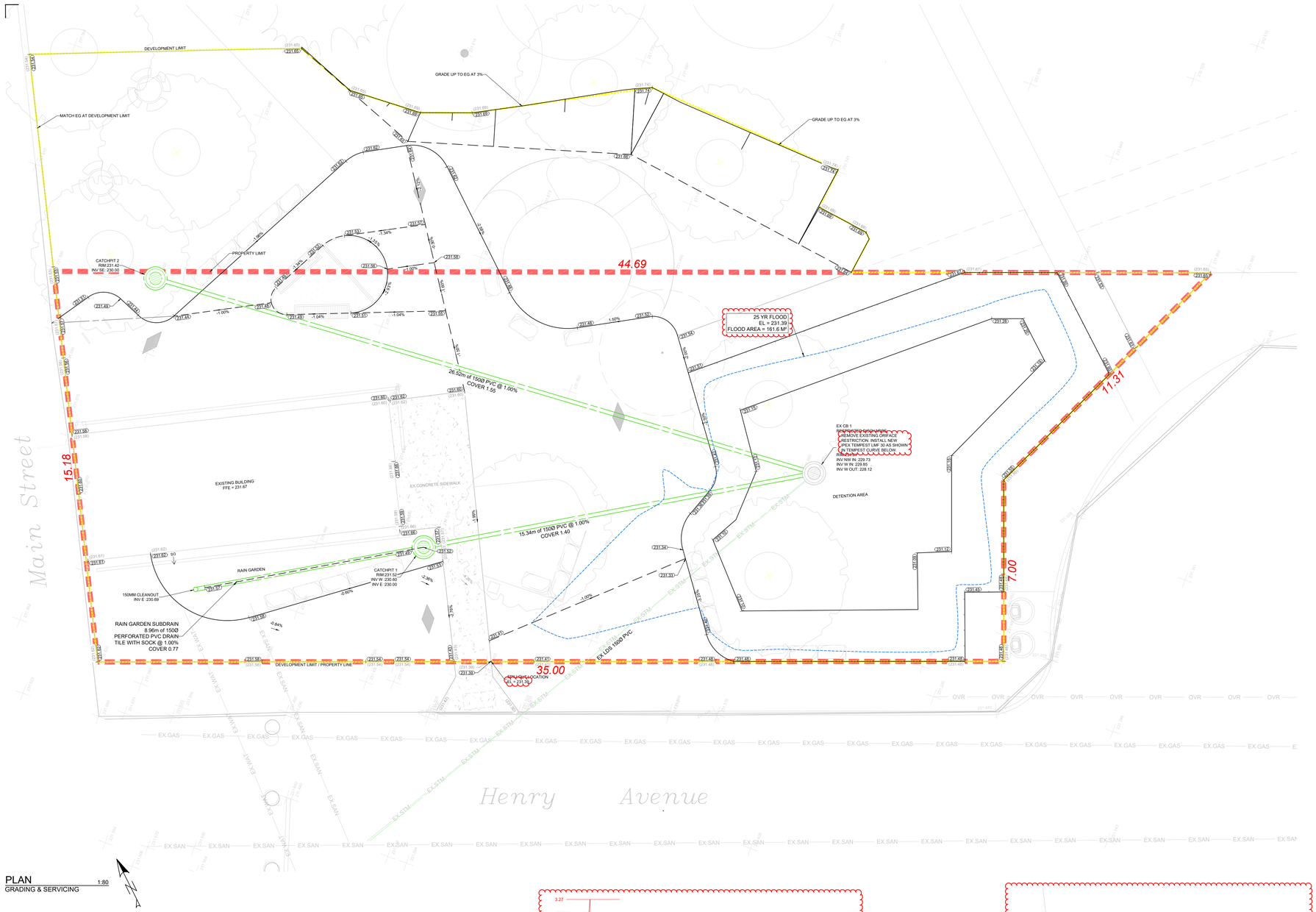


PLAN
GRADING & SERVICING 1:80

Full Site Area 0.0789 ha
Allowable C 0.15

Area Takeoff

Catchment	m2	acre	C	% Area	Weighted C
C1: Asphalt & Concrete	225	0.06	0.90	30.0%	0.27
C1: Roof	60	0.01	0.95	8.0%	0.08
C1: Gravel	24	0.01	0.50	3.3%	0.02
C1: Landscaping	439	0.11	0.25	58.7%	0.15
UNC: Asphalt & Concret	40	0.01	0.90	100.0%	0.90
UNC: Roof	0	0.00	0.95		
UNC: Gravel	0	0.00	0.50		
UNC: Landscaping	0	0.00	0.25		
Summary					
Catchment 1	748	0.18	0.51	94.9%	0.48
Uncontrolled	40	0.01	0.90	5.1%	0.05
Subtotal	**789**	**0.2**		**100.0%**	**0.53**

