



WEST COAST  
REGIONAL COUNCIL

## Franz Josef Joint Committee Rating District Asset Management Plan 2023-2026



West Coast Regional Council

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Greymouth  
7805

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## **1.0 Purpose of this Document**

The purpose of this document is to summarise the management philosophy that is applied to the Franz Josef Rating District including the infrastructure assets and services. This approach ensures that acceptable levels of service are provided in the most cost effective manner and contribute to the achievement of the community outcomes identified in the West Coast Regional Council's Long-Term-Plan (LTP).

This AMP defines the objectives and performance standards of the Franz Josef Joint Committee Rating District for which the West Coast Regional Council bears the maintenance responsibility, including providing a basis upon which the effectiveness can be measured. The key purposes of this AMP are to:

- Provide a history of the protection scheme.
- Convey the long-term strategy for the management of the Franz Josef Lower Waiho Rating District.
- Provide a tool to assist with management assets in a cost effective and sustainable manner.
- Manage the environmental, service delivery and financial risks of asset failure.
- Demonstrate that the service potential of the rivers and drainage assets is being maintained.

## **2.0 Asset Management Objectives**

West Coast Regional Council recognises that the Franz Josef Asset Management Plan is the fundamental driver of flood protection for the scheme. This AMP has been developed in accordance with the Local Government Act 2002, with the first AMP completed in 2003 with three yearly updates or earlier where information indicates a significant change from what is stated in the current AMP.

In order to fulfil the outcomes, vision, goals and objectives of these assets, the West Coast Regional Council have adopted a systematic approach to the long-term management of its assets and services on the Franz Josef Joint Committee Rating District by preparing this AMP.

West Coast Regional Council is committed to best appropriate practice asset management in order to achieve the following key objectives:

- Meet the service expectations of the Franz Josef community.
- Ensure maintenance activities achieve efficient results with optimal benefits.
- Demonstrate Council's approach to managing risk and meeting growth requirements towards a sustainable future.
- Comply with all statutory requirements.

### 3.0 Background

#### 3.1 Franz Josef Background

In May 1957 the Ministry of Works advised that the government was proposing to build a new hotel at Franz Josef. The proposed construction site was approximately one kilometre downstream from the township on the right bank of the Waiho River. At the time the threat of erosion was considered remote, due to the location of the main stream.

Prior to 1957 protection works in the form of gabion (wire crates) existed on the right bank below the State Highway Bridge to provide protection for the aerodrome.

In May 1967 the Ministry of Works expressed concern at the Waiho River swinging northwards and possibly affecting the Tourist Corporation Hotel site and Airport facilities. An inspection of the area was carried out by Westland Catchment Board engineers and a proposal for protection work prepared.

In May 1968 the proposal to construct a stopbank over approximately 350 metres with heavy rock armouring was approved by Civil Aviation and the Tourist Hotel Corporation. This work was completed in November 1968 at a cost of \$7,640. Repairs to the rock protection were carried out in March 1971. 1200 tonnes of rock being required to top up slumped rip rap.

As a result of the Waiho River again threatening the hotel frontage a proposal to extend the existing stopbank downstream by 500 metres was forwarded to Ministry of Transport and the Tourist Corporation for approval in May 1972. Approval to extend the stopbank was received by the Westland Catchment Board in December 1972 and the work was completed in October 1973.

In November 1973 a flood washed out the old wire crate protection works on the north bank immediately downstream of the State Highway Bridge over a distance of 60 metres causing flooding of the Airstrip and threatening the Hotel and sewage plant. Another major flood in February 1974 swept through the Airstrip and Hotel sewage plant. The washed-out section of stopbank above the Airstrip was replaced with a curved bank and hook groyne and rock stronghead at the top end. Rock spur groynes were placed along the reinstated bank.

During severe flooding in 1967/1968 the riverbed at the terminal face of the Glacier rose 13 metres. This gravel has since travelled downstream causing a build-up of the riverbed below the State Highway Bridge.

A rating classification was suggested in August 1977. In August 1978 the Westland Catchment Board prepared a proposal for the Waiho River which included rockwork to protect the riverbanks from erosion, and stopbanks to prevent flooding and to keep the river in a permanent alignment. The estimate for the proposed work was \$120,000. The works were designed for a 50-year return period flood (2,700m<sup>3</sup>/s) with 1 metre freeboard.

