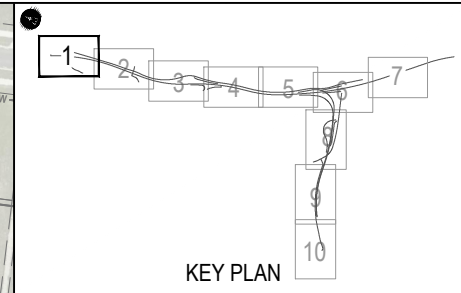
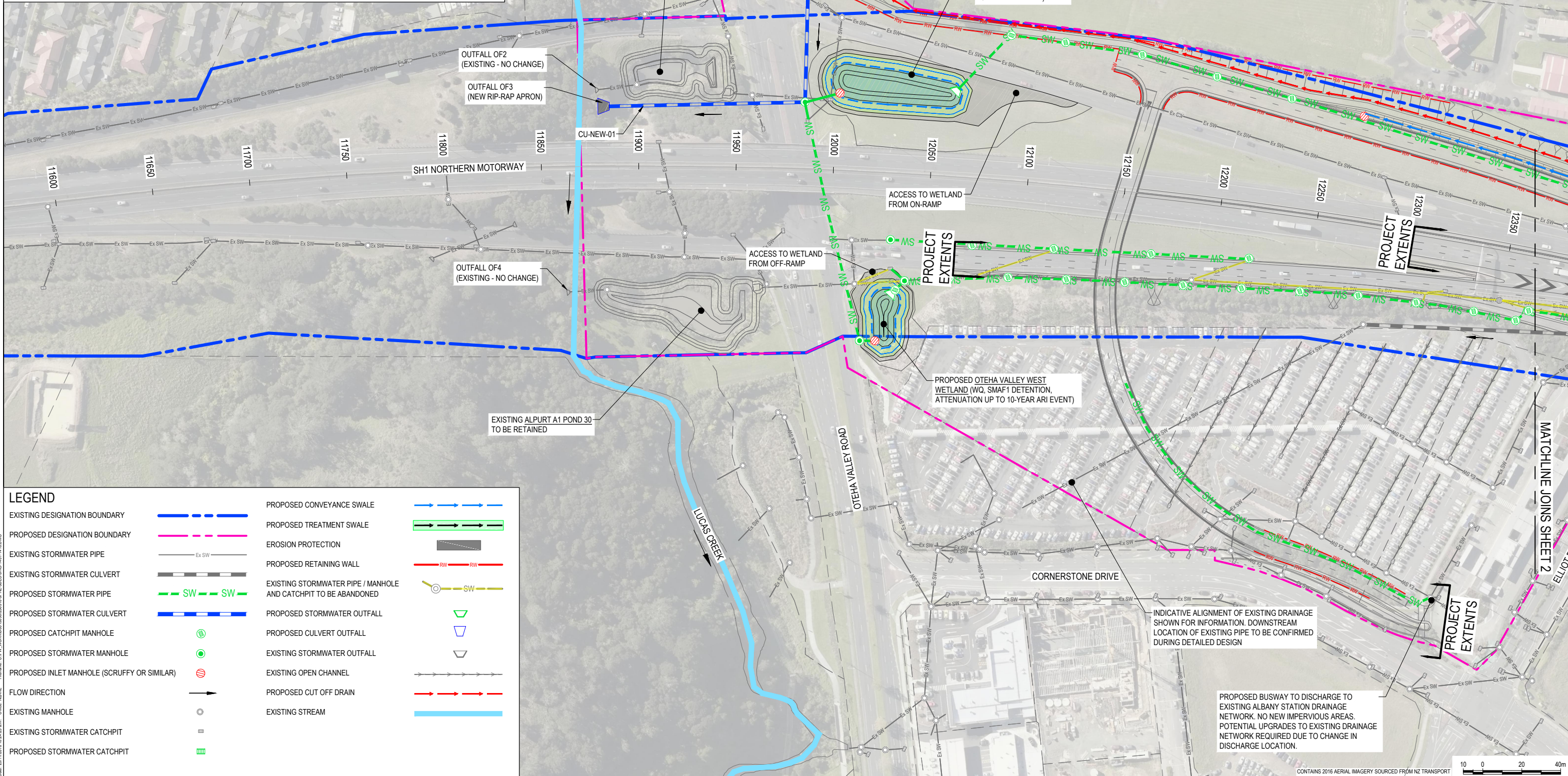


NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. FOR TYPICAL DRAINAGE DETAILS REFER TO DRAWINGS DRG-1415 TO 1420.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROPOSED STORMWATER CATCHMENT DRAWINGS (DRG-1451 TO 1460).
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ASSESSMENT OF STORMWATER MANAGEMENT REPORT (NCI-3PRE-2ENV-RPT-0029).
5. ALL EXISTING DRAINAGE SHOWN ON THIS DRAWING IS SHOWN INDICATIVELY ONLY AND IS SUBJECT TO ON-SITE INVESTIGATION.
6. THE CONDITION OF ALL STORMWATER CROSS-CULVERTS ARE TO BE INSPECTED BY CCTV. REFER TO THE ASSESSMENT OF STORMWATER MANAGEMENT REPORT (NCI-3PRE-2ENV-RPT-0029) FOR A PRELIMINARY ASSESSMENT OF EXISTING CROSS-CULVERTS.
7. THE CONTRACTOR SHALL SATISFY ALL SERVICE AUTHORITY REQUIREMENTS AND OBTAIN ALL NECESSARY APPROVALS PRIOR TO THE COMMENCEMENT OF WORKS.
8. ALL REDUNDANT STORMWATER MANHOLES WITHIN THE MOTORWAY CARRIAGEWAY ARE TO BE REMOVED OR BACKFILLED WITH 5MPA FLOWABLE FILL IN ACCORDANCE WITH AMA GUIDELINES. ALL REDUNDANT PIPES UNDER MOTORWAY, RAMPS OR LOCAL ROADS SHALL BE EITHER REMOVED COMPLETELY OR FILLED WITH 5MPA FLOWABLE FILL IN ACCORDANCE WITH AMA GUIDELINES. ALL OTHER REDUNDANT PIPES (INCLUDING CATCHPIT LEADS) SHALL BE REMOVED COMPLETELY UPON APPROVAL BY THE ENGINEER.
9. THE PROPOSED NETWORK DRAINAGE LAYOUT SHOWN ON THESE DRAWINGS IS INDICATIVE ONLY, AND HAS BEEN SHOWN AS A BASIS TO INFORM THE STORMWATER MANAGEMENT STRATEGY PROPOSED FOR THE PROJECT.



