

## APPENDIX A – SITE SPECIFIC DESIGN CONDITIONS AND REPAIR REQUIREMENTS

**APPENDIX A - SITE SPECIFIC DESGN CONDITIONS AND REPAIR REQUIREMENTS PRIOR TO PERFORMING FULL SEGMENT SEWER LINING**

<b>Armour Crescent (W Leg) (Asset No. MA20003750) - Combined Sewer</b>	<b>2nd MH S of Armour Cr (N Leg) (MH20003510) to MH at Armour Cr (S Leg) (MH20003442)</b>
Drawing Number	11644
Size / Shape	600 mm Circular
Material Type	Concrete
Total Length	94.4 m
Maximum Sewer Depth to Invert	3.56 m
Design Condition	Fully Deteriorated Ovality 7%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH20003510 (m)	
0.0 - 2.0	Remove encrustation from pipe wall from 5:00 to 7:00
14.7	Remove intruding service at 10:00
28.0	Remove intruding service at 2:00
35.1	Remove intruding service at 10:00
49.0	Remove intruding service at 2:00
57.6	Remove intruding service at 10:00
61.1	Remove encrustation from pipe joint at 4:00
65.3	Remove intruding service at 10:00
65.3	Remove encrustation from pipe wall at 7:00
67.9	Remove intruding service at 1:00
69.8	Remove encrustation from pipe joint from 7:00 to 9:00
79.5	Remove intruding service at 10:00
82.5	Remove intruding service at 1:00
90.4	Remove intruding service at 2:00
90.7	Remove roots from pipe joint at 4:00 and at 8:00
91.5	Remove roots from pipe joint at 8:00
92.3	Remove roots from pipe joint at 4:00

<b>Armour Cr (S Leg) (Asset No. MA20003756) Combined Sewer</b>	<b>1st MH W of Harris Bv (MH20003442) to MH at Harris Bv (MH20003443)</b>
Drawing Number	11645
Size / Shape	600 mm Circular
Material Type	Concrete
Total Length	91.3 m
Maximum Sewer Depth to Invert	3.56 m
Design Condition	Fully Deteriorated Ovality 6%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH20003442 (m)	
6.9	Remove encrustation from pipe joint at 5:00
8.6	Remove intruding service at 1:00
11.5	Remove gasket at pipe joint at 7:00
14.7	Remove encrustation from pipe joint from 5:00 to 7:00
20.7	Remove intruding service at 1:00
23.9	Remove encrustation from pipe wall at 5:00

37.0	Remove intruding service at 1:00
37.3	Remove encrustation from pipe joint from 4:00 to 6:00
55.3	Remove roots from pipe joint at 5:00
55.9	Remove intruding service at 1:00
70.1	Remove encrustation from pipe joint at 5:00
75.3	Remove intruding service at 1:00
83.4	Remove encrustation from pipe joint at 5:00
84.7	Remove intruding service at 11:00

<b>Grant Av (Asset No. MA60020828)</b>		<b>1st MH W of Cathcart St (MH60002139) to MH at Elmhurst Rd (MH60002085)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11646		
Size / Shape	750 mm Circular		
Material Type	Concrete		
Total Length	158.3 m		
Maximum Sewer Depth to Invert	6.25 m		
Design Condition	Partially Deteriorated Ovality 3%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60002139 (m)			
6.6	Remove encrustation from pipe wall at 5:00		
8.8	Remove encrustation from service from 7:00 to 10:00		
10.7	Remove encrustation from pipe wall at 5:00		
19.3	Remove encrustation from service from 1:00 to 4:00		
39.0	Remove encrustation from service from 7:00 to 10:00		
57.3	Remove encrustation from pipe joint from 7:00 to 10:00		
67.4	Remove encrustation from service from 1:00 to 5:00		
82.5	Remove encrustation from service at 11:00		
94.1	Remove encrustation from pipe joint from 7:00 to 11:00		
94.8	Remove encrustation from service from 8:00 to 12:00		
126.6	Remove encrustation from service at 2:00		
156.8	Remove encrustation from pipe wall from 7:00 to 9:00		

<b>Grant Avenue (Asset No. MA60002742)</b>		<b>3rd MH W of Shaftesbury Bv (MH60002005) to 4th MH W of Shaftesbury Bv (MH60002004)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11647		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	111.9 m		
Maximum Sewer Depth to Invert	4.77 m		
Design Condition	Partially Deteriorated Ovality 3%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH6002005 (m)			
9.9	Remove encrustation from pipe joint from 2:00 to 4:00		
17.1	Remove encrustation from pipe joint from 9:00 to 3:00		

<b>Grant Avenue (Asset No. MA60002736)</b>		<b>1st MH W of Shaftesbury Bv (MH60003156) to 2nd MH W of Shaftesbury Bv (MH60002002)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11648		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	169.3 m		
Maximum Sewer Depth to Invert	3.98 m		
Design Condition	Partially Deteriorated Ovality 3%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60003156 (m)			
19.2	Remove encrustation from pipe joint from 7:00 to 10:00		
22.8	Remove encrustation from pipe joint from 7:00 to 5:00		
26.5	Remove encrustation from pipe joint from 7:00 to 5:00		
30.1	Remove encrustation from pipe joint from 2:00 to 5:00		
32.0	Remove encrustation from pipe joint from 7:00 to 5:00		
35.8	Remove encrustation from pipe joint from 7:00 to 4:00		
41.2	Remove encrustation from pipe joint from 7:00 to 5:00		
54.2	Remove encrustation from pipe joint from 7:00 to 4:00		
56.0	Remove encrustation from pipe joint from 7:00 to 11:00		
61.7	Remove encrustation from pipe joint from 7:00 to 11:00		
63.3	Remove encrustation at service from 7:00 to 11:00		
65.4	Remove encrustation from pipe joint from 7:00 to 5:00		
72.7	Remove encrustation from pipe joint from 8:00 to 2:00		
73.7	Remove encrustation from pipe wall at 11:00		
74.2	Remove encrustation from pipe wall at 5:00		
75.5	Remove encrustation from pipe wall at 11:00		
76.5	Remove encrustation from pipe joint from 9:00 to 11:00		
77.2	Remove encrustation from pipe wall at 12:00		
78.3	Remove encrustation from pipe joint from 12:00 to 3:00		
79.1	Remove encrustation from pipe wall at 12:00		
83.0	Remove encrustation from pipe wall from 12:00 to 2:00		
84.9	Remove encrustation from pipe wall from 12:00 to 2:00		
85.7	Remove encrustation from pipe joint from 8:00 to 4:00		
88.5	Remove encrustation from pipe wall at 12:00		
90.4	Remove encrustation from pipe wall at 12:00		
92.1	Remove encrustation from pipe wall at 12:00		
95.9	Remove encrustation from pipe wall from 11:00 to 1:00		
96.8	Remove encrustation from pipe joint from 8:00 to 4:00		
97.6	Remove encrustation from pipe wall at 12:00		
99.6	Remove encrustation from pipe joint at 12:00		
101.4	Remove encrustation from pipe joint from 8:00 to 4:00		
103.3	Remove encrustation from pipe joint from 8:00 to 1:00		
106.9	Remove encrustation from pipe joint from 8:00 to 4:00		
110.6	Remove encrustation from pipe wall at 12:00		
112.5	Remove encrustation from pipe joint from 8:00 to 1:00		
114.3	Remove encrustation from pipe wall at 12:00		
116.2	Remove encrustation from pipe wall from 11:00 to 2:00		

118.0	Remove encrustation from pipe wall at 12:00
119.1	Remove encrustation from pipe joint from 8:00 to 11:00
119.8	Remove encrustation from pipe wall from 12:00 to 2:00
120.8	Remove encrustation from pipe joint from 10:00 to 3:00
121.7	Remove encrustation from pipe wall at 12:00
123.5	Remove encrustation from pipe wall from 12:00 to 2:00
124.6	Remove encrustation from pipe joint from 9:00 to 3:00
130.2	Remove encrustation from pipe joint at 3:00
132.0	Remove encrustation from pipe joint from 8:00 to 4:00
146.8	Remove encrustation from pipe joint from 1:00 to 4:00
162.5	Remove encrustation from pipe wall from 8:00 to 4:00
166.8	Remove encrustation from service at 2:00
167.2	Remove encrustation from pipe joint from 8:00 to 4:00
168.1	Remove encrustation from pipe wall from 8:00 to 4:00
168.9	Remove encrustation from pipe wall from 9:00 to 3:00
	Note: there is a reduction in the size of the MH stack at 1.8m in MH60002002

