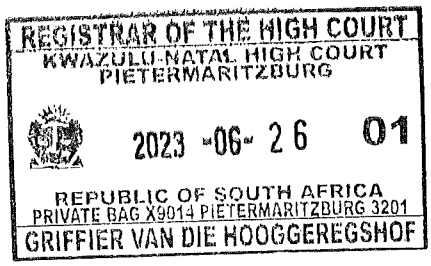
ORIGINAL

IN THE HIGH COURT OF SOUTH AFRICA

KWAZULU-NATAL DIVISION, PIETERMARITZBURG

Case Number: **3036 /2023**

In the matter between:



THE DEMOCRATIC ALLIANCE Applicant

and

ETHEKWINI METROPOLITAN MUNICIPALITY First Respondent

THE MEMBER OF THE EXECUTIVE COUNCIL OF WATER AND SANITATION KWAZULU-NATAL Second Respondent

THE MEMBER OF THE EXECUTIVE COUNCIL FOR ECONOMIC DEVELOPMENT, TOURISM AND ENVIRONMENTAL AFFAIRS, KWAZULU-NATAL Third Respondent

THE MINISTER OF WATER AND SANITATION Fourth respondent

MINISTER OF FOREST, FISHERIES AND THE ENVIRONMENT Fifth respondent

MINISTER OF COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS Sixth Respondent

---

FILING NOTICE

KINDLY TAKE NOTICE that the Applicant hereby files and serves its Supplementary Founding Affidavit.

DATED AT PIETERMARITZBURG ON THIS 23rd DAY OF JUNE 2023.

MINDE SCHAPIRO AND SMITH INC
Elzanne Jonker
Applicant's attorneys
Care of: **PGPS ATTORNEYS**
Victoria Country Club, Office Park, Ground Floor 12
Montrose Park boulevard, 170 Peter Brown Drive
Montrose
Pietermaritzburg
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Email: arashni@pgpslaw.co.za
Telephone No: 033 815 1572

TO **THE REGISTRAR OF THE ABOVE HONOURABLE COURT**
KWAZULU-NATAL DIVISION, PIETERMARITZBURG
PIETERMARITZBURG

AND TO: **LEGATOR McKENNA INC.**
First Respondent's Attorneys
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La Lucia Ridge

4319

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c/o **VENNS ATTORNEYS**

30 Montrose Park Boulevard

Victoria Country Club Estate

170 Peter Brown Drive

Pietermaritzburg

Ref: H Govender/Amisha/43

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9h26 AM/PM
2023 -06- 26
FOR AND ON BEHALF OF
venns ATTORNEYS

AND TO: **STATE ATTORNEY(KWAZULU-NATAL)**

Second, Third & Fourth & Sixth Respondent's Attorneys

6th Floor, Metlife Building

391 Anton Lembede Street

Durban

Reference No: 110/15661/22/E/P5

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STATE ATTORNEY (KZN)
REGISTRY
2023 -06- 26
DURBAN
STAATSPROKUREUR (KZN)
J. Ngobese PMB

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2nd Floor, Magistrate's Court Building

302 Church Street

Pietermaritzburg

(Service by Hand)

AND TO: **MINISTER OF FOREST, FISHERIES AND THE ENVIRONMENT**

Fifth respondent

Environment House, 473 Steve Biko and Soutpansberg Road

Arcadia

Care of: State Attorney, at Sehume Street

Pretoria

(Service by Hand)

ORIGINAL

IN THE HIGH COURT OF SOUTH AFRICA

KWAZULU-NATAL DIVISION, PIETERMARITZBURG

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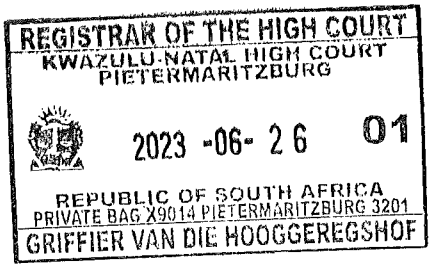

THE DEMOCRATIC ALLIANCE Applicant

and

ETHEKWINI METROPOLITAN MUNICIPALITY First Respondent

THE MEMBER OF THE EXECUTIVE COUNCIL OF WATER AND SANITATION KWAZULU-NATAL Second Respondent

THE MEMBER OF THE EXECUTIVE COUNCIL FOR ECONOMIC DEVELOPMENT, TOURISM AND ENVIRONMENTAL AFFAIRS, KWAZULU-NATAL Third Respondent

THE MINISTER OF WATER AND SANITATION Fourth respondent

MINISTER OF FOREST, FISHERIES AND THE ENVIRONMENT Fifth respondent

MINISTER OF COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS Sixth Respondent

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APPLICANT'S AMENDED NOTICE OF MOTION

KINDLY TAKE NOTICE that the applicant intends to make application to this Court on a date to be arranged for an order in the following terms:

1. It is declared that the first respondent is in breach of notices and directives issued to it by the second and third respondents and which are attached to the founding affidavit as "TM7" – "TM16" and the supplementary affidavit as "SFA7" - "SFA8".

2. It is declared that the first respondent's failure to comply with the aforesaid notices is unconstitutional and unlawful.

3. It is declared that the first respondent is in breach of:

3.1. Sections 24G, 30, 30A, 31L(4), 31N and 28(1) of the National Environmental Management Act 107 of 1998;

3.2. Sections 19(1) of the National Water Act 36 of 1998;

3.3. Sections 69 of the National Environmental Management: Integrated Coastal Management Act 24 of 2008;

3.4. Section 16(1) of the National Environmental Management Waste Act 50 of 2008;

3.5. Sections 9, 10, 22 and 24 of the Constitution of the Republic of South Africa, Act 108 of 1996; and/or

3.6. the first respondent's obligations in terms of section 156 of the Constitution, as a local authority and under international law.

4. It is declared that the first respondent's decision to re-open all beaches, without compliance with the directives, is unlawful.

5. It is declared that the first respondent's operation of its Wastewater Treatment Works and associated infrastructure, without proper licences, is unlawful.

6. It is declared that the first respondent's decisions in respect of the following are irrational, unreasonable, unlawful and unconstitutional, and are reviewed and set aside:

6.1. The decision of the first respondent to not report events as an 'Emergency Incident' in terms of section 30 of NEMA;

6.2. The decision of the first respondent to not report events as an 'Emergency Situation' in terms of section 30A of NEMA.

6.3. The decision of the first respondent to not file or produce an 'Action Plan' or comply with the aforesaid notices, within the stipulated time frames.

7. Within one (1) month of the date of the order, the first respondent is directed to file an amended Action Plan and any associated reports and substantiating documentation, under oath, with this Court:

7.1. addressing all non-compliances identified by the second and third respondents in each of the aforesaid notices;

7.2. explaining the steps that the first respondent will take in order to comply with the aforesaid notices; and

7.3. setting measurable periodic deadlines for progress.

8. In preparing the Action Plan, the first respondent is directed to pay due regard to the following considerations:

8.1. the need to give legal effect to the public's right to a safe and healthy environment; and

8.2. the need for enhanced monitoring of coastal emissions within the jurisdiction of the First Respondent, including through the urgent improvement, management and maintenance of the Waste Water Treatment Works and related infrastructure, to ensure that verified, reliable data is produced, and that real-time data is made available to the public online.

9. All parties to this application, and any other interested parties, will be entitled to comment on the Action Plan within one (1) month of the date of which it is filed with this Court.

10. The first respondent is directed to file to this Court, and serve on the other parties to this application, monthly reports indicating their progress with regard to the implementation of the Action Plan, after the Action Plan is approved by the court.

11. All parties to this application, and any other interested parties, will be entitled to comment on these monthly reports within thirty (30) days after the date on which they are filed.

12. This Court may, at any stage and on its own accord, after having heard submissions by the parties, make any further direction or orders it deems fit.

13. This matter may be enrolled on a date to be fixed by the registrar in consultation with the Presiding Judge for consideration and determination of the aforesaid reports, commentary and replies.

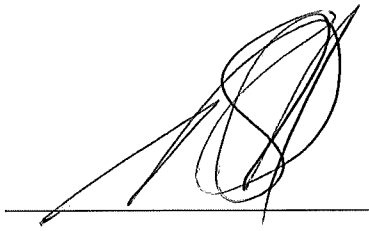
14. The first respondent is directed to discharge its duty of care and remediation of environmental damage, as required by Section 28(1) and (3) of the National Environmental Management Act 107 of 1998.

15. Within six (6) months of the date of the order, the first respondent is directed to file a report, under oath, with this Court, on the progress on the first respondent's discharge of the duty of care and remediation referred to above.

16. the first respondent is directed to pay the costs of this application.

17. Further and/or alternative relief.

DATED AT PIETERMARITZBURG ON THIS 23rd DAY OF JUNE 2023.



MINDE SCHAPIRO AND SMITH INC
Elzanne Jonker
Applicant's attorneys
Care of: **PGPS ATTORNEYS**
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Montrose
Pietermaritzburg
Ref: Rob Stuart-Hill/Arashni/M0013641
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Telephone No: 033 815 1572

TO **THE REGISTRAR OF THE ABOVE HONOURABLE COURT**
KWAZULU-NATAL DIVISION, PIETERMARITZBURG
PIETERMARITZBURG

AND TO: **LEGATOR McKENNA INC.**
First Respondent's Attorneys
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Umhlanga
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4319

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c/o **VENNS ATTORNEYS**

30 Montrose Park Boulevard

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170 Peter Brown Drive

Pietermaritzburg

Ref: H Govender/Amisha/43

(Service by Hand)

AND TO: **STATE ATTORNEY(KWAZULU-NATAL)**

Second, Third & Fourth & Sixth Respondent's Attorneys

6th Floor, Metlife Building

391 Anton Lembede Street

Durban

Reference No: 110/15661/22/E/P5

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c/o **STATE ATTORNEY (KZN) SATELITE OFFICE**

2nd Floor, Magistrate's Court Building

302 Church Street

Pietermaritzburg

(Service by Hand)

AND TO: **MINISTER OF FOREST, FISHERIES AND THE ENVIRONMENT**

Fifth respondent

Environment House, 473 Steve Biko and Soutpansberg Road

Arcadia

Care of: State Attorney, at Sehume Street

Pretoria

(Service by Hand)

IN THE HIGH COURT OF SOUTH AFRICA
KWAZULU-NATAL DIVISION, PIETERMARITZBURG

Case Number: 3036/2023P

In the matter between:

THE DEMOCRATIC ALLIANCE	Applicant
and	
ETHEKWINI METROPOLITAN MUNICIPALITY	First Respondent
THE MEMBER OF THE EXECUTIVE COUNCIL OF WATER AND SANITATION KWAZULU-NATAL	Second Respondent
THE MEMBER OF THE EXECUTIVE COUNCIL FOR ECONOMIC DEVELOPMENT, TOURISM AND ENVIRONMENTAL AFFAIRS, KWAZULU-NATAL	Third Respondent
THE MINISTER OF WATER AND SANITATION	Fourth Respondent
THE MINISTER OF FOREST, FISHERIES AND THE ENVIRONMENT	Fifth Respondent
THE MINISTER OF COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS	Sixth Respondent

---

SUPPLEMENTARY FOUNDING AFFIDAVIT:

Table of Contents

I, the undersigned -

THABANI MBONGISENI MTHETHWA

do hereby make oath and state that:

1. I deposed to the founding affidavit in this matter and am therefore duly authorised to depose to this supplementary founding affidavit on the applicant's behalf.

2. The contents of this affidavit are within my personal knowledge, unless the contrary appears from the context, and are to the best of my knowledge and belief both true

and correct.

3. Where I make submissions of a legal nature, I do so on the advice of the applicant's legal representatives, which I believe to be true and correct.

INTRODUCTION

Record and status of litigation

4. The purpose of this affidavit is to supplement the founding affidavit in light of the records provided to the applicant in terms of Rule 53 of the Uniform Rules ("**Rule 53 Record**").

5. I am advised that the Record 53 Record is already before this Court, having been separately indexed and paginated and filed by the first respondent. That entire record is relevant to this application and the review grounds herein and will be made available to the Court in a separate bundle. However, for this Court's ease of reference, in this affidavit I will refer to the relevant pages of the Rule 53 Record, and where necessary I attach various parts of the record as annexures hereto.

6. On 23 May 2023, this matter came before this Honorable Court to be case managed. An order was granted regulating the delivery of the record and exchange of papers. The applicant sought case management in order to ensure

that the exchange of papers would be complete in time for this matter to be heard alongside the other applications which are before this Court i.e. those brought by ActionSA (11938/2022) and the Department of Water and Sanitation (D12738/2022), and to which reference is made in the founding affidavit.

7. Pursuant to an order of this Court dated 23 May 2023, the Rule 53 Record was delivered on 15 June 2023. This supplementary affidavit was prepared as expeditiously as possible to be filed timeously (within 5 Court days) in accordance with the above Court order.

Synopsis of the contentions on the record

8. The Rule 53 Record is a record of the decisions identified in paragraph 4 of the original notice of motion ("**review relief**"). In that paragraph, the applicant seeks relief declaring the following decisions of the First Respondent to be *inter alia* unlawful and set aside:

> "*4.1 The decision of eThekwini to not report events as an 'Emergency Incident' in terms of section 30 of NEMA;*
>
> *4.2 The decision of eThekwini to not report events as an 'Emergency Situation' in terms of section 30A of NEMA.*
>
> *4.3 The decision of eThekwini to not file or produce an 'Action Plan' or comply with the aforesaid notices."*

9. The review relief is directed at four distinct decisions identified above:

9.1. The first is the decision of the first respondent not to report an 'Emergency Incident' in terms of section 30 of NEMA;

9.2. The second is the decision of the first respondent not to report events as an 'Emergency Situation' in terms of section 30A of NEMA;

9.3. The third is the decision of the first respondent to not file or produce an 'Action Plan';

9.4. The fourth is the decision of the first respondent not to comply with the notices which are set out in paragraph 1 of the notice of motion.

10. For reasons I will deal with below, the Rule 53 Record confirms that the applicant's review relief should be granted, and the decisions should be declared unlawful and reviewed and set aside. The applicant accordingly persists with its application and stands by the initial review relief sought, as supplemented by the contents of this affidavit.

11. That relief goes hand in hand with the relief that is directed at the so-called "**Action Plan**", which has been delivered as part of the Rule 53 Record, and which is intended to remediate and the breaches and contraventions of environmental laws which are the subject of these proceedings. However, as I

intend to show, it reveals neither "action", nor a "plan" on the part of the first respondent, and is one in name only. For reasons I will elaborate on below, the "Action Plan", as it is presently formulated, is defective, contradictory, irrational and not fit for purpose.

12. The above confirms the need for the relief the applicant has approached this Court for – a structural interdict, to provide the necessary oversight of the first respondent, to achieve compliance with the law. The applicant accordingly also persists in its structural interdict relief, suitably amended in the light of the developments arising from the delivery of the record.

13. The record also reveals further unlawful conduct on the part of the first respondent, related to its beach opening (without provincial authorisation) and its failure to secure the necessary water licences and environmental authorisation for its waste water treatment plans. This necessitates further declaratory relief being granted by this Court.

14. To that end, the applicant herewith delivers an amended notice of motion, in terms of Rule 53(4), containing relief responsive to the record and the changes circumstances and revised grounds of complaint and review. A copy of this is attached hereto marked **"SFA1".**

Structure of this affidavit

15. Below I set out the contents of the Rule 53 Record.

16. While the Rule 53 Record is voluminous (unnecessarily so, as it contains many documents which are of no relevance to the impugned decisions), it is incomplete in various respects.

17. Certain of the documents in the Record are incomplete, and at least one is in "draft" form. The applicant directed a letter to the first respondent's attorneys alerting them to this fact, and seeking urgent delivery of those documents. I attach a copy of this letter as annexure "**SFA2**".

18. At the time that this affidavit was deposed to, the complete documents have not been made available. In order to honour the deadlines agreed to, and reflected in the case management order of this Court, the applicant delivers this supplementary affidavit placing reliance on that which is available to it, but it does so under strict reservation of its rights to supplement this affidavit if and when a complete record is delivered by the first respondent, or to contend that the first respondent's own patchy and incomplete record confirms the defective nature of the information that pertains to the decisions under review.

19. After I deal with the record, I turn to the so-called "Action Plan", which has been delivered as part of the Rule 53 Record. I set out first what is contained in the

Action Plan, and thereafter explain to the court why it is inadequate, and irrational. I also explain how, I am advised, this Court may approach the issue and frame its relief to cater for this, and why such relief is necessary and appropriate to be granted by this Court.

20. Thereafter I deal with the remainder of the record, and why it confirms the applicant's existing review grounds, and set out the two further grounds of unlawfulness which arise from the record and its contents.

21. Finally, I set out, and explain the necessity for, the relief that the applicant seeks in the amended notice of motion. This relief, as I will show, is intended to advance and secure compliance with the law and to protect the public, though policing step-by-step, concrete action by the first respondent.

THE RULE 53 RECORD

The documents in the Rule 53 Record

22. The Rule 53 Record comprises 18 volumes. It includes *inter alia* evidence of enforcement action by provincial departments, taken against the applicant, in terms of the National Environmental Management Act ("**NEMA**"), authorities' meetings, (raw) scientific data, consultant reports, and various status reports regarding eThekwini's Waste Water Treatment Works ("**WWTWs**").

23. Specifically:

23.1.1. Enforcement related action taken in terms of NEMA, as contained in the Rule 53 Record, which include directives issued against eThekwini, by the KwaZulu-Natal Economic Development ("**EDTEA**") and Department of Water and Sanitation ("**DWS**").[1]

23.1.2. Incident reports filed by DWS and EDTEA.[2]

23.1.3. Pollution reports and job cards.[3]

23.2. Minutes and attendance reports in relation to various authorities' meetings and presentations, which were convened between 2022 to 2023, include:

23.2.1. Intergovernmental meeting minutes.[4]

23.2.2. eThekwini 'War Room' Resolutions and Presentations.[5]

23.2.3. eThekwini Municipal Council Meetings.[6]

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1 Record: Volume 16.1 (EDTEA) and 16.4 (DWS).
2 Record: Volume 16.6.
3 Record: Volume 14.4.
4 Record: Volume 10.
5 Record: Volume 11.
6 Record: Volumes 7, 8 & 9.

23.3. Scientific data, expert reports and various inspection and status reports regarding eThekwini's WWTWs. In this regard the Rule 53 Record contains:

23.3.1. DWS inspection, assessment and status reports conducted for various WWTWs within eThekwini.[7]

23.3.2. Operation, repair and maintenance plans for various WWTW within eThekwini.[8]

23.3.3. Consultant Reports that have been prepared for eThekwini Water & Sanitation ("**EWS**") with respect to various WWTW.[9]

23.3.4. Records of eColi testing results taken from various point-sources and non-point sources within eThekwini.[10]

23.4. Information relating to the tender procurement processes that have commenced in relation to the repair and maintenance of various WWTWs within eThekwini.[11]

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7 Record: Volume 2.1 – 2.3.
8 Record: Volumes 5, 6, 14, 17 & 18.
9 Record: Volume 12.
10 Record: Volume 13.
11 Record: Volumes 3 & 4.

23.5. The "Action Plan".[12]

24. No reasons for the decisions have been furnished with the Rule 53 Record, despite reasons being called for in the notice of motion (see paragraph (b) on page 5 of the notice of motion). The applicant and the Court are therefore entitled to accept that there are no such reasons, and the impugned decisions are irrational for this reason alone.

25. This is not a matter on which the first respondent is entitled, in its answering affidavit, to supplement through editorialized comment under oath. Our courts have repeatedly stated that *ex post facto* reasons for a decision, provided by an administrator after the fact and to bolster its decision, fall to be rejected.

26. Accordingly, despite volumes of record material, the Rule 53 Record fails to offer any insight into, or the reasons why, the impugned decisions were taken (or not taken, in that instance) and that is not a position on which the first respondent can improve in its answering affidavit.

27. However, the first respondent's position, with respect, is worse. If anything, the Rule 53 Record – particularly the documents filed in support of its Action Plan – confirms that the impugned decisions are unlawful and should be declared as such, and set aside by this Court.

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12 Record: Volume 1.

28. The Rule 53 record also reveals and confirms further unlawful conduct on the part of the first respondent which should be declared as such:

28.1. The decision of the first respondent to re-open all beaches without proper authorization from the provincial Departments on whose instruction it acted in closing the beaches.

28.2. The decision of the first respondent to operate various of its WWTWs without water use and environmental licences.

29. Before engaging with the grounds of review any further, it is necessary, given the period that has elapsed since the institution of this application, to address certain material developments that have recently occurred and which have a bearing on the third decision relating to the 'Action Plan'.

THE "ACTION PLAN" DELIVERED IN THE RULE 53 RECORD

30. On 29 May 2023, eThekwini Municipality filed an Action Plan with the above Honourable Court in respect of the proceedings instituted by Action SA under case number D11938/2022 ("**the Action Plan**").

31. The very same Action Plan has now been delivered as part of the Rule 53 Record in the present application.

32. In the first instance, the delivery of the Action Plan confirms that this application was properly brought. The Action Plan is a reactive Action Plan, filed in response to litigation and not one which would have seen the light of day had no litigation been commenced against the first respondent. That is so despite repeated entreaties for an Action Plan prior to the litigation being launched.

33. The delivery of the Action Plan at this juncture is a remarkable admission of failure on the part of the first respondent – recognizing what it has known all along it ought to have done, but which it failed to do until it had been taken to Court by the applicant and ActionSA.

34. The failure by the first respondent to timeously prepare and publish an Action Plan – actively, instead of reactively – is inexplicable. Not only is the first respondent aware of the law and well-resourced, but it had been called on by provincial government to produce such a plan, as I will explain in greater detail below.

35. As if this were not enough, it was given ample notification that legal action would be taken against it should it not address the necessary remedial steps arising from its breaches of NEMA. As the correspondence attached to the founding affidavit bears out, the applicant was met with "*head-in-the-sand*" denials and scapegoating by the first respondent, instead of simply providing an Action Plan.

36. The approach by the first respondent confirms precisely why relief in the nature of a structural interdict, as sought by the applicant in its notice of motion, is required. The first respondent simply cannot be expected to comply with its legal obligations in relation to the critical function of ensuring safe beaches for its residents unless it is policed to do so by this Court.

37. The delivery of the Action Plan in the present circumstances was, it appears, intended to relieve the "*pinching shoes*", so as to nullify certain of the relief in the present application. Its delivery, however, does the opposite – it confirms, as the applicant has all-along suspected, that the first respondent did not have any plan in place, and simply moved from crisis to crisis.

38. This also confirms that the first respondent cannot be expected to comply with the law and fails to understand its legal and constitutional obligations as local authority. It must therefore be guided and directed by this Court about how to do this work, lest it will not be done, to the manifest and ongoing prejudice of the public.

39. I turn to the 'Action Plan' below.

Overview of the 'Action Plan'

40. Volume 1 of the Rule 53 Record contains the first respondent's Action Plan.[13] Because the centrality it has now assumed in these proceedings, the Action Plan (along with its annexures) is annexed hereto as "**SFA3**.

41. Attached to the Action Plan are annexures A – I, being:

    41.1. Annexure A: Standard Operating Procedures for sewerage pipe maintenance.

    41.2. Annexure B: Sewerage Network Maintenance Plan.

    41.3. Annexure C: Standard operating procedures for sewerage pump maintenance.

    41.4. Annexures D-I: Consultant reports for the various waste water works.

42. The author of the Action Plan is undisclosed. The Action Plan is not dated. It does not explain its purpose or the reason it has been brought into existence. It does not reference any challenges. The first page of the Action Plan is a filing sheet, where the Action Plan was delivered in the ActionSA proceedings – making its relevance, or its status in *these proceedings* unclear.

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[13] Record: Volume 1.1.

43. As I will show, much like the Rule 53 Record, the Action Plan – despite being voluminous – similarly fails to fulfill its purpose and offers no reasonable prospects of rehabilitation.

The 'Action Plan' is deficient

44. For reasons which I outlined below, the Action Plan is inadequate and its delivery does not obviate the need for the relief (set out below) which the applicant foreshadowed in its notice of motion (at paragraphs 5 and 6) which provide that:

> *"5. Within one (1) month of the date of the order, the First Respondent is directed to file an Action Plan and any associated reports, under oath, with this Court:*
>
> *5.1 addressing all non-compliances identified by the Second Respondent in each of the aforesaid notices;*
>
> *5.2 explaining the steps that the First Respondent will take in order to comply with the aforesaid notices; and*
>
> *5.3 setting measurable periodic deadlines for progress.*
>
> *6. In preparing the Action Plan, the First Respondent is directed to pay due regard to the following considerations:*
>
> *6.1. the need to give legal effect to the public's right to a safe and healthy environment; and*
>
> *6.2. the need for enhanced monitoring of coastal emissions within the jurisdiction of the First Respondent, including through the urgent improvement, management and maintenance of the Wastewater Treatment Works and related infrastructure, to ensure that verified, reliable data is produced, and that real-time data is made available to the public online"* (emphasis added).

45. For the reasons outlined below, I submit that the Action Plan is deficient in respects of both requirements set out at paragraphs 5 and 6 of the notice of motion.

Paragraph 5: the Action Plan fails to ensure accountability

46. At best, the Action Plan can be described as an attempt to demonstrate that the first respondent's worsening sewage crisis is under control – which I submit is simply not the case, nor the lived experience of eThekwini's residents.

47. It fails to address all reported non-compliances, it fails to set measurable, periodic deadlines for progress and further fails to set out any concrete steps that lead to these issues being resolved. It is also contradictory and demonstrably misleading in parts. I say this for the following reasons:

47.1. the present application arose as a result of the first respondent's disregard for the law and the significant detrimental impact its administration has had on the environment and health of its people, conduct which has resulted in several compliance and enforcement directives being issued against first respondent (which called for an action plan).

47.2. Despite the purpose of the Action Plan being to remedy the non-compliance in the directives, the Action Plan fails to mention any of these directives. Nor are the content of the directives dealt with.

47.3. By failing to respond to these directives, let alone mention them, the first respondent not only continues to disregard the gravity of the situation, its legal obligations and constitutional responsibilities as an organ of state, but fails to address and achieve the very reason for the Action Plan in the first place.

47.4. Below I refer to the directives which specifically required an Action Plan to be filed by the first respondent, and which the Action Plan (now filed) ought to have addressed. However, as I have explained, the Action Plan does not even make reference to those directives, let alone address the substance of them. It is thus clearly an Action Plan heralded for the Court, rather than an Action Plan that is reactive to the statutory directives issued against it.

47.5. Moreover, the Action Plan fails to set any realistic, measurable and periodic guidelines for progress. Instead it is full of positive marketing language, platitudes and generalized statements that are vague and at best aspirational.

47.6. For example, the section headed "*Overall Progress on Wastewater Pumpstations*"[14] which was intended to provide an overview of crucial

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14 Record: Pages 18 -25 (Volume 1.1.)

information (i.e. urgency of repairs required, extent of repairs required, and the estimated date of repairs completed) fails to support any of its optimistic findings.

47.7. For example, it states that "*93% of the pumpstations that had storm damage have been repaired to operating standards*".[15] However, such statements are made without any supporting evidence, and the statement is so vague it is not even clear if that means that pumpstation now works and in what respects. It is unsubstantiated speculation.

47.8. Why the first respondent appointed a team of independent consultants (whom I assume were experts) to prepare technical assessment reports in respect of its various WWTWs, and not its Action Plan, confounds me. The effect of doing so is that the Action Plan and its annexures do not speak to each other at all.

47.9. In addition to this, there are no *actual* concrete steps in place to support the implementation of this Action Plan.

47.10. This is evident from pages 167 to 177 of the Action Plan, which clearly demonstrate more than 100 residential sites, where first respondent in parrot-fashion describes the progress at <u>all</u> sites as "*repairs to be*

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15 Record: Page 25 (Volume 1.1.)

completed via CIP Contract. Current status – site meeting and sourcing quotations".

47.11. This provides no indication whatsoever of progress. There is no indication as to when the quotation process will close or when funds are likely to be released, let alone when the repairs might actually be done. This vagueness not only defeats the purpose of an Action Plan, but impermissibly shields the first respondent from any scrutiny of it.

47.12. It remains hopelessly inadequate. Even if the funds are allocated timeously, it is likely that first respondent will be inundated with requests for repairs and lack the capacity to conduct them.

Paragraph 6: the Action Plan lacks 'teeth'

48. In addition to what I have outlined above, the Action Plan fails to give effect to the necessary legal (monitoring, compliance and enforcement) considerations required of first respondent , and ultimately fails to give legal effect to the public's right to a safe and healthy environment.

49. One of the ways in which it does this is by ignoring the need for the enhanced monitoring of coastal emissions. No attention is given to the critical topic of coastal emissions in the Action Plan, let alone its monitoring.

50. The Action Plan also side-lines the public by failing to make provision for access to verified, reliable data regarding the state of beaches in eThekwini and the first respondent's remedial progress. In this regard, real-time data is required, and should be made available to the public online. It is no answer to suggest that the public might have regard to out-of-date eColi readings – what the public need to know is the "real-time" state of the beaches they wish to walk on, swim at, fish at, or visit. It does not assist to provide readings from days or weeks prior, when what the public need to know is whether any particular pump station is functioning or emitting raw sewerage into the beaches they wish to enjoy.

51. That would enable the public to take informed decisions on whether to risk going to the beach. Publishing eColi results days afterwards, confirming that it was dangerous to swim in the water, does not assist. By then, the public has either elected not to risk going to the beach, or may be suffering the consequences of taking such a risk, based on the lack of information provided by eThekwini.

52. Such transparency is not only necessary practically, but also as a matter of principle: a local government should be transparent with its citizens about the status of critical infrastructure affecting their well-being. If a pump station is off-line or emitting effluent, the public should be reasonably apprised of the facts. The Action Plan entirely overlooks this information function.

53. Moreover, without adequate environmental monitoring, it is highly unlikely that the first respondent would be able to accurately identify environmental stressors, understand pollution trends and hotspots, or even be in a position to monitor the effectiveness of its own strategies.

54. In the present circumstances, enhanced monitoring would (and should) include *inter alia* the following improvements:

54.1. Periodically updated objectives and water-quality targets – which are accurate, realistic and achievable.

54.2. Improved monitoring and 'real-time' reporting of industrial and coastal emissions that is made available to the public.

54.3. Periodic source apportionment studies that would be conducted used to develop and inform potential interventions.

55. Notwithstanding the importance of coastal monitoring, the first respondent inexplicably fails to make any provision for this in its Action Plan.

56. In doing so, it offers no more than a glorified "*to-do list*" of outstanding repairs.

The Action Plan is reactive – not proactive

57. Despite the Action Plan itself ignoring the context and reasons for its creation, plainly it is a knee jerk reaction, filed in an attempt to placate the Court and assure it of the first respondent's *bona fides* and actions.

58. This is clear because no mention of the plan existed before the litigation. The position adopted by the first respondent prior to the institution of this application is reflected in its letter of 21 November 2022 (annexure "**TM25**" to the founding affidavit).

59. This is also clear because no party, other than the first respondent, has had a chance to provide input on the Action Plan. It is a creation of the first respondent, without regard to or input from the public who have been so deeply affected by the first respondent's action (and inaction) over the months and years. It has been prepared and published in the haste to save face in the litigation.

The insufficient, misleading and contradictory Action Plan

WWTWs impact on the coastal environment

60. The 'Action Plan' suggests – without providing any evidence for its claims – that the situation is under control, as "*there are 27 [WWTWs] in the city. There is*

currently no overflow from any treatment works to the rivers or sea".[16] This mimics the now discredited narrative the first respondent adopted in its pre-litigation letter in November 2022.

61. However, on the very next page, entitled "*Overall Progress on Water Pumpstations*", the first respondent contradicts this statement with its own evidence, by providing a table which indicates that there are 6 pumpstations/WWTWs that are **non-operational across eThekwini – 4 of which are "*currently impacting beaches*"** (emphasis added).

62. Both of these statements cannot be true. It is not possible that beaches can be impacted without, as the first respondent suggests, any overflow from WWTWs to the rivers or sea. It reveals that the optimistic narrative is just window dressing, designed to look good and sound impressive, but bearing no rational relationship with the real crisis that exists on the ground or any meaningful means by which to solve that crisis.

Vandalism

63. The report is also inaccurate according to information provided by the first respondent itself. The "*Overall Progress on Water Pumpstations*", also makes

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16 Record: Page 17 (Volume 1.1.)

mention of 28 pump stations that have allegedly been vandalised. However, in annexure "**TM25**" at page 191 of my founding affidavit, the first respondent contradicts itself by stating that 31 pumpstations have been vandalised. The findings presented are clearly unreliable.

64. Even if one looks past the unreliable and contradictory data presented in the Action Plan, there is no mention of any risk assessment, conducted by an expert, which identifies vandalism as a material threat to the first respondent's WWTWs, nor does it provide any associated plans to prevent such harm/conduct.

65. Moreover, the tender documents contained in the Rule 53 Record[17] – which call for the repair and refurbishment of various WWTWs within eThekwini – fail to provide for specific security measures to be taken. I emphasise that the contracts provided to the applicant, specifically call for repairs and not security upgrades, and where security is mentioned, the first respondent makes clear that this is not their responsibility. As it is the Contractor who, for the duration of the contract, "*shall provide…sufficient security [and] watchmen to adequately ensure the safety and protection of the works, the Contractor's staff, including local labor and subcontractors, and all site plant and construction equipment required for the works if deemed necessary by the contractor at no extra cost to the Employer. Site security, in conjunction with the SAPS (where necessary), shall be responsible for removal of disruptive elements, that may interrupt the progress of*

17 Record: Volumes 3 & 4.

the contract through acts such as, but not limited to, intimidation, threats of disruption, violent disruption or criminal and illegal activity by the local community of independent organisations or entities that may result in slowing down or partial or total stoppage of the works" (emphasis added).[18]

66. Similarly, there appears to be no mention of any concrete, tangible steps that were taken to address the alleged issue of vandalism, in any of the Municipal Council Decision Circulars and Minutes or eThekwini's 'War Room' Resolutions.

67. Against such evidence, such omissions can only confirm the allegations contained in paragraph 147 of my founding affidavit, which suggest that the issue of vandalism raised by the first respondent is either entirely fictious, or a real threat that eThekwini has (irrationally) failed to appropriately respond to.

Extreme weather events and climate resilience

68. The Action Plan's title page headed "*eThekwini Water & Sanitation: Sanitation Operations Action Plan: Storm Damages*" (emphasis added).[19] It is important to note that, once more, the first respondent and their consultants attribute their failing infrastructure and the existing sewage crisis to the April/May 2022 storms.[20] Again, this is no more than unacceptable scapegoating.

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18 Record: Page 336 (Volume 4.4.)
Record: Page 497 (Volume 3.2)
19 Record: Page 7 (Volume 1.1.)
20 Record:Page 7 (Volume 1.1).

69. While the April/May 2022 storms were particularly severe, it is important to note that extreme weather events are not a new or unexpected occurrence and ought to be provisioned for in planning by a responsible local government. For example, heavy rainfall and severe flooding have been reported – with devastating effect – as far back as 1865 and more recently, 2017.

70. Caselaw (to which reference will be made at the hearing of this matter) confirms that this is a relevant factor to consider. Indeed, the first respondent's own documents confirm its relevance. The document in the record titled "eThekwini Municipality Water Services Development Plan 2019" itself makes reference to climate change.[21]This document is included under the Master Plan and is incomplete. This has been called for by the applicant, but has not been produced by the first respondent by the time this affidavit was deposed to.

71. Moreover, due to the advent of climate change it is highly likely that there will be an increase in the frequency and/or severity of such extreme weather events. This is an unfortunate reality of life in the 21st century and cannot be ignored.

72. Yet, the Action Plan is not responsive to this. It makes no mention of this or climate resilience at a broader level, nor is there any mention of preventative or precautionary measures that have been devised to guard against such

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21 Record: 359 (Vol 1.4), see (page 70 of its index).

(increasingly inevitable) re-occurrences.

73. In light of the above, it is unclear why the first respondent would not make any reference to climate change (be it the potential impacts, susceptibility or resilience) in its Action Plan, and even more so in circumstances, where the Rule 53 Record contains the "*eThekwini Municipality Water Services Development Plan 2019*" which specifically refers to 'climate change' in its index.[22]

74. However, this is as far as this reference goes, as the document is incomplete, and the applicant was only provided with 11 pages of the document, as I have explained above.

75. In short, the Action Plan caters for no contingencies and no extreme weather. It does not cater for climate change, or suggest that the first respondent has learnt anything from or is responsive to the extreme flooding that it now blames for the state of its infrastructure and sewerage works. It is inadequate and irrational, and it woefully confirms that there is no plan, let alone an adequate or well-thought through response to further flooding and climactic events that lie ahead for eThekwini and its people.

eThekwini's Sewer Pipe Network

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22 Record: Page 360 (Volume 1.4.)

76. Having regard to eThekwini's Sewer Pipe Network related issues, the Action Plan states that the basic function of EWS is *'the clearance of sewer blockages, of which there are an average of 230 daily. 98% of the blockages are caused by an abuse of the sewer system with the public putting rags, sanitary wear, fats etc. into the sewer network. Only 2% of the blockages are caused by the damaged infrastructure. The response to the blockages is between 4hrs and 24hrs. The damaged infrastructure is repaired and the response time to the repair is generally 24hrs*" (emphasis added).

77. Once again, unacceptable scapegoating is on display. The first respondent is intent on blaming its citizens for the issues experienced within its Sewer Pipe Network, when this is precisely the type of work expected of a local government and to which any plan should be responsive. This is the work of local government, not an excuse for not doing the work of local government.

78. Moreover, the suggestion that blockages and damaged infrastructure are generally repaired within 24 hours is patently false and misleading. The first respondent's own evidence contradicts this as the Rule 53 Record includes a list of more than 100 repair sites that remain unresolved, with an estimated completion date for repairs as "2022/2023".[23] This alone confirms that faults may have been reported in 2022 and were only scheduled to receive repairs in 2023, and not responded to within 24 hours.

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23 Record: Page 167 – 177 (Volume 1.2).

79. It is also worth pointing out that as "**Annexure B**" to the Action Plan, a document entitled "*Wastewater Networks: Operation and Maintenance Plan*" dated 28 October 2022 was prepared to "*ensure that there is a maintenance [sic] to keep the Sanitation Network Infrastructure in the desired state to provide adequate service delivery*".

80. "**Annexure B**" gives the impression of it being a 'new document' (as it is dated 28 October 2022, marked *"Revision 0"* and was approved for implementation in 2023).

81. Yet, it rather curiously, contains several references to a review date of 1 April 2013 throughout the document.[24] Once more, this can only be construed as an example of the unreliable data presented as part of eThekwini's Action Plan, of which it has rushed to produce in an attempt to scupper litigation against it, where doing so is ill-conceived and irrational.

82. Elsewhere in this affidavit I have complained that the Action Plan is a reactive step to save face in court processes, rather than one to address legal non-compliance. That is most obvious by the fact that the annexes to the Action Plan are not only dated and do not speak to or provide support for the various points made in the tables and slides, but also that the Action Plan does not contain the

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24 Record: Pages 40, 45 & 51 (Volume 1.1).

report of an Environmental Assessment Practitioner, or independent expert, dated after May 2022 (to respond to this DWA directive), and it does not contain a Remediation and Rehabilitation Plan, any evidence of the implementation of that plan, or respond to or contain what was required in response to the directive's command that: "Within 14 days of completion of the remediation, submit to this Department a Post-Remediation Report and a Monthly Monitoring Report."

83. The monthly monitoring report is accordingly a requirement not only of the directive, but also to meet the obligations under section 24 of the Constitution and the other constitutional provisions highlighted in the founding affidavit. I shall refer to this requirement further in discussion of the remedial relief and supervisory interdict.

84.

Summary on Action Plan

85. I have dealt above with certain of the most obvious defects in the Action Plan.

86. The delivery of the Action Plan, at this stage – in May and June 2023 – does not undo the damage or render the first respondent's unlawful failure to prepare an Action Plan to address and remedy environmental non-compliance now lawful.

87. It also does not immunize the first respondent from scrutiny. The notice of motion at all times envisaged relief intended to allow the court, and the parties, to

scrutinize the Action Plan both for its content (i.e. what it covered and contained) and to ensure that the first respondent has regard to the necessary considerations in formulating the plan. That is precisely the relief called for in response to the present Action Plan.

88. I turn now to the review grounds.

THE RECORD CONFIRMS THE EXISTING GROUNDS OF REVIEW

89. I set out below how the Rule 53 record, as well as the recent developments described above, support each of the grounds of review and illustrate why it is just and equitable for this Court to grant an order in terms of the Amended Notice of Motion.

First ground: No 'Emergency Incident' reported (section 30, NEMA)

90. The Record confirms that no "emergency incident" was reported by the first respondent.

91. In terms of NEMA, "*incidents*" in terms of section 30 of NEMA, is defined to include an unexpected, sudden, and uncontrolled release of a hazardous substance that causes, has caused, or may cause significant harm to the environment, human life, or property.

92. While such an incident may include a major emission, fire, or explosion, the

unexpected breakdown of water infrastructure and capacity arising from the April floods, and resultant risk to the public, certainly also constituted one. Therefore even assuming the first respondent is entitled to lay its failures at the door of the April floods, it nonetheless required action on the part of the first respondent.

93. It is now common cause that the first respondent has failed in its duties in this regard, and as a result fails to ensure accountability, transparency, and responsiveness, all of which have been flouted and all of which are imposed on the first respondent under section 195 and 237 of the Constitution. The public (who is not aware of the existence of an emergency) are in the dark and cannot act on the emergency and are, by virtue of the failure to make the necessary disclosures, excluded from public affairs.

94. That the first respondent failed in this regard is a complaint the applicant is not alone in making.

95. It has recently come to light that the first respondent is the subject of a section 154 intervention by provincial government, apparently at the direction of national government, to stabilize the first respondent's finances and administration. Section 154 of the Constitution permits national or provincial government to "*support and strengthen the capacity of municipalities to manage their own affairs, to exercise their powers and to perform their functions*". It is a section which is one step away from a section 139 intervention into the affairs of a municipality.

96. Part of the reason for the first respondent's failure is, I understand, the water and sanitation management of the first respondent and the ensuing crisis.

97. This intervention is itself a recognition of the first respondent's failure adequately to discharge its constitutional and statutory duties, which is the very reason for this application.

98. These failures have also been confirmed by the recent Auditor-General Report, which shows that the first respondent has failed in various aspects of its flood relief and there has been a "*complete lack of coordination within eThekwini departments as well as the City and the water and sanitation department*". It also reports that there has been "*little oversight on work done by contractors and underspending of flood relief funds*". This media report is annexed as "**SFA4**".

99. It has also since been reported that the first respondent has sought an additional R2 billion to fix its infrastructure, on top of the R1.5 billion already allocated to eThekwini after severe damage from floods in 2022. According to media reports, which I annex as **"SFA5"**, the first respondent wants R2 billion from the Investment and Infrastructure Office, which is housed in the Presidency, to fund its provincial government's programme to fix the city of eThekwini's dilapidated infrastructure.

100. This is important because it provides yet further evidence that the Action Plan is not an Action Plan, but an aspirational document or wish list. No "action" can be taken without the necessary funding in place to do so. The first respondent itself has been at pains to highlights its resource constraints. It is entirely irrational to prepare a "plan" without having in place the necessary budget. A local authority must achieve its constitutional duties within its available resources. Yet it is entirely unclear from the Action Plan what the first respondent regards its "available resources" as being. This impacts on what can be done and the period in which it can be done.

101. Determining finances should, logically, have been the very first consideration for the first respondent. The Action Plan is accordingly defective and vague not only in what it intends to achieve but in how it intends to achieve it.

102. All of the above confirms that the situation was an emergency calling for drastic and serious action. Yet the first respondent has refused to declare such an emergency.

103. In addition to this legal duty, the Rule 53 Record makes it clear that the first respondent has also failed to act in accordance with its own internal procedures, particularly those set out in its "*Environmental Incident and Failure Response Plan*". In terms of this plan, in instances where there is "*an unexpected, sudden and uncontrolled release of a hazardous substance*" that has or will cause significant harm to the environment, human life or property, the first respondent is

directed to take action in terms of its 'Section 30 Procedure'.

104. The 'Section 30 Procedure' contained in the first respondent's own internal policy, requires:

104.1. eThekwini (EWS P&E) to immediately (within 48 hours) report the emergency incident to EDTEA by dispatching an 'Alarm Report'.

104.2. Steps must then be taken to contain the incident, clean the area and conduct the necessary remedial work.

104.3. Thereafter, eThekwini (EWS P&E) must "*compile an Emergency Incident Report as per sections 30 (3,4 & 5 completed)* [sic] *of NEMA within 14 days*".[25]

105. None of the above took place, the Rule 53 Record bears out. The inescapable conclusion is that the first respondent wished to avoid the scrutiny to which such reporting would give rise for its own self-serving ends, and therefore caused it to flout its legal duties.

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25 Record: Pages 72 - 73 (Volume 1.1).

106. The Rule 53 Record puts it beyond doubt that the first respondent has flouted its legal duty, as well as its internal protocols, by failing to report the emergency incident to the DWS and EDTEA; by failing to contain the incident, clean the area and conduct the necessary remedial work, and in failing to report thereon.

107. Therefore, the applicant persists in contending that this failure to report events as an emergency incident is to be declared unlawful in terms of section 30 of NEMA, and is also subject to review on the following grounds:

107.1. Section 6(2)(b) of PAJA and the principle of legality, as mandatory and material procedures or conditions contained in NEMA and its internal procedures were not complied with.

107.2. Section 6(2)(l) of PAJA, because the failure to take a decision was procedurally unfair, or the principle of legality in that the decision was procedurally irrational.

107.3. Section 6(2)(f)(i) of PAJA and the principle of legality, as this failure to take a decision contravened section 30 of NEMA.

107.4. Section 6(2)(f)(ii) of PAJA and the principle of legality, as the decision not to report events in terms of section 30 of NEMA was not rationally connected to the purpose for which it was taken, the purpose of the

empowering provision or the information before the decision-maker.

Second ground: no 'Emergency Situation' reported (section 30A, NEMA)

108. In terms of section 30A of NEMA, 'emergency situations' in terms of section 30A of NEMA, are defined as a situation that has arisen suddenly that poses an imminent and serious threat to the environment, human life or property. Because an "emergency situation" excludes an 'incident' envisaged under section 30 of NEMA, the applicant contends that this section is engaged in the alternative.

109. Again, eThekwini's own policies are clear. In instances where immediate action is needed to protect human life, environment, or property, the "*Environmental Incident and Failure Response Plan*" directs eThekwini to follow its 'Section 30A Procedure' and report the incident to DWS and EDTEA, within 24 hours.[26]

110. There is no evidence in the Rule 53 Record which suggests that the Section 30A Procedure was complied with, or whether any incident report – prepared in terms of section 30A (or even section 30) of NEMA – was ever filed with the relevant authorities.

111. At best, the Rule 53 Record provides evidence of various internal reports entitled "*eThekwini Water and Sanitation Works Branch Failure and Incident Response*

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26 Record: Pages 72 - 73 (Volume 1.1).

Management – Incident Reports". These reports merely provide evidence of the matter being escalated internally and reported to eThekwini's Pollution and Environment department.

112. There is also nothing in the Rule 53 Record that suggests eThekwini reported these incidents to the DWS and EDTEA in terms of section 30A of NEMA.

113. That there was an emergency is unquestionable. This was recognized by EDTEA when it issued an "Emergency Authorisation" directive to the first respondent.[27] This section 30 exemption, dated 16 April 2022, is annexed as **"SFA6"**, for this Court's ease of reference.

114. EDTEA doing so does not excuse the first respondent from itself discharging its obligations under NEMA to declare the situation an emergency. This is apparent from the directive itself - it does not grant authorisation or exemption from compliance with relevant and applicable legislation. This is confirmed, in any event, by the fact that EDTEA issued further directives after 8 June 2022.

115. Therefore, the Applicant persists in contending that this failure to report events is to be declared unlawful and is also subject to review on the following grounds:

115.1. Section 6(2)(b) of PAJA and the principle of legality, as mandatory and material procedures or conditions contained in NEMA and its internal procedures were not complied with.

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27 Page 24 of Volume 16.1.

115.2. Section 6(2I) of PAJA, because the failure to take a decision was procedurally unfair, or the principle of legality in that the decision was procedurally irrational.

115.3. Section 6(2)(f)(i) of PAJA and the principle of legality, as this failure to take a decision contravened section 30A of NEMA.

115.4. Section 6(2)(f)(ii) of PAJA and the principle of legality, as the decision not to report events in terms of section 30A of NEMA was not rationally connected to the purpose for which it was taken, the purpose of the empowering provision or the information before the decision-maker.

Third ground: eThekwini failed to file an 'Action Plan' timeously; and failed to comply with the notices/directives issued against it.

116. As I have dealt with above, an incomplete and irrational Action Plan has now been filed in response to this and the ActionSA litigation.

117. In my founding affidavit,[28] I explained that the first respondent ignored not only the circumstances within the municipality which required it, but also the enforcement notices issued against it by the relevant authorities, which required

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28 Founding Affidavit: Paragraphs 28 to 30

it to *inter alia* develop a meaningful Action Plan in response to the worsening sewerage and water treatment crisis.

