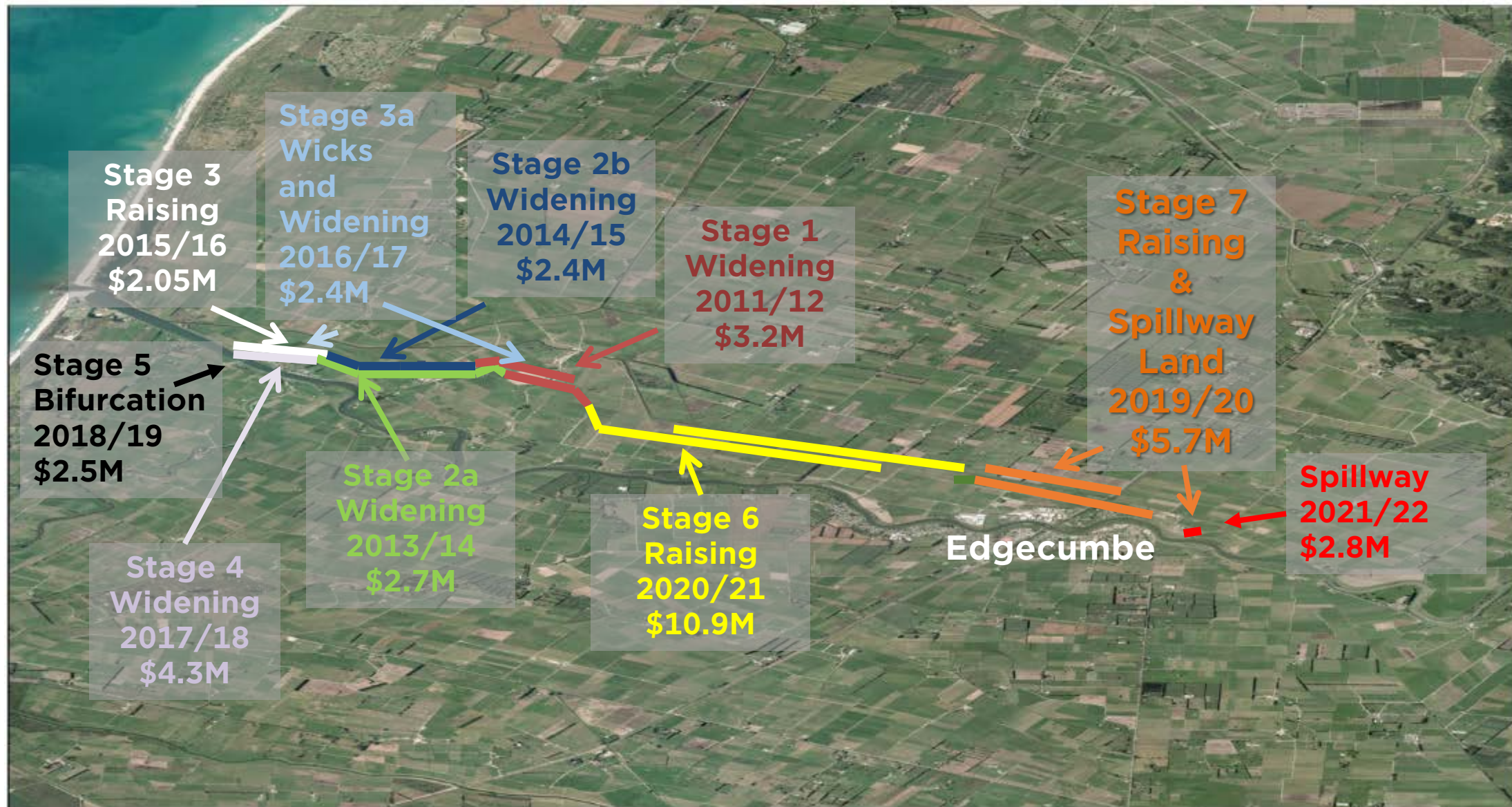
