Taharoa Ironsands Ltd

17 September 2026

By Email: [redacted]

Environmental Protection Authority
Private Bag 63002
Wellington 6140

Attention: Expert Panel for the Central and Southern Block Mining Project

Dear Expert Panel

Introduction

1. The Panel's Request for Further Information (**RFI**) 1, as set out in Appendix A to Minute 24 dated 20 August 2026, raises the issue of potential dewatering / seepage from the Mitiwai Stream as a result of Taharoa Ironsands Limited's (**TIL**) mining operations.

2. TIL's interim response to RFI 1, which is set out in Appendix A to the Memorandum of Counsel dated 8 September 2026, notes that the modelled low magnitude of potential dewatering effects on the Mitiwai Stream has been verified by TIL's current on-site work in Pit 1 in proximity to the Mitiwai Stream.

3. The purpose of this letter is to provide the Panel and experts attending conferencing on hydrology and hydrogeology on 18 September 2026 with additional information in relation to the work that is currently undertaking in proximity to the Mitiwai Stream, including monitoring for potential stream depletion effects through seepage into the mine pits.

Qualifications and experience

4. My name is Modher Barakat. I hold a Bachelor of Science in Petroleum and Mining Engineering from the University of Baghdad, and a Master of Engineering in Mining Engineering from the University of Auckland.

5. I have been employed by TIL (formerly New Zealand Steel Mining Limited) since 2001. Prior to working at TIL, I was a Production Engineer for the State Organisation of Minerals in Iraq, from 1978 to 1995. My role at TIL as a technical services consultant involves advising TIL's mining engineers and operations team regarding all mining, dredging and mineral processing services.

No observation of stream (surface) water seepage when mining in proximity to the Wainui and Mitiwai Streams

6. TIL has been undertaking mining activities in the Te Ake Ake Block south of the Mitiwai Stream since January 2024 and is currently extracting iron sand by dredge in 'Pit 1', which is the closest extraction point to the Mitiwai Stream since work began in the Te Ake Ake Block.

7. As outlined at the Panel Facilitated Conference in Hamilton on 22 July 2026, TIL's engineers regularly monitor and record any abnormal observations of all excavation activities undertaken in proximity to freshwater bodies, including for signs of seepage into the mine pits – from groundwater and freshwater (surface water). This includes:

    (a) Daily dredging operation reports (discussed in more detail below and an example is provided in **Appendix A**);

    (b) Weekly aerial photographs of the Mitiwai stream and the adjacent dredging operation, to check any changes in stream levels; and

(c) Fortnightly dredge pond water balance and groundwater seepage calculations (see the examples of calculations relating to Pit 1 provided in **Appendix B**). These are carried out during maintenance shut down, to ensure that any observations of seepage that are recorded as part of the monitoring, which are then factored into these calculations, are accurate.

8. When observing for seepage, TIL's mining team look for signs of the source of any seepage (i.e. groundwater or fresh (surface) water), related sand slumps (caused by dewatering) and progressive seepage flow.

9. Any risk in mining including seepage in the mining face would be reflected in the daily dredging operation reports / shift logs, which record all safety and site occurrences during dredging operations. As example of the log is attached to this letter as **Appendix A**. The examples of the dredge pond water balance and groundwater seepage calculations in Pit 1 (included in **Appendix B)** illustrate that any seepage is primarily of groundwater and is related to tailings deposition operation and rainwater runoff.

10. The weekly aerial photos of the dredging/stream area indicate that level of water at the Mitiwai was stable during the period from the first quarter of 2024, when mining was at the RL 30, through to when the dredging operation was established and pit level was lowered to RL -7 (i.e. 25m below the level of the Mitiwai). This observation confirms that the streambed is covered by a clogging layer resulting in disconnection of the stream water from the groundwater. The formation of this clogging layer was expected due the high presence of silts and slimes within the in-situ sand of Taharoa area.

11. TIL's reports confirm that no seepage of surface water into the mine pits has been observed since mining commenced in the Te Ake Ake Block adjacent to the Mitiwai Streams in January 2024, nor since dredging commenced in this location in early 2025. The same applies to the dredging activities adjacent to the Wainui Stream, which were undertaken between January and December 2024. This was the case even though the dredging pond level reached RL 0 (i.e. 10m below level of the Wainui Stream).

12. I personally have not observed, nor am I aware of, any seepage into the mine pits originating from either the Wainui or Mitiwai Stream.

13. In addition to this ongoing monitoring, it is important to understand that the edge of Pit 1 is set back at least 30m from the boundary of the Mitiwai Stream. The actual mining and dredging activities take place at an even greater distance from the Mitiwai boundary. However, as the pits are engineered and designed with a 35° slope from the edge of the pit, this provides an additional safeguard to ensure that no water seeps from the Mitiwai Stream during these works. Cross-sections of the dredge ponds adjacent to both the Wainui and Mitiwai Streams are also included in **Appendix B**.

