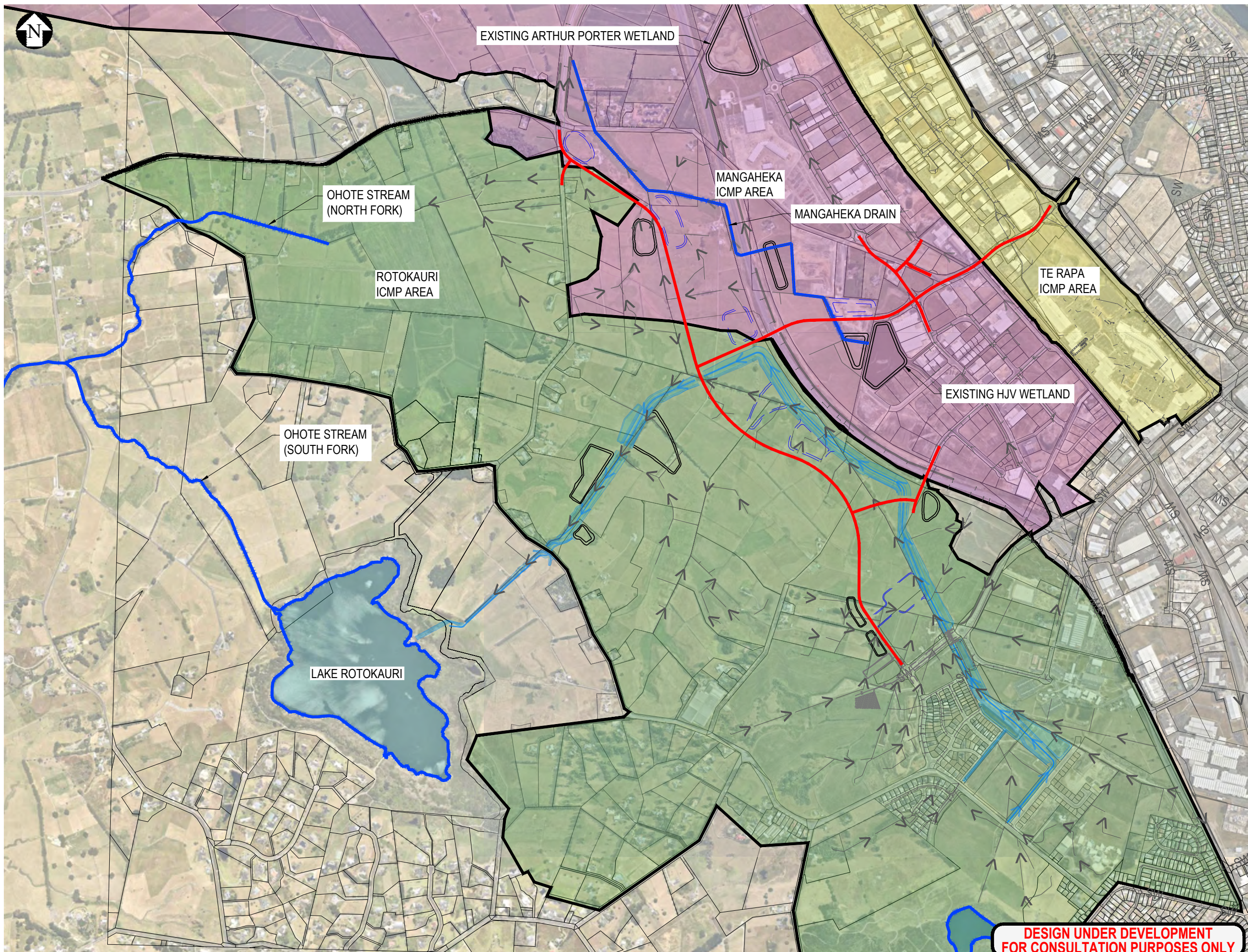




LEGEND

MANGAHEKA ICMP

ROTOKAURI ICMP

TE RAPA ICMP

CADASTRAL BOUNDARIES

STORMWATER DRAINS

PROPOSED ROAD CENTRELINE

PROPOSED ROTOKAURI GREENWAY

ICMP BOUNDARIES

STORMWATER MANAGEMENT AREAS (NOT INCLUDED IN THE DESIGNATION)

STORMWATER MANAGEMENT AREAS (INCLUDED IN THE DESIGNATION)

STREAM

- NOTES
1. ICMP BOUNDARIES DO NOT ALWAYS MATCH TOPOGRAPHICAL CATCHMENT BOUNDARIES.

2. ICMP STATUS:
TE RAPA: IN PROGRESS
MANGAHEKA: COMPLETE - 2019
ROTOKAURI: COMPLETE - 2017

3. PROPOSED ROTOKAURI GREENWAY DESIGN TAKEN FROM GREENWAY NOR DOCUMENTS (BECA, 2018)

G	UPDATE FOR S92 RESPONSE	JL	IS	IS	18.03.24
F	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
E	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
D	HCC REVIEW AMENDMENTS	JL	IS	IS	20.12.21
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	A.McKay	15.05.20	Approved For Construction*
1:7500	Drawn	S.Bonenkamp	15.05.20	
Reduced Scale (A3)	Dwg Verifier			Date
1:15000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council

Te kaunihera o Kirikiriroa

Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

ICMP BOUNDARIES

Discipline

CIVIL ENGINEERING

Drawing No.

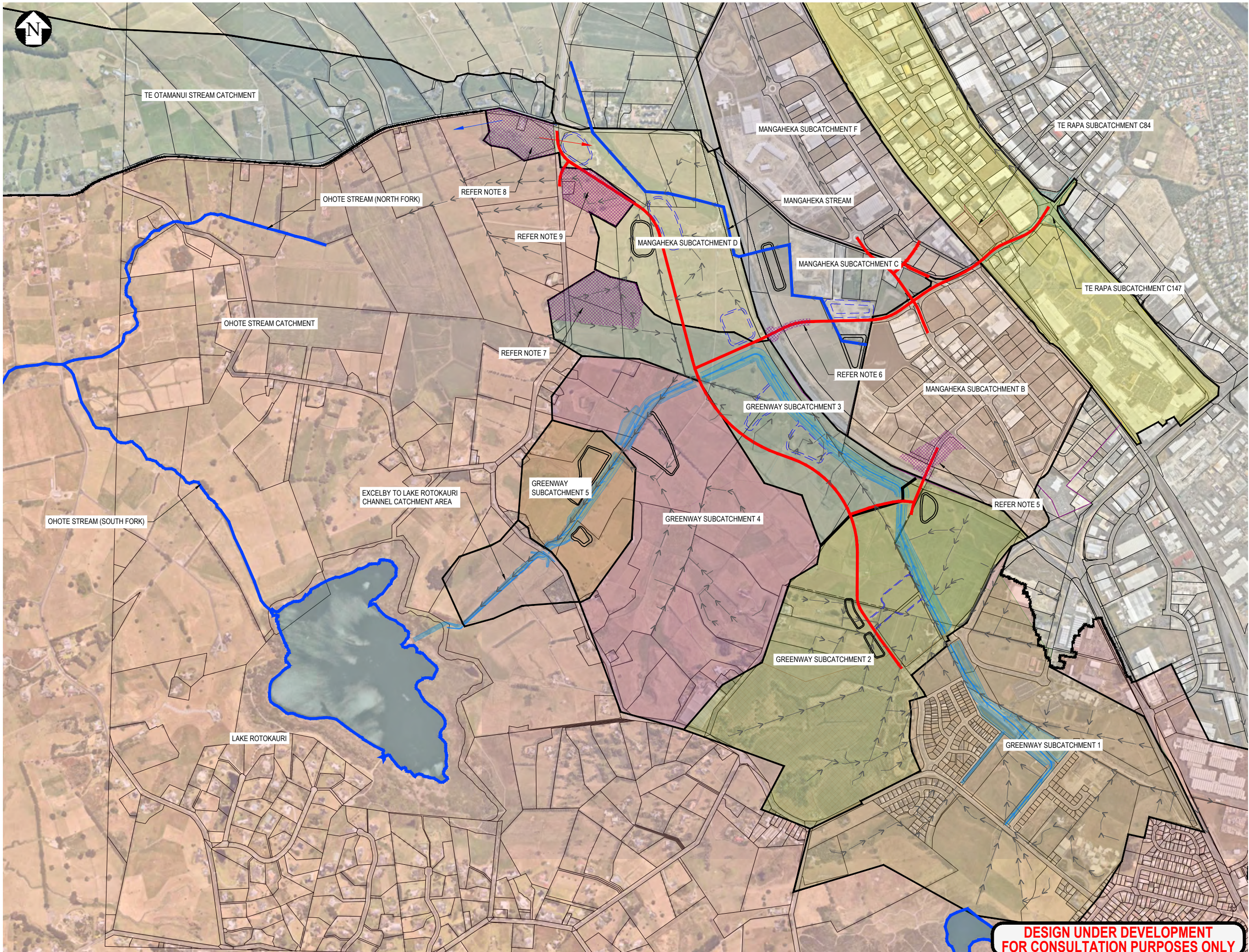
4288564-200-CA-2101

Rev.

G

DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY

PRELIMINARY
NOT FOR CONSTRUCTION



LEGEND

- CADASTRAL BOUNDARIES
- PROPOSED ROAD CENTRELINE
- PROPOSED ROTOKAURI GREENWAY
- STREAM
- CATCHMENT BOUNDARY LINE
- STORMWATER DRAINS
- STORMWATER MANAGEMENT AREAS (NOT INCLUDED IN THE DESIGNATION)
- STORMWATER MANAGEMENT AREAS (INCLUDED IN THE DESIGNATION)

NOTES

- ONLY CATCHMENTS RELEVANT TO PROPOSED ROADWAYS ARE SHOWN.
- GREENWAY BASIN BOUNDARIES ARE SOURCED FROM THE ROTOKAURI GREENWAY NOR DESIGN (BECA, 2018).
- MANGAHEKA SUBCATCHMENTS ARE SOURCED FROM THE MANGAHEKA ICMP (BECA, 2019)
- PROPOSED ROTOKAURI GREENWAY DESIGN TAKEN FROM GREENWAY NOR DOCUMENTS (BECA, 2018).
- HATCHED AREA REPRESENTS ADDITIONAL CATCHMENT OVERFLOWS INTO GREENWAY SUBCATCHMENT 2 DURING EVENTS EXCEEDING THE PRIMARY DRAINAGE LEVEL OF SERVICE.
- HATCHED AREA REPRESENTS ADDITIONAL CATCHMENT TO BE ROUTED TO GREENWAY SUBCATCHMENT 3.
- HATCH REPRESENTS CATCHMENT AREA PREVIOUSLY INCLUDED IN BOTH MANGAHEKA SUBCATCHMENT D AND GREENWAY SUBCATCHMENT 3. THIS AREA DRAINS BOTH TO THE MANGAHEKA AND ROTOKAURI DRAINS.
- HATCHED AREA REPRESENTS PORTION OF MANGAHEKA SUBCATCHMENT D THAT MAY BE DIVERTED TO A DIFFERENT CATCHMENT BY FUTURE PRIVATE DEVELOPMENT.
- HATCHED AREA REPRESENTS PORTION OF CATCHMENT TO BE DIVERTED FROM ROTOKAURI INTO MANGAHEKA SUBCATCHMENT D.

F	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
E	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
D	HCC REVIEW AMENDMENTS	JL	IS	IS	20.12.21
C	ISSUE FOR PEER REVIEW	SB	IS	IS	03.05.21
No.	Revision	By	Chk	Appd	Date

Drawing Originator:



Original Scale (A1)	Design	A.Mckay	15.05.20	Approved For Construction*
1:7500	Drawn	S.Bonenkamp	15.05.20	Date
Reduced Scale (A3)	Dwg Verifier			
1:15000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:



Project:

ROTKAURI ARTERIALS DESIGNATION

Title:

CATCHMENT BOUNDARIES

Discipline

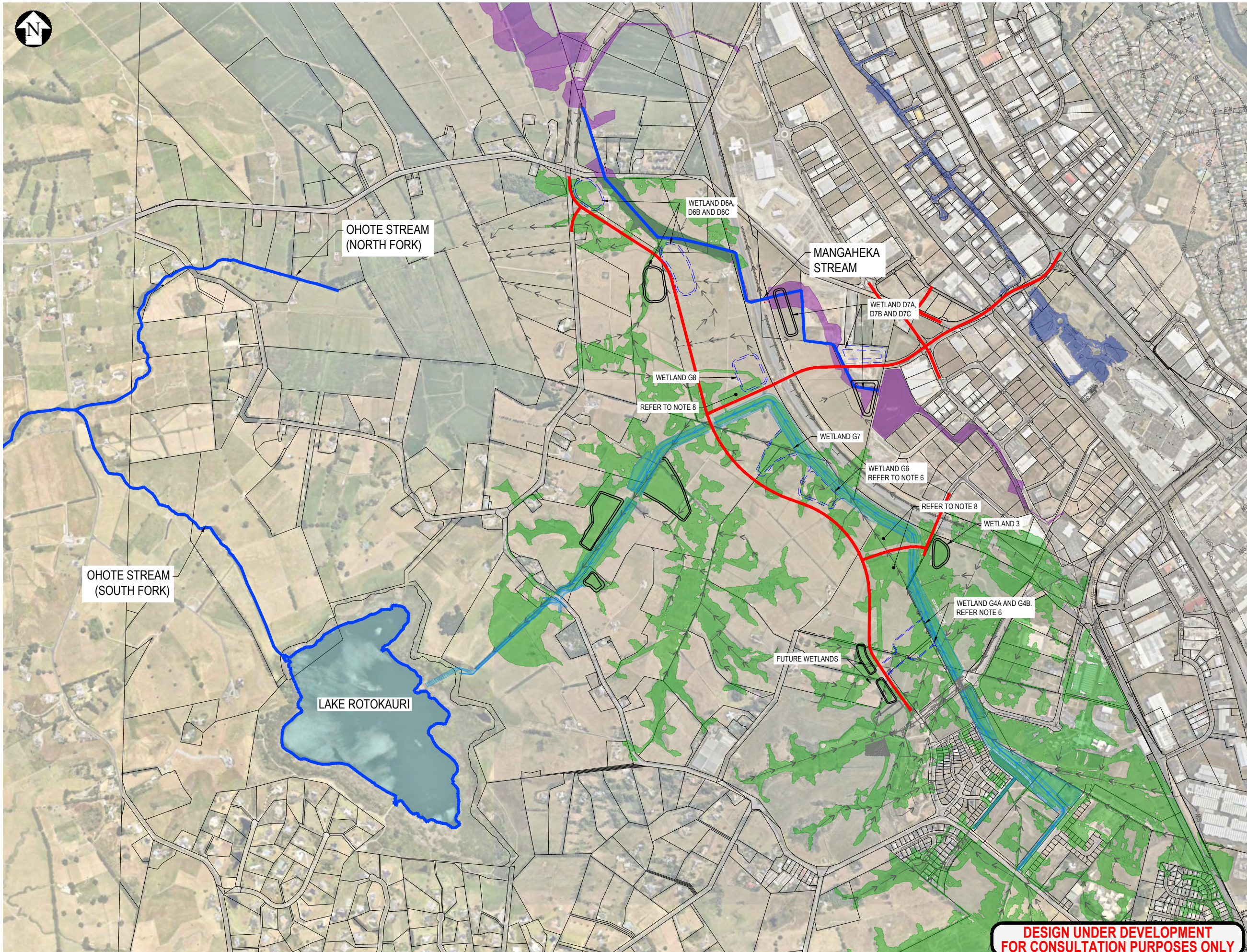
CIVIL ENGINEERING

Drawing No.

4288564-200-CA-2102

Rev.

F



LEGEND

- MANGAHEKA ICMP FLOOD EXTENTS
- ROTKAURI FLOOD EXTENTS
- TE RAPA ICMP FLOOD EXTENTS
- CADASTRAL BOUNDARIES
- STORMWATER DRAINS
- PROPOSED ROAD CENTRELINE
- STORMWATER MANAGEMENT AREAS (NOT INCLUDED IN THE DESIGNATION)
- STORMWATER MANAGEMENT AREAS (INCLUDED IN THE DESIGNATION)
- STREAM

NOTES

- MANGAHEKA FLOOD EXTENTS SHOWN REPRESENT THE 100 YEAR ARI EVENT WITH CLIMATE CHANGE AND PROPOSED MITIGATION SOURCED FROM THE MANGAHEKA ICMP FLOOD MODEL (BECA, 2019). THE MANGAHEKA MODEL OVERLAPS IN PART WITH THE EARLIER ROTOKAURI MODEL.
- ROTKAURI FLOOD EXTENT SHOWN REPRESENTS THE 100 YEAR ARI EVENT WITH CLIMATE CHANGE AND THE PROPOSED GREENWAY SOURCED FROM THE GREENWAY NOR DOCUMENTS (BECA, 2018).
- TE RAPA FLOOD EXTENTS SOURCED FROM THE DRAFT TE RAPA (ICMP) AS OF 2021
- FLOOD EXTENTS HAVE BEEN SOURCED FROM VARIOUS MODELLING DATA SETS UNDERTAKEN OVER SEVERAL YEARS. RESULTS ARE NOT NECESSARILY CONSISTENT IN INPUT PARAMETERS OR METHODOLOGY.
- STORMWATER MANAGEMENT AREAS SHOWN HAVE BEEN REVISED FROM THE ICMP'S / GREENWAY NOR LOCATIONS.
- WETLAND HAS BEEN RELOCATED/CHANGED FROM THE POSITION SHOWN IN THE GREENWAY NOR
- STORMWATER MANAGEMENT AREA NAMING CONVENTIONS SET BY ICMP TERMINOLOGY, ABBREVIATED TO THE FOLLOWING:
G = GREENWAY WETLAND POND
D = DEVICE
"7" = DEVICE REFERENCE ID
"A" = WHERE ORIGINAL WETLAND HAS BEEN SPLIT UP
- ROTKAURI FLOOD EXTENTS SHOWN ON THIS DRAWING ARE BASED ON THE GREENWAY NOR WETLAND LAYOUT AND SO WILL CHANGE WITH THE RELOCATION OF THESE UNDER THE PROPOSED ROAD DESIGNATION. THE RELOCATION CONSERVES STORAGE VOLUME SO OTHER THAN IN THE WETLANDS THEMSELVES THE FLOOD EXTENTS WILL BE SIMILAR TO THAT SHOWN ON THIS DRAWING.

DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY

PRELIMINARY
NOT FOR CONSTRUCTION

G	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
F	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
E	UPDATED TE RAPA FLOOD EXTENTS	JL	IS	IS	22.02.22
D	UPDATED FOR HCC COMMENTS	AW	IS	IS	20.12.21
No.	Revision	By	Chk	Appd	Date



Original Scale (A1)	Design	A.Mckay	15.05.20	Approved For Construction*
1:7500	Drawn	S.Bonenkamp	15.05.20	Date
Reduced Scale (A3)	Dwg Verifier			
1:15000	Dwg Check			
	* Refer to Revision 1 for Original Signature			



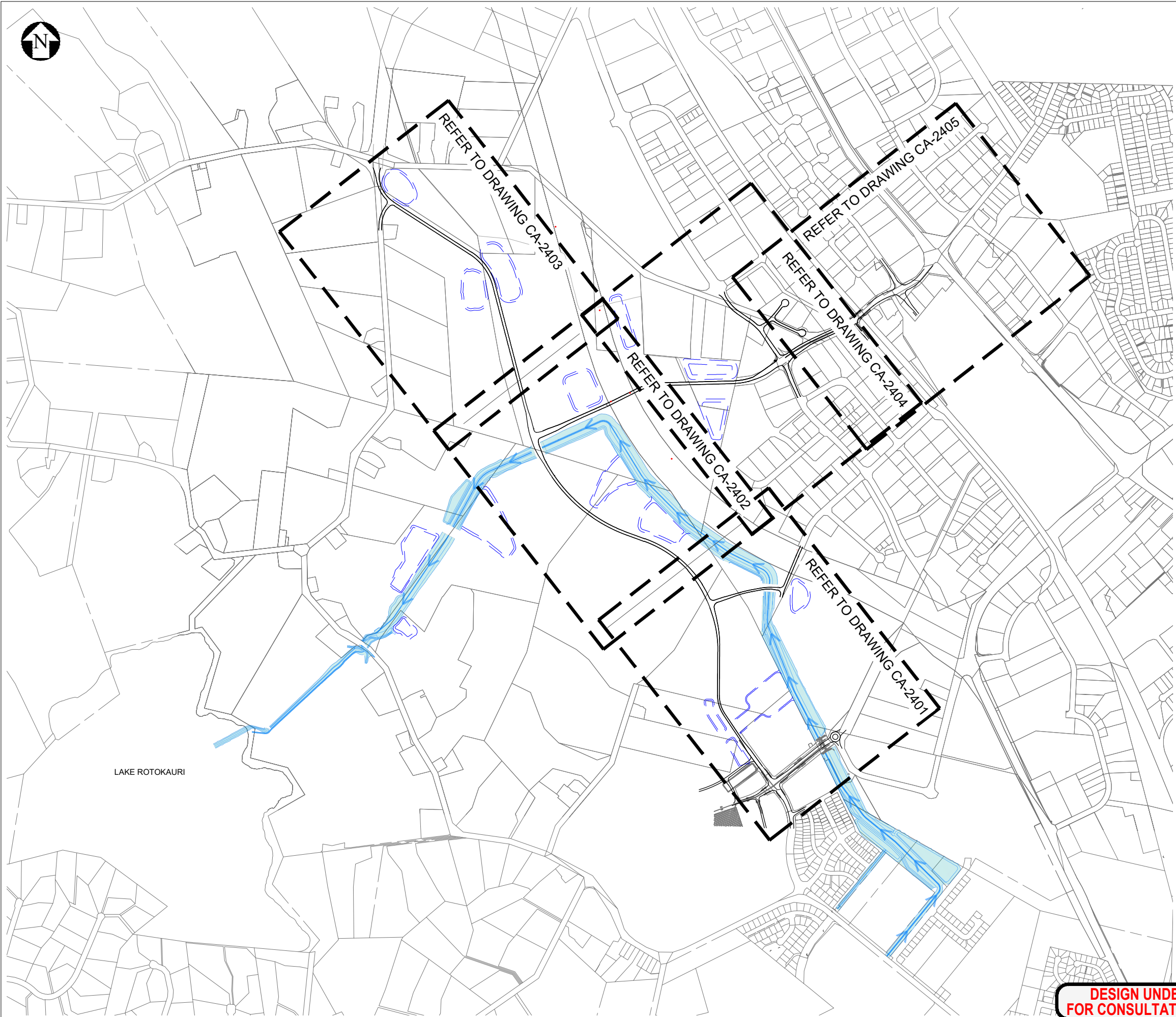
Client: ROTOKAURI ARTERIALS DESIGNATION

Title: FLOOD EXTENTS

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2103
Rev.	G

LEGEND

- GREENWAY LOW FLOW CHANNEL AND BASINS
- POTENTIAL FUTURE WETLANDS



LAKE ROTOKAURI

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**

H	AERIAL REMOVED	RG	IS	IS	22.01.24
G	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
F	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
E	HCC REVIEW AMENDMENTS	AW	IS	IS	20.12.21
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Original Scale (A1)	Design	C. Wilson	15.05.20	Approved For Construction*
1:1500	Drawn	S. Bonenkamp	15.05.20	Date
Reduced Scale (A3)	Dwg Verifier			
1:3000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

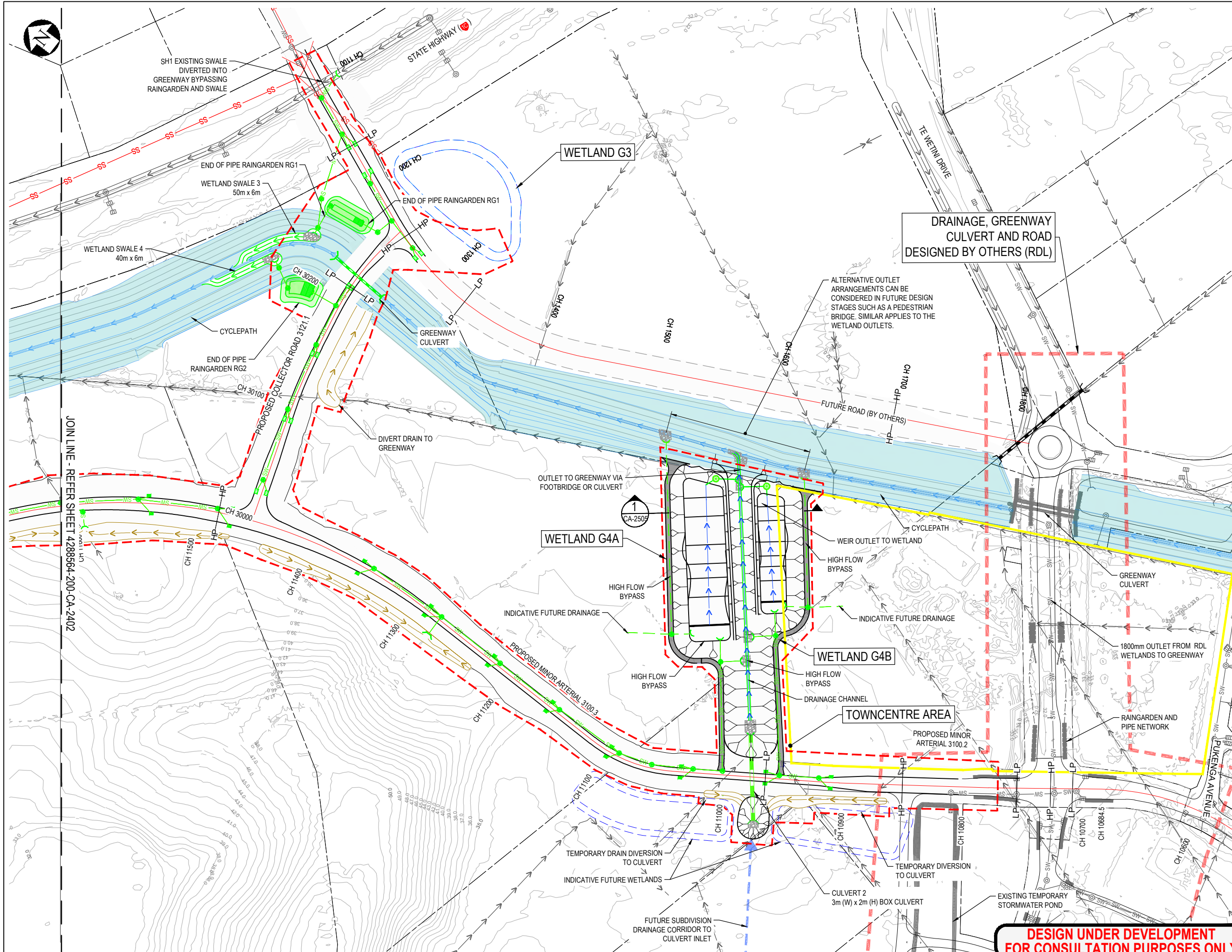
Client:

Te Kaitiaki o Kirikiriroa

Project:
ROKOKAURI ARTERIALS DESIGNATION

Title:
**STORMWATER
LAYOUT SHEET**

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2400
Rev.	H



LEGEND

PROPOSED DESIGNATION
BOUNDARY

EXISTING STORMWATER
PIPE

EXISTING WATERCOURSE
/ OPEN CHANNEL DRAIN

EXISTING STORMWATER
MANHOLE

EXISTING CATCHPIT

EXISTING SWALE

EXISTING CULVERT

PROPERTY BOUNDARY

WESTERN INTERCEPTOR
SEWER

PROPOSED SERVICES

PIPED DRAINAGE

INDICATIVE FUTURE
DRAINAGE

MANHOLE

RAINGARDEN

CATCHPIT

CULVERT

WETLAND SWALE

TEMPORARY DRAIN

CONVEYANCE SWALE

HEADWALL AND RIP RAP

HP HIGH POINT

LP LOW POINT

DRAINAGE DESIGNED BY
OTHERS

GREENWAY

INDICATIVE FUTURE
WETLANDS

- NOTES**
1.

CONTOURS BASED ON 2019 HCC LIDAR.
2.

ROAD DRAINAGE LAYOUT
(CATCHPITS/RAINGARDENS/MANHOLES) IS
INDICATIVE AND SPACINGS SUBJECT TO
DETAILED DESIGN.
3.

RAINGARDENS ONLY REQUIRED WHERE
DRAINAGE DISCHARGES TO THE GREENWAY.
4.

REFER DRAWINGS 4288564-200-CA-2500 TO
2505 FOR CARRIAGEWAY DRAINAGE /
RAINGARDEN / CULVERT TYPICAL DETAILS.
5.

THE DRAINAGE ARRANGEMENT SHOWN FOR
THE ROADS ASSUMES THE GREENWAY
CHANNEL HAS BEEN CONSTRUCTED.

I	DESIGNATION BOUNDARY ADDED	RG	IS	IS	22.01.24
H	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
G	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
F	UPDATE FOR PEER REVIEW COMMENTS	JL			17.03.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Original Scale (A1) 1:1500	Design C.Wilson	15.05.20	Approved For Construction*
Reduced Scale (A3) 1:3000	Drawn S.Bonenkamp	15.05.20	Date
	Design Verifier		
	Dwg Check		
	* Refer to Revision 1 for Original Signature		

Client:

Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

STORMWATER
MANAGEMENT PLAN
SHEET 01

Discipline:

CIVIL ENGINEERING

Drawing No.

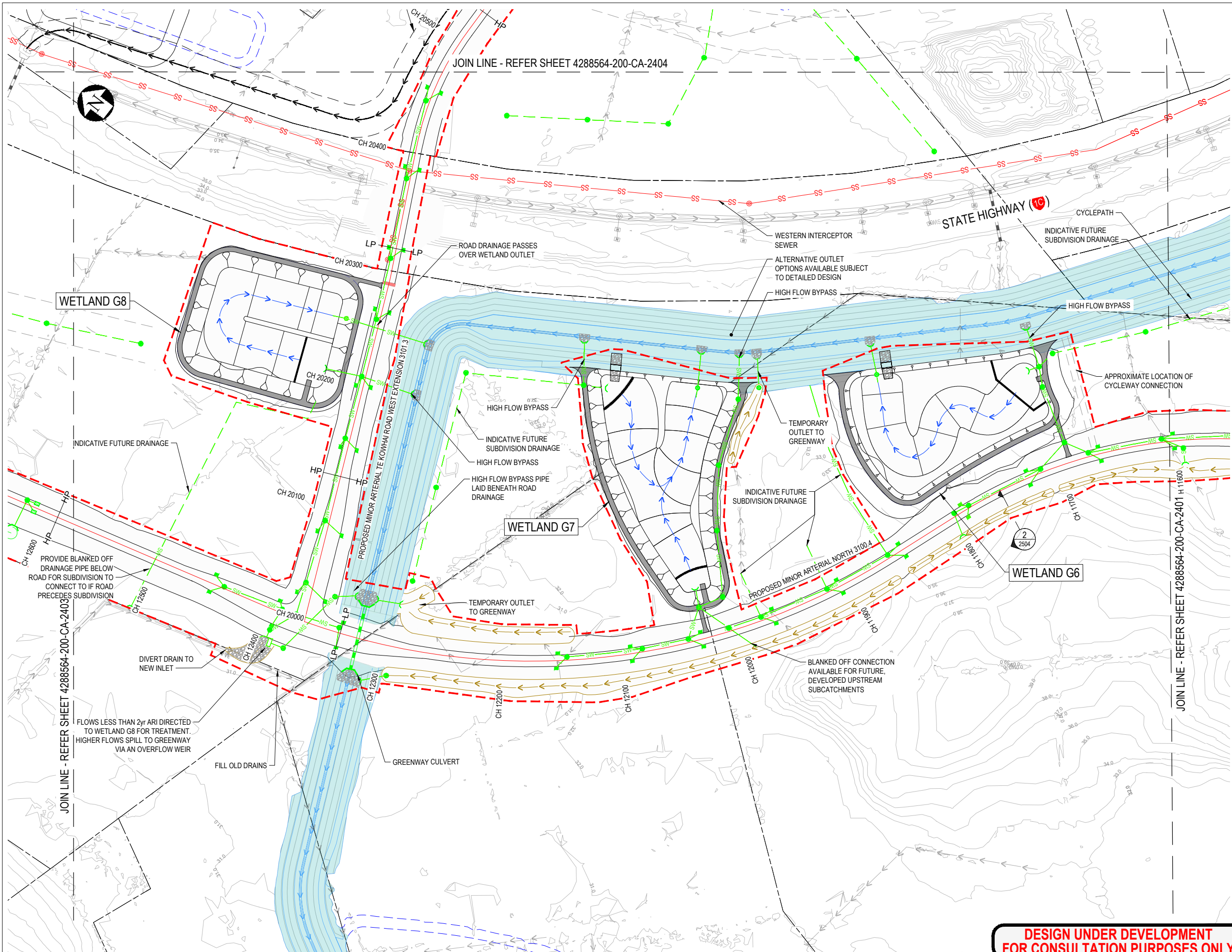
4288564-200-CA-2401

Rev.

I

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY



LEGEND

- PROPOSED DESIGNATION BOUNDARY
- EXISTING STORMWATER PIPE
- EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- EXISTING SWALE
- EXISTING CULVERT
- PROPERTY BOUNDARY
- WESTERN INTERCEPTOR SEWER
- PROPOSED SERVICES
- PIPED DRAINAGE
- INDICATIVE FUTURE DRAINAGE
- MANHOLE
- RAINGARDEN
- CATCHPIT
- CULVERT
- WETLAND SWALE
- TEMPORARY DRAIN
- CONVEYANCE SWALE
- HEADWALL AND RIP RAP
- HP HP HIGH POINT
- LP LP LOW POINT
- SW DRAINAGE DESIGNED BY OTHERS
- GREENWAY
- INDICATIVE FUTURE WETLANDS

NOTES

- CONTOURS BASED ON 2019 HCC LIDAR.
- ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLE) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.
- RAINGARDENS ONLY REQUIRED WHERE DRAINAGE DISCHARGES TO THE GREENWAY.
- REFER DRAWINGS 4288564-200-CA-2200 TO 2207 FOR CARRIAGEWAY DRAINAGE / RAINGARDEN / CULVERT TYPICAL DETAILS.
- GREENWAY AND OTHER ICMP STORMWATER MANAGEMENT AREAS ARE SHOWN ON THESE PLANS TO GIVE CONTEXT TO THE ROAD DRAINAGE ARRANGEMENTS. THE ROADING DESIGNATION COVERS THE DRAINAGE NEEDED FOR THE ROAD ONLY
- THE DRAINAGE ARRANGEMENT SHOWN FOR THE ROADS ASSUMES THE GREENWAY CHANNEL HAS BEEN CONSTRUCTED.

DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY

PRELIMINARY
NOT FOR CONSTRUCTION

H	DESIGNATION BOUNDARY ADDED	RG	IS	IS	22.01.24
G	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
F	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
E	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	App'd	Date

Drawing Originator:
Beca

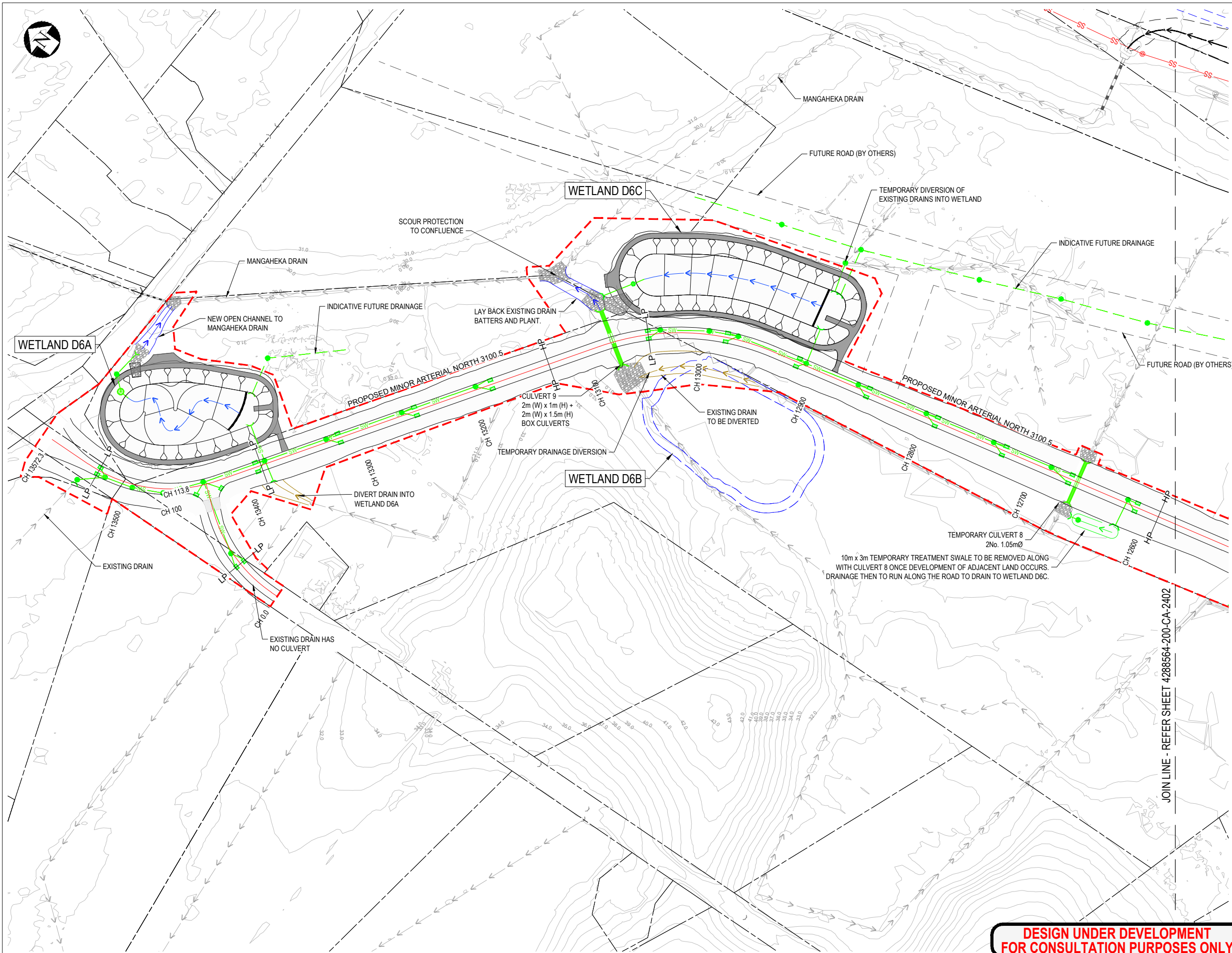
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Reduced Scale (A3)	Dwg Verifier			
1:3000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:
Hamilton City Council
Te Kaurihera o Kirikiriroa

Project:
ROKOKAURI ARTERIALS DESIGNATION

Title:
STORMWATER
MANAGEMENT PLAN
SHEET 02

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2402_
Rev.	H



LEGEND

- PROPOSED DESIGNATION BOUNDARY
- EXISTING STORMWATER PIPE
- EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- EXISTING SWALE
- EXISTING CULVERT
- PROPERTY BOUNDARY
- WESTERN INTERCEPTOR SEWER
- PROPOSED SERVICES
- PIPED DRAINAGE
- INDICATIVE FUTURE DRAINAGE
- MANHOLE
- RAINGARDEN
- CATCHPIT
- CULVERT
- WETLAND SWALE
- TEMPORARY DRAIN
- CONVEYANCE SWALE
- HEADWALL AND RIP RAP
- HP HP HIGH POINT
- LP LP LOW POINT
- SW DRAINAGE DESIGNED BY OTHERS
- GREENWAY
- INDICATIVE FUTURE WETLANDS

NOTES

- CONTOURS BASED ON 2019 HCC LIDAR.
- ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLE) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.
- RAINGARDENS ONLY REQUIRED WHERE DRAINAGE DISCHARGES TO THE GREENWAY.
- REFER DRAWINGS 4288564-200-CA-2500 TO 2505 FOR CARRIAGEWAY DRAINAGE / RAINGARDEN / CULVERT TYPICAL DETAILS.
- GREENWAY AND OTHER ICMP STORMWATER MANAGEMENT AREAS ARE SHOWN ON THESE PLANS TO GIVE CONTEXT TO THE ROAD DRAINAGE ARRANGEMENTS. THE ROADING DESIGNATION COVERS THE DRAINAGE NEEDED FOR THE ROAD ONLY
- THE DRAINAGE ARRANGEMENT SHOWN FOR THE ROADS ASSUMES THE GREENWAY CHANNEL HAS BEEN CONSTRUCTED.

DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY

PRELIMINARY
NOT FOR CONSTRUCTION

I	DESIGNATION BOUNDARY ADDED	RG	IS	IS	22.01.24
H	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
G	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
F	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:



Original Scale (A1)	Design	C. Wilson	15.05.20	Approved For Construction*
1:1500	Drawn	S. Bonenkamp	15.05.20	Date
Reduced Scale (A3)	Dwg Verifier			
1:3000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:



Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

STORMWATER
MANAGEMENT PLAN
SHEET 03

Discipline

CIVIL ENGINEERING

Drawing No.

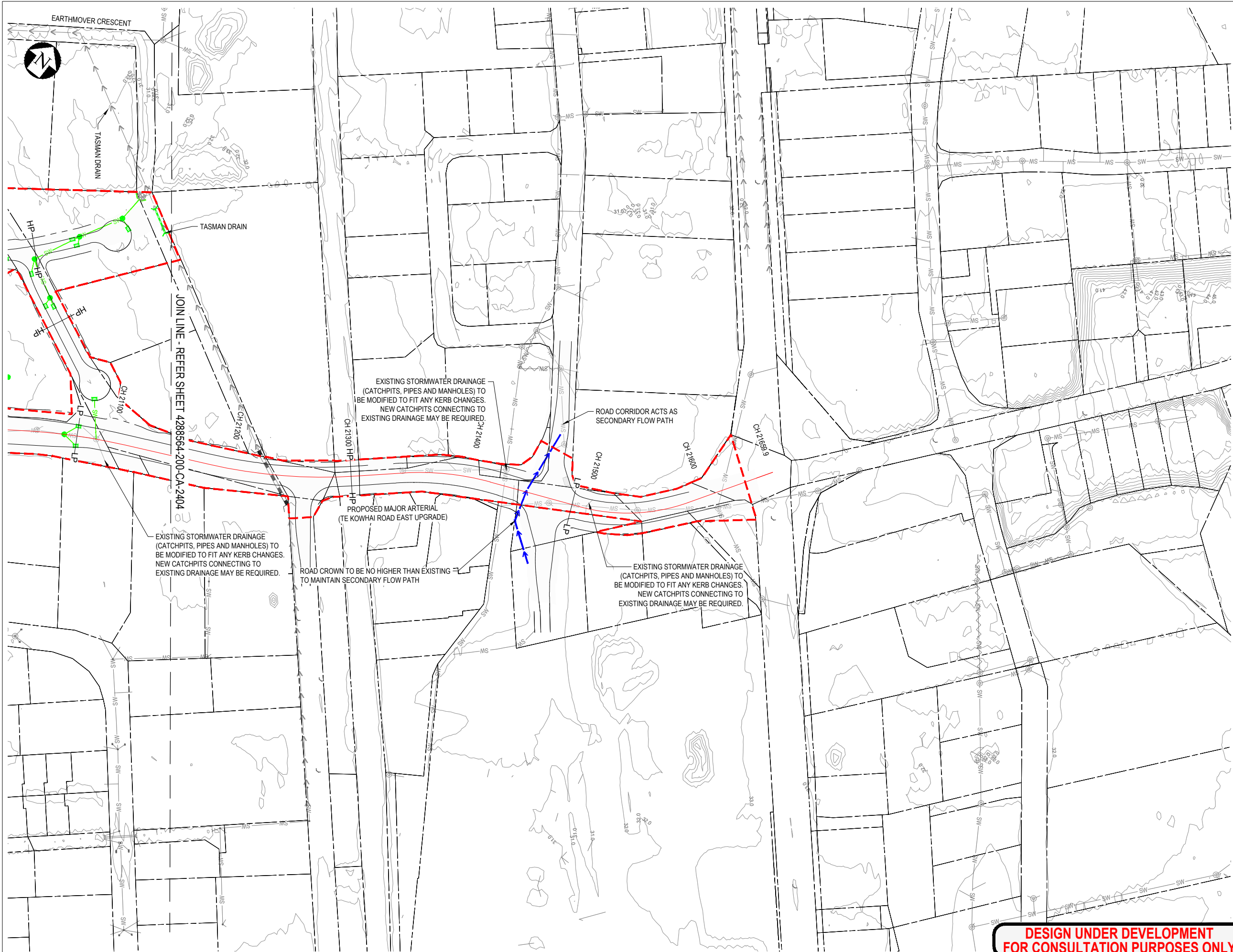
4288564-200-CA-2403_

Rev.

I



Discipline	CIVIL ENGINEERING	
Drawing No.	4288564-200-CA-2404	Rev. H



LEGEND

--- PROPOSED DESIGNATION BOUNDARY
--- SW EXISTING STORMWATER PIPE
---> EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
○ EXISTING STORMWATER MANHOLE
□ EXISTING CATCHPIT
--- EXISTING SWALE
--- EXISTING CULVERT
--- PROPERTY BOUNDARY
--- SS WESTERN INTERCEPTOR SEWER

PROPOSED SERVICES

--- SW PIPED DRAINAGE
--- INDICATIVE FUTURE DRAINAGE
○ MANHOLE
■ RAINGARDEN
□ CATCHPIT
--- CULVERT
--- WETLAND SWALE
--- TEMPORARY DRAIN
--- CONVEYANCE SWALE
■ HEADWALL AND RIP RAP
HP HP HIGH POINT
LP LP LOW POINT
--- SW DRAINAGE DESIGNED BY OTHERS
--- GREENWAY
--- INDICATIVE FUTURE WETLANDS

- NOTES**
1. CONTOURS BASED ON 2019 HCC LIDAR.
 2. ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLE) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.
 3. RAINGARDENS ONLY REQUIRED WHERE DRAINAGE DISCHARGES TO THE GREENWAY.
 4. REFER DRAWINGS 4288564-200-CA-2500 TO 2505 FOR CARRIAGEWAY DRAINAGE / RAINGARDEN / CULVERT TYPICAL DETAILS.
 5. THE DRAINAGE ARRANGEMENT SHOWN FOR THE ROADS ASSUMES THE GREENWAY CHANNEL HAS BEEN CONSTRUCTED.

I	DESIGNATION BOUNDARY ADDED	RG	IS	IS	22.01.24
H	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
G	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
F	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	A.Mckay	15.05.20	Approved For Construction*
1:1500	Drawn	S.Bonenkamp	15.05.20	Date
Reduced Scale (A3)	Dwg Verifier			
1:3000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te Kaunihera o Kirikiriroa

Project:

ROTOKAURI ARTERIALS DESIGNATION

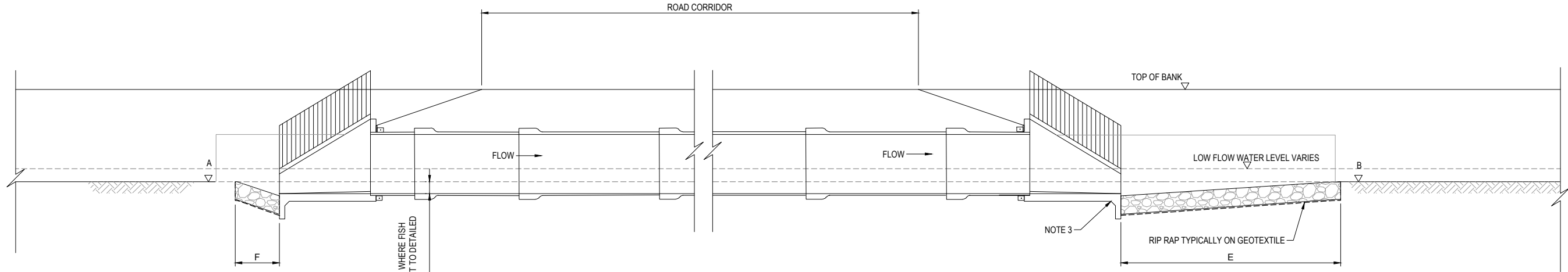
Title:

STORMWATER
MANAGEMENT PLAN
SHEET 05

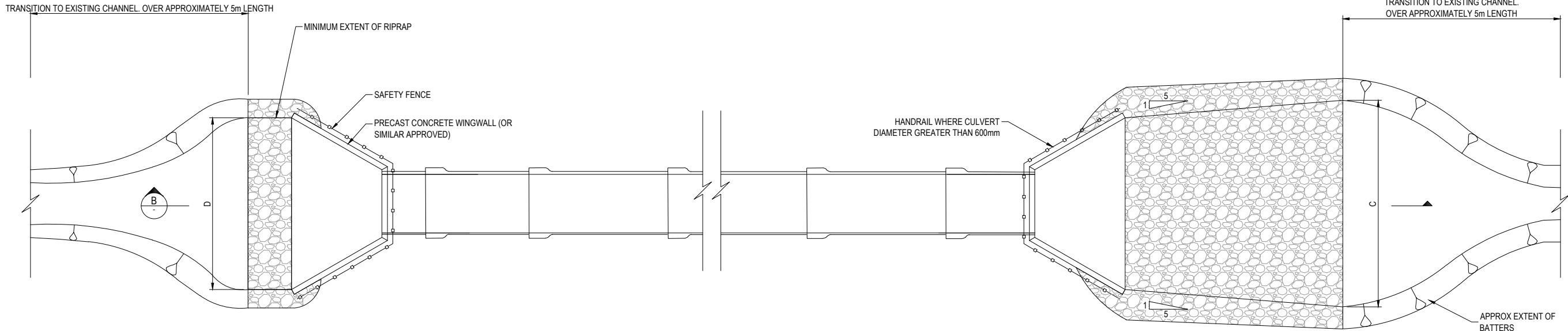
Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2405
Rev.	I

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**



B TYPICAL LONG SECTION
SCALE 1:100



A TYPICAL CULVERT PLAN
SCALE 1:100

NOTES

1. BOX CULVERT ARRANGEMENT IS SIMILAR TO PIPES BUT WHERE MULTI-BARRELED ONE CULVERT TO BE SET LOWER THAN THE OTHER FOR FISH PASSAGE.
2. CULVERT SIZING IS PRELIMINARY ONLY AS THE SIZE GENERALLY WILL NOT IMPACT ON THE EXTENT OF THE DESIGNATION.
3. CONCRETE HEADWALL APRONS FOR LARGE BOX CULVERT MAY NOT BE REQUIRED WITH SPECIFIC RIP RAP DESIGN. SUBJECT TO DETAILED DESIGN.
4. RIP RAP TO BE VOID OR VOID FILLED WHERE FISH PASSAGE REQUIRED.
5. CULVERT REFERENCE NUMBERS ARE NOT SEQUENTIAL AS EARLIER DESIGNS HAD MORE CULVERTS. FINAL NAMING SUBJECT TO REVIEW.
6. FINAL LENGTH OF RIPRAP SUBJECT TO DETAILED DESIGN AND WILL BE LONGER THAN THE MINIMUM NOTED IN ORDER TO PROTECT UPSTREAM DRAIN WORKS AS SHOWN IN THE PLAN DRAWINGS.
7. GREENWAY CULVERTS NOT SHOWN/DETAILED HERE. THESE ARE SUBJECT TO THE GREENWAY DESIGN FOR SIZING.

