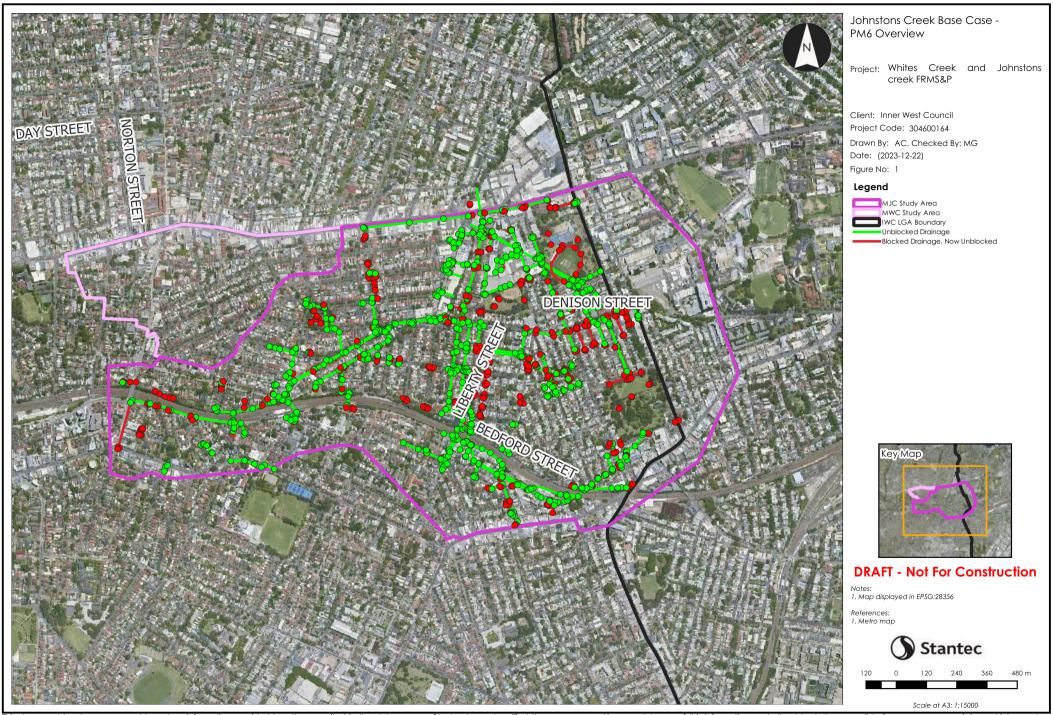
APPENDIX

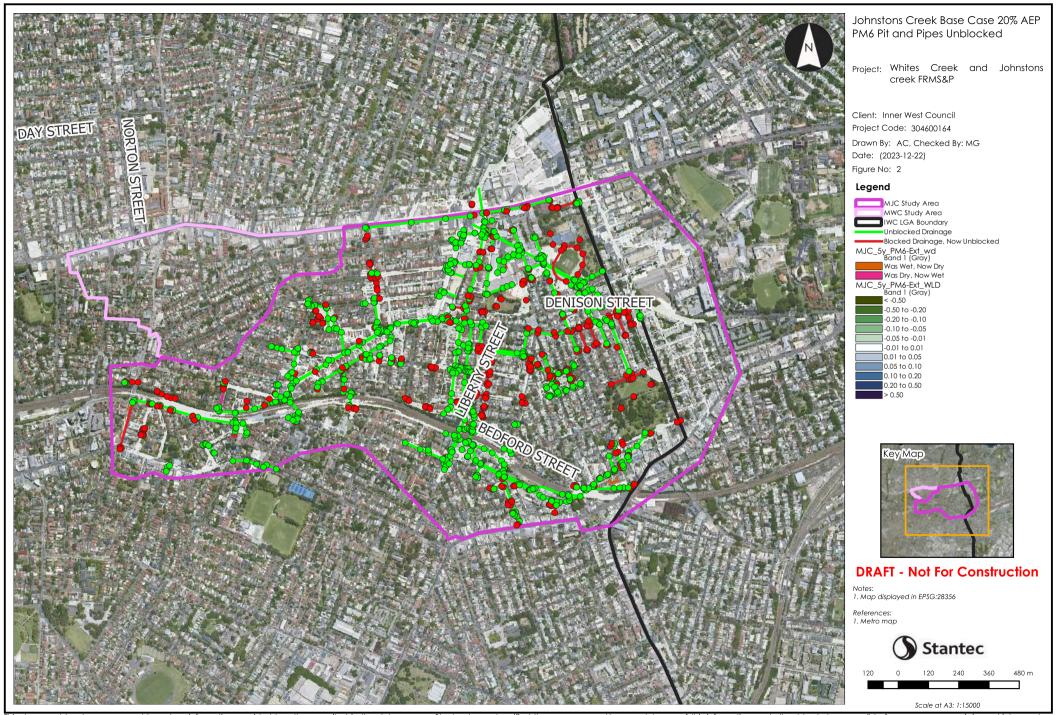
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DETAILED FLOOD OPTION MAPS

