

LEGEND:

- PROP. SANITARY SEWER
- PROP. STORM SEWER
- PROP. WATER MAIN
- EX. SANITARY SEWER
- EX. STORM SEWER
- EX. WATER MAIN
- WATER SERVICE
- SANITARY SERVICE
- EXISTING FENCE
- CURB & GUTTER
- MANHOLE
- CATCH BASIN
- DITCH
- HEADWALL
- ASPHALT
- CONCRETE SIDEWALK



NOT FOR CONSTRUCTION

NOTICE TO CONTRACTOR

IT IS THE RESPONSIBILITY OF THE CONTRACTOR'S SURVEYOR TO VERIFY THAT ALL LEGAL SURVEY DIMENSIONS SHOWN ON THE ENGINEER'S DRAWINGS AGREE WITH THOSE ON THE REGISTERED LEGAL SURVEY PLAN. SHOULD THERE BE ANY DISCREPANCIES, THEN IMMEDIATELY NOTIFY THE ENGINEER OF RECORD

LEGAL DESCRIPTION:				
B.M. MONUMENT NO. LOCATED AT HILLCREST AVENUE & WAKESIAH AVENUE				
ELEVATION:				
REV. NO.	DESCRIPTION	DR	CH	DATE
1	50% DESIGN ISSUED FOR COORDINATION	AM	SL	JAN122020
2	REVISED COORDINATION SET	AM	SL	JAN312020
3	90% DESIGN ISSUED FOR COORDINATION	AM	SL	FEB142020
4	100% DESIGN ISSUED FOR COORDINATION	AM	SL	MAR232020
5	ISSUED FOR DEVELOPMENT PERMIT	AM	SL	APR022020

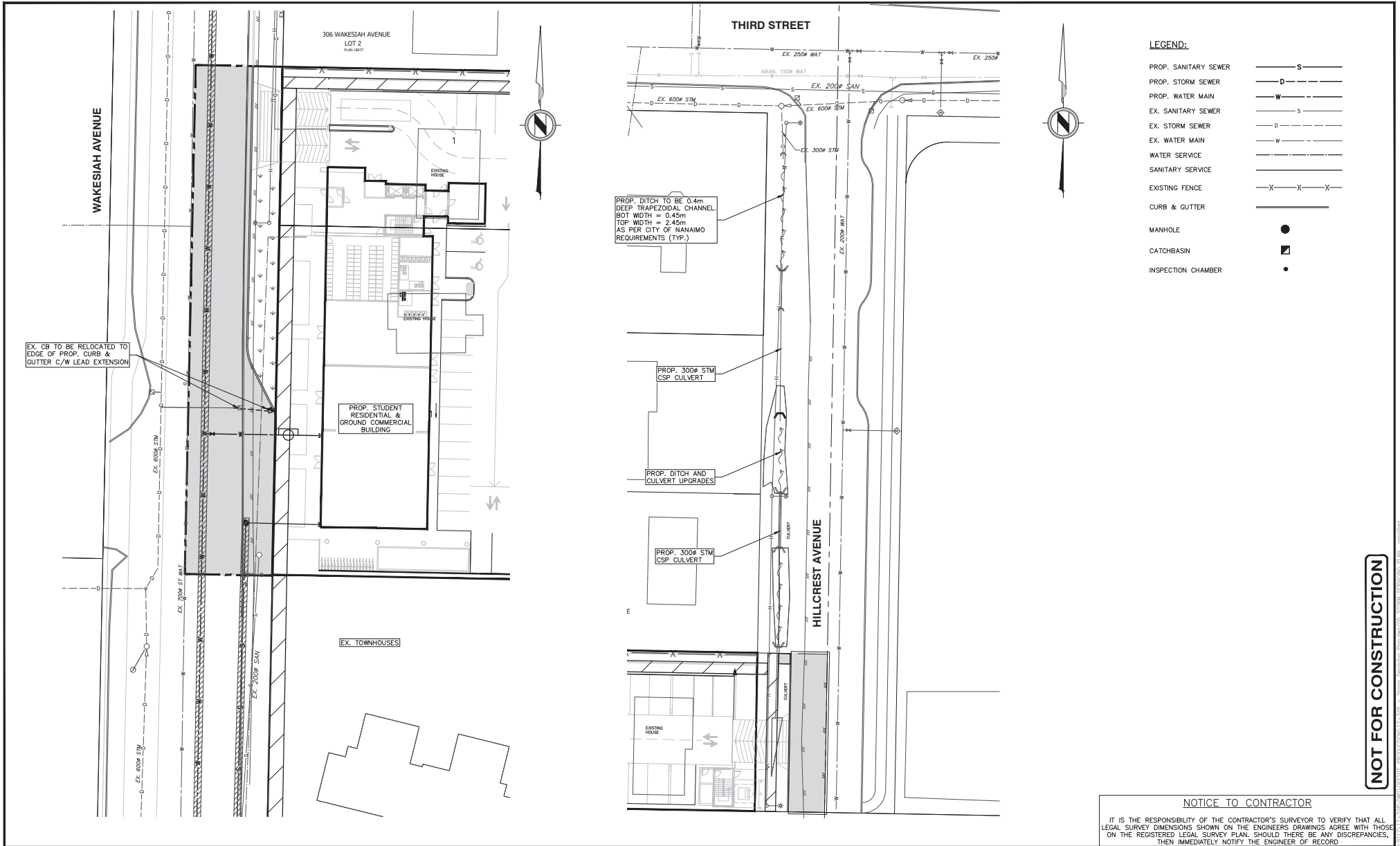
APLIN MARTIN
ENGINEERING AND TECHNICAL PLANNING SURVEYING
Aplin & Martin Consultants Ltd.
#104 - 6596 Applecross Road, Nanaimo, BC, Canada V9V 0A4
Tel: (779) 941-0484, Fax: (604) 997-9561, Email: general@aplinmartin.com

