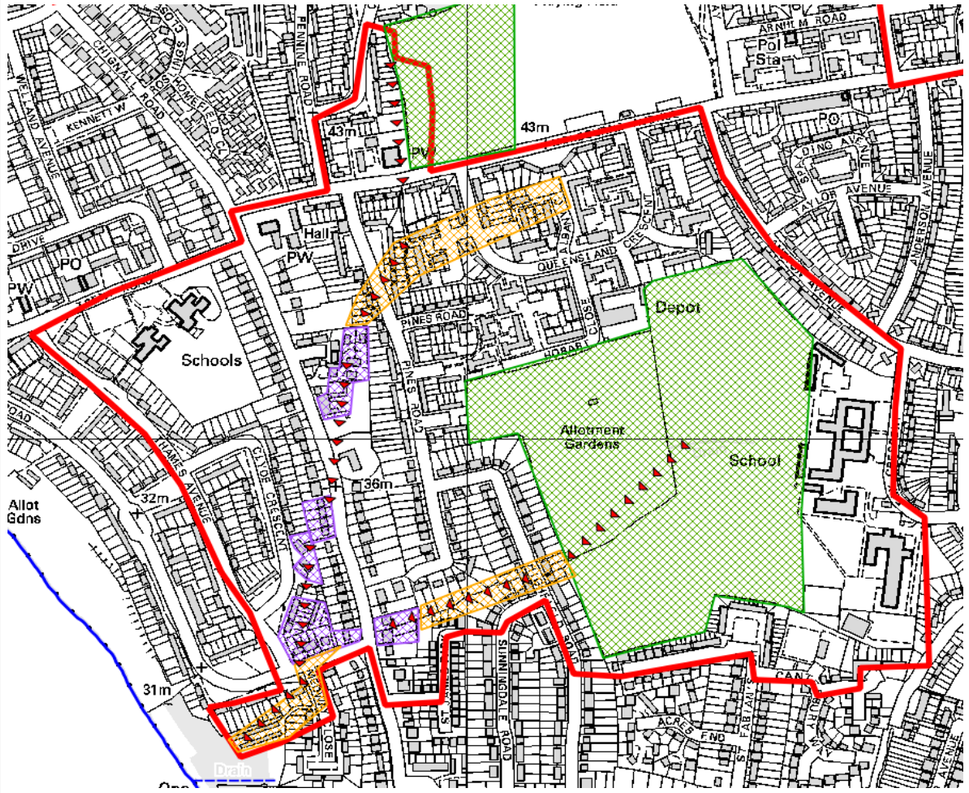
Chelmsford Surface Water Management Plan - Options Appraisal

EB 104F

PROBLEM IDENTIFIED:

This CDA is located in the north-western portion of the study area and is formed of two small valleys that join at the western end of the CDA, then flow into the One Bridge Brook (a Main River). The pluvial modelling clearly shows the location of two historic streams in the valley floors. Anglian Water surface water sewers generally follow the historic stream path. The main flood mechanism is exceedance of local drainage systems during extreme rainfall causing overland flow. The overland flow path exiting the CDA quickly joins the main river flood extent (both Flood Zone 2 and 3) adjacent to the One Bridge Brook.



LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network
- Culverted Watercourse
- Main River
- Ordinary Watercourse

Measures - Linear
- Deculvert / Restore Historic Watercourse
- Improved Maintenance
- Increased Conveyance
- Managed Overland Flow

Measures - Polygon
- Managed Overland Flow
- Resistance / Resilience
- Source Control (SuDS / Attenuation)
- Flood Storage
- Infrastructure Resilience
- Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

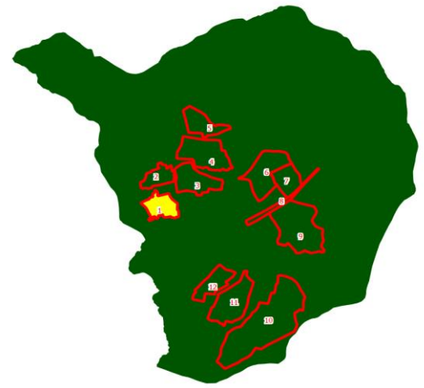
Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Critical Drainage Area

Chelmsford Surface Water Management Plan Appendix E

Chelmsford_001

St Andrews - South



Flood Risk Source

Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	No
Tidal	No

Validation

Historic Events	Yes
Site Inspection	Yes

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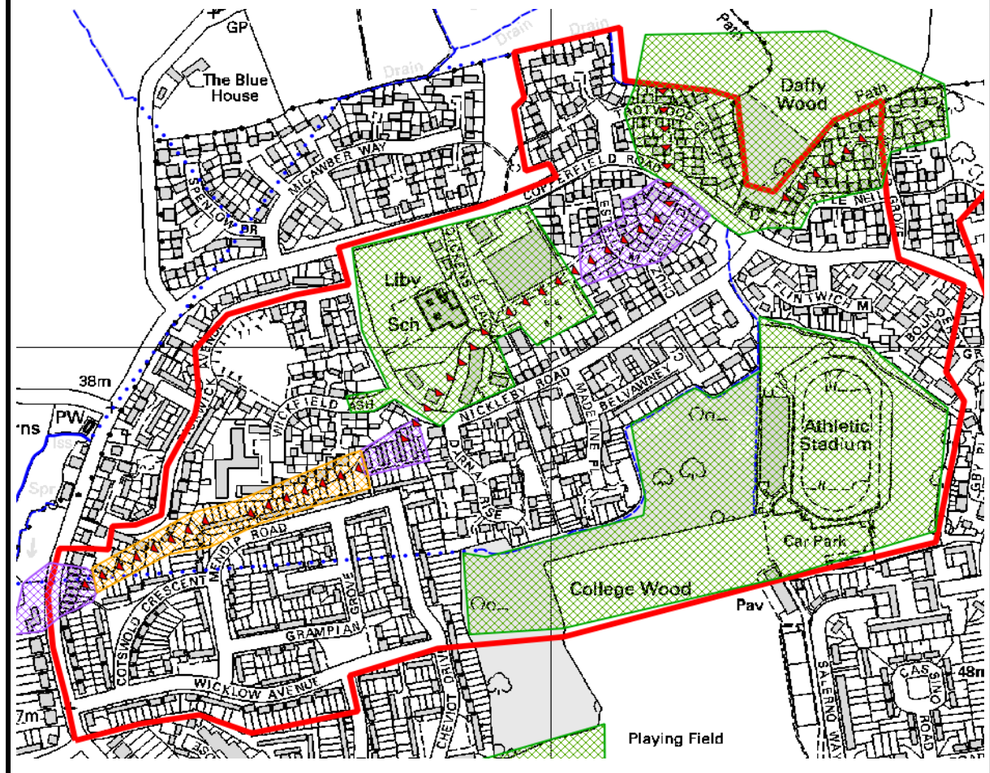
Chelmsford Surface Water Management Plan - Options Appraisal

PROBLEM IDENTIFIED:

The CDA sits in the northern part of the St Andrews Ward. A significant overland flow is predicted to form through the centre of the CDA. It originates near Daffy Wood, flows through the residential area and joins the One Bridge Brook to the south of Brickbarns Farm. The overland flow is predicted to mainly impact residential gardens and some sections of road, but the flow is predicted to flow through approximately six residential blocks between Nickelby Road and Mendip Road. Predicted flooding at the western edge of the CDA may also be exacerbated by a culverted watercourse originating near College Wood. No significant main river flooding is shown within the CDA, but this may be due to the fact that the adjacent tributary of the One Bridge Book has not been included in recent EA modelling.

