

From: Abigail Lovett
Sent: Wed, 25 Jun 2025 09:58:12 +1200
To: Ryan Hodgson
Cc: Ash Rabel
Subject: Re: FW: [External] Groundwater Monitoring APP-20222295

Hi Ryan,

No problem.

I'd like to confirm that:

- I agree on the location for the proposed replacement monitoring bore
- I think that the applicant should not be required to install any further monitoring bores on the basis that they will collect surface water samples from tile drains (as proposed)
- the combination of surface water and groundwater sampling proposed by the applicant should be sufficient to inform water quality at the site

Hopefully this is sufficient, but please do not hesitate to give me a call.

Thanks,

Abigail Lovett

P: 0212800750

Contractor - Groundwater and Hydrogeology
Environment Southland *Te Taiao Tonga*

Cnr Price St & North Rd, Private Bag 90116, Invercargill 9840

On Tue, Jun 24, 2025 at 1:24 PM Ryan Hodgson <Ryan.Hodgson@es.govt.nz> wrote:

Hi Abigail

So Stantec suggested additional monitoring bores should be on the site to sufficiently monitor groundwater quality at the site (given the contaminant plume under the site). Are you satisfied that instead of additional groundwater monitoring bores, monitoring the shallow tile drains will be sufficient to judge groundwater quality improvement over time? It would be useful to address this issue more directly in your response if possible.

Thanks,

Ryan

Ryan Hodgson

Senior Consents Officer

Environment Southland *Te Taiao Tonga*

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Ryan.Hodgson@es.govt.nz | es.govt.nz | facebook.com/environmentsouthland

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From: Abigail Lovett <abigail@eescience.co.nz>

Sent: Tuesday, 24 June 2025 12:47 pm

To: Ryan Hodgson <Ryan.Hodgson@es.govt.nz>

Cc: Ash Rabel <Ash.Rabel@es.govt.nz>

Subject: Re: FW: [External] Groundwater Monitoring APP-20222295

Hi Ryan,

You requested the following technical comment:

"Could you please provide a response to me on the Applicant's proposal (to monitor tile drains and swap out one bore for another in a different area), and if this will provide sufficient groundwater monitoring coverage at the site to track groundwater quality improvement progress over a long term 35 year consent."

I have reviewed the email communications, relevant section/s of the Stantec and PDP reports provided.

Based on my understanding of hydrology at the site, I think that the applicant has provided suitable groundwater and surface water monitoring sites.

These sites are provided in the figure titled "map of key BSM sites APP-20222295".

In summary:

1. the location of the proposed (replacement) monitoring bore seems reasonable to capture impacts of the activity

- the applicant may need to consider that effluent may not be applied within a radius of this bore?

2. the proposed U/S and D/S surface water sites should provide an appropriate comparison for surface water quality

3. the indicative locations for the four additional surface water (e.g., tile drain) sampling sites has good coverage over the site

- since these are indicative only, (if possible) please allow for ES to approve the final sites (once the field visit has been undertaken) to ensure the sites are representative of the activity

Please let me know if you have any further questions at this stage.

Thanks,

Abi.

On Tue, Jun 24, 2025 at 11:53 AM Ryan Hodgson <Ryan.Hodgson@es.govt.nz> wrote:

Hi Abigail

See the completed map attached. Note the tile drain monitoring sites are indicative based on the tile drain mapping of the site. They will need to be ground truthed before they can be confirmed.

Thanks,

Ryan

Ryan Hodgson

Senior Consents Officer

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From: Abigail Lovett <abigail@eescience.co.nz>

Sent: Tuesday, 24 June 2025 10:13 am

To: Ryan Hodgson <Ryan.Hodgson@es.govt.nz>

Cc: Ash Rabel <Ash.Rabel@es.govt.nz>

Subject: Re: FW: [External] Groundwater Monitoring APP-20222295

Yes - please get them to add in the tile drain monitoring sites (that is what I was referring to).

