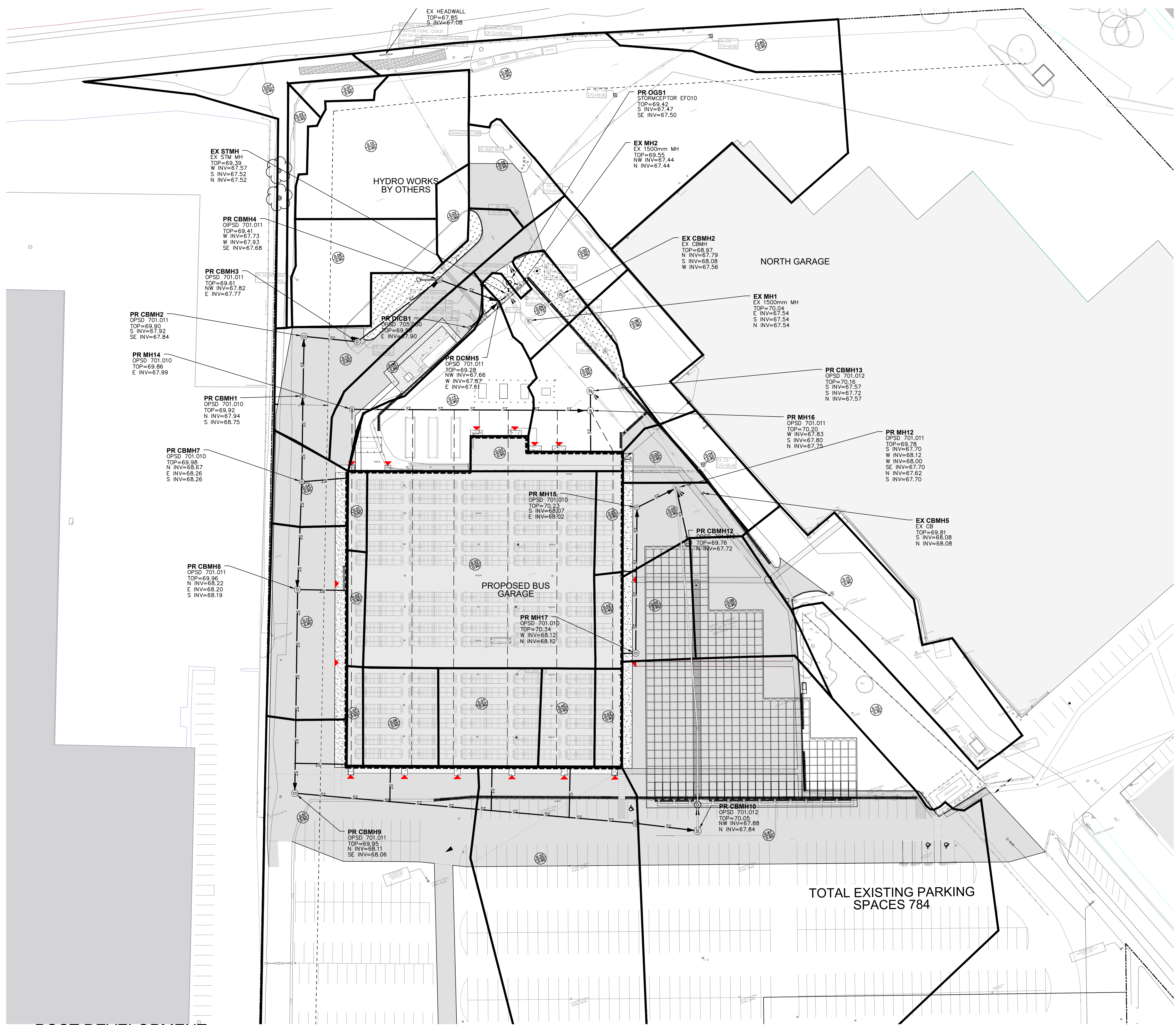


Attachment 6

Storm Sewer Design Sheet and Engineering Drawing



LEGEND

- ST — EX STORM SEWER
- SAN — EX SANITARY SEWER
- EX — EX WATERMAIN
- PS — PROP STORM SEWER
- SS — PROP SANITARY SEWER
- WM — PROP WATERMAIN



SERVICES D'INFRASTRUCTURE
DIRECTION DE CONCEPTION ET DE CONSTRUCTION

FOR / POUR
Client - Department
**Infrastructure and Water Services Department
Design & Construction**



PRIME:
AECOM Canada Architects Ltd.
50 Spadina Avenue, Suite 290
Kitchener, Ontario, N2P 0A4



SUBCONSULTANT:
GRC ARCHITECTS INC.
47 Clarence Street, Suite 401
Ottawa, Ontario, K1N 9K1

NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO INFORM THEMSELVES OF THE EXACT LOCATION OF AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES, SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED. WITH THE SOLE EXCEPTION OF THE RECHANGES SPECIFICALLY DESCRIBED FOR THIS PROJECT, NO ELEVATION INDICATED OR ASSUMED HEREON IS TO BE USED AS A REFERENCE ELEVATION FOR ANY PURPOSE.

