J+B ENGINEERING INC.
WWW.JANDB-INC.COM

October 30, 2025

City of Ottawa
Development Review - East Branch
Planning, Development and Building Services Department
110 Laurier Ave West, 4th Floor East.
Ottawa, ON K1P 1J1

STORMWATER MANAGEMENT BRIEF: 4000 RIVERSIDE DR, OTTAWA, ON K1V 2E8

The intent of this letter is to address the Stormwater Management (SWM) strategy associated with the proposed site modification to reconfigure an existing drive-thru lane for the existing carwash and add a new drive-thru lane for a quick service restaurant for the subject site located at 4000 Riverside Drive in Ottawa, Ontario.

The existing site is approximately 0.527 ha in area and is located at the southwest quadrant of Riverside Drive and Hunt Club Road in Ottawa, ON. The site currently operates as an existing gas station with a carwash facility.

The current stormwater management onsite includes both quantity and quality controls, refer to the existing Site Services Plan prepared by Novatech Engineering Consultants Ltd and dated April 2002 located in the appendix. The quantity component is managed by a 165mm diameter orifice located at existing CBMH#3 which restricts the flow to an allowable release rate and creating storage via. surface ponding and storage within the piping and associated storm structures (CBs + MHs) prior to discharging offsite. The quality component is treated by an existing OWS (STC750) located downstream of the orifice. The treated flow will utilize existing 300mm storm outlet prior to discharging into 1350mm storm line within City Easement.

The proposed drive-thru modifications and addition will decrease overall site imperviousness by 1.0% and therefore confirming there is no increase in flow from the site as a result of the proposed modifications, refer to the comparison table below for the weighted surface runoff coefficient.

Surface Composition		Impervious	Pervious	Combined
Proposed Condition	(m^2)	3837.00	1437.20	5274.20
	(ha)	0.384	0.144	0.527
Runoff Coefficient		0.900	0.200	0.71

Surface Composition		Impervious	Pervious	Combined
Existing Condition	(m^2)	3900.80	1373.40	5274.20
	(ha)	0.390	0.137	0.527
Runoff Coefficient		0.900	0.200	0.72

Table 1. Runoff Coefficients for Existing and Proposed Conditions.

Considering the existing stormwater report for the subject site is not available we have recomputed the required stormwater storage required based on the modified rational method. Based on an existing orifice size of 165mm diameter and a 100-year ponding elevation (as illustrated in the existing Site Services prepared by Novatech Engineering Consultants Ltd) a storage volume of 55.21 m^3 is required and the site is able to achieve 71.38 m^3 via surface ponding and underground storage within the storm network. Refer to the tables below for the storage calculation.

TOTAL STORAGE FOR UNDERGROUND PIPES				
Pipe ID	Diameter	Area	Length	Volume
	(mm)	(m^2)	(m)	(m^3)
1	300	0.07	7	0.49
2	300	0.07	36	2.54
3	300	0.07	6	0.42
4	300	0.07	19.5	5.51
5	100	0.01	2.5	0.02
6	100	0.01	2.5	0.02
7	100	0.01	2.5	0.02
8	100	0.01	2.5	0.02
9	300	0.07	23.5	1.66
10	300	0.07	20.5	1.45
11	150	0.02	4	0.07
12	300	0.07	7.5	0.53
13	300	0.07	11.5	0.81
14	300	0.07	27.5	1.94
15	300	0.07	6.5	0.46
16	300	0.07	2	0.14
17	300	0.07	25	1.77
18	300	0.07	21.5	1.52
19	300	0.07	8	0.57
20	300	0.07	9	0.64
Orifice	165	0.02	1	0.02
Sum				**20.62**

Table 2. Total Storage for underground storm pipes

TOTAL STORAGE FOR UNDERGROUND STRUCTURES					
Structure	Diameter	Area	Maximum.	Invert	Volume
	(mm)	(m^2)	Water level	(m)	(m^3)
EX.CB#01	600x600	0.36	101.38	100.06	0.48
CB#01	600x600	0.36	102.63	99.91	0.98
CB#02	600x600	0.36	102.44	99.43	1.08
CB#03	600x600	0.36	102.45	99.66	1.00
CBMH#01	1200	1.13	102.31	99.29	3.42
EX.CBMH#1	1200	1.13	102.14	99.89	2.54
EX.CBMH#2	1200	1.13	102.17	99.51	3.01
STM MH#1	1500	1.77	102.65	99.21	6.08
STM MH#2	1200	1.13	102.50	99.57	3.31
STM MH#3	1200	1.13	102.56	99.35	3.63
EX.STORMCEPTOR	1200	1.13	102.73	99.87	3.23
EX.STM MH2	1200	1.13	102.92	98.35	5.17
				Sum	**33.94**

Table 3. Total Storage for underground structures (MH, CBMH, CB, OGS)

Storage Volume for 100-year Storm Event (m^3)	
Catch Basins and Manholes	33.94
Surface Ponding	16.82
Underground Conduits	20.62
Total Provided	**71.38**

Table 4. Total onsite storage for 100-year storm event

In conclusion, the proposed site modifications will not have an adverse impact to the existing drainage system and neighboring properties as the existing stormwater management system will be maintained for both quantity and quality purposes.

We trust that the contents of this letter meet your immediate needs. Should you have any questions or concerns regarding any aspect of this letter, or should you require any further assistance, please don't hesitate to contact our office.

James Sam, P.Eng
J and B Engineering Inc.

