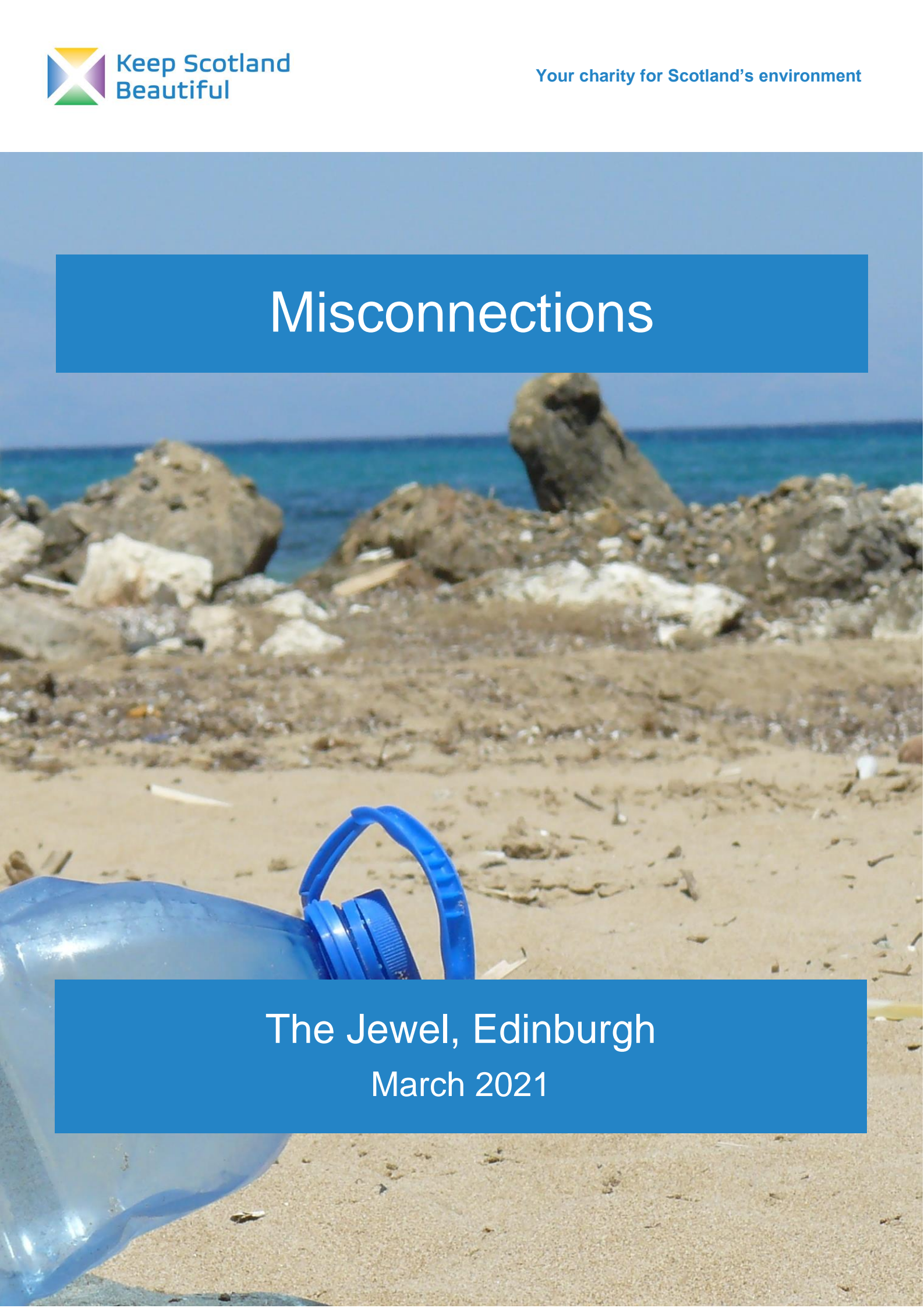


# Misconnections



The Jewel, Edinburgh  
March 2021

# Contents

Introduction.....	3
Aim.....	3
Background.....	3
What is a misconnection? .....	3
Methodology .....	6
Survey.....	6
Results .....	7
Conclusion.....	9
Recommendations.....	10
Appendices.....	12

# Introduction

## Aim

The aim of the project is to further the Misconnections Working Group's understanding of households which have been affected by misconnections in The Jewel, Edinburgh. The research examines both a) the householders' awareness of misconnections in general and b) their experience of communication in relation to this issue (that is, misconnection investigation and resolution).

