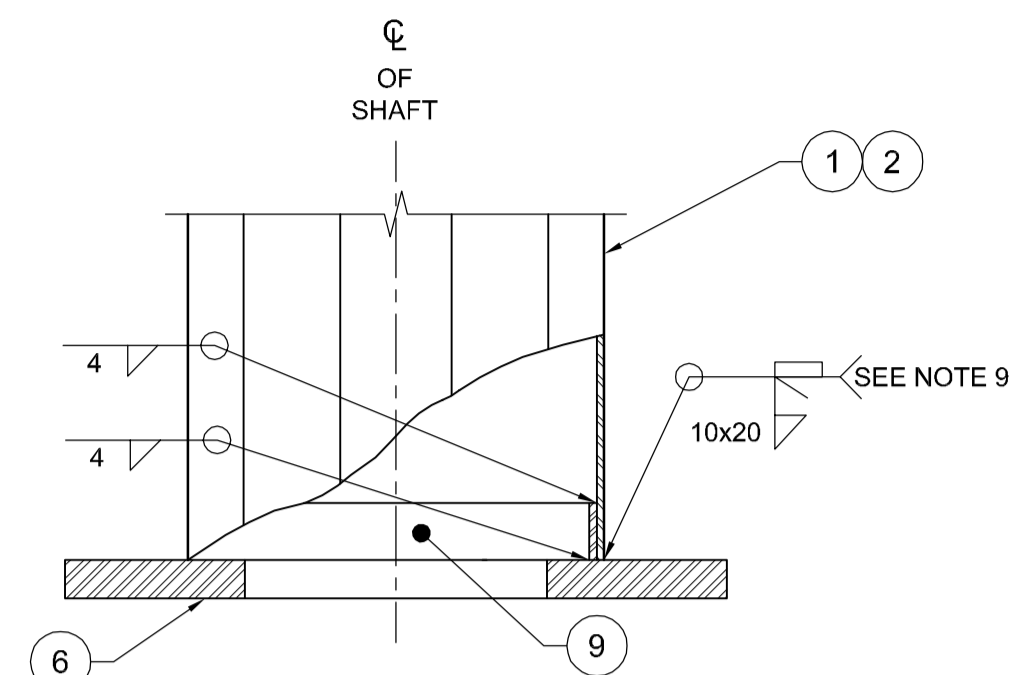
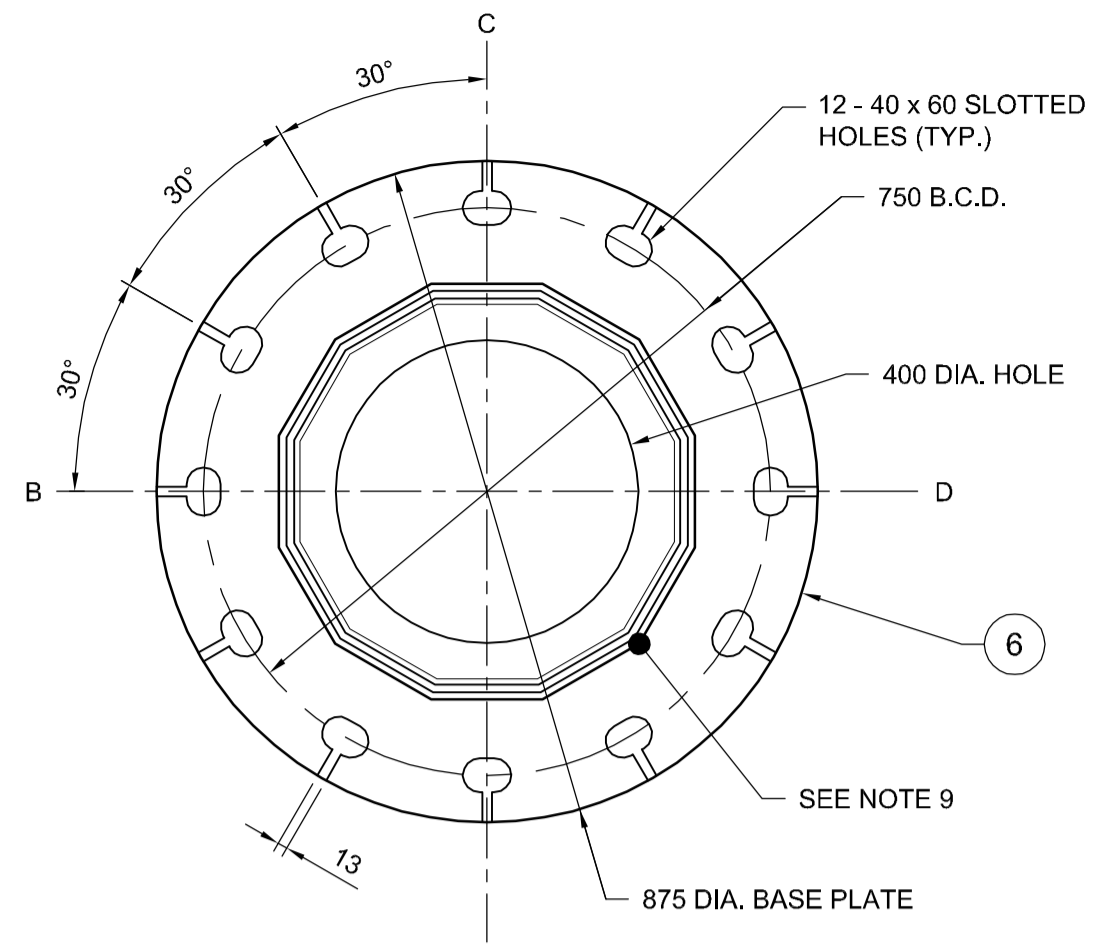


