Anglian Water

10D. ANGLIAN WATER BENCHMARKING

RESPONSIBLE BUSINESS OF THE YEAR 2017
BUSINESS IN THE COMMUNITY

THE QUEEN'S AWARDS FOR ENTERPRISE: SUSTAINABLE DEVELOPMENT 2015

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MOTT MACDONALD

Anglian Water Benchmarking

30 August 2018

Confidential

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Contents

Executive summary

Mott MacDonald (MM) were commissioned by Anglian Water (AW) to benchmark ten distinct programmes of work.

The primary objectives of the project were to determine the efficiency of the capital costing of the submitted PR19 business plan. This efficiency was measured by the performance of the wider England and Wales water companies as held within MM's cost database.

To complete the commission in the time available and in the most efficient manner possible MM analysed the data subsets provided by AW to understand the values associated with each programme and the typical assets found within each one.

Once this had been identified a selection of high, medium and low value schemes within each data subset was selected to provide a representative view of each programme area across all value bandings. The schemes were selected by picking an equal number from the top, bottom and median value schemes.

Schemes were then benchmarked using either top down industry cost curves or a bottom up approach where this was not possible due to a lack of comparable data.

The results were then presented giving a range including the median point to let AW understand where they sit in relation to the rest of the industry, as represented by the data which MM have access to.

In addition, MM felt it prudent to adjust the raw comparator data we had used within the top down modelling aspect of the benchmarking to allow for the fact that the companies included may be less efficient than AW. To do this, as described in more detail in Section 2.4 of the report, the OFWAT relative efficiency figures taken from the econometric modelling aspect of PR14 were used to allow MM to strip out the inefficiencies included within the comparator data used to give a more representative view of AW's standing within the industry.

Having benchmarked all programmes that AW provided data for, the summary position, using adjusted results, is set out below.

Scheme	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
WRC 1.07 WINEP Flow - increase FFT	£ 29,095,967.42	£ 37,330,976.87	-£ 8,235,009.45	-22%
WRC 2.02 WRC process capacity enhancement	£ 34,168,950.01	£ 39,327,715.08	-£ 5,158,765.08	-13%
WRC 2.03 WRC DWF programme	£ 28,031,162.78	£ 36,704,667.69	-£ 8,673,504.90	-24%
WRC 1.08 WINEP Flow	£ 19,474,766.06	£ 20,150,309.22	-£ 675,543.16	-3%
WRC 1.11 WRC WINEP UWWTD pe	£ 6,740,354.16	£ 6,846,195.83	-£ 105,841.66	-2%
WRC 1.12 WRC WINEP WFD GES improvements	£ 68,528,047.65	£ 73,383,901.28	-£ 4,855,853.63	-7%
WRC 1.14 WRC WINEP WFD	£ 18,581,952.26	£ 20,679,128.39	-£ 2,097,176.13	-10%
TWD 3.01WRMP	£ 249,878,453.48	£ 305,710,846.46	-£ 55,832,392.97	-18%
WTW 3.01 WRMP	£ 87,836,709.27	£ 90,835,257.88	-£ 2,998,548.61	-3%
WTW 3.06 Sustainable Resilient Systems	£ 10,455,659.85	£ 12,024,957.18	-£ 1,569,297.33	-13%
Total	£ 552,792,022.95	£ 642,993,955.88	-£ 90,201,932.93	-14%

MM undertook further activity to review the scale of efficiencies against the whole of the planned programme. This review was undertaken by stratifying the projects in to high, low and medium value schemes then weighting these against the efficiencies derived from the sample projects. The results detailed in the following table show Anglian Water to be 12% below the industry average.

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£225,927,979	£233,531,352	-3%
Medium	£417,767,797	£476,303,548	-12%
High	£990,871,318	£1,137,908,983	-13%
Total	**£1,634,567,094**	**£1,847,743,883**	**-12%**

The overall data confidence attached to the results, and split by programme area, within the report is displayed in the table below.

Sample Used	Estimating Confidence
95 out of 461 projects (21%)	+/-15%

1 Introduction

Mott MacDonald (MM) were commissioned by Anglian Water (AW) to benchmark ten distinct programmes of work.

The primary objectives of the project were to determine the efficiency of the capital costing of the submitted PR19 business plan. This efficiency was measured by the performance of the wider England and Wales water companies as held within MM's cost database.

To complete the commission in the time available and in the most efficient manner possible MM analysed the data subsets provided by AW to understand the values associated with each programme and the typical assets found within each one.

Once this had been identified a selection of high, medium and low value schemes within each data subset was selected to provide a representative view of each programme area across all value bandings. The schemes were selected by picking an equal number from the top, bottom and median value schemes.

Schemes were then benchmarked using either top down industry cost curves or a bottom up approach where this was not possible due to a lack of comparable data.

The results were then presented giving the median point to let AW understand where they sit in relation to the rest of the industry, as represented by the data which MM have access to.

2 Methodology

2.1 Preliminary work

After commissioning MM to produce the benchmarking output AW provided a large amount of data which MM organised to allow a representative sample of assets and schemes to assure the costs provided within the solutions.

The data was sorted into large, medium and small value schemes with the unique list of assets referenced against the total list of assets to ensure a representative view of AW's spend.

This approach enabled MM to provide a representative view of the items within AW's overall programme of works in the relatively short amount of time that the project ran for.

2.2 Data

To provide AW with a viewpoint of the industry MM provided blended top down model equations taken from our framework partners throughout the England and Wales water sector.

The sample of data was taken from the following companies.

- Thames Water
- United Utilities
- Southern Water
- Welsh Water
- Severn Trent

Wherever possible MM attempted to provide cost models with at least three comparators but where data is scarce this is not always possible.

It should be noted that all data used within the report is anonymous and has been adjusted to align with the AW geographical region (using ONS Annual Survey of Hours and Earnings), base date (using the Retail Price Index (RPI)) and data coverage using estimator's professional judgement and data.

In addition, MM felt it prudent to adjust the raw comparator data we had used within the top down modelling aspect of the benchmarking to allow for the fact that the companies included may be less efficient than AW. To do this, as described in more detail in Section 2.4 of the report, the OFWAT relative efficiency figures taken from the econometric modelling aspect of PR14 were used to allow MM to strip out the inefficiencies included within the comparator data used to give a more representative view of AW's standing within the industry.

2.3 Analysis

Upon approval of the list of schemes and assets with AW, it was then decided which items would be priced using a top down approach and which would be priced using a bottom up methodology, depending on data availability.

The most important aspect of the work was to ensure that the prices we were comparing were on a like-for-like basis. This was achieved by using estimators to align the coverage of the models within the MM database to AW's own inclusions and exclusions. This process was also followed when a bottom up estimating methodology was used.

Costs were compared for direct construction and on-costs, site specific add-ons were eliminated from the study.

Where a bottom up cost or a top down model was unavailable, AW costs were replicated within the MM model. The proxy figure was determined through professional judgement based on the level of design and project information which would align to a Class 3 estimate (as referenced in figure 1 below):

Figure 1: AACE Cost Estimating Classification Matrix

	Primary Characteristic	***Secondary Characteristic***			
ESTIMATE CLASS	**LEVEL OF PROJECT DEFINITION** Expressed as % of complete definition	**END USAGE** Typical purpose of estimate	**METHODOLOGY** Typical estimating method	**EXPECTED ACCURACY RANGE** Typical variation in low and high ranges [a]	**PREPARATION EFFORT** Typical degree of effort relative to least cost index of 1 [b]
Class 5	0% to 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment, or Analogy	L: -20% to -50% H: +30% to +100%	1
Class 4	1% to 15%	Study or Feasibility	Equipment Factored or Parametric Models	L: -15% to -30% H: +20% to +50%	2 to 4
Class 3	10% to 40%	Budget, Authorization, or Control	Semi-Detailed Unit Costs with Assembly Level Line Items	L: -10% to -20% H: +10% to +30%	3 to 10
Class 2	30% to 70%	Control or Bid/ Tender	Detailed Unit Cost with Forced Detailed Take-Off	L: -5% to -15% H: +5% to +20%	4 to 20
Class 1	50% to 100%	Check Estimate or Bid/Tender	Detailed Unit Cost with Detailed Take-Off	L: -3% to -10% H: +3% to +15%	5 to 100

Source: AACE International Cost Estimating Committee

Once this aspect of the work had been completed results were summed up by project and then by programme area before being amalgamated into an overall position based on the ten tranches of data provided by AW.

Each tranche of data has a descriptive statistics section detailing; the data confidence, estimating confidence, which top down comparators were used (by value), and which proportion of the programme was benchmarked using top down or bottom up methodologies.

2.4 Application

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Results are presented and discussed in the following sections of the report. In each of the ten tranches, results have been presented that includes and excludes the Ofwat efficiency adjustments in order demonstrate the relative impact.

In order to calculate the efficiency adjustment; MM utilised the Ofwat efficiency values that were published in Ofwat's "*Cost Assessment – Advanced Econometric Models* [20 March 2014]" for each of the five comparator companies. In order to apply the efficiency values for each company to the assets, MM needed to determine a fair and reasonable apportionment. The following steps explain the method applied:

- For every asset used in the study, MM identified which comparator company's data had been used (note; at an amplified cost model level as opposed to at individual data points).
- MM then took the relative value of the asset and divided it by the number of companies that acted as comparator; for example, if only one company was used, 100% of the asset value would go to that one company. If two companies, the split would be 50% of the value for each company and so on.
- Each company's respective value was totalled against all assets and that total was divided by the overall value of the top-down models to arrive at a proportional percentage (totalling 100%).
- Each company's percentage was then applied to the Ofwat efficiency value in order to calculate a weighted version.
- All five weighted values were combined and multiplied by the proportion of top-down models used in order to create a single efficiency value to apply to the overall comparison figures (i.e. Industry); for example, for tranche one the combined efficiency value was multiplied by 67% which was the proportion of top-down models used in that comparison.

