

Aplin & Martin Consultants Ltd. #104 - 6596 Applercross Road, Nanaimo, BC, Canada V9V 0A4 Tel: (778) 841-0484, Fax: (604) 597-9061, Email: general@aplinmartin.com

#### **DEVELOPER:**

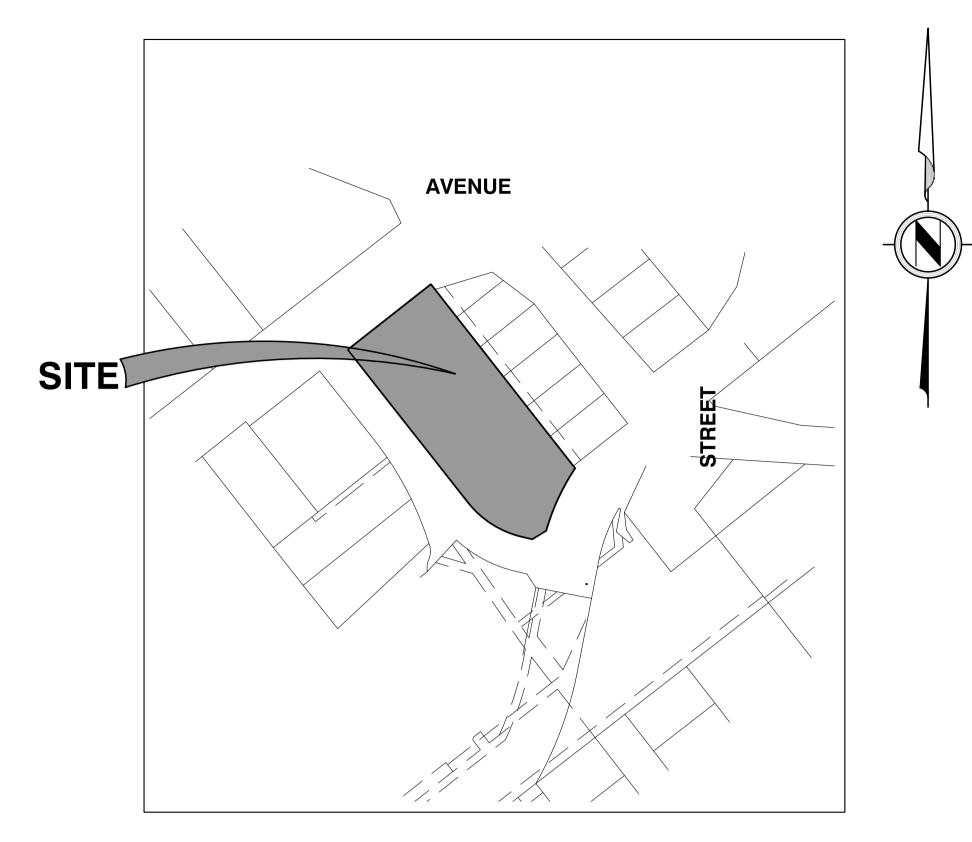
#### SARGENT CONSTRUCTION LTD.

422 KINCAID STREET, VICTORIA, BC V8X 4K7 Tel: (250) 415-8305

#### PROJECT:

#### **HOLIDAY INN EXPRESS**

310, 320, AND 336 HUNT ROAD, COURTENAY, BC V9N 5N2



#### SITE LOCATION PLAN

1: 2000

### DRAWING INDEX

DRAWING No. REV No. DRAWING TITLE

COVER 20-8009-00 20-8009-01 **GENERAL NOTES** 20-8009-02 20-8009-03 **GRADING PLAN** SERVICING PLAN

20-8009-08 **DETAILS** 

20-8009-10

STORMWATER MANAGEMENT PLAN 20-8009-09 STORMWATER MANAGEMENT CALCULATIONS



MUNICIPAL PROJECT No. **APLIN & MARTIN PROJECT No.** 

3360-20-2002

20-8009

- 1. ALL CONSTRUCTION AND MATERIALS ARE TO BE IN ACCORDANCE WITH CITY OF COURTENAY SUBDIVISION AND DEVELOPMENT SERVICING BYLAW 2919.
- 2. ALL ELEVATIONS ARE METRIC AND TO GEODETIC DATUM. COORDINATES ARE GROUND LEVEL (UTM NAD 83 WITH COMBINED SCALE FACTOR OF 1/0.99965).
- 3. ALL LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED BY USE OF A PIPE LOCATOR AND MANUAL DIGGING. ANY OR ALL EXISTING STRUCTURES ARE NOT NECESSARILY SHOWN.
- 4. LOCATION OF SERVICE CONNECTIONS TO BE DETERMINED IN THE FIELD, UNLESS SHOWN OTHERWISE.
- 5. ANY ALTERNATIVES TO SPECIFIED MATERIALS OR APPURTENANCES TO BE APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.
- 6. THE LOCATIONS OF EXISTING SERVICES ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION. EXISTING AND PROPOSED SERVICES MAY REQUIRE ADJUSTMENT WHERE A CONFLICT OCCURS. THE ENGINEER OF RECORD SHALL BE NOTIFIED OF ANY CONFLICT OR VARIANCE FROM DRAWINGS.
- 7. TRENCHING DETAIL TO BE AS PER MMCD STD DWG G4. TRAVELED AREA BACKFILL TO BE IMPORTED GRANULAR MATERIAL COMPACTED TO MINIMUM 95% MODIFIED PROCTOR, UNLESS OTHERWISE APPROVED BY THE GEOTECHINCAL ENGINEER OF RECORD.
- 8. ASPHALT PAVEMENT RESTORATION TO BE AS PER MMCD STD DWG G5.
- 9. ALL DISTURBED STRUCTURES, VEGETATION, AND SURFACE FEATURES (ROADS, CURBS, SIDEWALKS, ETC) SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AS PER SATISFACTION OF ENGINEER OF RECORD, CITY OF COURTENAY, AND PROPERTY OWNER.
- 10. CONTRACTOR TO COMPLY WITH THE REQUIREMENTS OF THE TRAFFIC CONTROL MANUAL FOR WORK ON ROADWAYS. AS PUBLISHED BY THE BC MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE: CONTRACTOR TO COMPLY WITH THE REGULATION OF VEHICLE AND PEDESTRIAN USE OF ROADWAYS OVER WHICH IT IS NECESSARY TO CARRYOUT WORK OR HAUL MATERIALS AND EQUIPMENT.
- 11. CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE A TRAFFIC MANAGEMENT PLAN (TMP) FOR REVIEW AND ACCEPTANCE BY THE CITY AT LEAST TEN (10) WORKING DAYS PRIOR TO ANY TRAVEL LANE CLOSURES TAKING PLACE. THE TMP IS TO BE PREPARED BY A QUALIFIED PROFESSIONAL AND IS TO BE REVISED AND RESUBMITTED AS REQUIRED DURING THE PROGRESS OF WORK.
- 12. CONTRACTOR TO NOTIFY THE CITY OF COURTENAY, ALL EMERGENCY SERVICE AGENCIES, AND BC TRANSIT OF THE SUBSEQUENT WORK ZONE AREA, SPEED REDUCTIONS, OR DETOURS WHICH MAY AFFECT TRAFFIC FLOW.
- 13. CONTRACTOR SHALL PROVIDE EMERGENCY ACCESS TO PROPERTIES AT ALL TIMES DURING CONSTRUCTION
- 14. CONTRACTOR SHALL PROVIDE VEHICULAR ACCESS TO PROPERTIES AT THE END OF DAILY CONSTRUCTION
- 15. CONTRACTOR SHALL PROVIDE AND ERECT ALL APPROPRIATE CONSTRUCTION ZONE SIGNAGE AND USED CERTIFIED FLAG PERSONNEL TO MAINTAIN SAFE AND EFFICIENT TRAFFIC FLOW THROUGH AND AROUND THE WORK SITE.
- 16. A PERMIT TO CONSTRUCT WORKS WITHIN A MUNICIPAL ROAD ALLOWANCE, STATUTORY RIGHT-OF-WAY, AND/OR MUNICIPAL PROPERTY SHALL BE OBTAINED FROM PUBLIC WORKS.

#### WATERMAIN NOTES:

- 1. ALL WATERMAINS TO BE PVC DR18, AND HAVE A MINIMUM 1.2m OF COVER.
- 2. EXISTING PIPE TO BE REMOVED ONCE EXISTING WATERMAIN IS DECOMMISSIONED OR AS APPROVED BY THE ENGINEER OF RECORD.
- 3. ALL WATERMAIN JOINTS SHALL BE FULLY RESTRAINED.
- 4. ALL WATERMAIN JOINTS WITHIN 3.0m HORIZONTAL OR 0.5m VERTICAL OF SANITARY OR STORM DRAIN MAINS SHALL BE PROTECTED BY SHRINK WRAP OR PETROLEUM TAPE.
- 5. PRESSURE TESTING, CHLORINATION, AND BACTERIOLOGICAL TESTING TO BE IN ACCORDANCE WITH THE CITY OF COURTENAY STANDARDS AND SPECIFICATIONS.
- 6. CITY PUBLIC WORKS REPRESENTATIVE ARE TO OPERATE ALL EXISTING WATER VALVES.

#### SANITARY SEWER NOTES:

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- 1. ALL MAINS TO BE PVC SDR35, AND HAVE A MINIMUM 1.5m OF COVER IN ROAD RIGHT-OF-WAYS AND 1.0m IN UNTRAVELED AREAS, UNLESS APPROVED BY THE ENGINEER OF RECORD AND CITY OF COURTENAY.
- 2. ALL SANITARY SERVICE CONNECTIONS TO BE 1500 PVC SDR28 UNLESS NOTED OTHERWISE
- 3. ALL SANITARY FORCEMAINS TO BE HDPE DR12 UNLESS NOTED OTHERWISE.
- 4. ALL SANITARY SERVICE BOXES TO BE IN ACCORDANCE WITH THE CITY OF COURTENAY STD DWG'S CSSD S9.
- 5. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SERVICE TO EXISTING USERS DURING CONSTRUCTION THROUGH BYPASS PUMPING. THE CONTRACTOR IS TO PROVIDE A BYPASS PUMPING PLAN PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL ENSURE THAT THE PUMPING EQUIPMENT IS KEPT IN GOOD WORKING CONDITION DURING THE PROJECT.
- 6. ALL ASBESTOS CEMENT PIPING ENCOUNTERED WITHIN THE TRENCHLINE SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH WORKSAFE BC AND MUNICIPALITY REQUIREMENTS.
- 7. ALL PIPING AND RELATED APPURTENANCES TO BE INSPECTED AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO BACKFILLING OF THE TRENCH.
- 8. THE CONTRACTOR IS TO FLUSH ALL MAINS AND PROVIDE CCTV INSPECTION TO THE CITY OF COURTENAY PRIOR TO ASPHALT RESTORATION.
- 9. ALL TESTING TO BE IN ACCORDANCE WITH THE CITY OF COURTENAY STANDARDS AND SPECIFICATIONS.

