KENT COUNTY COUNCIL

KENT FLOOD RISK MANAGEMENT COMMITTEE

MINUTES of a meeting of the Kent Flood Risk Management Committee held in the Council Chamber, Sessions House, County Hall, Maidstone on Wednesday, 9 November 2022.

PRESENT: Mr A R Hills (Chairman), Mr P Cole, Ms J Meade, Ms M McArthur, Mr M J Sole and Ms L Wright

ALSO PRESENT: Mr M Dendor, Cllr M Forest (Portfolio Holder for Environment, Property and Recreation, Ashford Borough Council), Cllr M Round (Lead Member for Environmental Services, Maidstone Borough Council), Mrs G Brown (KALC) and Mr J Williamson (River Stour Internal Drainage Board)

IN ATTENDANCE: Mr M Tant (Flood and Water Manager), Mr T Harwood (Resilience and Emergency Planning Manager) and Mr M Dentten (Democratic Services Officer)

UNRESTRICTED ITEMS

18. Declarations of Interest
(Item 3)

No declarations were received.

19. Minutes of the meeting held on 5 July 2022
(Item 4)

RESOLVED that the minutes of the meeting of the Kent Flood Risk Management Committee held on 5 July 2022 are correctly recorded and that they be signed by the Chairman.

20. Storm Overflows, Pollution and Pathfinder Projects - Presentation by Southern Water
(Item 5)

Sally Dodman-Edwards (Pathfinder Delivery Lead, Southern Water) was in attendance for this item.

1. Mrs Dodman-Edwards gave a presentation. The contents of the presentation included: an overview of the Storm Overflow Task Force; Deal, Swale and Margate Pathfinder projects; 'Slow the flow' passive water butts installation trials; household and non-household sustainable drainage systems; connectivity surveys; sewer level monitors; rain gauges; and flow monitoring.

2. Following a question from a Member on the release mechanisms in place for smart water butts, Mrs Dodman Edwards explained that automatic slow

release systems, drip features as well as altered down pipes and outflows were measures which slowed the flow and prevented rain water backup.

3. A Member asked how the three pathfinder scheme areas were chosen and what other areas could do to be involved in future schemes. Mrs Dodman-Edwards confirmed that the three areas had been chosen based on modelling, which indicated that they were susceptible to flooding overflows. She added that Southern Water had collaborated with KCC to choose the sites.

4. A Member asked that an indication of the timeline for planning future pathfinder projects, be shared at a future meeting of the Committee.

5. Mrs Dodman-Edwards confirmed, in response to a question from a Member, that local businesses, stakeholders, schools and the NHS had been engaged and provided with educational materials on how to reduce rain flow into combined sewers and manage runoff from flat rooves.

6. A Member asked whether there was a risk that future development would nullify the improvements made by the schemes mentioned in the presentation. Mr Tant reassured Members that KCC ordinarily objected to significant developments which planned to connect to combined sewers. He noted that heightened flood risk in urban areas was primarily created by increased density, insufficient runoffs and the replacement of green space with hard surfaces, which when coupled with climate change had increased risk. He added that KCC were working with Southern Water on scaling up the pathfinder projects and initiatives with similar goals.

7. Mr Tant confirmed, after a question from a Member, that, whilst Thames Water did not have any similar schemes in Kent, they offered customers discounts on water butts.

8. A Member asked whether any roadside rain gardens had been installed in the county. Mr Tant confirmed that roadside rain gardens had been installed by the Flood and Water Management team, he gave installations on Dolphins Road, Folkestone as an example. He noted that rain gardens reduced on street parking.

9. The Chairman thanked Ms Dodman-Edwards for her presentation, answers to the Committee's questions and commitment to update Members.

RESOLVED to note the content of the presentation.

21. Highways Drainage Systems - Presentation by KCC Highways
(Item 6)

Earl Bourner (Drainage Asset Manager, KCC) was in attendance for this item.

1. Mr Bourner gave a presentation to the Committee. His presentation included: an overview of KCC's drainage responsibilities as a Highway Authority, including the responsibility to mitigate flood risk to the public highway; Highway drainage assets and functions; main issues with drainage and flooding over previous three months; risk based approach for gully

management and cleansing, which included over 12,500 drains cleansed per month and emergency responses; impact of water runoff from private land; new asset management software; recent highways drainage schemes, including drainage upgrades; and future challenges.

2. A Member asked for an update on the development of the fault reporting tool. Mr Bourner confirmed that the tool was operational and that intelligence had been input into the system.

3. Mr Bourner explained, following a question from a Member, that a proactive approach to drainage clearance had been adopted to maximise service effectiveness and utilised data to prioritise drains with the highest associated risk.

4. Mr Bourner confirmed, in response to a question from a guest, that KCC had a five-year programme of drainage works, which utilised external consultants for surveying and design to supplement internal expertise.

5. A Member asked how contractor works were assessed in order to ensure that gullies were installed to a good standard and not blocked by asphalt. Mr Bourner explained that whilst the Highways Drainage team did not directly monitor works, works were inspected, gullies were completed after general resurfacing work and the team oversaw maintenance.

6. A Member asked whether there was an emergency drainage blockage line. Mr Bourner provided Members with the contact number and agreed to explore how best it could be publicised on KCC's public website.

7. Mr Bourner clarified, following a question from a Member, that new developments were required to have a higher sewer capacity and enhanced highway drainage systems, which were designed to withstand a 1 in 100 year flood in addition to a 30% increase in capacity for climate change.

8. The Chairman thanked Mr Bourner for his presentation and answers to the Committee's questions.

RESOLVED to note the content of the presentation.

22. Sea Defence and Low Carbon Solutions - Presentation by the Environment Agency
(Item 7)

Sam Gawad (Project Executive, Environment Agency) was in attendance for this item.

1. Mr Gawad gave a presentation to the Committee. The contents of the presentation included: a background on the environmental history of Romney Marsh; the Environment Agency's Folkestone to Cliff End Strategy, which sought to protect 14,500 homes, 700 businesses and nationally important critical infrastructure from the risk of flooding; Lydd Ranges Flood Alleviation Scheme, across a 4.6 miles (7.4km) frontage, which comprised a groyne field, Green Wall and Sewer Outfall; net zero by 2030, which required a 6750ton

CO2 reduction from the Scheme; and a targeted approach to carbon reduction, including the use of low carbon concrete, with it noted that the Lydd Ranges Scheme had achieved a 45% carbon reduction from the benchmark scheme, with hydrotreated vegetable oil used in dredgers and production of low carbon concrete plant located in Kent.

2. Mr Gawad showed the Committee a video on the Lydd Ranges Flood Alleviation Scheme, which can be accessed at: www.vimeo.com/592156207/5b32a36ae2.

3. The Chairman emphasised the importance of innovative approaches to carbon reduction in sea defences.

4. A Member asked for an explanation of the criteria which determined which sections of the coast were protected by flood defences. The Chairman explained that Shoreline Management Plans determined how areas were protected, with it noted that existing plans were being refreshed. He emphasised that further effort was required to spread awareness of the Plans as well as their implications on coastal communities. He assured Members that the Committee would receive a presentation on Shoreline Management Plans at a future meeting.

5. Following a question from a Member on the Lydd Ranges Flood Alleviation Scheme, Mr Gawad confirmed that the Scheme had a lifespan of 25 years, with no drop in performance expected over that time. He added that the Environment Agency had legally committed to maintain the scheme for its lifespan and that a specific type of shingle had to be used to meet regulations.

6. The Chairman thanked Mr Gawad for his presentation and answers to the Committee's questions.

RESOLVED to note the content of the presentation.

23. Environment Agency and Met Office Alerts and Warnings and KCC severe weather response activity
(Item 8)

1. The Committee were provided with a report which detailed on the current water situation, weather statistics, Environment Agency and Met Office Warnings, and flood response activity since the last meeting on 5 July.

2. Mr Harwood updated the Committee on the alerts, warnings and weather response activity since publication of the report. He confirmed that 14 additional flood alerts and 4 weather warnings had been issued since 1 November. He addressed KCC's response to severe weather events since the previous meeting, which included the county's first red warning for heat. It was noted that the summer had been unusually dry, with wildfires, slow aquifer recharge, lower river levels and fish kills experienced across Kent. He noted that the hot summer was expected to have a long-term impact on ecology. The impact of heavy autumn rain on infrastructure and the exacerbation of issues due to losses of urban drainage, runoffs and dropped curbs were addressed.

He confirmed that KCC had carried out Exercise Manu, with partners, which tested the county's response to severe flooding.

3. In response to a question from a guest, Mr Harwood confirmed that Resilience and Emergency Planning had been involved in the strategic discussion on community resilience, as part of formation of the emergency planning template which had been made available to Kent Association of Local Councils (KALC). He added that the service's input had focused on ensuring that agency preventive measures and spatial policies factored in community resilience and emergency planning, with communities at the most risk prioritised. It was noted that the document would evolve, as it remained in the development stage. He assured the Committee that whilst resources were under pressure, different ways of working and better partner working would make the county more resilient.

RESOLVED to note the warnings received since the last meeting of the Committee and contribute to planning and response policy and practice through oversight and debate.

24. Other items which the Chairman decides are Urgent
(Item 9)

No urgent items were received.

The Chairman thanked the district and borough Environment Cabinet and Lead Members present for their attendance and welcomed their continued engagement with the Committee.

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Kent Flood Risk Management Committee Meeting.