In March 1979 severe flooding caused further damage to the stopbanks and rock protection and as a result the scheme estimate rose to \$144,000. The proposed scheme works were approved on 12<sup>th</sup> November 1979 by N.W.A.S.C.O and work began in January 1980.

Two major floods occurred on 2<sup>nd</sup> and 3<sup>rd</sup> and again on 24<sup>th</sup> and 25<sup>th</sup> December 1979 resulting in 300 metres of the airstrip stopbank being lost. In the 24<sup>th</sup>-25<sup>th</sup> December flood a further 600 metres of

bank was destroyed. The main river channel diverted to the north bank causing severe damage to Green's property and threatened the recently completed oxidation ponds.

The scheme was revised in July 1988. Works included:

- (a) 1600 tonnes of rock protection on the left bank along the camping ground frontage.
- (b) 600 tonnes of rock in spur groynes below the camping ground.
- (c) 3600 tonnes of rock in the form of 3 retards below Canavan's Knob on the left bank.
- (d) The extension of the right bank stopbank and the construction of a hook groyne and stronghead with 7,800 tonnes of rock protection.

The revised scheme works were completed in 1980.

In January and March 1982 the Waiho River was subject to major flooding. A report prepared by Soil Conservation and Rivers Control Council stated that on 11/12 March 1982 the 24 hours rainfall was 445mm. Damage occurred to the left bank stopbank adjacent to the State Highway and the stopbank on the right bank opposite the camping ground. The aerodrome stopbank required raising and the hook groyne opposite Canavan's Knob was destroyed. Design standards were raised to include 1 metre freeboard above the March 1982 flood. The hook groyne was not reinstated.

A report prepared by the Chief Engineer of the Westland Catchment Board suggested that the National Roads Board withdraw from the scheme and assume responsibility for the left bank section of protection works adjacent to the State Highway.

In May 1983 the Waiho Riverbed had less than 1.8 meters clearance from the soffit of the existing State Highway Bridge.

The scheme was reviewed in July 1983 on 16 April 1984 and the Westland Catchment Board adopted a classification for maintenance purposes. This classification was used to fund the ongoing maintenance works.

On 20/21 December 1984, the Waiho River broke through the right bank stopbank, flowed over the airstrip and along the THC Hotel frontage. A proposal to repair the flood damage and protect the Hotel and sewage ponds was estimated at \$170,000. Repairs to the flood damaged stopbank were completed in April 1985.

On 30 April 1985 a proposal to raise the Glacier access road over 300 metres and place 8800 tonnes of heavy rock protection to prevent the Waiho River from flooding into Wombat Creek was forwarded to the Commissioner of Crown Lands for consideration.

On 16 May 1985 a public meeting resolved that an area system of classification be adopted.

On 28 December 1989 approximately 180 metres of the right bank stopbank was destroyed. The Waiho River diverted through the gap in the stopbank destroying the recently completed airstrip.

As a result of continued aggradation, Westland Catchment Board engineers decided to abandon the right bank stopbank and concentrate protection works along the existing riverbank.

At a meeting on 17 May 1990 Waiho township ratepayers opted for a proposal which included the construction of a 250 metre long rock protected stopbank on the right bank extending downstream from the terrace below the Department of Conservation Headquarters and four rock deflector groynes along the toe of the terrace on the right bank below the State Highway Bridge.

On the left bank the proposal included the construction of a stopbank commencing at the State Highway Bridge and extending downstream for 300 metres to protect the Glacier Gateway Motor Lodge and Camping Ground. The stopbank would be reinforced with rockwork.

The design height of the stopbanks was determined by taking an average approach from technical reports available at that time.

The top width of 6 metres on the right bank stopbank was to allow for any future rising as determined necessary. The rock protection was to be trenched 5 metres below existing bed level to prevent slumping if scouring occurred.

The left bank stopbank and rock protection was constructed by Ferguson Bros. Industrial Ltd and the right bank stopbank and rock protection by Langridges Earthmoving. All work was completed by September 1991.

On 13 December 1995 a major flood destroyed the right bank approach to the State Highway Bridge and seriously eroded the right bank immediately below the bridge.

