## **GENERAL NOTES**

- 1. THESE DRAWINGS TO BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATIONS.
- CONTRACTOR SHALL SITE VERIFY ALL EXISTING DIMENSIONS.
   ALL SPECIFICATIONS TO LATEST EDITION UNLESS NOTED OTHERWISE.

#### 1. DESIGN SPECIFICATIONS.

#### LIVE LOADING:

1. MAXIMUM EQUIPMENT WEIGHT ON EMBANKMENT RETAINED BY THE UNDERPASS RETAINING WALLS SHALL BE 5000KGS OR EQUIVALENT IN ACCORDANCE WITH B6.

#### **CONCRETE:**

- 1. CONCRETE TO CSA A23.1/A23.2 CONCRETE MATERIALS AND METHODS OF CONCRETE
- CONSTRUCTION/METHODS OF TEST FOR CONCRETE.
- 2. PERMEABLE FÓRMWORK LINER TO BE USED ON ALL EXPOSED FORMED SURFACES.
  3. ALL EXPOSED CONCRETE SHALL HAVE A 20mm CHAMFER U.N.O.
- 4. ALL STRUCTURAL CONCRETE UNLESS NOTED OTHERWISE
- a. f'c 35MPa
- b. EXPOSURE CLASS C-1
- c. AIR ENTRAINMENT
- d. MAXIMUM AGGREGATE SIZE 20mm
- 5. UNDERPASS RETAINING WALL REFACING
  - a. f'c=35MPa
- b. EXPOSURE CLASS C-1c. AIR ENTRAINMENT CATEGORY 1
- d. SELF-COMPACTING CONCRETE
- e. MAXIMUM AGGREGATE SIZE 10mm
- f. SLUMP FLOW BETWEEN 550-600mm
  g. LOW SHRINKAGE ACCORDING TO CAS A23.1 CLAUSE 8.9.2
  6. GROUT TO BE NON-SHRINK, NON-METALLIC, f'c=35MPa

## REINFORCING STEEL:

- 1. REINFORCING STEEL TO BE DEFORMED BARS TO CAN/CSA G30.18-M92 (R2002) BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT, GRADE 400W OR LOW CHROMIUM REINFORCEMENT.
- 2. LOW CHROMIUM REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 75 AND ASTM A1035 CM GRADE 100. MMFX CHROMX 4000 IS AN APPROVED
- PRODUCT.

  3. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF THE REINFORCING STEEL INSTITUTE OF CANADA (RSIC) MANUAL OF STANDARD PRACTICE OR MANUFACTURERS REQUIREMENTS.

  4. LAP SPLICE SCHEDULE IS FOR CLASS B SPLICE U.N.O.

BAR SIZE (MMFX)	BAR SIZE (BLACK STEEL)	EMBEDMENT	LAP
16M	15M	400	600
19M	20M	500	800
25M	25M	600	1200
32M	30M	900	1500

5. BEFORE PLACING REBAR, ENSURE IT IS CLEAN, FREE OF LOOSE SCALE, DIRT, OR OTHER. 6. CONCRETE CLEAR COVER IS 75 U.N.O.

#### **BACKFILL AND COMPACTION:**

- 1. GRANULAR COMPACTED TO 100% OF STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT.
- 2. COMMON COHESIVE BACKFILL COMPACTED TO 98% OF STANDARD PROCTOR DENSITY IN OPTIMUM MOISTURE CONTENT.

## TEMPORARY SITE DRAINAGE:

1. CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A TEMPORARY DRAINAGE SYSTEM FOR DEWATERING EXCAVATIONS.

## UNDERPASS WALL PARTIAL DEPTH REMOVAL

- 1. CONCRETE SHALL BE REMOVED TO A MINIMUM OF 25mm BEYOND THE FIRST LAYER OF
- REINFORCING TO A MAXIMUM OF 150mm.

  2. CONCRETE REMOVAL SHALL BE COMPLETED USING HAND TOOLS OR HYDRO-DEMOLITION.

## RANDOM STONE RIPRAP

1. RANDOM STONE RIPRAP SHALL BE QUARRIED LIMESTONE. ALL STONE SHALL BE MINIMUM OF

#### MISCELLANEOUS METAL

- 1. STEEL PLATE TO CSA-G40.20/G40.21 GRADE 300W.
- 2. TUBES AND CLOSED SQUARE OR RECTANGULAR SECTIONS SHALL BE HSS.
- 3. W SECTIONS SHALL BE CSA G40.20/G40.21, GRADE 350W.
- 4. GRADE 350W FOR STOCK SECTIONS.

#### <u>WELDING</u>

- 1. SHOP AND FIELD WELDING TO CSA W59 WELDED STEEL CONSTRUCTION BY FABRICATORS OR CONTRACTORS CERTIFIED TO MINIMUM DIVISION 3 OF CSA W47.1 CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES
- 2. ELECTRODES WERE COMPATIBLE WITH BASE METAL. MINIMUM 6mm FILLET WELDS UNLESS NOTED OTHERWISE AND WERE COMPATIBLE WITH BASE METAL THICKNESS. WELD TERMINATIONS WERE MINIMUM 3mm MAXIMUM 6mm. SEAL ALL WELDS.