#### STORM DRAINAGE NOTES:

- 1. ALL MAINS TO BE PVC SDR35, AND HAVE A MINIMUM 1.5m OF COVER IN ROAD RIGHT-OF-WAYS AND 1.0m IN UNTRAVELED AREAS, UNLESS APPROVED BY THE ENGINEER OF RECORD AND CITY OF COURTENAY.
- 2. ALL STORM DRAINAGE SERVICE CONNECTIONS TO BE 1500 PVC SDR28, UNLESS NOTED OTHERWISE.
- 3. ALL CATCH/LAWN BASIN LEADS TO BE 2000 PVC SDR35. UNLESS NOTED OTHERWISE.
- 4. ALL PERFORATED DRAIN PIPES TO BE PVC SDR35. UNLESS NOTED OTHERWISE
- 5. ALL STORM DRAINAGE SERVICE BOXES TO BE IN ACCORDANCE WITH THE CITY OF COURTENAY STD DWG CSSD S9.
- 6. ALL CATCH BASINS TO BE CITY OF COURTENAY AS PER STD DWG CSSD S11, UNLESS NOTED OTHERWISE.
- 7. DO NOT PLUG OR ABANDON AN EXISTING STORM DRAINAGE CONNECTION WITHOUT WRITTEN APPROVAL FROM THE CITY OF COURTENAY CONSTRUCTION REPRESENTATIVE.
- 8. PROPOSED STORM DRAINAGE SERVICES ARE TO BE INSTALLED BELOW EXISTING BASEMENT ELEVATION OR AT THE SAME INVERT AS THE SANITARY SERVICES WHERE POSSIBLE, UNLESS OTHERWISE APPROVED BY THE ENGINEER OF RECORD.
- 9. ALL EXISTING CULVERTS AND STORM DRAIN SYSTEMS THAT ARE TO BE ABANDONED SHALL BE INSPECTED FOR EXISTING STORM SERVICE LEADS. ALL EXISTING LEADS ARE TO BE CONNECTED TO THE NEW STORM SEWER SYSTEM.
- 10. ALL PIPING AND RELATED APPURTENANCES TO BE INSPECTED AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO BACKFILLING OF THE TRENCH.
- 11. THE CONTRACTOR IS TO FLUSH ALL MAINS AND PROVIDE CCTV INSPECTION TO THE CITY OF COURTENAY PRIOR TO ASPHALT RESTORATION.

#### EROSION & SEDIMENT CONTROL (ESC) NOTES:

- 1. UNDER THIS PLAN, ALL PERSONS INCLUDING BUT NOT LIMITED TO THE DEVELOPER, OWNER OF THE LAND, THE ENGINEER OF RECORD, ESC SUPERVISOR, CIVIL CONTRACTOR, CIVIL SUB-CONTRACTOR, BUILDER & BUILDING SUB-TRADES, HEREIN AFTER REFERRED TO AS THE OWNER/DEVELOPER/PERSON RESPONSIBLE, ENGAGED ON SITE SHALL COMPLY WITH ALL REGULATORY REQUIREMENTS SPECIFIED BY FEDERAL, PROVINCIAL, AND MUNICIPAL AUTHORITIES; PERTAINING TO ON SITE MANAGEMENT AND DISCHARGE ASSOCIATED WITH ESC REGULATIONS.
- 2. ALL WORK ASSOCIATED WITH THE SUBJECT PROJECT SHALL COMPLY WITH THE REQUIREMENTS OF THE FEDERAL FISHERIES ACT, AND ALL OTHER APPLICABLE LAWS, LEGISLATION, AND BEST MANAGEMENT PRACTICES (BMP'S). NOTE THAT SECTION 36(3) OF THE FEDERAL FISHERIES ACT PROHIBITS THE DISCHARGE OF DELETERIOUS SUBSTANCES TO WATERS FREQUENTED BY FISH EITHER DIRECTLY OR INDIRECTLY AS BY STORM SEWER. DUE DILIGENCE IS REQUIRED AT ALL TIMES TO PREVENT SUCH DISCHARGES AND ADHERENCE TO THESE CONDITIONS DOES NOT PROVIDE RELIEF FROM ONGOING RESPONSIBILITIES IN THIS REGARD. ESC MEASURES SHOULD MEET OR SURPASS THE STANDARDS OUTLINED IN THE FISHERIES AND OCEANS CANADA "LAND DEVELOPMENT GUIDELINES FOR THE PROTECTION OF AQUATIC HABITAT"
- 3. THE DEVELOPER/PERSON RESPONSIBLE SHALL ENSURE THAT ALL CONSTRUCTION ACTIVITIES ARE UNDERTAKEN IN A MANNER THAT ENSURE THE BMP'S ARE IMPLEMENTED TO PREVENT AND CONTAIN ON-SITE SILT LADEN RUNOFF THAT EXCEEDS 75/MG/L TSS FROM ENTERING DOWNSTREAM DRAINAGE INFRASTRUCTURE AND AQUATIC SYSTEMS.
- 4. GENERAL CONTRACTOR IS TO OBTAIN AND UPDATED COPY OF THE LAND DEVELOPMENT GUIDLINES PREPARED BY THE BRITISH COLUMBIA MINISTRY OF ENVIRONMENT
- 5. GENERAL CONTRACTOR TO HAVE A COPY OF THE ESC PLAN ONSITE AT ALL TIMES, AND ENSURE SIGNAGE IS IN
- 6. THE ESC SUPERVISOR IS RESPONSIBLE TO MONITOR, INSPECT, AND REPORT TO THE DEVELOPER AND CONTRACTOR ON ESC FACILITIES & SITE DISCHARGE PERFORMANCE IN ACCORDANCE WITH THE BMP'S
- 7. THE DEVELOPER/OWNER/PERSONS RESPONSIBLE MUST COMPLY WITH THE ESC PLAN WITHIN THE SPECIFIED TIMEFRAME. AND COMPLY WITH ALL INSTRUCTIONS ISSUED BY THE ESC SUPERVISOR TO RECTIFY DEFICIENCIES.
- 8. ALL WORKS TO BE INSTALLED BY CONTRACTOR UNDER SUPERVISION AND DIRECTION OF THE ESC SUPERVISOR AND/OR ENGINEER OF RECORD
- 9. CONTRACTOR SHALL UNDERTAKE MEASURES TO LIMIT THE TRANSPORT OF SEDIMENT ONTO MUNICIPAL ROADWAYS.

#### MAINTENANCE ALL STAGES (AS APPLICABLE):

- 1. UPON INSTRUCTION/NOTIFICATION BY THE ENGINEER OF RECORD OR ESC SUPERVISOR: PERSONS RESPONSIBLE ARE REQUIRED TO UNDERTAKE MAINTENANCE ACTIVITIES AS DEEMED SPECIFIED TO MODIFY OR MAINTAIN ESC FACILITIES.
- 2. ALL CATCH BASIN FILTER SOCKS ARE TO BE INSPECTED WEEKLY OR FOLLOWING STORM EVENTS. INLINE FILTERS ARE TO BE REMOVED AND CLEANED AT 40% CAPACITY.
- 3. DEVELOPER OR BUILDER MUST REGULARLY CLEAN PAVED ROAD SURFACES OF ACCUMULATED SEDIMENTS AT THE END OF EACH DAY OR AS REQUIRED. NO SOIL, SAND, OR OTHER MATERIAL WITH HIGH SEDIMENT CONTENT SHALL BE DEPOSITED OR PILED OUTSIDE OF THE PROPERTY BOUNDARIES, PARTICULARLY ON PAVED ROAD SURFACES.
- 4. DUST NUISANCE WILL BE REDUCED BY USE OF WATER SPRAYED ON THE EXPOSED SOURCE OF THE DUST. FREQUENCY OF THE SUPPRESSION WILL BE AS REQUIRED OR AS DIRECTED BY THE ENGINEER OF RECORD.
- 5. SEDIMENT FENCES/BARRIERS TO BE INSPECTED AND REPAIRED PRIOR TO EXPECTED RAIN EVENTS AND FOLLOWING ALL SIGNIFICANT STORM EVENTS OR PERIODS OF EXTENDED RAIN: ACCUMULATED SEDIMENTS GREATER THAN 30% OF THE FENCE CAPACITY OR DEFICIENCIES SHOULD BE DEALT WITH ACCORDINGLY.
- 6. ALL SEDIMENT FROM ESC CONTROL FACILITIES TO BE DISPOSED OF IN A MANNER AS TO NOT COMPOUND OR COMPROMISE THE SEDIMENT LOADING OF OTHER CONTROL MEASURES.
- 7. ROUTINE INSPECTION AND MAINTENANCE OF THE SITE WORKS WILL BE THE RESPONSIBILITY OF THE ESC SUPERVISOR. THE ESC SUPERVISOR IS RESPONSIBLE FOR DAY-TO-DAY MAINTENANCE OF THE ESC WORKS. AT A MINIMUM INSPECT ALL BMP'S WEEKLY TO ENSURE PROPER FUNCTION WITH INSPECTION REPORTS PROVIDED TO THE ENGINEER OF RECORD AND THE MUNICIPALITY FOR REVIEW.
- 8. AN INSPECTION OF THE ESC WORKS IS TO BE CONDUCTED PRIOR TO ANY PREDICTED SIGNIFICANT RAINFALL EVENTS AND MAINTENANCE OR IMPROVEMENTS TO ENSURE THAT THE ESC WORKS ARE ADEQUATE TO ACCOMMODATE THE COMPLETION OF THE ANTICIPATED RAINFALL EVENT. ANOTHER INSPECTION IS TO BE CONDUCTED WITHIN 24 HOURS FOLLOWING THE RAINFALL EVENT TO ENSURE ALL ESC WORKS REMAIN IN OPERATING CONDITION. A REPORT IDENTIFYING THE CONDITION OF THE ESC WORKS AND ANY MAINTENANCE OR IMPROVEMENT UNDERTAKEN BEFORE AND AFTER THE RAINFALL EVENT IS TO BE PROVIDED TO THE ENGINEER OF RECORD AND THE MUNICIPALITY FOR REVIEW.

#### CLEARING, ROAD STRIPPING, GRAVELLING AND ROUGH GRADING STAGE:

- 1. CONTRACTOR TO NOTIFY THE ENGINEER OF RECORD THAT CLEARING AND GRUBBING HAS COMMENCED.
- 2. PERIMETER ESC MEASURES TO BE INSTALLED PRIOR TO INITIATING ONSITE CLEARING AND GRUBBING.
- INSTALL PROTECTIVE MEASURES AT OR WITHIN EXISTING CATCH/LAWN BASINS AS APPLICABLE.
- 4. ANY STOCKPILED MATERIAL TO BE COVERED AND ENCIRCLED BY SEDIMENT FENCE AS SPECIFIED
- 5. PRIOR TO LEAVING THE SITE, OFF-SITE CLEARING AND GRUBBING CONTRACTOR TO OBTAIN SIGN OFF BY THE ENGINEER OF RECORD.
- 6. THE CONTRACTOR WILL BE RESPONSIBLE TO ENSURE THAT THE EXISTING ROADS ARE REVIEWED DAILY AND SWEPT. REGULARLY. FLUSHING OF ROADWAYS IS PROHIBITED.