CLIENT:	ISLAND WEST COAST DEVELOPMENT LTD. 2214 McCULLOUGH ROAD, NANAIMO, BC, V9S 4M8 PH: 250-756-8665
PROJECT:	WAKESIAH STUDENT HOUSING 306 WAKESIAH AVENUE, NANAIMO, BC, V9R 3K4

The location of existing underground utilities are shown in an approximate way only & have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agree to be fully responsible for any and all damage which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

TITLE:	ONSITE SERVICING PLAN	DESIGN: VG DRAWN: VG	CHECK: SL APPR: SL
PROJECT NO.		A & M FILE: 17-328	
DRAWING NO.		DRAWING DATE: JULY, 2018	
		SHEET NO. 04 OF 16	REV. 05





LEGEND:

- PROP. SANITARY SEWER
- PROP. STORM SEWER
- PROP. WATER MAIN
- EX. SANITARY SEWER
- EX. STORM SEWER
- EX. WATER MAIN
- WATER SERVICE
- SANITARY SERVICE
- EXISTING FENCE
- CURB & GUTTER
- MANHOLE
- CATCHBASIN
- INSPECTION CHAMBER

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LEGAL DESCRIPTION:		CLIENT:		PROJECT:		TITLE:		DESIGN: VG		CHECK: SL	
B.M. MONUMENT NO. LOCATED AT HILLCREST AVENUE & WAKESIAH AVENUE		ISLAND WEST COAST DEVELOPMENT LTD.		WAKESIAH STUDENT HOUSING		STORM SERVICING PLAN		DRAWN: VG		APPR: SL	
ELEVATION:		2214 McCULLOUGH ROAD, NANAIMO, BC, V9S 4M8		306 WAKESIAH AVENUE, NANAIMO, BC, V9R 3K4		SCALE:		A & M FILE:		DRAWING DATE:	
REV. NO. DESCRIPTION		PH: 250-756-8665				HORZ. 1:250		17-328		JULY, 2018	
1 50% DESIGN ISSUED FOR COORDINATION		PROJECT:				VERT. N/A		SHEET NO.		REV.	
2 REVISED COORDINATION SET		APlin & Martin Consultants Ltd.				A & M DRAWING NO.		05 OF 16		05	
3 90% DESIGN ISSUED FOR COORDINATION		#104 - 6596 Applecross Road, Nanaimo, BC, Canada V9V 0A4									
4 100% DESIGN ISSUED FOR COORDINATION		Tel: (779) 941-0484, Fax: (604) 997-9561, Email: general@aplinmartin.com									
5 ISSUED FOR DEVELOPMENT PERMIT											

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LEGEND:

PROP. SANITARY SEWER	— S —
PROP. STORM SEWER	— D —
PROP. WATER MAIN	— W —
EX. SANITARY SEWER	— S —
EX. STORM SEWER	— D —
EX. WATER MAIN	— W —
WATER SERVICE	— —
SANITARY SERVICE	— —
EXISTING FENCE	— X — X — X —
CURB & GUTTER	— —
MANHOLE	●
CATCHBASIN	■
INSPECTION CHAMBER	•