LEGEND	
EXISTING DESIGNATION BOUNDARY	
PROPOSED DESIGNATION BOUNDARY	
EXISTING STORMWATER PIPE	
EXISTING STORMWATER CULVERT	
PROPOSED STORMWATER PIPE	
PROPOSED STORMWATER CULVERT	
PROPOSED CATCHPIT MANHOLE	
PROPOSED STORMWATER MANHOLE	
PROPOSED INLET MANHOLE (SCRUFFY OR SIMILAR)	
FLOW DIRECTION	
EXISTING MANHOLE	
EXISTING STORMWATER CATCHPIT	
PROPOSED STORMWATER CATCHPIT	
PROPOSED CONVEYANCE SWALE	
PROPOSED TREATMENT SWALE	
EROSION PROTECTION	
PROPOSED RETAINING WALL	
EXISTING STORMWATER PIPE / MANHOLE AND CATCHPIT TO BE ABANDONED	
PROPOSED STORMWATER OUTFALL	
PROPOSED CULVERT OUTFALL	
EXISTING STORMWATER OUTFALL	
EXISTING OPEN CHANNEL	
PROPOSED CUT OFF DRAIN	
EXISTING STREAM	

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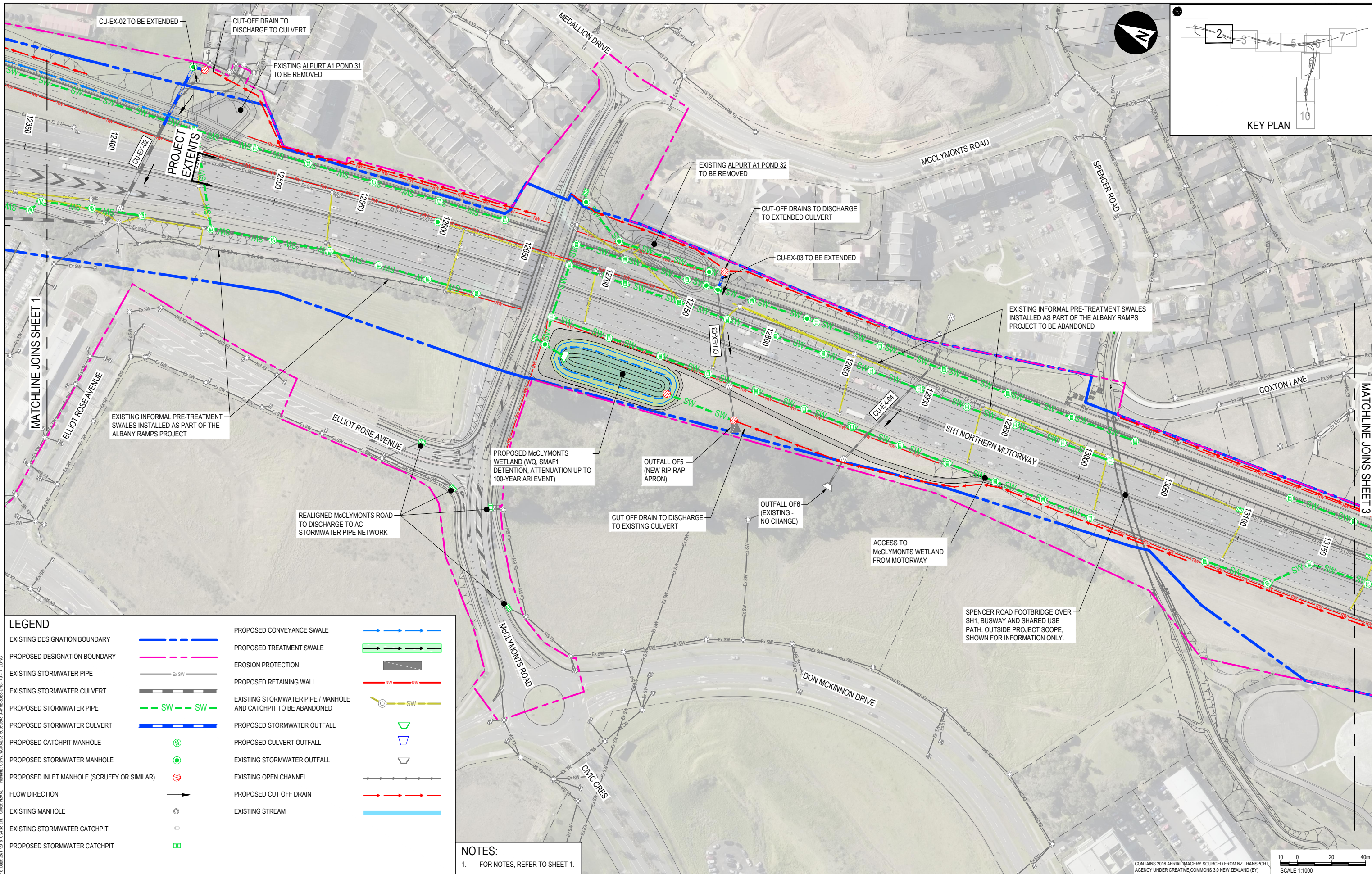
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A	17.10.16	PRELIMINARY ISSUE	G. MOORE
B	24.11.16	CONSENT ISSUE	J. HIND