Critical Drainage Area

Chelmsford_002



LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network

- Culverted Watercourse
- Main River
- Ordinary Watercourse

Measures - Linear

- Deculvert / Restore Historic Watercourse
- Improved Maintenance
- Increased Conveyance
- Managed Overland Flow

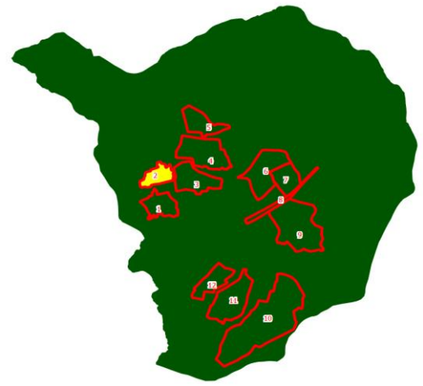
Measures - Polygon

- Managed Overland Flow
- Resistance / Resilience
- Source Control (SuDS / Attenuation)
- Flood Storage
- Infrastructure Resilience
- Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

St Andrews - North



Flood Risk Source

Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	No
Tidal	No

Validation

Historic Events	No
Site Inspection	Yes

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Chelmsford Surface Water Management Plan - Options Appraisal

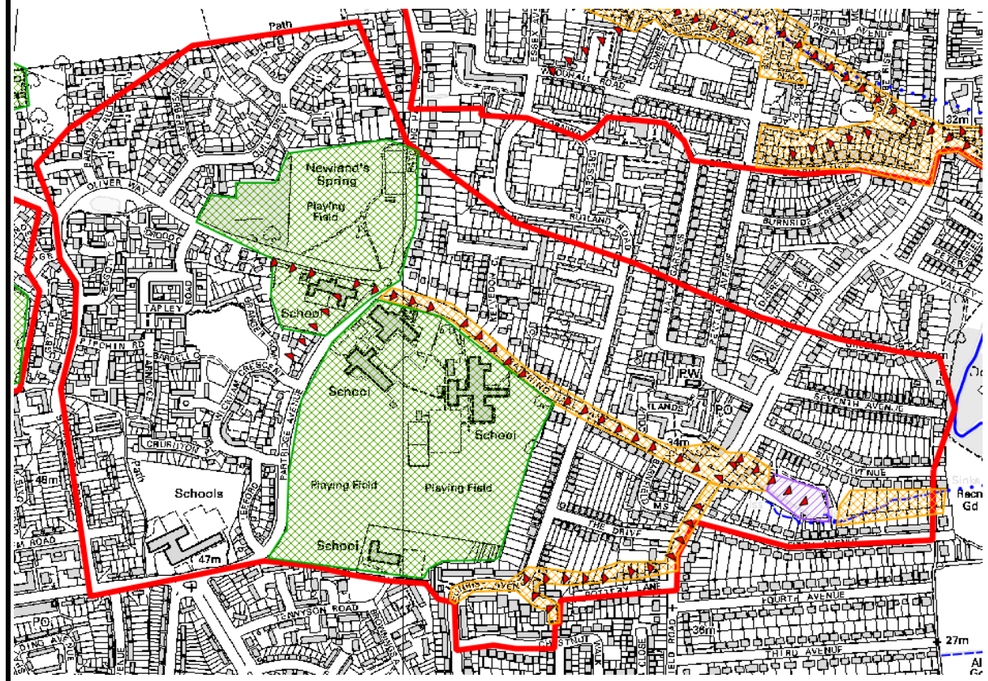
PROBLEM IDENTIFIED:

This CDA forms one of the small natural valleys falling west to east into the River Chelmer. An overland flow is predicted to originate near Newland's Spring, flow down Patching Hall Lane and into the pond between Fifth and Sixth Avenues. The Anglian Water sewer network in the area suggests that a historic stream has been culverted along Patching Hall Lane and the overland flow is caused when the sewer system capacity is exceeded. A smaller overland flow is predicted to originate at the southern end of Sunrise Avenue and also terminates at the pond between Fifth and Sixth Avenues. Substantial surface water flooding is predicted immediately to the west of the pond, to the rear of properties along the north side of Pottery Lane and with the school ground adjunct to Newland's Spring. A small area of Flood Zones 2 and 3 are predicted in the lower (eastern) reach of the CDA and are associated with the River Chelmer.

Critical Drainage Area

Chelmsford_003

Patching Hall



LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network
- Culverted Watercourse
- Main River
- Ordinary Watercourse

Measures - Linear
- Deculvert / Restore Historic Watercourse
- Improved Maintenance
- Increased Conveyance
- Managed Overland Flow

Measures - Polygon
- Managed Overland Flow
- Resistance / Resilience
- Source Control (SuDS / Attenuation)
- Flood Storage
- Infrastructure Resilience
- Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Flood Risk Source	
Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	Yes
Tidal	No

Validation	
Historic Events	Yes
Site Inspection	Yes

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Chelmsford Surface Water Management Plan - Options Appraisal

Chelmsford Surface Water Management Plan - Options Appraisal

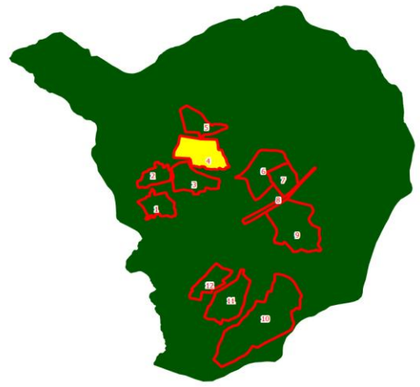
PROBLEM IDENTIFIED:

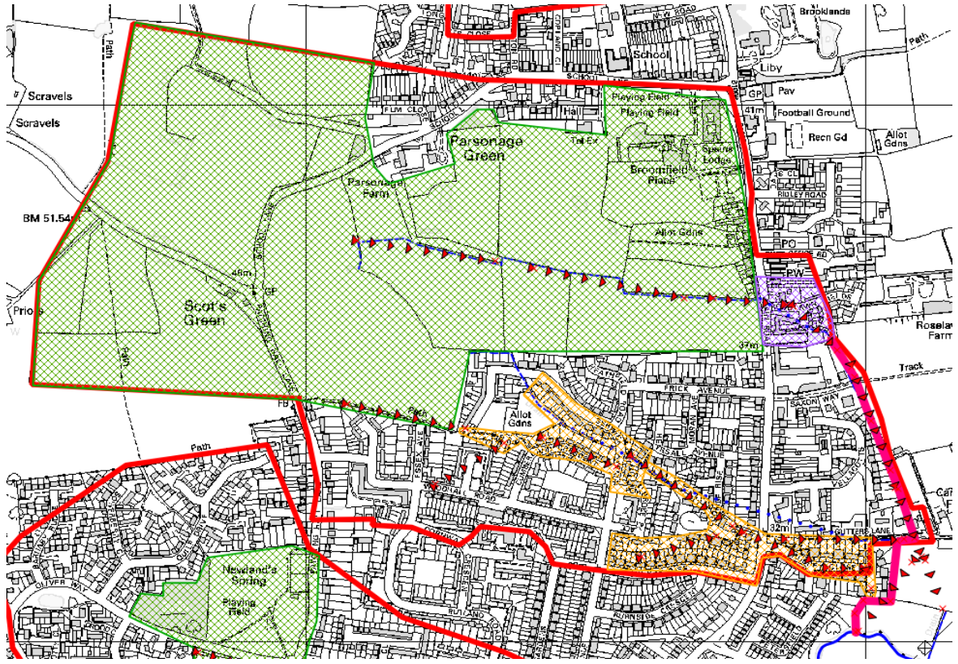
This CDA forms one of the small natural valleys falling west to east into the River Chelmer. Two overland flows are predicted to originate in the Parsonnage Green area in the west of the CDA and flow down two natural valleys before joining at Aubrey Close / Gutters Lane, then discharging into the River Chelmer. The southern overland flow follows a natural valley path and it is apparent from available drainage asset information that the historic stream has been culverted from Coombe Rise to Gutters Lane. Predicted flooding along this flow path is mainly contained within residential gardens and roads. The northern overland flow follows an ordinary watercourse that is intermittently culverted and open channel. The most significant area of surface water flooding is predicted at Roselawn Fields where several properties are anticipated to be at risk. The main flood mechanism in the CDA is exceedance of capacity in sewers and ordinary watercourses. No fluvial flooding is predicted within the CDA, but surface water flooding is likely influenced by water levels in the River Chelmer.

Critical Drainage Area

Chelmsford_004

Broomfield South





LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network

Culverted Watercourse

Main River

Ordinary Watercourse

Measures - Linear

Deculvert / Restore Historic Watercourse

Improved Maintenance

Increased Conveyance

Managed Overland Flow

Measures - Polygon

Managed Overland Flow

Resistance / Resilience

Source Control (SuDS / Attenuation)

Flood Storage

Infrastructure Resilience

Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Flood Risk Source	
Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	Yes
Tidal	No

Validation	
Historic Events	Yes
Site Inspection	Yes

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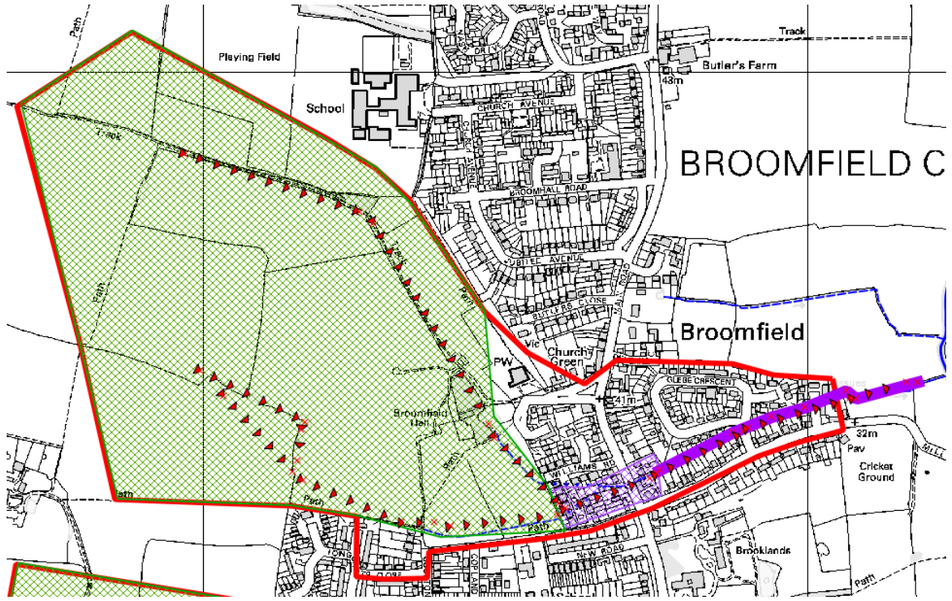
Chelmsford Surface Water Management Plan - Options Appraisal

PROBLEM IDENTIFIED:

As for the Broomfield South and Patching Hall CDAs, this CDA is another small natural valley falling west to east into the River Chelmer. Two overland flows are predicted to originate in the western part of the CDA before joining at Willow Close. The single overland flow joins the ordinary watercourse flowing parallel to Mill Lane before discharging into the River Chelmer. Flood water is predicted to exceed the capacity of the ordinary watercourse and flood residential properties immediately upstream of the road crossings at Willow Close, Main Road (B1008), Glebe Crescent and a small unnamed cul-de-sac. No main river flooding is predicted within the CDA, but local flood levels are likely influenced by the River Chelmer.

Critical Drainage Area

Chelmsford_005



LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network

- Culverted Watercourse
- Main River
- Ordinary Watercourse

Measures - Linear

- Deculvert / Restore Historic Watercourse
- Improved Maintenance
- Increased Conveyance
- Managed Overland Flow

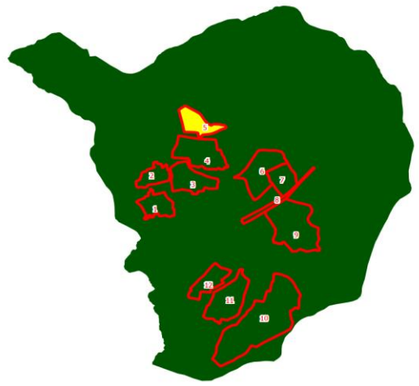
Measures - Polygon

- Managed Overland Flow
- Resistance / Resilience
- Source Control (SuDS / Attenuation)
- Flood Storage
- Infrastructure Resilience
- Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Broomfield Central



Flood Risk Source	
Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	Yes
Tidal	No