3 Results

Within this section of the report, the results have been split by area and by programme total to provide a comprehensive view.

3.1 WRC 1.07 WINEP Flow - increase FFT

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.1.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
Broadholme	£ 6,166,646.46	£ 7,219,513.03	-£ 1,052,866.57	-15%
Sleaford	£ 4,358,793.53	£ 6,332,513.29	-£ 1,973,719.76	-31%
Flitwick	£ 3,847,678.88	£ 5,755,110.20	-£ 1,907,431.32	-33%
Wymondham	£ 3,395,028.43	£ 4,049,556.75	-£ 654,528.32	-16%
Buckden	£ 3,281,309.61	£ 3,569,168.35	-£ 287,858.75	-8%
Burnham Market	£ 1,764,977.32	£ 1,902,039.19	-£ 137,061.87	-7%
Melbourn	£ 1,647,502.58	£ 2,365,718.85	-£ 718,216.27	-30%
Doddington	£ 1,630,778.79	£ 1,694,780.71	-£ 64,001.92	-4%
Draughton	£ 1,569,618.91	£ 1,644,996.78	-£ 75,377.86	-5%
Marston Moretaine	£ 1,112,962.88	£ 2,438,495.72	-£ 1,325,532.84	-54%
White Notley	£ 76,631.38	£ 62,930.84	£ 13,700.53	22%
Kingscliffe	£ 72,509.17	£ 55,222.57	£ 17,286.60	31%
Buckingham	£ 74,178.68	£ 104,884.74	-£ 30,706.05	-29%
Yardley Hastings	£ 51,971.88	£ 73,115.01	-£ 21,143.13	-29%
Bungay	£ 45,378.91	£ 62,930.84	-£ 17,551.93	-28%
Total	£ 29,095,967.42	£ 37,330,976.87	-£ 8,235,009.45	-22%

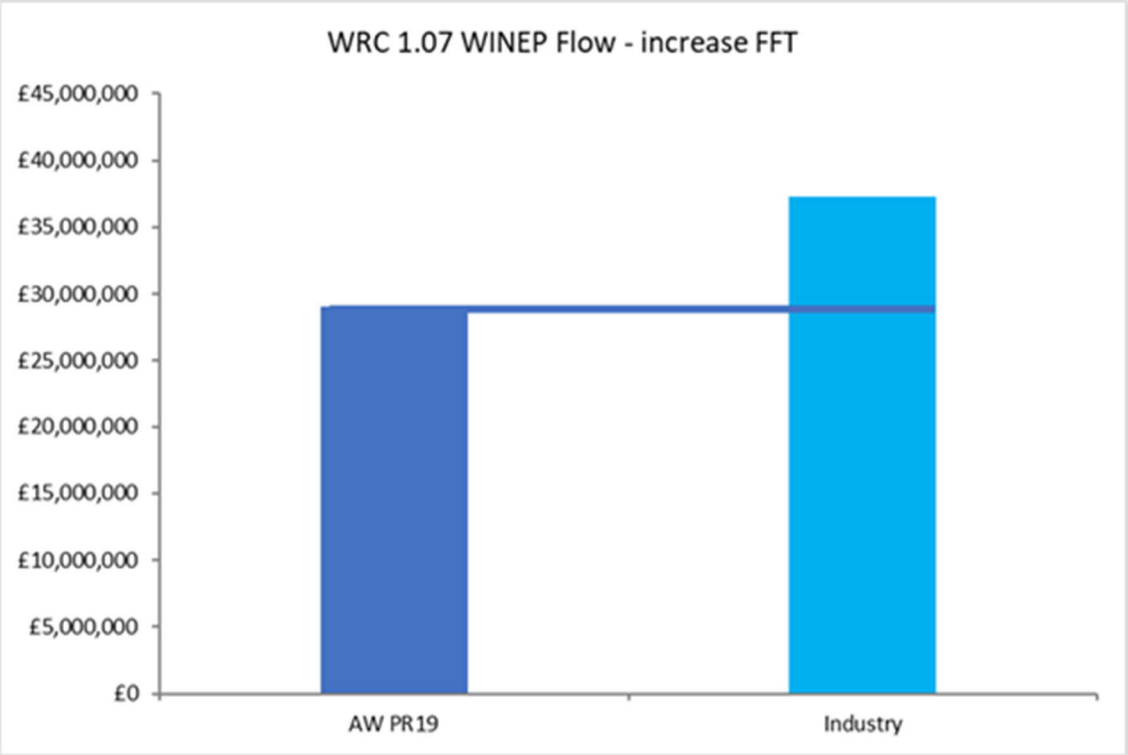
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Aeration, Fine Bubble Diffusers.
- Paques Sand Filters

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 1: AW position - WRC 1.07 WINEP Flow – increase FFT

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£14,537,754.77	£16,279,274.08	-11%
Medium	£28,778,944.93	£37,421,712.30	-23%
High	£53,947,818.85	£69,008,502.75	-22%
Total	**£97,264,518.55**	**£122,709,489.13**	**-21%**



3.1.2 Descriptive Statistics

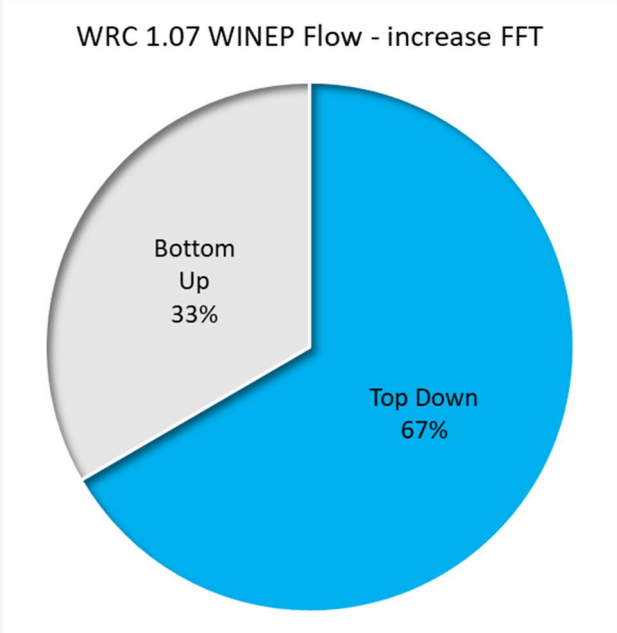
Table 2: Data Confidence

Sample Used	Estimating Confidence
15 out of 38 projects (39%)	+/-13%

Table 3: Top Down Comparators – Proportion used by value

Top Down Comparators – By Value	
Company 1	42%
Company 2	46%
Company 3	12%
Company 4	0%
Company 5	0%

Figure 2: Proportion by Value per methodology



3.2 WRC 2.02 WRC process capacity enhancement

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.2.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
Cliff Quay	£ 10,070,379.29	£ 11,238,139.66	-£ 1,167,760.37	-10%
Flag Fen	£ 9,856,642.45	£ 9,654,082.51	£ 202,559.94	2%
Southend	£ 7,397,023.21	£ 10,517,907.68	-£ 3,120,884.46	-30%
Cottesmore	£ 1,929,254.59	£ 2,031,113.64	-£ 101,859.05	-5%
Braintree	£ 1,861,630.82	£ 2,145,169.48	-£ 283,538.65	-13%
Billinghay	£ 1,682,996.47	£ 1,745,075.29	-£ 62,078.82	-4%
North Kelsey	£ 637,989.09	£ 497,445.27	£ 140,543.82	28%
Fakenham	£ 458,798.67	£ 951,719.98	-£ 492,921.31	-52%
Brington	£ 274,235.40	£ 547,061.59	-£ 272,826.19	-50%
Total	£ 34,168,950.01	£ 39,327,715.08	-£ 5,158,765.08	-13%

