Schedule “A” to By-Law 10-2022 - Site Plan Agreement Idefix Investments Inc.

This Agreement made in triplicate on the _____ day of February, 2022.

B e t w e e n:

The Corporation of The Municipality of South Huron

(Hereinafter referred to as the “Municipality”)

Of The First Part

– And –

Idefix Investments Inc.

(Hereinafter referred to as the “Owner”)

Of The Second Part

Whereas the Owner is entering into this agreement with the Municipality dealing with the facilities, works and matters hereinafter mentioned and the provision and maintenance thereof by the Owner and any and all subsequent owners to the satisfaction of and at no expense to the Municipality, as a condition to the approval pursuant to Section 41 of the Planning Act, as amended, of site plans and drawings for a development (hereinafter called the “development”) on the lands and premises of the Owner more particularly described in the Schedule “A” attached hereto in the Municipality of South Huron, in the County of Huron (the “property”).

Now Therefore Witnesseth that in consideration of the covenants and provisions herein and for other good and valuable consideration now paid by the Municipality to the Owner (the receipt and sufficiency of which the Owner hereby acknowledges), the Municipality and the Owner covenant, agree and provide with each other that the Owner shall do and perform, at no expense to the Municipality (unless otherwise expressly provided herein), the following matters and things:

1. Schedules Attached:

The following schedules are attached to, and form part of, this Agreement:

Schedule “A” - Description of Lands
Schedule “B” - Approved Plans
Schedule “C” - Cash Deposits, Development Charges and Security

2. Stormwater Management:

The Owner shall undertake all work required to implement the Stormwater Management Plan, prepared by MR Engineering and Design LTD and approved by the Municipal Engineer. The approved stormwater management plan is referenced in the attached Schedule “B”.

All stormwater management works for this property must be constructed to the satisfaction of the Municipality, prior to the Chief Building Official issuing an occupancy permit for the building shown on the attached Schedule “B”. The Owner agrees to maintain the property in such a manner that ensures compliance with the approved Stormwater Management Plan.

3. Parking:

(a) A minimum of 1 of the parking spaces established on the property will be designated as an accessible parking spaces, of which 1 shall be Type “A” accessible parking spaces as shown on the approved Site Plan Schedule “B” Such accessible spaces shall be clearly marked with pavement markings and vertical signage containing the international symbol of access. An accessible route shall be provided from the designated parking spaces to the barrier free entrance of the building. All facilities designed to have regard for accessibility shall incorporate the County of Huron’s Universal Design and Accessibility Guidelines for Site Plan Control.

(b) The Owner shall provide, at its own expense, and at all times maintain on the lands, parking areas in accordance with the applicable Zoning By-law.

4. Lighting and Photometric Facilities:

All lighting of the site shall be oriented and its intensity controlled so as to prevent glare on adjacent roadways and adjacent properties to the satisfaction of the Municipality. Provide confirmation that lighting has been completed in accordance with the approved Site Plan, which forms Schedule "B" herein.

5. Landscaping

The Owner shall landscape the site and thereafter maintain the same in general conformity with the approved plan attached hereto as Schedule "B", to the satisfaction of the Municipality of South Huron.

The Owner shall provide a landscape plan to the satisfaction of the Municipality of South Huron prior to implementation.

6. Fire Route Designation:

The Owner shall identify the fire route. Such fire route shall be clearly marked showing street allowances and vehicular accesses for the approval of the Fire Chief. Signs specifying that parking is prohibited in the designated fire route shall be displayed. The fire route shall be set out on the approved plans, and the signs to be erected and maintained in accord with the approved plans

7. Fire Protection

The dry hydrant, supply pond and the storm water pump supplying the pond shall be installed and maintained as per the approved drawings, the Functional Servicing Report, and the *Building Code Act*, and its applicable regulations and standards at the Owner's expense in perpetuity.

8. 'As Constructed' Premises:

The Owner shall provide for the Municipality's records 'as constructed' drawings to the satisfaction of the Municipality for site services installed by the Owner. These drawings shall be submitted in a satisfactory form, digital and hard copy, prior to the release of security required by this agreement. The development shall be completed in accordance with Schedule "B" herein.

9. Inspection and Completion of Works:

Where the Owner is required to construct certain works to be assumed by the Municipality or carry out work within a public highway, walkway or easement, the Owner shall have his Professional Engineer provide a qualified inspector acceptable to the Municipality to carry out on-site inspection of the works. The Professional Engineer will also supervise the site work being complete and with certify completion. Upon completion of the work and prior to requesting the Municipality to assume the works, the Owner shall supply to the Municipality, in a form acceptable, a certificate of the Owner's Professional Engineer substantially in the following form:

Certificate of Completion of Works

To: The Corporation of the Municipality of South Huron

For good and valuable consideration now paid by the Corporation of the Municipality of South Huron (hereinafter called the "MUNICIPALITY"), the receipt and sufficiency of which I/we hereby acknowledge, I/we hereby certify that the municipal services constructed pursuant to the Development Agreement between the Municipality and (Owner's Name) registered as No. _____ relating to municipal number Lot/Block No._____ Plan No. _____ have been

(a) inspected during construction in accordance with standard engineering practice; and

(b) constructed in accordance with the plans and specifications approved by the Municipality.

Delivered under my/our hand and professional seal at South Huron, Ontario this _____ day of _____, 20_____.

Registered Professional Engineer

The Owner acknowledges and agrees that the form of the Certificate of Completion of Works required under this paragraph may vary depending on the development's requirements.

10. Signage

Provide confirmation that sign and pavement markings has been installed in accordance with the approved Signs and Pavement Markings Plan, which forms part of Schedule "B" herein.

11. Subsurface Drainage:

The Owner shall notify the Municipality, in writing, in the event that any existing sewer or drain is encountered during the progress of construction. The Owner shall have its Engineer investigate the matter and shall comply with the recommendations of the Owner's Engineer, as approved by the Municipality, with respect to the sewer or drain encountered. Such recommendations may include connecting the existing sewer to a new sewer being constructed or into another existing sewer, at no expense to the Municipality. The Owner shall also ensure that there is no interruption of any subsurface drainage flow because of construction on the site which would have an adverse effect on neighbouring properties. Should such an interruption occur, the Owner shall carry out any necessary remedial work to correct the problem as requested by the Municipality and to the satisfaction of the Municipality at no expense to the Municipality.

12. Abandoned Private Drain Connections:

The Owner acknowledges that any abandoned existing private drain connections shown on the site plans or encountered during construction are to be excavated at the street line and sealed to the satisfaction of the Municipality.

13. Existing Private Drain Connections:

The Owner acknowledges that any existing private drain connections which are proposed for re-use are to be excavated at the street line and inspected and approved by the Municipality for such re-use.

14. Undertaking of Construction:

If no building permit is issued for the development within two (2) years of the date of the approval of the site plans and drawings pursuant to Section 41 of the Planning Act, (Ontario), as amended, or if a building permit is issued but, in the opinion of the Chief Building Official, the Owner does not seriously commence construction of the development within two (2) years from the date of the approval of the site plans and drawings pursuant to Section 41 of the Planning Act (Ontario), as amended, or if any building permit issued for this development is revoked at any time, the Municipality in its sole discretion may revoke its approval of the plans and drawings and may terminate the agreement by giving notice in writing and by registering a notice that the approval is revoked and the agreement is terminated.

15. Work According to Plans:

As the Owner has entered into this agreement as a condition precedent to the approval by the Municipality of site plans and drawings dealing with the facilities, works and matters mentioned herein, the Owner shall submit from time to time one or more plans and drawings as may be required pertaining to any of these facilities, works and matters

including but not restricted to any plans or drawings specifically mentioned herein. Such plans and drawings as and when approved by the Municipality, whether before or after the date upon which this agreement is entered into, shall be treated as forming part of this agreement in the same manner and to the same extent as if such plans and drawings had been approved and actually attached to this agreement at the time that it is entered into. In all matters not herein provided for, the Owner shall develop his land and shall use the same in accordance with the applicable Zoning By-Law of the Municipality, as amended. The provisions of this agreement and any approved site plan or drawing pertaining to a facility, work or matter shall be construed and applied as complementary to each other but in the event of any conflict, the plan or drawing receiving the last approval shall govern. Without restricting the generality of this clause, the Owner shall develop his lands and shall construct works and maintain them in perpetuity in accordance with the approved Site Servicing Plan which is identified in Schedule "B".

16. Work at Owner's Risk:

All incidental matters including but not restricted to the removal and planting of trees; cutting, replacing and installing approaches; relocating utilities, pipes, poles, valves and equipment; resetting drains and manholes; and all other things required by this agreement or by the Municipality shall be carried out by the Owner at his own risk and expense. All work must be completed to the satisfaction of the Municipality and to the satisfaction of the owner of such utilities.

17. Completion of Work:

All work required under this agreement, including but not restricted to asphalt surfacing, fencing, establishment of landscaping and as constructed drawings, completion of services and any other work set out herein, shall be completed or delivered, as the case may be, within a period of nine (9) months from the date of substantial completion of construction of the development as determined by the Chief Building Official. All such work shall be performed to the satisfaction of the Chief Building Official of the Municipality.

18. Securities:

In order to ensure due performance of all work required under this agreement and to protect the Municipality in respect of its liability for holdback of costs under Section 17 of the Construction Act (Ontario), as amended, for any work on municipal property and private property that may have affect to neighbouring lands, the Owner shall deposit with the Municipality prior to the issuance of a building permit, an irrevocable Letter of Credit from a chartered bank, issued in form and content satisfactory to the Municipality's Solicitor, in the amount of One Hundred Percent (100%) of the total securities as set out in Schedule "C".

All Letters of Credit shall be for a minimum guaranteed period of one (1) year or such longer time as the Municipality may decide. All Letters of Credit shall contain the following clause: "It is a condition of the Letter of Credit that it shall be deemed to be automatically extended without amendment from year to year from the present or any future expiration date thereof, unless at least thirty (30) days prior to the present or any future expiration date, we notify you in writing by registered mail that we elect not to consider this Letter of Credit to be renewable for any additional period." Unless each and every Letter of Credit is renewed as noted above, the Municipality shall have the absolute right to refuse to issue building permits and to prohibit occupancy, whether partially or fully completed, from the said date thirty (30) days prior to the expiration of that Letter of Credit.

i. Security Release

General securities outlined in Schedule "C" will be released upon the completion of all works, to the satisfaction of the Municipality of South Huron.

19. Development Charges:

The Owner shall pay all development charges applicable to the development in accordance with the By-laws of the Municipality of South Huron.

20. Municipality's Right to Enter:

The Municipality or any of its officers, servants or agents may, from time to time, at all reasonable times and upon producing proper identification, enter upon the Owner's lands and premises for the purposes of inspecting the facilities, works and matters to be provided and maintained under this agreement in accordance with the approved plans and for the purpose of providing or maintaining at the Owner's expense any facility, work or matter in default of the Owner providing or maintaining the same where such default has continued for fifteen (15) days or more. The Municipality, its officers, servants and agents shall not be liable to the Owner or any occupant of the lands and premises for any losses or damages of any kind whatsoever arising in any way from entry for such purposes. In the event of an emergency, the Municipality's right to enter under this provision shall not be limited to situations in which the default of the Owner has continued for more than fifteen (15) days.

21. Road Allowance Indemnity:

Except as otherwise expressly provided in this agreement, the right of the Owner to use and occupy any untravelled portions of road allowances shall, at all times, be at the will of the Municipality and the construction and maintenance of any and all curbs, pavements, plantings and other improvements or works thereon shall at all times be at the risk and expense of the Owner. The Owner shall indemnify and save harmless the Municipality and any of its officers, employees or servants from and against all actions, suits, claims, damages, demands, costs, including reasonable legal fees and disbursements, liabilities and any other claims which may be brought against or made upon the Municipality or any of its officers, employees or servants in consequence of the use and occupation of untraveled portions of road allowances by the Owner or the construction, maintenance or existence of curbs, pavements, plantings or other improvements of the Owner thereon. Any amounts owed by the Owner to the Municipality under this indemnity shall constitute a lien and charge upon the lands of the Owner and shall be collectible in like manner as municipal taxes. Without limiting the foregoing agreement to indemnify, the Municipality may, in case any such action, suit, claim or demand is brought or made against the Municipality or any of its officers, employees or servants, settle any such action, suit, claim or demand on such terms as the Municipality shall see fit, and the Owner shall thereupon forthwith pay to the Municipality the sum or sums so paid, together with such sum as shall represent the reasonable costs of the Municipality and its solicitor in defending or settling any such action, suit, claim or demand.

22. Insurance:

Prior to the parties executing the Agreement, the Owner shall supply the Municipality with a certified copy of a comprehensive general liability insurance policy with limits in an amount and in a form acceptable to the Municipality. The minimum limits of such policies shall be $5,000,000 all inclusive, but the Municipality shall have the right to set higher amounts. Such policy or policies shall be issued in the joint names of the Owner and the Municipality, with the Municipality being named as an additional insured. The said insurance policy shall indemnify the Municipality from any loss arising from any claims for damages, injury or otherwise in connection with the work done by or on behalf of the Owner. Such insurance policy shall provide coverage for a period of at least one (1) year and shall continue until all the work required by the Owner under this Agreement is completed and, where applicable, assumed by the Municipality. The said insurance policy must also include a provision confirming that the insurance policy shall not be cancelled or materially amended without providing the Municipality with fifteen (15) days' written notice of the insurer's intention to do so. The issuance of such a policy of insurance shall not be construed as relieving the Owner from responsibility for other or larger claims, if any, for which he may be held responsible.

23. General Indemnity:

The Owner shall indemnify and save harmless the Municipality and any of its officers, employees or servants from and against all actions, suits, claims, damages, demands, costs, including reasonable legal fees and disbursements, liabilities and any other claims which may be brought against or made upon the Municipality or any of its officers, employees or servants sustained or incurred by the Municipality or any of its officers,

employees or servants as a result of the Municipality entering into this agreement with the Owner arising as a result of any work authorized or conducted by the Owner under this agreement. Any amounts owed by the Owner to the Municipality under this indemnity shall constitute a lien and charge upon the lands of the Owner and shall be collectible in like manner as municipal taxes. Without limiting the foregoing agreement to indemnify, the Municipality may, in case any such action, suit, claim or demand is brought or made against the Municipality or any of its officers, employees or servants, settle any such action, suit, claim or demand on such terms as the Municipality shall see fit, and the Owner shall thereupon forthwith pay to the Municipality the sum or sums so paid, together with such sum as shall represent the reasonable costs of the Municipality and its solicitor in defending or settling any such action, suit, claim or demand.

24. By-Laws:

Notwithstanding any of the provisions of this agreement, the Owner shall be subject to all By-Laws of the Municipality. In the event of conflict between the provisions of this agreement and the provisions of any By-Law of the Municipality, the provisions of the By-Law prevail.

25. Subsequent Owners Bound:

Subject to the provisions of the Registry Act and the Land Titles Act, the covenants, agreements, conditions and understandings therein contained on the part of the Owner shall be conditions running with the land described in Schedule “A” hereto and shall be binding upon the Owner and their heirs, estate trustees, administrators, successors and assigns, as the case may be, and subsequent owners and occupiers of the said lands from time to time (and “Owner”, wherever used in this agreement, is intended and shall be construed to include such subsequent owners and occupiers).

26. Separate Covenants:

All of the provisions of this agreement are and shall be construed and interpreted as covenants and agreements as though the words importing such covenants and agreements were used in each separate clause hereof. Should any covenant or provision of this agreement be adjudged unlawful or unenforceable, such covenant or provision shall be considered separate, distinct and severable from this agreement and the covenants and provisions of this agreement shall not be affected and shall remain fully enforceable.

27. Enforcing Performance of Requirements:

In addition to any remedy authorized or permitted by this agreement or by law, the Municipality, upon giving fifteen (15) days notice or forthwith in cases of emergency, may, in default of any matter or thing required to be done by the Owner under this agreement, do such matter or thing at the expense of the Owner and if the Municipality has incurred any expense, it may recover the expense by action, by performance bond or other security or by adding the said expenses to the tax roll and recovering same in like manner as municipal taxes. No proceeding by the Municipality under this clause and no waiver under any provision of this agreement shall prejudice the rights of the Municipality in respect of any subsequent default or any matter or thing required to be done by the Owner under this agreement. The rights of the Municipality may be enforced by any remedy authorized or permitted by the Agreement or By-Law and no such remedy shall be exclusive or dependent on any other remedy.

The Municipality may, in its absolute discretion, draw upon and use the funds from the irrevocable Letter of Credit delivered in connection with this application in the event any of the Site Works on the Approved Plans have not been or are not being provided or maintained to the Municipality's satisfaction during the installation and / or construction of the Site Works or in the event any of the Site Works have not been provided or completed by the Completion Date. The Municipality shall not, however, be obligated to provide, rectify, remediate, maintain, or complete the Site Works, or any part of them.

28. Number and Gender:

Words importing the singular only shall include the plural; words importing the masculine only shall include the female and words importing a person shall include corporations.

29. Notices:

Any notice required or permitted to be given hereunder shall be in writing and shall be effectively given if delivered personally or sent by registered mail in the case of notice to the Municipality as follows:

Municipality of South Huron
P.O. Box 759
322 Main Street South
Exeter ON, N0M 1S6

And in the case of notice to the Owners, as follows:

Idefix Investments Inc.
69763 Evergreen Line
RR3
Exeter, ON. N0M 1S5

Any notice so given shall be deemed conclusively to have been given and received when so personally delivered or on the third (3rd) business day following the sending thereof by registered mail.

30. Registration:

The Owner agrees that this document shall be registered against the title to the lands affected by it and that such registration shall be done by the Municipality. The cost of such registration and associated legal fees shall be the responsibility of the Owner.

The Owner further agrees that this agreement shall have priority over all mortgages that are registered against the property and the Owner hereby undertakes to deliver an agreement postponing those mortgages to this agreement and to register the same on title.

31. Costs:

Any costs incurred by the Municipality for the review, implementation and administration of this agreement (including engineering, administrative costs and legal fees) shall be borne by the Owner.

In Witness Whereof the Municipality and the Owner hereto have hereunto affixed their Corporate Seals duly attested by the hands of their proper officers in that behalf, the day and year first written above.

The Corporation of the Municipality Of South Huron

_____
Per: George Finch, Mayor

_____
Per: Rebekah Msuya-Collison, Clerk

We have authority to bind the Corporation.

Signed, Sealed and Delivered
In the presence of

Indefix Investments Inc.

_____
Per: Heiner Holland, President

I have the authority to bind the Corporation.

Schedule “A”
Legal Description

Note: It is understood and agreed that this Schedule forms part of the Municipality’s Agreement.

PIN: 41251-0028- PT LT 13 CON 20 STEPHEN; PT LT 14 CON 20 STEPHEN AS IN R269144; S/T R329198; MUNICIPALITY OF SOUTH HURON

Schedule "B"

Approved Drawings

Note: It is understood and agreed that this Schedule forms part of the Municipality's Agreement.

MetalCon Building Systems
Drawings F1 - E8 – Approved Sealed Drawings – Last revised June 18th, 2021

MR Engineering and Design
Functional Servicing Report (26 pages) - last revised September 9th, 2021
Drawing A1 – Building Layout – Last Revised November 29th, 2021
Drawing C1 – Site Plan – Last revised November 4th, 2021
Drawing C2 – Site Plan – Last revised November 4th, 2021
Drawing C3 – Site Grading and Servicing Plan – Last revised December 22nd,

MBA Engineering and Design
Drawing S01- Concrete – Last revised June 29th, 2021
Drawing S02 – Layout and Detail - Last revised June 29th, 2021
Drawing S03 – Foundation and Details - Last revised June 29th, 2021

McLellan Engineering LTD
Drawing M101 – Mechanical Specification Legend and Drawing – Last revised December 7th , 2021
Drawing M201- HVAC Ground Floor Layout and Details – Last revised December 7th , 2021
Drawing M301- Plumbing Ground Floor Layout and Details – Last revised December 7th, 2021

Light Years Engineers
Drawing E100- Electrical Specification and Drawing List – Last revised December 7th, 2021
Drawing E101 – Power and Systems Layout - Last revised December 7th, 2021
Drawing E102- Lighting and Exit/ Emergency Lighting Layout - Last revised December 7th, 2021
Drawing E103 – Electrical Riser, Panel schedules and Details - Last revised December 7th,

Schedule "C"
Security to be provided

Note: It is understood and agreed that this Schedule forms part of the Municipality's Agreement.

Item	**Cost**
Stormwater Management Plan/Storm Sewer Service	$15,000
Sanitary Sewer Service	$15,000
Water Service/Fire Protection	$10,000
Roadways (Paving, Curb & Gutters)	$10,000
Other (Pump station)	$30,000
Subtotal	$80,000
13% HST	$10,400
Total Construction Costs	$90,400.00

* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT * SUBJECT TO RESERVATIONS IN CROWN GRANT *

PROPERTY DESCRIPTION: PT LT 13 CON 20 STEPHEN; PT LT 14 CON 20 STEPHEN AS IN R269144; S/T R329198; MUNICIPALITY OF SOUTH HURON

PROPERTY REMARKS:

ESTATE/QUALIFIER:	RECENTLY:	PIN CREATION DATE:
FEE SIMPLE LT CONVERSION QUALIFIED	FIRST CONVERSION FROM BOOK	2000/04/17

OWNERS' NAMES	CAPACITY	SHARE
IDEFIX INVESTMENTS INC.	ROWN	

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
EFFECTIVE 2000/07/29 THE NOTATION OF THE "BLOCK IMPLEMENTATION DATE" OF 2000/04/17 ON THIS PIN						
WAS REPLACED WITH THE "PIN CREATION DATE" OF 2000/04/17						
*** PRINTOUT INCLUDES ALL DOCUMENT TYPES AND DELETED INSTRUMENTS SINCE 2000/04/14 ***						
***SUBJECT, ON FIRST REGISTRATION UNDER THE LAND TITLES ACT, TO:*						
*** SUBSECTION 44(1) OF THE LAND TITLES ACT, EXCEPT PARAGRAPH 11, PARAGRAPH 14, PROVINCIAL SUCCESSION DUTIES **						
*** AND ESCHEATS OR FORFEITURE TO THE CROWN.*						
*** THE RIGHTS OF ANY PERSON WHO WOULD, BUT FOR THE LAND TITLES ACT, BE ENTITLED TO THE LAND OR ANY PART OF*						
*** IT THROUGH LENGTH OF ADVERSE POSSESSION, PRESCRIPTION, MISDESCRIPTION OR BOUNDARIES SETTLED BY*						
*** CONVENTION.*						
*** ANY LEASE TO WHICH THE SUBSECTION 70(2) OF THE REGISTRY ACT APPLIES.*						
***DATE OF CONVERSION TO LAND TITLES: 2000/04/17 ***						
R63179	1964/04/16	NOTICE		**** DELETED AGAINST THIS PROPERTY ****		
CORRECTIONS: 'THIS INSTRUMENT' WAS DELETED FROM PROPERTY 41250-0232 IN ERROR AND WAS RE-INSTATED ON 2007/03/30 BY LEIGH SWANSON.						
R103327	1971/01/15	AGREEMENT		**** DELETED AGAINST THIS PROPERTY ****		
R269144	1991/05/06	TRANSFER		**** COMPLETELY DELETED ****	PICKLING ONION GROWERS THEDFORD INC.	
R269145	1991/05/06	CHARGE		**** COMPLETELY DELETED ****	CANADIAN IMPERIAL BANK OF COMMERCE	
R274924	1991/12/20	CHARGE		**** COMPLETELY DELETED ****	CANADIAN IMPERIAL BANK OF COMMERCE	

NOTE: ADJOINING PROPERTIES SHOULD BE INVESTIGATED TO ASCERTAIN DESCRIPTIVE INCONSISTENCIES, IF ANY, WITH DESCRIPTION REPRESENTED FOR THIS PROPERTY.
NOTE: ENSURE THAT YOUR PRINTOUT STATES THE TOTAL NUMBER OF PAGES AND THAT YOU HAVE PICKED THEM ALL UP.

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
R278624	1992/06/10	CHARGE		*** COMPLETELY DELETED ***	CANADIAN IMPERIAL BANK OF COMMERCE	
22R4148	1997/10/14	PLAN REFERENCE				C
R329198	1998/10/05	TRANSFER EASEMENT			THE CORPORATION OF THE TOWNSHIP OF STEPHEN	C
R330706	1998/12/03	POSTPONEMENT		*** COMPLETELY DELETED ***		
	REMARKS: R269145,R274924,R278624,R329198					
LT2163	2000/06/27	CHARGE		*** COMPLETELY DELETED *** P.O.G. INC	CANADIAN IMPERIAL BANK OF COMMERCE	
LT14635	2002/03/05	DISCH OF CHARGE		*** COMPLETELY DELETED *** CANADIAN IMPERIAL BANK OF COMMERCE		
	REMARKS: RE: R274924					
LT14636	2002/03/05	DISCH OF CHARGE		*** COMPLETELY DELETED *** CANADIAN IMPERIAL BANK OF COMMERCE		
	REMARKS: RE: R278624					
HC36072	2007/02/02	DISCH OF CHARGE		*** COMPLETELY DELETED *** CANADIAN IMPERIAL BANK OF COMMERCE		
	REMARKS: RE: LT2163					
HC39117	2007/06/01	CHARGE		*** COMPLETELY DELETED *** P.O.G. INC.	CANADIAN IMPERIAL BANK OF COMMERCE	
HC39118	2007/06/01	DISCH OF CHARGE		*** COMPLETELY DELETED *** CANADIAN IMPERIAL BANK OF COMMERCE		
	REMARKS: RE: R269145					
HC99860	2014/05/01	CHARGE		*** COMPLETELY DELETED *** P.O.G. INC.	DESJARDINES, NELSON LEWYLLE, JO-ANNE	
HC99890	2014/05/01	NO OIL & GAS LEASE	$2	P.O.G. INC.	CARROTHERS, RONALD GEORGE CARROTHERS, RONALD GLEN CARROTHERS, TOM CARROTHERS, PERRY 1075103 ONTARIO INC. H & H LOCKREY FARMS 1997 LTD.	C

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
					LEWYLLE, JOANNE LEWYLLE, JOANNE HURON SHORES INVESTMENTS INC. G & L FARMS THEDFORD INC.	
HC100708	2014/06/11	DISCH OF CHARGE		*** COMPLETELY DELETED *** CANADIAN IMPERIAL BANK OF COMMERCE		
	REMARKS: HC39117.					
HC128023	2017/11/08	APL (GENERAL)		*** COMPLETELY DELETED *** P.O.G. INC.		
	REMARKS: DELETING R63179					
HC128024	2017/11/08	APL (GENERAL)		*** COMPLETELY DELETED *** P.O.G. INC.		
	REMARKS: DELETING R103327					
HC128037	2017/11/09	DISCH OF CHARGE		*** COMPLETELY DELETED *** DESJARDINES, NELSON LEWYLLE, JO-ANNE		
	REMARKS: HC99860.					
HC128057	2017/11/09	TRANSFER	$1,075,000	P.O.G. INC.	IDEFIX INVESTMENTS INC.	C
	REMARKS: PLANNING ACT STATEMENTS.					

1. MECHANICAL GENERAL PROVISIONS

1.1. GENERAL PROVISIONS

1.1.1. THE CONTRACTOR SHALL PROVIDE ALL LABOUR, MATERIAL, EQUIPMENT, ETC. AS REQUIRED TO COMPLETE ALL WORK SPECIFIED HEREIN AND AS SHOWN ON THE MECHANICAL DRAWINGS. THE CONTRACTOR SHALL PROVIDE ANY REQUIRED CONNECTIONS AND/OR SMALL MATERIALS TO INSURE THE INSTALLATION OF ALL SYSTEMS WORK AS INTENDED.

1.1.2. THE CONTRACTOR SHALL VISIT THE SITE AND BE FAMILIAR WITH ALL WORKING CONDITIONS AND SCOPE OF WORK PRIOR TO SUBMITTING BIDS. NO EXTRAS TO THE CONTRACT WILL BE GRANTED DUE TO CONTRACTOR'S FAILURE TO COMPLETE A THOROUGH SITE INVESTIGATION.

1.1.3. MECHANICAL DRAWINGS SHOW MECHANICAL WORK ONLY AND ARE NOT INTENDED TO SHOW STRUCTURAL, ARCHITECTURAL OR ELECTRICAL DETAILS. CONTRACTOR SHALL TAKE BUILDING DIMENSIONS AND DETAILS FROM ARCHITECTURAL/STRUCTURAL DRAWINGS OR FROM JOB MEASUREMENTS ONLY.

1.1.4. THE CONTRACTOR SHALL SUBMIT MANUFACTURERS' SHOP DRAWINGS TO THE CONSULTANT FOR REVIEW PRIOR TO PURCHASE AND INSTALLATION FOR ALL NEW SPECIFIED EQUIPMENT.

1.1.5. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL MECHANICAL WORK WITH OTHER TRADES PRIOR TO ROUGH-IN. IF A CONFLICT OCCURS AFTER THE INSTALLATION OF SERVICES, THE CONTRACTOR IS TO PAY ALL COSTS ASSOCIATED WITH REWORK.

1.1.6. THE CONTRACTOR SHALL SUBMIT RED-LINE AS-BUILT DRAWINGS AT THE COMPLETION OF THE PROJECT TO THE CONSULTANT FOR REVIEW AND ACCEPTANCE PRIOR TO SUBMITTING FOR FINAL PAYMENT.

1.1.7. LEAVE SYSTEMS OPERATING WITH WORK AREAS CLEAN TO ACCEPTANCE OF CONSULTANT.

1.2. REGULATIONS AND PERMITS

1.2.1. CARRY OUT THE WORK IN ACCORDANCE WITH THE LATEST EDITIONS OF ALL RELEVANT CODES, LOCAL BYLAWS, AND REQUIREMENTS FROM THE LOCAL AUTHORITY'S HAVING JURISDICTION. APPLY FOR,PAY AND OBTAIN ANY WORK PERMITS REQUIRED.

1.3. MATERIAL AND EQUIPMENT

1.3.1. CONTRACTOR TO ENSURE THAT ALL INSTALLED PRODUCTS ARE NEW AND WITHOUT DEFECT. ANY PRODUCTS PROPOSED AS AN EQUAL SHALL MEET ALL REQUIREMENTS SPECIFIED AND SHOWN ON THE DRAWINGS. APPROVAL FOR EQUALS MUST BE GIVEN BY THE CONSULTANT OR OWNER.

1.4. WARRANTY

1.4.1. THE CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY FOR ALL WORKMANSHIP, MATERIAL AND EQUIPMENT SUPPLIED EXCEPT WHERE SPECIFIED OTHERWISE. MAKE GOOD ANY DAMAGE CAUSED BY DEFECTS AND/OR WORKMANSHIP AND REPLACE DAMAGED OR NONWORKING EQUIPMENT/DEVICES AS REQUIRED AT NO EXTRA COST TO THE OWNER.

1.5. COOPERATION WITH OTHER TRADES/OWNER'S STAFF

1.5.1. SHUTDOWNS OF ANY KIND MUST BE SCHEDULED WITH THE OWNER AND GENERAL CONTRACTOR. ANY OVERTIME WAGES DUE TO SHUTDOWNS REQUIRED AS PART OF THE SCOPE OF WORK ARE TO BE INCLUDED IN THE BID PRICE AS EXTRAS WILL NOT BE GRANTED.

2. PRODUCTS

2.1. MATERIALS

2.1.1. USE NEW CSA APPROVED MATERIALS ONLY AS SPECIFIED HEREIN OR SHOWN ON THE ELECTRICAL DRAWINGS.

2.2. FIRESTOPPING

2.2.1. USE ONLY SERVICE PENETRATION FIRESTOP COMPONENTS AND ASSEMBLIES TESTED IN ACCORDANCE WITH CAN.ULC S115 "FIRE TESTS OF FIRESTOP SYSTEMS" AND LISTED IN MOST RECENT ULC "LIST OF EQUIPMENT AND MATERIALS" OR BY ANOTHER RECOGNIZED INDEPENDENT TESTING AND CERTIFICATION AGENCY ACCEPTABLE TO THE CONSULTANT.

2.2.2. PIPE SLEEVES THROUGH FIRE SEPARATIONS REQUIRING A RATING ARE TO BE INSTALLED AS PER FIRESTOPPING MANUFACTURER'S RECOMMENDATIONS, AS SOME FIRESTOPPING MANUFACTURERS DO NOT ALLOW PIPE SLEEVES WITHIN THEIR APPROVED SYSTEM. CONFIRM PIPE SLEEVE COMPATIBILITY PRIOR TO STARTING WORK ON SITE.

3. EXECUTION

3.1. GENERAL

3.1.1. INSTRUCT AND SUPERVISE OTHER TRADES DOING RELATED WORK.

3.1.2. SUPPLY MEASUREMENTS OF EQUIPMENT TO OTHER TRADES TO ALLOW FOR NECESSARY OPENINGS TO BE LEFT IN THE WORK OF OTHER TRADES.

3.1.3. INSTALL PIPING AND DUCT WORK, WHICH IS TO BE CONCEALED, NEATLY AND CLOSE TO THE BUILDING STRUCTURE SO THAT THE NECESSARY FURRING CAN BE KEPT AS SMALL AS POSSIBLE.

3.1.4. MECHANICAL DRAWINGS SHOW APPROXIMATE LOCATIONS FOR WALL MOUNTED DEVICES. CLARIFY EXACT LOCATION WITH THE CONSULTANT PRIOR TO ROUGHING-IN.

3.1.5. ALL SERVICEABLE EQUIPMENT INSTALLED ON THE ROOF SHAL BE INSTALLED MINIMUM 10'-0" FROM ROOF EDGE UNLESS OTHERWISE NOTED.

3.2. STORAGE OF MATERIAL

3.2.1. PROVIDE PROPER WEATHERPROOF STORAGE FOR THE PROTECTION OF MATERIALS AND EQUIPMENT ON SITE. BLANK OFF OPENINGS IN ALL EQUIPMENT UNTIL REQUIRED FOR USE. CONSULTANT MAY REQUIRE MATERIALS WHICH ARE NOT PROPERLY STORED TO BE DISCARDED AND REMOVED FROM THE SITE.

3.3. SUPPORTS AND BASES

3.3.1. SET ALL FLOOR-MOUNTED EQUIPMENT ON CONCRETE BASES AT LEAST 100 MM (4") HIGH.

3.3.2. PROVIDE ALL BRACKETS AND SUPPORTS REQUIRED IN STEEL STUD WALLS. ALL PIPING, DUCTING AND EQUIPMENT MUST BE SUPPORTED ON BRACKETS OR SUPPORTS ATTACHED TO STEEL STUDS. DO NOT SUPPORT MATERIALS OR EQUIPMENT FROM WALL SHEATHING.

3.3.3. PROVIDE INDEPENDENT SUPPORT; BRACKETS AND UNISTRUT STRUCTURES WHERE REQUIRED TO INSTALL MECHANCIAL EQUIPMENT; HVAC UNITS, AIR HANDLERS, HEATERS, FANS, DAMPERS, ETC: IN AREAS WHERE THE EQUIPMENT IS LOCATED ON WALLS/COLUMNS THAT ARE NOT SUITABLE FOR DIRECT INSTALLATION OR WHEN INSTALLATION AWAY FROM STRUCTURAL BUILDING ELEMENTS IS CALLED FOR OR WHEN CLEARANCES ARE REQUIRED DUE TO CODE.

3.4. CUTTING AND PATCHING

3.4.1. ENSURE THAT ALL NEW ROOF, EXTERIOR WALL AND FLOOR PENETRATIONS ARE SEALED WEATHER TIGHT.

3.4.2. REPAIR ALL ROOF AND WALL AND FLOOR OPENINGS AFFECTED BY THE WORK OF THIS CONTRACT TO MATCH EXISTING CONSTRUCTION AND FINISHING. ALL CUTTING AND PATCHING TO BE PERFORMED BY THE TRADE SPECIALIZING IN THE MATERIALS TO BE USED TO COMPLETE THIS WORK.

3.5. TESTING

3.5.1. ALL SYSTEMS MUST BE THOROUGHLY TESTED BY THE TECHNICAL REPRESENTATIVE OF THE SYSTEM MANUFACTURERS BEFORE ARRANGEMENTS ARE MADE FOR THE FINAL DEMONSTRATION IN THE PRESENCE OF THE OWNERS STAFF.

3.6. TEMPORARY FACILITIES

3.6.1. CONTRACTOR SHALL PROVIDE TEMPORARY MECHANICAL SYSTEMS AS REQUIRED TO COMPLETE THE WORK.

3.6.2. DO NOT USE ANY OF THE PERMANENT MECHANICAL SYSTEMS DURING CONSTRUCTION, UNLESS SPECIFIC WRITTEN ACCEPTANCE IS OBTAINED FROM THE OWNER.

4. HEATING AND COOLING

4.1. PRODUCTS AND MATERIALS

4.1.1. PROVIDE EQUIPMENT SPECIFIED HEREIN OR APPROVED EQUAL. REFER TO EQUIPMENT SCHEDULES ON DRAWINGS. ALL EQUIPMENT SHALL MEET THE PERFORMANCE REQUIREMENTS AS INDICATED ON THE SCHEDULES.

4.2. EQUIPMENT AND TERMINALS

4.2.1. COMPLY WITH MANUFACTURER'S REQUIREMENTS FOR THE INSTALLATION OF ALL SPECIFIED EQUIPMENT.

4.2.2. INSTALL AND CONNECT REMOTE COMPONENTS SUCH AS THERMOSTATS, HUMIDISTATS, CONTROL PANELS, LEVEL CONTROLLERS, ETC., THAT ARE SUPPLIED WITH THE EQUIPMENT. INSTALL IN LOCATIONS AS SHOWN ON THE DRAWINGS.

4.3. EQUIPMENT START-UP

4.3.1. FOLLOW MANUFACTURER'S INSTRUCTIONS AND HAVE MANUFACTURER'S REPRESENTATIVE PRESENT TO CERTIFY THE INSTALLATION.

5. AIR DISTRIBUTION

5.1. PRODUCTS AND MATERIALS

5.1.1. PROVIDE GRILLES, REGISTERS AND DIFFUSERS SPECIFIED HEREIN OR APPROVED EQUAL. REFER TO EQUIPMENT SCHEDULES ON DRAWINGS. ALL EQUIPMENT SHALL MEET THE PERFORMANCE REQUIREMENTS AS INDICATED ON THE SCHEDULES.

5.1.2. FIRE DAMPERS: PROVIDE ULC LABELLED AND LISTED FIRE DAMPERS, DYNAMIC CURTAIN, OUT OF AIRSTREAM, TYPE 'B' OR 'C' GRAVITY OR SPRING TYPE. SIZE OF FIRE DAMPER TO SUIT OPENINGS SHOWN ON THE DRAWINGS. WHERE INSTALLED IN METAL STUD WALLS, COMPLY WITH ULC REQUIREMENTS AND ADVISE OTHER AFFECTED TRADES.

5.1.3. PROVIDE DUCT ACCESS DOORS WHERE REQUIRED, CONSTRUCTED OF NO. 22 GA MATERIALS WITH FLAT OR ANGLE IRON STIFFENING FRAME SO THE DOOR CAN BE OPERATED WITHOUT DISTORTION.

5.2. DUCTWORK

5.2.1. PROVIDE RECTANGULAR AND ROUND DUCTWORK CONSTRUCTED OF ASTM A525 HOT DIP GALVANIZED STEEL SHEETS IN ARRANGEMENTS AS SHOWN ON THE DRAWINGS COMPLETE WITH REINFORCEMENT, HANGING METHODS, JOINTS, SEAMS AND FITTINGS AS SPECIFIED IN SECTIONS I THROUGH 6 AS WELL AS APPENDICES A-1 THROUGH A-32 IN THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE 1995.

5.2.2. FOR EXHAUST, RETURN AND AIR SUPPLY SYSTEMS WHERE SYSTEM STATIC PRESSURE DOES NOT EXCEED 0.124 KPA (½" WG), POSITIVE OR NEGATIVE, PROVIDE REINFORCED DUCTWORK IN METAL GAGES AND REINFORCEMENT REQUIREMENTS AS SPECIFIED IN SMACNA TABLE 1-3.

5.2.3. FOR EXHAUST, RETURN AND AIR SUPPLY SYSTEMS WHERE SYSTEM STATIC PRESSURE DOES NOT EXCEED 0.248 KPA (1" WG), POSITIVE OR NEGATIVE, PROVIDE REINFORCED DUCTWORK IN METAL GAGES AND REINFORCEMENT REQUIREMENTS AS SPECIFIED IN SMACNA TABLE 1-4.

5.2.4. CROSS BREAK ALL DUCTWORK GREATER THAN 300MM (12") IN WIDTH.

5.2.5. FACTORY FABRICATED DUCTWORK AND FITTINGS: AS AN ALTERNATIVE TO SHOP FABRICATED RECTANGULAR AND ROUND SHEETMETAL DUCTWORK, FACTORY FABRICATED "SPIROSAFE" DUCTWORK (OR EQUAL) AND GASKETED SELF SEALING FITTINGS PERFORMING TO SPECIFIED SYSTEM STATIC PRESSURE REQUIREMENTS IS ALSO ACCEPTABLE.

5.2.6. PROVIDE BALANCING DAMPERS ON ALL BRANCHES TO CEILING DIFFUSERS. LOCATE DAMPERS IN AN EASILY ACCESSIBLE LOCATION, CLOSE TO THE MAIN DUCT, OR CEILING DIFFUSER. MAINTAIN CONSISTENCY IN DAMPER LOCATION WHERE POSSIBLE.

5.2.7. CLEAN-OUT OPENINGS: COMPLY WITH REQUIREMENTS OF NFPA 96.

5.3. DUCT INSTALLATION

5.3.1. INSTALL ALL DUCTWORK AND FITTINGS USING CROSSBREAKING, JOINING, ATTACHMENT AND HANGING METHODS AS SPECIFIED IN THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE 1995.

5.3.2. PROVIDE HANGERS FOR RECTANGULAR AND ROUND DUCTWORK AS SPECIFIED IN TABLES 4-1 AND 4-2 AS SPECIFIED IN THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE 1985.

5.3.3. DUCTWORK SUBJECT TO STATIC PRESSURE IN EXCESS OF 0.75 KPA (3 IN.) W.C. SHALL BE LEAK TESTED AND BE IN CONFORMANCE WITH SECTIONS OF THE HVAC DUCT LEAKAGE TEST MANUAL. PROVIDE ALL NECESSARY ASSISTANCE TO THE AIR BALANCING CONTRACTOR TO PERFORM SUCH LEAKAGE TEST.

5.3.4. GROUND ACROSS FLEXIBLE CONNECTORS WITH NO. 2/0 BRAIDED COPPER STRAP.

5.3.5. FLEXIBLE DUCTWORK: BEARING ULC CLASS 1 LABEL, INSULATED OR ACOUSTIC. MAXIMUM INSTALLED LENGTH; ONE CONTINUOUS LENGTH AT 1600 MM (5'-0"). DO NOT BEND FLEXIBLE DUCTWORK ANY GREATER THAN 1.5 X DIAMETER.

5.3.6. SEALING OF DUCTWORK AND PLENUMS:

APPLY SEALANT ON ALL SEAMS AND JOINTS ON ALL AIR SUPPLY, RETURN AND EXHAUST DUCTS AND ALL PLENUMS IN ACCORDANCE WITH ASHRAE 90.1-2016.

REFER TO ARTICLE 6.4.4.2 OF ASHRAE 90.1-2016. DUCTWORK AND ALL PLENUMS WITH PRESSURE CLASS RATINGS, AS DEFINED BY SMACNA ARE TO BE CONSTRUCTED TO SEAL CLASS A. OPENINGS FOR ROTATING SHAFTS TO BE SEALED WITH BUSHINGS OR OTHER DEVICES THAT SEAL OFF AIR LEAKAGE. PRESSURE SENSITIVE TAPE IS TO BE USED AS THE PRIMARY SEALANT UNLESS IT HAS BEEN CERTIFIED TO COMPLY WITH UL-181A OR UL-181B. ALL CONNECTIONS SUCH AS SPIN-INS, TAPS, BRANCH CONNECTIONS, ACCESS DOORS, ACCESS PANELS AND DUCT CONNECTION TO EQUIPMENT ARE TO BE SEALED.

5.3.7. DURING INSTALLATION OF DUCTWORK, PROTECT OPEN ENDS OF DUCTS TO PREVENT ENTRY OF DEBRIS AND DUST.

5.3.8. PLACE DUCTWORK AS CLOSE AS POSSIBLE TO PARTITIONS WHERE SHOWN ON THE DRAWINGS IN SUCH LOCATIONS.

5.3.9. WASHROOM AND KITCHEN EXHAUST DUCT AND RESIDENTIAL OUTDOOR AIR INTAKE DUCT SHALL BE SLOPED AT 1% GRADE TOWARDS OUTSIDE.

5.4. GAS VENTS AND STACKS

5.4.1. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PREFABRICATED COMPONENTS. COMPLY WITH REQUIREMENTS OF AUTHORITIES FOR INSTALLATION OF GAS VENTS FOR BOTH INTERIOR AND OUTDOOR LOCATIONS. PROVIDE A MINIMUM OF THREE 6MM (3") STAINLESS STEEL GUY CABLES WITH TURNBUCKLES ON ANY VENT (OR STACK) HIGHER THAN 1500MM (5'-0") ABOVE ROOF.

5.4.2. VENT CONNECTORS SERVING APPLIANCES VENTED BY NATURAL DRAFT SHALL NOT BE CONNECTED INTO ANY PORTION OF MECHANICAL DRAFT SYSTEMS OPERATING UNDER POSITIVE PRESSURE.

5.5. AIR BALANCING

5.5.1. PERFORM AIR BALANCING IN ACCORDANCE WITH CURRENT NBCTA, NEBB OR AACB PROCEDURAL STANDARDS.

6. PLUMBING

6.1. FIXTURE INSTALLATION

6.1.1. INSTALL ALL FIXTURES, DRAINS, CLEANOUTS, BRASS AND SPECIALTIES TO MANUFACTURER'S REQUIREMENTS.

6.1.2. CONNECT FIXTURES, COMPLETE WITH SUPPLIES AND DRAINS, SEPARATELY TRAPPED, SUPPORTED LEVEL AND SQUARE. PROVIDE CHROME PLATED PIPING FOR ALL EXPOSED WATER SUPPLY, WASTE AND VENT CONNECTIONS COMPLETE WITH CP ESCUTCHEONS.

6.1.3. PROVIDE ACCESSIBLE SHUT OFF VALVES TO ALL FIXTURES.

6.1.4. PROVIDE SUPPORTS TO SET FIXTURES SQUARE AND LEVEL.

6.1.5. OBTAIN ACCEPTANCE OF MOUNTING HEIGHTS OF ALL WALL MOUNTED FIXTURES.

6.1.6. FIXTURES MOUNTED ON GLAZED TILE SURFACES: PROVIDE GROUND FACES TO FINISHED SURFACES.

6.1.7. INSTALL WATER HAMMER ARRESTORS FOR EACH FIXTURE OR GROUP OF FIXTURES.

6.2. PIPE INSTALLATION

6.2.1. GENERAL: INSTALL STRAIGHT, PARALLEL AND CLOSE TO WALLS AND CEILINGS, WITH SPECIFIED PITCH. USE STANDARD FITTINGS FOR DIRECTION CHANGES.

6.2.2. INSTALL GROUPS OF PIPING PARALLEL TO EACH OTHER ON TRAPEZE HANGERS; SPACE PIPING TO PERMIT APPLICATION OF INSULATION, IDENTIFICATION AND SERVICE ACCESS.

6.2.3. INSTALL ECCENTRIC REDUCERS IN HORIZONTAL PIPING TO PERMIT DRAINAGE AND ELIMINATE AIR POCKETS.

6.2.4. WHERE PIPE SIZES DIFFER FROM CONNECTION SIZES OF EQUIPMENT, INSTALL REDUCING FITTINGS CLOSE TO EQUIPMENT. REDUCING BUSHINGS ARE NOT PERMITTED.

6.2.5. PROVIDE VENTS TO ATMOSPHERE FOR ALL GAS REGULATORS AS REQUIRED BY CODE.

6.2.6. LAY COPPER TUBING SO THAT IT IS NOT IN CONTACT WITH DISSIMILAR METAL AND WILL NOT BE KINKED OR COLLAPSED.

6.2.7. PROVIDE NON TOXIC LUBRICANT OR TEFLON TAPE APPLIED TO MALE THREAD ON ALL THREADED CONNECTIONS.

6.2.8. SANITARY AND STORM DRAINAGE: RUN PIPING TO MAIN SEWERS WITH UNIFORM GRADE.

6.2.9. JOINTING OF PIPE SHALL BE COMPATIBLE WITH TYPE OF PIPE USED.

6.2.10. WATER PIPING: RUN WATER PIPING FROM SERVICE CONNECTION AND CONNECT TO FIXTURES AND EQUIPMENT. AT LAVATORIES INSTALL SUPPLIES AS HIGH AS POSSIBLE.

6.2.11. PROVIDE WASHROOM GROUPS AND BRANCH TAKE-OFFS FROM MAINS WITH ISOLATING VALVES. INSTALL STOP VALVE IN EACH FIXTURE SUPPLY.

6.2.12. WHERE TWO OR MORE BRANCH RECIRCULATING HOT WATER LINES ARE CONNECTED TO MAIN RECIRCULATING LINE, PROVIDE LOCKSHIELD GLOBE VALVE AND CHECK VALVE IN EACH BRANCH LINE FOR BALANCING WATER FLOW AND FOR PREVENTION OF BACK FLOW IN ONE BRANCH. ADJUST BALANCING VALVES TO PROVIDE RECIRCULATION THROUGH EACH CIRCUIT. TURN OVER LOCKSHIELD VALVE KEY TO OWNER.

6.2.13. PROVIDE HOSE END BALL VALVES FOR COMPLETE SYSTEM DRAINAGE.

6.2.14. PROVIDE ALL PARTS OF THE PLUMBING SYSTEM INCLUDING ALL REQUIRED VENTING IN ACCORDANCE WITH PART 7 OF THE ONTARIO BUILDING CODE TO CURRENT AMENDMENTS.

6.3. SPECIALITIES INSTALLATION

6.3.1. CLEANOUTS: INSTALL ACCESSIBLE CLEANOUTS AT TRAPS AND WHERE REQUIRED BY CODE OR REGULATION.

6.3.2. FLOOR DRAINS: PROVIDE WITH TRAP PRIMERS CONNECTED TO NEAREST COLD WATER FLUSH VALVE, OR TO AUTOMATIC PRIMER OR FLUSH TANK. PRIME ALL FLOOR DRAIN TRAPS.

6.3.3. NON-FREEZE WALL HYDRANT: INSTALL 360MM (14") ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED AND WITH INSIDE SHUT-OFF VALVE.

6.4. EQUIPMENT INSTALLATION

6.4.1. INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS. ENSURE ALL COMPONENTS ARE ACCESSIBLE.

6.4.2. PROVIDE CONDENSATE DRAINS WITH TRAPS FROM ALL AIR HANDLING EQUIPMENT. TRAPS TO PROVIDE WATER SEAL DEPTH OF 25 MM (1 IN.) IN EXCESS OF AIR HANDLING SYSTEM OPERATING STATIC PRESSURE AT POINT OF DRAIN CONNECTION.

