Notice of Alteration Form

Manitoba
Sustainable Development

Client File No. : 1909.10	Environment Act Licence No. : 2441

Legal name of the Licencee: 6843191 Manitoba Ltd. / Meadowbrook Village

Name of the development: Meadowbrook Village phase I Expansion

Category and Type of development per Classes of Development Regulation:

Waste Treatment and Disposal — Holding tanks >10,000/day

Licencee Contact Person: Don Sawatsky
Mailing address of the Licencee: 4259 Portage Ave
City: Winnipeg Province: Manitoba Postal Code: R4H 1C6
Phone Number: (877) 271-1111 Fax: Email: dsawatsky@sawatskygroup.com

Name of proponent contact person for purposes of the environmental assessment (e.g. consultant):
Ryan Johnston, P.Eng.

Phone: (204) 728-7364 Fax: (204) 728-4418	Mailing address: 1331 Princess Ave, Brandon, MB, R7A 0R4

Email address: r.johnston@bmce.ca

Description of Alteration *(max 90 characters)*:

BMCE is proposing a temporary holding tank to allow for 11 units to be established in Meadowbrook Village's Phase I expansion. The tank would be in place until lagoon construction is complete in 2017.

Alteration fee attached: Yes: ☐ No: ☑

If No, please explain: Considered a minor temporary alteration.

Date: 10/20/2016	Signature: Ryan Johnston Printed name: Ryan Johnston, P.Eng.

A complete Notice of Alteration **(NoA)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Notice of Alteration Form**
- ☑ **4 hard copies and 1 electronic copy of the NOA detailed report** (see "Information Bulletin - Alteration to Developments with Environment Act Licences")
- ☐ **$500 Application fee, if applicable** (Cheque, payable to the Minister of Finance)

Submit the complete NOA to:

Director
Environmental Approvals Branch
Manitoba Sustainable Development
Suite 160, 123 Main Street
Winnipeg, Manitoba R3C 1A5

For more information:

Phone: (204) 945-8321
Fax: (204) 945-5229
http://www.gov.mb.ca/conservation/eal

BURNS MAENDEL
CONSULTING ENGINEERS LTD.

1331 Princess Avenue
Brandon, MB R7A 0R4
Tel: 204.728.7364
Fax: 204.728.4418
www.bmce.ca

October 20, 2016

Director, Environmental Approvals Branch
Manitoba Conservation and Water Stewardship
Suite 160, 123 Main Street
Winnipeg, MB R3C 1A5

Reference: Notice of Alteration Report
Domestic Wastewater Collection and Storage System
Meadowbrook Village, RM of Cornwallis, MB

Dear Director,

Burns Maendel Consulting Engineers Ltd. would like to submit a Notice of Alteration Report for the proposed domestic wastewater collection and storage system in the Municipality of Cornwallis on behalf of Meadowbrook Village. The wastewater collection and storage system is being proposed as a temporary solution for Meadowbrook Village to service 11 additional lots proposed as part of Phase I prior to the expansion and repairs of the existing wastewater lagoon which is licensed under Environmental License No. 2441.

All of the information relating to the Notice of Alteration has been compiled in the attached document. Four (4) hard copies of our notice have been included, as well as one (1) electronic copy. If you have any questions or comments, please don't hesitate to contact the undersigned.

Regards,
BURNS MAENDEL CONSULTING ENGINEERS LTD.

Ryan Johnston, P.Eng.

BMCE 2016-109:34

Director, Environmental Assessment and Licensing Branch
Manitoba Conservation
Suite 160, 123 Main Street
Winnipeg, MB R3C 1A5

Notice of Alteration Report
Domestic Wastewater Collection and Storage System
Meadowbrook Village, RM of Cornwallis, MB

Submitted by:

Burns Maendel Consulting Engineers Ltd.
1331 Princess Ave.
Brandon, MB R7A 0R4
Tel: 204.728.7364
Fax: 204.728.4418

On behalf of:
Meadowbrook Village
6843191 MB Ltd.
4259 Portage Avenue
Headingly, MB R4H 1C6
Tel: 1.877.271.1111

October 20, 2016

Standard Limitations

This report was prepared by Burns Maendel Consulting Engineers Ltd. (BMCE) for the account of the Meadowbrook Village (the Client). The disclosure of any information contained in this report is the sole responsibility of the Client. The material in this report reflects BMCE's best judgment in light of the information available to it at the time of preparation. Should this report be used by a third party, any reliance or decisions made based on this report are the responsibility of such third party. BMCE accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions based on this report. BMCE makes no representation concerning the legal significance of the findings or the information contained within this report.

Table of Contents

List of Appendices

1. Introduction and Background

1.1. Introduction

Meadowbrook Village formerly known as Campbell's Mobile Home Park is located in the northeast quarter of 33-10-18 WPM in the Rural Municipality of Cornwallis. The original park was constructed in the 1970's along with the existing wastewater treatment lagoon. Currently Meadowbrook Village consists of 145 modular and mobile homes.

1.2. Proposed Expansion

In 2000, a four phase expansion to the park was conceptualized and a lagoon expansion was undertaken. An updated Environmental Act License No. 2441 was issued at this time. Complications during construction of the lagoon lead to the abandonment of the expansion which has sat partially complete to this day. None of the expansion phases have been completed to date due to wastewater and potable water capacity restrictions.

BMCE has been retained to complete the design and environmental approvals associated with the expansion of the existing wastewater lagoon. Due to the time of year however it has been recognized that construction will not begin until spring of 2017. Meadowbrook Village however has expressed that they would like to get up to 11 new lots within the Phase I expansion constructed this fall in order to accommodate their completed sales.

BMCE is proposing that the gravity sewer system for 11 units could be constructed for the Phase I expansion and a temporary pump and holding tank be installed for storage. The tank would periodically be pumped out until the expansion of the lagoon can be completed and the final force main to the lagoon is constructed. Once the force main construction is complete, the tank would be removed from the site.

1.3. Preliminary Discussions with Sustainable Development

Preliminary discussions with Asit Dey and Robert Boswick from Manitoba Sustainable Development on August 18, 2016 indicated that this temporary solution would be acceptable to their department. They indicated that a Notice of Alteration to the existing Environmental Act License would be required. During the discussion it was also identified that Meadowbrook Village would need to provide a letter of intent to complete the required upgrades to the lagoon along with a deadline for submission of the Environmental Act Proposal to Manitoba Sustainable Development.

1.4. Meadowbrook Village Lagoon Construction Commitment

One condition that MB Sustainable Development brought forward as a requirement for the temporary tank solution to be approved, was that the owner needed to provide a letter outlining their intent to complete the expansion and repair of the existing wastewater lagoon. A letter of intent has been provided by Meadowbrook Village and is included in Appendix A. BMCE will continue to work with Meadowbrook Village in order to submit an Environmental Act Proposal to Manitoba Sustainable Development by the deadline of **February 1, 2016** as stated in the letter of intent for the expansion, repair, and remediation required for the existing domestic wastewater lagoon facility.

2. Description of Development

The following is a summary of the proposed phase 1 expansion as well as the proposed wastewater collection and temporary storage system servicing up to 11 units.

2.1. Certificate of Title

Refer to Appendix B. The legal landowner is 6843191 Manitoba Ltd. also known as Meadowbrook Village.

2.2. Legal Land Description, Map of Proposed Development

The legal land description where the domestic wastewater collection system and storage tank is proposed to be located is NE 33-10-18 WPM. For the map of the proposed development including the proposed tank location, lot plans, and layout of the wastewater collection system, refer to Appendix C.

2.3. Wastewater Collection System

Wastewater for phase 1 of the development will be collected via a gravity sewer system network. Wastewater will drain to a lift station, which will in turn pump wastewater via a forcemain to the temporary holding tank. As per Manitoba Sustainable Development requirements, an application for certificate of approval for a wastewater collection system will be required. This will be applied for concurrently with this notice of alteration.

2.4. Sealed Engineering Drawings

Refer to Appendix C.

2.5. Sizing Parameters and Calculations

Table 1 – Wastewater Generation

Parameter	Quantity	Comments
Houses	11	
Loading per Person	200 L / c / d	Value based on a review of actual consumption data
Assumed People per Residence	2.5	General assumption based on house size
Assumed Total Population	27.5	
Average Daily Flow	5,500 L / day	Based upon total assumed people
Max Hour Peaking Factor	4.41	Harmon Peaking Factor
Peak Hourly Flow	16.8 L / min	

*Note: 5% added to per capita loading to account for infiltration.

As per Table 1, it is recommended that a tank with a capacity greater than 5,500 L (1,453 US Gallons) is installed in order to handle one day of the maximum daily flow which is anticipated by the 11 units. Meadowbrook Village has already acquired a 25,000 L (7,000 US Gallon) fiberglass tank which has a capacity greater than the minimum required.

Also as per Table 1, it is recommended that a grinder pump capable of passing the peak hourly flow of 16.8 L/min be installed in the lift station. The pump model and design specifications have not yet been determined and will be finalized as construction commences.

2.6. Disposal Site

All wastewater from the holding tank will be hauled by a local sewer hauling company to the City of Brandon Municipal Wastewater Treatment Plant for disposal. BMCE has been in contact with the City of Brandon Engineering department and have obtained approval for this waste to be disposed of at their Municipal Wastewater Treatment Plant. A letter from Patrick Pulak, P.Eng., Director of Engineering for the City of Brandon has been provided in Appendix D outlining the volume approved for disposal.

