical, empirical; degree of extrapolation	Rating review needed?	Comments and link to any rating reviews
South Willesborough	Theoretical rating to 5.3 cumecs (under review)	No	Station not suitable for QMED or Pooling estimates. Almost all flows contained.
Aylesford	Rating derived from ultrasonic gauge data.	No	Peak flow data appears to be good.
Chart Leacon	Theoretical rating, velocity-area calibration for high flows.	No	Rating validated to QMED.
Horton	Theoretical rating from weir equation.	No	All flows within weir range. Rating is thought to be reliable.
Hopemill	Power law rating in three sections.	No	Gauged within 30% of QMED. Flows observed to be within bank.

2.3.5 Other data available and how it has been obtained

Table 2-4: Other data available and how it has been obtained

Type of data	Data relevant to this study?	Data available?	Source of data	Details
Check flow gaugings	No	Yes	NRFA	Ratings suitable for proposed uses.
Historical flood data	Yes	Yes	Autumn 2000 Great Stour flood rarity report, July 2014 and 2013-2014 Post Flood Analysis: Kent & South London Area, December 2014.	Analysis includes events where the Aldington FSA reached full capacity.
Flow or river level data for events	Yes	Yes	NRFA/EA Hydrology Data API	**South Willesborough:** 15 minute flow data for 29th December 1979 and 6th February 2001 events. **Horton:** 15 minute flow data for 18th January 1969, March 1975 and 9th February 2001 events. **Aylesford:** Full 15 minute flow dataset has been requested from the EA. **Chart Leacon:** Full 15 minute flow dataset has been requested from the EA. **Hopemill:** Full 15 minute flow dataset has been requested from the EA.

Type of data	Data relevant to this study?	Data available?	Source of data	Details
Rainfall data for events	Yes	Yes	NRFA/EA Hydrology Data API	**South Willesborough:** Catchment daily rainfall data. **Aylesford:** Catchment daily rainfall data. **Chart Leacon:** Catchment daily rainfall data. **Horton:** Catchment daily rainfall data. **Hopemill:** Catchment daily rainfall data. **Sellindge:** 15 minute rainfall data for December 2003, February 2014, April/May 2018 and March 2020 events.
Potential evaporation data	No	No		Evaporation data not thought to have a large impact on flooding at The Site due to peaks occurring during large winter storms.
Results from previous studies	Yes	Yes		South Ashford 2016 flood risk mapping study. Upper Stour hydrological assessment by continuous simulation (JBA, 2023)
Other data or information	No	No		

2.3.6 Conclusions of hydrometric data review

Table 2-5: Conclusions of hydrometric data review

Station name	Rating suitability	Suitability for flood estimation calculations
South Willesborough	Suitable	Not suitable

Station name	Rating suitability	Suitability for flood estimation calculations
Aylesford	Suitable	QMED only
Chart Leacon	Suitable	QMED only
Horton	Suitable	QMED and Pooling
Hopemill	Suitable	QMED only

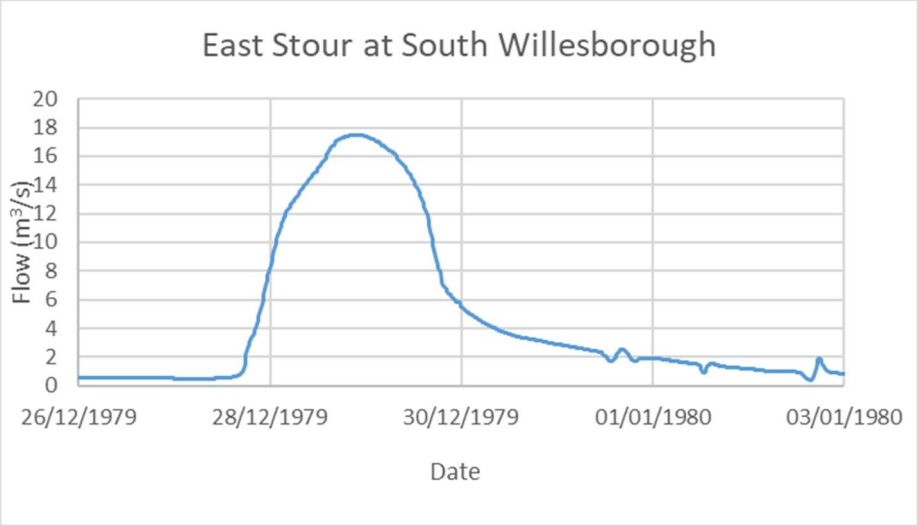
2.4 Hydrological Understanding of the Catchment

2.4.1 Plots of flood peak data and interpretation

2.4.1.1 East Stour at South Willesborough

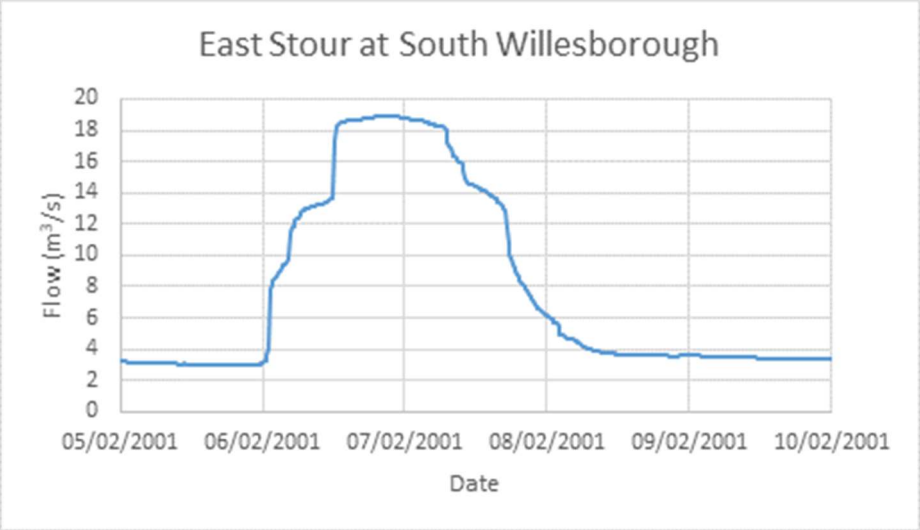
Seasonality of peak flow events is skewed to winter floods.

Figure 2-1: South Willesborough plots of flow data and interpretation (Dec 1979-Jan 1980)



Event starts at approximately 17:00 27/12/1979 reaching a peak flow of 17.5 m^3/s at 20:00 28/12/1979. Data is from prior to construction of the Aldington FSA in 1989.

Figure 2-2: South Willesborough plots of flow data and interpretation (Feb 2001)



Event starts at approximately 00:00 06/02/2001 reaching a peak flow of 18.9 m^3/s at 19:00 06/02/2001. Data is after the completion of the Aldington FSA. Note peak flow is beyond upper limit of rating.

2.4.1.2 Old Mill Stream at Aylesford

Max gauged flow of 7.189 m^3/s. All AMAX events occur during winter.

Figure 2-3: Aylesford plots of flood peak data and interpretation (Chart)

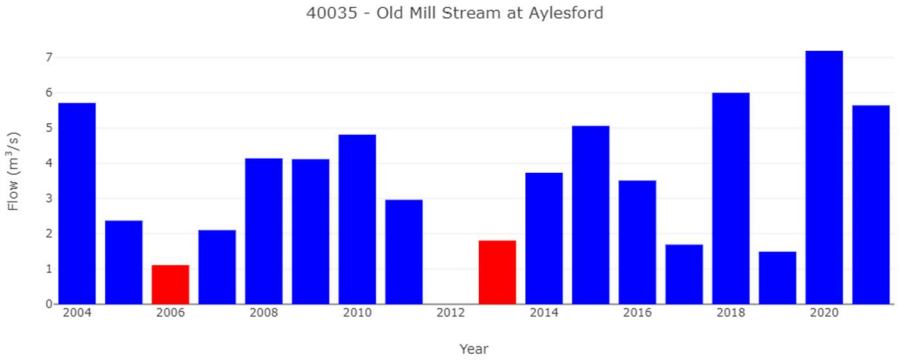
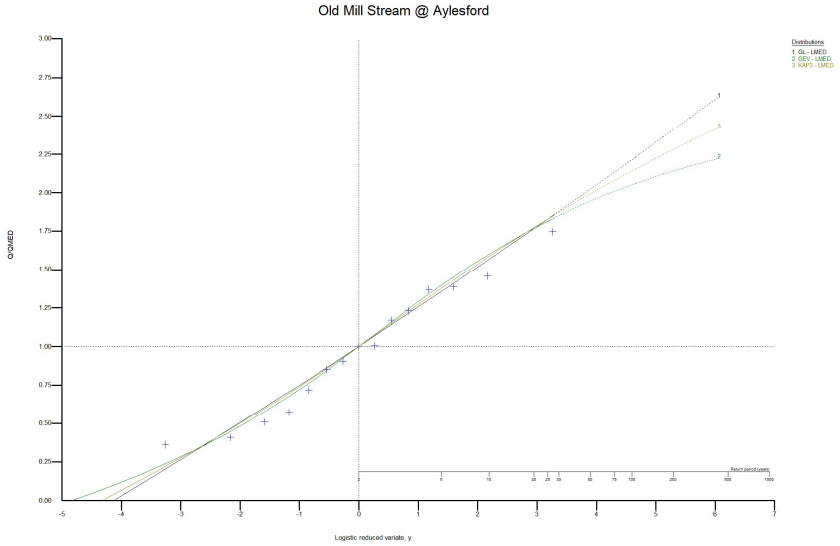


Figure 2-4: Aylesford plots of flood peak data and interpretation (Graph)



2.4.1.3 Great Stour at Chart Leacon

Max gauged flow of 20.316 m^3/s. AMAX events are heavily skewed to winter events.

Figure 2-5: Chart Leacon plots of flood peak data and interpretation (Chart)

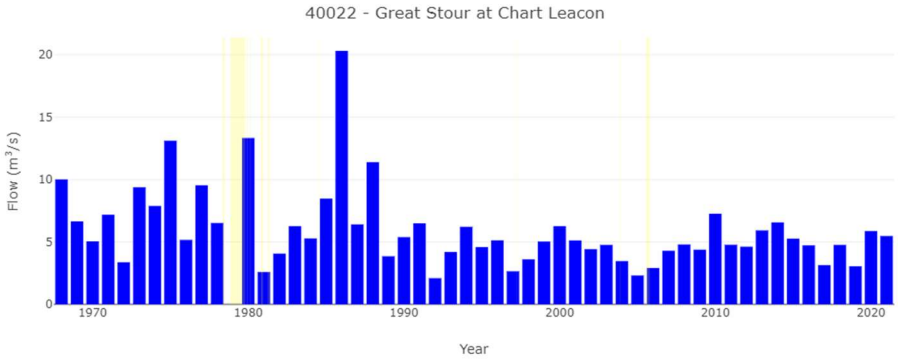
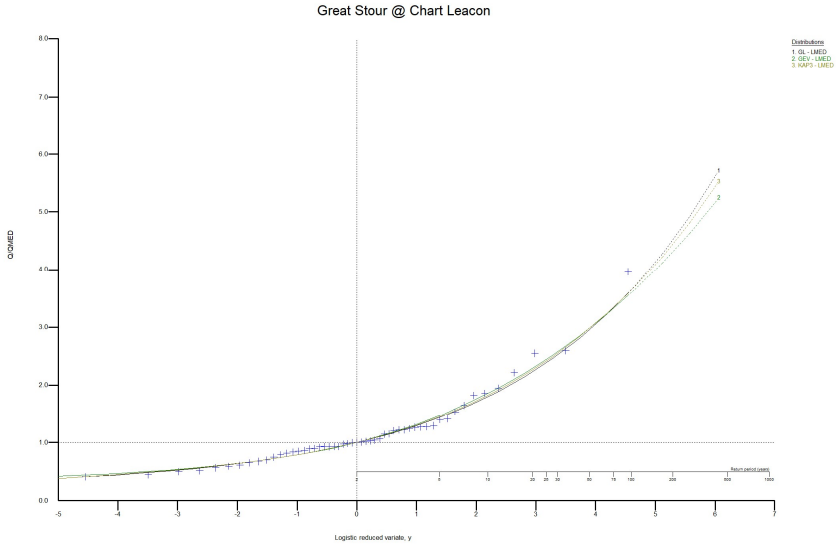


Figure 2-6: Chart Leacon plots of flood peak data and interpretation (Graph)



2.4.1.4 Great Stour at Horton

Max gauged flow of 33.658 m^3/s. AMAX events are heavily skewed to winter events.

Figure 2-7: Horton plots of flood peak and flow data and interpretation (Chart)

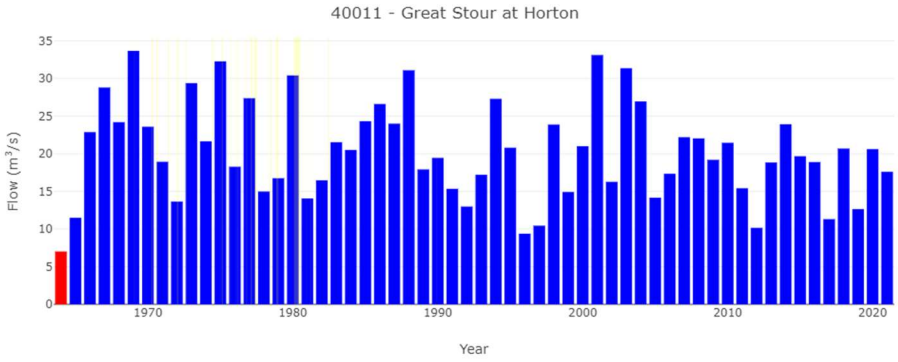


Figure 2-8: Horton plots of flood peak and flow data and interpretation (Graph)

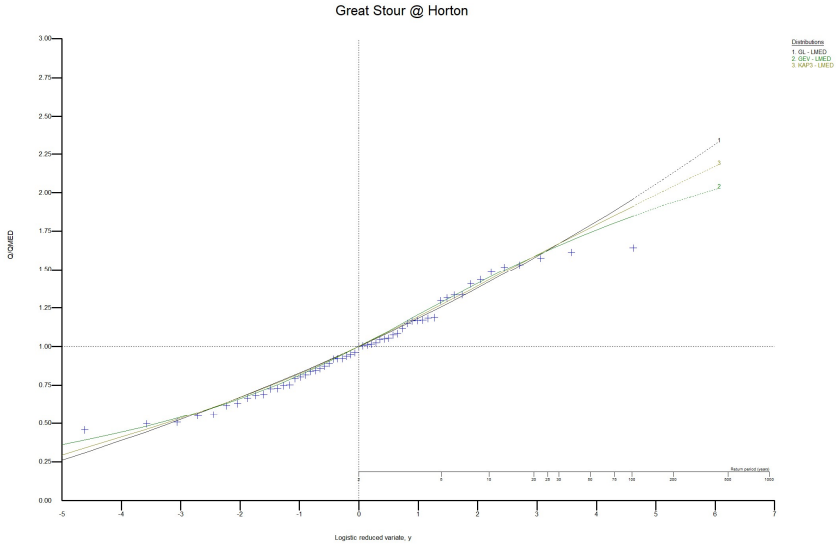


Figure 2-9: Horton plots of flood peak and flow data and interpretation (Jan 1969)

Event starts at approximately 00:00 18/01/1969 reaching a peak flow of 17.5 m^3/s at 12:45 18/01/1969.

Figure 2-10: Horton plots of flood peak and flow data and interpretation (March 1975)

Peak flows appear to be truncated at 12.9 m^3/s.

Figure 2-11: Horton plots of flood peak and flow data and interpretation (Feb 2001)

Event starts at approximately 00:00 08/02/2001 reaching a peak flow of 33.1 m^3/s at 03:00 09/02/2001.

2.4.1.5 Hexden Channel at Hopemill

Max gauged flow of 28.88 m^3/s. AMAX events are heavily skewed to winter events.

Figure 2-12: Hopemill plots of flood peak data and interpretation (Chart)

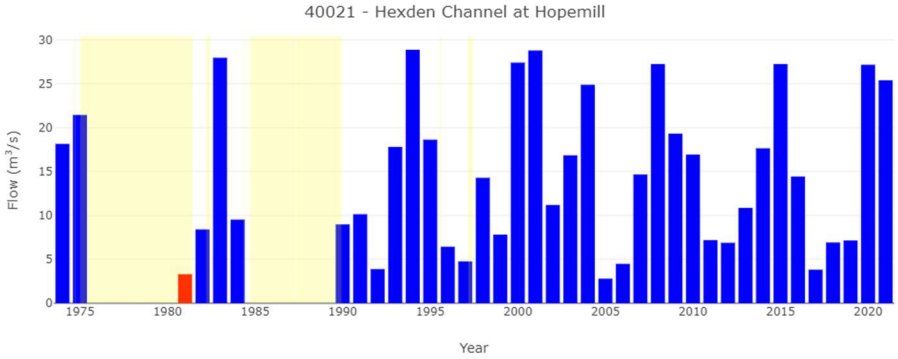
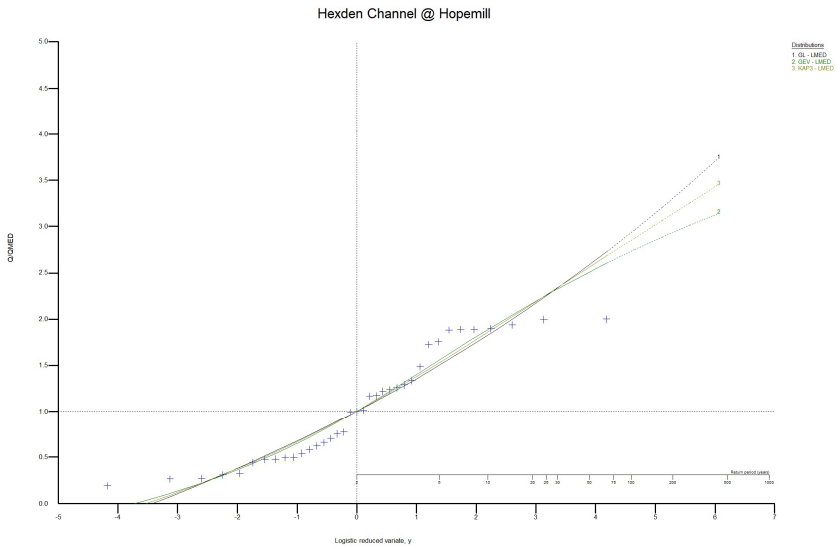


Figure 2-13: Hopemill plots of flood peak data and interpretation (Graph)



2.4.2 Conceptual model

The hydraulic model is volume driven model, particularly when considering the defended scenario due to the presence of the Aldington FSA. The East Stour River is most susceptible from winter rainfall events, due to the groundwater influence on flows and the attenuating affect of the Aldington FSA on peak flows during flashier summer rainfall events.

The Site is at risk of flooding from the East Stour River.

Blockages may be possible in the culverts through the railway embankment upstream of the Site, and at the inlet of to the control structures in the Aldington FSA embankment. Downstream of the site blockages are highly unlikely due the large opening of the bridges, and lack of potential debris sources.

2.4.3 Unusual catchment features

The Aldington FSA is within the catchment the approximate extent of which is shown by **HR Figure 3**.

The headwaters of the catchment are underlain by highly permeable Chalk bedrock, with the sources of the East Stour River and Unnamed Tributaries 1 and 2 to the north of the Site arising from where the Lower Chalk formations meet the Gault Formation outcrop and as such flows through the East Stour River are expected to be groundwater influenced.

2.5 Initial Choice of Approach

2.5.1 Are FEH methods appropriate?

Yes

2.5.2 Initial choice of method(s) and reasons

Due to the available local gauges suitable for QMED adjustment, the statistical method is deemed the most appropriate estimate of peak flows. The growth in flow rates up to and including the 1% AEP event is best estimated from a pooling group of hydrologically similar catchments. As the flow gauges on the East Stour River are not suitable for QMED or pooling estimates, a single site analysis would not be suitable. Therefore ungauged statistical methods will be used up to and including the 1% AEP event.

Due to the greater availability of long rainfall record and spatial consistency of extreme rainfall events and therefore greater confidence in rainfall frequency curves for large return periods. A hybrid approach will be used for the 0.1% AEP event, with the ReFH2 1% to 0.1% AEP event ratio applied to the statistical 1% AEP peak flow.

2.5.3 How will hydrograph shapes be derived if needed?

Hydrograph profiles will be derived from ReFH2, and scaled so that the critical duration winter peak flow matches peak flow estimates from the statistical (hybrid for 0.1% AEP) method. This is as the local AMAX events are shown to heavily skewed to winter events and the lack of suitable gauge data for a study of average hydrograph shapes. Duration sensitivity testing will be completed as part of the accompanying hydraulic modelling study.