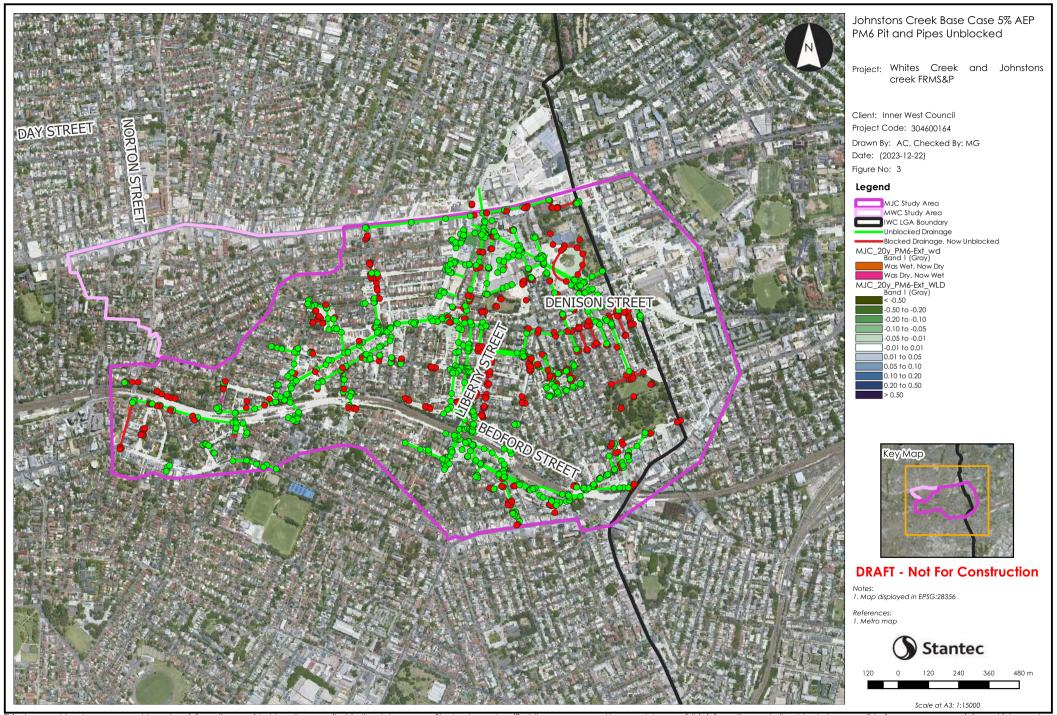




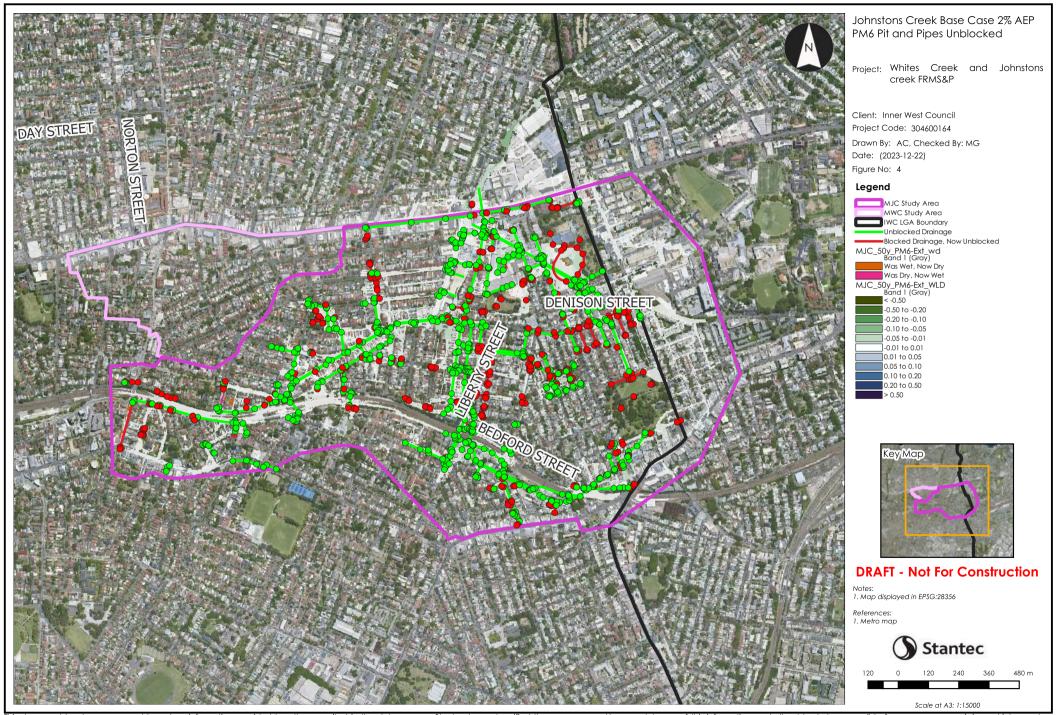
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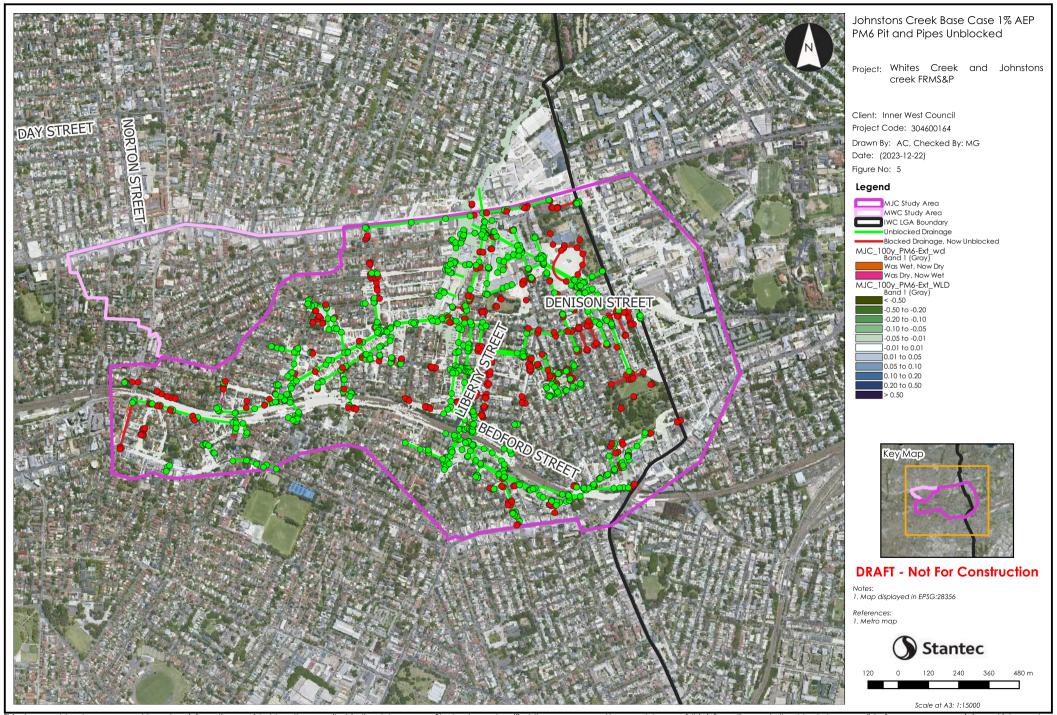
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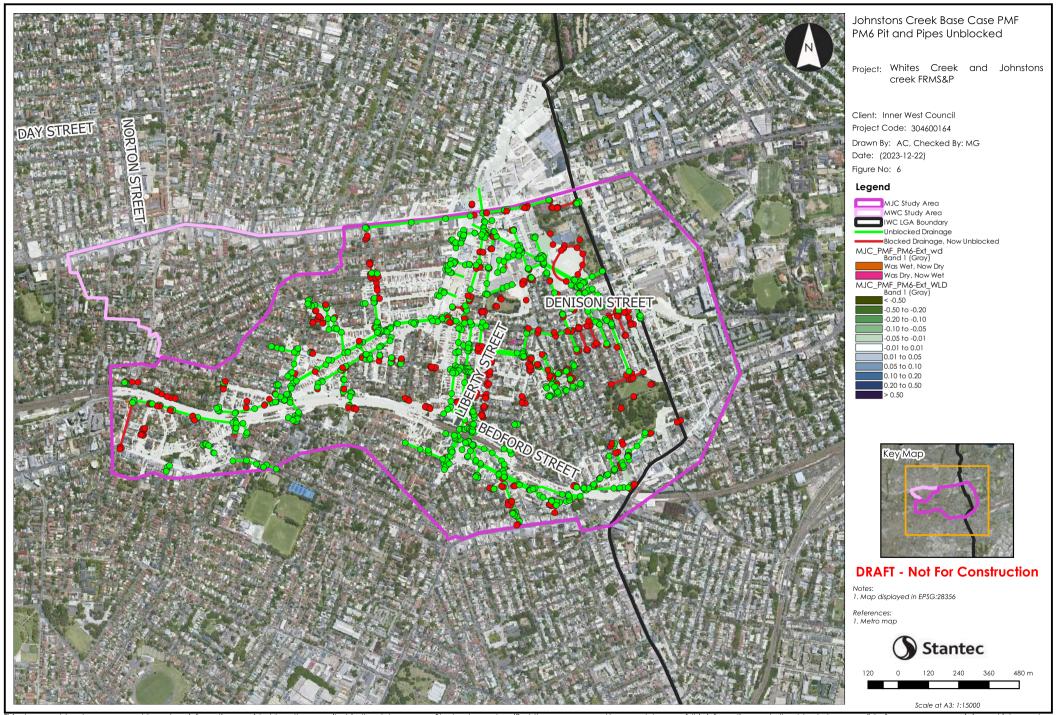
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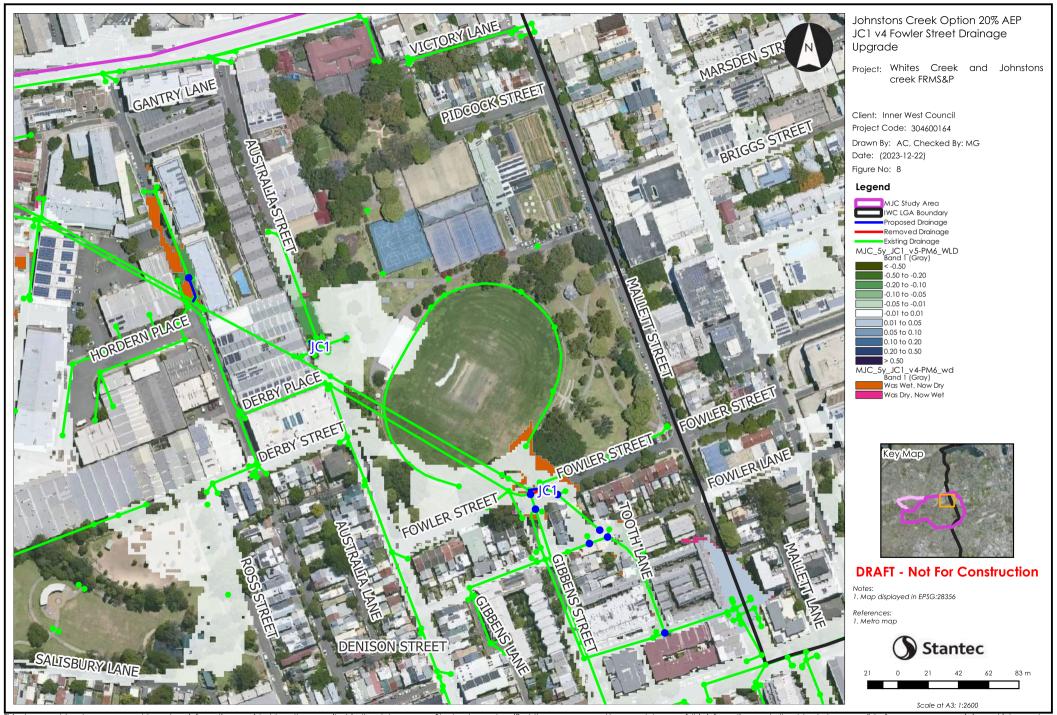
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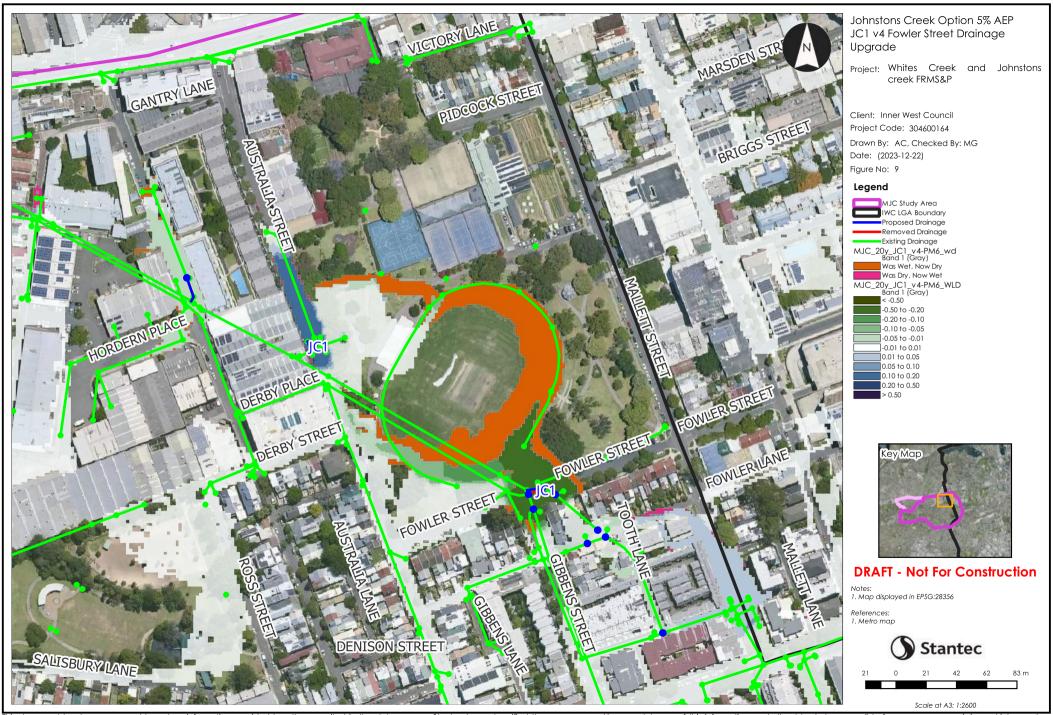
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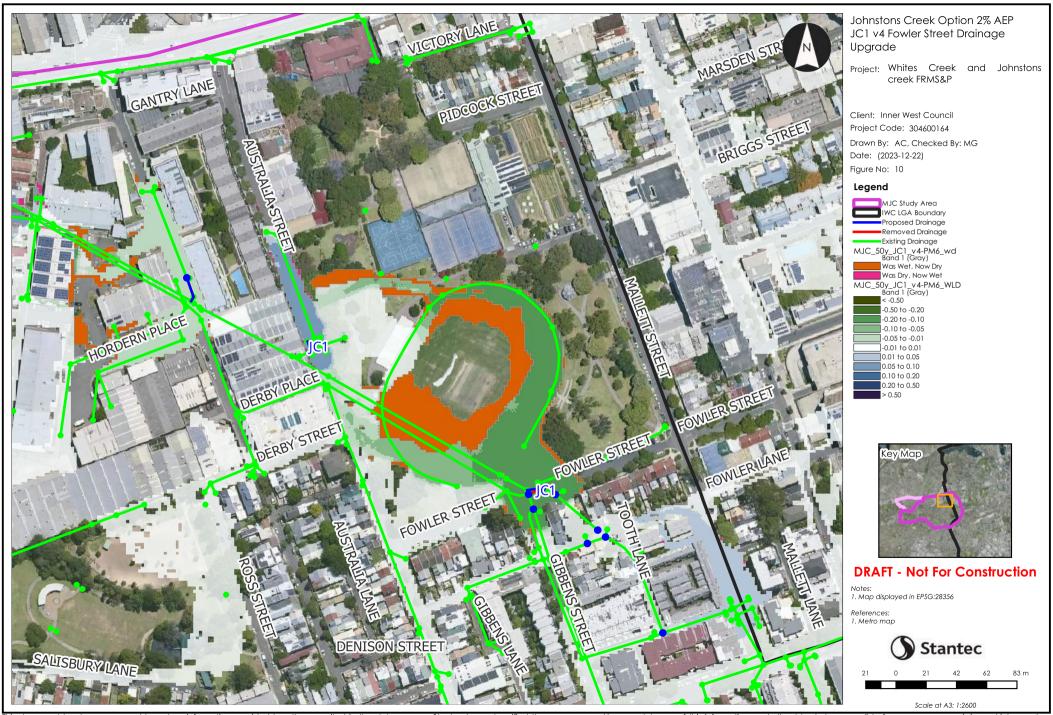