<b>Grant Avenue (Asset No. MA60004354)</b>		<b>MH at Shaftesbury Bv (SE of CL) (MH70026626) to 1st MH W of Shaftesbury Bv (MH60003156)</b>	
<b>Wastewater Sewer</b>			
Drawing Number		11649	
Size / Shape		600 mm Circular	
Material Type		Concrete	
Total Length		152.6 m	
Maximum Sewer Depth to Invert		3.77 m	
Design Condition		Partially Deteriorated Ovality 3%	
<b>Site Specific Repairs</b>			
<b>Location</b>		<b>Action Required</b>	
Distance From MH70026626 (m)			
21.5		Remove encrustation from pipe joint from 7:00 to 9:00	
59.8		Remove encrustation from pipe wall at 7:00	
65.3		Remove encrustation from pipe wall from 8:00 to 4:00	
65.7		Remove encrustation from pipe joint at 3:00	
85.2		Remove encrustation from pipe wall from 11:00 to 5:00	
95.1		Remove encrustation from pipe joint from 1:00 to 4:00	
102.7		Remove encrustation from pipe joint from 8:00 to 10:00	
113.7		Remove encrustation from pipe wall from 11:00 to 2:00	
113.9		Remove encrustation from pipe joint from 8:00 to 5:00	
117.5		Remove encrustation from pipe joint from 8:00 to 4:00	
123.1		Remove encrustation from pipe joint at 4:00	
151.1		Remove encrustation from pipe joint from 7:00 to 10:00	
		Note: there is a reduction in the size of the MH stack at 1.5m in MH60003156	

<b>Grant Avenue (Asset No. MA70059065)</b>		<b>MH at Shaftesbury Bv (E PL) (MH60003161) to MH at Shaftesbury Bv (CL) (MH70026626)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11649		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	10.7 m		
Maximum Sewer Depth to Invert	3.77 m		
Design Condition	Partially Deteriorated Ovality 11%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60003161 (m)			
	No prep work required		

<b>Grant Avenue (Asset No. MA60004355)</b>		<b>1st MH E of Shaftesbury Bv (SE of CL) (MH60003157) to at Shaftesbury Bv (SE of CL) (MH60003161)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11650		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	92.4 m		
Maximum Sewer Depth to Invert	3.80 m		
Design Condition	Partially Deteriorated Ovality 6%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60003157 (m)			
9.9	Remove encrustation from pipe joint from 8:00 to 4:00		
11.8	Remove encrustation from pipe joint from 2:00 to 4:00		
13.6	Remove encrustation from pipe joint from 8:00 to 11:00		
21.1	Remove encrustation from pipe joint from 1:00 to 3:00		
24.8	Remove encrustation from pipe joint from 8:00 to 4:00		
29.2	Remove encrustation from pipe wall at 12:00		
32.2	Remove encrustation from pipe joint from 8:00 to 4:00		
36.0	Remove encrustation from pipe joint from 7:00 to 3:00		
37.7	Remove encrustation from pipe joint from 7:00 to 3:00		
39.6	Remove encrustation from pipe joint from 8:00 to 4:00		
41.9 - 42.8	Remove encrustation from pipe wall from 9:00 to 2:00		
43.3	Remove encrustation from pipe joint from 8:00 to 10:00		
65.5	Remove encrustation from pipe joint from 8:00 to 4:00		
67.7 - 68.9	Remove encrustation from pipe wall from 10:00 to 2:00		
69.2	Remove encrustation from pipe joint from 2:00 to 4:00		
73.0	Remove encrustation from pipe joint at 9:00		
74.8	Remove encrustation from pipe joint at 3:00		
86.0	Remove hanging gasket at 2:00		

<b>Grant Avenue (Asset No. MA60004356)</b>		<b>1st MH E of Bower Bv (MH60003158) to 1st MH E of Shaftesbury Bv (MH60003157)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11650		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	89.7 m		
Maximum Sewer Depth to Invert	3.78 m		
Design Condition	Partially Deteriorated Ovality 5%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60003158 (m)			
	Note: there is a reduction in the size of the MH stack at 1.3m in MH60003158		
0.3 - 1.0	Remove encrustation from pipe wall at 10:00		
24.6	Remove encrustation from pipe joint from 9:00 to 3:00		
40.8	Remove encrustation from service at 10:00		
44.0	Remove encrustation from pipe wall from 12:00 to 3:00		
45.8	Remove encrustation from pipe wall from 12:00 to 3:00		
58.8	Remove encrustation from pipe wall from 12:00 to 4:00		
65.4	Remove encrustation from pipe joint from 8:00 to 10:00		
76.9	Remove encrustation from pipe wall from 8:00 to 10:00		
77.5 - 78.2	Remove encrustation from pipe wall from 12:00 to 3:00		
78.9 - 80.0	Remove encrustation from pipe wall from 10:00 to 2:00		

<b>Grant Avenue (Asset No. MA60004367)</b>		<b>1st MH W of Laidlaw Bv (MH60003239) to 1st MH W of Bower Bv (MH60003158)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11651		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	150.9 m		
Maximum Sewer Depth to Invert	3.42 m		
Design Condition	Partially Deteriorated Ovality 7%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60003239 (m)			
	Note: 300 Forcemain discharges into MH60003239, 90° elbow at 1.7m in centre of manhole		
1.2 - 3.7	Remove encrustation from pipe wall from 10:00 to 2:00		
4.2	Remove hanging gasket at 9:00		
28.1	Remove gasket at 4:00		
33.7	Remove gasket at 9:00 and 3:00		
44.8	Remove hanging gasket from 10:00 to 12:00		
46.2 - 50.0	Remove grease from pipe wall at 9:00 and 3:00		
48.5	Remove hanging gasket from 9:00 to 4:00		
50.4	Remove hanging gasket from 9:00 to 2:00		
52.3	Remove gasket at 9:00 and 4:00		
54.2	Remove gasket at 8:00 and 4:00		
102.3	Remove gasket at 5:00 and 7:00		
104.2	Remove gasket at 5:00 and 7:00		
106.1	Remove gasket at 10:00		
107.9	Remove gasket at 5:00 and 9:00		
109.7	Remove gasket at 5:00		
111.0 - 111.6	Remove encrustation from pipe wall from 9:00 to 12:00		
114.3	Remove encrustation from pipe wall from 12:00 to 3:00		
119.0	Remove gasket at 2:00		
120.8	Remove gasket at 3:00		
126.5	Remove gasket at 6:00		
126.2 - 127.7	Remove encrustation from pipe wall at 3:00		
137.5	Remove hanging gasket from 9:00 to 1:00		