6.5. TESTING

6.5.1. TEST PIPING IN ACCORDANCE WITH PROCEDURES OUTLINED IN SECTION 7 OF THE ONTARIO BUILDING CODE TO CURRENT AMENDMENTS.

6.5.2. ENSURE THAT INSULATED PIPING AND EQUIPMENT INSTALLED IN CONCEALED PLACES IS TESTED AND INSPECTED PRIOR TO PERMANENT CONCEALMENT.

6.6. COMMISSIONING

6.6.1. THOROUGHLY FLUSH AND DISINFECT (CHLORINATE) WATER SUPPLY SYSTEMS IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.

6.6.2. MAKE TESTS TO DEMONSTRATE CAPABILITIES AND GENERAL OPERATING CHARACTERISTICS OR FIXTURES AND EQUIPMENT IN THE PRESENCE OF THE CONSULTANT.

6.7. NATURAL GAS SERVICE

6.7.1. CO-ORDINATE WITH LOCAL UTILITY AND BEAR ALL COSTS IN PROVIDING THE NATURAL GAS SERVICE COMPLETE WITH METER TO THE BUILDING AS SHOWN ON THE DRAWINGS.

6.8. DOMESTIC WATER SERVICE

6.8.1. CO-ORDINATE WITH THE MUNICIPALITY OR LOCAL UTILITY AND BEAR ALL COSTS IN PROVIDING A BUILDING WATER METER AS DETAILED ON THE DRAWINGS AND MAKE INSTALLATION IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.

6.8.2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING BACKFLOW PREVENTER, PRESSURE REGULATING DEVICE AND ALL SUPPORTS FOR WATER SERVICE EQUIPMENT AS REQUIRED BY THE MUNICIPALITY AND THE BUILDING CODES.

7. INSULATION

7.1. GENERAL

7.1.1. INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH INDUSTRY ACCEPTED STANDARDS.

7.1.2. INSULATION EXPOSED TO WEATHER SHALL BE SUITABLE FOR OUTDOOR SERVICE. ie. PROTECTED BY ALUMINUM, SHEET METAL, PAINTED CANVAS, OR PLASTIC COVER.

7.1.3. INCLUDE VAPOUR RETARDANT FOR INSULATION COVERING CHILLED WATER PIPING, REFRIGERANT SUCTION PIPING OR COOLING DUCTS LOCATED OUTSIDE.

7.2. PRODUCTS AND MATERIALS

7.2.1. RECTANGULAR EXPOSED DUCT: IMPALE RIGID BOARD ON WELD PINS AND SPEED WASHERS, 12" O/C WITH A MINIMUM OF 2 ROWS PER SIDE ON ANY SIDE GREATER THAN 12".

7.2.2. ROUND EXPOSED DUCT:SCORE AND MITRE RIGID BOARD TO FIT CONTOURS OF DUCT AND SECURE WITH 12" X 0.015" GALVANIZED STEEL BANDS 12" O/C. POINT UP ALL JOINTS WITH INSULATING CEMENT AND SEAL WITH FOIL FACED SELF ADHESIVE TAPE. FINISH WITH CANVAS.

7.2.3. CONCEALED DUCT: BLANKET TYPE INSULATION, APPLY FLEXIBLE BLANKET INSULATION WITH AN APPROVED ADHESIVE BRUSHED ON. FOR RECTANGULAR DUCTS OVER 450MM (18"), BLANKET TYPE INSULATION SHOULD BE SECURED TO THE BOTTOM SIDE OF THE DUCT WITH MECHANICAL FASTENERS.

7.2.4. DUCTWORK EXPOSED TO OUTDOORS: IMPALE RIGID BOARD ON WELD PINS AND SPEED WASHERS 12" O/C WITH A MINIMUM OF TWO ROWS PER SIDE ON ANY SIDE GREATER THAN 12". FINISH WITH TWO APPLICATIONS OF WEATHER PROTECTIVE COATING TROWELLED SMOOTH.

7.3. INSULATION THICKNESS

7.3.1. DUCT INSULATION THICKESSES SHALL BE PROVIDED AS PER ASHRAE 90.1 LATEST EDITION, TABLE 6.8.2.

7.3.2. PIPING SHALL BE THERMALLY INSULATION IN ACCORDANCE WITH ASHRAE 90.1 LATEST EDITION, TABLES 6.8.3-1 AND 6.8.3-2.

HVAC LEGEND

- SUPPLY AIR DUCT
- RETURN AIR DUCT
- EXHAUST DUCT
- TAG / CFM | WxH — AIR DISTRIBUTION DEVICE
- TAG # — EQUIPMENT TAG
- T — THERMOSTAT
- T RA — REVERSE ACTING THERMOSTAT
- XX — SENSOR (SMOKE, GAS, CO)
- BD — BALANCING DAMPER
- FD — FIRE DAMPER
- PRESSURE REGULATOR
- M — MOTORIZED DAMPER
- SUPPLY AIR DIFFUSER
- RETURN AIR GRILLE
- EXHAUST AIR GRILLE
- SIDEWALL DIFFUSER/GRILLE
- LOUVER / TRANSFER GRILLE / DOOR GRILLE

PLUMBING LEGEND

- COLD WATER SUPPLY
- HOT WATER SUPPLY
- SANITARY ABOVE GROUND
- SANITARY BELOW GROUND
- EXISTING SANITARY
- VENT PIPING
- FD — FLOOR DRAIN
- FFD — FUNNEL FLOOR DRAIN
- (W)CO — (WALL) CLEAN OUT
- FCO — FLOOR CLEAN OUT
- VTR — VENT THRU ROOF
- BWV — BACK WATER VALVE
- BACKFLOW PREVENTER

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
CWS	COLD WATER SUPPLY
DN	DOWN
EXST	EXHAUST
HB	HOSE BIB
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
F/A	FRESH AIR
O/E	OPEN ENDED
R/A	RETURN AIR
SAN	SANITARY
STM	STORM
S/A	SUPPLY AIR
T/A	TRANSFER AIR
VTR	VENT THRU ROOF

MECHANICAL DRAWING LIST

McLellan Engineering Ltd.

17 KINGSCOURT CRES, EXETER, ON N0M 1S1

P: 519-878-2586

INFO@MCLELLANENGINEERING.CA

PROFESSIONAL SEAL:

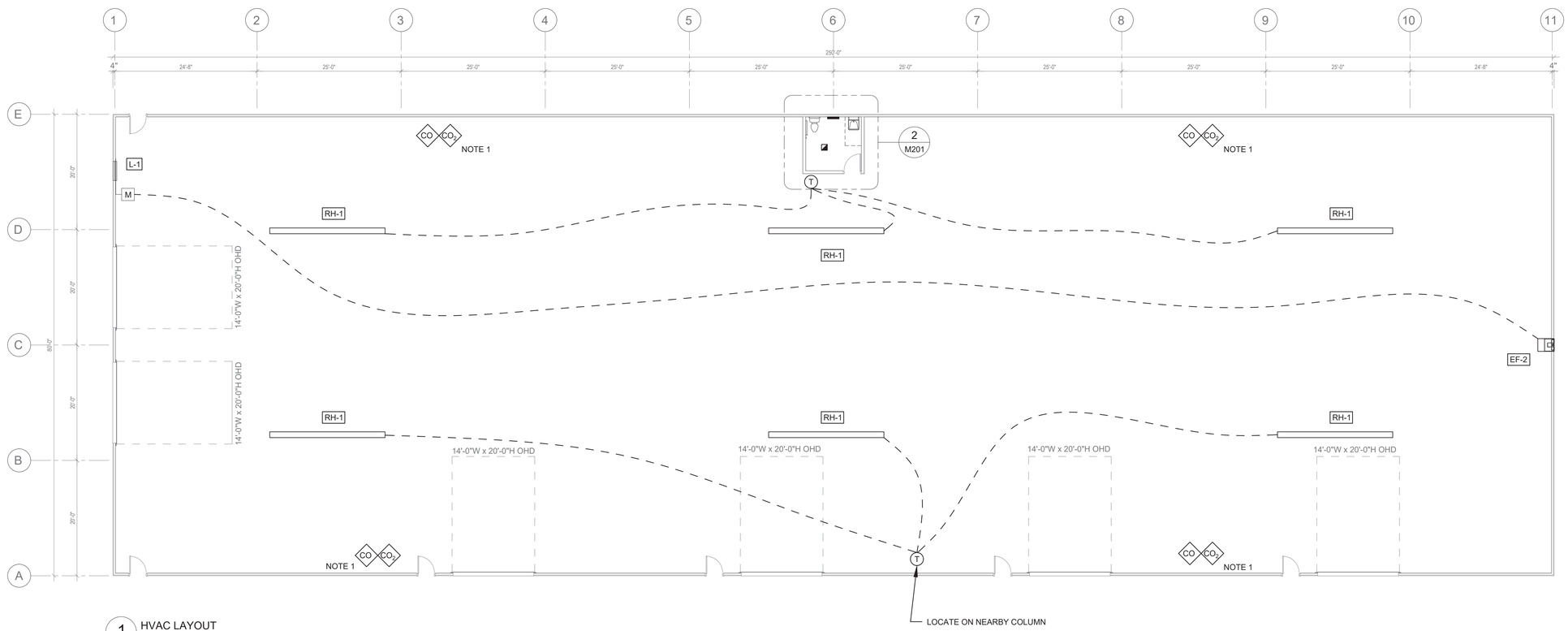
LICENSED PROFESSIONAL ENGINEER — Rev. 1 — Dec. 7, 2021 — M.O.A MCLELLAN — 100215246 — PROVINCE OF ONTARIO

DATE	REV.	ISSUED FOR	DRWN	DSN	APP'D
DEC 7, 2021	1	PERMIT/CONSTRUCTION	MMc	MMc	MMc

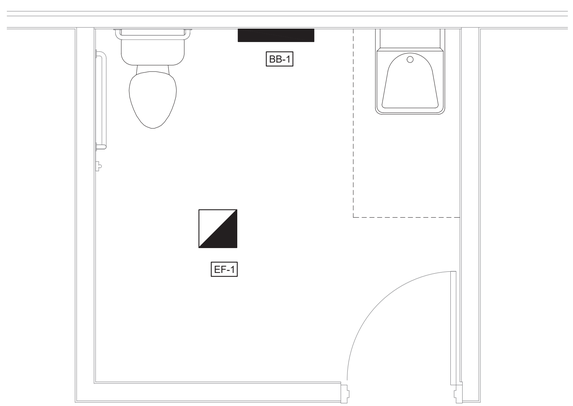
PROJECT:
HOLLAND STORAGE
70266 GRAND BEND LINE
GRAND BEND, ON

TITLE:
MECHANICAL SPECIFICATION
LEGEND &
DRAWING LIST

DATE: DEC 1. 2021	DRAWN BY: MMc
	APPROVED BY: MMc
SCALE: AS NOTED (ANSI D)	PROJECT NUMBER: ME21-52
DRAWING NUMBER: M101	REVISION: 1



1 HVAC LAYOUT
SCALE: 3/32" = 1'-0"



2 WASHROOM LAYOUT
SCALE: ½" = 1'-0"

ZONE HEATING UNITS

TAG NO.	QTY	MANUFACTURER	MODEL	TYPE	HEATING SOURCE	CAPACITY (kW)	VOLTAGE	NOTES
BB-1	1	OUELLET	OFM1002	BASEBOARD	ELECTRIC	1.0	120/1/60	ONBOARD THERMOSTAT
RH-1	6	EASY RADIANT	EZ60-20	RADIANT TUBE HEATER	NATURAL GAS	60 MBH	120/1/60	NATURAL GAS, 20 FEET LONG, INDOOR, HORIZONTAL VENTING, LINE VOLTAGE THERMOSTAT.

EXHAUST FAN

TAG NO.	MANUFACTURER	MODEL	DESCRIPTION	CAPACITY (CFM)	SP (IN. WG.)	ELECTRICAL	NOTES
EF-1	PANASONIC	FV-0810VSS1	CEILING/WALL CASSETTE	100	0.3	120/1/60	PROVIDE OCCUPANCY SENSOR, DELAYED SHUT OFF
EF-2	GREENHECK	S1-24-437-C5	SIDEWALL EXHAUST	5,000	0.2	120/1/60	1/2 HP, INTERLOCK WITH CO/CO2 SENSOR C/W 45° WEATHER HOOD, BACKDRAFT DAMPER, DAMPER GUARD

LOUVERS

TAG NO.	MANUFACTURER	MODEL	DESCPRIPTION	SIZE	NOTES
L-1	PRICE	DE635	DRAINABLE HEAD, FIXED BLADE LOUVER	40X40	COLOUR SELECTION BY OWNER C/W MOTORIZED DAMPER, BELIMO 120V ACTUATOR, BIRD SCREEN *MIN 6.0 SQ. FT. FREE AREA

GENERAL DRAWING NOTES:

1. PROVIDE GAS DETECTION SYSTEM, WITH CO AND CO_2 MONITORING. 4 SEPARATE SENSOR LOCATIONS AS SHOWN ON THE DRAWING. INTERLOCK WITH EF-1, AND L-1 MOTORIZED DAMPERS.

McLellan Engineering Ltd.
17 KINGSCOURT CRES. EXETER, ON N0M 1S1
P: 519-878-2586
INFO@MCLELLANENGINEERING.CA

PROFESSIONAL SEAL:

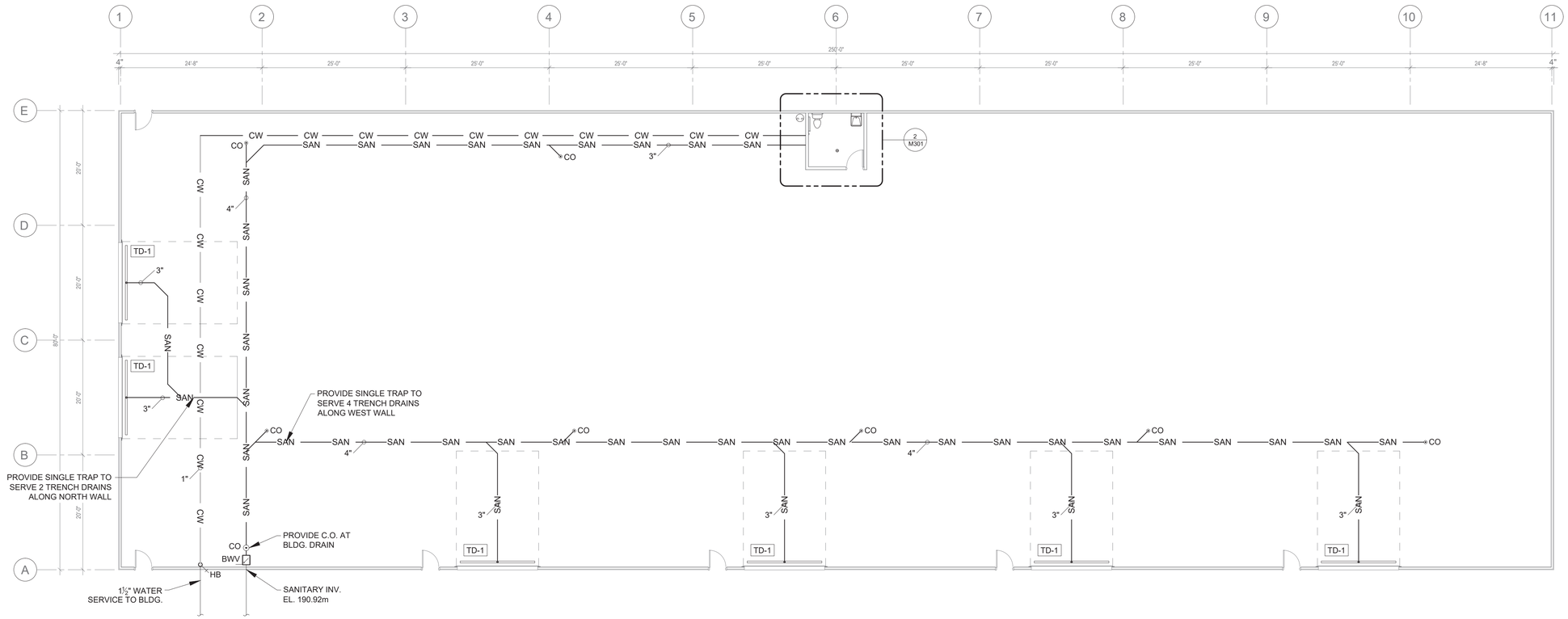
LICENSED PROFESSIONAL ENGINEER
Rev. 1
Dec. 7, 2021
M. D. A MCLELLAN
100215246
PROVINCE OF ONTARIO

DATE	REV.	ISSUED FOR	DRAWN	DSN	APP'D
DEC 7, 2021	1	PERMIT/CONSTRUCTION	MMc	MMc	MMc

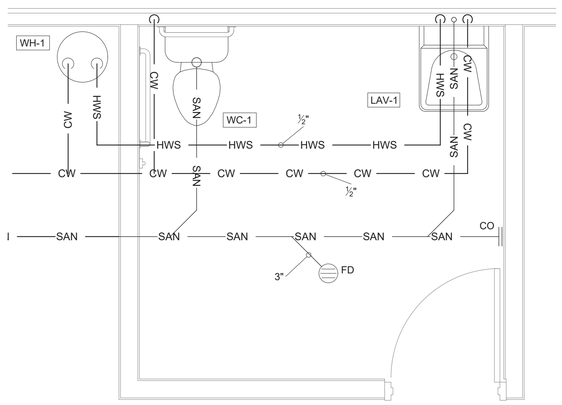
PROJECT:
HOLLAND STORAGE
70266 GRAND BEND LINE
GRAND BEND, ON

TITLE:
HVAC
GROUND FLOOR LAYOUT
& DETAILS

DATE: DEC 1, 2021
DRAWN BY: MMc
APPROVED BY: MMc
SCALE: AS NOTED (ANSI D)
PROJECT NUMBER: ME21-52
DRAWING NUMBER: M201
REVISION: 1



1 OVERALL PLUMBING LAYOUT
SCALE: 3/32" = 1'-0"



2 ENLARGED PLUMBING LAYOUT - WASHROOM
SCALE: ½" = 1'-0"

PLUMBING FIXTURE SCHEDULE

SYMBOL	TYPE	QTY (TOTAL)	DRAIN	HW	CW	DESCRIPTION	COMMENTS
FD	FLOOR DRAIN	1	3"	---	PRIME	WATTS, FD-200-A FLOOR DRAIN, EPOXY COATED CAST IRON, NICKLE BRONZE STRAINER.	OR APPROVED EQUAL
LAV-1	UNIVERSAL WASHROOM SINK	1	1-1/4"	1/2"	1/2"	AMERICAN STANDARD, OBC BARRIER FREE COMPLIANT, DECORUM MODEL, WALL MOUNT SINK, CENTRE HOLE ONLY,WITH DELTA SINGLE LEVER FAUCET MODEL #22C631, ZURN OPEN GRID DRAIN. 'P' TRAP AND SUPPLY PROVIDED SEPARATELY.	OR APPROVED EQUAL
WC-1	ADA WATER CLOSET	1	3"	---	1/2"	AMERICAN STANDARD, OBC BARRIER FREE COMPLIANT,CADET PRO, RIGHT HEIGHT, ELONGATED TOILET, 12" ROUGH IN, 4.8 LPF, WITH CENTOCO 1500 SERIES OPEN FRONT WHITE PLASTIC SEAT.	OR APPROVED EQUAL
TD-1	TRENCH DRAIN	6	3"	---	---	CAST IN PLACE TRENCH DRAIN BY OTHERS	OR APPROVED EQUAL
WH-1	WATER HEATER	1	---	3/4"	3/4"	RHEEM POINT OF USE COMMERCIAL, ELECTRIC WATER HEATER, 1.5 KW, 6 USGAL, 120/1/60, 6 USGPH RECOVERY @ 100°F	OR APPROVED EQUAL

McLellan Engineering Ltd.
17 KINGSCOURT CRES.
EXETER, ON N0M 1S1
P: 519-878-2586
INFO@MCLELLANENGINEERING.CA

PROFESSIONAL SEAL:
LICENSED PROFESSIONAL ENGINEER
Rev. 1
Dec. 7, 2021
M. D. A. MCLELLAN
100215246
PROVINCE OF ONTARIO

DATE	REV.	ISSUED FOR	DRWN	DSN	APP'D
DEC 7, 2021	1	PERMIT/CONSTRUCTION	MMc	MMc	MMc

PROJECT:
HOLLAND STORAGE
70266 GRAND BEND LINE
GRAND BEND, ON

TITLE:
PLUMBING
GROUND FLOOR LAYOUT
& DETAILS

DATE: DEC 1, 2021	DRAWN BY: MMc
	APPROVED BY: MMc
SCALE: AS NOTED (ANSI D)	PROJECT NUMBER: ME21-52
DRAWING NUMBER: M301	REVISION: 1

1.0 - ELECTRICAL GENERAL PROVISIONS

1.1 GENERAL PROVISIONS

.1 THE CONTRACTOR SHALL PROVIDE ALL LABOUR, MATERIAL, EQUIPMENT, ETC. AS REQUIRED TO COMPLETE ALL WORK SPECIFIED HEREIN AND AS SHOWN ON THE ELECTRICAL DRAWINGS. THE CONTRACTOR SHALL PROVIDE ANY REQUIRED CONNECTIONS AND/OR SMALL MATERIALS TO INSURE THE INSTALLATION OF ALL SYSTEMS WORK AS INTENDED.

.2 THE CONTRACTOR SHALL VISIT THE SITE AND BE FAMILIAR WITH ALL WORKING CONDITIONS AND SCOPE OF WORK PRIOR TO SUBMITTING BIDS. NO EXTRAS TO THE CONTRACT WILL BE GRANTED DUE TO CONTRACTOR'S FAILURE TO COMPLETE A THOROUGH SITE INVESTIGATION.

.3 ELECTRICAL DRAWINGS SHOW ELECTRICAL WORK ONLY AND ARE NOT INTENDED TO SHOW STRUCTURAL, ARCHITECTURAL OR MECHANICAL DETAILS. CONTRACTOR SHALL TAKE BUILDING DIMENSIONS AND DETAILS FROM ARCHITECTURAL/STRUCTURAL DRAWINGS OR FROM JOB MEASUREMENTS ONLY.

.4 THE CONTRACTOR SHALL SUBMIT MANUFACTURERS' SHOP DRAWINGS, ELECTRICAL WIRING DIAGRAMS AND CONTROL SYSTEM DRAWINGS TO THE CONSULTANT FOR REVIEW PRIOR TO PURCHASE AND INSTALLATION FOR ALL NEW SPECIFIED EQUIPMENT.

.5 THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL ELECTRICAL WORK WITH OTHER TRADES PRIOR TO ROUGH-IN. IF A CONFLICT OCCURS AFTER THE INSTALLATION OF SERVICES, THE CONTRACTOR IS TO PAY ALL COSTS ASSOCIATED WITH REWORK.

.6 THE CONTRACTOR SHALL SUBMIT RED-LINE AS-BUILT DRAWINGS AT THE COMPLETION OF THE PROJECT TO THE CONSULTANT FOR REVIEW AND ACCEPTANCE PRIOR TO SUBMITTING FOR FINAL PAYMENT.

1.1 REGULATIONS AND PERMITS

.1 CARRY OUT THE WORK IN ACCORDANCE WITH THE LATEST EDITIONS OF ALL RELEVANT CODES, LOCAL BYLAWS, AND REQUIREMENTS FROM THE LOCAL AUTHORITY'S HAVING JURISDICTION. APPLY FOR,PAY AND OBTAIN ANY WORK PERMITS REQUIRED.

1.2 MATERIAL AND EQUIPMENT

.1 CONTRACTOR TO ENSURE THAT ALL INSTALLED PRODUCTS ARE NEW AND WITHOUT DEFECT. ANY PRODUCTS PROPOSED AS AN EQUAL SHALL MEET ALL REQUIREMENTS SPECIFIED AND SHOWN ON THE DRAWINGS. APPROVAL FOR EQUALS MUST BE GIVEN BY THE CONSULTANT OR OWNER.

1.3 WARRANTY

.1 THE CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY FOR ALL WORKMANSHIP, MATERIAL AND EQUIPMENT SUPPLIED EXCEPT WHERE SPECIFIED OTHERWISE. MAKE GOOD ANY DAMAGE CAUSED BY DEFECTS AND/OR WORKMANSHIP AND REPLACE DAMAGED OR NONWORKING EQUIPMENT/DEVICES AS REQUIRED AT NO EXTRA COST TO THE OWNER.

1.4 COOPERATION WITH OTHER TRADES/OWNER'S STAFF

.1 SHUTDOWNS OF ANY KIND MUST BE SCHEDULED WITH THE OWNER AND GENERAL CONTRACTOR. ANY OVERTIME WAGES DUE TO SHUTDOWNS REQUIRED AS PART OF THE SCOPE OF WORK ARE TO BE INCLUDED IN THE BID PRICE AS EXTRAS WILL NOT BE GRANTED.

2.0 - PRODUCTS

2.1 MATERIALS

.1 USE NEW CSA APPROVED MATERIALS ONLY AS SPECIFIED HEREIN OR SHOWN ON THE ELECTRICAL DRAWINGS.

.2 PROVIDE CONDUIT SLEEVES FOR ELECTRICAL SERVICES THROUGH ANY SERVICE ROOM WALLS/FLOORS, ANY FIRE RATED WALLS/FLOORS AND THROUGH ALL FOUNDATION WALLS. PROVIDE 2 HR TREMCO OR 3M FIRE RATED SEALANT AS REQUIRED. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE SEPARATION LOCATIONS.

.3 PROVIDE ACCESS DOORS WHERE REQUIRED. NON FIRE RATED DOOR CONSTRUCTION TO BE MINIMUM 14 GAUGE, WITH A 16 GAUGE FRAME. FIRE RATED DOOR CONSTRUCTION TO BE A MINIMUM 20 GAUGE INSULATED DOOR WITH A 16 GAUGE FRAME. SIZE ACCESS DOORS TO ALLOW ADEQUATE OPERATING AND MAINTENANCE CLEARANCE.

2.2 IDENTIFICATION NAME LABELS

.1 CONTRACTOR SHALL PROVIDE WHITE LAMACOID LABELS WITH BLACK UPPERCASE LETTERING, MINIMUM 14 PT ARIAL FONT, FOR ALL PANELS, STARTERS, DISCONNECT SWITCHES ETC. AND FASTEN USING SELF TAPPING SCREWS.

.2 CONTRACTOR SHALL IDENTIFY ALL NEW DISCONNECT, STARTERS AND CONTROL EQUIPMENT WITH LAMACOID LABELS INDICATING THE EQUIPMENT CONTROLLED AND PANELS, TRANSFORMERS, ETC INDICATING EQUIPMENT NAME AND SUPPLY LOCATION.

.3 CONTRACTOR SHALL IDENTIFY THE PANEL AND CIRCUIT NUMBER FOR EACH WIRING DEVICE (RECEPTACLES AND SWITCHES) WITH A BRADY STYLE LABEL LOCATED ON THE FRONT COVERPLATE. USE CLEAR TAPE WITH BLACK 14 PT ARIAL FONT.

.4 CONTRACTOR SHALL IDENTIFY ALL JUNCTION/PULL BOXES OR OCTAGON BOXES WITH THE USE OF THE BOX AND CIRCUITS CONTAINED WITHIN. BLACK PERMANENT SHARPIE MARKER IS ACCEPTABLE.

3.0 - EXECUTION

3.1 GENERAL

.1 INSTALL CONCEALED CONDUITS/CABLES NEATLY AND CLOSE TO THE BUILDING STRUCTURE SO THAT ANY NECESSARY FURRING CAN BE KEPT AS SMALL AS POSSIBLE.

.2 CONTRACTOR TO INSTALL ALL CEILING COMPONENTS IN DIRECT ACCORDANCE WITH REFLECTED CEILING PLANS AND COORDINATE SAME WITH ALL TRADES INVOLVED. NOTIFY THE CONSULTANT OF ANY OBSTRUCTIONS OR ISSUES WITH COORDINATION PRIOR TO ROUGH-IN.

3.2 SUPPORTS AND BASES

.1 CONTRACTOR SHALL PROVIDE ANY INDEPENDENT SUPPORTS, UNISTRUT, BRACKETS AND STRUCTURES WHERE REQUIRED TO INSTALL ELECTRICAL EQUIPMENT, DISCONNECT SWITCHES, SPLITTERS, PANELS, ETC., WHERE REQUIRED DUE TO LACK OF SPACE ON EXISTING WALLS OR WHERE NECESSARY TO ELEVATE EQUIPMENT TO ENSURE CODE COMPLIANCE WITH CLEARANCE AND/OR OPERATOR ACCESS.

.2 CONTRACTOR SHALL INSTALL ALL FLOOR MOUNTED EQUIPMENT ON EQUIPMENT BRACKETS (WHERE NOTED) OR A CONCRETE BASE AT LEAST 100 MM (4") HIGH.

3.3 TESTING

.1 ALL SYSTEMS INSTALLED SHALL BE TESTED AND DEMONSTRATED TO THE OWNER. SYSTEMS INCLUDE; FIRE ALARM SYSTEM, COMMUNICATION, LIGHTING/CONTROL SYSTEMS, EMERGENCY LIGHTING, EQUIPMENT STARTERS/CONTROLS, ETC.

3.4 GROUNDING

.1 CONTRACTOR SHALL GROUND ALL COMPONENTS OF THE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 10 OF THE ONTARIO ELECTRICAL SAFETY CODE LATEST EDITION.

.2 CONTRACTOR SHALL PROVIDE A SEPARATE GREEN GROUND CONDUCTOR IN ALL RACEWAYS.

.3 CONTRACTOR SHALL GROUND SECONDARY NEUTRALS OF TRANSFORMERS TO BUILDING GROUND CONDUCTOR.

.4 CONTRACTOR SHALL PROVIDE A SEPARATE #14 GREEN GROUND WIRE FOR ALL ISOLATED GROUND RECEPTACLES AS REQUIRED.

4.0 - BASIC MATERIALS AND METHODS

4.1 GENERAL

.1 PROVIDE ALL NEW WIRING AND RACEWAYS UNLESS SPECIFIED TO REUSE EXISTING. WHERE POSSIBLE, CONTRACTOR SHALL CONCEAL ALL WIRING AND RACEWAYS ABOVE CEILINGS, IN WALLS AND IN PARTITIONS.

.2 ALL OUTLET BOXES, WIRING DEVICES, EQUIPMENT AND ACCESSORIES MUST BE CSA APPROVED AND BE DESIGNED FOR THE APPLICATION.

4.2 MATERIALS

.1 USE E.M.T. CONDUIT IN CONCEALED LOCATIONS WHERE INSTALLED IN CONCRETE BLOCK WALLS, DRYWALL PARTITIONS AND FOR MAIN AND BRANCH CIRCUIT WIRING ABOVE CEILING SPACES UNLESS SPECIFIED OTHERWISE.

.2 USE MINIMUM 3/4" CONDUIT FOR POWER WIRING AND 1" CONDUIT FOR MOTOR CIRCUITS AND COMMUNICATION RACEWAYS.

4.3 RACEWAYS

.1 USE E.M.T. CONDUIT SET SCREW COUPLINGS AND CONNECTORS. USE RAIN TIGHT STEEL COUPLINGS AND CONNECTORS COMPLETE WITH "O" RINGS, WHERE EXPOSED TO SPRINKLERS.

.2 USE RED CONDUIT AND/OR RED TINTED SECUREX FAS CABLE FOR ALL FIRE ALARM WIRING CONCEALED ABOVE CEILINGS, IN CONCRETE WALLS AND IN MECHANICAL AND ELECTRICAL ROOMS.

.3 USE TECK90 FOR ALL FINAL CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION OR WHICH HAS ADJUSTABLE MOUNTINGS.

.4 USE RIGID PVC UNDERGROUND AND IN CONCRETE FLOORS, UNLESS OTHERWISE NOTED. PROVIDE MARKING TAPE FOR UNDERGROUND INSTALLATIONS IN ACCORDANCE WITH ONTARIO ELECTRICAL SAFETY CODE.

.5 FOR EXTERIOR ABOVE GRADE INSTALLATIONS, USE RIGID ALUMINUM CONDUIT AND FITTINGS. ALL BOXES AND CONDUIT BODIES SHALL BE DIE CAST, COPPER FREE ALUMINUM WITH ALUMINUM COVERS AND NEOPRENE GASKETS.

.6 FASTEN ALL RACEWAYS WITH APPROVED SUPPORTS. USE CLAMPS/MOUNTING HARDWARE OF THE SAME MATERIAL AS THE CONDUIT OR COMPATIBLE MATERIAL TO PREVENT DISSIMILAR METAL GALVANIC CORROSION.

4.4 CONDUCTORS

.1 ALUMINUM CONDUCTORS ARE NOT PERMITTED. USE MINIMUM COPPER #12 AWG RW90XLPE STRANDED COPPER FOR BRANCH CIRCUITING AND RECEPTACLE WIRING. RWU90XLPE FOR EXTERIOR WIRING.

.2 USE MINIMUM SIZE OF #14 AWG RW90XLPE COPPER FOR ALL CONTROL WIRING UNLESS SPECIFIED OTHERWISE. RWU90XLPE FOR EXTERIOR WIRING.

.3 USE TECK90, 1000 VOLT RATED CABLES FOR FEEDERS TO EQUIPMENT AND MOTORS UNLESS OTHERWISE NOTED.

.4 TYPE AC 90 CABLE MAY BE USED FOR FINAL DROPS (MAXIMUM 8') TO LIGHTING FIXTURES AND DEVICES IN ACCESSIBLE CEILING SPACES ONLY. DO NOT USE AS MAIN BRANCH WIRING FROM PANELBOARDS. AC90/NMD PERMITTED FOR WOOD ('STICK') FRAME CONSTRUCTION ONLY.

.5 PROVIDE PLENUM RATED FT6 WIRING ABOVE CEILING WHEN REQUIRED.

4.5 DEVICES

.1 USE 100 MM (4") SQUARE OR UTILITY TYPE BOXES FOR SURFACE MOUNTED BOXES AND 100 MM (4") OCTAGONAL BOXES FOR CEILING OUTLET BOXES. USE MULTI GANG BOXES FOR GROUPED DEVICES. USE WRAP AROUND COVERS FOR UTILITY BOXES. USE CAST ALUMINIUM FS TYPE BOXES WHERE SURFACE MOUNTED IN FINISHED AREAS WHERE FOUND ACCEPTABLE BY THE CONSULTANT ONLY. PROVIDE FS TYPE BOXES WHERE LOCATED ABOVE SWITCHBOARDS, PANELBOARDS, TRANSFORMERS AND MCCS OR WHERE EXPOSED TO SPRINKLERS.

.2 REFER TO DRAWINGS FOR SPECIFIED RECEPTACLES, SWITCHES, LUMINARIES, EQUIPMENT. ETC. ALL DEVICES TO BE CSA APPROVED AND SUITABLE FOR ITS APPLICATION.

.3 PROVIDE 302 STAINLESS STEEL COVERPLATES WITHIN KITCHENS AND/OR SERVICES ROOMS. WHITE NYLON COVERPLATES ELSEWHERE.

.4 ALL RECEPTACLES EXPOSED TO WEATHER TO HAVE DIE CAST ALUMINUM DUPLEX GASKETTED SPRING IN-USE COVERS.

.5 DICSONNECT SWITCHES TO BE CONDITIONALLY HP RATED, GENERAL PURPOSE NEMA1 OR WEATHERPROOF NEMA3R AS REQUIRED. UNLESS SPECIFIED OTHERWISE ON DRAWINGS. FOR 120V MECHANICAL EQUIPMENT PROVIDE TOGGLE SWITCH COMPLETE WITH LOCKABLE COVER RATED FOR APPLICATION.

4.6 INSTALLATION

.1 CONTRACTOR SHALL CONCEAL ALL CONDUITS EXCEPT IN EQUIPMENT ROOMS, UNFINISHED AREA OR WHERE SPECIFICALLY NOTED. FLUSH MOUNT ALL DEVICES, PANELS, ETC., IN FINISHED AREAS. INSTALL ALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING WALLS AND PARTITIONS. GROUP CONDUITS WHEREVER POSSIBLE ON SUSPENDED SURFACE CHANNELS. DO NOT LOCATE CONDUITS LESS THAN 12" PARALLEL TO STEAM OR HOT WATER LINES WITH MINIMUM OF 2" AT CROSSOVERS.

.2 CONDUITS MUST BE SUPPORTED FROM BUILDING STRUCTURE ONLY. PROVIDE INDEPENDENT UNISTRUT UNDER OBSTRUCTIONS SUCH AS DUCTWORK OR FROM STRUCTURAL MEMBERS. DO NOT SECURE TO UNDERSIDE OF METAL PAN ROOF DECK, TO DUCTWORK OR TO SUSPENDED CEILINGS.

.3 CONDUIT INSTALLATION SHALL FOLLOW THE FOLLOWING PRIORITY: - BELOW GRADE - IN WALLS OR PARTITIONS - IN CEILING CAVITY - EXPOSED. NO EXCEPTIONS SHALL BE MADE UNLESS APPROVAL GRANTED BY THE CONSULTANT FOR SURFACE MOUNTED INSTALLATIONS.

.4 LEAVE ALL CONDUIT SYSTEMS FINISHED COMPLETE WITH OUTLET BOXES, COVERPLATES, BUSHINGS, CAPS, NYLON FISH WIRE, ETC. PROVIDE PLASTIC END BUSHINGS FOR ALL EMPTY CONDUIT SLEEVES.

.5 FOR CONDUITS INSTALLED ON THE ROOF, PROVIDE EATON DURABLOK SUPPORT SYSTEMS. PROVIDE PROPER ROOF FLASHINGS TO NOT DAMAGE THE ROOFING MATERIAL WHERE PENETRATIONS ARE REQUIRED. COORDINATE WITH ROOFING AND/OR GENERAL CONTRACTOR.

.6 JOIN #8 AWG AND LARGER CONDUCTORS WITH COMPRESSION CONNECTORS. ON #10 AWG AND SMALLER, RELAXED WING NUT TYPE CONNECTORS MAY BE USED.

.7 DO NOT INSTALL ANY DEVICE BOXES BACK TO BACK. OFFSET AS NECESSARY TO PREVENT SOUND TRANSMISSION BETWEEN DEVICES/SERVICES.

.8 INSTALL LIGHT SWITCHES ON LOCK JAMB SIDE OF THE DOOR. CHECK DOOR SWING BEFORE ROUGHING IN. INSTALL SWITCHES WITH "ON" POSITION UP. LOCATE SWITCH AS CLOSE AS PRACTICAL TO DOOR JAMB BUT NOT CLOSER THAN 1". WHEN TWO OR MORE DEVICES ARE GROUPED TOGETHER, MOUNT UNDER A COMMON COVERPLATE UNLESS SHOWN OTHERWISE.

5.0 - SERVICE AND DISTRIBUTION

5.1 PRODUCTS & MATERIALS

.1 TRANSFORMERS SHALL BE PROVIDED AS SPECIFIED ON THE DRAWINGS, MATCHING VOLTAGE AND KVA RATING. UNLESS OTHERWISE NOTED, ALL THREE-PHASE TRANSFORMERS ARE DELTA-WYE CONNECTED FOR OPERATION AT 60HZ, MINIMUM K-13 RATED. PROVIDE ADEQUATE CLEARANCE AROUND FOR COOLING AS REQUIRED BY THE MANUFACTURER. ADJUST TAP POSITION TO PROVIDE 120 TO 125 VOLTS SECONDARY OUTPUT UNDER NORMAL OPERATING CONDITIONS.

.2 DISTRIBUTION PANELS SHALL BE FORMED GALVANIZED STEEL TUBS AND SHOP FINISHED ENAMELLED COVERS. ALL PANELBOARDS SHALL HAVE HINGED DOORS WITH CHROME PLATED LOCKS AND CATCHES. FLUSH MOUNTED PANELBOARDS SHALL HAVE CONCEALED HINGES AND TRIM FASTENERS, FLUSH LOCK AND LARGE RIGID COVERS. ALL PARTS OF THE PANEL ARE TO BE OF WELDED CONSTRUCTION. EACH BREAKER TO BE CLEARLY IDENTIFIED WITH A FACTORY STAMPED CIRCUIT NUMBER ON METAL TAPE OR LAMACOID. CIRCUIT NUMBERS ARE TO BE MECHANICALLY FASTENED TO PANELBOARD. BUS TO BE COPPER AND RATED TO WITHSTAND INTERRUPTING CAPACITY OF CIRCUIT BREAKERS CONTAINED WITHIN. PROVIDE A TYPEWRITTEN DIRECTORY IDENTIFYING EACH BREAKER ON THE BACK OF EACH PANEL DOOR INCLUDING DESCRIPTION OF FEED AND ROOM LOCATION. CONTRACTOR TO PROVIDE NEW UPDATED SCHEDULES COMPLETE WITH ROOM NUMBERS FOR ANY EXISTING PANEL WORKED ON AS PART OF THIS PROJECT. TRACE OUT EXISTING CIRCUITS AS REQUIRED.

.3 UNLESS NOTED OTHERWISE ON DRAWINGS OR PANEL SCHEDULES, CIRCUIT BREAKERS ARE TO BE MOULDED CASE PER RATINGS NOTED. SERIES RATED BREAKERS ARE NOT ACCEPTABLE UNLESS STATED OTHERWISE ON THE DRAWINGS (GROUND FAULT BREAKERS EXCLUDED). BREAKERS ARE TO BE SUITABLE FOR THE PANELBOARDS PROVIDED. ALL BREAKERS ARE TO BE BOLTED IN PLACE. PLUG IN TYPE ARE NOT ACCEPTABLE. FOR 250V PANELBOARDS, MAIN AND BRANCH BREAKERS TO BE RATED MINIMUM 22kAIC AT 208 OR 240 VOLT. FOR 600V PANELBOARDS, MAIN AND BRANCH BREAKERS TO BE RATED MINIMUM 65kAIC AT 600 VOLT.

.4 PROVIDE GENERIC SHOCK AND ARC FLASH WARNING LABELS ON ALL NEW PANELBOARDS, MCC'S, DISCONNECT SWITCHES AND SPLITTERS IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE 2-306. LABEL SHALL BE LOCATED SO THAT IS IS CLEARLY VISABLE TO PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF EQUIPMENT. LOCATE LABEL ON THE INSIDE DOOR OF PANELBOARDS NOT LOCATED WITHIN SERVICE ROOMS.

6.0 - LIGHTING

6.1 PRODUCTS & MATERIALS

.1 USE MATERIALS SPECIFIED HEREIN OR APPROVED EQUAL. REFER TO LUMINAIRE SCHEDULE ON DRAWINGS. ALL FIXTURES AND CONTROL DEVICES SHALL BE CSA APPROVED.

.2 PROVIDE WRITTEN WARRANTY COVERING REPAIR OR REPLACEMENT OF FAULTY LUMINAIRES FOR A MINIMUM OF ONE (1) YEAR FROM THE DATE OF INSTALLATION. INCLUDE A COPY WITHIN MAINTENANCE MANUALS.

.3 PROVIDE NEW EXIT SIGNS WHERE SHOWN ON DRAWINGS AND AS SPECIFIED. PROVIDE NEW CIRCUITS/FEEDERS TO NEW SIGNS AND PROVIDE ADDITIONAL SUPPORTS WHERE REQUIRED.

6.2 EXIT & EMERGENCY LIGHTING

.1 EMERGENCY LIGHTING UNITS ARE TO BE PROVIDED WHERE SHOWN ON DRAWINGS AND AS SPECIFIED. UNITS TO BE 12 VOLT WITH AN 8 YEAR MINIMUM BATTERY LIFE EXPECTANCY, CAPABLE OF PRODUCING 200 WATTS FOR 1/2 HOUR (30MIN) AT 120 VOLT, RATED IN ACCORDANCE WITH CSA STANDARD C22.2 141. CONTRACTOR SHALL TEST AND VERIFY THE EMERGENCY LIGHTING SYSTEM FOR A MINIMUM 30 MIN. ON BATTERY POWER AND SUBMIT A LETTER STATING: "THE EMERGENCY LIGHTING SYSTEM HAS BEEN TESTED FOR A MINIMUM OF 1/2 HOUR (30MIN) AND IS IN PROPER WORKING ORDER AS SPECIFIED".

6.3 EXECUTION

.1 CONTRACTOR SHALL CONFIRM CEILING TYPES AND FIXTURE SIZES BEFORE PLACING AN ORDER FOR LUMINAIRES. PROVIDE INDEPENDENT SUPPORTS FROM SLABS OR STEEL ABOVE T-BAR HUNG CEILINGS. LUMINAIRES ARE NOT TO BE SUPPORTED SOLELY BY THE HUNG CEILING. OBTAIN REVISED LOCATIONS FROM THE CONSULTANT WHEN PIPES OR DUCTWORK INTERFERE WITH THE PROPER MOUNTING LOCATION OF RECESSED LUMINAIRES BEFORE ROUGHING IN CONDUIT. ENSURE THAT ALL LUMINAIRES, DIFFUSERS AND LAMPS ARE LEFT CLEAN AT THE COMPLETION OF THE JOB. ENSURE THAT ALL LUMINAIRES INCLUDING BALLASTS AND LAMPS ARE IN GOOD WORKING ORDER AT THE COMPLETION OF THE JOB. REPLACE AT NO EXTRA COST ANY DEFECTIVE BALLASTS OR BURNED OUT LAMPS.

.2 PROVIDE CHAIN HANGER SUPPORTS FOR ALL LUMINAIRES IN SUSPENDED CEILINGS TO THE APPROVAL OF THE CONSULTANT, AND IN ACCORDANCE WITH ONTARIO ELECTRICAL SAFETY CODE BULLETIN NO. 30 4 4.1996. ANY EXISTING LUMINAIRES TO BE REMOVED AND REINSTALLED AS PART OF THIS PROJECT ARE TO HAVE NEW CHAIN HANGERS PROVIDED. ENSURE ALL LUMINAIRES ARE MECHANICALLY SECURED TO THE CEILING SYSTEM WITH MANUFACTURER APPROVED CLIPS.

6.4 LUMINAIRE SCHEDULE

.1 REFER TO THE DRAWINGS FOR LUMINAIRE TYPE, MODEL AND DESCRIPTION. PRIOR TO ORDERING LUMINAIRES, CONTRACTOR SHALL VERIFY VOLTAGE WITH EXISTING SERVICE.

6.5 EXIT SIGNS

.1 LOCATE EXIT SIGNS AS REQUIRED TO PREVENT OBSTRUCTION FROM VIEW. MOUNT ON WALLS WHERE POSSIBLE. MOUNT EXIT SIGNS AS REQUIRED TO PREVENT PLUMBING, STRUCTURAL SUPPORTS, ETC FROM OBSTRUCTING VIEW OF THE EXIT SIGN. PROVIDE PENDANT MOUNTS FOR CEILING MOUNTEDSIGNS AS REQUIRED.

7.0 - COMMUNCATION RACEWAYS

7.1 GENERAL

.1 PROVIDE A SYSTEM OF 1" EMPTY CONDUITS, RACEWAYS AND BOXESAS INDICATED ON THE DRAWINGS. ALL EMPTY CONDUITS ARE TO BE COMPLETE WITH NYLON FISHWIRE. CABLING TO BE BY OTHERS.

7.2 PRODUCTS

.1 ALL NEW CONDUITS SHALL BE THIN WALL EMT, SIZED FOR THE CABLES REQUIRED PLUS AN ADDITIONAL 50% FOR FUTURE CABLES. MINIMUM CONDUIT SIZE SHALL BE 1"

.2 IN GENERAL, THE FOLLOWING TABLE SHALL BE USED FOR COMMUNICATION CONDUIT FILL:

CONDUIT SIZE	1" 27MM	1-1/4" 35MM	1-1/2" 41MM	2" 53MM	2-1/2" 63MM	3" 78MM
MAX UTP	3	6	7	14	17	20
MAX COAX	4	6	9	17	26	38

.3 EMPTY CONDUIT ENDS SHALL BE PROVIDED WITH PLASTIC BUSHINGS TO PROVIDE A ROUND EDGE, TO NOT SCRATCH/CUT THE CABLE JACKET OR INSULATION.

.4 PVC CONDUIT IS NOT PERMITTED FOR COMMUNICATION SYSTEMS AND WILL BE REMOVED AT THE CONTRACTOR'S EXPENSE.

.5 WHERE POSSIBLE, RUN ALL CONDUITS IN THE CEILING SPACE TO COMMUNICATION CABLE TRAY AND CONCEAL ALL CONDUIT WITHIN CEILING SPACES, WALLS OR PARTITIONS. MOUNT OUTLETS AT THE SAME ELEVATION ABOVE FINISHED FLOOR LEVEL AS DUPLEX RECEPTACLES OR AS NOTED ON THE DRAWINGS.

.6 RIGIDLY INSTALL ALL CONDUITS, ADEQUATELY SUPPORTED AND PROPERLY REAMED AT BOTH ENDS. JOIN SECTIONS OF CONDUITS BY APPROVED COUPLINGS AND CONDUIT TERMINATIONS AT BOXES, PULL BOXES, ETC. USING APPROVED FITTINGS.THE INSIDE RADIUS OF BENDS NOT TO BE LESS THAN: SIX TIMES THE INTERNAL DIAMETER OF CONDUITS 2" AND SMALLER.