CULVERT AND RIPRAP SCHEDULE

CULVERT REFERENCE (NOTE 5)	CULVERT SIZE	CULVERT LENGTH	A INLET BED IL	B OUTLET BED IL	RIPRAP ROCK SIZE	C & D RIPRAP APRON WIDTH	E OUTLET RIPRAP LENGTH	F RIPRAP APRON MIN LENGTH (NOTE 6)
	(WxH) / Ø (m)	(m)	(mRL)	(mRL)	D50 (mm)	(m)	(m)	(m)
Culvert 2	3 x 2	52.0	29.45	29.15	400	4.0	12.0	4.0
Culvert 8	2No. 1.05 Ø	37.0	29.90	29.80	200	3.0	6.5	2.0
Culvert 9	2 x 1 + 2 x 1.5	42.0	28.15	27.90	200	5.4	6.0	4.0
Culvert 10	2 x 1 + 2 x 1.5	42.0	29.10	28.90	200	5.4	6.0	4.0

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**

G	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
F	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
E	UPDATE FOR PEER REVIEW COMMENTS	JL			17.03.22
D	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Original Scale (A1)	Design	C. Wilson	15.05.20	Approved For Construction*
2X SHOWN	Drawn	S. Bonenkamp	15.05.20	
Reduced Scale (A3)	Dwg Verifier			Date
1:100	Dwg Check			

* Refer to Revision 1 for Original Signature

Client:

Te kaurihera o Kirikiriroa

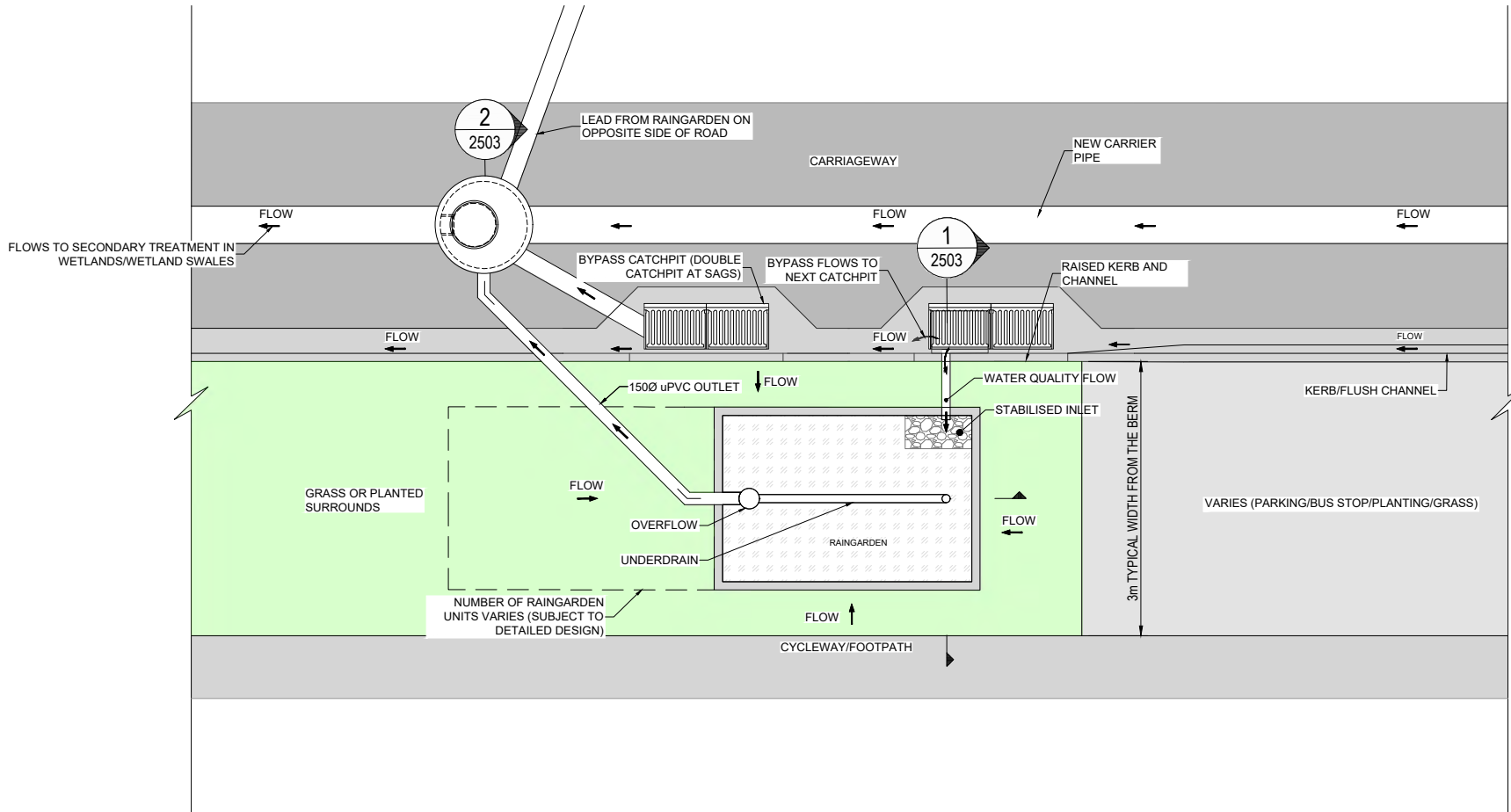
Project:
ROTOKAURI ARTERIALS DESIGNATION

Title:
CULVERT TYPICAL DETAIL AND CULVERT SCHEDULE

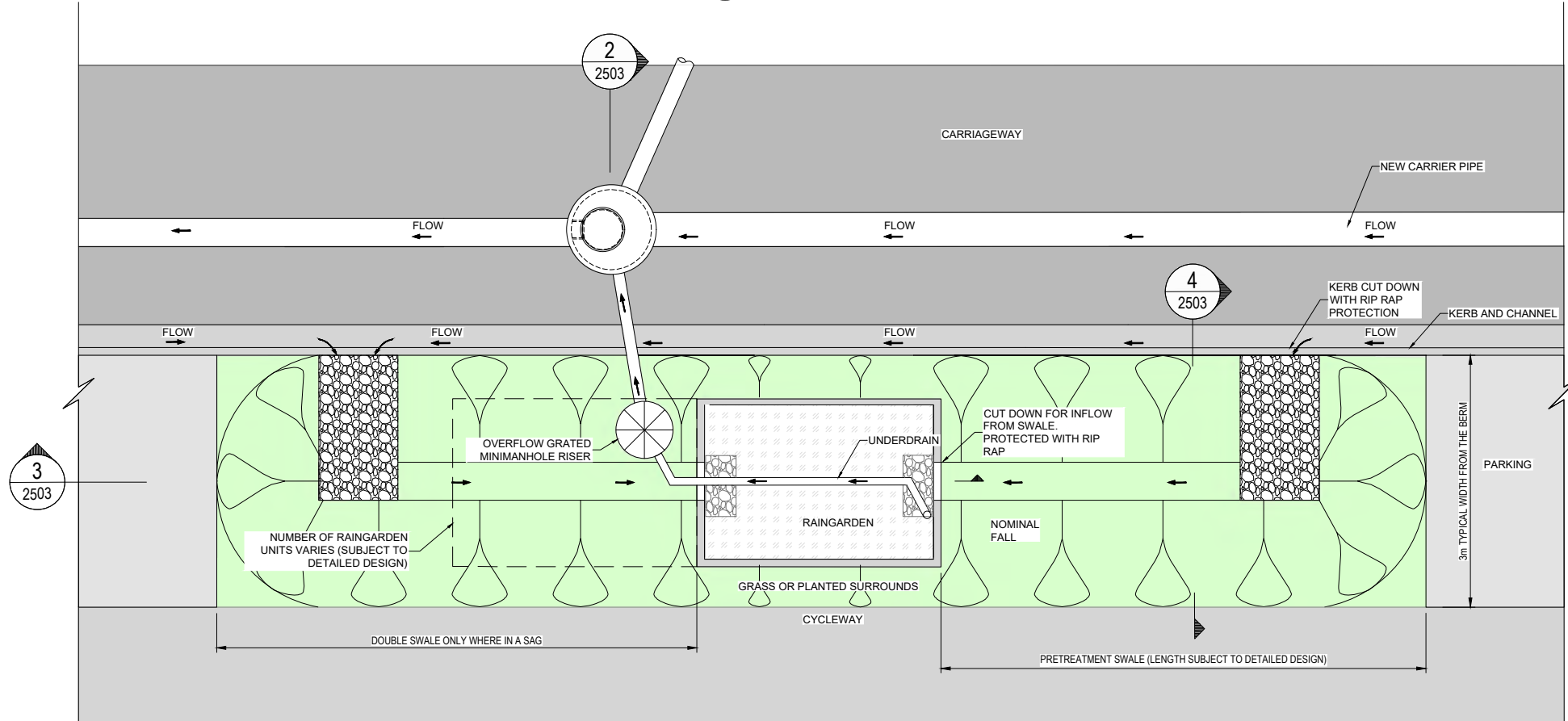
Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2500
Rev.	G

NOTES

1. DETAILS SHOWN ARE TYPICAL AND SUBJECT TO DETAILED DESIGN. ARRANGEMENT DOES NOT IMPACT ON DESIGNATION SO IS ONLY CONCEPTUAL AT THIS STAGE



A RAINGARDEN LAYOUT OPTION 1
NTS



B RAINGARDEN LAYOUT OPTION 2
NTS

DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY

PRELIMINARY
NOT FOR CONSTRUCTION

E	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
D	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
C	ISSUE FOR PEER REVIEW	CW	IS	CW	03.05.21
B	DRAFT FOR INFORMATION	CW	IS	CW	15.02.21
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	C. Wilson	15.05.20	Approved For Construction*
NTS	Drawn	S. Bonenkamp	15.05.20	
Reduced Scale (A3)	Dwg Verifier	R. Seyb	08.04.22	Date
1:80	Dwg Check	S. Hawes	26.01.22	
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te Kaunihera o Kirikiriroa

Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

RAIN GARDEN PLAN

Discipline

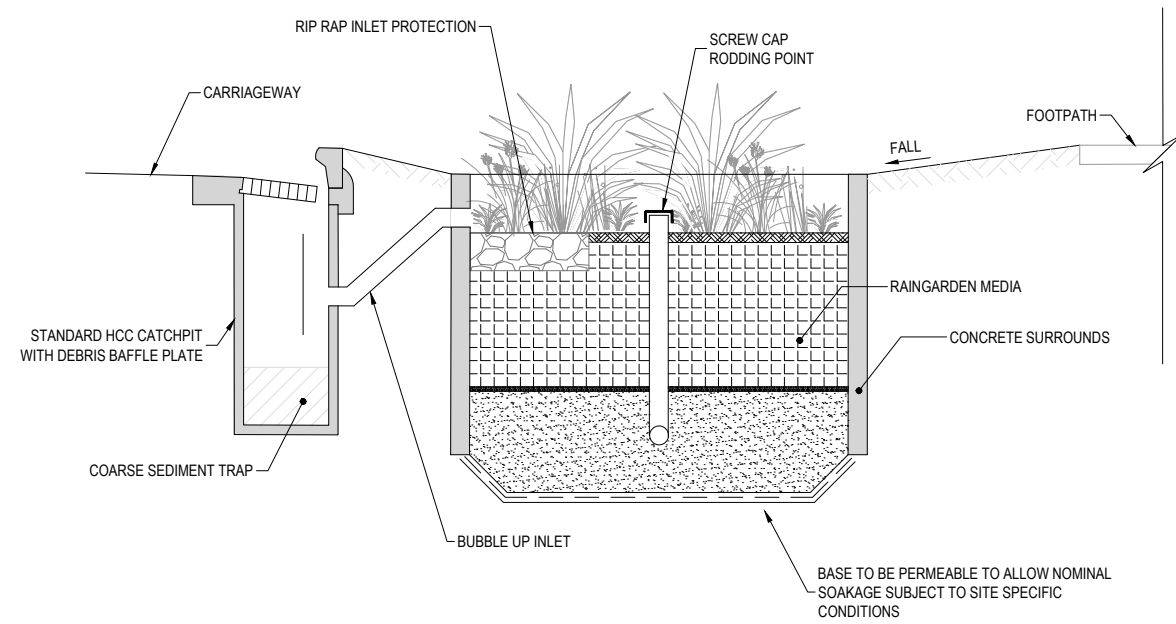
CIVIL ENGINEERING

Drawing No.

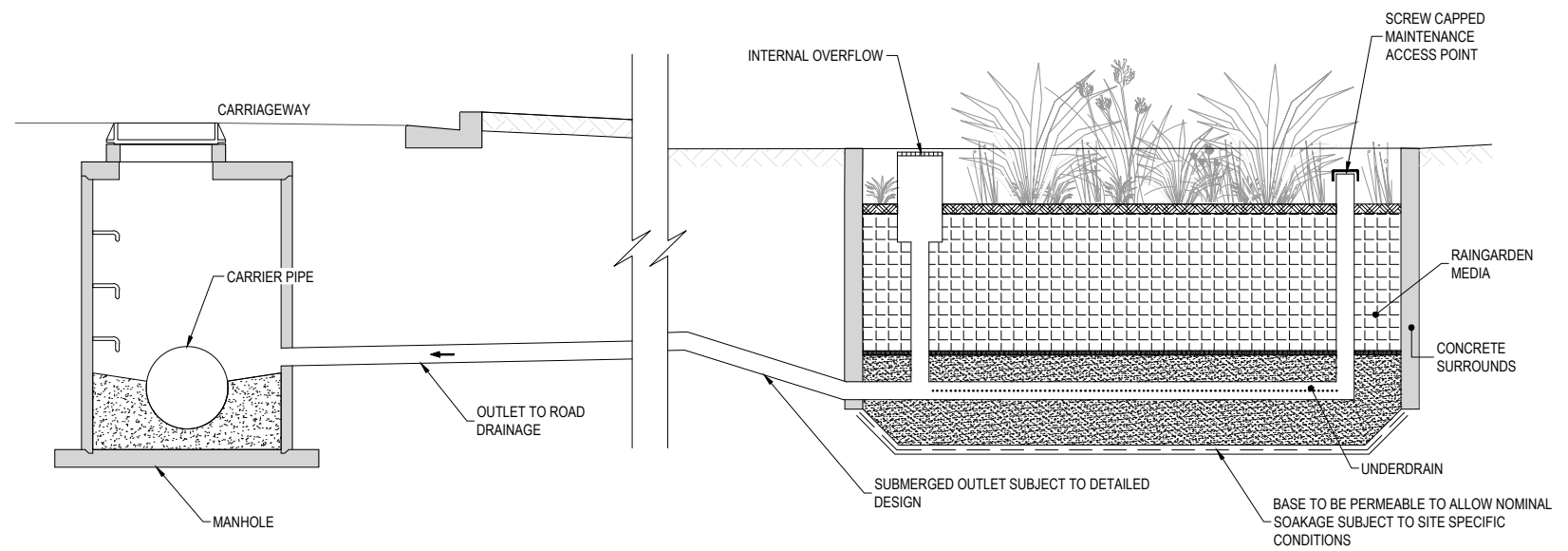
4288564-200-CA-2502

Rev.

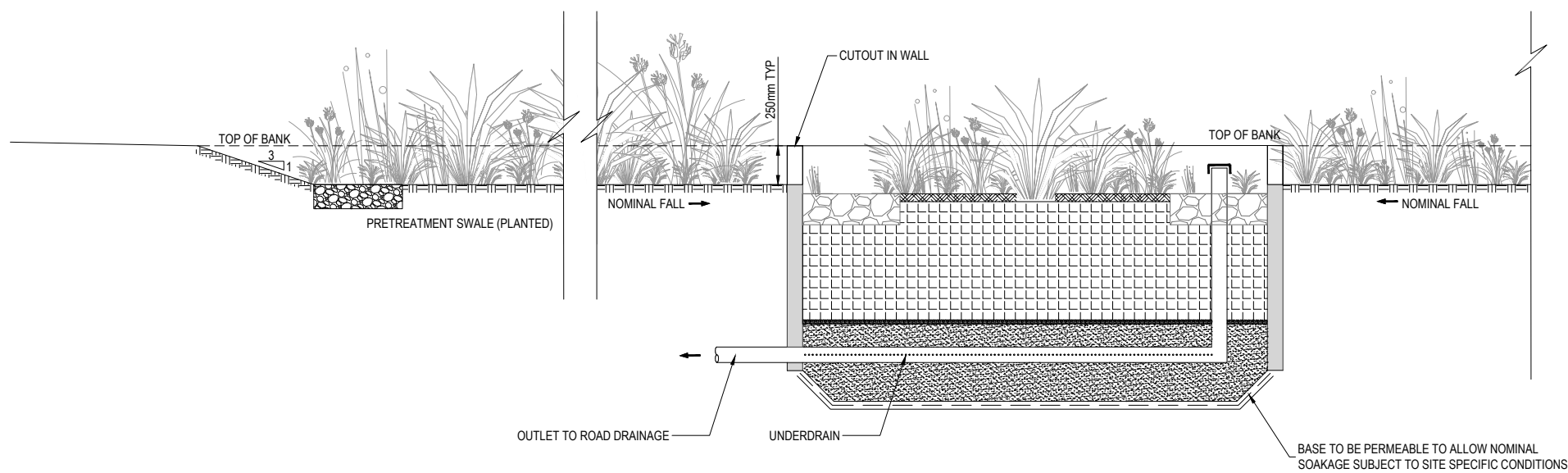
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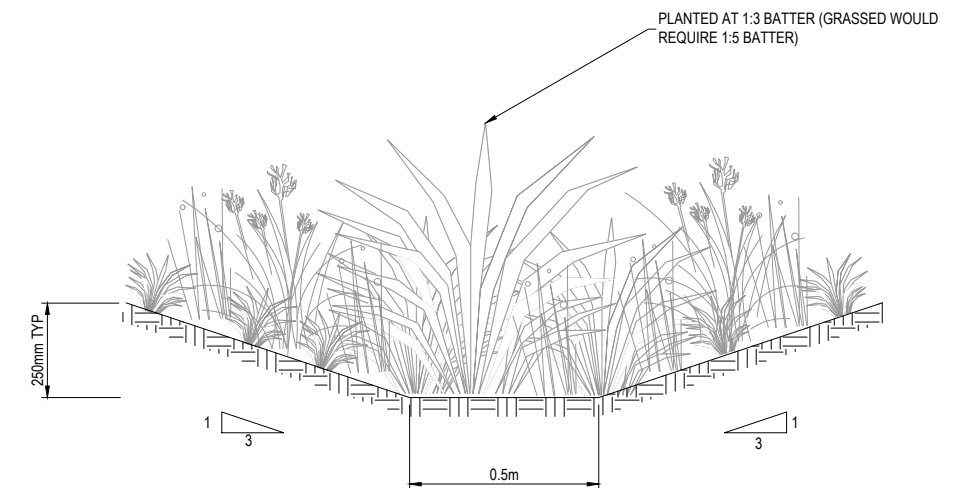
1 RAINGARDEN OPTION 1 TYPICAL SECTION
2502 SCALE 1:40