<b>St Matthews Av (Asset No. MA20009434)</b>	
<b>Combined Sewer</b>	
<b>MH at Wall St (MH20008617) to 1st MH w of Wall St (MH20008624)</b>	
Drawing Number	11652
Size / Shape	600 mm Circular
Material Type	Concrete
Total Length	66.4 m
Maximum Sewer Depth to Invert	5.40 m
Design Condition	Fully Deteriorated Ovality 7%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH20008617 (m)	
0.9 - 1.5	Remove encrustation from pipe wall from 7:00 to 5:00
2.2	Remove encrustation from pipe wall from 7:00 to 10:00
3.5	Remove encrustation from pipe joint from 8:00 to 4:00
3.7	Remove encrustation from pipe wall at 3:00
4.4 - 5.9	Remove encrustation from pipe wall from 7:00 to 5:00
6.0	Remove encrustation from pipe joint from 8:00 to 11:00
7.2 - 8.1	Remove encrustation from pipe wall from 2:00 to 5:00
8.2 - 8.7	Remove encrustation from pipe wall from 7:00 to 9:00
11.9 - 12.3	Remove encrustation from pipe wall from 3:00 to 5:00
12.4	Remove encrustation from pipe wall from 8:00 to 10:00
13.2	Remove encrustation from pipe joint from 7:00 to 3:00
17.9 - 18.1	Remove encrustation from pipe wall from 1:00 to 5:00
18.3	Remove encrustation from service from 2:00 to 5:00
21.2	Remove encrustation from pipe wall from 7:00 to 11:00
26.2	Remove encrustation from service from 7:00 to 10:00
26.9 - 27.3	Remove encrustation from pipe wall from 7:00 to 4:00
27.8	Remove encrustation from pipe joint from 7:00 to 5:00
32.6	Remove encrustation from pipe joint from 7:00 to 11:00
33.8	Remove encrustation from service from 2:00 to 5:00
33.9 - 34.3	Remove encrustation from pipe wall from 7:00 to 10:00
37.3	Remove encrustation from service from 2:00 to 5:00
37.3	Remove encrustation from service from 7:00 to 10:00
38.7 - 39.6	Remove encrustation from pipe wall from 7:00 to 10:00
40.1	Remove encrustation from pipe wall at 7:00
47.3	Remove encrustation from pipe wall from 7:00 to 10:00
52.8	Remove encrustation from pipe wall from 7:00 to 5:00
56.5	Remove intruding service at 3:00
57.7	Remove encrustation from pipe wall from 3:00 to 5:00
58.5 - 59.0	Remove encrustation from pipe wall from 7:00 to 5:00
59.4	Remove encrustation from pipe joint from 2:00 to 5:00
62.4 - 63.3	Remove encrustation from pipe wall from 2:00 to 5:00
64.4	Remove encrustation from service from 2:00 to 5:00
64.4	Remove encrustation from service from 7:00 to 10:00

<b>Wellington Cr (Asset No. MA60007075)</b>		<b>1st MH E of Niagara St (MH60005667) to 2nd MH E of Niagara St (MH60005666)</b>	
<b>Storm Relief Sewer</b>			
Drawing Number	11653		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	32.6 m		
Maximum Sewer Depth to Invert	3.95 m		
Design Condition	Partially Deteriorated Ovality 6%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60005667 (m)			
5.4	Remove encrustation from pipe wall at 2:00		
20.3	Remove encrustation from pipe wall at 10:00		
30.5	Remove gasket at 8:00		

<b>Grosvenor Av (CL) (Asset No. MA60010121)</b>		<b>MH at Oxford St (W PL) (MH70019074) to MH at Waverley St (MH60007116)</b>	
<b>Combined Sewer</b>			
Drawing Number	11654		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	97.2 m		
Maximum Sewer Depth to Invert	5.28 m		
Design Condition	Fully Deteriorated Ovality 6%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH70019074 (m)			
	Note: Invert has significant spalling throughout		
2.3 - 4.2	Remove encrustation from pipe wall from 7:00 to 5:00		
4.4	Remove encrustation from pipe wall at 11:00		
4.8 - 6.5	Remove encrustation from pipe wall from 9:00 to 3:00		
7.1 - 7.8	Remove encrustation from pipe wall from 7:00 to 5:00		
9.7	Remove encrustation from pipe joint from 1:00 to 3:00		
10.0	Remove encrustation from pipe wall from 10:00 to 3:00		
10.8	Remove encrustation from pipe wall from 11:00 to 3:00		
11.7 - 12.1	Remove encrustation from pipe wall from 1:00 to 3:00		
12.9 - 13.4	Remove encrustation from pipe wall from 10:00 to 2:00		
14.0	Remove encrustation from pipe wall from 8:00 to 4:00		
14.4	Remove encrustation from pipe wall at 7:00		
14.7	Remove encrustation from pipe wall from 8:00 to 4:00		
15.0	Remove encrustation from pipe wall from 1:00 to 5:00		
16.8	Remove encrustation from pipe wall from 1:00 to 5:00		
17.3	Remove encrustation from pipe wall from 1:00 to 3:00		
18.3 - 19.1	Remove encrustation from pipe wall from 10:00 to 4:00		
20.3	Remove encrustation from pipe wall from 11:00 to 3:00		
20.6	Remove encrustation from pipe wall at 1:00		
21.2	Remove encrustation from pipe wall at 1:00		
23.3	Remove encrustation from pipe wall from 1:00 to 4:00		

23.7	Remove encrustation from pipe wall from 1:00 to 4:00
24.0 - 24.8	Remove encrustation from pipe wall from 9:00 to 11:00
25.4 - 26.4	Remove encrustation from pipe wall from 7:00 to 11:00
26.5	Remove encrustation from pipe wall from 1:00 to 4:00
27.0 - 27.4	Remove encrustation from pipe wall from 10:00 to 2:00
27.6	Remove encrustation from pipe wall from 10:00 to 12:00
28.4 - 28.9	Remove encrustation from pipe wall from 8:00 to 12:00
29.3	Remove encrustation from pipe wall from 7:00 to 12:00
29.9	Remove encrustation from pipe wall from 1:00 to 3:00
30.2 - 30.8	Remove encrustation from pipe wall from 8:00 to 12:00
32.7	Remove encrustation from pipe wall from 9:00 to 12:00
42.4 - 42.9	Remove encrustation from pipe wall from 7:00 to 9:00
42.6 - 42.9	Remove encrustation from pipe wall from 3:00 to 5:00
42.9	Remove encrustation from pipe wall from 9:00 to 11:00
43.2 - 43.6	Remove encrustation from pipe wall from 9:00 to 11:00
44.5	Remove encrustation from pipe wall from 9:00 to 11:00
44.8	Remove encrustation from pipe wall from 9:00 to 11:00
45.7 - 46.4	Remove encrustation from pipe wall from 10:00 to 2:00
48.1 - 48.8	Remove encrustation from pipe wall from 10:00 to 2:00
50.0 - 50.3	Remove encrustation from pipe wall from 7:00 to 11:00
51.3 - 51.6	Remove encrustation from pipe wall from 7:00 to 10:00
52.8	Remove encrustation from pipe wall from 7:00 to 10:00
53.3	Remove encrustation from pipe wall at 11:00
54.7 - 55.9	Remove encrustation from pipe wall from 8:00 to 11:00
56.1 - 57.5	Remove encrustation from pipe wall from 8:00 to 4:00
57.9 - 59.0	Remove encrustation from pipe wall from 7:00 to 5:00
59.5 - 59.9	Remove encrustation from pipe wall from 1:00 to 4:00
60.4 - 60.9	Remove encrustation from pipe wall from 1:00 to 4:00
60.7	Remove encrustation from pipe wall at 10:00
61.8 - 62.7	Remove encrustation from pipe wall from 1:00 to 4:00
63.1 - 63.4	Remove encrustation from pipe wall from 12:00 to 4:00
66.1 - 67.2	Remove encrustation from pipe wall from 8:00 to 4:00
72.9	Remove encrustation from pipe wall from 9:00 to 12:00
74.3	Remove encrustation from pipe wall from 9:00 to 12:00
77.1	Remove encrustation from pipe wall from 2:00 to 4:00
78.3 - 78.6	Remove encrustation from pipe wall from 11:00 to 4:00
80.0	Remove encrustation from pipe wall at 2:00
89.6	Remove encrustation from pipe wall from 9:00 to 3:00
91.6	Remove encrustation from pipe wall from 12:00 to 2:00

<b>Thurso St (Asset No. MA60021439)</b>		<b>MH at Dorchester Av (MH60008542) to MH at Grosvenor Av (MH60008485)</b>	
<b>Storm Relief Sewer</b>			
Drawing Number	11655		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	105.4 m		
Maximum Sewer Depth to Invert	5.73 m		
Design Condition	Partially Deteriorated Ovality 5%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60008542 (m)			
1.6	Remove hanging gasket at joint		
5.0	Remove gasket at joint		
8.7	Remove roots from pipe joint from 9:00 to 3:00		
12.3	Remove roots and gasket from pipe joint from 9:00 to 12:00		
14.2	Remove roots from pipe joint from 8:00 to 4:00		
16.1	Remove roots from pipe joint at 8:00		
21.5	Remove roots from pipe joint at 8:00		
34.2	Remove roots and gasket from pipe joint from 12:00 to 3:00		
36.1	Remove roots from pipe joint at 8:00		
43.3	Remove roots from pipe joint at 4:00		
59.7	Remove encrustation from pipe joint from 10:00 to 12:00		
65.3	Remove hanging gasket at joint		

