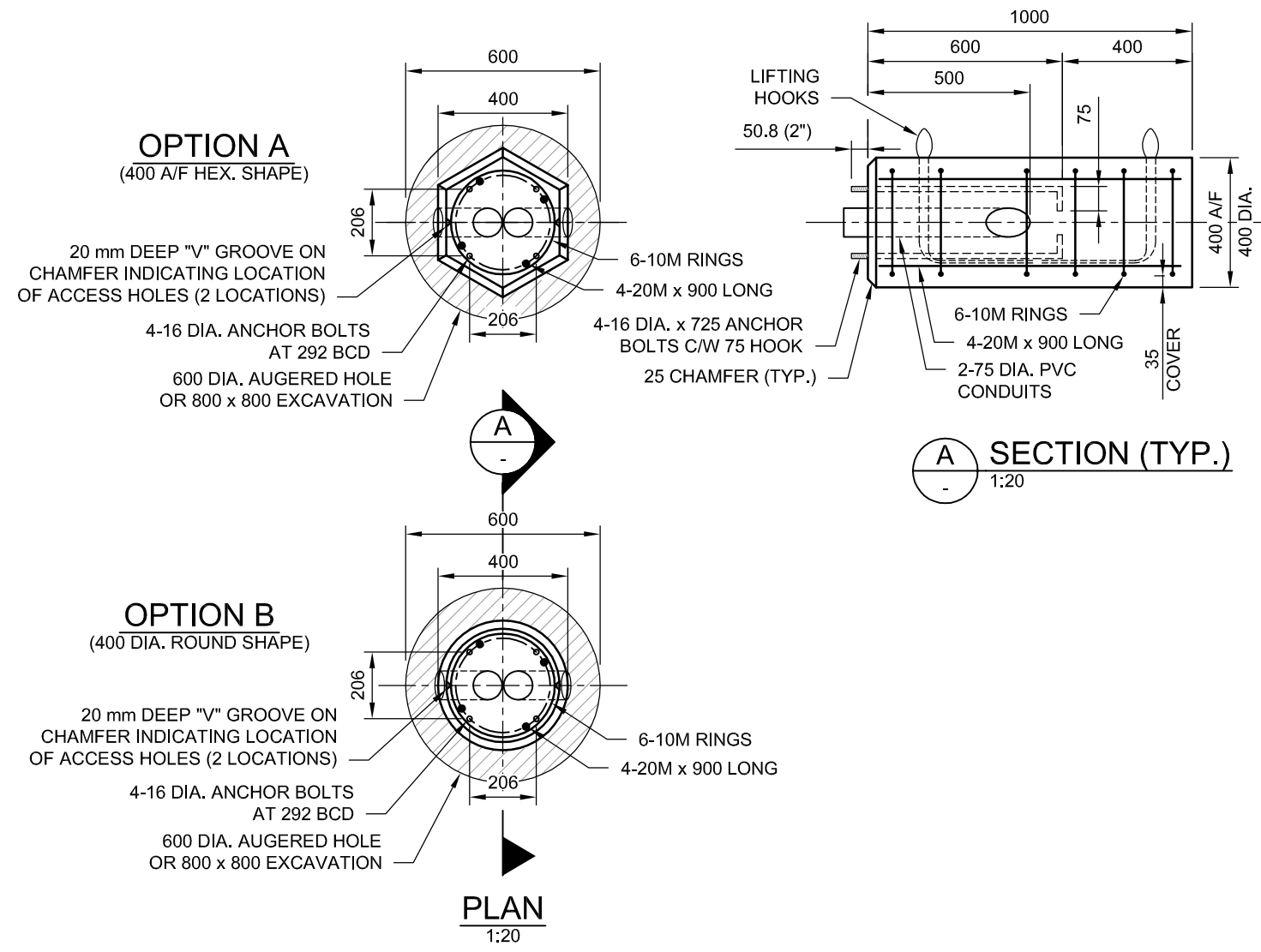


# **APPENDIX 'D'**

## **TRAFFIC SIGNALS STANDARD DETAILS**



**NOTES:**

**ANCHOR BOLTS**

- 4-16 mm DIA. ANCHOR BOLTS 725 LONG C/W 75 mm HOOK
- CAN/CSA G40.21-GR.300W
- TOP 125 mm THREADED UNC CLASS 2A
- HOT DIP GALVANIZED FULL LENGTH TO ASTM A153 CLASS C
- BCD = BOLT CIRCLE DIAMETER TO CENTER OF BOLT GROUP
- BOLTS SHALL BE HELD IN PLACE ACCURATELY WITH A STEEL TEMPLATE.
- THREADED PORTION OF ANCHOR BOLTS SHALL BE PROTECTED FROM FOULING PRIOR TO CONCRETE POUR.

