

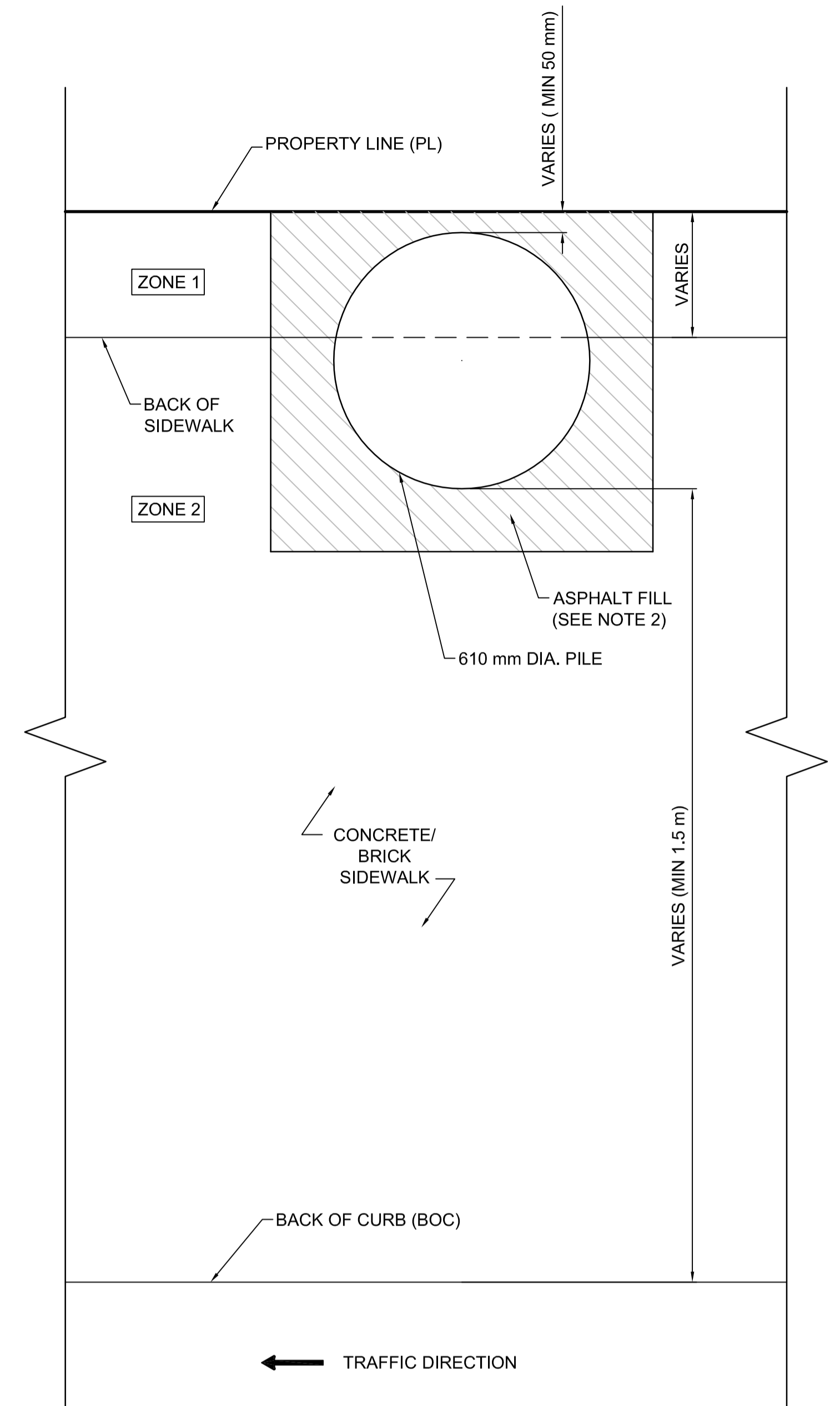
TYPICAL ELEVATION OF OHSS
1:50

PILE CONSTRUCTION NOTES

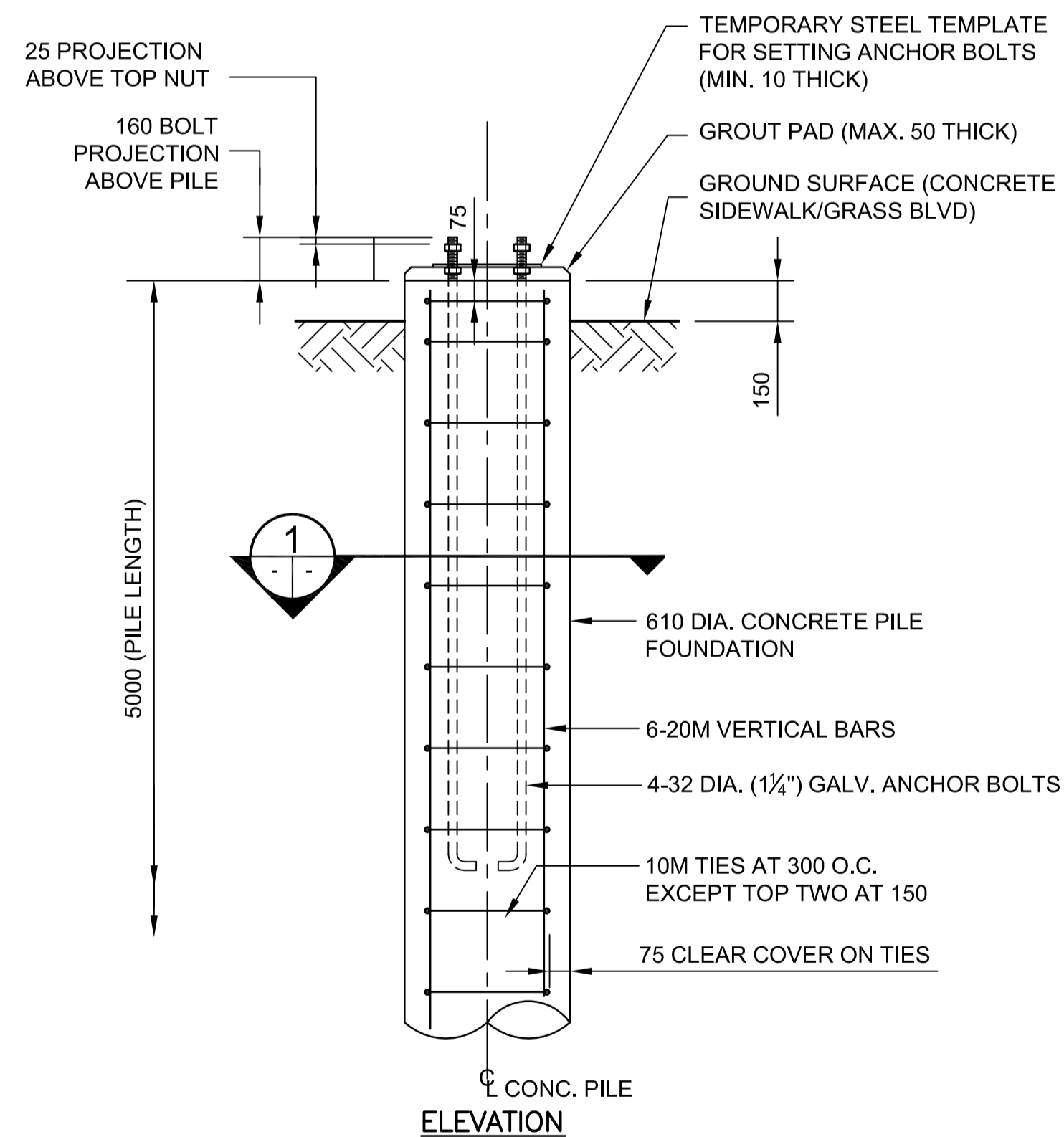
- REINFORCING STEEL**
 - CSA G30.12 GR. 400
 - VERTICAL BARS FULL LENGTH OF PILE
 - HOT DIP GALVANIZED
- ANCHOR BOLTS**
 - CSA G40.21 GR. 300W
 - 4-32 (1 1/4") DIA. x 1500 LONG + 150 HOOK
 - EACH BOLT C/W 2 NUTS & 2 WASHERS
 - TOP 300 THREADED
 - HOT DIP GALVANIZED FULL LENGTH
 - BCD = BOLT CIRCLE DIAMETER 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.
- TOP OF PILE SHALL BE FORMED WITH A TUBULAR FORM (SONOTUBE) AS FOLLOWS:
 - BORED PILES - MIN. 1000 mm BELOW FINAL GRADE
 - "HYDRO-JET EXCAVATED" PILES - MIN. 1500 mm BELOW FINAL GRADE
- CONTRACTOR SHALL REMOVE THE BASE TEMPLATE, NUTS AND FORM, FOLLOWING A MINIMUM 24 HOUR CONCRETE CURING PERIOD.
- CONCRETE**