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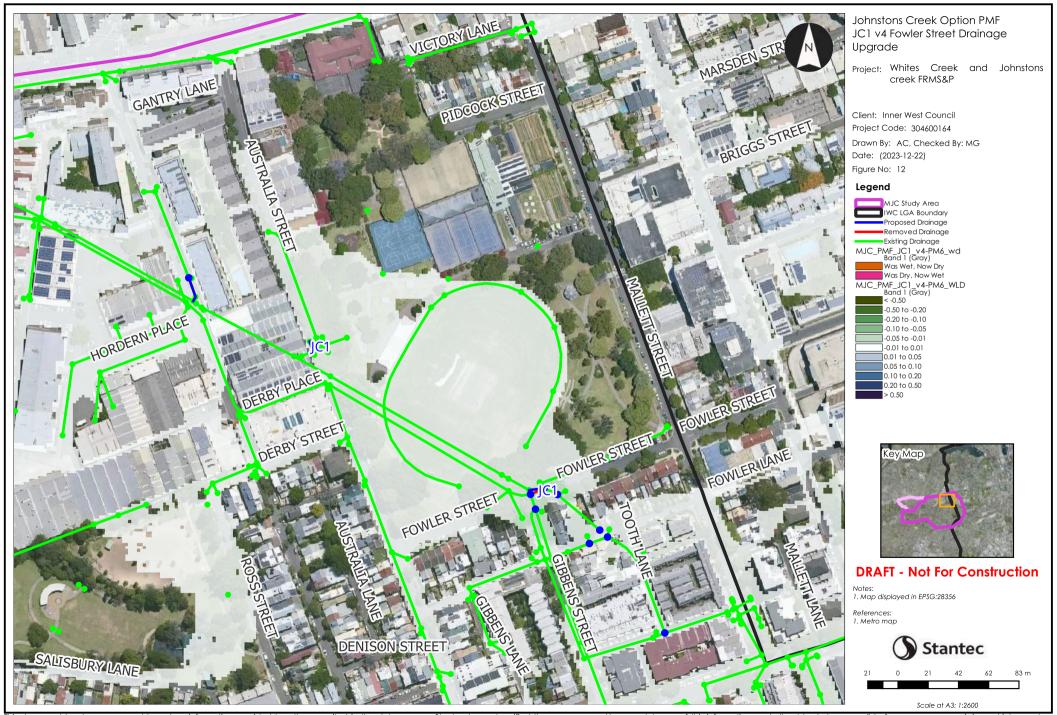
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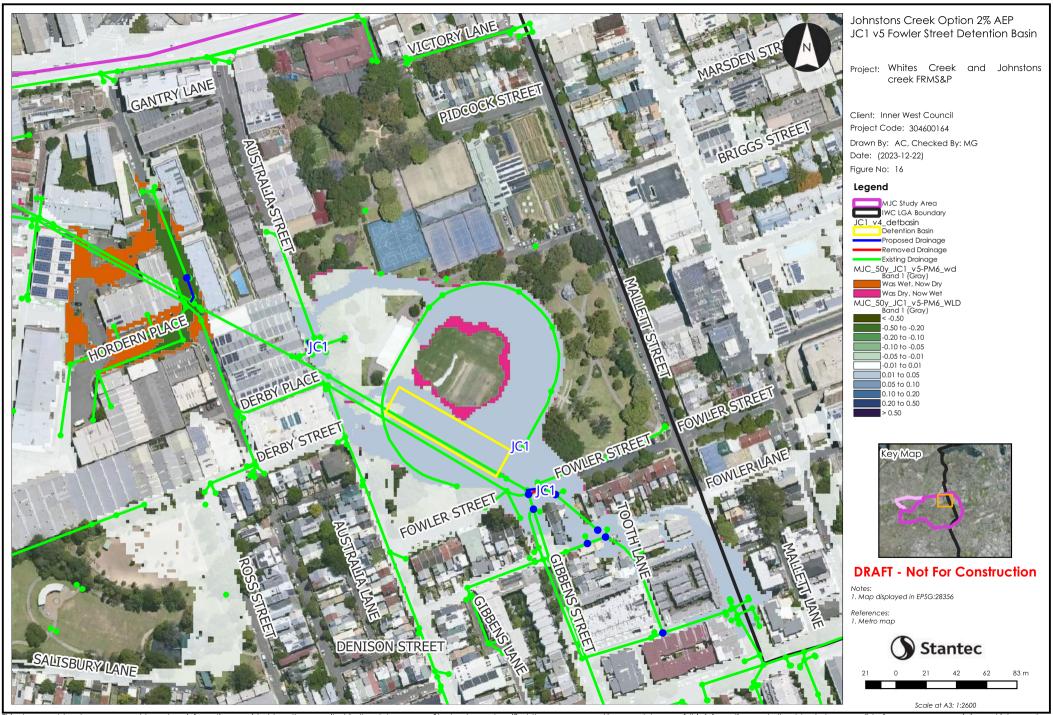
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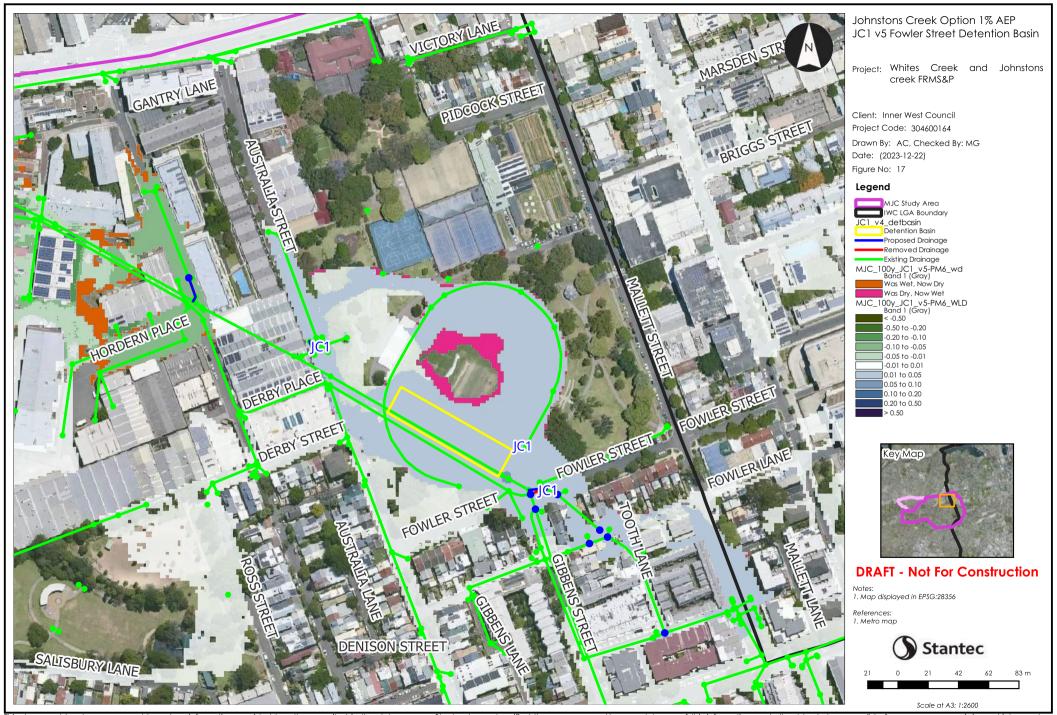
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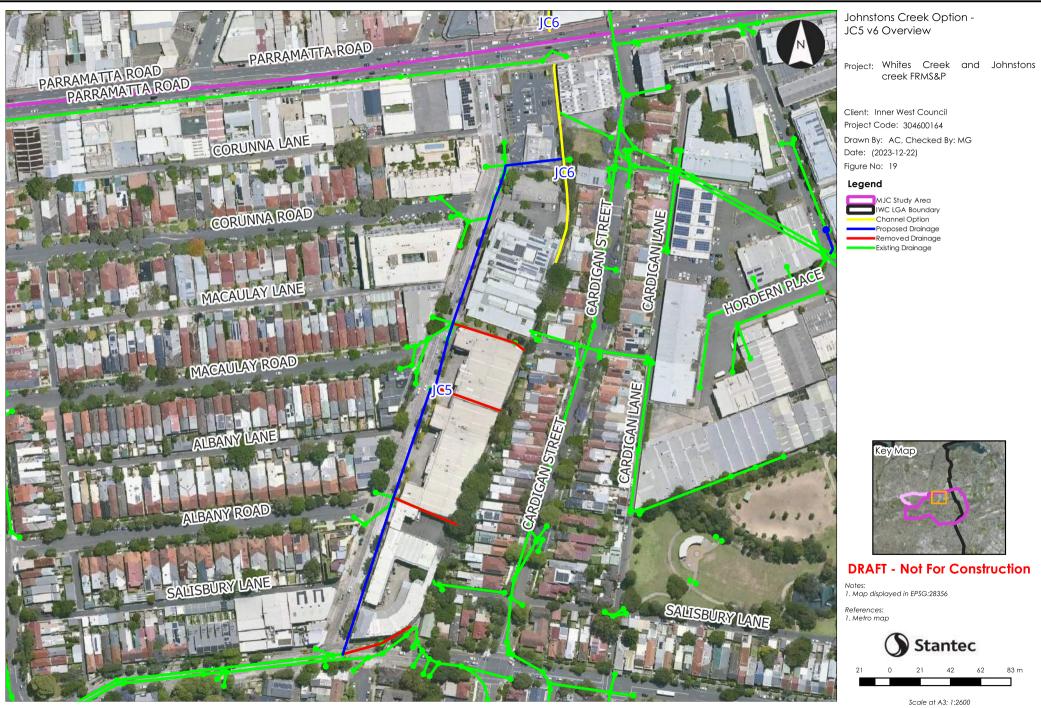
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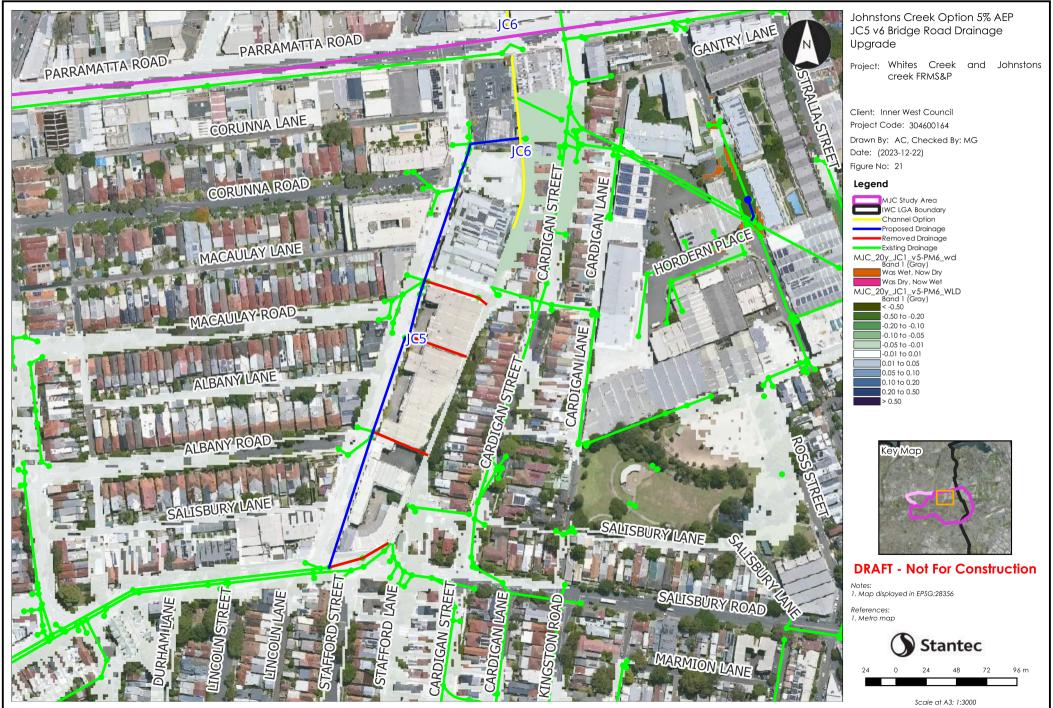
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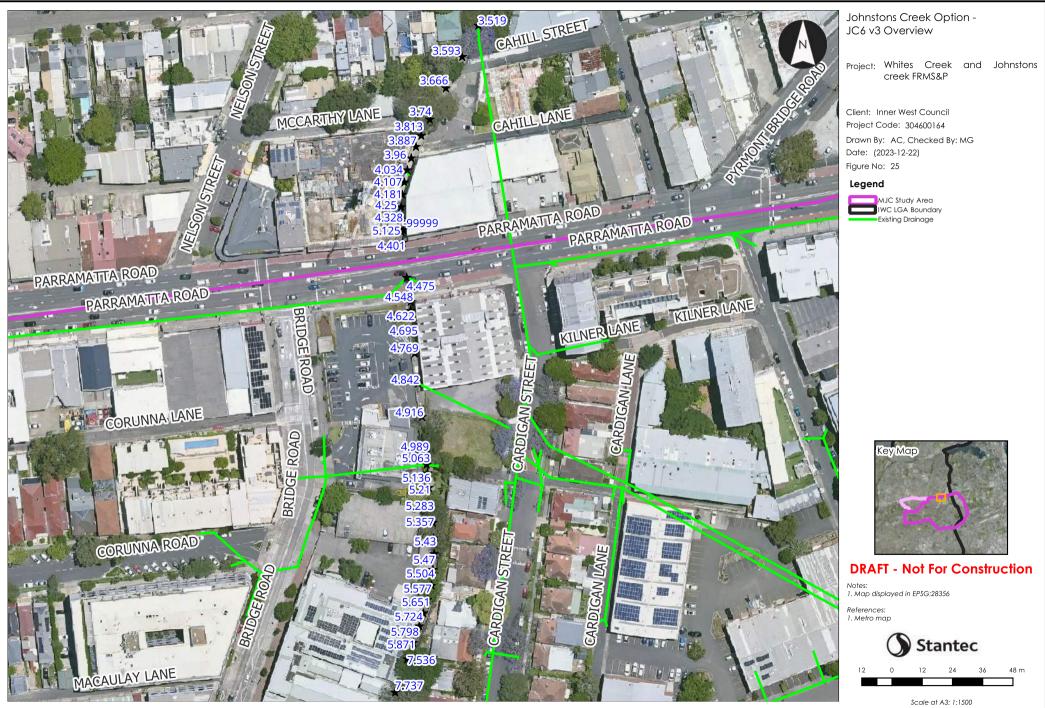


