

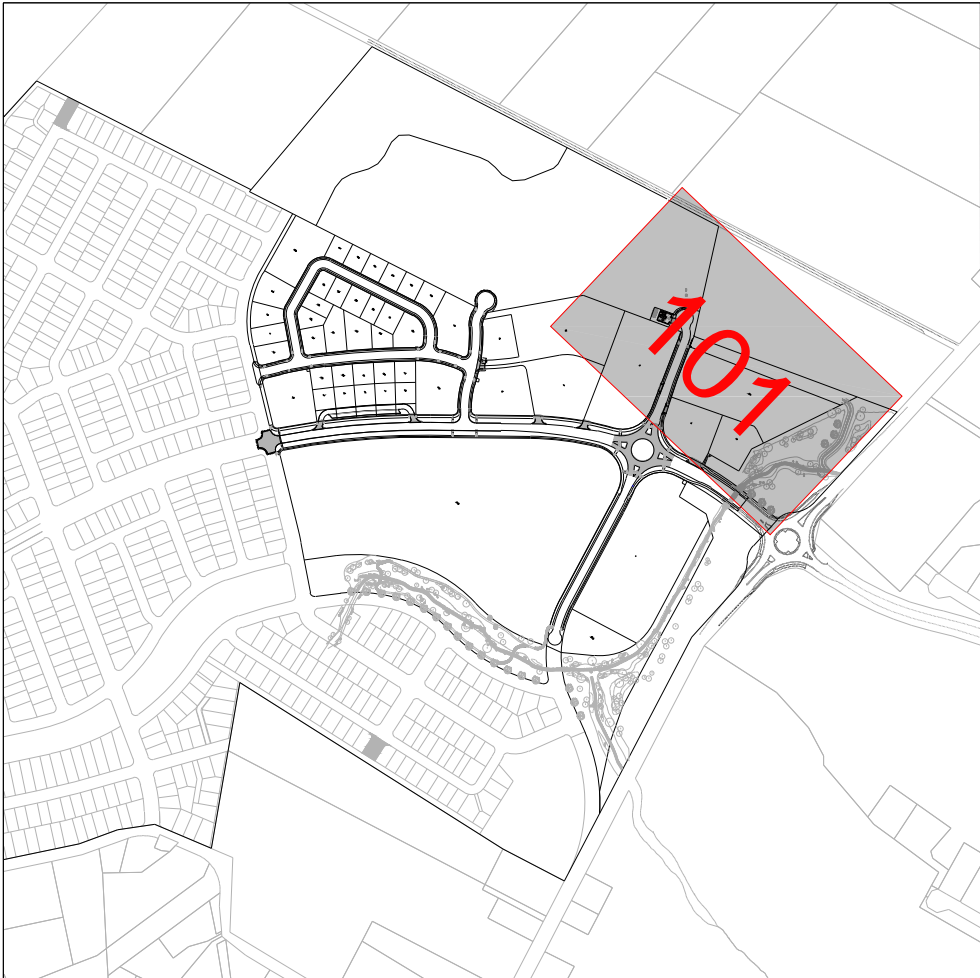
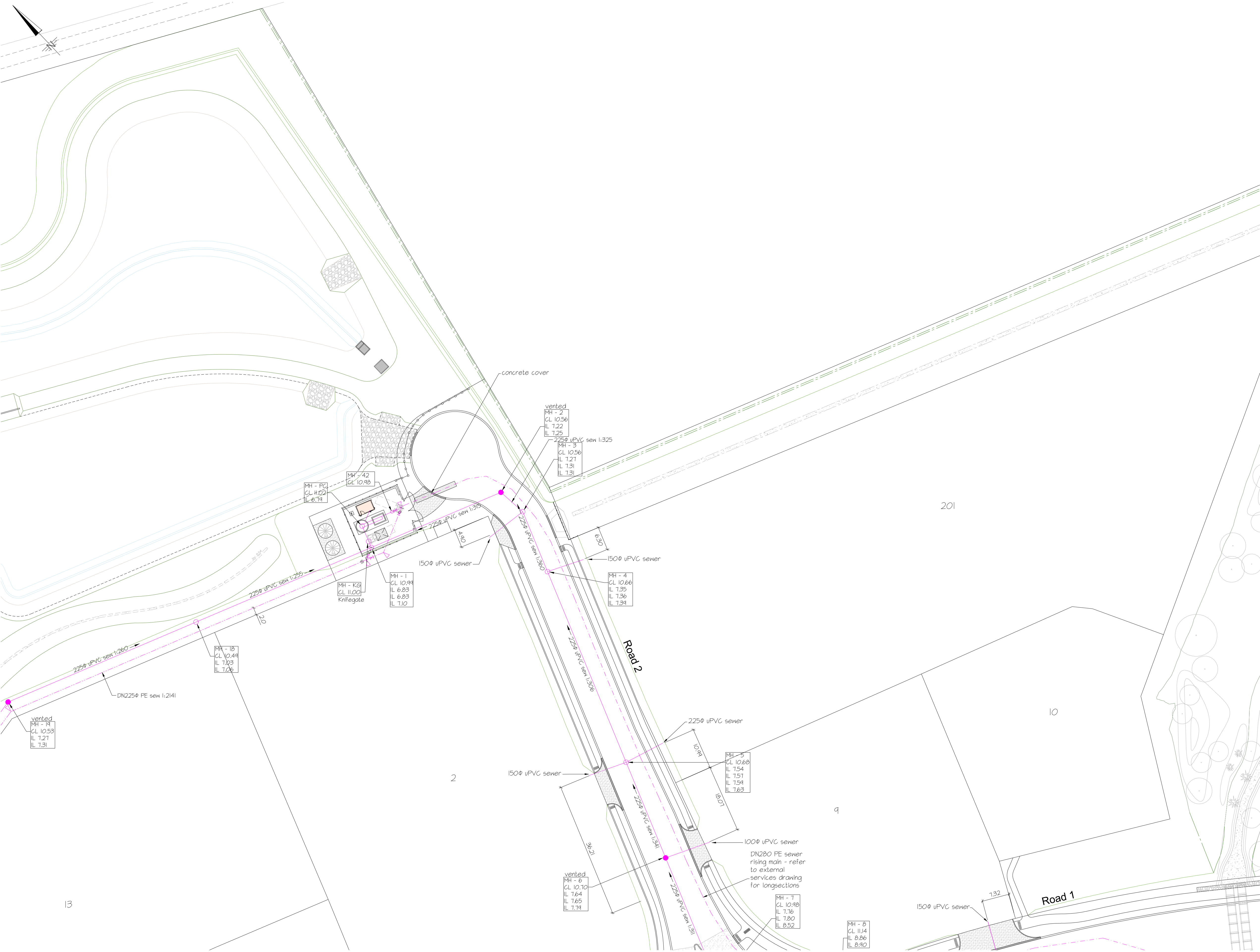
## **APPENDIX 1**

Engineering Design Asbuilt Plans

---

/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY	
KERB LEVELS	
SURFACE LEVEL	SL 99.49
SECTION FORMATION LEVELS	FL 11.05
PROPOSED SEWER	
UNVENTED SEWER MANHOLE	
VENTED SEWER MANHOLE	
SEWER OVER 2.5M DEEP	
PROPOSED STORMWATER	
STORMWATER MANHOLE	
SUMP	
STREET LIGHT	
LANDSCAPING (BY OTHERS)	
STAGE BOUNDARY	
PROPOSED GROUND CONTOURS	AB 25 AB 0
DROP CROSSING	
TACTILE PAVERS/ PEDESTRIAN CROSSINGS	
STAGE BOUNDARY	



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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RAVENSWOOD

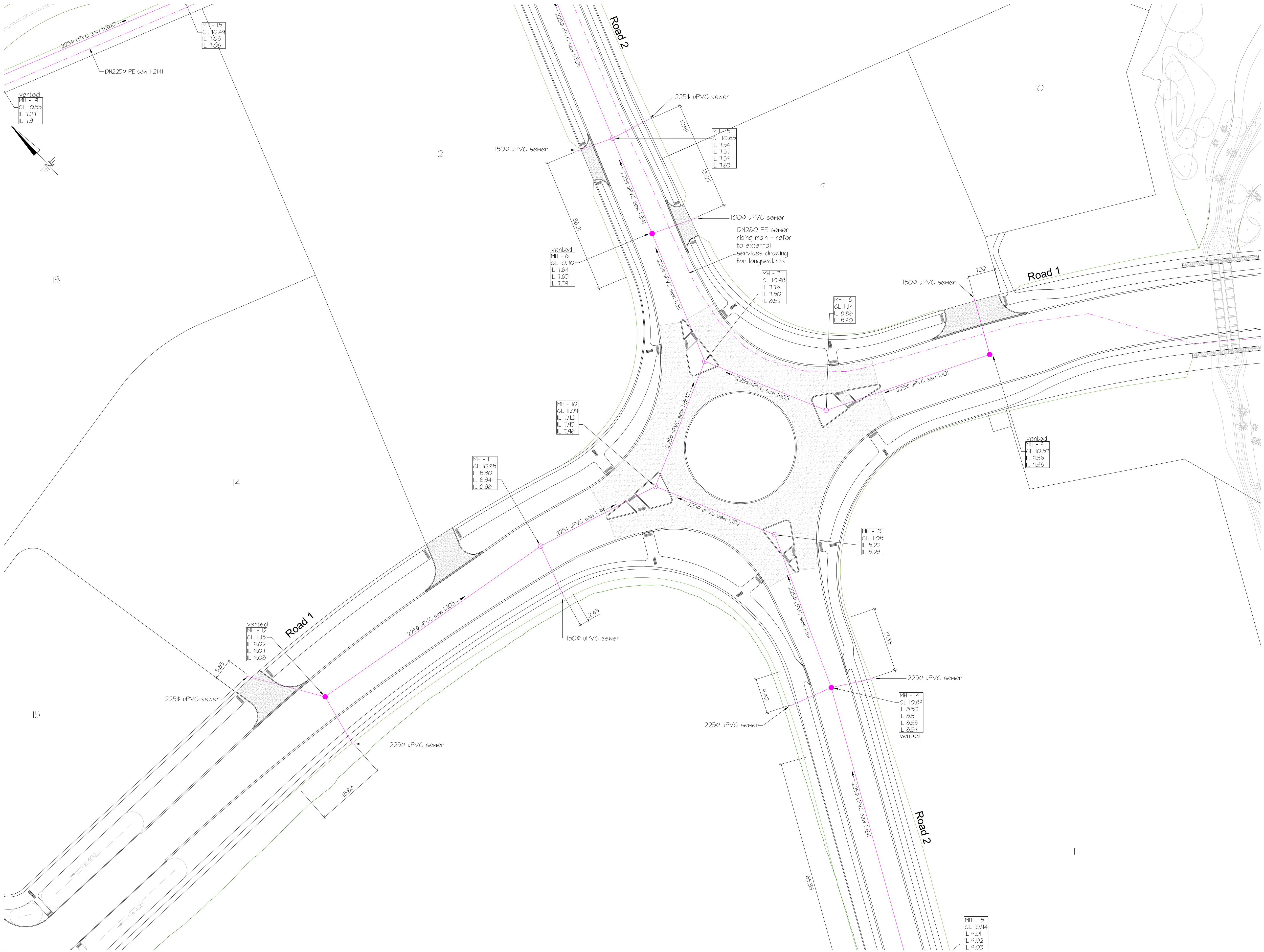
NORTH CANTERBURY

RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

ENGINEERING DESIGN  
SEWER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	101
scale @ A1	date	file	issue
1:500	03/16	31143-C	B





/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY

KERB LEVELS

SURFACE LEVEL

SECTION FORMATION LEVELS

PROPOSED SEWER

UNVENTED SEWER MANHOLE

VENTED SEWER MANHOLE

SEWER OVER 2.5M DEEP

PROPOSED STORMWATER

STORMWATER MANHOLE

SUMP

STREET LIGHT

LANDSCAPING (BY OTHERS)

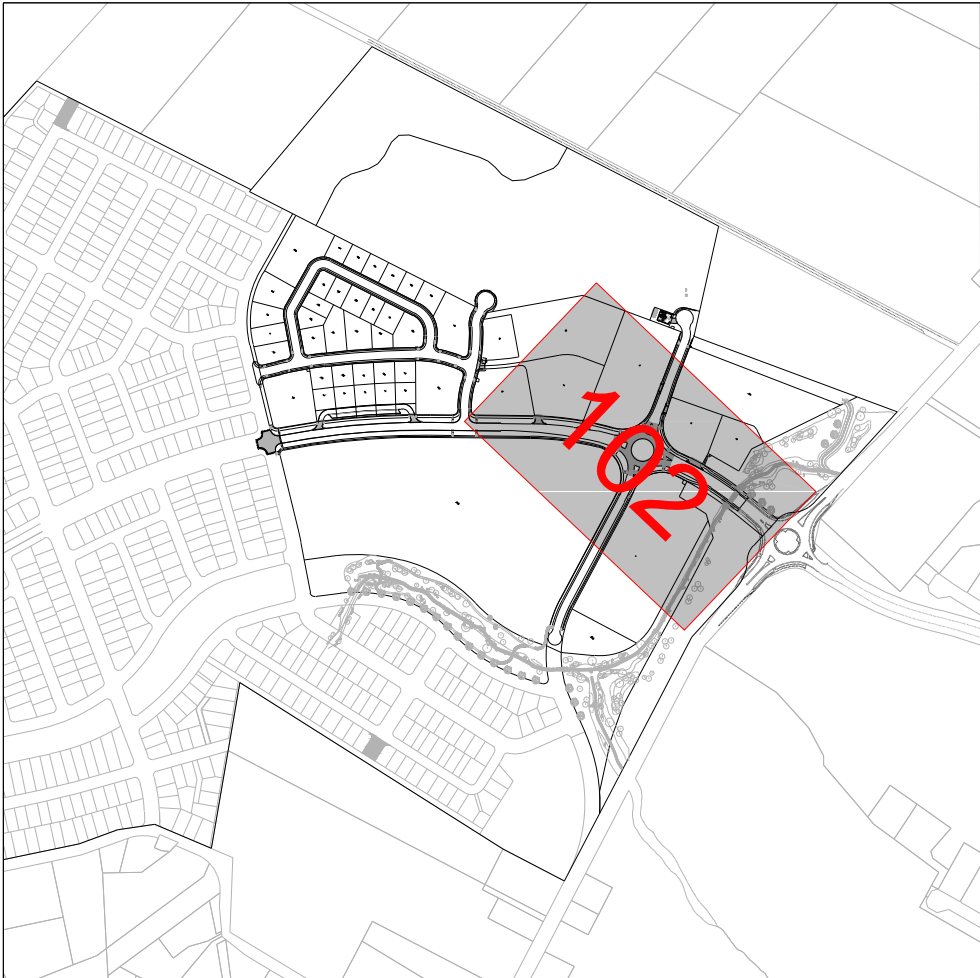
STAGE BOUNDARY

PROPOSED GROUND CONTOURS

DROP CROSSING

TACTILE PAVERS/ PEDESTRIAN CROSSINGS

STAGE BOUNDARY



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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PROPOSED SUBDIVISION

ENGINEERING DESIGN  
SEWER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	102
scale @ A1	date	file	issue
1:500	03/16	31143-C	B



# KEY

KERB LEVELS

SURFACE LEVEL 5L99.49

SECTION FORMATION LEVELS FL 11.05

PROPOSED SEWER —


UNVENTED SEWER MANHOLE ○


VENTED SEWER MANHOLE ●

SEWER OVER 2.5M DEEP —

PROPOSED STORMWATER --

STORMWATER MANHOLE ○


SUMP 


STREET LIGHT 

LANDSCAPING (BY OTHERS)

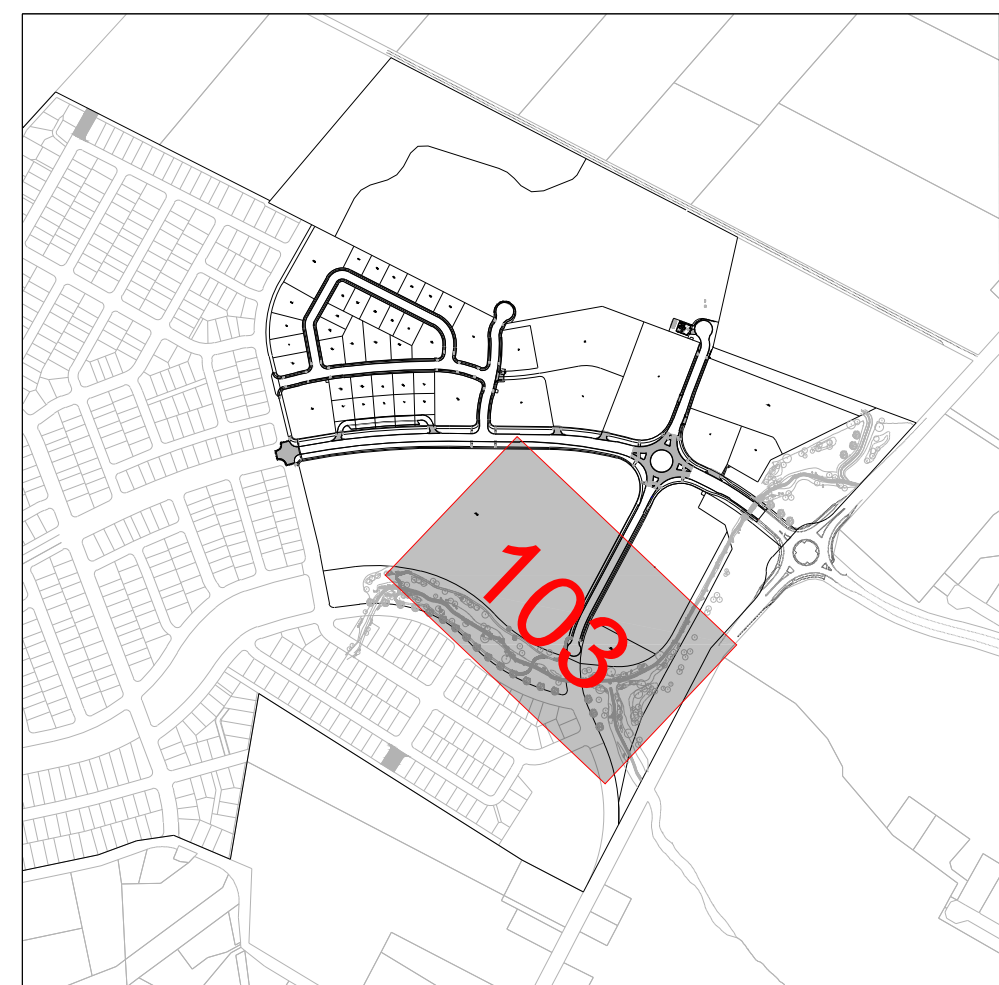
STAGE BOUNDARY ---

PROPOSED GROUND CONTOURS 10.25  
10.0

DROP CROSSING 

TACTILE PAVERS/  
PEDESTRIAN CROSSINGS 

STAGE BOUNDARY

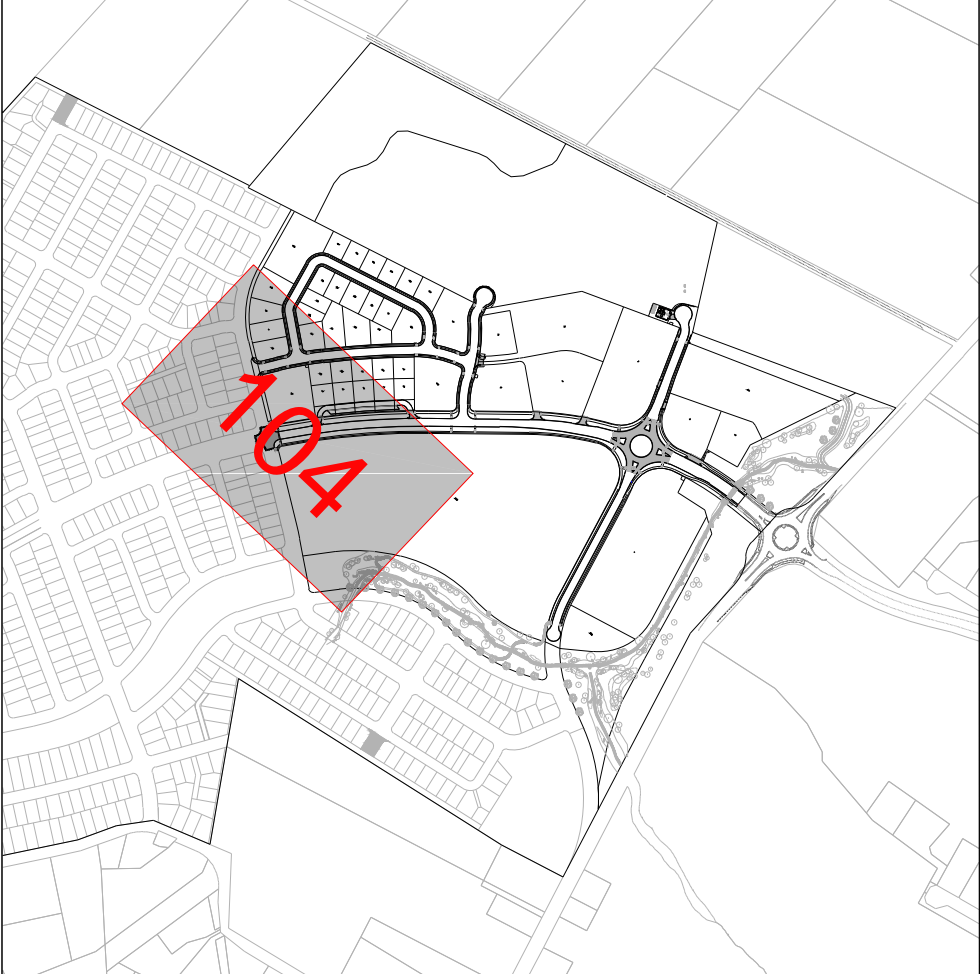
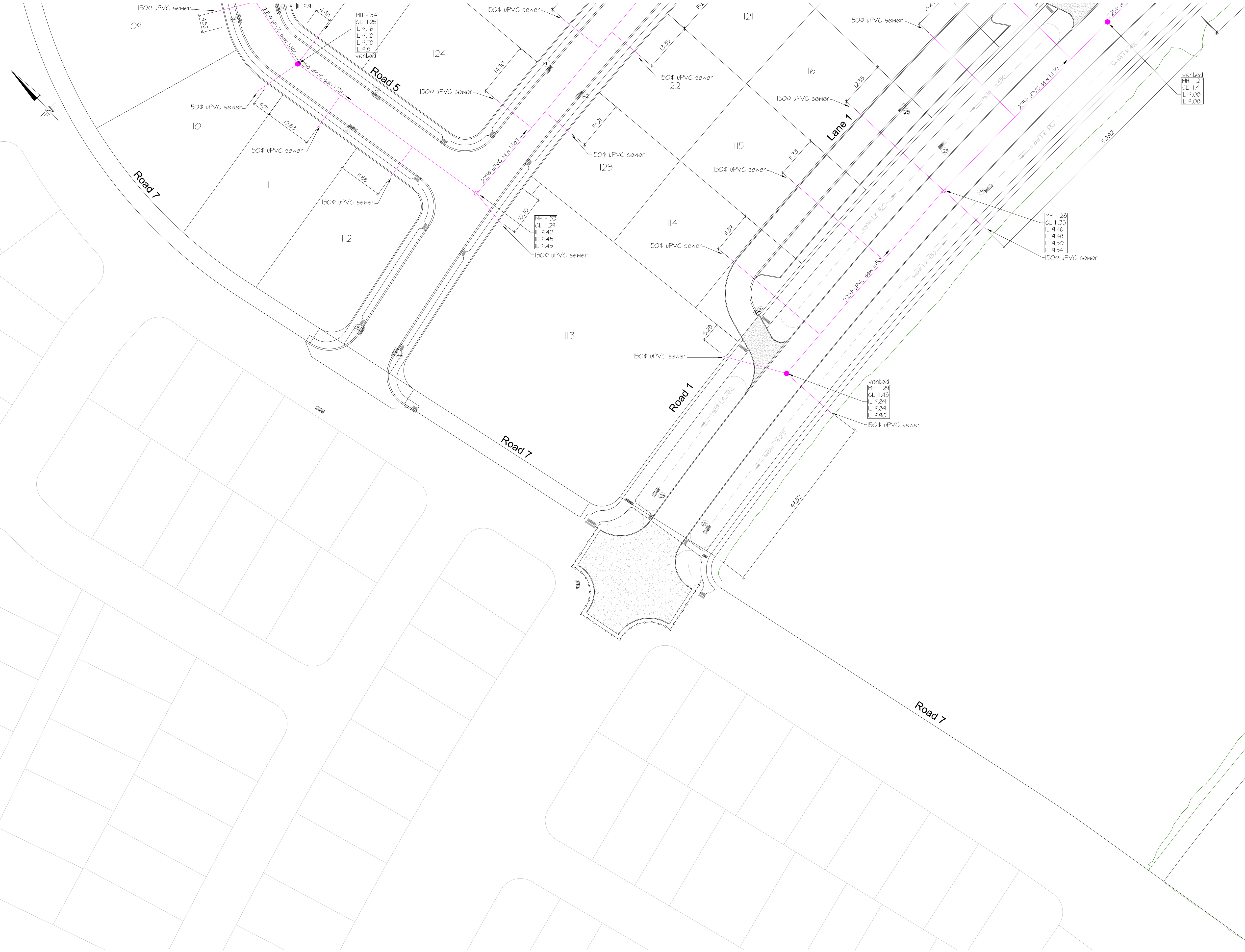


**OVERALL COMMERCIAL AREA**  
SCALE 1:10000



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY	
KERB LEVELS	
SURFACE LEVEL	SL 99.49
SECTION FORMATION LEVELS	FL 11.05
PROPOSED SEWER	
UNVENTED SEWER MANHOLE	
VENTED SEWER MANHOLE	
SEWER OVER 2.5M DEEP	
PROPOSED STORMWATER	
STORMWATER MANHOLE	
SUMP	
STREET LIGHT	
LANDSCAPING (BY OTHERS)	
STAGE BOUNDARY	
PROPOSED GROUND CONTOURS	AB 25 AB 0
DROP CROSSING	
TACTILE PAVERS/ PEDESTRIAN CROSSINGS	
STAGE BOUNDARY	



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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RAVENSWOOD

NORTH CANTERBURY

RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

ENGINEERING DESIGN  
SEWER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	104
scale @ A1	date	file	issue
1:500	03/16	31143-C	B

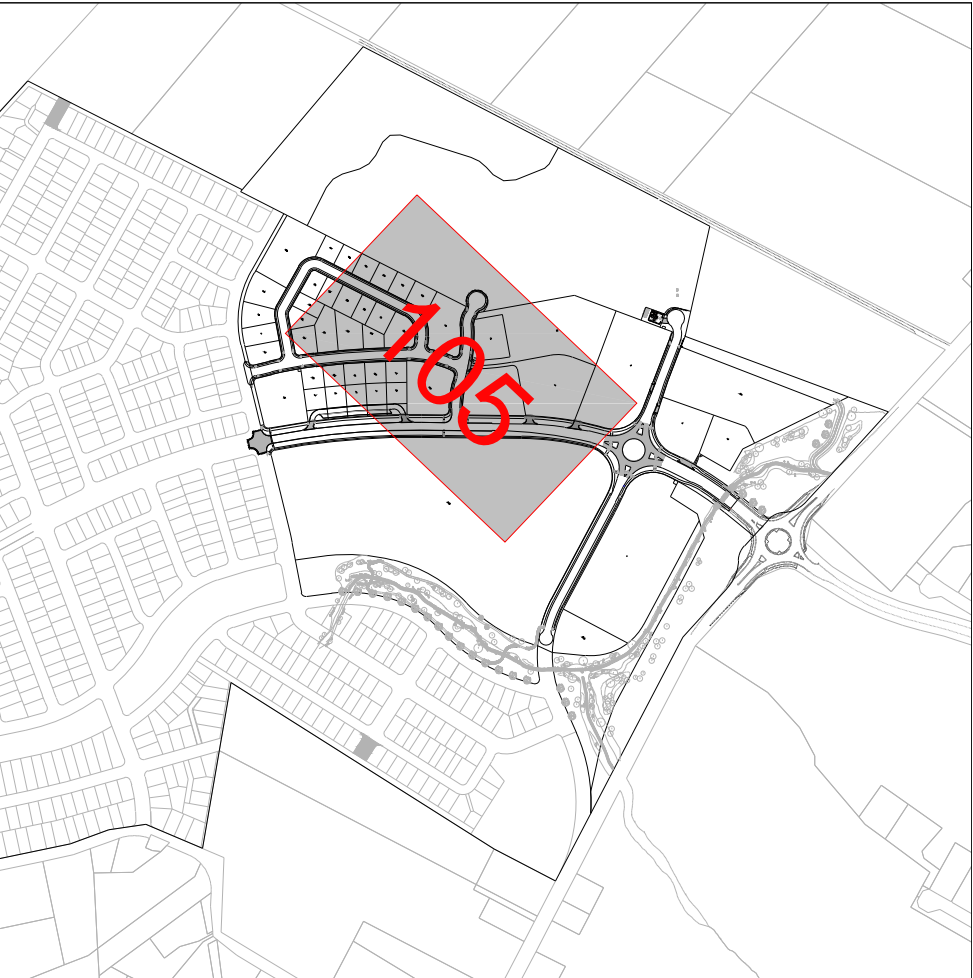
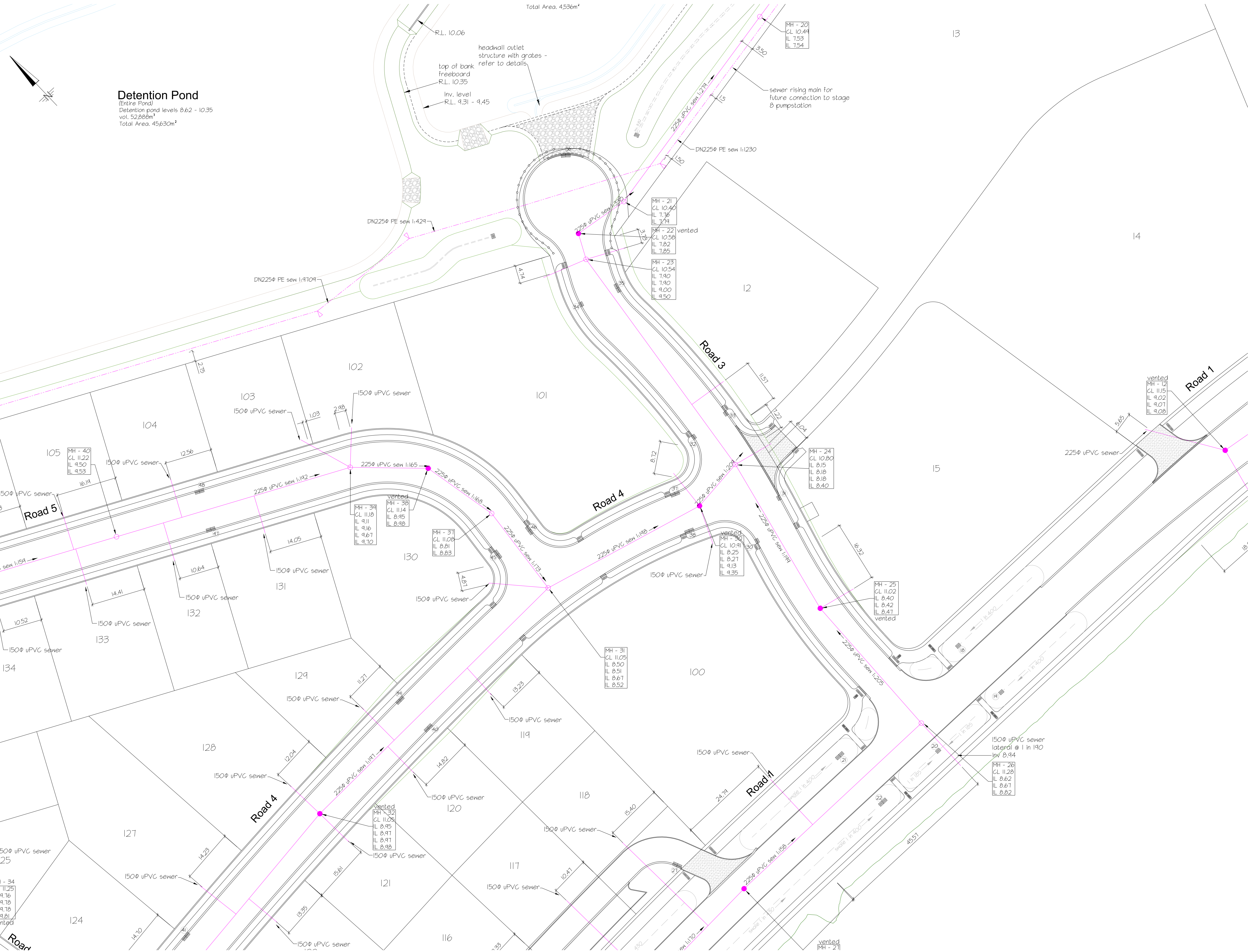


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

Detention Pond

(Entire Pond)  
Detention pond levels 8.62 - 10.35  
vol. 52,888m³  
Total Area. 45,630m²

KEY	
KERB LEVELS	
SURFACE LEVEL	5L 99.49
SECTION FORMATION LEVELS	FL 11.05
PROPOSED SEWER	
UNVENTED SEWER MANHOLE	
VENTED SEWER MANHOLE	
SEWER OVER 2.5M DEEP	
PROPOSED STORMWATER	
STORMWATER MANHOLE	
SUMP	
STREET LIGHT	
LANDSCAPING (BY OTHERS)	
STAGE BOUNDARY	
PROPOSED GROUND CONTOURS	10.25 10.0
DROP CROSSING	
TACTILE PAVERS/ PEDESTRIAN CROSSINGS	
STAGE BOUNDARY	



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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NORTH CANTERBURY

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PROPOSED SUBDIVISION

ENGINEERING DESIGN  
SEWER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	105
scale = A1	date	file	issue
1:500	03/16	31143-C	B





/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY

KERB LEVELS

SURFACE LEVEL

SECTION FORMATION LEVELS

PROPOSED SEWER

UNVENTED SEWER MANHOLE

VENTED SEWER MANHOLE

SEWER OVER 2.5M DEEP

PROPOSED STORMWATER

STORMWATER MANHOLE

SUMP

STREET LIGHT

LANDSCAPING (BY OTHERS)