On Tue, Jun 24, 2025 at 10:11 AM Ryan Hodgson <Ryan.Hodgson@es.govt.nz> wrote:

Hi Abigail

The downstream site has been mistakenly labelled U/S. It should be D/S. This will be fixed.

There are only two surface water monitoring sites, which are the existing monitoring sites. They are not aware of a reference to four monitoring sites, but if you can provide some detail on

where you saw that, I can get them to check and clarify. I wonder if you are perhaps referring to the tile drain monitoring sites? This was a proposed measure to measure effects on groundwater instead of installing more GW monitoring bores.

Please confirm.

Thanks,

R

Ryan Hodgson

Senior Consents Officer

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From: Abigail Lovett <abigail@eescience.co.nz>

Sent: Tuesday, 24 June 2025 9:54 am

To: Ryan Hodgson <Ryan.Hodgson@es.govt.nz>

Cc: Ash Rabel <Ash.Rabel@es.govt.nz>

Subject: Re: FW: [External] Groundwater Monitoring APP-20222295

Thanks - yes I see that now.

The lower site will need relabeled D/S (there are currently two U/S sites).

Are they proposing two surface water quality sites only (upstream and downstream)?

I thought it said four in the paperwork?

On Tue, Jun 24, 2025 at 9:49 AM Ryan Hodgson <Ryan.Hodgson@es.govt.nz> wrote:

Thanks Abigail

The surface water monitoring sites are already shown on the map as U/S and D/S. They will look to add the contours as requested.

Thanks,

Ryan

Ryan Hodgson

Senior Consents Officer

Environment Southland *Te Taiao Tonga*

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Environment Southland supports flexible working arrangements. I may have sent this email outside of business hours and I only anticipate a response during your working hours.

From: Abigail Lovett <abigail@eescience.co.nz>

Sent: Tuesday, 24 June 2025 9:31 am

To: Ryan Hodgson <Ryan.Hodgson@es.govt.nz>

Cc: Ash Rabel <Ash.Rabel@es.govt.nz>

Subject: Re: FW: [External] Groundwater Monitoring APP-20222295

Hi Ryan,

Please have the applicant add:

- groundwater contours
- proposed surface water monitoring sites

The contours are important as they help to infer the groundwater flow direction (even if there are only a couple on this map extent).

We need to consider the location of the bores and surface water monitoring sites in the context (upgradient / down gradient) of the land application.

Thanks,

Abigail.

On Mon, Jun 23, 2025 at 8:06 AM Ryan Hodgson <Ryan.Hodgson@es.govt.nz> wrote:

Hi Abi

See attached graphics provided by the Applicant. I note they didn't add the contours as there would only be two contours across the site.

Let me know if you need any more information.

Thanks,

Ryan

Ryan Hodgson

Senior Consents Officer

Environment Southland *Te Taiao Tonga*

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Environment Southland supports flexible working arrangements. I may have sent this email outside of business hours and I only anticipate a response during your working hours.

From: Abigail Lovett <abigail@eescience.co.nz>

Sent: Tuesday, 17 June 2025 11:24 am

To: Ryan Hodgson <Ryan.Hodgson@es.govt.nz>

Cc: Ash Rabel <Ash.Rabel@es.govt.nz>

Subject: Re: FW: [External] Groundwater Monitoring APP-20222295

Hi Ryan,

On the balance of information, I believe that what PDP have proposed seems reasonable.

To check this, I would need to view the information spatially.

So, I would request that the applicant provides a clear map showing:

- property boundaries (as below)
- irrigation areas (as below)

- surface watercourses (as below)
- groundwater contours (as per alternative map)
- existing GW monitoring bores (as per alternative map)
- proposed new GW monitoring bore (as per alternative map)
- proposed surface water monitoring sites

I have provided an example basemap from their reporting.

They would just remove the soils information and add the surface water and groundwater info.