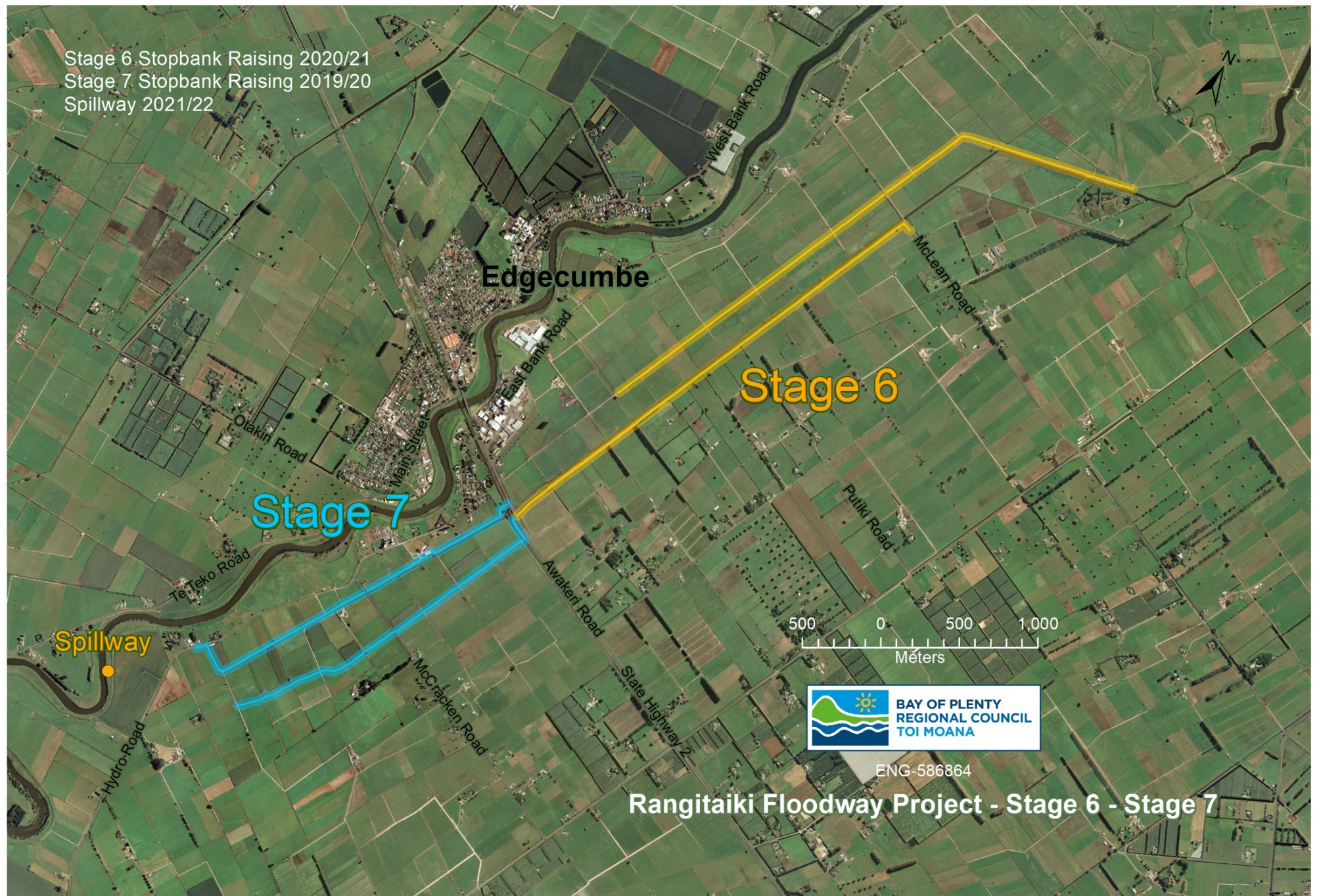