NOTICE TO CONTRACTOR

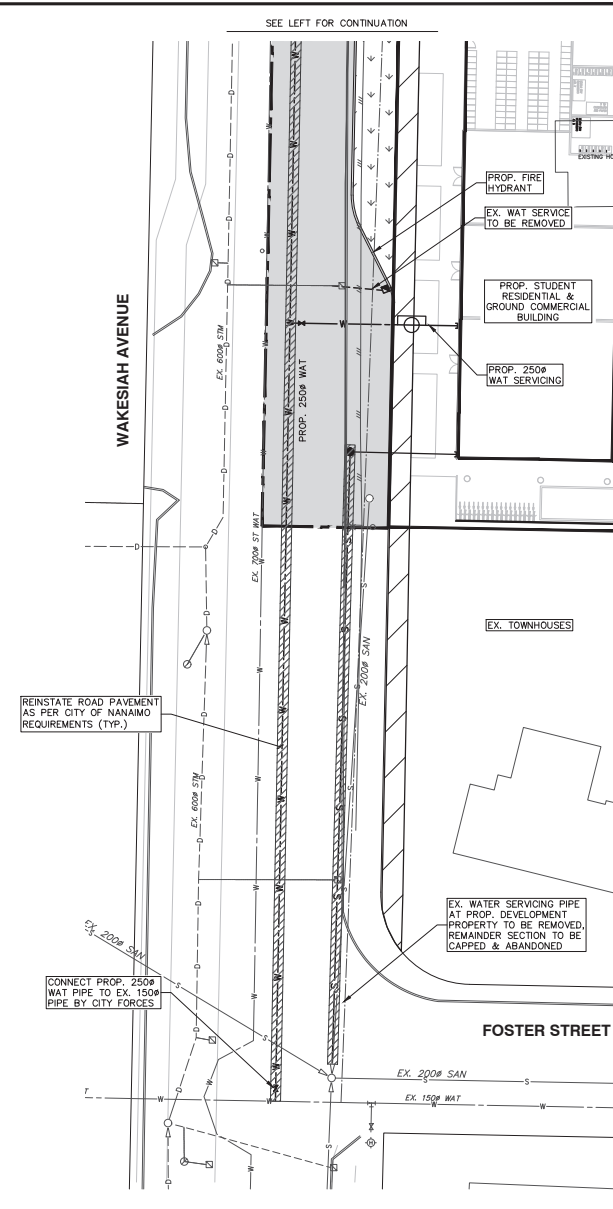
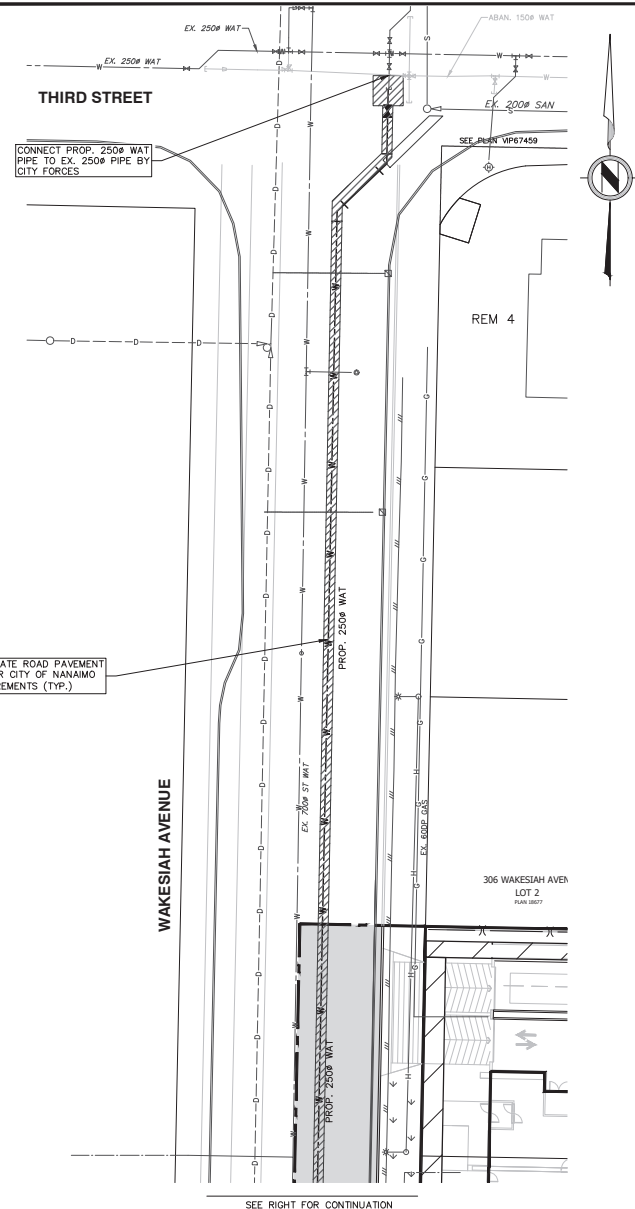
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WATER SERVICING PLAN

PROJECT NO.		SCALE:		DESIGN: VG		CHECK: SL	
DRAWING NO.		HORIZ. 1:250		DRAWN: VG		APPR: SL	
		VERT. N/A				A & M FILE:	
						17-328	
						DRAWING DATE:	
						JULY, 2018	
						SHEET NO.	
						06 OF 16	
						REV.	
						05	