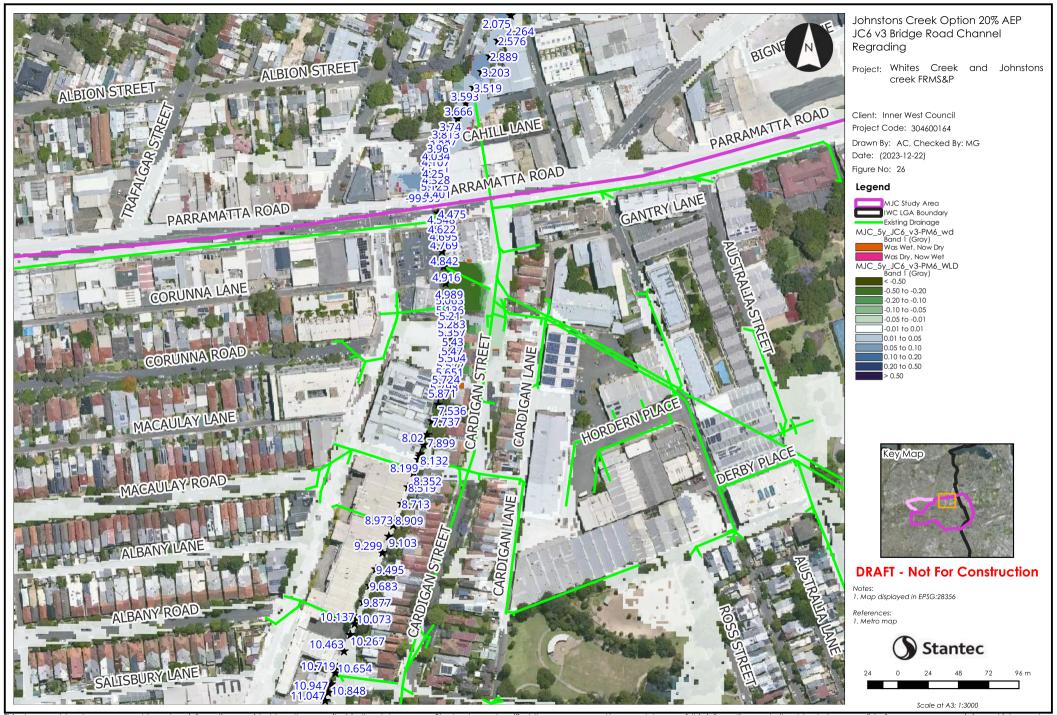


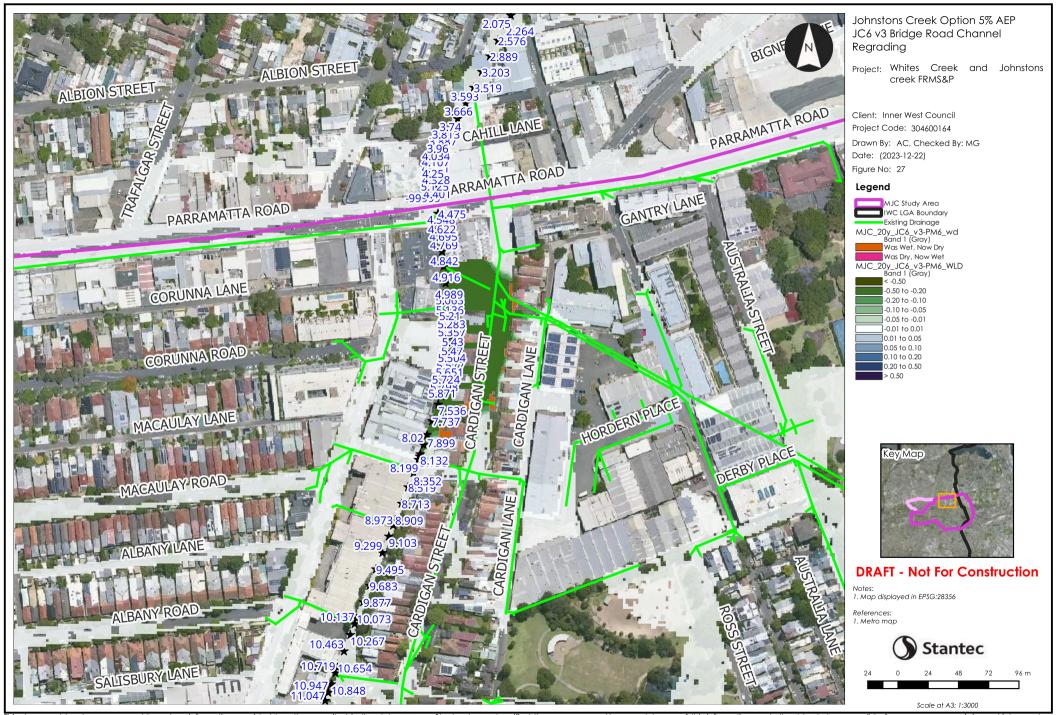


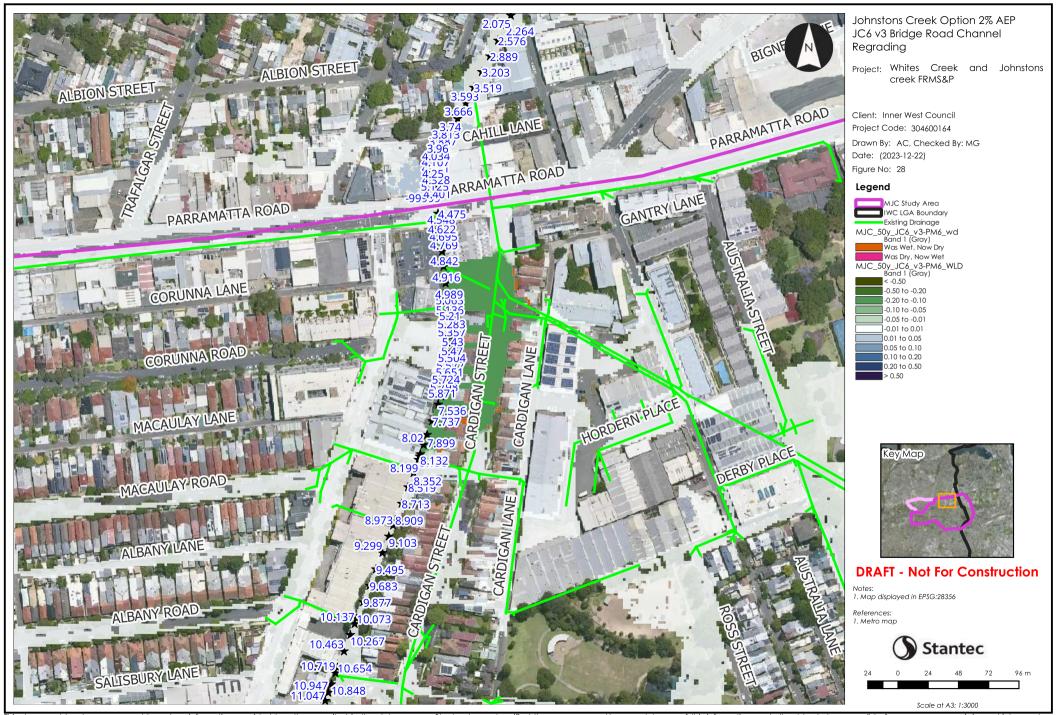






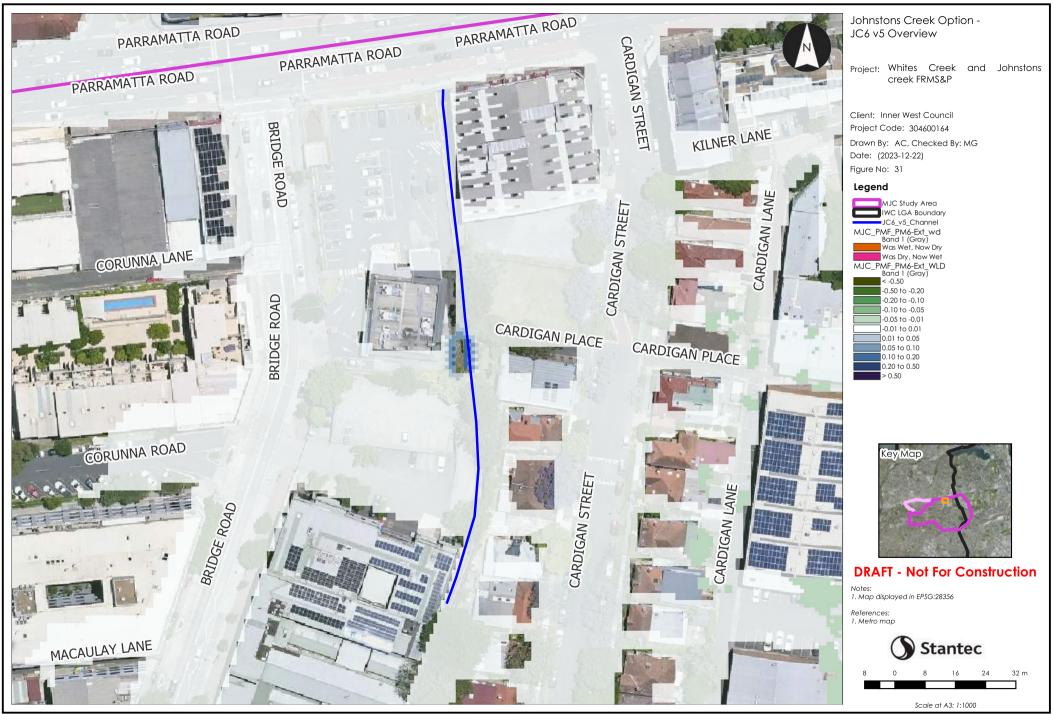


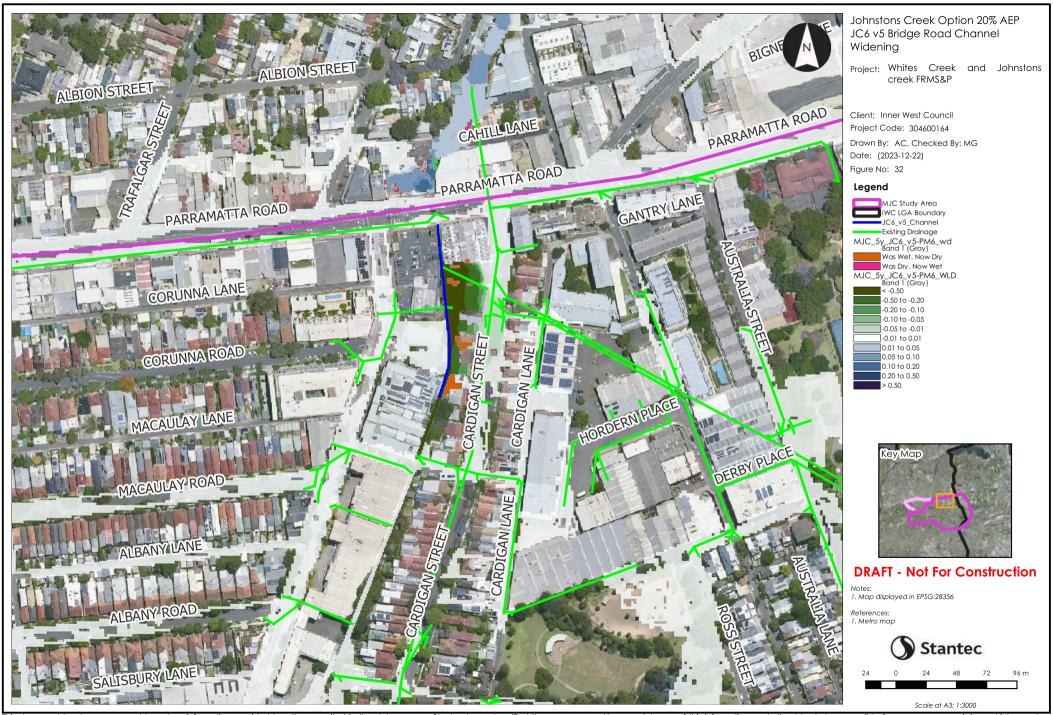




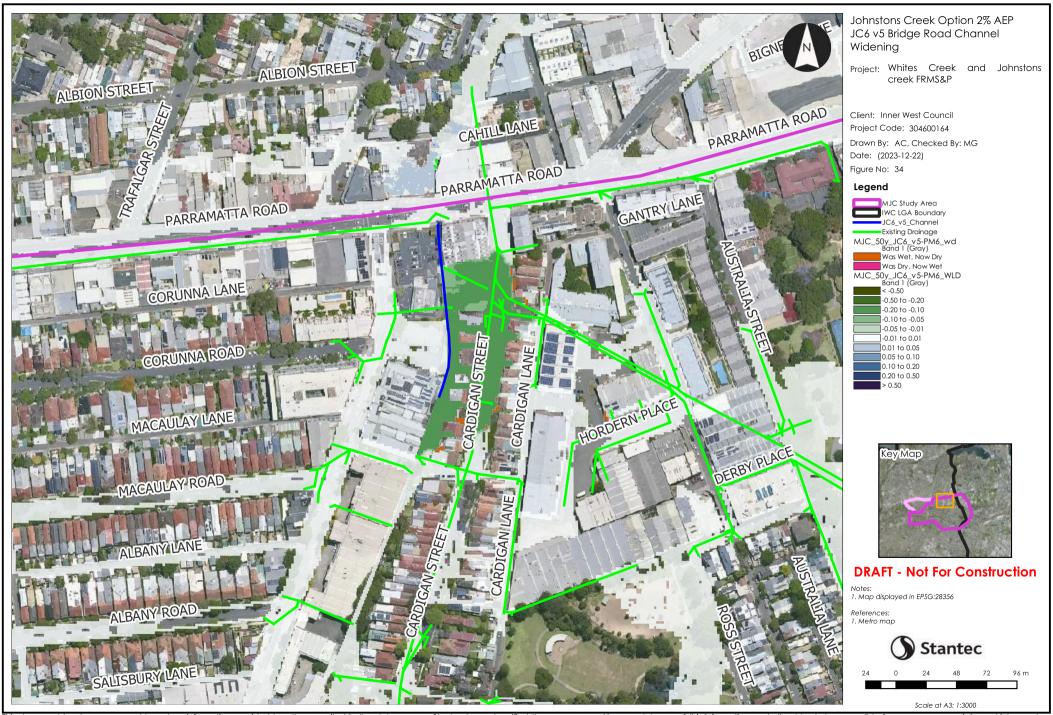




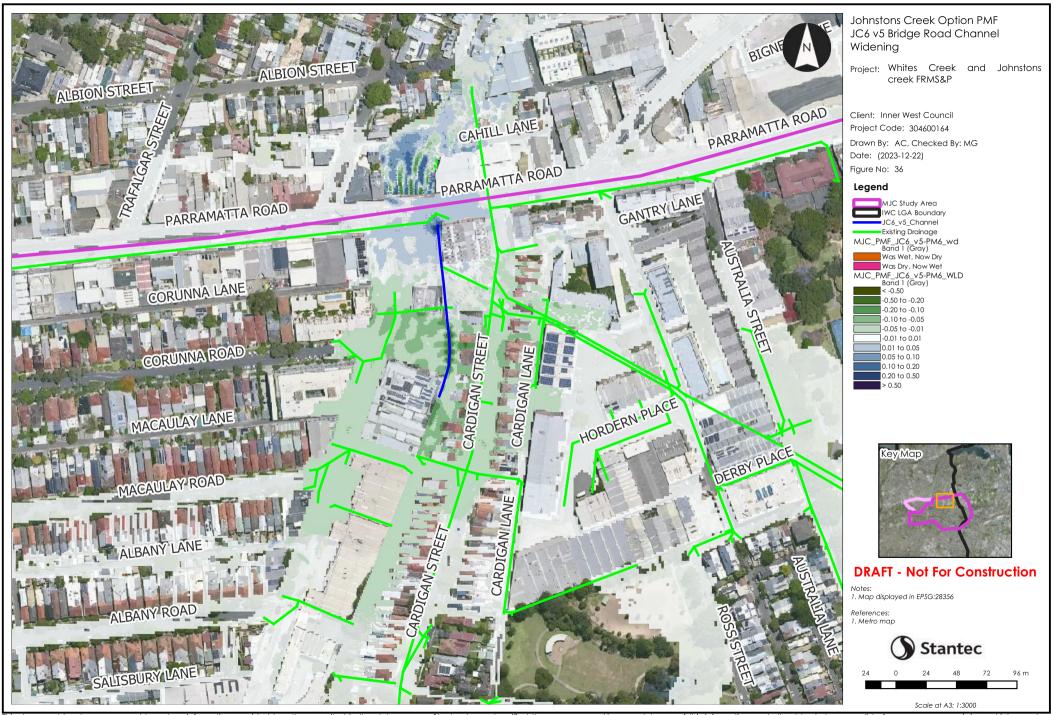














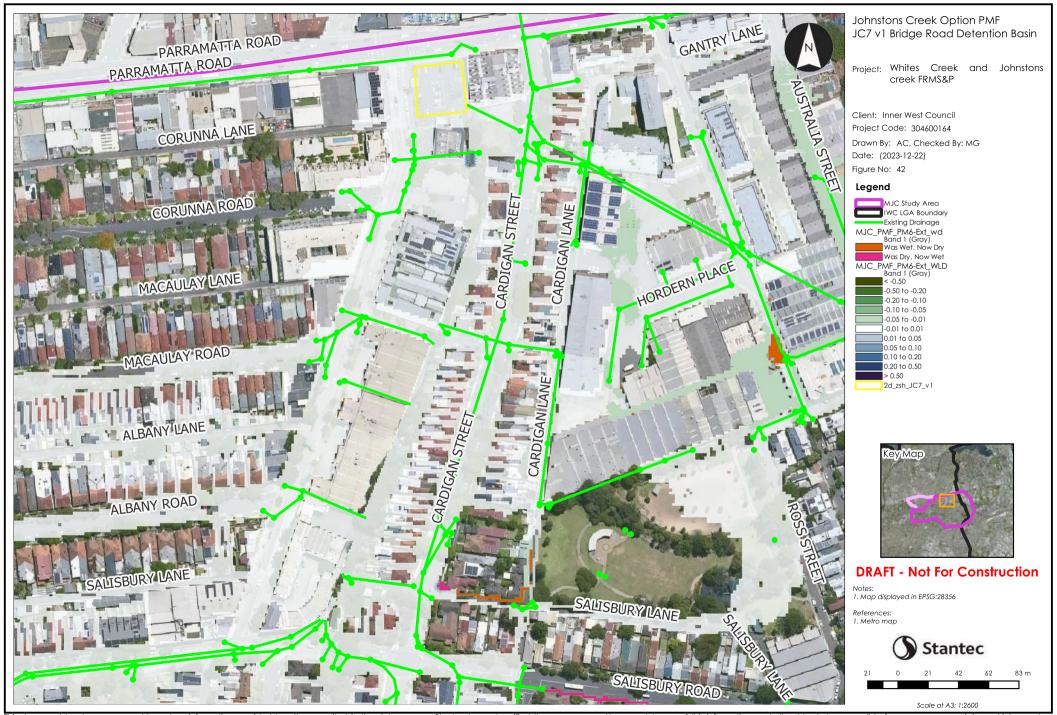
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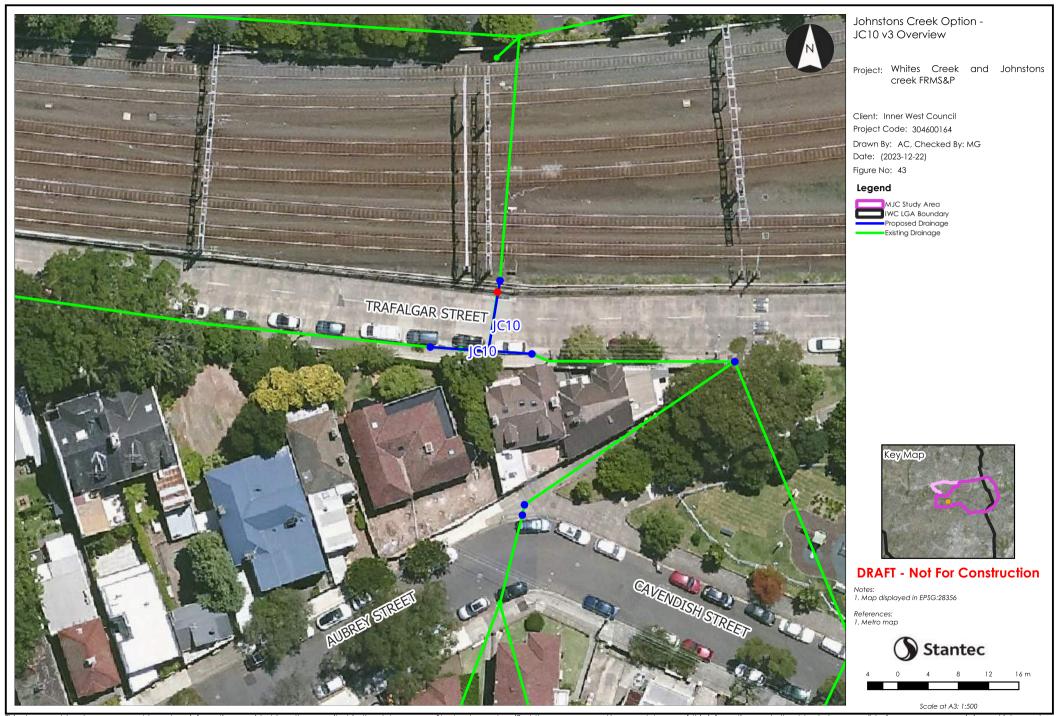












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Johnstons Creek Option -JC14 v1 Overview

Project: Whites Creek and Johnstons

creek FRMS&P

Client: Inner West Council Project Code: 304600164

Drawn By: AC, Checked By: MG

Date: (2023-12-22) Figure No: 55

Legend

MJC Study Area IWC LGA Boundary 2d_zsh_JC14_v1



DRAFT - Not For Construction

Map displayed in EPSG:28356

References: 1. Metro map















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Johnstons Creek Option -JC18 v2 Overview

Project: Whites Creek and Johnstons

creek FRMS&P

Client: Inner West Council Project Code: 304600164

Drawn By: AC, Checked By: MG Date: (2023-12-22)

