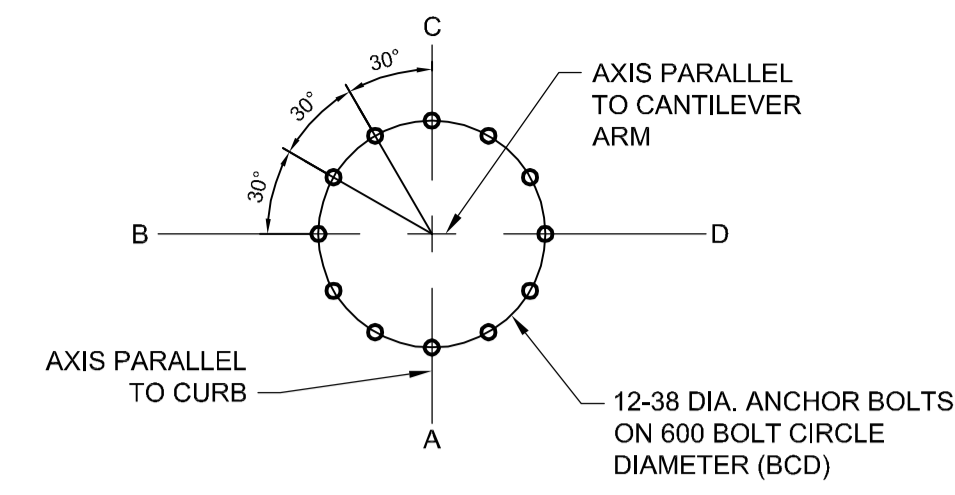
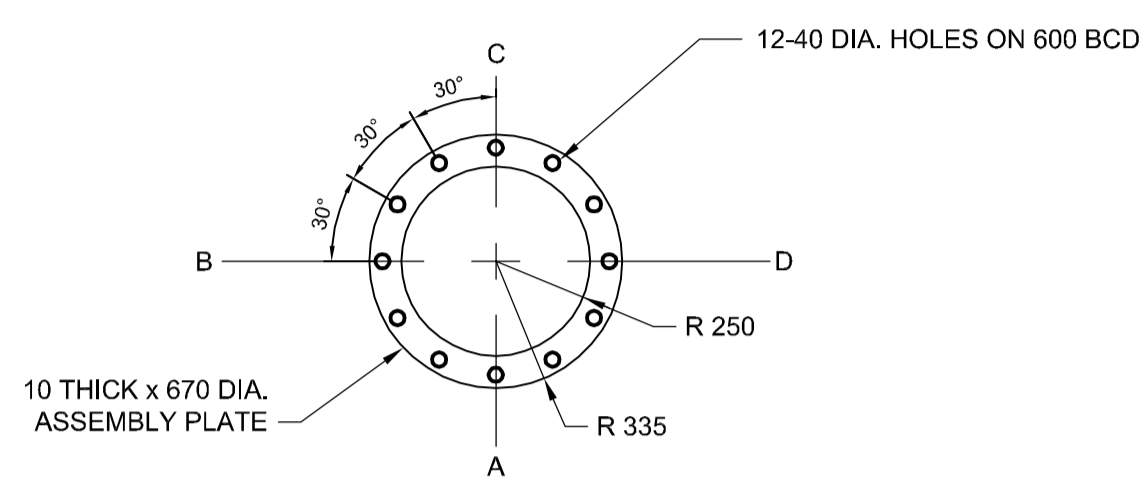