2.5.4 Will the catchment be split into sub-catchments? If so, how?

The East Stour River downstream lumped catchment has been defined using the FEH webservice boundary and has been split into four upstream lumped catchments, the East Stour River, Unnamed Tributaries 1, 2 and 3, also defined using the FEH webservice boundaries. The remaining intervening area has been split into ten sub-catchments defined using interpretation of 1m resolution LiDAR data.

2.5.5 Software to be used

FEH Web Service[3], WINFAP 5[4] and ReFH2.3

[3] CEH 2015. The Flood Estimation Handbook (FEH) Online Service, Centre for Ecology & Hydrology, Wallingford, UK.

[4] WINFAP 5 © Wallingford HydroSolutions Limited 2023.

3.0 Locations Where Flood Estimates are Required

3.1 Summary of Subject Sites

The table below lists the locations of the subject sites. The site codes listed below are used in all subsequent tables to save space. The locations of the catchments are shown by **HR Figure 4**.

Table 3-1: Flood Estimate Subject Sites

Site code	Type of estimate: lumped (L) or sub-catchment (S)	Water-course	Site name / description	Easting	Northing	AREA on FEH Web Service (km2)	Revised AREA (if altered) (km2)
ESUS	L	East Stour	East Stour Upstream	609400	137700	19.49	N/A
TRIB1	L	Unnamed Tributary 1	Unnamed tributary of the East Stour A20 crossing near Water Farm.	608350	138850	7.16	N/A
TRIB2	L	Unnamed Tributary 2	Unnamed tributary of the East Stour at A20 crossing near Brindles.	608900	138550	12.85	N/A
TRIB3	L	Unnamed Tributary 3	Unnamed tributary of the East Stour at Harringe Bridge	609400	137700	3.72	N/A
ESDS	L	East Stour	East Stour Downstream	605300	138600	51.91	N/A
IES1	S	East Stour	Intervening area of the East Stour upstream of the FSA	606667	138139	3.72 (TRIB3 used as donor)	2.116
IES2	S	East Stour	Intervening area of East Stour downstream of FSA	605300	138600	3.72 (TRIB3 used as donor)	2.543
ITRIB3	S	Unnamed Tributary 3	Intervening area of Unnamed tributary 3	606659	137912	3.72 (TRIB3 used as donor)	1.206
ICULV1	S	Contributing area	Contributing area into western most culvert upstream of FSA	607105	138375	N/A (point descriptor used)	0.521
ICULV2	S	Contributing area	Contributing area into next culvert east of ICULV1	607425	138315	N/A (point descriptor used)	0.827

Site code	Type of estimate: lumped (L) or sub-catchment (S)	Water-course	Site name / description	Easting	Northing	AREA on FEH Web Service (km2)	Revised AREA (if altered) (km2)
ITRIB1a	S	Unnamed Tributary 1	Contributing area flowing into Unnamed tributary 1 between the A20 and M20 roads	608154	138697	N/A (point descriptor used)	0.532
ITRIB1b	S	Unnamed Tributary 1	Contributing area flowing into Unnamed tributary 1 between the M20 and railway embankment	607685	138266	N/A (point descriptor used)	0.290
ICHL	S	Contributing area	Contributing area flowing into Church Lane railway embankment underpass.	608121	138185	N/A (point descriptor used)	0.279
ITRIB2a	S	Unnamed Tributary 2	Contributing area flowing into Unnamed tributary 2 between the A20 and M20 roads	608661	138378	N/A (point descriptor used)	0.217
ITRIB2b	S	Unnamed Tributary 2	Contributing area flowing into Unnamed tributary 2 between the M20 and railway embankment	608579	138101	N/A (point descriptor used)	0.167

3.2 Catchment Descriptors

3.2.1 Final catchment descriptors at each subject site

Any catchment descriptor values that have been manually adjusted are shown in Red. Note for some catchments FARL, DPLBAR, DPSBAR, URBEX2000 and FPEXT are not applicable as point descriptors and plot scale equations have been used.

Site code	FARL	PROPWET	BFIHOST19	DPLBAR (km)	DPSBAR (m/km)	SAAR (mm)	URBEXT 2000	FPEXT
ESUS	0.992	0.34	0.688	5.33	43.3	775	0.0159	0.0904
TRIB1	1	0.34	0.600	2.95	50.5	769	0.0328	0.0473
TRIB2	0.996	0.34	0.749	4.72	61.8	793	0.0149	0.0528
TRIB3	1	0.34	0.427	1.88	44.1	745	0	0.0645
ESDS	0.996	0.34	0.625	8.22	46.7	771	0.0153	0.0938

Site code	FARL	PROPWET	BFIHOST19	DPLBAR (km)	DPSBAR (m/km)	SAAR (mm)	URBEXT 2000	FPEXT
IES1	1	0.34	0.427	**1.43**	44.1	745	0	0.0645
IES2	1	0.34	0.427	**1.57**	44.1	745	0	0.0645
ITRIB3	1	0.34	0.427	**1.09**	44.1	745	0	0.0645
ICUVL1	N/A	0.34	0.509	N/A	N/A	747	N/A	N/A
ICULV2	N/A	0.34	0.509	N/A	N/A	747	N/A	N/A
ITRIB1a	N/A	0.34	0.509	N/A	N/A	747	N/A	N/A
ITRIB1b	N/A	0.34	0.509	N/A	N/A	747	N/A	N/A
ICHL	N/A	0.34	0.509	N/A	N/A	747	N/A	N/A
ITRIB2a	N/A	0.34	0.509	N/A	N/A	747	N/A	N/A
ITRIB2b	N/A	0.34	0.509	N/A	N/A	747	N/A	N/A

3.2.2 Catchment boundary checks and revisions

FEH Webservice boundaries were compared to OpenTopoMap contours for the lumped catchments. FEH derived boundaries show good agreement with mapped contours. The subcatchments have been defined using 1m resolution LiDAR data.

3.2.3 URBEXT source and method for updating

URBEXT2000 was used and checked against aerial imagery and shown to be representative.

3.2.4 BFIHOST source, checks and updates

BFIHOST19 values were checked against BGS geology mapping, it is noted that the BFIHOST19 values are relatively high given the small extent of the catchments that are highly permeable. However, the relative difference in BFIHOST19 values match the underlying geology, and any underestimation of peak flows due to the unrealistically high BFIHOST19 values can be accounted for in the statistical analysis.

3.2.5 Checks and revisions to other catchment descriptors

FARL, DPSBAR and DPLBAR were checked against aerial imagery and shown to be representative.

4.0 Stationary Statistical Methods

4.1 Method Overview

4.1.1 What is the purpose of applying these methods?

Estimate of peak flows for the five study lumped catchments via the ungauged statistical FEH methods.

There are suitable gauges in the local vicinity with similar catchment descriptors and underlying geology.

4.1.2 What methods will be used to estimate QMED and growth curves?

Site code	Methods used for QMED	Methods used for growth curves
ESUS	Data transfer	Pooled
TRIB1	Data transfer	Pooled
TRIB2	Data transfer	Pooled
TRIB3	Data transfer	Pooled
ESDS	Data transfer	Pooled

4.2 Estimating QMED

4.2.1 QMED at ungauged subject sites

Generally QMED increases with catchment size. While TRIB2 is a larger catchment than TRIB1, it also has a higher BFIHOST19 value, and higher level of attenuation and therefore a lower QMED peak flow is plausible.

Site code	Method (CD/ DT/BCW)	Initial QMED (rural) from CDs (m^3/s)	Donors used (NRFA numbers)	Donor distances from subject centroid (km)	Individual donor weights	Combined and weighted donor adjustment factor	Urban adjustment factor	Final QMED (m^3/s)
ESUS	DT	2.100	40035	7.15	1.22		1.028	2.561
TRIB1	DT	1.280	40035	3.08	1.30		1.047	1.669
TRIB2	DT	1.205	40035	5.27	1.24		1.032	1.499
TRIB3	DT	1.171	40021	31.44	1.11		1.000	1.297
ESDS	DT	6.006	40035	5.05	1.25	1.19	1.024	7.166
			40011	9.32	1.02			
			40022	18.57	1.02			

Methods: CD - Catchment descriptors alone; DT - catchment descriptors with donor transfer; BCW - catchment descriptors with bankfull channel width.

4.2.2 Urban adjustment of QMED

Urban adjustment was undertaken based on the methodology developed by Kjeldsen (2014)[5] as part of WINFAP v5[6]. Urban adjustment was undertaken using the default parameters of:

- Impervious fraction for built-up areas, IF – 0.3
- Percentage runoff for impervious surfaces, PR_{imp} – 70%
- Urban cover taken from URBEXT2000.

4.2.3 Search for donor sites

4.2.3.1 Old Mill Stream at Aylesford – 40035

Is marked by NRFA as suitable for QMED but not pooling. The Aylesford gauge is the closest local gauge to the Site. The Old Mill Stream catchment at the location of the gauge is highly similar to the ESUS, TRIB1, TRIB2 and ESDS catchments. The catchment area is 17.96 km2, with similar geology (Lower Chalk and Gault formation in the headwaters, Sedimentary bedrocks consisting of Sandstone, Siltstone and Mudstone in the lower catchment). Highly similar SAAR, BFIHOST19 and FARL values. The AMAX data suggests catchment descriptors underestimate QMED significantly, this maybe due to the BFIHOST19 value being high for a catchment predominantly underlain by intergranularly permeable bedrock. Given the similarities of the catchment and descriptors to ESUS, TRIB1, TRIB2 and ESDS it is expected that catchment descriptors underestimate QMED by a similar ratio.

4.2.3.2 Great Stour at Horton – 40011

Is marked by NRFA as suitable for QMED and pooling. Less similar to ESUS, TRIB1, TRIB2 and ESDS than 40035 due to a greater proportion and lower extent of the catchment being underlain by Chalk. However, suitable for use in a multiple donor approach.

4.2.3.3 Dour at Crabble Mill – 40033

Is marked by NRFA as suitable for QMED but not pooling. Catchment is a chalk stream with significantly higher SAAR and BFIHOST19 values and therefore is not considered suitable for donor transfer to the target catchments.

4.2.3.4 Great Stour at Chart Leacon – 40022

Is marked by NRFA as suitable for QMED but not pooling. Less similar to ESUS, TRIB1, TRIB2 and ESDS than 40035 as the catchment is expected to be more groundwater influenced. Similar geology although higher proportion underlain by highly permeable bedrocks. Similar catchment descriptors. Considered suitable for multiple donor approach.

4.2.3.5 Beult at Stilebridge – 40005

Is marked by NRFA as suitable for QMED and pooling. Catchment is underlain by clay and has a significantly lower BFIHOST19 value to the target catchments and therefore is not considered suitable for donor transfer.

[5] Kjeldsen, T.R, Jones. D. A., and Morris, D. G. (2014). Using multiple donor sites for enhanced flood estimation in ungauged catchments, Water Resour. Res., 50, 6646–6657, doi:10.1002/ 2013WR015203.

[6] Wallingford HydroSolutions (2023). WINFAP 5 Urban adjustment procedures.

4.2.3.6 Hexden Channel at Hopemill – 40021

Is marked by NRFA as suitable for QMED but not pooling. Good match for SAAR and FARL to TRIB3 and ok match for BFIHOST19. Catchment is underlain by similar geology to TRIB3 consisting of predominantly clay bedrock with intergranualarly permeable sedimentary bedrocks. Considered suitable for donor adjustment for TRIB3 only.

4.2.3.7 Teise at Stonebridge – 40009

Is marked by NRFA as suitable for QMED and pooling. Significant difference in FARL value to target catchments. Not considered suitable for donor transfer due to high level of attenuation compared to target catchments.

4.2.3.8 Rother at Udiam – 40004

Is marked by NRFA as suitable for QMED but not pooling. Significantly higher SAAR value to target catchments. Not considered suitable for donor transfer due to higher amount of rainfall in catchment.

4.2.3.9 Medway at Teaston/East Farleigh – 40003

Is marked by NRFA as suitable for QMED and pooling. Similar catchment to TRIB3 however less suitable than 40021, as the 'small catchment[7]' methodology will be applied to TRIB3 only one donor station will be used. Therefore not considered suitable for donor adjustment.

4.2.3.10 Cuckmere at Cowbeech – 41016

Is marked by NRFA as suitable for QMED but not pooling. Significantly higher SAAR value to target catchments. Not considered suitable for donor transfer due to higher amount of rainfall in catchment.

4.2.4 Donor sites chosen and QMED adjustment factors

Table 4-1: Donor sites chosen and QMED adjustment factors

NRFA no.	Method (AM/ POT/LF)	Adjustment for climatic variation?	QMED from flow data (m^3/s)	De-urbanised QMED from flow data (m^3/s) (A)	QMED from catchment descriptors (m^3/s) (B)	Adjustment ratio (A/B)
40035	AM	No	4.12	3.90	2.42	1.611
40021	AM	No	14.43	14.26	9.41	1.516
40011	AM	No	20.49	19.31	18.43	1.048
40022	AM	No	5.13	4.82	4.46	1.081

Methods: AM – Annual maxima; POT – Peaks over threshold; LF – Low flow (flow duration curve) statistics.

[7] Stewart, L., Faulkner, D., Formetta. F., Griffin, A., Haxton, T., Prosdocimi, I., Vesuviano, G., Young. A. (2019). Estimating flood peaks and hydrograph for small catchments (Phase 2). Report SC090031/R0, Environment Agency.

4.3 Estimating Growth Curves

4.3.1 Derivation of growth curves at subject sites

Table 4-2: Derivation of growth curves at subject sites

Site code	Method (SS, P, ESS, H.)	If P or ESS, name of pooling group	Distribution used and reason for choice	Any urban or non-flood years adjustments	Parameters of distribution (location, scale and shape after adjustments)	Growth factor for 100-year return period
ESUS	P	ESUS	Generalised Logistic (GL) as the distribution is used in permeable adjustment	Permeable adjustment applied	Location: 1 Scale: 0.288 Shape: -0.214 Bound: -0.346	3.266
TRIB1	P	TRIB1	Generalised Logistic (GL) as the distribution is used in permeable adjustment	Permeable adjustment applied	Location: 1 Scale: 0.299 Shape: -0.233 Bound: -0.286	3.479
TRIB2	P	TRIB2	Generalised Logistic (GL) as the distribution is used in permeable adjustment	Permeable adjustment applied	Location: 1 Scale: 0.300 Shape: -0.219 Bound: -0.368	3.391
TRIB3	P	TRIB3	Generalised Logistic (GL) as the distribution is used in permeable adjustment	Permeable adjustment applied	Location: 1 Scale: 0.297 Shape: -0.251 Bound: -0.183	3.309
ESDS	P	ESDS	Generalised Logistic (GL) as the distribution is used in permeable adjustment	Permeable adjustment applied	Location: 1 Scale: 0.270 Shape: -0.128 Bound: -1.108	2.683

Methods: SS - Single Site; P - Pooled; ESS - Enhanced Single Site; H - Historical. Pooled and ESS growth curves were derived using the procedures from Science Report SC050050 (2008). Urban adjustments are carried out using the method of Kjeldsen (2010).

4.3.2 Flood frequency curve plots

Figure 4-1: ESUS Final Non-Flood Year Adjusted Growth Curve

Figure 4-2: TRIB1 Final Non-Flood Year Adjusted Growth Curve

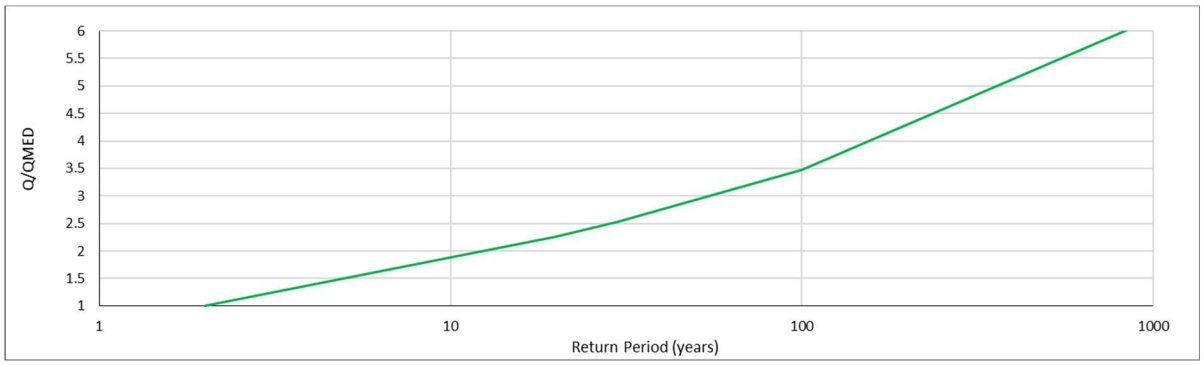


Figure 4-3: TRIB2 Final Non-Flood Year Adjusted Growth Curve

Figure 4-4: TRIB3 Final Non-Flood Year Adjusted Growth Curve

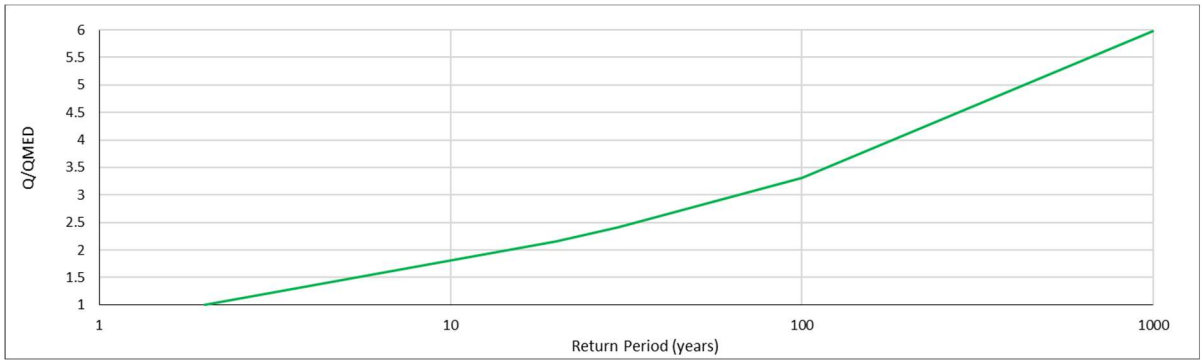
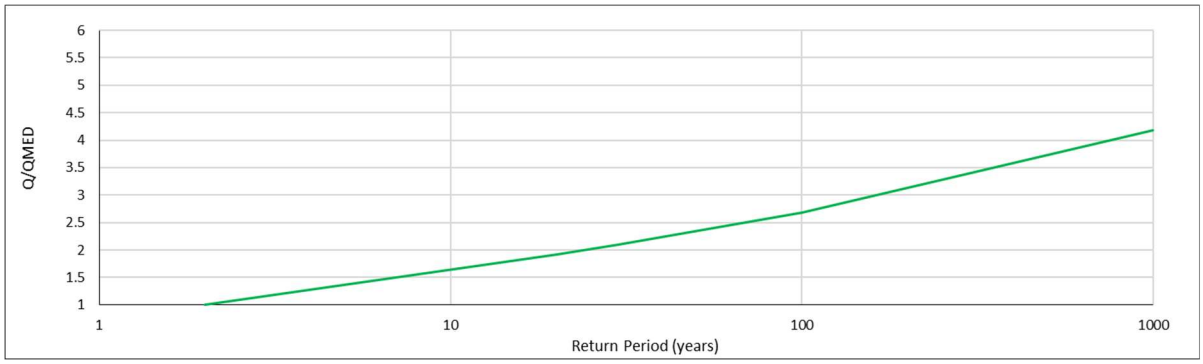


Figure 4-5: ESDS Final Non-Flood Year Adjusted Growth Curve



4.3.3 Derivation of pooling groups

Table 4-3: Derivation of pooling groups

Name of group	Site code from whose descriptors group was derived	Subject site treated as gauged? (ESS)	URBEXT2000 threshold applied to pooling group selection?	L-moments deurbanised (including subject site for ESS)?	Small catchment pooling procedure applied?
ESUS	ESUS	No	0.04	L-CV: 0.271 L-Skew: 0.233	Yes
TRIB1	TRIB1	No	0.04	L-CV: 0.291 L-Skew: 0.238	Yes
TRIB2	TRIB2	No	0.04	L-CV: 0.290 L-Skew: 0.224	Yes
TRIB3	TRIB3	No	0.04	L-CV: 0.264 L-Skew: 0.254	Yes
ESDS	ESDS	No	0.04	L-CV: 0.238 L-Skew: 0.169	No

Methods: Unless otherwise stated, pooling groups were derived using the procedures from Science Report SC050050 (2008). The small catchment pooling procedure is given in the report on Phase 2 of project SC090031 (2021) and implemented in WINFAP v5.