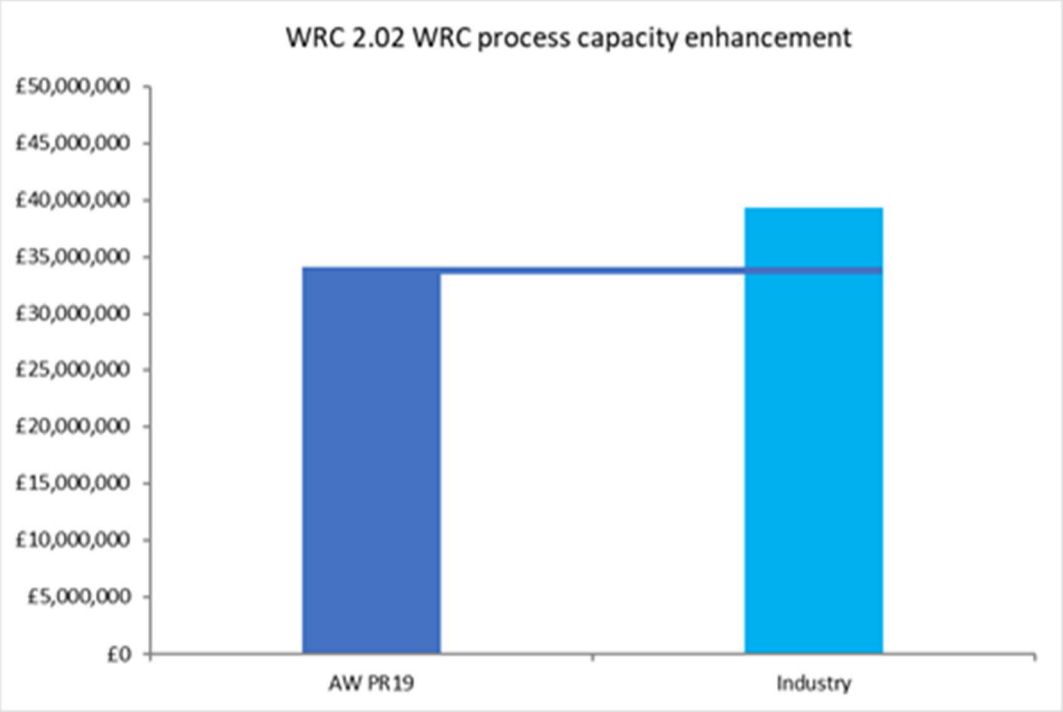
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Primary Tanks, Circular (Civil)
- Submersible Pump

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 4: AW position - WRC 2.02 WRC Process Capacity Enhancement

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£8,226,184.26	£11,977,426.95	-31%
Medium	£18,910,885.96	£20,456,804.84	-8%
High	£63,549,145.23	£73,052,394.19	-13%
Total	**£90,686,215.45**	**£105,486,625.99**	**-14%**



3.2.2 Descriptive Statistics

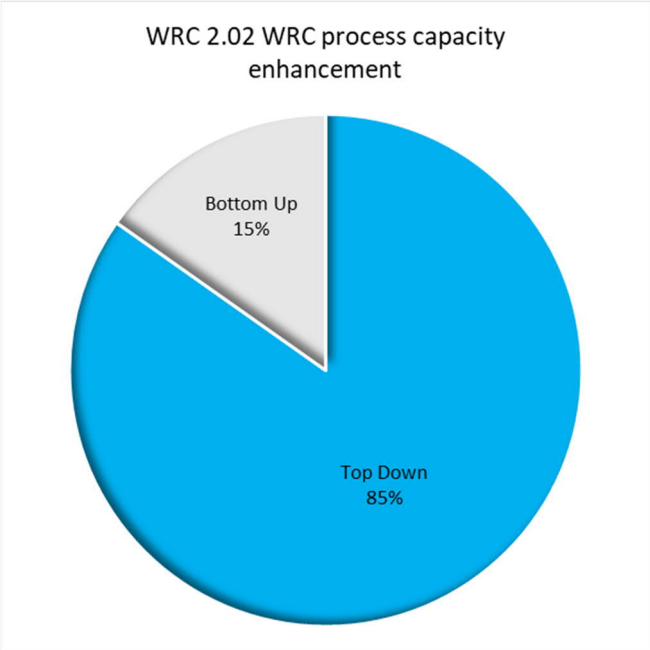
Table 5: Data Confidence

Sample Used	Estimating Confidence
9 out of 29 projects (31%)	+/-12%

Table 6: Top Down Comparators – Proportion used by value

Top Down Comparators – By Value	
Company 1	40%
Company 2	40%
Company 3	16%
Company 4	0%
Company 5	4%

Figure 3: Proportion by Value per methodology



3.3 WRC 2.03 WRC DWF programme

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.3.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
Waterbeach	£ 12,602,154.17	£ 15,754,588.17	-£ 3,152,434.00	-20%
Copford	£ 4,919,382.62	£ 7,702,034.77	-£ 2,782,652.15	-36%
Buckingham	£ 3,664,833.70	£ 5,390,146.53	-£ 1,725,312.83	-32%
Oakham	£ 3,649,593.20	£ 4,416,746.80	-£ 767,153.60	-17%
Aisthorpe	£ 1,936,122.59	£ 2,073,022.44	-£ 136,899.85	-7%
Coggeshall	£ 1,259,076.50	£ 1,368,128.97	-£ 109,052.47	-8%
Total	£ 28,031,162.78	£ 36,704,667.69	-£ 8,673,504.90	-24%

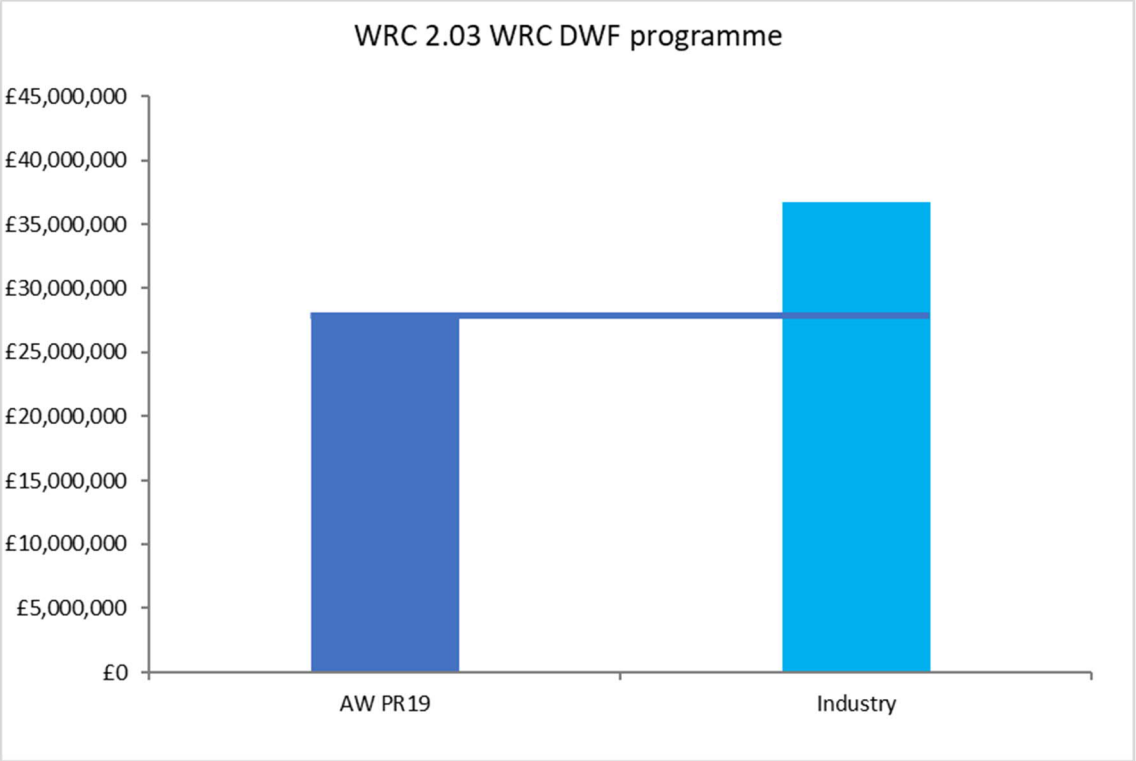
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Final Tanks, Circular (Civil)
- Aeration, Fine Bubble Diffusers

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 7: AW position - WRC 2.03 WRC DWF Programme

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£9,288,678.47	£10,003,679.93	-7%
Medium	£15,785,895.56	£21,165,102.34	-25%
High	£34,249,601.72	£45,851,000.58	-25%
Total	**£59,324,175.76**	**£77,019,782.86**	**-23%**



3.3.2 Descriptive Statistics

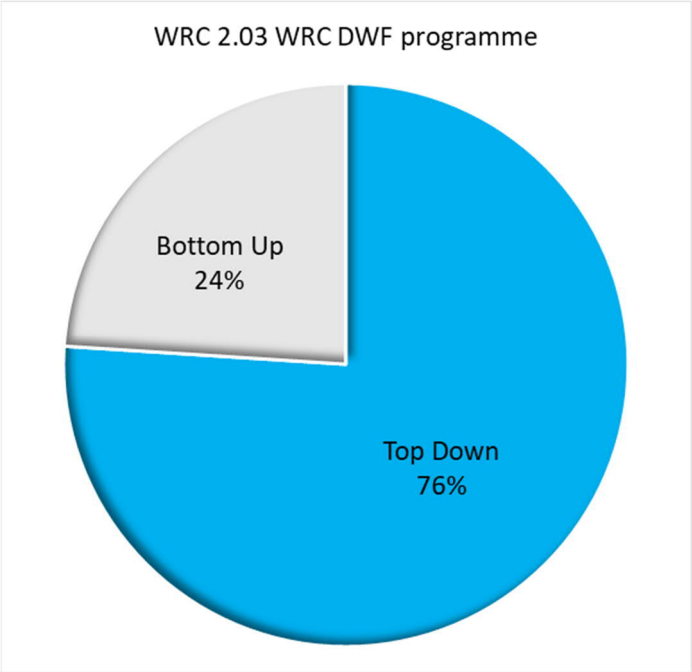
Table 8: Data Confidence

Sample Used	Estimating Confidence
6 out of 13 projects (46%)	+/-12%

Table 9: Top Down Comparators – Proportion used by value

Top Down Comparators – By Value	
Company 1	48%
Company 2	32%
Company 3	18%
Company 4	0%
Company 5	0%