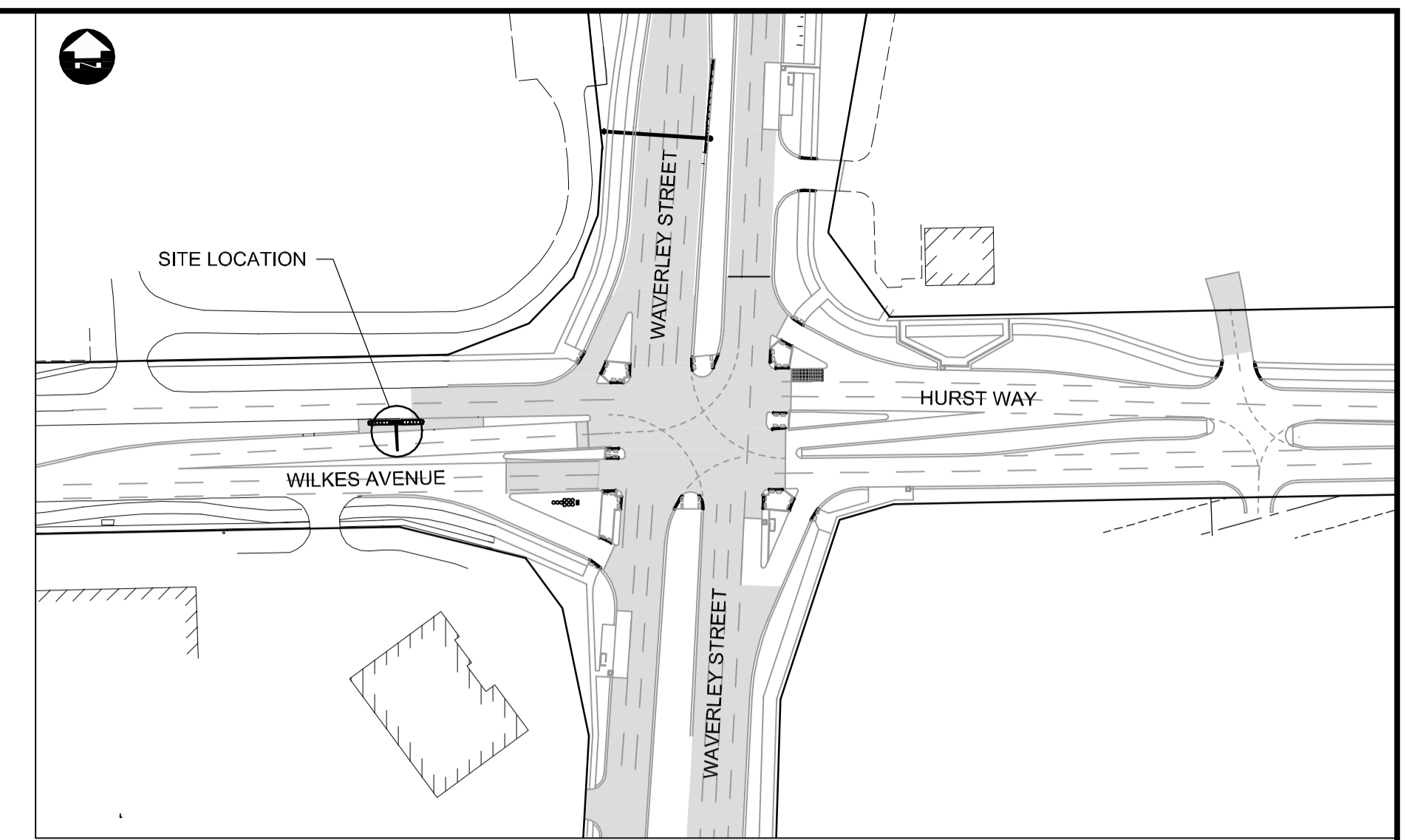
**SITE PLAN**  
SCALE 1:250



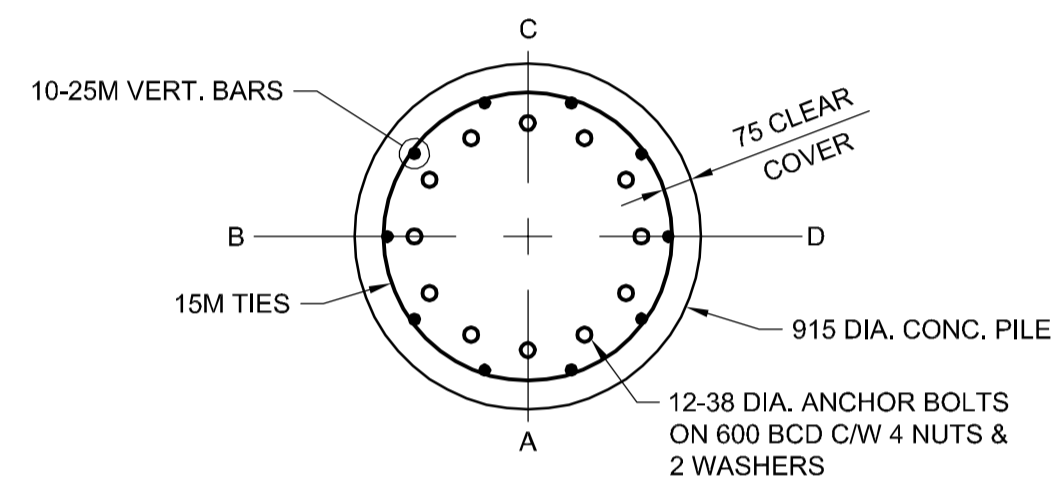
