BLACK SLUICE
INTERNAL DRAINAGE BOARD

Northern Works Committee Meeting

Tuesday, 2nd July 2024 at 1:30pm

Station Road, Swineshead, Lincolnshire PE20 3PW

Black Sluice
Internal Drainage Board

Station Road
Swineshead
Boston
Lincolnshire
PE20 3PW

01205 821440

www.blacksluiceidb.gov.uk

mailbox@blacksluiceidb.gov.uk

Our Ref: DW/JB/B10 Your Ref: Date: 25th June 2024

To all Northern Works Committee Members

Dear Member

Northern Works Inspection and Meeting on 2nd July 2024

Please find enclosed the papers for the Northern Works Committee Meeting to be held after the Inspection Tour of the northern area on Tuesday 2nd July 2024.

We shall depart at 8:30am from the Boards Offices and arrive back for the meeting around 1:30pm. Tea/coffee and bacon rolls will be provided from 8:00am onwards, drinks and a lunch will be provided.

Please wear appropriate outdoor clothing and footwear for walking and possible trailer rides.

Yours sincerely

D. Withnall

Chief Executive

AGENDA

1. Recording the meeting.
2. Apologies for absence.
3. Declarations of interest.
4. To receive and if correct sign the Minutes of the last Meeting of the Joint Works Committee held on 3rd October 2023 **(pages 1 - 15)**
5. Matters arising.
6. To discuss the Operations Report and Inspection **(pages 16 - 38)**
   (a) Construction works plans for the following pumping stations:
      (i) Ewerby Fen Pumping Station **(page 39)**
      (ii) South Kyme Pumping Station **(page 40)**
      (iii) Trintinty College Pumping Station **(page 41)**
      (iv) Damford Grounds Pumping Station **(page 42)**
7. To discuss the Engineer's Report **(pages 43 - 47)**
   (a) Capital Schemes Budget **(page 48 - 50)**
   (b) IDB Recovery Fund **(page 51)**
8. Rainfall **(pages 52 & 53)**
9. Any Other Business.

BLACK SLUICE INTERNAL DRAINAGE BOARD

MINUTES

of the proceedings of a Joint Meeting of the
Northern and Southern Works Committees

held at the Offices of the Board on
3rd October 2023 at 2pm

Northern Works Members

Chairperson - * Mr P Holmes

* Cllr P Bedford	* Mr M Brookes
* Mr D Casswell	* Cllr N Drayton
Mr J Emerson	* Mr J Fowler
* Cllr A Hagues	* Mr M Leggott
* Cllr D Middleton	Cllr C Mountain
* Mr R Needham	Mr J E Pocklington
* Mr P Robinson	Cllr C Rylott
* Cllr D Scoot	Cllr H Staples
Mr R Welberry	* Cllr S Welberry

Southern Works Members

Chairperson - * Mr M Rollinson

* Mr W Ash	* Mr J F Atkinson
* Mr V A Barker	* Mr K C Casswell
* Mr J Casswell	Mr R Dorrington
Mr C Dring	* Cllr M Geaney
* Cllr Z Lane	* Mr A Mair
Mr M Mowbray	* Mr M Taylor
* Mr C Wray	

(* Member Present)

In attendance:	Mr D Withnall	(Chief Executive)
	Mr P Nicholson	(Projects Director)
	Mr S Harrison	(Maintenance Director)
	Mr K Methley	(Pump Engineer)
	Mr I Warsap	(SLWP Consultant)
	Mr G Atkinson	(Guest)

Mr M Rollinson chaired the meeting.

2200 Recording the meeting – Agenda Item 1

Members were informed that the meeting would be recorded.

2201 Apologies for absence - Agenda Item 2

Apologies for absence were received from Cllr C Rylott, Mr J Pocklington, Mr R Welberry, Mr R Dorrington, Cllr H Staples, Mr M Mowbray.

2202 Declarations of interest - Agenda Item 3

There were no declarations of interest.

2203 Minutes of the last meeting of the Northern Works Committee - Agenda Item 4

The Minutes of the last Meeting of the Northern Works Committee held on 13th April 2023, copies of which had been circulated, were considered by the Northern Works Committee Members and it was AGREED the Minutes should be signed as a true record with the following amendments:

- Minute 2129(d) – '...the Board will complete the *flailing* works at 50% cost to the Board and 50% paid by the landowner...' should be '*bushing* works'.
- Minute 2130(a)(iii) – should read '...it would mean the Board *wouldn't be* competing against the EA for the same pot of funding ~~*and therefore wouldn't be a win-win situation*~~.'

2204 Confidential Minutes of the last meeting of the Northern Works Committee - Agenda Item 5

The Confidential Minutes of the last Meeting of the Northern Works Committee held on 13th April 2023, copies of which had been circulated, were considered by the Northern Works Committee Members and it was AGREED the Minutes should be signed as a true record.

2205 Matters arising from the Northern Works Committee Meeting - Agenda Item 6

(a) Residential development works - Heron Park, Wyberton - Minute 2129(e)

The Projects Director outlined the first issue; the proximity of a footpath to a Board Maintained Drain (Lincolnshire County Council will not adopt the footpath because of its proximity to the drain and it not being fit for purpose). The footpath has now had some work done to it but remains in the same place. The Projects Director will therefore be back in touch with Chestnut Homes about this.

The Projects Director next outlined the next issue; the gates that have been erected by Longhurst Housing Association are not wide enough for the Board's machine to pass through.

Cllr D Middleton (BBC Chairperson of the Planning Committee) noted that there is a new development going along there, questioning if the Board have been approached by Boston Borough Council about it? Noting that he is interested in the Board's 9 metre byelaw rule.

The Projects Director noted that within the Chestnut Homes development, there are issues with the 9 metre byelaw – they have left a 9 metre margin, but have developed it with driveways, block paving etc. The Projects Director explained that because of this, the Board has had to come to an arrangement with the Longhurst Housing Group with them providing protective matting to be laid for the Board's vehicles to run over and a commuted sum to cover the cost of using the matting over the next 20 years.

It was confirmed that the Board are initially consulted at the planning application stage, but then changes are made between that stage and the construction stage which the Board are not involved with.

It was also noted that this has been brought to the attention of the Association of Drainage Authorities (ADA), as this is an issue experienced by all IDBs.

The Chief Executive further added that the Board's current position is to not relax the 9-metre byelaw at all.

Mr P Holmes noted the difficulty with the Board only having retrospective involvement and not being involved in the whole process.

Mr K Casswell also noted the concern that the new homeowners are probably not made aware of the Board's work when purchasing the house and so won't be aware of it until the Board's machinery is on site.

Cllr D Middleton noted that he is interested in these issues and doesn't like new homeowners to encounter these problems.

(b) Proposed piping of Drain 6/29 - Green Core, Marsh Lane - Minute 2129(f)

The Projects Director noted that Green Core have a new Site Manager, who is proving difficult to get hold of to provide clarification of the works required.

(c) Q1 Development - Wyberton Town Drains - Minute 2129(g)

The Projects Director reminded the committee of the circumstances – part of the proposal for this development was to realign the drain to gift some of the land to the adjacent playing fields.

The Projects Director has been in contact with Chestnut Homes to discuss this, the concern of the Board being that the drain will slip due to ground conditions, and offered two options as below:

- Works are completed by the Board to a high specification including revetment works.
- Works are completed by the Board to a normal specification with an indemnity.

Chestnut Homes were not agreeable to either of the above options and so this was discussed further by the Executive Committee on the 14th September. They agreed to write to Chestnut Homes to highlight that the Board can only offer the above two options, and a third option; works are completed by a third party adhering to the Board's specification. Currently, no response has been received.

(d) Information on site inspection at Trinity College, Damford, Ewerby & South Kyme - Minute 2130(b)

The Projects Director reminded the committee that during the last high water level event, there was water inundation around the above pumping stations.

Through Environment Agency (EA) funding, investigation works were completed, the results of which showed that it was due to issues with the EA's bank. The Board have therefore requested further EA funding to complete works to rectify the issue. The EA are not forthcoming with this funding and have taken a blasé attitude towards it.

It was noted that the Projects Director and Chief Executive will be seeing Morgan Wray (EA Area Manager) next week, where they will raise this matter. Mr I Warsap encouraged them to remind Morgan Wray that the issue is with the EA's bank and not the Board's pumping station(s).

(e) Cattle at Swineshead Pumping Station - Minute 2133(a)

The Projects Director reminded the committee that the bank that is adjacent to Swineshead Pumping Station is grazed with cattle. The crossing point to the rear of the pumping station has cattle going across it from one bank to another. The cattle are leaving a mess and is a health and safety hazard.

There are already gates on site, the EA have no issue with them being closed and the landowner has also been contacted. There are also a set of kissing gates so that public access for the footpath is maintained.

2206 Minutes of the last meeting of the Southern Works Committee - Agenda Item 7

The Minutes of the last Meeting of the Southern Works Committee held on 4th July 2023, copies of which had been circulated, were considered by the Southern Works Committee Members and it was AGREED the Minutes should be signed as a true record.

2207 Confidential Minutes of the last meeting of the Southern Works Committee – Agenda Item 8

The Confidential Minutes of the last Meeting of the Southern Works Committee held on 4th July 2023, copies of which had been circulated, were considered by the Southern Works Committee Members and it was AGREED the Minutes should be signed as a true record with the following amendment:

- Minute 2182 – Spelling error – '*Casby*' should be '*Keisby*'.

2208 Matters arising from the Southern Works Committee Meeting - Agenda Item 9

There were no matters arising from the Southern Works Committee meeting minutes.

2209 To receive a report on Engineering Works for 2023 - Agenda Item 10

Maintenance

The Maintenance Director gave the following updates.

(a) Annual Summer Flail Mowing / Cutting

The summer flailing commenced 1st August and cutting commenced 4th August.

The 67km of high-profile watercourse assets are being monitored and will require a second cut this year.

The SKDC Hand Roding contract works remain the same as previously and are all completed.

This year, the Board have lost the Lincolnshire Housing Partnership's hand roding contract (been kept in house). The programme has been filled with ad-hoc SKDC works.

The Maintenance Director also noted the issues that have been experienced with the Twigas. At the end of last week, only one of the Twigas was serviceable. One had an issue with lift pumps and the other had an issue with a hydraulic hose (which can only be sourced from Italy). This has currently been overcome by fitting an additional part. The total bill for repairs for the three Twigas so far this season is c£20,000 (on top of budgeted maintenance costs). At the time of the meeting, two of the Twiga's were serviceable, with a hope that the third would be by the end of the day.

It was noted that the oldest of the three (2015) is the one that has the least number of mechanical problems.

It was further confirmed that the new flail machine, Hooby, that has been ordered is expected April 2024 onwards.

Mr K Casswell questioned whether the Board should consider selling the most unreliable of the Twigas, as opposed to the oldest, when it is changed? The Projects Director noted that it is definitely something to consider.

Mr I Warsap noted that for how far through the programme the Board is, they have not had to expend a lot of crop loss compensation (£305.48). The Maintenance Director noted that the programme has worked well, starting earlier, in terms of avoiding standing crops. It was also noted, for the benefit of new appointed members, that the Board is one of the only Board's locally that pays crop loss compensation.

The Projects Director noted that perhaps some of the 67km of high-profile watercourses could be done earlier to give a bit more flexibility within the cutting programme around weather conditions.

(b) Prior Notice Given for Summer Cutting

The Works Supervisor continues to contact as many landowners as possible prior to entry on to land, which works well.

(c) Summer Crop Loss / Damage Compensation

It was noted that the maps included within the agenda, and displayed on screen, are the maps now being uploaded to the website, which were felt to be more beneficial than the previous interactive map.

(d) Winter Crop and Land Loss Compensation

The Board's written intention of improvement cleansing works will be issued to landowners in October 2023 for the works to be undertaken throughout December 2023 to April 2024.

(e) Proposed Desilting, Bushing and Cleansing Works

The total length of proposed watercourse for 2023/24 is 37km, shown on the map within the agenda and displayed on screen. This incorporates some that couldn't be done last year, one of which being Damford Pump.

It was also noted that a new approach is being taken towards identifying and prioritising watercourses for desilting, as the new Site Engineer has now taken receipt of some new GPS surveying equipment which will be used for drain surveys to inform prioritisation of desilting.

Projects

The Projects Director gave the following updates.

Capital Asset Improvements – 2023/24 Flood and Coastal Erosion Risk Management Grant in Aid (FCERM GiA) Schemes

(f) North Forty Foot cleansing / revetment & Langrick Road pipeline, lining / replacement works

These works are now completed.

Part of this scheme involved the construction of a silt lagoon (cutter suction dredger used to desilt from Cooks Lock Pumping Station to Rosebery Avenue). The landowner of the land used for the silt lagoon was not satisfied with the condition of the drain following the desilting process and so it was agreed that the Board would rectify this to ensure the drain was in the same condition it was prior to the works. Machine access was required in order to complete this work and so some vegetation and trees required clearing for this, completed by a contractor.

Photos were displayed on screen showing the tree line prior to the works and the tree line following the works. The property owner adjacent had been notified by the landowner and the Board about these works prior to them taking place.

Following the works, another tree has fallen. Photos were displayed on screen, showing the tree still standing at the completion of the works compared to it since having fallen. The property owner has contacted the Board seeking to recover their costs in relation to the damage to their fence line. It has been passed to the Board's insurers. The view of the insurer's is that because the tree is on their property, it will be their responsibility to get an arborist to assess whether the works done by the Board's contractor have attributed to the tree falling.

It was noted that a lot of the vegetation providing cover for the tree was removed and there have been high winds lately which could have attributed to the tree falling, however, the property owners were away at the time the tree fell.

Mr M Leggott questioned the total cost to the Board for these works? It was confirmed it was £1980, of which the Board paid 50%.

(g) Sempringham Fen Pumping Station refurbishment

Funding has been achieved to install a new weedscreen cleaner at Sempringham Fen Pumping Station. The Board have created a new access to the pumping station, using Environment Agency (EA) funding (their land). All the civils works are now completed, and an additional amount of funding has been agreed due to increase in costs and materials. The weedscreen is expected for delivery in December and the Board will use a dam in the drain to block the watercourse for installation.

(h) Allan House Pumping Station outfall repair

The Projects Director reminded the committee that Allan House Pumping Station was re-sited (1997/98) when ASDA was built. Since the re-siting, it is not known where the outfall pipe runs from the pumping station to the main river, and it has no inspection chambers. It was further noted that the pipe is an old Anglian Water main.

The last section of outfall into the main river (c12 metres long) falls through gravity from the chamber on the top of the bank. The EA notified the Board that the bank was failing and questioned whether the pipe was failing, which there was no evidence of, although, there is a misplaced joint. It is expected that funding for this scheme would come from FCERM GiA subject to an approved Business Case to replace the pipe, with the challenge being to get the work completed this year. One quotation has been received at c£134,000 and another contractor has been to site and is producing a quotation. It was felt this was a high quote.

It is also believed that funding will be achievable to install access chambers along the 330 metres of pipe (every 50-60 metres) and to refurbish the site (potentially new pumps, control panels etc.).

Mr P Robinson questioned if the pipe goes underneath any properties. It was confirmed that it runs between properties, not underneath.

Mr V Barker questioned whether the Board are going to need permission from ASDA to go on their land and carry out this work? The Projects Director noted that ASDA haven't been approached as of yet, but it may form part of the business case to approach ASDA to make a contribution.

(i) Black Sluice Catchment Study

The Projects Director noted a mistake in the Capital Schemes Budget in relation to this scheme, noting that for 2023/24 it should be £200,000.

These works are in progress and have provided another order to start the modelling works to bring individual catchment studies together with the overall aim being to bring all the Board's catchment area into one study to establish the most efficient way for it to work.

The Projects Director noted the age of the Board's pumping stations, and that they were originally funded through scheme work, however, going forward, a lot of the Board's pumping stations are in remote areas and so wouldn't class as having enough 'benefit' to achieve scheme funding (which revolves around people and property).
The Projects Director continued by explaining that the Grant in Aid funding being referred to (claimed by all IDBs and Risk Management Authorities) runs in a six-year programme. It is currently three years into this programme and is now being stated that they are running out of money and, following this financial year, there will be cuts. Therefore, the Board may be forced to rethink how some of these schemes, including this one, move forward.

Mr K Casswell referred to an extra £5 billion that was expected to be added into the funding allocation? The Projects Director noted that this will be part of the conversation that himself and the Chief Executive will have with Morgan Wray next week.

It was noted that it would be beneficial to have schemes ready to go in case more funding is found and ready to be allocated.

(j) South Forty Foot Upper Catchment Natural Flood Management (NFM)

The aim of the NFM works was noted; to reduce the speed that the small tributaries flow at and therefore reduce erosion and siltation from them into the main river.