APPENDIXES

APPENDIX A – STORMWATER MANAGEMENT CALCULATIONS
APPENDIX B – SITE SERVICES PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD
APPENDIX C – SITE SERVICES PREPARED

APPENDIX A – STORMWATER MANAGEMENT CALCULATIONS

Site Location or Name			
City of Ottawa, ON - 4000 Riverside, Ottawa, ON			
Consultant JandB Engineering	Prepared By	David Liu	Date 15-Oct-25

VOLUMES REQUIRED WITH MODIFIED RATIONAL FORMULA

Surface Composition		Impervious	Pervious	Combined
Proposed Condition	(m^2)	3837.00	1437.20	5274.20
	(ha)	0.384	0.144	0.527
Runoff Coefficient		0.900	0.200	0.71

Surface Composition		Impervious	Pervious	Combined
Existing Condition	(m^2)	3900.80	1373.40	5274.20
	(ha)	0.390	0.137	0.527
Runoff Coefficient		0.900	0.200	0.72

St. Event	Existing	Proposed
2-Year	0.72	0.71
5-Year	0.72	0.71
10-Year	0.72	0.71
25-Year	0.79	0.78
50-Year	0.86	0.85
100-Year	0.90	0.89

Storm Event	Rainfall Intensity (mm/hr)				<Equation 1> Flow Rate (m^3/sec)		
	a	b	c	I	Existing	Proposed	Excess Flow
2-Year	732.951	0.810	6.199	76.81	0.0811	0.0799	-0.0012
5-Year	998.071	0.814	6.053	104.19	0.1100	0.1084	-0.0016
10-Year	1174.184	0.816	6.014	122.14	0.1289	0.1270	-0.0019
25-Year	1402.884	0.819	6.018	144.69	0.1680	0.1655	-0.0025
50-Year	1569.580	0.820	6.014	161.47	0.2046	0.2015	-0.0031
100-Year	1735.688	0.820	6.014	178.56	0.2356	0.2321	-0.0035

Time of Concentration	
(minutes)	10.00

Orifice		
	Contraction Coeff.	0.80
	Orifice Diameter	0.1650
	Gravity Constant	9.81
	Pond Elev.	102.04
	Invert Elev.	98.35
	Pressure Head	3.61
	Qallow	0.0990
	Qorif	0.1439

Storm Event	Tc	Id 100 Years	Qpost	Qpredev	Excess Flow	Volume(m^3)
5 Yr Pre 100 Yr Post	5	242.7039	0.3155	0.1439	0.1716	51.474
	6	226.0101	0.2938	0.1439	0.1499	53.956
	7	211.6678	0.2751	0.1439	0.1312	55.119
	8	199.2006	0.2589	0.1439	0.1150	55.214
	9	188.2542	0.2447	0.1439	0.1008	54.432
	10	178.5590	0.2321	0.1439	0.0882	52.918
	12	162.1330	0.2108	0.1439	0.0668	48.128
	14	148.7229	0.1933	0.1439	0.0494	41.507
	16	137.5493	0.1788	0.1439	0.0349	33.493
	18	128.0828	0.1665	0.1439	0.0226	24.389
	20	119.9504	0.1559	0.1439	0.0120	14.414
	25	103.8471	0.1350	0.1439	-0.0089	-13.382
	30	91.8682	0.1194	0.1439	-0.0245	-44.087
	35	82.5786	0.1073	0.1439	-0.0366	-76.794
	40	75.1453	0.0977	0.1439	-0.0462	-110.955
	45	69.0504	0.0898	0.1439	-0.0542	-146.216
	50	63.9541	0.0831	0.1439	-0.0608	-182.336
	55	59.6238	0.0775	0.1439	-0.0664	-219.146
	Max Volume Required cum					**55.21**

