8.0 APPENDICES

Appendix 1: Overview Map of the 16 Assessed MLP Sites with Risk Ratings

Map Area 1 (Appendix 4)

Map Area 2 (Appendix 5)

Map Area 3 (Appendix 6)

MLP Sites
- High Risk
- Medium Risk
- Low Risk
- Essex
- Districts
- Map Areas

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(at A3)

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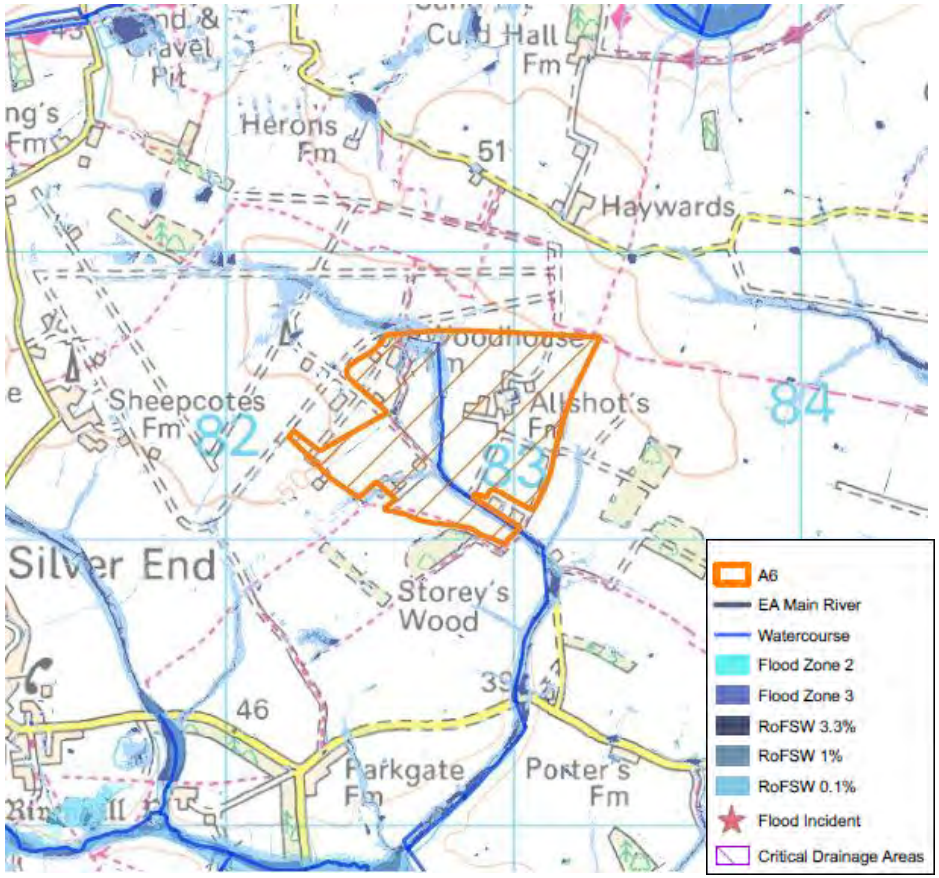
Appendix 2: Site Specific Mapping for High and Medium Risk Sites

MLP ID	Site Name			Planning Ref	Area (ha)
A6	Bradwell Quarry				37.5
Fluvial / Tidal Flood Risk			**Surface Water Flood Risk**	**Groundwater Flood Risk**	**Overall Risk Rating**
FZ1 %	**FZ2 %**	**FZ3 %**			
100	0	0	Medium	Low	MEDIUM

Site Map



Summary of Flood Risk to Site

- Watercourse running from north to south through entire site. This creates a risk of flooding with the potential to prevent access to areas of site
- Site not within Flood Zone as is not in close proximity to a section of main river
- Potential surface water flood risk from runoff flowing across site to watercourse
- Minimal groundwater flood risk