3. Description of Pre-Development Environment

3.1. Land Use

The current land use is cultivated farmland on the north half of the section and the location of the existing wastewater treatment lagoon as well as some low lying swampy area on the southern half. A local farmer is actively using the north half of this section to grow crops. Zoning is currently designated as Agricultural General Zone (AG80) for all of the quarter section except the

western 219.45m which was rezoned to Residential Mobile Home Park (RMP) to allow for the expansion.

3.2. Topography

The location of the tank and Phase I of the expansion will be in the southwest corner of the quarter section, to the southwest of the existing wastewater lagoon. The land is relatively flat, with a gradual slope to the southwest. Most runoff from the land eventually exits to the southwest on to Glen Lea Golf Course where it is stored for irrigation purposes.

3.3. Soil Conditions

The general soil stratigraphy in descending order from ground surface consists of organic topsoil followed by a veneer of glacio-fluvial sediment (mixtures of sand, silt, and clay) overlying clay till. The clay till is silty, contains trace sand, trace gravel, is brown, moist, firm to very stiff and of intermediate to high plasticity. Geotechnical information was provided by a draft Geotechnical Investigation Report prepared by Trek Geotechnical and dated July 11, 2016.

3.4. Groundwater

Groundwater was encountered at shallow depths of approximately 1.5m in several test holes completed in the existing lagoon and along the eastern boundary of the lagoon site. The test holes completed along the western side of the existing wastewater lagoon all were dry with no seepage or sloughing at the completion of drilling.

3.5. Protected or Endangered Species

Due to the relatively close proximity of the proposed tank and lots to the previous lagoon location, and the fact that the area of land being developed into residential lots was previously actively cultivated agricultural land, effects to protected and endangered species are considered to be minimal.

A request was submitted to the Manitoba Conservation Data Centre to inquire about any protect or endangered species known to be in the area. The search revealed that no protected or endangered species are known to be in close proximity to the development area.

4. Environmental Effects

4.1. Impact on Biophysical Environment

The impact on the biophysical environment is expected to be negligible, as the sewage is stored in an enclosed holding tank. The transportation will take place via a licensed sewage hauler trucks, and treatment will occur at the City

of Brandon's Domestic Wastewater Treatment Facility, a licensed facility for treating wastewater. There should be little to no opportunity for the surrounding environment to become contaminated with sewage during normal operation and maintenance of the system.

4.2. Type, Quantity and Concentration of Pollutants Emitted

For the same reasons as discussed in Section 4.14.1, there should be no pollutants emitted. The City of Brandon wastewater facility will be used to treat the sewage, so any water discharged will be released according to Manitoba Sustainable Development operating specifications.

5. Mitigation and Residual Effects

5.1. Level Sensor and Alarm

There are several measures which can be implemented to ensure that there is adequate protection from sewage spills. The first measure is to prevent the overflow of sewage from the holding tank. There will be a level sensor and alarm installed so that staff/residents are alerted when sewage hits 80% level in the tank. The alarm will sound in the form of a horn/buzzer and/or a strobe light at the storage tank which will be heard by area residents. They then can notify the proper personnel to ensure the tank is emptied.

5.2. Monitoring

On-going monitoring of the tank and collection system will be performed to ensure proper functioning. Regular inspection will ensure that there is no damage to the tank, lift station, and forcemain that potentially lead to a safety or environmental hazard. Daily visual verification of the tank levels will ensure that a sewage truck is brought in before the high level alarm is activated or a sewage spill occurs.

6. Conclusion

Overall there should be no impact on the surrounding environment from the usage of this sewage holding tank. The sewage is collected and stored in an enclosed vessel. It is then transported by hauler trucks to the City of Brandon Wastewater Treatment Plant. Finally, it is treated and released back into the environment. There is little opportunity for contamination of the surrounding environment as long as the proper risk mitigation measures are in place.

The land itself is not situated in an environmental sensitive area. It is already at the fringe of developed land to the south and farmland to the north. Local wildlife would already have adapted to human presence in the area and therefore there should be little to no effect of continued development.

Given all of the above factors, it is anticipated that there will be negligible impact on the surrounding environment from the storage tank.

Appendix A – Letter of Intent

Meadowbrook
VILLAGE

Meadowbrook Village
4259 Portage Avenue
Headingley, MB R4H 1C6
1-877-271-1111

October 18, 2016

Reference: Meadowbrook Village / 6843191 MB Ltd.

Subject: Letter of Intent for Lagoon Construction

We write this letter to inform you that we have retained Burns Maendel Consulting Engineers Ltd. (**BMCE**) to complete the design and approvals associated with the wastewater lagoon expansion for Meadowbrook Village. This Letter of Intent is to reaffirm that Meadowbrook Village is committed to the expansion, repair, and remediation of the existing wastewater treatment lagoon and will work with BMCE to submit an Environmental Act proposal to Manitoba Sustainable Development prior to February 1, 2016. Upon approval of the EAP, construction is intended to commence in the summer of 2017.

If you have any issues with this letter, please do not hesitate to contact the undersigned. We thank you for your cooperation in this matter.

Yours truly,
MEADOWBROOK VILLAGE

Don Sawatsky

Appendix B – Land Title Certificate

STATUS OF TITLE

Title Number **2827369/2**
Title Status **Accepted**
Client File 2016-109:331

The Property Registry
A Service Provider for the Province of Manitoba

1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

6843191 MANITOBA LTD.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON
IN THE FOLLOWING DESCRIBED LAND:

THE NE 1/4 OF SECTION 33-10-18 WPM
EXC THE NLY 1320 FEET PERP

The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of *The Real Property Act.*

2. ACTIVE INSTRUMENTS

Instrument Type:	**Caveat**
Registration Number:	**1067402/2**
Instrument Status:	**Accepted**
Registration Date:	1999-08-06
From/By:	ALLEN JOHN CAMPBELL
To:	WARREN GEORGE BARBER AS AGENT
Amount:	
Notes:	DOMINANT
Description:	EASEMENT AGRT DATED 4 AUG 1999

Instrument Type:	**Caveat**
Registration Number:	**1084948/2**
Instrument Status:	**Accepted**
Registration Date:	2000-09-06
From/By:	RURAL MUNICIPALITY OF CORNWALLIS
To:	DONALD JOHN SHELDON AS AGENT
Amount:	
Notes:	No notes
Description:	WRITTEN DEVELOPMENT AGREEMENT DATED 22 JUNE 2000

Instrument Type:	**Caveat**
Registration Number:	**1096819/2**
Instrument Status:	**Accepted**
Registration Date:	2001-06-13
From/By:	MTS COMMUNICATIONS INC.
To:	WILLIAM F. JOHNSTONE AS AGENT
Amount:	
Notes:	ELY 20M
Description:	RT OF WAY AGRT DATED 19 AUGUST 1991

Instrument Type:	**Caveat**
Registration Number:	**1110576/2**
Instrument Status:	**Accepted**
Registration Date:	2002-03-27
From/By:	THE MANITOBA HYDRO-ELECTRIC BOARD
To:	W. BRUCE MACFARLANE AS AGENT
Amount:	
Notes:	PT RE: PLAN 40410
Description:	GRANT OF EASEMENT AGREEMENT DATED JULY 18, 2001

Instrument Type:	**Easement Declaration**
Registration Number:	**1323835/2**
Instrument Status:	**Accepted**
Registration Date:	2012-10-03
From/By:	VERNA ELAINE CAMPBELL
To:	
Amount:	
Notes:	No notes
Description:	No description

Instrument Type:	**Mortgage**
Registration Number:	**1393524/2**
Instrument Status:	**Accepted**
Registration Date:	2016-02-18
From/By:	6843191 MANITOBA LTD.
To:	VANGUARD CREDIT UNION LIMITED
Amount:	$3,343,000.00
Notes:	No notes
Description:	No description

Instrument Type:	**Easement**
Registration Number:	**1401083/2**
Instrument Status:	**Accepted**
Registration Date:	2016-07-08
From/By:	6843191 MANITOBA LTD.
To:	THE MANITOBA HYDRO-ELECTRIC BOARD AND MTS INC.
Amount:	
Notes:	No notes
Description:	STATUTORY EASEMENT

Instrument Type:	**Easement**
Registration Number:	**1401937/2**
Instrument Status:	**Accepted**
Registration Date:	2016-07-27
From/By:	6843191 MANITOBA LTD.
To:	MTS INC.
Amount:	
Notes:	No notes
Description:	STATUTORY EASEMENT

3. ADDRESSES FOR SERVICE

6843191 MANITOBA LTD.
4250 PORTAGE AVENUE
HEADINGLEY MB
R4H 1C6

4. TITLE NOTES

No title notes

5. LAND TITLES DISTRICT

Brandon

6. DUPLICATE TITLE INFORMATION

Duplicate not produced

7. FROM TITLE NUMBERS

1705611/2 All

8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS

No real property application or grant information

9. ORIGINATING INSTRUMENTS

Instrument Type:	**Transfer Of Land**
Registration Number:	**1393523/2**
Registration Date:	2016-02-18
From/By:	VERNA ELAINE CAMPBELL
To:	6843191 MANITOBA LTD.
Consideration:	$1,710,000.00

10. LAND INDEX

NE 33-10-18W
EX NLY 1320'

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 2827369/2

Appendix C – Design Drawings

BURNS MAENDEL
CONSULTING ENGINEERS LTD.