2 RAINGARDEN TYPICAL SECTION
2502 SCALE 1:40



3 RAINGARDEN OPTION 2 TYPICAL SECTION
2502 SCALE 1:40



4 PRETREATMENT SWALE TYPICAL SECTION
2502 SCALE 1:20

NOTES

1. DETAILS SHOWN ARE TYPICAL AND SUBJECT TO DETAILED DESIGN. ARRANGEMENT DOES NOT IMPACT ON DESIGNATION SO IS ONLY CONCEPTUAL AT THIS STAGE

E	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
D	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
C	ISSUE FOR PEER REVIEW	CW	IS	CW	03.05.21
B	DRAFT FOR INFORMATION	CW	IS	CW	15.02.21
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	A.Mckay	15.05.20	Approved For Construction*
2X SHOWN	Drawn	S. Bonenkamp	15.05.20	
Reduced Scale (A3)	Dwg Verifier	R. Seyb	08.04.22	Date
HALF SHOWN	Dwg Check	S. Hawes	26.01.22	
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te Kaitiaki o Kirikiriroa

Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

RAIN GARDEN SECTION

Discipline

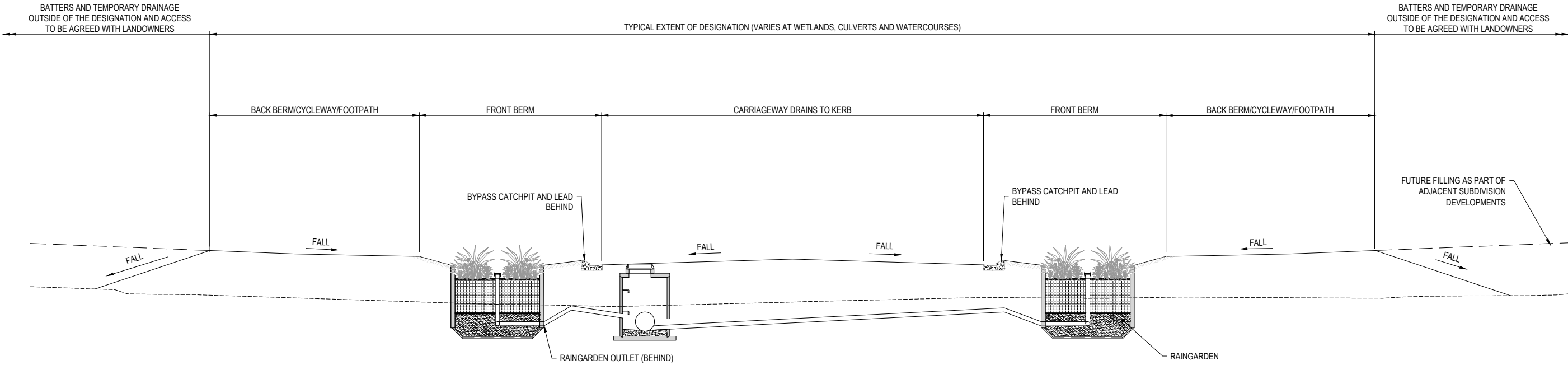
CIVIL ENGINEERING

Drawing No.

4288564-200-CA-2503

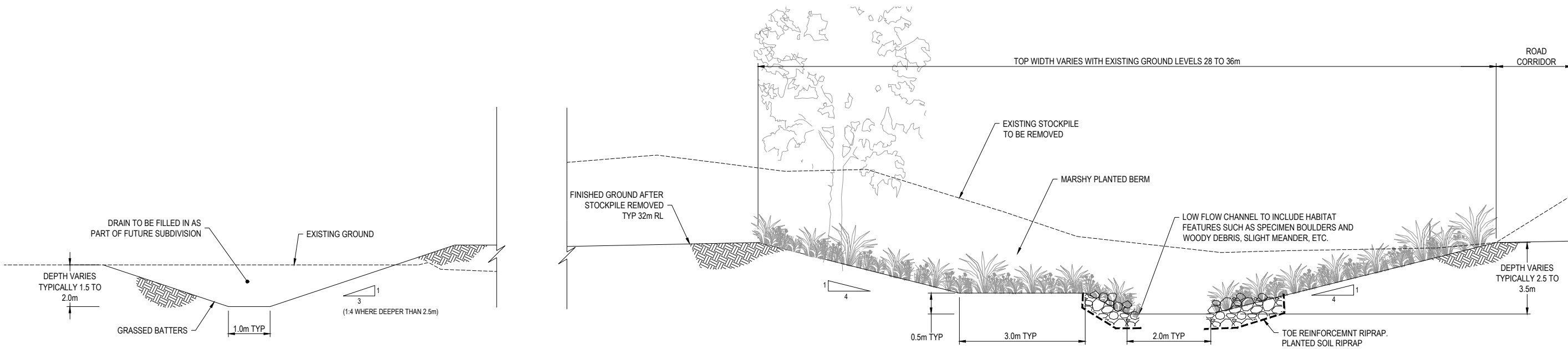
Rev.

E



1 TYPICAL ROAD DRAINAGE SECTION

SCALE 1:100
NOTE: SECTION SHOWS RAINGARDEN OPTION 1 ONLY. RAINGARDENS ONLY WHERE DRAINAGE RUNS TO THE GREENWAY



2 TYPICAL TEMPORARY DRAIN SECTION

2402 SCALE 1:100

3 MANGAHEKA DIVERSION

2404 SCALE 1:100

NOTE
HABITAT FEATURES INDICATIVE AND SUBJECT TO DETAILED DESIGN.

DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY

PRELIMINARY
NOT FOR CONSTRUCTION

F	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
E	DESIGNATION EXTENT ADDED	JL	IS	IS	24.03.22
D	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
C	ISSUE FOR PEER REVIEW	CW	IS	CW	03.05.21
No.	Revision	By	Chk	Appd	Date



Original Scale (A1)	Design	A.Mckay	15.05.20	Approved For Construction*
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Reduced Scale (A3)	Dwg Verifier	R. Seyb	08.04.22	Date
1:100	Dwg Check	S. Hawes	26.01.22	
	* Refer to Revision 1 for Original Signature			



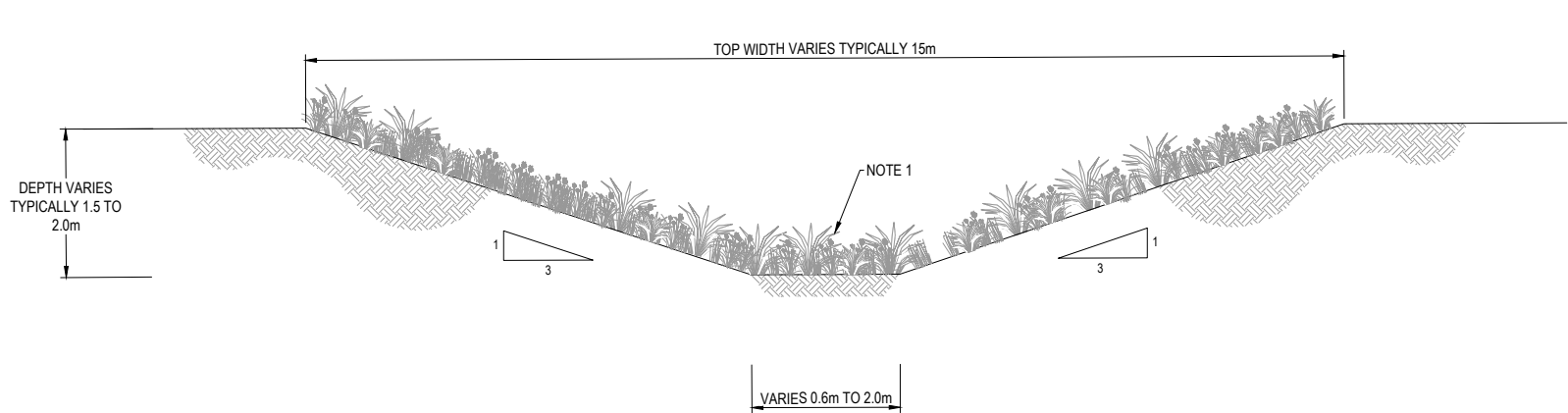
Project:
ROTOKAURI ARTERIALS DESIGNATION

Title:
TYPICAL ROAD DRAINAGE CROSS SECTION

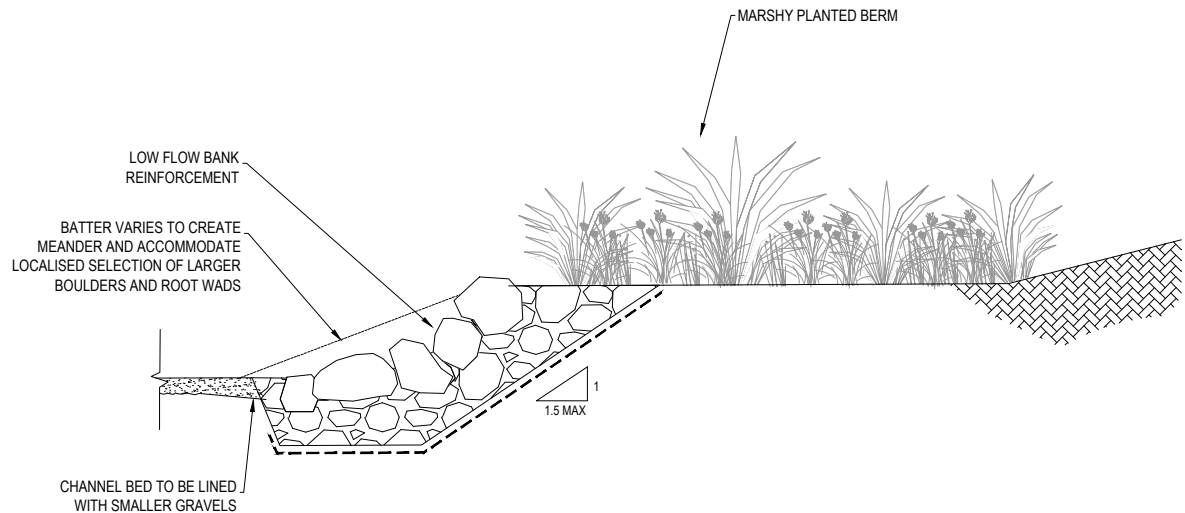
Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2504
Rev.	F

NOTES

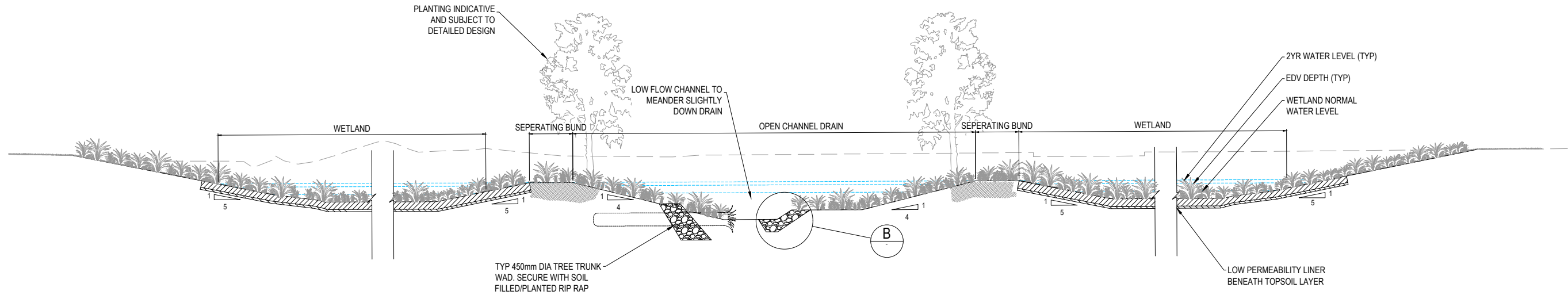
1. OPEN CHANNEL DRAINS HAVE SIMILAR SECTION TO THE WETLAND SWALES BUT ARE NOT PLANTED ACROSS THE BASE
2. WHERE DRAINS AND SWALES ARE DEEPER THAN 2.5m THEN THE BATTER SLOPE NEEDS TO FLATTEN TO 1V:4H FOR SLOPE STABILITY REASONS.



A WETLAND SWALE TYPICAL SECTION
SCALE 1:100



B TYPICAL CHANNEL EDGE DETAIL
SCALE 1:100



1 SECTION THROUGH WETLANDS G4A & B AND CHANNEL SECTION
SCALE 1:50

F	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
E	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
D	ISSUE FOR PEER REVIEW	CW	IS	CW	03.05.21
C	DRAFT FOR INFORMATION	CW	IS	CW	15.02.21
No.	Revision	By	Chk	Appd	Date



Original Scale (A1)	Design	A.Mckay	15.05.20	Approved For Construction*
2X SHOWN	Drawn	S. Bonenkamp	15.05.20	
Reduced Scale (A3)	Dwg Verifier	R. Seyb	08.04.22	
HALF SHOWN	Dwg Check	S. Hawes	26.01.22	Date
	* Refer to Revision 1 for Original Signature			



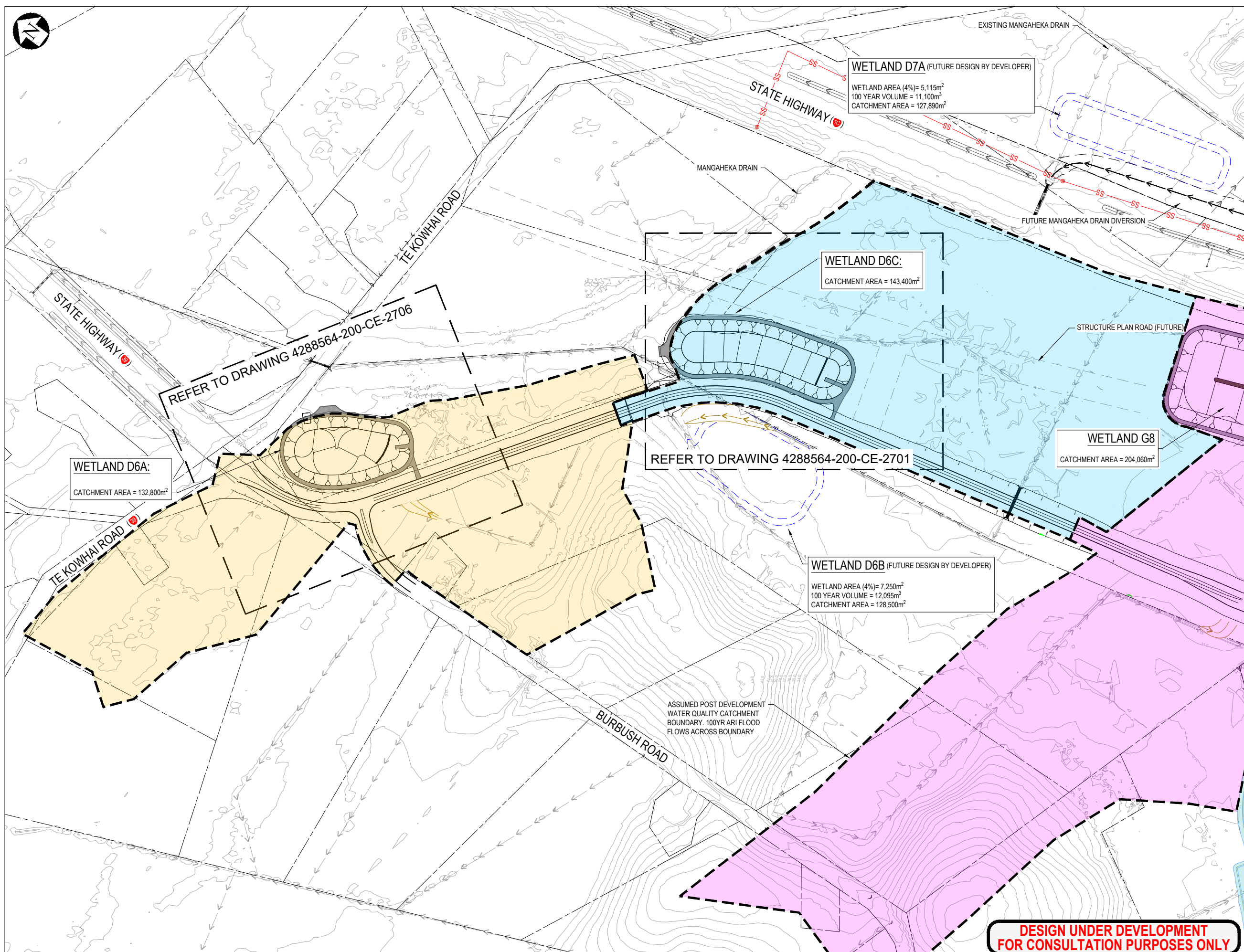
Project: ROTOKAURI ARTERIALS DESIGNATION

