

DILLON CONSULTING LIMITED 3200 DETRIEL DRIVE, SUITE 608, WINDSOR, ONTARIO, N9W 5K8, PHONE (519) 948-5000, FAX (519) 948-5054

PLOT DATE: 2020-09-08 11:30:25 AM
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NOTES:

GENERAL

1. THE CONTRACTOR SHALL READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL DRAWINGS, SPECIFICATIONS, AND OTHER CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO COMMENCING WITH CONSTRUCTION WORK.
3. TEMPORARY SUPPORT AND BRACING FOR CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR U.N.O. ON DRAWING.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTION OF THE EXISTING FACILITIES AND UTILITIES WHICH MAY BE AFFECTED BY THE WORK OF THIS CONTRACT.
5. ALL WORK SHALL CONFORM TO THE MANITOBA BUILDING CODE 2011 AND THE ASSOCIATED NATIONAL BUILDING CODE.
6. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION".
7. ~~DO NOT SCALE FROM THE DRAWINGS.~~

DESIGN LOAD

CLIMATIC DATA	WINNIPEG, MANITOBA	
LOADING CRITERIA		
IMPORTANCE CATEGORY	POST-DISASTER	
SNOW	Ss = 1.9 kPa,	
	Sr = 0.2 kPa	
WIND	q 1/50 = 0.45 kPa	
ONE DAY RAIN	108 mm	
SEISMIC	N/A	
LIVE LOAD		
FIRST FLOOR	4.8 kPa	
WORKING PLATFORM	4.8 kPa	

SITE REVIEW AND SHOP DRAWING REVIEW

1. PREPARE AND SUBMIT ALL REQUIRED SHOP DRAWINGS FOR REVIEW 7 DAYS PRIOR TO FABRICATION.
2. THE REVIEW IS ONLY FOR THE WORK SHOWN ON THE DRAWINGS AND IS TO ASCERTAIN THAT THE WORK IS IN GENERAL CONFORMANCE WITH THE DRAWINGS.
3. THE REVIEW DOES NOT RELIEVE THE CONTRACTOR RESPONSIBILITY TO PERFORM THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

STRUCTURAL STEEL

1. STRUCTURAL STEEL WORK SHALL CONFORM TO CSA S16-14.
2. ALL FABRICATION, ERECTION, AND WELDING SHALL BE IN ACCORDANCE WITH THE LATEST CODES AND STANDARDS.
3. ALL STRUCTURAL SHAPES SHALL CONFORM TO CSA G40.21-13 GRADE 350W.
4. ALL STRUCTURAL PLATES SHALL CONFORM TO CSA G40.21-13 GRADE 300W.
5. CONNECTION DETAILS NOT SHOWN ON DRAWINGS SHALL BE DESIGNED UNDER THE SUPERVISION OF AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF MANITOBA.
6. UNLESS NOTED OTHERWISE, DESIGN ALL CONNECTIONS FOR NON-COMPOSITE BEAMS FOR 50% OF THE SHEAR RESISTANCE OF THE BEAM AND USE A MINIMUM OF 3-19 mm DIA BOLTS IN EACH BOLTED CONNECTION.
7. ALL STRUCTURAL STEEL AND CONNECTIONS, INCLUDING ANCHOR BOLTS EXPOSED TO ENVIRONMENT TO BE GALVANIZED.
8. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS FOR CONTRACT ADMINISTRATOR TO REVIEW PRIOR TO FABRICATION.
9. THE CONTRACTOR SHALL ARRANGE FOR MATERIALS AND WORKMANSHIP TESTING BY AN INDEPENDENT INSPECTION FIRM.
10. WELDERS' CERTIFICATES; ORGANIZATION CERTIFIED BY THE CANADIAN WELDING BUREAU IN ACCORDANCE WITH CSA W47.1-09 (R2014).
11. ALL STRUCTURAL STEEL TO BE GALVANIZED TO CSA G164.2 ASTM A123/A123M.
12. SHOP GALVANIZING: HOT DIPPED GALVANIZING WITH A MINIMUM COATING OF 706 g/m².
13. TOUCH UP DAMAGED GALVANIZED COMPONENTS WITH COLD GALVANIZING SPRAY.

ALUMINUM CHECKER PLATE HATCH OPENING COVERS

1. ALUMINUM TO BE 6061-T6 FOR STRUCTURAL APPLICATION
2. PANEL TO BE DESIGNED FOR UNIFORM DISTRIBUTED LOAD OF 4.8 KPA WITH MAXIMUM DEFLECTION OF 1 mm.
3. PANEL TO BE DESIGNED FOR CONCENTRATED LOAD OF 10 kN APPLIED OVER AREA OF 25x25 mm AT ANY LOCATION WITH MAXIMUM DEFLECTION OF 2.54 mm.
4. LIFTING HANDLE TO BE RECESSED.