TOTAL STORAGE FOR UNDERGROUND PIPES				
Pipe ID	**Diameter**	**Area**	**Length**	**Volume**
	(mm)	**(m^2)**	**(m)**	**(m^3)**
1	300	0.07	7	0.49
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Structure	**Diameter**	**Area**	**Maximum.**	**Invert**	**Volume**
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CB#02	600x600	0.36	102.44	99.43	1.08
CB#03	600x600	0.36	102.45	99.66	1.00
CBMH#01	1200	1.13	102.31	99.29	3.42
EX.CBMH#1	1200	1.13	102.14	99.89	2.54
EX.CBMH#2	1200	1.13	102.17	99.51	3.01
STM MH#1	1500	1.77	102.65	99.21	6.08
STM MH#2	1200	1.13	102.50	99.57	3.31
STM MH#3	1200	1.13	102.56	99.35	3.63
EX.STORMCEPTOR	1200	1.13	102.73	99.87	3.23
EX.STM MH2	1200	1.13	102.92	98.35	5.17
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Storage Volume for 100-year Storm Event (m^3)	
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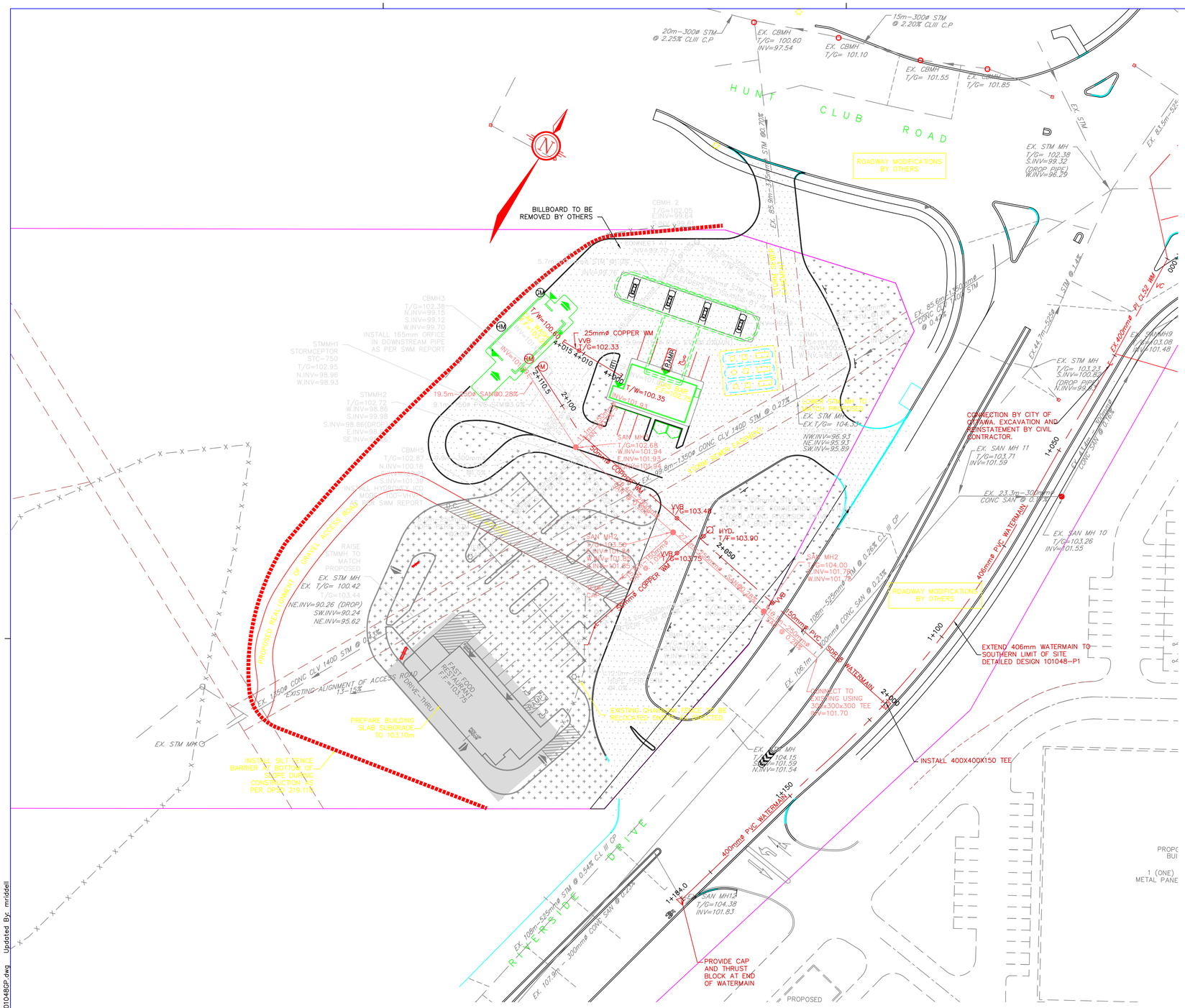
APPENDIX B – SITE SERVICES PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD



GENERAL

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES.
2. THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS, AND OTHER UNDERGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
3. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. CONTRACTOR TO REINSTATE ROADWAY ON RIVERSIDE DRIVE AND HUNT CLUB ROAD TO CITY OF OTTAWA STANDARDS.
5. SPREAD AND COMPACT APPROVED EXCAVATED MATERIAL AS INSTRUCTED BY THE ENGINEER. IF INSUFFICIENT MATERIAL IS AVAILABLE TO ESTABLISH SUBGRADE ELEVATIONS, IMPORT, SPREAD AND COMPACT APPROVED MATERIAL. REMOVE FROM THE SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE INSTRUCTED BY THE ARCHITECT OR ENGINEER.
6. BEFORE COMMENCING CONSTRUCTION, OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $2,000,000.00 WITH THE EXCLUSION FOR BLASTING. INSURANCE POLICY TO NAME OWNERS, ENGINEERS CITY OF OTTAWA AND ARCHITECTS AS CO-INSURED.
7. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION TO ENSURE THE END PRODUCT IS IN CONFORMITY WITH THE DESIGN INTENT.
8. REFER TO LANDSCAPE ARCHITECTURAL DRAWINGS FOR EXTENT OF LANDSCAPE WORK.
9. REFER TO STORMWATER MANAGEMENT PLAN (101048-SWM) FOR PONDING AREAS.

SEWER NOTES:

1. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
CATCHBASIN MANHOLE (1200ø) W/300mm SUMP	701.010	OPSD
CATCHBASIN (600x600mm) W/600mm SUMP	705.010	OPSD
STORM MANHOLE (1200ø) W/300mm SUMP	701.010	OPSD
SANITARY MANHOLE (1200ø)	701.010	OPSD
CB, FRAME & COVER	S19,22,23	CITY
STORM MANHOLE FRAME & COVER	S24,25	CITY
SANITARY MANHOLE FRAME & COVER	S24,25	CITY
SEWER TRENCH – BEDDING (GRANULAR A)		OPSD
COVER (GRANULAR A OR GRANULAR B TYPE II, WITH MAXIMUM PARTICLE SIZE=25mm)		OPSD
STORM SEWER	PVC SDR 35 OR HDPE PERF.	
SANITARY SEWER	PVC SDR 35 OR HDPE PERF.	
CATHBASIN LEAD	PVC SDR 35 OR HDPE PERF.	

2. INSULATE ALL SERVICES (SAN./STM/CB LEADS) THAT HAVE LESS THAN 1.5m COVER WITH 50mmx1200mm 'HI-40' INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
3. SEWER SERVICES TO BE CONSTRUCTED TO 1.0m FACE OF BUILDING AND CAPPED.
4. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
5. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE, KOR-N-SEAL, PSX, POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
6. THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS, SPECIFICALLY THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.15 410.07.15.04 AND 407.07.26. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
7. EXISTING STORM MANHOLES TO REMAIN BUT RAISED OR LOWERED AS PER DRAWING.
8. RESTORE ALL TRENCHES AND SURFACES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE ENGINEER.