Figure 4: Proportion by Value per methodology



3.4 WRC 1.08 WINEP Flow

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.4.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
Cotton Valley	£ 5,223,692.05	£ 5,889,617.85	-£ 665,925.80	-11%
Over	£ 2,960,146.42	£ 3,001,012.64	-£ 40,866.22	-1%
Great Billing	£ 2,710,837.42	£ 3,058,488.81	-£ 347,651.39	-11%
Kibworth	£ 2,659,319.82	£ 2,825,736.30	-£ 166,416.48	-6%
Corby	£ 2,230,757.55	£ 2,031,061.28	£ 199,696.27	10%
Purleigh	£ 669,940.73	£ 562,353.24	£ 107,587.50	19%
Sible Hedingham	£ 650,364.50	£ 592,012.67	£ 58,351.84	10%
Osbournby	£ 647,766.66	£ 572,252.90	£ 75,513.76	13%
Littleport	£ 642,029.68	£ 573,827.59	£ 68,202.09	12%
Sawtry	£ 634,636.30	£ 571,780.05	£ 62,856.25	11%
Litchborough	£ 100,499.00	£ 116,565.15	-£ 16,066.15	-14%
Great Easton	£ 96,670.07	£ 95,783.26	£ 886.82	1%
Sudbury	£ 94,755.67	£ 109,115.22	-£ 14,359.55	-13%
Brant Broughton	£ 78,695.54	£ 82,274.73	-£ 3,579.19	-4%
Tilton On The Hill	£ 74,654.64	£ 68,427.55	£ 6,227.09	9%
Total	£ 19,474,766.06	£ 20,150,309.22	-£ 675,543.16	-3%

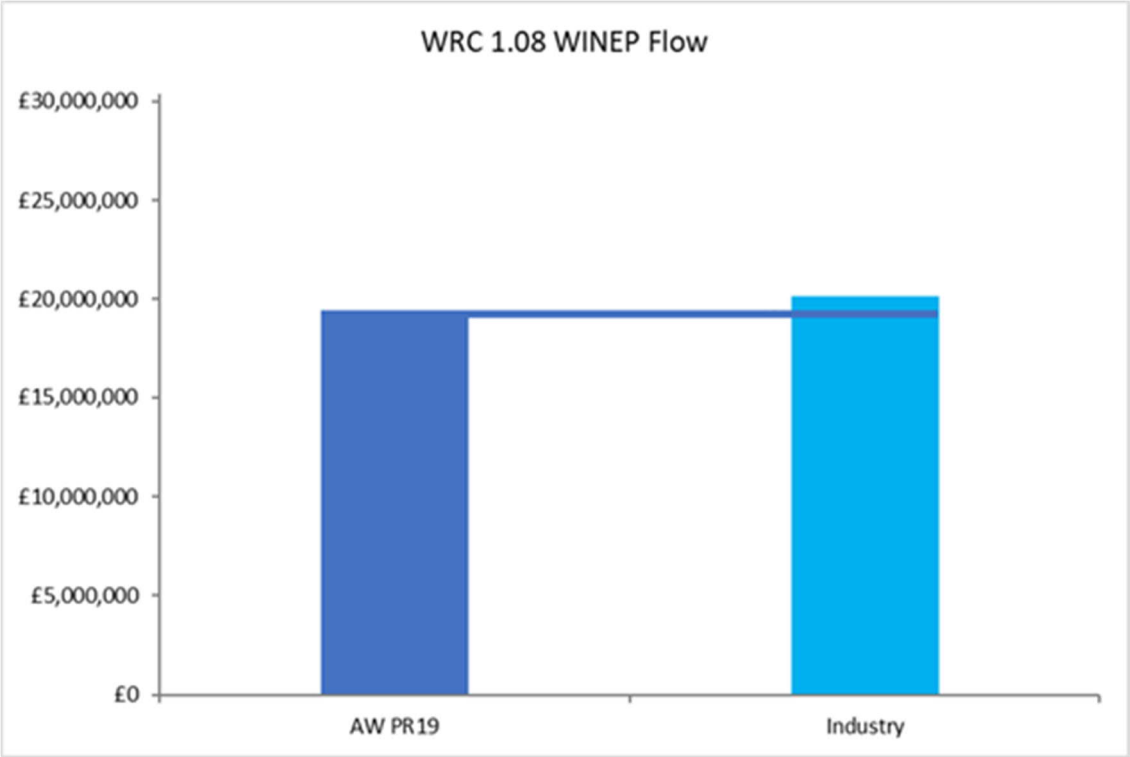
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Storm Tanks, Circular M&E

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 10: AW position - WRC 1.08 WINEP Flow

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£17,811,448.65	£18,887,115.48	-6%
Medium	£32,960,057.52	£29,176,085.15	13%
High	£60,102,834.09	£63,991,068.91	-6%
Total	**£110,874,340.26**	**£112,054,269.55**	**-1%**



3.4.2 Descriptive Statistics

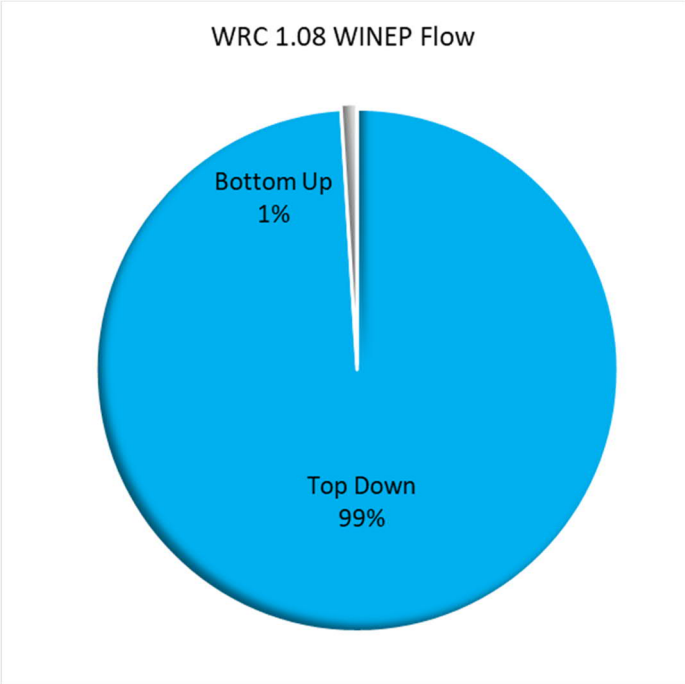
Table 11: Data Confidence

Sample Used	Estimating Confidence
15 out of 149 projects (10%)	+/-10%

Table 12: Top Down Comparators – Proportion used by value

Top Down Comparators – By Value	
Company 1	47%
Company 2	29%
Company 3	24%
Company 4	0%
Company 5	0%

Figure 5: Proportion by Value per methodology



3.5 WRC 1.11 WRC WINEP UWWTD pe

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.5.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
Langham	£ 2,027,738.25	£ 2,316,143.74	-£ 288,405.50	-12%
Stibbington	£ 1,821,494.19	£ 1,827,127.97	-£ 5,633.78	-0.3%
Fingringhoe	£ 925,446.59	£ 943,106.44	-£ 17,659.84	-2%
Sutterton - Wigtoft	£ 714,502.25	£ 737,276.69	-£ 22,774.45	-3%
Waterbeach	£ 573,938.95	£ 344,875.07	£ 229,063.88	66%
Manea	£ 462,036.67	£ 411,787.91	£ 50,248.76	12%
Weeting	£ 105,013.35	£ 159,588.91	-£ 54,575.56	-34%
Gazeley	£ 83,978.64	£ 84,436.09	-£ 457.44	-1%
Shipdham	£ 26,205.27	£ 21,853.01	£ 4,352.27	20%
Total	£ 6,740,354.16	£ 6,846,195.83	-£ 105,841.66	-2%

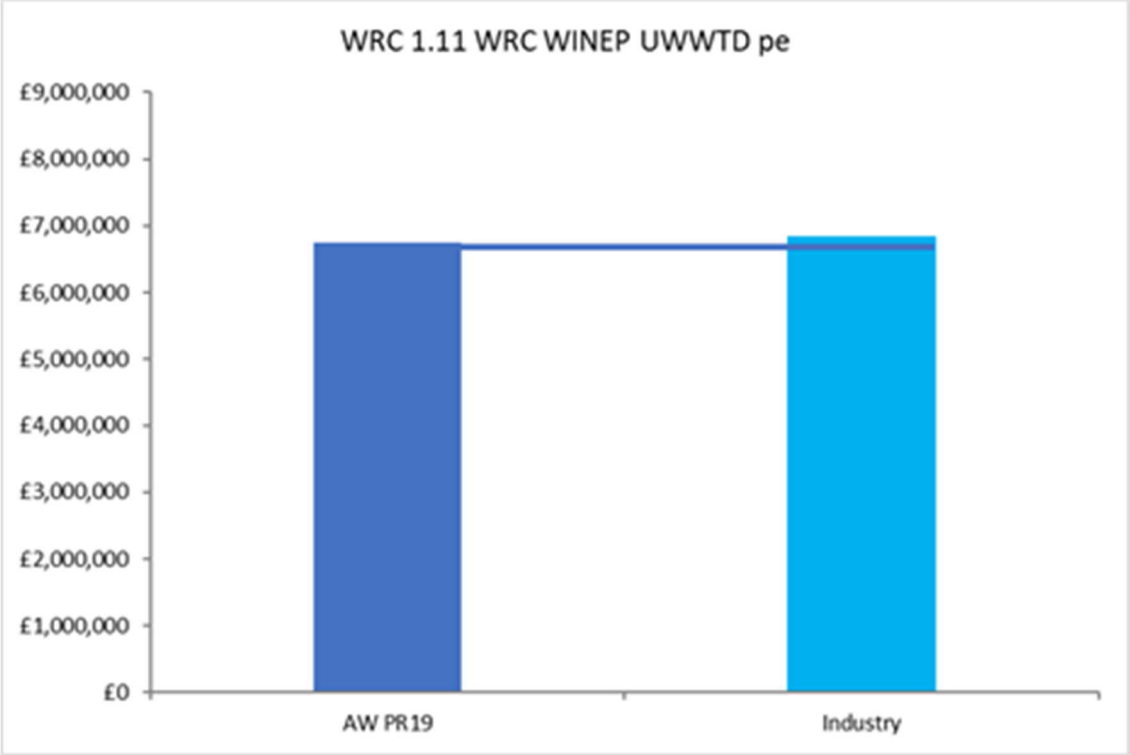
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Number of telemetry outstations
- Pumping Stations, Interprocess Civils