SCALE	1:1000
SIZE	A1
DRAWN	V. SMITH
DESIGNED	D. HUGHES
CHECKED	D. MACKINTOSH

PRELIMINARY NOT FOR CONSTRUCTION
APPROVED
J. HIND
J. HIND

PROJECT	NORTHERN CORRIDOR IMPROVEMENTS			
TITLE	STORMWATER LAYOUT PLANS SHEET 1			
DRAWING No.	PROJECT No.	STAGE	WP	TYPE
250310	250310	3PRE	3DES	DRG
NUMBER	REV			
1401	B			

CONTAINS 2016 AERIAL IMAGERY SOURCED FROM NZ TRANSPORT AGENCY UNDER CREATIVE COMMONS 3.0 NEW ZEALAND (BY) SCALE 1:1000



LEGEND

EXISTING DESIGNATION BOUNDARY		PROPOSED CONVEYANCE SWALE	
PROPOSED DESIGNATION BOUNDARY		PROPOSED TREATMENT SWALE	
EXISTING STORMWATER PIPE		EROSION PROTECTION	
EXISTING STORMWATER CULVERT		PROPOSED RETAINING WALL	
PROPOSED STORMWATER PIPE		EXISTING STORMWATER PIPE / MANHOLE AND CATCHPIT TO BE ABANDONED	
PROPOSED STORMWATER CULVERT		PROPOSED STORMWATER OUTFALL	
PROPOSED CATCHPIT MANHOLE		PROPOSED CULVERT OUTFALL	
PROPOSED STORMWATER MANHOLE		EXISTING STORMWATER OUTFALL	
PROPOSED INLET MANHOLE (SCRUFFY OR SIMILAR)		EXISTING OPEN CHANNEL	
FLOW DIRECTION		PROPOSED CUT OFF DRAIN	
EXISTING MANHOLE		EXISTING STREAM	
EXISTING STORMWATER CATCHPIT			
PROPOSED STORMWATER CATCHPIT			

NOTES:
1. FOR NOTES, REFER TO SHEET 1.

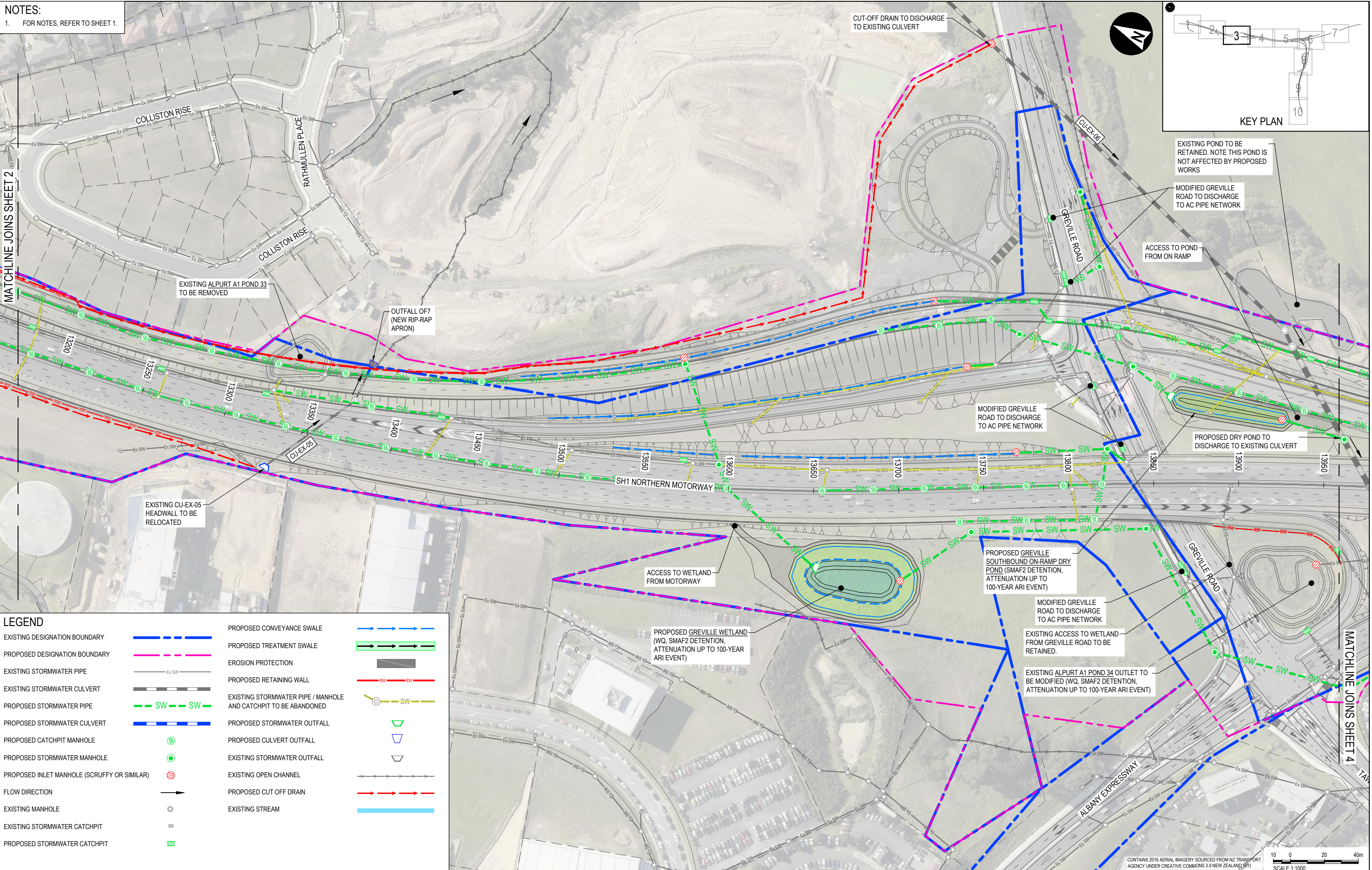
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CONTAINS 2016 AERIAL IMAGERY SOURCED FROM NZ TRANSPORT AGENCY UNDER CREATIVE COMMONS 3.0 NEW ZEALAND (BY) SCALE 1:1000

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		B	24.11.16	CONSENT ISSUE	J. HIND			APPROVED	STORMWATER LAYOUT PLANS		
									SHEET 2		
DRAWN	DESIGNED	CHECKED	DATE	DATE	DRAWING No.	PROJECT No.	STAGE	WP	TYPE	NUMBER	REV
V. SMITH	D. HUGHES	D. MACKINTOSH	17/10/16	17/10/16	250310	250310	3PRE	3DES	DRG	1402	B



NOTES:
1. FOR NOTES, REFER TO SHEET 1.