1331 Princess Ave.
Brandon, Manitoba
R7A 0R4
Tel: (204) 728-7364
Fax: (204) 728-4418

MEADOWBROOK VILLAGE
PHASE 1
SITE SERVICES

Part NE 1/4 Sec 33, Twp10, Rge 18 WPM
RM OF CORNWALLIS, MANITOBA

CIVIL DRAWINGS

DWG NO.	DRAWING NAME	REV
C1.4	SITE SERVICES PLAN	0
C1.5	PARTIAL SITE SERVICES PLAN	0
C2.1	PART PLAN AND PROFILE STA 0+000 TO 0+120	0
C2.2	PART PLAN AND PROFILE STA 0+000 TO 0+199.25	0
C2.3	PART PLAN AND PROFILE STA 0+199.25 TO 0+302.48	0
C2.4	PART PLAN AND PROFILE STA 0+30.248 TO 0+501.87	0
C3.1	SECTIONS AND DETAILS	0
C3.2	SECTIONS AND DETAILS	0

DATE
OCTOBER 20, 2016

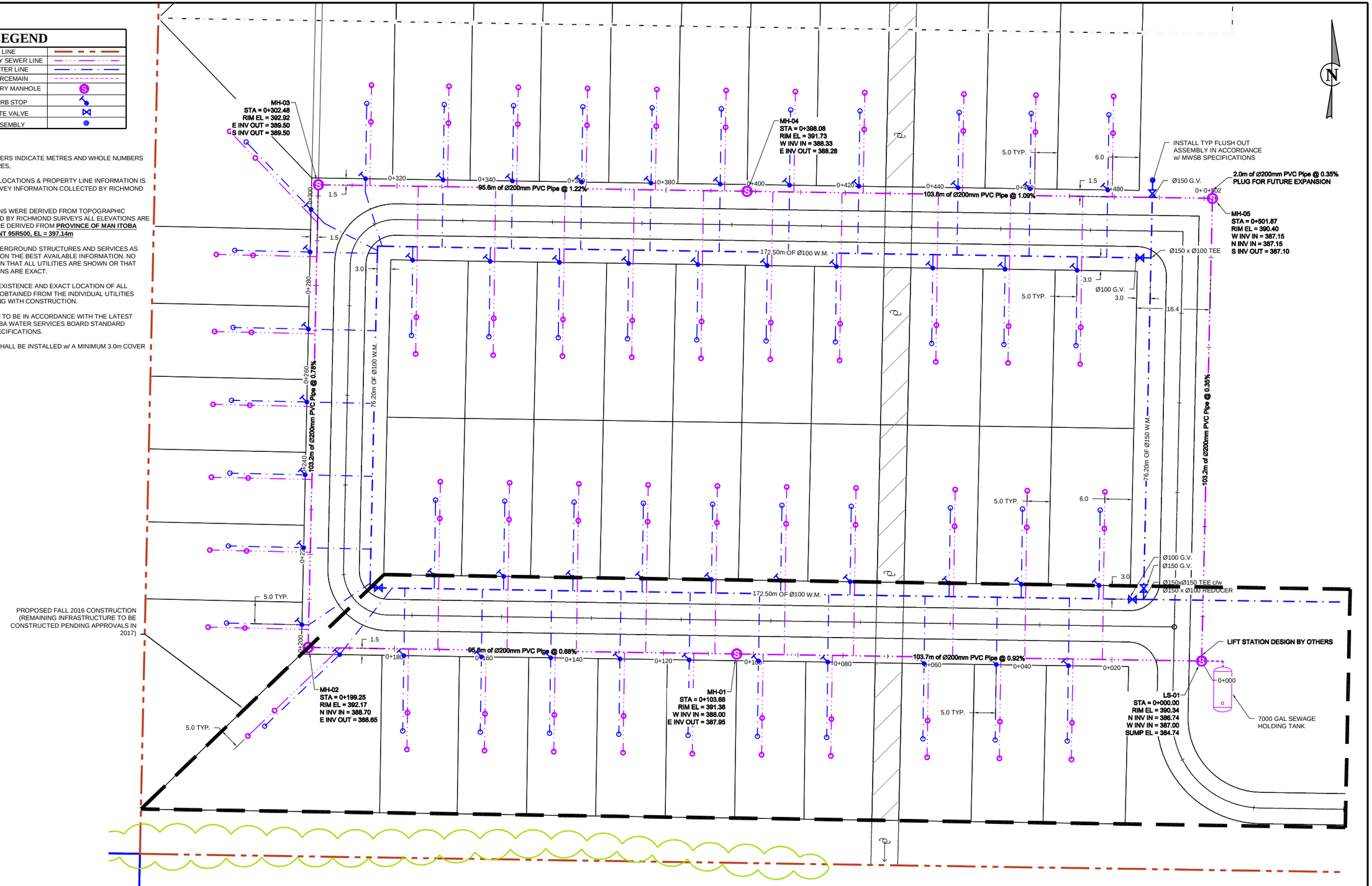
PROJECT NO:
BMCE-16-109:34

LEGEND

PROPERTY LINE	
PROPOSED GRAVITY SEWER LINE	
PROPOSED WATER LINE	
PROPOSED FORCEMAIN	
PROPOSED SANITARY MANHOLE	S
PROPOSED CURB STOP	
PROPOSED GATE VALVE	
FLUSHOUT ASSEMBLY	

NOTES:

1. DECIMALIZED NUMBERS INDICATE METRES AND WHOLE NUMBERS INDICATE MILLIMETRES,
2. EXISTING FEATURE LOCATIONS & PROPERTY LINE INFORMATION IS DERIVED FROM SURVEY INFORMATION COLLECTED BY RICHMOND SURVEYS.
3. EXISTING ELEVATIONS WERE DERIVED FROM TOPOGRAPHIC SURVEY COMPLETED BY RICHMOND SURVEYS ALL ELEVATIONS ARE GEODETIC AND WERE DERIVED FROM **PROVINCE OF MAN ITOBA CONTROL MONUMENT 95R500, EL = 397.14m**
4. LOCATIONS OF UNDERGROUND STRUCTURES AND SERVICES AS SHOWN ARE BASED ON THE BEST AVAILABLE INFORMATION. NO GUARANTEE IS GIVEN THAT ALL UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT.
5. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.
6. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE LATEST EDITION OF MANITOBA WATER SERVICES BOARD STANDARD CONSTRUCTION SPECIFICATIONS.
7. ALL WATER MAINS SHALL BE INSTALLED w/ A MINIMUM 3.0m COVER



3	OCT 20, 2016	D.B.	J.K.	ISSUED FOR PERMIT
NO:	DATE	APP.	BY	DESCRIPTION

REVISIONS

APEGM
Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559 Expiry: April 30, 2017

PROVINCE OF MANITOBA — R. JOHNSTON — Member 36128 — 30-Oct-2016 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY: RJ	REVIEWED BY: DAB
DRAWN BY: JK	
PROJECT START DATE: AUG 31, 2016	
PLOT SIZE: A1 (594x841)	
SCALE: 1:400	

PROJECT NAME:
MEADOWBROOK VILLAGE
PHASE I DESIGN
NE 33-10-18 WPM, RM OF CORNWALLIS

BURNS MAENDEL CONSULTING ENGINEERS LTD.
1331 Princess Ave.
Brandon, Manitoba
R7A 0R4
Tel: (204) 728-7364
Fax: (204) 728-4418

DRAWING TITLE:
SITE SERVICES PLAN

PROJECT NUMBER: BMCE-16-109:34

DRAWING NO: C1.4

LEGEND

PROPERTY LINE	
PROPOSED GRAVITY SEWER LINE	
PROPOSED WATER LINE	
PROPOSED FORCEMAIN	
PROPOSED SANITARY MANHOLE	S
PROPOSED CURB STOP	
PROPOSED GATE VALVE	
FLUSHOUT ASSEMBLY	

NOTES:

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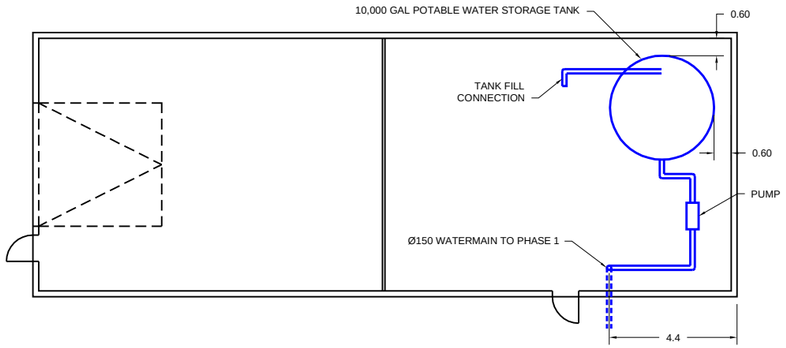
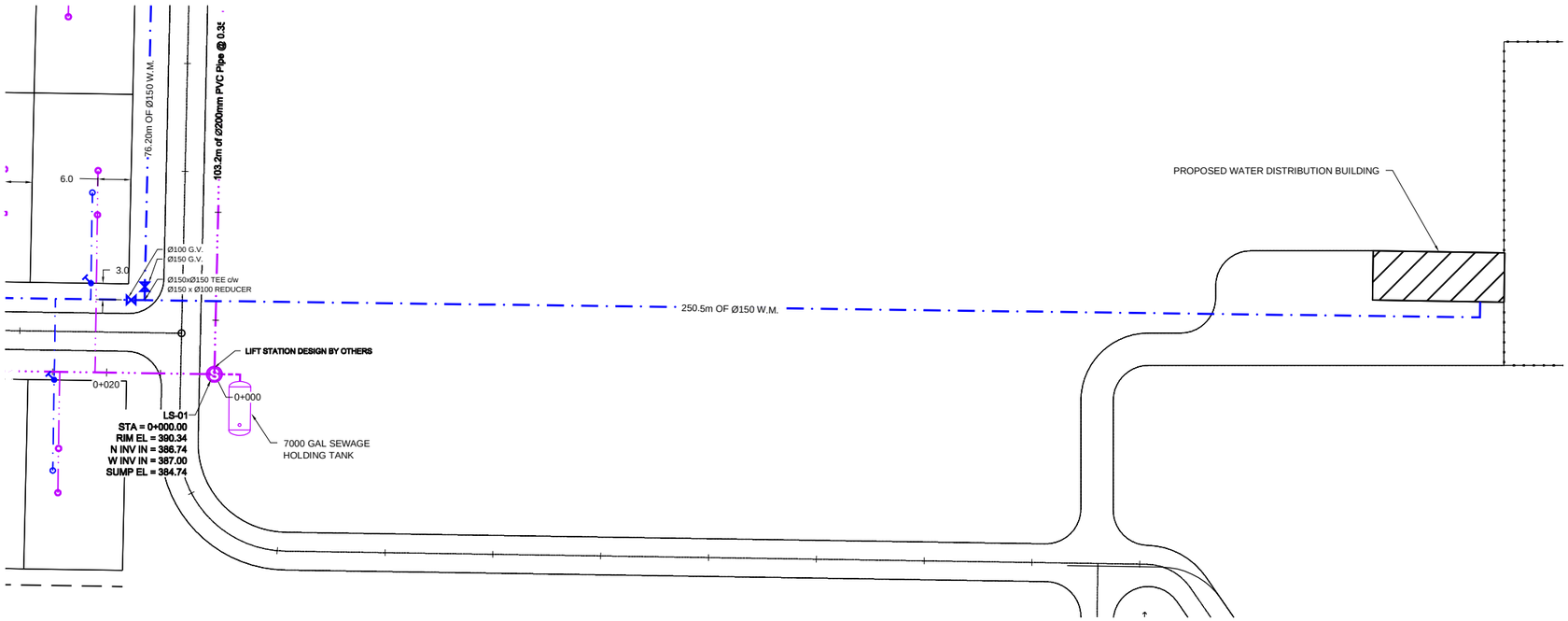