Site Allowable Outflow 3.599 lps
Rational Method, Q = 2.78CiA

Time of Concentration 10.0 min
Intensity, i5* 109.51 mm/hr $i_5 = \frac{1199}{(t+9)^{0.828}}$
Intensity, 25* 154.33 mm/hr $i_{25} = \frac{1842}{(t+9)^{0.842}}$
McLaren Report

Site	Site Area (Ha)	C	Allow. 5-yr (lps)	25Yr C	25-yr (lps)	Resticted Discharge (lps)	Req'd Storage (m3)
Catchment 1	0.075	0.15	3.42	0.51	16.35	1.42	33.1
Uncontrolled	0.004	0.15	0.18	0.90	1.55		
Subtotal	0.08		3.60		17.90	1.42	33.08
	Net Allowable		**2.05**		**Total Surface Runoff**		**1.42**

Location	Provided Storage Qty	Area (m2)	Depth (m)	Length (m)	Subtotal (m3)
Surface Ponding, CB1	(Volume determined from surface model)				30.06
CB1 (900Ø)	1.0	0.64		2.890	1.84
CATCHPIT 1 (900Ø)	1.0	0.64		1.390	0.88
CATCHPIT 2 (900Ø)	1.0	0.64		1.390	0.88
Pipe (150Ø)	1.0	0.018		15.340	0.27
Pipe (150Ø)	1.0	0.018		26.520	0.47
Subtotal					**34.41**

WWS Flow Estimation - Pre-Development

Site Information
Area 0.0789
Use Public W/R
Persons 300.00

Residential
ADWF 0.0417 lps
Peak Factor 4.08
PDWF 0.170 lps

Extraneous
Weeping Tile 0.000
Groundwater 0.000

Pre Peak WW Flow **0.17**

WWS Flow Estimation - Post-Development

Site Information
Area 0.0789 ha
Use Public W/R
Persons 300.00

Residential
ADWF 0.0417 lps
Peak Factor 4.08
PDWF 0.170 lps

Extraneous
Groundwater lps

Post Peak WW Flow **0.17** lps
WWF Increase **0.00** lps

Design Summary

Criteria	Pre-Dev	Post-Dev	
Wastewater	0.17	0.00	lps
Surface Runoff			
Allowable SYR	3.42		lps
Restricted Discharge		1.42	lps
Uncontrolled (25-Yr)		1.55	lps
Sump Discharge (Groundwater)		0.000	lps
Subtotal	**3.59**	**2.97**	**lps**
Required Storage		**33.08**	**m3**
Provided Storage		**34.41**	**m3**

Design Criteria

Public Lavatory	12	l/p/day	0.00014 l/s

Source: Metcalf & Eddy, *Wastewater Engineering: Treatment & Resource Recovery*

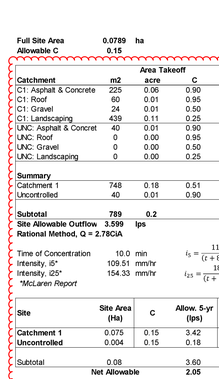
Extraneous Flows

Weeping Tile	4.5	L/MH/Min	0.075 L/Connect/s
MH/CB	12	L/MH/Min	0.200 L/MH/s
Groundwater	2200	L/Ha/Day	0.025 L/Ha/s

Source: City of Winnipeg, *Wastewater Flow Estimation Guidelines*

Combined Sewer District Yes
Clause 8 Met Yes
Shallow catchpits are assumed above the groundwater table

1.
DESIGN TABLES



2
IPEX TEMPEST FLOW RESTRICTOR NTS

Construction Specifications

1. Where indicated, construction must conform to the City of Winnipeg, *Standard Construction Specifications* and all references contained herein refer to these specifications. "SD" refers to City of Winnipeg standard details.
2. All materials used for construction must conform to City of Winnipeg, *Approved Products for Underground Use Within the City of Winnipeg* except as indicated otherwise.