NO	ISSUED FOR	DATE	TG
9	ISSUED FOR ECA & SPA SUBMISSIONS	2025/12/26	TG
8	SUBMITTED FOR ECA & SPA SUBMISSIONS	2025/12/26	TG
7	ISSUED FOR 100% CONTRACT DOCUMENTATION/TENDER	2025/11/14	TG
6	ISSUED FOR BUILDING PERMIT	2025/08/19	TG
5	ISSUED FOR 90% CONTRACT DOCUMENTATION	2025/08/07	TG
4	ISSUED FOR 80% CONTRACT DOCUMENTATION	2025/04/15	TG
3	ISSUED FOR 60% CONTRACT DOCUMENTATION	2025/01/09	TG
2	ISSUED FOR 40% CONTRACT DOCUMENTATION	2024/09/27	TG
1	ISSUED FOR SCHEMATIC DESIGN	2024/03/28	TG

DESIGNED BY / CONÇU PAR	CHECKED BY / VÉRIFIÉ PAR
TG/SS	TG

DRAWN BY / DÉSSINÉ PAR	SCALE / ÉCHELLE
SS	1 : 500

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CE DESSIN CONSTITUE LA PROPRIÉTÉ DE LA VILLE D'OTTAWA ET TOUT DROIT D'AUTEUR EST RÉSERVÉ. LES DIMENSIONS UTILISÉES LE SONT À DES FINS DESTINATION SEULEMENT. IL INCOMBE À CHAQUE ENTREPRENEUR, SOUS-CONTRACTANT OU CONSULTANT DE VÉRIFIER TOUTES LES DIMENSIONS ET LES CONDITIONS SUR LE CHANTIER. VEUILLEZ INFORMER LE PROPRIÉTAIRE DE TOUTE ERREUR OU OMISSION AVANT D'ENTAMER LES TRAVAUX. NE DRESSÉZ PAS LES PLANS À L'ÉCHELLE.

ARCHITECT / ARCHITECTE
CONSULTANT / EXPERT-CONSEIL

CONSULTANT / EXPERT-CONSEIL
CONSULTANT / EXPERT-CONSEIL

PROJECT / LOCATION / PROJET / ENDROIT
OTC ZEB-New Garage

Enter address here,
OTTAWA, ONTARIO

DRAWING / DESSIN
POST DEVELOPMENT DRAINAGE AREAS

BUSINESS ENTITY / NUMÉRO DE L'ENTITÉ
BUILDING NUMBER / NUMÉRO DU BÂTIMENT
CITY PROJECT NO. / NUMÉRO DE PROJET
CONS. PROJECT NO. / NUMÉRO DE PROJET

File Number D07-12-25-0095
Plan Number 19357

SHEET NO. / FEUILLE NO.
C015

OC Transpo Zero Emissions Bus Garage

STORM SEWER DESIGN SHEET

Version: 3.0
 Project No.: 60716350
 Date: Nov-25
 Design: BP

City of Ottawa IDF Data			
Return Period	Parameters		
	A	B	C
2 Year	732.951	6.199	0.810
5 Year	998.071	6.053	0.814
10 Year	1174.184	6.014	0.816
25 Year	1402.884	6.018	0.819
50 Year	1569.580	6.014	0.820
100 Year	1735.688	6.014	0.820

Runoff C Adjustment Factors	
Ca 25 Year =	1.10
Ca 50 Year =	1.20
Ca 100 Year =	1.25