0 2 1250 12m

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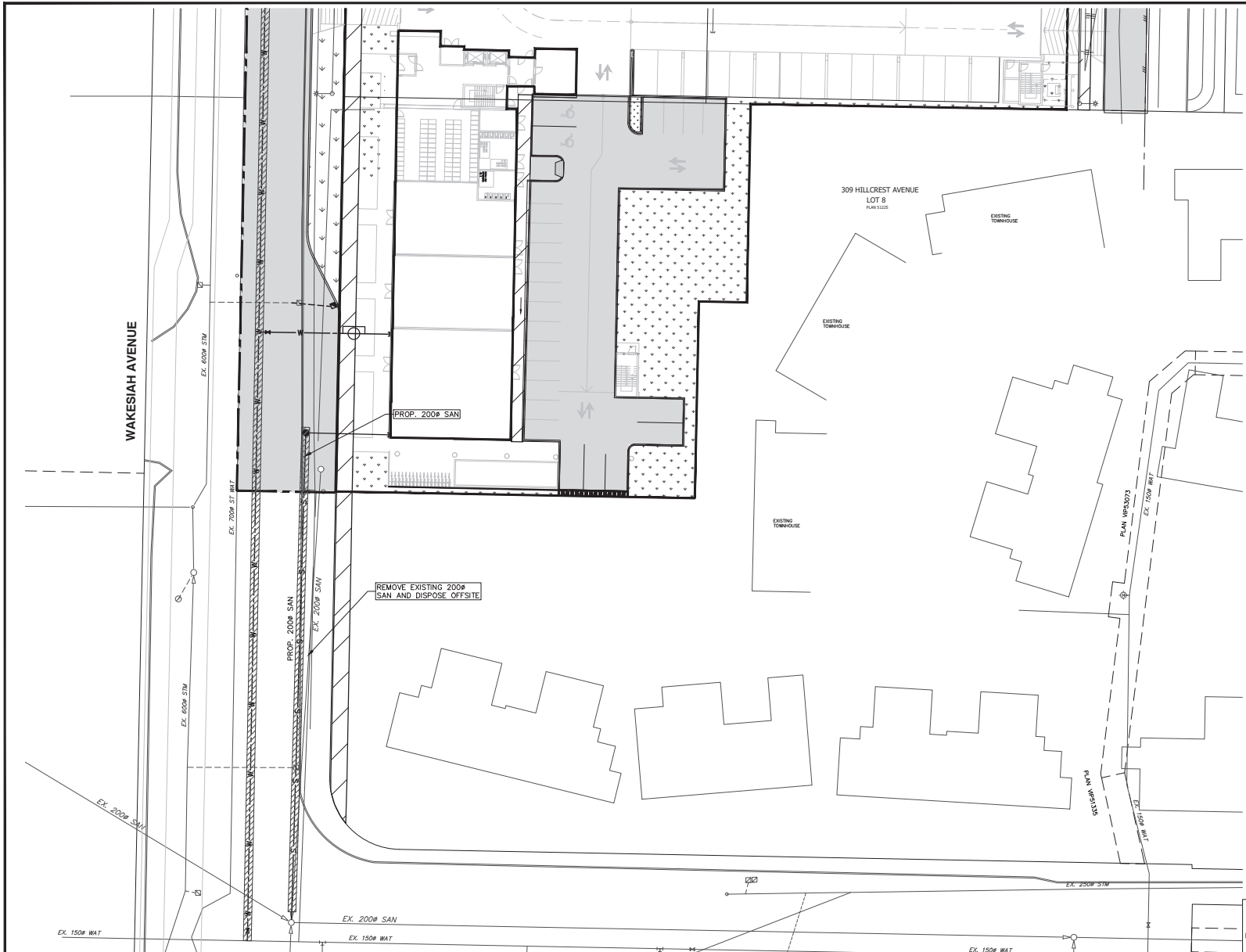


LEGAL DESCRIPTION:					
B.M. MONUMENT NO.		ELEVATION:			
LOCATED AT HILLOREST AVENUE & WAKESIAH AVENUE					
REV. NO.	DESCRIPTION	DR	CH	DATE	APP.
1	50% DESIGN ISSUED FOR COORDINATION	AM	SL	JAN212020	SL
2	REVISED COORDINATION SET	AM	SL	JAN312020	SL
3	90% DESIGN ISSUED FOR COORDINATION	AM	SL	FEB142020	SL
4	100% DESIGN ISSUED FOR COORDINATION	AM	SL	MAR232020	SL
5	ISSUED FOR DEVELOPMENT PERMIT	AM	SL	APR022020	SL

APLIN MARTIN
 CONSULTING ARCHITECTURE PLANNING SURVEYING
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CLIENT:		ISLAND WEST COAST DEVELOPMENT LTD.	
		2214 McCULLOUGH ROAD, NANAIMO, BC, V9S 4M8 PH: 250-756-8665	
PROJECT:		WAKESIAH STUDENT HOUSING	
		308 WAKESIAH AVENUE, NANAIMO, BC, V9R 3K4	

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PROP. SANITARY SEWER ——— S ———
EX. SANITARY SEWER ——— S ———
EX. STORM SEWER ——— D ———
EX. WATER MAIN ——— W ———
WATER SERVICE ——— ———
SANITARY SERVICE ——— ———
EXISTING FENCE ——— X ———
CURB & GUTTER ——— ———
MANHOLE ●
ASPHALT ———
CONCRETE SIDEWALK ———

