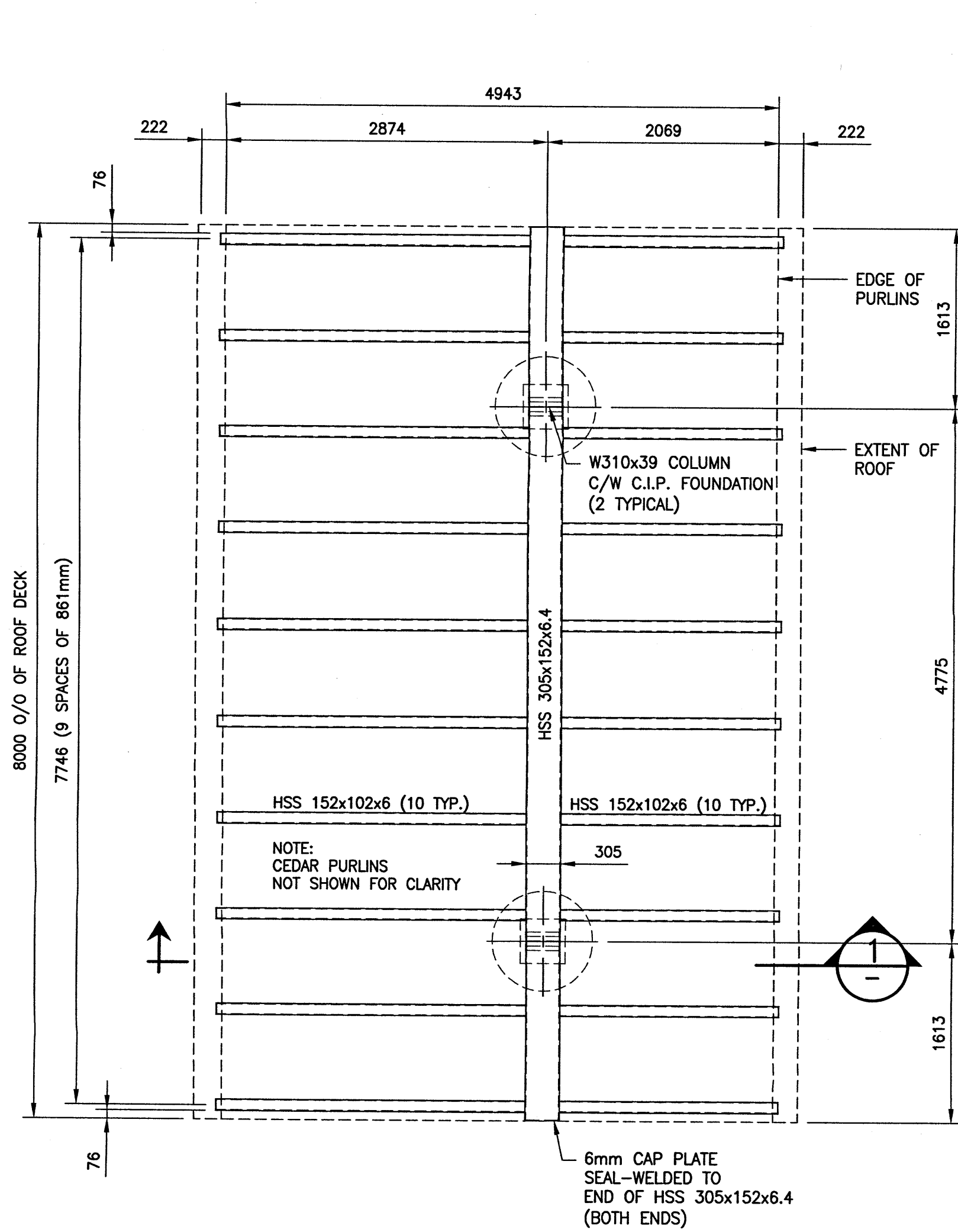