LEGEND

- 200mmø — PROPOSED WATERMAIN AND DIAMETER
- PROPOSED VALVE LOCATION
- V&VB — VALVE & VALVE BOX
- HYD — PROPOSED HYDRANT C/W VALVE & LEAD
- T/F=98.45 — PROPOSED TOP OF BOTTOM FLANGE
- BEND — PROPOSED BEND AND THRUSTBLOCK 11.25°, 22.5°, 45° or TEE (SEE PLAN AND PROFILES)
- MH 101 — PROPOSED SANITARY MH & SEWER
- MH 1009 — PROPOSED STORM MH & SEWER
- CB 2 — PROPOSED ROAD CATCHBASIN
- CBMH 2 — PROPOSED CATCHBASIN MANHOLE
- PROPOSED STREETLIGHT
- DIRECTION OF FLOW
- MH 101 — EXISTING SANITARY MH & SEWER
- MH 1025 — EXISTING STORM MH & SEWER
- 200mmø WM — EXISTING WATERMAIN
- SILT FENCE
- DC — PROPOSED DEPRESSED CURB
- M — WATER METER
- RM — REMOTE METER
- CAUTION SIGN WARNING OF PONDING DURING STORM EVENTS
- PREPARE SUBGRADE TO FINISHED GRADE LESS 0.50m
- PREPARE LANDSCAPE AREAS TO FINISHED GRADE LESS 0.10m
- PREPARE PAD AT 103.10m
- LEAVE FLAT AT 103.00m

WATERMAIN NOTES:

1. SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY ENVIRONMENT AND TRANSPORTATION DEPARTMENT ENVIRONMENT SECTION STANDARD SPECIFICATIONS AND STANDARD DRAWINGS MANUAL, EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION BY CONTRACTOR. CONNECTION TO EXISTING WATERMAIN AND DISINFECTION BY CITY OF OTTAWA.
2. WATER SERVICE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING. ADEQUATE LENGTH OF COPPER SHALL BE COILED FOR FUTURE CONNECTION TO WATER METER.
3. MIN. 3.0m CLEARANCE BETWEEN WATER SERVICES & HYDRO TRANSFORMERS
4. MIN. 1.5 CLEARANCE BETWEEN WATER SERVICE AND STREET LIGHT
5. WATERMAIN INSTALLED WITH LESS THAN 1.5 2.4m COVER MUST BE INSULATED AS PER CITY OF OTTAWA STANDARDS.
6. WATER METER AND REMOTE METER ARE TO BE INSTALLED PER CITY OF OTTAWA
7. GAS STATION WATER DEMAND – PEAK PERIODS=35GPM (2.65L/s) – AVERAGE=17GPM (1.29L/s) FAST FOOD RESTAURANT WATER DEMAND 82 FIXTURE UNITS
8. SOIL BEARING CAPACITY IS 100 kPa.

WATERMAIN TABLE

STATION	SURFACE ELEVATION	TOP OF WATERMAIN ELEVATION	DESCRIPTION	RESTRAINING RINGS (AS PER W 25.5 AND W25.6)	THRUST BLOCK (AS PER W 25.3 AND W25.4)
2+000.0	104.01	101.61	400x400x150 TEE	AS PER 101048-P1	AS PER 101048-P1
2+016.0	104.17	101.77	22.5° VERTICAL BEND	ALL JOINTS WITHIN 6m	–
2+017.0	104.17	101.40	22.5° VERTICAL BEND	ALL JOINTS WITHIN 6m	–
2+018.2	104.17	101.40	SAN CROSSING (INV.=101.70)	–	–
2+019.5	104.17	101.40	VPI	–	–
2+022.0	104.17	101.40	22.5° VERTICAL BEND	ALL JOINTS WITHIN 6m	–
2+023.0	104.17	101.13	22.5° VERTICAL BEND	ALL JOINTS WITHIN 6m	–
2+024.4	104.17	101.13	STM CROSSING (INV.=101.47)	–	–
2+024.4	104.17	101.13	22.5° VERTICAL BEND	ALL JOINTS WITHIN 6m	–
2+025.4	104.17	101.62	22.5° VERTICAL BEND	ALL JOINTS WITHIN 6m	–
2+029.1	104.02	101.62	V&VB	ALL JOINTS WITHIN 9m	–
2+046.0	102.75	100.35	LOW POINT–11.25° VERTICAL BEND	ALL JOINTS WITHIN 6m	–
2+055.7	103.75	101.35	HYDRANT TEE	ALL JOINTS WITHIN 3m	A=350 (HYDRANT AS PER W-19)
2+057.0	103.60	101.20	50mmø SERVICE	–	–
2+058.0	103.50	101.10	150mm TO 50mm REDUCER	ALL JOINTS WITHIN 6m	–
2+083.0	103.48	101.08	V&VB	–	–
2+092.5	102.75	100.35	WM BEND	–	–
2+110.5	103.00	100.60	1.0m FROM BUILDING FACE	–	–
3+000.00	103.60	101.20	SERVICE FROM 150mm MAIN	–	–
3+006.00	103.70	101.30	V&VB	–	–
3+024.00	103.65	101.25	VERTICAL BEND	–	–
3+025.50	103.65	100.53	VERTICAL BEND	–	–
3+027.00	103.65	100.53	STM CROSSING (INV.=100.78)	–	–
3+028.50	103.65	100.53	VERT BEND	–	–
3+030.00	103.65	101.25	VERTICAL BEND C/W TEMP CAP	–	–
3+050.00	103.65	101.25	FUTURE	–	–
3+056.02	103.75	101.35	FUTURE WM CAPPED 1m FROM BLDG.	–	–
4+000.00	102.75	100.35	WM CAPPED 1m FROM BLDG.	–	–
4+011.00	102.33	99.93	V&VB	–	–
4+015.00	103.00	100.60	WM CAPPED 1m FROM BLDG.	–	–