<b>Daly St (Asset No. MA60009184)</b>		<b>MH at Pembina Hwy (MH60007578) to MH at Fleet Av (MH60001565)</b>	
<b>Combined Sewer</b>			
Drawing Number	11656		
Size / Shape	900 mm Circular		
Material Type	Concrete		
Total Length	84.4 m		
Maximum Sewer Depth to Invert	7.87 m		
Design Condition	Fully Deteriorated Ovality 5%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60007578 (m)			
	Note: Invert has significant spalling at various locations		
7.7 - 8.1	Remove encrustation from pipe wall from 7:00 to 10:00		
16.8 - 17.3	Remove encrustation from pipe wall at 9:00		
19.0 - 19.6	Remove grease from pipe wall at 7:00		
19.0	Remove intruding service at 2:00		
19.0	Remove encrustation from pipe wall at 3:00		
27.4 - 29.6	Remove encrustation from pipe wall from 3:00 to 9:00		
31.3	Remove encrustation from pipe wall from 3:00 to 5:00		
37.7 - 38.0	Remove encrustation from pipe wall at 12:00		
40.7	Remove encrustation from pipe wall at 3:00		
41.2	Remove encrustation from pipe wall at 3:00		
41.7 - 42.3	Remove encrustation from pipe wall from 7:00 to 5:00		
46.3	Remove debris from sewer (conc block)		
46.6 - 48.1	Remove encrustation from pipe wall from 2:00 to 5:00		
51.1 - 51.5	Remove encrustation from pipe wall from 8:00 to 10:00		
53.4 - 54.9	Remove encrustation from pipe wall from 7:00 to 9:00		
55.5	Remove encrustation from pipe wall from 7:00 to 10:00		
59.4	Remove encrustation from pipe wall at 3:00		
60.1 - 61.4	Remove encrustation from pipe wall from 7:00 to 10:00		
62.3 - 62.8	Remove encrustation from pipe wall from 2:00 to 4:00		
63.1	Remove encrustation from pipe wall from 8:00 to 10:00		
63.7 - 64.4	Remove encrustation from pipe wall from 8:00 to 10:00		
73.4	Remove encrustation from pipe joint from 7:00 to 3:00		

<b>Riverside Dr (Asset No. MA60013127) MH at Windermere Av (MH60011275) to MH at Somerville Av (MH60011277)</b>	
<b>Land Drainage Sewer</b>	
Drawing Number	11657
Size / Shape	600 mm Circular
Material Type	Concrete
Total Length	77.4 m
Maximum Sewer Depth to Invert	4.46 m
Design Condition	Fully Deteriorated Ovality 8%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH60011275 (m)	
11.0	Remove encrustation from pipe joint from 10:00 to 2:00
18.7	Remove encrustation from pipe joint from 8:00 to 4:00
18.8 - 24.1	Remove encrustation from pipe wall from 5:00 to 7:00
22.6	Remove encrustation from pipe joint from 12:00 to 2:00
24.4	Remove encrustation from pipe joint from 12:00 to 3:00
26.2	Remove encrustation from pipe joint from 10:00 to 12:00
34.0	Remove encrustation from pipe joint from 7:00 to 5:00
37.7	Remove encrustation from pipe joint from 7:00 to 5:00
41.5	Remove encrustation from pipe joint from 8:00 to 4:00
45.5 - 49.6	Remove encrustation from pipe wall from 5:00 to 7:00
51.3 - 60.1	Remove encrustation from pipe wall from 5:00 to 7:00
62.4	Remove encrustation from pipe joint from 8:00 to 4:00
68.2	Remove encrustation from pipe joint from 8:00 to 4:00
72.0	Remove encrustation from pipe joint from 8:00 to 4:00

<b>Riverwood Av (Asset No. MA60013231) 1st MH E of Point Rd (MH60011374) to MH at Netley St (MH60011405)</b>	
<b>Wastewater Sewer</b>	
Drawing Number	11658
Size / Shape	675 mm Circular
Material Type	Vitrified Clay
Total Length	105.8 m
Maximum Sewer Depth to Invert	7.07 m
Design Condition	Fully Deteriorated Ovality 10%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH60011374 (m)	
1.9 - 2.7	Remove encrustation from pipe wall at 4:00
2.9	Remove encrustation from pipe wall from 1:00 to 5:00
3.8	Remove intruding service at 12:00
3.8	Remove encrustation from pipe wall from 8:00 to 11:00
6.3 - 14.0	Remove encrustation from pipe wall at 4:00 and 8:00
15.1	Remove encrustation from pipe wall at 5:00
15.6	Remove encrustation from pipe joint at 10:00
16.7 - 31.5	Remove encrustation from pipe wall at 4:00 and 8:00
25.4 - 31.8	Remove grease from pipe wall at 2:00 and 10:00

31.0	Remove roots from pipe joint at 4:00
31.7	Remove roots from pipe joint from 7:00 to 5:00
32.4	Remove roots from pipe joint from 7:00 to 5:00
33.2	Remove roots from pipe joint from 7:00 to 5:00
34.1	Remove roots from pipe joint from 7:00 to 5:00
37.8	Remove roots from pipe joint from 7:00 to 5:00
38.5	Remove roots from pipe joint from 7:00 to 5:00
39.3	Remove roots from pipe joint from 7:00 to 5:00
40.1	Remove roots from pipe joint from 7:00 to 5:00
40.8	Remove roots from pipe joint from 7:00 to 5:00
41.6	Remove roots from pipe joint from 7:00 to 5:00
42.3	Remove roots from pipe joint from 7:00 to 5:00
43.0	Remove roots from pipe joint from 7:00 to 5:00
44.6	Remove roots from pipe joint from 7:00 to 5:00
45.3 - 51.4	External Point Repair (To Be Done By Others)
52.1	Remove roots from pipe joint from 7:00 to 5:00
53.0	Remove roots from pipe joint from 7:00 to 5:00
53.7	Remove roots from pipe joint from 7:00 to 5:00
54.4	Remove roots from pipe joint from 7:00 to 5:00
55.2 - 67.4	External Point Repair (To Be Done By Others)
67.4	Remove roots from pipe joint from 7:00 to 5:00
68.3	Remove roots from pipe joint from 7:00 to 5:00
69.8	Remove roots from pipe joint at 8:00
70.5	Remove roots from pipe joint from 7:00 to 12:00
77.1	Remove encrustation from pipe wall at 7:00
83.1	Remove encrustation from pipe wall at 7:00
86.3	Remove encrustation from pipe wall at 7:00
87.6	Remove encrustation from pipe wall at 7:00
90.3	Remove encrustation from pipe wall from 1:00 to 4:00
91.3	Remove encrustation from pipe wall from 7:00 to 10:00
96.6 - 103.1	Remove encrustation from pipe wall at 4:00 and 8:00
104.2	Remove protruding concrete from abandoned connection from 7:00 to 11:00
	Remove Weir in MH60011405, reinstall weir after liner installation

<b>Wildewood Golf Course (Asset No. MA60013259)</b>	<b>MH at Netley St (MH60011405) to 1st MH E of Netley St (MH70061635)</b>
<b>Wastewater Sewer</b>	
Drawing Number	11659
Size / Shape	675 mm Circular
Material Type	Vitrified Clay
Total Length	133.0 m
Maximum Sewer Depth to Invert	7.06 m
Design Condition	Fully Deteriorated Ovality 15%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH70061635 (m)	
	<b>Note: all distances are from downstream MH</b>
19.8 - 20.1	Remove encrustation from pipe wall at 4:00
20.6	Remove encrustation from pipe joint at 4:00
22.9	Remove encrustation from pipe wall at 4:00
24.5	Remove encrustation from pipe joint at 4:00

