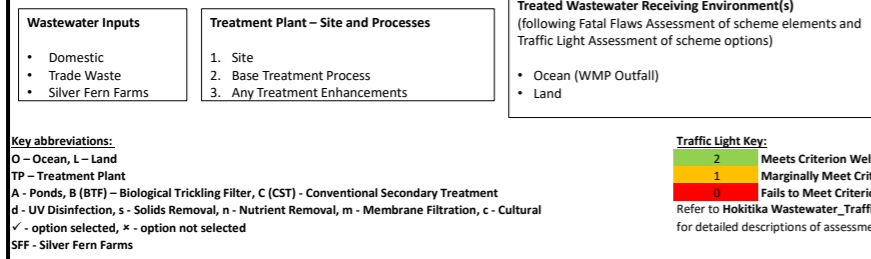


Traffic Light Assessment Criterion

Scheme Ref.	Receiving Environment	Receiving Environment Ref	Secondary Receiving Environment	WWTP Location	Base Treatment Option	Treatment Enhancements Key question is: what is the rationale for why the enhancement(s) is required/desired?					SFF Treatment (to be worked through)	SFF discharge (to be worked through)	Traffic Light Assessment Criterion												Sum of scores (to date)					
						UV Disinfection (d)	Solids Removal (s)	Nutrient Removal (n)	Membrane Filtration (m)	Cultural (c)			1	2	3	4	5	6	7	8	9	10	11	12						
TP1-03-B	Ocean	O3 Existing WMP		TP1 Existing	B (BTF)	x	x	x	x	x			0	2	1	2	2	1	2	2	0	2	1	2	17					
TP1-03-Bc						x	x	x	x	x	x	x	x			1	2	1	2	2	1	2	2	0	2	1	2	18		
TP1-03-Bd						x	x	x	x	x	x	x	x	x			0	2	1	2	2	1	2	2	0	2	1	2	17	
TP1-03-Bdc						x	x	x	x	x	x	x	x	x			1	2	1	2	2	1	2	2	0	2	1	2	18	
TP1-03-Bmc						x	x	x	x	x	x	x	x	x			2	2	1	2	2	1	1	2	0	2	1	2	18	
TP1-L1B-C	Land West of Airport	L1B RIBs/trenches		TP2 West of Airport	C (CST)	x	x	x	x	x				2	1	1	1	1	2	1	0	1	0	1	11					
TP1-L2B-C	Land Airport	L2B Trenches	x			x	x	x	x	x	x				2	1	1	1	1	1	0	1	0	1	10					
TP1-L3B-C	Land East of Airport	L3B RIBs/trenches	x			x	x	x	x	x	x				2	1	1	1	0	0	1	0	1	0	1	8				
TP2-03-B	Ocean	O3 Existing WMP				TP2 West of Airport	B (BTF)	x	x	x	x	x			0	2	2	2	2	2	2	1	2	2	2	2	2	21		
TP2-03-Bc				x	x			x	x	x	x	x	x			1	2	2	2	2	2	2	2	2	2	2	2	23		
TP2-03-Bd				x	x			x	x	x	x	x	x	x			0	2	2	2	2	2	2	2	1	2	2	2	21	
TP2-03-Bdc				x	x			x	x	x	x	x	x	x			1	2	2	2	2	2	2	2	2	2	2	2	23	
TP2-03-Bmc				x	x			x	x	x	x	x	x	x			2	2	2	2	2	2	1	2	2	2	2	2	2	23
TP2-L1B-C	Land West of Airport	L1B RIBs/trenches		TP2 West of Airport	C (CST)	x	x	x	x	x			0	2	2	1	1	2	2	1	1	1	1	1	1	15				
TP2-L1B-Cc						x	x	x	x	x	x	x	x			0	2	2	1	1	2	2	1	1	1	1	1	15		
