

133 Molesworth Street
PO Box 5013
Wellington 6140
New Zealand
T+64 4 496 200

21 December 2023

J Bruning

By email: fyi-request-24587-07251ef0@requests.fyi.org.nz
Ref: H2023032680

Tēnā koe J Bruning

Response to your request for official information

Thank you for your request under the Official Information Act 1982 (the Act) to Ministry of Health | Manatū Hauora (the Ministry) on 30 October 2023 for information regarding water fluoridation.

On 24 November 2023, you received a partial response from the Ministry to your request. Please find below a response to the remaining part of your request.

Further responses concerning amendments to budgeted costs of fluoridation of water supplies (this includes revisions to any of the earlier information) that have been sent to the Ministry of Health, up to October 30, 2023.

The Ministry has identified 32 documents within scope of this part of your request. All documents are itemised in Appendix 1, along with my decision on release. Copies of the documents are enclosed. Please also note that some information has been released as excerpts under section 16(1)(e) of the Act, as the majority of the information within those documents has been deemed out of scope of your request.

Some information within the documents has been withheld under the following sections of the Act:

- 9(2)(a) - to protect the privacy of natural persons;
- 9(2)(b)(ii) - to protect information where the making available of the information would be likely unreasonably to prejudice the commercial position of the person who supplied or who is the subject of the information;
- 9(2)(g)(ii) – to maintain the effective conduct of public affairs through the protection of such Ministers, members of organisations, officers, and employees from improper pressure or harassment and;
- 9(2)(k) - to prevent the disclosure or use of official information for improper gain or improper advantage.

Some of the documents in scope have been withheld in full under section 9(2)(j) of the Act, to enable a Minister of the Crown or any public service agency or organisation holding the information to carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations). This is due to the stage of the procurement process that these local authorities are at.

Where information is withheld under section 9 of the Act, I have considered the countervailing public interest in release in making this decision and consider that it does not outweigh the need to withhold at this time.

In addition to the documents identified in scope of your request, the Ministry has put together the table below which outlines the initial and current estimates for the capital costs for each local authority, to assist with understanding the documents in Appendix 1. I note that some costs in this table are higher than in the corresponding documentation as a contingency has been added to the current estimate.

| Local Authority | Initial estimate | Current estimate |
|--|--|--|
| Auckland Council | Waiuku \$1,500,000 Onehunga \$125,000 \$1,625,000 (total) | Local authority still working through this process |
| Far North District Council | Kaitaia \$400,000 Kerikeri \$400,000 \$800,000.00 (total) | Local authority still working through this process |
| Hastings District Council | \$240,000 | \$2,338,000 |
| Horowhenua District Council | \$1,000,000 | \$688,557.56 |
| Kawerau District Council | \$50,000 | \$630,000 |
| Nelson City Council | \$750,000 | \$909,069 |
| New Plymouth District Council | \$120,000 | \$225,960 |
| Rotorua District Council | Rotorua Central \$722,000 Rotorua East \$618,000 Total: \$1,340,000 | Local authority still working through this process |
| Tararua District Council | \$318,850 | \$542,081 |
| Tauranga City Council | \$3,585,220 | \$2,950,000 |
| Waipa District Council | \$480,000 | \$620,000 |
| Waitaki District Council | \$367,500 | \$571,442.95 |
| Western Bay of Plenty District Council | Athenree \$286,000 Wharawhara \$280,000 \$566,000.00 (total) | Local authority still working through this process |
| Whangarei District Council | Whangarei – Whau Valley \$1,200,000 Bream Bay – Ruakaka and Ahuroa \$1,700,000 \$2,900,000 (total) | \$4,560,856.88 (total excluding Poroti) |

I trust this information fulfils your request. If you wish to discuss any aspect of your request with us, including this decision, please feel free to contact the OIA Services Team on: oiagr@health.govt.nz.

Under section 28(3) of the Act, you have the right to ask the Ombudsman to review any decisions made under this request. The Ombudsman may be contacted by email at: info@ombudsman.parliament.nz or by calling 0800 802 602.

Please note that this response, with your personal details removed, may be published on the Manatū Hauora website at: www.health.govt.nz/about-ministry/information-releases/responses-official-information-act-requests.

Nāku noa, nā



Jane Chambers
Group Manager, Public Health Policy and Regulation
Public Health Agency | Te Pou Hauora Tūmatanui

Appendix 1: List of documents for release

| # | Date | Document details | Decision on release |
|----|---------------------------------|--|--|
| 1 | 24 November 2022 | Auckland Council <i>Fluoridation Upgrade Concept Design Report</i> | Withheld in full under section 9(2)(j) of the Act. |
| 2 | 28 November 2022 | Auckland Council <i>Waiuku WTP Fluoridation System Concept Design Report</i> | |
| 3 | 23 February – 11 April 2023 | Email Correspondence: Fluoridation Funding Works – Far North District Council | |
| 4 | April 2023 | Far North District Council <i>Fluoride Assessment and Concept Design - Kerikeri</i> | |
| 5 | | Far North District Council <i>Fluoride Assessment and Concept Design - Kaitaia</i> | |
| 6 | 9 February 2022 | Excerpt from Hastings District Council <i>Wilson Road WTP Fluoride Upgrade</i> | Excerpt released under section 16(1)(e) of the Act. Some information withheld under section 9(2)(b)(ii) of the Act. |
| 7 | 30 November 2022 – 30 June 2023 | Excerpt of email correspondence: New Fluoridation Works Funding Request | Some information withheld under the following sections of the Act: <ul style="list-style-type: none"> • 9(2)(a); • 9(2)(b)(ii); • 9(2)(g)(ii) and; • 9(2)(k) |
| 8 | 23 May 2022 | Excerpt from Horowhenua District Council <i>Levin WTP Fluoride Upgrade</i> | Excerpt released under section 16(1)(e) of the Act. |
| 9 | 11 October 2023 | Excerpt Horowhenua District Council price | Some information withheld under section 9(2)(b)(ii) of the Act. |
| 10 | 23 March 2023 | Excerpt from Kawerau District Council <i>Kawerau Fluoridation Assessment and Concept Design Report</i> | |
| 11 | November 2022 | Excerpt from <i>Kawerau District Council Funding Fluoridation Capital Works</i> | |

| # | Date | Document details | Decision on release |
|----|--------------------------------|---|--|
| 12 | November 2022 | Excerpt from Nelson City Council <i>Fluoridation Capital Works Funding Application</i> | |
| 13 | 29 May 2023 | Excerpt from Nelson City Council <i>Fluoridation Capital Works Final Design and Quotes</i> | |
| 14 | 30 August 2023 | Excerpt from New Plymouth District Council Claim Form | Excerpt released under section 16(1)(e) of the Act |
| 15 | December 2022 | Excerpt from New Plymouth District Council Project Management cost | Excerpt released under section 16(1)(e) of the Act. Some information withheld under section 9(2)(b)(ii) of the Act. |
| 16 | November 2022 | <i>Rotorua Lakes Council Drinking Supply Fluoridation Specimen Design</i> | Withheld in full under section 9(2)(j) of the Act. |
| 17 | 10 January 2023 | Letter from Tararua District Council to Manatū Hauora | Some information withheld under the following sections of the Act: <ul style="list-style-type: none"> • 9(2)(a) and; • 9(2)(g)(ii) |
| 18 | January 2023 | Excerpt from Tararua District Council Cost estimates | Excerpt released under section 16(1)(e) of the Act. |
| 19 | 20 April 2023 | Excerpt from Tararua District Council <i>Request for Proposal (RFP) Response Form</i> | Some information withheld under section 9(2)(b)(ii) of the Act. |
| 20 | 21 November 2022 | Excerpt from Tauranga City Council <i>TCC Joyce Road, Oropi and Waiāri Fluoridation Concept Design Report</i> | |
| 21 | 3 November 2022 – 6 March 2023 | Waipa District Council email Correspondence: <i>Fluoridation Capital Works Funding</i> | Some information withheld under the following sections of the Act: <ul style="list-style-type: none"> • 9(2)(a); • 9(2)(b)(ii) and; • 9(2)(g)(ii) |
| 22 | 30 November 2022 | Excerpt from <i>Concept Design Report Cambridge Water Supply Fluoridation</i> . | Excerpt released under section 16(1)(e) of the Act. Some information withheld under section 9(2)(b)(ii) of the Act. |

| # | Date | Document details | Decision on release |
|----|-------------------|---|---|
| 23 | 30 November 2022 | Email Correspondence: <i>Waitaki District Council – Fluoridation Funding Capital Works</i> | Some information withheld under the following sections of the Act: <ul style="list-style-type: none"> • 9(2)(a); • 9(2)(b)(ii) and; • 9(2)(g)(ii) |
| 24 | | Excerpt from Waitaki District Council Price Estimate <i>Oamaru WTP Fluoride Dosing</i> | Excerpt released under section 16(1)(e) of the Act. |
| 25 | 6 July 2023 | Waitaki District Council - <i>Oamaru Fluoridation Detailed Design and Construction Cost</i> | Some information withheld under section 9(2)(b)(ii) of the Act. |
| 26 | 30 November 2022 | Western Bay of Plenty District Council (Wharawhara) | Withheld in full under section 9(2)(j) of the Act. |
| 27 | | Western Bay of Plenty District Council (Athenree) | |
| 28 | 24 November 2022 | Excerpt from <i>WDC Fluoride Implementation Report</i> | Excerpt released under section 16(1)(e) of the Act. Some information withheld under section 9(2)(b)(ii) of the Act. |
| 29 | 7 September 2023 | Letter from Whangarei District Council to Manatū Hauora | Some information withheld under the following sections of the Act: |
| 30 | 18 September 2023 | Email Correspondence: Whangarei District Council – Fluoridation Works | <ul style="list-style-type: none"> • 9(2)(a) and; • 9(2)(g)(ii) |
| 31 | 5 October 2023 | Email Correspondence: Whangarei District Council and FNDC | Some information withheld under section the following sections of the Act: <ul style="list-style-type: none"> • 9(2)(a) and; • 9(2)(g)(ii) |
| 32 | 24 November 2023 | Excerpt of Whangarei District Council: Water Treatment Plants Fluoridation | Excerpt released under section 16(1)(e) of the Act. Some information withheld under the following sections of the Act: <ul style="list-style-type: none"> • 9(2)(b)(ii) and; • 9(2)(g)(ii) |

10 Cost Estimate

The cost estimate has reused recent fluoride process costs, however, is considered overall a Class 5 (ACE Cost Estimate Classification System – 18R-97 March 2016) ($\pm 50\%$) due to the current supply environment.

The estimates are significantly higher than initial indications due but not limited to; market constraints, inflation, the discovery of additional works to meet HSNO, delivery and COP requirements as well as the telemetry and SCADA system being identified as requiring upgrade to meet the current HDC systems and standards. The actual costs will be realised as the investigation and design progresses into future stages.

The design and cost estimate includes for duty/standby equipment where applicable, as per HDC usual practice, with the intention of achieving 95% uptime.

The following assumptions apply to the capital cost estimates:

- All WTP (service water and treated water) associated piping are in good condition and can be reused
- Installation costs have been included in the capital costing for process equipment, instrumentation, valves
- Programming/control, are costed for anticipated hours required for qualified personal to carry out WTP PLC and SCADA integration
- Land space identified in Appendix B, Layout Drawing is available and acceptable with regards to HSNO for the fluoride upgrades
- Process residuals e.g., run-to-waste lines can be discharged to the existing waste system
- The existing fluoride building is fit for purpose and may be reused to house the new fluoridation equipment.
- The existing track is accessible for a bulk delivery tanker
- Concrete work is assumed at an additional 6% of the fluoride building capital cost
- Preliminary and general costs are included at 15%
- Design and project management costs are included at 5%
- Contingency costs are included at 30% but will be revised down during detailed design

The following items are excluded from the capital cost estimates:

- Piping lines and sizes from both the delivery area to the fluoride system, and fluoride system to dose point
- MCC or electrical capacity upgrades
- No additional operator hours are required as seen as no new significant change on monitoring requirements
- Extensive alterations to the access track to accommodate tanker delivery, it is assumed that the existing access road is suitable.

The following assumptions apply to the operating cost estimates:

- The flow used is as per current capacity (80 L/s, 6.9 ML/D)
- A fluoride dose of 0.75 mg/L is used
- HFA strength is assumed at 20%
- The consumable cost of HFA (20%): \$0.75/L, no adjustment has been made for future changes to supply price.

The following have been used for maintenance cost estimates:

- 2% of civil capital costs;
- 5% of mechanical / process capital costs;
- 2% of electrical, control and instrumentation capital costs.

The following items are excluded from the operating cost estimates:

- Maintenance and service costs for existing infrastructure surrounding planned fluoride system
- The operating cost estimate details are shown in Appendix D.

Estimates for the fluoride upgrade costs are provided in Table 8 and Table 9.