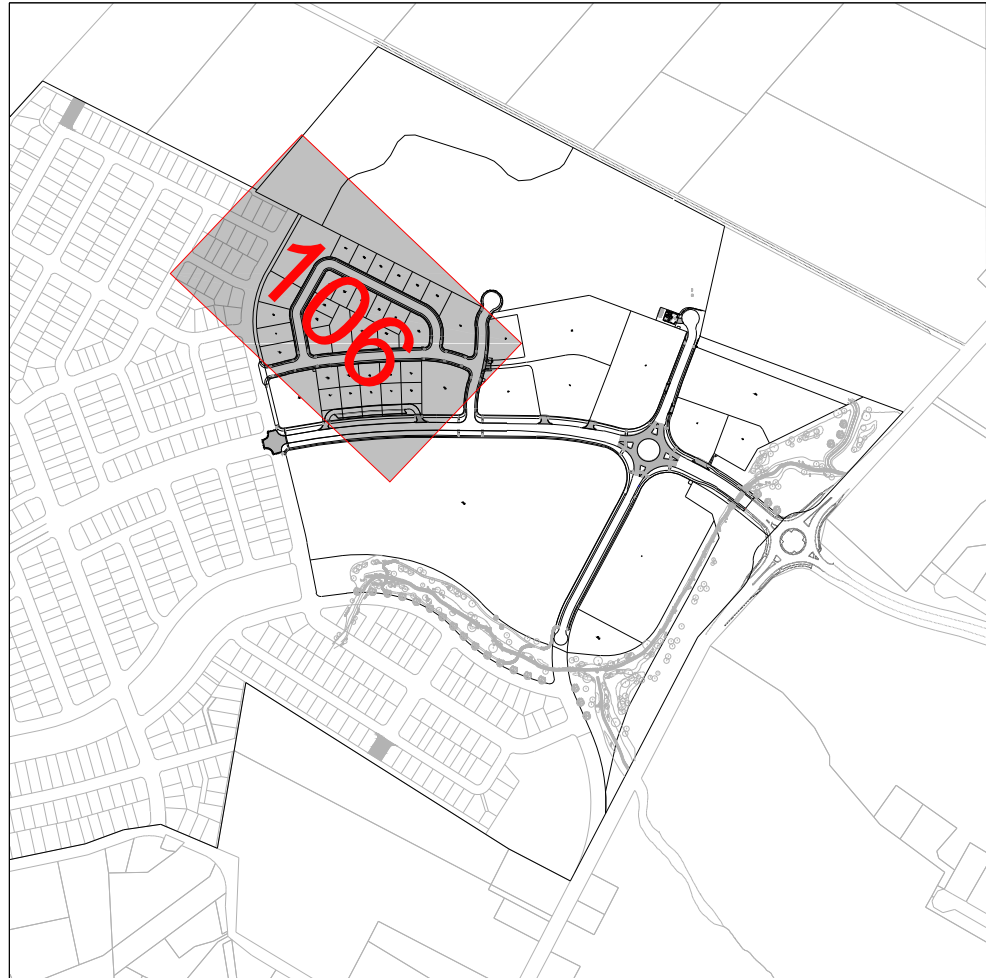
STAGE BOUNDARY

PROPOSED GROUND CONTOURS

DROP CROSSING

TACTILE PAVERS/ PEDESTRIAN CROSSINGS

STAGE BOUNDARY



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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NORTH CANTERBURY

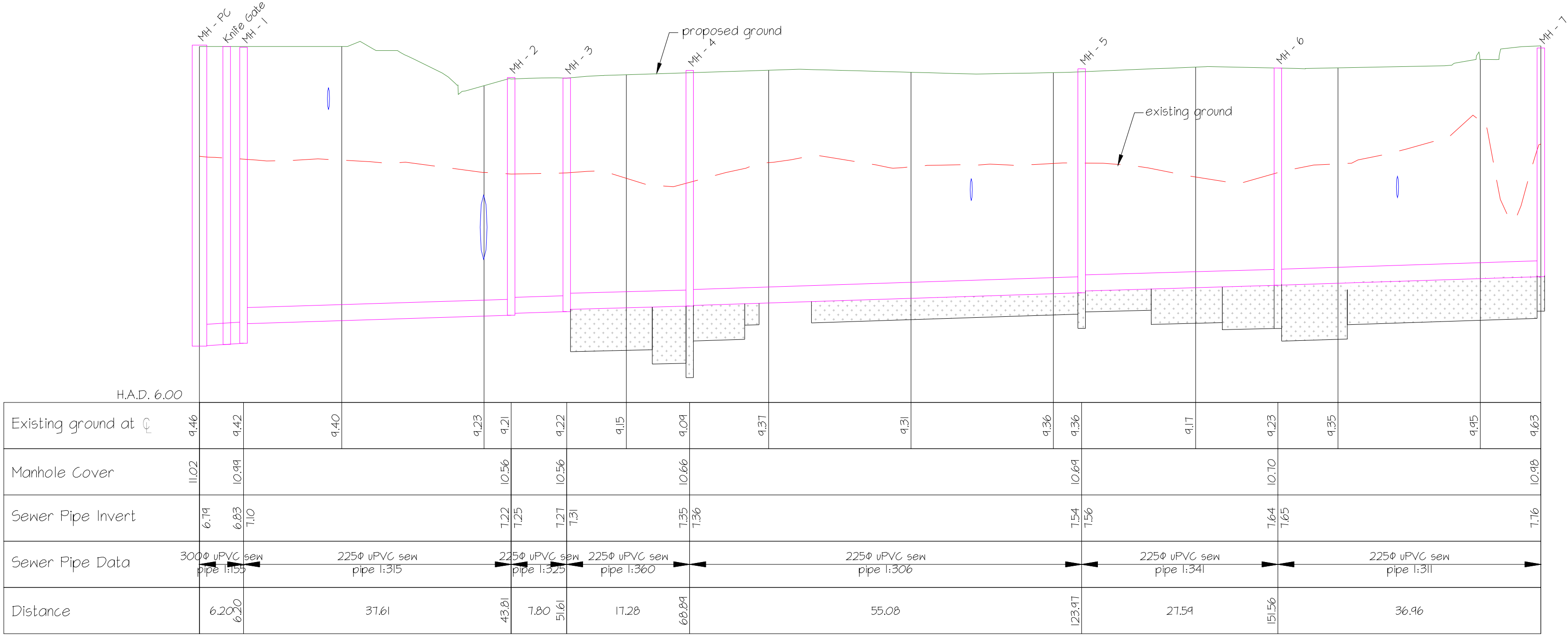
RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

ENGINEERING DESIGN  
SEWER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	106
scale @ A1	date	file	issue
1:500	03/16	31143-C	B

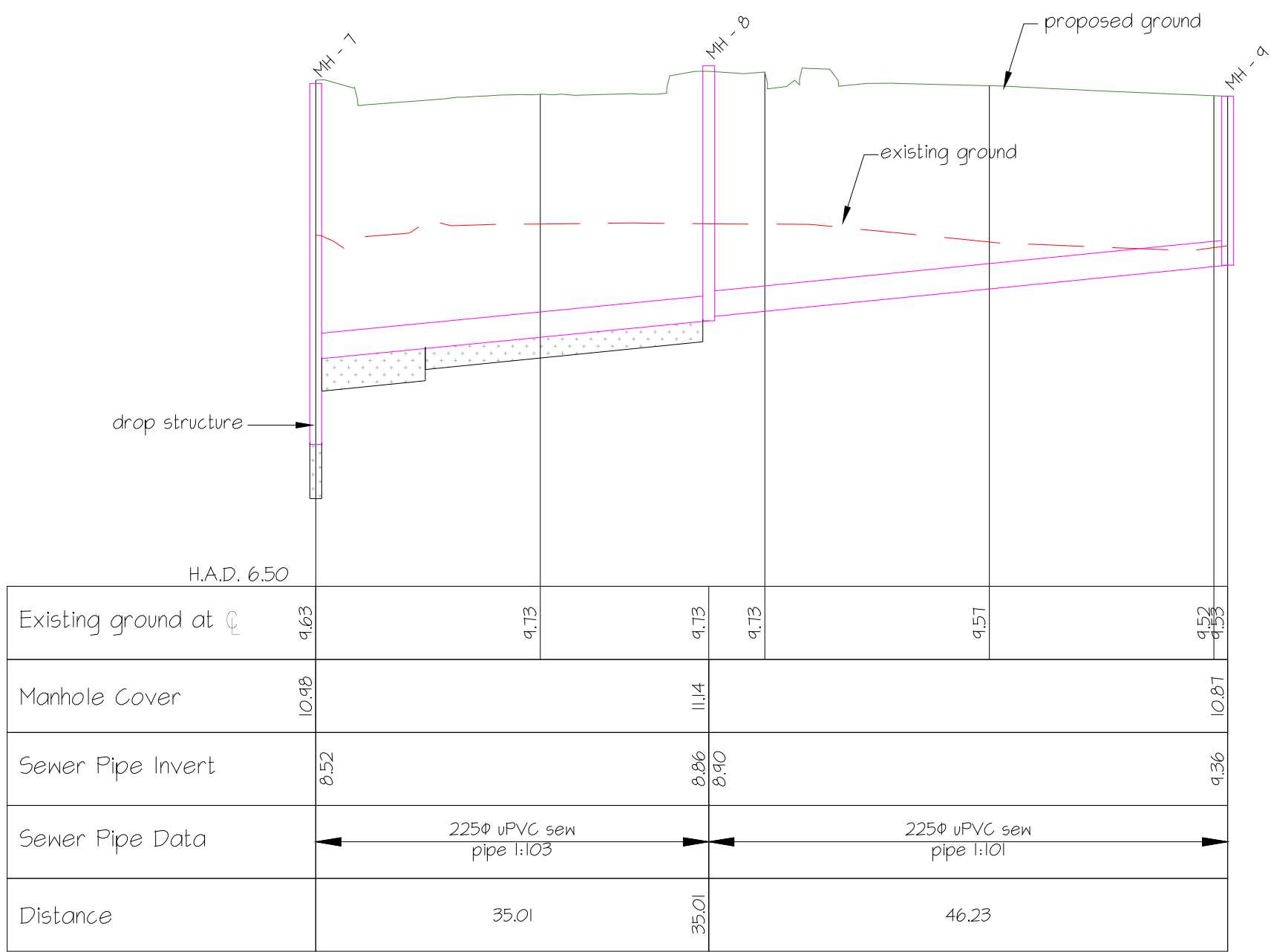


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



SEWER LONG SECTION - MH 1 to MH 7

SCALE 1:500 horiz  
SCALE 1:50 vert  
All sewer pipes to be SNI6

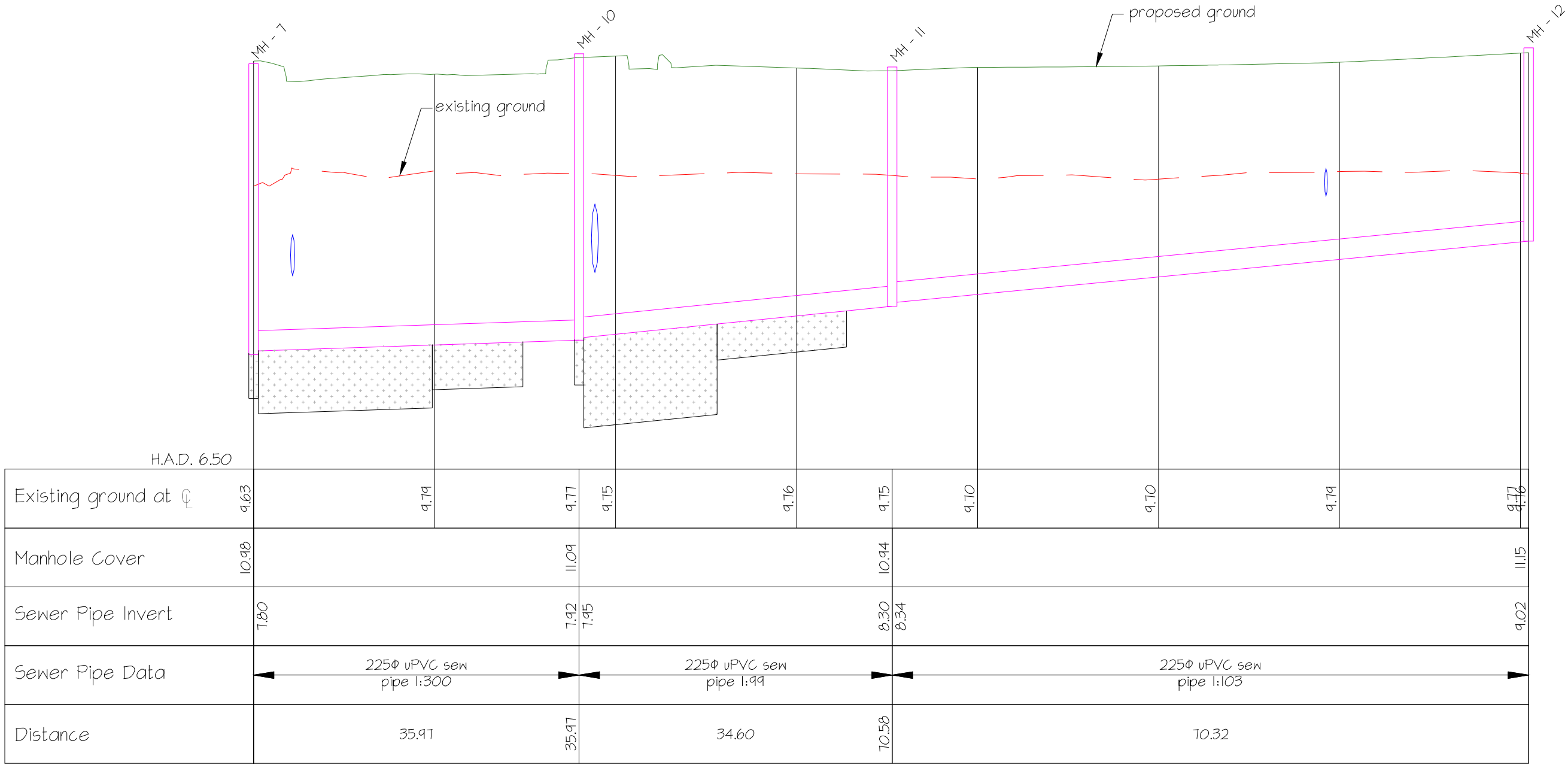


SEWER LONG SECTION - MH 7 to MH 9

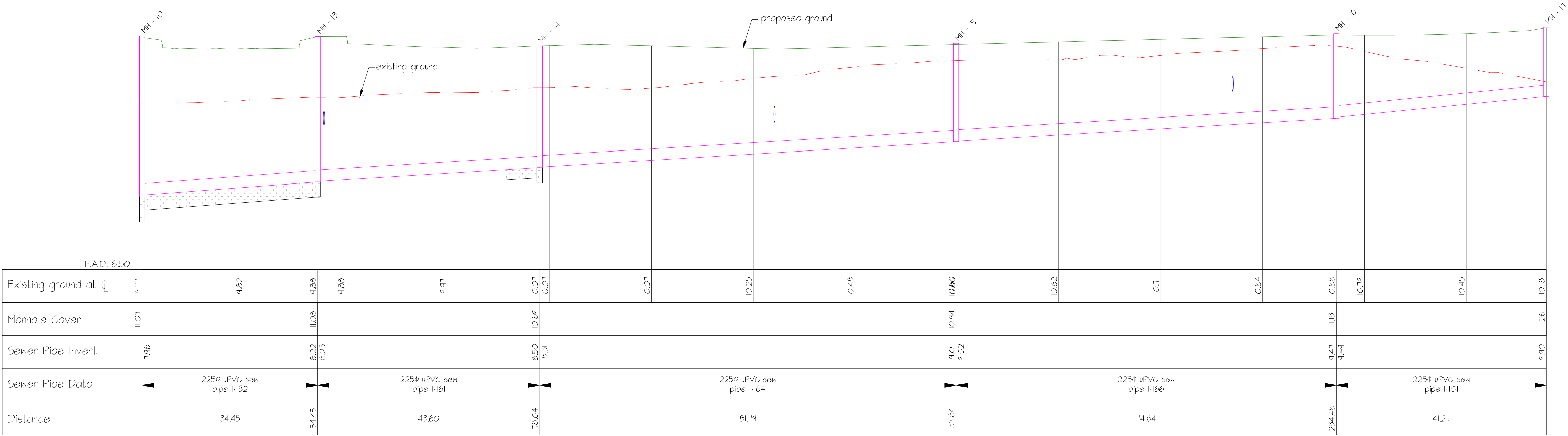
SCALE 1:500 horiz  
SCALE 1:50 vert  
All sewer pipes to be SNI6



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



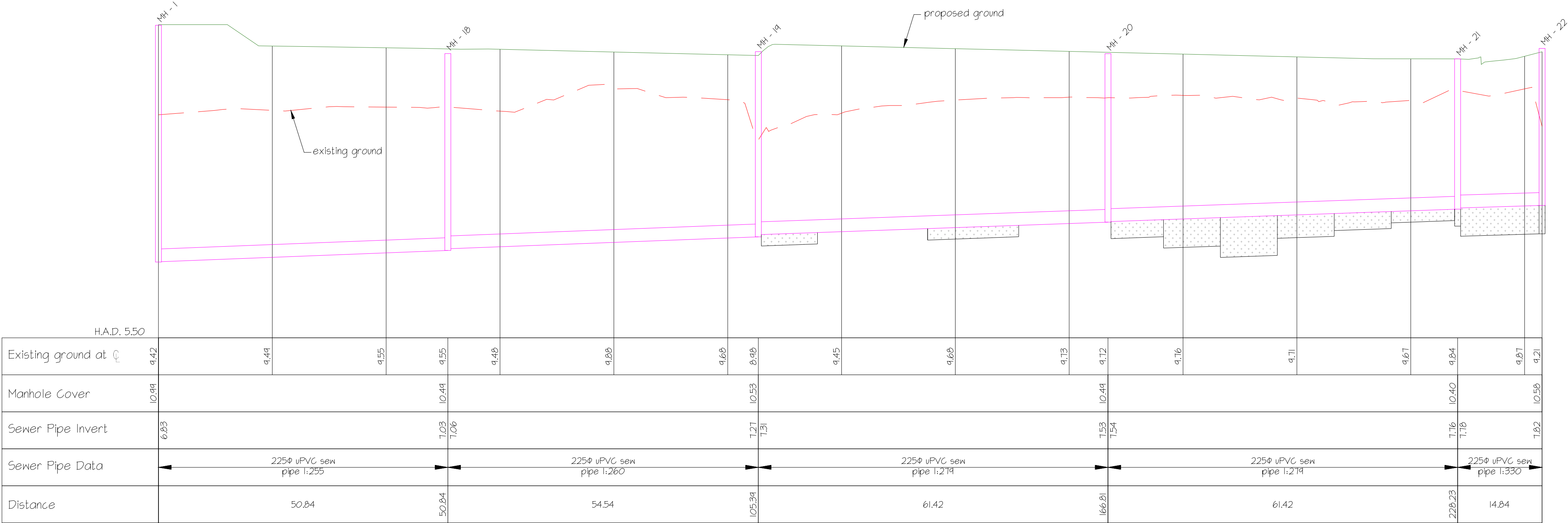
SEWER LONG SECTION - MH 7 to MH 12  
SCALE 1:500 horiz  
SCALE 1:50 vert  
All sewer pipes to be 5N16



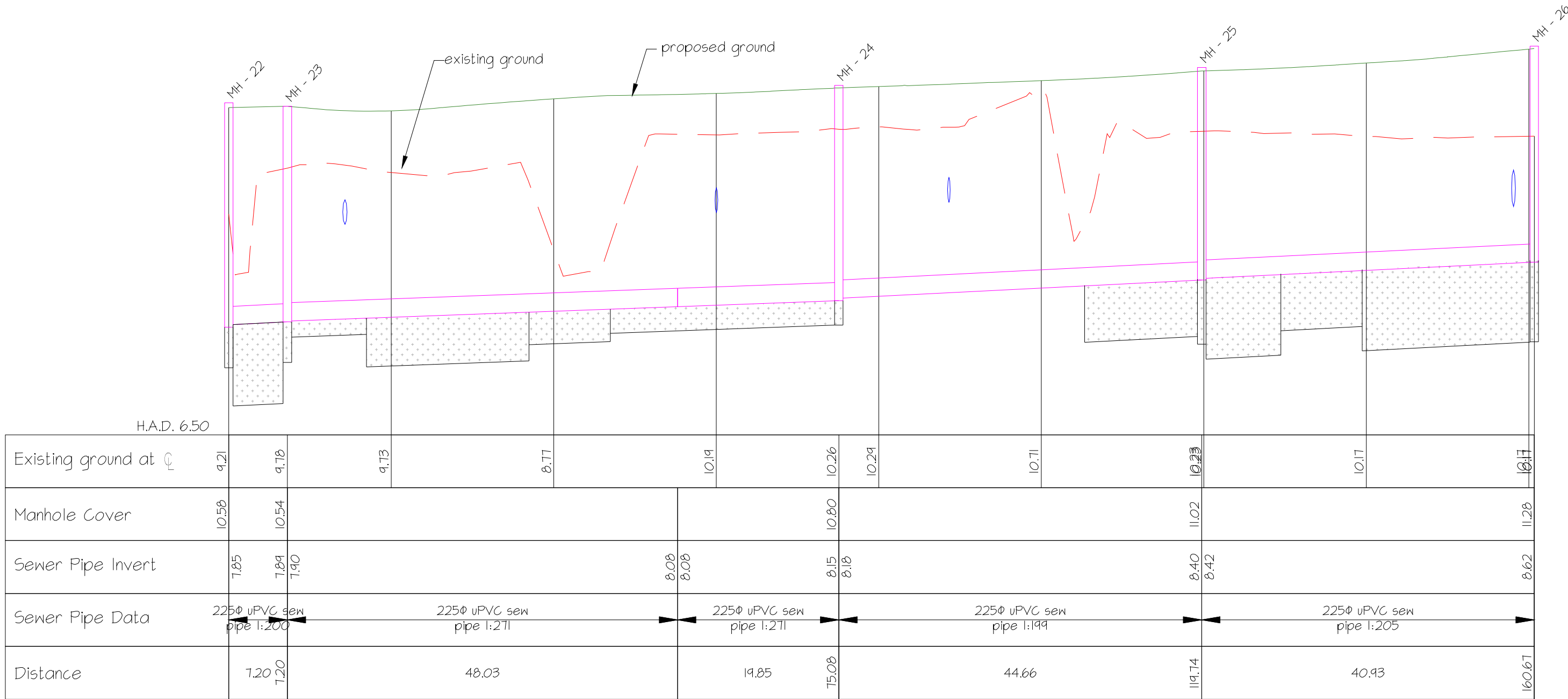
SEWER LONG SECTION - MH 10 to MH 17  
SCALE 1:500 horiz  
SCALE 1:50 vert  
All sewer pipes to be 5N16



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
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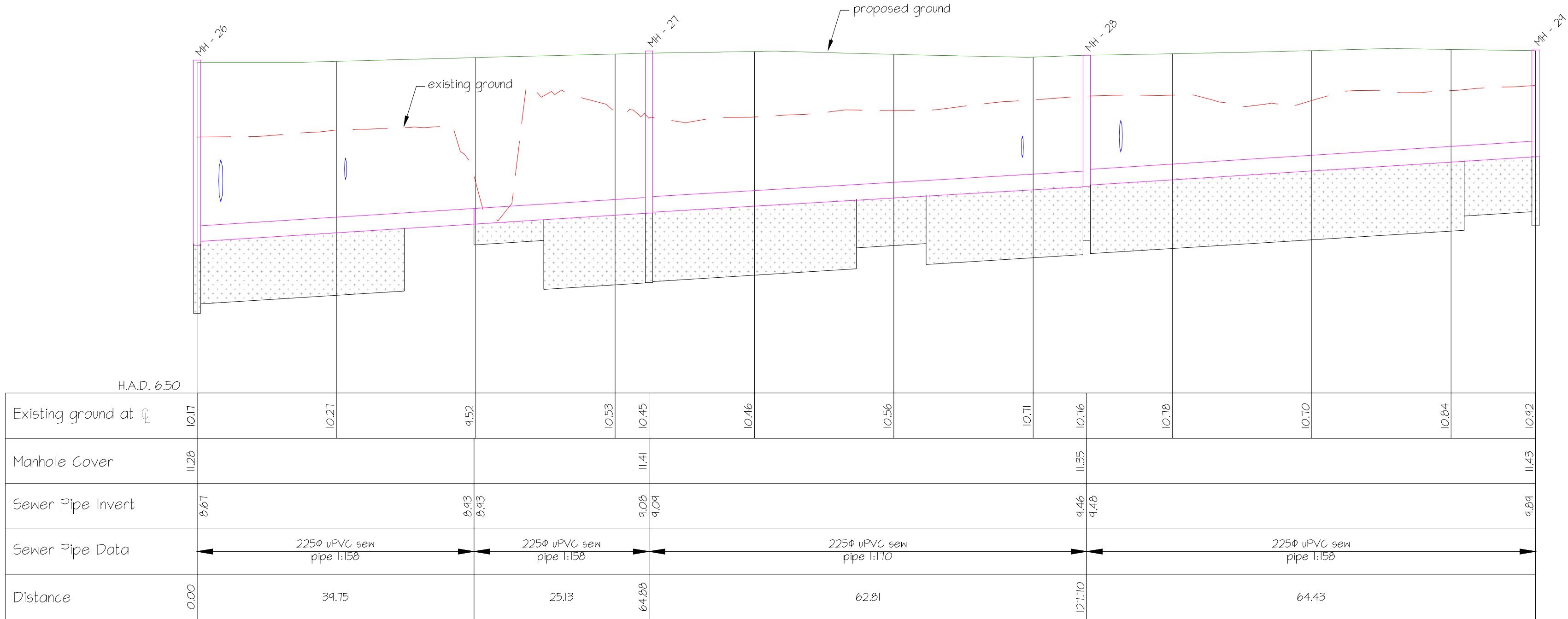
SEWER LONG SECTION - MH 2 to MH 22  
SCALE 1:500 horiz  
SCALE 1:50 vert  
All sewer pipes to be 5N16



SEWER LONG SECTION - MH 22 to MH 26  
SCALE 1:500 horiz  
SCALE 1:50 vert  
All sewer pipes to be 5N16



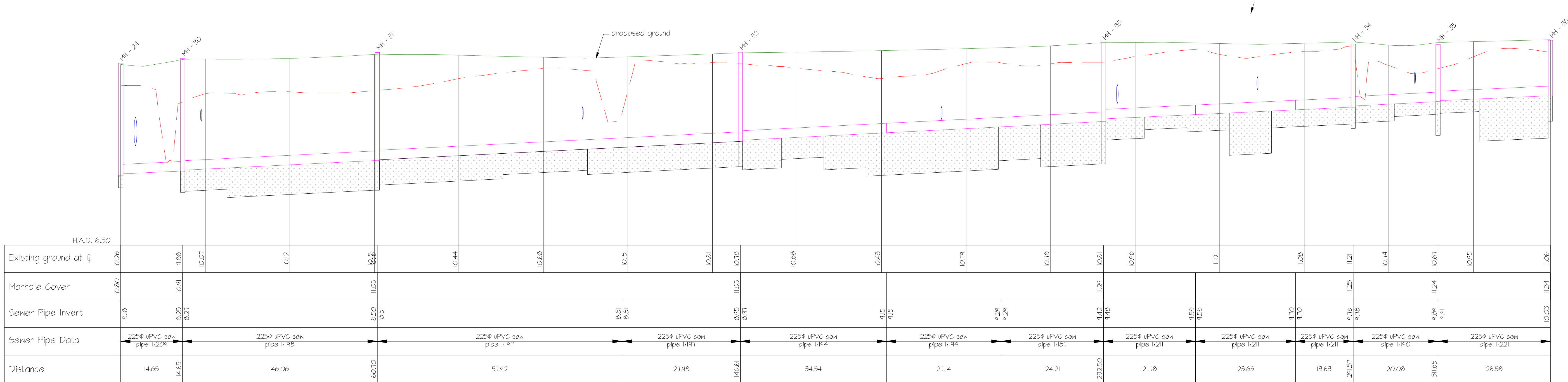
/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



SEWER LONG SECTION - MH 26 to MH 29

SCALE 1:500 horiz  
SCALE 1:50 vert

All sewer pipes to be SNI6



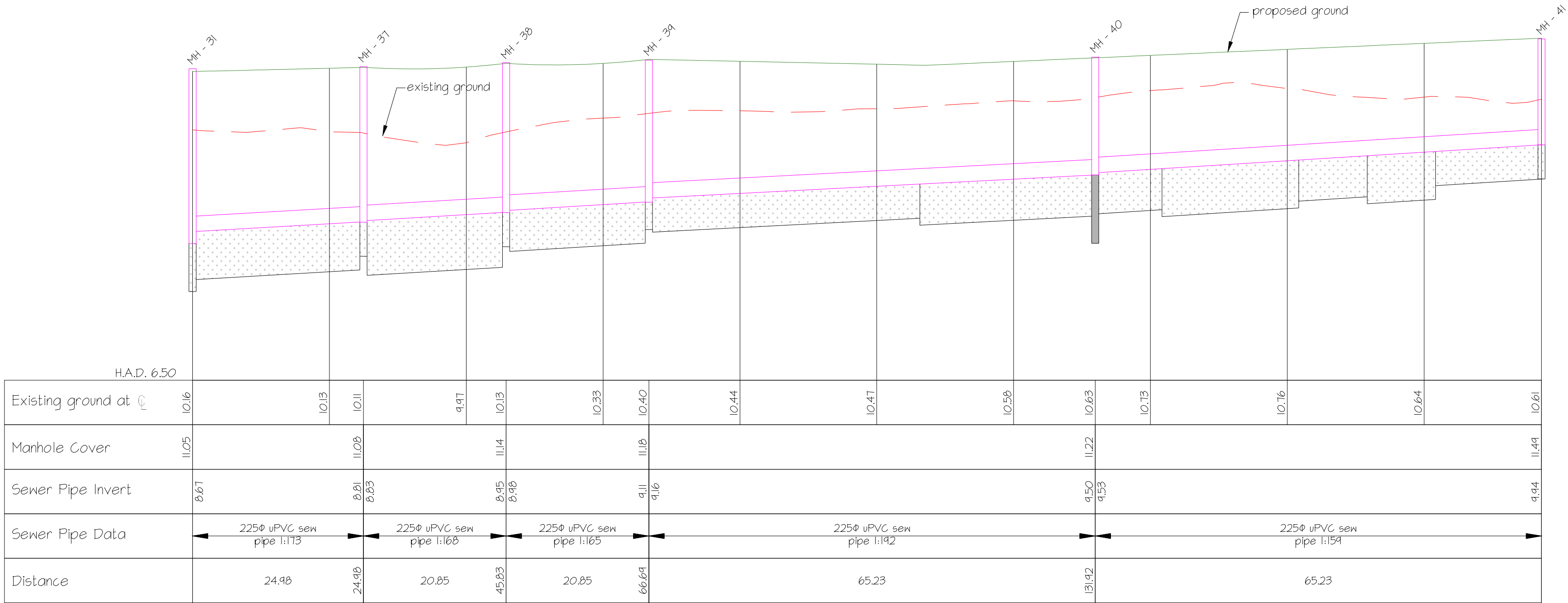
SEWER LONG SECTION - MH 23 to MH 36

SCALE 1:500 horiz  
SCALE 1:50 vert

All sewer pipes to be SNI6



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
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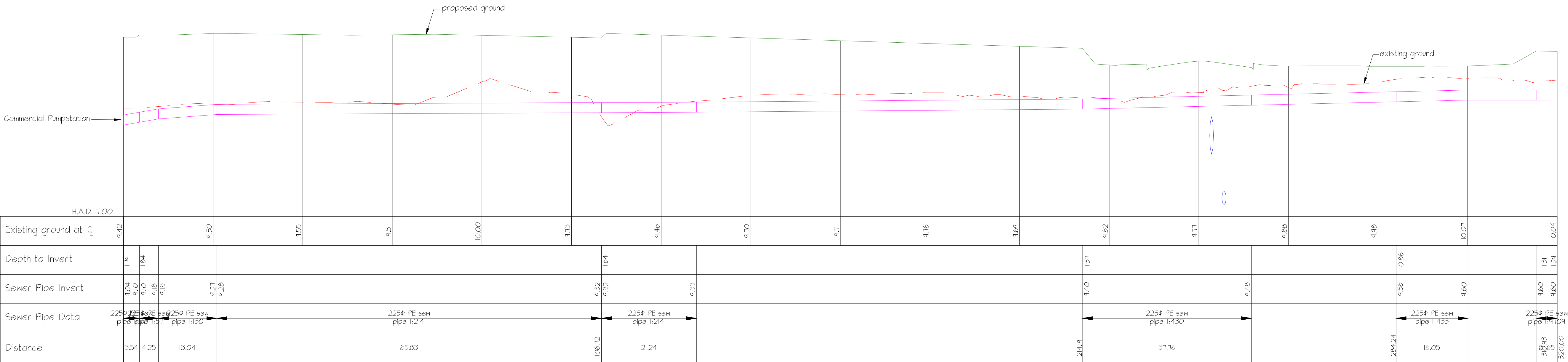
SEWER LONG SECTION - MH 31 to MH 41

