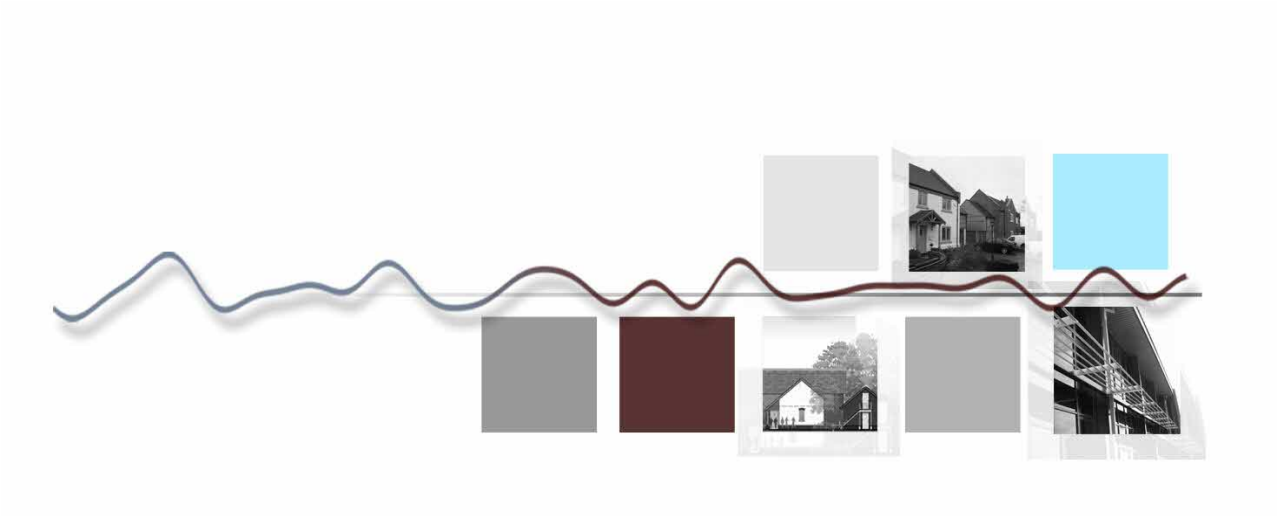

app doc 4b: flood risk assessment

prepared by JNM Engineering Ltd

proposed leisure facilities
Land opposite the Hand and Diamond public house
Coedway, Powys

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Land at Coedway, Powys

Flood Risk Assessment

July 2020

DATE ISSUED: July 2020
JOB NUMBER:
REPORT NUMBER: J02058

CLIENT'S REFERENCE:
Land at Coedway, Powys

PREPARED BY:

Mark Clayton Project Engineer

APPROVED BY:

James Mewis Civil Engineer [redacted]

CONTENTS

APPENDICES

DRAWING NO. **TITLE**

INTRODUCTION

1.1 General

1.1.1 JNM Engineering Ltd has been commissioned to undertake a Flood Risk Assessment (FRA) on behalf of Mr D Fletcher in support of his planning application to provide holiday chalets on a parcel of land at Coedway, Powys, SY5 9AR.

1.1.2 This report sets out the findings of the flood risk assessment required by the Local Planning Authority in support of the planning application for this development. The assessment has been carried out in accordance with the National Planning Policy Framework (NPPF) and Technical Guidance to the NPPF.

1.2 Background Information

1.2.1 The NPPF replaced PPS25 in 2012 with tables 1 to 3 giving guidance on probability and development vulnerability.

Zone 1 Low Probability

This zone comprises of land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any one year (<0.1%).

Zone 2 Medium Probability

This zone comprises of land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year.

Zone 3a High Probability

This zone comprises of land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Zone 3b The Functional Floodplain

This zone comprises of land where water has to flow or be stored in times of flood. Strategic FRA's should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the Natural Resources Wales (EA), including water conveyance routes.