**PRE-CAST CONCRETE BASE**

- CAN/CSA SPECIFICATION: CAN3-A23.4-09
- CEMENT: TYPE HS SULPHATE RESISTANT, S2 EXPOSURE
- CONCRETE STRENGTH: 35 MPa AT 28 DAYS
- MAXIMUM AGGREGATE: 20 mm, AIR CONTENT 3-6%
- 25 mm CHAMFER ON ALL EXPOSED CONCRETE EDGES.
- PVC CONDUITS: 75 (3") DIA. LONG RADIUS (24") SWEEP ELBOW (90°)
- CONDUITS SHALL BE HELD SECURELY IN CENTER OF BASE PRIOR TO CONCRETE POUR.
- CUT CONDUITS FLUSH AT TOP AND SIDES OF CONCRETE BASE AFTER CURING.
- INDENT THE NUMBER "SD-315.A (1.0 m)" ON THE TOP OF THE BASE.
- LIFTING HOOKS: 5 mm 7 x 19 STAINLESS STEEL CABLE
- WEIGHT OF PRE-CAST BASE: 302 kg

**REINFORCING STEEL**

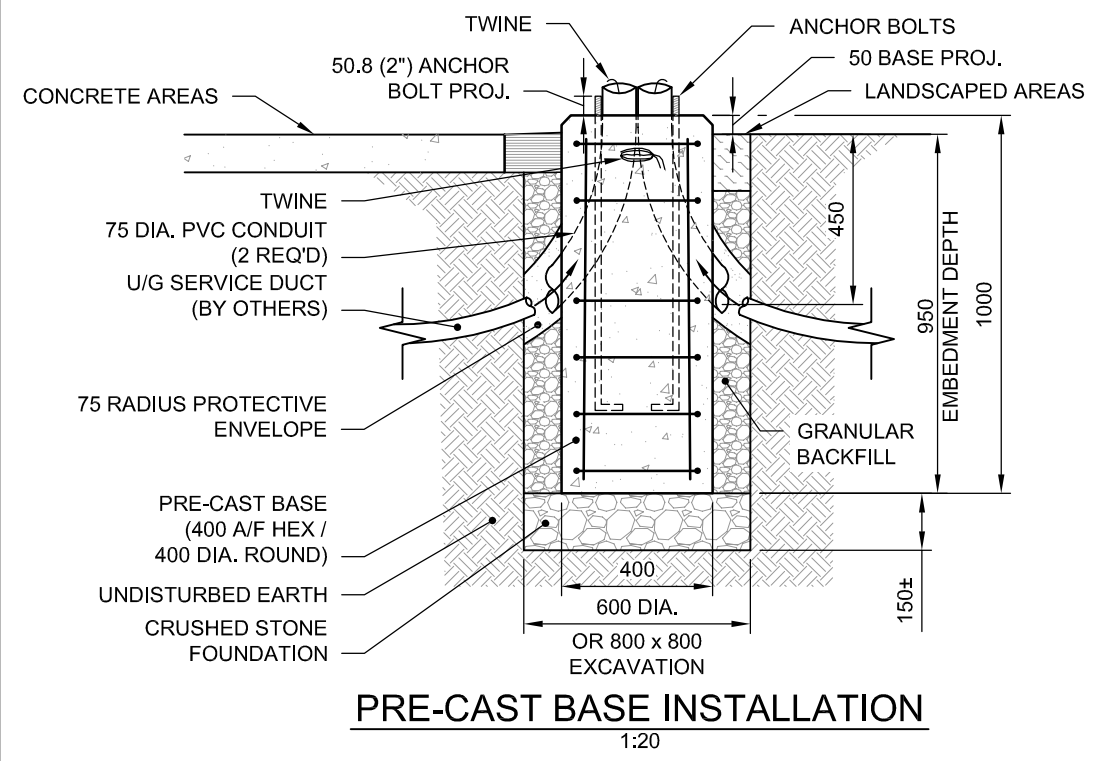
- CAN/CSA G30.18-GR.400W
- ALL BARS TO BE HOT DIP GALVANIZED.
- CLEAR COVER 35 mm

**BACKFILL MATERIAL**

- CRUSHED STONE FOUNDATION: TYPE 3 AS PER CW 2030 2.1.2 AND 2.1.5.
- BACKFILL: GRANULAR BACKFILL TYPE 2 AS PER CW 2030 2.1.2 TO 2.1.5.