SCALE 1:500 horiz  
SCALE 1:50 vert

All sewer pipes to be 5N16

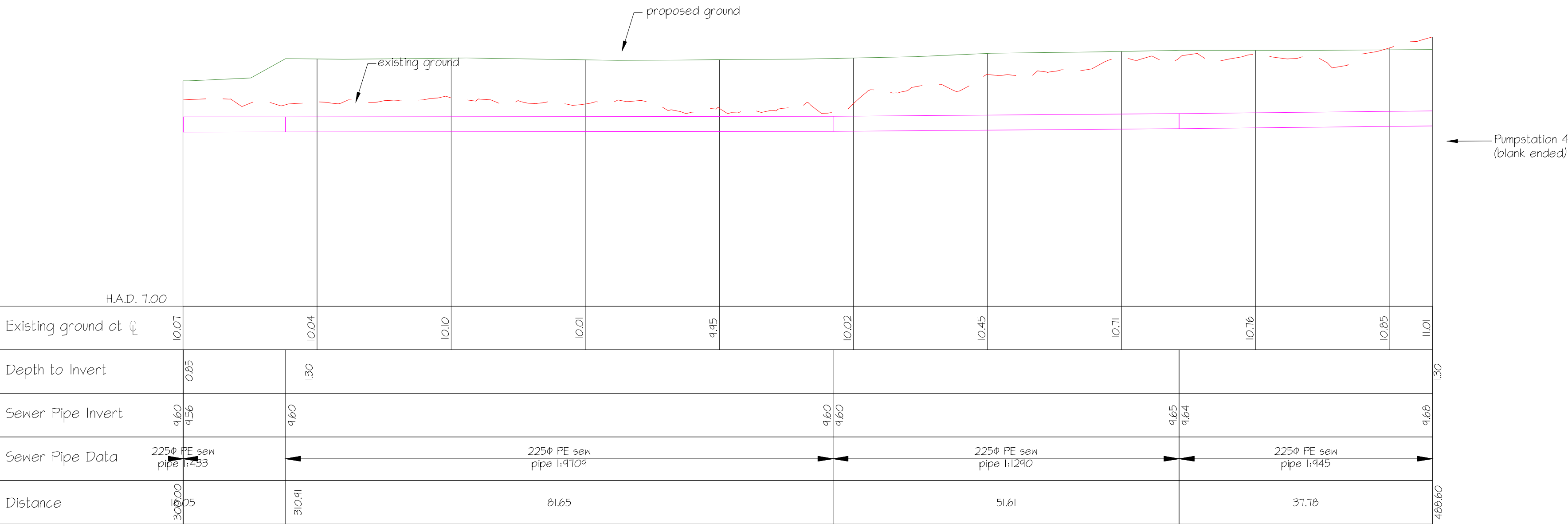


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



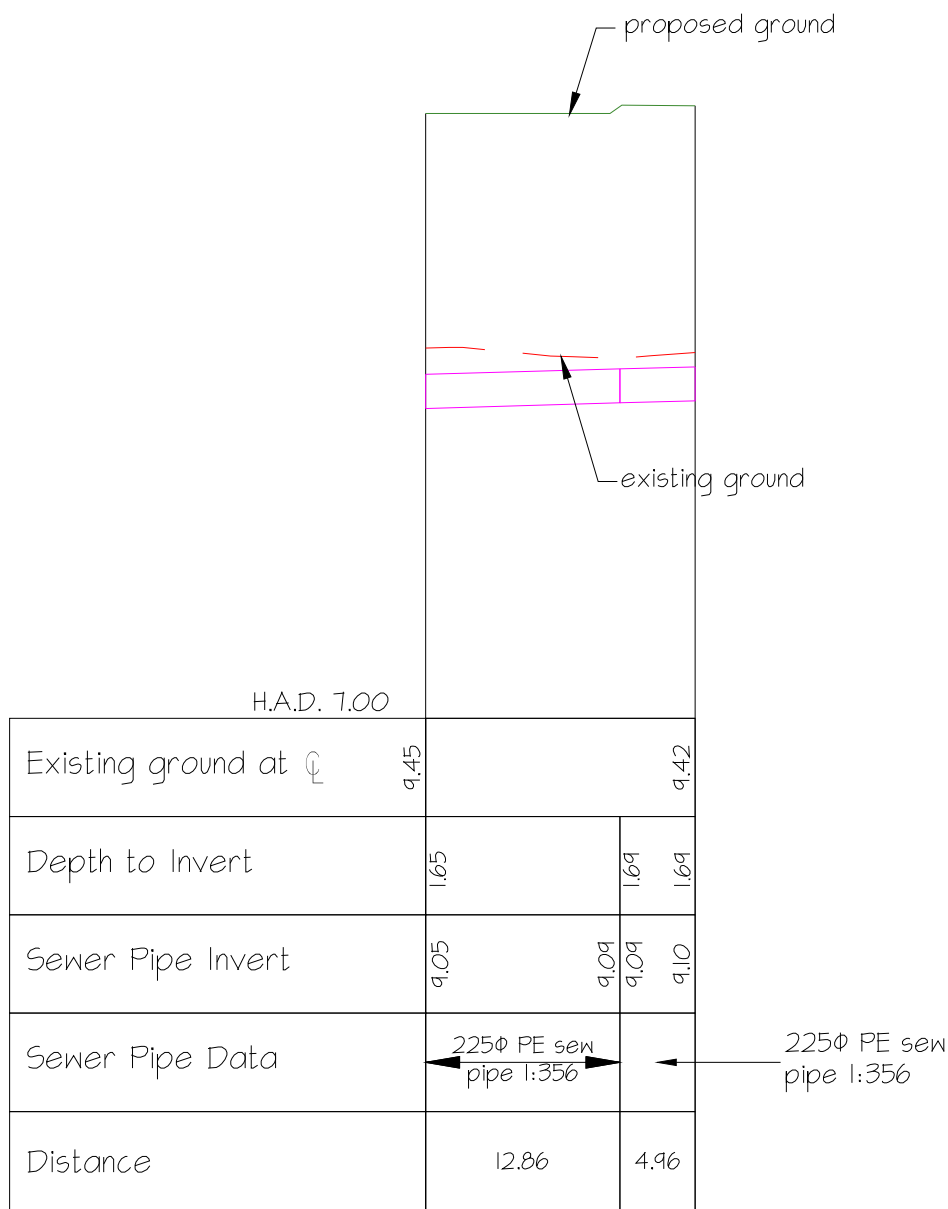
SEWER RISING MAIN LONG SECTION - FUTURE PS TO NEW PS

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SCALE 1:50 vert



SEWER RISING MAIN LONG SECTION - FUTURE PS TO NEW PS - Continued

SCALE 1:500 horiz  
SCALE 1:50 vert



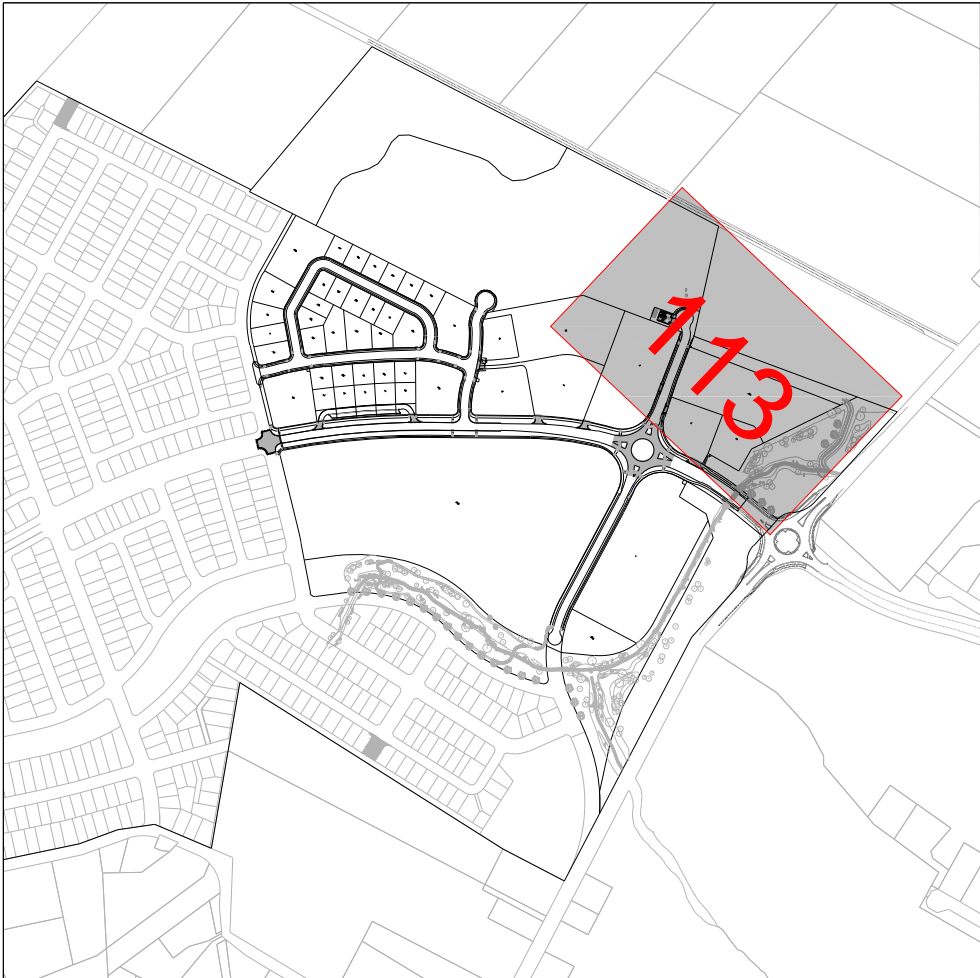
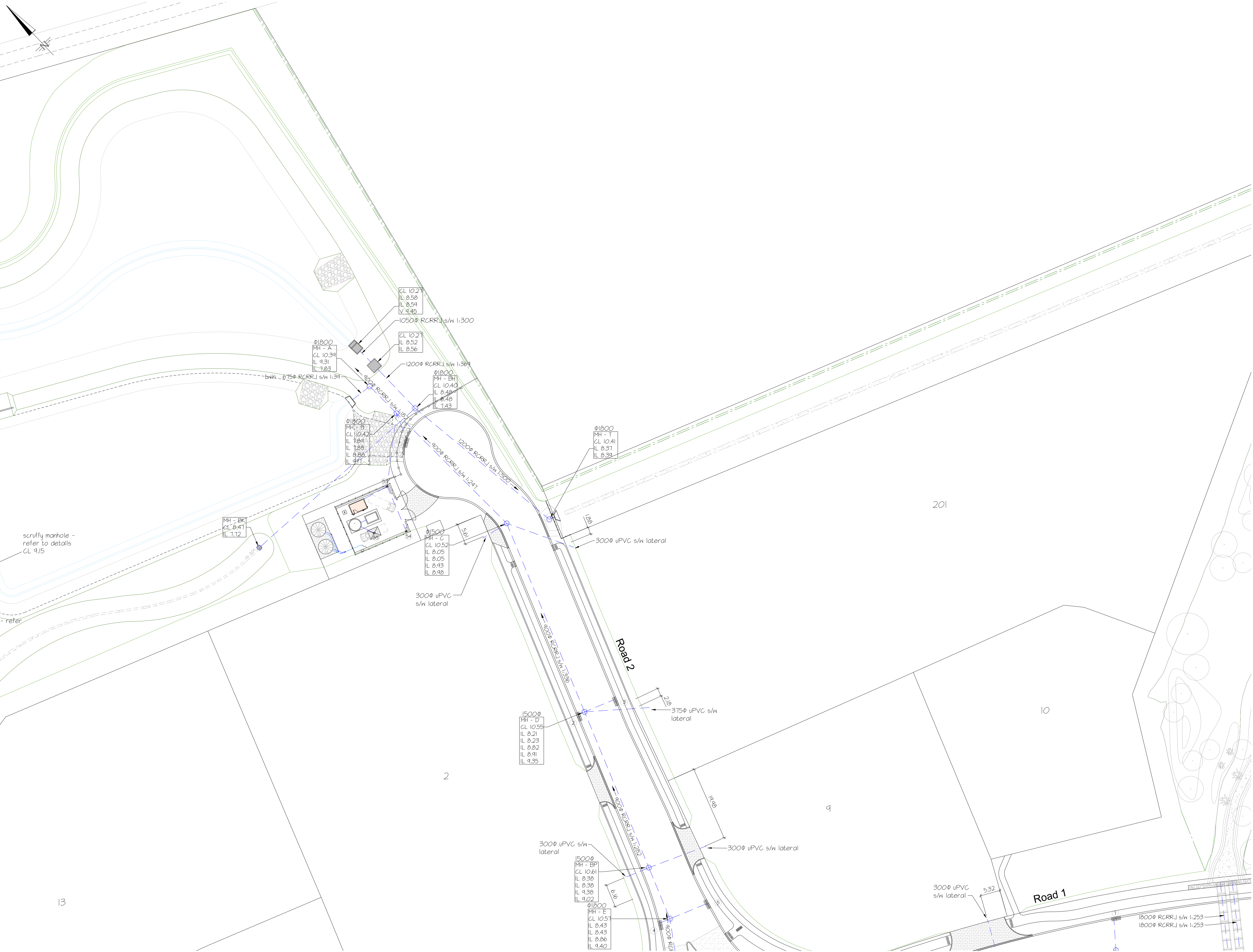
SEWER RISING MAIN LONG SECTION - BYPASS

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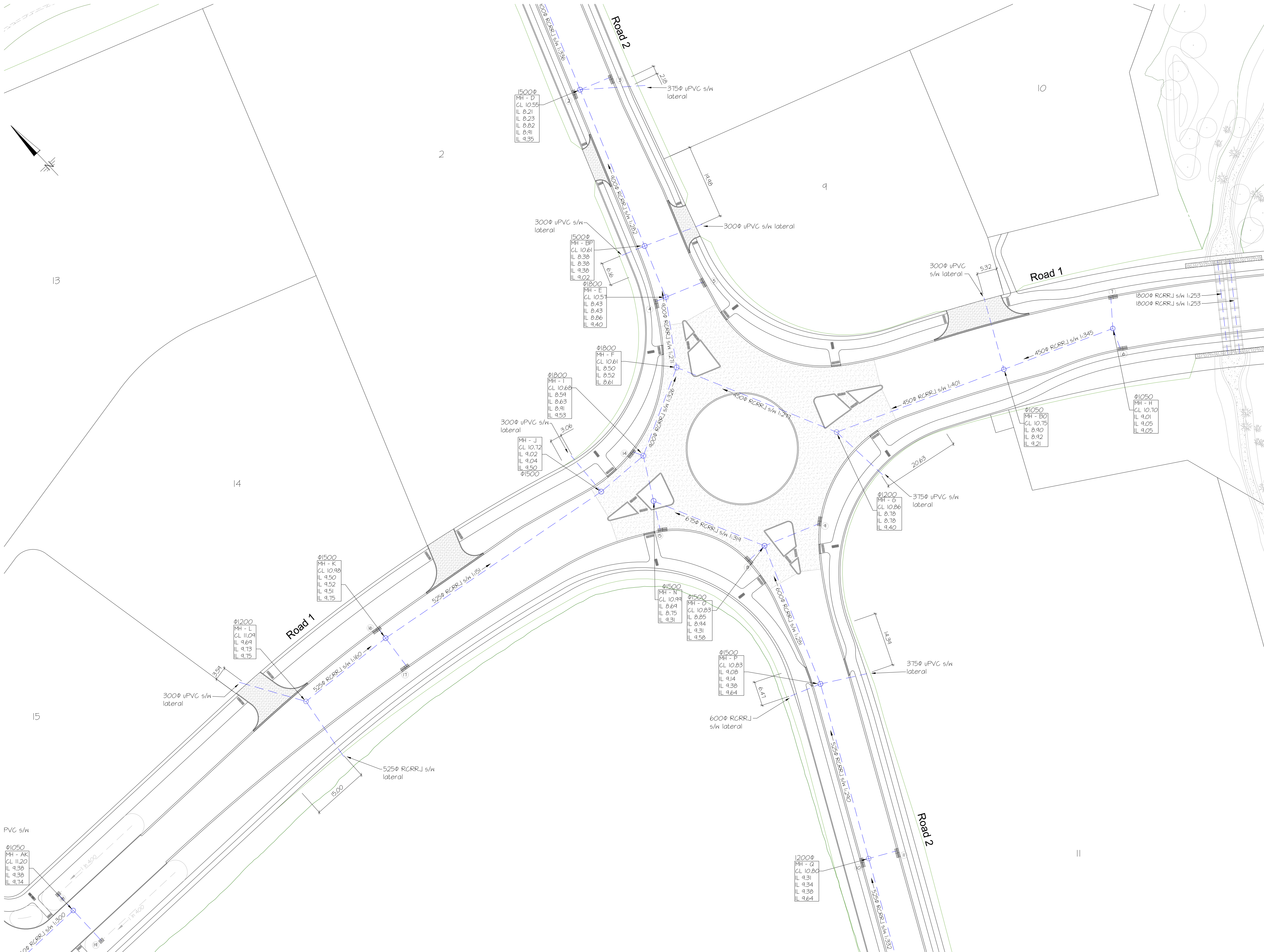
/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY	
KERB LEVELS	
SURFACE LEVEL	SL 99.49
SECTION FORMATION LEVELS	FL 11.05
PROPOSED SEWER	
UNVENTED SEWER MANHOLE	
VENTED SEWER MANHOLE	
SEWER OVER 2.5M DEEP	
PROPOSED STORMWATER	
STORMWATER MANHOLE	
SUMP	
STREET LIGHT	
LANDSCAPING (BY OTHERS)	
STAGE BOUNDARY	
PROPOSED GROUND CONTOURS	10.25 10.0
DROP CROSSING	
TACTILE PAVERS/ PEDESTRIAN CROSSINGS	
STAGE BOUNDARY	



CAD ref: 31143.Civil-Commercial.dwg





/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
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KEY

KERB LEVELS

SURFACE LEVEL

SECTION FORMATION LEVELS

PROPOSED SEWER

UNVENTED SEWER MANHOLE

VENTED SEWER MANHOLE

SEWER OVER 2.5M DEEP

PROPOSED STORMWATER

STORMWATER MANHOLE

SUMP

STREET LIGHT

LANDSCAPING (BY OTHERS)

STAGE BOUNDARY

PROPOSED GROUND CONTOURS

DROP CROSSING

TACTILE PAVERS/ PEDESTRIAN CROSSINGS

STAGE BOUNDARY



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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RAVENSWOOD

NORTH CANTERBURY

RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

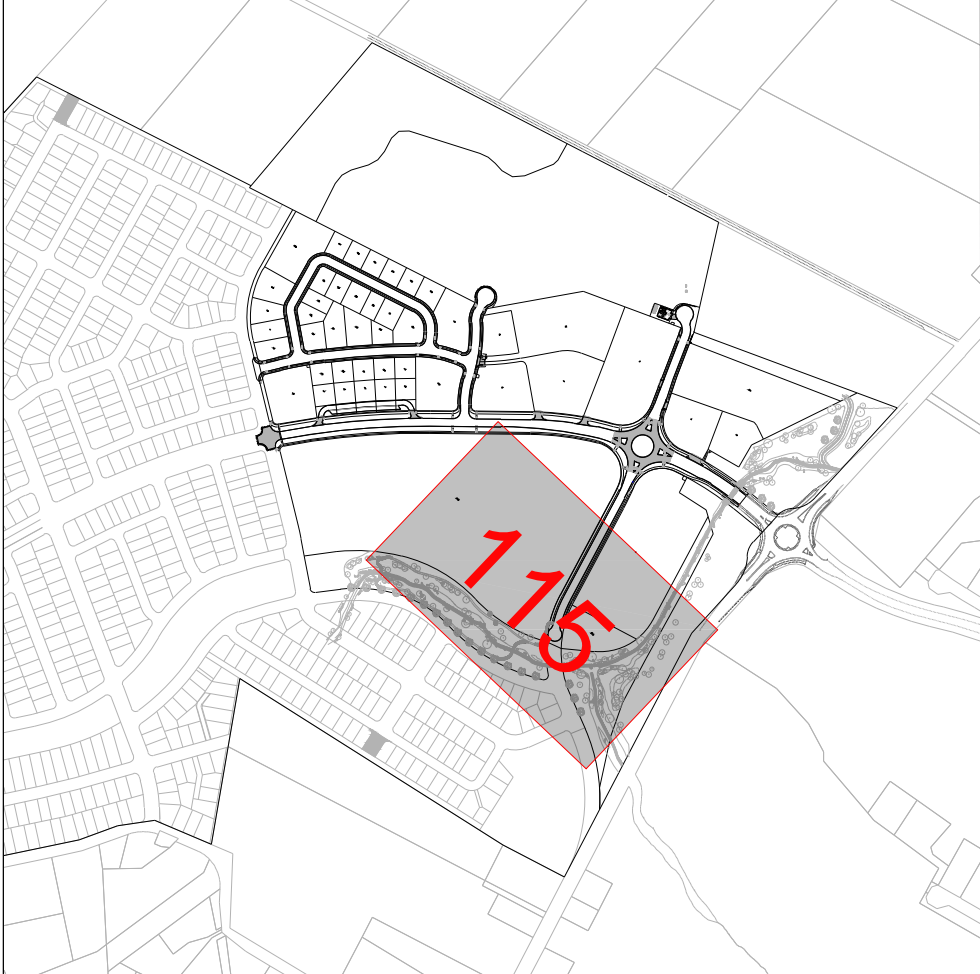
ENGINEERING DESIGN  
STORMWATER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	114
scale @ A1	date	file	issue
1:500	03/16	31143-C	B



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
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KEY	
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SEWER OVER 2.5M DEEP	
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STORMWATER MANHOLE	
SUMP	
STREET LIGHT	
LANDSCAPING (BY OTHERS)	
STAGE BOUNDARY	
PROPOSED GROUND CONTOURS	AB 25 AB 0
DROP CROSSING	
TACTILE PAVERS/ PEDESTRIAN CROSSINGS	
STAGE BOUNDARY	

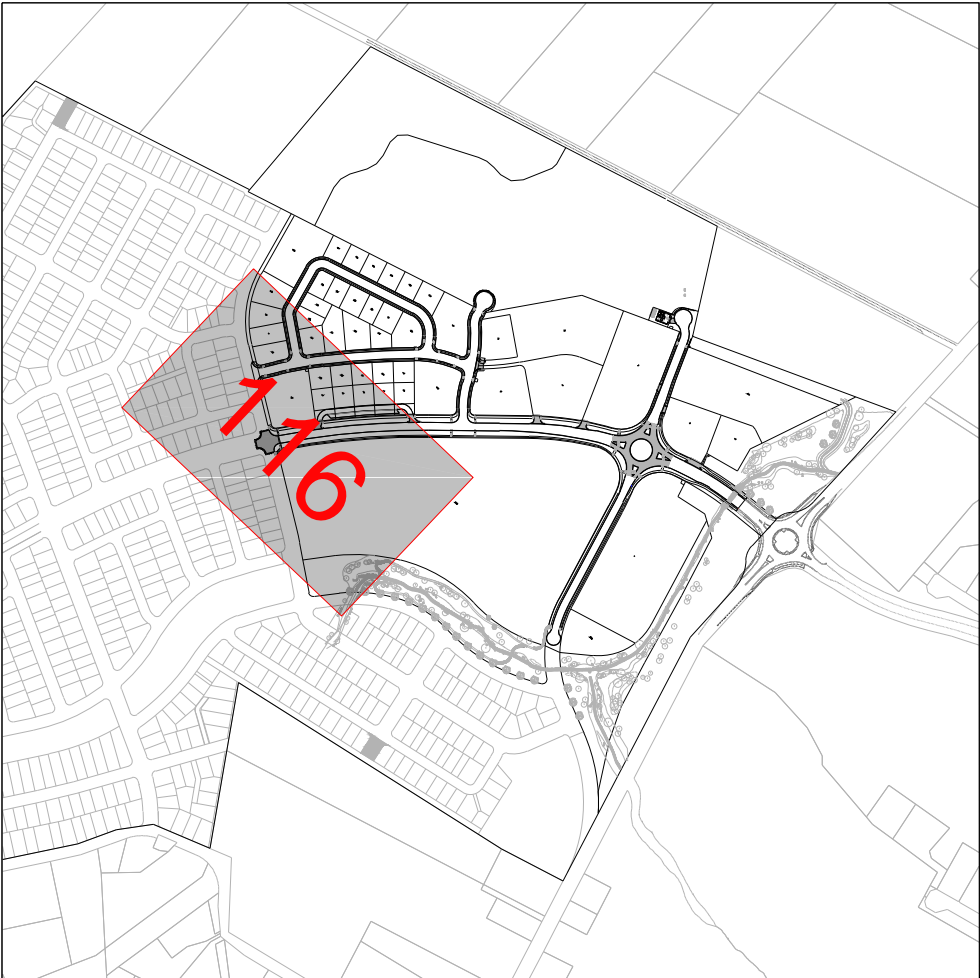
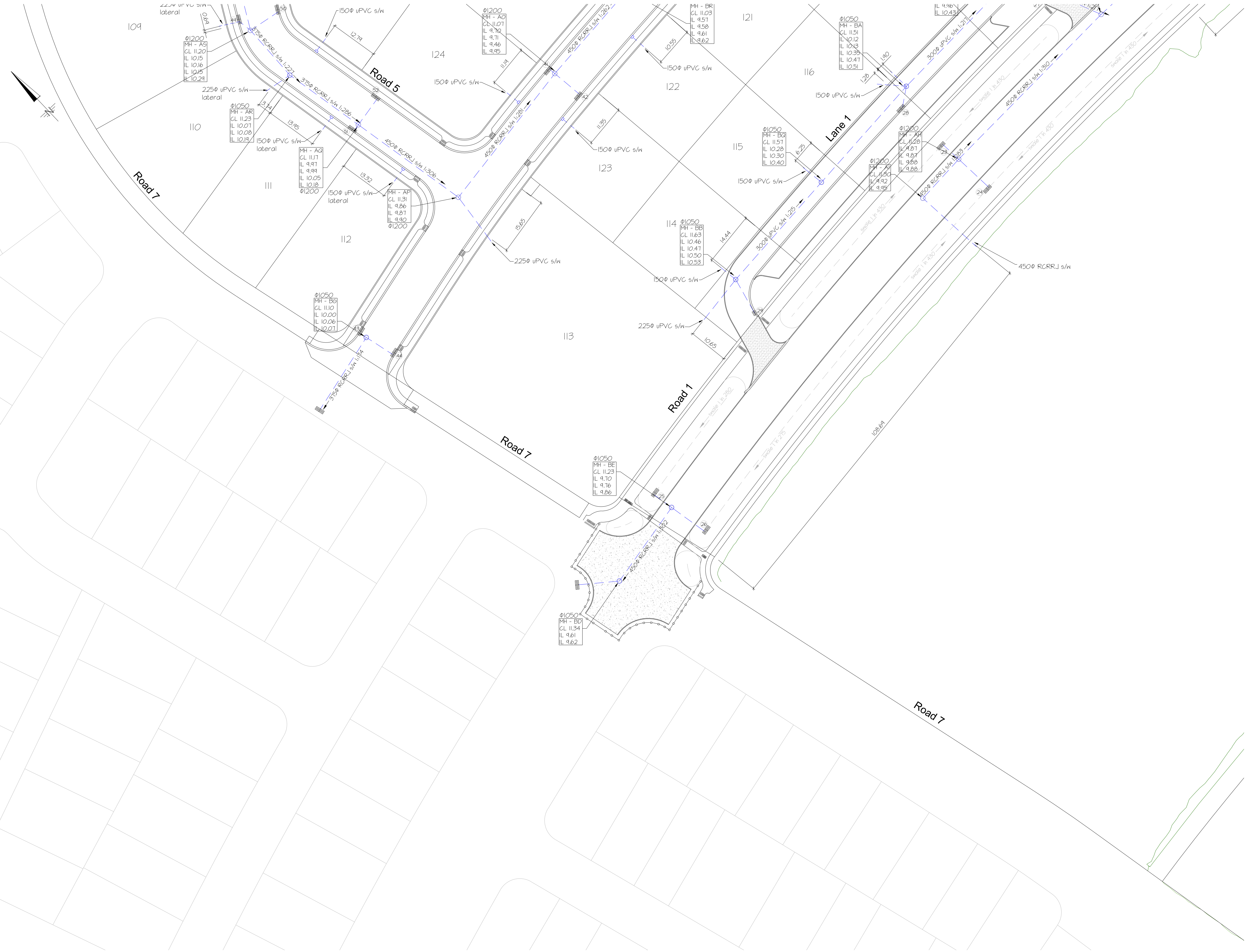


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KEY	
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SURFACE LEVEL	SL 99.49
SECTION FORMATION LEVELS	FL 11.05
PROPOSED SEWER	
UNVENTED SEWER MANHOLE	
VENTED SEWER MANHOLE	
SEWER OVER 2.5M DEEP	
PROPOSED STORMWATER	
STORMWATER MANHOLE	
SUMP	
STREET LIGHT	
LANDSCAPING (BY OTHERS)	
STAGE BOUNDARY	
PROPOSED GROUND CONTOURS	
DROP CROSSING	
TACTILE PAVERS/ PEDESTRIAN CROSSINGS	
STAGE BOUNDARY	



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

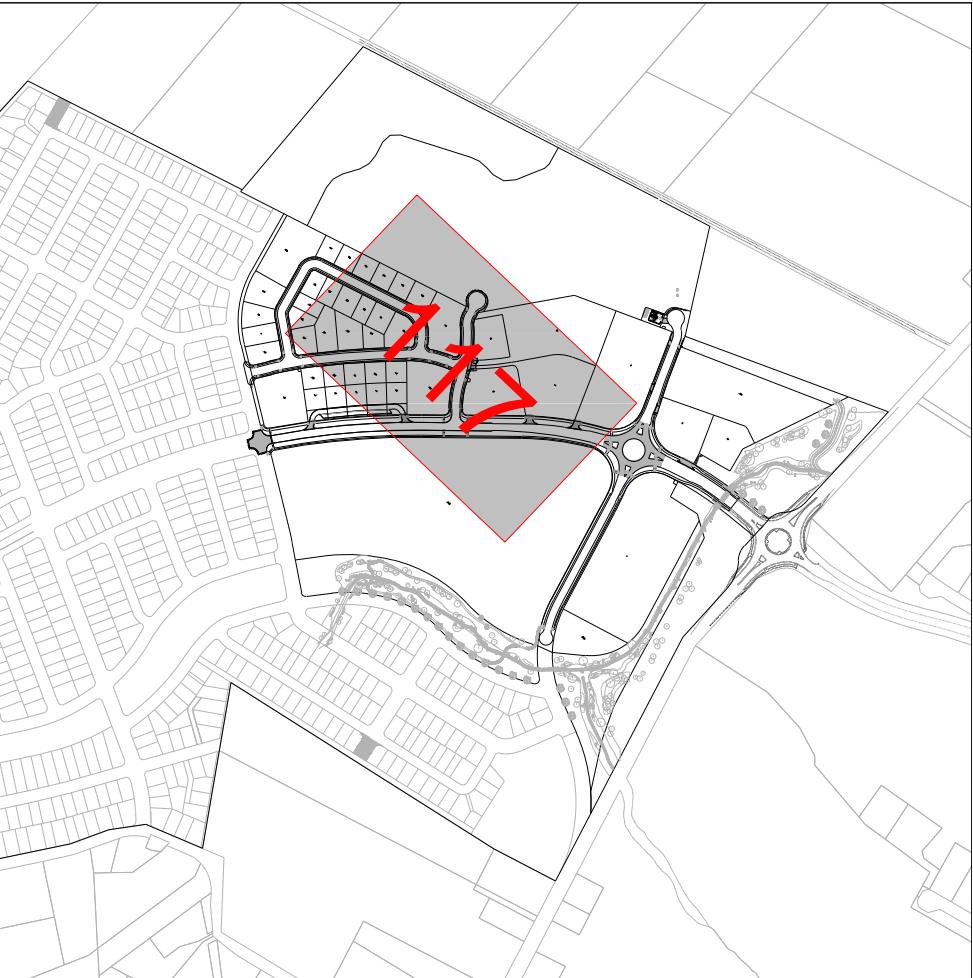
ENGINEERING DESIGN  
STORMWATER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	116
scale @ A1	date	file	issue
1:500	03/16	31143-C	B



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
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KEY	
KERB LEVELS	
SURFACE LEVEL	SL 99.49
SECTION FORMATION LEVELS	FL 11.05
PROPOSED SEWER	
UNVENTED SEWER MANHOLE	○
VENTED SEWER MANHOLE	●
SEWER OVER 2.5M DEEP	—
PROPOSED STORMWATER	---
STORMWATER MANHOLE	○
SUMP	⊗
STREET LIGHT	+
LANDSCAPING (BY OTHERS)	•
STAGE BOUNDARY	—
PROPOSED GROUND CONTOURS	AB 25 AB 0
DROP CROSSING	—
TACTILE PAVERS/ PEDESTRIAN CROSSINGS	—
STAGE BOUNDARY	—



CAD ref: 31143.Civil-Commercial.dwg

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RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

ENGINEERING DESIGN  
STORMWATER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	117
scale = A1	date	file	issue
1:500	03/16	31143-C	B



# KEY

KERB LEVELS

SURFACE LEVEL

SECTION FORMATION LEVELS

PROPOSED SEWER

UNVENTED SEWER MANHOLE

VENTED SEWER MANHOLE

SEWER OVER 2.5M DEEP

PROPOSED STORMWATER

STORMWATER MANHOLE

SUMP

STREET LIGHT

LANDSCAPING (BY OTHERS)

STAGE BOUNDARY

PROPOSED GROUND CONTOURS

DROP CROSSING

TACTILE PAVERS/ PEDESTRIAN CROSSINGS

STAGE BOUNDARY

51.99.49

FL 11.05

○

●

—

---

○

300

+

10.25

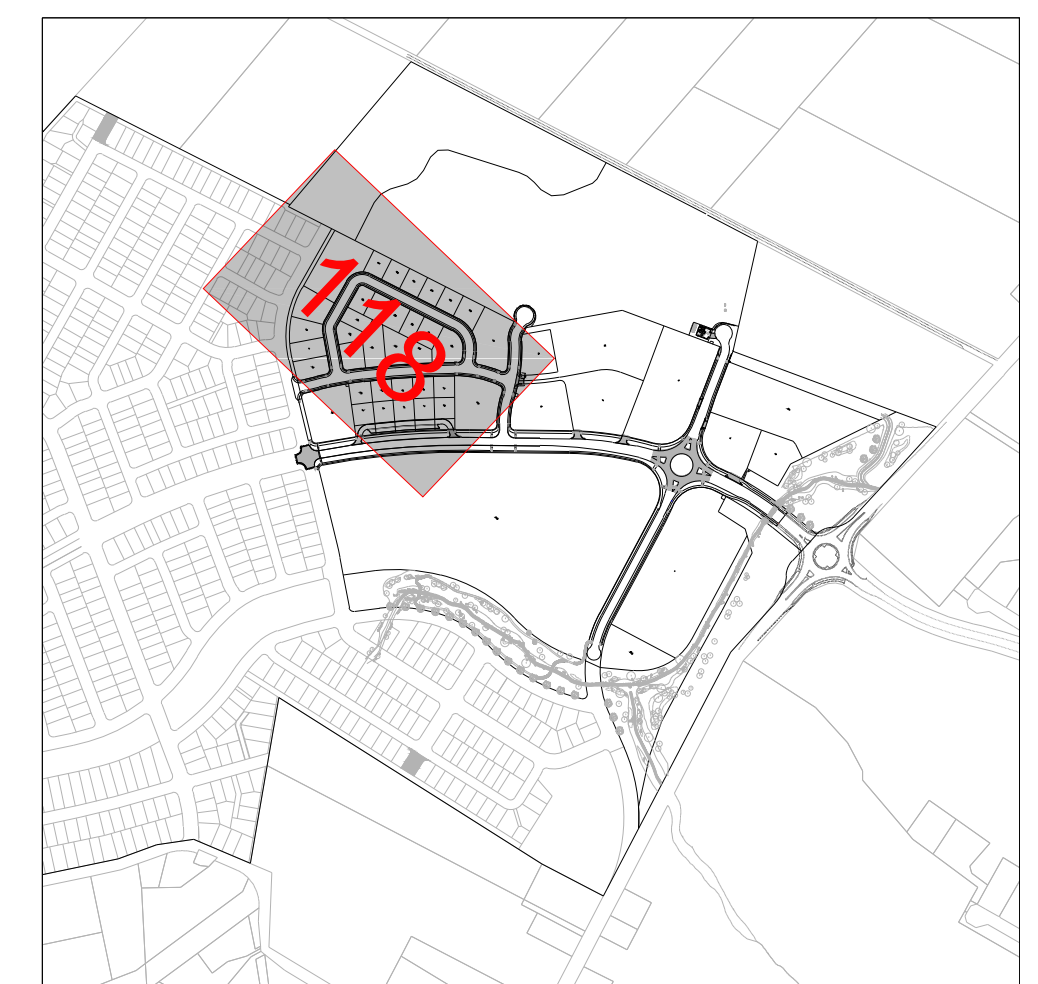
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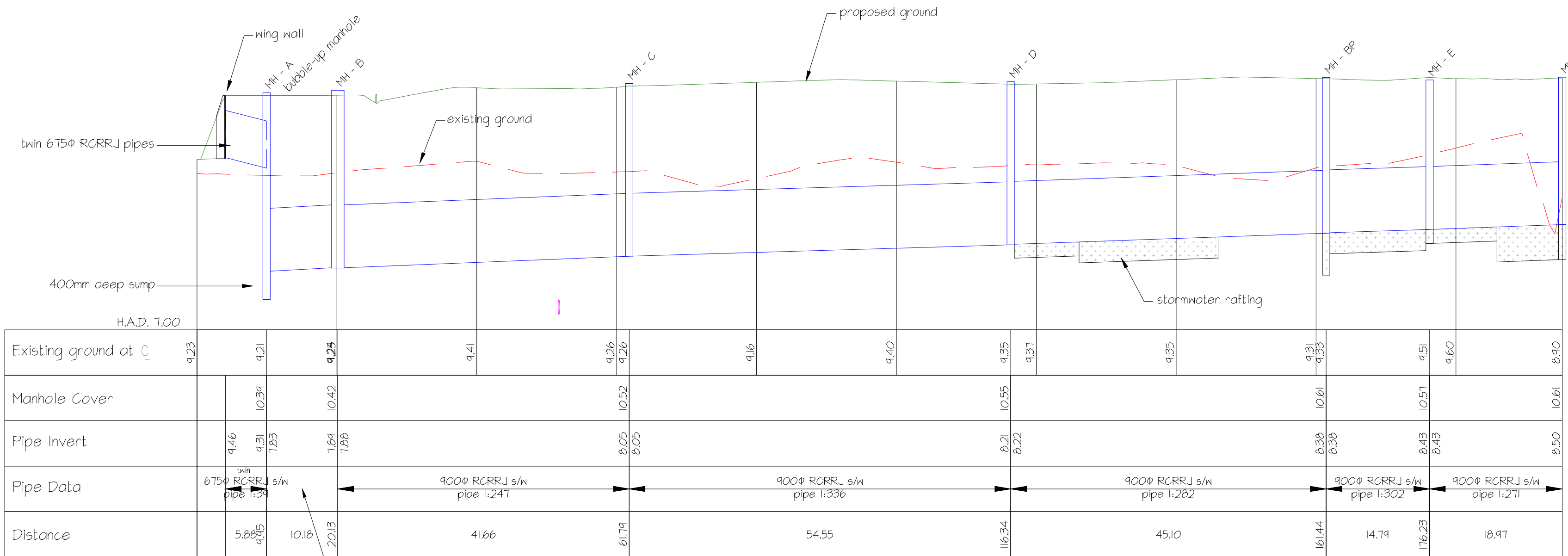
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**OVERALL COMMERCIAL AREA**  
SCALE 1:10000

