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# Mangawara flood protection scheme review

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# Abstract

A scheme review has been undertaken for the flood protection assets on the Mangawara River system. The scope of this review is outlined in the project management plan (Doc# 12840229), which covers collation and review of previous literature and models, updating the models with most recent hydrology, cross-section and stopbank survey data, and incorporating specific dams, floodgates and culverts within the system to improve model outputs and flood protection stopbanks performance.

The stopbanks performance is a measure of the vulnerability of a stopbank to overtopping under a design event. The assessment process involves a comparison of actual crest levels of a stopbank against the corresponding design flood level to establish a performance grade for 100 m link of the stopbank. Performance grades define the percentage of freeboard left compared to design freeboard, which informs the need and timing for stopbank upgrades.

The review also involves modelling future climate change hydrology and design flood profiles to inform stakeholders of the potential increase in flood risks resulting from future climate. It informs the Council of the potential loss in flood protection service level to assist in management decisions to build community resilience against future flooding.

# Executive summary

The Mangawara River is the largest tributary of the Lower Waikato River downstream of its confluence with the Waipa River, with a total catchment of 602 $km^2$ and an overall length of 47 km.

The Mangawara River flood protection scheme was designed and constructed in the 1960s and 1970s under Section D of the Lower Waikato – Waipa Flood Control Scheme. Section D of the Scheme included the stopbanks along the Mangawara River, forming compartments 1 to 13. The compartments are generally areas of farmland that are located between two tributaries and the Mangawara River. The design protection standard (e.g., Level of Service) was a 50-year ARI (Average Return Interval) flood level. Since its completion, flood protection was extended along one of its main tributaries, the Tauhei Stream, which the Taupiri Drainage Board added in 1990.

The primary (Mangawara River) flood protection service level agreed for this catchment is the 50-year ARI flood event. There is also a secondary flood protection service level in the upper Tauhei catchment (Compartments 20 through 23), which is unspecified. However, for the purpose of the review, a 5-year ARI flood level has been applied.

Furthermore, there are other assets in the scheme with the Levels of Service not defined to a specific flood frequency but in accordance with the original design parameters. These assets are in the middle Mangawara catchment (Compartments 2 and 5) and the upper Tauhei catchment (Compartment 24). Rutherfords Drain stopbank in compartment 2 was assessed in 2019, but the middle section was not updated, hence covered in this review.

Flood protection schemes managed by WRC are reviewed every ten years as provided for in the Regional Asset Management Plan (Waikato Regional Council 2018). The review aims to investigate the effects of change in natural and physical factors (rainfall record and statistical analysis, catchment development and change in land use, and river channel and floodway parameters/dimensions) on the river hydraulics and scheme design flood levels. These levels form the basis for assessing stopbank performance. Thus, the stopbanks performance measures the vulnerability of the stopbank to withstand a design flood without overtopping.

The design 50-year ARI equates to a rainfall event of 190.6mm over a 72-hours period. The rainfall depth value was obtained from HIRDS version 4 and nested for the 72-hour duration across the Mangawara catchment.

This scheme review involved the reconstruction and update of the computer hydraulic model of the Mangawara Scheme with the most recent channel and floodway cross-section survey data, hydrological, and catchment data. It also included the 32 critical culverts and floodgates, existing structures, and specific catchment parameters (e.g. internal stopbanks, detention dams, spillways, and catchment boundaries). The previous 2014 Tauhei stream catchment and hydraulic model was incorporated without substantial changes, as its physical parameters had not considerably changed in the last five years. The reconstructed computer hydraulic model of the Mangawara Scheme was peer-reviewed by Te Miro Water Consultants Limited.

In addition to the scheme design flood scenario, other flood scenarios were run to test the scheme's vulnerability under larger floods, including a) the 100-year flood and b) design flood with the changes in catchment hydrology resulting from projected Climate Change.

The sensitivity of the hydraulic model in this scheme review was tested by comparing the 100-year ARI and the climate change scenarios against the 50-year ARI.

The results of this review include the following:

1. Performance Assessment:

**Table 1: Summary of stopbank and dam embankment performance**

| | Summary of stopbank and dam embankment performance | | | | | | Total |
|---|---|---|---|---|---|---|---|
| Performance grade | 1 | 2 | 3 | 4 | 5 | Not assessed | |
| Total length (m) | 67595 | 6788 | 2085 | 1907 | 6624 | 3004 | 88003 |
| Percentage | 76.8% | 7.7% | 2.4% | 2.2% | 7.5% | 3.4% | 100.0% |

a. Approximately 78.4 km (89.1%) of the 88.0km stopbank total length are above the Design Flood Level (DFL) and can withstand a design event without overtopping.
b. 8.5 km (9.69%) of stopbanks with performance grades 4 and 5 are identified as being below the performance standard. These stopbanks are required to be raised by approximately 0.39 m on average to meet the design crest level (DCL).
c. The stopbank upgrade will be scoped for renewal (to return them to the necessary DCL height). The renewal is proposed to be undertaken over a four to five-year period. The time frame is based on the recommended approach in the Regional Asset Management Plan (Waikato Regional Council 2018).
d. Approximately 79.4% (4.3km) of the 5.4 km spillway total length is classified as grade 1 or 2. The remaining 21% (1.1km) of the spillway is classified as grade 4 or 5.
e. All Detention Dams are above their design flood levels. The cumulative benefit of continuing to operate the dams is a reduction of roughly 39% in peak design flood flow resulting in an average lowering of 0.3m in peak water level in the main channel downstream of the dams.
f. A review of the critical floodgates and culverts showed they were operating as designed.

2. Comparison with measured and modelled flood flows and water levels:
    a. A comparison of flood frequency flow and water level (relative to Moturiki Vertical Datum) was undertaken. The comparison provides a very good indication that the model is representing current flood flows and levels very well. All modelled water levels are within 1% of water levels derived from actual measurements at the Jefferis water level gauge station.

3. Variances in modelling (now versus previous):
    a. The hydraulic flood profile for the design flood (50-year ARI) event is generally lower (by approximately 0.1m) than that established in the 2014 review. The variations are attributed to changes in hydrology and channel cross-sections. The 2014 model adopted HIRDS version 3, which estimated rainfall differently from the updated version 4 adopted in this review. The 2014 model adopted channel cross-sections from a historic survey spanning over two decades. Over the last two decades, these cross-sections have degraded to the latest survey in 2019 adopted in this review.
    b. Mangawara River spot height water levels obtained from the 2014 hydraulic model were compared with the current model results. The result shows approximately a 2% water level difference along the Mangawara main river channel.

4. Maungahaumia stream diversion :
    1. The impact of diversion of the Maungahaumia stream into the Tauhei Stream (was included for informational purposes) and would result in a maximum water level increase of approximately:

        a. 0.25m within the Upper Tauhei Stream reach in a 5-year ARI event and
        b. 0.38 m in a 50-year ARI event, which reduces significantly downstream at the confluence of Tauhei Stream and Mangawara River.

5. Future Climate Change projections for the Mangawara River:
   Output results comparing current climate and future climate (2101-2120) for 50-year and 100-year ARI for the Mangawara River indicates the following:

    a. With projected climate change, there is an estimated average rise of the 50-year ARI design flood level of 0.34m (RCP 6.0) and 0.53 m (RCP 8.5) above the current 50-year ARI for the Mangawara River.
    b. With projected climate change, there is an estimated average rise of the 100yr ARI design flood level of 0.61 m (RCP 6.0) and 0.96 m (RCP 8.5) above the current 50-year ARI for the Mangawara River.

Based on the future climate projections provided above for the Mangawara River, the current Design Crest Level will need to be raised to maintain the current level of service in the future.

6. Recommended Actions:
    a. Plan for the investigation and design to upgrade those stopbanks indicated to have a performance grade 4 and 5.
    b. Future studies are undertaken for the appropriate design freeboard in the Mangawara catchment.
    c. Install an additional flow gauging station in the Mangawara flood protection scheme catchment as soon as possible. The flow gauge is required to improve future model calibration.
    d. Suggest discussion through the Lower Waikato Flood Protection Advisory Subcommittee about implications of climate change on the Mangawara Flood Protection Scheme. Perhaps include in discussion on overall impacts of projected climate change on all WRC managed Flood Control Scheme.
    e. Sections of the Mangatea South stopbank was initially constructed as a bund, not to any specific protection standard and has been topped up from stream cleaning operations over time. It is understood to provide protection against two to five-year events in the Mangatea South Catchment. A separate technical review is required to determine the South Mangatea Stream floodway capacity up to the height of the existing stopbank/bund. The review is to determine the rainfall event that the floodway can accommodate without overtopping and adopt that event as the Level of Service for Compartment 24, against which future performance reviews can be assessed
    f. Further investigation is carried out on Mangatea South stopbank in compartment 24, and a design standard is agreed so that a level of service and design profile is confirmed.

# 1 Introduction

## 1.1 Overview

Waikato Regional Council Integrated Catchment Management Directorate (ICM) provides catchment management, river management, flood protection, and land drainage services across the region. The standards and levels of service provided are established in agreement with the regional communities. Flood protection schemes generally involve stopbanks with drainage outlets along river systems forming contained floodways to convey flood flows downstream, thereby preventing flooding of adjacent properties. The assets, levels of service and management requirements are documented in the Regional Asset Management Plan (Waikato Regional Council 2018).

Flood protection schemes managed by WRC are reviewed regularly. The purpose of the review is to investigate the effects of changes in both natural and manmade factors on the river hydraulics and scheme design flood levels. These include updating rainfall records, statistical analysis, catchment development, land-use changes, and river channel and floodway parameters/dimensions. These levels form the basis for assessing stopbank performance, and thus the scheme's ability to meet its currently agreed level of service.

## 1.2 History of the Mangawara Catchment

The Mangawara River catchment is located within the Lower Waikato Zone. The river flow starts from its headwaters in the north-eastern part of the catchment (Hapuakohe Ranges). The river flow is mostly in a southwest direction downstream to enter the Waikato River at Taupiri. It has a catchment area of approximately 602 $km^2$, and the river total length is approximately 47 km.

The Mangawara River Flood Protection Scheme was constructed in the 1960s and 1970s as part (Section D) of the Lower Waikato – Waipa Flood Control Scheme. The main flood protection service level agreed for this catchment is the flood level for a 50-year ARI flood event.
There is also a secondary flood protection service level in the upper Tauhei catchment (Compartments 20 through 23), which is unspecified. However, for the purpose of the review, a 5-year ARI flood level has been applied.

Furthermore, there are assets in the scheme with the Levels of Service not defined to any standard but in accordance with the original design parameters. These assets are in the middle Mangawara catchment Compartments 2 and 5 (Rutherfords, Te Mimiha, Henrys Remedial Outlet Stopbanks) and in the upper Tauhei catchment Compartment 24 (Mangatea South Stopbank).

The scheme was constructed to protect approximately 8,800 ha of farmland against flooding in the Mangawara River of a magnitude equivalent to a 50-year Average Recurrence Interval (ARI), which statistically has a 2% Annual Exceedance Probability (AEP). ARI in years is equal to the reciprocal of AEP expressed in percentage.

The scheme works included the major river and drainage channel works to improve floodway conveyance. This works resulted in constructing approximately 88 km of stopbanks, 195 existing floodgates (and 73 disposed of floodgates), six detention dams and one pump station.

Stopbanks were originally constructed above the design flood levels by 300 mm to 450 mm to allow for uncertainties in design flood level estimation. The freeboard height was rationalised in 2009, and a 300 mm height has since been applied to most stopbank in the scheme.

In 2014, a hydraulic review of the Tauhei stream and associated flood protection was undertaken, along with an assessment of the protection standards provided by the stopbanks. This existing model was used to explore options to extend and improve the protection standards that can be provided.

The Maungahaumia Stream catchment, which is on the upper east side of the Tauhei Scheme, has a catchment area of approximately 10 $km^2$. Properties located between Woodlands Road and Reay & Watson Road and the neighbouring areas of Mangahaumia Stream Catchment opted out of being part of the WRC Drainage Scheme in the 1980s when they were established. Since then, as peat continues to settle, these properties are experiencing flooding issues.

The impact of Maungahaumia Stream diversion into the Tauhei Scheme has been included in this study for the purpose of understanding the influence this would have on the Tauhei scheme.

## 1.3 Objectives of the 2019 Mangawara Scheme Service Level Review

The objectives of this study were:

1. To extend the existing 2014 hydraulic and hydrological models of the main rivers and streams within the Mangawara catchment.
2. To then employ the model to re-calculate design flood levels (DFL) for all stopbanks and detention dams in the catchment for a 50-year flood event in the main channel.
3. To assess the current performance of all stopbank and detention dams against existing service levels.
4. To provide any recommendations to enhance the performance of the scheme.

# 2 Level of service

Levels of service define the quality of delivery for a particular activity or service against which service performance can be measured. Associated with each service level are one or more performance measures that enable measurement of service level performance. The Asset Management Plan (AMP) states the service level for flood protection is:

> "To provide the regional community with an agreed level of protection from floods".

The expected outcome from a service level agreement and scheme review is that; Communities are less vulnerable and more resilient to natural hazards due to flooding, the effects of climate change and changes to society and the economy.

Design Flood Standard is expressed as the Average Recurrence Interval (ARI) or Annual Exceedance Probability (AEP) of the design event. Design Flood Levels for stopbanks are then calculated from the Design Flood Standard. Design Freeboard provides a safety allowance (over and above the Design Flood Level) when constructing and maintaining stopbanks.

The AMP performance measures and targets are shown in Table 2 below, referenced.

**Table 2: Assets Levels of Service, Performance Measures and Targets**

| Alignment | Requirement | Measure |
|---|---|---|
| **Flood Protection** | | |
| **System Adequacy** | Control effect of a flood event (area affected) | System designed to agreed annual exceedance probability levels |
| **System Maintenance** | Flood Protection and control assets maintained, repaired, and renewed | 85% of planned maintenance actions achieved each year |
| | | 93% of Rural and 98% of Urban Stopbanks maintained to above-designed flood height, or as agreed within each zone |
| | | Flood recovery plans put in place for all major[1] events setting out time frames under which flood response actions are to be completed |
| **River Management** | | |
| **System Maintenance** | Proactive monitoring and maintenance of priority rivers and streams | 85% of planned maintenance actions achieved each year |
| | | 95% of enquiries being responded to within two working days |
| | | Recovery plans put in place for all major events setting out time frames under which flood response actions are to be completed |
| **Land Drainage** | | |
| **System Adequacy** | Reliable water table levels to ensure pastoral growth | Surface water ponding in a 24 Hour, 10%AEP rainfall event, is removed within a 3-day period. |
| | Control effect of rain events | System designed to handle events with up to a 10% annual exceedance probability |
| **System Maintenance** | Land drainage assets maintained, repaired, and renewed | % of planned maintenance achieved each year, as agreed within each scheme. |

In 2015 the following strategy for the renewal of stopbanks was adopted as stated in the AMP:

a. Stopbanks that have performance grades 4 and 5 will be programmed for renewal.
b. All stopbanks with performance grades 4 and 5 will be renewed within five years of being identified.
c. When the renewal backlog is complete, expenditure on stopbank renewal will match depreciation.

All stopbanks with performance grade 4 can withstand a design event without overtopping. However, stopbank settlement over time can change some performance grade 4 to performance grade 5 stopbank, hence the need to renew both performance grades.

[1] A major flood event is defined as an event that triggers the use of disaster reserve funding.

# 3 Flood protection assets and service levels

The floodplain of the Mangawara River is protected from flooding by a range of assets, including:

a. 88 km of stopbanks
b. 5.5 km of spillways
c. 6 Detention dams and one diversion spillway dam (i.e. Waiti Diversion Spillway Dam)
d. 7 Existing culverts associated with the detention dams
e. 195 existing floodgates in the Council's asset management system and 73 disposed of floodgates
f. 1 Pump station

A summary of the main features of the 18 flood protection compartments, including protected area, length of stopbanks and spillways, protection standard and design freeboard, is in below.

Compartments 20 through 23, located in the Tauhei area, have a nominal protection standard of 5 years. The original design standard for these compartments is unspecified, but for the purpose of this review, a 5-year ARI flood level has been applied.

Rutherfords Drain (Upstream and Downstream reach) in Compartment 2 was recently reviewed and upgraded in 2019 to a new design level based on a 10-year ARI flood level of the local catchment. Refer to the following documents for details (Doc #21075145 and #14443620). The middle section of Rutherfords Drain was not reviewed in 2019 and is assessed in this report, again based on a 10-year ARI of the local catchment. The upstream and downstream reaches are also assessed using the 10-year ARI of the local catchment in this review.

South Mangatea Stream bund (3004 m length) in Compartment 24 is excluded from the Scheme review. An independent technical review is required to determine the South Mangatea Stream floodway capacity up to the existing stopbank/bund height.

**Table 3: Flood protection compartments stopbanks and spillways**

| **Description** | | **Protected area (ha)** | **Protection standard** | **Design freeboard (m)** | **Length** | | |
|---|---|---|---|---|---|---|---|
| | | | | | Spillway | Stopbank | Total |
| | | | | | (m) | (m) | (m) |
| Compartment 01 | | 54 | 50-year ARI | 0.3 | | 2412 | 2,412 |
| Compartment 02 | Mangawara | 516 | 50-year ARI | 0.3 | | 3208 | 5986 |
| | Rutherfords | | 10-year ARI | 0.3 | | 1791 | |
| | Te Mimiha | | RL 15.12 m (MVD)* | 0 | | 987 | |
| Compartment 03 | | 248 | 50-year ARI | 0.3 | | 4,636 | 4,636 |
| Compartment 04 | | 590 | 50-year ARI | 0.3 | | 7,259 | 7,259 |
| Compartment 05 | Mangawara River RB SB | 1,279 | 50-year ARI | 0.3 | | 4800 | 8,346 |

| Description | | Protected area (ha) | Protection standard | Design freeboard (m) | Length | | |
|---|---|---|---|---|---|---|---|
| | Henrys Remedial Outlet Drain LB and RB SB | | RL 14.96 m (MVD)* | 0 | | 1068 | |
| | Te Mimiha Swamp Outlet Drain LB SB | | RL 15.12 m (MVD)* | 0 | | 1399 | |
| | Sludge Creek RB SB | | 50-year ARI | 0.3 | | 1079 | |
| Compartment 06 | | 752 | 50-year ARI | 0.3 | | 6921 | 6,921 |
| Compartment 07 | | 329 | 50-year ARI | 0.3 | | 7,625 | 7,625 |
| Compartment 08 | | 193 | 50-year ARI | 0.3 | | 5,010 | 5,010 |
| Compartment 09 | | 1,732 | 50-year ARI | 0 | 4,125 | 5372 | 9,497 |
| Compartment 10 | | 79 | 50-year ARI | 0.3 | | 4549 | 4549 |
| Compartment 11 | | 111 | 50-year ARI | 0.3 | | 2160 | 2160 |
| Compartment 12 | | 389 | 50-year ARI | 0 | 888 | 7663 | 8,551 |
| Compartment 13 | | 84 | 50-year ARI | 0.3 | | 4095 | 4,095 |
| Compartment 20 | | 14 | 5-year ARI | 0 | | 1317 | 1,317 |
| Compartment 21 | | 87 | 5-year ARI | 0 | | 3663 | 3,663 |
| Compartment 22 | | 156 | 5-year ARI | 0 | | 3,657 | 3,657 |
| Compartment 23 | | 28 | 5-year ARI | 0 | | 924 | 924 |
| Compartment 24 | | 135 | unknown** | unknown | | 3004 | 3,004 |
| Grand Total | | 6776 | | | 5,013 | 84,599 | 89,613 |

* Design standard is unspecified, but the reduced crest levels are as per the original design level.
** Design standard is unspecified for compartment 24 (i.e., Mangatea South stopbanks).

Further to
above, the six detention dams in the Mangawara catchment has an additional spillway total length of approximately 0.436 km and a total embankment length of 1.35 km. In addition, there is about 2.05 km of stopbank not included in any of the compartments. These additional stopbanks are the Waiti Dam Diversion left and right stopbank (refer to **Error! Reference source not found.** below).

Also, there are other protected areas of approximately 2 hectares in the Eastern drain. This protected area drains Northwest to Tauhei Stream.

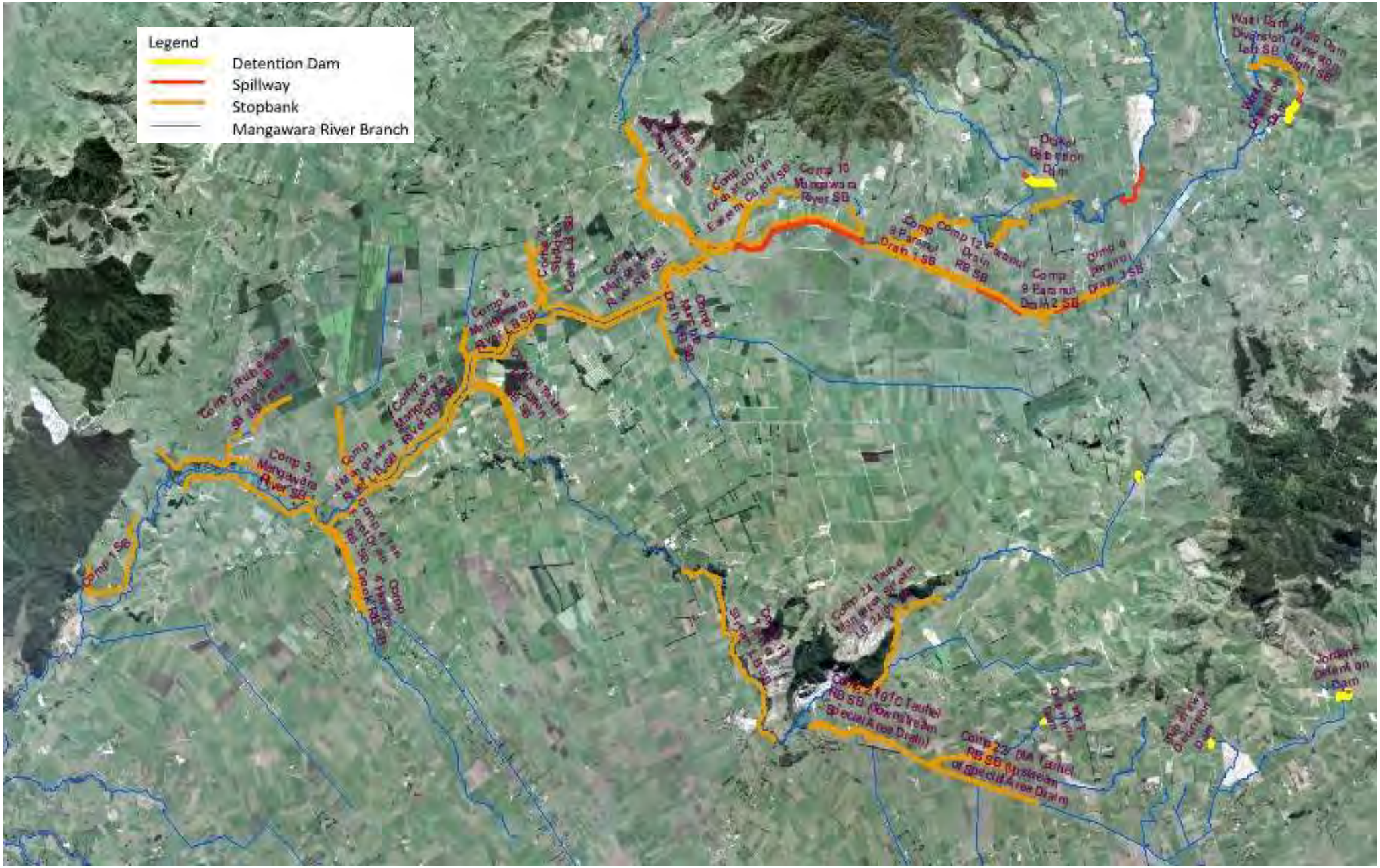
**Table 4: Flood protection dams stopbanks and spillways**

| Description | Catchment area (ha) | Protection standard | Design freeboard (m) | Length | | |
|---|---|---|---|---|---|---|
| | | | | Spillway (m) | Stopbank (m) | Total (m) |
| Cawley Detention Dam | 125 | 50-year ARI | 0.76 | 21 | 70 | 91 |
| Jordans Detention Dam | 245 | 50-year ARI | 0.76 | 48 | 209 | 257 |
| Maori Affairs Detention Dam | 304 | 50-year ARI | 0.91 | 56 | 73 | 129 |
| Orakei Detention Dam | 1083 | 50-year ARI | 0.91 | 141 | 460 | 601 |
| Trubshaws Detention Dam | 100 | 50-year ARI | 0.76 | 28 | 108 | 137 |
| Waiti Dam Diversion | | 50-year ARI | 0.001 | | 2,047 | 2,047 |
| Waiti Detention Dam | 1183 | 50-year ARI | 0.6 | 142 | 436 | 578 |
| **Grand Total** | | | | 436 | 3,403 | 3,839 |

Note that no freeboard was recorded for the dam embankments in previous performance review. However, the original design freeboard has been included in the current asset performance review.

It should be noted also that the Waiti Dam Diversion is a structure that acts as a spillway above which flood water is diverted into the Paranui drain to relief the pressure on the dam and reduce the peak flood level downstream.

**Figure 1: Map showing Mangawara Scheme stopbanks, spillways, detention dams and compartments**



# 4 Hydraulic Model Results

The Mangawara catchment has been modelled using the Mike11 hydraulic modelling software and incorporated NAM rainfall-runoff modelling package.

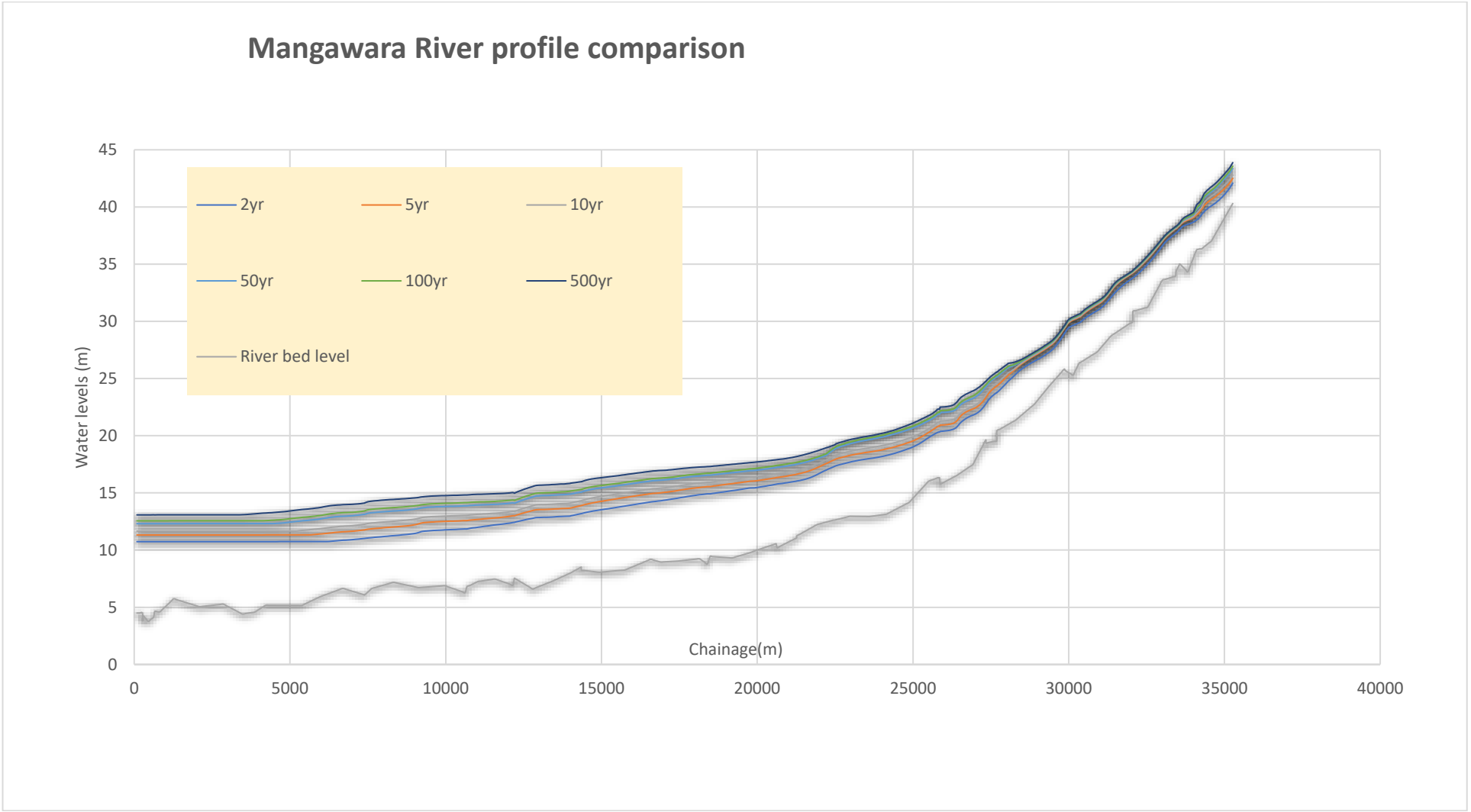
Details of the model setup, calibration and execution for a range of different scenarios are in Appendices 1-6. The Mangawara hydraulic model has been peer-reviewed by Te Miro Water Consultants Limited (refer to doc# 25000358)

Peak discharges obtained for the design standard at critical locations in the catchment is in **Error! Reference source not found.**. **Error! Reference source not found.** shows a comparison between the previous 50-year ARI 2014 vs current 2020 Modelled flood levels. Also included in **Error! Reference source not found.** is the future 50-year ARI with climate change for RCP6.0 (period 2101-2120) for the Mangawara River. **Error! Reference source not found.** shows observed and modelled flood levels for July/August 2008.

The flood level profiles along the Mangawara River for a range of ARI events is shown in **Error! Reference source not found.** below. These water levels are used as current design flood levels (DFL) for the purposes of defining the stopbank and spillway assets levels of service of the Mangawara flood protection scheme. There is a steep channel bed gradient at the 25.85 km chainage (Jefferis Bridge) upstream of the confluence of Mangawara River and the Paranui Stream. This follows the natural gradient of the river as it runs through the upper hill catchment.

The water levels at the river mouth were the same as the assumed Waikato River Model water levels for the different ARIs. As expected, the distance between the water level profile lines is not significant (approximately 0.3m on average).
(“refer to appendix 2-4 to see further information about the sensitivity of the models and assumptions that went into the models).

**Figure 2: Mangawara River: Comparisons of water level profile for design 2-yr, 5-yr, 10-yr, 50-yr, 100-yr and 500yr ARI events**



## 4.1 Comparison with measured and modelled flood flows and water levels

A comparison of flood frequency flow and water level (relative to Moturiki Vertical Datum) was undertaken and shown in **Error! Reference source not found.** below. The comparison provides a very good indication that the model is representing current flood flows and levels very well. All modelled water levels are within 1% of water levels derived from actual measurements at the Jefferis water level station.

**Figure 3: Modelled vs measured flow and water levels for Jefferis gauge**

| ARI (years) | Measured | | Modelled flow | | Modelled as % of Measured | |
|---|---|---|---|---|---|---|
| | Flow (Cumecs) | Water Level (mRL) | Flow (Cumecs) | Water Level (mRL) | Flow | Water Level |
| 2 | 54.1 | 20.1 | 52.1 | 20.3 | 96.3% | 100.9% |
| 5 | 79.4 | 20.7 | 80.5 | 20.9 | 101.4% | 100.9% |
| 10 | 96.2 | 21.0 | 105.6 | 21.2 | 109.8% | 100.9% |
| 20 | 112.3 | 21.4 | 133.5 | 21.5 | 118.8% | 100.8% |
| 50 | 133.1 | 21.8 | 169.2 | 21.9 | 127.1% | 100.5% |
| 100 | 148.7 | 22.1 | 186.9 | 22.1 | 125.7% | 99.8% |

Cumecs = Cubic Metres per Second

## 4.2 Rainfall-runoff model results summary

The total rainfall volumes for different ARI and the estimated runoff volumes that were simulated in the Mangawara hydraulic model is summarised in **Error! Reference source not found.**below.

**Figure 4: Rainfall-runoff model results summary**

| ARI | Rainfall volume for the whole catchment ($m^3$) | Runoff volume for the whole catchment($m^3$) | Average rainfall depth in metres for the whole catchment (volume/area) | Net rainfall proportion for the whole catchment |
|---|---|---|---|---|
| | | | | |
| 2 | 47,194,478 | 16,288,053 | 0.077 | 35% |
| 5 | 61,399,777 | 24,049,477 | 0.100 | 39% |
| 10 | 72,166,302 | 30,283,609 | 0.118 | 42% |
| 20 | 83,467,772 | 37,012,140 | 0.137 | 44% |
| 50 | 99,389,980 | 46,680,608 | 0.163 | 47% |
| 100 | 112,135,634 | 54,607,734 | 0.183 | 49% |

## 4.3 Maungahaumia Stream diversion into the Tauhei Scheme

The Mangahaumia Stream is located at the top eastern boundary of the Tauhei Stream catchment and flows into the Piako River catchment. The terrain of the catchment divide is flat, and during high flow cases, the stream overflows into the Tauhei stream catchment. Of note is that Council does not provide any flood protection level of service within the Maungahaumia

Stream catchment. Water flows are now greatly influenced by peat settlement which has led to higher (relative) ponding levels and flooding in heavy rainfall events.

This review included a brief investigation of the effect of the redirection of the Maungahaumia Stream overflow into the Tauhei Catchment and its potential effects on the existing Tauhei flood protection scheme. This involves the introduction of runoff generated from the Mangahaumia 10 $km^2$ Catchment overflows into the Upper Tauhei in moderate to high floods (refer to Mangahaumia Full Report – doc #15029636).

An assessment of the potential drainage options and the possibility of rediverting flows into the Tauhei system is outlined in Doc#15029636.

The impact of Maungahaumia Stream diversion into the Tauhei Scheme has been investigated in this service level review. The Design Flood Standard for Tauhei Scheme is the 5-year ARI flood event. The hydraulic model results for the 5-year ARI design standard indicate that if the Maungahaumia Stream is diverted into the Tauhei Scheme, the Upper Tauhei Stream water level will rise by approximately 0.25m from upstream of Valentine Road. This water level rise attenuates downstream to a negligible effect at the confluence of Tauhei Stream with Mangawara River. Based on the water level rise of 0.25m, the impact of the Mangahaumia Catchment overflow diversion to the Tauhei Scheme is moderate to minor.

A more significant flood event (50-year ARI) was used for a sensitivity check. The results indicate that the upper Tauhei Stream water level would rise by approximately 0.38m if the Maungahaumia Stream was diverted into the Tauhei Scheme in a 50-year ARI flood event. This flood level rise is estimated to diminish downstream at the confluence of Tauhei Stream with Mangawara Stream.

The Maungahaumia Stream catchment is not recommended to be diverted into the Tauhei Scheme as there will be occasional flooding upstream of the culvert on Valentine Road. In addition, Compartment 21 and Compartment 22 stopbank will occasionally be overtopped at some locations.

# 5 Performance

Flood protection schemes managed by WRC are reviewed regularly every ten years as provided for in the Regional Asset Management Plan (Waikato Regional Council 2018). The review aims to investigate the effects of change in natural and physical factors (rainfall record and statistical analysis, catchment development and change in land use, and river channel and floodway parameters/dimensions) on the river hydraulics and scheme design flood levels. These levels form the basis for assessing stopbank performance. Thus, the stopbanks performance is a measure of the vulnerability of the stopbank to withstand a design flood without overtopping.

## 5.1 Performance measurement

Stopbanks, spillways and dams are graded on a one to five scale to enable measurement of performance against target. The five performance grades for both stopbanks and dams are set out in **Error! Reference source not found.**, while the performance grade for spillway is set out in **Error! Reference source not found.**. The AMP states that service levels will be achieved by maintaining stopbanks to achieve performance grade 4 or better.

The performance of earthen structures (Stopbanks and detention dams) is assessed by comparing the current actual (surveyed) crest level (against the design crest level (DCL). The assessment is done at every 100m length or link of stopbank, where the calculated current lowest crest level is compared to DCL.

The performance of earthen spillways is assessed by comparing the current actual crest level against the design crest level (DCL). The design crest levels of spillways are set to overtop and do not incorporate a freeboard. Therefore, a small increase or decrease in actual crest levels can have significant implications downstream.

Plots showing design flood levels, design crest levels and actual crest levels for each compartment are shown in Figures A 11 – A 60. The current performance of Stopbanks, Spillways and Dams in the Mangawara Catchment have all been assessed in this scheme review.

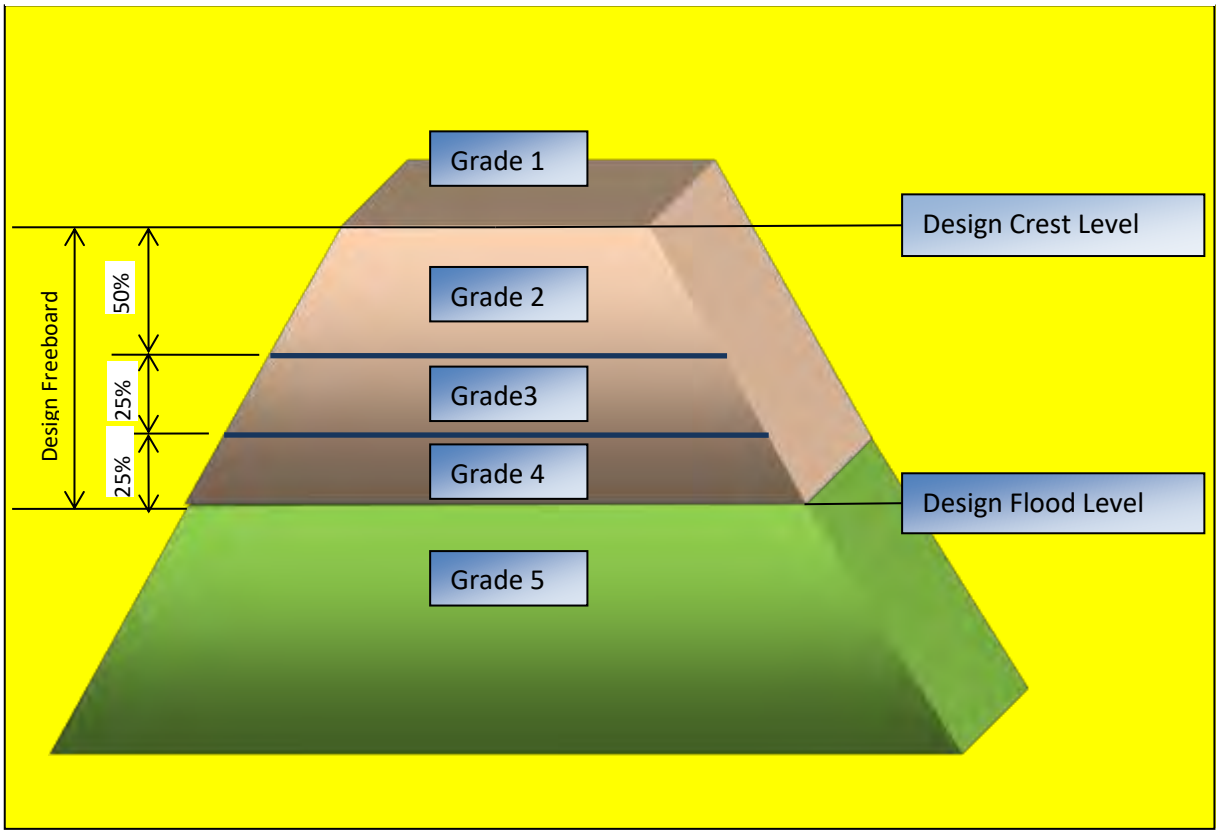
**Figure 5: Stopbank performance grades**

| Performance grade | Stopbanks |
|---|---|
| | P= (actual freeboard/design freeboard) x 100% |
| 1 | P ≥ 100% |
| 2 | 100% > P ≥ 50% |
| 3 | 50% > P ≥ 25% |
| 4 | 25% > P ≥ 0% |
| 5 | P < 0% |

Design freeboard = Designed Crest Level(DCL) - Designed Flood Level(DFL)
Actual freeboard = Actual Crest Level(ACL) - Designed Crest Level(DCL)
Target = DFL + ½ Freeboard

The performance grading scale for stopbanks is shown diagrammatically in **Error! Reference source not found.**.

**Figure 6: Diagrammatic representation of stopbank performance grades**




Current performance has been assessed against the design performance standard based on the most recent stopbank crest level survey data.

## 5.2 Stopbank performance

The current height of all the stopbanks in the Mangawara is known at 100 m intervals. From this, the performance of all stopbanks at the current Level of Service, and using the updated heights provided through the hydraulic modelling, was calculated and shown graphically in **Error! Reference source not found.** and **Error! Reference source not found.**.

**Figure 7: Stopbank performance by compartment**

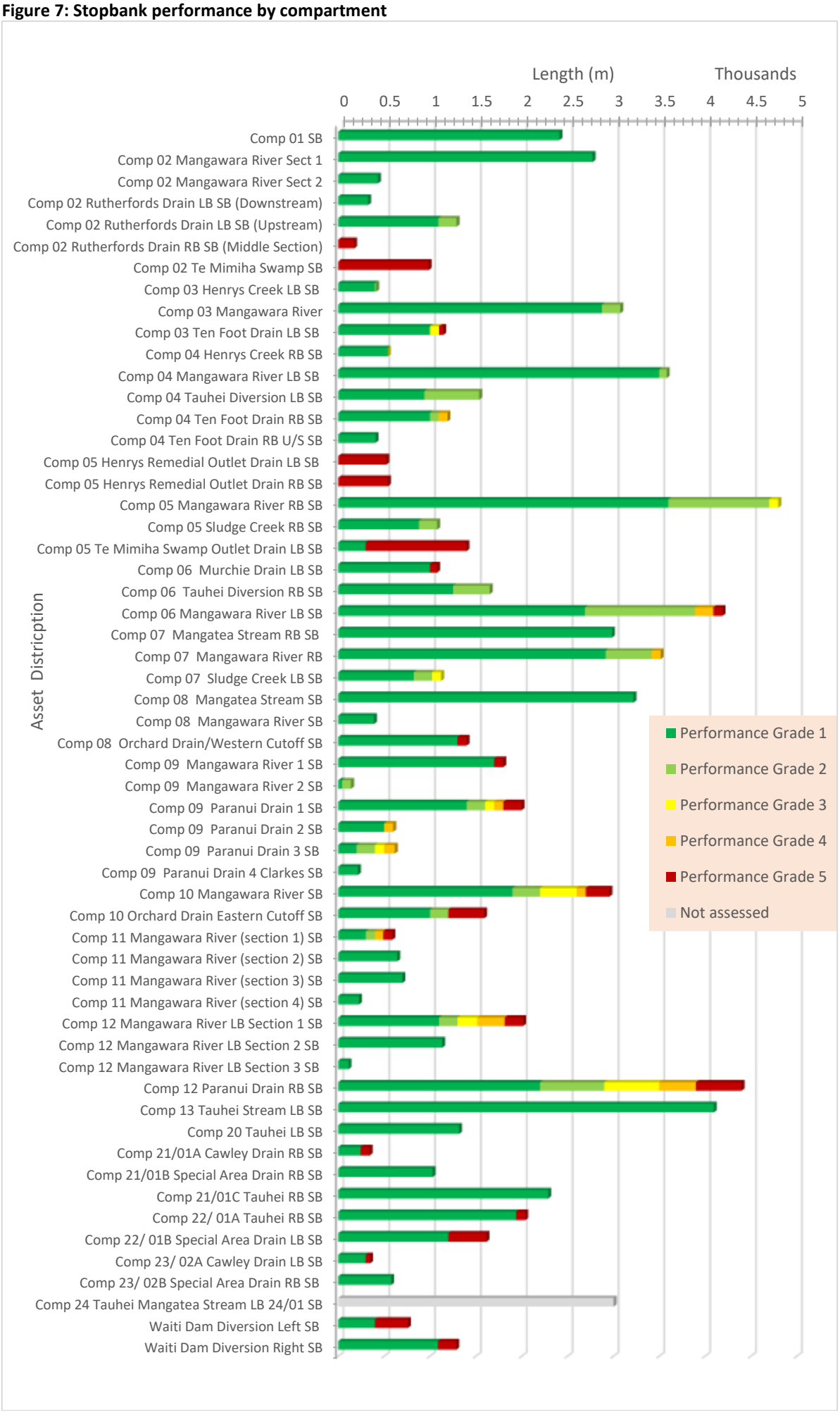
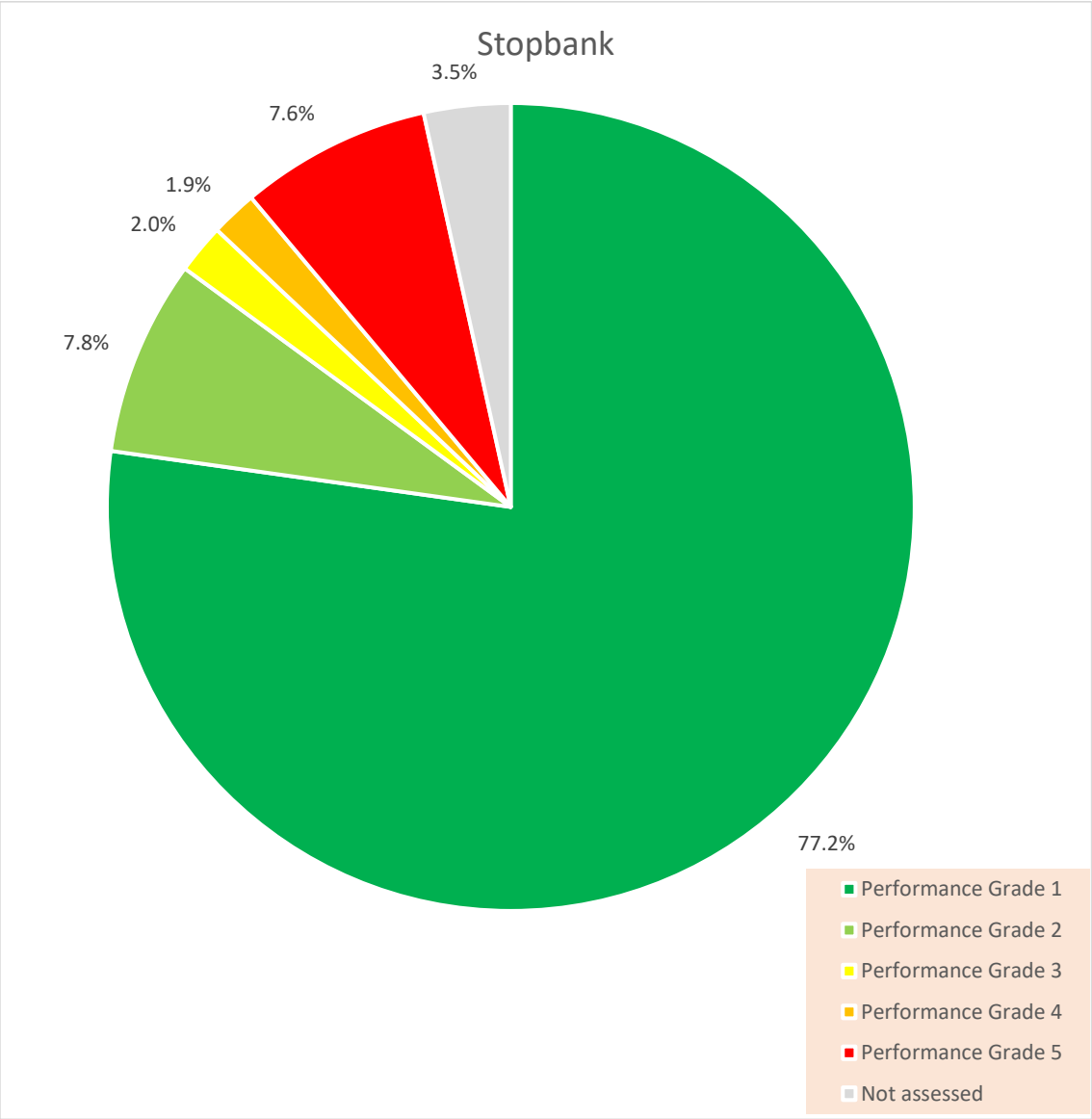


**Figure 8: Overall stopbank performance**




The following stopbanks have been assessed against the original Design Crest Level:

a. Te Mimiha Drain is set at RL 15.12 m (MVD) at the floodgate inlet with no freeboard as shown on original design drawing WVA 1046-434200 Document #15136840. The stopbank extends along the drain to meet the high ground separating Te Mimiha Swamp from Rutherford's Swamp at RL18.80 m (MVD).
b. That the level of the internal secondary stopbanks/bunds along the Henry's Remedial Drain is a consistent level of RL 14.96 m (MVD) with no freeboard as shown on the original design profile, plan WVA 2978-434200, Doc #3764280

The Rutherfords drain upstream and downstream reaches, reviewed in 2019, are included in the total stopbank lengths as Performance Grade 1 and 2.

## 5.3 Dam performance

There are six flood protection detention dams in the Mangawara Catchment. The characteristics of these are listed in 5.1.

**Table 5: Detention dam characteristics**

| Dam | Crest length (m) | Spillway width (m) | Height (m) | Capacity ($m^3$) | Large dam* |
|---|---|---|---|---|---|
| Cawley | 72 | 21 | 6.0 | 70,000 | Yes |
| Jordans | 236 | 56 | 5.4 | 76,000 | Yes |
| Maori Affairs | 75 | 85 | 9.1 | 101,000 | Yes |
| Orakei | 497 | 130 | 4.1 | 269,000 | Yes |
| Trubshaws | 113 | 18 | 5.8 | 30,000 | Yes |
| Waiti | 478 | 142 | 5.3 | 1,275,000 | Yes |

*Note: Under the MBIE Dam Safety Scheme, a large dam is characterised as being more than 4 metres high and having a capacity of more than 20,000 $m^3$.

A review of all available dam's design reports suggests that the detention dams provide some storage and attenuation that is not based on a specific design flood event. The four detention dams in the upper Tauhei Stream Catchment were all designed to have storage for a 25 mm rainfall depth in their catchments (i.e., less than a 2-year ARI event). The Waiti dam is the only dam that was designed to accommodate storage for a 10-year to 20-year ARI event.

ICM has undertaken a dam safety review of all its detention dams over the period 2016 – 2019 and reported all results in WRC Technical Report 2019/13 "Waikato Regional Council's flood detention dams- Dam safety review" (Doc# 12748874), November 2019. Any reference to dam safety in the previous report is superseded by WRC Technical Report 2019/13.

The report found that all detention dams within the Mangawara Scheme Catchment can be classified as Low Potential Impact (e.g., Low PIC) dams under the NZSOLD Dam Safety Guidelines 2015. The report included design reviews and inspections of the dams and identified some monitoring and maintenance actions, which were later adopted for asset management purposes.

In terms of the recommended desilting of storage ponds, it is noted that siltation has occurred over the years behind the dams, which needs to be carefully investigated before such desilting operations are undertaken. It should be noted that effective storage is limited to the volume of water detained between the culvert invert level at the dam base and the spillway level. Storage below the culvert invert is considered dead storage for the purposes of detention: however, considered operational storage and provides for environmental benefits.

The current performance of all Mangawara Scheme dams investigated has been assessed as set out in section 5.1, and the performance grade of each 100-metre section of the dam is shown graphically in **Error! Reference source not found.**and **Error! Reference source not found.**.

**Figure 9: Dam performance broken down by location**

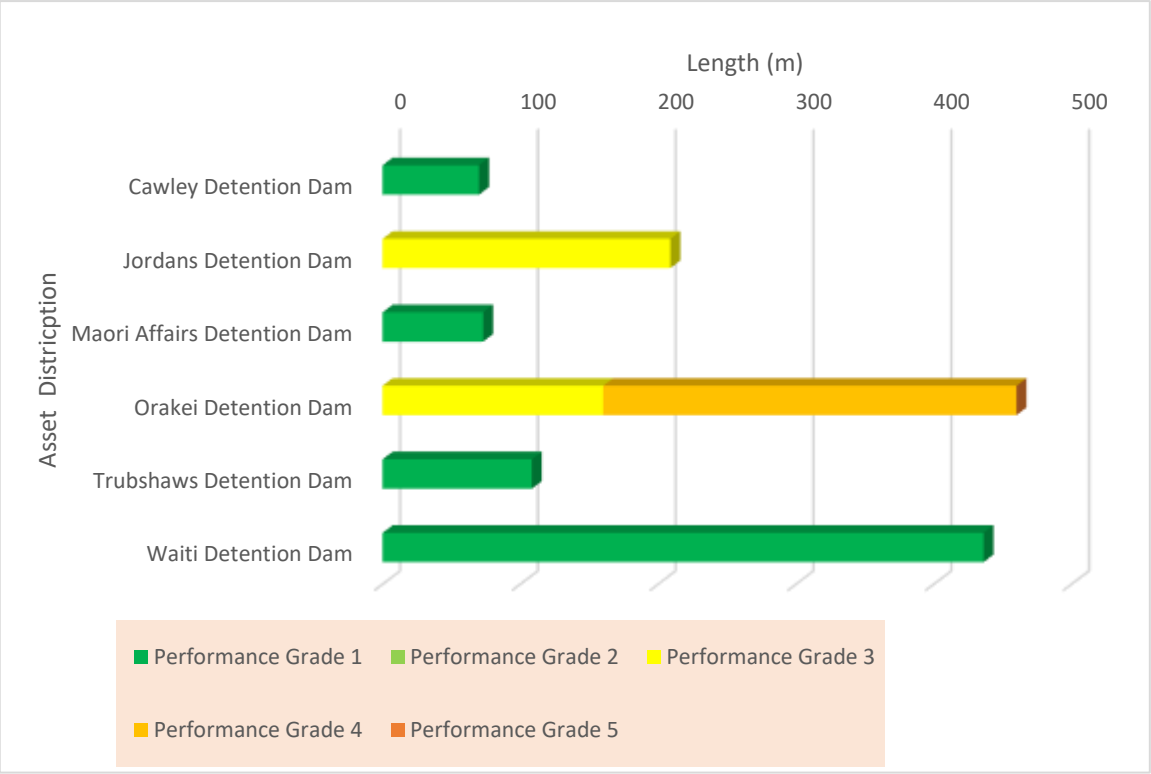
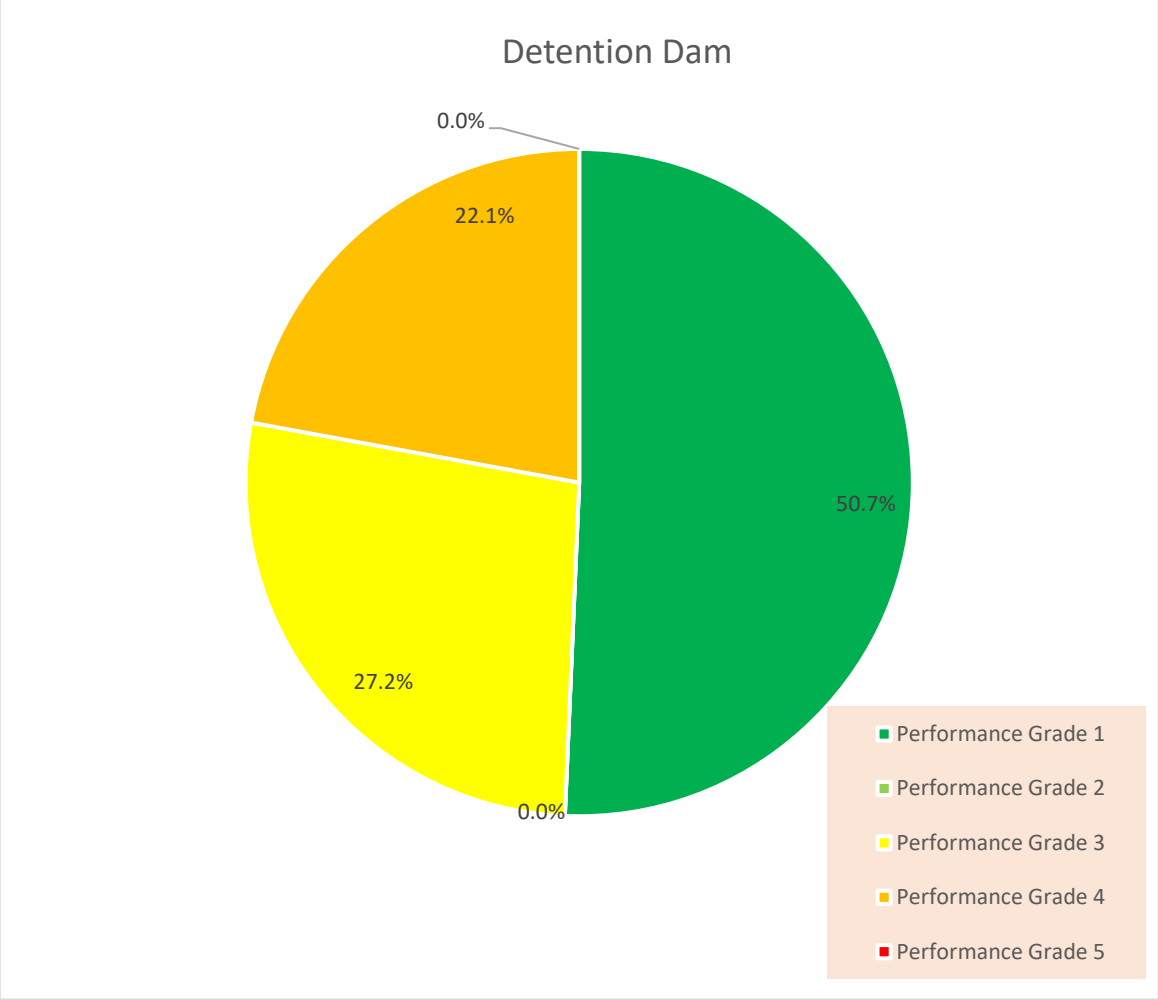



**Figure 10: Overall dam performance**



## 5.4 Spillway performance for Stopbanks and Dams

A performance grading system has been adopted by the Waikato Regional Council Asset management plan (Doc#12705650). This grading system was developed to refine the grading of spillways and to improve asset management practices in relation to spillways, as outlined in **Error! Reference source not found.** below. Spillway activation and spillway capacity are the two indexes used in this grading system.

The performance is defined in terms of the freeboard variance for Spillway activation and the Average Ratio (R) of AFB / DFB for spillway capacity. Where AFB is Actual Freeboard and DFB is Design Freeboard:

**Table 6: Performance grades – spillway activation and capacity**

| Performance Grade | Activation criteria<br>A= Min (ACL – DCL) | Capacity criteria<br>R = Average (ACL / DCL) |
|---|---|---|
| 1 | A ≥ -0.050m | R ≥ 1 |
| 2 | -0.050m > A ≥ -0.100m | 0.90 ≤ R < 1 |
| 3 | -0.100m > A ≥ -0.150m | 0.50 ≤ R < 0.9 |
| 4 | -0.150m > A ≥ -0.200m | 0.25 ≤ R < 0.5 |
| 5 | -0.200m > A | 0.25 > R |

Based on the above criteria, the spillway performance was evaluated. The performance grade was all assessed as grades 1 and 2 except for Compartment 09 and 12, Jordans Detention Dam Spillway and Orakei Detention Dam Spillway.

**Figure 11: Spillway performance by location**

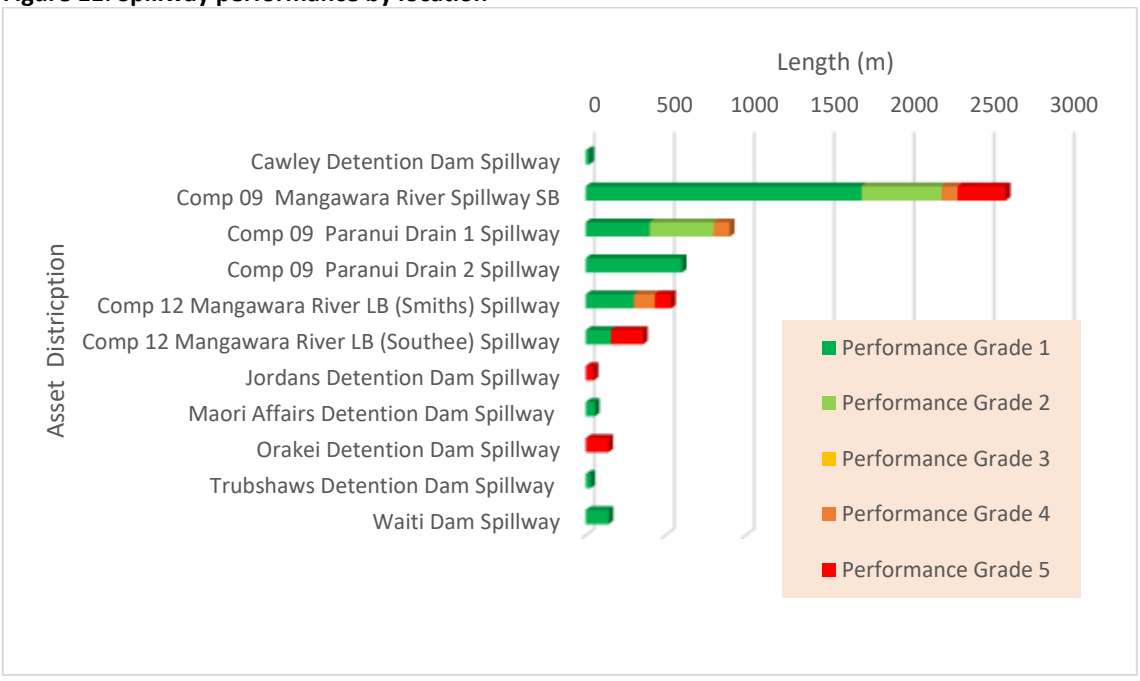
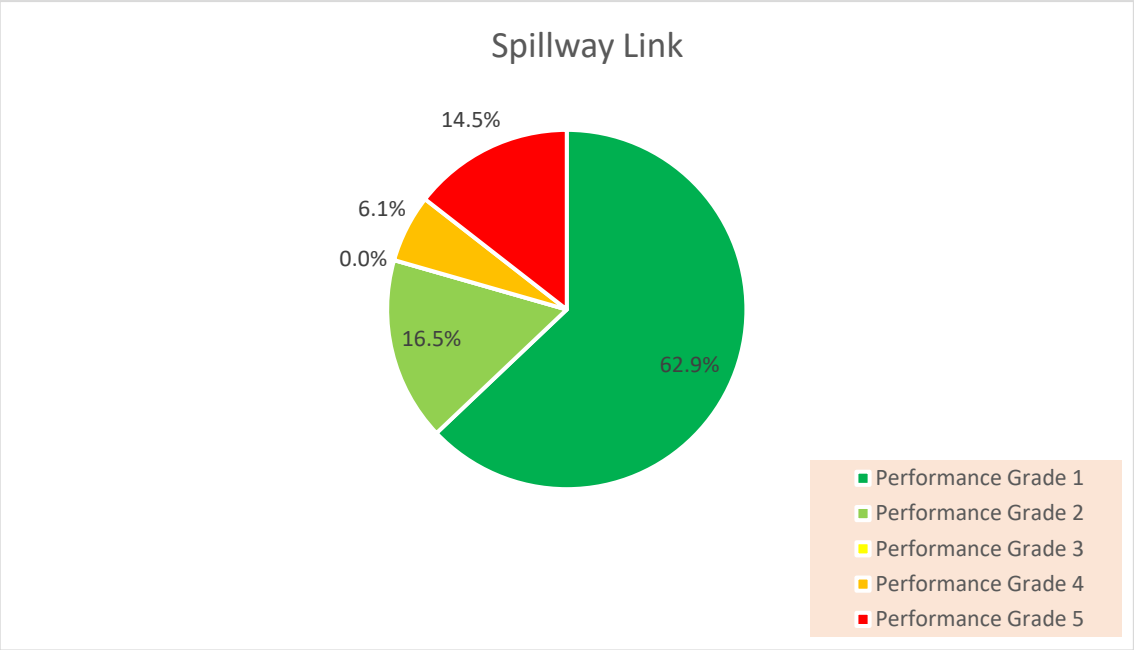


**Figure 12: Overall spillway performance**



# 6 Model sensitivity and Climate Change

Whenever a Scheme review is carried out, there is the need for sensitivity testing on the hydraulic model used for the review. The sensitivity test is to lower the requirements for reactive maintenance due to a range of influences, including the weather and river flooding higher than the agreed services levels.

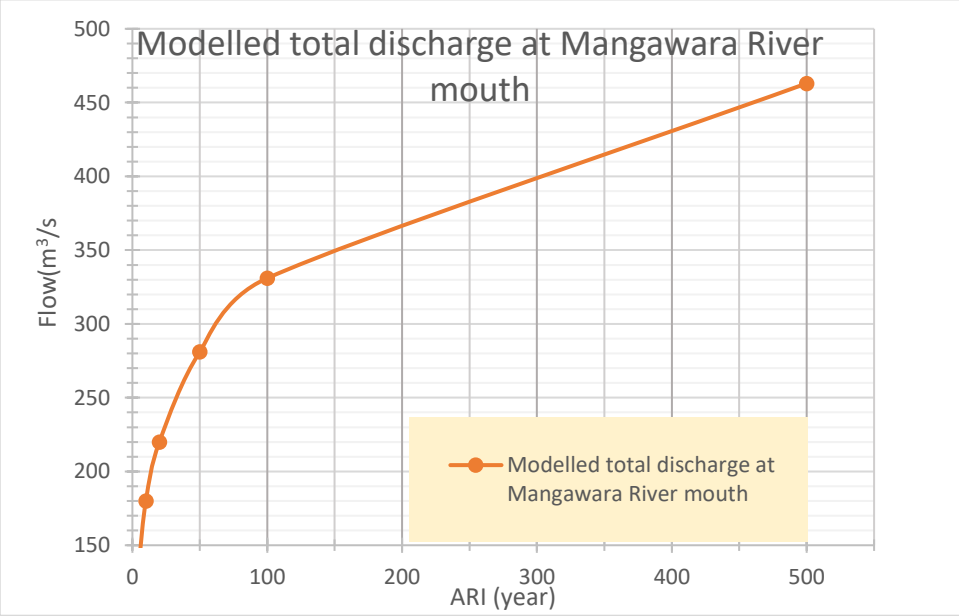
Other factors that affect the hydraulic model outcome over time in a scheme review is the unpredictable morphological changes to river systems in the scheme. A comparison between the Mangawara Riverbed levels for the 2014 hydraulic model and the current hydraulic model shows an average channel degradation of 0.8m along Mangawara River (refer to **Error! Reference source not found.** in appendix 4).

The Mangawara scheme review hydraulic model has been calibrated using the rain gauge information at Maungakawa. During the calibration process for the scheme review, the hydraulic model flows obtained at the Mangawara River mouth from the model were observed, as shown in **Error! Reference source not found.**

**Table 7: Estimated flows at Mangawara River Mouth**

| **Mangawara River** | **Area in km$^2$ is 602** |
|---|---|
| **Average Recurrence Interval (ARI)** | **Modelled Total Discharge** |
| **(Years)** | **(m$^3$/s)** |
| 2 | 91 |
| 5 | 138 |
| 10 | 180 |
| 20 | 220 |
| 50 | 281 |
| 100 | 331 |
| 500 | 463 |

**Figure 13: Estimated flows at Mangawara River Mouth**



Given the primary stopbanks are a 50-year ARI design level, a sensitivity test on the 50-year current climate and future climate was undertaken using rainfall depth from HIRDS.