4.3.4 Pooling group composition

Table 4-4: Pooling group composition

Name of group	Changes made to default pooling group, with reasons	Weighted average L-moments
ESUS	Removed 28058 (Henmore Brook at Ashbourne) due to gauge having a negative L-Skew. Added 33054 (Babingley at Castle Rising) to ensure pooling group is still greater than 500 years.	L-CV: 0.271 L-Skew: 0.233

Name of group	Changes made to default pooling group, with reasons	Weighted average L-moments
TRIB1	Removed 28058 (Henmore Brook at Ashbourne) due to gauge having a negative L-Skew. Added 39033 (Winterbourne Stream at Bangor) to ensure pooling group is still greater than 500 years.	L-CV: 0.291 L-Skew: 0.238
TRIB2	Removed 28058 (Henmore Brook at Ashbourne) due to gauge having a negative L-Skew. Added 39033 (Winterbourne Stream at Bangor) to ensure pooling group is still greater than 500 years.	L-CV: 0.290 L-Skew: 0.224
TRIB3	Removed 28058 (Henmore Brook at Ashbourne) due to gauge having a negative L-Skew. Added 44013 (Piddle at Little Puddle) to ensure pooling group is still greater than 500 years.	L-CV: 0.264 L-Skew: 0.254
ESDS	Removed 26003 (Fosten Beck at Fosten Mill) due to gauge having a negative L-Skew. Added 36004 (Chad Brook at Long Melford) to ensure pooling group is still greater than 500 years.	L-CV: 0.238 L-Skew: 0.169

4.4 Final Choice of QMED and Growth Curves

4.4.1 Method choice and reasons

Table 4-5: Method choice and reasons

Site code	Final choice of QMED and reasons	Final choice of flood growth curve method and reasons
ESUS	Data Transfer – Site is ungauged and there are suitable gauges in the local vicinity.	Pooled – Site is ungauged
TRIB1	Data Transfer – Site is ungauged and there are suitable gauges in the local vicinity.	Pooled – Site is ungauged
TRIB2	Data Transfer – Site is ungauged and there are suitable gauges in the local vicinity.	Pooled – Site is ungauged
TRIB3	Data Transfer – Site is ungauged and there are suitable gauges in the local vicinity.	Pooled – Site is ungauged
ESDS	Data Transfer – Site is ungauged and there are suitable gauges in the local vicinity.	Pooled – Site is ungauged

4.4.2 Final flood estimates from stationary statistical methods

Table 4-6: Final flood estimates from stationary statistical methods

Site code	20 5%	30 3.3%	100 1%	1000 0.1%
ESUS	5.70	6.34	8.60	15.09
TRIB1	3.97	4.43	6.08	10.86
TRIB2	3.47	3.86	5.25	9.16
TRIB3	2.80	3.13	4.29	7.76
ESDS	14.12	15.40	19.69	30.62

Flood peak in m3/s for the return periods in years or AEP (%) events.

5.0 Revitalised Flood Hydrograph 2 (ReFH2) Method

5.1 Method Overview

5.1.1 What is the purpose of applying this method?

ReFH2 will be applied at all the study catchments to provide an estimate of hydrograph shape and comparative peak flows via the rainfall runoff method. Additionally, ReFH2 will be used to extend out the flood frequency curve for the extreme 0.1% AEP event.

5.1.2 Rural and urban catchment sub-divisions

All catchments are essentially rural, catchment URBEXT2000 descriptors were reviewed against aerial imagery and found to be representative. As such standard equations for urbanisation were applied.

5.1.3 Version of ReFH2 applied

ReFH2 V4.0

5.2 Model Parameters

5.2.1 Summary of model parameters

Table 5-1:Summary of model parameters

Site code	Method	Tp (hours) rural	Cmax (mm)	BL (hours)	Area modelled as urban (km2)	TP urban scaling factor	IF	IRF	DS
ESUS	CD	5.16	665.65	58.31	0.486	0.75	0.4	0.7	0.5
TRIB1	CD	3.50	529.63	47.17	0.368	0.75	0.4	0.7	0.5
TRIB2	CD	4.30	779.94	59.78	0.300	0.75	0.4	0.7	0.5
TRIB3	CD	2.83	337.91	34.79	0.000	0.75	0.4	0.7	0.5
ESDS	CD	6.46	580.04	61.05	1.244	0.75	0.4	0.7	0.5
IES1	DT from TRIB3	2.42	337.91	32.77	0.000	0.75	0.4	0.7	0.5
IES2	DT from TRIB3	2.55	337.91	33.45	0.000	0.75	0.4	0.7	0.5
ITRIB3	DT from TRIB3	2.07	337.91	30.89	0.000	0.75	0.4	0.7	0.5
ICULV1	PD	1.87	418.13	39.86	0.000	0.75	0.4	0.7	0.5
ICULV2	PD	2.13	418.13	41.28	0.000	0.75	0.4	0.7	0.5
ITRIB1a	PD	1.88	418.13	39.92	0.000	0.75	0.4	0.7	0.5
ITRIB1b	PD	1.59	418.13	38.12	0.000	0.75	0.4	0.7	0.5
ICHL	PD	1.57	418.13	38.01	0.000	0.75	0.4	0.7	0.5
ITRIB2a	PD	1.46	418.13	37.29	0.000	0.75	0.4	0.7	0.5
ITRIB2b	PD	1.36	418.13	36.56	0.000	0.75	0.4	0.7	0.5

Methods: OPT: Optimisation from event analysis, BR: Baseflow recession fitting, LAG: TP from lag analysis, CD: Catchment descriptors, DT: Data transfer, CAL: model calibration, PD: Point descriptors (uses plot scale equations).

5.2.2 Analysis undertaken to derive model parameters

For the three subcatchments where data transfer was used from TRIB3, the catchment area was updated to match the subcatchment delineation which can be seen in **HR Figure 2**. Additionally, DPLBAR was adjusted so that $\log_{AREA}(DPLBAR)$ was the same for the subcatchments and TRIB3.

5.3 Model Inputs for Design Events

5.3.1 Design events for lumped catchments

Table 5-2: Design events for lumped catchments

Site Code	Rainfall DDF Model	Urban or rural	Highly permeable?	Season of design event	Storm duration (hrs)	Initial soil moisture Cini	Initial baseflow BFO
ESUS	FEH22	Urban	Yes	Winter	24.25	71.40	0.223
TRIB1	FEH22	Urban	Yes	Winter	17.25	82.92	0.132
TRIB2	FEH22	Urban	Yes	Winter	24.25	64.38	0.102
TRIB3	FEH22	Urban	No	Winter	8.25	111.24	0.131
ESDS	FEH22	Urban	Yes	Winter	27.25	78.13	0.805

5.3.2 Design events for subcatchments and intervening areas

Table 5-3: Design events for subcatchments and intervening areas

Site code(s)	Rainfall DDF model	Season of design event	Storm duration (hrs)	Areal reduction factor ARF	Reason for selecting storm
IES1	FEH22	Winter	7.25	0.975	To test critical duration storm
IES2				0.974	
ITRIB3				0.980	
ICULV1				0.985	
ICULV2				0.982	
ITRIB1a				0.985	
ITRIB1b				0.988	
ICHL				0.988	
ITRIB2a				0.989	
ITRIB2b				0.990	
IES1	FEH22	Winter	8.25	0.977	Critical storm duration for TRIB3
IES2				0.975	
ITRIB3				0.981	
ICULV1				0.986	

Site code(s)	Rainfall DDF model	Season of design event	Storm duration (hrs)	Areal reduction factor ARF	Reason for selecting storm
ICULV2				0.983	
ITRIB1a				0.985	
ITRIB1b				0.988	
ICHL				0.988	
ITRIB2a				0.989	
ITRIB2b				0.990	
IES1	FEH22	Winter	17.25	0.982	Critical storm duration for TRIB1
IES2				0.981	
ITRIB3				0.985	
ICULV1				0.989	
ICULV2				0.987	
ITRIB1a				0.989	
ITRIB1b				0.991	
ICHL				0.991	
ITRIB2a				0.992	
ITRIB2b				0.993	
IES1	FEH22	Winter	24.25	0.984	Critical storm duration for ESUS and TRIB2
IES2				0.983	
ITRIB3				0.987	
ICULV1				0.990	
ICULV2				0.989	
ITRIB1a				0.990	
ITRIB1b				0.992	
ICHL				0.992	
ITRIB2a				0.993	
ITRIB2b				0.993	
IES1	FEH22	Winter	27.25	0.985	Critical storm duration for ESDS
IES2				0.984	
ITRIB3				0.988	
ICULV1				0.991	
ICULV2				0.989	
ITRIB1a				0.991	
ITRIB1b				0.992	
ICHL				0.992	
ITRIB2a				0.993	
ITRIB2b				0.994	

Site code(s)	Rainfall DDF model	Season of design event	Storm duration (hrs)	Areal reduction factor ARF	Reason for selecting storm
IES1	FEH22	Winter	36.25	0.986	To test critical duration of defended scenario
IES2				0.986	
ITRIB3				0.989	
ICULV1				0.992	
ICULV2				0.990	
ITRIB1a				0.992	
ITRIB1b				0.993	
ICHL				0.993	
ITRIB2a				0.994	
ITRIB2b				0.994	
IES1	FEH22	Winter	48.25	0.988	To test critical duration of defended scenario
IES2				0.987	
ITRIB3				0.990	
ICULV1				0.992	
ICULV2				0.991	
ITRIB1a				0.992	
ITRIB1b				0.994	
ICHL				0.994	
ITRIB2a				0.994	
ITRIB2b				0.995	
IES1	FEH22	Winter	60.25	0.989	To test critical duration of defended scenario
IES2				0.988	
ITRIB3				0.991	
ICULV1				0.993	
ICULV2				0.992	
ITRIB1a				0.993	
ITRIB1b				0.994	
ICHL				0.994	
ITRIB2a				0.995	
ITRIB2b				0.995	
IES1	FEH22	Winter	72.25	0.990	To test critical duration of defended scenario
IES2				0.989	
ITRIB3				0.991	
ICULV1				0.993	
ICULV2				0.992	
ITRIB1a				0.993	

Site code(s)	Rainfall DDF model	Season of design event	Storm duration (hrs)	Areal reduction factor ARF	Reason for selecting storm
ITRIB1b				0.995	
ICHL				0.995	
ITRIB2a				0.995	
ITRIB2b				0.996	
IES1	FEH22	Winter	84.25	0.990	To test critical duration of defended scenario
IES2				0.990	
ITRIB3				0.992	
ICULV1				0.994	
ICULV2				0.993	
ITRIB1a				0.994	
ITRIB1b				0.995	
ICHL				0.995	
ITRIB2a				0.995	
ITRIB2b				0.996	
IES1	FEH22	Winter	96.25	0.991	To test critical duration of defended scenario
IES2				0.990	
ITRIB3				0.992	
ICULV1				0.994	
ICULV2				0.993	
ITRIB1a				0.994	
ITRIB1b				0.995	
ICHL				0.995	
ITRIB2a				0.996	
ITRIB2b				0.996	

5.3.3 Storm duration testing

Storm duration testing was completed on the hydraulic model. The results of which are summarised below:

5.3.3.1 Defended Scenario

- 5% AEP (20yr RP) – 96.25hr event critical.
- 3.3% AEP (30yr RP) – 96.25hr event critical.
- 1% AEP (100yr RP) – 60.25hr event critical.
- 1% AEP + 30% CC (higher central) – 48.25hr event critical.
- 1% AEP + 55% CC (upper end) – 36.25hr event critical.
- 0.1% AEP (1000yr RP) – 27.25hr event critical.

5.3.3.2 Undefended Scenario

- 5% AEP (20yr RP) – 17.25hr event critical.
- 1% AEP (100yr RP) – 24.25hr event critical.
- 0.1% AEP (1000yr RP) – 24.25hr event critical.

5.4 Final Choice of ReFH2 Flow Estimates

5.4.1 Method choice and reasons

Table 5-4: Method choice and reasons

Site code	Final choice of design inputs and model parameters
ESUS	Catchment descriptors, default model parameters.
TRIB1	Catchment descriptors, default model parameters.
TRIB2	Catchment descriptors, default model parameters.
TRIB3	Catchment descriptors, default model parameters.
ESDS	Catchment descriptors, default model parameters.
IES1	Donor transfer from TRIB3, Area and DPLBAR adjusted.
IES2	Donor transfer from TRIB3, Area and DPLBAR adjusted.
ITRIB3	Donor transfer from TRIB3, Area and DPLBAR adjusted.
ICULV1	Point descriptor, catchment area manually derived using LiDAR data
ICULV2	Point descriptor, catchment area manually derived using LiDAR data
ITRIB1a	Point descriptor, catchment area manually derived using LiDAR data
ITRIB1b	Point descriptor, catchment area manually derived using LiDAR data
ICHL	Point descriptor, catchment area manually derived using LiDAR data
ITRIB2a	Point descriptor, catchment area manually derived using LiDAR data
ITRIB2b	Point descriptor, catchment area manually derived using LiDAR data

5.4.2 Final flood estimates from ReFH2 method

Table 5-5: Final flood estimates from ReFH2 method

Site code	20 5%	30 3.3%	100 1%	1000 0.1%
ESUS	3.59	3.99	6.14	12.68
TRIB1	2.30	2.54	3.75	7.54
TRIB2	2.10	2.34	3.69	7.69
TRIB3	2.59	2.82	3.71	6.95
IES1	1.56	1.69	2.15	3.73
IES2	1.80	1.95	2.47	4.30
ITRIB3	0.94	1.03	1.29	2.17
ICULV1	0.32	0.35	0.44	0.75

Site code	20 5%	30 3.3%	100 1%	1000 0.1%
ICULV2	0.46	0.50	0.64	1.10
ITRIB1a	0.33	0.35	0.45	0.76
ITRIB1b	0.19	0.21	0.27	0.45
ICHL	0.19	0.21	0.26	0.43
ITRIB2a	0.15	0.17	0.21	0.35
ITRIB2b	0.12	0.13	0.17	0.27
ESDS	10.13	11.29	17.54	35.16

Flood peak in m^3/s for the return periods in years or AEP (%) events.

6.0 Discussion and Summary of Results

6.1 Comparison of Results from Different Methods

Site code	Ratio of stationary statistical peak to ReFH2, 50% AEP	Ratio of stationary statistical peak to ReFH2, 1% AEP	Ratio of ReFH2 0.1% AEP to ReFH2 1% AEP
ESUS	1.589	1.401	2.064
TRIB1	1.727	1.620	2.007
TRIB2	1.653	1.423	2.084
TRIB3	1.083	1.158	1.876
ESDS	1.394	1.122	2.005

6.2 Final Choice of Method

6.2.1 Choice of method and reasons

6.2.1.1 Lumped Catchments

Due to the availability of gauge data for hydrologically similar catchments in the proximity of the study area which are suitable for QMED adjustment, the statistical method is deemed the most appropriate estimate of peak flows for return periods up to and including the 1% AEP event.

For the permeable catchments within the study, the catchment descriptors BFIHOST19 values are relatively high given the predominant underlying geology, however the same relationship is shown by the donor catchment (Old Mill Stream at Aylesford – 40035) used for the QMED adjustment and as such accounts for this uncertainty.

As hydrographs are required for the hydraulic model, the ReFH2 hydrograph shapes will be scaled so that the urbanised winter critical storm duration matches the final peak flow estimates from the statistical method.

6.2.1.2 Subcatchments and intervening areas

Due to the subcatchments and intervening areas having different catchment properties in particular geology to the upstream lumped catchments, the flow estimates using ReFH2 are considered most suitable. The final flows at the downstream extent of the hydraulic model have been reviewed against the final peak flow estimates for ESDS.

6.2.1.3 How will the 0.1% AEP flows be estimated?

For the lumped catchments, due to the greater availability of long rainfall records and spatial consistency of extreme rainfall events and therefore greater confidence in rainfall frequency curves for large return periods. A hybrid approach will be used for the 0.1% AEP event, with the ReFH2 0.1% to 1% AEP event ratio applied to the statistical 1% AEP event peak flow.

6.2.1.4 How will the flows be applied to a hydraulic model?

ESUS, TRIB1, TRIB2 and TRIB3 lumped flow estimates will be applied at the upstream extents of the model for their respective watercourses, the subcatchment flow estimates will be applied via distributed lateral inflows. Further details to the application of the inflow boundaries in the hydraulic model is provided in the hydraulic modelling report.

6.3 Final Results

Site code	20 5%	30 3.3%	100 1%	1000 0.1%
ESUS	5.70	6.34	8.60	17.76
TRIB1	3.97	4.43	6.08	12.21
TRIB2	3.47	3.86	5.25	10.93
TRIB3	2.80	3.13	4.29	8.05
IES1	1.56	1.69	2.15	3.73
IES2	1.80	1.95	2.47	4.30
ITRIB3	0.94	1.03	1.29	2.17
ICULV1	0.32	0.35	0.44	0.75
ICULV2	0.46	0.50	0.64	1.10
ITRIB1a	0.33	0.35	0.45	0.76
ITRIB1b	0.19	0.21	0.27	0.45
ICHL	0.19	0.21	0.26	0.43
ITRIB2a	0.15	0.17	0.21	0.35
ITRIB2b	0.12	0.13	0.17	0.27
ESDS	14.12	15.40	19.69	39.46

Critical duration storm flood peak in m^3/s for the return periods in years or AEP (%) events.

6.3.1 Climate change allowances

Given the Project will have an operational lifetime of 40 years. The peak river flow climate change allowances for the 2050s (2040-2069) epoch for the Stour Management Catchment have been applied. As the project is classified as essential infrastructure the 30% higher central allowance has been applied in line with the Environment Agencies guidance on climate change allowances for flood risk assessments[8]. Additionally, as the project is classified as nationally significant infrastructure project the 55% upper end allowance has been applied as a credible maximum climate change scenario.

Climate change allowances have been applied by scaling the ReFH2 1% AEP hydrographs to the peak flow estimate from the statistical 1% AEP plus the relevant climate change allowance.

6.4 Checks

6.4.1 Growth factor checks

Table 6-1: Growth factor checks

Site code	1% AEP growth factor	0.1% AEP / 1% AEP ratio
ESUS	3.266	2.064
TRIB1	3.479	2.007

[8] https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Site code	1% AEP growth factor	0.1% AEP / 1% AEP ratio
TRIB2	3.391	2.084
TRIB3	4.291	1.876
ESDS	2.683	2.005

6.4.2 Specific discharge

Table 6-2: Specific discharge

Site code	20 5%	30 3.3%	100 1%	1000 0.1%
ESUS	2.93	3.25	4.41	9.11
TRIB1	5.54	6.19	8.50	17.06
TRIB2	2.70	3.00	4.08	8.50
TRIB3	7.54	8.42	11.55	21.67
IES1	7.37	7.99	10.16	17.63
IES2	7.08	7.67	9.71	16.91
ITRIB3	7.79	8.54	10.70	17.99
ICULV1	6.16	6.68	8.46	14.41
ICULV2	5.60	6.08	7.71	13.30
ITRIB1a	6.13	6.65	8.42	14.34
ITRIB1b	6.69	7.28	9.21	15.45
ICHL	6.74	7.35	9.28	15.56
ITRIB2a	7.05	7.70	9.72	16.27
ITRIB2b	7.19	7.84	9.88	16.29
ESDS	2.72	2.97	3.79	7.60

Flood peak in l/s/ha for the return periods in years or AEP (%) events.

6.4.3 Spatial consistency of results

In general, for the lumped catchments the growth factors are shown to be spatially consistent, with a higher growth factor seen for the 1% AEP event for TRIB3. Given the lower permeability of TRIB3 a higher growth factor is to be expected due to the higher runoff ratio. For the 0.1% AEP to 1% AEP ratio, again spatial consistency is observed for the lumped catchments, with a lower ratio seen for TRIB3. This too is to be expected for a lower permeability catchment with soils likely to be closer to fully saturated during a 1% AEP event and as such a lower difference in runoff ratio between the 1% AEP and 0.1% AEP events. The specific discharge shows similar variation with permeability, with the less permeable TRIB1 and TRIB3 catchments having higher specific discharges.

For the subcatchments the specific discharges are shown to be spatially consistent with little variation, this is to be expected given the similar geology of these catchments. Additionally, the specific discharges for the subcatchments are consistent with the lower permeability lumped catchments which also have similar geology.

6.4.4 Return periods for notable historic floods

Post event analysis has been undertaken by JBA in 2014 for the Autumn 2000[9] and Winter 2013 – 2014[10] events.

During the 4 – 9 November 2000 flood event, where the Aldington FSA overtopped the peak flow of 32.1m^3/s at the Great Stour at Wye gauging station located approximately 16km downstream of the Site, was assessed to have an annual probability of occurrence of 3.23% (1 in 31 years). The peak flow at the South Willesborough gauge reached 17.3m^3/s, which is located approximately 5km downstream of the Site. Adjusting for the approximate 13% increase in catchment area between the gauge and the downstream boundary of the model, a peak flow of 15.1m^3/s is expected for a similar event.