118. It is important to note with respect to the EDTEA directives, that the first respondent , for the most part, provided no independent record of what directives were issued against them by the relevant authority. Volume 16.1 primarily contains copies of the annexures we initially attached to our founding affidavit and even remain marked as such i.e. "TM7",[29] "TM8",[30] "TM9",[31] "TM10",[32] "TM11",[33] "TM12",[34] "TM13",[35] "TM14"[36] and "TM15".[37] There is no indication that this is a full and complete record of all directives that have been issued against eThekwini by EDTEA.

119. In any event, as the Rule 53 record now bears out:

119.1. On 8 June 2022, EDTEA issued a pre-directive in terms of section 28 of NEMA, against eThekwini, in respect of general environmental degradation caused by the damage to numerous WWTWs ("**8 June Pre-Directive**"). In the 8 June Pre-Directive, eThekwini was informed of the intended enforcement action that would be taken against it and that it would

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29 Record: Page 91 (Volume 16.1).
30 Record: Page 1 (Volume 16.1).
31 Record: Page 15 (Volume 16.1).
32 Record: Page 19 (Volume 16.1).
33 Record: Page 50 (Volume 16.1).
34 Record: Page 72 (Volume 16.1).
35 Record: Page 78 (Volume 16.1).
36 Record: Page 5 (Volume 16.1).
37 Record: Page 10 (Volume 16.1).

be required to "*provide the Department with an assessment report of damages caused to WWTS, pump stations and collapsed trunk sewer lines and a **'Plan of Action'** on how the Municipality intends on dealing with the repairs to the high and moderately impacted WWTS and pump stations as indicated in Annexure I. This report must be submitted to the Department within fourteen (14) days of receipt of the Directive*" (emphasis added). [38]

119.2. eThekwini submitted representations in response to the 8 June Pre-Directive (which included documents in support of a 'Plan of Action' but no actual plan was provided). It was inadequate, and due to EDTEA's dissatisfaction with the representations, a section 28 directive was formally issued on 25 August 2022 ("**25 August Directive**") wherein, eThekwini was directed to *inter alia* file a 'Plan of Action' (as described in the 8 June Pre-Directive) within 14 days of receiving this directive.[39] A copy of this directive is annexed as "**SFA7**".

120. Still no 'Plan of Action' was filed within the stipulated period of 14 days. From the Rule 53 Record, it appears that the only response to the request for a 'Plan of Action' was eThekwini's representations in response to the 8 June Pre-Directive.[40] This was inadequate and insufficient and necessitated the 25 August Directive.

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38 Record: Page 50 (Vol.16.1)
39 Record: Page 65 (Vol.16.1)
40 Record: Page 60 (Vol 16.1)

121. From the Rule 53 Record, it also becomes apparent that, over the last year DWS had also issued a directive against the first respondent, which similarly called for an Action Plan to be filed. I specifically refer to the compliance notice dated 13 May 2022 ("**13 May Directive**")[41] issued in respect of pollution emanating from various WWTWs across eThekwini. I annex this directive as **"SFA8"**.

122. In terms of which eThekwini was required to:

122.1. "*Within 20 days...assess the integrity of the sewerage infrastructure and submit an Action Plan with time frames, and allocated or required funding, outlining remedial measures taken and those that will be taken to prevent further pollution*" (emphasis added).[42]

122.2. "*Within 20 days...engage at your own expense, an Independent Environmental Assessment Practitioner (EAP) or engage relevant internal Professional Specialist Expertise to assess the extent of the environmental damage caused by sewage overflow from burst pipes, broken manholes, malfunctioning pumpstations and/or other related damaged sewage infrastructure on the surrounding environment and affected water resources; and compile a Rehabilitation and Remediation Plan. Within the same time frames, submit the above-mentioned reports for review and approval by this Department prior to its implementation*" (emphasis

41 Record: Page 207 (Vol. 6.4)
42 Record: Page 211 (Vol. 6.4 at paragraph 3.2)

added).[43]

122.3. "*Within 30 days...implement intervention measures to stop all pollution emanating from burst pipes, broken manholes, malfunctioning pumpstations and/or other related damaged sewage infrastructure that is discharging or has the potential to discharge untreated sewage into water resources within the eThekwini Metropolitan Municipality*".[44]

122.4. "*Within 14 days of completion of the remediation, submit to this Department a Post-Remediation Report and a Monthly Monitoring Report*".

123. Similarly, on 13 June 2022, the first respondent submitted representations in response to the 13 May Directive, indicating that it required an extension to fully comply with the 13 May Directive and that "*the required extension would not prejudice you or the environment including the water resources as measures are being undertaken to ensure that the repairs to the sewerage infrastructure is proceeding to mitigate any further pollution to the receiving environment* [sic]". It also submitted information in respect of an Action Plan, but not an Action Plan as required.[45]

124. DWS responded on 4 July 2022,[46] indicating *inter alia* that "*the Department is of the opinion that eThekwini Metropolitan Municipality is not engaging with the*

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43 Record: Page 211 (Vol. 6.4 at paragraph 3.3)
44 Record: Page 211 (Vol. 16.4 at paragraph 3.6)
45 Record: Page 214 – 215 (Vol. 16.4)
46 Record: Page 217 (Vol. 16.4)

Department of Water and Sanitation in good faith". The response further states that the Action Plan called for (amongst several other reports) has not been submitted, nor have adequate remedial measures been taken to prevent pollution.

125. On 13 July 2013, the first respondent once more made representations, which *inter alia* included an Action Plan.[47] DWS then gave due consideration to the information presented by eThekwini, which it deemed inadequate as it failed to provide DWS with a "*holistic view of the progress made*" and called for further information around, *inter alia*, specific completion dates for anticipated repairs in the document titled "*Priority List Damage via ETA contractors 12 July 2022*".[48]

126. In light of the above, it is evident that the first respondent failed to timeously submit an Action Plan in response to the directives issued against it by both the EDTEA and DWS.

127. It also confirms the complaints I have raised above regarding the substance of the Action Plan. As I have explained, that Action Plan is silent as to the DWS directive (or any directive at all) and does not therefore respond to it.

128. The Rule 53 Record now contains the only Action Plan that has been filed to date. It was filed in May 2023, in this and the ActionSA litigation. It was filed outside of the stipulated time periods, and – for the reasons outlined above – like the representations, is inadequate.

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47 Record: Page 220 (Vol 16.4)
48 Record: 223 -225 (Vol 16.4).

129. Therefore, the applicant persists in contending that eThekwini's failure to file an Action Plan or comply with the notices/directives issued against it, is to be declared unlawful and also falls subject to review on the following grounds:

129.1. Section 6(2)(b) of PAJA and the principle of legality, as mandatory and material procedures or conditions contained in NEMA were not complied with.

129.2. Section 6(2)(c) of PAJA, because the failure to file the Action Plan, was procedurally unfair, or the principle of legality in that the failure to file the Action Plan or comply with notices/directives issued against it was procedurally irrational.

129.3. Section 6(2)(f)(i) of PAJA and the principle of legality, as these failures contravened the provisions of NEMA.

THE RECORD EXPOSES ETHEKWINI'S FURTHER UNLAWFUL CONDUCT

130. In addition to the aforegoing, the Rule 53 record discloses further unlawful conduct on the part of the first respondent, which I address below.

The unlawful decision of eThekwini to re-open (all) beaches

131. In my founding affidavit, I explained that multiple enforcement steps had been taken against the first respondent by the relevant environmental authorities, in terms of the applicable environmental statutes, which eThekwini had ignored or failed to adequately address.

132. The Rule 53 record has now confirmed this. As I explained in the founding affidavit, instead of addressing the concerns seriously, the first respondent – who had closed its beaches and under pressure to be seen to be resolving the issues resulting in the closures – re-opened many beaches to the public.[49]

133. However, the documents contained within the Rule 53 Record underline that the first respondent acted unlawfully in doing so. I say this for the following reasons.

134. Immediately upon receipt of the 25 August Directive, eThekwini was directed to close the beaches in close proximity to the Umgeni Estuary, Tongaat Estuary, La Mercy Estuary and oHlanga Estuary.[50] I am advised that these beaches include:

134.1. Blue Lagoon beach.

134.2. Westbrook Beach.

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49 Founding Affidavit: Paragraphs 30 -31.
50 Record: Volume 16.1

134.3. Casuerina beach.

134.4. La Mercy beach.

134.5. Umdloti beach (including its Main, South and Tidal Area beach areas).

134.6. Umhlanga Rocks beach (Main, Bronze, Granny's Pool and Lighthouse beach areas).

135. Thereafter, eThekwini was specifically instructed that "*the beach closures must remain in place until the Department approves the re-opening, which must be based on the comments received from the eThekwini Environmental Health and the Department of Water and Sanitation*" (emphasis added).

136. On 21 September 2022, eThekwini responded to the 25 August Directive, by way of a letter where it conceded that "*the beaches named above will remain closed as per the instruction from EDTEA and the City commits to conduct water testing and the findings will be shared with eThekwini Environmental Health and the Department of Water and Sanitation*" (emphasis added). [51]

137. It is then apparent from the Rule 53 Record that eThekwini filed two separate

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51 Record: Page 71 (Vol. 16.1)

requests to EDTEA for the re-opening of certain beaches:

137.1. On 23 November 2022, EDTEA was requested to consider the re-opening of Mdloti Tidal Beach, Mdloti Main Beach and Casuarina Beach.

137.2. On 25 November 2022, EDTEA responded and re-opened Casuarina beach. However, Mdloti Main Beach and Mdloti Tidal Beach were to remain closed (due to data provided from Adopt-a-River which demonstrated excessively high counts of eColi in an associated water resource).[52]

137.3. On 21 December 2022, EDTEA was requested to consider the re-opening of Westbrook beach. This request was approved the next day on 22 December 2022.[53]

138. The evidence in the Rule 53 Record suggests that authorisation was only granted for the re-opening of the Casuarina and Westbrook Beaches. There is no evidence that shows the re-opening of any of the beaches, located in proximity to the above estuaries, was duly authorised or even lawful.

139. Therefore, the applicant contends that eThekwini's decision to re-open beaches (other than those it expressly received authorisation for) was unlawful and should

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52 Record: Page 84 – 85 (Vol. 16.1)
53 Record: Page 89 – 90 (Vol. 16.1)

be declared as such.

140. To this end, the applicant amends its relief to seek declaratory orders in respect of the first respondent's unlawful conduct.

eThekwini operating WWTWs without proper licences

141. The Rule 53 Record also contains an internal progress report headed "*Progress Report for Sanitation and Storm Damage Projects*", addressed to the Mayor of eThekwini, dated 30 January 2023[54] which provided an update on, *inter alia*, the status of licensing of Water Treatment Works (WTW) and WWTWs.

142. Alarmingly, the report concedes that, as of 30 November 2022, the following "*six [WWTWs] and two water treatment works do not have existing authorisations*":

142.1. Umdloti WTW

142.2. Kloof WTW

142.3. Isipingo WWTW

142.4. Hillcrest WWTW

142.5. Mpumalanga WWTW

142.6. Kingsburgh WWTW

142.7. Magabeni Ponds WWTW

---

54 Record: Page 165 (Vol. 1.2)

142.8. Umkomaas WWTW

143. The applicant has, until now, not had access to this information to verify if the first respondent is operating lawfully. The record now confirms the applicant's concerns.

144. eThekwini has unlawfully operated its WTWs and WWTWs without a licence (including a section 24G licence in terms of NEMA that would regularize its unlawful continuation of listed activities).

145. To this end, the applicant amends its relief to seek declaratory orders in respect of the first respondent's unlawful conduct.

146. The first respondent is invited to make a full disclosure of the relevant licences should they be in existence, in its answering affidavit in these proceedings.

CONCLUSION AND AMENDED NOTICE OF MOTION.

147. Against the above findings, it is evident that the term 'Action Plan' is a misnomer and entirely misplaced, and cannot be used to describe what the first respondent presents in its Rule 53 Record. It is deficient, contradictory and irrational on its own showing. It offers no realistic measurable deadlines for progress or even reasonable prospects of rehabilitation.

148. The Action Plan is evidence of the first respondent's continued failure to take proper action and serves as a helpful exposition as to why the first respondent should be called upon to do even more, by way of an amended Action Plan which properly achieves the purpose of such a plan.

149. This also amplifies the need for this Court to exercise its supervisory role, in order to monitor the progress the first respondent makes in implementation of the plan.

150. The applicant persists in seeking the following relief against the first respondent:

150.1. Firstly, declaratory relief (including additional directives issued against the first respondent, and conduct of the first respondent, which the applicant had not been aware of at the time the founding affidavit was deposed to).

150.2. Secondly, persisting in the review relief in respect of the four impugned decisions;

150.3. Thirdly, a structural interdict enabling the Court to oversee the first respondent in achieving measurable goals in remedying the breaches of environmental law. This relief has been suitably amended in the light of the delivery of the defective Action Plan in the record. The relief calls for the first respondent to revisit that Action Plan and deliver a proper, responsive plan,

and for that plan to be subject to input from interested parties, as well as setting goals for compliance with that Action Plan through setting progress goals and monthly reporting by the first respondent.

151. Such relief is appropriate and urgently called for. The applicant accordingly persists in seeking such relief.

WHEREFORE the applicant prays for the relief as set out in the Amended Notice of Motion.

THABANI MBONGISENI MTHETHWA

I HEREBY CERTIFY that the deponent has acknowledged to me that he knows and understands the contents of this affidavit, which was signed and sworn to before me at Umhlanga on this 23rd day of June 2023, and that the terms of Regulations R1258 and R1648 of 21 July 1972 and 19 August 1977, respectively, have been complied with.

COMMISSIONER OF OATHS

COMMISSIONER OF OATHS
ADRIAN GEORGE PARKER
LEGAL PRACTITIONER (ATTORNEY)
OF THE HIGH COURT OF SOUTH AFRICA
FUTCHER & POPPESQOU ATTORNEYS
UNIT 8, LEVEL 2, THE CENTENARY BUILDING
QUADRANT 1, 30 MERIDIAN DRIVE
UMHLANGA NEW TOWN CENTRE

"SFA1"

IN THE HIGH COURT OF SOUTH AFRICA
KWAZULU-NATAL DIVISION, PIETERMARITZBURG

Case Number: **D3036/2023P**

In the matter between:

THE DEMOCRATIC ALLIANCE	Applicant
and	
ETHEKWINI METROPOLITAN MUNICIPALITY	First Respondent
THE MEMBER OF THE EXECUTIVE COUNCIL OF WATER AND SANITATION KWAZULU-NATAL	Second Respondent
THE MEMBER OF THE EXECUTIVE COUNCIL FOR ECONOMIC DEVELOPMENT, TOURISM AND ENVIRONMENTAL AFFAIRS, KWAZULU-NATAL	Third Respondent
THE MINISTER OF WATER AND SANITATION	Fourth respondent
MINISTER OF FOREST, FISHERIES AND THE ENVIRONMENT	Fifth respondent
MINISTER OF COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS	Sixth Respondent

---

APPLICANT'S AMENDED NOTICE OF MOTION

KINDLY TAKE NOTICE that the applicant intends to make application to this Court on a date to be arranged for an order in the following terms:

1. It is declared that the first respondent is in breach of notices and directives issued to it by the second and third respondents and which are attached to the founding affidavit as "TM7" – "TM16" and the supplementary affidavit as "SFA7" - "SFA8".

2. It is declared that the first respondent's failure to comply with the aforesaid notices is unconstitutional and unlawful.

3. It is declared that the first respondent is in breach of:

3.1. Sections 24G, 30, 30A, 31L(4), 31N and 28(1) of the National Environmental Management Act 107 of 1998;

3.2. Sections 19(1) of the National Water Act 36 of 1998;

3.3. Sections 69 of the National Environmental Management: Integrated Coastal Management Act 24 of 2008;

3.4. Section 16(1) of the National Environmental Management Waste Act 50 of 2008;

3.5. Sections 9, 10, 22 and 24 of the Constitution of the Republic of South Africa, Act 108 of 1996; and/or

3.6. the first respondent's obligations in terms of section 156 of the Constitution, as a local authority and under international law.

4. It is declared that the first respondent's decision to re-open all beaches, without compliance with the directives, is unlawful.

5. It is declared that the first respondent's operation of its Wastewater Treatment Works and associated infrastructure, without proper licences, is unlawful.

6. It is declared that the first respondent's decisions in respect of the following are irrational, unreasonable, unlawful and unconstitutional, and are reviewed and set aside:

6.1. The decision of the first respondent to not report events as an 'Emergency Incident' in terms of section 30 of NEMA;

6.2. The decision of the first respondent to not report events as an 'Emergency Situation' in terms of section 30A of NEMA.

6.3. The decision of the first respondent to not file or produce an 'Action Plan' or comply with the aforesaid notices, within the stipulated time frames.

7. Within one (1) month of the date of the order, the first respondent is directed to file an amended Action Plan and any associated reports and substantiating documentation, under oath, with this Court:

7.1. addressing all non-compliances identified by the second and third respondents in each of the aforesaid notices;

7.2. explaining the steps that the first respondent will take in order to comply with the aforesaid notices; and

7.3. setting measurable periodic deadlines for progress.

8. In preparing the Action Plan, the first respondent is directed to pay due regard to the following considerations:

8.1. the need to give legal effect to the public's right to a safe and healthy environment; and

8.2. the need for enhanced monitoring of coastal emissions within the jurisdiction of the First Respondent, including through the urgent improvement, management and maintenance of the Waste Water Treatment Works and related infrastructure, to ensure that verified, reliable data is produced, and that real-time data is made available to the public online.

9. All parties to this application, and any other interested parties, will be entitled to comment on the Action Plan within one (1) month of the date of which it is filed with this Court.

10. The first respondent is directed to file to this Court, and serve on the other parties to this application, monthly reports indicating their progress with regard to the implementation of the Action Plan, after the Action Plan is approved by the court.

11. All parties to this application, and any other interested parties, will be entitled to comment on these monthly reports within thirty (30) days after the date on which they are filed.

12. This Court may, at any stage and on its own accord, after having heard submissions by the parties, make any further direction or orders it deems fit.

13. This matter may be enrolled on a date to be fixed by the registrar in consultation with the Presiding Judge for consideration and determination of the aforesaid reports, commentary and replies.

14. The first respondent is directed to discharge its duty of care and remediation of environmental damage, as required by Section 28(1) and (3) of the National Environmental Management Act 107 of 1998.

15. Within six (6) months of the date of the order, the first respondent is directed to file a report, under oath, with this Court, on the progress on the first respondent's discharge of the duty of care and remediation referred to above.

16. the first respondent is directed to pay the costs of this application.

17. Further and/or alternative relief.

DATED AT ON THIS DAY OF 2023.

MINDE SCHAPIRO AND SMITH INC
Elzanne Jonker
Applicant's attorneys
Care of: **PGPS ATTORNEYS**
Victoria Country Club, Office Park, Ground Floor 12
Montrose Park boulevard, 170 Peter Brown Drive
Montrose
PIETERMARITZBURG

TO **THE REGISTRAR OF THE ABOVE HONOURABLE COURT**

KWAZULU-NATAL DIVISION, PIETERMARITZBURG

PIETERMARITZBURG

AND TO: **ETHEKWINI METROPOLITAN MUNICIPALITY**
First Respondent
263 Dr Pixley Ka Seme St
Durban
KWAZULU-NATAL.

AND TO: **THE MEMBER OF THE EXECUTIVE COUNCIL**
OF WATER AND SANITATION
KWAZULU-NATAL
Second Respondent
88 Field Street, Durban Central
KWAZULU-NATAL.

AND TO: **THE MEMBER OF THE EXECUTIVE COUNCIL FOR ECONOMIC DEVELOPMENT, TOURISM AND ENVIRONMENTAL AFFAIRS, KWAZULU-NATAL**

Third Respondent

Office of the Head of Department

270 Jabu Ndlovu Street

Pietermaritzburg

KWAZULU-NATAL.

AND TO: **THE MINISTER OF WATER AND SANITATION**

Fourth respondent

Sedibeng Building

10th Floor, Room 1029

185 Francis Baard Street

Pretoria

Care of State Attorney

Sehume Street

PRETORIA

AND TO: **MINISTER OF FOREST, FISHERIES AND THE ENVIRONMENT**

Fifth respondent

Environment House, 473 Steve Biko and Soutpansberg Road

Arcadia

Care of: State Attorney, at Sehume Street

PRETORIA

AND TO: **MINISTER OF COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS**

Sixth Respondent

116 Jabu Ndlovu Street

PIETERMARITZBURG

Per email: senzelwe.mzila@kzncogta.gov.za

Care of: State Attorney

PIETERMARITZBURG

"SFA2"

MINDE SCHAPIRO & SMITH

Docex 1 | Tygerberg
PO Box 4040 | Tyger Valley | 7536 | South Africa
Tyger Valley Office Park | Building Number 1 | Cnr Willie van Schoor & Old Oak Roads | Bellville
T: 021 918 9000 | 021 918 9020 (Direct Line) | F: 021 918 9070 (General) | 021 918 9070 (Direct Fax)

E: karin@mindes.co.za | www.mindes.co.za

Our Ref: DEM16/0860/ELZANNE JONKER/ks | **Your Ref:** | **Date:** 22 June 2023

TO: **LEGATOR McKENNA INC**
First Respondent
Per email: Ppriyankag@legator.co.za

Dear Sir/Madam

RE: DEMOCRATIC ALLIANCE v ETHEKWINI METROPOLITAN MUNICIPALITY – CASE NUMBER 3036/2023P

1. The above matter refers.

2. The Rule 53 Record of Decision ("**Record**") was delivered on 15 June 2023, in accordance with the direction of this Court granted by His Lordship Mr Justice Seegobin.

3. In the course of reading through the Record, and in preparing our client's supplementary founding affidavit, it is apparent that the Record is incomplete in various respects. We have identified the following incomplete documents in, or documents missing from, the record:

The document titled "eThekwini 25 Year Wastewater Infrastructure Plan"[1]

[1] page 308 of vol 1.4 of the Record. This appears as part of the document identified in the index as Item 11: eThekwini Master Plan.

3.1. The index indicates that this is a 274 page document. The record only contains the first 9 pages of it.

The document titled "EWS revision of the 25 Year Wastewater Infrastructure Plan"[2]

3.2. The index to this document indicates that it should be 184 pages. The record only contains 9 pages of this document.

The document titled "The Procurement Document: Professional Services"[3]

1.1. The page numbers indicate that this document runs to 92 pages. The record contains 8 pages.

The document titled "Water Services Development Plan"[4]

1.1. The page numbers indicate that this document should be 154 pages. The record contains 11 pages.

The document titled "DWS Area Report for Dassenhoek Waste Water Treatment Works"[5]

1.2. The document provided is presumably not final. It contains WS Word comments. Kindly provide the final version.

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[2] page 329 of vol 1.4 of the Record. This appears as part of the document identified in the index as Item 11: eThekwini Master Plan.
[3] page 350 of vol 1.4 of the Record. This appears as part of the document identified in the index as Item 11: eThekwini Master Plan.
[4] Page 359 of vol 1.4 of the Record. This appears as part of the document identified in the index as Item 11: eThekwini Master Plan.
[5] page 48 volume 2.1.

2. The record does not contain the following documents:

2.1. All responses or submissions from eThekwini in response to each of the directives and compliance notices comprising the record.[6]

2.2. All applications and representations made, and decisions made, in relation to beach closures and re-opening.[7]

2.3. Representations made by eThekwini in response to the 8 June Directive, including report (purporting to be "attached" to the letter of Ednick Msweli) but which is not annexed to the document in the record.[8]

3. The evaluation of these outstanding documents is important in relation to the relief sought by our client and may influence the extent to which it is necessary to amend the notice of motion and may have a bearing on the contents of the supplementary founding affidavit.

4. Kindly provide us with a copy of the above urgently. Our client's rights to compel delivery of the records are reserved, including to seek punitive costs against eThekwini for providing obviously incomplete versions of documents that it produced and indexed in the incomplete record.

Yours faithfully
MINDE SCHAPIRO & SMITH INC.
PER: E JONKER
(Done electronically – therefore unsigned)

---

[6] Items 8, 9, 11, 12 and 16 of the index to volume 16.1, and items 3 and5 of 16.4, contain some responses but not to all of the notice and directives.
[7] Vol.16 of the record contains two requests to re-open beaches (see items 15 and 17 of the index).
[8] page 60, Vol.16.1.

"SFA3"

IN THE HIGH COURT OF SOUTH AFRICA

KWAZULU-NATAL DIVISION, PIETERMARITZBURG

Case No. 3036/2023P

In the matter between:

THE DEMOCRATIC ALLIANCE — Applicant

and

ETHEKWINI METROPOLITAN MUNICIPALITY — First Respondent

AND FIVE OTHERS

INDEX TO RECORD - FILE 1

VOLUME 1.1

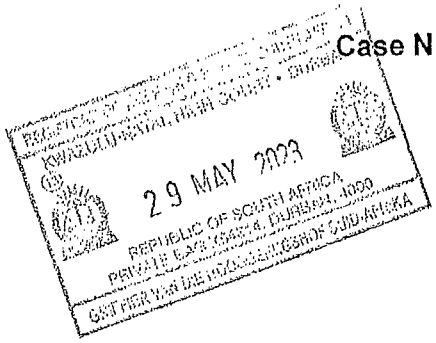
ACTION PLAN AND PROGRESS REPORTS

OFFICE COPY

IN THE HIGH COURT OF SOUTH AFRICA
KWAZULU-NATAL DIVISION, DURBAN

Case No. D11938/2022

In the matter between:



ACTIONSA — APPLICANT

and

THE MINISTER OF TOURISM OF THE REPUBLIC OF SOUTH AFRICA — FIRST RESPONDENT

THE MINISTER OF FORESTRY, FISHERIES AND ENVIRONMENT OF THE REPUBLIC OF SOUTH AFRICA — SECOND RESPONDENT

THE MINISTER OF WATER AND SANITATION OF THE REPUBLIC OF SOUTH AFRICA — THIRD RESPONDENT

MINISTER OF COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS OF THE REPUBLIC OF SOUTH AFRICA — FOURTH RESPONDENT

KWAZULU-NATAL MEMBER OF THE EXECUTIVE COUNCIL FOR COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS — FIFTH RESPONDENT

KWAZULU-NATAL MEMBER OF THE EXECUTIVE COUNCIL FOR ECONOMIC DEVELOPMENT: TOURISM AND ENVIRONMENTAL AFFAIRS — SIXTH RESPONDENT

ETHEKWINI MUNICIPALITY — SEVENTH RESPONDENT

THE EXECUTIVE MAYOR OF ETHEKWINI MUNICIPALITY — EIGHTH RESPONDENT

FILING NOTICE: SEVENTH & EIGHTH RESPONDENTS ACTION PLAN

S I R S,

KINDLY TAKE NOTICE that the Seventh and Eighth Respondent herein, hereby delivers their Action Plan.

DATED AT DURBAN on this 25th day of MAY 2023.

LEGATOR McKENNA INCORPORATED
Seventh & Eighth Respondents Attorneys
5B The Ridge, 8 Torsvale Crescent
La Lucia Ridge, Umhlanga
4319
Ref: MAT6386/PG
Tel:(031) 305-1571
Fax:(031) 266-0503
Email: priyankag@legator.co.za

TO: **THE REGISTRAR OF THE ABOVE HONOURABLE COURT, DURBAN**

AND TO: **SHACKLETON & MOHAPI ATTORNEYS**
APPLICANT'S ATTORNEYS
C/O TOMLINSON MNGUNI JAMES INC
Suite 201 Ridge 6
20 Ncondo Place
Umhlanga Rocks
Durban
Tel: 031 566 2207
Email: tamsinj@tmj.co.za
Ref: T Jones/014S/DURBAN

AND TO: **MS S MSANI (ASSISTANT STATE ATTORNEY)**
FIRST TO FIFTH RESPONDENTS ATTORNEYS
STATE ATTORNEY (KZN)
6th Floor, Metlife Building
391 Anton Lembede Street
Durban
Ref: 110/15661/22/E/P5
Tel: 031 365 2541
Email: SuMsani@justice.gov.za

AND TO: **HSG ATTORNEYS**
SIXTH RESPONDENT'S ATTORNEYS
15 Acacia Avenue
Westville
3629
Durban
Email: fudd@hsginc.co.za
Ref: FD/HSG/D94

Denise Nadasan

From: Priyanka Govender
Sent: Thursday, 25 May 2023 15:50
To: Tamsin Jones; Michael Shackleton; fuadd@hsginc.co.za; Msani Suzan; Moriarty Joan
Cc: Merosha Dasarath
Subject: ACTIONSA // ETHEKWINI MUNICIPALITY AND OTHERS - CASE NO. D11938/2022
Attachments: EWS ACTION PLAN.pdf; Filing notice to Seventh and Eighth respondents Action Plan.pdf

TO: **Shackleton & Mohapi Attorneys**
Applicant's Attorney
tamsinj@tmj.co.za / proprietor@shackletonlaw.co.za

AND TO: **State Attorney (KZN)**
Ms Msani
First to Fifth respondents Attorney
SuMsani@justice.gov.za

AND TO: **HSG Attorneys**
Sixth Respondent's Attorney
fuadd@hsginc.co.za

Dear Sir / Madam,

RE: ACTIONSA // ETHEKWINI MUNICIPALITY AND OTHERS - CASE NO. D11938/2022

We refer to the above matter and enclose herewith the seventh and eighth respondents action plan.

Kindly acknowledge receipt hereof.

Kind regards

Priyanka Govender
Attorney

LEGATOR MCKENNA

T: (031) 305 1571
F: (031) 001 5931
www.legatormckenna.co.za
P.O. Box 2385
Durban, 4000
Docex 103, Durban

Umhlanga Office
58 The Ridge
6 Torsvale Crescent
La Lucia Ridge
Umhlanga
4319

Westville Office
Suite 116, First Floor
Business Partners Centre
23 Jan Hofmeyr Road
Westville, 3629
(By appointment only)

Reg. No. 1978/000547/21 | VAT Reg No. 4260108255| Level 1 B-BBEE Contributor

Denise Nadasan

From: Fuad Davids <Fuadd@hsginc.co.za>
Sent: Friday, 26 May 2023 08:30
To: Priyanka Govender; Tamsin Jones; Michael Shackleton; Msani Suzan; Moriarty Joan
Cc: Merosha Dasarath
Subject: RE: ACTIONSA // ETHEKWINI MUNICIPALITY AND OTHERS - CASE NO. D11938/2022

Good Day,

We acknowledge receipt.

Kind Regards

FUAD DAVIDS
LLB (UWC), LLM: Environmental Law (UWC)
Director

HSG Attorneys

E Fuadd@hsginc.co.za
T +27 31 266 7751
F +27 31 266 7790

15 Acacia Avenue, Westville, 3629
PO Box 1429, Westville, 3630
DOCEX 24 Westville

Proudly B-BBEE Level 1

From: Priyanka Govender <priyankag@legator.co.za>
Sent: Thursday, 25 May 2023 15:51
To: Tamsin Jones <tamsinj@tmj.co.za>; Michael Shackleton <proprietor@shackletonlaw.co.za>; Fuad Davids <Fuadd@hsginc.co.za>; Msani Suzan <SuMsani@justice.gov.za>; Moriarty Joan <jmoriarty@justice.gov.za>
Cc: Merosha Dasarath <meroshad@legator.co.za>
Subject: ACTIONSA // ETHEKWINI MUNICIPALITY AND OTHERS - CASE NO. D11938/2022

TO: **Shackleton & Mohapi Attorneys**
Applicant's Attorney
tamsinj@tmj.co.za / proprietor@shackletonlaw.co.za

AND TO: **State Attorney (KZN)**
Ms Msani
First to Fifth respondents Attorney
SuMsani@justice.gov.za

Denise Nadasan

From: proprietor@shackletonlaw.co.za
Sent: Friday, 26 May 2023 08:54
To: Priyanka Govender; Tamsin Jones; Msani Suzan; Moriarty Joan; Fuad Davids
Cc: Merosha Dasarath
Subject: Re: ACTIONSA // ETHEKWINI MUNICIPALITY AND OTHERS - CASE NO. D11938/2022

Good Day,

I acknowledge receipt.

Kind Regards,
Michael Shackleton

Get Outlook for Android

From: Priyanka Govender <priyankag@legator.co.za>
Sent: Thursday, 25 May 2023, 15:53
To: Tamsin Jones <tamsinj@tmj.co.za>; Michael Shackleton <proprietor@shackletonlaw.co.za>; fuadd@hsginc.co.za <fuadd@hsginc.co.za>; Msani Suzan <SuMsani@justice.gov.za>; Moriarty Joan <jmoriarty@justice.gov.za>
Cc: Merosha Dasarath <meroshad@legator.co.za>
Subject: ACTIONSA // ETHEKWINI MUNICIPALITY AND OTHERS - CASE NO. D11938/2022

TO: **Shackleton & Mohapi Attorneys**
Applicant's Attorney
tamsinj@tmj.co.za / proprietor@shackletonlaw.co.za

AND TO: **State Attorney (KZN)**
Ms Msani
First to Fifth respondents Attorney
SuMsani@justice.gov.za

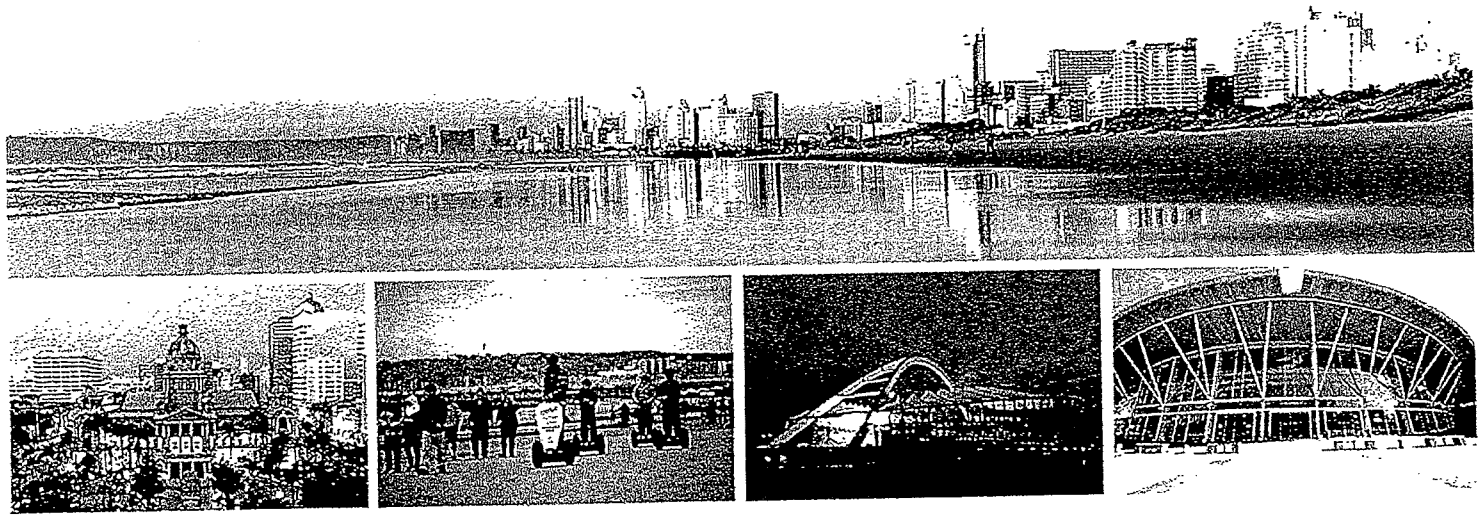
AND TO: **HSG Attorneys**
Sixth Respondent's Attorney
fuadd@hsginc.co.za

Dear Sir / Madam,

RE: ACTIONSA // ETHEKWINI MUNICIPALITY AND OTHERS - CASE NO. D11938/2022

We refer to the above matter and enclose herewith the seventh and eighth respondents action plan.

Kindly acknowledge receipt hereof.



ETHEKWINI WATER & SANITATION
SANITATION OPERATIONS ACTION PLAN
STORM DAMAGES

Basic Functions Of eThekwini Sanitation Department

- The Wastewater Sanitation Department is responsible for the maintenance and operation of sewer pipe networks, sewer pump stations, wastewater treatment works and community ablution blocks.
- Sewer Pipe Networks
  - The basic function is clearance of sewer blockages of which there are an average of 230 daily.
  - These blockages all overflow to vacant ground, the sea or rivers via stormwater drainage
  - 98% of the blockages are caused by abuse of the sewer system with the public putting rags, sanitary wear, fats etc into the sewer network. Only 2% of the blockages are caused by damaged infrastructure.
  - The response time to the blockages is between 4hrs and 24hrs.
  - The damaged infrastructure is repaired and the response time to the repair is generally 24hrs.
  - Sewer trunk sewers with very flat gradients are desilted regularly but the extensive construction that is being carried out in the city allows for a lot of construction material such as sand and concrete to enter the sewers illegally which subsequently requires extensive desilting.
  - A lot of the major overflows caused to the large trunk sewers is caused by illegal mining of the trunk sewers. This is carried out by blocking the trunk sewer and then mining the sand downstream to remove valuables from the pipe line.
  - The standard operating procedures (SOP) for sewer pipe maintenance is attached as annexure **A**.
  - Attached please find the Sewer Network Maintenance Plan as annexure **B**.

8

Basic Functions Of eThekwini Sanitation Department continued...

- Sewer Pump Stations
  - There are 273 sewer pump stations in the city varying in size from pumping 10litres per second to 1200litres per second.
  - 95% of the repair maintenance carried out to the sewer pump stations is mechanical and electrical. This is repairs to pumps, electrical panels, telemetry and pipework.
  - Telemetry is installed at pump stations which gives early warnings to the control room of high water levels, pump failure etc. this allows for early response to problem.
  - This is an ongoing daily function to operating pump stations as there is always failure of mechanical and Electrical equipment.
  - If all pumps fail due to incidents like flooding, vandalism etc the response time is normally 4 hours but the repair time can be anything from 1 day to 6months due to repair times or lead times to acquire new plant. Where possible tankering is used until the repairs are completed.
  - The standard operating procedures (SOP) for sewer pump station maintenance is attached as annexure **C**.

Basic Functions Of eThekwini Sanitation Department continued...

- Wastewater Treatment Works
  - There are 27 wastewater treatment works in the city.
  - There is currently no overflow from any treatment works to the rivers or sea.
  - The only wastewater treatment works that is not functional is the Umhlanga wastewater works but all effluent to this works is bypassed via Ohlanga pump station to the Phoenix wastewater treatment works.
  - The basic operating procedures at wastewater treatment works requires the removal of Screenings such as rags etc the removal of sand, the ongoing operation of all mechanical and electrical equipment in the works, handling of sludge disposal and dosing of discharge effluent.
  - The repair to mechanical and electrical plant does not generally have an effect on the treatment of effluent. For example if an aerator breaks down there are generally between 6 and 24 aerators at a plant depending on size and as such the other aerators can carry the load for a short period of time.

Basic Functions Of eThekwini Sanitation Department continued...

- Community Ablution Blocks
  - All informal settlements and many rural areas are serviced by community ablution blocks.
  - The city's responsibility is the continued maintenance of the ablution blocks which internal facilities are continuously vandalized or damaged.
  - The city supplies caretakers for these ablution blocks and abuse by users often results in sewer blockages which are responded to in the normal manner once reported.

SANITATION WORK PROCUREMENT DELAYS

- THE STORM DAMAGES OCCURRED IN APRIL AND MAY 2022
- Immediate procurement of existing contractors occurred but were limited due to the availability of funding and due to the prioritization of water infrastructure repair first.
- Internal construction staff were utilized but were limited in staff compliment.
- Umgeni water contractors were utilized but were limited by budget constraints.
- Funding was received from immediate capital budget savings declared of approximately R79million. Additional grant funding from COGTA of approximately R49million was received to continue with prioritized Storm repairs. Approximately R123million and R9million additional national funding has been approved.
- It is essential to bear in mind that save for emergency work other work has to be undertaken in line with usual procurement processes and existing operating budgets

ACTION PLAN WASTEWATER NETWORKS AND PUMPSTATIONS

Branch	What is being done	How is this being done	When will this be done	Budget Constraints
Wastewater Pumpstation				
•Minor Repairs - Quick fixes	100% of minor repairs to pump stations has been completed	Utilizing the existing Mechanical and electrical contracts. Quotations to be sourced for desilting of sumps.	Quotations for sump cleaning awaiting approval for quotations December 2023	Requires additional budget which becomes available 01 July 2023
•Majors Repairs	60% of major repairs (pipes greater than 300mm diameter) are complete. The balance are being carried out by the CIP contractors. Some of this work will take up to 12months to complete due to the extent of the work	Quotations will be sourced from appropriate contractors	By June 2024	Requires additional budget
Wastewater Reticulation				
•Minor Repairs - Quick fixes	65% 0f the minor sewer repairs (pipes 300mm and less in diameter) are complete. The balance are to to be carried out via CONTRACT NUMBER : WS-7596 Appointment of contractors through a Framework contract to undertake the implementation of projects on behalf of eThekwini Water and Sanitation unit for a period of 36 months. Report at Bid Adjudication Committee.	CONTRACT NUMBER : WS-7596 Appointment of contractors through a Framework contract to undertake the implementation of projects on behalf of eThekwini Water and Sanitation unit for a period of 36 months. Report at BEC.	By December 2023	Funding approved from Council Budgets R99million COGTA Grant Funding Approved September2022/23 R49,5million April 2023/24 R79,1mil
•Majors Repairs	75% major sewer repairs completed via **Ethekwini Traffic Authority existing contract.** Balance of the sewer repairs completed via CIP and Vukuphile panel	Vukuphile panel Contract and Community Improvement Program (CIP) Contract. Vukuphile panel and CIP are	By June 2024	COGTA Grant Funding Approval April 2023/24 R33,4million

Annexure to Slide 7

- 98% of the City's sewerage pump stations are operational.
- The outstanding repairs to major pump stations will be completed by June 2024. This is mainly due to the lead time for purchasing new pumps mainly from international sources and the time frames for repairs which often require spares sourced from international sources.
- 65% of the minor sewers damaged in the flood have been repaired and the balance will be completed by December 2023.
- 75% of the major sewers greater than 300mm in diameter are fully operational. The balance of the major sewers due to the extent of damage will only be completed by June 2024.

ACTION PLAN FOR REPAIRS TO WASTEWATER TREATMENT WORKS

Location	Description	Region	Facility	Consultant Name	Comments	Current Status @ 30 March 2023 and expected completion date
Sea-cow Lake, Springfield	Flooding of the entire Northern works mechanical and electrical equipment	North	Northern WWTW	SMEC	Plant operating at about 20% Mechanical and Electrical capacity. Consultants appointed and finalizing design reports. No budget assigned to carry out repair work.	Tender document is ready , currently waiting for the Approval to advertise to get Tenders from the prospective Contractors. Consultant report attached. Estimated Completion date December 2026
Ottawa	Flooding of mechanical and electrical equipment at Phoenix works	North	Phoenix WWTW	Design branch (internal)	Plant operating at 50% Mechanical and Electrical capacity. Internal team completing assessment and costing of damages. Framework contract to be used for repair work.	Estimated Completion date December 2025
Stonebridge drive, Phoenix	Upgrade of the entire KwaMashu works	North	KwaMashu WWTW	Design branch (internal)	Plant operating at 100% Mechanical and Electrical capacity. Hydraulic capacity upgrade being undertaken.	This is a capacity upgrade. The storm damage to the inlet trunk sewer at this works has been completed. Estimated completion date for the upgrade to the works is December 2026
Tongaat	Flooding of the head of works at Tongaat works	North	Tongaat Central WWTW	Design branch (internal)	Plant operating at >90% Mechanical and Electrical capacity. Upgrade of capacity being undertaken	Estimated Completion date December 2025
Umdloti	Damage to mechanical and electrical equipment	North	Umdloti WWTW	AfriCoast	Consultants appointed and finalizing design reports. Plant operating at 100% Mechanical and Electrical capacity	Tender Document was submitted on the 31st of March 2023 , Consultant is finalizing the Drawings and Specification. Consultant report attached. Estimated Completion date December 2024
Sarnia, Pinetown	Washaway of the civil, mechanical and electrical plant at Umbilo treatment works (East Plant)	West	Umbilo WWTW	None	Plant operating at 50% Mechanical and Electrical capacity. Flows to damaged East Plant being sent to the West Plant. Awaiting consultant to complete assessments and design work. No budget assigned to carry out repair work.	Consultant is busy with detailed Assessment and Design Work to produce stage 1 and 2 report. During the site visit it was identified that some of the work can be done by our internal staff i.e reconnect pipes that were washed away , which should be done in the next six weeks . Estimated completion December 2024
Glenwood Road, Gillits	Stabilization of building that is housing the biocontactor unit	West	Glenwood Road WWTW	Bosch	Plant operating 100% Mechanical and Electrical capacity. Consultants appointed and finalizing assessment and design reports. Presently no budget assigned to carry out repair work.	Tender document is ready , currently waiting for the Approval to advertise to get Tenders from the Prospective Contractors. Consultant report attached.
KwaNdengezi	Head of Works washaway	West	Kwandengezi WWTW	BVIKN	Plant operating at 60% Mechanical and Electrical capacity. Consultants appointed and finalizing assessment and design reports. Presently no budget assigned to carry out repair work.	Tender document is ready , currently waiting for the Approval to advertise to get Tenders from the prospective Contractors. Consultant report attached. Estimated Completion date December 2024.
Umhlanga	Damage to mechanical electrical equipment	North	Umhlanga WWTW	Naidoo Consultants	Plant is bypassed and all flows sent to Phoenix WWTW. Consultants appointed and have completed the assessment	Consultant busy on the detailed design work. Estimated Completion date December 2024

Annexure to Slide 9

• Status of Wastewater Treatment Works

- There are 27 wastewater treatment works in eThekwini.
- 26 wastewater treatment works are operational in as much as effluent is being treated.
- 9 wastewater treatment works were damaged by the storms.
- There is a difference between operating capacity and mechanical and electrical capacity at a treatment works.
- The storms reduced the mechanical and electrical capacity at the treatment works but the operating capacity is sufficient to treat the effluent.
- ie mechanical and electrical equipment was damaged at most of the 9 treatment works but the works are still able to treat the effluent to acceptable standards.
- 6 storm damaged wastewater treatment works are operating between 20% and 90% Mechanical &Electrical capacity
- The remaining 3 storm damaged wastewater treatment works are operating at 100% Mechanical &Electrical capacity
- The Umhlanga wastewater treatment works is off line and the effluent is bypassing the works to the Phoenix wastewater treatment works

Annexure to Slide 9 continued

• Status of Wastewater Treatment Works continued

- There is a difference between operating capacity and mechanical and electrical capacity at a treatment works.
- 6 storm damaged wastewater treatment works are operating between 20% and 90% Mechanical &Electrical capacity
- The rest of the storm damaged wastewater treatment works are operating at 100% Mechanical &Electrical capacity
- Umhlanga wastewater treatment works is off line and the effluent is bypassing the works to the Phoenix wastewater treatment works
- There is currently no effluent being discharged into the sea or rivers from wastewater treatment works.
- Attached are the consultant reports on the six wastewater treatment works marked annexures **D - I.**
- The water and sanitation' design branch is carrying out the assessments on the remaining three plants.