Mr R Needham noted that the main river needs putting in order in the first instance. The Projects Director acknowledged this, noting that they (EA) believe that slowing the flow is one of the ways in which they can reduce overwhelming the main rivers.

There have been 203 locations identified in the four catchments studied, the challenge being the delivery of these works. The Projects Director noted that he believes the majority of landowners were reluctant to commit to the works because of the uncertainty around Environmental Land Management Schemes (ELMS), but now it is understood, hopefully there will be an increase in uptake. The Chairperson noted the positive thing that double funding is allowed for NFM works; Sustainable Farming Incentive can be claimed on top.

It was noted that Lesley Sharpe, the current Landowner Engagement Consultant, is retiring, but is training an understudy. The Board's Officer's will meet with the understudy and determine whether to continue with them or tender out the work.

Mr P Holmes questioned whether, of those that have been completed, have any been seen working? The Projects Director responded that there is currently no monitoring sites in place, but there is a proposal to attract funding to gather this data.

Photos and videos of some of the completed NFM works were displayed on screen.

(k) Swaton Natural Flood Management (NFM) Schemes

All three sites have been completed now through the Public Sector Cooperation Agreement (PSCA) with the EA. There have been five attenuation ponds put in across the three sites (c£1million).

The delays with two of the sites owned by the Crown Estate were noted.

This is a pilot study for the EA, and they have a Graduate gathering data and monitoring the site.

Mr V Barker referenced the map on screen showing these works and identified the old railway line (south of Grove Farm West), noting that there is a valley there and the railway line has a natural dam effect. Mr V Barker felt this would be an opportune place for another swale.

The Projects Director responded that Swaton was a pilot, but that the EA are looking at it nationally.

2023/24 BSIDB Funded Capital Schemes

(l) Major Slip Repairs

There are a number of slips to repair, which require prioritising. There is no budget allocated in this financial year for this work and so it will be something considered when setting the budget for the next financial year. A map outlining the identified slips was included within the agenda and displayed on screen.

(m) Jetting to Major Pipelines – Estimate £75,000

The purpose of jetting was noted; to clean out the pipe to enable the Board to put a camera in for inspection of the condition of the pipes that are the responsibility of the Board for maintenance.

The Projects Director noted the Wyberton area and that there are a number of long and important pipelines that require inspection.

A contractor is due to start this work next week.

(n) Alternative programme access works - Estimate £20,000

A budget has been allocated to complete bushing works and field access culverts to enable the alternative bank access.

(o) Quadring North Fen Roadside Revetment - Estimate £24,000

The Projects Director noted that he has meet with Lincolnshire County Council Highways (LCC) to establish that the Board's drain is not contributing to the condition of the road. Part of the works will be to reduce the gradient of the bank.

Mr V Barker noted that further south to this site, there is a culvert that has had a temporary repair by the Highways, noting that the Board need to ensure this doesn't become a permanent repair and suggested it could be done at the same time.

(p) General Culvert replacement contributions - £5,000

There has been one culvert replaced that the Board are willing to contribute towards (£1,000) in South Kyme, displayed on screen. It was noted that the landowner was pleased with the work.

Pumping Station Schemes

(q) Dyke Fen Pumping Station refurbish 1 pump and 1 pump motor – Estimate £25,000

It was noted that the failure of the first pump is believed to be attributable to the same issue with this pump (shaft failure).

(r) Kirton Marsh Pumping Station Electrical Supply Change – Estimate £10,000

Conversations are on going with National Grid to change the location of the incoming supply to a higher level, it being proposed that this is considered for an application for FCERM GiA funding as estimated costs for this work could be £25,000.

(s) Great Hale Pumping Station Refurbishment

The weedscreen has been ordered and is expected next month.

(t) Great Hale Fen Pumping Station under pump inspections – Estimate £10,000

Connecting pump section nuts and bolts were replaced, visual inspections of wet well and intake channel, silt removed.

(u) Trintiy College Pumping Station under pump inspections – Estimate £5,000

Connecting pump section nuts and bolts were replaced, visual inspections of wet well and intake channel, silt removed.

Mr I Warsap noted that the photos displayed on screen really highlight the depth of water under the pumping stations.

2024/25 Defra / EA FCERM GiA Schemes

(v) Natural Flood Management (NFM) Studies - £150,000

A budget of £75,000 has been agreed for 2024/25 and the same agreed for 2025/26.

(w) Wyberton Marsh Pumping Station New transformer - Estimate £50,000

Funding had been achieved to replace the transformer at Gosberton and Dowsby Pumping Station, that gave confidence that funding would be achievable at other pumping stations.
All nine of the transformers have been inspected and all are of a similar age apart from one (Black Hole Drove replaced due to a lightning strike in 2010), a similar age to the pumping stations (mid 1960's).

Consideration has been given to the location of the transformers and whether it would be beneficial to locate them externally rather than internally. At Wyberton Marsh Pumping Station, more land would be required to do this. The Projects Director proposed to continue with this within the business case to be submitted for funding.

However, the Environment Agency's preferred way forward is an LV connection to the site, although the cost difference between this and a transformer can be considerable, the LV connection wouldn't need replacing after a period of time like a transformer would. The Pump Engineer noted that the LV connection may be more favourable in this case.

2024/25 Board Funded Capital Schemes

(x) SFFD Desilting Guthrum to Black Hole Drove PS – Estimate £65,000

It is proposed that the 2500m of Board Maintained section of SFFD is desilted. It is not known yet how this will be done, i.e., excavator or cutter suction dredger.

Mr P Holmes questioned the suitability for a silt lagoon? The Projects Director noted that a lagoon or cradge would be suitable.

Mr V Barker noted the possibility of it going straight into the farmer's field, to spread without any cradges. The Projects Director acknowledged this, also noting that a cradge helps to minimise crop loss.

(y) Jetting to Major Pipelines - £75,000

It is proposed that this work will continue in the Wyberton area.

(z) Graft Drain - £25,000

This work was previously deferred, to be able to use the budget to repair slips. This is proposed for next year, although it may be that this budget is required for repairing slips again.

The £25,000 allocated for this work is to complete CCTV surveys of the longer pipeline lengths to assess their condition.

(aa)Pumping Station Schemes

(i) Ewerby Fen PS Replace Control Panel – Estimate £60,000

The control panel at this station was installed 27 years ago and so is now proposed for replacement.

(ii) Kirton Marsh PS Refurbish Pump and Pump Motor – Estimate £30,000

It is proposed that the pump and motor will be refurbished to coincide with the inspection works.

(iii) Kirton Marsh PS under pump inspections – Estimate £11,000

It was noted that due to the location of this pumping station, a lot of silt will be built up under the station (at least a metre thick).

Pumping Station Maintenance

(bb) At the end of September (Period 05) the budget for maintenance works is £361,056 with the actual expenditure being £229,243 which includes estimated electricity payments.

External Recoverable Works

(cc) Current external recoverable income is £251,664 for rechargeable works compared to £186,427 last year.

Health & Safety

(dd) The Board appointed Cope Safety Management as Health & Safety Consultants for a five-year period in June 2019.

External Partnerships, Strategies & Agreements

(ee) EA/BSIDB Public Sector Cooperation Agreement

The Board maintain c125km on behalf of the Environment Agency (EA) through the Public Sector Cooperation Agreement. It mainly revolves around flail mowing and cutting of their watercourses. With the main rivers, the EA dictate when and how often they are to be cut. The Projects Director also added that the Board complete some bushing and bank reprofiling works on behalf of the EA.

The Projects Director also added that the EA may consider continuing with Rationalising the Main River Network, like they did previously, whereby the Board took on some of their low consequence main rivers with a commuted sum.

Mr V Barker referred to tree flailing, noting that several years ago, plugs were put in to kill the bushes, noting that he doesn't believe it has been done this time? The Projects Director noted that if it hasn't been done it's because the EA didn't ask for that to be done.

2210 Update on the Lincolnshire Reservoir (SLR) - Agenda Item 11

Mr I Warsap gave some brief updates as follows:

Water transfer from origin (Trent) to the Reservoir
Mr I Warsap referred to the transfer of water from the Witham to the reservoir site, noting that all piped routes have been discounted and, currently, the only route being considered is the open channel transfer route that the Board proposed – 'Holland Dyke', noting this is positive for the Board.

The Environment Agency (EA) have questioned why this is the only route being considered and suggested the consideration of new cut routes on the shortest points between the Witham and SFFD (Langrick Bridge to Hubberts Bridge).
Mr I Warsap noted that the Viking Link and Tritton Knoll projects runs along that route and so there would be a conflict.

Pipelines from the Water Treatment Plant (Treated water going downstream)
There will be a pipeline connection from the reservoir to Wilsthorpe and then piped to either Etton or Chesterton. The treated water pipeline from the treatment plant will run south through the Board's catchment on the east side of the spring line villages, Bourne, Morton, Rippingale etc.

Treatment Plant Site
There are three sites being considered, one to the west of the reservoir site and two to the south of the reservoir site (north of the A52). The EA have noted that they don't want any of these sites to conflict with the Natural Flood Management works, which two of the sites do.

Emergency Draw Down Proposals
The reservoir's emergency drawdown discharge is 57m3 per second (every day for ten days). This compares to the Fenlands Reservoir being 38m3 per second and the Board's largest pumping station (Swineshead – all three pumps running) capacity being 6.8m3 per second, making the Lincolnshire Reservoir's discharge being over eight times the capacity of Swineshead Pumping Station. Further being compared to the capacity of all the Board's 68 pumps together being 65m3 per second, meaning the discharge rate for the reservoir is 88% of that.

The reservoir must be able to draw down at this rate in order to be able to empty in an emergency to prevent a catastrophic event.

There are a number of options for the route the water would take in an emergency draw down, which will be confirmed on the 20th November 2023. The main consideration is for no uncontrolled flooding to property. There will be no singular route and it will need to be a combination of elements such as large wetland storage areas within the catchment, upgrading the SFFD with enhanced systems and banks (£86million has been attributed to enhancing the SFFD), the Risegate Eau to the Wash may be used, the SFFD into the River Glen may be used and the SFFD into the River Witham may be used.

The emergency drawdown route from the reservoir to the SFFD will take numerous routes; Swaton Eau, Helpringham South Beck and Helpringham Eau.

Mr K Casswell noted the difference in height between the Glen and SFFD and how this would work? Mr I Warsap noted that this is still to be considered, with options such as syphons.

South Lincolnshire Water Partnership (SLWP)

Mr I Warsap noted that he questioned the Fens 2100+ Project Lead (Amy Shaw) whether the project includes front line sea defences, it being concluded that it doesn't. The Future Fens Integrated Adaptation (FFIA), which overarches Fens 2100+, will include sea defences. The Board is also represented on the FFIA.

Mr I Warsap next referred to the SFFD Bank Pilot Scheme, being headed by a subgroup of the SLWP; the Water Farming Reservoir Group. The Projects Director and Mr M Rollinson represent the Board on this group.

It is a one-year pilot looking at enhancing and increasing storage capacity of ordinary watercourses in a sub catchment for irrigation and emergency drawn down availability.

Mr I Warsap further added that the Lincolnshire Wildlife Trust have achieved some more funding to complete works at Bourne North Fen next Spring.

Mr I Warsap invited questions.

Mr P Holmes noted that it looks like the problem is emptying the reservoir as opposed to filling the reservoir? Mr I Warsap noted that there is restrictive legislation in place in relation to emptying the reservoir but noted that it will be a combination of elements to overcome the emergency discharge.

Mr I Warsap also noted that there was a team assigned to look at Biodiversity Net Gain and not one of those team members had visited the site.

Mr R Needham questioned if the Holland Dyke route would be deepened, noting the conflict on that route between Tritton Knoll and Viking Link. Mr I Warsap noted that it would be widened more than deepened.

Mr I Warsap noted that the SFFD will not be as it is known today, the land take that will be required to enhance it being noted but also the business opportunities that would arise from it. Mr I Warsap also referred to Burton Waters (Lincoln) which was just a field.

Mr V Barker felt that the solution was to build not one reservoir, but multiple smaller ones. Mr V Barker noted a previously proposed scheme to put a dam in the SFFD with a new connection at Surfleet Fen to the Risegate Eau to the sea. The route was displayed on screen, Mr V Barker feeling it is a plausible route. Mr I Warsap noted that it is being considered, noting that it won't be one single route it will be a combination. Mr V Barker continued by suggesting an exit around the north side of the Black Sluice Pumping Station (Boston) to take more water out of the SFFD. Mr I Warsap acknowledged this, noting that the restriction with that is the tide. Flooding land and compensation for such, was also noted. Mr I Warsap further noted that they do have to draw down the reservoir for one day on a set periodic frequency to prove it can be done.

Mr I Warsap noted that at September 2024, Ofwat and Anglian Water will have spent £36.8 million.

Mr C Wray noted that Anglian Water will have more superiority than other utilities such as electricity and railways etc.

2211 Report on Rainfall - Agenda Item 12

The rainfall figures at Swineshead and Black Hole Drove were circulated. The Committee RESOLVED that this report be noted.

2212 Any Other Business - Agenda Item 13

(a) Glossary of useful Land Drainage Terms

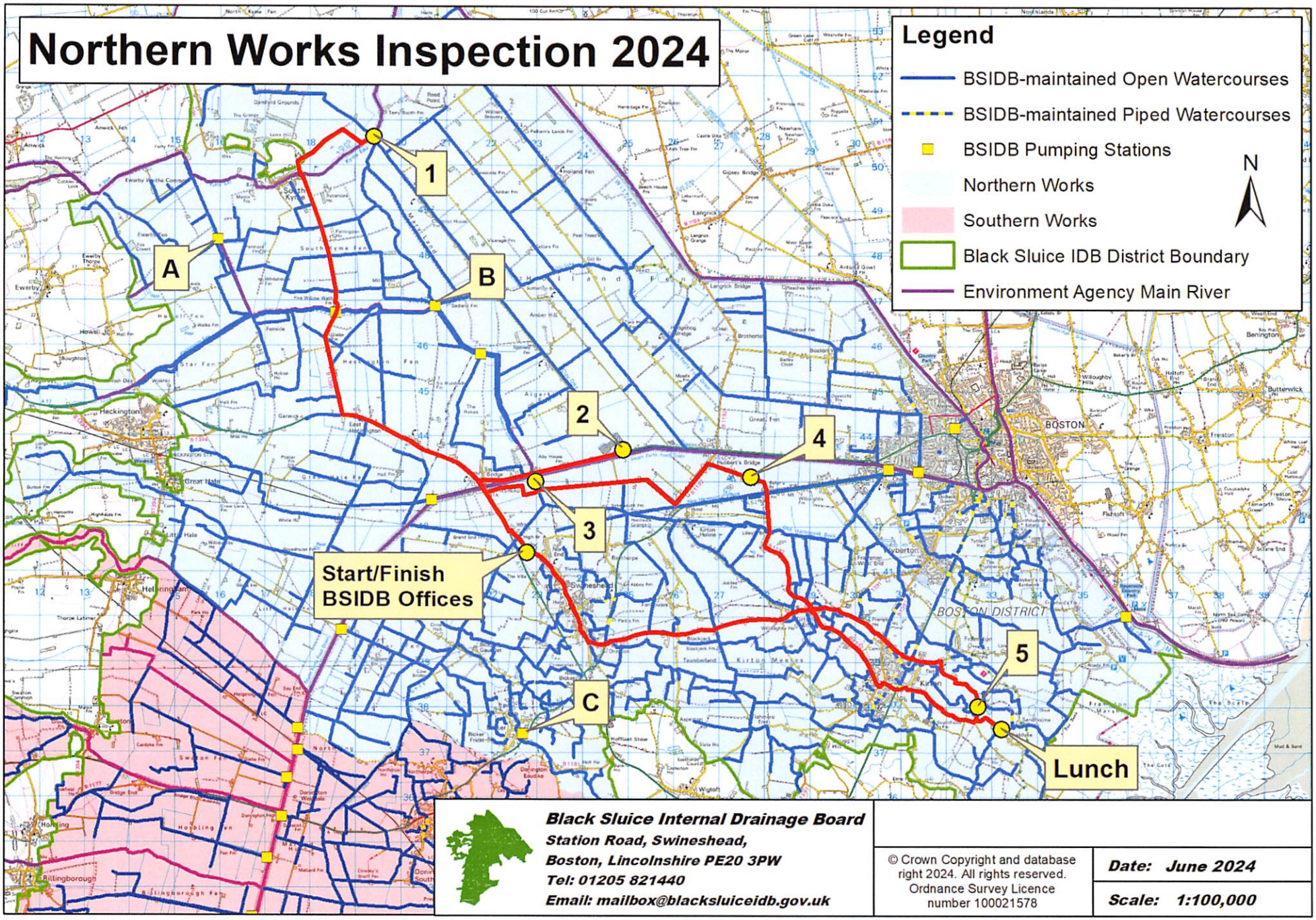
It was noted that the above document will be circulated.