Table 8 – Fluoride Upgrade Cost Estimates – Option 1

| Description | Value |
|---|------------------|
| Electrical Instrumentation and Control – fluoride dosing integration only | S9(2)(b)(ii) |
| Process and Mechanical Equipment | |
| Civil and Structural Costs | |
| Project Management, Design and Contingency Approximations | |
| Total (± 50%) | \$570,000 |
| Operating Cost (per annum) | |
| 6.9 ML/d | S9(2)(b)(ii) |
| PLC and telemetry upgrades – sitewide (inc P&G etc) | |

Table 9 – Fluoride Upgrade Cost Estimates – Option 2

| Description | Value |
|---|------------------|
| Electrical Instrumentation and Control - fluoride dosing integration only | S9(2)(b)(ii) |
| Process and Mechanical Equipment | |
| Civil and Structural Costs | |
| Project Management, Design and Contingency Approximations | |
| Total (± 50%) | \$555,000 |
| Operating Cost (per annum) | |
| 6.9 ML/d | S9(2)(b)(ii) |
| PLC and telemetry upgrades – sitewide (inc P&G etc) | |

11 Timeline

HDC understands the current commitment to delivery is dated for 30 June 2023. HDC will be striving to provide fluoride dosing as soon as practicable, however, considering constraints on internal, consultant and contractor resourcing and procurement expect that completion of the work will realistically occur in the second half of 2023. A preliminary timeline is presented in Table 10.

Table 10 – Timeline Phases and Duration

| Phase | Duration | Complete By End of |
|----------------------------------|------------|--------------------|
| Further work and considerations | 2 months | March 2023 |
| Funding and Procurement complete | | |
| Detailed design | 3 months | May 2023 |
| Procurement of equipment | 4 months | May 2023 |
| Construction | 1-2 months | August 2023 |
| Commissioning | 1 month | November 2023 |

Leeway has been included to account for supplier engagement, delays and other challenges due to the current resource and supply environment as well as inclusion into an already very busy construction and commissioning delivery programme.

From: S9(2)(g)(ii) [REDACTED]@hdc.govt.nz>
Sent: Friday, June 30, 2023 3:38 PM
To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Subject: RE: New Fluoridation Works Funding Request

Hi S9(2)(a) [REDACTED]

Please see attached below a revised cost estimate for the concept design. It has been structured to show what has been amended.

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| Description | Value |
|---|--------------------|
| Fluoride System | S9(2)(b)(ii) |
| Electrical Instrumentation and Control - fluoride dosing integration only | |
| Process and Mechanical Equipment | |
| Civil and Structural Costs | |
| Project Management, Design and Contingency Approximations | |
| Sub Total (± 50%) | \$555,000 |
| Balance Tank (300m³) | |
| Electrical Instrumentation and Control | S9(2)(b)(ii) |
| Process and Mechanical Equipment | |
| Takeout to 2x D/D Pumps (80 L/s) | |
| Takeout in Pump Controller | |
| Takeout to 200mm Lines | |
| Add In Bore Replacement | |
| Installation | |
| Installation with Takeout | |
| P&G, Design and Contingency Approximations | |
| P&G, Design and Contingency Approximations With Takeout | |
| Sub Total Original (± 50%) | \$2,155,000 |
| Sub Total With Takeout (± 50%) | \$1,783,000 |
| Total (± 50%) | \$2,710,000 |
| Total Reduced (± 50%) | \$2,338,000 |

Happy to discuss further if required, otherwise looking forward to the approval to proceed with detailed design. As discussed we have started procurement discussions and resource availability in the interim.

Regards

S9(2)(g)(ii)
DRINKING WATER MANAGER



Wāea / Phone (06) 871 5110 S9(2)(a) Wāea Pūkoro / Mobile S9(2)(a)
 Īmēra / Email S9(2)(g)(ii) @hdc.govt.nz Pae Tukutuku / Web hastingsdc.govt.nz
 Te Kaunihera ā-Rohe o Heretaunga / Hastings District Council



From: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Sent: Tuesday, 20 June 2023 12:22 PM
To: S9(2)(g)(ii) <[REDACTED]> <[\[REDACTED\]@hdc.govt.nz](mailto:[REDACTED]@hdc.govt.nz)>
Subject: RE: New Fluoridation Works Funding Request

Dear S9(2)

Thank you. We may meet and discuss any concerns so you may relay them to Lutra if required.

I will send through a calendar invite.

Ngā mihi,
S9(2)(a)



S9(2)(a)
Consultant
Ph. S9(2)(a)
E. fluoridationadmin@allenandclarke.co.nz
PO Box 10730, Wellington 6140
Level 2, The Woolstore, 262 Thorndon Quay
Pipitea, Wellington 6011, New Zealand
www.allenandclarke.co.nz

*Tēnā, whakaarohia o Papa-tūā-nuku i mua mai i te tānga atu o tēnei imera |
Consider Papatuanuku (Mother Earth) before printing this email*

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From: S9(2)(g)(ii) <[REDACTED]> <[\[REDACTED\]@hdc.govt.nz](mailto:[REDACTED]@hdc.govt.nz)>
Sent: Tuesday, June 20, 2023 11:48 AM
To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Subject: RE: New Fluoridation Works Funding Request

Hi S9(2)(a)

I can meet with you at this time. Unfortunately Lutra will not be available but happy to proceed and I can take any clarifications or actions to them following the meeting if required.

Regards

S9(2)(g)(ii)
DRINKING WATER MANAGER



Wāea / Phone (06) 871 5110 S9(2)(a) Wāea Pūkoro / Mobile S9(2)(a)
Īmēra / Email S9(2)(g)(ii) <[\[REDACTED\]@hdc.govt.nz](mailto:[REDACTED]@hdc.govt.nz)> Pae Tukutuku / Web hastingsdc.govt.nz

Document 7

To: S9(2)(g)(ii) @hdc.govt.nz
Subject: RE: New Fluoridation Works Funding Request

Dear S9(2)(a)

Thank you.

Ngā mihi,
S9(2)(a)



S9(2)(a)
Consultant
Ph. S9(2)(a)
E. fluoridationadmin@allenandclarke.co.nz
PO Box 10730, Wellington 6140
Level 2, The Woolstore, 262 Thorndon Quay
Pipitea, Wellington 6011, New Zealand
www.allenandclarke.co.nz

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From: S9(2)(g)(ii) @hdc.govt.nz
Sent: Thursday, June 15, 2023 10:54 AM
To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Subject: RE: New Fluoridation Works Funding Request

Hi S9(2)(a)

I will come back with some options for next week before days end.

Regards

S9(2)(g)(ii)
DRINKING WATER MANAGER



Wāea / Phone (06) 871 5110 S9(2)(a) Wāea Pūkoro / Mobile S9(2)(a)
Īmēra / Email S9(2)(g)(ii) @hdc.govt.nz Pae Tukutuku / Web hastingsdc.govt.nz
Te Kaunihera ā-Rohe o Heretaunga / Hastings District Council
Private Bag 9002, Hastings 4156, New Zealand

From: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Sent: Tuesday, 13 June 2023 10:02 AM
To: S9(2)(g)(ii) @hdc.govt.nz
Subject: RE: New Fluoridation Works Funding Request

Dear S9(2)(a)

Please can we follow up on the below matter?

Ngā mihi,

S9(2)(a)



S9(2)(a)

Consultant
 Ph. S9(2)(a)
 E. fluoridationadmin@allenandclarke.co.nz
 PO Box 10730, Wellington 6140
 Level 2, The Woolstore, 262 Thorndon Quay
 Pipitea, Wellington 6011, New Zealand
www.allenandclarke.co.nz

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From: Fluoridation Admin
Sent: Tuesday, June 6, 2023 2:56 PM
To: S9(2)(g)(ii) <[S9\(2\)\(g\)\(ii\)@hdc.govt.nz](mailto:S9(2)(g)(ii)@hdc.govt.nz)>
Subject: RE: New Fluoridation Works Funding Request

Dear S9(2)(a)

Thank you for providing the further information and revised cost estimates for Hastings District Council.

We have reviewed the further information and revised costs and we would like to discuss the revised costs given it is a significant increase from the original amount.

Can you please let us know of your availability and some suitable dates/times that would work for you?

Ngā mihi,

S9(2)(a)



S9(2)(a)

Consultant
 Ph. S9(2)(a)
 E. fluoridationadmin@allenandclarke.co.nz
 PO Box 10730, Wellington 6140
 Level 2, The Woolstore, 262 Thorndon Quay
 Pipitea, Wellington 6011, New Zealand
www.allenandclarke.co.nz

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From: S9(2)(g)(ii) <[S9\(2\)\(g\)\(ii\)@hdc.govt.nz](mailto:S9(2)(g)(ii)@hdc.govt.nz)>
Sent: Tuesday, May 16, 2023 12:00 PM
To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Subject: RE: New Fluoridation Works Funding Request

Hi S9(2)(a)

Below is an updated cost estimate and programme for the fluoride installation at Wilson Road WTP.

Document 7

A 300m³ balance tank for fluoride contact time has been included as part of the upgrade to meet the requirements. Additional points to note include:

- The cost estimates are conservative reflecting the uncertainty around the tank, space, generator etc.
- Costs have been separated into the fluoride installation and contact tank.
- The tank is sized to provide ~18 min of contact time at an assumed baffle factor of 0.3 and 80 L/s
- Pumping system rated to deliver 80 L/s (D/D/S/S) or 160 L/s (D/D/D/D) at 11 bar with a maximum operating pressure of 16 bar.
- A provisional line item based on Frimley/Eastbourne standardisation if the contact tank was to be at the preferred size i.e. ~ 8 ML/d
- Extended the programme timelines to account for consenting and consultation related to reservoir, additional complexity and adjusted for the current month. As before there is also a degree of design / consultation etc. occurring in parallel but the reservoir installation adds significant uncertainty with timeframes at present until further investigation is undertaken.
- Currently based on relocation of generator to outdoor enclosure to free up space in building for TW pumps.
- Confirmation required that generator will still be sufficient to operate new configuration.

Note we have not included:

- Costs for downsizing of the bore pump to suit the lower delivery head to the tank
- Power costs are assumed to remain the same (approximately same delivery pressure)

Table 9 – Fluoride Upgrade Cost Estimates – Option 2

| Description | Value |
|---|--------------------|
| Fluoride System | S9(2)(b)(ii) |
| Electrical Instrumentation and Control - fluoride dosing integration only | |
| Process and Mechanical Equipment | |
| Civil and Structural Costs | |
| Project Management, Design and Contingency Approximations | |
| Sub Total (± 50%) | \$555,000 |
| Balance Tank (300m³) | |
| Electrical Instrumentation and Control | S9(2)(b)(ii) |
| Process and Mechanical Equipment | |
| Installation | |
| P&G, Design and Contingency Approximations | |
| Sub Total (± 50%) | \$2,155,000 |
| Total (± 50%) | \$2,710,000 |
| Operating Cost (per annum) | |
| 6.9 ML/d (exc Power) | S9(2)(b)(ii) |
| Additional Costs (Not directly related to fluoride upgrade) | |
| PLC and telemetry upgrades – sitewide (inc P&G etc) | S9(2)(b)(ii) |
| Preferred Reservoir (8 ML/d) | |

Table 10 – Timeline Phases and Duration

| Phase | Duration | Complete By End of |
|----------------------------------|----------|--------------------|
| Further work and considerations | 4 months | August 2023 |
| Funding and Procurement complete | | |
| Detailed design | 3 months | October 2023 |
| Procurement of equipment | 4 months | January 2023 |
| Construction | 3 months | April 2024 |
| Commissioning | 1 month | May 2024 |

Please let me know if you have any queries related to this new information.

Regards

S9(2)(g)(ii)
DRINKING WATER MANAGER



Wāea / Phone (06) 871 5110 S9(2)(a) Wāea Pūkoro / Mobile S9(2)(a)
 Īmēra / Email S9(2)(g)(ii) @hdc.govt.nz Pae Tukutuku / Web hastingsdc.govt.nz
 Te Kaunihera ā-Rohe o Heretaunga / Hastings District Council
 Private Bag 9002, Hastings 4156, New Zealand

From: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
 Sent: Thursday, 11 May 2023 4:00 PM
 To: S9(2)(g)(ii) @hdc.govt.nz
 Subject: RE: New Fluoridation Works Funding Request

Dear S9(2)(g)(ii)

Just wanted to see if there were any updates on this?

Thank you.

Ngā mihi,
S9(2)(a)



S9(2)(a)
 Consultant
 Ph. S9(2)(a)
 E. fluoridationadmin@allenandclarke.co.nz
 PO Box 10730, Wellington 6140
 Level 2, The Woolstore, 262 Thorndon Quay
 Pipitea, Wellington 6011, New Zealand
www.allenandclarke.co.nz

Document 7

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From: Fluoridation Admin
Sent: Tuesday, May 2, 2023 9:57 AM
To: S9(2)(g)(ii) <[REDACTED]@hdc.govt.nz>
Subject: RE: New Fluoridation Works Funding Request

Dear S9(2)(g)(ii) <[REDACTED]>

Just wanted to check in if you have received the updated costs and information from Lutra regarding the buffer storage?