Mannings "n"	
CONC	0.013
CMP	0.024

LOCATION			CONTRIBUTING AREA														RAINFALL INTENSITY I _n (mm/hr)						FLOW Q _n (L/s)						SEWER DESIGN						
Segment	FROM	TO	AREA A(ha)	IMPERV RATIO	RUNOFF C <10 Year	RUNOFF C 25 Year	RUNOFF C 50 Year	RUNOFF C 100 Year	AxC (ha) <10 Year	ACCUM. AxC (ha) <10 Year	AxC (ha) 25 Year	ACCUM. AxC (ha) 25 Year	AxC (ha) 50 Year	ACCUM. AxC (ha) 50 Year	AxC (ha) 100 Year	ACCUM. AxC (ha) 100 Year	I ₂	I ₅	I ₁₀	I ₂₅	I ₅₀	I ₁₀₀	Q ₂	Q ₅	Q ₁₀	Q ₂₅	Q ₅₀	Q ₁₀₀	LENGTH (m)	SLOPE (%)	DIA. (mm)	FULL FLOW Capacity (L/s)	FULL FLOW Velocity (m/s)	FLOW TIME in pipe (min)	TIME OF CONC. (min)
Existing Sewer North and West of North Garage (No Modifications)																																			
100	NE-CB1	NE-CB2	0.06	0.90	0.90	0.99	1.08	1.13	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.07	104	141	166	197	219	243	15.2	20.8	24.4	31.8	38.7	44.6	29.0	0.2	300	43.2	0.61	0.79	5.00
101	NE-CB2	CBMH1	0.38	0.90	0.90	0.99	1.08	1.13	0.34	0.39	0.38	0.43	0.41	0.47	0.43	0.49	98	133	157	186	207	229	107.3	146.1	171.5	223.6	272.3	313.7	42.0	0.3	375	95.7	0.87	0.81	5.79
102	CBMH1	CBMH2	0.22	0.90	0.90	0.99	1.08	1.13	0.20	0.59	0.21	0.65	0.23	0.71	0.24	0.74	93	126	148	176	196	217	152.1	207.0	242.8	316.7	385.6	444.2	23.0	1.2	375	195.2	1.77	0.22	6.60
200	ExCB	ExMH2	0.26	0.58	0.58	0.63	0.69	0.72	0.39	0.39	0.16	0.16	0.18	0.18	0.18	0.18	104	141	166	197	219	243	112.2	152.9	179.6	88.7	108.0	124.4	10.6	0.4	300	59.5	0.84	0.21	5.00
201	ExMH2	ExCBMH1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.16	0.00	0.18	0.00	0.18	102	139	163	194	216	239	110.5	150.6	176.8	87.3	106.4	122.5	53.0	0.2	300	37.6	0.53	1.66	5.21
202	ExCBMH1	ExMH1	0.04	0.90	0.90	0.99	1.08	1.13	0.03	0.42	0.04	0.20	0.04	0.22	0.04	0.23	91	124	146	173	193	213	107.7	146.5	171.9	96.1	117.0	134.7	10.5	1.0	375	171.1	1.55	0.11	6.87
203	ExMH1	CBMH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.20	0.00	0.22	0.00	0.23	91	123	145	172	192	212	106.9	145.4	170.6	95.4	116.1	133.8	12.6	0.0	375	0.2	0.00	0.00	6.98
204	CBMH3	CBMH2	0.15	0.88	0.88	0.97	1.06	1.10	0.14	0.56	0.15	0.35	0.16	0.38	0.17	0.40	91	123	145	172	192	212	141.0	191.7	225.0	166.2	202.4	233.1	19.0	0.1	525	120.8	0.56	0.57	6.98
New Sewer South of Substation and north of ZEB Garage																																			
400	NewCBMH1	NewCBMH2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104	141	166	197	219	243	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.1	600	200.1	0.71	0.38	5.00
401	NewCBMH2	NewCBMH3	0.12	0.90	0.90	0.99	1.08	1.13	0.11	0.11	0.12	0.12	0.13	0.13	0.13	0.13	101	137	161	191	214	236	30.2	41.2	48.3	63.1	76.8	88.5	15.8	0.1	675	162.0	0.45	0.58	5.38
402	NewCBMH3	NewCBMH4	0.09	0.90	0.90	0.99	1.08	1.13	0.08	0.19	0.09	0.21	0.10	0.23	0.10	0.24	97	132	155	184	205	227	50.8	69.1	81.1	105.8	128.8	148.4	26.7	0.1	675	176.2	0.49	0.90	5.96
403	NewCBMH4	DCMH5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.21	0.00	0.23	0.00	0.24	91	124	146	173	193	214	47.9	65.1	76.4	99.7	121.4	139.8	16.9	0.1	675	156.6	0.44	0.64	6.86
300	DICB1	DCMH5	0.19	0.90	0.90	0.99	1.08	1.13	0.17	0.17	0.19	0.19	0.21	0.21	0.22	0.22	104	141	166	197	219	243	50.1	68.3	80.2	104.6	127.4	146.7	10.7	0.3	300	51.2	0.72	0.25	5.00