ELEVATION
1:75

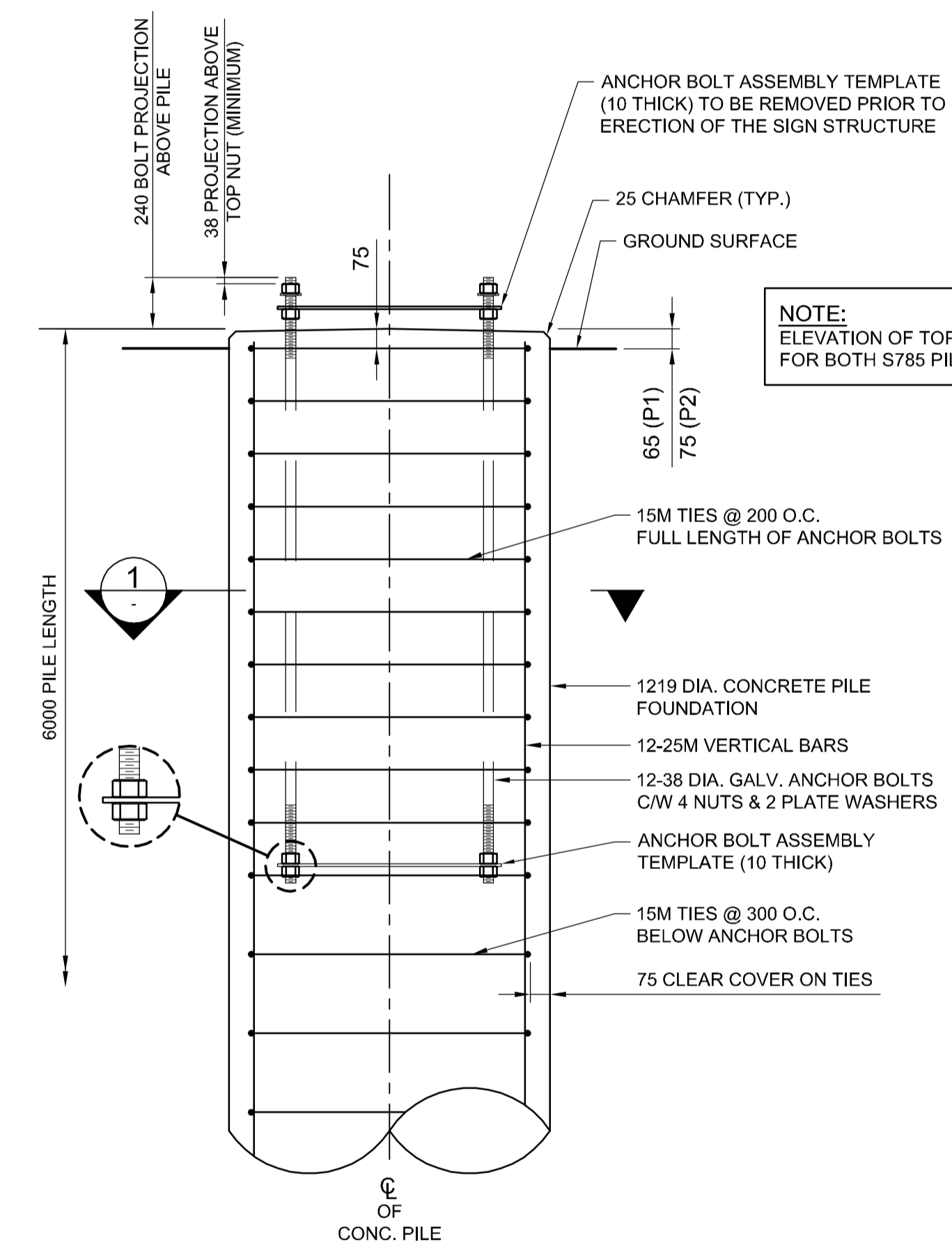
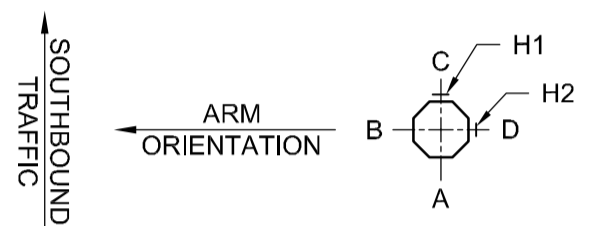
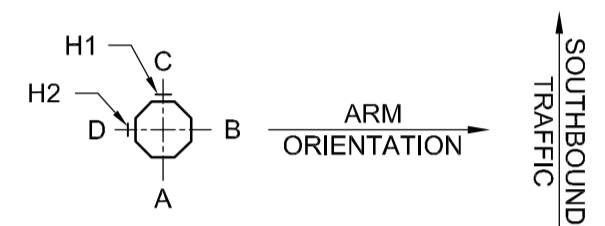