TP2-L1B-Cd						x	x	x	x	x	x	x	x	x			0	2	2	1	1	2	2	1	1	1	1	1	15	
TP2-L1B-Cdc						x	x	x	x	x	x	x	x	x			1	2	2	1	1	2	2	1	2	1	1	1	17	
TP2-L1B-Cmc	Land Airport	L2B Trenches		TP3 Airport	C (CST)	x	x	x	x	x			0	2	2	1	1	2	1	1	1	1	1	1	1	14				
TP2-L2B-C	Land Airport	L2B Trenches	x			x	x	x	x	x	x			0	2	2	1	1	2	0	1	1	1	1	1	13				
TP2-L3B-C	Land East of Airport	L3B RIBs/trenches	x			x	x	x	x	x	x			0	2	2	2	2	2	2	2	1	2	2	2	21				
TP3-03-B	Ocean	O3 Existing WMP				TP3 Airport	B (BTF)	x	x	x	x	x			1	2	2	2	2	2	2	2	2	2	2	2	2	2	23	
TP3-03-Bc				x	x			x	x	x	x	x	x			0	2	2	2	2	2	2	2	1	2	2	2	2	21	
TP3-03-Bd				x	x			x	x	x	x	x	x	x			1	2	2	2	2	2	2	2	2	2	2	2	23	
TP3-03-Bdc				x	x			x	x	x	x	x	x	x			2	2	2	2	2	2	1	2	2	2	2	2	2	23
TP3-03-Bmc				x	x			x	x	x	x	x	x	x			0	2	2	1	1	1	2	1	1	1	1	1	1	14
TP3-L1B-C	Land West of Airport	L1B RIBs/trenches		TP4 East of Airport	C (CST)	x	x	x	x	x			0	2	2	1	1	1	2	1	1	1	1	1	1	1	13			
TP3-L2B-C	Land Airport	L2B Trenches	x			x	x	x	x	x	x			0	2	2	1	1	1	2	1	1	1	1	1	1	12			
TP3-L3B-C	Land East of Airport	L3B RIBs/trenches	x			x	x	x	x	x	x			0	2	2	1	1	0	1	1	1	1	1	1	1	13			
TP4-03-B	Ocean	O3 Existing WMP				TP5 Southside	B (BTF)	x	x	x	x	x			2	2	1	2	2	0	0	2	1	2	2	2	2	16		
TP4-L2B-C	Land Airport	L2B Trenches	x	x	x			x	x	x	x			2	2	1	1	1	1	1	1	1	1	1	1	13				
TP4-L3B-C	Land East of Airport	L3B RIBs/trenches	x	x	x			x	x	x	x			2	2	1	1	1	1	1	1	1	1	1	1	1	13			
TP5-03-A	Ocean	O3 Existing WMP		TP5 Southside	A (Ponds)			x	x	x	x	x			1	1	2	0	0	0	2	0	1	0	1	1	8			
TP5-03-B						x	x	x	x	x	x	x	x			2	2	1	2	1	0	0	2	0	2	2	1	1	13	
TP5-L6A/O3-A	Land South side	L6A Slow rate irrigation	O3	TP5 Southside	C (CST)	x	x	x	x	x			1	1	0	1	1	0	2	0	1	1	1	1	1	9				
TP5-L6A/O3-C						x	x	x	x	x	x	x	x			2	1	1	1	1	1	1	0	1	1	1	1	1	11	
TP5-L6B-A						x	x	x	x	x	x	x	x	x			1	1	1	1	1	0	2	0	1	1	1	2	11	
TP5-L6B-C						x	x	x	x	x	x	x	x	x			2	1	1	1	2	1	1	1	0	1	1	2	13	