LEGEND

EXISTING DESIGNATION BOUNDARY		PROPOSED CONVEYANCE SWALE	
PROPOSED DESIGNATION BOUNDARY		PROPOSED TREATMENT SWALE	
EXISTING STORMWATER PIPE		EROSION PROTECTION	
EXISTING STORMWATER CULVERT		PROPOSED RETAINING WALL	
PROPOSED STORMWATER PIPE		EXISTING STORMWATER PIPE / MANHOLE AND CATCHPIT TO BE ABANDONED	
PROPOSED STORMWATER CULVERT		PROPOSED STORMWATER OUTFALL	
PROPOSED CATCHPIT MANHOLE		PROPOSED CULVERT OUTFALL	
PROPOSED STORMWATER MANHOLE		EXISTING STORMWATER OUTFALL	
PROPOSED INLET MANHOLE (SCRUFFY OR SIMILAR)		EXISTING OPEN CHANNEL	
FLOW DIRECTION		PROPOSED CUT OFF DRAIN	
EXISTING MANHOLE		EXISTING STREAM	
EXISTING STORMWATER CATCHPIT			
PROPOSED STORMWATER CATCHPIT			

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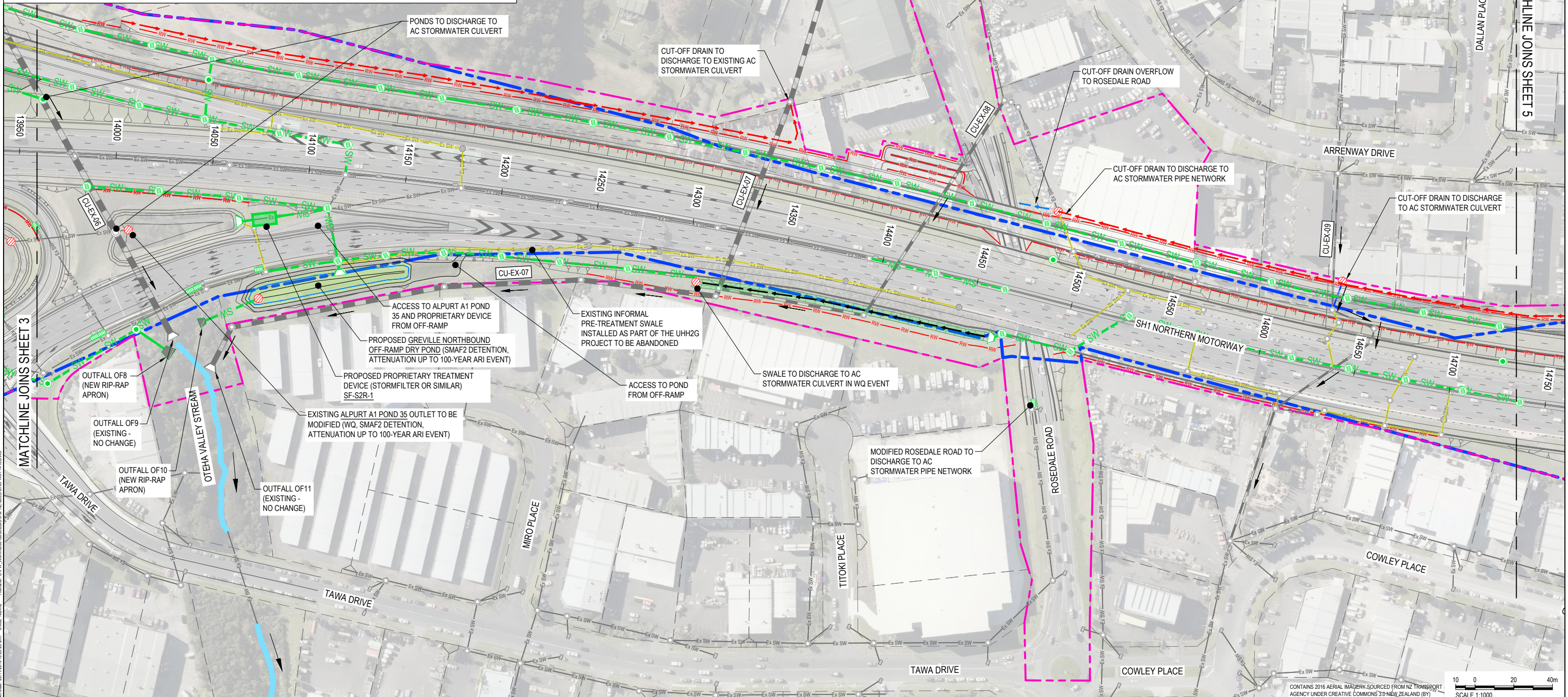
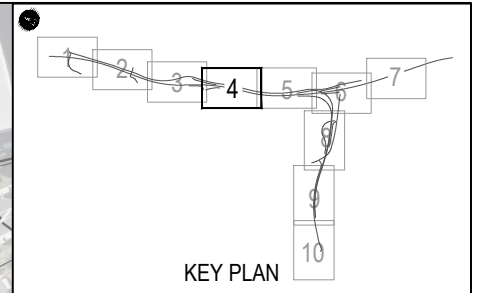
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		B	24.11.16	CONSENT ISSUE	J. HIND				STORMWATER LAYOUT PLANS SHEET 3
						DRAWN		APPROVED	TITLE
						V. SMITH		J. HIND	
						D. HUGHES		DATE	
						D. MACKINTOSH		17/10/16	
									DRAWING No.
									250310
									PROJECT No.
									250310
									STAGE
									3PRE
									WP
									3DES
									TYPE
									DRG
									NUMBER
									1403
									REV
									B