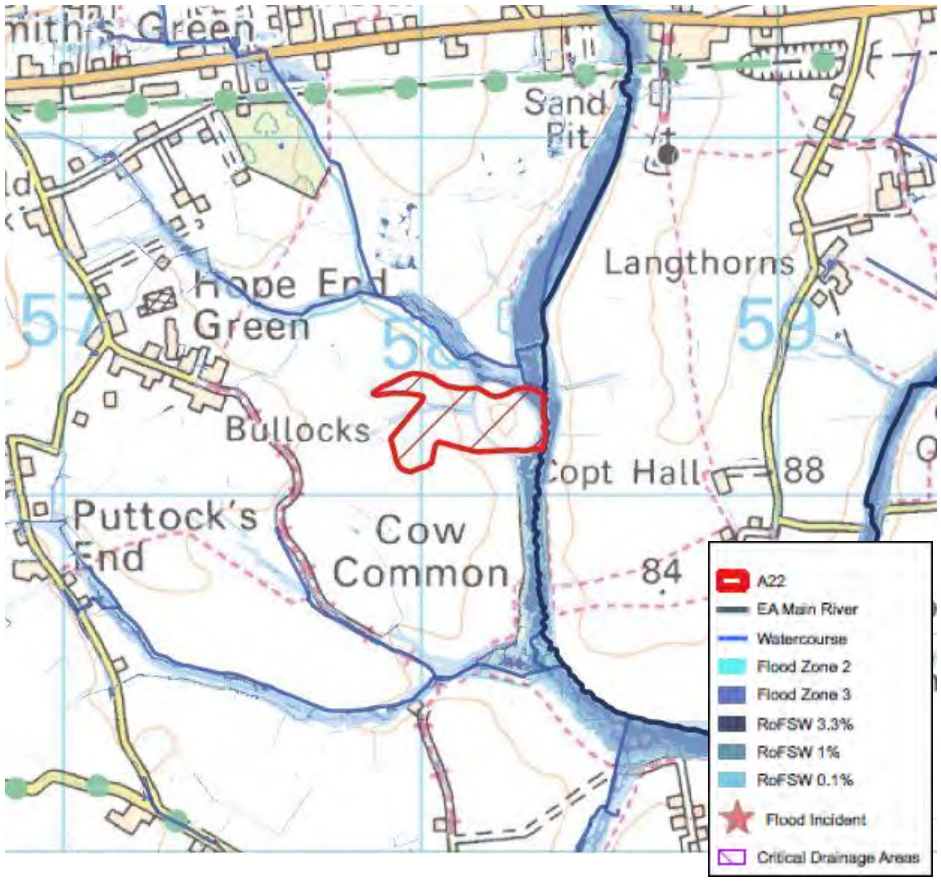
Site Specific Recommendations

The following considerations must be made for a site-specific FRA during the planning process (if permission has not yet been granted) and during the operation and restoration phases;

- Any potential changes to ground levels and the impact these may have on flood risk to the site and surrounding area from the watercourse
- Any potential changes to ground levels and the impact these may have on surface water flood risk to the site and surrounding area
- Any changes to the flow or routing of the watercourse will require Consent from the LLFA
- Safe access and egress should be ensured to all areas during a time of flood
- The location for storing any stripped soils or extracted materials should be outside of flood risk areas
- The location for storing machinery, equipment, welfare units and offices etc. should be outside of flood risk areas
- Restoration of the site following operational closure should take account of the Essex Green Infrastructure Strategy
- Restoration of the site following operational closure should take account of the Essex SuDS Design Guide for any sustainable drainage features
- Restoration of the site following operational closure should consider the inclusion of flood reduction measures such as NFM and/or tree planting to reduce risks across the wider catchment

MLP ID	Site Name			Planning Ref	Area (ha)
A22	Little Bullocks Farm				6.9
Fluvial / Tidal Flood Risk			**Surface Water Flood Risk**	**Groundwater Flood Risk**	**Overall Risk Rating**
FZ1 %	**FZ2 %**	**FZ3 %**			
90	6	4	Medium	Low	**HIGH**

Site Map



Summary of Flood Risk to Site

- Eastern side of site is bounded by an EA main river
- Small percentages of site is within Flood Zones 2 and 3
- Potential surface water flood risk from runoff flowing across site to the main river
- Minimal groundwater flood risk