## Background

The Misconnections project has been established through the Misconnections Working Group, comprised of The Scottish Government, Scottish Environment Protection Agency (SEPA), Scottish Water, and Citizens Advice Scotland (CAS). Keep Scotland Beautiful (KSB) has been contracted by the working group to undertake behaviour research related to the misconnections as a neutral, independent organisation.

Misconnections were repaired in The Jewel area of Edinburgh by Scottish Water under a Scottish Government fund made available to improve bathing waters in priority areas, in this instance Fisherrow Sands, East Lothian. As an independent body, CAS works in partnership with Scottish Water to provide advice to affected households on affordability related to the cost of misconnections<sup>1</sup>.

KSB was chosen to conduct this research as they have been campaigning to improve water quality across the country for a number of years through Scotland's Beach Awards, the national frame work for best practice in environmental management, and most recently the My Beach Your Beach campaign. This campaign funded by Scottish Government, focusses on issues affecting water quality at specified designated bathing waters.

Fisherrow Sands, which has been impacted by the misconnections in The Jewel, has been identified as a site which would benefit from the wider work of the My Beach Your Beach campaign, having been declassified as a bathing water in 2019.

The research conducted by KSB took place between March 2020 and February 2021.

## What is a misconnection?

There are two systems of domestic sewerage: combined and separate. Combined sewage systems take both wastewater, from kitchens, bathrooms, and utility rooms, and surface water through one sewage



---

<sup>1</sup> Scottish Water, Sewers Misconnection Policy, May 2020 <https://www.scottishwater.co.uk/-/media/ScottishWater/Document-Hub/Business-and-Developers/Connecting-to-our-network/All-connections-information/241120MisconnectionsPolicy.pdf>, 2020

system to be treated at a water treatment facility. Separate sewage systems transport wastewater and surface water runoff in separate pipes. The advantage of having a separate sewage system is that relatively clean surface water does not need to be treated in the same way as the wastewater and is generally emptied into nearby water courses, reducing the burden on the water treatment facilities and decreasing the risks of overflow incidents after heavy rainfall.

However, if either system is incorrectly connected at the point of origin it will have a negative impact on the other. A misconnection is defined as being either surface water runoff being incorrectly connected to the wastewater or vice versa. Wastewater being incorrectly connected to the surface water runoff can have a negative impact on the environment with the potential for raw sewage to be emptied into natural water courses, such as rivers and streams, without being treated at a water treatment facility.

Misconnections within a domestic setting generally occur during renovation works in bathrooms and kitchens or when alterations, such as extensions, are made to the property. Misconnections can also occur below ground when new infrastructure is added by contractors or developers.

Under normal conditions it is the responsibility of Scottish Water to work with a variety of stakeholders to prevent and identify misconnections in an area and inform the householders of the results of any investigations in order to rectify the issue. They have committed to supporting the householder to do this by clearly explaining the issue and potential impacts of not taking action. Ultimately it is the responsibility of householders to rectify any misconnection within their property boundary despite its origins. If the work is not completed, Scottish Water has the right to take action to complete the work and recoup any expenses under Section 15 of the Sewerage (Scotland) Act 1968<sup>2</sup>.

However, the Scottish Government agreed to fund misconnections work during 2020 in The Jewel estate as part of a contained project to improve bathing water quality in the Firth of Forth. Work was carried out by Scottish Water.