On 11 September 1996, the Franz Josef community confirmed its acceptance of a proposal prepared by the Regional Council to raise the left bank stopbank by one metre over 300 metres and place 2000 tonnes of rock protection. On the right bank, to construct a stopbank commencing at the State Highway Bridge and extending downstream for 280 metres and place 18,000 tonnes of rock protection. This work was completed by Ferguson Bros. Industrial in November 1996.

In response to ratepayers' requests, Council staff prepared a reclassification of the Franz Josef Rating District in 2003. A new Capital Value Based Rating District was ratified in the Council's Annual Plan adopted on 19 August 2003.

In 2015, the stopbanks on the true left of the Waiho River were removed from the Franz Josef Rating District and are now administered by NZTA (from the State Highway bridge to Canavans Knob).

In 2016 Flood modelling of the Waiho River was undertaken. A stopbank for a 1:100-year flood event was designed. This work was tendered and constructed at the end of 2016.

### 3.2 Lower Waiho Background

In 1944 it was proposed to carry out a survey to determine if it was possible to construct a "cut-off" stopbank near Rata Knoll to prevent overflows from the Waiho River flooding Docherty's Creek. Due to lack of manpower and machinery during the war years this survey was not carried out until 1947 when the Public Works Department received a grant of 50 pounds equivalent to \$100 from the Soil Conservation and Rivers Control Council to carry out the work.

In May 1947 the Public Works Department prepared a proposal which included the construction of a stopbank and tree planting to prevent overflows from the Waiho River entering Docherty's Creek. This proposal was forwarded to soil Council for approval.

An inspection of the Waiho River by a Soil Council Engineer determined that due to river changes a stopbank and tree planting were no longer required and advised the Westland Catchment Board accordingly.

In November 1948 the Westland Catchment Board received a letter from 6 Lower Waiho farmers regarding possible flooding from the Waiho River and requested urgent action to solve their flooding problem.

The area affected was 1336 hectares and urgent protection works were suggested.

After an inspection of the flooding problems in March 1949 the Westland Catchment Board sought financial assistance from the Crown Lands Department.

On 16<sup>th</sup> July 1953 Mr C. Milton wrote to the Westland Catchment Board offering financial support for a stopbank. On 18<sup>th</sup> November 1953 approval to construct a stopbank with rock protection on the left bank below Rata Knoll was granted by Soil Council.

The stopbank was constructed between April and August 1954. In June 1956 the bank was raised at the lower end over 370 lineal metres.

On 16/17 December 1965, 100 metres of Milton and Others bank was damaged. This eroded section was to be protected by placing rock riprap along a 140 metre section and to reform the damaged stopbank. This work was completed on 18 March 1966 by R.E. Clarke Ltd.

On 24 - 25 January 1967 floods damaged the bank over approximately 320 metres. Large quantities of ice from the Glacier were blamed for the severity of erosion. Sediment concentration had been very high. The National Park Board considered that the river bed downstream of the Glacier face rose 21 metres over the last 13 months. It was considered that very heavy rock should be used over 520 lineal metres. It was also proposed to resite the alignment of the new section along the new riverbank. This would give more waterway in flood events. An early estimate of the work was \$25,400.

In March 1967 a contract was let to Fergusons Earthmoving Co. Ltd. A D8 bulldozer was used to divert the river and erect the stopbank. On 9 March a flood broke through the new bank and removed all the "pushed-up" material. D9 and D8 motor scrapers completed the work. The damage caused required an additional 7,600 m<sup>3</sup> of fill and 800 tonnes of rock. The works were within 8 to 10 hours of completion when on 9 April the deflector bank along with 110 metres of bank across the gut was demolished. The extra additional cost was \$6,840.

The total cost at 30 June 1967 was \$16,000. This covered the construction of the stopbank and 10,000 tonnes of rock.

In 1973, 3,000 tonnes of rock was placed on E.J. Gibbs property by H. Langridge and Sons Ltd at a cost of \$9,411.

On 18 July 1977, Mr. Milton requested a classification of the area protected by the stopbank to proportion costs for future work.

In September 1978 a design report was produced by the Westland Catchment Board. The Scheme was designed to provide protection for a 50 year return period flood (estimated at 2,700 cumecs or 17.46 cumecs/sq.km). Stopbank heights were designed with a freeboard of 1 metre above the design flood level.

In March 1979 the scheme covering from the State Highway bridge downstream to Milltown and Others bank was proposed again. Total cost estimates were \$120,000. The Board had prepared a classification to service the Rating District and all settlers had agreed to this both for capital works and future maintenance.