**Table 8: Compare the peak flow and level at Jefferis or a key stopbank location**

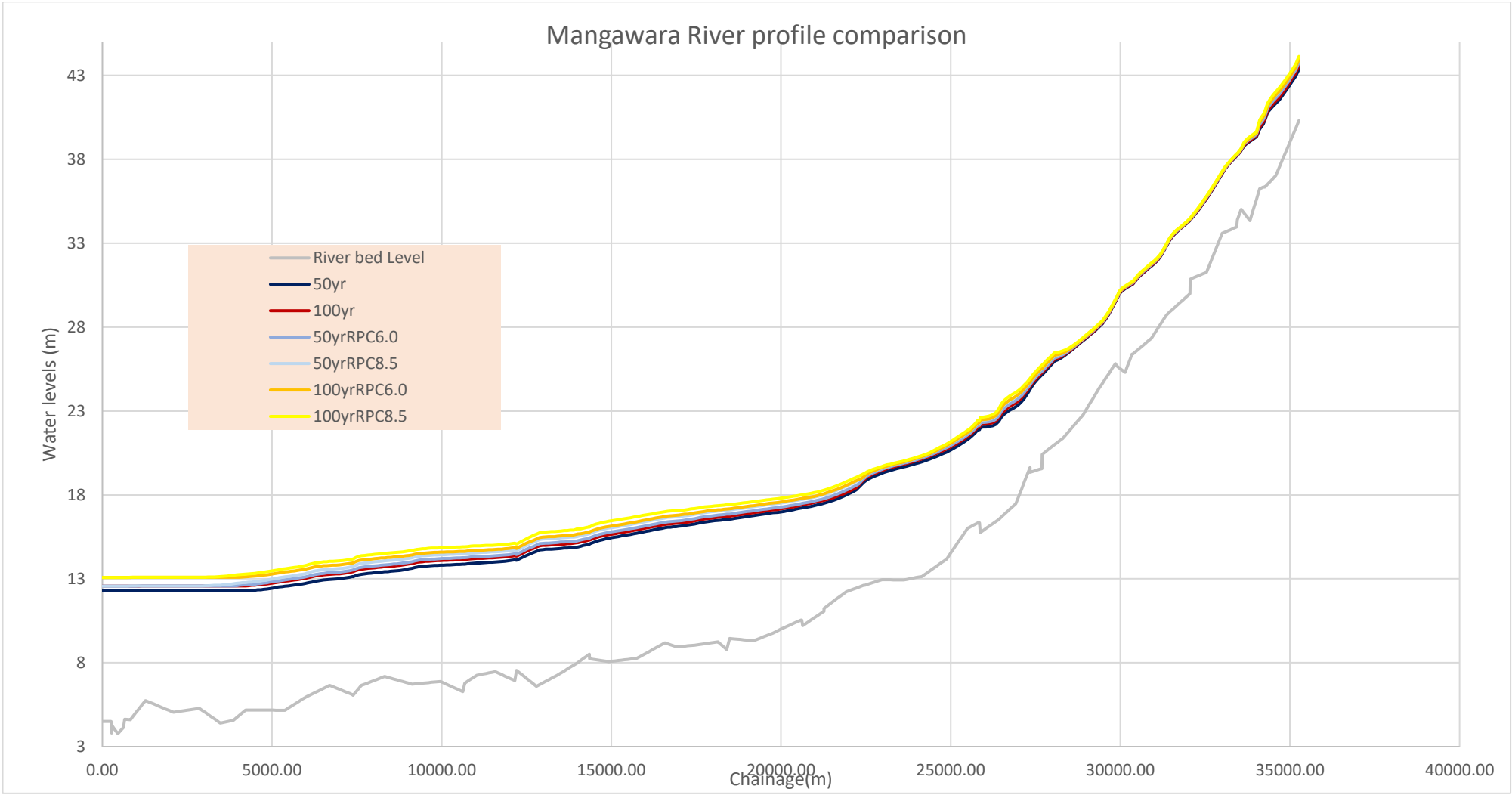
| ARI | 50yr | 50RCP6 | 50RCP85 | 50RCP6 | 50RCP85 dif. | 50RCP6 Change | 50RCP85 Change |
|---|---|---|---|---|---|---|---|
| **Peak Discharge ($m^3/s$)** | 169.21 | 198.84 | 217.33 | 29.63 | 48.12 | 18% | 28% |
| **Water level (m)** | 21.88 | 22.14 | 22.28 | 0.26 | 0.4 | | |
| **Bed level (m)** | 16.3 | 16.3 | 16.3 | 0 | 0 | | |
| **Water Depth (m)** | 5.58 | 5.84 | 5.98 | 0.26 | 0.4 | 5% | 7% |

An increase in rainfall of 16% to 26% due to climate change results in a discharge increase of 18% to 28%. However, water levels are only increased by 5% to 7% of the channel depth.

The sensitivity of the input parameters does not reduce the usability of the model for stopbank assessment.

The sensitivity of the hydraulic model in this scheme review has also been tested by comparing the 100-year ARI and the climate change RCP scenarios against the 50-year ARI (refer to **Error! Reference source not found.** below).

**Figure 14: Mangawara River: Comparisons of 50yr, 100yr ARI and the climate change RCP scenarios against the 50y ARI**



Output results comparing current climate and future climate (2101-2120) for 50yr and 100 yr ARI for the Mangawara River indicates the following:

a. With projected climate change, there is an estimated average rise of the 50 yr ARI design flood level of 0.34m (RCP 6.0) and 0.53 m (RCP 8.5) above the current 50-year ARI for the Mangawara River.
b. With projected climate change, there is an estimated average rise of the 100yr ARI design flood level of 0.61 m (RCP 6.0) and 0.96 m (RCP 8.5) above the current 50-year ARI for the Mangawara River.

Based on the future climate projections provided above for the Mangawara River, the current Design Crest Level will need to be raised to maintain the current level of service in the future.

# 7 Conclusion

The review indicates that approximately 89.1% of scheme stopbanks (by length) are above the new design flood level (i.e. performance grades 1,2, 3 and 4).

Under the present climate scenario, 74,383 m (84.5%) of stopbank length meet the current performance requirements (performance grades 1 and 2), while 3,992 m (4.5%) provide marginal protection (grades 3 and 4), and 6,624m (7.5%) are below design flood level (performance grade 5).

A further 3004m (3.5%) of the Mangatea South stopbank in compartment 24 was not assessed. A separate investigation is required for compartment 24.

Future climate projections show that the Mangawara River stopbanks may need to be raised up to 0.6 m above existing crest levels to maintain the existing 50yr ARI level of service.

# 8 Recommendations

1. The identified design flood levels and crest levels for each major stopbank and spillway are adopted.
2. Stopbank and dam embankment upgrades for the 8.5 km at performance grade 4 or 5 are undertaken within the next five years.
3. Recommend prioritisation of stopbank upgrades undertaken by the Lower Waikato Zone, Asset Management and Engineering Delivery Teams.
4. Future studies are undertaken for the appropriate freeboard design in the Mangawara catchment before the next Mangawara Scheme Review. The required studies are due to unpredictable morphological changes to river systems (especially - changing channel bed levels), rainfall and other hydraulic modelling factors. Note that the freeboard review assessment should be applied across all WRC flood protection schemes.
5. That an independent technical review is required to determine the South Mangatea Stream floodway capacity up to the existing stopbank/bund height. The review determines the rainfall event that the floodway can accommodate without overtopping and adopts that event as the level of service for Compartment 24, against which future performance reviews can be assessed.
6. That an additional flow gauging station is installed in the Mangawara flood protection scheme catchment. The ideal location for additional flow gauging stations in Mangawara River is the Johnston Farm Bridge located at Mangawara River chainage 14.35km upstream.

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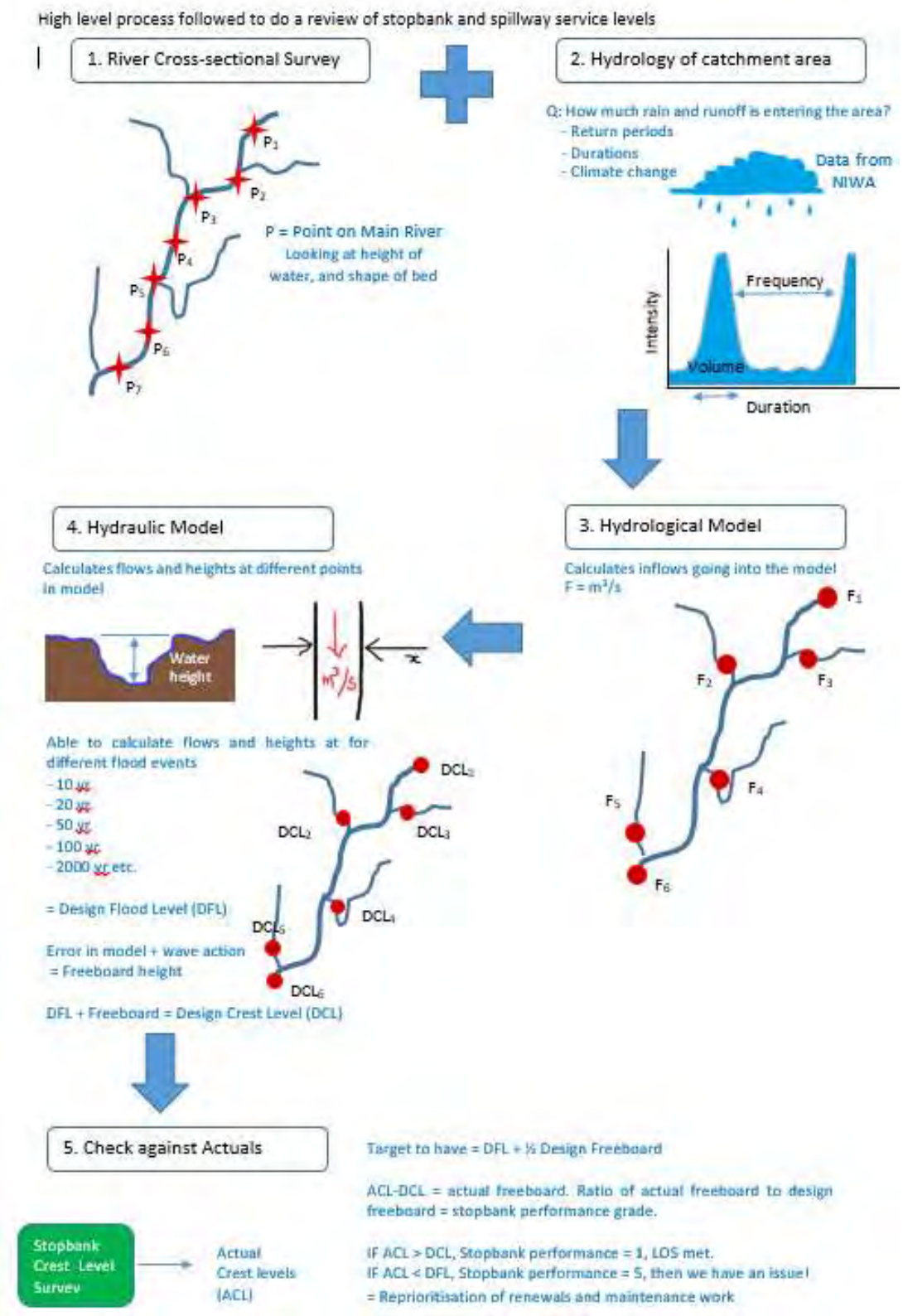
# Appendix 1: Scheme Review Process Schematic

High level process followed to do a review of stop bank and spillway service levels

**Figure 15: Scheme Review Process Schematic**



# Appendix 2: Hydrology

## A2.1 Introduction

The hydrology of the Mangawara catchment has been modelled by dividing the overall catchment into several sub-catchments and modelling runoff for a range of design events. The overall catchment was derived from the NIWA REC Watercourse 2. The hydrological model used is the NAM model, which is part of DHI's Mike11 modelling package. The NAM model is a lumped parameter conceptual rainfall-runoff model for continuous simulation of the land phase of the hydrological cycle. It can also be used for event-based simulations provided that appropriate initial conditions are provided.

A lumped model considers the individual sub-catchments to be homogeneous, and there is no variation in catchment parameters in space. However, a catchment will not be homogeneous in practice, so the parameters must be a single catchment-wide average value.

The NAM model tracks the soil moisture content and the groundwater level continuously. This is advantageous since infiltration capacity and base flow are dependent to a large degree on these quantities. NAM model parameters have been estimated by calibrating to recorded flows for the larger Jefferis catchment and transferring model parameters to the smaller catchments.

## A2.2 High-intensity rainfalls

The rainfall information for the catchment has been sourced from the High-Intensity Rainfall Design System (HIRDS) version 4 website operated by NIWA (https://hirds.niwa.co.nz/).

The spatial variation of HIRDS rainfalls across the catchment has been investigated to determine whether a single point rainfall distribution can be used to characterise design rainfall characteristics across the whole catchment. The rainfall characteristics at a range of locations are shown in **Error! Reference source not found.**. As can be seen, there appears to be some spatial variation in rainfall across the upper and lower catchment. From **Error! Reference source not found.**, the rainfall across approximately 80% of the catchment can be considered uniform. Therefore, for simplicity, it was decided to characterise design rainfall for the catchment by a two-point rainfall. The Lower Mangawara site appears to be closest to the mean rainfalls, and this site has been adopted as the basis for most of the catchment analyses. Also, over two-thirds of the Mangawara Catchment lies in the Mangawara Valley, with similar rainfall characteristics as the Lower Mangawara site (refer to **Error! Reference source not found.** below). Therefore, the Upper Mangawara catchment rainfall was used in three sub-catchments locations: Orakei Dam, Upper Mangawara and Mangatea Stream North sub-catchments.

A climate change Representative Concentration Pathway (RCP) 6.0 and 8.5 have been derived from HIRDS version 4 rainfall data. The RCP6.0 pathway scenario assumes that global greenhouse gas emissions stabilise with limited efforts to reduce emissions. The RCP8.5 pathway scenario assumes that global greenhouse gas emissions remain very high. A continuing "Business as usual" scenario. The adopted temperature rises for RCP 6.0 and 8.5 for the period 2101-2120 is 2.3° C and 3.8, respectively. The estimated rainfall percentage increase due to the adopted temperature rise (Table 13, MfE, 2018) is approximately 16% and 26% (i.e., for RPC6.0 and RCP8.5) for a 50-year ARI and a 72 hours rainfall duration.

**Figure 16: Spatial variation in high-intensity rainfall (in mm for 50-year ARI, 24 hour duration) for the Mangawara catchment**

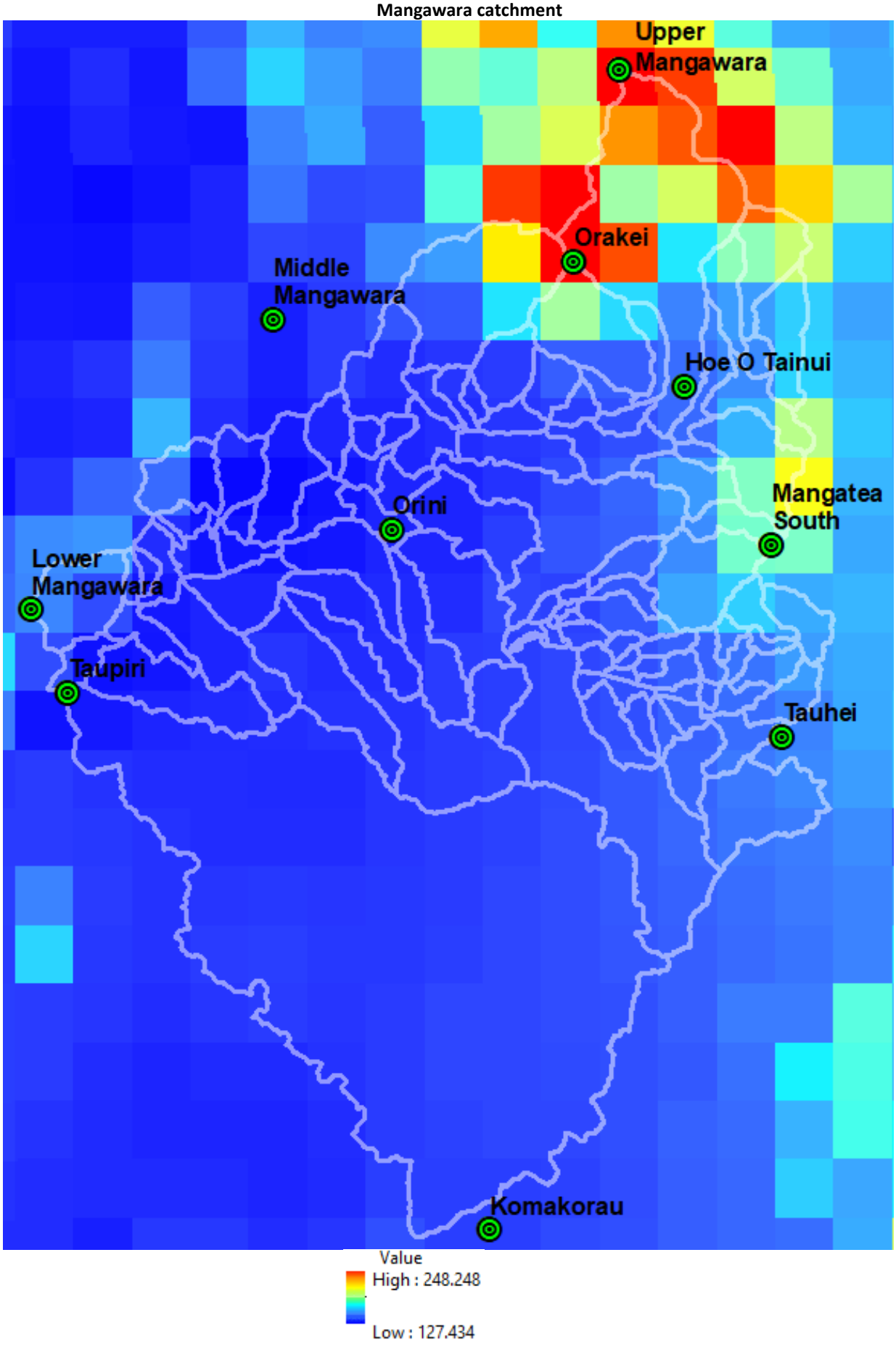


**Table 9: Spatial variation in high-intensity rainfall for the Mangawara catchment hydrological model**

| Location | Elevation (m AMSL) | NZTM coordinates | | Rainfall depths in (mm) Average recurrence Interval = 50-years | | | | |
|---|---|---|---|---|---|---|---|---|
| | | East | North | Duration (hrs) | | | | |
| | | | | 1 | 6 | 12 | 24 | 72 |
| Orakei | 500 | 1810459 | 5849907 | 52.32 | 117.20 | 155.28 | 200.92 | 284.89 |
| Upper Mangawara | 500 | 1812040 | 5856494 | 54.43 | 120.35 | 157.87 | 202.18 | 283.10 |
| Mangatea South | 300 | 1817241 | 5840223 | 49.75 | 101.58 | 128.87 | 160.02 | 215.77 |
| Lower Mangawara | 260 | 1791952 | 5838014 | 45.81 | 90.10 | 113.52 | 140.61 | 190.57 |
| Middle Mangawara | 120 | 1800212 | 5847921 | 45.42 | 86.56 | 107.32 | 130.53 | 171.16 |
| Komakorau | 40 | 1807618 | 5816809 | 45.42 | 86.56 | 107.32 | 130.53 | 171.16 |
| Tauhei | 30 | 1817611 | 5833667 | 48.18 | 93.61 | 115.99 | 140.35 | 180.86 |
| Hoe O Tainui | 35 | 1814305 | 5845647 | 47.18 | 91.72 | 113.87 | 138.19 | 179.26 |
| Taupiri | 20 | 1793174 | 5835179 | 44.89 | 85.80 | 106.84 | 130.72 | 173.64 |
| Orini | 20 | 1804308 | 5840761 | 45.72 | 86.84 | 107.35 | 130.07 | 169.18 |
| Mean | | | | 47.91 | 96.03 | 121.42 | 150.41 | 201.96 |
| Standard deviation | | | | 3.11 | 12.24 | 18.67 | 26.95 | 43.03 |
| Coefficient of variation | | | | 6% | 13% | 15% | 18% | 21% |

Previous hydraulic models for Mangawara catchment compared the coefficient of variance in similar locations using HIRSDS version 3. The disparity in the coefficient of variance was less than 10 %.

The design rainfall depths for the catchment are set out in **Error! Reference source not found.** and **Error! Reference source not found.**.

Design rainfall hyetographs have been developed by nesting all the different durations into a single storm. The design rainfall hyetographs ensure that the design rainfalls will be appropriate for all the different catchment times of concentration within the model. These hyetographs are displayed in **Error! Reference source not found.**.

**Table 10: Design rainfalls for the Mangawara catchment - Current Climate**

| Duration | ARI (years) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2yr | 5yr | 10yr | 20yr | 50yr | 100yr | 500yr |
| 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10 mins | 9.8 | 12.8 | 15.0 | 17.4 | 20.8 | 23.5 | 30.2 |
| 20 mins | 13.5 | 17.6 | 20.7 | 24.0 | 28.6 | 32.3 | 41.5 |
| 30 mins | 16.1 | 21.0 | 24.7 | 28.7 | 34.2 | 38.6 | 49.6 |
| 1 hr | 21.6 | 28.2 | 33.2 | 38.4 | 45.8 | 51.8 | 66.4 |
| 2 hrs | 33.2 | 43.3 | 50.9 | 59.0 | 70.3 | 79.4 | 101.8 |
| 6 hrs | 42.6 | 55.5 | 65.3 | 75.6 | 90.1 | 101.8 | 130.4 |
| 12 hrs | 53.8 | 70.0 | 82.3 | 95.3 | 113.5 | 128.2 | 164.2 |
| 24 hrs | 66.6 | 86.7 | 102.0 | 118.0 | 140.6 | 158.7 | 203.2 |
| 48 hrs | 81.2 | 105.7 | 124.2 | 143.7 | 171.2 | 193.2 | 247.3 |
| 72 hrs | 90.5 | 117.7 | 138.3 | 160.0 | 190.6 | 215.1 | 275.2 |

**Table 11: Design rainfalls for the Mangawara catchment - Climate Change (period 2101-2120)**

| Duration | ARI (years) | | | | | |
|---|---|---|---|---|---|---|
| | 20yrRPC6 | 50yrRPC6 | 100yrRPC6 | 20yrRPC8.5 | 50yrRPC8.5 | 100yrRPC8.5 |
| 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10 mins | 22.7 | 27.2 | 30.8 | 26.2 | 31.4 | 35.6 |
| 20 mins | 31.3 | 37.5 | 42.4 | 36.1 | 43.3 | 49.0 |
| 30 mins | 37.4 | 44.8 | 50.7 | 43.1 | 51.7 | 58.6 |
| 1 hr | 50.1 | 60.0 | 67.9 | 57.8 | 69.3 | 78.5 |
| 2 hrs | 76.3 | 91.3 | 103.3 | 87.6 | 105.0 | 118.9 |
| 6 hrs | 94.9 | 113.5 | 128.7 | 107.5 | 128.8 | 146.2 |
| 12 hrs | 116.5 | 139.4 | 158.0 | 130.4 | 156.2 | 177.4 |
| 24 hrs | 140.3 | 167.8 | 190.1 | 154.8 | 185.5 | 210.6 |
| 48 hrs | 167.5 | 200.3 | 226.6 | 183.0 | 219.3 | 248.3 |
| 72 hrs | 184.3 | 220.4 | 249.2 | 200.1 | 239.8 | 271.5 |

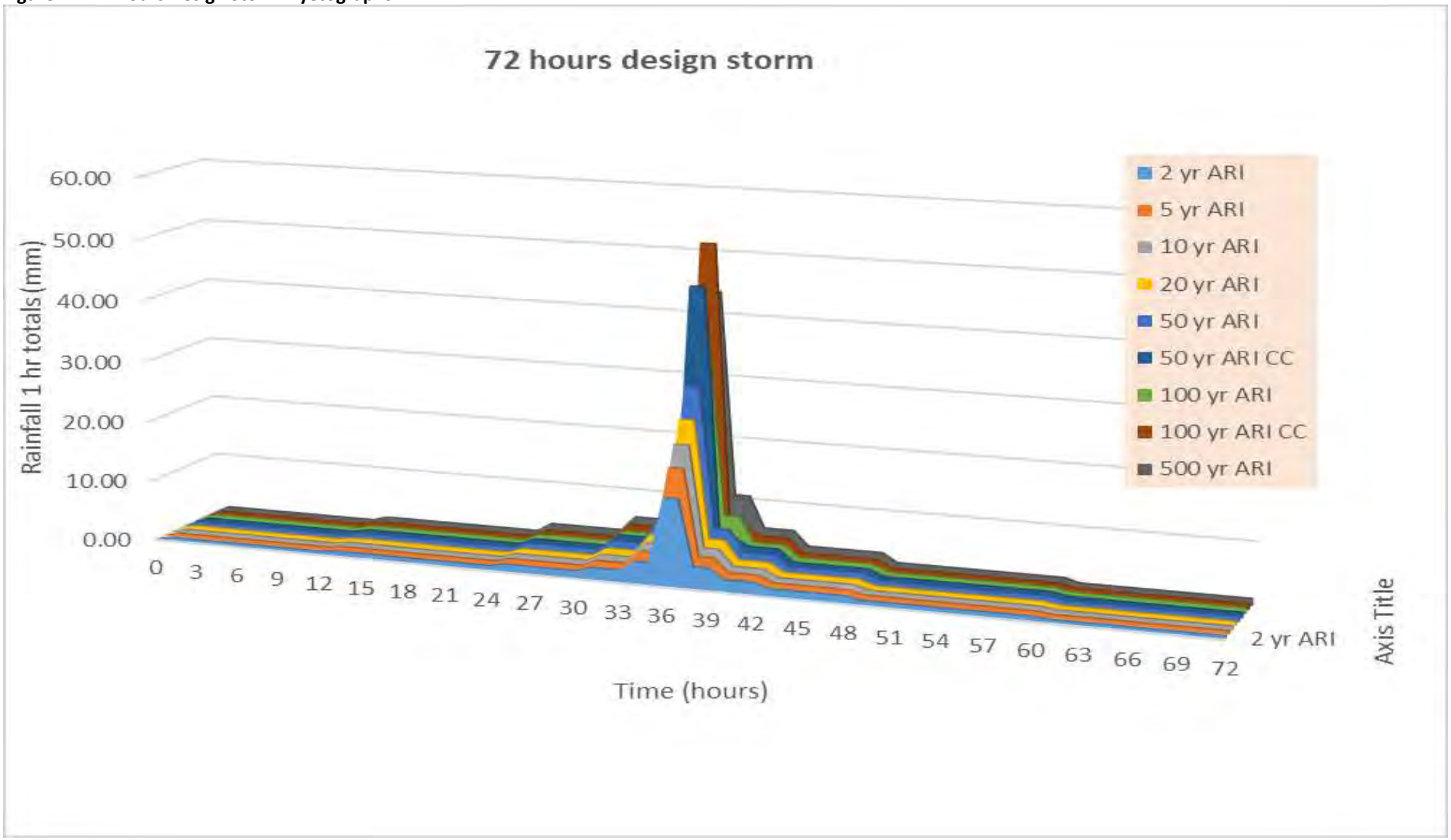
A 72-hour rainfall design storm has been chosen for the Mangawara hydraulic model with hydrology prepared using the NAM/MIKE11 model. Note that If the catchment were to have a much shorter response time, the 72 hours nested storm still embeds all shorter times of concentration. An Areal reduction factor of 0.81 was applied to the design rainfall, as shown in **Error! Reference source not found.**.

**Table 12: Areal reduction factors (refer to Waikato Stormwater Runoff Modelling Guideline- doc #11853936)**

| Area(km2) | Time of Concentration (hours) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0.5 | 1 | 2 | 3 | 6 | 12 | 24 |
| ≤10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 20 | 0.9 | 0.91 | 0.93 | 0.94 | 0.95 | 0.96 | 0.97 |
| 50 | 0.72 | o.75 | 0.82 | 0.86 | 0.92 | 0.94 | 0.96 |
| 100 | 0.71 | 0.74 | 0.79 | 0.83 | 0.86 | 0.89 | 0.9 |

| Area(km2) | Time of Concentration (hours) | | | | | | |
|---|---|---|---|---|---|---|---|
| | **0.5** | **1** | **2** | **3** | **6** | **12** | **24** |
| 200 | 0.7 | 0.72 | 0.75 | 0.79 | 0.82 | 0.85 | 0.86 |
| 500 | 0.68 | 0.7 | 0.72 | 0.74 | 0.76 | 0.79 | 0.81 |

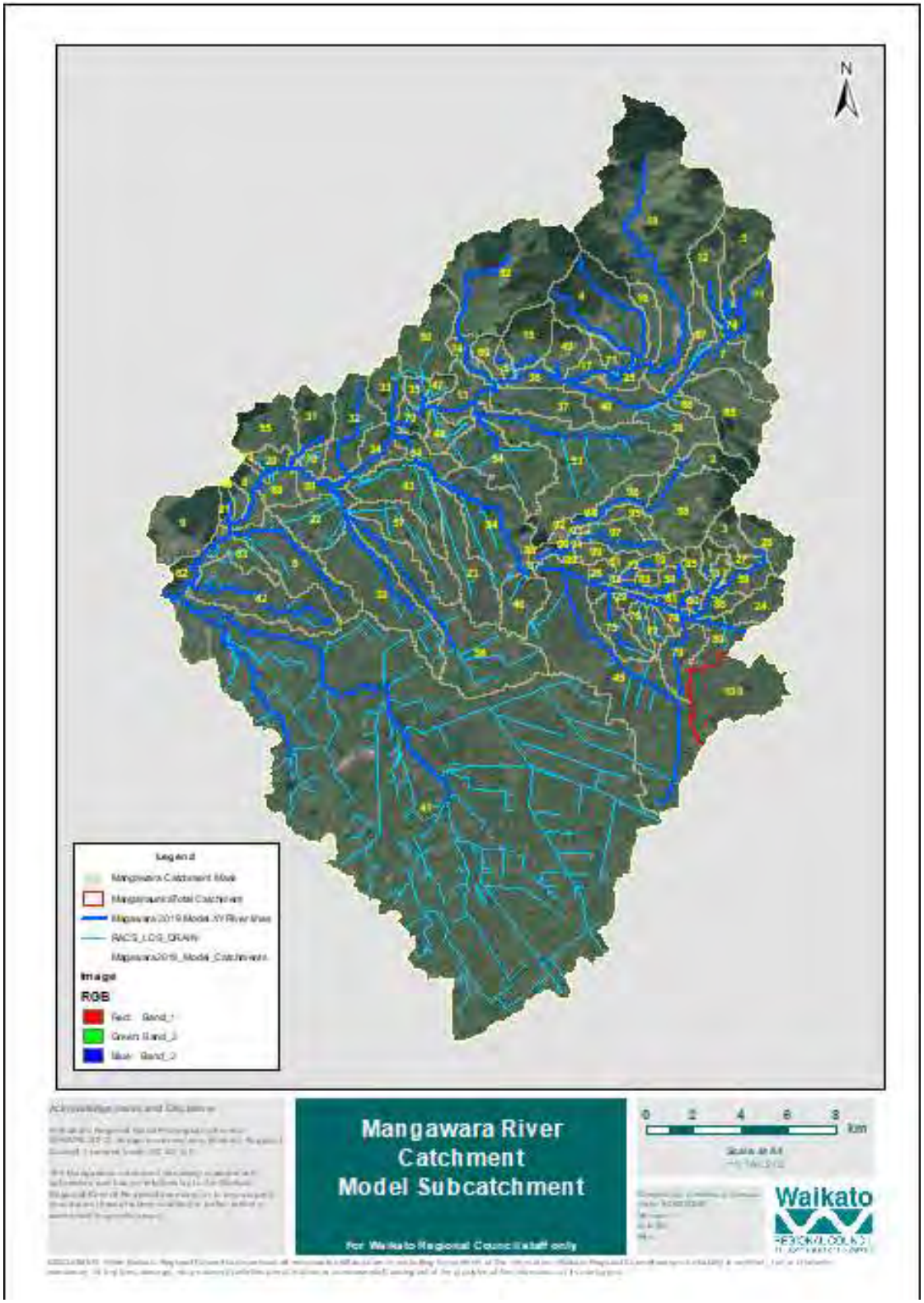
**Figure 17: 72 Hours Design Storm Hyetographs**



## A2.3 Model sub-catchments

The sub-catchments used for developing the Mangawara hydraulic model are shown in **Error! Reference source not found.**. Key hydrological characteristics for each sub-catchments are shown in **Error! Reference source not found.**. The time of concentration for each sub-catchment has been calculated using the average values derived from the Bransby Williams formula.

**Figure 18: Model sub-catchments**



The model sub-catchments section delineated with a red line in **Error! Reference source not found.** is the Maungahaumia catchment. Under normal conditions, this catchment flows out to the Piako River. However, in large floods, it overflows into the headwaters of the Tauhei Stream Catchment. Therefore, this catchment was added to the Mangawara scheme catchment to Investigate the flooding impact of these overflows into the Mangawara Scheme.

**Table 13: Mangawara scheme sub-catchments hydrological characteristics**

| No. | Catchment Name | Area_km2 | Channel Length (m) | ΔH (m) | Tc (hrs) |
|---|---|---|---|---|---|
| 1 | TRUBSHAWS DAM | 1 | 1,489 | 39 | 0.55 |
| 2 | MAORI AFFAIRS DAM | 3.04 | 3,819 | 142 | 1.72 |
| 3 | JORDANS DETENTION DAM | 2.45 | 3,596 | 82 | 1.32 |
| 4 | ORAKEI DAM | 10.83 | 6,260 | 307 | 4.44 |
| 5 | WAITI STREAM | 6.14 | 6,355 | 190 | 1.96 |
| 6 | UAPOTO | 8.25 | 6,834 | 9 | 2.69 |
| 7 | PARANUI LB TRIB MIDDLE | 4.31 | 4,880 | 72 | 2.93 |
| 8 | MANGAWARA R2L1 | 2.41 | 690 | 15 | 0.65 |
| 9 | UN-NAMED TRIB OF LOWER MANGAWARA | 7.68 | 3,384 | 38 | 1.47 |
| 10 | COMPARTMENT 2 US | 1.07 | 1,259 | 1 | 0.87 |
| 11 | PARANUI LB TRIB UPPER | 5.69 | 3,956 | 79 | 1.89 |
| 12 | WAITI TRIB | 3.75 | 4,489 | 119 | 1.46 |
| 13 | COMPARTMENT 7 | 3.36 | 3,529 | 5 | 3.28 |
| 14 | COMPARTMENT 8 | 1.74 | 3,032 | 2 | 1.96 |
| 15 | ORCHARD DRAIN EASTERN | 4.44 | 3,144 | 195 | 1.40 |
| 16 | ORAKEI DS OF DAM | 2.36 | 4,324 | 50 | 3.18 |
| 17 | COMPARTMENT 11 | 1.47 | 2,146 | 1 | 1.39 |
| 18 | UPPER MANGAWARA | 37.41 | 17,193 | 102 | 5.10 |
| 19 | CAWLEY DAM | 1.25 | 1,603 | 31 | 0.85 |
| 20 | COMPARTMENT 2 DS | 1.29 | 1,729 | 0.5 | 1.31 |
| 21 | COMPARTMENT 1 TRIB | 0.88 | 1,404 | 27 | 0.38 |
| 22 | COMPARTMENT 3 | 5.51 | 2,960 | 1 | 3.21 |
| 23 | TAUHEI STREAM REACH 1 UPPER | 6.91 | 3,100 | 2 | 4.50 |
| 24 | UPPER TAUHEI DRAIN | 3.02 | 3,340 | 20 | 1.76 |
| 25 | COMPARTMENT 12 - MANGAWARA | 1.35 | 3,816 | 3 | 1.70 |
| 26 | COMPARTMENT 21 | 1.01 | 1,457 | 1 | 1.19 |
| 27 | UPPER TAUHEI DS TRUBSHAWS DAM | 0.81 | 1,019 | 11 | 0.91 |
| 28 | UPPER UPPER TAUHEI | 3.3 | 2,501 | 58 | 1.12 |
| 29 | SPECIAL AREA DRAIN - FLAT CATCHMENT | 1.59 | 3,373 | 0.4 | 2.57 |
| 30 | MANGAKAWARU STREAM | 11.47 | 9,948 | 8 | 2.79 |
| 31 | RUTHERFORDS DRAIN UPPER | 4.17 | 3,627 | 1 | 1.83 |
| 32 | TE MIMIHIA SWAMP | 6.43 | 4,880 | 2 | 2.40 |
| 33 | HENRYS REMEDIAL OUTLET | 3.14 | 3,887 | 1 | 1.59 |
| 34 | COMPARTMENT 5 DS | 2.93 | 4,108 | 1 | 2.54 |
| 35 | COMPARTMENT 5 US | 1.18 | 1,669 | 1 | 1.26 |

| No. | Catchment Name | Area_km2 | Channel Length (m) | ΔH (m) | Tc (hrs) |
|---|---|---|---|---|---|
| 36 | COMPARTMENT 10 | 1.82 | 1,844 | 2 | 1.97 |
| 37 | COMPARTMENT 9 - JEFFERIS | 4.8 | 4,310 | 5 | 3.32 |
| 38 | COMPARTMENT 9 - PARANUI DRAIN | 4.08 | 4,799 | 32 | 2.25 |
| 39 | MANGAWARA R2L3 | 1.87 | 2,280 | 1 | 2.43 |
| 40 | COMPARTMENT 12 - PARANUI | 4.85 | 5,009 | 3 | 3.35 |
| 41 | KOMAKORAU | 193.29 | 33,082 | 24 | 16.04 |
| 42 | WHANGAMAIRE | 10.3 | 7,847 | 7 | 1.08 |
| 43 | COMPARTMENT 4 | 7.04 | 7,474 | 2 | 5.27 |
| 44 | COMPARTMENT 1 INTERNAL | 0.83 | 1,976 | 1 | 0.82 |
| 45 | EASTERN OUTLET DRAIN | 28.39 | 14,820 | 13 | 10.35 |
| 46 | NORTON | 3.88 | 3,064 | 1 | 2.10 |
| 47 | SLUDGE CREEK TRIBUTARY | 1.05 | 1,321 | 1 | 0.89 |
| 48 | COMPARTMENT 6 | 2.16 | 2,797 | 1 | 1.96 |
| 49 | TRIBUTARY OF THE MANGAWARA | 3.01 | 2,653 | 35 | 1.29 |
| 50 | SLUDGE CREEK | 6.82 | 4,001 | 31 | 2.14 |
| 51 | ORCHARD DRAIN WESTERN | 0.84 | 1,863 | 18 | 1.19 |
| 52 | MANGATEA STREAM NORTH | 19.13 | 8,786 | 90 | 5.38 |
| 53 | NORTHERN OUTLET DRAIN | 19.94 | 10,041 | 26 | 2.58 |
| 54 | MURCHIE DRAIN | 8.93 | 4,205 | 12 | 1.43 |
| 55 | RUTHERFORDS DRAIN LOWER | 5.36 | 3,355 | 16 | 1.70 |
| 56 | TEN FOOT DRAIN | 16.27 | 12,443 | 12 | 3.12 |
| 57 | FAIRWEATHER DRAIN | 6.45 | 10,563 | 5 | 4.88 |
| 58 | SPECIAL AREA DRAIN - UPPER CATCHMENT | 1.63 | 3,910 | 10 | 1.26 |
| 59 | UPPER TAUHEI TRIBS | 2.26 | 4,931 | 66 | 1.92 |
| 60 | WIGGINS DRAIN LOWER | 0.52 | 880 | 2 | 0.79 |
| 61 | CAWLEY DRAIN | 0.77 | 825 | 1 | 0.63 |
| 62 | MANGAWARA R1L1 | 2.3 | 3,602 | 0.5 | 2.83 |
| 63 | MANGAWARA R1L2 | 2.85 | 1,826 | 0.5 | 2.70 |
| 64 | TAUHEI STREAM REACH 1 LOWER | 2.64 | 1,569 | 1 | 2.29 |
| 65 | PARANUI LB TRIB LOWER | 8.31 | 5,586 | 169 | 2.14 |
| 66 | PARANUI R1L1 | 1.09 | 1,316 | 5 | 0.87 |
| 67 | PARANUI RB TRIB | 3.34 | 5,257 | 33 | 3.68 |
| 68 | MANGAWARA R2L2 | 2.13 | 1,411 | 1 | 1.58 |
| 69 | MANGAWARA TRIBUTARY | 1.61 | 2,510 | 16 | 1.79 |
| 70 | MANGAWARA R3L1 | 1.72 | 2,250 | 1 | 1.60 |
| 71 | ORAKEI 2 | 1.49 | 1,466 | 22 | 1.77 |
| 72 | DS CAWLEY DAM | 0.41 | 1,135 | 2 | 0.71 |
| 73 | MANGAWARA RB TRIBUTARY - COMPARTMENT 2 DOWNST | 0.42 | 669 | 15 | 0.47 |
| 74 | WAITI DAM | 1.2 | 1,977 | 21 | 1.76 |
| 75 | ARAHINA DRAIN | 3.4 | 3,720 | 6 | 2.47 |
| 76 | GARDENER DRAIN | 1.44 | 2,500 | 13 | 1.43 |

| No. | Catchment Name | Area_km2 | Channel Length (m) | ΔH (m) | Tc (hrs) |
|---|---|---|---|---|---|
| 77 | HILLVISTA DRAIN | 1.22 | 2500 | 7 | 1.20 |
| 78 | BARTON DRAIN | 1.24 | 2,000 | 4 | 1.68 |
| 79 | DOBSON DRAIN | 3.77 | 1750 | 11 | 2.64 |
| 80 | MUTUKA DRAIN | 2.96 | 3,200 | 10 | 2.82 |
| 81 | VAN BRUNT DRAIN | 0.75 | 1600 | 10 | 1.06 |
| 82 | CAWLEY DRAIN LB | 0.4 | 1,070 | 10 | 1.17 |
| 83 | SPECIAL AREA DRAIN RB UPPER | 0.64 | 2785 | 72 | 0.48 |
| 84 | TAUHEI STREAM RB REACH 2 | 11.05 | 6,350 | 9 | 1.61 |
| 85 | WIGGINS DRAIN UPPER | 1.42 | 2120 | 101 | 0.77 |
| 86 | UPPER TAUHEI NOBLES TRIBS | 1.53 | 2,700 | 11 | 1.30 |
| 87 | MANGATEA STREAM SOUTH REACH 1 LB | 0.22 | 1630 | 4 | 0.39 |
| 88 | MANGATEA STREAM SOUTH REACH 1 RB | 0.68 | 1630 | 4 | 0.67 |
| 89 | MANGATEA STREAM SOUTH REACH 2 LB | 0.46 | 1050 | 2 | 0.25 |
| 90 | MANGATEA STREAM SOUTH REACH 2 RB | 0.11 | 500 | 85 | 0.22 |
| 91 | WEBSTERS DRAIN DOWNSTREAM TAINUI RD | 0.26 | 3500 | 11 | 0.80 |
| 92 | MANGATEA STREAM SOUTH REACH 3 RB | 0.69 | 1415 | 71 | 0.45 |
| 93 | MANGATEA STREAM SOUTH REACH 4 LB | 0.3 | 1132 | 15 | 0.46 |
| 94 | MANGATEA STREAM SOUTH REACH 4 RB | 0.57 | 1500 | 7 | 1.07 |
| 95 | MANGATEA STREAM SOUTH REACH 5 LB | 1.55 | 3000 | 75 | 2.02 |
| 96 | MANGATEA STREAM SOUTH REACH 5 RB | 2.41 | 3220 | 74 | 2.28 |
| 97 | WEBSTERS DRAIN UPSTREAM TAINUI RD | 3.09 | 3570 | 55 | 3.10 |
| 98 | UPPER MANGATEA STREAM STH | 9.38 | 4850 | 60 | 2.32 |
| 99 | MANGATEA STREAM TRIBUTARY - TAINUI RD INTERSE | 1.17 | 1900 | 20 | 1.17 |
| 100 | MANGAHAUMIA STREAM | 10.09 | 5100 | 10 | 4.13 |
| 101 | TRUBSHAWS DAM DS | 0.93 | 1790 | 86 | 0.79 |
| | **MANGAWARA RIVER AT JEFFERIS FLOW RECORDER** | **97.67** | **22,219** | **335** | **7.79** |
| | **TOTAL** | **611.18** | | | |

# A2.4 Calibration

The hydrologic model calibration was carried out using two existing rain gauge stations at Mangakawa and Ruakura. Weighting factors were derived using Thiessen's polygon and catchment elevations to account for the Orographic rainfall effect, which is rain that is produced from the lifting of moist air over a mountain.

The hydrologic model calibration was carried out using two existing rain gauge stations at Mangakawa and Ruakura. Weighting factors were derived using Thiessen's polygon and catchment elevations to account for the Orographic rainfall effect, which is produced from lifting moist air over a mountain.
The hydraulic output from the model was calibrated with existing stream-flow records for the Mangawara River at the Jefferis Bridge site. The Jefferis Bridge gauging site is located approximately at chainage 25.85km along Mangawara River. The catchment upstream of this gauging station is about one-sixth of the total catchment area. The model has been calibrated using the guidelines for calibrating the NAM model (D0c# 932615).
A comparison between the observed historic gauged records at the Jefferis Bridge site and the model result indicates a Root Mean Square Error (RMSE) of 0.3 (i.e. 0.3 metres of error margin between predicted and observed water level).

Mangawara River spot height water levels obtained from the 2014 hydraulic model were also compared with the current model results. The result shows approximately a 2% error margin in water level difference along the Mangawara main river channel.

The key parameters of the NAM model are described in Table 14 below.

**Table 14: Parameters of the NAM hydrological model**

| Parameter | Parameter description | Calibrated Value |
|---|---|---|
| Umax | Maximum content of the upper storage (mm). | 10 |
| Lmax | Maximum content of the lower storage (mm). | 50-110 |
| CQOF | Maximum volumetric runoff coefficient (varies between 0 and 1) | 0.48-0.65 |
| CK12 | Time response parameter for overland flow and interflow (hr) | varies |
| CKIF | Time constant for releasing interflow (hr) | varies |
| CKBF | Time constant for releasing base flow (hr) | varies |
| TOF | Rootzone threshold for overland flow. (varies from 0 to 1) | 0.25 |
| TIF | Rootzone threshold for interflow. (varies from 0 to 1) | 0.2 |
| TG | Rootzone threshold for recharge | 0.75-0.9 |

The time-based parameters have been scaled for each sub-catchment based on the ratio of the time of concentration. The estimated time of concentration for each sub-catchments was scaled by a factor to obtain the time response parameter for overland flow and interflow. Model calibration results are as shown in **Error! Reference source not found.** to **Error! Reference source not found.** below.

**Figure 19: Modelled and rated water level at Jefferis Gauge (Event 1 –April 1995 - Highest recorded 24-hour rainfall at Maungakawa Rainfall site)**

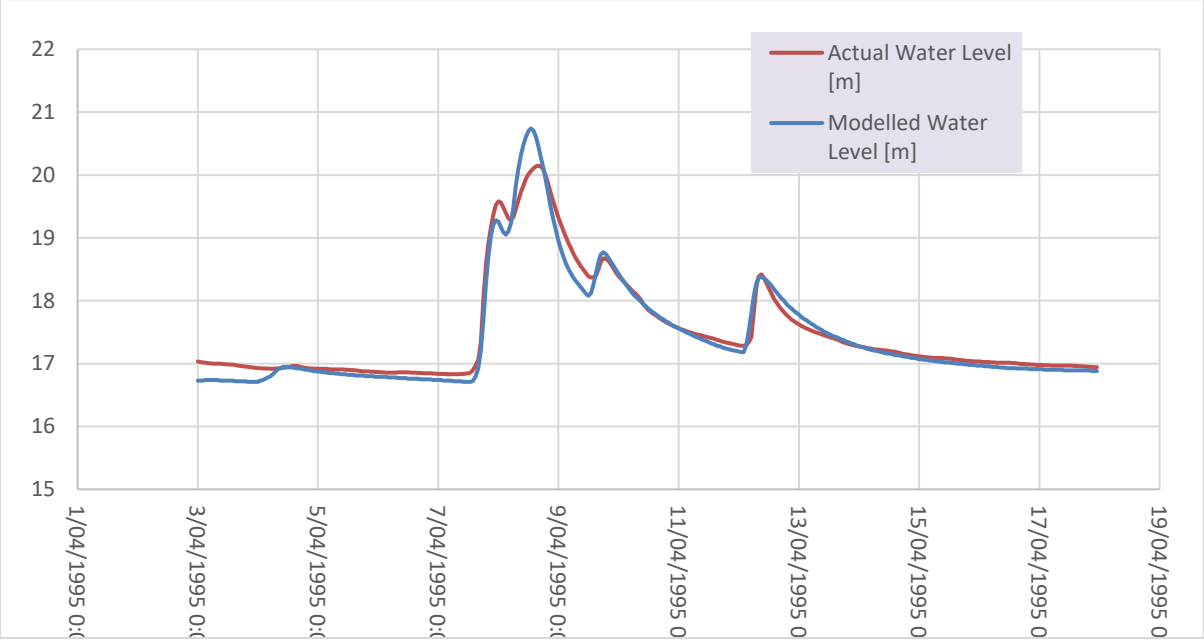



**Figure 20: Modelled and rated river flow vs ARI at Jefferis Gauge(Event 1 –April 1995 - Highest recorded24-hour rainfall at Maungakawa Rainfall site)**

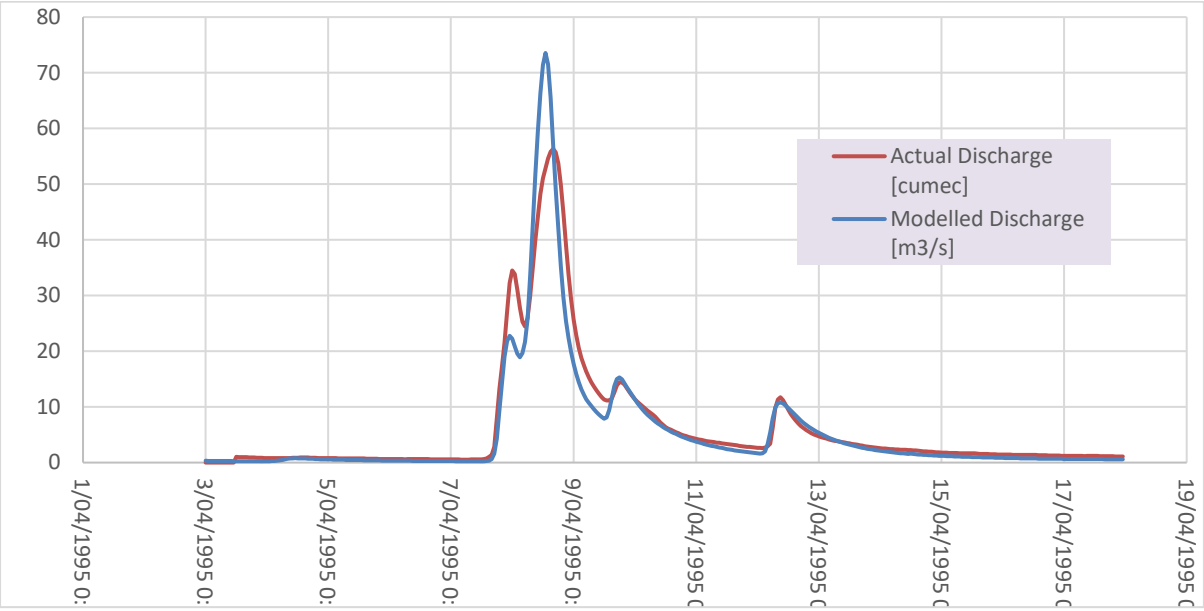


**Figure 21: Modelled and rated water level at Jefferis Gauge(Event 2 –July 1998 Highest recorded discharge at Jefferis flow gauge)**

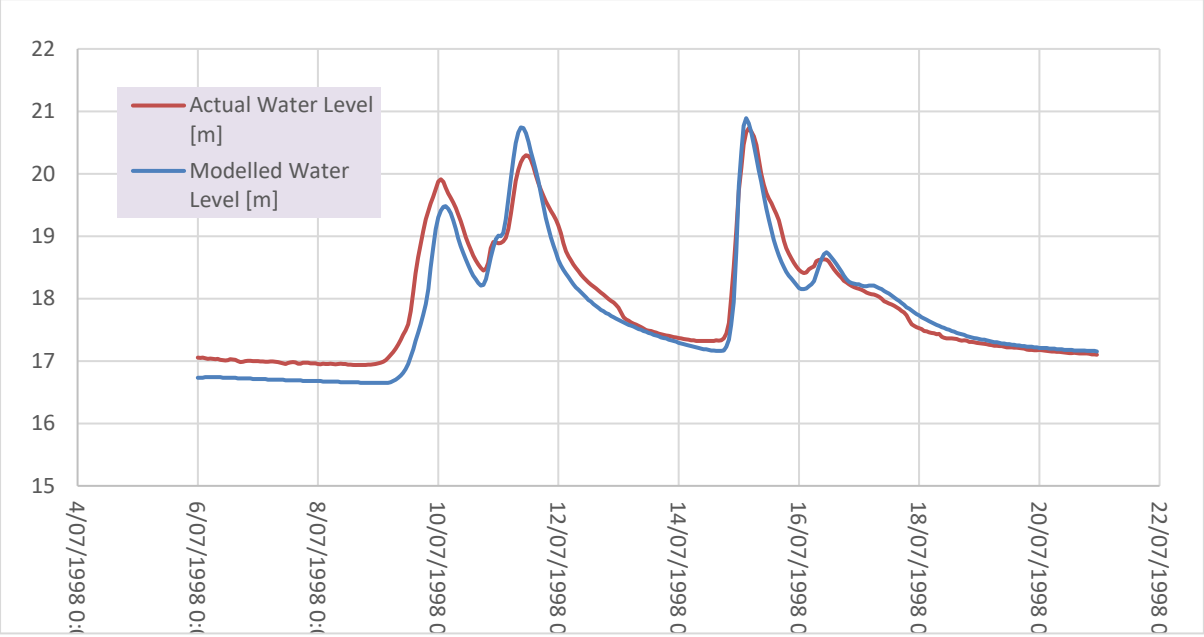



**Figure 22: Modelled and rated river flow at Jefferis Gauge (Event 2 –July 1998 Highest recorded discharge at Jefferis flow gauge)**

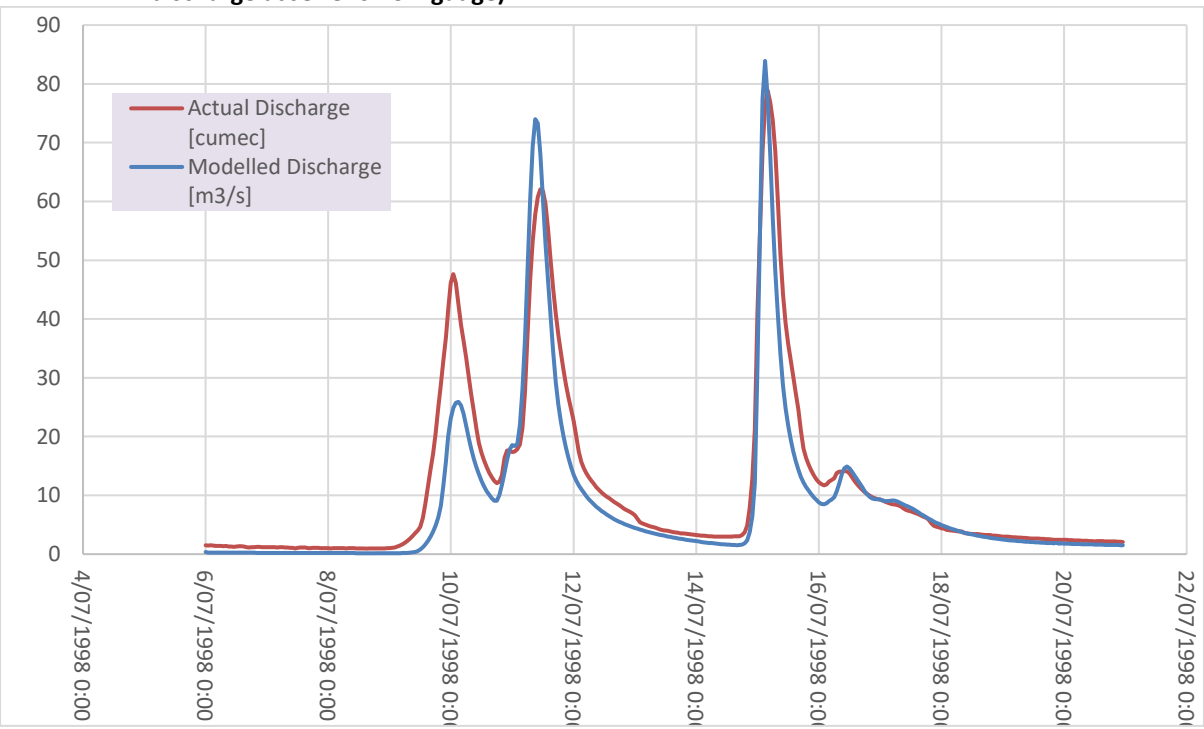


**Figure 23: Modelled and rated water level at Jefferis Gauge (Event 3 – 2018 – 2019 Actual survey date for river cross-sectioncross-sections)**

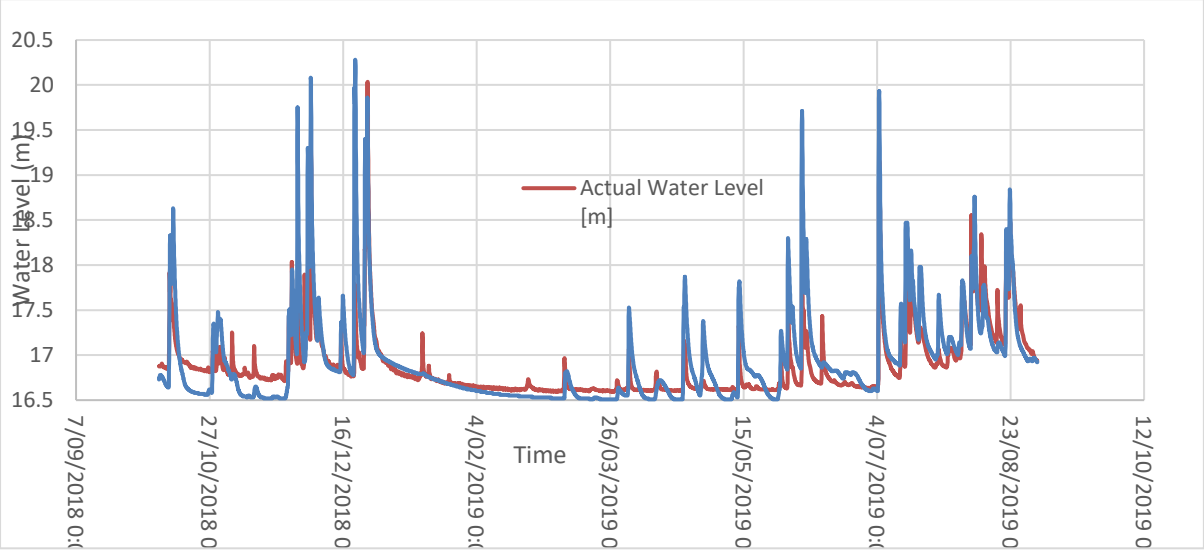
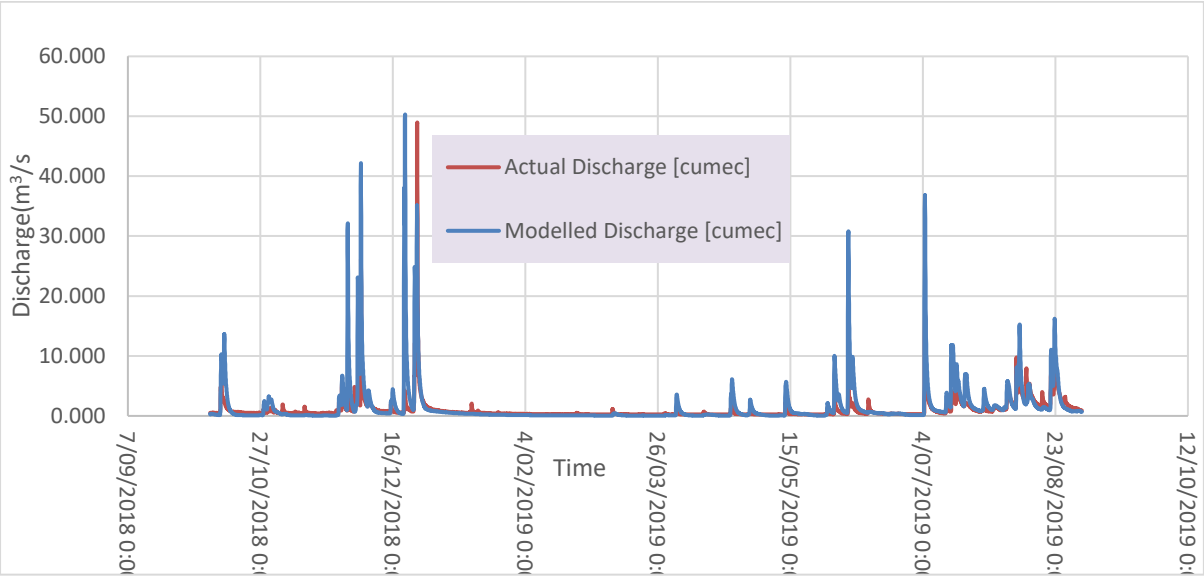



**Figure 24: Modelled and rated river flow at Jefferis Gauge (Event 3 – 2018 – 2019 Actual survey date for river cross-sections)**




Given the limitations in the input data (including the rating curves, spatial variability in rainfall etc.), we believe the result from the model is reasonably acceptable.

# Appendix 3: Hydraulics

## A3.1 Model description

### A3.1.1 Network

The layout of the Mangawara hydraulic model has been developed using the NIWA REC2 (River Environment Classification, v2.0). The watercourses have been slightly modified using the LIDAR and WRAP12 combined mosaic images. The hydraulic model network is as shown in **Error! Reference source not found.**. Key features are:

a. The bridges on the main Mangawara River channel are generally restrictions in the floodway and have been modelled as weirs.
b. The six detention dams in the area have been modelled as culverts and a weir combination to represent the low flow culverts and the dam spillways.
c. Spillways on the Mangawara and the Paranui Drain channels have been modelled as weirs with overland flow channels.
d. Stopbank and detention dam spillway geometries have been sourced from crest level survey data.
e. Catchment runoff inflow locations have been incorporated to allow for the inflow of runoff generated by the hydrological model.

1. The model consists of:
    a. 58 branches totalling approximately 165 km
    b. 44 weirs
    c. 32 culverts and floodgates
    d. 1 Pump
    e. 104 rainfall-runoff model links

### A3.1.2 Channel cross-sections

The river channels in the model are defined by surveyed channel cross-sections. Most of these cross-sections were surveyed in late 2019 by WSP Ltd for Waikato Regional Council. The extent of the model and the location of these cross-sections is shown in **Error! Reference source not found.**.

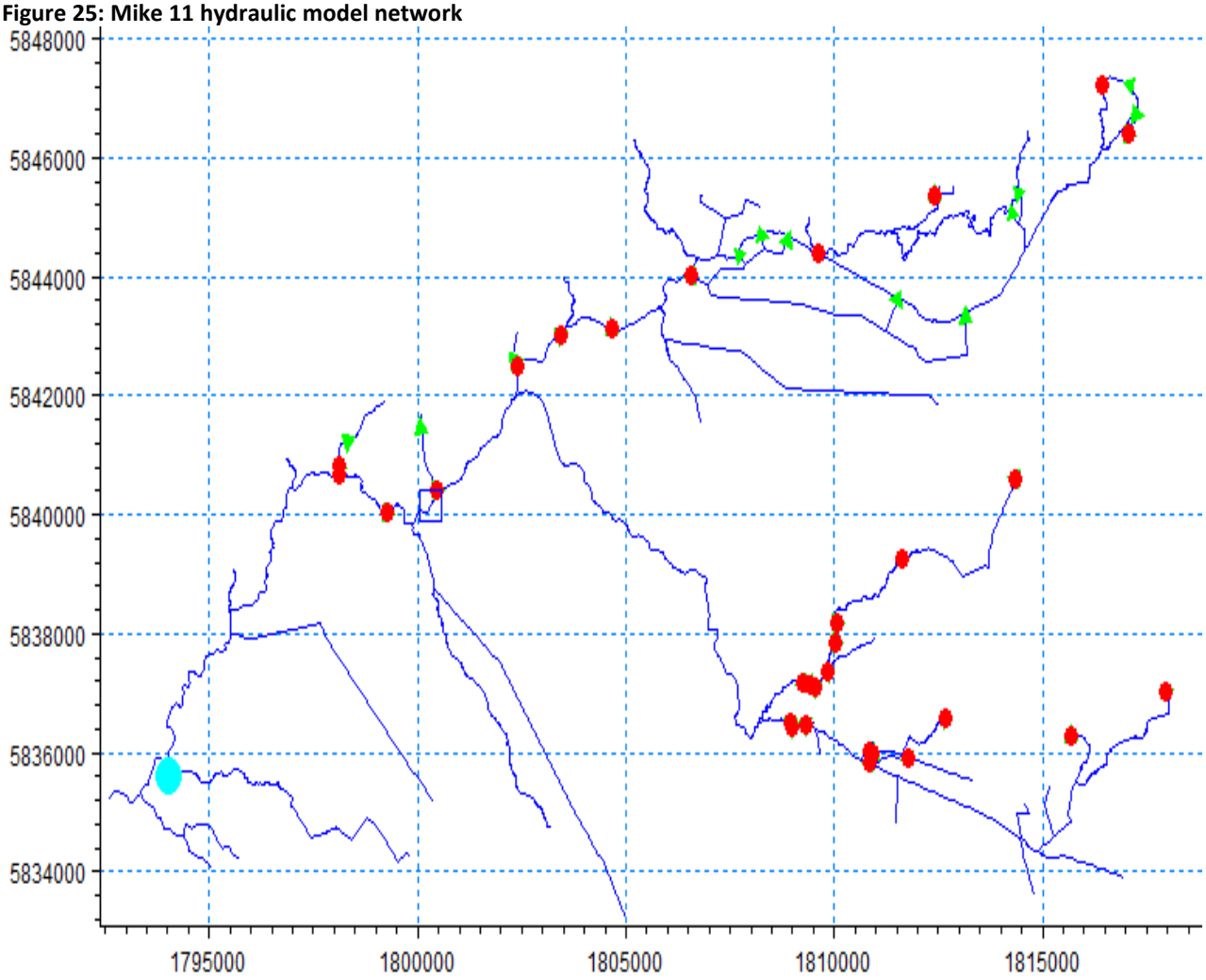
### A3.1.3 Boundary conditions

The boundary conditions for the hydraulic model consist of inflow hydrographs for each of the 101 sub-catchments at the appropriate locations in the model and a downstream boundary condition for water levels at the outlet of Mangawara River to Waikato River.

The inflow hydrographs for the tributary catchments are taken directly from the NAM rainfall-runoff models developed for these catchments.

The hydraulic model setup is in Moturiki vertical datum (EPSG:5162 Vertical datum for New Zealand - North Island)

**Figure 25: Mike 11 hydraulic model network**



### A3.1.4 Simulations

The model simulations have been undertaken for the scenarios set out in **Error! Reference source not found.**

**Table 15: Modelled scenarios**

| Name | Rainfall | Waikato River level | Climate |
|---|---|---|---|
| Continuous Simulation for Calibration.sim11 (June-August 2008, October 2018-August 2019) Continuous Simulation for Calibration 1993-1995 | Maungakawa and Ruakura | Ngaruawahia/Huntly | Current |
| 2yr ARI HIRDSv4 Design Storm | 2 yr ARI | 2 yr ARI | Current |
| 5yr ARI HIRDSv4 Design Storm | 5 yr ARI | 5 yr ARI | Current |
| 10yr ARI HIRDSv4 Design Storm | 10 yr ARI | 10 yr ARI | Current |
| 20yr ARI HIRDSv4 Design Storm | 20 yr ARI | 20 yr ARI | Current |
| 50yr ARI HIRDSv4 Design Storm | 50 yr ARI | 50 yr ARI | Current |
| 100yr ARI HIRDSv4 Design Storm | 100 yr ARI | 100 yr ARI | Current |
| 500yr ARI HIRDSv4 Design Storm | 500 yr ARI | 500 yr ARI | Current |
| 50yrCC RCP6 ARI HIRDSv4 Design Storm | 50 yr ARI | 50 yr ARI CC** | 2101 - 2120 |
| 100yrCC RCP6 ARI HIRDSv4 Design Storm | 100 yr ARI | 100 yr ARI CC** | 2101 - 2120 |
| 50yrCC RCP8.5 ARI HIRDSv4 Design Storm | 50 yr ARI | 50 yr ARI CC** | 2101 - 2120 |
| 100yrCC RCP8.5 ARI HIRDSv4 Design Storm | 100 yr ARI | 100 yr ARI CC** | 2101 - 2120 |

CC** indicate climate change.

A roughness coefficient (Manning's n) of 0.05 was applied within the confines of the main channel in the model cross-section. The channel roughness coefficients for the channel banks and floodplain were obtained by multiplying the main channel roughness by a scaling factor of 1.5.

# Appendix 4: Comparison with the previous model

A brief comparison between the results of the previous hydraulic model and the updated model is given as follows. **Error! Reference source not found.**shows a comparison of design peak discharges at different locations for the original design, the 2009 model, 2014 model and the recent 2020 model. The discharge from the 2020 model is generally lower than the other two models downstream of Paranui Confluence with Mangawara River. Upstream of Paranui Confluence, there are some similarities in the discharges for the three models.

The key reasons for differences in flows are as follows:

a. Rainfall depth across the catchment was different for each model. HIRDS version 3 was used for 2009 and 2014 models and version 4 was used in the 2020 model.
b. The original 1961 design used limited hydrological data which is understood to be much larger events.
c. The 1961 design did not include detention dams.
d. The 2020 model included discharge from 32 floodgates only.
e. The changes in channel cross sections and gradient have changed the timing of flows and has resulted in lower peak flows.

**Table 16: Design peak discharge comparison**

| River/stream | Location | Chainage (m) | Catchment Area ($km^2$) | Design flood (m3/s) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1961 Scheme Design | 2009 Modelled | 2014 Modelled | 2020 Modelled |
| Mangawara (50-year flows) | Komakorau | 885 | 602 | 397 | 530 | 459 | 281 |
| | Rutherfords | 10656 | 369 | 326 | 447 | 357 | 253 |
| | Johnstones | 14356 | 303 | 334 | 459 | 299 | 229 |
| | Sludge Creek | 18616 | 179 | 244 | 252 | 208 | 168 |
| | Head of Canal | 21054 | 167 | 234 | 216 | 202 | 168 |
| | Proctors Bridge | 22443 | 130 | 227 | 210 | 204 | 202 |
| | Paranui Confluence | 25846 | 97 | 187 | 129 | 181 | 170 |
| | Hoe O Tainui | 34230 | 36 | 160 | 28 | 47 | 96 |
| Tauhei (5-year flows) | Mangawara confluence | 0 | 115 | N/A | 107 | 50 | 33 |
| | Mangatea Stream south (D/S) | 10333 | 92 | N/A | 93 | 40 | 22 |
| | Tauhei Rd Bridge | 10649 | | N/A | 55 | 27 | 22 |
| | Eastern Drain | 11770 | 68 | N/A | 40 | 27 | 17 |
| | Special area drain confluence | 12972 | 40 | N/A | 40 | 18 | 16 |
| | Upper Tauhei Drain | 17549 | 25 | N/A | 4 | 17 | 11 |

| River/stream | Location | Chainage (m) | Catchment Area ($km^2$) | Design flood (m3/s) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1961 Scheme Design | 2009 Modelled | 2014 Modelled | 2020 Modelled |
| Mangatea Stream South (5-year) | Tauhei confluence | 0 | 24 | N/A | 43 | 19 | 13 |
| Special area drain (5-year flows) | Tauhei confluence | 0 | 6 | N/A | Nil | 4 | 5 |
| Eastern drain (5-year flows) | Tauhei confluence | 0 | 26 | N/A | 15 | 11 | 5 |

The 2014 and 2020 model water level profiles for the Mangawara River from the Waikato River confluence to Hoe-O-Tainui are shown in **Error! Reference source not found.**.
In general, the 2020 design flood levels have some similarities with the 2014 flood levels from the Waikato River up to the Paranui Confluence at Jefferis Bridge. Above this point, the current flood levels are lower than those established in 2014. This is mainly attributed to changes in the riverbed, as the 2014 model was based on old cross-sections. It should be noted that immediately upstream of Jefferis Bridge, significant excavations, channel widening, and riverbank lowering was undertaken in 2018 due to historic restriction at the confluence of Paranui Drain with the Mangawara River. The benefits of these works are reflected in the model as significant lowering in flood levels upstream of Jefferis Bridge.