Overall Progress On Wastewater Pumpstations

STATUS OF PUMPS FOR WASTEWATER PUMPSTATIONS

REGIONS	No. Pumpstations	No. of Pump Stations Working	No of stations not working	Estimated time to complete pump repairs	
CENTRAL	71	69	2	6 months	
NORTH	83	79	4	6 months	
WEST	52	52	Nil		
SOUTH	67	67	Nil		
	273				

NUMBER OF PUMPSTATIONS VANDALISED

REGIONS	No. Pumpstations	NUMBER OF PUMPSTATIONS PREVIOUSLY VANDALISED
CENTRAL	71	15
NORTH	83	6
WEST	52	3
SOUTH	67	4
		28

NUMBER OF PUMPSTATIONS IMPACTING BEACHES

REGIONS	No. Pumpstations	NUMBER OF PUMPSTATIONS CURRENTLY IMPACTING BEACHES
CENTRAL	71	0
NORTH	83	3
WEST	52	0
SOUTH	67	1
		4

WS7610 Mechanical and Electrical Maintenance and Refurbishment Emergency Contract - Priority Action List

Area	Facility	Description of Work	Status	Completion Date
North	Umdloti Far North WWPS	Repair diesel pump and panel to run on auto	Complete	
North	Umdloti North WWPS	Repair diesel pump and panel to run on auto	Complete	
North	Umdloti Central WWPS	Replace rotten piping on discharge line 2	Complete	
North	Umdloti South WWPS	Repair diesel pump and panel to run on auto	Complete	
North	Westbrook Beach	Repair 13kW Grundfos, replace UMCs and contactors	Complete	
North	Westbrook Hotel	Repair 9kW robot, replace soft starter	Complete	
North	Westbrook Farmhouse	Replace motor, temp 30kW panel, rotator	Complete	
North	Portland WWPS	Replace two soft starters and test pump 1	Complete	
North	Lagoon drive 2 WWPS	Repair 18kW Hidrostal pump, replace transducer and transceiver	Deffered	September 2023
North	Lagoon drive 3 WWPS	Repair 18kW Hidrostal pump, replace contactors	Deffered	September 2023

North	Ohlanga WWPS	Repair NRV 1, discharge valve line shaft and clean dry well	Complete	
North	Promenade 1	Repair 7,5kW Robot pump	Deffered	September 2023
North	Promenade 2	Repair 3,5kW Robot pump	Complete	
North	Marine drive 1	Repair two 22kW Robot pumps	Complete	
North	Forest drive 1	Replace stolen cable on 5.5kW Robot pump	Complete	
North	Homeford	Repair 9kW Robot pump	Complete	
North	Ypsilante	Repair 22kW Robot pump	Complete	
North	Eastmoore Crescent	Repair 110kW Motor, replace two soft starters	Deffered	September 2023
North	La Mercy Lagoon	Repair T4 Gorman Rupp rotator and inspection cover	Complete	
North	Seatides	Repair 7.5kW Hidrostal, replace one soft starter and rewiring of pump cables	Complete	
North	South beach 1	Repair T3 Gorman Rupp rotator, two wear plates, rubber flaps and replace v-belts	Complete	
North	South beach 2	Repair T3 rotator, replace wear plates and rubber plates and supply new UMCs	Deffered	September 2023
North	South beach 3	Repair T3 rotator, 2 wear plates, replace rubber plates, replace V-belts, repair existing panels and replace UMCs	Deffered	September 2023

Central	Northern works storm damage phase 1 repairs	Repairs to primary treatment mechanical and electrical equipment	Complete	
Central	Johanna Road	Pump and MCC reinstatement	Deferred	May 2024
Central	Greys Inn pump (already collected)	Repairs to pump	Complete	
Central	Airlie road pump	Repairs to pump - for back up	Complete	
Central	Moss road	Repairs to pump - for back up	Complete	
Central	Addington pump	Repairs to pump - for back up	Complete	
Central	Foreshore drive	Repairs to pump - for back up	Complete	
Central	Battery Beach	Repairs to pump - for back up	Complete	
Central	John Milne	Repairs to pump	Complete	
Central	Dry dock	Repairs to pump - for back up	Complete	
Central	Brickhill road	Repairs to pump - for back up	Complete	
Central	Sloane road	Repairs to pump - for back up	Complete	
Central	KwaMashu MV maintenance and repairs	Maintenance of MV switchgear	Deffered	September 2023
Central	Mahatma gandhi	Pump 4 repair - for additional back up	Deffered	September 2023

Central	Island view	Pump 3 repair	Complete
Central	Kennedy road	250kw pump repair	Complete
South	Beach Road 2	Repairs to 11kW ROBOT submersible pump – for back up	Complete
South	Warnerdoone	Repairs to T4 Gorman-Rupp self-priming pump – for back up	Complete
South	Kingsway 2	Remove, repair, install and commission 16" non-return valve on rising main	Complete
South	Kingsway 2	Repairs to 132kW ABS pump – for back up	Complete
West	Umhlatuzana Inlet WWPS	Supply of MR200 multi-ranger x 2	Complete
West	Cambridge WWPS	Supply of MR200 multi-ranger	Complete
West	Cambridge WWPS	Supply of XPS10 transducer	Complete
West	Granada WWPS	Repairs to level control (Conversion to probes)	Complete
West	Sterkspruit WWPS	Supply of MR200 multi-ranger x 2	Complete
West	Glenwood WWTW	Supply of plummer block bearings and chains x 4	Complete
West	Blair WWPS	Repairs of bilge pump 3 kW	Complete
West	Blair WWPS	Pump 2 panel repairs (Conversion to star-delta)	Complete
West	Umhlatuzana Inlet WWPS	Repairs of 2 x 132 kW motors	Complete
West	Methven WWPS	Generator repairs	Complete
West	Heritage Market WWPS	Replace 100A change over switch for generator	Complete

West	Mpumalanga F WWPS	Panel conversion to Star-delta x 4	Complete	
West	Umlazi Ext U WWPS	Supply of 220V bilge pumps x 2	Complete	
West	Kwandengezi WWTW	Repairs of lime feeder dosing system	Complete	
West	Honeysuckle WWPS	Repairs of 13 kW pump	Complete	
West	Rietvallei WWPS	Repairs of two starter panels	Complete	
West	Mpumalanga F WWPS	Repairs of 3 kW pump KSB	Complete	
West	Umlazi VB WWPS	Repairs of T3 GR pump	Complete	
West	Kwandengezi WWTW	Repairs of bio-filter arm	Complete	
West	Blair WWPS	Repairs of 110 kW pump	Deffered	September 2023
West	Umhlatuzana Inlet WWPS	Repairs of Pump 1 KSB 132 kW	Complete	
West	Hillcrest WWPS	Repairs of generator (ECU fault)	Complete	
West	Mpumalanga CH WWPS	Supply of electrical components (To be repaired by EWS staff)	Complete	
West	Umhlatuzana Inlet WWPS	Repairs of Pump 3 KSB 132 kW	Deffered	September 2023
West	Mpumalanga WWTW	Repairs of dosing pump x 2	Complete	
West	Mpumalanga WWTW	Repairs of T3 GR pump	Complete	
West	Umhlatuzana WWTW	Repairs of Shallcross Aerator 2 gearbox	Complete	
West	Umhlatuzana WWTW	Repairs of Marian Ridge Aerator 4 gearbox	Complete	
West	Hammarsdale WWTW	Repairs of P/S 6 Pump 2 Raw water Pump	Deffered	September 2023

West	Hammarsdale WWTW	Repairs of the centrifuge	Complete	
West	New Germany WWTW	Repairs of RAS screw pump (Screw and gearbox)	Complete	
West	Umhlatuzana Inlet WWPS	Supply of PSE370 soft starters x 2	Complete	
West	Newmark WWPS	Repairs of main entrance doors and whirly birds	Deferred	September 2023
West	Kwandengezi WWTW	Repairs of Homa Actuator	Complete	
West	Dassenhoek WWTW	Manufacture siphons and install x 8	Complete	
West	Fredville WWTW	2nd class water automation system repairs	Complete	
West	Umhlatuzana WWTW	Repairs of Shallcross Aerator 4 gearbox	Complete	
West	Umhlatuzana WWTW	Repairs of Marian Ridge Aerator 2 gearbox and mounting base	Complete	

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Annexure to slides 12 - 18

- As can be seen the majority (93%) of the pump stations that had storm damage have been repaired to operating standards.
- There are still pump stations that need back up pumps installed, and these have been ordered and will be completed by 30 June 2023

LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
M&E	Mechanical and Electrical
CM	City Manager
BEC	Bid Evaluation Committee
SOP	Standing operating Procedure
COGTA	Cooperative Governance and Traditional Affairs
CIP	Community Improvement Program

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Water and Sanitation Unit

Procedure No.	WWN	Amend No.	0
Date	23-05-2016	Page 1 of 5	
Developed by			
Approved by			

WASTEWATER NETWORK DEPARTMENT
OPERATION OF SEWERS PROCEDURE

1. PURPOSE

The purpose of the operation of sewers is to manage operation and maintenance of the sewer networks.

2. SCOPE

This procedure is applicable to the reticulation networks, sewer mains, tunnels, bridges, river crosses, syphon's, silt traps, trunk sewers, measuring flumes (v-notches) and connections and man holes.

3. RISKS

RISK CATEGORY	HAZARD	PREVENTATIVE MEASURES
Health & Safety	Due to the unique nature of each connection a comprehensive RA must be done for each project The main generic risks would be: - Excavation - Transport and handling of equipment and materials - Transport of personnel - Use of tools and equipment - Working at heights - Slips and falls - Entering into confined spaces - Traffic hazards	As per project specific Risk Assessment Project SHE Plan
Environmental	Leaks, overflows and spillages due to blockages, breakages and equipment failures	Correct work methods Thorough inspections Use of spill kits
Process	Ingress of sand, grit and debris	Correct work methods Thorough inspections
Business	Cost of rework	Correct work methods

	Additional treatment costs Poor quality work done by contractors False / inflated claims Public liability claims	Thorough inspections Contract management and monitoring Barricading and control of site
Other		

The above table is a summary of the risks associated with this procedure. A full Risk Assessment must be done prior to carrying out the tasks included in this procedure.

A new Risk Assessment must be done whenever any of the following events take place:

- New equipment or materials to be used
- Changes in legislation
- Significant changes in volumes of work done e.g. shift to contractors
- Non-routine work e.g. emergency, after-hours and inclement weather

The Risk Assessment must also be reviewed annually.

4. PERSONNEL AND EQUIPMENT REQUIREMENTS

4.1 Personnel

The person carrying out sewer operation must be qualified and authorised to do the work. He/she must have undergone training in line with their job description.

4.2 Equipment and Tools

- Drainage rods
- Jetting machines
- Vacto's
- Winches
- Stepladders
- Road signage
- Gas detectors
- Any and other necessary equipment or tools required for the execution of the work.

4.3 PPE

- Overalls
- Safety shoes / boots
- Gloves
- Waders
- Masks (full face)
- Gas masks FFP2
- Gum boots
- Safety Harness & lanyards

5. PROCEDURE

STEP	DESCRIPTION	RESPONSIBILITY
1.	Daily administration - Operations	All teams
2.	Work distribution	Superintendent
3.	Blockages and pollution control carried out by drainage crews	Drainage crew
4.	Pollution control carried out by Inspectors	Inspectors
5.	Any faults and defects identified while carrying out above work is detailed on bricklayers report and reported to Control Room	Drainage Supervisors
6.	Customer complaint	Consumer
7.	Control Centre create a fault number in the Fault Man System, reference GIS	
8.	Superintendent acknowledges fault reported in fault man system by Control Centre.	
9.	Superintendent does inspection of work to be done	Superintendent
10.	Superintendent assesses work and calls through to contractors for a minimum of 3 quotes or issues the work to in-house artisan. If job is not within the approved limit the job is escalated up to Technician/Area Engineer/Design/Other Dept.	Superintendent
11.	If Fault is within Dept. limit the 3 quotes are received from external contractors and requisition entered into requisition book.	
12.	Quotations reviewed by Superintendent and scrutinised by Superintendent/Area Engineer based on SCM policies and procurement regulations.	Superintendent/ Area Engineer
13.	The job is sanctioned by the Area Engineer and the job entered	Depot Clerk

	and submitted to Depot Clerk for capturing.	
14.	Job is captured via JDE by Depot clerk and order generated.	Depot Clerk
15.	Contractor is informed of order approval and job to be carried out.	Superintendent
16.	Site inspection of work during and after completion.	Superintendent
17.	Completion of fault and archive on Fault Man System Critical to be done to meet with internal KPI targets	Superintendent
18.	Authorised for payment based on final site inspection.	Area Engineer
19.	Payment processed by Finance Dept.	Finance Dept.

- Note that sub-steps, steps which are dependent on external actions, personnel requirements and special precautions must be noted.
- The SOP is not intended to be a training manual. Rather it is a guideline to ensure consistency when the work is being done by competent staff members.

6. REFERENCES

6.1 Sub-procedures

6.2 Related procedures

SOP NUMBER	DESCRIPTION
	Confined Space Entry

6.3 Applicable Regulations

OHS Act 85 of 1993 & regulations
Ethekwini Charter (Water and sanitation unit) as revised

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7. RECORDS

- Daily logsheet
- Bricklayers reports
- Fault Man System documentation
- GIS System documentation
- JDE System documentation
- Job Works Order
- Contractor quotations
- Requisitions and purchase orders
- Payment records
- Inspection records

9. AMENDMENTS

Any member of staff may propose an amendment to this procedure.
No unapproved amendments may be made to this procedure.

10. REVIEW DATE

1 April 2013.

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ETHEKWINI MUNICIPALITY
WATER AND SANITATION UNIT
SANITATION OPERATIONS DEPARTMENT

Wastewater Networks

OPERATION AND MAINTENANCE PLAN

28 OCTOBER 2022, REVISION 0

Approved for Implementation

Deputy Head: Sanitation Operations
S. Vilane

23/01/2023
Date

Head: Water and Sanitation
E. Msweli

31/01/2023
Date

Contents

1 Sewer Network Routine Maintenance Plan

The purpose of this maintenance plan is to ensure that there is a maintenance to keep the Sanitation Network Infrastructure in the desired state to provide adequate service delivery

Maintenance Plan

Planned maintenance programs have been drawn up for the various activities in the Wastewater Networks Branch

No	Activity	Frequency of Activity/Trigger for Maintenance Requirements
1.	Blockage Clearance	As and When Required. Controlled by the Departments control centre. SOP exists
2.	Desilting of Sewers	As and when required. Controlled by the Departments Superintendents. SOP exists
3.	Desilting of sand traps	6 monthly. Controlled by the Departments Superintendents
4.	Repairs to sewer network infrastructure	As and when required. Controlled the Departments Superintendents/Technical staff
5.	Pipe condition assessment	3 year contract
6.	Pipe replacement program	As per requirement of the pipe condition assessment. Also dependant on pipe age

Standards and Specifications

The Wastewater Networks Branch has recording procedures for work that is undertaken by their staff on a daily/weekly and monthly basis.

The Wastewater Networks Branch undertakes some of the maintenance in-house and also contracts external service providers.

Maintenance is carried out according to the volume of work as listed below:

1. Moderate volumes. The work will be carried out in house.
2. Increased volumes. Contractors shall be engaged via the existing contract documents.

Blockage Clearance

Blockage clearance is carried out by jetting and rodding crews that are controlled centrally by a control centre. Some external contractors are utilised when necessary.

Sewer Repairs

Sewer repairs are mainly carried out via an external contract. These are controlled by Superintendents / Technicians

Sewer Pipe Replacement

Pipe replacement is carried out under a Condition Assessment contract. The basic criteria for pipe replacement are 1) pipe age 2) Continuous repairs and 3) Development requiring pipe upgrades

The maintenance tenders are based on the contracts listed below:

1. WS 7075 : Expression of Interest for Wastewater Network Repairs for a 36 month period
2. WS 7210 : Expression of Interest for Wastewater Network CCTV Jetting Machine Crews, Blockage/Rodding Crews and Bush Cutting Crews for a 36 Month Period

The condition assessment and pipe replacement contract is listed below

1. Y 9070 condition assessment and pipe replacement

This maintenance plan is backed up by the following Standard operating procedures (attached).

1) Repairs to Sewers
2) Sewer Blockages and Rodding
3) Construction and Repair of Manholes
4) Inspection Repair and Operation of Rising Mains

1.1 SEWER BLOCKAGES AND RODDING

1.1.1 PURPOSE

The purpose of the operation of sewers is to manage operation and maintenance of the sewer networks in order to reduce blockages and to clear them safely, promptly and effectively when they do occur.

1.1.2 SCOPE

This procedure is applicable to the reticulation networks, sewer mains, tunnels, bridges, river crosses, syphon's, silt traps, trunk sewers, measuring flumes (v-notches) and connections and man holes.

1.1.3 RISKS

RISK CATEGORY	HAZARD	PREVENTATIVE MEASURES
Health & Safety	The main generic risks would be: - Excavation - Transport and handling of equipment and materials - Transport of personnel - Use of tools and equipment - Working at heights - Slips and falls - Entering into confined spaces - Traffic hazards Hazardous biological agents High pressure jetting: • Uncontrolled pressure discharges • Flailing of pressure hoses • Nozzles coming loose	Risk Assessment and Safety Plan Training and rigorous following of procedures. Barricading PPE Training and retraining Regular inspections of equipment especially hoses and connections
Environmental	Leaks, overflows and spillages due to blockages, breakages and equipment failures	Correct work methods Thorough inspections Use of spill kits
Process	Ingress of sand, grit and debris	Correct work methods Prompt attention to blockages

		Thorough inspections Preventive maintenance (rodding, jetting and scouring)
Business	Cost of rework (clearing blockages which were recently cleared) Poor quality work done by contractors False / inflated claims Public liability claims	Correct work methods Thorough Inspections Contract management and monitoring Barricading and control of site
Other		

The above table is a summary of the risks associated with this procedure. A full Risk Assessment must be done prior to carrying out the tasks included in this procedure.

A new Risk Assessment must be done whenever any of the following events take place:

- New equipment or materials to be used
- Changes in legislation
- Significant changes in volumes of work to be done, especially by contractors
- Non-routine work e.g. emergency work, night work, wet weather etc.

The Risk Assessment must also be reviewed annually.

1.1.4 PERSONNEL AND EQUIPMENT REQUIREMENTS

1.1.4.1 Personnel

The person carrying out sewer unblocking and rodding must be qualified and authorised to do the work. He/she must have undergone training in line with their job description. This is particularly relevant to the Jetting machine operator.

1.1.4.2 Equipment and Tools

- Drainage rods
- Jetting machines
- Vacto's
- Winches
- Stepladders

- Road signage
- Gas detectors
- Any and other necessary equipment or tools required for the execution of the work.

1.1.4.3 PPE

- Overalls
- Safety shoes / boots
- Gloves
- Waders
- Masks (full face)
- Gas masks FFP2
- Gum boots
- Safety Harness & lanyards

1.1.5 PROCEDURE

STEP	DESCRIPTION	RESPONSIBILITY
1.	Administration – Operations. Drainage Supervisor completes daily trip sheet, job card and bricklayers report on site.	Drainage Supervisor
2.	Feedback by Drainage Supervisor to Control Centre.	Drainage Supervisor
3.	Control Centre add detail of drainage Supervisor site feedback onto Fault Man. (Inserted in notes field of specific area clipboard)	Control Centre
4.	Work distribution	Superintendent
	Customer compliant	Consumer
5.	Blockages and pollution control carried out by drainage crews or using jetting machines from in-house or external contractor.	Drainage crew
6.	Roster system on a ten day cycle for external contractors used for jetting.	Superintendent
7.	Pollution control carried out by Inspectors during and after job	Draining Crew / Maintenance Inspector
8.	Maintenance Inspection gives feedback using the field return control sheet and reports to the Area Superintendent at the end of each shift.	Maintenance Inspector
9.	Any faults and defects identified while carrying out above work is detailed on bricklayers report and reported to Area Superintendent	Drainage Supervisors
10.	Customer compliant and internal identification of work	Consumer

11.	Control Centre create a fault number in the Fault Man System, reference GIS	
12.	Superintendent acknowledges fault reported in fault man system by Control Centre.	
13.	Superintendent does inspection of work to be done	Superintendent
14.	Superintendent assesses work and calls through to contractors for a minimum of 3 quotes or issues the work to in-house artisan. If job is not within the approved limit the job is escalated up to Technician/Area Engineer/Design/Other Dept.	Superintendent
15.	If Fault is within Dept. limit the 3 quotes are received from external contractors and requisition entered into requisition book.	
16.	Quotations reviewed by Superintendent and scrutinised by Superintendent/Area Engineer based on SCM policies and procurement regulations.	Superintendent/ Area Engineer
17.	The job is sanctioned by the Area Engineer and the job entered and submitted to Depot Clerk for capturing.	Depot Clerk
18.	Job is captured via JDE by Depot clerk and order generated.	Depot Clerk
19.	Contractor is informed of order approval and job to be carried out.	Superintendent
20.	Site inspection of work during and after completion.	Superintendent
21.	Completion of fault and archive on Fault Man System Critical to be done to meet with internal KPI targets	Superintendent
22.	Authorised for payment based on final site inspection.	Area Engineer
23.	Payment processed by Finance Dept.	Finance Dept.

- Note that sub-steps, steps which are dependent on external actions, personnel requirements and special precautions must be noted.
- The SOP is not intended to be a training manual. Rather it is a guideline to ensure consistency when the work is being done by competent staff members.

1.1.6 REFERENCES

1.1.6.1 Sub-procedures

SCM policies and procedures
Jetting machine operation
Contract management

1.1.6.2 Related procedures

SOP NUMBER	DESCRIPTION
	Planned Shut Procedure
	Confined Space Procedure
	Hygiene Procedure
	Emergency Procedure (Medicals etc)
	Shoring Procedure
	Gas Monitoring Procedure
	HIRA Procedure
	Waste Procedure

1.1.7 Applicable Regulations

OHS Act 85 of 1993
Ethekwini Charter (Water and sanitation unit) as revised

1.1.8 RECORDS

- Daily logsheet
- Bricklayers reports
- Fault Man System documentation
- GIS System documentation
- JDE System documentation
- Job Works Order
- Contractor quotations
- Requisitions and purchase orders
- Payment records
- Inspection records

1.1.9 AMENDMENTS

Any member of staff may propose an amendment to this procedure.
No unapproved amendments may be made to this procedure.

1.1.10 REVIEW DATE

1 April 2013.

1.2 CONTRUCTION OF MANHOLES AND REPAIRS OF MANHOLES\

1.2.1 PURPOSE

The purpose of this procedure is to safely and effective construct and maintain sewerage infrastructure including manholes,

1.2.2 SCOPE

This procedure is applicable to the reticulation networks, sewer mains, tunnels, bridges, river crosses, syphons, silt traps, trunk sewers, measuring flumes (v-notches) and connections and man holes.

1.2.3 RISKS

RISK CATEGORY	HAZARD	PREVENTATIVE MEASURES
Health & Safety	Due to the unique nature of each connection a comprehensive RA must be done for each project The main generic risks would be: • Excavation • Transport and handling of equipment and materials • Transport of personnel • Use of tools and equipment	Risk Assessment and Safety Plan for the project
	Entry into confined spaces: • Suffocation • Gas inhalation • Animal bites and stings	Training Gas detection Ventilation Use of buddy system Breathing apparatus
	High pressure jetting	Training and rigorous following of procedures. PPE
	Working at heights	Harness
	Slips and falls;	Safety awareness training PPE
	Lifting heavy objects	Use of correct lifting methods

Environmental	Leaks and spillages due to blockages	Correct work methods Thorough inspections
Process	Ingress of sand, grit and debris	Correct work methods Thorough inspections
Business	Public liability claims	Risk Assessment and Safety Plan
Other		

The above table is a summary of the risks associated with this procedure. A full Risk Assessment must be done prior to carrying out the tasks included in this procedure.

A new Risk Assessment must be done whenever any of the following events take place:

- New equipment used
- Changes in legislation
- Significant changes in activity or situation
- Non-routine work e.g. Trenchless excavation

The Risk Assessment must also be reviewed annually.

1.2.4 PERSONNEL AND EQUIPMENT REQUIREMENTS

1.2.4.1 Personnel

The person carrying out the work must be qualified and authorised to do the work. He/she must have undergone training or refresher training during the previous 12 months.

Team 1

- Superintendents
- Drainage supervisors
- Small plant operators (general workers)

Team 2

- Artisans (bricklayers)
- Small plant operators

Team 3

- Inspectors

- Above all controlled by Control Centre

1.2.4.2 Equipment and Tools

- Drainage rods

- Jetting machines
- Vacto's
- Winches
- Stepladders
- Road signage

1.2.4.3 PPE

- Overalls
- Safety shoes / boots
- Gloves
- Waders
- Masks (full face)
- Gas masks FFP2
- Gum boots
- Safety Harness & lanyards

1.2.5 **PROCEDURE**

STEP	DESCRIPTION	RESPONSIBILITY
1.	Drainage attendant/ High Pressure Jetting Team/ Bush Clearing contractors / Sub-Contractors or member of public identifies damage /3rd party damage to manhole.	
2.	Contact Centre generates a Fault Number and issues to the designated Area Superintendent.	Contact Centre
3.	Superintendent does inspection of work to be done	Superintendent
4.	If Superintendent finds a structural change in the man hole this would be referred to the Technician/Area Engineer/Design/Other Dept.	Superintendent / Law enforcement
5.	Superintendent assesses work and calls through to contractors for a minimum of 3 quotes or issues the work to in-house artisan. If job is not within the approved limit the job is escalated up to Technician/Area Engineer/Design/Other Dept.	Superintendent
6.	If pollution control measures are required to contain or manage overflow of sewage, a temporary over-pumping system or a temporary by-pass sewer line will be set up or installed. Alternatively tankers will be used.	Superintendent/ Artisan/ Sub-Contractor
7.	Temporary repairs are carried out if necessary prior to planned shut (refer to Planned Shut procedure)	Superintendent / Artisan / Pipeline Inspectors

8.	If materials or plant are required the requisition is completed ex-stock per depot or request from main stores. Plant is obtained either internally from the Plant Division or via the requisition procedure.	Superintendent
9.	If Fault is within Dept. limit the 3 quotes are received from external contractors and requisition entered into requisition book.	Superintendent
10.	Quotations reviewed by Superintendent and scrutinised by Superintendent/Area Engineer based on SCM policies and procurement regulations.	Superintendent/ Area Engineer
11.	The job is sanctioned by the Area Engineer and the job entered and submitted to Depot Clerk for capturing.	Depot Clerk
12.	Job is captured via JDE by clerk and order generated.	Depot Clerk / Data Capturer
13.	Contractor is informed of order approval and job to be carried out.	Superintendent
14.	Site inspection of work during and after completion.	Superintendent / Maintenance Inspector
15.	Completion of fault and archive on Fault Man System Critical to be done to meet with internal KPI targets.	Superintendent
16.	Authorised for payment based on final site inspection.	Area Engineer
17.	Payment processed by Finance Dept.	Finance Dept.

- Note that sub-steps, steps which are dependent on external actions, personnel requirements and special precautions must be noted.
- The SOP is not intended to be a training manual. Rather it is a guideline to ensure consistency when the work is being done by competent staff members.

1.2.6 REFERENCES

1.2.6.1 Sub-procedures

1.2.6.2 Related procedures

SOP NUMBER	DESCRIPTION
	Planned Shut Procedure
	Confined Space Procedure
	Hygiene Procedure

	Emergency Procedure (Medicals etc)
	Law enforcement
	Gas Monitoring Procedure
	HIRA Procedure
	Waste Procedure
	Requisition Procedure
	Clearing of blockages
	Bush-cutting

1.2.7 Applicable Regulations

OHS Act 85 of 1993

1.2.8 RECORDS

- Daily logsheet
- Fault Man Report
- Job Works Order
- Contractor quotations
- Requisitions and purchase orders
- Payment records
- Inspection records

1.2.9 AMENDMENTS

Any member of staff may propose an amendment to this procedure.
No unapproved amendments may be made to this procedure.

1.2.10 REVIEW DATE

1 April 2013.

1.3 INSPECTION AND REPAIR OF RISING MAINS

1.3.1 PURPOSE

The purpose of the inspection, repair and operation of rising mains is to ensure that the rising mains are operating effectively thereby providing service delivery to the community.

1.3.2 SCOPE

This procedure is applicable all rising mains that impact on the efficient operation of sewage pump stations.

1.3.3 RISKS

RISK CATEGORY	HAZARD	PREVENTATIVE MEASURES
Health & Safety	Due to the unique nature of each connection a comprehensive RA must be done for each project The main generic risks would be: - Excavation - Transport and handling of equipment and materials - Transport of personnel - Use of tools and equipment - Working at heights - Slips and falls - Entering into confined spaces - Traffic hazards	Risk Assessment and Safety Plan Training and rigorous following of procedures. Barricading
	Electrical shock (temp pumping installations)	Lock-out Prevent unauthorised working Regular inspections and testing of generators etc.
	Mechanical injuries	PPE, guarding, lock-outs and nip points
	Skin irritations due to contact with cementitious materials	PPE (gloves)
Environmental	Leaks, overflows and spillages due to blockages, breakages and equipment failures	Correct work methods Thorough inspections Use of spill kits
Process	Ingress of sand, grit and debris	Correct work methods

		Thorough inspections
Business	Cost of rework Additional treatment costs Poor quality work done by contractors False / Inflated claims Public liability claims	Correct work methods Thorough inspections Contract management and monitoring Barricading and control of site
Other		

The above table is a summary of the risks associated with this procedure. A full Risk Assessment must be done prior to carrying out the tasks included in this procedure.

A new Risk Assessment must be done whenever any of the following events take place:

- New equipment or materials to be used
- Changes in legislation
- Significant changes in pipeline sizes, pressures etc. which increases the magnitude of the work
- Non-routine work e.g. emergency, night work, inclement weather, proximity of property

The Risk Assessment must also be reviewed annually.

1.3.4 PERSONNEL AND EQUIPMENT REQUIREMENTS

1.3.4.1 Personnel

The person carrying out inspection, repair and operation of rising mains must be competent and authorised to do the work. He/she must have undergone training in line with their job description.

Team 1

- Superintendents
- Drainage supervisors
- Small plant operators (general workers)

Team 2

- Artisans (bricklayers)
- Small plant operators

Team 3

- Inspectors

- Technicians

- Maintenance assistants
- Contractors

1.3.4.2 Equipment and Tools

- Drainage rods
- Jetting machines
- Vactor's
- Winches
- Stepladders
- Road signage
- Tankers
- Hand tools
- Lights
- Generators
- Pumps
- TLB/Excavator
- Shoring materials

1.3.4.3 PPE

- Overalls
- Hard hat
- Safety shoes / boots
- Gloves
- Waders
- Masks (full face)
- Gas masks FFP2
- Gum boots
- Safety Harness & lanyards
- Gas detectors / BA Set

1.3.5 PROCEDURE

STEP	DESCRIPTION	RESPONSIBILITY
1.	Elevated sections of rising mains and components are inspected periodically against an inspection schedule.	Maintenance Inspectors

2.	Any faults or repairs identified when carrying out an inspection are reported to the Superintendent.	Maintenance Inspectors / Superintendent
3.	Drainage attendant/ High Pressure Jetting Team/ Bush Clearing contractors / Pollution Department, Sub-Contractors or member of public Identifies damage /3rd party damage will notify the Call Centre or Superintendent directly. The Call Centre informs the Control Centre and generates a Fault Number and issues to the designated Area Superintendent.	Control Centre
4.	Superintendent does inspection of work to be done	Superintendent
5.	Superintendent assesses work and calls through to an identified specialist contractor. *Due to the nature of the rising main being a high risk environmentally and operationally a contractor may be called directly without getting 3 quotations.*	Superintendent
6.	If pollution control measures are required to contain or manage overflow of sewage, a temporary over-pumping system or a temporary by-pass sewer line will be set up or installed. Alternatively tankers will be used.	Superintendent/ Artisan/ Sub-Contractor
7.	The Superintendent will carry out a lock out on the electrical panel.	Superintendent
8.	Temporary repairs are carried out if necessary prior to planned shut (refer to Planned Shut procedure)	Superintendent
9.	Permanent repairs are carried out and inspection of work carried out.	Superintendent
10.	Lock out to be removed.	Superintendent
11.	Rising main to be tested and commissioned.	Superintendent
	If repaired through internal departments, step 12 until 13 apply,	
12.	If materials or plant are required the requisition is completed ex-stock per depot or request from main stores or alternatively outside purchase. Plant is obtained either internally from the Plant Division or via the requisition procedure.	Superintendent
13.	If outside purchase the Superintendent completes a requisition which is submitted to the buying office for purchase.	Superintendent
14.	Quotations reviewed by Superintendent and scrutinised by Superintendent/Area Engineer based on SCM policies and procurement regulations.	Superintendent/ Area Engineer
15.	The job is sanctioned by the Area Engineer/Superintendent and the job entered and submitted for capturing.	Administrator
16.	Job is captured via JDE and order generated.	Administrator

17.	Contractor is informed of order approval and job to be carried out.	Superintendent
18.	Site inspection of work during and after completion.	Superintendent
19.	Completion of fault and archive on Fault Man System Critical to be done to meet with internal KPI targets	Superintendent
20.	Authorised for payment based on final site inspection.	Area Engineer
21.	Payment processed by Finance Dept.	Finance Dept.

- Note that sub-steps, steps which are dependent on external actions, personnel requirements and special precautions must be noted.
- The SOP is not intended to be a training manual. Rather it is a guideline to ensure consistency when the work is being done by competent staff members.

1.3.6 REFERENCES

1.3.6.1 Sub-procedures

1.3.6.2 Related procedures

SOP NUMBER	DESCRIPTION
	Inspection of sewer
	Repair of sewer
	Inspection of Pump stations
	Planned Shut Procedure
	Confined Space Procedure
	Hygiene Procedure
	Emergency Procedure (Medicals etc)
	Shoring Procedure
	Gas Monitoring Procedure
	HIRA Procedure
	Waste Procedure
	Lock-out

1.3.7 Applicable Regulations

OHS Act 85 of 1993 including Construction Regulations, where applicable

1.3.8 RECORDS

- Daily logsheet
- Fault Man Report
- Job Works Order
- Contractor quotations
- Requisitions and purchase orders
- Payment records
- Inspection records

1.3.9 AMENDMENTS

Any member of staff may propose an amendment to this procedure.
No unapproved amendments may be made to this procedure.

1.3.10 REVIEW DATE

1 April 2013.

1.4 REPAIRS TO SEWERS

1.4.1 PURPOSE

The purpose of this procedure is to speedily, safely and effectively carry out repairs to the sewerage system

1.4.2 SCOPE

This procedure is applicable to the reticulation networks, sewer mains, tunnels, bridges, river crosses, syphons, silt traps, trunk sewers, measuring flumes (v-notches) and connections and man holes.

1.4.3 RISKS

RISK CATEGORY	HAZARD	PREVENTATIVE MEASURES
Health & Safety	Due to the unique nature of each connection a comprehensive RA must be done for each project The main generic risks would be: - Excavation - Transport and handling of equipment and materials - Transport of personnel - Use of tools and equipment - Working at heights - Slips and falls - Entering into confined spaces - Traffic hazards	Risk Assessment and Safety Plan Training and rigorous following of procedures. Barricading
	High pressure jetting: • Uncontrolled pressure discharges • Flailing of pressure hoses • Nozzles coming loose	Training and retraining Regular inspections of equipment especially hoses and connections
	Skin irritations due to contact with cementitious materials	PPE (gloves)
Environmental	Leaks, overflows and spillages due to blockages, breakages and equipment failures	Correct work methods Thorough inspections Use of spill kits
Process	Ingress of sand, grit and debris	Correct work methods Thorough inspections
Business	Cost of rework Additional treatment costs Poor quality work done by contractors	Correct work methods Thorough inspections Contract management and monitoring

	False / inflated claims Public liability claims	Barricading and control of site
Other		

The above table is a summary of the risks associated with this procedure. A full Risk Assessment must be done prior to carrying out the tasks included in this procedure.

A new Risk Assessment must be done whenever any of the following events take place:

- New equipment or materials to be used
- Changes in legislation
- Significant changes in volumes of work especially contractors
- Non-routine work e.g. emergency, after-hours and inclement weather

The Risk Assessment must also be reviewed annually.

1.4.4 PERSONNEL AND EQUIPMENT REQUIREMENTS

1.4.4.1 Personnel

The person carrying out the work must be qualified and authorised to do the work. He/she must have undergone training or refresher training during the previous 12 months. This is particularly relevant to the Jetting machine operator.

Team 1

- Superintendents
- Drainage supervisors
- Small plant operators (general workers)

Team 2

- Artisans (bricklayers)
- Small plant operators

Team 3

- Inspectors

- Contractors
- Above all controlled by Control Centre

1.4.4.2 Equipment and Tools

- Drainage rods

- Jetting machines
- Vacto's
- Winches
- Stepladders
- Road signage

1.4.4.3 PPE

- Overalls
- Safety shoes / boots
- Gloves
- Waders
- Masks (full face)
- Gas masks FFP2
- Gum boots
- Safety Harness & lanyards

1.4.5 **PROCEDURE**

STEP	DESCRIPTION	RESPONSIBILITY
1.	Drainage attendant/ High Pressure Jetting Team/ Bush Clearing contractors / Sub-Contractors or member of public identifies damage /3rd party damage to sewer.	
2.	Contact Centre generates a Fault Number and issues to the designated Area Superintendent.	Contact Centre
3.	Superintendent does inspection of work to be done	Superintendent
4.	Superintendent assesses work and calls through to contractors for a minimum of 3 quotes or issues the work to in-house artisan. If job is not within the approved limit the job is escalated up to Technician/Area Engineer/Design/Other Dept.	Superintendent
5.	If pollution control measures are required to contain or manage overflow of sewage, a temporary over-pumping system or a temporary by-pass sewer line will be set up or installed. Alternatively tankers will be used.	Superintendent/ Artisan/ Sub-Contractor
6.	Temporary repairs are carried out if necessary prior to planned shut (refer to Planned Shut procedure)	Superintendent
7.	If materials or plant are required the requisition is completed ex-stock per depot or request from main stores or alternatively outside purchase. Plant is obtained either internally from the Plant Division or via the requisition procedure.	Superintendent

8.	If outside purchase the Superintendent completes a requisition which is submitted to the buying office for purchase.	Superintendent
9.	If Fault is within Dept. limit the 3 quotes are received from external contractors and requisition entered into requisition book.	Superintendent
10.	Quotations reviewed by Superintendent and scrutinised by Superintendent/Area Engineer based on SCM policies and procurement regulations.	Superintendent/ Area Engineer
11.	The job is sanctioned by the Area Engineer and the job entered and submitted to Depot Clerk for capturing.	Depot Clerk
12.	Job is captured via JDE by Depot clerk and order generated.	Depot Clerk
13.	Contractor is informed of order approval and job to be carried out.	Superintendent
14.	Site inspection of work during and after completion.	Superintendent
15.	Completion of fault and archive on Fault Man System Critical to be done to meet with internal KPI targets	Superintendent
16.	Authorised for payment based on final site inspection.	Area Engineer
17.	Payment processed by Finance Dept.	Finance Dept.

- Note that sub-steps, steps which are dependent on external actions, personnel requirements and special precautions must be noted.
- The SOP is not intended to be a training manual. Rather it is a guideline to ensure consistency when the work is being done by competent staff members.

1.4.6 REFERENCES

1.4.6.1 Sub-procedures

SCM policies and procedures
Jetting machine operation
Contract management

1.4.6.2 Related procedures

SOP NUMBER	DESCRIPTION
	Planned Shut Procedure
	Confined Space Procedure
	Hygiene Procedure
	Emergency Procedure (Medicals etc)

	Shoring Procedure
	Gas Monitoring Procedure
	HIRA Procedure
	Waste Procedure

1.4.7 Applicable Regulations

OHS Act 85 of 1993

1.4.8 RECORDS

- Daily logsheet
- Fault Man Report
- Job Works Order
- Contractor quotations
- Requisitions and purchase orders
- Payment records
- Inspection records

1.4.9 AMENDMENTS

Any member of staff may propose an amendment to this procedure.
No unapproved amendments may be made to this procedure.

1.4.10 REVIEW DATE

1 April 2013.

2 Pump Station Routine Maintenance Plan

The purpose of this maintenance plan is to ensure that there is a maintenance to keep the sanitation Pump station infrastructure in the desired state to provide adequate service delivery

2.1 Pumpstation Maintenance Plan

Planned maintenance programs have been drawn up for the various pump stations. This maintenance regime encompasses the following activities:

No	Activity	Frequency of Activity/Trigger for Maintenance Requirements
1.	Visual Inspections	Monthly
2.	Vibration analysis on pump motors	Ad hoc – informed by 3 monthly inspections
3.	Thermographic imagery on electrical installations	As required by strategic management or disaster management plans
4.	Replace gaskets	Inspect 3 monthly – replace as and when required
5.	Replace shaft bearings	Inspect 3 monthly –replace as and when required
6.	Replace impeller	Ad hoc – based on energy consumption and power output (downstream pressure)
7.	Test Pump efficiency (power usage versus pressure delivered)	3 Monthly review during inspections
8.	Cleaning of trash racks and baskets	Daily
9.	Desilting of pump sumps	Varies according to pump station size and silt inflow
10.	Housekeeping inspections (SHEQ)	Monthly using Checklist 5.40 for Yard Facilities – eThekwini SHEQ Manual

There are some pumps which are not maintained due to their insignificant replacement cost and these pumps are run to failure.

Standards and Specifications

The Systems Branch has inspection standards for work that is undertaken by their staff on a daily/weekly and monthly basis based on their experience and records. The removal of detritus from the pump stations shall be carried out on a daily basis. The desilting of pump sumps shall be undertaken on a programme as agreed with the Area Engineer via an annual contract issued in each of the four areas.

The Mechanical and Electrical Branch undertakes some of the maintenance in-house and also contract external service providers.

Repair and breakdown maintenance is authorised on a Work Request and is carried out according to the urgency as listed below:

- Extreme Urgency. The staff/contractor shall be required to respond immediately and commence repairs within three hours, irrespective of the time of day.
- Moderate Urgency. The staff/contractor shall commence repairs within 24 hours or by the close of working hours on the following day.
- Planned Work. The work shall be undertaken on a programme as agreed with the Area Engineer. The Annexure 1 below is a guideline to the planned maintenance of the pump stations

The standard specifications on which these maintenance tenders are based are listed below:

- FIDIC Conditions of Contract for Plant and Design-Build, for Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by the Contractor (First Edition 1999)
- The Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the Construction Regulations 2003 (Government Gazette No 25207 of 18 July 2003, Notice No R1010)
- The Construction Industry Development Board Act No 38 of 2000 and the Regulations in terms of the CIDB Act 38/2000, Government Notice No 692 of 9 June 2004,

The EWS has identified that further specifications are required for the following maintenance procedures:

- Standard pump and motor replacement procedures

2.2 Summary of Future Maintenance Plan

The expected and planned work is scheduled in annexure 1 below. This is a guideline to be used in conjunction with each Areas servicing and inspection schedules

Area	WW Pumpstation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Austerville	Tara Road	√			√			√			√		
Bayhead	Toulon Road (Bayhead)		√			√			√			√	
Blue Lagoon	Athlone Drive			√			√			√			√
Bluff	Airlie Road	√			√			√			√		
Bluff	Blackpool Road	√			√			√			√		
Bluff	Finnemore Place	√			√			√			√		
Bluff	Grays Inn Road	√			√			√			√		
Bluff	Moss Road	√			√			√			√		
Bluff	Oakland Road	√			√			√			√		
Bluff	Olsen Road	√			√			√			√		
Bluff	Refinery	√			√			√			√		
Bluff	Sloane Road	√			√			√			√		
Bluff Ansteys	Foreshore Drive	√			√			√			√		
Carrington Heights/Um	River Drive		√			√			√			√	
Chatsworth	Chatsworth Main Road	√			√			√			√		
Coedmore	Unit Avenue	√			√			√			√		
Durban Central	Addington Beach		√			√			√			√	
Durban Central	Brickhill Road		√			√			√			√	
Durban Central	Esplanade		√			√			√			√	
Durban Central	John Milne Road		√			√			√			√	
Durban Central	N.M.R. Avenue		√			√			√			√	
Durban North (Virginia)	Fairway 1			√			√			√			√
Durban North (Virginia)	Fairway 2			√			√			√			√
Durban Point	Mahatma Gandhi Road		√			√			√			√	
Fynnlands	Island View	√			√			√			√		
Island View Bluff	Worthing Avenue	√			√			√			√		
Jacobs	Dayal Road	√			√			√			√		
Jacobs	Jacobs Road	√			√			√			√		
Jacobs	Lansdowne Road	√			√			√			√		
Jacobs	Richard Carte Place	√			√			√			√		
Jacobs	Sialkot Crescent	√			√			√			√		
Kings Park	Battery Beach		√			√			√			√	
Kings Park Football Pre	Moses Mabhida		√			√			√			√	
Kings Park Rugby Stadiu	Kings Park Rugby		√			√			√			√	
Kingsmead	SABC		√			√			√			√	
Lamontville	Matwabula Road		√			√			√			√	
Marine Parade	Central Beach		√			√			√			√	
Maydon Wharf	Maydon Road		√			√			√			√	
Maydon Wharf/Bayhea	Drydock		√			√			√			√	
Merewent	Badulla Drive	√			√			√			√		
Merewent	Himalayas Drive	√			√			√			√		
Merewent	Sylhet Place	√			√			√			√		
Parlock	Joyce Road		√			√			√			√	
Puntans Hill/Burman B	Bridgeview		√			√			√			√	
Rossburgh	Edwin Swales Drive		√			√			√			√	
Rossburgh	Roberts Grove		√			√			√			√	
Sea Cow Lake	Johanna Road			√			√			√			√
Sea Cow Lake Ind. Park	Hippopark Avenue			√			√			√			√
Sea Cow Lake Ind. Park	Island Grove			√			√			√			√
Sea Cow Lake Ind. Park	Umvubu Place			√			√			√			√
Seaview / Hillary	Comet Place		√			√			√			√	
Springfield	Kennedy Road			√			√			√			√

Area	WW Pumpstation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Springfield	Quarry Road			√			√			√			√
Springfield Park	Palmfield Road		√			√			√			√	
Springfield Park	Temple Road		√			√			√			√	
Sunkist	Laguna Beach		√			√			√			√	
Treasure Beach	Ernest Bower Place	√			√			√			√		
Umbilo	Glastonbury Place		√			√			√			√	
Umgeni	Riverside Road			√			√			√			√
Umgeni	Roadhouse Crescent			√			√			√			√
Umgeni	Salisbury			√			√			√			√
Umgeni Park	Umgeni Park 1 (Intersite Ave)			√			√			√			√
Umgeni Park	Umgeni Park 2 (Intersite Ave)			√			√			√			√
Umgeni Park	Umgeni Park 3 (Intersite Ave)			√			√			√			√
Umgeni Park	Umgeni Park 4 Intersite Ave)			√			√			√			√
Woodlands	Carolina Crescent	√			√			√			√		
Yellowood Park	Gymkhana	√			√			√			√		
Yellowood Park	Sandpiper Crescent	√			√			√			√		
Canelands Verulam	Canelands 1			√			√			√			√
Canelands Verulam	Canelands 2			√			√			√			√
Canelands Verulam	Canelands 3			√			√			√			√
Casurina Beach	Seatides		√			√			√			√	
Casurina Beach	Shalimar		√			√			√			√	
Chopper Village	Ohlanga New		√			√			√			√	
Chopper Village	Ohlanga Old		√			√			√			√	
Duffs Road	Falcon Road (Duffs Road 1)			√			√			√			√
Etafuleni	Etafuleni	√			√			√			√		
Glen Ashley / La Lucia	Ypsilante Avenue			√			√			√			√
Hambanathi	Hambanathi 1		√			√			√			√	
Hambanathi	Hambanathi 2		√			√			√			√	
Kwa Mashu	Kwa Mashu A	√			√			√			√		
Kwa Mashu	Kwa mashu D	√			√			√			√		
La Lucia	Eastmoor Crescent			√			√			√			√
La Lucia	Forest Drive 1 (Pump Station R)			√			√			√			√
La Lucia	Forest Drive 2 (Pump Station S)			√			√			√			√
La Lucia	Forest Drive 3 (Pump Station T)			√			√			√			√
La Lucia	Forest Drive 4 (Pump Station U)			√			√			√			√
La Lucia	Homeford Drive (Pump Station ....)	√			√			√			√		
La Lucia	Lady Ellen Drive (Pump Station....)	√			√			√			√		
La Lucia	Shellborne Avenue	√			√			√			√		
La Mercy Lagoon	Amenities	√			√			√			√		
Mount Royal	Mount Royal 1			√			√			√			√
Mount Royal	Mount Royal 2			√			√			√			√
Ntuzuma	Ntuzuma H	√			√			√			√		
Ntuzuma	Ntuzuma D	√			√			√			√		
Phoenix	Nettlepalm Gardens (CA 25)		√			√			√			√	
Phoenix	Ramroop Road		√			√			√			√	
Phoenix Ind Park	Aberdare Drive		√			√			√			√	
Phoenix Ind Park	Font Place (CA 4)		√			√			√			√	
Phoenix Ind Park	Phoenix Main Road 93		√			√			√			√	
Phoenix Ind Park	Vulcan Place		√			√			√			√	
Sansfield Tongaat	Pump Station F (Sansfield)		√			√			√			√	
Sibaya	Sibaya		√			√			√			√	
Siphon Dam Tongaat	Northdale		√			√			√			√	
Somerset Park	Somerset Park			√			√			√			√
Tongaat	Gandhis Hill		√			√			√			√	

Area	WW Pumpstation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tongaat	Greylands		√			√			√			√	
Tongaat	Pump Station D (Mill Road)		√			√			√			√	
Tongaat	Pump Station E		√			√			√			√	
Tongaat Beach	Tongaat Beach Pump Station 1			√			√			√			√
Tongaat Beach	Tongaat Beach Pump Station 2			√			√			√			√
Tongaat Beach	Tongaat Beach Pump Station 3			√			√			√			√
Tongaat Beach	Pump Station 6			√			√			√			√
Umdloti	Umdloti Central			√			√			√			√
Umdloti	Umdloti Far North			√			√			√			√
Umdloti	Umdloti North			√			√			√			√
Umdloti	Umdloti South			√			√			√			√
Umhlanga Rocks	Armstrong Avenue (Pump Station L)			√			√			√			√
Umhlanga Rocks	Main Beach Umhlanga			√			√			√			√
Umhlanga Rocks	Lagoon Drive 1 (Pump Station C)	√			√			√			√		
Umhlanga Rocks	Lagoon Drive 2 (Pump Station D)	√			√			√			√		
Umhlanga Rocks	Lagoon Drive 3 (Pump Station ...)	√			√			√			√		
Umhlanga Rocks	Marine Drive 1 (Pump Station B)	√			√			√			√		
Umhlanga Rocks	Marine Drive 2 (Pump Station Y)	√			√			√			√		
Umhlanga Rocks	Marine Drive 3 (Pump Station X)	√			√			√			√		
Umhlanga Rocks	McCausland Crescent (Pump Station A)		√			√			√			√	
Umhlanga Rocks	Portland Place (O)		√			√			√			√	
Umhlanga Rocks	Promenade 1 (Pump Station P)		√			√			√			√	
Umhlanga Rocks	Promenade 2		√			√			√			√	
Umhlotl Heights	Mission Road (Umdloti Heights)			√			√			√			√
Verulam	Amora Drive	√			√			√			√		
Verulam	As Salaam Road	√			√			√			√		
Verulam	Hammonds Farm	√			√			√			√		
Verulam	Lakeview Place (Estuary Drive)	√			√			√			√		
Verulam	Starr Street	√			√			√			√		
Verulam	Talwant Singh	√			√			√			√		
Verulam	Trenance Park	√			√			√			√		
Verulam	Wick Street	√			√			√			√		
Waterloo	Waterloo	√			√			√			√		
Westbrook	Westbrook Beach Hotel	√			√			√			√		
Westbrook Spathodia	Westbrook Spathodia	√			√			√			√		
Amanzimtoti	Arden Place	√			√			√			√		
Amanzimtoti	Beach Road 1	√			√			√			√		
Amanzimtoti	Beach Road 2	√			√			√			√		
Amanzimtoti	Chain Rocks	√			√			√			√		
Amanzimtoti	Commercial Road	√			√			√			√		
Amanzimtoti	Hutchinson Park	√			√			√			√		
Amanzimtoti	Ipahla Road	√			√			√			√		
Amanzimtoti	Isundu Drive	√			√			√			√		
Amanzimtoti	Kuswag	√			√			√			√		
Amanzimtoti	Ocean View 1	√			√			√			√		
Amanzimtoti	Ocean View 2 (2 Sets)	√			√			√			√		
Amanzimtoti	Riverside Road 1	√			√			√			√		
Amanzimtoti	Riverside Road 2	√			√			√			√		
Amanzimtoti	Umdoni Road	√			√			√			√		
Amanzimtoti	Zulweni Gardens	√			√			√			√		
Amanzimtoti	Riverside Road 3	√			√			√			√		
Athlone Park	Marshall Road	√			√			√			√		
Athlone Park	Everglades	√			√			√			√		