Ngā mihi,
S9(2)(a) <[REDACTED]>



S9(2)(a) <[REDACTED]>
Consultant
Ph. S9(2)(a) <[REDACTED]>
E. fluoridationadmin@allenandclarke.co.nz
PO Box 10730, Wellington 6140
Level 2, The Woolstore, 262 Thorndon Quay
Pipitea, Wellington 6011, New Zealand
www.allenandclarke.co.nz

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From: S9(2)(g)(ii) <[REDACTED]@hdc.govt.nz>
Sent: Monday, April 24, 2023 3:42 PM
To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Subject: Re: New Fluoridation Works Funding Request

Hi S9(2)(g)(ii) <[REDACTED]>

I was following up on this with Lutra last week and expect updated costs/implications info to be through within a week.

I will provide the information as soon as received.

Regards
S9(2)(g)(ii) <[REDACTED]>

Sent from my iPhone

Document 7

On 24/04/2023, at 3:27 PM, Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz> wrote:

Dear S9(2)(g)(ii)

Further to the below in relation to the buffer storage, we just wanted to follow up on the concept design and costs.

Please let us know of any updated and the potential impacts this may have on the compliance date for Hastings District Council.

Ngā mihi,

S9(2)(a)

<image010.jpg>

S9(2)(a)

Consultant

Ph. S9(2)(a)

E. fluoridationadmin@allenandclarke.co.nz

PO Box 10730, Wellington 6140

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From: S9(2)(g)(ii) <[S9\(2\)\(g\)\(ii\)@hdc.govt.nz](mailto:S9(2)(g)(ii)@hdc.govt.nz)>

Sent: Wednesday, March 8, 2023 12:24 PM

To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>

Subject: RE: New Fluoridation Works Funding Request

Kia ora S9(2)(a)

Thanks for your comments and clarity that the buffer storage is a must.

On this basis we are considering options to facilitate this component into the project and will come back to you with a concept and updated pricing ASAP.

Regards

S9(2)(g)(ii)

DRINKING WATER MANAGER

<image011.png>

<image012.jpg>

Wāea / Phone (06) 871 5110 S9(2)(a) Wāea Pūkoro / Mobile S9(2)(a)
Īmēra / Email S9(2)(g)(ii) <[S9\(2\)\(g\)\(ii\)@hdc.govt.nz](mailto:S9(2)(g)(ii)@hdc.govt.nz)> Pae Tukutuku / Web hastingsdc.govt.nz
Te Kaunihera ā-Rohe o Heretaunga / Hastings District Council
Private Bag 9002, Hastings 4156, New Zealand

From: Fluoridation Admin [<mailto:fluoridationadmin@allenandclarke.co.nz>]
Sent: Tuesday, 7 March 2023 2:52 PM
To: S9(2)(g)(ii) @hdc.govt.nz
Subject: RE: New Fluoridation Works Funding Request

Dear S9(2)(g)(ii)

Thank you for providing the further information.

We have reviewed the information provided and are satisfied with the responses. However, we note the following regarding buffer storage:

In relation to buffer storage, it is essential that buffer storage is included in the design before fluoridation of the Wilson Road supply can be approved. It is doubtful that the pipe connecting to the reticulation could serve that purpose. Until Council is able to install reservoir storage, the best solution in the interim would appear to be a smaller volume of buffer storage. The CoP is clear that buffer storage must be provided.

Lutra should be able to provide a concept design for this.

Please may you provide any further comments on the above?

Ngā mihi,
S9(2)(a)

<image014.jpg>

S9(2)(a)
Consultant
Ph. S9(2)(a)
E. fluoridationadmin@allenandclarke.co.nz
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From: S9(2)(g)(ii) @hdc.govt.nz
Sent: Thursday, March 2, 2023 2:36 PM
To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Subject: RE: New Fluoridation Works Funding Request

Kia ora S9(2)(a)

Sorry for the delay in responding, we have been fully focussed on event response following Cyclone Gabrielle and I am just starting to pick up a portion of BAU again this week.

Please see responses below.

Document 7

I am happy to arrange a phone call to discuss any points further as necessary.

Regards

S9(2)(g)(ii)
DRINKING WATER MANAGER

<image015.png>

<image016.jpg>

Wāea / Phone (06) 871 5110 S9(2)(a) Wāea Pūkoro / Mobile S9(2)(a)
Īmēra / Email S9(2)(g)(ii) @hdc.govt.nz Pae Tukutuku / Web hastingsdc.govt.nz
Te Kaunihera ā-Rohe o Heretaunga / Hastings District Council
Private Bag 9002, Hastings 4156, New Zealand

<image017.jpg>

From: Fluoridation Admin [<mailto:fluoridationadmin@allenandclarke.co.nz>]

Sent: Monday, 13 February 2023 1:37 PM

To: S9(2)(g)(ii) @hdc.govt.nz

Subject: RE: New Fluoridation Works Funding Request

Dear S9(2)(g)(ii)

Thank you for submitting an updated report and providing the responses below.

The updated information has been reviewed and the following comments have been noted:

1. It appears that the costs of upgrading the PLC and telemetry have now been excluded.
Correct, costs have been apportioned between those specifically required for this project and a wider site upgrade.
2. The estimates have not included for buffer storage (4.4.5e of CoP).
A placeholder has been included in the budgets provided to the NTU for consideration for the installation of storage and pumping at this site. This is not currently a high priority and would also be subject to procurement of land and consenting. As we have stated in section 5.3.5 of the Basis of design report "The Fluoridation Code of Practice states that the chemical injection point must "be located upstream of buffer storage of treated water". At present the buffer storage for Wilson Rd is the pipe connecting to the reticulation. While this is not ideal, planning is in place to investigate the implementation of reservoir storage onsite in future.
In the interim, the plant will be designed to slam shut immediately if the treated water does not meet specification, trapping water in the near surrounding area. This is consistent with the current response to if chlorination or UV treatment is not within specified limits." Further this is more reason to include all 3 independent checks listed. Happy to discuss this point and what is required to satisfy this process.
3. The costs estimates have been revised downwards however, the costs of providing buffer storage needs to be included or a portion of the costs if there are other reasons for installing. Costs estimates also included 3 independent checks but only 2 are necessary.
As standard we would include all three independent checks for extra risk mitigation. This approach would be especially prudent in this instance due to the limited buffer storage. We would only concede on one of these items if deemed appropriate during HAZOP further into the design phase. Refer above for commentary on buffer storage.
4. Raw water fluoride and alkalinity not included. Could there be a risk of corrosivity?

Average RW Fluoride – 0.10mg/L and Alkalinity 60mg/L. This groundwater source naturally tends towards a corrosivity potential. This source was fluoridated historically with no known adverse effect on corrosivity. As a note, we are currently undertaking an corrosivity study within this water supply which includes the consideration of Fluoridation recommencing.

5. The target fluoride concentration should be 0.80 or 0.85 mg/L. Even with a well-operated fluoridation plant, it will be ± 0.15 mg/L so the target needs to be 0.8 or 0.85 mg/L to be within the MoH recommended range of 0.7 to 1.0 mg/L.

Councils mandate at the time of Fluoridation ceasing and to be continued once recommenced is to target the lower end of the MoH range. With the level of storage proposed we have ample capacity to be able to increase the dose rate as required to ensure we are able to achieve the MoH recommended range.

Please may you provide further comments / information on the concerns above so that we may progress the application to the next stage.

Ngā mihi,

S9(2)(a)

<image018.jpg>

S9(2)(a)

Consultant

Ph. S9(2)(a)

E. fluoridationadmin@allenandclarke.co.nz

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From: S9(2)(g)(ii) @hdc.govt.nz>

Sent: Thursday, 9 February 2023 3:03 PM

To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>

Subject: RE: New Fluoridation Works Funding Request

Kia ora S9(2)(a)

Please find attached an updated report and detail below in response to your queries.

Please let me know if there are any further queries following this response.

Regards

S9(2)(g)(ii)

DRINKING WATER MANAGER

<image011.png>

<image020.jpg>

Wāea / Phone (06) 871 5110 S9(2)(a) Wāea Pūkoro / Mobile S9(2)(a)
Īmēra / Email S9(2)(g)(ii) @hdc.govt.nz Pae Tukutuku / Web hastingsdc.govt.nz
Te Kaunihera ā-Rohe o Heretaunga / Hastings District Council
Private Bag 9002, Hastings 4156, New Zealand

Kia ora S9(2)(g)(ii)

Our independent engineer has now finished assessing Hastings District Council's documents submitted as part of the funding request for fluoridation capital works.

He came back with a few comments as below:

1. While the report presents a justification for the upgrading of the PLC and telemetry (5.6.1), there is no attempt to apportion costs between the fluoridation project and the business-as-usual renewal/upgrading of this asset.

Refer Section 10 – Costs attributed to site wide Telemetry upgrade have been identified.

2. Selection of FSA is fine, but HDC hasn't selected if it is going to be bulk tanker or IBC delivery. If HDC adopt the tanker delivery option, there could be significant costs of altering access track to cater for tanker deliveries (these costs have been specifically excluded). Therefore, it is probably preferable to adopt the IBC delivery option.

Option 2 – IBC Delivery is the preferred option to progress into detailed design.

3. Estimates have not included for buffer storage (refer 4.4.5 e) of CoP).

Refer section 5.3.5

4. There is no reference to independent checks, and fluoride analyser is for both control and compliance (refer section 5.7).

Refer section 5.7.1

5. The design does not address the issue of the Wilson Road WTP supply area being hydraulically connected to the wider Hastings urban supply. Fluoridated water that crosses the boundary into the wider supply will be diluted and therefore not effective for oral health. On the one hand this represents a waste of fluoride chemical, but it also means a chemical is being added to that water unnecessarily. This does not represent good water supply practice.

Refer section 2.1

6. Cost estimates appear too high. For example – there are two fluoride analysers when one is sufficient, a standby transfer pump seems unnecessary, electrical and controls appears to include all the PLC/telemetry upgrading cost, contingency is high at 30%. These need to be revised downwards, but this may be offset by the cost of providing buffer storage.

Refer section 10 – Contingency is currently set at 30% but will be revised downwards during detailed design. Costs attributed to site wide Telemetry upgrade have been identified. The design and cost estimate includes for duty/standby equipment where applicable, as per HDC usual practice, with the intention of achieving 95% uptime.

7. Procurement plan is too high-level – its details need to be better nailed down.

Refer section 9

Could you please provide further comments on the concerns above so that we can progress to the next stages of the funding request?

Ngā mihi,

S9(2)(a)

<image023.jpg>

S9(2)(a)

Consultant

E. fluoridationadmin@allenandclarke.co.nz

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From: S9(2)(g)(ii) [redacted] <[\[redacted\]@hdc.govt.nz](mailto:[redacted]@hdc.govt.nz)>
Sent: Wednesday, 30 November 2022 12:46 pm
To: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>; S9(2)(a) [redacted]
S9(2)(a) [redacted] <[\[redacted\]@allenandclarke.co.nz](mailto:[redacted]@allenandclarke.co.nz)>
Subject: New Fluoridation Works Funding Request

Hi,

A new Request for Funding has been submitted by S9(2)(g)(ii) [redacted] on behalf of Hastings District Council.

Follow this link to view the account and associated documents:

S9(2)(k) [redacted]

Please ensure you:

1. Review the submitted documents
2. Create the fluoridation works funding request
3. Send an acknowledgement letter to the requestor within 1 working day.

Thanks,

Kotahi

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9 Cost Estimate

The cost estimate has reused recent fluoride process costs, however is considered overall a Class 5 (AACE Cost Estimate Classification System – 18R-97 March 2016) ($\pm 50\%$) due to the current supply environment.

The following assumptions apply to the capital cost estimates:

- All WTP (service water and treated water) associated piping are in good condition and can be reused
- Installation costs have been included in the capital costing for process equipment, instrumentation, valves
- Programming/control, are costed for anticipated hours required for qualified personal to carry out WTP PLC and SCADA integration
- Land space identified in Appendix B, Layout Drawing is available and acceptable with regards to HSNO for the fluoride upgrades
- Process residuals e.g. run-to-waste lines can be discharged to the existing waste system
- Fluoride building requirements are costed at \$1750/m² for a solid block wall building as per quotation value limited (QV) cost estimator
- Concrete work is assumed at an additional 6% of the fluoride building capital cost
- Preliminary and general costs are included at 20%
- Design and project management costs are included at 15%
- HDC Internal expenses including Engineer to Contract
- Contingency costs are included at 35%

The following items are excluded from the capital cost estimates:

- Piping lines and sizes from both the delivery area to the fluoride system, and fluoride system to dose point
- MCC or electrical capacity upgrades
- Removal of the septic tank / waste system connection
- No additional operator hours are required as seen as no new significant change on monitoring requirements

The following assumptions apply to the operating cost estimates:

- The flow used is as per in 2022 current capacity (15 ML/D), 2050 (31.5 ML/D) from the WTP design basis
- A fluoride dose of 0.75 mg/L is used at both 2022 and 2050 flows
- HFA strength is assumed at 20%
- The consumable cost of HFA (20%): \$0.75/L, no adjustment has been made for 2050;

Estimates for the fluoride upgrade costs are provided in Table 10. Please see Appendix C for a detail cost breakdown.