25.2	Remove encrustation from pipe joint at 4:00
25.9	Remove encrustation from pipe joint from 1:00 to 5:00
28.2	Remove encrustation from pipe joint at 4:00
30.6	Remove encrustation from pipe joint at 4:00
32.1	Remove encrustation from pipe joint at 4:00
32.7 - 32.9	Remove encrustation from pipe wall from 3:00 to 5:00
33.6	Remove encrustation from pipe joint at 4:00
35.2	Remove encrustation from pipe joint at 4:00
36.0	Remove encrustation from pipe joint at 4:00
36.7	Remove encrustation from pipe joint at 4:00
37.4 - 42.3	Remove encrustation from pipe wall at 4:00 and 8:00
42.8 - 45.8	Remove encrustation from pipe wall at 4:00
47.5	Remove encrustation from pipe wall at 4:00
48.3	Remove encrustation from pipe joint from 7:00 to 5:00
49.0	Remove encrustation from pipe joint at 4:00
53.6 - 56.3	Remove encrustation from pipe wall from 2:00 to 5:00
63.7 - 64.3	Remove encrustation from pipe wall from 2:00 to 4:00
80.0 - 82.3	Remove encrustation from pipe wall from 2:00 to 4:00
83.5 - 83.7	Remove encrustation from pipe wall at 9:00
84.2 - 84.5	Remove encrustation from pipe wall at 9:00
87.5 - 89.2	Remove encrustation from pipe wall from 1:00 to 5:00
99.9	Remove encrustation from pipe joint at 3:00
101.5	Remove encrustation from pipe wall at 5:00
103.4 - 104.1	Remove root mass from pipe wall from 7:00 to 10:00
115.3	Remove hanging gasket from joint
121.7 - 123.7	Remove encrustation from pipe wall at 8:00
131.2	Remove encrustation from pipe wall at 5:00
132.5	Remove Weir in MH60011405, reinstall weir after liner installation

<b>Wildewood Golf Course (Asset No. MA70125893)</b>	<b>1st MH E of Netley St (MH70061635) to 2nd MH E of Netley St (MH60011407)</b>
<b>Wastewater Sewer</b>	
Drawing Number	11659
Size / Shape	675 mm Circular
Material Type	Vitrified Clay
Total Length	126.2 m
Maximum Sewer Depth to Invert	4.76 m
Design Condition	Fully Deteriorated Ovality 12%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH70061635 (m)	
2.7	Remove object from invert of sewer
4.5	Remove encrustation from pipe joint at 10:00
5.2	Remove encrustation from pipe joint at 9:00
5.7 - 8.4	Remove debris from pipe wall at 5:00 and 7:00
9.0	Remove encrustation from pipe joint at 9:00
10.5	Remove encrustation from pipe joint at 9:00
11.2	Remove encrustation from pipe joint at 2:00
12.1 - 12.6	Remove encrustation from pipe wall at 9:00

13.0 - 18.8	Remove encrustation from pipe wall from 8:00 to 4:00
19.0	Remove roots from pipe joint at 12:00
19.0 - 22.8	Remove encrustation from pipe wall at 4:00 and 8:00
21.3	Remove roots from pipe joint from 11:00 to 1:00
22.8	Remove encrustation from pipe joint from 8:00 to 11:00
23.2 - 25.9	Remove encrustation from pipe wall at 8:00
23.6	Remove encrustation from pipe joint from 8:00 to 4:00
24.4	Remove encrustation from pipe joint from 8:00 to 4:00
26.7	Remove roots from pipe joint at 4:00
27.5	Remove encrustation from pipe joint from 8:00 to 4:00
29.0	Remove encrustation from pipe joint from 8:00 to 4:00
29.7	Remove encrustation from pipe joint from 8:00 to 4:00
30.5	Remove encrustation from pipe joint from 8:00 to 4:00
32.0	Remove encrustation from pipe joint from 8:00 to 4:00
32.4 - 33.6	Remove encrustation from pipe wall at 4:00
32.8	Remove encrustation from pipe joint from 8:00 to 4:00
34.4	Remove roots from pipe joint at 3:00
35.9	Remove encrustation from pipe joint from 9:00 to 3:00
36.7	Remove encrustation from pipe joint from 9:00 to 3:00
37.5	Remove encrustation from pipe joint from 9:00 to 4:00
38.3	Remove encrustation from pipe joint from 9:00 to 4:00
39.1	Remove encrustation from pipe joint from 9:00 to 4:00
39.8	Remove encrustation from pipe joint from 9:00 to 4:00
40.6	Remove encrustation from pipe joint from 9:00 to 4:00
41.3	Remove encrustation from pipe joint from 9:00 to 4:00
41.8 - 43.6	Remove encrustation from pipe wall at 8:00 and 4:00
42.2	Remove encrustation from pipe joint from 9:00 to 4:00
44.5	Remove encrustation from pipe joint from 9:00 to 4:00
44.6 - 45.1	Remove encrustation from pipe wall at 9:00 and 2:00
45.2	Remove encrustation from pipe joint from 8:00 to 4:00
46.0	Remove encrustation from pipe joint from 8:00 to 4:00
46.7	Remove encrustation from pipe joint from 9:00 to 4:00
47.6	Remove encrustation from pipe joint from 8:00 to 4:00
48.3	Remove encrustation from pipe joint from 8:00 to 4:00
48.6 - 49.6	Remove encrustation from pipe wall at 8:00 and 4:00
49.2	Remove encrustation from pipe joint from 8:00 to 4:00
49.9	Remove encrustation from pipe wall at 2:00 and 4:00
50.6	Remove encrustation from pipe joint from 8:00 to 4:00
51.3	Remove encrustation from pipe joint from 9:00 to 3:00
52.1	Remove encrustation from pipe joint from 9:00 to 3:00
53.0	Remove encrustation from pipe joint from 9:00 to 3:00
53.7	Remove encrustation from pipe joint from 9:00 to 3:00
55.3	Remove encrustation from pipe joint from 8:00 to 4:00
56.1	Remove encrustation from pipe joint from 8:00 to 2:00
56.8	Remove encrustation from pipe joint from 9:00 to 3:00
57.5	Remove encrustation from pipe joint from 8:00 to 4:00
58.3	Remove encrustation from pipe joint from 8:00 to 4:00
59.1	Remove encrustation from pipe joint from 8:00 to 4:00
59.9	Remove encrustation from pipe joint from 8:00 to 4:00
60.6	Remove encrustation from pipe joint from 8:00 to 4:00
61.4	Remove encrustation from pipe joint from 9:00 to 3:00
62.2	Remove encrustation from pipe joint from 8:00 to 4:00
63.0	Remove encrustation from pipe joint from 8:00 to 4:00
63.7	Remove encrustation from pipe joint from 8:00 to 4:00
64.5	Remove encrustation from pipe joint from 8:00 to 4:00