A comparison graph of the Mangawara River observed maximum spot water levels and modelled flood levels in July/August 2008 is shown in
. The degradation trend of Mangawara River upstream (refer to **Error! Reference source not found.**) were taken into consideration when the current scheme review hydraulic model was calibrated.

**Figure 26: Mangawara River: Comparisons of current 50yr ARI 2014 vs 2020 Modelled flood levels including 50yr ARI with climate change for RCP6.0**

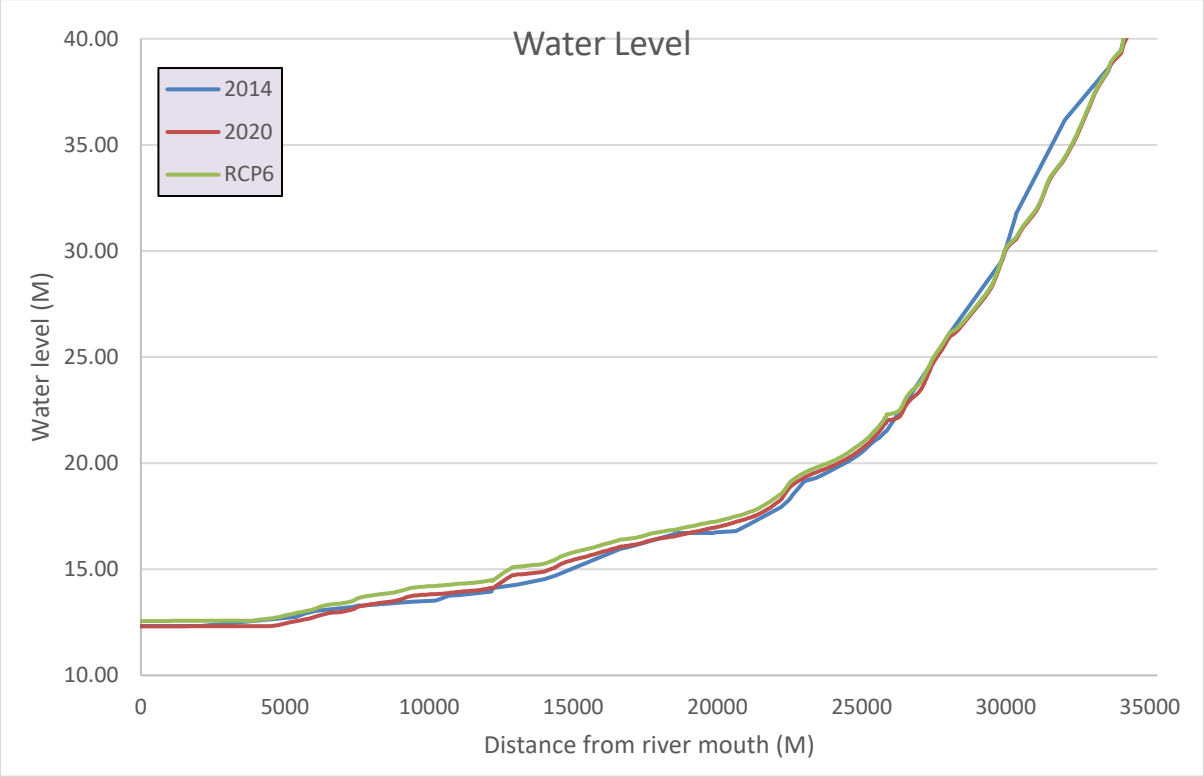



**Figure 27: Mangawara River: Channel profile level comparison for current and previous hydraulic model**

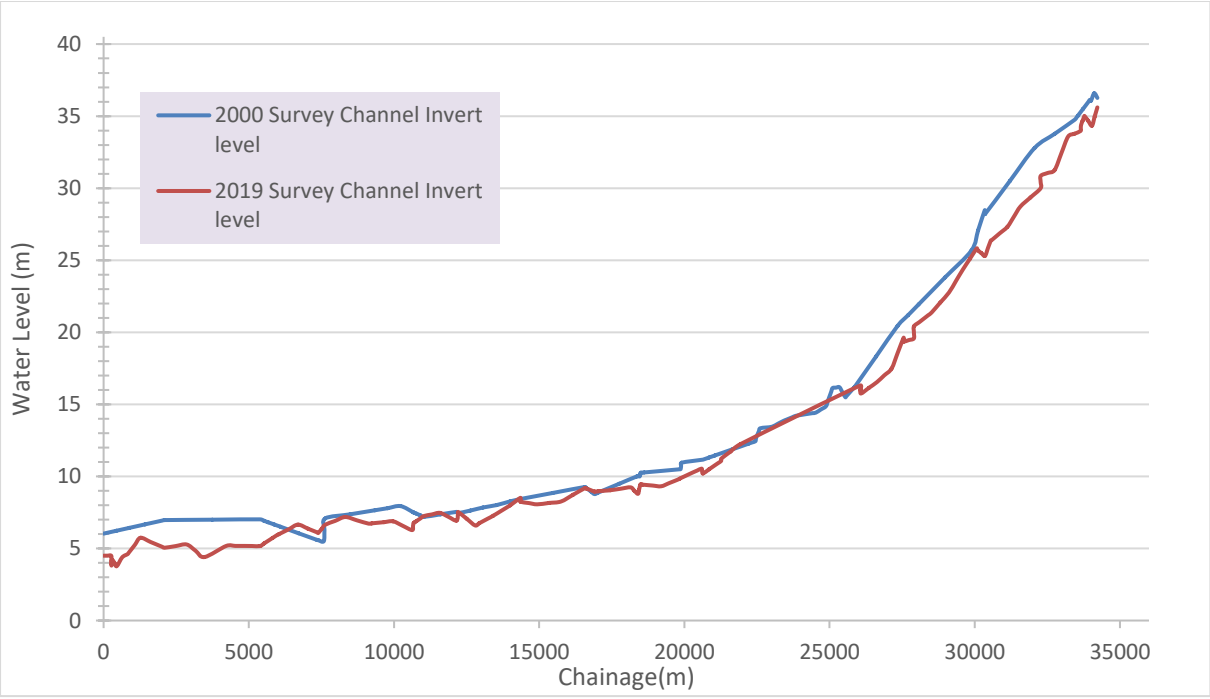


**Figure 28: Mangawara River: observed and modelled flood levels July/August 2008**

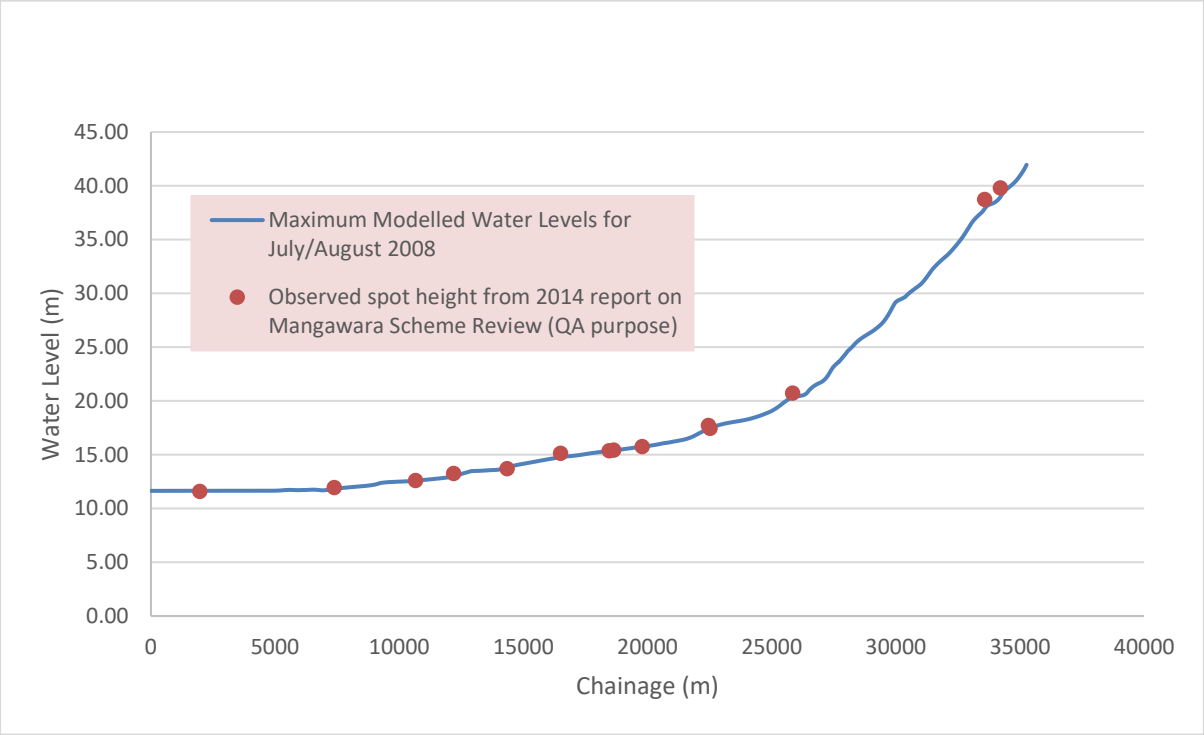
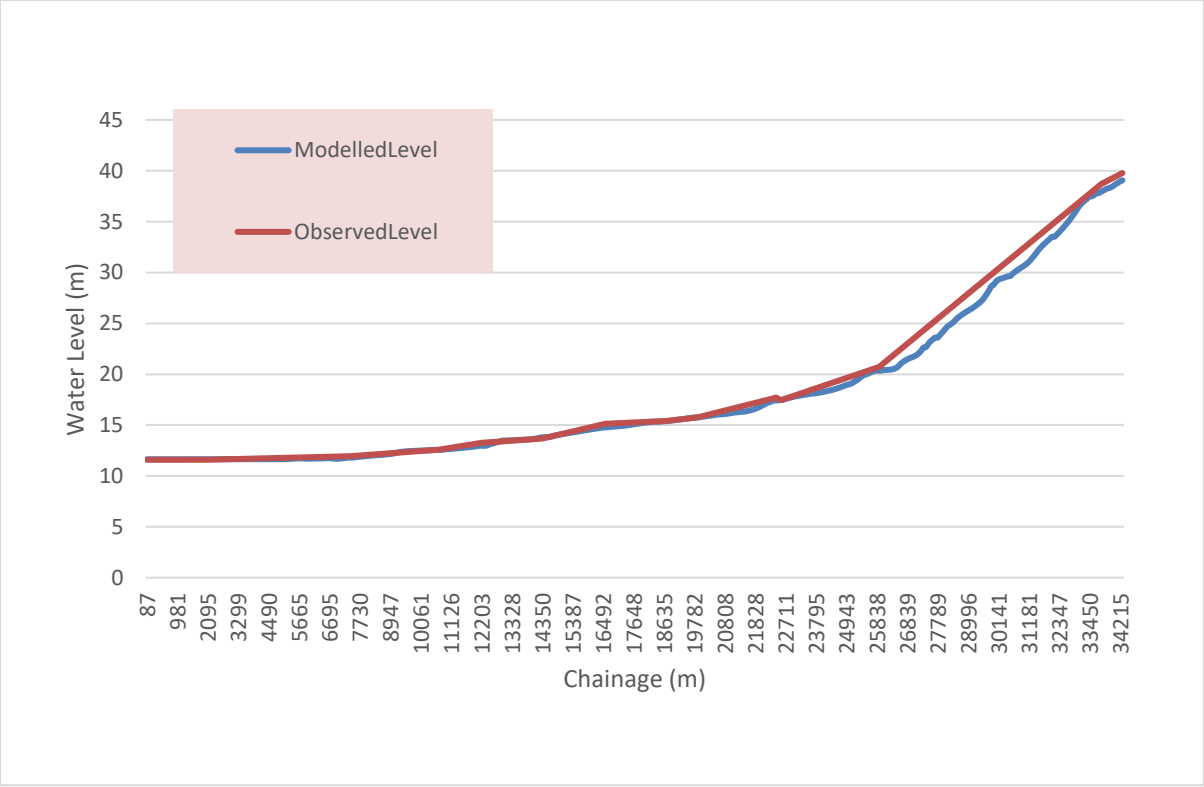



**Figure 29: Mangawara River: Interpolated observed and modelled flood level Correlation Coefficient is 0.998 and the coefficient of determination R2 is 0.996**