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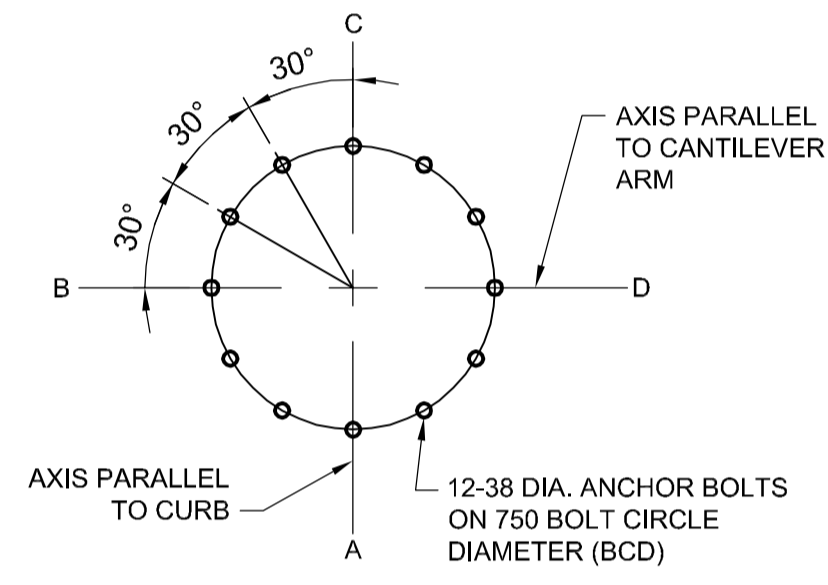
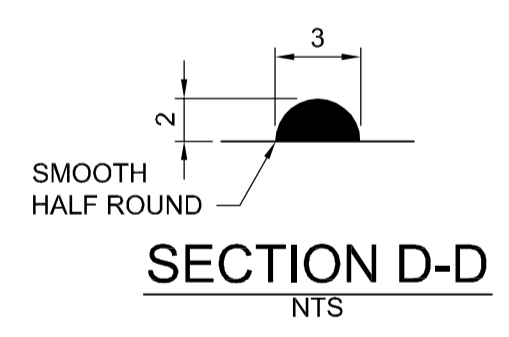
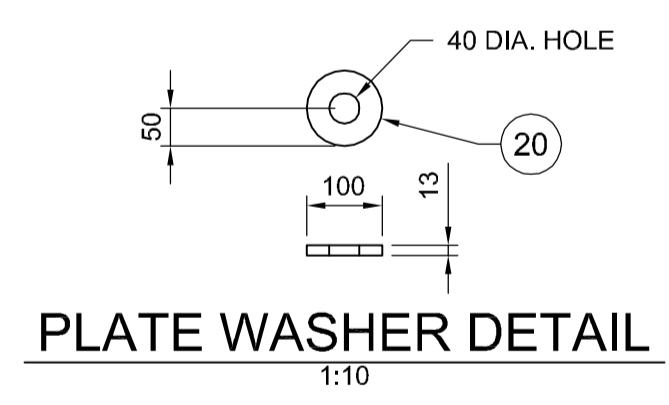
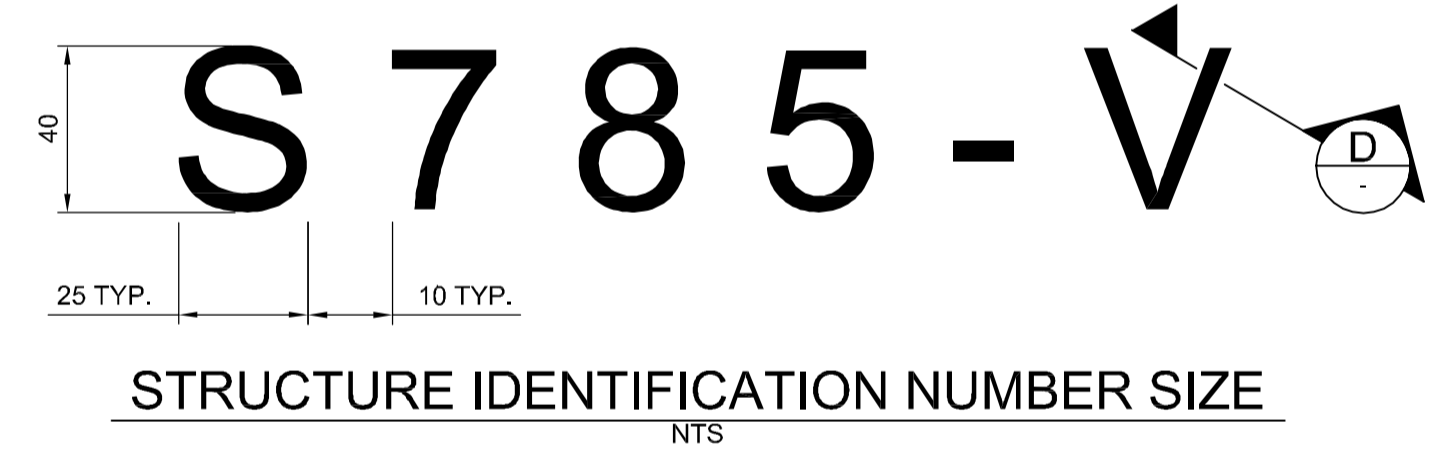