CAST-IN-PLACE CONCRETE

1. CONC. MATERIAL, QUALITY, MIXING, PLACING, FORMWORK, AND OTHER CONSTRUCTION PRACTICES TO CONFORM TO CSA A23.1/A23.2.
2. ALL CONC. SHALL BE NORMAL WEIGHT CONC.
3. ADMIXTURES CONTAINING CALCIUM CHLORIDE ARE NOT PERMITTED.
4. CONC. STRENGTH AND MIX SPECIFICATIONS ARE AS FOLLOWS:

EXP. CLASS	SUPPLY AND USE	W/C RATIO	STRENGTH	CEMENT TYPE	SLUMP	MAX. AGG. SIZE	AIR ENTRAINMENT	MAX. FLY ASH CONTENT
C1	EXTERIOR CONC TOPPING, WET WELL, DOOR THRESHOLD	0.4	35 MPa @ 28 DAYS	GU	110mm +/- 25	19 mm	5-8%	25%
N	INTERIOR REPAIR	0.5	30 MPa @ 28 DAYS	GU	110mm +/- 25	19 mm	NONE	25%

5. DO NOT ADD WATER TO CONC. ON SITE UNLESS AUTHORIZED BY SUPPLIER.
6. PROTECT CONC. FROM ADVERSE WEATHER CONDITIONS.
7. WHEN THE AMBIENT TEMPERATURE IS AT OR ABOVE 25°C OR WHEN THERE IS A PROBABILITY OF THE AMBIENT TEMP. RISING TO OR ABOVE 25°C, HOT WEATHER REQUIREMENTS APPLY. MOIST CURE CONC. ONLY. CURING COMPOUND IS NOT PERMITTED.
8. WHEN THE AMBIENT TEMPERATURE IS AT OR BELOW 5°C OR WHEN THERE IS A POSSIBILITY OF THE AMBIENT TEMP. FALLING TO OR BELOW 5°C, COLD WEATHER REQUIREMENTS APPLY.

CONCRETE FORMWORK

1. FORM WORK TO CONFORM TO CSA A23.1/A23.2.
2. FORM STRIPPING AGENT - COLORLESS MINERAL OIL, NON-TOXIC, BIODEGRADABLE, FREE OF KEROSENE.
3. PROVIDE BRACING TO ENSURE STABILITY OF FORMWORK.
4. DO NOT PLACE SHORING AND MUD SILLS ON FROZEN GROUND.
5. VOID FORM SHALL BE DYNAVOID, OR APPROVED EQUIVALENT.
6. FORM WORK SHALL BE CLEANED OF DEBRIS BEFORE PLACING CONCRETE.
7. LEAVE FORM WORK IN PLACE FOR THE FOLLOWING MINIMUM OF 7 DAYS FOR GRADE BEAMS AND SLABS OR UNTIL THE CONCRETE HAS REACHED 70% OF ITS DESIGN STRENGTH.
8. DO NOT WEDGE PRY BARS OR HAMMERS AGAINST CONCRETE SURFACES.

CONCRETE REPAIR, CUTTING, AND CORING

1. FILL ALL HOLES FROM PIPE REMOVAL WITH NON-SHRINK HIGH STRENGTH GROUT.
2. SUBMIT PATCHING PRODUCT TECHNICAL DATA SHEET FOR REVIEW PRIOR TO COMMENCING WORK.
3. PREPARE SURFACE RECEIVING REPAIR IN ACCORDANCE WITH THE MANUFACTURER INSTRUCTION.
4. NO OVER-SAWCUT IS ALLOWED.
5. NO CORING THROUGH CONCRETE BEAM MAIN REINFORCEMENT IS ALLOWED.
6. SCAN REINFORCEMENT PRIOR TO CORING. NOTIFY THE ENGINEER ANY CONFLICT OR POSSIBILITY OF CORING THROUGH REINFORCEMENT.

DEMOLITION

1. PROVIDE TEMPORARY SHORING TO THE CONCRETE ROOF PRIOR TO DEMOLITION.
2. REMOVAL OF EXISTING CONCRETE TOPPING SHALL BE PERFORMED USING HAND TOOLS, IMPACT BREAKERS, HYDRO DEMOLITION OR OTHER SUITABLE METHOD. BREAKER SHALL NOT EXCEED 15 LBS TO AVOID DAMAGE TO THE CONCRETE ROOF.