Athlone Park	Golfcourse Road	√			√			√			√			
Athlone Park	Nyathi Road	√			√			√			√			
Athlone Park	Prince Street	√			√			√			√			
Craigieburn	Saturn Road	√			√			√			√			
Craigieburn	Evans Road (2 Sets)	√			√			√						
Craigieburn	Lotus Park		√			√			√				√	
Craigieburn	Sunpark 1		√			√			√				√	
Craigieburn	Sunpark 2		√			√			√				√	
Folweni	Folweni		√			√			√				√	
Illovo	Elizabeth Avenue		√			√			√				√	
Illovo	Lamaco		√			√			√				√	
Illovo	Old South Coast Road		√			√			√				√	
Illovo	Station Road (2 Sets)		√			√			√				√	
Isipingo	Isipingo Transit Camp		√			√			√				√	
Isipingo	Baracuda Drive		√			√			√				√	
Isipingo	Citrus Drive		√			√			√				√	
Isipingo	Flamboyant Drive		√			√			√				√	
Isipingo	Isipingo Beach Road		√			√			√				√	
Isipingo	Malakazi 1		√			√			√				√	
Isipingo	Malakazi 2		√			√			√				√	
Isipingo	Rana Road		√			√			√				√	
Isipingo	River Mouth		√			√			√				√	
Isipingo	Umbumbulu Drive		√			√			√				√	
Kwamakutha	Ezimbokodweni		√			√			√				√	
Kwamakutha	Kwamakutha 1		√			√			√				√	
Kwamakutha	Kwamakutha 2		√			√			√				√	
Kwamakutha	Kwaremi		√			√			√				√	
Kwamakutha	Sunnyside Park (2 Sets)		√			√			√				√	
Mid Illovo	Illovo Village 1			√			√			√				√
Mid Illovo	Illovo Village 2			√			√			√				√
Mid Illovo	Lovu 1			√			√			√				√
Mid Illovo	Lovu 2			√			√			√				√
Prospecton	Avenue East			√			√			√				√
Prospecton	Joyner Road 1			√			√			√				√
Prospecton	Joyner Road 2			√			√			√				√
Prospecton	Prospecton Road			√			√			√				√
Prospecton	Vintner Place			√			√			√				√
Southgate	Southgate			√			√			√				√
Umkomaas	Dulker Street 1			√			√			√				√
Umkomaas	Dulker Street 2			√			√							
Umlazi	Umlazi A1	√			√			√			√			
Umlazi	Umlazi BB	√			√			√			√			
Umlazi	Umlazi Fminor	√			√			√			√			
Umlazi	Umlazi NU3C	√			√			√			√			
Umlazi	Umlazi Ext U	√			√			√			√			
Umlazi	Umlazi VB	√			√			√			√			
Umlazi	Umlazi V8	√			√			√			√			
Umlazi	Umlazi Phase 3	√			√			√			√			
Umlazi	Umlazi Phase 4	√			√			√			√			
Umlazi	Umlazi Phase 8	√			√			√						
Umlazi / N2	Pascoe Road			√										
Warner Beach	Camps Road			√										
Warner Beach	Ellcock Road													

Warner Beach	Kingsway 1			√									
Warner Beach	Kingsway 2			√									
Warner Beach	Topham Road			√									
Warner Beach	Warnerdoone Way			√									
Winkelspruit	Longacres Drive			√									
Cato Ridge	Cato Ridge 1		√			√			√			√	
Cato Ridge	Cato Ridge 2		√			√			√			√	
Cato Ridge	Newmark Road		√			√			√			√	
Cowies Hill	Cambridge Place		√			√			√			√	
Cowies Hill	Drake Place		√			√			√			√	
Cowies Hill	Falcon Road		√			√			√			√	
Cowies Hill	Rainbow		√			√			√			√	
Dassenhoek	Birchwood Park		√			√			√			√	
Dawncliffe	Dudley Road (Dawncliffe)		√			√			√			√	
Demat	Welbedacht		√			√			√			√	
Hammarsdale	Elangeni		√			√			√			√	
Hammarsdale	Sterksprult		√			√			√			√	
Hillcrest	Heritage Market		√			√			√			√	
Hillcrest	Hillcrest Shopping Centre		√			√			√			√	
Hillcrest	Hospital Road		√			√			√			√	
Hillcrest	Stonewall		√			√			√			√	
Hillcrest	Tunzini Road		√			√			√			√	
Inchanga	Rietvallei		√			√			√			√	
Kwa Dabeka	Siphumelele		√			√			√			√	
Mapumalanga	Mapumalanga C		√			√			√			√	
Mapumalanga	Mapumalanga CH		√			√			√			√	
Mapumalanga	Mapumalanga D		√			√			√			√	
Mapumalanga	Mapumalanga F		√			√			√			√	
Mapumalanga	Mapumalanga H		√			√			√			√	
Marrianridge Park	Honeysuckle Place		√			√			√			√	
Marrianridge Park	Plymouth			√			√			√			√
Northdene	Umhlatuzana			√			√			√			√
Paradise Valley	Clendenning			√			√			√			√
Pinetown	Blair Road			√			√			√			√
Pinetown	Mrthven			√			√			√			√
Queensburgh	Bouganvillia			√			√			√			√
Savannah Park	Savannah 1			√			√			√			√
Savannah Park	Savannah 2			√			√			√			√
Shallcross	Granada Road			√			√			√			√
Westville	Birdhurst Road			√			√			√			√
Westville	Byron Place			√			√			√			√
Westville	Norfolk Place			√			√			√			√
Wyebank	Marigold			√			√			√			√
Wyebank	Wyebank 1			√			√			√			√
Wyebank	Wyebank 2			√			√			√			√

This maintenance plan is backed up by the following Standard operating procedure

2.3 Pumpstation Inspection Checklists

There are 54 Operation and Inspection of Sewer Pump Stations job cards to be filled in quarterly and annually and vary dependent on the type of equipment installed These cards are filled in and inform the required maintenance to be carried out. They cater for all types of plant situated within the sewerage pump stations. Examples of the Jobcards can be found in the attached Annexure A using the following table as an index.

Tab	Description	Discipline
A	One Pump Submersible Pump Stations - Quarterly Maintenance Schedule	Mechanical
B	One Pump Submersible Pump Stations - Annual Maintenance Schedule	Mechanical
C	Two Pump Submersible Pump Stations - Quarterly Maintenance Schedule.	Mechanical
D	Two Pump Submersible Pump Stations - Annual Maintenance Schedule.	Mechanical
E	Three Pump Submersible Pump Stations - Quarterly Maintenance Schedule	Mechanical
F	Three Pump Submersible Pump Stations - Annual Maintenance Schedule	Mechanical
G	Two Pump Conventional Vertical Drywell Pump Stations - Quarterly Maintenance Schedule	Mechanical
H	Two Pump Conventional Vertical Drywell Pump Stations - Annual Maintenance Schedule	Mechanical
I	Three Pump Conventional Vertical Drywell Pump Stations - Quarterly Maintenance Schedule	Mechanical
J	Three Pump Conventional Vertical Drywell Pump Stations - Annual Maintenance Schedule	Mechanical
K	Four Pump Conventional Vertical Drywell Pump Stations - Quarterly Maintenance Schedule	Mechanical
L	Four Pump Conventional Vertical Drywell Pump Stations - Annual Maintenance Schedule	Mechanical
M	Five Pump Conventional Vertical Drywell Pump Stations - Quarterly Maintenance Schedule	Mechanical

Tab	Description	Discipline
N	Five Pump Conventional Vertical Drywell Pump Stations - Annual Maintenance Schedule	Mechanical
O	Two Pump Conventional Horizontal Drywell Pump Stations - Quarterly Maintenance Schedule	Mechanical
P	Two Pump Conventional Horizontal Drywell Pump Stations - Annual Maintenance Schedule	Mechanical
Q	Three Pump Drywell Stations 2 Conventional Vertical + 1 Immersible - Quarterly Maintenance Schedule	Mechanical
R	Three Pump Drywell Stations 2 Conventional Vertical + 1 Immersible - Annual Maintenance Schedule	Mechanical
S	Four Pump Drywell Stations 3 Conventional Vertical + 1 Immersible - Quarterly Maintence Schedule	Mechanical
T	Four Pump Drywell Stations 3 Conventional Vertical + 1 Immersible - Annual Maintence Schedule	Mechanical
U	Five Pump Drywell Stations 4 Conventional Vertical + 1 Immersible - Quarterly Maintence Schedule	Mechanical
V	Five Pump Drywell Stations 4 Conventional Vertical + 1 Immersible - Annual Maintence Schedule	Mechanical
W	Three Pump Drywell Stations 2 Immersible + 1 Conventional Vertical - Quarterly Maintenance Schedule	Mechanical

Tab	Description	Discipline
X	Three Pump Drywell Stations 2 Immersible + 1 Conventional Vertical - Annual Maintenance Schedule	Mechanical
Y	Three Pump Drywell Stations 2 Immersible + 1 Conventional Horizontal - Quarterly Maintenance Schedule	Mechanical
Z	Three Pump Drywell Stations 2 Immersible + 1 Conventional Horizontal - Annual Maintenance Schedule	Mechanical
AA	Four Pump Drywell Stations 2 Immersibles + 2 Conventional Horizontal - Quarterly Maintenance Schedule	Mechanical
AB	Four Pump Drywell Stations 2 Immersibles + 2 Conventional Horizontal - Annual Maintenance Schedule	Mechanical
AC	Two Pump Immersible Drywell Stations - Quarterly Maintenance Schedule	Mechanical
AD	Two Pump Immersible Drywell Stations - Annual Maintenance Schedule	Mechanical
AE	Three Pump Immersible Drywell Stations - Quarterly Maintenance Schedule	Mechanical
AF	Three Pump Immersible Drywell Stations - Annual Maintenance Schedule	Mechanical
AG	Four Pump Immersible Drywell Stations - Quarterly Maintenance Schedule	Mechanical
AH	Four Pump Immersible Drywell Stations - Annual Maintenance Schedule	Mechanical
AI	Two Pump Gorman Rupp Drywell Stations - Quarterly Maintenance Schedule	Mechanical
AJ	Two Pump Gorman Rupp Drywell Stations - Annual Maintenance Schedule	Mechanical
AK	Three Pump Gorman Rupp Drywell Stations - Quarterly Maintenance Schedule	Mechanical

Tab	Description	Discipline
AL	Three Pump Gorman Rupp Drywell Stations - Annual Maintenance Schedule	Mechanical
AM	Two x Two Series Pumpsets - Submersible / Conventional Horizontal - Quarterly Maintenance Schedule	Mechanical
AN	Two x Two Series Pumpsets - Submersible / Conventional Horizontal - Annual Maintenance Schedule	Mechanical
AO	Two x Two Series Pumpsets - Submersible / Immersible Drywell - Quarterly Maintenance Schedule	Mechanical
AP	Two x Two Series Pumpsets - Submersible / Immersible Drywell - Annual Maintenance Schedule	Mechanical
AQ	Two x Two Series Pumpsets - Conventional Horizontal / Conventional Horizontal - Quarterly Maintenance Schedule	Mechanical
AR	Two x Two Series Pumpsets - Conventional Horizontal / Conventional Horizontal - Annual Maintenance Schedule	Mechanical
AS	Two x Two Series Pumpsets - Gorman Rupp / Gorman Rupp - Quarterly Maintenance Schedule	Mechanical
AT	Two x Two Series Pumpsets - Gorman Rupp / Gorman Rupp - Annual Maintenance Schedule	Mechanical
AU	Two x Two Series Pumpsets - Gorman Rupp / Conventional Horizontal - Quarterly Maintenance Schedule	Mechanical

Tab	Description	Discipline
AV	Two x Two Series Pumpsets - Gorman Rupp / Conventional Horizontal - Annual Maintenance Schedule	Mechanical
AW	Three Pump Archimedean Screw Pump Station - Monthly Maintenance Schedule	Mechanical
AX	Pump Station and WWTW- Diesel Generator Sets - Quarterly Maintenance Schedule	Specialised
AY	Pump Station and WWTW- Diesel Generator Sets - Annual Maintenance Schedule	Specialised
AZ	Pump Stations Electrical Inspections - Quarterly Maintenance Schedules	Electrical
BA	WWTW Electrical Inspections - Quarterly Maintenance Schedules	Electrical
BB	Telemetry Inspections- Quarterly Maintenance Schedules	Telemetry
BC	WW Network Sluice Gate - Annual Inspection and Service	Mechanical

2.4 Yard Facilities Checklist

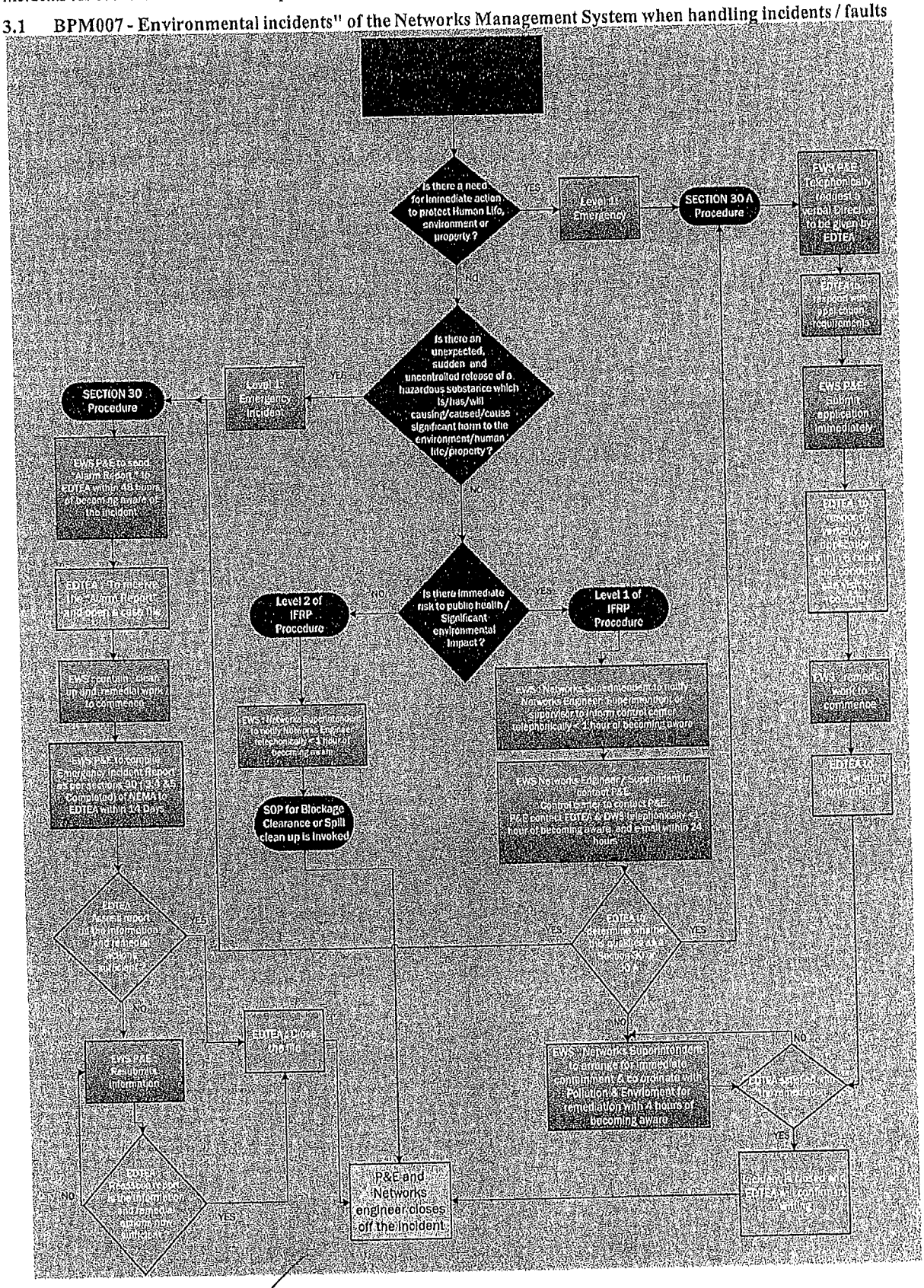
ETHEKWINI MUNICIPALITY YARD FACILITIES - 5.40												
ITEM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Fences/walls and gates in a good state of repair												
2 Yard free of superfluous material												
3 No Ground /Air and water pollution												
4 No rubbish lying around												
5 Ground even and pothole free												
6 Good drainage												
7 Stacking and storage to standard												
8 Demarcation used where necessary												
9 No Air or water leaks												
10 Refuse and scrap bins emptied												
11 General appearance neat and tidy												
12 Chemical storage to standard												
13 Fire protection/prevention												
14 Security lighting adequate												
15 No mixed scrap in scrap bins												

Date												
Name of person carrying out the inspection												
Service number												
Signature												
Signature of responsible person												

3 Environmental Incident and Failure Response Plan

Incidents for both the Network and Pumpstations should be reported as per the following :

3.1 BPM007 - Environmental incidents" of the Networks Management System when handling incidents / faults



3.2 Environmental Incident and Failure Response Plan

Classification of Incident (Alert Level)	Failure Group	Failure Criteria	Health/Environmental Implication/risk	Required Response Time	Action	Roles and Responsibilities	Communication and Time Frames
[redacted]	Sewage Pump Station Failure / Major trunk sewer pipeline failure	Pumps / Trunk sewer pipeline have failed resulting in large volume of sewage discharged to environment.	High and Immediate Risk to Public Health and Environmental Disaster Imminent	2 hours from detection of incident / fault	Notify Stakeholders / Invoke Disaster Management	Crew supervisor or Call center or Control room to inform superintendent of incident / fault	Immediate by Telephone (Not more than 1 hour after on-site incident confirmation)
						Superindent to inform control center for logging job onto Faultman (incidents reported by the crew). Control room to contact Pollution and Environment branch with details of the fault.	Immediate by Telephone (Not more than 1 hour after on-site incident confirmation)
						Superintendent to notify Area Engineer (AE)	Immediate by Telephone (Not more than 1 hour after on-site incident confirmation)
						Area Engineer to notify Senior Manager (Networks).	Immediate by Telephone (Not more than 1 hour after on-site incident confirmation)
						P&E to contact DWS and EDTEA. Pollution and Environment (P&E) is reponsible for reporting to the regulator.	Immediate by Telephone (Not more than 1 hour after incident confirmation) ,within 24 hours via e-mail
				4 hours from detection of incident / fault	Cease, modify or control pollution followed by remediation of the environment	Area Engineer to coordinate with Pollution and Environment to arrange for emergency remediation. Networks to follow the relevent SOPs	Within 4 hours of incident detection Immediately

Classification of Incident (Alert Level)	Failure Group	Failure Criteria	Health/Environmental Implication/risk	Required Response Time	Action	Roles and Responsibilities	Communication and Time Frames
2 Minor Environmental Impacts	Sewage Pump Station / Sewer Pipe Network Failure	Duty and or standby pumps have failed. Minor Blockage or Pipe Damage Example : Blocked manhole or broken pipe	No Immediate Risk to Public Health Minimal Environmental Impact	24 hours from incident / fault detection	Notify Internal Stakeholders	Crew supervisor or Call center or Control room to notify Superintendent of incident / fault. Superindent to inform control center for logging job onto Faultman (copy). Control center to contact Pollution and Environment branch with details of the fault. Superintendent to notify Area Engineer.	Immediate by Telephone (Not more than 1 hour after incident confirmation) Immediate by Telephone (Not more than 1 hour after incident confirmation) Immediate by Telephone (Not more than 1 hour after incident confirmation)
					Notify External Stakeholders	Pollution and Environment branch to compile (via reports from Clipboard) and send Quartely Incident reports to DWS and EDTEA Dept	Once per Quarter
					Cease, modify or control pollution followed by remediation of the environment	Area Engineer to coordinate with Pollution and Environment to arrange for emergency remediation. Networks to follow the relevent SOPs	Within 24 hours of incident detection. Immediately
Please refer to the *"BPM007 - Environmental incidents"* of the Networks Management System when handling incidents / faults							
External Stakeholder Contact Details	DWS	Mr Neo Leburu: 0313362789 Ms Nonkululeko Mokoena: 0313362789			EDTEA	Ms Shireen Mahabeer: 0823221871 / 0313667318 Ms Nonhle Ndebele: 0814913883 / 0313667324 Mr Vuyani Zuma: 0814155912 / 0313667347	

3.3 Spill Response SOP

3.3.1 Purpose

To ensure that the area affected by a sewage spill is cleaned effectively.

3.3.2 Scope / Field of Application

Soil, grass and hardened areas affected by a sewage spill.

3.3.3 Definitions

Detritus	- waste or debris of any kind
Disinfection	- destruction of pathogenic microorganisms by direct exposure to chemical or physical agents
Hardened areas	- the surface of (something) which has been made hard or firm, as by compacting or paving it

3.3.4 Responsibility

Wastewater Networks staff
Pollution and Environment staff
Security Services / Metro Police
Contractors

3.3.5 Health, safety and precautions

RISK CATEGORY	HAZARD	PREVENTATIVE MEASURES
Health & Safety	Spread of disease	Competent staff only Issue and use of appropriate PPE
Environmental	Fish kill Large volume flow of liquids Unsure footing Corrosive chemicals or biological agents Potentially dangerous animals and insects	Inform immediate Supervisor of the risk Issue and use of appropriate PPE Reduce, contain or divert flow if possible Notify appropriate authorities

3.3.6 Material Required

Calcium hydroxide
Calcium hypochlorite
Protective boots
Rake

Refuse bags
Disinfectant wash such as Germitol
Danger tape
Face mask
Waterless disinfectant hand wash

Spade
Broom
Protective gauntlets
Goggles

3.3.7 Procedure

ACTION	RESPONSIBLE PERSON
In all cases of a large spill, the services of a professional hazardous spill clean-up service should be employed	
Bare soil or grassy areas	
Demarcate the affected area with danger tape if possible	Wastewater Networks staff
Put on PPE including protective gauntlets and face mask	
Pick up, rake or spade detritus and place in garbage bag	
Scatter sufficient calcium hydroxide over affected area to ensure a fine coating If standing water is present, mix the calcium hydroxide into it with the spade	
Seal refuse bags and arrange for removal to suitable waste site	
Rinse gauntlets under running water	
Disinfect face, hands and arms with disinfectant, waterless wash gel	
Restrict access to affected area for 24 hours if possible	Security Services / Metro Police
After 24 hours, use a hose to dissolve the calcium hydroxide and allow it to soak into the soil.	Wastewater Networks staff
Allow to dry. If white residue is still visible, water again, dry and repeat until no residue is visible.	
Hardened areas	
Demarcate the affected area with danger tape if possible	Wastewater Networks staff
Put on PPE including protective gauntlets and face mask	
Pick up, rake or spade detritus and place in garbage bag	
Broom affected area with Germitol (or similar disinfectant wash)	
Seal refuse bags and arrange for removal to suitable waste site	
Rinse gloves under running water	
Disinfect face, hands and arms with disinfectant, waterless wash gel	
Restrict access to affected area for 24 hours if possible	
Examine site for signs of un-disinfected areas and treat with disinfectant as necessary	
If possible, hose disinfected area to sewer	

Confirm that clean-up was completed.	Supervisor: Wastewater Networks

3.3.8 Documentation

F-UNIT-0005: Emergency Incident Report (DEAT)
Field Reports from all relevant Departments and Units
Documentation from the contracted clean up company

3.3.9 Reference procedures

P-Unit-0001: Reporting of Sewage Related Water Pollution Incidents

3.3.10 References

Occupational Health & Safety Act 85 of 1993
eThekwini Sewage Disposal Bylaws – as at the relevant date
eThekwini Health Bylaws – as at the relevant date

Annexure A – Pumpstation Maintenance Checklists

WASTEWATER NETWORK DEPARTMENT
OPERATION OF PUMPSTATIONS

1. PURPOSE

The purpose of this procedure is to ensure the safe and efficient operation of the wastewater pumpstations.

2. SCOPE

This procedure is applicable to the wastewater pumpstations within the eThekwini area of jurisdiction.

3. RISKS

RISK CATEGORY	HAZARD	PREVENTATIVE MEASURES
Health & Safety	Entry into confined spaces: • Suffocation • Gas inhalation • Animal bites and stings	Training Gas detection Ventilation Use of buddy system Breathing apparatus
	Working at heights	Railings and Harness, where necessary
	Slips and falls	Safety awareness training PPE Ladder and walkway inspections
	Lifting heavy objects	Use of correct lifting methods
	Drowning where there are wet sumps	Safety awareness training Railings and Harness / flotation, where necessary
	High noise levels	Noise survey and PPE
	Electrical shock	Lock-out Prevent unauthorised working

	Mechanical injuries	Regular inspections and testing of switchgear, protection etc. PPE, guarding, lock-outs and nip points
Environmental	Overflows due to blockages and equipment failures	Correct work methods Thorough inspections Back-up capacity Use of spill containment measures including spill kits, emergency ponds etc.
Process	Ingress of sand, grit and debris	Correct work methods Thorough inspections
Business	Public liability claims	Risk Assessment and Safety Plan Ensure unauthorised people cannot access the pumpstation
Other		

The above table is a summary of the risks associated with this procedure. A full Risk Assessment must be done prior to carrying out the tasks included in this procedure.

A new Risk Assessment must be done whenever any of the following events take place:

- New equipment or materials to be used
- Changes in legislation
- Significant changes in methods, areas, personnel etc.
- Non-routine work e.g. emergency repairs, floods etc.

The Risk Assessment must also be reviewed annually.

4. PERSONNEL AND EQUIPMENT REQUIREMENTS

4.1 Personnel

The person carrying out the work must be qualified and authorised to do the work. He/she must have undergone training or refresher training during the previous 12 months.

4.2 Equipment and Tools

- Safety Equipment

4.3 PPE

- Overalls
- Safety shoes / boots
- Waders
- Full face mask
- BA Sets
- Gas Detectors/Meters
- Gloves (PVC)
- Gloves (Leather)
- Hearing protection
- Respirator FFP2

5. PROCEDURE

STEP	DESCRIPTION	RESPONSIBILITY
1.	Daily meeting in the morning with Supervisors	Superintendent and Supervisor Handyman
1.	Daily visits to pump stations from different teams to check and clean pump station. Visits are carried out against an inspection schedule.	
2.	Supervisor Handyman completes a logbook (kept on site)/ log sheet (submitted monthly). Operational data is captured at time of daily visit.	Supervisor Handyman
3.	Any faults found on daily inspection on site must be logged with the Contact Centre on the Fault Man System and the Contact Centre will issue the job according to the type of fault reported.	Artisan / Pump Station Operator / Superintendent
4.	Screenings are removed daily and chloride of lime applied. Disinfected screenings are placed in refuse bags and dumped in skips are various pump station sites.	Supervisor Handyman
5.	Skips are emptied periodically as requested by Superintendent by a sub-contractor to an approved hazardous waste site.	Superintendent / Sub-Contractor

Water and Sanitation Unit

Procedure No.	WWN	Amend No.	0
Date	23-05-2016	Page 4 of 6	
Developed by			
Approved by			

6.	Sump cleaning team remove scum and sand at pump stations and dump at skips at various locations.	Sump cleaning crew
7.	When skips are full they a request to a waste removal contractor is given using	Superintendent
8.	Whale tanker vacuum suction pumps, discharging waste at Northern Treatment Works.	Superintendent / Tanker Driver
9.	Grass-cutting activities are carried out internal and by external contractors at pump stations.	Superintendent
10.	Pump station overflows caused by pump failure, electrical failure, rising main damage, electricity, vandalism will all result in action to request for tankers or internal M&E department to address. Pollution Control is immediately informed and if serious, the Dept. of Water Affairs in informed.	
11.	Any pump station maintenance, structural repairs and rising main repairs are carried out by sub-contractors.	Superintendent
12.	Superintendent assesses any sub-contractor work required and calls through to contractors for a minimum of 3 quotes. If job is not within the approved limit the job is escalated up to Technician/Area Engineer.	Superintendent
13.	If Fault is within Dept. limit the 3 quotes are received from external contractors and requisition entered into requisition book.	Superintendent
14.	Quotations reviewed by Superintendent and scrutinised by Superintendent/Area Engineer based on SCM policies and procurement regulations.	Superintendent/ Area Engineer
15.	Contractor is informed of order approval and job to be carried out.	Superintendent
16.	Site inspection of work during and after completion. Verified by measurement.	Superintendent
17.	Completion of fault and archive on Fault Man System Critical to be done to meet with internal KPI targets	Superintendent
18.	Authorised for payment based on final site inspection.	Area Engineer
19.	Payment processed by Finance Dept.	Finance Dept.

- Note that sub-steps, steps which are dependent on external actions, personnel requirements and special precautions must be noted.

- The SOP is not intended to be a training manual. Rather it is a guideline to ensure consistency when the work is being done by competent staff members.

6. REFERENCES

6.1 Sub-procedures

6.2 Related procedures

SOP NUMBER	DESCRIPTION
	Gas Detector/Testing Procedure
	Pollution Control
	Emergency Procedure
	HAZMAT Response
	Hygiene Procedure
	External Communications Procedure
	Confined Space Entry
	Lock Out Procedure
	Operation of sewer tanker
	Human Foetus Procedure

6.3 Applicable Regulations

OHS Act 85 of 1993

7. RECORDS

- Daily logsheet
- Fault Man Report
- Job Works Order
- Contractor quotations
- Requisitions and purchase orders

- Payment records
- Inspection records

9. AMENDMENTS

Any member of staff may propose an amendment to this procedure.
No unapproved amendments may be made to this procedure.

10. REVIEW DATE

1 April 2013.

"D"

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Ethekwini Municipality

INVESTIGATION, DESIGN, & SUPERVISION FOR STORM DAMAGE OVER A PERIOD OF 36 MONTHS. (GLENWOOD ROAD WWTW AND CATCHMENT).

(WS 7579)

February 2023 Report

ETHEKWINI MUNICIPALITY

ETHEKWINI MUNICIPALITY

ETHEKWINI MUNICIPALITY

INVESTIGATION, DESIGN, & SUPERVISION FOR STORM DAMAGE OVER A PERIOD OF 36 MONTHS. (GLENWOOD ROAD WWTW AND CATCHMENT).

REPORT

GLENWOOD ROAD WWTW AND CATCHMENT PROJECT

28 February 2023 Rev 0

Bosch Projects Ref.: P1208-302-1

23A Flanders Drive • Mount Edgecombe
4302 • South Africa
PO Box 2009 • Durban 4000 • South Africa
Telephone: +27 (0) 31 535 6000 •
Internet: http://www.boschprojects.co.za
E-mail: mohanp@boschprojects.co.za

TABLE OF CONTENTS

1. BACKGROUND

eThekwini Metro and surroundings has been severely affected by the April 2022 storms that has caused damage to the entire eThekwini community. The impact has affected businesses, essential service infrastructure (water and sanitation), major highways and routes and leaving communities without shelter and basic services.

The services of the Consulting Engineers, Bosch Projects is to assist with the restoration of services. That will include the assessment of damage, design, compilation of the scope of work to be carried out by contractors and the design consultant is to supervise such works to accelerate the rehabilitation of failing infrastructure.

The Design consultant is required to assist the EWS with the rehabilitation of the damaged infrastructure within the uMhlatuzana catchment. That is in terms of Section 36 (1)(a)(i) of eThekwini Municipality's Supply Chain Management policy for Ethekwini Municipality.

The project requires that Bosch Projects provide Design Consultant and site supervision services to address the Clients objectives.

The project comprises five work packages within the Umhlatuzana Catchment.

2. SCOPE OF WORKS

The scope of works from the Client correspondence, Letter of appointment dated the 10th September 2022 is understood for the Investigation, design and supervision for Storm Damage Projects over the period of 36 months (Glenwood Road WWTW and Catchment) – Contract Number WS 7579.

Discipline	Services required
Surveyor:	Topographical and cadastral survey
Surveyor:	Drone and LIDAR survey
Wastewater Engineer	Sewer Pipeline assessment and Design
Civil Engineering	Preliminary Design up to Tender Stage
Geotechnical Engineer	Geotechnical investigation and report
Roads Engineer	Access Road Design
Stormwater Engineer	Stormwater and Flood Mitigation Design
Mechanical Engineer	Pump Installation and Inlet chamber Design.

3. CONTACT DETAILS

Client/Client Representative

Name: Ethekwini Water and Sanitation
Appointed Project Manager: Siduduzo Mtshali
Tel: 031 311 8794
Fax: 031 311 8699
Email: Siduduzo.Mtshali@durban.gov.za

Consultant Firm

Name: Bosch Projects
Appointed Divisional Manager: Jason Holder
Tel: 031 535 6000
Fax: 031 535 6011
Email: Holderj@boschprojects.co.za

4. SUMMARY OF WS 7579 APPOINTMENT

DESCRIPTION of APPOINTMENT	COST (Excl VAT)
The Investigation, Design and Supervision for Storm	
Damage Projects over the period of 36 Months.	
(Glenwood Road WWTW and Catchment)	
(WS – 7579)	
Total	R 1 500 000.00

4.1 SCOPE OF GLENWOOD ROAD WWTW & CATCHMENT

Work Package 1 – Trunk Sewer

- Consists of repairs to the 1050mm diameter, 900mm diameter trunk pipe.
- 300mm diameter river crossing.
- River diversion, access to the work fronts.
- Dewatering and over pumping.
- Temporary works and Embankment Protection.
- Construction of precast concrete manholes and Concrete sewer manholes.
- Construction of concrete plinths, and piers and piling if required.
- A bridge crossing is required.
- High pressure jetting to remove silt inside the pipe.

Work Package 1 – Tanker Bay Pumpstation

- Design the inlet chamber.
- Design Earthworks and Engineered fill
- Install a 32 KW submersible pump centrifugal pump with the associated fittings and pipework.
- Refurbishment of washaways outside the pumpstation.
- Undertake a high-level assessment of the pumpstation which will focus on items viz, ventilation, electrics and controls.

Work Package 2 – Glenwood Road WWTW

- Undertake a detailed topographical Site Survey.
- Do 1:20 & 1:50 year Flood Calculations.
- Use flood calculations size the stormwater pipes and culverts as stormwater mitigation measures.
- Design a kerb and channel to control all future stormwater.
- Remedial Work and design of Access Road which will include design of the crossfall and resurfacing the road.
- Design for erosion protection around the Glenwood WWTW, where the floor slab is exposed.
- Reno mattress and gabion baskets will be designed to stabilize the building and mitigate scouring for future storms
- Design dry stack wall with rock anchors for erosion on the north-eastern embankment.
- Design measuring device/chamber to be installed at the inlet and outlet at Glenwood Road WWTW
- Fence reinstatement.
- Prepare "As Built" and 3D Drawings for the pumpstation.
- Do a high-level Condition Assessment Report of the Glenwood Road WWTW and focus on items viz, ventilation, electrics, mechanical, instrument controls, Flow Measurement, and basic Health & Safety items like handrails etc.

Work Package 2 – Trunk Sewer

- Consists of repairs to the 700mm diameter trunk pipe.
- 300mm diameter river crossing.
- River diversion, access to the work fronts.
- Dewatering and over pumping.
- Temporary works and Embankment Protection.
- Construction of precast concrete manholes and Concrete sewer manholes.
- Construction of concrete plinths, and piers and piling if required.

- A bridge crossing is required.
- High pressure jetting to remove silt inside the pipe.

Work Package 3 – Trunk Sewer

- Consists of repairs to the 700mm diameter trunk pipe.
- 300mm diameter river crossing.
- River diversion, access to the work fronts.
- Dewatering and over pumping.
- Temporary works and Embankment Protection.
- Construction of precast concrete manholes and Concrete sewer manholes.
- Construction of concrete plinths, and piers and piling if required.
- A bridge crossing is required.
- High pressure jetting to remove silt inside the pipe.

Work Package 4 – Trunk Sewer

- Consists of repairs to the 700mm diameter trunk pipe.
- 300mm diameter river crossing.
- River diversion, access to the work fronts.
- Dewatering and over pumping.
- Temporary works and Embankment Protection.
- Construction of precast concrete manholes and Concrete sewer manholes.
- Construction of concrete plinths, and piers and piling if required.
- A bridge crossing is required.
- High pressure jetting to remove silt inside the pipe.

Work Package 5 – Trunk Sewer

- Consists of repairs to the 700mm diameter trunk pipe.
- 300mm diameter river crossing.
- River diversion, access to the work fronts.
- Dewatering and over pumping.
- Temporary works and Embankment Protection.
- Construction of precast concrete manholes and Concrete sewer manholes.
- Construction of concrete plinths, and piers and piling if required.
- A bridge crossing is required.
- High pressure jetting to remove silt inside the pipe.

STATUS OF STAGE REPORTS

Full Stage 1 & 2 Report. (Preparation & Concept Report)

- 100% complete and submitted to EWS on 15-11-2022.
- EWS to approve Stage 1&2 reports.

Draft Stage 3 Report. (Glenwood Road WWTW Design Report)

• Overall,	90% complete.
• Topo Survey of WWTW	100%
• Flood Calculations	100%
• 3D scanning and modelling WWTW.	100%
• Draft As Built drawing for WWTW	100%
• Stormwater Design	100%
• Access Road Design.	100%
• RFQ for Drone & Lidar Survey	100%
• Appoint Drone & Lidar Survey.	100%
• Adjudicate Drone & Lidar Survey.	100%
• Get approval of Client for Drone & Lidar Survey.	100%
• Develop the approved Concept Design.	90%
• Finalise Designs.	90%
• Draft Cost plan.	90%
• Overall Sizing & Design of stormwater culvert.	100%
• Condition Assessment and Recommendations Report for WWTW and Stormwater	100%
• Detailed Catchment Study	100%
• Client Approval.	0%

Draft Stage 4 (Product Information).

• Overall,	90% complete.
• Draft Tender Specifications.	100%
• Draft Glenwood Road Layout Plan	100%
• Draft Tender Layout Drawings.	100%
• Draft Typical Details.	100%
• Client Standard typical details.	100%
• Design Consultant Standard typical details.	100%
• Confirm the Specifications with Client.	90%
• Draft Layout Plans.	90%
• Draft BOQ's.	95%
• Draft Tender and Contract Documentation.	90%
• Client Approval.	0%

BOSCH PROJECTS

Draft Stage 5 (Construction).

Draft Stage 6 (Practical Completion and Handover).

5. PROJECT INVOICING SUMMARY:

Name Company	Name of Consultant	Description	Claim No	Invoice No	Date on Invoice	Amount excl VAT
Bosch Projects	Jason Holder	Design Consultants	1	40029020	30/11/2022	R840 940.16

Sub Consultant	Name	Description	Claim No	Invoice No	Date on Invoice	Amount excl VAT
GeoAfrika Surveys	Brendan Vadivalu	Surveyor	1	INC 01309	16/11/2022	R 16 500.00

6. STATUS REPORTS FROM PROFESSIONAL CONSULTANTS:

Attached find the Status Reports for the following Professional Consultants of the Project Team, to substantiate their claim for their deliverables.

- GeoAfrika Surveys – Glenwood Road WWTW

7. NO CLAIMS FROM THE FOLLOWING SUB CONSULTANTS

- Geotechnical Engineer
- Drone/Lidar Surveyor
- NEC Document Review

8. CONCLUSION

The above is a Progress Report for the Glenwood Road WWTW and Catchment for month ending 28th February 2023.

For and on behalf of:
BOSCH PROJECTS (Pty) Ltd

IN THE HIGH COURT OF SOUTH AFRICA

KWAZULU-NATAL DIVISION, PIETERMARITZBURG

Case No. 3036/2023P

In the matter between:

THE DEMOCRATIC ALLIANCE — Applicant

and

ETHEKWINI METROPOLITAN MUNICIPALITY — First Respondent

AND FIVE OTHERS

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VOLUME 1.2

ACTION PLAN AND PROGRESS REPORTS

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IQHINA
CONSULTING ENGINEERS
PROJECT MANAGERS (PTY)LTD

ETHEKWINI MUNICIPALITY

PROJECT:

REHABILITATION, REFURBISHMENT & RECOMMISSIONING OF THE UMBILO WASTEWATER TREATMENT WORKS

ETHEKWINI MUNICIPALITY

EXECUTIVE PROJECT PLAN

DBN: 12 Tudor Place, Musgrave, Durban, 4001
JHB: 3 Andre Street, Glenanda, Johannesburg, 2001
Company Reg no: 2019/358358/07
Vat no: 4250269539
Tel: 031 822 9423 | Fax: 086 599 4815
Email: info@iqhina.co.za

IQHINA
CONSULTING ENGINEERS
PROJECT MANAGERS (PTY)LTD

DOCUMENT CONTROL		
TITLE	:	TECHNICAL REPORT
CONTRACT TITLE	:	REHABILITATION, REFURBISHMENT & UPGRADE OF THE UMBILO WASTEWATER TREATMENT WORKS
DOCUMENT NO.	:	TECHNICAL INCEPTION REPORT
Client	;	eThekwini Municipality (IDM)
Funder		eThekwini Municipality
Status of Proposal	:	First Issue
Authors	:	P Ntini
Checked By	:	S Mhlongo

DATE	REVISION		PERSON
12-04-2023	01	First Issue	S. Mhlongo

APPROVAL:

ACTION	PERSON	INITIAL	SIGNATURE	DESIGNATION
Project Management	S Mhlongo	SM		Project Manager

CLIENT APPROVAL: PROJECT MANAGER

ACTION	PERSON	INITIAL	SIGNATURE	DEPARTMENT

IQHINA
CONSULTING ENGINEERS
PROJECT MANAGERS (PTY)LTD

Executive Summary

This report presents the outcomes of the assessments conducted on the Umbilo Wastewater Treatment Works (WWTW) and the works required to bring the plant back to operation following the devastating impacts of the unprecedented floods that occurred in April 2022. The eThekwini municipality owns and operates the Umbilo WWTW and is obligated by Section 21 of the National Water Act of 1998 to ensure that the operation of the WWTW is in compliance with all legislative and regulatory guidelines so as to prevent pollution of the environment and subsequent environmental health impacts.

The Umbilo WWTW has an installed capacity of 23ML/day which should be almost sufficient for current demand under normal conditions. However, currently the plant is operating at half the capacity with 13ML capacity of the plant lost due to the damages that were incurred during the floods. For ease of reference, the damaged portion of the plant is referred to as the Eastern portion (13Ml/day), while the relatively undamaged portion is referred to as the Western portion (10Ml/day)

Extent of the Flood Damages

The flooding damaged the following components of the plant which are currently out of commission:

- Main access road to the plant was damaged with a temporary bridge being required.
- Access bridge over the Umbilo river
- Internal roads within the plant. The head of works is currently unreachable for VTS trucks.
- Head of works including the mechanical scrappers and related fixtures
- Splitter box to Primary Settling Tanks (PST).
- PSTs 1 to 4 were particularly filled with additional sand and rubble due to the overflowing from the head of works.
- Excessive scouring around the foundation to PST 6 and 7 adjacent to the splitter box
- Splitter box to Bioreactors – foundation of the concrete structure was compromised excessively
- Scouring of embankment and fill material around the Splitter Box to the bioreactors
- Damage to pipework to the PSTs and Bioreactors – these were washed away
- Collapse of embankments around the Bioreactors subsequently buried electric cables and foundations of Bioreactors which should have 'ventilated' foundations
- Pipework to the humus tanks was compromised by the soil heave in several places. Similarly the pipework to Mixed Liquor Sump (MLS) pump station was compromised in a number of positions
- Damage to the pumps at the various recycle pump stations due to failing instrumentation controls during the flooding has rendered critical mechanical installations dysfunctional.
- Feeder lines to the Biodigesters were washed away.
- Collapse of embankments around the Biodigesters was also observed.
- Dewatering plant building as well as the equipment was damaged with foundations on the downstream side of plant collapsed. This building and equipment will need to be rebuild.
- The staff canteen and ablution block located adjacent to the river and access road was destroyed by floodwaters.
- Bridge crossing towards the sludge drying beds were washed away including delivery pipework.

- Excessive collapse of the river embankment and washing away of storm water headwalls and effluent discharge points
- Damage to floodlighting around the plant including the washing away of electrical cabling and related faulting of mechanical equipment.

Scope of Rehabilitation and Refurbishment Works

The scope of works to rehabilitate the plant will not be completed within a short period of time but will require sufficient planning due to the complexity of the wastewater treatment process and related environmental dynamics. As such the works have been categorized/broken into two phases for ease of implementation as follows below.

- Phase A – Restoration and recommissioning of process components to obtain some form of functionality at the plant even though this may not be optimised
- Phase B – Fully fledged rehabilitation and restoration of the WWTW plant to an optimised state

This report is aimed at addressing the Phase A action plan which should be completed within a month from inception.

Scope of Works – Phase A

These are the works aimed at restoring some form of wastewater treatment capacity to the plant in the immediate period to ensure that environmental pollution into the Umbilo river is contained. These works include the following components:

- Rehabilitation and recommissioning of the head of works
- Rehabilitation and recommissioning of the PSTs and Bioreactor
- Replacement of pipework feeding the Bioreactors
- Removal of blockages along the feeder channels and pipelines to the humus tanks and MLS pump station
- Rehabilitation and recommissioning of the biodigester feeder lines
- Rehabilitation and recommissioning of the chlorine disinfection system
- Rehabilitation of the final effluent discharge point along the river

Cost Estimate for Phase A Works

The scope of works outlined above shall be covered using both internal resources of eThekwini municipality and specialist external resources in line with method statements for execution of works. The cost estimate for completion of these temporary works using external resources is estimated at approximately **R 2 955 968,63 (Incl. VAT).**

Scope of Works – Phase B

The scope of works entailed in Phase B of the rehabilitation and refurbishment of the plant following the flood damage are listed as follows:

1. Access road damage leading up to the plant.
2. New bridge required along the access road into the plant.

3. Internal Road from Main Entrance to Sludge Drying Beds
4. Bridge to Sludge Drying Beds
5. Internal roads within the plant – towards head of works
6. Concrete Bridge on main entrance gate to plant
7. Engineered Platform for Erosion Protection
8. Staff Welfare Building and security house.
9. Rehabilitation of stormwater infrastructure within the plant
10. Construction of a Levee along the river
11. Damaged Dewatering Plant Building and related fixtures
12. Damage on Plant Inlet Channel, Settling Tanks and Splitter Box
13. Refurbishment of Pipework to Biofilters, Humus Tanks, Pump Stations, and Disinfection Chamber
14. Rehabilitation of Sand Filters
15. Refurbishment of Mechanical Installations
16. Refurbishment of Electrical Installations
17. Rehabilitation of Pipeline from SNL to Head of Works
18. Rehabilitation of Effluent Discharge points
19. Upgrade of Critical Components at the Plant – East Portion
20. Upgrade of Critical Components of the Plant – West Portion

Cost Estimates

A total of **R177,166,412.50 (Incl. VAT)** is required to implement the full scope of works linked to the Flood Damage, Rehabilitation, Refurbishment and Upgrade of the Umbilo wastewater Treatment Works.

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IQHINA

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ANNEXURE A: Project Locality Plan

ANNEXURE B: Programme of Works

ANNEXURE C: Drawings (bound separately)

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Acronyms

AADD	Annual Average Daily Demand
CA	Competent Authority
BWL	Bottom Water Level
DTM	Digital Terrain Model
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EIR	Environmental Impact Assessment Report
EMPr	Environmental Management Programme
HSE	Health Safety & Environment
HDPe	High Density Polyethylene
O&M	Operation and Maintenance
QA	Quality Assurance
QC	Quality Control
PQP	Project Quality Plan
PPP	Public-Private Partnership
RACI	Responsible, Accountable, Consulted and Informed
RFI	Request for Information
RFP	Request for Proposals
RoD	Record of Decision
SLA	Service Level Agreement
SAC	Sector Appraisal Committee
TA	Transaction Advisor

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PROJECT MANAGERS (PTY)LTD

1 Introduction

1.1 Brief Background

This report presents the outcomes of the assessments conducted on the Umbilo Wastewater Treatment Works (WWTW) and the works required to bring the plant back to operation following the devastating impacts of the unprecedented floods that occurred in April 2022. The eThekwini municipality owns and operates the Umbilo WWTW and is obligated by Section 21 of the National Water Act of 1998 to ensure that the operation of the WWTW follows all legislative and regulatory guidelines to prevent pollution of the environment and subsequent environmental health impacts.

