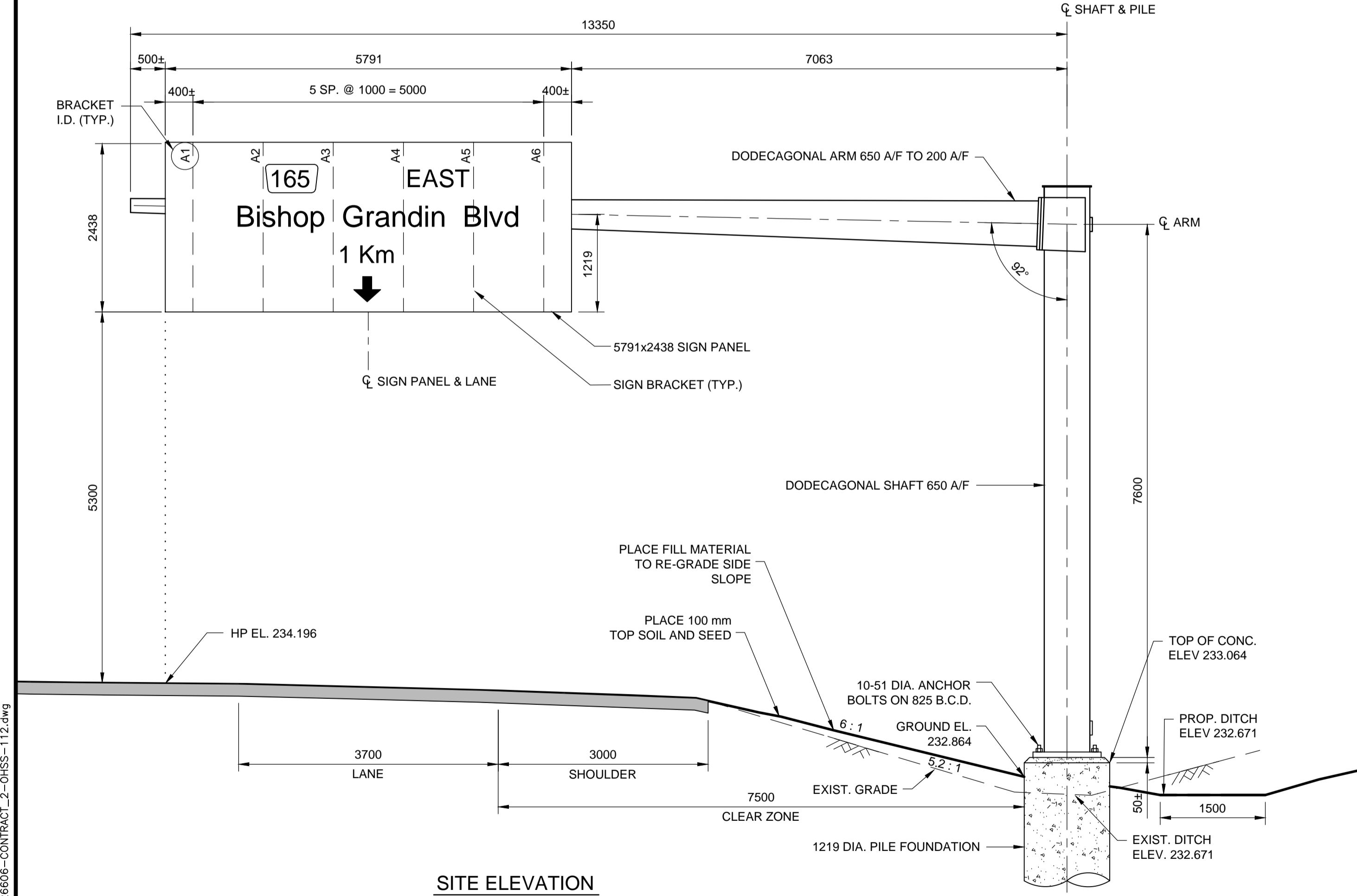
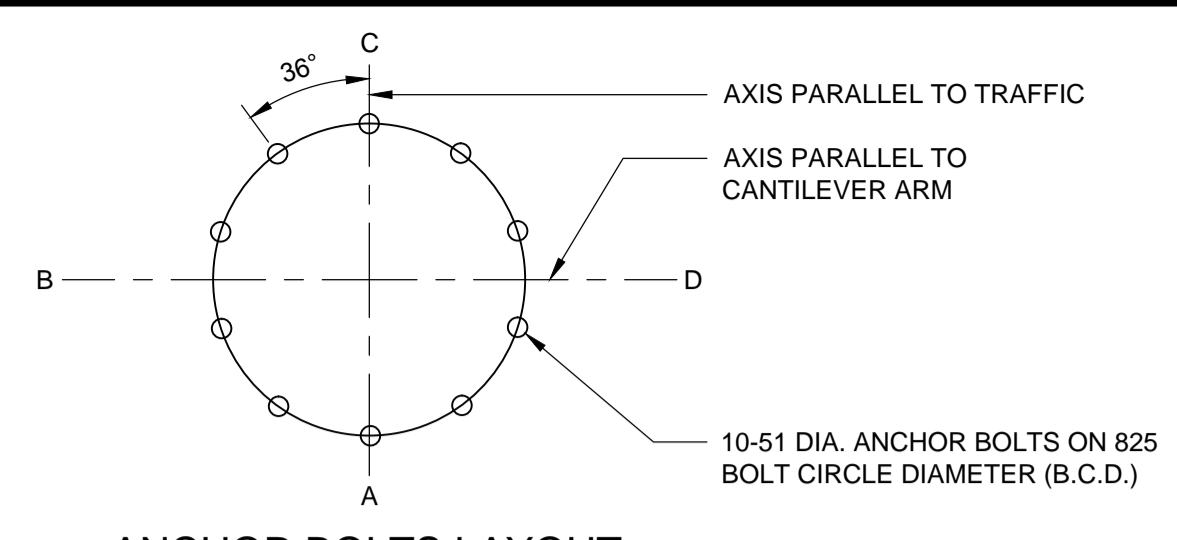