Task Force Team – to build a plan to reduce storm overflows.

from Southern Water

The Storm Overflow Task Force "ONETEAM"

- The task force is a dedicated team that is central to Southern Water's drive towards significantly reducing the use of storm overflows by 2030, and managing wastewater flows within catchments.
- The establishment of the task force indicates Southern Water's commitment to set targets and is a highly important workstream within the business.
- The task force is responsible for delivering five pathfinder projects over the next two years. The task force will seek to establish strong partnerships to ensure their success. Our Pathfinders in Kent are:-
  - Deal
  - Swalecliffe
  - Margate
- There are 3 main types of intervention to reduce flooding and storm overflow use.
- Weblink - Storm Overflows (southernwater.co.uk)

“Slow the Flow” trial on passive water butts installation





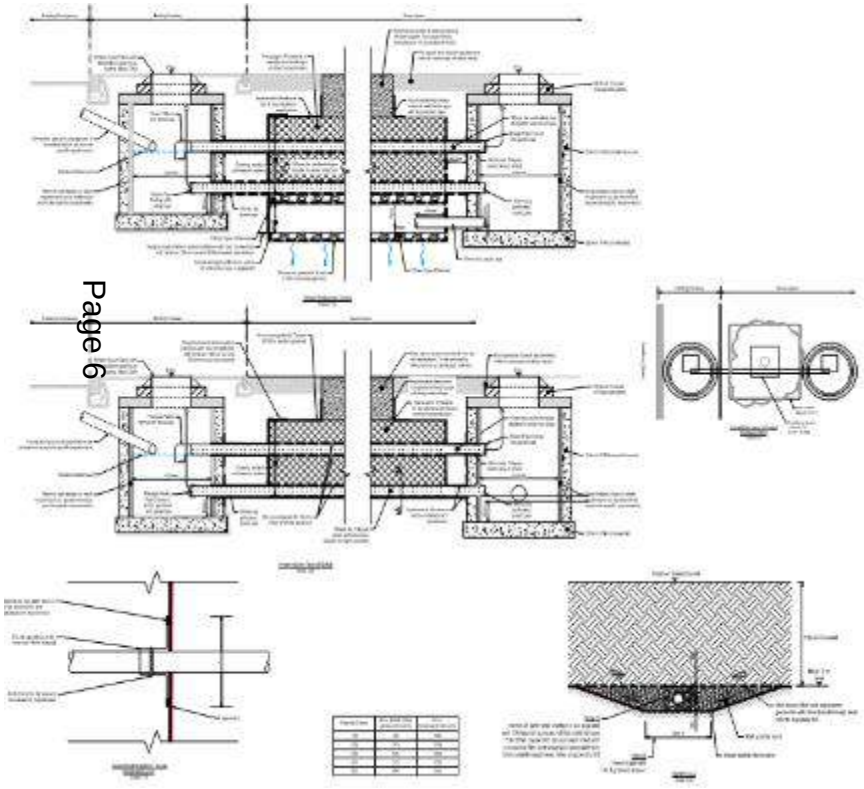


Slow the Flow door knock in Deal with Councillor Bond

Household & Non-Household SuDs Opportunities - Planters

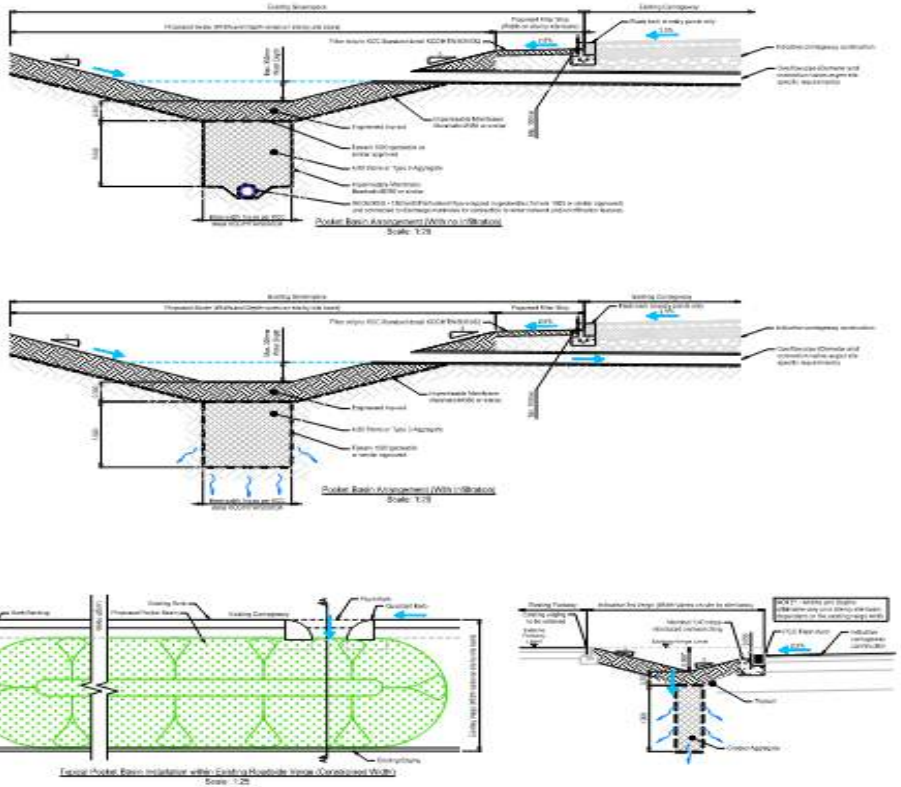
SuDS Construction Details

Outline Approval – Tree Pit

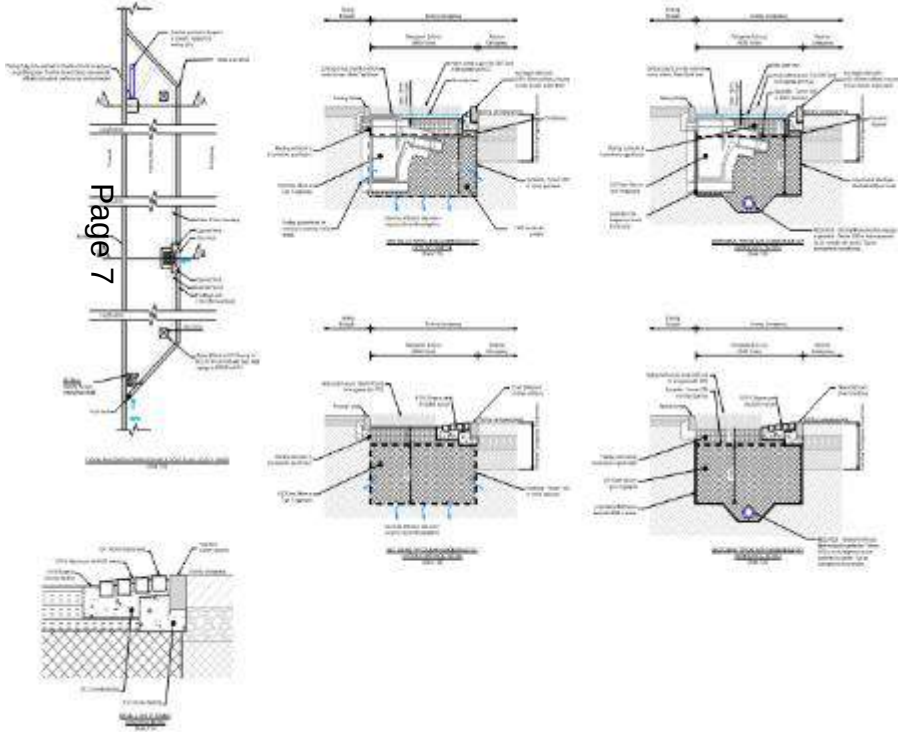


SuDS Construction Details

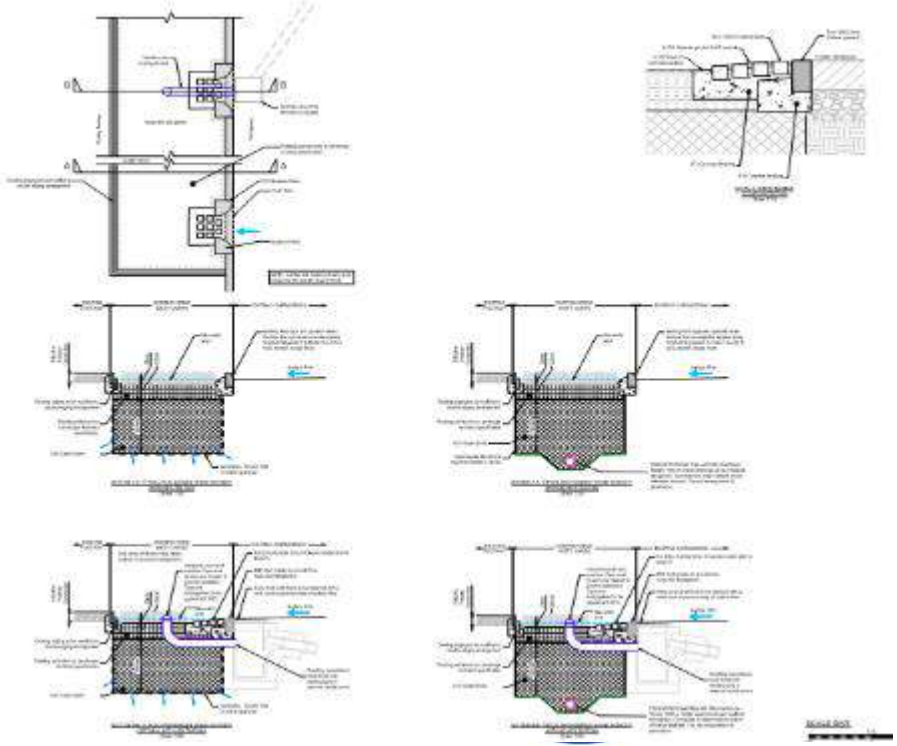
Outline Approval – Pocket Basin



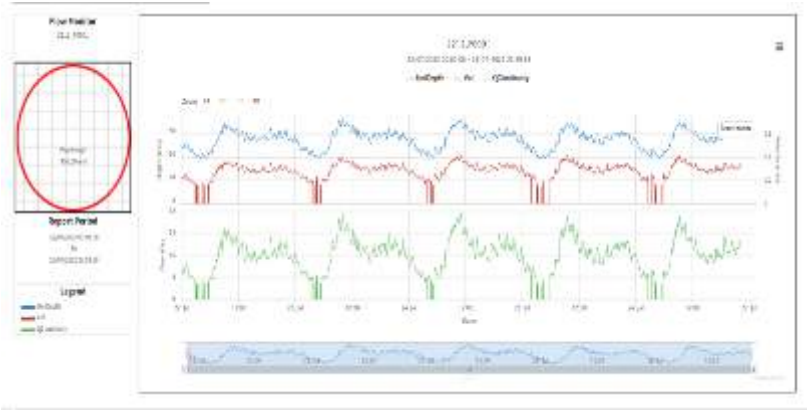
SuDS Construction Details Outline Approval – Rain Garden Build Out