#### **UTILITY AND ROADWORKS INSTALLATION STAGE:**

- 1. CONTRACTOR TO INSTALL TEMPORARY ESC MEASURES AS SPECIFIED IN THE ESC PLAN AND AS DIRECTED BY ENGINEER OF RECORD.
- 2. CONTRACTOR TO ENSURE THAT ESC MEASURES ARE WELL MAINTAINED, CLEARED, REPAIRED, OR REPLACED AS
- 3. CATCH/LAWN BASINS COMPLETE WITH ESC MEASURES ARE TO BE INSTALLED BY THE CONTRACTOR AT THE FIRST
- 4. DURING CONSTRUCTION THE CONTRACTOR MAY NEED TO EMPLOY ADDITIONAL MEASURES TO PREVENT RELEASE OF SILTY AND SEDIMENT LADEN WATER TO EXISTING STORM SYSTEM. THESE MEASURES MAY INCLUDE, BUT NOT LIMITED TO, INTERCEPTOR DITCHES, SEDIMENT FENCES, PORTABLE TREATMENT FACILITIES, FLOCCULANTS, ETC. ADDITIONAL MEASURE MAY BE REQUIRED UNDER DIRECTION OF THE ENGINEER OF RECORD.
- 5. ANY IRREGULARITIES SHALL BE REPORTED TO THE ENGINEER OF RECORD IMMEDIATELY.
- 6. CONTRACTOR TO CO-ORDINATE WITH THE ENGINEER OF RECORD ON THE ELIMINATION OF TEMPORARY ESC FACILITIES IF THEY ARE NO LONGER REQUIRED OR TO FACILITATE SITE OPERATIONS.
- 7. ALL SEDIMENT CONTROL FACILITIES SHOWN MUST REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION AND ARE TO BE REMOVED ONLY AT THE DIRECTION OF THE ENGINEER OF RECORD.

#### FINAL STAGE THROUGH TO COMPLETION:

- 1. GENERAL CONTRACTOR TO ENSURE THAT STORMWATER CONVEYANCE CHANNELS AND DISCHARGE POINTS TO ADJACENT STREAMS, DITCHES, OR ENTRY POINTS TO PIPED NETWORKS ARE ADEQUATELY PROTECTED.
- 2. CONTRACTOR TO ENSURE THAT ESC FACILITIES SPECIFIED IN THE ESC PLAN OR ANY ADDENDUMS ARE IMPLEMENTED ACCORDINGLY.
- 3. CONTRACTOR TO CO-ORDINATE WITH THE ENGINEER OF RECORD ON THE ELIMINATION OF TEMPORARY ESC FACILITIES IF THEY ARE NO LONGER REQUIRED OR TO FACILITATE SITE OPERATIONS.
- 4. ALL SEDIMENT CONTROL FACILITIES SHOWN MUST REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION AND ARE TO BE REMOVED ONLY AT THE DIRECTION OF THE ENGINEER OF RECORD.

#### **POWER, COMMUNICATIONS AND GAS:**

- 1. THE CONTRACTOR SHALL CONTACT BC ONE CALL A MINIMUM OF THREE WORKING DAYS PRIOR TO START OF CONSTRUCTION.
- 2. THE CONTRACTOR SHALL CONSTRUCT UNDERGROUND BC HYDRO, TELUS, SHAW CABLE AND FORTIS BC IN ACCORDANCE WITH THE APPLICABLE UTILITY COMPANY'S CURRENT SPECIFICATIONS.
- 3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS REQUIRED PRIOR TO THE START OF CONSTRUCTION TO ARRANGE INSPECTION AND APPROVALS.
- 4. THE CONTRACTOR SHALL CONTACT BC HYDRO AND TELUS TO INSTALL RISERS ON EXISTING JUNCTION BOXES TO BRING LID ELEVATIONS FLUSH TO GRADE.
- 5. CONNECTION TO, OR ALTERATION OF, EXISTING MUNICIPALITY OWNED UTILITIES REQUIRES AUTHORIZATION BY THE MUNICIPALITY'S REPRESENTATIVE.
- 6. ALL LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHALL BE CONFIRMED BY THE USE OF A PIPE LOCATOR AND MANUAL DIGGING. ALL OR ANY STRUCTURES NOT NECESSARILY SHOWN.
- 9. ALL DISTURBED STRUCTURES, VEGETATION, AND SURFACE FEATURES (ROADS, CURBS, SIDEWALKS, ETC) SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AS PER SATISFACTION OF ENGINEER OF RECORD, CITY OF COURTENAY, AND PROPERTY OWNER.
- 10. THE CONTRACTOR SHALL NOTIFY ALL RESIDENCES AND/OR BUSINESSES AFFECTED BY THE CONSTRUCTION FIVE DAYS PRIOR TO STARTING THE CONSTRUCTION. THE CONTRACTOR SHALL ALSO EACH DAY INDIVIDUALLY NOTIFY EACH RESIDENCE OR BUSINESS WHICH WILL BE AFFECTED BY THE NEXT DAYS' WORK.
- 11. THE DRAWINGS MAY NOT SHOW ALL INDIVIDUAL UNDERGROUND HOME SERVICE CONNECTIONS. THE CONTRACTOR SHALL EXPOSE ALL EXISTING UNDERGROUND FACILITIES BY HAND DIGGING BEFORE USING MECHANICAL EXCAVATING EQUIPMENT.

#### NOTICE TO CONTRACTOR

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

> DESIGN: \_\_\_ CHECK: \_\_\_\_ DRAWN: \_\_\_\_ APPR: \_\_\_\_ A & M FILE: 20-8009

he location of existing underground utilities are show n an approximate way only & **GENERAL NOTES** have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities DRAWING DATE: ROJECT NO. SCALE: before commencing work, and agrees to be fully responsible HORZ. 1:500 **APRIL. 2020** 3360-20-2002 for any and all damages which VERT. N/A might be occasioned by the A & M DRAWING NO. SHEET NO. REV. contractor's failure to exactly DRAWING NO. 20-8009-01 01 OF 10

LEGAL DESCRIPTION: LOT 1 & 2, SECTION 14, COMOX DISTRICT, PLAN VIP60575 AND LOT B, SECTION 14, COMOX DISTRICT. PLAN VIP83482

ELEVATIONS ARE AS PER GEODETIC DATUM CGVD28, DERIVED FROM DIFFERENTIAL GNSS OBSERVATIONS. SURVEY PLAN BY BAZETT LAND SURVEYORS LTD. FILE: C1641 REV. NO. DESCRIPTION DR CH DATE APP 1 ISSUED FOR SERVICING MODELS

JDP | SAL | 03-JUN-20 Aplin & Martin Consultants Ltd. #104 - 6596 Applecross Road, Nanaimo, BC, Canada V9V 0A4

APLIN MARTIN ENGINEERING ARCHITECTURE PLANNING SURVEYING PROJECT

Fel: (778) 841-0484, Fax: (604) 597-9061, Email: general@aplinmartin.com

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**HOLIDAY INN EXPRESS** 310, 320, AND 336 HUNT ROAD, COURTENAY, BC V9N 5N2

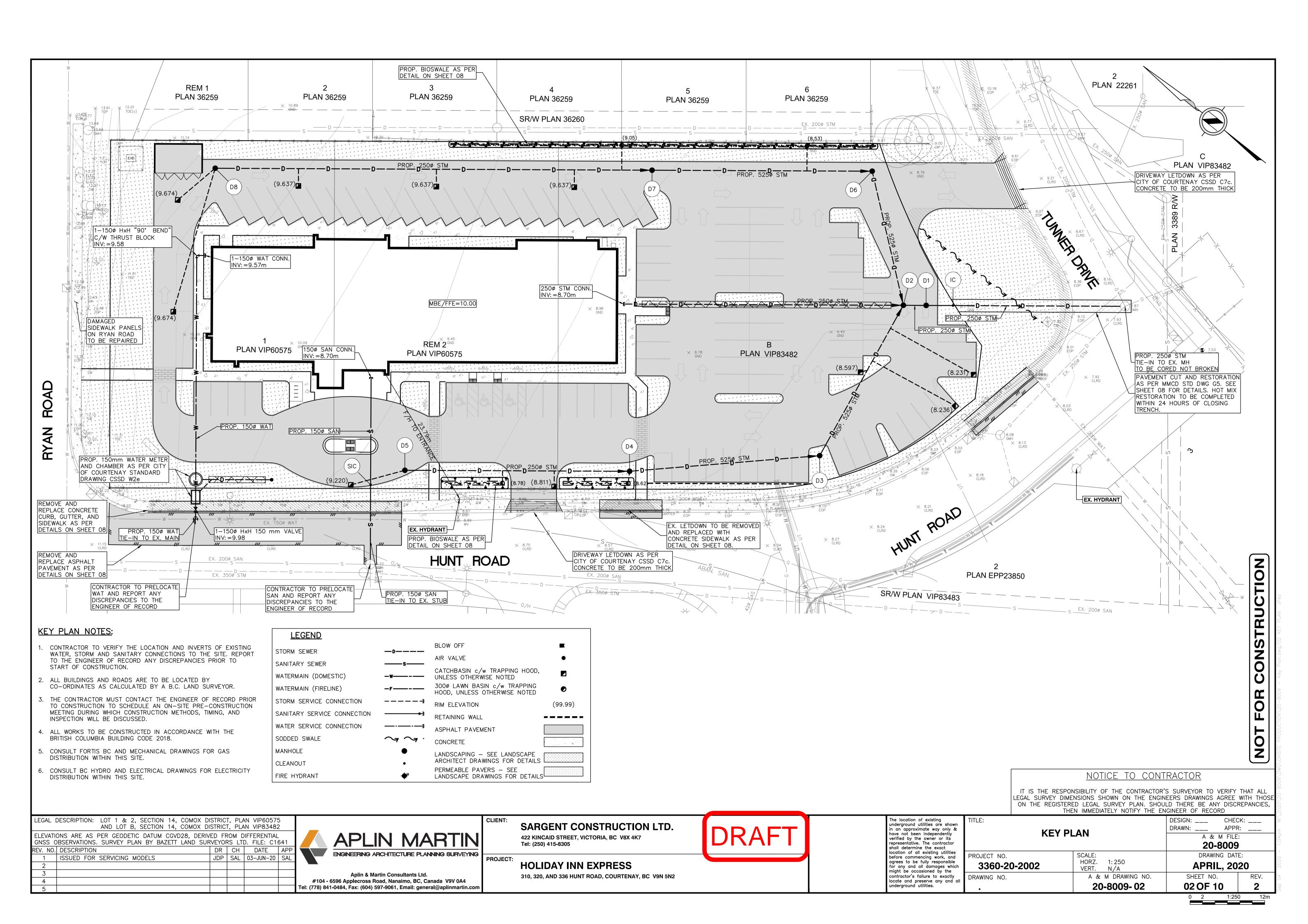
locate and preserve any and underground utilities.