There being no other business the meeting closed at 16:24.

Agenda Item No. 6

BLACK SLUICE INTERNAL DRAINAGE BOARD

NORTHERN WORKS COMMITTEE INSPECTION Tuesday 2nd July 2024


Northern Works Inspection 2024
Legend
BSIDB-maintained Open Watercourses
BSIDB-maintained Piped Watercourses
BSIDB Pumping Stations
Northern Works
Southern Works
Black Sluice IDB District Boundary
Environment Agency Main River
N
1
2
3
4
5
A
B
C
Start/Finish
BSIDB Offices
Lunch
BOSTON
BOSTON DISTRICT
Black Sluice Internal Drainage Board
Station Road, Swineshead,
Boston, Lincolnshire PE20 3PW
Tel: 01205 821440
Email: mailbox@blacksluiceidb.gov.uk
© Crown Copyright and database right 2024. All rights reserved. Ordnance Survey Licence number 100021578
Date: June 2024
Scale: 1:100,000

NORTHERN WORKS COMMITTEE
INSPECTION ITINERARY
TUESDAY 2ND JULY 2024

	BSIDB Offices	
A	Ewerby Fen Pumping Station	Point of Interest - bank leak issues
1	**Damford Grounds Pumping Station**	**View recent works/discuss proposed works**
B	South Kyme Pumping Station	Point of Interest - bank leak issues
2	**Holland Fen Pumping Station**	**View/discuss structural survey**
3	**Swineshead Pumping Station**	**View/discuss structural survey**
4	**Frampton Lane, Hubberts Bridge**	**View roadside slip**
5	**Coupledyke Lane, Kirton**	**View slip repairs**
	Lunch	Blossom Hall, Kirton Marsh
	BSIDB Offices	**Northern Works Committee Meeting**

Point of Interest A - Ewerby Fen Pump Station - Storms Babet & Henk

As discussed at previous meetings, ongoing issues with flows around or through Environment Agency main river raised embankments continues to be a problem at four of the Boards pumping stations at Ewerby Fen, South Kyme Fen, Trinity College and Damford Grounds.

Initially identified in 2019, during heavy rainfall events and higher water levels in main river outfalls, there are increased flow paths of water around these pumping stations.

Stantec consultants were commissioned with £50,000 funding provided by the Environment Agency and inspections and investigations were then completed to establish the cause and provide an outline solution.

£265,000 FCERM GiA funding has been received to enable specification and detailed design.

Details of the construction work plans and construction details for each of the sites have been included at the end of this report.

Preliminary meetings have been held with Balfour Beatty, the contractor proposed to deliver the works through the Scape Framework contract.

Estimated costs for demolition and removal of existing, and construction of replacement sheet steel pile wall and capping beam where applicable, to include all risk at each site.

Ewerby Fen Pumping Station	£928,035
South Kyme Fen Pumping Station	£1,276,565
Trinity College Pumping Station	£1,151,619
Damford Grounds Pumping Station	£495,518

1 - Damford Grounds PS –view works, discuss proposed works

Photos on previous page showing works completed to desilt the upstream 550m section of water-course from the pumping station to the farm access track.

After placing a dam across the watercourse to reduce water levels, two excavators are used, one for cradge works and one for desilting.

To enable containment of wet silt material removed, a cradge has been formed whereby existing soil level is excavated to create an embanked area to place the material. This stops the wet material from spreading across the adjacent land, and provides an agreed means where required of calculating crop loss compensation payments. When the material has dried sufficiently, the material can then be spread thinly over the adjacent land dependent upon agreement that has been made with the landowner.

At this site the cradge created was 5m wide and c1m deep, which is 2750m3, it is expected that when dried the volume will be around half. Depth of silt removed average over 600mm.

Desilting of all Board maintained drains are on a recurring 10 year programme, to improve conveyance and capacity, some of which require more frequent and some less maintenance intervals.

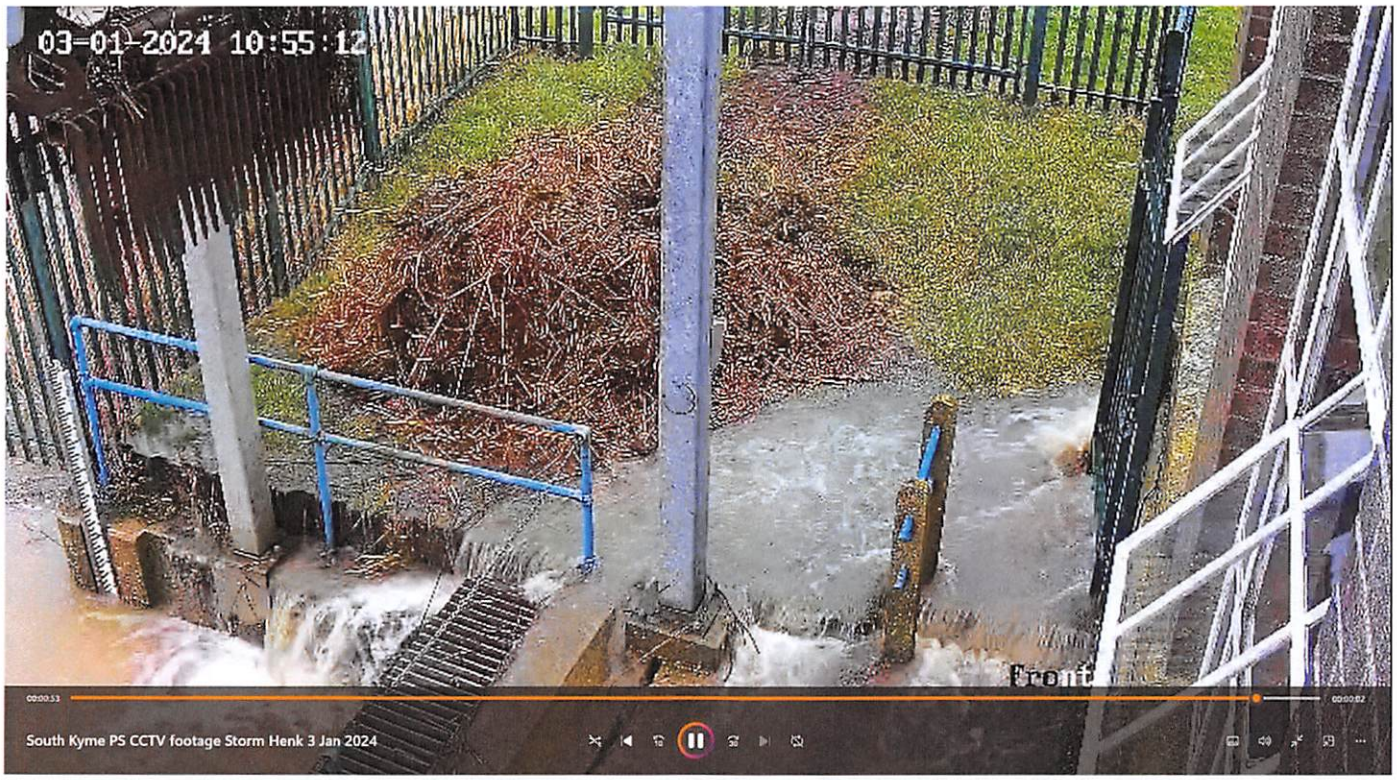
Damford Grounds 2024/25 schemes.

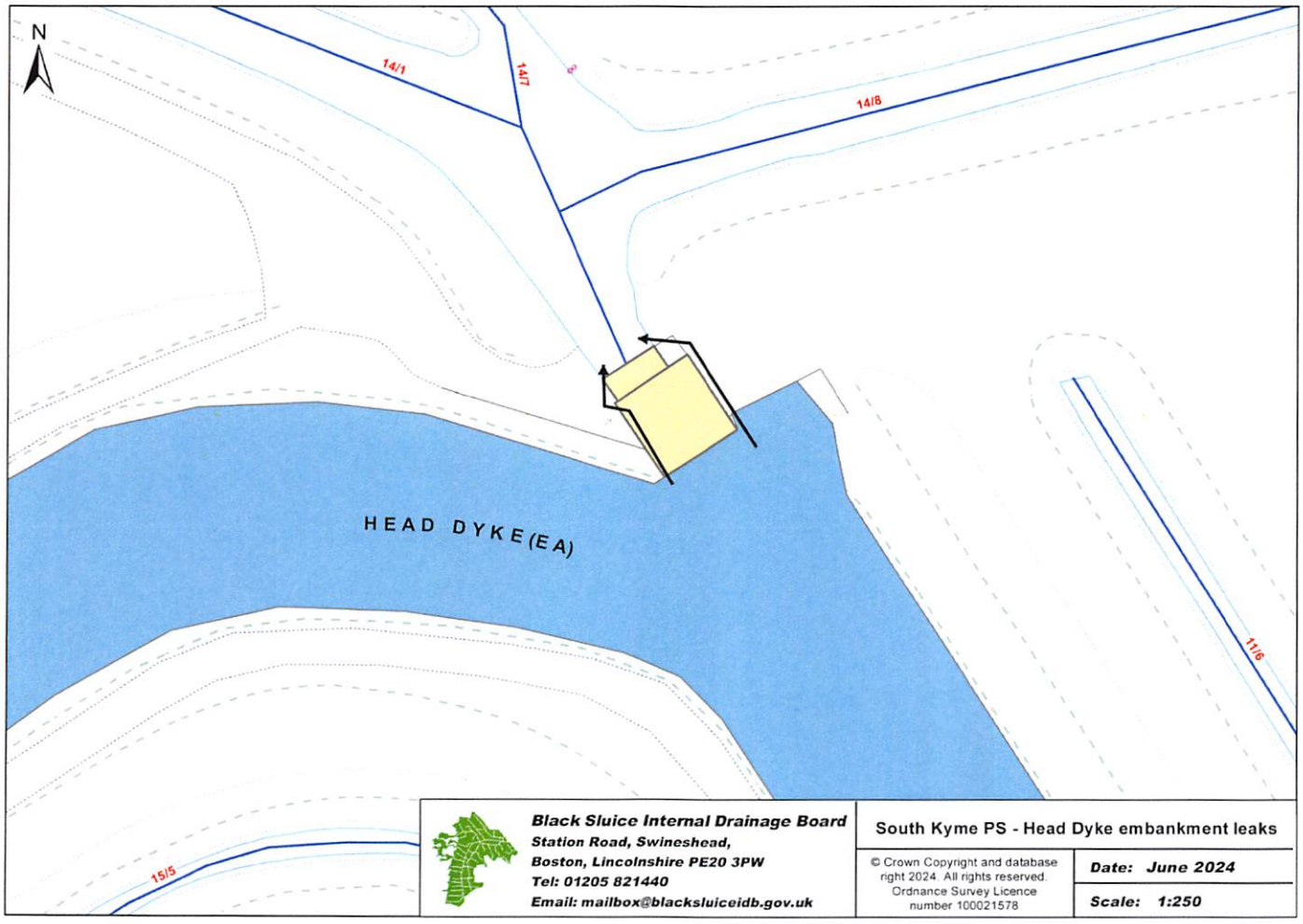
MCC replacement Estimated £60,000

Refurbish 2 x axial flow pumps & motors

Estimated £50,000

Point of Interest B - South Kyme Pump Station - Storms Babet & Henk





INTENTIONALLY BLANK

2 - Holland Fen Pumping Station - view works, discuss proposed works

Following visual inspection, concerns of extent of corrosion at this site, were reported for further inspection by Stantec Structural Engineer.

The report recommendations being that the inlet structure sheet piles although showing signs of surface corrosion, required cleaning and preparation for a reapplication of protective paint.

However, the 4 No steel support stanchions in the lower pump room, as was expected following the site visual inspection failed structural inspection.

Conclusion from Structural Engineer:

All 4no pump support stanchions should be replaced, along with general refurbishment of the pump support steelwork. In the interim consideration should be given to installing a temporary prop where one stanchion has failed.

Photograph 1: Pumping Station Inet

Photograph 2: LHS wing wall – test areas

Photograph 3: LHS wing wall – test area

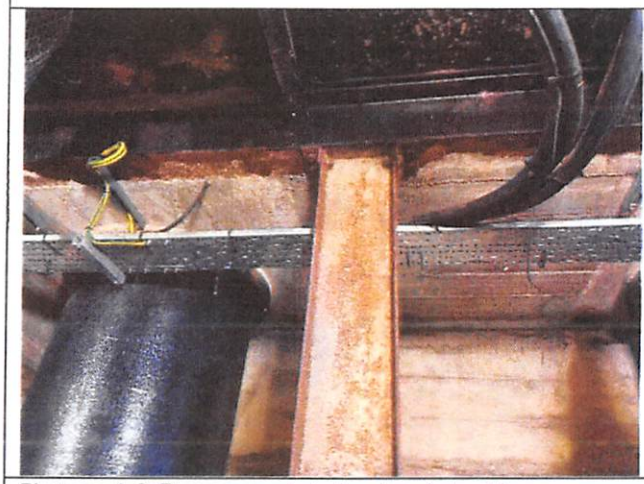
Photograph 4: LHS capping beam - localised spalling

Photograph 5: Stanchion at lower slab level – hole

Photograph 6: Outfall - corrosion to steel bracing

Photograph 7: RNS wing wall – pile section mostly buried

Photograph 8: Stanchion at lower slab level – typical condition



Photograph 9: Pump support steelwork and stanchion

Photograph 10: Outfall

2 - Swineshead PS –view works, discuss proposed works

Previously reported to this Committee, the Board have commissioned Stantec to commence a study of the Board's catchment.

As part of this study inspection of the Board's Pumping Station assets was required, which has been completed internally.

Visual inspection of Swineshead Pumping Station showed that the structural steel substructure at the site showed signs of corrosion.

A structural engineer inspection by Stantec provided the following report:

Subject: Structural inspection - Swineshead Pumping Station

1. Introduction

1.1 Stantec were instructed by Black Sluice Internal Drainage Board (IDB) to carry out a structural inspection of the exposed steel sheet piled walls and pump support steelwork at Swineshead Pumping Station.

1.2 The inspection was undertaken in support of ongoing asset condition inspection work undertaken directly by the IDB.

1.3 Stantec employees Alan Bavey and Max Dighton undertook the inspection on 13th March 2024 assisted by Drainage Board operatives.

1.4 The IDB desilted and reduced the water level in the upstream drain in advance of the inspection.

1.5 Access was provided into pump bay 1, and across the inlet to pump bays 2 and 3. No access was provided to the sluice bay.

1.6 Access was also provided into the lower pump room, however the floor was covered by weed deposits washed in from an earlier flood event, and it was not possible to inspect the pump support steelwork from above.

1.7 Steel thickness testing was undertaken using a Cygnus MK4 Multiple Echo Ultrasonic Digital Thickness Gauge and Vernier Callipers.

1.8 Existing record information provided in advance of the inspection by the IDB are included in Appendix A.

1.9 Inspection photographs are contained in Appendix B.

1.10 This report describes the scope and findings of the inspections and provides recommendations for maintenance and remedial works.

2. Report Terminology

2.1 This report makes references to left and right elements of the pumping stations when facing downstream, toward the outfalls.

3. Inlet Structure

3.1 The inlet structure comprises exposed steel sheet piled wing walls and side walls to each of the three pump bays and a sluice bay. The rear wall of each bay is formed in reinforced concrete.

TECHNICAL

Steel sheet piles

3.2 Steel sheet piles were a common 'u' section, stamped Larssen No2. Review of historic pile section information indicated an original face thickness of 10.2mm and side thickness of 7.8mm.

3.3 The protective paint coating was in poor condition throughout.

3.4 The piles were noticeably corroded in the wet/dry zone between normal summer and winter levels, with heavy corrosion lamination observed. This zone was around -0.1m AOD to -0.5m AOD, directly below the concrete capping/concrete deck.

3.5 Steel thickness testing was undertaken in pump bay 1 in a number of locations to determine the extent of corrosion and remaining steel thickness. Testing was undertaken to the face of the pile, with most tests undertaken in the wet/dry zone to the left and right walls in front of the screen (accessible area). The steel thickness testing results are summarised in table 1 below.