CONCRETE MATERIAL SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES IN ACCORDANCE WITH CSA A23.1-04:

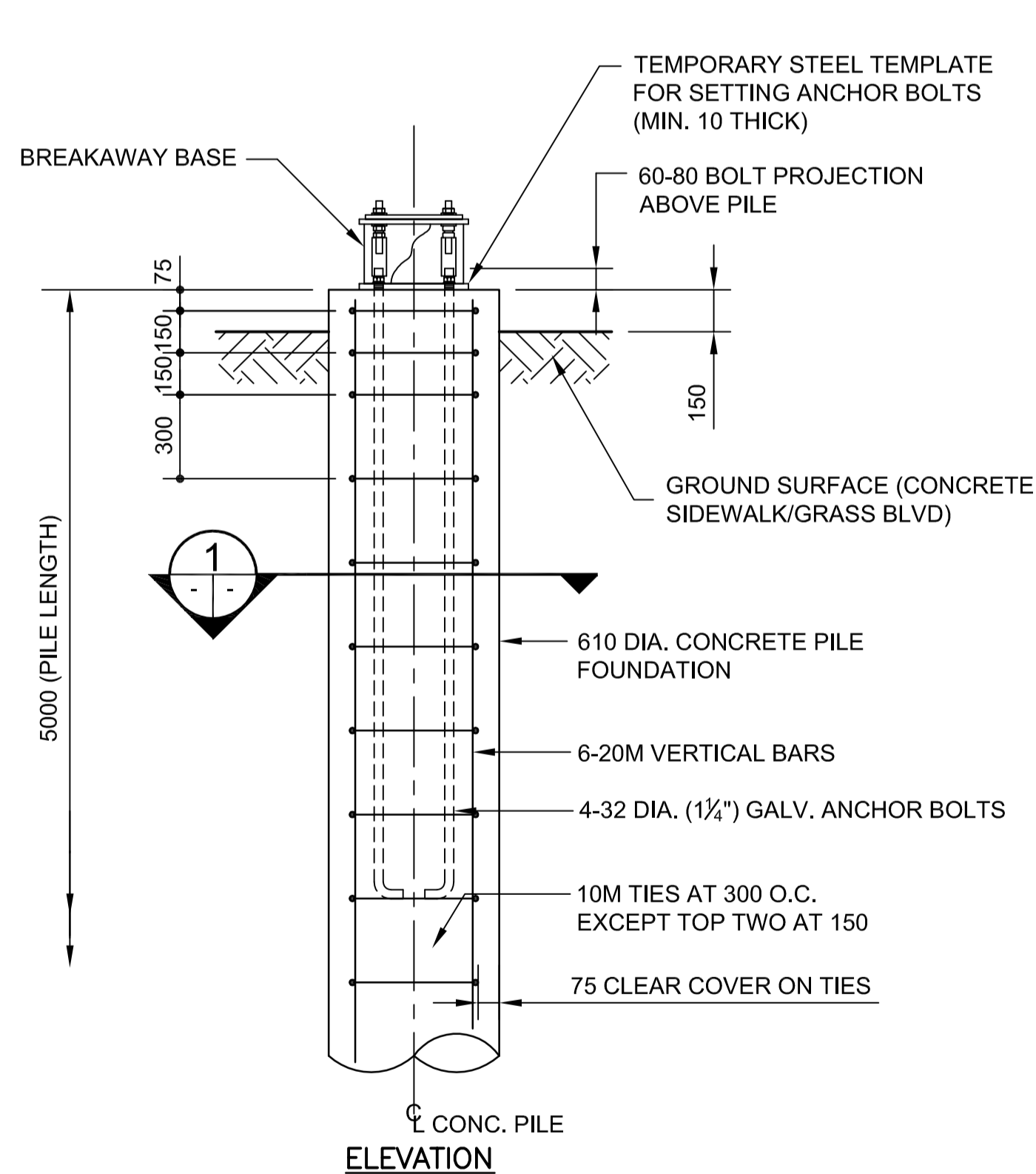
 - CLASS OF EXPOSURE: S-1
 - COMPRESSIVE STRENGTH @ 56 DAYS = 35 MPa
 - WATER/CEMENTING MATERIALS RATIO = 0.4
 - AIR CONTENT: CATEGORY 2 PER TABLE 4 OF CSA A23.1-04 (4-7%)
 - CEMENT - TYPE HS OR HSB, HIGH SULPHATE RESISTANT.