During the Winter 2013 – 2014 events, where the Aldington FSA overtopped peak flood levels were gauged to reach approximately 50.3mAOD (100mm above the spillway crest level) on the 15th February with the spill level overtopped for approximately 15 hours. The event was assessed to have an annual probability of occurrence between 3.3% (1 in 30 years) and 6.7% (1 in 15 years) along the East Stour. The peak flow at the South Willesborough gauge reached 11.5m^3/s on the 15th February. Adjusting for the increase in catchment area a peak flow of 10.15m^3/s is expected at the downstream extent of the model for a similar event.

During the defended scenario modelling of the 3.3% AEP event for the critical duration 96.25 hour event, flood levels at the Aldington FSA reached approximately 50.3mAOD, with a peak flow of 10.15m^3/s at the downstream extent of the model, showing good agreement with the historic flood data for the February 2014 event which was assessed to have a similar annual probability of occurrence.

6.4.5 Compatibility with longer-term flood history

The defended scenario modelling indicates that the Aldington FSA spillway is overtopped during longer duration (84.25 hours and longer) flood events with 5% (1 in 20 years) AEP, this shows good agreement with the longer-term flood history with the Aldington FSA overtopping during long duration winter storms in 2000 and 2014 which were assessed to have annual probabilities of occurrence between approximately 3.3% (1 in 30 years) and 6.6% (1 in 15 years).

6.4.6 Comparisons with previous studies

Preliminary hydrological analysis of the Upper Stour catchment undertaken by JBA in 2023[11] has been provided by the Environment Agency and includes flows into and out of the Aldington FSA. Design flows were calculated using Continuous Simulation Modelling (CSM) and compared below.

6.4.6.1 Defended Scenario

For the defended scenario, the peak flow estimates from JBA's CSM analysis into the Aldington FSA closest matched the peak flow estimates for the 27.25 hour duration event from this study and are compared in the table below.

As can be seen in the table below, the flows into the Aldington FSA for this study's hydraulic model are between 1.5% and 4.6% higher than those derived in JBA's CSM analysis for the

[9] Autumn 2000 Great Stour Flood Rarity report (JBA, 2014)

[10] 2013-2014 Post Flood Analysis: Kent and South London Area report (JBA, 2014)

[11] Upper Stour hydrological assessment by continuous simulation. Draft v3. JBA, May 2023.

27.25 hour duration event. This indicates that the flows into the Aldington FSA closely match the CSM analysis undertaken by JBA.

RP	AEP	JBA CSM analysis (m3/s)	SLR Hydraulic Model (m^3/s)	Difference
20	5%	14.74	15.46	+4.6%
30	3.3%	16.54	17.32	+4.5%
100	1%	23.48	24.51	+4.2%
1000	0.1%	46.91	47.61	+1.5%

Peak flow estimates into the Aldington FSA from JBA's CSM analysis and SLR's hydraulic model constructed for this study.

Peak flow estimates out from JBA's CSM analysis out of the Aldington FSA closest matched the peak flow estimates from the critical duration events from this study and are compared in the table below.

As can be seen in the table below, the flows out of the Aldington FSA for this study's hydraulic model are 2.0% and 3.2% lower for the 0.1% AEP and 1% AEP events respectively. For the 5% AEP and 3.3% AEP events, the study's hydraulic model flows are 17.7% and 12.1% lower respectively. This indicates that the 1% AEP and 0.1% AEP flows for the critical duration flood event closely match the CSM analysis undertaken by JBA. For the 5% AEP and 3.3% AEP event, the critical duration 96.25 hour rainfall event was the longest duration event tested. Given that flooding within the catchment is highly sensitive to flood volumes and the historic flooding issues associated with long duration rainfall events this is likely an indicator that the critical duration event for the more probable 5% AEP and 3.3% AEP is longer than the maximum 96.25 hour rainfall event tested.

RP	AEP	SLR Storm Duration (Hours)	JBA CSM Analysis (m^3/s)	SLR Hydraulic Model (m^3/s)	Difference
20	5%	96.25	8.88	7.547	-17.7%
30	3.3%	96.25	11.03	9.841	-12.1%
100	1%	60.25	18.53	17.95	-3.2%
1000	0.1%	27.25	45.77	44.89	-2.0%

Peak flow estimates out of the Aldington FSA from JBA's CSM analysis and SLR's hydraulic model constructed for this study.

6.4.6.2 Undefended Scenario

For the undefended scenario flows at the downstream extent of the model for the 24.25 hour rainfall event have been compared to JBA's CSM flow estimates at the South Willesborough gauge. To account for the 11.7% reduction in catchment area at the downstream extent of the model compared to the South Willesborough gauge site the same reduction has been applied to JBA's CSM flows at South Willesborough in the table below.

As can be seen in the table below, the SLR's hydraulic model flows are between 4.8% lower to 7.3% higher than the flows estimated for the same location based on JBA's CSM analysis. This indicates that the flows for the undefended scenario are broadly inline with the CSM analysis undertaken by JBA.

RP	AEP	JBA CSM Analysis (m^3/s)	SLR Hydraulic Model (m^3/s)	Difference
20	5%	17.04	17.92	+4.9%
100	1%	25.95	28.00	+7.3%
1000	0.1%	53.41	50.96	-4.8%

Peak flow at the downstream extent of SLR's hydraulic model compared to estimated peak flow based on JBA's CSM analysis.

6.4.7 Checks on hydraulic model results

The peak flows from the undefended scenario for the 24.25 hour rainfall event have been compared to the lumped flow estimate at ESDS in the table below.

RP	AEP	ESDS (m^3/s)	SLR Hydraulic Model (m^3/s)	Difference
20	5%	14.12	17.92	+21.2%
100	1%	19.69	28.00	+29.7%
1000	0.1%	39.46	50.96	+22.6%

Peak flow at the downstream extent of SLR's hydraulic model compared to estimated peak flow based on JBA's CSM analysis.

As can be seen, the peak flows in the hydraulic model are substantially higher than those estimated at ESDS. However, CSM analysis is generally considered to be more robust particularly for catchments which contain a mixture of low and high permeability geology and flood storage areas. Additionally, when deriving the inflow catchments into the hydraulic model, these were broken down into areas with similar geology, which better represents the variable permeability of the whole catchment. There is also good agreement between the hydraulic model peak flows to historic flood events assessed to have similar annual probabilities of occurrence. As such, there is greater confidence in the peak flows from the hydraulic model than those estimated at ESDS and no adjustment was undertaken to reconcile flows at the downstream extent of the model to the lumped estimate at ESDS.

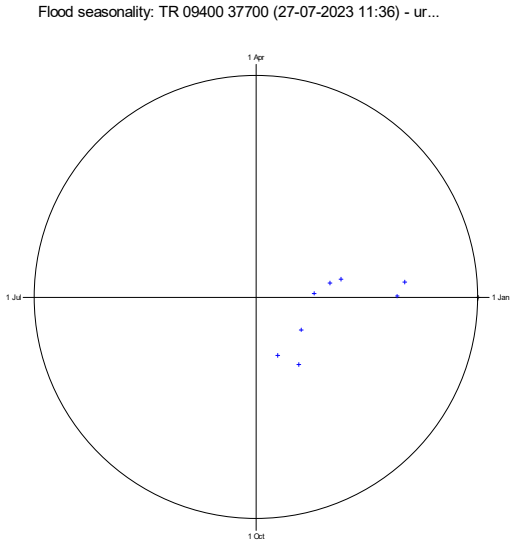
6.5 Assumptions, limitations, and uncertainty

6.5.1 Assumptions

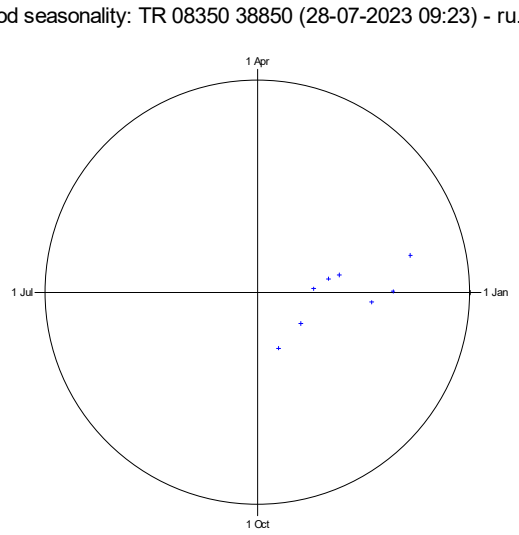
The main assumptions made are as follows:

- The FEH catchment descriptors for the permeable catchments significantly underestimate QMED due to the unusually high BFIHOST19 values for the predominant underlying geology.
- The seasonality of flooding events in the catchment area predominantly winter. The seasonality plots for the ESUS, TRIB1, TRIB2 and TRIB3 pooling groups can be seen below.
- The 0.1% AEP growth factors are best estimated for the rainfall-runoff approach, given that the confidence is greater in rainfall growth curves than in flood growth curves for longer return periods.

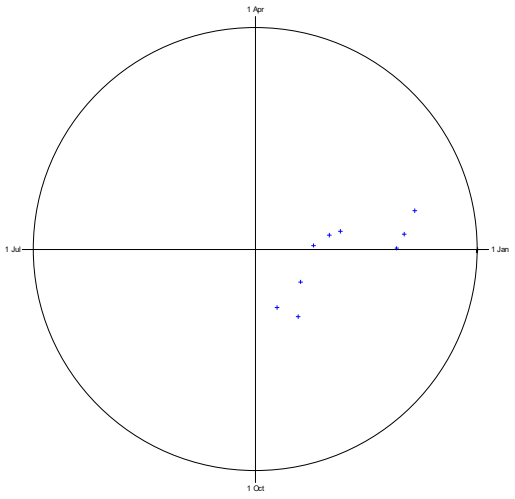
ESUS



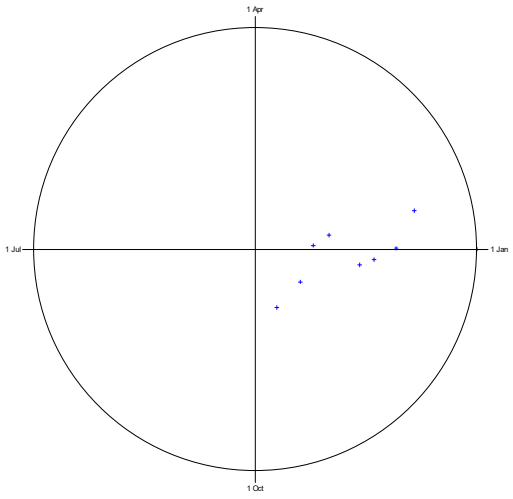
TRIB1



TRIB2



TRIB3



6.5.2 Limitations

Peak flow estimates do not account for the affect of the Aldington FSA and as such the flow estimates at ESDS are representative of the undefended scenario. Inline with this the gauging stations along the East Stour are not suitable for validation of peak flow estimates.

The longest duration rainfall event tested was the 96.25 hour event, with the longest duration event which ReFH2 can generate a hydrograph for being approximately 100 hours. Information from historical flood events and JBA's CSM analysis indicate that the critical duration event for the 5% AEP and 3.3% AEP events are likely longer than the 96.25 hour event assessed.

6.5.3 Uncertainty

Table 6-3: Uncertainty

Site code	50% AEP Lower 95%	50% AEP Upper 95%	5% AEP Lower 95%	5% AEP Upper 95%	1% AEP Lower 95%	1% AEP Upper 95%	0.1% AEP Lower 95%	0.1% AEP Upper 95%
ESUS	1.84	3.74	3.93	8.21	5.94	12.56	11.90	26.46
TRIB1	1.10	2.76	2.38	6.58	3.53	10.46	6.59	22.71
TRIB2	1.08	2.20	2.39	4.99	3.62	7.66	7.32	16.29
TRIB3	0.91	1.84	1.93	4.04	2.96	6.27	5.39	11.99
ESDS	5.14	10.42	9.74	20.33	13.58	28.74	26.44	58.80

Upper and lower 95% confidence bounds for the flood peak in m^3/s for the AEP (%) events.

6.5.4 Suitability of results for future studies

Suitable for the Site only as the hydrology has been targeted towards flows at the Site, and not locations upstream or downstream.

6.5.5 Recommendations for future work

The estimates are suitable for use in the study and no further work is recommended at this stage.

Figures

Hydrology Report

Stonestreet Green Solar Farm

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603000 604000 605000 606000 607000 608000 609000 610000

140000 139000 138000 137000

425.064837.00001.0068.2 Local Hydrology

N

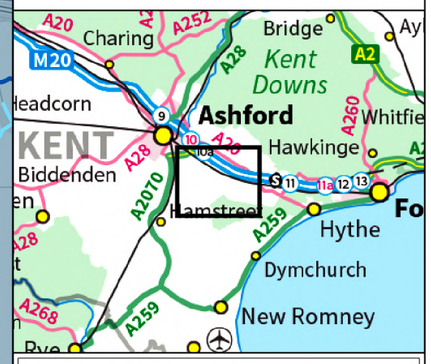
LEGEND

- Order limits
- Statutory Main River
- Watercourse
- Bower Road Stream
- Waterbody
- East Stour Catchment Area
- Environment Agency River and Sea Flood Storage Area

East Stour Internal Drainage Board - Drains

- Unnamed Tributary 1
- Unnamed Tributary 2
- Unnamed Tributary 3

APFP Regulation: 5(2)(i)(iii)



SLR

STONESTREET GREEN SOLAR

HYDROLOGY REPORT

LOCAL HYDROLOGY

HR Figure 1

Scale 1:25,000 @ A3

Date MAY 2024

0 1 2 Kilometres

585000 590000 595000 600000 605000 610000 615000

155000 150000 145000 140000

425.064837.00001.0069.2 Catchment and Gauging Stations

N

Horton - Great Stour

Chart Leacon Great Stour

South Willesborough - East Stour

Aylesford - Old Mill Stream

0 5 10

Kilometres

LEGEND

- Order limits
- Gauging Stations
- Statutory Main River

East Stour Internal Drainage Board - Drains

- Unnamed Tributary 1
- Unnamed Tributary 2
- Unnamed Tributary 3

Lumped Catchment

- ESDS
- ESUS
- TRIB1
- TRIB2
- TRIB3

APFP Regulation: 5(2)(i)(iii)

SLR

STONESTREET GREEN SOLAR

HYDROLOGY REPORT

CATCHMENT AND GAUGING STATIONS

HR Figure 2

Scale 1:100,000 @ A3

Date MAY 2024

604000 605000 606000 607000 608000

139000 138000 137000

N

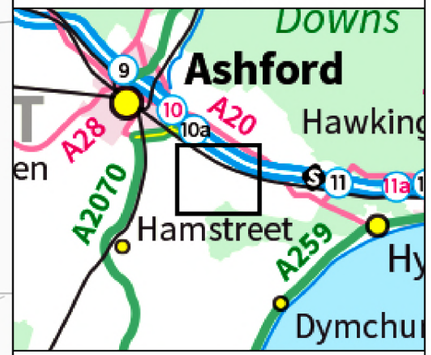
LEGEND

Order limits

Field

Environment Agency River and Sea Flood Storage Area

APFP Regulation: 5(2)(o)



SLR

STONESTREET GREEN SOLAR

HYDROLOGY REPORT

ALDINGSTON FLOOD STORAGE AREA EXTENT

HR Figure 3

Scale 1:15,000 @ A3

Date MAY 2024

0 0.5 1 Kilometres

425.064837.00001.0070.2 Aldingston Flood Storage Area Extent

604000 606000 608000 610000 612000 614000 616000 618000

146000 144000 142000 140000 138000

425.064837.00001.0071.2 Catchments and subcatchment

TRIB1 TRIB2 TRIB3 ICULV2 ICULV1 IES2 IES1 ITRIB1a ITRIB1b ICHL ITRIB2a ITRIB2b ITRIB3

N

LEGEND

- Order limits
- Catchment
- Model Extent

Modelled Water Courses

- Culvert 1
- Culvert 2
- East Stour River
- Mill Race
- Unnamed Tributary 1
- Unnamed Tributary 2
- Unnamed Tributary 3

APFP Regulation: 5(2)(i)(iii)

0 2.5 5

Kilometres

SLR

STONESTREET GREEN SOLAR

HYDROLOGY REPORT

CATCHMENT AND SUB-CATCHMENT

HR Figure 4

Scale 1:50,000 @ A3

Date MAY 2024

Digital Files – Input Data

FEH_Catchment_Descriptors_609400_137700_v5_0_1.xml
FEH_Catchment_Descriptors_608350_138850_v5_0_1.xml
FEH_Catchment_Descriptors_608900_138550_v5_0_1.xml
FEH_Catchment_Descriptors_607250_137150_v5_0_1.xml
FEH_Catchment_Descriptors_605300_138600_v5_0_1.xml
FEH_Point_Descriptors_605897_137543_v5_0_1.xml

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Digital Files – Project or Calculation Files

ReFH2_and_WINFAP_Design_Flow_Estimation_Summary_Sheet_v2.xlsx

Stat – WINFAP Projects and Non Flood Years Adjustment Spreedsheets

ReFH – ReFH Projects and CSV ouputs

Hydrology Report

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Digital Files – Output Data

ESUS Scaled Hydrographs.xlsx
ICHL Scaled Hydrographs.xlsx
ICULV1 Scaled Hydrographs.xlsx
ICULV2 Scaled Hydrographs.xlsx
IES1 Scaled Hydrographs.xlsx
IES2 Scaled Hydrographs.xlsx
ITRIB1a Scaled Hydrographs.xlsx
ITRIB1b Scaled Hydrographs.xlsx
ITRIB2a Scaled Hydrographs.xlsx
ITRIB2b Scaled Hydrographs.xlsx
ITRIB3 Scaled Hydrographs.xlsx
TRIB1 Scaled Hydrographs.xlsx
TRIB2 Scaled Hydrographs.xlsx
TRIB3 Scaled Hydrographs.xlsx

Hydrology Report

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Other Supporting Information

Autumn 2000 Great Stour flood rarity. JBA, July 2014.

East Stour Flood Event Photo Reconnaissance. Environment Agency, November 2000.

2013-2014 Post Flood Analysis: Kent & South London Area. JBA, December 2014.

East Stour Flood Event Photo Reconnaissance. Environment Agency, February 2014.

Hydrology Report

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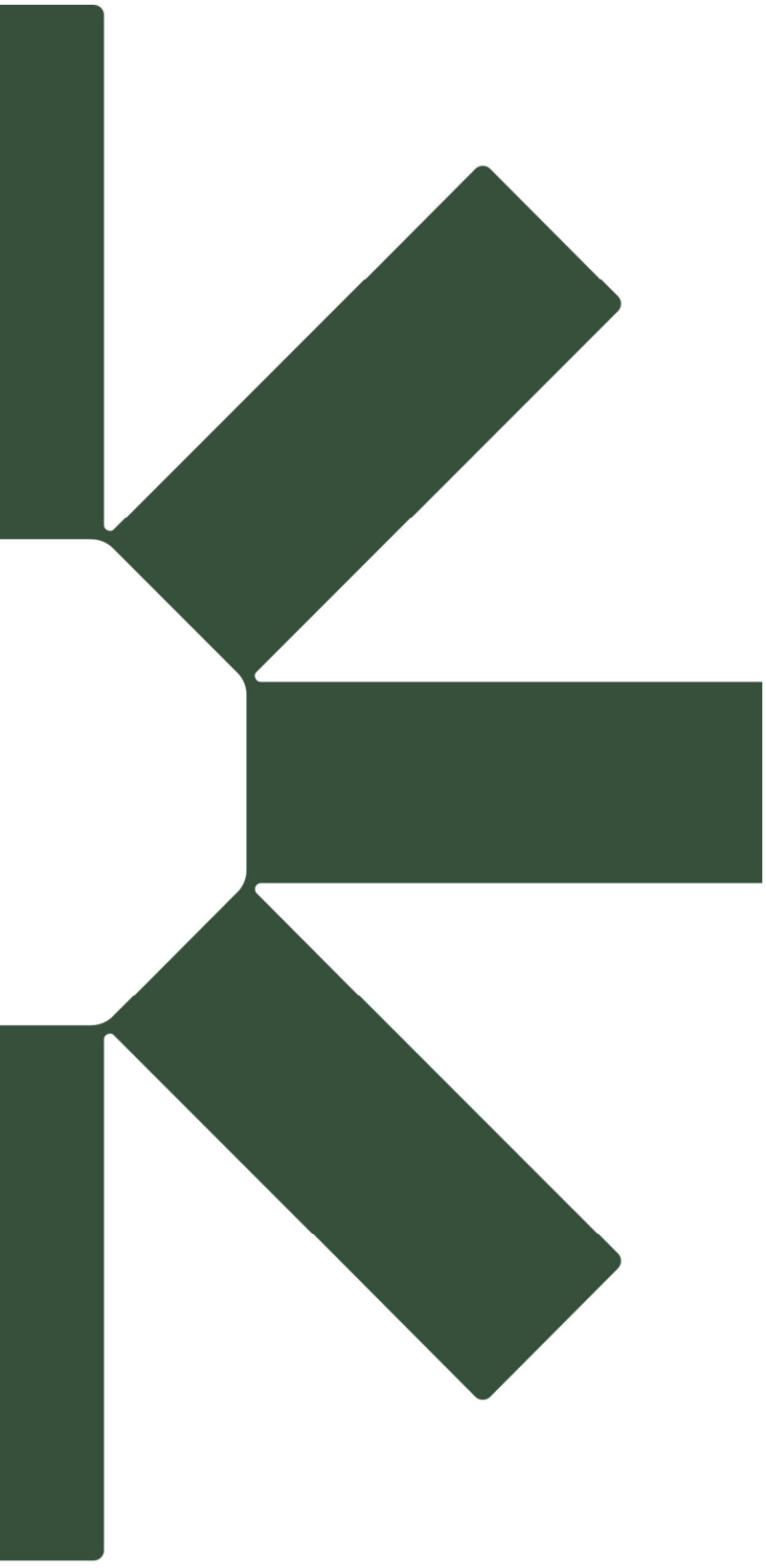

Making Sustainability Happen

Annex E Environment Agency Aldington FSA Information

Annex B: East Stour Hydraulic Modelling Report

Stonestreet Green Solar Farm

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Aldington FSA - Modelling arrangements for JBA 2023 Ashford model update

Key notes regarding the Aldington FSA modelling arrangements for JBA 2023 Ashford model update:

FSA Outlets

- Compensation Outlet to Evegate Mill

1997 record drawings and inspection reports show an orifice plate (300mm dia) in a 600mm pipe, which has an upstream IL 46.6mAOD. The stage discharge curve with a max discharge of 0.34m3/s is shown on the chart titled "ALDINGTON FLOOD DETENTION STORAGE - Stage / Discharge and Stage / Storage Curves" with footnote "1966/X - Rofe, Kennard and Lapworth - Feb 1991".