WATER DISTRIBUTION BUILDING DETAIL

SCALE: N.T.S.



NO:	DATE	APP.	BY	DESCRIPTION
3	OCT 20, 2016	D.B.	J.K.	ISSUED FOR PERMIT

REVISIONS

APEGM
Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559 Expiry: April 30, 2017

PROVINCE OF MANITOBA R. JOHNSTON Member 25123 REGISTERED PROFESSIONAL ENGINEER
20-Oct-2016

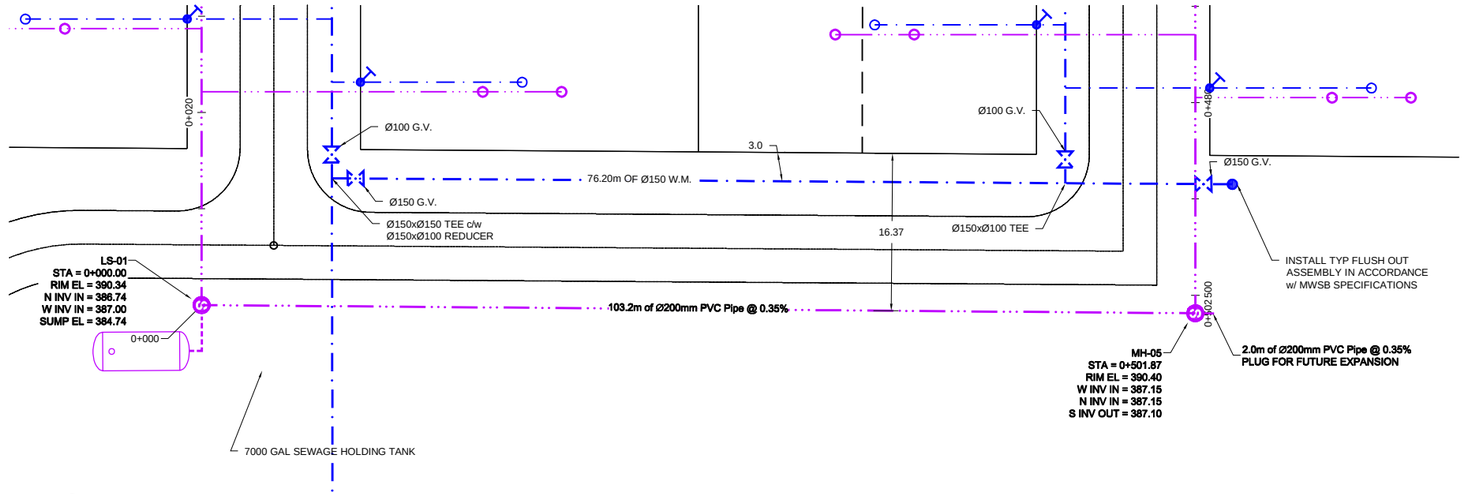
DESIGNED BY: RJ
REVIEWED BY: DAB
DRAWN BY: JK
PROJECT START DATE: AUG 31, 2016
PLOT SIZE: A1 (594x841)
SCALE: 1:400

PROJECT NAME:
MEADOWBROOK VILLAGE
PHASE I DESIGN
NE 33-10-18 WPM, RM OF CORNWALLIS

BURNS MAENDEL CONSULTING ENGINEERS LTD.
1331 Princess Ave.
Brandon, Manitoba
R7A 0R4
Tel: (204) 728-7364
Fax: (204) 728-4418

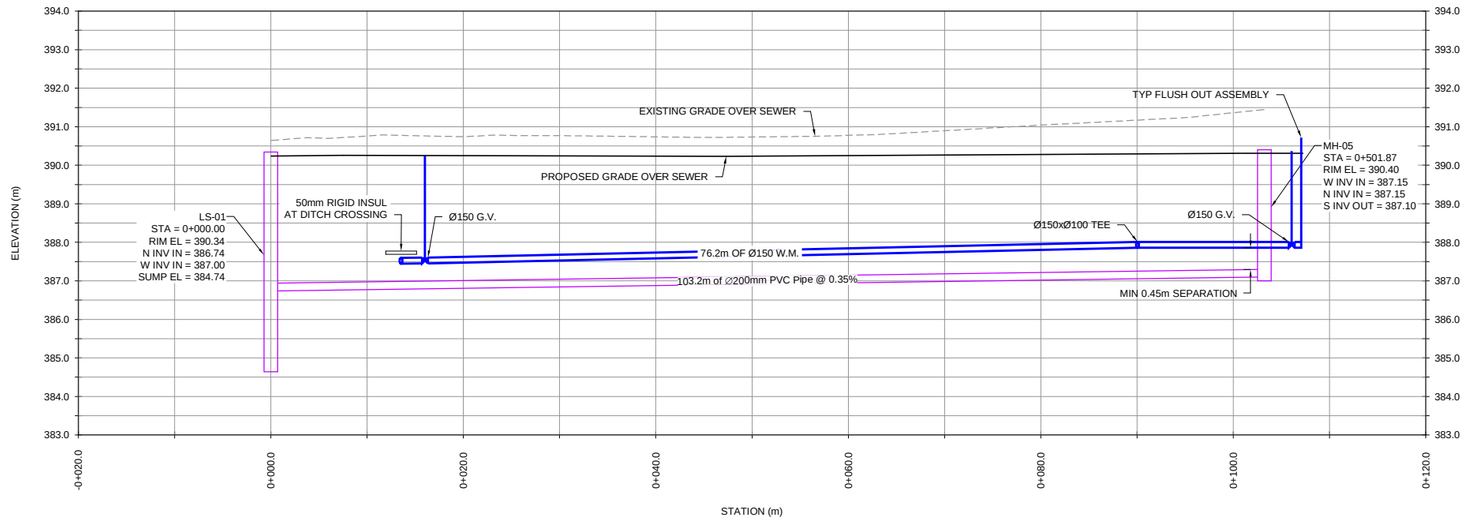
DRAWING TITLE:
PARTIAL SITE SERVICES PLAN

PROJECT NUMBER: BMCE-16-109:34
DRAWING NO: C1.5



PARTIAL PLAN MEADOWBROOK NORTH (STA 0+000 TO 0+120)

SCALE: 1:300



PROFILE MEADOWBROOK NORTH (STA 0+000 TO 0+120)

SCALE: HOR = 1:300
VERT = 1:75

NO:	DATE	APP.	BY	DESCRIPTION
3	OCT 20, 2016	D.B.	J.K.	ISSUED FOR PERMIT

REVISIONS

APEGM
Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559 Expiry: April 30, 2017