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
7.	ISSUED FOR CONSTRUCTION	SEPT 11/03	MER
7.	REVISED PER TENDER ADDENDUM #1	MAY 12/03	MER
6.	ISSUED FOR PHASE 1 TENDER	MAY 2/03	MER
5.	REVISED PER CITY COMMENTS/ISSUED FOR MOE	FEB 28/03	MER
4.	ISSUED FOR APPROVAL	DEC 02/02	MER
3.	REVISED PER CITY COMMENTS	OCT 29/02	MER
2.	REVISED PER SWM REPORT	JUNE 7/02	JGR
1.	ISSUED FOR SITE PLAN APPLICATION	MAY 1/02	JGR

REGISTERED PROFESSIONAL ENGINEER — J.G. RIDDELL — PROVINCE OF ONTARIO

NOVATECH
ENGINEERING CONSULTANTS LTD.
ENGINEERS & PLANNERS
Suite 200, 240 Michael Cowpland Drive
Kanata, Ontario, Canada
K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Email: novainfo@novatech-eng.com

DESIGN	MER
CHECKED	JGR
DRAWN	SAM
CHECKED	MER
APPROVED	JGR
SCALE	1:500

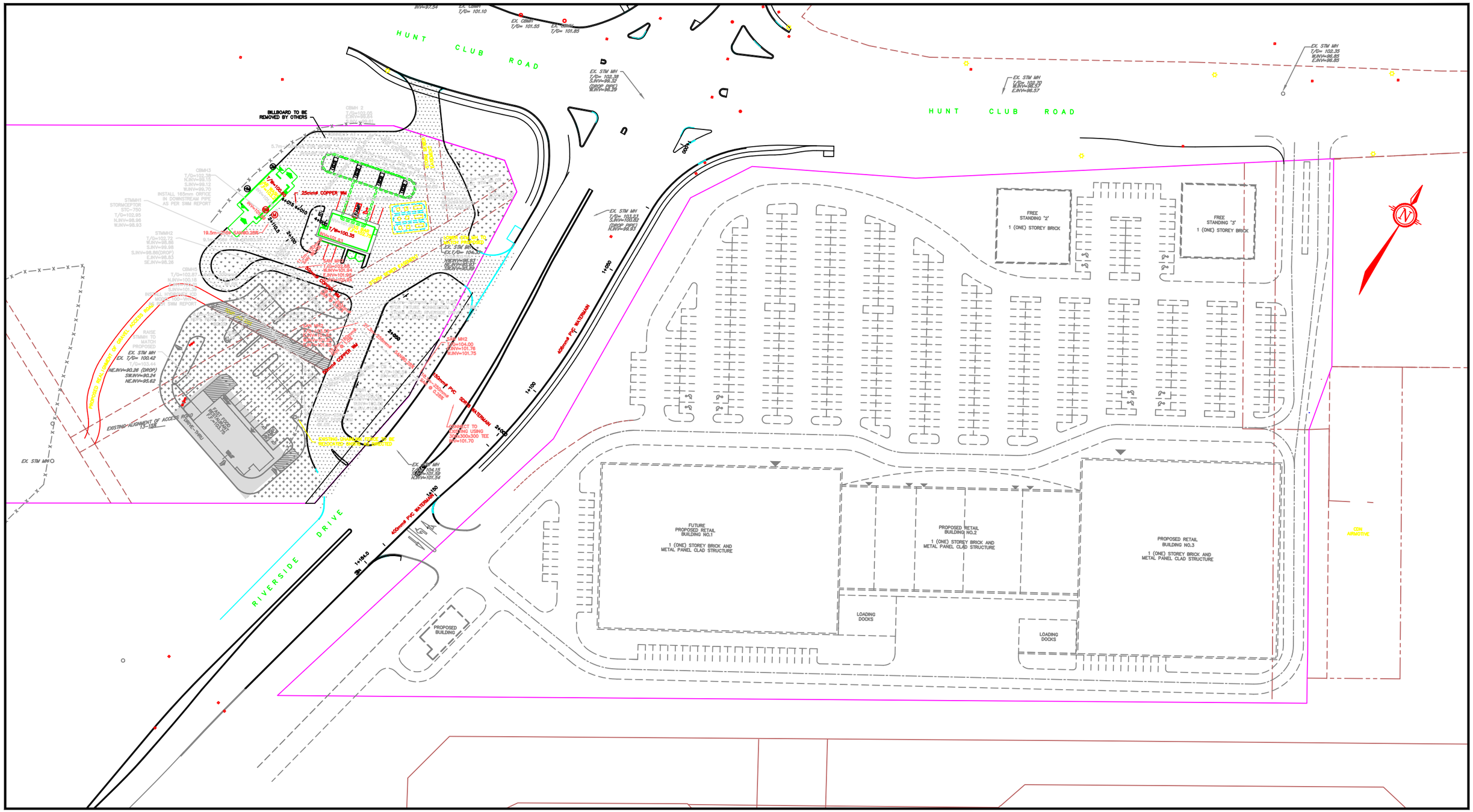
CITY OF OTTAWA
RUNWAY CENTRE
4000 RIVERSIDE DRIVE

GENERAL PLAN OF SERVICES

PROJECT No. 101048
DATE APRIL 2002
DRAWING No. 101048-GP

PLAN1.DWG – 841mmx594mm

Sept 11, 2003 – 08:11:10 DWG Name: M:\2001\101048\CAD\design\101048GP.dwg Updated By: mriddell