1.2.2 As part of its general obligations under the Water Resources Act 1991, the Natural Resources Wales has carried out surveys of its existing flood defences against flooding and has published a series of nationwide 'Indicative Floodplain Maps' based upon information from historic flood events and basic hydraulic modelling. In general terms, these maps give a good indication of the areas likely to be affected by flooding. More recently the Natural Resources Wales have published the 'Flood Map' on their website which is based on improved hydraulic modelling and detailed local data. The Flood Map indicates areas that may be affected by a 1 in 100 year fluvial flood or a 1 in 200 year tidal/coastal flood (ie Zone 3 as defined in NPPF). It also indicates areas that may be affected by an extreme flood (ie Zone 2 as defined in NPPF). However, it should be stated that the Environment Agency flood maps only cover water courses with substantial catchment areas and do not cover all ditch courses and brooks that maybe susceptible to flooding.

1.2.3 The Natural Resources Wales Flood Map for the proposed development shows that the site boundary is inside of the indicative floodplain and is shown as High to Low risk. The extent of the indicative floodplain is shown in Appendix 1.

1.2.4 The proposal will be to gain permission to provide holiday chalets.

1.2.5 Enquiries have been made of the Natural Resources Wales as to any recorded flooding instances. Sewer maps have been applied for and will be issued on receipt from Welsh Water. .

2 STRUCTURE OF THE REPORT

2.1 This report has been structured to follow the general principles set out in the Technical Guidance to the NPPF which deal specifically with flooding.

This report has been based upon desk studies supplemented by site inspections.

SITE AND CATCHMENT CHARACTERISTICS

3 DEVELOPMENT DESCRIPTION AND LOCATION

3.1.1 The proposed development is located in Coedway It is proposed to to gain planning permission to The nearest postcode is SY5 9AR with national grid reference 334190E, 314833N.

Coedway is a market town in Powys, Wales, 28 miles south of Shrewsbury.

Coedway runs along the border of England and Wales.

Coedway has an approximate population of 167. Coedway is a small market town in South Shropshire.

The site is located South of the River Severn.

The River Severn is the longest river in Great Birtain flows through Mid Wales down to the West Midlands, and onto the South West of England.

Coedway lies at around 76m above sea level.

3.1.2 Referring Table 2, within NPPF, the vulnerability class for the proposed development is “less vulnerable”. The site boundary is shown to be outside of the floodplain on the Natural Resources Wales **indicative** floodplain maps (i.e. the site is shown to fall within Zone 1: Low Probability, stated Table 1 of NPPF.) When referring to Table 3 of NPPF it shows that all development type is. However, as discussed in point 1.2.2, this definition is to be determined following our preliminary drainage design and completion of this Flood Risk Assessment.

3.2 Definition of the Flood Hazard

3.2.1 The main sources of flooding are from rivers, tidal waters, overflowing sewers/drains, overland runoff from high ground and high water tables.

Flooding from Rivers

3.2.2 The River Severn is near to the north of the site. Please refer to Appendix 1 which evidences that the River does not flood the development area. However, there are two watercourses which affect the site. The watercourse that runs from South East to North East is the prelevant watercourse which when floods, backs up the watercourse which runs through the middle of the site from South West to North East. The watercourse that floods is a tributary of the The River Severn.

Flooding from Overland Runoff

3.2.3 The proposed development site has a 4m drop from South East to the watercourse flowing through the site, please refer to Appendix 1. Surface water runoff during a peak storm event could potentially cause significant flash flooding.

Flooding from Existing Sewers and Drains

3.2.4 There are no sewers within the site boundary therefore, flooding from this source can be discounted.

Flooding from Ditches and Natural Ponds

3.2.5 There is a ditch to the South East boundary which runs along the site boundary to the North East which, is shown in Appendix 1, to flood. There is also a ditch which runs through the site from South West to North East which is shown, in Appendix 1, to flood.

Flooding from Reservoirs, Canals, and other Artificial Sources

3.2.6 Flooding from this source can be discounted as there are none of these sources near to the development.

Existing Drainage

3.2.7 There are no sewers within the development boundary. Flooding from this source can be discounted.

3.3 *Detailed Development Proposals*

3.3.1 It is proposed to develop the site into a new establishment for holiday chalets.

Please refer to Appendix 1 which shows the location in which the holiday chalets can be placed. The foul waste is to be discharged to a treatment plant which will eventually discharge to the ditch. There will be a none return valve on the treatment plant outlet. In the event of flooding it will stop any backup of water damaging the treatment plant. Surface water drainage is to be attenuated to greenfield run off and drained to soakaways if viable. If the land does not pass the percolation test criteria (BRE 365), the surface water will drain towards a hydro-brake and use oversized pipework to discharge into greenfield run off.