Long List No.	Long List No.	Scheme Ref.	Potential Wastewater Schemes (Short List) to take forward to MCA Assessment based on this Traffic Light Assessment	Comments/Rationale
1	1	TP1-03-B	x	This is one Potential Wastewater Scheme, with five sub-options. Sub-options without a cultural treatment enhancement not taken forward to the short list.
		TP1-03-Bc	✓	
		TP1-03-Bd	x	
		TP1-03-Bdc	✓	- Option included as the Project Working Group want to evaluate having a WWTP on the existing site for comparison purposes.
		TP1-03-Bmc	✓	
8	2	TP1-L1B-C	x	
11	3	TP1-L2B-C	x	Low score and therefore not taken forward to the short list.
20	4	TP1-L3B-C	x	
22	5	TP2-03-B	x	This is one Potential Wastewater Scheme, with five sub-options. Sub-options without a cultural treatment enhancement not taken forward to the short list.
		TP2-03-Bc	✓	
		TP2-03-Bd	x	
		TP2-03-Bdc	✓	- Option included as it scores equal highest on the Traffic Light Assessment.
		TP2-03-Bmc	✓	
29	6	TP2-L1B-C	x	Low score and therefore not taken forward to the short list.
		TP2-L1B-Cc	x	
		TP2-L1B-Cd	x	
		TP2-L1B-Cdc	✓	This is one Potential Wastewater Scheme, with two sub-options. - Option included as the Project Working Group wants to evaluate a discharge to land option.
		TP2-L1B-Cmc	✓	
32	7	TP2-L2B-C	x	Low score and therefore not taken forward to the short list.
41	8	TP2-L3B-C	x	
		TP3-03-B	x	
43	9	TP3-03-Bc	✓	This is one Potential Wastewater Scheme, with five sub-options. Sub-options without a cultural treatment enhancement not taken forward to the short list.
		TP3-03-Bd	x	
		TP3-03-Bdc	✓	- Option included as it scores equal highest on the Traffic Light Assessment.
		TP3-03-Bmc	✓	
50	10	TP3-L1B-C	x	Low score and therefore not taken forward to the short list.
53	11	TP3-L2B-C	x	
62	12	TP3-L3B-C	x	
83	13	TP4-03-B	x	Low score and east of the Airport. Was rejected by Project Working Group as not desired.
96	14	TP4-L2B-C	x	
108	15	TP4-L3B-C	x	
134	16	TP5-03-A	x	
135	17	TP5-03-B	x	
142	18	TP5-L6A/O3-A	x	Low score and south of the Hokitika River. Was rejected by Project Working Group as not desired.
144	19	TP5-L6A/O3-C	x	
150	20	TP5-L6B-A	x	
152	21	TP5-L6B-C	x	

The building blocks of the Potential Wastewater Schemes:



Notes:

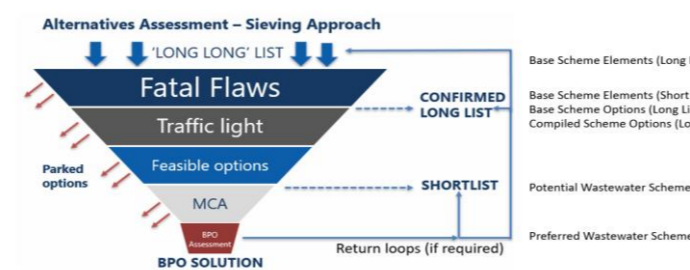
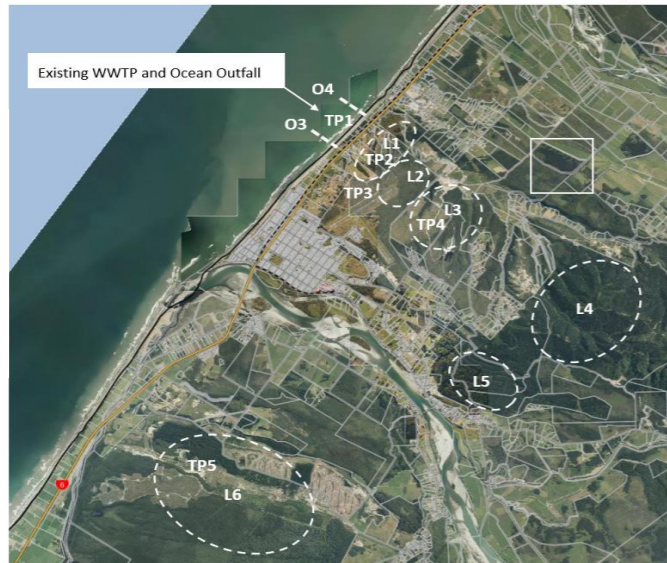
- SFF treatment and discharge options still to be worked through.
- BTF with Clarifier is a sub-option of C - CST.
- Discharge to WMP ocean outfall is fundamental to outfall O3 options along with securing appropriate changes to resource consent conditions.
- SFF discharge, providing it remains in the scheme, would be included in Council's agreement with WMP for the discharge through the WMP ocean outfall regardless of whether treatment is in the Council's system, or undertaken by SFF.
- Treatment Enhancements could be part of the initial build or added in the future in accordance with requirements set in resource consent conditions. This could be through periodic reviews of performance, adaptive management approaches, or other techniques.
- Cost not considered at this phase of assessment but is one of the criterion used for the coming assessment of the Short List.
- Refer to updated Assessment Overview Diagram for summary of assessment steps and outcomes through to this Long List to Short List summary.
- Mana Whenua have confirmed they desire an open channel type cultural treatment enhancement that includes rocks and that enables the water to be seen.