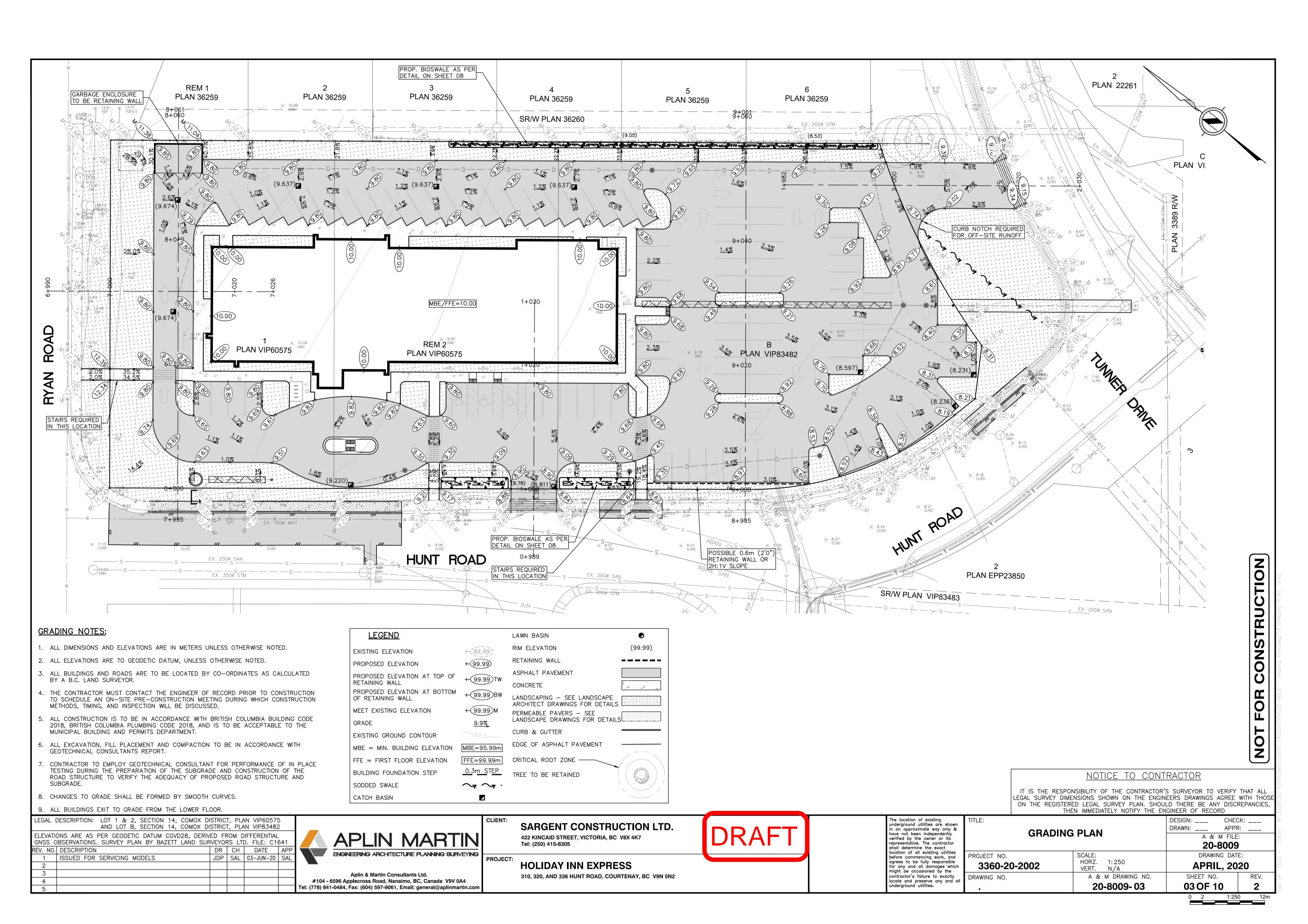
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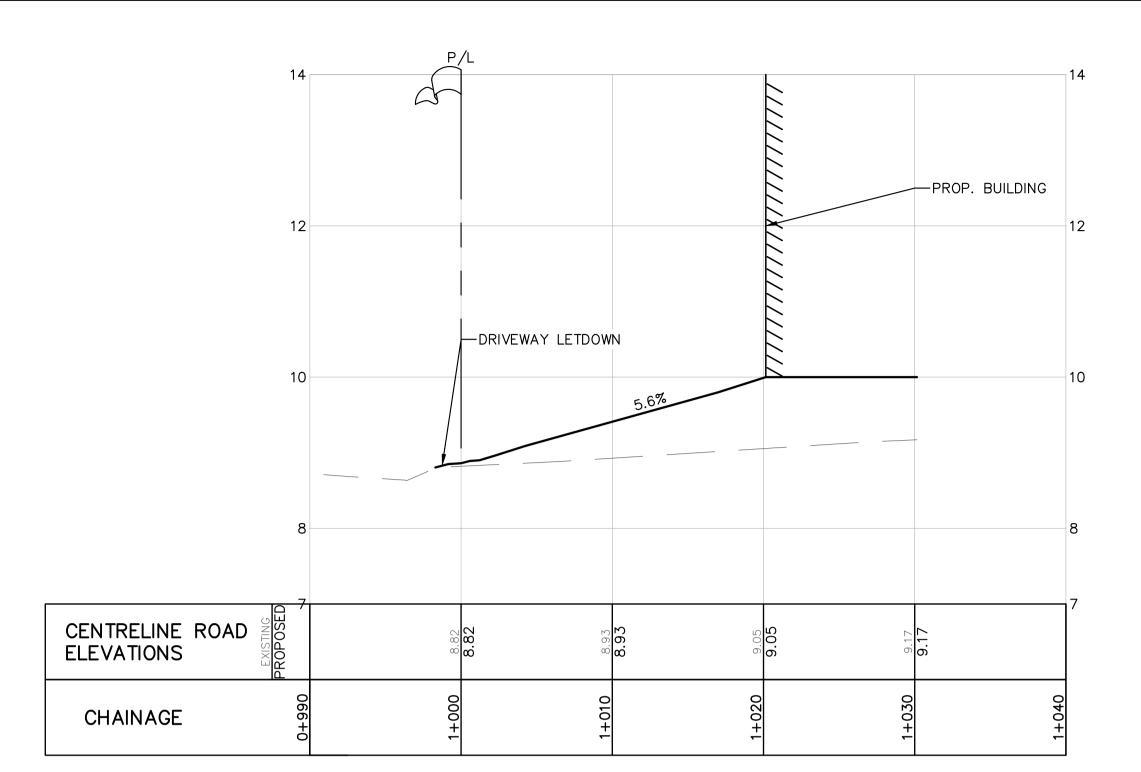
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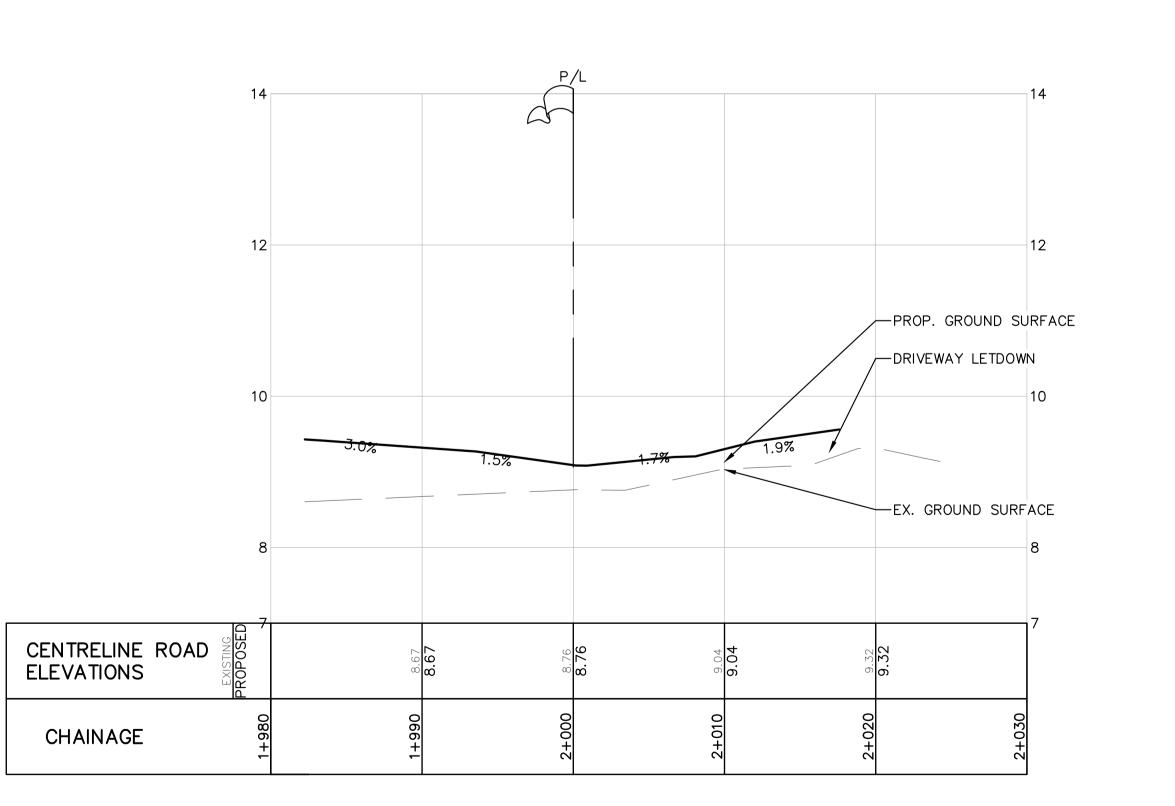
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DRIVEWA	T PROFILES	A & M FILE:
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# HUNT ROAD DRIVEWAY PROFILE H: 1: 250 V: 1: 50



# TUNNER DRIVE DRIVEWAY PROFILE H: 1: 250 V: 1: 50

#### LEGAL DESCRIPTION: LOT 1 & 2, SECTION 14, COMOX DISTRICT, PLAN VIP60575 AND LOT B, SECTION 14, COMOX DISTRICT, PLAN VIP83482 ELEVATIONS ARE AS PER GEODETIC DATUM CGVD28, DERIVED FROM DIFFERENTIAL GNSS OBSERVATIONS. SURVEY PLAN BY BAZETT LAND SURVEYORS LTD. FILE: C1641 REV. NO. DESCRIPTION DR CH DATE APP 1 ISSUED FOR SERVICING MODELS JDP SAL 03-JUN-20

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APLIN MARTIN ENGINEERING ARCHITECTURE PLANNING SURVEYING PROJECT:

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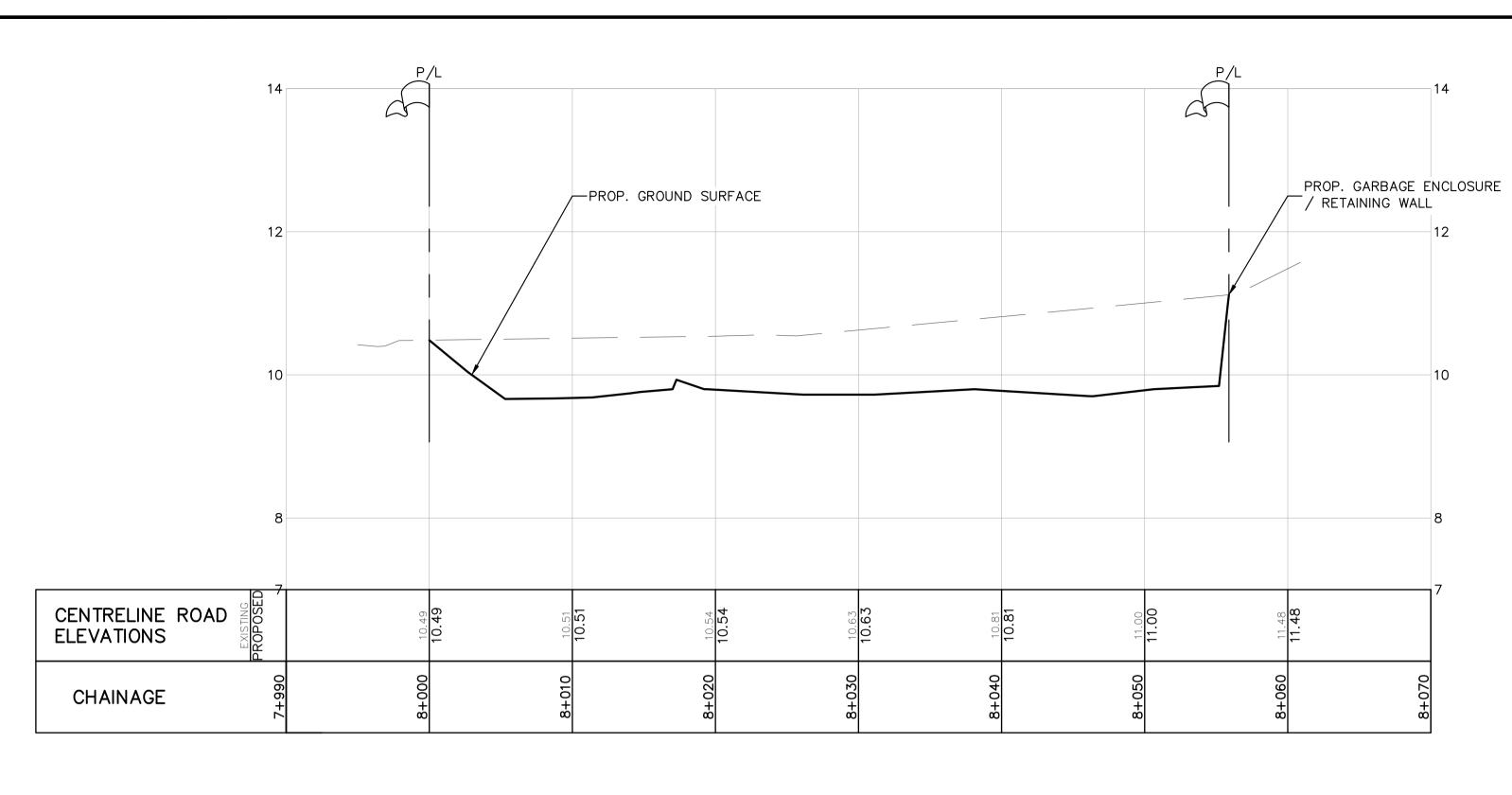
**HOLIDAY INN EXPRESS** 310, 320, AND 336 HUNT ROAD, COURTENAY, BC V9N 5N2