NOT FOR CONSTRUCTION

LEGAL DESCRIPTION:					CLIENT:					TITLE:				
B.M. MONUMENT NO. LOCATED AT HILLCREST AVENUE & WAKESIAH AVENUE					ISLAND WEST COAST DEVELOPMENT LTD.					SANITARY SERVICING PLAN				
ELEVATION:					2214 McCULLOUGH ROAD, NANAIMO, BC, V9S 4M8					DESIGN: VG CHECK: SL				
REV. NO. DESCRIPTION					PH: 250-756-8665					A & M FILE: 17-328				
1	50% DESIGN ISSUED FOR COORDINATION	AM	SL	JAN12/2020	SL	PROJECT:					DRAWING DATE: JULY, 2018			
2	REVISED COORDINATION SET	AM	SL	JAN31/2020	SL	WAKESIAH STUDENT HOUSING					SHEET NO. 07 OF 16			
3	90% DESIGN ISSUED FOR COORDINATION	AM	SL	FEB14/2020	SL	308 WAKESIAH AVENUE, NANAIMO, BC, V9R 3K4					REV. 05			
4	100% DESIGN ISSUED FOR COORDINATION	AM	SL	MAR23/2020	SL	PROJECT NO. .					SCALE: HORIZ. 1:250 VERT. N/A			
5	ISSUED FOR DEVELOPMENT PERMIT	AM	SL	APR02/2020	SL	DRAWING NO. .					A & M DRAWING NO. 17-328- 07			

APLIN MARTIN

DESIGNERS AND ARCHITECTURE PLANNING SURVEYORS

Aplin & Martin Consultants Ltd.

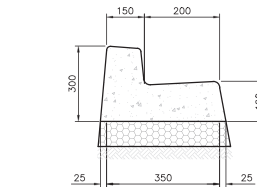
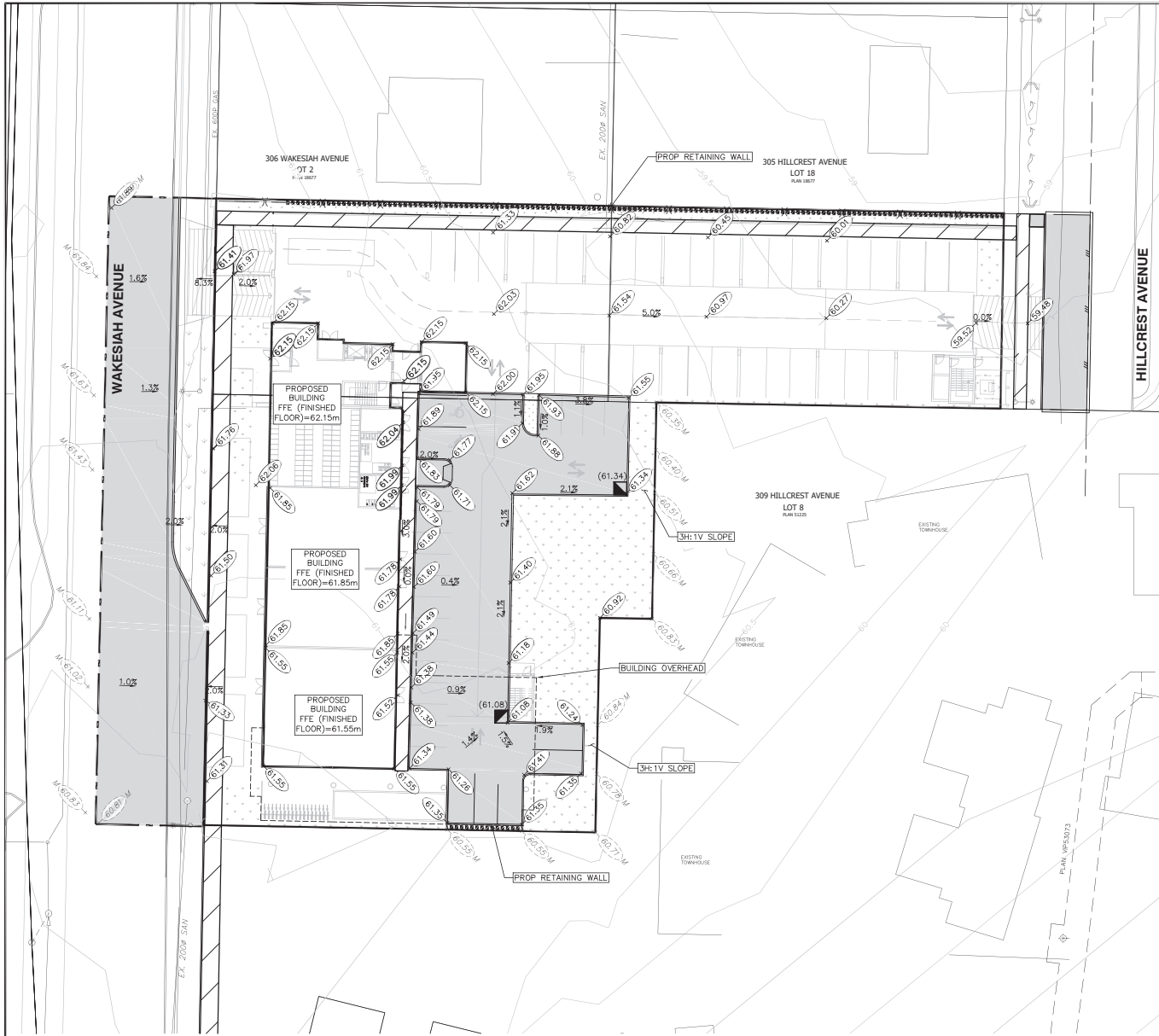
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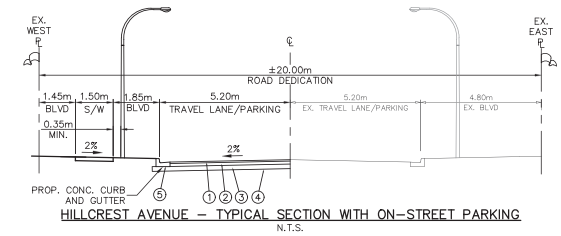
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0 2 1250 12m



ONSITE BARRIER CURB & GUTTER DETAIL
N.T.S.