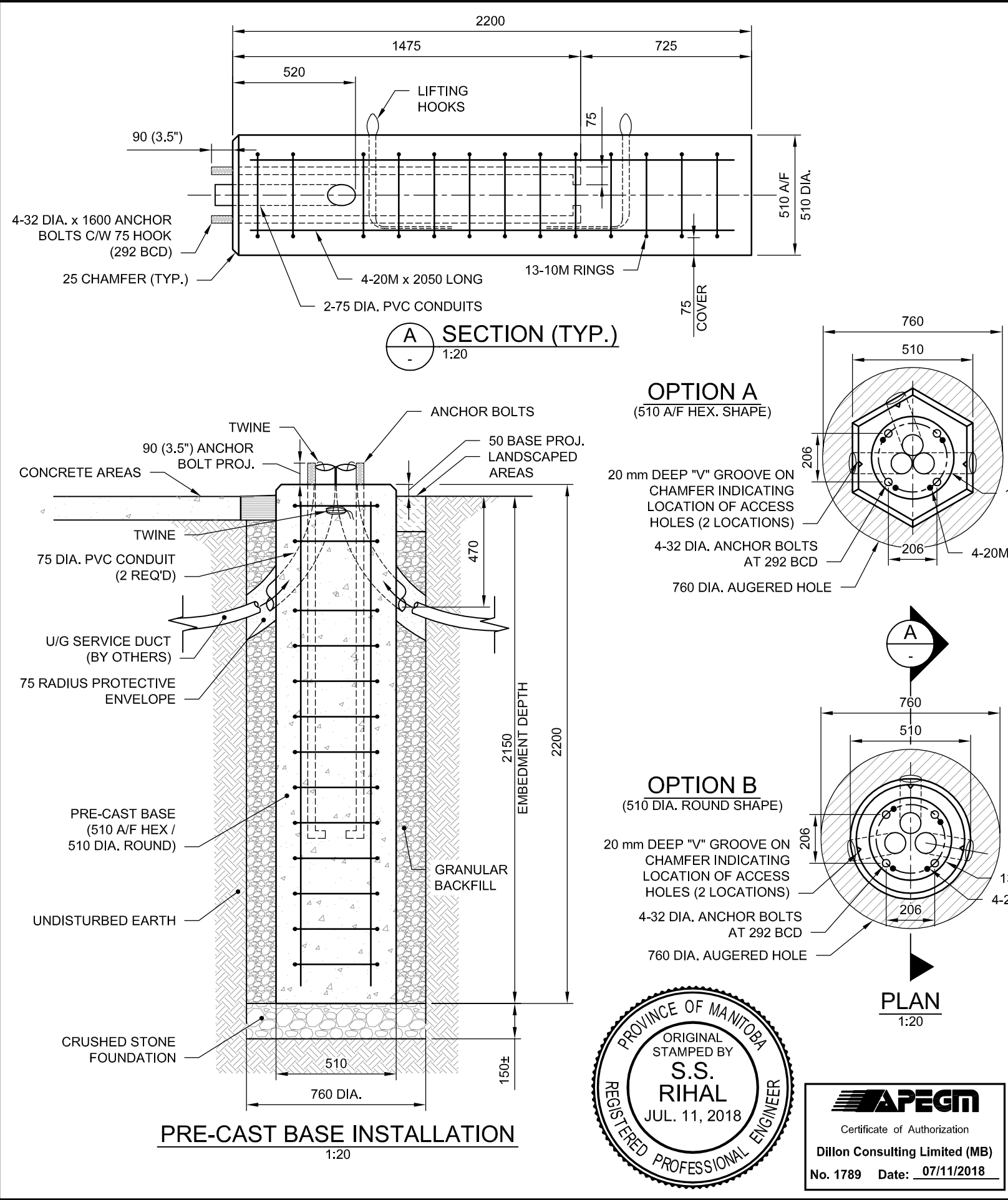
**INSTALLATION**

- MARK THE CENTER AND OFFSET LOCATIONS BEFORE EXCAVATING.
- OPEN CUT OR SOFT DIG/AUGER DRILL EXCAVATION.
- EXCAVATION DEPTH EQUALS THE EMBEDMENT DEPTH PLUS 150 mm ± FOR CRUSHED STONE FOUNDATION.
- AUGER HOLE 600 DIA. OR EXCAVATION 800 x 800.
- PLACE, LEVEL, AND COMPACT CRUSHED STONE FOUNDATION TO EDGE OF EXCAVATION.
- VERIFY ORIENTATION OF PRE-CAST BASE ANCHOR BOLTS AND CONDUIT HOLES TO SITE LAYOUT DRAWINGS.
- SET BASE UNIT WHILE IN A PLUMB ORIENTATION INTO FINAL LOCATION (DO NOT TILT UP).
- SET UNIT TO PROPER ELEVATION, ±10 mm.
- BRACE BASE AS REQUIRED TO MAINTAIN UNIT IS LEVEL, TRUE, AND PLUMB UNTIL BACKFILL HAS BEEN PLACED AND CONSOLIDATED.
- PLACE AND COMPACT GRANULAR BACKFILL UNIFORMLY AROUND PERIMETER OF THE BASE IN 150 mm LIFTS.
- PAUSE BACKFILLING AT BOTTOM OF CONDUIT TRENCH, THEN INSTALL BELOW GRADE ELECTRICAL CONNECTIONS.
- FINISH BACKFILLING AND COMPACTING IN 150 mm LIFTS TO THE ROUGH GRADE OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
- REMOVE SOILS OR STAINS FROM THE EXPOSED CONCRETE.



DIMENSIONS ARE IN MILLIMETRES  
(UNLESS OTHERWISE NOTED)

|  |  |              |          |  |                     |
|--|--|--------------|----------|--|---------------------|