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CONSULTANTS LTD.
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K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Email: novainfo@novatech-eng.com

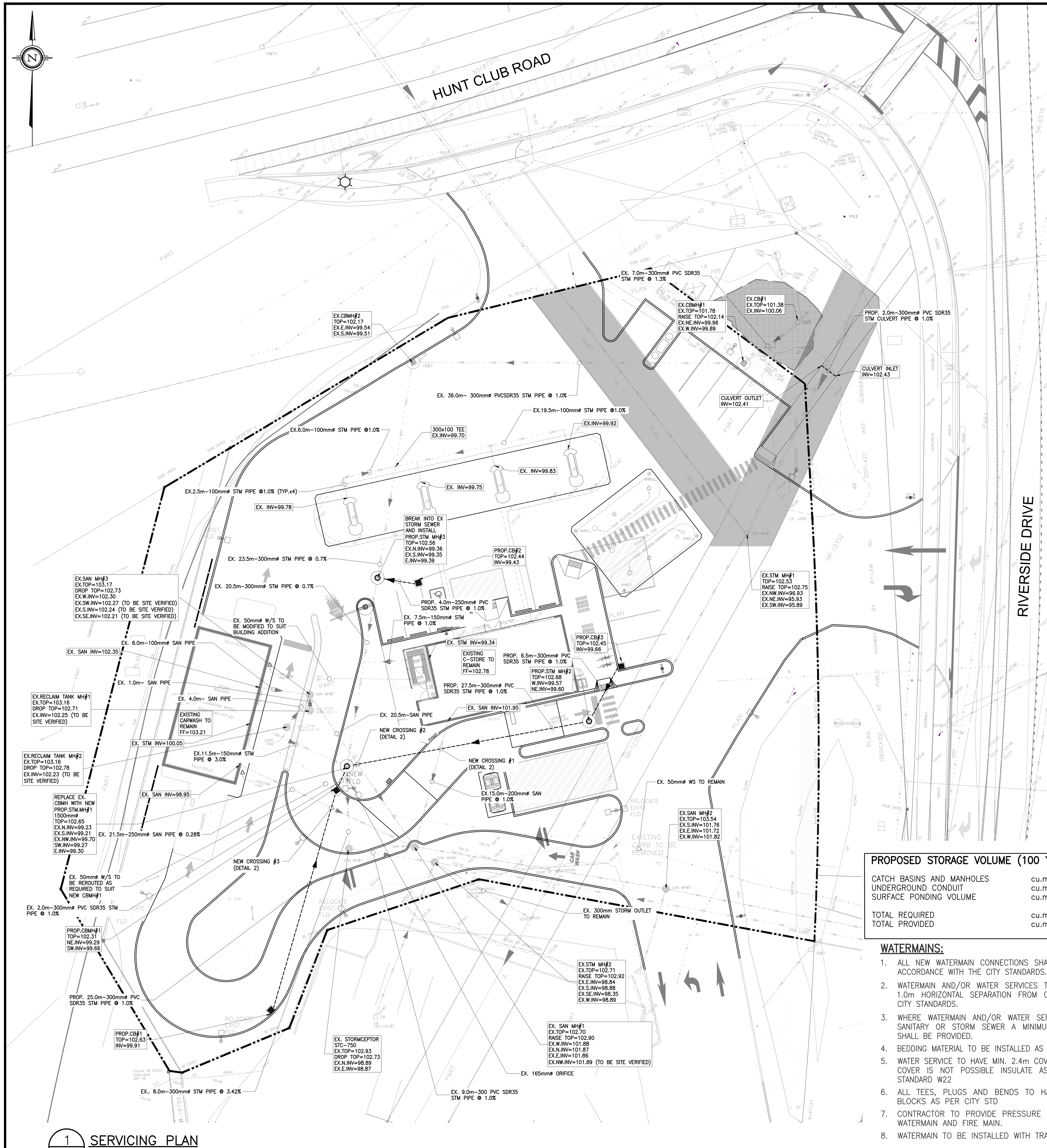
RUNWAY CENTRE

CONCEPTUAL DEVELOPMENT PLAN

MAY 2002 1:1250 101048-FIG1

SHT11X17.DWG – 278mmX431mm

APPENDIX C – SITE SERVICES PREPARED



STORM SEWER TABLE			
MH/CB ID	TOP ELEVATION (m)	INVERT (m)	DIAMETER (mm)
EX.CB#01	101.38	EX.INV=100.06	300
CB#01	102.63	INV=99.91	300
CB#02	102.44	INV=99.39	250
CB#03	102.45	INV=99.66	300
STM.MH#1 1500mm dia	102.65	EX.N.INV=99.23	300
		EX.S.INV=99.21	165 (Orifice)
		EX.NW.INV=99.7	150
		SW.INV=99.27	300
		E.INV=99.30	300
STM.MH#2	102.68	W.INV=99.57	300
		NE.INV=99.60	300
STM.MH#3	102.56	EX.N.INV=99.36	300
		EX.S.INV=99.35	300
		E.INV-99.39	300
CBMH#01	102.31	N.INV=99.29	300
		S.INV=99.32	300
EX.CBMH#01	EX.=101.78 RAISE TO=102.14	EX.NE.INV=99.96	300
		EX.W.INV=99.89	300
EX.CBMH#02	102.17	EX.E.INV=99.54	300
		EX.S.INV=99.51	300
EX.STC-750	EX.=102.93 DROP TO=102.73	EX.N.INV=98.89	300
		EX.S.INV=98.87	300
EX.STM.MH#1	EX.=102.53 RAISE TO=102.75	EX.NW.INV=96.93	375
		EX.NE.INV=95.93	1350
		EX.SW.INV=95.89	1350
EX.STM.MH#2	EX.=102.71 RAISE TO=102.92	EX.E.INV=98.84	300
		EX.S.INV=98.88	300
		EX.SE.INV=98.35	300
		EX.W.INV=98.89	300