DRAWING LIST

GENERAL NOTES:

LICENSED PROFESSIONAL ENGINEER
G. P. VITELLA
100080960
7 DEC 21
PROVINCE OF ONTARIO
4/21-35 R1

DATE	REV	ISSUED FOR	BY	CK'D	APP'D	PROJ.
DEC.7.2021	1	PERMIT/CONSTRUCTION	GPV	GPV	GPV	LY21-35

ELLEN & HEINER HOLLAND STORAGE WAREHOUSE

70266 GRAND BEND LINE, GRAND BEND, ON N0M 1T0

Light Years Engineering
BRIGHT'S GROVE, ON, CANADA N0N1C0
P: 226-932-1422
E: lightyearsengineering@gmail.com
W: LightYearsEngineering.ca

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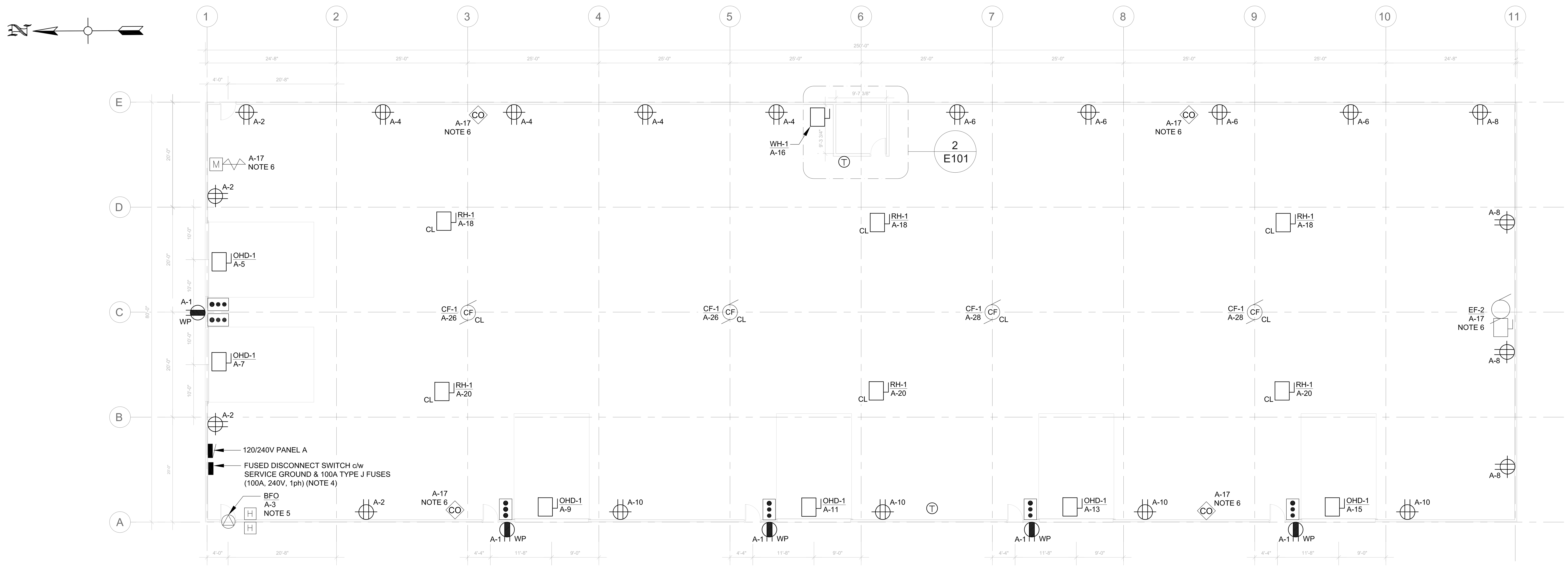
ELECTRICAL SPECIFICATIONS & DRAWING LIST

DRAWN BY: GPV	CHECKED BY: GPV	
RELEASED BY: LYE	APPROVED BY: GPV	
SCALE: N/A	DATE: DEC.1.2021	PROJECT NUMBER: LY21-35
DRAWING NUMBER: E100		REVISION: 1



1 **POWER & SYSTEMS LAYOUT - STORAGE WAREHOUSE**

Scale: 3/32" = 1'-0"

GENERAL NOTES:

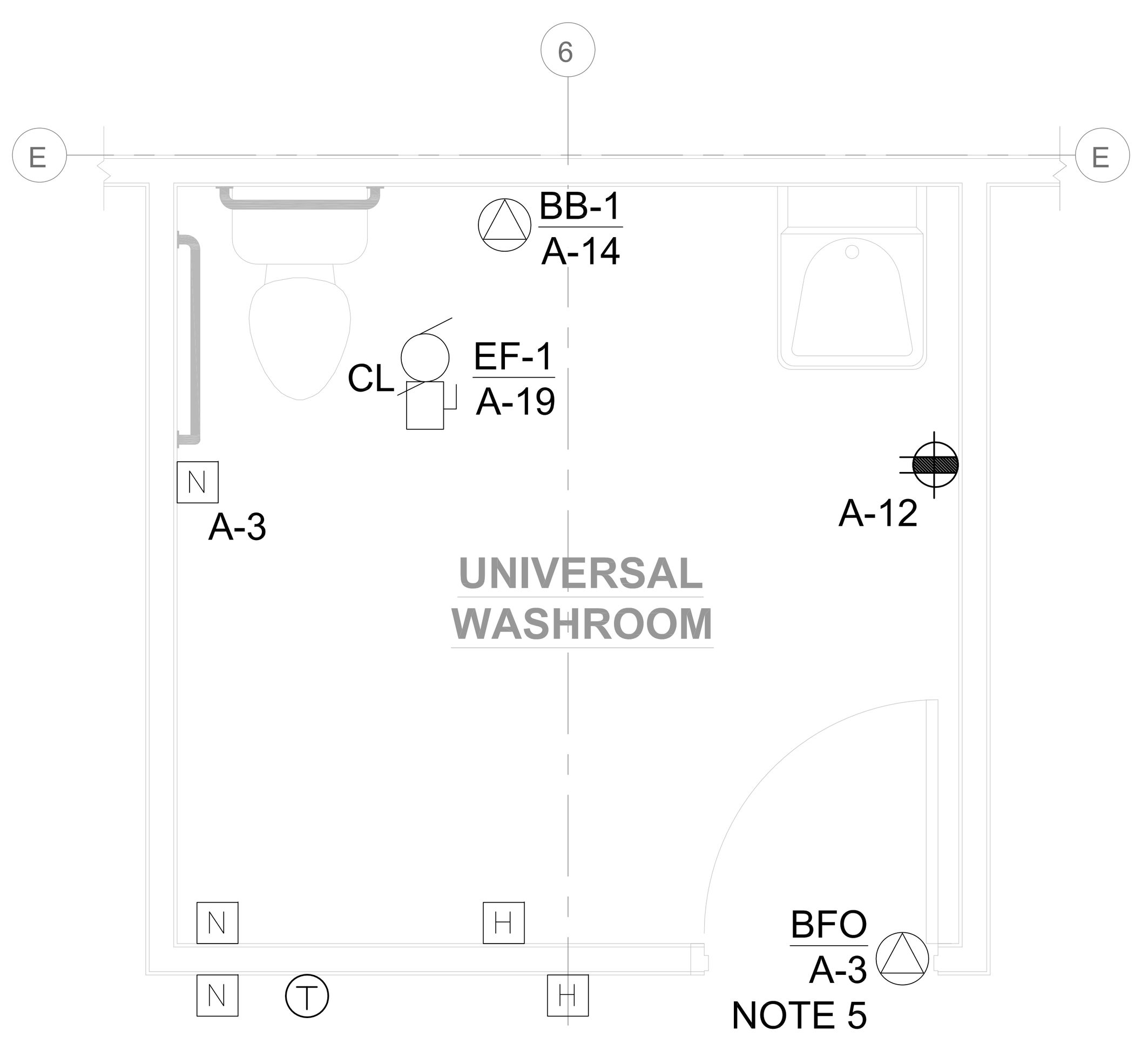
1. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND RELEVANT LAYOUTS.
2. REFER TO DRAWING E100 FOR APPLICABLE SPECIFICATIONS.
3. REFER TO DRAWING E101 FOR APPLICABLE ELECTRICAL POWER & SYSTEMS LEGEND AND ASSOCIATED MECHANICAL EQUIPMENT SCHEDULE.
4. INCOMING SERVICE BY OTHERS. REFER TO DRAWING E103 FOR ELECTRICAL DISTRIBUTION RISER, PANEL SCHEDULES & INSTALLATION DETAILS. CONFIRM LOCATION OF DISTRIBUTION EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN. PROVIDE ADDITIONAL SPARE 2" PVC DUCT FROM SERVICE LOCATION FOR DATA OR FUTURE SERVICES.
5. DOOR HARDWARE & BARRIER FREE OPERATORS PROVIDED BY OTHERS. COORDINATE ROUGH-IN AND POWER AS REQUIRED.
6. MOTORIZED DAMPER TO BE INTERLOCKED WITH EXHAUST FAN AND CO/NO2 DETECTOR (SUPPLIED BY MECHANICAL CONTRACTOR). REFER TO SCHEMATIC ON DRAWING E103 FOR DETAILS.

ELECTRICAL POWER & SYSTEMS LEGEND

(symbol)	20A 125V DUPLEX RECEPTACLE CSA 5-20R (MH = 18" AFF)	(symbol)	DISTRIBUTION POWER PANEL REFER TO PANEL SCHEDULE FOR DETAILS
(symbol)	20A 125V DUPLEX RECEPTACLE CSA 5-20R (MH = 44"AFF/4" ABOVE COUNTERS, 24" AFF ELSEWHERE UNLESS OTHERWISE NOTED)	(symbol)	NONFUSED LOCKABLE LOCAL EQUIPMENT DISCONNECT (ISOLATION) SWITCH (REFER TO LAYOUT FOR RATINGS)
(symbol)	20A 125V GFCI DUPLEX RECEPTACLE (MH = 44" AFF OR 4" ABOVE COUNTER)	T	THERMOSTAT (BY OTHERS) - PROVIDE DEVICE BOX C/W EMPTY 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE (MH = 47-1/4" AFF)
WP	20A 125V GFCI DUPLEX RECEPTACLE C/W WEATHERPROOF DEVICE BOX & SPRING CLOSE IN-USE COVER (MH = 24" AFG)	(symbol)	EXHAUST FAN (BY MECHANICAL CONTRACTOR) PROVIDE POWER AND LOCAL LOCKABLE ISOLATION SWITCH AS REQUIRED
(symbol)	DIRECT POWER CONNECTION (AS NOTED)	CF	CEILING FAN (BY ELECTRICAL CONTRACTOR) CONFIRM TYPE & MODEL WITH OWNER PRIOR TO ROUGH-IN/INSTALLATION.
(symbol)	OVERHEAD GARAGE DOOR OPERATOR PUSH BUTTONS. CONFIRM LOCATION WITH OWNER PRIOR TO ROUGH-IN.	M	MOTORIZED DAMPER (BY MECHANICAL CONTRACTOR) PROVIDE CONTROL POWER AND INTERLOCK AS REQUIRED.
CL	CEILING MOUNTED/INSTALLED EQUIPMENT	CO	CO/CO2 SENSOR (BY MECHANICAL CONTRACTOR) INTERLOCK WITH EXHAUST FAN AND MOTORIZED DAMPER, COORDINATE AS REQUIRED.
WP	WEATHERPROOF DEVICE/EQUIPMENT	H	BARRIER FREE PUSH BUTTON - DEVICE BOX C/W 1" CONDUIT TO ACCESSIBLE CEILING. COORDINATE WITH ARCHITECT. (MH = 38" AFF)
		N	EMERGENCY PUSH BUTTON STATION - DEVICE BOX C/W 1" CONDUIT TO ACCESSIBLE CEILING. COORDINATE WITH ARCHITECT.

MECHANICAL EQUIPMENT SCHEDULE

EQUIPMENT SUPPLIED AND INSTALLED BY MECHANICAL, WIRED BY ELECTRICAL							CONTROL EQUIPMENT SUPPLIED AND INSTALLED BY ELECTRICAL					
ITEM (TAG #)	QTY	DESCRIPTION	LOCATION	VOLTS	PHASE	MCA		FED FROM	BREAKER SIZE	POLES	CONDUCTOR SIZE	NOTES
EF-1	1	EXHAUST FAN	CEILING	120	1	1.8	DISCONNECT SWITCH	PANEL A	15A	1	2#12	CONTROLLED BY WASHROOM OCCUPANCY SENSOR. COORDINATE WITH MECHANICAL CONTRACTOR.
EF-2	1	EXHAUST FAN	STORAGE SIDEWALL	120	1	9.8	DISCONNECT SWITCH	PANEL A	15A	1	2#12	INTERLOCK WITH CO/NO2 DETECTOR, COORDINATE WITH MECHANICAL CONTRACTOR. CONFIRM MOCP WITH SUPPLIED UNIT.
BB-1	1	BASEBOARD HEATER (1kW)	WASHROOM	120	1	8.3	DIRECT CONNECT	PANEL A	15A	1	2#12	ONBOARD THERMOSTAT, COORDINATE WITH MECHANICAL CONTRACTOR.
RH-1	6	GAS RADIANT TUBE HEATER	STORAGE CEILING	120	1	2.2	DISCONNECT SWITCH	PANEL A	15A	1	2#12	COORDINATE WITH MECHANICAL CONTRACTOR.
WH-1	1	ELECTRIC WATER HEATER (1.5kW)	STORAGE @ WASHROOM	120	1	12.5	DISCONNECT SWITCH	PANEL A	20A	1	2#12	POWERED AND CONTROLLED VIA BLR-1. COORDINATE WITH MECHANICAL CONTRACTOR.
CF-1	4	CEILING FAN	STORAGE	120	1	5.6	DISCONNECT SWITCH	PANEL A	15A	1	2#12	PROVIDED BY ELECTRICAL CONTRACTOR. CONFIRM MODEL AND CONTROL LOCATION AND MOCP OF SUPPLIED UNITS PRIOR TO ROUGH-IN.



2 **POWER & SYSTEMS LAYOUT - UNIVERSAL WASHROOM**

Scale: 1/2" = 1'-0"

LICENSED PROFESSIONAL ENGINEER
G. P. VITELLA
100080960
7 DEC 21
PROVINCE OF ONTARIO
LY21-35 R.1

DATE	REV	ISSUED FOR	BY	CK'D	APP'D	PROJ.
DEC.7.2021	1	PERMIT/CONSTRUCTION	GPV	GPV	GPV	LY21-35

ELLEN & HEINER HOLLAND
STORAGE WAREHOUSE
70266 GRAND BEND LINE, GRAND BEND, ON N0M 1T0

Light Years Engineering

BRIGHT'S GROVE, ON, CANADA N0N1C0
P: 226-932-1422
E: lightyearsengineering@gmail.com
W: LightYearsEngineering.ca

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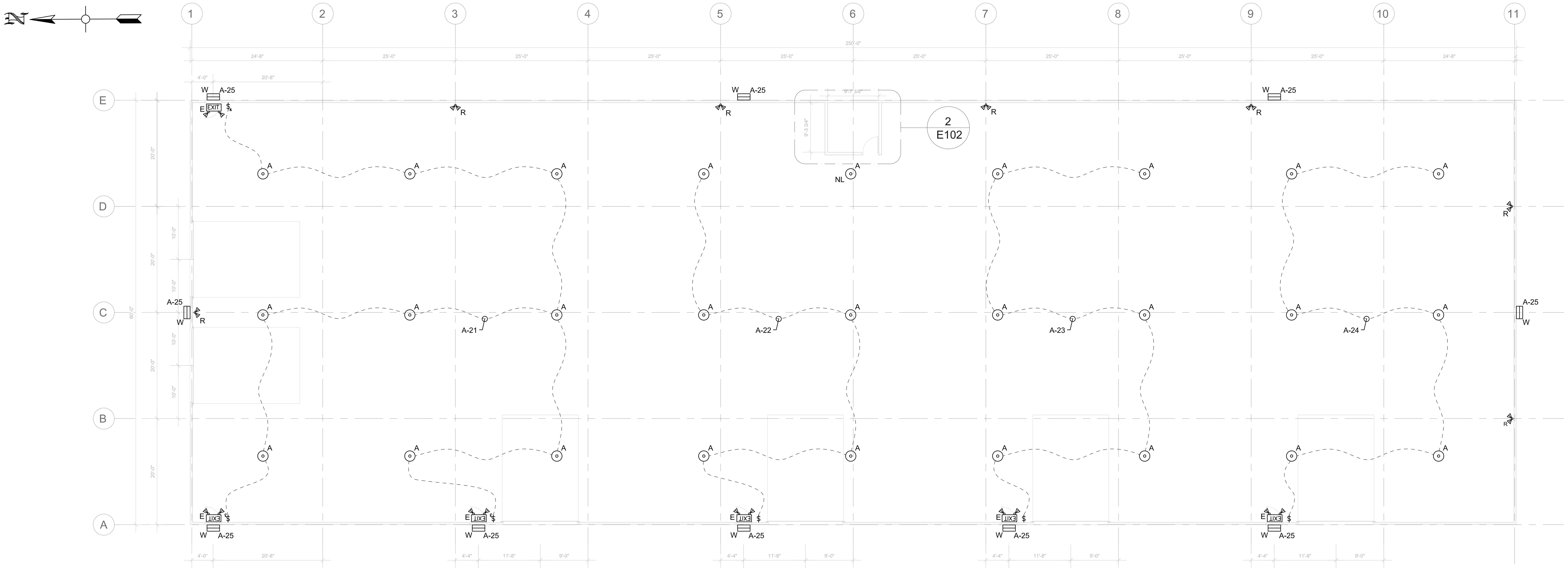
POWER & SYSTEMS LAYOUT - STORAGE WAREHOUSE

DRAWN BY: GPV	CHECKED BY: GPV
RELEASED BY: LYE	APPROVED BY: GPV

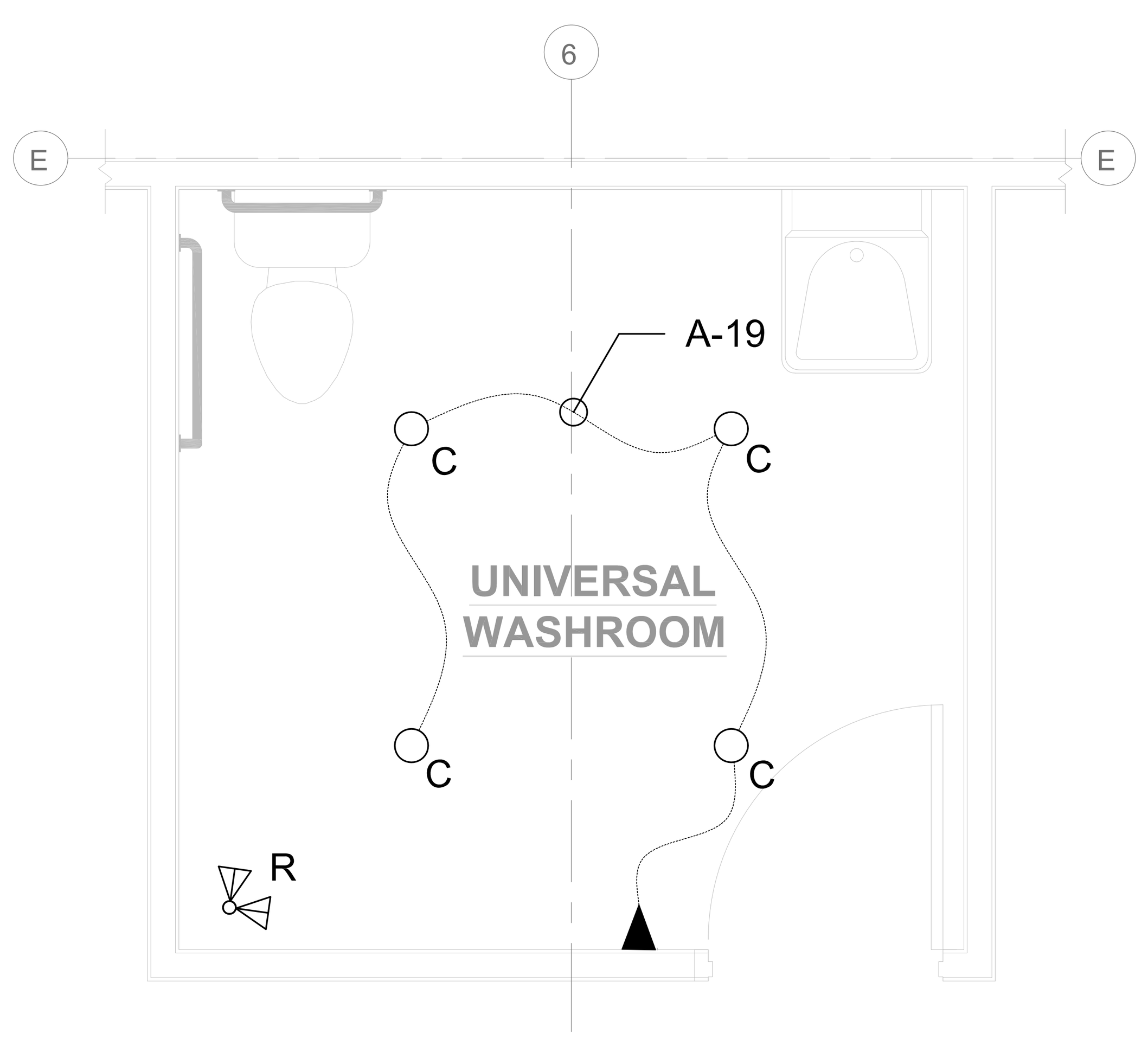
SCALE:	DATE:	PROJECT NUMBER:
AS-SHOWN	DEC.1.2021	LY21-35

DRAWING NUMBER:	REVISION:
E101	1



1 **LIGHTING & EXIT/EMERGENCY LIGHTING LAYOUT - STORAGE WAREHOUSE**

Scale: 3/32" = 1'-0"



2 **LIGHTING & EXIT/EMERGENCY LIGHTING LAYOUT - UNIVERSAL WASHROOM**

Scale: 1/2" = 1'-0"

LIGHTING LEGEND			
(round high bay symbol)	ROUND LED HIGH BAY - REFER TO SCHEDULE	(wall flood symbol)	EXTERIOR LED WALL MOUNTED FLOOD - REFER TO SCHEDULE
(pot light symbol)	ROUND LED POT LIGHT - REFER TO SCHEDULE	(triangle symbol)	OCCUPANCY SENSOR LIGHT SWITCH c/w RELAY FOR EXHAUST FAN OPERATION (MH = 47" AFF)
$	SINGLE POLE LIGHT SWITCH (MH = 47" AFF)	EXIT	GREEN PICTOGRAM LED EXIT/EMERGENCY COMBO C/W BACK-UP BATTERY & DUAL HEADS. PROVIDE DIRECTIONAL ARROW WHERE SHOWN.
$3	THREE POLE LIGHT SWITCH (3-WAY) (MH = 47" AFF)	(remote heads symbol)	LED REMOTE EMERGENCY LIGHTING HEADS CONNECT TO CLOSEST BATTERY PACK
$4	FOUR POLE LIGHT SWITCH (4-WAY) (MH = 47" AFF)	NL	NIGHT LIGHT - CONNECT FIXTURE TO UN-SWITCHED SIDE OF CIRCUIT - COORDINATE WITH OWNER

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER / DETAILS	MOUNTING TYPE	HEIGHT (MH)	VOLTAGE	WATTS/FIXTURE	NOTES
A	LED HIGH BAY - 13" ROUND 18,000 LUMENS - SUPPLY AS LITHONIA CAT. #JEBL-18L-40K-80CRI-WH OR APPROVED EQUAL	SUSPENDED/ SURFACE	20' AFF	120V	136W	CHAIN SUSPEND FROM JOISTS OR PROVIDE UNISTRUT BRACING AS REQUIRED.
C	6" LED WAFER DOWNLIGHT - 3500 LUMENS SUPPLY AS LITHONIA CAT. #WF6-LED- 30K40K50K-90CRI-MW OR APPROVED EQUAL	RECESSED	CEILING	120V	14W	PROVIDE ALL ACCESSORIES, CHAINS AND CLIPS TO INSTALL WITHIN T-BAR CEILING.
E	GREEN PICTOGRAM EXIT SIGN c/w DUAL LED EMERGENCY LIGHTS OR LED LIGHT BAR SUPPLY AS LITHONIA CAT. #PRMS-WH OR EQUAL PROVIDE WIREGUARDS IN SHOP AREAS.	CEILING/ WALL	ABOVE DOOR / ON WALL	120V	5W	LOCATE ABOVE DOOR/ON WALL OR SUSPEND FROM CEILING TO PREVENT OBSTRUCTION FROM VIEW. CONNECT TO UNSWITCHED LIGHTING CIRCUIT WITHIN THE SAME AREA.
R	DUAL LED EMERGENCY LIGHTS - COMPATIBLE WITH EXIT SIGN BATTERY AS REQUIRED. SUPPLY AS STANPRO CAT. #N SERIES. PROVIDE WIREGUARDS IN SHOP AREAS.	CEILING/ WALL	CEILING / WALL	120V	11W	LOCATE ON CEILING OR WALL TO PREVENT OBSTRUCTION AND LUMINATE PATH OF EGRESS. CONNECT TO UNSWITCHED LIGHTING CIRCUIT WITHIN THE SAME AREA.
W	LED EXTERIOR WALL PACK - 5100 LUMENS SUPPLY AS LITHONIA CAT. #DSXW1-LED-20C -700-30K-T3M-MVOLT-PE-DDBXD OR EQUAL	SURFACE/ WALL	15' AFG (OR AS NOTED)	120V	47W	COMPLETE WITH FLUSH MOUNT PHOTOCELL IN DARK BRONZE OR BLACK FINISH

GENERAL NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR ALL RELEVANT DIMENSIONS AND REFLECTED CEILING PLAN.
2. REFER TO DRAWING E100 FOR APPLICABLE SPECIFICATIONS.
3. REFER TO DRAWING E101 FOR APPLICABLE LIGHTING LEGEND AND LUMINAIRE SCHEDULE.
4. CONNECT ALL EXIT SIGNS/EMERGENCY REMOTE LIGHTS TO UNSWITCHED LIGHTING CIRCUIT SERVING THE AREA.
5. CONFIRM LUMINAIRE MODEL, TYPE, RATINGS & MOUNTING WITH OWNER PRIOR TO ORDERING/INSTALLATION.
6. COORDINATE LUMINAIRE LOCATIONS, WITHIN CEILING GRID OR SUSPENDED, WITH ALL OTHER TRADES AND CEILING MOUNTED DEVICES AND EQUIPMENT.

LICENSED PROFESSIONAL ENGINEER
G. P. VITELLA
100080360
7 DEC 21
PROVINCE OF ONTARIO
LY21-35 R.1

DATE	REV	ISSUED FOR	BY	CK'D	APP'D	PROJ.
DEC.7.2021	1	PERMIT/CONSTRUCTION	GPV	GPV	GPV	LY21-35

ELLEN & HEINER HOLLAND
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70266 GRAND BEND LINE, GRAND BEND, ON N0M 1T0

Light Years Engineering
BRIGHT'S GROVE, ON, CANADA N0N1C0
P: 226-932-1422
E: lightyearsengineering@gmail.com
W: LightYearsEngineering.ca

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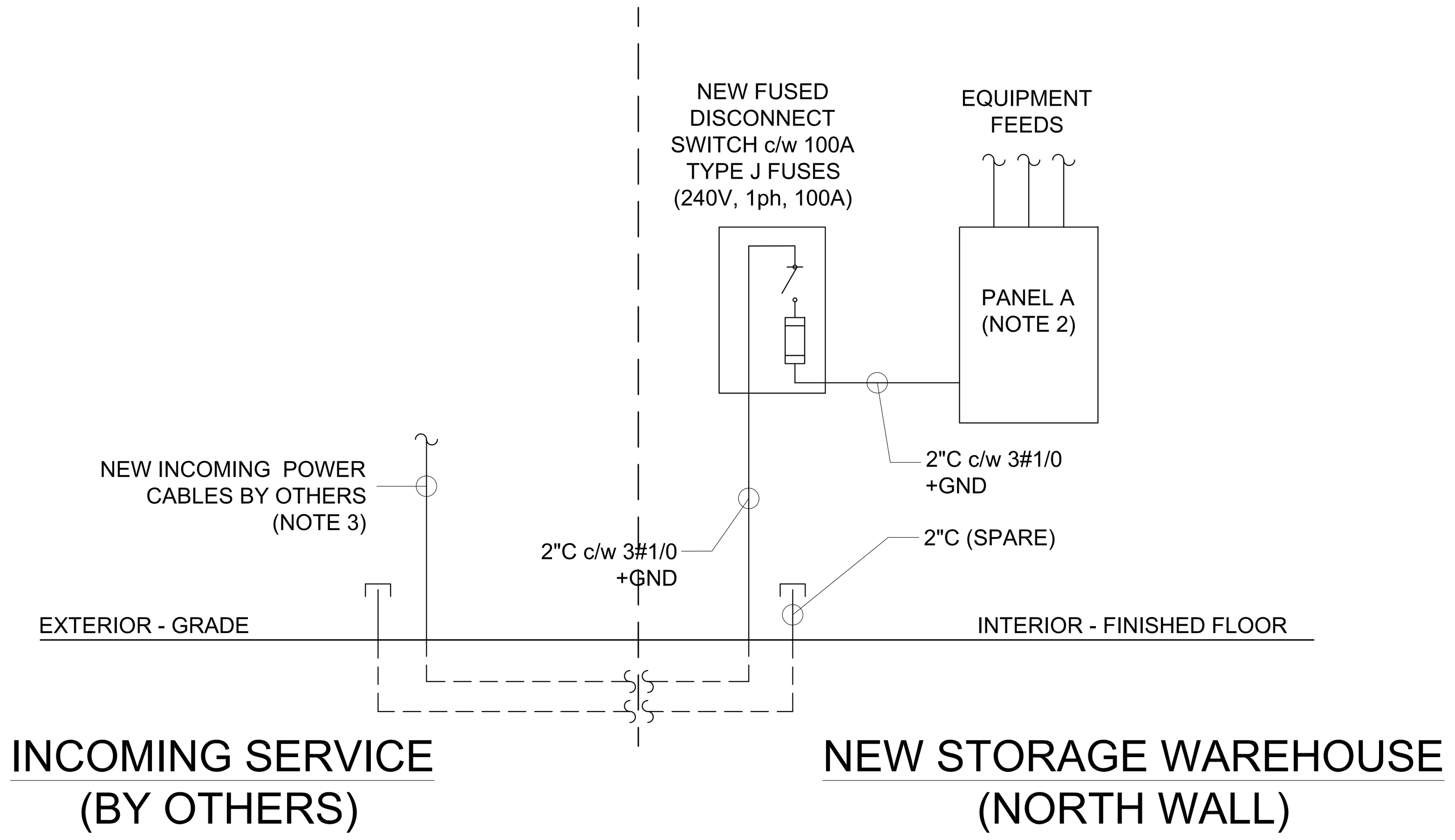
LIGHTING & EXIT / EMERGENCY LIGHTING LAYOUT - STORAGE WAREHOUSE

DRAWN BY: GPV		CHECKED BY: GPV
RELEASED BY: LYE		APPROVED BY: GPV
SCALE: AS-SHOWN	DATE: DEC.1.2021	PROJECT NUMBER: LY21-35
DRAWING NUMBER: E102		REVISION: 1



SINGLE LINE DISTRIBUTION RISER

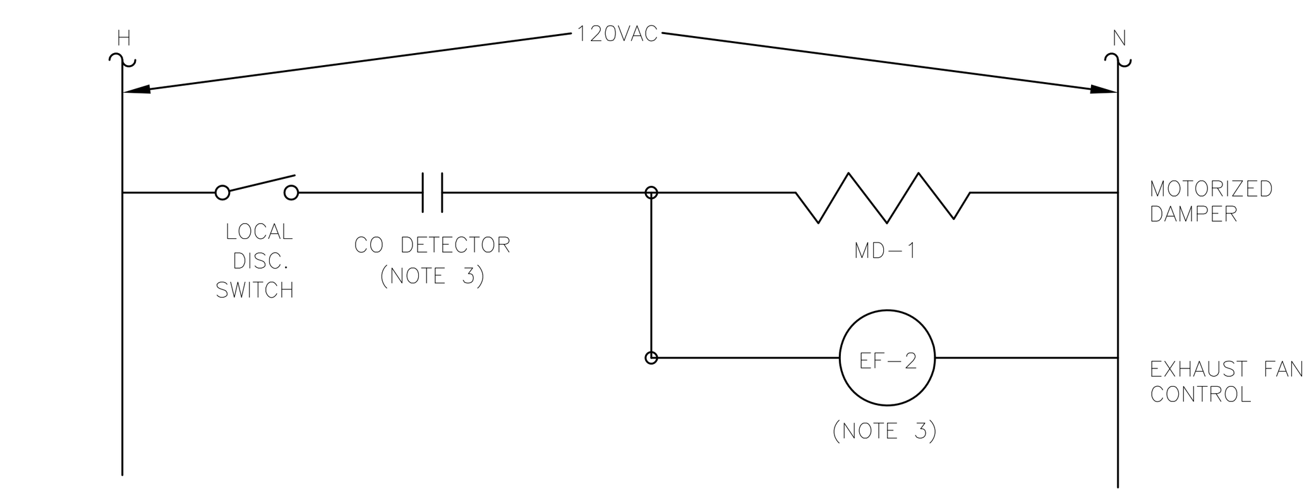
N.T.S.

NOTES:

1. GROUND/BOND ALL EQUIPMENT AS REQUIRED PER OESC 2018 27TH ED.
2. REFER TO FLOOR PLAN FOR PANEL LOCATION AND THIS DRAWING FOR ASSOCIATED PANEL SCHEDULE AND DETAILS.
3. COORDINATE REQUIREMENTS WITH OWNER FOR NEW UTILITY POWER FEED TO BUILDING.
4. CONTRACTOR TO COORDINATE ALL WORK WITH OTHER TRADE AND CONSTRUCTION SCHEDULE. PROVIDE TEMPORARY POWER AS REQUIRED.

PANEL NAME: PANEL A					RATING: 100A, 120/240V, 1PH, 3W
MOUNTING: SURFACE					PANEL(BREAKER) STYLE: BRANCH TYPE
SUPPLY: 100A FUSED DISCONNECT					LOCATION: STORAGE WAREHOUSE WEST WALL
DIRECTORY	CCT	A	A-N-B	B	DIRECTORY
EXTERIOR GFCI MAINTENANCE RECEPTACLES	1	20 *		20	2 RECEPTACLES – STORAGE
BARRIER FREE OPERATOR/NURSE CALL ALARM SYSTEM	3	15		20	4 RECEPTACLES – STORAGE
OVERHEAD DOOR OPERATOR #1	5	20		20	6 RECEPTACLES – STORAGE
OVERHEAD DOOR OPERATOR #2	7	20		20	8 RECEPTACLES – STORAGE
OVERHEAD DOOR OPERATOR #3	9	20		20	10 RECEPTACLES – STORAGE
OVERHEAD DOOR OPERATOR #4	11	20		* 20	12 WASHROOM GFCI RECEPTACLE
OVERHEAD DOOR OPERATOR #5	13	20		15	14 WASHROOM BASEBOARD HEATER
OVERHEAD DOOR OPERATOR #6	15	20		20	16 WATER HEATER WH–1
CO/CO2 INTERLOCK & EF–2	17	15		15	18 RADIANT TUBE HEATERS (X3)
WASHROOM EXHAUST FAN EF–1 AND LIGHTING	19	15		15	20 RADIANT TUBE HEATERS (X3)
STORAGE HIGHBAY LIGHTING	21	15		15	22 STORAGE HIGHBAY LIGHTING
STORAGE HIGHBAY LIGHTING	23	15		15	24 STORAGE HIGHBAY LIGHTING
SPARE	25	15		20	26 CEILING FANS (X2)
SPARE	27	15		20	28 CEILING FANS (X2)
SPARE	29	20		20	30 SPARE
SPARE	31	20		20	32 SPARE
–	33				34 –
–	35				36 –
–	37				38 –
–	39				40 –
–	41				42 –

NOTES:
1. MINIMUM 22KAIC, CONFIRM WITH LOCAL UTILITY PRIOR TO ORDER/INSTALL.
2. VERIFY ALL LOADS WITH VENDOR/EQUIPMENT PRIOR TO INSTALLATION.
3. PROVIDE TYPEWRITTEN AS–BUILT PANEL SCHEDULE WITHIN DOOR OF PANEL.
4. * DENOTES A GFCI BREAKER OR GFCI PROTECTED DEVICES TO BE PROVIDED.

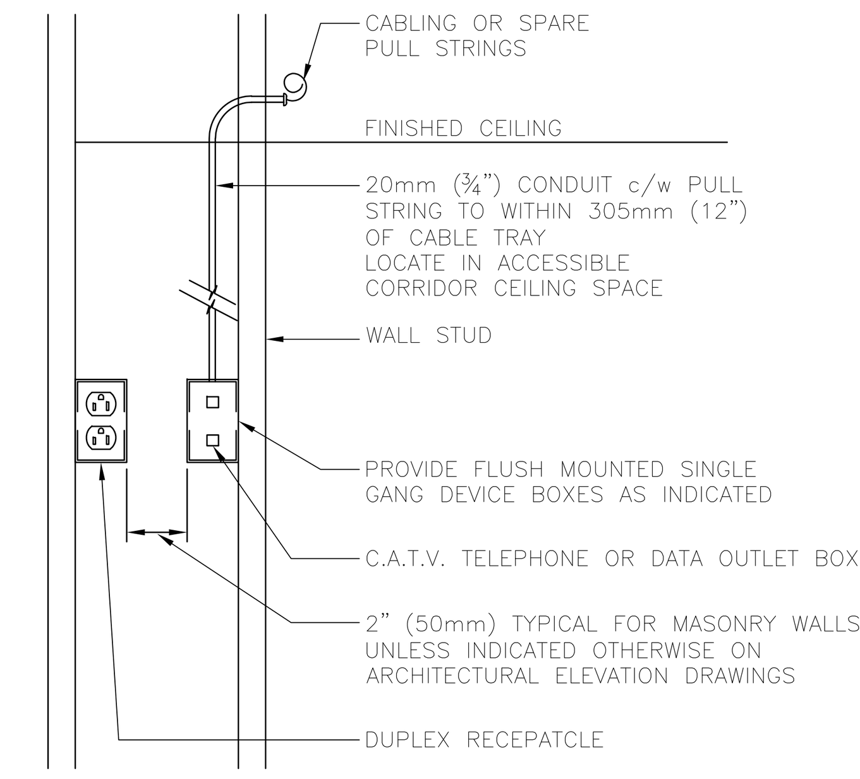


TYPICAL EXHAUST FAN/MOTORIZED DAMPER INTERLOCK CONTROL SCHEMATIC

N.T.S.

NOTES:

1. REFER TO FLOOR PLANS FOR LOCATIONS OF ALL CONTROL SYSTEMS. PROVIDE 120VAC POWER TO CONTROLLER.
2. CO/NO2 DETECTOR PROVIDED BY MECHANICAL CONTRACTOR.
3. COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE WIRE AS REQUIRED TO POWER AND INTERLOCK THE NEW CO/CO2 DETECTOR WITH THE EXHAUST FAN/MOTORIZED DAMPER CONTROL AS SHOWN. MULTIPLE SENSORS AND FANS TO BE WIRED IN PARALLEL.

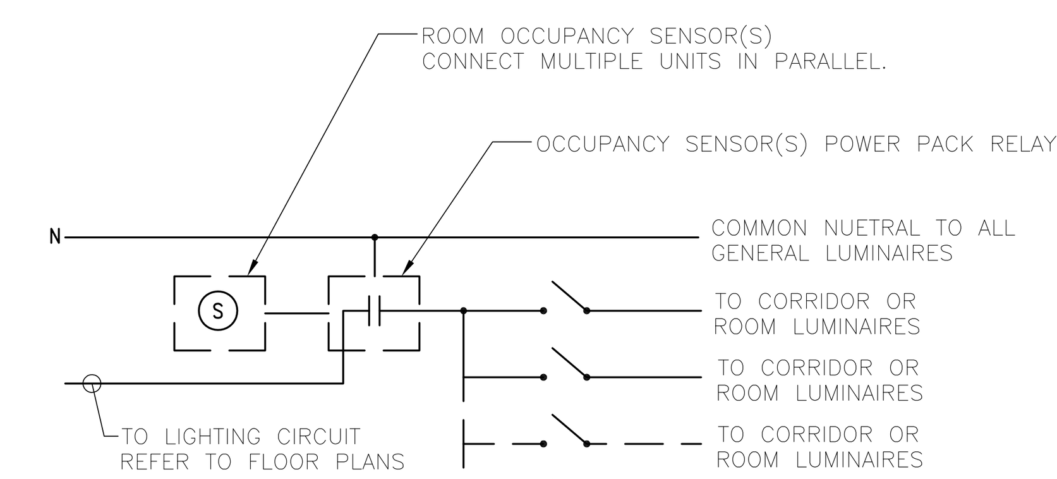


TYPICAL COMMUNICATION OUTLET AND RECEPTACLE MOUNTING

N.T.S.

NOTES:

1. REFER TO FLOOR PLANS FOR LOCATION, TYPE AND QUANTITY OF DEVICES

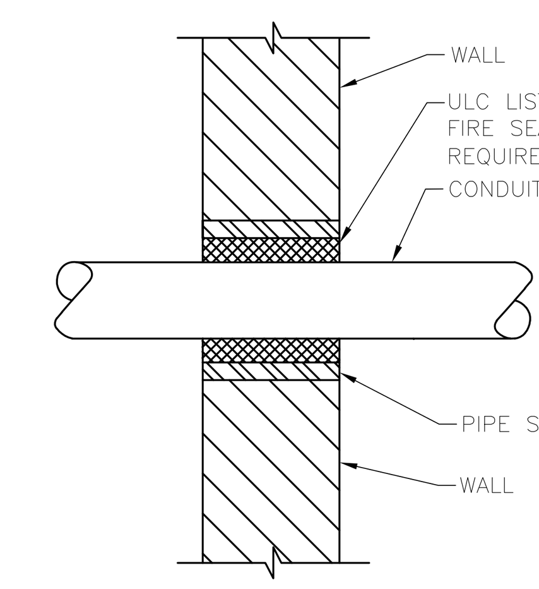


TYPICAL OCCUPANCY SENSOR SCHEMATIC

N.T.S.

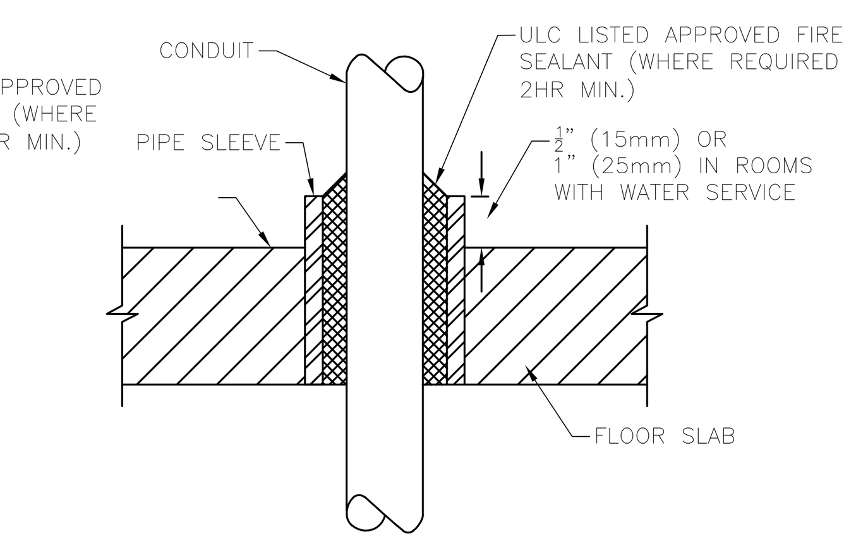
NOTES:

1. WIRING BETWEEN OCCUPANCY SENSOR AND CONTROL UNIT TO BE IN CONDUIT.
2. MOUNT POWER PACK IN ACCESSIBLE CEILING SPACE ABOVE LIGHT SWITCHES AT LOCATION ELECTRICAL FEED FROM LIGHTING PANEL TERMINATES.
3. WIRE AND CONNECT OCCUPANCY SENSOR AND POWER PACK AS PER MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE SUITABLE SENSORS AND POWER PACKS FOR SUPPLIED LUMINAIRES. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
5. REFER TO FLOOR PLANS FOR LOCATION AND QUANTITY OF SENSORS AND LIGHT SWITCHES.
6. WIRE AND CONNECT OCCUPANCY SENSOR N.O. AUXILIARY RELAY CONTACT TO WASHROOM EXHAUST FAN WHERE INDICATED ON DRAWINGS.



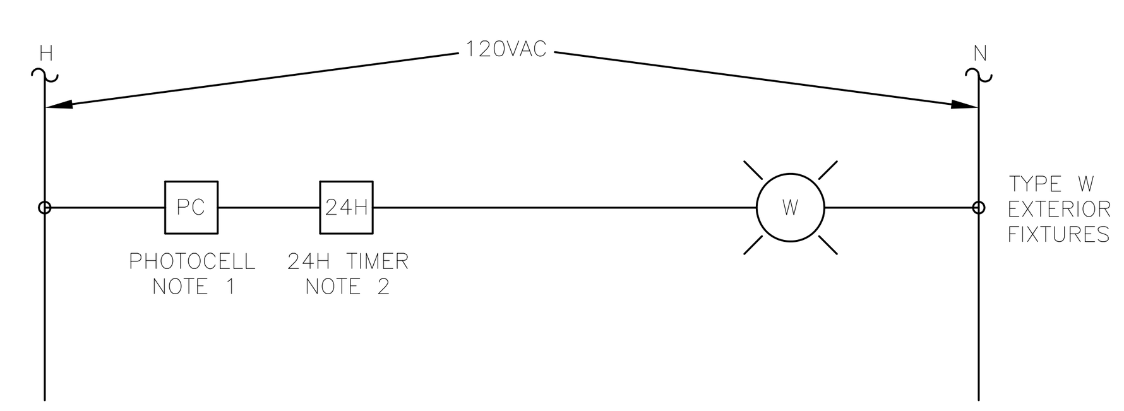
SERVICES SLEEVE THROUGH WALL

N.T.S.



SERVICES SLEEVE THROUGH FLOOR

N.T.S.

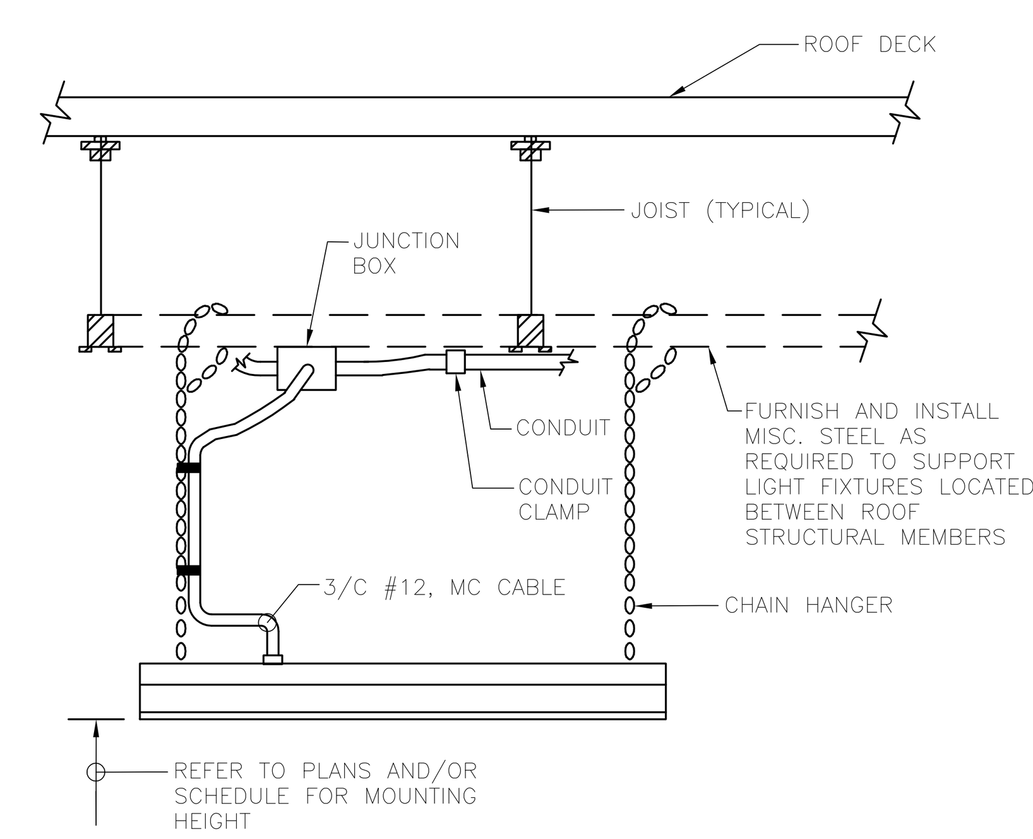


EXTERIOR LIGHTING PHOTOCELL CONTROL SCHEMATIC

N.T.S.

NOTES:

1. PROVIDE AN EXTERIOR RATED 120V LINE VOLTAGE PHOTOCELL. PROVIDE AS DARK TO LIGHT OUTDOOR CONTROLS CAT#DLL127–1.5–LP–BK OR EQUAL AND WIRE AND MOUNT ABOVE CANOPY OR ROOF ON RIGID CONDUIT PER MANUFACTURER'S RECOMMENDATION. NOTE: PROVIDE ONLY WHEN FIXTURES DO NOT COME WITH INTEGRAL PHOTOCELL CONTROL.
2. PROVIDE A 120VAC 24HR DIGITAL LIGHTING TIMER TO CONTROL THE EXTERIOR LIGHTING ALONG IN SERIES WITH THE EXTERIOR MOUNTED PHOTOCELL.



TYPICAL MOUNTING DETAIL FOR CHAIN HUNG LIGHT FIXTURES

N.T.S.

GENERAL NOTES:

1. REFER TO DRAWING E100 FOR APPLICABLE SPECIFICATIONS.

DATE	REV	ISSUED FOR	BY	CK'D	APP'D	PROJ.
DEC.7.2021	1	PERMIT/CONSTRUCTION	GPV	GPV	GPV	LY21–35

ELLEN & HEINER HOLLAND STORAGE WAREHOUSE

70266 GRAND BEND LINE, GRAND BEND, ON N0M 1T0

Light Years Engineering
BRIGHT'S GROVE, ON, CANADA N0N1C0
P: 226–932–1422
E: lightyearsengineering@gmail.com
W: LightYearsEngineering.ca

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ELECTRICAL RISER, PANEL SCHEDULES & DETAILS

DRAWN BY: GPV		CHECKED BY: GPV
RELEASED BY: LYE		APPROVED BY: GPV
SCALE: N/A	DATE: DEC.1.2021	PROJECT NUMBER: LY21–35
DRAWING NUMBER: E103		REVISION: 1

DESIGN LOADS:

GENERAL COMMENTS:
1. IMPORTANCE FACTOR OF 1.0 USED
2. DESIGN DATA BASED ON ULS AND SLS PROCEDURES AS PER PART 4 OF NBC
3. ASSUMED BEARING CAPACITY TO BE 3000PSF TO BE CONFIRMED AT TIME OF CONSTRUCTION.

SPECIFIED LOADS

1. SPECIFIED COLUMN REACTIONS ARE AS PROVIDED ON METALCOR BUILDINGS SYSTEMS DRAWINGS (#18-B-18330)
2. SPECIFIED FLOOR LOAD = 4.8 KPA (100 PSF)

GENERAL NOTES:

1. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS BY SITE MEASUREMENT PRIOR TO COMMENCING WORK AND VERIFY SITE CONDITIONS WITH THE DETAILS SHOWN. REPORT ANY INCONSISTENCIES TO THE ENGINEER.

2. COORDINATE CONSTRUCTION OPERATIONS WITH THE OWNER TO ENSURE MINIMUM INTERFERENCE WITH THE OWNER'S ACTIVITIES. ALLOW FOR TEMPORARY CONNECTIONS IF REQUIRED.

3. COMPLY WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE AND ONTARIO CONSTRUCTION SAFETY ACT AND REGULATION.

4. THE CONTRACTOR SHALL APPLY FOR AND PAY FOR ALL PERMITS REQUIRED FOR THIS PROJECT.

5. EXACT LOCATIONS OF ALL EXISTING SERVICES (WATER, GAS, BELL, ETC.) TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK.

6. THE CONTRACTOR SHALL RETAIN AN INDEPENDENT INSPECTION AND TESTING COMPANY TO ENSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. TESTING SHALL INCLUDE REINFORCING STEEL PLACEMENT, CONCRETE TEST, SOIL BEARING AND COMPACTION TESTS, STRUCTURAL STEEL AND WELDING INSPECTIONS.

7. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN ALL SHORING AND TEMPORARY BRACING AS PER O.REG.$\frac{213}{91}$ AND THE CONTRACTOR SHALL RETAIN AN ENGINEER AS REQUIRED.

CONCRETE:

1. CONCRETE FLOOR SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS UNLESS NOTED OTHERWISE ON PLANS.
CONCRETE FOUNDATIONS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS UNLESS NOTED OTHERWISE ON PLANS.
CONCRETE FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS UNLESS NOTED OTHERWISE ON PLANS.

2. ALL REINFORCING STEEL SHALL CONFORM TO C.S.A. SPECIFICATION G 30.12 M84 GRADE 400. FOR CONCRETE PROTECTION TO BARS SEE PLAN.

3. SPACING AND CONCRETE COVER FOR REINFORCING STEEL SHALL CONFORM TO CAN/CSA A23.1 & 2 LATEST REVISION.

4. MAXIMUM CONCRETE SLUMP TO BE 3" (75 MM).

5. ALL EXPOSED CONCRETE TO BE 25 MPa AND SHALL HAVE AIR ENTRAINMENT IN ACCORDANCE WITH CAN/CSA A23.1 & 2.

6. ALL OPENINGS IN CONCRETE SLAB OR WALLS SHALL BE TRIMMED WITH 2-15 BARS; HEAD, JAMBS, AND SILL. ALSO SEE DETAIL.

7. INSTALL ANCHOR BOLTS OR MISCELLANEOUS ITEMS SUPPLIED BY OTHERS FOR INSTALLATION IN THE CONCRETE WORK.

FOUNDATIONS:

1. ALL FOOTINGS SHALL BE FOUNDED ON NATURALLY CONSOLIDATED UNDISTURBED SOIL CAPABLE OF SUSTAINING A LOAD (SEE PLAN) AT LEAST 4'-0" (1200 MM.) BELOW ORIGINAL (NOT FILL) GRADE.

2. FOOTING ELEVATIONS ARE BASED ON ESTIMATE ONLY, IF UPON EXCAVATING TO THE SPECIFIED ELEVATIONS IT IS FOUND THAT THE ABOVE CONDITIONS ARE NOT MET OR THAT THEY HAVE BEEN MET AT HIGHER ELEVATIONS, THE FOOTING ELEVATION MAY BE ADJUSTED WITH THE ARCHITECTS PERMISSION.

3. MINIMUM DEPTH FOR EXTERIOR FOOTINGS IS 4'-0" (1200 MM.) BELOW FINISHED GRADE (OR AS PER AUTHORITY HAVING JURISDICTION).

4. CENTER ALL CAPS AND FOOTINGS UNDER COLUMNS EXCEPT AS NOTED OTHERWISE ON PLANS.

5. DURING COLD WEATHER, PROTECT SOIL BENEATH AND ADJACENT TO FOOTINGS FROM FREEZING.

6. UNLESS SPECIFIED BY THE ENGINEER DO NOT EXCEED A RISE OF 7" IN A RUN OF 10" IN THE LINE OF SLOPE BETWEEN ADJACENT FOOTINGS EXCAVATIONS OR ALONG STEPPED FOOTINGS. USE STEPS NOT EXCEEDING 600 MM (24") IN HEIGHT AND NOT LESS THAN 1200 MM (48") IN LENGTH.

7. WHERE NECESSARY CONTRACTOR SHALL LOWER FOOTINGS TO ACCOMMODATE DRAIN LINES, ETC.

8. PROVIDE FOOTINGS FOR ALL WALLS THICKER THAN 6" (150 MM.), WALLS 6" (150 MM.) OR LESS SHALL SIT ON THICKENED FLOOR SLABS.

9. PLACE SLAB ON GRADE MATERIAL CAPABLE OF SUSTAINING 500 PSF (24KN/SM) WITHOUT SETTLEMENT RELATIVE TO THE BUILDING FOOTINGS.

10. DO NOT PLACE BACK FILL AGAINST WALLS RETAINING EARTH (UNLESS DESIGNED FOR CANTILEVER) UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM OF THE WALLS IS POURED AND SET.

11. BACK FILLING AGAINST FOUNDATION WALLS TO BE DONE SO THAT THERE IS NEVER MORE THAN 1'-6" (450 MM.) DIFFERENCE IN LEVEL, ONE SIDE TO THE OTHER, EXCEPT AS NOTED IN PARAGRAPH 10, ABOVE.

12. SEE ARCHITECTURAL DRAWINGS FOR THICKNESS OF SLAB ON GRADE (UNLESS NOTED ON STRUCTURAL DRAWINGS), RECESSES, DEPRESSIONS, PITS, ETC. MAINTAIN SLAB THICKNESS SHOWN.

13. WHERE SLAB ON GRADE IS USED TO TIE THE TOP OF THE WALL RETAINING EARTH, ADEQUATE SHORING AND BRACING MUST BE PROVIDED WHILE FILL IS BEING PLACED AND COMPACTED, AND MUST BE LEFT IN PLACE UNTIL SLAB IS POURED AND GAINED 75% OF ITS ULTIMATE STRENGTH.

14. ANCHOR ALL CONCRETE BLOCK FOUNDATION WALLS TO CONCRETE PIERS WITH 2-10 M X 4'-0" (1200 MM.) EVERY SECOND BLOCK COURSE. CAVITIES WITH BARS FILLED SOLID WITH GROUT.

15. ALL WALL FOOTING 4" (100 MM) PROJECTION AND 8" (200 MM) DEPTH UNLESS NOTED OTHERWISE ON PLANS.

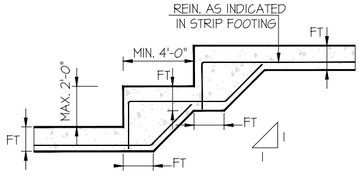
16. SOIL WHICH IS TO RECEIVE FOOTINGS OR PIERS SHALL BE PROTECTED FROM FREEZING, AND SHALL BE KEPT UNDISTURBED AND CLEAR OF FREE WATER AT ALL TIMES DURING CONSTRUCTION.

9. CONCRETE PROPERTIES:

TABLE A: CONCRETE PROPERTIES

LOCATION	CSA CLASS	28 DAY COMP. (Mpa)	W/C RATIO	AIR CONTENT	MAX. AGG. SIZE (mm)	SLUMP (mm)
FOOTINGS	N	25	AS REQ.	-----	20	80
FOUNDATION WALLS	F-2	25	0.55	4-7%	20	80
INTER. PIERS	N	25	AS REQ.	-----	20	80
INTER. SLAB	N	25	0.55 MAX.	-----	20	80
FREEZE THAW EXPOSURE	F-2	25	0.55	4-7%	20	80

10. TYPICAL STEPPED FOOTING DETAILS:



REINFORCING STEEL:

1. ALL REINFORCING STEEL SHALL BE DEFORMED HI-BOND HARD GRADE BARS CONFORMING TO CAN/CSA G30.18 (GRADE 400W) WITH A MINIMUM YILED STRENGTH OF Fy=400 MPa.

2. REINFORCING STEEL SHALL BE SHOP FABRICATED IN INCLUDE HOOKS AND BENDS AND COMPLETED BY A SUPPLIER EXPERIENCED IN BAR BENDING.

3. ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH THE REINFORCING STEEL INSTITUTE OF CANADA" MANUAL STANDARD OF PRACTICE".

4. MAINTAINING THE FOLLOWING CLEAR CONCRETE COVER TO REINFORCING STEEL, UNLESS NOTED OTHERWISE:

TABLE B: MINIMUM CONCRETE COVER FOR REINFORCING STEEL

LOCATION OF REINFORCING STEEL	CLEAR COVER
PLACED IN FORMWORK - 15M BARS OR SMALLER	1-1/2" (38mm)
PLACED IN FORMWORK - 20M BARS OR SMALLER	2" (50mm)
SLAB ON GRADE - TOP OF SLAB TO TOP OF STEEL	2-1/2" (64mm)
BOTTOM OF FOOTINGS IN CONTACT WITH SOIL	3" (75mm)

5. MINIMUM REINFORCING STEEL LAP SPLICE SHALL CONFORM TO CSA A23.3 AND ALL BARS SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. NO LAP SLICE SHALL BE LESS THAN LISTED IN THE TABLE BELOW:

TABLE C: REINFORCING STEEL LAP SPLICE REQUIREMENTS

BAR SIZE	TENSION SPLICE			COMPRESSION SPLICE
	25 MPa Con.	30 MPa Con.	35 MPa Con.	
10M	16" (406mm)	16" (406mm)	16" (406mm)	18" (458mm)
15M	24" (610mm)	24" (610mm)	24" (610mm)	18" (458mm)
20M	32" (813mm)	32" (813mm)	32" (813mm)	24" (610mm)
25M	48" (1220mm)	44" (1118mm)	40" (1016mm)	30" (762mm)
30M	56" (1422mm)	52" (1321mm)	48" (1220mm)	36" (914mm)

6. LAP ALL HORIZONTAL BARS AT CORNERS WITH BENT DOWELS MEETING THE MINIMUM LAP REQUIREMENTS IN BOTH DIRECTIONS, UNLESS NOTED OTHERWISE.

7. ALL DOWEL EMBEDMENT SHALL EQUAL THE MINIMUM LAP SPLICE LEGNTH UNLESS NOTED OTHERWISE.

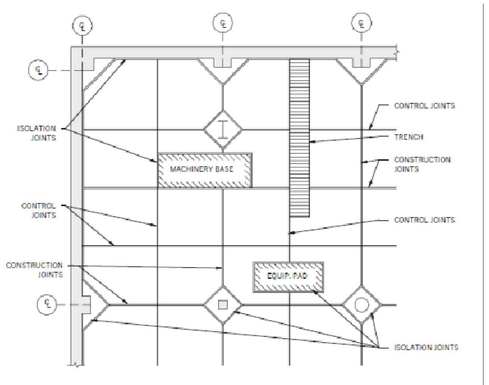
8. PLACE REINFORCING STEEL SYMMETRICALLY OVER SUPPORTS AND SYMMETRICALLY IN SPANS, UNLESS NOTED OTHERWISE.

9. WELDING REINFORCING STEEL IS NOT PERMITTED, UNLESS NOTED OTHERWISE BY THE SUPPLIER ON THE DRAWINGS.

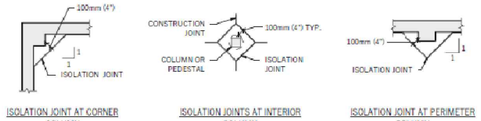
10. REINFORCING STEEL AND DOWELS SHALL BE SECURELY TIED IN PLACE TO MAINTAIN THEIR EXACT POSITION BEFORE AND DURING THE PLACEMENT OF CONCRETE. ALL REQUIRED BAR SUPPORTS SHALL BE MADE ONLY OF PRECAST CONCRETE BLOCKS, WIRE OR PLASTIC.

11. ANY OIL, GREASE, SOIL OR DEBRIS SHALL BE REMOVED FROM ALL REINFORCING STEEL PRIOR TO THE PLACEMENT OF CONCRETE. REINFORCING STEEL SHALL BE STORED IN AN AREA ON SITE THAT KEEPS THE STEEL FREE OF DELETERIOUS MATERIALS.

TYPICAL SLAB ON GRADE JOINTS:



GENERAL SLAB JOINT LAYOUT



ISOLATION JOINT AT CORNER COLUMN | ISOLATION JOINTS AT INTERIOR COLUMN | ISOLATION JOINT AT PERIMETER COLUMN

WOOD FRAMING:

1. WOOD FRAMING DESIGN AND CONSTRUCTION SHALL CONFORM TO CSA 086-09 "ENGINEERING DESIGN IN WOOD"

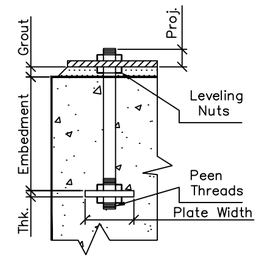
2. FRAMING AND MEMBERS AND COMPONENTS SHALL BE AS FOLLOWS

NAILS COMMON ROUND WIRE UNLESS NOTED OTHERWISE
SCREWS ASME B18.6.1
LAG SCREWS CSA B34
BOLTS/THREAD RODS A307 OR 300W STEEL
ALL DIMENSIONAL LUMBER IS TO BE SPF NO.1 & NO.2 UNLESS NOTED OTHERWISE

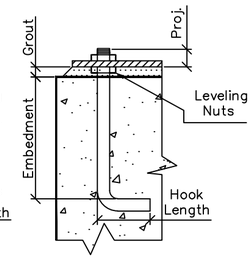
3. ALL WALL AND ROOF SHEATHING SHALL BE FASTENED WITH A MIN. OF 65MM (2-1/2") NAILS AT 300MM (12") IN THE FILED AND 150MM (6") ALONG ALL SUPPORT EDGES.

4. ALL FLOOR SHEATHING SHALL BE FASTENED WITH A MIN. OF 65MM (2-1/2") NAILS AT 250MM (10") IN THE FIELD AND 150MM (6") ALONG ALL SUPPORTED EDGES AND SHALL BE GLUED TO THE JOISTS IN ADDITION TO NAILING.

ANCHOR ROD DETAILS:



ANCHOR ROD W/ PLATES



HOOKED ANCHOR ROD

TABLE D: ANCHOR ROD DETAILS

DIA.	ANCHOR RODS			ANCHOR PLATE (WxD - Thk.)
	PROJ.	EMBED.	HOOK.	
1/2"	3"	12"	3"	_
5/8"	3"	12"	3"	_
3/4"	3"	16"	3"	_
1"	3.5"	18"	_	3"X3" - 3/8"
1.25"	4"	20"	_	4"X4" - 1/2"
1.5"	4.5"	24"	_	4"X4" - 5/8"

1. ANCHOR PLACEMENT TO FOLLOW ERECTION DRAWINGS PROVIDED BY BUILDING MANUFACTURER.
2. ANCHOR RODS TO BE ASTM F1554 GRADE 36, YIELD STRENGTH Fy=36 KSI MIN. OR EQUIVALENT.

REVISION LOG

Rev.	Description	By	Chk'd
1	__	__	__
2	__	__	__
3	__	__	__
4	__	__	__
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8	__	__	__
9	__	__	__

MBA Engineering
STRUCTURAL ENGINEERS
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Burlington, Ontario
Canada L7L 6A3
Phone: (905) 906-9557
Toll Free: (844) 834-0939
www.mba-engineering.com

PROJECT ENGINEER:
Bao Ngo, P.Eng.
_

CUSTOMER NAME & LOCATION:
Ellen Holland
Grand Bend, ON

PROJECT NAME & LOCATION:
Pre-Engineered Building
Grand Bend, ON

DRAWING TITLE:
COVER NOTES CONCRETE

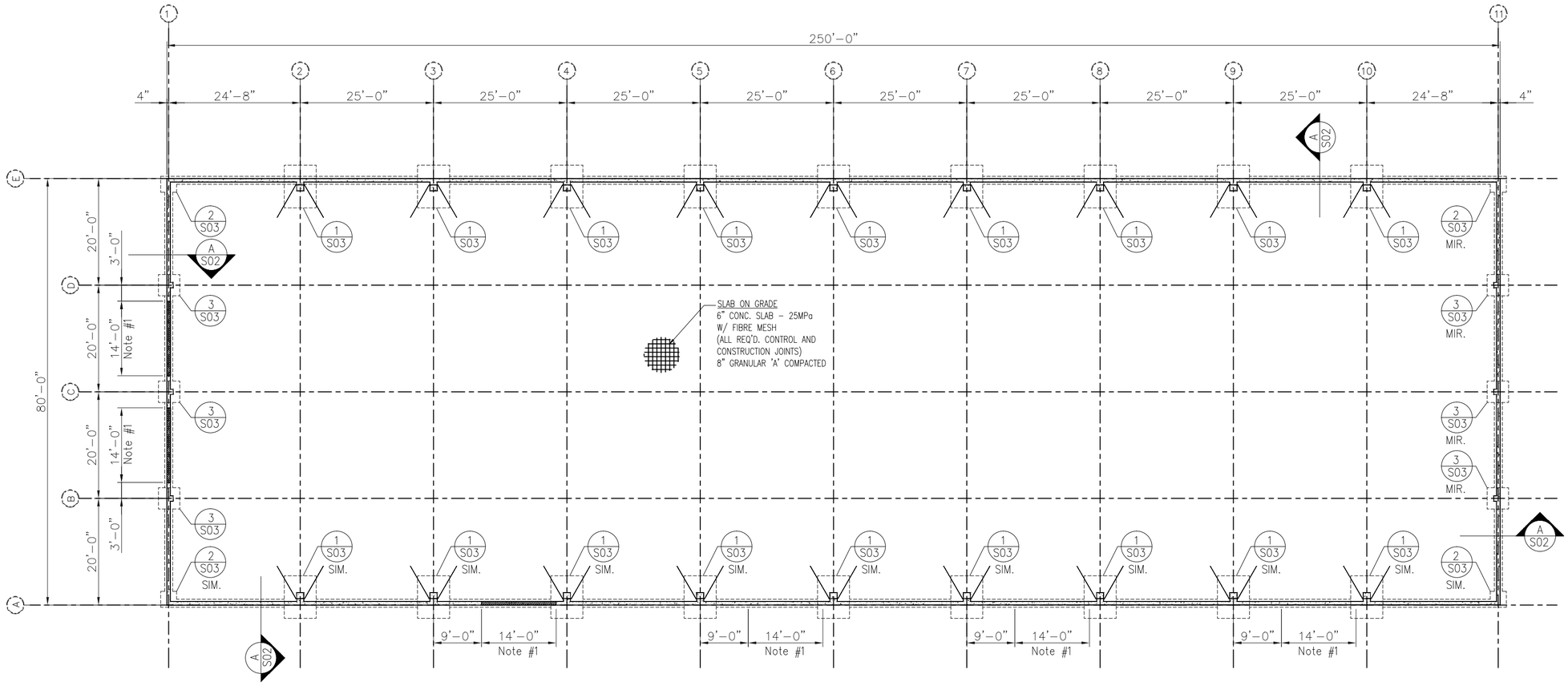
PROJECT NUMBER:
2021-Q3-00008

DRAWING STATUS:
- [ ] PRELIMINARY
- [ ] FOR CUSTOMER APPROVAL
- [x] ISSUED FOR PERMIT
- [ ] ISSUED FOR CONSTRUCTION

DRAWN BY:
MC (2021-06-29)

CHECKED BY:
BN

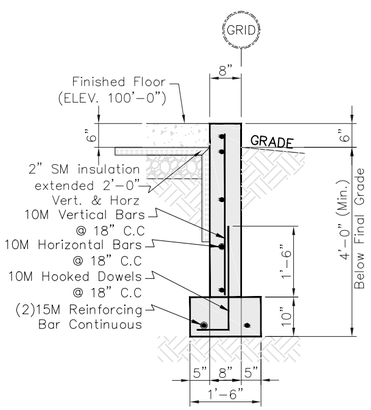
SHEET NUMBER
S01



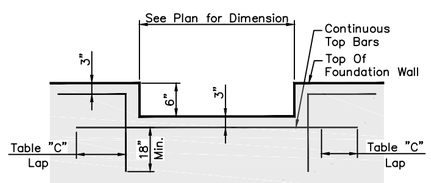
FOUNDATION PLAN
SCALE 1/16" = 1'-0"

NOTES:

1_ Depress top of foundation wall at door opening for a cont. concrete pour (Detail B/S02-Typ.). Refer to Arc. dwgs for exact location.



A S02 FOUNDATION WALL
SCALE 1/2" = 1'-0"



B S02 DEPRESSION DETAIL
SCALE 1/2" = 1'-0"

REVISION LOG

Rev.	Description	By	Chk'd
1	---	---	---
2	---	---	---
3	---	---	---
4	---	---	---
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8	---	---	---
9	---	---	---

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STRUCTURAL ENGINEERS
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Phone: (905) 906-9557
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PROJECT ENGINEER:
Bao Ngo, P.Eng.

CUSTOMER NAME & LOCATION:
Ellen Holland
Grand Bend, ON

PROJECT NAME & LOCATION:
Pre-Engineered Building
Grand Bend, ON

DRAWING TITLE:
FND. LAYOUT
& DETAILS

PROJECT NUMBER:
2021-Q3-00008

DRAWING STATUS:
- [ ] PRELIMINARY
- [ ] FOR CUSTOMER APPROVAL
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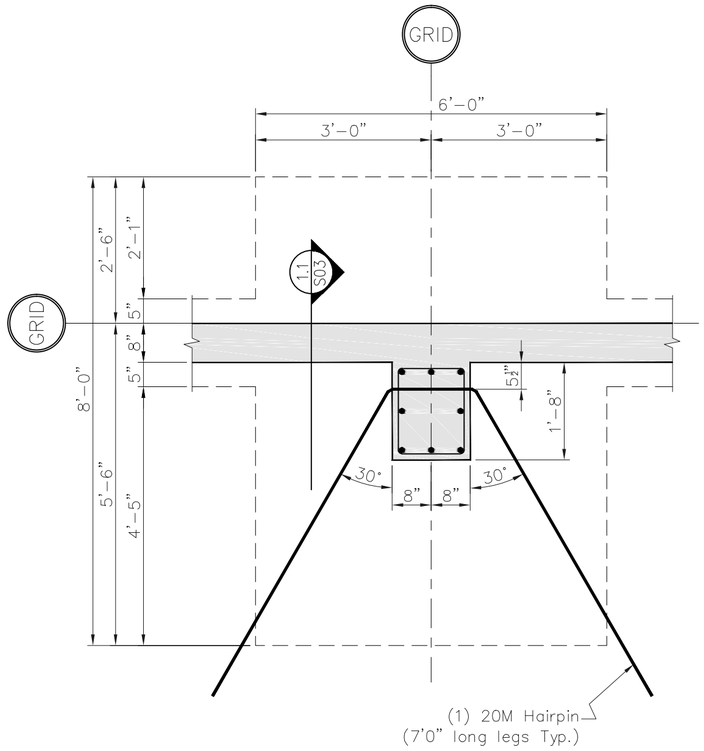
- [ ] ISSUED FOR CONSTRUCTION

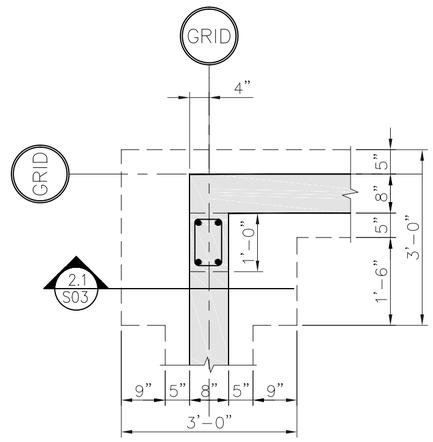
DRAWN BY:
MC (2021-06-29)

CHECKED BY:
BN

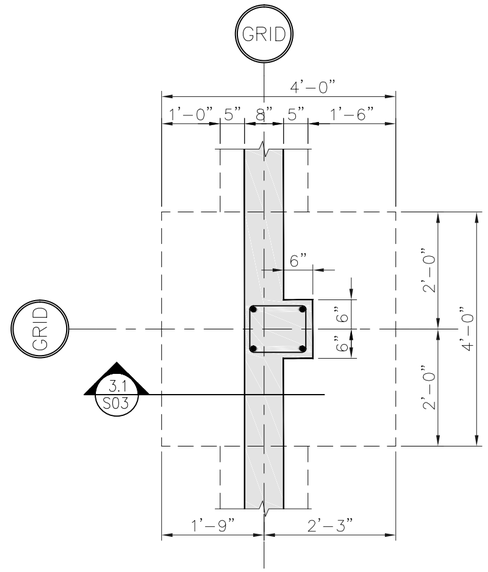
SHEET NUMBER
S02



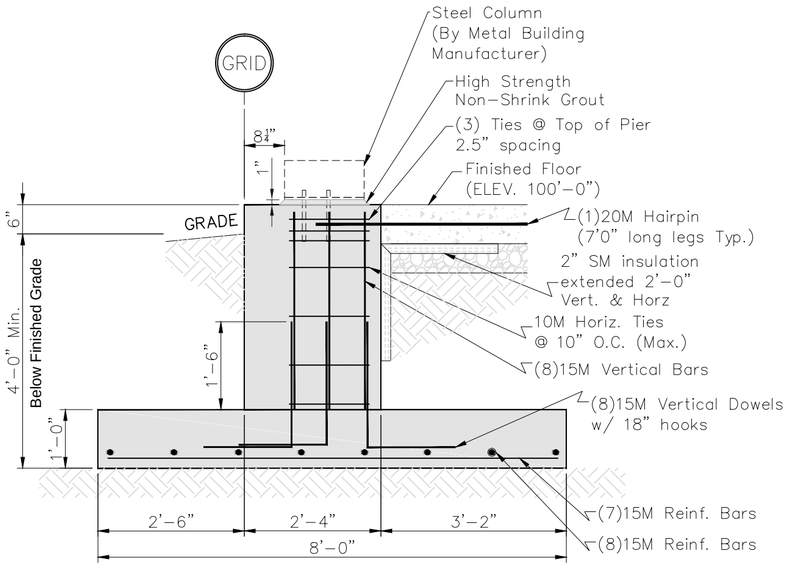
1 S03 PIER DETAIL (PLAN)
SCALE 1/2" = 1'-0"



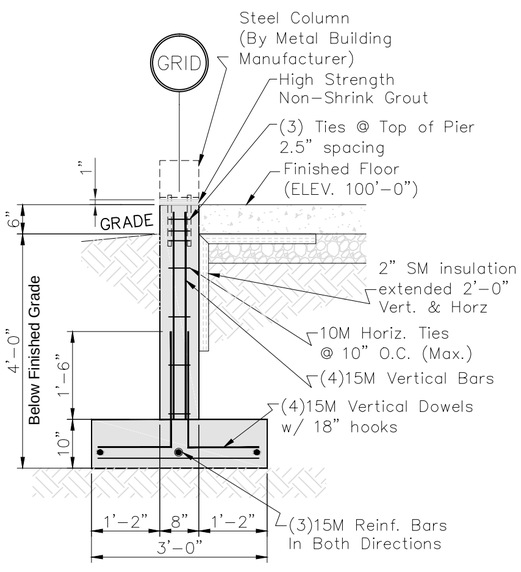
2 S03 PIER DETAIL (PLAN)
SCALE 1/2" = 1'-0"



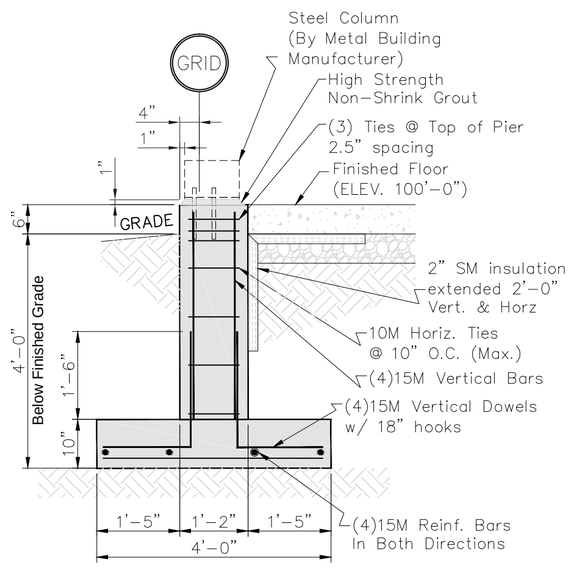
3 S03 PIER DETAIL (PLAN)
SCALE 1/2" = 1'-0"



1.1 S03 PIER SECTION
SCALE 1/2" = 1'-0"



2.1 S03 PIER SECTION
SCALE 1/2" = 1'-0"



3.1 S03 PIER SECTION
SCALE 1/2" = 1'-0"

REVISION LOG

Rev.	Description	By	Chk'd
1	—	—	—
2	—	—	—
3	—	—	—
4	—	—	—
5	—	—	—
6	—	—	—
7	—	—	—
8	—	—	—
9	—	—	—

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DRAWING TITLE:
FOUNDATION DETAILS

PROJECT NUMBER:
2021-Q3-00008

DRAWING STATUS:
- [ ] PRELIMINARY
- [ ] FOR CUSTOMER APPROVAL
- [x] ISSUED FOR PERMIT
- [ ] ISSUED FOR CONSTRUCTION

DRAWN BY:
MC (2021-06-29)

CHECKED BY:
BN

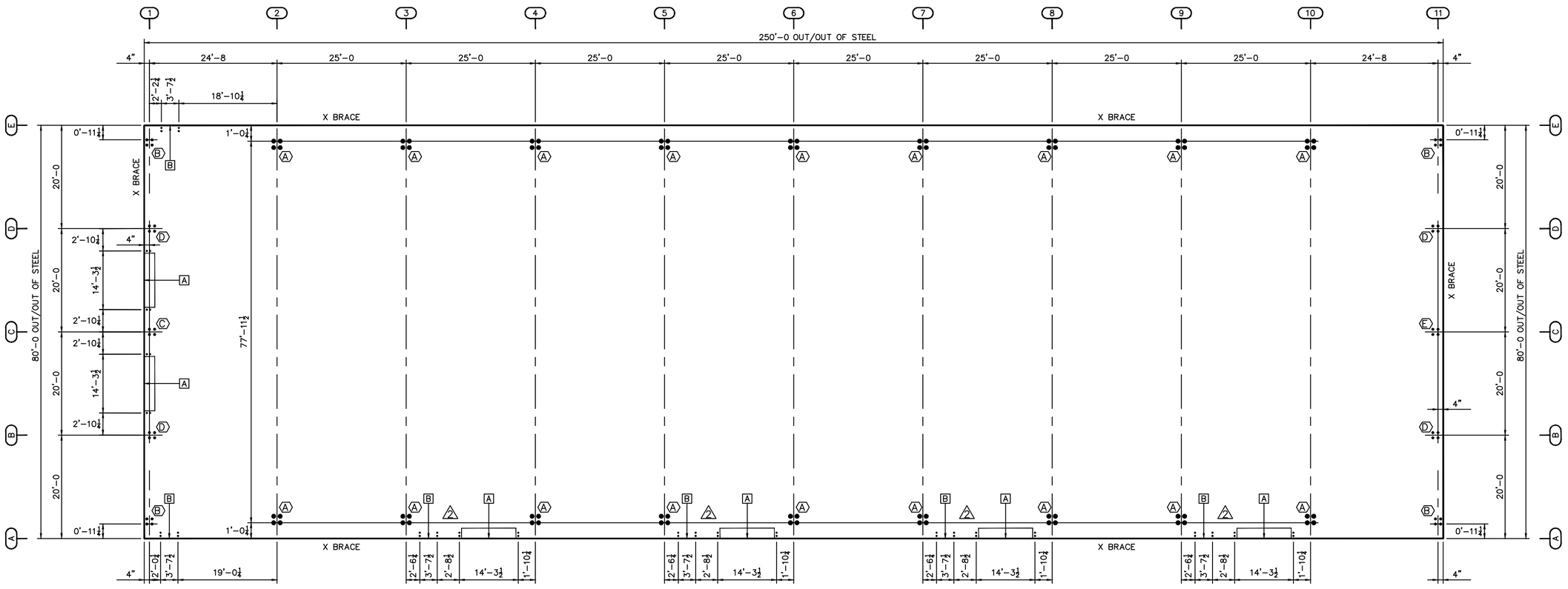
SHEET NUMBER
S03

LICENSED PROFESSIONAL ENGINEER
B. NGO
100154026
06/29/2021
PROVINCE OF ONTARIO

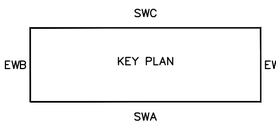
Anchor Rod Drawings

1) This drawing is for anchor rod placement only and is not foundation design.
2) Foundation must be square and level with all anchor rods true in size, location, and projection.
3) Projection shown must be held to keep threads clear of finished concrete.
4) This structural design data includes magnitude and location of design loads and support conditions, material properties, and type and size of major structural members necessary to show compliance with the Order Documents at the time of this issue. Any change to building loads or dimensions may change structural member sizes and locations shown. This structural design data will be superseded and voided by any future mailing.
5) Anchor rod size is determined by shear and tension at the bottom of the base plate. The length of the anchor rod and method of load transfer to the foundation are to be determined by the foundation engineer, and are not provided by the manufacturer.
6) Anchor rods are ASTM F1554 Gr. 36 material unless noted otherwise.
7) 3000 psi concrete compressive strength (f'c) is assumed for the purpose of column base plate design unless otherwise noted.

FINISH FLOOR AT ELEVATION 100'-0



ANCHOR ROD SETTING PLAN



ANCHOR BOLTS TO BE DESIGNED BY FOUNDATION ENGINEER USING DIAMETERS SHOWN IN THIS TABLE.	
ANCHOR ROD DESCRIPTION	QUANTITY
⅝ "ø DIAMETER X	48
¾ "ø DIAMETER X	40
1¼"ø DIAMETER X	72

ACCESSORY SCHEDULE			
MARK	DESCRIPTION	DETAIL	QUAN.
A	14'-0 X 20'-0 FRAMED OPENINGS	F	6
B	3'-4 X 7'-2 FRAMED OPENINGS	G	6

Revision	Date	Description	By	Ck'd
1	06/15/21	NO CHANGES	PAC	FEM
2	06/18/21	UPDATED THRU C.W.O. REV: #4	PAC	FEM

MetalCor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
MOUNT BRYDGES, ON

Project Name & Location:
ELLEN HOLLAND
GRAND BEND, ON

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)
☒ For Construction Permit
☐ For Erector Installation

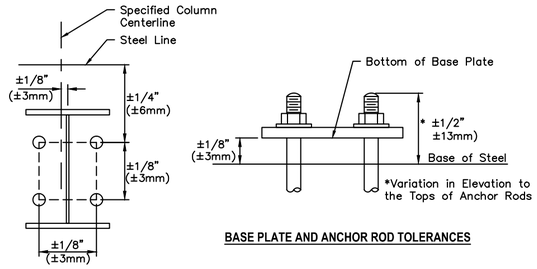
Scale: NOT TO SCALE
Drawn by: PAC 6/4/21
Checked by: FEM 6/9/21
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: F1 of 3

The engineer whose seal appears hereon is an employee for the manufacturer, Cornerstone Building Brands or one of its affiliates, for the materials described herein. Said seal or certification is limited to the products designed and manufactured by manufacturer only. The undersigned engineer is not the overall engineer of record for this project.

G. MURALI, P.ENG
ONTARIO P.ENG 100114358

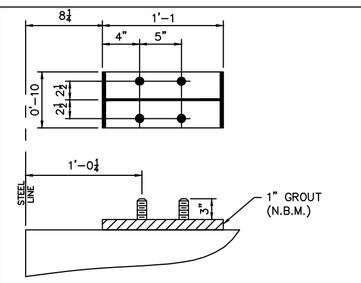
Drawing has been digitally signed.

AISC CODE OF STANDARD PRACTICE TOLERANCES FOR SETTING ANCHOR RODS



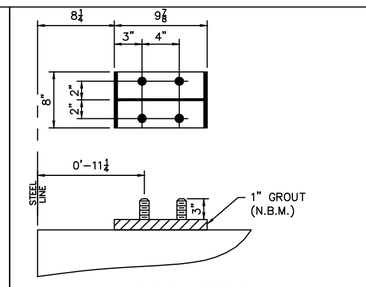
ANCHOR ROD SETTING TOLERANCES

BASE PLATE AND ANCHOR ROD TOLERANCES



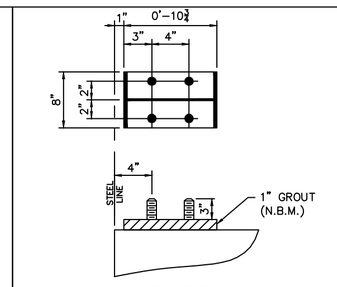
TYPICAL SECTION
1¼"ø ANCHOR RODS

(A) BASE OF STEEL AT ELEV. 100'-1



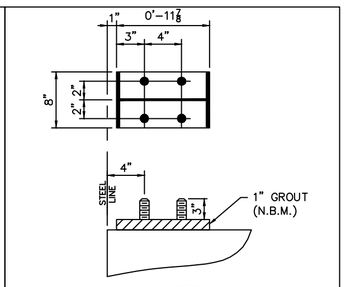
TYPICAL SECTION
¾"ø ANCHOR RODS

(B) BASE OF STEEL AT ELEV. 100'-1



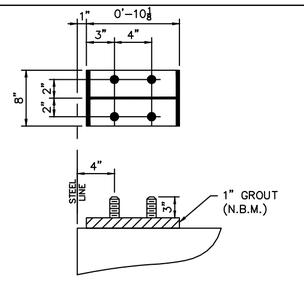
TYPICAL SECTION
¾"ø ANCHOR RODS

(C) BASE OF STEEL AT ELEV. 100'-1



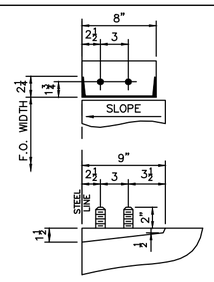
TYPICAL SECTION
¾"ø ANCHOR RODS

(D) BASE OF STEEL AT ELEV. 100'-1



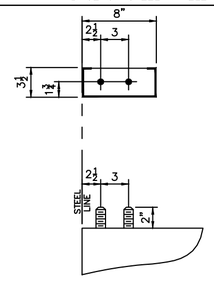
TYPICAL SECTION
¾"ø ANCHOR RODS

(E) BASE OF STEEL AT ELEV. 100'-1



TYPICAL SECTION
⅝"ø ANCHOR RODS

(F) BASE OF STEEL AT ELEV. 100'-0



TYPICAL SECTION
⅝"ø ANCHOR RODS

(G) BASE OF STEEL AT ELEV. 100'-0

Revision	Date	Description	By	Ck'd
1	06/15/21	DETAIL "C" UPDATED THRU REV. #2 ON DESIGN PACKAGE	PAC	FEM
2	06/18/21	NO CHANGES	PAC	FEM

MetalCor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
MOUNT BRYDGES, ON

Project Name & Location:
ELLEN HOLLAND
GRAND BEND, ON

Drawing Status:
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☐ For Erector Installation

Scale:	NOT TO SCALE
Drawn by:	PAC 6/4/21
Checked by:	FEM 6/9/21
Project Engineer:	MTS
Job Number:	18-B-18330
Sheet Number:	F2 of 3

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G. MURALI, P.ENG
ONTARIO P.ENG 100114358

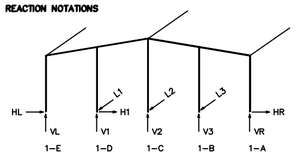
Drawing has been digitally signed.

FRAME DESCRIPTION: Endwall END
USER NAME: mtsanche
JOB NAME: 18330A
DATE: 6/15/21
FILE: REW3BLDG1
PAGE: EW-1

PATH: R:\Jobs\Active\Eng\18-B-18330\ver01-mtsanchez\BLDG-A\run01\

SUPPORT REACTIONS FOR EACH LOAD GROUP
NOTE: All reactions are in kips and kip-ft.
TIME: 07:09:50

REACTION NOTATIONS



LOAD GROUP REACTION TABLE

COLUMN	1-E			1-D			1-C			1-B			1-A		
LOAD GROUP	HL	VL	LL	H1	V1	L1	H2	V2	L2	H3	V3	L3	HR	VR	LR
D	0.0	0.7	0.	0.	1.6	0.0	0.	1.6	0.0	0.	1.6	0.0	0.0	0.7	0.
C	0.0	0.1	0.	0.	0.3	0.0	0.	0.2	0.0	0.	0.3	0.0	0.0	0.1	0.
L	0.0	2.1	0.	0.	6.4	0.1	0.	4.0	0.0	0.	6.4	0.1	0.0	2.1	0.
S	0.1	5.0	0.	0.	14.9	0.2	0.	9.4	0.1	0.	14.9	0.2	-0.1	5.0	0.
W+	-0.1	-3.5	0.	0.	-9.1	5.2	0.	-5.6	5.9	0.	-9.1	5.2	0.1	-3.5	0.
W-	-0.1	-3.5	0.	0.	-9.1	-5.1	0.	-5.6	-5.7	0.	-9.1	-5.1	0.1	-3.5	0.
WR	-0.1	-1.0	0.	2.2	-11.5	-0.1	0.	-5.6	0.0	0.	-9.1	-0.1	0.1	-3.5	0.
WL	-2.3	-6.2	0.	0.	-6.3	-0.1	0.	-5.6	0.0	0.	-9.1	-0.1	0.1	-3.5	0.
ER	0.	0.9	0.	0.8	-0.9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
EL	-0.8	-1.0	0.	0.	1.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
E+	0.	0.	0.	0.	0.	0.0	0.	0.	0.0	0.	0.	0.0	0.	0.	0.
E-	0.	0.	0.	0.	0.	0.0	0.	0.	0.0	0.	0.	0.0	0.	0.	0.

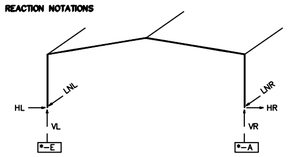
LOAD GROUP DESCRIPTION

D	:	Dead load
C	:	Collateral load
L	:	Live load
S	:	Design snow load
W+	:	Wind load as an inward acting pressure
W-	:	Wind load as an outward acting suction
WR	:	Wind force from the right
WL	:	Wind force from the left
ER	:	Seismic force from right
EL	:	Seismic force from left
E+	:	Seismic force acting inward
E-	:	Seismic force acting outward

FRAME ID #2
cs 80./22./25. 20.89/10.234
USER NAME: MTSanchez
JOB NAME: 18330A
DATE: 6/ 1/21
FILE: frames_2-10.fra
PAGE: 2-3

SUPPORT REACTIONS FOR EACH LOAD GROUP
*LOCATION: Gridlines: 2 3 4 5 6 7 8 9 10
NOTES: (1) All reactions are in kips and kip-ft.
(2) Primary wind load cases are not concurrent.
(3) X-bracing reactions (RBPULW and RBUPEQ) are combined withLWL and LEQ groups only.
TIME: 17:29:42

REACTION NOTATIONS



LOAD GROUP REACTION TABLE GRIDLINES * = 2 3 4 5 6 7 8 9 10

COLUMN	*-E			*-A		
LOAD GROUP	HL	VL	LNL	HR	VR	LNR
DL	2.9	5.3	0.0	-2.9	5.3	0.0
COLL	0.6	1.0	0.0	-0.6	1.0	0.0
PAR1	15.5	36.8	0.0	-15.5	11.7	0.0
PAR2	15.5	11.7	0.0	-15.5	36.8	0.0
SNOW	31.0	48.5	0.0	-31.0	48.5	0.0
LL	13.3	20.9	0.0	-13.3	20.9	0.0
RBUPEQ	0.1	-3.8	-4.4	-0.1	-3.8	-4.4
RBDWEQ	-0.1	3.8	0.0	0.1	3.8	0.0
EQ	-0.9	-0.5	0.0	-0.9	0.5	0.0
WL1	-10.0	-12.3	0.0	3.2	-7.9	0.0
WL2	-11.8	-18.2	0.0	5.0	-13.8	0.0
WL3	-7.1	-3.5	0.0	0.4	0.9	0.0
WL4	-3.2	-7.9	0.0	10.0	-12.3	0.0
WL5	-5.0	-13.8	0.0	11.8	-18.2	0.0
WL6	-0.4	0.9	0.0	7.1	-3.5	0.0
LWL1	-3.1	-11.0	0.0	4.1	-8.6	0.0
RBUPLW	0.1	-3.1	-3.5	-0.1	-3.1	-3.5
LWL2	-5.0	-16.9	0.0	5.9	-14.4	0.0
LWL3	-0.3	-2.2	0.0	1.2	0.3	0.0
LWL4	-4.1	-8.6	0.0	3.1	-11.0	0.0

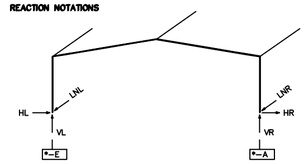
LOAD GROUP DESCRIPTION

DL	:	Roof Dead Load
COLL	:	Roof Collateral Load
PAR1	:	Partial Load [PARxx]
PAR2	:	Partial Load [PARxx]
SNOW	:	Roof Snow Load
LL	:	Roof Live Load
RBUPEQ	:	Upward Acting Rod Brace Load from Long. Seismic
RBDWEQ	:	Downward Acting Rod Brace Load from Long. Seismic
EQ	:	Lateral Seismic Load [parallel to plane of frame]
WL1	:	Wind from Left to Right without CpICgI
WL2	:	Wind from Left to Right with CpICgI
WL3	:	Wind from Left to Right with -CpICgI
WL4	:	Wind from Right to Left without CpICgI
WL5	:	Wind from Right to Left with CpICgI
WL6	:	Wind from Right to Left with -CpICgI
LWL1	:	Wind from Back to Front without CpICgI
RBUPLW	:	Upward Acting Rod Brace Load from Long. Wind
LWL2	:	Wind from Back to Front with CpICgI
LWL3	:	Wind from Back to Front with -CpICgI
LWL4	:	Wind from Front to Back without CpICgI

FRAME ID #2
cs 80./22./25. 20.89/10.234
USER NAME: MTSanchez
JOB NAME: 18330A
DATE: 6/ 1/21
FILE: frames_2-10.fra
PAGE: 2-4

SUPPORT REACTIONS FOR EACH LOAD GROUP
*LOCATION: Gridlines: 2 3 4 5 6 7 8 9 10
NOTES: (1) All reactions are in kips and kip-ft.
(2) Primary wind load cases are not concurrent.
(3) X-bracing reactions (RBPULW and RBUPEQ) are combined withLWL and LEQ groups only.
TIME: 17:29:42

REACTION NOTATIONS



LOAD GROUP REACTION TABLE GRIDLINES * = 2 3 4 5 6 7 8 9 10

COLUMN	*-E			*-A		
LOAD GROUP	HL	VL	LNL	HR	VR	LNR
LWL5	-5.9	-14.4	0.0	5.0	-16.9	0.0
LWL6	-1.2	0.3	0.0	0.3	-2.2	0.0
RBDWLW	-0.0	3.1	0.0	0.0	3.1	0.0

LOAD GROUP DESCRIPTION

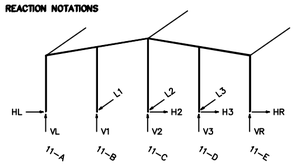
LWL5	:	Wind from Front to Back with CpICgI
LWL6	:	Wind from Front to Back with -CpICgI
RBDWLW	:	Downward Acting Rod Brace Load from Long. Wind

FRAME DESCRIPTION: Endwall END
USER NAME: MTSanche
JOB NAME: 18330A
DATE: 5/24/21
FILE: REW4BLDG1
PAGE: EW-2

PATH: R:\Jobs\Active\Eng\18-B-18330\ver01-mtsanchez\BLDG-A\run01\

SUPPORT REACTIONS FOR EACH LOAD GROUP
NOTE: All reactions are in kips and kip-ft.
TIME: 10:07:53

REACTION NOTATIONS



LOAD GROUP REACTION TABLE

COLUMN	11-A			11-B			11-C			11-D			11-E		
LOAD GROUP	HL	VL	LL	H1	V1	L1	H2	V2	L2	H3	V3	L3	HR	VR	LR
D	0.0	0.7	0.	0.	1.6	0.0	0.	1.3	0.0	0.	1.6	0.0	0.0	0.7	0.
C	0.0	0.1	0.	0.	0.3	0.0	0.	0.2	0.0	0.	0.3	0.0	0.0	0.1	0.
L	0.0	2.1	0.	0.	6.4	0.1	0.	4.0	0.0	0.	6.4	0.1	0.0	2.1	0.
S	0.1	5.0	0.	0.	14.9	0.2	0.	9.4	0.1	0.	14.9	0.2	-0.1	5.0	0.
W+	-0.1	-3.5	0.	0.	-9.1	5.2	0.	-5.6	5.9	0.	-9.1	5.2	0.1	-3.5	0.
W-	-0.1	-3.5	0.	0.	-9.1	-5.1	0.	-5.6	-5.7	0.	-9.1	-5.1	0.1	-3.5	0.
WR	-0.1	-3.5	0.	0.	-9.1	-0.1	0.	-2.5	0.0	2.1	-12.2	-0.1	0.1	-3.5	0.
WL	-0.1	-3.5	0.	0.	-9.1	-0.1	-2.1	-8.3	0.0	0.	-6.4	-0.1	0.1	-3.5	0.
E+	0.	0.	0.	0.	0.	0.0	0.	0.	0.0	0.	0.	0.0	0.	0.	0.
E-	0.	0.	0.	0.	0.	0.0	0.	0.	0.0	0.	0.	0.0	0.	0.	0.
ER	0.	0.	0.	0.	0.	0.	0.	1.1	0.	0.8	-1.1	0.	0.	0.	0.
EL	0.	0.	0.	0.	0.	0.	-0.8	-1.0	0.	0.	1.0	0.	0.	0.	0.

LOAD GROUP DESCRIPTION

D	:	Dead load
C	:	Collateral load
L	:	Live load
S	:	Design snow load
W+	:	Wind load as an inward acting pressure
W-	:	Wind load as an outward acting suction
WR	:	Wind force from the right
WL	:	Wind force from the left
E+	:	Seismic force acting inward
E-	:	Seismic force acting outward
ER	:	Seismic force from right
EL	:	Seismic force from left

NOTES

1) THE REACTIONS PROVIDED ARE BASED ON THE ORDER DOCUMENTS AT THE TIME OF MAILING. ANY CHANGES TO BUILDING LOADS OR DIMENSIONS MAY CHANGE THE REACTIONS. THE REACTIONS WILL BE SUPERSEDED AND VOIDED BY ANY FUTURE MAILING.
2) THE REACTIONS PROVIDED HAVE BEEN CREATED WITH THE FOLLOWING LAYOUT (UNLESS NOTED OTHERWISE).
a) A REACTION TABLE IS PROVIDED WITH THE REACTIONS FOR EACH LOAD GROUP.
b) RIGID FRAMES – TRANSVERSE AND LONGITUDINAL
(1) FOR CANADA BUILDING CODE (NBCC), INDIVIDUAL TRANSVERSE SEISMIC LOADS FOR MOMENT FRAMES (EQ) ARE NOT MULTIPLIED BY FORCE REDUCTION FACTOR, R_ϕ WHEN SPECIFIED SHORT-PERIOD SPECTRAL ACCELERATION RATIO $\{I_E F_a S_a(0.2)\}$ IS GREATER THAN 0.45.
(2) FOR CANADA BUILDING CODE (NBCC), WHEN PORTAL FRAMES ARE PRESENT IN THE SIDEWALL, INDIVIDUAL LONGITUDINAL SEISMIC LOADS (LEQ) ARE NOT MULTIPLIED BY FORCE REDUCTION FACTOR, R_ϕ WHEN SPECIFIED SHORT-PERIOD SPECTRAL ACCELERATION RATIO $\{I_E F_a S_a(0.2)\}$ IS GREATER THAN 0.45.
c) ENDWALLS – SEISMIC BASE SHEAR FROM WALL MASS
(1) FOR CANADA BUILDING CODE (NBCC), INDIVIDUAL LONGITUDINAL SEISMIC LOADS (E+ & E-), AND INDIVIDUAL TRANSVERSE SEISMIC LOADS (EL & ER) ARE MULTIPLIED BY FORCE REDUCTION FACTOR, R_ϕ WHEN SPECIFIED SHORT-PERIOD SPECTRAL ACCELERATION RATIO $\{I_E F_a S_a(0.2)\}$ IS GREATER THAN 0.45.
d) X-BRACING – REACTIONS TO COLUMNS FROM WALL BRACING
(1) X- BRACING REACTIONS ARE INCLUDED IN VALUES SHOWN IN THE REACTION TABLES.
(2) FOR CANADA BUILDING CODE (NBCC), WHEN X-BRACING IS PRESENT IN THE SIDEWALL, INDIVIDUAL LONGITUDINAL SEISMIC LOADS (RBUPEQ & RBDWEQ) ARE MULTIPLIED BY FORCE REDUCTION FACTOR, R_ϕ WHEN SPECIFIED SHORT-PERIOD SPECTRAL ACCELERATION RATIO $\{I_E F_a S_a(0.2)\}$ IS GREATER THAN 0.45.
(3) FOR CANADA BUILDING CODE (NBCC), WHEN X-BRACING IS PRESENT IN THE ENDWALL, INDIVIDUAL TRANSVERSE SEISMIC LOADS (EL & ER) ARE MULTIPLIED BY FORCE REDUCTION FACTOR, R_ϕ WHEN SPECIFIED SHORT-PERIOD SPECTRAL ACCELERATION RATIO $\{I_E F_a S_a(0.2)\}$ IS GREATER THAN 0.45.
(4) FOR CANADA BUILDING CODE (NBCC), WHEN X-BRACING IS PRESENT AT THE ENDWALL CORNER COLUMNS, INDIVIDUAL LONGITUDINAL SEISMIC LOADS (E+ & E-) ARE MULTIPLIED BY FORCE REDUCTION FACTOR, R_ϕ WHEN SPECIFIED SHORT-PERIOD SPECTRAL ACCELERATION RATIO $\{I_E F_a S_a(0.2)\}$ IS GREATER THAN 0.45.
e) THE METAL BUILDING MANUFACTURER IS RESPONSIBLE ONLY FOR THE PORTION OF THE ANCHOR ROD DESIGN PERTAINING TO THE TRANSFER OF FORCES BETWEEN THE BASE PLATE BEARING AND THE ANCHOR ROD'S SHEAR AND TENSION. THE METAL BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR THE ANCHOR ROD EMBEDMENT FOR TRANSFER OF FORCES TO THE FOUNDATION. THE METAL BUILDING MANUFACTURER DOES NOT DESIGN AND IS NOT RESPONSIBLE FOR THE DESIGN, MATERIAL, AND CONSTRUCTION OF THE FOUNDATION EMBEDMENTS. THE END USE CUSTOMER SHALL ASSURE THAT ADEQUATE PROVISIONS ARE MADE TO THE FOUNDATION DESIGN FOR LOADS IMPOSED BY COLUMN REACTIONS OF THE BUILDING, OTHER IMPOSED LOADS, AND BEARING CAPACITY OF THE SOIL AND OTHER CONDITIONS OF THE BUILDING SITE. IT IS RECOMMENDED THAT THE ANCHORAGE AND FOUNDATION OF THE BUILDING BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER COMPETENT IN THE DESIGN OF SUCH STRUCTURES.
i) (REF. APPENDIX A3 OF THE MBMA METAL BUILDING SYSTEMS MANUAL)
f) ANCHOR RODS ARE ASTM F1554 GR. 36 MATERIAL UNLESS NOTED OTHERWISE ON THE ANCHOR ROD LAYOUT DRAWING.
3) REACTIONS ARE PROVIDED AS UN-FACTORED FOR EACH LOAD GROUP APPLIED TO THE COLUMN – WITH THE EXCEPTION OF THE R_ϕ SEISMIC FACTOR. REFER TO THE ENDWALLS AND X-BRACING NOTES ABOVE.
a) THE FACTORS APPLIED TO LOAD GROUPS FOR THE STEEL COLUMN DESIGN MAY BE DIFFERENT THAN THE FACTORS USED IN THE FOUNDATION DESIGN. THE FOUNDATION ENGINEER SHALL APPLY THE APPROPRIATE LOAD FACTORS AND COMBINE THE REACTIONS IN ACCORDANCE WITH THE BUILDING CODE AND DESIGN SPECIFICATIONS FOR PROPER FOUNDATION DESIGN.
THE MANUFACTURER DOES NOT PROVIDE "MAXIMUM" LOAD COMBINATION REACTIONS. HOWEVER, THE INDIVIDUAL LOAD REACTIONS PROVIDED MAY BE USED BY THE FOUNDATION ENGINEER TO DETERMINE THE APPLICABLE LOAD COMBINATIONS FOR HIS/HER DESIGN PROCEDURES AND ALLOW FOR AN ECONOMICAL FOUNDATION DESIGN.

Revision	Date	Description	By	Ck'd
1	06/15/21	REACTIONS UPDATED THRU REV. #2 ON DESIGN PACKAGE	PAC	FEM
2	06/18/21	NO CHANGES	PAC	FEM

MetalCor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS MOUNT BRYDGES, ON

Project Name & Location: ELLEN HOLLAND GRAND BEND, ON

Drawing Status: ☐ Preliminary (Not For Construction) ☐ For Approval (Not For Construction) ☒ For Construction Permit ☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/4/21
Checked by: FEM 6/9/21
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: F3 of 3

The engineer whose seal appears hereon is an employee for the manufacturer, Cornerstone Building Brands or one of its affiliates, for the materials described herein. Said seal or certification is limited to the products designed and manufactured by manufacturer only. The undersigned engineer is not the overall engineer of record for this project.

G. MURALI, P.ENG
ONTARIO P.ENG 100114358

Drawing has been digitally signed.

Builder/Contractor Responsibilities

Drawing Validity – These drawings, supporting structural calculations and design certification are based on the order documents as of the date of these drawings. These documents describe the material supplied by the manufacturer as of the date of these drawings. Any changes to the order documents after the date on these drawings may void these drawings, supporting structural calculations and design certification. The Builder/Contractor is responsible for notifying the building authority of all changes to the order documents which result in changes to the drawings, supporting structural calculations and design certification.

Builder Acceptance of Drawings – Approval of the manufacturer's drawings and design data affirms that the manufacturer has correctly interpreted and applied the requirements of the order documents and constitutes Builder/Contractor acceptance of the manufacturer's interpretations of the order documents and standard product specifications, including its design, fabrication and quality criteria standards and tolerances. (April 2010 Section 4.4.1)

Code Official Approval – It is the responsibility of the Builder/Contractor to ensure that all project plans and specifications comply with the applicable requirements of any governing building authority. The Builder/Contractor is responsible for securing all required approvals and permits from the appropriate agency as required.

Building Erection – The Builder/Contractor is responsible for all erection of the steel and associated work in compliance with the Metal Building Manufacturers drawings. Temporary supports, such as temporary guys, braces, false work or other elements required for erection will be determined, furnished and installed by the erector (April 2010 Section 7.10.3).

Discrepancies – Where discrepancies exist between the Metal Building plans and plans for other trades, the Metal Building plans will govern. (April 2010 Section 3.3)

Materials by Others – All interface and compatibility of any materials not furnished by the manufacturer are the responsibility of and to be coordinated by the Builder/Contractor or A/E firm. Unless specific design criteria concerning any interface between materials if furnished as a part of the order documents, the manufacturers assumptions will govern.

Modification of the Metal Building from Plans – The Metal Building supplied by the manufacturer has been designed according to the Building Code and specifications and the loads shown on this drawing. Modification of the building configuration, such as removing wall panels or braces, from that shown on these plans could affect the structural integrity of the building. The Metal Building Manufacturer or a Licensed Structural Engineer should be consulted prior to making any changes to the building configuration shown on these drawings. The Metal Building Manufacturer will assume no responsibility for any loads applied to the building not indicated on these drawings.

Foundation Design
The Metal Building Manufacturer is not responsible for the design, materials and workmanship of the foundation. Anchor rod plans prepared by the manufacturer are intended to show only location, diameter and projection of the anchor rods required to attach the Metal Building System to the foundation. It is the responsibility of the end customer to ensure that adequate provisions are made for specifying rod embedment, bearing values, tie rods and or other associated items embedded in the concrete foundation, as well as foundation design for the loads imposed by the Metal Building System, other imposed loads, and the bearing capacity of the soil and other conditions of the building site. (MBMA 06 Sections 3.2.2 and A3)

MetalCor BUILDING SYSTEMS®

634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

ENGINEERING DESIGN CRITERIA

Building Code	2015 National Building Code Of Canada
Building Importance Category	Normal
Roof Dead Load Superimposed	0.14 kPa // 2.90 psf
Roof Collateral Load	0.05 kPa // 1.00 psf
(Ceiling: 0.00 kPa // 0.00 psf other	0.05 kPa // 1.00 psf)
Roof Live Load	1.00 kPa // 20.89 psf
Ground Snow Load (Ss)	2.40 kPa // 50.12 psf
Rain Load (Sr)	0.40 kPa // 8.40 psf
Basic Roof Snow Load Factor (Cb)	0.80
Roof Slope Factor (Cs)	1.00
Importance Factor (Is)	1.00
Shape Factor (Ca)	1.00
Snow Exposure Factor (Cw)	1.00
Roof Snow Load	2.32 kPa // 48.50 psf
Wind Load 1/50	0.49 kPa // 10.23 psf
Wind Exposure (Ce)	Open Terrain
Building Internal Pressure	Category 2
Wind Importance Factor (Iw)	1.00
Wind Topographic Factor	1.00
Seismic Data	
Sa(0.2)	0.09
Sa(0.5)	0.06
Sa(1.0)	0.04
Sa(2.0)	0.02
Sa(5.0)	N/A
Sa(10.0)	N/A
Pga	0.05
Fa	1.24
Fv	1.55
Soils Site Class	D
Importance Factor (Ie)	1.00
Transverse Response Modification Ra	1.50
Longitudinal Response Modification Ra	1.50
Overstrength Factor Ro	1.30

DEFLECTION CRITERIA

The material supplied by the manufacturer has been designed with the following minimum deflection criteria. The actual deflection may be less depending on actual load and actual member length. The frame lateral drift or sidesway is based upon importance factors of 0.9 for specified snow loads and 0.75 for specified wind loads. The limits shown are at service loads unless indicated otherwise.

BUILDING DEFLECTION LIMITS..... BLDG-A

Roof Limits		Rafters	Purlins	Panels
Live	L/	180	180	60
Snow	L/	180	180	60
Wind	L/	180	180	60
Total Gravity	L/	180	120	60
Total Uplift	L/	N/A	N/A	60

Frame Limits		Sidesway
Live	H/	60
Snow	H/	60
Wind	H/	60
Seismic	H/	78
Total Wind	H/	60
Total Gravity	H/	60
Total Seismic	H/	98

Wall Limits		Limit
Total Wind Panels	L/	60
Total Wind Girts	L/	90
Total Wind EW Columns	L/	90

PROJECT NOTES

Material properties of steel bar, plate, and sheet used in the fabrication of built-up structural framing members conform to ASTM A529, ASTM A572, or ASTM A1011 with 55 ksi min. yield, except flanges wider than 12" and thicker than 3/8", all flanges thicker than 1", and all webs thicker than 3/8" are 50 ksi min. yield. Rod X-bracing conforms to ASTM A529 or ASTM A572 with 50 ksi min. yield. Cable X-bracing conforms to ASTM A475 7 Strand Extra High-Strength grade. Hot rolled structural shapes conform to ASTM A992, ASTM A529, or ASTM A572 with 50 ksi min. yield. Hot rolled angles, other than flange braces, conform to ASTM A36 minimum. Round and rectangular HSS conforms to ASTM A500 Grade B. Cold-formed steel secondary framing Members conform to ASTM A1011 or ASTM A653 Grade 55 with 55 ksi min. yield. For Canada, material properties conform to CAN/CSA G40.20/G40.21 or equivalent.

BOLT TIGHTENTING FOR CANADIAN JOBS- Rigid frame connection bolts with ASTM A325-A490 Type 1 bolts greater than 1/2" diameter are specified as pretensioned joints in accordance with the Specification for Structural Joints Using High-Strength Bolts, August 1, 2014. All the brace connections except rod braces must be pretensioned. Pretensioning can be accomplished by using the turn-of-nut method of tightening, calibrated wrench, twist-off-type tension-control bolts or direct-tension-indicator as acceptable to the Inspecting Agency and Building Official. Installation inspection requirements for pretensioned joints (Specification for Structural Joints Section 9.2) using direct-tension-indicator is recommended. The connections on this project are not slip critical. Base plate anchor bolts are not required to be pretensioned. Mezzanine beam connection are not required to be pretensioned unless otherwise noted.

Design criteria as noted is as given within order documents and is applied in general accordance with the applicable provisions of the model code and/or specification indicated. Neither the metal building manufacturer nor the certifying engineer declares or attests that the loads as designated are proper for local provisions that may apply or for site specific parameters. The design criteria is supplied by the builder, project owner, or an Architect and/or Engineer of Record for the overall construction project.

This project is designed using manufacturer's standard serviceability criteria. Generally this means that all deflections are within typical performance limits for normal occupancy and standard metal building products.

The metal building manufacturer has not designed the structure for snow accumulation loads at the ground level which may impose snow loads on the wall framing provided by the manufacturer.

The following criteria apply to projects in Canada.
a. Erection tolerances must meet the requirements of CAN/CSA-S16.
b. For projects in Canada the NCI Building Systems Houston, TX plant has received the Canadian welding bureau certification to CSA standard W47.1 in Division 1.
c. For projects in Canada the NCI Building Systems Houston, TX plant has received certification under the Manufactures of Steel Building Systems CAN/CSA A660 requirements.

Framed openings, walk doors, and open areas shall be located in the bay and elevation as shown in the erection drawings. The cutting or removal of girts shown on the erection drawings due to the addition of framed openings, walk doors, or open areas not shown may void the design certifications supplied by the metal building manufacturer.

25% of roof snow load has been included in the seismic calculation.

Drawing Index

Revision	Date	Description	By	Ck'd

MetalCor BUILDING SYSTEMS®
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
MOUNT BRYDGES, ON

Project Name & Location:
ELLEN HOLLAND
GRAND BEND, ON

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)
☒ For Construction Permit
☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/14/21
Checked by:
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: E1 of 8

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G. MURALI. P.ENG
ONTARIO P.ENG 100114358

Drawing has been digitally signed.

LICENSED PROFESSIONAL ENGINEER
G.MURALI
100114358
Jun 18, 2021
PROVINCE OF ONTARIO

Download panel installation manuals from:
www.CBBmanuals.com

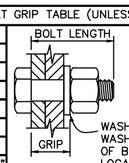
Descargue los manuales de instalación del panel desde:
www.CBBmanuals.com

BUILDING DESCRIPTIONS

Building ID	Width	Length	Height	Slope
Building A	80'-0	250'-0	22'-0	2:12

1/2"ø A325 BOLT GRIP TABLE (UNLESS NOTED)

GRIP	LENGTH
0 TO 9/16"	1 1/4" F.T.
Over 9/16" TO 1 1/16"	1 3/4" F.T.
Over 1 1/16" TO 1 5/16"	2"
Over 1 5/16" TO 1 9/16"	2 1/4"
Over 1 9/16" TO 1 13/16"	2 1/2"
Over 1 13/16" TO 2 1/16"	2 3/4"
LOCATIONS OF BOLTS LONGER THAN 2 3/4" NOTED ON ERECTION DRAWINGS	
F.T. DENOTES FULLY THREADED	

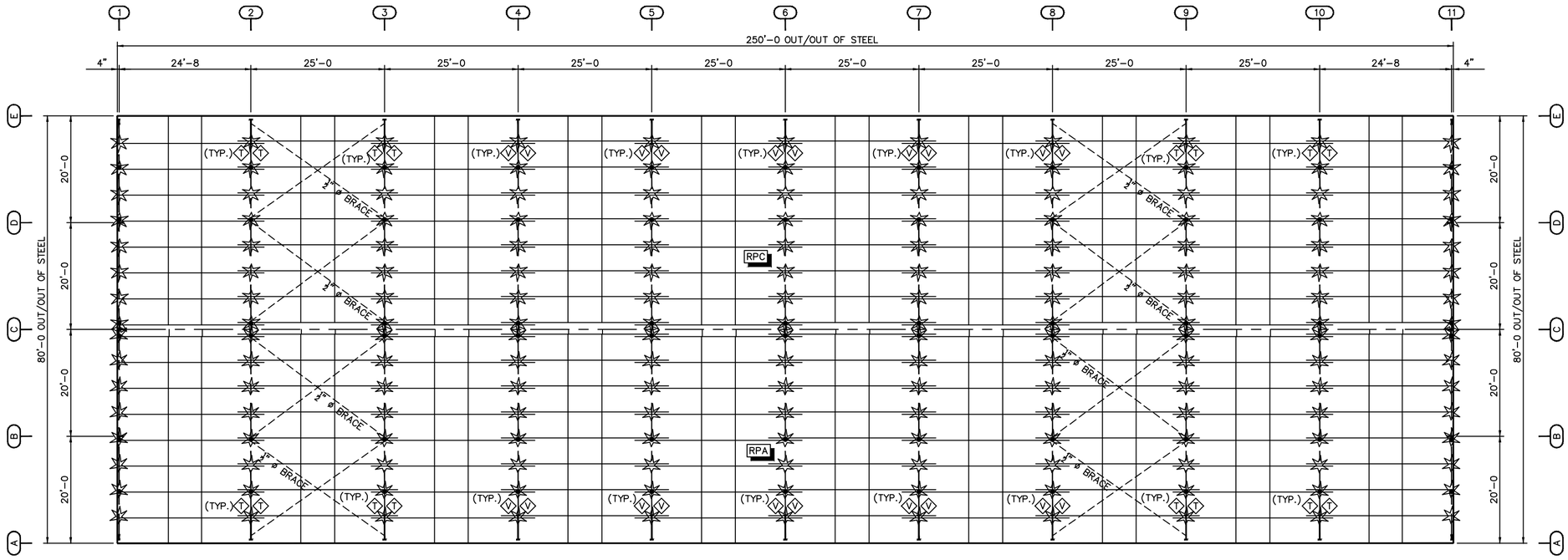


NOTE: FULL THREAD ENGAGEMENT IS DEEMED TO HAVE BEEN MET WHEN THE END OF THE BOLT IS FLUSH WITH THE FACE OF THE NUT.

WASHER REQUIRED ONLY WHEN SPECIFIED. WASHER MAY BE LOCATED UNDER HEAD OF BOLT, UNDER NUT, OR AT BOTH AT LOCATIONS NOTED ON ERECTION DRAWINGS. ADD 5/32" FOR EACH WASHER TO MATERIAL THICKNESS TO DETERMINE GRIP.

● – DENOTES: CLIP LOCATION
SC90 AT 8" PURLINS
SC92 AT 10" PURLINS
SC94 AT 12" PURLINS

☆ DENOTES: (4) ¾"ø BOLTS AT PURLIN OR GIRT CONNECTION TO CLIP. REFER TO CF01122



ROOF FRAMING PLAN

SWC
EWB KEY PLAN EWD
SWA

ZEE SECTION LAP TABLE			
SYMBOL	LAP LENGTH	SYMBOL	LAP LENGTH
G	–0'–0¼"	T	2'–5¾"
S	0'–3¾"	V	3'–1¼"
R	1'–5¾"	REFER TO CF01122	

Revision	Date	Description	By	Ck'd

MetalCor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
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Project Name & Location:
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☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/14/21
Checked by:
Project Engineer: MTS
Job Number: 18–B–18330
Sheet Number: E2 of 8

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Jun 18, 2021
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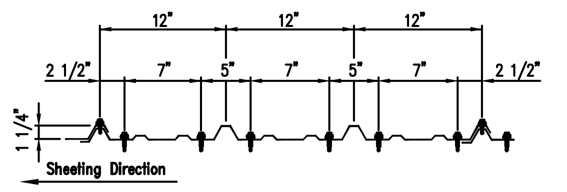


Fastener Location For "PBR" Roof Panel
Roof Reinforcement at Edge Zone
(USE SAME PATTERN SPACING AS EAVE & PEAK PURLIN)

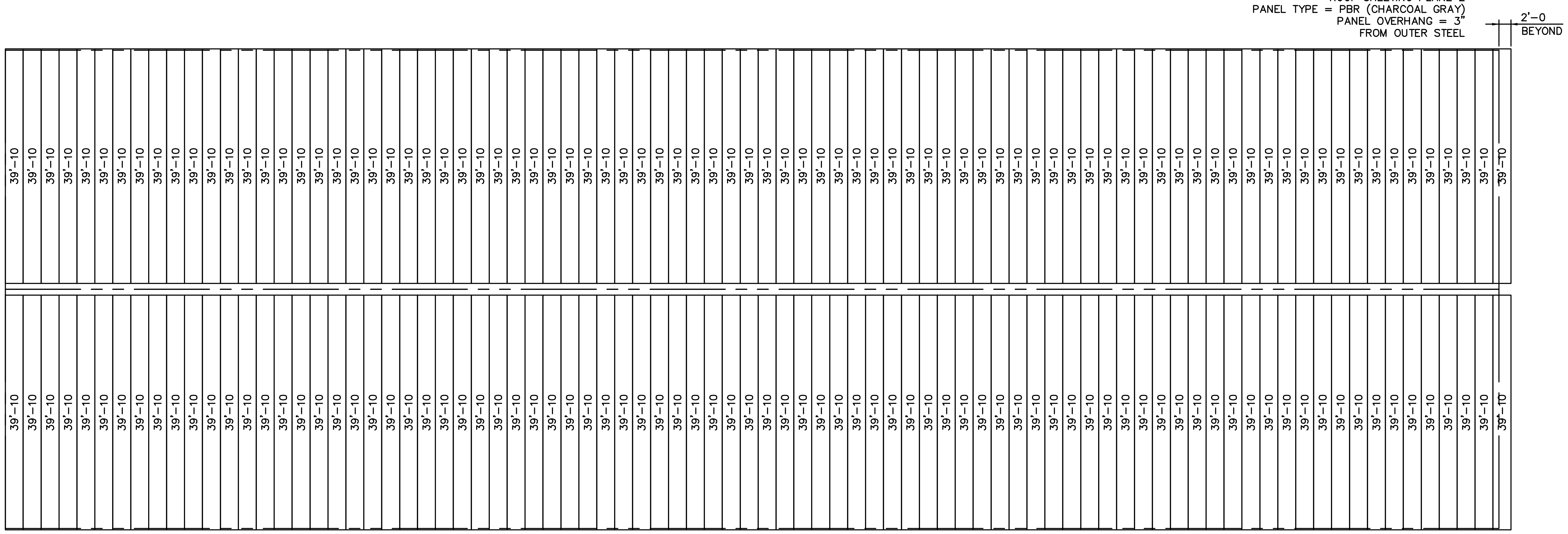
A
—

Non-Standard PBR Roof Panel Fasteners

#58 member fasteners are to be used for panel to secondary attachment in lieu of #3 shown on the R Drawings

NOTE: USE FASTENER PATTERN SHOWN IN DETAIL "A" FOR THE ENTIRE ROOF AREA

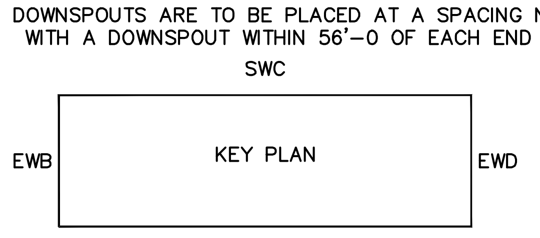
ROOF SHEETING PLANE 2
PANEL TYPE = PBR (CHARCOAL GRAY)
PANEL OVERHANG = 3"
FROM OUTER STEEL



ROOF SHEETING PLANE 1
PANEL TYPE = PBR (CHARCOAL GRAY)
PANEL OVERHANG = 3"
FROM OUTER STEEL

ROOF SHEETING PLAN

DOWNSPOUTS ARE TO BE PLACED AT A SPACING NOT TO EXCEED 113'-0
WITH A DOWNSPOUT WITHIN 56'-0 OF EACH END OF THE GUTTER RUN.



DOWNSPOUT LAYOUT
[6 REQ'D]

Revision	Date	Description	By	Ck'd

METALCOR BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
MOUNT BRYDGES, ON

Project Name & Location: ELLEN HOLLAND
GRAND BEND, ON

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)
☒ For Construction Permit
☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/14/21
Checked by:
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: E3 of 8

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ONTARIO P.ENG 100114358

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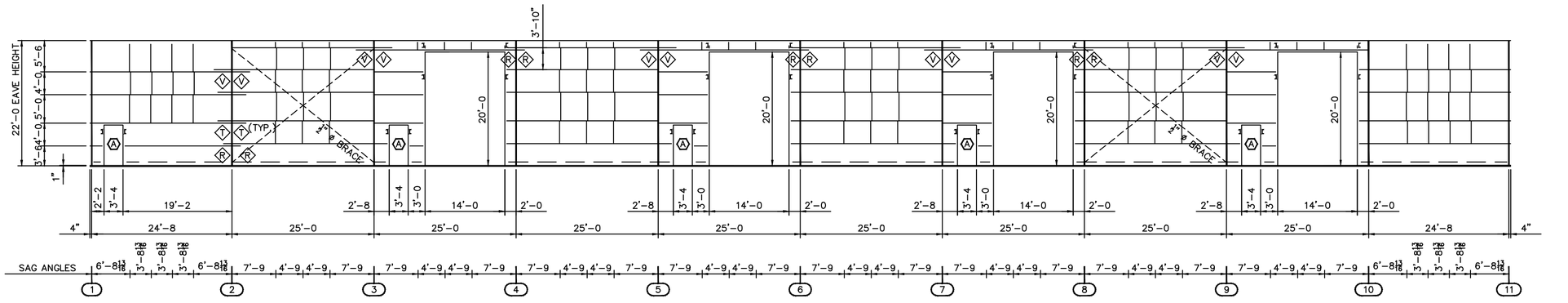
LICENSED PROFESSIONAL ENGINEER
G. MURALI
100114358
Jun 18, 2021
PROVINCE OF ONTARIO

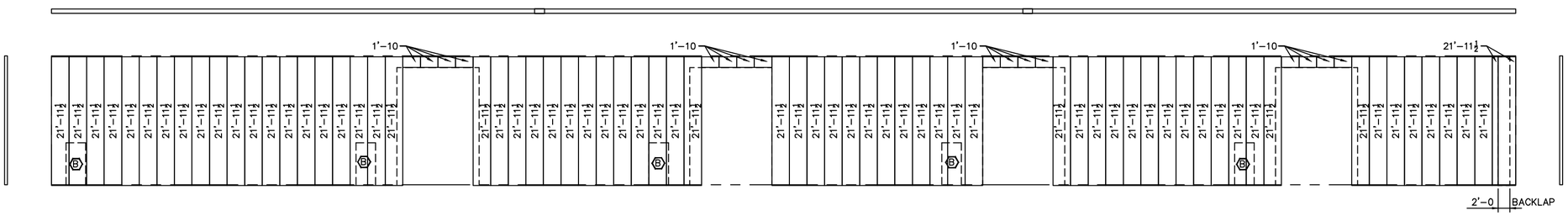
Non-Standard PBR Wall Panel Fasteners
#58 member fasteners are to be used for panel to secondary attachment in lieu of #17A shown on the R Drawings
#4 lap fasteners are to be used for panel to panel and panel to trim attachment in lieu of #4A shown on the R Drawings



ONE FB4A @ 12'-6 RIGHT

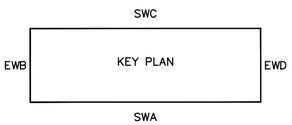
ONE FB4A @ 12'-6 LEFT

SIDEWALL ELEVATION "SWA" AT GRID LINE "A"

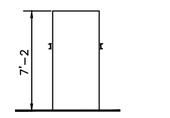


PBR WALL PANELS
PANEL COVERAGE = 3'-0
COLOR = ASH GRAY
PANEL PKG. REQ'D. = PBS-2
Field Cut Panel and Trim as required per Construction Details

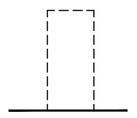
WALL SHEETING ELEVATION "SWA"
BLDG "A"



ZEE SECTION LAP TABLE			
SYMBOL	LAP LENGTH	SYMBOL	LAP LENGTH
G	-0'-0 1/4"	T	2'-5 3/8"
S	0'-3 3/8"	V	3'-1 1/4"
R	1'-5 3/4"	REFER TO CF01122	



Detail "A"
3 Sided Framed Opening



Detail "B"
3 Sided Framed Opening

Revision	Date	Description	By	Ck'd

Metalcor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
MOUNT BRYDGES, ON

Project Name & Location:
ELLEN HOLLAND
GRAND BEND, ON

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)
☒ For Construction Permit
☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/14/21
Checked by:
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: E4 of 8

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G. MURALI, P.ENG
ONTARIO P.ENG 100114358

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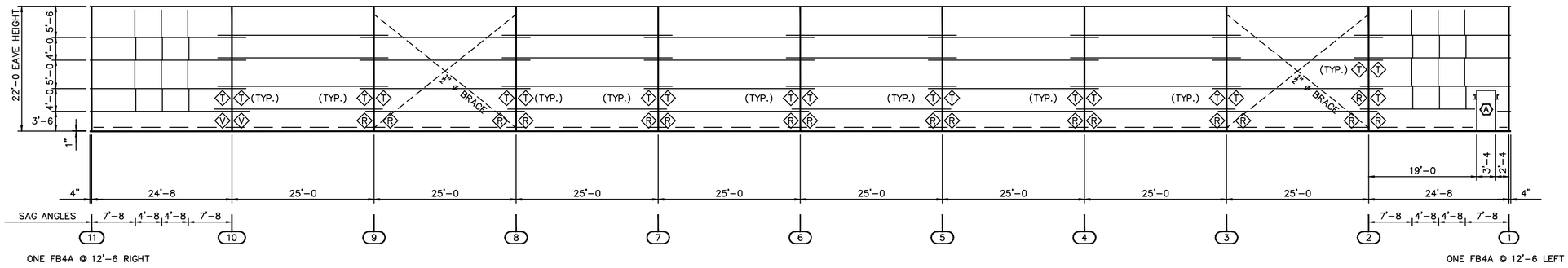
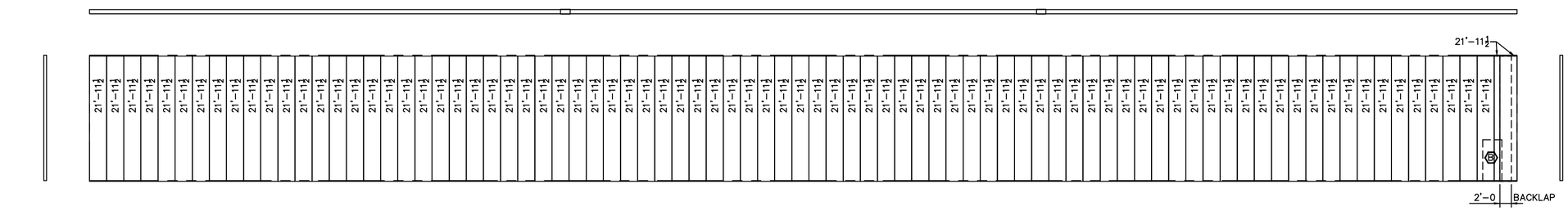
LICENSED PROFESSIONAL ENGINEER
G. MURALI
100114358
Jun 18, 2021
PROVINCE OF ONTARIO

Non-Standard PBR Wall Panel Fasteners
#58 member fasteners are to be used for panel to secondary attachment in lieu of #17A shown on the R Drawings
#4 lap fasteners are to be used for panel to panel and panel to trim attachment in lieu of #4A shown on the R Drawings

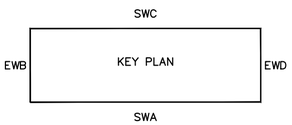


SIDEWALL ELEVATION "SWC" AT GRID LINE "E"



PBR WALL PANELS
PANEL COVERAGE = 3'-0
COLOR = ASH GRAY
PANEL PKG. REQ'D. = PBS-3
Field Cut Panel and Trim as required per Construction Details

WALL SHEETING ELEVATION "SWC"
BLDG "A"



ZEE SECTION LAP TABLE			
SYMBOL	LAP LENGTH	SYMBOL	LAP LENGTH
G	−0'−0¼"	T	2'−5⅝"
S	0'−3⅝"	V	3'−1¼"
R	1'−5⅝"	REFER TO CF01122	

Revision	Date	Description	By	Ck'd

MetalCor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
MOUNT BRYDGES, ON

Project Name & Location:
ELLEN HOLLAND
GRAND BEND, ON

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)
☒ For Construction Permit
☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/14/21
Checked by:
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: E5 of 8

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G. MURALI, P.ENG
ONTARIO P.ENG 100114358

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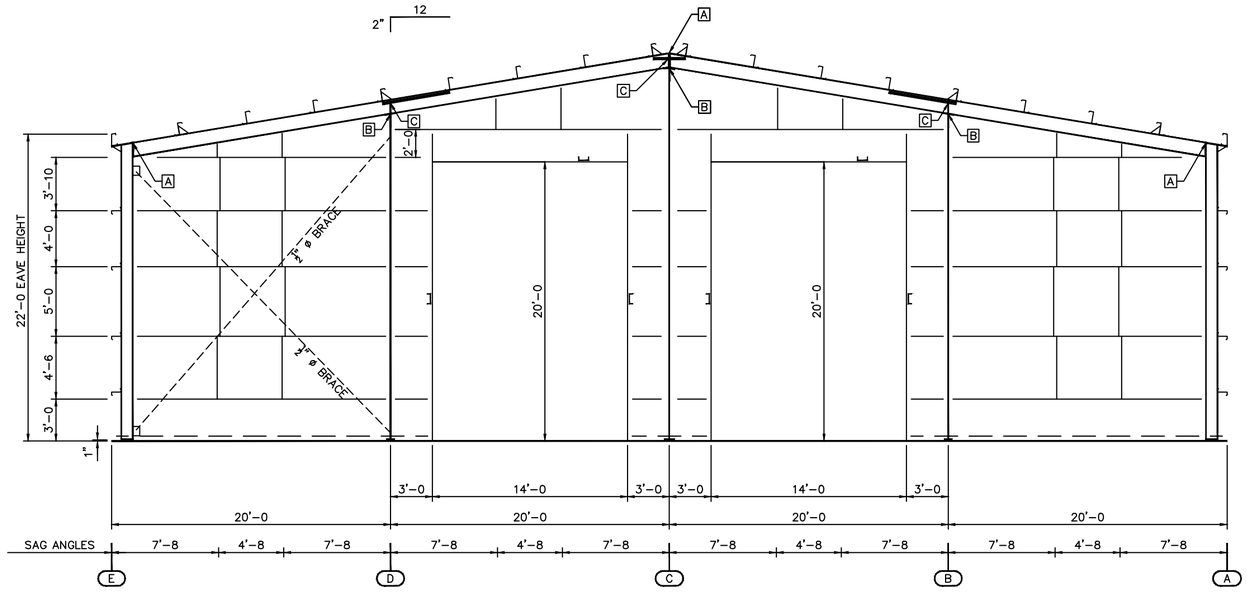
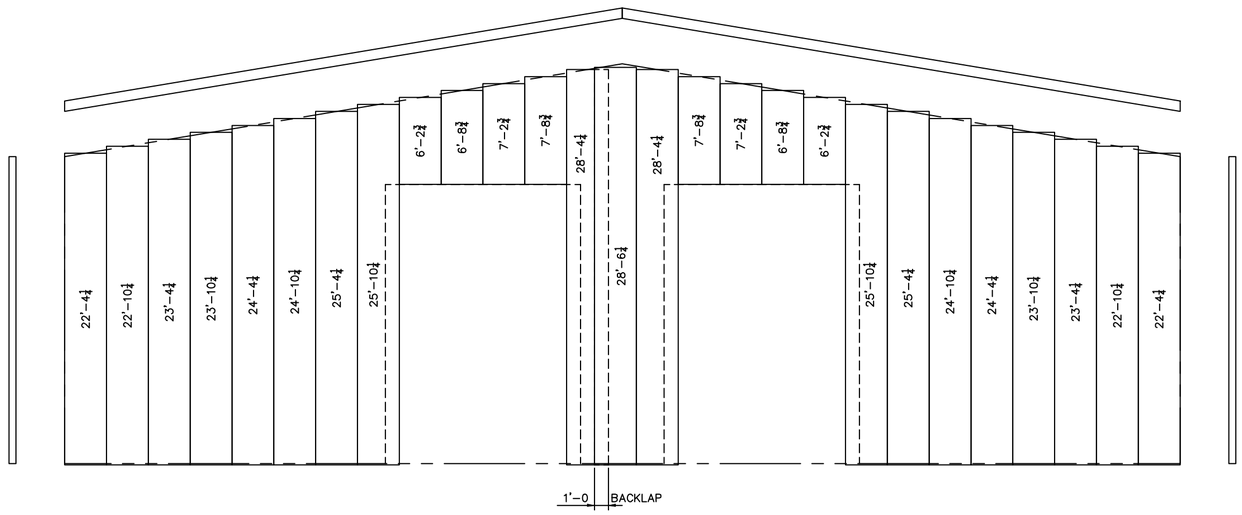
LICENSED PROFESSIONAL ENGINEER
G.MURALI
100114358
Jun 18, 2021
PROVINCE OF ONTARIO

	SPLICE BOLT TABLE			
CONN.	QTY. SIZE	TYPE	HARDENED WASHERS	BEVELED WASHERS
A	(4) ¾ X 1¾	A325 B&N	0	0
B	(4) ¾ X 1¾	A325 B&N	4	0
C	(4) ¾ X 1¾	A325 B&N	0	0

Non-Standard PBR Wall Panel Fasteners
#58 member fasteners are to be used for panel to secondary attachment in lieu of #17A shown on the R Drawings
#4 lap fasteners are to be used for panel to panel and panel to trim attachment in lieu of #4A shown on the R Drawings

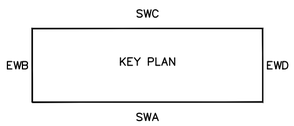


ENDWALL ELEVATION "EWB" AT GRID LINE "1"



WALL SHEETING ELEVATION "EWB"
BLDG "A"

PBR WALL PANELS
PANEL COVERAGE = 3'-0
COLOR = ASH GRAY
PANEL PKG. REQ'D. = PBS-1
Field Cut Panel and Trim as required per Construction Details



Revision	Date	Description	By	Ck'd

MetalCor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
MOUNT BRYDGES, ON

Project Name & Location:
ELLEN HOLLAND
GRAND BEND, ON

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)
☒ For Construction Permit
☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/14/21
Checked by:
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: E6 of 8

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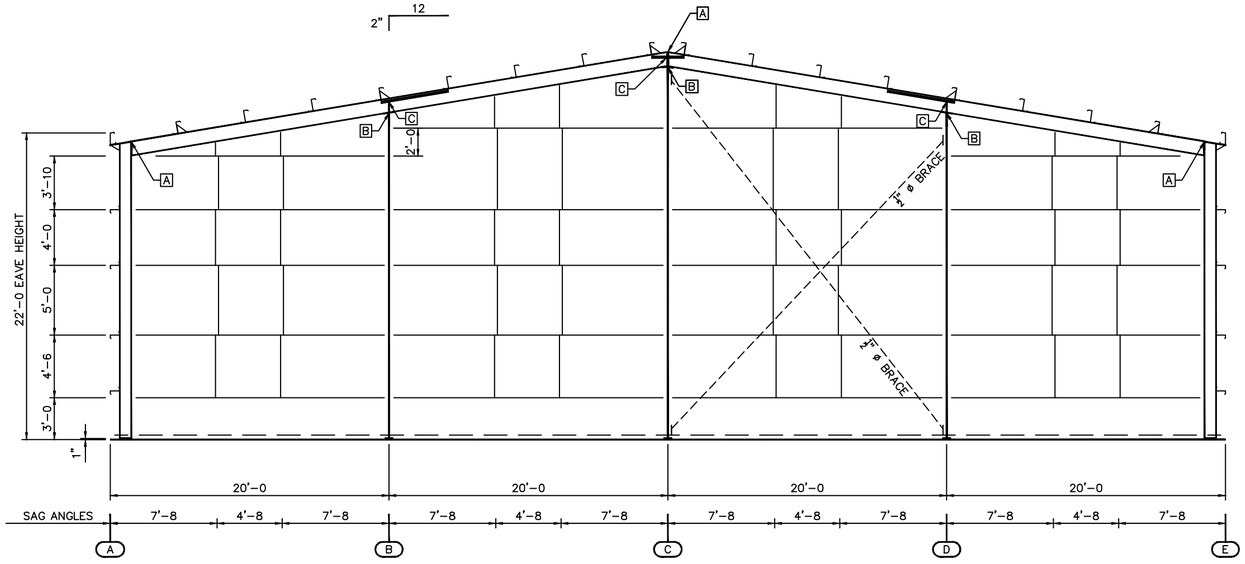
G. MURALI, P.ENG
ONTARIO P.ENG 100114358

Drawing has been digitally signed.

LICENSED PROFESSIONAL ENGINEER
G.MURALI
100114358
Jun 18, 2021
PROVINCE OF ONTARIO

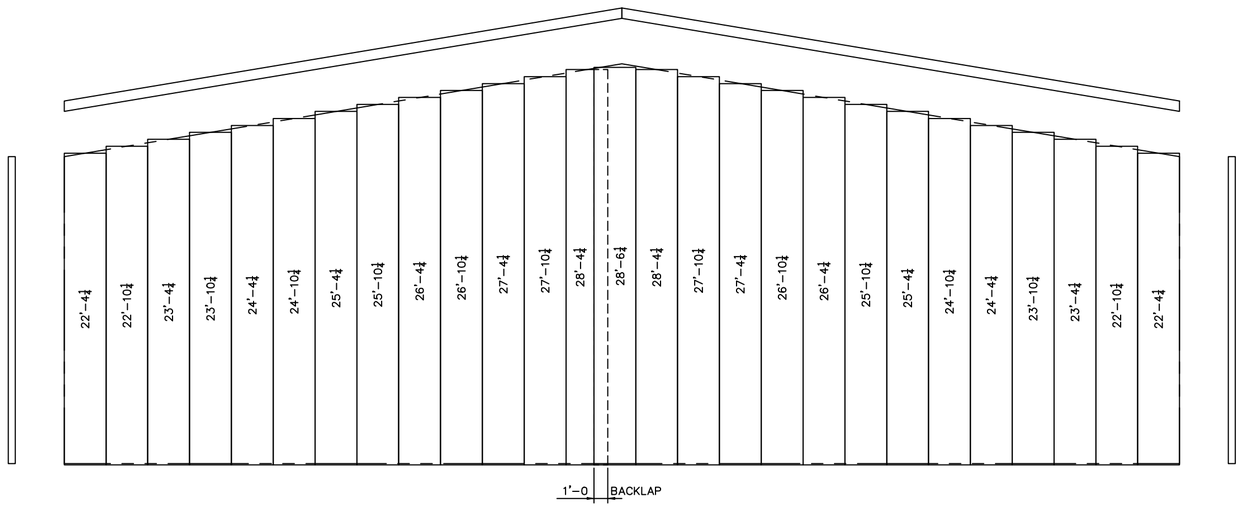
	SPLICE BOLT TABLE			
CONN.	QTY. SIZE	TYPE	HARDENED WASHERS	BEVELED WASHERS
A	(4) ¾ X 1¾	A325 B&N	0	0
B	(4) ¾ X 1¾	A325 B&N	4	0
C	(4) ¾ X 1¾	A325 B&N	0	0

Non-Standard PBR Wall Panel Fasteners
#58 member fasteners are to be used for panel to secondary attachment in lieu of #17A shown on the R Drawings
#4 lap fasteners are to be used for panel to panel and panel to trim attachment in lieu of #4A shown on the R Drawings

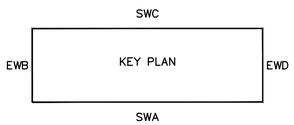


ENDWALL ELEVATION "EWD" AT GRID LINE "11"

PBR WALL PANELS
PANEL COVERAGE = 3'-0
COLOR = ASH GRAY
PANEL PKG. REQ'D. = PBS-4
Field Cut Panel and Trim as required per Construction Details



WALL SHEETING ELEVATION "EWD"
BLDG "A"



Revision	Date	Description	By	Ck'd

MetalCor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS
MOUNT BRYDGES, ON

Project Name & Location:
ELLEN HOLLAND
GRAND BEND, ON

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)
☒ For Construction Permit
☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/14/21
Checked by:
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: E7 of 8

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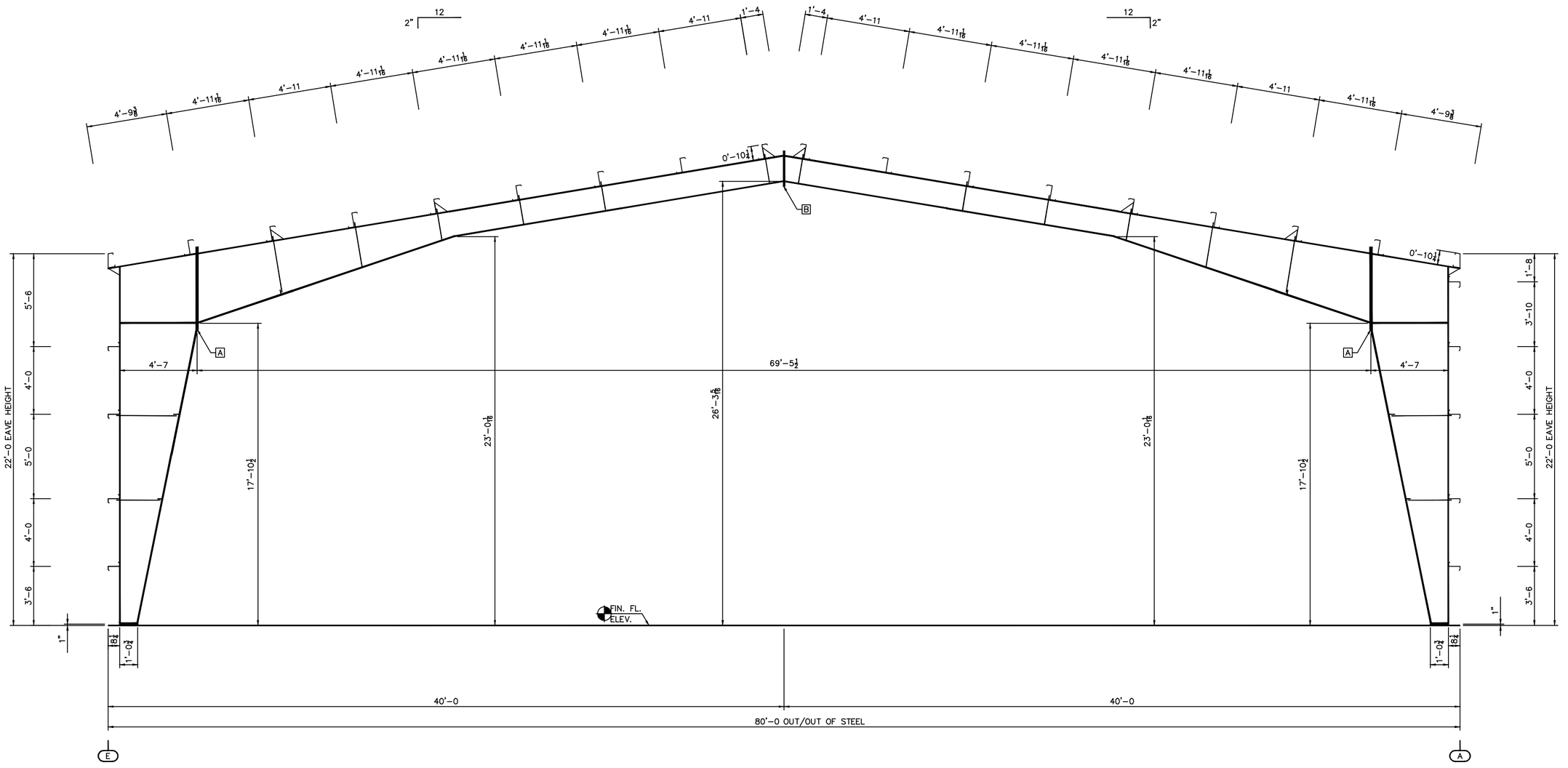
G. MURALI, P.ENG
ONTARIO P.ENG 100114358

Drawing has been digitally signed.

OY/PROJECTS\XDS-V8-16-00 FRAME = Active/Eng/18-B-18330/ver01-mtsanchez/BLDG-A/Drftg/x02L Active/Eng/18-B-18330/ver01-mtsanchez/BLDG-A/Drftg/x02R 6/ 1/21 17:29:42 6/ 1/21 17:29:42
OY/PROJECTS\XDS-V8-16-00 FB SET = Eng/18-B-18330/ver01-mtsanchez/BLDG-A/DRFTG/x02L Eng/18-B-18330/ver01-mtsanchez/BLDG-A/DRFTG/x02R

GENERAL NOTES
FRAME CLEARANCES SHOWN ARE APPROXIMATE AND MAY VARY DUE TO CONDITIONS (DEFLECTION).

VERTICAL CLEARANCE DIMENSIONS ARE FROM FINISHED FLOOR REFERENCE ELEVATION.



CROSS SECTION AT FRAME LINES "2" THRU "10"

	SPLICE BOLT TABLE			
CONN.	QTY. SIZE	TYPE	HARDENED WASHERS	BEVELED WASHERS
A	(14) 1" X 2¾	A325 B&N	0	0
B	(8) ¾ X 1¾	A325 B&N	0	0

Revision	Date	Description	By	Ck'd

MetalCor BUILDING SYSTEMS
634 LONGFIELD STREET MOUNT BRYDGES,ON N0L 1W0
1-844-481-8881

Customer: METALCOR BUILDING SYSTEMS MOUNT BRYDGES, ON

Project Name & Location: ELLEN HOLLAND GRAND BEND, ON

Drawing Status: ☐ Preliminary (Not For Construction) ☐ For Approval (Not For Construction) ☒ For Construction Permit ☐ For Erector Installation

Scale: NOT TO SCALE
Drawn by: PAC 6/14/21
Checked by:
Project Engineer: MTS
Job Number: 18-B-18330
Sheet Number: E8 of 8

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ONTARIO P.ENG 100114358

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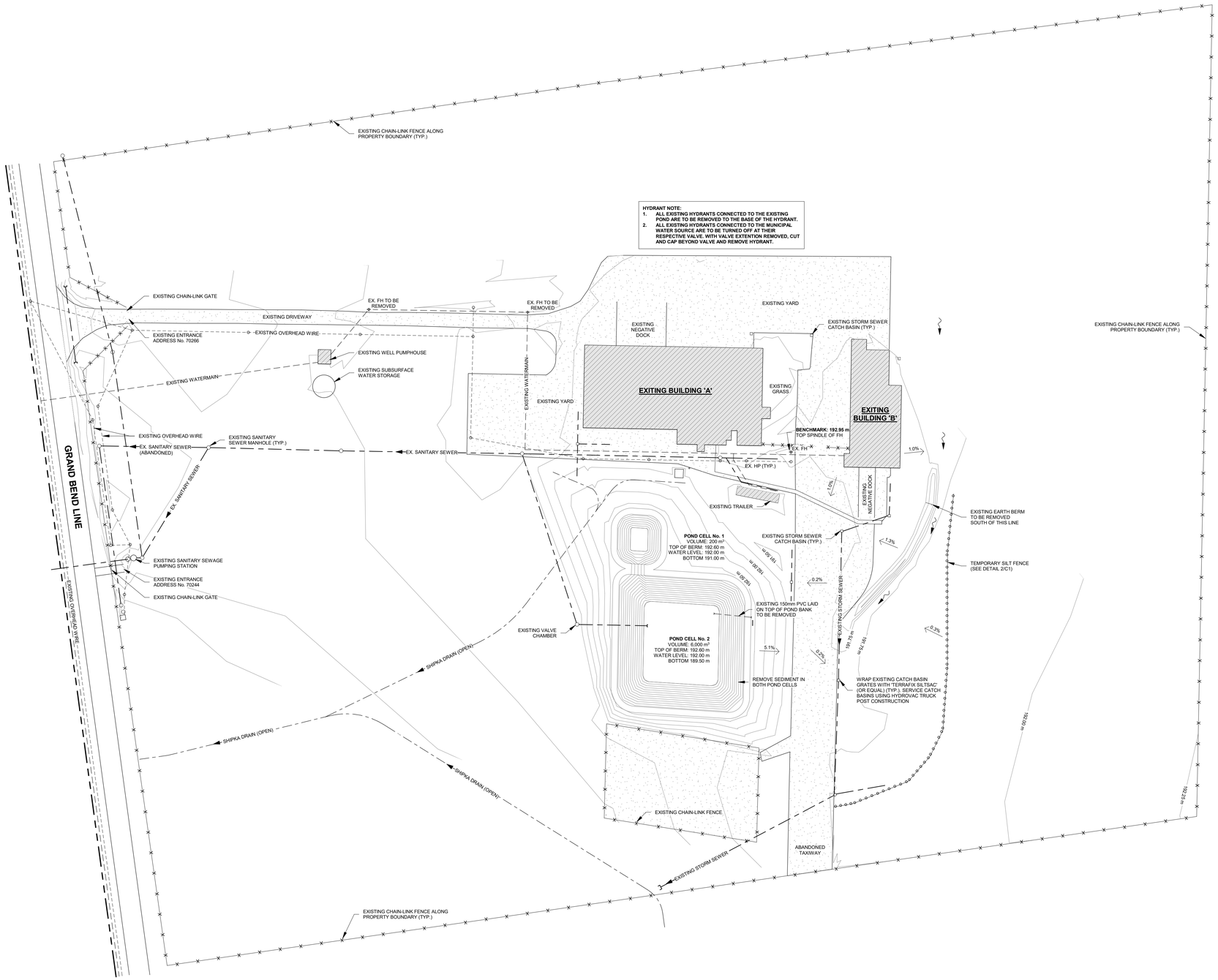
LICENSED PROFESSIONAL ENGINEER
G. MURALI
100114358
Jun 18, 2021
PROVINCE OF ONTARIO

SITE LEGEND

BD	BOLLARD
CB	CATCH BASIN
CS	CURB STOP
FH	FIRE HYDRANT
FM	FORCEMAIN
GUY	GUY WIRE
GV	GUILLOTINE VALVE
HP	HYDRO POLE
INV	INVERT
MH	MAINTENANCE HOLE
SAN	SANITARY SEWER
STM	STORM SEWER
T/G	TOP OF GRATE
WS	WATER SERVICE
WTM	WATERMAIN
WV	WATER VALVE
000.00 m	EXISTING ELEVATION
+ 190.00 m	PROPOSED ELEVATION
190.00 m	ELEVATION CONTOUR
1.0%	DIRECTION AND SLOPE OF OVERLAND WATER FLOW
	PROPOSED SWALE
A	SIGN AND POST
1	# OF PARKING SPACES
RWL	ROOF WATER LEADER

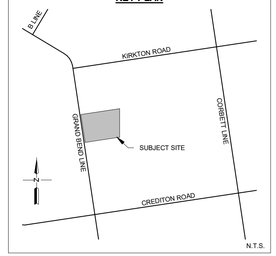
BENCHMARK ELEVATION: 192.95 m
TOP SPINDLE OF FIRE HYDRANT LOCATED SOUTH-EAST OF BUILDING 'A' ON THE SUBJECT PROPERTY.

HYDRANT NOTE:
1. **ALL EXISTING HYDRANTS CONNECTED TO THE EXISTING POND ARE TO BE REMOVED TO THE BASE OF THE HYDRANT.**
2. **ALL EXISTING HYDRANTS CONNECTED TO THE MUNICIPAL WATER SOURCE ARE TO BE TURNED OFF AT THEIR RESPECTIVE VALVE. WITH VALVE EXTENTION REMOVED, CUT AND CAP BEYOND VALVE AND REMOVE HYDRANT.**



1 EXISTING CONDITIONS PLAN
1 : 1000

KEY PLAN



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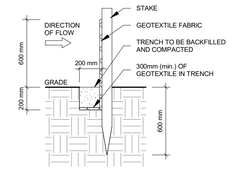


NOTE:
CONTRACTOR TO MAINTAIN SILT FENCE BARRIER UNTIL VEGETATION HAS BEEN ESTABLISHED ON ALL EXPOSED SOILS WITHIN CATCHMENT AREA.

2 TEMPORARY SILT FENCE DETAIL
1 : 25

PART LOTS 13 & 14
CONCESSION 20
IN THE GEOGRAPHIC TOWNSHIP OF STEPHEN
MUNICIPALITY OF SOUTH HURON
COUNTY OF HURON

NOTES:
1. PROPERTY BOUNDARIES ARE APPROXIMATE AND BASED OFF OF GIS DATA AND SATELLITE IMAGERY.
2. EXISTING STRUCTURES AND SITE FEATURES FROM TOPOGRAPHIC SURVEY COMPLETED BY MR ENGINEERING AND DESIGN LTD., DATED JUNE 16, 2021.
3. SITE SKETCH IS CONCEPTUAL. FINAL SITING BY OTHERS.
4. THIS IS NOT A LEGAL SURVEY.

SCALE 1:1,000
0m 10m 20m 30m 40m 50m 100m

NOTES:

@	AT	OHD	OVERHEAD DOOR
c/w	COMPLETE WITH	PROJ.	PROJECTION
Ø	DIAMETER	P.T.	PRESSURE TREATED
FRR	FIRE-RESISTANCE RATING	r/w	REINFORCED WITH
FDN	FOUNDATION	SG	SLIDE GATE
e/w	EACH WAY	T&G	TOUNGE AND GROOVE
EX.	EXISTING	t/o	TOP OF
H	HIGH/HORIZONTAL	TYP.	TYPICAL
HR	HOUR	u/s	UNDERSIDE
LLV	LONG LEG VERTICAL	V	VERTICAL
LVL	LAMINATED VANEER LUMBER	w/	WITH
max.	MAXIMUM	W	WIDE
min.	MINIMUM	WWM	WELDED WIRE MESH
OBC	ONTARIO BUILDING CODE		
o/c	ON CENTER		

NORTH

DESIGN	TM	No.	REVISION DESCRIPTION	MM/DD/YY	CH'KD
DRAWN	TM	1.	ISSUED FOR SITE PLAN APPROVAL	09/08/21	MR
CHECKED	MR	2.	REVISED BASED ON MUNICIPAL COMMENT	09/09/21	MR
APPROVED	MR	3.	FIRE ACCESS ROUTE DIMENSIONS ADDED	11/04/21	MR
DATE	NOVEMBER 2021				

CONSULTANT
MR ENGINEERING AND DESIGN LTD.
CIVIL • COMMERCIAL • AGRICULTURAL
145 Thames Road, West, Unit 4, Exeter, ON, N0M 1S3
Telephone: (519)-317-0128
Email: admin@mrengdesign.com

CONTRACTOR

LICENSED PROFESSIONAL ENGINEER
11/04/21
M. W. RUNGE
100162955
PROVINCE OF ONTARIO

70266 GRAND BEND LINE
GRAND BEND, ON
N0M 1T0

ELLEN & HEINER HOLLAND STORAGE WAREHOUSE

EXISTING CONDITIONS, REMOVALS AND EROSION CONTROL PLAN

PROJECT No. *MR21-218*

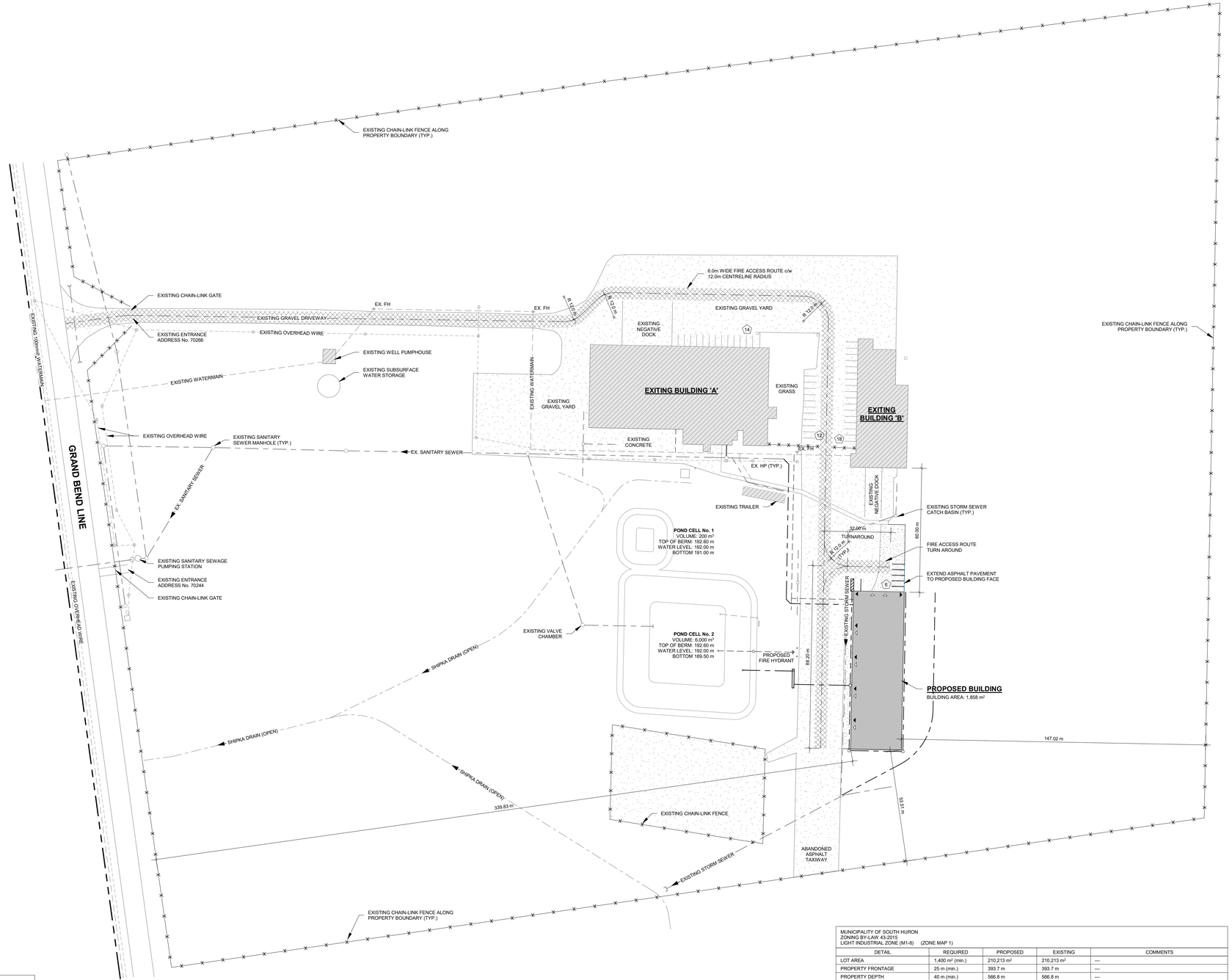
SHEET No. C1

SCALE As indicated

SITE LEGEND

BD	BOLLARD
CB	CATCH BASIN
CS	CURB STOP
FH	FIRE HYDRANT
FM	FORCEMAIN
GUY	GUY WIRE
GV	GUILLOTINE VALVE
HP	HYDRO POLE
INV	INVERT
MH	MAINTENANCE HOLE
SAN	SANITARY SEWER
STM	STORM SEWER
T/G	TOP OF GRATE
WS	WATER SERVICE
WTM	WATERMAIN
WV	WATER VALVE
192.00 m	EXISTING ELEVATION
190.00 m	PROPOSED ELEVATION
190.00 m	ELEVATION CONTOUR
1.0%	DIRECTION AND SLOPE OF OVERLAND WATER FLOW
	PROPOSED SWALE
A	SIGN AND POST
1	# OF PARKING SPACES
RWL	ROOF WATER LEADER

BENCHMARK ELEVATION: 192.95 m
TOP SPINDLE OF FIRE HYDRANT LOCATED SOUTH-EAST OF BUILDING 'A' ON THE SUBJECT PROPERTY.



1 SITE PLAN
1 : 1000

PART LOTS 13 & 14
CONCESSION 20

IN THE GEOGRAPHIC TOWNSHIP OF STEPHEN

MUNICIPALITY OF SOUTH HURON
COUNTY OF HURON

NOTES:

1. PROPERTY BOUNDARIES ARE APPROXIMATE AND BASED OFF OF GIS DATA AND SATELLITE IMAGERY.
2. EXISTING STRUCTURES AND SITE FEATURES FROM TOPOGRAPHIC SURVEY COMPLETED BY MR ENGINEERING AND DESIGN LTD., DATED JUNE 16, 2021.
3. SITE SKETCH IS CONCEPTUAL. FINAL SITING BY OTHERS.
4. THIS IS NOT A LEGAL SURVEY.

0m 10m 20m 30m 40m 50m 100m
SCALE 1:1,000

MUNICIPALITY OF SOUTH HURON
ZONING BY-LAW 43-2015
LIGHT INDUSTRIAL ZONE (M1-8) (ZONE MAP 1)

DETAIL	REQUIRED	PROPOSED	EXISTING	COMMENTS
LOT AREA	1,400 m² (min.)	210,213 m²	210,213 m²	---
PROPERTY FRONTAGE	25 m (min.)	393.7 m	393.7 m	---
PROPERTY DEPTH	40 m (min.)	566.8 m	566.8 m	---
FRONT YARD	7 m (min.)	236.2 m	236.2 m	---
INTERIOR SIDE YARD	5 m (min.)	53.5 m	124.9 m	---
REAR YARD	30 m (min.)	147.0 m	147.0 m	---
LOT COVERAGE	50 % (max.)	2.5 %	3.4 %	---
LANDSCAPED OPEN SPACE	10 % (min.)	85.8 %	87.0 %	---
BUILDING HEIGHT	20 m (max.)	8.9 m	---	---
PARKING SPACES	28 SPACES (min.)	50 SPACES	44 SPACES	SEE NOTE 1.

NOTE:

1. ON-SITE PARKING REQUIREMENTS
   a. INDUSTRIAL ESTABLISHMENT = 3 SPACES FOR EVERY 4 EMPLOYEES (18 SPACES) (BUILDING 'A' = 12 EMPLOYEES, BUILDING 'B' = 12 EMPLOYEES).
   b. WAREHOUSE = 1 SPACE PER 185 SQUARE METRES OF TOTAL FLOOR AREA (10 SPACES).

KEY PLAN

GENERAL NOTES:

1. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST CHECK AND VERIFY ALL EXISTING CONDITIONS, LOCATIONS AND ELEVATIONS. REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING.
2. THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR IS TO OBTAIN ALL UTILITY LOCATES. NOT ALL EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY MAY BE SHOWN.
3. ALL EXTERIOR LIGHTING TO BE CONFINED TO THE BUILDING FACE , LANES AND PARKING AREAS SO AS NOT TO CAST A GLARE ONTO THE STREET OR ADJACENT PROPERTIES.

ITEM	ONTARIO BUILDING CODE DATA MATRIX PARTS 3 & 9		OBC REFERENCE	
1	70266 GRAND BEND LINE GRAND BEND, ON	■ NEW ☐ ADDITION ☐ ALTERATION ☐ CHANGE OF USE ☐ PART 11	■ PART 3	☐ PART 9 2.1.1 9.10.1.3
2	MAJOR OCCUPANCY(S) MEDIUM HAZARD INDUSTRIAL		3.1.2.1.(1)	9.10.2
3	BUILDING AREA (m²) EXISTING 0 NEW 1,858 TOTAL 1,858		1.4.1.2	1.4.1.2
4	2nd FLOOR AREA (m²) EXISTING 0 NEW 1,858 TOTAL 1,858		1.4.1.2	1.4.1.2
5	NUMBER OF STOREY(S) ABOVE GRADE 1 BELOW GRADE 0		3.2.1.1 & 1.4.1.2	1.4.1.2 & 9.10.4
6	HEIGHT OF BUILDING (m) 8.9		1.4.1.2	
7	NUMBER OF STREETS / ACCESS ROUTES 1		3.2.2.10 & 3.2.5.5	9.10.20
8	BUILDING CLASSIFICATION 3.2.2.70.		3.2.2.20-.83	9.10.2
9	SPRINKLER SYSTEM PROPOSED	☐ ENTIRE BUILDING ☐ BASEMENT ONLY ☐ IN LIEU OF ROOF RATING ☐ ADDITION ■ NOT REQUIRED	3.2.2.20-.83 3.2.1.5 3.2.2.17	9.10.8
10	STANDPIPE REQUIRED	☐ YES ■ NO	3.2.9	
11	FIRE ALARM REQUIRED	☐ YES ■ NO	3.2.4	9.10.18.2
12	WATER SERVICE/SUPPLY ADEQUATE	■ YES ☐ NO ☐ N/A	3.2.5.7	
13	HIGH BUILDING	☐ YES ■ NO	3.2.6	
14	PERMITTED CONSTRUCTION ☐ COMBUSTIBLE ☐ NON-COMBUSTIBLE ■ BOTH ACTUAL CONSTRUCTION ☐ COMBUSTIBLE ■ NON-COMBUSTIBLE ☐ BOTH		3.2.2.20.-.83	9.10.6
15	MEZZANINE(S) AREA (m²) N/A		3.2.1.1.(3)-(8)	9.10.4.1
16	OCCUPANCY BASED ON ☐ m²/PERSON ■ DESIGN OF BUILDING BUILDING OCCUPANT LOAD: LOAD: 10 PERSONS (SEE NOTE 1.) TOTAL LOAD: 10 PERSONS		3.1.17	9.9.1.3 & T 3.1.17.1
17	BARRIER-FREE DESIGN ■ YES ☐ NO		3.8	9.5.2
18	HAZARDOUS SUBSTANCES ☐ YES ■ NO		3.3.1.2.(1) & 3.3.1.19.(1)	9.10.1.3 (4)
19	REQUIRED FIRE RESISTANCE RATING (FRR)	HORIZONTAL ASSEMBLIES FRR (HOURS) / LISTED DESIGN No. OR DESCRIPTION (SB-2) FLOORS 0.75 HOURS — N/A ROOF N/A HOURS — NON-COMBUSTIBLE MEZZANINE 0.75 HOURS — N/A FRR OF SUPPORTING MEMBERS (HOURS) / LISTED DESIGN No. OR DESCRIPTION (SB-2) FLOORS 0.75 HOURS — N/A ROOF N/A HOURS — NON-COMBUSTIBLE MEZZANINE 0.75 HOURS — N/A	3.2.2.20-.83 & 3.2.1.4	9.10.8 9.10.9
20	SPATIAL SEPARATION - CONSTRUCTION OF EXTERIOR WALLS (SEE NOTE 2.)		3.2.3	9.10.14

WALL	AREA OF EBF (m²)	L.D. (m)	L/H OR H/L	PERMITTED MAX. % OF OPENINGS	PROPOSED MAX. % OF OPENINGS	FRR (HOURS)	LISTED DESIGN OR DESCRIPTION	COMB. CONSTR	COMB. CONSTR. NON-COMB. CLADDING	NON-COMB. CONSTR.
EX. SOUTH	200.0	30.0	3:1	100	24.8	0		YES		
NORTH	192.0	30.0	2.7:1	100	27.1	0		YES		
SOUTH	192.0	53.5	2.7:1	100	0.0	0		YES		
EAST	522.6	147.0	11:1	100	0.4	0		YES		
WEST	522.6	339.8	11:1	100	22.0	0		YES		

21	FIRE SEPARATIONS								
	EXITS	☐ 0-HR	■ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.4.4.1		9.9.4.2 & 9.9.4.7
	SERVICE ROOMS	☐ 0-HR	☐ 0.75-HR	■ 1-HR	☐ 1.5-HR	☐ 2-HR	3.6.2		9.10.10.3
	VERTICAL SERVICE SPACES	☐ 0-HR	☐ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.6.3		
	HORIZONTAL SERVICE SPACES	☐ 0-HR	☐ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.6.4		9.10.9.10
	JANITOR ROOMS	☐ 0-HR	■ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.3.1.20		
	DIFFERENT OCCUPANCIES	☐ 0-HR	☐ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.1.3. & 3.3.2-5		9.10.9
22	EXIT THROUGH A LOBBY		☐ YES ■ NO				3.4.4.2		9.9.8.5
23	INTERCONNECTED FLOOR SPACE		☐ YES ■ NO				3.2.8		9.9.4.7

24	PLUMBING FIXTURES				3.7.4	9.31
	OCCUPANCY	OCCUPANT LOAD	WC REQUIRED	WC PROVIDED		
	WAREHOUSE	10 PERSONS	1 FOR BOTH SEXES	1 FOR BOTH SEXES		

NOTE:

1. POST A PERMANENT SIGN INDICATING "10 PERSONS MAXIMUM OCCUPANT LOAD" IN A CONSPICUOUS LOCATION.
2. SPATIAL SEPARATION HAS BEEN CALCULATED FOR THE MAXIMUM AGGREGATE AREA OF UNPROTECTED OPENINGS IN THE EXTERIOR WALLS USING LINEAR AND BILINEAR INTERPOLATION OF OBC DIVISION B - PART 3, CLAUSE 3.2.3.1.(1)(a); TABLE 3.2.3.1.C.

NOTES:

@	AT	OHD	OVERHEAD DOOR
c/w	COMPLETE WITH	PROJ.	PROJECTION
Ø	DIAMETER	P.T.	PRESSURE TREATED
FRR	FIRE-RESISTANCE RATING	r/w	REINFORCED WITH
FDN	FOUNDATION	SG	SLIDE GATE
e/w	EACH WAY	T&G	TOUNGE AND GROOVE
EX.	EXISTING	t/o	TOP OF
H	HIGH/HORIZONTAL	TYP.	TYPICAL
HR	HOUR	u/s	UNDERSIDE
LLV	LONG LEG VERTICAL	V	VERTICAL
LVL	LAMINATED VANDER LUMBER	w/	WITH
max.	MAXIMUM	W	WIDE
min.	MINIMUM	WWM	WELDED WIRE MESH
OBC	ONTARIO BUILDING CODE		
o/c	ON CENTER		

NORTH

DESIGN	TM	No.	REVISION DESCRIPTION	MM/DD/YY	CH'KD
DRAWN	TM	1.	ISSUED FOR SITE PLAN APPROVAL	09/08/21	MR
CHECKED	MR	2.	REVISED BASED ON MUNICIPAL COMMENT	09/09/21	MR
APPROVED	MR	3.	FIRE ACCESS ROUTE DIMENSIONS ADDED	11/04/21	MR
DATE	NOVEMBER 2021				

CONSULTANT
MR ENGINEERING AND DESIGN LTD.
CIVIL • COMMERCIAL • AGRICULTURAL
145 Thames Road, West, Unit 4, Exeter, ON, N0M 1S3
Telephone: (519)-317-0128
Email: admin@mrengdesign.com

CONTRACTOR

LICENSED PROFESSIONAL ENGINEER
11/04/21
M. W. RUNGE
100162955
PROVINCE OF ONTARIO

70266 GRAND BEND LINE
GRAND BEND, ON
N0M 1T0

ELLEN & HEINER HOLLAND STORAGE WAREHOUSE

SITE PLAN

PROJECT No. MR21-218

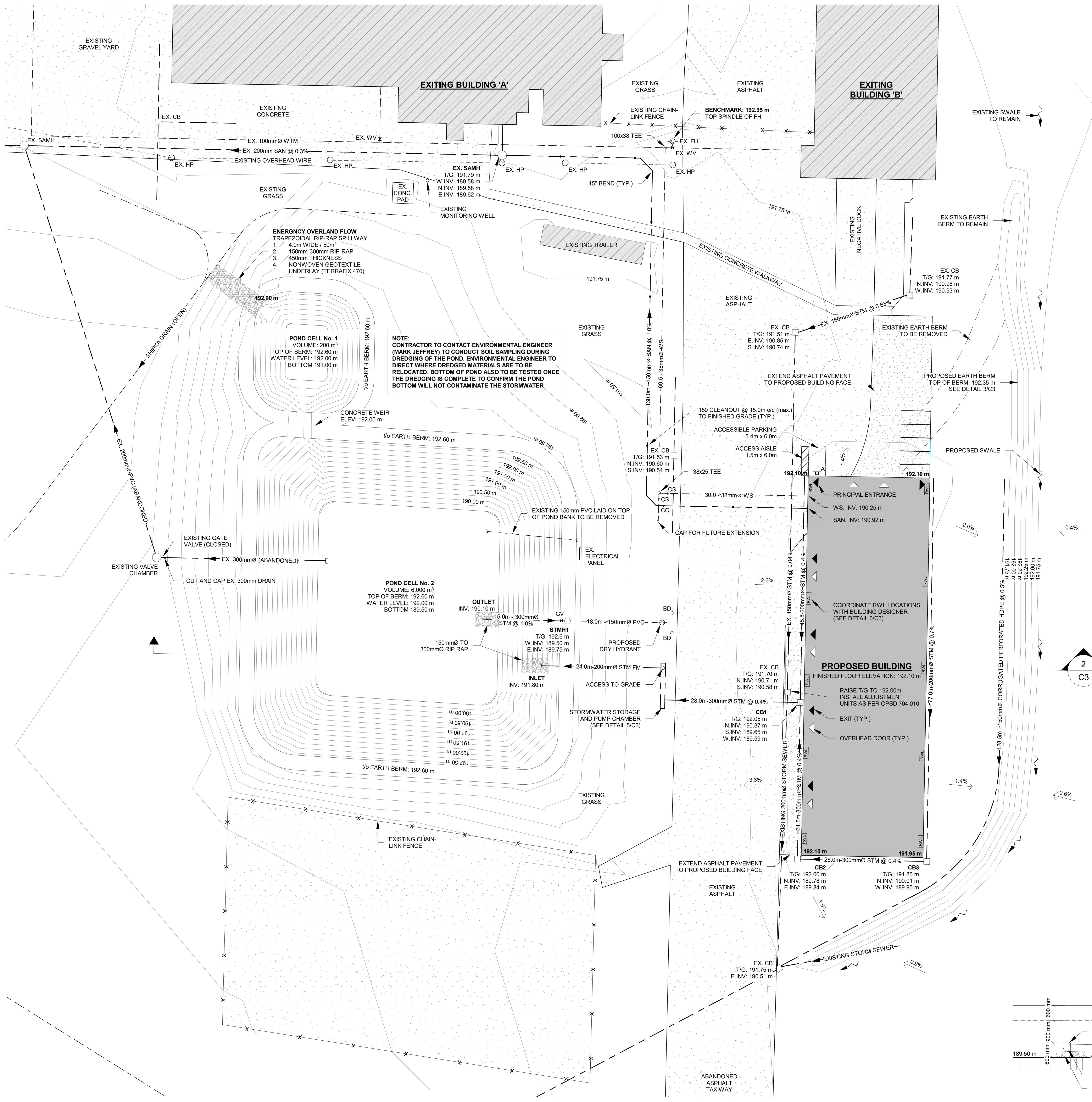
SHEET No. C2

SCALE As indicated

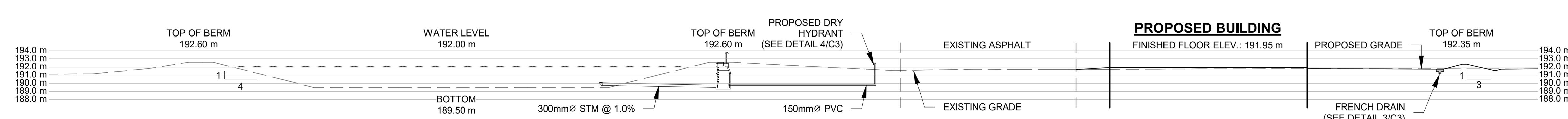
SITE LEGEND

BD	BOLLARD
CB	CATCH BASIN
CS	CURB STOP
FH	FIRE HYDRANT
FM	FORCEMAIN
GUY	GUY WIRE
GV	GUILLOTINE VALVE
HP	HYDRO POLE
INV	INVERT
MH	MAINTENANCE HOLE
SAN	SANITARY SEWER
STM	STORM SEWER
T/G	TOP OF GRATE
WS	WATER SERVICE
WTM	WATERMAIN
WV	WATER VALVE
190.00 m	EXISTING ELEVATION
+ 190.00 m	PROPOSED ELEVATION
—190.00 m—	ELEVATION CONTOUR
1.0%	DIRECTION AND SLOPE OF OVERLAND WATER FLOW
	PROPOSED SWALE
A	SIGN AND POST
1	# OF PARKING SPACES
RWL	ROOF WATER LEADER

BENCHMARK ELEVATION: 192.95 m
TOP SPINDLE OF FIRE HYDRANT LOCATED SOUTH-EAST OF BUILDING 'A' ON THE SUBJECT PROPERTY.

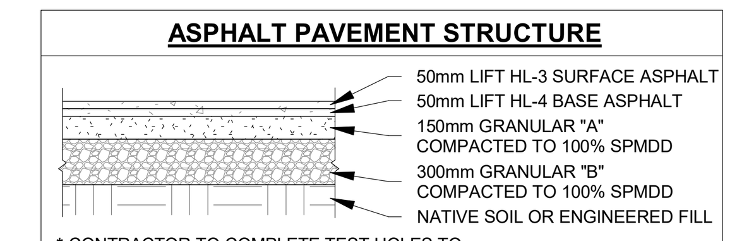


1 SITE GRADING AND SERVICING PLAN
1 : 500

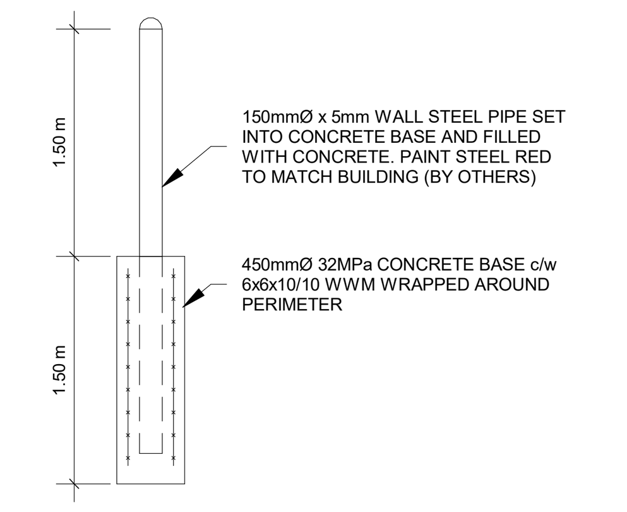


2 SECTION A
1 : 500

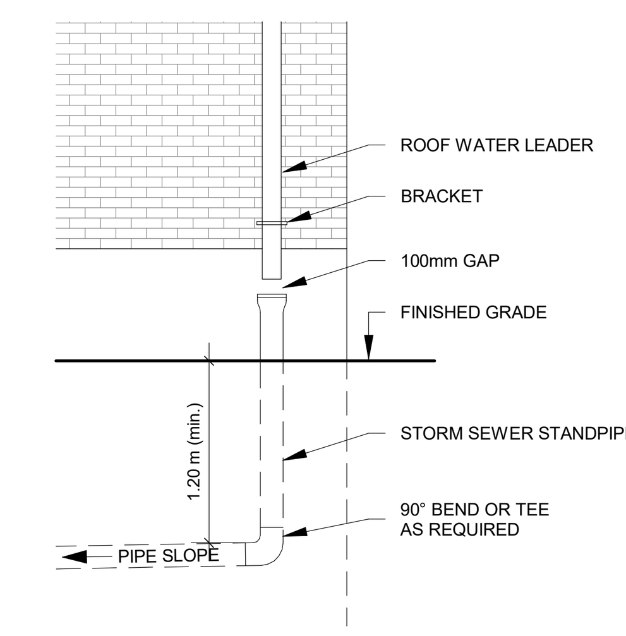
ASPHALT PAVEMENT STRUCTURE



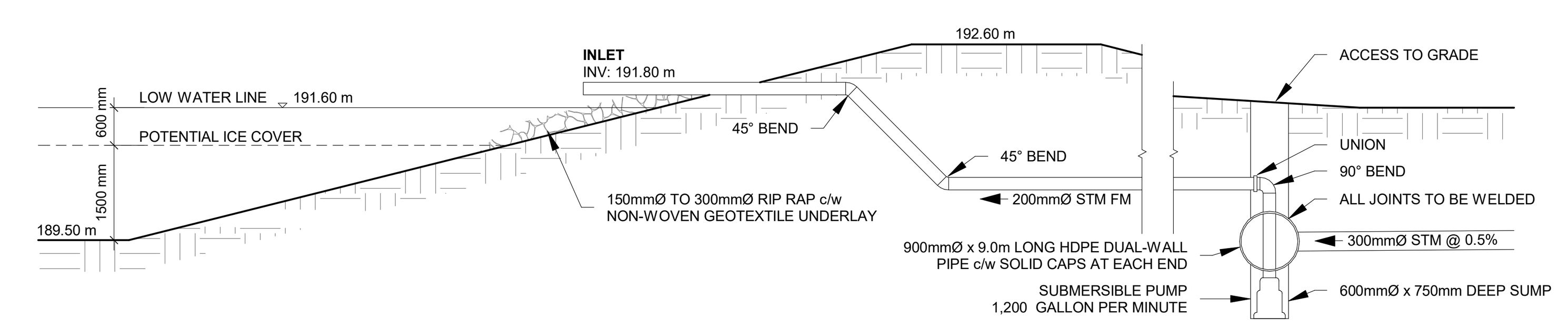
* CONTRACTOR TO COMPLETE TEST HOLES TO CONFIRM SUB BASE IS ADEQUATE PRIOR TO PAVING.



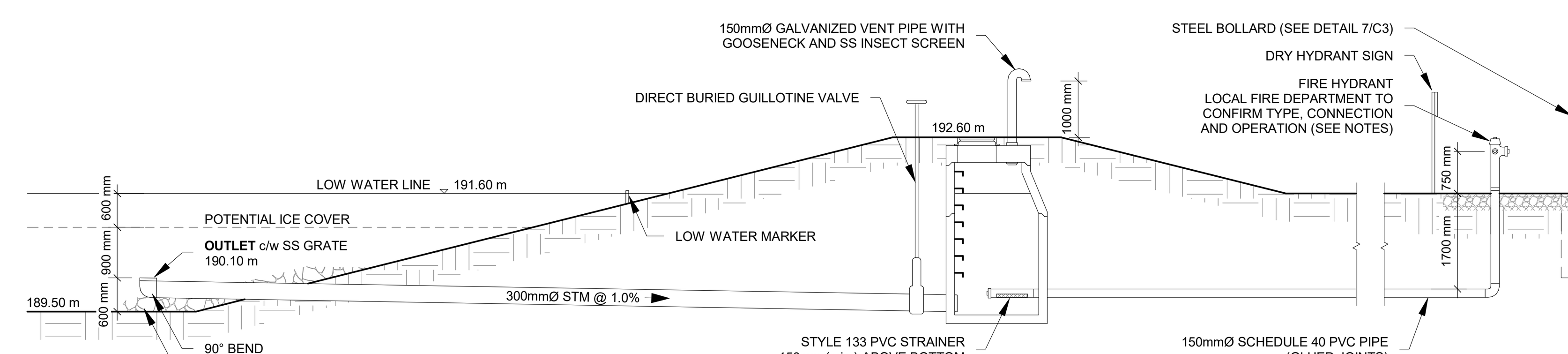
7 TYPICAL BOLLARD DETAIL
1 : 50



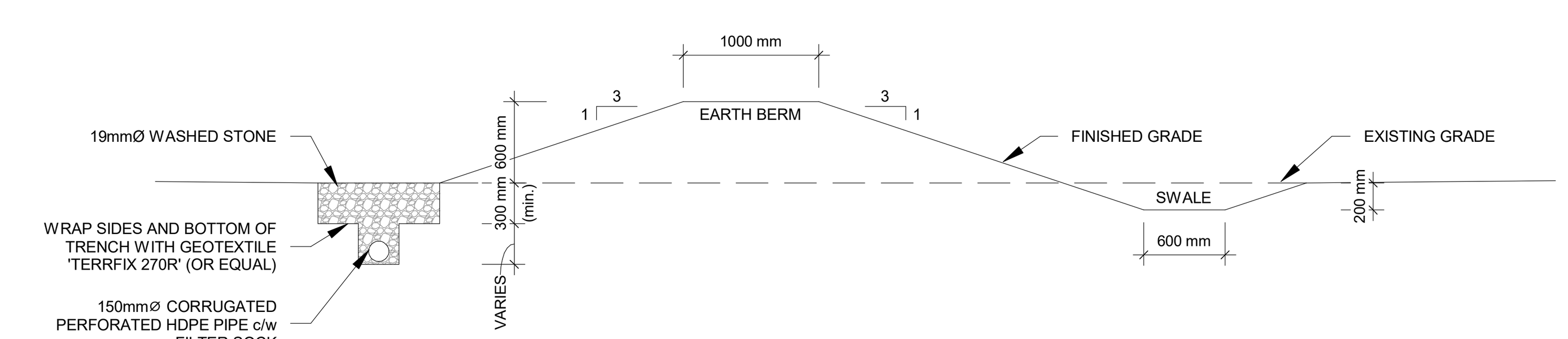
6 RWL TO STORM TRANSITION
1 : 50



5 STORMWATER STORAGE AND PUMP CHAMBER
1 : 100



4 DRY HYDRANT DETAIL
1 : 100



3 FRENCH DRAIN DETAIL
1 : 50

GENERAL NOTES:

1. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST CHECK AND VERIFY ALL EXISTING CONDITIONS, LOCATIONS AND ELEVATIONS. REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING.
2. THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR IS TO OBTAIN ALL UTILITY LOCATES. NOT ALL EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY MAY BE SHOWN.
3. ALL WORKS ON THE MUNICIPAL RIGHT-OF-WAY TO BE APPROVED BY THE MUNICIPALITY AND LOCAL ROADS AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR THE RESTORATION OF ALL BOULEVARD AREAS.
4. CONTRACTOR TO PROVIDE TRAFFIC CONTROL MEASURES IN COMPLIANCE WITH THE ONTARIO TRAFFIC MANUAL BOOK 7 (LATEST EDITION) FOR ALL WORKS WITHIN THE MUNICIPAL RIGHT-OF-WAY. CONTRACTOR TO SUBMIT TRAFFIC CONTROL PLANS TO THE MUNICIPALITY/ENGINEER FOR REVIEW PRIOR TO COMMENCING WITH CONSTRUCTION.
5. PLAN TO BE READ IN CONJUNCTION WITH FUNCTIONAL SERVICING REPORT AND DRAWINGS PREPARED BY MR ENGINEERING AND DESIGN LTD.

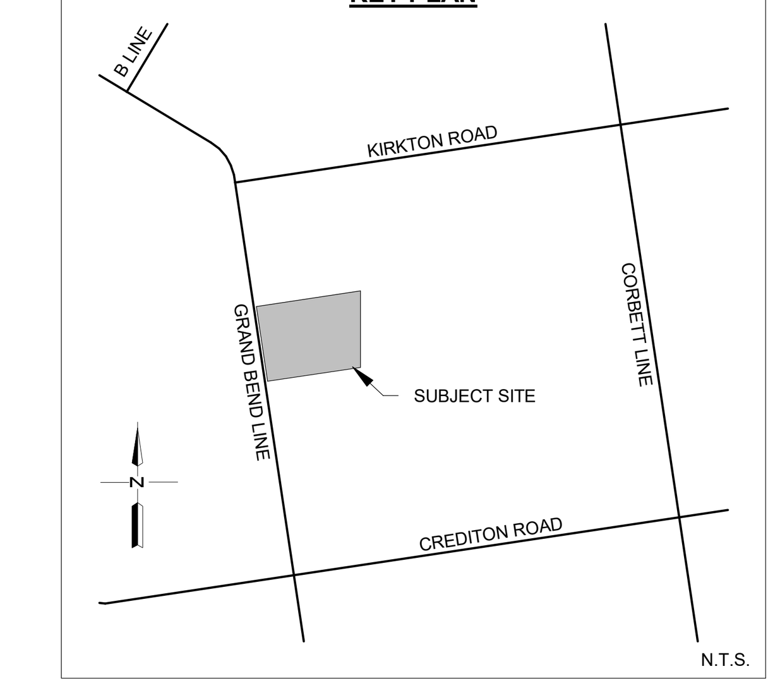
SEDIMENT AND EROSION CONTROL:

1. PROTECT ALL EXPOSED SURFACES AND CONTROL ALL RUNOFF DURING CONSTRUCTION. PROTECT ALL CATCH BASINS, MAINTENANCE HOLES AND PIPE ENDS FROM SEDIMENT INTRUSION WITH GEOTEXTILE FABRIC (OR EQUAL).
2. CONTRACTOR TO INSTALL SEDIMENT AND EROSION CONTROL MEASURES AS SHOWN PRIOR TO CONSTRUCTION AND MAINTAIN IN GOOD CONDITION UNTIL CONSTRUCTION IS COMPLETE AND VEGETATIVE COVER IS ESTABLISHED.
3. SEDIMENT AND EROSION CONTROL MEASURES TO BE IN ACCORDANCE WITH THE MINISTRY OF NATURAL RESOURCES GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES.
4. CONTRACTOR TO CLEAN ROADWAY AND SIDEWALKS OF SEDIMENT RESULTING FROM CONSTRUCTION TRAFFIC FROM THE SITE EACH DAY.
5. FOLLOWING COMPLETION OF THE PROPOSED WORKS, ALL STORM AND SANITARY SEWERS ARE TO BE FLUSHED, AND ALL CATCH BASIN AND MAINTENANCE HOLE SUMPS ARE TO BE CLEANED OF DEBRIS AND SILT.
6. SEE FUNCTIONAL SERVICING REPORT PREPARED BY MR ENGINEERING AND DESIGN LTD. FOR ONGOING MAINTENANCE RECOMMENDATIONS.

STORM SEWERS AND DRAINAGE:

1. ALL FINISHED GRADES TO DIRECT OVERLAND WATER FLOW AWAY FROM ALL STRUCTURES LOCATED ON-SITE. MAINTAIN POSITIVE DRAINAGE TO ALL CATCH BASINS.
2. BUILDING FOUNDATION WEEPING TILE DRAINAGE NOT TO BE DIRECTLY CONNECTED TO THE STORM SEWER SYSTEM. WEEPING TILE DRAINAGE MAY BE PUMPED TO THE STORM SEWER SYSTEM.
3. CATCH BASINS TO BE 600mm x 600mm PRECAST CONCRETE CATCH BASINS AS PER OPSD 705.010 COMPLETE WITH CAST IRON SQUARE FRAME GRATES AS PER OPSD 400.100.
4. MAINTENANCE HOLES AND CATCH BASIN MAINTENANCE HOLES TO BE 1500mmØ PRECAST CONCRETE WITH ALUMINUM STEPS AT 300mm o/c AS PER OPSD 701.011. PRECAST CONCRETE SINGLE INLET FLAT CAP AS PER OPSD 703.011. PRECAST CONCRETE RISERS (OPSD 701.041) AND ADJUSTMENTS (OPSD 704.010) AS REQUIRED. MAINTENANCE HOLE LIDS TO BE AS PER OPSD 401.010. CATCH BASIN GRATES TO BE AS PER OPSD 400.100.
5. DITCH INLET CATCH BASINS TO BE 600mm x 600mm PRECAST CONCRETE AS PER OPSD 705.030 WITH SLOPE ON GRATES. DITCH INLET CATCH BASINS GRATES TO BE AS PER OPSD 403.010.
6. PROVIDE SPLASH PADS (OR EQUAL) FOR ALL EAVES TROUGH DOWN SPOUTS THAT DISCHARGE AT GRADE.
7. STORM SEWERS, 150mm AND SMALLER, SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR28 ASTM-D3034 WITH INTEGRAL BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS.
8. STORM SEWERS, 200mm TO 375mm, SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR35 ASTM-D3034 OR RIBBED PVC SEWER PIPE CSA B182.4-M90 ASTM-F794 WITH INTEGRAL BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS. RIBBED PVC NOT TO BE USED WITHIN RIGHT-OF-WAY.
9. STORM SEWERS LARGER THAN 375mm SHALL BE N-12 DUAL WALL HIGH-DENSITY POLYETHYLENE (HDPE) PIPE WITH INTEGRATED BELL AND SPIGOT UTILIZING SOIL-TIGHT GASKETS.
10. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030, 802.031, OR 802.032. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. COVER MATERIAL TO BE GRANULAR "A" PLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY.
11. INSULATE STORM SEWER PIPES AS PER OPSD 1109.030 WHERE 1.2m COVER CANNOT BE ACHIEVED.

KEY PLAN



WATERMAINS:

1. WATER SERVICE CONNECTIONS 50mmØ AND SMALLER SHALL BE HDPE SERIES 160 AWWA C901 WITH SERVICE SADDLE.
2. WATERMAINS 100mmØ AND LARGER SHALL BE PVC AWWA C900 CLASS 150 INSTALLED WITH 1.8m (min.) OF COVER. FITTINGS 100mmØ AND LARGER SHALL BE PC CLASS 150 (DR18) CSA B137.3. PIPE JOINTS SHALL BE BELL AND SPIGOT WITH RUBBER GASKETS.
3. WATERMAIN SHALL HAVE 8 GAUGE 7 STRAND COPPER INSULATED TRACER WIRE OR #10 AWG SOLID STEEL CORE SOFT DRAWN HIGH STRENGTH TRACER WIRE STRAPPED TO TOP AT 5.0m INTERVALS. TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT ALL HYDRANTS AND CAD WELDED TO THE LOWER FLANGE OF THE HYDRANT.
4. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030, 802.031, OR 802.032. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. COVER MATERIAL TO BE GRANULAR "A" PLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY.
5. SERVICE SADDLE FOR PIPE DIAMETERS LESS THAN 100mm SHALL BE ROBAR 2600 SERIES SERVICE SADDLE WITH T-304 STAINLESS STEEL BOLTS (OR EQUAL). SINGLE LENGTH PIPE FROM MAIN TO CURB STOP AT PROPERTY LINE.
6. TAPPING SLEEVES FOR PIPE DIAMETERS FROM 100mm TO 600mm SHALL BE ROBAR 6606 STAINLESS STEEL TAPPING SLEEVE WITH T-304 STAINLESS STEEL BOLTS (OR EQUAL).
7. WATERMAIN VALVES 100mmØ AND LARGER SHALL BE AS PER AWWA C509 - MUELLER A2360-23 (OR EQUAL) INCLUDING VALVE BOX AND 2.3Kg ANODE INCLUDING ANODE PROTECTION INSTALLED AS PER MUNICIPAL STANDARD.
8. WATERMAIN FITTINGS TO BE SUPPLIED WITH MECHANICAL JOINT RESTRAINTS. FOR WATERMAIN PIPE SIZES 150mmØ OR LESS ALL JOINTS TO BE RESTRAINED WITHIN 5.0m FROM ALL FITTINGS IN EACH DIRECTION. FOR WATERMAIN PIPE SIZES LARGER THAN 150mmØ ALL PIPE JOINTS TO BE RESTRAINED WITHIN 10.0m FROM ALL FITTINGS IN EACH DIRECTION. ALL TEES TO HAVE 2.0m (min.) SOLID PIPE LENGTH ON EACH RUN OF THE TEE, OR PROVIDE A THRUST BLOCK AS PER OPSD 1103.010.
9. ALL METALLIC FITTINGS (EXCLUDING CURB/MAIN STOP AND BRASS FITTINGS) AND APPURTENANCES ARE TO BE PROTECTED USING AN ANTI-CORROSION PROTECTION SYSTEM, MEETING ISO 9001 STANDARDS, CONSISTING OF PRIMER, MASTIC AND TAPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
10. HYDRANTS SHALL BE MUELLER CANADA VALVE "CENTURY" (OR EQUAL) WITH 2-64mmØ HOSE CONNECTIONS AND 1-100mmØ "STORZ" TYPE PUMPER CONNECTION INCLUDING 5.5Kg ANODE. HYDRANT TO OPEN COUNTER-CLOCKWISE. PAINT CHROME YELLOW.
11. MAIN STOPS, CURB STOPS AND COUPLINGS SHALL BE AWWA C-800 COPPER TO COPPER FLANGED OR COMPRESSION CONNECTION OR APPROVED EQUIVALENT.
12. LOCAL MUNICIPALITY TO SUPPLY WATER METER. CONTRACTOR TO INSTALL CHAMBER, METER, ALL VALVES, PIPING AND REMOTE METER READOUT AT LOCATION ON BUILDING EXTERIOR ACCEPTABLE TO THE MUNICIPALITY.
13. ALL WATERMAIN TO BE PRESSURE TESTED IN ACCORDANCE WITH OPSS 441. DISINFECT ALL WATERMAIN IN ACCORDANCE WITH AWWA C651-05 INCLUDING CHLORINATION, BACKFLOW PREVENTER AND 24 HOUR DUPLICATE SAMPLING. ALL TESTING AND DISINFECTION TO BE COMPLETED UNDER THE SUPERVISION OF THE ENGINEER.
14. INSULATE WATERMAINS AND SERVICES AS PER OPSD 1109.030 WHERE 1.7m COVER CANNOT BE ACHIEVED.
15. FIRE SERVICE MAINS AND WATER SERVICE PIPES COMBINED WITH FIRE SERVICE MAINS TO BE DESIGNED, CONSTRUCTED AND TESTED IN CONFORMANCE WITH NFPA 24 "INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES".
16. WATER SERVICE TO BE SEPARATED FROM SANITARY/STORM SEWER BY 2.44m (min.). CROSSINGS TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE M.O.E. "DESIGN GUIDELINES FOR DRINKING WATER SYSTEMS".
17. ALL UNDERGROUND SERVICES ARE TO BE CONSTRUCTED IN COMPLIANCE WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE (2012), (PART 7 - PLUMBING), THE PROVINCIAL STANDARD SPECIFICATIONS (OPSD), AND LOCAL REGULATIONS.

SANITARY SEWERS:

1. SANITARY SEWERS 200mmØ TO 600mmØ SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR35 ASTM-D3034 WITH INTEGRAL BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS.
2. SANITARY SERVICE CONNECTIONS SHALL BE 125mmØ POLYVINYL CHLORIDE (PVC) PIPE DR28, CSA-B182.1. INSTALLED AT A MINIMUM GRADE OF 2.0% TO A MINIMUM DEPTH OF 2.4m UNLESS NOTED OTHERWISE.
3. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030, 802.031, OR 802.032. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. COVER MATERIAL TO BE GRANULAR "A" PLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY.
4. SANITARY SERVICE CONNECTIONS SHALL USE FACTORY MANUFACTURED TEES AND BE IN ACCORDANCE WITH OPSD 1006.020.
5. SANITARY SERVICE PIPE CLEANOUTS TO BE INSTALLED ON MUNICIPAL SIDE OF PROPERTY BOUNDARY.
6. SANITARY SERVICE CONNECTIONS FOR OPEN CUT LOW PRESSURE FORCEMAIN SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR18, CSA-B137.3 WITH INTEGRATED BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS. MECHANICAL THRUST RESTRAINTS SHALL BE PROVIDED ON ALL FITTINGS. PIPE SHALL HAVE SOLID #12 TWU COPPER TRACER WIRE WITH GREEN JACKET.
7. SANITARY SERVICE CONNECTIONS FOR TRENCHLESS LOW PRESSURE FORCEMAIN SHALL BE POLYVINYL CHLORIDE (PVC) PIPE AWWA CLASS 900, DR18, CSA-B137.3 WITH INTEGRATED BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS. PIPE JOINTS TO BE MECHANICALLY RESTRAINED. PIPE SHALL HAVE SOLID #8 TWU COPPER TRACER WIRE WITH GREEN JACKET.
8. INSULATE SANITARY SEWER PIPES AS PER OPSD 1109.030 WHERE FROST PROTECTION CANNOT BE ACHIEVED.
9. CONTRACTOR IS RESPONSIBLE FOR TESTING OF SANITARY SEWERS IN ACCORDANCE WITH OPSS 410.
10. ALL UNDERGROUND SERVICES ARE TO BE CONSTRUCTED IN COMPLIANCE WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE (2012), (PART 7 - PLUMBING), THE PROVINCIAL STANDARD SPECIFICATIONS (OPSD), AND LOCAL REGULATIONS.

PART LOTS 13 & 14
CONCESSION 20
IN THE GEOGRAPHIC TOWNSHIP OF STEPHEN
MUNICIPALITY OF SOUTH HURON
COUNTY OF HURON

NOTES:

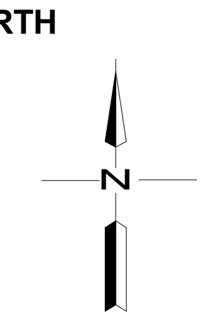
1. PROPERTY BOUNDARIES ARE APPROXIMATE AND BASED OFF OF GIS DATA AND SATELLITE IMAGERY.
2. EXISTING STRUCTURES AND SITE FEATURES FROM TOPOGRAPHIC SURVEY COMPLETED BY MR ENGINEERING AND DESIGN LTD., DATED JUNE 16, 2021.
3. SITE SKETCH IS CONCEPTUAL. FINAL SITING BY OTHERS.
4. THIS IS NOT A LEGAL SURVEY.

0m 5m 10m 20m 30m 40m
SCALE 1:500

NOTES:

@	AT	OHD	OVERHEAD DOOR
c/w	COMPLETE WITH	PROJ.	PROJECTION
Ø	DIAMETER	P.T.	PRESSURE TREATED
FRR	FIRE-RESISTANCE RATING	r/w	REINFORCED WITH
FDN	FOUNDATION	SG	SLIDE GATE
e/w	EACH WAY	T&G	TOUNGE AND GROOVE
EX.	EXISTING	t/o	TOP OF
H	HIGH/HORIZONTAL	TYP.	TYPICAL
HR	HOUR	u/s	UNDERSIDE
LLV	LONG LEG VERTICAL	V	VERTICAL
LVL	LAMINATED VANEER LUMBER	w/	WITH
max.	MAXIMUM	W	WIDE
min.	MINIMUM	WWM	WELDED WIRE MESH
OBC	ONTARIO BUILDING CODE		
o/c	ON CENTER		

NORTH



		No.	REVISION DESCRIPTION	MM/DD/YY	CH'KD
DESIGN	TM	1.	ISSUED FOR SITE PLAN APPROVAL	09/08/21	MR
DRAWN	TM	2.	REVISED BASED ON MUNICIPAL COMMENT	09/09/21	MR
CHECKED	MR	3.	FIRE ACCESS ROUTE DIMENSIONS ADDED	11/04/21	MR
APPROVED	MR	4.	REVISED BASED ON ABCA COMMENT	12/22/21	MR
DATE DECEMBER 2021					

CONSULTANT
MR ENGINEERING AND DESIGN LTD.
CIVIL • COMMERCIAL • AGRICULTURAL
145 Thames Road, West, Unit 4, Exeter, ON, N0M 1S3
Telephone: (519)-317-0128
Email: admin@mrengdesign.com

CONTRACTOR

LICENSED PROFESSIONAL ENGINEER
12/22/21
M. W. RUNGE
100162955
PROVINCE OF ONTARIO

70266 GRAND BEND LINE
GRAND BEND, ON
N0M 1T0

ELLEN & HEINER HOLLAND STORAGE WAREHOUSE

SITE GRADING AND SERVICING PLAN

PROJECT No. *MR21-218*

SHEET No. C3

SCALE As indicated

FUNCTIONAL SERVICING REPORT

70266 GRAND BEND LINE

NEW STORAGE WAREHOUSE

GRAND BEND, ONTARIO

PREPARED FOR

ELLEN AND HEINER HOLLAND

GRAND BEND, ONTARIO

PREPARED BY

MR ENGINEERING AND DESIGN LTD.

145 THAMES ROAD WEST, UNIT 4

EXETER, ONTARIO

MR Engineering and Design Ltd.
145 Thames Road West, Unit 4
Exeter, ON N0M 1S3
Telephone: 519-317-0128
Email: matt@mrengdesign.com

Table of Contents

Appendicies

MR Engineering and Design Ltd.
145 Thames Road West, Unit 4
Exeter, ON N0M 1S3
Telephone: 519-317-0128
Email: matt@mrengdesign.com

1. Introduction and Background

1.1 Overview

Ellen and Heiner Holland (Owners) are proposing to construct a 1,858m² storage warehouse located at 70266 Grand Bend Line, Grand Bend, Ontario. This report outlines a functional servicing strategy for the proposed development.

The subject site is located south of Grand Bend on the east side of Grand Bend Line (Hwy#81) on a lot with and area of 210,213m² (21.0 hectare). The site is bound on the north, east and south side by the existing Grand Bend Motor Plex and on the west by existing agricultural uses. The parcel is zoned M1-8 – Light Industrial Zone pursuant to the Municipality of South Huron Zoning By-law 69-2018. Two existing buildings are constructed on the parcel which each contain a separate business. The building located northwest of the proposed building contains Bendtech Inc., which manufactures pipe bending machines for the automobile manufacturing industry. The building located northeast of the proposed building contains Crosslink Laminates Inc. which manufactures fibreglass parts for commercial water slides, prison furniture, fan housings for the agricultural industry and trailer caps and fenders. An existing municipal sanitary sewage pumping station is located along the west property line and a former sanitary lagoon is located in the middle of the site. The remainder of the site is mostly undeveloped with various paved roadways (previous airplane taxiway) and parking areas provided for the existing on-site businesses. The Owner proposes to construct a 1,858m² storage warehouse used to store boats, cars and camper trailers. The storage warehouse will be operated by the Owners and can be accessed by appointment only.

This functional servicing report will provide additional information on the proposed servicing scheme for the site. Please refer to the plans contained in Appendix A for additional information.

Figure 1: Subject Site – 70266 Grand Bend Line, Grand Bend, ON

MR Engineering and Design Ltd.
145 Thames Road West, Unit 4
Exeter, ON N0M 1S3
Telephone: 519-317-0128
Email: matt@mrengdesign.com

1.2 Geotechnical Investigation

A geotechnical investigation was unavailable at the time of completion of this report.

2. Stormwater Management

2.1. Stormwater Management Criteria

Stormwater Management (SWM) for the proposed development will be provided by the use of on-site quantity and quality controls. The following section will further describe the SWM criteria, existing and proposed development conditions.

The stormwater management criteria for the proposed development are proposed as follows:

1. Post-development flows from the proposed storage warehouse are to be attenuated to pre-development levels or less.
2. Major storm flows are to be routed overland to an appropriate outlet.

Site specific storm parameters from the City of Stratford were used to provide the mass rainfall data routing. The parameters used for the 2-year to 100-year storms are provided below in Table 1.

Return Period	2-year	5-year	10-year	25-year	50-year	100-year
A	601.090	875.105	1062.156	1319.273	1560.739	1821.990
B	8.922	7.641	9.025	10.500	12.129	13.507
C	0.767	0.762	0.760	0.762	0.767	0.773

Table 1: City of Stratford stormwater parameters – IDF Curve Parameters 2020

2.2 Pre-development Conditions

The subject site is occupied by two existing buildings towards the center of the site, various paved roadways and parking areas for the on-site businesses. The remainder of the site is mostly undeveloped.

Under pre-development conditions there is 22,077m² (2.2ha) of hard (impervious) surface on the overall 210,213m² (21.0ha) site, or 10.5% impervious area.

Existing lot grading directs overland flow towards on-site storm networks on the developed areas and towards open drains on the undeveloped areas. The undeveloped areas located towards the west portion of the site were recently tiled.

2.3 Post-development Conditions

Under post-development conditions, the majority of the site will remain unaltered. The drainage works for the proposed storage warehouse construction will collect and direct all stormwater run-off up to and including the 100-year storm event to the existing pond on-site. This will be achieved by constructing a network of underground piping connected to the roof water leaders that will direct runoff to a pumping chamber that will outlet to the pond. The runoff rates for the 2, 5, 10, 25, 50, and 100-year design storms were calculated for the proposed storage warehouse. These stormwater calculations are provided in Appendix C and are summarized in Table 2 below.

MR Engineering and Design Ltd.
145 Thames Road West, Unit 4
Exeter, ON N0M 1S3
Telephone: 519-317-0128
Email: matt@mrengdesign.com

Post-Development Run-off Summary (L/s)								
Catchment	Area (ha)	Run-off Coefficient	Design Storm					
			2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Warehouse	0.19	0.9	35.2	45.7	52.6	61.4	67.5	73.8
Total			**35.2**	**45.7**	**52.6**	**61.4**	**67.5**	**73.8**

Table 2: Post-Development Run-off Summary

The 100-year storm event will generate 73.8 litres per second of runoff under post-development conditions over the area of the proposed storage warehouse. This runoff will be directed towards the pond on-site via underground pipe network and pump chamber. The pump chamber will provide 5.8m³ of underground storage for the required 5.0m³. A 1,200 gallon per minute (GPM) pump will be installed in the pump chamber with a 200mmØ outlet to the pond.

In the event that the 100-year storm event is surpassed or pump failure, the underground pipe network has been outfitted with catch basins used as junctions and inspection ports that will bubble over and allow stormwater to exit the system and flow overland in a western direction towards the open ditch.

Stormwater will be pumped into the pond located on-site which will allow sediment to settle. This pumped water will also assist in keeping the pond filled for fire fighting purposes.

It is proposed to move the existing berm south of Crosslink Laminates building further east to direct the overland flow from the easternly portion of the site away from the proposed storage warehouse.

2.4 Sediment and Erosion Control

Sediment and erosion control measures will be implemented on site during construction. These measures will include:

1. Installation of silt control fencing around the perimeter of the site subject to erosion during construction.

2. Preventing silt of sediment laden water from entering inlets (catch basins and/or catch basin manholes) by wrapping their tops with filter fabric.

3. Maintaining sediment and erosion control structures in good repair (including periodic cleaning and repair as required) through regular routine inspections. Further, erosion control measures will be inspected after any rainfall event.

The silt fence will serve to minimize the opportunity for water borne sediments to be washed on to the adjacent properties.

Inspection and maintenance of all silt fencing will start after installation is complete. The fence will be inspected on a weekly basis during active construction or after a rainfall event of 13mm (1/2") of greater. Maintenance will be carried out within 48 hours on any part of the facility found to need repair.

Once construction and landscaping has been substantially completed, the silt fence will be removed along with any accumulated sediment.

After construction of the complete development, erosion and sediment transport will be minimal.

MR Engineering and Design Ltd.
145 Thames Road West, Unit 4
Exeter, ON N0M 1S3
Telephone: 519-317-0128
Email: matt@mrengdesign.com

2.5 Maintenance Plan

To ensure that the stormwater management system continues to function as designed and constructed, we recommend that the following inspections and maintenance activities be completed on an annual basis.

1. Is there noticeable damage to structures (i.e. outlet structures, overflows, orifice plates)? If yes, complete any necessary repairs and/or installation of replacement structures.

2. Is there any noticeable damage to the grassed swales / overland flow paths (i.e. erosion, blockages)? If yes, complete any necessary repairs.

3. Is there any indication of a spill (i.e. frothy water, oily sheen on the water)? If yes, investigate, inform the appropriate agencies and complete the necessary clean-up and restoration.

4. Inspect all catch basins, and manholes. Remove and dispose of any accumulated sediment, trash/litter, debris (i.e. sediment, garbage, leaves, etc.).

5. Inspect all swales and overflow locations. Remove and dispose of any accumulated sediment, trash/litter, debris (i.e. sediment, garbage, leaves, etc.).

Please note that any structures identified during the annual inspection to be worn, missing or damaged are to be repaired or replaced within 48 hours.

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145 Thames Road West, Unit 4
Exeter, ON N0M 1S3
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3. Water Servicing

3.1 Existing Conditions

The existing Municipal water distribution system in proximity to the site consists of a 100mm diameter watermain located in the west side of Grand Bend Line right-of-way. Existing fire hydrants are located along the main entrance road way to the site as well as south east of the building that contains Bendtech Inc. The municipal water supply is insufficient to supply these hydrants with adequate fire fighting capacity. All of the existing hydrants connected to the existing pond are to be removed to the base of the hydrant. All existing hydrants connected to the municipal water source are to be turned off at their respective valve and valve extensions removed. The watermain beyond the valve is to be cut and capped and the hydrant removed.

3.2 Domestic Water Demands

The expected domestic water demand for the proposed building was estimated by reviewing the existing and proposed building layout drawings and summarizing the number of fixture units. Once summarized, a flow was assigned to the proposed development. The number of fixture units based on the type of fixture is assigned using Table 7.6.3.2. of Division B of the Ontario Building Code (OBC). The total number of fixture units for the proposed development is summarized below in Table 3.

Water Supply			
Fixture	**Number**	**Load**	**Fixture Units**
Bendtech Inc.			
Water closet	4	2.2	8.8
Lavatory	5	2.0	10.0
Hose bibb	2	2.5	5.0
Sub-total			23.8
Crosslink Laminates Inc.			
Water closet	4	2.2	8.8
Lavatory	4	2.0	8.0
Hose bibb	2	2.5	5.0
Sub-total			21.8
Proposed Storage Warehouse			
Water closet	1	2.2	2.2
Lavatory	1	2.0	2.0
Hose bibb	1	2.5	2.5
Sub-total			6.7
		Total	**52.3**

Table 3: Summary of water supply fixture units.

Approximately 100m of water service piping is required to be routed from the existing watermain located on the south side of the existing Bendtech Inc. building to the proposed storage warehouse. Through review of Table A-7.6.3.1. of the OBC based on a total of 6.7 fixture units, a pressure over 200 kPa (30 psi), and a total length of 100m of water service piping, a 25mm diameter water service is required. The proposed storage building will be supplied by a 38mm diameter water service.

MR Engineering and Design Ltd.
145 Thames Road West, Unit 4
Exeter, ON N0M 1S3
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3.3 Fire Flow Demands

Fire flow demands for the proposed development are governed by the Ontario Building Code (OBC), various standards published by the National Fire Protection Association (NFPA), and by the Water Supply for Public Fire Protection guideline (Fire Underwriters Survey).

The OBC requires buildings to be provided with an adequate water supply for firefighting. The existing municipal water system in proximity to the site is not capable of providing the necessary water supply for firefighting. Therefore, an on-site water supply for firefighting will be provided for the proposed storage warehouse building by means of the existing lagoon located on-site and in close proximity to the proposed development. The lagoon will be outfitted with a dry hydrant to supply the fire department vehicles. The quantity of water has been calculated in accordance with the OBC, Appendix A, Div. B A-3.2.5.7. as follows:

$Q=K*V*S_{tot}$

Where Q = minimum supply of water in litres
K = water supply coefficient
V = total building volume in cubic metres
S_{tot} = total spatial coefficient values

The proposed medium hazard industrial building will be of non-combustible construction with fire separations and fire-resistance ratings provided as required (K=17). The total volume of the proposed building is V=18,737m^3. The total of spatial coefficient values from exposures on all sides is S_{tot}= 1.0+[0.0+0.0+0.0+0.0]. Consequently, Q was calculated to be 318,532 litres.

The minimum quantity of on-site water should be the greater of Q (318,532 litres) or the quantity needed to provide the minimum flow rate of 9,000 litres per minute for 30 minutes (270,000 litres). Therefore, the minimum quantity of on-site water required for firefighting was calculated to be 318,532 litres.

The proposed dry hydrant will be installed so that the bottom of the outlet pipe will be 0.6m above the bottom of the pond. It is proposed to install a 300mmØ pipe to supply a maintenance hole that will be plumbed to the dry hydrant. The 300mmØ pipe will be outfitted with a fabricated grate to prevent debris from entering the system, while the dry hydrant will be outfitted with an additional strainer to prevent small debris from being pulled into the fire department's pumper vehicle. The pond will be recharged by the pumped stormwater outlet. Adequate water volume is also required to be maintained throughout the winter months. With the 300mmØ outlet pipe installed 0.6m above the bottom of the pond, and accounting for 0.6m of ice, there will be 0.9m of water above the outlet to the underside of the ice. This volume has been calculated to be 1,400m^3 (1,400,000 litres).

MR Engineering and Design Ltd.
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Exeter, ON N0M 1S3
Telephone: 519-317-0128
Email: matt@mrengdesign.com

4. Sanitary Sewer Servicing

4.1. Existing Conditions

The existing Municipal sanitary sewage system in proximity to the site consists a municipal pumping station outletting to a 100mmØ forcemain routed along Grand Bend Line. The existing sanitary sewage infrastructure on-site consists of a 200mmØ underground gravity collection system complete with various maintenance holes.

Under previous conditions when the site operated as Grand Bend POG, it is understood by this office that the sanitary sewage was routed to the existing on-site lagoon which provided settling for the solids prior to be routed to the municipal pumping station. The outlet from the lagoon was inspected during the on-site survey completed by this office and found that the existing 300mmØ outlet from the lagoon has been abandoned and that the gate valve was in the closed position. Further inspection of the sanitary manholes indicates the surrounding buildings have been connected to the existing sanitary manholes and routed directly to the municipal pumping station.

4.2 Sanitary Sewage Demands

The expected sanitary sewage demand for the site was estimated by reviewing the proposed building layout drawings and summarizing the number of fixture units for the entire development. Once summarized, a flow was assigned to the entire development. The hydraulic load based on the type of fixture is assigned using Table 7.4.9.3. of Division B of the Ontario Building Code (OBC). The total number of fixture units for the proposed development is summarized below in Table 4.

Sanitary Sewage – Proposed			
Fixture	**Number**	**Load**	**Fixture Units**
Water Closet	1	4.0	4.0
Lavatory	1	1.5	1.5
		Sub-Total	**5.5**
Sanitary Sewage – Entire Site			
Fixture	**Number**	**Load**	**Fixture Units**
Water Closet	9	4.0	36.0
Lavatory	8	1.5	12.0
Sink - Kitchen	2	1.5	3.0
		Sub-Total	**51.0**

Table 4: Summary of sanitary sewage demand fixture units for the proposed development

It was determined that there will be 5.5 additional sanitary sewage fixture units for the proposed storage warehouse and a total of 51.0 sanitary sewage fixture units for the entire development. Table A-7.4.10.5. of the OBC indicates that the design sanitary sewage flow rate is 21 gal/min (1.32 l/s) for the proposed storage warehouse and 42 gal/min (2.65 l/s) for the entire development. It should be noted that the lowest value of fixture units in Table A-7.4.10.5. is 10.

4.3 Proposed Sanitary Servicing Plan

The proposed storage warehouse will be serviced by a 150mmØ sanitary service connected to the existing 200mm diameter sanitary sewer network that is routed to the municipal pumping station located at the western side of the site.

MR Engineering and Design Ltd.
145 Thames Road West, Unit 4
Exeter, ON N0M 1S3
Telephone: 519-317-0128
Email: matt@mrengdesign.com

5. Summary

It is the opinion of this office, based on the information provided herein, that the proposed development can be constructed, serviced and graded to satisfy the requirements of the Municipality of South Huron.

I trust that you will find this information satisfactory. Should any of the information contained herein differ, contact MR Engineering and Design Ltd. immediately.

If you have any questions or concerns, please contact the undersigned.

Matt Runge, M.A.Sc., P.Eng.

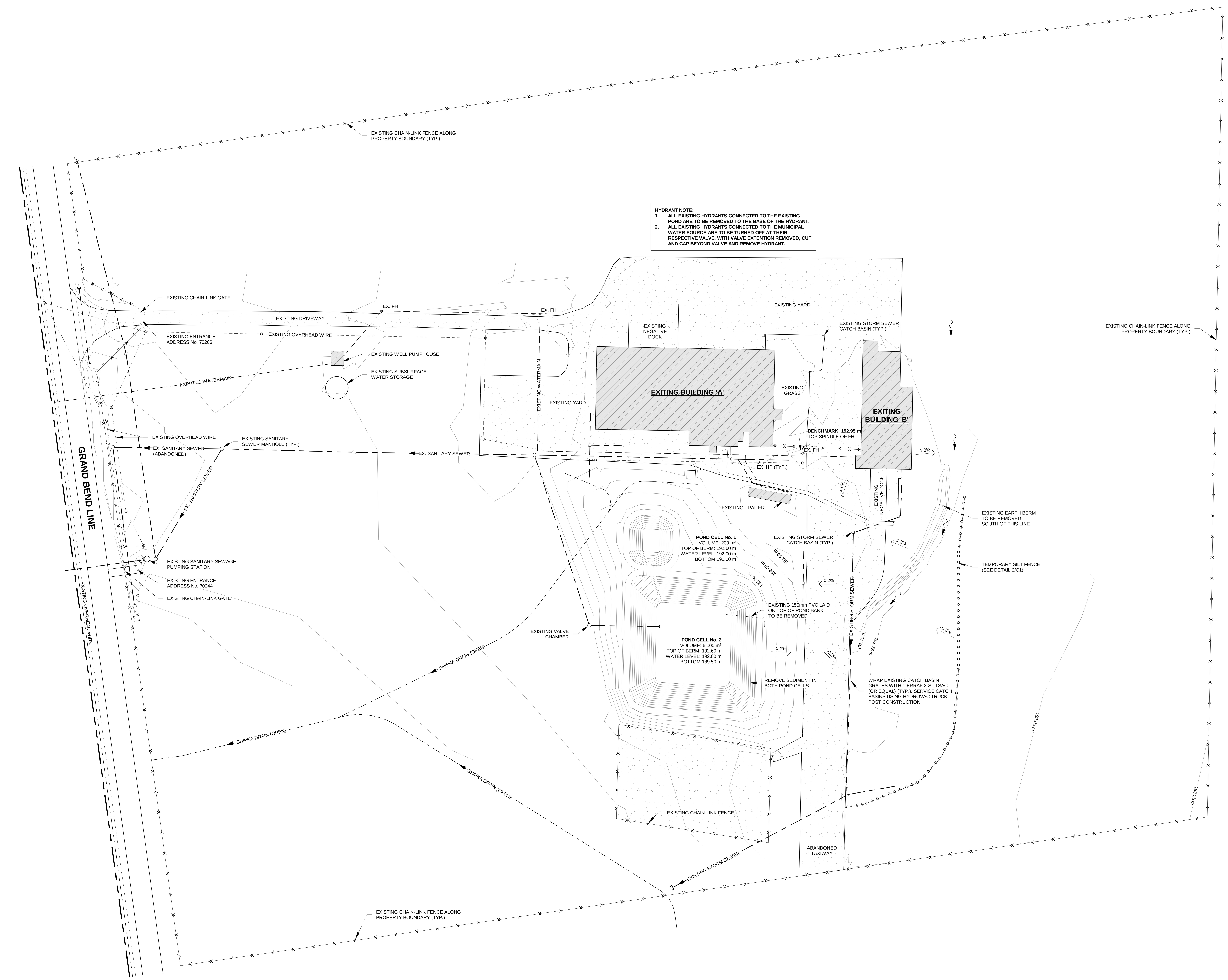
MR Engineering and Design Ltd.

APPENDIX A – Existing Conditions Plan / Site Plan / Site Grading and Servicing Plan

SITE LEGEND

BD	BOLLARD
CB	CATCH BASIN
CS	CURB STOP
FH	FIRE HYDRANT
FM	FORCEMAIN
GUY	GUY WIRE
GV	GUILLOTINE VALVE
HP	HYDRO POLE
INV	INVERT
MH	MAINTENANCE HOLE
SAN	SANITARY SEWER
STM	STORM SEWER
T/G	TOP OF GRATE
WS	WATER SERVICE
WTM	WATERMAIN
WV	WATER VALVE
190.00 m	EXISTING ELEVATION
190.00 m	PROPOSED ELEVATION
190.00 m	ELEVATION CONTOUR
1.0%	DIRECTION AND SLOPE OF OVERLAND WATER FLOW
	PROPOSED SWALE
A	SIGN AND POST
1	# OF PARKING SPACES
RWL	ROOF WATER LEADER

BENCHMARK ELEVATION: 192.95 m
TOP SPINDLE OF FIRE HYDRANT LOCATED SOUTH-EAST OF BUILDING 'A' ON THE SUBJECT PROPERTY.



HYDRANT NOTE:

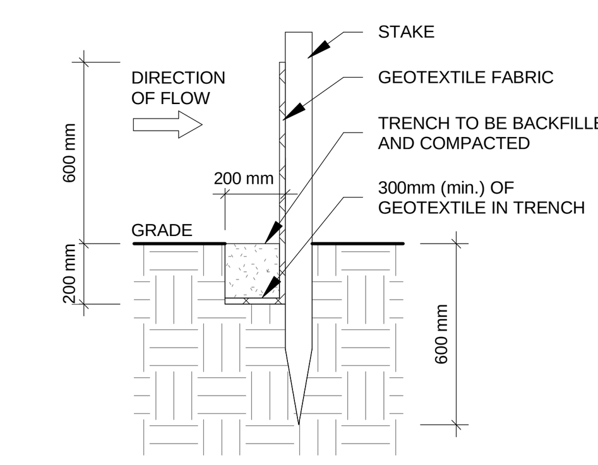
1. ALL EXISTING HYDRANTS CONNECTED TO THE EXISTING POND ARE TO BE REMOVED TO THE BASE OF THE HYDRANT.
2. ALL EXISTING HYDRANTS CONNECTED TO THE MUNICIPAL WATER SOURCE ARE TO BE TURNED OFF AT THEIR RESPECTIVE VALVE. WITH VALVE EXTENTION REMOVED, CUT AND CAP BEYOND VALVE AND REMOVE HYDRANT.

(1) EXISTING CONDITIONS PLAN
1 : 1000

KEY PLAN

DRAWING LIST

C1	EXISTING CONDITIONS, REMOVALS AND EROSION CONTROL PLAN
C2	SITE PLAN
C3	SITE GRADING AND SERVICING PLAN



NOTE:

CONTRACTOR TO MAINTAIN SILT FENCE BARRIER UNTIL VEGETATION HAS BEEN ESTABLISHED ON ALL EXPOSED SOILS WITHIN CATCHMENT AREA.

(2) TEMPORARY SILT FENCE DETAIL
1 : 25

PART LOTS 13 & 14
CONCESSION 20

IN THE GEOGRAPHIC TOWNSHIP OF STEPHEN

MUNICIPALITY OF SOUTH HURON
COUNTY OF HURON

NOTES:

1. PROPERTY BOUNDARIES ARE APPROXIMATE AND BASED OFF OF GIS DATA AND SATELLITE IMAGERY.
2. EXISTING STRUCTURES AND SITE FEATURES FROM TOPOGRAPHIC SURVEY COMPLETED BY MR ENGINEERING AND DESIGN LTD., DATED JUNE 16, 2021.
3. SITE SKETCH IS CONCEPTUAL. FINAL SITING BY OTHERS.
4. THIS IS NOT A LEGAL SURVEY.

0m 10m 20m 30m 40m 50m 100m
SCALE 1:1,000

NOTES:

@	AT	OHD	OVERHEAD DOOR
c/w	COMPLETE WITH	PROJ.	PROJECTION
Ø	DIAMETER	P.T.	PRESSURE TREATED
FRR	FIRE-RESISTANCE RATING	r/w	REINFORCED WITH
FDN	FOUNDATION	SG	SLIDE GATE
e/w	EACH WAY	T&G	TOUNGE AND GROOVE
EX.	EXISTING	t/o	TOP OF
H	HIGH/HORIZONTAL	TYP.	TYPICAL
HR	HOUR	u/s	UNDERSIDE
LLV	LONG LEG VERTICAL	V	VERTICAL
LVL	LAMINATED VANEER LUMBER	w/	WITH
max.	MAXIMUM	W	WIDE
min.	MINIMUM	WWM	WELDED WIRE MESH
OBC	ONTARIO BUILDING CODE		
o/c	ON CENTER		

NORTH

N

DESIGN	TM	No.	REVISION DESCRIPTION	MM/DD/YY	CH'KD
DRAWN	TM	1.	ISSUED FOR SITE PLAN APPROVAL	09/08/21	MR
CHECKED	MR	2.	REVISED BASED ON MUNICIPAL COMMENT	09/09/21	MR
APPROVED	MR				
DATE	SEPT. 2021				

CONSULTANT

MR ENGINEERING AND DESIGN LTD.
CIVIL•COMMERCIAL•AGRICULTURAL
145 Thames Road, West, Unit 4, Exeter, ON, N0M 1S3
Telephone: (519)-317-0128
Email: admin@mrengdesign.com

CONTRACTOR

LICENSED PROFESSIONAL ENGINEER
01/09/21
M. W. RUNGE
100162955
PROVINCE OF ONTARIO

70266 GRAND BEND LINE
GRAND BEND, ON
N0M 1T0

ELLEN & HEINER HOLLAND
STORAGE WAREHOUSE

EXISTING CONDITIONS, REMOVALS AND EROSION CONTROL PLAN

PROJECT No. MR21-218

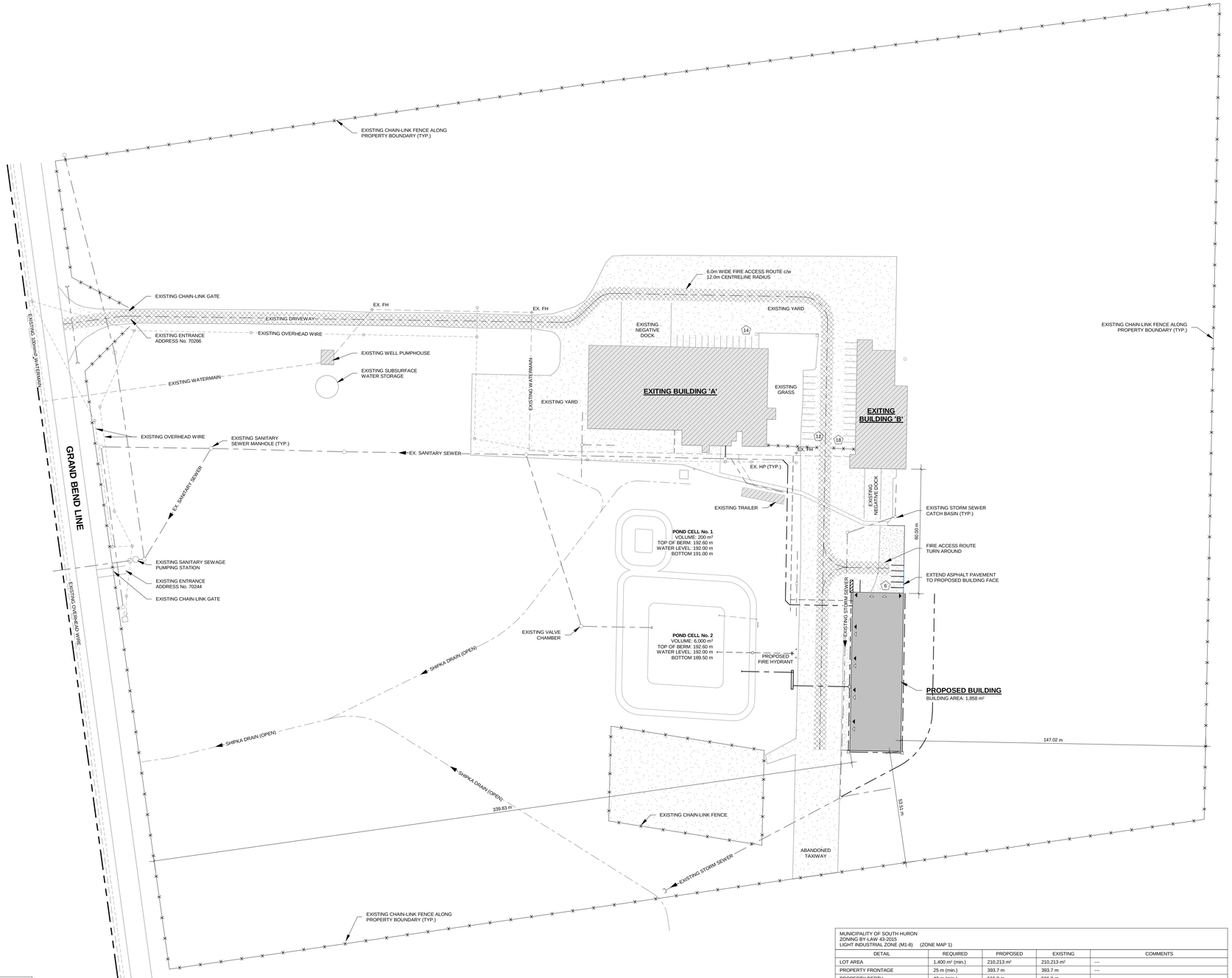
SHEET No. C1

SCALE As indicated

SITE LEGEND

BD	BOLLARD
CB	CATCH BASIN
CS	CURB STOP
FH	FIRE HYDRANT
FM	FORCEMAIN
GUY	GUY WIRE
GV	GUILLOTINE VALVE
HP	HYDRO POLE
INV	INVERT
MH	MAINTENANCE HOLE
SAN	SANITARY SEWER
STM	STORM SEWER
T/G	TOP OF GRATE
W/S	WATER SERVICE
WTM	WATERMAIN
WV	WATER VALVE
190.00	EXISTING ELEVATION
190.00 m	PROPOSED ELEVATION
190.00 m	ELEVATION CONTOUR
1.0%	DIRECTION AND SLOPE OF OVERLAND WATER FLOW
	PROPOSED SWALE
A	SIGN AND POST
1	# OF PARKING SPACES
rwl	ROOF WATER LEADER

BENCHMARK ELEVATION: 192.95 m
TOP SPINDLE OF FIRE HYDRANT LOCATED SOUTH-EAST OF BUILDING 'A' ON THE SUBJECT PROPERTY.



1 SITE PLAN
1 : 1000

0m 10m 20m 30m 40m 50m 100m
SCALE 1:1,000

PART LOTS 13 & 14
CONCESSION 20
IN THE GEOGRAPHIC TOWNSHIP OF STEPHEN
MUNICIPALITY OF SOUTH HURON
COUNTY OF HURON

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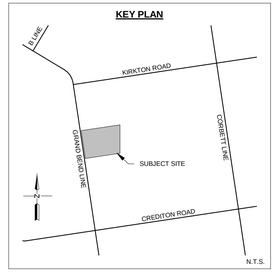
KEY PLAN



GENERAL NOTES:

1. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST CHECK AND VERIFY ALL EXISTING CONDITIONS, LOCATIONS AND ELEVATIONS. REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING.
2. THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR IS TO OBTAIN ALL UTILITY LOCATES. NOT ALL EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY MAY BE SHOWN.
3. ALL EXTERIOR LIGHTING TO BE CONFINED TO THE BUILDING FACE , LANES AND PARKING AREAS SO AS NOT TO CAST A GLARE ONTO THE STREET OR ADJACENT PROPERTIES.

ITEM	ONTARIO BUILDING CODE DATA MATRIX PARTS 3 & 9			OBC REFERENCE	
1	70266 GRAND BEND LINE GRAND BEND, ON	■ NEW ☐ ADDITION ☐ CHANGE OF USE ☐ ALTERATION	☐ PART 11	■ PART 3	☐ PART 9 2.1.1 9.10.1.3
2	MAJOR OCCUPANCY(S) MEDIUM HAZARD INDUSTRIAL			3.1.2.1.(1)	9.10.2
3	BUILDING AREA (m²) EXISTING 0 NEW 1,858 TOTAL 1,858			1.4.1.2	1.4.1.2
4	2nd FLOOR AREA (m²) EXISTING 0 NEW 1,858 TOTAL 1,858			1.4.1.2	1.4.1.2
5	NUMBER OF STOREY(S) ABOVE GRADE 1 BELOW GRADE 0			3.2.1.1 & 1.4.1.2	1.4.1.2 & 9.10.4
6	HEIGHT OF BUILDING (m) 8.9			1.4.1.2	
7	NUMBER OF STREETS / ACCESS ROUTES 1			3.2.2.10 & 3.2.5.5	9.10.20
8	BUILDING CLASSIFICATION 3.2.2.70.			3.2.2.20-.83	9.10.2
9	SPRINKLER SYSTEM PROPOSED	☐ ENTIRE BUILDING ☐ BASEMENT ONLY ☐ IN LIEU OF ROOF RATING ☐ ADDITION ■ NOT REQUIRED		3.2.2.20-.83 3.2.1.5 3.2.2.17	9.10.8
10	STANDPIPE REQUIRED	☐ YES ■ NO		3.2.9	
11	FIRE ALARM REQUIRED	☐ YES ■ NO		3.2.4	9.10.18.2
12	WATER SERVICE/SUPPLY ADEQUATE	■ YES ☐ NO ☐ N/A		3.2.5.7	
13	HIGH BUILDING	☐ YES ■ NO		3.2.6	
14	PERMITTED CONSTRUCTION ☐ COMBUSTIBLE ☐ NON-COMBUSTIBLE ■ BOTH ACTUAL CONSTRUCTION ☐ COMBUSTIBLE ■ NON-COMBUSTIBLE ☐ BOTH			3.2.2.20.-.83	9.10.6
15	MEZZANINE(S) AREA (m²) N/A			3.2.1.1.(3)-(8)	9.10.4.1
16	OCCUPANCY BASED ON ☐ m²/PERSON ■ DESIGN OF BUILDING BUILDING OCCUPANT LOAD: LOAD: 10 PERSONS (SEE NOTE 1.) TOTAL LOAD: 10 PERSONS			3.1.17	9.9.1.3 & T 3.1.17.1
17	BARRIER-FREE DESIGN	■ YES ☐ NO		3.8	9.5.2
18	HAZARDOUS SUBSTANCES	☐ YES ■ NO		3.3.1.2.(1) & 3.3.1.19.(1)	9.10.1.3 (4)
19	REQUIRED FIRE RESISTANCE RATING (FRR)	HORIZONTAL ASSEMBLIES FRR (HOURS)	LISTED DESIGN No. OR DESCRIPTION (SB-2)	3.2.2.20-.83 & 3.2.1.4	9.10.8 9.10.9
		FLOORS 0.75 HOURS	N/A		
		ROOF N/A HOURS	NON-COMBUSTIBLE		
		MEZZANINE 0.75 HOURS	N/A		
		FRR OF SUPPORTING MEMBERS (HOURS)	LISTED DESIGN No. OR DESCRIPTION (SB-2)		
		FLOORS 0.75 HOURS	N/A		
		ROOF N/A HOURS	NON-COMBUSTIBLE		
		MEZZANINE 0.75 HOURS	N/A		
20	SPATIAL SEPARATION - CONSTRUCTION OF EXTERIOR WALLS (SEE NOTE 2.)			3.2.3	9.10.14

WALL	AREA OF EBF (m²)	L.D. (m)	L/H OR H/L	PERMITTED MAX. % OF OPENINGS	PROPOSED MAX. % OF OPENINGS	FRR (HOURS)	LISTED DESIGN OR DESCRIPTION	COMB. CONSTR	COMB. CONSTR. NON-COMB. CLADDING	NON-COMB. CONSTR.
EX. SOUTH	200.0	30.0	3:1	100	24.8	0		YES		
NORTH	192.0	30.0	2.7:1	100	27.1	0		YES		
SOUTH	192.0	53.5	2.7:1	100	0.0	0		YES		
EAST	522.6	147.0	11:1	100	0.4	0		YES		
WEST	522.6	339.8	11:1	100	22.0	0		YES		

21	FIRE SEPARATIONS								
	EXITS	☐ 0-HR	■ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.4.4.1	9.9.4.2 & 9.9.4.7	
	SERVICE ROOMS	☐ 0-HR	☐ 0.75-HR	■ 1-HR	☐ 1.5-HR	☐ 2-HR	3.6.2	9.10.10.3	
	VERTICAL SERVICE SPACES	☐ 0-HR	☐ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.6.3		
	HORIZONTAL SERVICE SPACES	☐ 0-HR	☐ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.6.4	9.10.9.10	
	JANITOR ROOMS	☐ 0-HR	■ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.3.1.20		
	DIFFERENT OCCUPANCIES	☐ 0-HR	☐ 0.75-HR	☐ 1-HR	☐ 1.5-HR	☐ 2-HR	3.1.3. & 3.3.2-5	9.10.9	
22	EXIT THROUGH A LOBBY		☐ YES ■ NO				3.4.4.2	9.9.8.5	
23	INTERCONNECTED FLOOR SPACE		☐ YES ■ NO				3.2.8	9.9.4.7	
24	PLUMBING FIXTURES						3.7.4	9.31	

OCCUPANCY	OCCUPANT LOAD	WC REQUIRED	WC PROVIDED
WAREHOUSE	10 PERSONS	1 FOR BOTH SEXES	1 FOR BOTH SEXES

NOTE:

1. POST A PERMANENT SIGN INDICATING "10 PERSONS MAXIMUM OCCUPANT LOAD" IN A CONSPICUOUS LOCATION.
2. SPATIAL SEPARATION HAS BEEN CALCULATED FOR THE MAXIMUM AGGREGATE AREA OF UNPROTECTED OPENINGS IN THE EXTERIOR WALLS USING LINEAR AND BILINEAR INTERPOLATION OF OBC DIVISION B - PART 3, CLAUSE 3.2.3.1.(1)(a); TABLE 3.2.3.1.C.

MUNICIPALITY OF SOUTH HURON
ZONING BY-LAW 43-2015
LIGHT INDUSTRIAL ZONE (M1-8) (ZONE MAP 1)

DETAIL	REQUIRED	PROPOSED	EXISTING	COMMENTS
LOT AREA	1,400 m² (min.)	210,213 m²	210,213 m²	---
PROPERTY FRONTAGE	25 m (min.)	393.7 m	393.7 m	---
PROPERTY DEPTH	40 m (min.)	566.8 m	566.8 m	---
FRONT YARD	7 m (min.)	236.2 m	236.2 m	---
INTERIOR SIDE YARD	5 m (min.)	53.5 m	124.9 m	---
REAR YARD	30 m (min.)	147.0 m	147.0 m	---
LOT COVERAGE	50 % (max.)	2.5 %	3.4 %	---
LANDSCAPED OPEN SPACE	10 % (min.)	85.8 %	87.0 %	---
BUILDING HEIGHT	20 m (max.)	8.9 m	---	---
PARKING SPACES	28 SPACES (min.)	50 SPACES	44 SPACES	SEE NOTE 1.

NOTE:

1. ON-SITE PARKING REQUIREMENTS
   a. INDUSTRIAL ESTABLISHMENT = 3 SPACES FOR EVERY 4 EMPLOYEES (18 SPACES) (BUILDING 'A' = 12 EMPLOYEES, BUILDING 'B' = 12 EMPLOYEES).
   b. WAREHOUSE = 1 SPACE PER 185 SQUARE METRES OF TOTAL FLOOR AREA (10 SPACES).

NOTES:

@	AT	OHD	OVERHEAD DOOR
c/w	COMPLETE WITH	PROJ.	PROJECTION
Ø	DIAMETER	P.T.	PRESSURE TREATED
FRR	FIRE-RESISTANCE RATING	r/w	REINFORCED WITH
FDN	FOUNDATION	SG	SLIDE GATE
e/e	EACH WAY	T&G	TOUNGE AND GROOVE
EX.	EXISTING	t/o	TOP OF
H	HIGH/HORIZONTAL	TYP.	TYPICAL
HR	HOUR	u/s	UNDERSIDE
LLV	LONG LEG VERTICAL	V	VERTICAL
L/VL	LAMINATED VANEER LUMBER	w/	WITH
max.	MAXIMUM	W	WIDE
min.	MINIMUM	WWM	WELDED WIRE MESH
OBC	ONTARIO BUILDING CODE		
o/c	ON CENTER		

NORTH

DESIGN	TM	No.	REVISION DESCRIPTION	MM/DD/YY	CH'KD
DRAWN	TM	1.	ISSUED FOR SITE PLAN APPROVAL	09/08/21	MR
CHECKED	MR	2.	REVISED BASED ON MUNICIPAL COMMENT	09/09/21	MR
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DATE	SEPT. 2021				

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CONTRACTOR

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07/09/21
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GRAND BEND, ON
N0M 1T0

ELLEN & HEINER HOLLAND
STORAGE WAREHOUSE

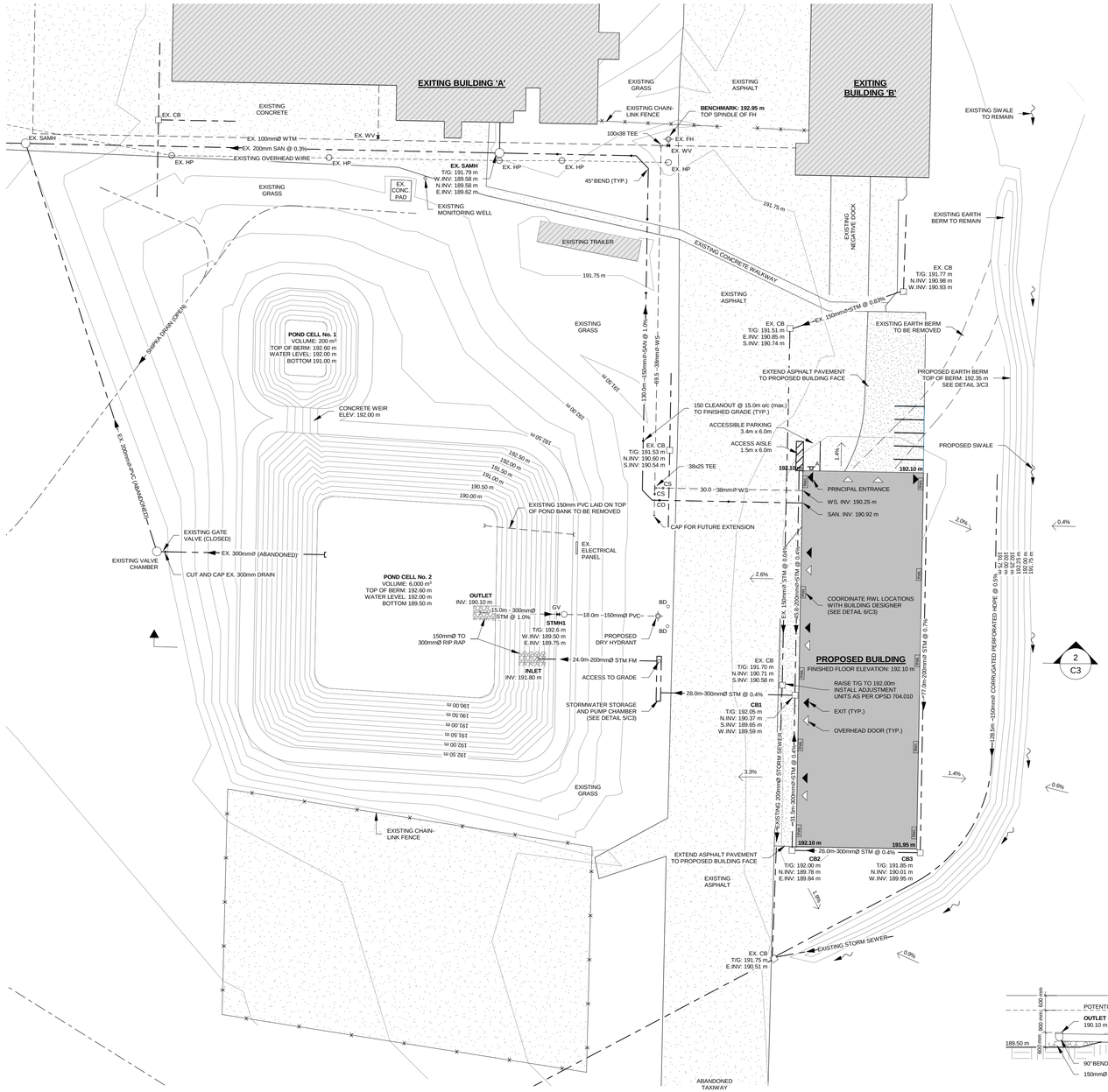
SITE PLAN

PROJECT No. *MR21-218*
SHEET No. C2
SCALE As indicated

SITE LEGEND

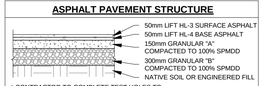
BD	BOLLARD
CB	CATCH BASIN
CS	CURB STOP
FH	FIRE HYDRANT
FM	FORCEMAIN
GUY	GUY WIRE
GV	GUILLOTINE VALVE
HP	HYDRO POLE
INV	INVERT
MH	MAINTENANCE HOLE
SAN	SANITARY SEWER
STM	STORM SEWER
T/G	TOP OF GRATE
WS	WATER SERVICE
WTM	WATERMAIN
WV	WATER VALVE
100.00	EXISTING ELEVATION
190.00 m	PROPOSED ELEVATION
190.00 m	ELEVATION CONTOUR
1.0%	DIRECTION AND SLOPE OF OVERLAND WATER FLOW
	PROPOSED SWALE
A	SIGN AND POST
1	# OF PARKING SPACES
RWL	ROOF WATER LEADER

BENCHMARK ELEVATION: 192.95 m
TOP SPINDLE OF FIRE HYDRANT LOCATED SOUTH-EAST OF BUILDING 'A' ON THE SUBJECT PROPERTY.

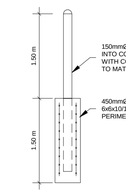


1 SITE GRADING AND SERVICING PLAN
1 : 500

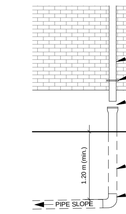
ASPHALT PAVEMENT STRUCTURE



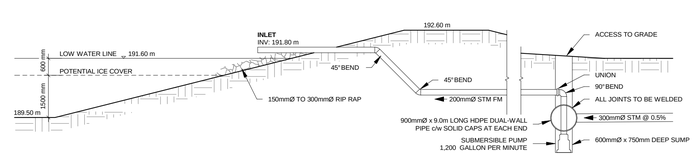
• CONTRACTOR TO COMPLETE TEST HOLES TO CONFIRM SUB BASE IS ADEQUATE PRIOR TO PAVING.