SuDS Construction Details Outline Approval – Roadside Rain Garden



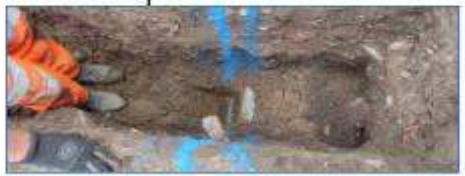
Much more - Connectivity Surveys, Sewer Level Monitors, Rain Gauges and Flow monitoring



Albert Rd – Deal Surface Water Enlargement

Timeline

Pre-Commencement	Week 1 (12/09/2022)	Week 2 (19/09/2022)	Week 3 (26/09/2022)	Week 4 (03/10/2022)	Week 5 (10/10/2022)	Week 6+ (17/10/2022)	Planned Post-Completion works
Discussions with Highway Authority, Land Owner, affected residents.	Site Set-up. Intrusive investigations: trial holes and slit trenches at key locations for establishing presence of any uncharted utilities.	Design amendments to suit uncharted obstructions. Manhole excavation and construction works. Unexploaded Ordnance Surveys.	Further design amendments to suit uncharted obstructions. Manhole and Trench excavation and construction works. Ordering amended materials. Unexploaded Ordnance Surveys.	Trench excavation and pipe installation works. Unexploaded Ordnance Surveys.	Pipe Installation works. Vegetation Clearance. Headwall Installation.	Pipe Installation works. Headwall Installation works. Car-Park Construction and Landscaping reinstatement. Disassemble site compound.	Manhole 1 - Permanent cover and frame installation. Headwall - permanent design guardrailing installation



Southern Water - Pathfinders
Albert Road, Deal
Flood Mitigation Works

Stantec

Great collaborative working with KCC Highways – Albert Rd gulley enlargement completed this year

Works completed

Legend :-

WEAT Catchment Boundary

Sewer

Storage Type

Relief Sewer

Storage Tank

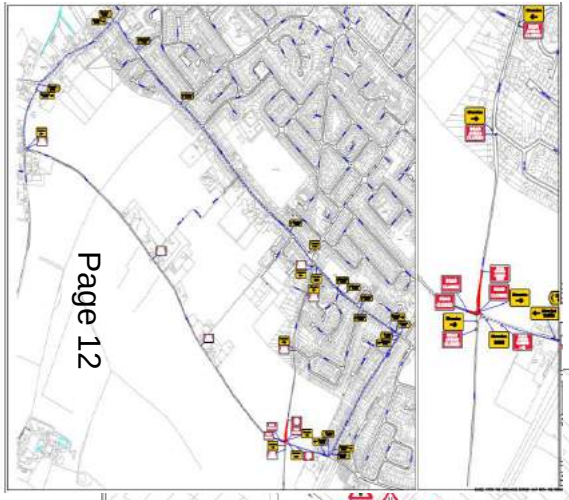
1 - North Deal Bypass Sewer & Golf RoadTank
2 - Town Center (North) Relief Sewer
3 - Middle Deal Road Relief Sewer
4 - Albert Road Relief Sewer
5 - Town Center (South) Relief Sewer
6 - Orchard Avenue Tank
7 - Victoria Park Tank
8 - Hamilton Road Tank
9 - Rectory Road Tank
10 - Walmer WPS Tank/Walmer Paddock Tank
11 - Dola Avenue Tank
12 - Cross Road Tank
13 - Mill Road Relief Sewer
14 - Deal Castle Transfer Sewer

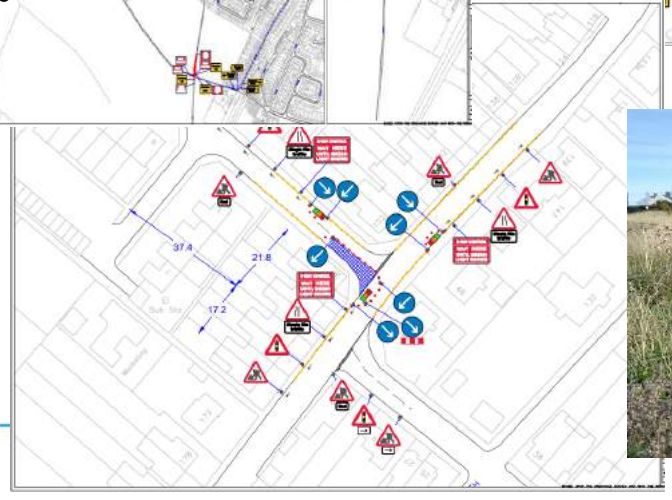
0 0.25 0.5 1
km

Southern Water

Stantec

Working with Streetworks team in KCC on Traffic Management for MTS to complete the surveys.





Golf Road WPS remedial works (1)

- Scope of works required to improve the resilience, safety and performance of Golf Road WPS agreed following Platinum Health Check and PathFinder reviews
- Works will be delivered by AFECO as Principal Designer and Principal Contractor – appointments and programme being generated for an anticipated start on site date in November
- Remedial works split into 6 areas to allow focus on key issues and allocate funding:
  - AREA 1 – TRANSFER PUMPS incorporating chemical dosing area and rising main
  - AREA 2 – STORM PUMPS incorporating storm station, screening, booster pumps and storm loop
  - AREA 3 – COMPOUND incorporating building and documentation
  - AREA 4 – MCC incorporating replacement of MCC and telemetry
  - AREA 5 – MISCELLANEOUS incorporating lifting and labelling
  - AREA 6 – GENERATOR incorporating review of size once other works complete / refurbishment

Golf Road WPS remedial works (2)

- Critical areas of work which will be primary focus are AREA 1 – TRANSFER PUMPS and AREA 2 – STORM PUMPS
- Both areas cover the critical works required to increase pass forward flow rates and improve storm control so the Permit conditions can be met (flows currently limited due to concerns over the integrity of the rising main)
- Documents drafted / in train for comment and approval ahead of start on site – new station control philosophy; ALM; plan for monitoring and remedials works / relining of rising main; CCP; programme and costs
- Other AREAS will be developed in parallel to optimise time on site

Development of design and documentation

Approvals process

Start on site to implement as much as possible ahead of mains work

What we are doing in Operations: -

1. What have we done at Swalecliffe Wastewater Treatment Works since November 2021.
2. Swalecliffe WTW Short Sea Outfall Replacement
3. Gorrell Tank Whitstable
4. We’ve taken action to reduce the impact of stormwater releases on Swalecliffe Brook

A charity to help, support and represent people at risk of flooding

National Flood Forum

NATIONAL FLOOD ACTION

CAPPAGH

BROWNE

Meet the Team

AFECO

Engineering | Controls | Optimisation

innovation. engineered

SuDSPlanter

WIA WATER INDUSTRY AWARDS 2021 FINALIST @WWT_online #waterindustryawards21 #WIA21

INNOVATORS IN WATER TECHNOLOGY

OPTIMISED DESIGN, ENGINEERED TO LAST

SDS Water Infrastructure Systems

DEAL Working together for a sustainable future

Water Taskforce

Office of Natalie Elphicke MP

Southern Water

Kent County Council

WATER for LIFE

DOVER DISTRICT COUNCIL

GROUNDWORK

GROUNDWORK

rescue2 TECHNICAL RESCUE

WATER for LIFE from Southern Water


Albert Road surf


SDSPlanter


Golf Ro
Surger


AFECO
MITIGATION


National Flood Forum
sdsunited.com
PREVENTION
MITIGATION
WATER STORAGE


GROUNDWORK

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Preparing for Winter within KCC Highways

Drainage Team

Kent County Council
kent.gov.uk

Introduction

Kent County Council as the Highway Authority in Kent manages over a quarter of a million roadside drains across the county together with 6200km of pipework, manholes, soakaways, and other assets associated with highway drainage**. It is the second largest asset group within the highway authority.**

Highway Drains are designed to:

Remove surface water run-off from the highway to help keep roads safe and minimise problems
prevent damage and make roads last longer through effective drainage
minimise surface water from the highway affecting properties or land

Our highway drains are not usually designed to provide drainage for other areas outside of the highway boundary, such as for land drainage or privately owned property or developments.