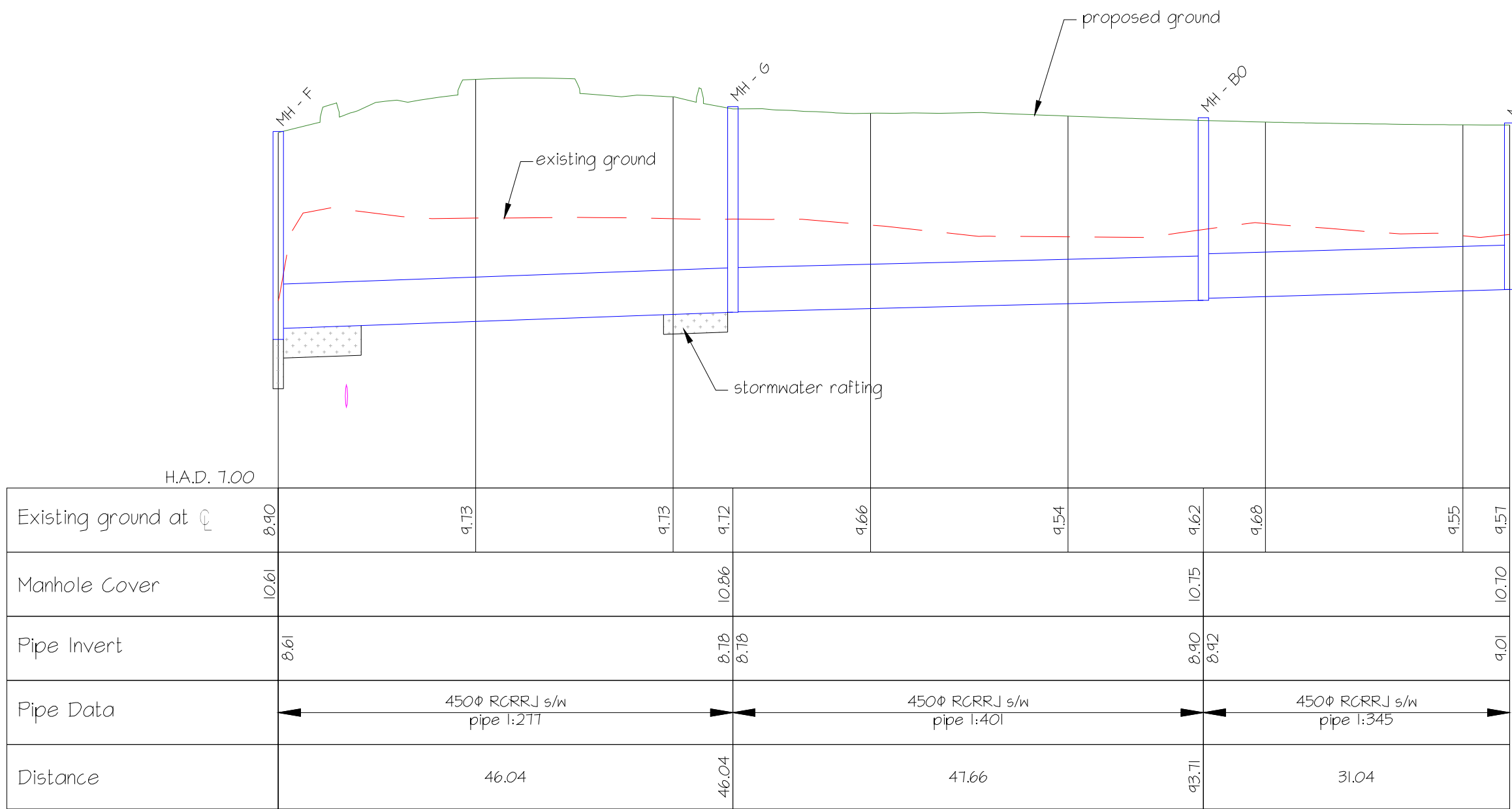


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B	06/04/18	For Council	



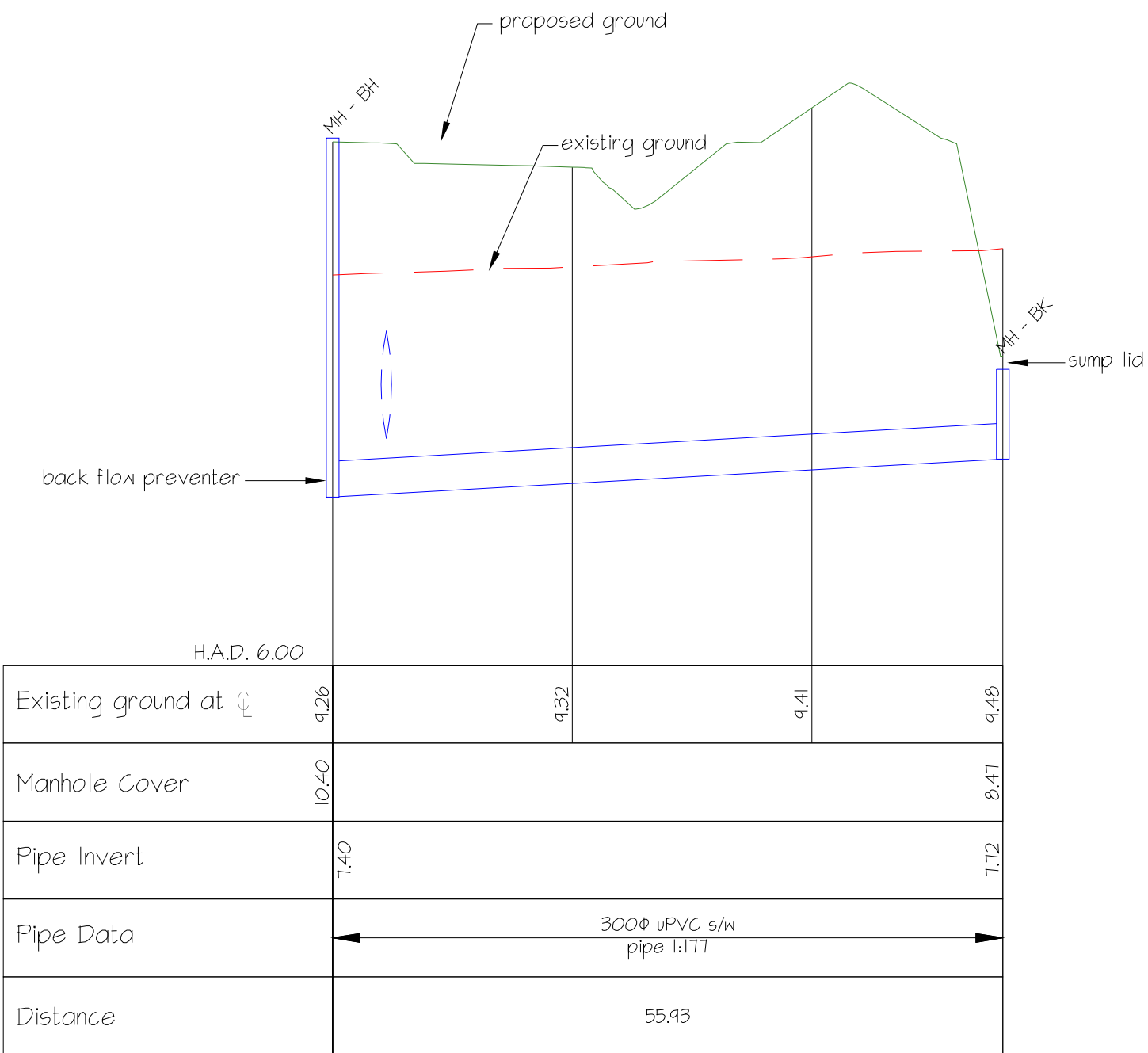
STORMWATER LONG SECTION - INLET to MH F

SCALE 1:500 horiz  
SCALE 1:50 vert



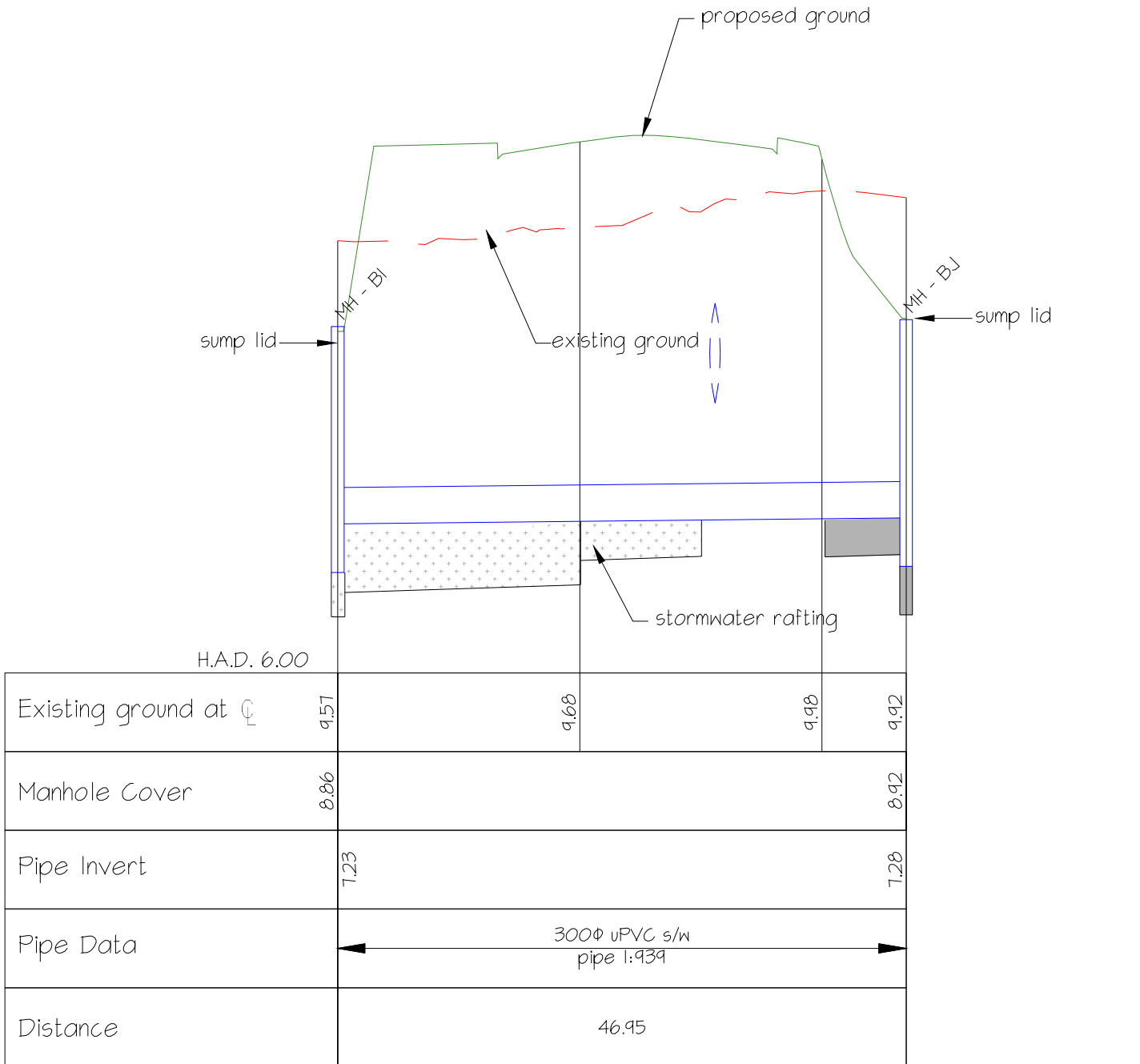
STORMWATER LONG SECTION - MH F to MH H

SCALE 1:500 horiz  
SCALE 1:50 vert



STORMWATER LONG SECTION - MH BH to MH BK

SCALE 1:500 horiz  
SCALE 1:50 vert

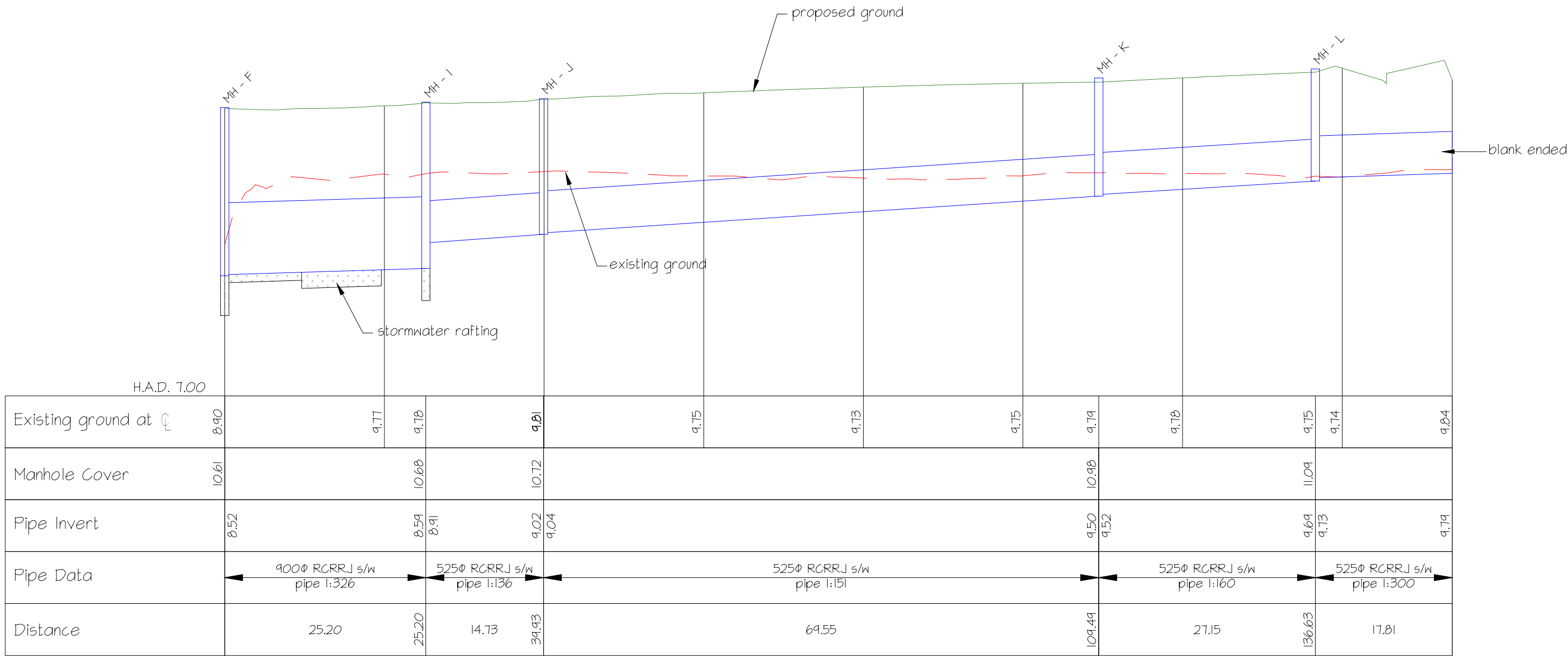


STORMWATER LONG SECTION - MH BI to MH BJ

SCALE 1:500 horiz  
SCALE 1:50 vert

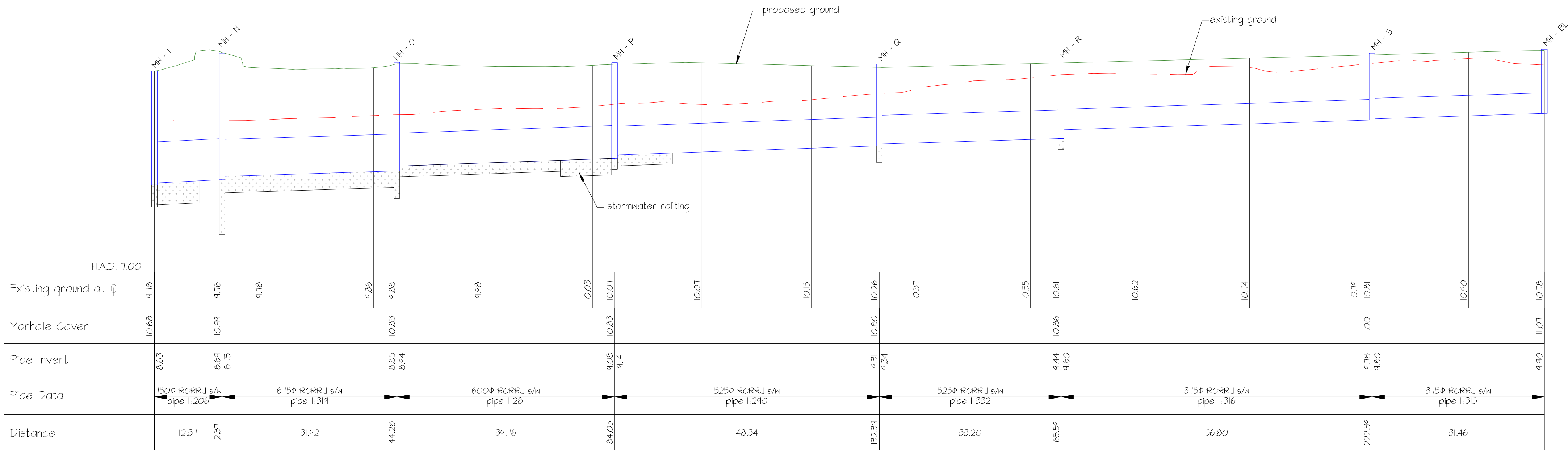


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



STORMWATER LONG SECTION - MH F to MH M

SCALE 1:500 horiz  
SCALE 1:50 vert

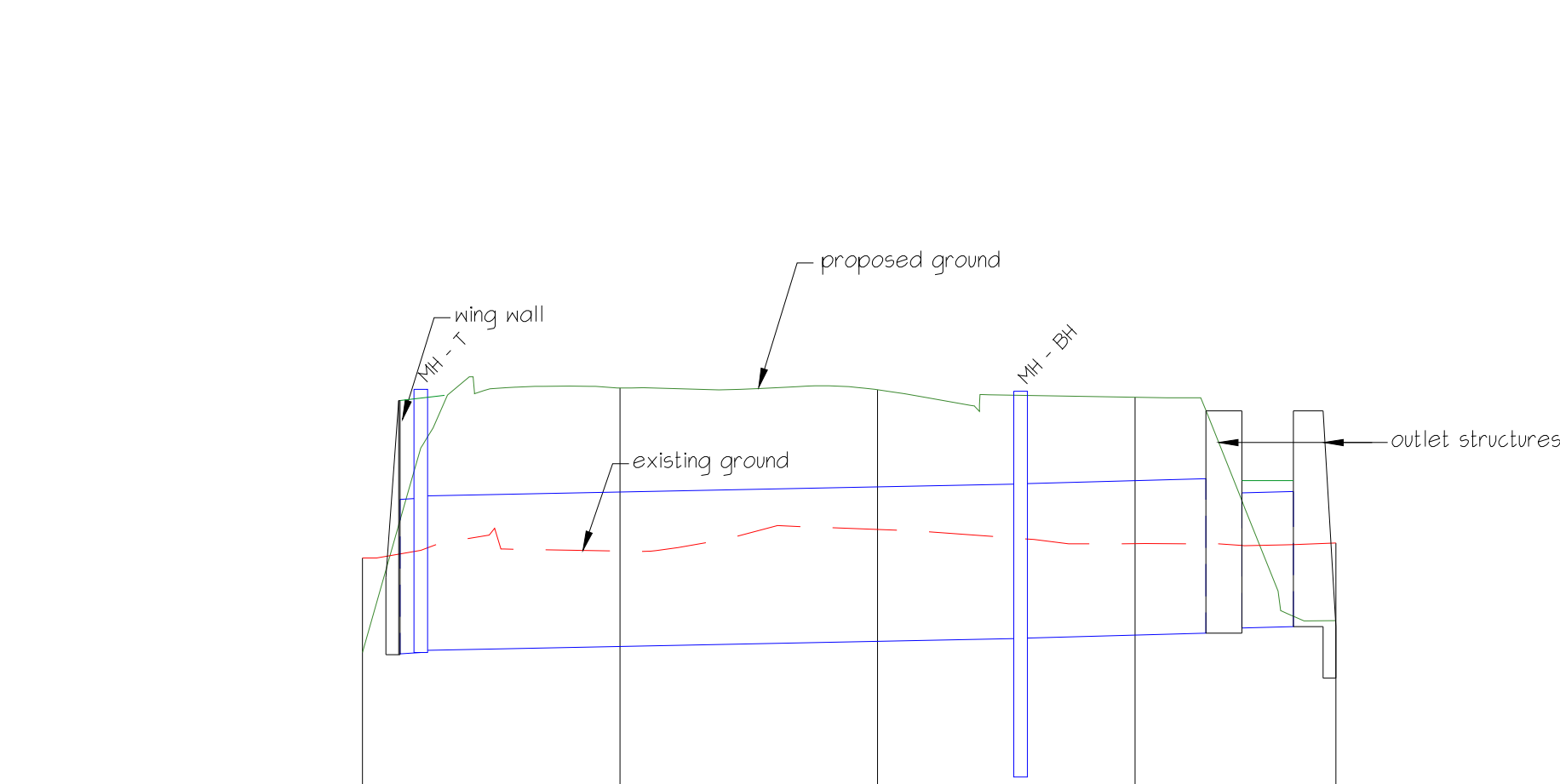


STORMWATER LONG SECTION - MH I to MH BL

SCALE 1:500 horiz  
SCALE 1:50 vert

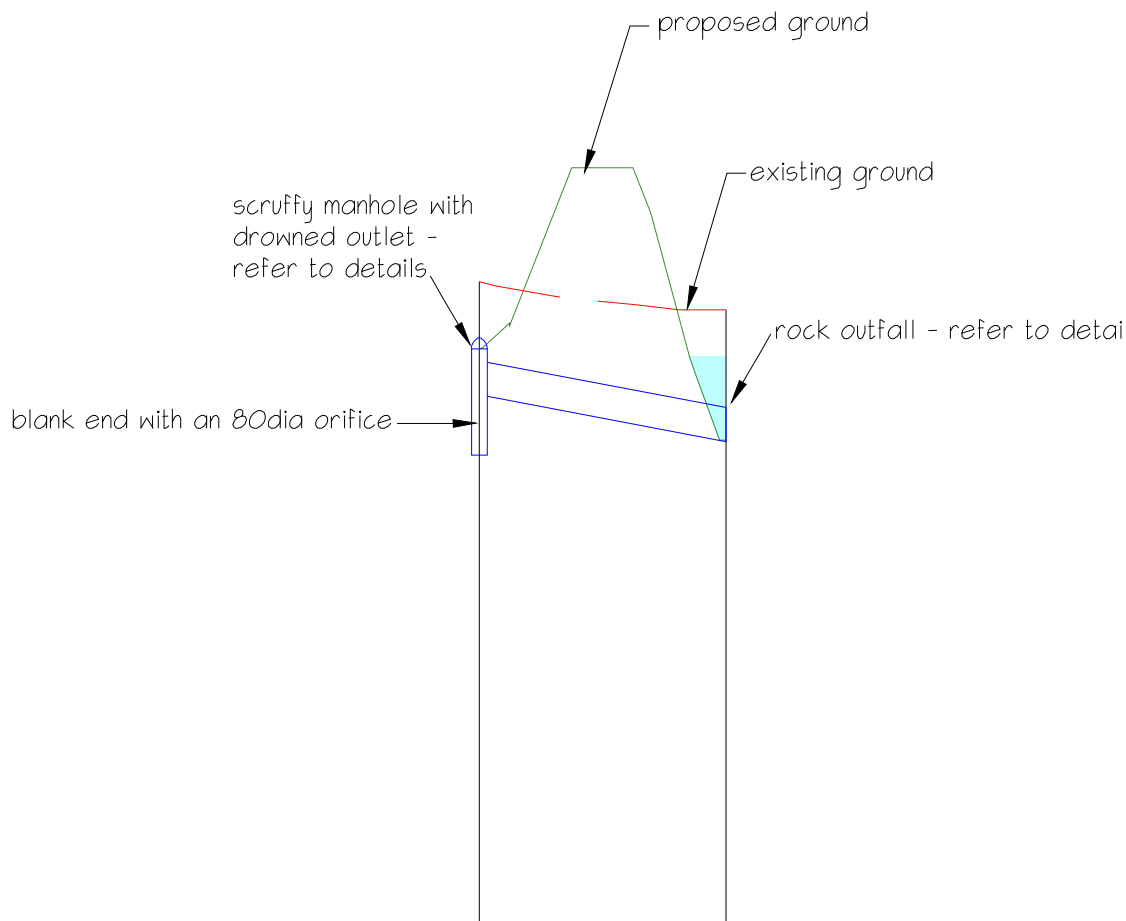


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



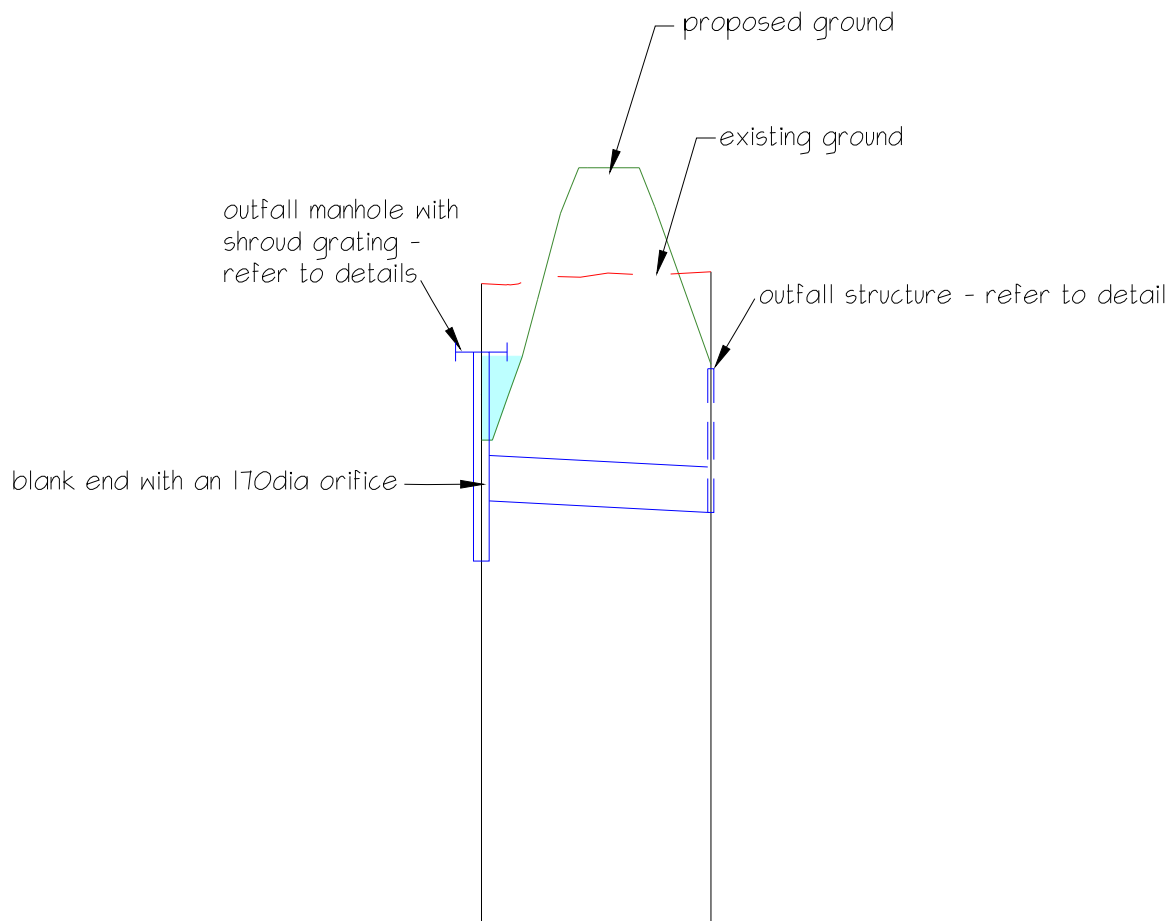
Existing ground at $\ell$	9.10	9.16	9.16	9.33	9.26	9.22	9.22
Manhole Cover		10.41			10.40		10.27
Pipe Invert	8.36 8.37	8.34			8.46 8.46	8.52 8.56 8.57	8.54
Pipe Data	1200 $\phi$ RCRRJ s/m pipe 1:100		1200 $\phi$ RCRRJ s/m pipe 1:500		1200 $\phi$ RCRRJ s/m pipe 1:364		1200 $\phi$ RCRRJ s/m pipe 1:333
Distance	1.60	46.58	5.11	14.34	4.00		

STORMWATER LONG SECTION - INLET to OUTLET  
SCALE 1:500 horiz  
SCALE 1:50 vert



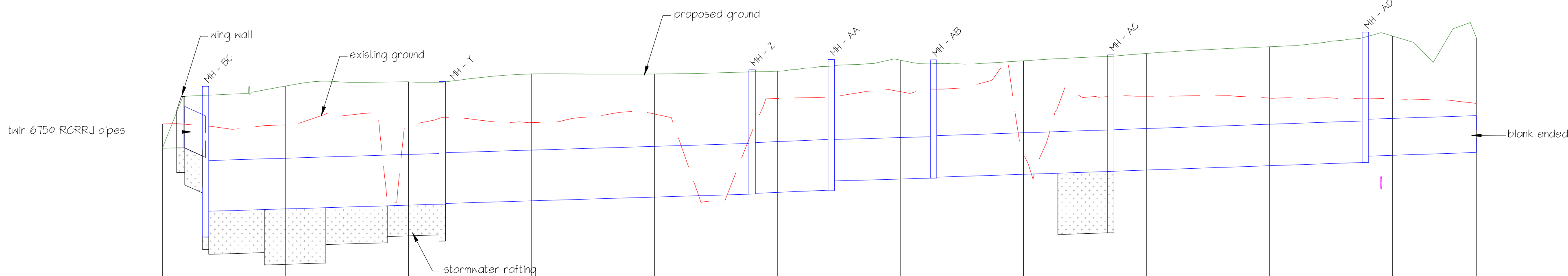
Existing ground at $\ell$	9.60	9.41
Manhole Cover	9.15	
Pipe Invert	8.85	8.54
Pipe Data	225 $\phi$ uPVC s/m pipe 1:53	
Distance	16.31	

STORMWATER LONG SECTION - N2 to Wetland  
SCALE 1:500 horiz  
SCALE 1:50 vert



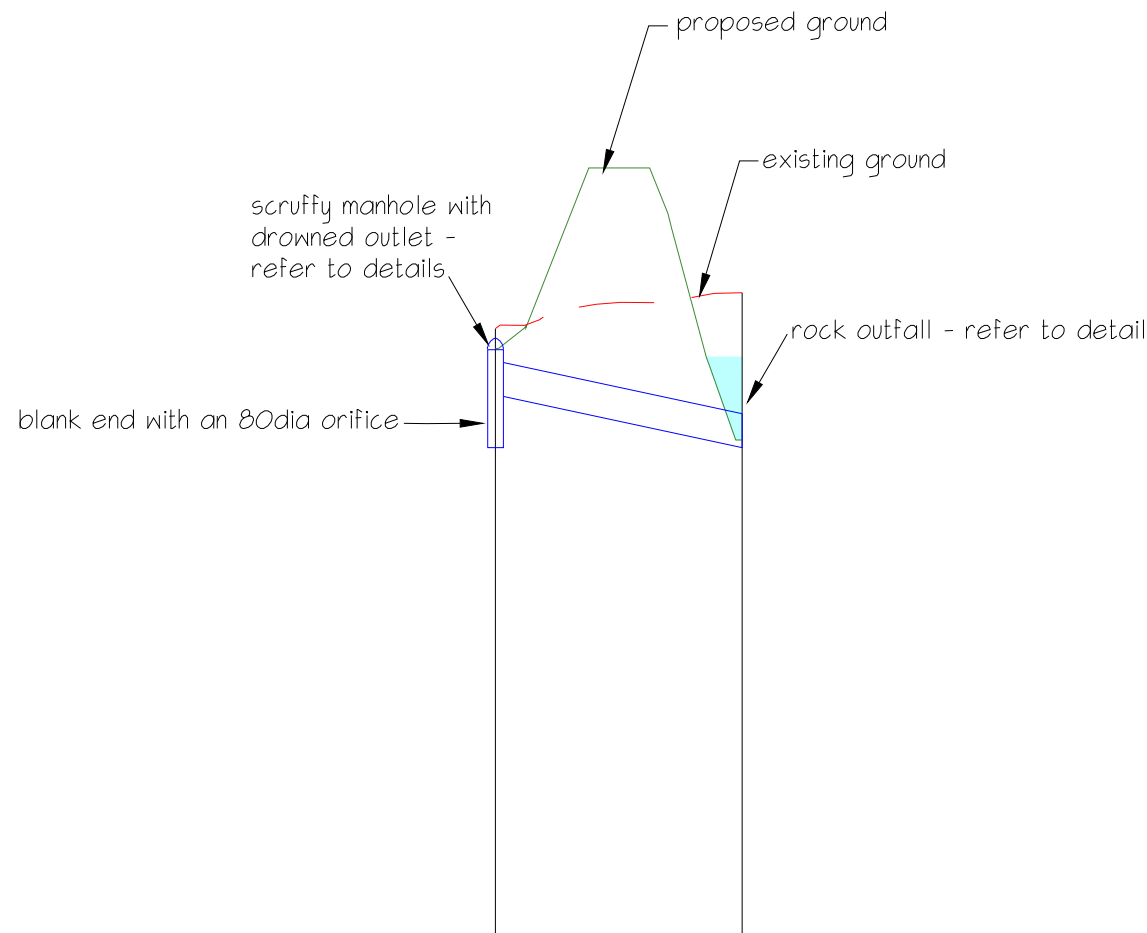
Existing ground at $\ell$		
Manhole Cover	9.13	9.02
Pipe Invert	8.15	8.07
Pipe Data	300 $\phi$ uPVC s/m pipe 1:190	
Distance	15.18	

STORMWATER LONG SECTION - Wetland to Detention Basin  
SCALE 1:500 horiz  
SCALE 1:50 vert



H.A.D. 7.00																															
Existing ground at $\ell$	9.16		9.13		9.14		9.13		9.87		9.14		9.42		9.65	10.18	10.21	10.24	10.33		9.27		10.21	10.21		10.18		10.18	10.17		10.10
Manhole Cover		10.38							10.45						10.64		10.81		10.81					10.84					11.26		
Pipe Invert		9.37 9.37 9.34							9.46 9.41						9.62 9.63		9.64 9.63		9.88 9.90					9.94 9.94					9.14 9.24		9.30
Pipe Data	675 $\phi$ RCRRJ s/m pipe 1:224		825 $\phi$ RCRRJ s/m pipe 1:326		825 $\phi$ RCRRJ s/m pipe 1:321		825 $\phi$ RCRRJ s/m pipe 1:224		675 $\phi$ RCRRJ s/m pipe 1:336		675 $\phi$ RCRRJ s/m pipe 1:300		675 $\phi$ RCRRJ s/m pipe 1:285		675 $\phi$ RCRRJ s/m pipe 1:300		600 $\phi$ RCRRJ s/m pipe 1:300														
Distance	3.51	38.52	45.48	50.38	45.87	12.85	108.72	16.64	125.95	28.81	154.16	41.41	145.57	18.05																	

STORMWATER LONG SECTION - INLET to MH AE  
SCALE 1:500 horiz  
SCALE 1:50 vert



Existing ground at $\ell$	9.24	9.53
Manhole Cover	9.15	
Pipe Invert	8.85	8.50
Pipe Data	225 $\phi$ uPVC s/m pipe 1:47	
Distance	16.31	

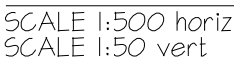
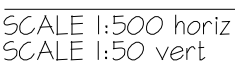
STORMWATER LONG SECTION - N3 to Wetland  
SCALE 1:500 horiz  
SCALE 1:50 vert



Profile view of a sewer line showing existing ground, proposed ground, and stormwater rafting. The diagram includes labels for manhole covers (MH - A0, MH - A1, MH - A2, MH - A3, MH - A4), existing ground, proposed ground, and stormwater rafting. A table below the diagram provides data for existing ground elevation, manhole cover elevation, pipe invert elevation, pipe data, and distance.