Validation	
Historic Events	No
Site Inspection	Yes

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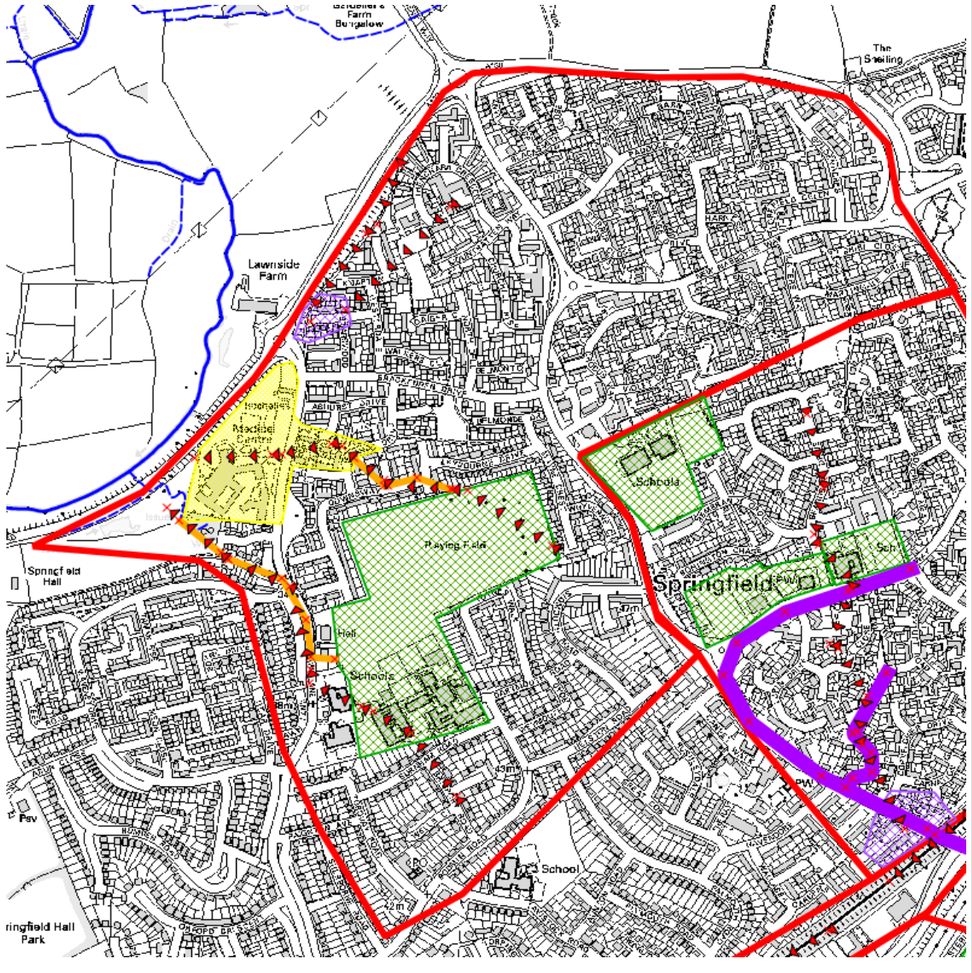
Chelmsford Surface Water Management Plan - Options Appraisal

PROBLEM IDENTIFIED:

This CDA is located in the main urban area of Chelmsford. It consists of three small valleys running from east to west that eventually join the River Chelmer. In the north of the CDA, two small overland flows are predicted to originate at Trenchard Crescent, flow through the residential and then converge at Briarswood where deep ponding is predicted to occur. The natural path of the northern overland flow has been heavily modified by the embankment for the A138.
In the centre of the CDA another overland flow originates near Leybourne Drive, then accumulates in a ponding area on Lawn Lane immediately outside the Rochelles Medical Centre. The third overland flow begins at a large ponding area predicted at the corner of Burnham Road and Bridport Road, flows through the adjacent school, down Lawn Lane and into the open space area to the west of Rochelles Medical Centre. This open space area is predicted to flood to a substantial depth behind the A138 embankment.
No fluvial flooding is predicted in the CDA as the A138 embankment restricts the River Chelmer flooding to the area immediately adjacent to the river. It is likely that flood levels in the open space area are heavily influenced by water levels on the River Chelmer.

Critical Drainage Area

Chelmsford_006



LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network
- Culverted Watercourse
- Main River
- Ordinary Watercourse

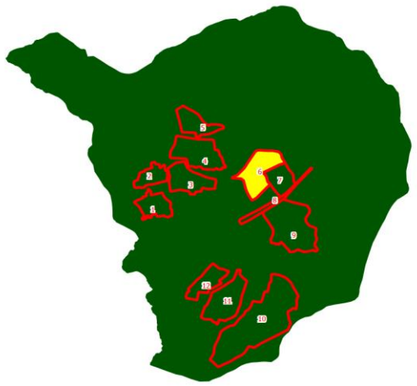
Measures - Linear
- Deculvert / Restore Historic Watercourse
- Improved Maintenance
- Increased Conveyance
- Managed Overland Flow

Measures - Polygon
- Managed Overland Flow
- Resistance / Resilience
- Source Control (SuDS / Attenuation)
- Flood Storage
- Infrastructure Resilience
- Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

The Lawns and Springfield North



Flood Risk Source	
Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	No
Tidal	No

Validation	
Historic Events	No
Site Inspection	Yes

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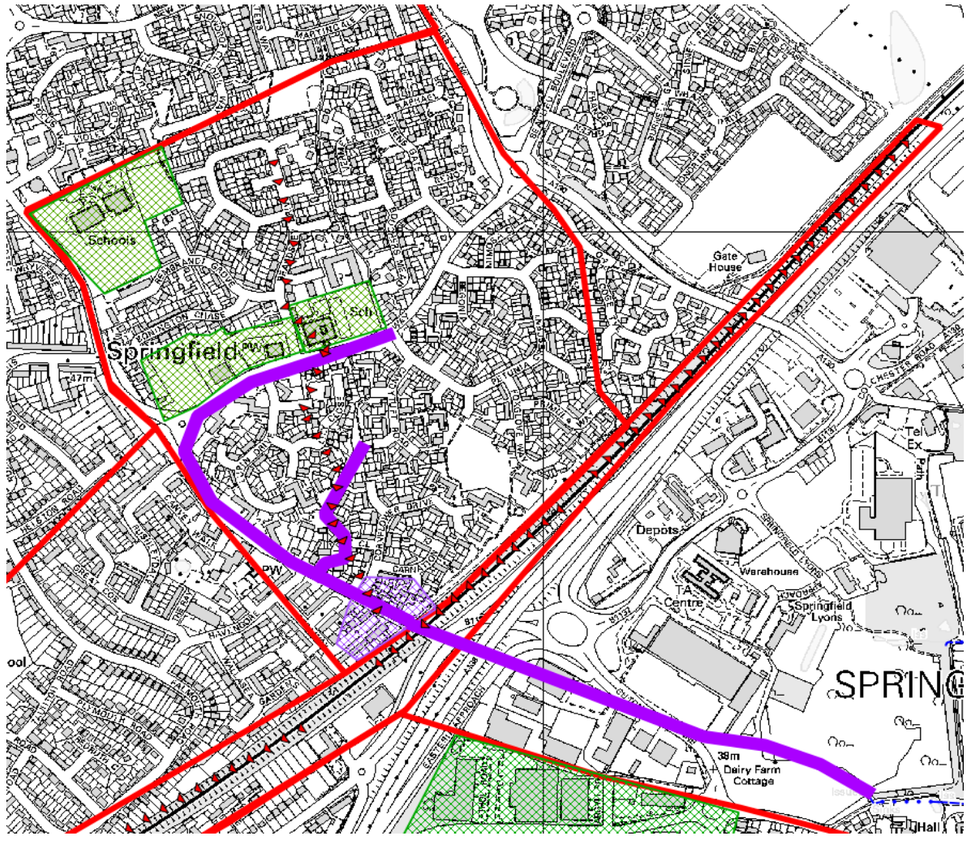
Chelmsford Surface Water Management Plan - Options Appraisal