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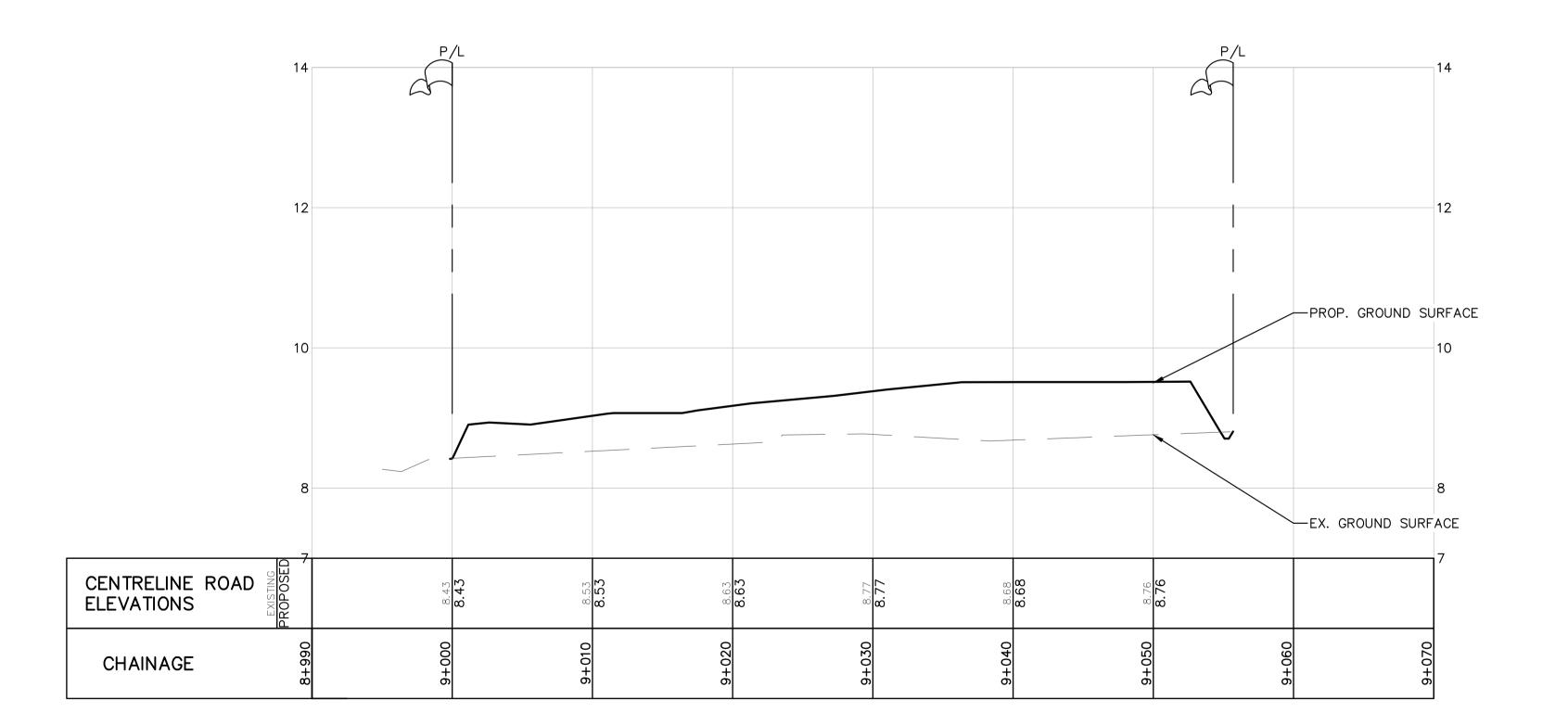
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SOUTH SECTION PROFILE
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V: 1: 50

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REV. NO. DESCRIPTION

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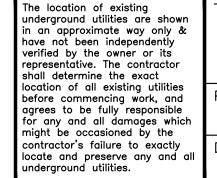
1 ISSUED FOR SERVICING MODELS

JDP SAL 03-JUN-20

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# **HOLIDAY INN EXPRESS**



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exactly any and all	DRAWING	NO.

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3360-20-2002	HORZ. 1: 250 VERT. N/A	APRIL, 20	20
DRAWING NO.	A & M DRAWING NO.	SHEET NO.	R
•	20-8009-05	05 OF 10	

RYAN ROAD SECTION PROFILE
H: 1: 250
V: 1: 50

PROP. 4H: 1V SLOPE

NOTICE TO CONTRACTOR

IT IS THE RESPONSIBILITY OF THE CONTRACTOR'S SURVEYOR TO VERIFY THAT ALL LEGAL SURVEY DIMENSIONS SHOWN ON THE ENGINEERS DRAWINGS AGREE WITH THOSE

