GENERAL NOTES

1. READ THE STRUCTURAL DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
2. THE DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NATIONAL BUILDING CODE AS AMENDED BY THE MANITOBA BUILDING CODE AND REFERENCED STANDARDS THEREIN.
3. NOTIFY THE STRUCTURAL ENGINEER A MINIMUM OF 2 WORKING DAYS IN ADVANCE OF CONCRETE POURS FOR SITE REBAR REVIEWS.
4. DRAWINGS SHOW COMPLETED STRUCTURES ONLY. PROVIDE TEMPORARY BRACING FOR CONSTRUCTION LOADING CONDITIONS AND STABILITY OF THE STRUCTURE DURING CONSTRUCTION. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN LOADS.
5. CONTRACTOR TO CONFIRM WITH EQUIPMENT SUPPLIER DIMENSIONS AND ALL OTHER CRITICAL DETAILS PRIOR TO CONSTRUCTION. REPORT DISCREPANCIES AND OBTAIN APPROVAL PRIOR TO PROCEEDING WITH CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE TO CONTROL GROUND AND SURFACE WATER AND TO REMOVE EXCESS WATER FROM SITE. REFER TO SPECIFICATIONS.
7. CONTRACTOR TO CONFIRM ALL SITE DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
8. CONTRACTOR TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
9. CONTRACTOR TO PROVIDE SCHEDULE OF SERVICE INTERRUPTION MINIMUM 1 WEEK PRIOR.
10. PROVIDE BYPASS PUMPING AS REQUIRED TO COMPLETE WORK AS PER CONTRACT DOCUMENTS.
11. MAINTAIN ACCESS TO ALL RESIDENTS DURING CONSTRUCTION.
12. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

DEMOLITION

1. DEMOLITION WORK IS TO BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE SAFETY AND BUILDING CODES AND REGULATIONS.
2. REMOVAL & DISPOSAL OF EXISTING FLAP GATES AND SLIDE GATE IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. CONTRACTOR IS RESPONSIBLE FOR REPAIR RESULTING FROM DAMAGE OCCURRING DEMOLITION AND REMOVAL OF GATES.
4. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS AND FEES ASSOCIATED WITH DISPOSAL OF GATES.
5. CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, INSTALLATION AND REMOVAL OF ALL SHORING. CONTRACTOR TO PROVIDE SHORING DRAWINGS WITH THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN MANITOBA.
6. REFER TO SPECIFICATIONS AND DRAWINGS.

EXCAVATION, BACKFILL AND COMPACTION (W/ GEO REPORT CLOUDED)

1. EXCAVATE TO LINES AND LEVELS NECESSARY TO PROPERLY COMPLETE THE WORK. MINIMUM SIDE SLOPES OF TEMPORARY EXCAVATIONS SHALL NOT EXCEED OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS.
2. CONTROL EXCAVATION TO ENSURE BOTTOM OF EXCAVATION DOES NOT SOFTEN DUE TO EXCESS MOISTURE, NOR DESICCATE DUE TO EVAPORATION. CONSTRUCT SLOPES IN BOTTOMS OF EXCAVATIONS FOR DRAINAGE AS REQUIRED.
3. THE CONTRACTOR SHALL PROVIDE SHORING AT EXCAVATIONS AS PER OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS.
4. SHRUBS, TREES AND NEIGHBOURING STRUCTURES SHALL BE PROTECTED AGAINST DAMAGE.
5. ALL BACKFILL SHALL BE COMPACTED USING MECHANICAL EQUIPMENT.
6. DO NOT PLACE BACKFILL ON FROZEN GROUND, NOR USE FROZEN MATERIAL.
7. MAINTAIN OPTIMUM MOISTURE CONTENT TO PERMIT COMPACTION TO ATTAIN SPECIFIED DENSITIES, PROTECT BACKFILLED GRADE, DURING AND AFTER COMPLETION OF BACKFILL OPERATION, FROM SOFTENING DUE TO EXCESS MOISTURE, AND DESICCATION DUE TO EVAPORATION.
8. BACKFILL TO GRADES INDICATED IN LAYERS NOT EXCEEDING 150.
9. GRANULAR FILL TO BE 20ØCRUSHED GRAVEL, FREE FROM SILT, LOAM, FRIABLE OR VEGETABLE MATTER UNLESS SPECIFIED OTHERWISE IN THE GEOTECHNICAL REPORT. MATERIALS TO BE APPROVED BEFORE USE.
10. CONTRACTOR TO DE-WATER EXCAVATIONS CONTINUOUSLY OR AS DIRECTED BY THE ENGINEER.
11. ALL UNDERGROUND AND SURFACE RESTORATION WORKS TO BE CONSTRUCTED WITH THE LATEST REVISION OF THE CITY OF WINNIPEG STANDARD CONSTRUCTION SPECIFICATIONS.
12. ALL BACKFILL TO BE CLASS 3 UNLESS OTHERWISE NOTED.
13. DO NOT REMOVE EXISTING TREES UNLESS NOTED OTHERWISE. PROVIDE TREE PROTECTION IN ACCORDANCE WITH THE SPECIFICATIONS.
14. RESTORE BOULEVARD AREA WITH 150 TOPSOIL AND SOD.