Title: TYPICAL CHANNEL SECTION

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2505
Rev.	F

DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY

PRELIMINARY
NOT FOR CONSTRUCTION



LEGEND

- EXISTING STORMWATER PIPE
- EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- EXISTING SWALE
- EXISTING CULVERT
- PROPERTY BOUNDARY
- WESTERN INTERCEPTOR SEWER
- PROPOSED SERVICES
- DRAIN
- TEMPORARY DRAIN
- DRAINAGE DESIGNED BY OTHERS
- GREENWAY
- POTENTIAL FUTURE WETLANDS
- CATCHMENT BOUNDARIES
- CATCHMENT SERVED BY WETLAND D6A
- CATCHMENT SERVED BY WETLAND D6C
- CATCHMENT SERVED BY WETLAND G8

NOTES

1. CONTOURS BASED ON 2019 HCC LIDAR.

F	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
E	NOTICE OF REQUIREMENT	JL	IS	IS	11.04.22
D	UPDATE FOR PEER REVIEW COMMENTS	JL			18.03.22
C	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	S. Hawes	08.04.22	Approved For Construction*
1:4000	Drawn	S. Hawes	08.04.22	Date
Reduced Scale (A3)	Dwg Verifier			
1:2000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te Kaunihera o Kirikiriroa

Project:

ROTOKAURI ARTERIALS DESIGNATION

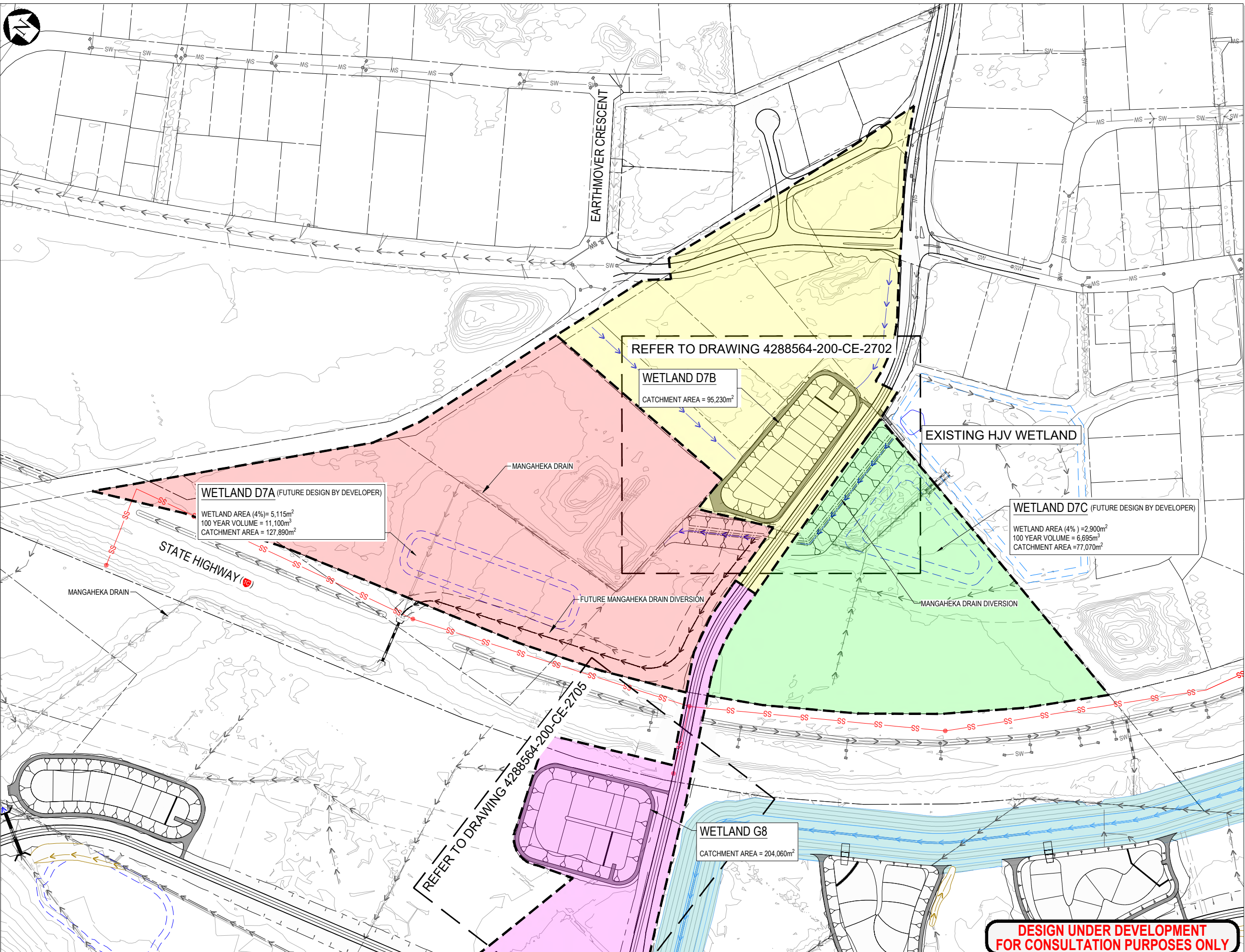
Title:

WETLAND CATCHMENT OVERVIEW PLAN
SHEET 1

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2601
Rev.	F

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**



LEGEND	
SW	EXISTING STORMWATER PIPE
→	EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
⊙	EXISTING STORMWATER MANHOLE
⊠	EXISTING CATCHPIT
←→	EXISTING SWALE
—	EXISTING CULVERT
---	PROPERTY BOUNDARY
SS	WESTERN INTERCEPTOR SEWER
PROPOSED SERVICES	
←→	DRAIN
←→	TEMPORARY DRAIN
SW	DRAINAGE DESIGNED BY OTHERS
←→	GREENWAY
---	POTENTIAL FUTURE WETLANDS
---	CATCHMENT BOUNDARIES
Red fill	CATCHMENT SERVED BY WETLAND D7A
Yellow fill	CATCHMENT SERVED BY WETLAND D7B
Green fill	CATCHMENT SERVED BY WETLAND D7C
Purple fill	CATCHMENT SERVED BY WETLAND G8

NOTES

1. CONTOURS BASED ON 2019 HCC LIDAR.

G	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
F	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
E	UPDATE FOR PEER REVIEW COMMENTS	JL	IS	IS	18.03.22
D	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	C. Wilson	08.04.22	Approved For Construction*
1:4000	Drawn	C. Wilson	08.04.22	Date
Reduced Scale (A3)	Dwg Check			
1:2000				

* Refer to Revision 1 for Original Signature

Client:

Hamilton City Council
Te Kaunihera o Kirikiriroa

Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

WETLAND CATCHMENT OVERVIEW PLAN SHEET 2

Discipline:

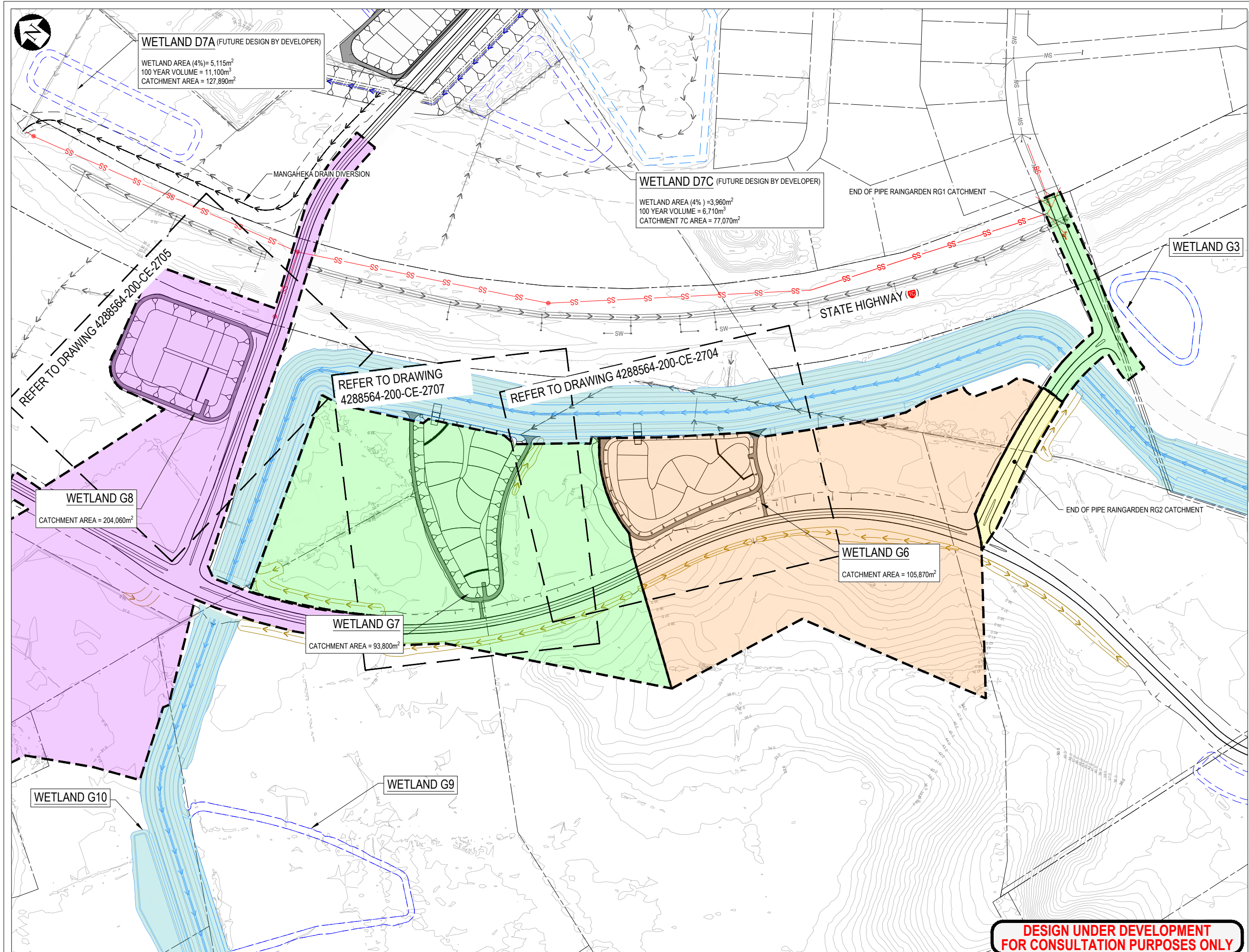
CIVIL ENGINEERING

Drawing No. **4288564-200-CA-2602**

Rev. **G**

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**



E	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
D	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
C	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
B	ISSUE FOR PEER REVIEW	CW	IS	CW	03.05.21
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	C. Wilson	08.04.22	Approved For Construction*
1:4000	Drawn	C. Wilson	08.04.22	Date
Reduced Scale (A3)	Dwg Verifier			
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	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te Kaitiaki o Kirikiriroa

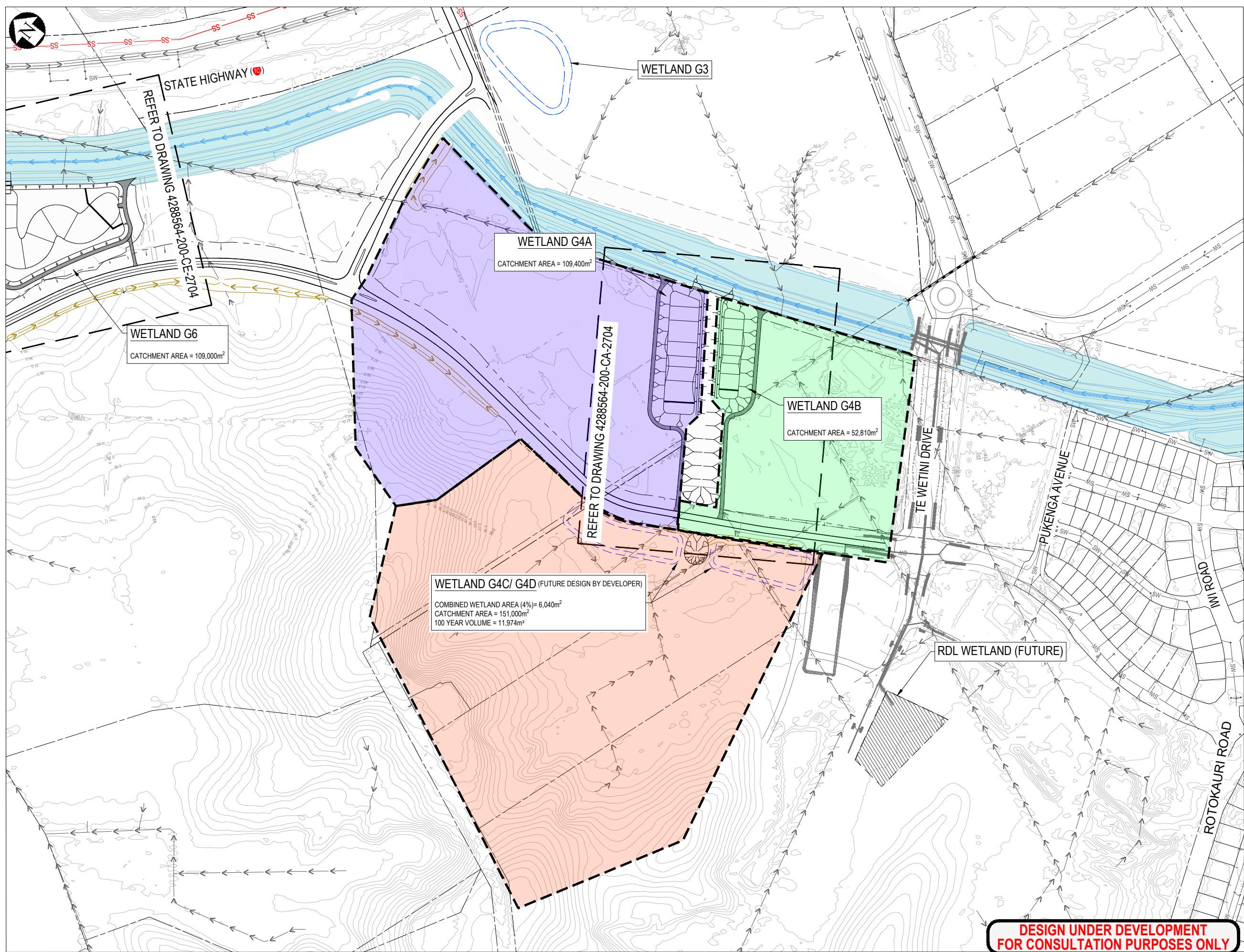
Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

WETLAND CATCHMENT OVERVIEW PLAN SHEET 3

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2603
Rev.	E



LEGEND

- EXISTING STORMWATER PIPE (SW)
- EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- EXISTING SWALE
- EXISTING CULVERT
- PROPERTY BOUNDARY
- WESTERN INTERCEPTOR SEWER (SS)
- PROPOSED SERVICES
- DRAIN
- TEMPORARY DRAIN
- DRAINAGE DESIGNED BY OTHERS (SW)
- GREENWAY
- POTENTIAL FUTURE WETLANDS
- CATCHMENT BOUNDARIES
- CATCHMENT SERVED BY WETLAND G4B
- CATCHMENT DRAIN TO CHANNEL
- CATCHMENT SERVED BY WETLAND G4A

NOTES

1. CONTOURS BASED ON 2019 HCC LIDAR.

E	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
D	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
C	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
B	ISSUE FOR PEER REVIEW	CW	IS	CW	03.05.21
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	C. Wilson	08.04.22	Approved For Construction*
1:4000	Drawn	C. Wilson	08.04.22	Date
Reduced Scale (A3)	Dwg Verifier			
1:2000	Dwg Check			
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Client:

Hamilton City Council
Te Kaunihera o Kirikiriroa

Project:

ROTKAURI ARTERIALS DESIGNATION

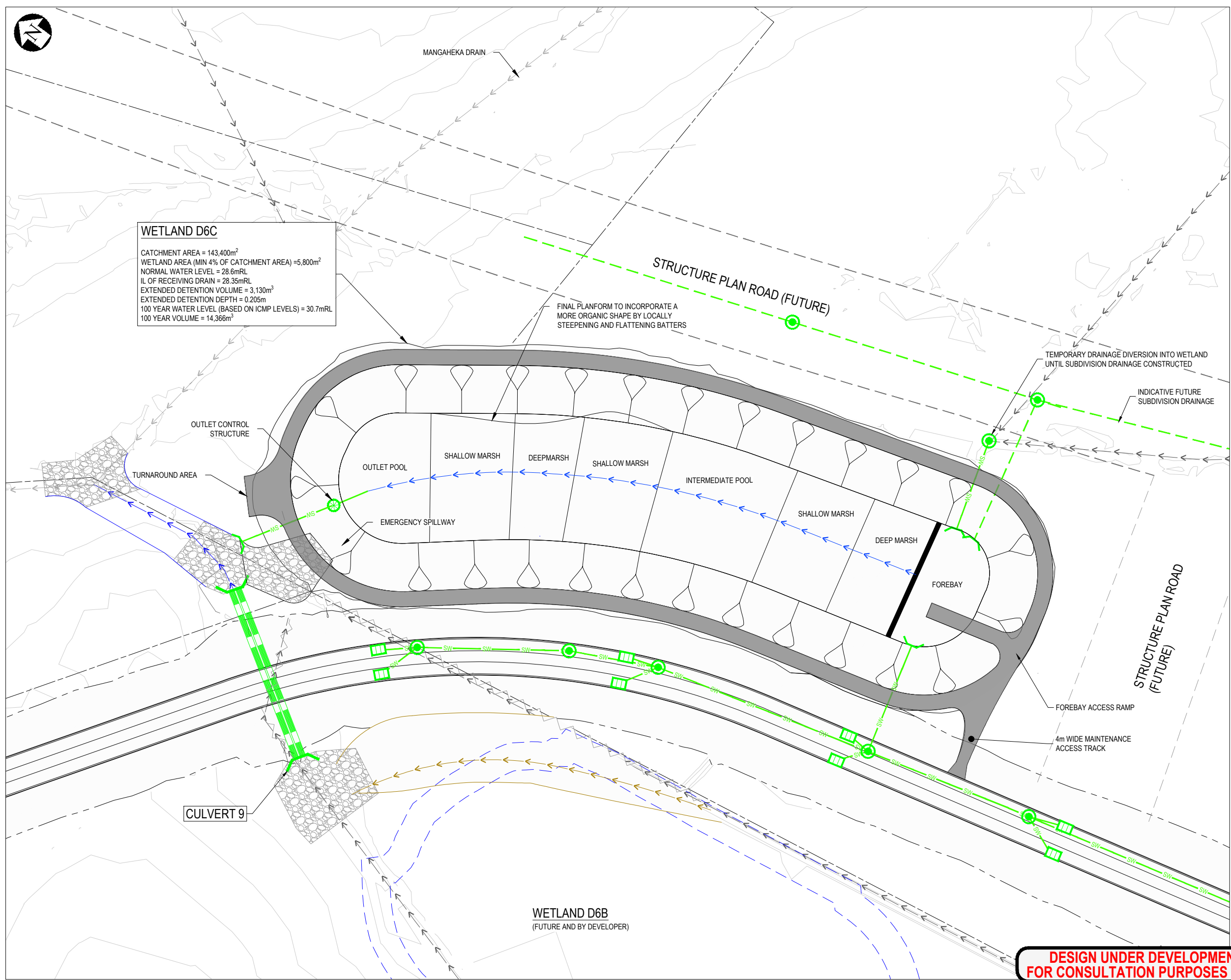
Title:

WETLAND CATCHMENT OVERVIEW PLAN SHEET 4

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2604
Rev.	E

DESIGN UNDER DEVELOPMENT FOR CONSULTATION PURPOSES ONLY

PRELIMINARY NOT FOR CONSTRUCTION



WETLAND D6C

CATCHMENT AREA = 143,400m²
WETLAND AREA (MIN 4% OF CATCHMENT AREA) = 5,800m²
NORMAL WATER LEVEL = 28.6mRL
IL OF RECEIVING DRAIN = 28.35mRL
EXTENDED DETENTION VOLUME = 3,130m³
EXTENDED DETENTION DEPTH = 0.205m
100 YEAR WATER LEVEL (BASED ON ICMP LEVELS) = 30.7mRL
100 YEAR VOLUME = 14,366m³

LEGEND

— SW —	EXISTING STORMWATER PIPE
→ → →	EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
○	EXISTING STORMWATER MANHOLE
□	EXISTING CATCHPIT
← ← ←	EXISTING SWALE
— — —	EXISTING CULVERT
- - -	PROPERTY BOUNDARY
PROPOSED SERVICES	
— SW —	STORMWATER
→ → →	STREAM
→ → →	OVERLAND FLOWPATH
○	STORMWATER MANHOLE
□	RAINGARDEN
□	CATCHPIT
— — —	CULVERT
← ← ←	WETLAND SWALE
← ← ←	DRAIN
← ← ←	TEMPORARY DRAIN
—	HEADWALL
HP — HP	HIGH POINT
LP — LP	LOW POINT
— SW —	DRAINAGE DESIGNED BY OTHERS
← ← ←	GREENWAY
□	POTENTIAL FUTURE WETLANDS
□	RIPRAP

- NOTES**
1. CONTOURS BASED ON 2019 HCC LIDAR.
 2. ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLES) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.

F	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
E	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
D	UPDATE FOR PEER REVIEW COMMENTS	JL	IS	IS	16.03.22
C	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

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1:1000	Drawn	C. Wilson	08.04.22	Date
Reduced Scale (A3)	Dwg Verifier			
1:2000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te kaurihera o Kirikiriroa

Project:

ROTORAURI ARTERIALS DESIGNATION

Title:

STORMWATER MANAGEMENT AREA WETLAND D6C

Discipline:

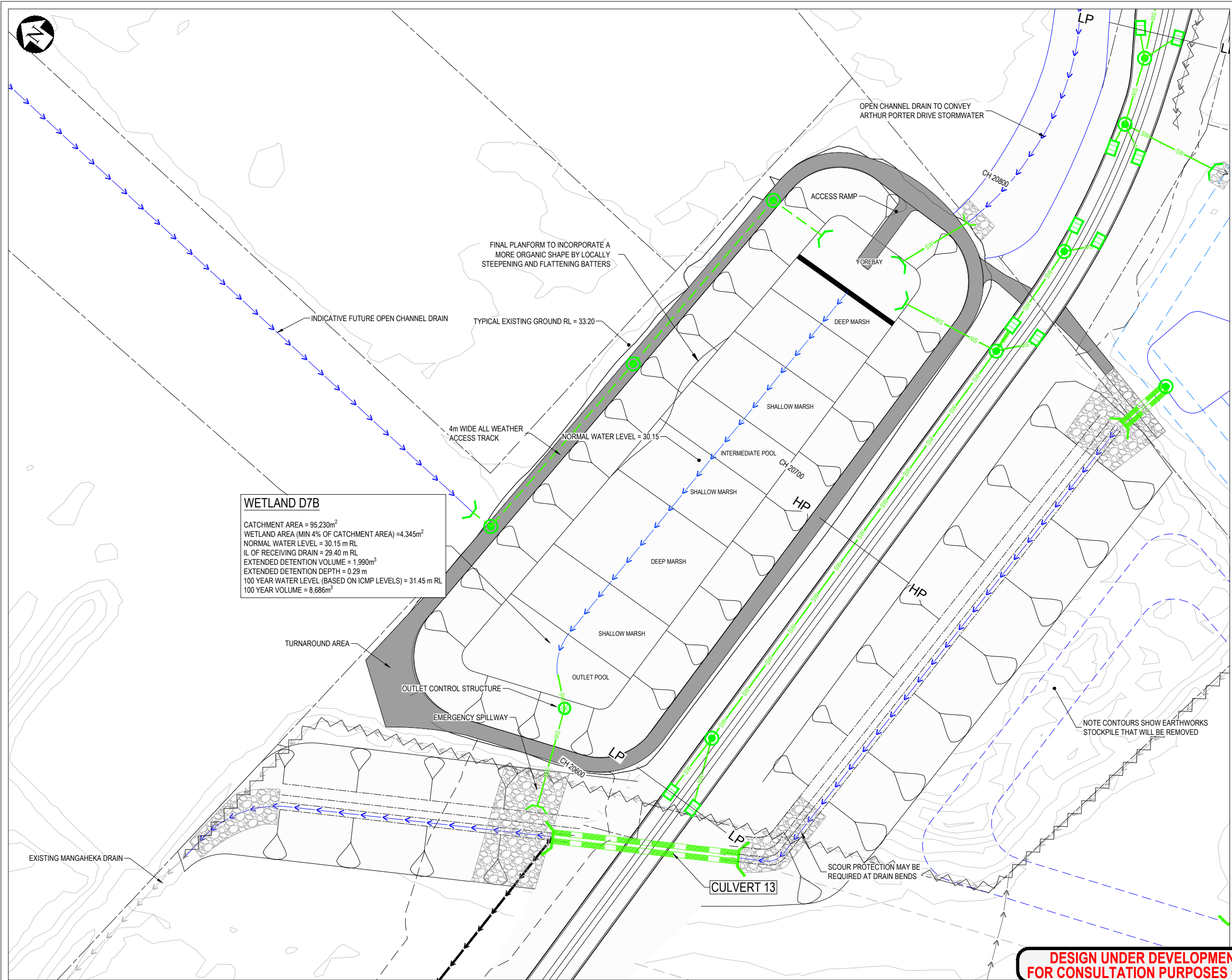
CIVIL ENGINEERING

Drawing No. 4288564-200-CA-2701

Rev. F

DESIGN UNDER DEVELOPMENT FOR CONSULTATION PURPOSES ONLY

PRELIMINARY NOT FOR CONSTRUCTION



WETLAND D7B

CATCHMENT AREA = 95,230m²
WETLAND AREA (MIN 4% OF CATCHMENT AREA) = 4,345m²
NORMAL WATER LEVEL = 30.15 m RL
IL OF RECEIVING DRAIN = 29.40 m RL
EXTENDED DETENTION VOLUME = 1,990m³
EXTENDED DETENTION DEPTH = 0.29 m
100 YEAR WATER LEVEL (BASED ON ICMF LEVELS) = 31.45 m RL
100 YEAR VOLUME = 8,686m³

LEGEND

- SW ——— EXISTING STORMWATER PIPE
- → → EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- ← ← ← EXISTING SWALE
- — — EXISTING CULVERT
- - - PROPERTY BOUNDARY
- PROPOSED SERVICES**
- SW ——— STORMWATER
- → → STREAM
- → → OVERLAND FLOWPATH
- STORMWATER MANHOLE
- RAINGARDEN
- CATCHPIT
- — — CULVERT
- — — WETLAND SWALE
- → → DRAIN
- → → TEMPORARY DRAIN
- HP — HP HEADWALL
- HP — HP HIGH POINT
- LP — LP LOW POINT
- SW ——— DRAINAGE DESIGNED BY OTHERS
- → → GREENWAY
- - - POTENTIAL FUTURE WETLANDS
- RIPRAP

NOTES

1. CONTOURS BASED ON 2019 HCC LIDAR.
2. ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLE) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.
3. MANGAHEKA DRAIN LEVELS BASED ON HCC 2020 SURVEY

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
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G	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
F	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
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D	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	C. Wilson	08.04.22	Approved For Construction*
1:1000	Drawn	C. Wilson	08.04.22	Date
Reduced Scale (A3)	Dwg Verifier			
1:2000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te Kaunihera o Kirikiriroa

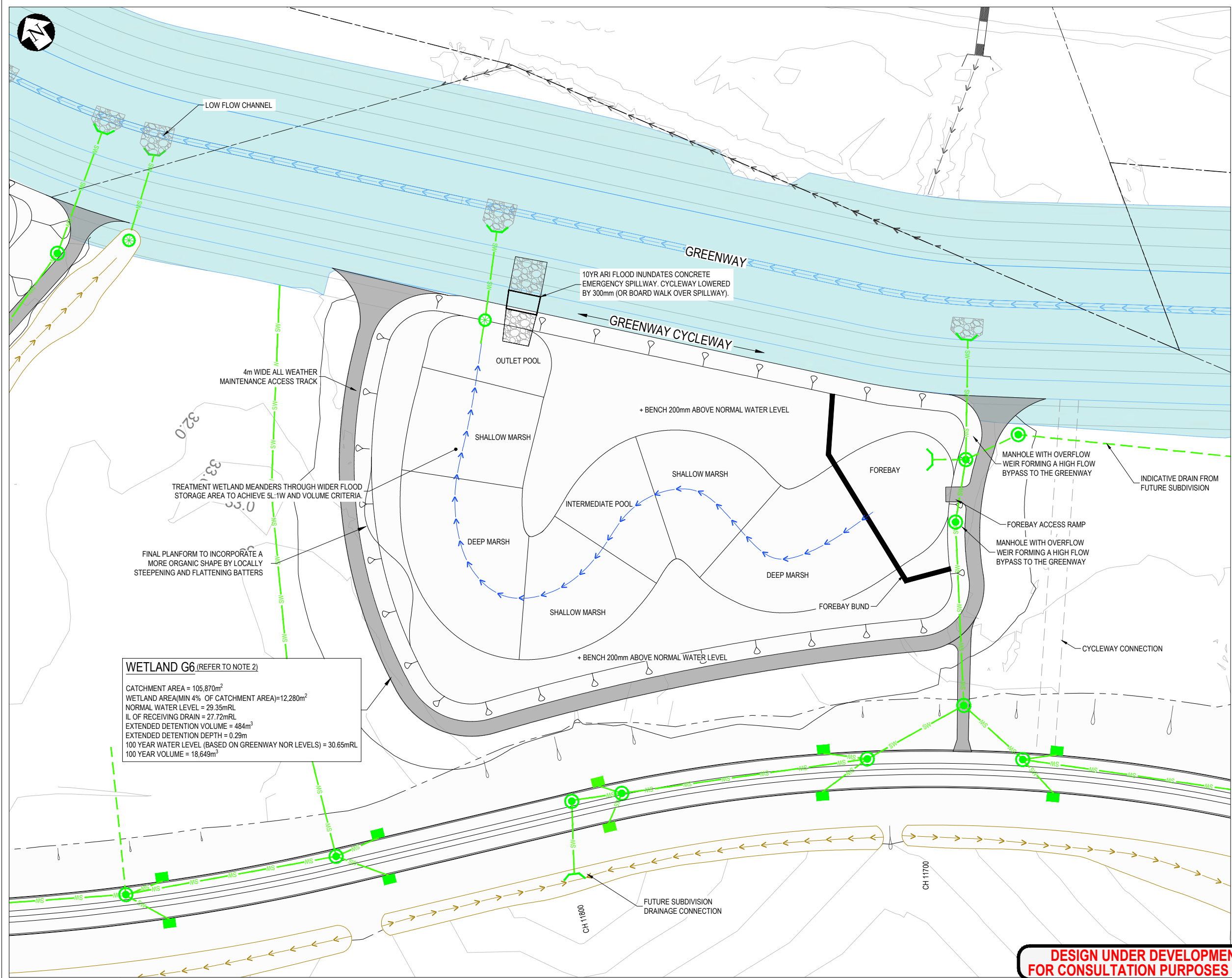
Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

STORMWATER
MANAGEMENT AREA
WETLAND D7B

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2702
Rev.	G



LEGEND

- SW ——— EXISTING STORMWATER PIPE
- > > > EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- ← ← ← EXISTING SWALE
- — — EXISTING CULVERT
- - - PROPERTY BOUNDARY
- PROPOSED SERVICES**
- SW — STORMWATER
- > > > STREAM
- > > > OVERLAND FLOWPATH
- STORMWATER MANHOLE
- RAINGARDEN
- CATCHPIT
- — — CULVERT
- — — WETLAND SWALE
- ← ← ← DRAIN
- ← ← ← TEMPORARY DRAIN
- HEADWALL
- HP — HP HIGH POINT
- LP — LP LOW POINT
- SW — DRAINAGE DESIGNED BY OTHERS
- GREENWAY
- POTENTIAL FUTURE WETLANDS
- RIPRAP

NOTES

1. CONTOURS BASED ON 2019 HCC LIDAR.
2. WETLAND G6 IS A COMBINATION OF GREENWAY NOR WETLAND G6 AND G5 HENCE A LARGER STORAGE AREA IS NEEDED BEYOND THE TREATMENT WETLAND.
3. ALTERNATIVE OPTIONS ARE AVAILABLE FOR THE WETLAND AND CHANNEL OUTLETS SUCH AS BOARDWALKS AND CHANNELS. AS THESE DO NOT IMPACT ON THE DESIGNATION AND ARE SUBJECT TO FUTURE DETAILED DESIGN THE ARRANGEMENT SHOWN IS ONLY ONE POTENTIAL OPTION.
4. ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLE) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.