ON THE REGISTERED LEGAL SURVEY PLAN. SHOULD THERE BE ANY DISCREPANCIES, THEN IMMEDIATELY NOTIFY THE ENGINEER OF RECORD

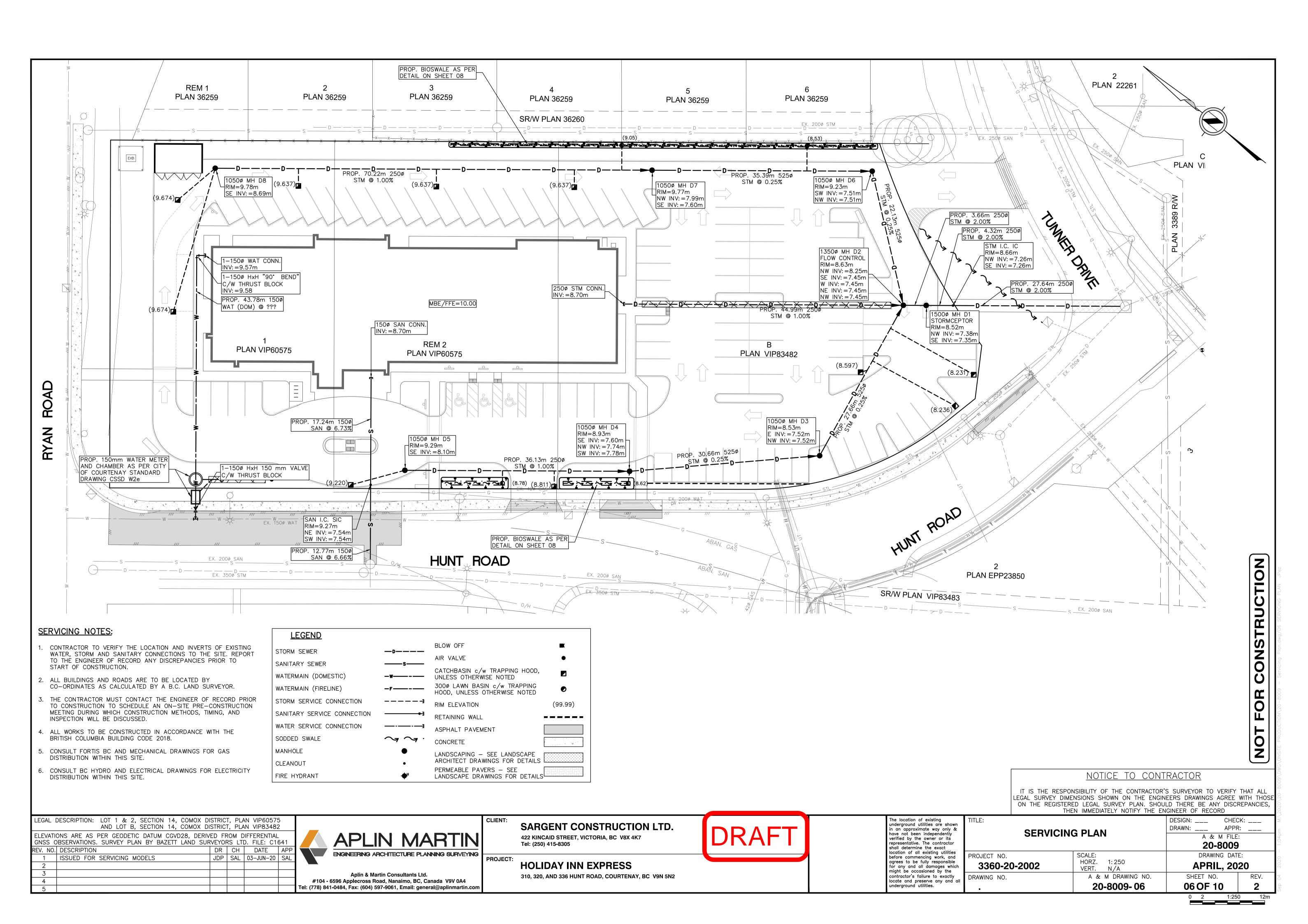
-PROP. BUILDING

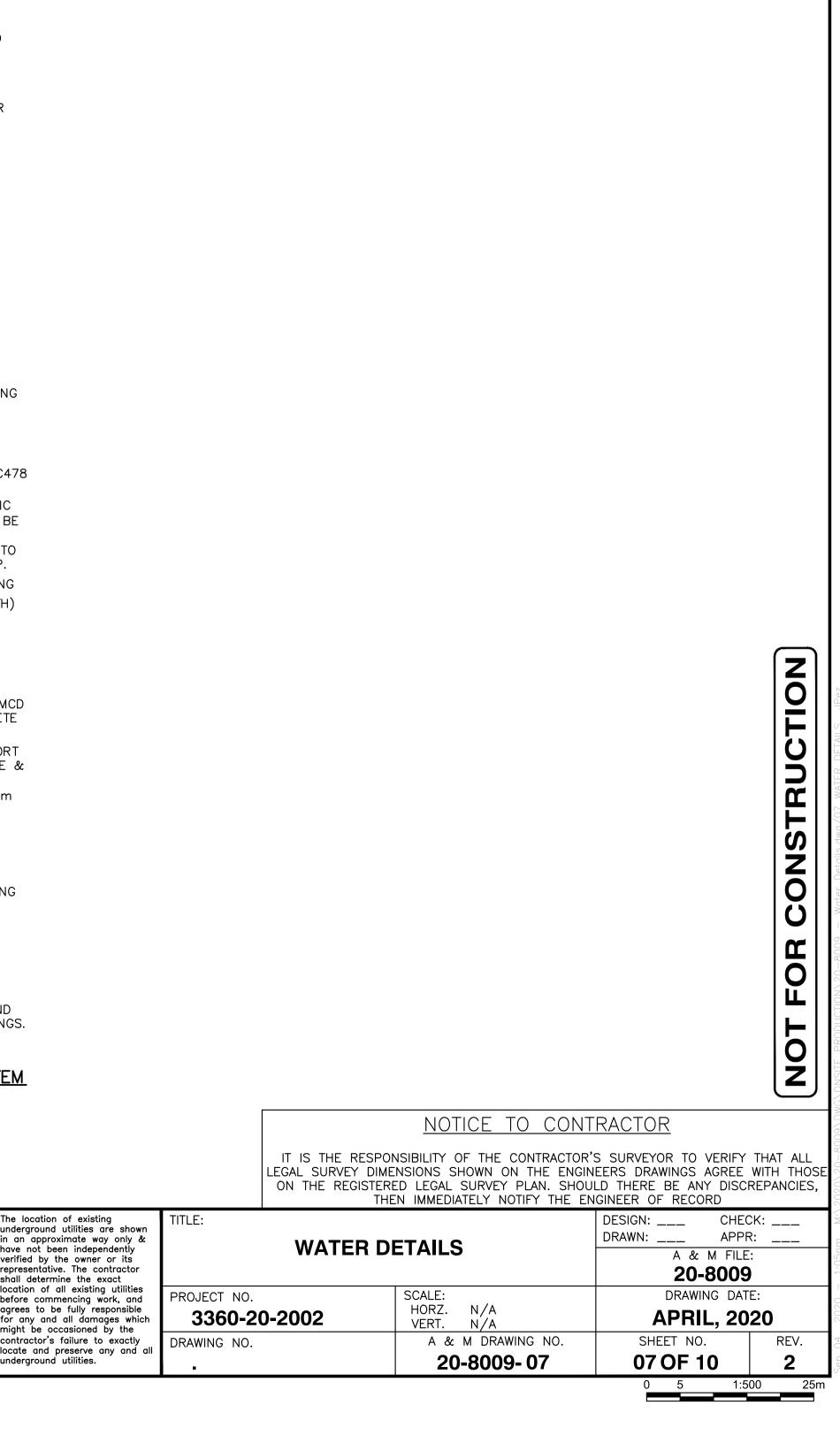
310, 320, AND 336 HUNT ROAD, COURTENAY, BC V9N 5N2

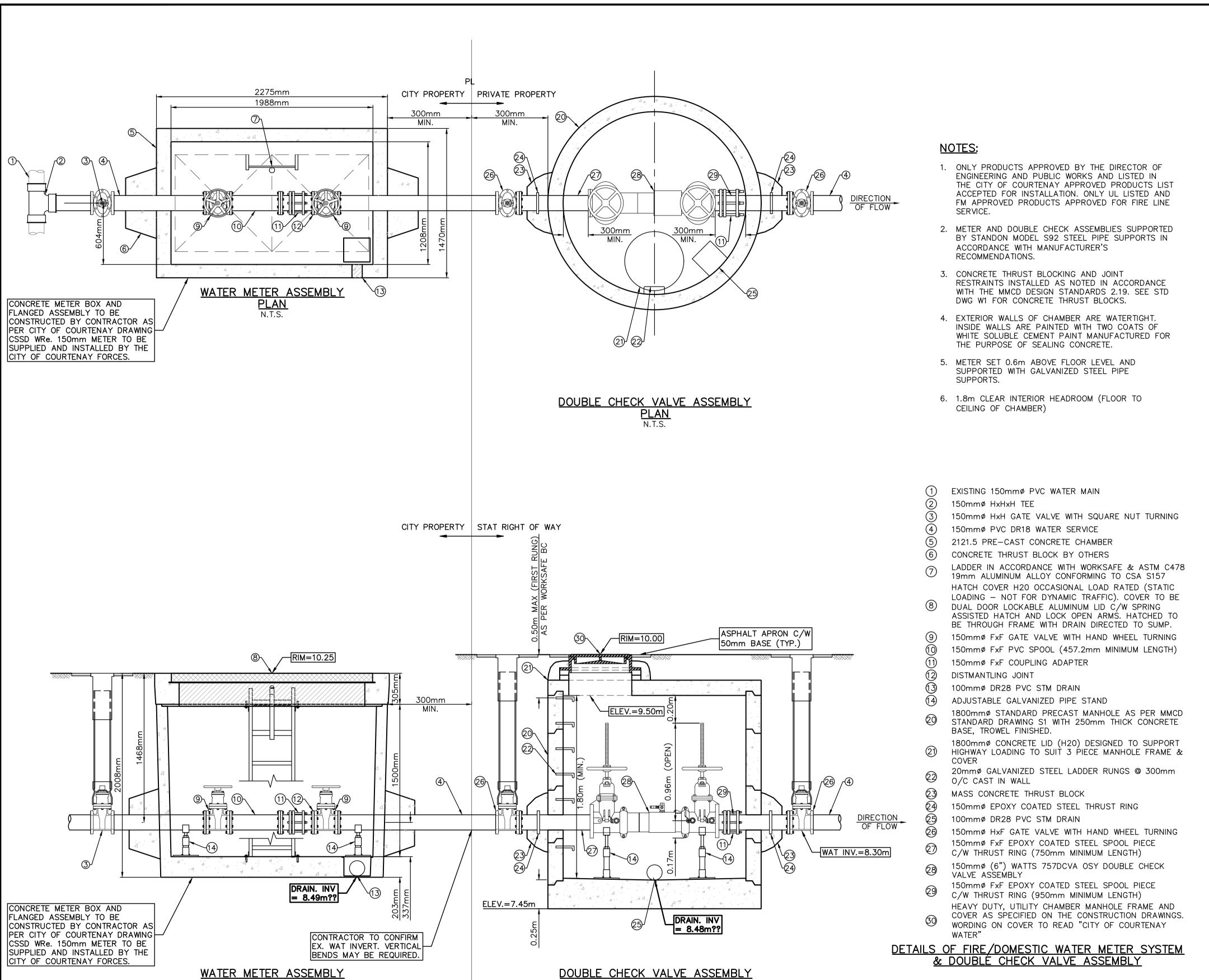
CENTRELINE ROAD

**ELEVATIONS** 

CHAINAGE







APLIN MARTIN

ENGINEERING ARCHITECTURE PLANNING SURVEYING

Aplin & Martin Consultants Ltd.

