

B

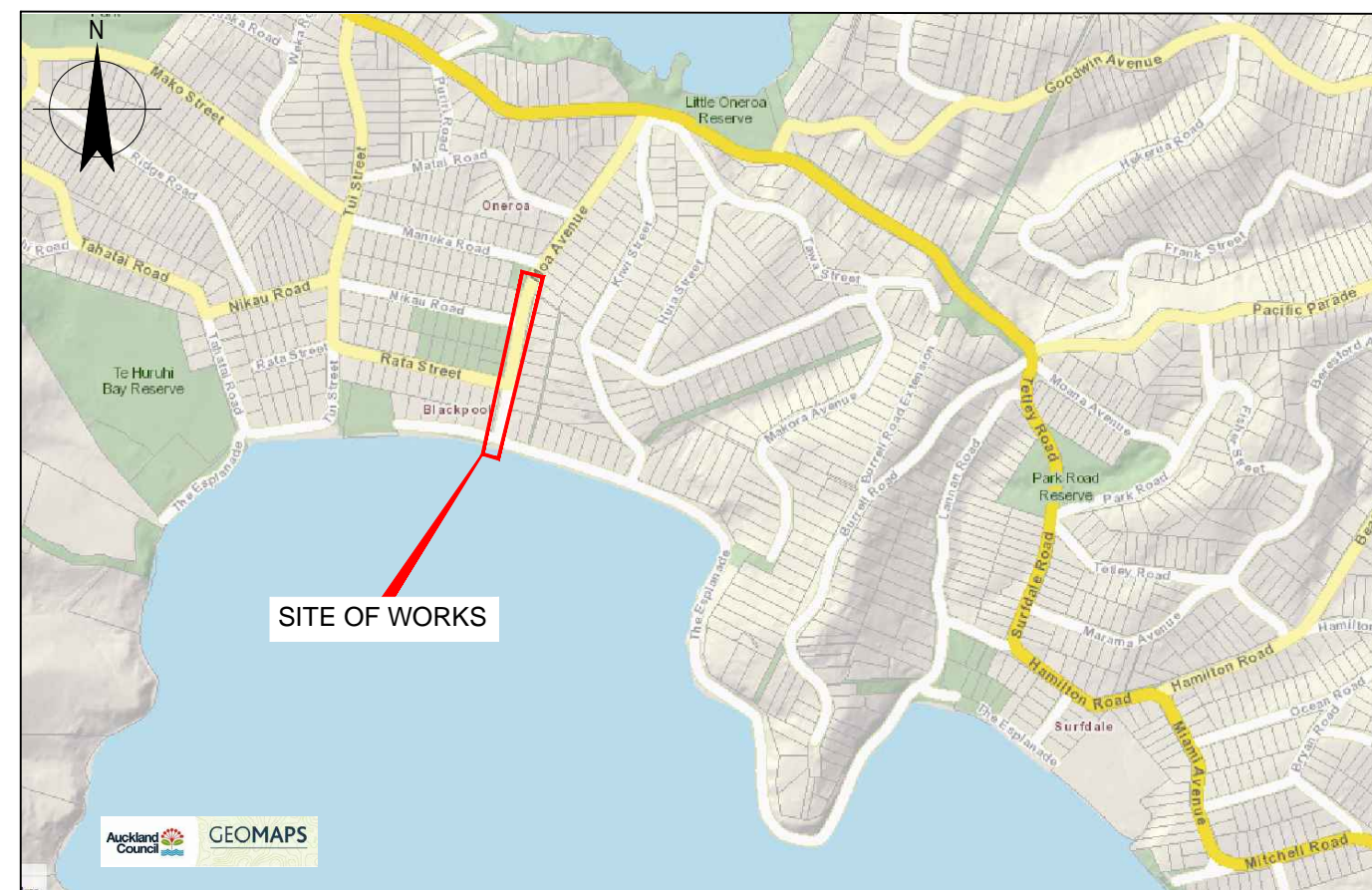
Appendix B – Design Drawings

AUCKLAND COUNCIL

MOA AVENUE, WAIHEKE ISLAND

STORMWATER DETAILED DESIGN

51-37338



LOCALITY PLAN

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

0	FOR TENDER	DX	YY	RO	25.01.19	
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date

DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER
	Approved (Project Director) Date	
	Scale NTS	This Drawing must not be used for Construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	COVER SHEET AND LOCALITY PLAN
Original Size	A3
Drawing No:	51-37338-W001
Rev:	0

AUCKLAND COUNCIL

MOA AVENUE, WAIHEKE ISLAND

STORMWATER DETAILED DESIGN

51-37338

DRAWING No.	DRAWING TITLE
51-37338-W001	COVER SHEET AND LOCALITY PLAN
51-37338-W002	DRAWING REGISTER
51-37338-W003	CONTRACTOR NOTES
51-37338-W004	OVERALL SITE PLAN
51-37338-W011	PROPOSED STORMWATER PIPE LAYOUT PLAN SHEET 1 OF 3
51-37338-W012	PROPOSED STORMWATER PIPE LAYOUT PLAN SHEET 2 OF 3
51-37338-W013	PROPOSED STORMWATER PIPE LAYOUT PLAN SHEET 3 OF 3
51-37338-W021	PROPOSED STORMWATER PIPE LONGITUDINAL SECTION SHEET 1 OF 4
51-37338-W022	PROPOSED STORMWATER PIPE LONGITUDINAL SECTION SHEET 2 OF 4
51-37338-W023	PROPOSED STORMWATER PIPE LONGITUDINAL SECTION SHEET 3 OF 4
51-37338-W024	PROPOSED STORMWATER PIPE LONGITUDINAL SECTION SHEET 4 OF 4
51-37338-W031	PROPOSED SWMH1 DETAILS AND OUTLET DETAILS
51-37338-W032	PROPOSED OUTLET DETAILS
51-37338-W033	PROPOSED SWMH 1 DETAILS
51-37338-W034	PROPOSED TRENCH WATER STOP DETAILS
51-37338-W041	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 1 OF 5
51-37338-W042	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 2 OF 5
51-37338-W043	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 3 OF 5
51-37338-W044	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 4 OF 5
51-37338-W045	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 5 OF 5
51-37338-W046	PROPOSED SWALE AND CHANNEL DRAIN TYPICAL DETAILS
51-37338-S001	HEADWALL DETAILS SHEET 1 OF 3
51-37338-S002	HEADWALL DETAILS SHEET 2 OF 3
51-37338-S003	HEADWALL DETAILS SHEET 3 OF 3

	AUCKLAND COUNCIL STORMWATER STANDARD DRAWINGS
SW01	EMBEDMENT & TRENCHFILL
SW02	PIPE EMBEDMENTS – STANDARD EMBEDMENT FOR FLEXIBLE PIPES
SW03	PIPE EMBEDMENTS – STANDARD EMBEDMENT FOR CONCRETE PIPES
SW04	STORMWATER SERVICE CONNECTIONS
SW05	STANDARD STORMWATER MANHOLE
SW06	STORMWATER MANHOLES – NON-ACCESS CHAMBER
SW07	STORMWATER MANHOLE WITH IN SITU CONCRETE BASE
SW08	STORMWATER MANHOLE OFFTAKE
SW09	STORMWATER MANHOLE ACCESS
SW10 TO SW18 DELETED	REFER TO ATCOP DRAWING SET
SW19	STORMWATER INLET AND OUTLET STRUCTURES
	AUCKLAND TRANSPORT STANDARD DRAWINGS
RD025	SUBSOIL DRAIN
RD030	CATCHPIT GRATING AND FRAMES
RD030	FIELD CATCHPIT 675 X 440
RD034	STANDARD CATCHPIT
RD038	STREET CATCHPIT 800 X 500 NO HALF SYPHON
RD040	STREET CATCHPIT 800 X 500 PRECAST LINTEL DETAILS
RD041	STREET CATCHPIT 800 X 500 PRECAST UNIT DETAILS
RD042	TETRATRAP TYPE 1
RD043	TETRATRAP TYPE 2
RD044	TETRATRAP TYPE 3
RD045	MEGAPIT

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	25.01.19



DO NOT SCALE GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drawn D. XIE	Designer P. HOUGHTON	Client AUCKLAND COUNCIL Project MOA AVENUE STORMWATER DETAILED DESIGN Title DRAWING REGISTER
	Drafting Check A. PORTEOUS	Design Check T. MILLER	
	Approved (Project Director) Date	Scale NTS	This Drawing must not be used for Construction unless signed as Approved

MOA AVENUE, WAIHEKE ISLAND

STORMWATER DETAILED DESIGN

CONTRACTOR NOTES

TO BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATIONS, PLANS,
LONGITUDINAL SECTIONS AND DETAILS

NOTES:

1. THE POSITIONS OF KNOWN SERVICES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. INVERT LEVELS SHOWN ARE TO THE BEST INFORMATION AVAILABLE.
2. THE CONTRACTOR SHALL CHECK AND CONFIRM LOCATION AND DEPTH OF ALL EXISTING SERVICES AND THE ALIGNMENT OF NEW PIPES PRIOR TO COMMENCING EXCAVATION.
3. THE CONTRACTOR SHALL LIAISE WITH ALL UTILITY OPERATORS PRIOR TO CONSTRUCTION START.
4. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AUCKLAND COUNCIL SPECIFICATIONS AND ENGINEERING STANDARD DETAILS., EXCEPT AS NOTIFIED IN THE CONTRACT DOCUMENTS.
5. CALCULATIONS AND PIPE GRADES ARE BASED ON THE DISTANCE BETWEEN MANHOLE CENTRES.
6. ALL LEVELS ARE IN TERMS OF AUCKLAND DATUM 1946 (AUCKLAND MSL). ALL COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC DATUM 2000.
7. THE CONTRACTOR SHALL MAINTAIN VEHICLE ACCESS TO PROPERTIES AT ALL TIMES.
8. THE CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS AT ALL TIMES IN THE VICINITY OF THE WORKS.
9. THE CONTRACTOR'S HEALTH AND SAFETY MANUAL IS TO BE ADHERED TO, AND THE HEALTH AND SAFETY AT WORK ACT FULLY COMPLIED WITH.
10. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL AND SHALL SUBMIT A TRAFFIC MANAGEMENT PLAN TO AUCKLAND COUNCIL FOR APPROVAL AT LEAST TEN WORKING DAYS BEFORE COMMENCEMENT OF WORK ON SITE.
11. WHERE WORK TAKES PLACE IN EXISTING MANHOLES AND LINES THE CONTRACTOR SHALL ENSURE THAT FLOW IS MAINTAINED AT ALL TIMES.
12. ALL EXCAVATED GROUND SHALL BE RETURNED TO ORIGINAL LEVELS AND FULLY RESTORED ON COMPLETION OF THE WORKS EXCEPT WHERE DEPARTURES ARE SPECIFIED.
13. THE CONTRACTOR SHALL ENSURE THAT ALL CATCHPITS ARE CLEARED OF DEBRIS / SILT AND ARE IN WORKING ORDER DURING AND ON COMPLETION OF CONSTRUCTION.
14. ALL DAMAGE TO THE CARRIAGEWAY OR SEAL CAUSED BY MACHINERY OUTSIDE THE EXCAVATION AREA IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE RESTORED IMMEDIATELY.
15. AS BUILT PLANS OF THE WORKS SHALL BE SUBMITTED TO THE ENGINEER UPON COMPLETION OF THE WORKS AND PRIOR TO ISSUE OF CERTIFICATE OF PRACTICAL COMPLETION.
16. THE CONTRACTOR SHALL TAKE A DETAILED PHOTOGRAPHIC RECORD OF THE SITE BEFORE COMMENCING WORK.
17. LOCATION OF PRIVATE LATERALS WHERE SHOWN ARE APPROXIMATE ONLY.
18. WHERE CLEARANCE BETWEEN PIPE CROSSING IS LESS THAN 100mm THE GAP IS TO BE POLYSTYRENE PACKED AND THE LOWER TRENCH IS TO BE HARDFILL UP TO THE INVERT OF THE HIGHER PIPE 1.0m CLEAR EITHER SIDE OF THE CROSSING.
19. ALL SURFACES, STRUCTURES, FENCES, GARDENS, ETC., AFFECTED BY THE WORKS ARE TO BE FULLY REINSTATED AT THE CONTRACTORS OWN EXPENSE.
20. ALL MACHINE OPEN TRENCH EXCAVATION SHALL BE OUTSIDE TREE DRIPLINES. OPEN TRENCH WORKS WITHIN TREE DRIPLINE SHALL BE HAND DUG ONLY UNDER ENGINEER DIRECTION.
21. THE CONTRACTOR SHALL CHECK FOR ALL OVERHEAD POWER OPERATING IN THE AREA PRIOR TO WORKS COMMENCEMENT.
22. ALL PAINTED MARKINGS ON ROADS, ACCESS WAYS AND PARKING AREAS ARE TO BE REINSTATED BY THE CONTRACTOR IMMEDIATELY FOLLOWING SURFACE REINSTATEMENT.
23. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT RESOURCE CONSENT CONDITIONS DURING CONSTRUCTION OF THESE WORKS.

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	25.01.19



Level 3, GHD Centre
27 Napier Street, Freemans Bay, Auckland 1011 New Zealand
T 64 9 370 8000 F 64 9 370 8001
E auckland@ghd.com W www.ghd.com

DO NOT SCALE

GHD Limited
Conditions of Use.
This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

Drawn	D. XIE	Designer	P. HOUGHTON
Drafting Check	A. PORTEOUS	Design Check	T. MILLER
Approved (Project Director)	Date		
Scale	NTS		

Client	AUCKLAND COUNCIL		
Project	MOA AVENUE STORMWATER DETAILED DESIGN		
Title	CONTRACTOR NOTES		
Original Size	A3	Drawing No:	51-37338-W003
		Rev:	0



LEGEND	
EXISTING SERVICES	
WASTEWATER	— WW —
STORMWATER	— SW —
WATERMAIN	— W —
WW MANHOLE	⊙
SW MANHOLE	⊙
CATCHPIT	■
COMMUNICATION	— C —
ELECTRICITY	— E —
ELECTRICITY OVERHEAD	— E(OH) —
FENCE	— // —
STREET LIGHT & POLE	☼
POWER POLE	⊙
STREET TREE	⊙
DRIP LINE	~ ~ ~

STANDARD SURVEY LEGEND	
■	CATCHPIT
⊙	CULVERT
⊙	MANHOLE
⊙	ELECTRICITY BOX
☼	POWER POLE/STREET LIGHT
⊙	TELECOM PLINTH
⊙	SURVEY STANDARD
⊙	BENCHMARK
⊙	SURVEY NAIL
⊙	FIRE HYDRANT
⊙	WATER METER
⊙	LETTER BOX
⊙	TREE
—	FENCELINE
—	WALL
~ ~ ~	BUSHLINE
—	KERBLINE
—	SEAL EDGE
—	SEWER LINE
—	STORMWATER LINE

- NOTES:
- HEIGHT DATUM: L&S 1946 (AUCKLAND MSL)
 - ORIGIN OF LEVELS: RM 7689 SO 60983 3.72m RL
 - ORIGINAL SURVEY IN TERMS OF GEODETIC DATUM 2000
 - BOUNDARY SOURCE - LINZ XML RECORDS
 - CONTOUR INTERVAL: MAJOR - 1.0M
MINOR - 0.50M
 - ALL PIPE DIAMETERS ARE BEST FIT
 - IT IS A CONSTRUCTION SITE, AND LEVELS IN THE ROAD WILL CHANGE.

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

0	FOR TENDER	DX	YY	RO	25.01.19	
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date



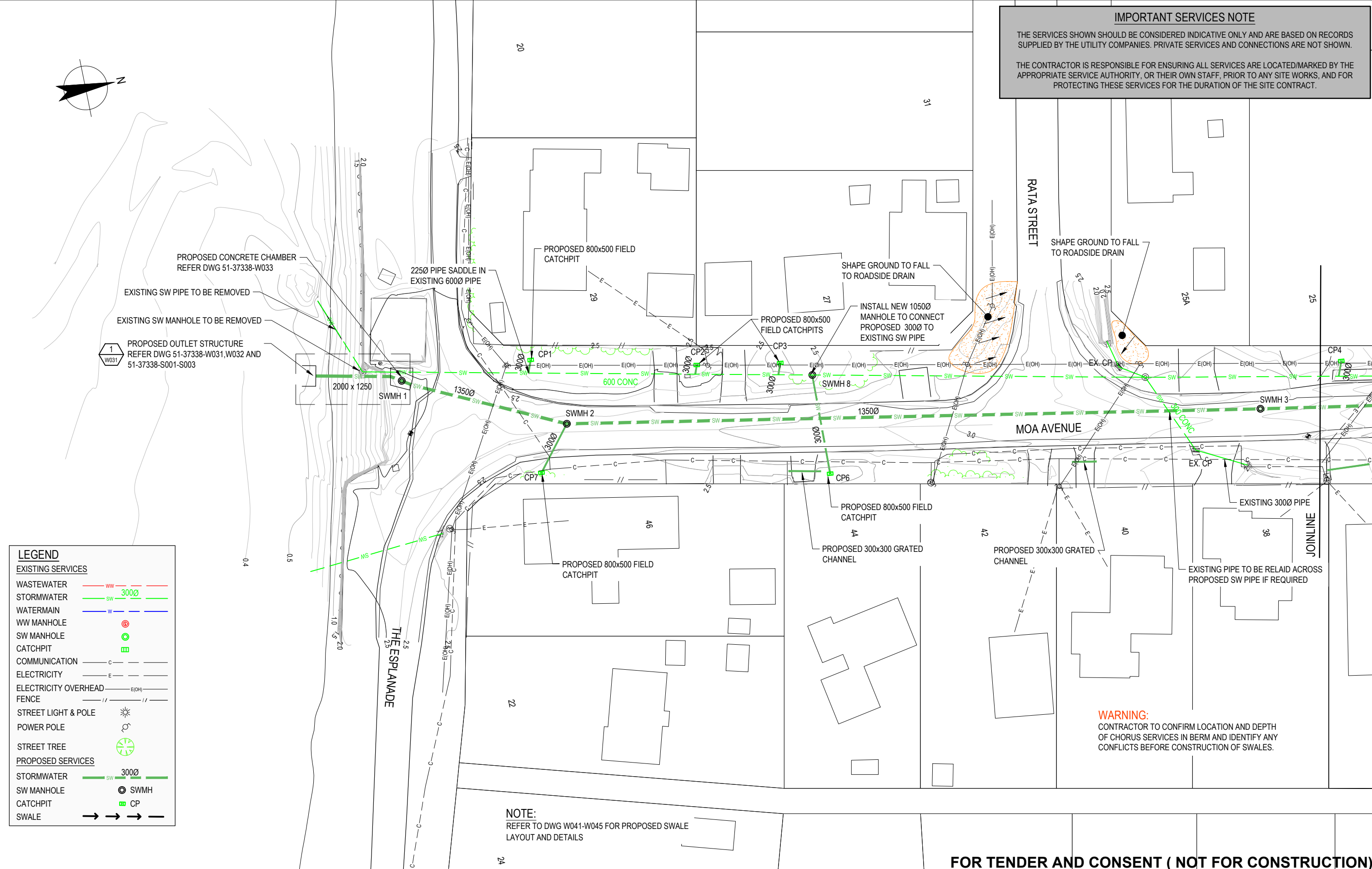
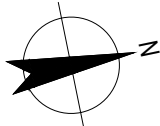
DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER
	Approved (Project Director) Date	
	Scale 1:1000	This Drawing must not be used for Construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	OVERALL SITE PLAN
Original Size	A3
Drawing No:	51-37338-W004
Rev:	0

IMPORTANT SERVICES NOTE

THE SERVICES SHOWN SHOULD BE CONSIDERED INDICATIVE ONLY AND ARE BASED ON RECORDS SUPPLIED BY THE UTILITY COMPANIES. PRIVATE SERVICES AND CONNECTIONS ARE NOT SHOWN.