500	DCMH5	MH11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.40	0.00	0.44	0.00	0.45	88	120	140	166	186	205	88.6	120.4	141.3	184.2	224.3	258.3	3.1	1.3	600	697.5	2.47	0.02	7.51
New Sewer Southwest, South and Southeast of ZEB Garage																																			
600	NewCBMH1	NewCBMH7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104	141	166	197	219	243	0.0	0.0	0.0	0.0	0.0	0.0	23.5	0.3	450	166.3	1.05	0.37	5.00
601	NewCBMH7	NewCBMH8	0.05	0.90	0.90	0.99	1.08	1.13	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	101	137	161	191	214	236	13.1	17.8	20.9	27.3	33.2	38.3	29.5	0.1	675	309.5	0.86	0.57	5.37
602	NewCBMH8	NewCBMH9	0.15	0.90	0.90	0.99	1.08	1.13	0.13	0.18	0.15	0.20	0.16	0.21	0.17	0.22	97	132	155	184	205	227	48.2	65.7	77.1	100.5	122.4	141.0	55.2	0.1	675	320.0	0.89	1.03	5.94
603	NewCBMH9	NewCBMH10	0.68	0.90	0.90	0.99	1.08	1.13	0.62	0.79	0.68	0.87	0.74	0.95	0.77	0.99	91	124	145	172	192	212	200.5	272.7	320.0	417.2	508.0	585.2	93.2	0.1	675	313.9	0.88	1.77	6.97
604	NewCBMH10	NewCBMH11	0.32	0.90	0.90	0.99	1.08	1.13	0.29	1.09	0.32	1.20	0.35	1.30	0.36	1.36	82	111	131	155	173	191	247.5	336.0	394.0	513.6	625.3	720.3	16.9	0.1	675	289.2	0.81	0.35	8.74
605	NewCBMH11	Storage	0.87	0.86	0.86	0.95	1.03	1.08	0.75	1.84	0.83	2.02	0.90	2.20	0.94	2.30	80	109	128	152	169	187	410.7	557.5	653.7	851.9	1037.2	1194.8	4.7	2.6	675	1343.2	3.75	0.02	9.09
606	Storage	NewCBMH12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	0.00	2.02	0.00	2.20	0.00	2.30	80	109	128	152	169	187	410.2	556.8	652.9	851.0	1036.0	1193.4	2.5	0.0	600	19.4	0.07	0.61	9.11
607	NewCBMH12	MH12	0.05	0.90	0.90	0.99	1.08	1.13	0.05	1.89	0.05	2.07	0.06	2.26	0.06	2.36	78	106	124	147	164	181	408.0	553.6	649.0	845.8	1029.7	1186.1	15.2	0.1	600	222.7	0.79	0.32	9.72
700	NewCBMH15	MH12	0.08	0.86	0.86	0.95	1.04	1.08	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	104	141	166	197	219	243	19.4	26.4	31.0	40.5	49.3	56.8	35.3	0.1	600	231.1	0.82	0.72	5.00
800	MH17	MH15	0.02	0.90	0.90	0.99	1.08	1.13	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	104	141	166	197	219	243	5.2	7.0	8.2	10.8	13.1	15.1	39.1	0.1	300	34.6	0.49	1.33	5.00
801	MH15	MH12	0.04	0.90	0.90	0.99	1.08	1.13	0.04	0.05	0.04	0.06	0.04	0.07	0.05	0.07	95	129	151	179	200	221	14.2	19.4	22.7	29.6	36.1	41.6	11.9	0.2	300	39.6	0.56	0.35	6.33
900	MH12	NewCBMH13	0.08	0.90	0.90	0.99	1.08	1.13	0.07	2.08	0.08	2.28	0.08	2.49	0.09	2.60	77	104	122	144	161	178	442.0	599.7	702.9	916.0	1115.1	1284.5	35.2	0.1	600	231.3	0.82	0.72	10.04
1000	NewMH14	NewMH16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104	141	166	197	219	243	0.0	0.0	0.0	0.0	0.0	0.0	49.0	0.2	450	128.8	0.81	1.01	5.00
1001	NewMH16	NewCBMH13	0.36	0.90	0.90	0.99	1.08	1.13	0.33	0.33	0.36	0.36	0.39	0.39	0.41	0.41	97	131	154	183	204	226	87.8	119.5	140.3	182.9	222.7	256.6	3.0	1.0	450	285.1	1.79	0.03	6.01
1100	NewCBMH13	MH1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40	0.00	2.64	0.00	2.88	0.00	3.00	74	100	118	139	155	172	494.1	669.9	785.2	1023.0	1245.4	1434.6	25.6	0.1	600	191.9	0.68	0.63	10.76
Existing Storm Sewer to Outlet																																			
1200	CBMH2	MH1	0.09	0.82	0.82	0.91	0.99	1.03	0.08	1.23	0.08	1.08	0.09	1.18	0.10	1.23	88	119	140	166	185	205	298.5	405.8	476.0	497.9	606.2	698.3</							