# Appendix 5: Longitudinal section plots

**Figure 30: Compartment 1 Stopbank**

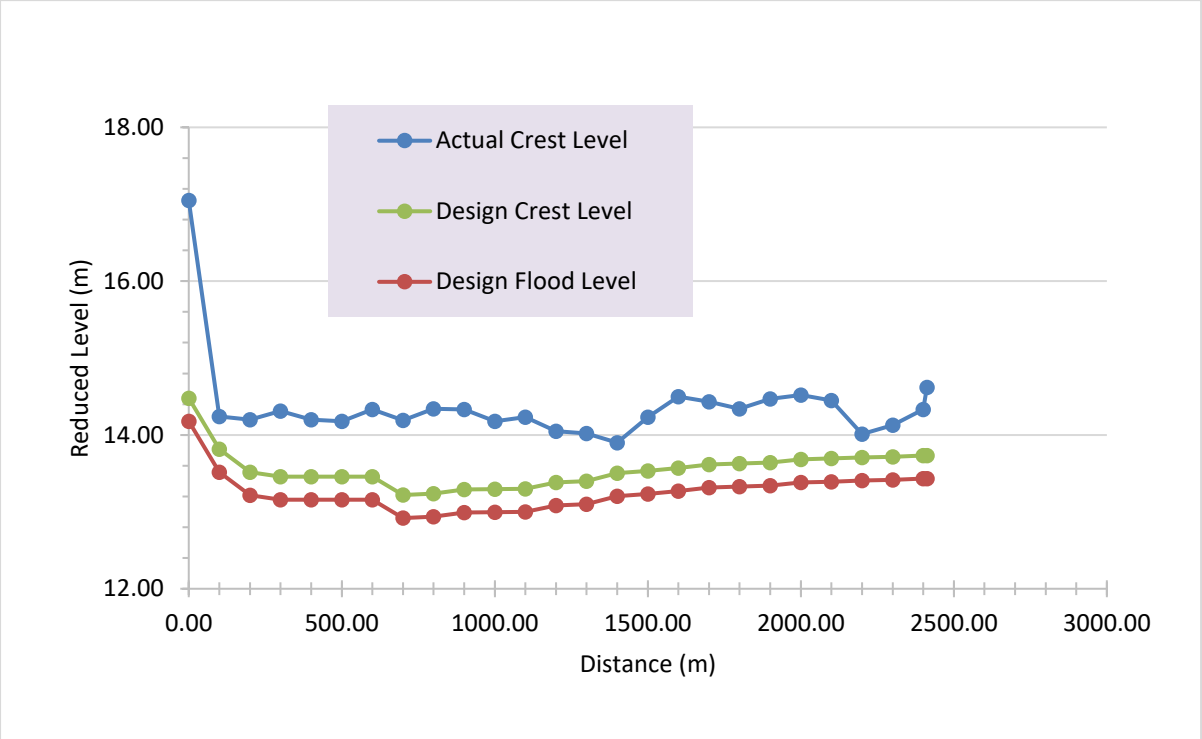



**Figure 31: Compartment 2 Mangawara River Peacocks (Section 1- McConnel Bridge SB)**

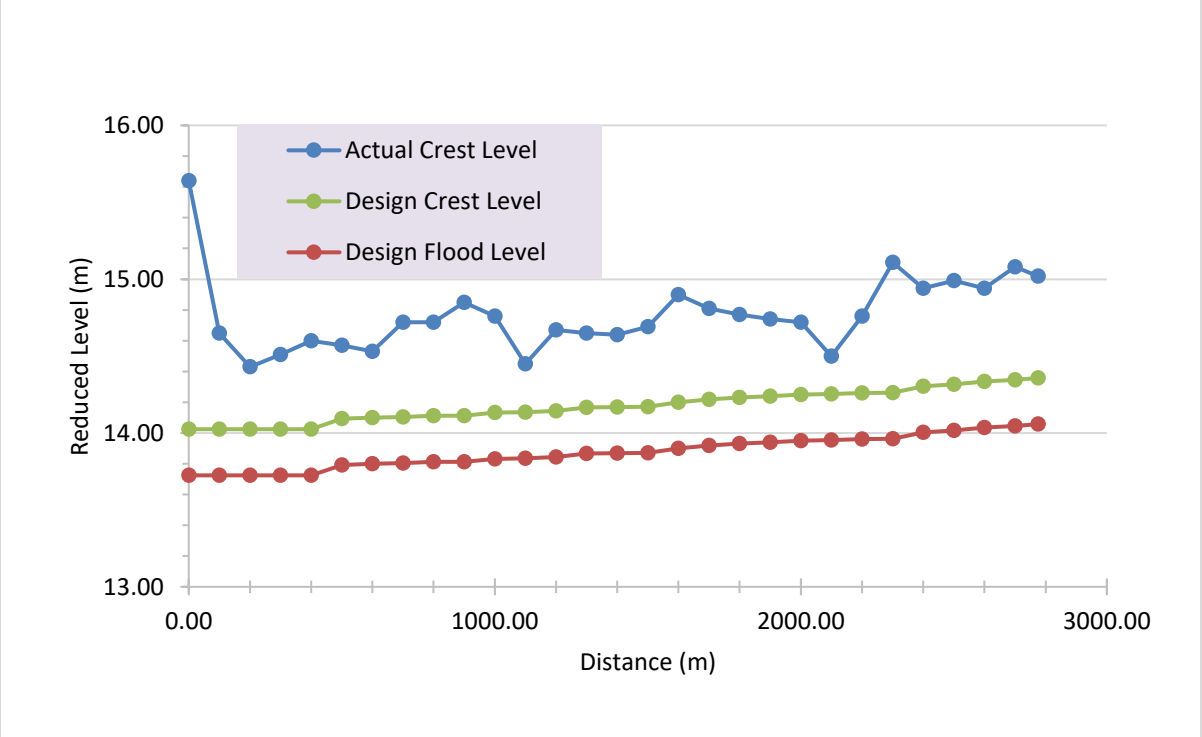


**Figure 32: Compartment 2 Mangawara River (Section 2-McConnel Bridge - Thomas SB)**

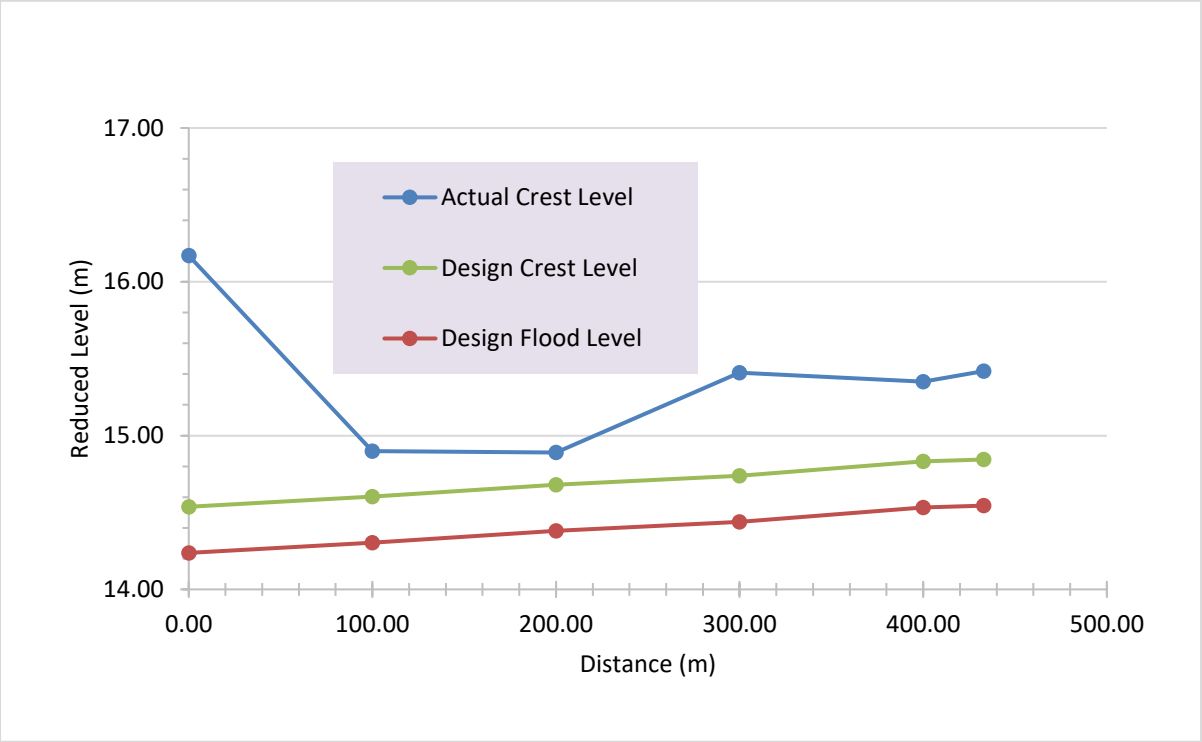



**Figure 33: Compartment 2 Rutherfords Drain LB SB (Downstream)**

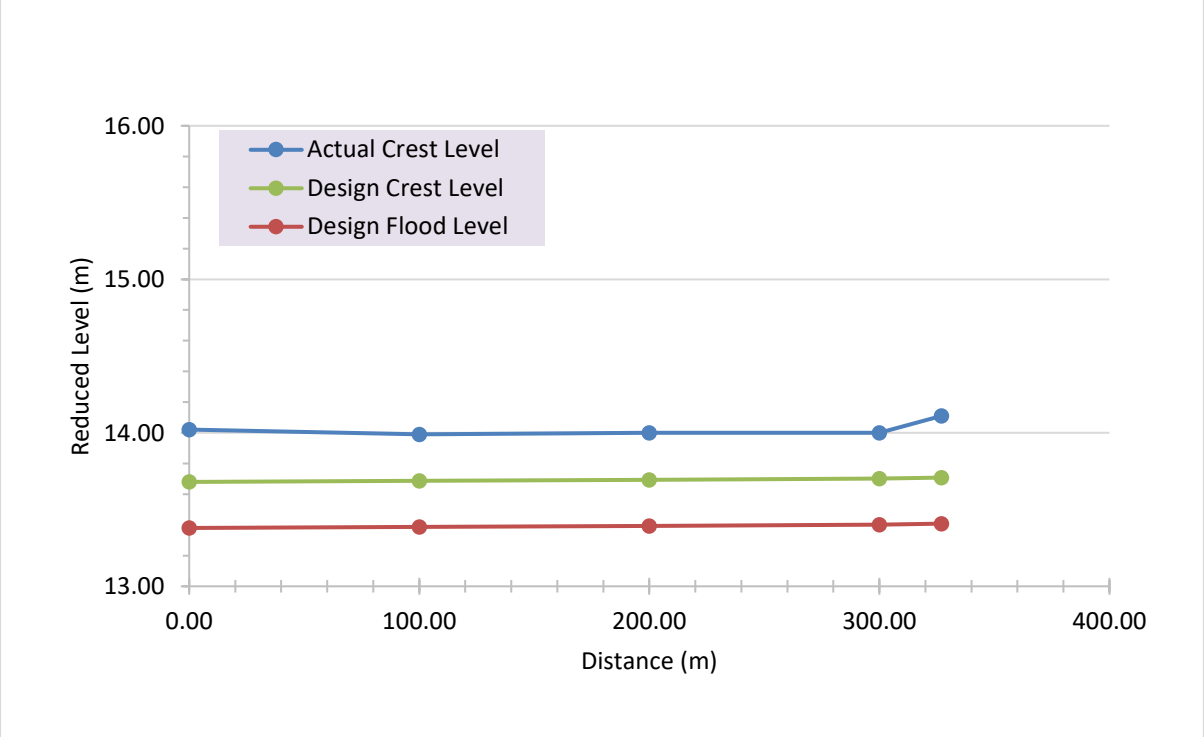


**Figure 34: Compartment 2 Rutherfords Drain RB SB (Middle Section)**

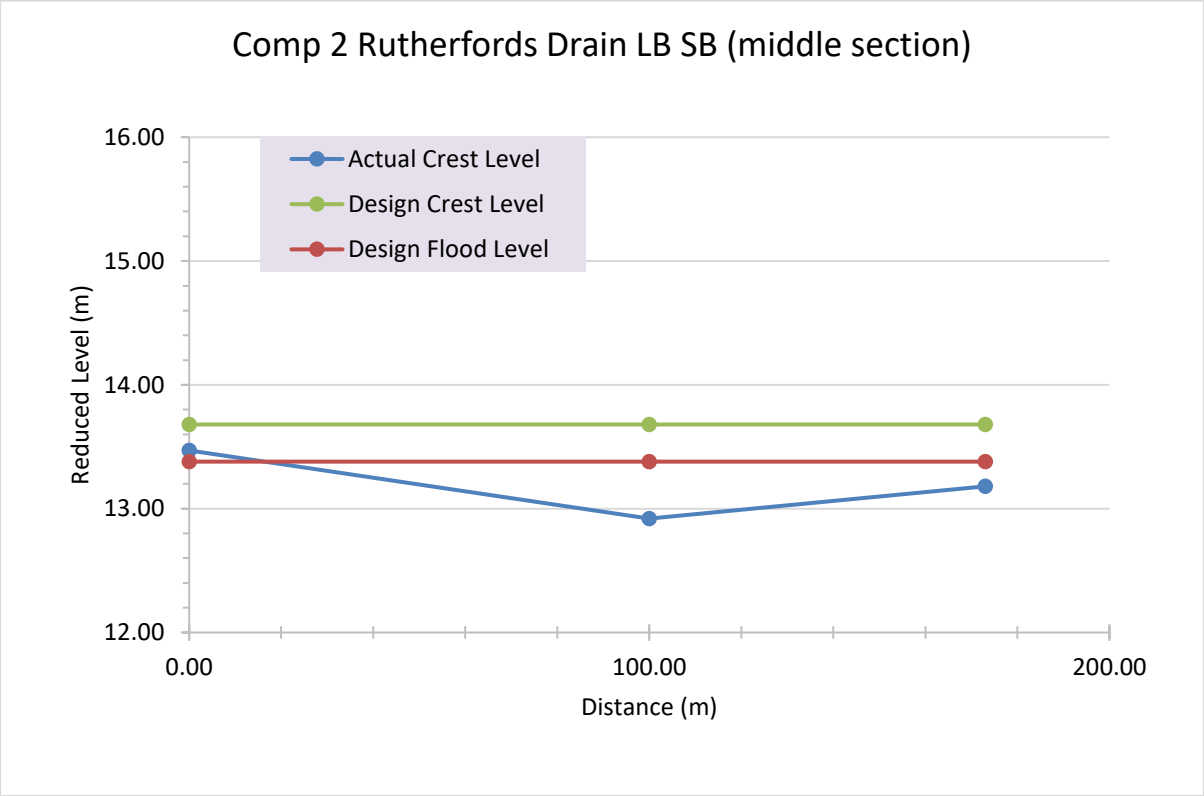



**Figure 35: Compartment 2 Rutherfords Drain LB SB (Upstream)**

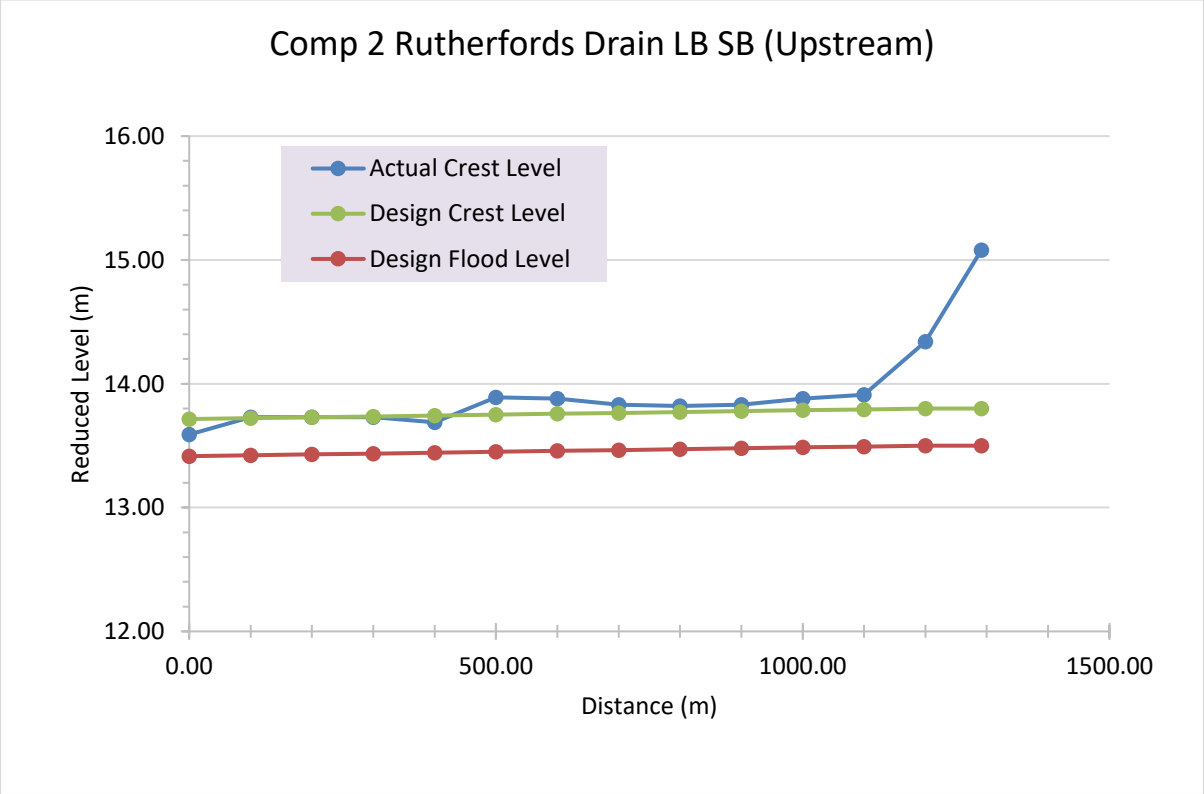


**Figure 36: Compartment 2 Te Mimiha Swamp SB**

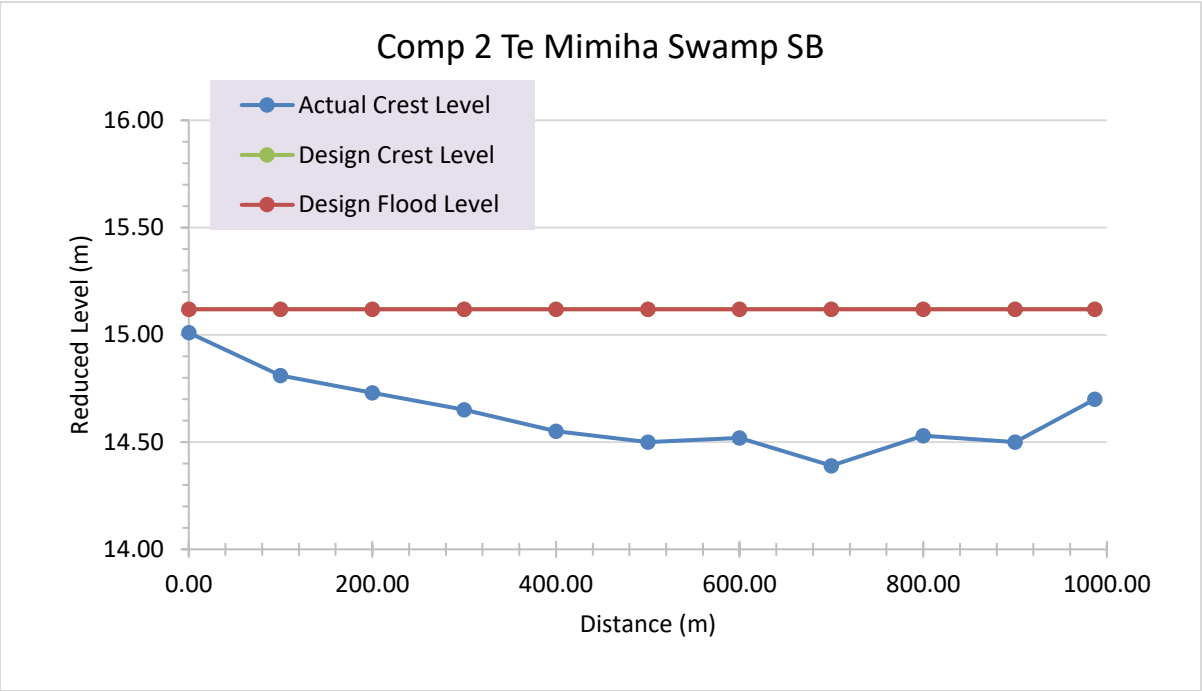



**Figure 37: Compartment 3 Mangawara River SB**

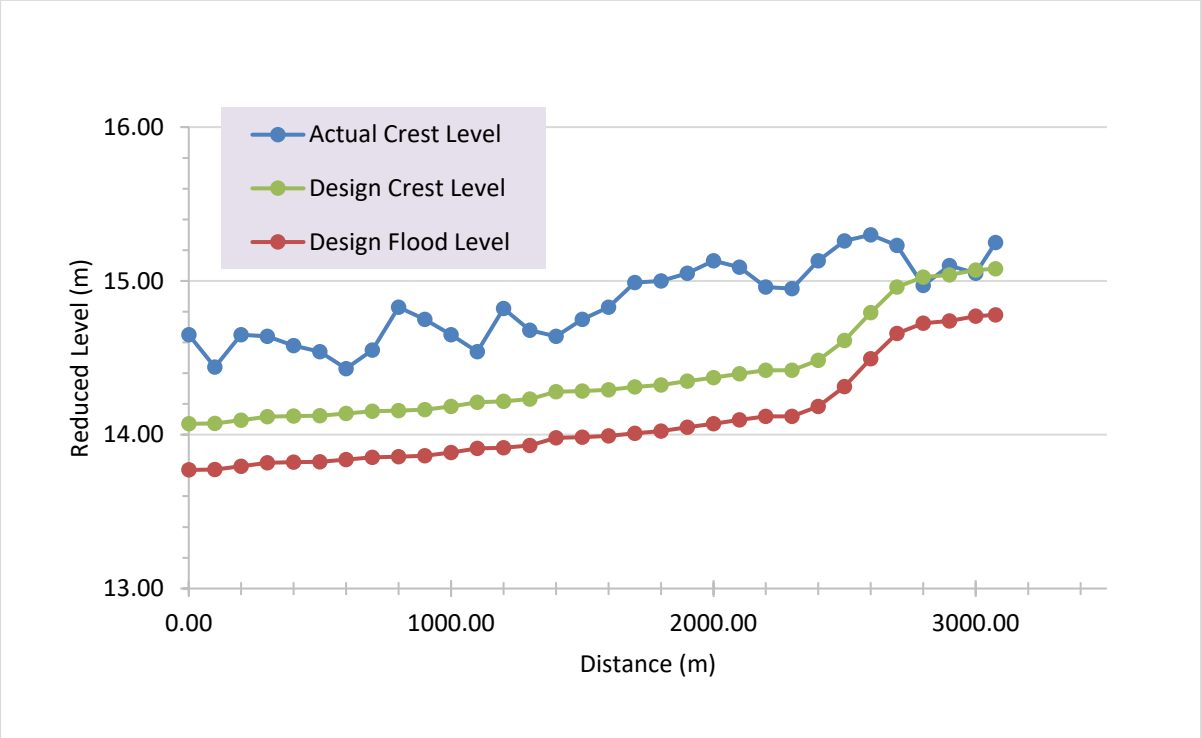


**Figure 38: Compartment 3 Ten Foot Drain LB SB**

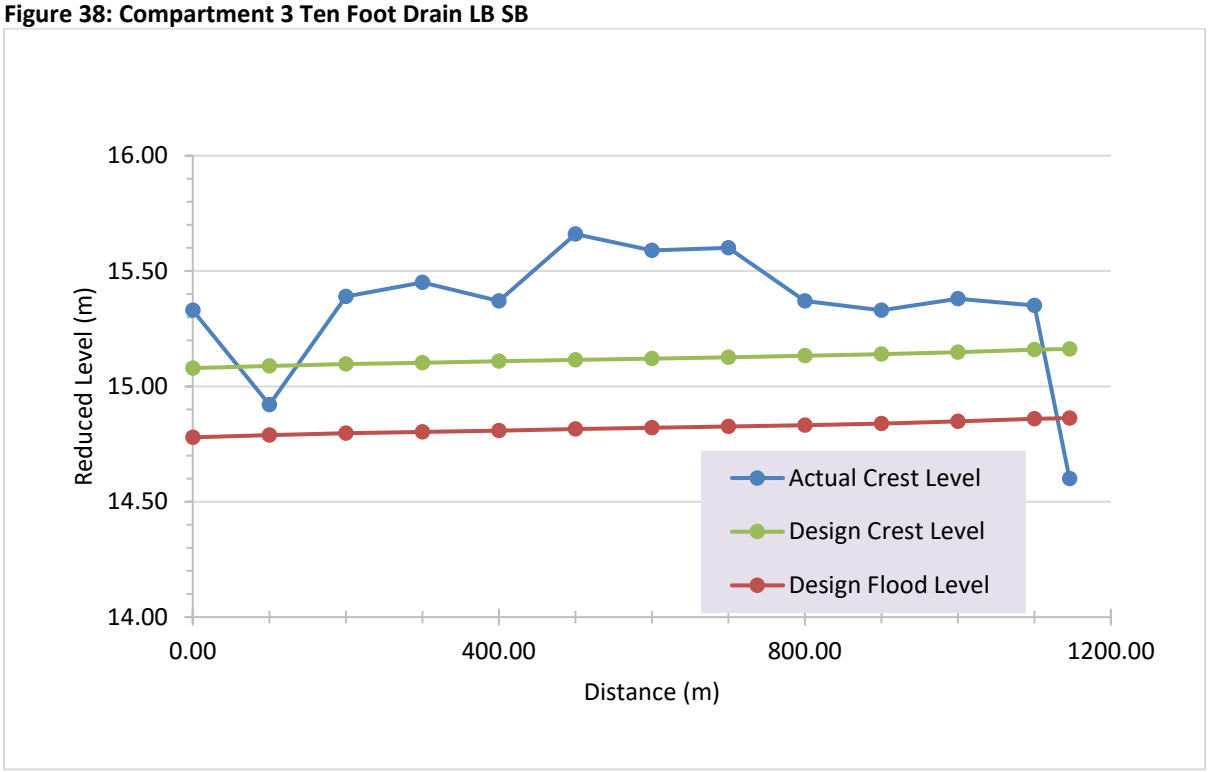



**Figure 39: Compartment 3 Henrys Creek LB SB**

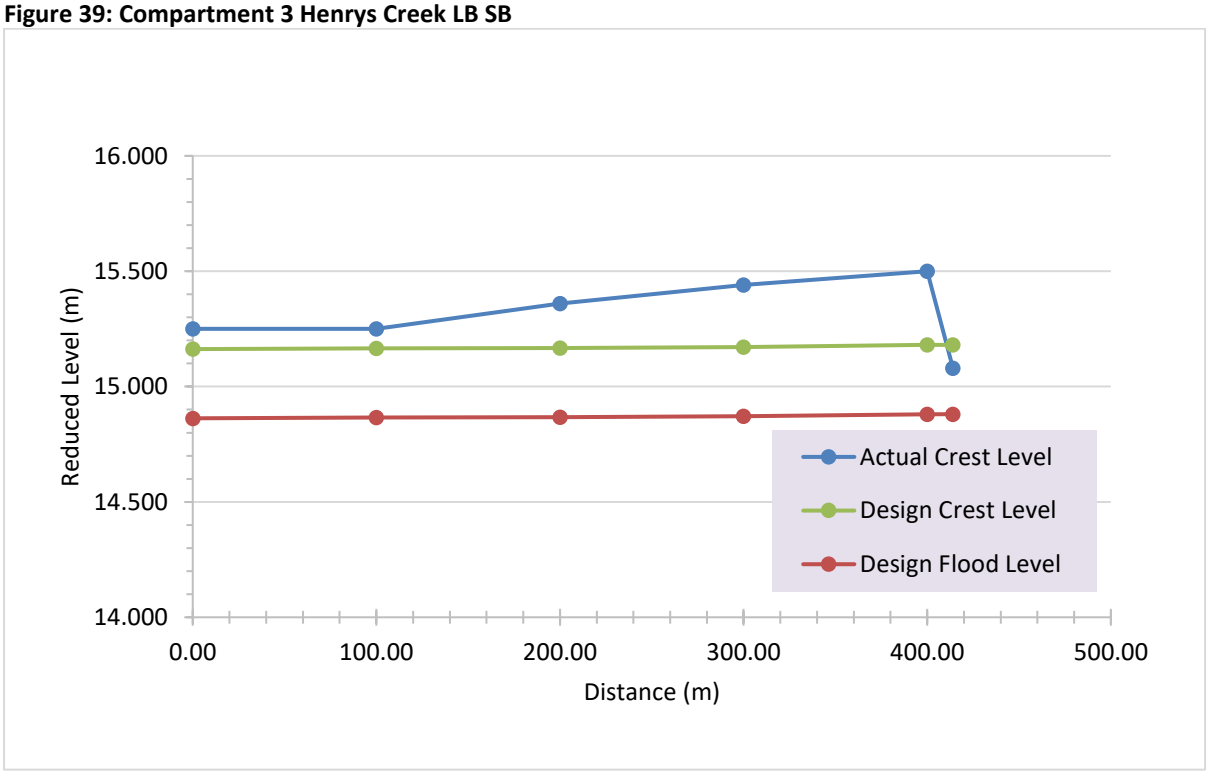


**Figure 40: Compartment 4 Ten Foot Drain RB SB**

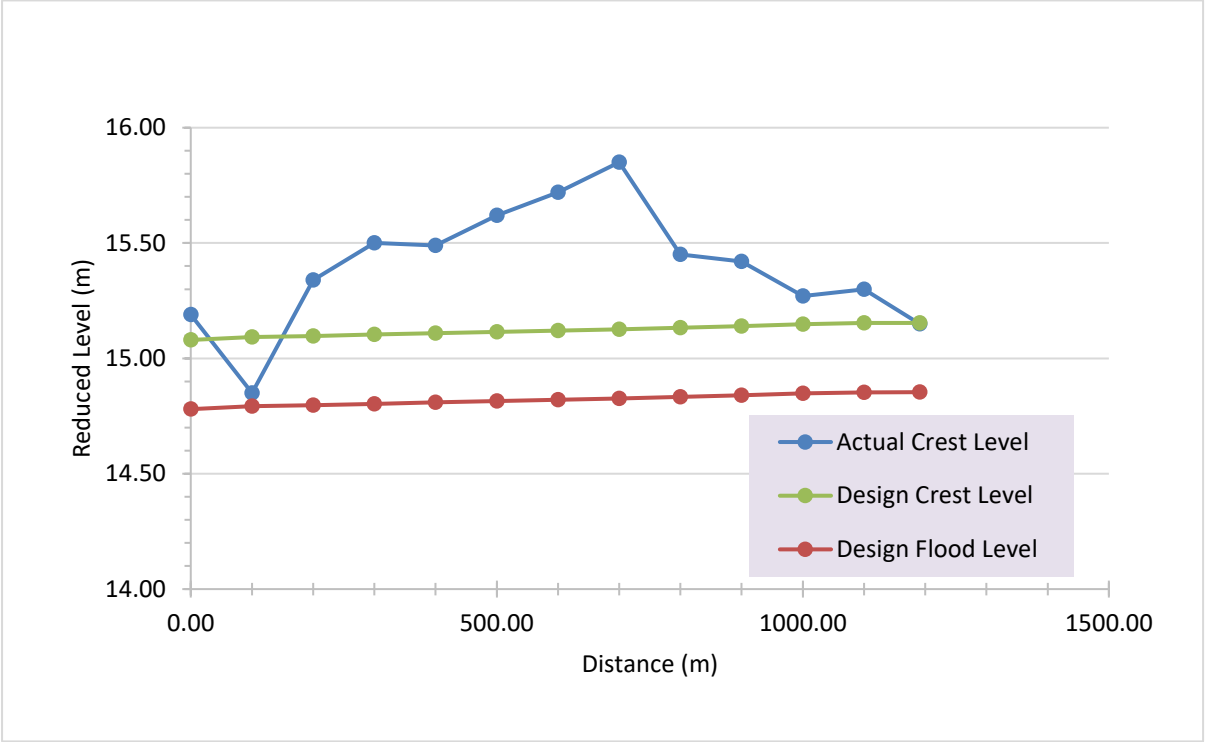



**Figure 41: Compartment 4 Mangawara River LB SB**

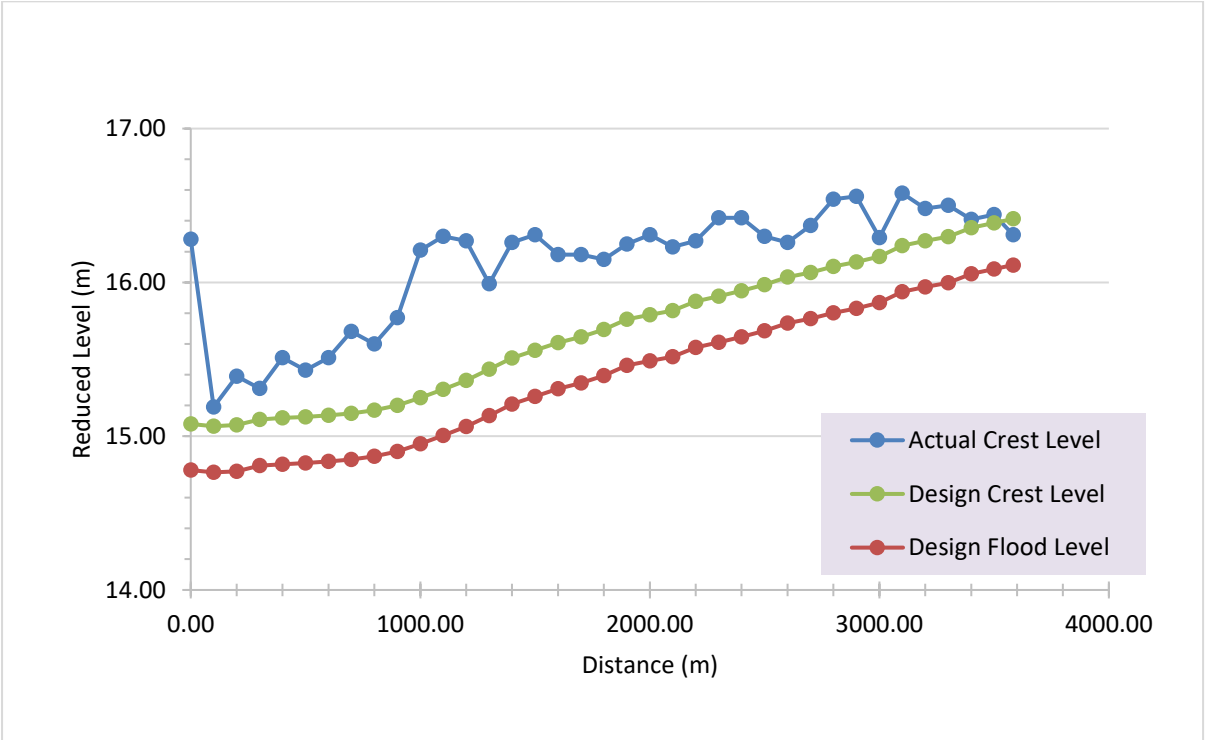


**Figure 42: Compartment 4 Tauhei Diversion LB SB**

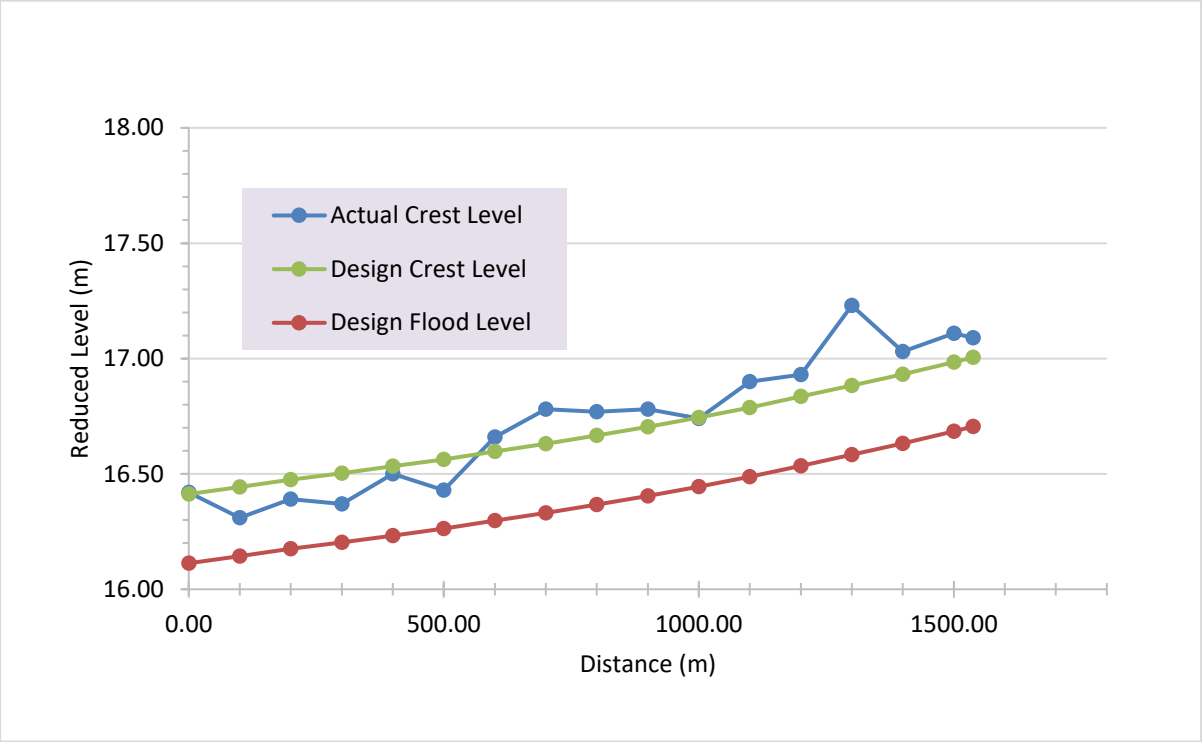



**Figure 43: Compartment 4 Henrys Creek RB SB**

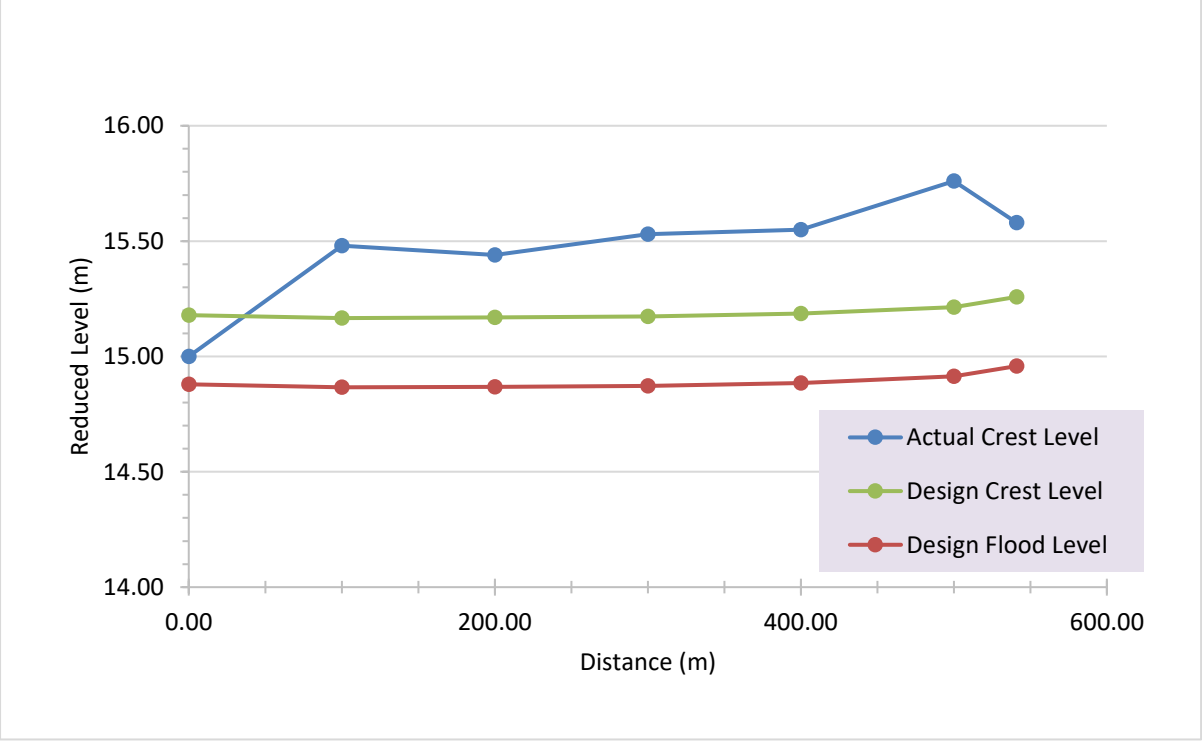


**Figure 44: Compartment 4 Ten Foot Drain RB U/S SB**

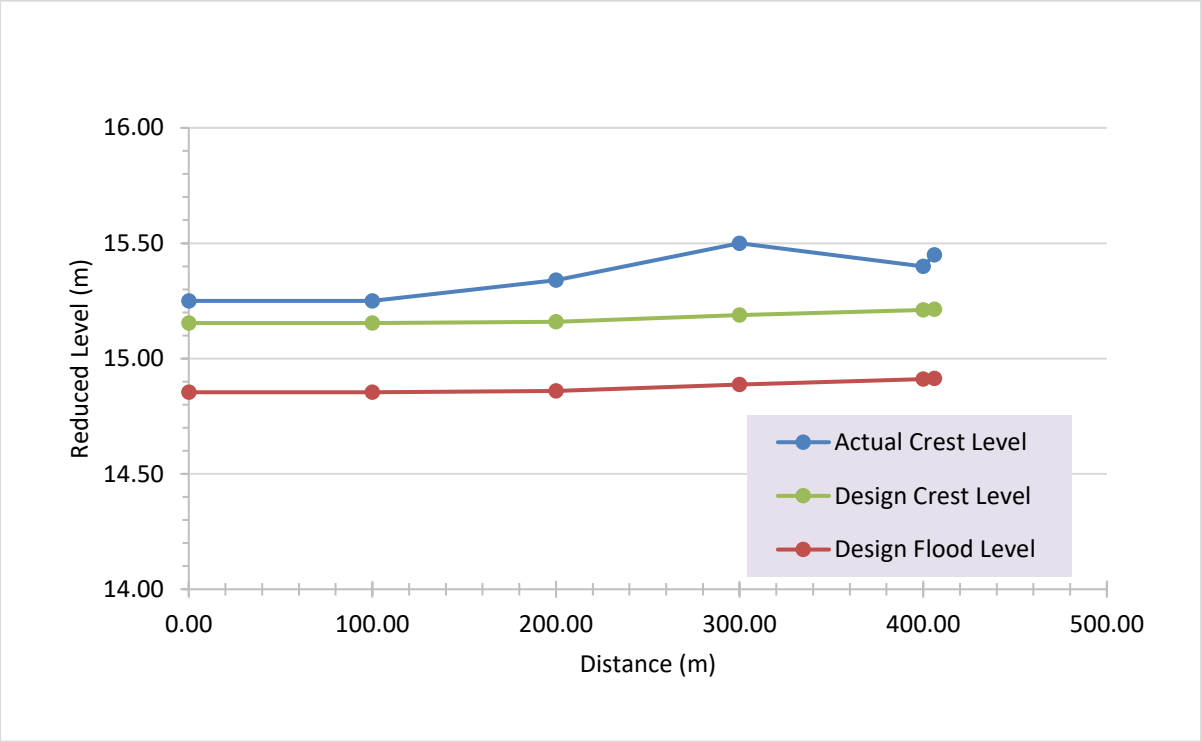



**Figure 45: Compartment 5 Mangawara River RB SB**

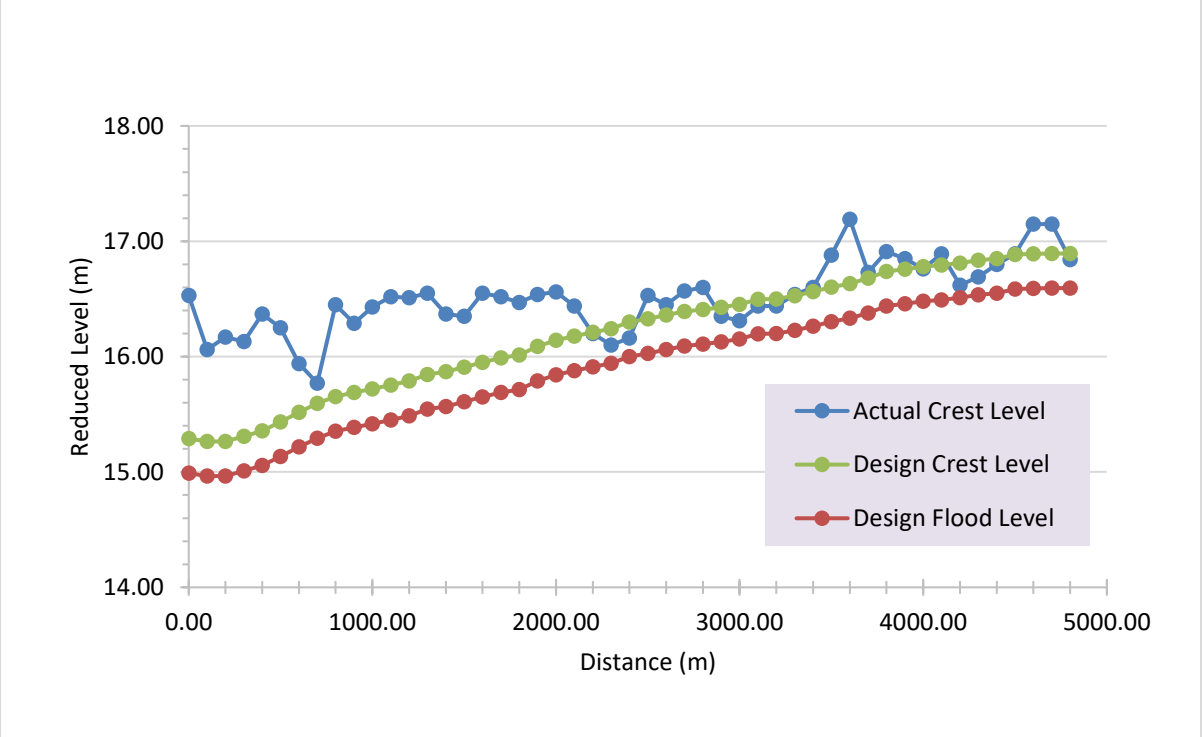


**Figure 46: Compartment 5 Sludge Creek RB SB**

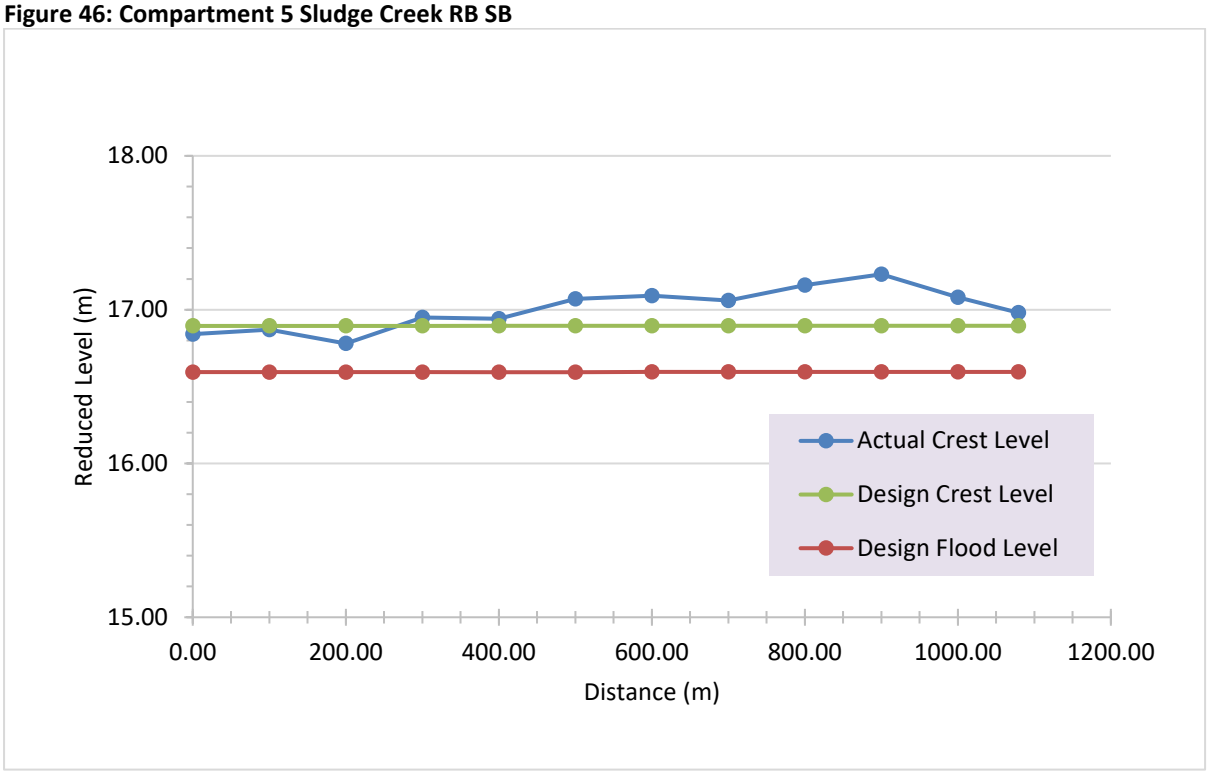



**Figure 47: Compartment 5 Henrys Remedial Outlet Drain LB SB**

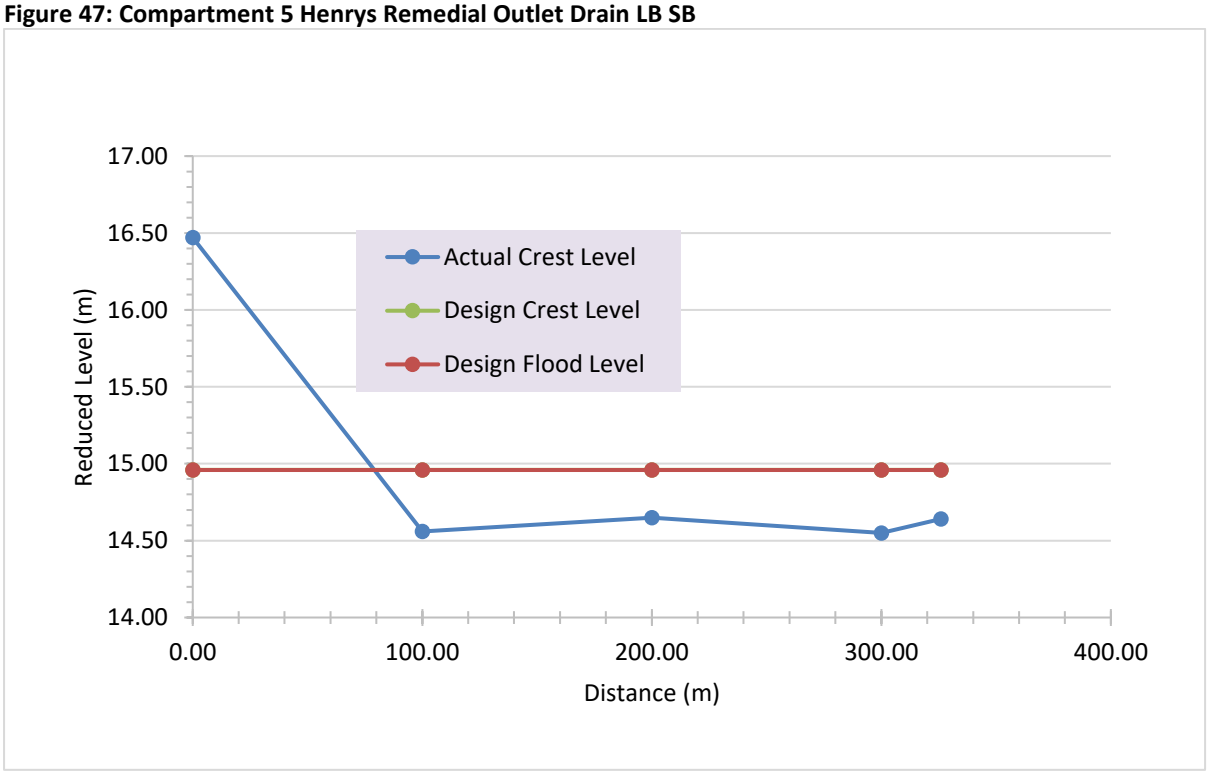


**Figure 48: Compartment 5 Henrys Remedial Outlet Drain RB SB**

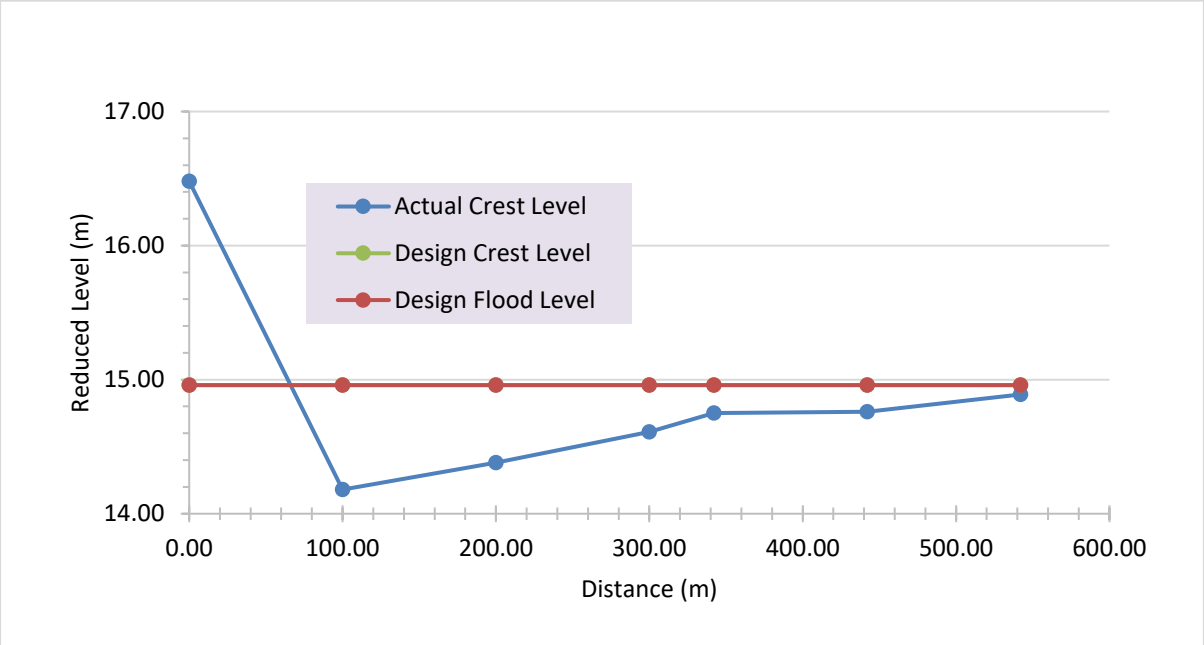



**Figure 49: Compartment 5 Te Mimiha Swamp Outlet Drain LB SB**

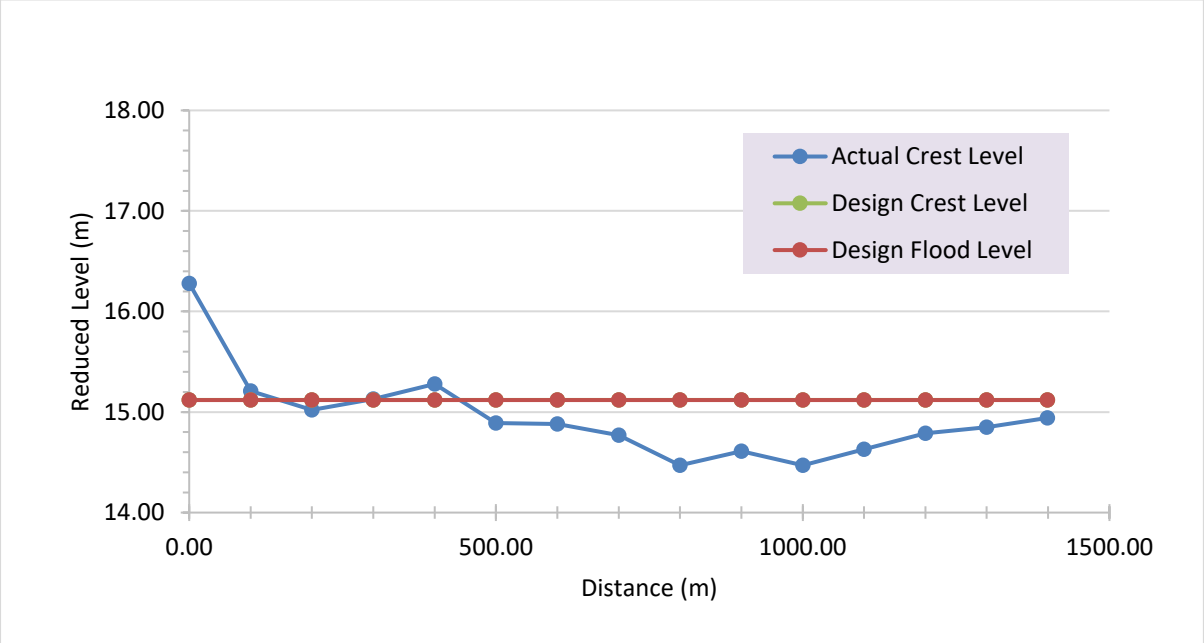


**Figure 50: Compartment 6 Tauhei Diversion RB SB**

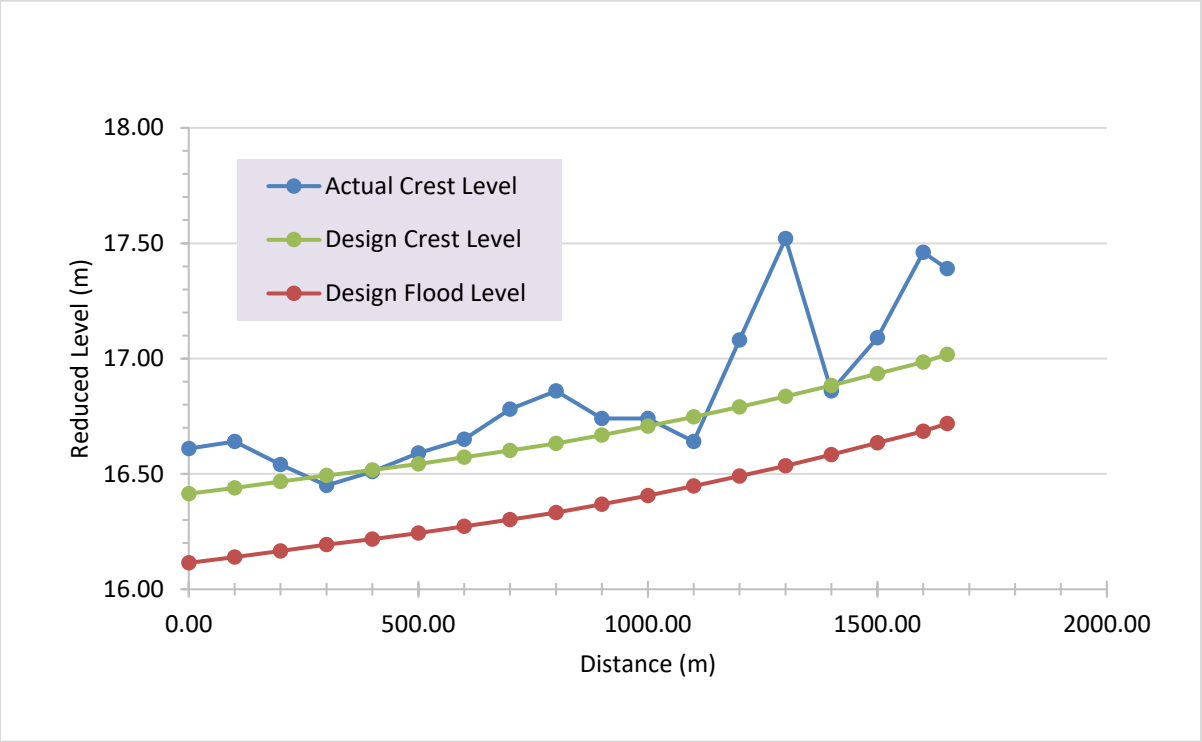



**Figure 51: Compartment 6 Mangawara River LB SB**

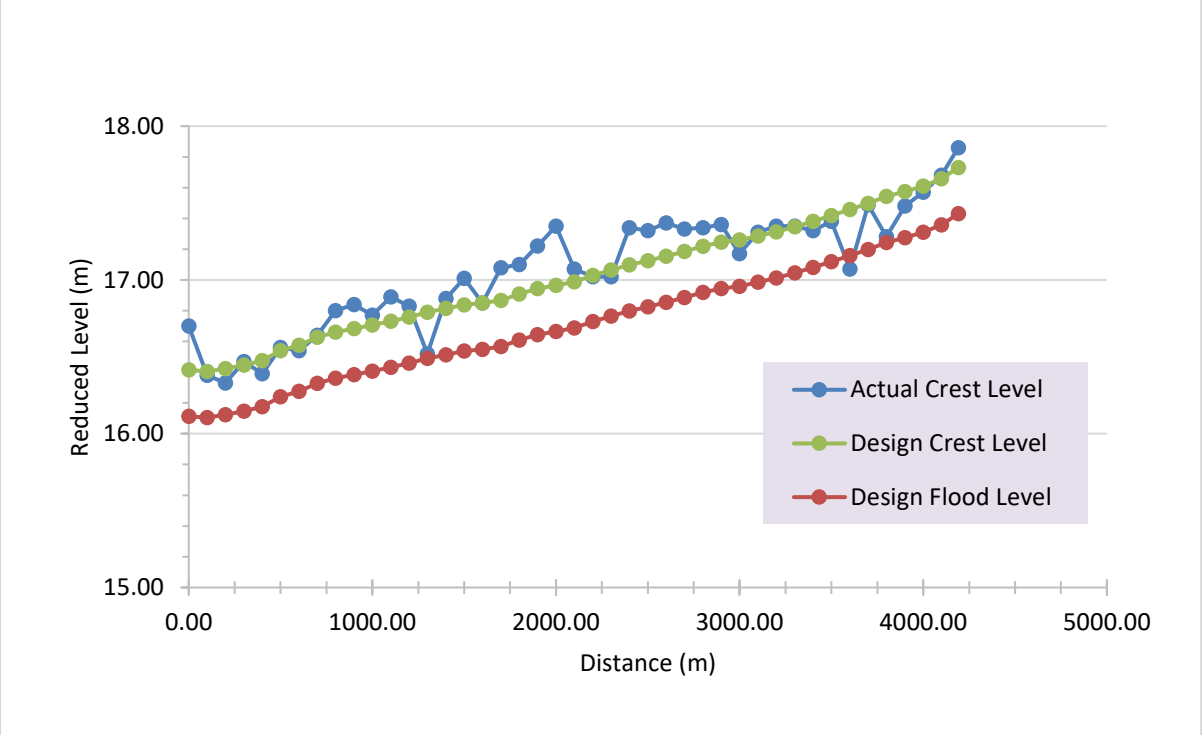


**Figure 52: Compartment 6 Murchie Drain LB SB**

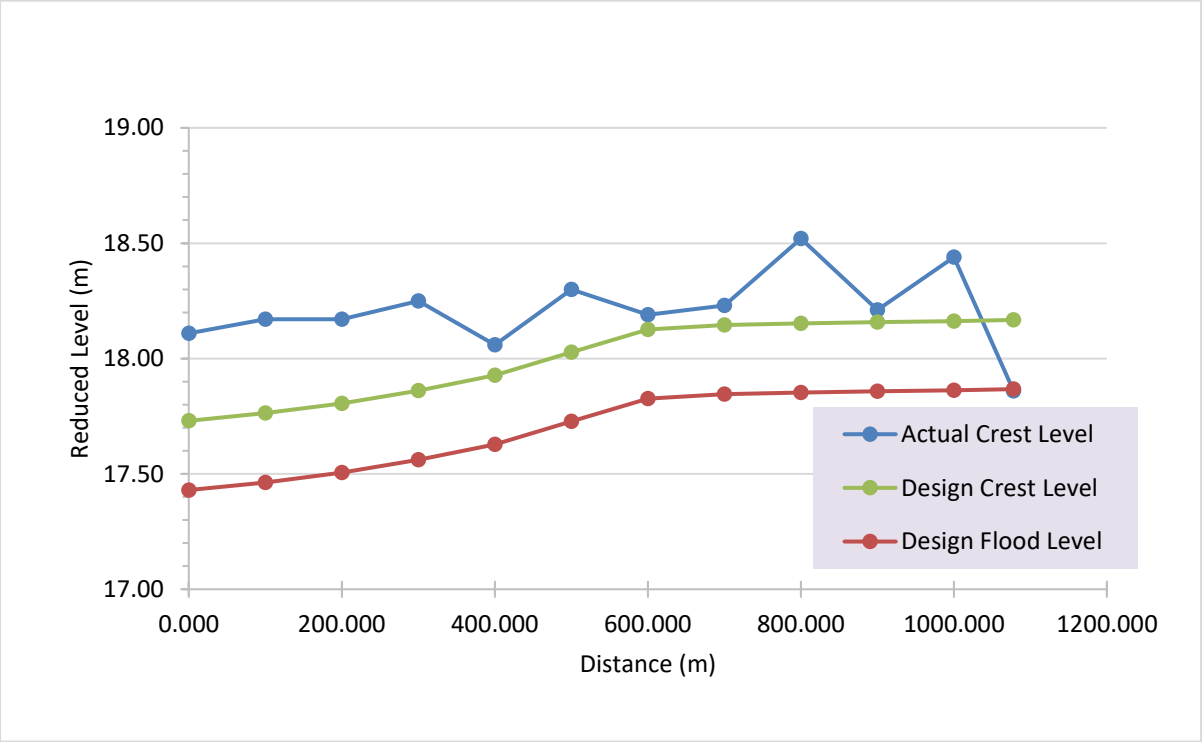



**Figure 53: Compartment 7 Mangawara River RB SB**

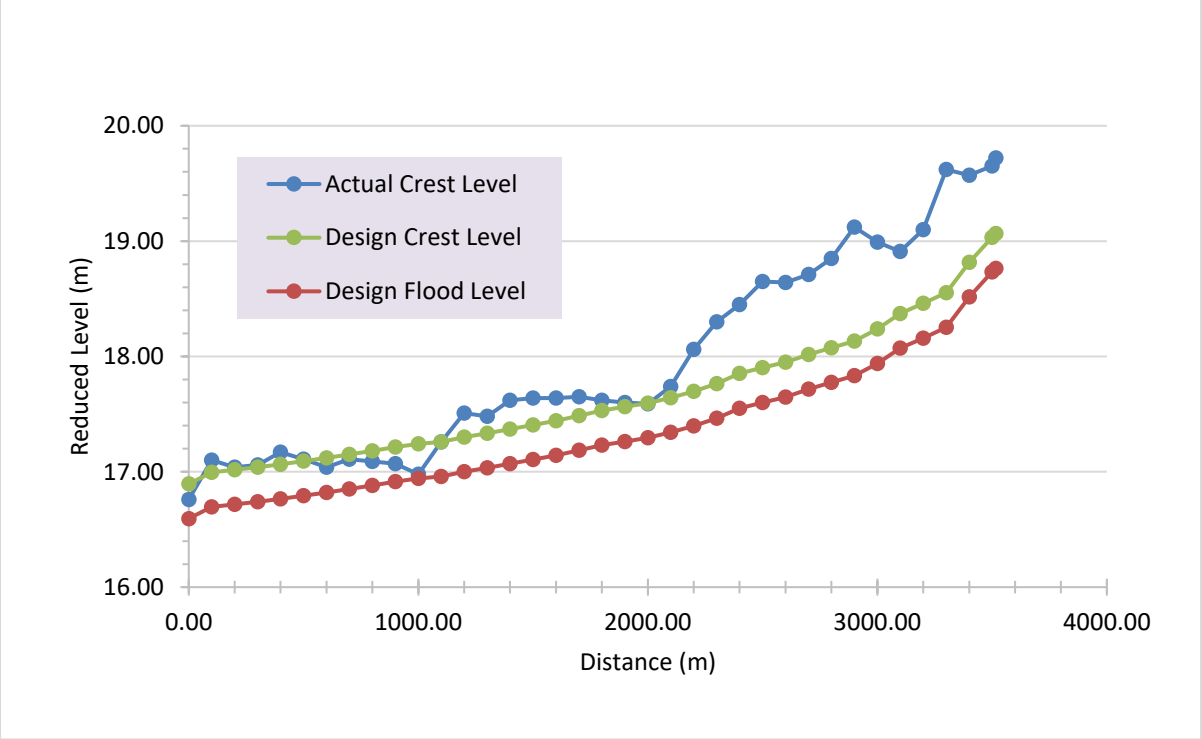


**Figure 54: Compartment 7 Sludge Creek LB SB**

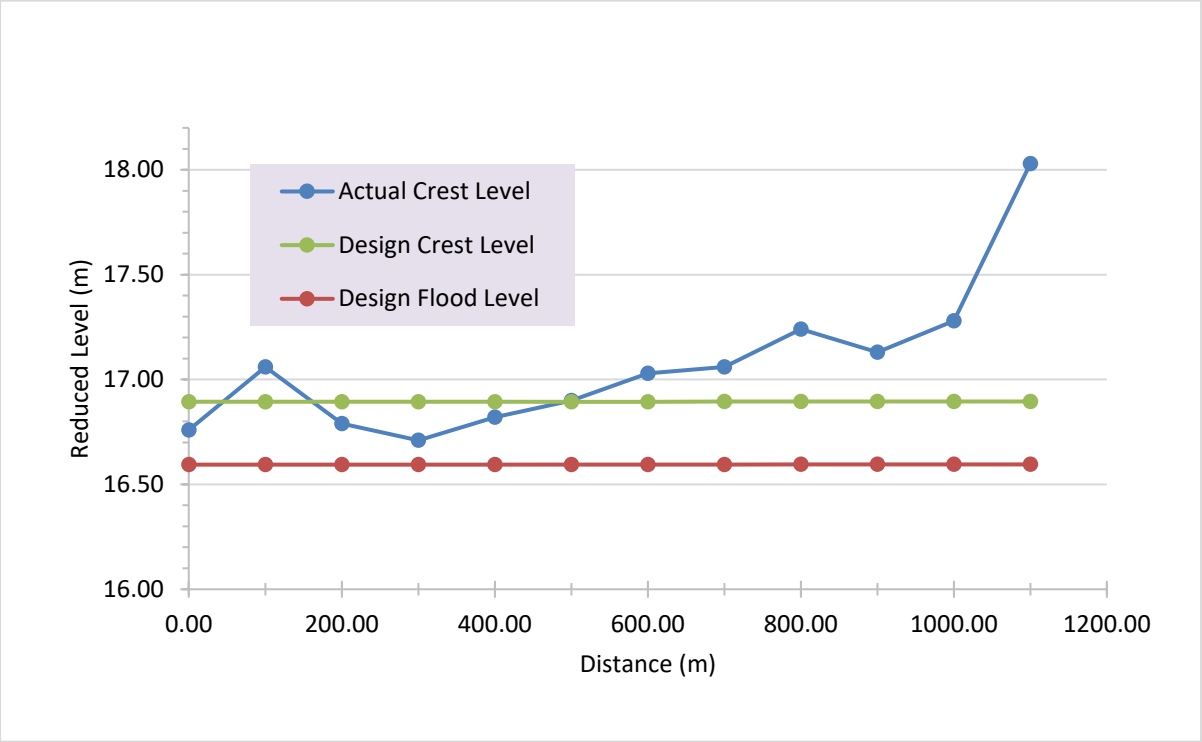



**Figure 55: Compartment 7 Mangatea Stream RB SB**

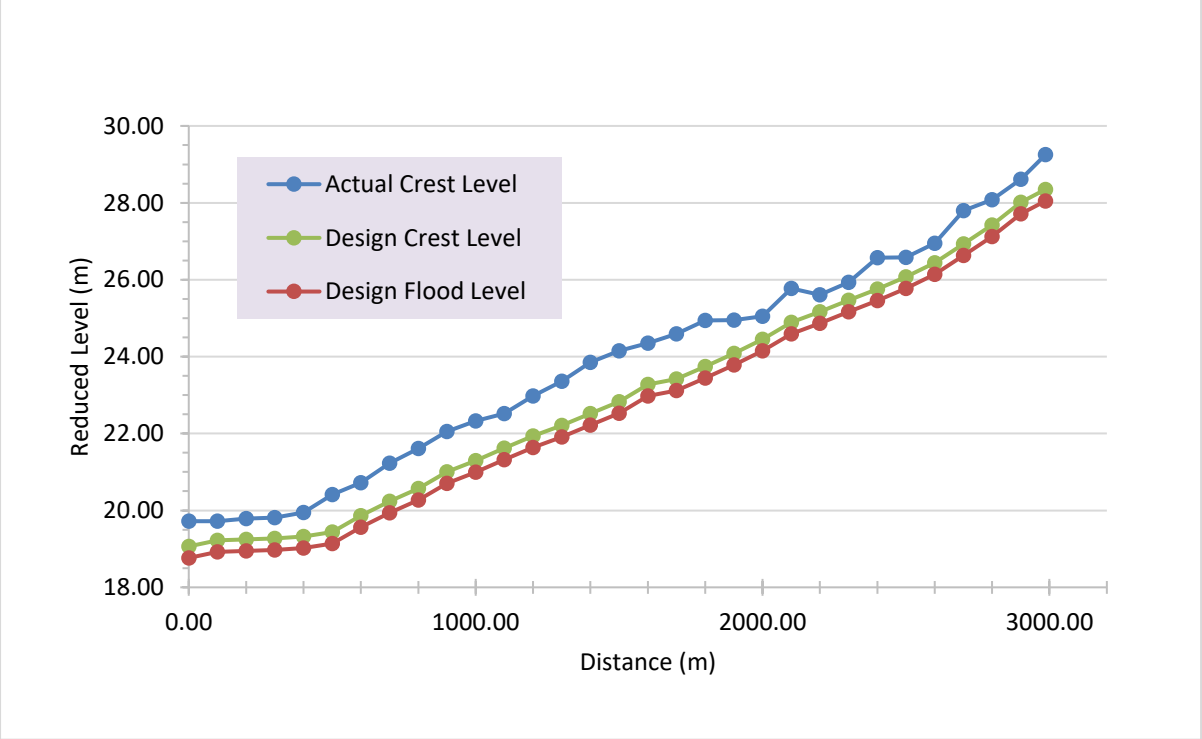


**Figure 56: Compartment 8 Mangatea Stream LB SB**

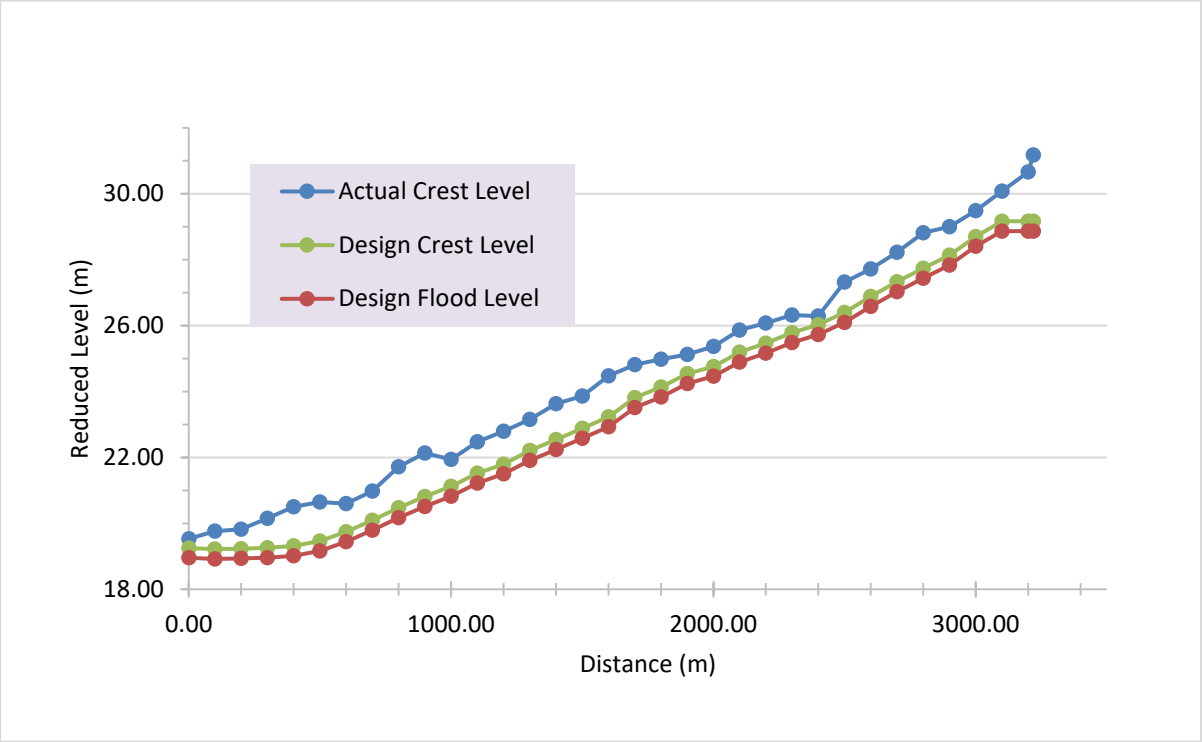



**Figure 57: Compartment 8 Mangawara River LB SB**

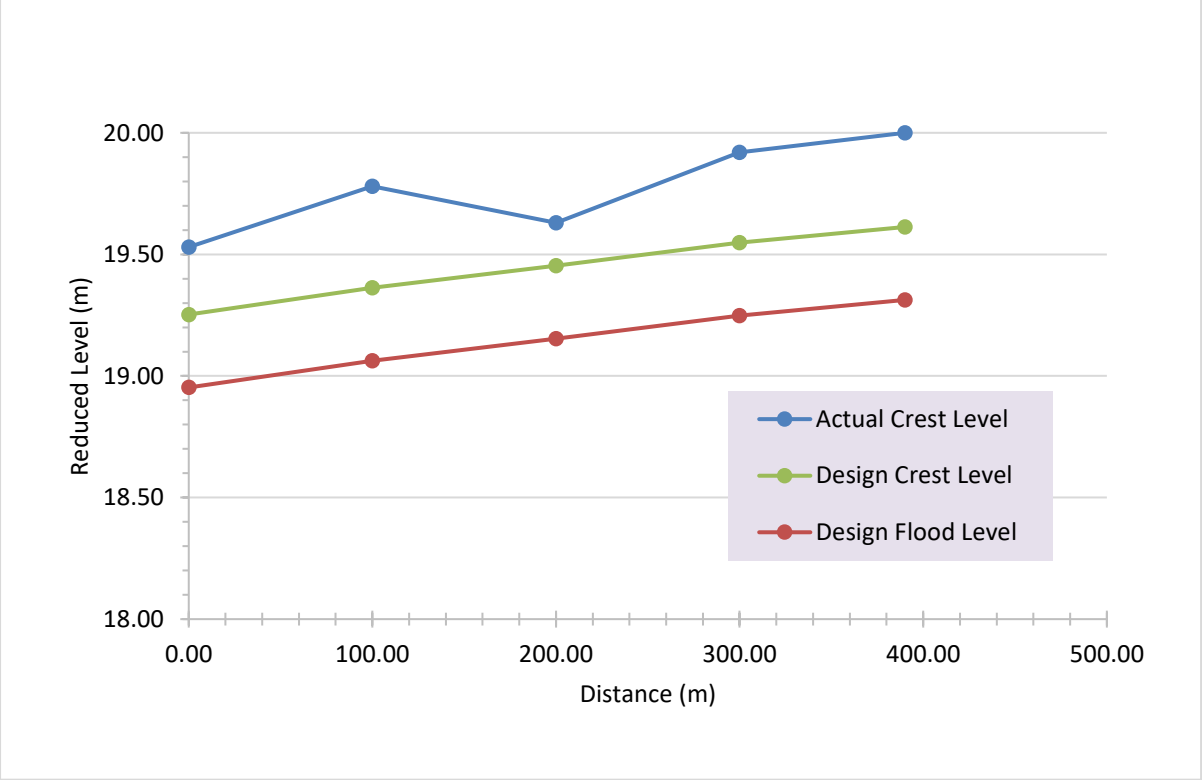


**Figure 58: Compartment 8 Orchard Drain/Western Cutoff SB**

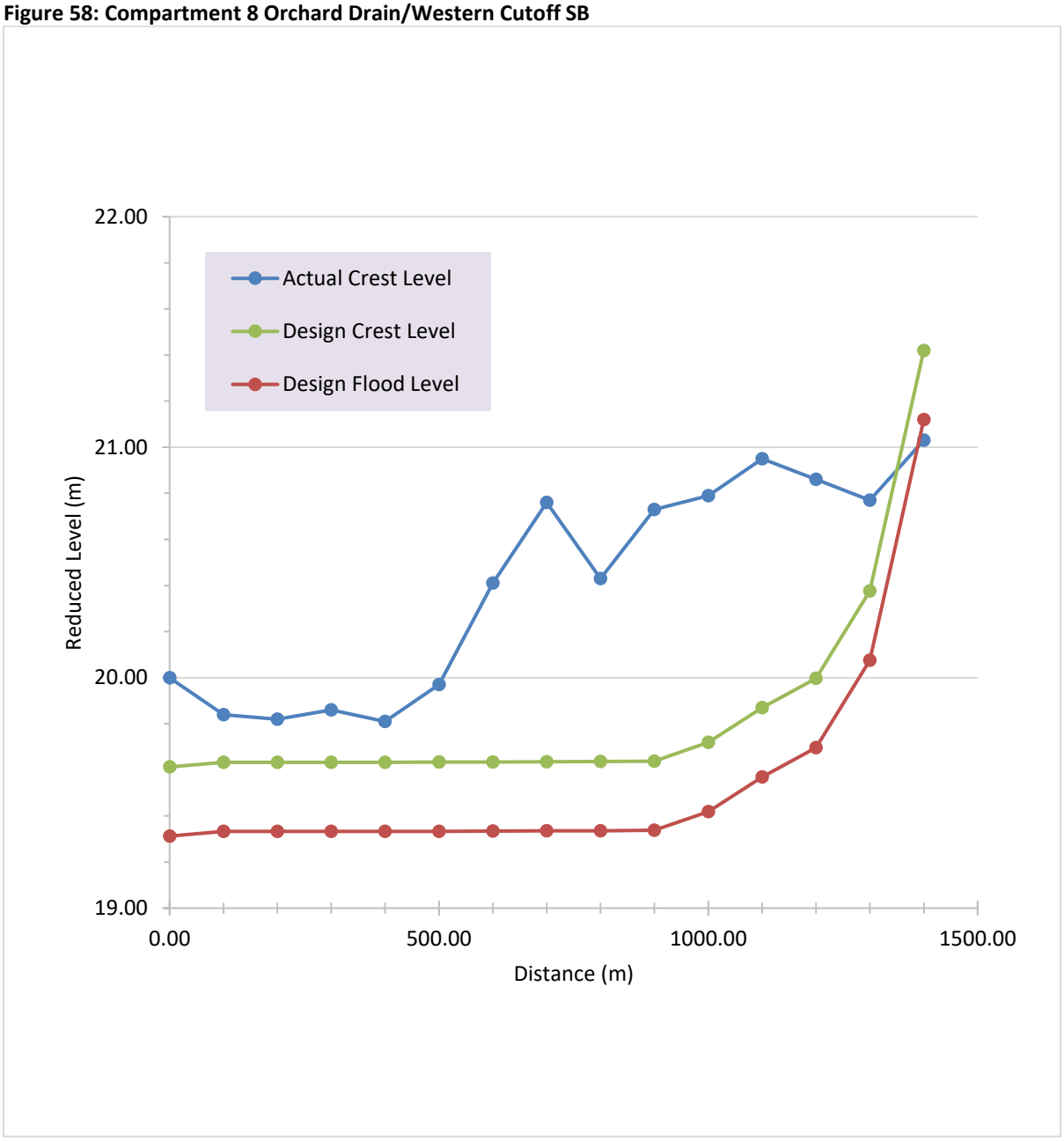


**Figure 59: Compartment 9 Mangawara River 1 SB**

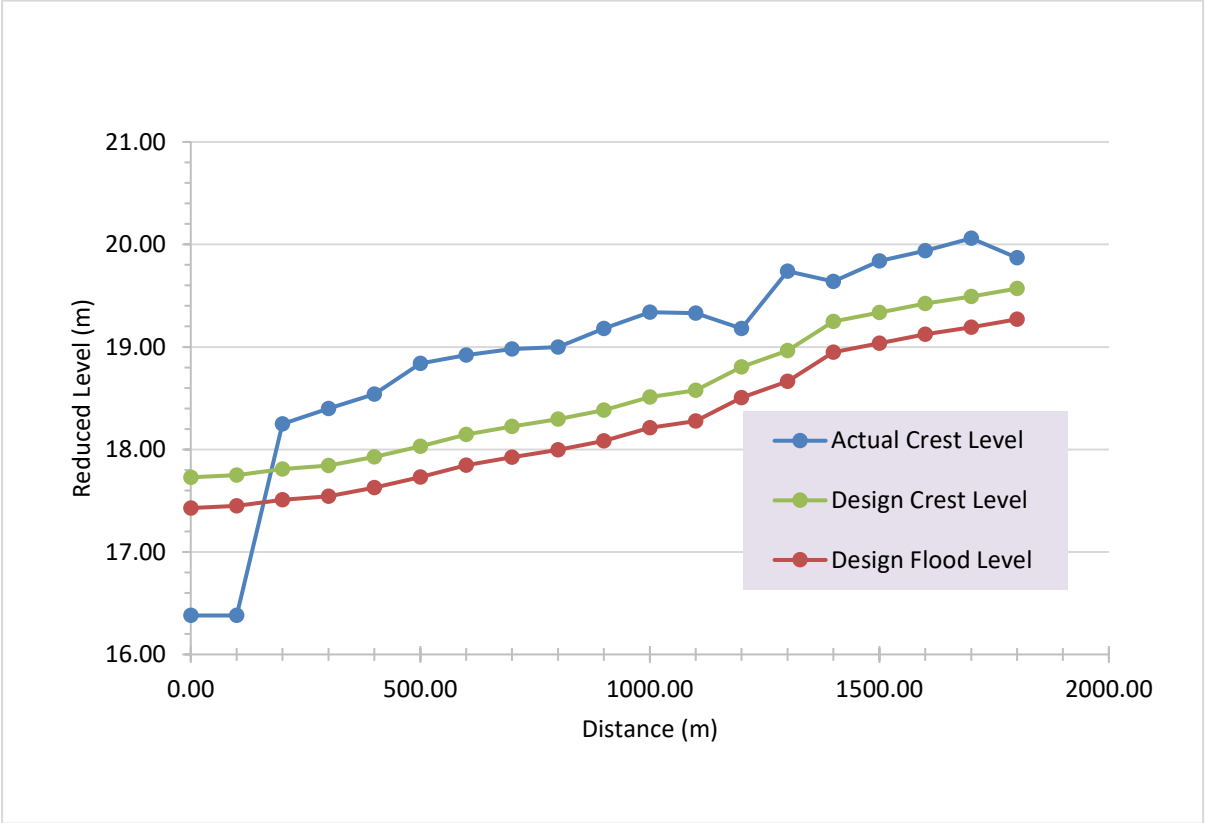