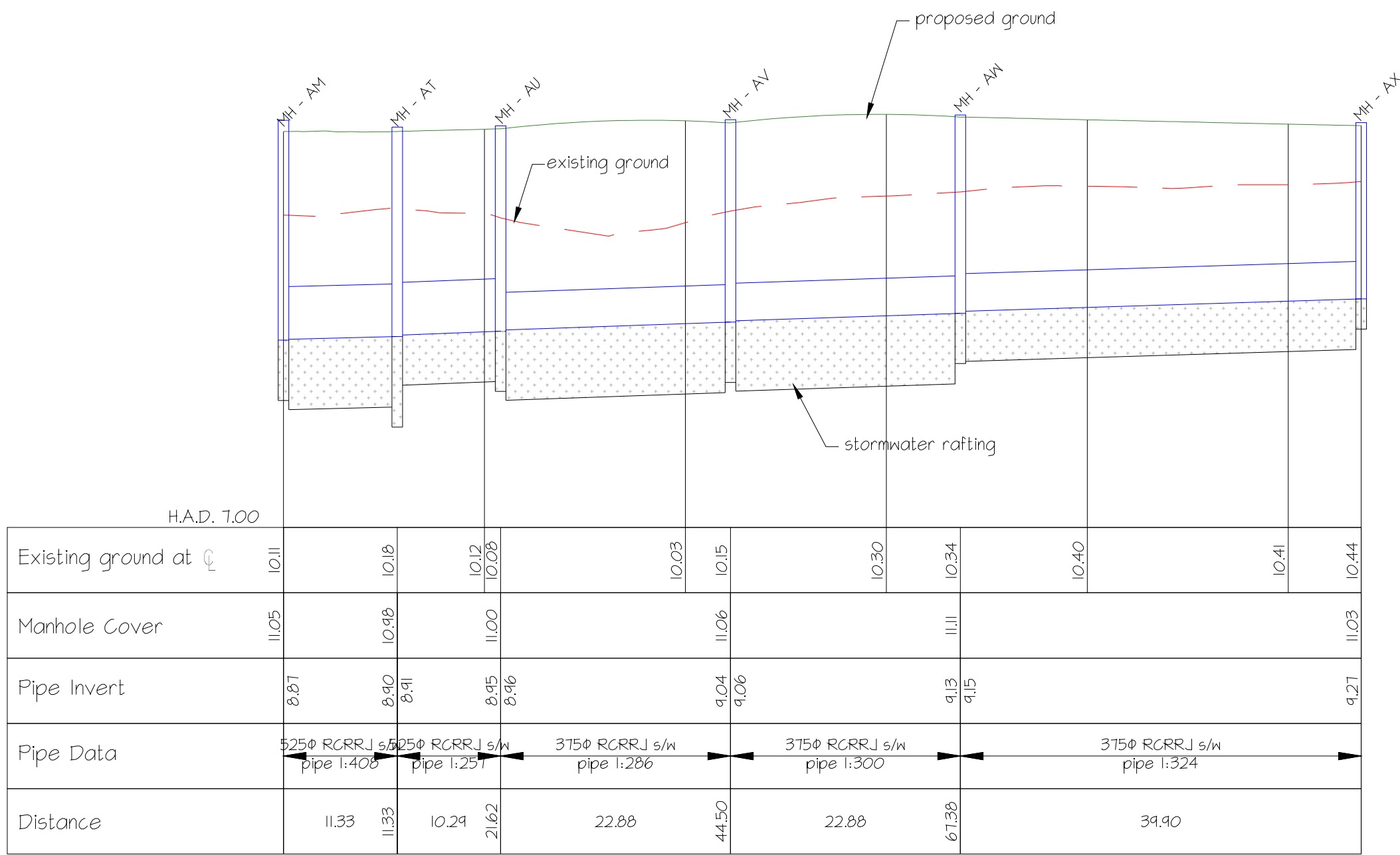
	H.A.D. 7.00									
Existing ground at	10.18	10.26 10.21	9.06	10.27 10.21	10.47	10.54	10.64 10.73	10.76	10.76	10.73
Manhole Cover	11.26	11.19		11.40			11.28	11.30		
Pipe Invert	9.47	9.52 9.55		9.68 9.64			9.86 9.81	9.82 9.85		10.02
Pipe Data	525ø RCRRJ s/m pipe 1:360	450ø RCRRJ s/m pipe 1:331			450ø RCRRJ s/m pipe 1:310		450ø RCRRJ s/m pipe 1:283	450ø RCRRJ s/m pipe 1:300		
Distance	17.91	17.91	43.02	60.13	54.32		115.25	14.15	124.40	19.38

SCALE 1:500 horiz  
SCALE 1:50 vert



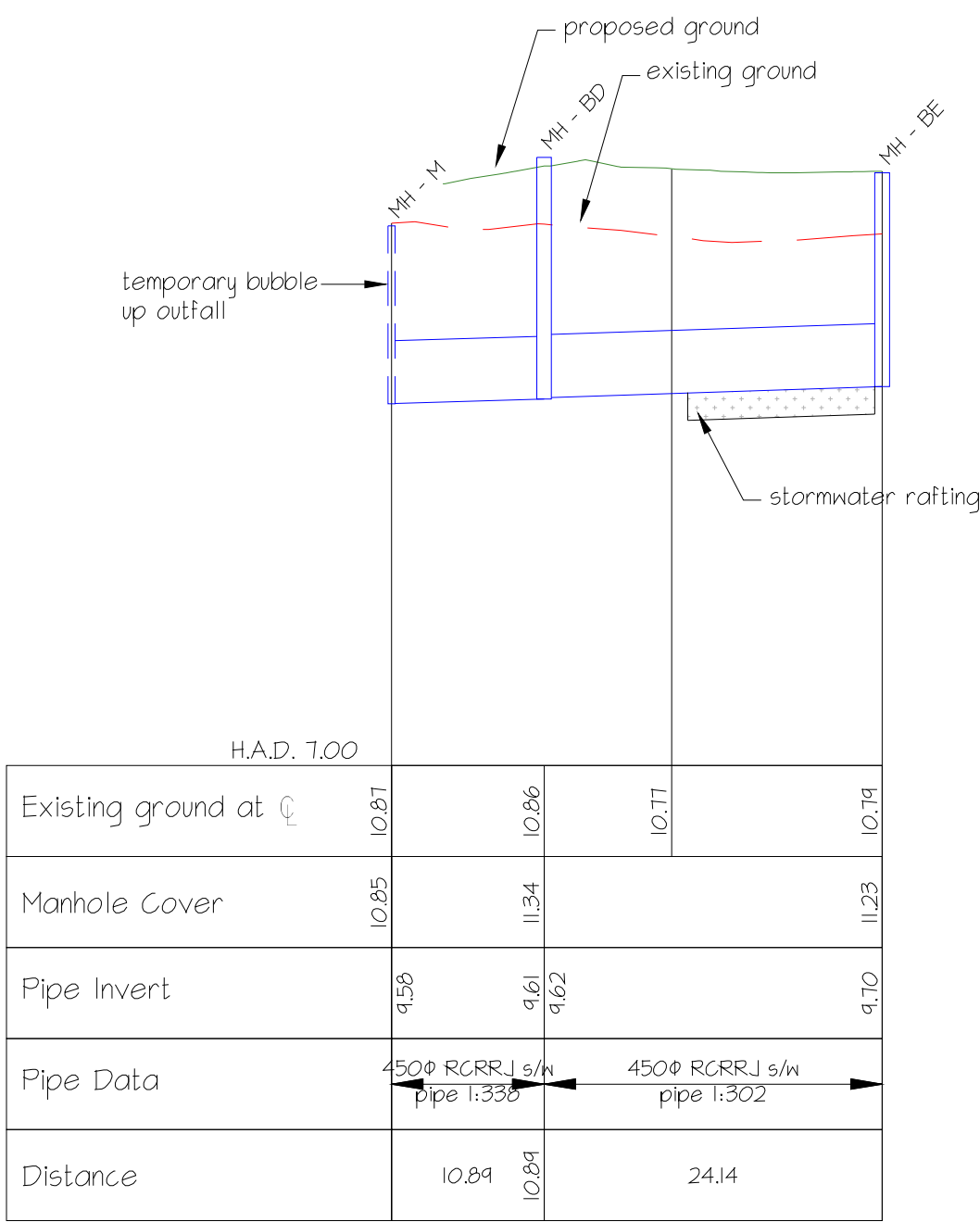


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



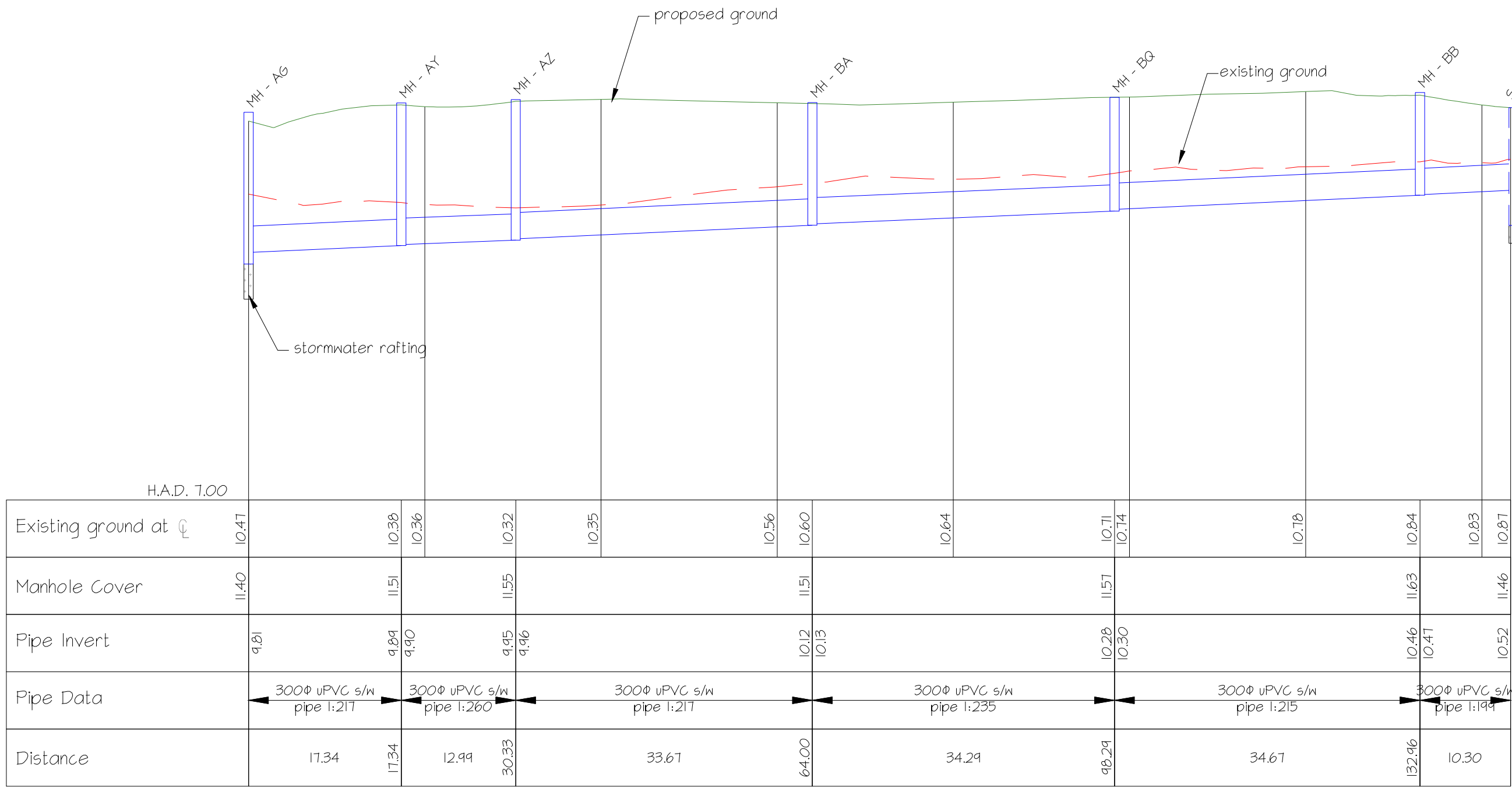
STORMWATER LONG SECTION - MH AM to MH AX

SCALE 1:500 horiz  
SCALE 1:50 vert



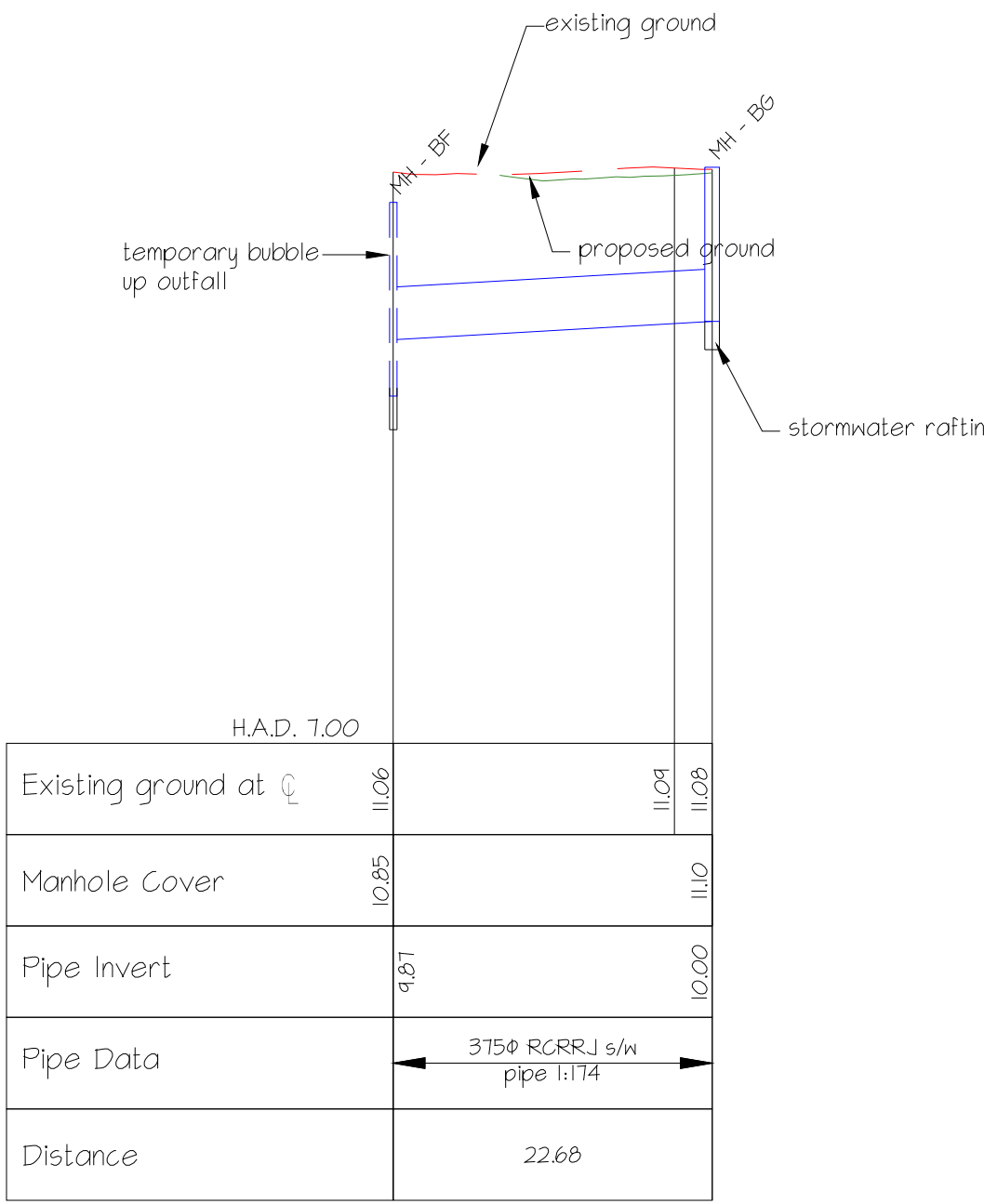
STORMWATER LONG SECTION - MH M to MH BE

SCALE 1:500 horiz  
SCALE 1:50 vert



STORMWATER LONG SECTION - MH AG to Sump 29

SCALE 1:500 horiz  
SCALE 1:50 vert

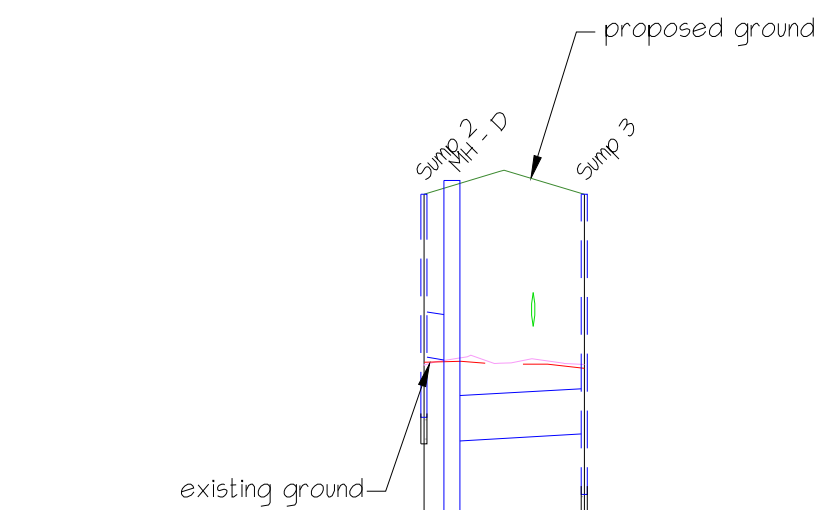


STORMWATER LONG SECTION - MH BF to MH BG

SCALE 1:500 horiz  
SCALE 1:50 vert



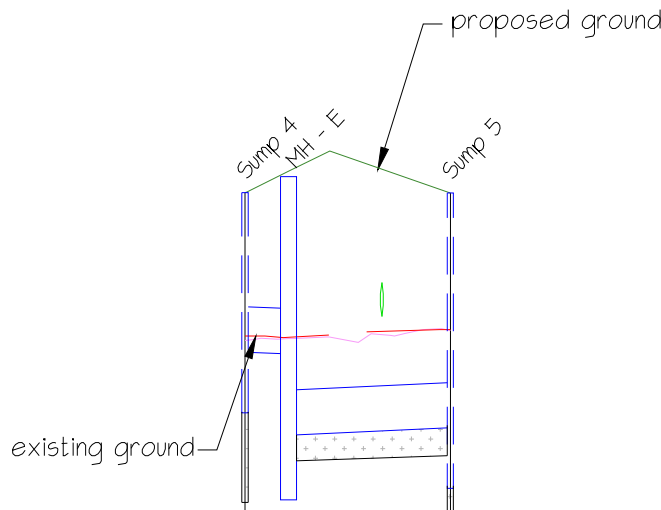
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A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



H.A.D. 1.00		
Existing ground at $\phi$	4.34 4.35	4.30
Manhole Cover	10.45 10.55	10.45
Pipe Invert	4.36 8.82	8.81
Pipe Data	300 $\phi$ uPVC s/n pipe 1:162	300 $\phi$ uPVC s/n pipe 1:175
Distance	1.85	8.75

SUMP TO SUMP - Sump 2 - Sump 3

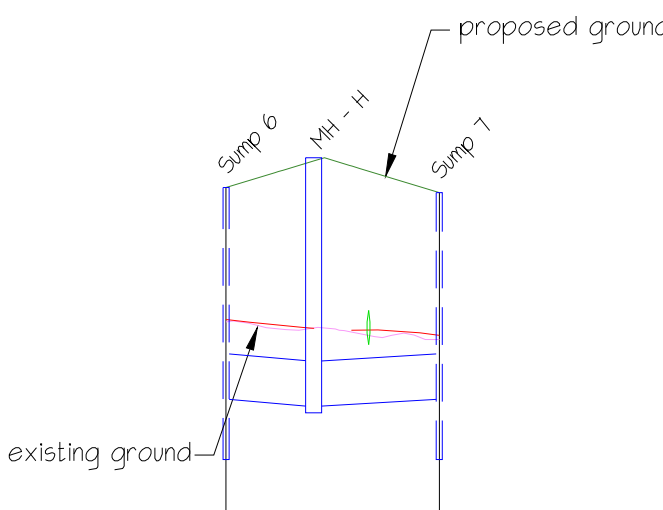
SCALE 1:500 horiz  
SCALE 1:50 vert



H.A.D. 1.00		
Existing ground at $\phi$	4.52 4.51	4.56
Manhole Cover	10.47 10.51	10.46
Pipe Invert	4.40 8.86	8.91
Pipe Data	300 $\phi$ uPVC s/n pipe 1:204	300 $\phi$ uPVC s/n pipe 1:214
Distance	2.84	10.70

SUMP TO SUMP - Sump 4 - Sump 5

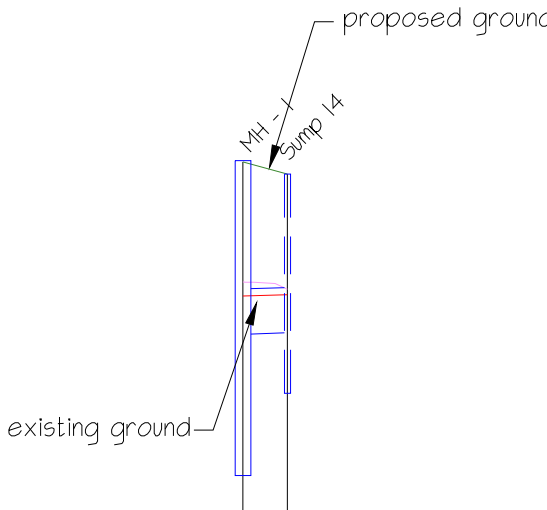
SCALE 1:500 horiz  
SCALE 1:50 vert



H.A.D. 1.00		
Existing ground at $\phi$	4.63 4.51	4.52
Manhole Cover	10.50 10.70	10.47
Pipe Invert	4.10 4.05	4.10
Pipe Data	300 $\phi$ uPVC s/n pipe 1:166	300 $\phi$ uPVC s/n pipe 1:166
Distance	5.74 5.71	8.32

SUMP TO SUMP - MH 6 - Sump 7

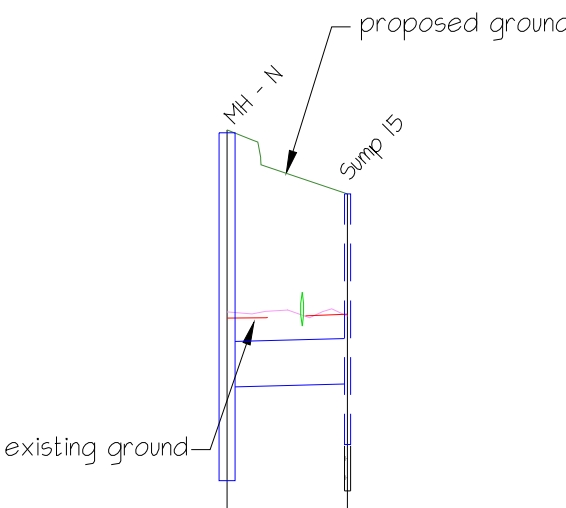
SCALE 1:500 horiz  
SCALE 1:50 vert



H.A.D. 1.00		
Existing ground at $\phi$	4.19 4.14	4.14
Manhole Cover	10.68 10.54	
Pipe Invert	4.13 4.13	
Pipe Data	300 $\phi$ uPVC s/n pipe 1:300	
Distance	2.43	

SUMP TO SUMP - MH 1 - Sump 14

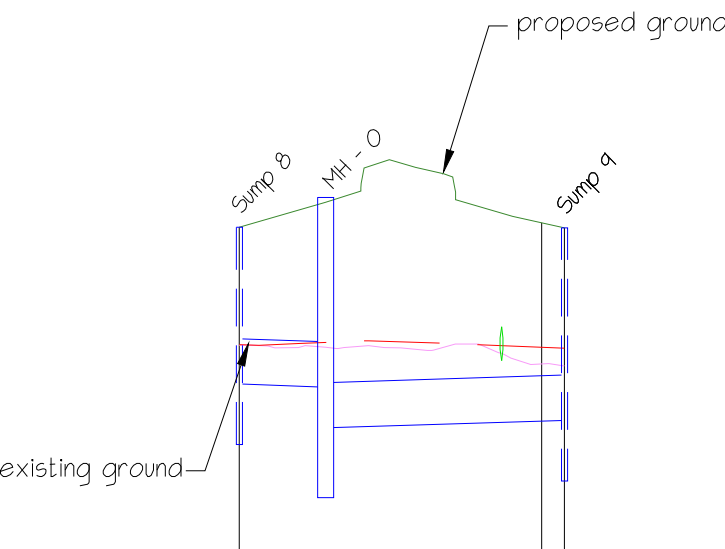
SCALE 1:500 horiz  
SCALE 1:50 vert



H.A.D. 1.00		
Existing ground at $\phi$	4.76 4.74	4.74
Manhole Cover	10.84 10.84	10.84
Pipe Invert	4.31 4.33	4.33
Pipe Data	300 $\phi$ uPVC s/n pipe 1:316	
Distance	7.47	

SUMP TO SUMP - MH N - Sump 15

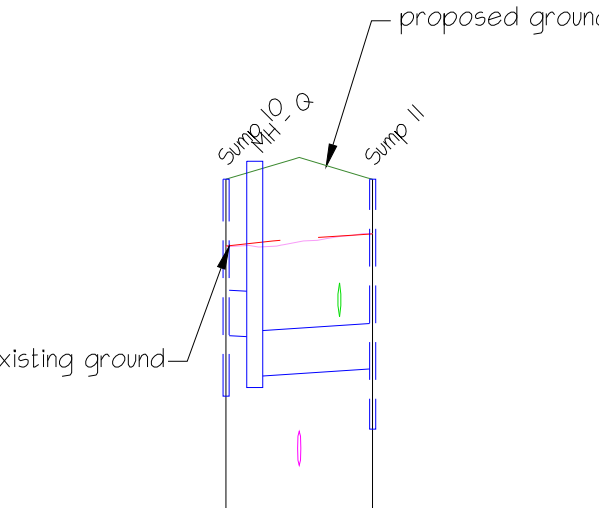
SCALE 1:500 horiz  
SCALE 1:50 vert



H.A.D. 1.00		
Existing ground at $\phi$	4.86 4.88	4.84 4.84
Manhole Cover	10.84 10.83	10.83
Pipe Invert	4.80 4.59	4.31
Pipe Data	300 $\phi$ uPVC s/n pipe 1:285	300 $\phi$ uPVC s/n pipe 1:316
Distance	5.70 5.70	15.80

SUMP TO SUMP - Sump 8 - Sump 9

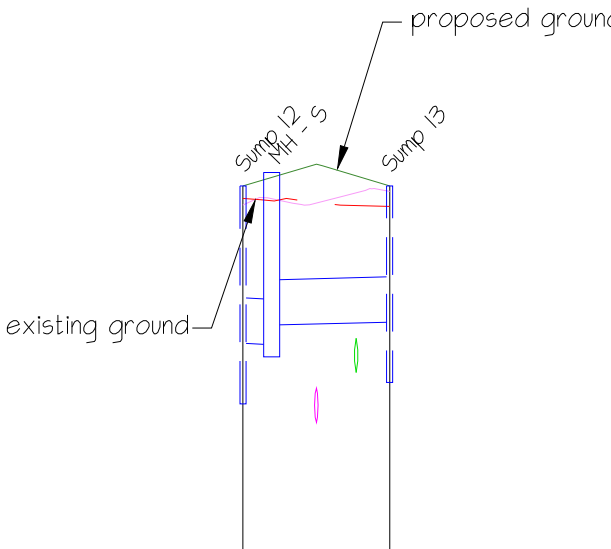
SCALE 1:500 horiz  
SCALE 1:50 vert



H.A.D. 1.00		
Existing ground at $\phi$	10.24 10.26	10.32
Manhole Cover	10.68 10.80	10.68
Pipe Invert	4.68 4.38	4.43
Pipe Data	300 $\phi$ uPVC s/n pipe 1:140	300 $\phi$ uPVC s/n pipe 1:156
Distance	1.80 1.80	7.80

SUMP TO SUMP - Sump 10 - Sump 11

SCALE 1:500 horiz  
SCALE 1:50 vert



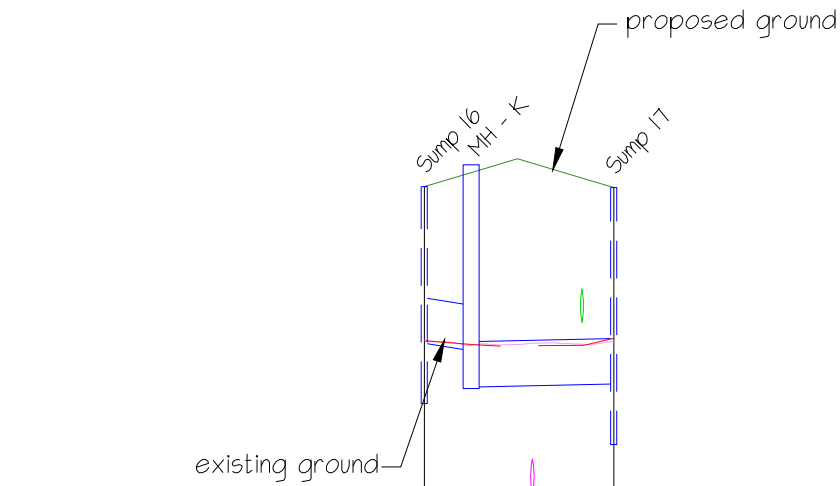
H.A.D. 1.00		
Existing ground at $\phi$	10.83 10.81	10.78
Manhole Cover	10.91 11.00	10.91
Pipe Invert	4.88 4.84	10.01
Pipe Data	300 $\phi$ uPVC s/n pipe 1:140	300 $\phi$ uPVC s/n pipe 1:340
Distance	1.80 1.80	7.80

SUMP TO SUMP - Sump 12 - Sump 13

SCALE 1:500 horiz  
SCALE 1:50 vert

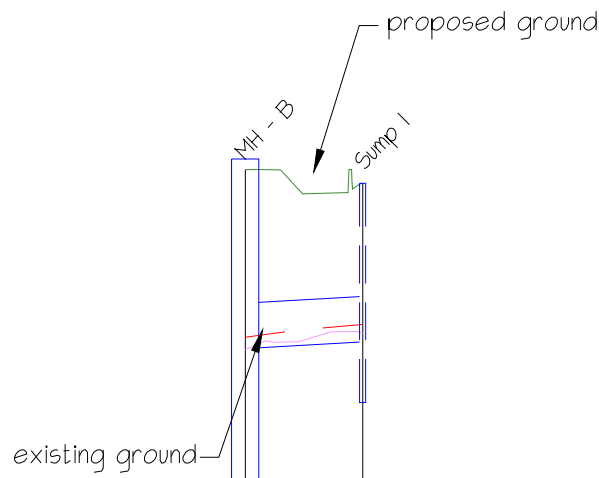


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



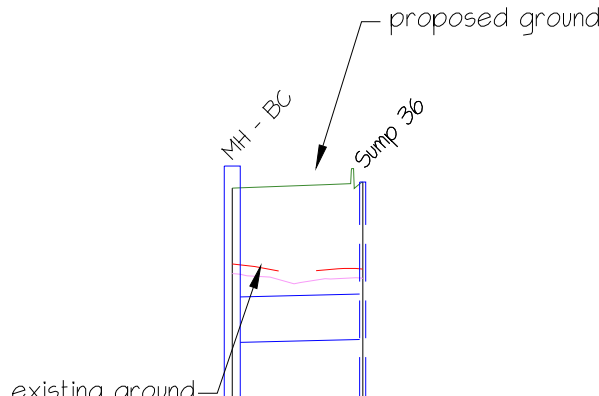
H.A.D. 1:00			
Existing ground at $\phi$	4.61	4.19	4.63
Manhole Cover	10.84	10.49	10.83
Pipe Invert	4.60	4.15	4.53
Pipe Data	3000 uPVC s/w pipe 1:1.32		3000 uPVC s/w pipe 1:4.72
Distance	3.80		4.43

SUMP TO SUMP - Sump 16 - Sump 17  
SCALE 1:500 horiz  
SCALE 1:50 vert



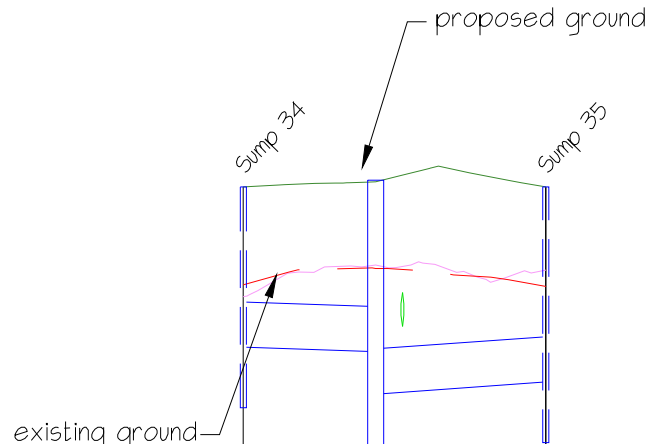
H.A.D. 1:00			
Existing ground at $\phi$	4.25		4.33
Manhole Cover	10.42		10.26
Pipe Invert	4.17		4.21
Pipe Data	3000 uPVC s/w pipe 1:1.14		
Distance			1.11

SUMP TO SUMP - MH B - Sump 1  
SCALE 1:500 horiz  
SCALE 1:50 vert



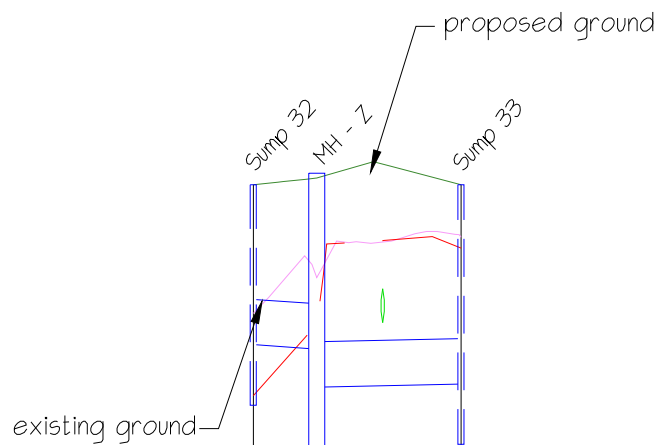
H.A.D. 1:00			
Existing ground at $\phi$	4.73		4.10
Manhole Cover	10.39		10.21
Pipe Invert	4.21		4.23
Pipe Data	3000 uPVC s/w pipe 1:4.52		
Distance			8.63

