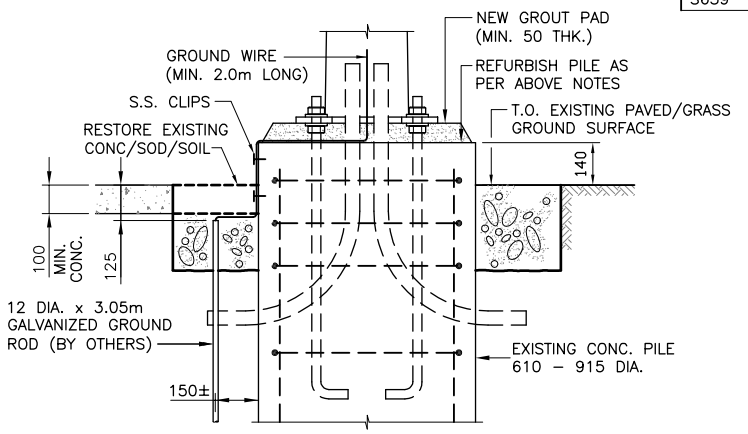
## NOTES ON PILE REFURBISHMENT

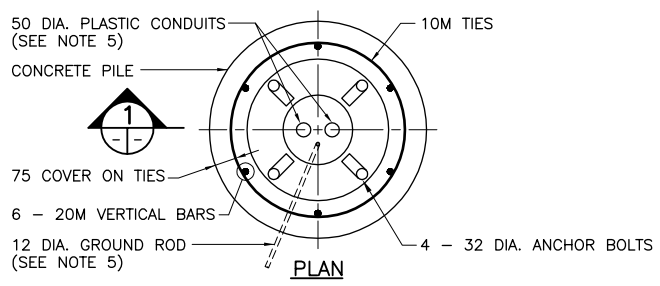
1. REQUIRED AT ALL SITE LOCATIONS WITH SUPERSTRUCTURE REFURBISMENT OR INSTALLATION OF NEW SUPERSTRUCTURE ON EXISTING PILE INCIDENTAL TO THAT WORK.
2. LIMITS:
   A) SODDED & SOIL AREAS–DOWN TO 100mm BELOW GROUND SURFACE
   B) CONCRETE & PAVING BLOCK AREAS–TO TOP OF PAVED SURFACE
3. PROCEDURE FOR PILE REFURBISHMENT:
   A) REMOVE EXISTING GROUT PAD, BOTTOM ANCHOR BOLT NUTS, AND FORMWORK IF ANY
   B) SANDBLAST EXPOSED CONCRETE SURFACE AND ANCHOR BOLTS
   C) COAT ANCHOR BOLT WITH FIELD–APPLIED GALVANIZING MATERIAL AND RESTORE THREADS TO ACCOMMODATE NEW HOT DIP GALVANIZED NUTS
   D) INSTALL GROUND ROD AND WIRE AS SHOWN ON THIS DRAWING WHERE APPLICABLE (BY OTHERS)
   E) PATCH EXPOSED VERTICAL SURFACES AND EDGES OF PILE WITH MORTAR SLURRY BOND TO PROVIDE SMOOTH UNIFORM SURFACE
   F) CONSTRUCT NEW GROUT PAD AFTER INSTALLING THE REFURBISHED SIGN STRUCTURE
   G) APPLY CONCRETE CURE & PROTECTION SYSTEM ON VERTICAL SURFACES OF PILE AND GROUT PAD
   H) FILL SETTLEMENT OF GROUND AROUND PILE WITH SOIL (GROUND SURFACE SHALL SLOPE AWAY FROM PILE), RESTORE SODDING AS REQUIRED AND CLEAN UP SITE
4. GROUND ROD:
   A) NEW GROUND ROD IS REQUIRED AS PER SCHEDULE
   B) GROUND ROD SUPPLIED AND INSTALLED BY TRAFFIC SIGNALS

| FULL PILE REFURBISHMENT SCHEDULE | | |
|---|---|---|
| STRUCT. No. | No. OF PILES | GROUND ROD REQ'D. |
| S649 | 1 | NO |
| S651 | 2 | NO |
| S652 | 2 | NO |
| S659 | 2 | NO |