3.3.2 Currently, the site drains to ground with no formal drainage across the site. The use of soakaways will be permitted following percolation tests being sucessful. If the tests are not successful a hydro-brake, and associated attenuation, will be calculated to discharge to green field runoff.

3.4 *Flood Risk Management Measures*

3.4.1 In 3.2.2 and 3.2.3, it has been determined that the two significant potentials of flooding to the site, one from surface water runoff and one from ponding from the water courses passing through the site. It has been determined that the prevalent watercourse is at the South East boundary which, once begins to flood, causes the adjacent watercourse to flood. When reviewing the topographical survey in Appendix 3 and comparing it to the flood map in Appendix 1, the maximum flood level to the site is 73.4m. To protect the proposed chalets, the minimum finish floor level on construction should be 600mm higher at 74.00m. The driveway to the chalets should be constructed from the South East corner to allow safe access and egress and should be directed to Flood Zone 1 in the middle of the site where the chalets should be constructed. The driveway should be constructed to form a minimum level of 73.40m above the highest flood level to the site. Should an area of site development require raising, a cut and fill exercise is to be executed. Land within the site boundary should be utilised in relation to any cut and fill exercises in order to ensure the flood plain is not affected.

3.5 *Off Site Impacts*

3.5.1 No significant off site impacts are expected as the site will continue to drain naturally to ground where possible or to greenfield runoff rates.

3.6 *Residual Risks*

3.6.1 There is always a possibility of a flood in excess of the design standards (e.g. 1 in 100 years) that, if occurred, might conceivably cause some flooding to the development. However due to the site operation, flooding will have little detrimental affect to the site.

CONCLUSIONS

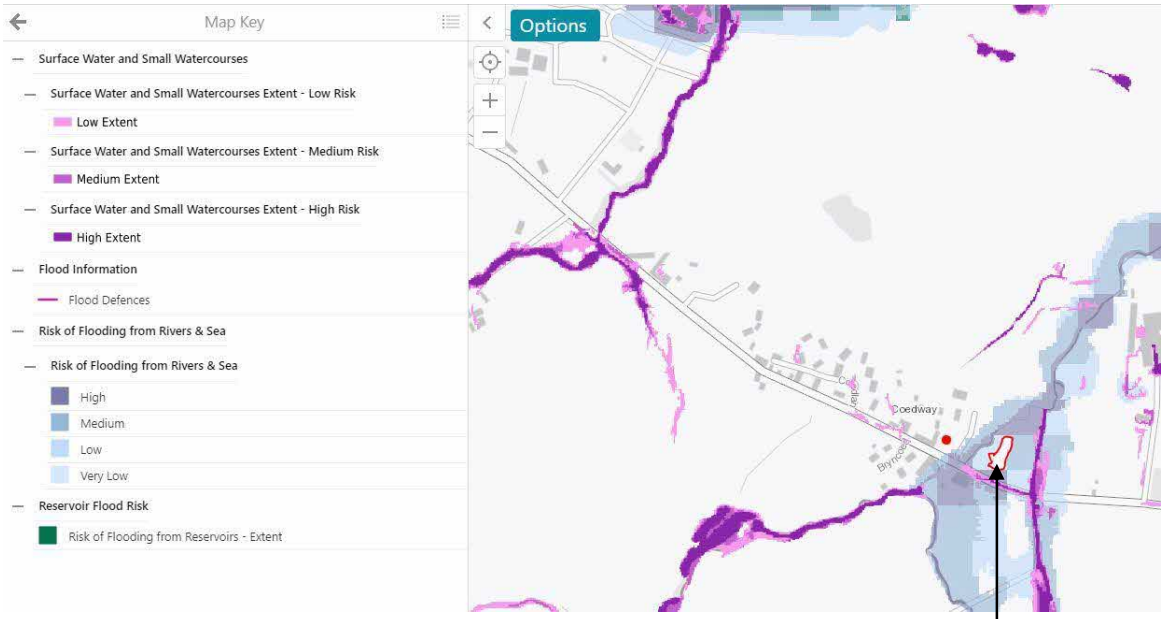
3.7 This report gives details of the Flood Risk Assessment which has been carried out in relation to the proposed development site at the Land at Coedway, Powys, SY5 9AR.