On 12 November 1979 the Soil Conservation and Rivers Control Council approved the Waiho River Scheme at an estimated cost of \$155,200.

The classification was adopted by the Westland Catchment Board on 23 October 1979.

On 11-12 March 1982, a major flood inflicted major damage in the Waiho River. Milton and Others stopbank was completely wiped out. Its reconstruction was estimated at \$164,000.

The contract was let to Fergusons Earthmoving Co. Ltd and was completed on 24 September 1982 at a total cost of \$138,095.50.

The work involved:

- (a) Stopbanks - 68,900 m<sup>3</sup> of earthworks
- (b) Bank Protection - 16,072 tonnes of rock.

In March 1984 the Westland Catchment Board resolved to adopt a classification to maintain existing works on the Waiho River. It was adopted on 16 April 1984.

In 1985 a new stopbank 140 lineal metres in length was built immediately below Canavans Knob. 1,000 tonnes of rock was placed along the outer edge. The bank provided protection for landowners who were affected by flood overflows between Canavans Knob and Rata Knoll.

In March 1986 10 rock spur groynes were placed downstream of the rock faced deflector groyne. Total rock quantity was 698 tonnes.

Minor works were carried out between 1986 and 1994, on 17 February 1994 an area based classification for the Lower Waiho area was adopted by the Westland Catchment Board.

The total area covered was 1833.4 hectares.

In response to ratepayers' requests, Council staff prepared a reclassification of the Lower Waiho Rating District in 2003.

A new extended capital – based rating district was ratified in the Council's Annual Plan adopted on August 2003.

Due to a sudden shift in the main Waiho River channel, the Rubbish Dump stopbank was extended upstream over a distance of 400 metres to "tie into" the downstream side of Canavan's Knob in November 2005.

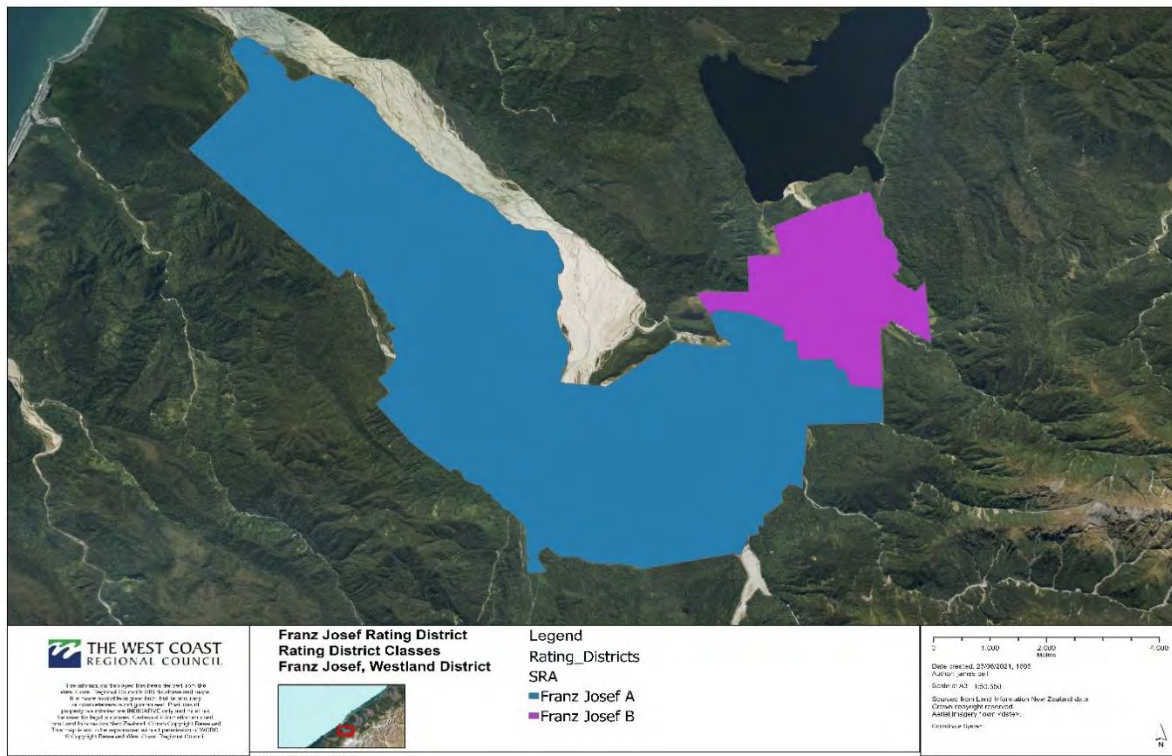
During a storm event in 2019 Milton & Others stopbank was destroyed. The stopbank was rebuilt at a cost of \$2,772,473.