**Figure 60: Compartment 9 Mangawara River 2 SB**

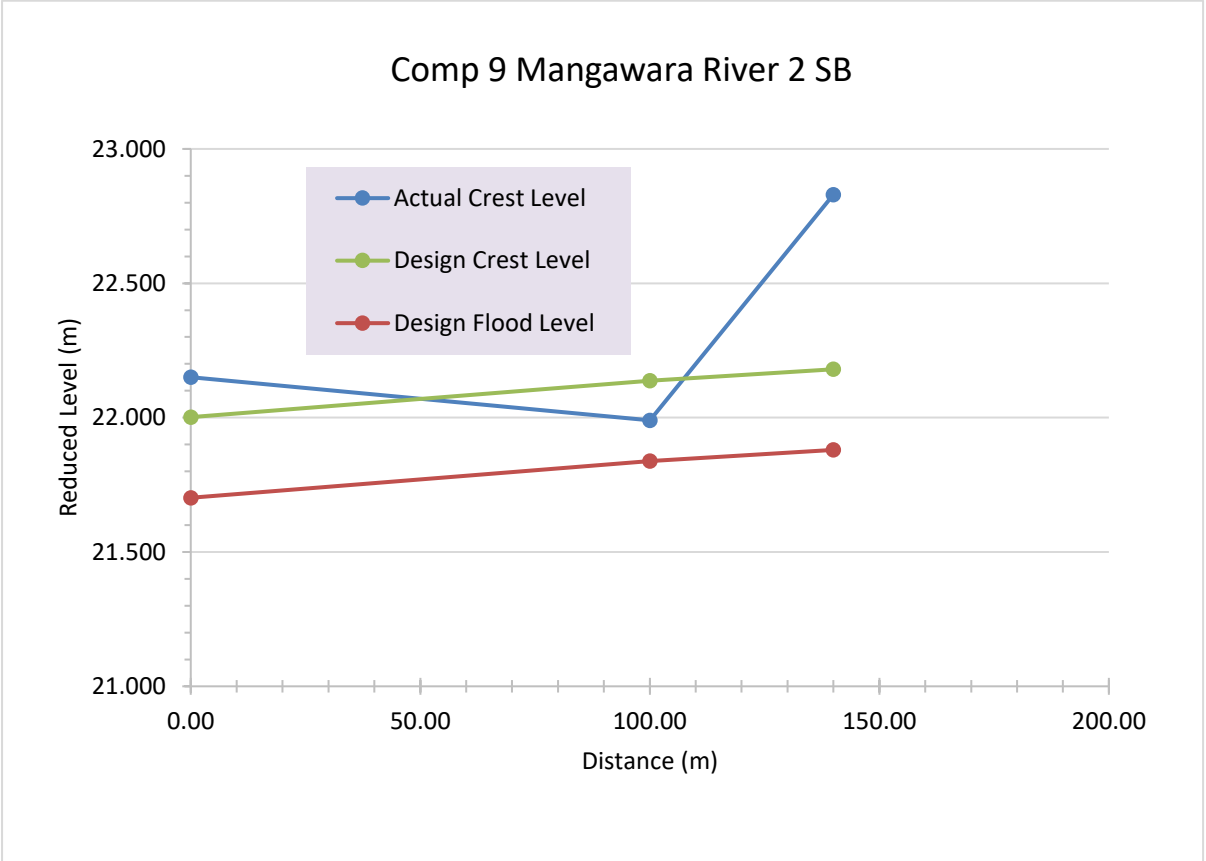


**Figure 61: Compartment 9 Paranui Drain 1 SB**

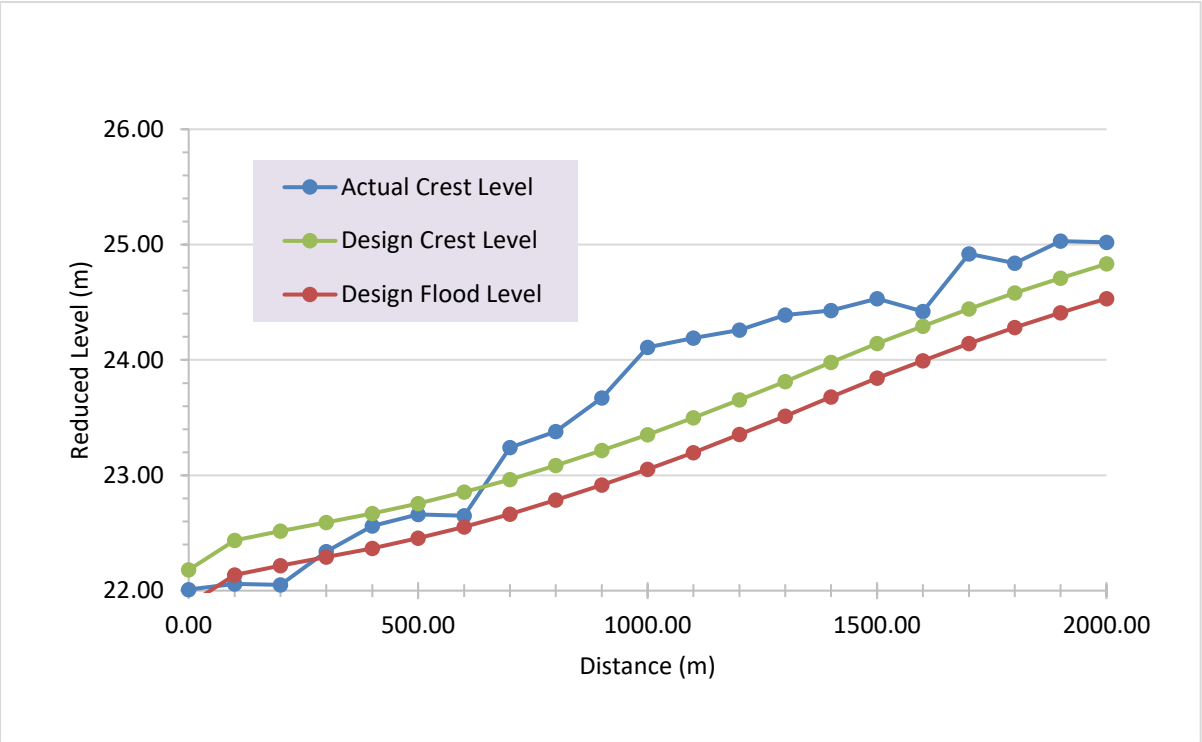



**Figure 62: Compartment 9 Paranui Drain2 SB**

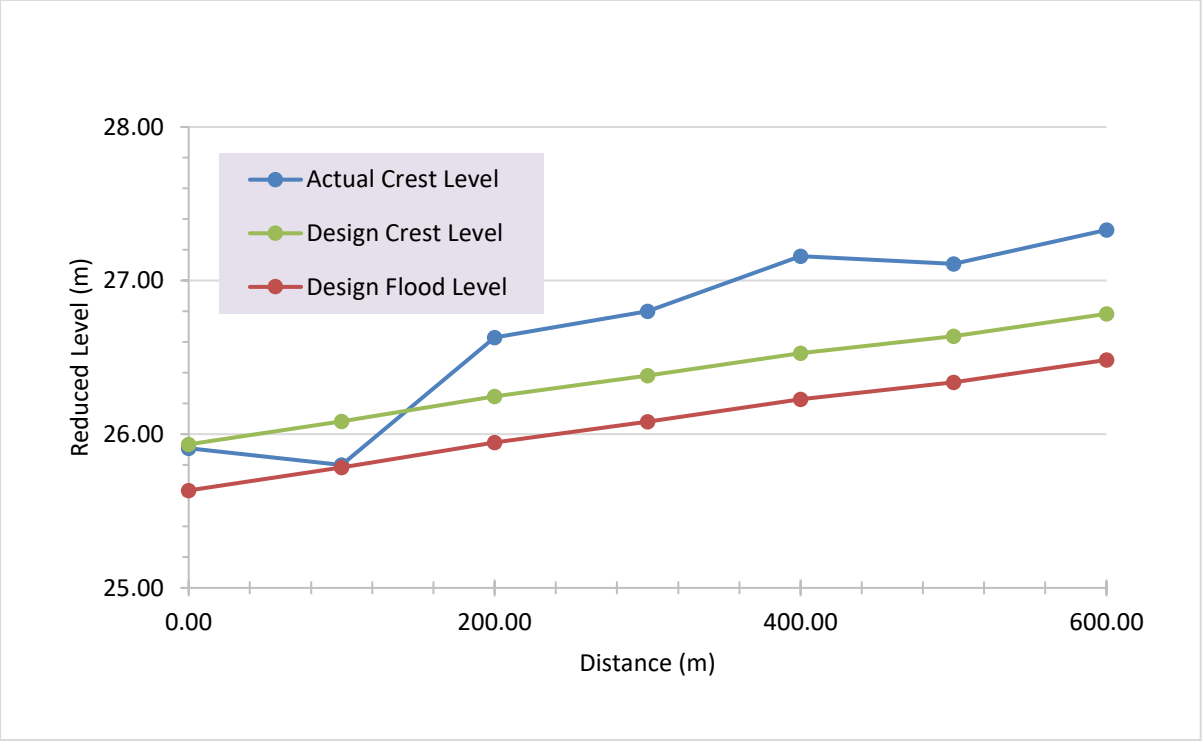


**Figure 63: Compartment 9 Paranui Drain 3 SB**

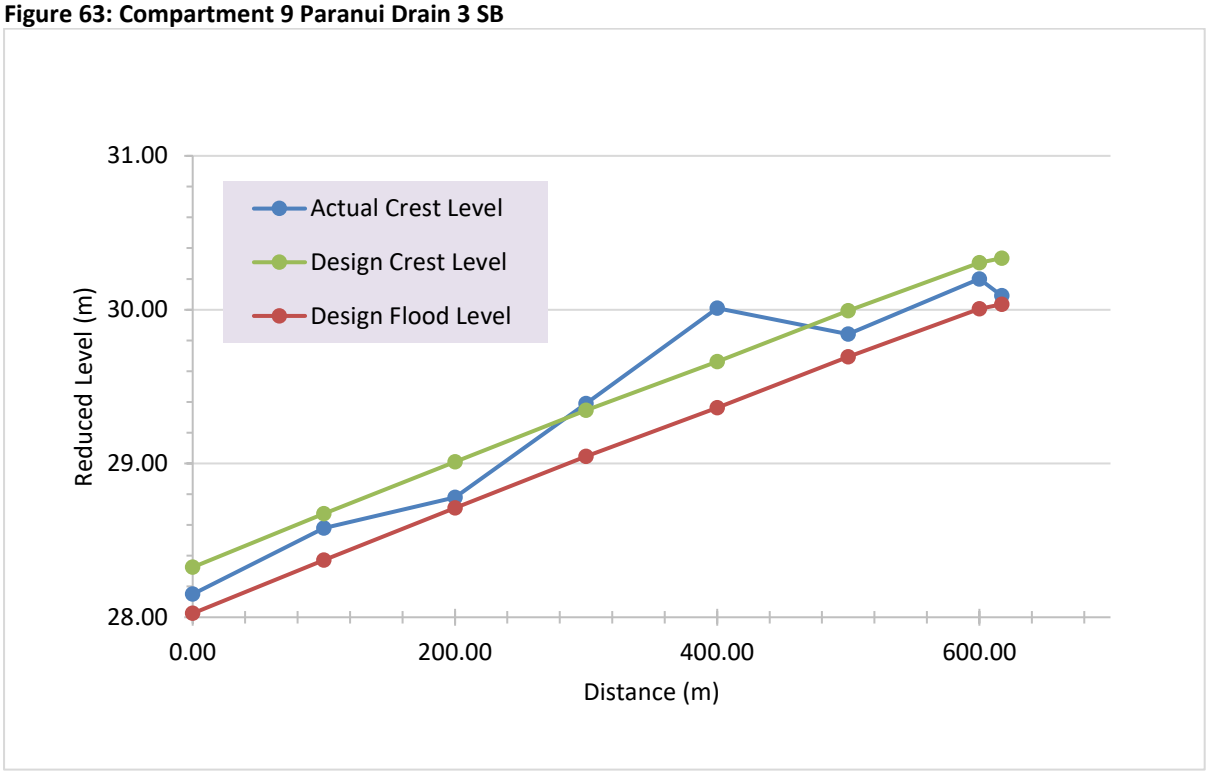



**Figure 64: Compartment 9 Paranui Drain 4 (Clarkes) SB**

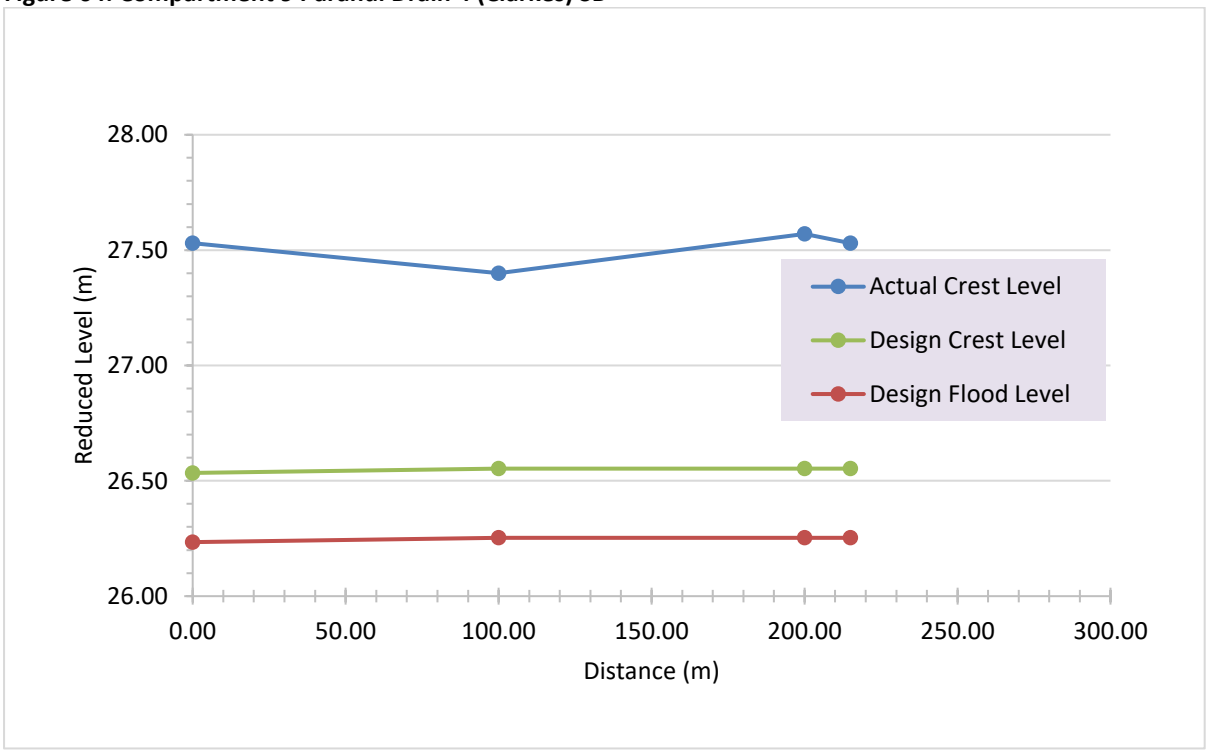


**Figure 65: Compartment 10 Mangawara River SB**

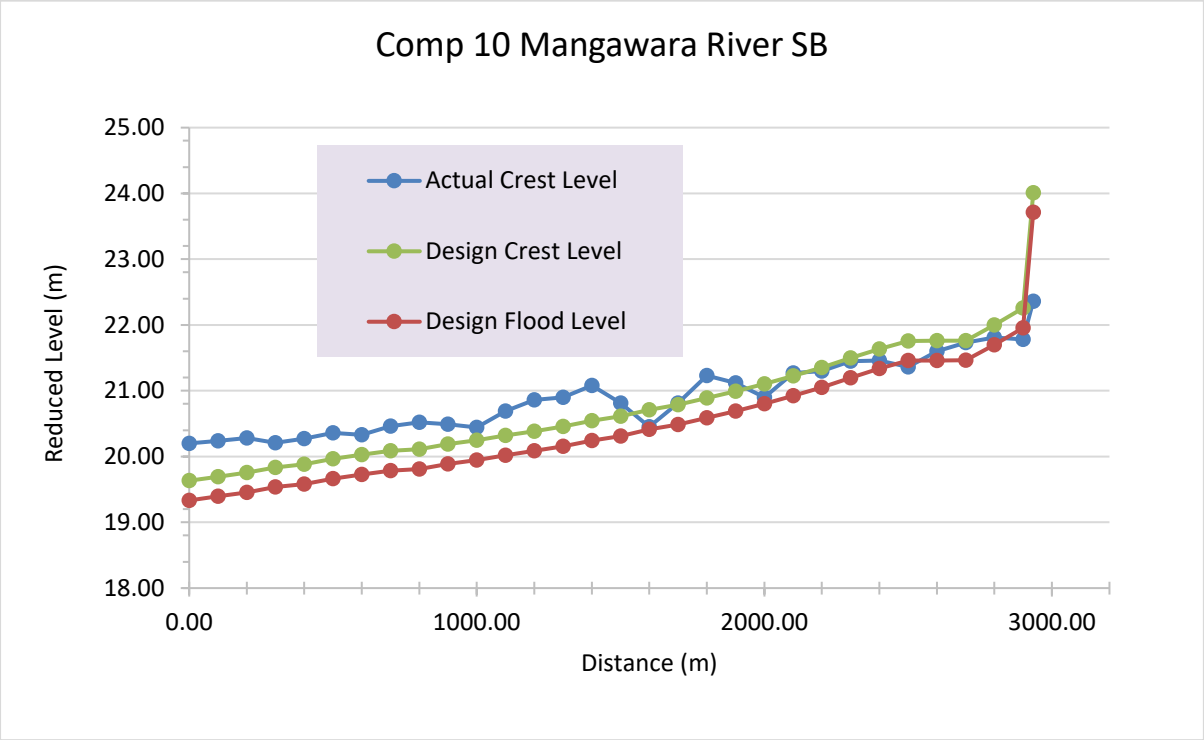



**Figure 66: Compartment 10 Orchard Drain Eastern Cutoff SB**

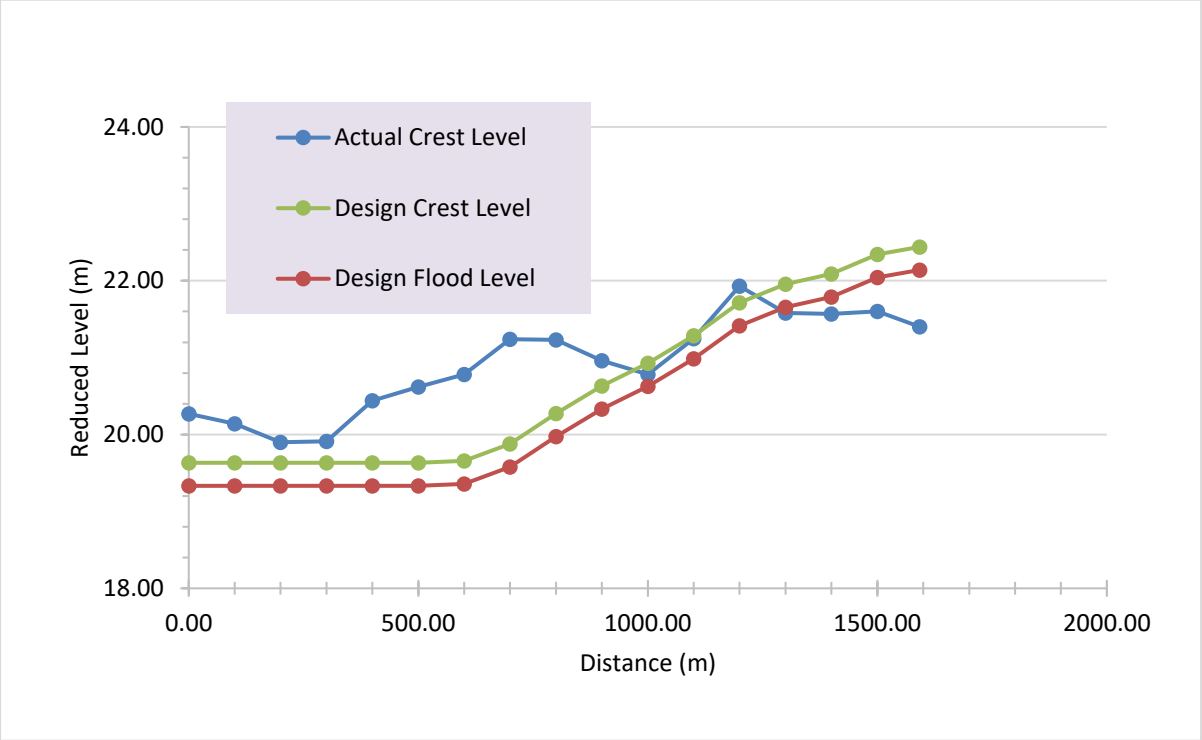


**Figure 67: Compartment 11 Mangawara River (section 1) SB**

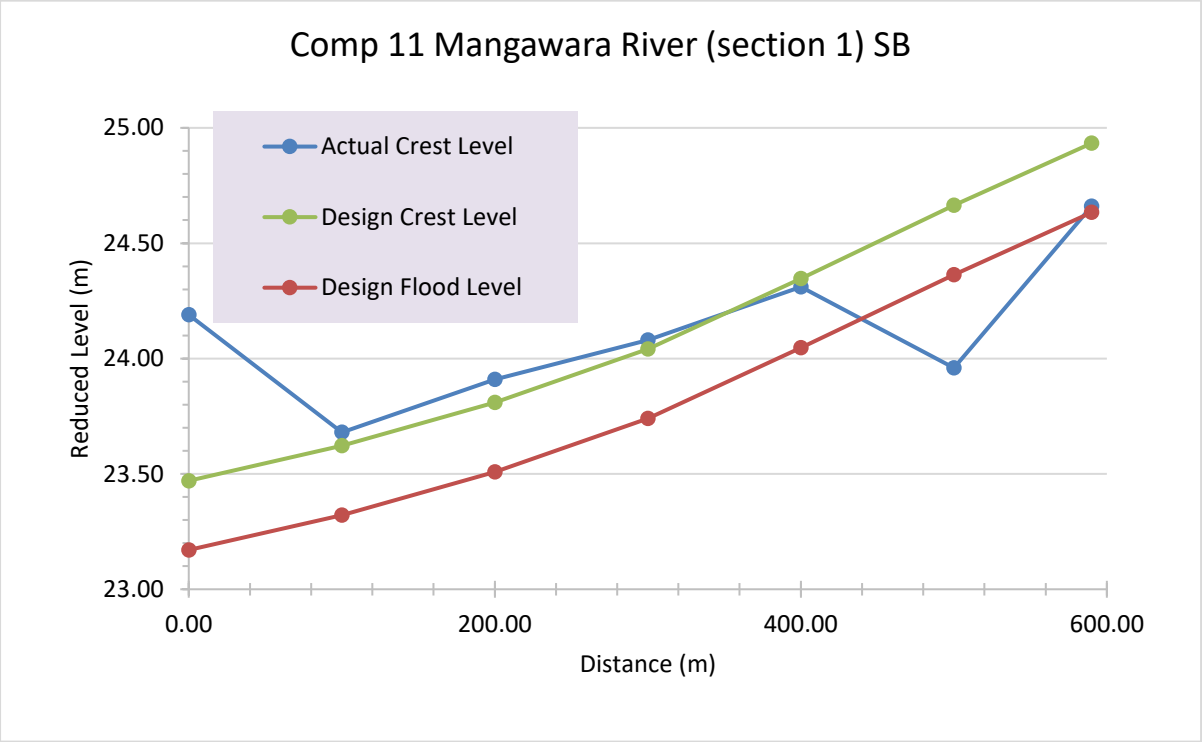



**Figure 68: Compartment 11 Mangawara River (section 2) SB**

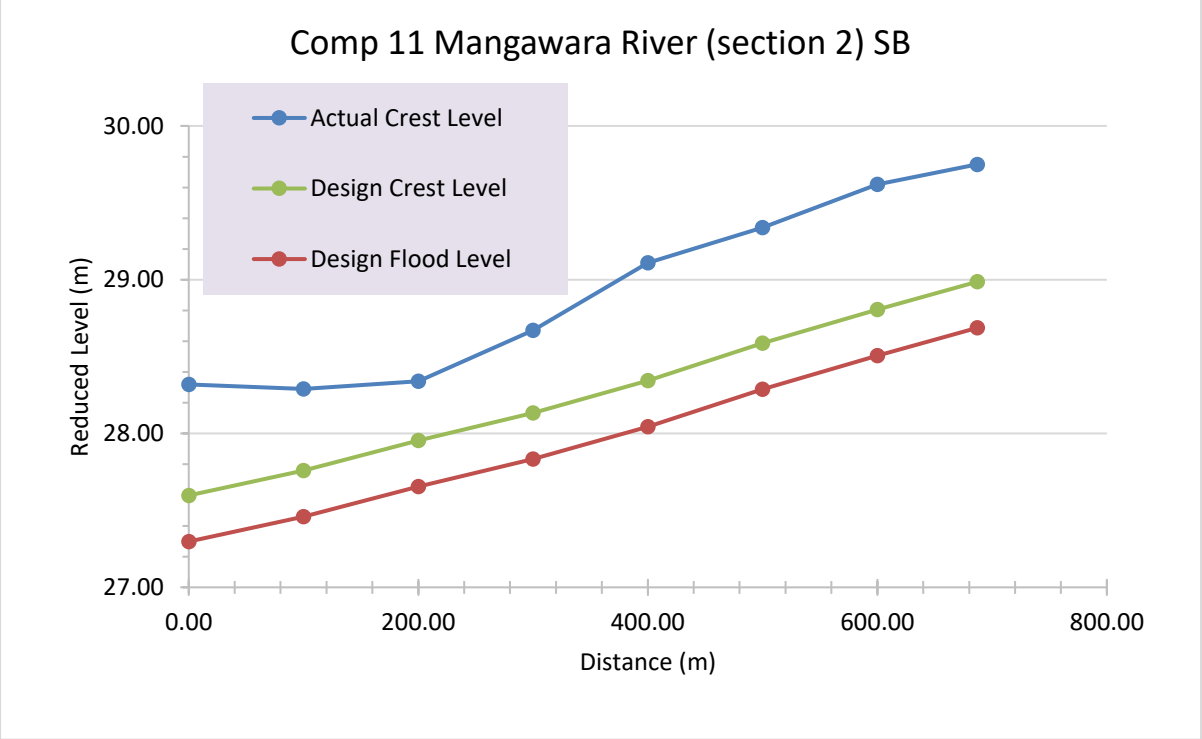


**Figure 69: Compartment 11 Mangawara River (section 3) SB**

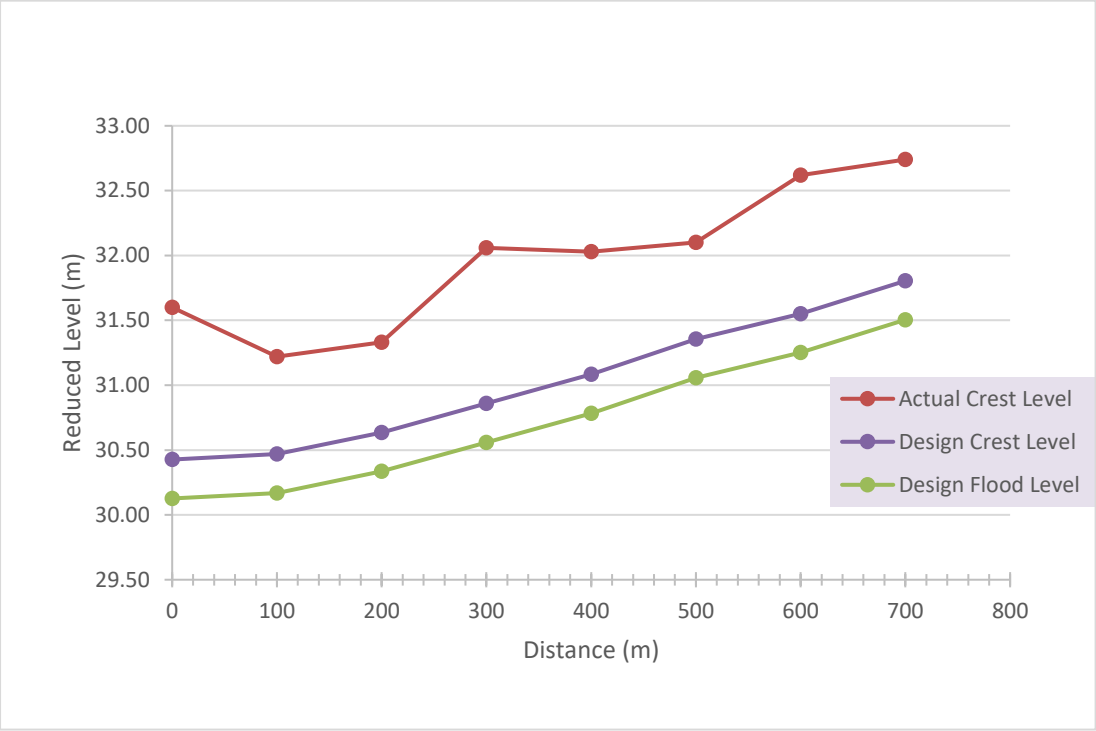



**Figure 70: Compartment 11 Mangawara River (section 4) SB**

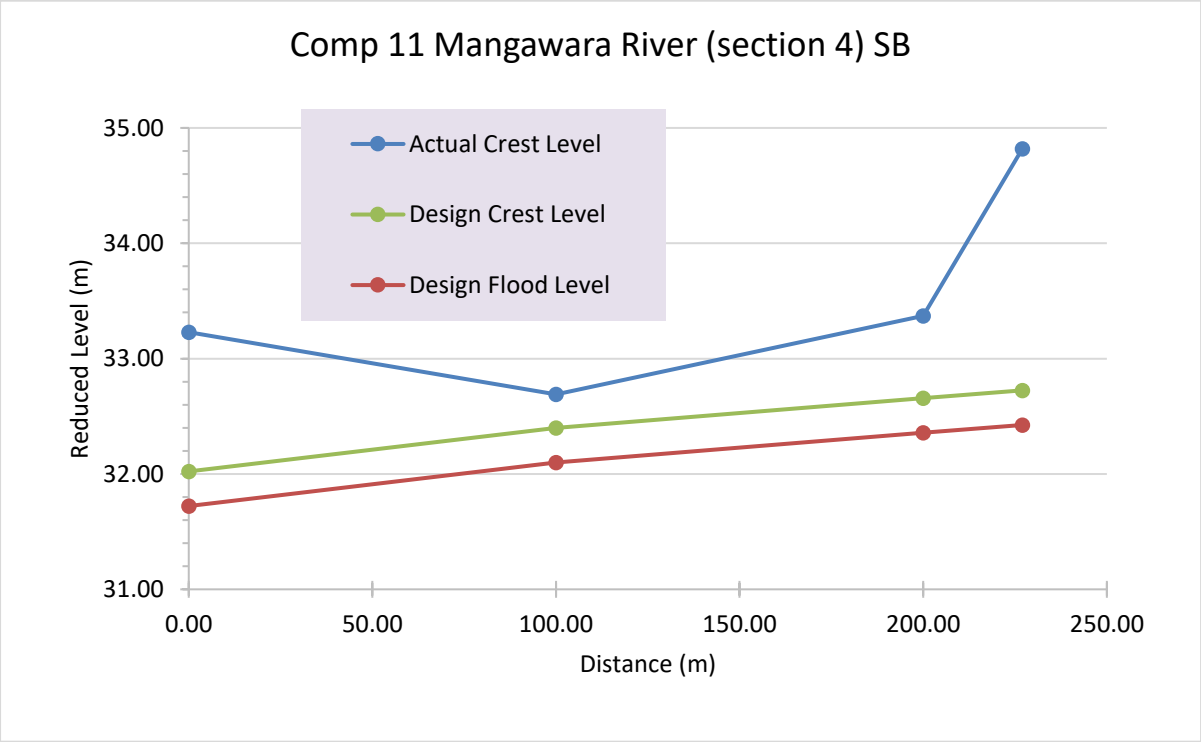


**Figure 71: Compartment 12 Paranui Drain RB SB**

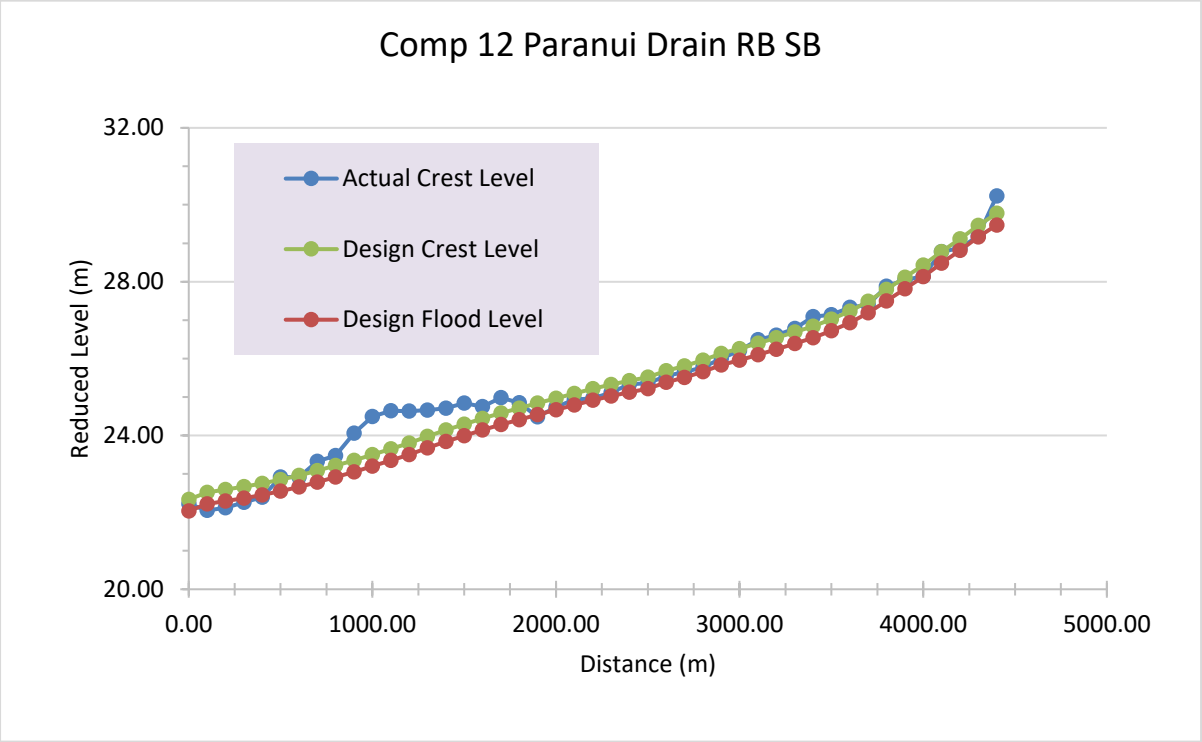



**Figure 72: Compartment 12 Mangawara River LB Section 1 SB**

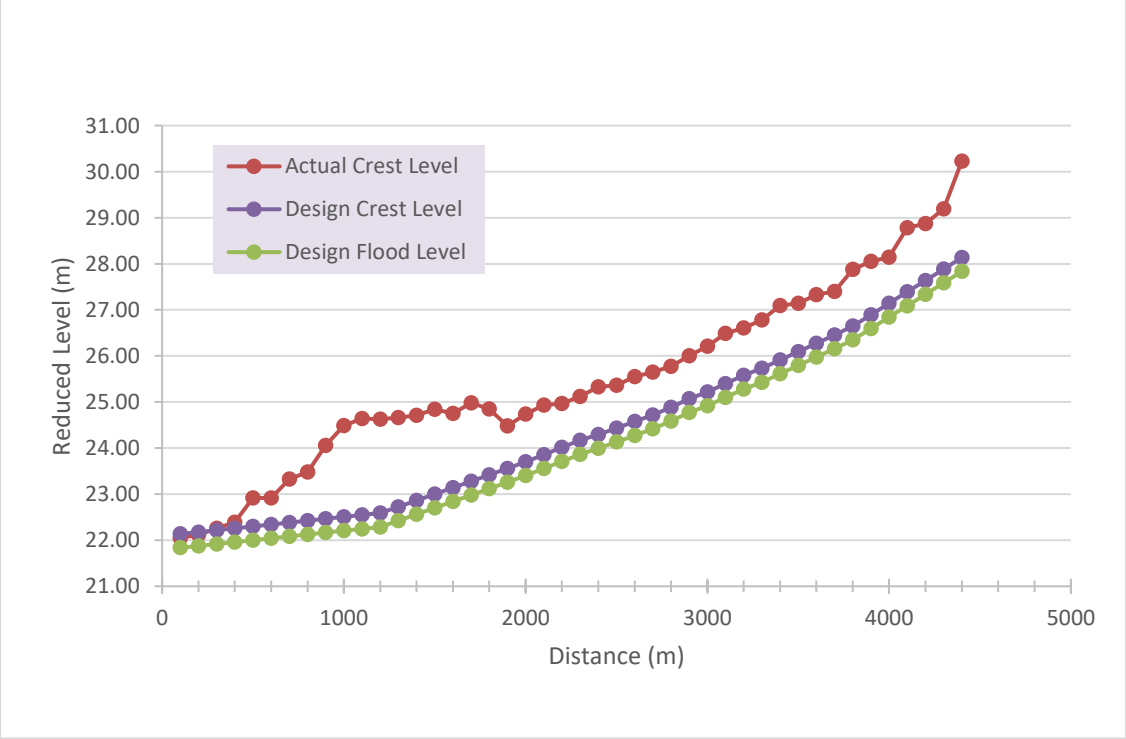


**Figure 73: Compartment 12 Mangawara River LB Section 2 SB**

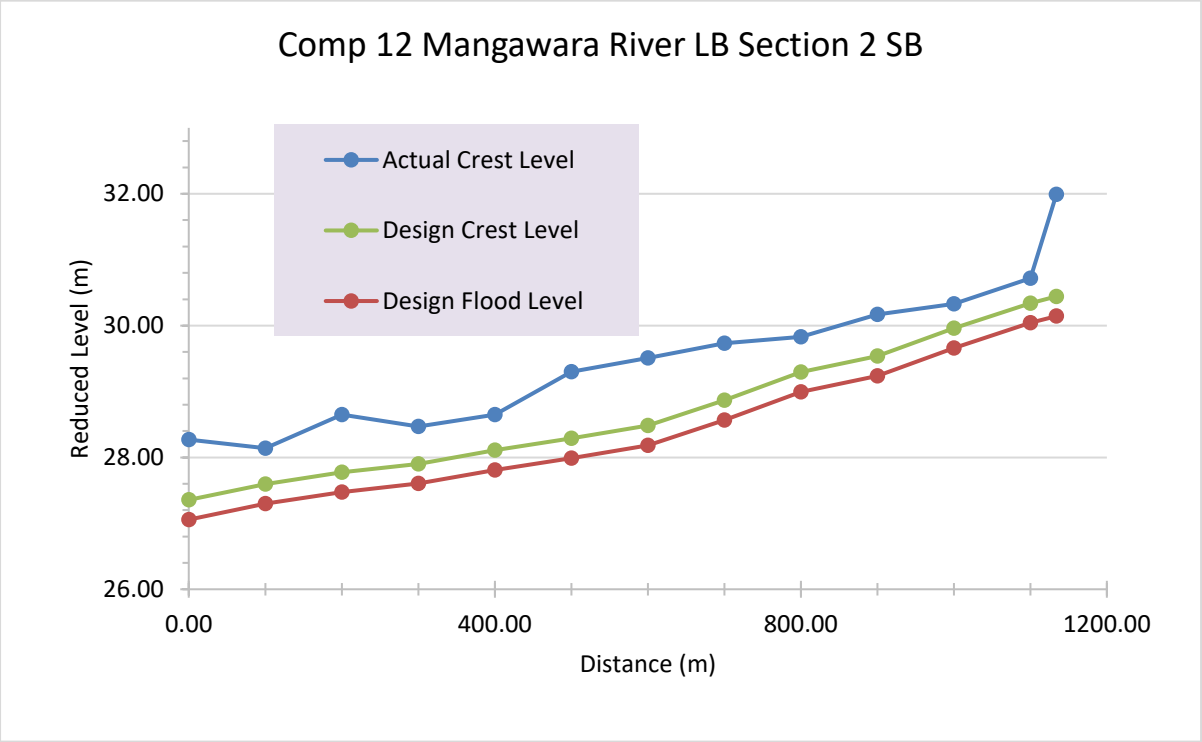



**Figure 74: Compartment 12 Mangawara River LB Section 3 SB**

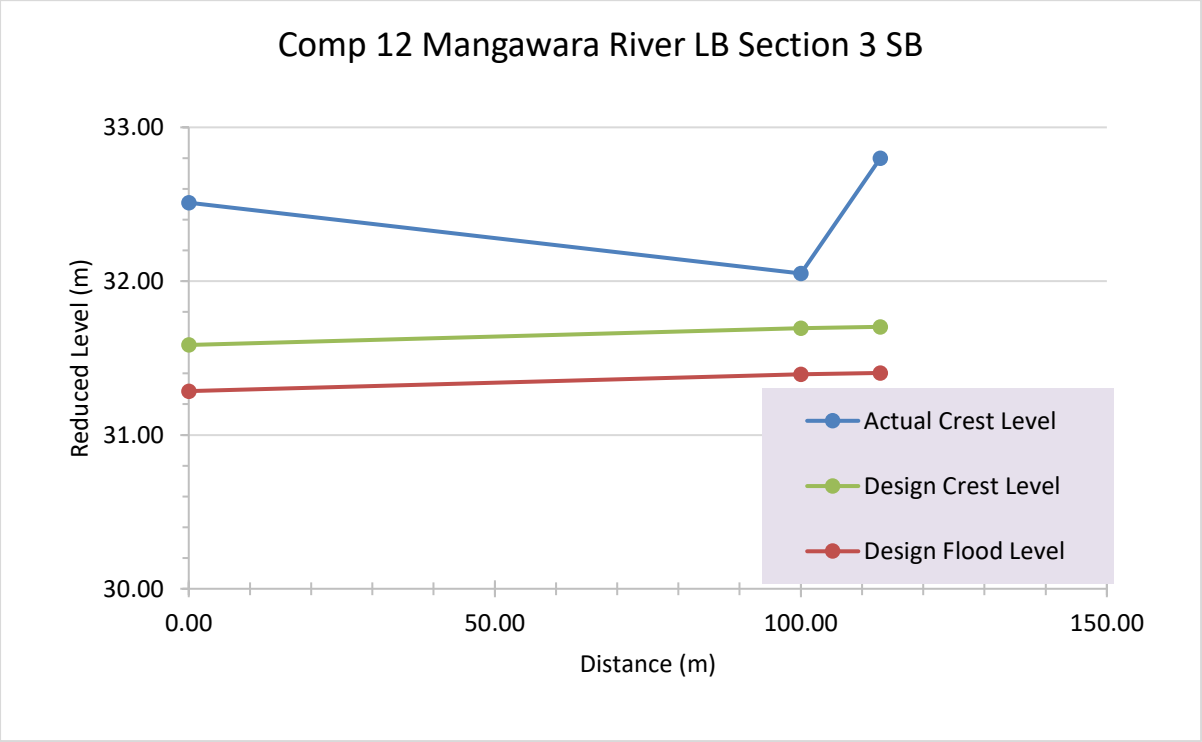


**Figure 75: Compartment 13 Tauhei Stream LB SB**

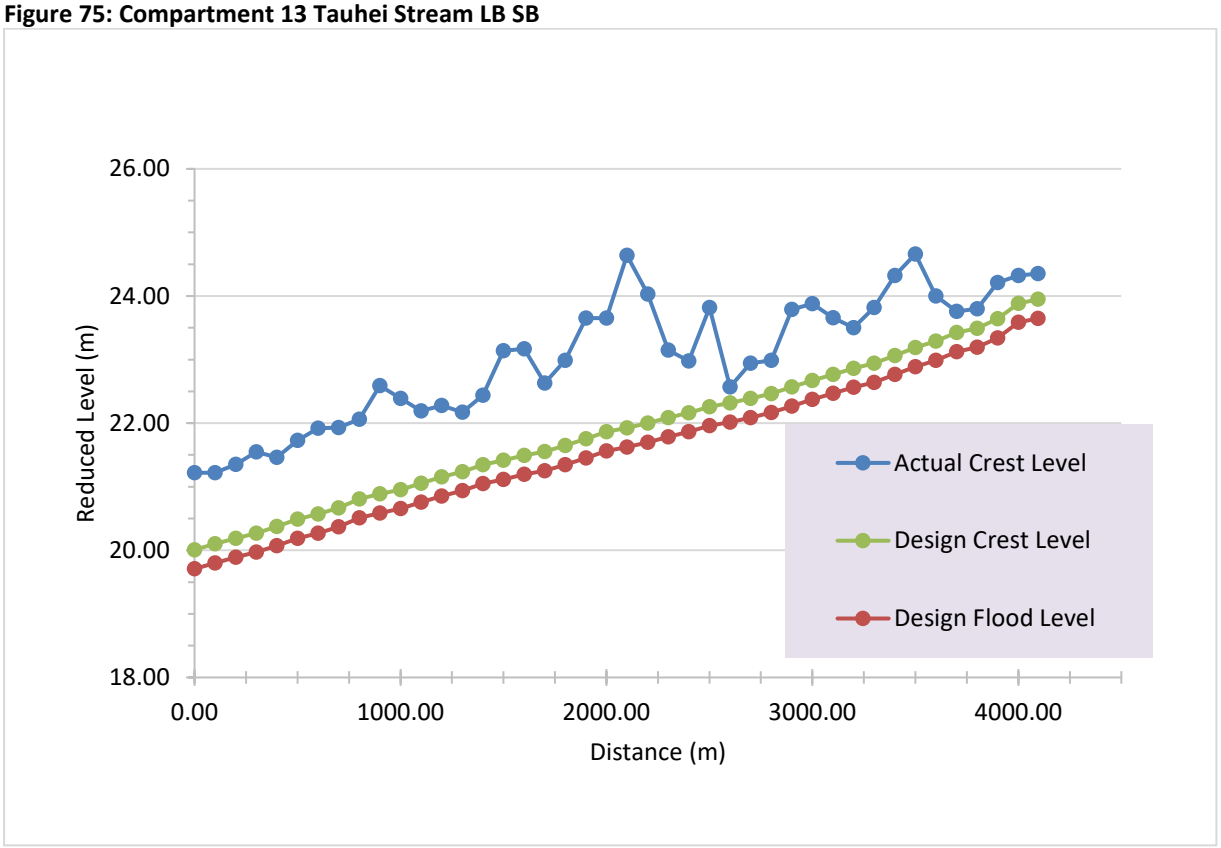



**Figure 76: Waiti Dam Diversion Left SB**

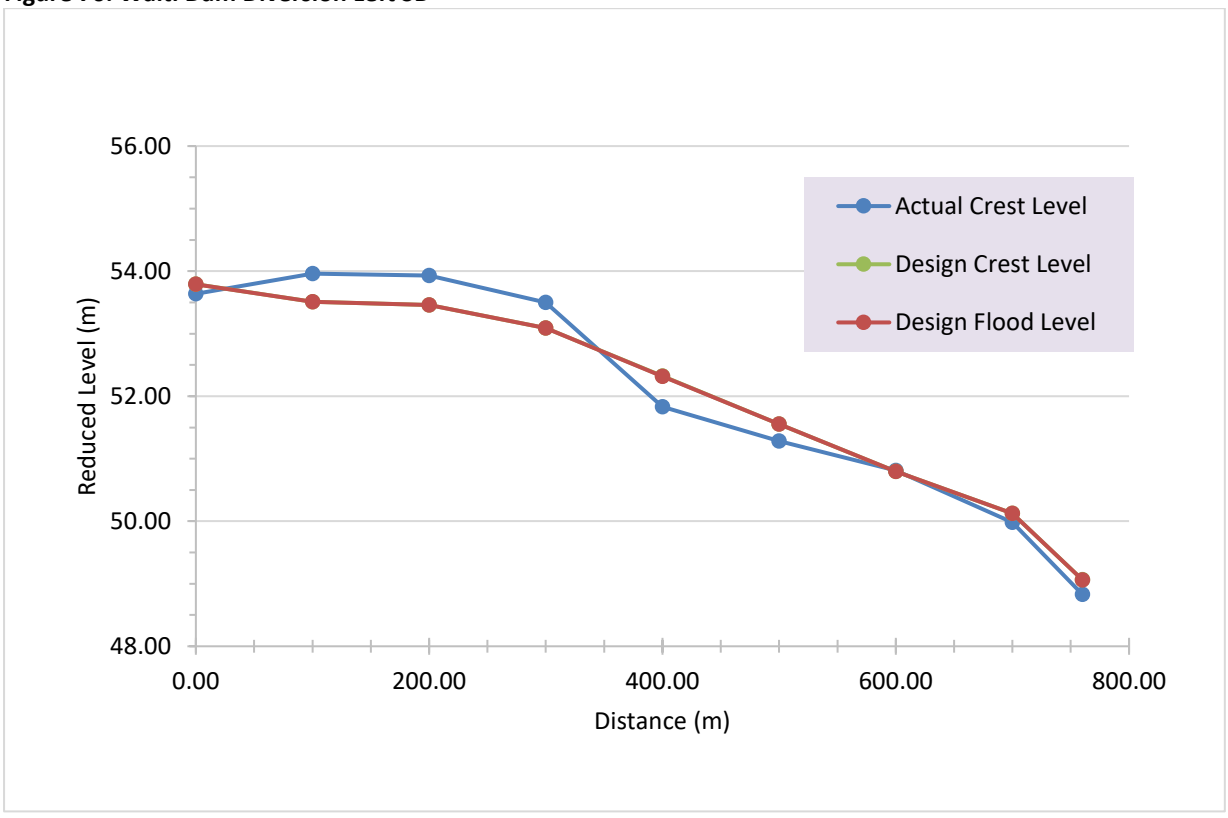


**Figure 77: Waiti Dam Diversion Right SB**

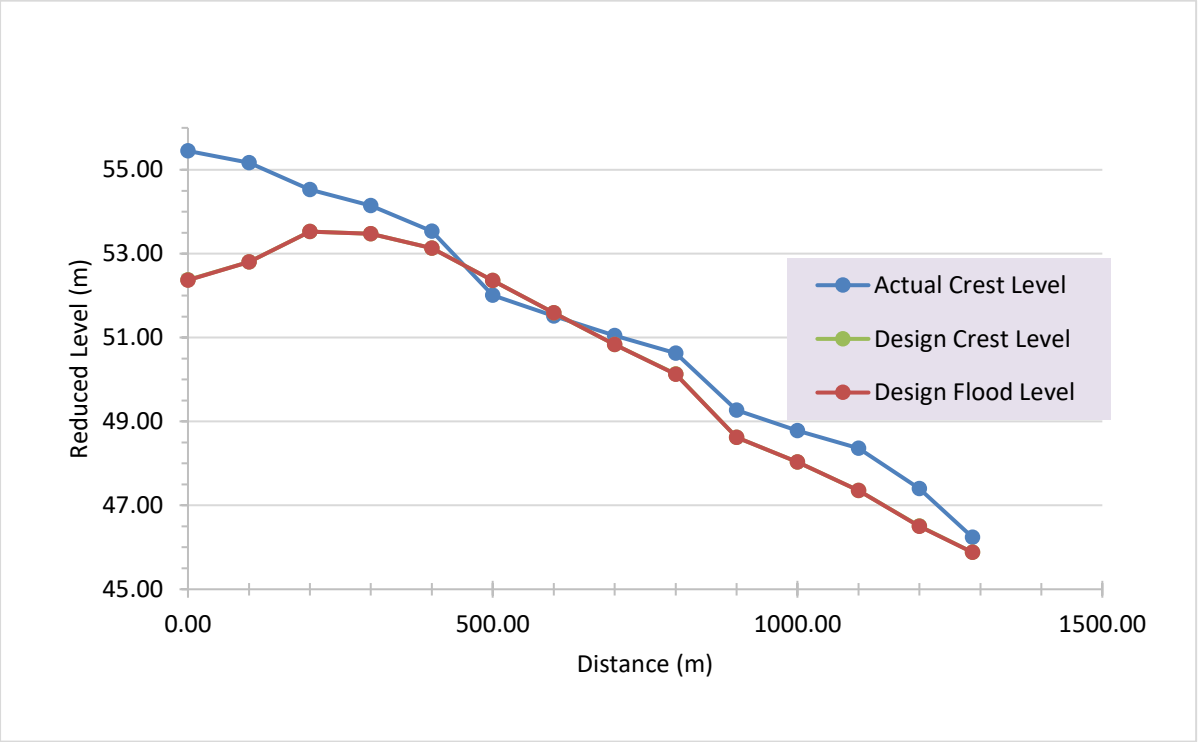



**Figure 78: Compartment 9 Mangawara River Spillway SB**

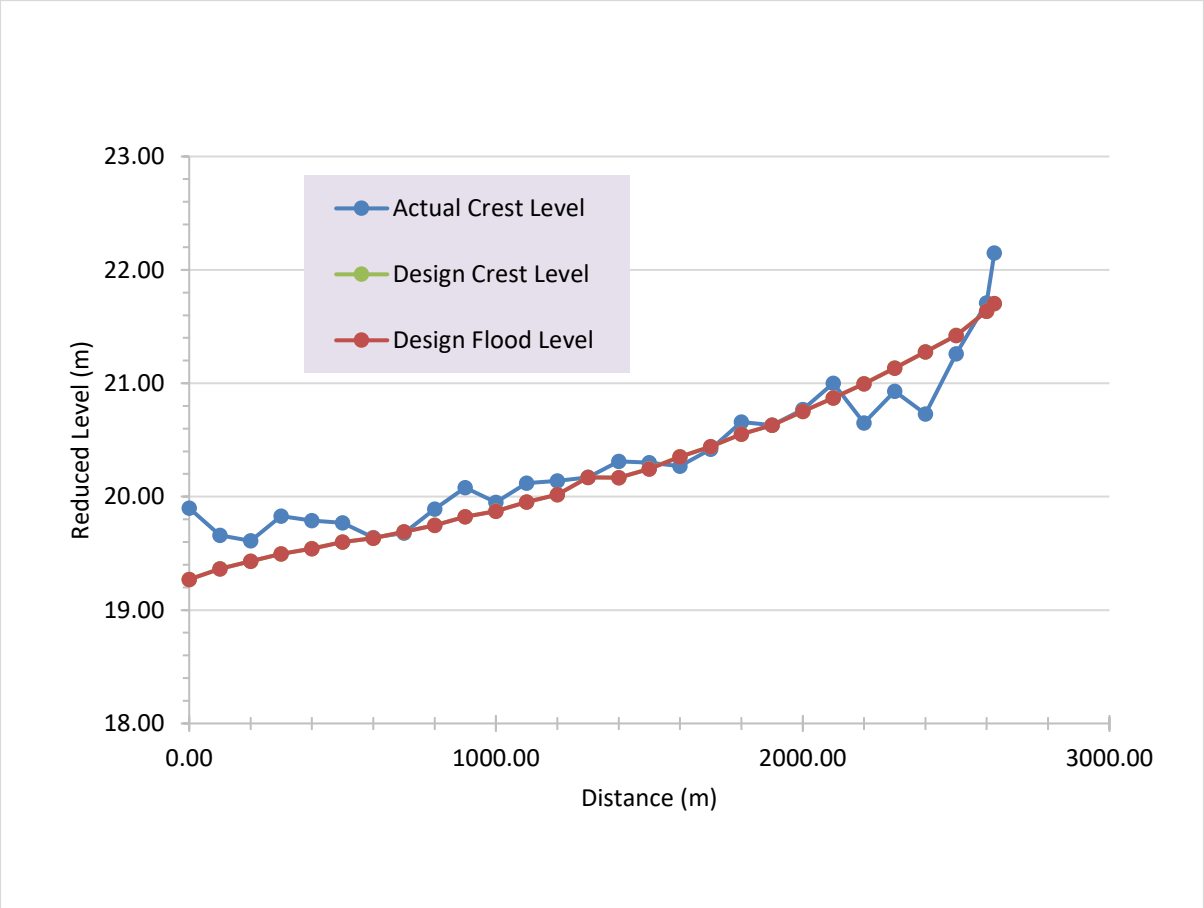


**Figure 79: Compartment 9 Paranui Drain 1 Spillway**

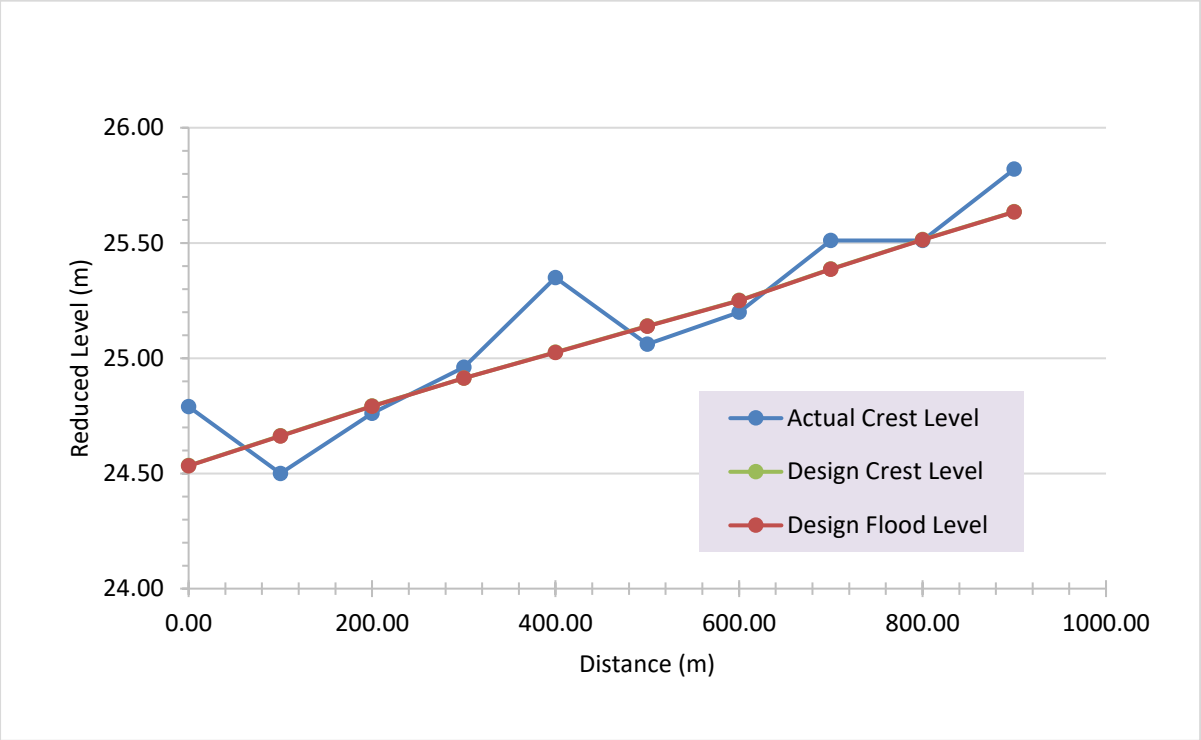



**Figure 80: Compartment 9 Paranui Drain 2 Spillway**

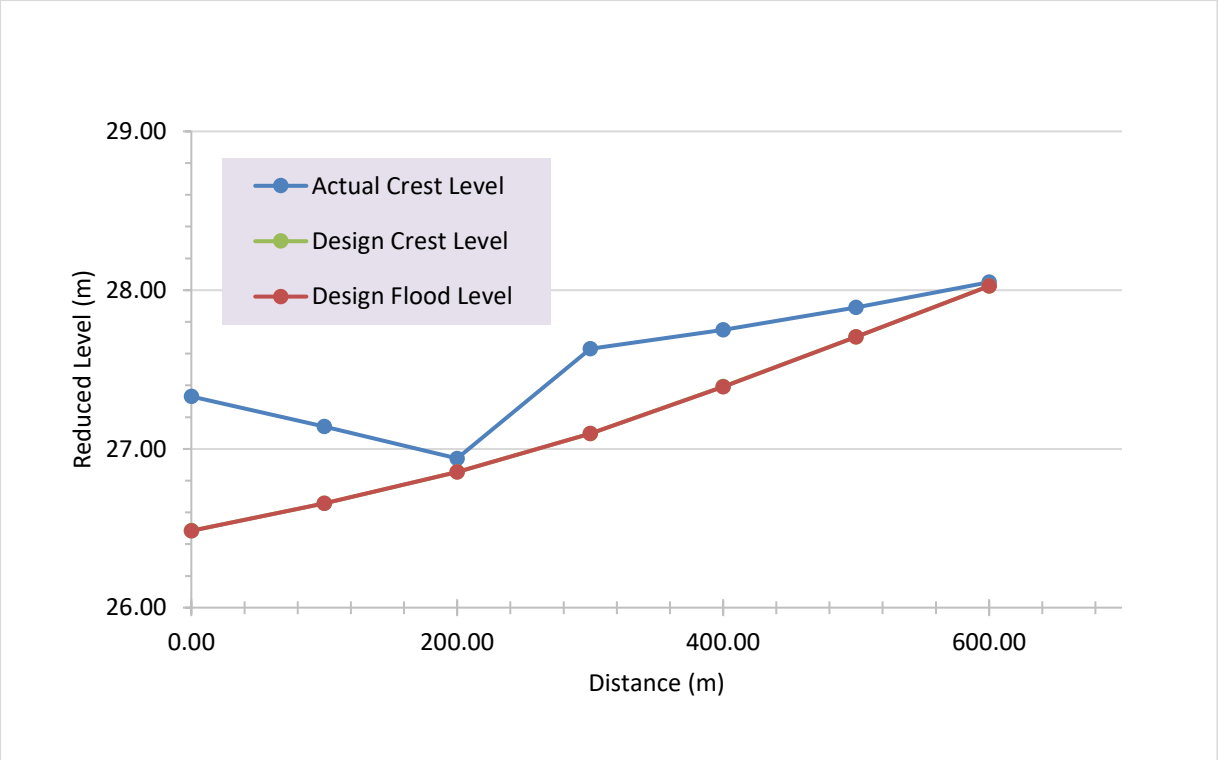


**Figure 81: Orakei Detention Dam**

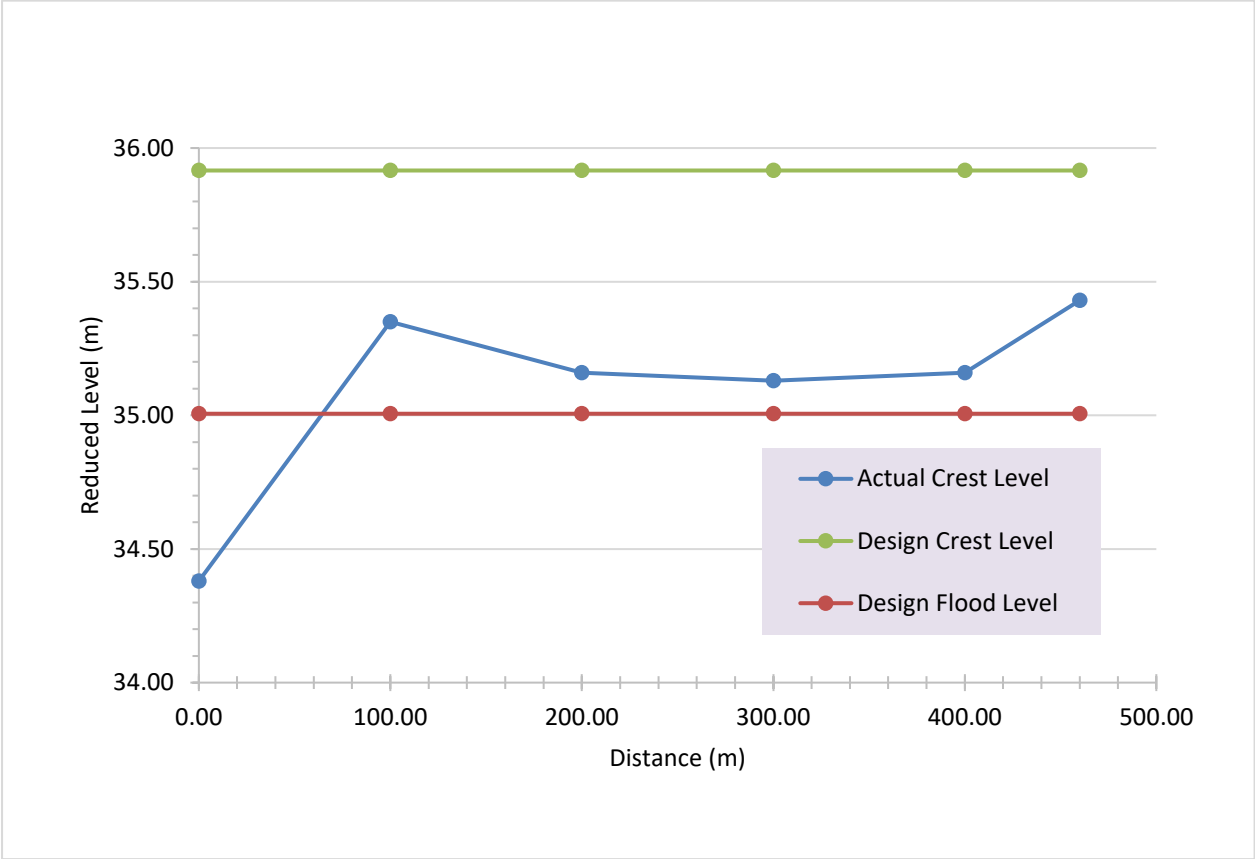



**Figure 82: Orakei Detention Dam Spillway**

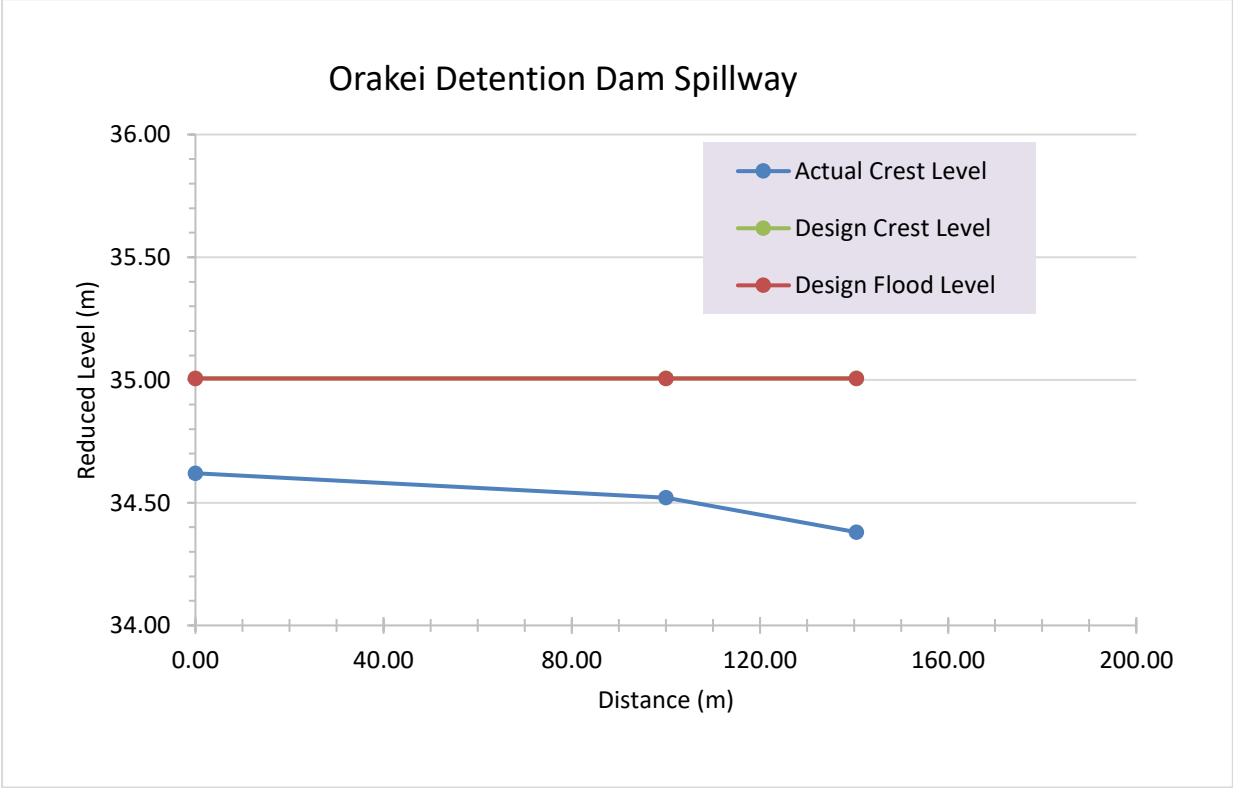


**Figure 83: Cawley Detention Dam**

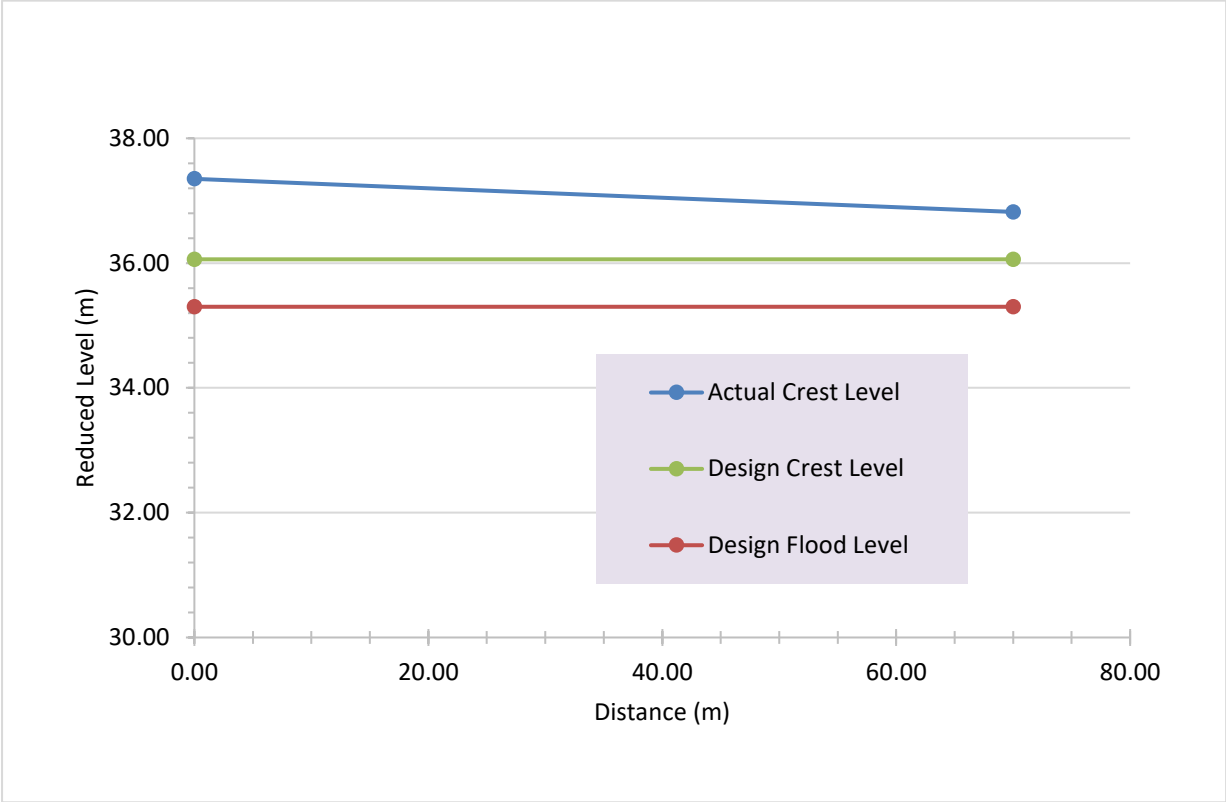



**Figure 84: Cawley Detention Dam Spillway**

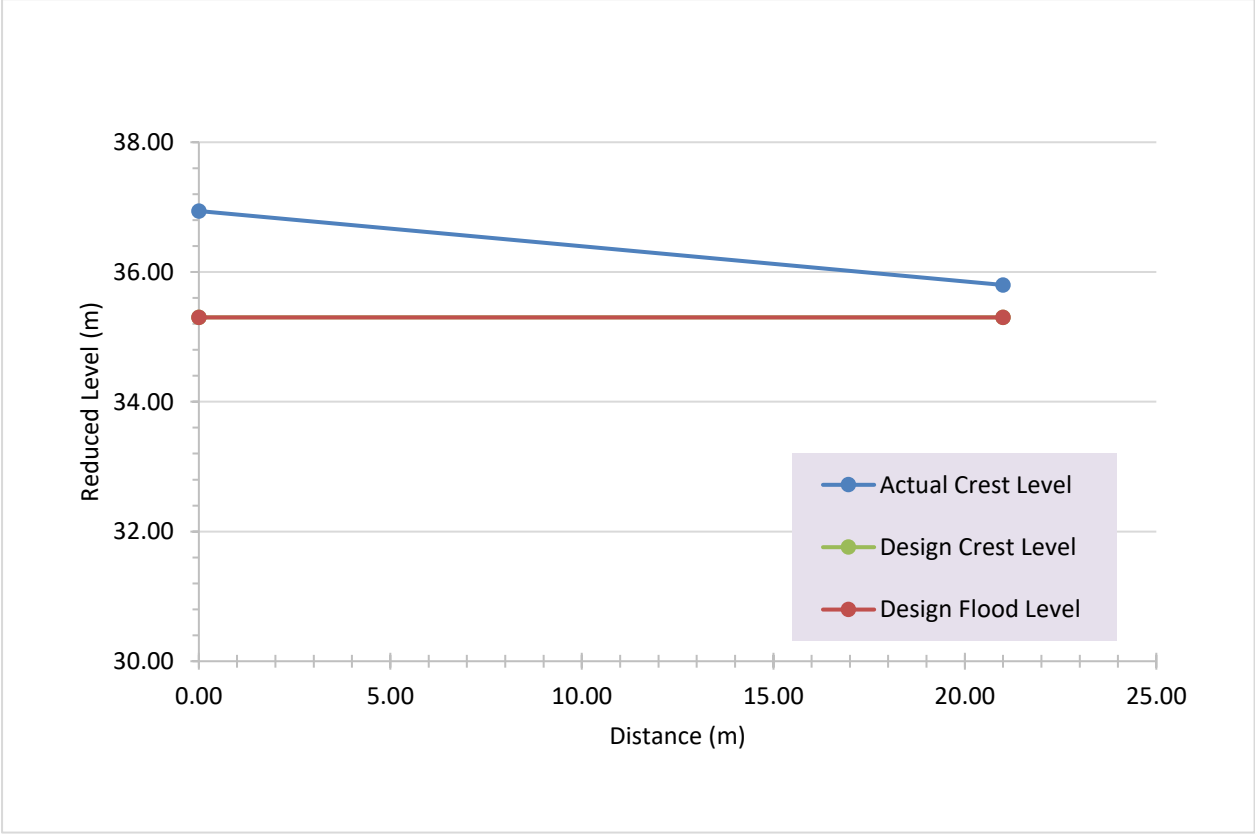


**Figure 85: Jordans Detention Dam**

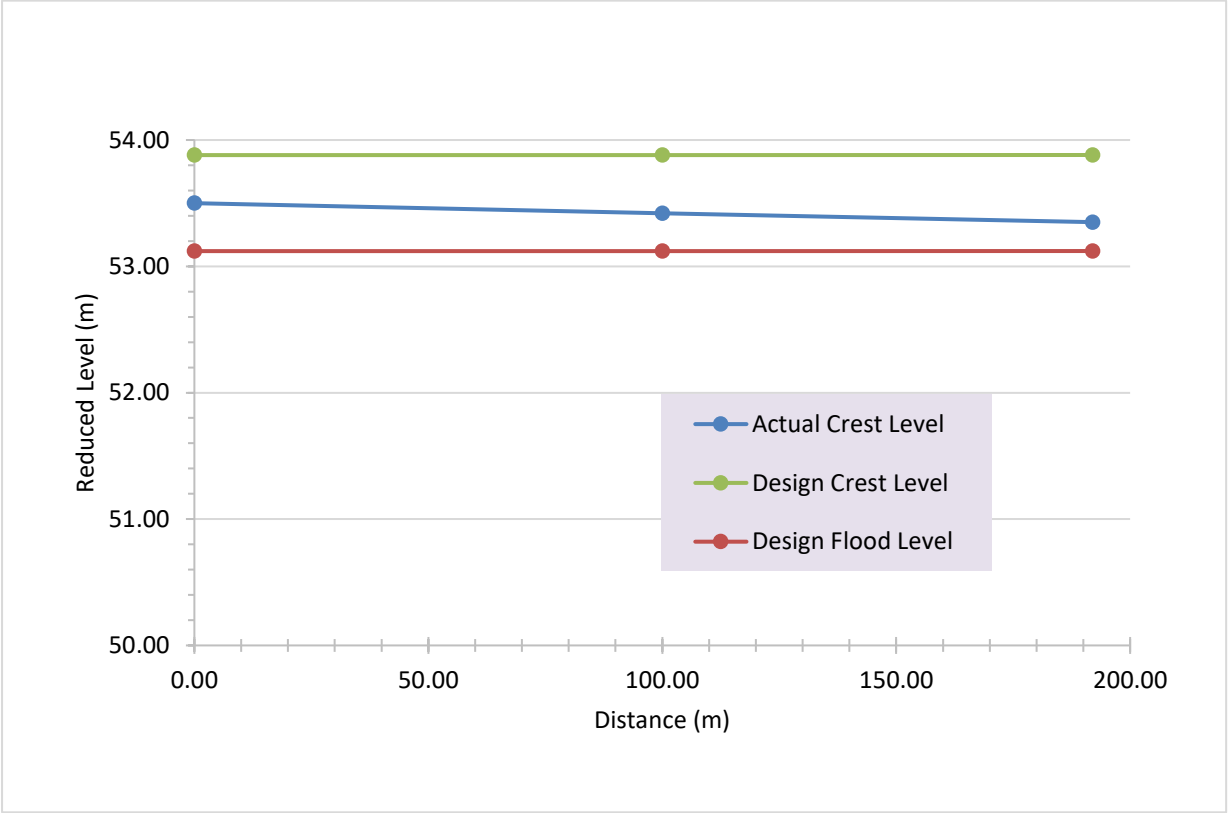



**Figure 86: Jordans Detention Dam Spillway**

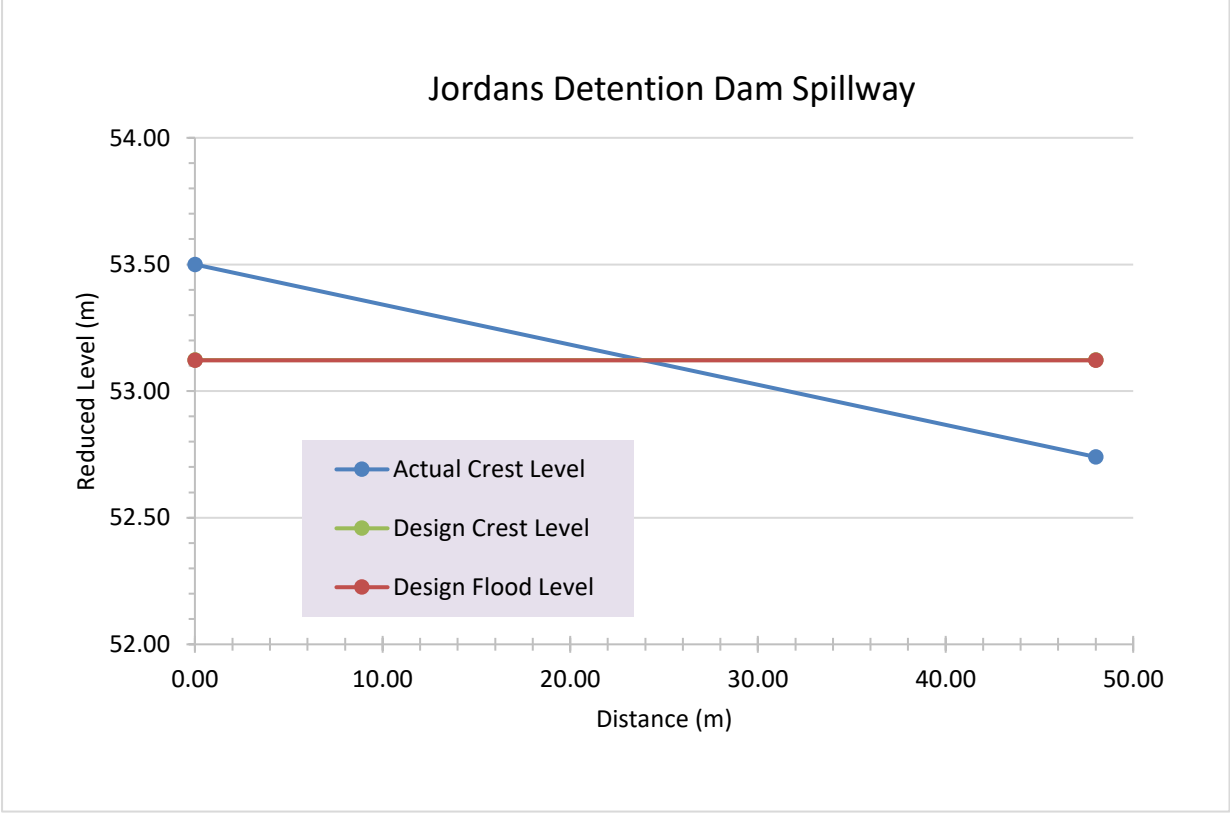


**Figure 87: Maori Affairs Detention Dam**

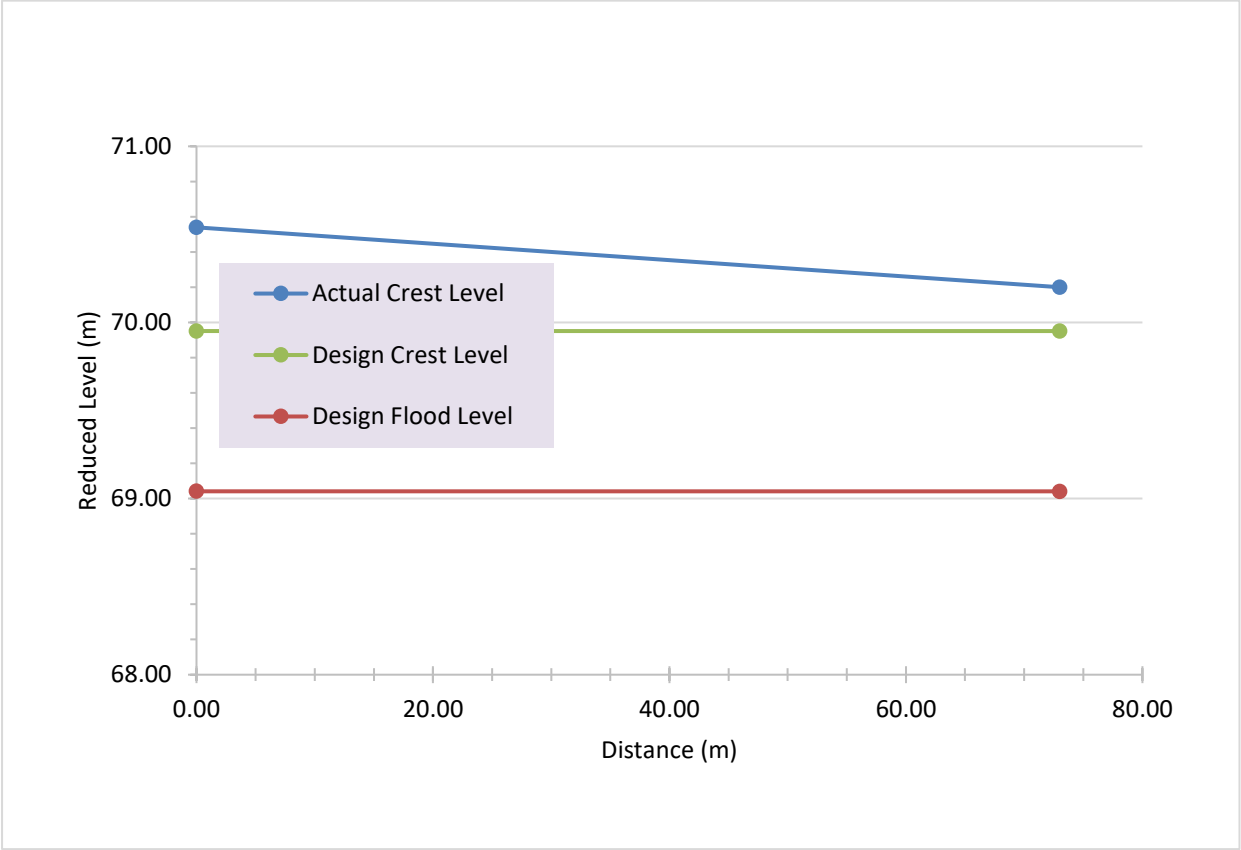



**Figure 88: Maori Detention Dam Spillway**

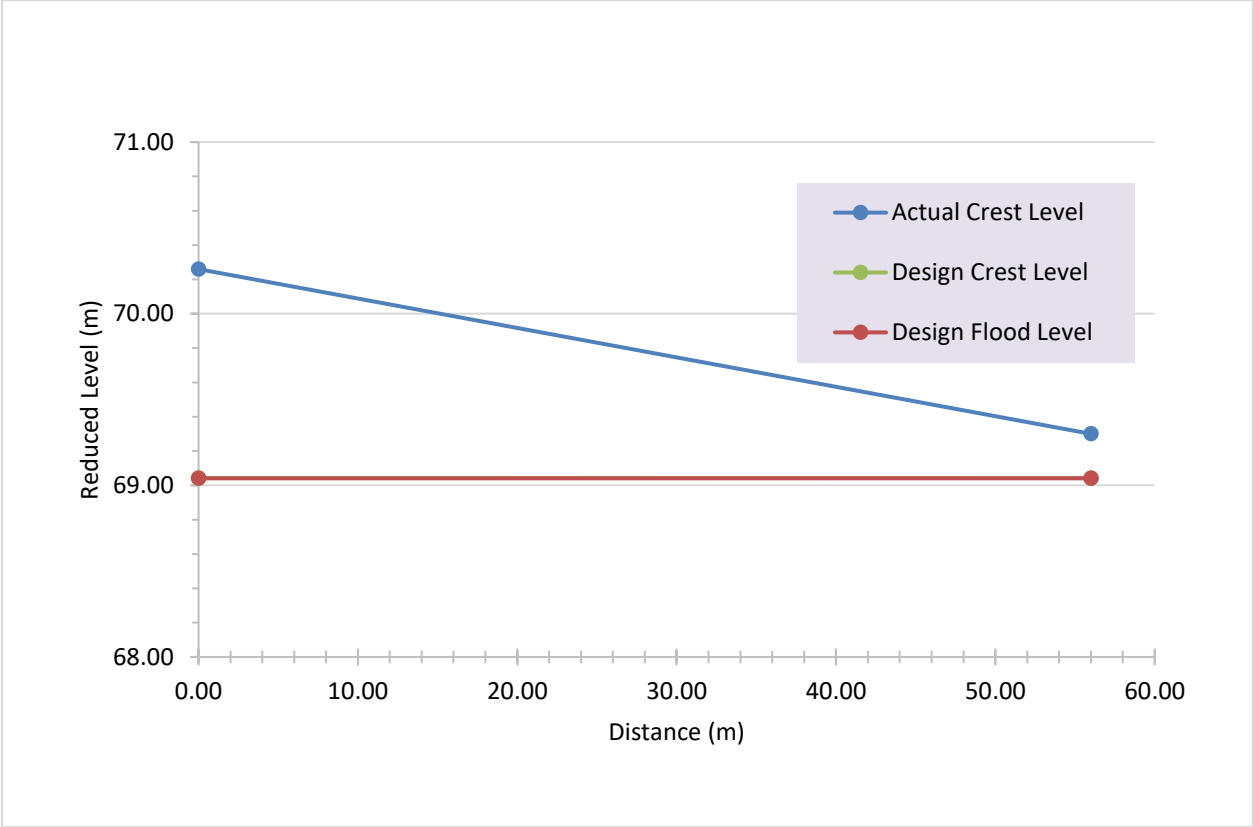


**Figure 89: Trubshaws Detention Dam**

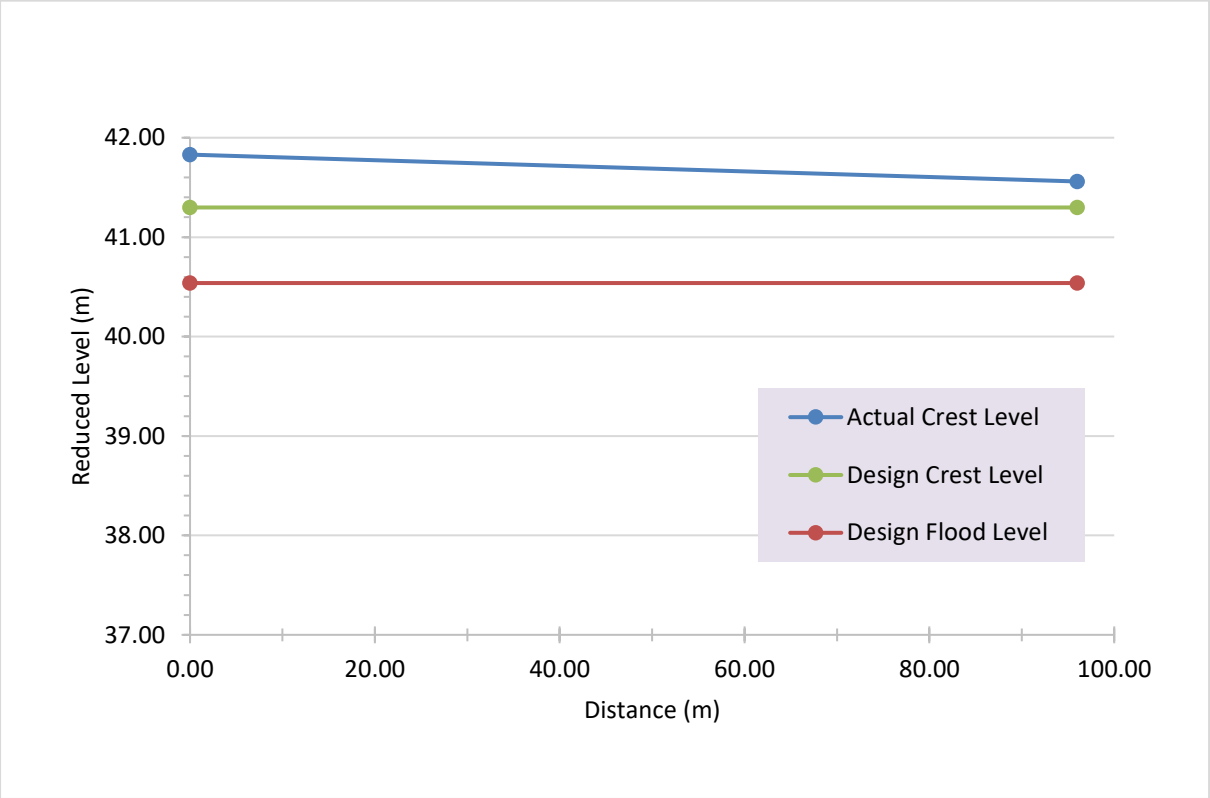



**Figure 90: Trubshaws Detention Dam Spillway**

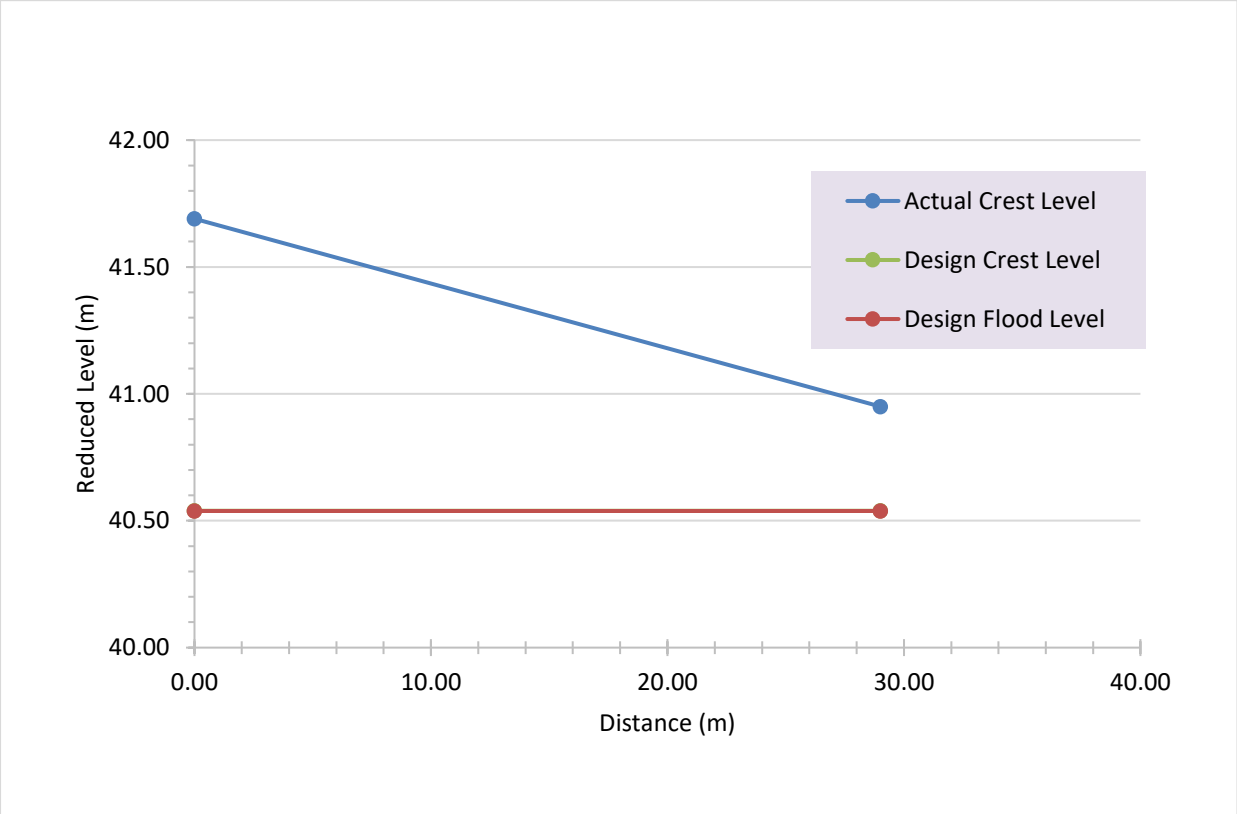


**Figure 91: Waiti Detention Dam Spillway**

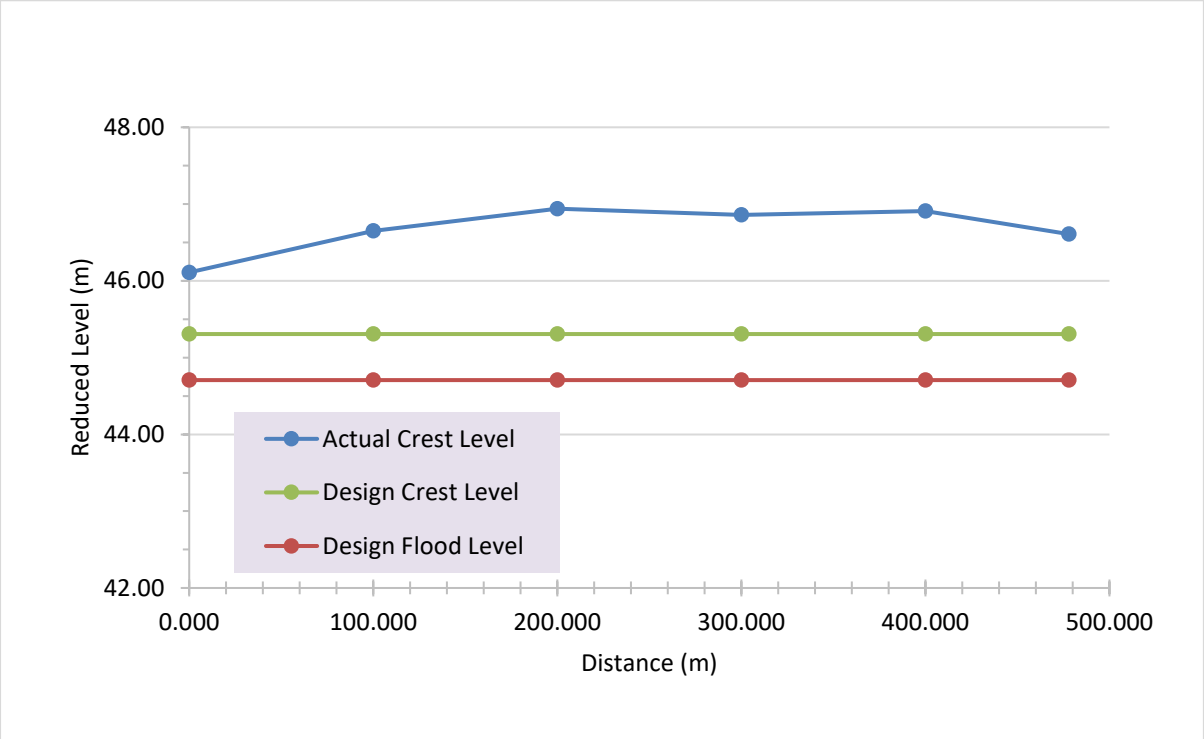
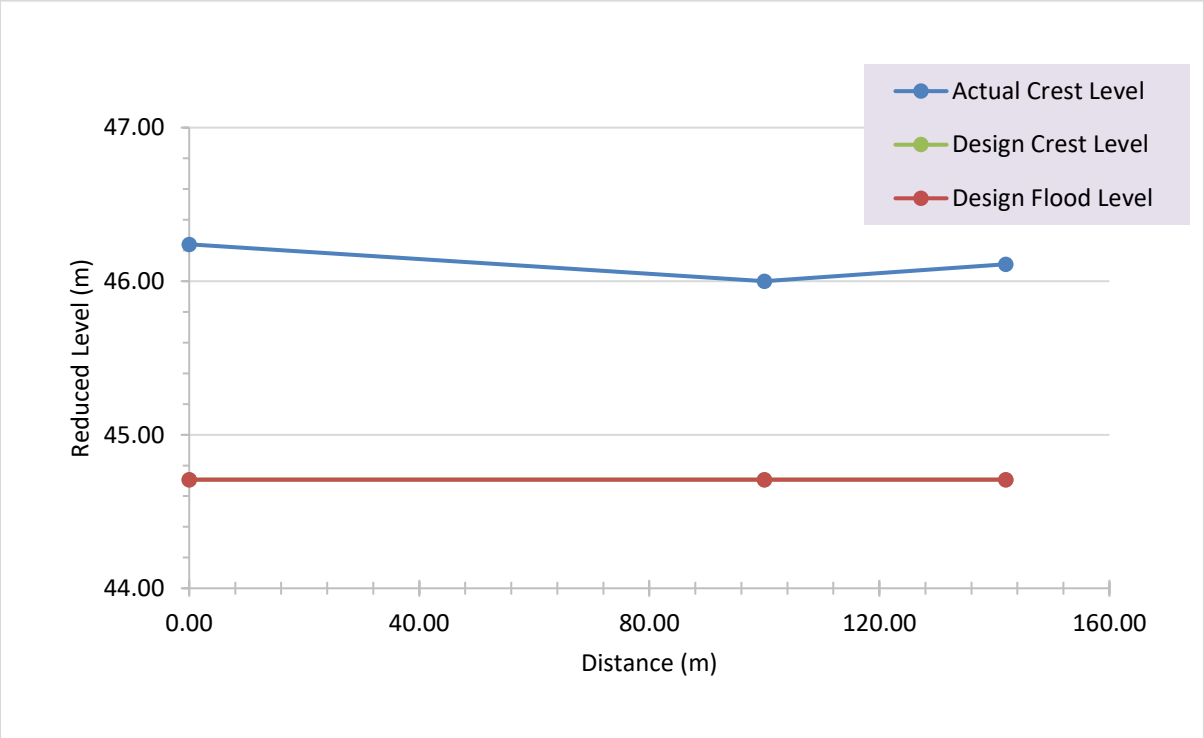
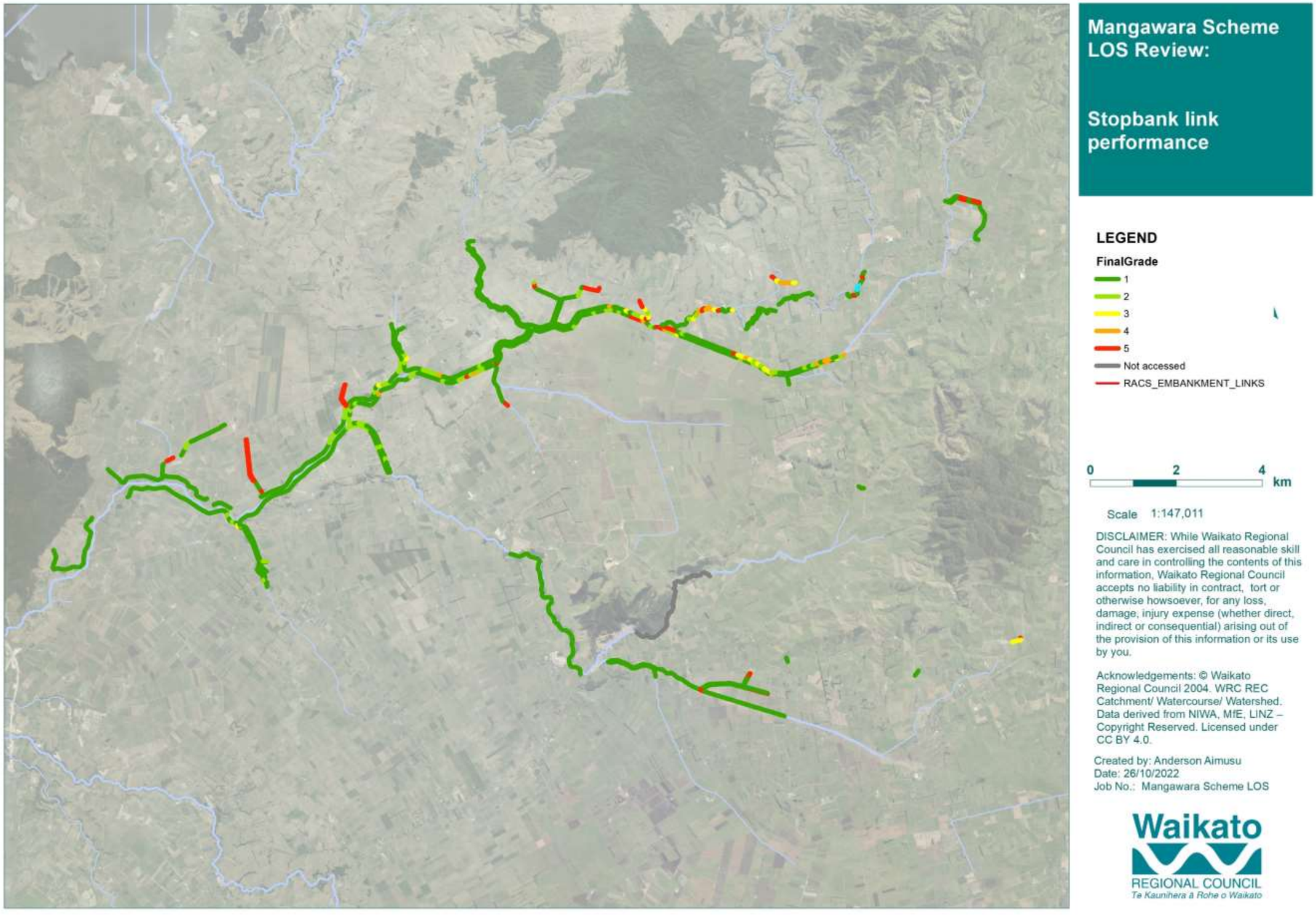