WETLAND G6 (REFER TO NOTE 2)

CATCHMENT AREA = 105,870m²
WETLAND AREA(MIN 4% OF CATCHMENT AREA)=12,280m²
NORMAL WATER LEVEL = 29.35mRL
IL OF RECEIVING DRAIN = 27.72mRL
EXTENDED DETENTION VOLUME = 484m³
EXTENDED DETENTION DEPTH = 0.29m
100 YEAR WATER LEVEL (BASED ON GREENWAY NOR LEVELS) = 30.65mRL
100 YEAR VOLUME = 18,649m³

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**

F	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
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C	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date



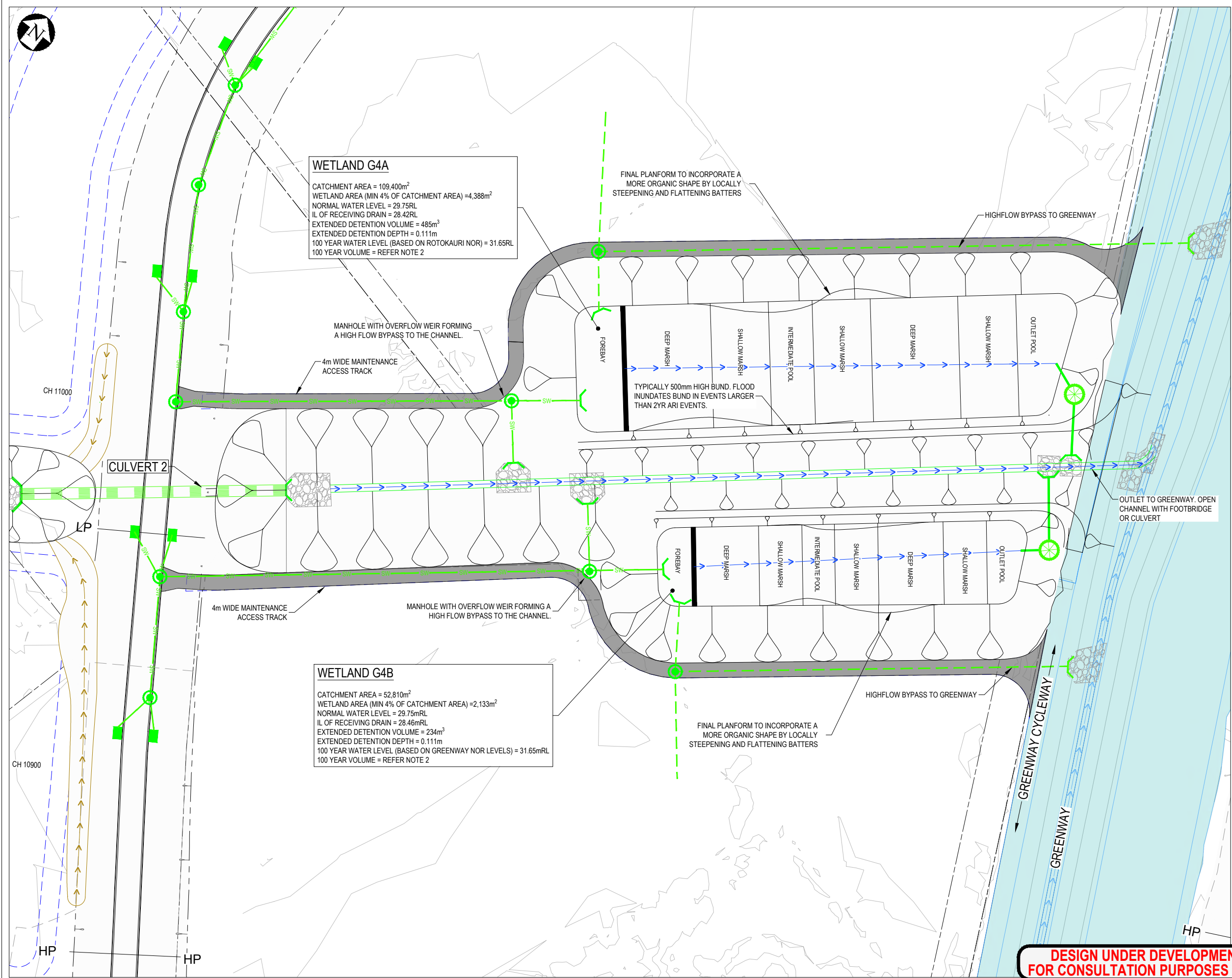
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1:1000	Drawn	C. Wilson	08.04.22	Date
Reduced Scale (A3)	Dwg Verifier			
1:2000	Dwg Check			
	* Refer to Revision 1 for Original Signature			



Client: ROTOKAURI ARTERIALS DESIGNATION

Title: STORMWATER MANAGEMENT AREA WETLAND G6

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2703
Rev.	F



LEGEND

- SW EXISTING STORMWATER PIPE
- >>> EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- ←←← EXISTING SWALE
- EXISTING CULVERT
- - - PROPERTY BOUNDARY
- PROPOSED SERVICES
- SW STORMWATER
- >>> STREAM
- >>> OVERLAND FLOWPATH
- STORMWATER MANHOLE
- RAINGARDEN
- CATCHPIT
- CULVERT
- ←←← WETLAND SWALE
- ←←← DRAIN
- ←←← TEMPORARY DRAIN
- HP HP HEADWALL
- HP HP HIGH POINT
- LP LP LOW POINT
- SW DRAINAGE DESIGNED BY OTHERS
- ←←← GREENWAY
- POTENTIAL FUTURE WETLANDS
- RIPRAP

NOTES

- CONTOURS BASED ON 2019 HCC LIDAR.
- 100YR ARI STORAGE ABOVE WETLAND G4A, B AND CENTRAL CHANNEL IS 26,177m³. ANOTHER 11,974m³ MAY NEED TO BE PROVIDED IN FUTURE WETLAND G4C/D ON UPSTREAM OF THE ARTERIAL ROAD TO MEET GREENWAY NOR VOLUME REQUIREMENTS.
- ALTERNATIVE OPTIONS ARE AVAILABLE FOR THE WETLAND AND CHANNEL OUTLETS SUCH AS BOARDWALKS AND CHANNELS. AS THESE DO NOT IMPACT ON THE DESIGNATION AND ARE SUBJECT TO FUTURE DETAILED DESIGN THE ARRANGEMENT SHOWN IS ONLY ONE POTENTIAL OPTION.
- BATTERS CAN BE SHAPED SO ARE LESS LINEAR DURING DETAILED DESIGN.
- ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLES) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.

F	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
E	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
D	UPDATE FOR PEER REVIEW COMMENTS	JL			17.03.22
C	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:



Original Scale (A1) 1:1000
Reduced Scale (A3) 1:2000

Design	C. Wilson	08.04.22	Approved For Construction*
Drawn	C. Wilson	08.04.22	Date
Dsg Verifier			
Dwg Check			
* Refer to Revision 1 for Original Signature			

Client:



Project:

ROTKAURI ARTERIALS DESIGNATION

Title:

STORMWATER
MANAGEMENT AREA
WETLAND G4A & G4B

Discipline:

CIVIL ENGINEERING

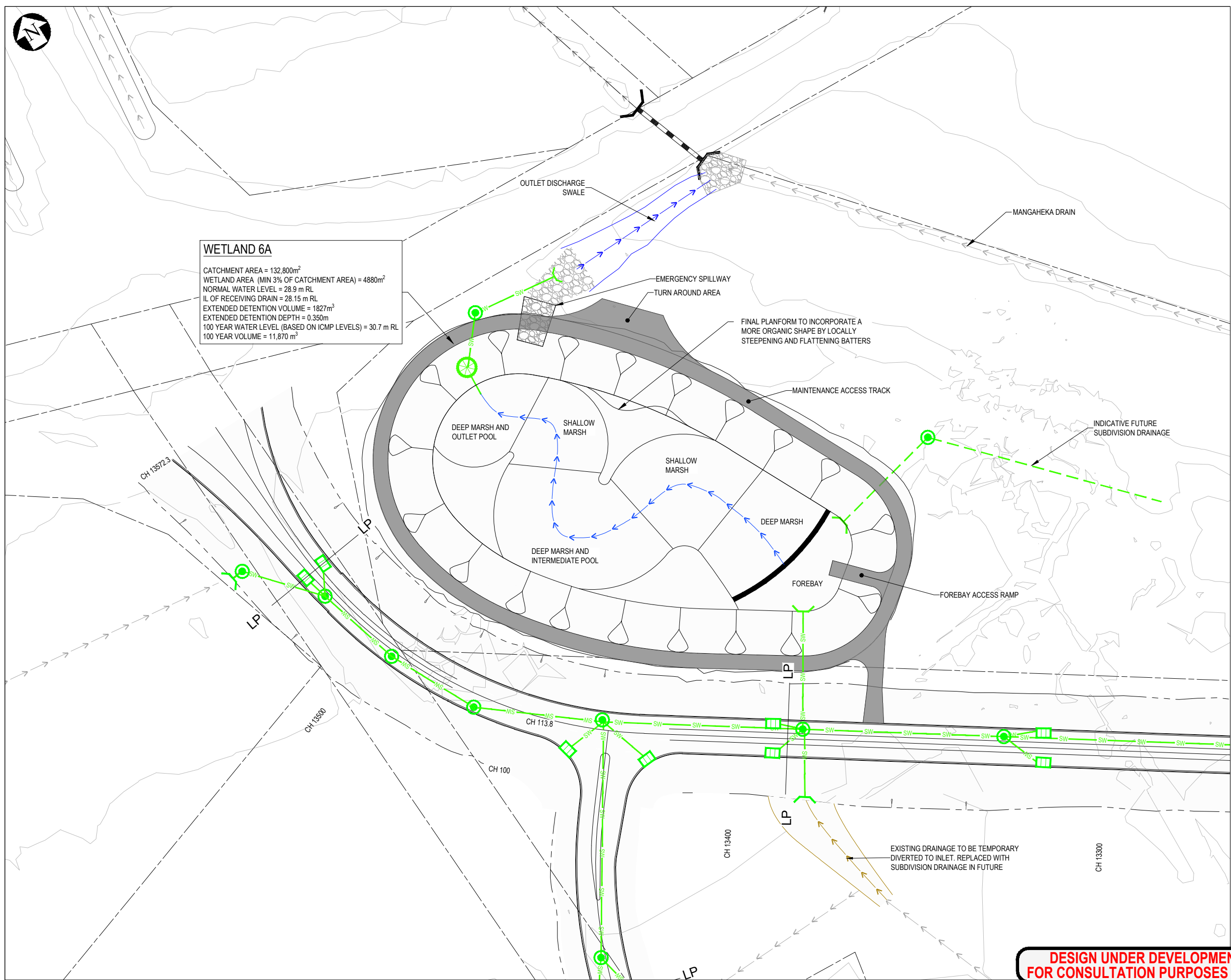
Drawing No:

4288564-200-CA-2704

Rev:

F





LEGEND

- SW ——— EXISTING STORMWATER PIPE
- EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- ⊙ EXISTING STORMWATER MANHOLE
- ⊠ EXISTING CATCHPIT
- ←←← EXISTING SWALE
- ⌌ EXISTING CULVERT
- PROPERTY BOUNDARY
- PROPOSED SERVICES**
- SW — PROPOSED STORMWATER
- STREAM
- OVERLAND FLOWPATH
- ⊙ PROPOSED STORMWATER MANHOLE
- ⊠ PROPOSED RAINGARDEN
- ⊠ PROPOSED CATCHPIT
- ⌌ PROPOSED CULVERT
- ←←← PROPOSED WETLAND SWALE
- ←←← PROPOSED DRAIN
- ←←← PROPOSED DRAIN
- ⌌ PROPOSED HEADWALL
- HP — HP HIGH POINT
- LP — LP LOW POINT
- SW — DRAINAGE DESIGNED BY OTHERS
- GREENWAY LOW FLOW CHANNEL AND BASINS
- ⌌ POTENTIAL FUTURE WETLANDS
- ⌌ RIPRAP

NOTES

1. CONTOURS BASED ON 2019 HCC LIDAR.
2. ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLES) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.

F	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
E	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
D	UPDATE FOR PEER REVIEW COMMENTS	JL	IS	IS	17.03.22
C	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	S. Hawes	08.04.22	Approved For Construction*
1:1000	Drawn	C. Wilson	08.04.22	Date
Reduced Scale (A3)	Dwg Verifier			
1:2000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te Kaunihera o Kirikiriroa

Project:

ROTOKAURI ARTERIALS DESIGNATION

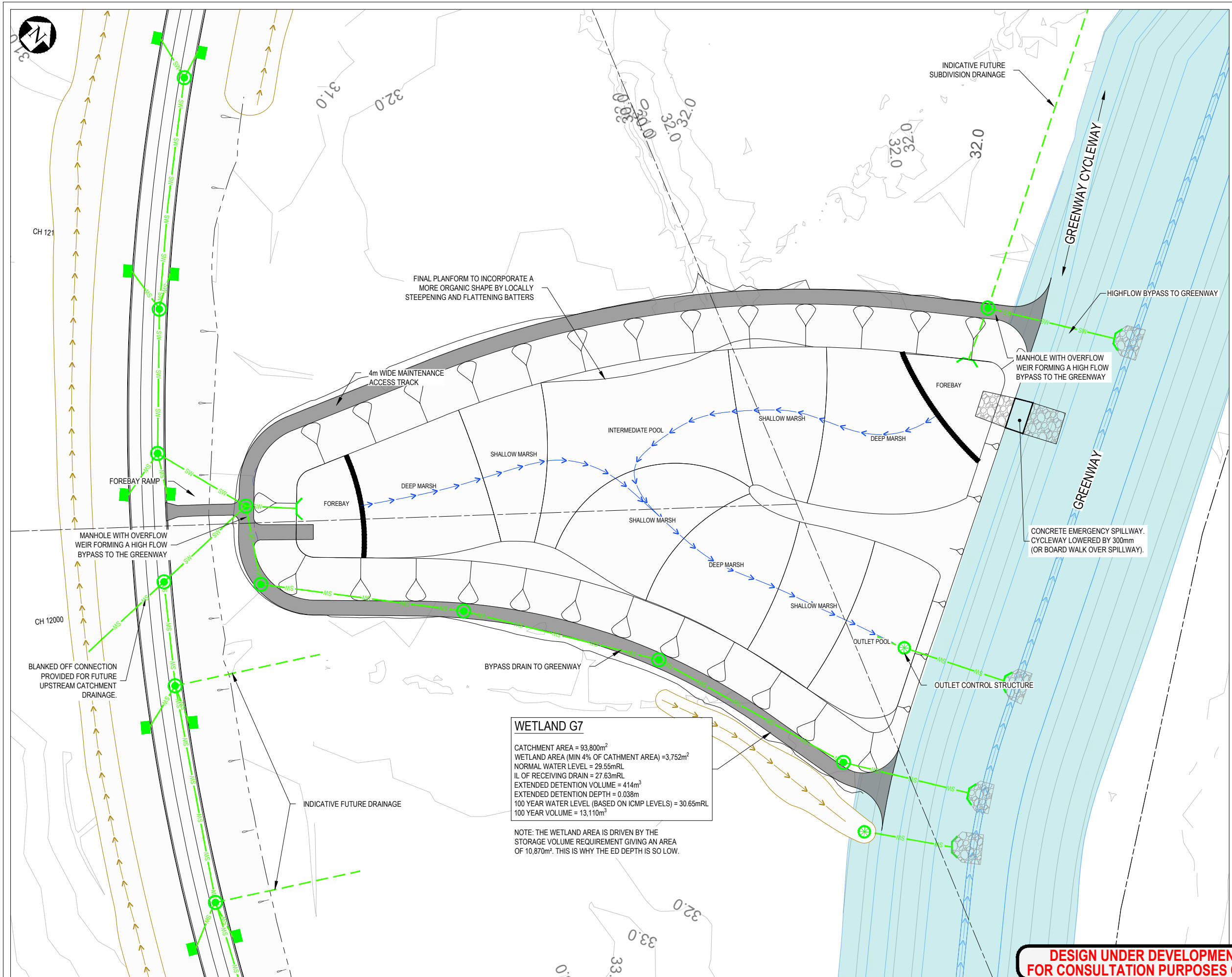
Title:

STORMWATER
MANAGEMENT AREA
WETLAND 6A

Discipline	CIVIL ENGINEERING
Drawing No.	4288564-200-CA-2706
Rev.	F

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**



WETLAND G7

CATCHMENT AREA = 93,800m²
WETLAND AREA (MIN 4% OF CATHMENT AREA) = 3,752m²
NORMAL WATER LEVEL = 29.55mRL
IL OF RECEIVING DRAIN = 27.63mRL
EXTENDED DETENTION VOLUME = 414m³
EXTENDED DETENTION DEPTH = 0.038m
100 YEAR WATER LEVEL (BASED ON ICMF LEVELS) = 30.65mRL
100 YEAR VOLUME = 13,110m³

NOTE: THE WETLAND AREA IS DRIVEN BY THE STORAGE VOLUME REQUIREMENT GIVING AN AREA OF 10,870m². THIS IS WHY THE ED DEPTH IS SO LOW.

LEGEND

- SW — EXISTING STORMWATER PIPE
- >—>—> EXISTING WATERCOURSE / OPEN CHANNEL DRAIN
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- >—> EXISTING SWALE
- >—> EXISTING CULVERT
- - - - - PROPERTY BOUNDARY
- PROPOSED SERVICES**
- SW — STORMWATER
- >—>—> STREAM
- >—>—> OVERLAND FLOWPATH
- STORMWATER MANHOLE
- RAINGARDEN
- CATCHPIT
- >—>—> CULVERT
- >—>—> WETLAND SWALE
- >—>—> DRAIN
- >—>—> TEMPORARY DRAIN
- >—>—> HEADWALL
- HP — HP HIGH POINT
- LP — LP LOW POINT
- SW — DRAINAGE DESIGNED BY OTHERS
- >—>—> GREENWAY
- POTENTIAL FUTURE WETLANDS
- RIPRAP

NOTES

1. CONTOURS BASED ON 2019 HCC LIDAR.
2. ALTERNATIVE OPTIONS ARE AVAILABLE FOR THE WETLAND AND CHANNEL OUTLETS SUCH AS BOARDWALKS AND CHANNELS AS THESE DO NOT IMPACT ON THE DESIGNATION AND ARE SUBJECT TO FUTURE DETAILED DESIGN. THE ARRANGEMENT SHOWN IS ONLY ONE POTENTIAL OPTION.
3. ROAD DRAINAGE LAYOUT (CATCHPITS/RAINGARDENS/MANHOLES) IS INDICATIVE AND SPACINGS SUBJECT TO DETAILED DESIGN.

**DESIGN UNDER DEVELOPMENT
FOR CONSULTATION PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**

F	NOTICE OF REQUIREMENT UPDATE	JL	IS	CS	02.06.23
E	NOTICE OF REQUIREMENT	AT	IS	IS	11.04.22
D	UPDATE FOR PEER REVIEW COMMENTS	JL	IS	IS	17.03.22
C	HCC REVIEW AMENDMENTS	JL	IS	IS	24.01.22
No.	Revision	By	Chk	Appd	Date

Drawing Originator:

Beca

Original Scale (A1)	Design	C. Wilson	08.04.22	Approved For Construction*
1:1000	Drawn	C. Wilson	08.04.22	
Reduced Scale (A3)	Dwg Verifier			
1:2000	Dwg Check			
	* Refer to Revision 1 for Original Signature			

Client:

Hamilton City Council
Te kaurihera o Kirikiriroa

Project:

ROTOKAURI ARTERIALS DESIGNATION

Title:

**STORMWATER
MANAGEMENT AREA
WETLAND G7**

Discipline:

CIVIL ENGINEERING

Drawing No. 4288564-200-CA-2707

Rev. F