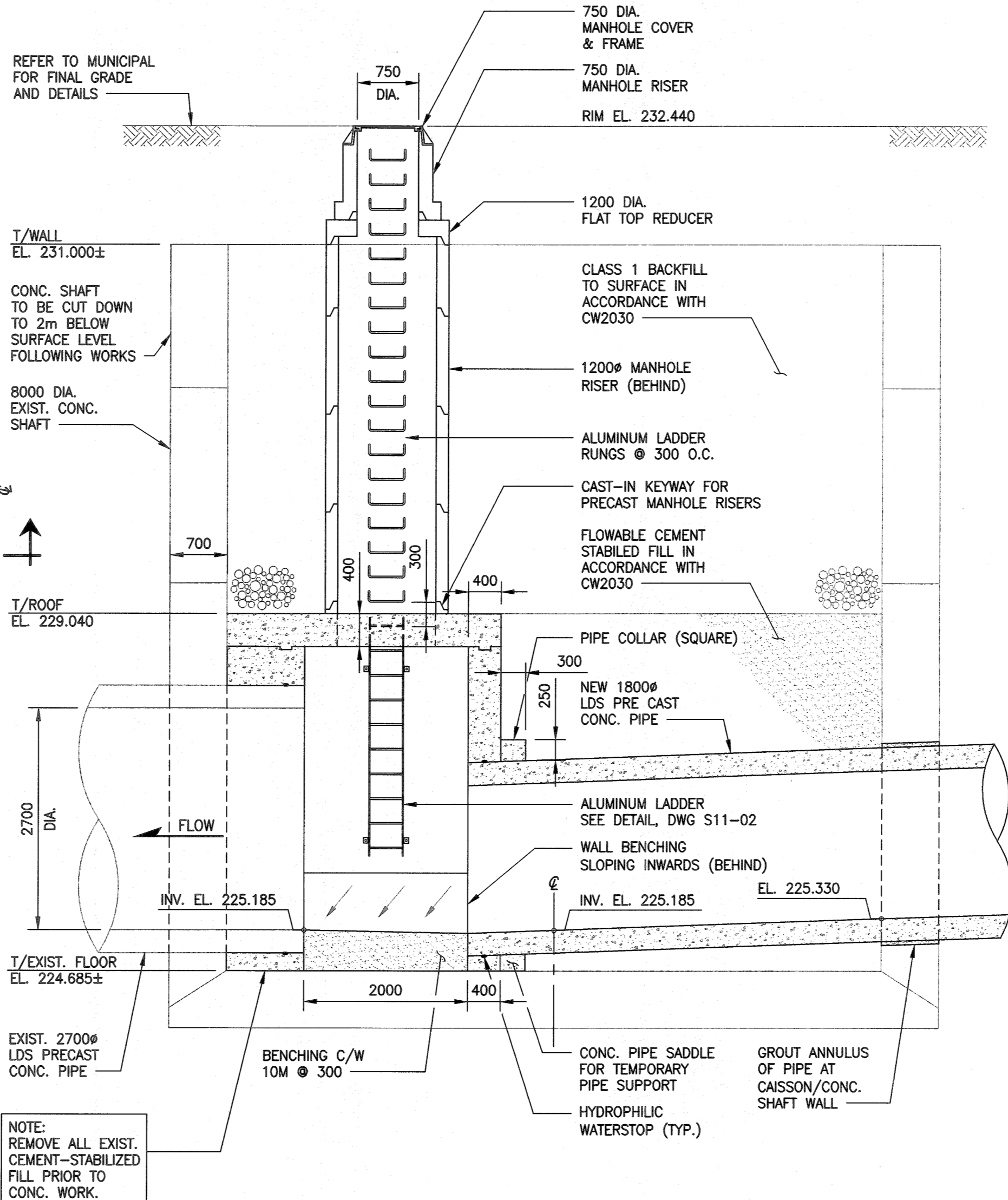


PLAN - EL. 226.000±
SCALE: 1:50



SECTION (ALONG @ OF MH-01)
SCALE: 1:50

GENERAL NOTES:

- THIS STRUCTURE HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF PART 9 OF THE NATIONAL BUILDING CODE (LATEST).
- ALL SPECIFICATIONS AND CODES SPECIFIED SHALL BE THE LATEST REVISION AVAILABLE.
- SITE VERIFY ALL DIMENSIONS, ELEVATIONS, DETAILS, QUANTITIES AND CONDITIONS PRIOR TO START OF ANY DEMOLITION, CONSTRUCTION OR PREFABRICATION OF ANY STRUCTURAL COMPONENT.
- THE CONTRACTOR SHALL ENSURE THAT ALL BURIED SERVICES ARE LOCATED AND MARKED PRIOR TO EXCAVATION.
- SHIP, STORE, HANDLE, ERECT, INSTALL, ETC. ALL BUILDING MATERIALS, COMPONENTS, FIXTURES, EQUIPMENT, ETC. AS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ALL DEMOLITION, FABRICATION, CONSTRUCTION, ETC. SHALL BE CARRIED OUT IN ACCORDANCE WITH ALL PERTINENT BUILDING CODES, AND LOCAL BYLAWS AND ORDINANCES.
- DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE PROJECT TECHNICAL SPECIFICATIONS.
- DESIGN LOADS ARE CONSISTENT WITH THE CITY OF WINNIPEG'S SEWAGE TREATMENT PROGRAM STRUCTURAL DESIGN GUIDELINES.
- DESIGN LOADS ARE AS FOLLOWS:
FOUNDATION WALL LOADS:
LIVE LOAD: $q = 6.0 \text{ kPa}$ (SURCHARGE LOAD)
SOIL LOAD: $\gamma_{\text{soil}} = 18 \text{ kN/m}^3$
AT REST LATERAL EARTH PRESSURE COEFFICIENT: $K_0 = 0.70$
LATERAL PRESSURE ON WALL, $P = K_0(\gamma_{\text{soil}}xH + q)$, WHERE H = HEIGHT OF SOIL.
- DESIGN FLOOD LEVEL
1/700 YEAR EVENT: 230.510m.

CONCRETE:

- CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CSA A23.1 (LATEST). SEE BELOW FOR MIX REQUIREMENTS.
- ADMIXTURES SHALL NOT BE USED UNLESS SPECIFIED HEREIN OR APPROVED BY THE DESIGN ENGINEER. CALCIUM CHLORIDE SHALL NOT BE USED.
- MIX WATER SHALL BE POTABLE.
- DESIGN, FABRICATE AND ERECT FORMWORK/SHORING IN ACCORDANCE WITH CAN/CSA-S269.3 (LATEST). ALLOW SUFFICIENT CONCRETE CURING TIME PRIOR TO REMOVAL.
- CONCRETE FINISHING SHALL MEET THE REQUIREMENTS OF CSA A23.1 (LATEST).
- FORM RELEASE AGENT SHALL BE BIODEGRADABLE, NON-STAINING AND NON-VOLATILE.
- PROVIDE ADEQUATE COLD/HOT WEATHER PROTECTION AS REQUIRED DURING CURING PERIOD.
- PLACE AND SECURE ALL EMBEDDED ANCHORS, WELD PLATES, SLEEVES, BUCKS, DOWELS, INSERTS, WATERSTOPS, ETC. PRIOR TO PLACING CONCRETE. CO-ORDINATE WITH ALL TRADES FOR EMBEDDING OF ALL OTHER, CONDUIT, SERVICES, BLOCKING, ETC.
- LOCATE AND FABRICATE ALL CONSTRUCTION JOINTS, CONTROL JOINTS AND EXPANSION JOINTS AS DETAILED ON THE DRAWINGS. JOINTS NOT SHOWN SHALL BE APPROVED BY THE DESIGN ENGINEER PRIOR TO THE PLACEMENT OF CONCRETE.
- WATERSTOP TO BE HYDROITTE CJ-0725-3K OR APPROVED ALTERNATE NON-BENTONITE WATERSTOP.
- THE CONCRETE SUPPLIER SHALL BE CERTIFIED TO MEET THE REQUIREMENTS OF CSA A23.1.
- THE CONCRETE SUPPLIER SHALL SUBMIT CONCRETE MIX DATA SUBMISSION FORMS FOR EACH TYPE OF CONCRETE SPECIFIED FOR REVIEW PRIOR TO BATCHING ANY CONCRETE.

SURVEY NOTES:

- REFER TO MUNICIPAL DWG LD-8596 FOR PROFILE.