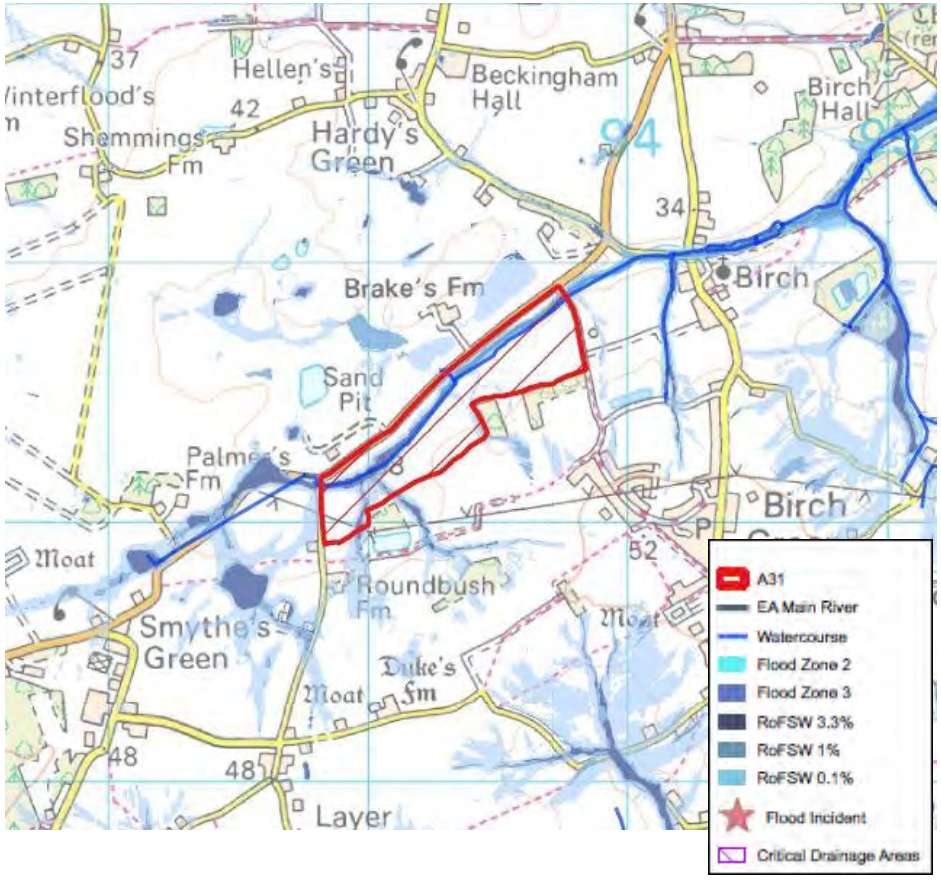
Site Specific Recommendations

The following considerations must be made for a site-specific FRA during the planning process (if permission has not yet been granted) and during the operation and restoration phases;

- Any potential changes to ground levels and the impact these may have on flood risk to the site and surrounding area from the main river
- Any potential changes to ground levels and the impact these may have on surface water flood risk to the site and surrounding area
- Any changes to the main river or adjacent land may need Consent from the EA
- A 3m buffer strip should retained adjacent to the main river to allow access for maintenance
- Safe access and egress should be ensured to all areas during a time of flood
- The location for storing any stripped soils or extracted materials should be outside of flood risk areas
- The location for storing machinery, equipment, welfare units and offices etc. should be outside of flood risk areas
- Restoration of the site following operational closure should take account of the Essex Green Infrastructure Strategy
- Restoration of the site following operational closure should take account of the Essex SuDS Design Guide for any sustainable drainage features
- Restoration of the site following operational closure should consider the inclusion of flood reduction measures such as NFM and/or tree planting to reduce risks across the wider catchment

MLP ID	Site Name			Planning Ref	Area (ha)
A31	Maldon Road, Birch				25
Fluvial / Tidal Flood Risk			**Surface Water Flood Risk**	**Groundwater Flood Risk**	**Overall Risk Rating**
FZ1 %	**FZ2 %**	**FZ3 %**			
92	4	4	High	Medium	**HIGH**

Site Map



Summary of Flood Risk to Site

- Watercourse running from west to east through entire site. This creates a risk of flooding with the potential to prevent access to areas of site
- Site not within Flood Zone as is not in close proximity to a section of main river
- Potential surface water flood risk from runoff flowing across site to watercourse
- Surface water flow paths present within southern area of site
- Majority of site is within 50-75% groundwater flood risk area