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 13: AW position - WRC 1.11 WRC WINEP UWWTD pe

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£441,360.69	£545,304.78	-19%
Medium	£3,621,887.20	£3,091,087.91	17%
High	£9,748,396.27	£10,384,788.06	-6%
Total	**£13,811,644.16**	**£14,021,180.75**	**-1%**



3.5.2 Descriptive Statistics

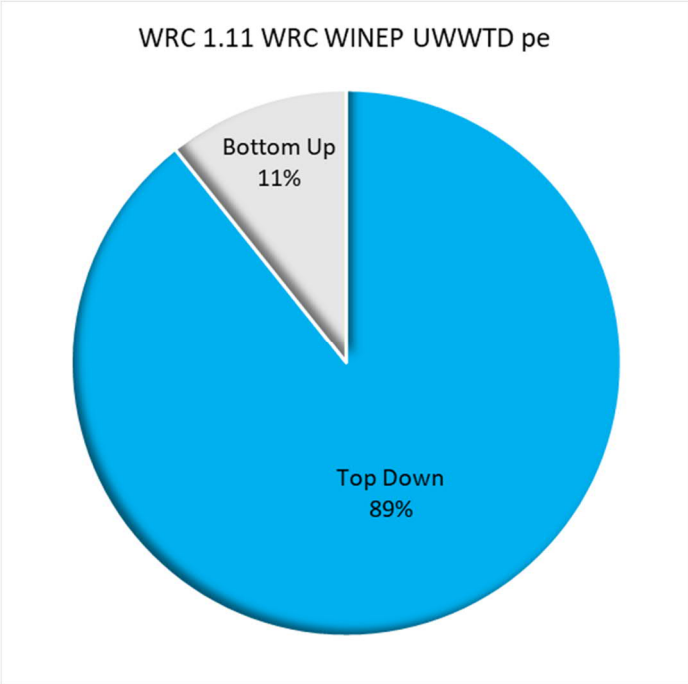
Table 14: Data Confidence

Sample Used	Estimating Confidence
9 out of 17 projects (53%)	+/-11%

Table 15: Top Down Comparators – Proportion used by value

Top Down Comparators – By Value	
Company 1	41%
Company 2	37%
Company 3	19%
Company 4	0%
Company 5	3%

Figure 6: Proportion by Value per methodology



3.6 WRC 1.12 WRC WINEP WFD GES improvements

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.6.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
Benhall	£ 26,841,725.26	£ 28,337,270.74	-£ 1,495,545.47	-5%
Harlaxton	£ 7,585,595.95	£ 8,186,012.58	-£ 600,416.64	-7%
Little Bytham	£ 6,603,837.09	£ 7,311,185.32	-£ 707,348.23	-10%
Brixworth	£ 8,916,875.02	£ 9,481,945.35	-£ 565,070.34	-6%
Kibworth	£ 7,950,027.44	£ 8,652,518.61	-£ 702,491.16	-8%
Great Gidding	£ 1,823,564.17	£ 1,571,349.01	£ 252,215.16	16%
Bassingbourn	£ 1,859,940.52	£ 1,863,800.28	-£ 3,859.76	-0.2%
Earl Soham	£ 1,826,228.09	£ 3,106,409.45	-£ 1,280,181.36	-41%
Norton	£ 1,790,673.03	£ 1,744,197.95	£ 46,475.09	3%
Strubby	£ 1,823,472.18	£ 1,840,047.13	-£ 16,574.95	-1%
Syresham	£ 387,919.64	£ 388,458.08	-£ 538.44	-0.1%
Market Rasen	£ 203,365.36	£ 373,005.35	-£ 169,639.99	-45%
Wickham Market	£ 558,346.65	£ 155,128.94	£ 403,217.71	260%
Market Harborough	£ 356,477.26	£ 372,572.50	-£ 16,095.24	-4%
Total	£ 68,528,047.65	£ 73,383,901.28	-£ 4,855,853.63	-7%

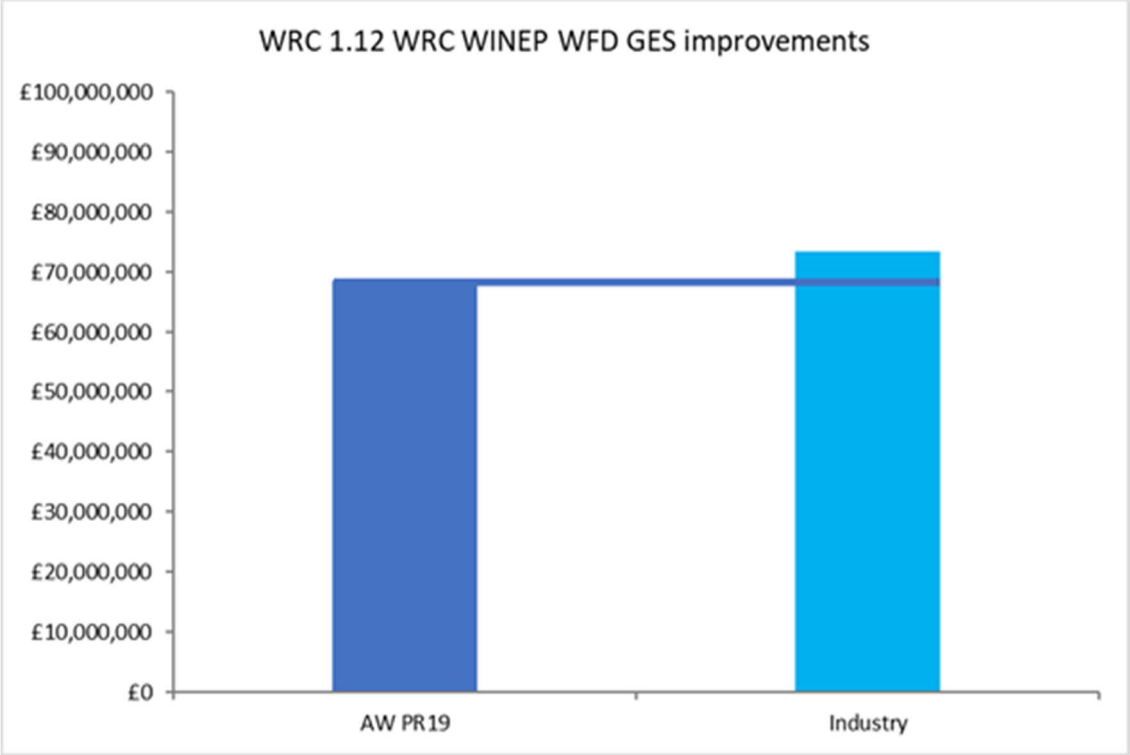
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Inline Pumping (M&E)
- Sludge Tanks, Pre-Fabricated, Circular

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 16: AW position - WRC 1.12 WRC WINEP WFD GES Improvements

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£51,845,055.35	£44,377,152.03	17%
Medium	£106,490,462.91	£118,184,563.26	-10%
High	£250,084,130.82	£267,667,801.72	-7%
Total	**£408,419,649.08**	**£430,229,517.01**	**-5%**



3.6.2 Descriptive Statistics

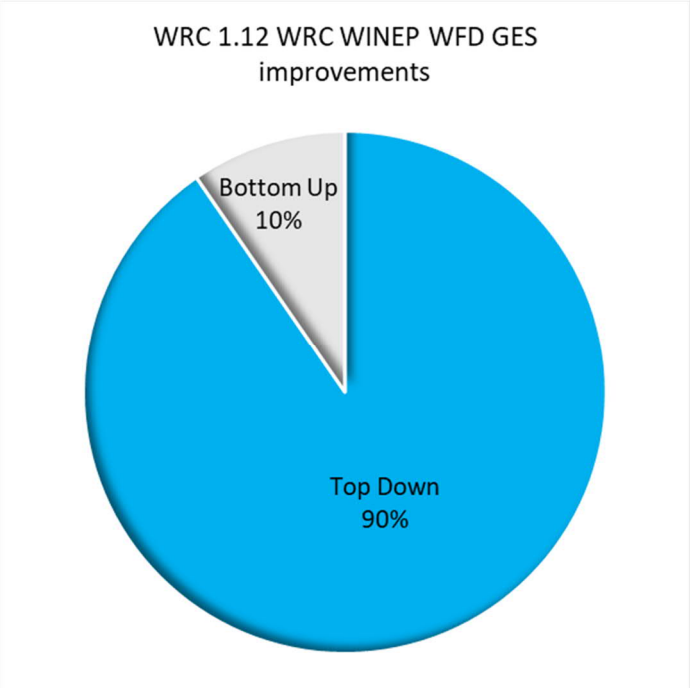
Table 4: Data Confidence

Sample Used	Estimating Confidence
14 out of 160 projects (9%)	+/-11%

Table 18: Top Down Comparators – Proportion used by value

Top Down Comparators – By Value	
Company 1	34%
Company 2	42%
Company 3	24%
Company 4	0%
Company 5	0%