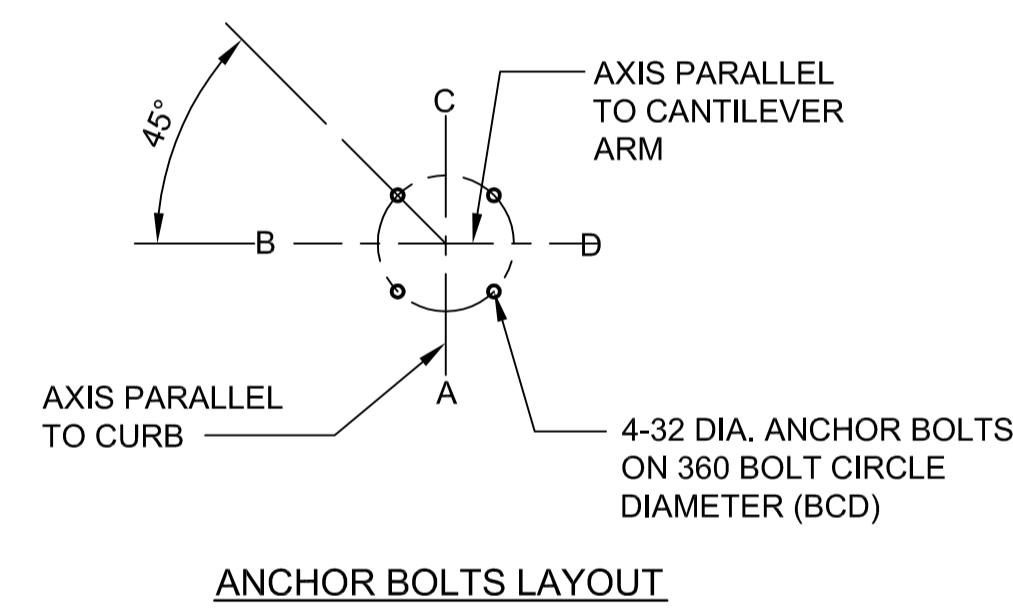
TYPICAL SITE PLAN SHOWING ADJACENT PROPERTY
1:10 (SEE TABLE ON SHEET 2)