R.K. JOHNSTON Member 26123 20-Oct-2016

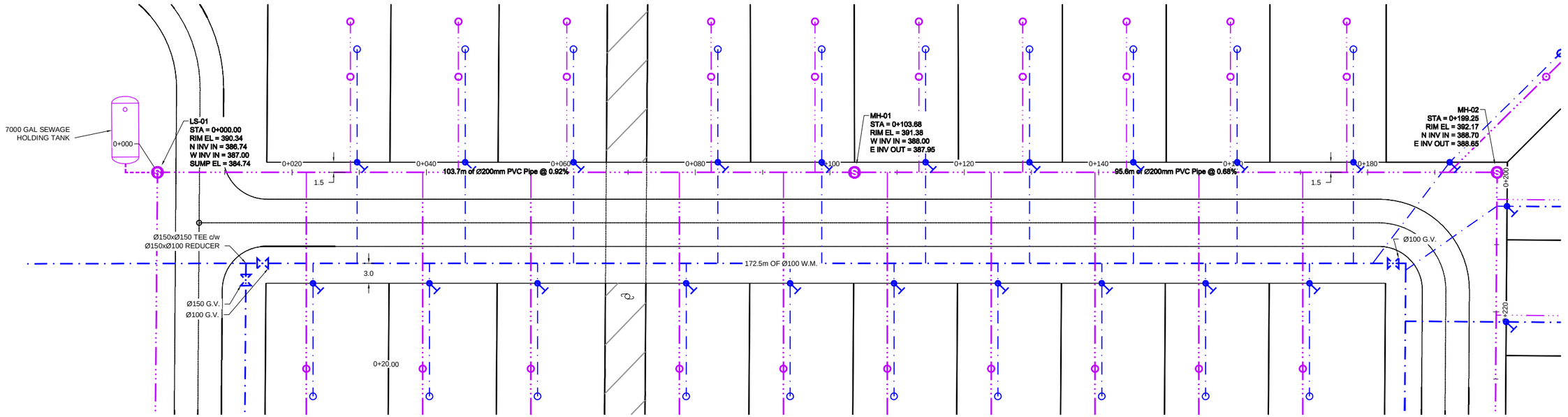
DESIGNED BY: RJ | REVIEWED BY: DAB
DRAWN BY: JK
PROJECT START DATE: AUG 31, 2016
PLOT SIZE: A1 (594x841)
SCALE: AS NOTED

PROJECT NAME:
MEADOWBROOK VILLAGE
PHASE I DESIGN
NE 33-10-18 WPM, RM OF CORNWALLIS

BURNS MAENDEL
CONSULTING ENGINEERS LTD.
1331 Princess Ave.
Brandon, Manitoba
R7A 0R4
Tel: (204) 728-7364
Fax: (204) 728-4418

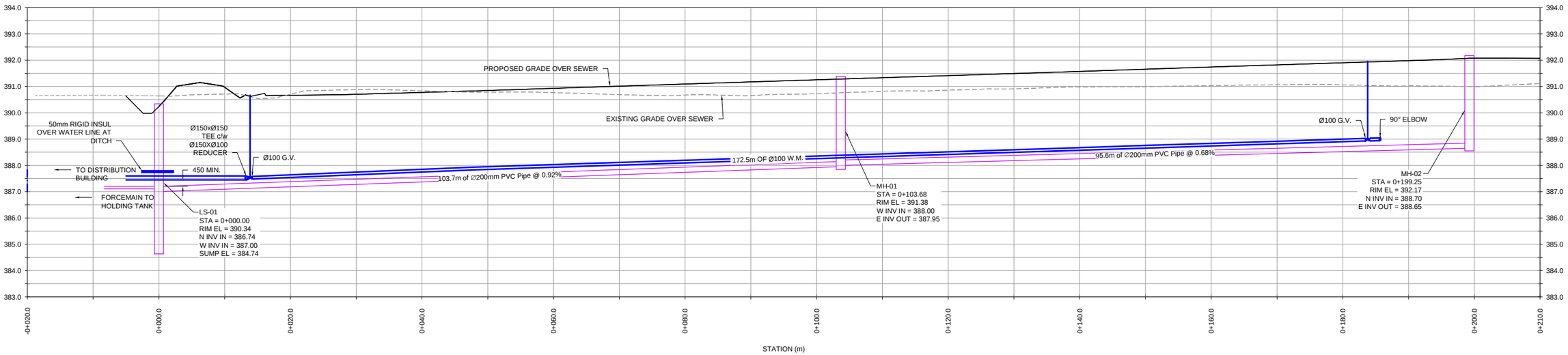
DRAWING TITLE:
MEADOWBROOK
NORTH ALIGNMENT
PART PLAN AND PROFILE
STA 0+000 TO 0+120

PROJECT NUMBER: BMCE-16-109:34
DRAWING NO: C2.1



PARTIAL PLAN PHASE I WEST (STA 0+000 TO 0+199.25)

SCALE: 1:300



PROFILE PHASE I WEST (STA 0+000 TO 0+199.25)

SCALE: HOR = 1:300
VERT = 1:75

NO:	DATE	APP.	BY	DESCRIPTION
3	OCT 20, 2016	D.B.	J.K.	ISSUED FOR PERMIT

REVISIONS

APEGM
Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559 Expiry: April 30, 2017

PROVINCE OF MANITOBA R. JOHNSTON Member 35139 RECISTERED PROFESSIONAL ENGINEER 20-Oct-2016

DESIGNED BY:	REVIEWED BY:
RJ	DAB

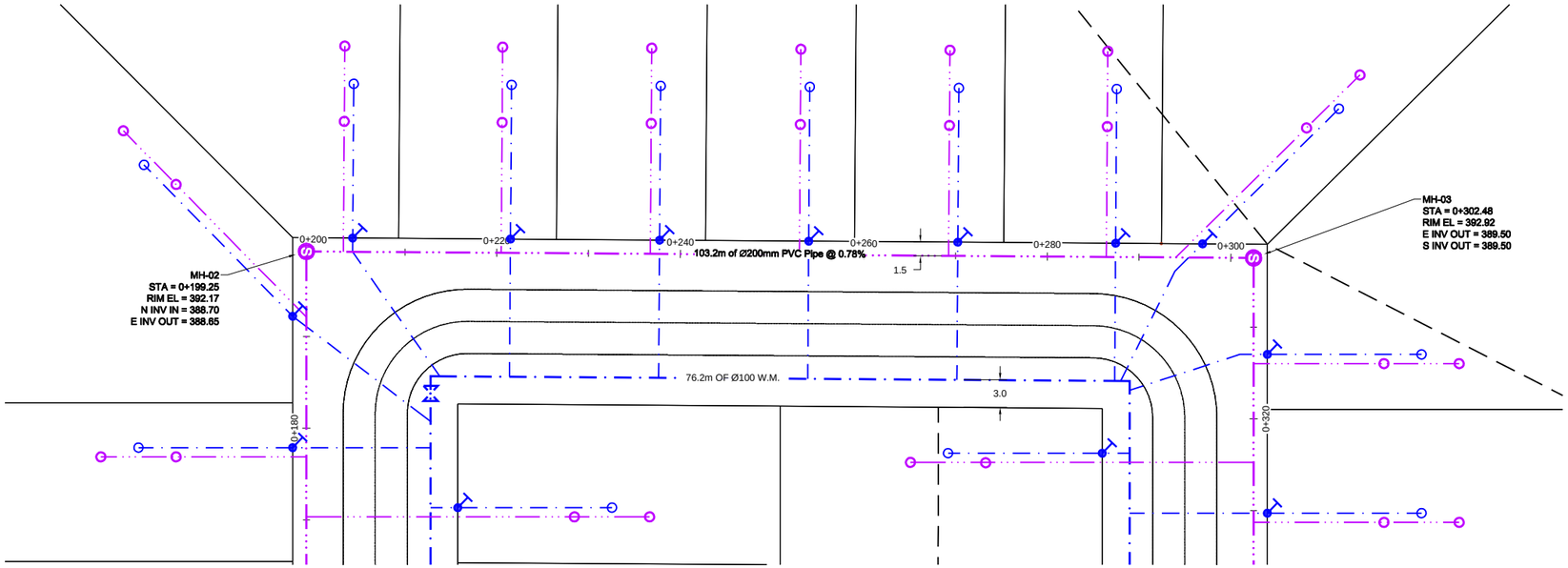
DRAWN BY: JK
PROJECT START DATE: AUG 31, 2016
PLOT SIZE: A1 (594x841)
SCALE: AS NOTED

PROJECT NAME:
MEADOWBROOK VILLAGE
PHASE I DESIGN
NE 33-10-18 WPM, RM OF CORNWALLIS

BURNS MAENDEL CONSULTING ENGINEERS LTD.
1331 Princess Ave.
Brandon, Manitoba
R7A 0R4
Tel: (204) 728-7364
Fax: (204) 728-4418

DRAWING TITLE:
PHASE I WEST ALIGNMENT
PART PLAN AND PROFILE
STA 0+000 TO 0+199.25

PROJECT NUMBER: BMCE-16-109:34
DRAWING NO: C2.2



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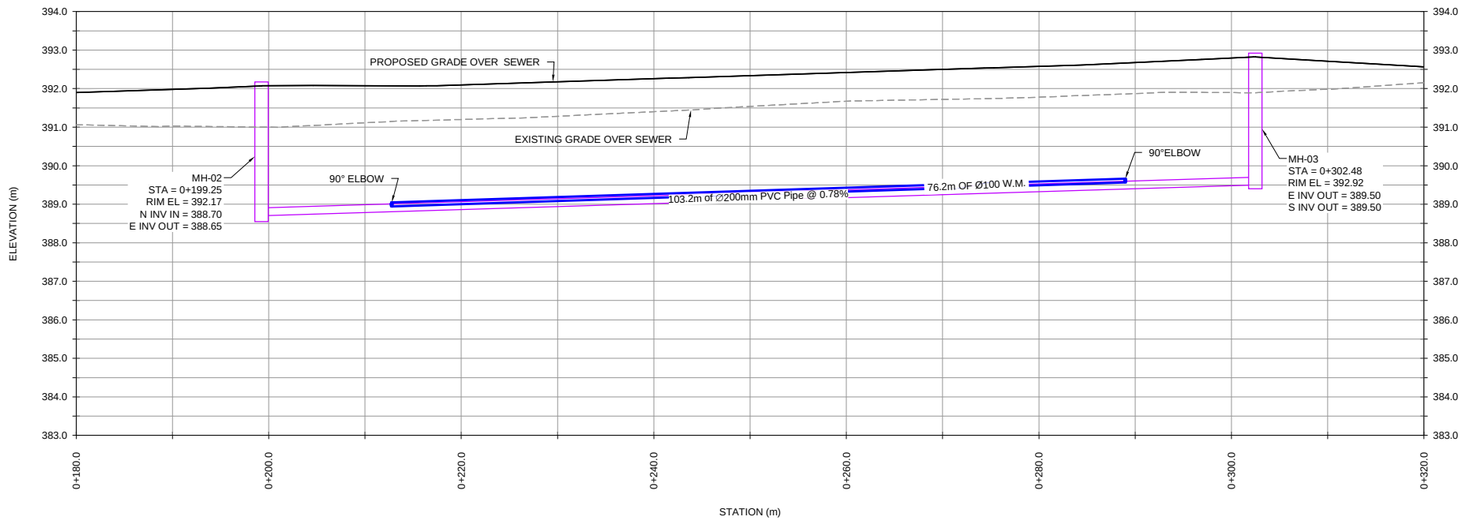