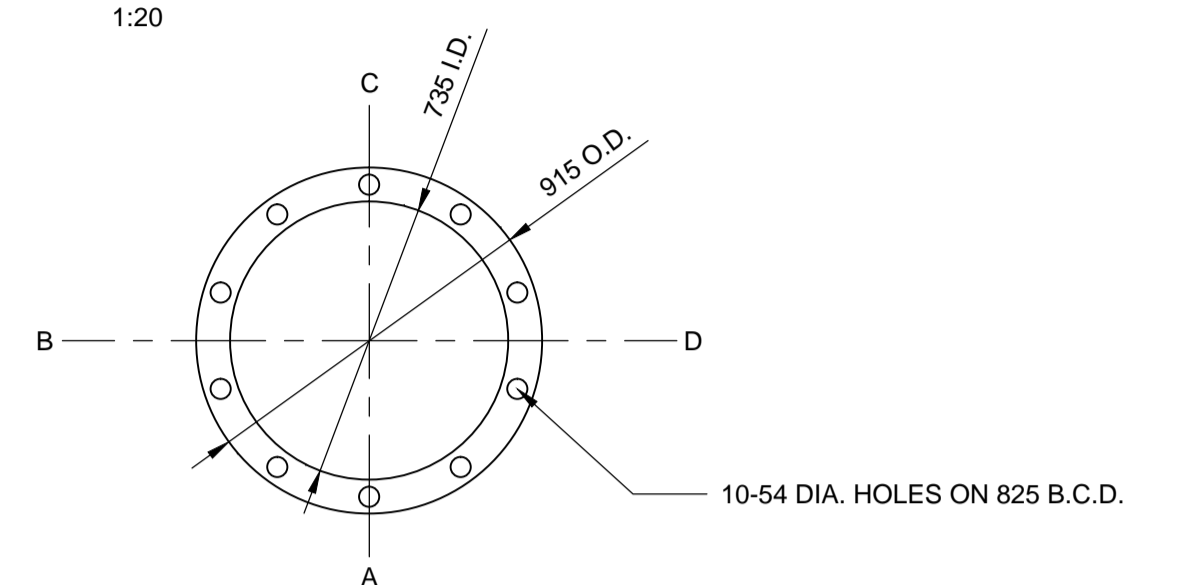
**SITE PLAN**  
1:250



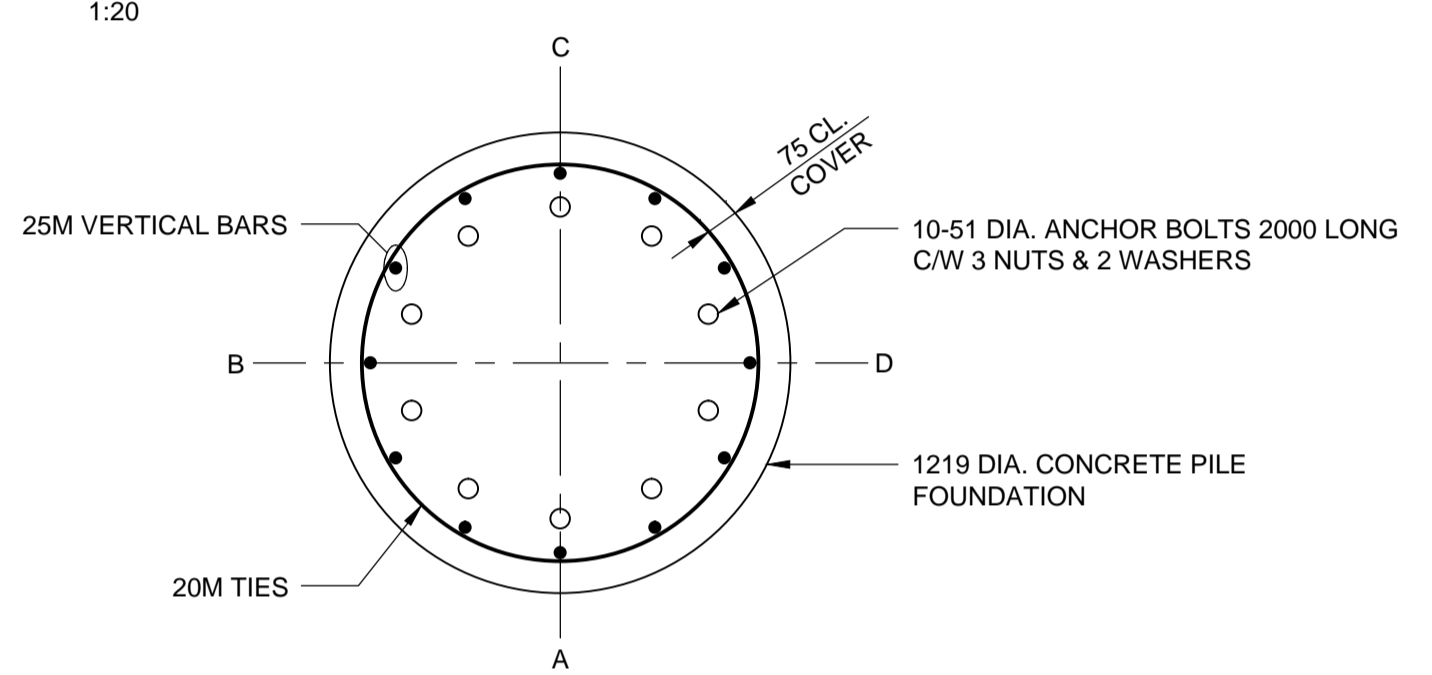
**SITE ELEVATION**  
1:50 OVERHEAD SIGN SUPPORT STRUCTURE NO. S771



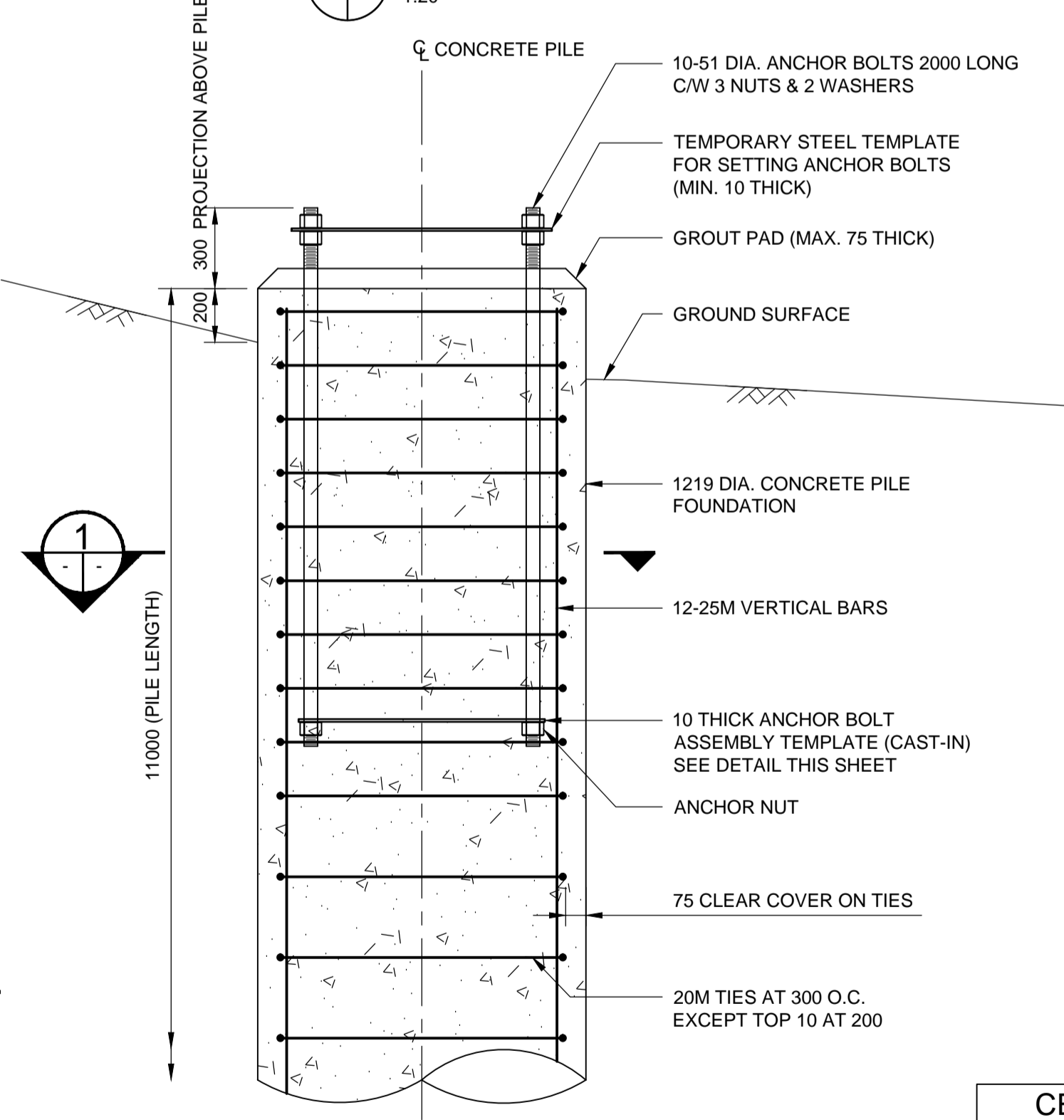
**ANCHOR BOLTS LAYOUT**  
1:20



**LOWER ANCHOR BOLT ASSEMBLY TEMPLATE**  
1:20



**SECTION 1**  
1:20



**CONCRETE PILE FOUNDATION DETAIL FOR S771**  
1:20



**KEY PLAN**

**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)
  - 10-51 DIA. ANCHOR BOLTS 2000 LONG