#104 - 6596 Applecross Road, Nanaimo, BC, Canada V9V 0A4

Tel: (778) 841-0484, Fax: (604) 597-9061, Email: general@aplinmartin.com

**PROFILE** 

DR CH DATE APF

JDP | SAL | 03-JUN-20

LEGAL DESCRIPTION: LOT 1 & 2, SECTION 14, COMOX DISTRICT, PLAN VIP60575

ELEVATIONS ARE AS PER GEODETIC DATUM CGVD28, DERIVED FROM DIFFERENTIAL

REV. NO. DESCRIPTION

4

1 ISSUED FOR SERVICING MODELS

GNSS OBSERVATIONS. SURVEY PLAN BY BAZETT LAND SURVEYORS LTD. FILE: C1641

AND LOT B, SECTION 14, COMOX DISTRICT, PLAN VIP83482

**HOLIDAY INN EXPRESS** 

422 KINCAID STREET, VICTORIA, BC V8X 4K7

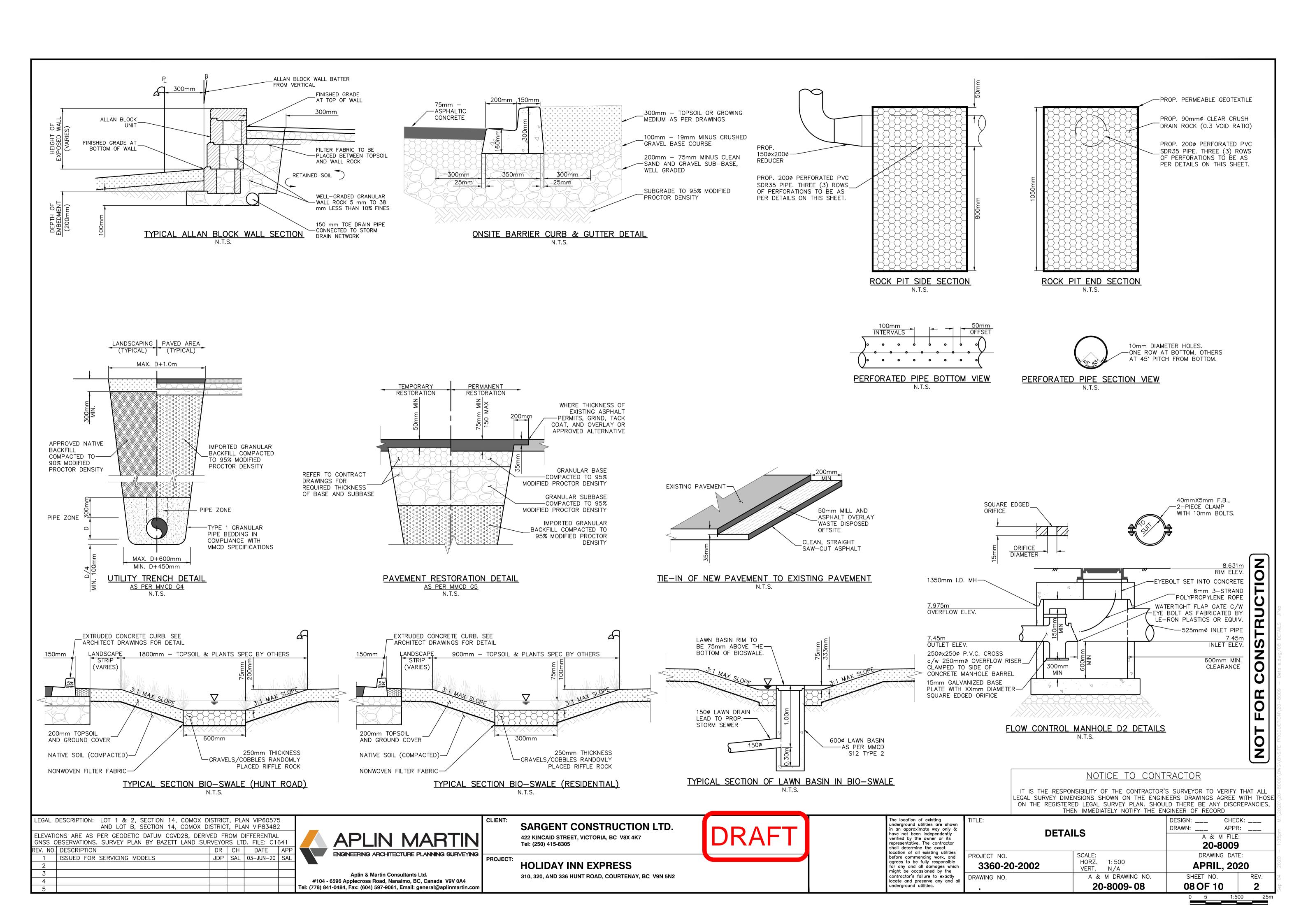
Tel: (250) 415-8305

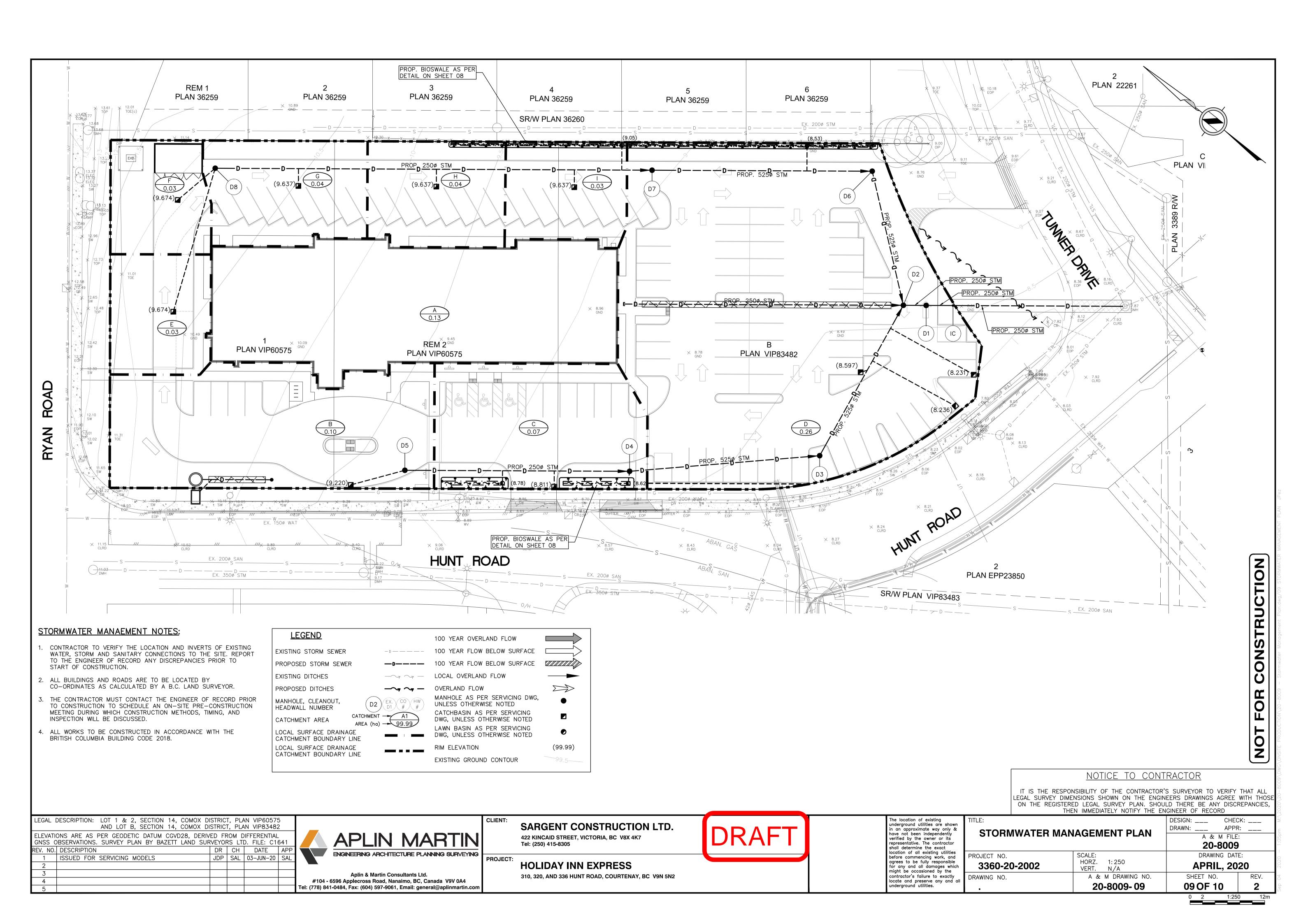
PROJECT

n 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 agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and o underground utilities.

310, 320, AND 336 HUNT ROAD, COURTENAY, BC V9N 5N2

SARGENT CONSTRUCTION LTD.





													RETUR	RN PERIOD:	10	Years
1unicipal F	ile No.:	3360-20-2	002													
Project Title	e:	Holiday Inr	n Express										DATE:	04-Sep-20	Mannings	Formula
Project Loc	ation:	310, 320, a	nd 336 Hur	nt Road									A&M File:	20-8009	V = (1/n) x	$R^{2/3} \times S^{1/3}$
		Courtenay	, BC										Design by:	JDP	Q = \	/ x A
						AF	PLIN N	//ARTII	V				Check By:	SAL	n <sub>(Pipe)</sub> =	0.013
Consultants	S:	Aplin & Ma	rtin Consul	tants Ltd.		ENGINE	ERING ARCHITECTUR	E PLANNING SURVEY	ING				SHEET:	1 of 1		
ingineer of	Record:	Scott Lewi	s, P.Eng													
					Ratio	onal Formu	ıla: Q = C x	I x A x 2.78	× 1.15	SEAL/E	NGINEER'S	STAMP				
			Area	Runoff	4 - 6	Accum.	Time of	Rainfall	Design	Pipe Diam.	Design	Installed	Flow	Velocity	Length of	Time of
ROM MH	TO MH	Area #	Α	Coeff. C	AxC	(AxC)	Conc T <sub>C</sub>	Intensity I	Flow Q <sub>10</sub>	D	Slope S	Slope	Capacity Q <sub>CAP</sub>	V	Pipe L	Flow
			(Ha)		(Ha)	(Ha)	(min)	(mm/hr)	(L/s)	(mm)	(%)	(%)	(L/s)	(m/s)	(m)	(min)
•		,						ONSITE				•				
D8	D7	E-I	0.17	0.85	0.14	0.14	10.00	59.20	23.78	250	1.00		94.4	1.92	70.22	0.61
D7	D6		0.00	0.85	0.00	0.14	10.61	57.55	23.12	525	0.25		341.3	1.58	35.39	0.37
D6	D2		0.00	0.85	0.00	0.14	10.98	56.62	22.74	525	0.25		341.3	1.58	22.13	0.23
D5	D4	B+C	0.17	0.85	0.14	0.14	10.00	59.20	23.78	250	1.00		94.4	1.92	36.13	0.31
D4	D3		0.00	0.85	0.00	0.14	10.31	58.34	23.44	525	0.25		341.3	1.58	30.66	0.32
D3	D2	D	0.26	0.85	0.22	0.37	10.63	57.50	58.42	525	0.25		341.3	1.58	27.66	0.29
BLDG	D2	А	0.13	0.90	0.12	0.12	10.00	59.20	19.26	250	1.00		94.4	1.92	7.64	0.07
D2	D1		0.00	0.85	0.00	0.63	11.21	56.06	97.72	250	2.00		133.5	2.72	7.64	0.05
D1	DIC		0.00	0.85	0.00	0.63	11.26	55.94	97.51	250	2.00		133.5	2.72	7.64	0.05

					S	TORM FI	OW ANA	ALYSIS - (	CALCUL	ATION SH	FET					
						TORTE	20 11 7 (117)	(LIOIO	07 (2002)				RETUI	RN PERIOD:	100	Years
Municipal F	ile No.:	3360-20-2	2002													
Project Title	e:	Holiday In	n Express		•								DATE:	04-Sep-20	Mannings	Formula
Project Loc	cation:	310, 320, a	and 336 Hui	nt Road	•								A&M File:	20-8009	V = (1/n) ×	$R^{2/3} \times S^{1/2}$
		Courtenay	, BC		•								Design by:	JDP	Q = \	/ x A
Consultants		Aplin & Ma	artin Consul	tants Ltd.		A ENGINE	PLIN N	MARTII re planning surve	YING				Check By: SHEET:	SAL 1 of 1	n <sub>(Pipe)</sub> =	0.013
Engineer o	T Record:	Scott Lew	is, P.Elig		Rati	onal Form	ula: Q = C ×	(   x A x 2.78	× 1.15	SEAL/E	NGINEER'S	S STAMP				
			Area	Runoff Coeff.	AxC	Accum.	Time of Conc	Rainfall Intensity	Design Flow	Pipe Diam.	Design Slope	Installed	Flow Capacity	Velocity	Length of Pipe	Time of
FROM MH	TO MH	Area #	А	С	, ,,,,	(AxC)	$T_C$	I	Q <sub>100</sub>	D	S	Slope	Q <sub>CAP</sub>	V	L	Flow
			(Ha)		(Ha)	(Ha)	(min)	(mm/hr)	(L/s)	(mm)	(%)	(%)	(L/s)	(m/s)	(m)	(min)
	•	'		•		•	•	ONSITE		'		•			•	
D8	D7	E-I	0.17	0.85	0.14	0.14	10.00	103.83	41.71	250	1.00		94.4	1.92	70.22	0.61
D7	D6		0.00	0.85	0.00	0.14	10.61	100.68	40.44	525	0.25		341.3	1.58	35.39	0.37
D6	D2		0.00	0.85	0.00	0.14	10.98	98.90	39.73	525	0.25		341.3	1.58	22.13	0.23
D5	D4	B+C	0.17	0.85	0.14	0.14	10.00	103.83	41.71	250	1.00		94.4	1.92	36.13	0.31
D4	D3		0.00	0.85	0.00	0.14	10.31	102.20	41.05	525	0.25		341.3	1.58	30.66	0.32
D3	D2	D	0.26	0.85	0.22	0.37	10.63	100.58	102.20	525	0.25		341.3	1.58	27.66	0.29
BLDG	D2	Α	0.13	0.90	0.12	0.12	10.00	103.83	33.77	250	1.00		94.4	1.92	7.64	0.07
D2	D1		0.00	0.85	0.00	0.63	11.21	97.84	170.53	250	2.00		133.5	2.72	7.64	0.05
D1	DIC		0.00	0.85	0.00	0.63	11.26	97.61	170.14	250	2.00		133.5	2.72	7.64	0.05

#### I IN TO TEAR RETURN STORM FLOW CALCULATIONS

APLIN MARTIN								
STO	DRMWAT	ER DETE	NTION C	ALCULAT	IONS			
PROJECT NAME: Holiday Inn Express  A&M FILE: 20-8009 DATE: 04-Sep-20  2 YEAR RELEASE RATE FLOWS								
	Time Tc	Runoff Coeff.	Area A	Intensity	Flow Q			
	min	%	На	mm	m³/s			
Q <sub>Pre</sub>	10	0.50	0.73	25.3	0.026			
Q <sub>Post</sub>	10	0.82	0.73	25.3	0.042			
	1 IN 2	YEAR I	RELEAS	E RATES	<u> </u>			

/ APLIN

MARTIN

STORMWATER DETENTION CALCULATIONS

10 YEAR RELEASE RATE FLOWS

0.82 0.73

1 IN 10 YEAR RELEASE RATES

Area

0.73

Runoff

0.50

Coeff.