PROFILE PHASE I NORTH (STA 0+199.25 TO 0+302.48)

SCALE: HOR = 1:300
VERT = 1:75

NO:	DATE	APP.	BY	REVISIONS
3	OCT 20, 2016	D.B.	J.K.	ISSUED FOR PERMIT

APEGM
Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559 Expiry: April 30, 2017

PROFESSIONAL ENGINEER — R. JOHNSTON — Member 35123 — 20-Oct-2016

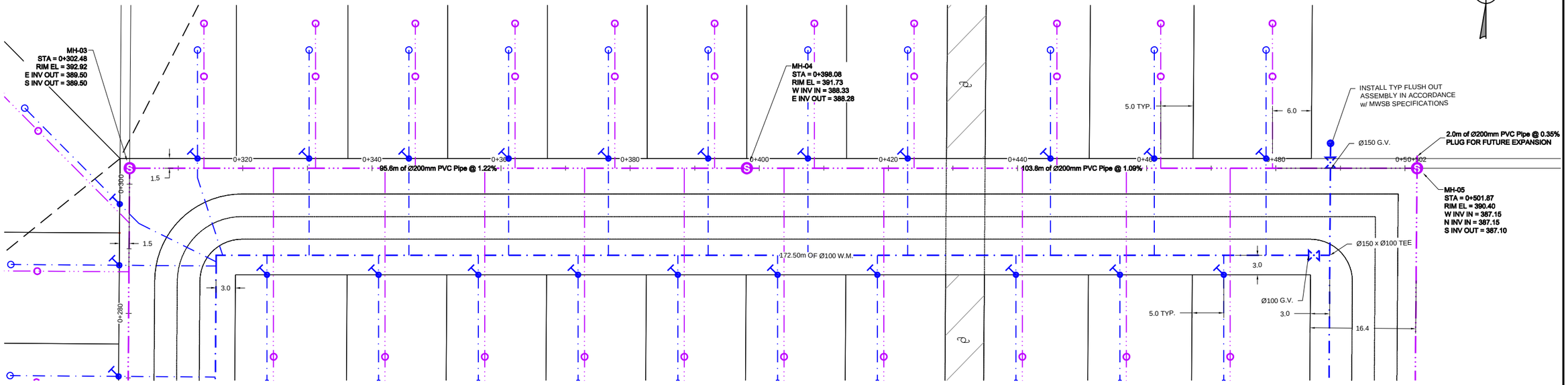
DESIGNED BY:	RJ
REVIEWED BY:	DAB
DRAWN BY:	JK
PROJECT START DATE:	AUG 31, 2016
PLOT SIZE:	A1 (594x841)
SCALE:	AS NOTED

PROJECT NAME:
MEADOWBROOK VILLAGE
PHASE I DESIGN
NE 33-10-18 WPM, RM OF CORNWALLIS

BURNS MAENDEL CONSULTING ENGINEERS LTD.
1331 Princess Ave.
Brandon, Manitoba
R7A 0R4
Tel: (204) 728-7364
Fax: (204) 728-4418

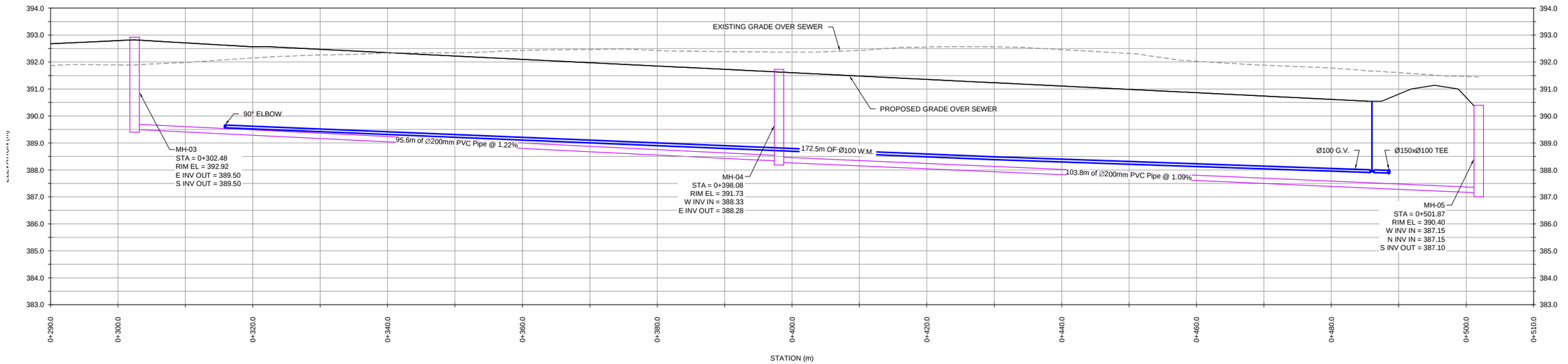
DRAWING TITLE:
PHASE I NORTH ALIGNMENT
PART PLAN AND PROFILE
STA 0+199.25 TO 0+302.48

PROJECT NUMBER:	DRAWING NO:
BMCE-16-109:34	C2.3



PARTIAL PLAN PHASE I EAST (STA 0+302.48 TO 0+501.87)

SCALE: 1:300



PROFILE PHASE I EAST (STA 0+302.48.25 TO 0+501.87)

SCALE: HOR = 1:300
VERT = 1:75

NO:	DATE	APP.	BY	REVISIONS
)	OCT 20, 2016	D.B.	J.K.	ISSUED FOR PERMIT

APEGM
Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559 Expiry: April 30, 2017

PROFESSIONAL ENGINEER — PROVINCE OF MANITOBA — R. JOHNSTON — Member 35123 — 20-Oct-2016

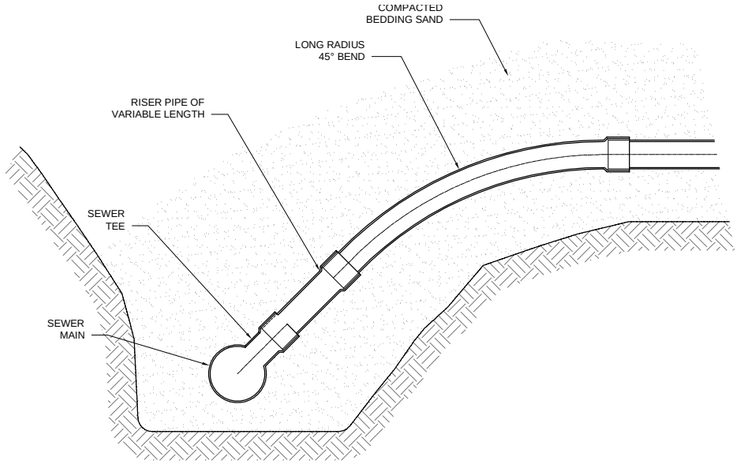
DESIGNED BY:	RJ
REVIEWED BY:	DAB
DRAWN BY:	JK
PROJECT START DATE:	AUG 31, 2016
PLOT SIZE:	A1 (594x841)
SCALE:	AS NOTED

PROJECT NAME:
MEADOWBROOK VILLAGE
PHASE I DESIGN
NE 33-10-18 WPM, RM OF CORNWALLIS

BURNS MAENDEL CONSULTING ENGINEERS LTD.
1331 Princess Ave.
Brandon, Manitoba
R7A 0R4
Tel: (204) 728-7364
Fax: (204) 728-4418

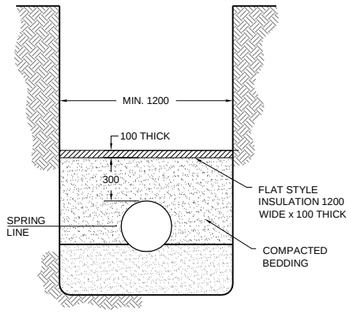
DRAWING TITLE:
PHASE I EAST ALIGNMENT
PART PLAN AND PROFILE
STA 0+302.48 TO 0+501.87

PROJECT NUMBER:	DRAWING NO:
BMCE-16-109:34	C2.4



TYPICAL SEWER SERVICE CONNECTION DETAIL

SCALE: N.T.S.



INSULATION BOARD SHALL BE EXTRUDED EXPANDED POLYSTYRENE FOAM.

INSULATION SHALL BE MANUFACTURED IN COMPLIANCE WITH ASTM 1621 AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 275.5 kPa FOR BURIAL OF 1 METER OR GREATER AND A MINIMUM COMPRESSIVE STRENGTH OF 413.4 kPa FOR BURIAL OF 1 METER OR LESS.