Conclusion

14. As set out above and demonstrated in Appendix A, TIL has never observed any seepage originating from surface water bodies when undertaking excavation activities adjacent to the Wainui or Mitiwai Stream, either historically or currently.

15. I am confident that the current limitations on the proximity of mining activities to surface water bodies (i.e. the 30m setback and 35° slope design), in addition to the continued ongoing monitoring undertaken by TIL mining management, provides clear and robust evidence that there have never been, and are not currently, any depletion effects on the Mitiwai or Wainui Streams as a result of mining operations.

Yours sincerely



Modher Barakat
Technical Services Mining Consultant
Taharoa Ironsands Limited

Appendix A

Shift Log Sheet

Dredge team leader to complete

Production shifts are 6am - 6am or 6pm - 6am

		Date	Crew	Shift
		16/09/2026	A	Day

Dredge Coordinator	Flynn Kowalewski
Dredge team leader	Ricky Hammond
Dredge 8 operator	Chad Robson
Dredge 8 operator	jack staite
Dredge 14 operator	
Dredge 1 operator	Ricky Hammond
Dredge 15 operator	
Dredge 15 operator	
EX dredge Operator	
Maintenance	Nathan Galloway
Mainteanace	Patrick Leauai
Maintenance	Sam Andrews
Absent - Planned Leave	
Absent - Planned Leave	
Absent - Unplanned Leave	
Absent - Unplanned Leave	
Absent - Sick Leave	
Absent - Sick Leave	

	Run Time Day	Run Time Night	TH (t/h)	D/S Tonnes	N/S Tonnes	Total
Dredge 1	0hrs					
Dredge 8	0hrs					
Dredge 15						
EX dredge	0hrs					

Maintenance Issues and Work Request Raised:	WR Number
dredge 1:re-spool ladder cable-slew sheaves realign and greased-grease lines have been fixed/tidy up-cab cleaned and de-greased	
dredge 8:shorten ladder cable-aux spud retainer not fixed and still not good pat is going to look at it in the morning-engine bay de-greased-deck been de-grease	
dredge 8:hydro oil has be changed- services-full grease up	
dredge 8:tender motor has been taken off ready to go nto town for service	

Dredge 8 operational data	RUN TIME ISSUES	Down time Hours
	shut day maintenance	

	Start Shift	EndShift		
Cutter Angle			TOTAL DOWN HOURS	12hrs
Cutter Depth (m	-0.41	-0.41	TOTAL RUN TIME	0hrs
Pond Depth		-8.4		

Dredge 14 operational data (Run Hours - daily workings - location - issues - mining depth)	Down time Hours
N/A pond maintenance	
top ladder pully has been greased	

	Start Shift	EndShift		
Cutter Depth			TOTAL DOWN HOURS	12hrs
Pond Depth			TOTAL RUN TIME	0hrs

Dredge 1 operational data (Run Hours - daily workings - location - issues - mining depth)	Down time Hours
shut day	

	Start Shift	EndShift		
Cutter Depth			TOTAL DOWN HOURS	12hrs
Pond Depth			TOTAL RUN TIME	0hrs
			AVERAGE M3	

Dredge 15 operational data (Run Hours - daily workings - location - issues - mining depth)	Down time Hours
n/a	

	Start Shift	EndShift		
Cutter Depth			TOTAL DOWN HOURS	
Pond Depth			TOTAL RUN TIME	

Excavator dredge operational data (Run Hours - daily workings - location - issues - mining depth)	Down time Hours
n/a low pond level	

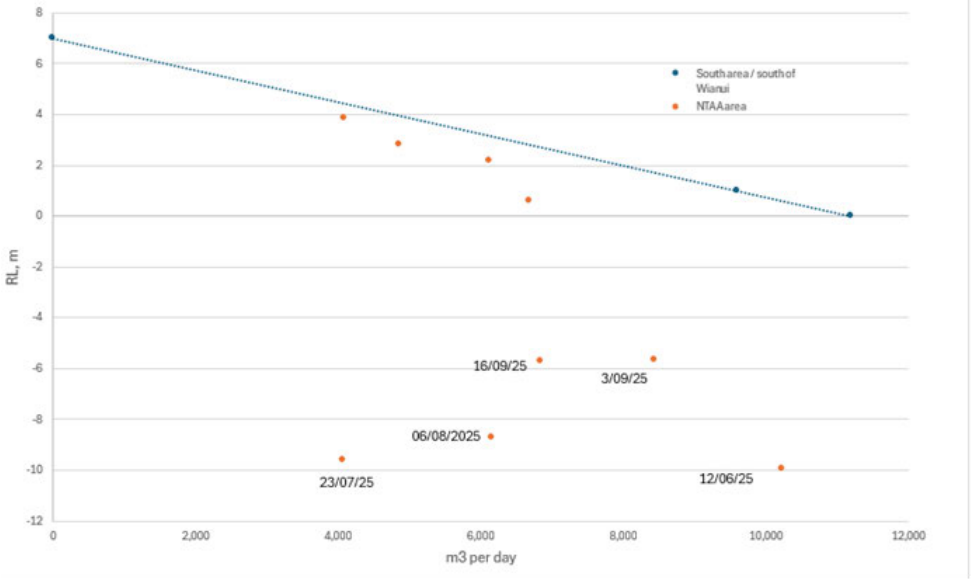
	Start Shift	EndShift		
Cutter Depth			TOTAL DOWN HOURS	12hrs
Pond Depth			TOTAL RUN TIME	0hrs