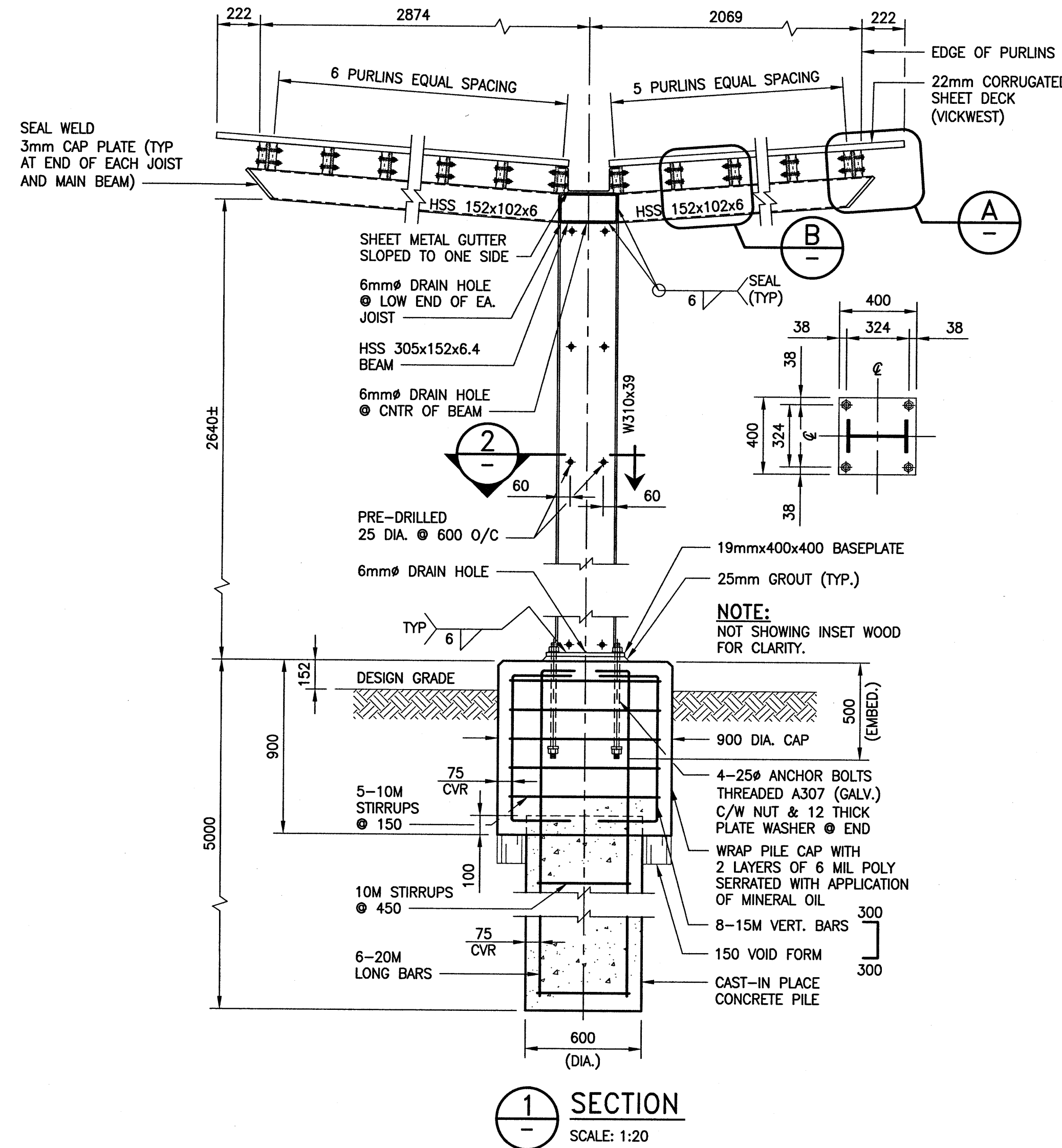