SWINESHEAD INLET STRUCTURE							
Testing Location (Looking d/s)		Pile Part Tested	Distance From u/s of Capping	Ultrasonic Test Reading (mm)	Original Steel Thickness (mm)	Steel Thickness Loss	
Bay	Pile					mm	%
1	RHS	Outpan 1	400	7.00	10.20	3.20	31%
1	RHS	Outpan 1	800	7.40	10.20	2.80	27%
1	RHS	Outpan 1	1300	8.40	10.20	1.80	18%
1	RHS	Outpan 1	1600	9.60	10.20	0.60	6%
1	RHS	Outpan 1	2300	8.40	10.20	1.80	18%
1	RHS	Outpan 2	80	** < 4.00	10.20	< 6.20	< 61%
1	RHS	Outpan 2	300	** < 4.00	10.20	< 6.20	< 61%
1	RHS	Outpan 2	550	5.05	10.20	5.15	50%
1	RHS	Outpan 2	800	6.70	10.20	3.50	34%
1	RHS	Outpan 2	1500	8.10	10.20	2.10	21%
1	RHS	Outpan 3	100	** < 4.00	10.20	< 6.20	< 61%
1	LHS	Outpan 2	200	** < 4.00	10.20	< 6.20	< 61%
1	LHS	Outpan 2	480	6.35	10.20	3.85	38%
1	LHS	Outpan 2	800	8.60	10.20	1.60	16%
1	LHS	Inpan 2	100	* 4.00	10.20	6.20	61%
1	LHS	Inpan 2	100	* 4.00	10.20	6.20	61%
1	LHS	7m Outpan	2000	9.95	10.20	0.25	2%
1	LHS	12m Outpan	2000	8.50	10.20	1.70	17%
1	RHS	11m Outpan	2000	8.65	10.20	1.55	15%

*Measured using Vernier Callipers

**Ultrasonic test readings with no data outside of range of ultrasonic testing equipment (<4mm assumed)

Table 1 - Swineshead Steel Thickness Results

3.6 The results indicate significant section loss has occurred. In the worst corroded zone (wet/dry zone below capping/deck level) a thickness of 4mm or less was observed (assumed original thickness 10.2mm).

3.7 The extent of corrosion observed in pump bay 1 is assumed to be similar in pump bays 2, 3 and both wing walls, at relative levels.

Concrete capping

3.8 Several defects were observed to the concrete capping, notably cracking to the top of the left-wing wall and at the corner with the sluice bay. The cause of the cracking was unsubstantiated. In general, the condition of the concrete capping was considered fair, typical for a structure of this age.

Pump support steelwork

3.9 The pumps are supported on a steel frame above the piled and reinforced concrete inlet structure. The steel frame is detailed on record drawings contained in Appendix A. The main longitudinal beams are approximately 380mm deep x 150mm wide.

3.10 Close inspection of the steelwork was undertaken in pump bay 1. Large laminations of corrosion were present to the web and bottom flange and when removed in two areas revealed the lower section of the outer longitudinal beam to be severely corroded (Photograph 5).

3.11 The web thickness was measured using an ultrasonic gauge, recording a thickness of approximately 8mm to the mid-section and less than 4mm to the lower third (Photograph 6).

3.12 The flange thickness was measured using Vernier Callipers. The bottom flange measured approximately 4mm whereas the top flange measured approximately 15mm. The top flange appeared to have suffered minimal corrosion and is assumed to be located slightly above the wet/dry corrosion zone.

3.13 The pump support steelwork condition is similar to the steel sheet piles at relative level.

3.14 The corrosion laminations observed in pump bay 1 were also observed in pump bays 2 and 3, and therefore the poor condition of the steelwork observed in pump bay 1 is assumed to be similar in pump bays 2 and 3

4. Conclusions

4.1 The steel sheet piled walls and pump support steelwork at the inlet have corroded to an extent that they have reached the end of their serviceable life. It is unlikely that any numerical structural assessment could demonstrate their stability or any acceptable factor of safety.

4.2 The poor condition of the pump support steelwork is a particular concern. The extent of corrosion is likely to have reduced the beam strength across the structure and could potentially fail.

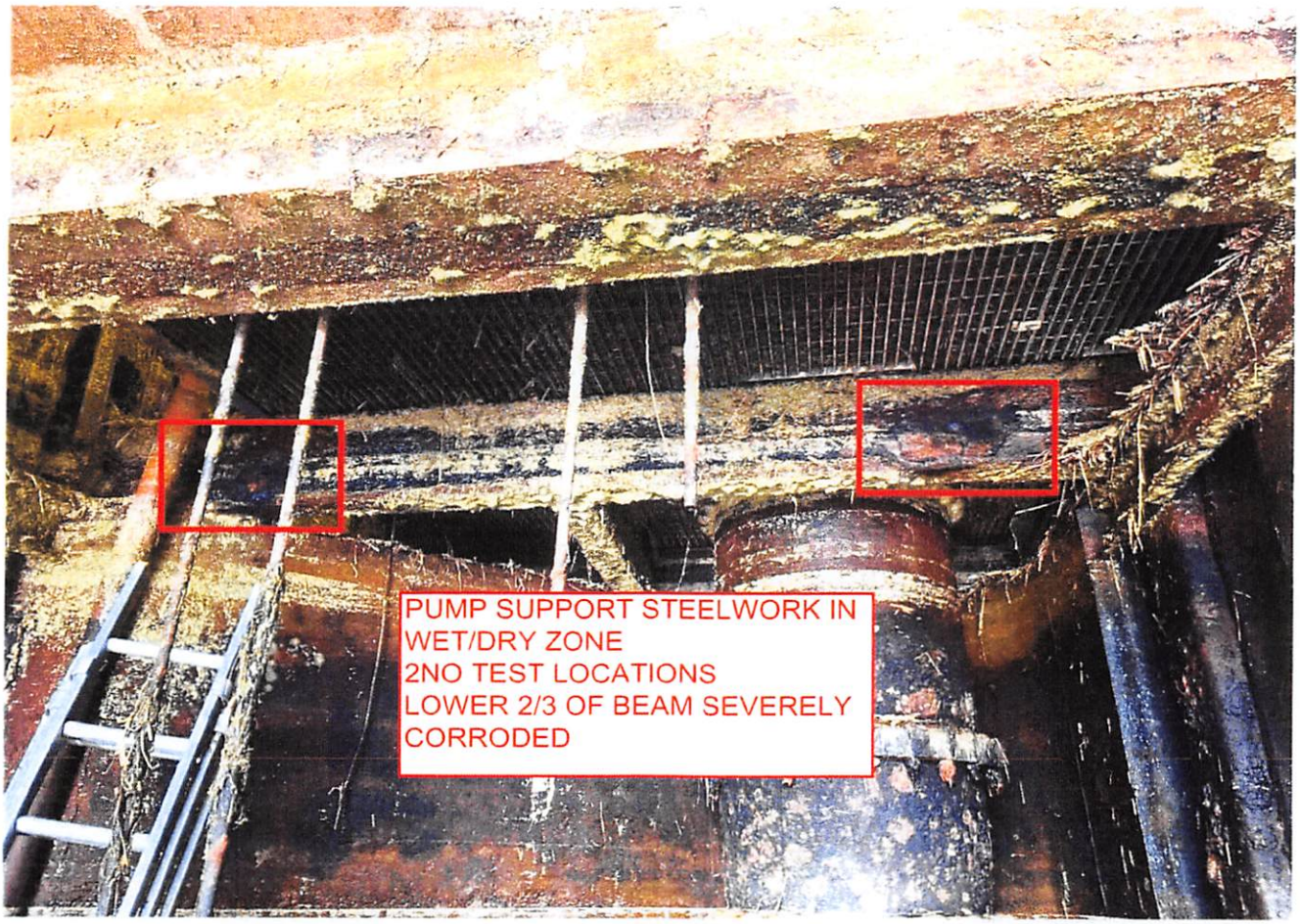
5. Recommendations

5.1 The structure should be extensively repaired and reinforced (if feasible), or fully replaced.

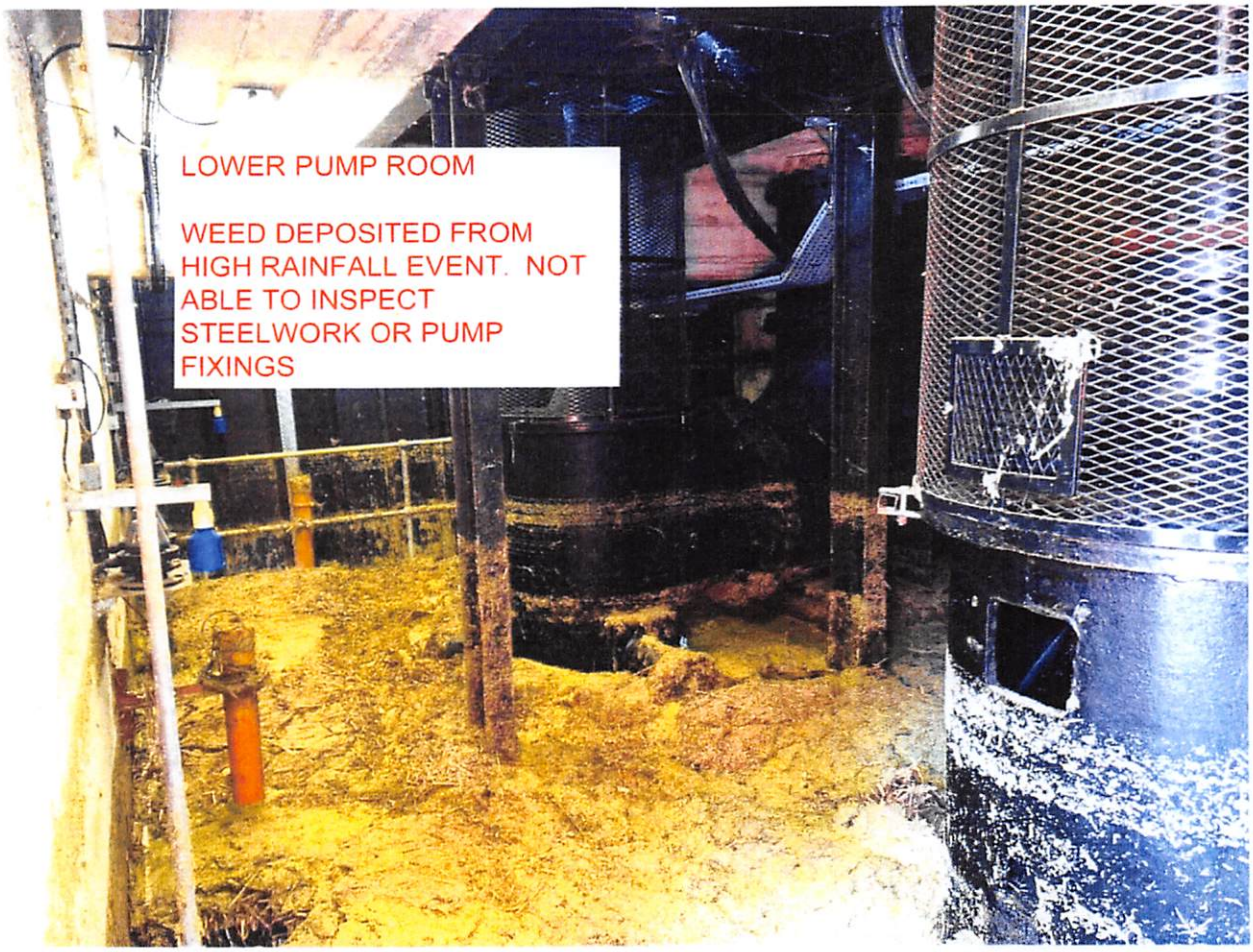

PUMP BAY 1
DESILTED FOR
INSPECTION


WORST CORROSION WET/DRY
ZONE BETWEEN SUMMER AND
WINTER LEVELS
APPROX - 0.1m AOD TO -0.5m AOD
<4mm RESIDUAL THICKNESS

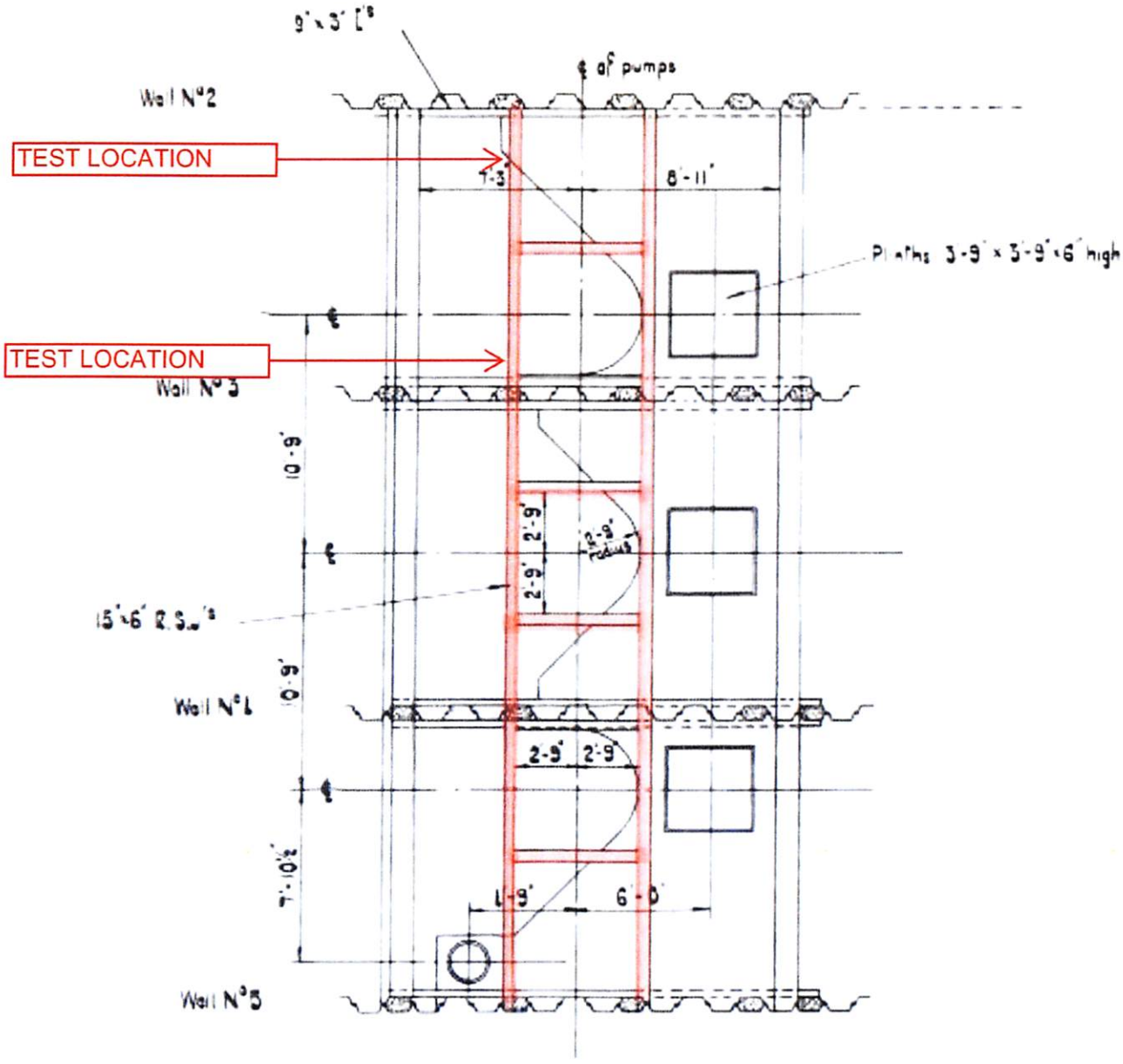

WORST CORROSION WET/DRY
ZONE BETWEEN SUMMER AND
WINTER LEVELS
APPROX -0.1m AOD TO -0.5m AOD
<4mm RESIDUAL THICKNESS


PUMP SUPPORT STEELWORK IN
WET/DRY ZONE
2NO TEST LOCATIONS
LOWER 2/3 OF BEAM SEVERELY
CORRODED


LHS TEST AREA
LOWER 2/3 OF BEAM
SEVERELY CORROSED


LOWER PUMP ROOM
WEED DEPOSITED FROM
HIGH RAINFALL EVENT. NOT
ABLE TO INSPECT
STEELWORK OR PUMP
FIXINGS

332511382 Black Sluice IDB
Swineshead Pumping Station -Steelwork Inspection 2024.03.13.



PUMP SUPPORT STEELWORK

BLACK SLUICE INTERNAL DRAINAGE BOARD

EXECUTIVE COMMITTEE - 21 MAY 2024

AGENDA ITEM 12

PUMPING STATION STRUCTURAL REVIEW

Swineshead Pumping Station

Swineshead Pumping Station is a three-pump station located north of Swineshead, Lincolnshire. The pumping station was constructed in 1966 and has seen varying levels of refurbishment, most recently in the early 2000's.

Swineshead pumping station discharges into the South Forty Foot Drain and is a mix of pumped discharge and gravity flow. The pumping station is used to manage the drainage and prevent flooding of people and property in Lincolnshire.