Table 10 – Fluoride Upgrade Cost Estimates

| Description | Value |
|--|------------------|
| Process Equipment | S9(2)(b)(ii) |
| Electrical Instrumentation and Control | |
| Civil and Structural Costs | |
| Process and Electrical Equipment Installations | |
| Engineering & Project Management | |
| Preliminary & General | |
| HDC Internal expenses including Engineer to Contract | |
| Total (± 35%) | \$720,000 |
| Contingency | \$252,000 |
| | |
| Grand Total | \$972,000 |
| Operating Cost (per annum) | |
| 2022 | S9(2)(b)(ii) |

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SECTION 3: Price

| Item | Description | Type | Cost |
|------|--|-----------------|---------------------|
| 1.0 | Project Management, Project Engineering and Design | Lump Sum | S9(2)(b)(ii) |
| 2.0 | Labour Workshop & Onsite Works (incl. Travel, accommodation, and allowances) | Lump Sum | |
| 3.0 | Equipment and Materials | Lump Sum | |
| 4.0 | Building / Civil Works incl. Design and Construction monitoring (IL3) | | |
| 4.1 | Structural Design | Lump Sum | |
| 4.2 | Bund Coating | Lump Sum | |
| 4.3 | Structural and Building works. -Bund Modifications -Rain protection /Louvers | Provisional Sum | |
| 5.0 | Electrical / Instrumentation Works | Provisional Sum | |
| 6.0 | Automation / Controls Works | Lump Sum | |
| 7.0 | Excavation & Underground Pipework | Lump Sum | |
| 9.0 | Freight | Lump Sum | |
| 10. | Peroxided Relocation | | |
| 10.1 | Structural works (Pad and Lean-to) | Provisional Sum | |
| 10.2 | Remaining works | Lump Sum | |
| | Total | | \$688,557.56 |
| | Optional | | |
| | Replace 2 x Air Driven Transfer pumps with Grundfos 2x DME 940 | PC ± 10% | S9(2)(b)(ii) |
| | Spares | | |
| | E+H Liquipoint FTW31(Tank Level Switch) | EA | |
| | E+H Micropilot FMR20 (Tank Level Transmitters) | EA | |
| | DDA Valve Kit | EA | |
| | DDA Service Kit | EA | |

9 Cost Estimate

The cost estimate has reused recent fluoride process costs, however, is considered overall a Class 5 (AACE Cost Estimate Classification System – 18R-97 March 2016) ($\pm 50\%$) due to the current supply environment.

The following assumptions apply to the capital cost estimates:

- Installation costs have been included in the capital costing for process equipment, instrumentation, valves.
- Programming / control, are costed for anticipated hours required for qualified personnel to carry out WTP PLC and SCADA integration.
- Land space identified in Appendix B, Layout Drawing is available and acceptable with regards to HSNO for the fluoride upgrades.
- Good ground.
- Only Geotechnical assessment has been included as enabling works for CAPEX assessment, with the remaining work assumed to be part of the engineering and project management allowance.
- Preliminary and general costs are included at 15%.
- Design and project management costs are included at 5%.
- Contingency costs are included at 30%.

The following items are excluded from the capital cost estimates:

- Piping lines from both the delivery area to the fluoride system, and fluoride system to dose point.
- Remedial civil works for additional ground preparation.
- MCC or electrical capacity upgrades.

The following assumptions apply to the operating cost estimates:

- The flow used is as per the current average demand (4,000 m³/d) and maximum consented flow (14,000 m³/d).
- A fluoride dose of 0.8 mg/L is used at average flow, and 1.0 mg/L is used at maximum flow.
- FSA strength is assumed at 17 wt% as fluoride (22 wt% as FSA).
- The consumable cost of FSA (17%): \$0.75/L, no adjustment has been made for future price changes.
- No additional operator hours are required as there are no new significant changes to monitoring requirements.

The following have been used for maintenance cost estimates:

- 2% of civil capital costs.
- 5% of mechanical / process capital costs.
- 2% of electrical, control and instrumentation capital costs.

The following items are excluded from the operating cost estimates:

- Maintenance and service costs for existing infrastructure surrounding planned fluoride system.

The operating cost estimate details are shown in Appendix E.

Estimates for the fluoride upgrade costs are provided in Table 11.

Table 11 – Fluoride Upgrade Cost Estimates

| Description | Value |
|---|------------------|
| Enabling Works | S9(2)(b)(ii) |
| Fluoridation Process Equipment | |
| Fluoridation Electrical Instrumentation and Control | |
| Fluoridation Civil and Structural Costs | |
| Project Management, Design and Contingency Approximations | |
| Total (± 50%) | \$602,000 |
| Operating Cost (per annum) | |
| 4,000 m ³ /day (Average) | S9(2)(b)(ii) |
| 14,000 m ³ /day (Max) | |

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4 Information on System Procurement and Cost Estimates

4.1 Procurement Plan

KDC will acquire its HFA from IXOM with deliveries of approximately 1 – 2 IBCs every 3 months depending on the district's demands and consumption.

Chemfeed will provide the whole fluoridation system and will be responsible for installing the system as well as training the staff in handling the equipment.

All civil works will be done by Kawerau Residential Services and all electrical works by Jones and Cole Electrical.

Section 5 of this document details the proposed timeline for each implementation stage.

4.2 Received Quotations

KDC has received three quotations – one for the chemical supply and two for the fluoridation system. Table 3 shows the quotation for the fluoride chemicals while Table 4 shows the quotations for the fluoridation system.

Table 3. Fluoride Supply Quotations

S9(2)(b)(ii)

The prices above include delivery but exclude GST. Delivery quantity and frequency will affect the total chemical supply costs.

Table 4. Fluoridation System (Saturator System and Fluoride Analyser) Quotations

S9(2)(b)(ii)

Note that the prices above do not account for freight and any civil, electrical, and automation works e.g., removal of the existing lime tank. All pricing is also exclusive of GST.

All companies are trusted suppliers with good records doing work for the Council.

4.3 Itemised Cost Estimate

The table below shows the itemised cost estimates for the whole fluoridation system upgrade of the WTP including all general works and provisional sum items.

Table 5. Itemised Cost Estimate

| | Item | Estimated Cost |
|-----|--|----------------|
| 1 | General | S9(2)(b)(ii) |
| 1.1 | Design | |
| 1.2 | Insurances | |
| 1.3 | Contract Management, Communication, and Reporting | |
| 1.4 | Contract Quality Plan and Environmental Protection | |
| 1.5 | Public Relations and Liaison | |
| 1.6 | Health and Safety | |
| 1.7 | Electrical and Automation Works | |

| | | |
|----------|--|----------------------|
| 2 | Stage 1 Works | S9(2)(b)(ii) |
| 2.1 | Caustic Soda Dosing System | |
| 2.1.1 | <i>Removal of Hydrated Lime bags from the Storage Area</i> | |
| 2.1.2 | <i>Installation, Testing, and Commissioning of Caustic Soda System</i> | |
| 2.1.3 | <i>Caustic Soda Chemical Supply</i> | |
| 3 | Stage 2 Works | |
| 3.1 | Dismantling of Existing Lime Tank | |
| 3.2 | Installation, Testing, and Commissioning of Fluoridation System | |
| 3.2.1 | <i>HFA System</i> | |
| 3.2.2 | <i>Fluoride Analyser (included in the system)</i> | |
| 3.3 | HFA Supply (3-month supply, 5 IBCs) | |
| 4 | Provisional Sum Items | |
| 4.1 | Bypass temporary piping/hose | |
| 4.2 | Bypass pump | |
| 4.3 | Remedial Works | |
| 4.4 | Labour (40 hrs) | |
| 4.4.1 | <i>Site Representative</i> | |
| 4.4.2 | <i>Foreman/Works Supervisor</i> | |
| 4.4.3 | <i>Labourer</i> | |
| 4.4.4 | <i>Major Plant Operator</i> | |
| 5 | Contingency Sum | |
| 5.1 | Contingency Sum (10%) | |
| | TOTAL (excl. GST) | \$ 208,573.49 |

Note that the prices for the equipment do not include freight.

4.4 Operating Cost Estimates

The table below shows the estimated annual operating costs per annum.

Table 6. Annual Operating Costs Estimates

| | Item | Estimated Cost |
|---|--------------------------|---------------------|
| 1 | Chemical - HFA | S9(2)(b)(ii) |
| 2 | Operator Input | |
| 3 | Maintenance | |
| | TOTAL (excl. GST) | \$ 19,488.47 |

The operating costs are based on the following assumptions:

- Chemical costs are based on prices received from IXOM.
- Operator input is based on 2 hours/week at an operator hourly rate of \$50/hour. The hourly rate may be lower for some supplies.
- Maintenance costs have been estimated as 2% of the capital costs of the plant.
- Monitoring and compliance costs have been excluded.
- GST is excluded.

| Item | Description | Cost (\$) |
|-------------|--|------------------|
| 1.0 | Design | S9(2)(b)(ii) |
| 1.1 | <i>Concept design</i> | |
| 1.2 | <i>Detailed design</i> | |
| 1.3 | <i>Safety in Design and Risk Assessment and detailed design peer review</i> | |
| 2.0 | Allowance for professional services for project requirements | |
| 3.0 | Review of as-built drawing | |
| 4.0 | Review of contractor pricing | |
| 5.0 | Consent (Building Consent) | |
| | Subtotal items 1 to 5 | 107,000 |
| 6.0 | Equipment and Materials | |
| 6.1 | <i>12,000 litres HFA Storage tank</i> | S9(2)(b)(ii) |
| 6.2 | <i>150 litres HFA day tank and bund for day tank including seismic restraints and PS1 documentation</i> | |
| 6.3 | <i>One off HFA dosing pump and HFA transfer pump</i> | |
| 6.4 | <i>HFA dosing pump cabinet with support frame and extraction fan</i> | |
| 6.5 | <i>Instrumentation</i> | |
| 6.6 | <i>HFA Tanker chemical unloading cabinet</i> | |
| 6.7 | <i>Safety shower with integral bleed valve hose reel, safety signs and equipment tags</i> | |
| 6.8 | <i>Valves, PVC piping, pipe brackets and consumables</i> | |
| 7.0 | Labour for Mechanical Works | |
| 7.1 | <i>Project management</i> | |
| 7.2 | <i>Process and mechanical design</i> | |
| 7.3 | <i>Workshop fabrication</i> | |
| 7.4 | <i>Site mechanical installation labour including travel and accommodation</i> | |
| 7.5 | <i>Automation works (including hardware)</i> | |
| 7.6 | <i>Electrical installation works (including materials)</i> | |
| 7.7 | <i>Commissioning including travel and accommodation</i> | |
| 7.8 | <i>Mechanical installation of new water flow meter on permeate line to ultrafiltration skids CIP tanks</i> | |
| 8.0 | Plant hire (platform ladders), delivery & craneage for off-loading equipment on site | |
| 9.0 | Sign-off by Certified Process Engineer (excluding allowance for site visit) | |
| | Subtotal items 6 to 9 | 436,051 |
| 10.0 | Civil works for foundation and bunding for HFA area including PS4 documentation | S9(2)(b)(ii) |

| <u>Item</u> | <u>Description</u> | S9(2)(b)(ii) |
|--------------------|---|-----------------------|
| 11.0 | Works relating to relocation of existing facilities in the area to make way for HFA plant | |
| 12.0 | Programming of new installation into existing system | |
| 13.0 | Flow meter for permeate line to ultrafiltration skids CIP tanks | |
| 14.0 | HFA Supply (allowance of 1000 litres for commissioning) – approximate cost | |
| 15.0 | HASNO certification | |
| 16.0 | Provision of services including water and compressed air to fluoridation area | |
| | Subtotal items 10 to 16 | 160,302 |
| | Total | 703,353 |
| | Contingency – approximately 25% | 177,241 |
| | <u>Grand Total excluding GST</u> | <u>880,594</u> |

7. Timeline

- 7.1 Indicative timeline – The indicative timeline for planned activities of the project from inception to completion is attached (Appendix 15). It shows the various activities planned to ensure that by 30 April 2024, fluoridation of Nelson drinking water supply is being carried out as directed.