PLAN

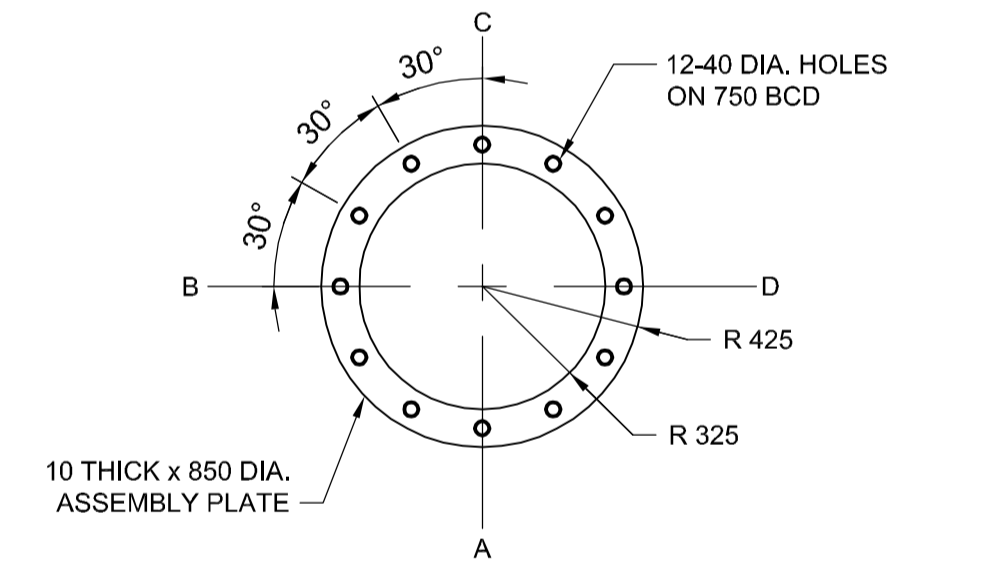
BASE PLATE DETAIL
1:10
TYPICAL BOTH LEGS