Swineshead Pumping Station Information	
Construction Date	1966
Hectares served by station	4819ha
Number of pumps	3
Individual Pump capacity	2.265 m^3/sec
Total pump capacity	6.795 m^3/sec
Gravity Flow Channel	Yes
Automatic weedscreen	Yes

Asset Inspections

The station was inspected visually in May 2023 as part of a programme to determine the current condition of all assets within the Boards district.

This inspection revealed the concrete was generally in good condition with minor areas of spalling, concerns were raised around the condition of the steel sheet piling and the steel frame supporting the pumps in the lower pump room. The building was in good condition with no major defects noted, there were issues noted with the emergency and flood lighting.

The pumps were last refurbished in 2002 and are not fish/eel friendly, the insulation resistance readings on the motors were noted to be low. The MCC was replaced in 2002. The pumps are operating beyond their design life and the MCC is approaching the end of its design life.

A structural engineer was employed to undertake a steel thickness survey of the sheet piling and the steel frame. This was delayed due to Storm Babet and the continuing high water levels. Testing was carried out in pump bay 1 and is assumed to be similar in bays 2 & 3.

Sheet piling

The survey indicated that the original thickness of the steel piling was 10.2mm, testing for residual thickness was undertaken in several location but concentrated in the wet dry zone. The results indicate that in several locations the steel thickness loss was greater than 61% in a number of locations the residual thickness is <4mm. The results indicate a significant section loss has occurred, the worst corroded areas were the wet/dry zone.

Pump support steelwork

The pumps are supported on a steel frame above the piled and reinforced concrete inlet structure. Large laminations of corrosion were present to the web and bottom flange and when removed in two areas revealed the lower section of the outer longitudinal beam to be severely corroded. The web thickness was measured to be approximately 8mm to the mid-section and less than 4mm to the lower third. The bottom flange measured approximately 4mm whereas the top flange measured approximately 15mm. The top flange appeared to have suffered minimal corrosion and is assumed to be located slightly above the wet/dry corrosion zone. The corrosion laminations observed in pump bay 1 were also observed in pump bays 2 and 3, and therefore the poor condition of the steelwork observed in pump bay 1 is assumed to be similar in pump bays 2 and 3.

Conclusion of Structural Engineer

The steel sheet piled walls and pump support steelwork at the inlet have corroded to an extent that they have reached the end of their serviceable life. It is unlikely that any numerical structural assessment could demonstrate their stability or any acceptable factor of safety

The poor condition of the pump support steelwork is a particular concern. The extent of corrosion is likely to have reduced the beam strength across the structure and could potentially fail.

It is unlikely that the piling or support framework can be effectively repaired and therefore it is recommended the station is reconstructed.

Next Steps

Project Outline

A project is being submitted to the Environment Agency as part of the capital programme refresh for funding to replace the pumping station. This information has been based on best guesses for the cost of a new station using information from other replacement pumping stations in the area. A draft programme has been estimated based on development of other projects. The benefits have been calculated using the Do-Nothing damages calculated as part of the catchment modelling study. This information has been fed into the Partnership Funding Calculator and is summarised below.

Total Project Cost	£20,700,000
Benefits	£283,882,025
Residential Properties	820
Non-residential properties	85
Benefits Duration	25yrs
Cost Benefit Ratio	13.5
Partnership Funding Score	92%
GIA available	£19,379,126
Funding Gap	£1,597,719

Programme	
Hydraulic Modelling	June- December 2024
OBC Development	Sept– June 2025
OBC Approval	Oct 2025
Detail Design	Sept 2025 – Dec 2026
Tender Process	Nov 2026 – May 2027
Award of Contract	May 2027
Construction	July 2027- Dec 2028

These figures will be developed over the duration of the project and will change significantly.

A number of assumptions have been made at this stage:

Project is funded via GIA and it is made available to start project in this financial year

No allowance for double counting of benefits has been made

Lead in times for pumps is 12 months

Construction period 18 months

Construction period is not constrained by environmental windows.

Hydraulic Modelling

The catchment modelling project is underway and will be used to determine the baseline modelling for the Swineshead catchment and the adjacent catchments this will consider the current capacity of the stations and if they are sufficient to manage with additional flows due to climate change. The modelling will also look at if stations can be combined to provide a better standard of service and to reduce the asset base. This initial phase of work is due to be competed in December 2024.

Pump Feasibility

A pump feasibility study will be undertaken to look at the best options for pumps considering the requirements of the pumping stations in relation to operating regimes and electricity costs.

Cost Estimation

We will engage with contractors early in the design process to determine the anticipated costs and buildability. This information will be fed into the OBC as it is developed.

Economic Analysis

Early phase Do Nothing benefits have been calculated for all catchments within the district and have been used to calculate the PF score. At the moment there has been no allowance for double counting of benefits or for sharing of benefits across hydraulically linked catchments.

Risks

The project is in the early phases of development and there are a number of uncertainties and risks around its delivery these include:

Lincolnshire reservoir – the water transfer route is unknown at present and could impact on the location of this station.

Pump failure prior to construction of new pumping station – there will be a reliance on Chain Bridge and Donington North Ings pumping stations to pump "normal" flows in place of Swineshead, both these stations have pumps and M&E equipment at end of life. A bid will be submitted to the EA for smaller scale project to replace the pumps and MCC's ahead of the construction of Swineshead however this is not likely to be until 2027.

GiA funding is not available to deliver the project.

Estimations of the costs and benefits are incorrect and a project cannot be justified.

Point of Interest C - Bicker Eau Pumping Station

As previous, this was the third site that required Structural Engineer Inspection completed in March 2024 following a site visual inspection. The sheet piles failed structural inspection.

Conclusion from the Structural Engineer:

The steel sheet piled walls of the inlet structure have corroded to an extent that they have reached the end of their serviceable life. It is unlikely that any numerical structural assessment could demonstrate their stability or any acceptable factor of safety.

Photograph 01: Pumping Station Intake

Photograph 02: Intake

Photograph 03: Galvanised steel support beam (typical)

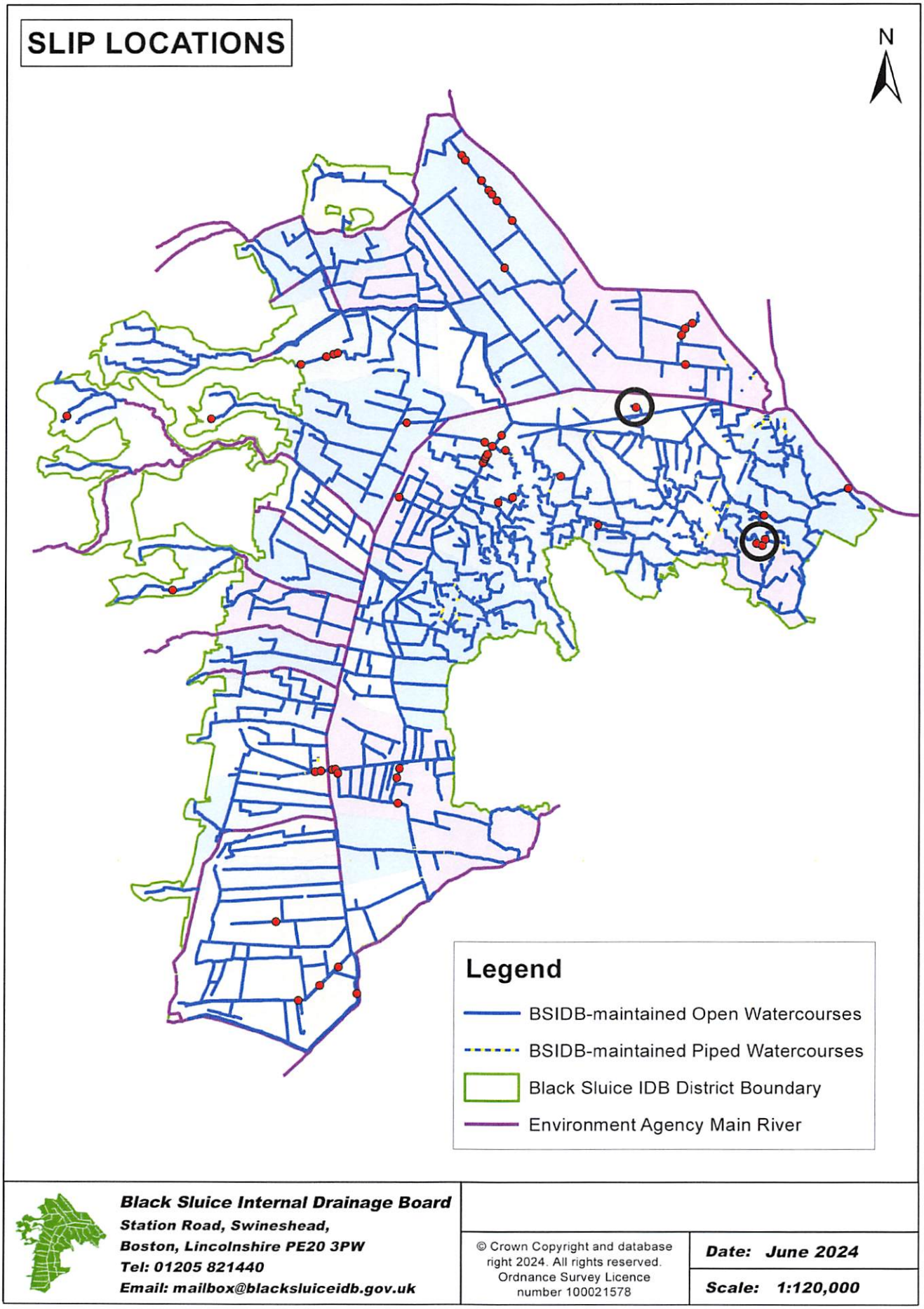
Photograph 04: RHS wall – test area

Photograph 05: LHS wall – test area

Photograph 06: Test area (wet/dry zone)

4 - Frampton Fen Lane, Hubberts Bridge & 5 - Coupledyke Lane, Kirton

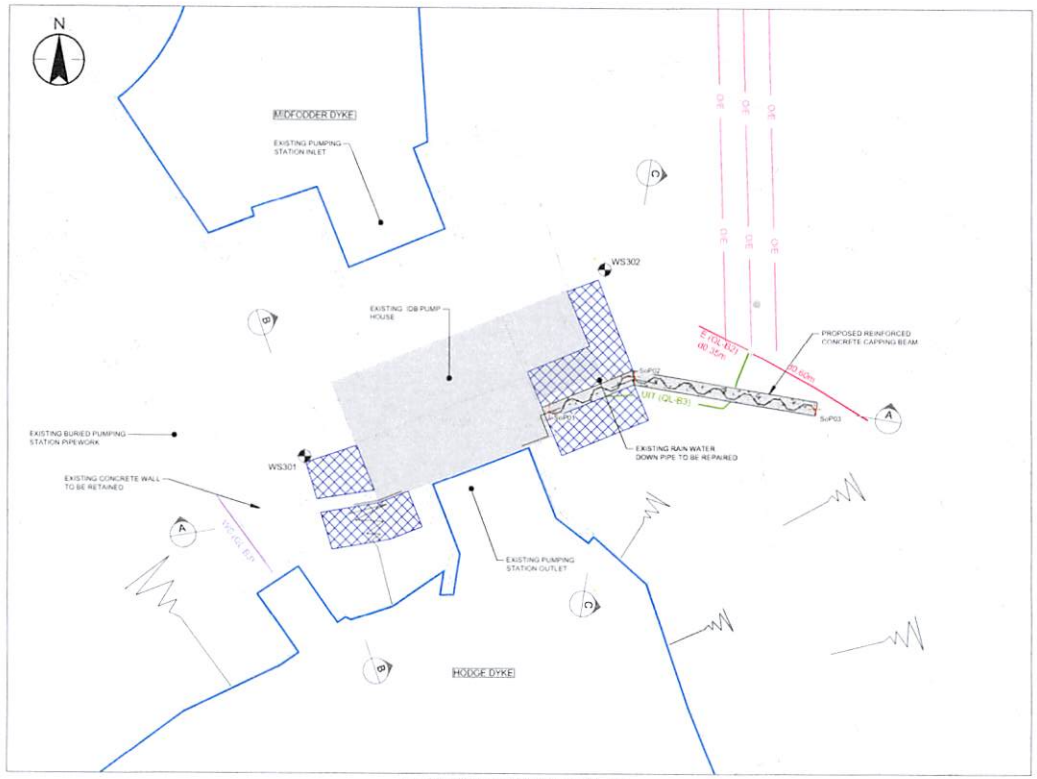
View/discuss ongoing slip repairs post-Storms Babet & Henk



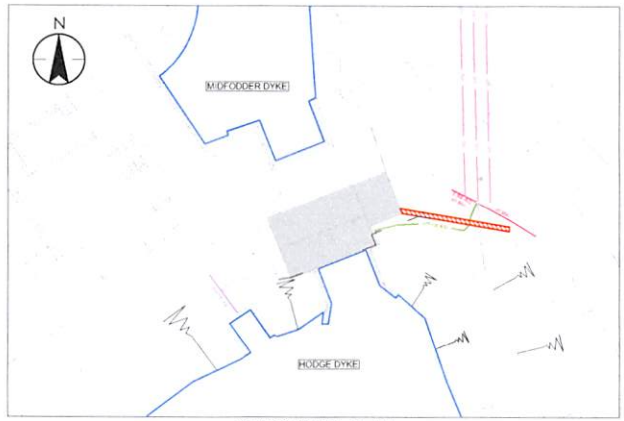
Black Sluice Internal Drainage Board
Station Road, Swineshead,
Boston, Lincolnshire PE20 3PW
Tel: 01205 821440
Email: mailbox@blacksluiceidb.gov.uk

Date: June 2024

Scale: 1:120,000



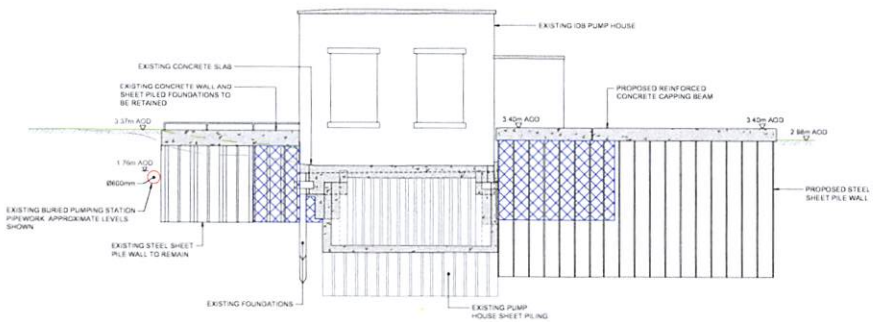
PROPOSED WORKS PLAN
1:100



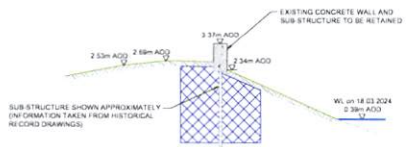
DEMOLITION PLAN
1:200

PILE SCHEDULE			
PILE SECTION	PILE LENGTH	MAX. PILE TOE LEVEL	No. of PILES
TBC	TBC	TBC	TBC

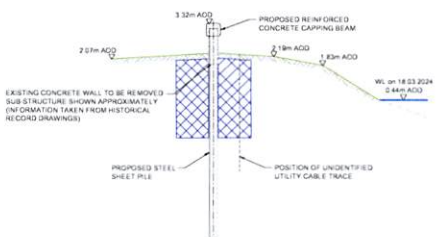
PILE SETTING OUT TABLE		
REF	EASTINGS	NORTHINGS
SoP01	515956.28	348357.08
SoP02	515959.61	348358.44
SoP03	515966.71	348357.21



SECTION A-A
1:100



SECTION B-B
1:50



SECTION C-C
1:50

Stantec

Stantec UK Limited
CAMBRIDGE
30/60 Station Road, Cambridge, CB1 2JH
Tel: +44 1223 882 000
www.stantec.com/uk

Notes

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
2. ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE
3. ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID
4. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS

LEGEND

EXISTING GI INFORMATION
WINDOWLESS SAMPLER LOCATION

DEMOLITION WORKS
EXISTING CONCRETE STRUCTURE TO BE REMOVED

PROPOSED WORKS INFORMATION
PROPOSED AREA OF RESIN/GROUT INJECTION

P01					
Issued/Revision		By	Appd	YYYY.MM.DD
	M/D			2024.06.07
	Dwn	Dsgn	Chkd	YYYY.MM.DD

Issue Status

FOR INFORMATION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.