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL SERVICES ARE LOCATED/MARKED BY THE APPROPRIATE SERVICE AUTHORITY, OR THEIR OWN STAFF, PRIOR TO ANY SITE WORKS, AND FOR PROTECTING THESE SERVICES FOR THE DURATION OF THE SITE CONTRACT.



PROPOSED CONCRETE CHAMBER
REFER DWG 51-37338-W033

EXISTING SW PIPE TO BE REMOVED

EXISTING SW MANHOLE TO BE REMOVED

1 W031
PROPOSED OUTLET STRUCTURE
REFER DWG 51-37338-W031, W032 AND
51-37338-S001-S003

LEGEND

EXISTING SERVICES	
WASTEWATER	— WW —
STORMWATER	— SW 300Ø —
WATERMAIN	— W —
WW MANHOLE	⊙
SW MANHOLE	⊙
CATCHPIT	■
COMMUNICATION	— C —
ELECTRICITY	— E —
ELECTRICITY OVERHEAD	— E(OH) —
FENCE	— // —
STREET LIGHT & POLE	☼
POWER POLE	⊕
STREET TREE	🌳
PROPOSED SERVICES	
STORMWATER	— SW 300Ø —
SW MANHOLE	⊙ SWMH
CATCHPIT	■ CP
SWALE	→ → →

NOTE:
REFER TO DWG W041-W045 FOR PROPOSED SWALE
LAYOUT AND DETAILS

WARNING:
CONTRACTOR TO CONFIRM LOCATION AND DEPTH
OF CHORUS SERVICES IN BERM AND IDENTIFY ANY
CONFLICTS BEFORE CONSTRUCTION OF SWALES.

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



DO NOT SCALE	
Drawn	D. XIE
Designer	P. HOUGHTON
Drafting Check	A. PORTEOUS
Design Check	T. MILLER
Approved (Project Director)	
Date	
Scale	1:500

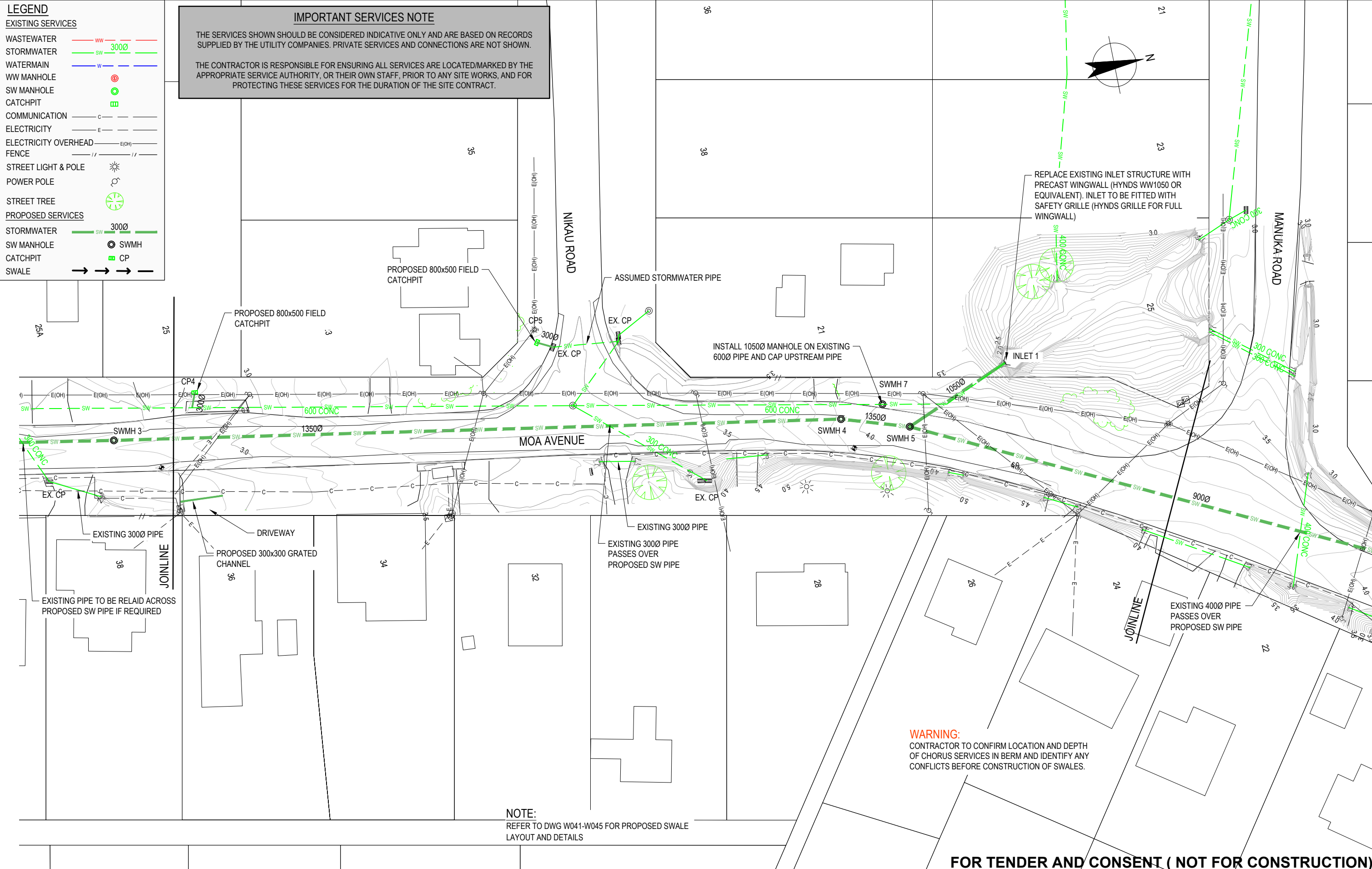
Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED STORMWATER PIPE LAYOUT PLAN SHEET 1 OF 3
Original Size	A3
Drawing No:	51-37338-W011
Rev:	0

LEGEND	
EXISTING SERVICES	
WASTEWATER	— WW —
STORMWATER	— SW 3000 —
WATERMAIN	— W —
WW MANHOLE	⊙
SW MANHOLE	⊙
CATCHPIT	⊞
COMMUNICATION	— C —
ELECTRICITY	— E —
ELECTRICITY OVERHEAD	— E(OH) —
FENCE	— / / —
STREET LIGHT & POLE	☼
POWER POLE	⊕
STREET TREE	⊙
PROPOSED SERVICES	
STORMWATER	— SW 3000 —
SW MANHOLE	⊙ SWMH
CATCHPIT	⊞ CP
SWALE	→ → →

IMPORTANT SERVICES NOTE

THE SERVICES SHOWN SHOULD BE CONSIDERED INDICATIVE ONLY AND ARE BASED ON RECORDS SUPPLIED BY THE UTILITY COMPANIES. PRIVATE SERVICES AND CONNECTIONS ARE NOT SHOWN.

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL SERVICES ARE LOCATED/MARKED BY THE APPROPRIATE SERVICE AUTHORITY, OR THEIR OWN STAFF, PRIOR TO ANY SITE WORKS, AND FOR PROTECTING THESE SERVICES FOR THE DURATION OF THE SITE CONTRACT.



WARNING:
CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF CHORUS SERVICES IN BERM AND IDENTIFY ANY CONFLICTS BEFORE CONSTRUCTION OF SWALES.

NOTE:
REFER TO DWG W041-W045 FOR PROPOSED SWALE LAYOUT AND DETAILS

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

0	FOR TENDER	DX	YY	RO	05/19	
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date



DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER
	Approved (Project Director) Date	
	Scale 1:500	This Drawing must not be used for Construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED STORMWATER PIPE LAYOUT PLAN SHEET 2 OF 3
Original Size	A3
Drawing No:	51-37338-W012
Rev:	0

IMPORTANT SERVICES NOTE

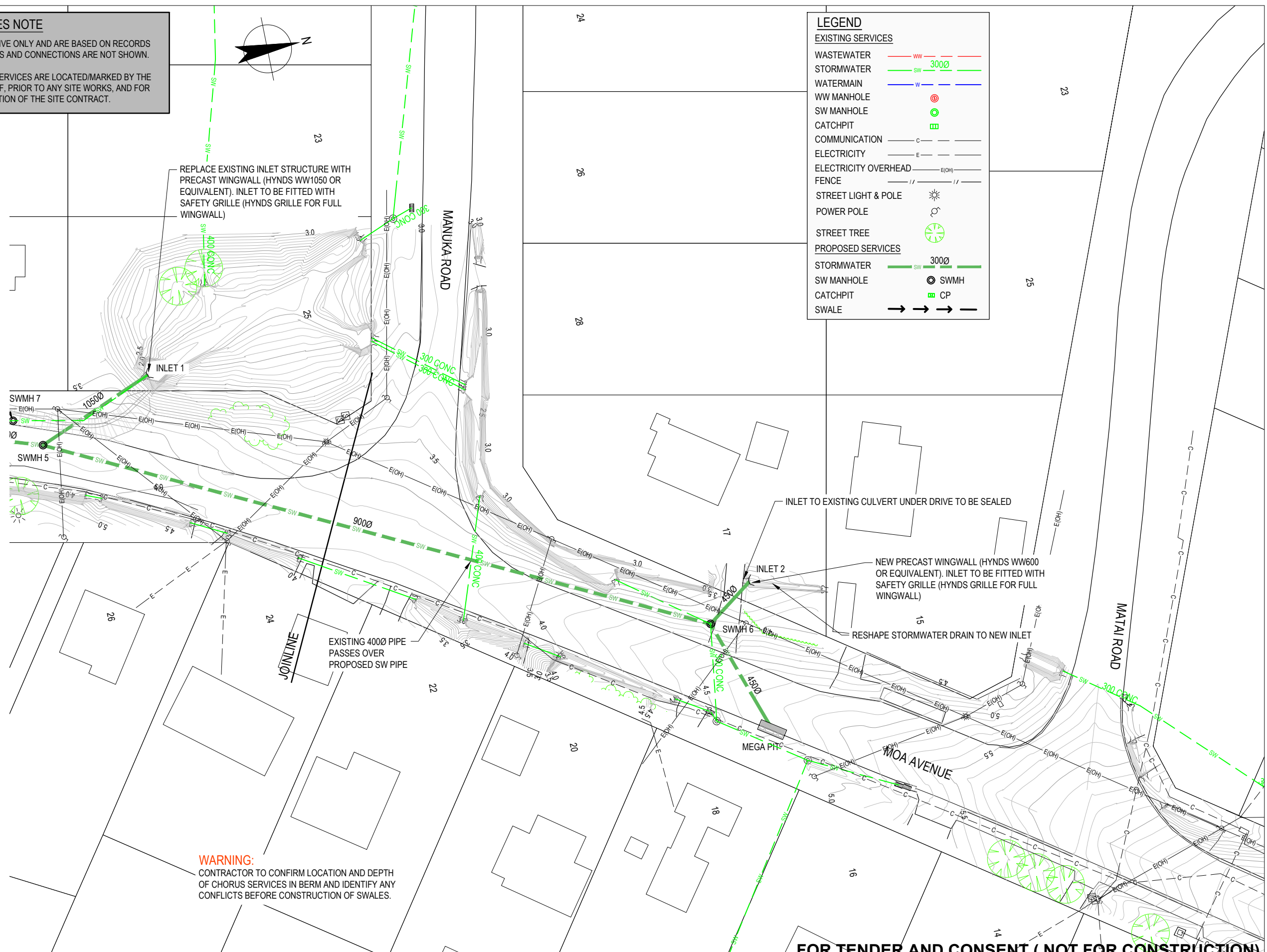
THE SERVICES SHOWN SHOULD BE CONSIDERED INDICATIVE ONLY AND ARE BASED ON RECORDS SUPPLIED BY THE UTILITY COMPANIES. PRIVATE SERVICES AND CONNECTIONS ARE NOT SHOWN.

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL SERVICES ARE LOCATED/MARKED BY THE APPROPRIATE SERVICE AUTHORITY, OR THEIR OWN STAFF, PRIOR TO ANY SITE WORKS, AND FOR PROTECTING THESE SERVICES FOR THE DURATION OF THE SITE CONTRACT.

LEGEND

EXISTING SERVICES

- WASTEWATER — ww ---
 - STORMWATER — sw --- 3000
 - WATERMAIN — w ---
 - WW MANHOLE ●
 - SW MANHOLE ●
 - CATCHPIT ■
 - COMMUNICATION --- c ---
 - ELECTRICITY --- e ---
 - ELECTRICITY OVERHEAD --- e(oh) ---
 - FENCE // //
 - STREET LIGHT & POLE ☼
 - POWER POLE ⚡
 - STREET TREE 🌳
- PROPOSED SERVICES**
- STORMWATER — sw --- 3000
 - SW MANHOLE ● SWMH
 - CATCHPIT ■ CP
 - SWALE → → → →



WARNING:
CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF CHORUS SERVICES IN BERM AND IDENTIFY ANY CONFLICTS BEFORE CONSTRUCTION OF SWALES.

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

0	FOR TENDER	DX	YY	RO	05/19	
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date



DO NOT SCALE
GHD Limited
Conditions of Use.
This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

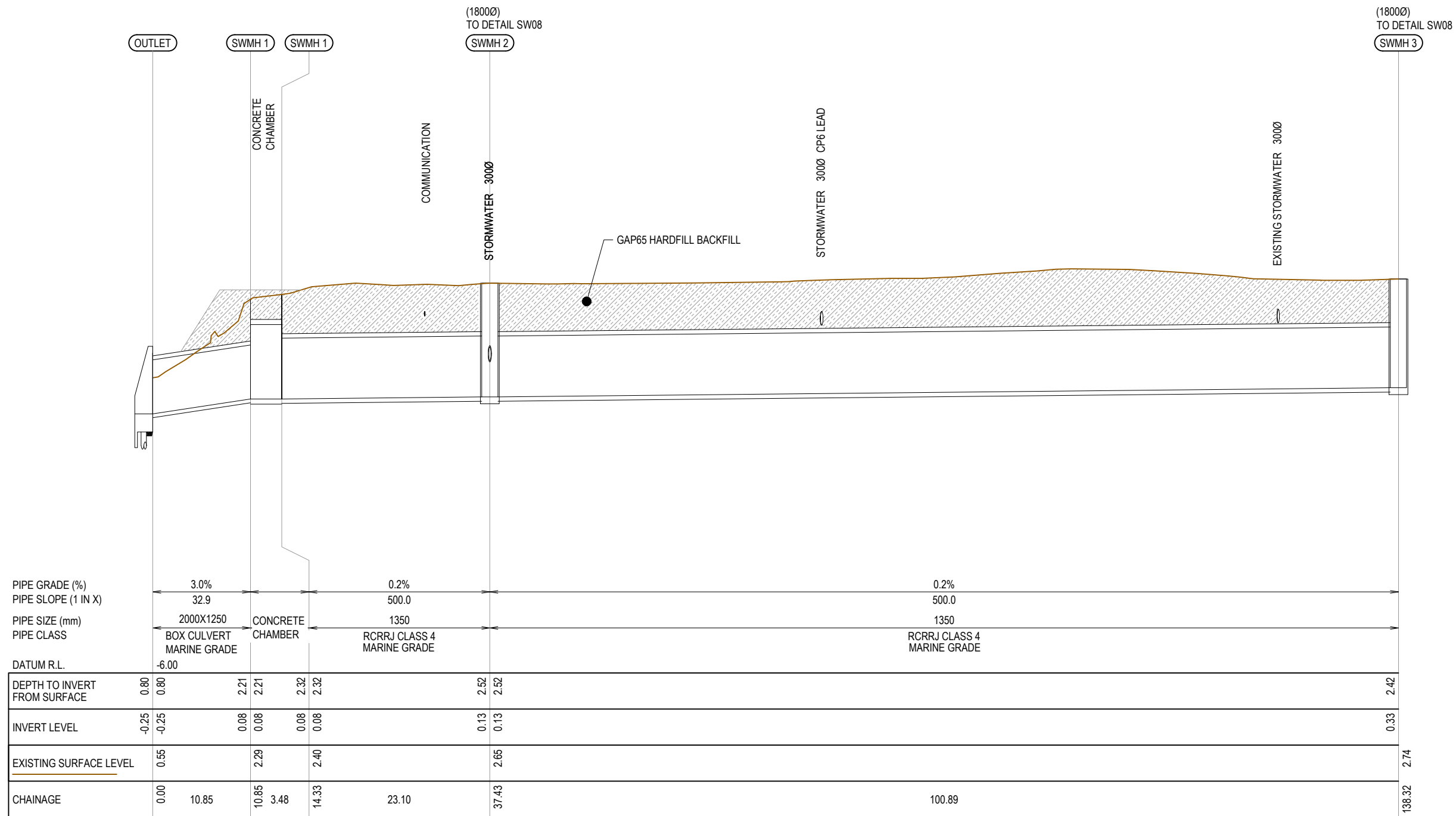
Drawn	D. XIE	Designer	P. HOUGHTON
Drafting Check	A. PORTEOUS	Design Check	T. MILLER
Approved (Project Director)	Date		
Scale	1:500		

Client	AUCKLAND COUNCIL		
Project	MOA AVENUE STORMWATER DETAILED DESIGN		
Title	PROPOSED STORMWATER PIPE LAYOUT PLAN SHEET 3 OF 3		
Original Size	A3	Drawing No:	51-37338-W013
Rev:	0		

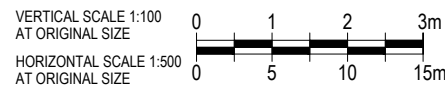
IMPORTANT SERVICES NOTE

THE SERVICES SHOWN SHOULD BE CONSIDERED INDICATIVE ONLY AND ARE BASED ON RECORDS SUPPLIED BY THE UTILITY COMPANIES. PRIVATE SERVICES AND CONNECTIONS ARE NOT SHOWN.

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL SERVICES ARE LOCATED/MARKED BY THE APPROPRIATE SERVICE AUTHORITY, OR THEIR OWN STAFF, PRIOR TO ANY SITE WORKS, AND FOR PROTECTING THESE SERVICES FOR THE DURATION OF THE SITE CONTRACT.