LEGEND	
EXISTING DESIGNATION BOUNDARY	
PROPOSED DESIGNATION BOUNDARY	
EXISTING STORMWATER PIPE	
EXISTING STORMWATER CULVERT	
PROPOSED STORMWATER PIPE	
PROPOSED STORMWATER CULVERT	
PROPOSED CATCHPIT MANHOLE	
PROPOSED STORMWATER MANHOLE	
PROPOSED INLET MANHOLE (SCRUFFY OR SIMILAR)	
FLOW DIRECTION	
EXISTING MANHOLE	
EXISTING STORMWATER CATCHPIT	
PROPOSED STORMWATER CATCHPIT	
PROPOSED CONVEYANCE SWALE	
PROPOSED TREATMENT SWALE	
EROSION PROTECTION	
PROPOSED RETAINING WALL	
EXISTING STORMWATER PIPE / MANHOLE AND CATCHPIT TO BE ABANDONED	
PROPOSED STORMWATER OUTFALL	
PROPOSED CULVERT OUTFALL	
EXISTING STORMWATER OUTFALL	
EXISTING OPEN CHANNEL	
PROPOSED CUT OFF DRAIN	
EXISTING STREAM	

NOTES:
1. FOR NOTES, REFER TO SHEET 1.



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CONTAINS 2016 AERIAL IMAGERY SOURCED FROM NZ TRANSPORT AGENCY UNDER CREATIVE COMMONS 3.0 NEW ZEALAND (BY) SCALE 1:1000

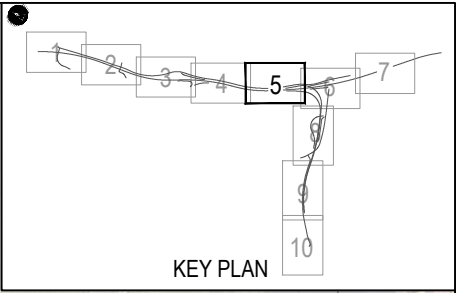
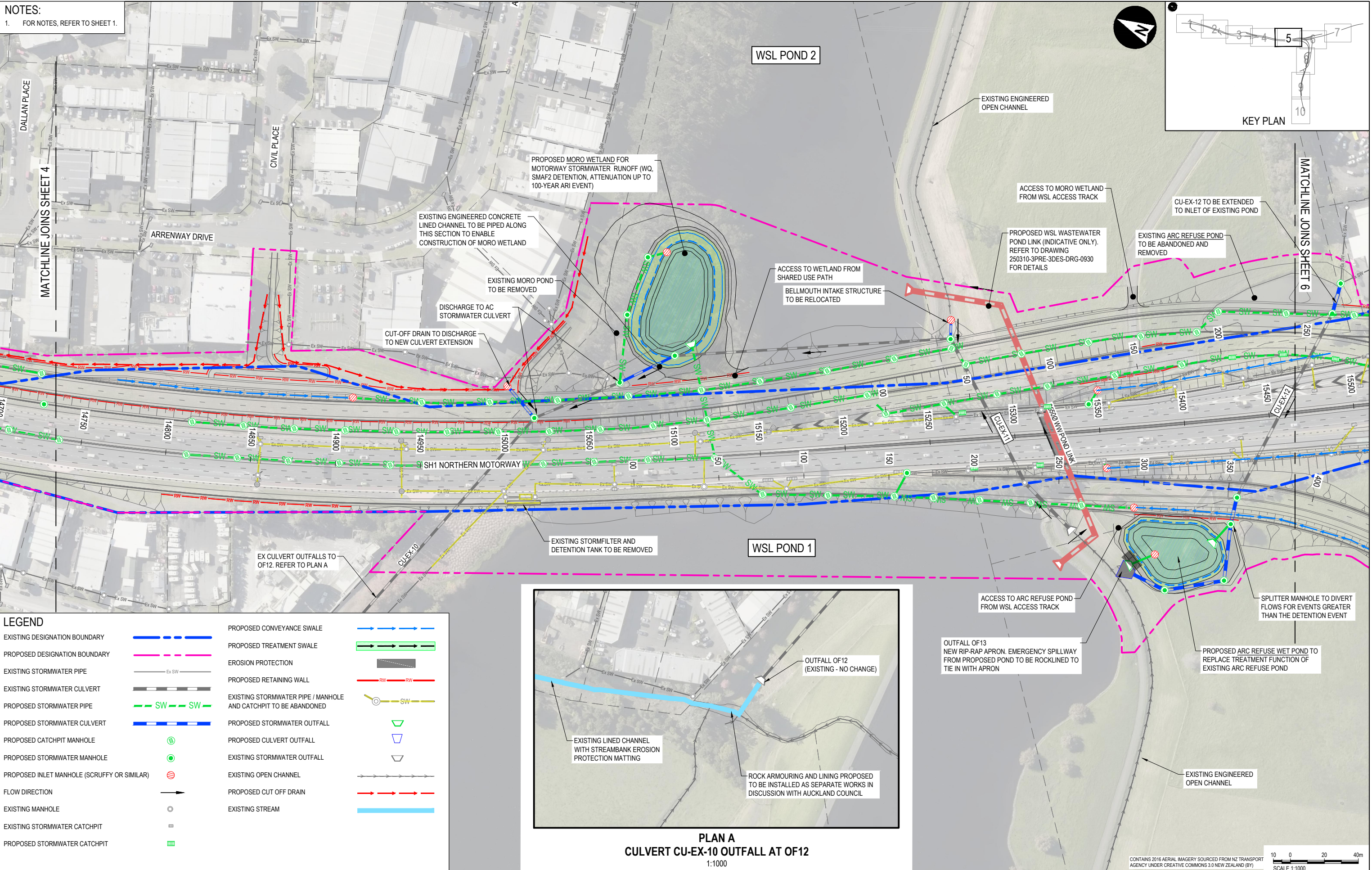
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A	17.10.16	PRELIMINARY ISSUE	G. MOORE
B	24.11.16	CONSENT ISSUE	J. HIND