PROBLEM IDENTIFIED:

This CDA is located within the main urban area of Chelmsford. An overland flow is predicted to originate in the northern part of the CDA, flow down the centre and then pond adjacent to Carnation Close. Numerous residential properties along Beardsley Drive, New Bowers Way, Ily Close, Iris Close and the southern end of Pump Lane are predicted to be at risk – plus the school on New Bowers Way is predicted to experience extensive ponding. The overall flood mechanism is surface runoff exceeding the available sewer capacity and forming an overland flow along the base of the natural valley. No fluvial flood zones are located within the CDA.

Critical Drainage Area

Chelmsford_007



LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network
- Culverted Watercourse
- Main River
- Ordinary Watercourse

Measures - Linear
- Deculvert / Restore Historic Watercourse
- Improved Maintenance
- Increased Conveyance
- Managed Overland Flow

Measures - Polygon
- Managed Overland Flow
- Resistance / Resilience
- Source Control (SuDS / Attenuation)
- Flood Storage
- Infrastructure Resilience
- Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Springfield

Flood Risk Source

Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	No
Fluvial	No
Tidal	No

Validation

Historic Events	No
Site Inspection	Yes

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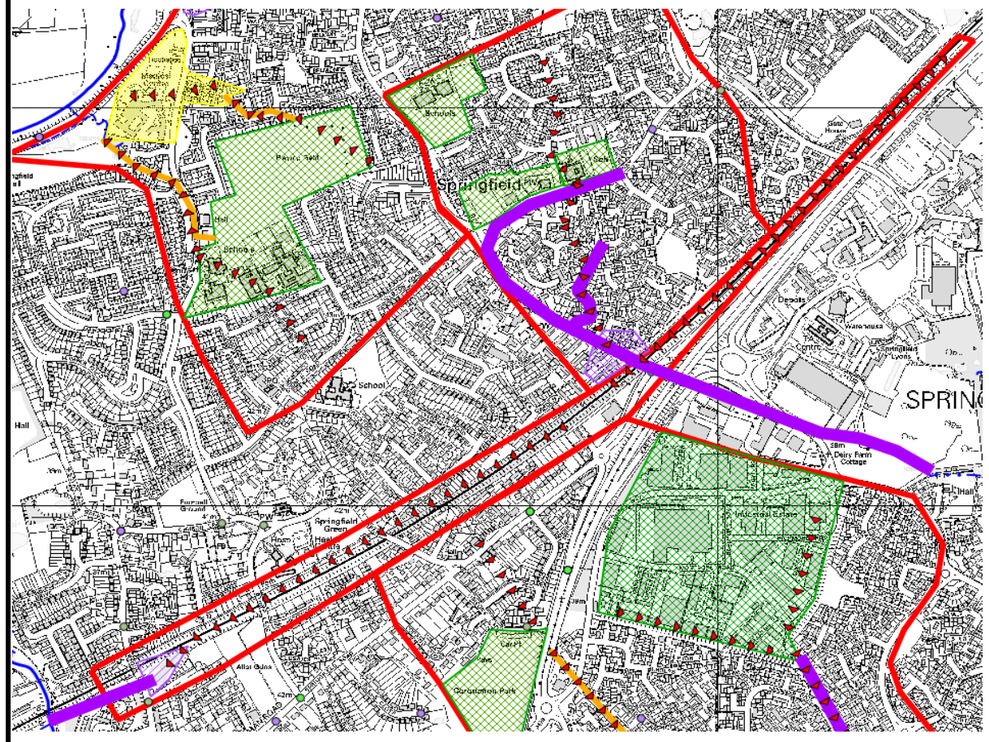
Chelmsford Surface Water Management Plan - Options Appraisal

PROBLEM IDENTIFIED:

A substantial rail cutting extends from Chelmsford Rail Station to the north east towards Colchester. The cutting accommodates the main rail line serving the local area and stations further to the north east including Colchester, Ipswich and Norwich. The line also provides a key link with London Liverpool Street – a well used commuter route. The rail cutting is predicted to collect surface runoff from the urban area to the north and channel it to the south west where it accumulates in a depression adjacent to Arbour Lane / Telford Place. The depression has been formed by the construction of an embankment for Arbour Lane. While the flood depth predicted on the rail line is not substantial, it does create an erosion risk as it is predicted to be fast flowing. It is possible that Network Rail maintains drainage systems along this route, but this data was not made available for this study and could not be accessed during site visits. No fluvial flood zones are located within the CDA.

Critical Drainage Area

Chelmsford_008



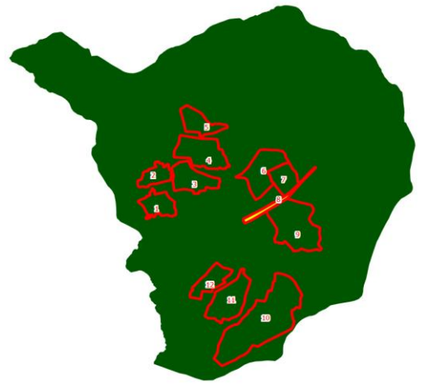
LEGEND

- Study Area Boundary
- Surface Water Flow Direction
- Critical Drainage Area
- River Network
  - Culverted Watercourse
  - Main River
  - Ordinary Watercourse
- Measures - Linear
  - Deculvert / Restore Historic Watercourse
  - Improved Maintenance
  - Increased Conveyance
  - Managed Overland Flow
- Measures - Polygon
  - Managed Overland Flow
  - Resistance / Resilience
  - Source Control (SuDS / Attenuation)
  - Flood Storage
  - Infrastructure Resilience
  - Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Chelmsford Rail