The Umbilo WWTW has an installed capacity of 23ML/day which should be almost sufficient for current demand under normal conditions. However, currently the plant is operating at half the capacity with 13ML capacity of the plant lost due to the damages that were incurred during the floods. For ease of reference, the damaged portion of the plant is referred to as the Eastern portion (13Ml/day), while the relatively undamaged portion is referred to as the Western portion (10Ml/day)

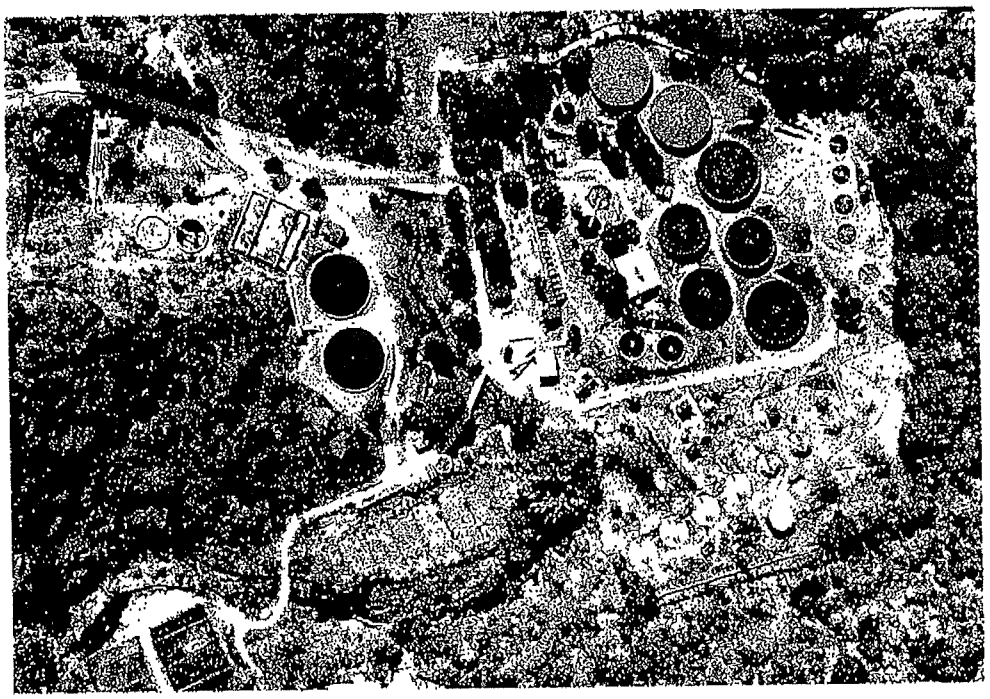
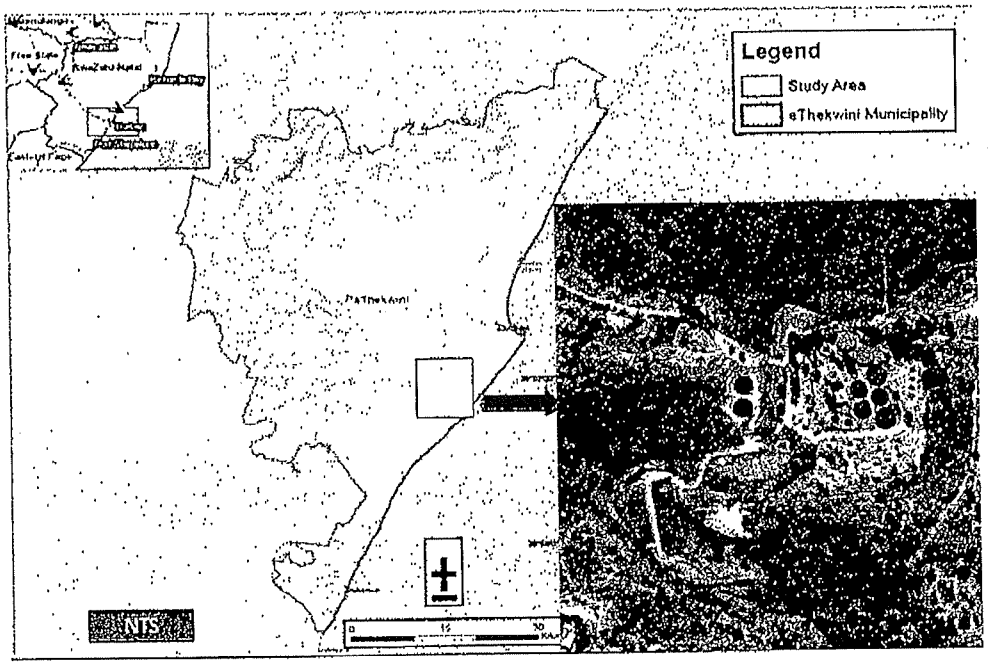


Figure 1: Aerial Image of the Umbilo WWTW Site

The figure above shows the aerial image of the existing Umbilo WWTW as it extend from the eastern portion to the western portion of the plant across the Umbilo river. This image however shows the

pristine condition of the plant before it was damaged by the floods of April 2022. The location of the plant is shown in the figure below.



1.2 Purpose of Report

The purpose of this report is to highlight the extent of the damage that was suffered by the Umbilo WWTW and the action plan that has been embarked on by the eThekwini municipality through its Water Services department in addressing the ensuring pollution resulting from the damage to the plant.

1.3 Terms of Reference

Iqhina was appointed by the EThekwini municipality to conduct the flood damage assessment of the existing Umbilo WWTW following the April 2022 floods. Iqhina will provide professional services as follows:

- Conduct detailed status quo assessment of all plant infrastructure.
- Engineering designs
- Cost and Quality Management
- Development of Procurement documentation
- Project Management
- Project Construction Management

2 Status Quo Assessments of the Plant

2.1 Background & Introduction

The Umbilo Wastewater Plant was constructed back in 1954 in what was referred to as Pinetown wastewater treatment works which was taken over by the eThekwini municipality back in 1994. This makes the plant to be generally over 40 years old meaning that several components of the plant have been fast nearing the end of their design lifespan. Successive extension of life refurbishments and upgrade works have been done by the EWS to bring the plant into compliance with policy and regulatory changes such as the Green Drop requirements. The plant was constructed in the scenic valley line of the paradise valley conservancy as can be seen in the aerial image. The site has an undulating topography with an average slope of about 7% with certain portions having steeper slopes of up to 15%.

On April 11-12, the eastern coast of the provinces KwaZulu-Natal (KZN) and Eastern Cape (EC) in South Africa witnessed exceptionally heavy rainfall of more than 300mm in some areas within less than 24 hours. The socio-economic impact of the flooding event was significant in terms of lives lost, casualties, and damage to infrastructure with the overall damage being estimated at 17Billion rand (Source: IOL,2022). Over 40,000 people were impacted by the rainfall and subsequent floods- 435 deaths were reported from the affected areas, 55 injured and 54 people missing (Government of South Africa, 2022a). At least 13,500 houses were damaged or destroyed - among these, over 4,000 homes in informal settlements in eThekwini Metropolitan Municipality were destroyed, leaving 6278 people homeless and 7245 people in shelters (Ibid.). 630 schools were affected in the KZN province in the impacted areas, and 124 schools damaged, thus impacting around 270,000 students (Government of South Africa, 2022b)

The Umbilo WWTW plant was amongst the pieces of critical infrastructure that was damaged during the extensively and has been partly out of commission since then. The Umbilo WWTW site received excessive rain as was the case with the catchment areas of the Umbilo river and the sewer catchment areas of the wastewater plant. As a result the sewer collector network supplying the Umbilo WWTW also had excessively increased inflows through stormwater ingress from collapsed sewer lines, overtopped manholes and other run-off collector mechanisms such as roof gutters, and such connections.

The damage to the Umbilo WWTW is described in detail in the sections below.

3 Summary of Extent of the Damages

3.1 Overview of Damages Incurred

The flooding damaged the following components of the plant which are currently out of commission:

- Main access road to the plant was damaged with a temporary bridge being required.
- Access bridge over the Umbilo river
- Internal roads within the plant. The head of works is currently unreachable for VTS trucks.
- Head of works including the mechanical scrappers and related fixtures
- Splitter box to Primary Settling Tanks (PST).

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- PSTs 1 to 4 were particularly filled with additional sand and rubble due to the overflowing from the head of works.
- Excessive scouring around the foundation to PST 6 and 7 adjacent to the splitter box
- Splitter box to Bioreactors – foundation of the concrete structure was compromised excessively.
- Scouring of embankment and fill material around the Splitter Box to the bioreactors
- Damage to pipework to the PSTs and Bioreactors – these were washed away.
- Collapse of embankments around the Bioreactors subsequently buried electric cables and foundations of Bioreactors which should have 'ventilated' foundations.
- Pipework to the humus tanks was compromised by the soil heave in several places. Similarly, the pipework to Mixed Liquor Sump (MLS) pump station was compromised in a number of positions.
- Damage to the pumps at the various recycle pump stations due to failing instrumentation controls during the flooding has rendered critical mechanical installations dysfunctional.
- Feeder lines to the Biodigesters were washed away.
- Collapse of embankments around the Biodigesters was also observed.
- Dewatering plant building as well as the equipment was damaged with foundations on the downstream side of plant collapsed. This building and equipment will need to be rebuild.
- The staff canteen and ablution block located adjacent to the river and access road was destroyed by floodwaters.
- Bridge crossing towards the sludge drying beds were washed away including delivery pipework.
- Excessive collapse of the river embankment and washing away of storm water headwalls and effluent discharge points
- Damage to floodlighting around the plant including the washing away of electrical cabling and related faulting of mechanical equipment.

Damage to key nodes and components of the plant is discussed further below.

3.2 Damage to Access Road to Plant – Boom Street

The Umbilo WWTW can be accessed only via Boom Street which interconnects to the surrounding Pinetown neighbourhood as well as main access roads of Underwood Road and onto the M7 via the M34. The damage on Boom Street majorly occurred at two sections, the first being approximately 750metres from the entrance gate with the second section being within 100metres from the main gate entrance. This rendered the plant inaccessible immediately after the floods as can be seen in Figure 2 and Figure 3 below.

Figure 2: Flood Damage along Boom Street entrance

A tributary to the Umbilo River whose river mouth is adjacent to the main bridge was the primary cause of the extensive damage on the second section of road damage.

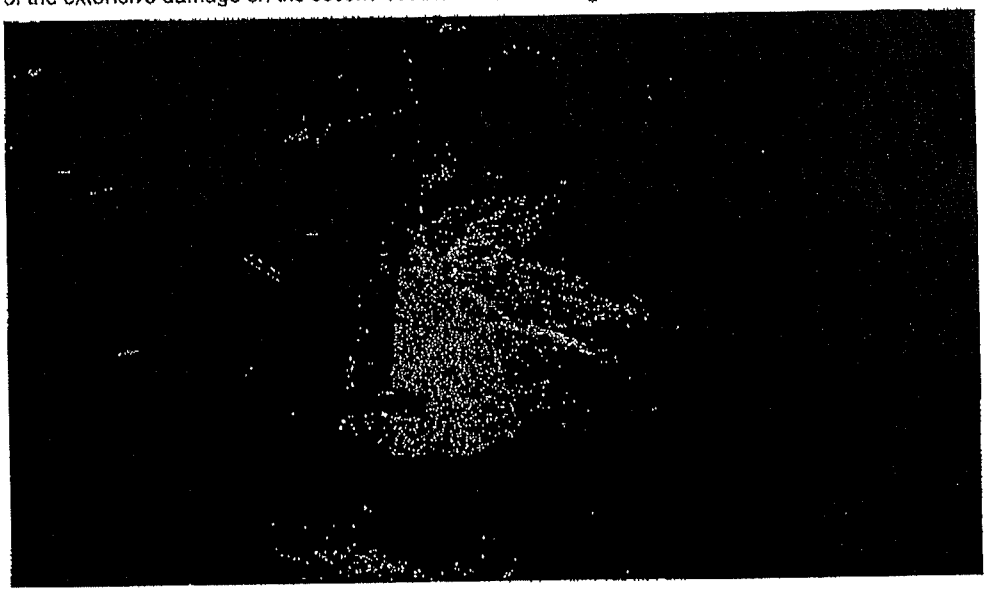

Figure 3: Flood damage on main access bridge on Boom Street

As shown in the image above, the bridge structure was washed away leaving only remnants of the old structure as a mark of what was the location of the old bridge.

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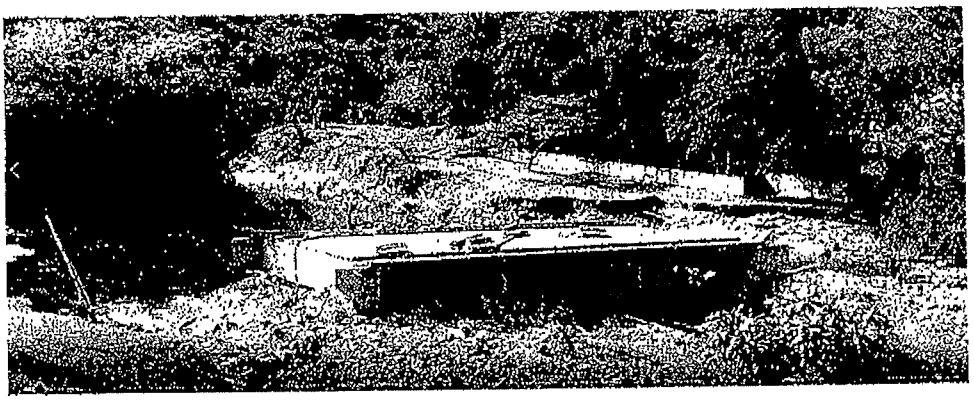
3.3 Damage to Bridge Crossings

Damage to the bridge crossings within the Umbilo plant are shown in the images below.

Figure 4: Access bridge on entrance washed away



Special focus is also drawn to the damage to bridge crossings. Prior to the floods there were three major bridge crossings over the Umbilo river from the main access, crossing to western plant as well as crossing to the sludge drying beds. All of which were damaged to various degrees.

Figure 5: Bridge and roadway to western plant and sludge drying beds washed away

3.4 Damage to Buildings and Staff Facilities

As can be seen in the figure 5 above, there was extensive damage as to the staff facilities building which was located along the river adjacent to the road leading to the western end of the plant as well as the sludge drying beds. In the image in Figure 5, the building was left with only one side of the wall standing while the roof was collapsed completely rendering this building derelict. Across the road from the staff building is the building housing the dewatering plant which also suffered extensive damage including the erosion of its foundation especially on the downstream section while the conveyor belt system anchored around it was also compromised extensively.

3.5 River Channel Reshaping/Reconfiguration

Prior to the April floods the Umbilo river had a gentle meandering river course which allowed for the low level bridges that were constructed and in use for transit within the plant. However the flood waters were so strong that the river not broke its banks, it also changed course somewhat in some respects in a manner that it will be impossible to restore the river dynamics to their original state. Structures that were located next to and along the river from storm water headwalls, effluent discharge points, roadways and buildings need to be relocated and an engineering re-think of the flood protection within this stretch of the river be conducted accordingly. This will include a fresh flood line analysis from just upstream to just downstream of the plant.

3.6 Damage to Head of Works

The inlet works of the eastern plant include a terminal manhole and influent point which is equipped with manual screens and a mechanised Huber plant screen. These channels lead to a gritting chamber which leads to a splitting chamber linked to the six Primary Settling Tanks (PST). From the PSTs the flow is directed to the main splitter box feeding the seven trickling Bioreactors.

There was extensive damage suffered around the bioreactors splitter box as well as PST 5 which is located adjacent to the splitter box. Foundation was severely eroded leaving the concrete foundation exposed and in progressively unstable equilibrium.

Figure 6 below shows the extent of the damage suffered in these components of the plant.

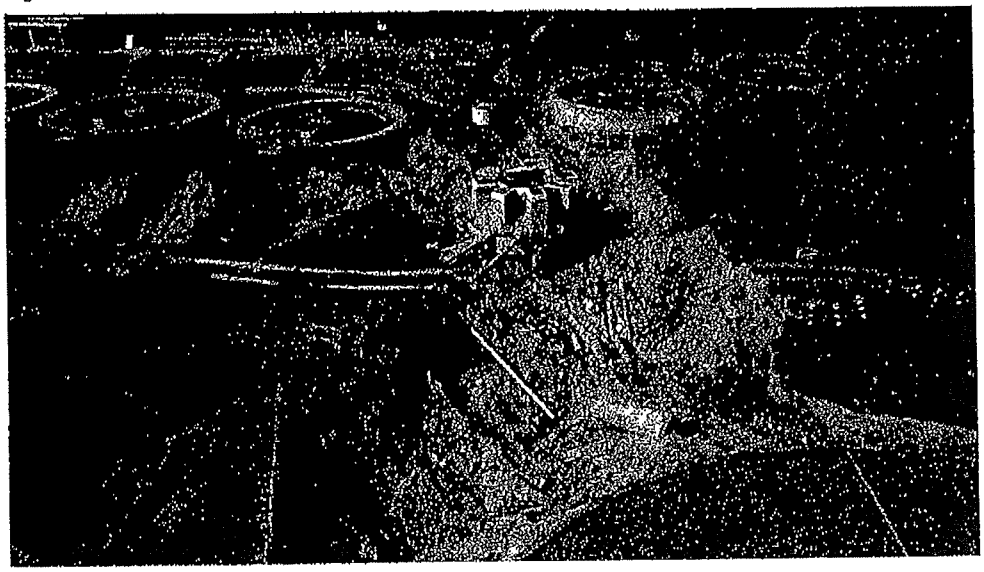


Figure 6: Damage to head of works

3.7 Damage to Embankments Sections

As can be seen in Figure 6 above, there was several embankments collapses in a number of sections of the plant with the severe cases being experienced around the top section of plant upstream of the bioreactors. The slopes of the embankment were generally steep in line with the natural undulating ground as some portions measured up 15%. With the ground being saturated with water and significant run-off, plastic failures and soil heaves were encountered across the plant even in grassed areas. Reinstatement of embankments will be required in several places while construction of retaining walls shall be required in places to ensure improved soil stability.

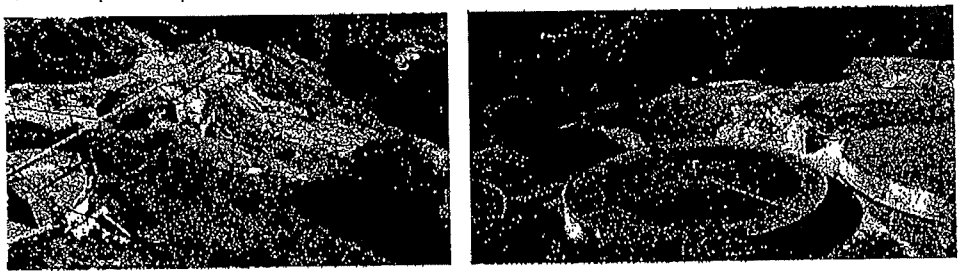


Figure 7: Damage to embankments around the plant

3.8 Damage to Mechanical & Electrical Components

Ingress of storm water in several components of the plant process resulted in the damage of mechanical and electrical installations. These damages included the washing away of electrical cables while flooding led to the damage of moisture sensitive instruments such as motors and instrumentation controls. A detailed assessment of the various installations was also conducted to ascertain the extent of the damage.

3.9 Consequential Damages to the Plant

The wastewater treatment plant is designed to deal with a mixture of solids and fluids flowing from the head of works in a highly sensitive hydraulic balance. This continuous balance demands that volumetric flows be controlled from node to node until it is treated effluent while solids in the form of sludge are also dealt with accordingly through the process until disposal at the drying beds is achieved. Once the plant went out of commission, it meant that this process was brought into an uncontrolled shutdown which meant that all the solids that were in transit along the plant process have gradually hardened and become blockages in the pipelines and other conveyance mechanisms.

In addition to blockages, the shutdown of the system has led to increased rusting of metal surfaces and fixtures such as bolts, nuts, and structural reinforcement steel. All this subsequent damage will require to be addressed in line with the standard practice if the plant is to be brought back to optimum operation.

4 Assessment of Sewer Catchment

4.1 Overview of Sewer Catchment

Review of the historic flow data into the plant indicated that prior to the flood damage the plant was receiving an average of 15ML/day of sewer from its catchment. This was still below the installed capacity of 23ML/day for both the East and West plants combined. The East plant was decommissioned following the flood damage as described in sections of this report and all the flow was diverted to the West plant. Such a diversion of flow is done using a terminal manhole located along the main trunk sewer feeding the plant, albeit outside the plant fence boundary. As such there is literally no flow into the East plant serve for a trickle while the rest of the flow from the sewer catchment is going to the West plant. Recent flow meter readings at the inlet works indicate that flow was approximately 3ML/day in the period post the flooding and has since gradually increased to 6ML/day and now closer to 9ML/day. This is still way below the expected inflow into the plant indicating that there is significant damage along the sewer collector pipeline network. The sewer catchment for the Umbilo WWTW is shown in Annexure B attached to this report.

4.2 Typical Damage and Causes to Sewer Collector Pipeline Network

The sewer collector network suffered the following damages during the flooding which requires to be addressed concurrently with the rehabilitation of the plant:

i. Pipeline wash-away along rivers and streams

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ii. Pipeline blockages due to ingress of debris at critical points
iii. Soil heave leading sewer spillage along the manholes and pipeline joints
iv. Collapse of pipeline foundations and bedding leading to sewer spillage and ultimately reduced flow reaching the plant.
v. Stormwater ingress due to deliberate illegal connection of stormwater gutters to the sewer manholes in both residential and commercial properties

4.3 Proposed Solutions

The proposed solution to the damages suffered at the sewer collector network will include the following:

- Installation of meters along the catchment network to monitor inflows from various sub-catchments and using this to build up a typical dry weather wastewater system balance. Such an approach could be used to provide a detailed study of the sources of wastewater especially in light of the increasing volumes of industrial component of wastewater effluent in the sewer.
- Replacement of major collector trunk mains based on their criticality index
- Information from the sanitation operations and maintenance can also be used to identify areas of high sewer blockages and spillages and hence conduct additional specific sewer pipeline replacements.

5 Overview of the Process Flow Chart – East Plant

5.1 Key Components of Process Flow Chart

The eastern plant comprises of the following process components which are hydraulically interconnected from end to end. These components are as follows:

- Inlet works.
- De-gritting chamber
- Splitter Box to Primary Settling Tanks (PSTs)
- Primary Settling Tanks (PSTs) – 6 Off
- Splitter Box to Bioreactors
- Bioreactors – 7 Off
- Humus Tanks – 6 Off
- Sand Filters – Disused
- Mixed Liquid Solids (MLS) Pump Station
- Raw Sludge Pump Station to Biodigesters – 2 Off, one for main duty and the other for recycling back to the Digesters
- Disinfection/Chlorination Chamber
- Dewatering Plant
- Effluent Discharge point
- Sludge Drying Beds
- SNL Pump station – Recycle from Sludge drying beds to head of works.

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The detailed description of the biological process is outside of the scope of this report and is covered in other reports. An overview of the general function is briefly outlined here to give context to the proposed immediate interventions to restore some amount of wastewater treatment.

5.2 Briefly Description of Plant Process

A terminal manhole on the delivery trunk main located outside the East and West plants is used to split incoming flow between the East and West plants. The flow is split at a ratio of 3:2, East to West under normal circumstances. This means that the total inflow of 30ML/day is split in this fashion between the plants. Following the extensive damage to the East plant, flow was totally diverted to the western plant and this has largely resulted in a hydraulic overload on the plant and hence the ongoing effluent quality failures. Getting into the East plant, the flow goes through the inlet works which is a common node/control point for all downstream processes. Post the inlet works the flow is split to the six PSTs via the splitter box using sluice gates. PSTs 1 and 2 which are located immediately adjacent to the inlet works are configured to work independent of the splitter box delivering flow to the bioreactors. PST 1 and 2 deliver flow to Bioreactor 6 and 7 and this allows this leg to be taken in isolation from the rest of the components. From Bioreactor 6 and 7 flow is directed to Humus Tanks 5 and 6 which are ultimately connected to the MLS pump stations while a leg feeds the chlorination chamber; the sand filters are not working at the moment.

PSTs 3, 4, 5 and 6 are fed via the PST splitter box after which flow is directed to the Bioreactor splitter box which feeds Bioreactors 1 to 5 which then deliver flow via an open channel and pipeline to the Humus Tanks 1 to 4. The flow from the humus tanks is directed to both the chlorination tank and the other to the MLS pump station for recycling. Raw sludge collected from all the PSTs and inlet works goes through a secondary screen located downstream of the Bioreactor Splitter Box after which it collects in the raw sludge pump station which feeds the Biodigesters. Overflow from the Biodigsters is recycled back to the biodigesters via a second pump station located adjacent to the main raw sludge pump station.

6 Phase A Remedial / Rehabilitation Action Plan

6.1 Introduction

The scope of works envisaged under Phase A will serve two purposes, namely detailed assessments of the damages incurred by various components of the plant as well as temporary measures that can be employed to bring partial functionality to the plant. Based on the configuration of the plant described briefly above, the immediate interventions to restore a level of treatment capacity to the plant, focus shall be drawn to the components of the plant that suffered relatively limited damage and which can therefore be rehabilitated in the shortest period. The plan is summarised in the following sections.

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6.2 Reconnection of Pipework

Pipework connecting the Bioreactor splitter box and the Bioreactors was washed way during the flood and as such to restore any functionality, the pipes should be reconnected accordingly. Pipework shall include the following pipes:

- Rising main from the MLS pump station
- Rising main from the SNL pump station
- Feeder lines to Bioreactor 1
- Feeder Pipeline to Bioreactor 2
- Feeder Pipeline to Bioreactor 3
- Feeder Pipeline to Bioreactor 4
- Inspections to Feeder Pipeline to Bioreactors 6 and 7

Jetting and moistening of the pipelines shall be conducted on the same breath to ensure that solids which have hardened over the downtime period are removed. Other problems may be picked up during this process which may extend the duration of the works envisaged.

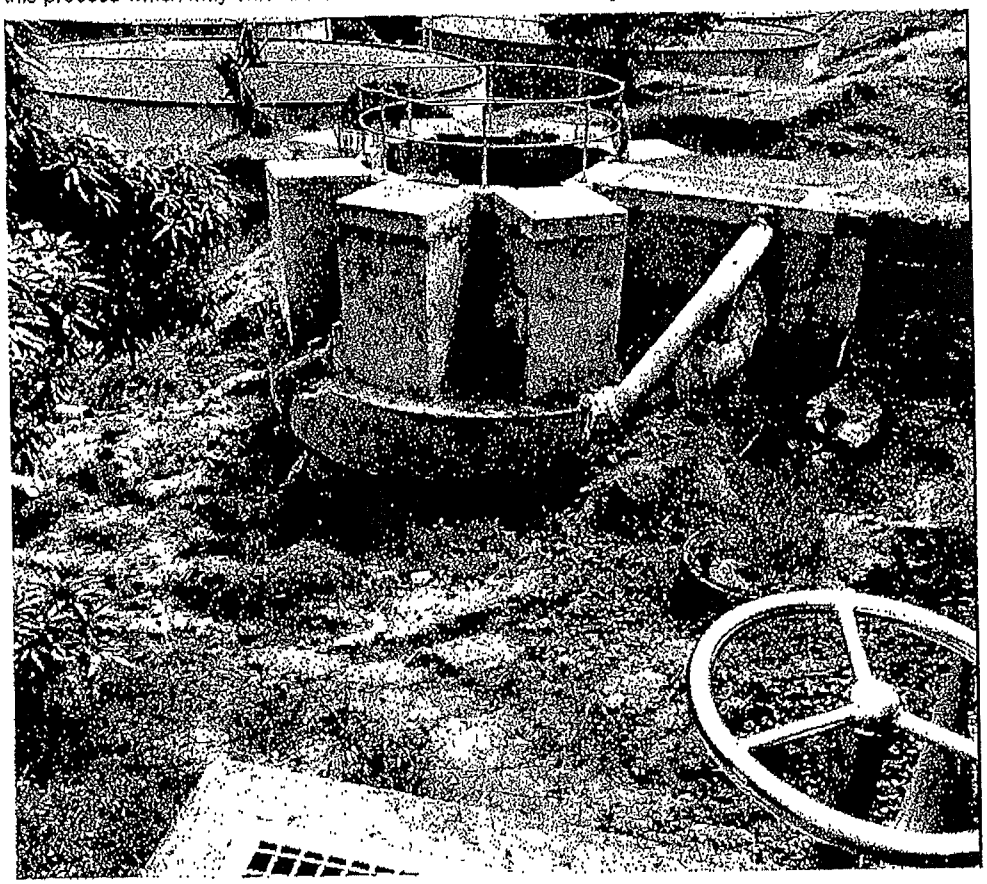
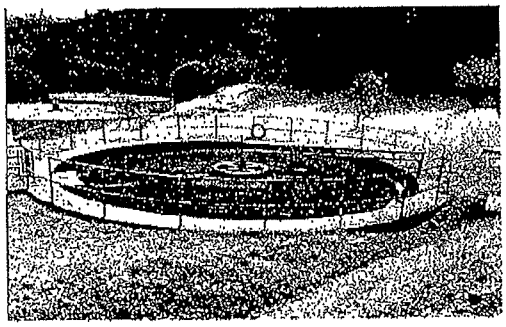


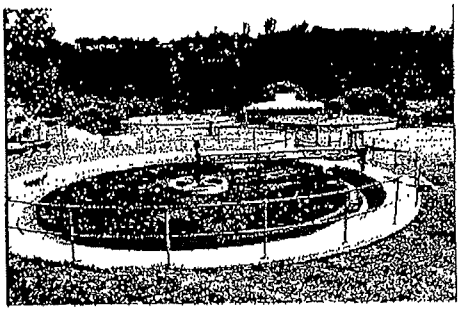
Figure 8: Pipework to be replaced at Splitter Box

6.3 Desludging PSTs

PSTs 1 and 2 shall be the priority due to their parallel operation to the rest of the PSTs and as well as Bioreactors 6 & 7 in relation to the rest of the Bioreactors. The PSTs and can be seen in the picture have accumulated significant amounts of sludge which has hardened over time. Desludging will involve manual labour as well as the use of mechanical equipment to speed up the process. Overflow channels and plates may need to be refurbished including other metal installations which tend to rust much faster when there is stagnation and increased exposure to the atmosphere as opposed to submerged conditions typical of normal operating conditions.



PST 1



PST 2

Figure 9: PSTs to be desludged

6.4 Removal of Rubble from Bioreactor Base and Vents

The fundamental feature of a Bioreactor is that it should have ventilation at the bottom of base to feed the air required for the aerobic conditions involved. The soil which was washed away from adjacent embankments collected upstream of the bioreactors with some being covered more than a metre deep by soil and rubble. The soil shall be removed and vents cleared accordingly with additional jetting being done to ensure that the collector drains from the Bioreactors are not left blocked.

6.5 Desludging of the Bioreactor Trickling Arms

The Bioreactor arms generally need to be unblocked as part of normal maintenance activities. The bioreactors are fed by gravity flow and the trickling arms rotate based on the hydraulic head from the feeder line. When they are blocked, there is insufficient flow leading to uneven distribution of flow across the length and breadth of the bioreactor ultimately causing ineffective treatment. The arms will therefore need to be unblocked especially now that they have been out of commission for a while.

Figure 10: Biofilters arms to be Desludged

6.6 Desludging Humus Tanks

The humus Tanks have also been stagnant for a long period of time leading to accumulation of sludge which has also collected to the top especially for Humus Tanks 5 and 6. The operation shall be the same as the process to be conducted for the PSTs.

6.7 Jetting of Pipelines

As alluded to in sections above, the plant processes receive flow from one control point to another through a series of conveyance pipelines. The prolonged downtime has likely led to the solidification of suspended solids in the conduits over time. Accumulation of such solids will reduce the conveyance capacity of the pipelines and lead to ineffective treatment of the plant as a whole since treatment efficiency is largely linked to hydraulic loading. Jetting shall therefore be conducted even on those pipelines that do not necessarily show of damage from the flooding as outlined in sections above.

6.8 Construction of Temporary Access to Sludge Drying Beds

The sludge drying beds are critical component of the plant and need to be in operation together with the rest of the plant. The main access bridge to the drying beds requires extensive re-engineering for the long term due to the nature of the new river course along the old existing bridge. As such a temporary structure shall be constructed on the downstream side to provide access for de-sludging trucks and other maintenance purposes.

Figure 11: Bridge to sludge drying beds to be reconstructed

6.9 Refurbishment of Mechanical & Electrical Works

Refurbishment of mechanical and electrical installations will include the following:

- Inspection and servicing of in-line valves from the head of through to the effluent
- Refurbishment of heavily rusted components such as overflow plates.
- Replacement of cabling that was washed away
- Stripping and inspection of motors and pumps that were submerged in water as well as the required testing.
- Refurbishment of all relevant instrumentation controls

6.10 Partial Recommission of Plant

Completion of the above activities will allow for the plant to be partially commissioned while long term major rehabilitation works are being designed and packaged for construction to begun in earnest during this current financial year.

6.11 Specialist Interventions

In terms of legislative and regulatory requirements, there are applications that will require specialist assessment and certifications prior to recommissioning. These are discussed briefly below.

6.11.1 Biodigesters

The Umbilo plant has a series of Biodigesters. Typically, Biodigesters are a common way for energy recovery in a wastewater treatment plant through anaerobic digestion for sludge treatment and reduction. Anaerobic digestion is the biological degradation of organic matters in the absence of oxygen and converts the chemical energy in organic carbon to biogas. The existing system requires ongoing specialist inspections to ensure compliance with regulations and legislation. These are the components that need to be monitored:

- Boiler System
- Gas Recycling System

7 Phase A - Programme of Works

7.1 Programme Overview

The programme of works for the Phase A works is attached to this report as Annexure A. Working on critical chain, the works in the first phase of the project were aimed at completion within four weeks from commencement. Critical resources include heavy plant such as Excavators, TLBs and Honey Suckers (VTS Trucks) will need to be availed in earnest if the targets are to be achieved. The key milestones dates are listed below.

Phase A of the works is expected to take about 45days ending by April 30th, 2023.

7.2 Cost Estimates

The cost estimates for the works involved under Phase A of the programme is pegged at **R 2 955 968,63 (Incl. VAT) and** are shown in the Table 1.0 below.

Table 1: Cost estimates for Phase A works

SECTION 1 ITEM NO.	COST CODE	Section 1: PHASE A - TEMPORARY WORKS	UNIT	MATERIAL QTY	RATE	AMOUNT ZAR
		Deliverable Section1: BOREHOLE MONITORING			-	-
1		Status Quo & Condition Assessment	Sum	1	R 50 000,00	R 50 000,00
2		Desludging Primary Settling Tank (PST) 1 - Including Equipment	Days	12	R 12 800,00	R 153 600,00
3		Desludging Primary Settling Tank (PST) 2 - Including equipment	Days	12	R 14 000,00	R 168 000,00
4		Desludging Humus Tank 5, Including Equipment	Days	12	R 14 000,00	R 168 000,00
5		Desludging Humus Tank 6, Including equipment	Days	12	R 14 000,00	R 168 000,00
6		Desludging, Jetting & Unblocking Biofilter 1,2,3,4,5,6 & 7	Days	6	R 12 500,00	R 75 000,00
7		Temporary Road Access to Sludge Drying Beds	Days	1	R 50 000,00	R 50 000,00
8		General Mechanical Assessments & Rectifications	Sum	1	R 32 300,00	R 32 300,00
9		General Electrical Assessments & Rectifications	Sum	1	R 32 300,00	R 32 300,00
		Equipment Hire (Additional Works)				
10		Jetting Equipment	Days	6	R 3 500,00	R 21 000,00
11		Sludge Pump	Days	6	R 2 642,86	R 15 857,14
12		Vaccum Tank Service (VTS) Trucks - 5000litre	Days	6	R 12 000,00	R 72 000,00
13		Vaccum Tank Service (VTS) Trucks - 8000litre	Days	6	R 13 500,00	R 81 000,00
14		TLB for excavation	Days	14	R 4 650,00	R 65 100,00
15		Tipper Truck @ 6m3 Capacity Minimum	Days	14	R 4 850,00	R 67 900,00
16		Skip for Sludge Temporary Storage	Days	3	R 3 000,00	R 9 000,00
17		Excavator	Days	3	R 4 650,00	R 13 950,00
18		Other Specialist Equipment & Ancillaries	Days	1	R 5 000,00	R 5 000,00
19		Health and Safety Compliance including PPE & Equipment	Sum	1	R 75 000,00	R 75 000,00
		Replar Work For Ancillary Equipment				
20		Strip and Replace asbestos liquid overflow weir with stainless steel at PST 1,2,5 & 6, Rate to include all supply and delivery to site	No.	4	R 175 000,00	R 700 000,00
21		Replace rusted overflow pipes in PST 5 & 6. Steel pipes to be rubber lined and or similar corrosion protection	No.	4	R 38 500,00	R 154 000,00
		Labour Requirements				
22		General Labour	Hr	400	R 190,00	R 76 000,00
23		Semi-skille Labour	Hr	200	R 250,00	R 50 000,00
24		Skilled Labour (Supervisor/ Foreman)	Hr	200	R 350,00	R 70 000,00
25		Project Management & Supervision	Sum	1	R 75 000,00	R 75 000,00
		SUB TOTAL A				R 2 448 007,14
		Contingencies @ 5%				R 122 400,36
						R 2 570 407,50
		Sub-Total B				
						R 385 561,13
		VAT @ 15%				-
		TOTAL SECTION 1				R 2 955 968,63

8 Phase B – Scope of Works

8.1 Introduction

The scope of works outlined under Phase A are strictly aimed at trying to resuscitate some form of functional treatment in the plant to alleviate the ongoing hydraulic overload at the West Plant. However the long term sustainability of the plant shall depend on the implementation of engineered design solutions to the rehabilitation of all damaged pieces of infrastructure as outlined in the sections above. The works envisaged under Phase B are described in detail in the sections below.

8.2 Statement of Works

The scope of works entailed in Phase B of the rehabilitation and refurbishment of the plant following the flood damage are listed as follows:

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1. Access road damage leading up to the plant.
2. New bridge required along the access road into the plant.
3. Internal Road from Main Entrance to Sludge Drying Beds
4. Bridge to Sludge Drying Beds
5. Internal roads within the plant – towards head of works
6. Concrete Bridge on main entrance gate to plant
7. Engineered Platform for Erosion Protection
8. Staff Welfare Building and security house.
9. Rehabilitation of stormwater infrastructure within the plant
10. Construction of a Levee along the river
11. Damaged Dewatering Plant Building and related fixtures
12. Damage on Plant Inlet Channel, Settling Tanks and Splitter Box
13. Refurbishment of Pipework to Biofilters, Humus Tanks, Pump Stations, and Disinfection Chamber
14. Rehabilitation of Sand Filters
15. Refurbishment of Mechanical Installations
16. Refurbishment of Electrical Installations
17. Rehabilitation of Pipeline from SNL to Head of Works
18. Rehabilitation of Effluent Discharge points
19. Replacement of Sewer Collector Pipelines

8.3 Engineering Investigations and Designs

The above listed scope of works would require specialist investigations to be conducted as inputs to the normal engineering designs for such works. These investigations will include the following:

- Flood line analysis of the Umbilo River to determine the extent of the flood waters for various flood return periods.
- Environmental Impact Assessment (EIA) in line with the scope of works
- Geotechnical investigations for founding conditions around various structures
- Process plant mapping, analysis, simulation, and optimisation. Refurbishment of major components of the plant requires a broader view of the performance of the existing plant at all levels.
- Damage to the sewer catchment through metering and other technologies. Hydraulic modelling of the existing sewer catchment will be required in some cases

These engineering investigations are discussed briefly in the following sections below.

8.4 Reference Legislation, Standards and Specifications

The following guidelines shall apply for this project:

i. eThekwini Water and Sanitation Standards and Specifications
ii. DESIGN MANUAL: GUIDELINES AND POLICY FOR THE DESIGN OF STORMWATER DRAINAGE AND STORMWATER MANAGEMENT SYSTEMS
iii. Waterborne Sanitation Design Guideline (S J Van Vuuren, University of Pretoria)
iv. SANS 1200
v. CSIR, Guidelines for Human Settlements
vi. DWS Green Drop Standards and Requirements
vii. DWS Blue Drop Requirements
viii. National Environmental Management Act (Act No. 107 of 1998)
ix. National Environmental Management Act: Biodiversity Act No 10 of 2004
x. National Environmental Management Act: Waste Act (Act 59 of 2008)
xi. National Environmental Management Act: Integrated Coastal Management Act 44 of 2008
xii. National Environmental Management Act: Protected Areas Act 57 of 2003
xiii. National Heritage Resources Act 25 of 1999
xiv. Hazardous Substances Act 15 of 1973 and Regulations
xv. National Building Regulations and Building Standards Act 103 of 1997
xvi. Occupational Health and Safety Act 85 of 1993

9 Project Implementation Plan

The project is generally being implemented in the following stages as shown in the table below.

Table 2: Typical project stages for implementation of water supply infrastructure upgrades

Stage	Detailed Outcomes
Stage 1 – Preparatory / Initiation	• Inception report confirming scope of works, status quo assessment as well as detailing key project management and contractual arrangements for the project implementation
Stage 2 – Concept Design	• Concept layout for the rehabilitation, refurbishment works at the plant including, alternative solutions to stormwater infrastructure, road, bridge, platforms, retaining walls, mechanical, electrical and instrumentation solutions. Confirmation of standards guiding design. Construction cost estimates and typical roadmap for construction works. Applications for all external authorizations shall be initiated diligently.
Stage 3 – Design Development	• The outcome of this stage will be a design report which covers design details and layouts, wayleave requirements, detailed drawings, bill of quantities as well as methodology statements for execution of the works
Stage 4 – Product Information	• This stage will include the works information and procurement documentation for the works, relevant approvals for construction, detailed construction drawings, layout plans, specifications, procedures, and construction schedule of quantities

Stage 5 – Construction	• A Contractor will be procured by the Employer to execute the construction works based on the outcomes of the product information stage • Linked to the physical implementation of the contract, there shall be contract administration, quality control, risk mitigation measures and reporting, interface with the beneficiaries and members of the community
Stage 6 – Handover and Closeout	• The outcomes of this stage include as built drawings of the new infrastructure, operations, and maintenance information as well as a close-out report. • As built information will be submitted in both electronic format and hard copies as required by the Employer

10 Specialist Technical Studies

The scope of works demands that specialist studies be conducted which will inform the development of solutions for the project. Some of the specialist studies will be sub-contracted to specialist service providers also in line with principles of professional independence applicable to disciplines such as environmental assessments. These are discussed briefly in the following sections.

10.1 Environmental Impact Assessment

In line with requirements of the National Environmental Management Act (No 107 of 1998) (as amended) Environmental Impact Assessment Regulations. The Environmental Impact Assessment Report will provide a detailed description of the pre-development environment, specifically in terms of the biophysical and socio-economic environment of the study area. Furthermore, the report will provide a comprehensive description of the activities as well as numerous specialist studies undertaken for the environmental impact assessment phase and public participation process if applicable, as well as the way forward in the form of conclusions, recommendations, and a draft environmental management programme.

10.2 Geotechnical Investigations

Upon completion of geotechnical investigation and analysis, the information and findings must be compiled in a standard report format. The report serves as the permanent record of all geotechnical data known to be pertinent to the project and is referred to throughout the design, construction, and service life of the project. The data and recommendations are typically compiled in a Geotechnical Report. The intent of the Geotechnical Report is to present the data collected in a clear manner, to draw conclusions from the data, and to make recommendations for the geotechnical aspects of the project. The Geotechnical Report is a professional document and must be prepared under the direction of a registered professional engineer.

Detailed design of the water supply infrastructure and any related installations will be produced based on the said geotechnical report. This report will be adopted and used during the design and construction phases of the project.

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10.3 Topographic Surveys

A topographical survey was conducted using drone technology as part of the assessment of the extent of the flood damage in the length and breadth of the plant. It was critical to not only obtain a digital terrain model of the existing landscape of the plant but also the aerial imagery for ease of reference. Aerial images can be easily compared with older images to showcase the changes that ensured following the floods. The survey captured the following:

- Existing infrastructure services As-Builts.
- Natural features like rivers, embankments and vegetation cover

10.4 Socio-Economic Impact Assessment

A Social Facilitator also known as an Institutional Social Development (ISD) consultant who is familiar with the area, has been appointed to the project to conduct engagements with stakeholders right from the beginning of the project. This will ensure that the social, political, and economic expectations of the project are taken into consideration right from the beginning. Some of the deliverables from the ISD consultant will include the following:

- Communicating information to local people on procedures, options and implementation plans in an appropriate language and format.
- Ensuring and promoting the use and development of local enterprises and labour during the contract stages. (Including identification, shortlisting, and continuous support).
- Ensuring that planning decisions are explained and justified to the community.
- Supporting public monitoring of services and activities.
- Capacitating of steering committee through training.
- Furthermore, the social facilitator will develop consultative processes such as stakeholder's workshop during the project implementation.

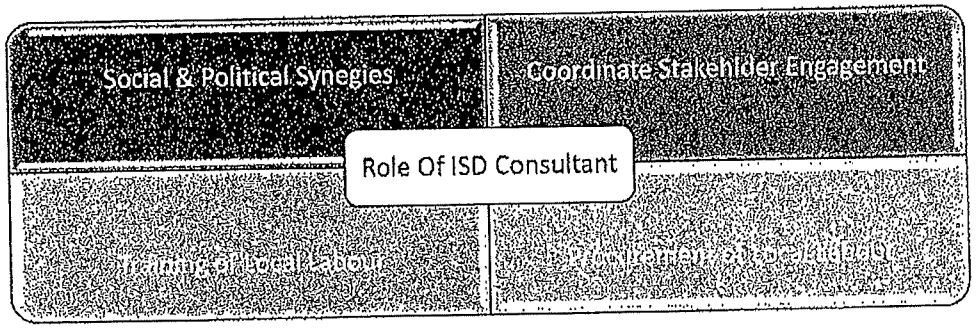

Figure 12: Roles and responsibilities of ISD Consultant

10.4.1 Wayleave Applications

The project is being undertaken within the boundary of the existing Umbilo WWTW and as such it not expected that there is infrastructure belonging to third parties within the site. However, there is existing electricity, water and fibre optic cables which need to be protected during the project. All efforts shall be taken to locate all existing services and protect them from damage.

11 Approvals / Authorisations

Consultation with authorities and other service providers whose services could be affected during construction will be requested to provide details of their existing services and any requirements they may have for protecting or moving services where necessary.

11.1 Environmental Management

Applications will be made to the Department of Economic Development, Tourism and Environmental Asffairs (EDTEA) through the Environmental Practictioner (Sub-Consultant) for the requisite authorisations for the works such as a Water Use Licence Application (WULA) in terms of the National Water Act.

11.2 Compliance with OHS Act

As the employer's agent, Iqhina Engineers will appoint a Health and Safety Agent to review all designs at design stage, review all documents and drawings for tender and provide a risk assessment and health and safety specification, audit the contractors compliance and close-out.

11.3 Regulatory Bodies and eThekwini Structures

Below is the authoritles that have Rights/Powers of Sanction, who will be considered to provide comments on the proposed water scheme.

Table 3: Authorisation and approvals by stakeholders

No.	Authority	Comments
1	Transnet	No rail servitude encroachments occur in the project area
2	KZN DoT	Trenching not allowed in road crossings and pipes exceeding 100mm diameter to be laid 2m outside road

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		reserve. Road reserves are currently being determined. Approvals are still to be obtained.
3	Telkom	No underground infrastructure. Overhead infrastructure will be visible on site. Approvals are still to be obtained.
4	SANRAL	There are no SANRAL road reserve encroachments in the project area.
5	Eskom	There is largely no underground infrastructure. Overhead infrastructure will be visible on site. Approvals are still to be obtained.
6	DWA	Water Use License Application will be submitted for water use authorization.
7	DAEA	Basic Assessment Report will be submitted to the Environmental Authorization during the design stage
8	eThekwini Roads Department	Department is a custodian of all standards relating to roads design and construction
9	eThekwini Environmental Department	Department is a custodian of all environmental issues in the Metro
10	eThekwini Water and Sanitation Engineering Department	The Department is the user department for all water and sanitation infrastructure and as such approvals critical

12 Socio-Economic Development Opportunities

Given the integrated nature of the proposed development, there are likely to be many opportunities for the establishment of a range of programmers and initiatives designed to support social upliftment. In order to encourage the social and economic development of the community through this project, the following measures will be implemented where possible:

- The procurement of local labour.
- Providing local labour with the necessary skills and training.
- The procurement of material through local suppliers.
- Sub-contracting of a portion of works to potential local emerging contractors.
- The design, wherever possible, will be done such that it encourages the use of labour-intensive construction methods.