SCALE	1:1000
SIZE	A1
DRAWN	V. SMITH
DESIGNED	D. HUGHES
CHECKED	D. MACKINTOSH

PRELIMINARY NOT FOR CONSTRUCTION	DATE 17/10/16
APPROVED	J. HIND
	J. HIND

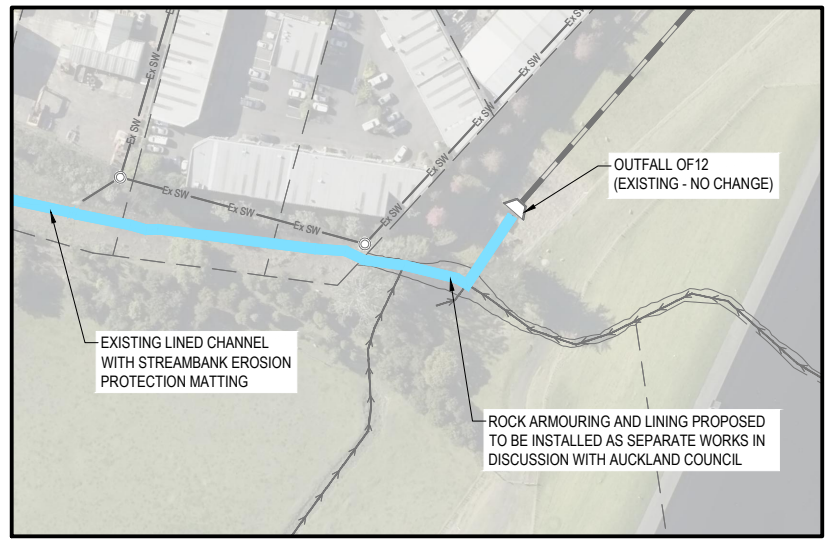
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DRAWING No.	PROJECT No.	STAGE	WP	TYPE	NUMBER
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					REV
					B

NOTES:
1. FOR NOTES, REFER TO SHEET 1.



LEGEND

EXISTING DESIGNATION BOUNDARY	— — — — —	PROPOSED CONVEYANCE SWALE	— — — — —
PROPOSED DESIGNATION BOUNDARY	— — — — —	PROPOSED TREATMENT SWALE	— — — — —
EXISTING STORMWATER PIPE	— Ex SW	EROSION PROTECTION	▬
EXISTING STORMWATER CULVERT	— — — — —	PROPOSED RETAINING WALL	— — — — —
PROPOSED STORMWATER PIPE	— SW — SW	EXISTING STORMWATER PIPE / MANHOLE AND CATCHPIT TO BE ABANDONED	— SW
PROPOSED STORMWATER CULVERT	— — — — —	PROPOSED STORMWATER OUTFALL	▽
PROPOSED CATCHPIT MANHOLE	⊙	PROPOSED CULVERT OUTFALL	▽
PROPOSED STORMWATER MANHOLE	⊙	EXISTING STORMWATER OUTFALL	▽
PROPOSED INLET MANHOLE (SCRUFFY OR SIMILAR)	⊙	EXISTING OPEN CHANNEL	— — — — —
FLOW DIRECTION	→	PROPOSED CUT OFF DRAIN	— — — — —
EXISTING MANHOLE	⊙	EXISTING STREAM	— — — — —
EXISTING STORMWATER CATCHPIT	⊙		
PROPOSED STORMWATER CATCHPIT	⊙		