65.3	Remove encrustation from pipe joint from 8:00 to 4:00
66.9	Remove encrustation from pipe joint from 9:00 to 3:00
68.4	Remove encrustation from pipe joint from 10:00 to 3:00
69.1	Remove encrustation from pipe joint from 9:00 to 3:00
70.0	Remove encrustation from pipe joint at 9:00
71.5	Remove encrustation from pipe joint at 3:00
72.2	Remove encrustation from pipe joint from 8:00 to 10:00
73.0	Remove encrustation from pipe joint from 9:00 to 3:00
73.2 - 73.8	Remove encrustation from pipe wall from 8:00 to 4:00
73.9	Remove encrustation from pipe wall from 9:00 to 3:00
74.6	Remove encrustation from pipe joint at 9:00
75.4	Remove encrustation from pipe joint at 9:00
76.1	Remove encrustation from pipe joint at 9:00 and 3:00
77.0	Remove encrustation from pipe joint from 8:00 to 4:00
77.7	Remove encrustation from pipe joint from 8:00 to 4:00
78.5	Remove encrustation from pipe joint from 1:00 to 5:00
79.3	Remove encrustation from pipe joint from 9:00 to 3:00
80.0	Remove encrustation from pipe joint from 9:00 to 12:00
80.8	Remove encrustation from pipe joint from 9:00 to 3:00
81.5	Remove encrustation from pipe joint at 3:00
82.4	Remove encrustation from pipe joint at 3:00
83.1	Remove encrustation from pipe joint from 8:00 to 4:00
83.8	Remove encrustation from pipe joint from 9:00 to 3:00
84.7	Remove encrustation from pipe joint from 8:00 to 4:00
85.4	Remove encrustation from pipe joint from 8:00 to 4:00
86.2	Remove encrustation from pipe joint from 8:00 to 4:00
87.0	Remove encrustation from pipe joint at 10:00
87.7	Remove encrustation from pipe joint at 10:00
88.6	Remove encrustation from pipe joint at 9:00
89.5	Remove encrustation from pipe joint at 9:00 and 3:00
90.3	Remove encrustation from pipe joint at 9:00 and 3:00
90.9	Remove encrustation from pipe joint at 9:00 and 3:00
91.7	Remove encrustation from pipe joint at 9:00 and 3:00
92.5	Remove encrustation from pipe joint at 9:00 and 3:00
93.2	Remove encrustation from pipe joint at 9:00
94.0	Remove encrustation from pipe joint from 8:00 to 10:00
97.2	Remove encrustation from pipe joint from 1:00 to 3:00
98.7	Remove encrustation from pipe joint at 3:00
125.9	Remove bricks and concrete at pipe/manhole interface

<b>Wildwood Golf Course (Asset No. MA60013260)</b>		<b>2nd MH E of Netley St (MH60011407) to 3rd MH N of Oakenwald Av (MH60011408)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11659		
Size / Shape	675 mm Circular		
Material Type	Vitrified Clay		
Total Length	10.0 m		
Maximum Sewer Depth to Invert	4.63 m		
Design Condition	Fully Deteriorated Ovality 13%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60011408 (m)			
	<b>Note: all distances are from downstream MH</b>		
0.0	<b>Note: Sluice gate in MH60011408, remove for liner installation and dispose of materials, no re-installation required</b>		
3.2	Remove encrustation from pipe joint from 3:00 to 5:00		
3.9	Remove encrustation from pipe joint at 5:00 and 7:00		
9.8 - 10.0	Patch invert of pipe at manhole interface		

<b>Wildwood Street (Asset No. MA70021243)</b>		<b>MH at Oakenwald Av (N PL) (MH60011451) to 1st MH N of Oakenwald Av (MH70007770)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11660		
Size / Shape	500 mm Circular		
Material Type	Vitrified Clay		
Total Length	8.8 m		
Maximum Sewer Depth to Invert	6.91 m		
Design Condition	Fully Deteriorated Ovality 8%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60011451 (m)			
	<b>Note: Sewer is 30-35% full in tender video</b>		
	<b>Note: there is a reduction in the size of the MH stack at 2.5m in MH60011451</b>		
1.9	Remove encrustation from pipe joint from 2:00 to 4:00		
2.6	Remove encrustation from pipe joint from 2:00 to 5:00		
4.2	Remove encrustation from pipe joint from 2:00 to 5:00		
4.9	Remove encrustation from pipe wall from 1:00 to 3:00		
5.1	Remove encrustation from pipe joint from 7:00 to 9:00		
5.4 - 5.6	Remove encrustation from pipe wall from 7:00 to 11:00		
5.8	Remove encrustation from pipe joint at 8:00 and 4:00		
6.6	Remove encrustation from pipe joint from 8:00 to 4:00		
8.9	Weir and concrete in MH70007770 to be removed and replaced		
	<b>Note: there is a reduction in the size of the MH stack at 4.5m in MH70007770</b>		

<b>Wildewood Golf Course (Asset No. MA70021244)</b>		<b>3rd MH N of Oakenwald Av (MH60011451) to 2nd MH N of Oakenwald Av (MH60011408)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11660		
Size / Shape	525 mm Circular		
Material Type	Vitrified Clay		
Total Length	87.7 m		
Maximum Sewer Depth to Invert	7.11 m		
Design Condition	Fully Deteriorated Ovality 10%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60011408 (m)			
	<b>Note: Sluice gate in MH60011408, remove for liner installation and dispose of materials, no re-installation required</b>		
	<b>Note: all distances are from downstream MH</b>		
0.0	Remove bricks at pipe/manhole interface at 8:00		
5.8 - 6.5	Remove encrustation from pipe wall at 7:00		
10.3	Remove encrustation from pipe joint from 7:00 to 5:00		
11.2	Remove encrustation from pipe joint from 3:00 to 5:00		
11.9 - 12.3	Remove encrustation from pipe wall from 4:00 to 9:00		
12.7	Remove encrustation from pipe joint from 7:00 to 5:00		
14.2	Remove encrustation from pipe joint from 7:00 to 5:00		
15.9	Remove encrustation from pipe joint from 7:00 to 5:00		
17.4	Remove encrustation from pipe joint from 3:00 to 6:00		
18.2	Remove encrustation from pipe joint from 3:00 to 7:00		
19.0	Remove encrustation from pipe joint from 3:00 to 8:00		
19.7	Remove encrustation from pipe wall at 7:00		
20.5 - 21.0	Remove encrustation from pipe wall from 3:00 to 9:00		
21.4	Remove encrustation from pipe joint from 8:00 to 10:00		
22.0 - 22.2	Remove encrustation from pipe wall at 5:00		
22.2	Remove encrustation from pipe joint from 1:00 to 4:00		
23.7	Remove encrustation from pipe joint from 7:00 to 4:00		
24.5	Remove encrustation from pipe joint from 7:00 to 4:00		
25.2	Remove encrustation from pipe joint at 8:00		
26.0	Remove encrustation from pipe joint at 4:00		
27.6	Remove encrustation from pipe joint from 7:00 to 10:00		
28.4	Remove encrustation from pipe joint from 7:00 to 4:00		
29.9	Remove encrustation from pipe joint from 7:00 to 5:00		
31.5	Remove encrustation from pipe joint from 3:00 to 10:00		
32.2	Remove encrustation from pipe joint from 7:00 to 5:00		
33.0	Remove encrustation from pipe joint from 7:00 to 5:00		
33.8	Remove encrustation from pipe joint from 7:00 to 10:00		
38.5	Remove encrustation from pipe joint at 4:00		
39.8	Remove encrustation from pipe joint from 2:00 to 10:00		
41.6	Remove encrustation from pipe joint from 7:00 to 5:00		
43.3	Remove encrustation from pipe joint from 7:00 to 11:00		
44.0	Remove encrustation from pipe joint from 7:00 to 4:00		
44.8	Remove encrustation from pipe joint from 7:00 to 5:00		
45.6	Remove encrustation from pipe joint from 7:00 to 5:00		
46.4	Remove encrustation from pipe joint 7:00		
48.0	Remove encrustation from pipe joint from 7:00 to 5:00		
48.8	Remove encrustation from pipe joint from 7:00 to 5:00		
49.6	Remove encrustation from pipe joint from 2:00 to 5:00		
50.3	Remove encrustation from pipe joint from 9:00 to 5:00		
51.2	Remove encrustation from pipe joint from 3:00 to 5:00		
53.6	Remove encrustation from pipe joint from 2:00 to 5:00		

55.2	Remove encrustation from pipe joint from 7:00 to 5:00
56.8	Remove encrustation from pipe joint from 7:00 to 11:00
57.6	Remove encrustation from pipe joint from 7:00 to 11:00
58.4	Remove encrustation from pipe joint from 8:00 to 4:00
62.3	Remove encrustation from pipe wall at 5:00
63.2	Remove encrustation from pipe joint 3:00
65.5	Remove encrustation from pipe joint 6:00
75.0	Remove encrustation from pipe joint 3:00
75.8	Remove encrustation from pipe joint 8:00
78.2	Remove encrustation from pipe joint 8:00
78.9	Remove encrustation from pipe joint 9:00
81.2 - 82.3	Remove encrustation from pipe wall from 8:00 to 4:00
82.9	Remove encrustation from pipe joint 9:00
85.9 - 87.1	Remove encrustation from pipe wall from 5:00 to 7:00
87.1	Weir and concrete in MH70007770 to be removed and replaced