STORMWATER LONGITUDINAL SECTION
SCALE (HORZ) 1:500 (VERT) 1:100



FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	YY	RO	05/19
0	FOR TENDER		DX				



DO NOT SCALE
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

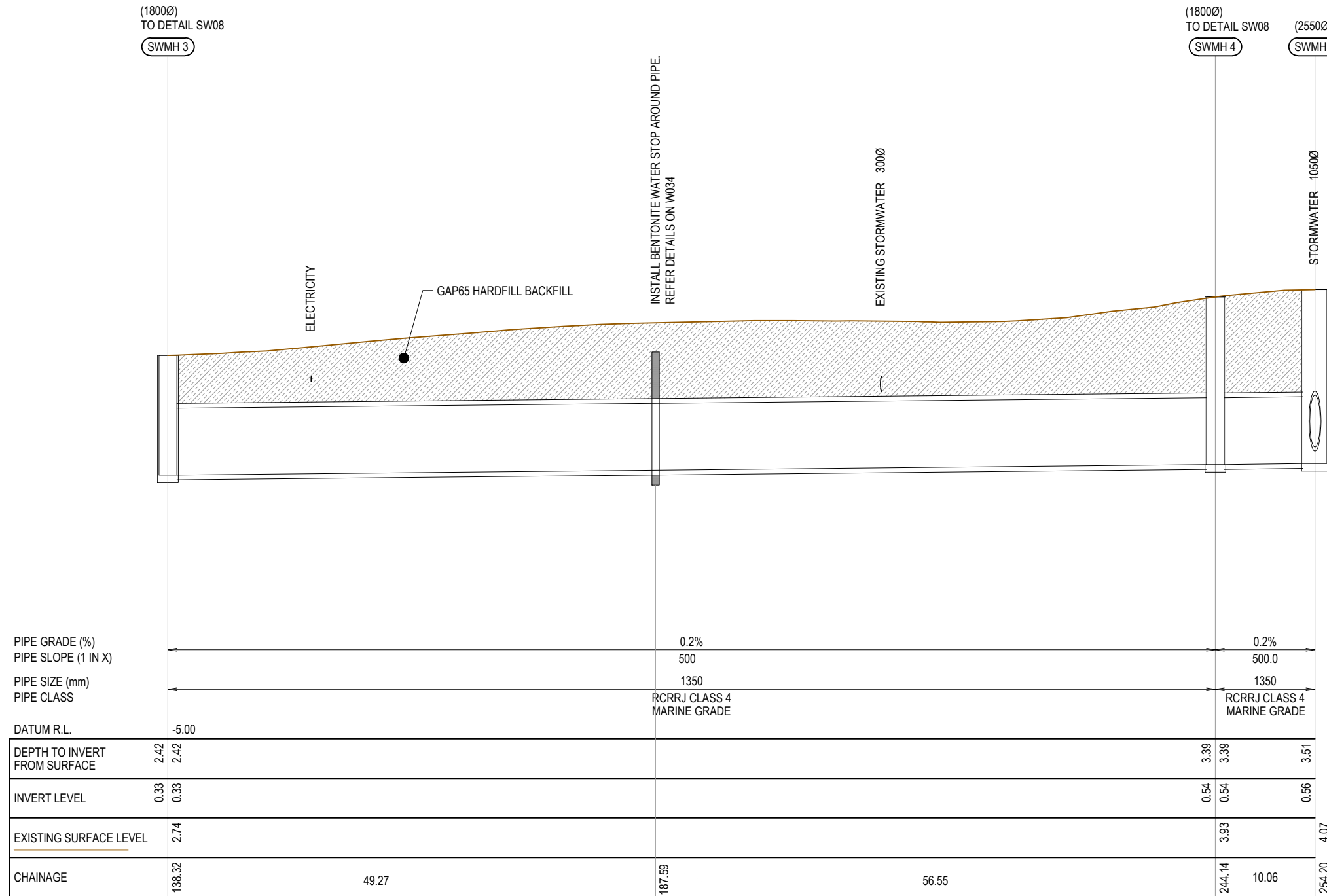
Drawn D. XIE
Designer P. HOUGHTON
Drafting Check A. PORTEOUS
Design Check T. MILLER
Approved (Project Director)
Date
Scale 1:500 H, 1:100 V
This Drawing must not be used for Construction unless signed as Approved

Client **AUCKLAND COUNCIL**
Project **MOA AVENUE STORMWATER DETAILED DESIGN**
Title **PROPOSED STORMWATER PIPE LONGITUDINAL SECTION SHEET 1 OF 4**
Original Size **A3**
Drawing No: **51-37338-W021**
Rev: **0**

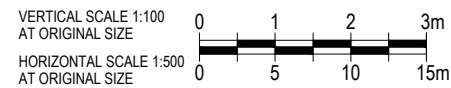
IMPORTANT SERVICES NOTE

THE SERVICES SHOWN SHOULD BE CONSIDERED INDICATIVE ONLY AND ARE BASED ON RECORDS SUPPLIED BY THE UTILITY COMPANIES. PRIVATE SERVICES AND CONNECTIONS ARE NOT SHOWN.

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL SERVICES ARE LOCATED/MARKED BY THE APPROPRIATE SERVICE AUTHORITY, OR THEIR OWN STAFF, PRIOR TO ANY SITE WORKS, AND FOR PROTECTING THESE SERVICES FOR THE DURATION OF THE SITE CONTRACT.



STORMWATER LONGITUDINAL SECTION
SCALE (HORZ) 1:500 (VERT) 1:100



FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



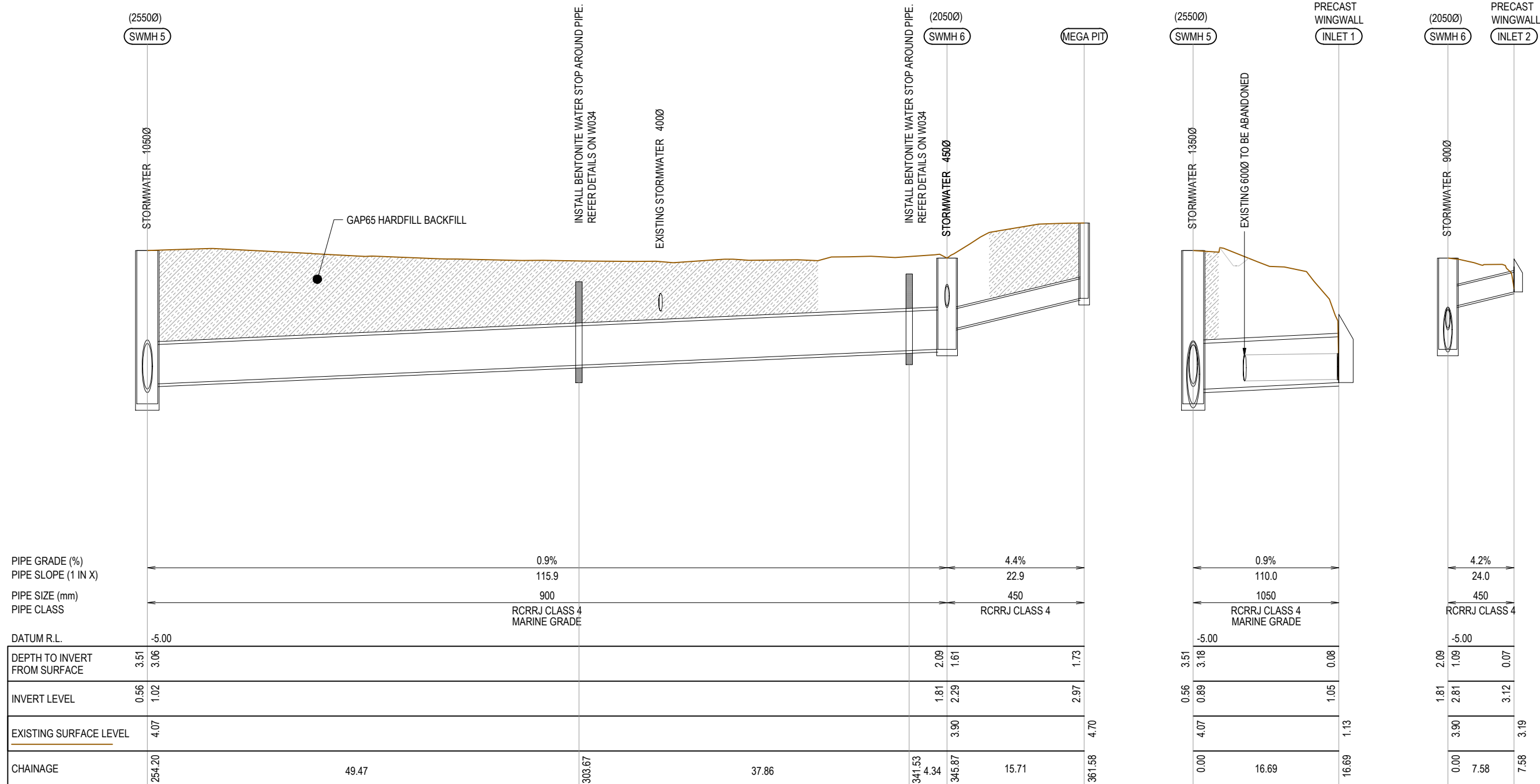
DO NOT SCALE GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drawn	D. XIE	Designer	P. HOUGHTON
	Drafting Check	A. PORTEOUS	Design Check	T. MILLER
	Approved (Project Director)	Date		
Scale	1:500 H, 1:100 V		This Drawing must not be used for Construction unless signed as Approved	

Client	AUCKLAND COUNCIL		
Project	MOA AVENUE STORMWATER DETAILED DESIGN		
Title	PROPOSED STORMWATER PIPE LONGITUDINAL SECTION SHEET 2 OF 4		
Original Size	A3	Drawing No:	51-37338-W022
Rev:	0		

IMPORTANT SERVICES NOTE

THE SERVICES SHOWN SHOULD BE CONSIDERED INDICATIVE ONLY AND ARE BASED ON RECORDS SUPPLIED BY THE UTILITY COMPANIES. PRIVATE SERVICES AND CONNECTIONS ARE NOT SHOWN.

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL SERVICES ARE LOCATED/MARKED BY THE APPROPRIATE SERVICE AUTHORITY, OR THEIR OWN STAFF, PRIOR TO ANY SITE WORKS, AND FOR PROTECTING THESE SERVICES FOR THE DURATION OF THE SITE CONTRACT.



STORMWATER LONGITUDINAL SECTION
SCALE (HORZ) 1:500 (VERT) 1:100



FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



DO NOT SCALE
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

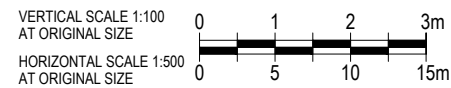
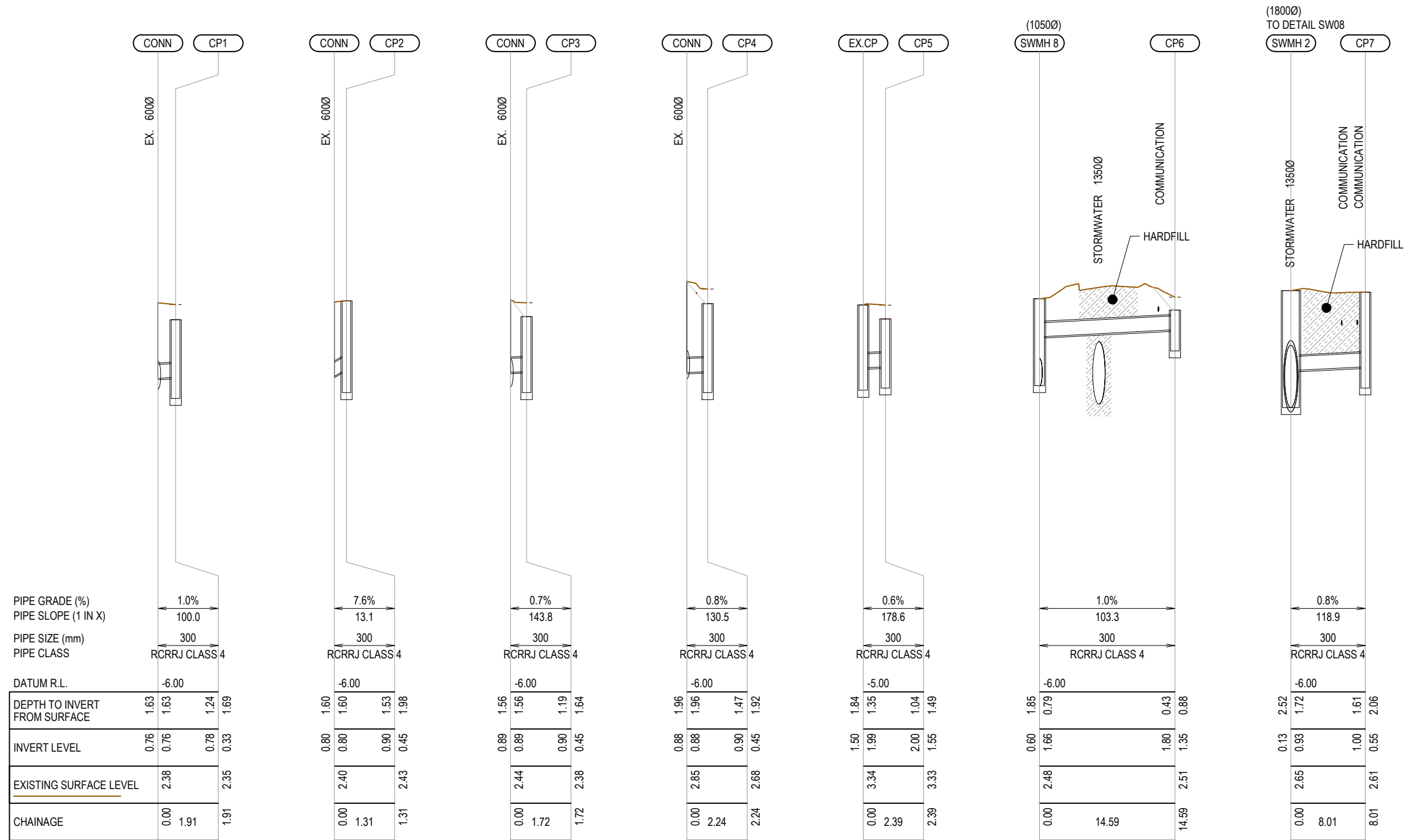
Drawn D. XIE
Designer P. HOUGHTON
Drafting Check A. PORTEOUS
Design Check T. MILLER
Approved (Project Director) Date
Scale 1:500 H, 1:100 V

Client **AUCKLAND COUNCIL**
Project **MOA AVENUE STORMWATER DETAILED DESIGN**
Title **PROPOSED STORMWATER PIPE LONGITUDINAL SECTION SHEET 3 OF 4**
Original Size **A3**
Drawing No: **51-37338-W023**
Rev: **0**

IMPORTANT SERVICES NOTE

THE SERVICES SHOWN SHOULD BE CONSIDERED INDICATIVE ONLY AND ARE BASED ON RECORDS SUPPLIED BY THE UTILITY COMPANIES. PRIVATE SERVICES AND CONNECTIONS ARE NOT SHOWN.

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL SERVICES ARE LOCATED/MARKED BY THE APPROPRIATE SERVICE AUTHORITY, OR THEIR OWN STAFF, PRIOR TO ANY SITE WORKS, AND FOR PROTECTING THESE SERVICES FOR THE DURATION OF THE SITE CONTRACT.



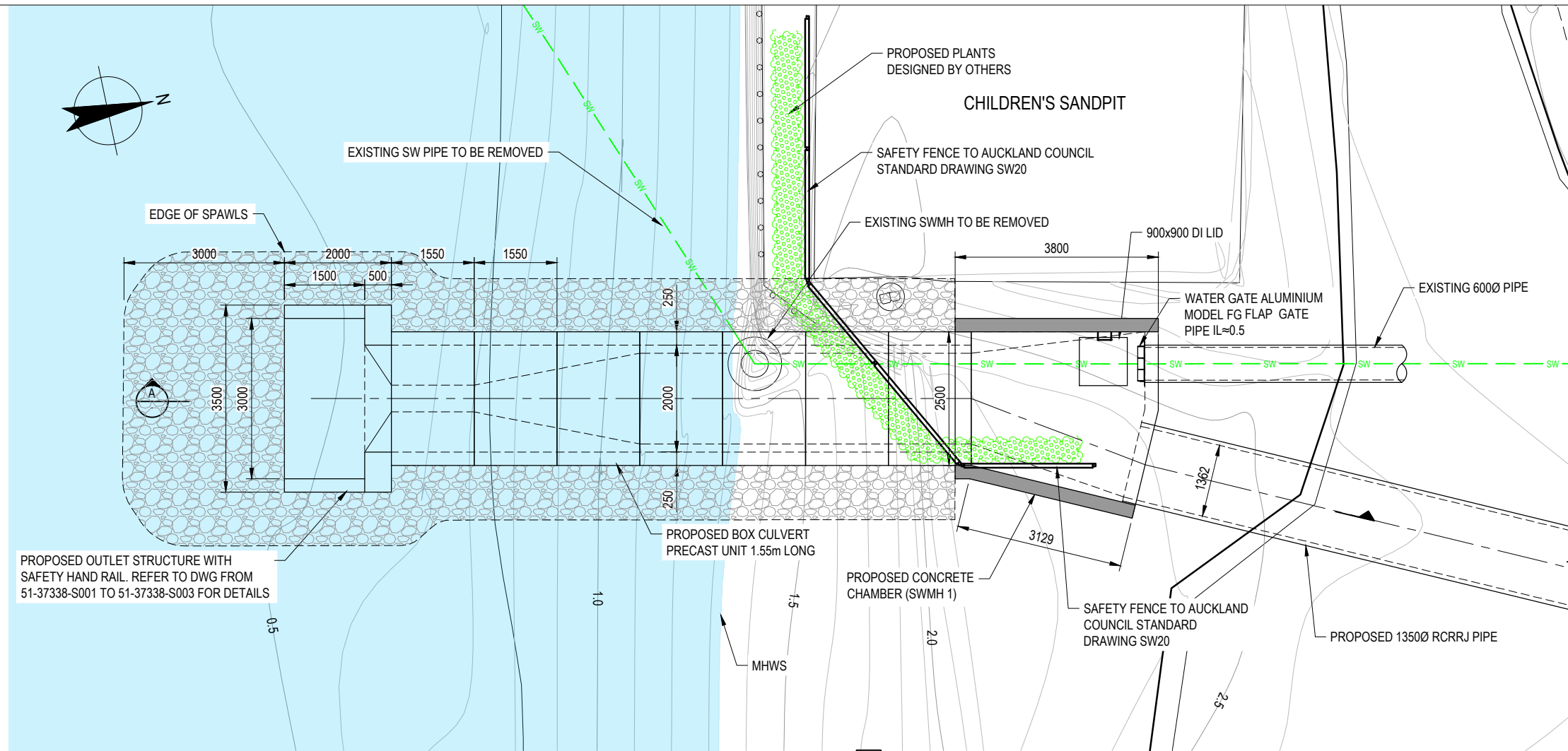
FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER
	Approved (Project Director) Date	
	Scale 1:500 H, 1:100 V	This Drawing must not be used for Construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED STORMWATER PIPE LONGITUDINAL SECTION SHEET 4 OF 4
Original Size	A3
Drawing No:	51-37338-W024
Rev:	0



NOTES:
THE BOX CULVERT AND SWMH 1 ARE TO BE LAID IN TIDAL CONDITIONS AND CONVEY STORMWATER.