CONCRETE

1. CONCRETE MIX DESIGN TO FOLLOW THE REQUIREMENTS OF CSA A23.1.
2. CONCRETE MIX DESIGN:
   - EXPOSURE CLASS: S-1
   - 28 DAY STRENGTH: 32 MPa
   - SLUMP: 80mm±20mm
   - AIR CONTENT: 4%-7%
3. PROVIDE 50mm TO ALL REBAR.
4. OWNER WILL APPOINT AND PAY FOR SERVICES OF TESTING AGENCY TO DO THE FOLLOWING:
   4.1. TEST FINE COARSE AGGREGATE
   4.2. TAKE THREE TEST CYLINDERS FROM LOAD, OR FRACTION THEREOF OF EACH TYPE OF CONCRETE PLACED IN ANY ONE DAY. TEST CYLINDERS WILL BE CURED ON JOB-SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
   4.3. TAKE AT LEAST ONE SLUMP TEST AND ONE ENTRAINED AIR TEST FOR EACH SET OF TEST CYLINDERS TAKEN.
5. ALL EXPOSED CONCRETE CORNERS TO RECEIVE A 20mm CHAMFER AT TIME OF POUR.
6. ROUGHEN TO 5mm AMPLITUDE AND CLEAN EXISTING CONCRETE INTERFACE PRIOR TO NEW POUR.
7. INSTALL VOLCLAY RX-101 WATERSTOP AROUND PERIMETER OF OPENINGS.
8. PROVIDE 2-COATS BITUMEN TO ALL EXTERIOR SURFACE OF BELOW GRADE CONCRETE