SUMP TO SUMP - MH BC - Sump 36  
SCALE 1:500 horiz  
SCALE 1:50 vert



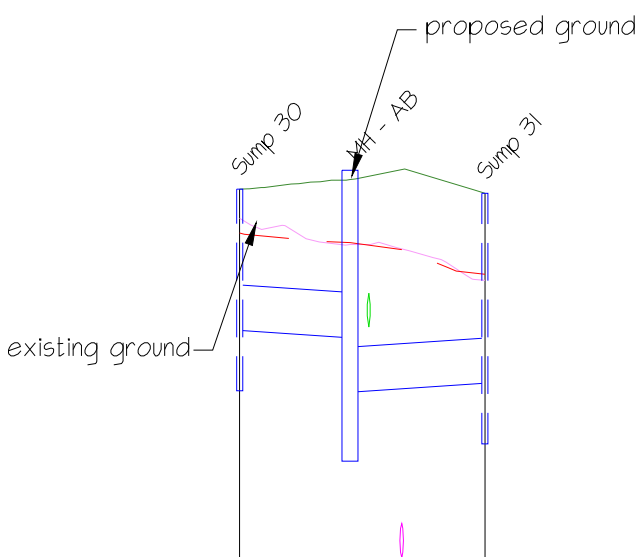
H.A.D. 1:00			
Existing ground at $\phi$	4.76	4.67	4.15
Manhole Cover	10.41	10.45	10.41
Pipe Invert	4.35	4.30	4.12
Pipe Data	3000 uPVC s/w pipe 1:2.42		3000 uPVC s/w pipe 1:1.41
Distance	8.76	8.16	11.25

SUMP TO SUMP - Sump 34 - Sump 35  
SCALE 1:500 horiz  
SCALE 1:50 vert



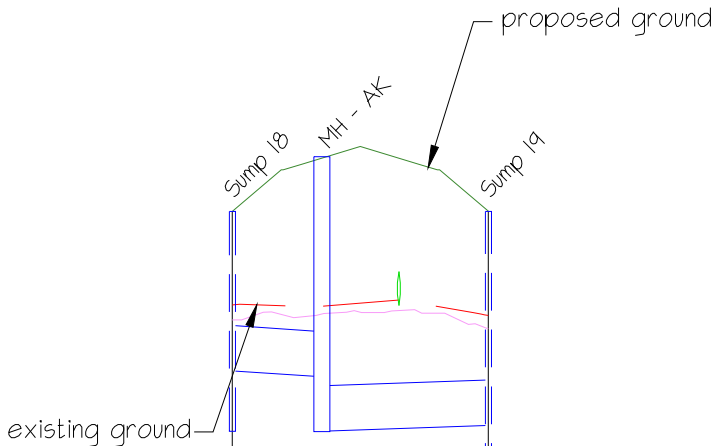
H.A.D. 1:00			
Existing ground at $\phi$	4.17	4.65	10.15
Manhole Cover	10.57	10.64	10.57
Pipe Invert	4.51	4.48	4.25
Pipe Data	3000 uPVC s/w pipe 1:1.10		3000 uPVC s/w pipe 1:4.70
Distance	4.20		4.53

SUMP TO SUMP - Sump 32 - Sump 33  
SCALE 1:500 horiz  
SCALE 1:50 vert



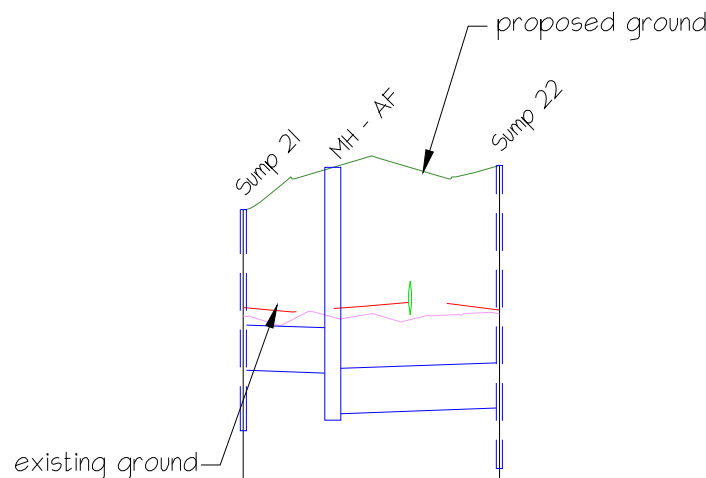
H.A.D. 1:00			
Existing ground at $\phi$	10.34	10.33	10.12
Manhole Cover	10.68	10.61	10.66
Pipe Invert	4.15	4.10	4.40
Pipe Data	3000 uPVC s/w pipe 1:1.16		3000 uPVC s/w pipe 1:1.49
Distance	1.24	1.74	8.93

SUMP TO SUMP - Sump 30 - Sump 31  
SCALE 1:500 horiz  
SCALE 1:50 vert



H.A.D. 1:00			
Existing ground at $\phi$	10.21	10.21	10.15
Manhole Cover	10.83	11.20	10.83
Pipe Invert	4.18	4.14	4.42
Pipe Data	3000 uPVC s/w pipe 1:1.46	3000 uPVC s/w pipe 1:2.16	
Distance	5.92	11.02	16.44

SUMP TO SUMP - Sump 18 - Sump 19  
SCALE 1:500 horiz  
SCALE 1:50 vert

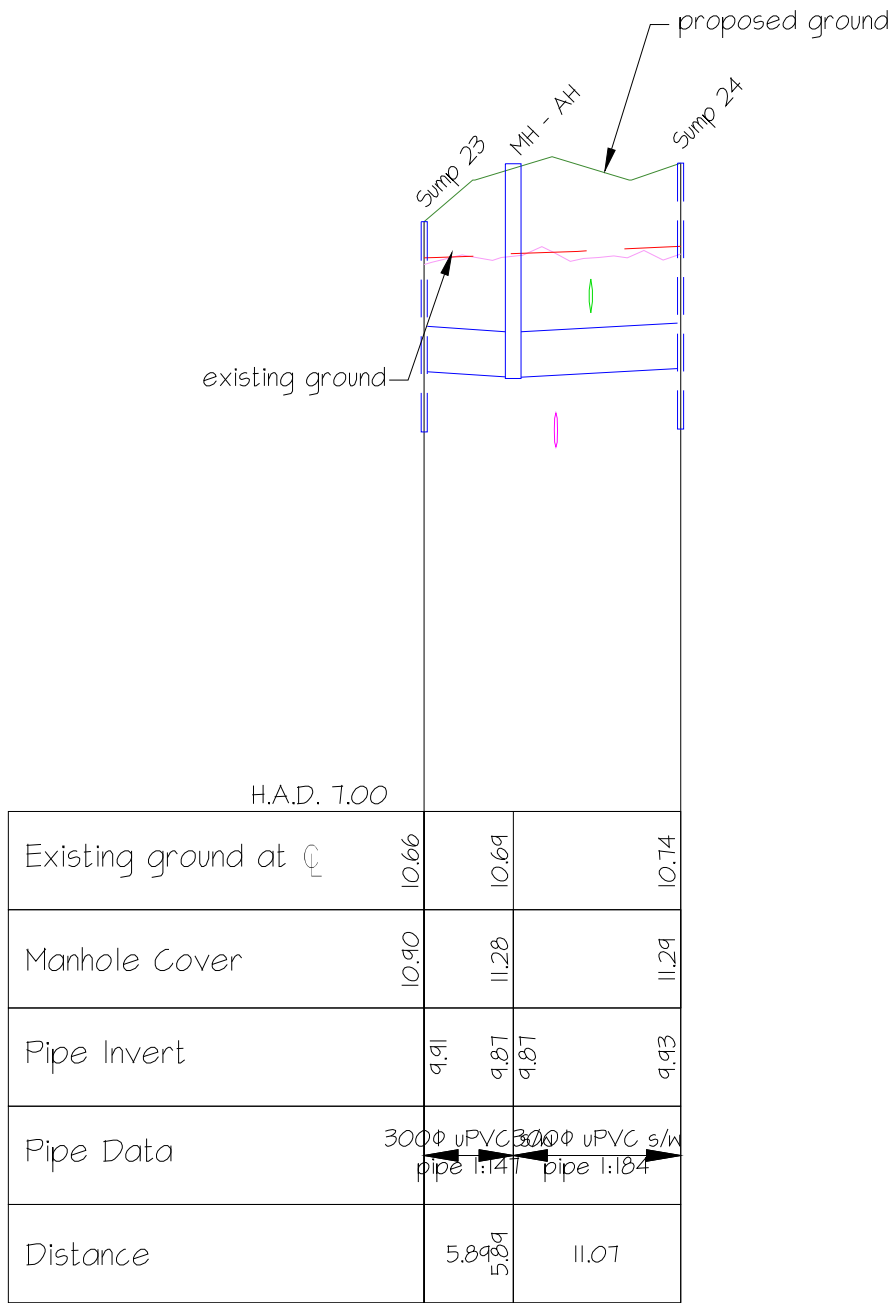


H.A.D. 1:00			
Existing ground at $\phi$	10.26	10.26	10.25
Manhole Cover	10.41	11.18	11.21
Pipe Invert	4.85	4.83	4.60
Pipe Data	3000 uPVC s/w pipe 1:2.46	3000 uPVC s/w pipe 1:2.71	
Distance	5.92	11.01	16.44