### **Misconnections in The Jewel, Edinburgh**

Located to the east of the city, The Jewel was originally the road connecting the A6106 to the A1 north of Newcraighall Road. Six streets; North Greens, Parrotshot, Vexhim Park, Hosie Rigg, Corbiewynd and Corbieshot, have been added over the years, creating The Jewel area of the city. The area is bordered to the north by the Niddrie Burn which enters Forth Estuary, via Brunstane Burn, to the west of the Fisherrow Sands in East Lothian, approximately three miles away from The Jewel.

---

<sup>2</sup> Scottish Water, Sewers Misconnection Policy, May 2020 <https://www.scottishwater.co.uk/-/media/ScottishWater/Document-Hub/Business-and-Developers/Connecting-to-our-network/All-connections-information/241120MisconnectionsPolicy.pdf>, 2020



Fisherrow Sands was designated a bathing water 2013 but was declassified in 2019 due to a series of 'Poor' classifications by SEPA over five seasons. A number of factors have been identified as leading to the reduction in water quality in this area including; discharges into the Brunstane Burn from combined sewage systems during heavy rainfall, and urban diffuse source pollution. It is also suspected that misconnections of residential drainage systems is having an impact<sup>3</sup>.

Through collecting debris at 24 outflow sites and sampling river surface water nearby, as well as household drainage surveys at 240 sites, nine misconnections were identified in households in The Jewel. An additional property was identified as having a misconnection in the Northfield area of the city, north of The Jewel. This property is located near the Figgate Burn which enters the Forth Estuary at Portobello.

At the beginning of March 2020, works to resolve the misconnections within these properties were started by Scottish Water. Due to the emergence of the coronavirus pandemic and subsequent lockdown at the end of March 2020, all work was suspended with half of the misconnections having been rectified. The misconnection repairs to the remaining properties were restarted in August and completed in September 2020.

---

<sup>3</sup> SEPA, Fisherrow Sands bathing water profile, <https://www.sepa.org.uk/media/39528/fisherrow-sands-bathing-water-profile.pdf>, 2020

Following the completion of the works at half the sites in March, two households were originally contacted by KSB in April with no response. All other households were contacted in November 2020, with a reminder sent to the first two households to complete their survey.

## **Methodology**

### **Survey Methodology**

At the beginning of March 2020, the original proposal for survey methodology was agreed with the project partners which stated research would be conducted primarily through face-to-face interviews with individual households, or through focus groups, involving multiple households per session. This work was to be carried out by two KSB staff.

Research questions were to be framed in a conversational manner to allow free-flow of information between the respondent and researcher. Interviews were to be recorded and transcribed for later analysis.

In advance of these sessions, KSB were to communicate with the householders to arrange suitable time and provide context to the session, providing some background information and rationale for this research. Compensation was to be offered to participants to incentivise participation. Where a householder did not want to, or could not, participate in these sessions, another means of input was to be made available, such as an online or paper survey.

Soon after the agreement to this approach, The Scottish Government issued a 'Stay at Home' order in response to the coronavirus pandemic. This meant there were lengthy delays to the correction works by Scottish Water, and consequently a delay in contacting survey participants by KSB. Before these restrictions were put in place, Scottish Water had completed works at five of the properties as planned. This meant there was a delay between the first five households receiving their repairs and the work at the remaining households being completed.

In reaction to the pandemic restrictions an alternative methodology was discussed and agreed between CAS and KSB. In lieu of face-to-face interviews, each of the households were sent a letter introducing the project and the partners, see Appendix 1, providing a link to an online survey created on the Survey Monkey platform, as well as a paper form of the same survey, see Appendix 2, along with a pre-paid envelope to return to KSB. All were offered an incentive for participating; those who returned their completed surveys would receive a £25 gift voucher to thank them for taking part.

### **Survey**

Households were surveyed to assess:

- their knowledge of a misconnection within their own household,
- the communications they received regarding the issue, and
- their understanding of who is responsible for correcting misconnections.