**ANCHOR BOLTS LAYOUT**  
1:20



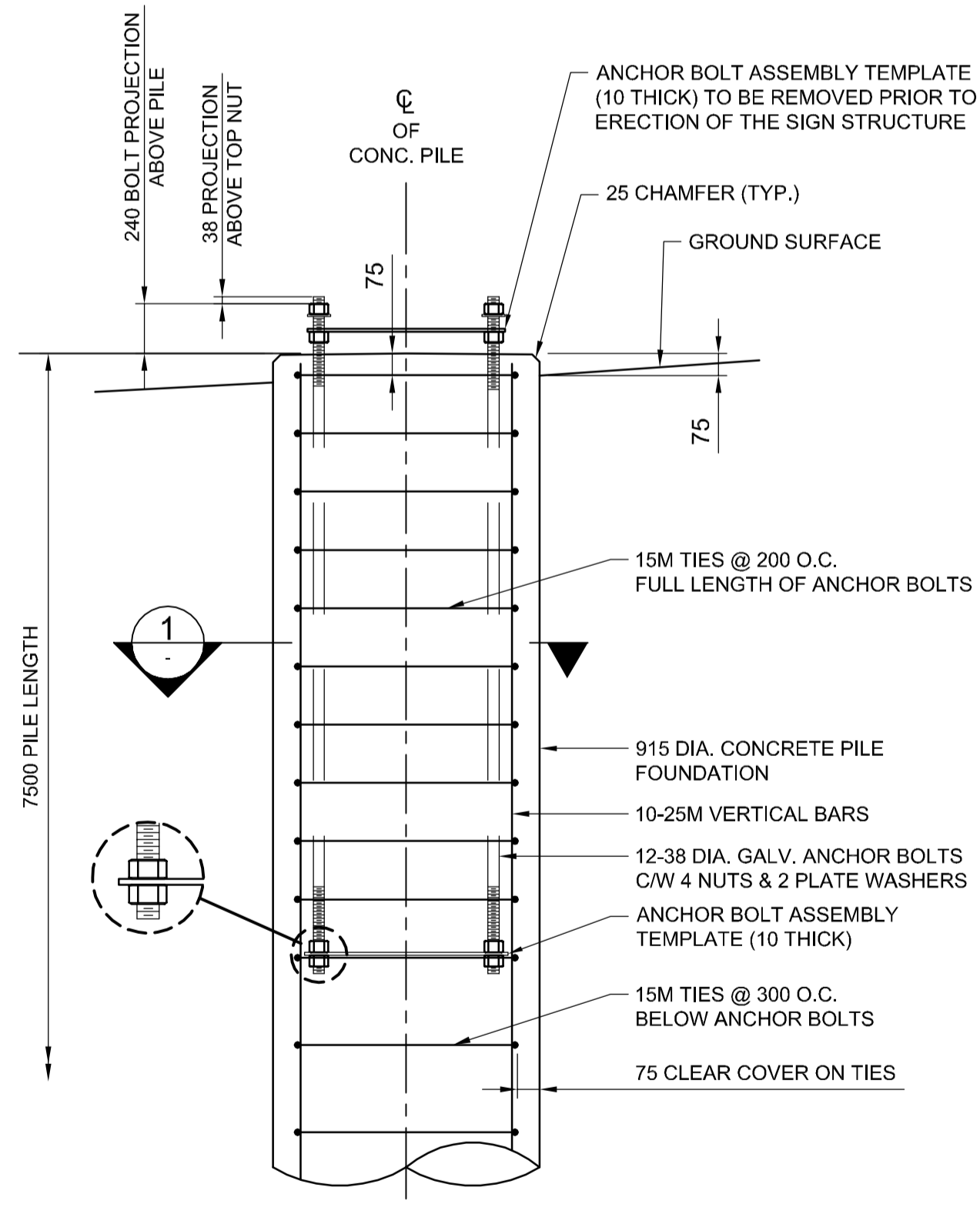
**ANCHOR BOLT ASSEMBLY TEMPLATE**  
1:20