Client/Project Logo

Black Sluice Internal Drainage Board

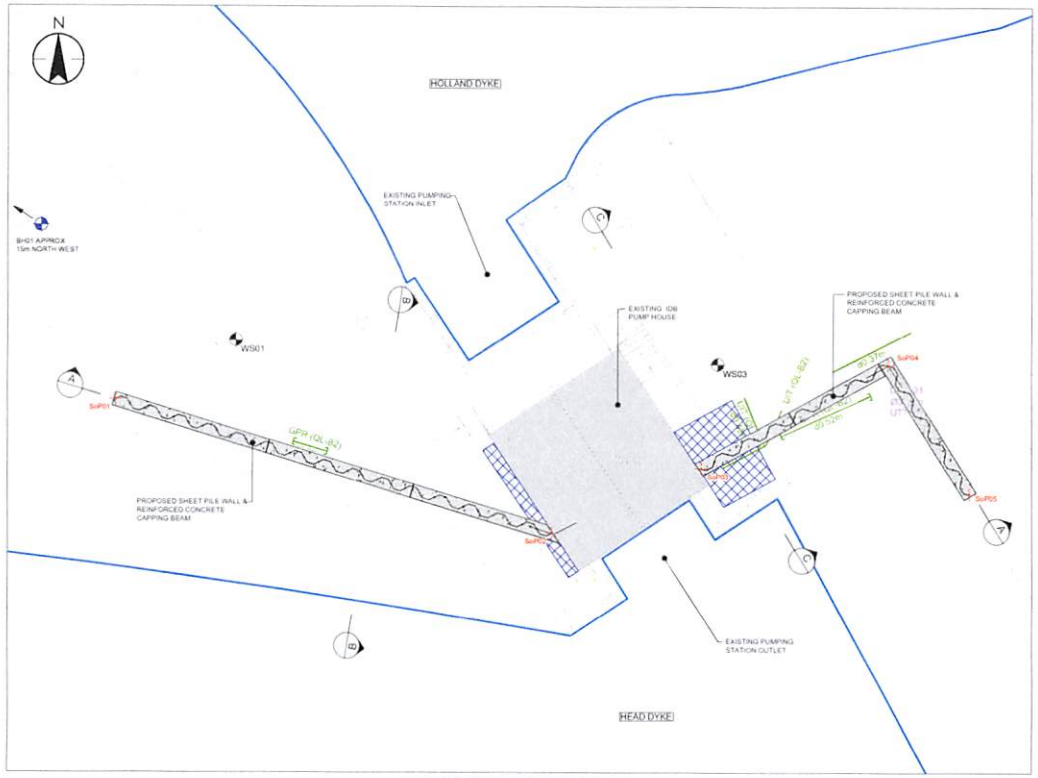
Client/Project
BLACK SLUICE IDB

EWERBY PUMPING STATION EMBANKMENT LEAKAGE REPAIRS

Title
CONSTRUCTION WORK PLAN & CONSTRUCTION DETAILS

DRAFT

Project No.	Scale
332611304	AS SHOWN
Revision	Drawing No.
P01	332611304-2001-005-2

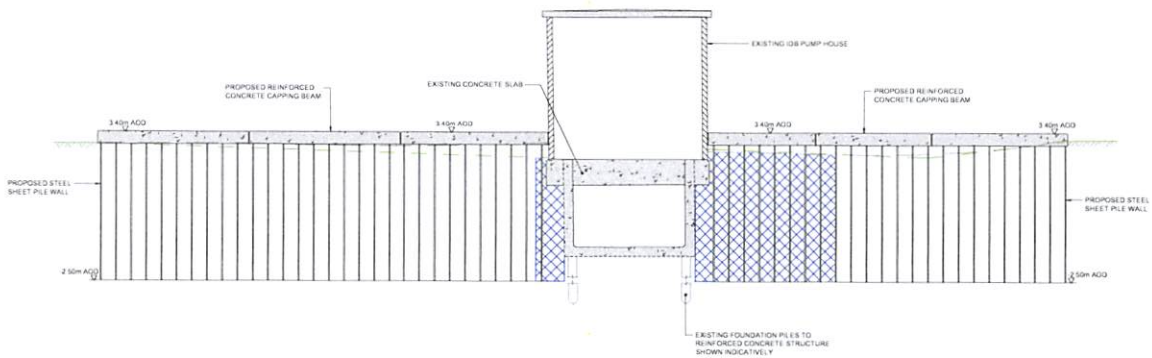


PROPOSED WORKS PLAN
1:100

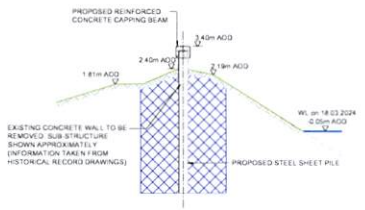
DEMOLITION PLAN
1:200

PILE SCHEDULE			
PILE SECTION	PILE LENGTH	MAX. PILE TOE LEVEL	No. of PILES
TBC	6m	-2.5m AOD	TBC

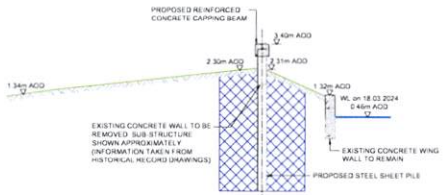
PILE SETTING OUT TABLE		
REF	EASTINGS	NORTHINGS
SoP01	520727.95	346902.03
SoP02	520745.17	346896.77
SoP03	520751.04	346899.34
SoP04	520758.38	346903.42
SoP05	520761.56	346898.32



SECTION A-A
1:100



SECTION B-B
1:100



SECTION C-C
1:100

Stantec

Stantec UK Limited
CAMBRIDGE
5C/6C Station Road, Cambridge, CB1 2JH
Tel: +44 1223 882 200
www.stantec.com/uk

Notes

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE.
3. ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.
4. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECT'S DRAWINGS AND SPECIFICATIONS.

LEGEND

EXISTING GI INFORMATION
WINDOWLESS SAMPLER LOCATION
WINDOWLESS SAMPLER BOREHOLE LOCATION
DEMOLITION WORKS
EXISTING CONCRETE STRUCTURE TO BE REMOVED
PROPOSED WORKS INFORMATION
PROPOSED VOLUME OF RESIN/GROUT GROUND INJECTION

Issued/Revision	By	Appd	YYYY.MM.DD
	MTD		2024.06.07
	Dwn	Dsgn	Chkd YYYY.MM.DD

Issue Status

FOR INFORMATION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.

Client/Project Logo

Black Sluice Internal Drainage Board

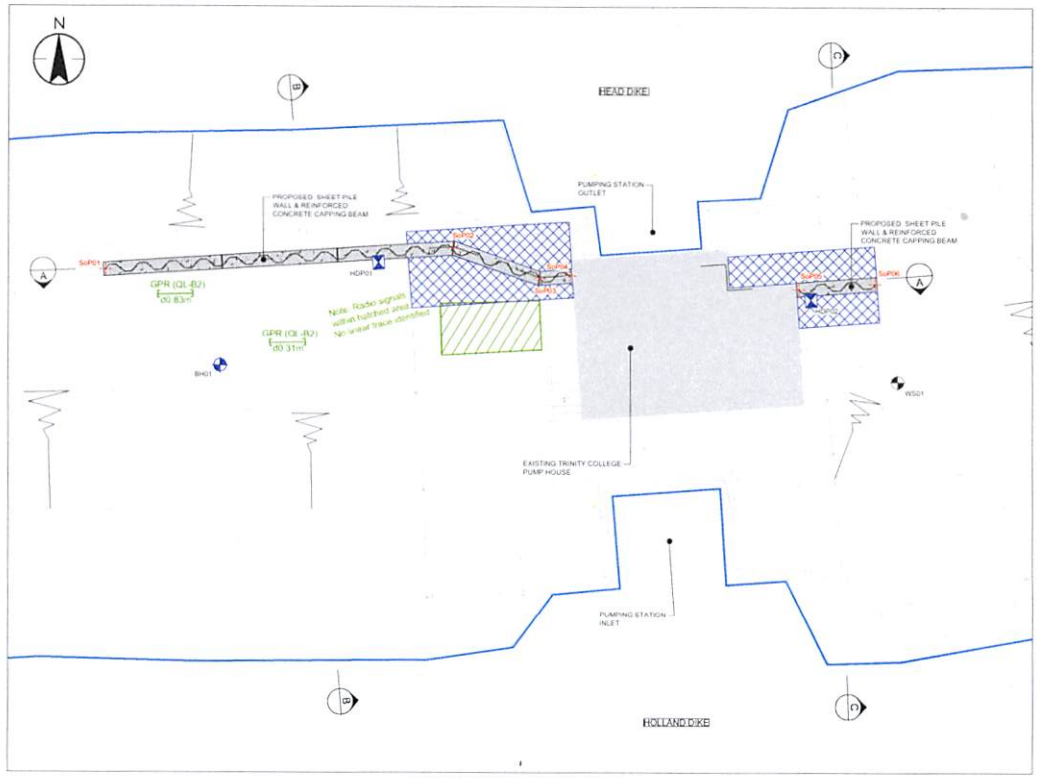
Client/Project
BLACK SLUICE IDB

SOUTH KYME PUMPING STATION
EMBANKMENT LEAKAGE REPAIRS

Title
CONSTRUCTION WORK PLAN & CONSTRUCTION DETAILS

DRAFT

Project No.	Scale
332611304	AS SHOWN
Revision	Drawing No.
P01	332611304-2001-004-2

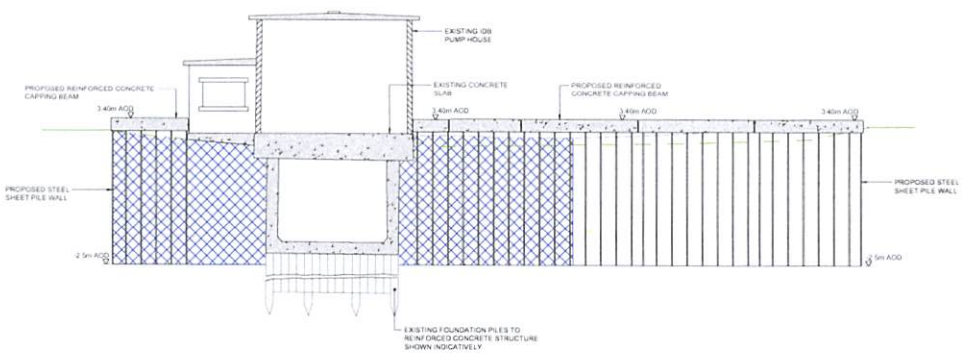


PROPOSED WORKS PLAN
1:100

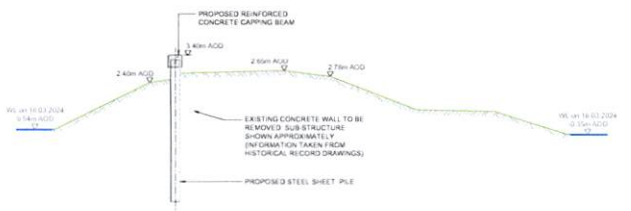
DEMOLITION PLAN
1:200

PILE SCHEDULE			
PILE SECTION	PILE LENGTH	MAX PILE TOE LEVEL	No. of PILES
TBC	6m	-2.5m AOD	TBC

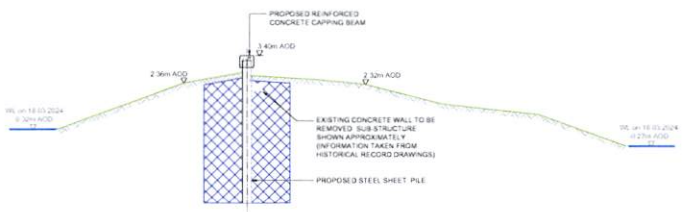
PILE SETTING OUT TABLE		
REF	EASTINGS	NORTHINGS
SoP 01	521725.62	345837.94
SoP 02	521739.18	345835.42
SoP 03	521742.20	345833.46
SoP 04	521743.39	345833.27
SoP 05	521751.98	345830.59
SoP 06	521754.93	345830.08



SECTION A-A
1:100



SECTION B-B
1:100



SECTION C-C
1:100

Stantec

Stantec UK Limited
CAMBRIDGE
5C/6C Station Road, Cambridge, CB1 2JH
Tel: +44 1223 882 000
www.stantec.com/uk

Notes

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
2. ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE
3. ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID
4. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS

LEGEND

EXISTING GI INFORMATION
WINDOWLESS SAMPLER LOCATION
HAND PIT LOCATION
WINDOWLESS SAMPLER BOREHOLE LOCATION
DEMOLITION WORKS
EXISTING CONCRETE STRUCTURE TO BE REMOVED
PROPOSED WORKS INFORMATION
PROPOSED VOLUME OF RESIN/GROUT GROUND INJECTION

PO	MTD		NP
Issued/Revision	By	Appd	YYYY.MM.DD
	MTD		2024.04.07
	Own	Dsgn	Chkd YYYY.MM.DD

Issue Status

FOR INFORMATION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.

Client/Project Logo

Black Sluice Internal Drainage Board

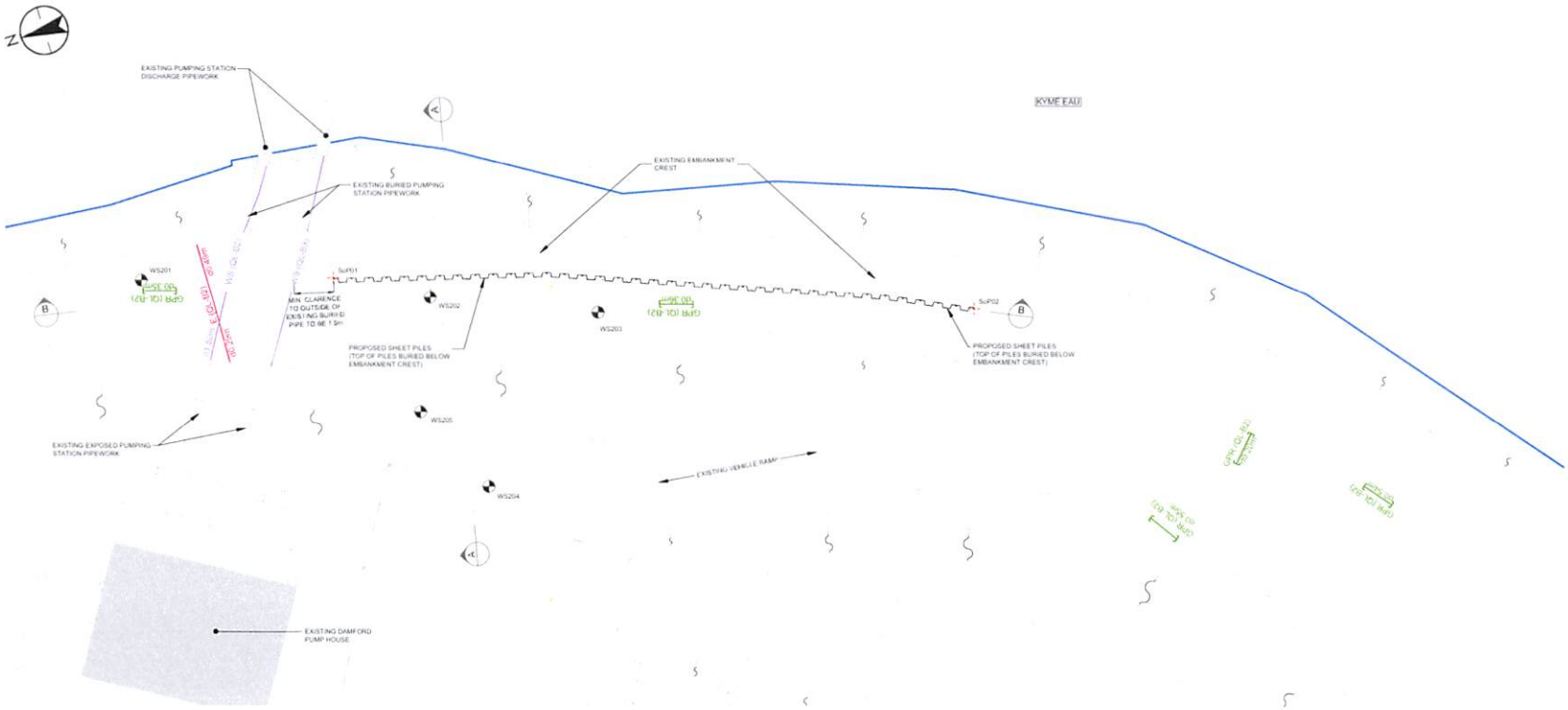
Client/Project
BLACK SLUICE IDB

TRINITY COLLEGE PUMPING STATION EMBANKMENT LEAKAGE REPAIRS

Title
CONSTRUCTION WORKS PLAN & CONSTRUCTION DETAILS

DRAFT

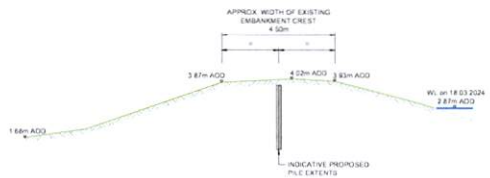
Project No.	Scale
332611304	AS SHOWN
Revision	Drawing No.
P01	332611304-2001-007-2



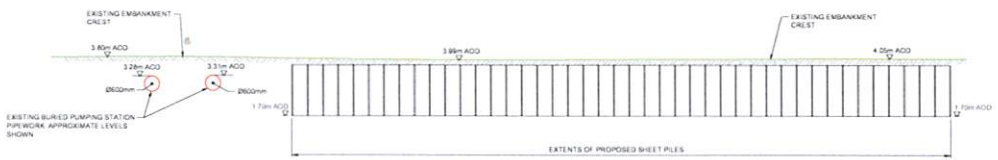
PROPOSED WORKS PLAN
1:100

PILE SCHEDULE			
PILE SECTION	PILE LENGTH	MAX. PILE TOE LEVEL	No. of PILES
TBC	2.0m	1.7m AOD	TBC

PILE SETTING OUT TABLE		
REF	EASTINGS	NORTHINGS
SoP01	519391	350651
SoP02	519381	350626



SECTION A-A
1:100



SECTION B-B
1:100

Stantec

Stantec UK Limited
CAMBRIDGE
5D/6D Station Road, Cambridge, CB1 2JH
Tel: +44 1223 882 000
www.stantec.com/uk

Notes

UTILITIES NOTE: The position of any existing public or private sewers, utility services plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
2. ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE
3. ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID
4. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS
6. ACCESS ARRANGEMENTS TO BE AGREED WITH OR FOR THE DURATION OF THE WORKS

LEGEND

EXISTING GI INFORMATION
WINDOWLESS SAMPLER LOCATION

Issued/Revision	By	Appd	YYYY.MM.DD
	MTD		2024.06.07
	Dwn	Dsgn	Chkd	YYYY.MM.DD

Issue Status

FOR INFORMATION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.