Mitigating Flood Risk to the Public Highway

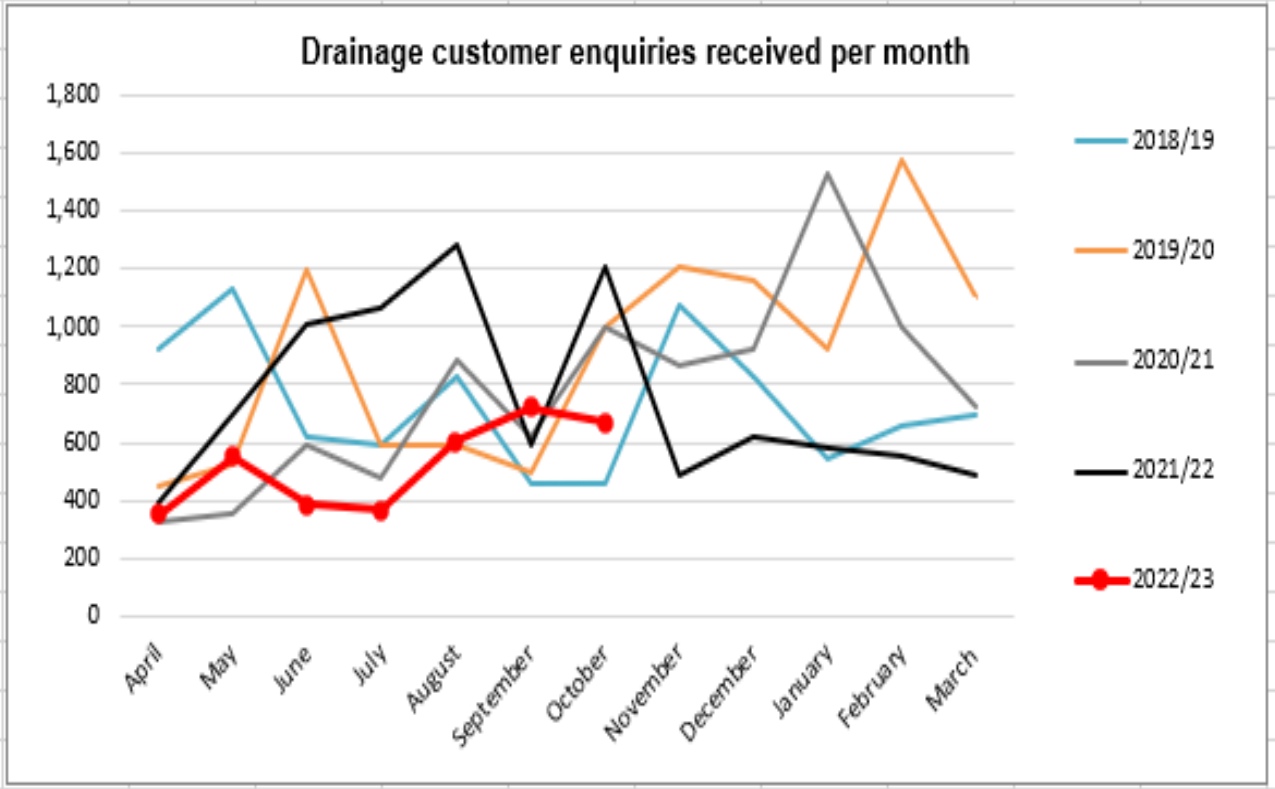
- The highway authority does not maintain public foul or surface water sewers
- Drainage serving private property
- Drainage features such as roadside ditches and watercourses.
- KCC would refer these matters to the relevant authority or landowner as appropriate but still does have a major impact to the Highway and residents.

Current Situation

- Drainage demand through the Summer months remanded steady numbers, and we avoided the flash flood experienced in previous years, however the last 3 months have seen a number of Met Officer weather alerts issued for heavy rain.
- Last Thursday was particularly heavy in and around Maidstone, where a number of high profile areas flooded.
- The Team received over 90 Emergencies calls on the Thursday alone and overall for the week **653** flood related enquired and **260** Emergency Response enquires.
- In comparison the previous week, drainage enquires received **168** and this time last year **197.**

Enquires Received

2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
537	359	549	256	919	452	327	392	351
676	409	556	401	1131	529	360	695	553
481	434	1059	506	624	1198	587	1009	387
759	477	531	717	587	592	482	1066	365
891	865	407	785	825	592	883	1283	605
513	987	514	545	456	493	620	590	719
1082	580	399	409	458	995	1002	1207	671
1103	599	723	345	1070	1209	861	488	
578	421	254	586	830	1157	923	624	
1138	1401	431	1158	548	921	1531	584	
625	512	445	615	658	1578	1000	553	
524	575	416	810	692	1102	725	492	
8907	*7619*	*6284*	*7133*	*8798*	*10818*	*9301*	*8983*	*3651*

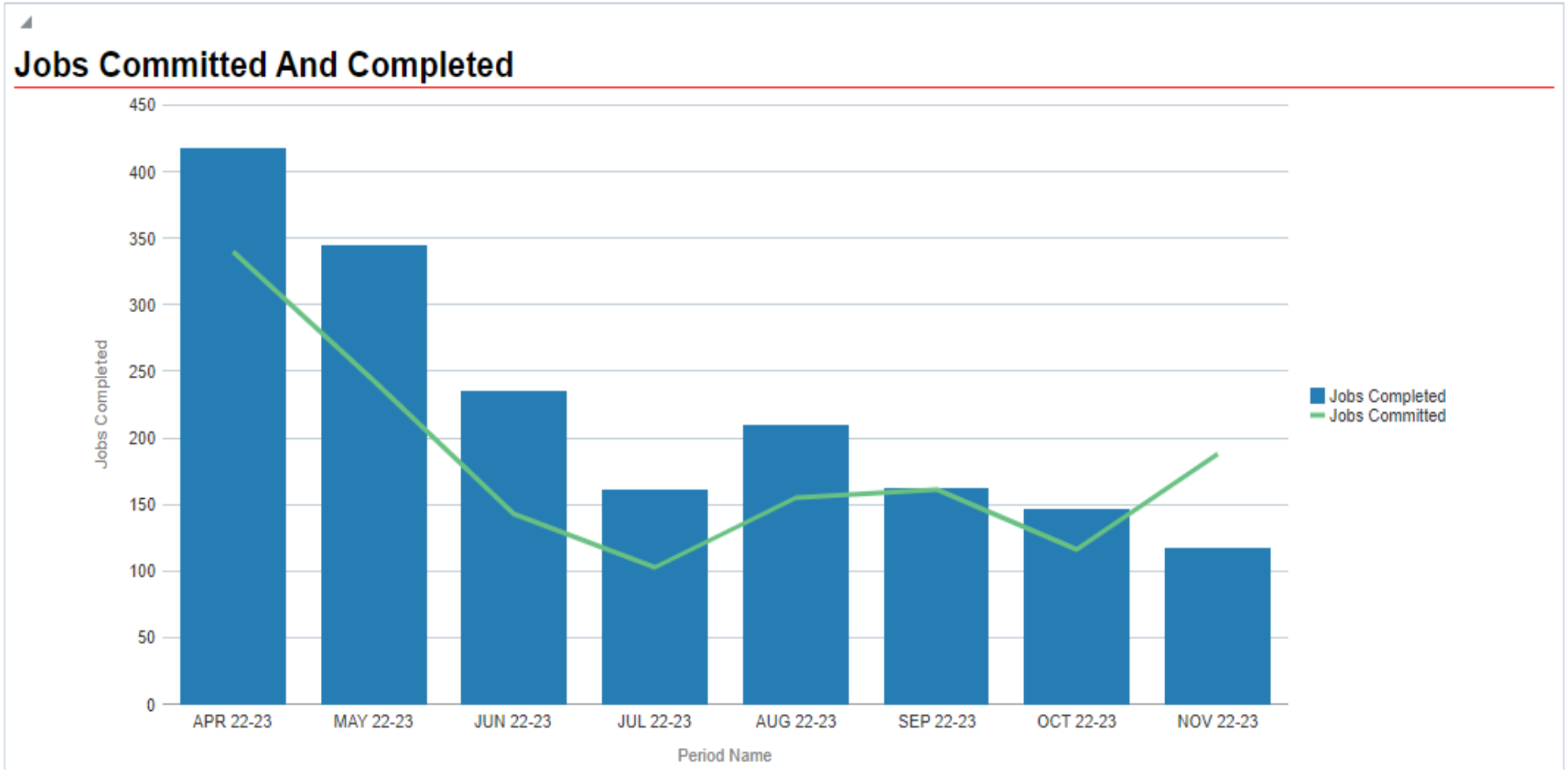


Jobs Completed

WAMS - Jobs

Home Dashboards

Jobs - Current Month | Job Summary | Jobs Committed and Closed



Main issues causing ongoing flooding

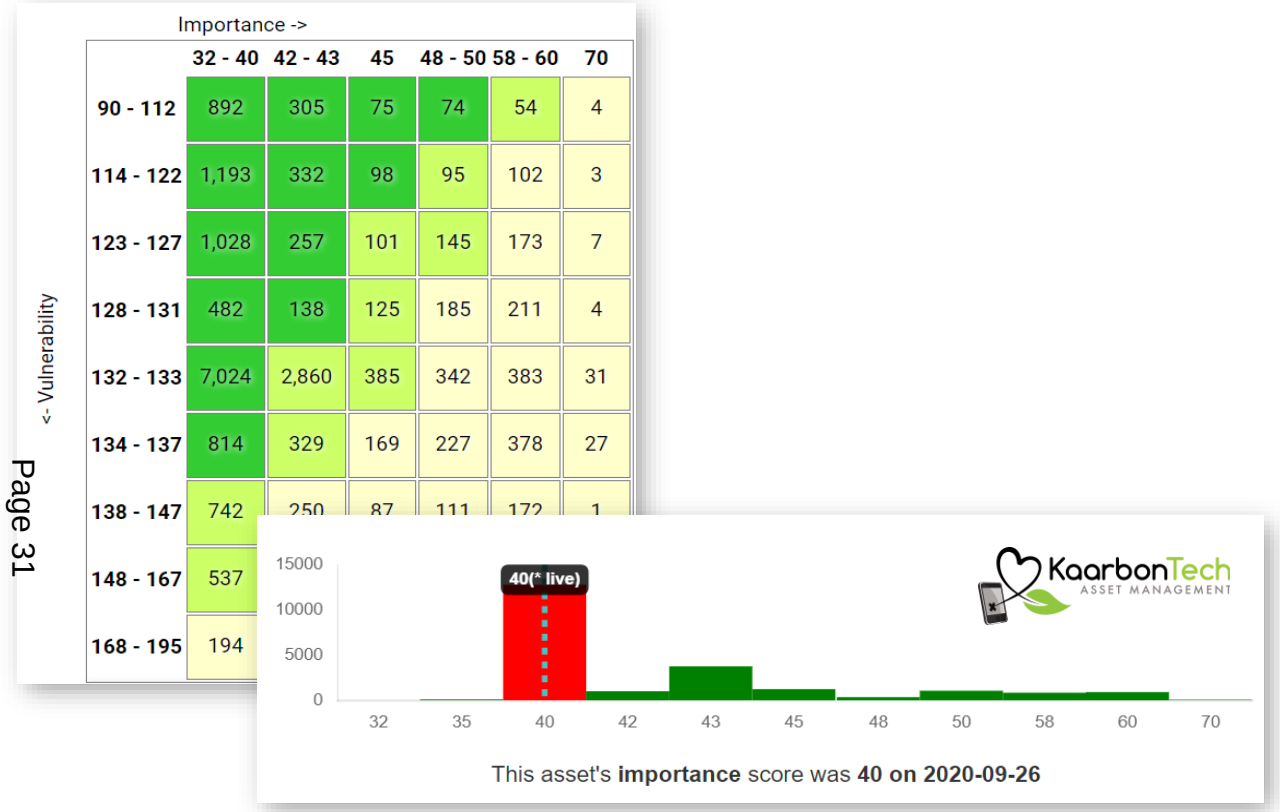
- Highway and Sewer systems under capacity..
- Water run off from fields
- Urban creep
- Back log of pipe works maintenance, and defect requiring attention.
- **Example, next photos, tree roots removed from a system, land drainage problems**