Treatment Enhancement descriptions/comments:

- UV disinfection** - Used to reduce the pathogen concentration (bacteria, viruses, protozoa) in the treated wastewater and therefore reduce the health risk to the public following discharge into the receiving environment. UV disinfection is commonly used on WWTP's in New Zealand for discharges to land, river and ocean. The need for, and level of, UV disinfection is site specific and is usually determined following technical studies to determine the amount of dilution and dispersion of the treated wastewater in the receiving water before the public can come into contact with it, through direct body contact or eating contaminated shellfish, watercress, and other wild foods.
- Solids Removal** - Used to remove the solids content of the treated wastewater prior to discharge (e.g., filters, clarifiers or dissolved air flotation) in order to avoid adverse visual effects or solids deposition in receiving waters especially rivers and lakes. Solids removal is normally used with oxidation pond and lagoon treatment systems, which contain high concentrations of algal solids. Solids removal is not normally required for conventional secondary treatment plants, which already produce a low solids concentration treated wastewater.
- Nutrient Removal** - Used to remove nitrogen and/or phosphorus from the wastewater, in order to avoid stimulating nuisance algae and other plant growths in the receiving environment, fish toxicity (ammonia) or health risks to downstream drinking water supplies (nitrate). Nutrient removal is not normally required for ocean outfall discharges due to the high degree of dilution and dispersion provided.
- Membrane Filtration** - A particular type of filtration using a membrane with a very small pore size (0.04 microns), which removes bacteria and protozoa and most viruses in addition to all solids. As such, membrane filtration provides disinfection in addition to 100% solids removal. Membrane filtration also removes any microplastics which might be present in the treated wastewater. Membrane filtration is normally only used where a high level of water quality and public health protection is needed (e.g., for reusing the treated wastewater to irrigate parks and reserves) or for sensitive receiving environments such as lakes and rivers.
- Cultural Treatment** - From a Māori tikanga perspective, it is considered offensive to discharge human waste to waterways, even when it has been treated. In Māori tikanga, human waste requires rūhū and this needs to be converted (i.e., whakanoa) prior to water contact. Passage through soil or a land element (Papatūānuku) can transform the treated wastewater from rūhū to noa, depending on the specific site and situation. The need for, and type of, cultural treatment is specific to the treated wastewater receiving environment and the position of local iwi. Consultation to arrive at an agreed approach is of fundamental importance.

- WWTP Location Options**
 In the vicinity of:
 TP1 - Existing WWTP Location
 TP2 - West of Airport
 TP3 - Airport
 TP4 - East of Airport
 TP5 - Southside
- Receiving Environment Options**
 Ocean:
 O3 - WMP Existing Outfall
 O4 - New WDC Outfall (location not defined)
- Land:**
 In the vicinity of -
 L1 - West of Airport
 L2 - Airport
 L3 - East of Airport
 L4 - Blue Spur
 L5 - Kanlere
 L6 - Southside / Adair Road
- 100ha block shown for scale (1,000m x 1,000m)

Base Scheme Long List - WWTP and Receiving Environment Options



Assessment Overview Diagram:

