

GENERAL NOTES:

1.

THE CONTRACTOR'S ENGINEER, APPROPRIATELY QUALIFIED AND REGISTERED IN THE PROVINCE OF MANITOBA, SHALL PROVIDE AN ALTERNATIVE TECHNICAL BASIS (INCLUDING BUT NOT LIMITED TO CALCULATIONS, DRAWINGS, DATA SHEETS, AND SPECIFICATIONS) UNDER SEAL FOR REVIEW BY THE CONTRACT ADMINISTRATOR AND ACCEPTANCE BY THE THE CITY, FOR WORK NOT UNDERTAKEN IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2.

THESE NOTES ARE TO BE READ IN CONJUNCTION WITH OTHER PERTINENT CODES, SPECIFICATIONS, AND CONTRACT DOCUMENTS. IN THE EVENT OF A CONFLICT, THE MOST STRINGENT REQUIREMENT AS DETERMINED BY THE CONTRACT ADMINISTRATOR SHALL GOVERN.
3.

BY COMMENCING THE WORK, THE CONTRACTOR ASSERTS EXPERTISE IN THE TYPE OF WORK INVOLVED, FAMILIARITY WITH ALL RELEVANT ASPECTS AND CHARACTERISTICS OF THE SITE, AND FULL AWARENESS OF THE EXTENT AND SCOPE OF WORK INVOLVED.
4.

DO NOT SCALE DRAWINGS.
5.

VERIFY ALL DIMENSIONS SHOWN IN THE CONTRACT DOCUMENTS PRIOR TO COMMENCING CONSTRUCTION.
6.

VERIFY WEIGHT AND LOCATION OF ALL EQUIPMENT TO BE SUPPORTED AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR PRIOR TO COMMENCING CONSTRUCTION.
7.

LOCATE UNDERGROUND SERVICES AND PROTECT THEM AT ALL TIMES DURING CONSTRUCTION.
8.

THE CONTRACTOR SHALL FOLLOW CONSTRUCTION PRACTICE FOR COLD AND HOT WEATHER REQUIREMENTS IN ACCORDANCE WITH THE APPLICABLE MATERIAL STANDARD.
9.

STRUCTURAL DRAWINGS SHOWING COMPLETED STRUCTURE DO NOT INDICATE COMPONENTS WHICH MAY BE NECESSARY FOR SAFETY DURING CONSTRUCTION.
10.

THE CONTRACTOR SHALL PROVIDE FOR THE PROTECTION OF THE THE CITY'S PERSONNEL AND PROPERTY DURING CONSTRUCTION. THE METHOD OF PROTECTION MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR
11.

THE CONTRACTOR SHALL PROVIDE FOR THE PROTECTION OF THE RESIDENTS AND PRIVATE PROPERTY ADJACENT THE SITE, AND SHALL RESTORE ALL ASPECTS OF PRIVATE PROPERTY ALTERED DURING CONSTRUCTION TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
12.

THE CONTRACTOR IS RESPONSIBLE FOR SAFETY ON AND ABOUT THE JOB SITE DURING CONSTRUCTION AND SHALL COMPLY WITH ALL PROVINCIAL, FEDERAL, AND SITE-SPECIFIC WORKPLACE, SAFETY, AND HEALTH REGULATIONS.
13.

THE CONTRACTOR SHALL OBSERVE THE CITY'S REGULATIONS REGARDING FIRE PREVENTION, SAFETY AND SECURITY, AND PROVIDE ADEQUATE BARRICADES AND OTHER PROTECTION DEVICES AS REQUIRED.
14.

THE COMPLIANCE OF THE EXISTING STRUCTURE AND IT'S ACCOUTREMENTS WITH ANY CURRENT OR APPLICABLE CODES OR STANDARDS IS NOT WITHIN THE SCOPE OF THIS PROJECT.

SUBMITTALS:

1.

THE CONTRACTOR SHALL SUBMIT SPECIFIED SHOP DRAWINGS TO THE CONTRACT ADMINISTRATOR FOR REVIEW. ALL SUBMISSIONS MUST BE IN METRIC UNITS. WHERE DATA IS IN IMPERIAL UNITS, THE CORRECT METRIC EQUIVALENT SHALL ALSO BE SHOWN ON ALL SUBMISSIONS FOR REVIEW.
2.

THE CONTRACTOR SHALL SUBMIT A CONCRETE MIX DESIGN (INCLUDING ADDITIVES AND ADMIXTURES) THAT MEETS THE MINIMUM PERFORMANCE CRITERIA AS INDICATED IN THE CONTRACT DOCUMENTS. THE CONCRETE MIX DESIGN SHALL BE SEALED, SIGNED AND DATED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
3.

ORIGINAL, PURPOSE-SPECIFIC SHOP DRAWINGS ARE TO BE PREPARED BY THE CONTRACTOR, FABRICATOR, SUBCONTRACTOR, SUPPLIER, DISTRIBUTOR, OR MANUFACTURER, TO ILLUSTRATE THE APPROPRIATE PORTIONS OF THE WORK SHOWING FABRICATION, LAYOUT, SETTING OR ERECTION DETAILS AS SPECIFIED IN APPROPRIATE SECTIONS.
4.

SHOP DRAWINGS FOR THE FOLLOWING COMPONENTS SHALL BE SEALED, SIGNED AND DATED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF MANITOBA:

I.

REINFORCING STEEL.

II.

METAL FABRICATIONS.

III.

STRUCTURAL CONNECTION DETAILS

SHOP DRAWINGS NOT BEARING AN ENGINEER'S SEAL IN ACCORDANCE WITH THE ABOVE WILL BE RETURNED MARKED 'REJECTED'.
5.

THE CONTRACTOR SHALL REVIEW SHOP DRAWINGS, PRODUCT DATA AND SAMPLES PRIOR TO SUBMISSION AND STAMP AND SIGN DRAWINGS INDICATING CONFORMANCE TO THE CONTRACT REQUIREMENTS. THE CONTRACTOR SHALL VERIFY

FIELD MEASUREMENTS.

FIELD CONSTRUCTION CRITERIA.

CATALOGUE NUMBERS AND SIMILAR DATA.

WEIGHTS AND LOADS.

SHOP DRAWINGS NOT BEARING THE CONTRACTOR'S REVIEW STAMP AND SIGNATURE IN ACCORDANCE WITH THE ABOVE WILL BE RETURNED MARKED 'NOT REVIEWED'.
6.

TERMS AND CONDITIONS THAT MAY EXIST IN ANY AGREEMENT BETWEEN THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL NOT SUPERSEDE THE TERMS AND CONDITIONS SET FORTH IN THE CONTRACT DOCUMENTS.
7.

THE CONTRACTOR SHALL COORDINATE EACH SUBMISSION WITH REQUIREMENTS OF WORK AND CONTRACT DOCUMENTS. INDIVIDUAL SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL ALL RELATED DRAWINGS ARE AVAILABLE.
8.

THE CONTRACTOR'S RESPONSIBILITY FOR ERRORS AND OMISSIONS IN SUBMISSION IS NOT RELIEVED BY THE CONTRACT ADMINISTRATOR REVIEW OF SUBMITTALS.
9.

NO DELAY OR CLAIMS WILL BE ALLOWED THAT ARISE BECAUSE OF DELAYS IN SUBMISSION, RE-SUBMISSION, AND REVIEW OF SHOP DRAWINGS.

DESIGN SPECIFICATIONS:

1.

UNLESS OTHERWISE NOTED, THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE LATEST EDITIONS AND ADDENDUM OF THE FOLLOWING CODES AND DOCUMENTS, WHICH ARE TO BE USED AND MADE AVAILABLE FOR REFERENCE ON SITE FOR THE DURATION OF THE WORK:

NATIONAL BUILDING CODE OF CANADA

MANITOBA BUILDING CODE

NATIONAL ENERGY CODE FOR BUILDINGS

MANITOBA ENERGY CODE FOR BUILDINGS

CONCRETE CODE CSA A23.1, A23.2 AND A23.3

CANADIAN FOUNDATION ENGINEERING MANUAL

STEEL CODE CSA S16, CSA G40.21 AND CSA-S136

CSA-A371 MASONRY CONSTRUCTION FOR BUILDINGS

ALL SPECIFICATIONS COMPLETE WITH ADDENDA AND CHANGE ORDERS.

DRAWINGS WITH THE LATEST REVISIONS AS THEY OCCUR.

DESIGN LOADS:

1.

CLIMATIC:

SNOW

Ss = 1.9 kPa

RAIN

Sr = 0.2 kPa

ROOF SNOW

S = 2.15 kPa

IMP.

Is = 1.25 (POST DISASTER)

DRIFT

(AS INDICATED)

WIND

Q₀ = 0.45 kPa

IMP.

Iw = 1.25 (POST DISASTER)
2.

OCCUPANCY AND USE:

LIVE (S.O.G.)

LL = 3.6 kPa

LIVE (TONNER FLOOR

ADD'L FRAMING

@ HVAC OPENINGS)

DEAD

LL = 12.0 kPa OR 54kN OVER 250mmx600mm

COLLATERAL

DL = SELF WEIGHT

CHLORINE SCRUBBER

CL = 1.0 kPa

MAX. 13,500kg (INCLUDING VESSEL AND MEDIA)
3.

SEISMIC:

Sa (0.2) = 0.112

Sa (5.0) = 0.0043

Sa (0.5) = 0.106

Sa (10.0) = 0.00125

Sa (1.0) = 0.0545

PGA = 0.0676

Sa (2.0) = 0.0214

PGA = 0.054

SITE CLASS 'E'

IMP.

Ie = 1.5 (POST DISASTER)

SEISMIC CATEGORY 'SC1'

VESTIBULE:

Rd = 2.5 Ro = 1.7 To = 0.11

SEISMIC SHEAR V = 2.31kN

SCRUBBER:

Rd = 2.0 Ro = 1.5 To = 0.11

SEISMIC SHEAR V = 17.4kN

GEOTECHNICAL/FOUNDATIONS:

1.

VESTIBULE SLAB AND SCRUBBER PAD FOUNDATION BASED ON TREK GEOTECHNICAL REPORT # 0019 01300 DATED AUG. 16, 2023.
2.

FACTORED SOIL BEARING RESISTANCES (ø = 0.5, 25MM SETTLEMENT)

ULS = 125kPa

SLS = 85kPa
3.

ORGANICS, DEBRIS, AND ALL OTHER DELETERIOUS MATERIALS SHOULD BE REMOVED SUCH THAT THE BEARING SURFACES CONSIST OF VERY STIFF CLAY FILL.
4.

EXCAVATION FOR THE MAT SHOULD BE COMPLETED BY AN EXCAVATOR EQUIPPED WITH A SMOOTH-BLADED BUCKET OPERATING FROM THE EDGE OF THE EXCAVATION.
5.

AFTER EXCAVATION, THE UPPER 200MM OF THE CLAY FILL SHOULD BE SCARIFIED, MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
6.

THE BEARING SURFACE SHOULD BE PROTECTED FROM FREEZING, DRYING, AND INUNDATION AT ALL TIMES. IF ANY OF THESE CONDITIONS OCCUR, THE DISTURBED MATERIAL SHOULD BE REMOVED IN ITS ENTIRETY AND THE CLAY FILL BEARING SURFACE SHOULD BE COMPACTED TO 95% OF THE SPMDD. IF GROUNDWATER SEEPAGE IS ENCOUNTERED, IT SHOULD BE CONTROLLED AND REMOVED FROM THE BEARING SURFACE, SUCH THAT CONCRETE IS PLACED UNDER DRY CONDITIONS.
7.