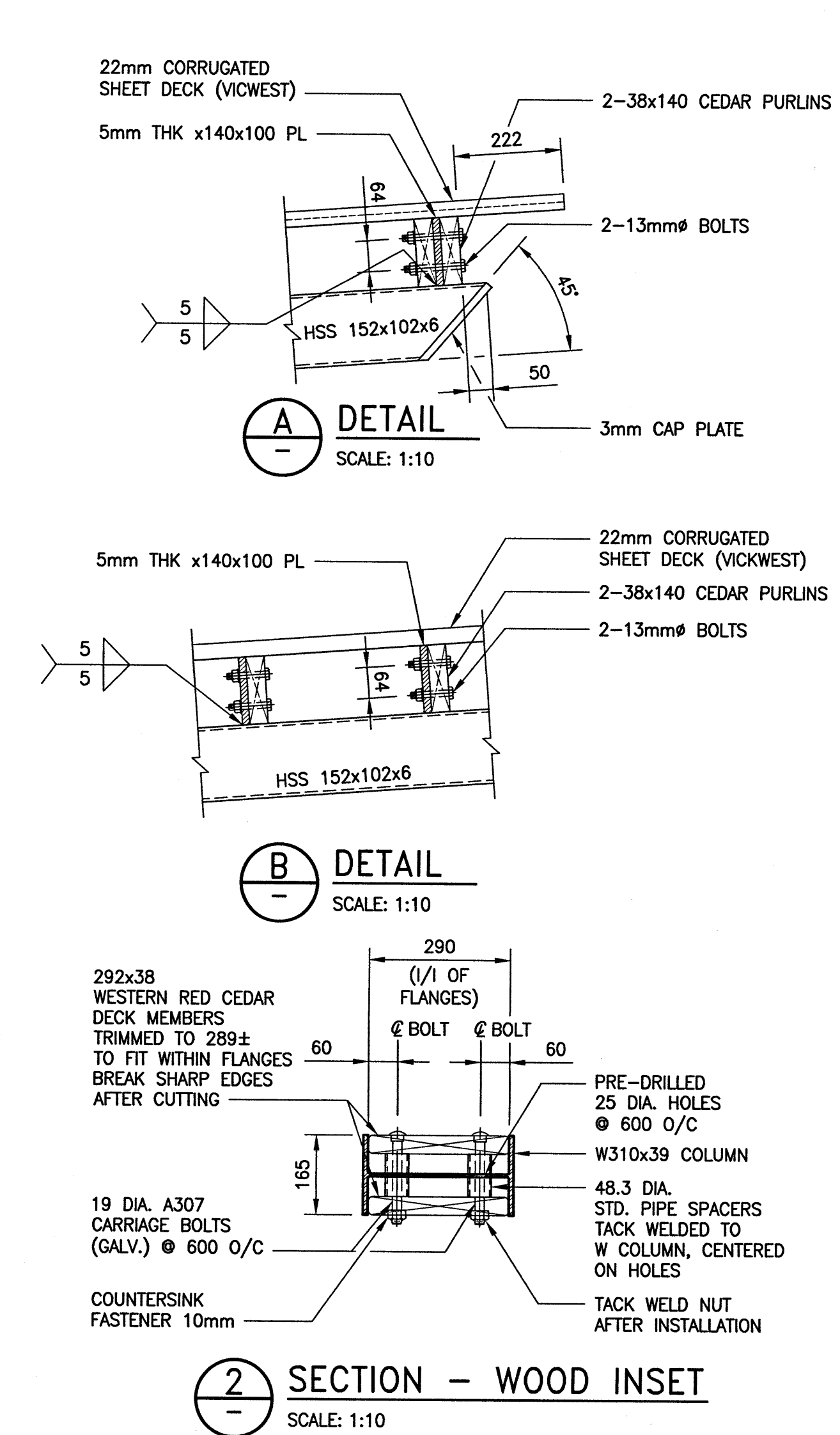
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SHADE STRUCTURE PLAN
SCALE: 1:40