LOAD CAPACITY:

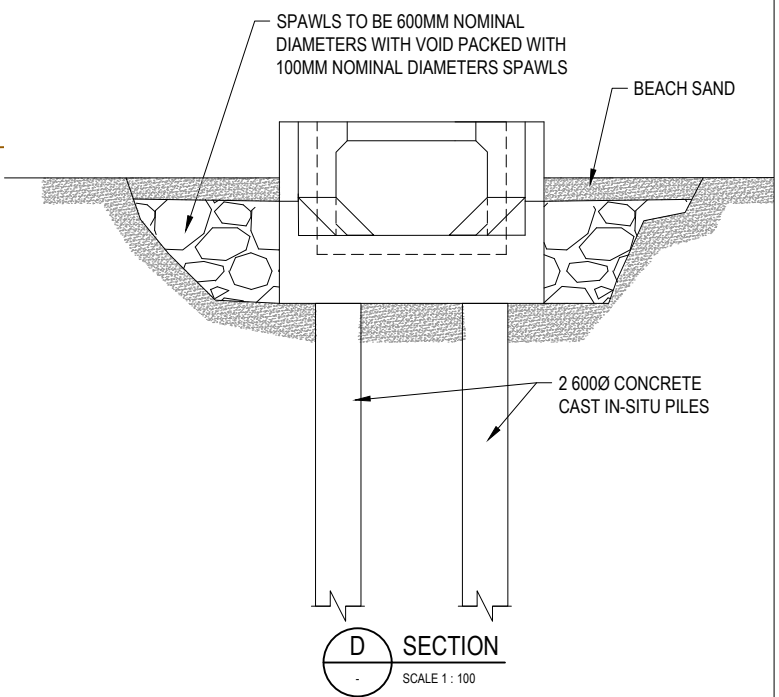
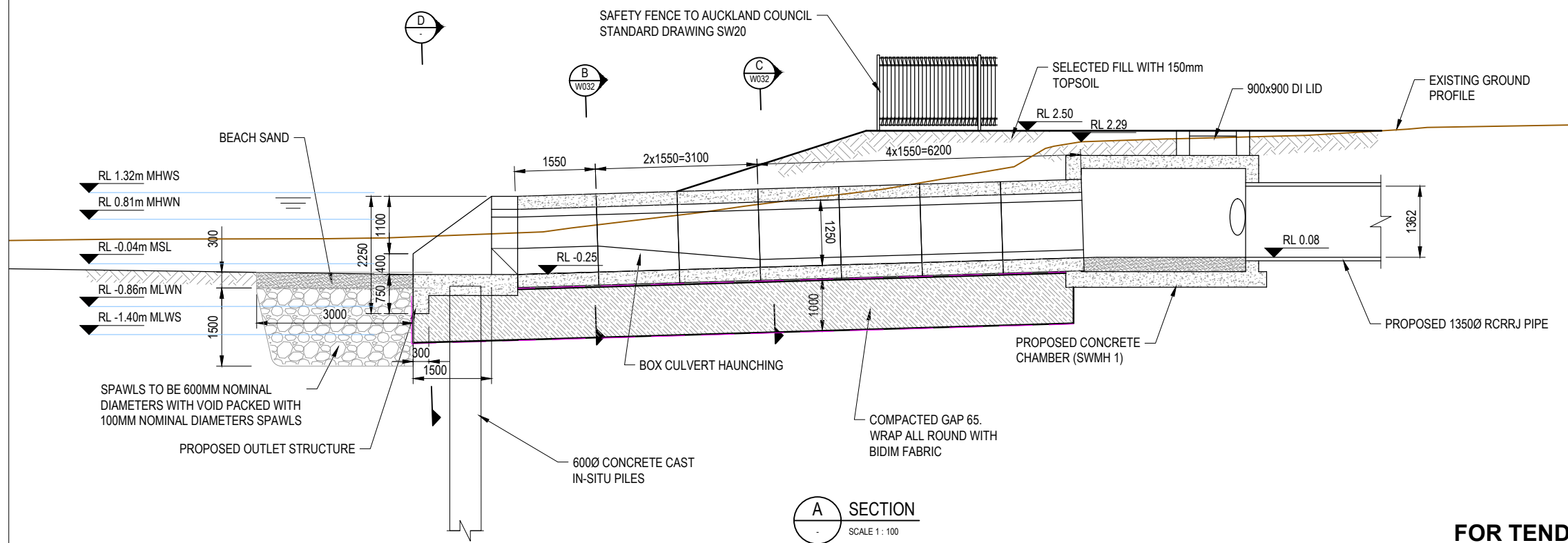
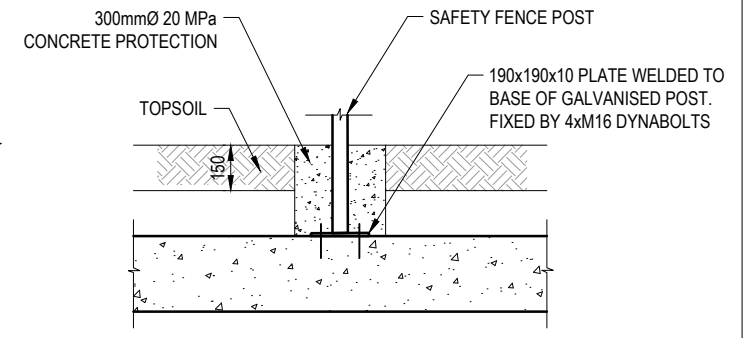
- DEAD LOAD -1.5 TO 1.5 M EARTH COVER
- TRAFFIC LOAD 0.85HN
- SUBMERGENCE UP TO 1.0 M TIDE NORMAL HIGH TIDE WITH 1.5 M EXTREME OVER THE ROOF PLUS ADDITIONAL 1.0 M SURGE.

SURFACE FINISH F4

JOINT

- SMALL SPIGOT AND SOCKET INCLUDING JOINT WITH HEADWALL
- EPOXY MORTAR JOINT SEAL
- BOXES AND HEADWALL UNITS ARE TO BE JOINED BY 4 NO 25 MM DIAMETER MACALLOY BARS IN GROUTED DUCTS

CONCRETE TO BE 50 MPA MICRO SILICA CONCRETE.
DESIGN AND DETAILED FOR USE IN TIDAL AND OR SPLASH ZONE INCLUDING CONCRETE AND COVER TO REINFORCING



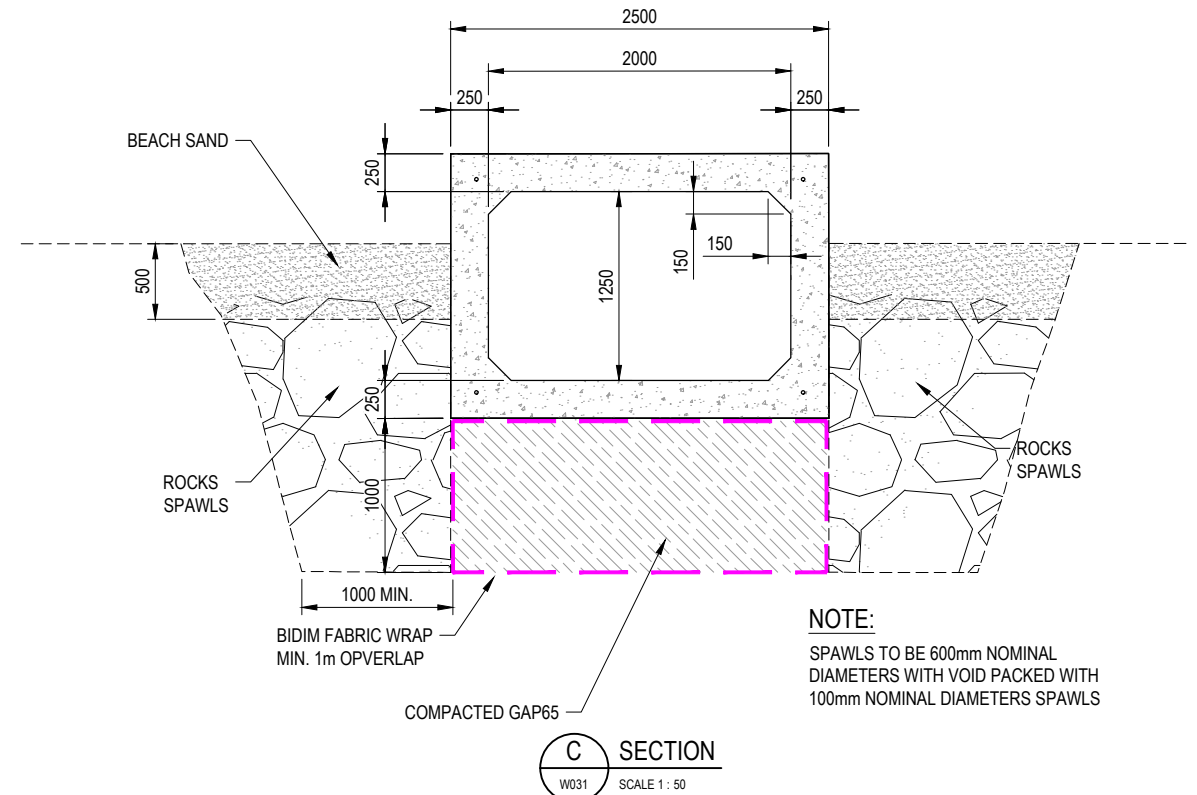
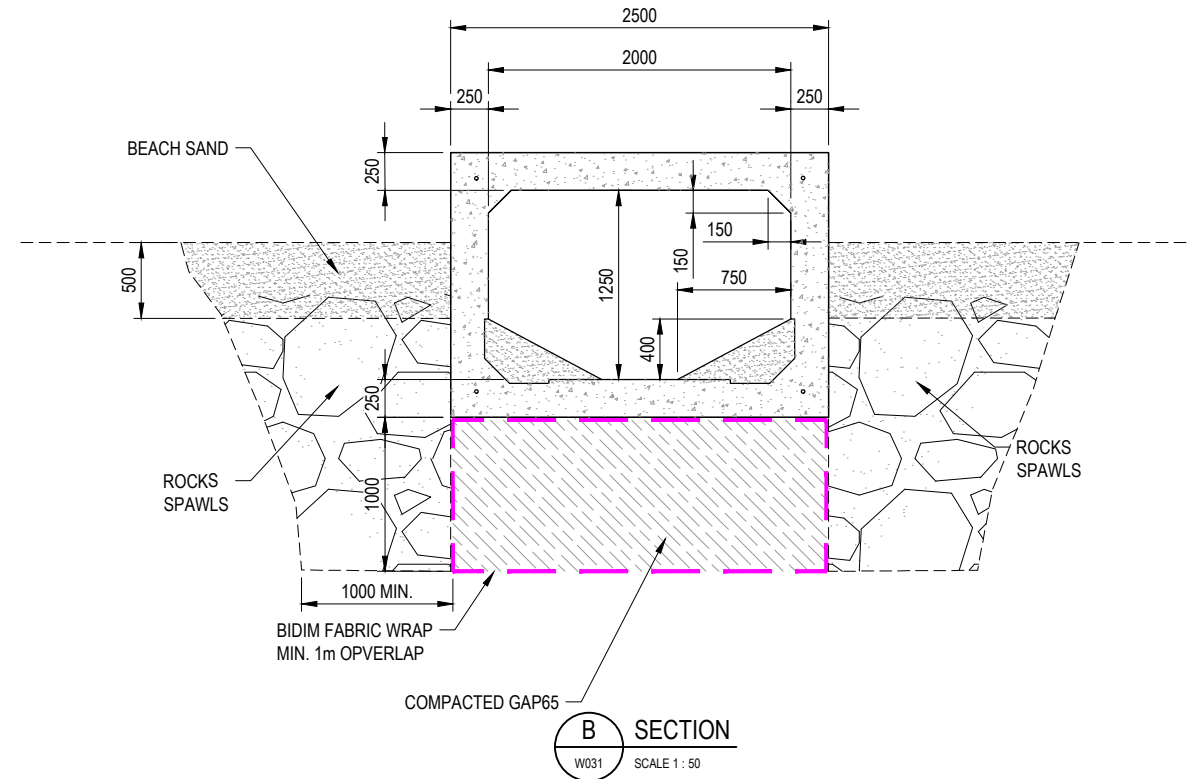
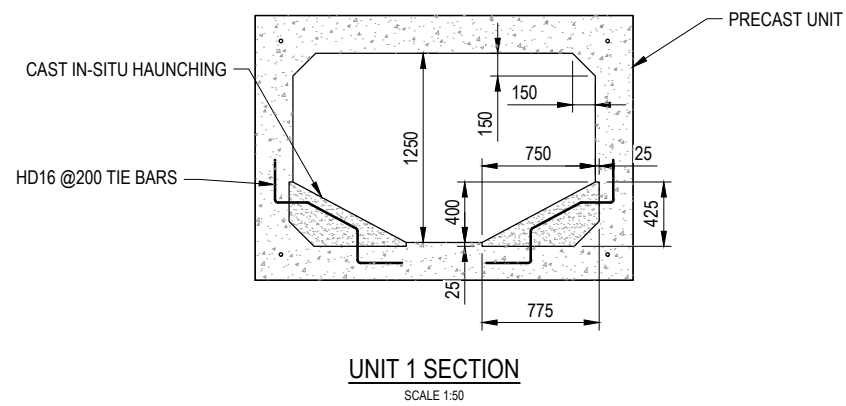
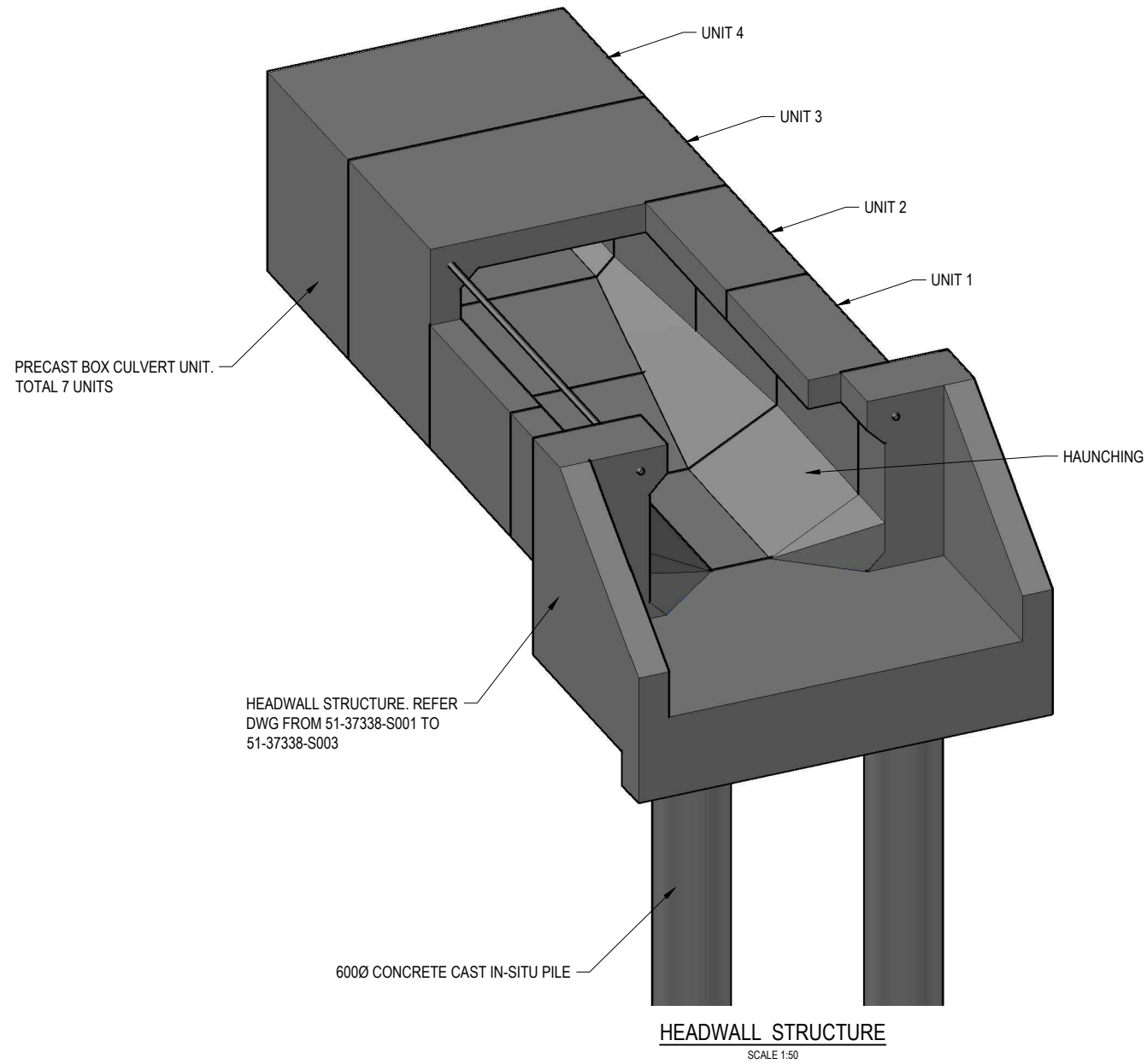
FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



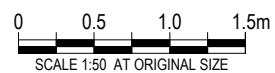
DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER
	Approved (Project Director) Date	
	Scale 1:100	This Drawing must not be used for Construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED SWMH 1 DETAILS AND OUTLET DETAILS
Original Size	A3
Drawing No:	51-37338-W031
Rev:	0