3. Water & Wastewater Services

3.1.1. No new water or wastewater services proposed.

4. Gravit Sewer Service to CW-2030

4.1. All gravity sewer installation shall be in accordance with CW 2030/2130, SD-014

4.2. Gravity service pipe shall be in accordance with CAN/CSA B182.2 and ASTM D3034, SDR-35.

4.3. All pipe installations through road right of way shall be completed with trenchless methods. Any open trench construction on site shall be as follows:

4.3.1. Class 'B' Bedding to SD-001

4.5.2. Backfill to SD-002: Class '2' Type 2 Backfill in gravel, hard-surfaced & traveled areas and all areas within 2.0m of Edge of Road Shoulder.

4.5.3. Class '5' in landscaped and untraveled areas.

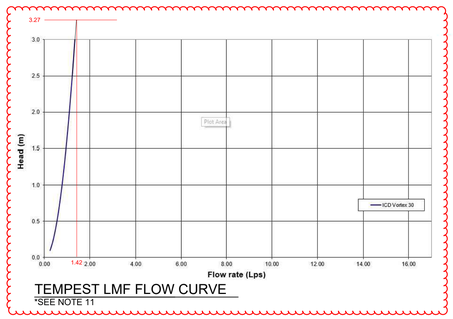
4.5.4. To CW2030/2130, Detail SD-014

Surface Drainage

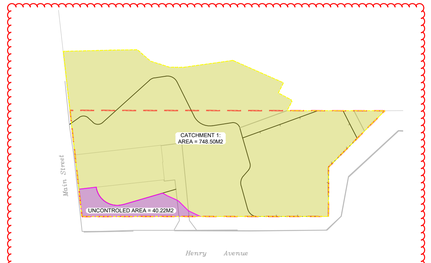
5. All flows restricted to the 1-in-5yr storm and detention storage provided for up to the 25-yr design storm as shown in the design tables.

General Notes

6. Contractor to obtain all necessary permits.
7. Contractor to obtain clearances from all utilities before excavating. Confirm all existing infrastructure information in field before construction. Notify the Engineer immediately of any discrepancies that affect installation or design.
8. Confirm all dimensions before beginning construction.
9. Consult Geotechnical Report and geotechnical engineer to confirm the suitability of native soils for backfill. Consult Geotechnical Engineer for erosion control measures including riprap in swale along building. Riprap detail provided as-is and should be reviewed by Geotechnical Engineer.
10. Civil drawings are to be read in coordination with Architectural, Structural, and Mechanical disciplines. Where a discrepancy is found between these plans and coordinated disciplines, notify the Engineer immediately.
11. Tempest flow curve has been extrapolated to demonstrate flow above 3m head. This may not be an exact representation of the true flow curve above 3m. IPEX (the supplier) has verified that the LMF 30 device will restrict the flow per design (1.42L/s) at the design head (3.27m).



TEMPEST LMF FLOW CURVE
*SEE NOTE 11



KEY PLAN 1:400
CATCHMENT AREAS

Existing		Proposed	Existing		Proposed	Existing		Proposed
EG 0.68%	Slope Direction	2.98%		Hydrant			Contour	
(394.98)	Surface Elev.	239.45		Curb Stop			Ponding Area	
150 WM	Watermain	150 WM		Valve				
250 WWS	Wastewater Sewer	250 WWS		Manhole				
300 LDS	Land Drainage Sewer	300 LDS		Catchbasin		1.23%	Topo Survey Point	

This is not a legal plan.
Contours shown are approximated for reference only.
Whole numbers are millimetres (mm)
Decimal numbers are metres (m)
Convert Metric to Standard 1.0m = 3.2808ft
This plan is prepared only for the Client and may not be used by any other party without written consent.

Building Verification Survey

1. By Stevens Surveys, File 23-135, dated 20th April, 2023.
2. Elevations have been derived by GPS observations. Vertical Datum CGVD28.

Coordination

Civil design is based on coordinated design files provided by the project manager. Should there be a discrepancy between this and any other plans or design, notify the Project Manager immediately.

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2023
REGISTERED PROFESSIONAL ENGINEER

MEMBER MANITOBA ASSOCIATION OF GEOSCIENTISTS
Certificate of Authorization
707698 Manitoba Inc.
o/a Sandbox Design & Consulting
No. 7291

R1	2023-12-12	
ADDENDUM 1		
R0	2023-07-20	
ISSUED FOR CONSTRUCTION		
designed:	drawn:	approved:
KP	KP	DH

project code
23-009
scale
AS SHOWN

sheet title
LOT GRADING & SERVICING
PREPARED FOR: BROOK MCILROY
715 MAIN STREET, WINNIPEG, MB

C01 R1
Sheet Size: ARCH D (24x36)