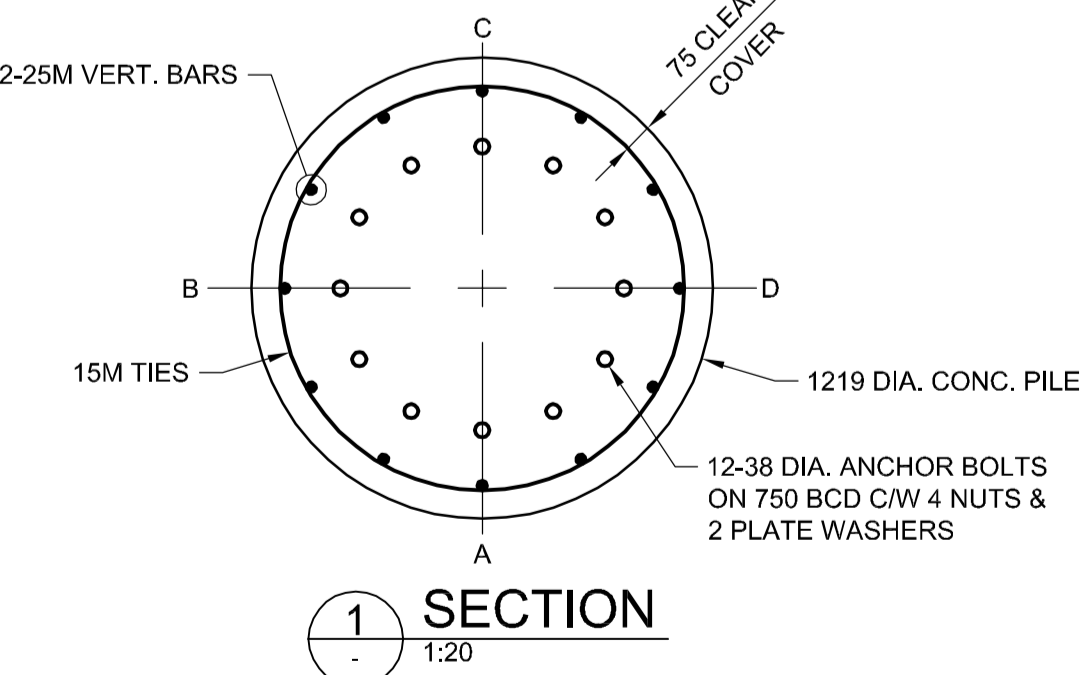
CONCRETE PILE FOUNDATION DETAIL FOR S785
1:20



ANCHOR BOLTS LAYOUT
1:20



ANCHOR BOLT ASSEMBLY TEMPLATE
1:20



SECTION 1
1:20

PILE CONSTRUCTION NOTES

- REINFORCING STEEL**
 - CSA G30.18 GR. 400W
 - VERTICAL BARS FULL LENGTH OF PILE
 - HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A767
- ANCHOR BOLTS**
 - ASTM F1554 GR.55 (380 MPa)
 - 12-38 DIA. ANCHOR BOLTS 2.0m LONG
 - EACH BOLT C/W 4 NUTS & 2 PLATE WASHERS (SEE PLATE WASHER DETAIL FOR MK. 20)
 - TOP 300 THREADED UNC CLASS 2A
 - BOTTOM 100 THREADED UNC CLASS 2A
 - HOT DIP GALVANIZED FULL LENGTH, IN ACCORDANCE WITH ASTM A153 CLASS C
 - B.C.D. = BOLT CIRCLE DIAMETER TO CENTRE OF BOLT GROUP
 - ANCHOR BOLTS SHALL BE ALIGNED WITH TEMPORARY STEEL TEMPLATES. PLACEMENT OF ANCHOR BOLTS AND CONCRETE WITHOUT THE TEMPLATES WILL NOT BE PERMITTED.
 - CONTRACTOR SHALL REMOVE THE TOP ANCHOR BOLT SETTING TEMPLATE, NUTS AND FORM, FOLLOWING A MINIMUM 24 HOUR CONCRETE CURING PERIOD.
 - FOLLOWING INSTALLATION OF THE STEEL STRUCTURE, TIGHTEN THE LOWER LEVELING NUTS AND UPPER ANCHOR NUTS TO A SNUG-TIGHT CONDITION, FOLLOWED BY 1/3 NUT ROTATION (+20/-0) OF THE UPPER ANCHOR NUTS.
 - ANCHOR BOLTS SHALL BE TIGHTENED USING A STAR PATTERN TIGHTENING SEQUENCE.