# Rangitāiki Floodway Stages





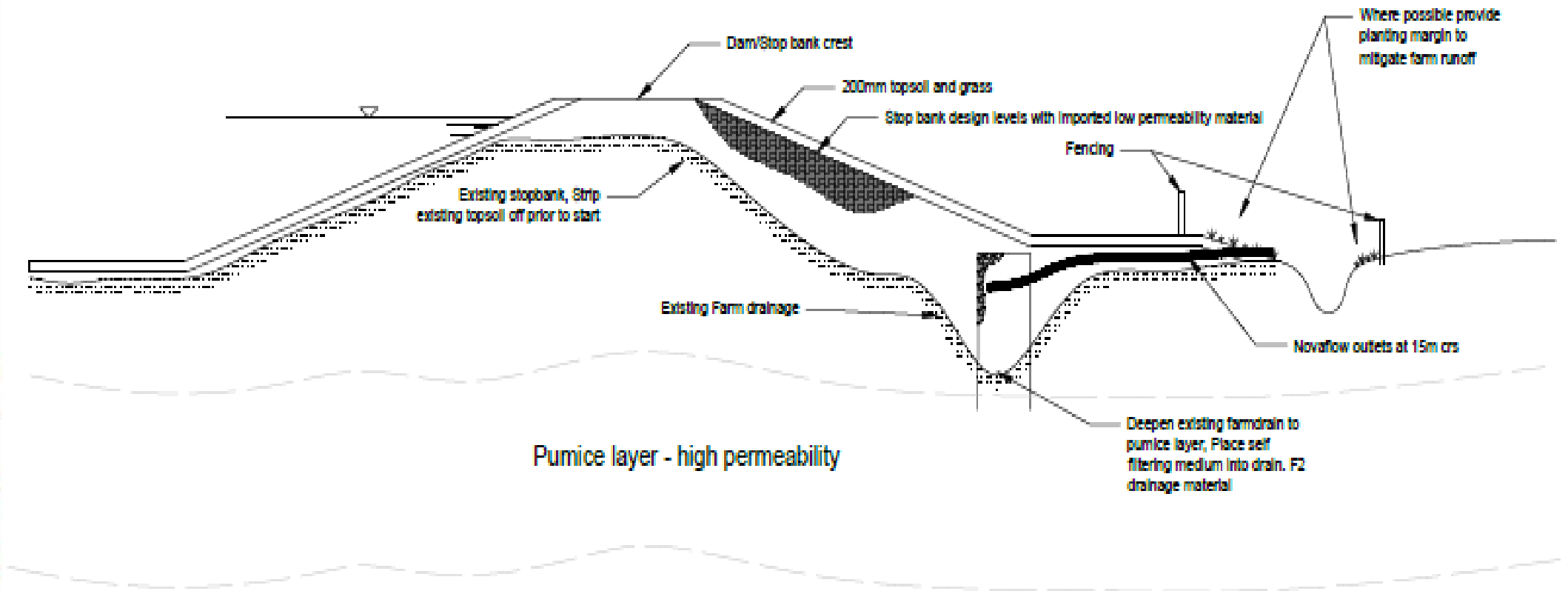
Stage 6 Stopbank Raising 2020/21  
Stage 7 Stopbank Raising 2019/20  
Spillway 2021/22



Rangitaiki Floodway Project - Stage 6 - Stage 7



# Raising Stopbank Levels



Typical detail of work required to raise stopbanks



# Cost increases for Stage 6

Below is a comparison of costs from what was allowed in the LTP for the ponding option (VM3) using the old model run to the stopbank raising option (VM1\*) using the new model run.