Safety - Site occurances - Comments
spotter to watch aux spud when changing and lifting spud. Make sure spud is sraight before anything

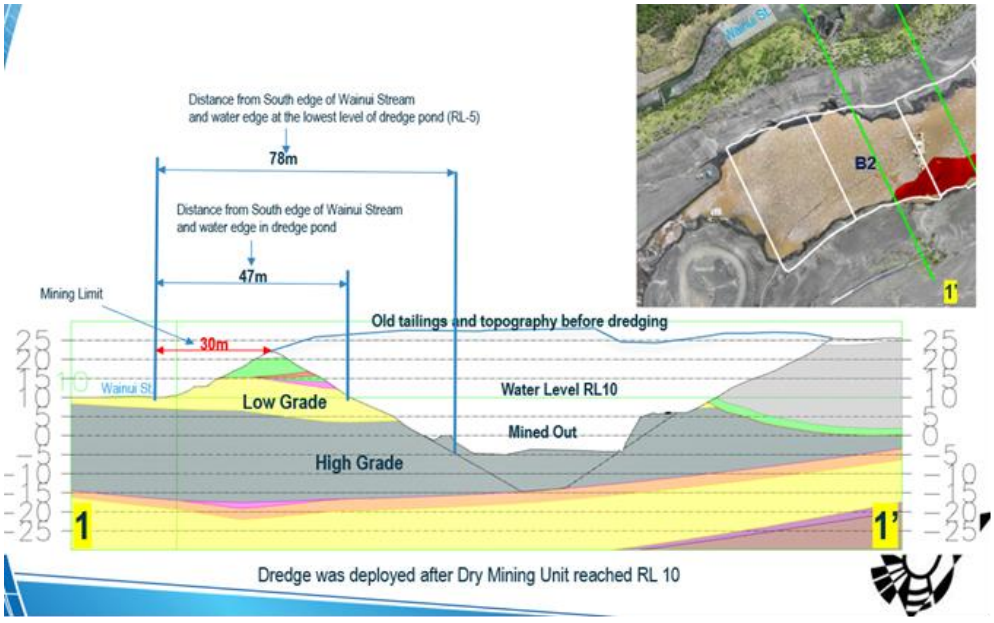
Appendix B

1. Dredge pond water monitoring during 2025.

					Ground water seepage			
Area	Water RL @	Water RL @	Delta RL	area m2	Volume m3	Volume m3/h	Volume m3/d	Avg W RL
DR08 NTAA	7:00	17:00	10:00					
22/01/2025	4.27	4.48	0.21	9900	2,079	208		
5/02/2025	3.74	3.98	0.24	6027	1,446	170	**4,084**	3.86
5/03/2025	2.7	2.92	0.22	8745	1,924	203	**4,860**	2.80
19/03/2025	2.05	2.3	0.25	9176	2,294	255	**6,117**	2.18
2/04/2025	0.55	0.66	0.11	7600	836	279	**6,688**	0.61
11/06/2025	-3.6	-3	0.6	6,750	4,050	426	**10,232**	- 3.30
23/07/2025	-4.35	-4.23	0.12	5,626	675	68	**4,068**	- 4.29
6/08/2025	-6.15	-5.86	0.29	5,556	1,611	161	**6,156**	- 6.01
3/09/2025	-6.1	-5.66	0.44	6,082	2,676	297	**8,432**	- 5.88
16/09/2025	-6.28	-5.9	0.38	7,200	2,736	285	**6,840**	- 6.09
10/12/2025	-7.3	-7.22	0.08	30,543	2,443	271	**13,353**	- 7.26



2. Typical cross section in the Dredge Pond by the Wainui in 9th of January 2024



3. **Typical cross section in the Dredge Pond by the Mitiwai in 24th of August 2026**