SECTION 1
SCALE: 1:20



SECTION 2 - WOOD INSET
SCALE: 1:10

EXCAVATION & BACKFILL:

- REMOVE ALL FILL MATERIALS, DELETERIOUS SOILS AND ORGANICS IN AREAS REQUIRING GRANULAR BASE MATERIALS. COMPACT SUBGRADE TO 95% STANDARD PROCTOR DENSITY. SUB-EXCAVATE AND REPAIR ALL AREA EXHIBITING UNSUITABLE DEFLECTIONS.
- GRANULAR BASE TO BE PLACED ON GRADE SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY IN MAXIMUM 150mm LIFTS.
- DO NOT COMPACT FROZEN BACKFILL OR PLACE ON FROZEN SUBGRADE.

FOUNDATIONS (C.I.P. CONCRETE PILES):

- FOUNDATIONS SHALL BE CAST-IN-PLACE CONCRETE FRICTION PILES AS SHOWN ON DRAWINGS.
- CONCRETE PILES HAVE BEEN DESIGNED FOR AN AVERAGE ALLOWABLE SKIN FRICTION VALUE OF 20kPa (SLS).
- INSTALLATION OF ALL CONCRETE PILES SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA, PRIOR TO PLACEMENT OF CONCRETE.
- THE PILING CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND SERVICES IN PILING AREA WHETHER SHOWN OR NOT. EXPOSE ALL SERVICES CLOSE TO PILING AS REQUIRED.
- PILES SHALL NOT BE MORE THAN 50mm OUT OF POSITION Laterally AT THE TOP AND NOT MORE THAN 2% OUT OF PLUMB.
- REINFORCE ALL PILES AS DETAILED ON THE DRAWINGS. REFER TO CONCRETE NOTES FOR CONCRETE REQUIREMENTS. INSTALL EACH PILE AS A CONTINUOUS POUR.
- VIBRATE TOP 4.5m OF CONCRETE IN ALL PILES.

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.
- SUBMIT SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, SPACINGS, LOCATIONS & QUANTITIES OF REINFORCING STEEL, BENDING & CUTTING SCHEDULES, SUPPORTING & SPACING DEVICES, ETC. FOR REVIEW PRIOR TO FABRICATION. DETAIL, FABRICATE AND PLACE REINFORCING IN ACCORDANCE WITH CSA A23.1 (LATEST), CSA A23.3 (LATEST) AND ACI SP-66 (LATEST) UNLESS NOTED. LAP STEEL 36 BAR DIAMETERS (MINIMUM) UNLESS NOTED.
- 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.

CONCRETE MIX DESIGNS:

CONCRETE MIX DESIGN SHALL BE PROPORTIONED TO MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:	
PILES:	75mm
EXPOSURE CLASS	S-2
MIN. 28 DAY COMP. STRENGTH	30 MPa
MIN. 56 DAY COMP. STRENGTH	32 MPa
CEMENT TYPE	HS
MAX. W/C RATIO	0.45
MAX. AGGREGATE SIZE	20mm
ENTRAINED AIR CONTENT	4%-7%

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.
- CAST-IN-PLACE ANCHOR BOLTS SHALL MEET REQUIREMENTS OF ASTM A307 (LATEST).
- ADHESIVE ANCHORS SHALL BE HILTI HY150 HAS RODS OR APPROVED EQUAL, UNLESS NOTED. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

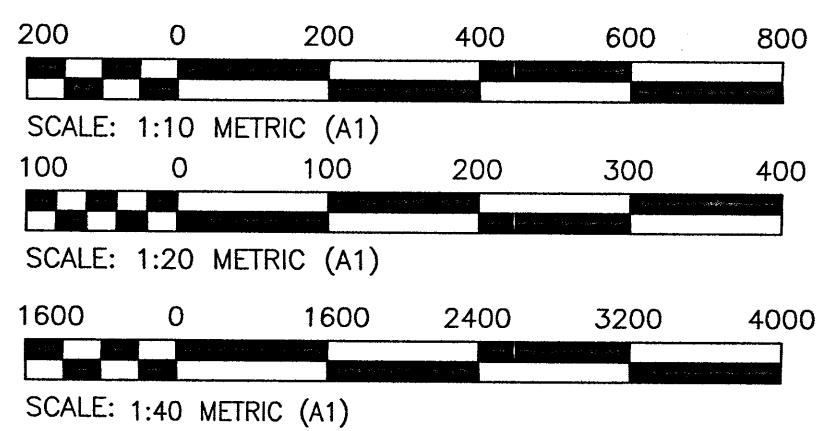
- THE CONCRETE SUPPLIER SHALL BE CERTIFIED TO MEET THE REQUIREMENTS OF CSA A23.1.
- THE CONCRETE SUPPLIER SHALL SUBMIT CONCRETE MIX DATA SUBMISSION FORMS FOR EACH TYPE OF CONCRETE SPECIFIED FOR REVIEW PRIOR TO BATCHING ANY CONCRETE.