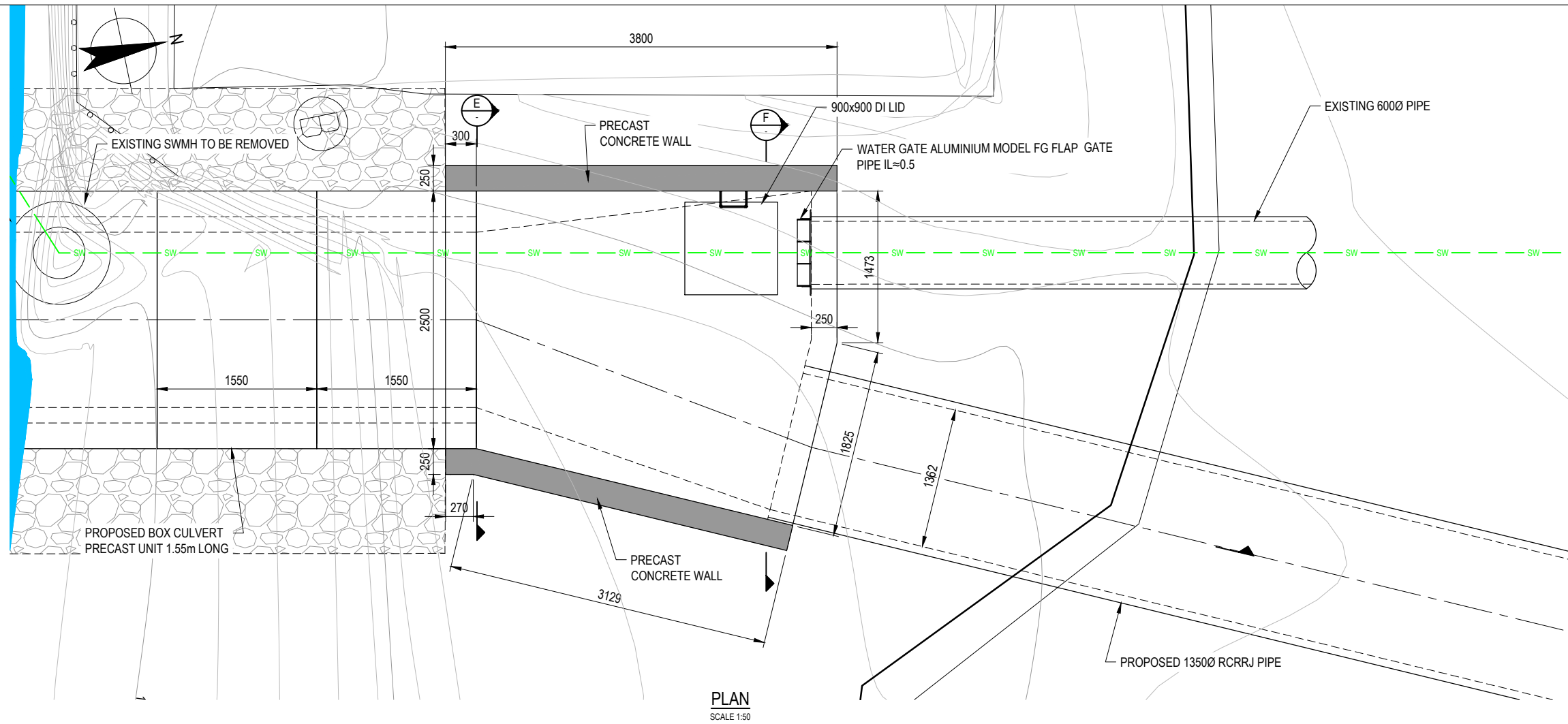


FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

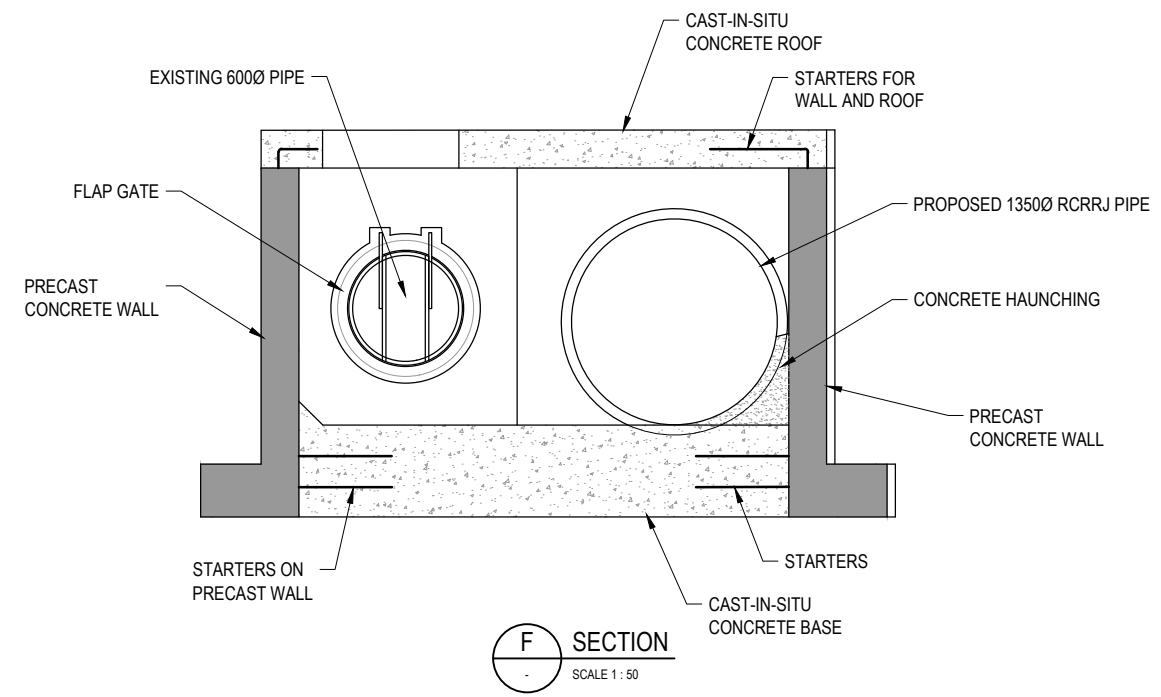
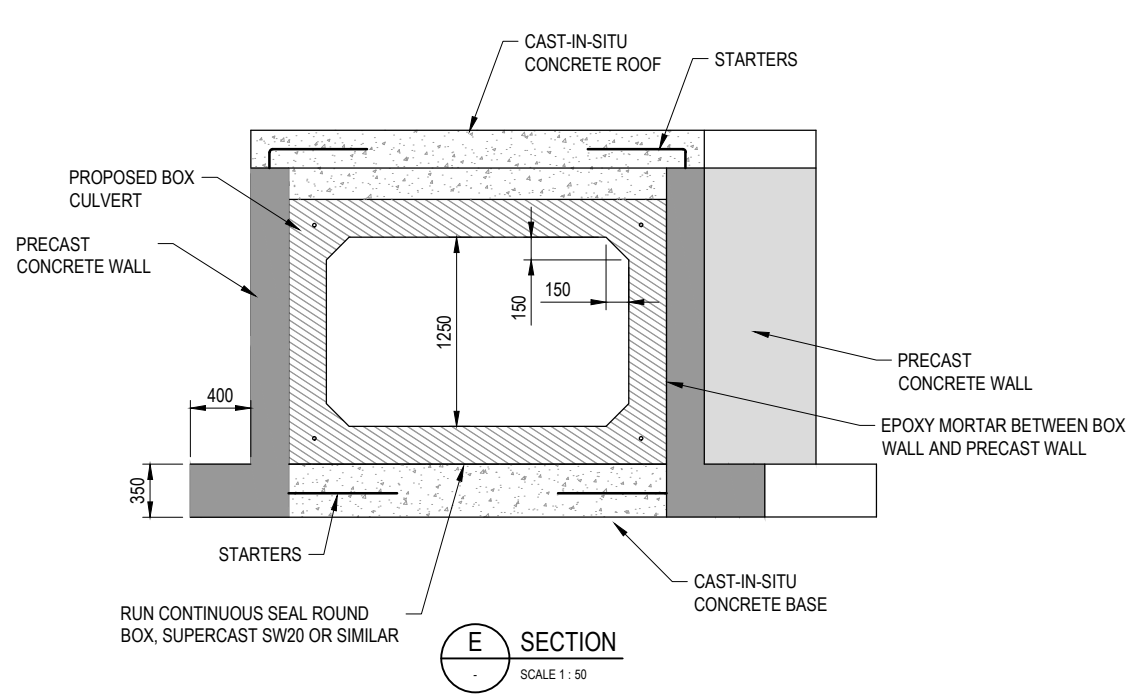
0	FOR TENDER	DX	YY	RO	05/19
No	Revision	Drawn	Job Manager	Project Director	Date



DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON	Client AUCKLAND COUNCIL
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER	Project MOA AVENUE STORMWATER DETAILED DESIGN
	Approved (Project Director) Date		Title PROPOSED OUTLET DETAILS
	Scale 1:50	This Drawing must not be used for Construction unless signed as Approved	Original Size A3 Drawing No: 51-37338-W032 Rev: 0



- NOTES:**
- SWMH 1 IS LAID IN TIDAL CONDITIONS AND CONVEYS STORMWATER.
 - LOAD CAPACITY:
 - DEAD LOAD -1.5 TO 1.5 M EARTH COVER
 - TRAFFIC LOAD 0.85HN
 - SUBMERGENCE UP TO 1.0 M TIDE NORMAL HIGH TIDE WITH 1.5 M EXTREME OVER THE ROOF PLUS ADDITIONAL 1.0 M SURGE.
 - SURFACE FINISH F4
 - THE STRUCTURE IS TO BE DESIGNED TO SUIT THE PROPOSED CONSTRUCTION METHOD. THESE DRAWINGS SUGGEST A PRECAST / CAST IN-SITU OPTION WHICH COULD BE ADOPTED.
 - CONCRETE TO BE 50 MPA MICRO SILICA CONCRETE.
 - DESIGN AND DETAILED FOR USE IN TIDAL AND OR SPLASH ZONE INCLUDING CONCRETE AND COVER TO REINFORCING



FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

0	FOR TENDER	DX	YY	RO	05/19	
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date



DO NOT SCALE GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drawn	D. XIE	Designer	P. HOUGHTON
	Drafting Check	A. PORTEOUS	Design Check	T. MILLER
	Approved (Project Director)	Date		
	Scale	AS SHOWN		

Client	AUCKLAND COUNCIL		
Project	MOA AVENUE STORMWATER DETAILED DESIGN		
Title	PROPOSED SWMH 1 DETAILS		
Original Size	A3	Drawing No:	51-37338-W033
			Rev: 0

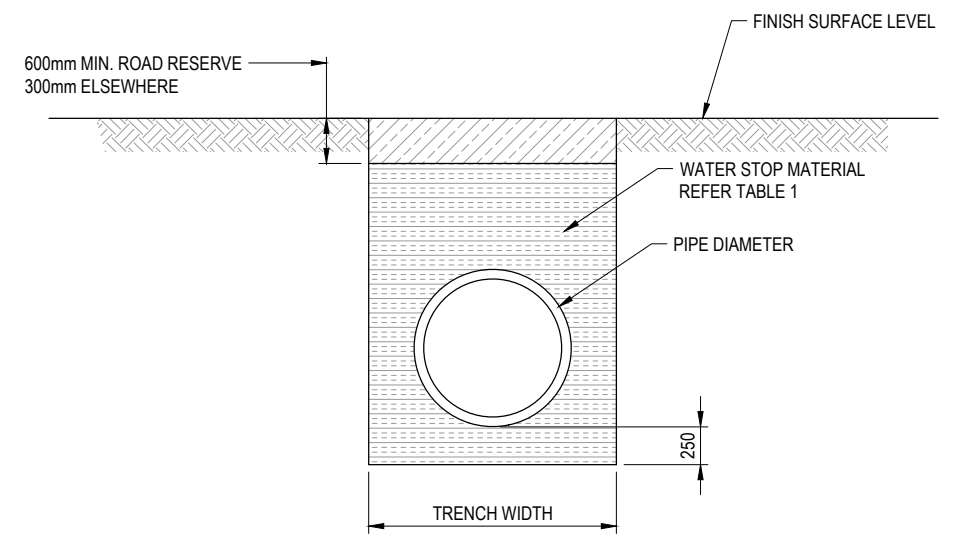
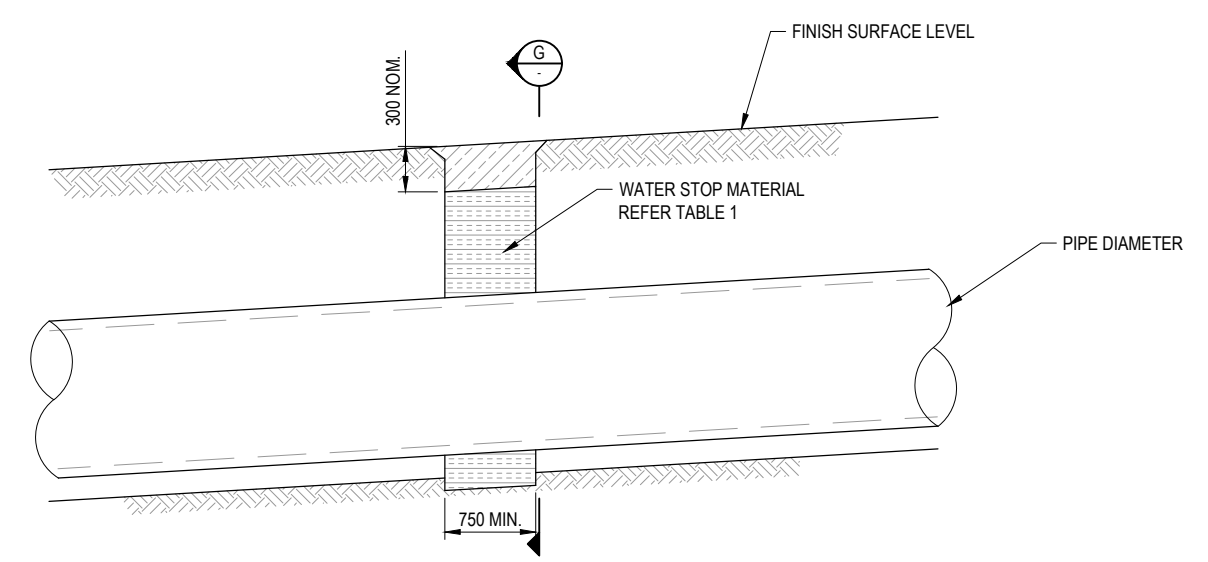
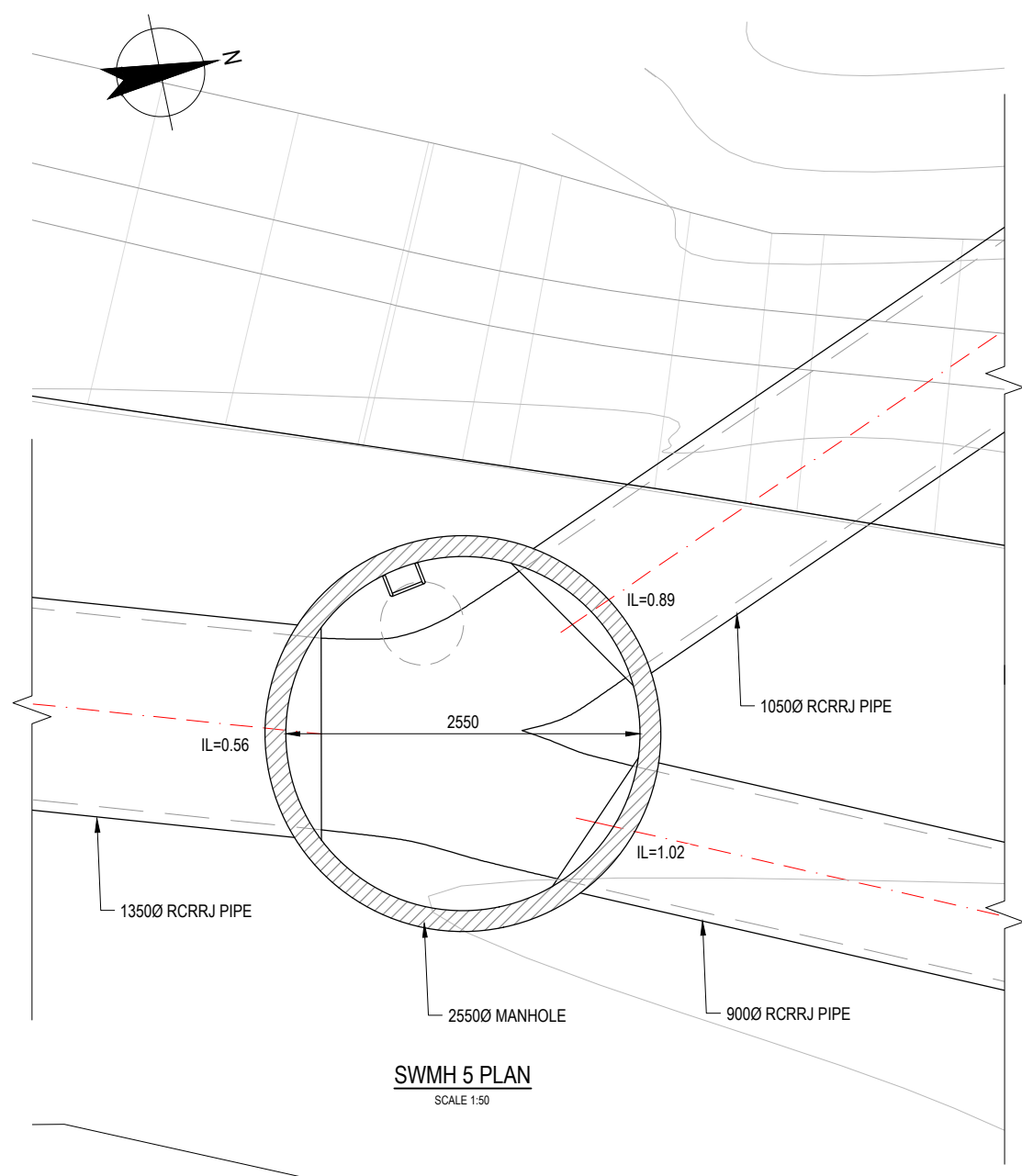


TABLE 1:

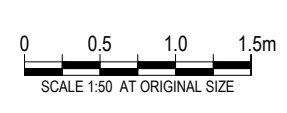
WATER STOP MATERIAL	
MATERIAL	PROPORTION
BENTONITE	1 (4%)
CEMENT	1 (4%)
CONCRETE SAND	23 (92%)

PROPORTION BY VOLUME OF DRY MATERIALS

NOTE:
EDGE OF WATER STOP TO REACH NATURAL GROUND

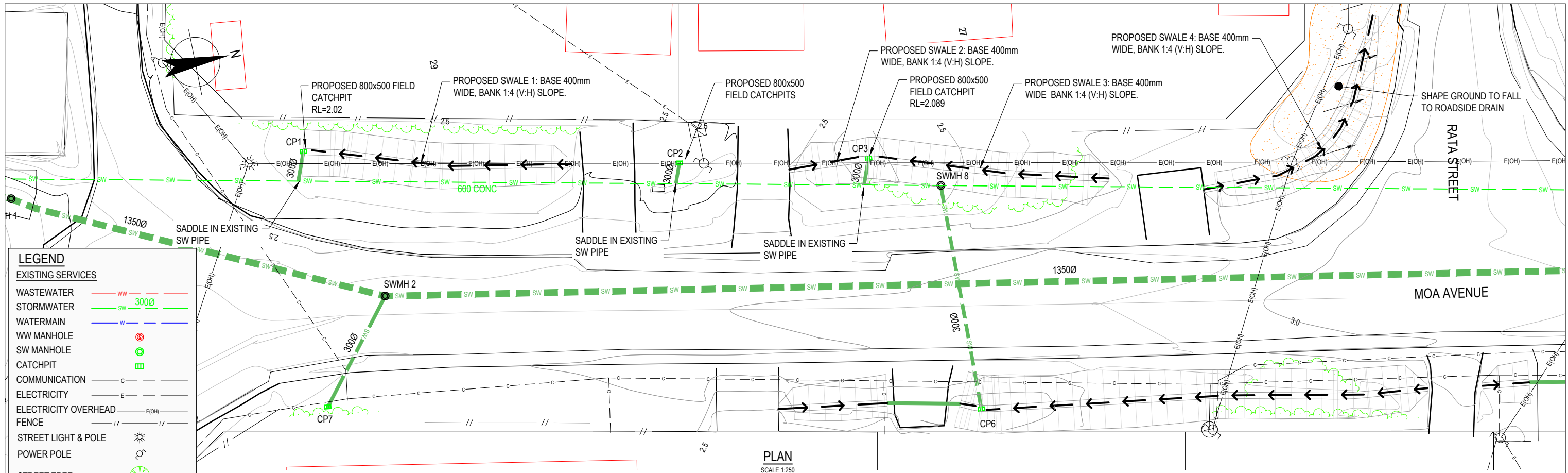
FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