REINFORCING

1. REINFORCING STEEL SHALL BE CLEAN, FREE OF RUST, DIRT, LOOSE SCALE, OIL, GREASE, OR ANY OTHER MATERIAL WHICH WOULD REDUCE BOND WITH THE CONCRETE.
2. WELDED STEEL WIRE FABRIC SHALL CONFORM TO A1064/A1064M-14, 400MPa MINIMUM GRADE IN FLAT SHEETS ONLY UNLESS APPROVED OTHERWISE.
3. PROVIDE SHOP DRAWINGS CLEARLY INDICATING BAR SIZES, SPACINGS, LOCATIONS AND QUANTITIES OF REINFORCING STEEL FOR REVIEW PRIOR TO FABRICATION. DETAIL, FABRICATE AND PLACE REINFORCING IN ACCORDANCE WITH CSA A23.1-09 (R2014), CSA A23.3-14 AND ACI SP-66 (2004).
4. CHAIR SLAB REINFORCING NOT FURTHER THAN 1.0m IN EITHER DIRECTION. SUPPLY SUPPORT BARS, CHAIRS AND CARRIERS AS REQUIRED.
5. DOWELS AND ANCHOR BOLTS SHALL BE SECURED IN POSITION BY MEANS OF TEMPLATES BEFORE CONCRETE IS POURED. "WET DOWELING" IS NOT PERMITTED
6. ANCHOR BOLTS MUST BE LOCATED WITHIN REINFORCING STEEL CAGE.
7. NOTIFY CONSULTANT WHERE PLACEMENT OF REINFORCING STEEL CONFLICTS WITH WORK OF OTHER TRADES.
8. MINIMUM REINFORCING AROUND OPENINGS LARGER THAN 300: 1-15M EACH SIDE AND EACH FACE OF OPENINGS EXTENDED 600 PAST CORNERS UNLESS NOTED OTHERWISE.
9. PROVIDE DOWELS FROM CONCRETE COMPONENTS TO MATCH BLOCK REINFORCING. DOWEL LENGTH MINIMUM 1200, EMBED 600 INTO CONCRETE UNLESS NOTED OTHERWISE. SEE DRAWINGS FOR LOCATIONS.
10. UNLESS NOTED OTHERWISE, ALL DOWELS TO PROJECT A MINIMUM OF 40 BAR DIAMETERS INTO SLAB OR WALL FROM FACE OF SUPPORT. REFER TO SPECIFICATIONS.
11. REFER TO SPLICE TABLES IN THIS DRAWING PACKAGE.

PIPE

1. VERIFY LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
2. ALL PIPE SHALL HAVE CLASS B BEDDING.
3. INSTALL FORCEMAIN BY TRENCHLESS METHODS.
4. CONTRACTOR TO PROTECT EXISTING PIPE AND VAULT DURING CONSTRUCTION.

MASONRY

1. MASONRY BLOCK UNITS SHALL CONFORM TO CSA CAN3-A165 SERIES M94, CLASSIFICATION H/15/C/M WITH A MINIMUM UNIT STRENGTH OF 15MPa, UNLESS NOTED OTHERWISE.
2. ALL MORTAR FOR MASONRY BLOCK SHALL CONFORM TO CSA A179-(LATEST EDITION) AND SHALL BE TYPE 'S' WITH A MINIMUM COMPRESSIVE STRENGTH OF 15MPa.
3. ALL LINTELS, BOND BEAMS, AND PILASTERS SHALL BE FILLED WITH CONCRETE HAVING A COMPRESSIVE STRENGTH OF 20MPa. CONCRETE SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 10 AND A MAXIMUM SLUMP OF 175. MECHANICALLY VIBRATE CORE FILL.
4. PROVIDE 1-15M VERTICAL AND CORE FILL AT EACH SIDE OF EVERY OPENING AND AT EACH CORNER.
5. CORE FILLS SHALL BE DONE IN MAXIMUM 1200 LIFTS AND SHALL BE RODDED AND VIBRATED TO AVOID HONEYCOMBING AND VOIDS.
6. PROVIDE CONCRETE FILLED AND REINFORCED BOND BEAMS WHERE SHOWN ON DRAWINGS, UNLESS NOTED OTHERWISE. REINFORCE EACH 200 OF BOND BEAM WITH 2-15M CONTINUOUS, WITH MATCHING CORNER BARS.
7. PROVIDE 2-COURSE LINTELS C/W 2-15M BARS OVER EVERY PENETRATION. EXTEND LINTEL MINIMUM 400 BEYOND EDGES OF OPENINGS. INCLUDING THOSE FOR MECHANICAL OR ELECTRICAL SERVICES AND EQUIPMENT.
8. EXTEND ALL LINTEL REINFORCEMENT AND CONCRETE 400 PAST EDGE OF OPENINGS BOTH SIDES, UNLESS NOTED OTHERWISE.
9. REINFORCEMENT TO EXTEND FULL HEIGHT OF WALL AND BE ANCHORED 200 INTO CONTINUOUS BOND BEAMS AT TOP OF WALL.
10. PROVIDE VERTICAL CONTROL JOINTS AT MAXIMUM 9m SPACING. BOND BEAM REINFORCING CONTINUES THROUGH CONTROL JOINT. CUT ALTERNATE WIRE JOINT REINFORCEMENT.
11. PROVIDE CONCRETE FILLED CORES AT ALL LOCATIONS WHERE METAL FABRICATIONS OR OTHER EQUIPMENT UTILITIES, ETC., FASTEN TO BLOCK WALLS.PROVIDE TEMPORARY BRACING FOR ALL WALLS UNTIL MASONRY HAS BEEN ANCHORED TO PERMANENT STRUCTURE.
12. REFER TO SPECIFICATIONS FOR OTHER REQUIREMENTS.
13. NUMERIC BOND BEAM ELEVATIONS INDICATE TOP OF BOND BEAM. REFER TO SPECIFICATIONS.