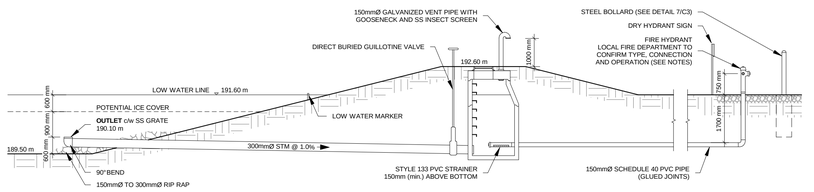
7 TYPICAL BOLLARD DETAIL
1 : 50



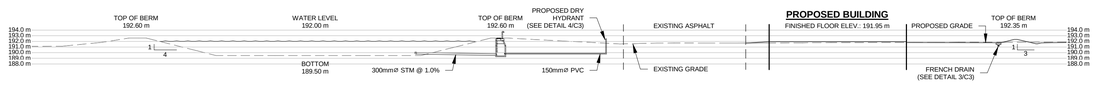
6 RWL TO STORM TRANSITION
1 : 50



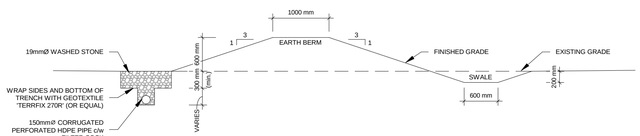
5 STORMWATER STORAGE AND PUMP CHAMBER
1 : 100



4 DRY HYDRANT DETAIL
1 : 100

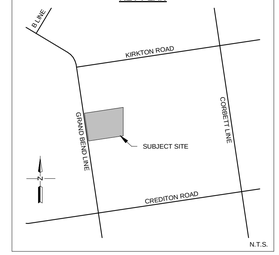


2 SECTION A
1 : 500



3 FRENCH DRAIN DETAIL
1 : 50

KEY PLAN



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2. THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR IS TO OBTAIN ALL UTILITY LOCATES. NOT ALL EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY MAY BE SHOWN.
3. ALL WORKS ON THE MUNICIPAL RIGHT-OF-WAY TO BE APPROVED BY THE MUNICIPALITY AND LOCAL ROADS AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR THE RESTORATION OF ALL BOULEVARD AREAS.
4. CONTRACTOR TO PROVIDE TRAFFIC CONTROL MEASURES IN COMPLIANCE WITH THE ONTARIO TRAFFIC MANUAL BOOK 7 (LATEST EDITION) FOR ALL WORKS WITHIN THE MUNICIPAL RIGHT-OF-WAY. CONTRACTOR TO SUBMIT TRAFFIC CONTROL PLANS TO THE MUNICIPALITY/ENGINEER FOR REVIEW PRIOR TO COMMENCING WITH CONSTRUCTION.
5. PLAN TO BE READ IN CONJUNCTION WITH FUNCTIONAL SERVICING REPORT AND DRAWINGS PREPARED BY MR ENGINEERING AND DESIGN LTD.

SEDIMENT AND EROSION CONTROL:

1. PROTECT ALL EXPOSED SURFACES AND CONTROL ALL RUNOFF DURING CONSTRUCTION. PROTECT ALL CATCH BASINS, MAINTENANCE HOLES AND PIPE ENDS FROM SEDIMENT INTRUSION WITH GEOTEXTILE FABRIC (OR EQUAL).
2. CONTRACTOR TO INSTALL SEDIMENT AND EROSION CONTROL MEASURES AS SHOWN PRIOR TO CONSTRUCTION AND MAINTAIN IN GOOD CONDITION UNTIL CONSTRUCTION IS COMPLETE AND VEGETATIVE COVER IS ESTABLISHED.
3. SEDIMENT AND EROSION CONTROL MEASURES TO BE IN ACCORDANCE WITH THE MINISTRY OF NATURAL RESOURCES GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES.
4. CONTRACTOR TO CLEAN ROADWAY AND SIDEWALKS OF SEDIMENT RESULTING FROM CONSTRUCTION TRAFFIC FROM THE SITE EACH DAY.
5. FOLLOWING COMPLETION OF THE PROPOSED WORKS, ALL STORM AND SANITARY SEWERS ARE TO BE FLUSHED, AND ALL CATCH BASIN AND MAINTENANCE HOLE SUMPS ARE TO BE CLEANED OF DEBRIS AND SILT.
6. SEE FUNCTIONAL SERVICING REPORT PREPARED BY MR ENGINEERING AND DESIGN LTD. FOR ONGOING MAINTENANCE RECOMMENDATIONS.

STORM SEWERS AND DRAINAGE:

1. ALL FINISHED GRADES TO DIRECT OVERLAND WATER FLOW AWAY FROM ALL STRUCTURES LOCATED ON-SITE. MAINTAIN POSITIVE DRAINAGE TO ALL CATCH BASINS.
2. BUILDING FOUNDATION WEEPING TILE DRAINAGE NOT TO BE DIRECTLY CONNECTED TO THE STORM SEWER SYSTEM. WEEPING TILE DRAINAGE MAY BE PUMPED TO THE STORM SEWER SYSTEM.
3. CATCH BASINS TO BE 600mm x 600mm PRECAST CONCRETE CATCH BASINS AS PER OPSD 705.010 COMPLETE WITH CAST IRON SQUARE FRAME GRATES AS PER OPSD 400.100.
4. MAINTENANCE HOLES AND CATCH BASIN MAINTENANCE HOLES TO BE 1500mmØ PRECAST CONCRETE WITH ALUMINUM STEPS AT 300mm o/c AS PER OPSD 701.011. PRECAST CONCRETE SINGLE INLET FLAT CAP AS PER OPSD 703.011. PRECAST CONCRETE RISERS (OPSD 701.041) AND ADJUSTMENTS (OPSD 704.010) AS REQUIRED. MAINTENANCE HOLE LIDS TO BE AS PER OPSD 401.010. CATCH BASIN GRATES TO BE AS PER OPSD 400.100.
5. DITCH INLET CATCH BASINS TO BE 600mm x 600mm PRECAST CONCRETE AS PER OPSD 705.030 WITH SLOPE ON GRATES. DITCH INLET CATCH BASINS GRATES TO BE AS PER OPSD 403.010.
6. PROVIDE SPLASH PADS (OR EQUAL) FOR ALL EAVES TROUGH DOWN SPOUTS THAT DISCHARGE AT GRADE.
7. STORM SEWERS, 150mm AND SMALLER, SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR28 ASTM-D3034 WITH INTEGRAL BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS.
8. STORM SEWERS, 200mm TO 375mm, SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR35 ASTM-D3034 OR RIBBED PVC SEWER PIPE CSA B182.4-M90 ASTM-F794 WITH INTEGRAL BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS. RIBBED PVC NOT TO BE USED WITHIN RIGHT-OF-WAY.
9. STORM SEWERS LARGER THAN 375mm SHALL BE N-12 DUAL WALL HIGH-DENSITY POLYETHYLENE (HDPE) PIPE WITH INTEGRATED BELL AND SPIGOT UTILIZING SOIL-TIGHT GASKETS.
10. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030, 802.031, OR 802.032, PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. COVER MATERIAL TO BE GRANULAR 'A' PLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY.
11. INSULATE STORM SEWER PIPES AS PER OPSD 1109.030 WHERE 1.2m COVER CANNOT BE ACHIEVED.

WATERMAINS:

1. WATER SERVICE CONNECTIONS 50mmØ AND SMALLER SHALL BE HDPE SERIES 160 AWWA C901 WITH SERVICE SADDLE.
2. WATERMAINS 100mmØ AND LARGER SHALL BE PVC AWWA C900 CLASS 150 INSTALLED WITH 1.8m (min.) OF COVER. FITTINGS 100mmØ AND LARGER SHALL BE PC CLASS 150 (DR18) CSA B137.3. PIPE JOINTS SHALL BE BELL AND SPIGOT WITH RUBBER GASKETS.
3. WATERMAIN SHALL HAVE 8 GAUGE 7 STRAND COPPER INSULATED TRACER WIRE OR #10 AWG SOLID STEEL CORE SOFT DRAWN HIGH STRENGTH TRACER WIRE STRAPPED TO TOP AT 5.0m INTERVALS. TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT ALL HYDRANTS AND CAD WELDED TO THE LOWER FLANGE OF THE HYDRANT.
4. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030, 802.031, OR 802.032. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. COVER MATERIAL TO BE GRANULAR 'A' PLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY.
5. SERVICE SADDLE FOR PIPE DIAMETERS LESS THAN 100mm SHALL BE ROBAR 2600 SERIES SERVICE SADDLE WITH T-304 STAINLESS STEEL BOLTS (OR EQUAL). SINGLE LENGTH PIPE FROM MAIN TO CURB STOP AT PROPERTY LINE.
6. TAPPING SLEEVES FOR PIPE DIAMETERS FROM 100mm TO 600mm SHALL BE ROBAR 6606 STAINLESS STEEL TAPPING SLEEVE WITH T-304 STAINLESS STEEL BOLTS (OR EQUAL).
7. WATERMAIN VALVES 100mmØ AND LARGER SHALL BE AS PER AWWA C509 - MUELLER A2360-23 (OR EQUAL) INCLUDING VALVE BOX AND 2.3Kg ANODE INCLUDING ANODE PROTECTION INSTALLED AS PER MUNICIPAL STANDARD.
8. WATERMAIN FITTINGS TO BE SUPPLIED WITH MECHANICAL JOINT RESTRAINTS. FOR WATERMAIN PIPE SIZES 150mmØ OR LESS ALL JOINTS TO BE RESTRAINED WITHIN 5.0m FROM ALL FITTINGS IN EACH DIRECTION. FOR WATERMAIN PIPE SIZES LARGER THAN 150mmØ ALL PIPE JOINTS TO BE RESTRAINED WITHIN 10.0m FROM ALL FITTINGS IN EACH DIRECTION. ALL TEES TO HAVE 2.0m (min.) SOLID PIPE LENGTH ON EACH RUN OF THE TEE, OR PROVIDE A THRUST BLOCK AS PER OPSD 1103.010.
9. ALL METALLIC FITTINGS (EXCLUDING CURB/MAIN STOP AND BRASS FITTINGS) AND APPURTENANCES ARE TO BE PROTECTED USING AN ANTI-CORROSION PROTECTION SYSTEM, MEETING ISO 9001 STANDARDS, CONSISTING OF PRIMER, MASTIC AND TAPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
10. HYDRANTS SHALL BE MUELLER CANADA VALVE "CENTURY" (OR EQUAL) WITH 2-64mmØ HOSE CONNECTIONS AND 1-100mmØ "STORZ" TYPE PUMPER CONNECTION INCLUDING 5.5Kg ANODE. HYDRANT TO OPEN COUNTER-CLOCKWISE. PAINT CHROME YELLOW.
11. MAIN STOPS, CURB STOPS AND COUPLINGS SHALL BE AWWA C-800 COPPER TO COPPER FLANGED OR COMPRESSION CONNECTION OR APPROVED EQUIVALENT.
12. LOCAL MUNICIPALITY TO SUPPLY WATER METER. CONTRACTOR TO INSTALL CHAMBER, METER, ALL VALVES, PIPING AND REMOTE METER READOUT AT LOCATION ON BUILDING EXTERIOR ACCEPTABLE TO THE MUNICIPALITY.
13. ALL WATERMAIN TO BE PRESSURE TESTED IN ACCORDANCE WITH OPSS 441. DISINFECT ALL WATERMAIN IN ACCORDANCE WITH AWWA C651-05 INCLUDING CHLORINATION, BACKFLOW PREVENTER AND 24 HOUR DUPLICATE SAMPLING. ALL TESTING AND DISINFECTION TO BE COMPLETED UNDER THE SUPERVISION OF THE ENGINEER.
14. INSULATE WATERMAINS AND SERVICES AS PER OPSD 1109.030 WHERE 1.7m COVER CANNOT BE ACHIEVED.
15. FIRE SERVICE MAINS AND WATER SERVICE PIPES COMBINED WITH FIRE SERVICE MAINS TO BE DESIGNED, CONSTRUCTED AND TESTED IN CONFORMANCE WITH NFPA 24 "INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES".
16. WATER SERVICE TO BE SEPARATED FROM SANITARY/STORM SEWER BY 2.44m (min.). CROSSINGS TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE M.O.E. "DESIGN GUIDELINES FOR DRINKING WATER SYSTEMS".
17. ALL UNDERGROUND SERVICES ARE TO BE CONSTRUCTED IN COMPLIANCE WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE (2012), (PART 7 - PLUMBING), THE PROVINCIAL STANDARD SPECIFICATIONS (OPSD), AND LOCAL REGULATIONS.

SANITARY SEWERS:

1. SANITARY SEWERS 200mmØ TO 600mmØ SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR35 ASTM-D3034 WITH INTEGRAL BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS.
2. SANITARY SERVICE CONNECTIONS SHALL BE 125mmØ POLYVINYL CHLORIDE (PVC) PIPE DR28, CSA-B182.1, INSTALLED AT A MINIMUM GRADE OF 2.0% TO A MINIMUM DEPTH OF 2.4m UNLESS NOTED OTHERWISE.
3. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030, 802.031, OR 802.032. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. COVER MATERIAL TO BE GRANULAR "A" PLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY.
4. SANITARY SERVICE CONNECTIONS SHALL USE FACTORY MANUFACTURED TEES AND BE IN ACCORDANCE WITH OPSD 1006.020.
5. SANITARY SERVICE PIPE CLEANOUTS TO BE INSTALLED ON MUNICIPAL SIDE OF PROPERTY BOUNDARY.
6. SANITARY SERVICE CONNECTIONS FOR OPEN CUT LOW PRESSURE FORCEMAIN SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR18, CSA-B137.3 WITH INTEGRATED BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS. MECHANICAL THRUST RESTRAINTS SHALL BE PROVIDED ON ALL FITTINGS. PIPE SHALL HAVE SOLID #12 TWU COPPER TRACER WIRE WITH GREEN JACKET.
7. SANITARY SERVICE CONNECTIONS FOR TRENCHLESS LOW PRESSURE FORCEMAIN SHALL BE POLYVINYL CHLORIDE (PVC) PIPE AWWA CLASS 900, DR18, CSA-B137.3 WITH INTEGRATED BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS. PIPE JOINTS TO BE MECHANICALLY RESTRAINED. PIPE SHALL HAVE SOLID #8 TWU COPPER TRACER WIRE WITH GREEN JACKET.
8. INSULATE SANITARY SEWER PIPES AS PER OPSD 1109.030 WHERE FROST PROTECTION CANNOT BE ACHIEVED.
9. CONTRACTOR IS RESPONSIBLE FOR TESTING OF SANITARY SEWERS IN ACCORDANCE WITH OPSS 410.
10. ALL UNDERGROUND SERVICES ARE TO BE CONSTRUCTED IN COMPLIANCE WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE (2012), (PART 7 - PLUMBING), THE PROVINCIAL STANDARD SPECIFICATIONS (OPSD), AND LOCAL REGULATIONS.

PART LOTS 13 & 14
CONCESSION 20

IN THE GEOGRAPHIC TOWNSHIP OF STEPHEN

MUNICIPALITY OF SOUTH HURON
COUNTY OF HURON

NOTES:

1. PROPERTY BOUNDARIES ARE APPROXIMATE AND BASED OFF OF GIS DATA AND SATELLITE IMAGERY.
2. EXISTING STRUCTURES AND SITE FEATURES FROM TOPOGRAPHIC SURVEY COMPLETED BY MR ENGINEERING AND DESIGN LTD., DATED JUNE 16, 2021.
3. SITE SKETCH IS CONCEPTUAL. FINAL SITING BY OTHERS.
4. THIS IS NOT A LEGAL SURVEY.

0m 5m 10m 20m 30m 40m
SCALE 1:500

NOTES:

@	AT	OHD	OVERHEAD DOOR
c/w	COMPLETE WITH	PROJ.	PROJECTION
Ø	DIAMETER	P.T.	PRESSURE TREATED
FRR	FIRE-RESISTANCE RATING	r/w	REINFORCED WITH
FDN	FOUNDATION	SG	SLIDE GATE
e/w	EACH WAY	T&G	TOUNGE AND GROOVE
EX.	EXISTING	t/o	TOP OF
H	HIGH/HORIZONTAL	TYP.	TYPICAL
HR	HOUR	u/s	UNDERSIDE
LLV	LONG LEG VERTICAL	V	VERTICAL
LVL	LAMINATED VANEER LUMBER	w/	WITH
max.	MAXIMUM	W	WIDE
min.	MINIMUM	WWM	WELDED WIRE MESH
OBC	ONTARIO BUILDING CODE		
o/c	ON CENTER		

NORTH

DESIGN	TM	No.	REVISION DESCRIPTION	MM/DD/YY	CH'KD
DRAWN	TM	1.	ISSUED FOR SITE PLAN APPROVAL	09/08/21	MR
CHECKED	MR	2.	REVISED BASED ON MUNICIPAL COMMENT	09/09/21	MR
APPROVED	MR				
DATE	SEPT. 2021				

CONSULTANT
ENGINEERING AND DESIGN LTD.
CIVIL • COMMERCIAL • AGRICULTURAL
145 Thames Road, West, Unit 4, Exeter, ON, N0M 1S3
Telephone: (519)-317-0128
Email: admin@mrengdesign.com

CONTRACTOR

LICENSED PROFESSIONAL ENGINEER
07/09/21
M. W. RUNGE
100162955
PROVINCE OF ONTARIO

70266 GRAND BEND LINE
GRAND BEND, ON
N0M 1T0

ELLEN & HEINER HOLLAND
STORAGE WAREHOUSE

SITE GRADING AND SERVICING PLAN

PROJECT No.
MR21-218

SHEET No.
C3

SCALE
As indicated

APPENDIX B – Water Calculations / Sanitary Calculations

Ellen Holland
70266 Grand Bend Line, Grand Bend, ON

Storm Data

Location: Grand Bend, ON
IDF Curve Year: 2020
Source: Stratford IDF Curve Parameters

Return Period	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
A	601.090	875.105	1062.156	1319.273	1560.739	1821.990
B	4.922	7.641	9.025	10.500	12.129	13.507
C	0.767	0.762	0.760	0.762	0.767	0.773

Rainfall Intensity (mm/hr)

	Duration								
Return Period	**5** min (5-min)	**10** min (10-min)	**15** min (15-min)	**30** min (30-min)	**60** min (1-hr)	**120** min (2-hr)	**360** min (6-hr)	**720** min (12-hr)	**1440** min (24-hr)
2 yr	174.8	251.2	195.4	164.4	153.6	136.3	96.1	68.7	45.5
5 yr	184.3	182.8	181.3	177.1	169.2	155.7	119.5	90.5	62.9
10 yr	198.2	196.8	195.4	191.5	184.2	171.4	135.5	104.9	74.5
25 yr	218.6	217.3	216.0	212.2	205.2	192.5	155.8	123.0	88.8
50 yr	229.0	227.8	226.6	223.1	216.6	204.7	169.1	135.8	99.6
100 yr	242.4	241.3	240.1	236.8	230.5	218.9	183.3	149.0	110.6

Ellen Holland
70266 Grand Bend Line, Grand Bend, ON

Post-Development Conditions

Areas Captured by Storm Detentrion Area (Controlled Areas)

Catchment Storage warehouse	**Area** m^2	Ha	Percent of Catchment
Controlled Area	1858	0.19	
Building	1858	0.19	100.0%
Asphalt / Gravel / Concrete	0	0.00	0.0%
Grass / Vegetation	0	0.00	0.0%
	Subtotal	0.19	100.0%

Area NOT Captured by Storm Water Detention Area (Uncontrolled Areas)

Catchment Storage warehouse	**Area** m^2	Ha	Percent of Catchment
Uncontrolled Area	0	0.00	
Building	0	0.00	0.0%
Asphalt / Gravel / Concrete	0	0.00	0.0%
Grass / Vegetation	0	0.00	0.0%
	Subtotal	0.00	0.0%
Total Catchment	**1858**	**0.19**	**100.0%**

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

Post-Development Flow Calculations

2 Year Strom

Catchment	201			A	601.09
Rainfall Intensity	A/(t+B)^C		Q=(A*I*R)*2.78	B	4.922
				C	0.767

Description	Area (Ha)	Runoff Coefficient	A x R	Cumulative A x R	Time (min)	Rain Intensity (mm/hr)	Discharge (L/s)	
Controlled Areas								
Bldg / Asphalt / Gravel / Conc.	0.19	0.9	0.167	0.167	10	75.6	35.2	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	75.6	0.0	**35.2 L/s**
Uncontrolled Areas								
Bldg / Asphalt / Gravel / Conc.	0.00	0.9	0.000	0.000	10	75.6	0.0	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	75.6	0.0	**0.0 L/s**
	0.19						**35.2**	**35.2 L/s**

5 Year Strom

Catchment	201			A	875.11
Rainfall Intensity	A/(t+B)^C		Q=(A*I*R)*2.78	B	7.64
				C	0.76

Description	Area (Ha)	Runoff Coefficient	A x R	Cumulative A x R	Time (min)	Rain Intensity (mm/hr)	Discharge (L/s)	
Controlled Areas								
Bldg / Asphalt / Gravel / Conc.	0.19	0.9	0.167	0.167	10	98.2	45.7	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	98.2	0.0	**45.7 L/s**
Uncontrolled Areas								
Bldg / Asphalt / Gravel / Conc.	0.00	0.9	0.000	0.000	10	98.2	0.0	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	98.2	0.0	**0.0 L/s**
	0.19						**45.7**	**45.7 L/s**

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

Post-Development Flow Calculations

10 Year Strom

Catchment	201					A	1062.16	
Rainfall Intensity	A/(t+B)^C			Q=(A*I*R)*2.78		B	9.025	
						C	0.76	
Description	Area (Ha)	Runoff Coefficient	A x R	Cumulative A x R	Time (min)	Rain Intensity (mm/hr)	Discharge (L/s)	
Controlled Areas								
Bldg / Asphalt / Gravel / Conc.	0.19	0.9	0.167	0.167	10	113.2	52.6	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	113.2	0.0	**52.6 L/s**
Uncontrolled Areas								
Bldg / Asphalt / Gravel / Conc.	0.00	0.9	0.000	0.000	10	113.2	0.0	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	113.2	0.0	**0.0 L/s**
	0.19						**52.6**	**52.6 L/s**

25 Year Strom

Catchment	201					A	1319.27	
Rainfall Intensity	A/(t+B)^C			Q=(A*I*R)*2.78		B	10.5	
						C	0.762	
Description	Area (Ha)	Runoff Coefficient	A x R	Cumulative A x R	Time (min)	Rain Intensity (mm/hr)	Discharge (L/s)	
Controlled Areas								
Bldg / Asphalt / Gravel / Conc.	0.19	0.9	0.167	0.167	10	132.1	61.4	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	132.1	0.0	**61.4 L/s**
Uncontrolled Areas								
Bldg / Asphalt / Gravel / Conc.	0.00	0.9	0.000	0.000	10	132.1	0.0	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	132.1	0.0	**0.0 L/s**
	0.19						**61.4**	**61.4 L/s**

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

Post-Development Flow Calculations

50 Year Strom

Catchment	201			A	1560.74
Rainfall Intensity	A/(t+B)^C		Q=(A*I*R)*2.78	B	12.129
				C	0.767

Description	Area (Ha)	Runoff Coefficient	A x R	Cumulative A x R	Time (min)	Rain Intensity (mm/hr)	Discharge (L/s)	
Controlled Areas								
Bldg / Asphalt / Gravel / Conc.	0.19	0.9	0.167	0.167	10	145.1	67.5	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	145.1	0.0	**67.5 L/s**
Uncontrolled Areas								
Bldg / Asphalt / Gravel / Conc.	0.00	0.9	0.000	0.000	10	145.1	0.0	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	145.1	0.0	**0.0 L/s**
	0.19						**67.5**	**67.5 L/s**

100 Year Strom

Catchment	201			A	1821.99
Rainfall Intensity	A/(t+B)^C		Q=(A*I*R)*2.78	B	13.507
				C	0.773

Description	Area (Ha)	Runoff Coefficient	A x R	Cumulative A x R	Time (min)	Rain Intensity (mm/hr)	Discharge (L/s)	
Controlled Areas								
Bldg / Asphalt / Gravel / Conc.	0.19	0.9	0.167	0.167	10	158.7	73.8	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	158.7	0.0	**73.8 L/s**
Uncontrolled Areas								
Bldg / Asphalt / Gravel / Conc.	0.00	0.9	0.000	0.000	10	158.7	0.0	
Grass / Vegetation	0.00	0.2	0.000	0.000	10	158.7	0.0	**0.0 L/s**
	0.19						**73.8**	**73.8 L/s**

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

2 Year Storm Volume Required to be Captured

Q	2.78*C*I*A			Storm Coefficients	
Q_{allow}	75.7	L/s		A	601.09
C	0.90	Composite run-off coefficient		B	4.922
I	A/(t+B)^C			C	0.767
A	0.19	ha	Catchment 201	$C = A_1C_1 + A_2C_2 \ldots../A_{Total}$	

Duration		Intensity (mm/hr)	Discharge (L/S)	Volume (L)	Allow Discharge (L/s)	Volume Releasable (m^3)	Required Storage		
Min	Sec							Cumulative	
							(L)	(L)	(m^3)
1	60	153.6	71.4	4285	75.7	4542	-257	-257	-0.3
5	300	103.4	48.1	11537	75.7	18168	-6631	-6888	-6.9
10	600	75.6	35.2	10546	75.7	22710	-12164	-19053	-19.1
15	900	60.6	28.2	8449	75.7	22710	-14261	-33314	-33.3
20	1200	51.0	23.7	7116	75.7	22710	-15594	-48908	-48.9
25	1500	44.3	20.6	6185	75.7	22710	-16525	-65433	-65.4
30	1800	39.4	18.3	5493	75.7	22710	-17217	-82650	-82.7
35	2100	35.5	16.5	4958	75.7	22710	-17752	-100403	-100.4
40	2400	32.5	15.1	4529	75.7	22710	-18181	-118584	-118.6
45	2700	29.9	13.9	4176	75.7	22710	-18534	-137118	-137.1
50	3000	27.8	12.9	3882	75.7	22710	-18828	-155946	-155.9
55	3300	26.0	12.1	3631	75.7	22710	-19079	-175025	-175.0
60	3600	24.5	11.4	3414	75.7	22710	-19296	-194321	-194.3
65	3900	23.1	10.8	3225	75.7	22710	-19485	-213806	-213.8
70	4200	21.9	10.2	3059	75.7	22710	-19651	-233457	-233.5
75	4500	20.9	9.7	2911	75.7	22710	-19799	-253256	-253.3
80	4800	19.9	9.3	2779	75.7	22710	-19931	-273187	-273.2

Maximum Storage Required: -0.3 m^3

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

5 Year Storm Volume Required to be Captured

Q	2.78*C*I*A			Storm Coefficients	
Q_{allow}	75.7	L/s		A	875.105
C	0.90	Composite run-off coefficient		B	7.641
I	A/(t+B)^C			C	0.762
A	0.19	ha	Catchment 201	$C = A_1C_1 + A_2C_2 \ldots../A_{Total}$	

Duration		Intensity (mm/hr)	Discharge (L/S)	Volume (L)	Allow Discharge (L/s)	Volume Releasable (m^3)	Required Storage		
Min	Sec						(L)	Cumulative (L)	Cumulative (m^3)
1	60	169.2	78.7	4719	75.7	4542	177	177	0.2
5	300	126.6	58.9	14127	75.7	18168	-4041	-3864	-3.9
10	600	98.2	45.7	13698	75.7	22710	-9012	-12876	-12.9
15	900	81.2	37.8	11326	75.7	22710	-11384	-24259	-24.3
20	1200	69.8	32.4	9729	75.7	22710	-12981	-37241	-37.2
25	1500	61.5	28.6	8571	75.7	22710	-14139	-51380	-51.4
30	1800	55.1	25.6	7689	75.7	22710	-15021	-66401	-66.4
35	2100	50.1	23.3	6992	75.7	22710	-15718	-82119	-82.1
40	2400	46.1	21.4	6425	75.7	22710	-16285	-98404	-98.4
45	2700	42.7	19.8	5955	75.7	22710	-16755	-115159	-115.2
50	3000	39.8	18.5	5557	75.7	22710	-17153	-132312	-132.3
55	3300	37.4	17.4	5216	75.7	22710	-17494	-149807	-149.8
60	3600	35.3	16.4	4919	75.7	22710	-17791	-167597	-167.6
65	3900	33.4	15.5	4659	75.7	22710	-18051	-185648	-185.6
70	4200	31.8	14.8	4429	75.7	22710	-18281	-203930	-203.9
75	4500	30.3	14.1	4223	75.7	22710	-18487	-222417	-222.4
80	4800	29.0	13.5	4038	75.7	22710	-18672	-241089	-241.1

Maximum Storage Required: 0.2 m^3

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

10 Year Storm Volume Required to be Captured

Q	2.78*C*I*A			Storm Coefficients	
Q_{allow}	75.7	L/s		A	1062.156
C	0.90	Composite run-off coefficient		B	9.025
I	A/(t+B)^C			C	0.76
A	0.19	ha	Catchment 201	$C = A_1C_1 + A_2C_2 \ldots../A_{Total}$	

Duration		Intensity (mm/hr)	Discharge (L/S)	Volume (L)	Allow Discharge (L/s)	Volume Releasable (m^3)	Required Storage		
Min	Sec							Cumulative	
							(L)	(L)	(m^3)
1	60	184.2	85.6	5139	75.7	4542	597	597	0.6
5	300	142.7	66.4	15925	75.7	18168	-2243	-1646	-1.6
10	600	113.2	52.6	15789	75.7	22710	-6921	-8567	-8.6
15	900	94.8	44.1	13223	75.7	22710	-9487	-18054	-18.1
20	1200	82.1	38.2	11453	75.7	22710	-11257	-29310	-29.3
25	1500	72.8	33.8	10150	75.7	22710	-12560	-41870	-41.9
30	1800	65.6	30.5	9146	75.7	22710	-13564	-55434	-55.4
35	2100	59.8	27.8	8345	75.7	22710	-14365	-69799	-69.8
40	2400	55.1	25.6	7690	75.7	22710	-15020	-84819	-84.8
45	2700	51.2	23.8	7143	75.7	22710	-15567	-100386	-100.4
50	3000	47.9	22.3	6678	75.7	22710	-16032	-116418	-116.4
55	3300	45.0	20.9	6278	75.7	22710	-16432	-132850	-132.9
60	3600	42.5	19.8	5929	75.7	22710	-16781	-149631	-149.6
65	3900	40.3	18.7	5622	75.7	22710	-17088	-166719	-166.7
70	4200	38.4	17.8	5350	75.7	22710	-17360	-184079	-184.1
75	4500	36.6	17.0	5106	75.7	22710	-17604	-201683	-201.7
80	4800	35.0	16.3	4887	75.7	22710	-17823	-219506	-219.5

Maximum Storage Required: 0.6 m^3

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

25 Year Storm Volume Required to be Captured

Q	2.78*C*I*A			Storm Coefficients	
Q_{allow}	75.7	L/s		A	1319.273
C	0.90	Composite run-off coefficient		B	10.5
I	A(T/60)^B			C	0.762
A	0.19	ha	Catchment 201	$C = A_1C_1 + A_2C_2 \ldots../A_{Total}$	

Duration		Intensity (mm/hr)	Discharge (L/S)	Volume (L)	Allow Discharge (L/s)	Volume Releasable (m^3)	Required Storage		
Min	Sec							Cumulative	
							(L)	(L)	(m^3)
1	60	205.2	95.4	5722	75.7	4542	1180	1180	1.2
5	300	163.4	76.0	18232	75.7	18168	64	1245	1.2
10	600	132.1	61.4	18418	75.7	22710	-4292	-3048	-3.0
15	900	111.8	52.0	15596	75.7	22710	-7114	-10162	-10.2
20	1200	97.6	45.4	13607	75.7	22710	-9103	-19265	-19.3
25	1500	86.9	40.4	12120	75.7	22710	-10590	-29855	-29.9
30	1800	78.6	36.5	10962	75.7	22710	-11748	-41602	-41.6
35	2100	71.9	33.4	10032	75.7	22710	-12678	-54281	-54.3
40	2400	66.4	30.9	9266	75.7	22710	-13444	-67725	-67.7
45	2700	61.8	28.7	8623	75.7	22710	-14087	-81812	-81.8
50	3000	57.9	26.9	8074	75.7	22710	-14636	-96448	-96.4
55	3300	54.5	25.3	7600	75.7	22710	-15110	-111558	-111.6
60	3600	51.5	24.0	7186	75.7	22710	-15524	-127082	-127.1
65	3900	48.9	22.7	6820	75.7	22710	-15890	-142972	-143.0
70	4200	46.6	21.6	6495	75.7	22710	-16215	-159187	-159.2
75	4500	44.5	20.7	6203	75.7	22710	-16507	-175694	-175.7
80	4800	42.6	19.8	5940	75.7	22710	-16770	-192463	-192.5

Maximum Storage Required: 1.2 m^3

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

50 Year Storm Volume Required to be Captured

Q	2.78*C*I*A			Storm Coefficients	
Q_{allow}	75.7	L/s		A	1560.739
C	0.90	Composite run-off coefficient		B	12.129
I	A(T/60)^B			C	0.767
A	0.19	ha	Catchment 201	$C = A_1C_1 + A_2C_2 \ldots../A_{Total}$	

Duration		Intensity (mm/hr)	Discharge (L/S)	Volume (L)	Allow Discharge (L/s)	Volume Releasable (m^3)	Required Storage		
Min	Sec							Cumulative	
							(L)	(L)	(m^3)
1	60	216.6	100.7	6041	75.7	4542	1499	1499	1.5
5	300	176.6	82.1	19706	75.7	18168	1538	3037	3.0
10	600	145.1	67.5	20239	75.7	22710	-2471	567	0.6
15	900	124.1	57.7	17312	75.7	22710	-5398	-4831	-4.8
20	1200	109.0	50.7	15205	75.7	22710	-7505	-12336	-12.3
25	1500	97.6	45.4	13609	75.7	22710	-9101	-21437	-21.4
30	1800	88.6	41.2	12352	75.7	22710	-10358	-31796	-31.8
35	2100	81.3	37.8	11334	75.7	22710	-11376	-43172	-43.2
40	2400	75.2	35.0	10490	75.7	22710	-12220	-55392	-55.4
45	2700	70.1	32.6	9779	75.7	22710	-12931	-68323	-68.3
50	3000	65.7	30.6	9169	75.7	22710	-13541	-81864	-81.9
55	3300	62.0	28.8	8641	75.7	22710	-14069	-95933	-95.9
60	3600	58.6	27.3	8177	75.7	22710	-14533	-110466	-110.5
65	3900	55.7	25.9	7768	75.7	22710	-14942	-125408	-125.4
70	4200	53.1	24.7	7402	75.7	22710	-15308	-140716	-140.7
75	4500	50.7	23.6	7074	75.7	22710	-15636	-156352	-156.4
80	4800	48.6	22.6	6778	75.7	22710	-15932	-172284	-172.3

Maximum Storage Required: 3.0 m^3

Ellen Holland

70266 Grand Bend Line, Grand Bend, ON

100 Year Storm Volume Required to be Captured

Q	2.78*C*I*A			Storm Coefficients	
Q_{allow}	75.7	L/s		A	1821.99
C	0.90	Composite run-off coefficient		B	13.507
I	A(T/60)^B			C	0.773
A	0.19	ha	Catchment 201	$C = A_1C_1 + A_2C_2 \ldots../A_{Total}$	

Duration		Intensity (mm/hr)	Discharge (L/S)	Volume (L)	Allow Discharge (L/s)	Volume Releasable (m^3)	Required Storage		
Min	Sec							Cumulative	
							(L)	(L)	(m^3)
1	60	230.5	107.1	6429	75.7	4542	1887	1887	1.9
5	300	190.9	88.8	21303	75.7	18168	3135	5022	5.0
10	600	158.7	73.8	22134	75.7	22710	-576	4446	4.4
15	900	136.7	63.6	19069	75.7	22710	-3641	805	0.8
20	1200	120.7	56.1	16829	75.7	22710	-5881	-5076	-5.1
25	1500	108.4	50.4	15114	75.7	22710	-7596	-12672	-12.7
30	1800	98.6	45.8	13753	75.7	22710	-8957	-21629	-21.6
35	2100	90.7	42.1	12644	75.7	22710	-10066	-31695	-31.7
40	2400	84.0	39.1	11720	75.7	22710	-10990	-42685	-42.7
45	2700	78.4	36.5	10938	75.7	22710	-11772	-54457	-54.5
50	3000	73.6	34.2	10266	75.7	22710	-12444	-66900	-66.9
55	3300	69.4	32.3	9682	75.7	22710	-13028	-79928	-79.9
60	3600	65.7	30.6	9169	75.7	22710	-13541	-93469	-93.5
65	3900	62.5	29.0	8714	75.7	22710	-13996	-107464	-107.5
70	4200	59.6	27.7	8308	75.7	22710	-14402	-121866	-121.9
75	4500	57.0	26.5	7943	75.7	22710	-14767	-136633	-136.6
80	4800	54.6	25.4	7613	75.7	22710	-15097	-151731	-151.7

Maximum Storage Required: 5.0 m^3

.

WALL SCHEDULE

TAG	CROSS-SECTION	DESCRIPTION	WALL ASSEMBLY	WALL HEIGHT
EXT-1		EXTERIOR WALL	**NON-LOADBEARING** EXTERIOR WALL CLADDING SYSTEM 26 GAUGE PRE-FINISHED STEEL 4" (R13) BLANKET INSULATION FACED WITH WMP-50 (VAPOR BARRIER) METAL BUILDING GIRTS SPACED PER PLAN REFER TO METALCOR BUILDING SYSTEMS INC. DRAWINGS FOR EXTERIOR CLADDING AND STRUCTURAL DETAIL	VARIES
INT-1		INTERIOR WALL	**NON-LOADBEARING** 1/2" GYPSUM BOARD (PRIME/FIN./PAINT) 2x6 SPF No.1/No.2 STUD @ **16"** o/c o/w R22 ROCKWOOL BATT INSULATION 6MIL POLY VAPOUR BARRIER (INTERIOR SIDE) 1/2" GYPSUM BOARD (FIN./PRIME/PAINT)	9'-0"

DOOR SCHEDULE

TAG	DESCRIPTION	ROUGH WIDTH	ROUGH HEIGHT	HEAD HEIGHT	LINTEL	BEARING	COMMENTS
D-1	36"W x 84"H EXTERIOR DOOR	3' - 2 1/2"	7' - 2 1/2"	7' - 2 1/2"			
D-2	36"W x 84"H EXTERIOR DOOR	3' - 2 1/2"	7' - 2 1/2"	7' - 2 1/2"			PROVIDE POWER DOOR OPERATOR
D-3	36"W x 84"H EXTERIOR DOOR	3' - 2 1/2"	7' - 2 1/2"	7' - 2 1/2"			PROVIDE POWER DOOR OPERATOR

GENERAL NOTES:

1. THESE PLANS ARE TO BE READ IN CONJUNCTION WITH DRAWINGS BY METALCOR BUILDING SYSTEMS INC., TITLED 'ELLEN HOLLAND, GRAND BEND, ON', PLAN No. 18-B-18330, STAMPED BY G. MURALI DATED JUNE 18, 2021.
2. THESE PLANS AND SPECIFICATIONS WERE PREPARED FOR THE PURPOSES OF INTERIOR DESIGN ONLY. AS GENERAL CONTRACTOR, THE OWNER BEARS FULL RESPONSIBILITY FOR THE COORDINATION OF DESIGN INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, PLUMBING, VENTILATION SYSTEMS, SITE GRADING AND DRAINAGE.
3. THE CONTRACTOR IS TO CHECK AND VERIFY ALL DIMENSIONS ON THE THESE DRAWINGS WITH OTHER DRAWINGS. ANY DISCREPANCIES OR ERRORS MUST BE REPORTED TO MR ENGINEERING AND DESIGN LTD. PRIOR TO COMMENCING WORK.
4. DO NOT SCALE DRAWINGS.
5. FEATURES OF CONSTRUCTION NOT FULLY SHOWN ARE OF THE SAME CHARACTER AS THOSE NOTED FOR SIMILAR CONDITIONS.
6. THESE DRAWINGS ARE BASED ON THE LATEST EDITION OF THE 2012 ONTARIO BUILDING CODE.

GENERAL NOTE:

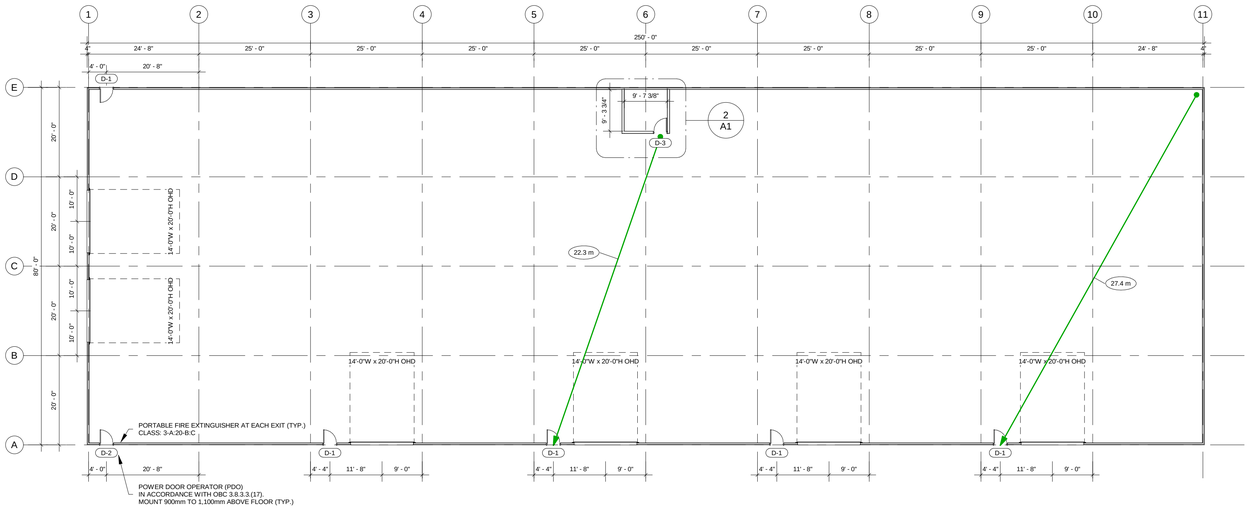
1. THE DESIGN INDOOR TEMPERATURE FOR THE BUILDING SHALL NOT EXCEED 10'C FOR THE PROPOSED BUILDING. THE OWNER HAS INDICATED THAT THE BUILDING WILL BE HEATED TO PREVENT FREEZING AND THE THERMOSTAT WILL BE SET TO 10'C.
2. SEAL ALL SERVICE PENETRATIONS THROUGH A FIRE SEPARATION OR AN ASSEMBLY HAVING A FIRE-RESISTANCE RATING WITH AN APPROVED FIRE STOP SYSTEM.
3. PORTABLE FIRE EXTINGUISHERS TO BE INSTALLED IN ACCORDANCE WITH THE FIRE CODE MADE UNDER THE *FIRE PROTECTION AND PREVENTION ACT, 1997*.

BARRIER-FREE NOTE:

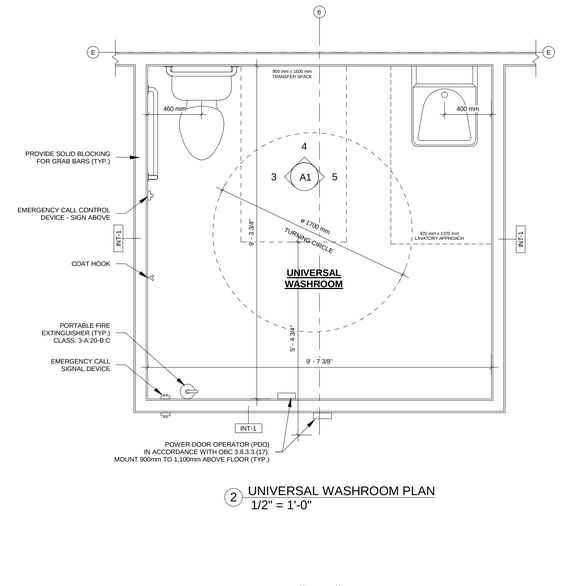
1. BARRIER-FREE PATH OF TRAVEL TO HAVE A CLEAR WIDTH OF NOT LESS THAN 1,100mm.
2. DOOR OPENING HARDWARE SHALL BE LEVER TYPE AND BE MOUNTED 900mm TO 1,100mm ABOVE FINISHED FLOOR.
3. ALL DOORS IN BARRIER FREE PATH OF TRAVEL TO HAVE;
   a. A CLEAR WIDTH OF NOT LESS THAN 860mm WHEN THE DOOR IS IN THE OPEN POSITION.
   b. A CLEAR SPACE OF NOT LESS THAN 300mm ON THE LATCH SIDE WHEN DOOR SWINGS AWAY FROM THE APPROACH SIDE.
   c. A CLEAR SPACE OF NOT LESS THAN 600mm ON THE LATCH SIDE WHEN DOOR SWINGS TOWARDS THE APPROACH SIDE.
4. ALL ELECTRICAL SWITCHES AND CONTROLS TO BE MOUNTED BETWEEN 900mm AND 1,100mm ABOVE FINISHED FLOOR. THERMOSTATS TO BE MOUNTED 1,200mm ABOVE FINISHED FLOOR.
5. SIGN INCORPORATING THE INTERNATIONAL SYMBOL OF ACCESS TO BE INSTALLED AT BARRIER-FREE ENTRANCES AND WASHROOMS.

UNIVERSAL WASHROOM NOTE:

1. LIGHTING TO BE CONTROLLED BY MOTION SENSOR INSTALLED WITH SWITCH CONTROLLERS EQUIPPED WITH FAIL-SAFE OPERATION AND ILLUMINATION TIMER SET FOR A MINIMUM OF 15 MINUTES DURATION.
2. INSTALL AN EMERGENCY CALL SYSTEM THAT CONSISTS OF AUDIBLE AND VISUAL SIGNAL DEVICES INSIDE AND OUTSIDE OF THE WASHROOM THAT ARE ACTIVATED BY A CONTROL DEVICE INSIDE THE WASHROOM. POST A SIGN ABOVE THE CONTROL DEVICE WITH 25mm HIGH LETTERS AND 5mm STROKE: **"IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE".**

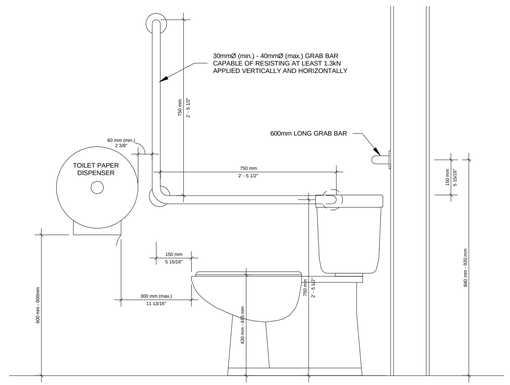


1 PARTIAL GROUND FLOOR PLAN
1/16" = 1'-0"

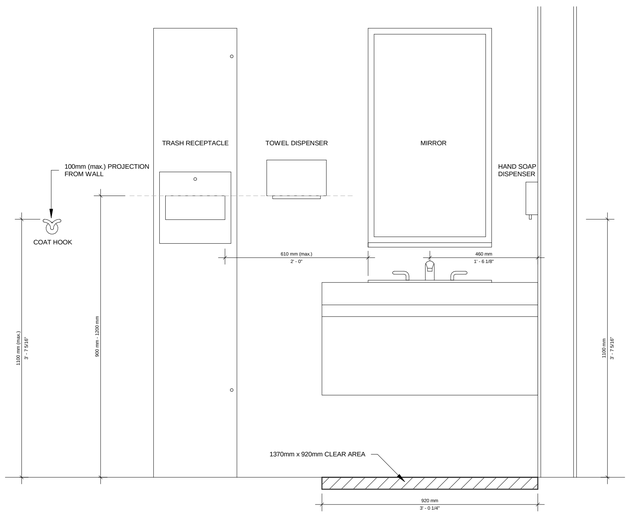


2 UNIVERSAL WASHROOM PLAN
1/2" = 1'-0"

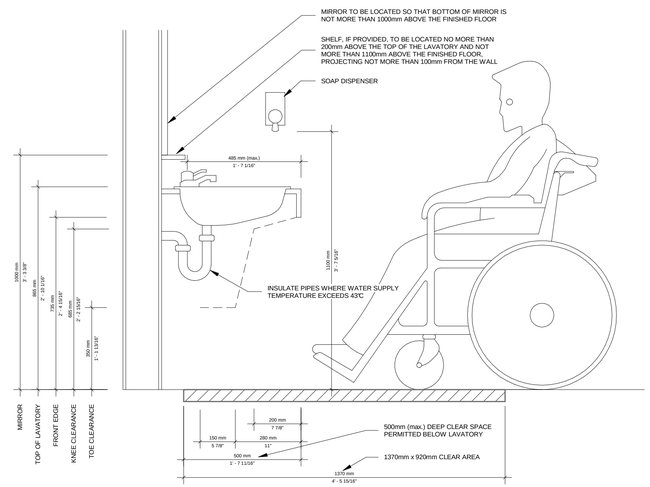
NOTE: GRAB BARS TO BE NOT LESS THAN 38mm AND NOT MORE THAN 50mm FROM THE WALL TO THE INSIDE SURFACE OF THE GRAB BAR AND HAVE A SLIP RESISTANCE FINISH



3 GRAB BAR CONFIGURATION
1" = 1'-0"



4 WASHROOM ACCESSORIES
1" = 1'-0"



5 LAVATORY CLEARANCES
1" = 1'-0"

NOTES:

@	AT	OHD	OVERHEAD DOOR
c/w	COMPLETE WITH	PROJ.	PROJECTION
Ø	DIAMETER	P.T.	PRESSURE TREATED
FRR	FIRE-RESISTANCE RATING	r/w	REINFORCED WITH
FDN	FOUNDATION	SG	SLIDE GATE
e/w	EACH WAY	T&G	TOUNGE AND GROOVE
EX.	EXISTING	t/o	TOP OF
H	HIGH/HORIZONTAL	TYP.	TYPICAL
HR	HOUR	u/s	UNDERSIDE
LLV	LONG LEG VERTICAL	V	VERTICAL
LVL	LAMINATED VANEER LUMBER	w/	WITH
max.	MAXIMUM	W	WIDE
min.	MINIMUM	WWM	WELDED WIRE MESH
OBC	ONTARIO BUILDING CODE		
o/c	ON CENTER		

NORTH

DESIGN	**MR**	**No.**	**REVISION DESCRIPTION**	**MM/DD/YY**	**CH'KD**
DRAWN	**MR**	**1.**	**ISSUED FOR APPROVAL**	**11/29/21**	**MR**
CHECKED	**MR**				
APPROVED	**MR**				
DATE	**NOVEMBER 2021**				

CONSULTANT

ENGINEERING AND DESIGN LTD.
CIVIL • COMMERCIAL • AGRICULTURAL
145 Thames Road, West, Unit 4, Exeter, ON, N0M 1S3
Telephone: (519)-317-0128
Email: admin@mrengdesign.com

CONTRACTOR

LICENSED PROFESSIONAL ENGINEER
11/29/21
M. W. RUNGE
100162955
PROVINCE OF ONTARIO

70266 GRAND BEND LINE
GRAND BEND, ON
N0M 1T0

ELLEN & HEINER HOLLAND
STORAGE WAREHOUSE

BUILDING LAYOUT

PROJECT No. *MR21-218*

SHEET No. A1

SCALE As indicated