Participants were asked questions which covered three key areas during the period of works. The purpose of these questions were:

#### Origin and context:

To identify how much the participants were aware of the issue before being contacted by Scottish Water. Questions were asked regarding their knowledge of or involvement in the creation of the misconnection and potential environmental impacts.

#### Process and communication:

To evaluate any communications received regarding the repair works. Questions were included to identify areas of weakness around the information households received whilst works were carried out and the impact of these works on the household.

#### Support, resolution and next steps:

Finally, to assess the after-care element of the works, households were asked to rate the solution offered to them and the support they have received from Scottish Water following the completion of the works.

## Results

The following results are drawn from the completed surveys. From the ten surveys that were sent to affected households, three were returned, representing a return rate of 30%. Of those who replied to the survey, participants have lived in their homes between 12 and 30 years.

#### Origin and context

All of the participants reported that they had no concept of a misconnection before this occasion and were unaware there was a misconnection at their property, except for one who had been contacted by Scottish Water five years ago believing it was acquired with the property. One participant, at this point, stated "I've never been contacted at all regarding this issue".

Two of the participants were unaware of the origin of the misconnection in their property and potential environmental impact. Although there was little knowledge of misconnections in general, the communication from KSB triggered an emotional response to the issue.

Question: When you found out about the misconnection on your property, what was your response?	
Response 1	<i>"I still don't know as we didn't have anyone here apart from Scottish Gas who had come to repair an external pipe."</i>
Response 2	<i>"very bad if sewage going in to water outlets and sea, etc."</i>
Response 3	<i>"I wish I knew about it but feel sorry I should have known why it happened and who it was"</i>

From the table above we can see some participants understand the potential impact of misconnections and feel some responsibility toward a misconnection at their property having a negative impact on the environment.

### Process and communication

To assess any communications the households received following the investigation work, participants were asked to rank how satisfied they were with the information received from Scottish Water out of five, ranging from Extremely dissatisfied (one) to Extremely satisfied (five). Two of the participants ranked the information provision as being one and two, with the third participant ranking it as five. Those who were dissatisfied with the information provided stated "I haven't had any information regarding this what so ever...no letters, etc." and "Just told me a misconnection, I researched on the internet".

The participant who rated their satisfaction with the interaction as Extremely Satisfied went on to comment they "should check or have had it checked but I don't know if I needed to check those things."

For two of the households the impact of the misconnection correction were minimal. They both stated that they had no knowledge of the corrections taking place, one of which specifically highlighting this was because no one had been in contact with them. The third participant felt there was some impact on them because they had been told of a misconnection but there was no action over a five year period since being originally told about the issue.

From the responses received by householders, it is not clear what level of prior communication was undertaken by Scottish Water. It may be that they adopted the communication policy referred to in their Sewers Misconnection Policy (detailed in the What is a misconnection section above), or if they altered their communications in this instance due to the misconnection repairs being completed without the requirement of householders to take financial responsibility. In any case, the householders did not generally appear aware of the communications.



## Support, resolution and next steps

When asked what their perception of who should have overall responsibility for correcting the misconnection, two participants answered with 'don't know' with one specifying this was due to having no awareness of the misconnection from the outset. One named Scottish Water as having overall responsibility as 'they are overall in charge of the system'.

The following table details the answers given when asked about support which should be on offer to households going through similar correction works.

<b>Question:</b>	<b>In your view, what support would be helpful to other households that are informed they have a misconnection? (financial, expert advice from a qualified party, information, etc.)</b>
Response 1	<i>"Can't think of any as most of the contractors use council people to come and check to ensure"</i>
Response 2	<i>"a letter/visit as I've had neither"</i>
Response 3	<i>"Immediate action taken to rectify problem"</i>

When asked to rank how satisfied they were with the support and work carried out by Scottish Water the results reflected the previous satisfaction rankings of one, two and five. When asked if there any other comments regarding the misconnections work or the communications one participant wanted to clarify they had been given no information from Scottish Water. The only other response was 'work should be carried out to rectify the problem as soon as it is discovered'.