Flood Risk Source

Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	No
Fluvial	No
Tidal	No

Validation

Historic Events	No
Site Inspection	No

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Environment Agency
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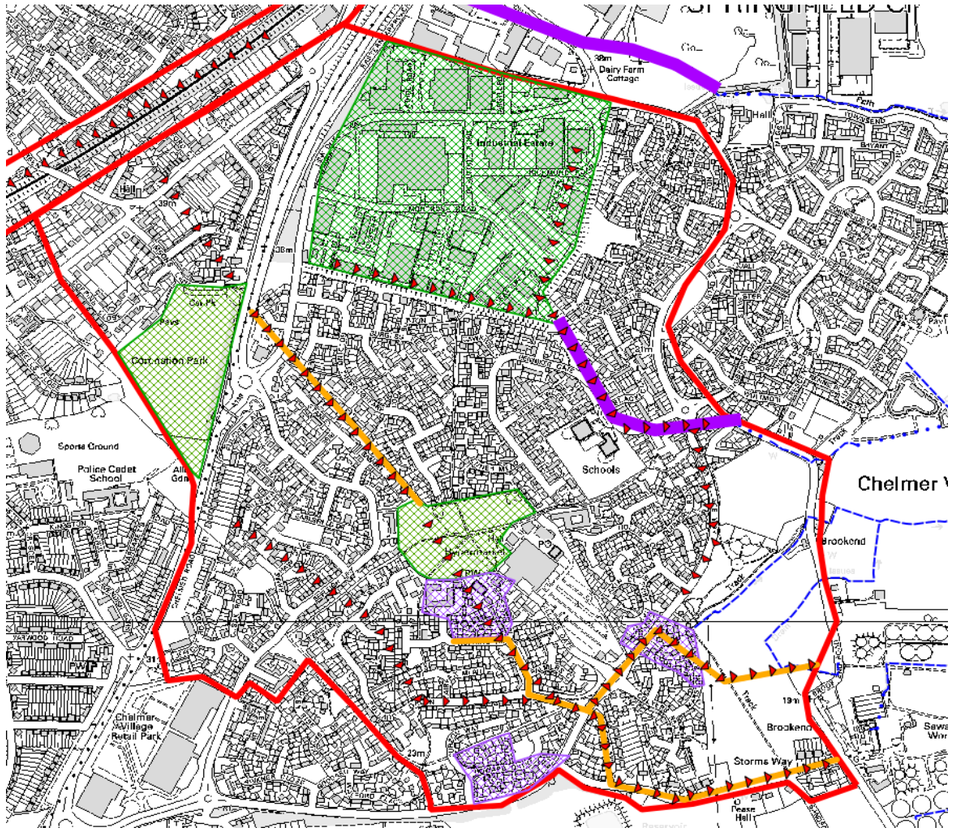
Chelmsford Surface Water Management Plan - Options Appraisal

PROBLEM IDENTIFIED:

This CDA is located in the eastern part of the Chelmsford urban area. It is bounded on two sides by the River Chelmer and has a complex network of predicted overland flows. Three main overland flow paths originate in the northern and western parts of the CDA, then converge in the flat area in the south eastern part of the CDA before joining the River Chlemer flood plain. The two western flow paths predominantly impact residential areas and the Chelmer Villiage Hypermarket. The more northern flow path originates in the Montrose Road Industrial estate and then flows down Chelmer Villiage Way. The main flood mechanism in the CDA is surface water runoff exceeding the drainage capacity and forming overland flows down natural valley floors. Fluvial Flood Zones 2 and 3 are predicted along the eastern and southern boundaries of the CDA. There is a large area of open space between the urban area and the fluvial flood plains, so it is unlikely that water levels in the River Chelmer will influence local flood risk within the CDA.

Critical Drainage Area

Chelmsford_009



LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network

Culverted Watercourse

Main River

Ordinary Watercourse

Measures - Linear

Deculvert / Restore Historic Watercourse

Improved Maintenance

Increased Conveyance

Managed Overland Flow

Measures - Polygon

Managed Overland Flow

Resistance / Resilience

Source Control (SuDS / Attenuation)

Flood Storage

Infrastructure Resilience

Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Chelmer Village

Flood Risk Source

Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	No
Tidal	No

Validation

Historic Events	Yes
Site Inspection	No

Essex County Council

Environment Agency

Chelmsford City Council

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Chelmsford Surface Water Management Plan - Options Appraisal

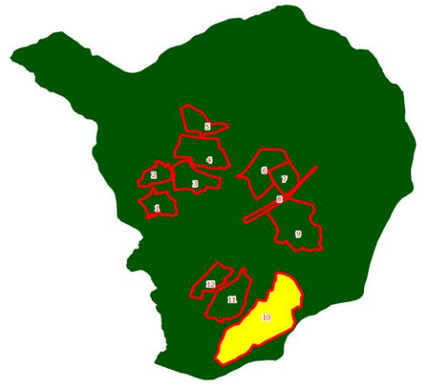
PROBLEM IDENTIFIED:

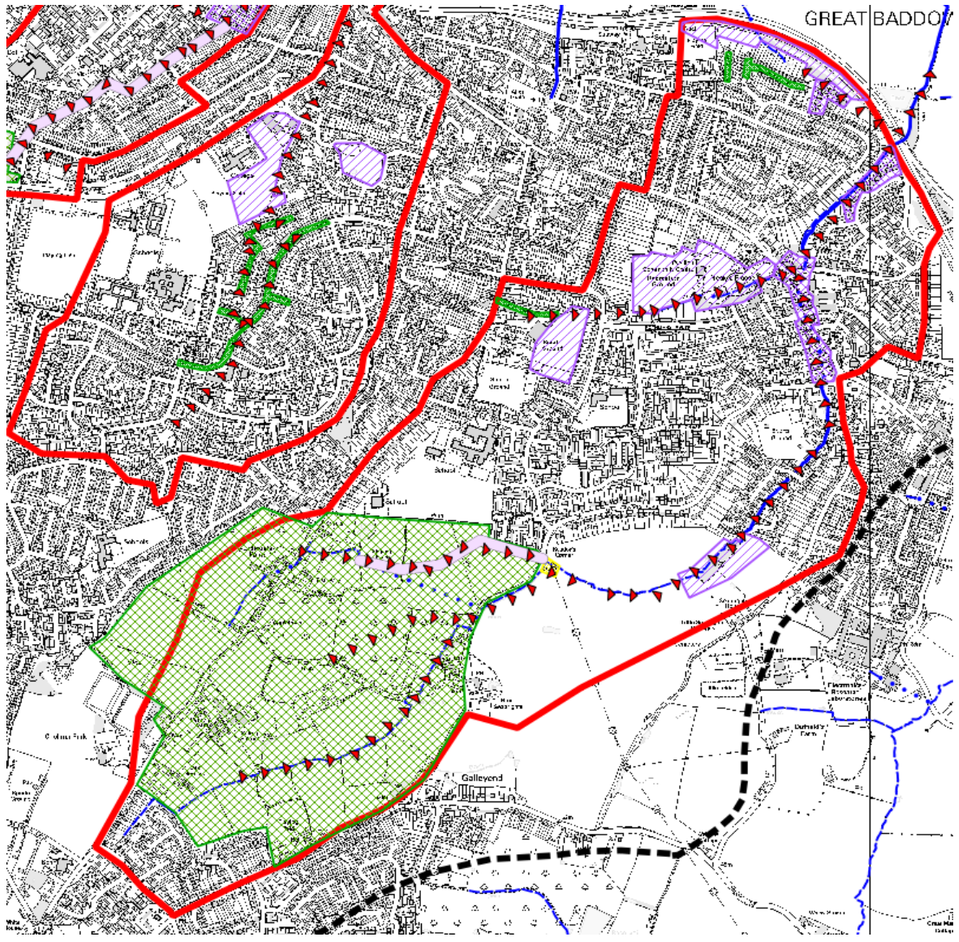
This CDA is the largest one defined within the study area and consists of the catchment area for the Great Baddow Brook. Significant surface water flooding is predicted in the lower reaches of the catchment where the capacity of several ordinary watercourses is exceeded. The upper reaches of the CDA are predominantly undeveloped, so predicted overland flows have little impact. The area of most significant impact is along High Street between Baddow Road and Bell Street. This section of the Great Baddow Brook is classified as Main River, but has no fluvial flood extents predicted. This could be due to the EA flood modelling only considering long duration rainfall events that do not produce high flows in this short reach or that that EA modelling does not include this reach. Further up the catchment between Galleywood Road and Craiston Way, the main river goes through a series of road culverts and significant flooding is predicted adjacent to each of these crossings. Predicted flooding impacts are predominantly residential in the lower part of the CDA while only a electricity sub-station at Reader's Corner is predicted to be at risk in the upper catchment.

Critical Drainage Area

Chelmsford_010

Great Baddow





LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network

Culverted Watercourse

Main River

Ordinary Watercourse

Measures - Linear

Deculvert / Restore Historic Watercourse

Improved Maintenance

Increased Conveyance

Managed Overland Flow

Measures - Polygon

Managed Overland Flow

Resistance / Resilience

Source Control (SuDS / Attenuation)

Flood Storage

Infrastructure Resilience

Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Flood Risk Source	
Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	Yes
Tidal	No

Validation	
Historic Events	Yes
Site Inspection	Yes

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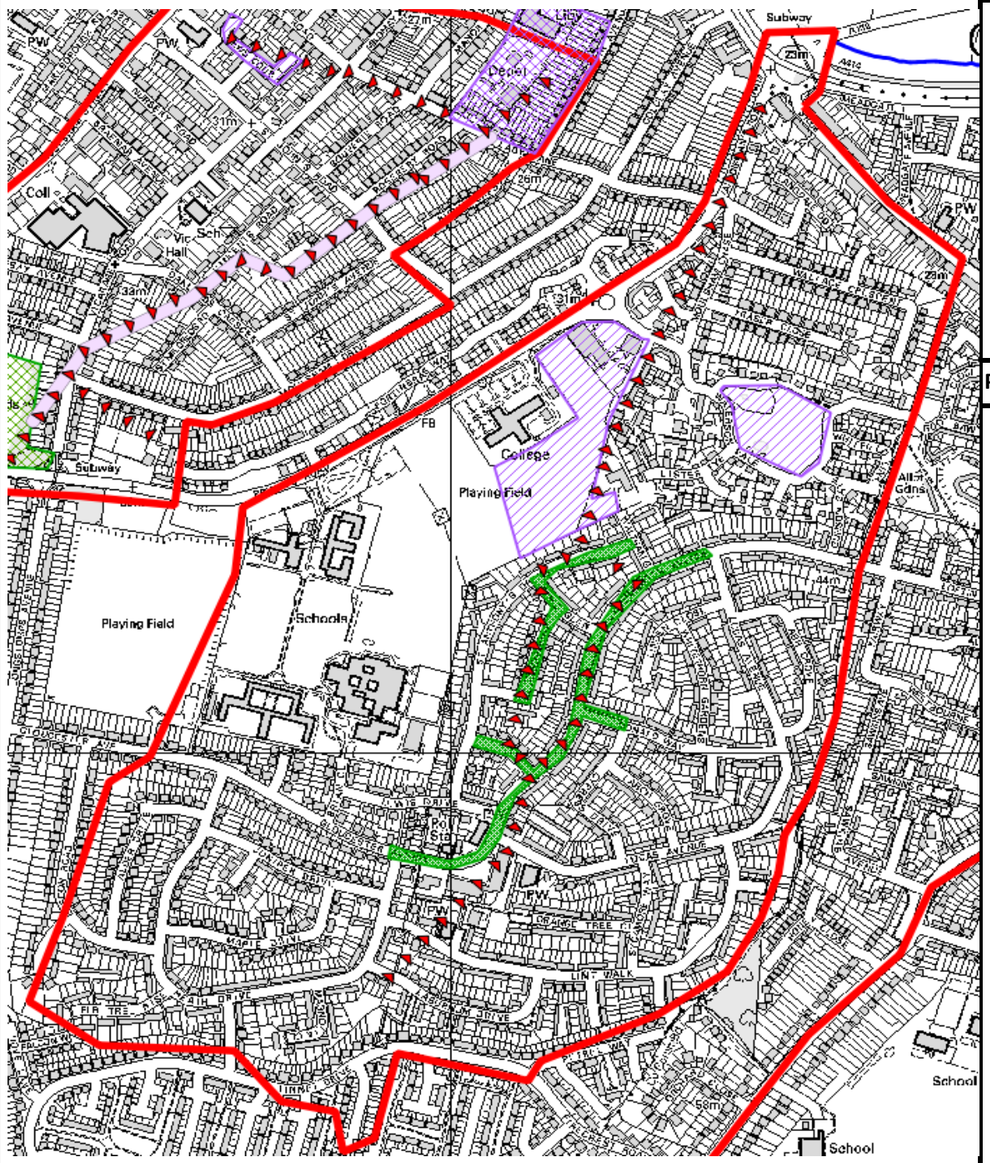
Chelmsford Surface Water Management Plan - Options Appraisal

PROBLEM IDENTIFIED:

This CDA is one of the small natural valleys flowing south to north into the River Chelmer. A significant overland flow is predicted along the path of the historically culverted stream in this area. The local drainage network clearly runs along the path of the historic stream alignment. An overland flow forms over the top of the historic stream alignment when surface runoff exceeds the capacity of the drainage network. Surface water flood is predicted to impact residential properties along Lime Walk, Gloucester Avenue, Crossways, St Anthony's Drive, Watersone Vale, Moulsham Chase and Van Dieman's Road. The overland flow then concentrates at the A138 / A414 / B1009 roundabout and floods several underpasses before joining the main River Chelmer flood plain. Fluvial Flood Zones 2 and 3 are predicted to extend to the A138 / A414 / B1009 roundabout.