PLAN A
CULVERT CU-EX-10 OUTFALL AT OF12
1:1000



REV	DATE	REVISION DETAILS	APPROVED
A	17.10.16	PRELIMINARY ISSUE	G. MOORE
B	24.11.16	CONSENT ISSUE	J. HIND

SCALE	1:1000
SIZE	A1
DRAWN	V. SMITH
DESIGNED	D. HUGHES
CHECKED	D. MACKINTOSH

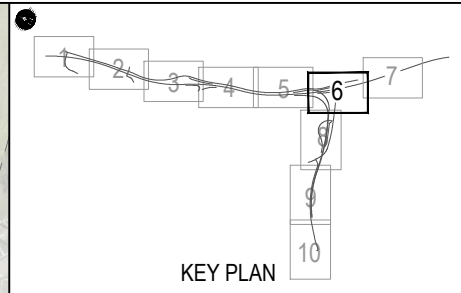
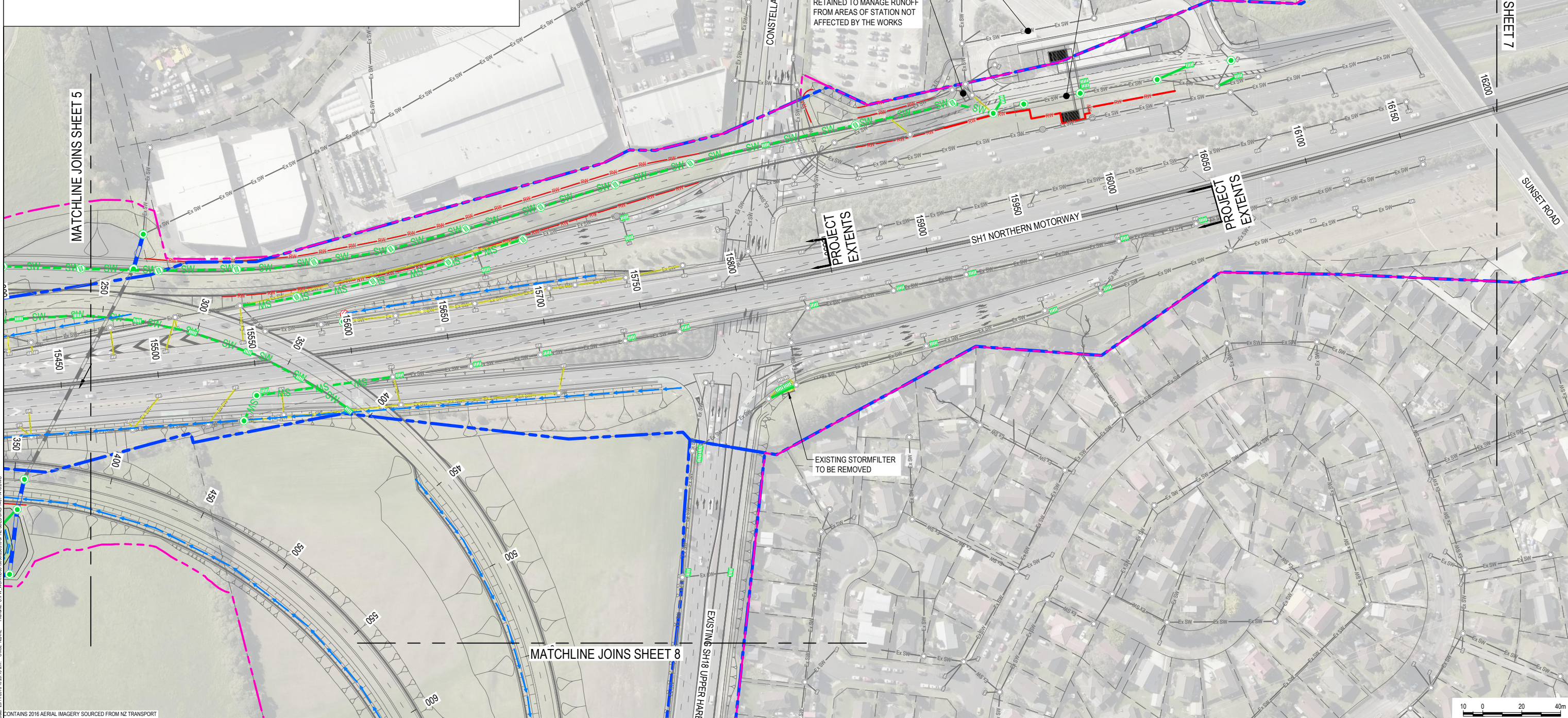
PRELIMINARY NOT FOR CONSTRUCTION
APPROVED
DATE
J. HIND

PROJECT	NORTHERN CORRIDOR IMPROVEMENTS				
TITLE	STORMWATER LAYOUT PLANS SHEET 5				
DRAWING No.	PROJECT No.	STAGE	WP	TYPE	NUMBER
	250310	3PRE	3DES	DRG	1405
REV	B				

CONTAINS 2016 AERIAL IMAGERY SOURCED FROM NZ TRANSPORT AGENCY UNDER CREATIVE COMMONS 3.0 NEW ZEALAND (BY) SCALE 1:1000

LEGEND	
EXISTING DESIGNATION BOUNDARY	
PROPOSED DESIGNATION BOUNDARY	
EXISTING STORMWATER PIPE	
EXISTING STORMWATER CULVERT	
PROPOSED STORMWATER PIPE	
PROPOSED STORMWATER CULVERT	
PROPOSED CATCHPIT MANHOLE	
PROPOSED STORMWATER MANHOLE	
PROPOSED INLET MANHOLE (SCRUFFY OR SIMILAR)	
FLOW DIRECTION	
EXISTING MANHOLE	
EXISTING STORMWATER CATCHPIT	
PROPOSED STORMWATER CATCHPIT	
PROPOSED CONVEYANCE SWALE	
PROPOSED TREATMENT SWALE	
EROSION PROTECTION	
PROPOSED RETAINING WALL	
EXISTING STORMWATER PIPE / MANHOLE AND CATCHPIT TO BE ABANDONED	
PROPOSED STORMWATER OUTFALL	
PROPOSED CULVERT OUTFALL	
EXISTING STORMWATER OUTFALL	
EXISTING OPEN CHANNEL	
PROPOSED CUT OFF DRAIN	
EXISTING STREAM	

NOTES:
1. FOR NOTES, REFER TO SHEET 1.



CONTAINS 2016 AERIAL IMAGERY SOURCED FROM NZ TRANSPORT AGENCY UNDER CREATIVE COMMONS 3.0 NEW ZEALAND (BY)



REV	DATE	REVISION DETAILS	APPROVED
A	17.10.16	PRELIMINARY ISSUE	G. MOORE
B	24.11.16	CONSENT ISSUE	J. HIND

SCALE	SIZE
1:1000	A1
DRAWN	V. SMITH
DESIGNED	D. HUGHES
CHECKED	D. MACKINTOSH

PRELIMINARY NOT FOR CONSTRUCTION	APPROVED
J. HIND	J. HIND
DATE 17/10/16	

PROJECT	TITLE
NORTHERN CORRIDOR IMPROVEMENTS	STORMWATER LAYOUT PLANS SHEET 6
DRAWING No. 250310	PROJECT No. 250310
STAGE 3PRE	WP 3DES
TYPE DRG	NUMBER 1406
REV B	