| Item | Description | Cost (\$) |
|-------------|--|------------------|
| 1.0 | Design | |
| 1.1 | <i>Concept design</i> | S9(2)(b)(ii) |
| 1.2 | <i>Detailed design</i> | |
| 1.3 | <i>Safety in Design and Risk Assessment and detailed design peer review</i> | |
| 2.0 | Allowance for professional services for project requirements | |
| 3.0 | Review of as-built drawing | |
| 4.0 | Review of contractor pricing | |
| 5.0 | Consent (Building Consent) | |
| | Subtotal items 1 to 5 | 127,000 |
| 6.0 | Equipment and Materials | |
| 6.1 | <i>12,000 litres HFA Storage tank</i> | S9(2)(b)(ii) |
| 6.2 | <i>150 litres HFA day tank and bund for day tank including seismic restraints and PS1 documentation</i> | |
| 6.3 | <i>One off HFA dosing pump and HFA transfer pump</i> | |
| 6.4 | <i>HFA dosing pump cabinet with support frame and extraction fan</i> | |
| 6.5 | <i>Instrumentation</i> | |
| 6.6 | <i>HFA Tanker chemical unloading cabinet</i> | |
| 6.7 | <i>Safety shower with integral bleed valve hose reel, safety signs and equipment tags</i> | |
| 6.8 | <i>Valves, PVC piping, pipe brackets and consumables</i> | |
| 7.0 | Labour for Mechanical Works | |
| 7.1 | <i>Project management</i> | |
| 7.2 | <i>Process and mechanical design</i> | |
| 7.3 | <i>Workshop fabrication</i> | |
| 7.4 | <i>Site mechanical installation labour including travel and accommodation</i> | |
| 7.5 | <i>Automation works (including hardware)</i> | |
| 7.6 | <i>Electrical installation works (including materials)</i> | |
| 7.7 | <i>Commissioning including travel and accommodation</i> | |
| 7.8 | <i>Mechanical installation of new water flow meter on permeate line to ultrafiltration skids CIP tanks</i> | |
| 8.0 | Plant hire (platform ladders), delivery & craneage for off-loading equipment on site | |
| 9.0 | Sign-off by Certified Process Engineer (excluding allowance for site visit) | |
| | Subtotal items 6 to 9 | 436,051 |
| 10.0 | Civil works for foundation and bunding for HFA area including PS4 documentation | S9(2)(b)(ii) |

| <u>Item</u> | <u>Description</u> | S9(2)(b)(ii) |
|--------------------|---|-----------------------|
| 11.0 | Works relating to relocation of existing facilities in the area to make way for HFA plant | |
| 12.0 | Programming of new installation into existing system | |
| 13.0 | Flow meter for permeate line to ultrafiltration skids CIP tanks | |
| 14.0 | HFA Supply (allowance of 1000 litres for commissioning) – approximate cost | |
| 15.0 | HASNO certification | |
| 16.0 | Provision of services including water and compressed air to fluoridation area | |
| 17.0 | Provision of dry spare dosing pump | |
| | Subtotal items 10 to 17 | 164,204 |
| | Total | 727,255 |
| | Contingency – 25% | 181,814 |
| | <u>Grand Total excluding GST</u> | <u>909,069</u> |

7. Timeline

- 7.1 Indicative timeline – The indicative timeline for planned activities of the project from inception to completion is attached (Appendix 15). It shows the various activities planned to ensure that by 30 April 2024, fluoridation of Nelson drinking water supply is being carried out as directed.



10 January 2023

Manatū Hauora – Ministry of Health
Te Whatu Ora
PO Box 793
Wellington
6140
(via online application portal)

To whom it may concern

Fluoridation funding request – cover letter

The Tararua District Council (TDC) has received direction by the Director-General of Health to Fluoridate the Dannevirke drinking water supply. Funding applications were to be submitted within 3 months of receiving the direction (November 2022). Due to delay in staffing availability and the extent of information required for the application, TDC requested an extension of time for our funding application which was granted to 31 January 2023.

The Dannevirke water treatment site has structural complications in the vicinity of its impounded supply dam. Remedial works are planned within the same timeframe as when the fluoridation is required. This complicates our application and therefore TDC decided on requesting a suitable solution from the market that can be constructed off-site and then transported and connected when ready. This method would alleviate our site constraints.

TDC requested an open-to-market Registration of Interest (ROI) and received several responses by the end of December 2022. Our next step is to progress to a Request for Pricing (RFP) stage with a shortlisted group where a final supplier will be selected. However, through the ROI process we've requested adequate information that will allow TDC to complete the funding application which includes demonstration of a suitable CPEng certifying engineer, a suitable Peer Reviewer, and a Concept Design with cost estimates and programme.

Our application is supported by a probable solution, but also includes a likely alternative concept design. The solution will be finalised once TDC progresses with its selected supplier to the detailed design phase. It must be noted that the Certifying Engineer and Peer Reviewer might change if a different supplier is selected. TDC will notify Manatū Hauora if such a change occurs.

Each of the suppliers have been asked to provide a cost estimate of the capital works for the fluoridation unit and any additional costs for site preparation. We have also made

note of projected cost fluctuation (25%) as nominated by most of the offers we've received. In our submission to Manatū Hauora we are proposing that the funding application be based on the highest projected price from the shortlisted offers at **\$474,653.29 excl. GST** (incl. 25% contingency margin).

We thank you for this opportunity. Please let me know if you require any further information or wish to discuss our application further.

Yours faithfully



S9(2)(g)(ii)

Ulrike Waters
3 Waters Manager

Phone: 06 374 4080 Mobile: S9(2)(a)

Email: S9(2)(g)(ii) @tararuadc.govt.nz

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Cost estimates

The breakdown of costs is shown below. A 25% contingency is allowed for market fluctuations.

| Description/Area | Cost Breakdowns | | | Total | Notes/Comments |
|--|-----------------|-----|--------------|---------------------|----------------|
| | Unit | Qty | Rate | | |
| Building (Modular Installed) | | | S9(2)(b)(ii) | | |
| Ground Prep | Sum | 1 | | | |
| Procure Concrete Modular Building | ea | 1 | | | |
| Lighting, Power and HVAC | sum | 1 | | | |
| Foundation at site | sum | 1 | | | |
| Delivery | Sum | 1 | | | |
| PS4 and Engineering | Sum | 1 | | | |
| SUB-TOTAL | | | | \$64,000.00 | |
| Process Plant (See Prominent Quote) | | | S9(2)(b)(ii) | | |
| 1000L Flouride Saturator - Vacuum Loader | ea | 1 | | | |
| Flouride Monitor | ea | 1 | | | |
| SUB-TOTAL | | | | \$111,271.90 | |
| Contractor Design and Build | | | S9(2)(b)(ii) | | |
| Design | Sum | 1 | | | |
| Mechanical Installation | Sum | 1 | | | |
| Electrical and Controls | Sum | 1 | | | |
| Site Piping and plumbing | Sum | 1 | | | |
| Commissioning and Support | Sum | 1 | | | |
| Travel and Accomodation | Sum | 1 | | | |
| Vehicles and Plant | Sum | 1 | | | |
| SUB-TOTAL | | | | \$137,000.00 | |
| SUB-TOTAL PROJECT COST | | | | \$312,271.90 | |
| Design and Engineering | 15% | | S9(2)(b)(ii) | | |
| Preliminary and General Costs | 12% | | | | |
| SUB-TOTAL | | | | \$396,585.31 | |
| Contingencies | 25% | | | \$78,067.98 | |
| PROJECT TOTAL (Exd GST) | | | NZD | \$474,653.29 | |

SECTION 1: PRICE

| Item | Description | Unit | Qty | Amount (\$) ex GST |
|---|--|------|-----|--------------------|
| Part 1 – Preliminary and General | | | | |
| 1.1 | Insurances | Item | 1 | S9(2)(b)(ii) |
| 1.2 | Project and safety management, liaison with principal and Subcontractors | Item | 1 | |
| 1.3 | Detailed design & construction drawings, HAZOP with TDC, SiD with TDC. | Item | 1 | |
| 1.4 | Detailed design of the concrete slab for the building and bulk storage tank, including a PS1 and PS4. | Item | 1 | |
| 1.5 | As-built drawings, emergency response plan and O&M manuals | Item | 1 | |
| 1.6 | Site mobilisation and demobilisation | Item | 1 | |
| 1.7 | QA Documentation | Item | 1 | |
| 1.8 | Certification by a CPeng including a final site inspection and design peer review by a drinking water engineer. | Item | 1 | |
| Part 1 – Sub-Total | | | | |
| Part 2 – Equipment Supply and Offsite Construction of Portable Plant | | | | |
| 2.1 | Supply of chemical dosing equipment and Fluoride analyser from Chemfeed Solutions. Includes a fluoride analyser with calibration kit, dose cabinet and a boxed spare peristaltic transfer pump. Dose Cabinet Includes: <ul style="list-style-type: none"> ➤ Wall mount PVC dosing cabinet with clear sliding doors. ➤ Duty/standby Gamma X dose pumps. ➤ 1 x Pulsation Dampener ➤ 1 x Pressure Gauge ➤ 2 x Flowmeters ➤ Flushing points ➤ 15mm SCH 80 PVC Pipework, ➤ GF546 Ball & Non Return Valves ➤ 1 x Dose Timer, ➤ 1 x 65L Day Tank ➤ 1 x Peristaltic Transfer Pump. | Item | 1 | S9(2)(b)(ii) |

| | | | | |
|---------------------------|--|------|---|--------------|
| | <ul style="list-style-type: none"> ➤ 1 x Leak detection switch ➤ Day tank level ultrasoninc and high level switch. ➤ Drain and flush points ➤ 24VDC actuated valve on HFA supply hose. | | | S9(2)(b)(ii) |
| 2.2 | Construction of Portable Building | Item | 1 | |
| 2.3 | Water pipework inside the portable building includes: <ul style="list-style-type: none"> ➤ Water supply pump and controller ➤ Internal potable water pipework to safety shower, eyewash, wash down hose and hand basin. | Item | 1 | |
| 2.4 | Ventilation supply for portable building including connection to the dose cabinet. | Item | 1 | |
| 2.5 | Supply and site installation of safety shower, eyewash, wash down hose and hand basin. | Item | 1 | |
| 2.6 | Supply and site installation of a 5,000L Self-bunded HFA bulk storage tank. Includes Ø19mm dual containment hose from storage tank to dose cabinet | Item | 1 | |
| 2.7 | Electrical and control equipment including workshop installation, site installation and commissioning of the system. | Item | 1 | |
| 2.8 | SCADA Configuration: <ul style="list-style-type: none"> ➤ Develop with TDC functional description for the plant operation, including logging and alarm requirements. ➤ Configure site SCADA to include HFA dosing system. ➤ Configure main/base SCADA to include dosing as required. We assume that the SCADA systems have sufficient capacity and the software licensing is current. | Item | 1 | |
| Part 2 – Sub-Total | | | | |

| Part 3 – Site Installation | | | | |
|----------------------------|-----------------------------------|------|-----|--------------------|
| Item | Description | Unit | Qty | Amount (\$) ex GST |
| 3.1 | Site preliminary works including: | Item | 1 | S9(2)(b)(ii) |

| | | | | | |
|-----------------------------------|--|------|---|--------------|---------------------|
| | <ul style="list-style-type: none"> ➤ Supply and installation of the water supply from the potable water tanks to the HFA building site. ➤ Supply and installation of the HFA dose dual containment hose from the HFA building site to the main outlet pipe post UV. ➤ Supply and installation of the HFA supply dual containment hose from the bulk storage tank to the HFA building. ➤ Installation of electrical and comms ducting between the building site and the main plant building. ➤ Cable ladder and supports used to keep pipework and cables above ground for ease of maintenance | | | S9(2)(b)(ii) | |
| 3.2 | Transportation of the Portable Building to site from our Palmerston North Workshop including Hiab into place and bolting down the building once in position. | Item | 1 | | |
| Part 3 – Sub-Total | | | | | \$52,530.00 |
| TOTAL LUMP SUM | | | | | \$442,081.00 |
| Part 4 – Provisional Items | | | | | |
| 4.1 | PROVISIONAL SUM: Site drainage pipework from hand basin, safety shower and eye wash to a 1050 manhole in the ground near by. This would be emptied periodically by a vacuum truck. | Item | 1 | S9(2)(b)(ii) | |
| 4.2 | PROVISIONAL SUM: Site drainage pipework from the buildings down pipe to an appropriate disposal area. | Item | 1 | | |
| 4.3 | PROVISIONAL SUM: Construction of concrete slab for the portable building to site on (6.8mx5.5m) | Item | 1 | | |
| 4.4 | PROVISIONAL SUM: Construction of a concrete slab for the tanker unloading area (12.5m long x 6.5m wide x 0.2m thick) perimeter 100-150mm high raised edge to form the bund area, including a strip drain with | Item | 1 | | |

| | | | | |
|--------------------------------------|---|------|---|---------------------|
| | <p>Ø90mm drain pipe to nearby swale drain and a Ø90mm PVC slide gate valve.</p> <p>Note the estimate is based on using 2 layers of SE92 mesh and 6 x D12 perimeter bars with stirrups at 250mm CRS.</p> | | | S9(2)(b)(ii) |
| 4.5 | <p>PROVISIONAL SUM:</p> <p>Construction of truck turnaround hardstand area for HFA delivery truck</p> | Item | 1 | |
| Provisional Items – Sub-Total | | | | |
| TOTAL PROJECT VALUE | | | | \$542,081.00 |

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Executive Summary

Tauranga City Council (TCC) has commissioned Beca Ltd (Beca) to complete a fluoridation implementation concept design for Joyce Road, Oropi and Waiāri Water Treatment Plants (WTPs) as part of a Ministry of Health (MoH) funding application and to inform future stages of design and procurement. This report summarises the concept design and cost estimate that were prepared.