Figure 7: Proportion by Value per methodology



3.7 WRC 1.14 WRC WINEP WFD

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.7.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
Dunstable	£ 4,638,521.78	£ 5,743,883.65	-£ 1,105,361.87	-19%
Attleborough	£ 4,081,090.33	£ 4,664,715.31	-£ 583,624.98	-13%
Uppingham	£ 3,882,704.29	£ 4,626,115.36	-£ 743,411.06	-16%
Uttons Drove	£ 2,295,309.76	£ 1,843,847.97	£ 451,461.79	24%
Cotton	£ 1,674,398.79	£ 1,694,633.40	-£ 20,234.61	-1%
Hanslope	£ 1,555,235.61	£ 1,587,295.00	-£ 32,059.38	-2%
Bedford	£ 438,477.19	£ 445,606.94	-£ 7,129.75	-2%
Buckingham	£ 8,116.96	£ 36,515.38	-£ 28,398.42	-78%
Bocking	£ 8,097.54	£ 36,515.38	-£ 28,417.84	-78%
Total	£ 18,581,952.26	£ 20,679,128.39	-£ 2,097,176.13	-10%

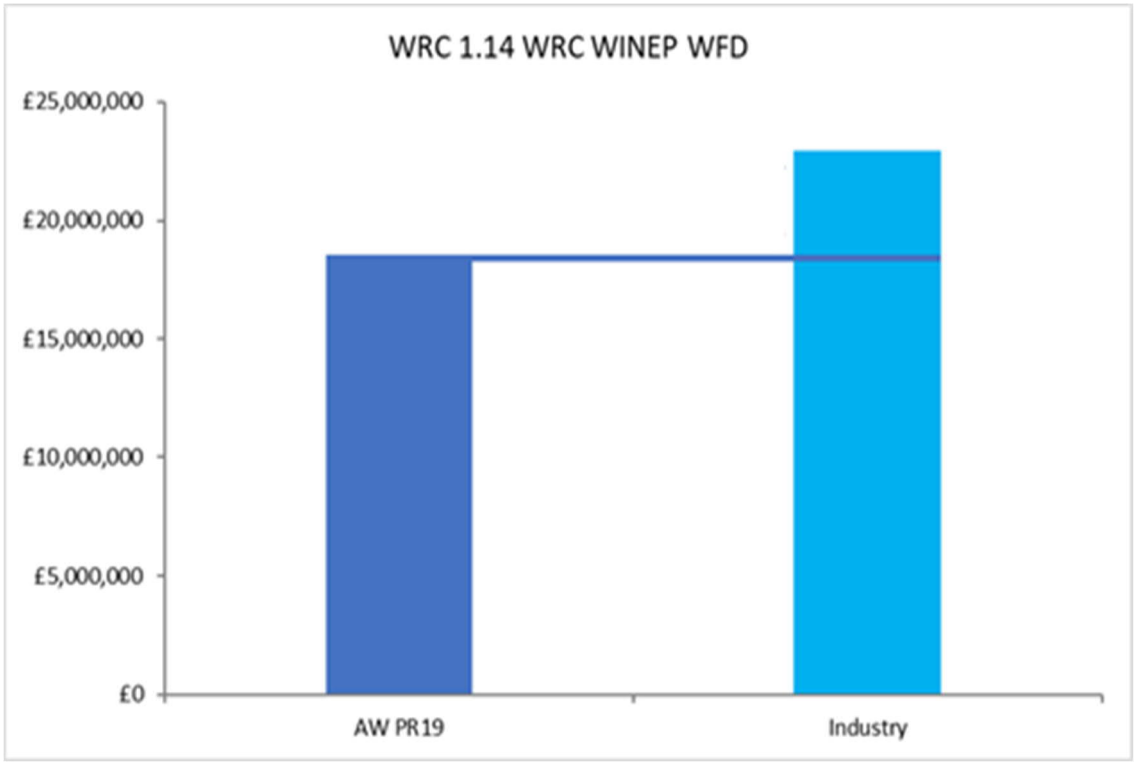
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Inlet Works STW All-in M&E
- UF Membrane Filters

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 19: AW Position - WRC 1.14 WRC WINEP WFD GES Improvements

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£3,668,395.99	£4,184,304.37	-12%
Medium	£15,417,071.94	£14,303,214.79	8%
High	£28,882,536.82	£34,457,212.14	-16%
Total	**£47,968,004.74**	**£52,944,731.30**	**-9%**



3.7.2 Descriptive Statistics

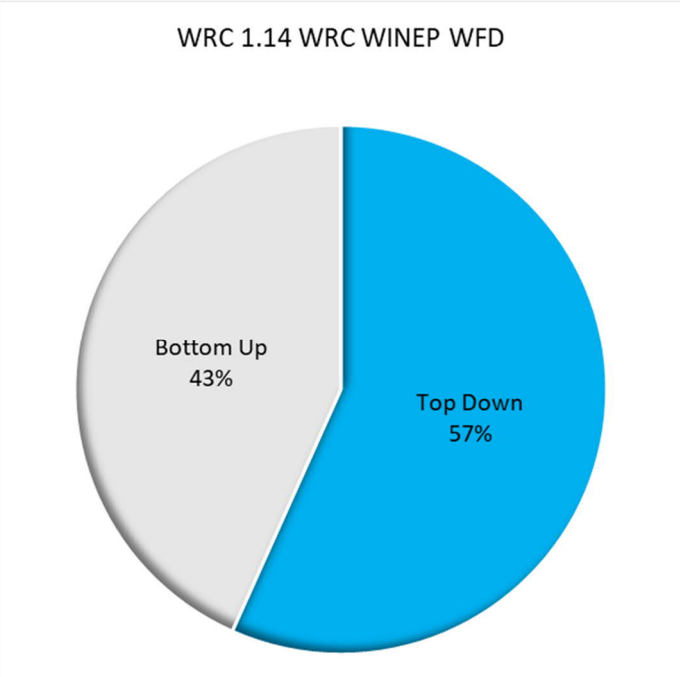
Table 20: Data Confidence

Sample Used	Estimating Confidence
9 out of 24 projects (38%)	+/-14%

Table 21: Top Down Comparators – Proportion used by value

Top Down Comparators – By Value	
Company 1	52%
Company 2	28%
Company 3	20%
Company 4	0%
Company 5	0%

Figure 8: Proportion by Value per methodology



3.8 TWD 3.01 WRMP

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.8.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
North Fenland - Ely	£ 55,577,065.25	£ 62,180,449.59	-£ 6,603,384.33	-11%
New Elsham - North Lincoln	£ 70,889,187.02	£ 88,765,477.42	-£ 17,876,290.40	-20%
C Lincolnshire - S Lincolnshire	£ 78,293,922.56	£ 95,459,251.89	-£ 17,165,329.33	-18%
Bury Haverhill	£ 13,966,373.43	£ 17,749,561.03	-£ 3,783,187.60	-21%
Ely - Newmarket	£ 13,364,034.43	£ 17,540,793.96	-£ 4,176,759.53	-24%
Emneth Hungate - Stoke Ferry	£ 12,691,840.29	£ 18,124,467.43	-£ 5,432,627.14	-30%
Newmarket - Cheveley	£ 2,349,934.64	£ 3,304,366.81	-£ 954,432.17	-29%
Bury - Ixworth - Thetford	£ 627,751.49	£ 549,814.89	£ 77,936.60	14%
Didlington	£ 2,118,344.37	£ 2,036,663.44	£ 81,680.93	4%
Total	£ 249,878,453.48	£ 305,710,846.46	-£ 55,832,392.97	-18%