Figure No: 67

Legend

MJC Study Area
IWC LGA Boundary
JC6_v5_Channel
Existing Drainage



DRAFT - Not For Construction

Notes: 1. Map displayed in EPSG:28356

References: 1. Metro map

















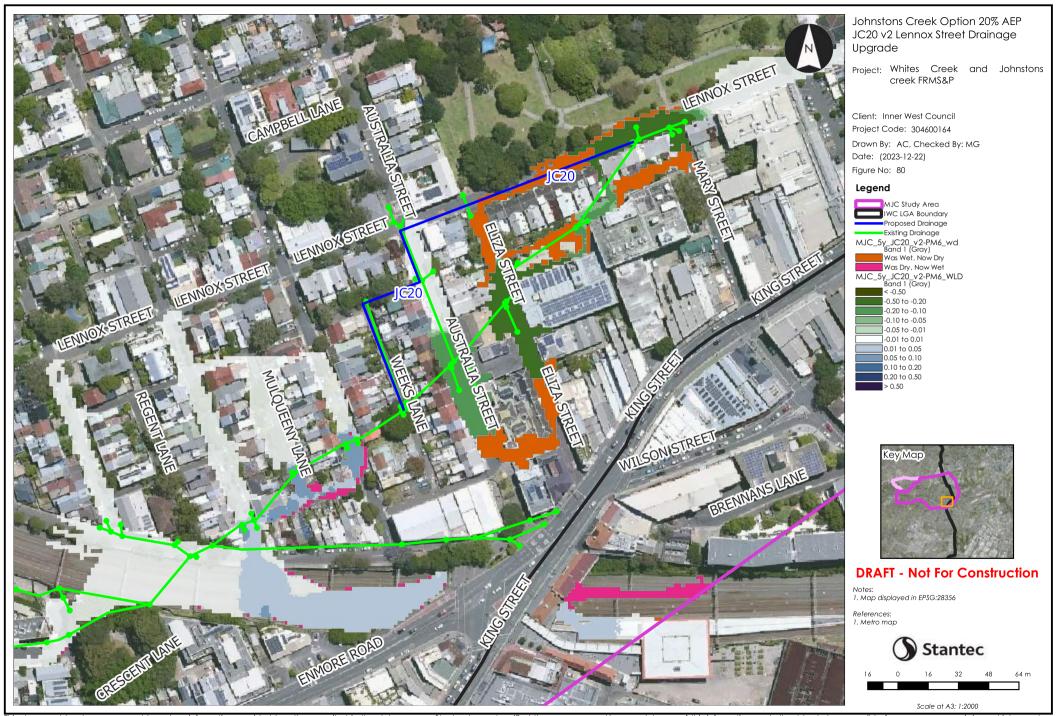








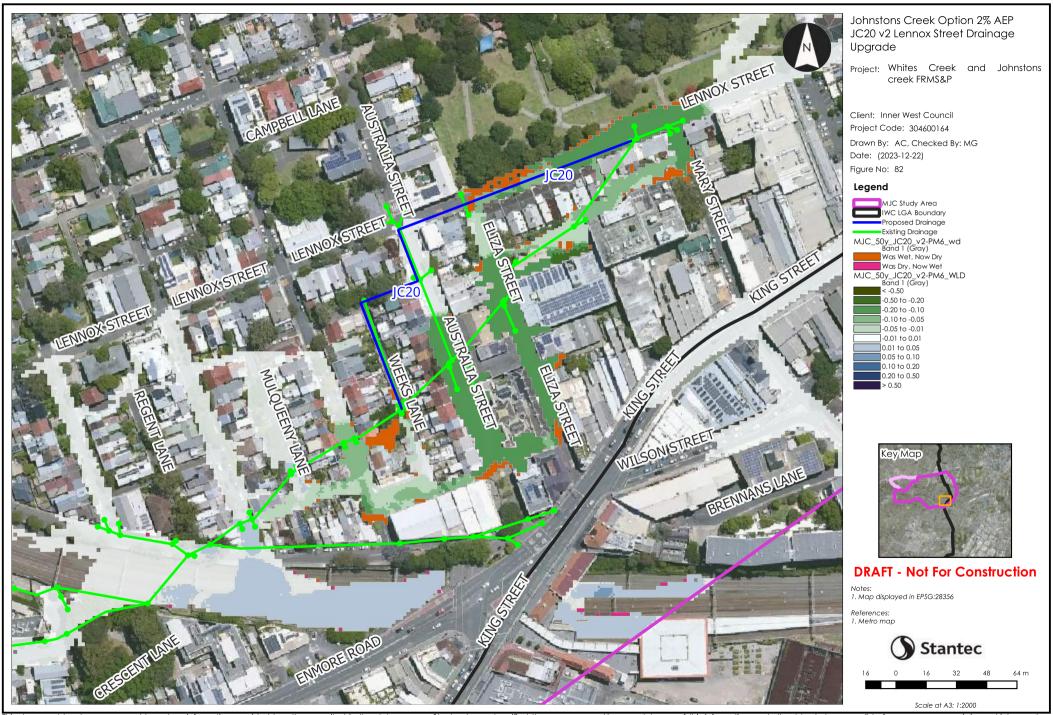


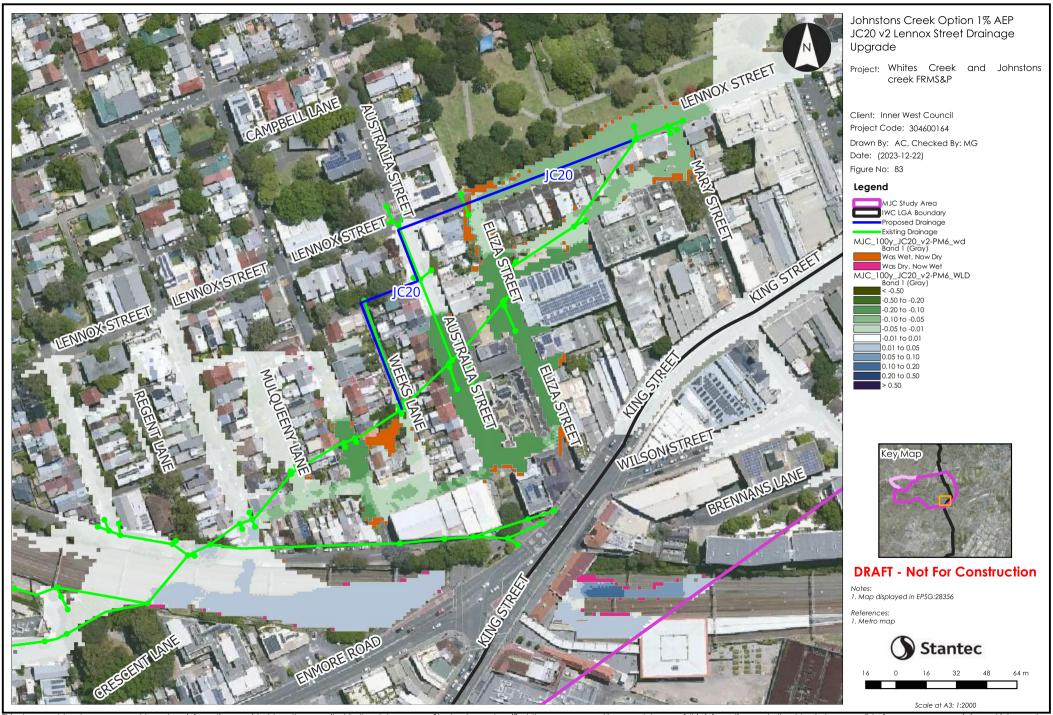


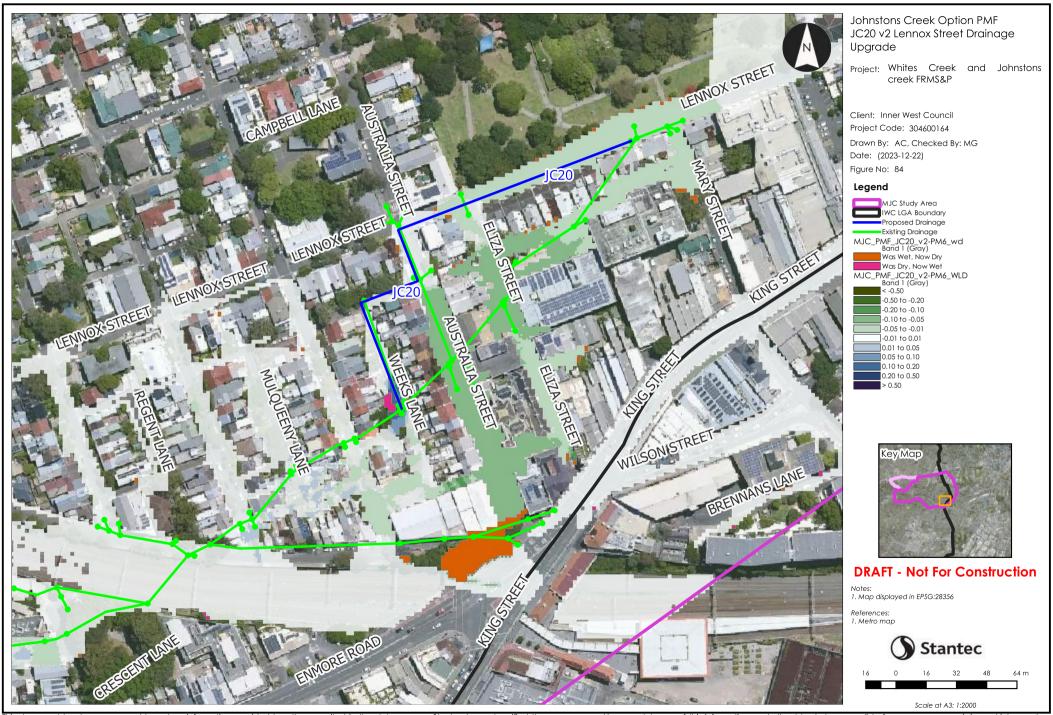
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Johnstons Creek Option -JC23 v1 Overview