SUMP TO SUMP - Sump 21 - Sump 22  
SCALE 1:500 horiz  
SCALE 1:50 vert

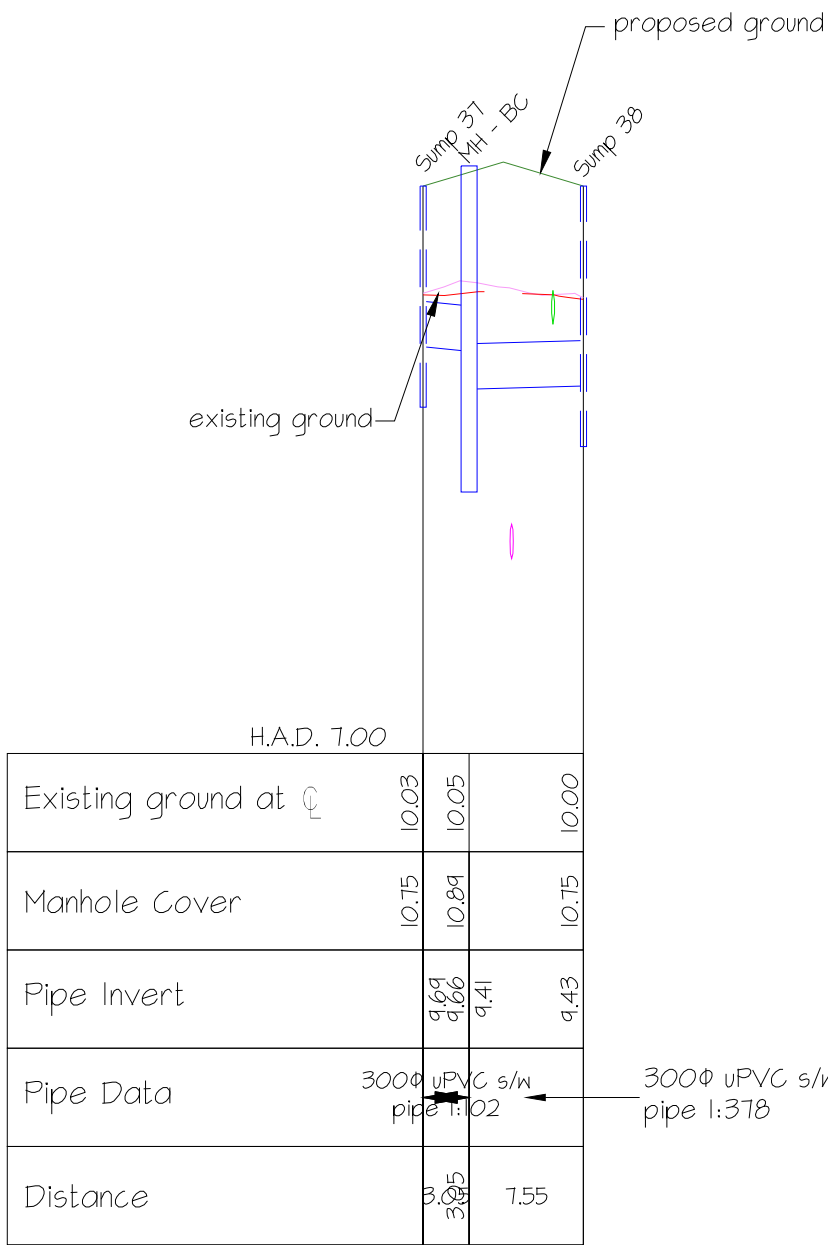


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



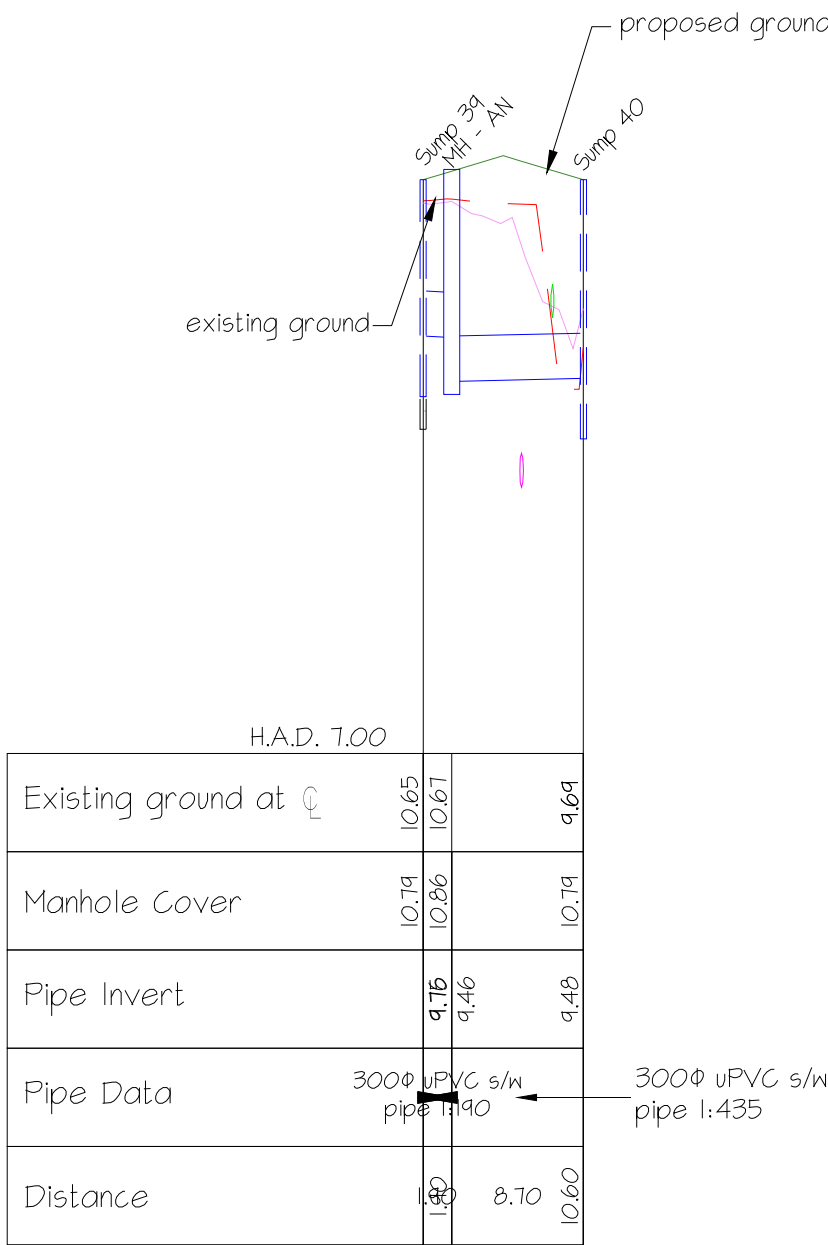
SUMP TO SUMP - Sump 23 - Sump 24

SCALE 1:500 horiz  
SCALE 1:50 vert



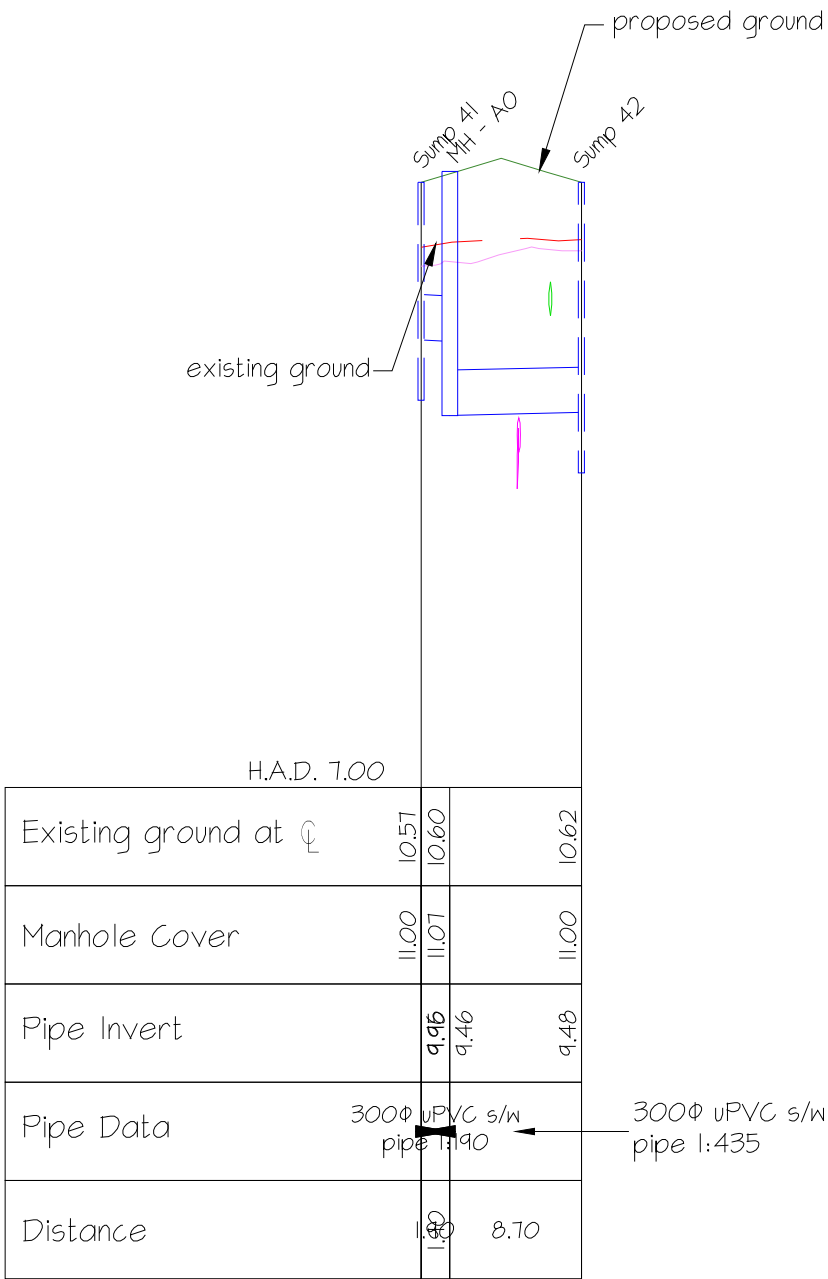
SUMP TO SUMP - Sump 37 - Sump 38

SCALE 1:500 horiz  
SCALE 1:50 vert



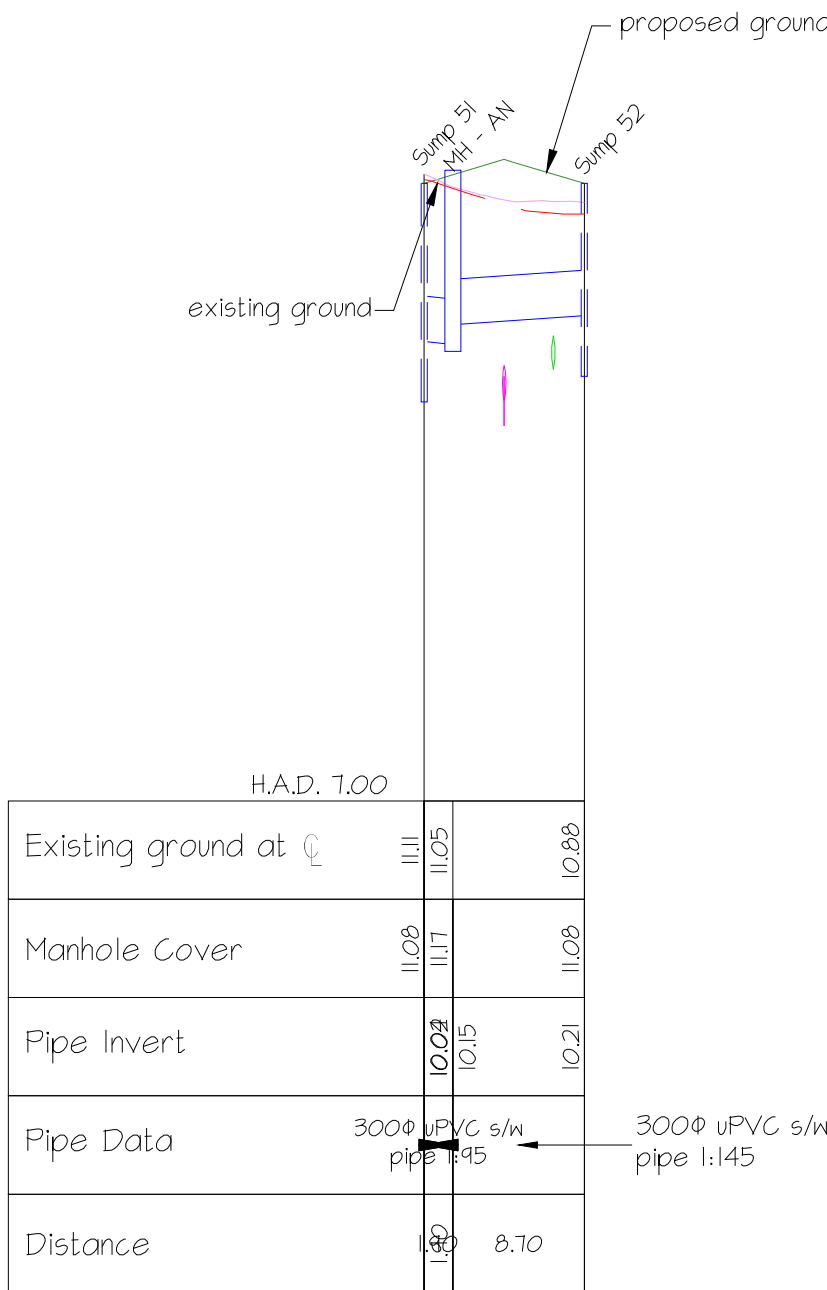
SUMP TO SUMP - MH 39 - Sump 40

SCALE 1:500 horiz  
SCALE 1:50 vert



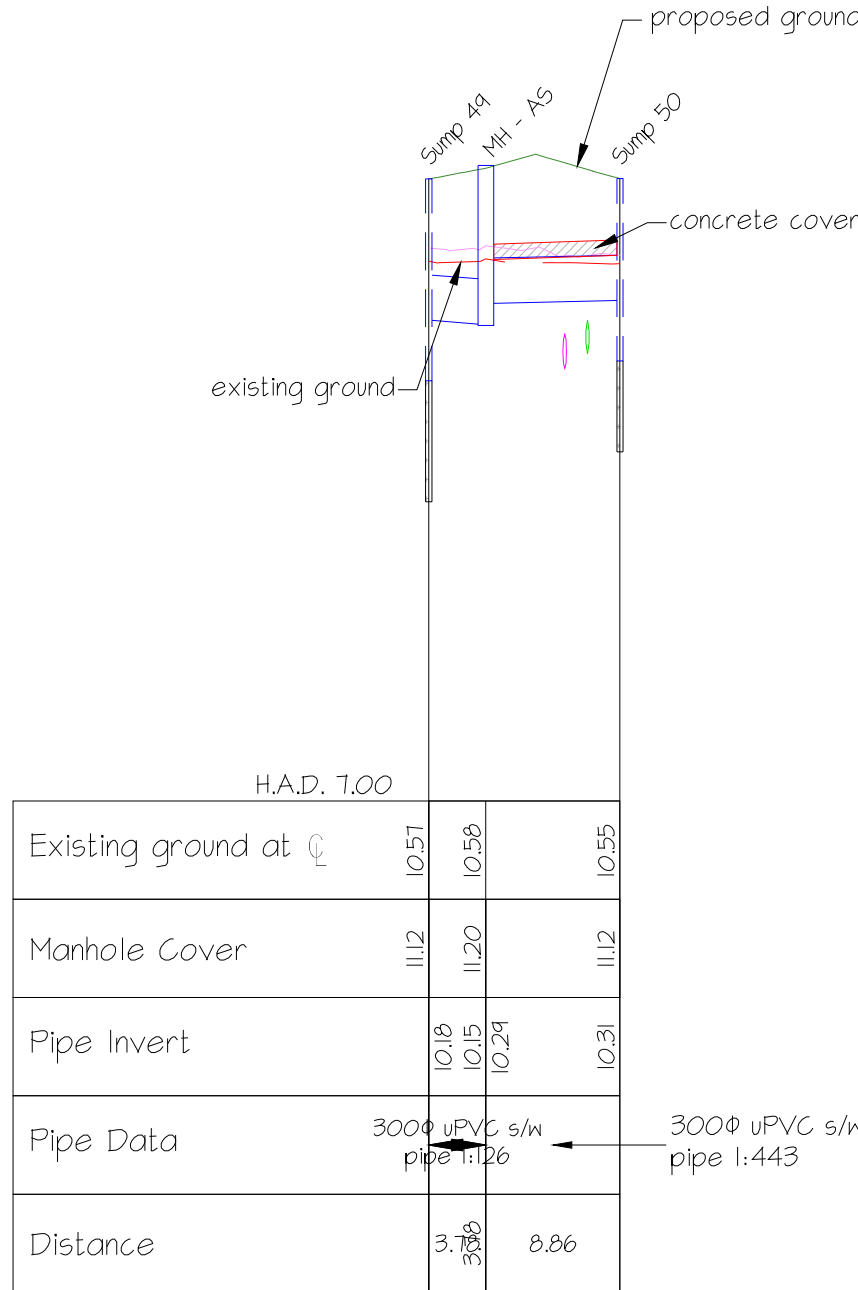
SUMP TO SUMP - Sump 41 - Sump 42

SCALE 1:500 horiz  
SCALE 1:50 vert



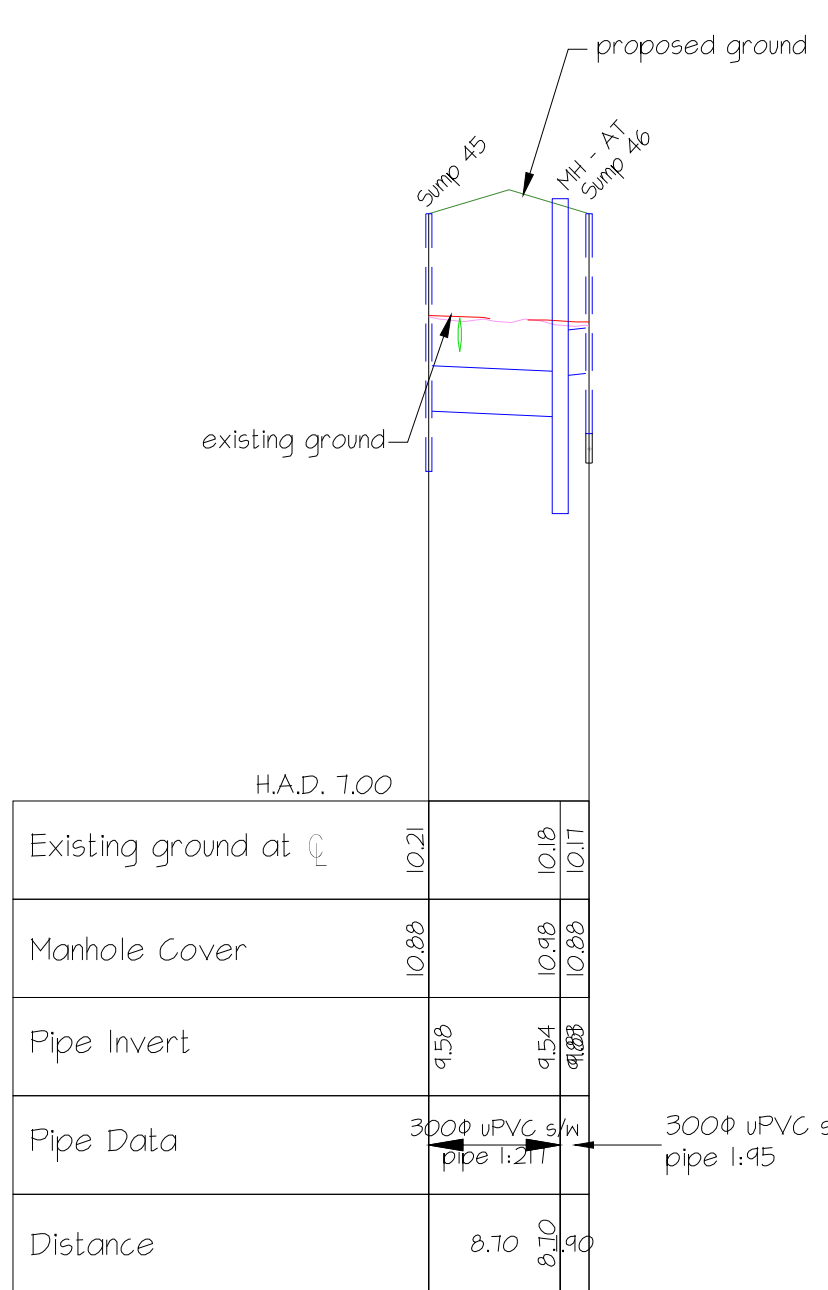
SUMP TO SUMP - Sump 51 - Sump 52

SCALE 1:500 horiz  
SCALE 1:50 vert



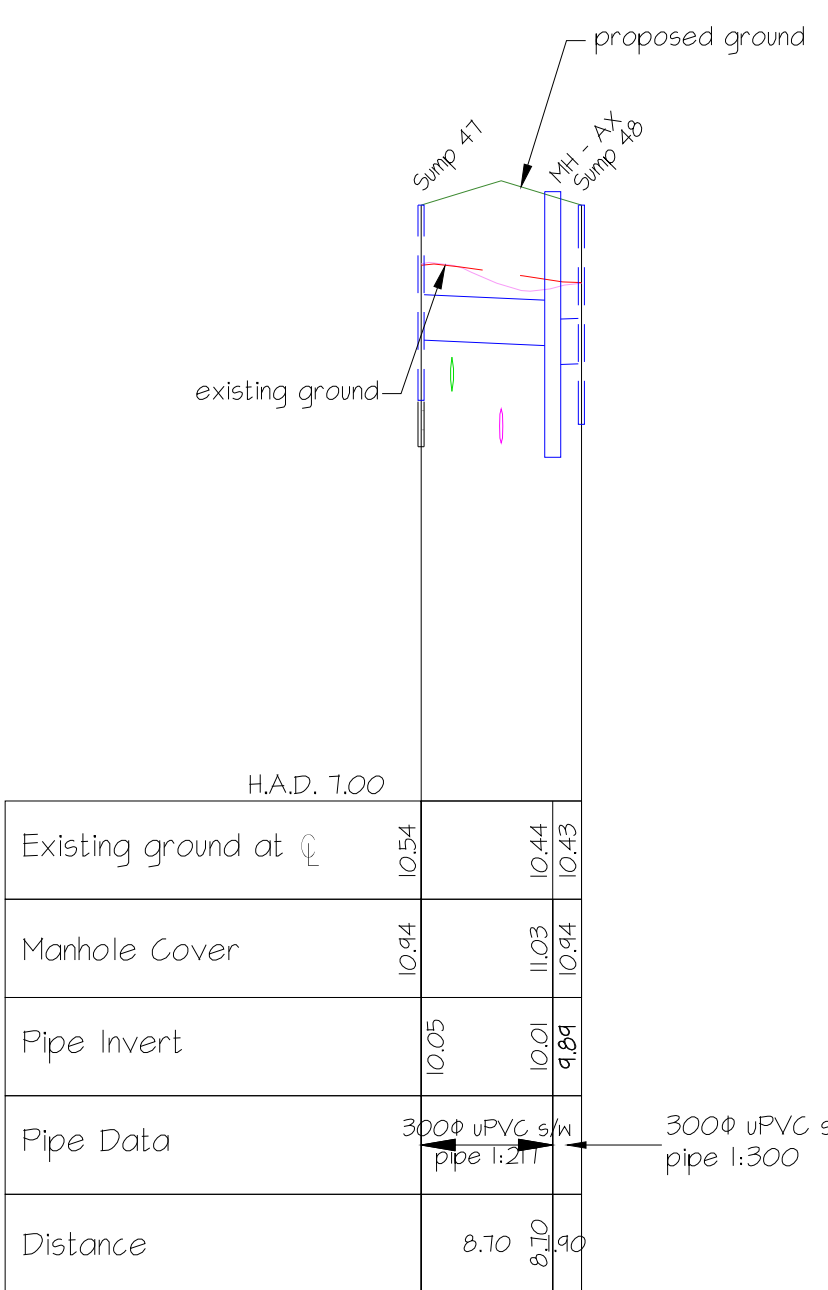
SUMP TO SUMP - Sump 49 - Sump 50

SCALE 1:500 horiz  
SCALE 1:50 vert



SUMP TO SUMP - Sump 45 - Sump 46

SCALE 1:500 horiz  
SCALE 1:50 vert

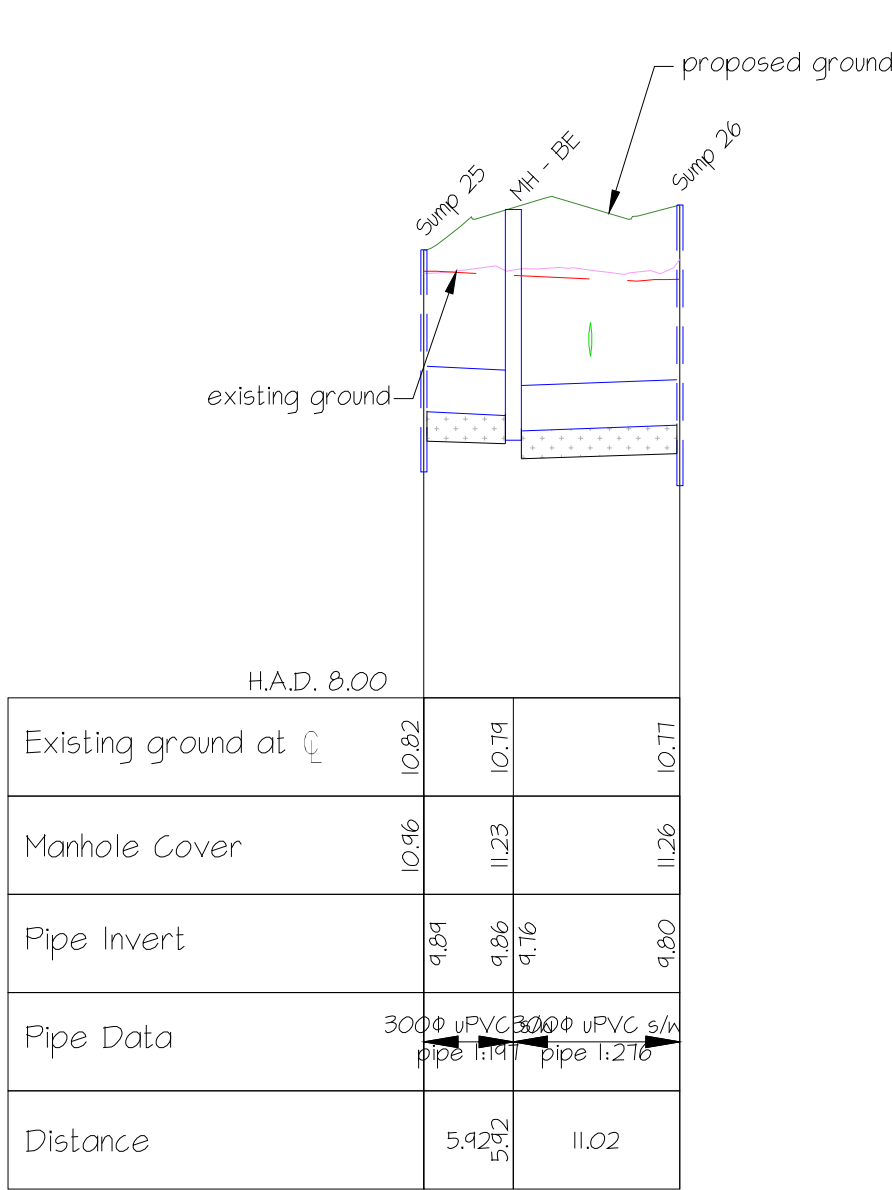


SUMP TO SUMP - Sump 47 - Sump 48

SCALE 1:500 horiz  
SCALE 1:50 vert

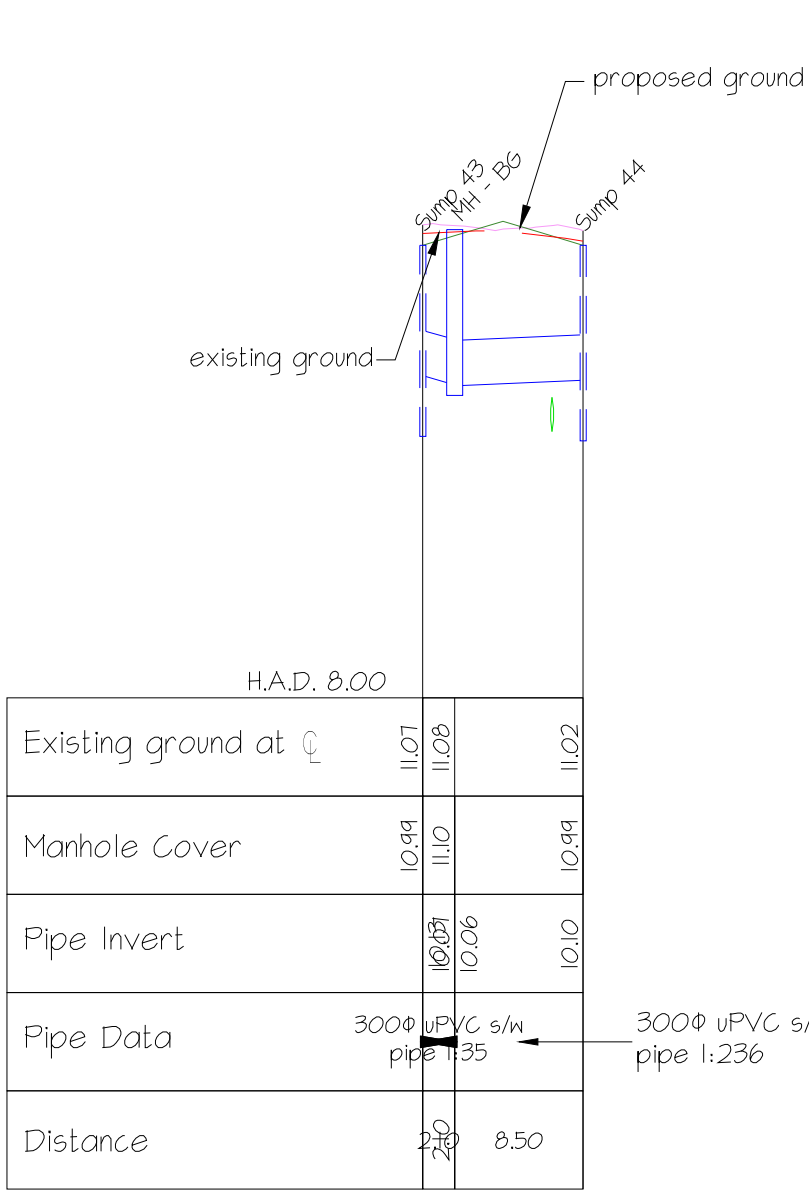


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	



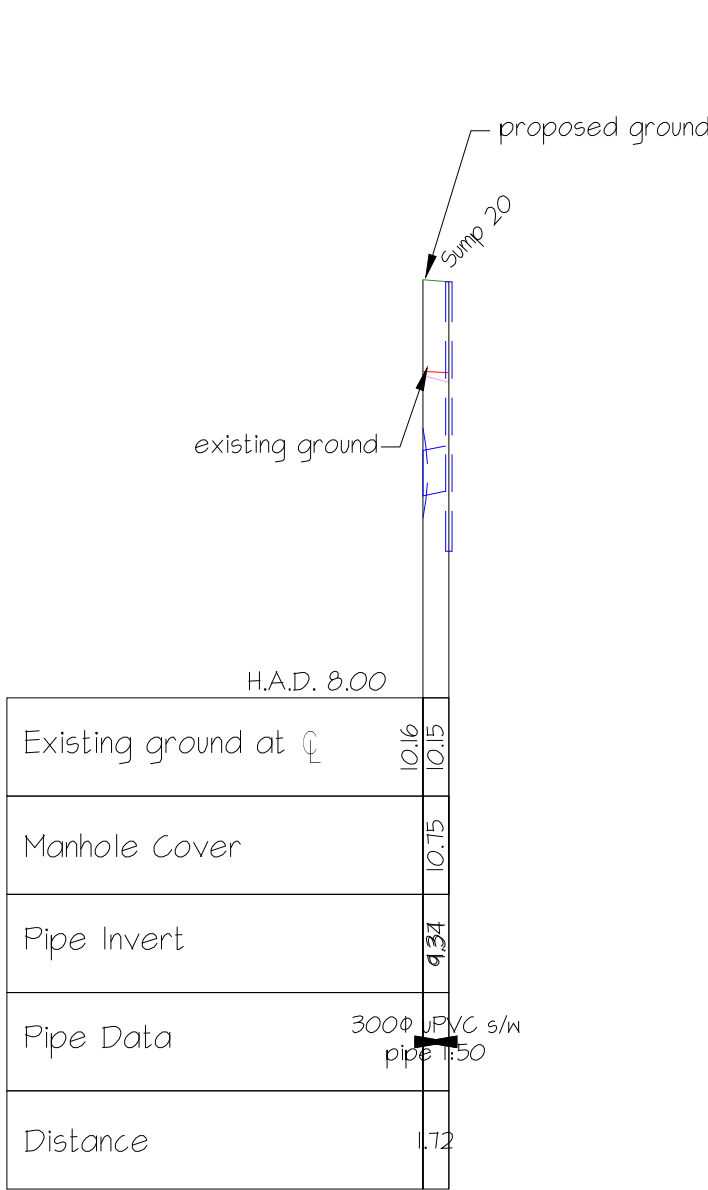
SUMP TO SUMP - Sump 25 - Sump 26

SCALE 1:500 horiz  
SCALE 1:50 vert



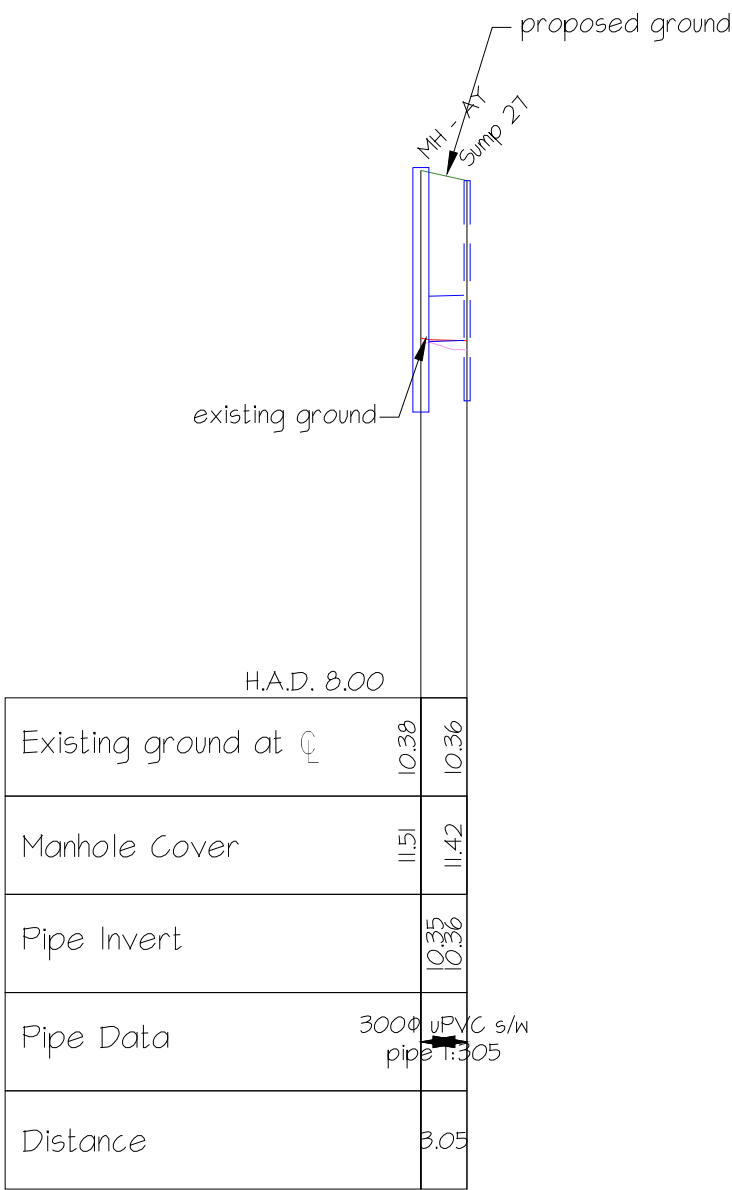
SUMP TO SUMP - Sump 43 - Sump 44

SCALE 1:500 horiz  
SCALE 1:50 vert



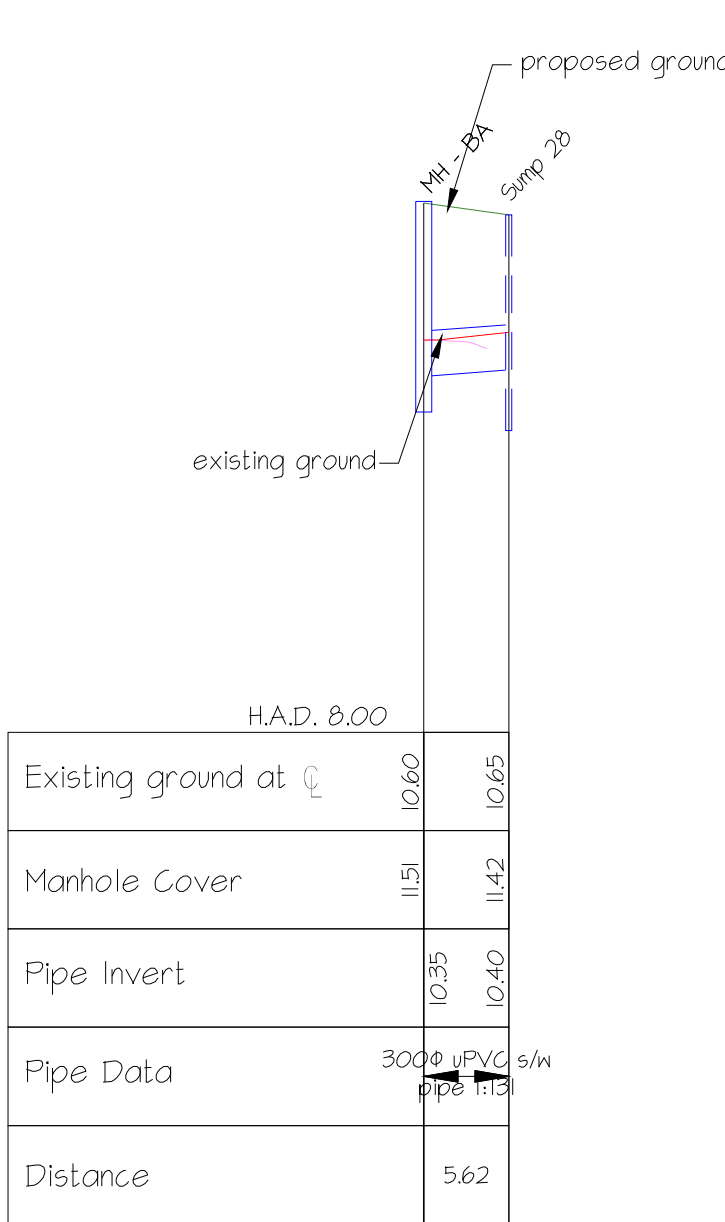
SUMP TO SUMP - Direct Connection - Sump 20

SCALE 1:500 horiz  
SCALE 1:50 vert



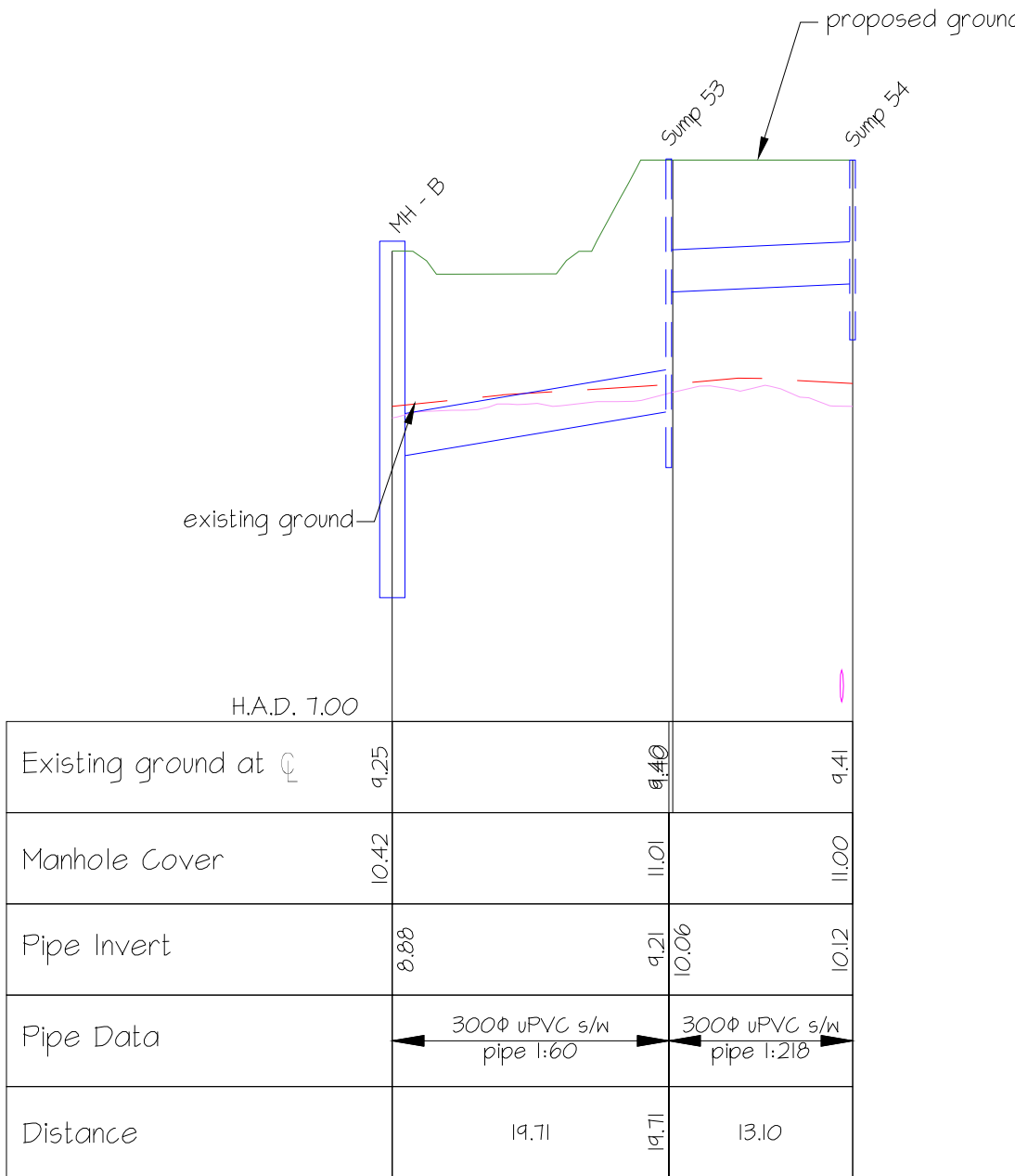
SUMP TO SUMP - MH AY - Sump 27

SCALE 1:500 horiz  
SCALE 1:50 vert



SUMP TO SUMP - MH BA - Sump 28










SCALE 1:500 horiz  
SCALE 1:50 vert

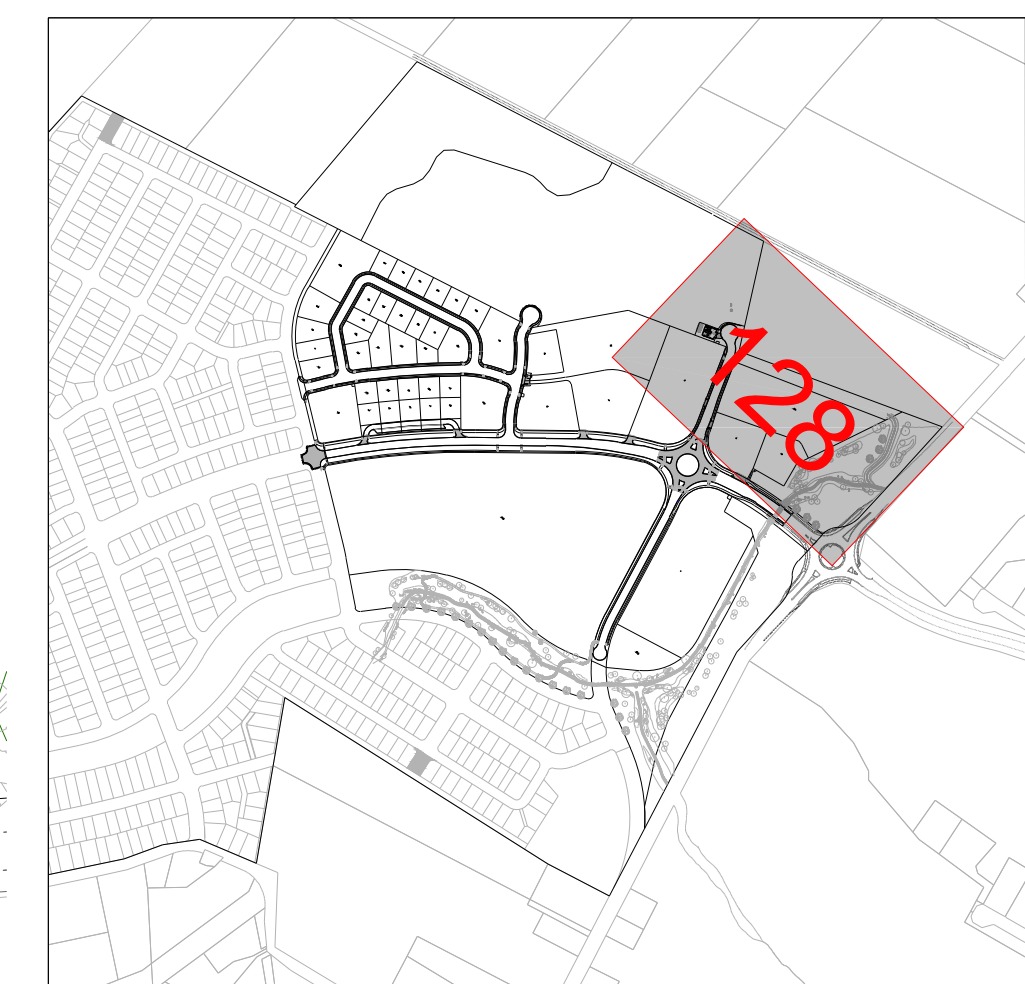


SUMP TO SUMP - MH B - Sump 53

SCALE 1:500 horiz  
SCALE 1:50 vert



KEY	
EXISTING WATER PIPE	— — — —
NEW WATER PIPE	— — — —
FIRE HYDRANT	
BLANK END	
THRUST BLOCK	
VALVE	
20mm OD SECTION CONN. WITH DOUBLE CHECK VALVE	
(Section connection to be in road reserve.)	
Symbol shown in the lot for clarity only)	
RPZ BACKFLOW PREVENTER	
SUMP	
STREET LIGHT	
STAGE BOUNDARY	



**OVERALL COMMERCIAL AREA**  
SCALE 1:10000



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY

EXISTING WATER PIPE

NEW WATER PIPE

FIRE HYDRANT

BLANK END

THRUST BLOCK

VALVE

20mm OD SECTION CONN. WITH DOUBLE CHECK VALVE  
(Section connection to be in road reserve.  
Symbol shown in the lot for clarity only)

RPZ BACKFLOW PREVENTER

SUMP

STREET LIGHT

STAGE BOUNDARY

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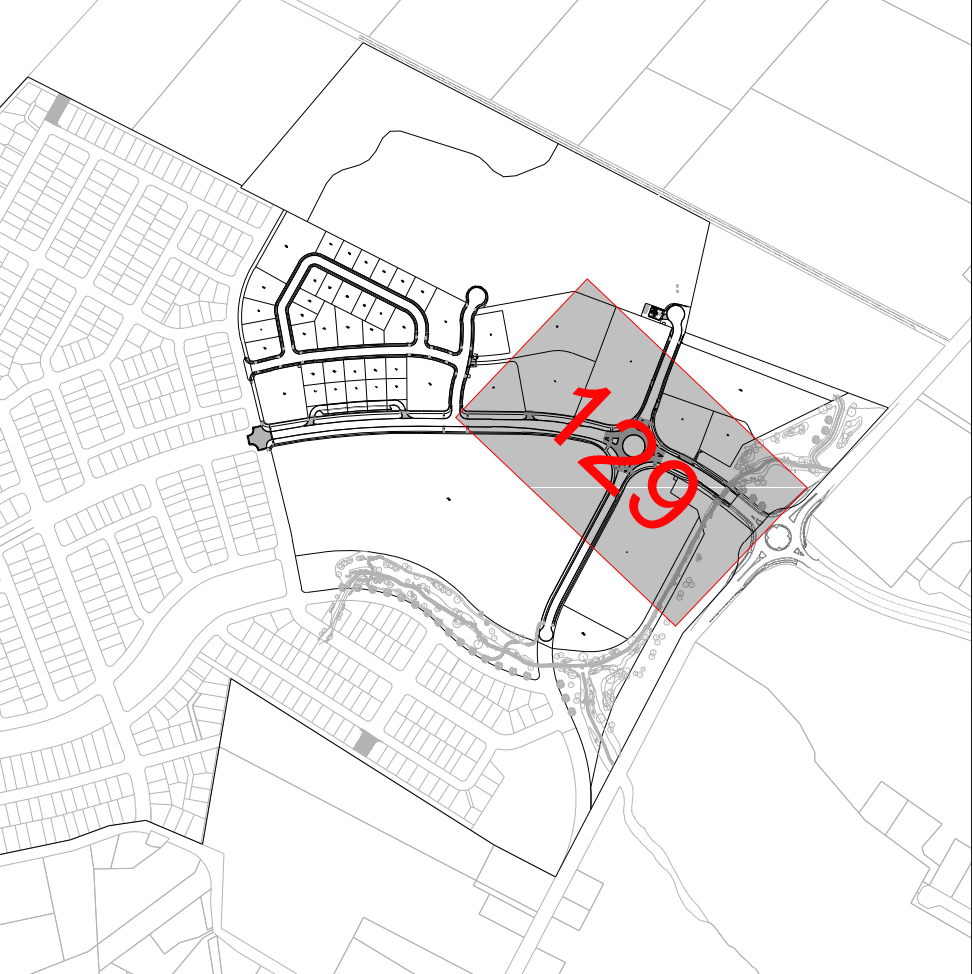
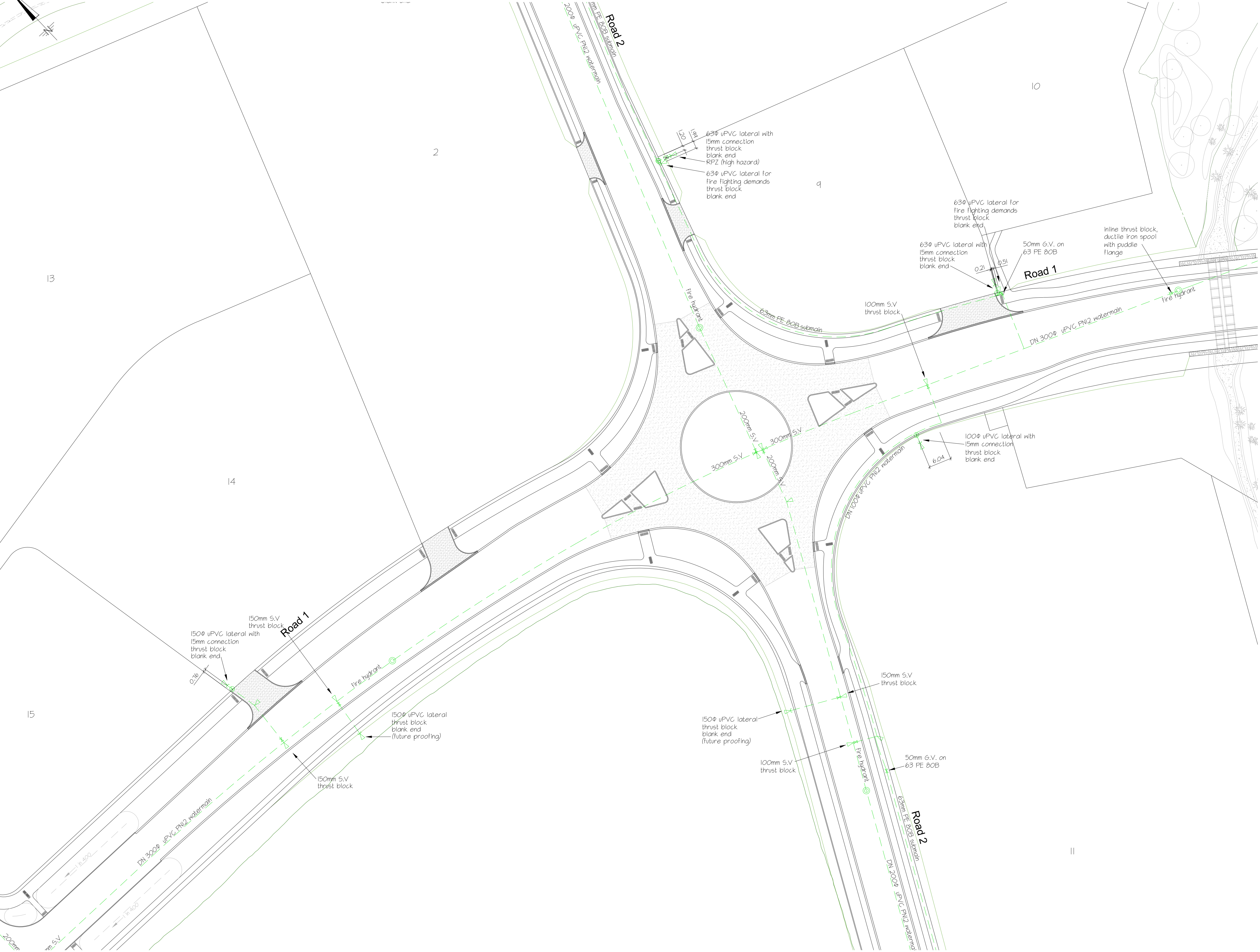
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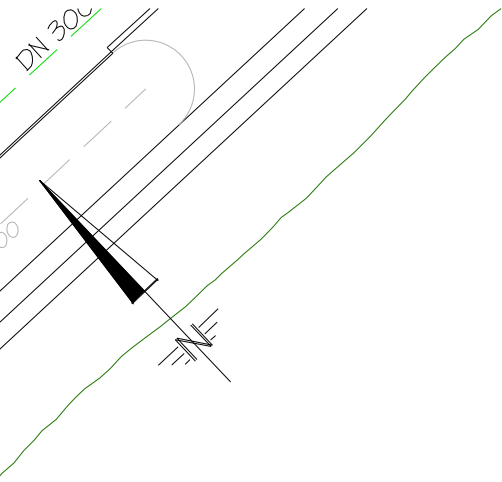
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/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

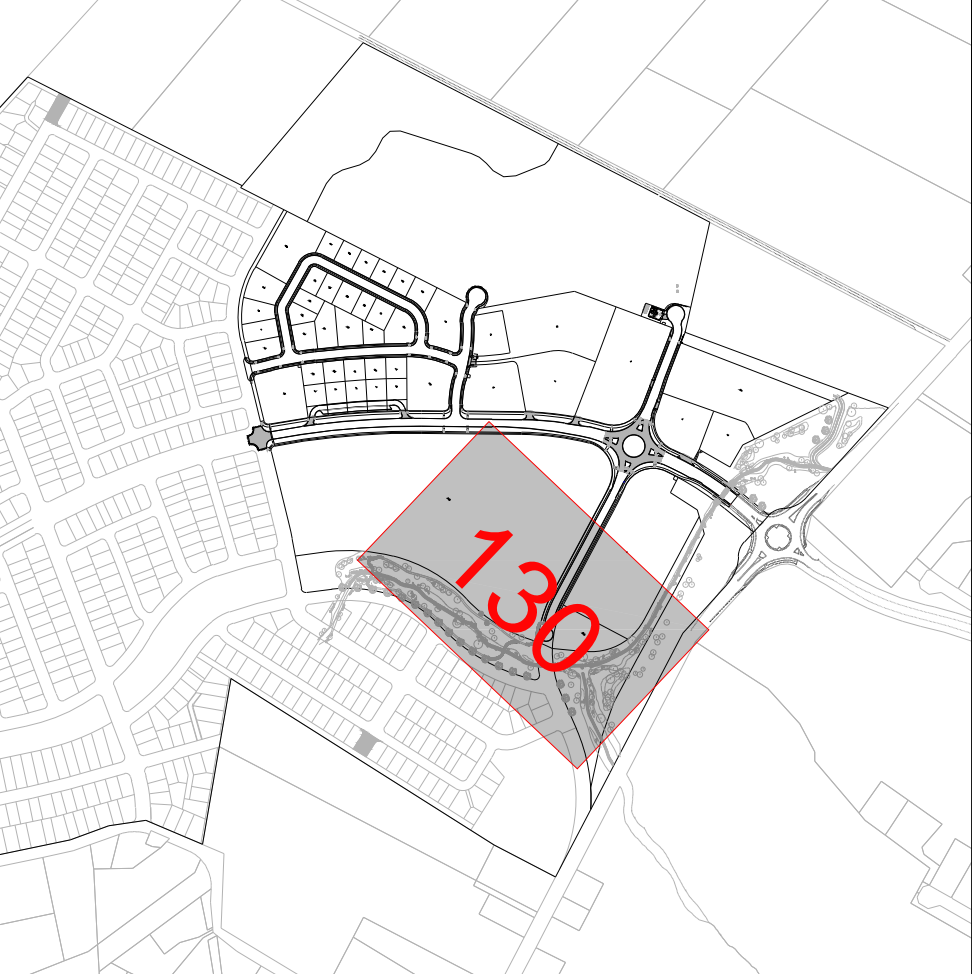
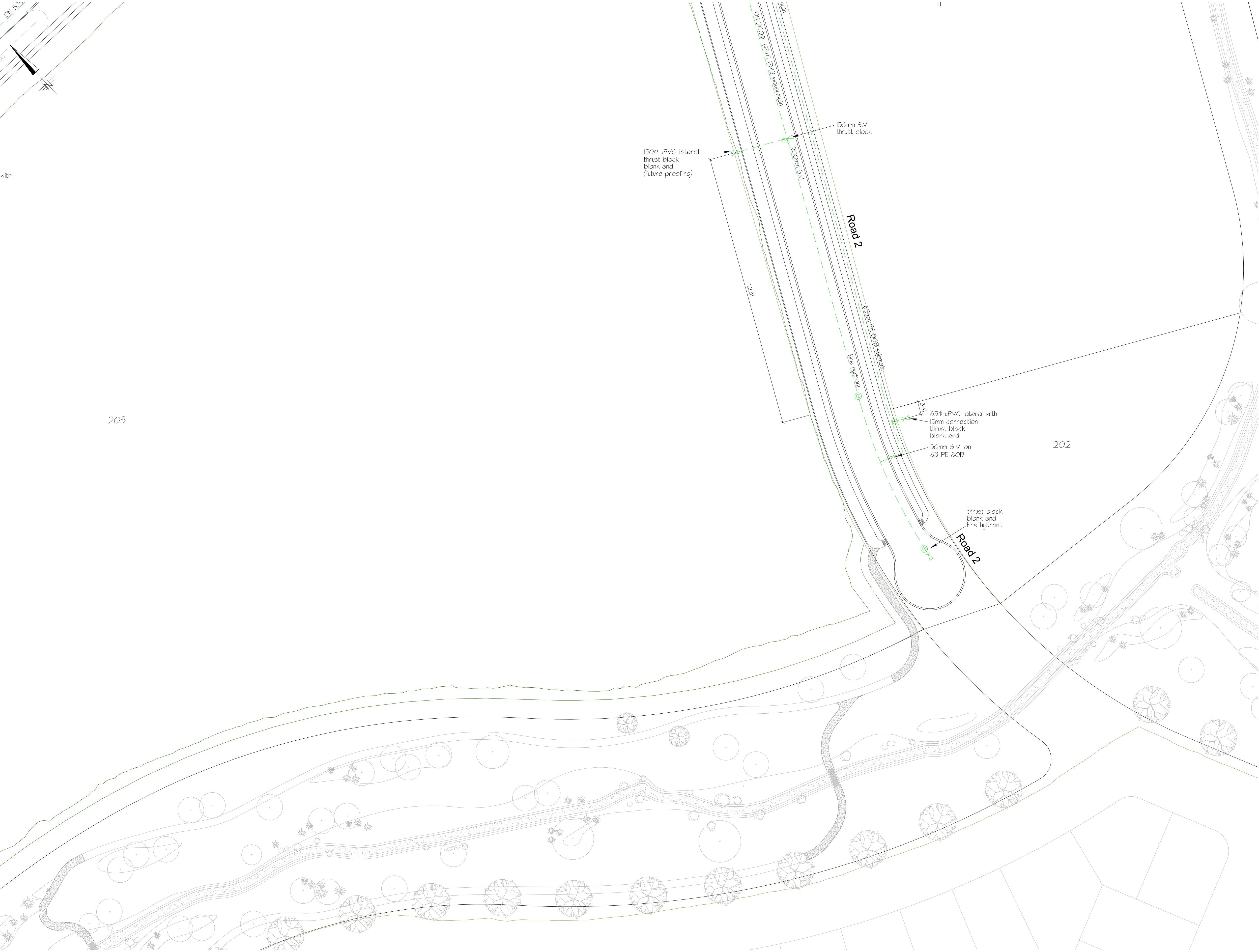
KEY	
EXISTING WATER PIPE	---
NEW WATER PIPE	---
FIRE HYDRANT	⊙
BLANK END	└┐
THRUST BLOCK	▽
VALVE	⋈
20mm OD SECTION CONN. WITH DOUBLE CHECK VALVE (Section connection to be in road reserve. Symbol shown in the lot for clarity only)	⊕
RPZ BACKFLOW PREVENTER	⊠
SUMP	⊙
STREET LIGHT	•
STAGE BOUNDARY	---



with

203

202



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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RAVENSWOOD