| <b>THE CITY OF WINNIPEG</b><br>PUBLIC WORKS DEPARTMENT         |  | Revisions    |          |  |                     |
|  |  | No.          | Date     | Description                            | By                  |
| Reference Spec. No.<br>CW 3620                                 |  | 2            | 07/11/18 | GENERAL REVISIONS BY DILLON CONSULTING | KNL                 |
|  |  | 1            | 04/06/18 | DESIGNED BY DILLON CONSULTING          | KNL                 |
| SIGNAL POLE BASE-TYPE PM<br>(PUSHBUTTON/SPEAKER-20 DIA. BOLTS) |  | Designed By: |          | Drawn By:                              | Scale :<br>AS SHOWN |
|  |  | KNL          |          | KNL                                    |                     |
|  |  | Checked By:  |          | Date:                                  |                     |
| SSR  |  | 07/11/2018   |          |  |                     |
| Approved:  |  |              |          |  |                     |



**NOTES:**

**ANCHOR BOLTS**

- 4-32 mm DIA. ANCHOR BOLTS 1600 LONG C/W 75 mm HOOK
- CAN/CSA G40.21-GR.300W
- TOP 125 mm THREADED UNC CLASS 2A
- HOT DIP GALVANIZED FULL LENGTH TO ASTM A153 CLASS C
- BCD = BOLT CIRCLE DIAMETER TO CENTER OF BOLT GROUP
- BOLTS SHALL BE HELD IN PLACE ACCURATELY WITH A STEEL TEMPLATE.
- THREADED PORTION OF ANCHOR BOLTS SHALL BE PROTECTED FROM FOULING PRIOR TO CONCRETE POUR.