- Main outlet (1500mm dia pipe) with hydrobrake

The hydrobrake design stage discharge curve is shown on the chart titled "ALDINGTON FLOOD DETENTION STORAGE - Stage / Discharge and Stage / Storage Curves" with footnote "1966/X - Rofe, Kennard and Lapworth - Feb 1991".

The file 'Aldington & Hothfield FSRs - Gaugings & hydrobrakes performance r1' includes the hydrobrake design stage discharge curve, spot flow gaugings downstream of the hydrobrake and an estimated actual stage discharge curve for the hydrobrake, which takes account of the spot flow gaugings and the inlet structure low weir at 44.65mAOD. The model update uses the estimated actual stage discharge curve, but there is uncertainty in it due to the limited spot flow gaugings.

Overflow spillway

The record drawings provide the co-ords and chainages for the spillway crest and transitions to the embankment flanks:-

Ch 370.6 - 380.6 10m transition from embankment flank to spillway crest at 50.2mAOD

Ch 380.6 - 680.6 300m spillway crest at 50.2mAOD

Ch 680.6 - 690.6 10m transition from spillway crest at 50.2mAOD to embankment flank

For modelling, the spillway design crest level at 50.2mAOD is used.

Potential future options for Ashford flood risk to keep pace with climate change

Further spot flow gaugings during FSA operation will be needed to refine the hydrobrake stage discharge curve. Potential future options for Ashford flood risk to keep pace with climate change could include modifying the FSA arrangements, including the outlet and overflow spillway arrangements, and also raising the embankment flanks.

Aldington Flood Storage Reservoir Information

Table 3-1 Key dimensions relating to reservoir and dam

Feature	Unit	Dimension	Source
Reservoir capacity	Mm^3	1.3	Reservoir Record
Reservoir area at TWL	Mm^2	0.77	
Invert of upstream channel	mOD	44.65	Drg RD10
Level of East Stour side weir	mOD	47.5 to 47.4	Drg RD9
Level to which floodwater may be "temporarily stored", as certified in Final Certificate	mOD	50.2	Final Certificate
Embankment crest (non overflow)	mOD	51.3	Drg RD7
Downstream toe of embankment	mOD	46.8	Drg RD8
Invert of downstream channel	mOD	44.3	

3.1.2 Original Construction

The reservoir, in conjunction with the flood detention reservoir at Hothfield on the Great Stour west of Ashford, forms the Ashford Flood Alleviation Scheme. This scheme was completed in 1989 to reduce the frequency and intensity of flooding in both the rural and urban areas of the town and nearby villages. The works at Aldington were designed to reduce the flood flows from a peak of about $19m^3/s$ for the 100-year event to just in excess of $4m^3/s$ for the peak outflow by means of a hydrobrake with temporary detention of the additional volume for discharge over a larger timescale. The scheme was designed for floods in excess of the nominal 100-year event to overtop the embankment in a controlled manner.

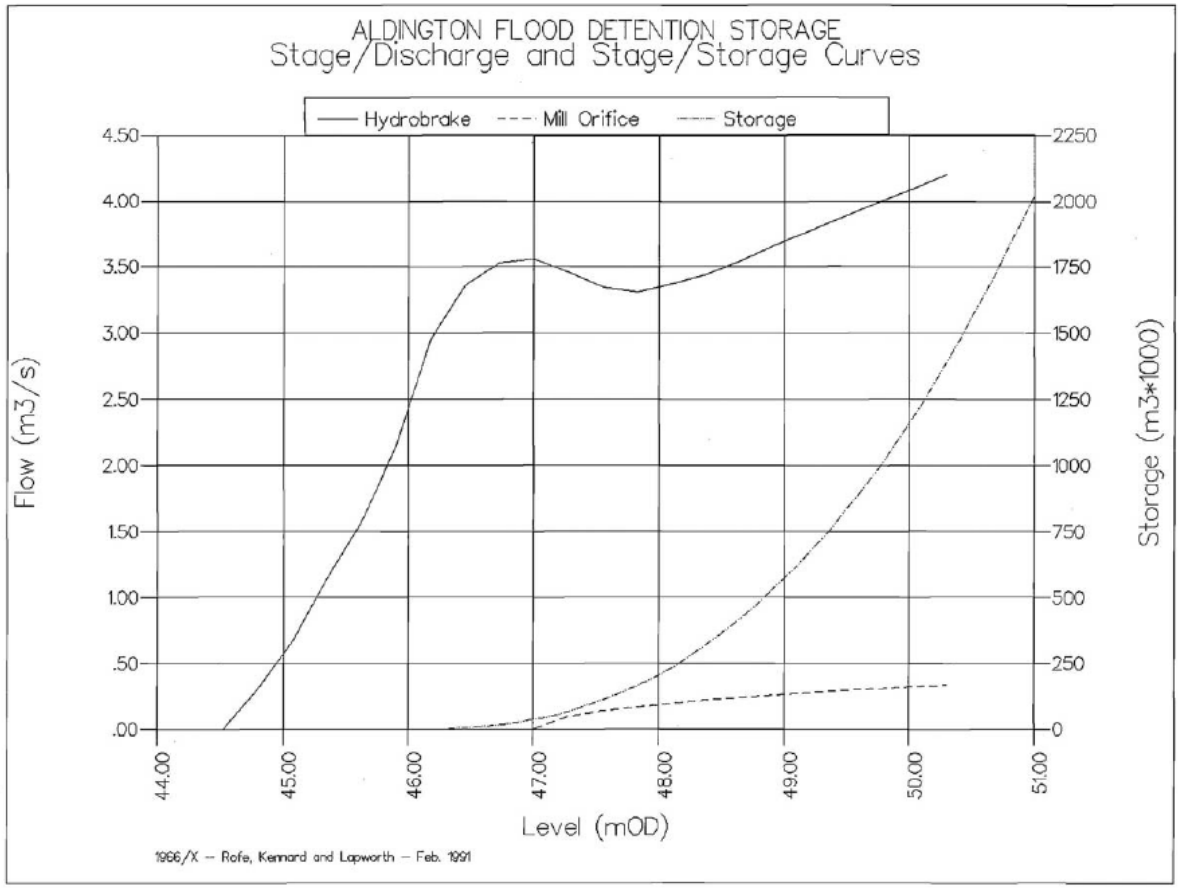
The reservoir is situated on the East Stour River and forms a flood detention area adjacent to the river and allied watercourses. The reservoir area is laid to pasture and is normally dry with flow through the area in the East Stour and Aldington Dyke watercourses. When full the reservoir occupies an area of about 1.5km x 1.5km.

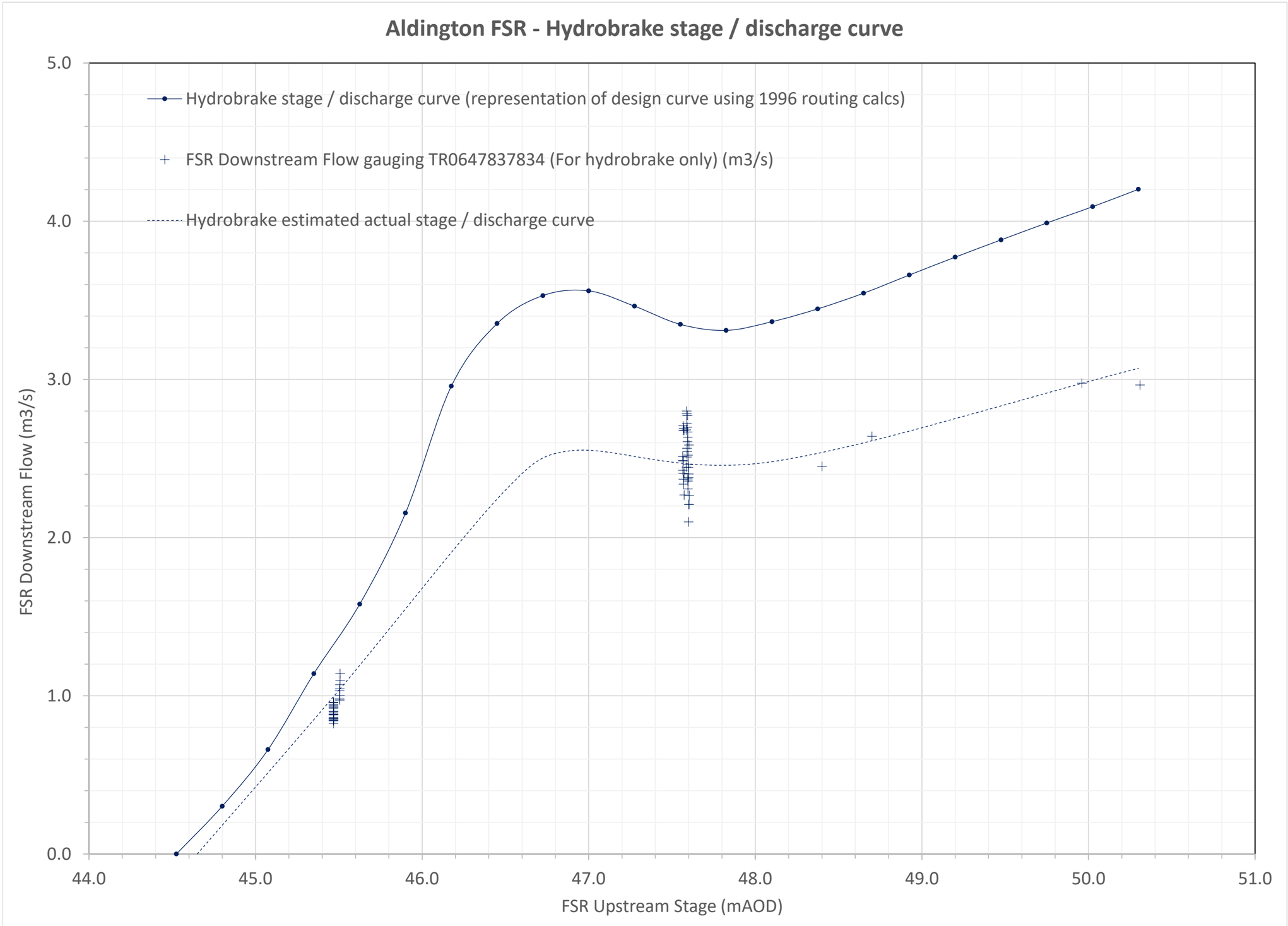
3.7.1 General

There are two outlets from the reservoir and one hydraulic structure to control inflows within the reservoir, as summarised in Table 3.6.

Table 3-6 Summary of outlets

Outlet	Control	Upstream invert level (m OD)	Other features which may control discharge (invert level)	Discharge (m^3/s)
Main outlet (Aldington Dyke)	Hydrobrake	44.65	None	4.16 at WL of 50.2mOD – see figure in App. A
Compensation pipe & fish pass; `East Stour	300mm dia orifice in 600mm DI pipe	46.6	None	0.34
East Stour side weir	Weir	47.4 to 47.5	Crest level set to ensure that the mill wheel can be operated and that it starts to spill when inflows exceed $0.12m^3/s$.	


ALDINGTON FLOOD DETENTION STORAGE
Stage/Discharge and Stage/Storage Curves
Hydrobrake
Mill Orifice
Storage
Flow (m3/s)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
.50
.00
Storage (m3*1000)
2250
2000
1750
1500
1250
1000
750
500
250
0
44.00
45.00
46.00
47.00
48.00
49.00
50.00
51.00
Level (mOD)
1966/X – Rofe, Kennard and Lapworth – Feb. 1991


Aldington FSR - Hydrobrake stage / discharge curve
Hydrobrake stage / discharge curve (representation of design curve using 1996 routing calcs)
FSR Downstream Flow gauging TR0647837834 (For hydrobrake only) (m3/s)
Hydrobrake estimated actual stage / discharge curve
FSR Downstream Flow (m3/s)
5.0
4.0
3.0
2.0
1.0
0.0
44.0
45.0
46.0
47.0
48.0
49.0
50.0
51.0
FSR Upstream Stage (mAOD)

Hydrobrake stage / discharge curve (representation of

Values from Aldington reservoir flood routing calcs 13/11/96 for 1252mm hydrobrake.
Note 1997 record dwgs also show 1252mm Type C conical hydrobrake.
Note curve visually checked that it matches curve on chart titled "ALDINGTON FLOOD DETENTION STORAGE - Stage / Discharge and Stage / Storage Curves" with footnote "1966/X - Rofe, Kennard and Lapworth - Feb 1991"

FSR Upstream Stage (mAOD)	FSR Downstream Flow (m3/s)
44.525	0.000
44.800	0.302
45.075	0.660
45.350	1.140
45.625	1.579
45.900	2.155
46.175	2.957
46.450	3.353
46.725	3.530
47.000	3.560
47.275	3.463
47.550	3.348
47.825	3.310
48.100	3.365
48.375	3.446
48.650	3.545
48.925	3.660
49.200	3.773
49.475	3.882
49.750	3.989
50.025	4.092
50.300	4.202

Hydrobrake estimated actual stage /

Values selected to create best estimate of actual stage discharge curve taking account of inlet structure low weir at 44.65mAOD, available SFGs & the design curve shape

FSR Upstream Stage (mAOD)	FSR Downstream Flow (m3/s)
44.65	0
45.506	1.042
46.5	2.30
46.9	2.55
48.1	2.48
50.3	3.07

Notes

1) There is another FSR outlet which is a separate compensation pipe flow to Evegate Mill. 1997 record dwgs and inspection reports show a 300mm dia orifice in a 600mm pipe, which has an upstream IL 46.6mAOD. The stage discharge curve with a max discharge of 0.34m3/s is shown on the chart titled "ALDINGTON FLOOD DETENTION STORAGE - Stage / Discharge and Stage / Storage Curves" with footnote "1966/X - Rofe, Kennard and Lapworth - Feb 1991".

TECHNICAL NOTE

JBA Project Code	2021s0048
Contract	Ashford modelling
Client	Environment Agency
Day, Date and Time	17 February 2023
Author	[redacted]
Reviewer / Sign-off	[redacted]
Subject	Aldington and Hothfield area and volume checks

1 Aldington and Hothfield area and volume checks

This note compares the area and volume calculations for the Aldington and Hothfield flood storage areas from the current modelling work (2022) with earlier versions from 2010 (previous hydraulic model) and 2000 (flood routing calculations). The calculated data are also compared to the key reservoir data from the 2019 Section 19 reports.

1.1 Aldington Reservoir

The reservoir dimensions have been updated for the latest modelling and these data compared against previous sources. The hydraulic model reservoir unit uses a level-area relationship which has been derived from LIDAR and this has also been extended to a volume calculation.

The spillway level is at 50.2mAOD which is between the increments used in 2000 and 2010 calculations.

The area and volume values around this level are slightly variable but all reasonably close to each other, within 10%.

Table 1-1: Level, area and volume from 2000,2010 and 2022 for Aldington

	Area (m2)			Volume (m3)		
Level (mOAD)	2000	2010	2022	2000	2010	2022
51	998000	998000	947560	2022000	2063750	1954651
50.5	858000	858000	821439	1558000	1599750	1512826
50.2	-	-	739821	-	-	1278511
50	730000	730000	682984	1161000	1202750	1136204
49.5	579000	579000	569101	833750	875500	824369
49	463000	463000	454466	573250	615000	566865
48.5	368000	368000	341454	365500	407250	365527
48	265000	265000	259583	207250	249000	213284
47.5	159000	159000	164531	101250	143000	109043
47	94000	94000	87716	38000	79750	45662
46.5	29000	61500	37468	7250	40875	14435
46	0	29000	4051	0	18250	1562
45.5	0	17000	1438	0	6750	519
45	0	5000	435	0	1250	62
44.5	0	0	0	0	0	0

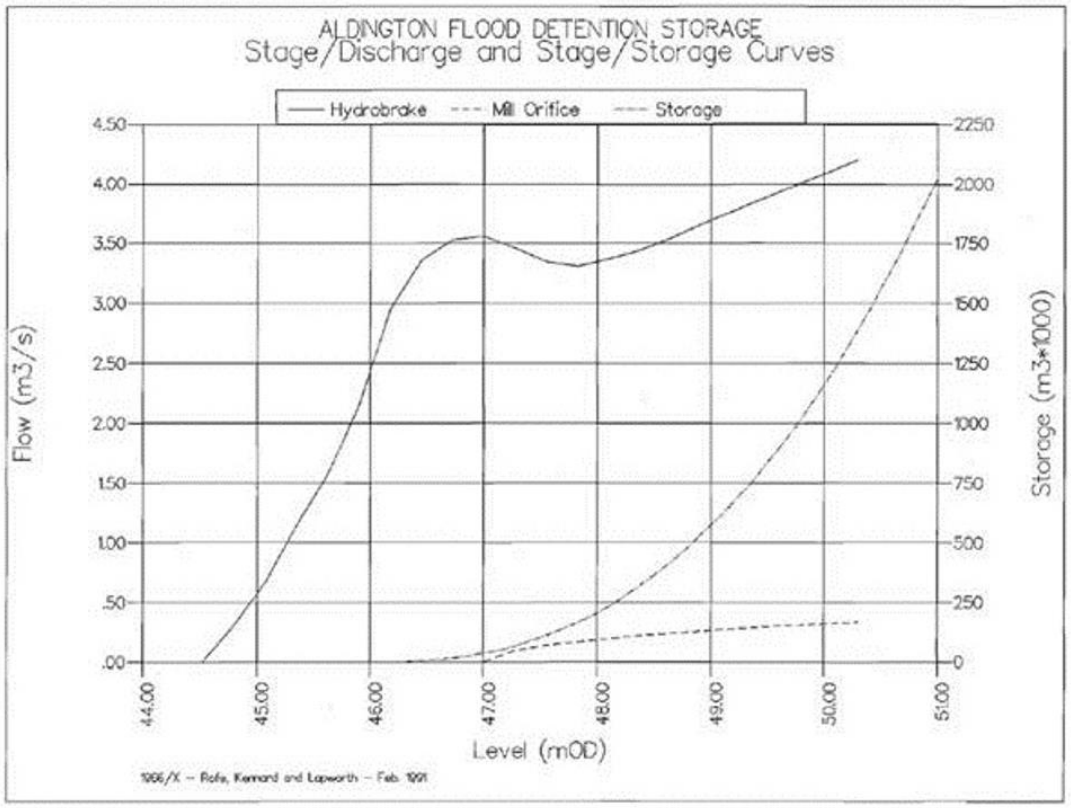
Table 1-2: Key reservoir dimensions from Aldington 2019 Section 10 report.