0	FOR TENDER	DX	YY	RO	05/19
No	Revision	Drawn	Job Manager	Project Director	Date



DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER
	Approved (Project Director) Date	
	Scale AS SHOWN	This Drawing must not be used for Construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED TRENCH WATER STOP DETAILS
Original Size	A3
Drawing No:	51-37338-W034
Rev:	0



DATUM RL. -3.00

VERTICAL ALIGNMENT	L=2.46m G=0%	L=6.38m G=0.13%	L=7.32m G=0.86%	L=1.1m G=24.02%
HORIZONTAL ALIGNMENT	L=1.74m R=10.00m	L=1.08m R=10.00m	L=3.12m R=20.00m	L=7.05m
LEVEL DIFFERENCE CUT - / FILL +	-0.33	-0.31	-0.30	-0.27 -0.28
DESIGN SWALE BASE LEVEL	2.020	2.020	2.029	2.091 2.075
EXISTING SURFACE LEVEL	2.35	2.33	2.33	2.36 2.36
CHAINAGE	0.000	2.463	8.848	16.172 17.272

LONGITUDINAL SECTION - SWALE 1
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

DATUM RL. -3.00

VERTICAL ALIGNMENT	L=1.6m G=24.64%	L=3.54m G=2.09%	L=9.02m G=2.22%	L=5.16m G=1.02%	L=1.3m G=23.93%
HORIZONTAL ALIGNMENT	L=4.52m	L=1.24m R=5.00m	L=7.69m	L=1.22m R=20.00m	L=5.94m
LEVEL DIFFERENCE CUT - / FILL +	-0.00	-0.28	-0.30	-0.30	-0.30
DESIGN SWALE BASE LEVEL	2.558	2.163	2.089	2.289	2.342 2.653
EXISTING SURFACE LEVEL	2.56	2.44	2.38	2.59	2.65
CHAINAGE	0.000	1.600	5.140	14.158	19.315 20.615

LONGITUDINAL SECTION - SWALE 2 AND 3
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

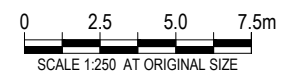
DATUM RL. -3.00

VERTICAL ALIGNMENT	L=0.87m G=24.89%	L=16.7m G=0.06%						
HORIZONTAL ALIGNMENT	L=4.49m	L=1.83m R=5.00m	L=1.09m R=5.00m	L=2.88m R=5.00m	L=1.19m R=5.00m	L=2.64m R=20.00m	L=1.43m R=20.00m	L=1.06m
LEVEL DIFFERENCE CUT - / FILL +	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
DESIGN SWALE BASE LEVEL	2.853	2.853	2.853	2.853	2.853	2.853	2.853	2.853
EXISTING SURFACE LEVEL	2.853	2.853	2.853	2.853	2.853	2.853	2.853	2.853
CHAINAGE	-0.001	17.569	17.569	17.569	17.569	17.569	17.569	17.569

LONGITUDINAL SECTION - SWALE 4
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

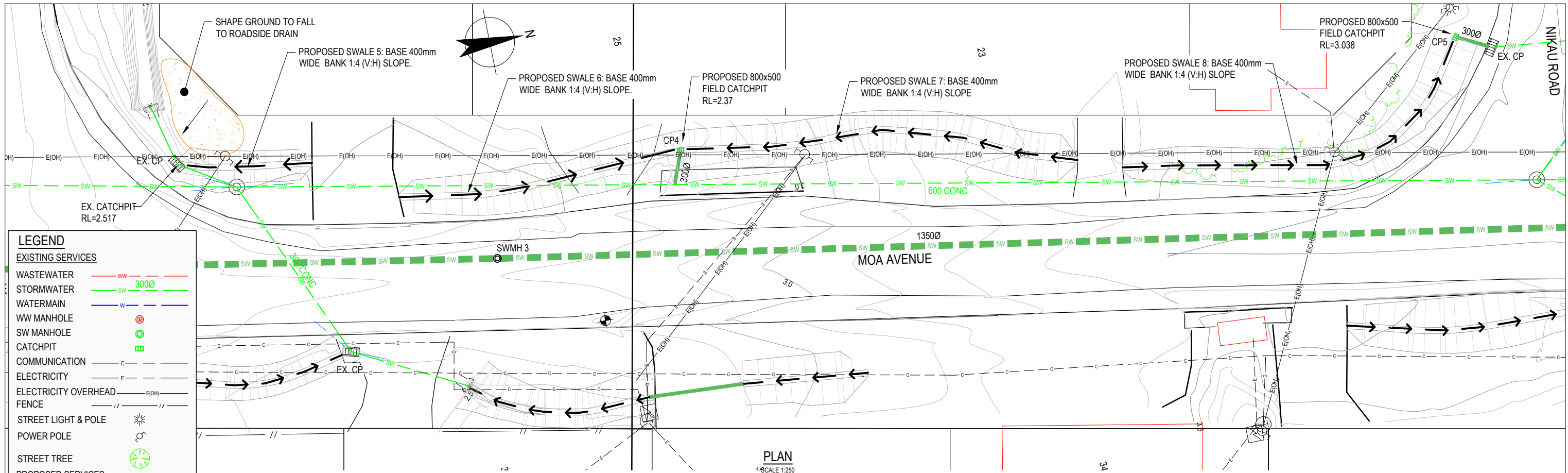
FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER
	Approved (Project Director) Date	
	Scale 1:250	This Drawing must not be used for Construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 1 OF 5
Original Size	A3
Drawing No:	51-37338-W041
Rev:	0



PLAN
SCALE 1:250

DATUM RL. -3.00

VERTICAL ALIGNMENT	L=2.06m G=1.12%	L=2.9m G=1.38%	L=2.95m G=0.57%	L=0.8m G=23.07%
HORIZONTAL ALIGNMENT	L=1.19m R=5.00m	L=2.03m R=20.00m	L=0.88m R=20.00m	L=3.75m
LEVEL DIFFERENCE CUT - / FILL +	0.00 -0.12	-0.20	-0.19	
DESIGN SWALE BASE LEVEL	2.517	2.540	2.580	2.597
EXISTING SURFACE LEVEL	2.52	2.66	2.78	2.78
CHAINAGE	0.000	2.056	4.955	7.902

LONGITUDINAL SECTION - SWALE 5
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

VERTICAL ALIGNMENT	L=0.9m G=23.34%	L=4.69m G=-1.48%	L=7m G=-2.18%	L=5.81m G=-0.52%	L=7.81m G=3.66%	L=5.23m G=3.45%	L=5m G=2.28%	L=6.55m G=0.85%	L=1.2m G=22.81%					
HORIZONTAL ALIGNMENT	L=4.04m	L=4.37m R=20.00m	L=4.81m	L=4.24m	L=1.88m R=10.00m	L=4.52m	L=3.70m R=20.00m	L=1.88m R=10.00m	L=2.97m R=10.00m	L=2.53m R=10.00m	L=1.99m R=10.00m	L=3.02m R=10.00m	L=1.73m R=10.00m	L=2.65m
LEVEL DIFFERENCE CUT - / FILL +	-0.00	-0.30	-0.27	-0.31	-0.31	-0.32	-0.31	-0.32	-0.32					
DESIGN SWALE BASE LEVEL	2.832	2.563	2.400	2.370	2.666	2.836	2.950	3.006	3.280					
EXISTING SURFACE LEVEL	2.83	2.85	2.67	2.68	2.96	3.15	3.26	3.33	3.33					
CHAINAGE	0.000	5.589	12.589	18.403	26.210	31.444	36.442	42.995	44.195					

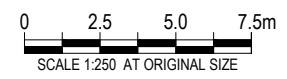
LONGITUDINAL SECTION - SWALE 6 AND 7
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

VERTICAL ALIGNMENT	L=0.6m G=-20.52%	L=12.56m G=-0.53%	L=3.63m G=-0.91%	L=3.93m G=-0.71%	L=4.92m G=-0.68%		
HORIZONTAL ALIGNMENT	L=3.54m	L=9.18m	L=1.69m R=5.00m	L=2.40m R=5.00m	L=1.81m R=5.00m	L=1.78m R=5.00m	L=3.60m
LEVEL DIFFERENCE CUT - / FILL +	0.00	-0.30	-0.28	-0.30	-0.30		
DESIGN SWALE BASE LEVEL	3.303	3.133	3.100	3.072	3.038		
EXISTING SURFACE LEVEL	3.30	3.44	3.38	3.37	3.33		
CHAINAGE	0.000	13.061	16.688	20.618	25.542		

LONGITUDINAL SECTION - SWALE 8
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

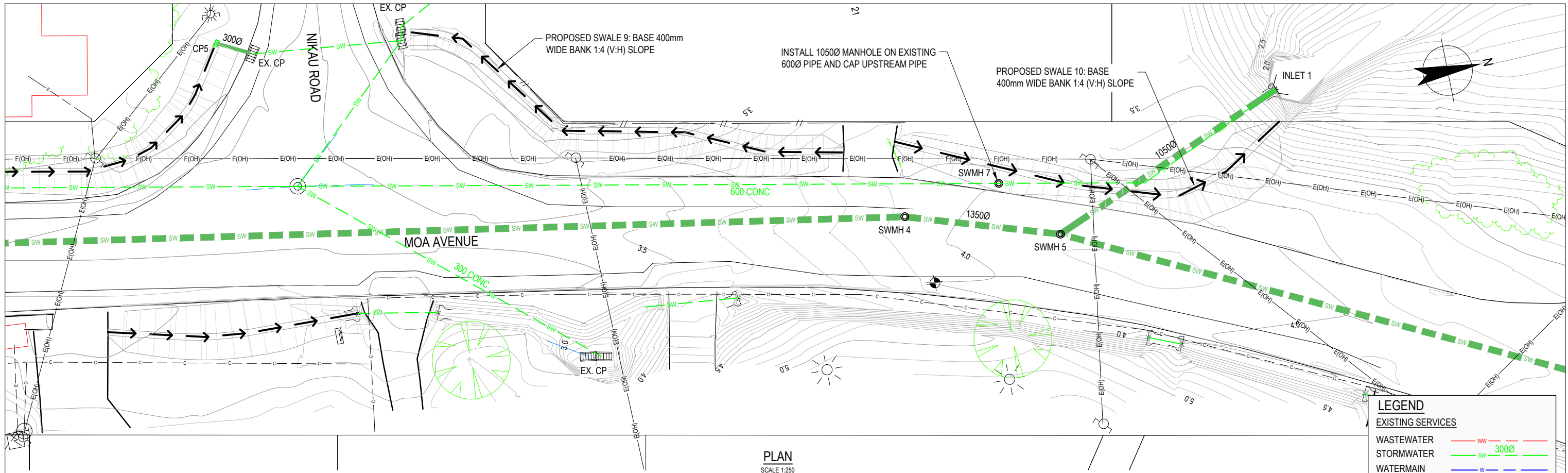
FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



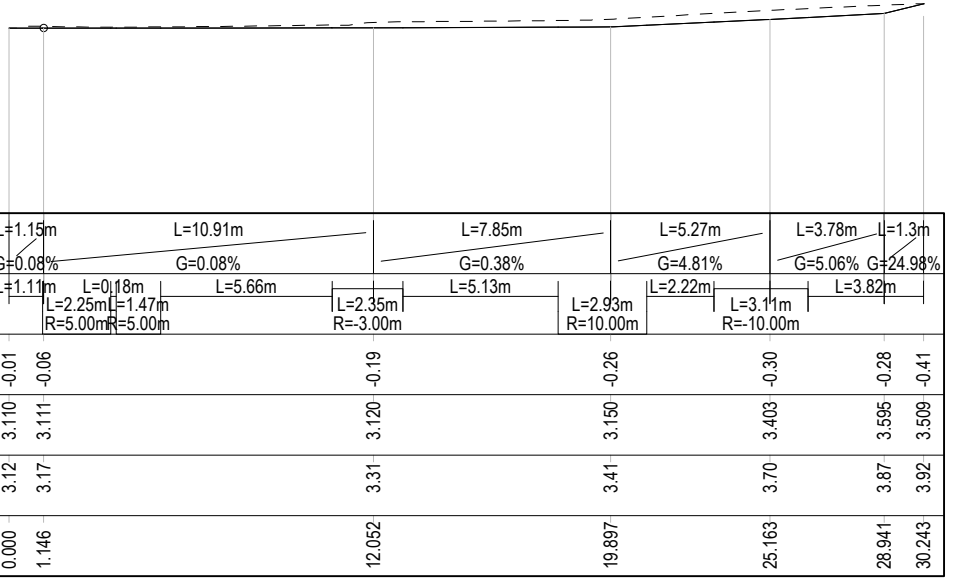
DO NOT SCALE	
Drawn	D. XIE
Designer	P. HOUGHTON
Drafting Check	A. PORTEOUS
Design Check	T. MILLER
Approved (Project Director)	
Date	
Scale	1:250

Client	AUCKLAND COUNCIL	
Project	MOA AVENUE STORMWATER DETAILED DESIGN	
Title	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 2 OF 5	
Original Size	A3	Drawing No: 51-37338-W042
Rev:	0	



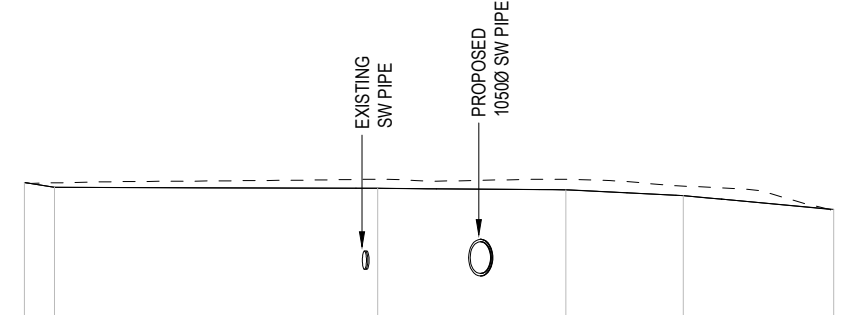
PLAN
SCALE 1:250

LEGEND	
EXISTING SERVICES	
WASTEWATER	— WW —
STORMWATER	— SW 3000 —
WATERMAIN	— W —
WW MANHOLE	⊙
SW MANHOLE	⊙
CATCHPIT	■
COMMUNICATION	— C —
ELECTRICITY	— E —
ELECTRICITY OVERHEAD	— E(OH) —
FENCE	— // —
STREET LIGHT & POLE	☀
POWER POLE	⊕
STREET TREE	🌳
PROPOSED SERVICES	
STORMWATER	— SW 3000 —
SW MANHOLE	⊙ SWMH
CATCHPIT	■ CP
SWALE	→ → →



LONGITUDINAL SECTION - SWALE 9
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

DATUM RL. -3.00						
VERTICAL ALIGNMENT	L=1.15m G=0.08%	L=10.91m G=0.08%	L=7.85m G=0.38%	L=5.27m G=4.81%	L=3.78m G=5.06%	L=1.3m G=24.98%
HORIZONTAL ALIGNMENT	L=1.11m R=5.00m	L=0.18m R=5.00m	L=2.35m R=3.00m	L=5.13m	L=2.93m R=10.00m	L=3.11m R=10.00m
LEVEL DIFFERENCE CUT - / FILL +	-0.01 -0.06		-0.19	-0.26	-0.30	-0.28 -0.41
DESIGN SWALE BASE LEVEL	3.110 3.111		3.120	3.150	3.403	3.595 3.509
EXISTING SURFACE LEVEL	3.12 3.17		3.31	3.41	3.70	3.87 3.92
CHAINAGE	0.000 1.146		12.052	19.897	25.163	28.941 30.243

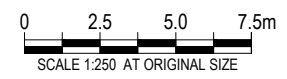


LONGITUDINAL SECTION - SWALE 10
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

DATUM RL. -3.00					
VERTICAL ALIGNMENT	L=1m G=-15.49%	L=10.68m G=-0.34%	L=6.23m G=-0.69%	L=3.88m G=-5.07%	L=4.98m G=-9.21%
HORIZONTAL ALIGNMENT		L=10.96m	L=2.66m R=20.00m	L=3.40m R=5.00m	L=1.63m R=5.00m
LEVEL DIFFERENCE CUT - / FILL +	-0.00 -0.15		-0.30	-0.35	-0.32
DESIGN SWALE BASE LEVEL	3.935 3.780		3.743	3.700	3.503 3.045
EXISTING SURFACE LEVEL	3.93 3.93		4.05	4.05	3.82
CHAINAGE	0.000 1.000		11.678	17.904	21.784 26.759

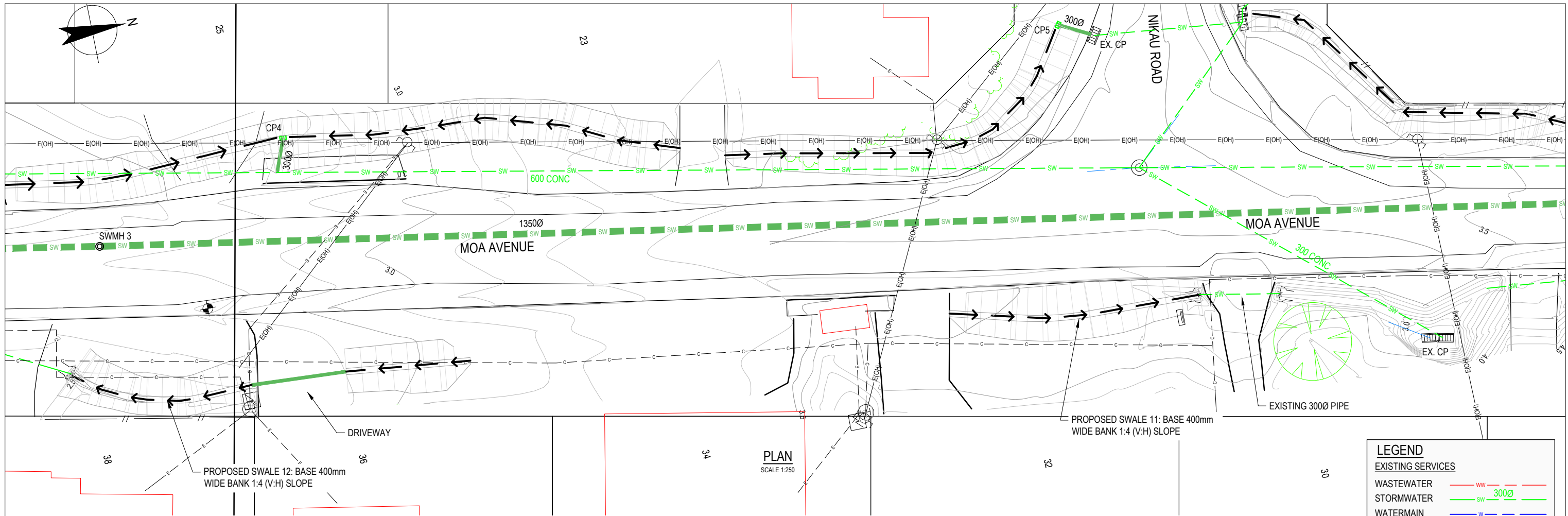
FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