Project: Whites Creek and Johnstons

creek FRMS&P

Client: Inner West Council Project Code: 304600164

Drawn By: AC, Checked By: MG

Date: (2023-12-22) Figure No: 85

Legend

MJC Study Area
IWC LGA Boundary
Proposed Drainage
Existing Drainage



DRAFT - Not For Construction

Notes: 1. Map displayed in EPSG:28356

References: 1. Metro map









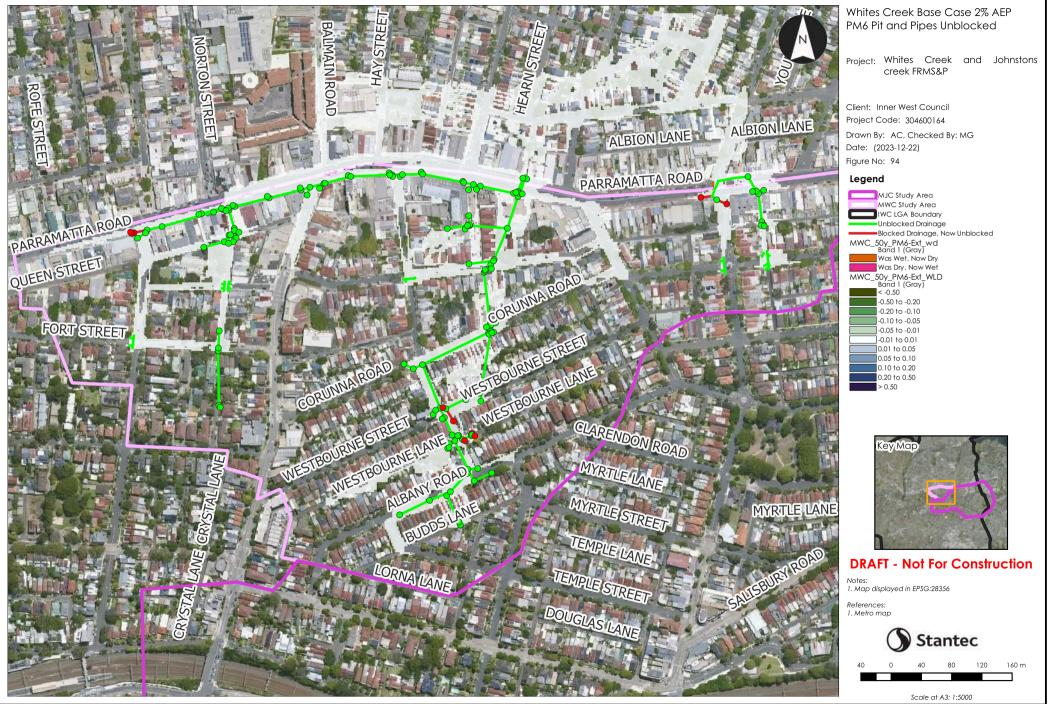


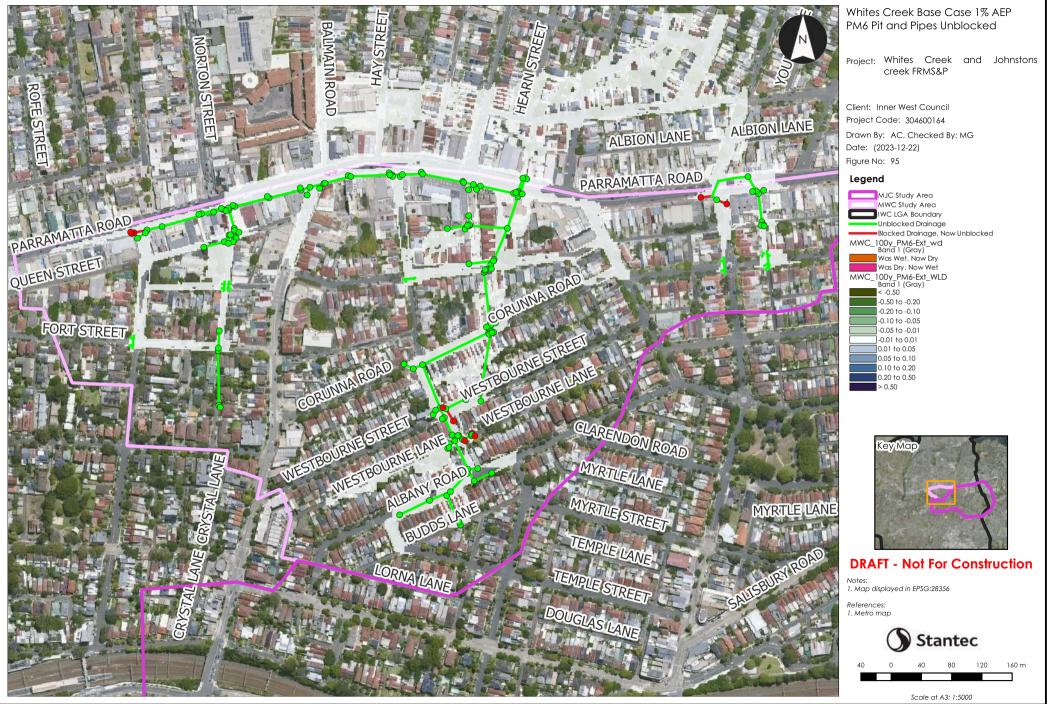


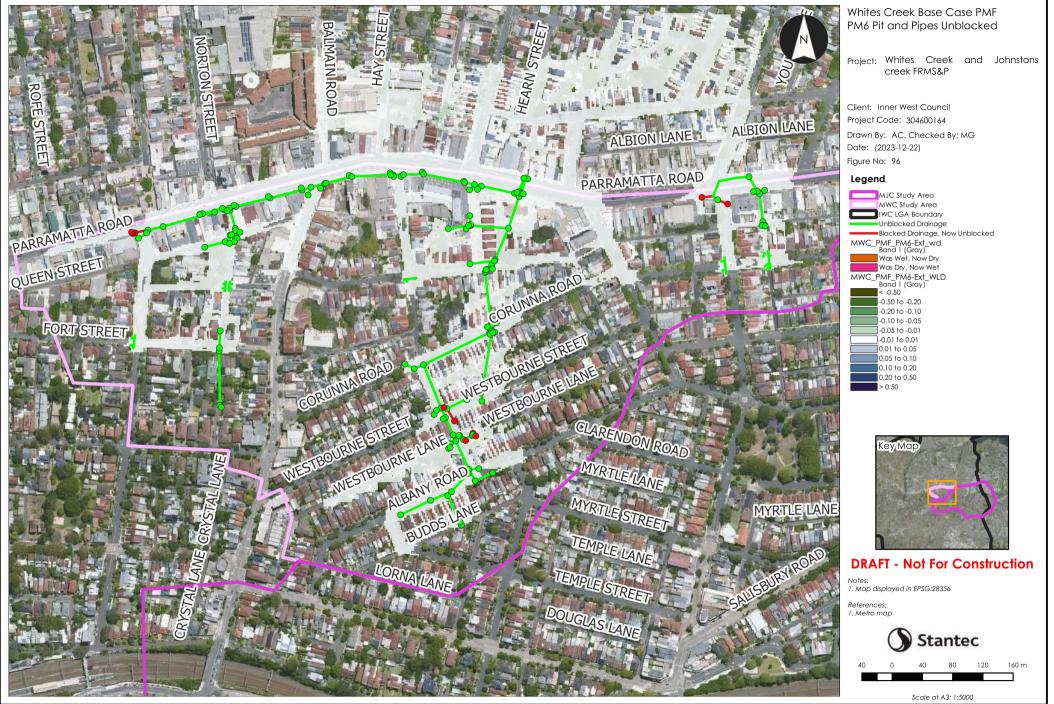














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APPENDIX

F

MCA SCORING AND IMPLEMENTATION



Table - Multi-Criteria Assessment - Scoring System

	Criterion		Description of Criterion	Score											
Category	Criterion	Weighting	Assessment	-2	-1	0	1	2							
	Benefit-Cost Ratio	20%	The cost effectiveness of the scheme, i.e. the tangible return on investment	0 to 0.25	0.25 to 0.5	0.5 to 1.5	1.5 to 3.0	>3.0							
	Reduction in Risk to Property	5%	Based on reduction in AAD, it establishes the tangible benefit of an option	Major increase in AAD (>\$200,000)	Slight increase in AAD (\$200k to \$100k)	Negligible Improvement (less than \$100k AAD impact)	Slight decrease in AAD (\$200k to \$100k)	Major decrease in AAD (\$>200,000)							
Economic	Technical Feasibility	10%	Establishes the feasibility of options based on likely service constraints, environmental hazards, and programming contingincies such as land acquisition or agreements with external agencies	There are a number of significant factors that pose an impact on the feasibility of the project	There is a single significant factor or multiple smaller factors that pose a potential impact on the feasibility of the project	May or may not be feasible	Likely to be feasible with management of constraints	Very likely to be feasible with no significant restraint							
ш	Implementation Complexity	5%	Ease of constructability within Council's standard Capital Works Planning	Construction timeframe greater than 1 year Project can not be broken down into sequential components	Construction timeframe greater than	Key components can be completed in isolation within 12 months	Overall construction timeframe less than 12 months Minor components can be staged	Construction timeframe less than 6 months Major components can be staged							
	Adaptability and long- term performance	10%	The impact the option will have both in terms of feasibility, benefits and cost over the life of the option, and adaptability to climate change conditions	Significantly diminished performance long-term or under climate change	Slightly diminished performance long-term or under climate change	Unchanged performance long- term or under climate change	Unchanged or improved performance long-term or under climate change with minor ongoing costs	Unchanged or improved performance long-term or under climate change with negligible ongoing costs							
	Reduction in Risk to Life	15%	The impact on risk to life from the 20% AEP up to the PMF event	Widespread or significant localised increase in risk to life	Localised or slight increase in risk to life	Negligible change in risk to life	Localised or slight reduction of risk to life	Widespread or significant localised reduction of risk to life							
	Emergency Access and Evacuation	10%	The impact on the ability to evacuate or for NSW SES or emergency services under extreme flood conditions	Widespread or significant localised impact on evacuation and emergency services	Localised or slight localised impact on evacuation and emergency services	Negligible impact on evacuation and emergency services	Localised or slight improvement for evacuation and emergency services	Widespread or significant localised improvement for evacuation and emergency services							
Social	Social Disruption and Public Open Spaces	5%	The impact of the risk management option on social disruption and the use of public spaces	Signficiant increase in the frequency of flooding or limitation of the use of a public space or causes significant social disruption	Increase in the frequency of flooding or limitation of the use of a public space or causes social disruption	Negligible impact on public space or social disruption	Reduces the frequency of flooding or provides enhanced use of a public space or causes social benefit	Significantly reduces the frequency of flooding or enhanced use of a public space or causes significant social benefit							
	Community and Stakeholder Support	10%	Support for the option based on FRM Committee meeting, stakeholder engagement and community consultation outcomes	Strong opposition to the option in multiple submissions	Slight opposition to the option	No response	Slight support to the option	Significant support to the option							
Environment	Impact on Fauna/Flora	5%	Likely impacts on Threatened Ecological Communities and Threatened Species	High negative impact	Slight negative impact	Negligible impact	Some benefit	Considerable benefit							
Enviro	Impact on Heritage	5%	Impact to Heritage items	Likely impact on State, National, or Aboriginal Heritage item	Likely impact or increased impact on a local heritage item	No impact	Reduces the impact of flooding to heritage item or heritage conservation area	Heritage item no longer flooded							

Table - Multi Criteria Assessment Outcomes - Flood Modification Options - Johnstons Creek and Whites Creek

Table - Multi	Criteria Assessifierit C	Jutcomes - F	lood Modification Options - Johnstons	ns Creek and Whites Creek										
Category	Criterion	Weighting	Description of Criterion Assessment	JC1 – Fowler Street Drainage Up							C6 – Bridge Road Channel Regrading			
			The cost effectiveness of the scheme,	Score	Comment	Score	Comment	Score	Comment	Score	Comment	Score	Comment	
	Benefit-Cost Ratio	20%	i.e. the tangible return on investment	2	BCR = 3.98	0	BCR = 1.12	-1	BCR = 0.27	2	BCR = 3.76	0	BCR = 1.36	
	Reduction in Risk to Property	5%	Based on reduction in AAD, it establishes the tangible benefit of an option	1	AAD increase \$100k-200k	1	AAD increase \$100k-200k	1	AAD increase \$100k-200k	2	AAD increase >\$200k	2	AAD increase >\$200k	
Economic	Technical Feasibility	10%	Establishes the feasibility of options based on likely service constraints, environmental hazards, and programming contingincies such as land acquisition or agreements with external agencies		Two utility (Sydney Water Main and Sewer) services crossing proposed option, and close proximity to various other utilities in three areas such as other Sydney Water assets, Sydney Trains HV and NBN though drainage lengths are short. Can be feasible depending on clearance between the channel and utilities or possible relocation.	0	Two utility (Sydney Water Main and Sewer) services crossing proposed option, and close proximity to various other utilities in three areas such as other Sydney Water assets, Sydney Trains HV and NBN though drainage lengths are short. Can be feasible depending on clearance between the channel and utilities or possible relocation.	-2	Long sections of drainage works with close proximity alongside and crossing utilities in multiple locations such as Sydney Water assets, NBN. Can be feasible depending on clearance between the channel and utilities or possible relocation.		Vocus assets in close proximity running alongside the channel is likely to be impacted due to regrading. Highly constrained channel with residential and commercial buildings on either side. Stabilisation required due to close proximity of buildings to the channel.	-2	Vocus assets in close proximity running alongside the channel will be impacted due to widening. Property impacts up to 3m for multiple commercial lots and buildings, may require stabilisation or demolition. Can be feasible depending on clearance between existing pipes and utilities or possible relocation. Stabilisation may be required due to close proximity of buildings to the channel.	
	Implementation Complexity	5%	Ease of constructability within Council's standard Capital Works Planning	2	Construction timeframe less than 6 months, minor drainage upgrades only	2	Construction timeframe less than 6 months, can easily stage the drainage works at different locations and detention basin within Council owned land	-2	Construction timeframe greater than 12 months, large culvert size and various utility coordinations required	-2	Highly constrained channel with residential and commercial buildings on either side. Sydney Water owned channel, approvals required	-2	Highly constrained channel with residential and commercial buildings on either side. Sydney Water owned channel, approvals required. Commercial property acquisitions and stabilization required.	
	Adaptability and long- term performance	10%	The impact the option will have both in terms of feasibility, benefits and cost over the life of the option, and adaptability to climate change conditions	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	