Feature	Unit	Dimension	Source
Reservoir capacity	Mm^3	1.3	Reservoir Record
Reservoir area at TWL	Mm^2	0.77	
Invert of upstream channel	m AOD	44.65	Drg RD10
Level of East Stour side weir	m AOD	47.5 to 47.4	Drg RD9
Level to which floodwater may be "temporarily stored", as certified in Final Certificate	m AOD	50.2	Final Certificate

The 2022 calculations of area and volume also agree closely with the data in the 2019 Section 10 report, comfortably with 5%.

Aldington (but not Hothfield) had a graph of the storage volume against the elevation supplied with the As-built records (date unknown). The volumes on this chart are also consistent with the more recently calculated values.

Figure 1-1: Aldington flood storage curve supplied with flood routing records



1.2 Hothfield Reservoir

The reservoir dimensions have been updated for the latest modelling and these data compared against previous sources. The hydraulic model reservoir unit uses a level-area relationship which has been derived from LIDAR and this has also been extended to a volume calculation.

The spillway level is at 48.5mOAD. The area and volume values at this level are slightly variable but all reasonably close to each other, within 10%.

Table 1-3: Level, area and volume from 2000,2010 and 2022 for Hothfield

	Area (m2)			Volume (m3)		
Level (mOAD)	2000	2010	2022	2000	2010	2022
49	1152000	1140000	1118000	2322500	2416158	2263074
48.5	1013000	994286	1000464	1781250	1882587	1733351
48	874000	873333	860695	1309500	1415682	1266387
47.5	733000	728000	708742	907750	1015349	874422
47	612000	580000	543452	571500	688349	560999
46.5	380000	426667	397341	323500	436682	326769
46	235000	340000	244006	169750	245016	164295
45.5	126000	320000	131345	79500	80016	73376
45	62000	10	64245	32500	13	25360
44.5	3000	10	17719	1500	8	7090
44	0	10	4357	0	3	253
43.5	0	0	0	0	0	0

Table 1-4: Key reservoir dimensions from Hothfield 2019 Section 10 report.

Feature	Value	Source / comment
Reservoir capacity	1.2Mm^3	Prescribed Form of Record
Reservoir area at TWL	1Mm^2	
Invert of upstream channel	44m AOD	Drawing RD5 & RD6
Invert of Pig Brook intake	44m AOD	
Low-level outlet	43.3m AOD	
Level to which floodwater may be "temporarily stored", as certified in Final Certificate	48.5m AOD	Final Certificate
Embankment crest	49.5m AOD	Drawing RD3
Downstream toe of embankment	44.4m AOD	Drawing RD4
Invert of downstream channel	43.57m AOD	

The 2022 calculation of area agrees closely with the data in the Section 10 report, within 1%.

The volume calculation for 2022 (and also 2000 and 2010) are all around 45% larger than the reservoir capacity given in the Section 10 report. Given the consistency of the

calculated values from different data sources they would seem likely to be correct and the value in the Section 10 report the anomaly. There is no further information regarding how this value was derived.

Annex F SLR Site Walkover Photos

Annex B: East Stour Hydraulic Modelling Report

Stonestreet Green Solar Farm

EPL 001 Limited

SLR Site Walkover Photos

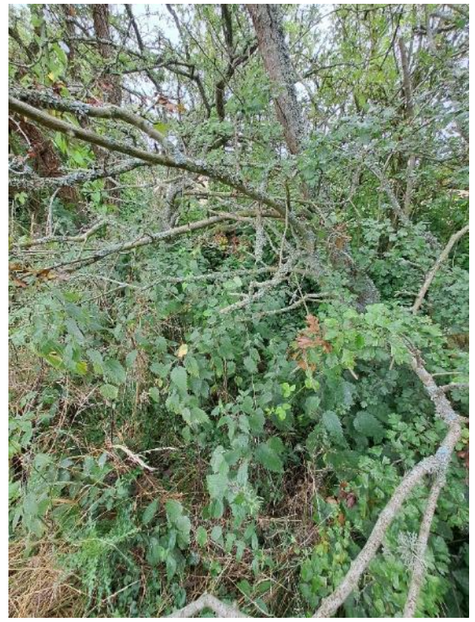
Photo 1: CH_Lane_P1 (25 July 2023)	Photo 2: CH_Lane_P2 (25 July 2023)	Photo 3: CULV1_D_P1 (25 July 2023)
		
Photo 4: CULV1_D_P2 (24 July 2023)	**Photo 5: CULV2_D_P1 (25 July 2023)**	**Photo 6: DITCH_P1 (24 July 2023)**
		

Photo 7: DITCH_P2 (24 July 2023)	Photo 8: ES_001_P1 (25 July 2023)	Photo 9: ES_002_P1 (25 July 2023)

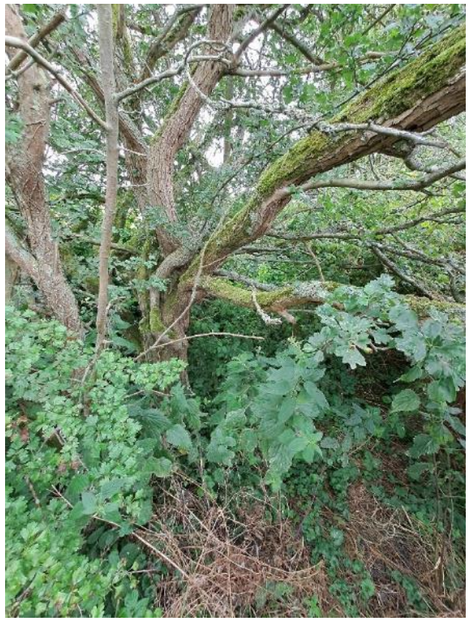



Photo 10: ES_002_P2 (25 July 2023)	**Photo 11: ES_002_P3 (25 July 2023)**	**Photo 12: ES_003_P1 (25 July 2023)**
		

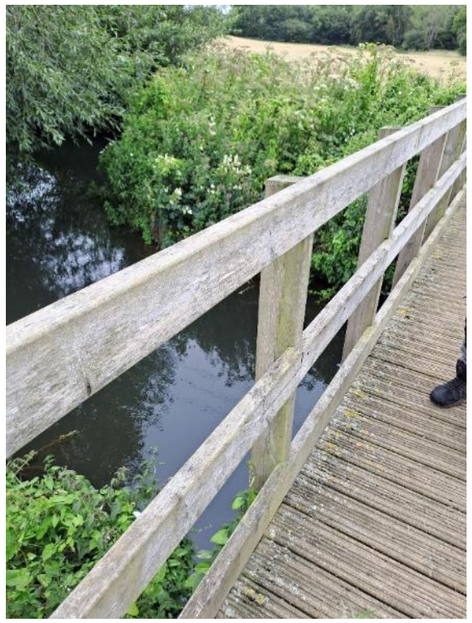
Photo 13: ES_003_P2 (25 July 2023)	Photo 14: ES_004_P1 (24 July 2023)	Photo 15: ES_004_P2 (24 July 2023)
		
Photo 16: ES_004_P3 (24 July 2023)	**Photo 17: ES_005_P1 (24 July 2023)**	**Photo 18: ES_005_P2 (24 July 2023)**
		

Photo 19: ES_005_P3 (24 July 2023)	Photo 20: ES_005_P4 (24 July 2023)	Photo 21: ES_006_P1 (24 July 2023)

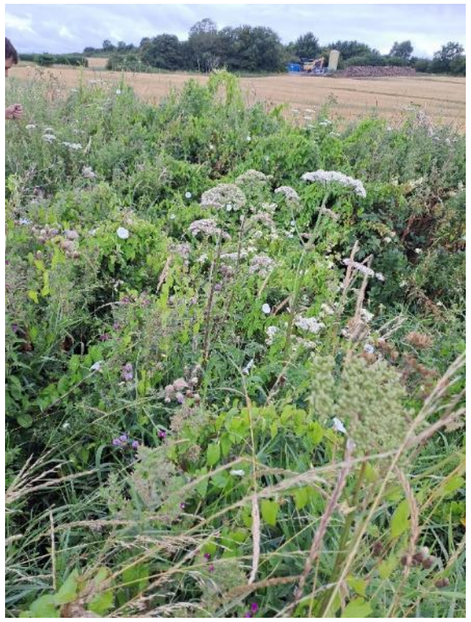
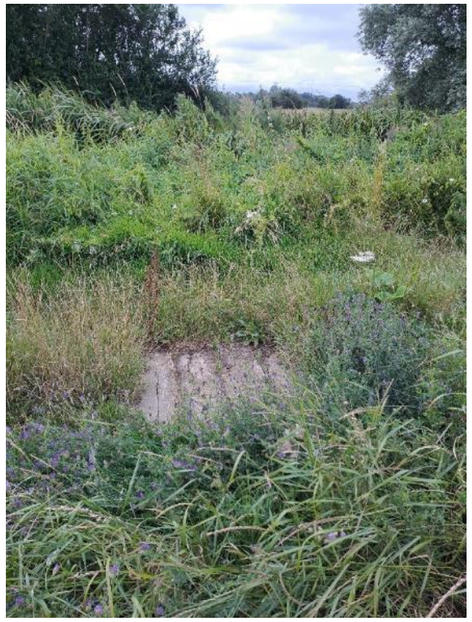

	

Photo 22: ES_006_P2 (24 July 2023)	**Photo 23: ES_006_P3 (24 July 2023)**	**Photo 24: ES_006_P4 (24 July 2023)**
		

Photo 25: ES_006_P5 (24 July 2023)	Photo 26: ES_006-007_P1 (24 July 2023)	Photo 27: ES_006-007_P2 (24 July 2023)
		
Photo 28: ES_006-007_P3 (24 July 2023)	**Photo 29: ES_007_P1 (24 July 2023)**	**Photo 30: ES_008_P1 (24 July 2023)**
		

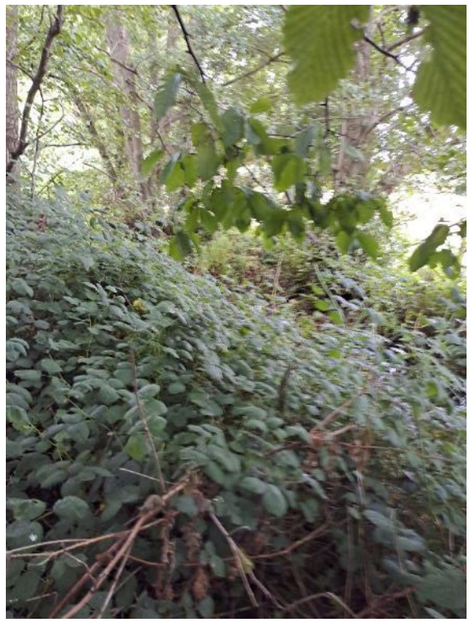
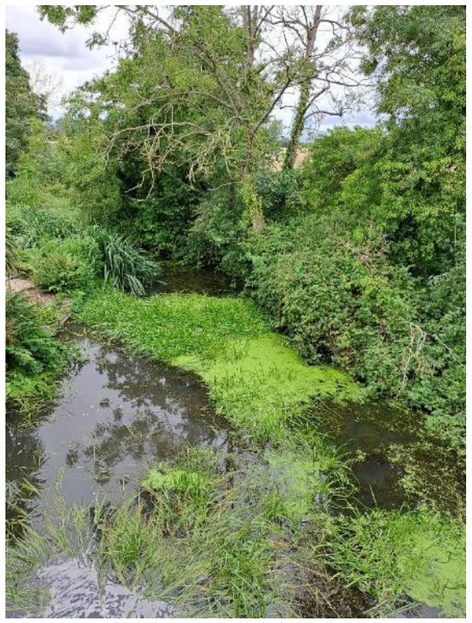
Photo 31: ES_008_P2 (24 July 2023)	Photo 32: ES_008-009_P1 (24 July 2023)	Photo 33: ES_009_P1 (24 July 2023)
		
Photo 34: ES_009_P2 (24 July 2023)	**Photo 35: ES_011_P1 (24 July 2023)**	**Photo 36: ES_011_P2 (24 July 2023)**
		

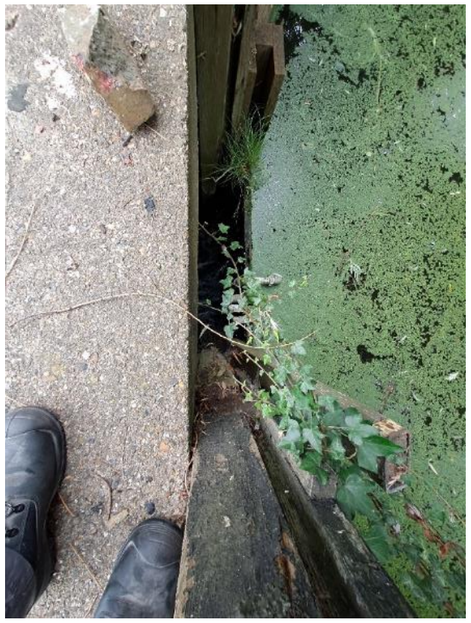
Photo 37: ES_011_P3 (24 July 2023)	Photo 38: ES_011_P4 (24 July 2023)	Photo 39: ES_011_P5 (24 July 2023)
		
Photo 40: ES_011_P6 (24 July 2023)	**Photo 41: ES_011_P7 (24 July 2023)**	**Photo 42: ES_011_P8 (25 July 2023)**
		

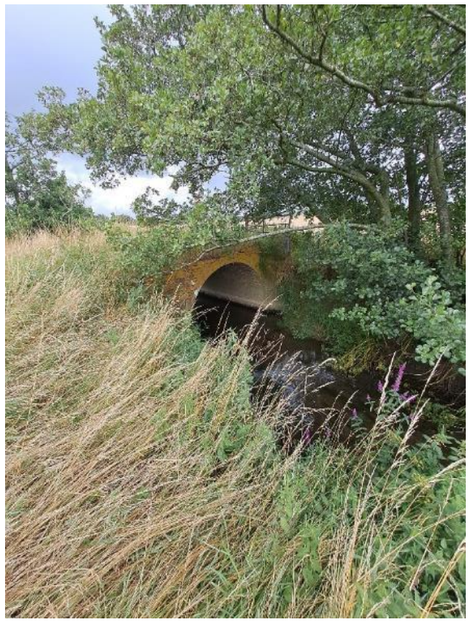
Photo 43: ES_012-013_P1 (24 July 2023)	Photo 44: ES_013_P1 (24 July 2023)	Photo 45: ES_013_P2 (24 July 2023)
		
Photo 46: ES_013_P3 (24 July 2023)	**Photo 47: ES_013_P4 (24 July 2023)**	**Photo 48: ES_013-014_P1 (24 July 2023)**
		

Photo 49: ES_013-014_P2 (24 July 2023)	Photo 50: ES_014_P1 (24 July 2023)	Photo 51: ES_014_P2 (24 July 2023)
		
Photo 52: ES_014_P3 (24 July 2023)	**Photo 53: FSA_Embankment_P1 (24 July 2023)**	**Photo 54: FSA_Embankment_P2 (24 July 2023)**
		

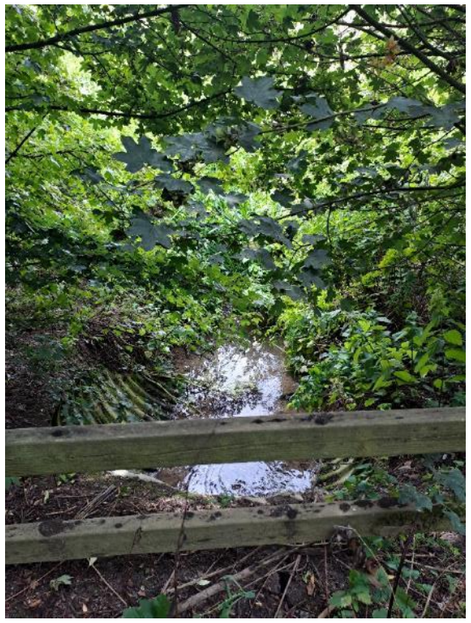
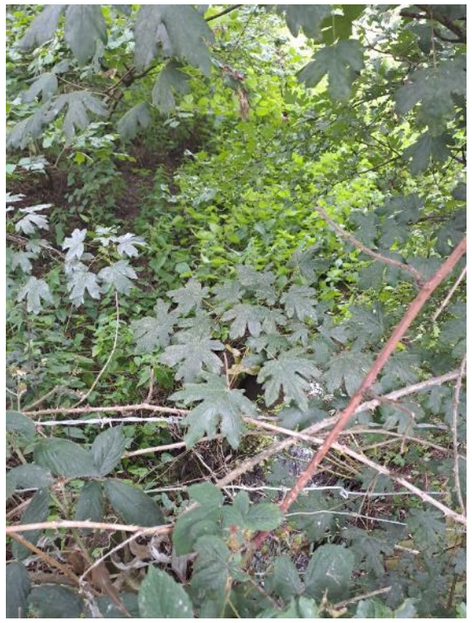
Photo 55: FSA_Embankment_P3 (24 July 2023)	Photo 56: FSA_Embankment_P4 (24 July 2023)	Photo 57: FSA_Embankment_P5 (24 July 2023)
		
Photo 58: FSA_South_P1 (24 July 2023)	**Photo 59: FSA_South_P2 (24 July 2023)**	**Photo 60: FSA_South_P3 (24 July 2023)**
		

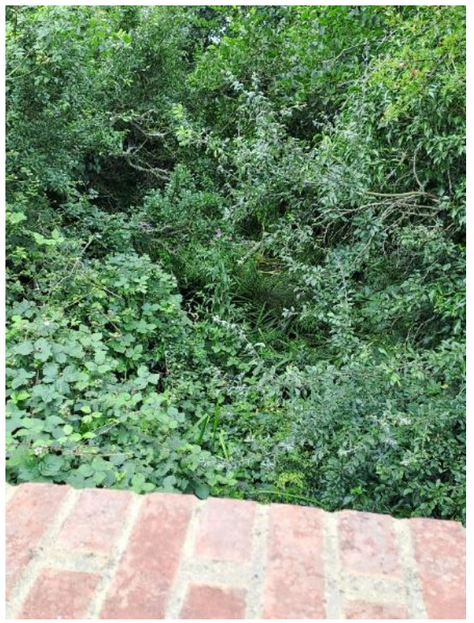
Photo 61: MILL_003_P1 (24 July 2023)	Photo 62: MILL_003_P2 (24 July 2023)	Photo 63: MILL_003_P3 (24 July 2023)
		
Photo 64: MILL_003_P4 (24 July 2023)	**Photo 65: MILL_003_P5 (24 July 2023)**	**Photo 66: MILL_003_P6 (24 July 2023)**
		

Photo 67: MILL_004_P1 (24 July 2023)	Photo 68: MILL_004_P2 (24 July 2023)	Photo 69: TRIB1_001_P1 (25 July 2023)
		
Photo 70: TRIB1_001_P2 (25 July 2023)	**Photo 71: TRIB1_001-002_P1 (25 July 2023)**	**Photo 72: TRIB1_001-002_P2 (25 July 2023)**
		

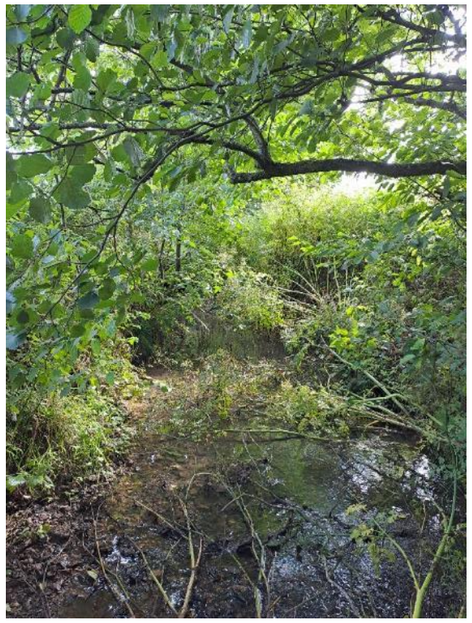
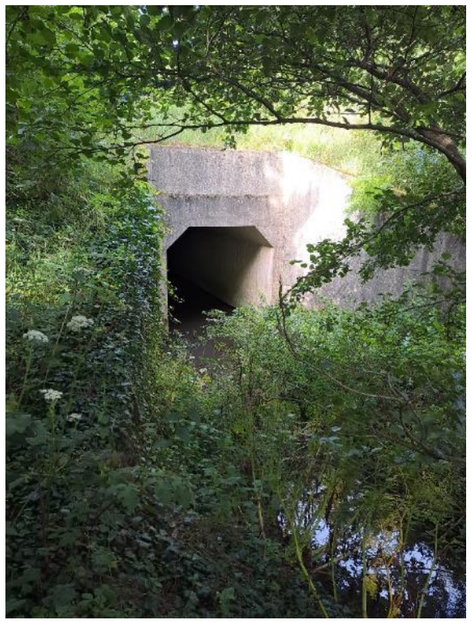
Photo 73: TRIB1_001-002_P3 (25 July 2023)	Photo 74: TRIB1_002_P1 (25 July 2023)	Photo 75: TRIB1_002_P2 (25 July 2023)
		