COMPACTED FILL MAY BE PLACED AS REQUIRED TO OBTAIN PROPER GRADE LEVEL. MAX 150MM, GRANULAR 'A' BASE, COMPACTED TO 95% SPMDD.
8.

THE FINAL BEARING SURFACE SHOULD BE INSPECTED AND DOCUMENTED BY TREK PRIOR TO CONCRETE PLACEMENT TO VERIFY THE ADEQUACY OF THE BEARING SURFACE AND PROPER INSTALLATION OF THE FOUNDATION. THIS IS PARTICULARLY IMPORTANT DUE TO THE DISTANCE OF OUR CLOSEST TEST HOLE TO THE CHLORINE SCRUBBER LOCATION.

CAST-IN-PLACE CONCRETE:

1.

ALL CONCRETE TO BE MIXED, PLACED, AND TESTED ACCORDING TO CSA A23.1 AND CSA A23.2.
2.

CONCRETE: COMPRESSIVE STRENGTH = 35 MPa AT 28 DAYS, SLUMP = 80 +/- 20mm, MAXIMUM AGGREGATE SIZE = 20mm, ENTRAINED AIR = 7% +/- 1%, CEMENT = HS OR HSB SULPHATE RESISTANT (CLASS S2)
3.

ADVISE THE CONTRACT ADMINISTRATOR AT LEAST 48 HOURS IN ADVANCE OF CONCRETE POUR.
4.

SLABS TO HAVE MINIMUM 2% SLOPE TOWARDS DRAINS UNLESS NOTED OTHERWISE. REFER TO BUILDING AND MECHANICAL DRAWINGS IF NOT INDICATED ON STRUCTURAL SET.
5.

FORMS SHALL NOT BE STRIPPED UNTIL 75% OF THE SPECIFIED CONCRETE STRENGTH HAS BEEN REACHED.

ACCESSORIES EMBEDDED IN CONCRETE:

1.

THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING, LOCATING AND PLACING ALL PLATES, ANCHOR BOLTS, INSERTS, DOWELS, SLEEVES AND OPENINGS. COORDINATE ACCESSORY PLACEMENT REQUIREMENTS WITH THE SHOP DRAWINGS.
2.

ANCHOR BOLTS, INSERTS, SLEEVES DOWELS, ETC. SHALL BE SECURED IN POSITION BY MEANS OF TEMPLATES BEFORE CONCRETE IS PLACED.

REINFORCING STEEL:

1.

ALL REINFORCING STEEL TO CONFORM TO CSA G30.18M, GRADE 400.
2.

ALL REINFORCING STEEL TO BE DETAILED IN ACCORDANCE WITH THE LATEST RSIC REINFORCING STEEL MANUAL OF STANDARD PRACTICE, CSA-A23.1 AND CSA-A23.3.
3.

CONCRETE CLEAR COVER (UNLESS NOTED OTHERWISE):

PILES

75MM

GRADE BEAMS (BOTTOM)

40MM

GRADE BEAMS (SIDE & TOP)

40MM

SLABS (BOTTOM)

75MM

SLABS (TOP)

30MM

WALLS

30MM
4.

SUBMIT TO THE CONTRACT ADMINISTRATOR SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, GRADE, SPACING, HOOKS, BENDS, AND SUPPORTING / SPACING DEVICES, ETC., FOR REVIEW PRIOR TO THE FABRICATION OF REINFORCING STEEL.
5.

DO NOT PLACE REINFORCEMENT WITHOUT FIRST OBTAINING A COPY OF THE REVIEWED SHOP DRAWINGS FROM THE CONTRACT ADMINISTRATOR.
6.

ALL REINFORCING SHALL BE HELD IN PLACE AND TIED BY THE USE OF PROPER ACCESSORIES SUPPLIED BY THE REINFORCING STEEL FABRICATOR.
7.

ALL REINFORCING STEEL SHALL BE CLEANED OF ALL DIRT, GREASE AND OTHER DELETERIOUS MATERIALS PRIOR TO PLACING.
8.

REINFORCING STEEL SHALL NOT BE WELDED OR HEATED UNLESS NOTED OTHERWISE.
9.