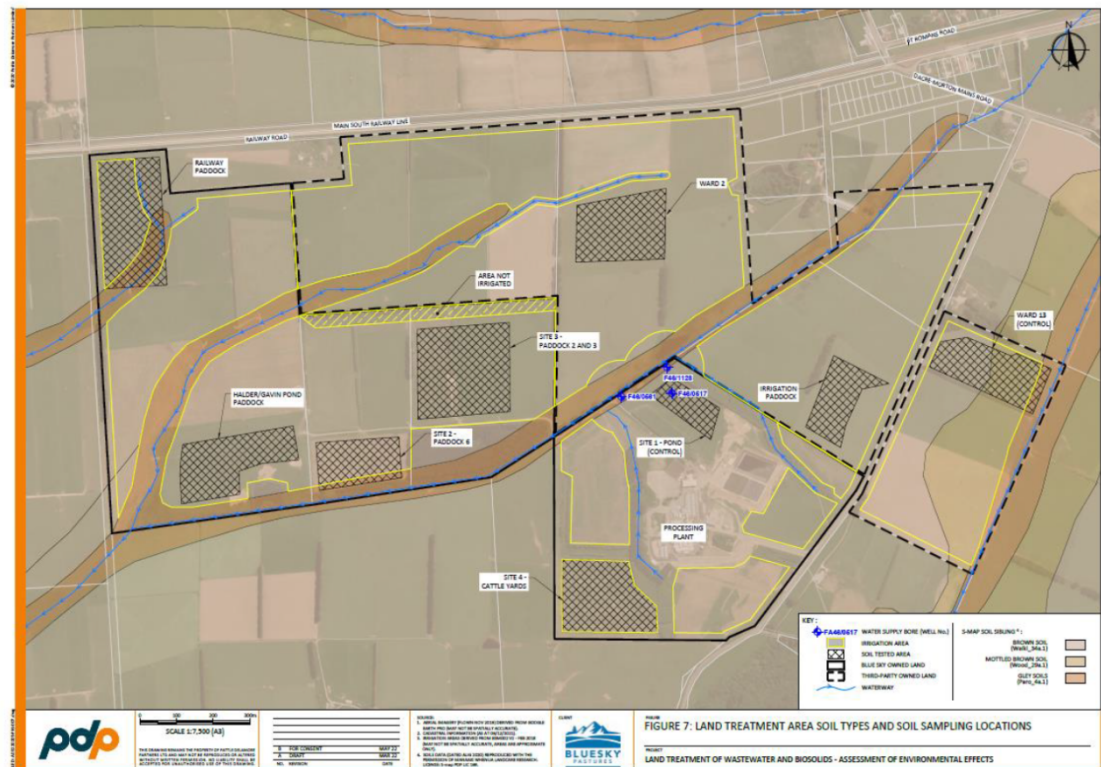


Figure 2-4: Application areas and soil types for both summer (third party land) and winter (BSM land)³

Once I receive a map I would be able to confirm the suitability of the surface water and groundwater (bore) monitoring sites.

Please let me know if you have any questions or if there is any issue in requesting this information.

Thanks & apologies for the delay,

Abi.

On Mon, Jun 16, 2025 at 8:54 AM Ryan Hodgson <Ryan.Hodgson@es.govt.nz> wrote:

Hi Abi

Any update on when I might receive the memo?

Thanks,

Ryan

Ryan Hodgson

Senior Consents Officer

Environment Southland *Te Taiao Tonga*

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Environment Southland supports flexible working arrangements. I may have sent this email outside of business hours and I only anticipate a response during your working hours.

From: Ryan Hodgson
Sent: Thursday, 5 June 2025 11:48 am
To: Abigail Lovett <abigail@eescience.co.nz>
Cc: Ash Rabel <Ash.Rabel@es.govt.nz>
Subject: RE: FW: [External] Groundwater Monitoring APP-20222295

Hi Abi

If we could get it next week sometime that would work for me.