Photo 76: TRIB1_002_P3 (25 July 2023)	**Photo 77: TRIB1_002_P4 (25 July 2023)**	**Photo 78: TRIB1_002_P5 (25 July 2023)**
		

Photo 79: TRIB1_002_P6 (25 July 2023)	Photo 80: TRIB1_003_P1 (25 July 2023)	Photo 81: TRIB1_003_P2 (25 July 2023)

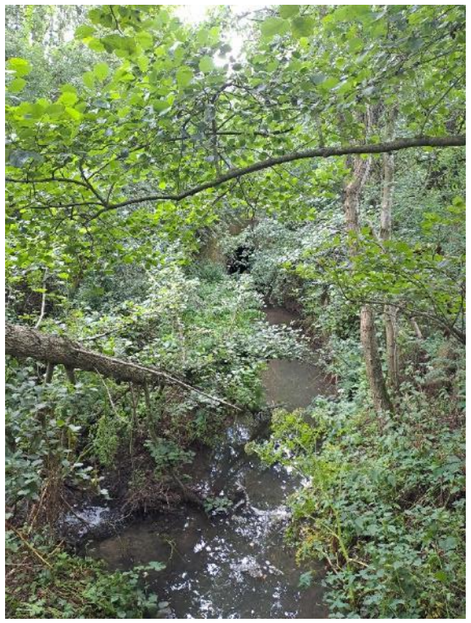
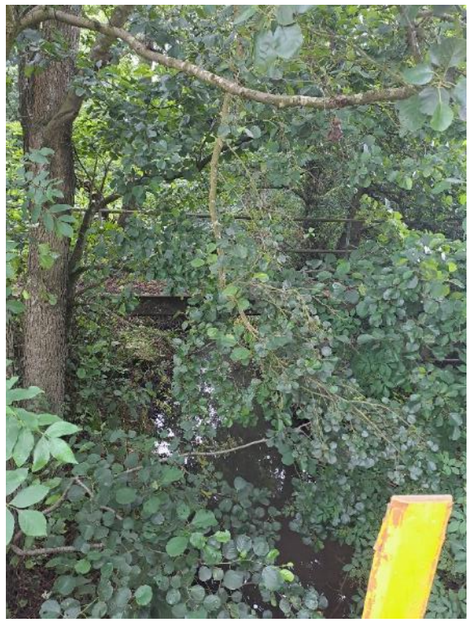

	

Photo 82: TRIB1_003_P3 (25 July 2023)	**Photo 83: TRIB1_004_P1 (25 July 2023)**	**Photo 84: TRIB1_004_P2 (25 July 2023)**
		

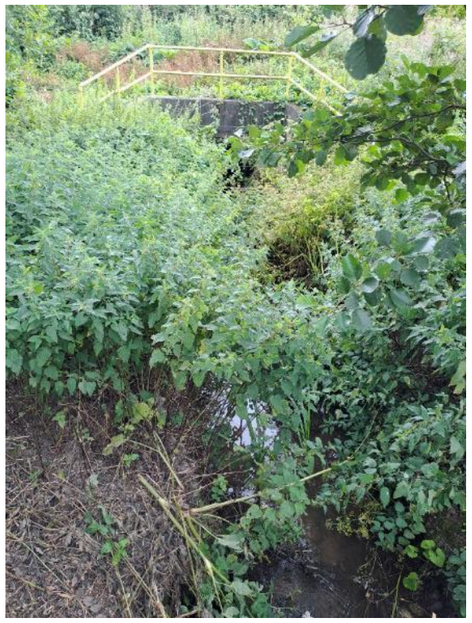
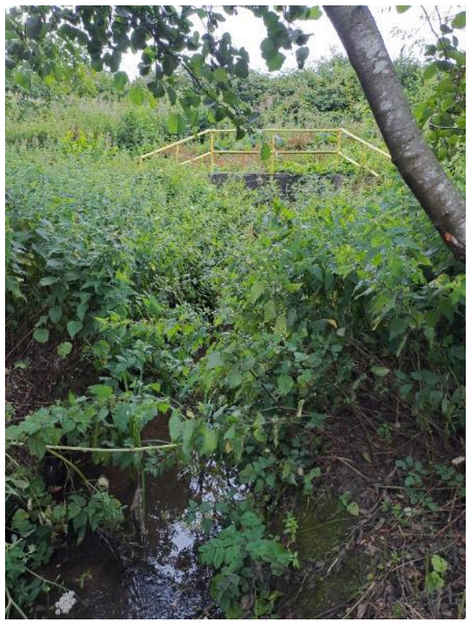
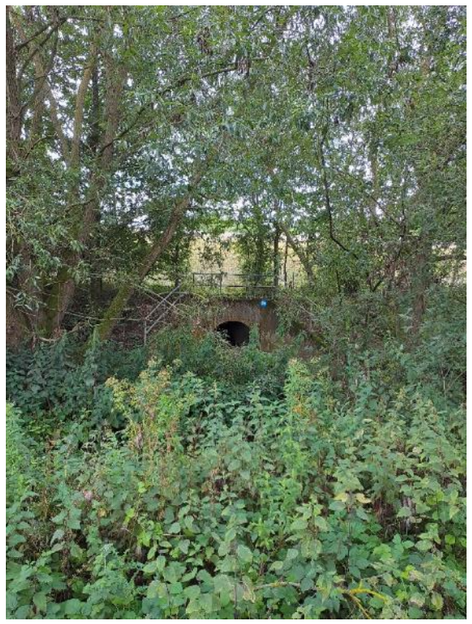
Photo 85: TRIB1_004_P3 (25 July 2023)	Photo 86: TRIB1_004-005_P1 (25 July 2023)	Photo 87: TRIB1_005_P1 (24 July 2023)
		
Photo 88: TRIB1_005_P2 (24 July 2023)	**Photo 89: TRIB1_005_P3 (25 July 2023)**	**Photo 90: TRIB1_006_P1 (24 July 2023)**
		

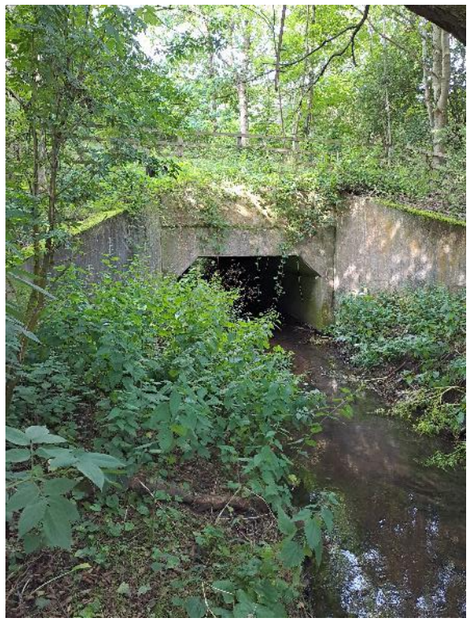
Photo 91: TRIB1_Pond_P1 (25 July 2023)	Photo 92: TRIB1_Pond_P2 (25 July 2023)	Photo 93: TRIB2_001_P1 (25 July 2023)
		
Photo 94: TRIB2_001_P2 (25 July 2023)	**Photo 95: TRIB2_002b_P1 (25 July 2023)**	**Photo 96: TRIB3_001_P1 (24 July 2023)**
		

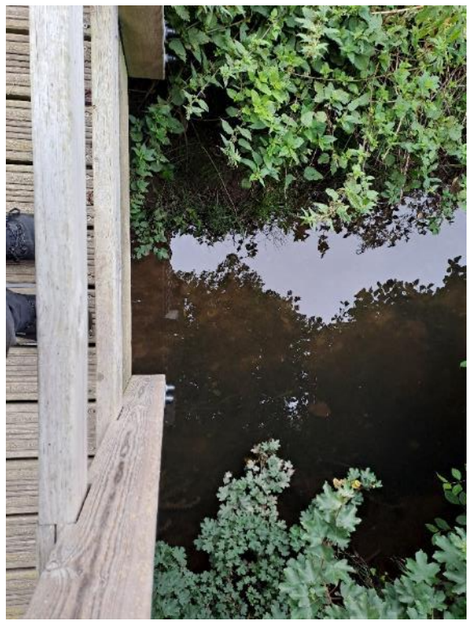
Photo 97: TRIB3_001_P2 (24 July 2023)	Photo 98: TRIB3_001_P3 (24 July 2023)	Photo 99: TRIB3_002_P1 (24 July 2023)
		
Photo 100: TRIB3_002_P2 (24 July 2023)	**Photo 101: TRIB3_002_P3 (24 July 2023)**	**Photo 102: TRIB3_003_P1 (24 July 2023)**
		

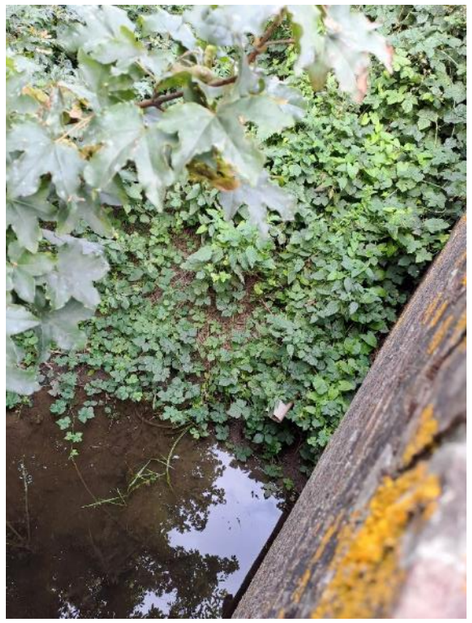
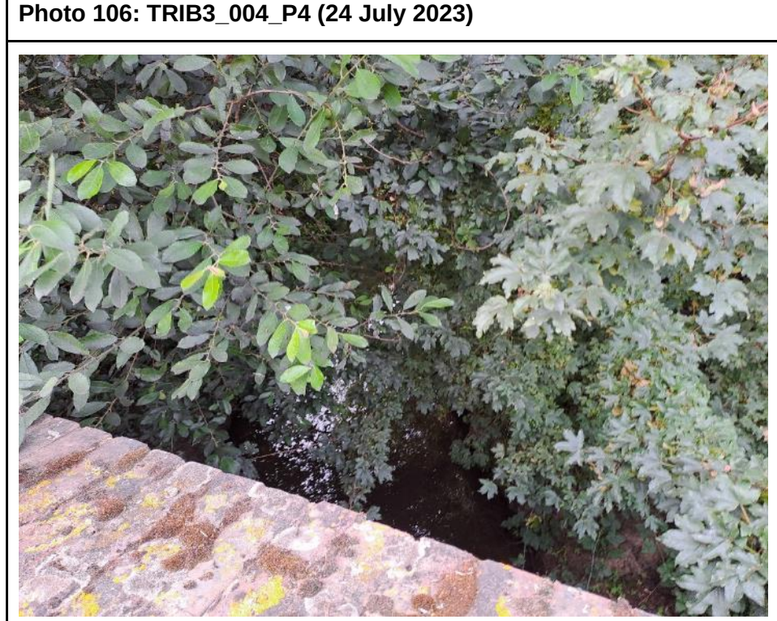
Photo 103: TRIB3_004_P1 (24 July 2023)	Photo 104: TRIB3_004_P2 (24 July 2023)	Photo 105: TRIB3_004_P3 (24 July 2023)
		
Photo 106: TRIB3_004_P4 (24 July 2023)	**Photo 107: TRIB3_004_P5 (24 July 2023)**	**Photo 108: TRIB3_004_P6 (24 July 2023)**
		

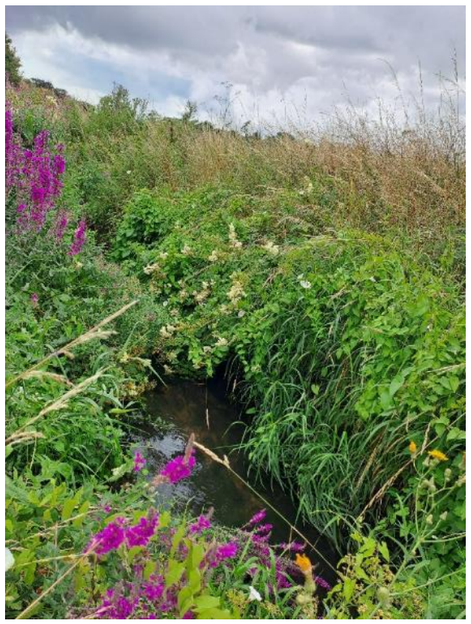
Photo 109: TRIB3_004_P7 (24 July 2023)	Photo 110: TRIB3_004_P8 (24 July 2023)	Photo 111: TRIB3_005_P1 (24 July 2023)
		
Photo 112: TRIB3_005_P2 (24 July 2023)	**Photo 113: TRIB3_005_P3 (24 July 2023)**	**Photo 114: TRIB3_005_P4 (24 July 2023)**
		

Photo 115: TRIB3_005_P5 (24 July 2023)		
		

Annex G 2D Bridge Loss Calculation Sheet

Annex B: East Stour Hydraulic Modelling Report

Stonestreet Green Solar Farm

EPL 001 Limited

ESTO01_10723
Bridge Loss Calculation Sheet

From TuFLOW Guidance

Deck Height to Thickness Ratio	Peak Form Loss Coefficient	hB/T
Scenario A (hB/T) = 2	0.42	2
Scenario B (hB/T) = 4	0.28	4
Scenario C (hB/T) = 6	0.2	6

Scenario	Gradient [FLC/(hB/T)]	
hB/T <= 4	-0.07	<4
hB/T > 4	-0.04	>4

Inputs

Parameter	Level (m aOD)	
Bed Level	46.49	
Soffit Level	47.84	
Deck Level	48.13	
Rail Level	48.13	
Rail Blockage Ratio	10%	

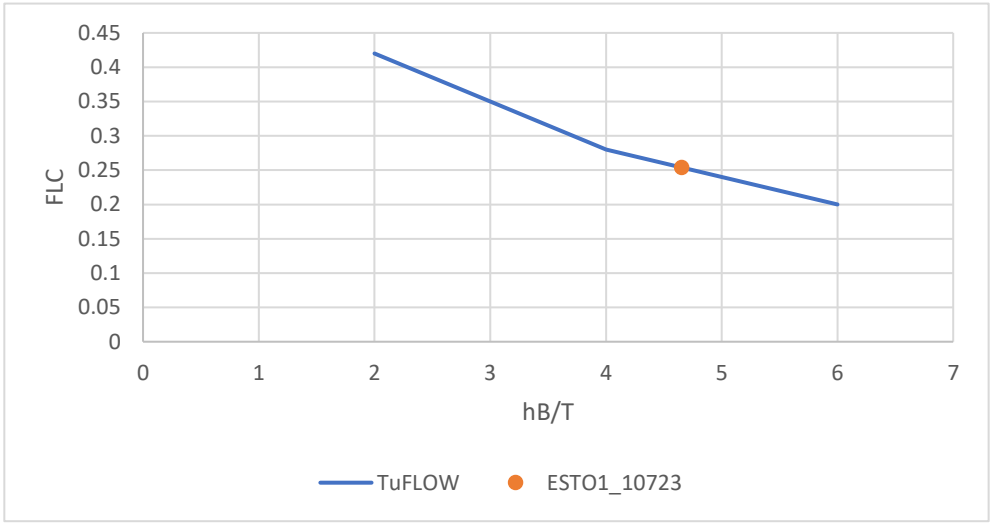
Calculations

Parameter	Value	
hB (height of opening)	1.35	
T	0.29	
hB/T	4.655172414	>4
FLC	0.253793103	-0.04

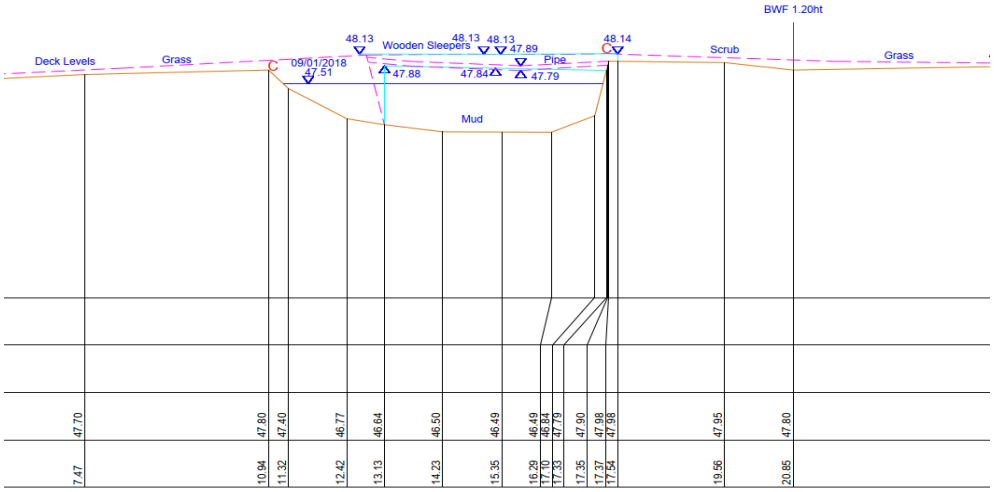
Outputs

Attribute	Value	
ID	ESTO1_10723	Enter unique name
Option	-	Not used (leave blank)
Pier_pBlockage	0.000	0 for no piers, 5 for 5% blockage etc.
Pier_FLC	0.000	0 if no pier. If piers use "Hydraulics of Bridge Waterways (Bradly, 1978)" to calculate loss coefficient
Deck_Soffit	47.840	Soffit level (top of opening)
Deck_Depth	0.290	Thickness of Bridge Deck (vertical)
Deck_Width	3.820	Deck width (In direction of flow)
Deck_pBlockage	100	100 assumes solid deck, update if required
Rail_Depth	0.000	Thickness of Rail (vertical)
Rail_pBlockage	10	% Blockage of rail
SuperS_FLC	0.254	Deck form loss coefficient
SuperS_lpf	1.6	Default value

ESTO01_10723
Bridge Loss Calculation Sheet



2m



ESTO01_11157
Bridge Loss Calculation Sheet

From TuFLOW Guidance

Deck Height to Thickness Ratio	Peak Form Loss Coefficient	hB/T
Scenario A (hB/T) = 2	0.42	2
Scenario B (hB/T) = 4	0.28	4
Scenario C (hB/T) = 6	0.2	6

Scenario	Gradient [FLC/(hB/T)]	
hB/T <= 4	-0.07	<4
hB/T > 4	-0.04	>4

Inputs

Parameter	Level (m aOD)	
Bed Level	46.1	
Soffit Level	48.63	
Deck Level	49.07	
Rail Level	50.25	
Rail Blockage Ratio	10%	

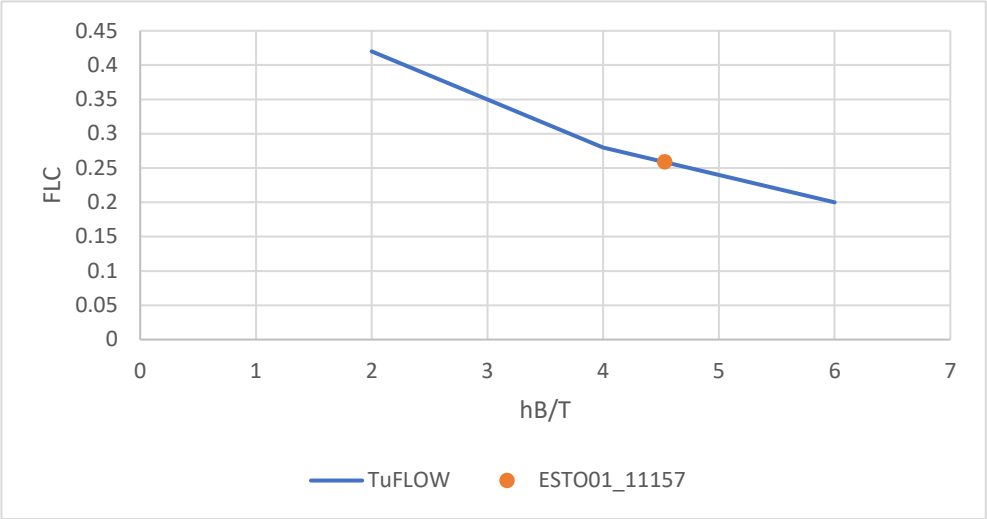
Calculations

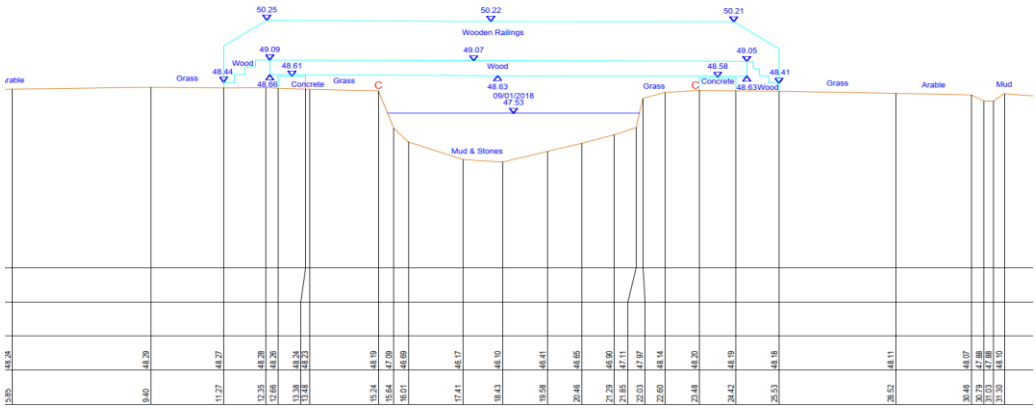
Parameter	Value	
hB (height of opening)	2.53	
T	0.558	
hB/T	4.534050179	>4
FLC	0.258637993	-0.04