**PRE-CAST CONCRETE BASE**

- CAN/CSA SPECIFICATION: CAN3-A23.4-09
- CEMENT: TYPE HS SULPHATE RESISTANT, S2 EXPOSURE
- CONCRETE STRENGTH: 35 MPa AT 28 DAYS
- MAXIMUM AGGREGATE: 20 mm, AIR CONTENT 3-6%
- 25 mm CHAMFER ON ALL EXPOSED CONCRETE EDGES.
- PVC CONDUITS: 75 (3") DIA. LONG RADIUS (24") SWEEP ELBOW (90°)
- CONDUITS SHALL BE PLACED TO FIT IN HEX. SHAPE BASE SO THAT THEY EXIT THROUGH A FLAT SURFACE.
- CONDUITS SHALL BE HELD SECURELY IN CENTER OF BASE PRIOR TO CONCRETE POUR.
- CUT CONDUITS FLUSH AT TOP AND SIDES OF CONCRETE BASE AFTER CURING.
- INDENT THE NUMBER "SD-315.B" ON THE TOP OF THE BASE.
- LIFTING HOOKS: 8 mm 7 x 19 STAINLESS STEEL CABLE
- WEIGHT OF PRE-CAST BASE: 1080 kg

**REINFORCING STEEL**

- CAN/CSA G30.18-GR.400W
- ALL BARS TO BE HOT DIP GALVANIZED.
- CLEAR COVER 75 mm

**BACKFILL MATERIAL**

- CRUSHED STONE FOUNDATION: TYPE 3 AS PER CW 2030 2.1.2 AND 2.1.5.
- BACKFILL: GRANULAR BACKFILL TYPE 2 AS PER CW 2030 2.1.2 TO 2.1.5.