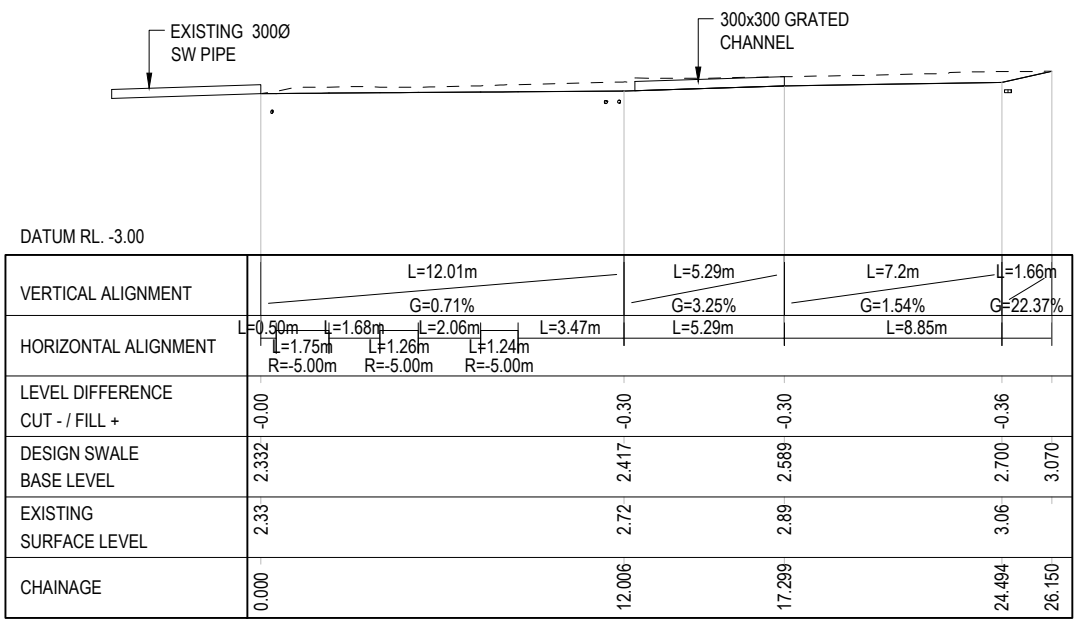
DO NOT SCALE	
Drawn	D. XIE
Designer	P. HOUGHTON
Drafting Check	A. PORTEOUS
Design Check	T. MILLER
Approved (Project Director)	Date
Scale	1:250

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 3 OF 5
Original Size	A3
Drawing No:	51-37338-W043
Rev:	0

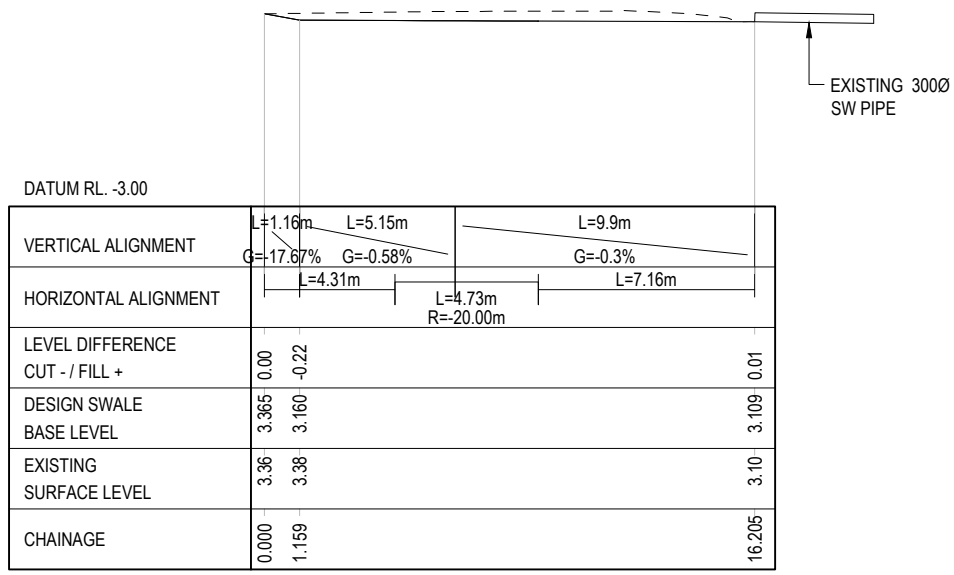


PLAN
SCALE 1:250

LEGEND	
EXISTING SERVICES	
WASTEWATER	— ww —
STORMWATER	— sw 3000 —
WATERMAIN	— w —
WW MANHOLE	⊙
SW MANHOLE	⊙
CATCHPIT	⊞
COMMUNICATION	— c —
ELECTRICITY	— e —
ELECTRICITY OVERHEAD	— E(OH) —
FENCE	— / / —
STREET LIGHT & POLE	☀
POWER POLE	⊕
STREET TREE	🌳
PROPOSED SERVICES	
STORMWATER	— sw 3000 —
SW MANHOLE	⊙ SWMH
CATCHPIT	⊞ CP
SWALE	→ → →



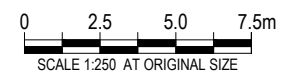
LONGITUDINAL SECTION - SWALE 12
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250



LONGITUDINAL SECTION - SWALE 11
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

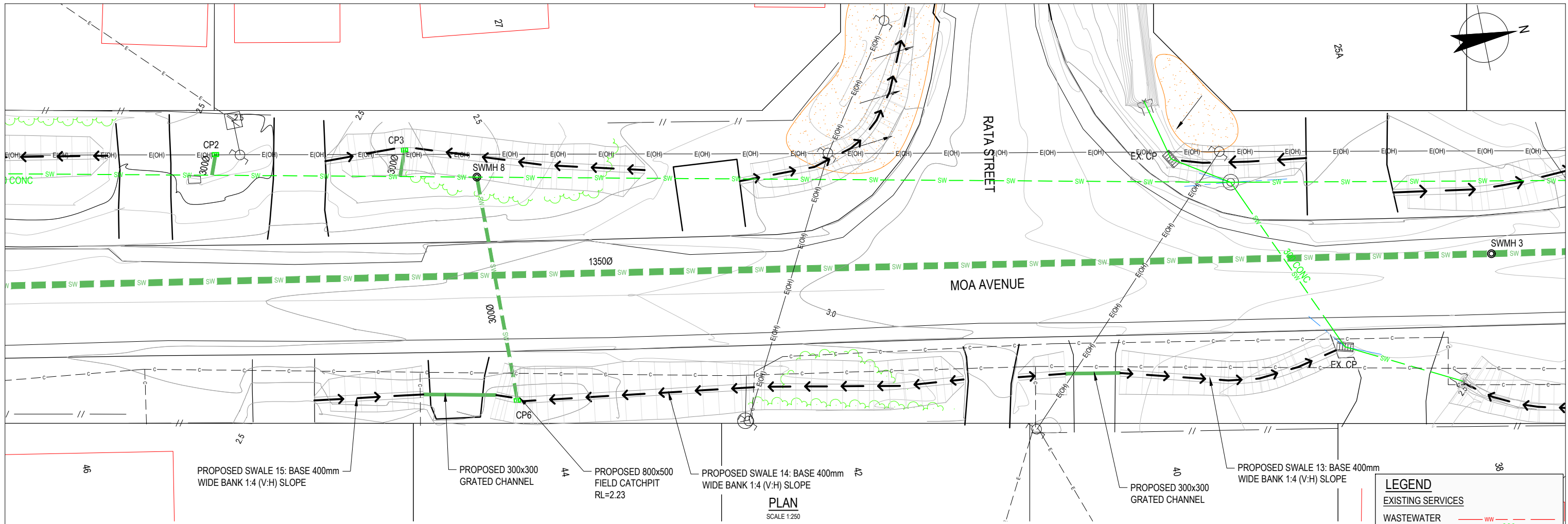
FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19



DO NOT SCALE	
Drawn	D. XIE
Designer	P. HOUGHTON
Drafting Check	A. PORTEOUS
Design Check	T. MILLER
Approved (Project Director)	
Date	
Scale	1:250

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 4 OF 5
Original Size	A3
Drawing No:	51-37338-W044
Rev:	0



PLAN
SCALE 1:250

LEGEND	
EXISTING SERVICES	
WASTEWATER	— ww —
STORMWATER	— sw 300Ø —
WATERMAIN	— w —
WW MANHOLE	⊙
SW MANHOLE	⊙
CATCHPIT	⊞
COMMUNICATION	— c —
ELECTRICITY	— e —
ELECTRICITY OVERHEAD	— E(OH) —
FENCE	— // —
STREET LIGHT & POLE	☀
POWER POLE	⊕
STREET TREE	🌳
PROPOSED SERVICES	
STORMWATER	— sw 300Ø —
SW MANHOLE	⊙
CATCHPIT	⊞
SWALE	→ → →

DATUM RL. -3.00

VERTICAL ALIGNMENT	L=1m	L=5.38m	L=4.56m	L=2.16m+1.19m	L=14.03m	L=8.67m	L=3.51m	L=1.3m
G	-10.66%	G=-1%	G=-2.04%	G=-1.08%	G=0%	G=0.33%	G=1.13%	G=24.43%
HORIZONTAL ALIGNMENT	L=7.14m	L=4.56m	L=0.61m	L=1.57m	L=13.61m	L=1.31m	L=2.19m	L=3.88m
LEVEL DIFFERENCE CUT - / FILL +	0.00	-0.30	-0.38	-0.28	-0.29	-0.30	-0.30	-0.30
DESIGN SWALE BASE LEVEL	2.506	2.346	2.253	2.230	2.230	2.454	2.482	2.522
EXISTING SURFACE LEVEL	2.51	2.65	2.63	2.51	2.52	2.75	2.78	2.82
CHAINAGE	0.000	6.381	10.936	13.100	14.292	28.325	37.000	40.509

LONGITUDINAL SECTION - SWALE 14 AND 15
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

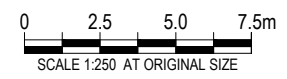
DATUM RL. -3.00

VERTICAL ALIGNMENT	L=1.07m+2.14m	L=3.34m	L=9.01m	L=5.2m
G	-20.82%	-0.93%	G=-0.42%	G=-0.62%
HORIZONTAL ALIGNMENT	L=3.21m	L=3.34m	L=6.67m	L=4.87m
LEVEL DIFFERENCE CUT - / FILL +	-0.00	-0.25	-0.30	-0.17
DESIGN SWALE BASE LEVEL	2.904	2.680	2.660	2.582
EXISTING SURFACE LEVEL	2.90	2.93	2.96	2.76
CHAINAGE	0.000	1.074	3.211	20.755

LONGITUDINAL SECTION - SWALE 13
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:250

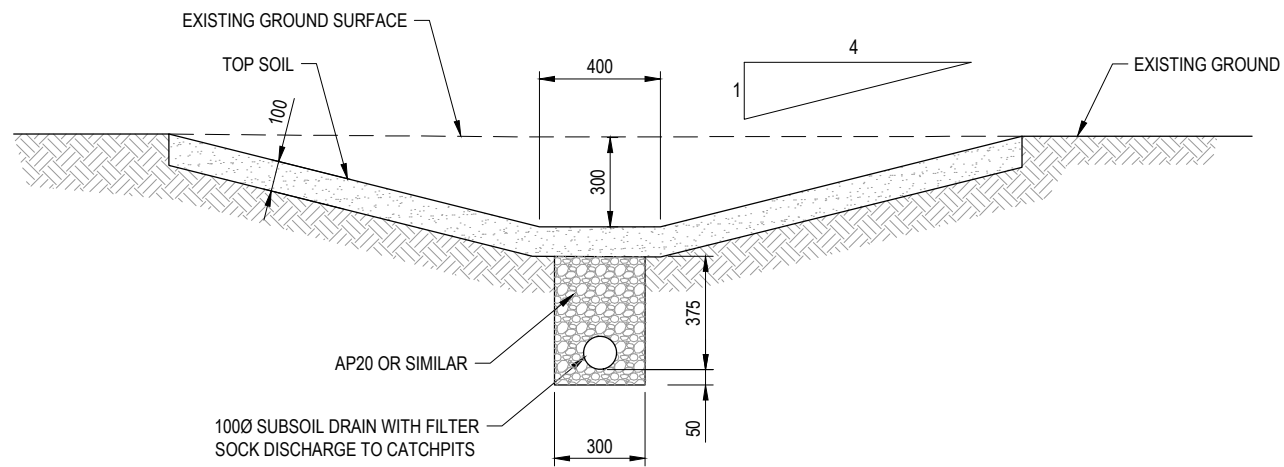
FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	05/19

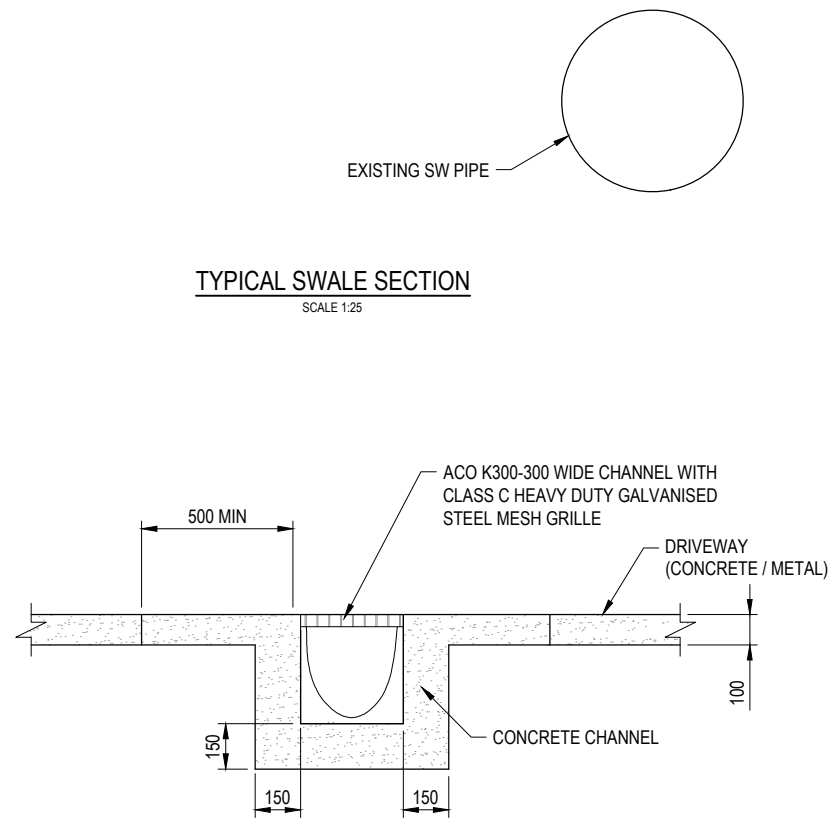


DO NOT SCALE	
Drawn	D. XIE
Designer	P. HOUGHTON
Drafting Check	A. PORTEOUS
Design Check	T. MILLER
Approved (Project Director)	Date
Scale	1:250

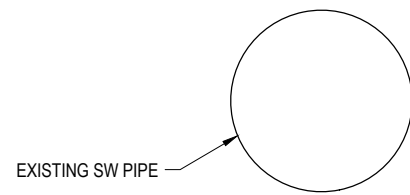
Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	PROPOSED SWALE LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 5 OF 5
Original Size	A3
Drawing No:	51-37338-W045
Rev:	0



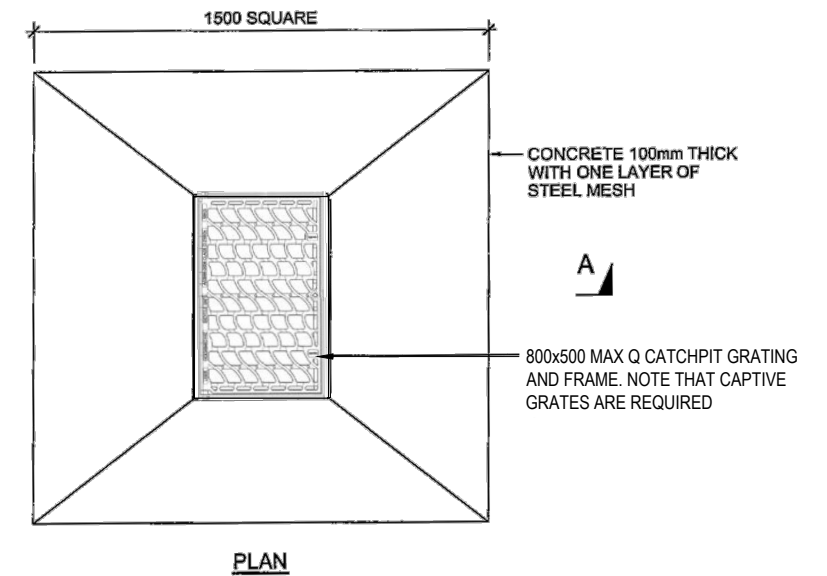
TYPICAL SWALE SECTION
SCALE 1:25



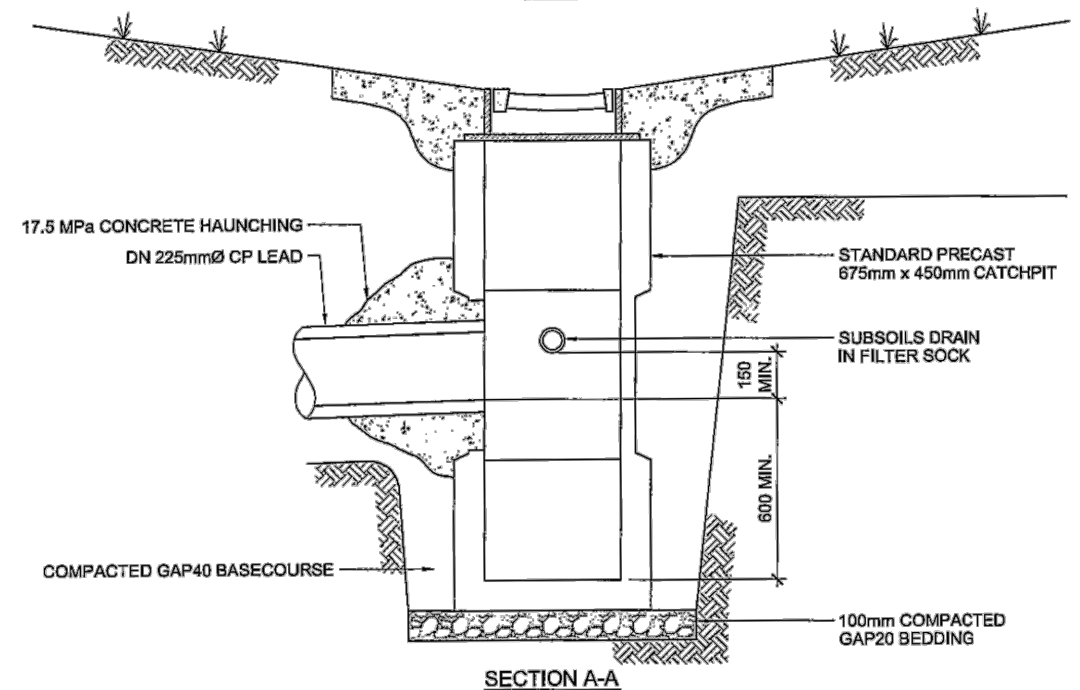
TYPICAL 300x300 CHANNEL DRAIN
SCALE 1:25