Pearsons Green Road Junction with Churn

What have we been doing since April

Implemented Our Risk bases approach cleansing

- The risk scores that are produced for each individual asset will influence the frequency in which drains are cleaned, these frequencies being 6 monthly, yearly or every 2 years.
- Our new approach will see circa 12,500 drains cleansed per month.
- Customer enquiries will be risk assessed following a criteria set in place. Reactive works will still be carried out on an ad hoc basis where this meets intervention
- We will still respond to emergencies, carry out CCTV surveys and maintain other vital assets such as soakaways.
- Customers will soon be able to check when their gully is due to be cleaned via our online fault reporting tool which should improve customer satisfaction.



Cleansing decision and cycle length was made using 20+ vulnerability and importance factors:

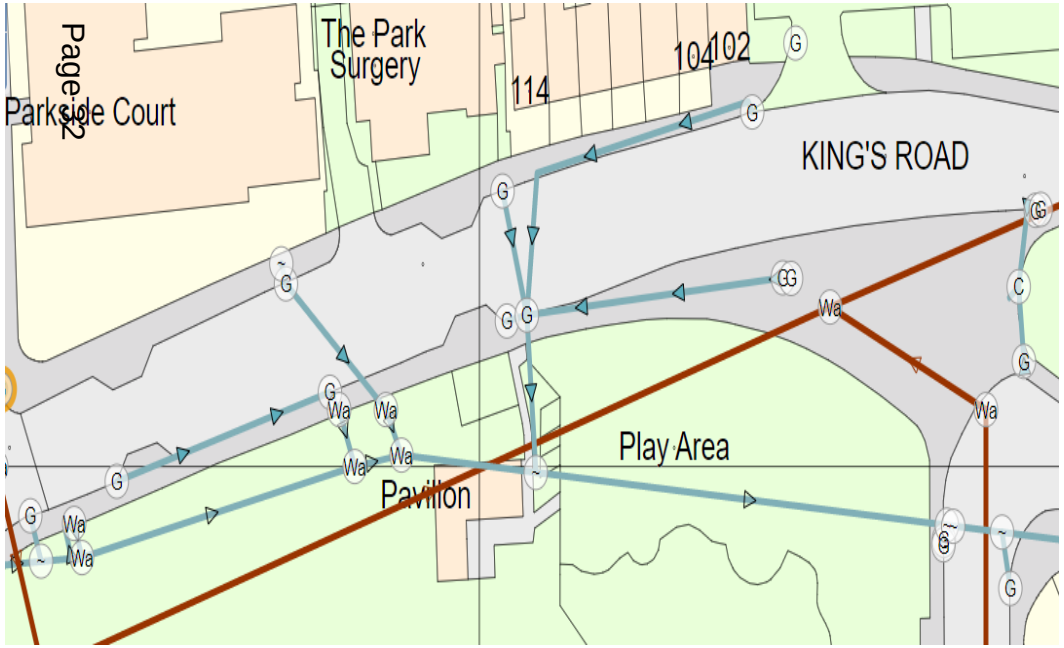
- Historic confirm defect activity
- Silt levels over multiple years
- Flood zone status 30, 100, 1000 year
- Local Knowledge priority zone status 1-3
- Surface Water Management Plan zones
- Reliance on Water Authority
- Urban / Rural
- Speed Limit
- Road Hierarchy (Strategic, Local Access etc)
- Road Classification (A,B,C U etc)
- Road Form (Roundabout, dual carriageway etc)

Kent County Council
kent.gov.uk

What have we been doing since April

- Continue to plot our Asset by Liner, CCTV surveys, Development plans via the Kaarontech Asset Management system:

KaarbonTech
ASSET MANAGEMENT



Not just Proactive and Reactive Cleansing, we continue to deliver our Capital Schemes Programme

Kent County Council
kent.gov.uk

Drainage Civils Framework Contract

Thornden ClCose, Herne Bay

- Thornden Close near Herne Bay had suffered from flooding and carriageway damage due to the poor condition of a ditch at the road edge.
- In order to make safe and prevent future flooding, a small scheme was developed and undertaken using our powers under s.101 HA 1980.
- The ditch was cleared, and a perforated pipe and filter gravel installed. This meant it retained it’s drainage function but made the highway safe.
- The work was delivered by G&J Steele and completed in August 2020. There have been no flooding or safety issues at this site since.

Drainage Civils Framework Contract School Lane, Higham

- School Lane in Higham had been suffering with surface water flooding during heavy rainfall. Due to climate change the frequency of occurrences have been increasing.
- There were no defects within the existing drainage, however modelling of the system showed it was under capacity compared with modern standards.
- Rather than replace the drainage, an offline attenuation system was constructed using two new pipes within the adjacent road, avoiding the need for a closure of the main through route through the village.
- The work was delivered by O'Rouke Contracting in August 2021. There have been no reported instances of flooding since.

Drainage Civils Framework Contract Lakeside, Snodland

- Lakeside, Snodland had been suffering from surface water flooding periodically during heavy rainfall. Severe flooding occurred in June 2019 internally flooding property in the area.
- An existing low area is present to the side of the road (with highway land) which presented an opportunity to store water temporarily during heavy rainfall.
- A proposal was developed by Waterman on behalf of KCC to formalise this by landscaping the area and providing an overflow pipe from the existing drainage. It was then turfed with a Sustainable Drainage compatible wildflower and grass mix for quick establishment.
- The work was delivered by T. Loughman & Co in August / September 2022.

Future concerns

Budgets
Assist condition
Developments
Climate Change

Questions ?

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Kent Flood Risk Management Committee

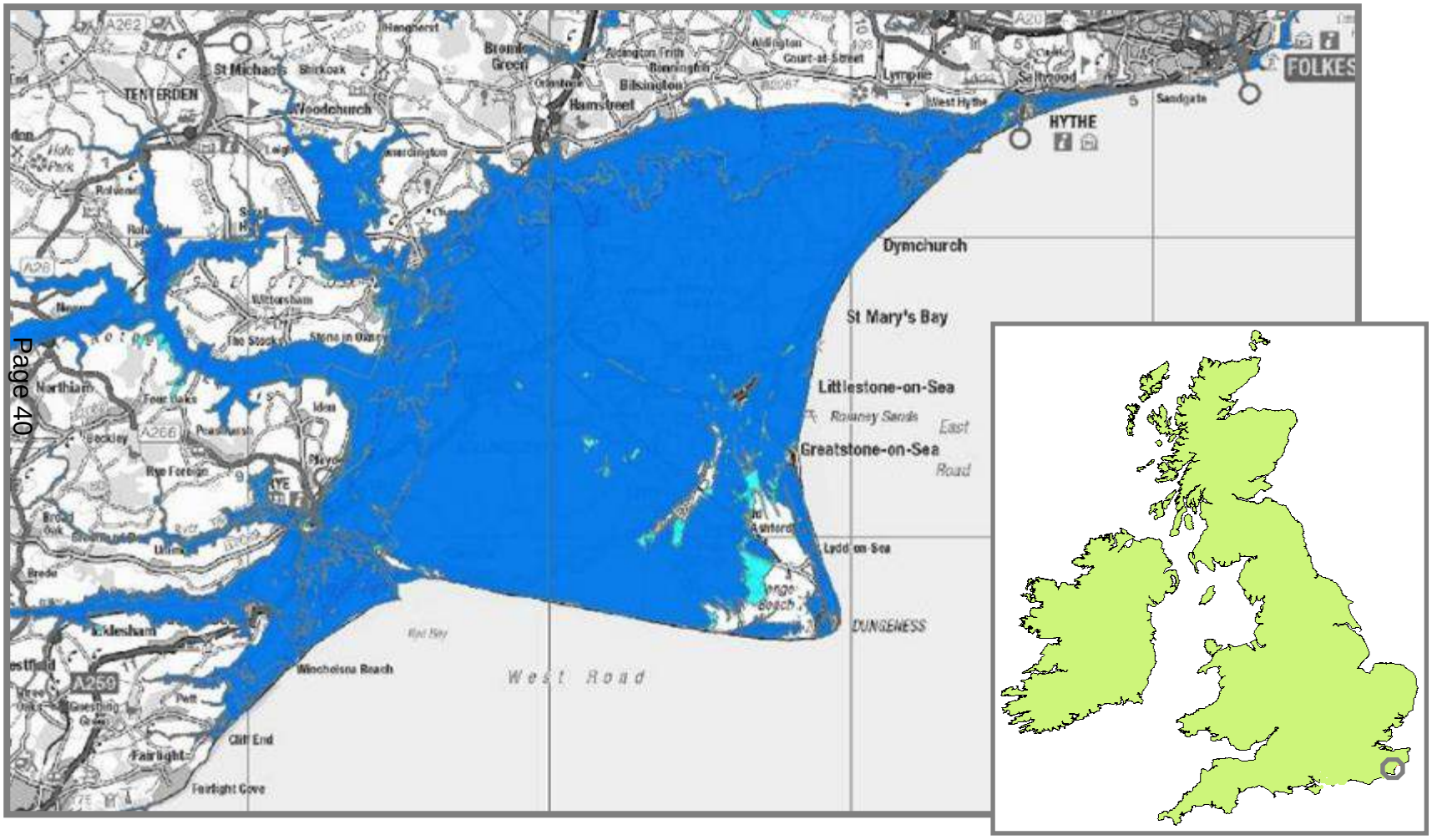
Lydd Sea Defences

(Folkstone to Cliff end Strategy, FOCES)