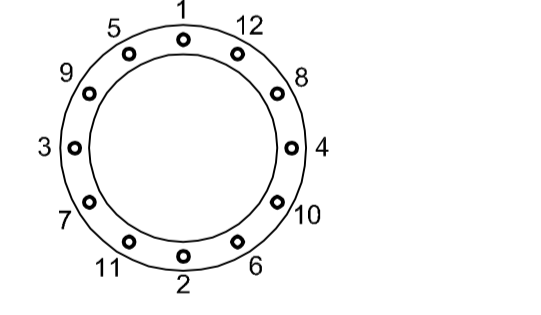
3. FORM TOP OF PILE WITH A TUBULAR FORM (SONOTUBE):

- 1m FOR DRILLED SHAFTS
- 1.5m FOR HYDRO-EXCAVATED SHAFTS

4. CONCRETE MIX DESIGN

PROPORTIONING OF FINE AGGREGATE, COARSE AGGREGATE, CEMENT, WATER, AND AIR ENTRAINING AGENT SHALL BE SUCH AS YIELD CONCRETE HAVING THE REQUIRED STRENGTH AND WORKABILITY AS FOLLOWS:

- CLASS OF EXPOSURE: S-1
- MINIMUM COMPRESSIVE STRENGTH AT 56 DAYS = 35 MPa
- MAXIMUM WATER/CEMENT RATIO = 0.40
- AIR CONTENT: CATEGORY 2 PER TABLE 4 OF CSA A23.1-14 (4-7%)
- CEMENT IN ACCORDANCE WITH CSA A23.1-14



METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

WARNING

IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST:

- NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.
- TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS SEE PROVINCIAL REGULATION 210/72 FOR DETAILS.
- OBTAIN EXCAVATION PERMITS PRIOR TO CONSTRUCTION.

#8 - 1/2" LONG SS SELF-TAPPING SCREW C/W SS WASHER AT 200 O/C, FULL CIRCUMFERENCE OF BASE PLATE

#8 - 3/8" LONG SS SELF-TAPPING SCREW C/W SS NUT, 2 FLAT SS WASHERS, AND SS LOCK WASHER AT BOTTOM OF RODENT SCREEN SPLICE LAP

1/2" - 18F STAINLESS STEEL RODENT SCREEN FASTENED WITH SELF TAPPING SCREWS. SEE SPECIFICATIONS FOR DETAILS.

PILE TOP DETAIL
1:10



DESIGNED BY: DRA		CHECKED BY: SSR	
DRAWN BY: MDG		APPROVED BY: DBW	
HOR. SCALE: AS SHOWN		RELEASED FOR CONSTRUCTION	
VERTICAL: AS SHOWN			
0	ISSUED FOR TENDER	17/01/09	DA
NO.	REVISIONS	DATE	BY

ENGINEER'S SEAL
PROVINCE OF MANITOBA
D.R.C. AMORIM
Member 33215
REGISTERED PROFESSIONAL ENGINEER
CONSULTANT PROJECT NUMBER
16-3353

THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT
Winnipeg
WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB
CONTRACT 2: UNDERPASS STRUCTURE, RAILWORKS,
ROADWORKS, LAND DRAINAGE SEWER, PUMPING STATION
AND LANDSCAPING WORKS
CITY DRAWING NUMBER
U-239-2016-C2-CS-080
SHEET 080 OF 085
CONSULTANT DRAWING NUMBER
C2-CS-080

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