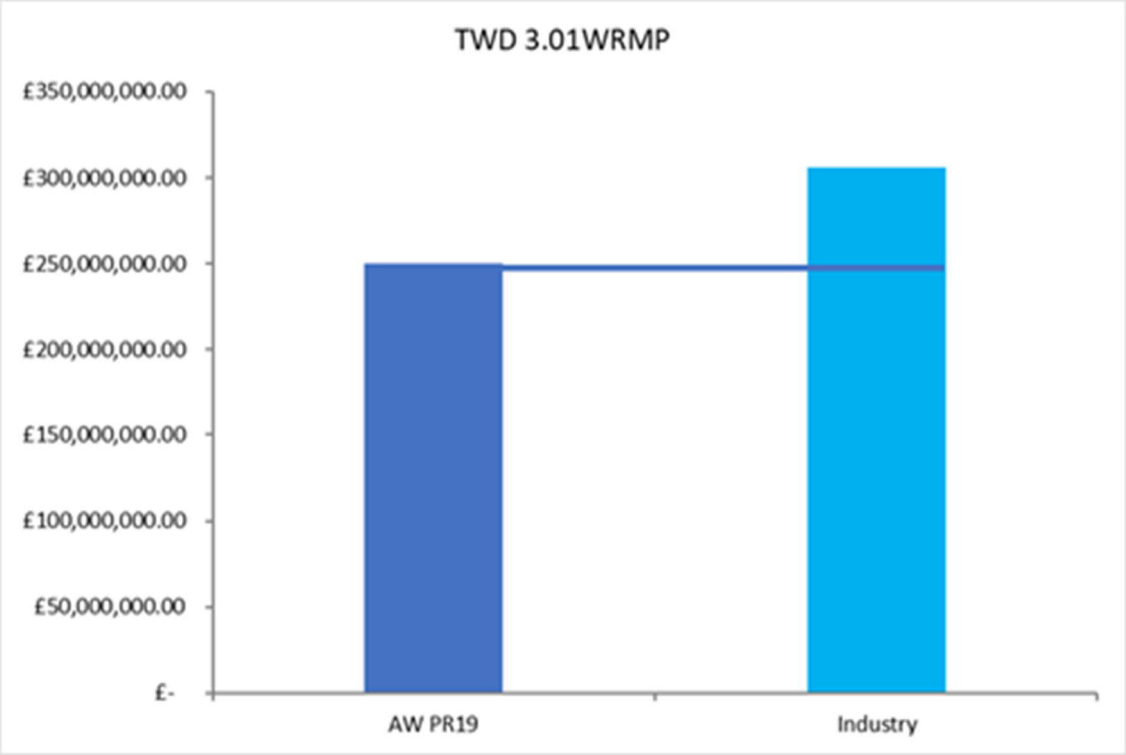
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Field pipeline
- Buildings

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 22: AW position - TWD 3.01 WRMP

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£24,503,468.31	£28,325,210.61	-13%
Medium	£97,433,208.07	£130,037,110.53	-25%
High	£390,329,289.88	£469,716,137.83	-17%
Total	**£512,265,966.26**	**£628,078,458.97**	**-18%**



3.8.2 Descriptive Statistics

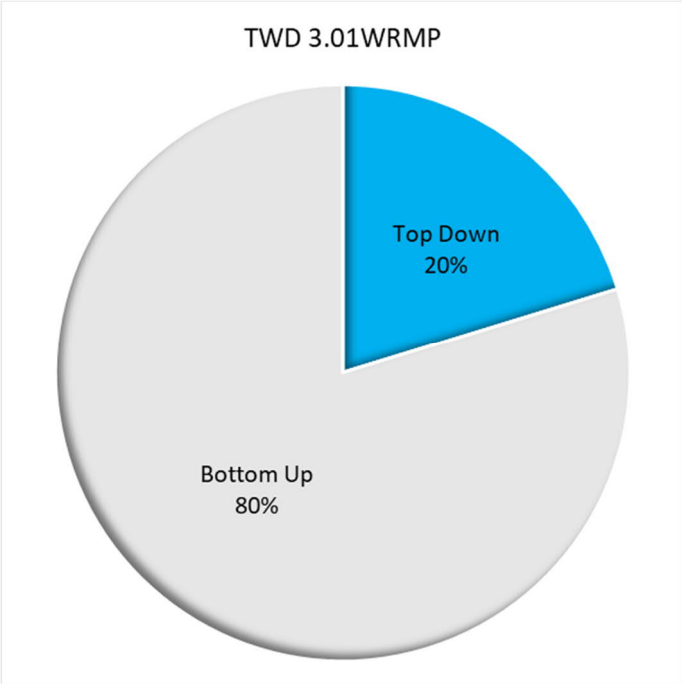
Table 23: Data Confidence

Sample Used	Estimating Confidence
9 out of 22 projects (41%)	+/-18%

Table 24: Top Down Comparators – Proportion used by value

Top Down Comparators – By Value	
Company 1	57%
Company 2	15%
Company 3	27%
Company 4	1%
Company 5	0%

Figure 9: Proportion by Value per methodology



3.9 WTW 3.01 WRMP

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.9.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
New WTW Elsham	£ 41,978,414.28	£ 43,124,871.54	-£ 1,146,457.26	-3%
Meta Treatment for ELN transfer	£ 25,612,797.10	£ 29,011,523.82	-£ 3,398,726.72	-12%
Pyewipe Water Reuse	£ 20,245,497.89	£ 18,698,862.52	£ 1,546,635.36	8%
Total	£ 87,836,709.27	£ 90,835,257.88	-£ 2,998,548.61	-3%

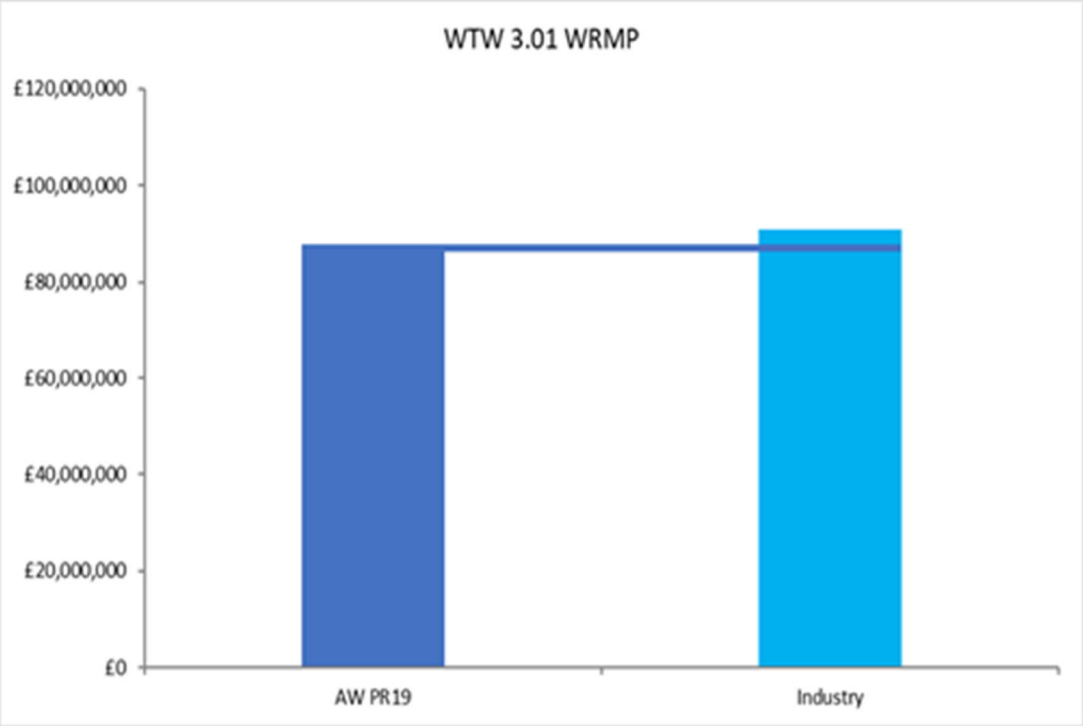
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- BAF Plant
- Buildings
- UF Membrane Filters - Dissolved Solids

Applying these results and taking an average across the whole of the programme gives the following figures.

Table 25: AW position - WTW 3.01 WRMP

	AW PR19 Cost	Industry Average	Difference Between AW and Industry
Total	**£94,498,973.27**	**£97,724,956.66**	**-3%**



3.9.2 Descriptive Statistics

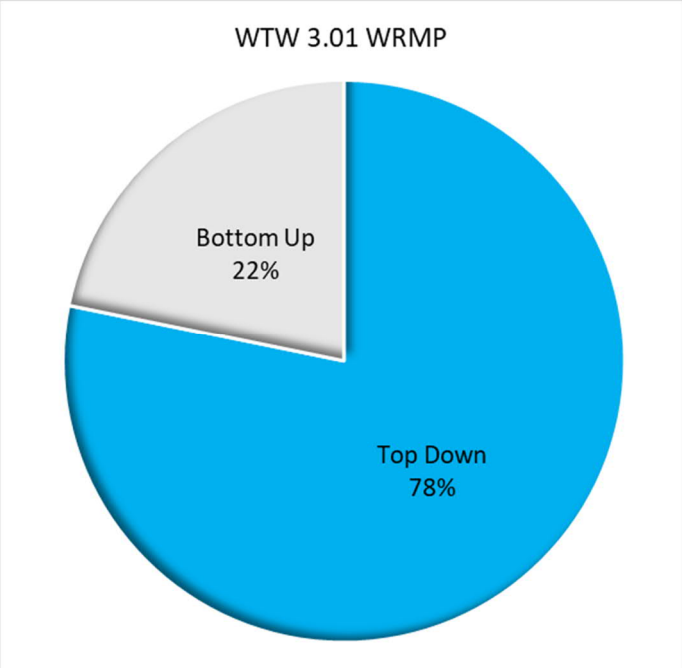
Table 26: Data Confidence

Sample Used	Estimating Confidence
3 out of 3 projects (100%)	+/-12%

Table 27: Top Down Comparators – Proportion used by value

Top Down Comparators – Proportion used by value	
Company 1	59%
Company 2	18%
Company 3	23%
Company 4	0%
Company 5	0%

Figure 10: Proportion by Value per methodology



3.10 WTW 3.06 Sustainable Resilient Systems

Having benchmarked the assets contained within the schemes presented for this programme of works, MM have produced the following results.