EXISTING SW PIPE



PLAN



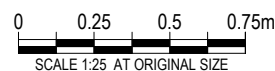
SECTION A-A

- NOTES
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
 2. ALL CONCRETE TO BE ORDINARY GRADE, 17.5MPa AT 28 DAYS.
 3. ALL PIPES TO BE FINISHED FLUSHED WITH INSIDE WALL OF CATCHPIT

TYPICAL FILED CATCHPIT
SCALE 1:25

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

0	FOR TENDER	DX	YY	RO	05/19	
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date



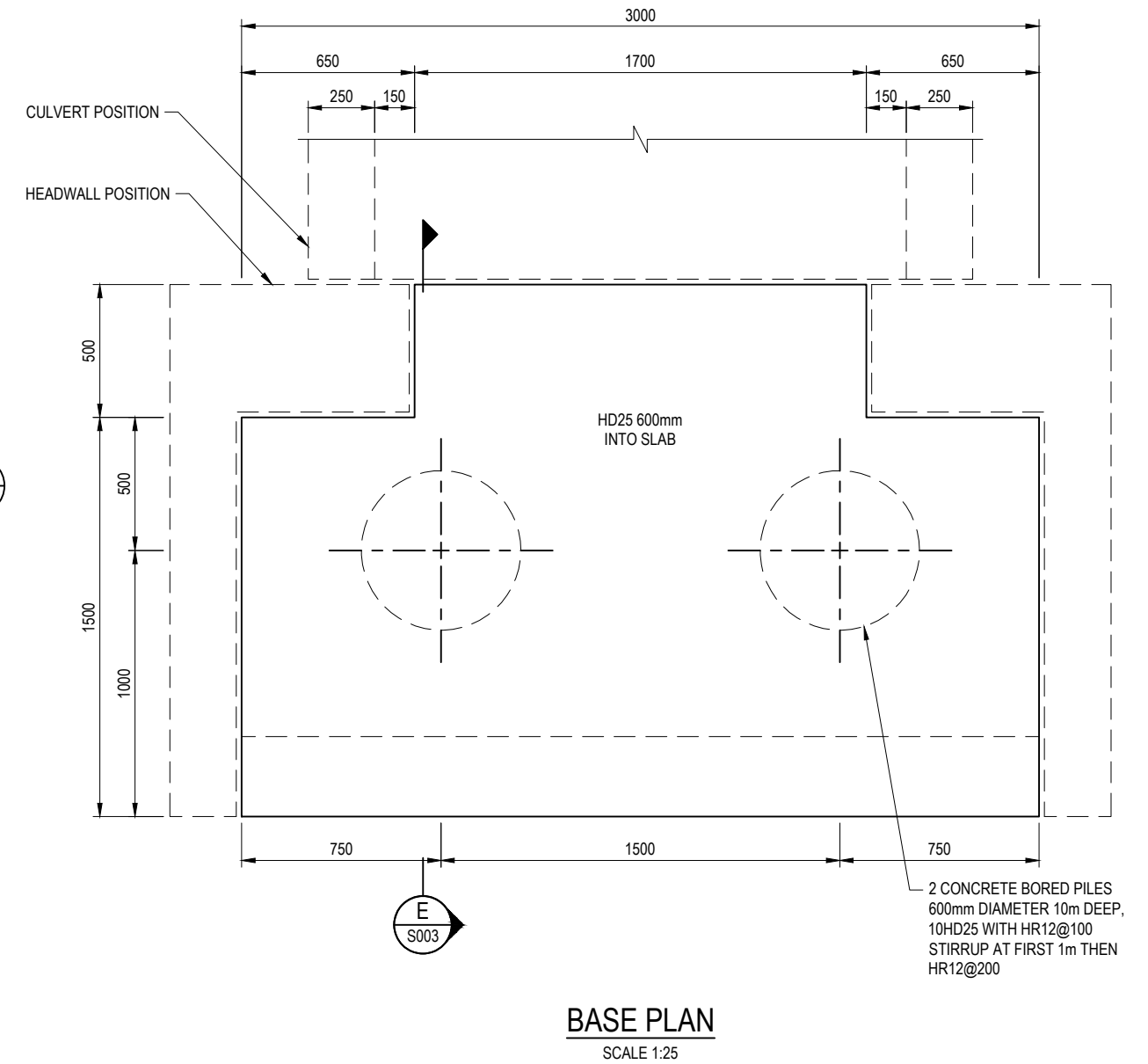
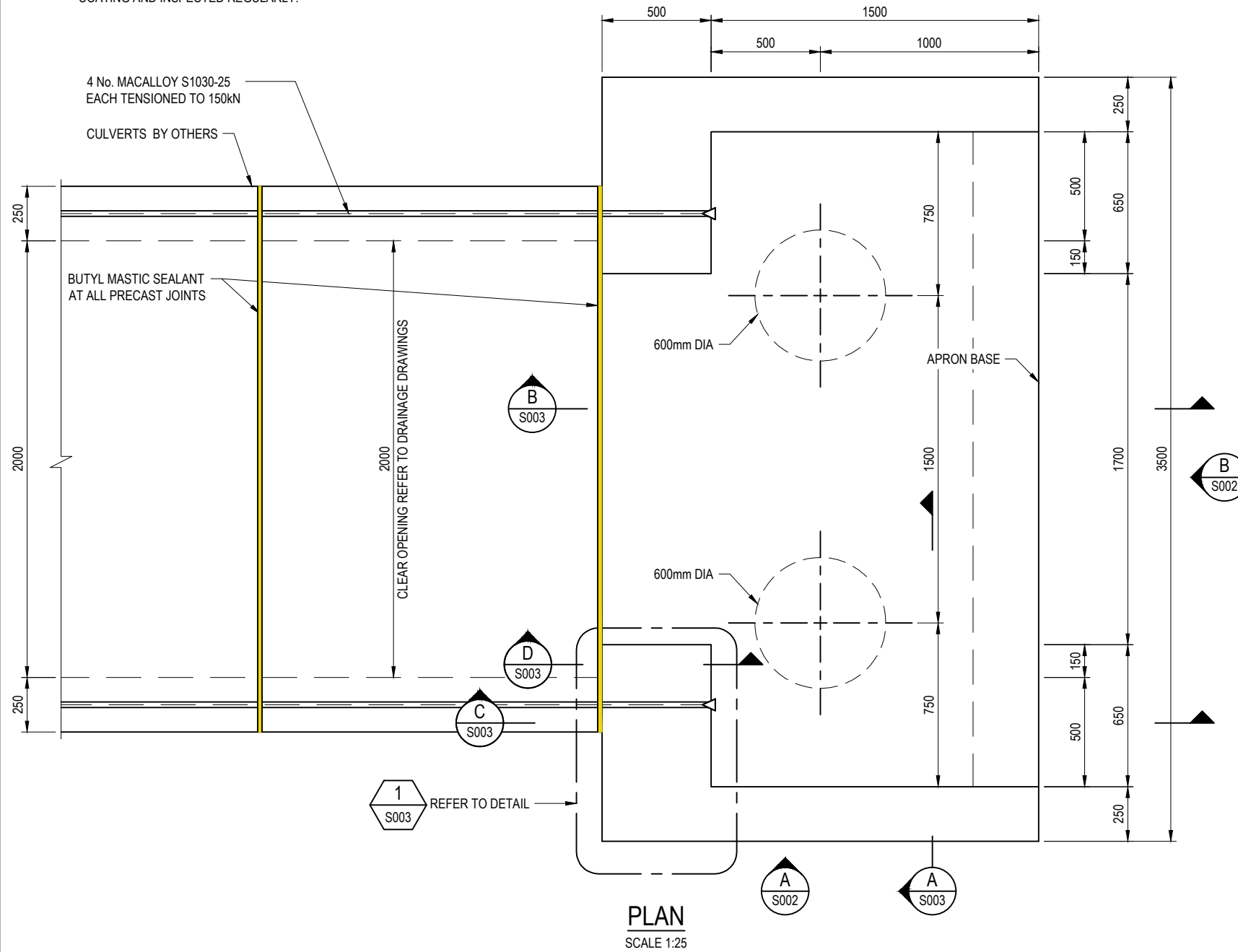
DO NOT SCALE	Drawn D. XIE	Designer P. HOUGHTON	Client AUCKLAND COUNCIL
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check A. PORTEOUS	Design Check T. MILLER	Project MOA AVENUE STORMWATER DETAILED DESIGN
	Approved (Project Director) Date		Title PROPOSED SWALE AND CHANNEL DRAIN TYPICAL DETAILS
	Scale 1:25	This Drawing must not be used for Construction unless signed as Approved	Original Size A3 Drawing No: 51-37338-W046 Rev: 0

NOTES:

1. ALL CONCRETE SHALL BE 50MPa STRENGTH WITH 8% MS CEMENT BINDER, EXCEPT THE SITE CONCRETE UNDER PRECAST HEADWALL.
2. THE CONCRETE COVER TO ALL THE STEEL REINFORCEMENT SHALL BE 60mm MINIMUM.
3. ALL STEEL SHALL BE 500MPa STRENGTH.
4. INSTALLATION OF MACALLOY BARS SHALL COMPLY WITH THE MACALLOY SPECIFICATION AND BE FULLY GROUTED.
5. THE EXTERNAL ANCHORAGE POINTS TO BE PROTECTED BY ADDITIONAL PAINT COATING AND INSPECTED REGULARLY.

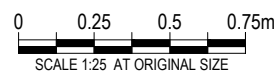
CONSTRUCTION ORDER

1. GROUND IMPROVEMENT
2. CONSTRUCT PILES
3. PLACE CULVERTS AND HEADWALL ON SITE
4. INSTALL 4 No. MACALLOY S1030-25 BARS AND TENSION EACH BAR TO 150kN
5. CONSTRUCT PILE CAP/SLAB BASE FOR THE HEADWALL

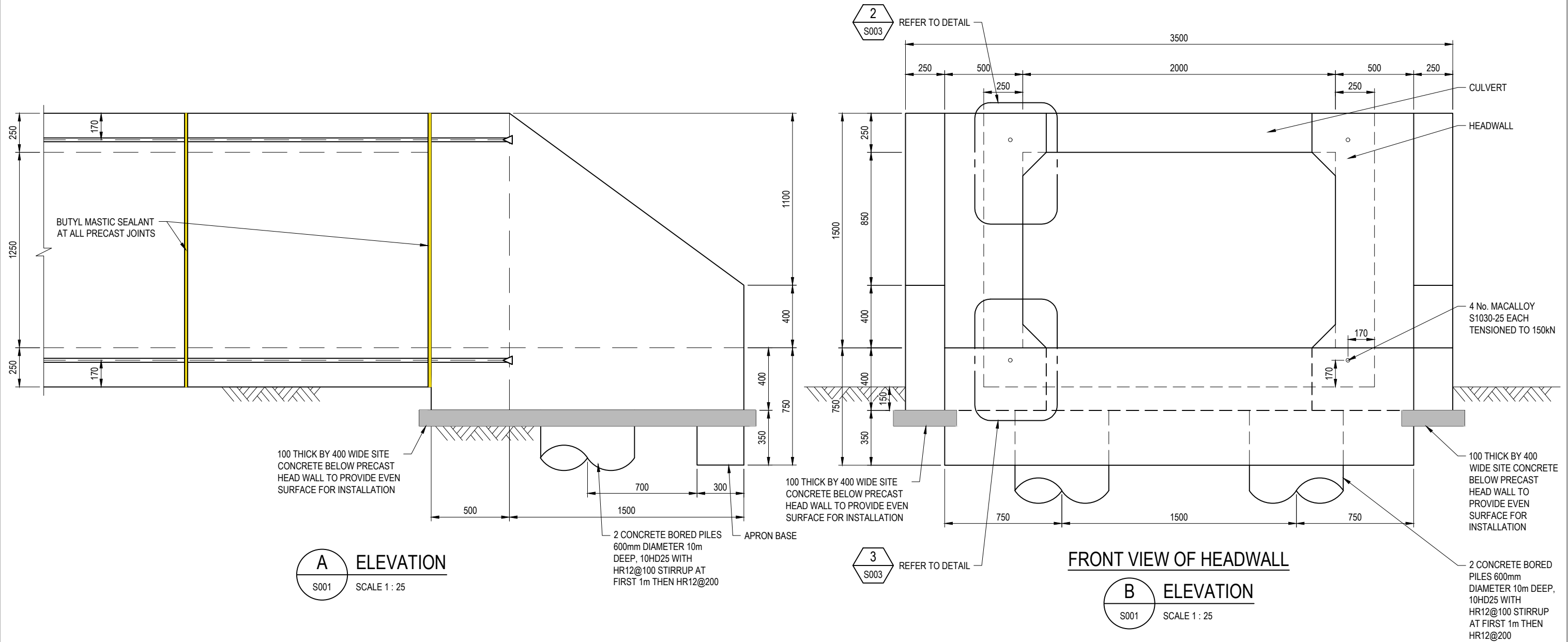


FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
0	FOR TENDER		DX	YY	RO	31.01.19



DO NOT SCALE GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drawn	O. ONDILLO	Designer	E. LUO	Client AUCKLAND COUNCIL Project MOA AVENUE STORMWATER DETAILED DESIGN Title HEADWALL DETAILS SHEET 1 OF 3 Original Size Drawing No: 51-37338-S001 Rev: 0
	Drafting Check	S. MANJUNATHA	Design Check	S. MANJUNATHA	
	Approved (Project Director)	Date			
	Scale	1:25			

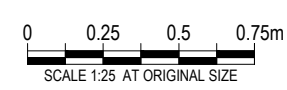


A ELEVATION
S001 SCALE 1 : 25

B ELEVATION
S001 SCALE 1 : 25

FOR TENDER AND CONSENT (NOT FOR CONSTRUCTION)

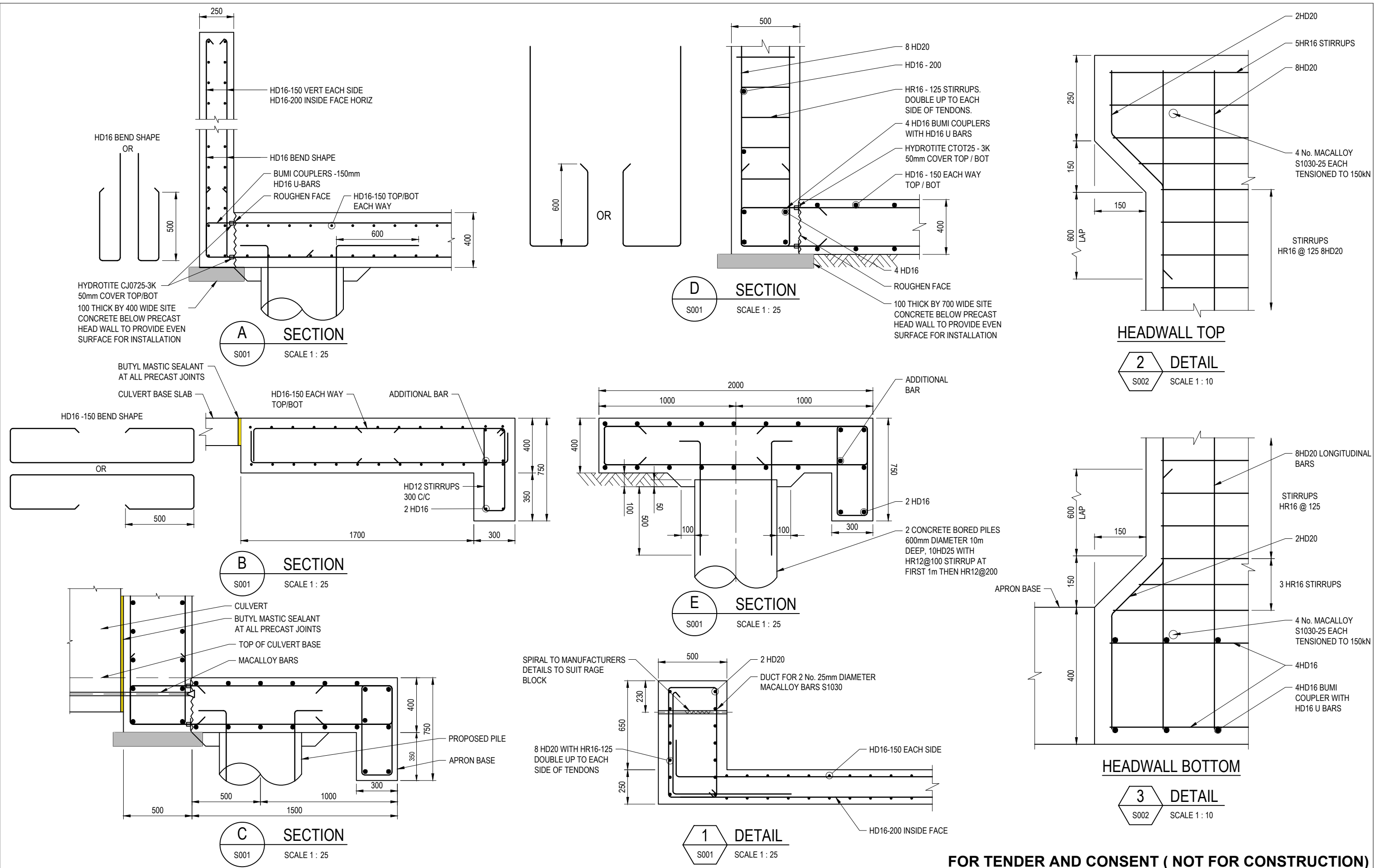
0	FOR TENDER	DX	YY	RO	31.01.19	
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date



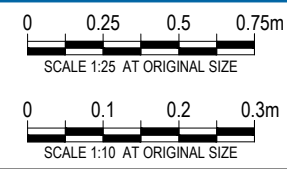
GHD
Level 3, GHD Centre
27 Napier Street, Freemans Bay, Auckland 1011 New Zealand
T 64 9 370 8000 F 64 9 370 8001
E auckland@ghd.com W www.ghd.com

DO NOT SCALE	Drawn O. ONDILLO	Designer E. LUO
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check S. MANJUNATHA	Design Check S. MANJUNATHA
	Approved (Project Director) Date	
	Scale 1:25	This Drawing must not be used for construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	HEADWALL DETAILS SHEET 2 OF 3
Original Size	A3
Drawing No:	51-37338-S002
Rev:	0



No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	YY	RO	Project Director	Date
0	FOR TENDER							31.01.19



DO NOT SCALE	Drawn O. ONDILLO	Designer E. LUO
GHD Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.	Drafting Check S. MANJUNATHA	Design Check S. MANJUNATHA
	Approved (Project Director) Date	
	Scale AS SHOWN	This Drawing must not be used for construction unless signed as Approved

Client	AUCKLAND COUNCIL
Project	MOA AVENUE STORMWATER DETAILED DESIGN
Title	HEADWALL DETAILS SHEET 3 OF 3
Original Size	A3
Drawing No:	51-37338-S003
Rev:	0