## Conclusion

It is important to note that these results are from a small sample size of three due to the method of collating these results being restricted by the coronavirus pandemic.

Due to the passive nature of the surveying, the answers to open questions have been interpreted for meaning without further probing. The original agreed survey methodology of face-to-face interviews could have eliminated this ambiguity and may have been a more efficient way of sampling the households. A more conversational tone to the interviews, allowing the interviewer to explore the views of the participants to clarify comments, could have generated more accurate and meaningful responses.

Without the ability to physically visit the households, another preferred option may have been to survey the households by telephone. This was not possible due to the information provided by Scottish Water being incomplete, without names or telephone numbers. Whilst this may be due to GDPR issues, it has meant the

collecting surveys relied on a passive interaction with the households and encouraging participation with a monetary reward.

Despite this, the information which was gathered has given us a better, albeit limited, understanding of the knowledge and opinions around misconceptions and the perceived responsibilities of stakeholders. There is a clear lack of knowledge from homeowners of misconceptions in general. All three participants stated they did not know about misconceptions and environmental impact before contact was made by KSB. Without a general understanding of the impact of misconceptions or that their property may be affected by a misconnection, homeowners do not have the relevant information to take action to investigate any potential issues in the drainage and sewage systems.

There is obvious concern from some participants regarding the environmental impact of the misconnection at their property, suggesting the information provided in the introductory letter for the survey was sufficient to provoke a concerned response. One participant stated “I wish I knew about it but feel sorry I should have known why it happened and who it was”. This response has shown participants care about the environment and are disturbed to find their actions within their household may be having a negative impact on the local environment. There is a clear willingness to correct the problem in order to reduce this environmental impact and perhaps relieve some emotional burden caused by the cognisance of their unwitting contribution to the problem.



Generally the view of these participants is that Scottish Water did not inform the residents of the nature of and issues associated with misconceptions adequately. All participants have felt the information supplied to them regarding the correction of the misconnection at their property has been lacking. Without this information being provided to the households, it is difficult for any assessment of their view on who they believe has responsibility to correct the misconnection. Participants often referred to the fact they did not know this work was taking place until they were contacted regarding the survey. One participant did state they believed Scottish Water was responsible for correcting the issue. If Scottish Water did indeed send communication to each household, this method may need to be backed up with a phone call to ensure householders have been informed.

## Recommendations

Communication with those affected by misconceptions or the work associated with repairing misconceptions needs to be improved. More clarity is needed for homeowners on who is responsible for rectifying misconceptions and the support on offer to complete that process.

If misconnections are inherited with a property it seems likely to go undetected without a clear action point in a home report, or similar. Since 2008, it has been mandatory for homeowners to have their house surveyed to assess the condition of the property before being placed on the market. The Single Survey part of the home report is intended to highlight the issues that perspective homeowners may have to rectify during their time living in the property. Alongside this there is the property questionnaire which allows current homeowners to highlight any work which has been completed in the property. However, this is reliant on a competent and thorough survey, so if these visual inspections are of accessible areas only without investigation under drainage covers then misconnections may go undetected.

In this project, most of the survey participants have lived in their home for longer than home reports have been mandatory in Scotland and therefore these misconnections have gone undetected for a number of years. This highlights the importance of clear communication between the homeowners and Scottish Water when investigating misconnections in an area.

More work is needed to establish the general understanding of misconnections and their impact with the wider public. Although from a small sample, there is the suggestion that these homeowners have a willingness to improve their environmental impact but support may be needed to do this efficiently, including financial support.