EXTEND LONGITUDINAL STEEL IN GRADE BEAMS 450MM AROUND CORNERS, OR USE 900MM CORNER BARS UNLESS NOTED OTHERWISE.
10.

IF REINFORCING STEEL IS LAPPED, BOTTOM STEEL SHALL ONLY BE LAPPED OVER SUPPORTS, TOP STEEL SHALL ONLY BE LAPPED AT MID-SPAN.

MASONRY:

1.

ALL MASONRY WORK SHALL BE DONE IN ACCORDANCE WITH CSA-A371.
2.

CONCRETE BLOCKS TO CONFORM TO CSA-A165. STANDARD HOLLOW MASONRY UNITS TO BE H/15/A/M. FLUTE SIZE, NUMBER-PER-BLOCK, AND SPACING TO MATCH EXISTING FLUTED MASONRY BLOCK.
3.

MORTAR TO CONFORM TO CSA-A179, TYPES BASED ON PROPORTION SPECIFICATIONS, TYPE S.
4.

USE 9 GAUGE TRUSS TYPE REINFORCEMENT WITH DEFORMATIONS, TIES AND ANCHORS EVERY SECOND COURSE. ALL SPLICES SHALL BE LAPPED 750MM COURSE TO COURSE.
5.

JOINT REINFORCEMENT SHALL BE MADE CONTINUOUS AT ALL WALL CORNERS BY USE OF 'L' SHAPED PIECES SPECIFICALLY FABRICATED FOR THE APPLICATION.
6.

BOTTOM COURSE TO BE BOND BLOCK AND TOP COURSE TO BE 'U'-BLOCK LINTEL WALLS WITH 2 - 15M REINFORCING BARS AND 20 MPA CONCRETE FILL CONTINUOUS UNLESS OTHERWISE NOTED. FILL CONCRETE SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 10MM AND A MAXIMUM SLUMP OF 200MM.
7.

ALL MASONRY WALLS TO BE SECURELY BRACED UNTIL THE STRUCTURE IS CLOSED IN.
8.

PROVIDE 'U'-BLOCK LINTELS OVER ALL OPENINGS IN BLOCK WALL (INCLUDING THOSE FOR MECHANICAL OR ELECTRICAL SERVICES AND EQUIPMENT) AS FOLLOWS UNLESS OTHERWISE NOTED:

UP TO 1200MM

200MM 'U'-BLOCK, 2 - 15M

BOTTOM, 20 MPA FILL,

BEAR MINIMUM 200MM EACH END

UP TO 2400MM

400MM 'U'-BLOCK, 2 - 15M

BOTTOM, 20 MPA FILL,

BEAR MINIMUM 400MM EACH END
9.

VERTICAL REINFORCING: PROVIDE ONE 15M FULL HEIGHT VERTICAL BAR WITH MATCHING HOOKED DOWEL AND COREFILL AT:

900MM OR AS PER DRAWINGS.

UNSUPPORTED ENDS OF WALLS AND AT CONTROL JOINTS.


EACH CORNER AND AT WALL INTERSECTIONS.


EACH SIDE OF DOORS.

EACH SIDE OF OPENINGS
10.

COREFILLS SHALL BE DONE IN MAXIMUM 1200MM LIFTS, AND SHALL BE RODDED TO AVOID HONEYCOMBING.



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				SCALE: N.T.S.	ISSUED FOR CONSTRUCTION BY: M. SKINNER
				DATE: 2023-04-24	DATE: 2025/04/30
00	ISSUED FOR TENDER AND CONSTRUCTION	2025/04/30	KK	FM	CONSULTANT NO.: 694715
NO.	REVISIONS	DATE	DESIGN	CHECK	

ENGINEER'S SEAL					
		MACLEAN PUMPING STATION CHLORINE SYSTEM UPGRADE STRUCTURAL NOTES			
CITY DRAWING NUMBER 1-0630M-S0010		SHEET 001	REV. 00	SIZE A1	