NORTH CANTERBURY

RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

ENGINEERING DESIGN  
WATER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	130
scale = A1	date	file	issue
1:500	03/16	31143-C	B



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY

EXISTING WATER PIPE

NEW WATER PIPE

FIRE HYDRANT

BLANK END

THRUST BLOCK

VALVE

20mm OD SECTION CONN. WITH DOUBLE CHECK VALVE  
(Section connection to be in road reserve.  
Symbol shown in the lot for clarity only)

RPZ BACKFLOW PREVENTER

SUMP

STREET LIGHT

STAGE BOUNDARY

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⊙

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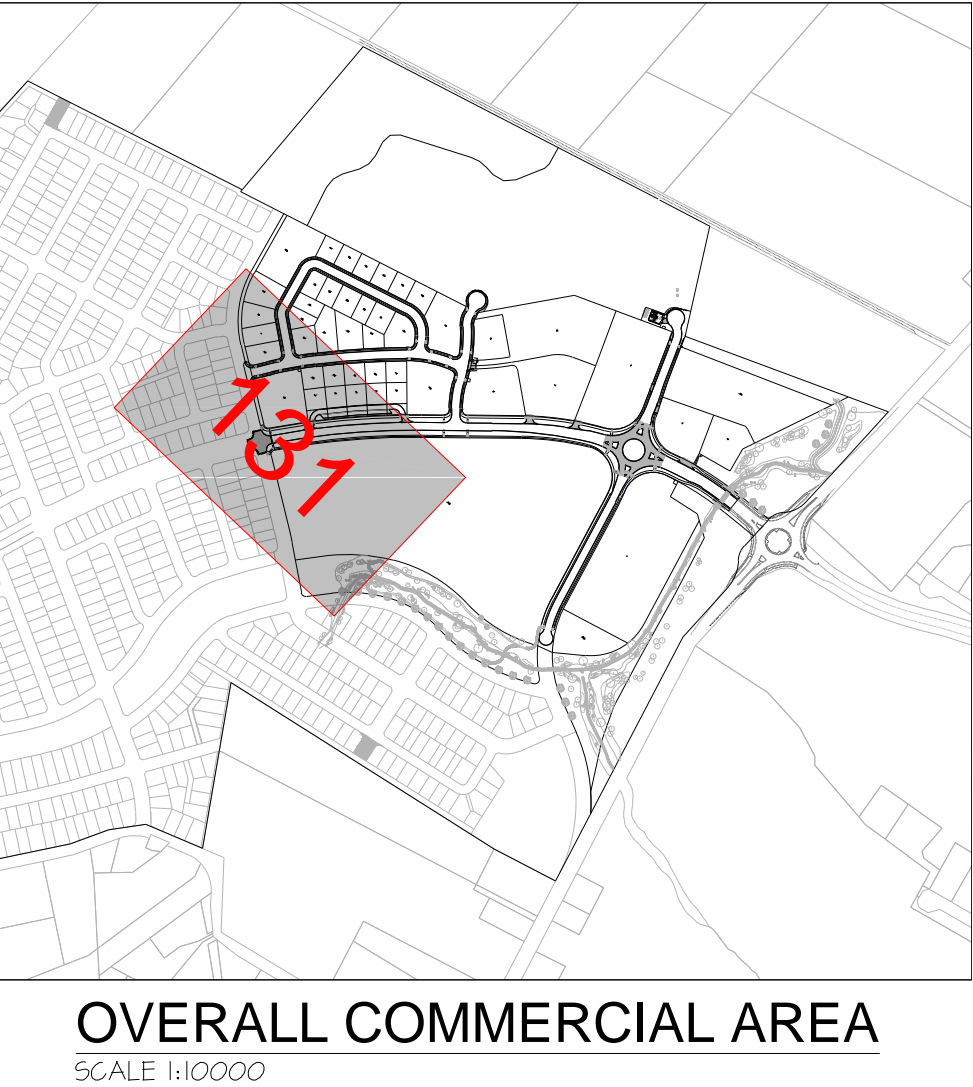
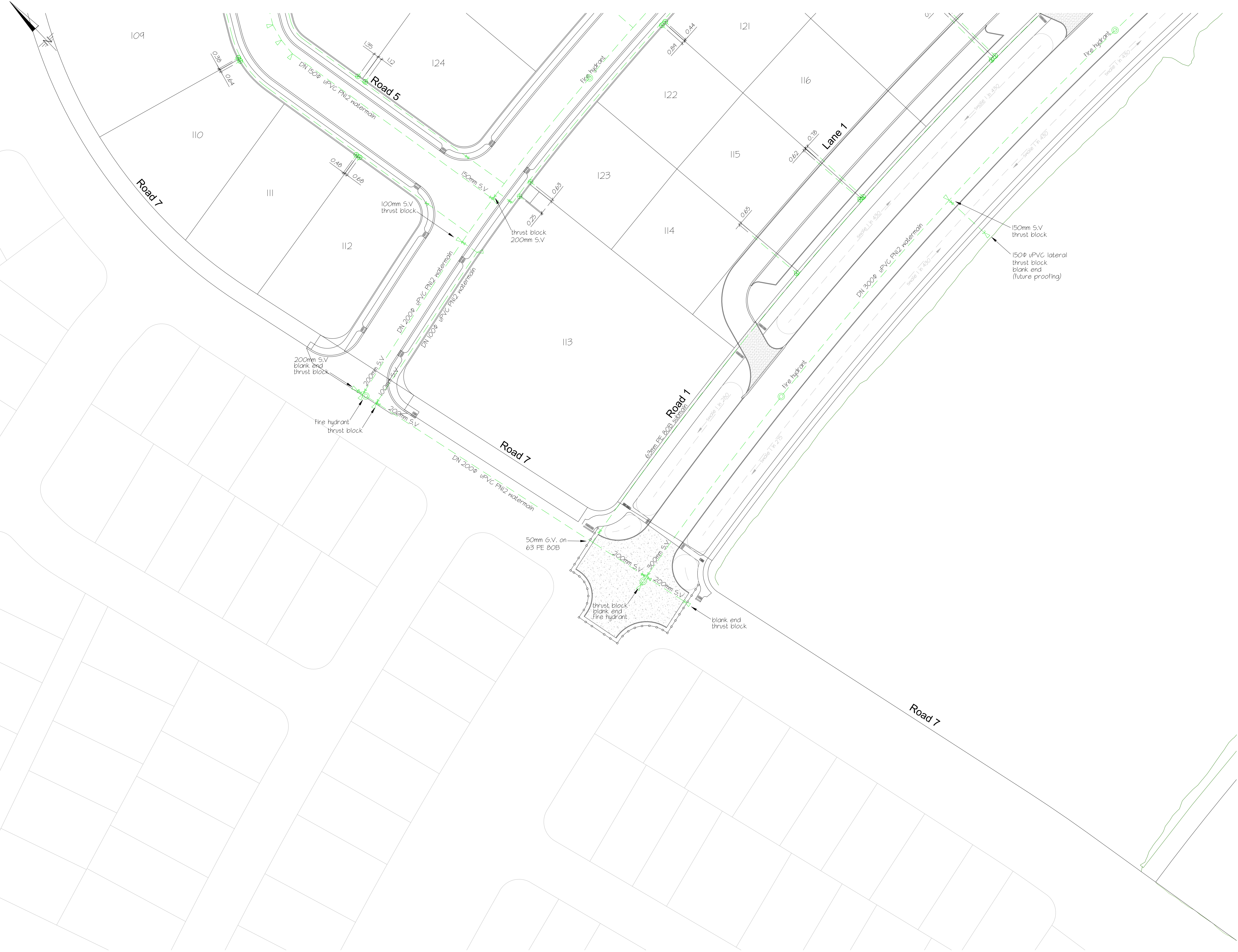
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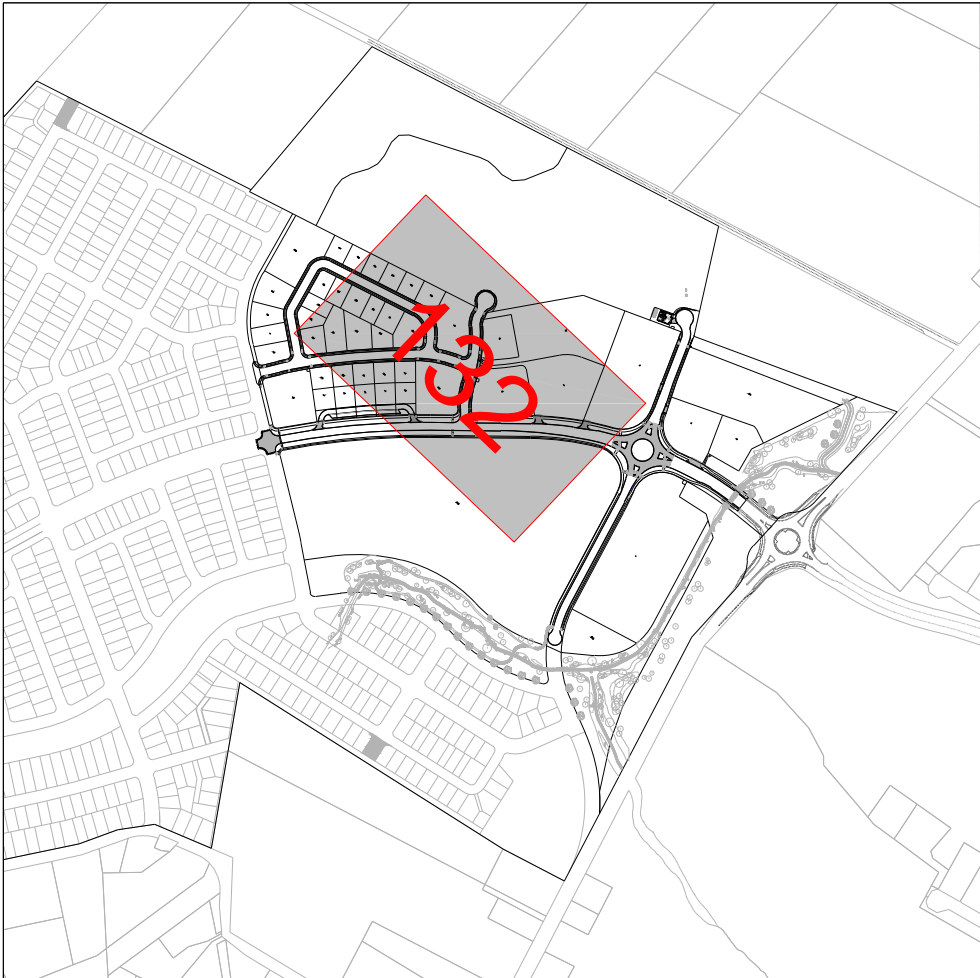
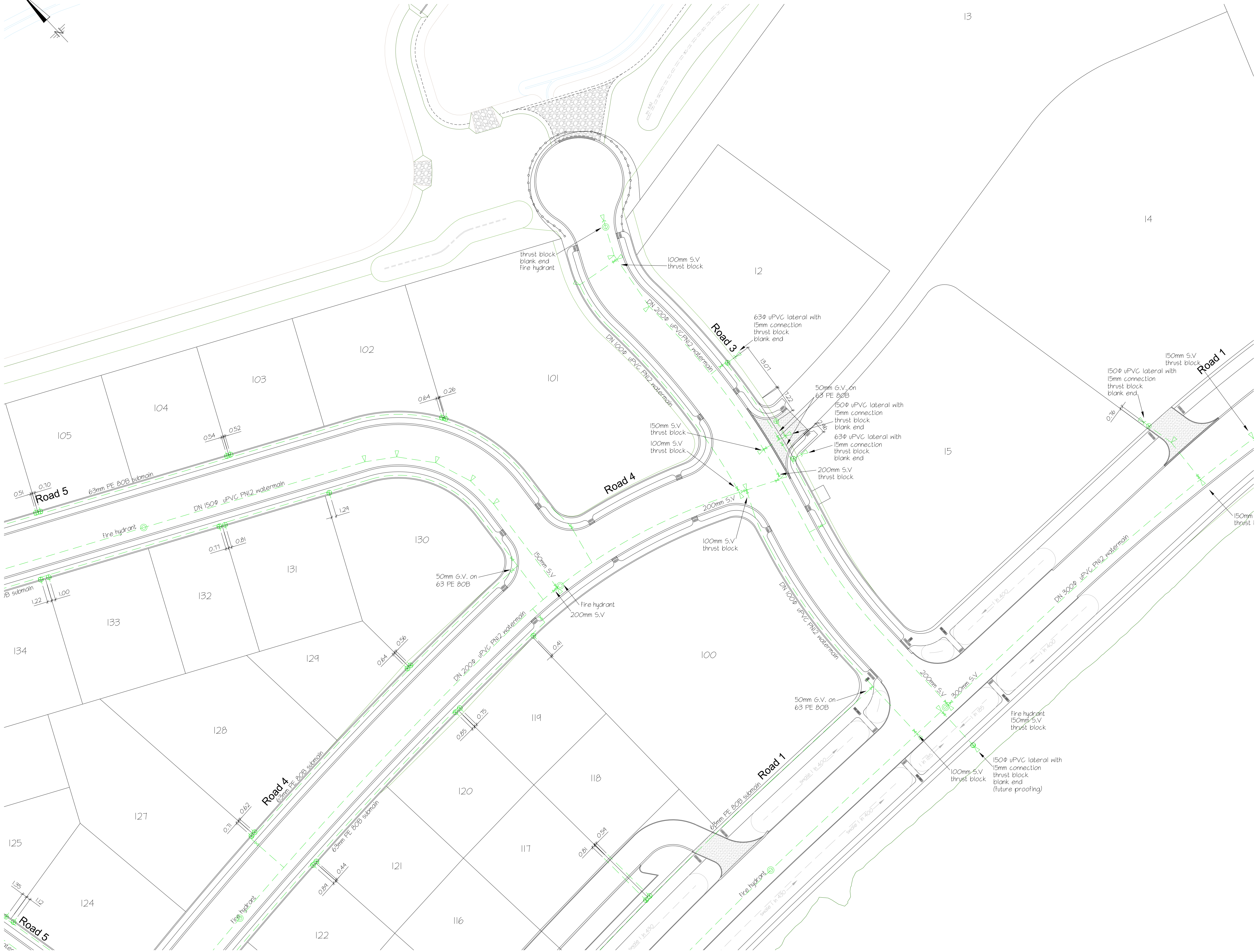
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/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY	
EXISTING WATER PIPE	---
NEW WATER PIPE	---
FIRE HYDRANT	⊙
BLANK END	⊥
THRUST BLOCK	⊥
VALVE	⊥
20mm OD SECTION CONN. WITH DOUBLE CHECK VALVE (Section connection to be in road reserve. Symbol shown in the lot for clarity only)	⊥
RPZ BACKFLOW PREVENTER	⊥
SUMP	⊥
STREET LIGHT	⊥
STAGE BOUNDARY	---



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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**RAVENSWOOD**  
NORTH CANTERBURY

RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

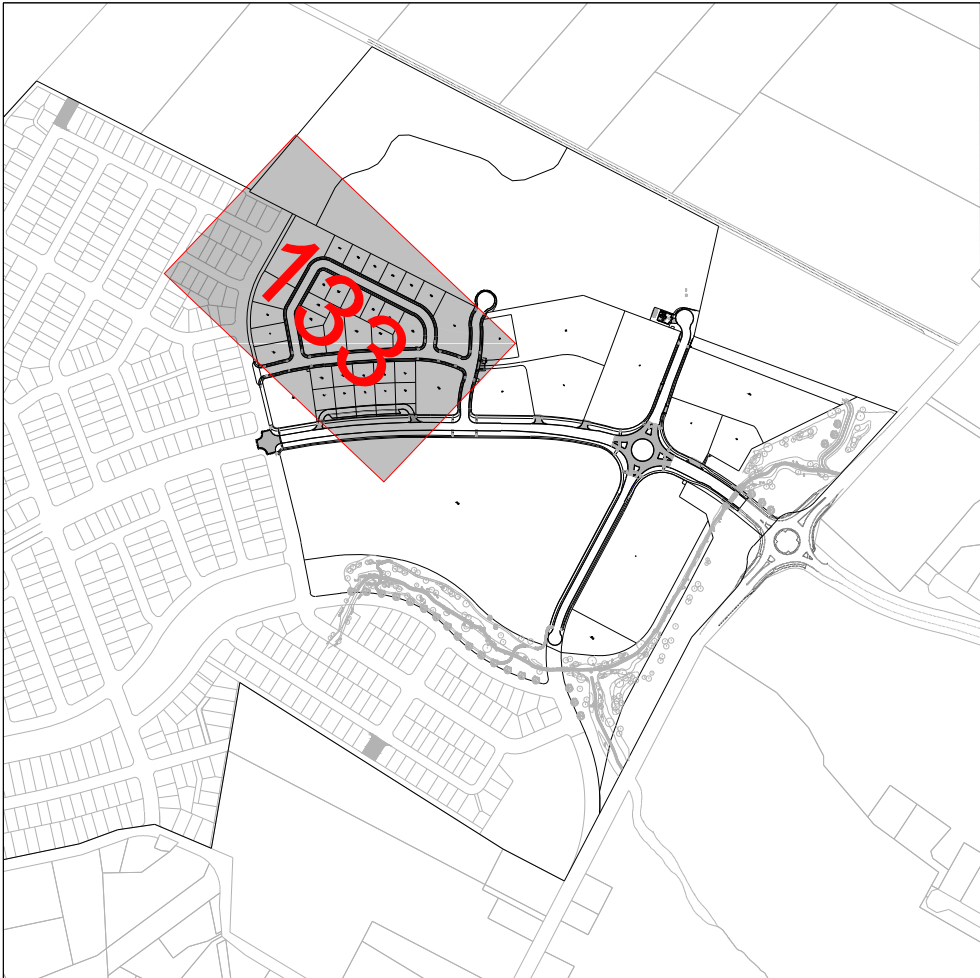
ENGINEERING DESIGN  
WATER ASBUILT PLAN

design	drawn	QA check	dwg
DGB	DGB	ED	<b>132</b>
scale @ A1	date	file	issue
1:500	03/16	<b>31143-C</b>	<b>B</b>



/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY	
EXISTING WATER PIPE	---
NEW WATER PIPE	---
FIRE HYDRANT	⊙
BLANK END	⊥
THRUST BLOCK	⊥
VALVE	⊥
20mm OD SECTION CONN. WITH DOUBLE CHECK VALVE (Section connection to be in road reserve. Symbol shown in the lot for clarity only)	⊥
RPZ BACKFLOW PREVENTER	⊥
SUMP	⊥
STREET LIGHT	⊥
STAGE BOUNDARY	---



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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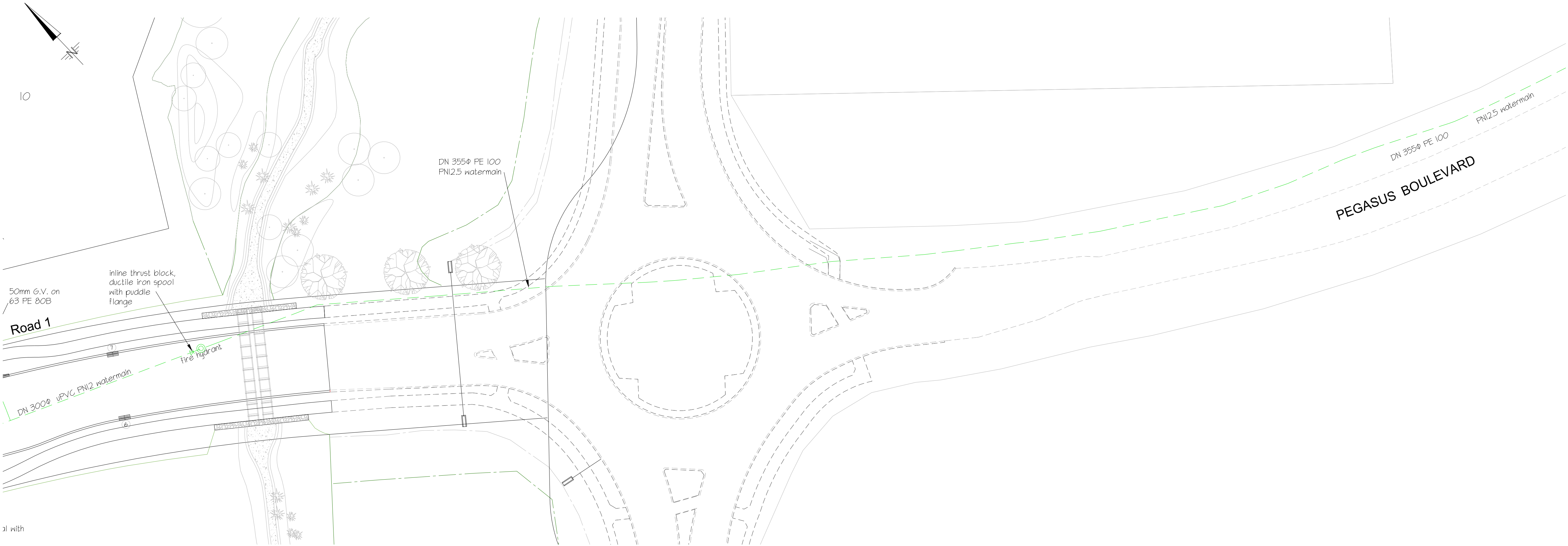
**RAVENSWOOD**  
NORTH CANTERBURY

RAVENSWOOD - RANGIORA WOODEND ROAD  
PROPOSED SUBDIVISION

ENGINEERING DESIGN  
WATER ASBUILT PLAN

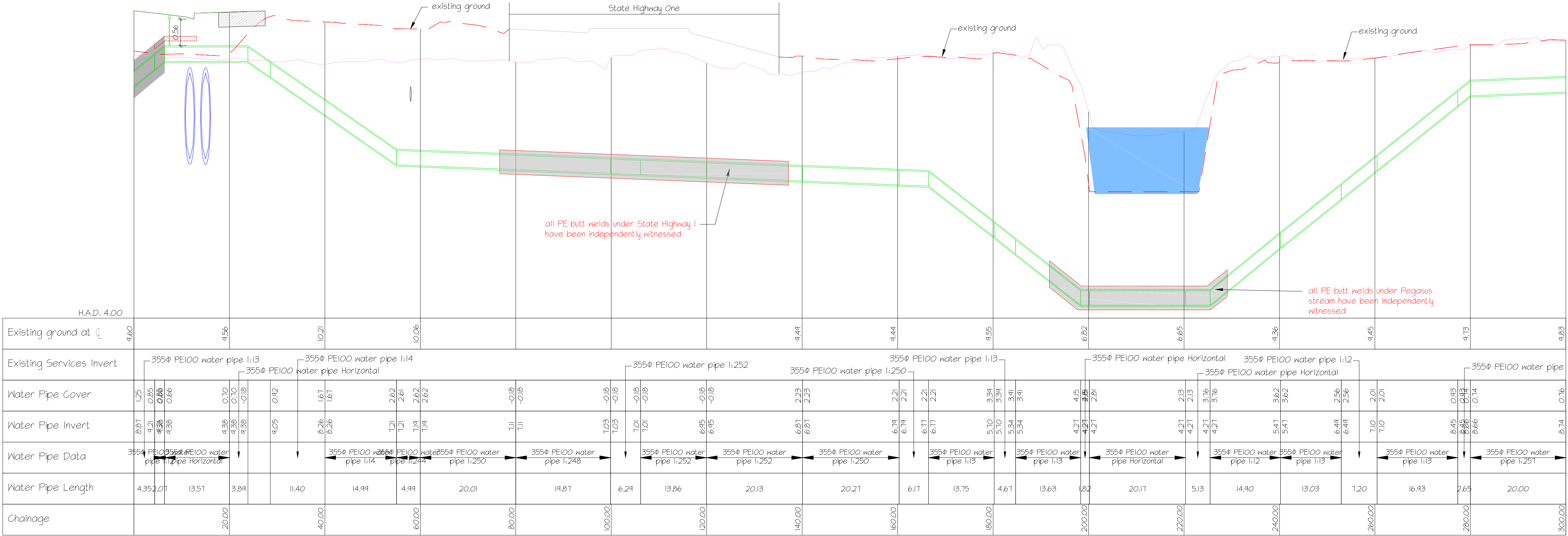
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DGB	DGB	ED	<b>133</b>
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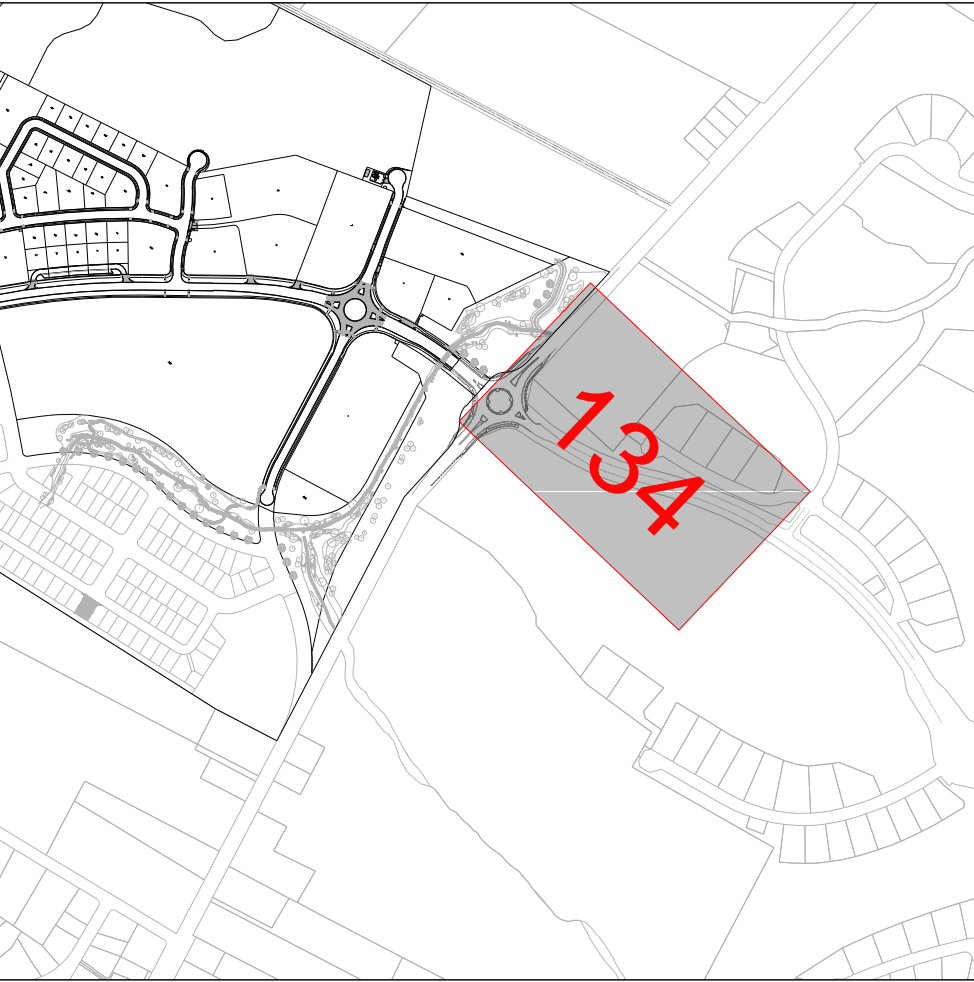


/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY	
EXISTING WATER PIPE	---
NEW WATER PIPE	---
FIRE HYDRANT	⊙
BLANK END	⊥
THRUST BLOCK	⊥
VALVE	⊕
20mm OD SECTION CONN. WITH DOUBLE CHECK VALVE (Section connection to be in road reserve. Symbol shown in the lot for clarity only)	⊕
RPZ BACKFLOW PREVENTER	⊕
SUMP	⊕
STREET LIGHT	⊕
STAGE BOUNDARY	---



DN 355 WATER TRUNK MAIN - LONG SECTION - 0 m to 300 m - PEGASUS BOULEVARD



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg

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PROPOSED SUBDIVISION

ENGINEERING DESIGN  
WATER ASBUILT PLAN

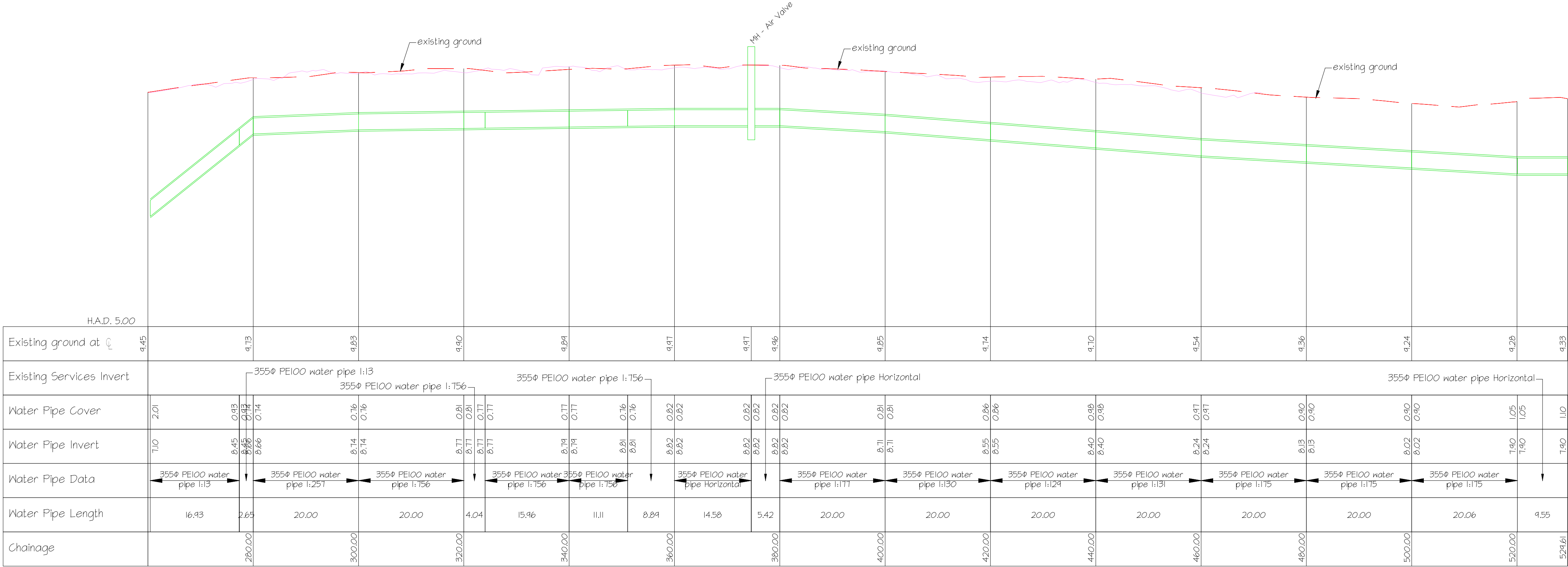
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1:500	03/16	31143-C	B





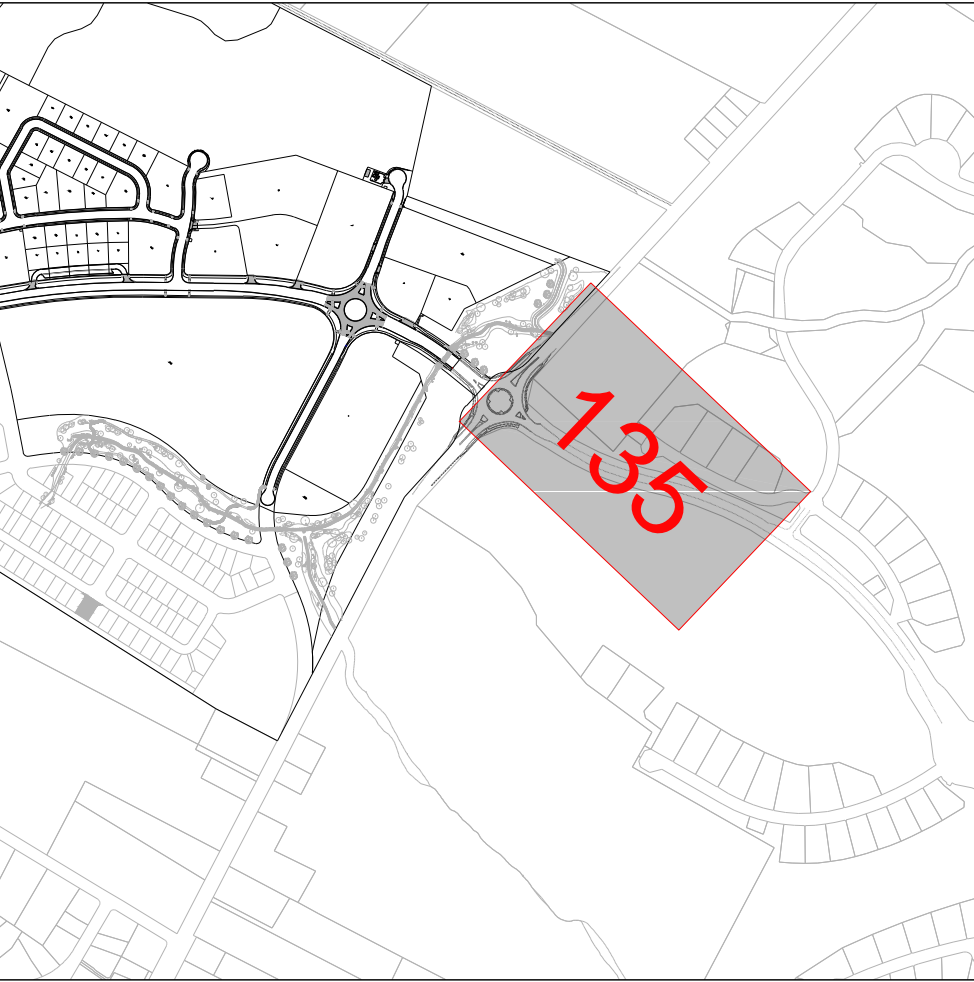
/ issue	/ date	/ reason	/ approved
A	15/03/18	Preliminary Issue	
B	06/04/18	For Council	

KEY	
EXISTING WATER PIPE	---
NEW WATER PIPE	---
FIRE HYDRANT	⊙
BLANK END	⊥
THRUST BLOCK	⊥
VALVE	⊗
20mm OD SECTION CONN. WITH DOUBLE CHECK VALVE (Section connection to be in road reserve. Symbol shown in the lot for clarity only)	⊗
RPZ BACKFLOW PREVENTER	⊗
SUMP	⊗
STREET LIGHT	•
STAGE BOUNDARY	---



DN 355 WATER TRUNK MAIN - LONG SECTION - 260 m to 530 m - PEGASUS BOULEVARD

HORIZ. SCALE 1:500  
VERT. SCALE 1:50



OVERALL COMMERCIAL AREA  
SCALE 1:10000

CAD ref: 31143.Civil-Commercial.dwg