3.8 As demonstrated within the report, and as shown within Appendix 1, the positioning of the proposed development is at risk of flooding and the development can only be built in one small area of land.

3.9 The site will remain drainage neutral and will not increase the risk of flooding to the existing site or third party land.

Appendix 1

Natural Resources Wales Flood Map (River & Seas)

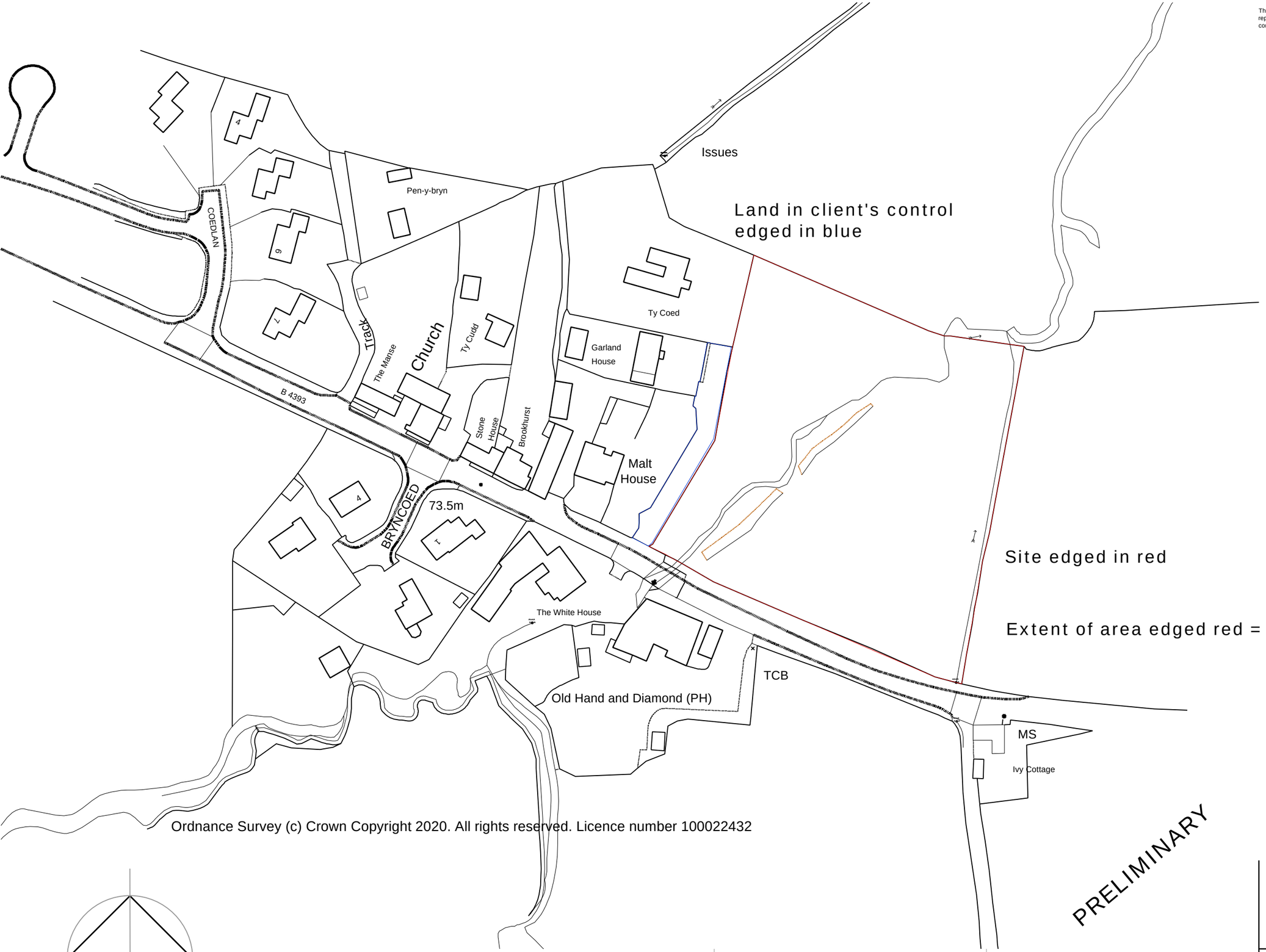


Flood Zone 1

Appendix 2

Site location