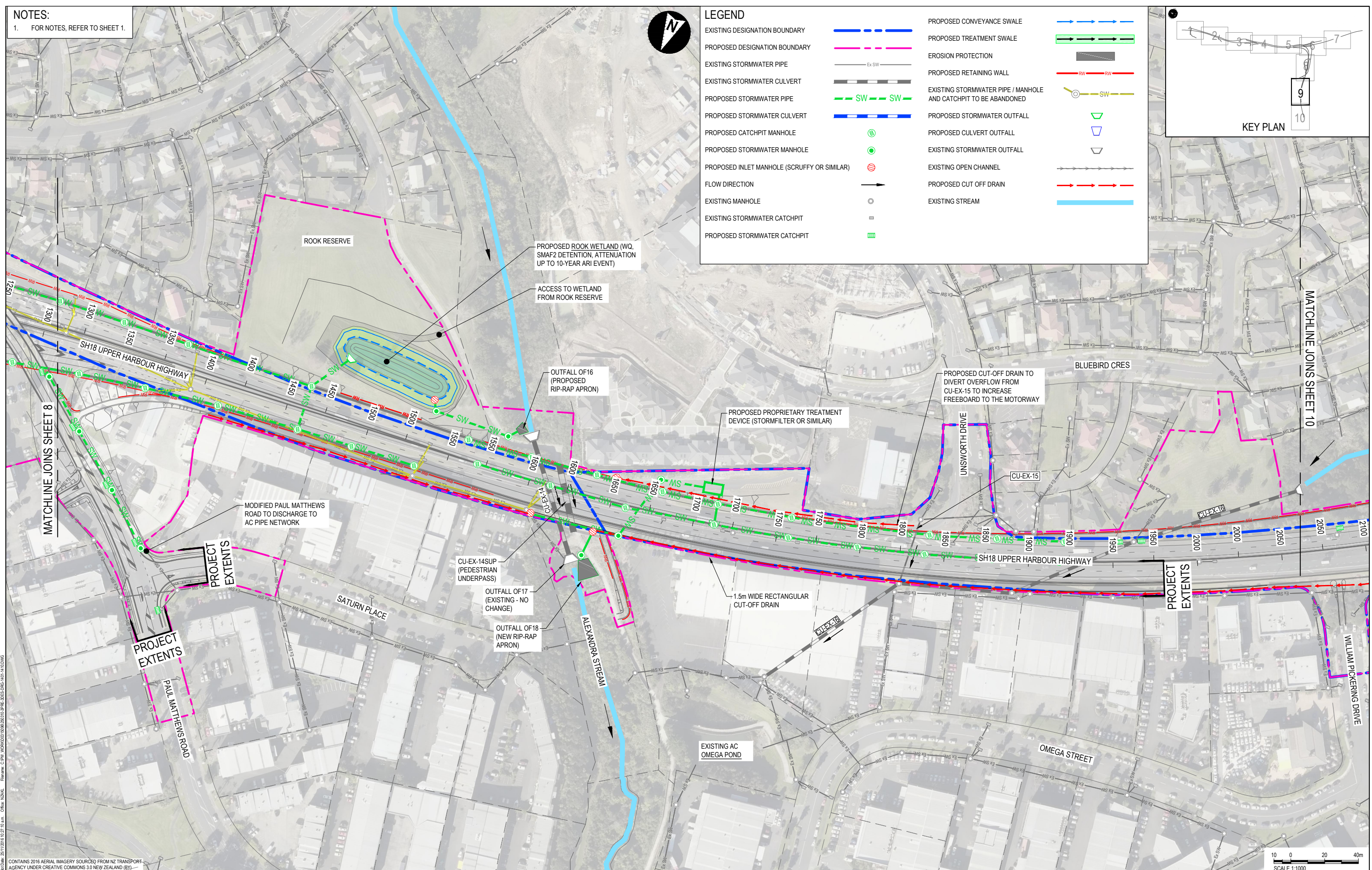
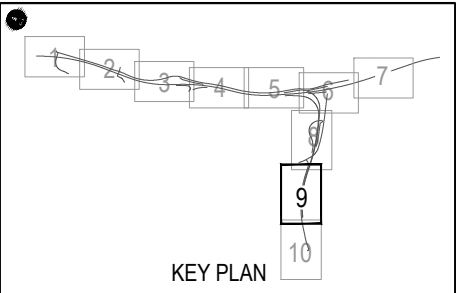
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NOTES:
1. FOR NOTES, REFER TO SHEET 1.



LEGEND

EXISTING DESIGNATION BOUNDARY		PROPOSED CONVEYANCE SWALE	
PROPOSED DESIGNATION BOUNDARY		PROPOSED TREATMENT SWALE	
EXISTING STORMWATER PIPE		EROSION PROTECTION	
EXISTING STORMWATER CULVERT		PROPOSED RETAINING WALL	
PROPOSED STORMWATER PIPE		EXISTING STORMWATER PIPE / MANHOLE AND CATCHPIT TO BE ABANDONED	
PROPOSED STORMWATER CULVERT		PROPOSED STORMWATER OUTFALL	
PROPOSED CATCHPIT MANHOLE		PROPOSED CULVERT OUTFALL	
PROPOSED STORMWATER MANHOLE		EXISTING STORMWATER OUTFALL	
PROPOSED INLET MANHOLE (SCRUFFY OR SIMILAR)		EXISTING OPEN CHANNEL	
FLOW DIRECTION		PROPOSED CUT OFF DRAIN	
EXISTING MANHOLE		EXISTING STREAM	
EXISTING STORMWATER CATCHPIT			
PROPOSED STORMWATER CATCHPIT			



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CONTAINS 2016 AERIAL IMAGERY SOURCED FROM NZ TRANSPORT AGENCY UNDER CREATIVE COMMONS 3.0 NEW ZEALAND (BY-NC-ND)

SCALE 1:1000

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		B		24.11.16		CONSENT ISSUE		J. HIND		DRAWN				APPROVED		STORMWATER LAYOUT PLANS	
										V. SMITH				DATE		SHEET 9	
										D. HUGHES				17/10/16			
										CHECKED				J. HIND		TITLE	
										D. MACKINTOSH				J. HIND		DRAWING No.	
														PROJECT No.		250310	
														STAGE		3PRE	
														WP		3DES	
														TYPE		DRG	
														NUMBER		1409	
														REV		B	