## **FASTENERS**

- 1. ALL STRUCTURAL BOLTS FOR STEEL WORK TO BE ASTM A325 TYPE 1, U.N.O. BOLTS c/w ASTM A563 GRADE DH HEAVY HEX NUTS AND ASTM F436 TYPE 1 HARDENED STEEL WASHERS. ASTM A563 NUTS MAY BE SUBSTITUTED WITH ASTM A194 GRADE 2H NUTS.
- BOLTS NOTED TO BE A307 ARE ASTM A307 GRADE A AND c/w ASTM A563 GRADE A HEX NUTS AND ASTM F844 WASHERS.
   BOLTS NOTED TO BE A449 ARE ASTM A449 GRADE AND C/W ASTM A563 GRADE DH HEAVY
- HEX NUT AND ASTM F436 TYPE I HARDENED STEEL WASHERS.

  4. ALL BOLT HOLES WERE DRILLED 2mm LARGER THAN THE SPECIFIED BOLT DIAMETER, U.N.O.

#### PROTECTIVE COATINGS

- 1. GALVANIZING TO ASTM A123.
- 2. DAMAGED GALVANIZING TO ASTM A780 STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS
- 3. ALL STEEL, BOLTS, STUDS, NUTS AND WASHERS ARE TO BE GALVANIZED.
- 4. ALL MATERIALS TO FIT AFTER GALVANIZING.

## LIST OF ABBREVIATIONS

E.C.

EQ.

EX.

EX.A.

FG.

GALV.

HORIZ.

LG.

MK.

MAX.

MIN.

mm

N.T.S.

EACH WAY

**ELEVATION** 

**EXISTING** 

FAR FACE

GIRDER

LONG

MARK

MAXIMUM

METRE

MINIMUM

NUMBER

MILLIMETRE

NOT TO SCALE

GRANULAR

HORIZONTAL IRON BAR

INSIDE FACE

FINISHED GRADE

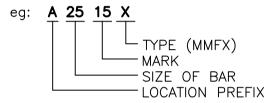
GALVANIZING

EQUAL

EQ. SP. EQUAL SPACE

<u> </u>	I ADDIVENIATIONS		
AREMA  ALT. ALUM. APPROX. AVE. BC BM B.C. BOT. BC BW CONC. CL CD BL CONT. CL CONT. C	AMERICAN RAILWAY ENGINEERING & MAINTENANCE—OF—WAY ASSOCAITION AT ALTERNATING ALUMINIUM APPROXIMATE AVE. BOLTS BEGIN CURVE BENCHMARK BY OTHERS BOTTOM OF BOTTOM BOTH WAYS BEARING CAST—IN—PLACE CONSTRUCTION JOINT CANADIAN WELDING BUREAU CENTRE LINE COMPLETE WITH CONCRETE	O/C O/O PL. PM QTY. R EINF. SHT. SP STD. STR. SYM. T.P.C. T/O.O. U/S VERT. WM	PRIMARY MEMBER QUANTITY RADIUS REINFORCEMENT SHEET SPACING STAINLESS STEEL STANDARD STRAIGHT SUBSTRUCTURE UNIT SYMMETICAL TOP & BOTTOM THICK THROUGH PLATE GIRDER TYPICAL TOP OF UNLESS NOTED OTHERWISE UNDERSIDE VERTICAL WATERMAIN WORKING POINT

## REINFORCING MARK NUMBERING SYSTEM



#### SECTION AND DETAILS



A SECTION NUMBER OR DETAIL LETTER

B DRAWING WHERE SECTION OR DETAIL IS TAKEN



DRAWING WHERE SECTION OR DETAIL IS DRAWN



THE CITY OF WINNIPEG

PUBLIC WORKS DEPARTMENT

# METRIC WHOLE NUMBERS INDICATE MILLIMETRES DECIMALIZED NUMBERS INDICATE METRES UNLESS INDICATED OTHERWISE

LOCATION APPROVED UNDERGROUND STRUCTURES		B.M. ELEV.			Stantec				ENGINEER'S SEAL
SUPV. U/G STRUCTURES DATE COMMITTEE						500 - 311 Portage Avenue, Winnipeg MB Canada www.stantec.com			
NOTE:					DESIGNED BY	D.L.	CHECKED BY	D.J.M.	
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR					DRAWN BY	G.P.	APPROVED BY	S.B.C.	
THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.					HOR. SCALE: 1:750  VERTICAL:  RELEASED FOR CONSTRUCTION:				
	0	ISSUED FOR TENDER	16.07.04	K.A.			CONSTRUCTION:		CONSULTANT DRAWIN
	NO.	REVISIONS	DATE	BY	DATE 2016.C	2.19	DATE		S-I02

ANT DRAWING NO.

2016 REGIONAL STREET PROGRAM

ARCHIBALD STREET

UNDERPASS REHABILITATION

GENERAL NOTES

Winnipeg Engineering Division

SHEET OF

18 62

CAD FILE DRAWING NUMBER

06880s-101-884.dwg

CITY DRAWING NUMBER

U205-16-18