Check all dimensions on site by the contractor before work commences. Any discrepancies to be reported to the Architect.



Rev	Details	Date/Chk

CLIENT
Mr. D. Fletcher

PROJECT
Proposed land for affordable housing development
Land opposite the Hand and Diamond public house, Coedway, Powys

DRAWING
Location plan

DRAWING NUMBER
20/10283/01

REVISION	SCALE@A3	DATE
	1:1250	09.03.2020
	DRAWN BY	CHECKED BY
	RGC	

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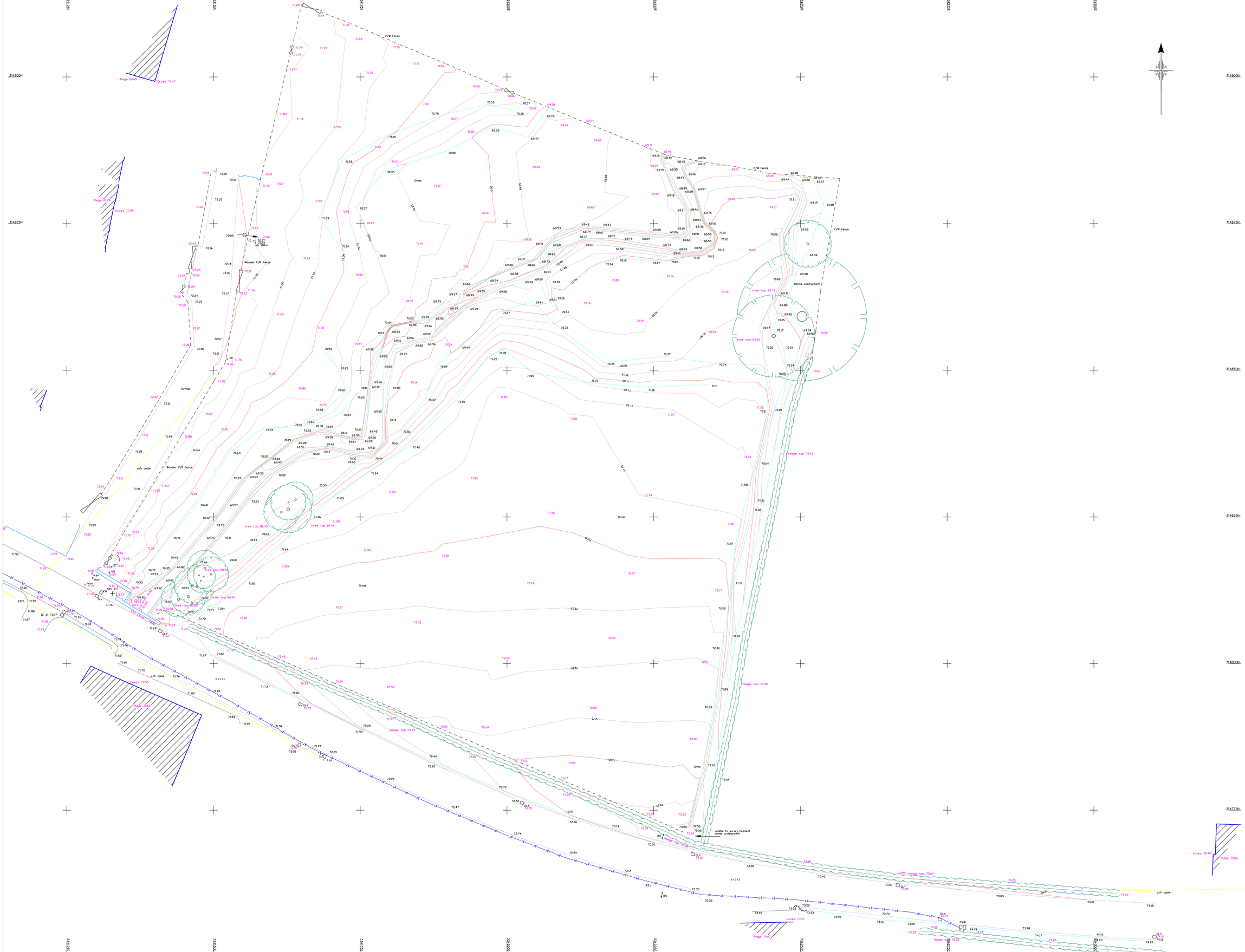
Appendix 3