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE CONFORM TO CSA G30.18 GRADE 400W.
2. ALL REBAR SHALL BE STORED ON WOOD BLOCKING AT THE SITE.
3. REINFORCEMENT SHALL BE FREE OF CLAY, DIRT AND FROM OIL OR OTHER DELETERIOUS MATERAIL WHICH WOULD REDUCE THE BOND OF CONCRETE.
4. CONCRETE COVER SHALL CONFORM TO THE FOLLOWING LIST:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	75 mm
FORMED SURFACES EXPOSED TO EARTH	40 mm
SLAB, WALLS, BEAMS NOT EXPOSED TO EARTH	30 mm
SIDEWALKS, CURBS AND GUTTERS, SPLASH PADS AND SUMP PITS	60 mm
RATIO OF COVER TO NORMAL BAR DIAMETER	
EXPOSURE CLASS N	1.0
EXPOSURE CLASS F, S	1.5
EXPOSURE CLASS C, A	2.0
RATIO OF COVER TO MAXIMUM AGGREGATE SIZE	
EXPOSURE CLASS N	1.0
EXPOSURE CLASS F, S	1.5
EXPOSURE CLASS C, A	2.0

5. UNLESS NOTED OTHERWISE, MINIMUM EMBEDMENT AND LAP LENGTHS SHALL BE AS FOLLOW:

BAR SIZE	EMBEDMENT	LAP SPLICE
10M	400 mm	500 mm
15M	600 mm	750 mm
20M	750 mm	1000 mm
25M	1200 mm	1550 mm
30M	1450 mm	1850 mm
35M	1500 mm	2150 mm

6. CLEAR SPACING SHALL BE GREATER THAN 2 BAR DIAMETER.
7. CONTRACTOR SHALL PREPARE AND SUBMIT DETAILED REINFORCING STEEL DRAWINGS FOR REVIEW PRIOR TO FABRICATION.
8. DO NOT FIELD BEND REINFORCEMENT EXCEPT WHERE INDICATED OR AUTHORIZED BY THE CONTRACT ADMINISTRATOR.
9. NOTIFY ENGINEER 24 HOURS PRIOR TO PLACING CONCRETE FOR SITE REVIEW.

GUARDRAILS

1. STEEL PIPE SHALL BE IN ACCORDANCE WITH ASTM A53 TYPE S GRADE A OR B.
2. GALVANIZE IN ACCORDANCE WITH ASTM A123 TO A NET RETENTION OF 610 g/m².
3. GALVANIZING GUARDRAILS SHALL RESULT IN SMOOTH SURFACE, FREE OF SHARP EDGES AND PROJECTIONS.
4. PREPARE AND SUBMIT SHOP DRAWING FOR REVIEW PRIOR TO FABRICATION.