13 Project Risks

13.1 Risk Management Overview

As part of its project management methodology, Iqhina shall develop a risk management plan throughout the project lifespan which shall ensure that a risk register is kept populated and monitored to avert any negative impacts on the project. The table below highlights the risks that have been identified at this stage of the project.

Table 4: Identified project risks

Risk	Risk Management	Responsibility
Safety and security of personnel working on the project	▪ Engage social facilitator to interface community structures. ▪ Employ security escorts where needed. ▪ Personnel to wear distinguished	Iqhina, ISD EThekwini Municipality
Community work stoppages due protest action	▪ Engage social facilitator to interface community and conduct project awareness campaign	Iqhina eThekwini Municipality ISD
Unavailability of existing information such as As-Built layout plan	▪ Avail budget for additional investigations ▪ As built information to be generated prior to implementation stage.	Iqhina eThekwini
Reliability of GIS information	▪ Physical site visit to confirm GIS information	Iqhina

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14 Project Management

14.1 Proposed Project Team

Iqhina shall provide all the technical resources that are required for the execution of the project. The project team shall comprise the following members as shown in the Table below. The following project team is proposed for the works:

Table 5: Proposed project team members

Name	Position in Team	Highest Qualification and Professional Registration Details
Sboniso Mhlongo	Project Leader / Manager : Iqhina	BTech (Civil) Civil, NQF7, Pr. Tech Eng. (ECSA)
Phenduakni Ntini	Project Leader / Manager : Iqhina	BSc Eng. Civil, NQF7, Pr. Tech Eng. (ECSA) PMP 1767689,

14.2 Schedule Management

Iqhina has been advised that this is project must be implemented on an urgent basis and as such it is anticipated that the planning and design processes should be collapsed as much as possible. All designs and contract documentation should be complete by the end of May 2023 with construction starting in July 2023.

The key milestone dates are set out in the table below while a detailed schedule of works is attached to the report as Annexure B. Actual dates are to be confirmed and refined as and when all outstanding information has been provided by the client and the necessary introductions to the communities have been facilitated.

Table 6: Key milestone dates

Project Stage	Detailed Outcomes	Targeted Key dates
Inception	Inception Report Status quo assessment	16 March 2023
Preliminary Design	Preliminary design report and approval of solutions	30 April 2023
Detailed Designs	Detailed design report, Drawings and specifications	22 May 2023
Contract Documentation	Contract documents, Procurement Process	15 June 2023
Construction	Physical Deliverables	July 2023 – December 2024

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Close-out	Close-out Report and handover documentation	April 2025

14.3 Risks to Schedule Performance

The following issues have been identified as being critical risks that may impact on the project delivery timeline:

1. Delayed project handover – Between the IDM and the community.
2. Lack of access to the site due to community social challenges.
3. Delays in regulatory approvals such as environment, way leaves applications and procurement processes.

14.4 Communication Management

14.4.1 Contractual Correspondence

Contractual correspondence will be signed by Sboniso Mhlongo.

14.4.2 Requests for and Provision of Information via Email

Requests for information/meetings/ EWS support will be communicated via the Project Manager who will make the necessary arrangements and intervention via email. For expediency, and where necessary, other requests may be communicated directly to the relevant personnel in the Iqhina team deployed to the project. However, in all instances, the Project Leader (Mr Sboniso Mhlongo) should be copied in all correspondence for contractual expediency. These are the contact details of the respective team members.

Table 7: IQHINA Team Contact Details

Mr Sboniso Mhlongo	Email: info@iqhina.co.za Tel: 031 822 9423 Cell: 083 272 4680

14.4.3 Progress Reports

Iqhina will submit progress reports once every month in the format required and agreed to with the EWS Project Manager by the 25th of each month. However, additional reports can also be submitted as and when required by the Employer.

15 Cost Estimates

15.1 Construction Cost Estimates

In terms of process, refined construction cost estimates will be developed once concept designs are concluded. However based on the assessments conducted so far, the estimated construction costs based on the above listed scope of works is shown in the Table 8 below.

Table 8: Phase B - Estimate Construction Costs

Item	Description	Amount (Rand)
1.0	Main Access Road to Plant	R3,000,000.00
2.0	Main access Road Bridge	R4,500,000.00
3.0	Internal Road to Sludge Drying Beds	R1,800,000.00
4.0	Bridge to Sludge drying Beds	R5,250,000.00
5.0	Engineered Platform Fill (Erosion) – Retaining Walls etc.	R7,500,000.00
6.0	Stormwater Management Infrastructure	R2,000,000.00
7.0	Staff Welfare Facility Building & Security building	R750,000.00
8.0	Dewatering Plant Building and Equipment	R3,750,000.00
9.0	Internal Road to Head of Works	R4,000,000.00
10.0	Construction of Levee Along Riverbank	R2,500,000.00
11.0	Refurbishment of Pipelines (Head of Works, PSTs, Biofilter, Humus Tanks and MSL P/S)	R1,500,000.00
12.0	Refurbishment of Sand Filters and Chlorination Chamber	R7,000,000.00
13.0	Replacement of Pipeline from SNL P/S	R1,200,000.00
14.0	Damage to Inlet Channel, PST, and Splitter Box	R9,000,000.00
15.0	Refurbishment of Mechanical Equipment – West Plant	R3,360,000.00
17.0	Refurbishment of Mechanical Equipment – East Plant	R6,560,000.00
18.0	Refurbishment of Electrical Equipment	R455,000.00
19.0	Refurbishment of Digester System	R1,500,000.00
20.0	Provision for Upgrade to the Wastewater Treatment Capacity & Critical Components – East Plant	R45,000,000.00
21.0	Provision for Upgrade to the Wastewater Treatment Capacity & Critical Components – West Plant	R21,500,000.00
	Subtotal A	**R132,125,000.00**
	Add 10% Contingencies	R13,212,500.00
	Sub-total B	**R145,337,500.00**
	Escalation @ 6%	R8,720,250.00
	Sub-total C	**R154,057,750.00**
	Add VAT @ 15%	R23,108,662.50
	Grand Total Budget	**R177,166,412.50**

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A total of **R177,166,412.50 (Incl. VAT)** is required to implement the full scope of works linked to the Flood Damage, Rehabilitation, Refurbishment and Upgrade of the Umbilo wastewater Treatment Works.

15.2 Professional Fee Estimates

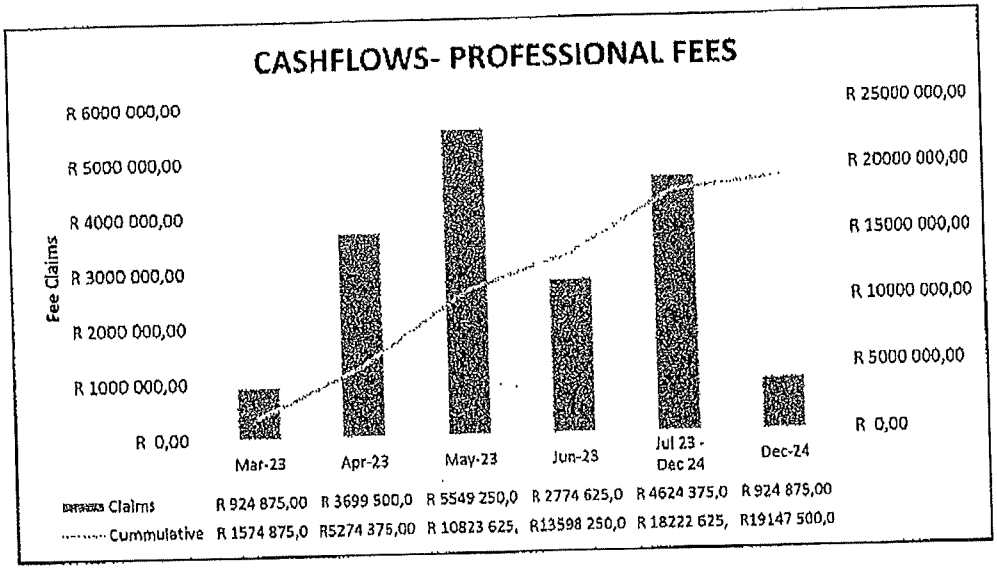
The professional fees for the works are based on ECSA gazetted fees in line with prevailing market conditions.

Table 9: Professional fees based on estimated construction costs

Estimated Construction Cost (Excl. VAT)			R132 125 000,00	
PROFESSIONAL FEES @ 14% of Estimated Construction Value + Additional Services			R 18 497 500,00	
Project Stages	Percentages	Months	Claims	Cummulative
Environmental Assessment			R 650 000,00	R 650 000,00
Geotechnical Investigations			R 150 000,00	R 800 000,00
Occupational Health and Safety			R 1 100 000,00	R 1 900 000,00
Stage1-Inception	5%	Mar-23	R 924 875,00	R 1 574 875,00
Stage2-Concept, Preliminary Design	20%	Apr-23	R 3 699 500,00	R5 274 375,00
Stage3- Detailed Design	30%	May-23	R 5 549 250,00	R 10 823 625,00
Stage4- Tender Document, Procurement	15%	Jun-23	R 2 774 625,00	R13 598 250,00
Stage5-Construction, Installation, Commission	25%	Jul 23 - Dec 24	R 4 624 375,00	R 18 222 625,00
Stage6-Close Out and Handover	5%	Dec-24	R 924 875,00	R19 147 500,00
TOTAL FOR PROFESSIONAL FEES	100%		R 18 497 500,00	

Cashflow Projections for Professional Fees

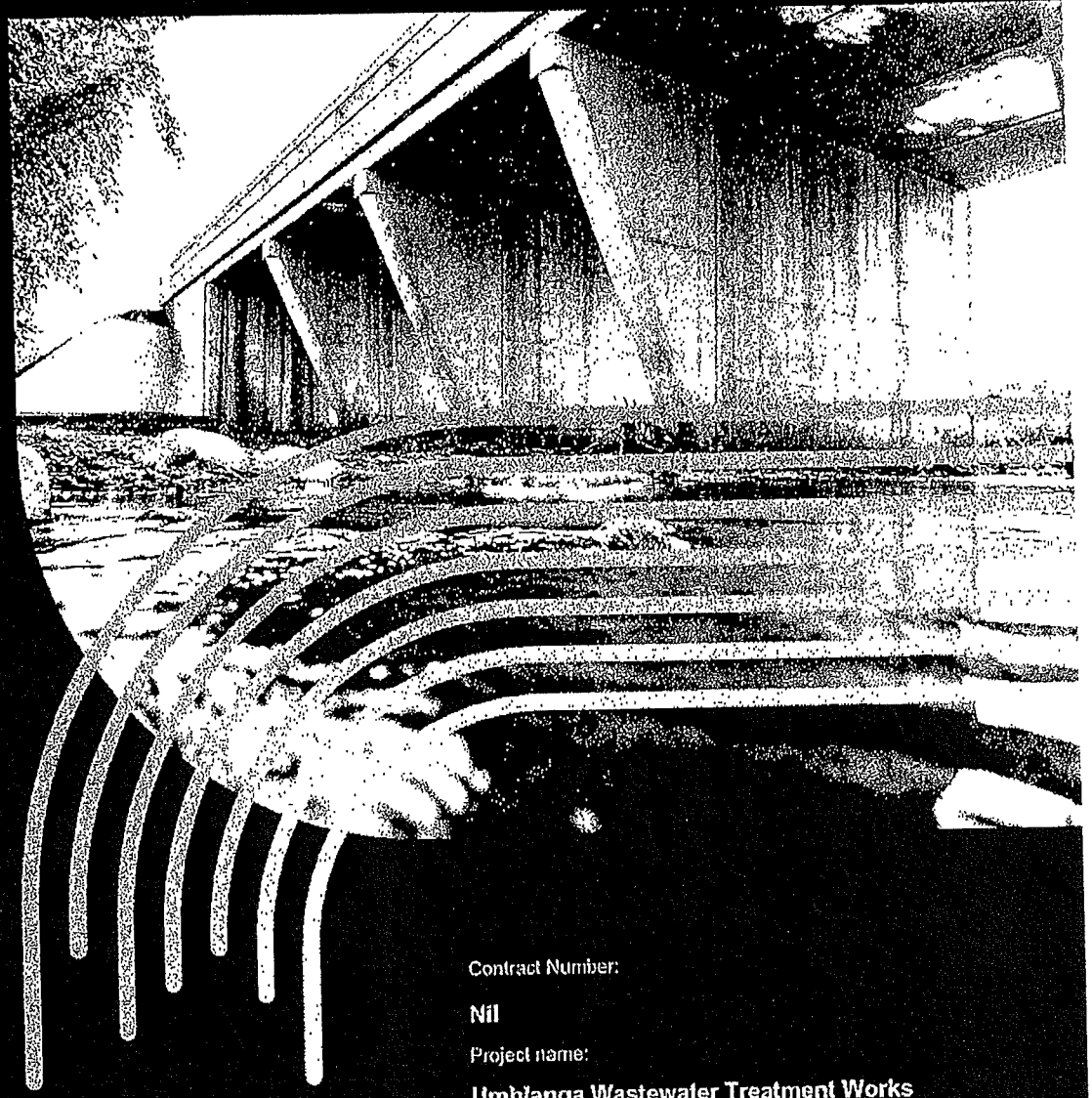
The typical cashflows for the professional fees are shown in the figure below.



16 Conclusion

This report gives a detailed outline of the proposals for the work to be carried out under the project titled Flood Damage Rehabilitation, Refurbishment and Upgrade of the Umbilo Wastewater Treatment Works.

We trust this report is in line with your requirements and we look forward to your consent to proceed to the next stage, being the Concept and Detailed Design and the presentation of the various alternatives.



NAIDU
CONSULTING
ENGINEERING DEVELOPMENT

Contract Number:

Nil

Project name:

Umhlanga Wastewater Treatment Works

Client

eThekwini Water and Sanitation Unit

Report Title

Preliminary Site Inspection Report

Document Status	Date
Revision 0	**03/04/2023**

ETHEKWINI MUNICIPALITY

	Integrated Management System		
	Document Review Sheet		
Approved by	*Document Last Reviewed*	*Document Version*	*Document Number*
M. Manicum	25 March 2022	04	*IMS-FO- Document Review Sheet*

Client Name	eThekwini Water and Sanitation Unit
Client Contract No.	Nil
Project Title	Umhlanga Wastewater Treatment Works
NC Project Number	D513
NC Document Title	Preliminary Site Inspection Report
NC Document Reference No.	D513-01-0
NC Electronic File Reference	N/A

Rev	Date	Issued to	Prepared by	Approved by	Sector
Revision 0	03/04/2023	S Mishali	Devesh Ramghulam	Terence Thumbaya	

Approved for Naidu Consulting (Pty) Ltd by:

Mr Terence Thumbaya (Pr Eng)

Functional Manager

Email:
Terence.Thumbaya@Naiduconsulting.com

03 April 2023

Date

	Integrated Management System		
	Document Control Sheet		
Approved by	*Document Last Reviewed*	*Document Version*	*Document Number*
M. Manicum	25 March 2022	00	*IMS-REG- Document Control Sheet*

Client Name	eThekwini Water and Sanitation Unit
Client Contract No.	Nil
Project Title	Umhlanga Wastewater Treatment Works
NC Project Number	D513
NC Document Title	Preliminary Site Inspection Report

Rev No.	Date	Prepared By	Approved By	Issued To	Comments
0	03/04/2023	Devesh Ramghulam	Ashveer Goorun	S. Mishall	For information purposes only

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

UWWTW	-	Umhlanga Wastewater Treatment Works
NC	-	Naidu Consulting (Pty) Ltd
EWS	-	eThekwini Water & Sanitation
RAS	-	Return Activated Sludge
WAS	-	Waste Activated Sludge
MCC	-	Motor Control Center

1 TERMS OF REFERENCE

1.1 Introduction

Naidu Consulting (Pty) Ltd were approached by Ethekwini Municpality to provide Professional Services for the restoration of the Umhlanga Main Gate Wastewater Treatment Works, herein referred to as the Umhlanga Wastewater Treatment Works (UWWTW).

1.2 Purpose of the report

This report is drafted for the following purpose:

- To collate information gathered on the damage inflicted to the Umhlanga Wastewater Treatment Works (UWWTW) from a site visit on the 19/04/2022.
- Identify critical items to assist EWS with decision making on the remedial works & extent of damage.
- It is noted that access is available to the site.

2 FLOOD DAMAGE

Umhlanga WWTW prior to the April floods

Umhlanga WWTW post the April floods

3 SITE ASSESSMENT

3.1 Access to Umhlanga WWTW

Status: Access road damaged by floods, vehicles can access the site however vehicular access is limited.

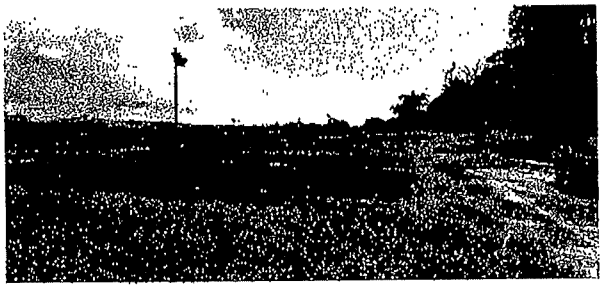
Remedial action: Road to be repaired and reinstated at minimum to a gravel road standard to ensure the site can be easily accessed by all EWS staff. Applicable v-drains to be installed along the road to prevent future damage to the layerworks.

3.2 Administration Building

Status: Minimal flood damages

Remedial action: General maintenance required, i.e. lighting, air-conditioning etc.

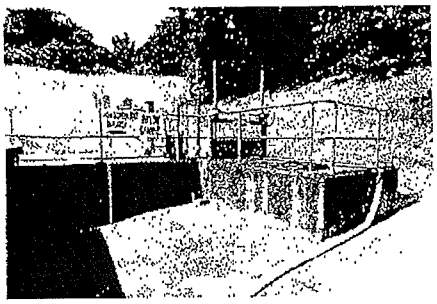
3.3 Overall Site

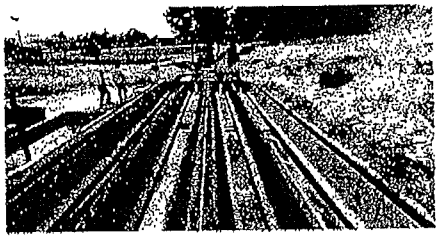


Status: Excessive vegetation growth around the entire site. There appears to have been no major erosion damages due to the floods on the site.

Remedial action: Clearance and trimming of all vegetation to enable safe access to each process element and identify any additional flood related damages. Interconnecting pipework below ground should remain unaffected however will require inspection considering the settlement of structures on site (i.e clarifier).

3.4 Head of Works Channel

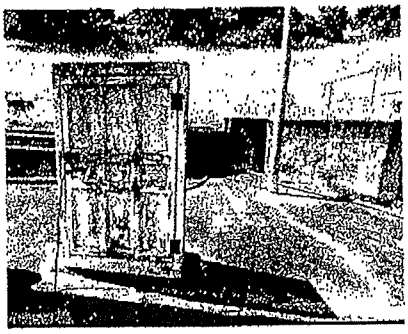




Status: HOW channel is structurally intact, no further structural repair required.

Remedial action: Consideration be given to include an overflow weir to discharge sewer towards the Phoenix WWTW during peak wet weather flows exceeding the current design capacity. Cracks identified along channel it is recommended that these are repaired, and the channel be water tightness tested.

3.5 De-gritter



Status: Electrical supply panel and remote stop/start panel submerged during flood. Damage to panels are evident.

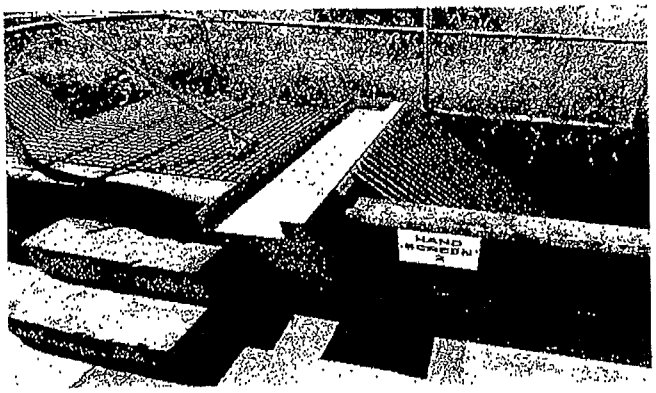
Remedial action: Considering the condition of the panels it is recommended these be replaced with panels suitable for outdoor usage. The cabling is to be assessed and repaired/replaced.

3.6 De-gritter sump pump

Status: Pump submerged, unable to assess.

Remedial action: Pump to be assessed by specialist and applicable repairs undertaken. Pump to be repaired if unsuitable.

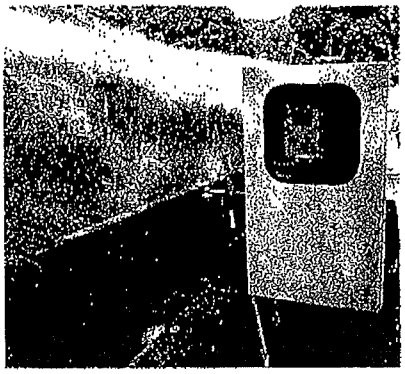
3.7 Head of Works Screens



Status: Manual screens are in an acceptable condition and unaffected by the flood.

Remedial action: Consideration be given to the use of mechanical screens for ease of operation.

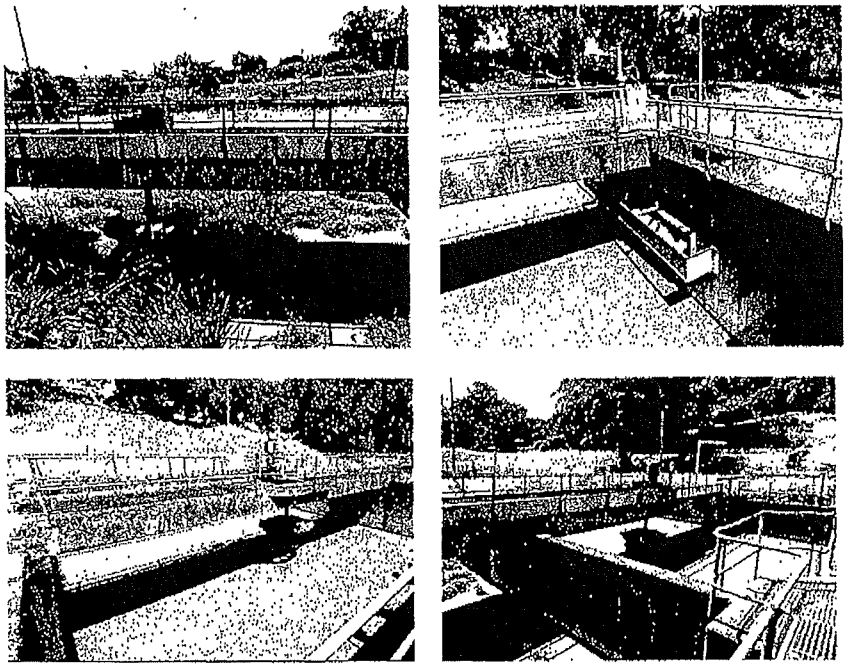
3.8 Inlet Metering



Status: Ultrasonic meter sensor and panel damaged during the floods.

Remedial action: Meter and panel to be assessed and repaired/refurbished.

3.9 Aerators



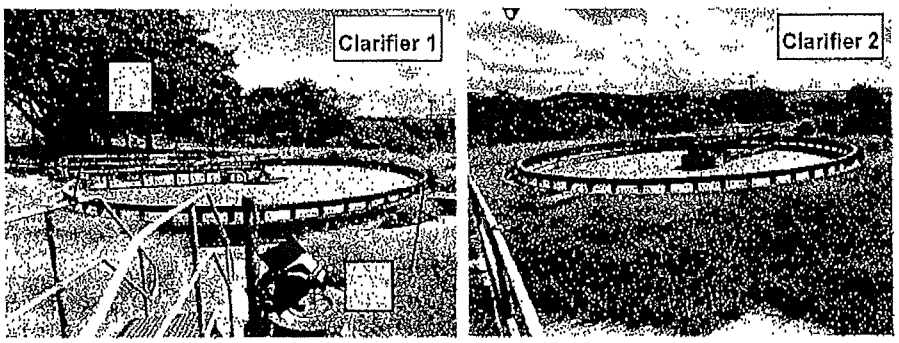
Status: Prior to the flood multiple aerators were damaged and rendered inoperable. The plant requires 2 lanes of aerators (6 no. aerators) operational in order to treat effluent. Currently the aerators require substantial refurbishment prior to recommissioning.

Remedial action: The following is to be actioned with the aerators:

- Motor base plates require structural refurbishment.
- Motors are to be assessed and repaired accordingly.

- It is recommended that all aerators be recommissioned. Additional motors to be purchased to cater for this.
- Aerator impellers, mechanical seals, housing to be refurbished due to damage whilst the plant is decommissioned. Replacement costs and timeframes to be compared against repair costs to determine preferred route.
- Overflow weirs to be repaired and reinstated.
- Concrete surface repairs to aeration basin.
- Vegetation and sludge removal required per basin.
- All gratings and handrails are in an acceptable condition however it is recommended that they are repaired/reset where necessary.
- Motor lead time to be assessed and confirmed prior to decisions on replacement of equipment.
- Repairs required to all sluice gate valves.
- Interconnecting pipework to/from aerators to be assessed for any damages through camera inspections if required.

3.10 Clarifiers



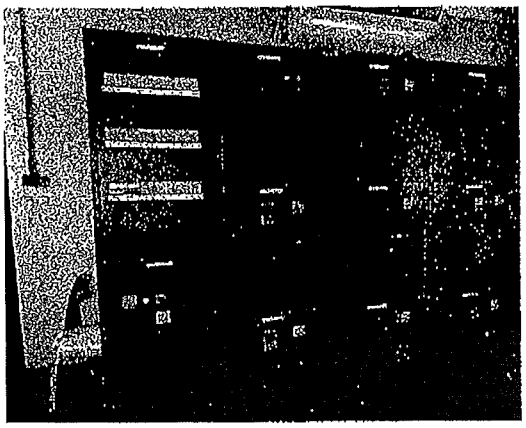
Status: Clarifier 2 is in an acceptable condition. Clarifier 1 appears to have settled as per the reference points in the image above. The existing travelling bridges require repairs as this was not operational prior to the flood.

Remedial action: The following is to be actioned with the clarifiers:

- Clarifiers to be drained and de-sludged for further assessment. However, this is to be co-ordinated to ensure the prevention of further damage to the clarifier considering the groundwater table.
- Travelling bridges to be refurbished and reinstated.
- Clarifier 1 has settled and is of concern.
    - Structural assessment is required on the clarifier.
    - Damage to ancillary structures to be assessed (pipework, chambers etc)
    - Structural remedial works to prop structure to original level or additional works to ensure hydraulics of v-notch weirs are unaffected. To be confirmed once detailed inspections completed.
- Clarifier 2 requires structural repairs to existing cracks formed.
- Water tightness testing of structure.

- Interconnecting pipework to be assessed and repaired/replaced where necessary.

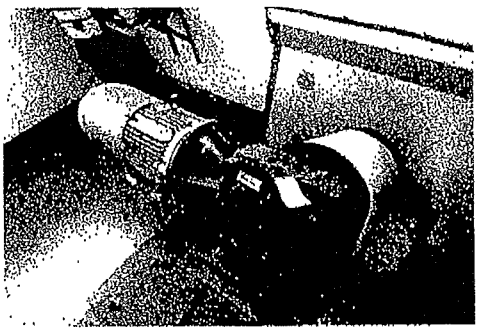
3.11 Motor Control Center

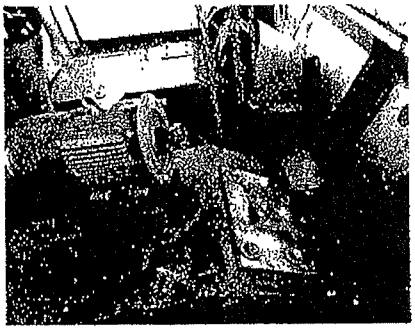


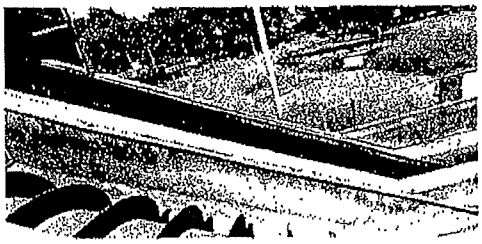
Status: MCC panel is currently operational. Should new motors be required for the aerators the cabling/wiring requirements are to be confirmed against the existing MCC.

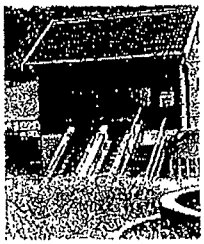
Remedial action: Suitability of MCC to be confirmed once the mechanical pumping equipment has been confirmed. EWS operations have requested that consideration be given to the inclusion of variable speed drives for the aerators. Considering the decommissioned plant any replacements/upgrades to the MCC panel can be completed whilst the system is decommissioned. New air-conditioning unit required for the MCC room.

3.12 Return Activated Sludge System





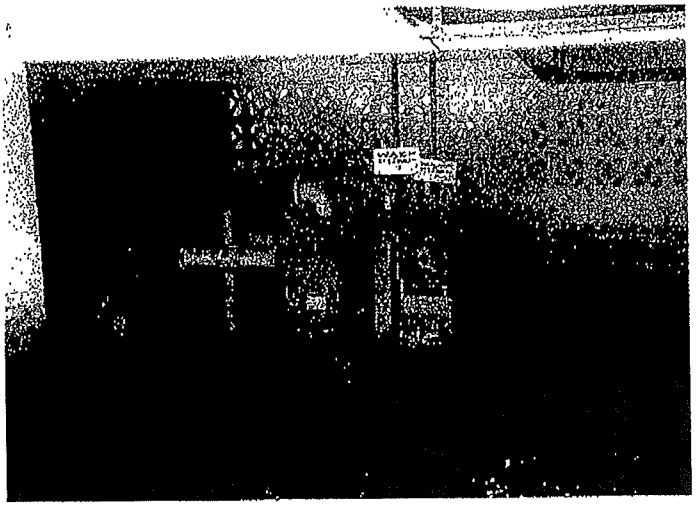




Status: 1 out of the 2 RAS screw press is operational. The second RAS system is currently decommissioned.

Remedial action: The motor and screw press are to be conditionally assessed for RAS 1 and repaired/refurbished. A spare motor is available for RAS 2 however the system is to be assessed and repaired prior to reconnection. Screws appear to be in good working condition.

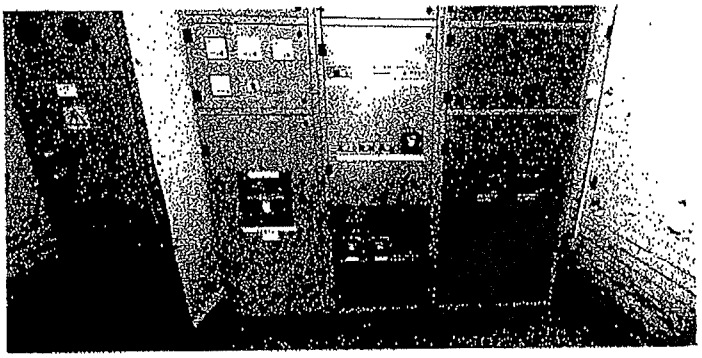
3.13 Waste Activated Sludge



Status: The existing system was partially submerged during the floods (evident by flood line indicated on wall). The existing belt driven pump is to be assessed and repaired/refurbished. The motor may require replacement considering the submergence.

Remedial action: Repairs to the existing pumps and replacement of motors (to be confirmed by a specialist). Base plate, pipework and valves to be assessed and repaired where required.

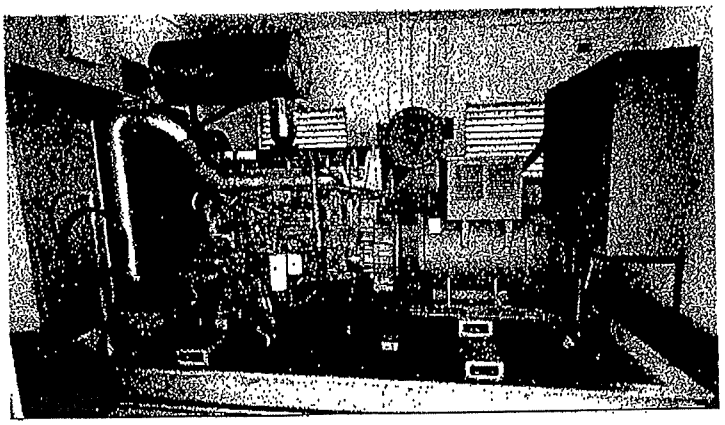
3.14 Electrical Main Incomer/Switch



Status: Building was flooded by approximately 0.5m which included the submergence of the electrical panels.

Remedial action: Panels to be assessed to confirm extent of damage and applicable refurbishment activities.

3.15 Generator



Status: Generator is currently not operational. This was not operational prior to the floods however is a critical component of the works during power outages. As confirmed by EWS the generator powers the entire plant excluding the administration building.

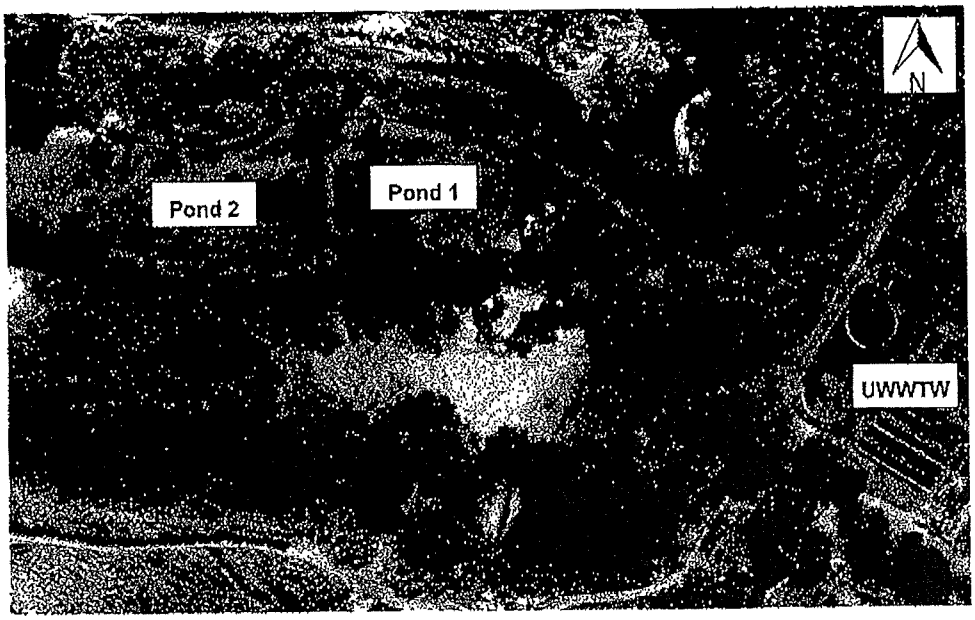
Remedial action: Generator to be refurbished, repaired and recommissioned.

3.16 Chlorination

Status: Chlorine equipment is operational however refurbishment and maintenance of the dosing equipment is recommended considering the existing condition.

Remedial action: Refurbishment and maintenance of the dosing equipment. The existing chlorine contact tank was inaccessible during the site visit, this is to be further assessed and recommissioned as this is not operational. Consideration be given to electronic scales for chlorine cylinders.

3.17 Ponds



Status: The existing ponds were substantially damaged as per the image above. The ponds were inaccessible during the inspection however google earth imagery was used to assess the damage.

Remedial action: The following will be required:

- Clearance of vegetation to enable access to the existing ponds
- Reinstatement of interconnecting pipework.
- Reinstatement of pond layerworks and liner.
- Construction of applicable future flood prevention measures (if necessary).
- Assessment of pond hydraulics/discharge structures (if necessary).

3.18 Instrumentation

Status: Possible damage to flow meters, level sensors, telemetry equipment and cabling due to possible submergence in water. To be assessed once access is available to the various structures.

Remedial Action: Assess damage to instruments due to possible submergence or water damage.

3.19 External lighting

Status: The external lighting and cabling needs to be accessed to check if it is not damaged and is still operational.

Remedial Action: Repair/Replace lighting

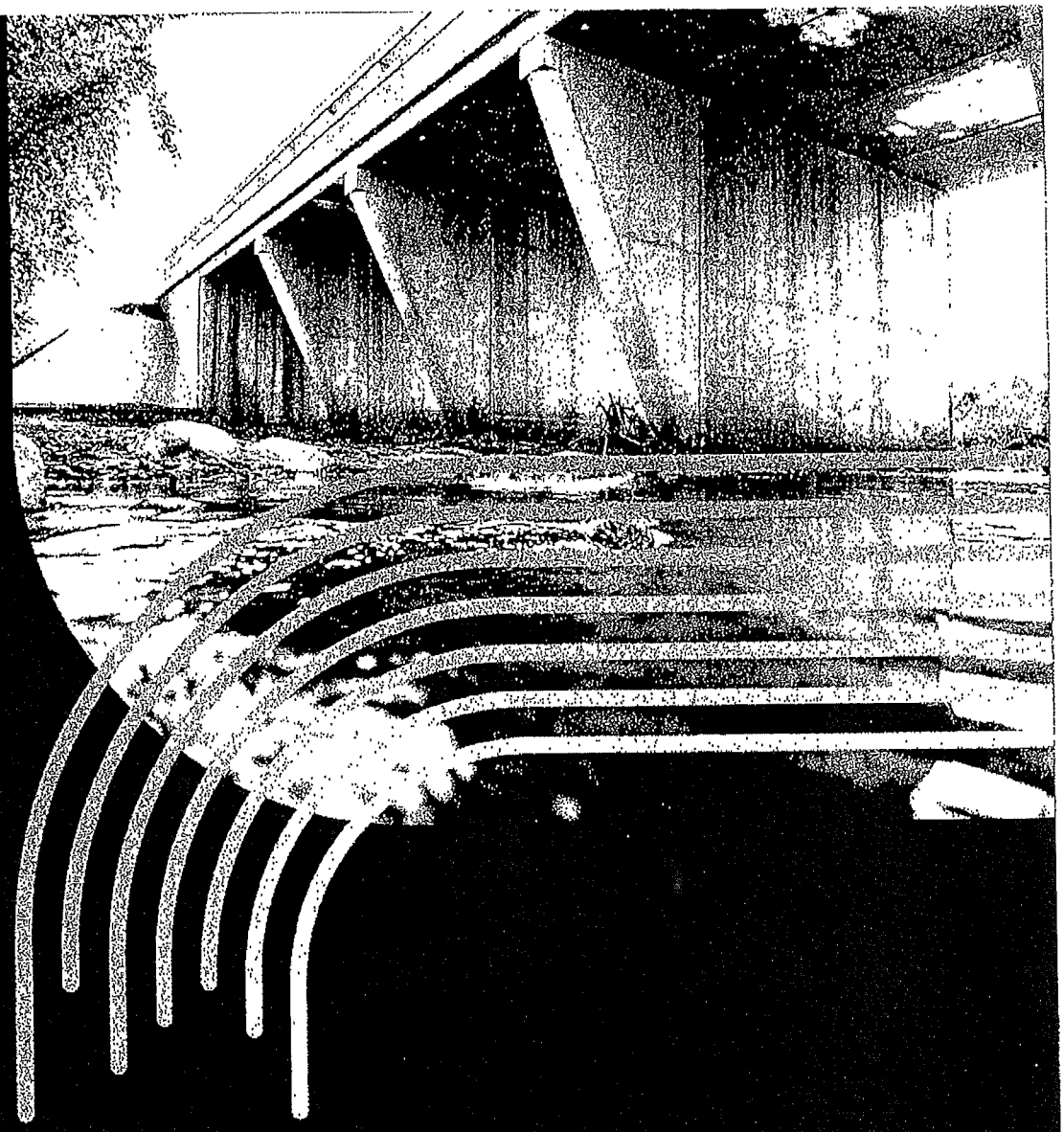
4. CONCLUSION

Based on the site inspection it can be noted that the existing UWWTW can be restored, the following items form the critical path for this project:

- Reinstatement of aerators specifically related to repairs, replacements to mechanical equipment.
- Reinstatement/recommissioning of clarifier 1 including applicable structural repairs.
- Recommissioning/repairs to the chlorine contact tank.
- Repairs to WAS and RAS systems.
- Repairs to all interconnecting pipework.
- Repair/reinstatement of ponds.
- Reinstatement of all Control & Instrumentation equipment.

It is recommended that Naidu Consulting be appointed to undertake the professional services for the above-mentioned works to ensure the urgent recommissioning of the UWWTW.

It is noted that all recommendations provided were based on minimal as built/design information and purely based on visual assessments. The purpose of this report is to provide EWS with the status quo of the UWWTW and post award Naidu Consulting will undertake a detailed inspection to conclude on the way forward to restore the plant.



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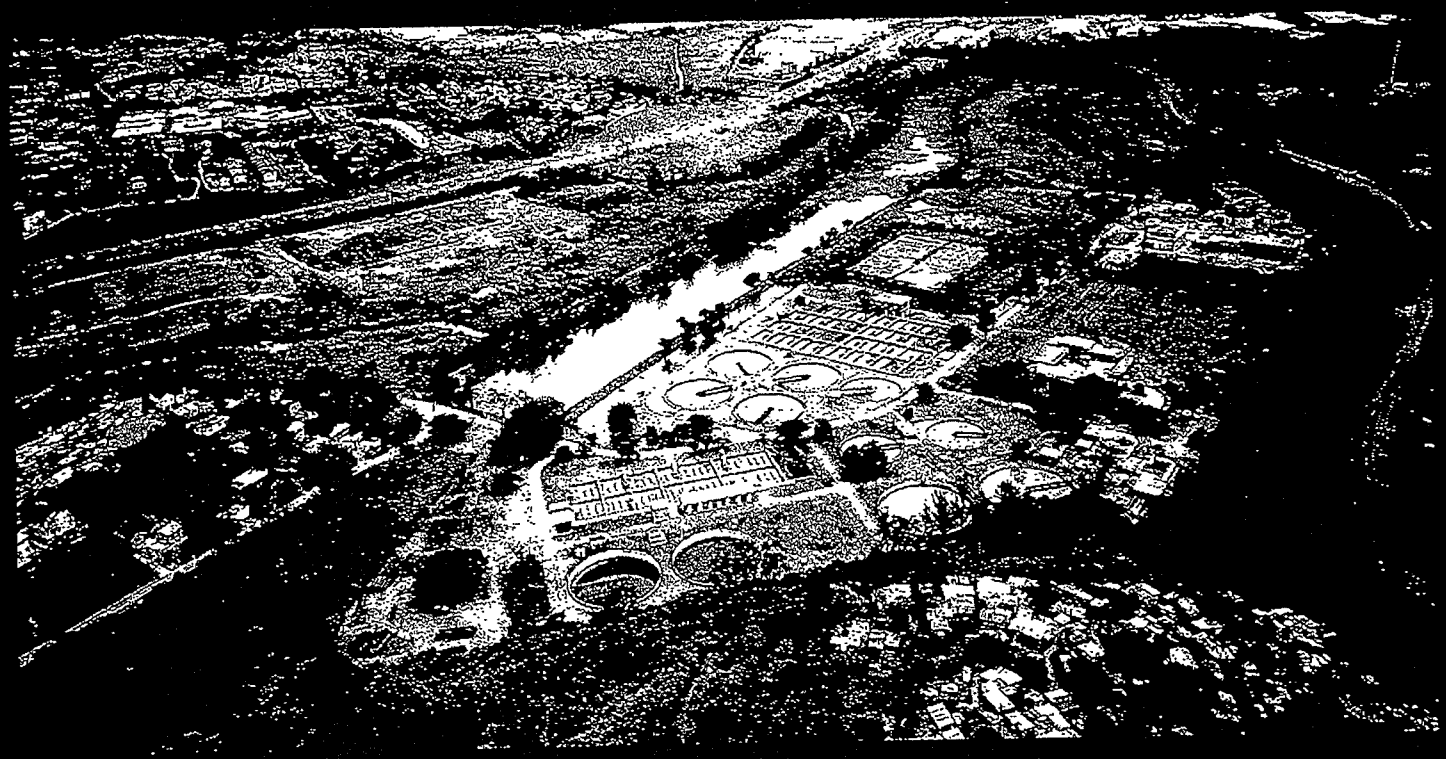
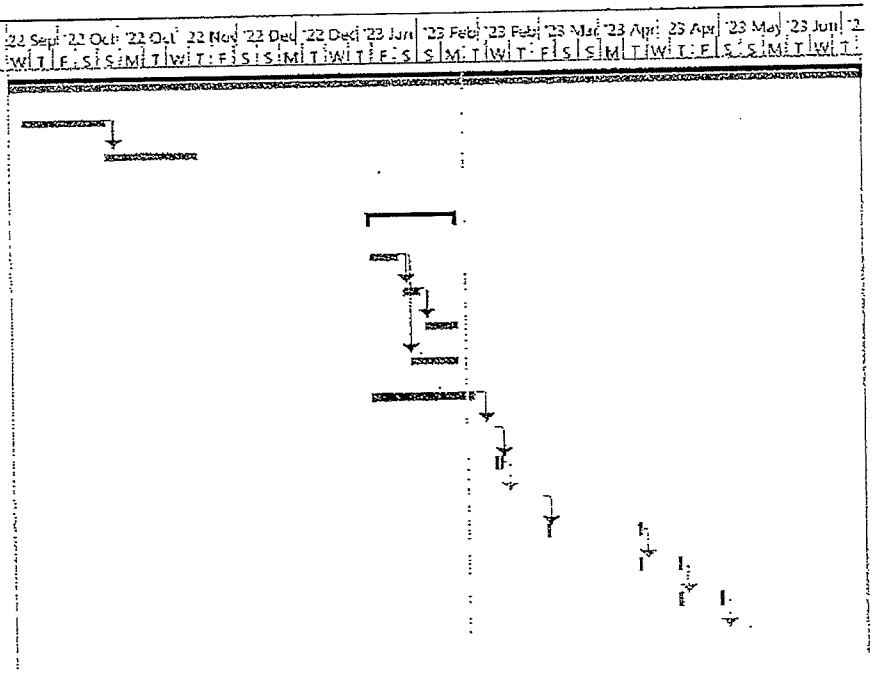


2023/02/27

INVESTIGATION, DESIGN AND SUPERVISION FOR THE NORTHERN WWTW AND CATCHMENT PROJECT – ETHEKWINI WATER AND SANITATION

1. PROGRESS TO DATE

	Task Mode	Task Name	Duration	Start	Finish	% Complete
1		**NWWTW and Catchment**	**199 days**	**Wed 22/09/14**	**Fri 23/07/07**	59%
2		Stage 2 Report	21 days	Mon 22/09/19	Mon 22/10/17	100%
3		Stage 3 Report	24 days	Tue 22/10/18	Fri 22/11/18	100%
4		**The gap in program is made**				0%
5		**Scoping Document**	**22 days?**	**Wed 23/01/18**	**Thu 23/02/16**	100%
6		Review of Information	8 days?	Wed 23/01/18	Fri 23/01/27	100%
7		Site Assessments with	5 days	Mon 23/01/30	Fri 23/02/03	100%
8		Preparation of Scoping	9 days	Mon 23/02/06	Thu 23/02/16	100%
9		NWWTW Detail BOQ	12 days	Wed 23/02/01	Thu 23/02/16	100%
10		NWWTW Tender Document	27 days	Wed 23/01/18	Thu 23/02/23	95%
11		Feedback and Review from	4 days	Fri 23/02/24	Wed 23/03/01	0%
12		Final Tender Document	2 days	Thu 23/03/02	Fri 23/03/03	0%
13		eThekwini Committee	10 days	Mon 23/03/06	Fri 23/03/17	0%
14		Tendering Period	24 days	Mon 23/03/20	Thu 23/04/20	0%
15		Tender Adjudication	10 days	Fri 23/04/21	Thu 23/05/04	0%
16		Tender Award	10 days	Fri 23/05/05	Thu 23/05/18	0%
17		Stage 4 Report	35 days	Fri 23/05/19	Thu 23/07/06	0%



Slide 2

JR1 Jashree RAJGOPAL 2023/02/20

2. SUMMARY OF WORKS

- Stage 3 report has been completed and submitted in December 2022.
- Draft tender document was submitted to the client in December 2022, this document had to then be revised upon meeting with the eThekwini technical team as Information and documentation was made available in January 2023.
- The scoping report as well as the final BOQ was submitted on the 16th and 17th February respectively.
- The final tender document will be submitted on the 23rd February 2023.

- 8 pumpstations have been investigated.
- SMEC had completed Stage 1 reports for the 8 pumpstations and has also compiled draft Stage 2 reports for the pumpstation.
- Technical Drawings and Specifications are required for completion of the Stage 2 reports.
- **Information of Pumpstation has not been forthcoming from Municipal employees.**
- Information on pipe work damaged is required to avoid investigation delays.