DATE: 04-Sep-20

Intensity

59.2

59.2

Flow

 $m^3/s$ 

0.060

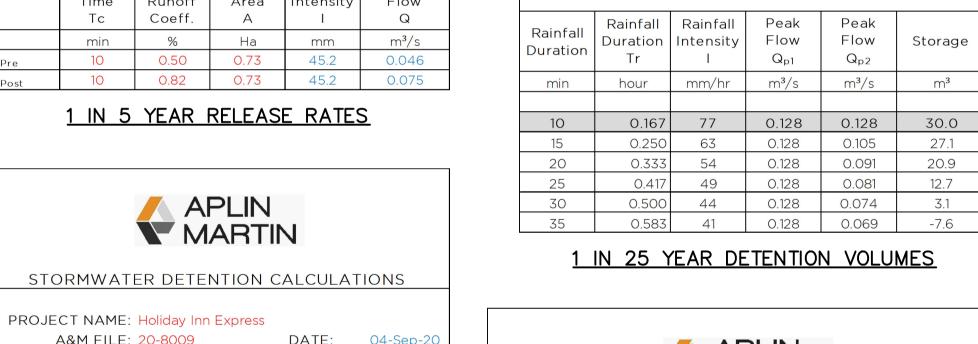
PROJECT NAME: Holiday Inn Express

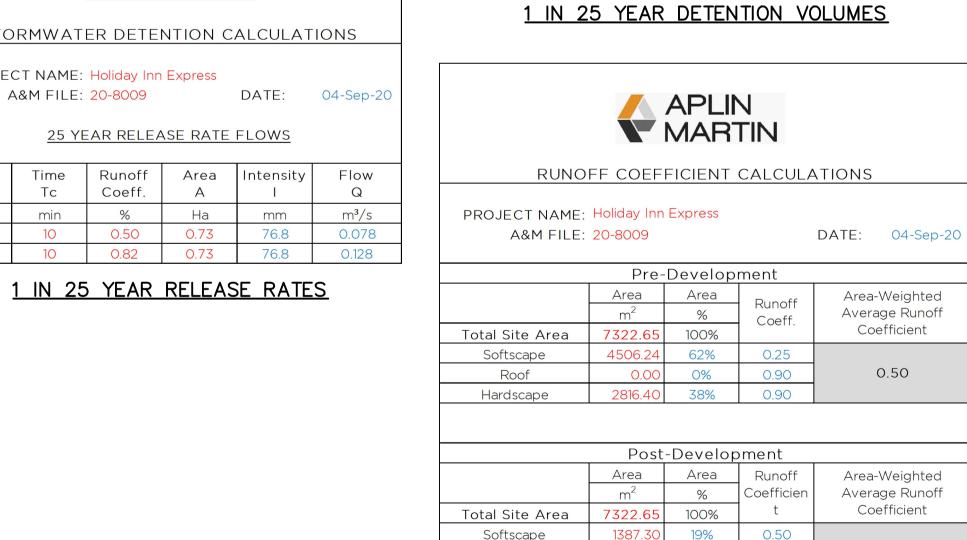
A&M FILE: 20-8009

MARIN										
STORMWATER DETENTION CALCULATIONS										
	A&M FILE:	Holiday Inn 20-8009 AR RELEA		DATE: FLOWS	04-Sep-20					
	Time Tc	Runoff Coeff.	Area A	Intensity I	Flow Q					
	min	%	На	mm	m³/s					
Q <sub>Pre</sub>	10	0.50	0.73	45.2	0.046					
Q <sub>Post</sub>	10	0.82	0.73	45.2	0.075					

# / APLIN

STORMWATER DETENTION CALCULATIONS							
PROJ	ECT NAME:	Holiday Inn	Express				
	A&M FILE:	20-8009		DATE:	04-Sep-20		
	5 YE	AR RELEA	SE RATE	FLOWS			
	Time	Runoff	Area	Intensity	Flow		
	Тс	Coeff.	А	1	Q		
	min	%	На	mm	m³/s		
$Q_{Pre}$	10	0.50	0.73	45.2	0.046		
Q <sub>Post</sub>	10	0.82	0.73	45.2	0.075		





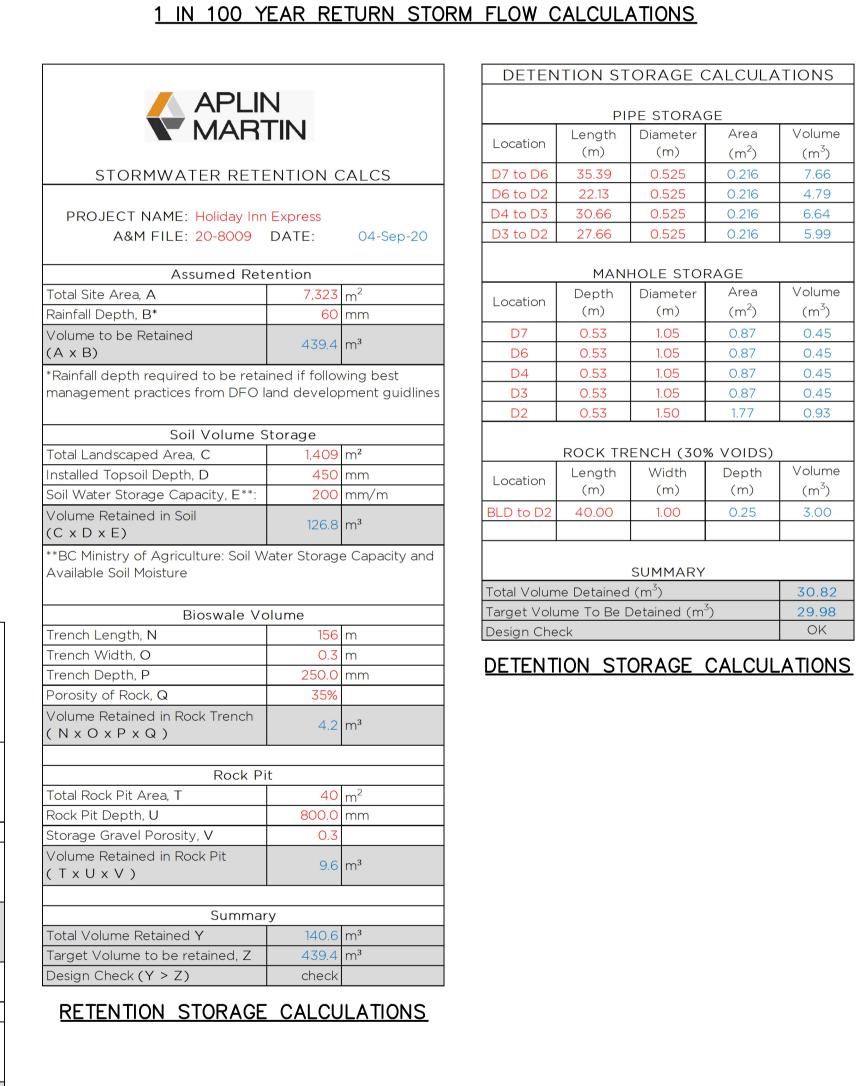
Roof

1287.04

18%

RUNOFF COEFFICIENT CALCUATIONS

4648.31 63%



ORIFICE SIZING	
PROJECT NAME: H	
A&M FILE: 20	
DATE: 0	4-5ep-20
$Q = \sum [C^*A^*SC$	QRT(2ah)1
$A = PI*(D/2)^{2}$	
, , ,	
Manho	e D2
Rim Elevation	8.63 m
Overflow Elevation	7.98 m
Outlet Elevation	7.45 m
TIER	) Д
Q <sub>25</sub> Pre-Development	$0.0781 \text{ m}^3/\text{s}$
С	0.62
No. of Orofices	1
Orifice Diameter	135 mm
Orifice Area	0.01431 m <sup>2</sup>
Orifice Elevation	7.90 m
Head Above Orifice	0.07 m
Q <sub>25</sub> Actual Flow	$0.0781 \text{ m}^3/\text{s}$
TIES	. 7
TIEF Q <sub>10</sub> Pre-Development	$0.0602 \text{ m}^3/\text{s}$
C	0.62
No. of Orofices	1
Orifice Diameter	95 mm
Orifice Area	0.00709 m²
Orifice Elevation	7.80 m
Head Above Orifice	0.10 m
Q <sub>10</sub> Actual Flow	$0.0601 \text{ m}^3/\text{s}$
T	
TIEF Q <sub>5</sub> Pre-Development	$\frac{(2)}{0.0460 \text{ m}^3/\text{s}}$
C	0.62
No. of Orofices	1
Orifice Diameter	120 mm
Orifice Area	0.01131 m <sup>2</sup>
Orifice Elevation	7.65 m
Head Above Orifice	0.15 m
Q <sub>5</sub> Actual Flow	$0.0459 \text{ m}^3/\text{s}$
T.C.	D 1
TIEF Q <sub>2</sub> Pre-Development	0.0257 m <sup>3</sup> /s
C	0.62
No. of Orofices	1
Orifice 1 Diameter	163 mm
Orifice 1 Area	0.02087 m²
Orifice Elevation	7.45 m
Head Above Orifice	0.20 m
Q <sub>2</sub> Actual Flow	$0.0256 \text{ m}^3/\text{s}$

Area Volume

4.79

5.99

0.45

0.45

 $(m^3)$ 

30.82

29.98

OK

 $(m^2)$ 

0.216

0.216

0.87

0.87

0.87

0.87

Depth

(m)

1.77 0.93

Length Diameter

MANHOLE STORAGE

ROCK TRENCH (30% VOIDS)

Width

(m)

SUMMARY

Depth Diameter

0.53

Length

ORIFICE CALCULATIONS

NOTICE	ТО	CONTRACTOR

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

LEGAL [	DESCRIPTION: LOT 1 & 2, SECTION 14, COMOX DI AND LOT B, SECTION 14, COMOX DI				
	ONS ARE AS PER GEODETIC DATUM CGVD28, DERIV BSERVATIONS. SURVEY PLAN BY BAZETT LAND SUR				
REV. NO.	DESCRIPTION	DR	CH	DATE	APP
1	ISSUED FOR SERVICING MODELS	JDP	SAL	03-JUN-20	SAL
2					
3					
4					
5					



#104 - 6596 Applecross Road, Nanaimo, BC, Canada V9V 0A4 Tel: (778) 841-0484, Fax: (604) 597-9061, Email: general@aplinmartin.com SARGENT CONSTRUCTION LTD. 422 KINCAID STREET, VICTORIA, BC V8X 4K7 Tel: (250) 415-8305

Storage Volume Required (Modified Rational Method)

Peak

Flow

0.128

0.105

0.091

0.081

0.074

Storage

30.0

27.1

0.82

Flow

 $m^3/s$ 

0.128

0.128

0.128

Storage =  $T_r (Q_{p2} - Q_{rel}) + 0.5 \times T_c \times Q_{rel}^2 (1/Q_{p2} - 1/Q_{p1})$ 

 $T_r$  = Duration of storm, in seconds

 $Q_{p1}$  = Peak flow for storm,  $T_r = T_c$ , cms

Q<sub>rel</sub> = Maximum release rate, cms

Maximum Storage Required =

 $Q_{p2}$  = Peak flow for storm specified, cms

 $T_c$  = Time to concentration, in seconds

**HOLIDAY INN EXPRESS** 

0.90

DRAFT

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 agrees to be fully responsible for any and all damages which might be occasioned by the	F
contractor's failure to exactly locate and preserve any and all underground utilities.	С

TITLE: STORMWATER M	MANAGEMENT	DESIGN: CHEO DRAWN: APPI	CK: R:
CALCULA	A & M FILE: <b>20-8009</b>		
PROJECT NO.	SCALE:	DRAWING DATE:	
3360-20-2002	HORZ. 1: 250   VERT. N/A	APRIL, 2020	
DRAWING NO.	A & M DRAWING NO.	SHEET NO.	REV.
	20-8009- 10	10 OF 10	2

310, 320, AND 336 HUNT ROAD, COURTENAY, BC V9N 5N2