During 2020 the Rubbish Dump to Rata Knoll stopbank was raised by 1m. 16,500m<sup>3</sup> of bulkfill was used during construction.

During 2021 the Rata Knoll to Milton Stopbank was constructed using 16,800m<sup>3</sup> of bulkfill and 10,437 tonnes of rock riprap.

#### 4.0 Franz Josef Joint Committee Rating District



## 5.0 Description of Assets

### 5.1 Description of Assets – FRANZ JOSEF

The Franz Josef Joint Committee Rating District manages a total of 0.55 km of stopbank on the true right bank. These stopbanks are protected by a total of 0.55 km of rock rip rap. Community infrastructure such as roads, power and telephone lines all derive benefit from the river control system as well as recreational facilities and industrial properties.

Asset	Quantity	Unit	Rate
Rock	57,987	Tonne	\$65.45
Rubble	392	Tonne	\$28.05
Stockpiled rock	4,300	Tonne	\$65.45
Fill	77,224	m <sup>3</sup>	\$26.00
Top course	405		\$37.56
<b>Asset Value</b>			<b>\$6,110,715.55</b>
<i>On-costs (15%)</i>			<i>\$916,607.33</i>
<i>Resource Consents (2%)</i>			<i>\$140,546.46</i>
<b>Replacement Cost</b>			<b>\$7,167,869.34</b>
Asset Value as at 1 July 2023			