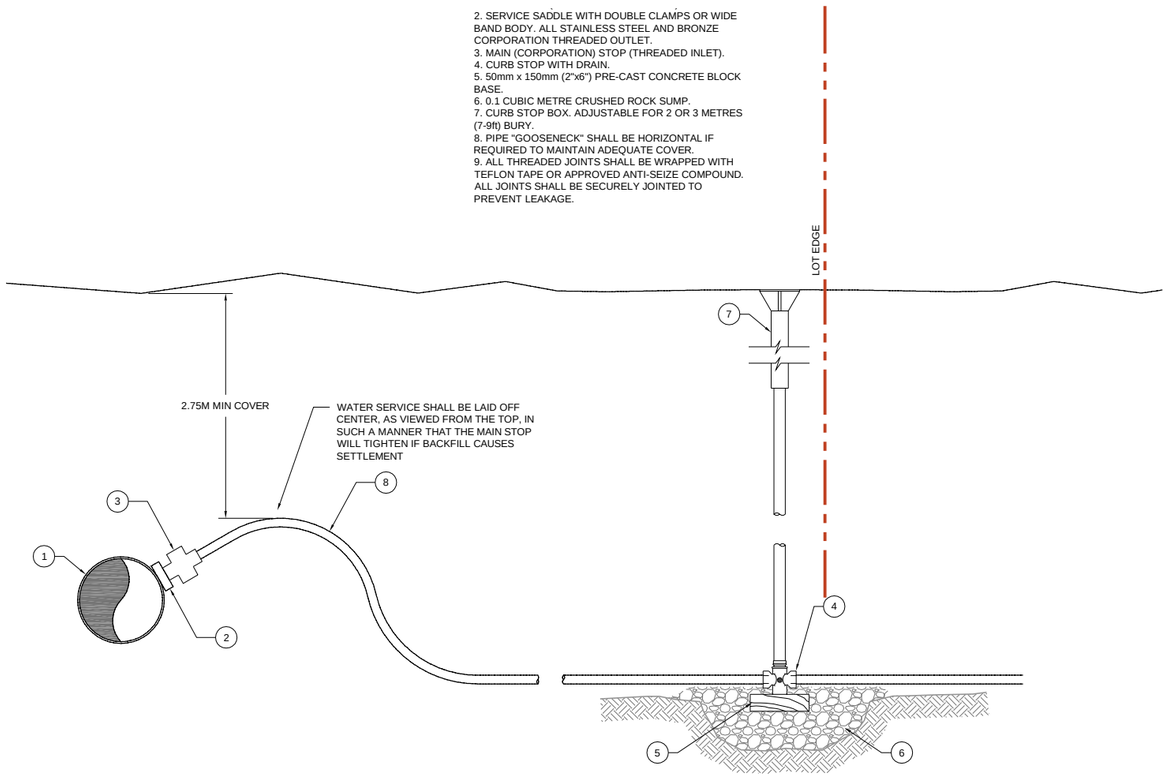
THICKNESS AND LENGTH ARE TO BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

WHERE TWO OR MORE LAYERS ARE REQUIRED THE JOINTS SHALL BE STAGGERED.

TYPICAL PIPE INSULATION DETAIL

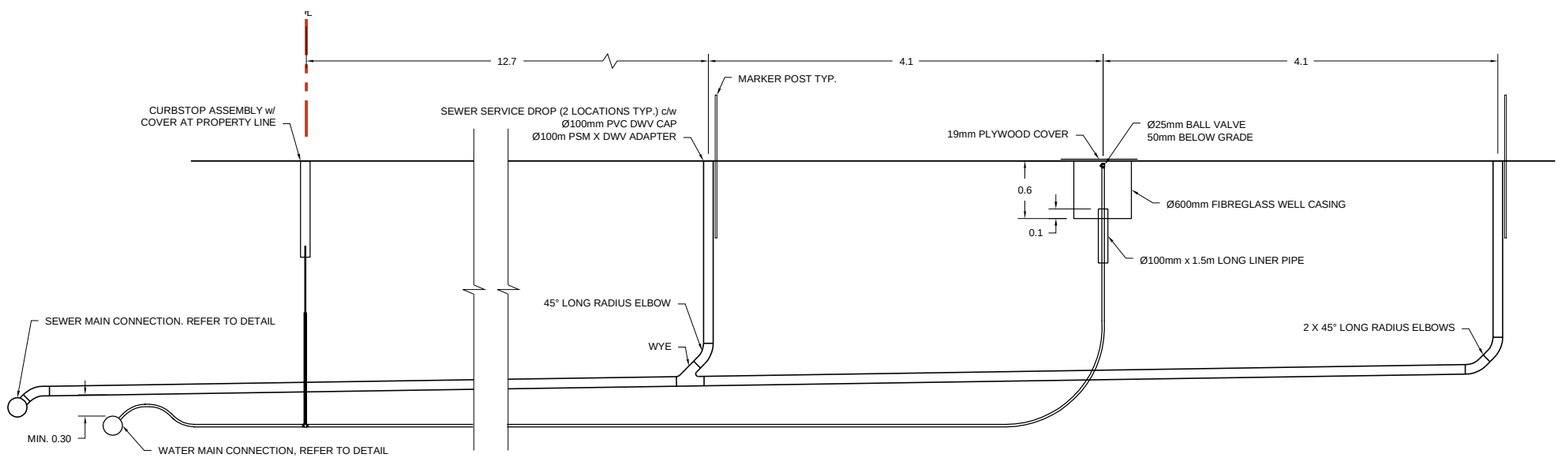
SCALE: N.T.S.

2. SERVICE SADDLE WITH DOUBLE CLAMPS OR WIDE BAND BODY. ALL STAINLESS STEEL AND BRONZE CORPORATION THREADED OUTLET.
3. MAIN (CORPORATION) STOP (THREADED INLET).
4. CURB STOP WITH DRAIN.
5. 50mm x 150mm (2"x6") PRE-CAST CONCRETE BLOCK BASE.
6. 0.1 CUBIC METRE CRUSHED ROCK SUMP.
7. CURB STOP BOX. ADJUSTABLE FOR 2 OR 3 METRES (7-9ft) BURY.
8. PIPE "GOOSENECK" SHALL BE HORIZONTAL IF REQUIRED TO MAINTAIN ADEQUATE COVER.
9. ALL THREADED JOINTS SHALL BE WRAPPED WITH TEFLON TAPE OR APPROVED ANTI-SEIZE COMPOUND. ALL JOINTS SHALL BE SECURELY JOINTED TO PREVENT LEAKAGE.



TYPICAL WATER SERVICE CONNECTION DETAIL

SCALE: N.T.S.



TYPICAL MOBILE HOME SERVICE DETAIL

SCALE: 1:30

NO:	DATE	APP.	BY	DESCRIPTION
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REVISIONS

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Certificate of Authorization
Burns Maendel Consulting Engineers Ltd.
No. 4559 Expiry: April 30, 2017

PROVINCE OF MANITOBA R.K. JOHNSTON Member 26123 REGISTERED PROFESSIONAL ENGINEER 20-Oct-2016

DESIGNED BY:	REVIEWED BY:
RJ	DAB

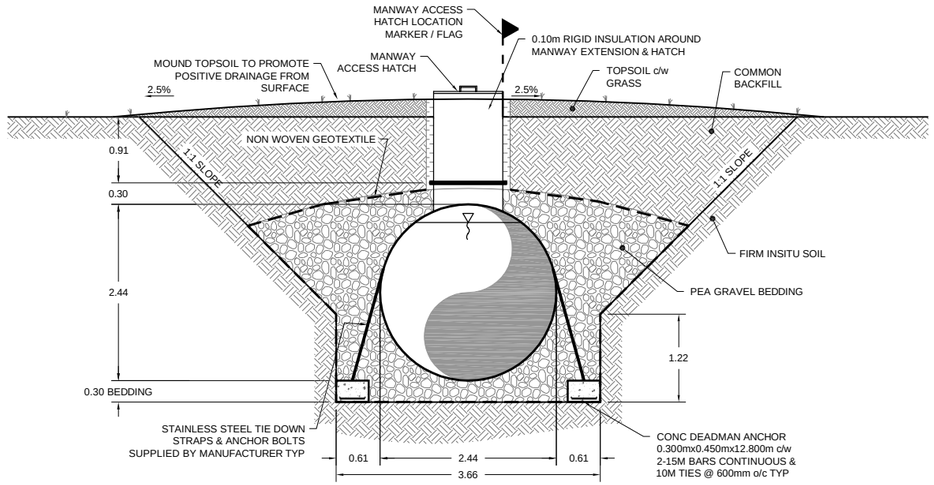
DRAWN BY: JK
PROJECT START DATE: AUG 31, 2016
PLOT SIZE: A1 (594x841)
SCALE: 1:400

PROJECT NAME:
MEADOWBROOK VILLAGE
PHASE I DESIGN
NE 33-10-18 WPM, RM OF CORNWALLIS

BURNS MAENDEL CONSULTING ENGINEERS LTD.
1331 Princess Ave.
Brandon, Manitoba
R7A 0R4
Tel: (204) 728-7364
Fax: (204) 728-4418