To improve the process of repairing misconnections, we have identified the following actions for consideration:

- Ensure households affected by misconnection repairs are communicated to effectively in order to improve understanding and awareness.
- Extend the project to other areas and repeat the survey of the households involved to increase the size of the overall sample in order to better assess communication and awareness.
- Wider public promotion campaign to raise general awareness of the issue and understand not only the wider negative environmental implications of a misconnection, but also on an individual level, where the responsibility lies, how it could affect them in their own household, how they can look out for it in home reports, and signposting to support on offer for them to take action.
- Targeted campaign with trades involved in undertaking home alterations and works to avoid the situation occurring, e.g. plumbing and construction.

It would appear that increased communication at both household and wider community level is key. In the first instance, the conclusions reached above could certainly be further verified by repetitions with additional sampling and surveying to validate the findings.

## Appendix 1 – Introductory letter



Your charity for Scotland's environment

Name  
Address

02/11/2020

Dear Householder,

### **SCOTTISH WATER MISCONNECTION IMPROVEMENT WORKS**

Work was recently undertaken on your property by Scottish Water to resolve a misconnection, this is where foul water systems are incorrectly connected to surface water systems leading to an increase in flooding or pollution events. Keep Scotland Beautiful is collecting data on behalf of Citizens Advice Scotland, Scottish Water, SEPA and Scottish Government regarding misconnections in the Jewel area of Edinburgh.

The aim of the Misconnections project is to establish how misconnections occurred and the scale at which households are aware of the problem. This research will also allow us evaluate communications from Scottish Water regarding misconnections in your area.

In order to collect your views regarding your experience surrounding the misconnections work which was completed on \_\_\_\_\_, we would like you to complete an online survey form which can be found here <https://www.surveymonkey.co.uk/r/KSBScotWat> or complete and return the paper survey to Keep Scotland Beautiful in the prepaid envelope supplied by Friday 27 November.

Once you have completed the survey we will send you a £25 Amazon gift card as a thank you.

If you have any questions regarding the project or the survey you can contact our Beaches & Parks Officer, Jamie Ormiston at [jamie.ormiston@keepsotlandbeautiful.org](mailto:jamie.ormiston@keepsotlandbeautiful.org) or phone 07849634342.

Yours sincerely

**Jamie Ormiston**  
Beaches & Parks Officer

---

Keep Scotland Beautiful, First Floor, Glendevon House, Castle Business Park, Stirling FK9 4TZ

T: 01786 471333 F: 01786 464611 E: [info@keepsotlandbeautiful.org](mailto:info@keepsotlandbeautiful.org) W: [keepsotlandbeautiful.org](http://keepsotlandbeautiful.org)

Chair: Lindsay Montgomery CBE Keep Scotland Beautiful is a Scottish Charitable Incorporated Organisation (SCIO) Number SC050338. VAT Registration No. 584 0664 83.

### About Keep Scotland Beautiful

We are the charity that campaigns, acts and educates on a range of local, national and global issues to change behaviour and improve the quality of people's lives and the places they care for.

### What we do

We provide environmental campaigns, services and practical initiatives that help Scotland with its environmental ambitions and challenges. Our unique spectrum of activities focuses on four main areas: Sustainable Development Education, Local Environmental Quality, Sustainability and Climate Change, and Environmental Services.

Through these activities we work to support and encourage individuals, communities, organisations and businesses across Scotland, enabling and inspiring them to improve their environment and the quality of all our lives.

### Data protection

Data will be shared with the misconnection partners in compliance with our Data Protection Policy and the Data Protection Act 2018.

We will collect personal details (such as name, contact details and address) of those involved in this project, including those of householders or other relevant people. We will only use these contact details for legitimate purposes to carry out the aims of the project.

Householders' information will be anonymised in the final report. It is not our practice to sell, rent or otherwise to disclose personal information to others.

Our Privacy Notice is available on our website here: [www.KeepScotlandBeautiful.org/privacy](http://www.KeepScotlandBeautiful.org/privacy).