Client/Project Logo

Black Sluice Internal Drainage Board

Client/Project
BLACK SLUICE IDB

DAMFORD PUMPING STATION EMBANKMENT LEAKAGE REPAIRS

Title
CONSTRUCTION WORKS PLAN & CONSTRUCTION DETAILS

DRAFT

Project No.	Scale
332611304	AS SHOWN
Revision	Drawing No.
P01	332611304-2001-006-2

BLACK SLUICE INTERNAL DRAINAGE BOARD

NORTHERN WORKS COMMITTEE - 02 JULY 2024

AGENDA ITEM 07

ENGINEER'S REPORT

1. CAPITAL ASSET IMPROVEMENTS

(a) 2024/25 Defra/EA Funded Flood and Coastal Erosion Risk Management (FCERM) Grant in Aid (GiA) Schemes

(i) Bicker Fen Catchment Works

Bicker Fen Catchment Works studies are to be reprofiled into future years and will be dependent upon the outcome of the Black Sluice Catchment Strategy.

(ii) Ewerby Fen Catchment Works

Ewerby Fen Catchment Works studies are to be reprofiled into future years and will be dependent upon the outcome of the Black Sluice Catchment Strategy.

(iii) Black Sluice Catchment Strategy

This Scheme has been commissioned, Stantec's brief is to provide:

A high-level model to give a strategic overview of the whole system will provide Black Sluice IDB with priority areas to focus future studies and investments. This study will need to consider assessing the following areas:

- Pump efficiency – current vs alternative rules, this will enable a ranking of the pumps by the scale of the opportunity.
- Pump running costs
- Catchment combination/pumping station decommissioning
- Flood risk & future flood risk
- High level assessment of benefits available within the catchment

The Inception Study is currently being completed.

The total FCERM GiA currently applied for to complete this scheme is £250,000.

Future indicative Board contributions to facilitate the FCERM GiA funding have all now been reprofiled into future years and will be dependent upon the outcome of the Black Sluice Catchment Strategy.

Currently the existing catchment is being modelled based upon a division into 12 catchments.

(iv) Wyberton Marsh Pumping Station New Transformer – Estimate £167,000

A condition survey of the Boards 9 transformers has identified that some are at end of life and require replacement.

This transformer at this site is 17 years older than its design life.

Meetings have taken place with National Grid the electricity network provider, as if the proposal is to replace the existing transformer with a new transformer, it will need to be more resilient and will be installed on a raised platform.

National Grid have also confirmed that they intend to replace the switchgear to the station.

A request for a direct Low Voltage(LV) supply has also been requested as this would prove a more cost effective proposal option for funding and also would not require replacement as would the transformer at the end of its operational life.

An Outline Business Case (OBC) has been submitted and approved, currently waiting for financial sign off for the OBC to apply for the funding for this scheme.

The original £50,000 estimate provided for this scheme only included the replacement transformer purchase cost.

(v) Embankment repairs at Trinity College, Damford, Ewerby & South Kyme

Specification Estimate x 4 sites £265,000

Site works x 4 sites £3,851,737

As presented at the last meeting of this Committee in April 23, site investigations at the last site, Trinity College, were completed and reports returned to the Board.

All reports have been sent to the Environment Agency (EA). The Board have also included this information into the Lower Witham Flood Resilience Strategy, a project by the EA.

EA officers have recognised that there are problems at all sites, and methods proposed provide realistic solutions. The EA believe that the proposed £50,000 request for funding towards a specification for these works is however not sufficient.

This was indeed the case. It was agreed to review the specification for these works that would meet the criteria required. Stantec were commissioned through the Scape Framework to complete site survey works towards developing a specification for each of the 4 sites.

A specification budget estimate was agreed and approved for £265,000 for the works required to develop to a detailed design stage with estimates for delivery provided for each site.

As discussed on the inspection tour, estimated costs have been provided for each site:

Ewerby Fen	£928,035
South Kyme Fen	£1,276,565
Trinity College	£1,151,619
Damford Grounds	£495,518
Total	£3,851,737

(vi) Allan House Pumping Station Scheme Estimate - £1,082,000

As reported to the Joint Works Committee meeting of 23rd October 2023. In May 2023 Boards Officers were notified that there was a sink hole in the River Haven Bank which was assumed was caused by the outfall from Allan House PS. Following investigation, it was inconclusive that a leak from the outfall had been the cause of the sink hole, as it didn't appear to show signs of leaking externally.

The section of pipe was CCTV surveyed and it was found that there is a misaligned joint in the 300mm cast pipe, at or close to the sink hole site.

Additional CCTV survey works to the upstream section of the pipe were not possible as the pipe was not accessible due to too much water for the camera to survey.

This c12m section of pipe outfalls into the River Haven by gravity from the inspection chamber.

An initial estimate of £133,750 was received, an additional quotation now received and accepted for £93,426.

An established Lime tree adjacent to these works may have been the cause of the pipe displacement, this has now been removed to enable access for chamber and pipe replacement works.

It is estimated that works on site will commence in the next 2 months, as works required within Asda car park to construct new access inspection chambers, are to be aligned with Asda's proposed resurfacing of their car park.

Other works as part of this scheme include replacement pumps, MCC raised to provide resilience, redesigned Pumping Station building.

(b) 2024/25 Board funded capital schemes

(i) Major Slip repairs – Budget £159,00. Actual Estimate £1,060,830

Throughout the catchment following two wet winters c51 bank slips have been identified, which is more than to be expected in normal years. Because of this the decision was made, as a priority, to allocate funding to commence repairs. Information on completed works will be presented at the meeting. The scheme of slip repairs has been included in the Board's Expression of Interest application for the £75 million DEFRA IDB Recovery Fund.

(ii) Jetting to Major Pipelines – Estimate £75,000

This is to be a continuation of the works commenced in 2023/24.

(c) Pumping Station Schemes

(i) Damford Grounds PS replace MCC panel – Estimate £30,000

This Motor Control Centre(MCC) panel installed in 1994 is now due for replacement.

(ii) Damford Grounds PS 2 x pump and motor refurbishment – Estimate £50,000

The axial flow pumps and electric motors at this station require removal and refurbishment.

(iii) Great Hale Fen PS pump drive couplings – Estimate £30,000

Due to wear in the drive couplings, the first set were removed in May for specialist contractor refurbishment off site.

(iv) Kirton Marsh under pump inspections – Estimate £11,000

The inspections at this site were completed in May. The pump section nuts and bolts were replaced and all other elements visually inspected. The pump intake chamber was also cleared of siltation.

(v) Pumping Station level controllers – Estimate £30,000

As a result of the storm events of Babet in October 2023 and Henk in January 2024 and as a consequence extended periods of high water levels in our catchments highest known levels were reached. This resulted in the water level monitoring equipment we have at some Pumping Stations being submerged, and not able to provide a water level via Telemetry. These sites are to have new Vega radar water level monitors fitted. The equipment has been purchased and will be installed by the Pump Engineer.

2. Emergency Response Plan

A reminder regarding the Emergency Response Plan and a fluvial event; The South Forty Foot banks are seen to be at risk of breaching when the water levels rise above 2.70m ODN at Black Hole Drove pumping station. If this occurs the pumps at the Boards pumping stations shall start to be switched off by remote telemetry control as agreed by the Emergency Response Team at the same time switching all pumps to their Emergency Profile Level as identified within the Emergency Response Plan.

The pumps shall remain switched off until the level of the water in the South Forty Foot Drain at Black Hole Drove reduces to 2.30m ODN.

Should the event become more extreme then a decision will need to be made by the Emergency Response Team in conjunction with the Chairperson of the Board on whether water levels in the Fens should be allowed to rise higher than the figures shown within the Emergency Response Plan, live CCTV footage showing the pumping station suction bays will be assessed when making these decisions.

3. Crop Loss

A reminder regarding grass, hay, silage fields as stated within the Boards Crop Loss Compensation Policy (No. 46). During Summer Cutting, compensation will not be paid for access by machinery through grassland, hay or silage fields. Other maintenance works, i.e., de-silting and bushing works compensation will be paid for damage to grass, hay or silage fields at £1,310.00/hectare, all as per policy 46.

Black Sluice Internal Drainage Board

10 Year Schemes Budget

Year	Type	Scheme	Total	Grant / Local Levy	Other Contributions	Possible Board Contribution	Drain	PS
2024/25	Drain	BSIDB NFM Works	£170,161	£170,161				
	Pump	Sempringham PS Refurbishment (B/F)	£57,217	£57,217				
	Drain	North Forty Foot Revetments	£36,286	£36,286				
	Drain	Black Sluice Catchment Studies	£244,664	£244,664				
	Drain	Large slip repairs	£159,000				£159,000	
	Drain	Bicker Fen Catchment works	£10,000	£10,000				
	Drain	Jetting to major pipelines	£75,000				£75,000	
	Drain	Dunsby Fen Catchment Works	£10,000	£10,000				
	Drain	Ewerby Fen Catchment Works	£10,000	£10,000				
	Pump	Damford Grounds PS Replace control panel	£60,000					£60,000
	Pump	Damford Grounds PS refurbish 2 x axial flow pumps	£50,000					£50,000
	Pump	Donington Wykes PS replace MCC	£30,000					£30,000
	Pump	Great Hale Fen pump drive couplings	£30,000					£30,000
	Pump	Kirton Marsh PS under pump inspections	£11,000					£11,000
	Pump	Wyberton Marsh PS new transformer	£48,732	£48,732				
	Pump	PS Level controllers - Various sites	£30,000					£30,000
	Pump	Rippingale Fen PS under pump inspections	£25,000					£25,000
	Pump	Hacconby Fen PS under pump inspections	£25,000					£25,000
	Pump	Head Dyke bank repairs(South Kyme PS) specification	£61,117	£61,117				
	Pump	Hodge Dyke bank repairs(Ewerby Fen PS) specification	£61,012	£61,012				
	Pump	Head Dyke bank repairs(South Kyme PS) works	£1,000,000	£1,000,000				
	Pump	Hodge Dyke bank repairs(Ewerby Fen PS) works	£1,000,000	£1,000,000				
	Pump	Trinity College Bank Repair Specification	£66,170	£66,170				
	Pump	Damford PS Bank Repair Specification	£61,275	£61,275				
	Pump	Trinity College Bank Repair Works	£1,000,000	£1,000,000				
	Pump	Damford PS Bank Repair Works	£1,000,000	£1,000,000				
	Drain	Peat Restoration Project - Bourne Fen	£163,828	£163,828				
	Pump	Allan House PS scheme	£1,077,033	£1,077,033				
	Drain	General culvert replacement contributions	£5,000				£5,000	
			£6,577,495	**£6,077,495**			**£239,000**	**£261,000**
2025/26	Drain	SFFD Desilting Guthrum to Blackhole Drove PS	£70,000				£70,000	
	Drain	Bicker Fen Catchment works	£430,000	£113,250	£266,750	£50,000		
	Drain	Dunsby Fen Catchment Works	£414,000	£45,508	£318,492	£50,000		
	Drain	Ewerby Fen Catchment Works	£750,000	£332,410	£367,590	£50,000		
	Drain	Horbling Town Beck Flood Alleviation scheme	£10,000	£10,000				
	Pump	Ewerby Fen PS replace control panel	£65,000					£65,000
	Pump	South Kyme PS replace control panel	£54,000					£54,000
	Drain	Jetting to major pipelines	£40,000				£40,000	
	Drain	Graft Drain	£35,000				£35,000	
	Drain	NFF Desilting	£20,000				£20,000	
	Pump	Great Hale Fen PS new transformer	£55,000	£55,000				
	Pump	Swineshead PS new transformer	£70,000	£70,000				
	Drain	General culvert replacement contributions	£5,000				£5,000	
			£2,018,000	**£626,168**	**£952,832**	**£150,000**	**£170,000**	**£119,000**
2026/27	Drain	Claydyke desilting	£130,000				£130,000	
	Drain	NFF Desilting	£60,000				£60,000	
	Drain	Jetting to major pipelines	£50,000				£50,000	
	Drain	Horbling Town Beck Flood Alleviation scheme	£758,000	£130,568	£577,432	£50,000		
	Drain	Dowsby Fen Catchment Works	£10,000	£10,000				
	Pump	Horbling Fen PS new roof	£18,500					£18,500
	Pump	Gosberton Fen PS Refurbish 3 x axial flow pumps	£78,750					£78,750
	Pump	Swineshead PS replace MCC	£85,000					£85,000
	Pump	South Kyme Fen PS refurbish w/s cleaner & controls	£90,000					£90,000
	Pump	Swaton Fen PS replace MCC	£48,000					£48,000
	Pump	Rippingale Fen PS replace MCC	£48,000					£48,000
	Pump	Donington North Ings PS new transformer	£55,000	£55,000				
	Pump	Cooks Lock PS new transformer	£55,000	£55,000				
	Pump	Holland Fen under pump inspections	£28,000					£28,000
	Drain	General culvert replacement contributions	£5,000				£5,000	
			£1,519,250	**£250,568**	**£577,432**	**£50,000**	**£245,000**	**£396,250**
2027/28	Drain	Graft Drain	£55,000				£55,000	
	Drain	Jetting to major pipelines	£65,000				£65,000	
	Pump	Cooks Lock p/s refurbish weedscreen cleaner	£80,000					£80,000
	Drain	New Hammond Beck Desilting	£50,000				£50,000	
	Drain	Dowsby Fen Catchment Works	£350,000	£162,686	£137,314	£50,000		
	Pump	Bicker Fen replacement control panel	£33,000					£33,000
	Pump	Bicker Fen refurb 1 x axial flow pump	£33,000					£33,000
	Pump	Wyberton Chain Bridge PS new transformer	£60,000	£60,000				
	Pump	Holland Fen PS new transformer	£75,000	£75,000				
	Pump	Donington Northings PS refurbish 3 x axial flow pumps	£85,000					£85,000
	Pump	Ewerby Fen PS refurbish 2 x axial flow pumps	£58,000					£58,000
	Drain	General culvert replacement contributions	£5,000				£5,000	
			£949,000	**£297,686**	**£137,314**	**£50,000**	**£175,000**	**£289,000**