GRATING

1. MATERIAL: ALUMINUM 6063T6
   TYPE: 30-102, NON SERRATED
   SIZE: AS NOTED ON DRAWINGS

CONCRETE COVER

CONDITION	SPECIFIED COVER
FORMED EDGES NOT EXPOSED TO SOIL	40mm
FORMED EDGES EXPOSED TO SOIL	40mm
CONCRETE CAST AGAINST SOIL	75mm
SLAB TOP REINFORCEMENT	30mm
STRUCTURAL SLAB BOTTOM REINFORCEMENT	40mm

TENSION EMBEDMENT AND SPLICE CONDITIONS

CONCRETE STRENGTH	CONDITION	REINFORCEMENT DESIGNATION					
		10M	15M	20M	25M	30M	35M
25 MPa	EMBEDMENT	300	435	580	900	1080	1260
	SPLICE	390	565	750	1170	1405	1640
32 MPa	EMBEDMENT	300	395	530	825	990	1155
	SPLICE	390	515	685	1070	1285	1500
35 MPA	EMBEDMENT	300	370	490	765	915	1065
	SPLICE	390	475	635	990	1190	1385

NOTES:
1. INCREASE ABOVE LENGTHS BY 1.3 TIMES IF HORIZONTAL REINFORCING BARS ARE CAST WITH ≥300mm OF CONCRETE CAST BELOW THE BAR.

LAP LENGTH SCHEDULE:

SIZE	LENGTH
10M	400
15M	650
20M	950
25M	1200

NO.	DRAWING NUMBER	REFERENCE DRAWING TITLE
10		
9		
8		
7		
6		
5		
4		
3		
2		
1		

REFERENCE DRAWINGS

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
MPE, a division of Englobe Corp.
No. 4968 Date: MAR 19, 2024

B.M.
ELEV.

NO.	REVISIONS	DATE	BY
0	ISSUED FOR CONSTRUCTION	2024-03-19	

MPE a division of Englobe

DESIGNED BY	M. BAKER	CHECKED BY	D. CHRONIK
DRAWN BY	D. MCMILLAN	APPROVED BY	D. CHRONIK
SCALE: HORIZONTAL / VERTICAL	N.T.S.	RELEASED FOR CONSTRUCTION	
DATE	2024-03-19	DATE	

PLOT DATE: 2024 03 19

PROVINCE OF MANITOBA
M. J. BAKER
Member
43540
REGISTERED PROFESSIONAL ENGINEER
MARCH 21, 2024
CONSULTANT DRAWING NUMBER

BID OPPORTUNITY: --

Winnipeg
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

CONWAY LIFT PUMPING STATION
2024 UPGRADES
STRUCTURAL
SPECIFICATION NOTES

CITY DRAWING NUMBER 1-0131L-S0008-001-00 SHEET 18 OF 102

FILE PATH: M:\N-Data\84\00 City of Winnipeg\005 - Conway Lift Station\Autodesk\ACAD\
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