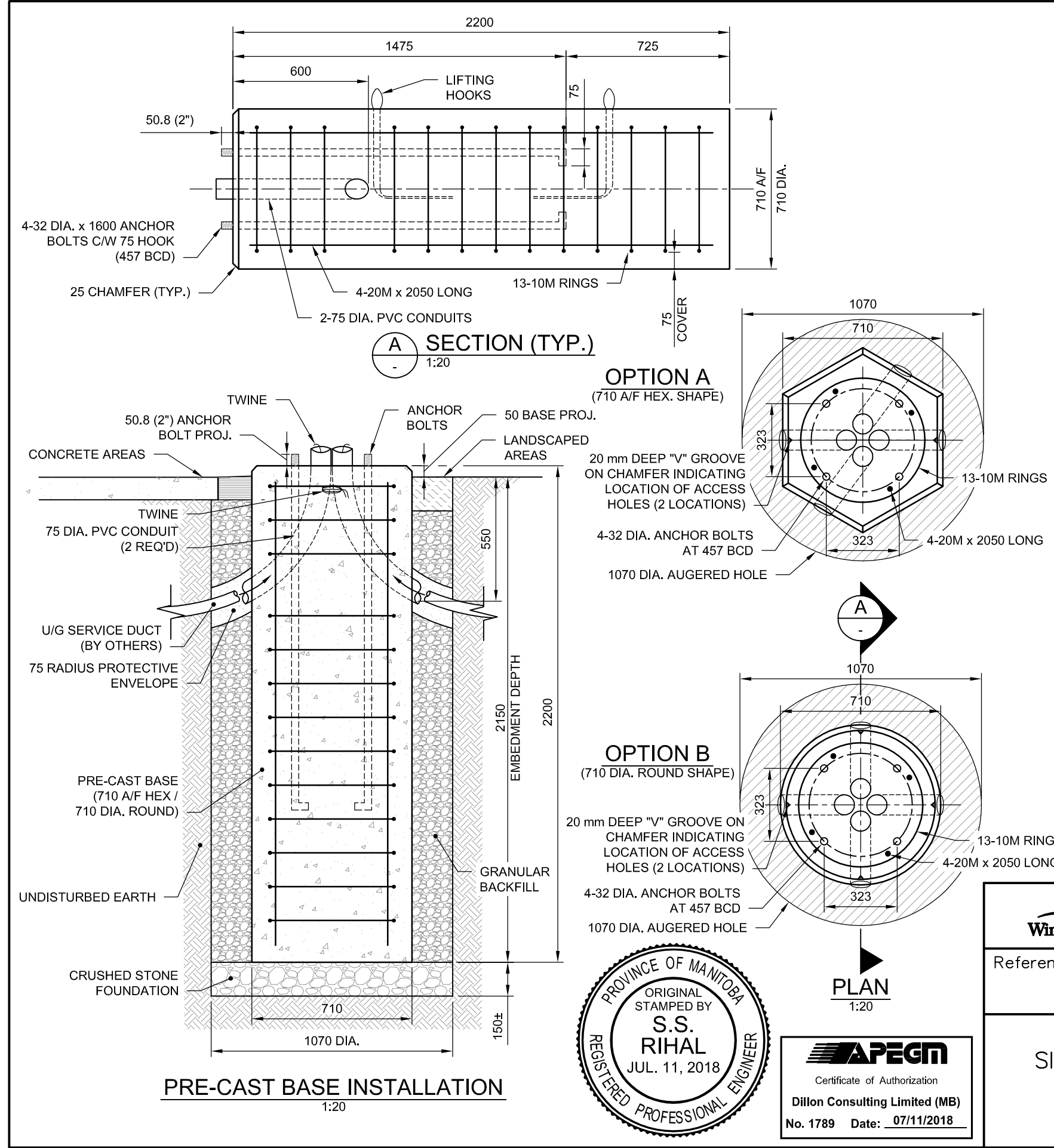
**INSTALLATION**

- MARK THE CENTER AND OFFSET LOCATIONS BEFORE EXCAVATING.
- SOFT DIG/AUGER DRILL EXCAVATION.
- EXCAVATION DEPTH EQUALS THE EMBEDMENT DEPTH PLUS 150 mm ± FOR CRUSHED STONE FOUNDATION.
- AUGER HOLE 760 DIA.
- PLACE, LEVEL, AND COMPACT CRUSHED STONE FOUNDATION TO EDGE OF EXCAVATION.
- VERIFY ORIENTATION OF PRE-CAST BASE ANCHOR BOLTS AND CONDUIT HOLES TO SITE LAYOUT DRAWINGS.
- SET BASE UNIT WHILE IN A PLUMB ORIENTATION INTO FINAL LOCATION (DO NOT TILT UP).
- SET UNIT TO PROPER ELEVATION, ±10 mm.
- BRACE BASE AS REQUIRED TO MAINTAIN UNIT IS LEVEL, TRUE, AND PLUMB UNTIL BACKFILL HAS BEEN PLACED AND CONSOLIDATED.
- PLACE AND COMPACT GRANULAR BACKFILL UNIFORMLY AROUND PERIMETER OF THE BASE IN 150 mm LIFTS.
- PAUSE BACKFILLING AT BOTTOM OF CONDUIT TRENCH, THEN INSTALL BELOW GRADE ELECTRICAL CONNECTIONS.
- FINISH BACKFILLING AND COMPACTING IN 150 mm LIFTS TO THE ROUGH GRADE OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
- REMOVE SOILS OR STAINS FROM THE EXPOSED CONCRETE.

DIMENSIONS ARE IN MILLIMETRES  
(UNLESS OTHERWISE NOTED)

|   |  |              |          |                               |          |
|---|--|--------------|----------|-------------------------------|----------|
| <b>THE CITY OF WINNIPEG</b><br>PUBLIC WORKS DEPARTMENT  |  | Revisions    |          |                               |          |
|   |  | No.          | Date     | Description                   | By       |
| Reference Spec. No.<br>CW 3620                          |  | 1            | 07/11/18 | DESIGNED BY DILLON CONSULTING | KNL      |
| SIGNAL POLE BASE-TYPE PG<br>(MEDIUM DUTY-32 DIA. BOLTS) |  | Designed By: |          | Drawn By:                     | Scale :  |
|   |  | KNL          |          | KNL                           | AS SHOWN |
|   |  | Checked By:  |          | Date:                         |          |
|   |  | SSR          |          | 07/11/18                      |          |
| Approved:   |  |              |          |                               | SD-315.B |





**NOTES:**

**ANCHOR BOLTS**

1. 4-32 mm DIA. ANCHOR BOLTS 1600 LONG C/W 75 mm HOOK
2. CAN/CSA G40.21-GR.300W
3. TOP 125 mm THREADED UNC CLASS 2A
4. HOT DIP GALVANIZED FULL LENGTH TO ASTM A153 CLASS C
5. BCD = BOLT CIRCLE DIAMETER TO CENTER OF BOLT GROUP
6. BOLTS SHALL BE HELD IN PLACE ACCURATELY WITH A STEEL TEMPLATE.
7. THREADED PORTION OF ANCHOR BOLTS SHALL BE PROTECTED FROM FOULING PRIOR TO CONCRETE POUR.