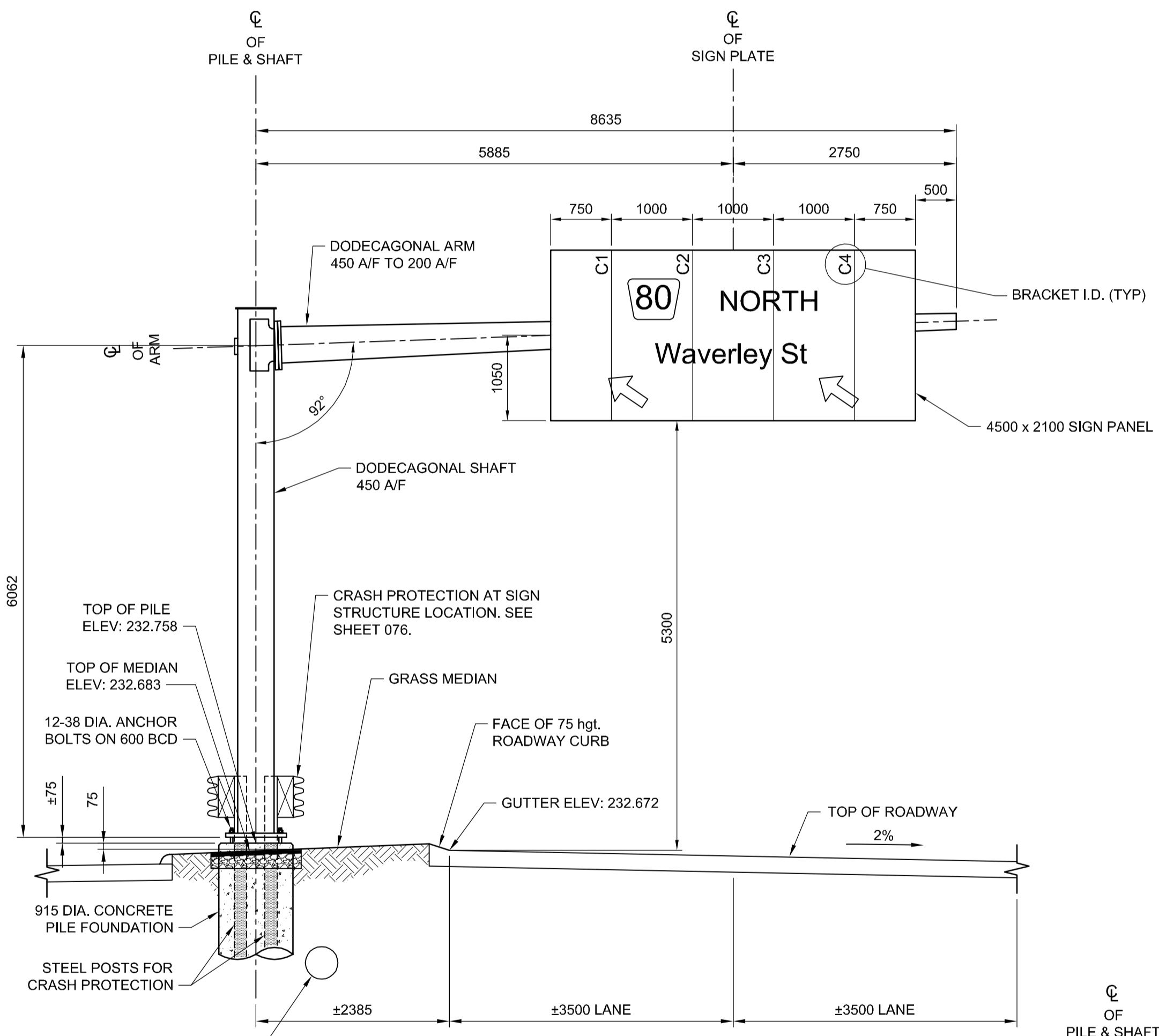
**KEY PLAN**  
SCALE 1:1500



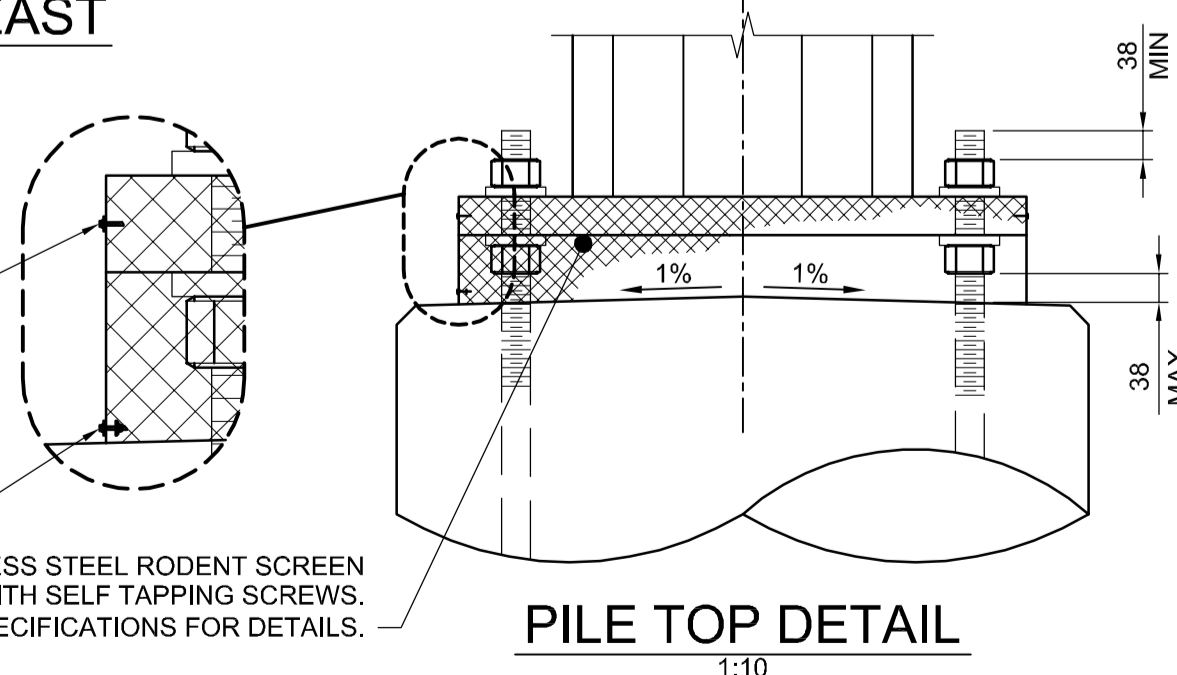
**SECTION 1**  
1:20



**CONCRETE PILE FOUNDATION DETAIL FOR S783**  
1:20



**S783 ELEVATION - LOOKING EAST**  
1:50



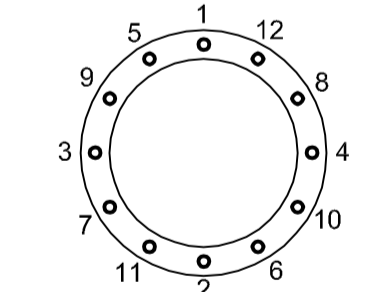
**PILE TOP DETAIL**  
1:10

**NOTE:**  
ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ALL ELEVATIONS PRIOR TO INSTALLATION OF CONCRETE PILE FOUNDATION.

- #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 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)
  - 8-38 DIA. ANCHOR BOLTS 2.0m LONG
  - EACH BOLT C/W 4 NUTS & 2 PLATE WASHERS (SEE PLATE WASHER DETAIL FOR MK. 14)
  - 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.



- FORM TOP OF PILE WITH A TUBULAR FORM (SONOTUBE):**
  - 1m FOR DRILLED SHAFTS
  - 1.5m FOR HYDRO-EXCAVATED SHAFTS

- 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:

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

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

CENTRE OF PILE LAYOUT TABLE				
STRUCTURE	STATION	O/S	NORTHING	EASTING
S783	1+120.939	11.24	5523201.411	630814.669

**APEGM**  
Certificate of Authorization  
Dillon Consulting Limited (MB)  
No. 1789 Date: 2017/01/09

NO.	REVISIONS	DATE	BY	DATE
0	ISSUED FOR TENDER	17/01/09	DA	

DESIGNED BY: DRA  
DRAWN BY: MDG  
HOR. SCALE: AS SHOWN  
VERTICAL: AS SHOWN

CHECKED BY: SSR  
APPROVED BY: DBW  
RELEASED FOR CONSTRUCTION: DATE

**THE CITY OF WINNIPEG**  
PUBLIC WORKS DEPARTMENT

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-074  
Sheet: 074 of 085  
Consultant Drawing Number: C2-CS-074

16-3353

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