Critical Drainage Area

Chelmsford_011



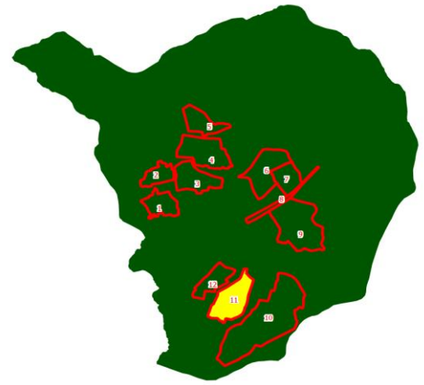
LEGEND

- Study Area Boundary
- Surface Water Flow Direction
- Critical Drainage Area
- River Network
  - Culverted Watercourse
  - Main River
  - Ordinary Watercourse
- Measures - Linear
  - Deculvert / Restore Historic Watercourse
  - Improved Maintenance
  - Increased Conveyance
  - Managed Overland Flow
- Measures - Polygon
  - Managed Overland Flow
  - Resistance / Resilience
  - Source Control (SuDS / Attenuation)
  - Flood Storage
  - Infrastructure Resilience
  - Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Moulsham Lodge



Flood Risk Source	
Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	Yes
Tidal	No

Validation	
Historic Events	Yes
Site Inspection	Yes

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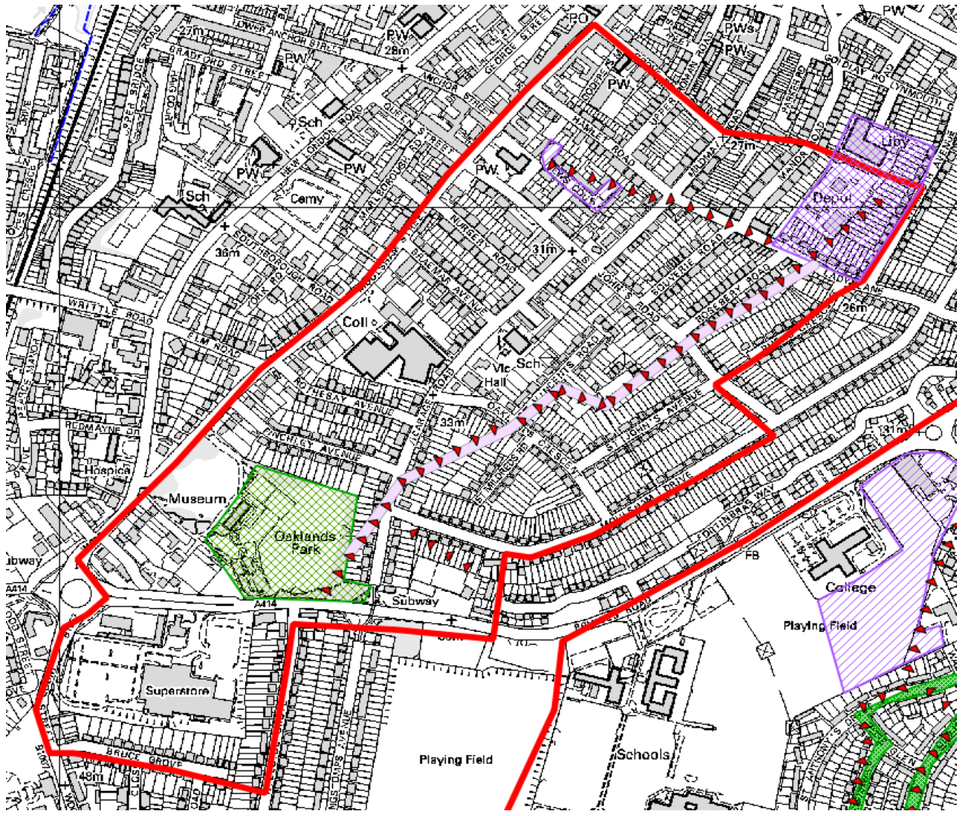
Chelmsford Surface Water Management Plan - Options Appraisal

PROBLEM IDENTIFIED:

The Moulsham CDA is very similar to the Moulsham Lodge CDA – it is a small natural valley that drains south to north towards the River Chelmer. The predicted overland flow path through this CDA also follows a historic stream alignment. Where surface water runoff exceeds drainage capacity, it forms an overland flow through the predominantly residential area along the historic alignment of the stream bed. Predicted flood extents are generally in residential garden areas, but larger areas of ponding are predicted adjacent to St John's Road and Lady Lane.

Critical Drainage Area

Chelmsford_012



LEGEND

Study Area Boundary

Surface Water Flow Direction

Critical Drainage Area

River Network
- Culverted Watercourse
- Main River
- Ordinary Watercourse

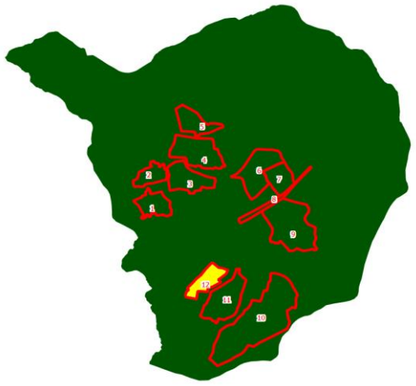
Measures - Linear
- Deculvert / Restore Historic Watercourse
- Improved Maintenance
- Increased Conveyance
- Managed Overland Flow

Measures - Polygon
- Managed Overland Flow
- Resistance / Resilience
- Source Control (SuDS / Attenuation)
- Flood Storage
- Infrastructure Resilience
- Raingardens / Storage

PREFERRED OPTIONS SUMMARY:

Options Summary	Available Option	Preferred
Do Nothing		
Do Minimum		
Improved Maintenance		
Planning Policy		
Source Control, Attenuation and SUDS		
Flood Storage / Permeability		
Separate Surface Water and Foul Water Sewer Systems		
De-culvert / Increase Conveyance		
Preferential / Designated Overland Flow Routes		
Community Resilience		
Infrastructure Resilience		
Other - Improvement to Drainage Infrastructure		
Other or Combination of Above		

Moulsham



Flood Risk Source	
Surface Water	Yes
Groundwater	Yes
Ordinary Watercourse	Yes
Fluvial	Yes
Tidal	No

Validation	
Historic Events	Yes
Site Inspection	Yes

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