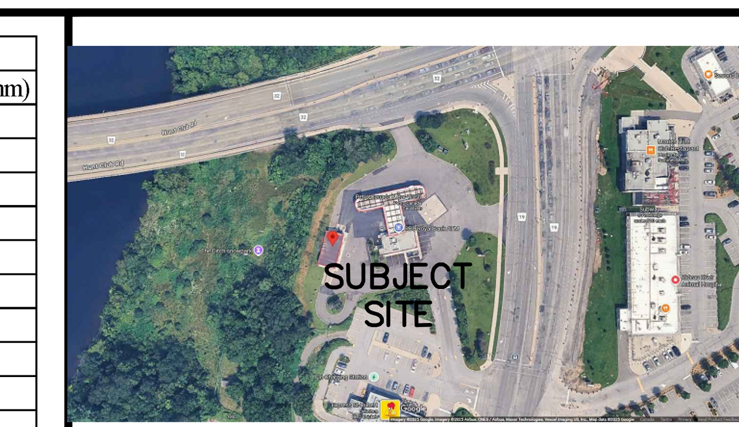
SANITARY SEWER TABLE			
MH ID	TOP ELEVATION (m)	INVERT (m)	DIAMETER (mm)
EX.SAN.MH#01	EX.TOP=102.70 RAISE TO=102.90	EX.W.INV=101.88	250
		EX.N.INV=101.87	150
		EX.NW.INV=101.89 (TO BE SITE VERIFIED)	N/A
		EX.E.INV=101.86	250
EX.SAN.MH#02	EX.TOP=103.54	EX.S.INV=101.76	150
		EX.E.INV=101.72	250
		EX.W.INV=101.82	250
EX.SAN.MH#03	EX.TOP=103.17 DROP TO=102.73	EX.SW.INV=102.27 (TO BE SITE VERIFIED)	N/A
		EX.S.INV=102.24 (TO BE SITE VERIFIED)	N/A
		EX.SE.INV=102.21 (TO BE SITE VERIFIED)	N/A
		EX.W.INV=102.30	100
EX. RECLAIM TANK MH#01	EX.TOP=103.16 DROP TO=102.71	EX.INV=102.25 (TO BE SITE VERIFIED)	N/A
EX. RECLAIM TANK MH#02	EX.TOP=103.16 DROP TO=102.78	EX.INV=102.23 (TO BE SITE VERIFIED)	N/A

CROSSING 1
NEW STM OBV=99.71
EXISTING SAN INV=101.92
CLEARANCE=2.21m

CROSSING 2
NEW STM OBV=99.61
EXISTING SAN INV=102.06
(TO BE SITE VERIFIED)
CLEARANCE=2.45m

CROSSING 3
NEW STM INV=99.67
EXISTING SAN OBV=99.17
CLEARANCE=0.5m

2 NEW CROSSING CLEARANCE
SCALE: NTS



KEY PLAN
NTS

GENERAL NOTES

1. VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. DO NOT SCALE DRAWINGS.
3. REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGN ENGINEER AS APPLICABLE.
4. USE ONLY LATEST REVISED DRAWINGS OR THOSE THAT ARE MARKED "ISSUED FOR CONSTRUCTION".
5. DESIGN AND CONSTRUCTION OF THIS PROJECT SHALL COMPLY WITH THE PROVINCIAL AND LOCAL BUILDING CODES LATEST EDITION.
6. ALL WORKS AND MATERIALS USED SHALL COMPLY AS REQUIRED BY THE BUILDING CODE LATEST EDITION.
7. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS & SPECIFICATIONS.
8. EVERYTHING IS TO BE CONSIDERED NEW UNLESS SPECIFIED EXISTING OTHERWISE.

LEGEND

+100.00 EXISTING ELEVATION
EXISTING CATCHBASIN
EXISTING C.B./M.H.
EXISTING MANHOLE
NEW CATCHBASIN
NEW C.B./M.H.
NEW MANHOLE
EXISTING STORM LINE
EXISTING SANITARY LINE
PROPERTY LINE
SETBACK LINE
NEW SANITARY LINE
NEW STORM LINE
NEW WATER LINE

REVISION TABLE			
REV.	DESCRIPTION	DRAWN / DATE	APP'D.
0	PRELIMINARY DESIGN	DL / OCT 17, 2025	JS
1	1st REVISION AS PER COMMENT	DL / OCT 24, 2025	JS
2	2nd REVISION AS PER COMMENT	DL / OCT 29, 2025	JS

ISSUE TABLE		
TO	FOR	DATE
SUNCOR	FOR REVIEW	22 OCT '25
SUNCOR	FOR REVIEW	24 OCT '25
SUNCOR	FOR REVIEW	30 OCT '25
CITY	FOR SPA	17 DEC '25

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.. CONTRACTOR TO CHECK/VERIFY ALL DIMENSIONS PRIOR TO COMMENCEMENT OF WORK. ALL DESCREPANCIES TO BE REPORTED TO THE PROJECT DESIGNER. DO NOT SCALE DRAWINGS.