2. SUMMARY OF WORKS

The following are key points for the NWWTW:

1. The final scoping document requires comments from EWS and will then be signed off by both the client and the consultant and will act as the baseline for the project. (This is extremely critical as it will form the scope of the tender document)
2. The final BOQ does not include for escalation and the consultants fee, this is calculated as follows:

Construction Value	Consultant Fee	Total (Ex Vat)
R 429 711 036.71	R 60 159 545.14	R 489 870 581.85

3. The tender document submitted on the **24th February 2023** at the request of the client has the following disclaimers:
    - The document submitted will be required to be approved by EWS as this is an official municipal document.
    - The new CPG component will affect the functionality requirements that are currently in the document as under **NEC4:Option F** it is **compulsory for the contractor to provide his entire team upfront.**

2. SUMMARY OF WORKS

Northern Catchment

Pumpstation	Comment
Joyce Road WWPS	• Pump station in operation. Only 1 duty pump installed, new standby pump required. • No screening system visible. • Ventilation system is damaged and needs to be repaired.
Fairways 2 Road WWPS	• Pump station currently offline due to Fairways 1 not pumping sewage. • 1 of the 3 screw pumps require repairs to the gearbox.
Fairways 1 Road WWPS	• Pump station currently out of operation. • All 3 screw pumps require repairs to the gearbox. • Power supply to the pump station is down, electrical department to be notified.
Umvubu Place WWPS	• Operational Staff advised all in order with just pumps to be repaired that are currently underway. • EWS to confirm if SMEC must inspect this pump station to confirm operational status.
Hippopark Avenue WWPS	• Operational Staff advised all in order with just pumps to be repaired that are currently underway. • EWS to confirm if SMEC must inspect this pump station to confirm operational status.
Island Grove WWPS	• Operational Staff advised all in order with just pumps to be repaired that are currently underway. • EWS to confirm if SMEC must inspect this pump station to confirm operational status.
Kennedy Road WWPS	• Pump station currently out of operation. • 2 of the 3 pumps currently being repaired, with installations expected today. • HVAC systems damaged and offline. No standby generator at the pump station. • MCC panel needs attention, missing soft starters, Miltronic Multi-ranger panels etc.
Riverside Road WWPS	• Pump station in operation. • Only 1 of the 3 pump are working, the 2 line-shaft pumps need to be repaired. • Ventilation systems are damaged and needs repairs. • No standby generator at the pump station. 2no. Miltronic Multi-ranger panels to be replaced. • Telemetry box out of order, needs replacement. • Waterproofing from the roof needs remedial work.

3. WAY FORWARD

- SMEC to provide corrected tender document by the 24th February 2023. The CPG requirements must be provided to SMEC to include in document
- Sign off scoping report to use as the baseline for the NWWTW

- EWS to provide feedback on submitted Stage 2 pumpstation report
- Priorities information on pumpstations from Municipal staff.

"H"

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Tel: +27 (31) 266 8382

01 March 2023

Our Ref: D34843

eThekwini Municipality
PO Box
Durban
4000

ATT: Mr S. Mtshali / Ms G. Mbuyisa

PROJECT: INVESTIGATION, DESIGN AND SUPERVISION FOR THE KWANDENGEZI WWTW AND CATCHMENT (CONTRACT NO: WS7580):
RE: PROGRESS REPORT: MARCH 2023

The inception meeting for the project was held on 14 September 2022. Following the inception meeting, several site inspections have been held at the plant to evaluate the status quo of the plant and to proceed with the design of the required repairs / functional upgrades. These inspections formed the basis of a status quo inspection report, which was shared and discussed with the EWS management team.

In addition to the above, further inspections of the upstream catchment have been performed, and several blockages / washaways etc. within the catchment have been identified which will be included in the scope of the construction contract.

The survey of the site has been completed, and is being used as the basis for preparing quantities for the required flood damage remedial works.

A geotechnical investigation of the site was concluded, and the final report (including for all soil testing of samples) has been submitted to BVI. The geotechnical engineer's recommendations are being used to complete the detail design of the structural and civil component of works.

EWS have provided us with a conceptual design report for the required repair / refurbishment / upgrade works on Monday, 28 November 2022. Two design meetings and a site inspection have been held with the author and EWS's technical team to understand the concept design such that detail designs can be fully developed. The concept design report necessitated that additional geotechnical investigations be required in order to inform the design of these structures. The geotechnical engineer was therefore instructed to return to site perform the necessary additional testing, and this process (which will inform the design of the vortex degrittors and the Sodium Hypochlorite generation facility) will be completed within the coming weeks.

PROJECT: INVESTIGATION, DESIGN AND SUPERVISION FOR THE KWANDENGEZI WWTW AND CATCHMENT (CONTRACT NO: WS7680):
RE: PROGRESS REPORT: MARCH 2023

EWS managed to obtain as-built drawings for the plant in early February, which required some adjustments to the process design.

Detail design drawings have been presented to the various stakeholders for their review and comment, and a meeting will be held shortly to discuss the drawings and revise them according to the comments that are received.

The Tender Data, returnables section and contract data has been submitted to EWS for review, and we are currently progressing with the project specifications (70% complete), amended specifications (70% complete) and Bill of Quantities (20% complete).

The following table presents the estimated progress for the various design components of the works:

Table 1: Overall Progress of Design

Ref	Description	Progress
1	Detail Design of Process Control	90%
2	Detail Design of Stormwater / Erosion Protection at Plant	90%
3	Structural Design of new Structures at Plant	60%
4	Design of Repairs of Catchment Network	95%
5	Preparation of Tender Document	40%

Considering the above, the proposed timeframes for completion of detail design and the completion of the tender document are as follows:

Table 2: Timeframes

Ref	Description	Target Date	Date Achieved
1	Detail Design Drawings	17 Feb 2023	24 Feb 2023
2	Tender Data & Contract Data	17 Feb 2023	24 Feb 2023
3	Project Specifications and Amended Specifications	10 Mar 2023	
3	Tender Bill of Quantities	10 Mar 2023	

Feel free to contact the undersigned should you require any clarification on the above.

Yours Faithfully
For BVi Consulting Engineers

D Govender *Pr Tech Eng, MBA*
Director & Regional Manager

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ETHEKWINI MUNICIPALITY

PROJECT PROGRESS REPORT

PROGRESS REPORT NO.: 3

PROJECT NAME: WS 7578: Umhlotl Storm Damage

PROJECT NUMBER: AFR2309

FOR THE PERIOD: 30 Jan 23 to 13 Feb 23

1. PROJECT OVERVIEW

1.1 PROJECT DESCRIPTION AND EXTENT

The investigation, on site assessment, designs, tender documentation(including bill of quantities, drawings, specifications), contract administration, construction monitoring of the repairs of the storm damage reinstatement of sewer network, pumpstations, wastewater treatment works of the Northern Drainage Catchment consisting of Veralum and Mhloti sewer drainage areas.

1.2 PROGRESS OF THE PROJECT

The project consists of the following stages:

- Stage 1: Inception
- Stage 2: Preliminary Designs
- Stage 3: Detailed Designs
- Stage 4: Tender Documentation
- Stage 5: Contract Administration and Construction Monitoring
- Stage 6: Close Out

We summarise progress as follows:

1.2.1 Northern Sewer Catchment (Veralum Zone 3)

Sewer Pipe Repairs (Pack 1)

Stage 1: Inception/Assessment Stage – 100%
Completed - Refer Assessment Report
All inspections completed, scope confirmed, cost estimate updated

Stage 2: Preliminary Design Stage – 50%
38 pipe sections; 1500m; Survey & Design

Stage 3: Tender & Procurement Stage – 50%
Bill of Quantities and Project Specifications completed
NEC Tender Document

1.2.2 Pump Stations (Pack 2)

Stage 1: Inception/Site Assessments – 100%
Completed – refer Assessment Report

Stage 2: Preliminary Design Stage: - 50%
Canelands 1: Pumps & Elec
Canelands 2: Pumps & Elec
Canelands 3: Pumps & Elec
Wick Street – New Pump Station (Civils + M & E)
Starr Street: Pumps & Elec
Talwant Singh: Pumps & Elec
Hammond Farm: Pump & Elec
Amora: Pump & Elec

Stage 3: Tender Procurement Stage – 10%
BoQ and Specifications completed
NEC Document

1.2.3 Wastewater Treatment Works (WWTW)

Veralum WWTW

Stage 1: Inception/Site Assessments – 100%
Completed – refer Assessment Report

Stage 2: Preliminary Design Stage – 30%
Short Term (Storm Damage Repairs)

- Primary Settling Tanks (PST)'s x 5No: Remove Sand/Sludge/Clean & Repair desludge pipe
- Bioreactor (faulty due sand volume load on scraper)
  Replace Centre Bearing/Motor/Gearbox
- Clarifiers (faulty due sand deposits)
  Replace Centre Bearing/slip ring
- Blower Room: Embankment Reinstatement
  Earthworks, Stabilization & Gabion Protection
- Blower Room: Structural support foundations
  Concrete Underpin
- Perimeter fence repairs
- Sludge Beds:
  5No Rebuild; Remove Sand, reinstate pipework & valves; Structural wall to be rebuilt
- Chlorine Contact: Embankment Repairs

Long Term (Upgrades)

- Y8933: Genazanno Disinfection System Upgrade
- Y8937: Genazanno Dewatering Upgrade
- Sludge Dewatering
- Y9061: Additional Contact Chamber with Scour Facility
- Y9069: Construct Stormwater System
- Y8946: Flow Equalization
- Disinfection Assessment
- Y8893: Modification Upgrade of Head of Works

Stage 3:

Mhloti WWTW

Stage 1: Inception/Site Assessments – 100%
Completed – refer Assessment Report

Stage 2: Preliminary Design Stage – 0%
No work to be completed

Stage 3: Tender & Procurement Stage – 0%
Bill of Quantities and Project Specifications
NEC Tender Document

1.3 ASSESSMENT REPORT

Herewith the Assessment Report summarising the on-site assessments.

1.4 PROGRAMME AND CASH FLOW

Updated Programme and Cash Flow herewith.

"SFA4"

19 Jun

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AG's report paints a grim picture of attempts to repair Tongaat Water Works after deadly KZN floods

Kaveel Singh
news24

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Auditor-General Tsakani Maluleke

PHOTO: GCIS

The Auditor-General's report revealed that the government and eThekwini failed in many aspects of flood relief, months after the disaster in April 2022.

The audit report showed that there was a complete lack of coordination within eThekwini departments as well as the City and the water and sanitation department.

There was also little oversight on work done by contractors and underspending of flood relief funds.

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5 Titanic sub search expands to ocean floor, 'debris field' discovered

Flood relief and repairs continued in a lacklustre fashion in KwaZulu-Natal due to poor coordination between eThekwini's own internal departments and the water and sanitation department.

This was revealed during a presentation by Auditor-General (AG) Tsakane Maluleke to Parliament's Ad Hoc Joint Committee on Flood Disaster Relief and Recovery.

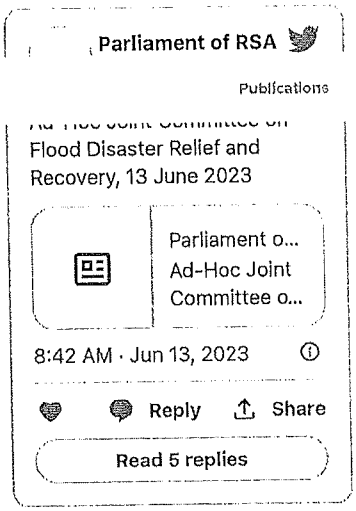
Maluleke was presenting the Municipal Finance Management Act (MFMA) Real-Time Audit Report on the second phase of the flood relief funds allocated to KwaZulu-Natal and the Eastern Cape.

Among many issues, the report focused on water supply, water infrastructure, sanitation, roads and the provision of building materials to beneficiaries whose dwellings were destroyed by the flood disaster in KZN.

More than 450 people were killed during the floods and infrastructure damage ran into the billions in April last year. At the time, there was much criticism of eThekwini and the government in general with their slow response to the disaster.

Maluleke painted a grim picture of eThekwini and the water and sanitation department's attempts to repair and restore the Tongaat Water Works, a key piece of infrastructure catering for around 300 000 people.

"The pace of implementing the project was detrimental to people because they would have had to rely on water tanker services," she said.



Maluleke said one critical delay was a result of poor coordination and cooperation between government departments.

The project, valued at over R36 million, was commissioned in October last year. When the AG visited the site in November last year, they found that while it was operating, it was doing so below the capacity that had been intended.

Lack of coordination

She said it was meant to be providing 14 000 litres per day due to the problems, with bulk supply pipelines to Tongaat South, Mamba Ridge, Belvedere and Emona Reservoirs.

"We found operations and maintenance teams at the metro's water services unit did not assess or repair the pipelines before they restored operations.

"This delayed operational testing and caused further delays in providing water to communities who were without water since April 2022."

ALSO READ | More than 600 KZN flood victims still in limbo, received no assistance from social workers

Maluleke said that as of 11 November 2022, "the site was not operating in the way that it should have been, and you had residents still struggling to get water in the way that they should".

"We also saw a lack of coordination to repair the damaged infrastructure. There was no coordination in making sure it was repaired on time and the waste-water treatment works repair programme installed and commissioned.

"This we saw was as a result of a lack of coordination between the metro and department of water and sanitation."

Ghost beneficiaries

When it came to auditing building materials to flood victims in eThekwini, Maluleke said basic controls of supply of the materials were inadequate.

"Beneficiary lists that were used to source funding contained inaccuracies and also included unapproved beneficiaries. There were some beneficiaries deceased and some who were not on the list, or without valid ID numbers.

"That is a key control that should be in place so the benefit accrues to the people intended and not others."

She said another issue with building materials was that much of it was left exposed to the elements.

"That should not have arisen, because it gets damaged and cannot be used to good effect."

After the flooding, the community of Tongaat launched one of its biggest protests, displaying a

show of force against Mayor Mxolisi Kaunda's poor administration.

Despite outrage, the community continues to complain about the city's poor communication and its lack of action.

READ MORE ON:

ETHEKWINI MUNICIPALITY TSAKANE MALULEKE DURBAN KWAZULU-NATAL SERVICE DELIVERY FLOODS WATER

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NATIONAL

eThekwini seeks R2bn from Ramaphosa's office to fix infrastructure

The fund is in addition to the R1.5bn allocated to eThekwini after severe damage from floods in 2022

BL PREMIUM

15 MAY 2023 · 16:24 *by* THANDO MAEKO

The ANC in KwaZulu-Natal wants R2bn from the Investment and Infrastructure Office, which is housed in the presidency, to fund its provincial government's programme to fix the city of eThekwini's dilapidated infrastructure.

The request for funds comes as the ANC's national officials, led by President Cyril Ramaphosa, are in the province after the announcement of a section 154 intervention by the national government in the metro that is co-governed with other parties, including the EFF. ..

KWAZULU-NATAL PROVINCE
ECONOMIC DEVELOPMENT, TOURISM
AND ENVIRONMENTAL AFFAIRS
REPUBLIC OF SOUTH AFRICA

CHIEF DIRECTORATE: ENVIROMENTAL MANAGEMENT

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Enquiries: Mr. Sabelo Ngcobo
Reference : DM/S30A/0003/2022

eThekwini Municipality: City Manager
PO Box 1014
DURBAN
4000

Attention: Musa Mbhele (Acting) Email: metroceo@durban.gov.za

cc:

Line departments within the Municipality	Contact Person	Contact Details
eThekwini Municipality: Water and Sanitation (EWS)	Ednick Msweli	Ednick.Msweli@durban.gov.za
eThekwini Municipality: Coastal Stormwater and Catchment Management (CSCM)	Randeer Kasserchun	Randeer.Kasserchun@durban.gov.za
eThekwini Municipality: Roads	Thandanani Zulu	Thandanani.Zulu@durban.gov.za
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eThekwini Municipality: Development Planning, Environment and Management	Lihle Phewa	Lihle.Phewa@durban.gov.za

Dear Sir/Madam

DIRECTIVE IN TERMS OF SECTION 30A(1) AND (3) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT NO 107 OF 1998: EMERGENCY AUTHORISATION FOR THE ACTIVITIES REQUIRED FOR THE RESPONSE TO THE PROVINCIAL DISASTER DECLARED UNDER GN R2013 OF 13 APRIL 2022: SEVERE WEATHER EVENTS WITHIN KWAZULU-NATAL

INTRODUCTION

1. The severe weather events and associated flooding and damage caused to infrastructure within the Province of KwaZulu-Natal on or about the 11th April 2022; and, the declaration of a Provincial Disaster in terms of section 23 of the Disaster Management Act (Act No. 57 of 2002) published within Government Gazette No. R2013 of 13 April 2022, refer.

2. It is common cause that the severe weather events and associated flooding has created widespread and substantive damage to infrastructure, properties and services; has cost the lives of hundreds of people; and, disrupted the economy and impacted the well-being of many communities within KwaZulu-Natal.

3. Urgent actions and activities to protect lives, property and the environment are necessary to respond effectively to the disaster. Many of these activities that will need to be undertaken, are activities that are listed in the relevant environmental legislation as activities that require the issuing of an environmental authorisation by the Department of Economic Development Tourism and Economic Development (hereafter referred to as the "Department"), prior to these activities commencing.

4. In terms of section 30A of the National Environmental Management Act (Act No. 107 of 1998) (hereafter referred to as "NEMA"), the Department has the authority to, on its own initiative, direct a person to carry out listed or specified activities, without obtaining an environmental authorisation, in order to prevent or contain an emergency situation or to prevent, contain or mitigate the effects of the emergency situation.

5. Section 30A (1) of NEMA states that "*The competent authority may on its own initiative or on written or oral request from a person, direct a person to verbally or in writing to carry out a listed or specified activity, without obtaining an environmental authorisation contemplated in section 24(2)(a) or (b), in order to prevent or contain an emergency situation or to prevent, contain or mitigate the effects of the emergency situation*".

6. Section 30A(7) of NEMA defines and an emergency situation as follows: *"Emergency situation means a situation that has arisen suddenly the poses an imminent and serious threat to the environment, human life or property, including a "disaster"" as defined in section 1 of the Disaster Management Act, 2002, but does not include an incident in section 30 of this Act (NEMA)"*.

7. Provincial infrastructure and services must and should be repaired, replaced and restored as a matter of extreme urgency. It is therefore considered essential to undertake these activities without undue delay. It is also however necessary to ensure that these activities are undertaken lawfully and with due consideration of the environmental management obligations provided for within NEMA.

DECISION

8. Taking into account all relevant factors, the Department hereby issues you a Directive on its own initiative and in terms of section 30A(1) and (3) of the NEMA; and, accordingly waives the requirement to obtain Environmental Authorisation in terms of the NEMA for activities directly related to the repair, replacement and/or restoration of infrastructure and essential services damaged in the flood event of April 2022 in KwaZulu-Natal, specifically related to roads; causeways; culverts; bridges; storm water structures; sewer and water pipelines; electricity supplies; telecommunication infrastructure; and, essential social facilities such as schools and clinics, which may be required by the response to the provincial disaster declared under GN R2013 of 13 April 2022: Severe weather events within KwaZulu-Natal.

9. The repair, replacement and/or restoration of infrastructure and essential services may trigger one or more of the identified activities listed in **Annexure A** of this Directive, as defined and described in the EIA regulations, 2014 (as amended).

10. The Directive is not applicable situations whereby the Department has approved a Maintenance Management Plan/s (MMP) for the maintenance and repairs to the infrastructure. Such repair work must be undertaken in accordance with such approved MMP.

KEY DECISION FACTORS

11. The Department is satisfied that the current situation meets the requirements of the definition of an *emergency situation* as defined in Section 30A(7) of the NEMA, read together with the Disaster Management Act.

12. The Department is empowered to pro-actively direct measures necessary to protect human lives; safeguard the health and well-being of communities; prevent, contain or mitigate the effects of an emergency situation; and, to promote sound environmental management and mitigate impacts on people and the environment.

13. In accordance with section 15(2)(a) of the Disaster Management Act and the declaration of a Provincial Disaster, the Department is required to implement contingency arrangements and ensure that measures are put in place to ensure the effects of the disaster are effectively dealt with.

14. The consequences of not issuing a Directive in terms of section 30A of the NEMA would result in unacceptable impacts on lives, communities and the environment. Delays in considering and processing applications for environmental authorisation made in the normal course of events would create greater

impacts on both people and the environment, and would erode the environmental rights contained within NEMA.

15. The section 30A Directive has been crafted to allow for speedy responses to the emergency situation, while still ensuring that measures are in place to avoid, mitigate and manage environmental impacts, and ensure effective compliance monitoring during implementation.

DIRECTIVE

16. In terms of Section 30A(1) and (3) the Department hereby directs that Mr Musa Mbhele undertake the listed activities necessary for projects that have been Registered with the Department, and required to repair, replace and/or restore infrastructure and essential services damaged in the flood event of April 2022 in KwaZulu-Natal, specifically related to roads; causeways; culverts; bridges; storm water structures; sewer and water pipelines; electricity supplies; telecommunication infrastructure; and, essential social facilities such as schools and clinics, within the Province of KwaZulu-Natal;; and, directs that such works must be undertaken in accordance with the following conditions:

NOTIFICATION AND REGISTRATION OF PROJECTS

17. The provisions of this Directive are only applicable to projects for the repair, replacement and/or restoration of infrastructure and essential services damaged in the flood event of April 2022 in KwaZulu-Natal, specifically related to roads; causeways; culverts; bridges; storm water structures; sewer and water pipelines; electricity supplies; telecommunication infrastructure; and, essential social facilities such as schools and clinics, within the Province of KwaZulu-Natal; and, **that have been Registered with the Department**, prior to any construction commencing.

18. A proponent must submit to the Department the **Registration Form** as set out in **Annexure E**, and this form must be accompanied by the following information–
    - 18.1. a locality plan and infrastructure design diagrams;
    - 18.2. geographic coordinates of where the work will be undertaken (inclusive to construction camp, lay down areas, stockpile sites, etc);
    - 18.3. photographs of the site;
    - 18.4. Google earth images depicting the working area/s;
    - 18.5. an indication as to whether the work will constitute redevelopment of existing infrastructure in terms of footprint and/or capacity, or would require an expansion or relocation of infrastructure;
    - 18.6. the time by when the activities are intended to commence;
    - 18.7. the time by when the development phase is expected to be concluded;
    - 18.8. the time by when post development rehabilitation and monitoring will be concluded; and,
    - 18.9. any other relevant information that may be considered by the Department.

19. **Requests to Register a project in terms of this Directive must be submitted to the relevant Impact Assessment component of the Department in the District office where the specific project is to be undertaken.** The names and contact details of the Department's Impact Assessment component in the relevant District Offices are provided in **Annexure C** to this Directive. Electronic copies of the Registration Form may be requested from these officials.

20. The Department will acknowledge receipt of the application to register; decide on the application to register the project, with due consideration of the urgency required; and, issue a registration number to the proponent.

21. If the Department is not satisfied with the information provided; or, if the project does not meet the definition of an emergency situation; or, the project does not meet the requirements of this Directive, the Department retains the right to reject the application for registration and/or request further information as deemed necessary.

22. The proponent may only commence with any of the listed activities identified in Annexure A, at a site Registered with the Department, following receipt, in writing, of the registration number from the Department.

CONDITIONS

23. At least one, or more, of the activities associated with a Registered project must have commenced within 6 (six) months of the issuing of this Section 30A directive.

24. The activities associated with a Registered project must have been completed within 2 (two) years of the issuing of this Section 30A directive.

25. A copy of this Directive and the Registration letter for the specific project must be available on site; and, must be made available to any official of this Department or other relevant authorities on request.

26. Any changes to, or deviations from, the project description submitted with the request to Register the project with the Department, must be approved in writing by this Department before such changes or deviations may be effected.

27. The holder of this Directive must ensure that all construction work or activities undertaken in terms of this Directive adhere to the relevant Impact Mitigation Measures that have been defined for the types of projects that are Directed to be undertaken, and as attached as Annexure B to this Directive.

28. Prior to construction commencing, the appointed Environmental Control Officer must ensure that all construction areas are clearly demarcated with danger tape or other suitable means and, the Directive holder must ensure that construction vehicles and works remain within the boundaries of these demarcated working area/s.

29. All waste generated on site that has not been re-used or recycled must be removed from the site and disposed of at an appropriate and licenced waste disposal site. The person responsible for the removal of the waste must supply the Directive holder with a certificate, indicating disposal of waste at a licensed waste disposal site.

30. Prior to construction commencing, the holder of this Directive must identify if any Water Use activities, as specified in terms of Section 21 of the National Water Act, 1998, will arise from the proposed development and, must ensure that, where necessary, a Water Use Licence, General Authorisation or Directive has been issued by the Department of Water and Sanitation for these activities.

31. All sand, stone and other building materials must be sourced from sites that have Environmental Authorisation and mining licenses. A copy of proof of source of sand, stone and other building materials must be kept by the Directive holder and must be made available to any authorised official of this Department on request.

32. Should any heritage objects or sites of archaeological and cultural significance be discovered during the course of development, construction must cease immediately and the discovery must be reported to KwaZulu-Natal Amafa and Research Institute on the contact telephone number 033 – 394 6543 for investigation. Work on the site may only re-commence following written approval from KwaZulu-Natal Amafa and Research Institute. No structures older than sixty (60) years or parts thereof are allowed to be demolished, altered or extended without a permit from KwaZulu-Natal Amafa and Research Institute. No activities are allowed within 50m (fifty metres) of a site which contains rock art.

33. All relevant parties, including the applicant/implementing agent, all project managers, contractors and sub-contractors must be made aware of their responsibility for compliance with the provisions for *Duty of Care and remediation of environmental damage* contained in Section 28 of the National Environmental Management Act, Act 107 of 1998.

34. This Directive does not grant authorisation or exemption from compliance with any other relevant and applicable legislation and the Department retains its right to inspect the property at any time during its development.

35. It is the responsibility of the holder of this Directive to understand the conditions of this Directive and bring these to the attention of any employees, contractors or sub-contractors. Any queries regarding this Directive and or its interpretation must be submitted in writing to this Department.

Monitoring and Reporting

36. The holder of this Directive must appoint a suitably experienced Environmental Control Officer (ECO) for the construction and rehabilitation phases of the development to ensure that the mitigation measures and recommendations referred to in this Directive are implemented; and, to ensure compliance with the relevant Impact Mitigation Measures that have been defined for the types of projects that are Directed to be undertaken, as attached as **Annexure B** to this Directive. This ECO may be suitably qualified and experienced person employed by the organisation holding the Directive, if this has been agreed to in writing by the Department.

37. Details of the appointed ECO must be forwarded to the Department prior to construction commencing, and the ECO must:
    - 37.1. keep records of all activities on site, problems identified and transgressions noted and make these available for inspection by the Department and other relevant authorities;
    - 37.2. be employed until the construction and rehabilitation phases are completed and the site is ready for operation; and,
    - 37.3. undertake a site inspection monthly during the construction phase; and,
    - 37.4. produce compliance monitoring reports to be submitted to the Department on a monthly basis during the construction and rehabilitation phases.

38. Should the appointed ECO for the Registered project change at any time for any reason, the holder of the Directive must appoint a new suitably experienced ECO for the remaining duration of the construction and rehabilitation phases; and, notify the Department within 14 (fourteen) days of that change, in writing, of the reason for the change and provide the contact details of the new ECO.

39. The appointed ECO must prepare a close-out report following the completion of construction and must submit this report to the Department within 30 (thirty) days of completion of the construction activities being undertaken. The report must contain a statement of environmental impacts identified during the course of the project and how these were mitigated. The report must also identify any further rehabilitation measures that may be required; identify parties responsible for such rehabilitation and include timeframes to effect these.

Notification of commencement and completion

40. **Within 7 (seven) calendar days** of construction commencing, written notice must be given to the Department indicating that the construction phase has commenced. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which construction commenced and the reference number of Registration of the project.

41. **Within 14 (fourteen) calendar days** of the completion of construction, written notice must be submitted to the Department indicating that construction has been completed. The notice must include a date on which construction ceased and the reference number of Registration of the project.

ADDRESS FOR SUBMISSION OF REPORTS AND NOTIFICATIONS

42. All compliance monitoring reports and notifications must be submitted to the Compliance Monitoring and Enforcement component of the Department within the relevant District office within which the project is being undertaken. The names and contact details of the Department's District Offices Compliance Monitoring and Enforcement components are provided in Annexure D to this Directive.

APPEAL PROVISIONS

Any person wishing to appeal against the issuing of this section 30A Directive must comply with regulation 4(1) and (2) of the National Appeal Regulations, 2017, and must submit the appeal in writing and in the form obtainable from the appeal administrator by post, fax, and e-mail or hand delivery to the following address:

The Appeal Administrator,
Office of the KwaZulu-Natal MEC for Economic Development, Tourism and Environmental Affairs

POSTAL/ FAX/ E-MAIL:	PHYSICAL:
2ND Floor, Room 218.23 270 Jabu Ndlovu Street Pietermaritzburg 3201 E-Mail: haresh.inderlall@kznedtea.gov.za (Haresh Inderlall)	Private Bag X9152 PIETERMARITZBURG 3200

Should you have any queries with regard to the content of this directive please do not hesitate to contact the writer.

Yours sincerely

Signed by: Mr. Sabelo Ngcobo
Director: Environmental Services: South Region
For: Head of Department
Department of Economic Development, Tourism and Environmental Affairs

16/04/22

ANNEXURE A: IDENTIFIED LISTED ACTIVITIES

Listing Notice 1 (GN R327 of 7 April 2017)	
Activity	**Description**
Activity 9	*The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water—* *(i) with an internal diameter of 0,36 metres or more; or* *(ii) with a peak throughput of 120 litres per second or more;* *excluding where—* *(a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or* *(b) where such development will occur within an urban area.*
Activity 10	*The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes —* *(i) with an internal diameter of 0,36 metres or more; or* *(ii) with a peak throughput of 120 litres per second or more;* *excluding where—* *(a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or* *(b) where such development will occur within an urban area.*
Activity 12 (ii)	*The development of—* *(i) ....; or* *(ii) infrastructure or structures with a physical footprint of 100 square metres or more;* *where such development occurs—* *(a) within a watercourse;* *(b) in front of a development setback; or* *(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —* *excluding—* *(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;* *(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;* *(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;* *(dd) where such development occurs within an urban area;* *(ee) where such development occurs within existing roads, road reserves or railway line reserves; or* *(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.*
Activity 15	*The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding—* *(i) the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour;* *(ii) the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;* *(iii) the development of temporary structures within the beach zone where such structures will be removed within 6 weeks of the commencement of development and where coral or indigenous vegetation will not be cleared; or* *(iv) activities listed in activity 14 in Listing Notice 2 of 2014, in which case that activity applies.*
Activity 17	*Development—* *(i) in the sea;* *(ii) in an estuary;* *(iii) within the littoral active zone;* *(iv)in front of a development setback; or*

	(v) if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater; *in respect of—* *(a) fixed or floating jetties and slipways;* *(b) tidal pools;* *(c) embankments;* *(d) rock revetments or stabilising structures including stabilising walls; or* *(e) infrastructure or structures with a development footprint of 50 square metres or more —* *but excluding—* *the development of infrastructure and structures within existing ports or harbours that will not increase the development footprint of the port or harbour;* *(bb) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;* *(cc) the development of temporary infrastructure or structures where such structures will be removed within 6 weeks of the commencement of development and where coral or indigenous vegetation will not be cleared; or* *(dd) where such development occurs within an urban area.*
Activity 18	*The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square metres, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion, excluding where —* *(i) the planting of vegetation or placement of material relates to restoration and maintenance of indigenous coastal vegetation undertaken in accordance with a maintenance management plan; or* *(ii) such planting of vegetation or placing of material will occur behind a development setback.*
Activity 19	*The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;* *but excluding where such infilling, depositing, dredging, excavation, removal or moving—* *(a) will occur behind a development setback;* *(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;* *(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;* *(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or* *(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.*
Activity 19A	*The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from—* *(i) the seashore;* *(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever distance is the greater; or* *(iii) the sea;—* *but excluding where such infilling, depositing , dredging, excavation, removal or moving—* *(a) will occur behind a development setback;* *(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;* *(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;* *(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or* *(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.*
Activity 45	*The expansion of infrastructure for the bulk transportation of water or storm water where the existing infrastructure—* *(i) has an internal diameter of 0,36 metres or more; or* *(ii) has a peak throughput of 120 litres per second or more; and* *(a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or* *(b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more;* *excluding where such expansion—* *(aa) relates to transportation of water or storm water within a road reserve or railway line reserve; or*

	(bb) will occur within an urban area.
Activity 46	*The expansion and related operation of infrastructure for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes where the existing infrastructure—* *(i) has an internal diameter of 0,36 metres or more; or* *(ii) has a peak throughput of 120 litres per second or more; and* *(a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or* *(b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more;* *excluding where such expansion—* *(aa) relates to the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes within a road reserve or railway line reserve; or* *(bb) will occur within an urban area.*
Activity 48(i)	*The expansion of—* *(i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or* *(ii) .....;* *where such expansion occurs—* *(a) within a watercourse;* *(b) in front of a development setback; or* *(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;* *excluding—* *(aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;* *(bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;* *(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;* *(dd) where such expansion occurs within an urban area; or* *(ee) where such expansion occurs within existing roads, road reserves or railway line reserves.*
Activity 52	*The expansion of structures in the coastal public property where the development footprint will be increased by more than 50 square metres, excluding such expansions within existing ports or harbours where there will be no increase in the development footprint of the port or harbour and excluding activities listed in activity 23 in Listing Notice 3 of 2014, in which case that activity applies.*
Activity 54	*The expansion of facilities—* *(i) in the sea;* *(ii) in an estuary;* *(iii) within the littoral active zone;* *(iv) in front of a development setback; or* *(v) if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater;* *in respect of—* *(a) fixed or floating jetties and slipways;* *(b) tidal pools;* *(c) embankments;* *(d) rock revetments or stabilising structures including stabilising walls; or* *(e) infrastructure or structures where the development footprint is expanded by 50 square metres or more, but excluding—* *(aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; or* *(bb) where such expansion occurs within an urban area.*
Listing Notice 3 (GN R324 of 7 April 2017)	
Activity	***Description***
Activity 4(d)(i); (xi); (xii)(aa)	*The development of a road wider than 4 metres with a reserve less than 13,5 metres -* *d. KwaZulu-Natal*

and (bb); and, (xiii)(bb)	*i. In an estuarine functional zone,...;* *xi. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *xii. Outside urban areas:* *(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any terrestrial protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or* *(bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or* *xiii. Inside urban areas:* *(aa) .....;* *(bb) Seawards of the development setback line or within 100 metres from the high-water mark of the sea if no such development setback line is determined; or* *(cc) .....*
Activity 12(d)(vi); (xii); and; (xiii)	*The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.* *d. KwaZulu-Natal* *vi. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;* *xii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or* *xiii. In an estuarine functional zone.*
Activity 14(ii)(d)(i); (viii); (x)(aa) and (bb); and, (xi)(cc)	*The development of—* *(i) .....; or* *(ii) infrastructure or structures with a physical footprint of 10 square metres or more;* *where such development occurs—* *(a) within a watercourse;* *(b) in front of a development setback; or* *(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;* *excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.* *d. KwaZulu-Natal* *i. In an estuarine functional zone;* *viii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *x. Outside urban areas:* *(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any terrestrial protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; or* *(bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or* *xi. Inside urban areas:* *(aa) .....;* *(bb.....; or* *(cc) Areas seawards of the development setback line or within 100 metres from the high-water mark of the sea if no such development setback line is determined.*
Activity 23(ii)(d)(iii); (viii); (x)(aa) and (bb); and, (xi)(cc)	*The expansion of—* *(i) .....; or* *(ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more;* *where such expansion occurs—* *(a) within a watercourse;* *(b) in front of a development setback adopted in the prescribed manner; or* *(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;* *excluding the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.* *d. KwaZulu-Natal*

	iii. In an estuarine functional zone; viii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; x. Outside urban areas: (aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any terrestrial protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; or (bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or xi. Inside urban areas: (aa) .....; (bb).....; or (cc) Areas seawards of the development setback line or within 100 metres from the high-water mark of the sea if no such development setback line is determined.

ANNEXURE B: IMPACT MITIGATION MEASURES

Local access road Culverts, Causeways and Bridges

DEVELOPMENT TYPE: LOCAL ACCESS ROADS CULVERTS, CAUSEWAYS AND BRIDGES	
Pre-Construction	▪ Prior to construction commencing the construction areas, including construction site camp, access roads, stockpile areas, construction and excavation areas, storage facilities and parking areas, must be clearly demarcated for the duration of the construction period. ▪ Storage areas must be located more than 50m from the watercourse. ▪ The width of the defined working area within a watercourse and within 32 metres on either side of the watercourse must not exceed 20 metres wide. ▪ Environmentally sensitive areas must be clearly demarcated for the duration of the construction period. ▪ The ECO must ensure that buffer zones, of undisturbed vegetation of an appropriate width, must be maintained between construction areas and bodies of water, watercourses and wetlands. ▪ Sensitive plant species that must be protected within the working area footprint must be clearly demarcated during the construction period. ▪ Where necessary and required, the construction site must be screened from surrounding sensitive social facilities (such as schools and clinics) and residences, with fencing and shade cloth. ▪ The removal, cutting, pruning or relocation of protected indigenous species or vegetation must be approved by the relevant competent authority if required, or by the ECO if no permit is required. ▪ All contractors, construction staff or sub-contractors must receive environmental awareness training prior to commencing any work on the site.
Design and Layout	▪ Bridges, culverts and causeways should be aligned perpendicular to the watercourse. ▪ Bridge piers and foundations must preferably be established outside of the preferential flow path of the watercourse to avoid obstruction, or where this cannot altogether be avoided, designed to minimise water flow obstruction and scouring. ▪ If the piers and footings must be placed in the watercourse channel, they should be parallel to the flow, so the flow is not directed onto the banks. ▪ The minimum of number piers necessary should be used to minimise impacts and potential scouring and erosion. ▪ The design and construction of the bridge must be undertaken in a manner that natural movement patterns of aquatic life and the ecological functioning of the watercourse system is not compromised. ▪ Downstream flows and the hydraulic characteristics of the watercourse, and, subsurface flow along the stream channel, must be maintained. ▪ Water velocities and flows must be maintained as far as is practical to ensure that there is equitable flow rates upstream and downstream of the structure. ▪ Bridge soffit levels and flood spans should be at least 1 metre above the maximum 1:100 year flood level to allow floating debris to pass freely through the structure. ▪ The bridge, culvert or causeway's water flow capacity must be able to accommodate peak flow volumes. ▪ Open-bottom culverts with the natural streambed running through them are the preferred culvert structures. ▪ Culvert gradients should be similar to that of the stream bed and should be gently sloping. ▪ Balance the filling and cutting requirements through appropriate route selection, so as to avoid the production of excess spoil material and reduce the need for borrow pits. ▪ Where disturbance to the watercourse is unavoidable, modification should be kept to a minimum in terms of the removal of riparian vegetation or the excavation of the stream channel, bed or banks. ▪ Stream bank vegetation may only be removed where absolutely necessary and the river banks must be stabilised and re-vegetated immediately following construction.
Construction Phase	
Timing of construction	▪ Construction in the watercourse channel and riparian areas must be undertaken as quickly as possible to limit environmental impact. ▪ Construction work within the watercourse channel and riparian areas should be undertaken outside of the peak rainfall period of the year.
Soils and erosion control	▪ Storm water drainage must not damage surrounding properties or infrastructure. ▪ Appropriate and adequate erosion protection measures must be implemented throughout the construction phase. ▪ Silt laden water must be diverted into sediment ponds and sediments allowed to settle before water is discharged into any watercourse. ▪ Silt fences or other silt and sediment trapping devices must be installed around all areas used for the storage of excavated and fill materials. ▪ If necessary, soil should be carefully removed and stored for subsequent reinstatement. Excavated soils must be replaced in the same sequence as they were removed, and must be compacted to an equivalent compaction as the surrounding soil profile.

	• Water from flumes, diversions or other methods used to maintain downstream flow must not cause erosion or introduce sediment into the channel. • Techniques to minimise compaction of soils, such as restricting access during wet conditions, and using protective boarding and low ground pressure machinery must be used.
Spills and pollution control	• Chemicals, dangerous goods and fuels must be stored in a suitably bunded area, with an impervious surface and a bund capacity of at least with 110% of the material storage capacity. • A spill contingency plan must be developed and any chemicals, dangerous good or fuels spills must be attended to immediately. • Contaminated soils resulting from spills must be removed and disposed of within the hazardous waste stream at an appropriately licenced landfill site. • Significant spills must be immediately reported to the competent authorities. • Oil interceptors and drip trays must be used in vehicle parking areas and during re-fuelling; and, must be inspected and cleaned regularly. • Any concrete or cement mixing required during the construction phase must be undertaken on an impervious surface; and, tools, equipment or other items contaminated with cement residue may not be cleaned in a water resource or in a manner that may result in contamination of a water resource. • No construction vehicles may be washed within a watercourse or in a manner that may result in contamination of a water resource.
Water and construction materials	• Water use during construction phase may only be extracted or used from a water source approved by the relevant authority. • All stone, sand and other building materials must be sourced from sites that have a lawful environmental authorisation and/or mining licence, as the need may be. Copy of proof of the source of materials must be kept and made available on request.
Waste and sewerage management	• Waste management measures must be established to separate, collect, store and dispose of general and hazardous waste streams. • General waste must be suitably stored and disposed of at an appropriate and lawful general waste disposal facility. • Hazardous waste streams must be established, separate from general waste streams and hazardous waste must be disposed of at an appropriate and lawful hazardous waste disposal facility. • No waste may be burnt on site. • Recycling, reuse and waste reduction strategies must be implemented. • Waste removal and safe disposal certificates must be maintained and made available on request. • Temporary chemical or other appropriate toilets facilities must be provided; and, where necessary chemical toilets must be serviced by registered service provider on at least a weekly basis. • Temporary ablutions and toilets must be established at least 50 meters from any watercourse or water source.
Vehicle access and traffic	• Construction vehicles must make use of existing access routes. If none exist the access route to the construction site must be agreed to by the ECO. • Where ever possible, heavy vehicles must not be allowed within 32m of the watercourse. Where this is not possible, measures must be put in place to limit soil compaction and the extent of the working areas. • Traffic control measures; restricted and defined access to the site; defined speed limits; appropriate signage; and, the establishment of alternative routes, as may be needed, must be established.
Nuisance management	• Prior notice must be given to residents, sensitive social receptors, such as schools or clinics, and businesses adjacent to work areas of any noisy or dusty activities that may be undertaken. • Where appropriate and necessary, dust suppression measures need to be applied to limit dust impacts on adjoining land uses.
Cultural heritage	• The competent authority for cultural heritage must be contacted if any heritage objects or graves are identified during excavation activities and all construction work must cease until authorisation to proceed is issued by the competent authority for cultural heritage.
Post-Construction and Rehabilitation/Monitoring	• All disturbed areas associated with the construction activities must be reshaped, rehabilitated and re-vegetated following the construction phase. • All temporary dams, berms and other material used to divert the stream flow must be completely removed from the channel and the streambed and bank profiles must be returned to preconstruction conditions following the completion of construction. • Rehabilitation of disturbed areas must occur at the earliest time prescribed by the ECO. • Rehabilitation and re-vegetation of disturbed areas must make use of locally indigenous species. • All construction debris and waste materials must be removed and disposed of at an appropriate and lawful general waste disposal facility. • The control of alien plant infestation within the development footprint must be undertaken and alien plant control must continue post-construction, until the site has been suitable rehabilitated and re-vegetated with locally indigenous species. • Quarterly vegetation rehabilitation monitoring should be undertaken for at least 1 year after the construction phase has been completed.

Pedestrian bridges

DEVELOPMENT TYPE: PEDESTRIAN BRIDGES	
Pre-Construction	• Prior to construction commencing the construction areas, including construction site camp, access roads, stockpile areas, construction and excavation areas, storage facilities and parking areas, must be clearly demarcated for the duration of the construction period. • Storage areas must be located more than 50m from the watercourse. • The width of the defined working area within a watercourse and within 32 metres on either side of the watercourse must not exceed 20 metres wide. • The ECO must ensure that buffer zones, of undisturbed vegetation of an appropriate width, must be maintained between construction areas and bodies of water, watercourses and wetlands. • Environmentally sensitive areas must be clearly demarcated for the duration of the construction period. • Sensitive plant species that must be protected within the working area footprint must be clearly demarcated during construction period. • Where necessary and required, the construction site must be screened from surrounding sensitive social facilities (such as schools and clinics) and residences with fencing and shade cloth. • The removal, cutting, pruning or relocation of protected indigenous species or vegetation must be approved by the relevant competent authority if required, or by the ECO if no permit is required. • All contractors, construction staff or sub-contractors must receive environmental awareness training prior to commencing any work on the site.
Design and Layout	• The pedestrian bridge should be aligned perpendicular to the watercourse. • Bridge piers and foundations must preferably be established outside of the preferential flow path of the watercourse to avoid obstruction, or where this cannot altogether be avoided, designed to minimise water flow obstruction and scouring. • If the piers and footings must be placed in the watercourse channel, they should be parallel to the flow, so the flow is not directed onto the banks. • The minimum number of piers necessary should be used to minimise impacts and potential scouring and erosion. • The design and construction of the bridge must be undertaken in a manner that natural movement patterns of aquatic life and the ecological functioning of the watercourse system is not compromised. • Downstream flows and the hydraulic characteristics of the watercourse, and, subsurface flow along the stream channel, must be maintained. • Water velocities and flows must be maintained as far as is practical to ensure that there is equitable flow rates upstream and downstream of the structure. • Bridge soffit levels and flood spans should be at least 1 metre above the maximum 1:100 year flood level to allow floating debris to pass freely through the structure. • The pedestrian bridge flood design capacity must be able to accommodate peak flow volumes. • Balance the filling and cutting requirements through appropriate route selection, so as to avoid the production of excess spoil material and reduce the need for borrow pits. • Where disturbance to the watercourse is unavoidable, modification should be kept to a minimum in terms of the removal of riparian vegetation or the excavation of the stream channel, bed or banks. • Stream bank vegetation may only be removed where absolutely necessary and the river banks must be stabilised and re-vegetated immediately following construction. • The natural shape and contour of watercourses should be maintained as far as practical and watercourses should not be deepened or widened up or downstream.
Construction Phase	
Timing of construction	• Construction in the watercourse channel and riparian areas must be undertaken as quickly as possible to limit environmental impact. • Construction work within the watercourse channel and riparian areas should be undertaken outside of the peak rainfall period of the year.
Soils and erosion control	• Storm water drainage must not damage surrounding properties or infrastructure. • Appropriate and adequate erosion protection measures must be implemented throughout the construction phase. • Silt laden water must be diverted into sediment ponds and sediments allowed to settle before water is discharged into any watercourse. • Silt fences or other silt and sediment trapping devices must be installed around all areas used for the storage of excavated and fill materials. • If necessary, soil should be carefully removed and stored for subsequent reinstatement. Excavated soils must be replaced in same sequence as they were removed, and must be compacted to an equivalent compaction as the surrounding soil profile. • Water from flumes, diversions or other methods used to maintain downstream flow must not cause erosion or introduce sediment into the channel. • Techniques to minimise the compaction of soils, such as restricting access during wet conditions, and using protective boarding and low ground pressure machinery should be used.
Spills and pollution control	• Chemicals, dangerous goods and fuels must be stored in a suitably bunded area, with an impervious surface and a bund capacity of at least with 110% of the material storage capacity.

	• A spill contingency plan must be developed and any chemicals, dangerous good or fuels spills must be attended to immediately. • Contaminated soils resulting from spills must be removed and disposed of within the hazardous waste stream at an appropriately licenced landfill site. • Significant spills must be immediately reported to the competent authorities. • Oil interceptors and drip trays must be used in vehicle parking areas and during re-fuelling; and, must be inspected and cleaned regularly. • Any concrete or cement mixing required during the construction phase must be undertaken on an impervious surface; and, tools, equipment or other items contaminated with cement residue may not be cleaned in a water resource or in a manner that may result in contamination of a water resource. • No construction vehicles may be washed within a watercourse or in a manner that may result in contamination of a water resource.
Water and construction materials	• Water use during construction phase may only be extracted or used from a water source approved by the relevant authority. • All stone, sand and other building materials must be sourced from sites that have a lawful environmental authorisation and/or mining licence as the need may be. Copy of proof of source of materials must be kept and made available on request.
Waste and sewerage management	• Waste management measures must be established to separate, collect, store and dispose of general and hazardous waste streams. • General waste must be suitably stored and disposed of at an appropriate and lawful general waste disposal facility. • Hazardous waste streams must be established separate from general waste streams, and hazardous waste must be disposed of at an appropriate and lawful hazardous waste disposal facility. • No waste may be burnt on site. • Recycling, reuse and waste reduction strategies must be implemented. • Waste removal and safe disposal certificates must be maintained and made available on request. • Temporary chemical or other appropriate toilets facilities must be provided; and, where necessary chemical toilets must be serviced by registered service provider on at least a weekly basis. • Temporary ablutions and toilets must be established at least 50 meters from any watercourse or water source.
Vehicle access and traffic	• Construction vehicles must make use of existing access routes. If none exist the access route to the construction site must be agreed to by the ECO. • Where ever possible, heavy vehicles must not be allowed within 32m of the watercourse. Where this is not possible, measures must be put in place to limit soil compaction and the extent of the working areas. • Traffic control measures; restricted and defined access to the site; defined speed limits; appropriate signage, and, the establishment of alternative routes, as may be needed, must be established.
Nuisance management	• Prior notice must be given to residents, sensitive social receptors, such as schools or clinics, and businesses adjacent to work areas of any noisy or dusty activities that may be undertaken. • Where appropriate and necessary, dust suppression measures need to be applied to limit dust impacts on adjoining land uses.
Cultural heritage	• The competent authority for cultural heritage must be contacted if any heritage objects or graves are identified during excavation activities and all construction work must cease until authorisation to proceed is issued by the competent authority for cultural heritage.
Post-Construction and Rehabilitation/Monitoring	• All disturbed areas associated with the construction activities must be reshaped, rehabilitated and re-vegetated immediately following the construction phase. • All temporary dams, berms and other material used to divert the stream flow must be completely removed from the channel and the streambed and bank profiles must be returned to preconstruction conditions following construction. • Rehabilitation of disturbed areas must occur at the earliest time prescribed by the ECO. • Rehabilitation and re-vegetation of disturbed areas must make use of locally indigenous species. • All construction debris and waste materials must be removed and disposed of at an appropriate and lawful general waste disposal facility. • The control of alien plant infestation within the development footprint must be undertaken and alien plant control must continue post-construction until the site has been suitable rehabilitated and re-vegetated with locally indigenous species. • Quarterly vegetation rehabilitation monitoring should be undertaken for at least 1 year after the construction phase has been completed.