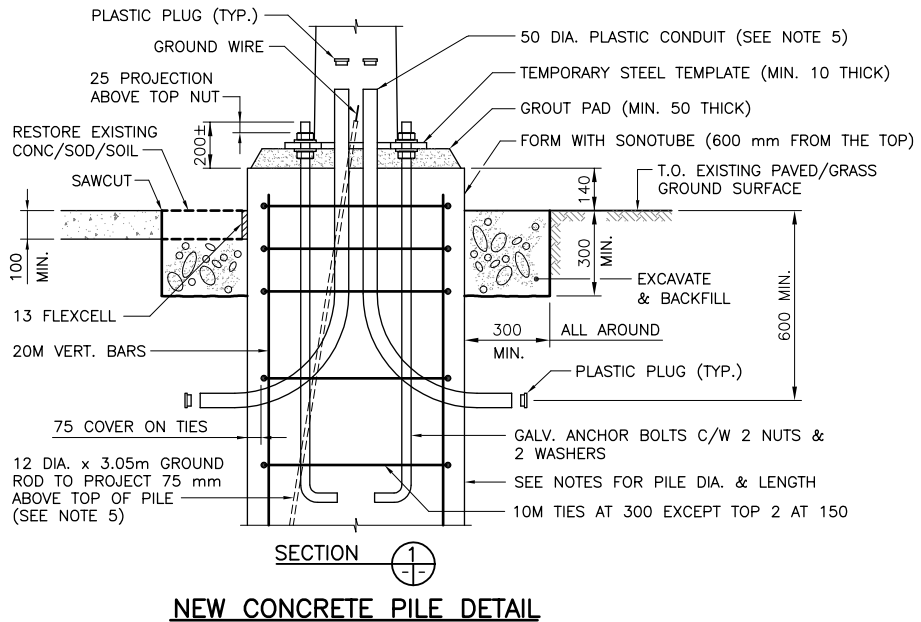



ELEVATION

### PILE FOUNDATION REFURBISHMENT
(INCIDENTAL TO FULL REFURBISHMENT)

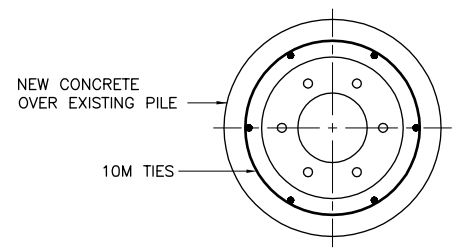



PLAN




## NEW CONCRETE PILE DETAIL

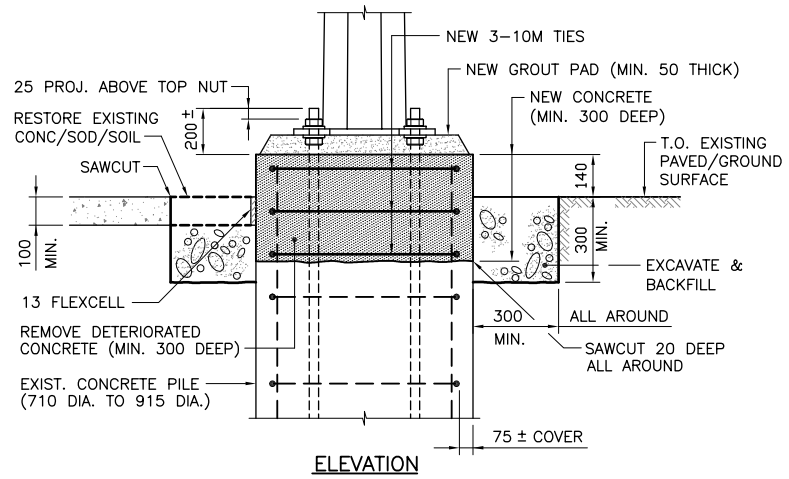
N.T.S.




PLAN

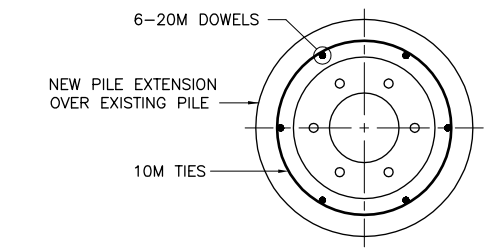
| PILE FOUNDATION REPAIR SCHEDULE | | |
|---|---|---|
| STRUCT. No. | No. OF PILES | LOCATION |
| | | |
| | | |