SEAL
LICENSED PROFESSIONAL ENGINEER
M. Y. SAM
100127775
DEC 17, 2025
PROVINCE OF ONTARIO

SPECIFICATIONS FOR C.B'S AND M.H.'S

STORM:

1. DROP STRUCTURE IF REQUIRED AS CITY SPECIFICATION AND PER OPSD 1003.010.
2. 600x600 PRECAST CB AS PER OPSD 705.010 c/w FRAME AND GRATE AS PER S19. GOSS TRAP AND SUBDRAINS AS PER CITY STANDARD.1
3. ALL CB TO HAVE 3.0m –150mmø PERFORATED SUBDRAIN IN ALL 4 DIRECTIONS AS PER CITY STANDARDS.
4. 1200ø PRECAST MH AS PER OPSD 701.010 c/w FRAME AS PER S25 AND COVER AS PER S24.1 AND S28.1.
5. BENCHING AS PER OPSD 701.021.
6. BEDDING AS PER CITY STD S6.
7. ADJUSTMENT UNITS AND CAPS AS PER OPSD 704.01.
8. SEWER COVER–GRANULAR 'A' CONFORMING TO OPSD 802.03.
9. PIPE–PVC SDR35 UNLESS NOTED OTHERWISE.
10. CB CONNECTIONS AS PER OPSD 708.03
11. ALL EX. STORM AND SANITARY ABANDONED SHOWN ON THE PLAN OR ENCOUNTERED DURING CONSTRUCTION ARE TO BE EXCAVATED AT THE STREET LINE AND SEALED TO CITY STD.
12. WHEN THE DEPTH OF THE COVER OVER THE PROP. SANITARY OR STORM SEWERS IS LESS THAN 2.0m, SEWER LINES ARE TO BE INSULATED AS PER CITY STD. THE INSULATION TO BE STYROFOAM BRAND H.I. TYPE IV OR EQUAL.
13. DROP STRUCTURE ON STORM OR SANITARY AS PER OPSD 1003.010 OR OPSD 1003.020.AS APPLICABLE

SANITARY

1. 1200ø PRECAST M.H'S AS PER OPSD 701.01 c/w FRAME AS PER S25 AND COVER AS PER S24.
2. DROP STRUCTURE IF REQUIRED AS CITY SPECIFICATION AND PER OPSD 1003.010.
3. BEDDING AS AS PER CITY STD S6.
4. BENCHING AS PER OPSD 701.021.
5. SANITARY PIPES TO BE PVC SDR35.
6. ALL SANITARY SEWERS TO BE TESTED IN ACCORDANCE WITH THE REQUIREMENT OF OBC 7.3.6

PROPOSED STORAGE VOLUME (100 YEAR EVENT)

CATCH BASINS AND MANHOLES	cu.m.	33.94
UNDERGROUND CONDUIT	cu.m.	20.62
SURFACE PONDING VOLUME	cu.m.	16.82
TOTAL REQUIRED	cu.m.	55.21
TOTAL PROVIDED	cu.m.	71.38

WATERMAINS:

1. ALL NEW WATERMAIN CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY STANDARDS.
2. WATERMAIN AND/OR WATER SERVICES TO HAVE A MINIMUM OF 1.0m HORIZONTAL SEPARATION FROM OTHER UTILITIES AS PER CITY STANDARDS.
3. WHERE WATERMAIN AND/OR WATER SERVICES CROSSES UNDER SANITARY OR STORM SEWER A MINIMUM CLEARANCE OF 0.5m SHALL BE PROVIDED.
4. BEDDING MATERIAL TO BE INSTALLED AS PER CITY STANDARDS.
5. WATER SERVICE TO HAVE MIN. 2.4m COVER. WHERE THE MINIMUM COVER IS NOT POSSIBLE INSULATE AS PER CITY OF OTTAWA STANDARD W22
6. ALL TEES, PLUGS AND BENDS TO HAVE CONCRETE THRUST BLOCKS AS PER CITY STD
7. CONTRACTOR TO PROVIDE PRESSURE TEST RESULTS OF NEW WATERMAIN AND FIRE MAIN.
8. WATERMAIN TO BE INSTALLED WITH TRACER WIRE.

EX. INFORMATION NOTES

INFORMATION REGARDING EXISTING STORM, SANITARY AND WATER EXTRACTED FROM PROJECT PART OF LOT 6 CONCESSION 2 DWG #24–10–007–04, DATED 2024–02–26 BY J.D. BARNES LTD AND FROM PROJECT 101048–0 DWG #101048–GP, DATED APRIL 2002 BY NOVATECH ENGINEERING CONSULTANTS LTD.

SERVICES NOTES:

CONTACT LOCAL UTILITY AGENCIES (GAS, HYDRO & TELEPHONE) TO LOCATE THE EXISTING INCOMING SERVICES, AND USE THE SAME TO SERVE NEW INSTALLATIONS (IF APPLICABLE).

SURVEY NOTES

BEARINGS AND MTM GRID, DERIVED BY REAL TIME NETWORK (RTN) OBSERVATIONS, MTM ZONE 9, NAD 83 (CSRS) (2010.0)

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999907

ELEVATIONS SHOWN ON THIS PLAN ARE REFERRED TO GEODETIC DATUM AND ARE DERIVED FROM CITY OF OTTAWA BENCH MARK 00119883075, HAVING PUBLISHED ELEVATION OF 90.612 METRES

REVISION TABLE			
REV.	DESCRIPTION	DRAWN / DATE	APP'D.
3	REVISED AS PER SITE PLAN	DL / DEC 17, 2025	JS

CONSULTANT
J + B ENGINEERING INC.

PETRO-CANADA
A Suncor Energy Business

DRAWING TITLE:
SERVICING PLAN

PROJECT:
4000 RIVERSIDE DRIVE @ HUNT CLUB DRIVE
OTTAWA, ON

DRAWN BY:	CAD INFO.: SHEET SIZE D (559 x 864) PETRO-CANADA 250272
DRAWING SCALE: 1:250	CONSULTANT –
DATE DRAWN: 2025–07–30	PLOT SCALE 1:1
CHECKED BY:	PLOT DATE
APPROVED BY: JS	PLOT CONFIGURATION
STD No./OUTLET No. 35197	SHEET No. P301