Water and Sewer pipelines

DEVELOPMENT TYPE: WATER AND SEWER PIPELINES	
Pre-Construction	• Prior to construction commencing the construction areas. Including construction site camp, access roads, stockpile areas, construction and excavation areas, storage facilities and parking areas, must be clearly demarcated for the duration of the construction period. • Storage areas must be located more than 50m from the watercourse. • The width of the defined working area within a watercourse and within 32 metres on either side of the watercourse must not exceed 20 metres wide.

	• The ECO must ensure that buffer zones, of undisturbed vegetation of an appropriate width, must be maintained between construction areas and bodies of water, watercourses and wetlands. • Environmentally sensitive areas must be clearly demarcated for the duration of the construction period. • Sensitive plant species that must be protected within the working area footprint must be clearly demarcated during construction period. • Where necessary and required, the construction site must be screened from surrounding sensitive social facilities (such as schools and clinics) and residences, with fencing and shade cloth. • The removal, cutting, pruning or relocation of protected indigenous species or vegetation must be approved by the relevant competent authority if required, or by the ECO if no permit is required. • All contractors, construction staff or sub-contractors must receive environmental awareness training prior to commencing any work on the site.
Design and Layout	• Trenchless methods of installing pipes underneath watercourses, such as pipe jacking or horizontal drilling, are the preferred methodology where engineering and geotechnical limitations permit. • If existing bridges or watercourse crossings are available and can permit the attachment of the pipeline in order to cross a watercourse, then these existing structures must be used. • Piers and foundations for suspended pipe bridges must preferably be established outside of the preferential flow path of the watercourse to avoid obstruction, or where this cannot altogether be avoided, designed to minimise water flow obstruction and scouring. • The design and construction of suspended pipe bridges must be undertaken in a manner that natural movement patterns of aquatic life and the ecological functioning of the watercourse system is not compromised. • Where disturbance to the watercourse is unavoidable, modification should be kept to a minimum in terms of the removal of riparian vegetation or the excavation of the stream channel, bed or banks. • Stream bank vegetation may only be removed where absolutely necessary and the river banks must be stabilised and re-vegetated immediately following construction. • Trench breakers or other compacted impervious materials must be installed where required on steep slopes to prevent pipeline trench subsurface erosion and scouring. • Trench breakers must be installed adjacent to watercourses; at the edges of wetlands; and, on other similar sites where unconsolidated backfill or organic materials are prone to washing out. • Trench breakers must be installed on each side of a wetland where the pipeline trench crosses and may drain the wetland.
Construction Phase	
Timing of construction	• Construction in the watercourse channel and riparian area must be undertaken as quickly as possible to limit environmental impact. • Construction work within the watercourse channel and riparian area should be undertaken outside of the peak rainfall period of the year.
Soils and erosion control	• Storm water drainage must not damage surrounding properties or infrastructure. • Appropriate and adequate erosion protection measures must be implemented throughout the construction phase. • Silt laden water must be diverted into sediment ponds and sediments allowed to settle before water is discharged into any watercourse. • Silt fences or other silt and sediment trapping devices must be installed around all areas used for the storage of excavated and fill materials. • If necessary, soil should be carefully removed and stored for subsequent reinstatement. Excavated soils must be replaced in same sequence as they were removed, and must be compacted to an equivalent compaction as the surrounding soil profile. • Water from flumes, diversions or other methods used to maintain downstream flow must not cause erosion or introduce sediment into the channel. • Techniques to minimise the compaction of soils, such as restricting access during wet conditions, and using protective boarding and low ground pressure machinery should be used.
Spills and pollution control	• Chemicals, dangerous goods and fuels must be stored in a suitably bunded area, with an impervious surface and a bund capacity of at least with 110% of the material storage capacity. • A spill contingency plan must be developed and any chemicals, dangerous good or fuels spills must be attended to immediately. • Contaminated soils resulting from spills must be removed and disposed of within the hazardous waste stream at an appropriately licenced landfill site. • Significant spills must be immediately reported to the competent authorities. • Oil interceptors and drip trays must be used in vehicle parking areas and during re-fuelling; and, must be inspected and cleaned regularly. • Any concrete or cement mixing required during the construction phase must be undertaken on an impervious surface; and, tools, equipment or other items contaminated with cement residue

	may not be cleaned in a water resource or in a manner that may result in contamination of a water resource. • No construction vehicles may be washed within a watercourse or in a manner that may result in contamination of a water resource.
Water and construction materials	• Water use during construction phase may only be extracted or used from a water source approved by the relevant authority. • All stone, sand and other building materials must be sourced from sites that have a lawful environmental authorisation and/or mining licence as the need may be. Copy of proof of source of materials must be kept and made available on request.
Waste and sewerage management	• Waste management measures must be established to separate, collect, store and dispose of general and hazardous waste streams. • General waste must be suitably stored and disposed of at an appropriate and lawful general waste disposal facility. • Hazardous waste streams must be established separate from general waste streams, and hazardous waste must be disposed of at an appropriate and lawful hazardous waste disposal facility. • No waste may be burnt on site. • Recycling, reuse and waste reduction strategies must be implemented. • Waste removal and safe disposal certificates must be maintained and made available on request. • Temporary chemical or other appropriate toilets facilities must be provided; and, where necessary chemical toilets must be serviced by registered service provider on at least a weekly basis. • Temporary ablutions and toilets must be established at least 50 meters from any watercourse or water source.
Vehicle access and traffic	• Construction vehicles must make use of existing access routes. If none exist the access route to the construction site must be agreed to by the ECO. • Where ever possible, heavy vehicles must not be allowed within 32m of the watercourse. Where this is not possible, measures must be put in place to limit soil compaction and the extent of the working areas. • Traffic control measures; restricted and defined access to the site; defined speed limits; appropriate signage; and, the establishment of alternative routes, as may be needed, must be established.
Nuisance management	• Prior notice must be given to residents, sensitive social receptors, such as schools or clinics, and businesses adjacent to work areas of any noisy or dusty activities that may be undertaken. • Where appropriate and necessary, dust suppression measures need to be applied to limit dust impacts on adjoining land uses.
Cultural heritage	• The competent authority for cultural heritage must be contacted if any heritage objects or graves are identified during excavation activities and all construction work must cease until authorisation to proceed is issued by the competent authority for cultural heritage.
Post-Construction and Rehabilitation/Monitoring	• All disturbed areas associated with the construction activities must be reshaped, rehabilitated and re-vegetated immediately following the construction phase. • All temporary dams, berms and other material used to divert the stream flow must be completely removed from the channel and the streambed and bank profiles must be returned to preconstruction conditions following construction. • Rehabilitation of disturbed areas must occur at the earliest time prescribed by the ECO. • Rehabilitation and re-vegetation of disturbed areas must make use of locally indigenous species. • All construction debris and waste materials must be removed and disposed of at an appropriate and lawful general waste disposal facility. • The control of alien plant infestation within the development footprint must be undertaken and alien plant control must continue post-construction until the site has been suitable rehabilitated and re-vegetated with locally indigenous species. • Quarterly vegetation rehabilitation monitoring should be undertaken for at least 1 year after the construction phase has been completed.

Storm Water Infrastructure

DEVELOPMENT TYPE: STORM WATER INFRASTRUCTURE	
Pre-Construction	• Prior to construction commencing the construction areas, including construction site camp, access roads, stockpile areas, construction and excavation areas, storage facilities and parking areas, must be clearly demarcated for the duration of the construction period. • Storage areas must be located more than 50m from the watercourse. • The width of the defined working area within a watercourse and within 32 metres on either side of the watercourse must not exceed 20 metres wide. • The ECO must ensure that buffer zones, of undisturbed vegetation of an appropriate width, must be maintained between construction areas and bodies of water, watercourses and wetlands. • Environmentally sensitive areas must be clearly demarcated for the duration of the construction period.

	• Sensitive plant species that must be protected within the working area footprint must be clearly demarcated during construction period. • Where necessary and required, the construction site must be screened from surrounding sensitive social facilities (such as schools and clinics) and residences, with fencing and shade cloth. • The removal, cutting, pruning or relocation of protected indigenous species or vegetation must be approved by the relevant competent authority if required, or by the ECO if no permit is required. • All contractors, construction staff or sub-contractors must receive environmental awareness training prior to commencing any work on the site;
Design and Layout	• Storm water must be discharged in a manner that will not cause adverse impacts on downstream properties or watercourses or the natural environment. • Where disturbance to the watercourse is unavoidable, modification should be kept to a minimum in terms of the removal of riparian vegetation or the excavation of the steam channel, bed or banks. • Stream bank vegetation may only be removed where absolutely necessary and the river banks must be stabilised and re-vegetated immediately following construction. • Energy dissipaters should be included in the storm water outlet designs aimed at returning water flows into watercourses or the environment at non-eroding velocities in order to protect downstream channels.
Construction Phase	
Timing of construction	• Construction in the watercourse channel and riparian area must be undertaken as quickly as possible to limit environmental impact. • Construction work within the watercourse channel and riparian area should be undertaken outside of the peak rainfall period of the year.
Soils and erosion control	• Storm water drainage must not damage surrounding properties or infrastructure. • Appropriate and adequate erosion protection measures must be implemented throughout the construction phase. • Silt laden water must be diverted into sediment ponds and sediments allowed to settle before water is discharged into any watercourse. • Silt fences or other silt and sediment trapping devices must be installed around all areas used for the storage of excavated and fill materials. • If necessary, soil should be carefully removed and stored for subsequent reinstatement. Excavated soils must be replaced in same sequence as they were removed, and must be compacted to an equivalent compaction as the surrounding soil profile. • Water from flumes, diversions or other methods used to maintain downstream flow must not cause erosion or introduce sediment into the channel. • Techniques to minimise the compaction of soils, such as restricting access during wet conditions, and using protective boarding and low ground pressure machinery should be used.
Spills and pollution control	• Chemicals, dangerous goods and fuels must be stored in a suitably bunded area, with an impervious surface and a bund capacity of at least with 110% of the material storage capacity. • A spill contingency plan must be developed and any chemicals, dangerous good or fuels spills must be attended to immediately. • Contaminated soils resulting from spills must be removed and disposed of within the hazardous waste stream at an appropriately licenced landfill site. • Significant spills must be immediately reported to the competent authorities. • Oil interceptors and drip trays must be used in vehicle parking areas and during re-fuelling; and, must be inspected and cleaned regularly. • Any concrete or cement mixing required during the construction phase must be undertaken on an impervious surface; and, tools, equipment or other items contaminated with cement residue may not be cleaned in a water resource or in a manner that may result in contamination of a water resource. • No construction vehicles may be washed within a watercourse or in a manner that may result in contamination of a water resource.
Water and construction materials	• Water use during construction phase may only be extracted or used from a water source approved by the relevant authority. • All stone, sand and other building materials must be sourced from sites that have a lawful environmental authorisation and/or mining licence as the need may be. Copy of proof of source of materials must be kept and made available on request.
Waste and sewerage management	• Waste management measures must be established to separate, collect, store and dispose of general and hazardous waste streams. • General waste must be suitably stored and disposed of at an appropriate and lawful general waste disposal facility. • Hazardous waste streams must be established separate from general waste streams, and hazardous waste must be disposed of at an appropriate and lawful hazardous waste disposal facility. • No waste may be burnt on site. • Recycling, reuse and waste reduction strategies must be implemented.

	▪ Waste removal and safe disposal certificates must be maintained and made available on request. ▪ Temporary chemical or other appropriate toilets facilities must be provided; and, where necessary chemical toilets must be serviced by registered service provider on at least a weekly basis. ▪ Temporary ablutions and toilets must be established at least 50 meters from any watercourse or water source.
Vehicle access and traffic	▪ Construction vehicles must make use of existing access routes. If none exist the access route to the construction site must be agreed to by the ECO. ▪ Where ever possible, heavy vehicles must not be allowed within 32m of the watercourse. Where this is not possible, measures must be put in place to limit soil compaction and the extent of the working areas. ▪ Traffic control measures; restricted and defined access to the site; defined speed limits; appropriate signage; and, the establishment of alternative routes, as may be needed, must be established.
Nuisance management	▪ Prior notice must be given to residents, sensitive social receptors, such as schools or clinics, and businesses adjacent to work areas of any noisy or dusty activities that may be undertaken. ▪ Where appropriate and necessary, dust suppression measures need to be applied to limit dust impacts on adjoining land uses.
Cultural heritage	▪ The competent authority for cultural heritage must be contacted if any heritage objects or graves are identified during excavation activities and all construction work must cease until authorisation to proceed is issued by the competent authority for cultural heritage.
Post-Construction and Rehabilitation/Monitoring	▪ All disturbed areas associated with the construction activities must be reshaped, rehabilitated and re-vegetated immediately following the construction phase. ▪ All temporary dams, berms and other material used to divert the stream flow must be completely removed from the channel and the streambed and bank profiles must be returned to preconstruction conditions following construction. ▪ Rehabilitation of disturbed areas must occur at the earliest time prescribed by the ECO. ▪ Rehabilitation and re-vegetation of disturbed areas must make use of locally indigenous species. ▪ All construction debris and waste materials must be removed and disposed of at an appropriate and lawful general waste disposal facility. ▪ The control of alien plant infestation within the development footprint must be undertaken and alien plant control must continue post-construction until the site has been suitable rehabilitated and re-vegetated with locally indigenous species. ▪ Quarterly vegetation rehabilitation monitoring should be undertaken for at least 1 year after the construction phase has been completed.

Other Infrastructure

DEVELOPMENT TYPE: OTHER INFRASTRUCTURE	
Pre-Construction	▪ Prior to actions commencing, the activity work areas, including the site camp, access roads, stockpile areas, excavation areas, storage facilities and parking areas, must be clearly demarcated for the duration of the activity period. All activities/work must be limited to the activity footprint ▪ Storage areas must be located more than 50m from any watercourse ; ▪ Environmentally sensitive areas must be clearly demarcated for the duration of the activity period ▪ Sensitive plant species that must be protected within the activity work area must be clearly demarcated during the activity period ▪ Where necessary and required, the activity site must be screened from surrounding sensitive social facilities (such as schools and clinics) and residences with fencing and shade cloth ▪ The removal, cutting, pruning or relocation of protected indigenous species or vegetation must be approved by the relevant competent authority if required ▪ All contractors, maintenance staff or sub-contractors must receive environmental awareness training prior to commencing any work on the site
Construction Phase	
Timing of construction	▪ Activities must be undertaken as quickly as possible to limit environmental impact, and the timeframes within which these activities must commence and be completed must be specified
Soils and erosion control	▪ Appropriate and adequate erosion protection measures must be implemented throughout the construction phase. ▪ Silt laden water must be diverted into sediment ponds and sediments allowed to settle before water is discharged into any watercourse

	▪ Silt fences or other silt and sediment trapping devices must be installed around all areas used for the storage of excavated and fill materials ▪ If necessary, soil should be carefully removed and stored for subsequent reinstatement. Excavated soils must be replaced in the same sequence as they were removed, and must be compacted to an equivalent compaction as the surrounding soil profile ▪ Water from flumes, diversions or other methods used in streams or watercourses in order to maintain downstream flow, must not cause erosion or introduce sediment into the channel ▪ Compaction of soils must be minimised using appropriate techniques and methodology, such as restricting access during wet conditions, and using protective boarding and low ground pressure machinery.
Spills and pollution control	▪ Chemicals, dangerous goods and fuels must be stored in a suitably bunded area, on an impervious surface and within a bund with a capacity of at least 110% of the material storage capacity ▪ A spill contingency plan must developed and any chemicals, dangerous good or fuels spills must be attended to immediately ▪ Contaminated soils resulting from spills must be removed and disposed of within the hazardous waste stream at an appropriately licenced landfill site ▪ Significant spills must be immediately reported to the competent authorities ▪ Oil interceptors and/or drip trays are to be used under vehicles while in vehicle parking areas and during refuelling; and, are to be inspected and cleaned regularly ▪ No vehicles may be washed within a watercourse or in a manner that may result in contamination of a watercourse or water resource
Water and materials	▪ Water use during the construction activity phase may only be extracted or used from a water source approved by the relevant authority
Waste and sewerage management	▪ Waste management measures must be established to separate, collect, store and dispose of general and hazardous waste streams ▪ General waste must be suitably stored and disposed of at an appropriate and lawful general waste disposal facility ▪ Hazardous waste streams must be established, separate from general waste streams. Hazardous waste must be disposed of at an appropriate and lawful hazardous waste disposal facility ▪ No waste may be burnt on site ▪ Recycling, reuse and waste reduction strategies must be implemented ▪ Waste removal and safe disposal certificates must be maintained and made available on request ▪ Temporary chemical or other appropriate toilets facilities must be provided; and, where necessary chemical toilets must be serviced by registered service provider on at least a weekly basis ▪ Temporary ablutions and toilets must be established at least 50 meters from any watercourse or water source
Vehicle access and traffic	▪ Vehicles must make use of existing access routes; if none exist the access route to the construction site must be created through the most degraded area avoiding sensitive/indigenous vegetation areas ▪ Where ever possible, heavy vehicles must not be allowed within 32m of a watercourse. Where this is not possible, measures must be put in place to limit soil compaction and the extent of the working areas.
Nuisance management	▪ Prior notice must be given to residents, sensitive social receptors, such as schools or clinics, and businesses adjacent to work areas of any noisy or dusty activities that may be undertaken ▪ Construction work and site activity may only be undertaken between 7am and 5pm on weekdays, and 7am and 3pm on Saturdays (unless otherwise agreed in writing by the Department) ▪ Where appropriate and necessary, dust suppression measures need to be applied to limit dust impacts on adjoining land uses
Cultural heritage	▪ The competent authority for cultural heritage must be contacted if any heritage objects or graves are identified during excavation activities and all maintenance work must cease until authorisation to proceed is issued by the competent authority for cultural heritage
Post-Construction and Rehabilitation/Monitoring	▪ All disturbed areas associated with the activities must be reshaped, rehabilitated and re-vegetated immediately following the construction phase ▪ All temporary dams, berms and other material used to divert streams or watercourses must be completely removed from the channel and, the streambed and bank profiles must be returned to pre-construction conditions where applicable and appropriate

	▪ Rehabilitation of disturbed areas must occur immediately following construction activities ▪ Rehabilitation and re-vegetation of disturbed areas must make use of locally indigenous species. ▪ All construction debris and waste materials must be removed and disposed of at an appropriate and lawful general waste disposal facility ▪ The control of alien plant infestation within the activity work area must be undertaken until the site has been suitable rehabilitated and re-vegetated with locally indigenous species

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ANNEXURE C: CONTACT DETAILS OF EDTEA IMPACT ASSESSMENT COMPONENTS

Please note that it is the responsibility of the holder of this Directive to ensure the contact details are correct at the time of submitting any documentation, and that the documentation reaches the relevant official.

DISTRICT OFFICE	NAME	PHONE NO.	CELL NO.	EMAIL	STREET ADDRESS
Amajuba					
District Manager	Mr. Ntokozo Nkosi	034 3280308	0824157029	Ntokozo.Nkosi@kznedtea.gov.za	43 Harding Street, Newcastle
EIA head	Mr. Poovie Moodley	034 3280300	0827199907	Poovie.Moodley@kznedtea.gov.za	
eThekwini					
District Manager (Acting)	Ms. Nombulelo Zungu		0823126605	Nombulelo.Zungu@edtea.gov.za	22 Dorothy Nyemba Street (Old Gardiner Street), 9th Floor, Marinu Building
EIA head	Ms. Natasha Brijlal	031 3503015	079 898 0491	natasha.brijlal@kznedtea.gov.za	
Harry Gwala					
District Manager	Mr. Thabani Gambu	039 8347400 033 2642738	0814967566	Thabani.Gambu@kznedtea.gov.za	139A Trigon Place, Ixopo
EIA head	Ms. Ntoyonke Dlamini	039 8347914	0609639101	Ntoyonke.Dlamini@kznedtea.gov.za	
Ilembe					
District Manager	Ms. Nombulelo Zungu		0823126605	Nombulelo.Zungu@edtea.gov.za	Corner of Link Road and the R102, Albert Luthuli House, Stanger, KwaDukuza
EIA head	Mr. Malcolm Moses	032 5510907	0824618303	Malcolm.Moses@kznedtea.gov.za	
King Cetshwayo					
District coordinator	Mr. Bonga Mkhize		0827421702	Bonga.Mkhize@kznedtea.gov.za	1st Floor, Block D, Cnr Aloe Loop Street & Via Verbena, Veldenvlei, Richards Bay
EIA head	Mr. Muziwandile Mdamba	035 7800313	0828222582	Muziwandile.Mdamba@kznedtea.gov.za	
Ugu					
District coordinator	Ms. Glorious Mhlanga		0829219606	Glorious.Mhlanga@kznedtea.gov.za	46 Bissett Street, Port Shepstone
EIA head	Ms. Melissa Packree	039 6884900	0829219406	Melissa.Packree@kznedtea.gov.za	
uMgungundlovu					
District Manager	Ms. Kim van Heerden	033 3471820	0824617695	Kim.vanheerden@kznedtea.gov.za	8 Warwick Road, Oak Park, Pietermaritzburg
EIA head	Mr. Shawn Janneker	033 3471820	0769431933	Shawn.Janneker@kznedtea.gov.za	
uMkhanyakude					
District Manager	Ms. Happy Khambule	035 5500330	0814108582	Happy.Khambule@kznedtea.gov.za	Lot 550 Kleparsol Street, Riverview, Mtubatuba
EIA head	Ms. Happy Khambule	035 5500330	0814108582	Happy.Khambule@kznedtea.gov.za	
Umzinyathi					
District coordinator	Ms. Sibusisiwe Mthimkhulu		0813417137	Sibusisiwe.Mthimkhulu@kznedtea.gov.za	Talana Building, Block 4, 26 Beaconsfield Street, Dundee
EIA head	Mr. Gerald Willis-Smith	034 2997908	0824618674	Gerald.Willis-Smith@kznedtea.gov.za	
Uthukela					
District Manager	Mr. Dumisani Gwede		0829218924	Dumisani.Gwede@kznedtea.gov.za	No 73 Murchison Street, Ladysmith
EIA head	Ms. Onwabile Ndzumo		0609694044	Onwabile.Ndzumo@kznedtea.gov.za	
Zululand					
District Manager	Mr. Delani Ndlovu	035 8709364	0827199778	Delani.Ndlovu@kznedtea.gov.za	King Dinizulu Highway, Legislative Assembly Building 7 Offices, Second Floor, Suite 229, Ulundi
EIA head	Mr. Delani Ndlovu	035 8709364	0827199778	Delani.Ndlovu@kznedtea.gov.za	

ANNEXURE D: CONTACT DETAILS OF EDTEA COMPLIANCE MONITORING & ENFORCEMENT COMPONENTS

Please note that it is the responsibility of the holder of this Directive to ensure the contact details are correct at the time of submitting any documentation, and that the documentation reaches the relevant official.

Mr. Siyabonga Sikhakhane

22 Dorothy Nyembe Street

Marine Building

Durban

4000

E-mail: Siyabonga.Sikhakhane@kznedtea.gov.za

ANNEXURE E: PROJECT REGISTRATION REQUEST FORM

"SFA7" 61

KWAZULU-NATAL PROVINCE
ECONOMIC DEVELOPMENT, TOURISM
AND ENVIRONMENTAL AFFAIRS
REPUBLIC OF SOUTH AFRICA

DIRECTORATE: ENVIRONMENTAL SERVICES

22 Dorothy Nyembe Street, Durban, 4001
Tel: +27 82 921 9340
Private Bag X 54321
Durban, 4001
www.kzneded.gov.za

Enquiries: Ms Yugeshni Naicker
Telephone: 082 921 9340
Email: Yugeshni.govender@kznedtea.gov.za
Ref: DM/CME/Aug0001/2022

COMPLIANCE, MONITORING & ENFORCEMENT: ETHEKWINI DISTRICT

Date: _____

To : Office of the City Manager
Attention : Mr Musa Mbhele
Email : Musa.Mbhele@durban.gov.za

Cc : eThekwini Municipality: Water and Sanitation
Attention : Mr Ednick Msweli
Email : Ednick.Msweli@duban.gov.za

Dear Sir/s

DIRECTIVE IN TERMS OF SECTION 28(4) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998), AS AMENDED (NEMA), IN RESPECT OF ENVIRONMENTAL DEGRADATION CAUSED BY THE DAMAGE TO NUMEROUS WASTE WATER TREATMENT WORKS, LOCATED WITHIN THE ETHEKWINI MUNICIPALITY

1. DECISION

1.1 I, **Dr B.R Dlamini** in my capacity as **Acting Chief Director**, having considered the matter, am of the view that the eThekwini Municipality and **Mr Musa Mbhele** as the Acting Municipal Manager: eThekwini Municipality and **Mr Ednick Msweli** as Head of Water and Sanitation: eThekwini Municipality have failed to adhere to the provisions of the law in respect of the discharge of sewage into several rivers within the eThekwini Municipality

Accordingly, I hereby issue you **Mr Musa Mbhele as the** Acting Municipal Manager: eThekwini Municipality **and Mr Ednick Msweli** as Head of Water and Sanitation: eThekwini Municipality with a Directive in terms of section 28(4) of the National Environmental Management Act, 1998 (Act No.107 of 1998) as amended, hereinafter referred to as "NEMA".

1.2 The Directive relates to non-compliances with section 28(1) of the NEMA.

2. INTRODUCTION

2.1 The heavy rainfall that was experienced on 11 and 12 April 2022 and that subsequently led to flooding and damage to infrastructure within the Province of KwaZulu-Natal.

2.2 The aftermath of the floods have revealed extensive damage and in many cases the complete loss of critical sanitation infrastructure.

2.3 The current status quo of the Waste Water Treatment Works (WWTW) and pump stations within the eThekwini Municipality is of concern, as raw sewage is being discharged directly into the already polluted watercourses.

3. DISCUSSION

3.1 The Department has received an update on 21 April 2022 of the extent of damage to the WWTWs and pump stations within the eThekwini Municipality. The document indicated that 9 facilities are highly impacted. (refer to Annexure 1 attached herewith)

3.2 Based on the severity of the current situation an emergency meeting was held with the Municipal officials and Officials from the Department on 9 May 2022 to discuss the lack of communication from the Municipality. In this meeting the Municipality provided feedback on the work that has already been undertaken and the priority list of work still to be undertaken. Some of the repairs to the WWTWs are scheduled to be implemented in 3 to 6 months. In the interim the raw sewage will be flowing into the directly into the river.

3.3 The Department acknowledges that the Municipality has endeavoured to repair the minor breaks or blockages. However, there are still a substantial amount of work which requires serious attention.

3.4 As per the presentation the following rivers are severely impacted by raw sewage

3.4.1 Amanzimnyama

3.4.2 Umbilo;

3.4.3 Umkhumbane;

3.4.4 Umgeni;

3.4.5 Mlaas;

3.4.6 Umhlathuzane;

3.4.7 Isipingo; and

3.4.8 Toti

3.5 The Department is of the view that the impacts of these dysfunctional facilities are causing significant pollution and degradation of the environment due to the discharge of raw sewage into the river systems within the eThekwini Municipality. The pollution and degradation to the various river systems are a further threat to human health, well-being and the environment. The Department has received several complaints from residents regarding the stench as well as the spilling of raw sewage into their properties and into the rivers that flow.

3.6 Site inspections were undertaken by the Department on 13 May 2022 and 16 May 2022 to confirm the validity of these complaints.

3.7 The Pre-Directive dated 08 June 2022, was issued to the eThekwini Municipality.

3.8 The eThekwini Municipality provided a response date 13 June 2022 to the Pre-directive.

3.9 The Department requested a meeting with the eThekwini Municipality on 08 July 2022 to discuss the lack of information in the response submitted to the Department. In the meeting the eThekwini Municipality was afforded a further 7 days to provide a detailed response to the Pre-directive.

3.10 The final representation was received on 13 July 2022. The Department has reviewed the information and supporting documents and is of the view that there are no compelling and substantial reasons why the Directive should not be issued. Therefore, the Department is issuing the Directive.

4. APPLICABLE LEGISLATION

4.1 The purpose of the NEMA is to give effect to the Constitutional right of all South Africans to an environment that is not harmful to his or her health or well-being. For this reason, **Section 28(1) of the NEMA** places a duty of care

"on every person who causes, has caused or may cause significant pollution or degradation of the environment to take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment".

4.2 In failing to comply with Section 28(1) of the NEMA, you have breached the provisions in the following ways:

a) Failure to effectively manage this incident in accordance with the provisions contained in S28 of NEMA;

b) Failure to effectively stop the pollution from causing further harm to various rivers;

c) Failure to and ineffectively contain the risk; and

d) Failure to respond to community health risks associated with this pollution incident.

4.3 Without limiting the generality of the duty in subsection (1), the persons on whom subsection (1) imposes an obligation to take reasonable measures, include an owner of the land or premises, a person in control of the land or premises who has a right to use the land or premises on which or in which –

a) Any activity or process is or was performed or undertaken; or

b) Any other situation exists; which causes, has caused or is likely to cause significant pollution or degradation of the environment.

5. OFFENCES

5.1 NEMA

You are reminded that in terms of section 49A (1)(e) and (g) of the NEMA, which states:

"(1) A person is guilty of an offence if that person

(e) unlawfully and intentionally or negligently commits any act or omission which causes significant pollution or degradation of the environment or is likely to cause significant pollution or degradation of the environment;

(g) fails to comply with a directive issued in terms of this Act;

6. PENALTIES

6.1 NEMA

6.1.1 In addition you are reminded that in terms of section 49B of the NEMA which states:

(1) A person convicted of an offence in terms of section 49A(1) (e) or (g) is liable to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years or to both such fine or such imprisonment.

7 INTENDED ENFORCEMENT ACTION

I, Dr B.R Dlamini, in my capacity as Acting Chief Director hereby issue you with a Directive in terms of section 28(4) of the NEMA (Act 107 of 1998), as amended.

7.1 Please note that you are required to do the following:

7.1.1 **Immediately upon receipt of the Directive, stop** pollution at source and implement alternatives to prevent pollution to the receiving environment.

7.1.2 Within **two (02) days** of receipt of the Directive, inform all downstream users that the rivers are polluted, and the water should not be used.

7.1.3 **Immediately upon receipt of the Directive, close the** beaches in close proximity to the following estuaries but not limited to the:

7.1.3.1Umgeni Estuary

7.1.3.2Tongaat Estuary

7.1.3.3La Mercy Estuary

7.1.3.4oHlanga Estuary

7.1.4 Within **five (05)** days of receipt of the Directive, place notices on the beaches to inform the public of the beach closures.

7.1.5 Provide the Department with an assessment report of damages caused to the WWTS, pump, stations and collapsed trunk sewer lines and a Plan of Action on how the Municipality intends on dealing with the repairs to the high and moderately impacted WWTS and pump stations as indicated in Annexure 1. This report must be submitted to the Department within **fourteen (14) days** of receipt of the Directive.

7.1.6 Further to this, the Department requires an assessment of the impact of sewage on the rivers and the aquatic organisms. This assessment must be submitted to the Department within a **one (01) month** of receipt of the Directive.

7.2 The beach closures must remain in place until the Department approves the reopening which must be based on the comments received from the eThekwini Environmental Health and the Department of Water and Sanitation.

7.3 The Department reserves the right to include further instructions should it be deemed necessary.

8. PROCEDURAL ARRANGEMENTS

8.1 According to Section 43(8) of the NEMA, you may lodge an appeal to the MEC against the Directive within thirty (30) days of receipt of the Directive at the following address: Department of Economic Development, Tourism & Environmental Affairs, Private Bag X 9152, Pietermaritzburg 3200 or hand delivered to no. 270 Jabu Ndlovu Street, Pietermaritzburg, 3200.

8.2 In terms of Section 43(10), you may also make representations to the MEC to suspend the operation of this Directive pending finalisation of the appeal, at the following address: Department of Economic Development, Tourism & Environmental Affairs, Private Bag X 9152, Pietermaritzburg 3200 or hand delivered to no. 270 Jabu Ndlovu Street, Pietermaritzburg, 3200.

9. This Directive does not exempt you from compliance with any other relevant and applicable legislation.

10. Failure to comply with the Directive will result in possible criminal prosecution being taken against you.

11. I wish to make it clear that the instructions contained in this directive are made in the interest of responsible environmental management.

Signed on this 25th day of August 2022 at **Pietermaritzburg**

Signed by:Bonginkosi Robert Dlamini
Signed at:2022-08-25 11:04:06 +02:00
Reason:I approve this document

Bonginkosi Robert Dlamini

for **Head of Department**
Economic Development, Tourism & Environmental Affairs
Signed by: Dr BR Dlamini
Designation: Acting Chief Director: Environmental Management

Acknowledgement of Receipt:

DIRECTIVE IN TERMS OF SECTION 28(4) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998), AS AMENDED (NEMA), IN RESPECT OF ENVIRONMENTAL DEGRADATION CAUSED BY THE DAMAGE TO NUMEROUS WASTE WATER TREATMENT WORKS, LOCATED WITHIN THE ETHEKWINI MUNICIPALITY

Attention : Yugeshni Naicker, Grade 2 EMI, eThekwini District
Email : Yugeshni.govender@kznedtea.gov.za

Received by Mr. / Ms. _____ On behalf of _____

On this _____ day of _____ 2022, at _____ Signature: ___

___

Annexure 1

List of Priority Work to be Undertaken

Name of Plant	Area	Severity of Damage	Comments
Northern WWTW	Lower Umgeni	High	1. All concrete tanks, mechanical and electrical equipment were submerged. 2. All pumps, motors and gear boxes needs to be stripped. 3. There was no power and no water on-site. No sewage coming into the Plant.
Tongaat WWTW	Northern Coastal	Medium	1. No inflow to the Works, it is suspected the main incoming sewer line has been damaged. 2. Head of works was covered by the river, M&E team to assess equipment. 3. No power to the Works and generator is not working. 4. Suspect that the main incomer has been damaged. Outfall pipe is covered with sand. 5. Fencing washed away (about 60%). 6. Security hut washed away.
Umdloti WWTW	Northern Coastal	Low	1. No inflow to the Works. Pump stations that feed the plant have been damaged/washed away. 2. Fencing has been damaged. 3. Access road has washed away. Staff cannot access the Works.

KwaNdengezi WWTW	Inland	High	HOW, road, land operating units need proper assessment
Glenwood WWTW	Inland	High	Building at a risk of falling, foundation is exposed
Dassenhoek WWTW	Inland	High	1. Access road badly damaged, 2. Operating units are full of sand, might need emptying and structural assessment
Umhlanga WWTW	North	High	There is no access to the plant, the works already had pre-existing problems with two clarifiers that were leaking where one of them the structure was tilted, with the heavy rains it is suspected that more damage has been done to the structures, the plant is already old it has never received any upgrades .
Umbilo Old WWTW	Lower Umgeni	High	1. The Old Plant Head of Works distribution box and PST's exposed as soil washed away. 2. Most sewage and sludge pipelines are damaged and some washed away. Staff ablution facilities and storerooms washed away by the river. 3. Access road washed away and bridges damaged. 4. No power to the plant. Pumps, gearbox and motors at sump pump stations were flooded, all equipment needs to be stripped. 5. Lot of sand and silt in channels and tanks. 6. Lots of power cables are exposed and some washed away. 7. Severe damage to civil infrastructure.
Umbilo New WWTW	Lower Umgeni	High	1. No Power supply at the Plant. 2. Lots of sand, silt and grit at channels and tanks. 3. Some electricity cables are exposed.

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Water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

KWAZULU-NATAL PROVINCIAL OFFICE

Private Bag X54304, Durban, 4000. Southern Life Building 9th Floor, 88 Field Street, Durban. Tel: (031) 336-2700

Enq.: Mr JG Reddy
Email: ReddyJ@dws.gov.za

Tel.: 031 336 2700
Fax: 031 307 7279

To: Mr Musa Mbele, in your capacity as the Acting City Manager of eThekwini Metropolitan Municipality
To: eThekwini Metropolitan Municipality, as the Water Services Authority (WSA)

Office of the City Manager
eThekwini Metropolitan Municipality
PO Box 1014
DURBAN
4000

CITY MANAGER'S
13 MAY 2022
RECEIVED
PRIVATE BAG X 54305

DELIVERED BY HAND AND ELECTRONIC MAIL

Dear Sir,

DIRECTIVE IN TERMS OF SECTIONS 19(3) AND 20(4) OF THE NATIONAL WATER ACT, 1998 (ACT 36 OF 1998): CONTROL OF EMERGENCY INCIDENTS AND PREVENTION AND REMEDYING THE EFFECTS OF POLLUTION EMANATING FROM THE VARIOUS WASTEWATER TREATMENT WORKS AND ASSOCIATED SEWERAGE INFRASTRUCTURE AND RESULTANT POLLUTION AFFECTING THE ENVIRONMENT AND WATER RESOURCES

1. REASONS FOR DECISION TO ISSUE DIRECTIVE

The Directive issued in terms of Sections 19(3) and 20(4) of the National Water Act, 1998 (Act 36 of 1998), hereinafter referred to as the "NWA," to you **Mr Musa Mbele in your capacity as Acting City Manager (an Accounting Officer)** of eThekwini Metropolitan Municipality, AND to the **eThekwini Metropolitan Municipality as the Water Services Authority (WSA)**, relates to the discharge of untreated and/or inadequately treated sewage effluent and resultant pollution affecting the water resources.

1.1 Section 19(2) outlines reasonable measures to be taken in order to prevent pollution from occurring, continuing or recurring, and these may include measures to -
(a) cease, modify or control any act or process causing the pollution;
(b) comply with any prescribed waste standard or management practice;
(c) contain or prevent the movement of pollutants;
(d) eliminate any source of the pollution;
(e) remedy the effects of the pollution; and
(f) remedy the effects of any disturbance to the bed and banks of a watercourse.

1.2 According to Section 20 (4), a responsible person must-
(a) take all reasonable measures to contain and minimize the effect of the incident;
(b) undertake clean-up procedures;
(c) remedy the effects of the incident; and
(d) take such measures as the catchment management agency may either verbally or in writing direct within the time specified by such institution.

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II. DETAILS OF THE CONDUCT

2.1 The KwaZulu-Natal Province experienced floods on between 8 and 12 April 2022.

2.2 This Department has engaged with Officials of the eThekwini Metropolitan Municipality on areas affected by the recent floods, and the extent of the damage to sewerage infrastructure. Furthermore, the Officials of this Department have conducted site inspections of the impacted Wastewater Treatment Works (WWTW) and related infrastructure, and the findings are as outlined in Table 1.

Table 1: Wastewater Treatment Works (WWTW) within the eThekwini Metropolitan Municipality

No.	WWTW ID	Name of WWTW	Impacted River	Damages Post 11 April 2022
1	1901	Cato Ridge	Sterkspruit	Sand and silt in the ponds.
2	1903	Central	Indian Ocean	Substation doors since 2017 flood and additional damage in this flood. Admin building leaking - to re-waterproof.
3	1926	Craigieburn	Mahlongwana	No major process unit damage. Access road badly damaged.
4	1932	Dassenhoek	Mlazi	Access road badly damaged, Operating units are full of sand, might need emptying and structural assessment.
5	2007	Genazzano	Genazzano	Maturation Pond No.2 - bank collapsed, drying beds have been severely damaged and some electrical cables damaged.
6	2011	Glenwood	Umhlatuzana	Building at a risk of falling, foundation is exposed.
7	2033	Hammarsdale	Sterkspruit	Wall from next company fell and damaged fence.
8	2052	Hillcrest	Umhlatuzana	Operating units are full of sand require emptying and structural assessment.
9	2138	Kwamashu-New	Umhlangane	The damage to fencing and the broken trunk sewer line within the WWTW.
10	2141	KwaNdengezi	Mlazi	Head and works, road and land operating units need proper assessment.
11		Magabeni	Ngane	No process units damages, Access Road badly damaged. Oxidation ponds overflew and polluting the water resource.
12	2538	Mpumalanga	Mlazi	On site road damage, pump station full of sand.
13	2255	New Germany	Aller	Damage to retaining wall by the gate. Fence damaged and soil erosion by the Aeration Basin. Lots of sand, silt, and grit by the head of works.
14	2537	Northern	Umgeni	All concrete tanks, mechanical and electrical equipment were submerged. All pumps, motors and gear boxes need to be stripped. There is no power and no water on-site. No sewage coming into the Plant.
15	2314	Phoenix	Ohlanga	Damages to MCC rooms and damages to fence.

18 MAY 2022
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16	2431	Tongaat Central	oThongathi	No inflow to the works, the main incoming sewer line has been damaged. Head of works was covered by the river, M&E Team to assess equipment. No power to the works and generator is not working. It is alleged that the main incomer has been damaged. Outfall pipe is covered with sand. Fencing washed away (about 60%). Security hut washed away.
17	2448	Umbilo New	Umbilo	No Power supply at the Plant. Lots of sand, silt and grit at channels and tanks. Some electricity cables are exposed.
		Umbilo Old	Umbilo	Head of works distribution box and PST's exposed as soil washed away. Most sewage and sludge pipelines are damaged, and some washed away. Staff ablution facilities and storerooms washed away by the river. Access road washed away and bridges damaged. No power to the plant. Pumps, gear box and motors at sump pumpstations were flooded, all equipment needs to be stripped. Lot of sand and silt in channels and tanks. Lots of power cables are exposed and some washed away. Severe damage to civil infrastructure.
18	2449	Umdloti	Umdloti	No inflow to the works. Pumpstations that feed the plant have been damaged/washed away. Fencing has been damaged. Access road has washed away. Staff cannot access the works.
19	2450	Umhlatuzana	Umhlatuzana	No power and no flow coming into the plant. Lots of sand ingress into channels and tanks. Lots of soil erosion within the plant.
				Inflow pipe damaged by the road. Stairway and walkway by the Shallcross head of works damaged. Main gate and fence line damaged at some parts.
20	2451	Umhlanga	Umhlanga	There is no access to the plant. The plant already had pre-existing problems with two clarifiers that were leaking where one of them the structure was tilted, with the heavy rains it is suspected that more damage has been done to the structures, the plant is already old and it has never received any upgrades.
21	2470		Umdloti	Fencing has washed away, and some sections have been damaged. Drying beds have been damaged. Head of works screen not working. Excessive sand and stones entered the process. Primary tanks need to be emptied and sand removed.

2.3 The following table highlights issues that have been identified within WWTW to be pollution causing prior to the floods.

Table 2. WWTW pre-existing issues causing pollution to water resources

No.	WWTW ID	Name of WWTW	Impacted River	Pre-existing issues (Pre 11 April 2022)
1	1824	Amanzimtoti	Mbokodweni	Clarifiers overflowing solids. Industrial effluent affecting operations.
2	1932	Dassenhoek	Mlazi	Low flows.
3	2007	Genazzano	Genazzano	Scum on clarifiers, Pump station failures result in low flows.
4	2033	Hammarsdale	Sterkspruit	Aerators have mechanical damage, sludge in maturation ponds.
5	2052	Hillcrest	Umhlatuzana	Inflow has excess fats and oils compromising treatment process.
6	2453	Isipingo	Isipingo	Incoming flow is low, Biofilters not operating effectively.
7	2138	KwaMashu - New	Umhlangane	Operating over capacity, sludge accumulation at the maturation ponds.
8		Magabeni WWTW	Ngane	Sludge carryover
9	2255	New Germany	Aller	Industrial effluent affecting operations.
10	2537	Northern	Umgeni	Pump station failures due to theft/vandalism. Johanna Rd PS not operational.
11	2314	Phoenix	Ohlanga	Inefficiently treated effluent discharged into the environment
12	2392	Southern	Indian Ocean	Overflows due to heavy rains.
13	2431	Tongaat Central	eThongathi	Pump station failures and manhole overflows leading to plant.
14	2448	Umbilo	Umbilo (Old and new)	Little inflow at the WWTW. Industrial effluent affecting operations, sludge accumulation and carryover at humus tank.
15	2450	Umhlatuzana	Umhlatuzana	Low inflows.
16	2470	Verulam	Umdloti	RST not working, solids carryover in the final effluent.

III. DIRECTIVE

I, **Ashley Starkey** in my capacity as the Provincial Head, KwaZulu-Natal Provincial Office of the Department of Water and Sanitation (DWS) and duly authorised in terms of the powers delegated to me by the Minister, hereby **DIRECT** you **Mr Musa Mbele** in your capacity as ***Acting* City Manager (and Accounting Officer)** of the eThekwini Metropolitan Municipality AND the **eThekwini Metropolitan Municipality** as the entity responsible for pollution, in terms of Sections 19(3) and 20(4)(a) of the NWA to:

3.1 **Within twenty (20) working days of issue of this Directive**, assess the integrity of the sewage infrastructure and submit an Action Plan with time frames, and allocated or required funding, outlining remedial measures taken and those that will be taken to prevent further pollution of the water resources. This must outline the level of upgrade required for each affected facility to operate at an efficient level.

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3.2 **Within thirty (30) working days of issue of this Directive**, implement intervention measures to stop all pollution emanating from burst pipes, broken manholes, malfunctioning pump stations and/or other related damaged sewage infrastructure that is discharging or has the potential to discharge untreated sewage into water resources within the eThekwini Metropolitan Municipality.

3.3 **Within twenty (20) days of issue of this Directive**, engage at your own expense, an independent Environmental Assessment Practitioner (EAP) or engage relevant internal Professional Specialist expertise to assess the extent of the environmental damage caused by sewage overflow from burst pipes, broken manholes, malfunctioning pump stations and/or other related damaged sewerage infrastructure on the surrounding environment and affected water resources; and compile a Rehabilitation and Remediation Plan. Within the same time frames, submit the above-mentioned reports for review and approval by this Department prior to its implementation.

3.5 **Within five (5) working days of this Departmental approval**, implement all the recommendations outlined in the approved Rehabilitation and Remediation Plan.

3.6 **Within fourteen (14) working days of completion of the remediation**, submit to this Department a Post-Remediation Report and a monthly Monitoring Report, for the duration specified in the approved Remediation Plan.

IV. IMPLICATIONS

4.1 Should you fail to comply, or inadequately comply with this Directive, legal action may be taken against you; and the Department of Water and Sanitation may take the necessary action to remedy the effects of pollution and carry out any works and any other action necessary to rectify the contravention in terms of Section 20(6) of the NWA. The Department of Water and Sanitation will therefore recover all costs from the eThekwini Metropolitan Municipality as stipulated in Section 20(7) of the NWA.

4.2 Please note that failure to comply with a Directive issued under Sections (19) and (20) of the NWA is an offence in terms of Section 151(1)(d) of the NWA. Further, to unlawfully and intentionally or negligently commit any act or omission which pollutes or is likely to pollute a water resource constitutes an offence in terms of Section 151(1)(i) of the NWA.

4.3 In terms of Section 151(2), "*any person who contravenes any provision of subsection (1) is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment.*"

4.4 This Directive will remain in force until such time that the eThekwini Metropolitan Municipality, responds and adheres to all the requirements and concerns raised in this Directive.

4.5 The onus is on the eThekwini Metropolitan Municipality to identify all remedial activities that will trigger water use activities in terms of Section 21 of the NWA and obtain the necessary authorisations from this Department prior to commencement of such activities. In light of the current circumstances the Municipality is reminded of the provisions of section 63 process within the NWA and encouraged to explore this option (i.e. new or upgrade needed to address current pollution).

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V. APPEALS TO WATER TRIBUNAL

5.1 The Proponent to which the Directive has been issued may Appeal to the Water Tribunal in terms of Section 148 (1) of the NWA. The contact details of the Water Tribunal are:

The Chairperson
Water Tribunal
Private Bag X316
Pretoria
0001

5.2 Please note that even though you may Appeal against this Directive to the Water Tribunal in terms of Section 148(1) of the Act, such an Appeal does not suspend the Directive pending the outcome of the Tribunal regarding the Directive.

Please do not hesitate to contact this Office should you have any concerns or queries.

Yours Faithfully,

Provincial Head: KwaZulu-Natal

Date: 13 May 2022

CC: Ms Zanele Msimang – Deputy Director: Compliance Monitoring and Enforcement, DWS.
Ms Angela Masefield – Director: Regulation, DWS.
Ms Bongiwe Msane – Director: Water Sector Support, DWS.

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