	Reduction in Risk to Life	15%	The impact on risk to life from the 20% AEP up to the PMF event	-1	Slight reductions in water level in localised H4-H5 spots. Increase to H5 in PMF	2	Significiant decreases in H3 areas downstream with increases in H4-H6 areas due to the detention basin (majority within public open spaces)	1	Slight reductions in upstream H5 along Bridge Rd, with slight increases in downstream H3 areas. Slight increases to H5 in 20% AEP	2	Slight reductions in H5 on Cardigan St in 1% and 20% AEP	2	Significant reduction in H5 on Cardigan St in 1% and 20% AEP	
Social	Emergency Access and Evacuation	10%	The impact on the ability to evacuate or for NSW SES or emergency services under extreme flood conditions	-1	Slight and balanced increases and decreases in road corridor. Overall increase across events on Australia Street	1	Slight and balanced increases and decreases in road corridor	1	Slight reductions throughout Bridge Rd and also on Salisbury Rd	2	Reductions in the surrounding road corridor and access to inundated properties	2	Reductions in the surrounding road corridor and access to inundated properties	
Š	Social Disruption and Public Open Spaces	5%	The impact of the risk management option on social disruption and the use of public spaces	0	Reduced flooding on Camperdown Oval. Some increases to the road corridor	-1	Increased flooding on Camperdown Oval. Also short term closure of Camperdown Oval for drainage works	0	Increases and decreases in road corridor	1	Reductions in the surrounding road corridor	1	Reductions in the surrounding road corridor	
	Community and Stakeholder Support	100/	Support for the option based on FRM Committee meeting, stakeholder engagement and community consultation outcomes	0	No response	0	No response	2	Noted area of flooding from responses in Flood Study, Council acknowledged area of flooding	-1	Involves Sydney Water Asset in the stormwater channel to be altered. In noted area of flooding from the Flood Study		Involves Sydney Water Asset in the stormwater channel to be altered. In noted area of flooding from the Flood Study	
nent	Impact on Fauna/Flora	5%	Likely impacts on Threatened Ecological Communities and Threatened Species	0	Potential slight negative impacts (temporary) to nearby trees due to drainage works	-1	Potential slight impacts to threatened mammalia species in Camperdown Oval, nearby trees/parklands due to drainage works	0	Negligible known impacts on fauna and flora	0	Negligible known impacts on fauna and flora		Negligible known impacts on fauna and flora	
Environment	Impact on Heritage	5%	Impact to Heritage items	1	Reduces the impact of flooding to heritage conservation area. HCA 11 North Kingston Estate Heritage Conservation Area	1	Slightly reduces the impact of flooding to heritage conservation area. HCA 11 North Kingston Estate Heritage Conservation Area	0	Both positive and negative impacts to flooding in different locations within heritage conservation area. HCA 8 Cardigan Street Heritage Conservation Area	1	Reduces the impact of flooding to heritage conservation area. HCA 8 Cardigan Street Heritage Conservation Area	1	Reduces the impact of flooding to heritage conservation area. HCA 8 Cardigan Street Heritage Conservation Area	
			Total Score (from -22 to 22	4		5		0		5		3		
		То	tal Weighted Score (from -2.00 to 2.00)	0.35		0.50		0.00		0.70		0.30		

Category	Criterion	Weighting	Description of Criterion Assessment	JC7 – Bridge Road Detention Basin		JC10- Trafalgar Street Drainage Upgrade		JC13	– Gladstone Street Drainage Upgrade	JC14 – F	Railway Street Road Regrading	JC15 – Probert Street Drainage Upgrade		
			The cost effectiveness of the scheme,	Score	Comment	Score	Comment	Score	Comment	Score	Comment	Score 2	Comment	
	Benefit-Cost Ratio	20%	i.e. the tangible return on investment	2	BCR = 5.50	-2	BCR = 0.09	2	BCR = 4.00		1 BCR = 2.36		BCR = 3.92	
	Reduction in Risk to Property	5%	Based on reduction in AAD, it establishes the tangible benefit of an option	2	AAD increase >\$200k	0	AAD increase <\$100k	2	AAD increase >\$200k	2	2 AAD increase >\$200k		AAD increase \$100k-200k	
Economic	Technical Feasibility	10%	Establishes the feasibility of options based on likely service constraints, environmental hazards, and programming contingincies such as land acquisition or agreements with external agencies	0	Vocus assets in close proximity running alongside detention basin. Unlikely for Vocus assets to be impacted within the private property basement carpark. Straightfoward construction method to convert existing basement parking into detention basin. Property acquisition may be required	2	Three utility (Sydney Water Main/Sewer and NBN) services crossing proposed option, may be feasible depending on clearance between existing pipes and utilities or possible relocation. Short drainage length.	0	Crosses Sydney Water Sewer/Main in one location. Likely to be feasible depending on clearance between existing pipes and utilities or possible relocation.		Sydney Water Sewer/Main and Sydney Trains HV under the road regrading section and intersection. May be feasible depending on required adjustments to the intersection, existing cover or relocation/increasing cover.	2	Proximity to Sydney Water assets, unlikely to be impacted. Short drainage length	
	Implementation Complexity	5%	Ease of constructability within Council's standard Capital Works Planning	1	Straightforward construction timeframe, though property acquisition is required	1	Straightforward drainage upgrade, though approvals may take time due to connection into ARTC culvert under the railway	-1	Drainage upgrades in multiple locations, can be staged	-1	Road regrading will require utility coordination for multiple assets	2	Construction timeframe less than 6 months, minor drainage upgrades only	
	Adaptability and long- term performance	10%	The impact the option will have both in terms of feasibility, benefits and cost over the life of the option, and adaptability to climate change conditions	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity		Unlike drainage upgrades, this surface flow diversion will provide more lasting flood mitigation in the event of climate change	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	
	Reduction in Risk to Life	15%	The impact on risk to life from the 20% AEP up to the PMF event	2	Slight reductions in H5 on Cardigan St in 1% and 20% AEP	0	Negligible impact	1	Reductions to H5 areas in both 1% and PMF, widespread reductions in flooding	2	Slight reduction to localised H5 in private properties, diverted flow (increases) in road corridor. Both increases and decreases to H5 in PMF. Reduction in flooding near basement carpark entry	1	Slight reduction to H3 in road corridor only. Some increases to H4-H5 in the road corridor for PMF. Reduced flooding of residential properties	
Social	Emergency Access and Evacuation	10%	The impact on the ability to evacuate or for NSW SES or emergency services under extreme flood conditions	2	Reductions in the surrounding road corridor and access to inundated properties	1	Reduction in flooding of roadway	2	Significant reductions in the road corridor at several locations	1	Reduction in flooding near basement carpark entry	1	Slight reduction to H3 in road corridor only. Some increases to H4-H5 in the road corridor for PMF	
ŏ	Social Disruption and Public Open Spaces	5%	The impact of the risk management option on social disruption and the use of public spaces	1	Reductions in the surrounding road corridor	1	Reduced flooding of rail corridor and train station, improving serviceability of these services	0	Increases and decreases in road corridor		Increases and decreases in road corridor	0	Increases and decreases in road corridor	
	Community and Stakeholder Support	10%	Support for the option based on FRM Committee meeting, stakeholder engagement and community consultation outcomes	0	Private property impacted. Noted area of flooding from responses in Flood Study, Council acknowledged area of flooding	1	Tying into ARTC assets, reduces flooding of the rail corridor and train station which will be beneficial for ARTC	2	Noted area of flooding from responses in Flood Study, Council acknowledged area of flooding	0 No response		2	Noted area of flooding from responses in Flood Study, Council acknowledged area of flooding	
ient	Impact on Fauna/Flora	5%	Likely impacts on Threatened Ecological Communities and Threatened Species	0	Negligible known impacts on fauna and flora	0	Negligible known impacts on fauna and flora	0	Negligible known impacts on fauna and flora		Negligible known impacts on fauna and flora		Negligible known impacts on fauna and flora	
Environment	Impact on Heritage	5%	Impact to Heritage items	1	Reduces the impact of flooding to heritage conservation area. HCA 8 Cardigan Street Heritage Conservation Area	1	Slightly reduces the impact of flooding to heritage conservation area. HCA 17 Kingston South Heritage Conservation Area	1	HCA 7 Kingston West Heritag Conservation Area		No impact	1	Slightly reduces the impact of flooding to heritage conservation area. HCA 11 North Kingston Estate Heritage Conservation Area (Newtown/Camperdown)	
			Total Score (from -22 to 22	11		5		9		7		12		
		To	otal Weighted Score (from -2.00 to 2.00)	1.15		0.15		1.05		0.85		1.25		