Year	Type	Scheme	Total	Grant / Local Levy	Other Contributions	Possible Board Contribution	Drain	PS
2028/29	Drain	Old Hammond Beck Desilting	£80,000				£80,000	
	Drain	Jetting to major pipelines	£60,000				£60,000	
	Pump	Kirton Marsh p/s replace control panel	£35,000					£35,000
	Drain	Bourne Fen 28/10 Revetment	£30,000				£30,000	
	Pump	Helpringham p/s new roof	£20,000					£20,000
	Pump	Wyberton Chain Bridge PS under pump inspection	£25,000					£25,000
	Pump	Wyberton Chain Bridge PS refurbish 3 x axial flow pumps	£90,000					£90,000
	Pump	Wyberton Chain Bridge PS replace MCC	£72,000					£72,000
	Pump	Dowsby Fen refurbish 2 x axial flow pumps	£58,000					£58,000
	Drain	General culvert replacement contributions	£5,000				£5,000	
			£475,000				**£175,000**	**£300,000**
2029/30	Drain	Jetting to major pipelines	£60,000				£60,000	
	Pump	Chain Bridge p/s refurbish 3 x axial flow pumps	£95,000					£95,000
	Drain	Cooks lock PS pump drain desilting under pump inspection	£36,000				£36,000	
	Drain	Dowsby Fen pump drain desilting/pump inspection	£36,000				£36,000	
	Pump	Quadring Fen p/s replace control panel	£40,000					£40,000
	Pump	Mallard Hurn PS under pump inspections	£32,000					£32,000
	Pump	Damford Grounds PS under pump inspections	£32,000					£32,000
	Pump	Helpringham Fen PS under pump inspections	£32,000					£32,000
	Pump	Swaton Fen PS under pump inspections	£32,000					£32,000
	Pump	Billingborough Fen PS under pump inspections	£32,000					£32,000
	Pump	Pinchbeck Fen PS under pump inspections	£32,000					£32,000
	Pump	Haconby Fen PS refurbish 1 x axial flow pump	£30,000					£30,000
	Drain	Quadring Fen pump drain desilting/pump inspection	£32,000				£32,000	
	Drain	General culvert replacement contributions	£5,000				£5,000	
			£526,000				**£169,000**	**£357,000**
2030/31	Drain	Damford PS pump drain desilting/under pump inspections	£50,000				£50,000	
	Drain	Jetting to major pipelines	£80,000				£80,000	
	Pump	Horbling p/s control panel	£45,000					£45,000
	Pump	Mallard Hurn control panel	£45,000					£45,000
	Pump	Mallard Hurn PS under pump inspections	£10,000					£10,000
	Pump	Trinity College refurb pumps	£63,000					£63,000
	Drain	Black Hole Drove p/s under pump inspections	£25,000				£25,000	
	Pump	Ewerby Fen PS under pump inspections	£34,000					£34,000
	Pump	South Kyme Fen PS under pump inspections	£34,000					£34,000
	Pump	Sempringham Fen PS under pump inspections	£34,000					£34,000
	Pump	Blackhole Drove PS refurbish 3 x axial flow pumps	£100,000					£100,000
	Drain	General culvert replacement contributions	£5,000				£5,000	
			£525,000				**£160,000**	**£365,000**
2031/32	Drain	Jetting to major pipelines	£90,000				£90,000	
	Drain	Heckington Fen pump drain desilting under pump inspections	£50,000				£50,000	
	Pump	Billingborough Fen p/s control panel	£50,000					£50,000
	Pump	Dowsby Lode PS control panel	£50,000					£50,000
	Pump	Pinchbeck Fen PS control panel	£50,000					£50,000
	Pump	Swineshead PS refurbish 3 x axial flow pumps	£105,000					£105,000
	Pump	Swaton Fen PS refurbish 1 x axial flow pump	£35,000					£35,000
	Drain	Dowsby Fen PS drain desilting under pump inspections	£49,000				£49,000	
	Drain	Dowsby Lode PS under pump inspections	£36,000				£36,000	
	Drain	Dunsby Fen PS under pump inspections	£36,000				£36,000	
			£551,000				**£261,000**	**£290,000**
2032/33	Drain	Jetting to major pipelines	£90,000				£90,000	
	Pump	Rippingale p/s refurbish 1 x axial flow pump	£37,000					£37,000
	Drain	Gosberton Fen pump drain desilting/under pump inspections	£56,000				£56,000	
	Drain	Swineshead pump drain desilting under pump inspections	£66,000				£66,000	
	Drain	Donington Northings PS desilting under pump inspections	£56,000				£56,000	
	Drain	Great Hale Fen PS under desilting pump inspections	£56,000				£56,000	
	Drain	Trinity College PS desilting/under pump inspections	£56,000				£56,000	
	Drain	General culvert rplacement contributions	£7,000				£7,000	
	Pump	Holland Fen PS refurbish 3 x axial flow pumps	£118,000					£118,000
	Pump	Helpringham Fen PS refurbish 1 x axial flow pump	£38,000					£38,000
			£580,000				**£387,000**	**£193,000**
2033/34	Drain	Horbling Fen PS desilting/under pump inspections	£35,000				£35,000	
	Drain	Bicker Fen PS desilting/under pump inspections	£40,000				£40,000	
	Drain	Jetting to major pipelines	£91,000				£91,000	
	Pump	Horbling Fen PS refurbish w/s cleaner & controls	£121,000					£121,000
	Pump	Sempringham Fen PS refurbish 1 x axial flow pump	£41,000					£41,000
	Pump	BlackHole Drove PS refurbish w/s cleaner & controls	£121,000					£121,000
	Pump	Quadring Fen PS refurbish 1 x axial flow pump	£41,000					£41,000
	Pump	Bicker Eau PS replace 2 x submersible pump	£120,000					£120,000
			£610,000				**£166,000**	**£444,000**

Year	Type	Scheme	Total	Grant / Local Levy	Other Contributions	Possible Board Contribution	Drain	PS
	Pump	Dowsby Fen PS replace MCC	£50,000					£50,000
	Pump	Wyberton Marsh PS replace MCC	£72,000					£72,000
	Pump	Trinity College PS replace MCC	£52,000					£52,000
	Pump	Haconby PS replace MCC	£45,000					£45,000
	Pump	Heckington Fen PS replace MCC	£54,000					£54,000
	Pump	Cooks Lock PS replace MCC	£75,000					£75,000
	Pump	Black Hole Drove PS replace MCC	£83,000					£83,000
	Pump	Dyke Fen PS refurbish weedscreen cleaner	£90,000					£90,000
	Pump	Haconby PS refurbish axial flow pump	£25,000					£25,000
	Pump	Kirton Marsh PS new roof	£20,000					£20,000
	Pump	Kirton Marsh PS refurbish 1 x axial flow pump	£29,000					£29,000
	Pump	Great Hale Fen PS refurbish 3 x axial flow pumps	£85,000					£85,000
	Pump	Holland Fen PS replace MCC	£88,000					£88,000
	Pump	Helpringham Fen PS replace MCC	£50,000					£50,000
	Pump	Dowsby Fen PS refurbish w/s cleaner & controls	£93,000					£93,000
	Pump	Trinity College PS refurbish w/s cleaner & controls	£95,000					£95,000
	Pump	Sempringham Fen PS replace MCC	£52,000					£52,000
	Pump	Twenty PS refurbish 1 x axial flow pump	£30,000					£30,000
	Pump	Quadring Fen PS replace MCC	£52,000					£52,000
	Pump	Mallard Hurn PS replace MCC	£55,000					£55,000
	Pump	Damford Grounds PS refurbish w/s cleaner & controls	£100,000					£100,000
	Pump	Trinity College PS refurbish 2 x axial flow pumps	£63,000					£63,000
	Pump	Horbling Fen PS replace MCC	£55,000					£55,000
	Drain	Cooks Lock pump drain desilting/under pump inspections	£42,000					£42,000
	Pump	Kirton Marsh PS refurbish w/s cleaner & controls	£105,000					£105,000
	Pump	Heckington Fen PS refurbish 2 x axial flow pumps	£67,000					£67,000
	Pump	Cooks Lock PS refurbish 3 x axial flow pumps	£100,000					£100,000
	Pump	Billingborough Fen PS replace MCC	£58,000					£58,000
	Pump	Dowsby Lode PS replace MCC	£58,000					£58,000
	Pump	Pinchbeck Fen PS replace MCC	£58,000					£58,000
	Pump	Rippingale Fen PS refurbish 1 x axial flow pump	£35,000					£35,000
	Pump	Holland Fen PS 3 x pump refurb & motor	£32,000					£32,000
								£1,968,000

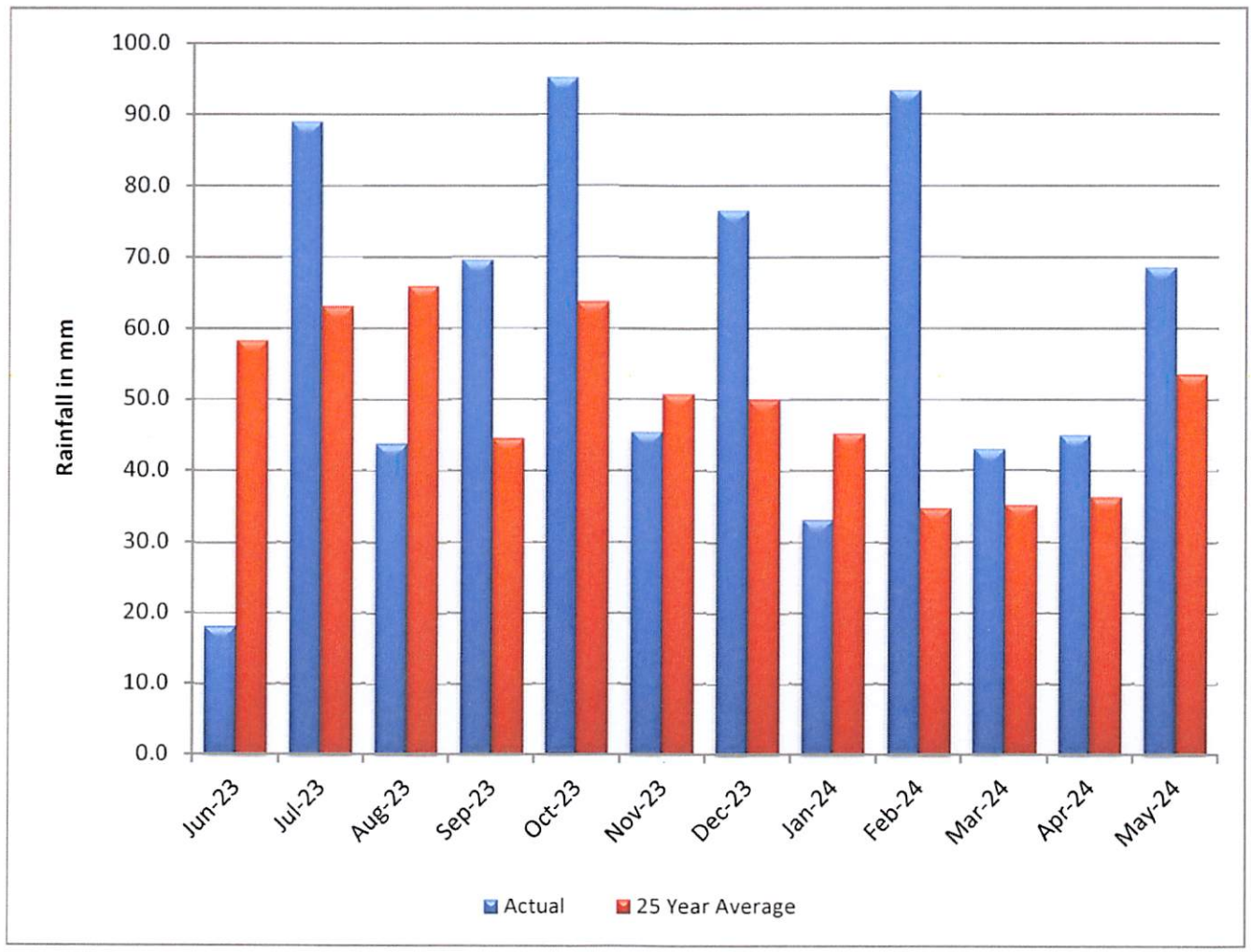
IDB Recovery Fund - £75,000,000

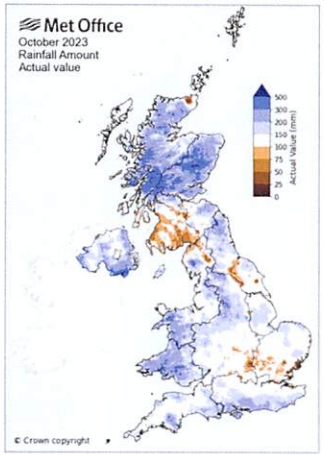
Helpringham Fen Pumping Station Pump Refurbishment	£	219,709
South Kyme Fen Pumping Station Pump Refurbishment	£	289,709
Dunsby Fen Pumping Station Pump Refurbishment	£	144,709
Ewerby Fen Pumping Station Pump Refurbishment	£	359,709
Dyke Fen Pumping Station AWC Refurbishment	£	25,000
Pinchbeck North Fen Pumping Station Pump Refurbishment	£	195,000
Head Dike Embankment Repairs at South Kyme Pumping Station	£	1,351,565
Hodge Dyke Embankment Repairs at Ewerby Pumping Station	£	1,033,035
Kyme Eau Embankment Repairs at Damford Pumping Station	£	570,518
Skirth Drain Embankment Repairs at Trinity Pumping Station	£	1,226,619
Donington Northorpe Culvert Repair	£	155,000
Donington North Ings Access track	£	185,430
Electricity Costs	£	452,936
Slips	£	1,060,830
TOTAL	**£**	**7,269,769**

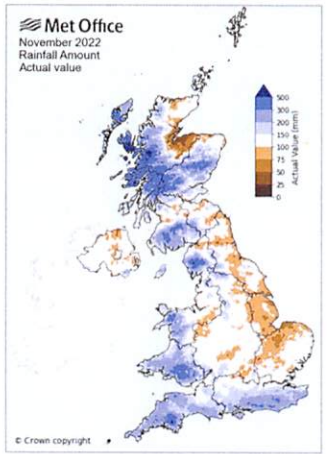
Agenda Item No. 8 - Rainfall

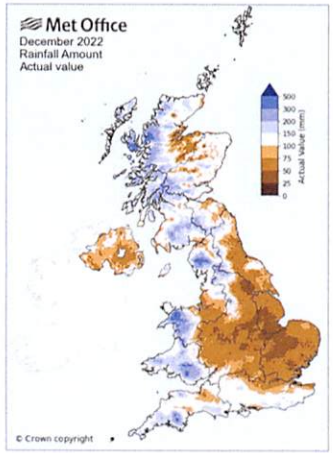
BLACK SLUICE INTERNAL DRAINAGE BOARD
Rainfall at Swineshead Depot

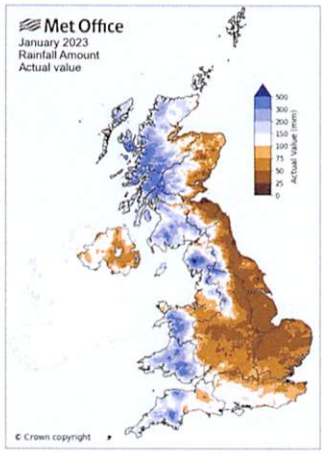
MONTH	Rainfall		Actual / Average
	Actual	25 Year Average	
	mm	mm	%
Jun-23	18.2	58.3	31.22%
Jul-23	89.0	63.1	141.05%
Aug-23	43.8	66.0	66.36%
Sep-23	69.6	44.5	156.40%
Oct-23	95.2	63.7	149.45%
Nov-23	45.4	50.7	89.55%
Dec-23	76.6	50.0	153.20%
Jan-24	33.2	45.2	73.45%
Feb-24	93.4	34.8	268.39%
Mar-24	43.0	35.2	122.16%
Apr-24	45.0	36.3	123.97%
May-24	68.6	53.5	128.22%
Totals	721.0	601.3	119.91%

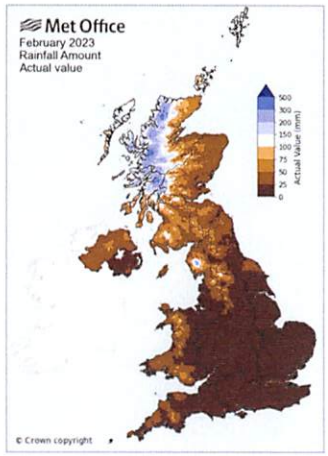


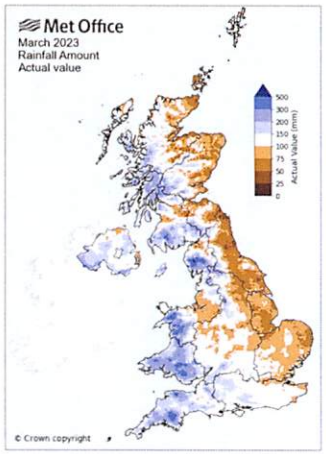












RAINFALL COMPARRISON

6 MONTHS October –March 2023 & 2024