CONCRETE RESTORATION

REMOVAL AND SURFACE PREPARATION FOR THE REPAIR OF DETERIORATED CONCRETE

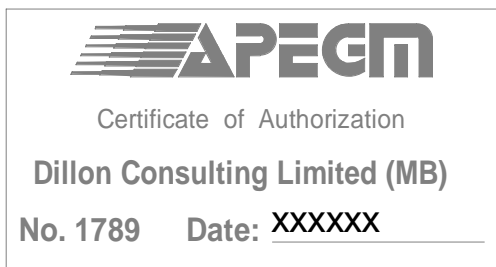
1. ALL SURFACE GRAFFITI SHALL BE REMOVED USING PRESSURE WASHER WITH AN APPROVED BIODEGRADABLE POROUS SURFACE GRAFFITI REMOVER PRODUCT.
2. THE CONTRACTOR SHALL MARK AND MEASURE THE AREAS OF THE DETERIORATED, DELAMINATED, AND UNSOUND CONCRETE PRIOR TO REMOVAL OF THE CONCRETE.
3. THE REPAIR AREA SHALL BE EXTENDED TO A MINIMUM OF 6" BEYOND THE ACTUAL DETERIORATED, DELAMINATED, AND UNSOUND CONCRETE.
4. THE DELAMINATION OR UNSOUND CONCRETE SHALL BE IDENTIFIED BY USING SOUNDING (SUCH AS CHAIN DRAG AND HAMMER SOUNDING).
5. THE MARKED AREAS SHALL BE INSPECTED BY THE ENGINEER OF RECORD PRIOR TO REMOVAL OF THE CONCRETE.
6. THE CONCRETE REMOVAL SHALL BE PERFORMED USING IMPACT BREAKERS, HYDRO-DEMOLITION, OR ANOTHER SUITABLE METHOD.
7. PERIMETER OF THE REPAIR AREAS SHALL BE SAW-CUT ½" DEEP TO PROVIDE VERTICAL EDGES AND AVOID FEATHEREDGING. SAW-CUTTING SHALL BE PERFORMED WITH CARE TO AVOID CUTTING THE REINFORCING STEEL. OVER SAW-CUTTING IS NOT ALLOWED.
8. BREAKER SHALL NOT EXCEED 15 LB TO AVOID DAMAGE TO THE REINFORCING STEEL AND SURROUNDING CONCRETE.
9. THE CONFIGURATIONS OF CONCRETE REMOVAL AREAS SHALL BE KEPT AS SIMPLE AS POSSIBLE. REENRANT CORNERS SHALL BE AVOIDED.
10. FOR DETERIORATED CONCRETE LAYER IS DEEPER THAN THE REINFORCING STEEL LAYER, PROVIDE A MINIMUM OF ¾" CLEARANCE BETWEEN EXPOSED REINFORCING STEEL AND SURROUNDING CONCRETE.
11. CONCRETE REMOVAL SHALL BE EXTENDED ALONG THE CORRODED REINFORCING STEEL UNTIL THERE IS NO FURTHER DELAMINATION, CRACKING, OR SIGNIFICANT CORROSION.
12. SUDDEN CHANGE IN THE DEPTH OF CONCRETE REMOVAL SHALL BE AVOIDED.
13. CLEAN CONCRETE SURFACE WITH HIGH-PRESSURE WATER BLASTING AFTER REMOVAL.
14. SCARIFY, APPROXIMATELY ¼" AMPLITUDE OR AS PER REPAIR MATERIAL MANUFACTURER'S RECOMMENDATIONS, ANY SMOOTH OR POLISHED SURFACES FROM SAW-CUTTING.
15. ALL SURFACES RECEIVING REPAIR SHALL BE CLEAN OF DEBRIS, OIL, DIRT, AND DETERIORATED MATERIALS.
16. WIRE BRUSH EXPOSED REINFORCING STEEL.
17. REPLACE SEVERELY CORRODED REINFORCING STEEL.
18. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER OF RECORD FOR SURFACE PREPARATION INSPECTION PRIOR TO CONCRETE REPAIR.
19. ALL SURFACES RECEIVING REPAIRS SHALL BE SATURATED SURFACE DRY (SSD) WITH NO STANDING WATER. TWENTY-FOUR HOURS OF PRE-SATURATION IS REQUIRED.
20. ALL SURFACE PREPARATION AND APPLICATION OF REPAIR MORTAR, GROUT, EPOXY AND CURING COMPOUNDS TO FOLLOW MANUFACTURER'S INSTRUCTIONS.

CONCRETE RESTORATION USING FORM-AND-POUR - BEAMS, WALLS AND SLABS

1. REMOVE DETERIORATED CONCRETE AND PREPARE CONCRETE SURFACE RECEIVING REPAIR AS PER "REMOVAL AND SURFACE PREPARATION FOR THE REPAIR OF DETERIORATED CONCRETE".
2. FOR PARTIAL DEPTH VERTICAL REPAIRS, THE UPPER EDGES OF THE VERTICAL SURFACE SHALL BE TRIMMED TO PREVENT POTENTIAL POCKETS OF ENTRAPPED AIR.
3. FORMWORK TO CSA A23.1/A23.2.
4. FORM STRIPPING AGENT- COLORLESS MINERAL OIL, NON-TOXIC, BIODEGRADABLE, FREE OF KEROSENE, WITH VISCOSITY BETWEEN 70 AND 110S SAYBOLT UNIVERSAL AT 40 C, FLASHPOINT MINIMUM 150 C.
5. FALSEWORK TO CSA S269.1.
6. FORMWORK MUST BE CLEANED IN ACCORDANCE WITH CSA A23.1/A23.2 PRIOR TO PLACING NEW CONCRETE.
7. FORMS SHALL BE CONSTRUCTED TO FIT TIGHTLY AGAINST EXISTING SURFACES. PREFORMED GASKETS MAY BE USED, IF REQUIRED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SHORING AND BRACING.
9. PLACE NEW READY-MIX CONCRETE OR A CEMENTITIOUS PRE-PACKAGE REPAIR GROUT SUCH AS SIKACRETE® 211 FLOWPLUS OR EQUIVALENT APPROVED MATERIALS.
10. APPLY SIKAFLO® FLORSEAL® W/B-18 CURING COMPOUND OR APPROVED EQUIVALENT WATER-BASED CURING COMPOUND OR APPROVED CURING TECHNIQUE.

TENDER

NOT FOR CONSTRUCTION



						ENGINEER'S SEAL			
				DESIGNED BY NR		CHECKED BY MBL		CITY DRAWING NUMBER 1-0194L-S0001-001	
				DRAWN BY DJB		APPROVED BY BLM		SHEET 3 OF 23	
				HOR. SCALE		RELEASED FOR CONSTRUCTION		CONSULTANT DRAWING NUMBER	
				VERTICAL				20-2316	
NO. REVISIONS				DATE		BY		DATE SEPTEMBER 2020	
								STRUCTURAL NOTES	
								S-01	