The three fluoride chemicals available were compared and fluorosilicic acid (HFA) was selected for all sites. The new systems are to comprise of:

- Bulk chemical delivery in a delivery bund (new for Oropi and existing bund for Joyce Road and Waiāri)
- Bulk storage of HFA
- A transfer pump to pump HFA to a day tank
- A day tank
- A dosing cabinet containing duty/standby dosing pumps
- Dual dosing lines in contained pipework
- Four fluoride concentration analysers (two prior to treated water storage and two after treated water storage).
- Enclosures consisting of a bund with a roof and open 3 sides

The cost estimates for these new systems are summarised below. See the body of the report for assumptions and risks.

| Element | Joyce | Oropi | Waiāri |
|---|---|---|--|
| Chemical Storage | S9(2)(b)(ii) | | |
| Chemical transfer and dosing | | | |
| Mechanical Installation | | | |
| El&C | | | |
| Enclosure | | | |
| Chemical Delivery area | | | |
| Testing, Commissioning, Training and Documentation | | | |
| Net Construction Cost Estimate | | | |
| Main Contractor Overheads (P&G) | | | |
| Gross Construction Cost Estimate | | | |
| Contingencies | | | |
| Total Construction Budget | | | |
| On Costs (Professional fees etc) | | | |
| Rounding | | | |
| Total Expected Concept Capital Cost Estimate | \$ 1,060,000 (\$848,000 - \$1,378,000) | \$ 1,160,000 (\$928,000 - \$1,508,000) | \$ 730,000 (\$584,000 - \$949,000) |

From: S9(2)(g)(ii)
 To: Fluoridation Admin
 Subject: RE: External Sender: Fluoridation Capital Works Funding
 Date: Monday, 6 March 2023 9:32:14 AM
 Attachments: S9(2)(b)(ii)

Kia Ora S9(2)(a)

I have worked through the below issues and addressed each item in conjunction with our designer.

We have updated our calculations as follows, and provide direct answers to each item you have raised in red below:


Alpha Street NaF

- Plant flow - 3ML/day
- Background Fluoride Level - 0.20mg/l
- Target Fluoride level - 0.7 - 1.0mg/l
- Fluoride Analyser included post dose point only (first independent check.)
- We will add a day tank to this system to comply with current CoP - 110% of maximum required dose rate (2nd independent check.)
- Softener supplied with package system. For NaF makeup water only.
- Solution used - 136.23L/Day - Max
- Day Tank 136L + 10% = 149.6L
- Extra cost for adding day tank, pump and controls \$11k (for 2nd independent check.)

Karapiro HFSA - H2SIF6

- Plant flow - 18.576ML/day - 215L/S
- Background Fluoride level 0.20mg/l
- Target Fluoride level - 0.7 - 1.0mg/l
- Fluoride Analyser included pre reservoir only - (first independent check.)
- Solution used - ACID - HFSA - H2SIF6 = 3.08l/hr - 73.92L/day
- Day Tank 73.92L + 10% = 81.32L - (2nd independent check.)

- There is inconsistency in flow rate for Alpha St, errors in dosing calculations, hasn't followed CoP, Karapiro day tank too large, no account of level of fluoride in raw water.
 Please see updated sizing calcs above. Flowrate for Alpha Street changed to 3ML/day, COP followed, Karapiro day tank sizing updated, raw fluoride levels used in our calculations.
- Both plants need two independent checks – Alpha St has one and Karapiro has none shown.
 Now included
- Estimates appear a little light. Chemfeed quotation (appended) has sufficient detail, but, for example, no sign of civil/building costs in full estimate on p.6.
 We have reviewed our estimates, and made a few additional allowances including sufficient allowance for Civil works and this is reflected in the attached quotes. The summary of costs is now as follows:

| | | |
|---|---|---------------------|
|  | Cambridge Fluoridation (Alpha St and Karapiro) - Funding Summary | |
| | Karapiro | Alpha St |
| Stage 1 - Concept Design | S9(2)(b)(ii) | |
| Stage 2 - Detailed Design | | |
| Stage 3 - Supply Equipment | | |
| Stage 4 - install, commissioning, training. | | |
| Council Project Management | | |
| Contingency | | |
| TOTAL | \$267,737.72 | \$279,284.61 |

Document 21

- If the designer works through the CoP, there are likely to be a number of technical issues that come to light. For example, are there any consumer or other offtakes before the reservoirs? Or are there any issues where the old and the new Karapiro plant flows are combined (refer 4.4.5 of CoP).

There are no consumer or other offtakes before the reservoirs;

Our designer is confident that the systems are compliant with the CoP. If you have specific concerns, can you please list them so we can address directly.

- Based on the water quality data provided there is no need for a softener for Alpha St.

The softener comes with the package plant and is only used for the makeup water.

- Design not adequate to properly assess how these fluoridation plants will perform but I foresee a number of issues and problems.

Our designer is confident that the systems are compliant with the CoP and fit for purpose. If you have specific concerns, can you please list them so we can address directly.

Ngā mihi

S9(2)(g)(ii)

Ngā mihi

S9(2)(g)(ii)

S9(2)(g)(ii) Manager – Water Services WAIPĀ DISTRICT COUNCIL

S9(2)(g)(ii) @waipadc.govt.nz | www.waipadc.govt.nz

PH: S9(2)(a) | |

From: Fluoridation Admin <xxxxxxxxxxxxxxxx@xxxxxxxxxxxxx.xx.xx>

Sent: Tuesday, 7 February 2023 12:20 pm

To: S9(2)(g)(ii) @waipadc.govt.nz

Subject: RE: External Sender: Fluoridation Capital Works Funding

Dear S9(2)(g)(ii)

Our independent engineer has finished assessing the documentation submitted as part of the funding request for fluoridation capital works for Waipa District Council.

The engineer came back with the following comments:

- There is inconsistency in flow rate for Alpha St, errors in dosing calculations, hasn't followed CoP, Karapiro day tank too large, no account of level of fluoride in raw water.
- Both plants need two independent checks – Alpha St has one and Karapiro has none shown.
- Estimates appear a little light. Chemfeed quotation (appended) has sufficient detail, but, for example, no sign of civil/building costs in full estimate on p.6.
- If the designer works through the CoP, there are likely to be a number of technical issues that come to light. For example, are there any consumer or other offtakes before the reservoirs? Or are there any issues where the old and the new Karapiro plant flows are combined (refer 4.4.5 of CoP).
- Based on the water quality data provided there is no need for a softener for Alpha St.
- Design not adequate to properly assess how these fluoridation plants will perform but I foresee a number of issues and problems.

Please may you provide further comments / information on the above comments as soon as possible (preferably within a week if possible) so that we may progress to the next stage.

Ngā mihi,

S9(2)(a)



S9(2)(a)

Consultant

Ph. S9(2)(a)

E. fluoridationadmin@allenandclarke.co.nz

PO Box 10730, Wellington 6140

Level 2, The Woolstore, 262 Thorndon Quay

Pipitea, Wellington 6011, New Zealand

www.allenandclarke.co.nz

Tēnā, whakaarohia o Papa-tūā-nuku i mua mai i te tānga atu o tēnei īmera | Consider Papatuanuku (Mother Earth) before printing this email

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From: S9(2)(g)(ii) @waipadc.govt.nz>
Sent: Wednesday, 30 November 2022 7:59 AM
To: Fluoridation Admin <xxxxxxxxxxxxxxxx@xxxxxxxxxxxxx.xx.xx>
Subject: RE: External Sender: Fluoridation Capital Works Funding

Hi
Struggled to get into portal
Please attached WDC application for review.

Ngā mihi

S9(2)(g)(ii)

S9(2)(g)(ii) Manager – Water Services WAIPĀ DISTRICT COUNCIL
S9(2)(g)(ii) @waipadc.govt.nz | www.waipadc.govt.nz
PH: S9(2)(a)

From: Fluoridation Admin <xxxxxxxxxxxxxxxx@xxxxxxxxxxxxx.xx.xx>
Sent: Thursday, 3 November 2022 11:50 am
To: S9(2)(g)(ii) @waipadc.govt.nz>
Subject: External Sender: Fluoridation Capital Works Funding
Importance: High

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Kia ora S9(2)(g)(ii)

We would like to remind you that the Ministry of Health’s fluoridation capital works funding application is closing on 30 November 2022.

Allen + Clarke is administering the funding on behalf of the Ministry of Health.

Are you able to confirm your intentions to apply for the funding? If so, we would also appreciate if you could indicate you would be able to do so by 31 November 2022, or will require an extension.

If you have any questions about the funding, including how to apply through the portal, please feel free to contact us.

Ngā mihi,
S9(2)(a)

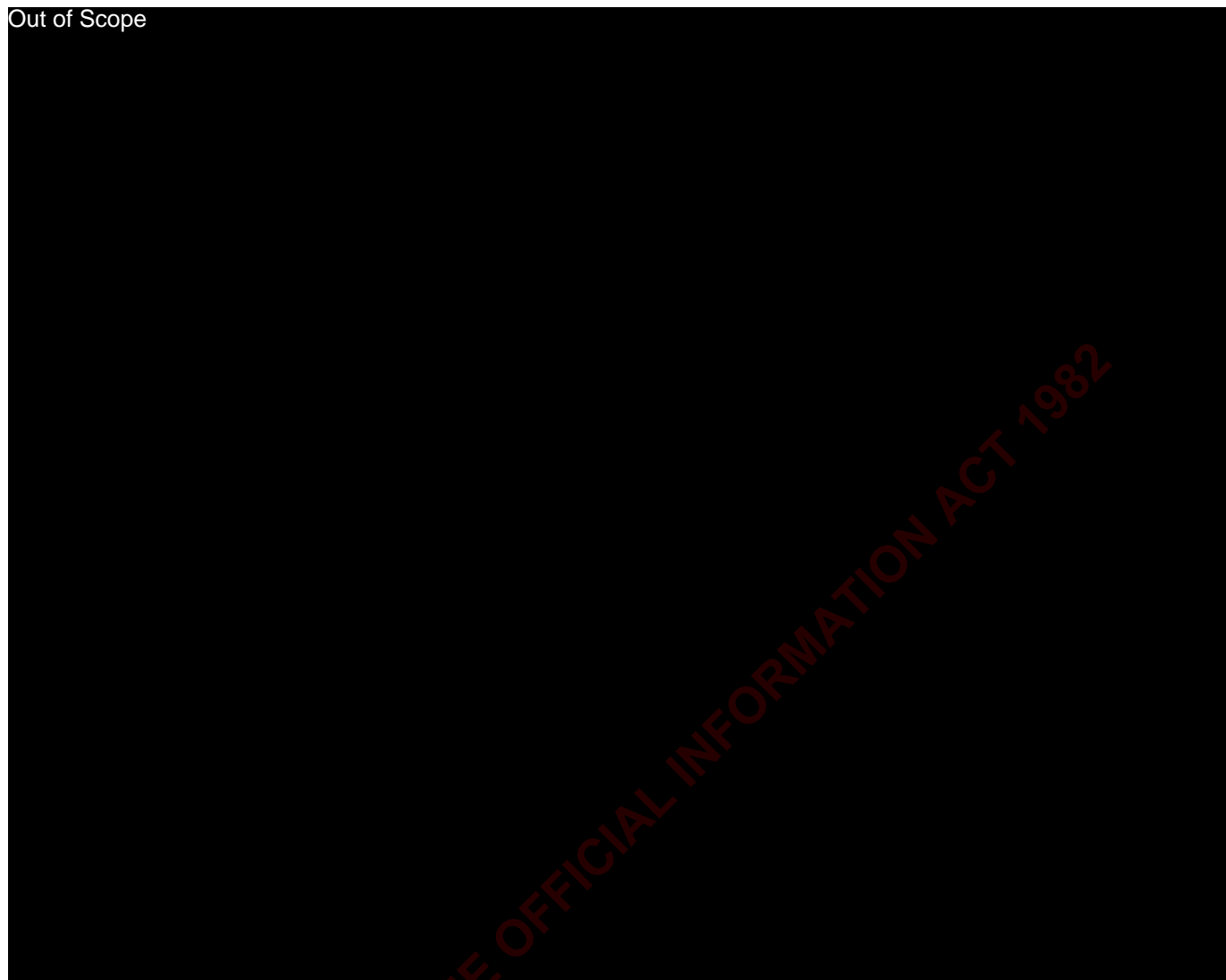


S9(2)(a)
Consultant
E. fluoridationadmin@allenandclarke.co.nz
PO Box 10730, Wellington 6140
Level 2, The Woolstore, 262 Thorndon Quay
Pipitea, Wellington 6011, New Zealand
www.allenandclarke.co.nz


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Out of Scope



Cost Estimates

| | | |
|---|--|---------------------|
|  | <p style="text-align: center;">Cambridge Fluoridation (Alpha St and Karapiro) - Funding Summary</p> | |
| | Karapiro | Alpha St |
| Stage 1 - Concept Design | S9(2)(b)(ii) | |
| Stage 2 - Detailed Design | | |
| Stage 3 - Supply Equipment | | |
| Stage 4 - install, commisioning, training. | | |
| Council Project Management | | |
| Contingency | | |
| TOTAL | \$246,439.72 | \$242,029.61 |

7. Programme

The current programme is as follows:

- | | |
|--|---------------------|
| • Funding Request approval | Dec 2022 |
| • Finalise design | Dec 2022 – Feb 2023 |
| • Order Fluoridation equipment | March – April 2023 |
| • Initial civil and housing work starts | March 2023 |
| • Installation of Fluoridation equipment | May – July 2023 |
| • Commissioning/Training | August 2023 |
| • Project Completion | Sept 30 2023 |

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From: S9(2)(g)(ii) @waitaki.govt.nz>
Sent: Wednesday, 30 November 2022 12:28 pm
To: Fluoridation Admin
Subject: Waitaki District Council - Fluoridation Funding Capital Works
Attachments: Oamaru WTP HFA Concept Design Report Rev 2.pdf; Out of Scope

Kia Ora

Please find attached the Funding Fluoridation Capital Works application from Waitaki District Council for the sum of **\$530,000 +- 20%** including:

- i. Concept Design Report (incorporating cost estimate of \$377,950, timeline, and costs to install fluoride excluding the dedicated 'building' cost)
- ii. Short Form Agreement with FILTEC for Concept Design preparation
- iii. Signed Funding Application Form identifying Certifying Engineer, Peer Reviewer and costs.

The cost breakdown is therefore identified as:

- \$377,950 +- 20% for supply and install of all components excluding the building.
- \$150,000 +- 20% for supply and install of the dedicated fluoride building

TOTAL \$530,000 +- 20 %

There are currently no budgets available from Waitaki District Council to support this project in either the Annual Plan or Long-Term Plan for this project.

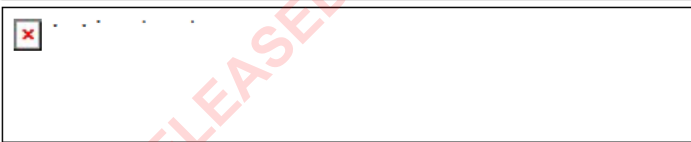
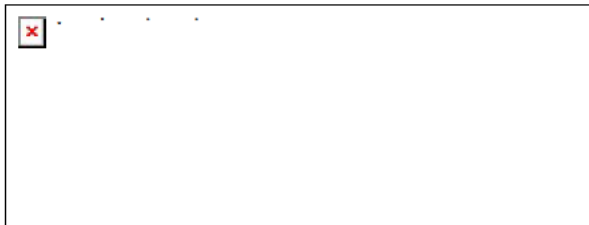
We look forward to receiving your response in due course with the potential of full funding to allow this government project to be delivered within the prescribed timeframe.

Regards

S9(2)(g)(ii)
Senior Operations Engineer

Email S9(2)(g)(ii) @waitaki.govt.nz
Web: www.waitaki.govt.nz
Tel: +64 3 433 0300

Waitaki District Council
20 Thames Street
Private Bag 50058
Oamaru
Waitaki District
Otago 9444
New Zealand



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Document 24

6. Price Estimate

The estimated price to supply, install and commission a new Hydrofluorosilicic Acid Dosing plant is \$377,950±20% + GST.

The equipment supply includes all items shown on the equipment, instrument and valve lists.

| Equipment and Materials | Price (\$) |
|---|--------------|
| - 5,000 litres HFA Storage tank, 60 litre HFA day tank and bund for day tank. | S9(2)(b)(ii) |
| - One off HFA dosing pump, dose lance and HFA transfer pump. | |
| - HFA dosing pump cabinet with support frame and extraction fan. | |
| - Instrumentation. | |
| - HFA Tanker chemical unloading cabinet. | |
| - Safety shower with integral bleed valve, hose reel, safety signs and equipment tags. | |
| - Valves, PVC piping, pipe brackets, consumables. | |
| | |
| Labour | |
| - Project management. | |
| - Process and mechanical design. | |
| - Workshop fabrication. | |
| - Site mechanical installation labour including travel and accommodation. | |
| - Electrical installation labour | |
| - Automation works including automation hardware. | |
| - Commissioning including travel and accommodation. | |
| | |
| Plant Hire and Delivery | |
| - Plant hire (platform ladders), delivery and craneage for off loading equipment on site. | |
| | |
| Retaining Wall for Building | |
| - Geotech | |
| - Design/PS1 (due to the slope above the wall) | |
| - Survey | |
| - Consent (due to height >1.5m) | |
| - Earthworks (assuming cart off site within 5km) | |
| - Wall | |

Document 24

| | |
|--|----------------------|
| - Drainage/bidumAP54/backfill | S9(2)(b)(ii) |
| - Construction inspections (3) | |
| TOTAL PRICE EXCL GST | \$377,950±20% |
| OPTIONAL PRICING | |
| Sign-off by Certified Process Engineer (assuming a site visit is not involved). | S9(2)(b)(ii) |
| Maintenance and Operational Costs (excl GST) | |
| - Service visit (four off visits per year – to coincide with other service visits within the region of Oamaru) | |
| - Fluoride analyser buffer and calibration solutions (allowance for two separate deliveries per year). | |
| - Fluoride analyser spares kit (one off) | |
| - HFA transfer pump spares kit (one off) | |
| - Dosing pump wet end kit (one off) | |
| TOTAL OPTIONS EXCL GST | \$8,900 |

INCLUSIONS

1. The supply of documentation and drawings:
 - a. Process and Instrumentation diagram.
 - b. Plant layout, elevation and isometric general arrangement drawings.
 - c. Functional description.
 - d. Equipment, instrument and valve lists.
 - e. O&M Manual (one soft copy).
 - f. Commissioning checks sheets and tests.
 - g. Design report.
 - h. Health and Safety, Quality and Environmental Management Plans.
 - i. Programme of works.
2. One site visit by Filtec Project Engineer pre-installation works.
3. Delivery and unloading of equipment to site using truck with Hiab.
4. Installation of PVC sched 80 pipe work from HFA plant to HFA dosing point (35 metres allowed for), installation of potable water pipe work for safety shower and hose reel, and compressed air lines. *Note: all tie-in points/ connections to be within 2 metres of HFA dosing plant location.*
5. Plant commissioning.
6. Operator training - 4 hours.
7. 10m long x 2.5 high retaining wall with 2.5m wide wingwalls either side, separate to building.

EXCLUSIONS

1. Factory acceptance test (FAT) – all commissioning works to be done on site.
2. Pipe work from tanker loading bay to HFA dosing plant filling point.
3. Double contained chemical pipe work.
4. Extending existing services (electrical and control cabling, compressed air, drains, potable water) to within 2 meters of new HFA dosing plant area.
5. Automation design and works.
6. Electrical design and works.

Oamaru Fluoridation Detailed Design and Construction Cost 6 July 2023

| | Cost | Description |
|--------------------------|----------------------------|---|
| FILTEC | S9(2)(b)(ii) | Concept Design |
| | | Detailed Design |
| | | Supply, Install, Commission HFA |
| | | Operational critical spares |
| IXOM | S9(2)(b)(ii) | Fluoride (HFA) supply |
| SSG | S9(2)(b)(ii) | Civil & Structural |
| Plunket Electrical | S9(2)(b)(ii) | Automation & Control |
| FLUENT | S9(2)(b)(ii) | Peer Review |
| Waitaki District Council | S9(2)(b)(ii) | Geotech, Training, Commissioning, Legal |
| | \$476,202.46 | Subtotal |
| | \$95,240.49 | Contingency 20% |
| | <u>\$571,442.95</u> | Total Agreement Request |

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8 Cost Estimate

The cost estimates for the proposed fluoridation upgrades at the five sites are summarised below. The full breakdown of the capital cost estimate can be found in Appendix J.

Table 12: Cost Estimate Summary

| Costs | Whau Valley | Poroti | Ruddells | Ruakaka | Ahuroa |
|---|--------------------|------------------|------------------|------------------|------------------|
| Chemical Storage and Bunding | S9(2)(b)(ii) | | | | |
| Chemical Transfer & Dosing - Equipment Supply | S9(2)(b)(ii) | | | | |
| Mechanical Installation | S9(2)(b)(ii) | | | | |
| EI&C | S9(2)(b)(ii) | | | | |
| Bund | S9(2)(b)(ii) | | | | |
| Dosing Cabinet Building | S9(2)(b)(ii) | | | | |
| Chemical Delivery Bay | S9(2)(b)(ii) | | | | |
| Testing, Commissioning, Training and Documentation | S9(2)(b)(ii) | | | | |
| Net Construction Cost Estimate | | | | | |
| Main Contractor On-site overheads (P&G) | S9(2)(b)(ii) | | | | |
| Gross Construction Cost Estimate | \$266,875 | \$383,931 | \$543,875 | \$408,875 | \$463,031 |
| Design Development Contingency | S9(2)(b)(ii) | | | | |
| Construction Contingency | S9(2)(b)(ii) | | | | |
| Growth/Inflation (10% per year) | S9(2)(b)(ii) | | | | |
| Total Construction Budget | \$392,306 | \$641,165 | \$799,496 | \$621,490 | \$703,808 |
| Professional Fees | S9(2)(b)(ii) | | | | |
| Client-owned project costs | S9(2)(b)(ii) | | | | |
| Consenting | S9(2)(b)(ii) | | | | |
| Peer Review Costs | S9(2)(b)(ii) | | | | |
| Stationary Container Certificate | S9(2)(b)(ii) | | | | |
| Rounding | S9(2)(b)(ii) | | | | |
| Total Expected Concept Capital Cost Estimate | \$470,000 | \$760,000 | \$940,000 | \$730,000 | \$840,000 |
| Total Expected Concept Capital Cost Estimate for All Sites | \$3,740,000 | | | | |
| Capital Cost Estimate Accuracy: +/- 30% | | | | | |



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Whangarei 0148, New Zealand
P +64 9 430 4200
F +64 9 438 7632
E mailroom@wdc.govt.nz
www.wdc.govt.nz

07 September 2023

Manatū Hauora c/o
Allen + Clarke
PO Box 10730,
Wellington 6140

Attention Administrator

Re: Fluoridation Funding Application for Water Treatment Plants Whangarei and Bream Bay

Dear Sir/Madam

Please find attached a summary of costs with a brief description of the procurement process in obtaining quotations and supporting documentation for the design and construction of Fluoridation dosing to this Water Treatment Facility for the Whangarei District as requested.

We are applying for funding of \$4,560,856.88 excluding GST for the Design, Construction and Commissioning of Fluoridation facilities to Ruakaka, Ahuroa, Ruddells and Whau Valley Water Treatment Plants.

WDC requires full funding approval before the end of September 2023 to achieve the timeframes and meet the validity period of the construction quotation.

Should you have any further queries please do not hesitate to contact the undersigned.

Yours sincerely

A handwritten signature in black ink, appearing to read "M. [unclear]".

S9(2)(g)(ii)

[Water Services Manager](#) | Water Services Department

[Whangarei District Council](#) | Forum North | Private Bag 9023, Whangarei 0148 | www.wdc.govt.nz

P 09 430 4200 | [DDI S9\(2\)\(a\)](#) | [M S9\(2\)\(a\)](#) | [E S9\(2\)\(g\)\(ii\)](#) [@wdc.govt.nz](mailto:mailroom@wdc.govt.nz)

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From: S9(2)(g)(ii) @wdc.govt.nz>
Sent: Monday, 18 September 2023 11:09 am
To: Fluoridation Admin
Cc: S9(2)(a); S9(2)(g)(ii)
Subject: RE: Whangarei District Council - Fluoridation Works
Follow Up Flag: Follow up
Flag Status: Completed

Hi S9(2)(a),

Thank you for a quick response, and yes if you can organise a teams for Thursday that would be great.

I have marked a couple of items we can look at, however the others we have already gone through with the contractor, designers and operators to try and apply some valued engineering.

The contractor did come up with some innovative ideas which we did manage to reduce the costs by \$330K, some of the others included in some of these items pose operational and safety risk so they were not adopted.

We also had concerns, we expressed as rather excessive costs anyway, and the contractor was transparent, and there has been in the north large cost increases of between 40% - 100% in the past 12 months, concrete on it's own went from \$220m3 to \$360m3. We are experiencing all our contract prices are coming in between 20% and 40% more than we expected and more than the engineers estimates

It was a competitive tender process done, and happy to talk you through it.

Nga mihi

S9(2)(g)(ii)

Project Engineer | Infrastructure Capital Programmes Department

Whangarei District Council | Te Iwitahi, 9 Rust Avenue | Private Bag 9023, Whangarei 0143 | www.wdc.govt.nz

P 09 430 4200 | **M** S9(2)(a) | **E** S9(2)(g)(ii) | [@wdc.govt.nz](mailto:S9(2)(g)(ii)@wdc.govt.nz)

[Like us on Facebook](#)



From: Fluoridation Admin <fluoridationadmin@allenandclarke.co.nz>
Sent: Monday, September 18, 2023 10:23 AM
To: S9(2)(g)(ii) @wdc.govt.nz>
Cc: S9(2)(a) allenandclarke.co.nz>
Subject: Whangarei District Council - Fluoridation Works

EXTERNAL: This email originated from outside Whangarei District Council. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Dear S9(2)(g)(ii)

Thank you for providing the documentation relating to the fluoridation works for Whangarei District Council.

Our engineer has reviewed the documentation and we note the significant increase in costs. We have outlined a few items that stand out:

| Ahuroa | Ruakaka | Ruddells | Whau Valley |
|---|--|---|--|
| 1.7 Construction monitoring \$101K. – Will review | 1.7 Construction monitoring \$84K. – Will review | 1.7 Construction monitoring \$111K. – Will review | 1.7 Construction monitoring \$52K. – Will review |
| 4.2 Chemical delivery slab \$84K. | 5.1 Plinth, bund, building blockwork \$109K. | 4.4 Concrete duct \$87K. | |
| 4.4 Concrete duct \$61K. | | 4.5 Dosing chamber \$43K. | |
| 5.1 Plinth, bund, building blockwork \$117K. | | 5.1 Plinth, bund, building blockwork \$105K. | |
| 5.2 Building superstructure \$92K. | | 5.2 Building superstructure \$87K. | |
| 6.1 Gate \$158K. – can look at removing this | | | |

From here, we believe that there are two options:

1. Leave out, or delay, the Bream Bay supply as this is very expensive at \$2.69 million for 14,800 people (it could potentially wait until the next tranche of funding).
2. The Council and Beca working with the contractor to value engineer the costs down. We understand that some of the costs are being covered by the Council.

The best way forward would be to arrange a Teams call with you and Beca so that we can discuss this further and the best way to move forward.

Please can you advise us of your availability this Thursday or Friday?

Thank you.

Ngā mihi,

S9(2)(a)



S9(2)(a)

Consultant

E. fluoridationadmin@allenandclarke.co.nz

PO Box 10730, Wellington 6140

Level 2, The Woolstore, 262 Thorndon Quay

Pipitea, Wellington 6011, New Zealand

www.allenandclarke.co.nz

Tēnā, whakaarohia o Papa-tūā-nuku i mua mai i te tānga atu o tēnei īmera | Consider Papatuanuku (Mother Earth) before printing this email

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From: Karen Beirne
Sent: Thursday, 5 October 2023 1:50 pm
To: S9(2)(a) Emma Whalley
Cc: S9(2)(a)
Subject: Whangarei District Council and FNDC

Kia ora S9(2)(a),

Thank you for sending through the detailed information. I can confirm the Ministry will cover the increase in costs for WDC as long as we can get into contract before the end of the year.

Regarding FNDC the contact we had was from the EA to the interim CEO and we asked for follow up on the 6 September 2023.

S9(2)(g)(ii) FNDC.govt.nz'.

Regards

Karen

Karen Beirne

Principal Advisor, Ope Aorangi
Policy and Regulation

S9(2)(a)

karen.beirne@health.govt.nz

Public Health Agency / Te Pou Tūmatanui
Manatū Hauora, 133 Molesworth Street
Thorndon, Wellington 6011

Please note my usual hours of work are Tues-Thurs.



From: S9(2)(a) <S9(2)(a)@allenandclarke.co.nz>
Sent: Thursday, 28 September 2023 12:59 pm
To: Karen Beirne <Karen.Beirne@health.govt.nz>; Emma Whalley <Emma.Whalley@health.govt.nz>
Cc: S9(2)(a) <S9(2)(a)@allenandclarke.co.nz>
Subject: Whangarei District Council

Dear Karen and Emma,

Thank you for meeting with us on Tuesday afternoon to discuss the major cost increases for the fluoridation of the Whangarei and Bream Bay water supplies.

This email presents a summary of the increases in costs between the concept design and detailed design/tender, and also sets out some options for how we could move forward.

The table below summarises the costs:

| Treatment Plant | Tendered/final costings (Sept '23) | Concept design estimates (Nov '22) | Variance |
|------------------------|---------------------------------------|---------------------------------------|----------------|
| Ruakaka | \$1.09m | \$0.73m | |
| Ahuroa | \$1.60m | \$0.84m | |
| Total Bream Bay | \$2.68m | \$1.57m | \$1.11m |
| Whau Valley | \$0.59m | \$0.47m | |
| Ruddells | \$1.28m | \$0.94m | |
| Poroti* | \$0.76m* | \$0.76m | |
| Total Whangarei | \$2.63m | \$2.17m | \$0.46m |
| Totals | \$5.31m | \$3.74m** | \$1.57m |

* Poroti is still the concept design estimate, as detailed design/tendering is on hold.

** This estimate was reduced in the Tech Review of February 2023 to \$3.43m to allow only 5% for inflation rather than Beca's figure of 10%.

A+C and S9(2)(g)(ii) met with the Council and Beca on 21 September. The Council described the procurement process as comprising an EOI stage to which they had three responses, only two of which were shortlisted. Of the two shortlisted, only one party (Bellcon) submitted a tender. The Council/Beca/Bellcon then went through a value engineering process which managed to strip out \$340,000. The civil costs in particular look extremely high, as do the contractor's management costs. The elevated civil costs have been attributed to high materials costs, particularly concrete and steel, and also labour.

The Council has also not claimed over \$100,000 of internal costs. Both the \$340,000 and the \$100,000 have already been subtracted from the costs in the table above.

Note that the Poroti treatment plant is a separate project, which has run into delays with iwi negotiations. A cultural impact assessment (CIA) is currently being prepared to support a resource consent application, with the Council hoping to lodge the consent by Christmas. The Council sought to assure us that even though Poroti supplied 30% of the water for the Whangarei supply, there was limited mixing of the water in the network, and this need not hold up implementing fluoridation at the Whau Valley and Ruddells plant. We would want to see further evidence of this before agreeing to proceed without Poroti. Because the Poroti cost figure is still only a concept design estimate, the final figure for this plant is likely to increase significantly – say to \$1.1m. This would increase the overall variance to about \$1.9m.

The design for Ahuroa includes an automatic gate which has a price of \$158,000. The Council indicated a willingness to consider carrying this cost themselves. On 22 September we went back to the Council with some more questions on the fact that for the Ahuroa plant there was now a separate building to house the fluoridation plant, whether the use of concrete ducts was justified (Ahuroa, Ruakaka and Ruddells), and posing the idea of changing to double skinned self-bunding tanks for bulk FSA to avoid the high civil costs of bunding and roofing over. We have yet to hear back.

The increased costs are very significant. While there is nation-wide pattern of increased construction costs, the magnitude of the increase in Whangarei appears to also reflect a local lack of competition.

We suggest the following options for how this project could be progressed for consideration by the Ministry:

1. Leave out, or delay, the Bream Bay supply as this is very expensive at \$2.68 million for 14,800 people. Note that in the context of there being a large group in the Whangarei community who are against fluoridation,

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not fluoridating the Bream Bay supply was seen by the Council as potentially adding to divisions in the community. If it were to be delayed, it could wait until the next tranche of funding? If it was delayed until the next tranche of funding it could be re-tendered at that time, when hopefully the market is more competitive.

2. Break up the scope of the project into two packages (civil and process/mechanical/electrical) and re-tender. This will open up the civil works to a more competitive number of civil contractors.
3. Modify the design (as per the 22 September questions) and negotiate a revised price with the current tenderer.
4. Option 2 combined with modifying the design (as per Option 3).

Because of the delays with Poroti, and the fact that a large part of the cost increase is for the smaller Bream Bay supply, we consider that it is worth delaying approvals for both supplies and proceeding with one of the options above. This will necessitate pushing out the compliance date for Bream Bay, but the likely resulting savings will benefit the overall fluoridation programme.

If you need any further information or analysis or another meeting, please just ask.

In the meantime, we have informed the Council that they will not have any answers by the time of their next report to Council on the 28th.

Thank you.

Ngā mihi,

S9(2)(a)



S9(2)(a)

Consultant

Ph. S9(2)(a)

E. nliu@allenandclarke.co.nz

PO Box 10730, Wellington 6140

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| | |
|----------------------------------|---|
| Project Name | Water Treatment Plants Fluoridation |
| WDC Project Manager (PM): | S9(2)(g)(ii) |
| Project Number: | PRO22046 |
| Subject: | Cost and Procurement Summary for the Design, Construction and Commissioning of Fluoridation Dosing to Water Treatment Plants in Whangarei and Bream Bay |

1 Introduction

Whangarei District Council (WDC) applied in November 2022 to the Ministry of Health for funding to design, construct and commission fluoridation facilities in Whangarei and Bream Bay. In Feb 2023, WDC received approval in principle, with the need to submit a detailed design and final quotations before a funding agreement between the Ministry and Whangarei District Council can be finalised.

This is a summary of final quotations, brief description of the procurement process' undertaken, inclusions and exclusions.

2 Financial Summary

Total Funding request is for \$4,560,856.88 excluding GST

| Activity | Sub-totals |
|-----------------------------------|-----------------------|
| Design, Procurement & MSQA (Beca) | S9(2)(b)(ii) |
| Peer Review (Lutra) | |
| Engineer to Contract (Censeo) | |
| Construction (Bellcon) | |
| Total | \$4,560,856.88 |

Facility Allocation:

| Treatment Plant | Sub-totals |
|------------------------|-----------------------|
| Ruakaka | \$1,085,785.39 |
| Ahuroa | \$1,599,035.10 |
| Total Bream Bay | \$2,684,820.49 |
| Whau Valley | \$593,959.07 |
| Ruddells | \$1,282,077.32 |
| Total Whangarei | \$1,876,036.39 |
| Totals | \$4,560,856.88 |

Exclusions:

| Excluded from Request | Cost | Note |
|--|---------------------|--|
| Poroti WTP | \$755,848.90 | To be applied for following Design & Procurement Q2 2024 |
| Internal Management & Processing Costs | \$107,410.58 | WDC effort to reduce the funding value |
| Total | \$863,259.48 | |

3 Procurement

All supplier procurements must comply with WDC's Procurement Policy and Procurement Manual.

3.1 Professional Service Providers

The following Professional Service Providers have been appointed through Direct Award:

- Beca - Design, Construction Procurement and MSQA
- Lutra – Peer Review of the Design
- Censeo Consulting Ltd (Curt Martin) – Engineer to the Contract

3.2 Physical Works

The Physical works was completed through a Two Stage Procurement Process

Stage 1 – Expressions of Interest went to the public seeking suppliers with relevant experience, management skill and resources to complete the physical works to WDC's requirements. Three submissions were received, marked and measured against a series of attributes. Two of the three suppliers were seen to satisfy the evaluation panel and asked to continue to Stage 2.

Stage 2 – Request for Proposal, the two suppliers were asked to provide Pricing and Methodology, with only one supplier submitting a conforming proposal. The pricing was reviewed, with due diligence carried out. A negotiation process was also completed with the Contractor and designers, agreeing on innovated methods successfully reducing value by 10%.

The Recommended Supplier is now confirmed as Bellcon Construction Limited

4 Exclusions**Poroti WTP Fluoridation:**

- The design and construction procurement is not expected to be completed until the 2nd quarter of 2024 due to consenting approvals.
- The intention is once WDC has confirmed quotes, application will be forwarded to MoH for Funding

Internal Costings:

- Due to the unexpected increase in construction costs, WDC are prepared to do their part in trying to reduce costings.

5 Timeframe

The timeframes are still achievable providing full funding is approved and agreements are in place before the end of September 2023.

The Construction validity period for the Construction Contract is 15 October 2023

Should full funding, not be approved, the Project will be delayed until funding can be sources

6 Supporting Documentation

02. Quotations

2.1. Beca – Detailed Design, Procurement and MSQA

2.2. Censeo – Engineer to the Contract

2.3. Bellcon – Construction

2.4. Lutra – Peer Review

03. Design Report

3.1 Detailed Design Report Completed by Beca

04. Peer Review

4.1 WDC004 - Fluoridation Report Peer Review - Cover Letter – Signed

4.2 WDC004-REG01-1.0 Fluoridation Report Peer Review

05. Construction

5.1. Supplier Attributes

5.2. Specifications

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