Topograhpical Survey



Legend

BL	BOLLARD
BS	BUS STOP
CATV	CABLE TV COVER
CL	COVER LEVEL
CPS	CONCRETE PAVING SLAB
DP	DRAIN PIPE
DK	DROP KERB
EL	ELECTRICITY COVER
EP	ELECTRICITY POLE
ER	EARTH ROD
FH	FIRE HYDRANT
FL	FLOOR LEVEL
FS	FLAG STAFF
G	GAS COVER
GLY	GULLY
GSV	GAS STOP VALVE
IC	INSPECTION COVER
IL	INVERT LEVEL
LB	LITTER BIN
LP	LAMP POST
MKR	MARKER
NB	NOTICE BOARD
P	POST
PH	POST HOLE
PLP	PEDESTRIAN LAMP POST
RE	RODDING EYE
RS	ROAD SIGN
STN	SURVEY STATION
STY	STAY WIRE
T	TELECOMMUNICATIONS COVER
TL	TRAFFIC LIGHT
TP	TELEGRAPH POLE
TWL	TOP OF WALL LEVEL
UTL	UNABLE TO LIFT
UTM	UNABLE TO MEASURE
VP	VENT PIPE
WL	WATER LEVEL
WP	WASTE PIPE
WSV	WATER STOP VALVE

FENCE TYPES

B/W	BARBED WIRE
C/B	CLOSE BOARD
P/W	POST AND WIRE
P/R	POST AND RAIL
C/L	CHAIN LINK
C/P	CHESTNUT PALE
C/W	CHICKEN WIRE
M/R	METAL RAIL (SECURITY TYPE)
P/F	PANEL FENCE
C/I	CORRUGATED IRON
I/R	IRON RAILING
RWL	RETAINING WALL

Notes

ANY SERVICES SHOWN ARE AS LOCATED BY EITHER GROUND PENETRATING RADAR (GPR) OR BY RADIODETECTION SCANNER IN EITHER ACTIVE (A) OR PASSIVE MODE (P), DUE TO SUBSOIL CONDITIONS AND OTHER FACTORS THE UNDERGROUND SERVICE INFORMATION SHOWN MAY NOT REPRESENT A COMPREHENSIVE RECORD AND ALL CONTRACTORS SHOULD PROCEED WITH CAUTION BEFORE EXCAVATION

•• —— •• —— •• DENOTES OVERHEAD CABLES

• —— • —— • DENOTES UNDERGROUND SERVICES

LEVELS AT ROAD KERBS ARE TAKEN AT CHANNEL LEVELS UNLESS OTHERWISE REQUESTED

STATION CO-ORDINATES

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Client	Title
MTC PLANNING AND DESIGN	LAND OPPOSITE OLD HAND AND DIAMOND PH, COEDWAY

Scale	Date	Job No	Dwg No	Rev.
1 : 200	16/06/20	12129	01	–

Surveyed by	Checked	Scanned	Levels are related to . . .
CS	CS	YES (ACTIVE)	0.5 DATUM (VRS)