STRUCTURAL AND MISCELLANEOUS STEEL:

- STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH CAN/CSA S16 (LATEST).
- STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF CAN/CSA G40.20/G40.21 (LATEST).

ROLLED W-SHAPES	CSA G40.21-350W
ROLLED SHAPES & PLATES	CSA G40.21-300W
HSS SECTIONS	CSA G40.21-350W CLASS C
STANDARD PIPE	ASTM A53
COLD FORMED STEEL	CSA S136
ANCHOR BOLTS (GALV.)	ASTM A307
BOLTS, NUTS, & WASHERS	ASTM A325
WELDING ELECTRODES	CSA W48.1
- WELDING SHALL BE IN ACCORDANCE WITH CSA W59 (LATEST), BY WELDERS CERTIFIED AND QUALIFIED IN ACCORDANCE WITH CSA W47.1 (LATEST). ALL WELDS TO BE 6mm UNLESS NOTED OTHERWISE.
- FIELD CONNECTIONS SHALL BE BOLTED 19mm DIAMETER A325 BEARING TYPE UNLESS NOTED OTHERWISE. BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH CSA S16 (LATEST).

- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.
- STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FINISHED AS INDICATED BELOW, UNLESS OTHERWISE NOTED, OR APPROVED EQUAL:
EXTERIOR STEEL GALVANIZED PAINT SYSTEM
 - SURFACE PREP. TO SP7 (BRUSH OFF CLEANING)
 - ONE PRIME COAT DEVRAN 201 EPOXY POLYAMIDE (3 MIL DFT.)
 - ONE FINISH COAT DEVTHANE 379 ACRYLIC POLYURETHANE (3 MIL DFT.)
GALVANIZED STEEL
 - SURFACE PREP. TO SP8 (PICKLING)
 - HOT DIPPED GALVANIZED TO ASTM A123-13
 - STRUCTURAL STEEL - CHARCOAL GREY (COLOR SWITCH TO BE SUBMITTED TO CONTRACT ADMINISTRATOR PRIOR TO FABRICATION.)
- COLOR OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE AS FOLLOWS:
 - STRUCTURAL STEEL - CHARCOAL GREY (COLOR SWITCH TO BE SUBMITTED TO CONTRACT ADMINISTRATOR PRIOR TO FABRICATION.)
- PAINTED SURFACES OF EXISTING STEEL SHALL BE GROUND SMOOTH TO BARE METAL PRIOR TO FIELD WELDING.
- HEAT STRAIGHTENING PROCEDURE SHALL BE APPROVED BY A WELDING ENGINEER AND BE SUBMITTED PRIOR TO REPAIR OF BENT MEMBERS.



METRIC
DECIMALIZED NUMBERS INDICATE METRES
WHOLE NUMBERS INDICATE MILLIMETRES

APEGM
Certificate of Authorization
KGS Group
No. 245

LOCATION APPROVED UNDERGROUND STRUCTURES
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.

KGS GROUP
CONSULTING ENGINEERS

B.M. KGS BASE ELEV. -	DWGS BASED ON C.S.R.S. NAD 83 SYSTEM, UTM GRID
DESIGNED BY: KR D	CHECKED BY: CMS
DRAWN BY: FBV	APPROVED BY: RBD
SCALE: AS NOTED	RELEASED FOR CONSTRUCTION: 17/07/13
NO. REVISIONS	DATE BY
0	17/07/13 KR D
1	16/06/29

ENGINEER'S SEAL
C.M.J. SIEPMAN
Member 20813
REGISTERED PROFESSIONAL ENGINEER

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
PROJECT TITLE: COCKBURN/CALROSSIE COMBINED SEWER RELIEF WORKS
STORMWATER RETENTION BASIN
PARK SHADE STRUCTURE
GENERAL ARRANGEMENT
PLANS, SECTIONS AND DETAILS

CONSULTANT DRAWING NO.
11-0107-18_S307

SHEET OF
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COMPUTER FILE NAME
11-0107-18_S307
CITY DRAWING NUMBER
LD-8231