<b>Wildewood Golf Course (Asset No. MA70125895)</b>		<b>1st MH S of North Dr (MH70061636) to MH at North Dr (N PL) (MH60018620)</b>
<b>Wastewater Sewer</b>		
Drawing Number		11661
Size / Shape		750 mm Circular
Material Type		Vitrified Clay
Total Length		122.2 m
Maximum Sewer Depth to Invert		4.52 m
Design Condition		Fully Deteriorated Ovality 15%
<b>Site Specific Repairs</b>		
<b>Location</b>	<b>Action Required</b>	
Distance From MH70061636 (m)		
2.2	Remove encrustation from pipe joint at 8:00	
3.1	Remove encrustation from pipe joint at 9:00	
3.7	Remove encrustation from pipe joint at 9:00	
4.3	Remove encrustation from pipe wall at 4:00	
4.5	Remove encrustation from pipe joint at 9:00	
4.9 - 13.7	Remove encrustation from pipe wall 8:00 and 4:00	
14.6	Remove encrustation from pipe joint from 7:00 to 5:00	
15.3	Remove encrustation from pipe joint from 9:00 to 12:00	
16.1	Remove encrustation from pipe joint from 8:00 to 4:00	
16.9	Remove encrustation from pipe joint from 8:00 to 4:00	
17.7	Remove encrustation from pipe joint from 8:00 to 4:00	
18.5	Remove encrustation from pipe joint from 8:00 to 11:00	
19.2	Remove encrustation from pipe joint from 9:00 to 5:00	
19.7 - 46.4	Remove encrustation from pipe wall at 9:00 and 4:00	
47.2 - 47.8	Remove encrustation from pipe wall at 3:00	
47.9	Remove encrustation from pipe joint at 8:00	
49.4 - 59.5	Remove encrustation from pipe wall at 8:00 and 4:00	
60.2	Remove encrustation from pipe joint at 8:00	
60.9	Remove encrustation from pipe joint at 8:00	
61.8 - 63.7	Remove encrustation from pipe wall at 8:00 and 4:00	
54.2 - 70.7	Remove encrustation from pipe wall at 9:00 and 3:00	
73.4 - 101.4	Remove encrustation from pipe wall from 3:00 to 9:00	
111.0	Remove roots from pipe joint	
114.9	Remove encrustation from pipe joint at 11:00	
117.5 - 118.2	Remove encrustation from pipe wall at 12:00	

<b>Wildewood Golf Course (Asset No. MA60021820)</b>		<b>2nd MH S of North Dr (MH60011408) to 1st MH S of North Dr (MH70061636)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11661		
Size / Shape	750 mm Circular		
Material Type	Vitrified Clay		
Total Length	89.2 m		
Maximum Sewer Depth to Invert	4.69 m		
Design Condition	Fully Deteriorated Ovality 15%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH60011408 (m)			
	<b>Note: Sluice gate in MH60011408, remove for liner installation and dispose of materials, no re-installation required</b>		
34.9	Remove encrustation from pipe joint at 4:00		
35.6	Remove encrustation from pipe joint at 4:00		
36.8 - 38.9	Remove encrustation from pipe wall at 4:00		
38.1	Remove encrustation from pipe joint at 9:00		
40.7 - 42.1	Remove encrustation from pipe wall at 4:00		
45.7 - 50.2	Remove encrustation from pipe wall at 8:00 and 4:00		
53.6 - 57.1	Remove encrustation from pipe wall at 8:00 and 4:00		
58.3	Remove encrustation from pipe joint from 2:00 to 5:00		
59.1	Remove encrustation from pipe joint from 2:00 to 5:00		
59.9	Remove encrustation from pipe joint at 3:00		
62.9	Remove encrustation from pipe joint at 8:00		
63.7	Remove encrustation from pipe joint at 8:00		
63.9	Remove encrustation from pipe wall at 4:00		
64.3	Remove encrustation from pipe wall at 4:00		
65.3	Remove encrustation from pipe joint at 8:00 and 4:00		
66.1	Remove encrustation from pipe joint at 9:00 and 3:00		
66.9	Remove encrustation from pipe joint from 8:00 to 10:00		
67.7	Remove encrustation from pipe joint from 8:00 to 4:00		
68.5	Remove encrustation from pipe joint from 8:00 to 4:00		
69.3	Remove encrustation from pipe joint from 8:00 to 4:00		
69.5 - 71.9	Remove encrustation from pipe wall from 8:00 and 4:00		
72.3	Remove encrustation from pipe joint from 8:00 to 4:00		
73.0	Remove encrustation from pipe joint from 8:00 to 10:00		
73.8	Remove encrustation from pipe joint from 8:00 to 4:00		
74.1 - 81.6	Remove encrustation from pipe wall from 8:00 and 4:00		
82.5	Remove encrustation from pipe joint at 4:00		

<b>La Verendrye St (Asset No. MA70028293)</b>	<b>MH at Tache Av (E of CL) (MH50003874) to MH at Tache Av (W of CL) (MH70010257)</b>
<b>Combined Sewer</b>	
Drawing Number	11662
Size / Shape	850 mm Circular
Material Type	Wood
Total Length	8.6 m
Maximum Sewer Depth to Invert	6.80 m
Design Condition	Unknown at this time - to be determined once re-inspected
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH50003874 (m)	
	Note: Ice was present during the video inspection so some defects may be hidden
0.0 - 8.6	Clean and complete Preliminary CCTV Inspection and provide DVD to Contract Administrator
7.1 - MH70010257	Flow monitoring equipment to be removed prior to any sewer preparation or lining work
	Note: Weir in MH70010257
	Note: Sluice gate in MH70010257 to be removed and replaced

<b>La Verendrye St (Asset No. MA70017668)</b>	<b>MH at Tache Av (CL) (MH70010257) to 1st MH W of Tache Av (CL) (MH50004115)</b>
<b>Combined Sewer</b>	
Drawing Number	11662
Size / Shape	850 mm Circular
Material Type	Wood
Total Length	44.6 m
Maximum Sewer Depth to Invert	7.62 m
Design Condition	Partially Deteriorated Ovality 8%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH70010257 (m)	
	Note: Weir in MH70010257
2.7 - 3.3	Remove encrustation from pipe wall from 8:00 to 4:00
6.8 - 7.3	Remove encrustation from pipe wall from 8:00 to 4:00
9.7	Remove encrustation from pipe wall at 5:00
18.2	Remove encrustation from pipe wall at 5:00
18.8	Remove broken pipe piece at 4:00
28.0	Remove broken pipe piece at 8:00
28.3	Remove broken pipe piece at 3:00
34.9	Remove broken pipe piece at 9:00
39.7	Remove broken pipe piece at 9:00
41.4	Remove broken pipe piece at 4:00
43.6	Diameter and material type change
	Install a taper prior to lining using grout at pipe / manhole interface
44.0	Concrete block in manhole base covers end of sewer from 1:00 to 5:00
MA50004115	Flow monitoring equipment to be removed prior to any sewer preparation or lining work