Sam Gawad: Flood Defence Engineer

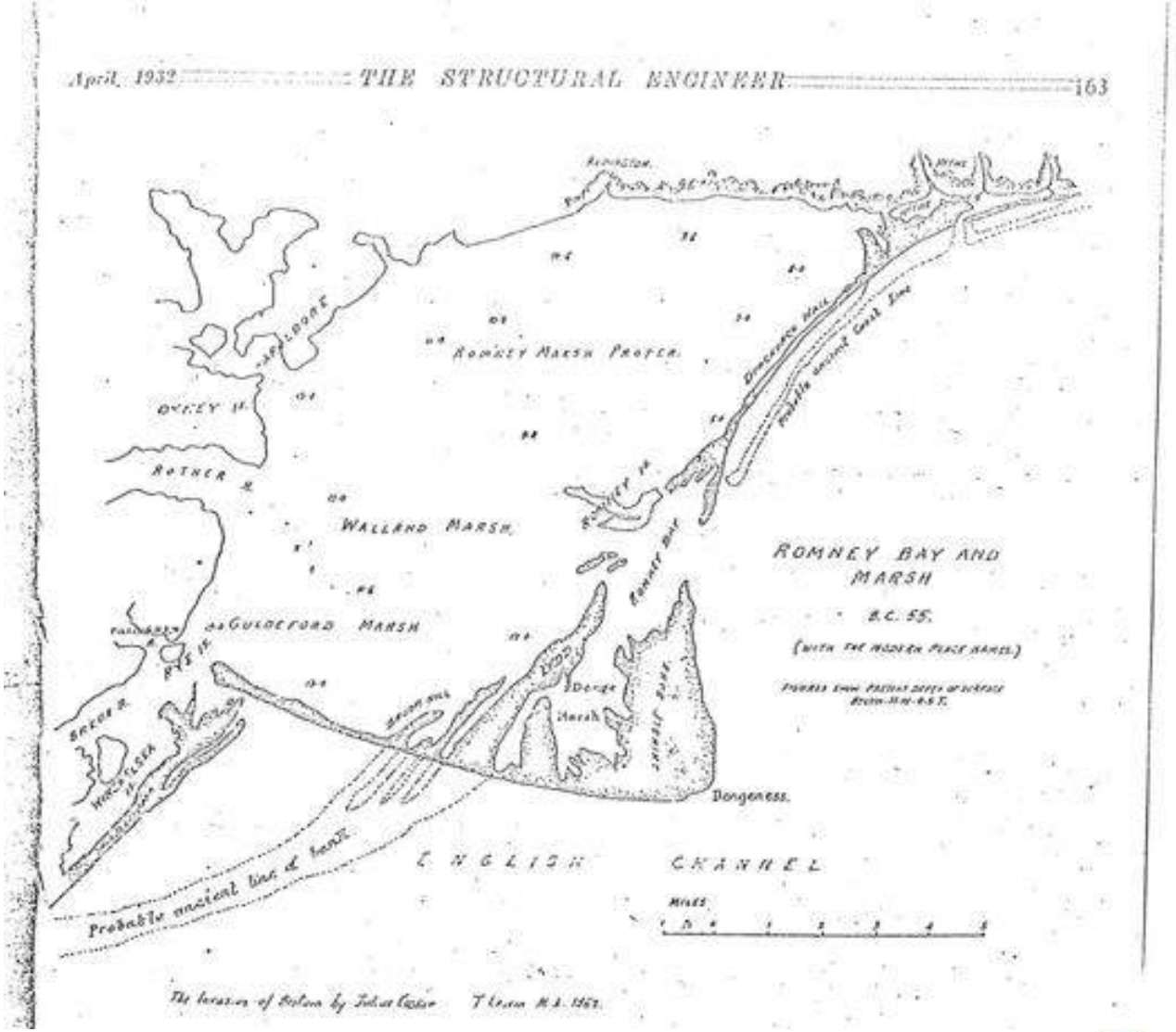
Environment Agency

Flood Risk – Romney Marsh, Below Mean High Water



Environment Agency

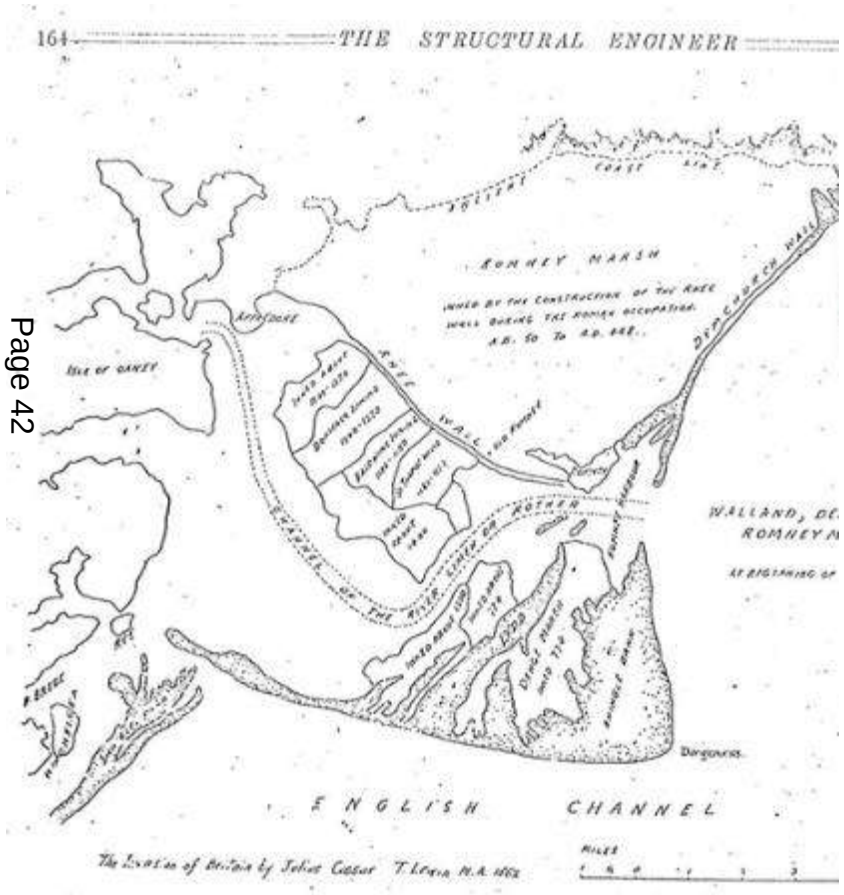
Historic Map of Romney Marsh – 55BC



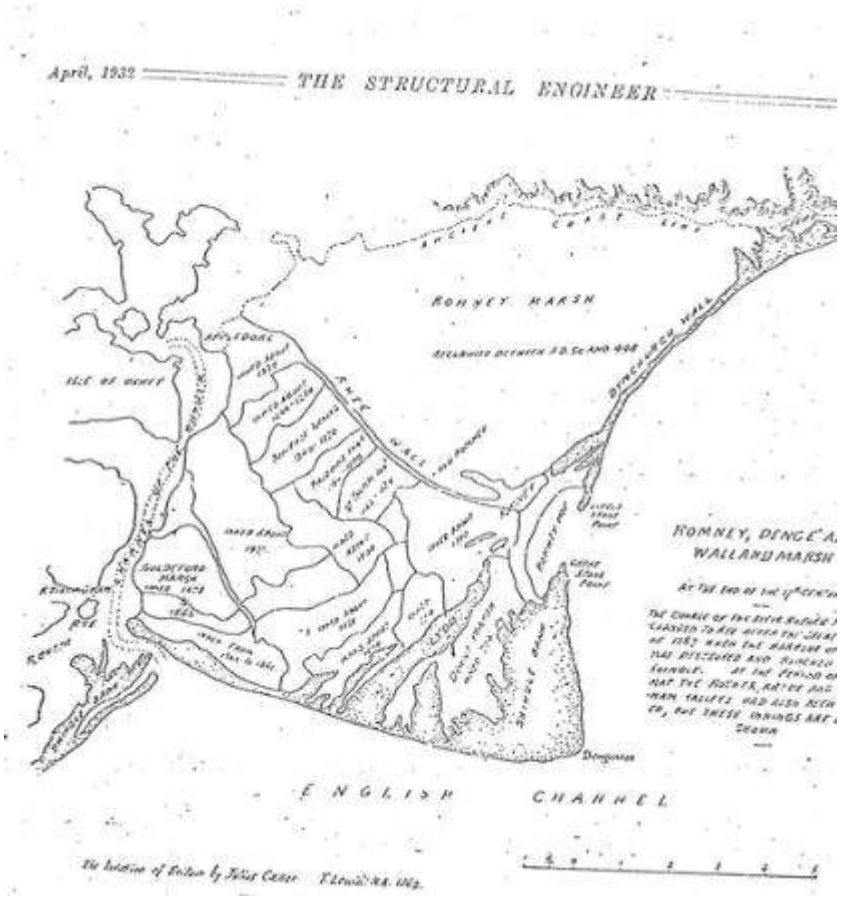
'The Structural Journal – The Sea Wall in Kent, April 1932'

Environment Agency

Romney Marsh 14th Century



Romney Marsh 17th Century



'The Structural Journal – The Sea Wall in Kent, April 1932'

Environment Agency

Folkestone to Cliff End Strategy

Much of Romney Marsh is below the present day high tide level and 14,500 homes, 700 businesses and nationally important critical infrastructure are at risk of flooding.