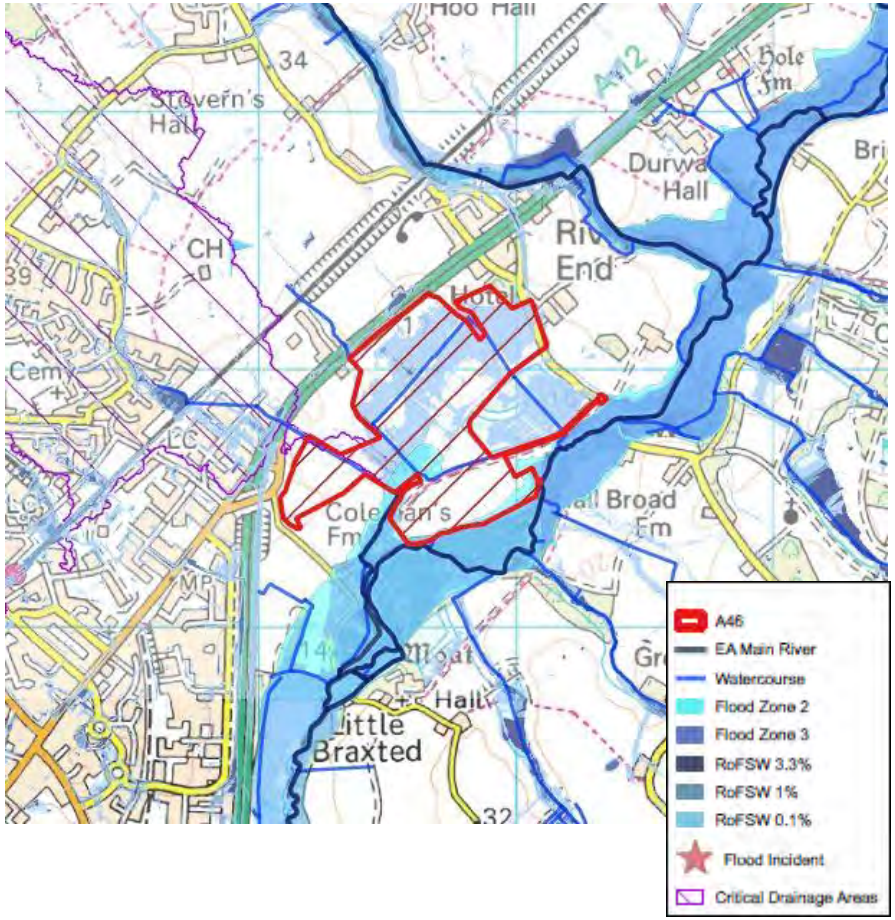
Site Specific Recommendations

The following considerations must be made for a site-specific FRA during the planning process (if permission has not yet been granted) and during the operation and restoration phases;

- Any potential changes to ground levels and the impact these may have on flood risk to the site and surrounding area from the watercourse
- Any potential changes to ground levels and the impact these may have on surface water flood risk to the site and surrounding area
- Any potential changes to ground levels and the impact these may have on groundwater flood risk to the site and surrounding area
- Any changes to the flow or routing of the watercourse will require Consent from the LLFA
- Safe access and egress should be ensured to all areas during a time of flood
- The location for storing any stripped soils or extracted materials should be outside of flood risk areas
- The location for storing machinery, equipment, welfare units and offices etc. should be outside of flood risk areas
- Restoration of the site following operational closure should take account of the Essex Green Infrastructure Strategy
- Restoration of the site following operational closure should take account of the Essex SuDS Design Guide for any sustainable drainage features
- Restoration of the site following operational closure should consider the inclusion of flood reduction measures such as NFM and/or tree planting to reduce risks across the wider catchment

MLP ID	Site Name			Planning Ref	Area (ha)
A46	Colemans Farm			ESS/39/14/BTE	54.5
Fluvial / Tidal Flood Risk			**Surface Water Flood Risk**	**Groundwater Flood Risk**	**Overall Risk Rating**
FZ1 %	**FZ2 %**	**FZ3 %**			
90	8	2	Low	High	**HIGH**

Site Map



Summary of Flood Risk to Site

- Site within close proximity to EA main river
- Small percentages of site is within Flood Zones 2 and 3
- Several sections of watercourse passing through site
- Access route crosses watercourse
- Very small area of site within LLFA Critical Drainage Area
- Potential surface water flood risk from runoff flowing across site to watercourse and main river
- Large area within site at risk during 0.1%AEP surface water flood event
- Majority of site within >75% groundwater flood risk area

Site Specific Recommendations

The following considerations must be made for a site-specific FRA during the planning process (if permission has not yet been granted) and during the operation and restoration phases;