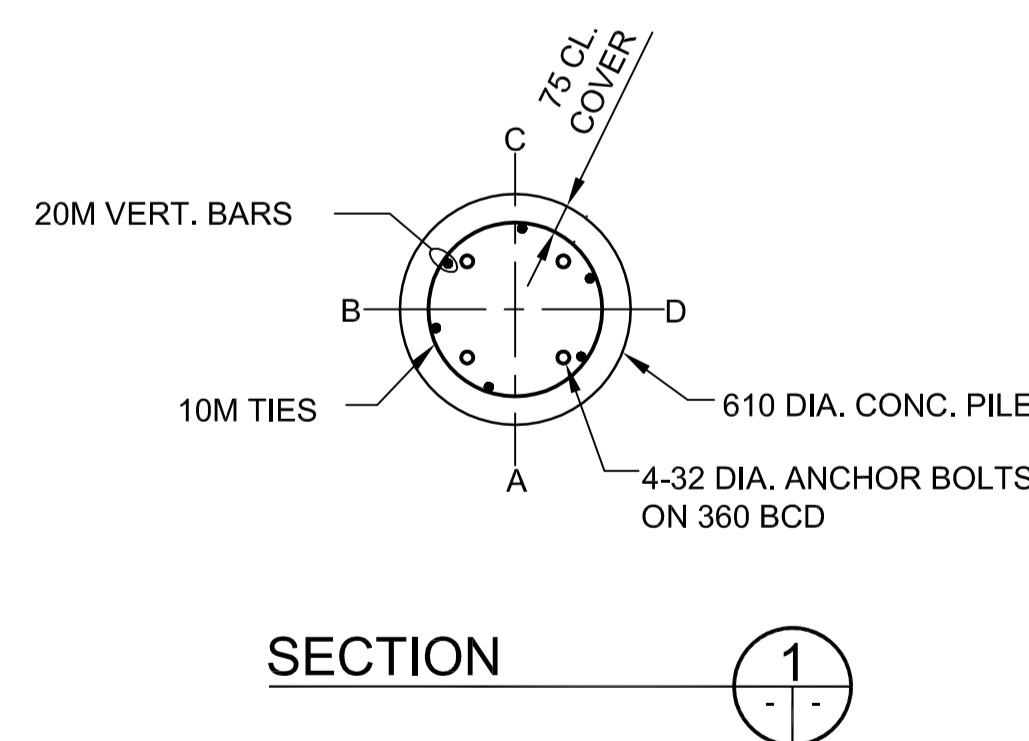
CONCRETE PILE FOUNDATION DETAIL
1:20



CONCRETE PILE FOUNDATION DETAIL C/W SAFETY BASE
1:20 (TLS-029 AND TLS-077 ONLY)



ANCHOR BOLTS LAYOUT



SECTION

TYPICAL SITE NOTES

- TYPICAL PILE INSTALLATION LOCATION SHOWN. CONTRACT ADMINISTRATOR MAY MODIFY DEPENDING ON SITE APPURTENANCES.
- ISOLATE PILE AS PER SD-228C.
- MUST MAINTAIN MIN 1.5 m WIDE SIDEWALK CLEARANCE FOR SNOW REMOVAL EQUIPMENT.

G:\CAD\091545\Contract\OHSS\STRUCTURAL-DETAILS-1.dwg

| 150 WM | 150 WM | HYDRO | HYDRO | HYDRO | 150 mm W.M. | 150 mm W.M. | 150 mm W.M. |
|---------------------|-------------------|----------|----------|-------------|-------------|-------------|----------------|
| WATERMAIN | HYDRANT | MTS | MTS | MTS | WATERMAIN | HYDRANT | VALVE |
| VALVE | 300 LDS | 300 LDS | 250 WWS | MANHOLE | CATCH BASIN | CURB INLET | JUNCTIONS |
| LAND DRAINAGE SEWER | WASTE WATER SEWER | 250 WWS | MANHOLE | CATCH BASIN | CURB INLET | JUNCTIONS | CULVERT |
| 100 GAS | GAS | 100 GAS | EXISTING | LEGEND-PLAN | PROPOSED | EXISTING | LEGEND-PROFILE |
| PROPOSED | PROPOSED | PROPOSED | EXISTING | LEGEND-PLAN | PROPOSED | EXISTING | LEGEND-PROFILE |

| UNDERGROUND STRUCTURES | B.M. ELEV. |
|--|--------------|
| 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. | |
| 2 ISSUED FOR TENDER | 06/19/09 TJH |
| 1 ISSUED FOR REVIEW | 06/04/09 TJH |
| NO. REVISIONS | DATE BY |

| DESIGNED BY | SSR |
|---------------------------|----------|
| DRAWN BY | TJH |
| CHECKED BY | NBU |
| APPROVED BY | |
| HOR. SCALE | AS NOTED |
| VERTICAL | |
| RELEASED FOR CONSTRUCTION | DATE |

| ENGINEER'S SEAL | PROVINCE OF MANITOBA |
|----------------------------------|----------------------|
| ORIGINAL STAMPED BY | S.S. RIHAL |
| REGISTERED PROFESSIONAL ENGINEER | 06/19/09 |
| CONSULTANT PROJECT NUMBER | 09-1545 |

| THE CITY OF WINNIPEG | TRANSIT DEPARTMENT |
|---|----------------------------------|
| ON STREET TRANSIT PRIORITY IMPROVEMENTS - PHASE 3 | CITY DRAWING NUMBER TLS-09-18 |
| STRUCTURAL DETAILS (1 OF 2) | SHEET 18 OF 23 |
| | CONSULTANT DRAWING NUMBER |