In the coming years, climate change and rising sea levels will increase the number of people affected by flooding and erosion.

This map describes our ongoing work to reduce flood risk to homes and businesses for the next 100 years.

Completed schemes

The strategy identified the following schemes:
- Pett Level coastal defence scheme
Completed in 2007. Approx. £450,000 is spent each year on shingle recycling to maintain the defence.
- Rother Tidal Walls West
Completed in 2008 at a cost of £3.6 million.
- Littlestone to St. Mary's Bay sea defences
The Littlestone scheme was completed in 2004, a new rock groyne at Greatstone was constructed in 2014 and 53,000m³ of shingle recharge was placed at Littlestone in spring 2016.
- Dymchurch Frontage A and B
Completed in 2011 at a cost of £60 million.

Rother Tidal Walls East

This scheme will work with the Rother Tidal Walls West scheme to reduce the risk to east Rye. Works will include:
- Improving the structural integrity and height of the existing embankments
- Constructing new embankments

Outline design: 2015-2017
Business case development: 2018-2019
Construction: 2020-2022

Hythe Ranges

Along this 3.5km frontage we will:
- Refurbish the existing timber groynes
- Shingle recharge to the existing beach
- Strengthen the existing revetment at Dymchurch Redoubt with rock armour
- Construct new defence at Fishermans Beach

Outline design: 2015-2017
Business case development: 2018-2019
Construction: 2020-2022

Romney Sands

This scheme will work with the shingle recharge at Littlestone and the dune management at Greatstone.
Works are likely to include:
- a beach management plan for both the Littlestone and Romney Sands frontages
- construction of a small scale flood wall at Varne Boat Club

Outline design: 2015-2017
Business case development: 2017-18
Construction: 2018-19

Broomhill Sands

This scheme was completed in Spring 2016 and covered a 2.4km frontage from Camber to the western boundary of Lydd Ranges. Works included:
- Construction of a 2km wave wall and rock armour revetment
- Construction of 8 timber groynes
- Shingle recharge to the Suttons area of beach

Scheme cost: £30 million

Lydd Ranges

The works along this 7.4km frontage will include:
- Improving and strengthening the existing 'green wall' embankment
- Installation of a 1.8km groyne field and shingle recharge
- Refurbishment of existing outfalls onto beach
- Providing compensatory habitat

Outline design: 2015-17
Business case development : 2018-2019
Construction : 2020-2022

Environment Agency

Managing flood risk on Romney Marsh

Legend
- Ongoing scheme development
- Scheme complete
- Effective natural defences
- Area at flood risk
- Managed by other organisation

N

Scale 1:150,000

0 1 2 3 4 5

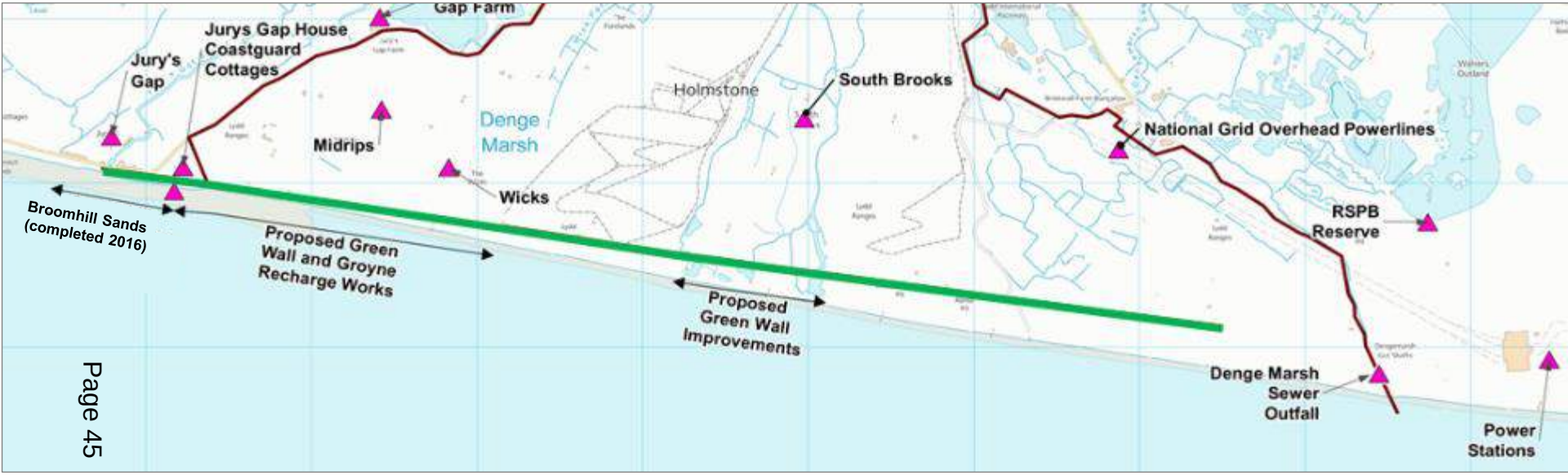
Miles

Environment Agency

Lydd Frontage

- The frontage has a number of environmental designations (SSSI, SPA, SAC, Ramsar and Natura 2000)
- Shingle loss on the frontage causing the beach levels to drop exposing the clay sea wall.
- This sea wall protects the wider area of Romney Marsh; **14,500** Homes, **700** Business, including critical national infrastructure such as Lydd airport, Dungeness Nuclear power station and MOD ranges.

Lydd Ranges outline scheme design
– Hold the Line (25 years)



Works at 3 main areas along the 7.4km frontage:

- Jury's Gap to the Wicks (1.8km groyne field)
- South Brooks (1km at set back Green Wall)
- Denge Marsh Sewer Outfall

Environment Agency

Lydd Sea Defences – In Construction

- https://vimeo.com/592156207/5b32a36ae2

Environment Agency

The Future:

Environment Agency

Environment Agency Net Zero by 2030

- 45% Reduction CO2(e) – Project Target
- In real terms, this means cutting approx. 6750ton CO(e) from the project

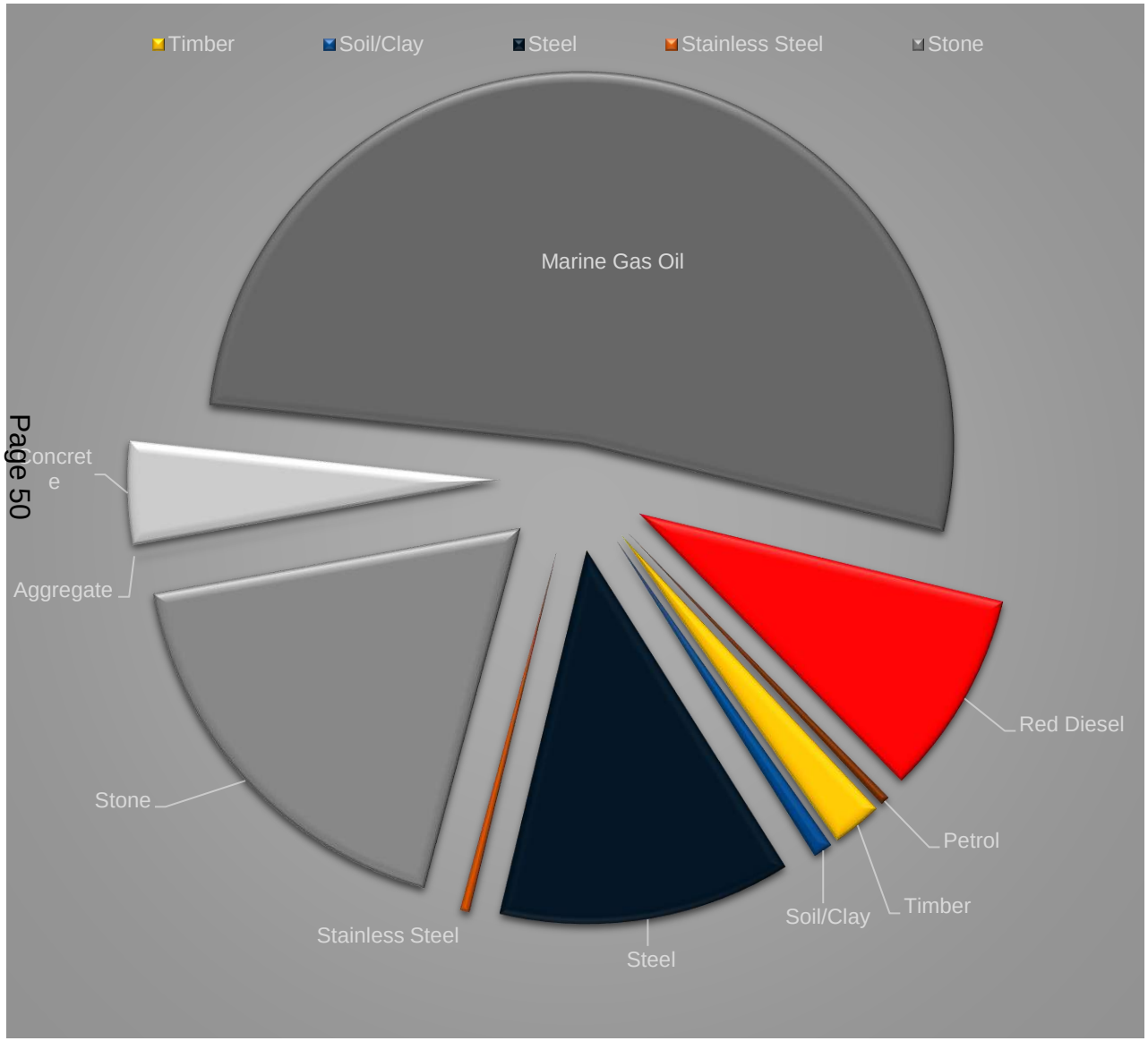
Managing Our Carbon

- **Managing Our Carbon Usage:**
- We developed a carbon report which showed the areas we needed to focus on.