Outputs

Attribute	Value	
ID	ESTO01_11157	Enter unique name
Option	-	Not used (leave blank)
Pier_pBlockage	0.000	0 for no piers, 5 for 5% blockage etc.
Pier_FLC	0.000	0 if no pier. If piers use "Hydraulics of Bridge Waterways (Bradly, 1978)" to calculate loss coefficient
Deck_Soffit	48.630	Soffit level (top of opening)
Deck_Depth	0.440	Thickness of Bridge Deck (vertical)
Deck_Width	1.140	Deck width (In direction of flow)
Deck_pBlockage	100	100 assumes solid deck, update if required
Rail_Depth	1.180	Thickness of Rail (vertical)
Rail_pBlockage	10	% Blockage of rail
SuperS_FLC	0.259	Deck form loss coefficient
SuperS_lpf	1.6	Default value

ESTO01_11157
Bridge Loss Calculation Sheet





ESTO01_11320
Bridge Loss Calculation Sheet

From TuFLOW Guidance

Deck Height to Thickness Ratio	Peak Form Loss Coefficient	hB/T
Scenario A (hB/T) = 2	0.42	2
Scenario B (hB/T) = 4	0.28	4
Scenario C (hB/T) = 6	0.2	6

Scenario	Gradient [FLC/(hB/T)]	
hB/T <= 4	-0.07	<4
hB/T > 4	-0.04	>4

Inputs

Parameter	Level (m aOD)	
Bed Level	46.67	
Soffit Level	48.74	
Deck Level	49.09	
Rail Level	50.06	
Rail Blockage Ratio	10%	

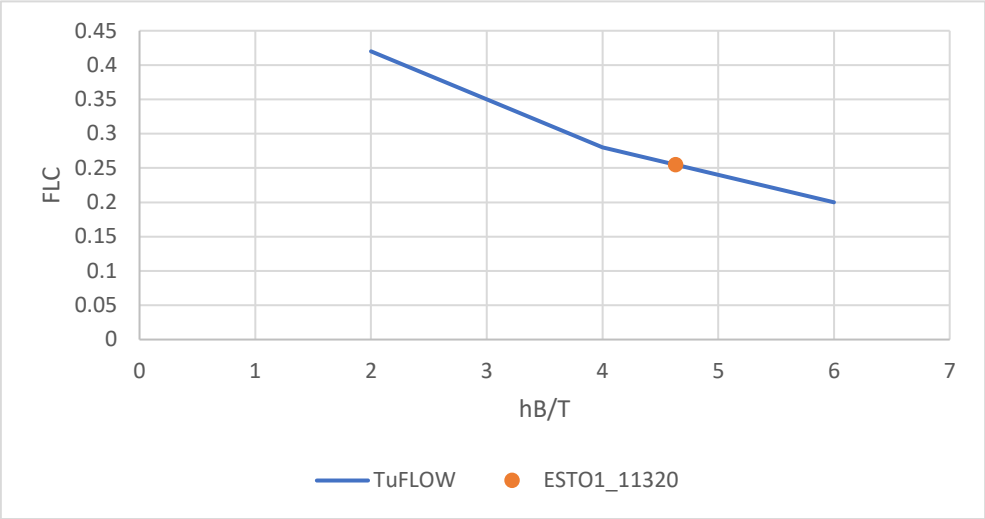
Calculations

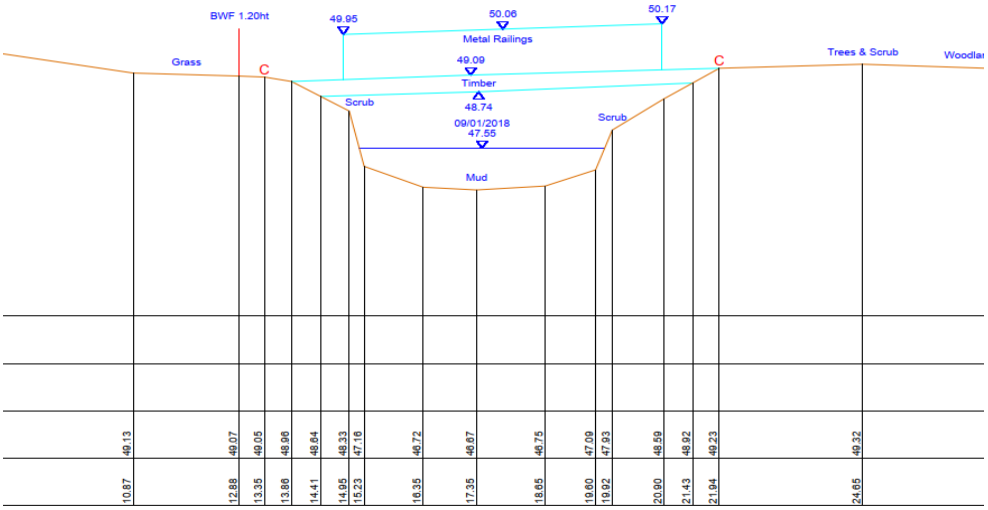
Parameter	Value	
hB (height of opening)	2.07	
T	0.447	
hB/T	4.630872483	>4
FLC	0.254765101	-0.04

Outputs

Attribute	Value	
ID	ESTO1_11320	Enter unique name
Option	-	Not used (leave blank)
Pier_pBlockage	0.000	0 for no piers, 5 for 5% blockage etc.
Pier_FLC	0.000	0 if no pier. If piers use "Hydraulics of Bridge Waterways (Bradly, 1978)" to calculate loss coefficient
Deck_Soffit	48.740	Soffit level (top of opening)
Deck_Depth	0.350	Thickness of Bridge Deck (vertical)
Deck_Width	0.690	Deck width (In direction of flow)
Deck_pBlockage	100	100 assumes solid deck, update if required
Rail_Depth	0.970	Thickness of Rail (vertical)
Rail_pBlockage	10	% Blockage of rail
SuperS_FLC	0.255	Deck form loss coefficient
SuperS_lpf	1.6	Default value

ESTO01_11320
Bridge Loss Calculation Sheet





ESTO01_12552
Bridge Loss Calculation Sheet

From TuFLOW Guidance

Deck Height to Thickness Ratio	Peak Form Loss Coefficient	hB/T
Scenario A (hB/T) = 2	0.42	2
Scenario B (hB/T) = 4	0.28	4
Scenario C (hB/T) = 6	0.2	6

Scenario	Gradient [FLC/(hB/T)]	
hB/T <= 4	-0.07	<4
hB/T > 4	-0.04	>4

Inputs

Parameter	Level (m aOD)	
Bed Level	49.59	
Soffit Level	51.84	
Deck Level	52.22	
Rail Level	53.42	
Rail Blockage Ratio	10%	

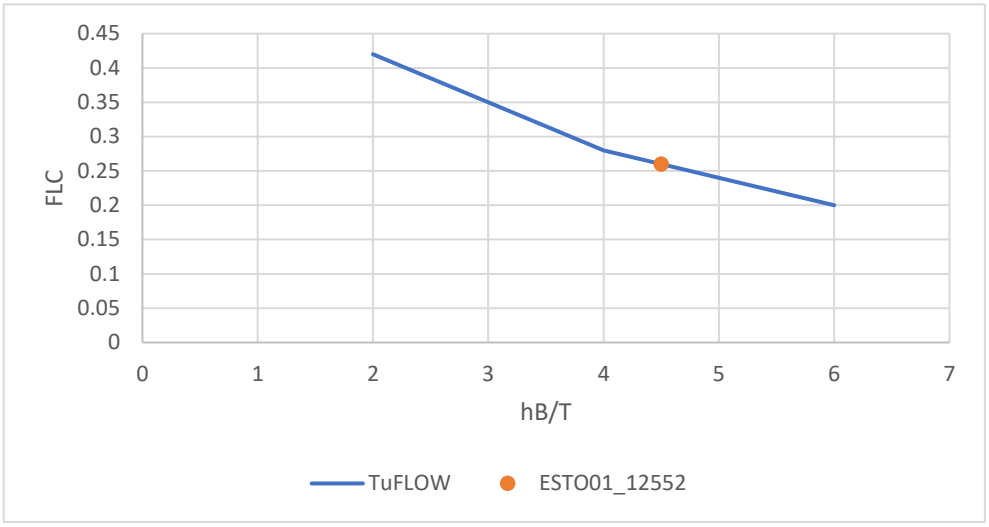
Calculations

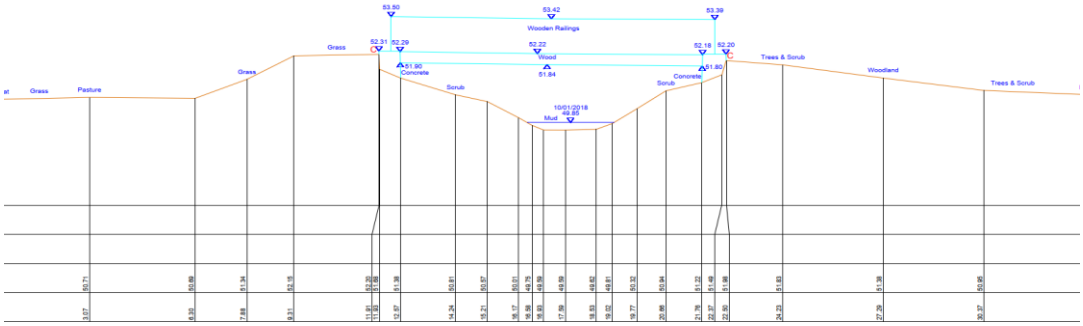
Parameter	Value	
hB (height of opening)	2.25	
T	0.5	
hB/T	4.5	>4
FLC	0.26	-0.04

Outputs

Attribute	Value	
ID	ESTO01_12552	Enter unique name
Option	-	Not used (leave blank)
Pier_pBlockage	0.000	0 for no piers, 5 for 5% blockage etc.
Pier_FLC	0.000	0 if no pier. If piers use "Hydraulics of Bridge Waterways (Bradly, 1978)" to calculate loss coefficient
Deck_Soffit	51.840	Soffit level (top of opening)
Deck_Depth	0.380	Thickness of Bridge Deck (vertical)
Deck_Width	1.840	Deck width (In direction of flow)
Deck_pBlockage	100	100 assumes solid deck, update if required
Rail_Depth	1.200	Thickness of Rail (vertical)
Rail_pBlockage	10	% Blockage of rail
SuperS_FLC	0.260	Deck form loss coefficient
SuperS_lpf	1.6	Default value

ESTO01_12552
Bridge Loss Calculation Sheet





STO01_12552
8504.16mE 138034.25mN Brg 335
otbridge
nnel Length = 1.84m

ESTO01_12641
Bridge Loss Calculation Sheet

From TuFLOW Guidance

Deck Height to Thickness Ratio	Peak Form Loss Coefficient	hB/T
Scenario A (hB/T) = 2	0.42	2
Scenario B (hB/T) = 4	0.28	4
Scenario C (hB/T) = 6	0.2	6

Scenario	Gradient [FLC/(hB/T)]	
hB/T <= 4	-0.07	<4
hB/T > 4	-0.04	>4

Inputs

Parameter	Level (m aOD)	
Bed Level	49.87	
Soffit Level	51.87	
Deck Level	52.26	
Rail Level	53.47	
Rail Blockage Ratio	10%	

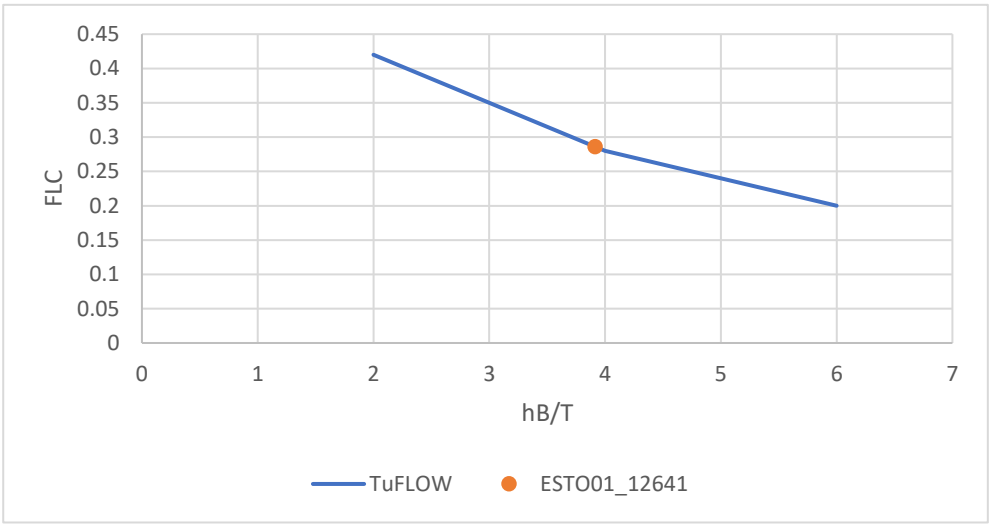
Calculations

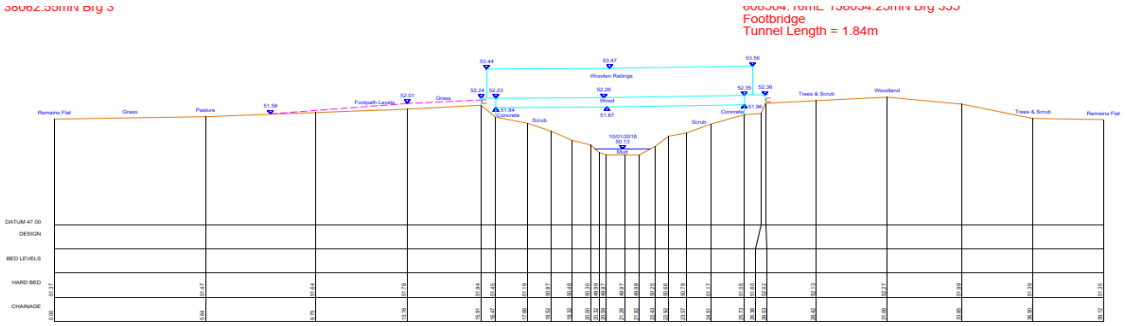
Parameter	Value	
hB (height of opening)	2	
T	0.511	
hB/T	3.913894325	<4
FLC	0.286027397	-0.07

Outputs

Attribute	Value	
ID	ESTO01_12641	Enter unique name
Option	-	Not used (leave blank)
Pier_pBlockage	0.000	0 for no piers, 5 for 5% blockage etc.
Pier_FLC	0.000	0 if no pier. If piers use "Hydraulics of Bridge Waterways (Bradly, 1978)" to calculate loss coefficient
Deck_Soffit	51.870	Soffit level (top of opening)
Deck_Depth	0.390	Thickness of Bridge Deck (vertical)
Deck_Width	1.780	Deck width (In direction of flow)
Deck_pBlockage	100	100 assumes solid deck, update if required
Rail_Depth	1.210	Thickness of Rail (vertical)
Rail_pBlockage	10	% Blockage of rail
SuperS_FLC	0.286	Deck form loss coefficient
SuperS_lpf	1.6	Default value

ESTO01_12641
Bridge Loss Calculation Sheet





ESTO01_12946
Bridge Loss Calculation Sheet

From TuFLOW Guidance

Deck Height to Thickness Ratio	Peak Form Loss Coefficient	hB/T
Scenario A (hB/T) = 2	0.42	2
Scenario B (hB/T) = 4	0.28	4
Scenario C (hB/T) = 6	0.2	6

Scenario	Gradient [FLC/(hB/T)]	
hB/T <= 4	-0.07	<4
hB/T > 4	-0.04	>4

Inputs

Parameter	Level (m aOD)	
Bed Level	50.28	
Soffit Level	52.13	
Deck Level	52.5	
Rail Level	53.44	
Rail Blockage Ratio	10%	

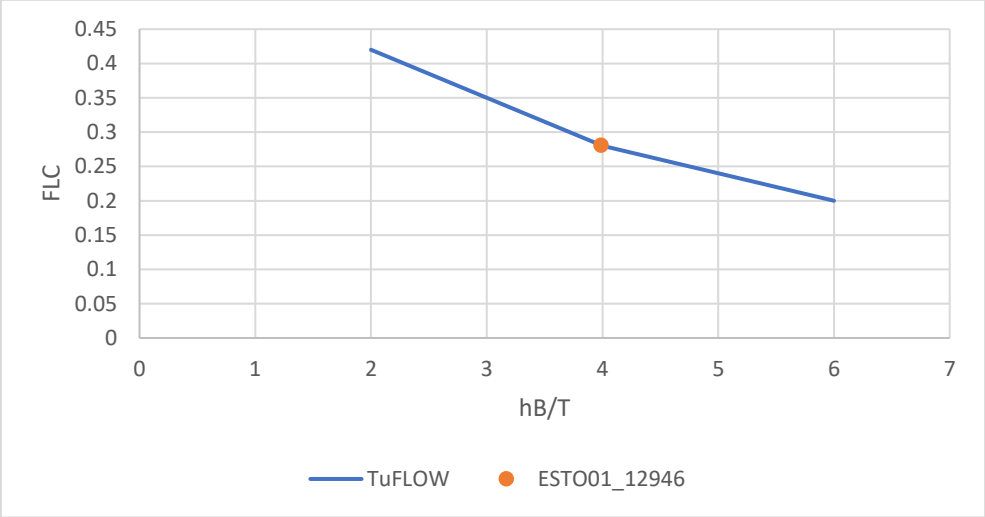
Calculations

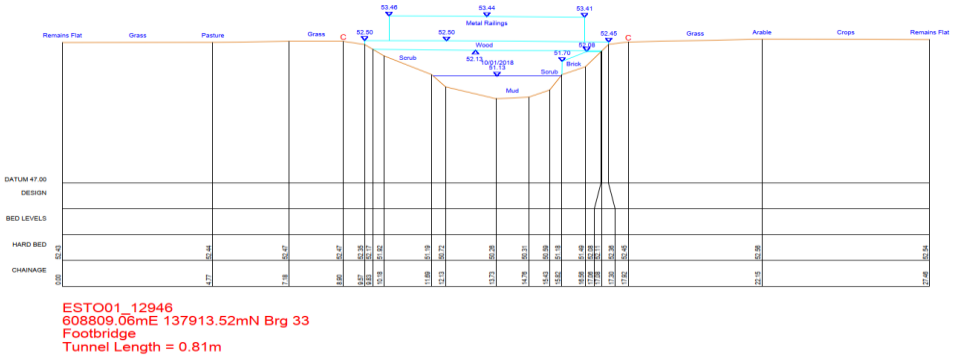
Parameter	Value	
hB (height of opening)	1.85	
T	0.464	
hB/T	3.987068966	<4
FLC	0.280905172	-0.07

Outputs

Attribute	Value	
ID	ESTO01_12946	Enter unique name
Option	-	Not used (leave blank)
Pier_pBlockage	0.000	0 for no piers, 5 for 5% blockage etc.
Pier_FLC	0.000	0 if no pier. If piers use "Hydraulics of Bridge Waterways (Bradly, 1978)" to calculate loss coefficient
Deck_Soffit	52.130	Soffit level (top of opening)
Deck_Depth	0.370	Thickness of Bridge Deck (vertical)
Deck_Width	0.810	Deck width (In direction of flow)
Deck_pBlockage	100	100 assumes solid deck, update if required
Rail_Depth	0.940	Thickness of Rail (vertical)
Rail_pBlockage	10	% Blockage of rail
SuperS_FLC	0.281	Deck form loss coefficient
SuperS_lpf	1.6	Default value

ESTO01_12946
Bridge Loss Calculation Sheet





ESTO01_12946
608809.06mE 137913.52mN Brg 33
Footbridge
Tunnel Length = 0.81m