- Any potential changes to ground levels and the impact these may have on flood risk to the site and surrounding area from the watercourse
- Any potential changes to ground levels and the impact these may have on surface water flood risk to the site and surrounding area
- Any potential changes to ground levels and the impact these may have on groundwater flood risk to the site and surrounding area
- Any changes to the flow or routing of the watercourses will require Consent from the LLFA Any changes to the main river or adjacent land may need Consent from the EA
- A 3m buffer strip should retained adjacent to the main river to allow access for maintenance
- Safe access and egress should be ensured to all areas during a time of flood
- The location for storing any stripped soils or extracted materials should be outside of flood risk areas
- The location for storing machinery, equipment, welfare units and offices etc. should be outside of flood risk areas
- Restoration of the site following operational closure should take account of the Essex Green Infrastructure Strategy
- Restoration of the site following operational closure should take account of the Essex SuDS Design Guide for any sustainable drainage features
- Restoration of the site following operational closure should consider the inclusion of flood reduction measures such as NFM and/or tree planting to reduce risks across the wider catchment. It is advised the LLFA and EA be consulted

Appendix 3: EA Fluvial and Tidal/Coastal Hydraulic Models in Essex

Catchment / Area	Model Name and Relevant Update Information[56]	Model Year	Model Type
Stour and Tendring	River Stour & Dedham Black Brook	2019	1D-2D
	Bumpstead Brook (Steeple Bumpstead)	2014	1D
	Kirby Brook (Frinton-on-Sea)	2015	1D-2D
	Holland Brook & Pickers Ditch	2006	1D
	Birch Brook (Rowhedge)	2006	1D
	Ramsey River (Oakley & Parkeston)	2010	1D-2D
	Jaywick Ditch	2015	Not stated
Colne, Blackwater & Chelmer Area	River Colne (New 1D-2D model currently awaiting sign off)	2009	1D
	Rivers Colne & Brain tributaries (Brunwin Rd, Rayne; Spring Lane, Eight Ash Green; St Boltolphs Brook, Horkesley & West Bergholt)	2018	1D-2D
	Hawkins Road Ditch (Colchester)	2015	1D-2D
	Salary Brook (Ardleigh & Colchester)	2014	1D
	Porters Brook (Colchester)	2014	1D
	Wivenhoe Town Drain	2009	1D
	Virley Brook (Virley & Salcott)	2016	1D-2D
	Rivers Brain & Pant/Blackwater	2010	1D
	Blackwater & Robins Brook (Coggeshall & Kelvedon)	2013	1D-2D
	Spicketts Brook (Heybridge Basin)	2012	1D-2D
	Heybridge Urban Watercourses (Langford Ditch, Holloway Road Ditch & Heybridge Hall Ditch)	2014	1D-2D
	River Chelmer (includes Rivers Can & Wid)	2010	1D
	Sandon Brook (Hanningfield & Chelmsford)	2015	1D
	Bicknacre Brook (Bicknacre)	2006	1D
	Dengie Marshes	2012	1D-2D
	Asheldham Brook	2006	1D
South Essex	River Crouch	2016	1D-2D
	Wid & Crouch tribs (Doddinghurst Brook). Note Doddinghurst Brook is 1D-2D; Kingsman Fm Ditch and Hullbridge are 1D-2D; Ingatestone Brook is 1D, and; Shenfield Brook is 1D	2018	1D / 1D-2D
	Rawreth Brook	2014	1D
	Rettendon & Fen Brook (South Woodham Ferrers)	2014	1D
	River Roach (Hawkwell, Hockley & Rochford)	2007	1D
	Noblesgreen Ditch (Rayleigh & Rochford)	2007	1D
	Eastwood Brook (Southend) (New 2019 1D-2D model currently awaiting sign off)	2008	1D
	Southchurch Brook (Southend)	2008	1D
	Prittle Brook (Southend)	2016	1D-2D
	Mardyke (New 2019 1D-2D model currently awaiting sign off)	2011	1D
	Stanford Brook (Stanford Le Hope)	2016	1D-2D
	Benfleet Brook (South Benfleet)	2014	1D
	Canvey Island Integrated Urban Drainage model	2015	1D-2D
	Tilbury Flood Storage Area	2015	1D-2D
	Tilbury Integrated Urban Drainage model	2015	1D-2D
Tidal, Estuaries & Coastal Flood Models	Stour & Orwell Estuaries	2018	1D-2D
	Clacton coastal frontage	2018	1D-2D
	Colne & Blackwater Estuaries	2018	1D-2D
	Crouch & Roach Estuaries	2018	1D-2D
	Southend Thames frontage	2018	1D-2D