- This enabled us to;
- Review & Agreed Baseline
- Compare Baseline/Tender/Actual Data
- Make timely decisions
- Review progress to target

Environment Agency

Targeted Approach to Carbon Reduction



Hierarchy Of Carbon Producers

1) MGO
2) Rock
3) Steel
4) Concrete
5) Red Diesel
6) Others

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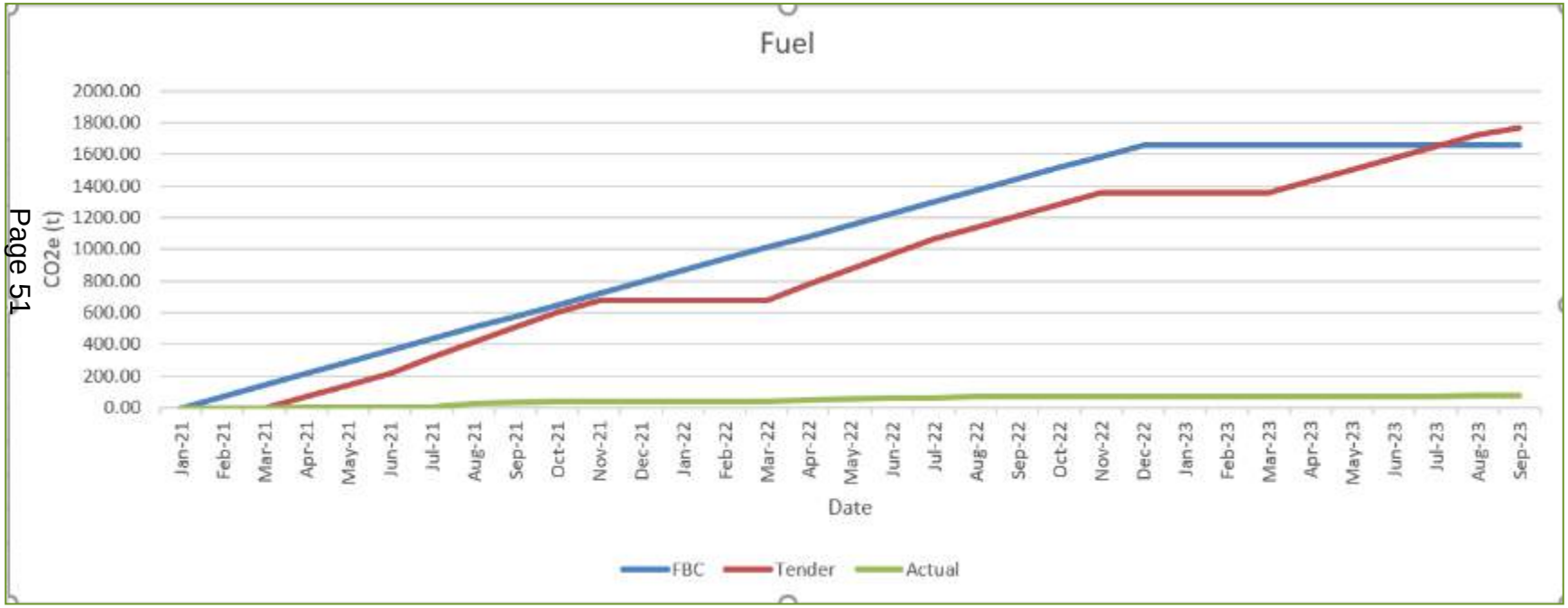
Replace Diesel with HVO (Hydrated Vegetable Oil)

Site Based Plant and Equipment



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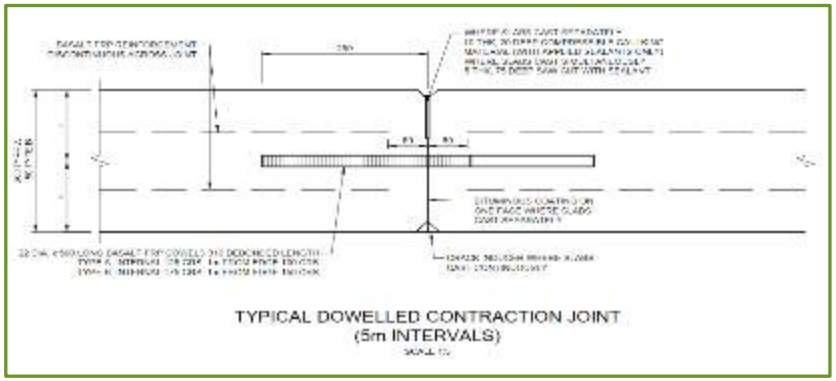
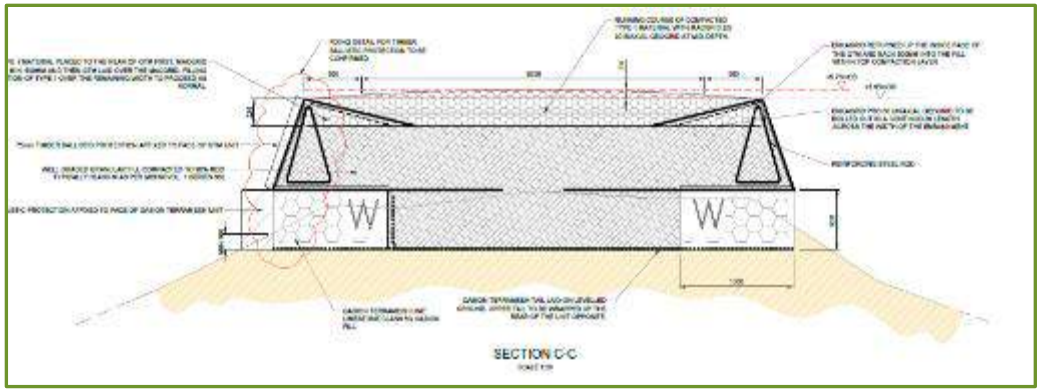
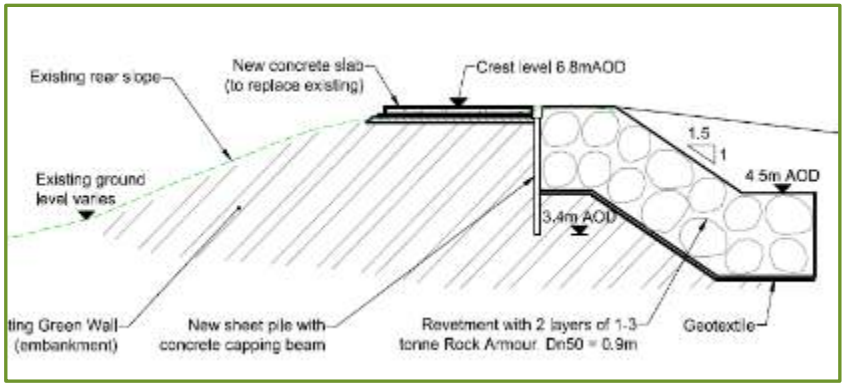
Reducing Steel Where Appropriate

Using graphite reinforcement







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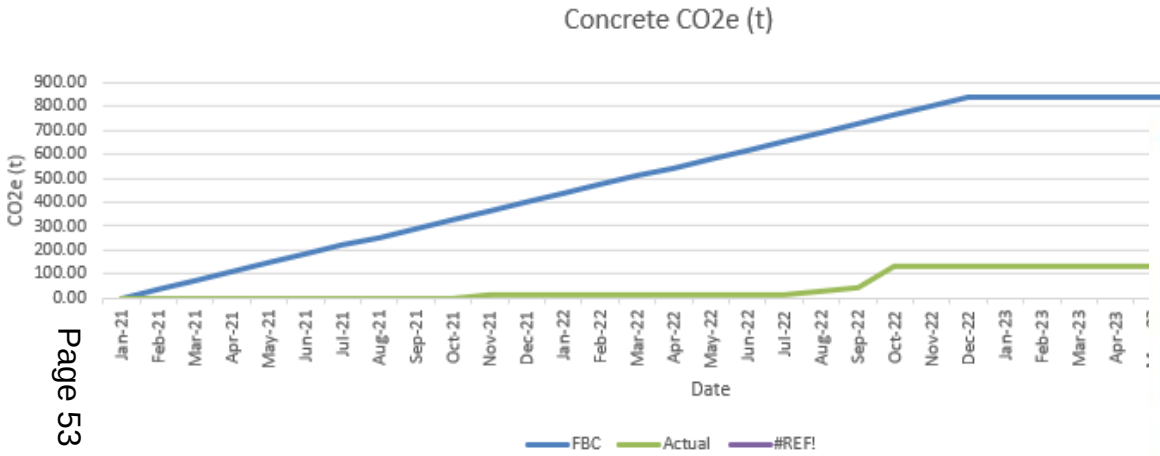
Low Carbon Concrete



1) Commissioned industry expert to oversee testing and design stage.
2) 4 independent trials slabs cast
3) Abrasion Testing
4) Flexural & Compressive Strength Testing

Earth Friendly Concrete pour

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So Far…

Carbon savings with FAME / HVO in dredger

80%

Subject to FAME availability 2023

Carbon savings with Diesel in dredger

45%

Current position

Environment Agency

Creating a better place....

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