LEGEND	
EXISTING ELEVATION	99.99
PROPOSED ELEVATION	99.99
MEET EXISTING ELEVATION	99.99 M
GRADE	9.9%
EXISTING GROUND CONTOUR	99.5
MBE = MIN. BUILDING ELEVATION	MBE=88.85m
FFE = FIRST FLOOR ELEVATION	FFE=88.65m
SODDED SWALE	
CATCH BASIN	
LAWN BASIN	
RIM ELEVATION	(99.99)
ASPHALT PAVEMENT	
LANDSCAPING	
CURB & GUTTER	
EDGE OF ASPHALT PAVEMENT	
RETAINING WALL	

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B.M. MONUMENT NO. LOCATED AT HILLCREST AVENUE & WAKESIAH AVENUE	ELEVATION:
REV. NO. DESCRIPTION	DR CH DATE APP
1 50% DESIGN ISSUED FOR COORDINATION	AM SL JAN212020 SL
2 REVISED COORDINATION SET	AM SL JAN312020 SL
3 90% DESIGN ISSUED FOR COORDINATION	AM SL FEB142020 SL
4 100% DESIGN ISSUED FOR COORDINATION	AM SL MAR232020 SL
5 ISSUED FOR DEVELOPMENT PERMIT	AM SL APR022020 SL

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TITLE:	ONSITE GRADING PLAN	DESIGN: VG	CHECK: SL
PROJECT NO.		DRAWN: VG	APPR: SL
DRAWING NO.		A & M FILE:	17-328
		DRAWING DATE:	JULY, 2018
		SHEET NO.	08 OF 16
		REV.	05