REINFORCING STEEL:

- REINFORCING STEEL TO BE NEW DEFORMED BILLET STEEL BARS CONFORMING TO CSA G30.18 (LATEST). GRADE TO BE 400 MPa.
- REINFORCING STEEL SHALL BE CLEAN, FREE OF RUST, DIRT, LOOSE SCALE, OIL, GREASE OR ANY OTHER MATERIAL WHICH WOULD REDUCE BOND WITH THE CONCRETE.
- BEND ALL HORIZONTAL REINFORCING 305mm AROUND CORNERS OR PROVIDE ADDITIONAL 610mm X 610mm ANGLE BARS.
- TIE, SUPPORT AND SPACE ALL REINFORCING STEEL WITH PROPER APPROVED DEVICES DESIGNED FOR USE IN REINFORCED CONCRETE, TO PREVENT DISPLACEMENT OF REINFORCING AND ENSURE SPECIFIED CONCRETE COVER.
- PROVIDE MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:
FOUNDATION WALLS 50mm
CHAMBER ROOF SLAB (TOP) 50mm
CHAMBER ROOF SLAB (BOTTOM) 50mm
- CONTRACTOR SHALL SUBMIT REINFORCEMENT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.

CONCRETE MIX DESIGNS:

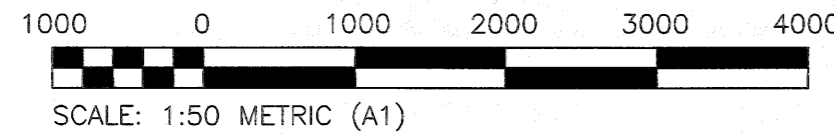
CONCRETE MIX DESIGN SHALL BE PROPORTIONED TO MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:

EXPOSURE CLASS	S-2
MIN. 56 DAY COMP. STRENGTH	32 MPa
CEMENT TYPE	HS
MAX. W/C RATIO	0.40
MAX. AGGREGATE SIZE	20mm
ENTRAINED AIR CONTENT	5% TO 8%
MAXIMUM SLUMP	80mm±20mm

ALUMINUM:

- ALUMINUM SHALL BE IN ACCORDANCE WITH CAN/CSA S517 AND THE ALUMINUM ASSOCIATION "SPECIFICATION FOR ALUMINUM STRUCTURES". ALUMINUM FOR PLATES AND EXTRUDED SHAPES SHALL BE TYPE 6061-T651.
- ALUMINUM WELDING SHALL BE IN ACCORDANCE WITH CSA W59.2 (LATEST) BY WELDERS CERTIFIED AND QUALIFIED IN ACCORDANCE WITH CSA W47.2 (LATEST). ALL WELDS TO BE 6mm UNLESS OTHERWISE NOTED.
- INSTALL NYLITE ELECTROCHEMICAL ISOLATION GASKETS TO ELECTRICALLY ISOLATE DISSIMILAR METALS (SUPPLIER: SPAENAUER).
- ALL ALUMINUM IN CONTACT WITH CONCRETE OR CAST INTO CONCRETE TO HAVE BITUMINOUS ISOLATION COATING.
- ALL NUTS, BOLTS AND WASHERS SHALL BE STAINLESS STEEL & TYPE 316. MEETING ASTM F593/F738M.

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ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
KGS Group
No. 245

LOCATION APPROVED UNDERGROUND STRUCTURES		B.M. KGS BASE ELEV. -	DWGS BASED ON C.S.R.S. NAD 83 SYSTEM, UTM GRID
SUPV. U/G STRUCTURES COMMITTEE	DATE		
NOTE: 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 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.			
NO.	ISSUED FOR CONSTRUCTION	18/08/17	CMS
NO.	REVISIONS	DATE	BY

KGS GROUP CONSULTING ENGINEERS	
DESIGNED BY: KR D	CHECKED BY: CMS
DRAWN BY: FBV	APPROVED BY: RBO
SCALE: AS NOTED	RELEASED FOR CONSTRUCTION: [Signature]
DATE: 13/10/16	DATE: 08-17-18

ENGINEER'S SEAL
PROVINCE OF MANITOBA
C.M. SIEPMAN
Member 20813
CONSULTANT DRAWING NO.
11-0107-18_S11-01

THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT
PROJECT TITLE
COCKBURN & CALROSSIE SEWER RELIEF WORKS
MANHOLE 11
MANHOLE/TRANSITION CHAMBER MH-01
PLAN & SECTION (STRUCTURAL)

SHEET OF	21 OF 22
COMPUTER FILE NAME	11-0107-18_S11-01
CITY DRAWING NUMBER	LD-8614

METRIC
DECIMALIZED NUMBERS INDICATE METRES
WHOLE NUMBERS INDICATE MILLIMETRES