In association with:



---

Keep Scotland Beautiful, First Floor, Glendevon House, Castle Business Park, Stirling FK9 4TZ

T: 01786 471333 F: 01786 464611 E: [info@KeepScotlandBeautiful.org](mailto:info@KeepScotlandBeautiful.org) W: [KeepScotlandBeautiful.org](http://KeepScotlandBeautiful.org)

Chair: Lindsay Montgomery-CRE. Keep Scotland Beautiful is a Scottish Charitable Incorporated Organisation (SCIO) Number SC020255. Copyright © Keep Scotland Beautiful 2020. All rights reserved.

## Appendix 2 – Example survey



Your charity for Scotland's environment

### Misconnections survey form

Please complete the following form and return to Keep Scotland Beautiful using the prepaid envelope supplied.

1. Name

2. Address

3. Telephone

4. Email

5. Are you the homeowner?                      YES                      /                      NO

6. Are you a tenant?                                YES                      /                      NO

7. How long have you lived in the property?                      \_\_\_\_ years \_\_\_\_ months

#### Origin and context

8. Before this occasion, was the concept of a misconnection known to you?                      YES                      /                      NO

If yes, what did you understand about them (including environmental impact)?

9. Before you were contacted by Scottish Water, did you know about the misconnection on your property?                      YES                      /                      NO



10. When did you become aware of the problem? [If before Scottish Water made contact, was any action taken?]

11. By your understanding, how did the misconnection occur? PLEASE TICK

- |                                  |                          |                                   |                          |
|----------------------------------|--------------------------|-----------------------------------|--------------------------|
| a) Acquired with property        | <input type="checkbox"/> | b) Work undertaken by householder | <input type="checkbox"/> |
| c) Work undertaken by contractor | <input type="checkbox"/> | d) Unknown                        | <input type="checkbox"/> |

If a), was it mentioned in the Home Report/Survey?	YES	/	NO
----------------------------------------------------	-----	---	----

If b) or c), how long ago did work take place?

12. If b) Work undertaken by the householder, what checks were made/planning done before carrying out the work? [e.g. do you have plumbing or similar knowledge/experience; if not, did you consult someone with plumbing or similar knowledge/experience; did you make contact with local authority/Scottish Water or another authority to find out more, etc.]

13. If c) Work undertaken by a contractor, what checks were made/planning done before the work was carried out? [e.g. did you require planning permission; was the contractor registered to a professional body; were any references/reviews checked; etc.]



14. When you found out about the misconnection on your property, what was your response?

**Process and communication**

15. On a scale of 1 to 5, how satisfied were you with the information received from Scottish Water about the detected misconnection on your property prior to the works being started?

1	2	3	4	5
Extremely dissatisfied		Neutral		Extremely satisfied

16. What did you learn about misconnections during your engagement with Scottish Water?

17. How easy or difficult have you or others within your household found the process of correcting your misconnection?



Support, resolution and next steps

18. Who do you believe should have overall responsibility for correcting this issue (homeowner, local authority, Scottish Water, other) and why?

19. In your view, what support would be helpful to other households that are informed they have a misconnection? (financial, expert advice from a qualified party, information, etc.)

20. On a scale of 1 to 5, how satisfied are you with the support and work carried out by Scottish Water to correct your misconnection?

1	2	3	4	5
Extremely dissatisfied		Neutral		Extremely satisfied

21. Do you have any further thoughts you would like to share regarding misconnections work within your property or communications?

22. Are you willing to take part in follow up questions over the phone or email if required, at a later date?

- Phone only
- Email only
- Both
- Neither

Thank you for responding to this survey. Please return survey to Keep Scotland Beautiful using the prepaid envelope provided.

We support the ambitions of the United Nations Sustainable Development Goals.

Keep Scotland Beautiful is your charity for Scotland's environment. We work with you to help combat climate change, reduce litter and waste, and protect and enhance the places we care for.



T: 01786 471333 E: [info@keepscotlandbeautiful.org](mailto:info@keepscotlandbeautiful.org)

 Facebook: /KSBSScotland  Twitter: @KSBSScotland

[www.keepscotlandbeautiful.org](http://www.keepscotlandbeautiful.org)