### 5.3 Asset Map Franz Josef

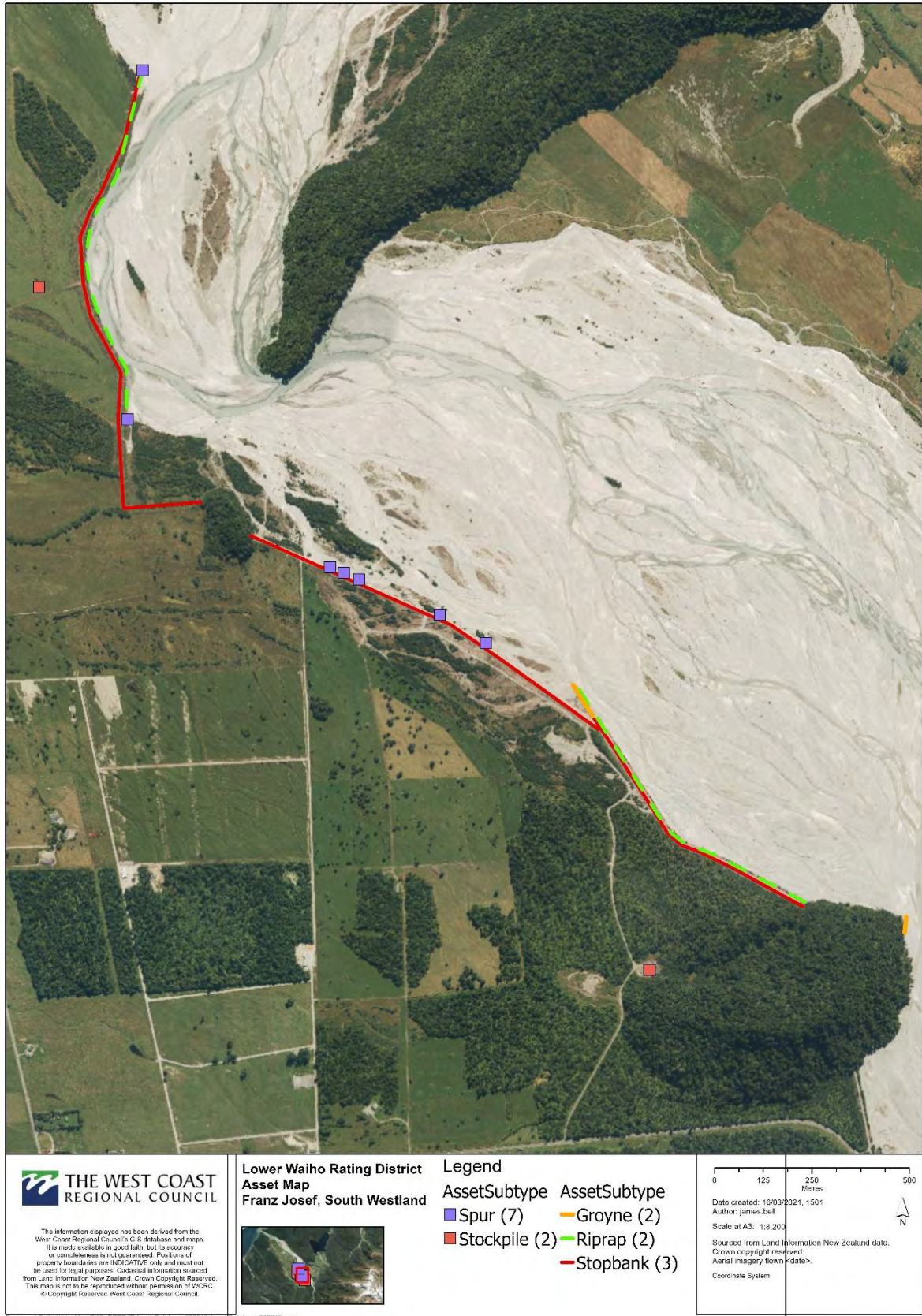


**Note: Not all assets have been added to the asset map due to having no spatial data to represent them.**

#### 5.4 Description of Assets – LOWER WAIHO

<b>Asset</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate</b>
Fill	243,800	m <sup>3</sup>	\$26.00
Rock	109,968	Tonne	\$65.54
Stockpiled rock	0	Tonne	\$65.54
<b>Asset Value</b>			<b>\$13,546,102.72</b>
<i>On-costs (15%)</i>			<i>\$2,031,915.41</i>
<i>Resource Consents (2%)</i>			<i>\$311,560.36</i>
<b>Replacement Cost</b>			<b>\$15,889,578.49</b>

## 5.6 Asset Map Lower Waiho



Document Path: X:\ArcMap\PROJ\ECT\SI\Asset Database 062319\Asset Database 062019.aprx

**Note: Not all assets have been added to the asset map due to having no spatial data to represent them.**

#### 5.7 Combined Asset Value

<b>Total Assets Value as at 1<sup>st</sup> July 2023</b>	
<b>Franz Josef</b>	<b>\$7,167,869.34</b>
<b>Lower Waiho</b>	<b>\$15,889,578.49</b>
<b>Total Including Contingencies</b>	<b>\$23,057,447.83</b>

## 6.0 Existing Standard

The objective of the Franz Josef Joint Committee Rating District is to reduce bank erosion and flooding on the left and right banks of the Waiho River, below the road bridge.

### 6.1 Service Level

The Levels of Service represented in this AMP are described and aligned with community values including affordability, quality, safety, community engagement, reliability and sustainability.

Councils in New Zealand will generally adopt one of three methods for determining the level of service provided by a scheme:

- Agreeing on a scope of physical works with the community without reference to a target capacity or return period (low risk schemes)
- Providing physical works with a level of performance provided in terms of a target capacity (medium risk schemes)
- Providing physical works with a level of performance in terms of a target return period (high risk schemes)

Each of the three methods for determining the level of service may be suitable for a given scheme, provided that communities understand event likelihood, scheme and property vulnerability, potential consequences, and residual risk.

Where council staff have recommended physical works or analysis that did not proceed due to community resistance to cost, then councils are only able to track their service delivery through measures around maintenance works programmes or a general description of channel condition.

#### Franz Josef

In 2016 Flood modelling of the Waiho River was undertaken. A stopbank for a 1:100-year flood event was designed. This modelling is being updated regularly as new river cross-sections are surveyed.

#### Lower Waiho

Cross-section and flood flow analysis indicates that the current service potential of the whole of the Rubbish Dump stopbank and 20% of the Milton & Others stopbank is capable of containing less than 2,050 cumecs, which is the current estimate of the 1 in 50 year return period flood with 900mm freeboard.