  - EACH BOLT C/W 3 NUTS & 2 WASHERS
  - TOP 300 THREADED 4.5 UNC CLASS 2A
  - BOTTOM 100 THREADED 4.5 UNC CLASS 2A
  - HOT DIP GALVANIZED FULL LENGTH
  - B.C.D. = BOLT CIRCLE DIAMETER TO CENTRE OF BOLT GROUP
  - ANCHOR BOLTS SHALL BE ALIGNED WITH A TEMPORARY STEEL TEMPLATE. PLACEMENT OF ANCHOR BOLTS AND CONCRETE WITHOUT THE TEMPLATE WILL NOT BE PERMITTED.
  - FOLLOWING INSTALLATION OF THE STEEL STRUCTURE, TIGHTEN THE LOWER LEVELING NUTS AND UPPER ANCHOR NUTS TO A SNUG-TIGHT CONDITION, FOLLOWED BY 1/6 NUT ROTATION (+20°/-0°) OF THE UPPER ANCHOR NUTS.
- FORM TOP OF PILE WITH A TUBULAR FORM (SONOTUBE):**
  - 1m FOR DRILLED SHAFTS
  - 1.5m FOR HYDRO-EXCAVATED SHAFTS
- CONTRACTOR SHALL REMOVE THE ANCHOR BOLT SETTING TEMPLATE, NUTS AND FORM, FOLLOWING A MINIMUM 24 HOUR CONCRETE CURING PERIOD.**
- 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 A23.1-09 (4-7%)
  - v) CEMENT IN ACCORDANCE WITH CSA A23.1-09

**APEGM**  
Certificate of Authorization  
**Dillon Consulting Limited (MB)**  
No. 1789 Date: 2013/08/08

**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.
  - A MINIMUM VERTICAL SEPARATION OF 300 mm FROM GAS MAINS AND 100 mm FROM GAS SERVICE MUST BE MAINTAINED BETWEEN ANY MANITOBA HYDRO FACILITY AND ANY NEW INSTALLATIONS.
  - A MINIMUM 900 mm OF COVER SHALL BE MAINTAINED IN ALL AREAS WHERE EQUIPMENT WILL BE CROSSING, TRAVELING OR COMPACTING OVER THE HIGH PRESSURE GAS MAINS.
  - IF EQUIPMENT MUST CROSS, TRAVEL, OR COMPACT OVER THE GAS MAIN WITH LESS THAN THE MINIMUM DEPTH COVER, EARTH BRIDGING OR STEEL PLATES SHALL BE PLACED OVER THE MAIN AND EXTEND A MINIMUM OF 1.0 METRE ON EITHER SIDE AT EACH CROSSING LOCATION.

**CENTER OF PILE LAYOUT TABLE**

| STRUCTURE | STATION   | O/S    | NORTH       | EAST       |
|-----------|-----------|--------|-------------|------------|
| S771      | 0+370.884 | 15.473 | 5520135.543 | 629458.600 |

| 150 W.M. | WATERMAIN           | 150 W.M. | M.T.S.                            | M.T.S. | 150 mm W.M.   | WATERMAIN           | 150 mm W.M. |
|----------|---------------------|----------|-----------------------------------|--------|---------------|---------------------|-------------|
| +        | HYDRANT VALVE       | +        | CONCRETE ASPHALT PLANING SIDEWALK | +      | 300 mm L.D.S. | HYDRANT VALVE       | +           |
| +        | LAND DRAINAGE SEWER | +        | PAVING STONES                     | +      | 250 mm W.W.S. | LAND DRAINAGE SEWER | +           |
| +        | WASTE WATER SEWER   | +        | PROPERTY LINE                     | +      | 300 mm L.D.S. | WASTE WATER SEWER   | +           |
| +        | MANHOLE             | +        | SURVEY BAR                        | +      | 250 mm W.W.S. | MANHOLE             | +           |
| +        | CATCH BASIN         | +        | CURB RAMP                         | +      | 300 mm L.D.S. | CATCH BASIN         | +           |
| +        | TEST HOLES          | +        | DITCH                             | +      | 250 mm W.W.S. | TEST HOLES          | +           |
| +        | JUNCTIONS           | +        | SWALE                             | +      | 300 mm L.D.S. | JUNCTIONS           | +           |
| +        | CULVERT             | +        |                                   | +      | 250 mm W.W.S. | CULVERT             | +           |
| +        | 100 GAS             | +        |                                   | +      | 300 mm L.D.S. | 100 GAS             | +           |
| +        | EXISTING            | +        |                                   | +      | 250 mm W.W.S. | EXISTING            | +           |
| +        | LEGEND-PLAN         | +        |                                   | +      | 300 mm L.D.S. | LEGEND-PROFILE      | +           |
| +        | PROPOSED            | +        |                                   | +      | 250 mm W.W.S. | PROPOSED            | +           |

**UNDERGROUND STRUCTURES**

DESIGNED BY: CDW  
DRAWN BY: LFY  
CHECKED BY: SSR  
APPROVED BY: DPK

**DILLON CONSULTING**

**THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT**

WAVERLEY WEST ARTERIAL ROADS PROJECT (WWARP) PART 3 - CONTRACT 2  
ROUTE 90 TO ROUTE 165 OVERPASS (KENASTON BLVD.) AND ASSOCIATED WORKS

CITY DRAWING NUMBER: B242-13-113  
SHEET OF: 113 OF 128

CONSULTANT PROJECT NUMBER: 12-6606  
S771 - KENASTON BV SB AT STA: 0+370  
CONSULTANT DRAWING NUMBER: S771-2013-01