*NONE REQUIRED*



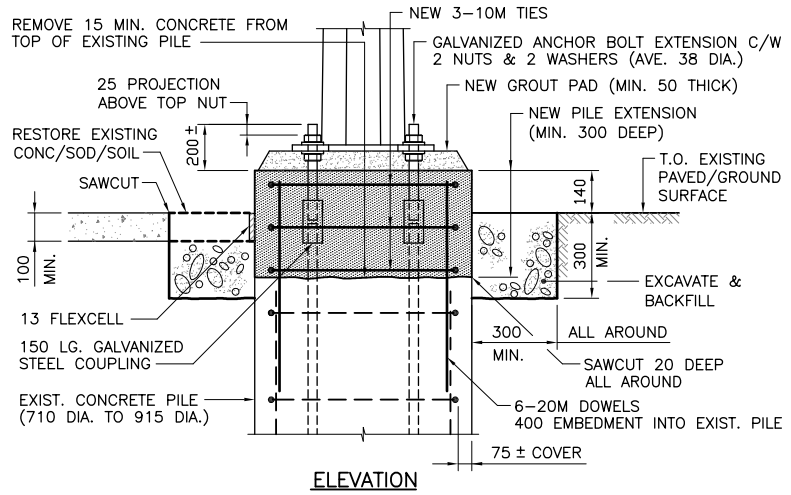

ELEVATION

REPAIR OF MAJOR SPALLING AND/OR DAMAGE




PLAN

| PILE EXTENSION SCHEDULE | | |
|---|---|---|
| STRUCT. No. | No. OF PILES | LOCATION |
| S651 | 1 | MEDIAN |
| S652 | 1 | MEDIAN |
| S659 | 1 | BLVD. |




ELEVATION

CONSTRUCTION OF PILE EXTENSION

## CONCRETE PILE FOUNDATION REPAIRS

N.T.S.

### PILE FOUNDATION REPAIR NOTES:

1. EXISTING CONDUITS NOT SHOWN IN PILE REPAIR & EXTENSION DETAILS FOR CLARITY
2. EXTEND CONDUITS THROUGH NEW CONCRETE AS REQUIRED
3. CLEAN EXPOSED CONCRETE SURFACE, EXISTING ANCHOR BOLTS AND REBAR BY SANDBLASTING
4. APPLY CONCRETE CURE & PROTECTION SYSTEM ON VERTICAL SURFACES AND GROUT PAD
5. INCREASE DEPTH OF PILE EXTENSION TO 600mm BELOW GRADE AT LOCATIONS WHERE NEW CONDUITS ARE TO BE INSTALLED

## NOTES ON NEW CONCRETE PILE

1. REINFORCING STEEL
   - CSA G30.12 GR. 400W
   - VERTICAL BARS FULL LENGTH
   - ALL BARS HOT DIP GALVANIZED
2. ANCHORS BOLTS
   CSA G40.21 GR. 300W
   4–32 DIA. x 1500 LONG + 150 HOOK
   EACH BOLT C/W 2 NUTS & 2 WASHERS
   TOP 300 THREADED
   HOT DIP GALVANIZED FULL LENGTH
3. APPLY CONCRETE CURE AND PROTECTION SYSTEM FOR TOP 600 mm OF PILE. APPROVED PRODUCT HORSEY SET WDE (WATER–DISPERSED EPOXY), MADE BY WATSON BOWMAN ACME, AS SUPPLIED BY G.D. JOHNSTON LTD.
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:
   i) MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS = 35 MPa
   ii) MAXIMUM WATER/CEMENT RATIO = 0.45
   iii) MINIMUM CEMENT CONTENT = 340 kg/m
   iv) SLUMP = 80 mm ± 30 mm
   v) AGGREGATE: 20 mm NOMINAL
   vi) AIR CONTENT: 5.0 TO 8.0 PERCENT
   vii) CEMENT – TYPE 50
5. SEE NEW PILE SCHEDULE FOR REQUIREMENT OF CONDUITS AND GROUND ROD

| NEW PILE SCHEDULE | | | | | | | |
|---|---|---|---|---|---|---|---|
| STRUCT. No. | PILE DATA | | | | ANCHOR BOLTS | | CONDUITS & GROUND ROD REQ'D. |
| | No. REQ'D. | DIA. | LENGTH | VERT. REINF. | SIZE | BCD | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| NO. | REVISIONS | DATE | BY |
|---|---|---|---|
| | | | |

B.M. ELEV.

DESIGNED BY: S.S.R.
DRAWN BY: N.B.G.
CHECKED BY: S.S.R.
APPROVED BY:
SCALE: HORZ. AS SHOWN VERT.
DATE: JULY 2004
AUTHORIZED BY:
CITY BRIDGE ENGINEER

DILLON CONSULTING

DATE:

ENGINEER'S SEAL
PROVINCE OF MANITOBA
S.S. RIHAL
REGISTERED PROFESSIONAL ENGINEER

CONSULTANT PROJECT NO.
04-3144-1000

THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT

OVERHEAD SIGN SUPPORT STRUCTURE MAINTENANCE WORKS
2004 PROGRAM

CITY DRAWING NUMBER
OHSS–04–04

SHEET 4 OF 7

MISCELLANEOUS DETAILS
SHEET 1 OF 3