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. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD TWO WORKING DAYS IN ADVANCE FOR REVIEW OF CONCRETE REINFORCEMENT BEFORE EACH POUR.
- 6. ALL WORK SHALL CONFORM TO THE NATIONAL BUILDING CODE OF CANADA (2010) AND TO MANITOBA BUILDING CODE.
- 7. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION".
- 8. DO NOT SCALE FROM THE DRAWINGS.

CAST-IN-PLACE CONCRETE

- 1. CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH CSA A23.1-14/A23.2-14 AND CSA A23.3-14.
- 2. CONCRETE FALSEWORKS AND FORMWORKS SHALL CONFORM TO CSA A269.1-75.
- 3. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE.
- 4. ADMIXTURES CONTAINING CALCIUM CHLORIDE ARE NOT ALLOWED.
- 5. REJECT ALL CONCRETE IF BATCHING TIME AND PLACING TIME EXCEEDS TWO HOURS.
- 6. CONCRETE STRENGTH AND MIX SPECIFICATIONS ARE AS FOLLOWS, UNLESS NOTED OTHERWISE:

EXP. CLASS	SUPPLY AND USE	MAX. W/C	STRENGTH	CEMENT TYPE	SLUMP	MAX. AGG. SIZE	AIR ENTRAIN- MENT	MAX. FLY ASH CONTENT
S-1	SLAB	0.4	35 MPa @ 28 DAYS	HS	100 ± 20 mm	19 mm	5% - 8%	25%

REINFORCEMENT

1. REINFORCING STEEL SHALL CONFORM TO CSA G30.18-09 GRADE 400. USE GRADE 400W WHERE WELDING IS REQUIRED OR

NOTED.

2. CONCRETE COVER SHALL CONFORM TO REQUIREMENTS BELOW, UNLESS NOTED OTHERWISE

LOCATIONS	COVERS
FOUNDATION, PILES, SLABS OR WALLS CAST AGAINST EARTH	75 mm
WALLS, GRADE BEAMS, FOUNDATION NOT CAST AGAINST EARTH	60 mm
CONCRETE SURFACES EXPOSED TO LIQUID, SALT, WEATHER, AND HUMID ENVIRONMENT	60 mm
OTHER	40 mm

- 3. CLEAR COVER SHALL BE GREATER THAN 1.5 TIMES BAR DIAMETER.
- 4. CLEAR SPACING SHALL BE GREATER THAN 2 TIMES BAR DIAMETER.
- 5. MULTIPLY THE CLEAR COVER AND THE CLEAR SPACING BY 1.5 FOR EPOXY COATED REBARS.
- 6. MULTIPLY THE CLEAR COVER AND THE CLEAR SPACING BY 1.3 FOR HORIZONTAL BARS SO PLACED THAT MORE THAN 300 mm OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
- 7. COMBINATION OF THE ABOVE TWO FACTORS NEEDS NOT EXCEED 1.7.
- 8. MINIMUM LAP LENGTHS SHALL BE AS PROVIDED BELOW, UNLESS NOTED OTHERWISE:

BAR SIZE	LAP LENGTH		
10M	550 mm		
15M	750 mm		
20M	1 000 mm		

9. THE CONTRACTOR SHALL PREPARE AND SUBMIT DETAILED REINFORCING STEEL SHOP DRAWINGS FOR ENGINEER OF RECORD TO REVIEW PRIOR TO COMMENCING FABRICATION.

REINFORCED CONCRETE

- 1. REINFORCED CONCRETE WORK SHALL CONFORM TO CSA A23.1-14/A23.2-14 AND CSA A23.3-14.
- 2. ALL REINFORCEMENT SHALL BE FREE OF RESIDUAL CEMENT PASTE, DEBRIS, AND FORM OIL.
- 3. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PLACED IN BEAMS UNLESS SHOWN ON DRAWINGS.
- 4. THE CONTRACTOR SHALL PROVIDE THE LOCATIONS OF ALL CONSTRUCTION JOINTS NOT SHOWN ON DRAWINGS TO THE ENGINEER IN RECORD FOR REVIEW PRIOR TO CONCRETE POUR.