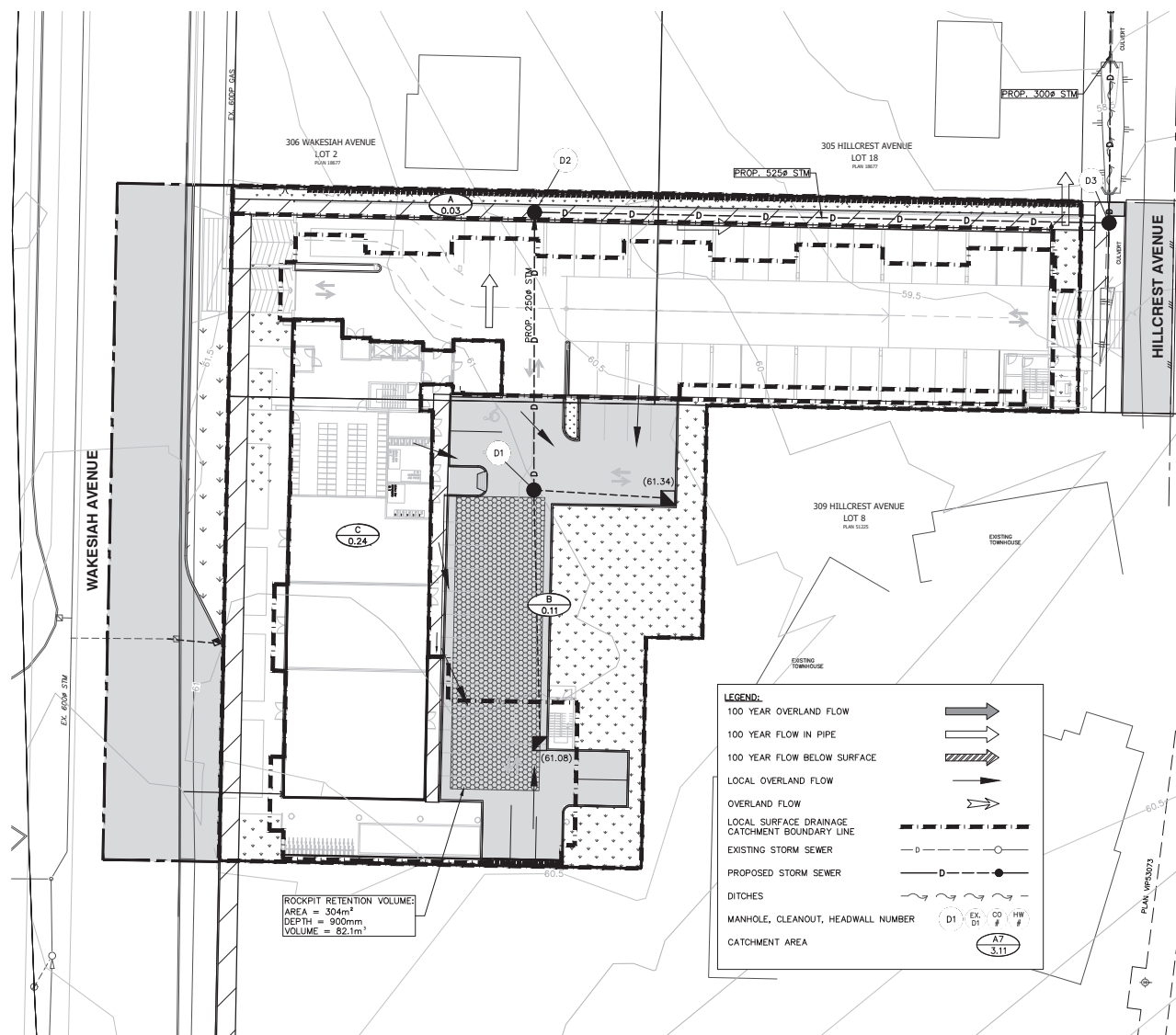


NOT FOR CONSTRUCTION

[illegible]

5. YEAR DETENTION REQUIREMENTS					10 YEAR DETENTION REQUIREMENTS				
INLINE STORAGE CALCULATIONS									
PIPE STORAGE									
Location	Length (m)	Diameter (mm)	Area (m ²)	Volume (m ³)					
TP 10 TO Q1	43	0.525	0.206	15.42					
MANHOLE STORAGE									
Location	Depth (m)	Diameter (mm)	Area (m ²)	Volume (m ³)					
Q2	0.525	150	172	0.33					
SUMMARY				15.75					
Total Volume Detained (m ³)				15.75					
Target Volume To be Detained (m ³)				15.3					
Design Check				OK					
DETENTION PROVIDED									
APLIN MARTIN									
SURFIC EROSION PREVENTION CALCULATIONS									
PROJECT NAME: <i>Washburn Residential</i>									
ADDRESS: _____									
DATE: 2020-04-02									
Pre Development									
Area	Run	Area	Runoff	Area-Weighted Average Runoff					
_____	_____	_____	_____	_____					

Total Site Area				COEFFICIENT			
Impervious	4632.50	100%	0.90				
Permeable	4632.50	100%	0.05			0.04	
Roof	4632.50	100%	0.90				
Driveway	4632.50	100%	0.90				
Runoff	4632.50	100%	0.90				
Runoff Development							
	Area	%	Runoff Coefficient		Area	Integrated Runoff Coefficient	
Total Site Area	4632.50	100%			4632.50		
Impervious	4632.50	100%	0.90		4632.50	0.90	
Roof	4632.50	100%	0.90		4632.50	0.90	
Driveway	4632.50	100%	0.90		4632.50	0.90	
Runoff	4632.50	100%	0.90		4632.50	0.90	