3.10.1 Results

	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
Raydon	£ 2,829,015.28	£ 2,934,479.67	-£ 105,464.39	-4%
Raithby	£ 2,649,575.93	£ 3,120,640.31	-£ 471,064.38	-15%
Gt Horkesley	£ 2,172,965.69	£ 2,371,201.50	-£ 198,235.81	-8%
Ardleigh	£ 1,697,444.04	£ 2,371,708.23	-£ 674,264.19	-28%
Clay Hill	£ 817,733.61	£ 937,583.33	-£ 119,849.72	-13%
Lower Links	£ 288,925.29	£ 289,344.14	-£ 418.85	-0.1%
Total	£ 10,455,659.85	£ 12,024,957.18	-£ 1,569,297.33	-13%

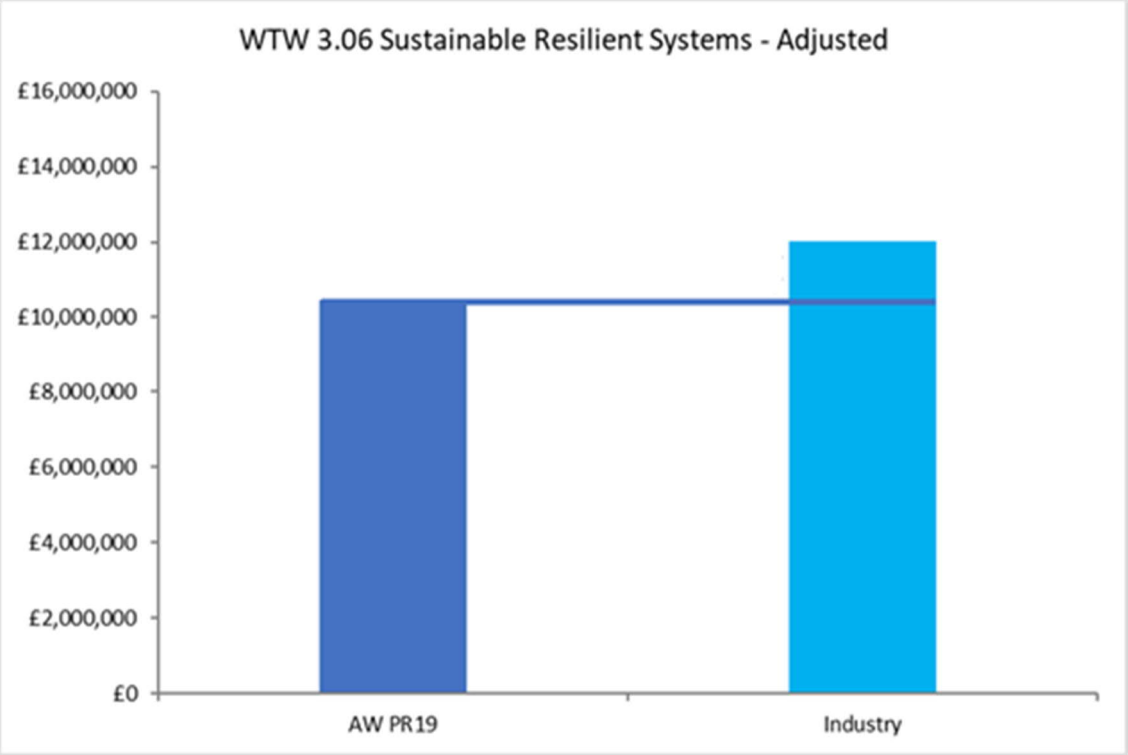
Those assets that have significantly contributed to these results (be that positively (i.e. lowered the cost) or negatively (i.e. increased the cost)) include:

- Minor Road pipeline

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 28: AW position - WTW 3.06 Sustainable Resilient Systems

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£1,106,658.90	£1,226,927.47	-10%
Medium	£3,870,409.73	£4,742,909.73	-18%
High	£5,478,591.21	£6,055,119.98	-10%
Total	**£10,455,659.85**	**£12,024,957.18**	**-13%**



3.10.2 Descriptive Statistics

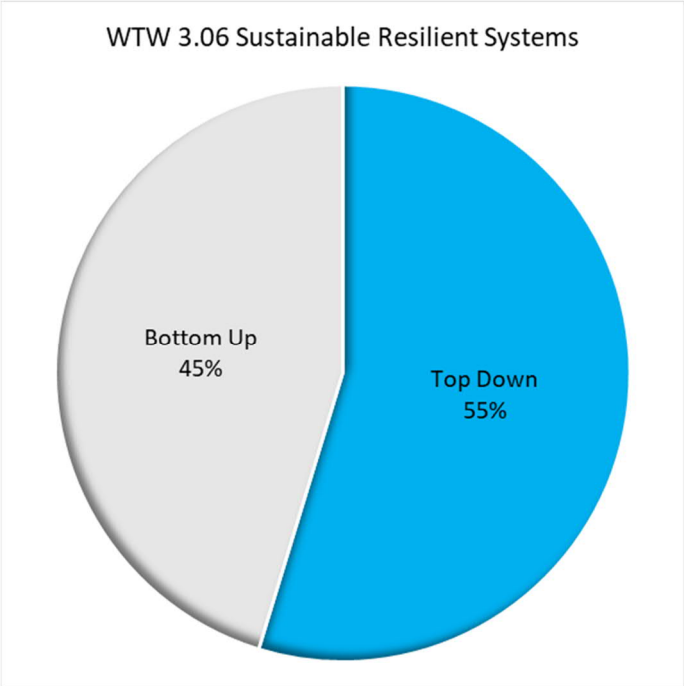
Table 29: Data Confidence

Sample Used	Estimating Confidence
6 out of 6 projects (100%)	+/-12%

Table 30: Top Down Comparators – Proportion used by value

Top Down Comparators – Proportion used by value	
Company 1	33%
Company 2	33%
Company 3	33%
Company 4	0%
Company 5	0%

Figure 11: Proportion by Value per methodology



3.11 Summary of Results

Having benchmarked all the programmes that AW provided data for the summary position is set out below.

3.11.1 Results

Scheme	AW PR19	Adjusted Industry Average	Delta Between AW and Adjusted Industry Average (£)	Delta Between AW and Adjusted Industry Average (%)
WRC 1.07 WINEP Flow - increase FFT	£ 29,095,967.42	£ 37,330,976.87	-£ 8,235,009.45	-22%
WRC 2.02 WRC process capacity enhancement	£ 34,168,950.01	£ 39,327,715.08	-£ 5,158,765.08	-13%
WRC 2.03 WRC DWF programme	£ 28,031,162.78	£ 36,704,667.69	-£ 8,673,504.90	-24%
WRC 1.08 WINEP Flow	£ 19,474,766.06	£ 20,150,309.22	-£ 675,543.16	-3%
WRC 1.11 WRC WINEP UWWTD pe	£ 6,740,354.16	£ 6,846,195.83	-£ 105,841.66	-2%
WRC 1.12 WRC WINEP WFD GES improvements	£ 68,528,047.65	£ 73,383,901.28	-£ 4,855,853.63	-7%
WRC 1.14 WRC WINEP WFD	£ 18,581,952.26	£ 20,679,128.39	-£ 2,097,176.13	-10%
TWD 3.01WRMP	£ 249,878,453.48	£ 305,710,846.46	-£ 55,832,392.97	-18%
WTW 3.01 WRMP	£ 87,836,709.27	£ 90,835,257.88	-£ 2,998,548.61	-3%
WTW 3.06 Sustainable Resilient Systems	£ 10,455,659.85	£ 12,024,957.18	-£ 1,569,297.33	-13%
Total	£ 552,792,022.95	£ 642,993,955.88	-£ 90,201,932.93	-14%

To apply the results of the sample set to the whole programme MM stratified the projects in to high, low and medium value schemes then weighted these against the efficiencies derived from the sample projects.

Table 31: Overall Summary

	AW PR19 Cost	Adjusted Industry Average	Difference Between AW and Adjusted Industry Average
Low	£225,927,979	£233,531,352	-3%
Medium	£417,767,797	£476,303,548	-12%
High	£990,871,318	£1,137,908,983	-13%
Total	**£1,634,567,094**	**£1,847,743,883**	**-12%**

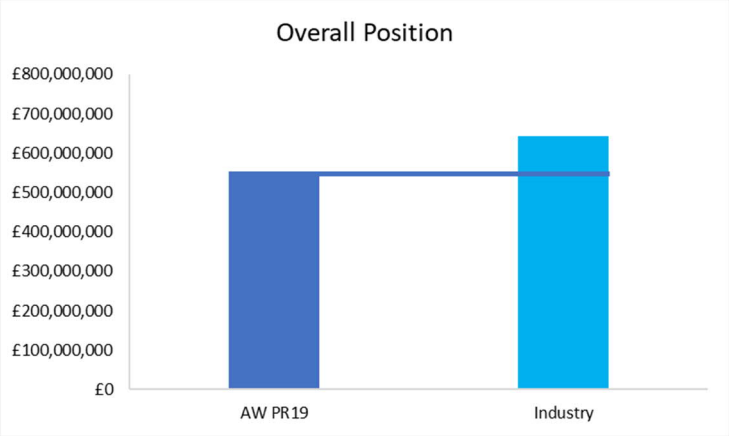


Table 32: Data Confidence

Sample Used	Estimating Confidence
95 out of 461 projects (21%)	+/-15%

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