STRUCTURAL STEEL

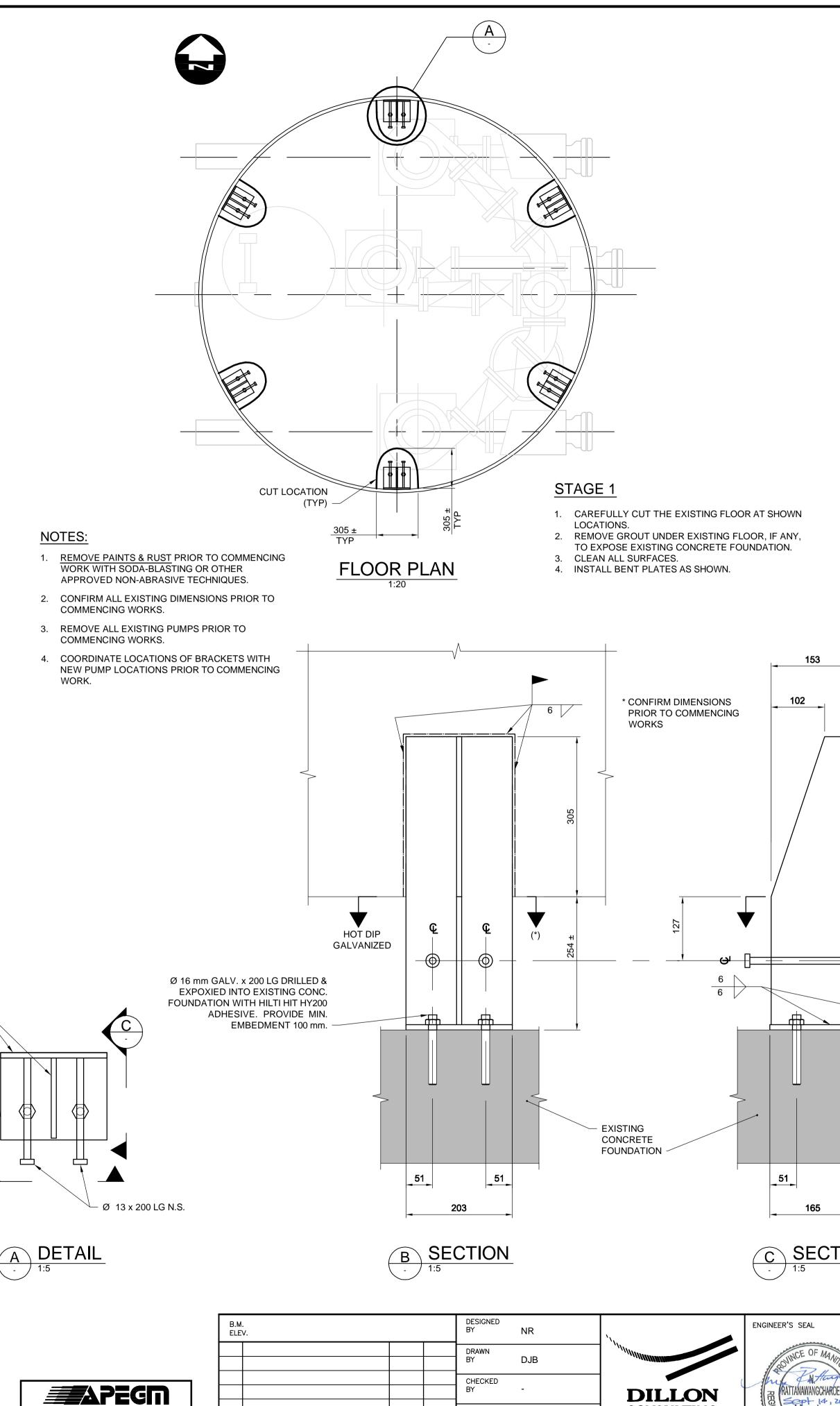
- 1. STRUCTURAL STEEL WORK SHALL CONFORM TO CSA S16-14.
- 2. ALL FABRICATION, ERECTION, AND WELDINGS SHALL BE IN ACCORDANCE WITH THE LATEST CODES AND STANDARDS.
- 3. ALL STRUCTURAL SHAPES SHALL CONFORM TO CSA G40.21-13 GRADE 350W.
- 4. ALL STRUCTURAL PLATES SHALL CONFORM TO CSA G40.21-13 GRADE 300W.

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- 5. CONNECTION DETAILS NOT SHOWN ON DRAWINGS SHALL BE DESIGNED UNDER THE SUPERVISION OF AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE WHERE THE PROJECT IS LOCATED.
- 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 PRIOR FOR ENGINEER IN RECORD 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).

10 mm THICK PLATES

B



Certificate of Authorization Dillon Consulting Limited (MB) No. 1789 Date: SEPT 14, 2016

DILLON CONSULTING APPROVED BY RELEASED FOR CONSTRUCTION HOR. SCALE AS SHOWN CONSULTANT PROJECT AS SHOWN VERTICAL 0 ISSUED FOR BID OP. 803-2016 16-09-14 NR NO. REVISIONS DATE BY DATE DATE

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PROFESSIO

163523

		ALV. STEEL LADDER EE ARCHITECTURAL)
	51x13 KNIFE PLATE WELDED TO RAIL (GALV.) MAX 914 O.C.	x 13 BENT PLATE DLTED TO LADDER ATE FEEL WALL
	LADDER TO W CONNECTION D	/ALL DETAIL
	16 Ø 50 LG BOLT PLATE WELDED TO RAIL GALV. STEEL LADDER RAIL D SECTION 0 1:5	6 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
		 GALV. STEEL LADDER (SEE ARCHITECTURAL) 51 x 13 GALVANIZED BRACKET 13 Ø SS KWIK BOLK TZ ANCHOR WITH 100 mm EMBED. CONCRETE
	LADDER TO GR CONNECTION D	OUND DETAIL
	1:10	
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12	Winnipeg THE CITY OF WATER AND WASTE	
EN CHANGE	BURROWS AVENUE PUMPING STATION UPGRADES	city drawing number 1-0121L-S0001-001 sheet of 4 16
NO.	STRUCTURAL SLAB REHABILITATION STAGE 1	<u>4 16</u> S-1