<b>Tee at Elmwood Rd (TE70030647) to 1st MH S of Elmwood Rd (MH50012170)</b>	
<b>Archibald St (Asset No. MA50018054) Secondary Interceptor</b>	
Drawing Number	11663
Size / Shape	600 mm Circular
Material Type	Concrete/Brick
Total Length	195.5 m
Maximum Sewer Depth to Invert	8.34 m
Design Condition	Partially Deteriorated Ovality 7%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From TE70030647 (m)	
	Note: Water level at 40% in tender video
1.2 - 1.6	Remove encrustation from pipe wall at 8:00
2.4 - 3.5	Remove encrustation from pipe wall at 7:00
6.4	Remove encrustation from pipe wall from 7:00 to 12:00
7.0	Remove encrustation from pipe wall from 7:00 to 11:00
9.1	Remove encrustation from pipe wall from 1:00 to 4:00
9.7	Remove encrustation from pipe wall from 8:00 to 10:00
11.4	Remove encrustation from pipe wall at 2:00
15.3 - 17.7	Remove grease from pipe wall from 11:00 to 1:00
20.5 - 29.4	Remove grease from pipe wall from 10:00 to 2:00
29.9	Remove encrustation from pipe wall from 1:00 to 5:00
31.7	Material type changes from concrete to brick
54.3	Material type changes from brick to concrete
55.2 - 189.5	Remove grease from pipe wall from 8:00 to 4:00
124.7 - 125.1	Remove encrustation from pipe wall from 2:00 to 5:00
135.4 - 137.4	Remove encrustation from pipe wall from 7:00 to 5:00
141.9	Remove encrustation from pipe wall from 1:00 to 5:00
143.4	Remove encrustation from pipe wall from 7:00 to 5:00
151.1	Remove encrustation from pipe wall at 10:00
165.2	Remove encrustation from pipe wall from 7:00 to 10:00
169.1	Significant downward drop in sewer (possible hole)
169.5	Remove encrustation from pipe wall at 7:00
188.3	Remove encrustation from pipe wall from 1:00 to 4:00
191.7 - 193.1	Remove grease from pipe wall from 2:00 to 4:00
193.8	Remove encrustation from pipe wall from 2:00 to 4:00
194.7	Dimension change at MH50012170
194.7	Remove hose from sewer
	Note: Removal of sluice gate and concrete in MH50012170 required prior to lining. Open concrete at pipe / MH interface to allow installation of liner

<b>Cottonwood Rd (Asset No. MA70020213)</b>		<b>MH at Cottonwood Rd (MH50004812) to Pump Station at Cottonwood Rd (PS00000293)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11664		
Size / Shape	600 mm Circular		
Material Type	Concrete		
Total Length	12.6 m		
Maximum Sewer Depth to Invert	7.76 m		
Design Condition	Partially Deteriorated Ovality 5%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH50004812 (m)			
0.0 - 5.6	Remove encrustation from pipe wall at 7:00 and 5:00		
0.2 - 11.8	Remove debris from invert of pipe		
6.8	Remove encrustation from pipe joint from 1:00 to 5:00		
8.1	Remove encrustation from pipe joint from 3:00 to 5:00		
8.1	Bend in sewer		
8.1 - 10.6	Patch invert of pipe (to make pipe circular)		
9.3	Bend in sewer		
11.2	Bend in sewer		
11.6	Confirm dimension at pump station wet well		
11.8	Thimble in pump station wet well can be left in place and lined through		

<b>Lagimodiere BV (Asset No. MA50003580)</b>		<b>MH at Fermor Av (N PL) (MH50003080) to 1st MH S of Fermor Av (MH50003081)</b>	
<b>Wastewater Sewer</b>			
Drawing Number	11665		
Size / Shape	750 mm Circular		
Material Type	Concrete		
Total Length	117.6 m		
Maximum Sewer Depth to Invert	6.68 m		
Design Condition	Fully Deteriorated Ovality 8%		
<b>Site Specific Repairs</b>			
<b>Location</b>	<b>Action Required</b>		
Distance From MH50003080 (m)			
	Note: A large amount of debris (soil) was present for the pre-tender video		
0.3	Remove encrustation from pipe joint from 7:00 to 11:00		
1.0 - 42.1	Remove encrustation from pipe wall from 7:00 to 5:00		
5.7	Remove encrustation from pipe joint from 8:00 to 4:00		
16.4	Remove encrustation from pipe joint from 7:00 to 5:00		
29.3	Remove encrustation from pipe joint from 2:00 to 5:00		
36.5	Remove encrustation from pipe joint from 7:00 to 5:00		
38.7	Remove encrustation from pipe joint from 7:00 to 5:00		
41.2 - 43.1	Remove grease from pipe wall from 10:00 to 2:00		
43.9	Remove encrustation from pipe joint from 2:00 to 5:00		
52.1	Remove encrustation from pipe joint from 2:00 to 5:00		
53.5	Remove encrustation from pipe joint from 7:00 to 10:00		

54.9 - 60.0	Remove grease from pipe wall at 4:00 to 8:00
58.9 - 59.9	Remove grease from pipe wall from 10:00 to 2:00
60.0	Remove encrustation from pipe joint from 7:00 to 10:00
63.0 - 66.7	Remove grease from pipe wall from 10:00 to 2:00
65.5	Remove encrustation from pipe joint from 7:00 to 5:00
60.4 - 85.4	Remove encrustation from pipe wall from 7:00 to 5:00
82.4	Remove encrustation from pipe joint from 7:00 to 5:00
88.6 - 117.6	Remove encrustation from pipe wall from 1:00 to 5:00
102.5	Remove encrustation from pipe joint from 7:00 to 5:00

<b>1st MH W of Southhampton PI (MH40008840) to 2nd MH W of Kildare Av E (Asset No. MA40009751) Southhampton PI (MH40008842) Wastewater Sewer</b>	
Drawing Number	11666
Size / Shape	600 mm Circular
Material Type	Concrete
Total Length	122.5 m
Maximum Sewer Depth to Invert	5.68 m
Design Condition	Partially Deteriorated Ovality 7%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH40008840 (m)	
3.7 - 5.6	Remove encrustation from pipe wall from 8:00 to 4:00
5.7	Remove intruding service at 1:00
6.2 - 9.0	Remove encrustation from pipe wall from 8:00 to 4:00
10.1 - 21.1	Remove encrustation from pipe wall from 8:00 to 4:00
21.2	Remove encrustation from pipe joint from 9:00 to 11:00
22.2	Remove encrustation from pipe joint from 9:00 to 11:00
22.3 - 52.0	Remove encrustation from pipe wall at 8:00 and 4:00
28.5	Remove encrustation from pipe joint from 8:00 to 4:00
38.3	Remove encrustation from pipe joint from 1:00 to 4:00
53.4 - 63.1	Remove encrustation from pipe wall at 8:00 and 4:00
64.5 - 67.0	Remove encrustation from pipe wall at 8:00 and 4:00
68.4 - 73.2	Remove encrustation from pipe wall at 8:00 and 4:00
74.7 - 75.3	Remove grease from pipe wall at 2:00
73.2 - 83.0	Remove encrustation from pipe wall from 3:00 to 9:00
84.2 - 97.8	Remove encrustation from pipe wall from 3:00 to 9:00
98.8 - 112.5	Remove encrustation from pipe wall from 3:00 to 9:00
113.3 - 122.1	Remove encrustation from pipe wall from 3:00 to 9:00

<b>2nd MH W of Southhampton PI (MH40008842) to MH at Wayota St (MH40008815)</b>	
<b>Kildare Av E (Asset No. MA40009718) Wastewater Sewer</b>	
Drawing Number	11666
Size / Shape	600 mm Circular
Material Type	Concrete
Total Length	124.0 m
Maximum Sewer Depth to Invert	5.46 m
Design Condition	Partially Deteriorated Ovality 5%
<b>Site Specific Repairs</b>	
<b>Location</b>	<b>Action Required</b>
Distance From MH40008842 (m)	
0.6 - 21.8	Remove encrustation from pipe wall at 8:00 and 4:00
22.3 - 36.6	Remove encrustation from pipe wall at 8:00 and 4:00
37.3 - 52.4	Remove encrustation from pipe wall at 8:00 and 4:00
53.7 - 67.3	Remove encrustation from pipe wall at 8:00 and 4:00
68.9 - 71.9	Remove encrustation from pipe wall at 8:00 and 4:00
71.9 - 107.6	Remove encrustation from pipe wall at 9:00 and 3:00
73.2 - 74.4	Remove grease from pipe wall at 10:00
75.1 - 75.5	Remove grease from pipe wall at 2:00
83.0 - 84.4	Remove grease from pipe wall from 10:00 to 2:00
87.9 - 88.5	Remove grease from pipe wall at 2:00
89.6 - 90.3	Remove grease from pipe wall at 10:00
98.5 - 100.3	Remove grease from pipe wall from 10:00 to 2:00
107.6 - 123.6	Remove encrustation from pipe wall at 8:00 and 4:00
121.0	Remove encrustation from pipe joint at 8:00