Category	Criterion Weighting Description of Criterion Assessment		JC18 – Kingston Road Drainage Upgrade 1			B – Kingston Road Drainage ade 2 (with upgrades under private properties)	JC2	0– Lennox Street Drainage Upgrade	JC23	– Clarendon Lane Drainage Upgrade	WC1 – Margaret Street Drainage Upgrade			
				Score	Comment	Score	Comment	Score	Comment	Score	Comment	Score	Comment	
	Benefit-Cost Ratio	20%	The cost effectiveness of the scheme, i.e. the tangible return on investment	2	BCR = 8.72	2	BCR = 3.91	2	BCR = 3.64	0	BCR = 0.81	1	BCR = 2.12	
	Reduction in Risk to Property	5%	Based on reduction in AAD, it establishes the tangible benefit of an option	2	AAD increase >\$200k	2	AAD increase >\$200k	2	AAD increase >\$200k	0 AAD increase <\$100k		2	AAD increase >\$200k	
Economic	Technical Feasibility	10%	Establishes the feasibility of options based on likely service constraints, environmental hazards, and programming contingincies such as land acquisition or agreements with external agencies	0	Crosses Sydney Water Sewer/Main in one location, short drainage length. Likely to be feasible depending on clearance between existing pipes and utilities or possible relocation.	-1	Crosses Sydney Water Sewer/Main in one location, short drainage length. Likely to be feasible depending on clearance between existing pipes and utilities or possible relocation. Proposed stormwater pipes under the private properties to be upgraded are Sydney Water Assets.	-1	Close proximity of long sections of drainage and crossing of utilities at multiple locations including Sydney Trains HV, NBN and Sydney Water Mains/Sewer. Through multiple local intersections	2	Crosses Sydney Water Main and NBN, short drainage length. Likely to be feasible depending on clearance between existing pipes and utilities or possible relocation.		Crosses multiple services including Sydney Water assets and NBN at 5 locations including under private properties	
	Implementation Complexity	5%	Ease of constructability within Council's standard Capital Works Planning	2	Construction timeframe less than 6 months, minor drainage upgrades only	-2	works under private properties, acquisition/easement required, Sydney Water asset so relevant approvals will be required.	-1	Long sections of drainage through multiple intersections, can be staged	2	Construction timeframe less than 6 months, minor drainage upgrades only	-1	works under private properties, acquistion/easement required	
	Adaptability and long- term performance	10%	The impact the option will have both in terms of feasibility, benefits and cost over the life of the option, and adaptability to climate change conditions	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	0	Climate change may increase frequency of flooding (considering a lifespan of 30-50 years), though this option will help to reduce that flooding severity	
	Reduction in Risk to Life	15%	The impact on risk to life from the 20% AEP up to the PMF event	1	Slight reduction to H3 in road corridor and for commercial and residential properties fronting the intersection	2	Slight reduction H3 in road corridor only and very localised H5 in two properties	2	Slight reduction in H3 in the road corridor (and very localised H5 in small lanes) only. Slight reduction to H4-H5 in PMF	0	Slight reductions to H1 and very localised H2 in low number of private properties	1	Reductions to localised H3. Slight reductions to H5 in PMF	
Social	Emergency Access and Evacuation	10%	The impact on the ability to evacuate or for NSW SES or emergency services under extreme flood conditions	0	Slight reductions in road corridor but H3 only	0	Reductions in road corridor but H3 only	1	Reductions in road corridor but H3 and very localised H5 in local lanes only. Slight reduction to H4-H5 in PMF	0	No impact to road corridor	1	Some reductions on Margaret St but H3 only. Slight reductions to H5 in PMF	
Ø	Social Disruption and Public Open Spaces	5%	The impact of the risk management option on social disruption and the use of public spaces	1	Slight decreases in road corridor	2	Decreases in road corridor	2	Decreases in road corridor	0	No impacts to public open spaces	0	Increases and decreases in road corridor	
	Community and Stakeholder Support	10%	Support for the option based on FRM Committee meeting, stakeholder engagement and community consultation outcomes	0	Would require tie in to existing Sydney Water asset	-1	Private property and Sydney Water asset impacted	2	a submission noting that road and footpaths on Lennox St are regularly flooded, even during moderate rainfalls and attached a photo from 2 April 2023 showing over flowing drains and gutters.	2	Noted area of nuisance flooding by residents and Council.		Private property impacted, however likely support for option for flooding in upper Whites Creek	
ent	Impact on Fauna/Flora	5%	Likely impacts on Threatened Ecological Communities and Threatened Species	-1	Potential slight impacts to threatened mammalia species due to drainage works	-1	Potential slight impacts to threatened mammalia species due to drainage works	0	Negligible known impacts on fauna and flora	0	Potential slight negative impacts (temporary) to nearby trees due to drainage works		Negligible known impacts on fauna and flora	
Environment	Impact on Heritage	5%	Impact to Heritage items	0	No impact	0	No impact	1	HCA 11 North Kingston Estate Heritage Conservation Area (Newtown/Camperdown)		Slightly reduces the impact of flooding to heritage conservation area. HCA 6 Annandale Farm Heritage Conservation Area		Both positive and negative impacts to flooding in different locations within heritage conservation area. HCA 5 Parramatta Road Commercial Precinct Heritage Conservation Area	
			Total Score (from -22 to 22	7		3		10		7		3		
		Т	otal Weighted Score (from -2.00 to 2.00)	0.75		0.55		1.10		0.55		0.40		

Table - Multi Criteria Assessment Outcomes - Property Modification and Emergency Management Options - All Sub-Catchments

					Property Modifica	ition (l	PM) Options	Emergency Management (EM) Options										
			g Description of Criterion Assessment		M6 -JC Stormwater System	ystem PM6 -WC Stormwater System			- Review of Local Flood	EM3 - Community Flood			15 - Flood Markers and	FM6	- Flood Data and Debrief			
Category	Criterion	Weighting			Maintenance		Maintenance	Pla	anning and Info to SES		Awareness		Signage	LIVIO	- I lood Data allu Debilei			
				Score	Comment	Score	e Comment	Score	Comment	Score	Comment	Score	Comment	Score	Comment			
	Benefit-Cost Ratio	20%	The cost effectiveness of the scheme, i.e. the tangible return on investment	1	JC BCR = 3.61, , though the efficacy of maintenance is dependent on timing, it is difficult to guarantee these benefits	1	WC BCR = 1.58, though the efficacy of maintenance is dependent on timing, it is difficult to guarantee these benefits	0	BCR = 1.0	0	BCR = 1.0	0	BCR = 1.0	0	BCR = 1.0			
	Reduction in Risk to Property	5%	Based on reduction in AAD, it establishes the tangible benefit of an option	1	AAD increase >\$200k, though the efficacy of maintenance is dependent on timing, it is difficult to guarantee these benefits	0	AAD increase <\$100k	0	Unknown impacts on flood damages, conservatively assumed to be negligible	0	Unknown impacts on flood damages, conservatively assumed to be negligible	0	Unknown impacts on flood damages, conservatively assumed to be negligible	0	Unknown impacts on flood damages, conservatively assumed to be negligible			
Economic	Technical Feasibility	10%	Establishes the feasibility of options based on likely service constraints, environmental hazards, and programming contingincies such as land acquisition or agreements with external agencies	2	Council would already have a maintenance schedule in place and can consider increasing frequency. However, should be noted that effectiveness of the maintenance schedule of stormwater system is dependent on timing of a rainfall event and may or may not have a significant impact	2	Council would already have a maintenance schedule in place and can consider increasing frequency. However, should be noted that effectiveness of the maintenance schedule of stormwater system is dependent on timing of a rainfall event and may or may not have a significant impact	2	Easy to implement a local flood planning review and allow for sharing of information with NSW SES	1	Depending on the awareness program to be developed, could be some complications with regards to encouraging community engagement with such a program	2	Easy to implement and install flood markers and signage	1	Council should already have a flood data collection scheme. Would need to ensure the availability of Council staff to respond to and record flooding at any time			
	Implementation Complexity	5%	Ease of constructability within Council's standard Capital Works Planning		Easy to increase maintenance schedule	2	Easy to increase maintenance schedule	2	Easy to implement a local flood planning review and allow for sharing of information with NSW SES	1	Depending on the awareness program to be developed, could be some complications with regards to encouraging community engagement with such a program	2	Easy to implement and install flood markers and signage	1	Council should already have a flood data collection scheme. Would need to ensure the availability of Council staff to respond to and record flooding at any time			
	Adaptability and long- term performance	10%	The impact the option will have both in terms of feasibility, benefits and cost over the life of the option, and adaptability to climate change conditions		No impact of adaptibility of maintenance to climate change conditions	0	No impact of adaptibility of maintenance to climate change conditions	2	Minimal ongoing costs for review. Review can be revised to consider climate change impacts in the future	1	Ongoing costs to maintain the flood awareness program, however following initial engagement ongoing information should be more straightforward. Can be adapted to climate change	2	Minimal ongoing costs for flood markers and signage. Signs can be altered to account for climate change if necessary, however unlikely to be needed	2	Ongoing costs will be variable based on flood event occurrence. Climate change should not significantly influence scheme			
	Reduction in Risk to Life	15%	The impact on risk to life from the 20% AEP up to the PMF event	1	Increased frequency of stormwater system management may or may not have an effect depending on timing of a rainfall event. Slight benefits if a rainfall event occurs right after scheduled maintenance	1	Increased frequency of stormwater system management may or may not have an effect depending on timing of a rainfall event. Slight benefits if a rainfall event occurs right after scheduled maintenance	2	Providing information to SES will assist them in their planning and consequently reduce risk to life	2	Expected reduction in risk to life through better responses of majority of residents	1	Expected reduction in risk to life through residents not attempting to enter floodwaters	0	Negligible direct impact on risk to life			
Social	Emergency Access and Evacuation	10.0%	The impact on the ability to evacuate or for NSW SES or emergency services under extreme flood conditions		Increased frequency of stormwater system management may or may not have an effect depending on timing of a rainfall event. Slight benefits if a rainfall event occurs right after scheduled maintenance	1	Increased frequency of stormwater system management may or may not have an effect depending on timing of a rainfall event. Slight benefits if a rainfall event occurs right after scheduled maintenance	2	Providing information to SES will assist them in their planning	2	A flood aware community will limit the number of instances of residents entering floodwaters	2	Will assist residents and the NSW SES identify depth of flooding for some crossings on evacuation routes	0	Negligible direct impact on emergency access and evacuation			
	Social Disruption and Public Open Spaces	5.0%	The impact of the risk management option on social disruption and the use of public spaces	0	Near neglible social disruption of residences with more frequent maintenance, no impact on open space or increase in flooding.	0	Near neglible social disruption of residences with more frequent maintenance, no impact on open space or increase in flooding.	0	No direct impact on social disruption or public open space	2	Improved community awareness seen as a social benefit	0	No direct impact on social disruption or public open space		No direct impact on social disruption or public open space			
	Community and Stakeholder Support	10%	Support for the option based on FRM Committee meeting, stakeholder engagement and community consultation outcomes		Two responses received during community consultation requesting more frequent stormwater maintenance. Supported by Council engineers	1	Two responses received during community consultation requesting more frequent stormwater maintenance. Supported by Council engineers	1	NSW SES confirmed support for continued data provision in light of Flood Plan development	1	NSW SES supports the development of a Council led flood awareness program	1	NSW SES supports the development of this measure. Would require TfNSW agreement for signage on major TfNSW roads	1	NSW SES supports continued flood debrief and recording of information			
ment	Impact on Fauna/Flora	5%	Likely impacts on Threatened Ecological Communities and Threatened Species	0	Negligible impact	0	Negligible impact	0	Negligible impact	0	Negligible impact	0	Negligible impact	0	Negligible impact			
Environ	Impact on Heritage	5%	Impact to Heritage items	0	Several heritage sites within catchment, negligible impact would be expected from stormwater maintenance	0	Several heritage sites within catchment, negligible impact would be expected from stormwater maintenance	0	Negligible impact	0	Negligible impact	0	Negligible impact	0	Negligible impact			
		Ţ	Total Score (from -22 to 22 Total Weighted Score (from -2.00 to 2.00)			8 0.85		1.10		10 0.95		10 0.95		5 0.45				

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