**Figure 92: Waiti Detention Dam Spillway**



# Appendix 6: Flood protection assets performance grade

**Figure 93: Assets performance grade**



# Appendix 7: Tabulated results

**Table 17: Stopbank and Spillway Performance at Links**

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59850 | 27837 | Detention Dam Link | Cawley Detention Dam 00 | 4/01/00 | 0 | 0 | 50 | CAWLEY DRAIN | 1548 | 0.76 | 35.30 | 36.06 | 37.35 | 2.05 | 1 |
| 17730 | 27837 | Detention Dam Link | Cawley Detention Dam 01 | 4/01/00 | 70 | 70 | 50 | CAWLEY DRAIN | 1548 | 0.76 | 35.30 | 36.06 | 36.82 | 1.52 | 1 |
| 59759 | 26342 | Spillway Link | Cawley Detention Dam Spillway 00 | | 0 | 0 | 50 | CAWLEY DRAIN | 1548 | 0.00 | 35.30 | 35.30 | 36.94 | 1.64 | 1 |
| 18478 | 26342 | Spillway Link | Cawley Detention Dam Spillway 01 | 1/04/00 | 21 | 21 | 50 | CAWLEY DRAIN | 1548 | 0.00 | 35.30 | 35.30 | 35.80 | 0.50 | 1 |
| 59807 | 27331 | Link: Firm Clay | Comp 1 SB 00 | 1/03/11 | 0 | 0 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 1 D/S RB | 850 | 0.30 | 14.18 | 14.48 | 17.05 | 2.87 | 1 |
| 3218 | 27331 | Link: Firm Clay | Comp 1 SB 01 | 1/03/11 | 100 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 1 D/S RB | 772 | 0.30 | 13.52 | 13.82 | 14.24 | 0.72 | 1 |
| 3219 | 27331 | Link: Firm Clay | Comp 1 SB 02 | 1/03/11 | 200 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 1 D/S RB | 680 | 0.30 | 13.22 | 13.52 | 14.20 | 0.98 | 1 |
| 3220 | 27331 | Link: Firm Clay | Comp 1 SB 03 | 1/03/11 | 300 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 1 D/S RB | 580 | 0.30 | 13.16 | 13.46 | 14.31 | 1.15 | 1 |
| 3221 | 27331 | Link: Firm Clay | Comp 1 SB 04 | 1/03/11 | 400 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 1 D/S RB | 488 | 0.30 | 13.16 | 13.46 | 14.20 | 1.04 | 1 |
| 3222 | 27331 | Link: Firm Clay | Comp 1 SB 05 | 1/03/11 | 500 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 1 D/S RB | 472 | 0.30 | 13.16 | 13.46 | 14.18 | 1.02 | 1 |
| 3223 | 27331 | Link: Firm Clay | Comp 1 SB 06 | 1/03/11 | 600 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 1 D/S RB | 538 | 0.30 | 13.16 | 13.46 | 14.33 | 1.17 | 1 |
| 3224 | 27331 | Link: Firm Clay | Comp 1 SB 07 | 1/03/11 | 700 | 100 | 50 | MANGAWARA RIVER | 6481 | 0.30 | 12.92 | 13.22 | 14.19 | 1.27 | 1 |
| 3225 | 27331 | Link: Firm Clay | Comp 1 SB 08 | 1/03/11 | 800 | 100 | 50 | MANGAWARA RIVER | 6555 | 0.30 | 12.94 | 13.24 | 14.34 | 1.40 | 1 |
| 3226 | 27331 | Link: Firm Clay | Comp 1 SB 09 | 1/03/11 | 900 | 100 | 50 | MANGAWARA RIVER | 6928 | 0.30 | 12.99 | 13.29 | 14.33 | 1.34 | 1 |
| 3227 | 27331 | Link: Firm Clay | Comp 1 SB 10 | 1/03/11 | 1000 | 100 | 50 | MANGAWARA RIVER | 6933 | 0.30 | 12.99 | 13.29 | 14.18 | 1.19 | 1 |
| 3228 | 27331 | Link: Firm Clay | Comp 1 SB 11 | 1/03/11 | 1100 | 100 | 50 | MANGAWARA RIVER | 6965 | 0.30 | 13.00 | 13.30 | 14.23 | 1.23 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3229 | 27331 | Link: Firm Clay | Comp 1 SB 12 | 1/03/11 | 1200 | 100 | 50 | MANGAWARA RIVER | 7263 | 0.30 | 13.08 | 13.38 | 14.05 | 0.97 | 1 |
| 3230 | 27331 | Link: Firm Clay | Comp 1 SB 13 | 1/03/11 | 1300 | 100 | 50 | MANGAWARA RIVER | 7309 | 0.30 | 13.10 | 13.40 | 14.02 | 0.92 | 1 |
| 3231 | 27331 | Link: Firm Clay | Comp 1 SB 14 | 1/03/11 | 1400 | 100 | 50 | MANGAWARA RIVER | 7489 | 0.30 | 13.21 | 13.51 | 13.90 | 0.69 | 1 |
| 3232 | 27331 | Link: Firm Clay | Comp 1 SB 15 | 1/03/11 | 1500 | 100 | 50 | MANGAWARA RIVER | 7545 | 0.30 | 13.23 | 13.53 | 14.23 | 1.00 | 1 |
| 3233 | 27331 | Link: Firm Clay | Comp 1 SB 16 | 1/03/11 | 1600 | 100 | 50 | MANGAWARA RIVER | 7646 | 0.30 | 13.27 | 13.57 | 14.50 | 1.23 | 1 |
| 3234 | 27331 | Link: Firm Clay | Comp 1 SB 17 | 1/03/11 | 1700 | 100 | 50 | MANGAWARA RIVER | 7836 | 0.30 | 13.32 | 13.62 | 14.43 | 1.11 | 1 |
| 3235 | 27331 | Link: Firm Clay | Comp 1 SB 18 | 1/03/11 | 1800 | 100 | 50 | MANGAWARA RIVER | 7882 | 0.30 | 13.33 | 13.63 | 14.34 | 1.01 | 1 |
| 3236 | 27331 | Link: Firm Clay | Comp 1 SB 19 | 1/03/11 | 1900 | 100 | 50 | MANGAWARA RIVER | 7942 | 0.30 | 13.34 | 13.64 | 14.47 | 1.13 | 1 |
| 3237 | 27331 | Link: Firm Clay | Comp 1 SB 20 | 1/03/11 | 2000 | 100 | 50 | MANGAWARA RIVER | 8149 | 0.30 | 13.38 | 13.68 | 14.52 | 1.14 | 1 |
| 3238 | 27331 | Link: Firm Clay | Comp 1 SB 21 | 1/03/11 | 2100 | 100 | 50 | MANGAWARA RIVER | 8201 | 0.30 | 13.39 | 13.69 | 14.45 | 1.06 | 1 |
| 3239 | 27331 | Link: Firm Clay | Comp 1 SB 22 | 1/03/11 | 2200 | 100 | 50 | MANGAWARA RIVER | 8275 | 0.30 | 13.41 | 13.71 | 14.01 | 0.60 | 1 |
| 3240 | 27331 | Link: Firm Clay | Comp 1 SB 23 | 1/03/11 | 2300 | 100 | 50 | MANGAWARA RIVER | 8327 | 0.30 | 13.42 | 13.72 | 14.13 | 0.71 | 1 |
| 3241 | 27331 | Link: Firm Clay | Comp 1 SB 24 | 1/03/11 | 2400 | 100 | 50 | MANGAWARA RIVER | 8419 | 0.30 | 13.43 | 13.73 | 14.33 | 0.90 | 1 |
| 3242 | 27331 | Link: Firm Clay | Comp 1 SB 25 | 1/03/11 | 2412 | 12 | 50 | MANGAWARA RIVER | 8424 | 0.30 | 13.43 | 13.73 | 14.62 | 1.19 | 1 |
| 59642 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 00 |  | 0 | 0 | 50 | ORCHARD DRAIN | 129 | 0.30 | 19.33 | 19.63 | 20.20 | 0.87 | 1 |
| 3741 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 23122 | 0.30 | 19.39 | 19.69 | 20.24 | 0.85 | 1 |
| 3742 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 23217 | 0.30 | 19.46 | 19.76 | 20.28 | 0.82 | 1 |
| 3743 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 23360 | 0.30 | 19.53 | 19.83 | 20.21 | 0.68 | 1 |
| 3744 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 23449 | 0.30 | 19.58 | 19.88 | 20.27 | 0.69 | 1 |
| 3745 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 23612 | 0.30 | 19.66 | 19.96 | 20.36 | 0.70 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3746 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 06 | 1/04/00 | 600 | 100 | 50 | MANGAWARA RIVER | 23737 | 0.30 | 19.73 | 20.03 | 20.33 | 0.60 | 1 |
| 3747 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 07 | 1/04/00 | 700 | 100 | 50 | MANGAWARA RIVER | 23845 | 0.30 | 19.79 | 20.09 | 20.46 | 0.67 | 1 |
| 3748 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 08 | 1/04/00 | 800 | 100 | 50 | MANGAWARA RIVER | 23887 | 0.30 | 19.81 | 20.11 | 20.52 | 0.71 | 1 |
| 3749 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 09 | 1/04/00 | 900 | 100 | 50 | MANGAWARA RIVER | 24015 | 0.30 | 19.89 | 20.19 | 20.49 | 0.60 | 1 |
| 3750 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 10 | 1/04/00 | 1000 | 100 | 50 | MANGAWARA RIVER | 24108 | 0.30 | 19.95 | 20.25 | 20.44 | 0.49 | 1 |
| 3751 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 11 | 1/04/00 | 1100 | 100 | 50 | MANGAWARA RIVER | 24217 | 0.30 | 20.02 | 20.32 | 20.69 | 0.67 | 1 |
| 3752 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 12 | 1/04/00 | 1200 | 100 | 50 | MANGAWARA RIVER | 24308 | 0.30 | 20.09 | 20.39 | 20.86 | 0.77 | 1 |
| 3753 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 13 | 1/04/00 | 1300 | 100 | 50 | MANGAWARA RIVER | 24405 | 0.30 | 20.16 | 20.46 | 20.90 | 0.74 | 1 |
| 3754 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 14 | 1/04/00 | 1400 | 100 | 50 | MANGAWARA RIVER | 24518 | 0.30 | 20.24 | 20.54 | 21.08 | 0.84 | 1 |
| 3755 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 15 | 1/04/00 | 1500 | 100 | 50 | MANGAWARA RIVER | 24598 | 0.30 | 20.31 | 20.61 | 20.81 | 0.50 | 1 |
| 3756 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 16 | 1/04/00 | 1600 | 100 | 50 | MANGAWARA RIVER | 24718 | 0.30 | 20.41 | 20.71 | 20.45 | 0.04 | 4 |
| 3757 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 17 | 1/04/00 | 1700 | 100 | 50 | MANGAWARA RIVER | 24802 | 0.30 | 20.49 | 20.79 | 20.81 | 0.32 | 1 |
| 3758 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 18 | 1/04/00 | 1800 | 100 | 50 | MANGAWARA RIVER | 24910 | 0.30 | 20.59 | 20.89 | 21.23 | 0.64 | 1 |
| 3759 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 19 | 1/04/00 | 1900 | 100 | 50 | MANGAWARA RIVER | 25011 | 0.30 | 20.69 | 20.99 | 21.12 | 0.43 | 1 |
| 3760 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 20 | 1/04/00 | 2000 | 100 | 50 | MANGAWARA RIVER | 25113 | 0.30 | 20.80 | 21.10 | 20.90 | 0.10 | 3 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3761 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 21 | 1/04/00 | 2100 | 100 | 50 | MANGAWARA RIVER | 25213 | 0.30 | 20.92 | 21.22 | 21.27 | 0.35 | 1 |
| 3762 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 22 | 1/04/00 | 2200 | 100 | 50 | MANGAWARA RIVER | 25311 | 0.30 | 21.05 | 21.35 | 21.30 | 0.25 | 2 |
| 3763 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 23 | 1/04/00 | 2300 | 100 | 50 | MANGAWARA RIVER | 25413 | 0.30 | 21.20 | 21.50 | 21.45 | 0.25 | 2 |
| 3764 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 24 | 1/04/00 | 2400 | 100 | 50 | MANGAWARA RIVER | 25513 | 0.30 | 21.34 | 21.64 | 21.46 | 0.12 | 3 |
| 3765 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 25 | 1/04/00 | 2500 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 10 U/S RB | 102 | 0.30 | 21.46 | 21.76 | 21.36 | -0.10 | 5 |
| 3766 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 26 | 1/04/00 | 2600 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 10 U/S RB | 207 | 0.30 | 21.46 | 21.76 | 21.60 | 0.14 | 3 |
| 3767 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 27 | 1/04/00 | 2700 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 10 U/S RB | 309 | 0.30 | 21.46 | 21.76 | 21.73 | 0.27 | 2 |
| 3768 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 28 | 1/04/00 | 2800 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 10 U/S RB | 400 | 0.30 | 21.70 | 22.00 | 21.81 | 0.11 | 3 |
| 17650 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 29 | 1/04/00 | 2900 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 10 U/S RB | 440 | 0.30 | 21.96 | 22.26 | 21.78 | -0.18 | 5 |
| 17651 | 23661 | Link: Firm Clay | Comp 10 Mangawara River SB 30 | 1/04/00 | 2935 | 57 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 10 U/S RB | 685 | 0.30 | 23.71 | 24.01 | 22.36 | -1.35 | 5 |
| 59667 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 00 | | 0 | 0 | 50 | ORCHARD DRAIN | 129 | 0.30 | 19.33 | 19.63 | 20.27 | 0.94 | 1 |
| 3725 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 01 | 1/04/00 | 100 | 100 | 50 | ORCHARD DRAIN | 229 | 0.30 | 19.33 | 19.63 | 20.14 | 0.81 | 1 |
| 3726 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 02 | 1/04/00 | 200 | 100 | 50 | ORCHARD DRAIN | 329 | 0.30 | 19.33 | 19.63 | 19.90 | 0.57 | 1 |
| 3727 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 03 | 1/04/00 | 300 | 100 | 50 | ORCHARD DRAIN | 429 | 0.30 | 19.33 | 19.63 | 19.91 | 0.58 | 1 |
| 3728 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 04 | 1/04/00 | 400 | 100 | 50 | ORCHARD DRAIN | 529 | 0.30 | 19.33 | 19.63 | 20.44 | 1.11 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3729 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 05 | 1/04/00 | 500 | 100 | 50 | ORCHARD DRAIN | 628 | 0.30 | 19.33 | 19.63 | 20.62 | 1.29 | 1 |
| 3730 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 06 | 1/04/00 | 600 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 123 | 0.30 | 19.36 | 19.66 | 20.78 | 1.42 | 1 |
| 3731 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 07 | 1/04/00 | 700 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 223 | 0.30 | 19.58 | 19.88 | 21.24 | 1.66 | 1 |
| 3732 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 08 | 1/04/00 | 800 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 323 | 0.30 | 19.98 | 20.28 | 21.23 | 1.25 | 1 |
| 3733 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 09 | 1/04/00 | 900 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 423 | 0.30 | 20.33 | 20.63 | 20.96 | 0.63 | 1 |
| 3734 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 10 | 1/04/00 | 1000 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 506 | 0.30 | 20.63 | 20.93 | 20.78 | 0.15 | 2 |
| 3735 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 11 | 1/04/00 | 1100 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 607 | 0.30 | 20.99 | 21.29 | 21.25 | 0.26 | 2 |
| 3736 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 12 | 1/04/00 | 1200 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 736 | 0.30 | 21.42 | 21.72 | 21.93 | 0.51 | 1 |
| 3737 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 13 | 1/04/00 | 1300 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 836 | 0.30 | 21.66 | 21.96 | 21.58 | -0.08 | 5 |
| 3738 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 14 | 1/04/00 | 1400 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 931 | 0.30 | 21.79 | 22.09 | 21.57 | -0.22 | 5 |
| 3739 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 15 | 1/04/00 | 1500 | 100 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 1033 | 0.30 | 22.04 | 22.34 | 21.60 | -0.44 | 5 |
| 3740 | 25833 | Link: Firm Clay | Comp 10 Orchard Drain Eastern Cutoff SB 16 | 1/04/00 | 1592 | 92 | 50 | ORCHARD DRAIN EASTERN CUTOFF | 1041 | 0.30 | 22.14 | 22.44 | 21.40 | -0.74 | 5 |
| 59653 | 25087 | Link: Firm Clay | Comp 11 Mangawara River (section 1) SB 00 | 1/04/00 | 0 | 0 | 50 | MANGAWARA RIVER | 26846 | 0.30 | 23.17 | 23.47 | 24.19 | 1.02 | 1 |
| 3769 | 25087 | Link: Firm Clay | Comp 11 Mangawara River (section 1) SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 26964 | 0.30 | 23.32 | 23.62 | 23.68 | 0.36 | 1 |
| 3770 | 25087 | Link: Firm Clay | Comp 11 Mangawara River (section 1) SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 27067 | 0.30 | 23.51 | 23.81 | 23.91 | 0.40 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3786 | 25087 | Link: Firm Clay | Comp 11 Mangawara River (section 1) SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 27165 | 0.30 | 23.74 | 24.04 | 24.08 | 0.34 | 1 |
| 3787 | 25087 | Link: Firm Clay | Comp 11 Mangawara River (section 1) SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 27266 | 0.30 | 24.05 | 24.35 | 24.31 | 0.26 | 2 |
| 3788 | 25087 | Link: Firm Clay | Comp 11 Mangawara River (section 1) SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 27362 | 0.30 | 24.36 | 24.66 | 23.96 | -0.40 | 5 |
| 3789 | 25087 | Link: Firm Clay | Comp 11 Mangawara River (section 1) SB 06 | 1/04/00 | 590 | 90 | 50 | MANGAWARA RIVER | 27448 | 0.30 | 24.63 | 24.93 | 24.66 | 0.03 | 4 |
| 59587 | 22904 | Link: Firm Clay | Comp 11 Mangawara River (section 2) SB 00 | 1/04/00 | 0 | 0 | 50 | MANGAWARA RIVER | 28967 | 0.30 | 27.30 | 27.60 | 28.32 | 1.02 | 1 |
| 3771 | 22904 | Link: Firm Clay | Comp 11 Mangawara River (section 2) SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 29065 | 0.30 | 27.46 | 27.76 | 28.29 | 0.83 | 1 |
| 3772 | 22904 | Link: Firm Clay | Comp 11 Mangawara River (section 2) SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 29178 | 0.30 | 27.66 | 27.96 | 28.34 | 0.68 | 1 |
| 3773 | 22904 | Link: Firm Clay | Comp 11 Mangawara River (section 2) SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 29279 | 0.30 | 27.83 | 28.13 | 28.67 | 0.84 | 1 |
| 3774 | 22904 | Link: Firm Clay | Comp 11 Mangawara River (section 2) SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 29391 | 0.30 | 28.04 | 28.34 | 29.11 | 1.07 | 1 |
| 3775 | 22904 | Link: Firm Clay | Comp 11 Mangawara River (section 2) SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 29501 | 0.30 | 28.29 | 28.59 | 29.34 | 1.05 | 1 |
| 3776 | 22904 | Link: Firm Clay | Comp 11 Mangawara River (section 2) SB 06 | 1/04/00 | 600 | 100 | 50 | MANGAWARA RIVER | 29581 | 0.30 | 28.51 | 28.81 | 29.62 | 1.11 | 1 |
| 3777 | 22904 | Link: Firm Clay | Comp 11 Mangawara River (section 2) SB 07 | 1/04/00 | 687 | 43 | 50 | MANGAWARA RIVER | 29639 | 0.30 | 28.69 | 28.99 | 29.75 | 1.06 | 1 |
| 59668 | 25834 | Link: Firm Clay | Comp 11 Mangawara River (section 3) SB 00 | 1/04/00 | 0 | 0 | 50 | MANGAWARA RIVER | 30263 | 0.30 | 30.44 | 30.74 | 31.60 | 1.16 | 1 |
| 3778 | 25834 | Link: Firm Clay | Comp 11 Mangawara River (section 3) SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 30352 | 0.30 | 30.55 | 30.85 | 31.22 | 0.67 | 1 |
| 3779 | 25834 | Link: Firm Clay | Comp 11 Mangawara River (section 3) SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 30449 | 0.30 | 30.75 | 31.05 | 31.33 | 0.58 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3780 | 25834 | Link: Firm Clay | Comp 11 Mangawara River (section 3) SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 30549 | 0.30 | 30.98 | 31.28 | 32.06 | 1.08 | 1 |
| 3790 | 25834 | Link: Firm Clay | Comp 11 Mangawara River (section 3) SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 30650 | 0.30 | 31.17 | 31.47 | 32.03 | 0.86 | 1 |
| 3791 | 25834 | Link: Firm Clay | Comp 11 Mangawara River (section 3) SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 30773 | 0.30 | 31.39 | 31.69 | 32.10 | 0.71 | 1 |
| 3792 | 25834 | Link: Firm Clay | Comp 11 Mangawara River (section 3) SB 06 | 1/04/00 | 600 | 100 | 50 | MANGAWARA RIVER | 30861 | 0.30 | 31.54 | 31.84 | 32.62 | 1.08 | 1 |
| 3793 | 25834 | Link: Firm Clay | Comp 11 Mangawara River (section 3) SB 07 | 1/04/00 | 700 | 100 | 50 | MANGAWARA RIVER | 30968 | 0.30 | 31.72 | 32.02 | 32.74 | 1.02 | 1 |
| 59588 | 22905 | Link: Firm Clay | Comp 11 Mangawara River (section 4) SB 00 | 1/04/00 | 0 | 0 | 50 | MANGAWARA RIVER | 30968 | 0.30 | 31.72 | 32.02 | 33.23 | 1.51 | 1 |
| 3781 | 22905 | Link: Firm Clay | Comp 11 Mangawara River (section 4) SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 31147 | 0.30 | 32.10 | 32.40 | 32.69 | 0.59 | 1 |
| 3782 | 22905 | Link: Firm Clay | Comp 11 Mangawara River (section 4) SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 31233 | 0.30 | 32.36 | 32.66 | 33.37 | 1.01 | 1 |
| 3783 | 22905 | Link: Firm Clay | Comp 11 Mangawara River (section 4) SB 03 | 1/04/00 | 227 | 27 | 50 | MANGAWARA RIVER | 31254 | 0.30 | 32.42 | 32.72 | 34.82 | 2.40 | 1 |
| 59837 | 22909 | Spillway Link | Comp 12 Mangawara River LB (Smiths) Spillway 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 33336 | 0.00 | 38.00 | 38.00 | 35.22 | -2.78 | 5 |
| 1568 | 22909 | Spillway Link | Comp 12 Mangawara River LB (Smiths) Spillway 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 33378 | 0.00 | 38.09 | 38.09 | 38.46 | 0.37 | 1 |
| 17690 | 22909 | Spillway Link | Comp 12 Mangawara River LB (Smiths) Spillway 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 33500 | 0.00 | 38.35 | 38.35 | 38.46 | 0.11 | 1 |
| 17691 | 22909 | Spillway Link | Comp 12 Mangawara River LB (Smiths) Spillway 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 33583 | 0.00 | 38.58 | 38.58 | 38.25 | -0.33 | 5 |
| 17692 | 22909 | Spillway Link | Comp 12 Mangawara River LB (Smiths) Spillway 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 33674 | 0.00 | 38.83 | 38.83 | 39.21 | 0.38 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17693 | 22909 | Spillway Link | Comp 12 Mangawara River LB (Smiths) Spillway 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 33841 | 0.00 | 39.09 | 39.09 | 38.92 | -0.17 | 4 |
| 17694 | 22909 | Spillway Link | Comp 12 Mangawara River LB (Smiths) Spillway 06 | 1/04/00 | 532 | 32 | 50 | MANGAWARA RIVER | 33863 | 0.00 | 39.12 | 39.12 | 38.95 | -0.17 | 4 |
| 59757 | 24365 | Spillway Link | Comp 12 Mangawara River LB (Southee) Spillway 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 33863 | 0.00 | 39.12 | 39.12 | 36.13 | -2.99 | 5 |
| 1569 | 24365 | Spillway Link | Comp 12 Mangawara River LB (Southee) Spillway 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 33974 | 0.00 | 39.27 | 39.27 | 39.06 | -0.21 | 5 |
| 1570 | 24365 | Spillway Link | Comp 12 Mangawara River LB (Southee) Spillway 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 34056 | 0.00 | 39.52 | 39.52 | 39.57 | 0.05 | 1 |
| 1571 | 24365 | Spillway Link | Comp 12 Mangawara River LB (Southee) Spillway 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 34169 | 0.00 | 39.94 | 39.94 | 39.61 | -0.33 | 5 |
| 17695 | 24365 | Spillway Link | Comp 12 Mangawara River LB (Southee) Spillway 04 | 1/04/00 | 356 | 56 | 50 | MANGAWARA RIVER | 34197 | 0.00 | 40.02 | 40.02 | 40.20 | 0.18 | 1 |
| 59643 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 25962 | 0.30 | 22.04 | 22.34 | 22.42 | 0.38 | 1 |
| 3811 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 26072 | 0.30 | 22.06 | 22.36 | 22.54 | 0.48 | 1 |
| 3812 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 26191 | 0.30 | 22.10 | 22.40 | 22.82 | 0.72 | 1 |
| 3813 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 26308 | 0.30 | 22.19 | 22.49 | 23.47 | 1.28 | 1 |
| 3814 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 26402 | 0.30 | 22.36 | 22.66 | 23.53 | 1.17 | 1 |
| 3815 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 26496 | 0.30 | 22.63 | 22.93 | 23.76 | 1.13 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3816 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 06 | 1/04/00 | 600 | 100 | 50 | MANGAWARA RIVER | 26603 | 0.30 | 22.85 | 23.15 | 23.82 | 0.97 | 1 |
| 3817 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 07 | 1/04/00 | 700 | 100 | 50 | MANGAWARA RIVER | 26695 | 0.30 | 22.99 | 23.29 | 23.52 | 0.53 | 1 |
| 3818 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 08 | 1/04/00 | 800 | 100 | 50 | MANGAWARA RIVER | 26836 | 0.30 | 23.16 | 23.46 | 24.03 | 0.87 | 1 |
| 3819 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 09 | 1/04/00 | 900 | 100 | 50 | MANGAWARA RIVER | 26934 | 0.30 | 23.28 | 23.58 | 23.52 | 0.24 | 2 |
| 3820 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 10 | 1/04/00 | 1000 | 100 | 50 | MANGAWARA RIVER | 27024 | 0.30 | 23.42 | 23.72 | 23.54 | 0.12 | 3 |
| 3821 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 11 | 1/04/00 | 1100 | 100 | 50 | MANGAWARA RIVER | 27134 | 0.30 | 23.66 | 23.96 | 23.90 | 0.24 | 2 |
| 3822 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 12 | 1/04/00 | 1200 | 100 | 50 | MANGAWARA RIVER | 27243 | 0.30 | 23.97 | 24.27 | 24.00 | 0.03 | 4 |
| 3823 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 13 | 1/04/00 | 1300 | 100 | 50 | MANGAWARA RIVER | 27351 | 0.30 | 24.33 | 24.63 | 24.30 | -0.03 | 5 |
| 3824 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 14 | 1/04/00 | 1400 | 100 | 50 | MANGAWARA RIVER | 27462 | 0.30 | 24.67 | 24.97 | 24.67 | 0.00 | 4 |
| 3825 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 15 | 1/04/00 | 1500 | 100 | 50 | MANGAWARA RIVER | 27557 | 0.30 | 24.88 | 25.18 | 24.94 | 0.06 | 4 |
| 3826 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 16 | 1/04/00 | 1600 | 100 | 50 | MANGAWARA RIVER | 27652 | 0.30 | 25.08 | 25.38 | 25.23 | 0.15 | 3 |
| 3827 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 17 | 1/04/00 | 1700 | 100 | 50 | MANGAWARA RIVER | 27728 | 0.30 | 25.23 | 25.53 | 24.82 | -0.41 | 5 |
| 3828 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 18 | 1/04/00 | 1800 | 100 | 50 | MANGAWARA RIVER | 27874 | 0.30 | 25.55 | 25.85 | 25.89 | 0.34 | 1 |
| 3829 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 19 | 1/04/00 | 1900 | 100 | 50 | MANGAWARA RIVER | 27946 | 0.30 | 25.71 | 26.01 | 26.15 | 0.44 | 1 |
| 3830 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 20 | 1/04/00 | 2000 | 100 | 50 | MANGAWARA RIVER | 28086 | 0.30 | 25.99 | 26.29 | 26.41 | 0.42 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18494 | 23662 | Link: Firm Clay | Comp 12 Mangawara River LB Section 1 SB 21 | 1/04/00 | 2016 | 16 | 50 | MANGAWARA RIVER | 28095 | 0.30 | 26.00 | 26.30 | 26.10 | 0.10 | 3 |
| 59654 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 28816 | 0.30 | 27.06 | 27.36 | 28.27 | 1.21 | 1 |
| 3831 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 28967 | 0.30 | 27.30 | 27.60 | 28.14 | 0.84 | 1 |
| 3832 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 29075 | 0.30 | 27.48 | 27.78 | 28.65 | 1.17 | 1 |
| 3833 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 29148 | 0.30 | 27.60 | 27.90 | 28.47 | 0.87 | 1 |
| 3834 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 29267 | 0.30 | 27.81 | 28.11 | 28.65 | 0.84 | 1 |
| 3835 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 29363 | 0.30 | 27.99 | 28.29 | 29.30 | 1.31 | 1 |
| 3836 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 06 | 1/04/00 | 600 | 100 | 50 | MANGAWARA RIVER | 29460 | 0.30 | 28.19 | 28.49 | 29.51 | 1.33 | 1 |
| 3837 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 07 | 1/04/00 | 700 | 100 | 50 | MANGAWARA RIVER | 29601 | 0.30 | 28.57 | 28.87 | 29.73 | 1.16 | 1 |
| 3838 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 08 | 1/04/00 | 800 | 100 | 50 | MANGAWARA RIVER | 29725 | 0.30 | 28.99 | 29.29 | 29.83 | 0.84 | 1 |
| 3839 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 09 | 1/04/00 | 900 | 100 | 50 | MANGAWARA RIVER | 29787 | 0.30 | 29.24 | 29.54 | 30.17 | 0.93 | 1 |
| 3840 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 10 | 1/04/00 | 1000 | 100 | 50 | MANGAWARA RIVER | 29897 | 0.30 | 29.66 | 29.96 | 30.33 | 0.67 | 1 |
| 17684 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 11 | 1/04/00 | 1100 | 100 | 50 | MANGAWARA RIVER | 30002 | 0.30 | 30.04 | 30.34 | 30.72 | 0.68 | 1 |
| 17685 | 25089 | Link: Firm Clay | Comp 12 Mangawara River LB Section 2 SB 12 | 1/04/00 | 1134 | 34 | 50 | MANGAWARA RIVER | 30048 | 0.30 | 30.14 | 30.44 | 31.99 | 1.85 | 1 |
| 59655 | 25090 | Link: Firm Clay | Comp 12 Mangawara River LB Section 3 SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 30710 | 0.30 | 31.29 | 31.59 | 32.51 | 1.22 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3841 | 25090 | Link: Firm Clay | Comp 12 Mangawara River LB Section 3 SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 30773 | 0.30 | 31.39 | 31.69 | 32.05 | 0.66 | 1 |
| 3842 | 25090 | Link: Firm Clay | Comp 12 Mangawara River LB Section 3 SB 02 | 1/04/00 | 113 | 13 | 50 | MANGAWARA RIVER | 30778 | 0.30 | 31.40 | 31.70 | 32.80 | 1.40 | 1 |
| 59679 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 25962 | 0.30 | 22.04 | 22.34 | 22.22 | 0.18 | 2 |
| 3794 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 01 | 1/04/00 | 100 | 100 | 50 | PARANUI DRAIN | 213 | 0.30 | 22.22 | 22.52 | 22.05 | -0.17 | 5 |
| 3795 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 02 | 1/04/00 | 200 | 100 | 50 | PARANUI DRAIN | 313 | 0.30 | 22.29 | 22.59 | 22.12 | -0.17 | 5 |
| 3796 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 03 | 1/04/00 | 300 | 100 | 50 | PARANUI DRAIN | 413 | 0.30 | 22.37 | 22.67 | 22.26 | -0.11 | 5 |
| 3797 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 04 | 1/04/00 | 400 | 100 | 50 | PARANUI DRAIN | 514 | 0.30 | 22.45 | 22.75 | 22.39 | -0.06 | 5 |
| 3798 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 05 | 1/04/00 | 500 | 100 | 50 | PARANUI DRAIN | 612 | 0.30 | 22.55 | 22.85 | 22.92 | 0.37 | 1 |
| 3799 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 06 | 1/04/00 | 600 | 100 | 50 | PARANUI DRAIN | 712 | 0.30 | 22.66 | 22.96 | 22.92 | 0.26 | 2 |
| 3800 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 07 | 1/04/00 | 700 | 100 | 50 | PARANUI DRAIN | 815 | 0.30 | 22.79 | 23.09 | 23.33 | 0.54 | 1 |
| 3801 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 08 | 1/04/00 | 800 | 100 | 50 | PARANUI DRAIN | 915 | 0.30 | 22.92 | 23.22 | 23.48 | 0.56 | 1 |
| 3802 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 09 | 1/04/00 | 900 | 100 | 50 | PARANUI DRAIN | 1015 | 0.30 | 23.05 | 23.35 | 24.06 | 1.01 | 1 |
| 3803 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 10 | 1/04/00 | 1000 | 100 | 50 | PARANUI DRAIN | 1115 | 0.30 | 23.20 | 23.50 | 24.49 | 1.29 | 1 |
| 3804 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 11 | 1/04/00 | 1100 | 100 | 50 | PARANUI DRAIN | 1211 | 0.30 | 23.35 | 23.65 | 24.64 | 1.29 | 1 |
| 3805 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 12 | 1/04/00 | 1200 | 100 | 50 | PARANUI DRAIN | 1311 | 0.30 | 23.50 | 23.80 | 24.63 | 1.13 | 1 |
| 3806 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 13 | 1/04/00 | 1300 | 100 | 50 | PARANUI DRAIN | 1414 | 0.30 | 23.68 | 23.98 | 24.66 | 0.98 | 1 |
| 3807 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 14 | 1/04/00 | 1400 | 100 | 50 | PARANUI DRAIN | 1514 | 0.30 | 23.84 | 24.14 | 24.71 | 0.87 | 1 |
| 3808 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 15 | 1/04/00 | 1500 | 100 | 50 | PARANUI DRAIN | 1612 | 0.30 | 23.99 | 24.29 | 24.84 | 0.85 | 1 |
| 3809 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 16 | 1/04/00 | 1600 | 100 | 50 | PARANUI DRAIN | 1712 | 0.30 | 24.14 | 24.44 | 24.75 | 0.61 | 1 |
| 3810 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 17 | 1/04/00 | 1700 | 100 | 50 | PARANUI DRAIN | 1812 | 0.30 | 24.28 | 24.58 | 24.98 | 0.70 | 1 |
| 16872 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 18 | 1/04/00 | 1800 | 100 | 50 | PARANUI DRAIN | 1912 | 0.30 | 24.41 | 24.71 | 24.85 | 0.44 | 1 |
| 16873 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 19 | 1/04/00 | 1900 | 100 | 50 | PARANUI DRAIN | 2015 | 0.30 | 24.54 | 24.84 | 24.48 | -0.06 | 5 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16874 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 20 | 1/04/00 | 2000 | 100 | 50 | PARANUI DRAIN | 2111 | 0.30 | 24.66 | 24.96 | 24.74 | 0.08 | 3 |
| 16875 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 21 | 1/04/00 | 2100 | 100 | 50 | PARANUI DRAIN | 2211 | 0.30 | 24.79 | 25.09 | 24.93 | 0.14 | 3 |
| 16876 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 22 | 1/04/00 | 2200 | 100 | 50 | PARANUI DRAIN | 2311 | 0.30 | 24.91 | 25.21 | 24.97 | 0.06 | 4 |
| 16877 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 23 | 1/04/00 | 2300 | 100 | 50 | PARANUI DRAIN | 2411 | 0.30 | 25.02 | 25.32 | 25.12 | 0.10 | 3 |
| 16878 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 24 | 1/04/00 | 2400 | 100 | 50 | PARANUI DRAIN | 2505 | 0.30 | 25.12 | 25.42 | 25.33 | 0.21 | 2 |
| 16879 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 25 | 1/04/00 | 2500 | 100 | 50 | PARANUI DRAIN | 2589 | 0.30 | 25.21 | 25.51 | 25.36 | 0.15 | 3 |
| 16880 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 26 | 1/04/00 | 2600 | 100 | 50 | PARANUI DRAIN | 2728 | 0.30 | 25.38 | 25.68 | 25.55 | 0.17 | 2 |
| 16881 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 27 | 1/04/00 | 2700 | 100 | 50 | PARANUI DRAIN | 2828 | 0.30 | 25.51 | 25.81 | 25.65 | 0.14 | 3 |
| 16882 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 28 | 1/04/00 | 2800 | 100 | 50 | PARANUI DRAIN | 2937 | 0.30 | 25.66 | 25.96 | 25.77 | 0.11 | 3 |
| 16883 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 29 | 1/04/00 | 2900 | 100 | 50 | PARANUI DRAIN | 3046 | 0.30 | 25.83 | 26.13 | 26.00 | 0.17 | 2 |
| 16884 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 30 | 1/04/00 | 3000 | 100 | 50 | PARANUI DRAIN | 3133 | 0.30 | 25.95 | 26.25 | 26.21 | 0.26 | 2 |
| 16885 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 31 | 1/04/00 | 3100 | 100 | 50 | PARANUI DRAIN | 3237 | 0.30 | 26.09 | 26.39 | 26.49 | 0.40 | 1 |
| 16886 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 32 | 1/04/00 | 3200 | 100 | 50 | PARANUI DRAIN | 3340 | 0.30 | 26.24 | 26.54 | 26.61 | 0.37 | 1 |
| 16887 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 33 | 1/04/00 | 3300 | 100 | 50 | PARANUI DRAIN | 3451 | 0.30 | 26.39 | 26.69 | 26.78 | 0.39 | 1 |
| 16888 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 34 | 1/04/00 | 3400 | 100 | 50 | PARANUI DRAIN | 3551 | 0.30 | 26.54 | 26.84 | 27.09 | 0.55 | 1 |
| 16889 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 35 | 1/04/00 | 3500 | 100 | 50 | PARANUI DRAIN | 3651 | 0.30 | 26.72 | 27.02 | 27.14 | 0.42 | 1 |
| 16890 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 36 | 1/04/00 | 3600 | 100 | 50 | PARANUI DRAIN | 3751 | 0.30 | 26.93 | 27.23 | 27.33 | 0.40 | 1 |
| 16891 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 37 | 1/04/00 | 3700 | 100 | 50 | PARANUI DRAIN | 3853 | 0.30 | 27.19 | 27.49 | 27.40 | 0.21 | 2 |
| 16892 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 38 | 1/04/00 | 3800 | 100 | 50 | PARANUI DRAIN | 3953 | 0.30 | 27.50 | 27.80 | 27.88 | 0.38 | 1 |
| 16893 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 39 | 1/04/00 | 3900 | 100 | 50 | PARANUI DRAIN | 4053 | 0.30 | 27.82 | 28.12 | 28.05 | 0.23 | 2 |
| 16894 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 40 | 1/04/00 | 4000 | 100 | 50 | PARANUI DRAIN | 4150 | 0.30 | 28.13 | 28.43 | 28.14 | 0.01 | 4 |
| 16895 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 41 | 1/04/00 | 4100 | 100 | 50 | PARANUI DRAIN | 4250 | 0.30 | 28.48 | 28.78 | 28.78 | 0.30 | 1 |
| 16896 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 42 | 1/04/00 | 4200 | 100 | 50 | PARANUI DRAIN | 4350 | 0.30 | 28.81 | 29.11 | 28.87 | 0.06 | 4 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16897 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 43 | 1/04/00 | 4300 | 100 | 50 | PARANUI DRAIN | 4453 | 0.30 | 29.16 | 29.46 | 29.19 | 0.03 | 4 |
| 16898 | 25836 | Link: Firm Clay | Comp 12 Paranui Drain RB SB 44 | 1/04/00 | 4400 | 100 | 50 | PARANUI DRAIN | 4554 | 0.30 | 29.47 | 29.77 | 30.23 | 0.76 | 1 |
| 59622 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 00 | | 0 | 0 | 50 | TAUHEI STREAM | 5562 | 0.30 | 19.71 | 20.01 | 21.22 | 1.51 | 1 |
| 3843 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 01 | 1/04/00 | 100 | 100 | 50 | TAUHEI STREAM | 5666 | 0.30 | 19.80 | 20.10 | 21.22 | 1.42 | 1 |
| 3844 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 02 | 1/04/00 | 200 | 100 | 50 | TAUHEI STREAM | 5762 | 0.30 | 19.89 | 20.19 | 21.35 | 1.46 | 1 |
| 3845 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 03 | 1/04/00 | 300 | 100 | 50 | TAUHEI STREAM | 5846 | 0.30 | 19.97 | 20.27 | 21.55 | 1.58 | 1 |
| 3846 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 04 | 1/04/00 | 400 | 100 | 50 | TAUHEI STREAM | 5960 | 0.30 | 20.07 | 20.37 | 21.46 | 1.39 | 1 |
| 3847 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 05 | 1/04/00 | 500 | 100 | 50 | TAUHEI STREAM | 6085 | 0.30 | 20.19 | 20.49 | 21.73 | 1.54 | 1 |
| 3848 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 06 | 1/04/00 | 600 | 100 | 50 | TAUHEI STREAM | 6174 | 0.30 | 20.27 | 20.57 | 21.92 | 1.65 | 1 |
| 3849 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 07 | 1/04/00 | 700 | 100 | 50 | TAUHEI STREAM | 6282 | 0.30 | 20.37 | 20.67 | 21.93 | 1.56 | 1 |
| 3850 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 08 | 1/04/00 | 800 | 100 | 50 | TAUHEI STREAM | 6439 | 0.30 | 20.51 | 20.81 | 22.06 | 1.55 | 1 |
| 3851 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 09 | 1/04/00 | 900 | 100 | 50 | TAUHEI STREAM | 6527 | 0.30 | 20.59 | 20.89 | 22.59 | 2.00 | 1 |
| 3852 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 10 | 1/04/00 | 1000 | 100 | 50 | TAUHEI STREAM | 6607 | 0.30 | 20.66 | 20.96 | 22.39 | 1.73 | 1 |
| 3853 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 11 | 1/04/00 | 1100 | 100 | 50 | TAUHEI STREAM | 6722 | 0.30 | 20.76 | 21.06 | 22.19 | 1.43 | 1 |
| 3854 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 12 | 1/04/00 | 1200 | 100 | 50 | TAUHEI STREAM | 6833 | 0.30 | 20.86 | 21.16 | 22.28 | 1.42 | 1 |
| 3855 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 13 | 1/04/00 | 1300 | 100 | 50 | TAUHEI STREAM | 6930 | 0.30 | 20.94 | 21.24 | 22.17 | 1.23 | 1 |
| 3856 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 14 | 1/04/00 | 1400 | 100 | 50 | TAUHEI STREAM | 7056 | 0.30 | 21.05 | 21.35 | 22.44 | 1.39 | 1 |
| 3857 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 15 | 1/04/00 | 1500 | 100 | 50 | TAUHEI STREAM | 7136 | 0.30 | 21.11 | 21.41 | 23.14 | 2.03 | 1 |
| 3858 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 16 | 1/04/00 | 1600 | 100 | 50 | TAUHEI STREAM | 7229 | 0.30 | 21.19 | 21.49 | 23.17 | 1.98 | 1 |
| 3859 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 17 | 1/04/00 | 1700 | 100 | 50 | TAUHEI STREAM | 7295 | 0.30 | 21.25 | 21.55 | 22.63 | 1.38 | 1 |
| 3860 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 18 | 1/04/00 | 1800 | 100 | 50 | TAUHEI STREAM | 7412 | 0.30 | 21.35 | 21.65 | 22.99 | 1.64 | 1 |
| 3861 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 19 | 1/04/00 | 1900 | 100 | 50 | TAUHEI STREAM | 7534 | 0.30 | 21.45 | 21.75 | 23.65 | 2.20 | 1 |
| 3862 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 20 | 1/04/00 | 2000 | 100 | 50 | TAUHEI STREAM | 7669 | 0.30 | 21.56 | 21.86 | 23.65 | 2.09 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3863 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 21 | 1/04/00 | 2100 | 100 | 50 | TAUHEI STREAM | 7742 | 0.30 | 21.63 | 21.93 | 24.64 | 3.02 | 1 |
| 3864 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 22 | 1/04/00 | 2200 | 100 | 50 | TAUHEI STREAM | 7832 | 0.30 | 21.70 | 22.00 | 24.03 | 2.33 | 1 |
| 3865 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 23 | 1/04/00 | 2300 | 100 | 50 | TAUHEI STREAM | 7932 | 0.30 | 21.78 | 22.08 | 23.15 | 1.37 | 1 |
| 3866 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 24 | 1/04/00 | 2400 | 100 | 50 | TAUHEI STREAM | 8029 | 0.30 | 21.86 | 22.16 | 22.98 | 1.12 | 1 |
| 3867 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 25 | 1/04/00 | 2500 | 100 | 50 | TAUHEI STREAM | 8147 | 0.30 | 21.96 | 22.26 | 23.82 | 1.86 | 1 |
| 3868 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 26 | 1/04/00 | 2600 | 100 | 50 | TAUHEI STREAM | 8218 | 0.30 | 22.02 | 22.32 | 22.57 | 0.55 | 1 |
| 3869 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 27 | 1/04/00 | 2700 | 100 | 50 | TAUHEI STREAM | 8299 | 0.30 | 22.09 | 22.39 | 22.94 | 0.85 | 1 |
| 3870 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 28 | 1/04/00 | 2800 | 100 | 50 | TAUHEI STREAM | 8398 | 0.30 | 22.17 | 22.47 | 22.99 | 0.82 | 1 |
| 3871 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 29 | 1/04/00 | 2900 | 100 | 50 | TAUHEI STREAM | 8517 | 0.30 | 22.27 | 22.57 | 23.79 | 1.52 | 1 |
| 3872 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 30 | 1/04/00 | 3000 | 100 | 50 | TAUHEI STREAM | 8631 | 0.30 | 22.37 | 22.67 | 23.88 | 1.51 | 1 |
| 3873 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 31 | 1/04/00 | 3100 | 100 | 50 | TAUHEI STREAM | 8732 | 0.30 | 22.47 | 22.77 | 23.66 | 1.19 | 1 |
| 3874 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 32 | 1/04/00 | 3200 | 100 | 50 | TAUHEI STREAM | 8833 | 0.30 | 22.56 | 22.86 | 23.50 | 0.94 | 1 |
| 3875 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 33 | 1/04/00 | 3300 | 100 | 50 | TAUHEI STREAM | 8913 | 0.30 | 22.64 | 22.94 | 23.82 | 1.18 | 1 |
| 3876 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 34 | 1/04/00 | 3400 | 100 | 50 | TAUHEI STREAM | 9043 | 0.30 | 22.76 | 23.06 | 24.32 | 1.56 | 1 |
| 3877 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 35 | 1/04/00 | 3500 | 100 | 50 | TAUHEI STREAM | 9172 | 0.30 | 22.89 | 23.19 | 24.66 | 1.77 | 1 |
| 3878 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 36 | 1/04/00 | 3600 | 100 | 50 | TAUHEI STREAM | 9269 | 0.30 | 22.99 | 23.29 | 24.00 | 1.01 | 1 |
| 3879 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 37 | 1/04/00 | 3700 | 100 | 50 | TAUHEI STREAM | 9380 | 0.30 | 23.12 | 23.42 | 23.76 | 0.64 | 1 |
| 3880 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 38 | 1/04/00 | 3800 | 100 | 50 | TAUHEI STREAM | 9434 | 0.30 | 23.19 | 23.49 | 23.80 | 0.61 | 1 |
| 3881 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 39 | 1/04/00 | 3900 | 100 | 50 | TAUHEI STREAM | 9559 | 0.30 | 23.34 | 23.64 | 24.21 | 0.87 | 1 |
| 3882 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 40 | 1/04/00 | 4000 | 100 | 50 | TAUHEI STREAM | 9707 | 0.30 | 23.59 | 23.89 | 24.32 | 0.73 | 1 |
| 3883 | 23683 | Link: Firm Clay | Comp 13 Tauhei Stream LB SB 41 | 1/04/00 | 4095 | 95 | 50 | TAUHEI STREAM | 9747 | 0.30 | 23.65 | 23.95 | 24.35 | 0.70 | 1 |
| 59696 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 00 | 1/03/11 | 0 | 0 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 2 D/S RB | 636 | 0.30 | 13.72 | 14.02 | 15.64 | 1.92 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3243 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 01 | 1/03/11 | 100 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 2 D/S RB | 583 | 0.30 | 13.72 | 14.02 | 14.65 | 0.93 | 1 |
| 3244 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 02 | 1/03/11 | 200 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 2 D/S RB | 535 | 0.30 | 13.72 | 14.02 | 14.43 | 0.71 | 1 |
| 3245 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 03 | 1/03/11 | 300 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 2 D/S RB | 359 | 0.30 | 13.72 | 14.02 | 14.51 | 0.79 | 1 |
| 3246 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 04 | 1/03/11 | 400 | 100 | 50 | UN-NAMED TRIBUTARY OF MANGAWARA RIVER - COMPARTMENT 2 D/S RB | 315 | 0.30 | 13.72 | 14.02 | 14.60 | 0.88 | 1 |
| 3247 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 05 | 1/03/11 | 500 | 100 | 50 | MANGAWARA RIVER | 9764 | 0.30 | 13.79 | 14.09 | 14.57 | 0.78 | 1 |
| 3248 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 06 | 1/03/11 | 600 | 100 | 50 | MANGAWARA RIVER | 9834 | 0.30 | 13.80 | 14.10 | 14.53 | 0.73 | 1 |
| 3249 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 07 | 1/03/11 | 700 | 100 | 50 | MANGAWARA RIVER | 9878 | 0.30 | 13.80 | 14.10 | 14.72 | 0.92 | 1 |
| 3250 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 08 | 1/03/11 | 800 | 100 | 50 | MANGAWARA RIVER | 9972 | 0.30 | 13.81 | 14.11 | 14.72 | 0.91 | 1 |
| 3251 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 09 | 1/03/11 | 900 | 100 | 50 | MANGAWARA RIVER | 9981 | 0.30 | 13.81 | 14.11 | 14.85 | 1.04 | 1 |
| 3252 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 10 | 1/03/11 | 1000 | 100 | 50 | MANGAWARA RIVER | 10216 | 0.30 | 13.83 | 14.13 | 14.76 | 0.93 | 1 |
| 3253 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 11 | 1/03/11 | 1100 | 100 | 50 | MANGAWARA RIVER | 10257 | 0.30 | 13.84 | 14.14 | 14.45 | 0.61 | 1 |
| 3254 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 12 | 1/03/11 | 1200 | 100 | 50 | MANGAWARA RIVER | 10339 | 0.30 | 13.84 | 14.14 | 14.67 | 0.83 | 1 |
| 3255 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 13 | 1/03/11 | 1300 | 100 | 50 | MANGAWARA RIVER | 10574 | 0.30 | 13.87 | 14.17 | 14.65 | 0.78 | 1 |
| 3256 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 14 | 1/03/11 | 1400 | 100 | 50 | MANGAWARA RIVER | 10618 | 0.30 | 13.87 | 14.17 | 14.64 | 0.77 | 1 |
| 3257 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 15 | 1/03/11 | 1500 | 100 | 50 | MANGAWARA RIVER | 10689 | 0.30 | 13.87 | 14.17 | 14.69 | 0.82 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3258 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 16 | 1/03/11 | 1600 | 100 | 50 | MANGAWARA RIVER | 10774 | 0.30 | 13.90 | 14.20 | 14.90 | 1.00 | 1 |
| 3259 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 17 | 1/03/11 | 1700 | 100 | 50 | MANGAWARA RIVER | 10891 | 0.30 | 13.92 | 14.22 | 14.81 | 0.89 | 1 |
| 3260 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 18 | 1/03/11 | 1800 | 100 | 50 | MANGAWARA RIVER | 10981 | 0.30 | 13.93 | 14.23 | 14.77 | 0.84 | 1 |
| 3261 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 19 | 1/03/11 | 1900 | 100 | 50 | MANGAWARA RIVER | 11061 | 0.30 | 13.94 | 14.24 | 14.74 | 0.80 | 1 |
| 3262 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 20 | 1/03/11 | 2000 | 100 | 50 | MANGAWARA RIVER | 11158 | 0.30 | 13.95 | 14.25 | 14.72 | 0.77 | 1 |
| 3263 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 21 | 1/03/11 | 2100 | 100 | 50 | MANGAWARA RIVER | 11197 | 0.30 | 13.95 | 14.25 | 14.50 | 0.55 | 1 |
| 3264 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 22 | 1/03/11 | 2200 | 100 | 50 | MANGAWARA RIVER | 11249 | 0.30 | 13.96 | 14.26 | 14.76 | 0.80 | 1 |
| 3265 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 23 | 1/03/11 | 2300 | 100 | 50 | MANGAWARA RIVER | 11266 | 0.30 | 13.96 | 14.26 | 15.11 | 1.15 | 1 |
| 3266 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 24 | 1/03/11 | 2400 | 100 | 50 | MANGAWARA RIVER | 11598 | 0.30 | 14.00 | 14.30 | 14.94 | 0.94 | 1 |
| 3267 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 25 | 1/03/11 | 2500 | 100 | 50 | MANGAWARA RIVER | 11685 | 0.30 | 14.02 | 14.32 | 14.99 | 0.97 | 1 |
| 3268 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 26 | 1/03/11 | 2600 | 100 | 50 | MANGAWARA RIVER | 11791 | 0.30 | 14.03 | 14.33 | 14.94 | 0.91 | 1 |
| 3269 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 27 | 1/03/11 | 2700 | 100 | 50 | MANGAWARA RIVER | 11848 | 0.30 | 14.05 | 14.35 | 15.08 | 1.03 | 1 |
| 3270 | 25841 | Link: Firm Clay | Comp 2 Mangawara River Sect 1 SB 28 | 1/03/11 | 2775 | 75 | 50 | MANGAWARA RIVER | 11902 | 0.30 | 14.06 | 14.36 | 15.02 | 0.96 | 1 |
| 59706 | 28039 | Link: Firm Clay | Comp 2 Mangawara River Sect 2 SB 00 | 1/03/11 | 0 | 0 | 50 | MANGAWARA RIVER | 12338 | 0.30 | 14.24 | 14.54 | 16.17 | 1.93 | 1 |
| 3271 | 28039 | Link: Firm Clay | Comp 2 Mangawara River Sect 2 SB 01 | 4/01/00 | 100 | 100 | 50 | MANGAWARA RIVER | 12404 | 0.30 | 14.30 | 14.60 | 14.90 | 0.60 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3272 | 28039 | Link: Firm Clay | Comp 2 Mangawara River Sect 2 SB 02 | 4/01/00 | 200 | 100 | 50 | MANGAWARA RIVER | 12485 | 0.30 | 14.38 | 14.68 | 14.89 | 0.51 | 1 |
| 3273 | 28039 | Link: Firm Clay | Comp 2 Mangawara River Sect 2 SB 03 | 1/03/11 | 300 | 100 | 50 | MANGAWARA RIVER | 12549 | 0.30 | 14.44 | 14.74 | 15.41 | 0.97 | 1 |
| 3274 | 28039 | Link: Firm Clay | Comp 2 Mangawara River Sect 2 SB 04 | 1/03/11 | 400 | 100 | 50 | MANGAWARA RIVER | 12656 | 0.30 | 14.53 | 14.83 | 15.35 | 0.82 | 1 |
| 17397 | 28039 | Link: Firm Clay | Comp 2 Mangawara River Sect 2 SB 05 | 1/03/11 | 433 | 33 | 50 | MANGAWARA RIVER | 12670 | 0.30 | 14.54 | 14.84 | 15.42 | 0.88 | 1 |
| 59616 | 23355 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (downstream)SB 00 | 8/03/19 | 0 | 0 | 10 | RUTHERFORDS DRAIN | 186 | 0.30 | 13.38 | 13.68 | 14.02 | 0.64 | 1 |
| 16496 | 23355 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (downstream)SB 01 | 8/03/19 | 100 | 100 | 10 | RUTHERFORDS DRAIN | 294 | 0.30 | 13.39 | 13.69 | 13.99 | 0.60 | 1 |
| 16497 | 23355 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (downstream)SB 02 | 8/03/19 | 200 | 100 | 10 | RUTHERFORDS DRAIN | 394 | 0.30 | 13.39 | 13.69 | 14.00 | 0.61 | 1 |
| 16498 | 23355 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (downstream)SB 03 | 8/03/19 | 300 | 100 | 10 | RUTHERFORDS DRAIN | 495 | 0.30 | 13.40 | 13.70 | 14.00 | 0.60 | 1 |
| 16499 | 23355 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (downstream)SB 04 | 8/03/19 | 327 | 27 | 10 | RUTHERFORDS DRAIN | 529 | 0.30 | 13.41 | 13.71 | 14.11 | 0.70 | 1 |
| 59639 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 00 | 8/03/19 | 0 | 0 | 10 | RUTHERFORDS DRAIN | 995 | 0.30 | 13.42 | 13.72 | 13.59 | 0.17 | 2 |
| 16500 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 01 | 8/03/19 | 100 | 100 | 10 | RUTHERFORDS DRAIN | 1095 | 0.30 | 13.42 | 13.72 | 13.73 | 0.31 | 1 |
| 16501 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 02 | 8/03/19 | 200 | 100 | 10 | RUTHERFORDS DRAIN | 1193 | 0.30 | 13.43 | 13.73 | 13.73 | 0.30 | 1 |
| 16502 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 03 | 8/03/19 | 300 | 100 | 10 | RUTHERFORDS DRAIN | 1295 | 0.30 | 13.44 | 13.74 | 13.73 | 0.29 | 2 |
| 16503 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 04 | 8/03/19 | 400 | 100 | 10 | RUTHERFORDS DRAIN | 1402 | 0.30 | 13.44 | 13.74 | 13.69 | 0.25 | 2 |
| 16504 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 05 | 8/03/19 | 500 | 100 | 10 | RUTHERFORDS DRAIN | 1502 | 0.30 | 13.45 | 13.75 | 13.89 | 0.44 | 1 |
| 16505 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 06 | 8/03/19 | 600 | 100 | 10 | RUTHERFORDS DRAIN | 1602 | 0.30 | 13.46 | 13.76 | 13.88 | 0.42 | 1 |
| 16506 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 07 | 8/03/19 | 700 | 100 | 10 | RUTHERFORDS DRAIN | 1709 | 0.30 | 13.46 | 13.76 | 13.83 | 0.37 | 1 |
| 16507 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 08 | 8/03/19 | 800 | 100 | 10 | RUTHERFORDS DRAIN | 1807 | 0.30 | 13.47 | 13.77 | 13.82 | 0.35 | 1 |
| 16508 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 09 | 8/03/19 | 900 | 100 | 10 | RUTHERFORDS DRAIN | 1906 | 0.30 | 13.48 | 13.78 | 13.83 | 0.35 | 1 |
| 16509 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 10 | 8/03/19 | 1000 | 100 | 10 | RUTHERFORDS DRAIN | 1906 | 0.30 | 13.49 | 13.79 | 13.88 | 0.39 | 1 |
| 83811 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 11 | 8/03/19 | 1100 | 100 | 10 | RUTHERFORDS DRAIN | 1906 | 0.30 | 13.49 | 13.79 | 13.91 | 0.42 | 1 |
| 83812 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 12 | 8/03/19 | 1200 | 100 | 10 | RUTHERFORDS DRAIN | 1906 | 0.30 | 13.50 | 13.80 | 14.34 | 0.84 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 83813 | 23416 | Link: Firm Clay | Comp 2 Rutherfords Drain LB SB (upstream)SB 13 | 8/03/19 | 1291 | 91 | 10 | RUTHERFORDS DRAIN | 1906 | 0.30 | 13.50 | 13.80 | 15.08 | 1.58 | 1 |
| 59719 | 27760 | Link: Firm Clay | Comp 2 Rutherfords Drain RB SB (middle section)SB 00 | 1/03/11 | 0 | 0 | 10 | RUTHERFORDS DRAIN | 630 | 0.30 | 13.38 | 13.68 | 13.47 | 0.09 | 3 |
| 16482 | 27760 | Link: Firm Clay | Comp 2 Rutherfords Drain RB SB (middle section)SB 01 | 1/03/11 | 100 | 100 | 10 | RUTHERFORDS DRAIN | 730 | 0.30 | 13.38 | 13.68 | 12.92 | -0.46 | 5 |
| 16483 | 27760 | Link: Firm Clay | Comp 2 Rutherfords Drain RB SB (middle section)SB 02 | 1/03/11 | 173 | 73 | 10 | RUTHERFORDS DRAIN | 805 | 0.30 | 13.38 | 13.68 | 13.18 | -0.20 | 5 |
| 59656 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 00 | 1/04/12 | 0 | 0 | unknown | TE MIMIHA SWAMP | 484 | 0.00 | 15.12 | 15.12 | 15.01 | -0.11 | 5 |
| 3275 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 01 | 1/04/12 | 100 | 100 | unknown | TE MIMIHA SWAMP | 585 | 0.00 | 15.12 | 15.12 | 14.81 | -0.31 | 5 |
| 3276 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 02 | 1/04/12 | 200 | 100 | unknown | TE MIMIHA SWAMP | 681 | 0.00 | 15.12 | 15.12 | 14.73 | -0.39 | 5 |
| 3277 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 03 | 1/04/12 | 300 | 100 | unknown | TE MIMIHA SWAMP | 782 | 0.00 | 15.12 | 15.12 | 14.65 | -0.47 | 5 |
| 3278 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 04 | 1/04/12 | 400 | 100 | unknown | TE MIMIHA SWAMP | 881 | 0.00 | 15.12 | 15.12 | 14.55 | -0.57 | 5 |
| 3279 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 05 | 1/04/12 | 500 | 100 | unknown | TE MIMIHA SWAMP | 982 | 0.00 | 15.12 | 15.12 | 14.50 | -0.62 | 5 |
| 3280 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 06 | 1/04/12 | 600 | 100 | unknown | TE MIMIHA SWAMP | 1082 | 0.00 | 15.12 | 15.12 | 14.52 | -0.60 | 5 |
| 3281 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 07 | 1/04/12 | 700 | 100 | unknown | TE MIMIHA SWAMP | 1180 | 0.00 | 15.12 | 15.12 | 14.39 | -0.73 | 5 |
| 3282 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 08 | 1/04/12 | 800 | 100 | unknown | TE MIMIHA SWAMP | 1280 | 0.00 | 15.12 | 15.12 | 14.53 | -0.59 | 5 |
| 3283 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 09 | 1/04/12 | 900 | 100 | unknown | TE MIMIHA SWAMP | 1382 | 0.00 | 15.12 | 15.12 | 14.50 | -0.62 | 5 |
| 3284 | 25093 | Link: Firm Clay | Comp 2 Te Mimiha Swamp SB 10 | 1/04/12 | 987 | 87 | unknown | TE MIMIHA SWAMP | 1472 | 0.00 | 15.12 | 15.12 | 14.70 | -0.42 | 5 |
| 59795 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 00 | | 0 | 0 | 5 | TAUHEI STREAM | 10560 | 0.00 | 22.65 | 22.65 | 24.37 | 1.72 | 1 |
| 16603 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 01 | 1/04/00 | 100 | 100 | 5 | TAUHEI STREAM | 10653 | 0.00 | 22.68 | 22.68 | 24.36 | 1.68 | 1 |
| 16604 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 02 | 1/04/00 | 200 | 100 | 5 | TAUHEI STREAM | 10754 | 0.00 | 22.71 | 22.71 | 23.37 | 0.66 | 1 |
| 16605 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 03 | 1/04/00 | 300 | 100 | 5 | TAUHEI STREAM | 10861 | 0.00 | 22.75 | 22.75 | 24.40 | 1.65 | 1 |
| 16606 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 04 | 1/04/00 | 400 | 100 | 5 | TAUHEI STREAM | 10966 | 0.00 | 22.78 | 22.78 | 24.54 | 1.76 | 1 |
| 16607 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 05 | 1/04/00 | 500 | 100 | 5 | TAUHEI STREAM | 11063 | 0.00 | 22.82 | 22.82 | 24.40 | 1.58 | 1 |
| 16608 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 06 | 1/04/00 | 600 | 100 | 5 | TAUHEI STREAM | 11159 | 0.00 | 22.85 | 22.85 | 24.38 | 1.53 | 1 |
| 16609 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 07 | 1/04/00 | 700 | 100 | 5 | TAUHEI STREAM | 11253 | 0.00 | 22.89 | 22.89 | 24.25 | 1.36 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16610 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 08 | 1/04/00 | 800 | 100 | 5 | TAUHEI STREAM | 11358 | 0.00 | 22.93 | 22.93 | 24.44 | 1.51 | 1 |
| 16611 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 09 | 1/04/00 | 900 | 100 | 5 | TAUHEI STREAM | 11458 | 0.00 | 22.97 | 22.97 | 24.19 | 1.22 | 1 |
| 16612 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 10 | 1/04/00 | 1000 | 100 | 5 | TAUHEI STREAM | 11563 | 0.00 | 23.01 | 23.01 | 24.29 | 1.28 | 1 |
| 16613 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 11 | 1/04/00 | 1100 | 100 | 5 | TAUHEI STREAM | 11669 | 0.00 | 23.06 | 23.06 | 24.28 | 1.22 | 1 |
| 17611 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 12 | 1/04/00 | 1200 | 100 | 5 | EASTERN OUTLET DRAIN | 85 | 0.00 | 23.07 | 23.07 | 24.10 | 1.03 | 1 |
| 17612 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 13 | 1/04/00 | 1300 | 100 | 5 | EASTERN OUTLET DRAIN | 184 | 0.00 | 23.08 | 23.08 | 24.05 | 0.97 | 1 |
| 17613 | 28453 | Link: Firm Clay | Comp 20 Tauhei LB SB 14 | 1/04/00 | 1317 | 17 | 5 | EASTERN OUTLET DRAIN | 204 | 0.00 | 23.08 | 23.08 | 24.19 | 1.11 | 1 |
| 59800 | 25584 | Link: Firm Clay | Comp 21/01A Cawley Drain RB SB 00 | | 0 | 0 | 5 | CAWLEY DRAIN | 10 | 0.00 | 23.94 | 23.94 | 24.27 | 0.33 | 1 |
| 13079 | 25584 | Link: Firm Clay | Comp 21/01A Cawley Drain RB SB 01 | 1/04/00 | 100 | 100 | 5 | CAWLEY DRAIN | 111 | 0.00 | 23.94 | 23.94 | 24.27 | 0.33 | 1 |
| 13080 | 25584 | Link: Firm Clay | Comp 21/01A Cawley Drain RB SB 02 | 1/04/00 | 200 | 100 | 5 | CAWLEY DRAIN | 208 | 0.00 | 24.12 | 24.12 | 24.38 | 0.26 | 1 |
| 13081 | 25584 | Link: Firm Clay | Comp 21/01A Cawley Drain RB SB 03 | 1/04/00 | 300 | 100 | 5 | CAWLEY DRAIN | 308 | 0.00 | 24.40 | 24.41 | 24.18 | -0.22 | 5 |
| 17644 | 25584 | Link: Firm Clay | Comp 21/01A Cawley Drain RB SB 04 | 1/04/00 | 344 | 44 | 5 | CAWLEY DRAIN | 349 | 0.00 | 24.53 | 24.53 | 24.87 | 0.34 | 1 |
| 59641 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 00 | | 0 | 0 | 5 | SPECIAL AREA DRAIN | 10 | 0.00 | 0.00 | 0.00 | 23.77 | 23.77 | 1 |
| 10827 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 01 | 1/04/00 | 100 | 100 | 5 | SPECIAL AREA DRAIN | 113 | 0.00 | 23.68 | 23.68 | 23.77 | 0.09 | 1 |
| 12991 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 02 | 1/04/00 | 200 | 100 | 5 | SPECIAL AREA DRAIN | 210 | 0.00 | 23.68 | 23.68 | 24.03 | 0.35 | 1 |
| 12992 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 03 | 1/04/00 | 300 | 100 | 5 | SPECIAL AREA DRAIN | 306 | 0.00 | 23.68 | 23.68 | 23.83 | 0.15 | 1 |
| 12993 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 04 | 1/04/00 | 400 | 100 | 5 | SPECIAL AREA DRAIN | 406 | 0.00 | 23.68 | 23.68 | 23.90 | 0.22 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12994 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 05 | 1/04/00 | 500 | 100 | 5 | SPECIAL AREA DRAIN | 505 | 0.00 | 23.68 | 23.68 | 23.92 | 0.24 | 1 |
| 12995 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 06 | 1/04/00 | 600 | 100 | 5 | SPECIAL AREA DRAIN | 608 | 0.00 | 23.69 | 23.69 | 24.00 | 0.31 | 1 |
| 12996 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 07 | 1/04/00 | 700 | 100 | 5 | SPECIAL AREA DRAIN | 705 | 0.00 | 23.69 | 23.69 | 24.10 | 0.41 | 1 |
| 12997 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 08 | 1/04/00 | 800 | 100 | 5 | SPECIAL AREA DRAIN | 803 | 0.00 | 23.69 | 23.69 | 24.06 | 0.37 | 1 |
| 12998 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 09 | 1/04/00 | 900 | 100 | 5 | SPECIAL AREA DRAIN | 905 | 0.00 | 23.69 | 23.69 | 23.96 | 0.27 | 1 |
| 12999 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 10 | 1/04/00 | 1000 | 100 | 5 | SPECIAL AREA DRAIN | 1005 | 0.00 | 23.71 | 23.71 | 24.09 | 0.38 | 1 |
| 13000 | 24831 | Link: Firm Clay | Comp 21/01B Special Area Drain RB SB 11 | 1/04/00 | 1029 | 29 | 5 | CAWLEY DRAIN | 10 | 0.00 | 0.00 | 0.00 | 24.10 | 24.10 | 1 |
| 59803 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 00 | | 0 | 0 | 5 | TAUHEI STREAM | 10613 | 0.00 | 22.67 | 22.67 | 25.58 | 2.91 | 1 |
| 13059 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 01 | 1/04/00 | 100 | 100 | 5 | TAUHEI STREAM | 10721 | 0.00 | 22.70 | 22.70 | 24.34 | 1.64 | 1 |
| 13060 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 02 | 1/04/00 | 200 | 100 | 5 | TAUHEI STREAM | 10810 | 0.00 | 22.73 | 22.73 | 24.21 | 1.48 | 1 |
| 13061 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 03 | 1/04/00 | 300 | 100 | 5 | TAUHEI STREAM | 10915 | 0.00 | 22.76 | 22.77 | 24.32 | 1.56 | 1 |
| 13062 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 04 | 1/04/00 | 400 | 100 | 5 | Floodgate 21/03 | 10 | 0.00 | 23.48 | 23.48 | 24.18 | 0.70 | 1 |
| 13063 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 05 | 1/04/00 | 500 | 100 | 5 | TAUHEI STREAM | 11113 | 0.00 | 22.84 | 22.84 | 24.17 | 1.33 | 1 |
| 13064 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 06 | 1/04/00 | 600 | 100 | 5 | TAUHEI STREAM | 11223 | 0.00 | 22.88 | 22.88 | 24.24 | 1.36 | 1 |
| 13065 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 07 | 1/04/00 | 700 | 100 | 5 | TAUHEI STREAM | 11322 | 0.00 | 22.91 | 22.91 | 24.32 | 1.41 | 1 |
| 13066 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 08 | 1/04/00 | 800 | 100 | 5 | TAUHEI STREAM | 11421 | 0.00 | 22.95 | 22.95 | 24.36 | 1.41 | 1 |
| 13067 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 09 | 1/04/00 | 900 | 100 | 5 | TAUHEI STREAM | 11511 | 0.00 | 22.99 | 22.99 | 24.19 | 1.20 | 1 |
| 13068 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 10 | 1/04/00 | 1000 | 100 | 5 | TAUHEI STREAM | 11607 | 0.00 | 23.03 | 23.03 | 24.37 | 1.34 | 1 |
| 13069 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 11 | 1/04/00 | 1100 | 100 | 5 | TAUHEI STREAM | 11712 | 0.00 | 23.07 | 23.07 | 24.03 | 0.96 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13070 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 12 | 1/04/00 | 1200 | 100 | 5 | TAUHEI STREAM | 11816 | 0.00 | 23.12 | 23.12 | 24.59 | 1.47 | 1 |
| 13071 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 13 | 1/04/00 | 1300 | 100 | 5 | TAUHEI STREAM | 11912 | 0.00 | 23.18 | 23.18 | 24.74 | 1.56 | 1 |
| 13072 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 14 | 1/04/00 | 1400 | 100 | 5 | TAUHEI STREAM | 12010 | 0.00 | 23.24 | 23.24 | 24.47 | 1.23 | 1 |
| 13073 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 15 | 1/04/00 | 1500 | 100 | 5 | TAUHEI STREAM | 12111 | 0.00 | 23.29 | 23.29 | 24.18 | 0.89 | 1 |
| 13074 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 16 | 1/04/00 | 1600 | 100 | 5 | TAUHEI STREAM | 12205 | 0.00 | 23.35 | 23.35 | 24.38 | 1.03 | 1 |
| 13075 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 17 | 1/04/00 | 1700 | 100 | 5 | TAUHEI STREAM | 12296 | 0.00 | 23.41 | 23.41 | 24.45 | 1.04 | 1 |
| 13076 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 18 | 1/04/00 | 1800 | 100 | 5 | TAUHEI STREAM | 12402 | 0.00 | 23.48 | 23.48 | 24.40 | 0.92 | 1 |
| 13077 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 19 | 1/04/00 | 1900 | 100 | 5 | TAUHEI STREAM | 12500 | 0.00 | 23.52 | 23.52 | 24.37 | 0.85 | 1 |
| 13078 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 20 | 1/04/00 | 2000 | 100 | 5 | TAUHEI STREAM | 12600 | 0.00 | 23.56 | 23.56 | 24.55 | 0.99 | 1 |
| 13039 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 21 | 1/04/00 | 2100 | 100 | 5 | TAUHEI STREAM | 12700 | 0.00 | 23.61 | 23.61 | 24.25 | 0.64 | 1 |
| 13040 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 22 | 1/04/00 | 2200 | 100 | 5 | TAUHEI STREAM | 12801 | 0.00 | 23.65 | 23.65 | 24.47 | 0.82 | 1 |
| 13041 | 26325 | Link: Firm Clay | Comp 21/01C Tauhei RB SB 23 | 1/04/00 | 2290 | 90 | 5 | SPECIAL AREA DRAIN | 10 | 0.00 | 0.00 | 0.00 | 23.79 | 23.79 | 1 |
| 59799 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 00 | 1/04/00 | 0 | 0 | 5 | SPECIAL AREA DRAIN | 28 | 0.00 | 23.68 | 23.68 | 23.59 | -0.09 | 5 |
| 13042 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 01 | | 100 | 100 | 5 | TAUHEI STREAM | 13022 | 0.00 | 23.71 | 23.71 | 23.59 | -0.12 | 5 |
| 13043 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 02 | 1/04/00 | 200 | 100 | 5 | Floodgate 22/03 | 5 | 0.00 | 23.72 | 23.72 | 24.53 | 0.81 | 1 |
| 13044 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 03 | 1/04/00 | 300 | 100 | 5 | TAUHEI STREAM | 13225 | 0.00 | 23.76 | 23.76 | 24.16 | 0.40 | 1 |
| 13045 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 04 | 1/04/00 | 400 | 100 | 5 | TAUHEI STREAM | 13324 | 0.00 | 23.79 | 23.79 | 24.43 | 0.64 | 1 |
| 13046 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 05 | 1/04/00 | 500 | 100 | 5 | TAUHEI STREAM | 13424 | 0.00 | 23.82 | 23.82 | 24.39 | 0.57 | 1 |
| 13047 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 06 | 1/04/00 | 600 | 100 | 5 | TAUHEI STREAM | 13523 | 0.00 | 23.85 | 23.85 | 24.63 | 0.78 | 1 |
| 13048 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 07 | 1/04/00 | 700 | 100 | 5 | TAUHEI STREAM | 13623 | 0.00 | 23.89 | 23.90 | 24.80 | 0.91 | 1 |
| 13049 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 08 | 1/04/00 | 800 | 100 | 5 | TAUHEI STREAM | 13723 | 0.00 | 23.92 | 23.92 | 24.56 | 0.64 | 1 |
| 13050 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 09 | 1/04/00 | 900 | 100 | 5 | TAUHEI STREAM | 13822 | 0.00 | 23.94 | 23.94 | 24.41 | 0.47 | 1 |
| 13051 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 10 | 1/04/00 | 1000 | 100 | 5 | TAUHEI STREAM | 13924 | 0.00 | 23.95 | 23.95 | 24.42 | 0.47 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13052 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 11 | 1/04/00 | 1100 | 100 | 5 | TAUHEI STREAM | 14023 | 0.00 | 23.97 | 23.97 | 24.51 | 0.54 | 1 |
| 13053 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 12 | 1/04/00 | 1200 | 100 | 5 | TAUHEI STREAM | 14123 | 0.00 | 23.99 | 23.99 | 24.41 | 0.42 | 1 |
| 13054 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 13 | 1/04/00 | 1300 | 100 | 5 | TAUHEI STREAM | 14223 | 0.00 | 24.01 | 24.01 | 24.55 | 0.54 | 1 |
| 13055 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 14 | 1/04/00 | 1400 | 100 | 5 | TAUHEI STREAM | 14323 | 0.00 | 24.03 | 24.03 | 24.38 | 0.35 | 1 |
| 13056 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 15 | 1/04/00 | 1500 | 100 | 5 | TAUHEI STREAM | 14424 | 0.00 | 24.05 | 24.05 | 24.57 | 0.52 | 1 |
| 13057 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 16 | 1/04/00 | 1600 | 100 | 5 | TAUHEI STREAM | 14524 | 0.00 | 24.09 | 24.09 | 24.78 | 0.69 | 1 |
| 13058 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 17 | 1/04/00 | 1700 | 100 | 5 | TAUHEI STREAM | 14624 | 0.00 | 24.13 | 24.13 | 24.82 | 0.69 | 1 |
| 13036 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 18 | 1/04/00 | 1800 | 100 | 5 | TAUHEI STREAM | 14724 | 0.00 | 24.16 | 24.16 | 24.57 | 0.41 | 1 |
| 13037 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 19 | 1/04/00 | 1900 | 100 | 5 | TAUHEI STREAM | 14823 | 0.00 | 24.19 | 24.20 | 24.69 | 0.50 | 1 |
| 13038 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 20 | 1/04/00 | 2000 | 100 | 5 | TAUHEI STREAM | 14923 | 0.00 | 24.24 | 24.24 | 24.73 | 0.49 | 1 |
| 17637 | 25583 | Link: Firm Clay | Comp 22/ 01A Tauhei RB SB 21 | 1/04/00 | 2040 | 40 | 5 | TAUHEI STREAM | 14974 | 0.00 | 24.28 | 24.29 | 24.94 | 0.66 | 1 |
| 59794 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 00 | 1/04/00 | 0 | 0 | 5 | SPECIAL AREA DRAIN | 28 | 0.00 | 23.68 | 23.68 | 23.73 | 0.05 | 1 |
| 12974 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 01 | | 100 | 100 | 5 | SPECIAL AREA DRAIN | 128 | 0.00 | 23.68 | 23.68 | 24.33 | 0.65 | 1 |
| 12975 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 02 | 1/04/00 | 200 | 100 | 5 | SPECIAL AREA DRAIN | 230 | 0.00 | 23.68 | 23.68 | 24.45 | 0.77 | 1 |
| 12976 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 03 | 1/04/00 | 300 | 100 | 5 | Floodgate Lattos Weir | 10 | 0.00 | 23.68 | 23.68 | 24.36 | 0.68 | 1 |
| 12977 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 04 | 1/04/00 | 400 | 100 | 5 | SPECIAL AREA DRAIN | 435 | 0.00 | 23.68 | 23.68 | 24.34 | 0.66 | 1 |
| 12978 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 05 | 1/04/00 | 500 | 100 | 5 | SPECIAL AREA DRAIN | 535 | 0.00 | 23.68 | 23.69 | 24.11 | 0.43 | 1 |
| 12979 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 06 | 1/04/00 | 600 | 100 | 5 | SPECIAL AREA DRAIN | 635 | 0.00 | 23.69 | 23.69 | 24.18 | 0.49 | 1 |
| 12980 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 07 | 1/04/00 | 700 | 100 | 5 | SPECIAL AREA DRAIN | 736 | 0.00 | 23.69 | 23.69 | 24.05 | 0.36 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12981 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 08 | 1/04/00 | 800 | 100 | 5 | SPECIAL AREA DRAIN | 835 | 0.00 | 23.69 | 23.69 | 23.99 | 0.30 | 1 |
| 12982 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 09 | 1/04/00 | 900 | 100 | 5 | SPECIAL AREA DRAIN | 935 | 0.00 | 23.69 | 23.69 | 23.96 | 0.27 | 1 |
| 12983 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 10 | 1/04/00 | 1000 | 100 | 5 | SPECIAL AREA DRAIN | 1035 | 0.00 | 23.74 | 23.74 | 23.92 | 0.18 | 1 |
| 12984 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 11 | 1/04/00 | 1100 | 100 | 5 | SPECIAL AREA DRAIN | 1137 | 0.00 | 23.81 | 23.82 | 23.87 | 0.06 | 1 |
| 12985 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 12 | 1/04/00 | 1200 | 100 | 5 | SPECIAL AREA DRAIN | 1235 | 0.00 | 23.84 | 23.84 | 23.88 | 0.04 | 1 |
| 12986 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 13 | 1/04/00 | 1300 | 100 | 5 | SPECIAL AREA DRAIN | 1337 | 0.00 | 23.87 | 23.87 | 23.68 | -0.19 | 5 |
| 12987 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 14 | 1/04/00 | 1400 | 100 | 5 | SPECIAL AREA DRAIN | 1437 | 0.00 | 23.93 | 23.93 | 23.64 | -0.29 | 5 |
| 12988 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 15 | 1/04/00 | 1500 | 100 | 5 | SPECIAL AREA DRAIN | 1537 | 0.00 | 24.00 | 24.00 | 23.94 | -0.06 | 5 |
| 12989 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 16 | 1/04/00 | 1600 | 100 | 5 | SPECIAL AREA DRAIN | 1637 | 0.00 | 24.05 | 24.06 | 23.73 | -0.32 | 5 |
| 12990 | 26910 | Link: Firm Clay | Comp 22/ 01B Special Area Drain LB SB 17 | 1/04/00 | 1617 | 17 | 5 | SPECIAL AREA DRAIN | 1652 | 0.00 | 24.07 | 24.07 | 23.59 | -0.48 | 5 |
| 59625 | 24106 | Link: Firm Clay | Comp 23/ 02A Cawley Drain LB SB 00 | 1/04/00 | 0 | 0 | 5 | SPECIAL AREA DRAIN | 1063 | 0.00 | 23.78 | 23.78 | 24.45 | 0.67 | 1 |
| 16598 | 24106 | Link: Firm Clay | Comp 23/ 02A Cawley Drain LB SB 01 | | 100 | 100 | 5 | CAWLEY DRAIN | 113 | 0.00 | 23.94 | 23.94 | 24.45 | 0.51 | 1 |
| 16597 | 24106 | Link: Firm Clay | Comp 23/ 02A Cawley Drain LB SB 02 | 1/04/00 | 200 | 100 | 5 | CAWLEY DRAIN | 218 | 0.00 | 24.14 | 24.14 | 24.40 | 0.26 | 1 |
| 16596 | 24106 | Link: Firm Clay | Comp 23/ 02A Cawley Drain LB SB 03 | 1/04/00 | 300 | 100 | 5 | CAWLEY DRAIN | 317 | 0.00 | 24.43 | 24.43 | 24.48 | 0.05 | 1 |
| 17645 | 24106 | Link: Firm Clay | Comp 23/ 02A Cawley Drain LB SB 04 | 1/04/00 | 347 | 47 | 5 | CAWLEY DRAIN | 365 | 0.00 | 24.58 | 24.58 | 24.16 | -0.42 | 5 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59714 | 27071 | Link: Firm Clay | Comp 23/ 02B Special Area Drain RB SB 00 | 1/04/00 | 0 | 0 | 5 | SPECIAL AREA DRAIN | 1063 | 0.00 | 23.78 | 23.78 | 24.15 | 0.37 | 1 |
| 13002 | 27071 | Link: Firm Clay | Comp 23/ 02B Special Area Drain RB SB 01 | | 100 | 100 | 5 | SPECIAL AREA DRAIN | 1162 | 0.00 | 23.82 | 23.82 | 24.15 | 0.33 | 1 |
| 13003 | 27071 | Link: Firm Clay | Comp 23/ 02B Special Area Drain RB SB 02 | 1/04/00 | 200 | 100 | 5 | SPECIAL AREA DRAIN | 1265 | 0.00 | 23.85 | 23.85 | 24.15 | 0.30 | 1 |
| 13004 | 27071 | Link: Firm Clay | Comp 23/ 02B Special Area Drain RB SB 03 | 1/04/00 | 300 | 100 | 5 | SPECIAL AREA DRAIN | 1365 | 0.00 | 23.88 | 23.88 | 24.20 | 0.32 | 1 |
| 13005 | 27071 | Link: Firm Clay | Comp 23/ 02B Special Area Drain RB SB 04 | 1/04/00 | 400 | 100 | 5 | SPECIAL AREA DRAIN | 1462 | 0.00 | 23.94 | 23.95 | 24.41 | 0.47 | 1 |
| 13006 | 27071 | Link: Firm Clay | Comp 23/ 02B Special Area Drain RB SB 05 | 1/04/00 | 500 | 100 | 5 | SPECIAL AREA DRAIN | 1562 | 0.00 | 24.01 | 24.01 | 24.44 | 0.43 | 1 |
| 13007 | 27071 | Link: Firm Clay | Comp 23/ 02B Special Area Drain RB SB 06 | 1/04/00 | 577 | 77 | 5 | SPECIAL AREA DRAIN | 1642 | 0.00 | 24.06 | 24.06 | 24.22 | 0.16 | 1 |
| 59801 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 00 | 1/04/00 | 0 | 0 | unknown | MANGATEA STREAM SOUTH | 1445 | 0.00 | 24.65 | 24.65 | 24.53 | -0.12 | * |
| 13008 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 01 | | 100 | 100 | unknown | MANGATEA STREAM SOUTH | 1547 | 0.00 | 24.73 | 24.73 | 24.53 | -0.20 | * |
| 13009 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 02 | 1/04/00 | 200 | 100 | unknown | MANGATEA STREAM SOUTH | 1641 | 0.00 | 24.80 | 24.80 | 24.43 | -0.37 | * |
| 13010 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 03 | 1/04/00 | 300 | 100 | unknown | MANGATEA STREAM SOUTH | 1756 | 0.00 | 24.84 | 24.84 | 24.66 | -0.18 | * |
| 13011 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 04 | 1/04/00 | 400 | 100 | unknown | MANGATEA STREAM SOUTH | 1853 | 0.00 | 24.90 | 24.90 | 25.06 | 0.16 | * |
| 13012 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 05 | 1/04/00 | 500 | 100 | unknown | MANGATEA STREAM SOUTH | 1947 | 0.00 | 24.96 | 24.96 | 25.25 | 0.29 | * |
| 13013 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 06 | 1/04/00 | 600 | 100 | unknown | MANGATEA STREAM SOUTH | 2041 | 0.00 | 25.08 | 25.08 | 25.19 | 0.11 | * |
| 13014 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 07 | 1/04/00 | 700 | 100 | unknown | MANGATEA STREAM SOUTH | 2150 | 0.00 | 25.19 | 25.19 | 25.84 | 0.65 | * |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13015 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 08 | 1/04/00 | 800 | 100 | unknown | MANGATEA STREAM SOUTH | 2242 | 0.00 | 25.29 | 25.29 | 26.01 | 0.72 | * |
| 13016 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 09 | 1/04/00 | 900 | 100 | unknown | MANGATEA STREAM SOUTH | 2371 | 0.00 | 25.46 | 25.46 | 25.33 | -0.13 | * |
| 13017 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 10 | 1/04/00 | 1000 | 100 | unknown | MANGATEA STREAM SOUTH | 2470 | 0.00 | 25.51 | 25.51 | 25.08 | -0.43 | * |
| 13018 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 11 | 1/04/00 | 1100 | 100 | unknown | MANGATEA STREAM SOUTH | 2574 | 0.00 | 25.53 | 25.53 | 25.98 | 0.45 | * |
| 13019 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 12 | 1/04/00 | 1200 | 100 | unknown | MANGATEA STREAM SOUTH | 2687 | 0.00 | 25.60 | 25.60 | 26.10 | 0.50 | * |
| 13020 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 13 | 1/04/00 | 1300 | 100 | unknown | MANGATEA STREAM SOUTH | 2783 | 0.00 | 25.82 | 25.82 | 26.17 | 0.35 | * |
| 13021 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 14 | 1/04/00 | 1400 | 100 | unknown | MANGATEA STREAM SOUTH | 2881 | 0.00 | 26.04 | 26.04 | 26.28 | 0.24 | * |
| 13022 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 15 | 1/04/00 | 1500 | 100 | unknown | MANGATEA STREAM SOUTH | 2986 | 0.00 | 26.14 | 26.14 | 26.29 | 0.15 | * |
| 13023 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 16 | 1/04/00 | 1600 | 100 | unknown | MANGATEA STREAM SOUTH | 3083 | 0.00 | 26.20 | 26.20 | 26.71 | 0.51 | * |
| 13024 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 17 | 1/04/00 | 1700 | 100 | unknown | MANGATEA STREAM SOUTH | 3183 | 0.00 | 26.41 | 26.41 | 27.26 | 0.85 | * |
| 13025 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 18 | 1/04/00 | 1800 | 100 | unknown | MANGATEA STREAM SOUTH | 3284 | 0.00 | 26.55 | 26.55 | 26.63 | 0.08 | * |
| 13026 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 19 | 1/04/00 | 1900 | 100 | unknown | MANGATEA STREAM SOUTH | 3389 | 0.00 | 26.74 | 26.74 | 26.54 | -0.20 | * |
| 13027 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 20 | 1/04/00 | 2000 | 100 | unknown | MANGATEA STREAM SOUTH | 3489 | 0.00 | 26.92 | 26.92 | 27.35 | 0.43 | * |
| 13028 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 21 | 1/04/00 | 2100 | 100 | unknown | MANGATEA STREAM SOUTH | 3613 | 0.00 | 27.02 | 27.02 | 27.39 | 0.37 | * |
| 13029 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 22 | 1/04/00 | 2200 | 100 | unknown | MANGATEA STREAM SOUTH | 3719 | 0.00 | 27.09 | 27.09 | 27.14 | 0.05 | * |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13030 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 23 | 1/04/00 | 2300 | 100 | unknown | MANGATEA STREAM SOUTH | 3806 | 0.00 | 27.15 | 27.15 | 27.43 | 0.28 | * |
| 13031 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 24 | 1/04/00 | 2400 | 100 | unknown | MANGATEA STREAM SOUTH | 3918 | 0.00 | 27.24 | 27.24 | 27.28 | 0.04 | * |
| 13032 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 25 | 1/04/00 | 2500 | 100 | unknown | MANGATEA STREAM SOUTH | 4013 | 0.00 | 27.50 | 27.50 | 27.87 | 0.37 | * |
| 13033 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 26 | 1/04/00 | 2600 | 100 | unknown | MANGATEA STREAM SOUTH | 4121 | 0.00 | 27.61 | 27.61 | 28.02 | 0.41 | * |
| 13034 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 27 | 1/04/00 | 2700 | 100 | unknown | MANGATEA STREAM SOUTH | 4230 | 0.00 | 27.79 | 27.79 | 28.45 | 0.66 | * |
| 13035 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 28 | 1/04/00 | 2800 | 100 | unknown | MANGATEA STREAM SOUTH | 4316 | 0.00 | 27.94 | 27.95 | 28.64 | 0.70 | * |
| 17646 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 29 | 1/04/00 | 2900 | 100 | unknown | MANGATEA STREAM SOUTH | 4439 | 0.00 | 28.08 | 28.08 | 29.24 | 1.16 | * |
| 17647 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 30 | 1/04/00 | 3000 | 100 | unknown | MANGATEA STREAM SOUTH | 4516 | 0.00 | 28.20 | 28.20 | 28.64 | 0.44 | * |
| 17648 | 28369 | Link: Firm Clay | Comp 24 Tauhei Mangatea Stream LB SB 31 | 1/04/00 | 3004 | 4 | unknown | MANGATEA STREAM SOUTH | 4521 | 0.00 | 28.20 | 28.21 | 28.74 | 0.54 | * |
| 59657 | 25099 | Link: Firm Clay | Comp 3 Henrys Creek LB SB 00 | 1/04/00 | 0 | 0 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1299 | 0.30 | 14.86 | 15.16 | 15.25 | 0.39 | 1 |
| 3329 | 25099 | Link: Firm Clay | Comp 3 Henrys Creek LB SB 01 | 15/04/17 | 100 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1397 | 0.30 | 14.87 | 15.17 | 15.25 | 0.38 | 1 |
| 3330 | 25099 | Link: Firm Clay | Comp 3 Henrys Creek LB SB 02 | 15/04/17 | 200 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1473 | 0.30 | 14.87 | 15.17 | 15.36 | 0.49 | 1 |
| 3331 | 25099 | Link: Firm Clay | Comp 3 Henrys Creek LB SB 03 | 15/04/17 | 300 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1599 | 0.30 | 14.87 | 15.17 | 15.44 | 0.57 | 1 |
| 3332 | 25099 | Link: Firm Clay | Comp 3 Henrys Creek LB SB 04 | 15/04/17 | 400 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1710 | 0.30 | 14.88 | 15.18 | 15.50 | 0.62 | 1 |
| 17455 | 25099 | Link: Firm Clay | Comp 3 Henrys Creek LB SB 05 | 15/04/17 | 414 | 14 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1712 | 0.30 | 14.88 | 15.18 | 15.08 | 0.20 | 2 |
| 59658 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 00 | 1/03/11 | 0 | 0 | 50 | MANGAWARA RIVER | 9582 | 0.30 | 13.77 | 14.07 | 14.65 | 0.88 | 1 |
| 3286 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 01 | 1/03/11 | 100 | 100 | 50 | MANGAWARA RIVER | 9599 | 0.30 | 13.77 | 14.07 | 14.44 | 0.67 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3287 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 02 | 1/03/11 | 200 | 100 | 50 | MANGAWARA RIVER | 9782 | 0.30 | 13.79 | 14.09 | 14.65 | 0.86 | 1 |
| 3288 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 03 | 1/03/11 | 300 | 100 | 50 | MANGAWARA RIVER | 10030 | 0.30 | 13.82 | 14.12 | 14.64 | 0.82 | 1 |
| 3289 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 04 | 1/03/11 | 400 | 100 | 50 | MANGAWARA RIVER | 10080 | 0.30 | 13.82 | 14.12 | 14.58 | 0.76 | 1 |
| 3290 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 05 | 1/03/11 | 500 | 100 | 50 | MANGAWARA RIVER | 10120 | 0.30 | 13.82 | 14.12 | 14.54 | 0.72 | 1 |
| 3291 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 06 | 1/03/11 | 600 | 100 | 50 | MANGAWARA RIVER | 10291 | 0.30 | 13.84 | 14.14 | 14.43 | 0.59 | 1 |
| 3292 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 07 | 1/03/11 | 700 | 100 | 50 | MANGAWARA RIVER | 10445 | 0.30 | 13.85 | 14.15 | 14.55 | 0.70 | 1 |
| 3293 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 08 | 1/03/11 | 800 | 100 | 50 | MANGAWARA RIVER | 10476 | 0.30 | 13.86 | 14.16 | 14.83 | 0.97 | 1 |
| 3294 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 09 | 1/03/11 | 900 | 100 | 50 | MANGAWARA RIVER | 10540 | 0.30 | 13.86 | 14.16 | 14.75 | 0.89 | 1 |
| 3295 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 10 | 1/03/11 | 1000 | 100 | 50 | MANGAWARA RIVER | 10719 | 0.30 | 13.88 | 14.18 | 14.65 | 0.77 | 1 |
| 3296 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 11 | 1/03/11 | 1100 | 100 | 50 | MANGAWARA RIVER | 10842 | 0.30 | 13.91 | 14.21 | 14.54 | 0.63 | 1 |
| 3297 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 12 | 1/03/11 | 1200 | 100 | 50 | MANGAWARA RIVER | 10874 | 0.30 | 13.92 | 14.22 | 14.82 | 0.90 | 1 |
| 3298 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 13 | 1/03/11 | 1300 | 100 | 50 | MANGAWARA RIVER | 10981 | 0.30 | 13.93 | 14.23 | 14.68 | 0.75 | 1 |
| 3299 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 14 | 1/03/11 | 1400 | 100 | 50 | MANGAWARA RIVER | 11413 | 0.30 | 13.98 | 14.28 | 14.64 | 0.66 | 1 |
| 3300 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 15 | 1/03/11 | 1500 | 100 | 50 | MANGAWARA RIVER | 11450 | 0.30 | 13.98 | 14.28 | 14.75 | 0.77 | 1 |
| 3301 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 16 | 1/03/11 | 1600 | 100 | 50 | MANGAWARA RIVER | 11516 | 0.30 | 13.99 | 14.29 | 14.83 | 0.84 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3302 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 17 | 1/03/11 | 1700 | 100 | 50 | MANGAWARA RIVER | 11639 | 0.30 | 14.01 | 14.31 | 14.99 | 0.98 | 1 |
| 3303 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 18 | 1/03/11 | 1800 | 100 | 50 | MANGAWARA RIVER | 11725 | 0.30 | 14.02 | 14.32 | 15.00 | 0.98 | 1 |
| 3304 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 19 | 1/03/11 | 1900 | 100 | 50 | MANGAWARA RIVER | 11864 | 0.30 | 14.05 | 14.35 | 15.05 | 1.00 | 1 |
| 3305 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 20 | 1/03/11 | 2000 | 100 | 50 | MANGAWARA RIVER | 11960 | 0.30 | 14.07 | 14.37 | 15.13 | 1.06 | 1 |
| 3306 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 21 | 1/03/11 | 2100 | 100 | 50 | MANGAWARA RIVER | 12050 | 0.30 | 14.10 | 14.40 | 15.09 | 0.99 | 1 |
| 3307 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 22 | 1/03/11 | 2200 | 100 | 50 | MANGAWARA RIVER | 12125 | 0.30 | 14.12 | 14.42 | 14.96 | 0.84 | 1 |
| 3308 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 23 | 1/03/11 | 2300 | 100 | 50 | MANGAWARA RIVER | 12223 | 0.30 | 14.12 | 14.42 | 14.95 | 0.83 | 1 |
| 3309 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 24 | 1/03/11 | 2400 | 100 | 50 | MANGAWARA RIVER | 12284 | 0.30 | 14.18 | 14.48 | 15.13 | 0.95 | 1 |
| 3310 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 25 | 1/03/11 | 2500 | 100 | 50 | MANGAWARA RIVER | 12414 | 0.30 | 14.31 | 14.61 | 15.26 | 0.95 | 1 |
| 3311 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 26 | 1/03/11 | 2600 | 100 | 50 | MANGAWARA RIVER | 12610 | 0.30 | 14.49 | 14.79 | 15.30 | 0.81 | 1 |
| 3312 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 27 | 1/03/11 | 2700 | 100 | 50 | MANGAWARA RIVER | 12811 | 0.30 | 14.66 | 14.96 | 15.23 | 0.57 | 1 |
| 3313 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 28 | 1/03/11 | 2800 | 100 | 50 | MANGAWARA RIVER | 12893 | 0.30 | 14.72 | 15.02 | 14.97 | 0.25 | 2 |
| 3314 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 29 | 1/03/11 | 2900 | 100 | 50 | MANGAWARA RIVER | 12957 | 0.30 | 14.74 | 15.04 | 15.10 | 0.36 | 1 |
| 3315 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 30 | 1/03/11 | 3000 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 85 | 0.30 | 14.77 | 15.07 | 15.05 | 0.28 | 2 |
| 3316 | 25100 | Link: Firm Clay | Comp 3 Mangawara River SB 31 | 1/03/11 | 3076 | 76 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 137 | 0.30 | 14.78 | 15.08 | 15.25 | 0.47 | 1 |
| 59716 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 00 | 1/03/11 | 0 | 0 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 137 | 0.30 | 14.78 | 15.08 | 15.33 | 0.55 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3317 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 01 | 1/03/11 | 100 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 216 | 0.30 | 14.79 | 15.09 | 14.92 | 0.13 | 3 |
| 3318 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 02 | 1/03/11 | 200 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 343 | 0.30 | 14.80 | 15.10 | 15.39 | 0.59 | 1 |
| 3319 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 03 | 1/03/11 | 300 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 442 | 0.30 | 14.80 | 15.10 | 15.45 | 0.65 | 1 |
| 3320 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 04 | 1/03/11 | 400 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 542 | 0.30 | 14.81 | 15.11 | 15.37 | 0.56 | 1 |
| 3321 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 05 | 1/03/11 | 500 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 640 | 0.30 | 14.81 | 15.11 | 15.66 | 0.85 | 1 |
| 3322 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 06 | 1/03/11 | 600 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 743 | 0.30 | 14.82 | 15.12 | 15.59 | 0.77 | 1 |
| 3323 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 07 | 1/03/11 | 700 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 843 | 0.30 | 14.83 | 15.13 | 15.60 | 0.77 | 1 |
| 3324 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 08 | 1/03/11 | 800 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 943 | 0.30 | 14.83 | 15.13 | 15.37 | 0.54 | 1 |
| 3325 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 09 | 1/03/11 | 900 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1044 | 0.30 | 14.84 | 15.14 | 15.33 | 0.49 | 1 |
| 3326 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 10 | 1/03/11 | 1000 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1145 | 0.30 | 14.85 | 15.15 | 15.38 | 0.53 | 1 |
| 3327 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 11 | 1/03/11 | 1100 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1262 | 0.30 | 14.86 | 15.16 | 15.35 | 0.49 | 1 |
| 3328 | 27343 | Link: Firm Clay | Comp 3 Ten Foot Drain LB SB 12 | 1/03/11 | 1146 | 46 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1299 | 0.30 | 14.86 | 15.16 | 14.60 | -0.26 | 5 |
| 59775 | 24372 | Link: Firm Clay | Comp 4 Henrys Creek RB SB 00 | 1/03/11 | 0 | 0 | 50 | TEN FOOT DRAIN | 71 | 0.30 | 14.88 | 15.18 | 15.00 | 0.12 | 3 |
| 3333 | 24372 | Link: Firm Clay | Comp 4 Henrys Creek RB SB 01 | 1/03/11 | 100 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1442 | 0.30 | 14.87 | 15.17 | 15.48 | 0.61 | 1 |
| 3334 | 24372 | Link: Firm Clay | Comp 4 Henrys Creek RB SB 02 | 15/04/17 | 200 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1535 | 0.30 | 14.87 | 15.17 | 15.44 | 0.57 | 1 |
| 3335 | 24372 | Link: Firm Clay | Comp 4 Henrys Creek RB SB 03 | 15/04/17 | 300 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1626 | 0.30 | 14.87 | 15.17 | 15.53 | 0.66 | 1 |
| 3336 | 24372 | Link: Firm Clay | Comp 4 Henrys Creek RB SB 04 | 15/04/17 | 400 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1740 | 0.30 | 14.89 | 15.19 | 15.55 | 0.66 | 1 |
| 3337 | 24372 | Link: Firm Clay | Comp 4 Henrys Creek RB SB 05 | 15/04/17 | 500 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1844 | 0.30 | 14.91 | 15.21 | 15.76 | 0.85 | 1 |
| 3338 | 24372 | Link: Firm Clay | Comp 4 Henrys Creek RB SB 06 | 15/04/17 | 541 | 41 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1925 | 0.30 | 14.96 | 15.26 | 15.58 | 0.62 | 1 |