The rating district has accepted there is a need to increase the level of protection afforded by the stopbank and are considering raising its height to be able to contain at least 2,050 cumecs plus freeboard.

Cross section surveys and flood flow analysis modelled in June 2008 indicate that its service potential is capable of containing river flows greater than the 2008 estimate of the 1 in 100 year return period flood flow plus 900mm freeboard.

### 6.2 Maintenance Programme

An annual maintenance report is prepared each year in consultation with the Franz Josef Joint Committee Rating District to adoption by the Council for inclusion in its annual budgets.

In preparing the annual maintenance report the following will be considered:

- An inspection to identify works requiring immediate repair.
- Works anticipated as being required given a 'normal' season.
- Flexibility to meet unbudgeted damages.

An annual report will be presented to the Rating District outlining the condition of the scheme assets and maintenance works and expenditure required for the coming financial year.

### 6.3 Damage and Risk Exposure

Erosion works are constructed in a very high energy environment with the purpose of resisting and absorbing some of that energy. It is considered that no matter what the standard of maintenance carried, it is likely that damage will occur from time to time.

An assessment of maximum damage potential was estimated as below:

Event size (AEP)	Value	Damage ratio	Damage exposure	Prudent Reserve	Prudent reserve contribution
10%	\$23,057,448	5%	\$1,152,872	\$1,152,872	100%
5%	\$23,057,448	10%	\$2,305,745	\$1,614,021	70%
2%	\$23,057,448	20%	\$4,611,490	\$2,305,745	50%

It has been deemed, within reason, that all Rating Districts have a prudent reserve target balance that contributes to at least 100% of the damage exposure for a 10% AEP event, 70% for a 5% AEP event and 50% for a 2% AEP event. These percentages define what is an appropriate and acceptable level of risk for Council and the community.

### 6.4 Prudent Reserve

Why do we need a prudent reserve?

- Minimise the financial impact of unplanned works, such as those caused by weather events
- Ensure the rating district is able to contribute funding that is sustainable and affordable
- Ensure Council's debt level is managed, and that borrowing is still available when required
- Ensure the debt levels of the rating district do not exceed the ability to fund the repayments

This target balance for the 'prudent reserve' for this rating district is \$670,000 as agreed by council. This prudent reserve is immediately available. It is likely the current reserve will only cover a portion of the actual cost of the potential damage that could occur.

If an event were to occur and the prudent reserve does not cover the full repair and rebuild cost of the assets, it is understood by the community that the remaining costs will be paid by loan or the rating district accounts will be in overdraft. In the instance of extreme weather events, NEMA funding and the Council's private insurance will be accessed for cost recovery if the criteria are met. The West Coast Regional Council's insurance policy has a \$250,000 excess. 40% of eligible rebuild costs will be met by this policy.



Below are the key criteria that needs to be met to access the NEMA funding, which can cover up to 60% of eligible rebuild costs

*The provisions for government financial support to local authorities apply whether or not a state of emergency is, or has been, in force*

*Government assistance will not normally be available for assets which receive a subsidy from any other source, unless:*

- *the local authority has adequately protected itself through asset and risk management including mitigation, where appropriate, and the proper maintenance of infrastructure assets, or*
- *the local authority has made sound financial provisions (such as the provision of reserve funds, effective insurance or participation in a mutual assistance scheme with other local authorities) to a level sufficient to ensure that the local authority could reasonably be expected to meet its obligation to provide for its own recovery.*

### **Threshold**

*Threshold for reimbursement; As with other response claims, Government policy is to reimburse 60 percent of the combined eligible costs (response and essential infrastructure costs), above the following thresholds:*

- *0.0075 percent of the net capital value of the city council, district council or unitary authority involved*
- *0.002 percent of the net capital value of unitary authorities where the assets in question are of a type that ordinarily are managed by regional councils, or*
- *0.002 percent of net capital value in the case of regional councils*

## 7.0 Funding

### 7.1 Maintenance

Maintenance is funded by targeted rates, the level of rating being determined each year in the Annual Plan process. This involves:

- a) Preparation of an annual works programme and corresponding budget.
- b) Adoption of the annual works programme and budget.
- c) Discussion of the works report and budget with the ratepayers.
- d) Adoption of final budget in the Council's Annual Plan.