Thanks,

Ryan

From: Abigail Lovett <abigail@eescience.co.nz>
Sent: Thursday, 5 June 2025 11:46 am
To: Ryan Hodgson <Ryan.Hodgson@es.govt.nz>
Cc: Ash Rabel <Ash.Rabel@es.govt.nz>
Subject: Re: FW: [External] Groundwater Monitoring APP-20222295

Hi Ryan,

Yes - I can look into this for you.

I have cc'd Ash (in replacement of Nick).

What is the timeframe for getting a memo/email to you?

Thanks,

Abi.

Abigail Lovett

P: 0212800750

Contractor - Groundwater and Hydrogeology
Environment Southland *Te Taiao Tonga*

Cnr Price St & North Rd, Private Bag 90116, Invercargill 9840

On Thu, Jun 5, 2025 at 11:31 AM Ryan Hodgson <Ryan.Hodgson@es.govt.nz> wrote:

Hi Abigail

I am needing a third opinion regarding groundwater monitoring for Blue Sky Meats site at Morton Mains, Southland. This is a legacy consent application which was lodged over 3 years ago to replace numerous resource consents at the meat works site including waste discharges to land. This application has been stuck for a long time due to differences of opinion between the Council's technical reviewers (Stantec) and the Applicant's technical team (Mitchell Daysh and PDP). The main point of concern for the Applicant is whether there is a need to install 5 additional monitoring bores (above the current 7) to assess groundwater quality as recommended by Stantec. This would be expensive, and the Applicant believes it will also be unnecessary. The Applicant has also since offered to monitor tile drains throughout the site instead of adding more monitoring bores, and to swap one monitoring bore out for a different one in a slightly different area as detailed in the email below.

Could you please provide a response to me on the Applicant's proposal (to monitor tile drains and swap out one bore for another in a different area), and if this will provide sufficient groundwater monitoring coverage at the site to track groundwater quality improvement progress over a long term 35 year consent.

I have attached Stantec's technical report for your information (see page 20) which is additional to Doyle's 3 attachments.

Let me know when you can get a response to me.

Thanks,

Ryan

From: Doyle Richardson <doyle.richardson@mitchelldaysh.co.nz>
Sent: Thursday, 5 June 2025 10:21 am
To: Ryan Hodgson <Ryan.Hodgson@es.govt.nz>; Lacey Bragg <Lacey.Bragg@es.govt.nz>
Cc: agl <agl@lowecorp.co.nz>; scott.waddell <scott.waddell@bluesky.co.nz>; Andrew Ritchie <andrew.ritchie@bluesky.co.nz>; Stephen Daysh <Stephen.Daysh@mitchelldaysh.co.nz>; Stephen West <stephen.west@es.govt.nz>; Melanie Wilson <Melanie.Wilson@es.govt.nz>
Subject: [External] Groundwater Monitoring

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Hi Ryan and Lacey

Thank you again for your time on Tuesday. It was a constructive meeting and we hope that a positive outcome can be achieved as a result.

As promised, please see below and attached information relevant to the groundwater monitoring bores at the Blue Sky Meats site. As you will see towards the end of the email, there is an opportunity to install a new monitoring bore within the site. This is to replace one of the existing bores which is potentially affected by historical activities unrelated to this consent application.

Groundwater Bores

Blue Sky Meats has established seven monitoring bores at the site. The location of these is shown on **Attachment 1**. Further details about each of the bores is provided in the table below. As can be seen:

- There are 3 upgradient bores and 4 down gradient bores located around the perimeter of the site;
- The bores primarily target shallow groundwater, with 6 of the 7 bores located at a depth of 10 metres. The 7th bore (MW1D DEEP) is located at a depth of 40 metres. It's situated in the same location as MW1D SHALLOW.

BSM Bore Name	Environment Southland Reference	Depth	General Location	Grid Reference	Purpose
MW1U	CG11/0018	10 metres	Northern boundary – between BSM and 3 rd party land	1263762E , 4858472N	Upgradient
MW2U	CG11/0020	10 metres	Northern boundary – on the edge of 3 rd party land	1264988E , 4858679N	Upgradient
MW3U	CG11/0022	10 metres	North-east of BSM and 3 rd party land	1265681E , 4858461N	Upgradient
MW1D SHALLOW	CG11/0016	10 metres	Western boundary	1263261E , 4857819N	Down gradient

MW1D DEEP	CG11/0017	40 metres	Western boundary	1263261E , 4857819N	Down gradient
MW2D	CG11/0019	10 metres	Southern boundary	1264081E , 4857674N	Down gradient
MW3D	CG11/0021	10 metres	Southern boundary – between BSM and 3 rd party land	1264809E , 4858461N	Down gradient

Groundwater Flow Direction

In May 2023 a study was completed by PDP in response to a request for information. The purpose of the study was to “*provide more refined information on groundwater flow directions from the site*”. The study is included as **Attachment 2**.

Key findings were:

- *Shallow groundwater is expected to discharge to surface water;*
- *Migration of shallow groundwater to deep bores is unlikely based on the upwards gradient observed in the shallow groundwater system (however, a deeper monitoring bore (MW1D DEEP) is proposed to monitor for deeper groundwater effects however; and*
- *Effects of historic activities, where higher nutrient loading rates occurred, are likely to take time to reduce given the slow groundwater velocities; and*
- *The monitoring proposed (i.e. the location of the monitoring bores) is considered appropriate, with the effects of the activities reflected in either the groundwater monitoring data or in the surface water monitoring data for the waterways that receive groundwater. For example, bore CG11/0021 (MW3D) will measure the quality of the groundwater migrating from the site to the south.*

A map showing flow directions is attached as **Attachment 3**. It shows that the upgradient bores are upgradient of the site (so are collecting background information), and the downgradient bores are downgradient of the site (so are collecting site impact information).

Stantec Review

As per the ‘BSM response to Stantec review’ table, Stantec is concerned that *“monitoring down gradient of the site may not indicate changes in the aquifer, particularly during the initial part of the consent term and hence will not adequately reflect the progress that is being within the aquifer as a result of the changed activities on the site. In particular, this does not allow for informed changes to be made in operations during the consent term if the expected improvements do not occur.”*

Potential Change

As discussed, BSM is of the view that adding monitoring of four subsoil drain discharge points will likely detect changes in shallow groundwater quality (i.e. is there improvement or not) earlier than would be the case via the use of groundwater monitoring bores. Naturally, if there is improvement in the shallow groundwater quality monitored via the subsoil drains, this will in time result in improvement in deeper groundwater (i.e. at 10 metres).

It is also worth noting that Stantec state on page 20 of their report that the groundwater proposed to be monitored via the bores, can be *“intercepted in a tile or surface drain within the site”* as it exits the aquifer to surface water. So monitoring both the surface water and the subsoil drains (as proposed) will give an indication of whether there is improvement occurring in groundwater.

Recent monitoring in MW1D SHALLOW has identified that it is unlikely to be a suitable groundwater monitoring bore as it is potentially impacted by other historical activities unrelated to this consent application. Given this, a replacement bore needs to be drilled. This could be drilled within the land application area as shown with the **red X** in the snip below, or somewhere else on the site that Environment Southland thinks is suitable to detect changes in groundwater faster than is currently the case.



If you are agreeable to a new monitoring bore being constructed in this location, we will draft a consent condition to reflect this.

We are still working on pulling together information in relation to the management of overland flow and ponding, soil moisture monitoring and waste activated sludge (WAS). We hope to have this to you later today for your consideration.

In the meantime, if you have any questions or would like to discuss, please let me know.

Thanks

Doyle

 **Doyle Richardson**
Associate

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