DRAWING TITLE: SECTIONS & DETAILS

PROJECT NUMBER: BMCE-16-109:34
DRAWING NO: C3.1



TYPICAL TANK SECTION

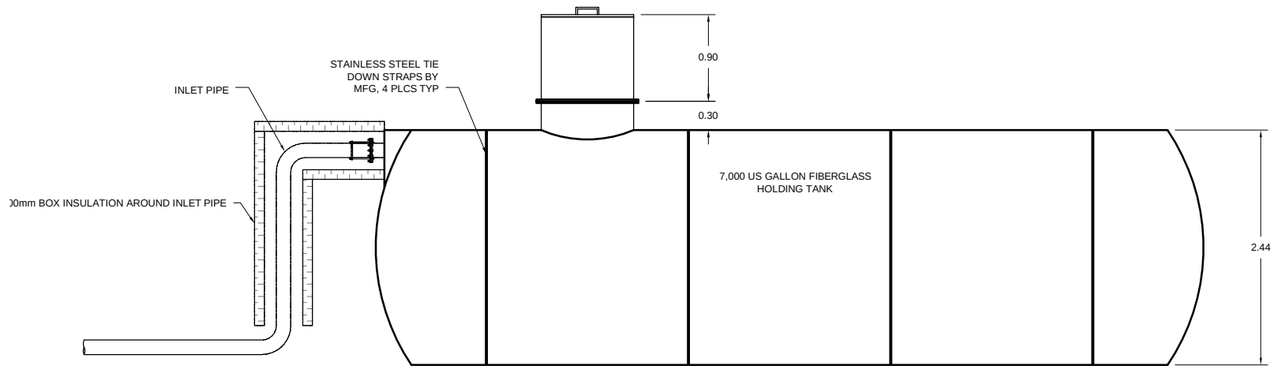
SCALE: 1:40

TANK INSTALLATION INSTRUCTIONS:

1. LOCATE PROPERTY LINES, EASEMENTS, OVERHEAD AND UNDERGROUND UTILITIES
2. ASSESS THE JOB SITE FOR ADEQUATE BEARING (PSF), PRESENCE OF GROUND WATER, EVIDENCE OF EXPANSIVE CLAY, AND OTHER DETRIMENTAL FACTORS
3. ORDER APPROVED GRAVEL BACKFILL MATERIAL MEETING THE SPECIFIED SIEVE ANALYSIS
4. LAY OUT THE TANK EXCAVATION PERIMETER WITH "UPSIDE-DOWN" PAINT
5. EXCAVATE AND BACKSLOPE OR BENCH THE TANK HOLE AND PIPING TRENCHES IN ACCORDANCE WITH MANITOBA WORKPLACE SAFETY AND HEALTH REGULATION 217/2006
6. USE EXCAVATED SOIL TO FORM A LOW BERM AROUND THE HOLE TO DIVERT RAIN WATER
7. FORM AND POUR CONCRETE DEADMAN ANCHORS AT LEAST 3 DAYS IN ADVANCE OF TANK PLACEMENT
8. BED THE BOTTOM WITH 300 MM OF APPROVED BACKFILL AGGREGATE AND RAKE LEVEL
9. RIG EACH TANK PROPERLY AND LIFT IT FROM THE TRAILER AND INTO THE PREPARED HOLE
10. TEMPORARILY COVER EACH MANWAY AND FITTING OPENING TO KEEP THE TANK CLEAN
11. POSITION AND LEVEL THE TANK BY INSTRUMENT OR SPIRIT LEVEL IN TWO DIRECTIONS
12. LOAD A SMALL AMOUNT OF BACKFILL INTO THE HOLE AROUND THE OUTER PERIMETER (TRY TO AVOID BOUNCING GRAVEL OFF THE TANK OR DISTURBING IT IN ANY WAY)
13. CAREFULLY SHOVEL & PROBE BACKFILL BELOW THE CENTER 600 MM FROM BOTH SIDES
14. CONNECT ANY BOTTOM DISCHARGE PIPING AFTER TANK IS STABILIZED AND LEVEL
15. ADD 10% WATER BALLAST IF WATER IS AVAILABLE; TANKS CAN BE BURIED DRY
16. WAIT 30 MINUTES TO INSPECT FOR LEAKS AT ALL SUBMERGED PIPELINE CONNECTIONS
17. INSTALL AND TENSION ANCHOR CABLES FROM STRAPS TO THE ANCHOR SYSTEM
18. MAKE & RECORD YOUR BASELINE DEFLECTION MEASUREMENT THROUGH THE MANWAY (ON TANKS WITHOUT A MANWAY, USE A CENTERED VENT OR ACCESSORY FITTING)
19. PROCEED WITH BACKFILL IN 300 MM LIFTS WORKING UNIFORMLY AROUND THE TANK
20. PROBE EACH GRAVEL LIFT UNDER THE BELLY OF THE TANK AND CAREFULLY AROUND FITTINGS
21. MAKE PERIODIC DEFLECTION MEASUREMENTS AS BACKFILL WORK PROGRESSES UPWARD
22. PERFORM HYDROSTATIC LEAK TESTING
23. INSTALL THE MANWAY EXTENSION AND TOP MOUNTED ACCESSORY RISERS & PIPELINES
24. ONCE GRAVEL COVERS THE TANK 150 MM DEEP, RAKE SMOOTH AND APPLY 100 MM POLYSTYRENE RIGID INSULATION BOARD
25. MAKE A DEFLECTION MEASUREMENT (LOG ALL SUCH MEASUREMENTS IN YOUR MANUAL)
26. KEEP HEAVY MACHINERY A SAFE DISTANCE FROM THE TANK DURING FINAL COVER WORK
27. MOUND SOIL TO THE PROPER TOTAL COVER DEPTH AND DISPOSE OF EXCESS MATERIAL
28. MAKE ANOTHER DEFLECTION MEASUREMENT AND RECORD IT IN YOUR MANUAL
29. FINISH GRADE, DIVERT AND DITCH WATER AWAY FROM SITE TO AVOID POOLING OR EROSION
30. FILL THE TANK IMMEDIATELY UPON COMPLETION OF THE BASIC INSTALLATION WORK
31. INSTALL ALL TOP MOUNTED ACCESSORIES SUCH AS A FIRE HYDRANT AND VENT HEAD
32. MAKE FINAL DEFLECTION READING IN WET TANK AND COMPARE WITH PREVIOUS FIGURES
33. BOLT OR PADLOCK THE MANWAY COVER TO DISCOURAGE CHILDREN AND VANDALS
34. INSTALL A FENCE OR SUITABLE BARRICADE TO KEEP VEHICLES WELL AWAY FROM THE SITE
35. SEED THE ENTIRE DISTURBED AREA WITH GRASS TO REDUCE EROSION
36. PAINT EXPOSED PVC PIPE RISERS FOR LONG TERM PROTECTION AGAINST SUNLIGHT
37. INSTALL PROPER SIGNAGE OR POST WARNINGS (IF REQUIRED)
38. ROUTINELY INSPECT SURFACE MOUNTED ACCESSORIES, VENTS, MANWAYS, OVERFLOWS, ETC.
39. CHECK THE SOIL COVER IN 12 MONTHS AND RESHAPE OR RESTORE ANY SUNKEN AREAS

GENERAL NOTES:

PEA GRAVEL SHALL BE CLEAN ROUND AGGREGATE WITH A MIX OF PARTICLE SIZES BETWEEN 3mm AND 12mm WITH NO MORE THAN 5% PASSING THE #8 SIEVE. IF CRUSHED STONE IS UTILIZED, IT SHALL BE WASHED WITH PARTICLE SIZES BETWEEN 6mm AND 12mm WITH NO MORE THAN 5% PASSING A # 8 SIEVE



TYPICAL HOLDING TANK SIDE VIEW

SCALE: 1:30

IO:	DATE	APP.	BY	DESCRIPTION
)	OCT 20, 2016	D.B.	J.K.	ISSUED FOR PERMIT

REVISIONS

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No. 4559 Expiry: April 30, 2017

PROFESSIONAL ENGINEER PROVINCE OF MANITOBA R.K. JOHNSTON Member 35123 REGISTERED PROFESSIONAL ENGINEER 20-Oct-2016

DESIGNED BY: RJ
REVIEWED BY: DAB
DRAWN BY: JK
PROJECT START DATE: AUG 31, 2016
PLOT SIZE: A1 (594x841)
SCALE: 1:400

PROJECT NAME:
MEADOWBROOK VILLAGE
PHASE I DESIGN
NE 33-10-18 WPM, RM OF CORNWALLIS

BURNS MAENDEL CONSULTING ENGINEERS LTD.
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Brandon, Manitoba
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Tel: (204) 728-7364
Fax: (204) 728-4418

DRAWING TITLE:
SECTIONS & DETAILS

PROJECT NUMBER: BMCE-16-109:34
DRAWING NO: C3.2

Appendix D – City of Brandon

Wastewater Disposal Approval Letter

Patrick Pulak, P. Eng.
Director of Engineering Services and Water Resources
Development Services Division, Engineering Department
638 Princess Avenue
R7A 0P3

September 27, 2016

Environmental Approvals Branch
Manitoba Sustainable Development
123 Main Street, Suite 160
Winnipeg, Manitoba
R3C 1A5

ATTN: Tracey Braun, M. Sc. - Director

RE: Notice of Alteration – Meadowbrook Village

Ms. Braun

In communication with Burns Maendel Consulting Engineers, I have been made aware that, as a result of proposed improvements to existing wastewater lagoons, Meadowlark Village requires the City of Brandon's approval to discharge their domestic waste to our wastewater treatment facility by means of a septic waste hauler.

It is my understanding that this is to be a temporary arrangement until such time the improvements to the lagoons have been completed sometime during the summer of 2017. As this is a residentially generated waste stream and the maximum discharge volume is approximately 5,000 L/day, there exists more than sufficient capacity within our treatment facility to effectively treat this waste load.

I am prepared to approve this request under the condition that an application be made in writing to myself if our services are required beyond August 2017.

If you should have any questions regarding this matter, please contact me at your convenience.

Sincerely,

Patrick Pulak, P. Eng.