The aim of maintenance is to ensure the infrastructure assets are kept at a standard where they can always perform to their service level. Where rock is required to be placed on an existing infrastructure under direct attack from the river, the protection required to maintain the existing infrastructure at its same service potential would be charged to the scheme maintenance account.

Capital works are generally defined as works which increase the service level of the scheme. Such work would include increasing the design standard or the area covered by a scheme and works to increase security or performance of an erosion control system or structure over and above that identified in the asset plan.

### 7.2 Damage Repairs

Routine damage repairs are funded by a combination of:

- a) Carrying out work as scheduled in annual works programme.
- b) Reprioritising works identified in the annual works programme.
- c) Use of financial reserves.

Major damage repairs would be funded by loans raised by the Council and repaid by targeted rating over a number of years.

### 7.3 Financial Reserves

Financial reserves are held within the rating district account to provide the following:

- a) Meet the costs of unscheduled works.
- b) Enable an immediate response to flood damage repairs.
- c) Prevent major fluctuation in rating levels annually.

The levels of financial reserves held in the rating account are determined by the estimated damage exposure and the likely need for un-programmed works.

### 7.4 Depreciation

The bulk of WCRC's assets comprise bulk formation of excavation, fill and heavy rock protection. These assets are considered to have an infinite Useful Life (UL) with a strategy to maintain in perpetuity. The predominant mechanisms for deterioration are slumping and or storm or flood event damage. In these circumstances the performance and level of service is brought back to specification by remedial and / or emergency works from operational and maintenance budgets. Otherwise, these assets do exist in perpetuity.

From 2023 WCRC have recognized the difference between operational and maintenance expenditure (typically to remediate after an event) and capital expenditure that improves performance or level of service, or reduces risk. The former are not capitalised, the latter are capitalised and are added to the asset register and valuation.

Assets with an infinite Useful Life do not depreciate, so these assets are valued separately as non-depreciating.

Asset components in this category include:

- Excavation
- Cleanout (of natural water courses for utilisation as drains)
- Fill
- Rock protection
- Top course, differentiated from normal road assets in that life and deterioration mechanisms are the same as for the stopbanks they traverse
- Bedding gravel and filter fabric noting that even if fabric deteriorates it would not be replaced unless the stopbank itself was being replaced, or it was being replaced as part of an event remedy operation and maintenance.

Around 3.4%, by replacement cost value, of WCRC's assets are of a nature that will deteriorate, have a limited Useful Life, and hence are depreciating. These include:

- Culverts and associated assets
- Constructed assets such as concrete flood walls in Greymouth
- Miscellaneous assets.

## 8.0 Performance Measures

The following procedures may be adopted to ensure the adequacy of maintenance.

Period	Procedure	Performance Measure
Annually	Produce annual works report for the rating district assets to include type of work to be undertaken, quantities, location and costs.	No reports of stopbanks or erosion protection works requiring repairs without an agreed programme of remedial work in progress. Asset maintenance is current as per level of service.
	Organise contracts for agreed scheme work, oversee contract completion and report to Council.	
	Report on works undertaken during the previous financial period to the rating district ratepayers and Council.	
Triennially	Re-measure cross section river profiles to determine whether the riverbed is stable, or aggrading, and to identify management issues or options.	Report to Council and ratepayers on revaluation of assets and the Plan review.
	Revaluation of the asset schedule to include any additional rock placed on stopbanks and bank protection works over the three year period.	
	Review this Asset Management Plan	
10-yearly	Flood modelling will be undertaken to identify a range of level of services.	Report to council and ratepayers.

## 8.1 AMP Review and Monitoring

This plan is a living document, which is relevant and integral to daily activity. To ensure the plan remains useful and relevant the following on-going process of AMP monitoring and review activity will be undertaken:

- Formal adoption of the AMP by the West Coast Regional Council.
- Review and formally adopt Levels of Service to comply with the Joint Committee Rating District.
- Revise this AMP three yearly prior to Long Term Plan (LTP) to incorporate and document changes to works programmes and outcome of service level reviews.
- Quality assurance audits of asset management information to ensure the integrity and cost effectiveness of data collected.
- Peer review and external audits will be undertaken to assess the effectiveness with which this plan meets corporate objectives. Periodic internal audits will be undertaken to assess the adequacy of asset management processes, systems and data and external audits will be undertaken to measure asset management and performance against 'best practice'.