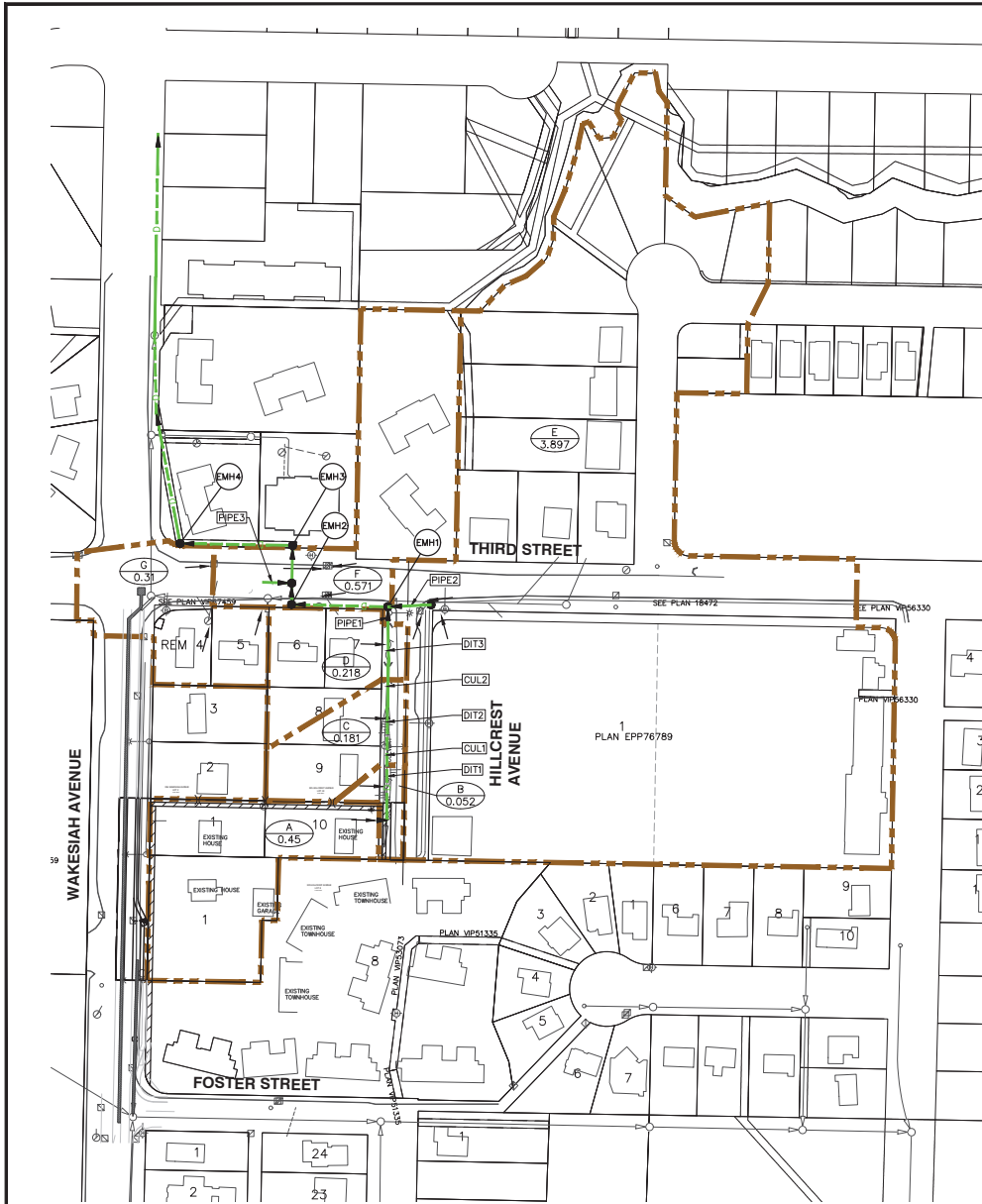


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TITLE: ONSITE STORM WATER MANAGEMENT PLAN		DESIGN: VG DRAWN: VG	CHECK: SL APPR: SL
		A & M FILE: 17-328	
PROJECT NO. *		DRAWING DATE: JULY, 2018	
SCALE: HORIZ. 1:250 VERT. N/A			
DRAWING NO. *	A & M DRAWING NO. 17-328- 15	SHEET NO. 15 OF 16	REV. 05



DRAINAGE SYSTEM DESIGN - CALCULATION SHEET																						
MUN. PROJECT # :				DESIGN RETURN PERIOD: 100 year (updated Nov 2016)								A&M Project No: 17-328										
PROJECT TITLE: Wakesiah Student Housing Storm Catchment Plan - Offsite Storm Drainage				Manning's "n": 0.013								Sheet: 1 of 1										
PROJECT: 13-328				100 = RAIN N = 0.00278								Date: Dec-12-19										
LOCATION: 308 Wakesiah Avenue, Nanaimo, BC				NANAIMO RAINFALL INTENSITY CURVE								By: VG										
LOCATION of Drainage Area				From MH	To MH	Tributary Area "ha"		SUM A/R	Time of Concentration "Min"	Rain Fall Int. "I"	Q100	Sewer Design			Remarks							
						A	R	AxH		Inlet	Sect.	Total	mm	cm	S	DIA	L	M	v	Ocap	100 YEAR FLOW ROUTES	
															%					m/s		
A (PROJECT SITE)				D1	DT1	0.450	0.9	0.41	0.41	10.00			10.00	46	0.051	3.000	300	10.58	2.370	0.1675		IN PIPE
B				DT1	CU1	0.052	0.8	0.04	0.45	10.00	0.07	10.07	45	0.056	3.000		13.88	2.905	1.4525		IN DITCH	
				CU1	DT2				0.45	10.00	0.08	10.15	45	0.056	3.000	300	8.24	2.370	0.167		IN PIPE	
C				DT2	CU2	0.181	0.75	0.14	0.58	10.15	0.06	10.21	45	0.073	3.000		13.88	2.905	1.4525		IN DITCH	
				CU2	DT3				0.58	10.21	0.08	10.29	45	0.073	3.000	300	5.66	2.370	0.167		IN PIPE	
D				DT3	PIPE1	0.218	0.8	0.17	0.76	10.29	0.04	10.33	45	0.094	0.500		13.88	1.186	0.5930		IN DITCH	
				PIPE1	EMH1				0.76	10.33	0.20	10.53	44	0.093	0.450	375	6.92	1.065	0.118		IN PIPE	
E				PIPE2	EMH1	3.897	0.75	2.92	2.92	10.00	0.04	10.04	46	0.370	0.500	600	16.00	1.536	0.434		IN PIPE	
F				EMH1	EMH2	0.571	0.8	0.46	0.44	10.53	0.20	10.72	44	0.506	0.700	600	38.00	1.817	0.514		IN PIPE	
G				PIPE3	EMH2	0.31	0.75	0.23	0.23	8.00	0.20	8.20	51	0.033	0.500	375	9.00	1.123	0.124		IN PIPE	
				EMH2	EMH3				4.37	10.72	0.11	10.82	44	0.531	1.000	525	23.50	1.987	0.430		ABOVE PIPE (CITY TO UPSIZE)	