| 59776 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 00 | 15/04/17 | 0 | 0 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 142 | 0.30 | 14.78 | 15.08 | 16.28 | 1.50 | 1 |
| 3356 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 01 | 1/03/11 | 100 | 100 | 50 | MANGAWARA RIVER | 13143 | 0.30 | 14.76 | 15.06 | 15.19 | 0.43 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3357 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 02 | 1/03/11 | 200 | 100 | 50 | MANGAWARA RIVER | 13216 | 0.30 | 14.77 | 15.07 | 15.39 | 0.62 | 1 |
| 3358 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 03 | 1/03/11 | 300 | 100 | 50 | MANGAWARA RIVER | 13486 | 0.30 | 14.81 | 15.11 | 15.31 | 0.50 | 1 |
| 3359 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 04 | 1/03/11 | 400 | 100 | 50 | MANGAWARA RIVER | 13548 | 0.30 | 14.82 | 15.12 | 15.51 | 0.69 | 1 |
| 3360 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 05 | 1/03/11 | 500 | 100 | 50 | MANGAWARA RIVER | 13598 | 0.30 | 14.83 | 15.13 | 15.43 | 0.60 | 1 |
| 3361 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 06 | 1/03/11 | 600 | 100 | 50 | MANGAWARA RIVER | 13675 | 0.30 | 14.84 | 15.14 | 15.51 | 0.67 | 1 |
| 3362 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 07 | 1/03/11 | 700 | 100 | 50 | MANGAWARA RIVER | 13775 | 0.30 | 14.85 | 15.15 | 15.68 | 0.83 | 1 |
| 3363 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 08 | 1/03/11 | 800 | 100 | 50 | MANGAWARA RIVER | 13903 | 0.30 | 14.87 | 15.17 | 15.60 | 0.73 | 1 |
| 3364 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 09 | 1/03/11 | 900 | 100 | 50 | MANGAWARA RIVER | 14005 | 0.30 | 14.90 | 15.20 | 15.77 | 0.87 | 1 |
| 3365 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 10 | 1/03/11 | 1000 | 100 | 50 | MANGAWARA RIVER | 14107 | 0.30 | 14.95 | 15.25 | 16.21 | 1.26 | 1 |
| 3366 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 11 | 1/03/11 | 1100 | 100 | 50 | MANGAWARA RIVER | 14211 | 0.30 | 15.00 | 15.30 | 16.30 | 1.30 | 1 |
| 3367 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 12 | 1/03/11 | 1200 | 100 | 50 | MANGAWARA RIVER | 14325 | 0.30 | 15.06 | 15.36 | 16.27 | 1.21 | 1 |
| 3368 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 13 | 1/03/11 | 1300 | 100 | 50 | MANGAWARA RIVER | 14419 | 0.30 | 15.13 | 15.43 | 15.99 | 0.86 | 1 |
| 3369 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 14 | 1/03/11 | 1400 | 100 | 50 | MANGAWARA RIVER | 14513 | 0.30 | 15.21 | 15.51 | 16.26 | 1.05 | 1 |
| 3370 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 15 | 1/03/11 | 1500 | 100 | 50 | MANGAWARA RIVER | 14593 | 0.30 | 15.26 | 15.56 | 16.31 | 1.05 | 1 |
| 3371 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 16 | 1/03/11 | 1600 | 100 | 50 | MANGAWARA RIVER | 14685 | 0.30 | 15.31 | 15.61 | 16.18 | 0.87 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3372 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 17 | 1/03/11 | 1700 | 100 | 50 | MANGAWARA RIVER | 14764 | 0.30 | 15.34 | 15.64 | 16.18 | 0.84 | 1 |
| 3373 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 18 | 1/03/11 | 1800 | 100 | 50 | MANGAWARA RIVER | 14876 | 0.30 | 15.39 | 15.69 | 16.15 | 0.76 | 1 |
| 3374 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 19 | 1/03/11 | 1900 | 100 | 50 | MANGAWARA RIVER | 15058 | 0.30 | 15.46 | 15.76 | 16.25 | 0.79 | 1 |
| 3375 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 20 | 1/03/11 | 2000 | 100 | 50 | MANGAWARA RIVER | 15141 | 0.30 | 15.49 | 15.79 | 16.31 | 0.82 | 1 |
| 3376 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 21 | 1/03/11 | 2100 | 100 | 50 | MANGAWARA RIVER | 15214 | 0.30 | 15.52 | 15.82 | 16.23 | 0.71 | 1 |
| 3377 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 22 | 1/03/11 | 2200 | 100 | 50 | MANGAWARA RIVER | 15377 | 0.30 | 15.58 | 15.88 | 16.27 | 0.69 | 1 |
| 3378 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 23 | 1/03/11 | 2300 | 100 | 50 | MANGAWARA RIVER | 15468 | 0.30 | 15.61 | 15.91 | 16.42 | 0.81 | 1 |
| 3379 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 24 | 1/03/11 | 2400 | 100 | 50 | MANGAWARA RIVER | 15558 | 0.30 | 15.65 | 15.95 | 16.42 | 0.78 | 1 |
| 3380 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 25 | 1/03/11 | 2500 | 100 | 50 | MANGAWARA RIVER | 15656 | 0.30 | 15.68 | 15.98 | 16.30 | 0.62 | 1 |
| 3381 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 26 | 1/03/11 | 2600 | 100 | 50 | MANGAWARA RIVER | 15785 | 0.30 | 15.73 | 16.03 | 16.26 | 0.53 | 1 |
| 3382 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 27 | 1/03/11 | 2700 | 100 | 50 | MANGAWARA RIVER | 15861 | 0.30 | 15.76 | 16.06 | 16.37 | 0.61 | 1 |
| 3383 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 28 | 1/03/11 | 2800 | 100 | 50 | MANGAWARA RIVER | 15960 | 0.30 | 15.80 | 16.10 | 16.54 | 0.74 | 1 |
| 3384 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 29 | 1/03/11 | 2900 | 100 | 50 | MANGAWARA RIVER | 16034 | 0.30 | 15.83 | 16.13 | 16.56 | 0.73 | 1 |
| 3385 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 30 | 1/03/11 | 3000 | 100 | 50 | MANGAWARA RIVER | 16126 | 0.30 | 15.87 | 16.17 | 16.29 | 0.42 | 1 |
| 3386 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 31 | 1/03/11 | 3100 | 100 | 50 | MANGAWARA RIVER | 16311 | 0.30 | 15.94 | 16.24 | 16.58 | 0.64 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3387 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 32 | 1/03/11 | 3200 | 100 | 50 | MANGAWARA RIVER | 16392 | 0.30 | 15.97 | 16.27 | 16.48 | 0.51 | 1 |
| 3388 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 33 | 1/03/11 | 3300 | 100 | 50 | MANGAWARA RIVER | 16463 | 0.30 | 16.00 | 16.30 | 16.50 | 0.50 | 1 |
| 3389 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 34 | 1/03/11 | 3400 | 100 | 50 | MANGAWARA RIVER | 16621 | 0.30 | 16.06 | 16.36 | 16.41 | 0.35 | 1 |
| 3390 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 35 | 1/03/11 | 3500 | 100 | 50 | TAUHEI STREAM | 63 | 0.30 | 16.09 | 16.39 | 16.44 | 0.35 | 1 |
| 17482 | 24373 | Link: Firm Clay | Comp 4 Mangawara River LB SB 36 | 1/03/11 | 3583 | 83 | 50 | TAUHEI STREAM | 148 | 0.30 | 16.11 | 16.41 | 16.31 | 0.20 | 2 |
| 59712 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 00 | 1/03/11 | 0 | 0 | 50 | TAUHEI STREAM | 148 | 0.30 | 16.11 | 16.41 | 16.42 | 0.31 | 1 |
| 3391 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 01 | 1/03/11 | 100 | 100 | 50 | TAUHEI STREAM | 255 | 0.30 | 16.14 | 16.44 | 16.31 | 0.17 | 2 |
| 3392 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 02 | 1/03/11 | 200 | 100 | 50 | TAUHEI STREAM | 364 | 0.30 | 16.18 | 16.48 | 16.39 | 0.22 | 2 |
| 3393 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 03 | 1/03/11 | 300 | 100 | 50 | TAUHEI STREAM | 471 | 0.30 | 16.20 | 16.50 | 16.37 | 0.17 | 2 |
| 3394 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 04 | 1/03/11 | 400 | 100 | 50 | TAUHEI STREAM | 581 | 0.30 | 16.23 | 16.53 | 16.50 | 0.27 | 2 |
| 3395 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 05 | 1/03/11 | 500 | 100 | 50 | TAUHEI STREAM | 685 | 0.30 | 16.26 | 16.56 | 16.43 | 0.17 | 2 |
| 3396 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 06 | 1/03/11 | 600 | 100 | 50 | TAUHEI STREAM | 797 | 0.30 | 16.30 | 16.60 | 16.66 | 0.36 | 1 |
| 3397 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 07 | 1/03/11 | 700 | 100 | 50 | TAUHEI STREAM | 897 | 0.30 | 16.33 | 16.63 | 16.78 | 0.45 | 1 |
| 3398 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 08 | 1/03/11 | 800 | 100 | 50 | TAUHEI STREAM | 997 | 0.30 | 16.37 | 16.67 | 16.77 | 0.40 | 1 |
| 3399 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 09 | 1/03/11 | 900 | 100 | 50 | TAUHEI STREAM | 1097 | 0.30 | 16.40 | 16.70 | 16.78 | 0.38 | 1 |
| 3400 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 10 | 15/06/17 | 1000 | 100 | 50 | TAUHEI STREAM | 1197 | 0.30 | 16.44 | 16.74 | 16.74 | 0.30 | 2 |
| 3401 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 11 | 15/06/17 | 1100 | 100 | 50 | TAUHEI STREAM | 1297 | 0.30 | 16.49 | 16.79 | 16.90 | 0.41 | 1 |
| 3402 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 12 | 15/06/17 | 1200 | 100 | 50 | TAUHEI STREAM | 1400 | 0.30 | 16.54 | 16.84 | 16.93 | 0.39 | 1 |
| 3403 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 13 | 15/06/17 | 1300 | 100 | 50 | TAUHEI STREAM | 1500 | 0.30 | 16.58 | 16.88 | 17.23 | 0.65 | 1 |
| 3404 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 14 | 15/06/17 | 1400 | 100 | 50 | TAUHEI STREAM | 1598 | 0.30 | 16.63 | 16.93 | 17.03 | 0.40 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3405 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 15 | 15/06/17 | 1500 | 100 | 50 | TAUHEI STREAM | 1698 | 0.30 | 16.68 | 16.98 | 17.11 | 0.43 | 1 |
| 3406 | 28045 | Link: Firm Clay | Comp 4 Tauhei Diversion LB SB 16 | 15/06/17 | 1538 | 38 | 50 | TAUHEI STREAM | 1736 | 0.30 | 16.71 | 17.01 | 17.09 | 0.38 | 1 |
| 59777 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 00 | 15/06/17 | 0 | 0 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 142 | 0.30 | 14.78 | 15.08 | 15.19 | 0.41 | 1 |
| 3344 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 01 | 1/03/11 | 100 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 270 | 0.30 | 14.79 | 15.09 | 14.85 | 0.06 | 4 |
| 3345 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 02 | 1/03/11 | 200 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 355 | 0.30 | 14.80 | 15.10 | 15.34 | 0.54 | 1 |
| 3346 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 03 | 1/03/11 | 300 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 452 | 0.30 | 14.80 | 15.10 | 15.50 | 0.70 | 1 |
| 3347 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 04 | 1/03/11 | 400 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 552 | 0.30 | 14.81 | 15.11 | 15.49 | 0.68 | 1 |
| 3348 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 05 | 1/03/11 | 500 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 655 | 0.30 | 14.82 | 15.12 | 15.62 | 0.80 | 1 |
| 3349 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 06 | 1/03/11 | 600 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 748 | 0.30 | 14.82 | 15.12 | 15.72 | 0.90 | 1 |
| 3350 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 07 | 1/03/11 | 700 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 848 | 0.30 | 14.83 | 15.13 | 15.85 | 1.02 | 1 |
| 3351 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 08 | 1/03/11 | 800 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 948 | 0.30 | 14.83 | 15.13 | 15.45 | 0.62 | 1 |
| 3352 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 09 | 1/03/11 | 900 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1049 | 0.30 | 14.84 | 15.14 | 15.42 | 0.58 | 1 |
| 3353 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 10 | 1/03/11 | 1000 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1150 | 0.30 | 14.85 | 15.15 | 15.27 | 0.42 | 1 |
| 3354 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 11 | 1/03/11 | 1100 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1187 | 0.30 | 14.85 | 15.15 | 15.30 | 0.45 | 1 |
| 3355 | 24374 | Link: Firm Clay | Comp 4 Ten Foot Drain RB SB 12 | 1/03/11 | 1191 | 91 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1192 | 0.30 | 14.85 | 15.15 | 15.15 | 0.30 | 2 |
| 59713 | 28046 | Link: Firm Clay | Comp 4 Ten Foot Drain RB U/S SB 00 | 1/03/11 | 0 | 0 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1195 | 0.30 | 14.85 | 15.15 | 15.25 | 0.40 | 1 |
| 3339 | 28046 | Link: Firm Clay | Comp 4 Ten Foot Drain RB U/S SB 01 | 1/03/11 | 100 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1195 | 0.30 | 14.85 | 15.15 | 15.25 | 0.40 | 1 |
| 3340 | 28046 | Link: Firm Clay | Comp 4 Ten Foot Drain RB U/S SB 02 | 1/03/11 | 200 | 100 | 50 | MANGAKAWARU STREAM (HENRYS CREEK) | 1257 | 0.30 | 14.86 | 15.16 | 15.34 | 0.48 | 1 |
| 3341 | 28046 | Link: Firm Clay | Comp 4 Ten Foot Drain RB U/S SB 03 | 1/03/11 | 300 | 100 | 50 | TEN FOOT DRAIN | 111 | 0.30 | 14.89 | 15.19 | 15.50 | 0.61 | 1 |
| 3342 | 28046 | Link: Firm Clay | Comp 4 Ten Foot Drain RB U/S SB 04 | 1/03/11 | 400 | 100 | 50 | TEN FOOT DRAIN | 211 | 0.30 | 14.91 | 15.21 | 15.40 | 0.49 | 1 |
| 3343 | 28046 | Link: Firm Clay | Comp 4 Ten Foot Drain RB U/S SB 05 | 1/03/11 | 406 | 6 | 50 | TEN FOOT DRAIN | 221 | 0.30 | 14.91 | 15.21 | 15.45 | 0.54 | 1 |
| 59599 | 22925 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain LB SB 00 | 1/03/11 | 0 | 0 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 56 | 0.00 | 14.96 | 14.96 | 16.47 | 1.51 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3495 | 22925 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain LB SB 01 | 1/04/12 | 100 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 156 | 0.00 | 14.96 | 14.96 | 14.56 | -0.40 | 5 |
| 3496 | 22925 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain LB SB 02 | 1/04/12 | 200 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 266 | 0.00 | 14.96 | 14.96 | 14.65 | -0.31 | 5 |
| 3497 | 22925 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain LB SB 03 | 1/04/12 | 300 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 363 | 0.00 | 14.96 | 14.96 | 14.55 | -0.41 | 5 |
| 17496 | 22925 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain LB SB 04 | 1/04/12 | 326 | 26 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 388 | 0.00 | 14.96 | 14.96 | 14.64 | -0.32 | 5 |
| 3493 | 22925 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain LB Spillway 05 | 1/04/12 | 426 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 492 | 0.00 | 14.96 | 14.96 | 14.67 | -0.29 | 5 |
| 3494 | 22925 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain LB Spillway 06 | 1/04/12 | 526 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 590 | 0.00 | 14.96 | 14.96 | 14.18 | -0.78 | 5 |
| 59770 | 26604 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain RB SB 00 | 1/04/12 | 0 | 0 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 46 | 0.00 | 14.96 | 14.96 | 16.48 | 1.52 | 1 |
| 3490 | 26604 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain RB SB 01 | 1/04/12 | 100 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 146 | 0.00 | 14.96 | 14.96 | 14.18 | -0.78 | 5 |
| 3491 | 26604 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain RB SB 02 | 1/04/12 | 200 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 242 | 0.00 | 14.96 | 14.96 | 14.38 | -0.58 | 5 |
| 3492 | 26604 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain RB SB 03 | 1/04/12 | 300 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 338 | 0.00 | 14.96 | 14.96 | 14.61 | -0.35 | 5 |
| 17495 | 26604 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain RB SB 04 | 1/04/12 | 342 | 42 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 378 | 0.00 | 14.96 | 14.96 | 14.75 | -0.21 | 5 |
| 3488 | 26604 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain RB Spillway 05 | 1/04/12 | 442 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 477 | 0.00 | 14.96 | 14.96 | 14.76 | -0.20 | 5 |
| 3489 | 26604 | Link: Firm Clay | Comp 5 Henrys Remedial Outlet Drain RB Spillway 06 | 1/04/12 | 542 | 100 | unknown | HENRYS REMEDIAL OUTLET DRAIN | 577 | 0.00 | 14.96 | 14.96 | 14.89 | -0.07 | 5 |
| 59644 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 00 | 1/04/12 | 0 | 0 | 50 | TE MIMIHA SWAMP | 84 | 0.30 | 14.99 | 15.29 | 16.53 | 1.54 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3408 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 01 | 1/04/12 | 100 | 100 | 50 | TE MIMIHA SWAMP | 64 | 0.30 | 14.96 | 15.26 | 16.06 | 1.10 | 1 |
| 3409 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 02 | 1/04/12 | 200 | 100 | 50 | MANGAWARA RIVER | 14132 | 0.30 | 14.96 | 15.26 | 16.17 | 1.21 | 1 |
| 3410 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 03 | 1/04/12 | 300 | 100 | 50 | MANGAWARA RIVER | 14221 | 0.30 | 15.01 | 15.31 | 16.13 | 1.12 | 1 |
| 3411 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 04 | 1/04/12 | 400 | 100 | 50 | MANGAWARA RIVER | 14315 | 0.30 | 15.06 | 15.36 | 16.37 | 1.31 | 1 |
| 3412 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 05 | 1/04/12 | 500 | 100 | 50 | MANGAWARA RIVER | 14419 | 0.30 | 15.13 | 15.43 | 16.25 | 1.12 | 1 |
| 3413 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 06 | 1/04/12 | 600 | 100 | 50 | MANGAWARA RIVER | 14528 | 0.30 | 15.22 | 15.52 | 15.94 | 0.72 | 1 |
| 3414 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 07 | 1/04/12 | 700 | 100 | 50 | MANGAWARA RIVER | 14658 | 0.30 | 15.29 | 15.59 | 15.77 | 0.48 | 1 |
| 3415 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 08 | 1/04/12 | 800 | 100 | 50 | MANGAWARA RIVER | 14782 | 0.30 | 15.35 | 15.65 | 16.45 | 1.10 | 1 |
| 3416 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 09 | 1/04/12 | 900 | 100 | 50 | MANGAWARA RIVER | 14863 | 0.30 | 15.39 | 15.69 | 16.29 | 0.90 | 1 |
| 3417 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 10 | 1/04/12 | 1000 | 100 | 50 | MANGAWARA RIVER | 14943 | 0.30 | 15.42 | 15.72 | 16.43 | 1.01 | 1 |
| 3418 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 11 | 1/04/12 | 1100 | 100 | 50 | MANGAWARA RIVER | 15035 | 0.30 | 15.45 | 15.75 | 16.52 | 1.07 | 1 |
| 3419 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 12 | 1/04/12 | 1200 | 100 | 50 | MANGAWARA RIVER | 15135 | 0.30 | 15.49 | 15.79 | 16.51 | 1.02 | 1 |
| 3420 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 13 | 1/04/12 | 1300 | 100 | 50 | MANGAWARA RIVER | 15295 | 0.30 | 15.55 | 15.85 | 16.55 | 1.00 | 1 |
| 3421 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 14 | 1/04/12 | 1400 | 100 | 50 | MANGAWARA RIVER | 15357 | 0.30 | 15.57 | 15.87 | 16.37 | 0.80 | 1 |
| 3422 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 15 | 1/04/12 | 1500 | 100 | 50 | MANGAWARA RIVER | 15465 | 0.30 | 15.61 | 15.91 | 16.35 | 0.74 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3423 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 16 | 1/04/12 | 1600 | 100 | 50 | MANGAWARA RIVER | 15573 | 0.30 | 15.65 | 15.95 | 16.55 | 0.90 | 1 |
| 3424 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 17 | 1/04/12 | 1700 | 100 | 50 | MANGAWARA RIVER | 15671 | 0.30 | 15.69 | 15.99 | 16.52 | 0.83 | 1 |
| 3425 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 18 | 1/04/12 | 1800 | 100 | 50 | MANGAWARA RIVER | 15733 | 0.30 | 15.71 | 16.01 | 16.47 | 0.76 | 1 |
| 3426 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 19 | 1/04/12 | 1900 | 100 | 50 | MANGAWARA RIVER | 15926 | 0.30 | 15.79 | 16.09 | 16.54 | 0.75 | 1 |
| 3427 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 20 | 1/04/12 | 2000 | 100 | 50 | MANGAWARA RIVER | 16059 | 0.30 | 15.84 | 16.14 | 16.56 | 0.72 | 1 |
| 3428 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 21 | 1/04/12 | 2100 | 100 | 50 | MANGAWARA RIVER | 16152 | 0.30 | 15.88 | 16.18 | 16.44 | 0.56 | 1 |
| 3429 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 22 | 1/04/12 | 2200 | 100 | 50 | MANGAWARA RIVER | 16237 | 0.30 | 15.91 | 16.21 | 16.20 | 0.29 | 2 |
| 3430 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 23 | 1/04/12 | 2300 | 100 | 50 | MANGAWARA RIVER | 16316 | 0.30 | 15.94 | 16.24 | 16.10 | 0.16 | 2 |
| 3431 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 24 | 1/04/12 | 2400 | 100 | 50 | MANGAWARA RIVER | 16473 | 0.30 | 16.00 | 16.30 | 16.16 | 0.16 | 2 |
| 3432 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 25 | 1/04/12 | 2500 | 100 | 50 | MANGAWARA RIVER | 16545 | 0.30 | 16.03 | 16.33 | 16.53 | 0.50 | 1 |
| 3433 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 26 | 1/04/12 | 2600 | 100 | 50 | MANGAWARA RIVER | 16639 | 0.30 | 16.06 | 16.36 | 16.45 | 0.39 | 1 |
| 3434 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 27 | 1/04/12 | 2700 | 100 | 50 | MANGAWARA RIVER | 16789 | 0.30 | 16.09 | 16.39 | 16.57 | 0.48 | 1 |
| 3435 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 28 | 1/04/12 | 2800 | 100 | 50 | MANGAWARA RIVER | 16888 | 0.30 | 16.11 | 16.41 | 16.60 | 0.49 | 1 |
| 3436 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 29 | 1/04/12 | 2900 | 100 | 50 | MANGAWARA RIVER | 16991 | 0.30 | 16.13 | 16.43 | 16.35 | 0.22 | 2 |
| 3437 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 30 | 1/04/12 | 3000 | 100 | 50 | MANGAWARA RIVER | 17093 | 0.30 | 16.15 | 16.45 | 16.31 | 0.16 | 2 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3438 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 31 | 1/04/12 | 3100 | 100 | 50 | HENRYS REMEDIAL OUTLET DRAIN | 51 | 0.30 | 16.20 | 16.50 | 16.44 | 0.24 | 2 |
| 3439 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 32 | 1/04/12 | 3200 | 100 | 50 | MANGAWARA RIVER | 17262 | 0.30 | 16.20 | 16.50 | 16.44 | 0.24 | 2 |
| 3440 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 33 | 1/04/12 | 3300 | 100 | 50 | MANGAWARA RIVER | 17352 | 0.30 | 16.23 | 16.53 | 16.54 | 0.31 | 1 |
| 3441 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 34 | 1/04/12 | 3400 | 100 | 50 | MANGAWARA RIVER | 17444 | 0.30 | 16.26 | 16.56 | 16.60 | 0.34 | 1 |
| 3442 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 35 | 1/04/12 | 3500 | 100 | 50 | MANGAWARA RIVER | 17535 | 0.30 | 16.30 | 16.60 | 16.88 | 0.58 | 1 |
| 3443 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 36 | 1/04/12 | 3600 | 100 | 50 | MANGAWARA RIVER | 17616 | 0.30 | 16.33 | 16.63 | 17.19 | 0.86 | 1 |
| 3444 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 37 | 1/04/12 | 3700 | 100 | 50 | MANGAWARA RIVER | 17745 | 0.30 | 16.38 | 16.68 | 16.73 | 0.35 | 1 |
| 3445 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 38 | 1/04/12 | 3800 | 100 | 50 | MANGAWARA RIVER | 17948 | 0.30 | 16.44 | 16.74 | 16.91 | 0.47 | 1 |
| 3446 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 39 | 1/04/12 | 3900 | 100 | 50 | MANGAWARA RIVER | 18030 | 0.30 | 16.46 | 16.76 | 16.85 | 0.39 | 1 |
| 3447 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 40 | 1/04/12 | 4000 | 100 | 50 | MANGAWARA RIVER | 18117 | 0.30 | 16.48 | 16.78 | 16.76 | 0.28 | 2 |
| 3448 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 41 | 1/04/12 | 4100 | 100 | 50 | MANGAWARA RIVER | 18179 | 0.30 | 16.49 | 16.79 | 16.89 | 0.40 | 1 |
| 3449 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 42 | 1/04/12 | 4200 | 100 | 50 | MANGAWARA RIVER | 18264 | 0.30 | 16.51 | 16.81 | 16.62 | 0.11 | 3 |
| 3450 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 43 | 1/04/12 | 4300 | 100 | 50 | MANGAWARA RIVER | 18359 | 0.30 | 16.53 | 16.83 | 16.69 | 0.16 | 2 |
| 3451 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 44 | 1/04/12 | 4400 | 100 | 50 | MANGAWARA RIVER | 18476 | 0.30 | 16.55 | 16.85 | 16.80 | 0.25 | 2 |
| 3452 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 45 | 1/04/12 | 4500 | 100 | 50 | MANGAWARA RIVER | 18587 | 0.30 | 16.58 | 16.88 | 16.89 | 0.31 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3453 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 46 | 1/04/12 | 4600 | 100 | 50 | SLUDGE CREEK | 77 | 0.30 | 16.59 | 16.89 | 17.15 | 0.56 | 1 |
| 3454 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 47 | 1/04/12 | 4700 | 100 | 50 | SLUDGE CREEK | 175 | 0.30 | 16.59 | 16.89 | 17.15 | 0.56 | 1 |
| 3455 | 23670 | Link: Firm Clay | Comp 5 Mangawara River RB SB 48 | 1/04/12 | 4800 | 100 | 50 | SLUDGE CREEK | 323 | 0.30 | 16.59 | 16.89 | 16.84 | 0.25 | 2 |
| 59697 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 00 | 1/04/12 | 0 | 0 | 50 | SLUDGE CREEK | 323 | 0.30 | 16.59 | 16.89 | 16.84 | 0.25 | 2 |
| 3456 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 01 | 1/04/12 | 100 | 100 | 50 | SLUDGE CREEK | 430 | 0.30 | 16.59 | 16.89 | 16.87 | 0.28 | 2 |
| 3457 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 02 | 1/04/12 | 200 | 100 | 50 | SLUDGE CREEK | 514 | 0.30 | 16.59 | 16.89 | 16.78 | 0.19 | 2 |
| 3458 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 03 | 1/04/12 | 300 | 100 | 50 | SLUDGE CREEK | 732 | 0.30 | 16.59 | 16.89 | 16.95 | 0.36 | 1 |
| 3459 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 04 | 1/04/12 | 400 | 100 | 50 | SLUDGE CREEK | 809 | 0.30 | 16.59 | 16.89 | 16.94 | 0.35 | 1 |
| 3460 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 05 | 1/04/12 | 500 | 100 | 50 | SLUDGE CREEK | 889 | 0.30 | 16.59 | 16.89 | 17.07 | 0.48 | 1 |
| 3461 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 06 | 1/04/12 | 600 | 100 | 50 | SLUDGE CREEK | 1045 | 0.30 | 16.59 | 16.89 | 17.09 | 0.50 | 1 |
| 3462 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 07 | 1/04/12 | 700 | 100 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 17.06 | 0.46 | 1 |
| 3463 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 08 | 1/04/12 | 800 | 100 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 17.16 | 0.56 | 1 |
| 3464 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 09 | 1/04/12 | 900 | 100 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 17.23 | 0.63 | 1 |
| 3465 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 10 | 1/04/12 | 1000 | 100 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 17.08 | 0.48 | 1 |
| 3466 | 25852 | Link: Firm Clay | Comp 5 Sludge Creek RB SB 11 | 1/04/12 | 1079 | 79 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 16.98 | 0.38 | 1 |
| 59698 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 00 | 1/04/12 | 0 | 0 | 5 | TE MIMIHA SWAMP | 79 | 0.00 | 15.12 | 15.12 | 16.28 | 1.16 | 1 |
| 3472 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 01 | 1/04/12 | 100 | 100 | 5 | TE MIMIHA SWAMP | 180 | 0.00 | 15.12 | 15.12 | 15.21 | 0.09 | 1 |
| 3473 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 02 | 1/04/12 | 200 | 100 | 5 | TE MIMIHA SWAMP | 280 | 0.00 | 15.12 | 15.12 | 15.02 | -0.10 | 5 |
| 3474 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 03 | 1/04/12 | 300 | 100 | 5 | TE MIMIHA SWAMP | 379 | 0.00 | 15.12 | 15.12 | 15.13 | 0.01 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3475 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 04 | 1/04/12 | 400 | 100 | 5 | TE MIMIHA SWAMP | 479 | 0.00 | 15.12 | 15.12 | 15.28 | 0.16 | 1 |
| 3476 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 05 | 1/04/12 | 500 | 100 | 5 | TE MIMIHA SWAMP | 580 | 0.00 | 15.12 | 15.12 | 14.89 | -0.23 | 5 |
| 3477 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 06 | 1/04/12 | 600 | 100 | 5 | TE MIMIHA SWAMP | 686 | 0.00 | 15.12 | 15.12 | 14.88 | -0.24 | 5 |
| 3478 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 07 | 1/04/12 | 700 | 100 | 5 | TE MIMIHA SWAMP | 787 | 0.00 | 15.12 | 15.12 | 14.77 | -0.35 | 5 |
| 3479 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 08 | 1/04/12 | 800 | 100 | 5 | TE MIMIHA SWAMP | 886 | 0.00 | 15.12 | 15.12 | 14.47 | -0.65 | 5 |
| 3480 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 09 | 1/04/12 | 900 | 100 | 5 | TE MIMIHA SWAMP | 987 | 0.00 | 15.12 | 15.12 | 14.61 | -0.51 | 5 |
| 3481 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 10 | 1/04/12 | 1000 | 100 | 5 | TE MIMIHA SWAMP | 1087 | 0.00 | 15.12 | 15.12 | 14.47 | -0.65 | 5 |
| 3482 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 11 | 1/04/12 | 1100 | 100 | 5 | TE MIMIHA SWAMP | 1185 | 0.00 | 15.12 | 15.12 | 14.63 | -0.49 | 5 |
| 3483 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 12 | 1/04/12 | 1200 | 100 | 5 | TE MIMIHA SWAMP | 1280 | 0.00 | 15.12 | 15.12 | 14.79 | -0.33 | 5 |
| 3484 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 13 | 1/04/12 | 1300 | 100 | 5 | TE MIMIHA SWAMP | 1382 | 0.00 | 15.12 | 15.12 | 14.85 | -0.27 | 5 |
| 3485 | 25853 | Link: Firm Clay | Comp 5 Te Mimiha Swamp Outlet Drain LB SB 14 | 1/04/12 | 1399 | 99 | 5 | TE MIMIHA SWAMP | 1477 | 0.00 | 15.12 | 15.12 | 14.94 | -0.18 | 5 |
| 59717 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 00 | 1/04/12 | 0 | 0 | 50 | TAUHEI STREAM | 153 | 0.30 | 16.11 | 16.41 | 16.70 | 0.59 | 1 |
| 3512 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 01 | 1/04/12 | 100 | 100 | 50 | MANGAWARA RIVER | 16868 | 0.30 | 16.10 | 16.40 | 16.38 | 0.28 | 2 |
| 3513 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 02 | 1/04/12 | 200 | 100 | 50 | MANGAWARA RIVER | 16965 | 0.30 | 16.12 | 16.42 | 16.33 | 0.21 | 2 |
| 3514 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 03 | 1/04/12 | 300 | 100 | 50 | MANGAWARA RIVER | 17068 | 0.30 | 16.15 | 16.45 | 16.47 | 0.32 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3515 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 04 | 1/04/12 | 400 | 100 | 50 | MANGAWARA RIVER | 17180 | 0.30 | 16.18 | 16.48 | 16.39 | 0.21 | 2 |
| 3516 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 05 | 1/04/12 | 500 | 100 | 50 | MANGAWARA RIVER | 17382 | 0.30 | 16.24 | 16.54 | 16.56 | 0.32 | 1 |
| 3517 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 06 | 1/04/12 | 600 | 100 | 50 | MANGAWARA RIVER | 17474 | 0.30 | 16.28 | 16.58 | 16.54 | 0.26 | 2 |
| 3518 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 07 | 1/04/12 | 700 | 100 | 50 | MANGAWARA RIVER | 17596 | 0.30 | 16.33 | 16.63 | 16.64 | 0.31 | 1 |
| 3519 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 08 | 1/04/12 | 800 | 100 | 50 | MANGAWARA RIVER | 17692 | 0.30 | 16.36 | 16.66 | 16.80 | 0.44 | 1 |
| 3520 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 09 | 1/04/12 | 900 | 100 | 50 | MANGAWARA RIVER | 17761 | 0.30 | 16.38 | 16.68 | 16.84 | 0.46 | 1 |
| 3521 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 10 | 1/04/12 | 1000 | 100 | 50 | MANGAWARA RIVER | 17833 | 0.30 | 16.41 | 16.71 | 16.77 | 0.36 | 1 |
| 3522 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 11 | 1/04/12 | 1100 | 100 | 50 | MANGAWARA RIVER | 17924 | 0.30 | 16.43 | 16.73 | 16.89 | 0.46 | 1 |
| 3523 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 12 | 1/04/12 | 1200 | 100 | 50 | MANGAWARA RIVER | 18030 | 0.30 | 16.46 | 16.76 | 16.83 | 0.37 | 1 |
| 3524 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 13 | 1/04/12 | 1300 | 100 | 50 | MANGAWARA RIVER | 18164 | 0.30 | 16.49 | 16.79 | 16.52 | 0.03 | 4 |
| 3525 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 14 | 1/04/12 | 1400 | 100 | 50 | MANGAWARA RIVER | 18274 | 0.30 | 16.51 | 16.81 | 16.88 | 0.37 | 1 |
| 3526 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 15 | 1/04/12 | 1500 | 100 | 50 | MANGAWARA RIVER | 18370 | 0.30 | 16.54 | 16.84 | 17.01 | 0.47 | 1 |
| 3527 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 16 | 1/04/12 | 1600 | 100 | 50 | MANGAWARA RIVER | 18466 | 0.30 | 16.55 | 16.85 | 16.85 | 0.30 | 1 |
| 3528 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 17 | 1/04/12 | 1700 | 100 | 50 | MANGAWARA RIVER | 18535 | 0.30 | 16.57 | 16.87 | 17.08 | 0.51 | 1 |
| 3529 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 18 | 1/04/12 | 1800 | 100 | 50 | MANGAWARA RIVER | 18665 | 0.30 | 16.61 | 16.91 | 17.10 | 0.49 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3530 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 19 | 1/04/12 | 1900 | 100 | 50 | MANGAWARA RIVER | 18778 | 0.30 | 16.64 | 16.94 | 17.22 | 0.58 | 1 |
| 3531 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 20 | 1/04/12 | 2000 | 100 | 50 | MANGAWARA RIVER | 18843 | 0.30 | 16.66 | 16.96 | 17.35 | 0.69 | 1 |
| 3532 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 21 | 1/04/12 | 2100 | 100 | 50 | MANGAWARA RIVER | 18923 | 0.30 | 16.69 | 16.99 | 17.07 | 0.38 | 1 |
| 3533 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 22 | 1/04/12 | 2200 | 100 | 50 | MANGAWARA RIVER | 19065 | 0.30 | 16.73 | 17.03 | 17.02 | 0.29 | 2 |
| 3534 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 23 | 1/04/12 | 2300 | 100 | 50 | MANGAWARA RIVER | 19193 | 0.30 | 16.76 | 17.06 | 17.02 | 0.26 | 2 |
| 3535 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 24 | 1/04/12 | 2400 | 100 | 50 | MANGAWARA RIVER | 19307 | 0.30 | 16.80 | 17.10 | 17.34 | 0.54 | 1 |
| 3536 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 25 | 1/04/12 | 2500 | 100 | 50 | MANGAWARA RIVER | 19402 | 0.30 | 16.82 | 17.12 | 17.32 | 0.50 | 1 |
| 3537 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 26 | 1/04/12 | 2600 | 100 | 50 | MANGAWARA RIVER | 19499 | 0.30 | 16.85 | 17.15 | 17.37 | 0.52 | 1 |
| 3538 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 27 | 1/04/12 | 2700 | 100 | 50 | MANGAWARA RIVER | 19600 | 0.30 | 16.88 | 17.18 | 17.33 | 0.45 | 1 |
| 3539 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 28 | 1/04/12 | 2800 | 100 | 50 | MANGAWARA RIVER | 19703 | 0.30 | 16.92 | 17.22 | 17.34 | 0.42 | 1 |
| 3540 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 29 | 1/04/12 | 2900 | 100 | 50 | MANGAWARA RIVER | 19808 | 0.30 | 16.94 | 17.24 | 17.36 | 0.42 | 1 |
| 3541 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 30 | 1/04/12 | 3000 | 100 | 50 | MANGAWARA RIVER | 19898 | 0.30 | 16.96 | 17.26 | 17.17 | 0.21 | 2 |
| 3542 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 31 | 1/04/12 | 3100 | 100 | 50 | MANGAWARA RIVER | 19984 | 0.30 | 16.99 | 17.29 | 17.31 | 0.32 | 1 |
| 3543 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 32 | 1/04/12 | 3200 | 100 | 50 | MANGAWARA RIVER | 20064 | 0.30 | 17.01 | 17.31 | 17.35 | 0.34 | 1 |
| 3544 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 33 | 1/04/12 | 3300 | 100 | 50 | MANGAWARA RIVER | 20165 | 0.30 | 17.05 | 17.35 | 17.35 | 0.30 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3545 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 34 | 1/04/12 | 3400 | 100 | 50 | MANGAWARA RIVER | 20266 | 0.30 | 17.08 | 17.38 | 17.32 | 0.24 | 2 |
| 3546 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 35 | 1/04/12 | 3500 | 100 | 50 | MANGAWARA RIVER | 20364 | 0.30 | 17.12 | 17.42 | 17.38 | 0.26 | 2 |
| 3547 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 36 | 1/04/12 | 3600 | 100 | 50 | MANGAWARA RIVER | 20464 | 0.30 | 17.16 | 17.46 | 17.07 | -0.09 | 5 |
| 3548 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 37 | 1/04/12 | 3700 | 100 | 50 | MANGAWARA RIVER | 20561 | 0.30 | 17.20 | 17.50 | 17.49 | 0.29 | 2 |
| 3549 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 38 | 1/04/12 | 3800 | 100 | 50 | MANGAWARA RIVER | 20662 | 0.30 | 17.24 | 17.54 | 17.28 | 0.04 | 4 |
| 3550 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 39 | 1/04/12 | 3900 | 100 | 50 | MANGAWARA RIVER | 20762 | 0.30 | 17.27 | 17.57 | 17.48 | 0.21 | 2 |
| 3551 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 40 | 1/04/12 | 4000 | 100 | 50 | MANGAWARA RIVER | 20857 | 0.30 | 17.31 | 17.61 | 17.57 | 0.26 | 2 |
| 3552 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 41 | 1/04/12 | 4100 | 100 | 50 | MANGAWARA RIVER | 20964 | 0.30 | 17.36 | 17.66 | 17.68 | 0.32 | 1 |
| 85085 | 27360 | Link: Firm Clay | Comp 6 Mangawara River LB SB 42 | 1/04/12 | 4191 | 91 | 50 | MURCHIE DRAIN | 68 | 0.30 | 17.43 | 17.73 | 17.86 | 0.43 | 1 |
| 59659 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 00 | 1/04/12 | 0 | 0 | 50 | MURCHIE DRAIN | 68 | 0.30 | 17.43 | 17.73 | 18.11 | 0.68 | 1 |
| 3553 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 01 | 1/04/12 | 100 | 100 | 50 | MURCHIE DRAIN | 181 | 0.30 | 17.46 | 17.76 | 18.17 | 0.71 | 1 |
| 3554 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 02 | 1/04/12 | 200 | 100 | 50 | MURCHIE DRAIN | 289 | 0.30 | 17.51 | 17.81 | 18.17 | 0.66 | 1 |
| 3555 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 03 | 1/04/12 | 300 | 100 | 50 | MURCHIE DRAIN | 388 | 0.30 | 17.56 | 17.86 | 18.25 | 0.69 | 1 |
| 3556 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 04 | 1/04/12 | 400 | 100 | 50 | MURCHIE DRAIN | 476 | 0.30 | 17.63 | 17.93 | 18.06 | 0.43 | 1 |
| 3557 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 05 | 1/04/12 | 500 | 100 | 50 | MURCHIE DRAIN | 572 | 0.30 | 17.73 | 18.03 | 18.30 | 0.57 | 1 |
| 3558 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 06 | 1/04/12 | 600 | 100 | 50 | MURCHIE DRAIN | 693 | 0.30 | 17.83 | 18.13 | 18.19 | 0.36 | 1 |
| 3559 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 07 | 1/04/12 | 700 | 100 | 50 | MURCHIE DRAIN | 797 | 0.30 | 17.85 | 18.15 | 18.23 | 0.38 | 1 |
| 3560 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 08 | 1/04/12 | 800 | 100 | 50 | MURCHIE DRAIN | 898 | 0.30 | 17.85 | 18.15 | 18.52 | 0.67 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3561 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 09 | 1/04/12 | 900 | 100 | 50 | MURCHIE DRAIN | 1008 | 0.30 | 17.86 | 18.16 | 18.21 | 0.35 | 1 |
| 3562 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 10 | 1/04/12 | 1000 | 100 | 50 | MURCHIE DRAIN | 1103 | 0.30 | 17.86 | 18.16 | 18.44 | 0.58 | 1 |
| 3563 | 25108 | Link: Firm Clay | Comp 6 Murchie Drain LB SB 11 | 1/04/12 | 1078 | 78 | 50 | MURCHIE DRAIN | 1183 | 0.30 | 17.87 | 18.17 | 17.86 | -0.01 | 5 |
| 59680 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 00 | 1/04/12 | 0 | 0 | 50 | TAUHEI STREAM | 153 | 0.30 | 16.11 | 16.41 | 16.61 | 0.50 | 1 |
| 3498 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 01 | 1/04/12 | 100 | 100 | 50 | TAUHEI STREAM | 240 | 0.30 | 16.14 | 16.44 | 16.64 | 0.50 | 1 |
| 3499 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 02 | 1/04/12 | 200 | 100 | 50 | TAUHEI STREAM | 334 | 0.30 | 16.17 | 16.47 | 16.54 | 0.37 | 1 |
| 3500 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 03 | 1/04/12 | 300 | 100 | 50 | TAUHEI STREAM | 431 | 0.30 | 16.19 | 16.49 | 16.45 | 0.26 | 2 |
| 3501 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 04 | 1/04/12 | 400 | 100 | 50 | TAUHEI STREAM | 521 | 0.30 | 16.22 | 16.52 | 16.51 | 0.29 | 2 |
| 3502 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 05 | 1/04/12 | 500 | 100 | 50 | TAUHEI STREAM | 617 | 0.30 | 16.24 | 16.54 | 16.59 | 0.35 | 1 |
| 3503 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 06 | 1/04/12 | 600 | 100 | 50 | TAUHEI STREAM | 715 | 0.30 | 16.27 | 16.57 | 16.65 | 0.38 | 1 |
| 3504 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 07 | 1/04/12 | 700 | 100 | 50 | TAUHEI STREAM | 807 | 0.30 | 16.30 | 16.60 | 16.78 | 0.48 | 1 |
| 3505 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 08 | 1/04/12 | 800 | 100 | 50 | TAUHEI STREAM | 902 | 0.30 | 16.33 | 16.63 | 16.86 | 0.53 | 1 |
| 3506 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 09 | 1/04/12 | 900 | 100 | 50 | TAUHEI STREAM | 1002 | 0.30 | 16.37 | 16.67 | 16.74 | 0.37 | 1 |
| 3507 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 10 | 1/04/12 | 1000 | 100 | 50 | TAUHEI STREAM | 1102 | 0.30 | 16.41 | 16.71 | 16.74 | 0.33 | 1 |
| 3508 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 11 | 1/04/12 | 1100 | 100 | 50 | TAUHEI STREAM | 1202 | 0.30 | 16.45 | 16.75 | 16.64 | 0.19 | 2 |
| 3509 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 12 | 1/04/12 | 1200 | 100 | 50 | TAUHEI STREAM | 1302 | 0.30 | 16.49 | 16.79 | 17.08 | 0.59 | 1 |
| 3510 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 13 | 1/04/12 | 1300 | 100 | 50 | TAUHEI STREAM | 1400 | 0.30 | 16.54 | 16.84 | 17.52 | 0.98 | 1 |
| 3511 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 14 | 1/04/12 | 1400 | 100 | 50 | TAUHEI STREAM | 1500 | 0.30 | 16.58 | 16.88 | 16.86 | 0.28 | 2 |
| 16899 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 15 | 1/04/12 | 1500 | 100 | 50 | TAUHEI STREAM | 1603 | 0.30 | 16.63 | 16.93 | 17.09 | 0.46 | 1 |
| 16900 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 16 | 1/04/12 | 1600 | 100 | 50 | TAUHEI STREAM | 1698 | 0.30 | 16.68 | 16.98 | 17.46 | 0.78 | 1 |
| 17510 | 25859 | Link: Firm Clay | Comp 6 Tauhei Diversion RB SB 17 | 1/04/12 | 1652 | 52 | 50 | TAUHEI STREAM | 1759 | 0.30 | 16.72 | 17.02 | 17.39 | 0.67 | 1 |
| 59771 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 22449 | 0.30 | 18.76 | 19.06 | 19.72 | 0.96 | 1 |
| 3590 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 01 | 1/04/00 | 100 | 100 | 50 | MANGATEA STREAM NORTH | 116 | 0.30 | 18.92 | 19.22 | 19.72 | 0.80 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3591 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 02 | 1/04/00 | 200 | 100 | 50 | MANGATEA STREAM NORTH | 219 | 0.30 | 18.94 | 19.24 | 19.79 | 0.85 | 1 |
| 3592 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 03 | 1/04/00 | 300 | 100 | 50 | MANGATEA STREAM NORTH | 325 | 0.30 | 18.97 | 19.27 | 19.81 | 0.84 | 1 |
| 3593 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 04 | 1/04/00 | 400 | 100 | 50 | MANGATEA STREAM NORTH | 417 | 0.30 | 19.02 | 19.32 | 19.95 | 0.93 | 1 |
| 3594 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 05 | 1/04/00 | 500 | 100 | 50 | MANGATEA STREAM NORTH | 505 | 0.30 | 19.14 | 19.44 | 20.41 | 1.27 | 1 |
| 3595 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 06 | 1/04/00 | 600 | 100 | 50 | MANGATEA STREAM NORTH | 652 | 0.30 | 19.56 | 19.86 | 20.72 | 1.16 | 1 |
| 3596 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 07 | 1/04/00 | 700 | 100 | 50 | MANGATEA STREAM NORTH | 761 | 0.30 | 19.94 | 20.24 | 21.23 | 1.29 | 1 |
| 3597 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 08 | 1/04/00 | 800 | 100 | 50 | MANGATEA STREAM NORTH | 862 | 0.30 | 20.27 | 20.57 | 21.61 | 1.34 | 1 |
| 3598 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 09 | 1/04/00 | 900 | 100 | 50 | MANGATEA STREAM NORTH | 995 | 0.30 | 20.70 | 21.00 | 22.05 | 1.35 | 1 |
| 3599 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 10 | 1/04/00 | 1000 | 100 | 50 | MANGATEA STREAM NORTH | 1087 | 0.30 | 21.00 | 21.30 | 22.33 | 1.33 | 1 |
| 3600 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 11 | 1/04/00 | 1100 | 100 | 50 | MANGATEA STREAM NORTH | 1190 | 0.30 | 21.32 | 21.62 | 22.52 | 1.20 | 1 |
| 3601 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 12 | 1/04/00 | 1200 | 100 | 50 | MANGATEA STREAM NORTH | 1292 | 0.30 | 21.64 | 21.94 | 22.98 | 1.34 | 1 |
| 3602 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 13 | 1/04/00 | 1300 | 100 | 50 | MANGATEA STREAM NORTH | 1379 | 0.30 | 21.91 | 22.21 | 23.36 | 1.45 | 1 |
| 3603 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 14 | 1/04/00 | 1400 | 100 | 50 | MANGATEA STREAM NORTH | 1477 | 0.30 | 22.22 | 22.52 | 23.85 | 1.63 | 1 |
| 3604 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 15 | 1/04/00 | 1500 | 100 | 50 | MANGATEA STREAM NORTH | 1577 | 0.30 | 22.52 | 22.82 | 24.15 | 1.63 | 1 |
| 3605 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 16 | 1/04/00 | 1600 | 100 | 50 | MANGATEA STREAM NORTH | 1726 | 0.30 | 22.98 | 23.28 | 24.35 | 1.37 | 1 |
| 3606 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 17 | 1/04/00 | 1700 | 100 | 50 | MANGATEA STREAM NORTH | 1772 | 0.30 | 23.12 | 23.42 | 24.59 | 1.47 | 1 |
| 3607 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 18 | 1/04/00 | 1800 | 100 | 50 | MANGATEA STREAM NORTH | 1875 | 0.30 | 23.45 | 23.75 | 24.94 | 1.49 | 1 |
| 3608 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 19 | 1/04/00 | 1900 | 100 | 50 | MANGATEA STREAM NORTH | 1986 | 0.30 | 23.78 | 24.08 | 24.95 | 1.17 | 1 |
| 3609 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 20 | 1/04/00 | 2000 | 100 | 50 | MANGATEA STREAM NORTH | 2111 | 0.30 | 24.15 | 24.45 | 25.05 | 0.90 | 1 |
| 3610 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 21 | 1/04/00 | 2100 | 100 | 50 | MANGATEA STREAM NORTH | 2270 | 0.30 | 24.59 | 24.89 | 25.77 | 1.18 | 1 |
| 3611 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 22 | 1/04/00 | 2200 | 100 | 50 | MANGATEA STREAM NORTH | 2368 | 0.30 | 24.87 | 25.17 | 25.61 | 0.75 | 1 |
| 3612 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 23 | 1/04/00 | 2300 | 100 | 50 | MANGATEA STREAM NORTH | 2475 | 0.30 | 25.16 | 25.46 | 25.93 | 0.77 | 1 |
| 3613 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 24 | 1/04/00 | 2400 | 100 | 50 | MANGATEA STREAM NORTH | 2573 | 0.30 | 25.46 | 25.76 | 26.57 | 1.11 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3614 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 25 | 1/04/00 | 2500 | 100 | 50 | MANGATEA STREAM NORTH | 2678 | 0.30 | 25.77 | 26.07 | 26.58 | 0.81 | 1 |
| 3615 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 26 | 1/04/00 | 2600 | 100 | 50 | MANGATEA STREAM NORTH | 2780 | 0.30 | 26.14 | 26.44 | 26.95 | 0.81 | 1 |
| 3616 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 27 | 1/04/00 | 2700 | 100 | 50 | MANGATEA STREAM NORTH | 2880 | 0.30 | 26.63 | 26.93 | 27.80 | 1.17 | 1 |
| 3617 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 28 | | 2800 | 100 | 50 | MANGATEA STREAM NORTH | 2984 | 0.30 | 27.12 | 27.42 | 28.08 | 0.96 | 1 |
| 3618 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 29 | | 2900 | 100 | 50 | MANGATEA STREAM NORTH | 3110 | 0.30 | 27.71 | 28.01 | 28.61 | 0.90 | 1 |
| 3619 | 26608 | Link: Firm Clay | Comp 7 Mangatea Stream RB SB 30 | | 2986 | 86 | 50 | MANGATEA STREAM NORTH | 3178 | 0.30 | 28.05 | 28.35 | 29.25 | 1.20 | 1 |
| 59645 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 00 | | 0 | 0 | 50 | SLUDGE CREEK | 333 | 0.30 | 16.59 | 16.89 | 16.76 | 0.17 | 2 |
| 3576 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 18953 | 0.30 | 16.70 | 17.00 | 17.10 | 0.40 | 1 |
| 3577 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 19024 | 0.30 | 16.72 | 17.02 | 17.04 | 0.32 | 1 |
| 3578 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 19104 | 0.30 | 16.74 | 17.04 | 17.06 | 0.32 | 1 |
| 3579 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 19193 | 0.30 | 16.76 | 17.06 | 17.17 | 0.41 | 1 |
| 3580 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 19288 | 0.30 | 16.79 | 17.09 | 17.11 | 0.32 | 1 |
| 3581 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 06 | 1/04/00 | 600 | 100 | 50 | MANGAWARA RIVER | 19392 | 0.30 | 16.82 | 17.12 | 17.04 | 0.22 | 2 |
| 3582 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 07 | 1/04/00 | 700 | 100 | 50 | MANGAWARA RIVER | 19489 | 0.30 | 16.85 | 17.15 | 17.11 | 0.26 | 2 |
| 3583 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 08 | 1/04/00 | 800 | 100 | 50 | MANGAWARA RIVER | 19590 | 0.30 | 16.88 | 17.18 | 17.09 | 0.21 | 2 |
| 3584 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 09 | 1/04/00 | 900 | 100 | 50 | MANGAWARA RIVER | 19693 | 0.30 | 16.91 | 17.21 | 17.07 | 0.16 | 2 |
| 3585 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 10 | 1/04/00 | 1000 | 100 | 50 | MANGAWARA RIVER | 19793 | 0.30 | 16.94 | 17.24 | 16.98 | 0.04 | 4 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3586 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 11 | 1/04/00 | 1100 | 100 | 50 | MANGAWARA RIVER | 19893 | 0.30 | 16.96 | 17.26 | 17.26 | 0.30 | 1 |
| 3587 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 12 | 1/04/00 | 1200 | 100 | 50 | MANGAWARA RIVER | 20029 | 0.30 | 17.00 | 17.30 | 17.51 | 0.51 | 1 |
| 3588 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 13 | 1/04/00 | 1300 | 100 | 50 | MANGAWARA RIVER | 20131 | 0.30 | 17.03 | 17.33 | 17.48 | 0.45 | 1 |
| 3589 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 14 | 1/04/00 | 1400 | 100 | 50 | MANGAWARA RIVER | 20231 | 0.30 | 17.07 | 17.37 | 17.62 | 0.55 | 1 |
| 16901 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 15 | 1/04/00 | 1500 | 100 | 50 | MANGAWARA RIVER | 20334 | 0.30 | 17.11 | 17.41 | 17.64 | 0.53 | 1 |
| 16902 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 16 | 1/04/00 | 1600 | 100 | 50 | MANGAWARA RIVER | 20429 | 0.30 | 17.14 | 17.44 | 17.64 | 0.50 | 1 |
| 16903 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 17 | 1/04/00 | 1700 | 100 | 50 | MANGAWARA RIVER | 20531 | 0.30 | 17.19 | 17.49 | 17.65 | 0.46 | 1 |
| 16904 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 18 | 1/04/00 | 1800 | 100 | 50 | MANGAWARA RIVER | 20626 | 0.30 | 17.23 | 17.53 | 17.62 | 0.39 | 1 |
| 16905 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 19 | 1/04/00 | 1900 | 100 | 50 | MANGAWARA RIVER | 20732 | 0.30 | 17.26 | 17.56 | 17.60 | 0.34 | 1 |
| 16906 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 20 | 1/04/00 | 2000 | 100 | 50 | MANGAWARA RIVER | 20822 | 0.30 | 17.30 | 17.60 | 17.59 | 0.29 | 2 |
| 16907 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 21 | 1/04/00 | 2100 | 100 | 50 | MANGAWARA RIVER | 20934 | 0.30 | 17.34 | 17.64 | 17.74 | 0.40 | 1 |
| 16908 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 22 | 1/04/00 | 2200 | 100 | 50 | MANGAWARA RIVER | 21043 | 0.30 | 17.40 | 17.70 | 18.06 | 0.66 | 1 |
| 16909 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 23 | 1/04/00 | 2300 | 100 | 50 | MANGAWARA RIVER | 21192 | 0.30 | 17.46 | 17.76 | 18.30 | 0.84 | 1 |
| 16910 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 24 | 1/04/00 | 2400 | 100 | 50 | MANGAWARA RIVER | 21343 | 0.30 | 17.55 | 17.85 | 18.45 | 0.90 | 1 |
| 16911 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 25 | 1/04/00 | 2500 | 100 | 50 | MANGAWARA RIVER | 21426 | 0.30 | 17.60 | 17.90 | 18.65 | 1.05 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16912 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 26 | 1/04/00 | 2600 | 100 | 50 | MANGAWARA RIVER | 21497 | 0.30 | 17.65 | 17.95 | 18.64 | 0.99 | 1 |
| 16913 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 27 | 1/04/00 | 2700 | 100 | 50 | MANGAWARA RIVER | 21594 | 0.30 | 17.72 | 18.02 | 18.71 | 0.99 | 1 |
| 16914 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 28 | 1/04/00 | 2800 | 100 | 50 | MANGAWARA RIVER | 21671 | 0.30 | 17.77 | 18.07 | 18.85 | 1.08 | 1 |
| 16915 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 29 | 1/04/00 | 2900 | 100 | 50 | MANGAWARA RIVER | 21740 | 0.30 | 17.83 | 18.13 | 19.12 | 1.29 | 1 |
| 16916 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 30 | 1/04/00 | 3000 | 100 | 50 | MANGAWARA RIVER | 21861 | 0.30 | 17.94 | 18.24 | 18.99 | 1.05 | 1 |
| 16917 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 31 | 1/04/00 | 3100 | 100 | 50 | MANGAWARA RIVER | 22001 | 0.30 | 18.07 | 18.37 | 18.91 | 0.84 | 1 |
| 16918 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 32 | 1/04/00 | 3200 | 100 | 50 | MANGAWARA RIVER | 22088 | 0.30 | 18.16 | 18.46 | 19.10 | 0.94 | 1 |
| 16919 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 33 | 1/04/00 | 3300 | 100 | 50 | MANGAWARA RIVER | 22180 | 0.30 | 18.25 | 18.55 | 19.62 | 1.37 | 1 |
| 16920 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 34 | 1/04/00 | 3400 | 100 | 50 | MANGAWARA RIVER | 22318 | 0.30 | 18.52 | 18.82 | 19.57 | 1.05 | 1 |
| 16921 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 35 | 1/04/00 | 3500 | 100 | 50 | MANGAWARA RIVER | 22431 | 0.30 | 18.73 | 19.03 | 19.65 | 0.92 | 1 |
| 17529 | 23674 | Link: Firm Clay | Comp 7 Mangawara River RB SB 36 | 1/04/00 | 3516 | 16 | 50 | MANGAWARA RIVER | 22449 | 0.30 | 18.76 | 19.06 | 19.72 | 0.96 | 1 |
| 59684 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 00 | | 0 | 0 | 50 | SLUDGE CREEK | 333 | 0.30 | 16.59 | 16.89 | 16.76 | 0.17 | 2 |
| 3564 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 01 | 1/04/00 | 100 | 100 | 50 | SLUDGE CREEK | 477 | 0.30 | 16.59 | 16.89 | 17.06 | 0.47 | 1 |
| 3565 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 02 | 1/04/00 | 200 | 100 | 50 | SLUDGE CREEK | 574 | 0.30 | 16.59 | 16.89 | 16.79 | 0.20 | 2 |
| 3566 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 03 | 1/04/00 | 300 | 100 | 50 | SLUDGE CREEK | 642 | 0.30 | 16.59 | 16.89 | 16.71 | 0.12 | 3 |
| 3567 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 04 | 1/04/00 | 400 | 100 | 50 | SLUDGE CREEK | 732 | 0.30 | 16.59 | 16.89 | 16.82 | 0.23 | 2 |
| 3568 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 05 | 1/04/00 | 500 | 100 | 50 | SLUDGE CREEK | 863 | 0.30 | 16.59 | 16.89 | 16.90 | 0.31 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3569 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 06 | 1/04/00 | 600 | 100 | 50 | SLUDGE CREEK | 956 | 0.30 | 16.59 | 16.89 | 17.03 | 0.44 | 1 |
| 3570 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 07 | 1/04/00 | 700 | 100 | 50 | SLUDGE CREEK | 1088 | 0.30 | 16.59 | 16.89 | 17.06 | 0.47 | 1 |
| 3571 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 08 | 1/04/00 | 800 | 100 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 17.24 | 0.64 | 1 |
| 3572 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 09 | 1/04/00 | 900 | 100 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 17.13 | 0.53 | 1 |
| 3573 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 10 | 1/04/00 | 1000 | 100 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 17.28 | 0.68 | 1 |
| 3574 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 11 | 1/04/00 | 1100 | 100 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 18.03 | 1.43 | 1 |
| 3575 | 25866 | Link: Firm Clay | Comp 7 Sludge Creek LB SB 12 | 1/04/00 | 1123 | 23 | 50 | SLUDGE CREEK | 1132 | 0.30 | 16.60 | 16.90 | 17.89 | 1.29 | 1 |
| 59626 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 22580 | 0.30 | 18.95 | 19.25 | 19.53 | 0.58 | 1 |
| 3620 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 01 | 1/04/00 | 100 | 100 | 50 | MANGATEA STREAM NORTH | 87 | 0.30 | 18.92 | 19.22 | 19.76 | 0.84 | 1 |
| 3621 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 02 | 1/04/00 | 200 | 100 | 50 | MANGATEA STREAM NORTH | 156 | 0.30 | 18.93 | 19.23 | 19.82 | 0.89 | 1 |
| 3622 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 03 | 1/04/00 | 300 | 100 | 50 | MANGATEA STREAM NORTH | 270 | 0.30 | 18.96 | 19.26 | 20.15 | 1.19 | 1 |
| 3623 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 04 | 1/04/00 | 400 | 100 | 50 | MANGATEA STREAM NORTH | 407 | 0.30 | 19.02 | 19.32 | 20.50 | 1.48 | 1 |
| 3624 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 05 | 1/04/00 | 500 | 100 | 50 | MANGATEA STREAM NORTH | 518 | 0.30 | 19.16 | 19.46 | 20.65 | 1.49 | 1 |
| 3625 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 06 | 1/04/00 | 600 | 100 | 50 | MANGATEA STREAM NORTH | 618 | 0.30 | 19.44 | 19.74 | 20.60 | 1.16 | 1 |
| 3626 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 07 | 1/04/00 | 700 | 100 | 50 | MANGATEA STREAM NORTH | 719 | 0.30 | 19.80 | 20.10 | 20.98 | 1.18 | 1 |
| 3627 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 08 | 1/04/00 | 800 | 100 | 50 | MANGATEA STREAM NORTH | 834 | 0.30 | 20.17 | 20.47 | 21.72 | 1.55 | 1 |
| 3628 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 09 | 1/04/00 | 900 | 100 | 50 | MANGATEA STREAM NORTH | 934 | 0.30 | 20.51 | 20.81 | 22.13 | 1.62 | 1 |
| 3629 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 10 | 1/04/00 | 1000 | 100 | 50 | MANGATEA STREAM NORTH | 1032 | 0.30 | 20.82 | 21.12 | 21.94 | 1.12 | 1 |
| 3630 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 11 | 1/04/00 | 1100 | 100 | 50 | MANGATEA STREAM NORTH | 1158 | 0.30 | 21.22 | 21.52 | 22.47 | 1.25 | 1 |
| 3631 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 12 | 1/04/00 | 1200 | 100 | 50 | MANGATEA STREAM NORTH | 1247 | 0.30 | 21.50 | 21.80 | 22.79 | 1.29 | 1 |
| 3632 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 13 | 1/04/00 | 1300 | 100 | 50 | MANGATEA STREAM NORTH | 1379 | 0.30 | 21.91 | 22.21 | 23.15 | 1.24 | 1 |
| 3633 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 14 | 1/04/00 | 1400 | 100 | 50 | MANGATEA STREAM NORTH | 1482 | 0.30 | 22.24 | 22.54 | 23.63 | 1.39 | 1 |
| 3634 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 15 | 1/04/00 | 1500 | 100 | 50 | MANGATEA STREAM NORTH | 1596 | 0.30 | 22.58 | 22.88 | 23.86 | 1.28 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3635 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 16 | 1/04/00 | 1600 | 100 | 50 | MANGATEA STREAM NORTH | 1711 | 0.30 | 22.93 | 23.23 | 24.47 | 1.54 | 1 |
| 3636 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 17 | 1/04/00 | 1700 | 100 | 50 | MANGATEA STREAM NORTH | 1897 | 0.30 | 23.51 | 23.81 | 24.81 | 1.30 | 1 |
| 3637 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 18 | 1/04/00 | 1800 | 100 | 50 | MANGATEA STREAM NORTH | 2003 | 0.30 | 23.83 | 24.13 | 24.98 | 1.15 | 1 |
| 3638 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 19 | 1/04/00 | 1900 | 100 | 50 | MANGATEA STREAM NORTH | 2142 | 0.30 | 24.24 | 24.54 | 25.12 | 0.88 | 1 |
| 3639 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 20 | 1/04/00 | 2000 | 100 | 50 | MANGATEA STREAM NORTH | 2221 | 0.30 | 24.46 | 24.76 | 25.37 | 0.91 | 1 |
| 3640 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 21 | 1/04/00 | 2100 | 100 | 50 | MANGATEA STREAM NORTH | 2379 | 0.30 | 24.90 | 25.20 | 25.86 | 0.96 | 1 |
| 3641 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 22 | 1/04/00 | 2200 | 100 | 50 | MANGATEA STREAM NORTH | 2475 | 0.30 | 25.16 | 25.46 | 26.08 | 0.92 | 1 |
| 3642 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 23 | 1/04/00 | 2300 | 100 | 50 | MANGATEA STREAM NORTH | 2583 | 0.30 | 25.49 | 25.79 | 26.32 | 0.83 | 1 |
| 3643 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 24 | 1/04/00 | 2400 | 100 | 50 | MANGATEA STREAM NORTH | 2663 | 0.30 | 25.73 | 26.03 | 26.29 | 0.56 | 1 |
| 3644 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 25 | 1/04/00 | 2500 | 100 | 50 | MANGATEA STREAM NORTH | 2770 | 0.30 | 26.10 | 26.40 | 27.32 | 1.22 | 1 |
| 3645 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 26 | 1/04/00 | 2600 | 100 | 50 | MANGATEA STREAM NORTH | 2870 | 0.30 | 26.58 | 26.88 | 27.72 | 1.14 | 1 |
| 3646 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 27 | 1/04/00 | 2700 | 100 | 50 | MANGATEA STREAM NORTH | 2965 | 0.30 | 27.03 | 27.33 | 28.22 | 1.19 | 1 |
| 3647 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 28 | 1/04/00 | 2800 | 100 | 50 | MANGATEA STREAM NORTH | 3052 | 0.30 | 27.43 | 27.73 | 28.82 | 1.39 | 1 |
| 3648 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 29 | 1/04/00 | 2900 | 100 | 50 | MANGATEA STREAM NORTH | 3135 | 0.30 | 27.84 | 28.14 | 29.00 | 1.16 | 1 |
| 3649 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 30 | 1/04/00 | 3000 | 100 | 50 | MANGATEA STREAM NORTH | 3250 | 0.30 | 28.40 | 28.70 | 29.49 | 1.09 | 1 |
| 3650 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 31 | 1/04/00 | 3100 | 100 | 50 | MANGATEA STREAM NORTH | 3349 | 0.30 | 28.87 | 29.17 | 30.08 | 1.21 | 1 |
| 3651 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 32 | 1/04/00 | 3200 | 100 | 50 | MANGATEA STREAM NORTH | 3349 | 0.30 | 28.87 | 29.17 | 30.66 | 1.79 | 1 |
| 3652 | 24386 | Link: Firm Clay | Comp 8 Mangatea Stream SB 33 | 1/04/00 | 3220 | 20 | 50 | MANGATEA STREAM NORTH | 3349 | 0.30 | 28.87 | 29.17 | 31.18 | 2.31 | 1 |
| 59715 | 28055 | Link: Firm Clay | Comp 8 Mangawara River SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 22580 | 0.30 | 18.95 | 19.25 | 19.53 | 0.58 | 1 |
| 3653 | 28055 | Link: Firm Clay | Comp 8 Mangawara River SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 22689 | 0.30 | 19.06 | 19.36 | 19.78 | 0.72 | 1 |
| 3654 | 28055 | Link: Firm Clay | Comp 8 Mangawara River SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 22793 | 0.30 | 19.15 | 19.45 | 19.63 | 0.48 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3655 | 28055 | Link: Firm Clay | Comp 8 Mangawara River SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 22913 | 0.30 | 19.25 | 19.55 | 19.92 | 0.67 | 1 |
| 3656 | 28055 | Link: Firm Clay | Comp 8 Mangawara River SB 04 | 1/04/00 | 390 | 90 | 50 | MANGAWARA RIVER | 22998 | 0.30 | 19.31 | 19.61 | 20.00 | 0.69 | 1 |
| 59721 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 22998 | 0.30 | 19.31 | 19.61 | 20.00 | 0.69 | 1 |
| 3658 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 01 | 1/04/00 | 100 | 100 | 50 | ORCHARD DRAIN | 100 | 0.30 | 19.33 | 19.63 | 19.84 | 0.51 | 1 |
| 3659 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 02 | 1/04/00 | 200 | 100 | 50 | ORCHARD DRAIN | 204 | 0.30 | 19.33 | 19.63 | 19.82 | 0.49 | 1 |
| 3660 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 03 | 1/04/00 | 300 | 100 | 50 | ORCHARD DRAIN | 304 | 0.30 | 19.33 | 19.63 | 19.86 | 0.53 | 1 |
| 3661 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 04 | 1/04/00 | 400 | 100 | 50 | ORCHARD DRAIN | 404 | 0.30 | 19.33 | 19.63 | 19.81 | 0.48 | 1 |
| 3662 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 05 | 1/04/00 | 500 | 100 | 50 | ORCHARD DRAIN | 504 | 0.30 | 19.33 | 19.63 | 19.97 | 0.64 | 1 |
| 3663 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 06 | 1/04/00 | 600 | 100 | 50 | ORCHARD DRAIN | 604 | 0.30 | 19.33 | 19.63 | 20.41 | 1.08 | 1 |
| 3664 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 07 | 1/04/00 | 700 | 100 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 105 | 0.30 | 19.34 | 19.64 | 20.76 | 1.42 | 1 |
| 3665 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 08 | 1/04/00 | 800 | 100 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 207 | 0.30 | 19.34 | 19.64 | 20.43 | 1.09 | 1 |
| 3666 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 09 | 1/04/00 | 900 | 100 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 307 | 0.30 | 19.34 | 19.64 | 20.73 | 1.39 | 1 |
| 3667 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 10 | 1/04/00 | 1000 | 100 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 406 | 0.30 | 19.42 | 19.72 | 20.79 | 1.37 | 1 |
| 3668 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 11 | 1/04/00 | 1100 | 100 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 506 | 0.30 | 19.57 | 19.87 | 20.95 | 1.38 | 1 |
| 3669 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 12 | 1/04/00 | 1200 | 100 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 606 | 0.30 | 19.70 | 20.00 | 20.86 | 1.16 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3670 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 13 | 1/04/00 | 1300 | 100 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 700 | 0.30 | 20.08 | 20.38 | 20.77 | 0.69 | 1 |
| 3671 | 28579 | Link: Firm Clay | Comp 8 Orchard Drain/Western Cutoff SB 14 | 1/04/00 | 1400 | 100 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 790 | 0.30 | 21.12 | 21.42 | 21.03 | -0.09 | 5 |
| 59685 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 00 | 1/04/00 | 0 | 0 | 50 | MURCHIE DRAIN | 73 | 0.30 | 17.43 | 17.73 | 16.38 | -1.05 | 5 |
| 3672 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 21161 | 0.30 | 17.45 | 17.75 | 16.38 | -1.07 | 5 |
| 3673 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 21271 | 0.30 | 17.51 | 17.81 | 18.25 | 0.74 | 1 |
| 3674 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 21328 | 0.30 | 17.54 | 17.84 | 18.40 | 0.86 | 1 |
| 3675 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 21465 | 0.30 | 17.63 | 17.93 | 18.54 | 0.91 | 1 |
| 3676 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 21612 | 0.30 | 17.73 | 18.03 | 18.84 | 1.11 | 1 |
| 3677 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 06 | 1/04/00 | 600 | 100 | 50 | MANGAWARA RIVER | 21755 | 0.30 | 17.85 | 18.15 | 18.92 | 1.07 | 1 |
| 3678 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 07 | 1/04/00 | 700 | 100 | 50 | MANGAWARA RIVER | 21845 | 0.30 | 17.92 | 18.22 | 18.98 | 1.06 | 1 |
| 3679 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 08 | 1/04/00 | 800 | 100 | 50 | MANGAWARA RIVER | 21918 | 0.30 | 18.00 | 18.30 | 19.00 | 1.01 | 1 |
| 3680 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 09 | 1/04/00 | 900 | 100 | 50 | MANGAWARA RIVER | 22011 | 0.30 | 18.08 | 18.38 | 19.18 | 1.10 | 1 |
| 3681 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 10 | 1/04/00 | 1000 | 100 | 50 | MANGAWARA RIVER | 22138 | 0.30 | 18.21 | 18.51 | 19.34 | 1.13 | 1 |
| 3682 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 11 | 1/04/00 | 1100 | 100 | 50 | COMPATMENT 9 OVERLAND FLOW PATH | 45 | 0.30 | 18.28 | 18.58 | 19.33 | 1.05 | 1 |
| 3683 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 12 | 1/04/00 | 1200 | 100 | 50 | MANGAWARA RIVER | 22313 | 0.30 | 18.51 | 18.81 | 19.18 | 0.67 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3684 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 13 | 1/04/00 | 1300 | 100 | 50 | MANGAWARA RIVER | 22396 | 0.30 | 18.67 | 18.97 | 19.74 | 1.07 | 1 |
| 3685 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 14 | 1/04/00 | 1400 | 100 | 50 | MANGAWARA RIVER | 22575 | 0.30 | 18.95 | 19.25 | 19.64 | 0.69 | 1 |
| 3686 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 15 | 1/04/00 | 1500 | 100 | 50 | MANGAWARA RIVER | 22661 | 0.30 | 19.03 | 19.33 | 19.84 | 0.81 | 1 |
| 3687 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 16 | 1/04/00 | 1600 | 100 | 50 | MANGAWARA RIVER | 22757 | 0.30 | 19.12 | 19.42 | 19.94 | 0.82 | 1 |
| 3688 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 17 | 1/04/00 | 1700 | 100 | 50 | MANGAWARA RIVER | 22842 | 0.30 | 19.19 | 19.49 | 20.06 | 0.87 | 1 |
| 3689 | 25869 | Link: Firm Clay | Comp 9 Mangawara River 1 SB 18 | 1/04/00 | 1800 | 100 | 50 | MANGAWARA RIVER | 22941 | 0.30 | 19.27 | 19.57 | 19.87 | 0.60 | 1 |
| 59646 | 23679 | Link: Firm Clay | Comp 9 Mangawara River 2 SB 00 | 1/04/00 | 0 | 0 | 50 | MANGAWARA RIVER | 25718 | 0.30 | 21.70 | 22.00 | 22.15 | 0.45 | 1 |
| 3690 | 23679 | Link: Firm Clay | Comp 9 Mangawara River 2 SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 25779 | 0.30 | 21.84 | 22.14 | 21.99 | 0.15 | 2 |
| 3691 | 23679 | Link: Firm Clay | Comp 9 Mangawara River 2 SB 02 | 1/04/00 | 140 | 40 | 50 | MANGAWARA RIVER | 25811 | 0.30 | 21.88 | 22.18 | 22.83 | 0.95 | 1 |
| 59843 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 00 | | 0 | 0 | 50 | MANGAWARA RIVER | 22941 | 0.00 | 19.27 | 19.27 | 19.90 | 0.63 | 1 |
| 1524 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 01 | 1/04/00 | 100 | 100 | 50 | MANGAWARA RIVER | 23075 | 0.00 | 19.36 | 19.37 | 19.66 | 0.30 | 1 |
| 1525 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 02 | 1/04/00 | 200 | 100 | 50 | MANGAWARA RIVER | 23177 | 0.00 | 19.43 | 19.43 | 19.61 | 0.18 | 1 |
| 1526 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 03 | 1/04/00 | 300 | 100 | 50 | MANGAWARA RIVER | 23288 | 0.00 | 19.50 | 19.50 | 19.83 | 0.33 | 1 |
| 1527 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 04 | 1/04/00 | 400 | 100 | 50 | MANGAWARA RIVER | 23372 | 0.00 | 19.54 | 19.54 | 19.79 | 0.25 | 1 |
| 1528 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 05 | 1/04/00 | 500 | 100 | 50 | MANGAWARA RIVER | 23482 | 0.00 | 19.60 | 19.60 | 19.77 | 0.17 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1529 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 06 | 1/04/00 | 600 | 100 | 50 | MANGAWARA RIVER | 23549 | 0.00 | 19.63 | 19.63 | 19.64 | 0.01 | 1 |
| 1530 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 07 | 1/04/00 | 700 | 100 | 50 | MANGAWARA RIVER | 23663 | 0.00 | 19.69 | 19.69 | 19.68 | -0.01 | 2 |
| 1531 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 08 | 1/04/00 | 800 | 100 | 50 | MANGAWARA RIVER | 23777 | 0.00 | 19.75 | 19.75 | 19.89 | 0.14 | 1 |
| 1532 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 09 | 1/04/00 | 900 | 100 | 50 | MANGAWARA RIVER | 23908 | 0.00 | 19.82 | 19.82 | 20.08 | 0.26 | 1 |
| 1533 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 10 | 1/04/00 | 1000 | 100 | 50 | MANGAWARA RIVER | 23990 | 0.00 | 19.87 | 19.87 | 19.95 | 0.08 | 1 |
| 1534 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 11 | 1/04/00 | 1100 | 100 | 50 | MANGAWARA RIVER | 24118 | 0.00 | 19.95 | 19.95 | 20.12 | 0.17 | 1 |
| 1535 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 12 | 1/04/00 | 1200 | 100 | 50 | MANGAWARA RIVER | 24212 | 0.00 | 20.02 | 20.02 | 20.14 | 0.12 | 1 |
| 1536 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 13 | 1/04/00 | 1300 | 100 | 50 | MANGAWARA RIVER | 24319 | 0.00 | 20.17 | 20.17 | 20.17 | 0.00 | 2 |
| 1537 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 14 | 1/04/00 | 1400 | 100 | 50 | MANGAWARA RIVER | 24419 | 0.00 | 20.17 | 20.17 | 20.31 | 0.14 | 1 |
| 1538 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 15 | 1/04/00 | 1500 | 100 | 50 | MANGAWARA RIVER | 24518 | 0.00 | 20.24 | 20.25 | 20.30 | 0.06 | 1 |
| 1539 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 16 | 1/04/00 | 1600 | 100 | 50 | MANGAWARA RIVER | 24648 | 0.00 | 20.35 | 20.35 | 20.27 | -0.08 | 2 |
| 1540 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 17 | 1/04/00 | 1700 | 100 | 50 | MANGAWARA RIVER | 24750 | 0.00 | 20.44 | 20.44 | 20.42 | -0.02 | 2 |
| 1541 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 18 | 1/04/00 | 1800 | 100 | 50 | MANGAWARA RIVER | 24871 | 0.00 | 20.55 | 20.55 | 20.66 | 0.11 | 1 |
| 1542 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 19 | 1/04/00 | 1900 | 100 | 50 | MANGAWARA RIVER | 25008 | 0.00 | 20.63 | 20.63 | 20.63 | 0.00 | 2 |
| 1543 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 20 | 1/04/00 | 2000 | 100 | 50 | MANGAWARA RIVER | 25066 | 0.00 | 20.75 | 20.75 | 20.77 | 0.02 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1544 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 21 | 1/04/00 | 2100 | 100 | 50 | MANGAWARA RIVER | 25168 | 0.00 | 20.87 | 20.87 | 21.00 | 0.13 | 1 |
| 1545 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 22 | 1/04/00 | 2200 | 100 | 50 | MANGAWARA RIVER | 25268 | 0.00 | 21.00 | 21.00 | 20.65 | -0.35 | 5 |
| 1546 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 23 | 1/04/00 | 2300 | 100 | 50 | MANGAWARA RIVER | 25369 | 0.00 | 21.13 | 21.14 | 20.93 | -0.20 | 5 |
| 1547 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 24 | 1/04/00 | 2400 | 100 | 50 | MANGAWARA RIVER | 25468 | 0.00 | 21.28 | 21.28 | 20.73 | -0.55 | 5 |
| 1548 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 25 | 1/04/00 | 2500 | 100 | 50 | MANGAWARA RIVER | 25571 | 0.00 | 21.42 | 21.42 | 21.26 | -0.16 | 4 |
| 1549 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 26 | 1/04/00 | 2600 | 100 | 50 | MANGAWARA RIVER | 25687 | 0.00 | 21.63 | 21.64 | 21.71 | 0.08 | 1 |
| 1550 | 22934 | Spillway Link | Comp 9 Mangawara River Spillway SB 27 | 1/04/00 | 2625 | 25 | 50 | MANGAWARA RIVER | 25718 | 0.00 | 21.70 | 21.70 | 22.15 | 0.45 | 1 |
| 59718 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 00 | 1/04/00 | 0 | 0 | 50 | MANGAWARA RIVER | 25811 | 0.30 | 21.88 | 22.18 | 22.01 | 0.13 | 3 |
| 3692 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 01 | 1/04/00 | 100 | 100 | 50 | PARANUI DRAIN | 114 | 0.30 | 22.14 | 22.44 | 22.06 | -0.08 | 5 |
| 3693 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 02 | 1/04/00 | 200 | 100 | 50 | PARANUI DRAIN | 213 | 0.30 | 22.22 | 22.52 | 22.05 | -0.17 | 5 |
| 3694 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 03 | 1/04/00 | 300 | 100 | 50 | PARANUI DRAIN | 313 | 0.30 | 22.29 | 22.59 | 22.34 | 0.05 | 4 |
| 3695 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 04 | 1/04/00 | 400 | 100 | 50 | PARANUI DRAIN | 413 | 0.30 | 22.37 | 22.67 | 22.56 | 0.19 | 2 |
| 3696 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 05 | 1/04/00 | 500 | 100 | 50 | PARANUI DRAIN | 514 | 0.30 | 22.45 | 22.75 | 22.66 | 0.21 | 2 |
| 3697 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 06 | 1/04/00 | 600 | 100 | 50 | PARANUI DRAIN | 612 | 0.30 | 22.55 | 22.85 | 22.65 | 0.10 | 3 |
| 3698 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 07 | 1/04/00 | 700 | 100 | 50 | PARANUI DRAIN | 712 | 0.30 | 22.66 | 22.96 | 23.24 | 0.58 | 1 |
| 3699 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 08 | 1/04/00 | 800 | 100 | 50 | PARANUI DRAIN | 815 | 0.30 | 22.79 | 23.09 | 23.38 | 0.59 | 1 |
| 3700 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 09 | 1/04/00 | 900 | 100 | 50 | PARANUI DRAIN | 915 | 0.30 | 22.92 | 23.22 | 23.67 | 0.75 | 1 |
| 3701 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 10 | 1/04/00 | 1000 | 100 | 50 | PARANUI DRAIN | 1015 | 0.30 | 23.05 | 23.35 | 24.11 | 1.06 | 1 |
| 3702 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 11 | 1/04/00 | 1100 | 100 | 50 | PARANUI DRAIN | 1115 | 0.30 | 23.20 | 23.50 | 24.19 | 0.99 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3703 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 12 | 1/04/00 | 1200 | 100 | 50 | PARANUI DRAIN | 1216 | 0.30 | 23.36 | 23.66 | 24.26 | 0.91 | 1 |
| 3704 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 13 | 1/04/00 | 1300 | 100 | 50 | PARANUI DRAIN | 1316 | 0.30 | 23.51 | 23.81 | 24.39 | 0.88 | 1 |
| 3705 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 14 | 1/04/00 | 1400 | 100 | 50 | PARANUI DRAIN | 1414 | 0.30 | 23.68 | 23.98 | 24.43 | 0.75 | 1 |
| 3706 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 15 | 1/04/00 | 1500 | 100 | 50 | PARANUI DRAIN | 1514 | 0.30 | 23.84 | 24.14 | 24.53 | 0.69 | 1 |
| 3718 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 16 | 1/04/00 | 1600 | 100 | 50 | PARANUI DRAIN | 1612 | 0.30 | 23.99 | 24.29 | 24.42 | 0.43 | 1 |
| 3719 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 17 | 1/04/00 | 1700 | 100 | 50 | PARANUI DRAIN | 1712 | 0.30 | 24.14 | 24.44 | 24.92 | 0.78 | 1 |
| 3720 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 18 | 1/04/00 | 1800 | 100 | 50 | PARANUI DRAIN | 1812 | 0.30 | 24.28 | 24.58 | 24.84 | 0.56 | 1 |
| 3721 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 19 | 1/04/00 | 1900 | 100 | 50 | PARANUI DRAIN | 1912 | 0.30 | 24.41 | 24.71 | 25.03 | 0.62 | 1 |
| 3722 | 27366 | Link: Firm Clay | Comp 9 Paranui Drain 1 SB 20 | 1/04/00 | 2000 | 100 | 50 | PARANUI DRAIN | 2010 | 0.30 | 24.53 | 24.83 | 25.02 | 0.49 | 1 |
| 59844 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 00 | | 0 | 0 | 50 | PARANUI DRAIN | 2010 | 0.00 | 24.53 | 24.53 | 24.79 | 0.26 | 1 |
| 1551 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 01 | 1/04/00 | 100 | 100 | 50 | PARANUI DRAIN | 2111 | 0.00 | 24.66 | 24.66 | 24.50 | -0.16 | 4 |
| 1552 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 02 | 1/04/00 | 200 | 100 | 50 | PARANUI DRAIN | 2211 | 0.00 | 24.79 | 24.79 | 24.76 | -0.03 | 2 |
| 1553 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 03 | 1/04/00 | 300 | 100 | 50 | PARANUI DRAIN | 2311 | 0.00 | 24.91 | 24.91 | 24.96 | 0.05 | 1 |
| 1554 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 04 | 1/04/00 | 400 | 100 | 50 | PARANUI DRAIN | 2411 | 0.00 | 25.02 | 25.03 | 25.35 | 0.33 | 1 |
| 1555 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 05 | 1/04/00 | 500 | 100 | 50 | PARANUI DRAIN | 2520 | 0.00 | 25.14 | 25.14 | 25.06 | -0.08 | 2 |
| 1556 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 06 | 1/04/00 | 600 | 100 | 50 | PARANUI DRAIN | 2619 | 0.00 | 25.25 | 25.25 | 25.20 | -0.05 | 2 |
| 1557 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 07 | 1/04/00 | 700 | 100 | 50 | PARANUI DRAIN | 2733 | 0.00 | 25.39 | 25.39 | 25.51 | 0.12 | 1 |
| 1558 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 08 | 1/04/00 | 800 | 100 | 50 | PARANUI DRAIN | 2833 | 0.00 | 25.51 | 25.51 | 25.51 | 0.00 | 2 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1560 | 22935 | Spillway Link | Comp 9 Paranui Drain 1 Spillway 09 | 1/04/00 | 900 | 100 | 50 | PARANUI DRAIN | 2920 | 0.00 | 25.63 | 25.64 | 25.82 | 0.19 | 1 |
| 59686 | 25870 | Link: Firm Clay | Comp 9 Paranui Drain 2 SB 00 | 1/04/00 | 0 | 0 | 50 | PARANUI DRAIN | 2920 | 0.30 | 25.63 | 25.93 | 25.91 | 0.28 | 2 |
| 3713 | 25870 | Link: Firm Clay | Comp 9 Paranui Drain 2 SB 01 | 1/04/00 | 100 | 100 | 50 | PARANUI DRAIN | 3014 | 0.30 | 25.78 | 26.08 | 25.80 | 0.02 | 4 |
| 3714 | 25870 | Link: Firm Clay | Comp 9 Paranui Drain 2 SB 02 | 1/04/00 | 200 | 100 | 50 | PARANUI DRAIN | 3128 | 0.30 | 25.95 | 26.25 | 26.63 | 0.68 | 1 |
| 3715 | 25870 | Link: Firm Clay | Comp 9 Paranui Drain 2 SB 03 | 1/04/00 | 300 | 100 | 50 | PARANUI DRAIN | 3228 | 0.30 | 26.08 | 26.38 | 26.80 | 0.72 | 1 |
| 3716 | 25870 | Link: Firm Clay | Comp 9 Paranui Drain 2 SB 04 | 1/04/00 | 400 | 100 | 50 | PARANUI DRAIN | 3330 | 0.30 | 26.23 | 26.53 | 27.16 | 0.93 | 1 |
| 3717 | 25870 | Link: Firm Clay | Comp 9 Paranui Drain 2 SB 05 | 1/04/00 | 500 | 100 | 50 | PARANUI DRAIN | 3416 | 0.30 | 26.34 | 26.64 | 27.11 | 0.77 | 1 |
| 3712 | 25870 | Link: Firm Clay | Comp 9 Paranui Drain 2 SB 06 | 1/04/00 | 600 | 100 | 50 | PARANUI DRAIN | 3516 | 0.30 | 26.48 | 26.78 | 27.33 | 0.85 | 1 |
| 59756 | 26612 | Spillway Link | Comp 9 Paranui Drain 2 Spillway 00 |  | 0 | 0 | 50 | PARANUI DRAIN | 3516 | 0.00 | 26.48 | 26.48 | 27.33 | 0.85 | 1 |
| 1559 | 26612 | Spillway Link | Comp 9 Paranui Drain 2 Spillway 01 | 1/04/00 | 100 | 100 | 50 | PARANUI DRAIN | 3616 | 0.00 | 26.66 | 26.66 | 27.14 | 0.48 | 1 |
| 1561 | 26612 | Spillway Link | Comp 9 Paranui Drain 2 Spillway 02 | 1/04/00 | 200 | 100 | 50 | PARANUI DRAIN | 3716 | 0.00 | 26.85 | 26.85 | 26.94 | 0.09 | 1 |
| 1562 | 26612 | Spillway Link | Comp 9 Paranui Drain 2 Spillway 03 | 1/04/00 | 300 | 100 | 50 | PARANUI DRAIN SPILLWAY 2 | 684 | 0.00 | 27.10 | 27.10 | 27.63 | 0.53 | 1 |
| 1563 | 26612 | Spillway Link | Comp 9 Paranui Drain 2 Spillway 04 | 1/04/00 | 400 | 100 | 50 | PARANUI DRAIN | 3918 | 0.00 | 27.39 | 27.39 | 27.75 | 0.36 | 1 |
| 1564 | 26612 | Spillway Link | Comp 9 Paranui Drain 2 Spillway 05 | 1/04/00 | 500 | 100 | 50 | PARANUI DRAIN | 4018 | 0.00 | 27.70 | 27.71 | 27.89 | 0.19 | 1 |
| 1565 | 26612 | Spillway Link | Comp 9 Paranui Drain 2 Spillway 06 | 1/04/00 | 600 | 100 | 50 | PARANUI DRAIN | 4118 | 0.00 | 28.03 | 28.03 | 28.05 | 0.02 | 1 |
| 59681 | 25116 | Link: Firm Clay | Comp 9 Paranui Drain 3 SB 00 |  | 0 | 0 | 50 | PARANUI DRAIN | 4118 | 0.30 | 28.03 | 28.33 | 28.15 | 0.12 | 3 |
| 3723 | 25116 | Link: Firm Clay | Comp 9 Paranui Drain 3 SB 01 | 1/04/00 | 100 | 100 | 50 | PARANUI DRAIN | 4220 | 0.30 | 28.37 | 28.67 | 28.58 | 0.21 | 2 |
| 3724 | 25116 | Link: Firm Clay | Comp 9 Paranui Drain 3 SB 02 | 1/04/00 | 200 | 100 | 50 | PARANUI DRAIN | 4320 | 0.30 | 28.71 | 29.01 | 28.78 | 0.07 | 4 |
| 3707 | 25116 | Link: Firm Clay | Comp 9 Paranui Drain 3 SB 03 | 1/04/00 | 300 | 100 | 50 | PARANUI DRAIN | 4420 | 0.30 | 29.05 | 29.35 | 29.39 | 0.34 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3708 | 25116 | Link: Firm Clay | Comp 9 Paranui Drain 3 SB 04 | 1/04/00 | 400 | 100 | 50 | PARANUI DRAIN | 4518 | 0.30 | 29.36 | 29.66 | 30.01 | 0.65 | 1 |
| 3709 | 25116 | Link: Firm Clay | Comp 9 Paranui Drain 3 SB 05 | 1/04/00 | 500 | 100 | 50 | PARANUI DRAIN | 4618 | 0.30 | 29.69 | 29.99 | 29.84 | 0.15 | 3 |
| 3710 | 25116 | Link: Firm Clay | Comp 9 Paranui Drain 3 SB 06 | 1/04/00 | 600 | 100 | 50 | PARANUI DRAIN | 4716 | 0.30 | 30.01 | 30.31 | 30.20 | 0.19 | 2 |
| 3711 | 25116 | Link: Firm Clay | Comp 9 Paranui Drain 3 SB 07 | 1/04/00 | 617 | 17 | 50 | PARANUI DRAIN | 4726 | 0.30 | 30.03 | 30.33 | 30.09 | 0.06 | 4 |
| 59640 | 24824 | Link: Firm Clay | Comp 9 Paranui Drain 4 Clarkes SB 00 | | 0 | 0 | 50 | PARANUI DRAIN | 3335 | 0.30 | 26.23 | 26.53 | 27.53 | 1.30 | 1 |
| 17406 | 24824 | Link: Firm Clay | Comp 9 Paranui Drain 4 Clarkes SB 01 | 1/04/00 | 100 | 100 | 50 | PARANUI DRAIN | 3350 | 0.30 | 26.25 | 26.55 | 27.40 | 1.15 | 1 |
| 17407 | 24824 | Link: Firm Clay | Comp 9 Paranui Drain 4 Clarkes SB 02 | 1/04/00 | 200 | 100 | 50 | PARANUI DRAIN | 3350 | 0.30 | 26.25 | 26.55 | 27.57 | 1.32 | 1 |
| 17408 | 24824 | Link: Firm Clay | Comp 9 Paranui Drain 4 Clarkes SB 03 | 1/04/00 | 215 | 15 | 50 | PARANUI DRAIN | 3350 | 0.30 | 26.25 | 26.55 | 27.53 | 1.28 | 1 |
| 59849 | 27836 | Detention Dam Link | Jordans Detention Dam 00 | 4/01/00 | 0 | 0 | 50 | TAUHEI STREAM REACH 7 | 22593 | 0.76 | 53.12 | 53.88 | 53.50 | 0.38 | 3 |
| 9435 | 27836 | Detention Dam Link | Jordans Detention Dam 01 | 4/01/00 | 100 | 100 | 50 | TAUHEI STREAM REACH 7 | 22593 | 0.76 | 53.12 | 53.88 | 53.42 | 0.30 | 3 |
| 18747 | 27836 | Detention Dam Link | Jordans Detention Dam 02 | 4/01/00 | 192 | 109 | 50 | TAUHEI STREAM REACH 7 | 22593 | 0.76 | 53.12 | 53.88 | 53.35 | 0.23 | 3 |
| 59760 | 27084 | Spillway Link | Jordans Detention Dam Spillway 00 | | 0 | 0 | 50 | TAUHEI STREAM REACH 7 | 3493 | 0.76 | 53.12 | 53.12 | 53.50 | 0.38 | 1 |
| 18479 | 27084 | Spillway Link | Jordans Detention Dam Spillway 01 | 1/04/00 | 48 | 48 | 50 | TAUHEI STREAM REACH 7 | 3493 | 0.00 | 53.12 | 53.12 | 52.74 | -0.38 | 5 |
| 59768 | 26344 | Detention Dam Link | Maori Affairs Detention Dam 00 | 4/01/00 | 0 | 0 | 50 | MANGATEA STREAM SOUTH | 9927 | 0.91 | 69.04 | 69.95 | 70.54 | 1.50 | 1 |
| 9433 | 26344 | Detention Dam Link | Maori Affairs Detention Dam 01 | 4/01/00 | 73 | 73 | 50 | MANGATEA STREAM SOUTH | 9887 | 0.91 | 69.04 | 69.95 | 70.20 | 1.16 | 1 |
| 59839 | 24125 | Spillway Link | Maori Affairs Detention Dam Spillway 00 | 1/04/00 | 0 | 0 | 50 | MANGATEA STREAM SOUTH | 9887 | 0.00 | 69.04 | 69.04 | 70.26 | 1.22 | 1 |
| 18481 | 24125 | Spillway Link | Maori Affairs Detention Dam Spillway 01 | 1/04/00 | 56 | 56 | 50 | MANGATEA STREAM SOUTH | 9927 | 0.00 | 69.04 | 69.04 | 69.30 | 0.26 | 1 |
| 59848 | 28057 | Detention Dam Link | Orakei Detention Dam 00 | | 0 | 0 | 50 | ORAKEI STREAM | 1563 | 0.91 | 35.01 | 35.92 | 34.38 | -0.63 | 5 |
| 3885 | 28057 | Detention Dam Link | Orakei Detention Dam 01 | 4/01/00 | 100 | 100 | 50 | ORAKEI STREAM TRIB | 85 | 0.91 | 35.01 | 35.92 | 35.35 | 0.34 | 3 |
| 3886 | 28057 | Detention Dam Link | Orakei Detention Dam 02 | 4/01/00 | 200 | 100 | 50 | ORAKEI STREAM TRIB | 164 | 0.91 | 35.01 | 35.92 | 35.16 | 0.15 | 4 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3887 | 28057 | Detention Dam Link | Orakei Detention Dam 03 | 4/01/00 | 300 | 100 | 50 | ORAKEI STREAM TRIB | 255 | 0.91 | 35.01 | 35.92 | 35.13 | 0.12 | 4 |
| 3888 | 28057 | Detention Dam Link | Orakei Detention Dam 04 | 4/01/00 | 400 | 100 | 50 | ORAKEI STREAM TRIB | 361 | 0.91 | 35.01 | 35.92 | 35.16 | 0.15 | 4 |
| 3889 | 28057 | Detention Dam Link | Orakei Detention Dam 05 | 4/01/00 | 460 | 60 | 50 | ORAKEI STREAM TRIB | 421 | 0.91 | 35.01 | 35.92 | 35.43 | 0.42 | 3 |
| 59846 | 25871 | Spillway Link | Orakei Detention Dam Spillway 00 | 1/04/00 | 0 | 0 | 50 | ORAKEI STREAM | 1553 | 0.00 | 35.01 | 35.01 | 34.62 | -0.39 | 5 |
| 1572 | 25871 | Spillway Link | Orakei Detention Dam Spillway 01 | 1/04/00 | 100 | 100 | 50 | ORAKEI STREAM | 1570 | 0.00 | 35.01 | 35.01 | 34.52 | -0.49 | 5 |
| 1573 | 25871 | Spillway Link | Orakei Detention Dam Spillway 02 | 1/04/00 | 141 | 41 | 50 | ORAKEI STREAM | 1563 | 0.00 | 35.01 | 35.01 | 34.38 | -0.63 | 5 |
| 17652 | 25836 | Link: Firm Clay | TO BE DISPOSED Comp 12 Paranui Drain RB SB 45 | | 4400 | 0 | 50 | PARANUI DRAIN | 4554 | 0.30 | 29.47 | 29.77 | 30.23 | 0.76 | 1 |
| 17610 | 28579 | Link: Firm Clay | TO BE DISPOSED Comp 8 Orchard Drain/Western Cutoff SB 15 | | 1400 | 0 | 50 | ORCHARD DRAIN WESTERN CUTOFF | 790 | 0.30 | 21.12 | 21.42 | 21.27 | 0.15 | 2 |
| 59851 | 28512 | Detention Dam Link | Trubshaws Detention Dam 00 | | 0 | 0 | 50 | TRUBSHAWS | 1295 | 0.76 | 40.54 | 41.30 | 41.83 | 1.29 | 1 |
| 9434 | 28512 | Detention Dam Link | Trubshaws Detention Dam 01 | 4/01/00 | 96 | 108 | 50 | TRUBSHAWS | 1355 | 0.76 | 40.54 | 41.30 | 41.56 | 1.02 | 1 |
| 59841 | 24849 | Spillway Link | Trubshaws Detention Dam Spillway 00 | | 0 | 0 | 50 | TRUBSHAWS | 1355 | 0.00 | 40.54 | 40.54 | 41.69 | 1.15 | 1 |
| 18482 | 24849 | Spillway Link | Trubshaws Detention Dam Spillway 01 | 1/04/00 | 29 | 28 | 50 | TRUBSHAWS | 1355 | 0.00 | 40.54 | 40.54 | 40.95 | 0.41 | 1 |
| 59711 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 00 | | 0 | 0 | 50 | WAITI STREAM | 1646 | 0.00 | 53.79 | 53.79 | 53.64 | -0.15 | 5 |
| 17469 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 01 | 1/04/00 | 100 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 639 | 0.00 | 53.51 | 53.51 | 53.96 | 0.45 | 1 |
| 17470 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 02 | 1/04/00 | 200 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 554 | 0.00 | 53.46 | 53.46 | 53.93 | 0.47 | 1 |
| 17471 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 03 | 1/04/00 | 300 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 461 | 0.00 | 53.09 | 53.09 | 53.50 | 0.41 | 1 |
| 17472 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 04 | 1/04/00 | 400 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 360 | 0.00 | 52.32 | 52.32 | 51.83 | -0.49 | 5 |
| 17473 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 05 | 1/04/00 | 500 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 260 | 0.00 | 51.55 | 51.55 | 51.28 | -0.27 | 5 |
| 17474 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 06 | 1/04/00 | 600 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 160 | 0.00 | 50.79 | 50.80 | 50.81 | 0.02 | 1 |
| 17475 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 07 | 1/04/00 | 700 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 60 | 0.00 | 50.12 | 50.13 | 49.98 | -0.14 | 5 |
| 17476 | 24829 | Link: Firm Clay | Waiti Dam Diversion Left SB 08 | 1/04/00 | 760 | 60 | 50 | PARANUI DRAIN | 10261 | 0.00 | 49.06 | 49.06 | 48.83 | -0.23 | 5 |
| 59638 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 00 | | 0 | 0 | 50 | WAITI STREAM | 1589 | 0.00 | 52.371 | 52.372 | 55.450 | 3.079 | 1 |
| 17457 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 01 | 1/04/00 | 100 | 100 | 50 | WAITI STREAM | 1601 | 0.00 | 52.805 | 52.806 | 55.170 | 2.365 | 1 |
| 17458 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 02 | 1/04/00 | 200 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 684 | 0.00 | 53.526 | 53.527 | 54.530 | 1.004 | 1 |