Item	VM3	VM1*	Diff
Earthworks Volume	43,112 m3	146,300 m3	103,188 m3

Item	VM3	VM1*	Cost increase
Earthworks	\$ 1.9 M	\$ 8.0 M	\$ 6.1 M
Geotechnical Works	\$ 0.0 M	\$ 1.5 M	\$ 1.5 M
Reinstatement	\$ 0.4 M	\$ 0.7 M	\$ 0.3 M
Project Management & Design	\$ 0.1 M	\$ 0.7 M	\$ 0.6 M
<b>Total</b>	<b>\$ 2.4 M</b>	<b>\$ 10.9 M</b>	<b>\$ 8.5 M</b>

# Rangitāiki Floodway Spillway

Preferred option following consultation undertaken in 2018

- **Lower Fixed Crest Weir with Contingency Radial Gates**
- **Cost estimate (including 20% contingency) = \$ 2.8 M**





# Lower Fixed Crest Weir with Contingency Radial Gates

## Advantages

- Simple design with little to no maintenance required
- Allows flow into the floodway early in the flood event
- No activation required
- Able to adjust flow if required ( -5%, + 15%) remotely

## Disadvantages

- Require power to open and close (back up generator part of proposal)



# Impact on Rates

**The following three slides indicate the impact of the cost increases on different types of properties. These are based on paying off a loan over 20 years.**

**The cost increases being:**

- Increased cost of Stage 6 \$ 8.5 M**
- Increased cost of the Spillway \$ 2.4 M**

# Specific property examples – Residential, Edgecumbe (0.1 Ha)

Without additional spend	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Flood protection	476	522	573	529	544	546	553	563	572
General and other rates	176	198	193	201	208	201	215	220	212
Total	652	720	766	730	752	747	768	783	784
<b>Percentage increase</b>	<b>24%</b>	<b>10%</b>	<b>6%</b>	<b>-4%</b>	<b>3%</b>	<b>-1%</b>	<b>3%</b>	<b>2%</b>	<b>0%</b>

With additional spend	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Flood protection	476	566	595	619	643	648	664	667	671
General and other rates	176	198	197	203	210	203	216	222	213
Total	652	764	793	821	853	851	880	889	884
<b>Percentage increase</b>	<b>24%</b>	<b>17%</b>	<b>4%</b>	<b>4%</b>	<b>4%</b>	<b>0%</b>	<b>3%</b>	<b>1%</b>	<b>-1%</b>



## Specific property examples – Rural, Lifestyle block (0.4 Ha)

Without additional spend	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Flood protection & drainage	86	93	101	96	99	100	102	105	107
General and other rates	202	223	221	238	244	229	254	257	239
Total	288	316	322	334	343	329	356	362	346
<b>Percentage increase</b>	<b>10%</b>	<b>9%</b>	<b>1%</b>	<b>5%</b>	<b>3%</b>	<b>-4%</b>	<b>8%</b>	<b>2%</b>	<b>-4%</b>

With additional spend	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Flood protection & drainage	86	100	104	107	112	114	116	118	120
General and other rates	202	223	222	239	245	230	255	259	241
Total	288	323	326	346	357	344	371	377	361
<b>Percentage increase</b>	<b>10%</b>	<b>11%</b>	<b>1%</b>	<b>7%</b>	<b>3%</b>	<b>-4%</b>	<b>8%</b>	<b>1%</b>	<b>-4%</b>

## Specific property examples – Rural (135 Ha)

Without additional spend	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Flood protection & drainage	24,594	26,701	29,047	27,467	28,430	29,062	29,170	29,892	30,451
General and other rates	1,198	1,112	1,135	1,627	1,561	1,241	1,722	1,642	1,287
Total	25,792	27,813	30,182	29,094	29,991	30,303	30,892	31,534	31,738
<b>Percentage increase</b>	<b>23%</b>	<b>8%</b>	<b>9%</b>	<b>-4%</b>	<b>3%</b>	<b>1%</b>	<b>2%</b>	<b>2%</b>	<b>1%</b>

With additional spend	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Flood protection & drainage	24,594	28,440	29,952	31,067	32,399	32,817	33,601	34,087	34,451
General and other rates	1,198	1,110	1,114	1,605	1,538	1,223	1,695	1,618	1,270
Total	25,792	29,550	31,066	32,672	33,937	34,041	35,296	35,705	35,721
<b>Percentage increase</b>	<b>23%</b>	<b>15%</b>	<b>5%</b>	<b>5%</b>	<b>4%</b>	<b>0%</b>	<b>4%</b>	<b>1%</b>	<b>0%</b>