[56] Information on model updates correct at the time of writing

Appendix 4a: Map Area 1 showing Main Rivers, Watercourses and Fluvial Flood Zones

A23

A22

A40

MLP Sites
- High Risk
- Medium Risk
- Low Risk
- EA Main River
- Watercourse
- Flood Zone 2
- Flood Zone 3

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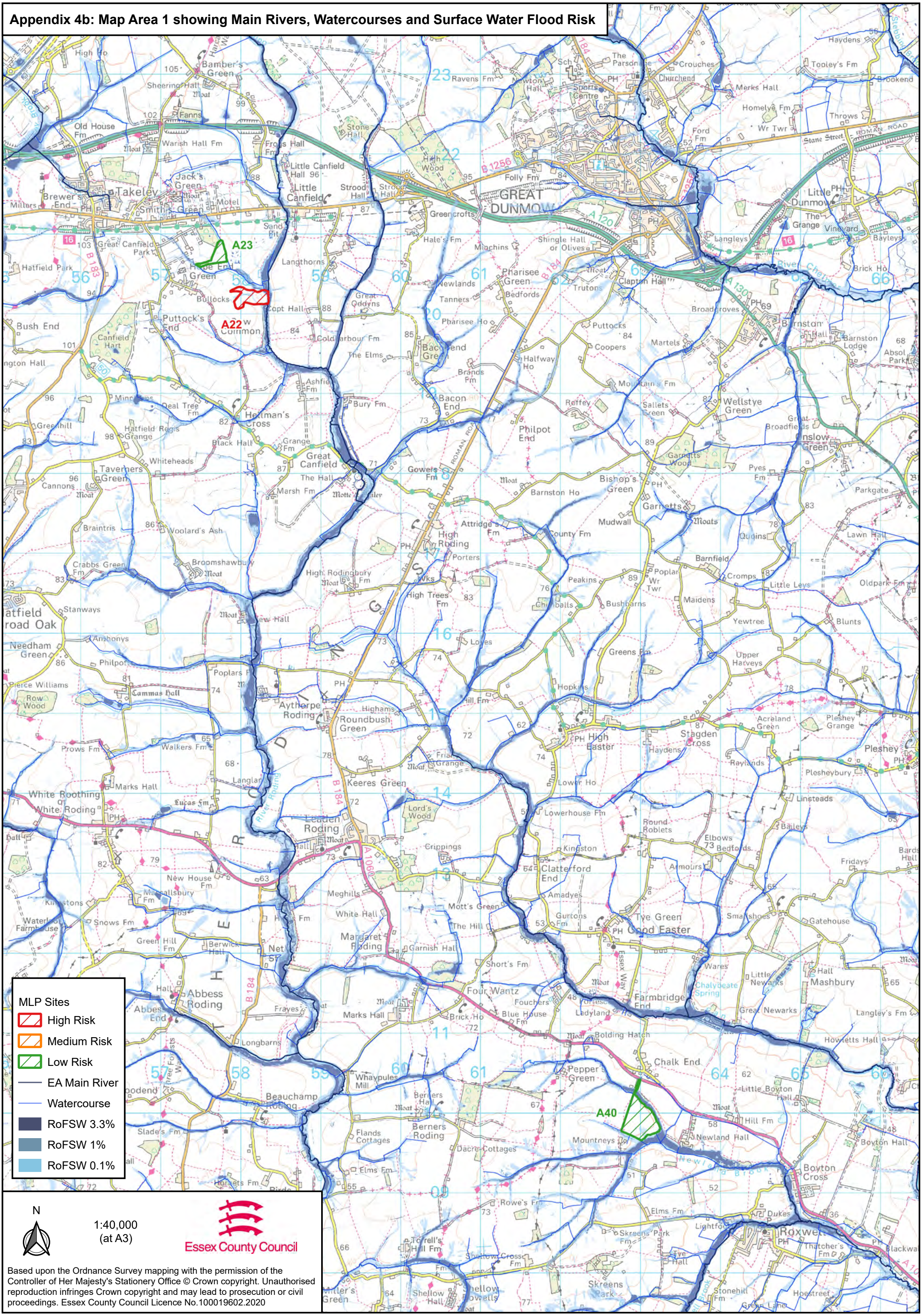
Appendix 4b: Map Area 1 showing Main Rivers, Watercourses and Surface Water Flood Risk



Appendix 4c: Map Area 1 showing Main Rivers, Watercourses and Groundwater Water Flood Risk