**PRE-CAST CONCRETE BASE**

1. CAN/CSA SPECIFICATION: CAN3-A23.4-09
2. CEMENT: TYPE HS SULPHATE RESISTANT, S2 EXPOSURE
3. CONCRETE STRENGTH: 35 MPa AT 28 DAYS
4. MAXIMUM AGGREGATE: 20 mm, AIR CONTENT 3-6%
5. 25 mm CHAMFER ON ALL EXPOSED CONCRETE EDGES.
6. PVC CONDUITS: 75 (3") DIA. LONG RADIUS (24") SWEEP ELBOW (90°)
7. CONDUITS SHALL BE PLACED TO FIT IN HEX. SHAPE BASE SO THAT THEY EXIT THROUGH A FLAT SURFACE.
8. CONDUITS SHALL BE HELD SECURELY IN CENTER OF BASE PRIOR TO CONCRETE POUR.
9. CUT CONDUITS FLUSH AT TOP AND SIDES OF CONCRETE BASE AFTER CURING.
10. INDENT THE NUMBER "SD-XXX" ON THE TOP OF THE BASE.
11. LIFTING HOOKS: 10 mm 7 x 19 STAINLESS STEEL CABLE
12. WEIGHT OF PRE-CAST BASE: 2090 kg

**REINFORCING STEEL**

1. CAN/CSA G30.18-GR.400W
2. ALL BARS TO BE HOT DIP GALVANIZED.
3. CLEAR COVER 75 mm

**BACKFILL MATERIAL**

1. CRUSHED STONE FOUNDATION: TYPE 3 AS PER CW 2030 2.1.2 AND 2.1.5.
2. BACKFILL: GRANULAR BACKFILL TYPE 2 AS PER CW 2030 2.1.2 TO 2.1.5.

**INSTALLATION**

1. MARK THE CENTER AND OFFSET LOCATIONS BEFORE EXCAVATING.
2. SOFT DIG/AUGER DRILL EXCAVATION.
3. EXCAVATION DEPTH EQUALS THE EMBEDMENT DEPTH PLUS 150 mm ± FOR CRUSHED STONE FOUNDATION.
4. AUGER HOLE 1070 DIA.
5. PLACE, LEVEL, AND COMPACT CRUSHED STONE FOUNDATION TO EDGE OF EXCAVATION.
6. VERIFY ORIENTATION OF PRE-CAST BASE ANCHOR BOLTS AND CONDUIT HOLES TO SITE LAYOUT DRAWINGS.
7. SET BASE UNIT WHILE IN A PLUMB ORIENTATION INTO FINAL LOCATION (DO NOT TILT UP).
8. SET UNIT TO PROPER ELEVATION, ±10 mm.
9. BRACE BASE AS REQUIRED TO MAINTAIN UNIT IS LEVEL, TRUE, AND PLUMB UNTIL BACKFILL HAS BEEN PLACED AND CONSOLIDATED.
10. PLACE AND COMPACT GRANULAR BACKFILL UNIFORMLY AROUND PERIMETER OF THE BASE IN 150 mm LIFTS.
11. PAUSE BACKFILLING AT BOTTOM OF CONDUIT TRENCH, THEN INSTALL BELOW GRADE ELECTRICAL CONNECTIONS.
12. FINISH BACKFILLING AND COMPACTING IN 150 mm LIFTS TO THE ROUGH GRADE OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
13. REMOVE SOILS OR STAINS FROM THE EXPOSED CONCRETE.

DIMENSIONS ARE IN MILLIMETRES (UNLESS OTHERWISE NOTED)

|   |  |              |          |                               |          |
|---|--|--------------|----------|-------------------------------|----------|
| <p><b>THE CITY OF WINNIPEG</b><br/>PUBLIC WORKS DEPARTMENT</p>          |  | Revisions    |          |                               |          |
|   |  | No.          | Date     | Description                   | By       |
| Reference Spec. No.<br>CW 3620  |  | 1            | 07/11/18 | DESIGNED BY DILLON CONSULTING | KNL      |
| <p><b>SIGNAL POLE BASE—TYPE POD</b><br/>(MEDIUM DUTY—32 DIA. BOLTS)</p> |  | Designed By: |          | Drawn By:                     | Scale :  |
|   |  | KNL          |          | KNL                           | AS SHOWN |
|   |  | Checked By:  |          | Date:                         |          |
|   |  | SSR          |          | 07/11/18                      |          |
| Approved:   |  |              |          |                               | SD-315.C |