| Asset ID | Parent Asset | Asset Type | Asset Description | Crest Level Survey Date | Asset Chain | Length | Design Profile Magnitude (ARI) | River Name | River Chain | Design Free board | Design Flood Level | Design Crest Level | Actual Crest Level | Actual Free board | Performance Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17459 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 03 | 1/04/00 | 300 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 578 | 0.00 | 53.474 | 53.475 | 54.150 | 0.676 | 1 |
| 17460 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 04 | 1/04/00 | 400 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 466 | 0.00 | 53.129 | 53.130 | 53.540 | 0.411 | 1 |
| 17461 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 05 | 1/04/00 | 500 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 365 | 0.00 | 52.358 | 52.359 | 52.010 | -0.348 | 5 |
| 17462 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 06 | 1/04/00 | 600 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 265 | 0.00 | 51.590 | 51.591 | 51.510 | -0.080 | 5 |
| 17463 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 07 | 1/04/00 | 700 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 165 | 0.00 | 50.831 | 50.832 | 51.050 | 0.219 | 1 |
| 17464 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 08 | 1/04/00 | 800 | 100 | 50 | WAITI DAM OVERLAND FLOW CHANNEL | 65 | 0.00 | 50.129 | 50.130 | 50.630 | 0.502 | 1 |
| 17465 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 09 | 1/04/00 | 900 | 100 | 50 | PARANUI DRAIN | 10198 | 0.00 | 48.619 | 48.620 | 49.270 | 0.651 | 1 |
| 17466 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 10 | 1/04/00 | 1000 | 100 | 50 | PARANUI DRAIN | 10108 | 0.00 | 48.035 | 48.036 | 48.780 | 0.745 | 1 |
| 17467 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 11 | 1/04/00 | 1100 | 100 | 50 | PARANUI DRAIN | 9992 | 0.00 | 47.353 | 47.354 | 48.360 | 1.008 | 1 |
| 18835 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 12 | 1/04/00 | 1200 | 100 | 50 | PARANUI DRAIN | 9872 | 0.00 | 46.503 | 46.504 | 47.400 | 0.898 | 1 |
| 18836 | 23415 | Link: Firm Clay | Waiti Dam Diversion Right SB 13 | 1/04/00 | 1287 | 87 | 50 | PARANUI DRAIN | 9792 | 0.00 | 45.881 | 45.882 | 46.240 | 0.360 | 1 |
| 59845 | 25120 | Spillway Link | Waiti Dam Spillway 00 | | 0 | 0 | 50 | PARANUI DRAIN | 9792 | 0.00 | 44.71 | 44.71 | 46.24 | 1.53 | 1 |
| 1575 | 25120 | Spillway Link | Waiti Dam Spillway 01 | 1/04/00 | 100 | 100 | 50 | PARANUI DRAIN | 9641 | 0.00 | 44.71 | 44.71 | 46.00 | 1.29 | 1 |
| 1576 | 25120 | Spillway Link | Waiti Dam Spillway 02 | 1/04/00 | 142 | 42 | 50 | PARANUI DRAIN | 9641 | 0.00 | 44.71 | 44.71 | 46.11 | 1.40 | 1 |
| 59766 | 26615 | Detention Dam Link | Waiti Detention Dam 00 | | 0 | 0 | 50 | PARANUI DRAIN | 9641 | 0.60 | 44.71 | 45.31 | 46.11 | 1.40 | 1 |
| 3892 | 26615 | Detention Dam Link | Waiti Detention Dam 01 | 4/01/00 | 100 | 100 | 50 | PARANUI DRAIN | 9521 | 0.60 | 44.71 | 45.31 | 46.65 | 1.94 | 1 |
| 3893 | 26615 | Detention Dam Link | Waiti Detention Dam 02 | 4/01/00 | 200 | 100 | 50 | PARANUI DRAIN | 9421 | 0.60 | 44.71 | 45.31 | 46.94 | 2.23 | 1 |
| 3894 | 26615 | Detention Dam Link | Waiti Detention Dam 03 | 4/01/00 | 300 | 100 | 50 | PARANUI DRAIN | 9343 | 0.60 | 44.71 | 45.31 | 46.86 | 2.15 | 1 |
| 3895 | 26615 | Detention Dam Link | Waiti Detention Dam 04 | 4/01/00 | 400 | 100 | 50 | PARANUI DRAIN | 9295 | 0.60 | 44.71 | 45.31 | 46.91 | 2.20 | 1 |
| 3145 | 26615 | Detention Dam Link | Waiti Detention Dam 05 | 4/01/00 | 478 | 36 | 50 | PARANUI DRAIN | 9304 | 0.60 | 44.71 | 45.31 | 46.61 | 1.90 | 1 |

* -Performance grade for flood protection asset not assessed