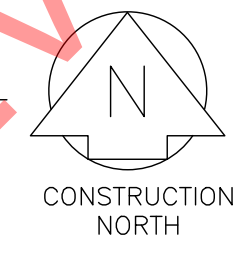


PILE SCHEDULE	
MARK	PILE
A	300 Ø HEX PRECAST CONC. DRIVEN PILE
B	350 Ø HEX PRECAST CONC. DRIVEN PILE
C	400 Ø HEX PRECAST CONC. DRIVEN PILE

GRADE BEAM SCHEDULE			
TOP OF ALL GRADE BEAMS ELEVATION = 100.00 (U.N.O.)			
GEODETIC ELEVATION = 234.00			
MARK	WIDTH	DEPTH	REINFORCING
GB-1	250	685	2-25M & 1-20M T&B CONT. 10M STIRRUPS @600 o/c
GB-2	250	685	2-25M T&B CONT. 10M STIRRUPS @600 o/c
GB-3	250	685	2-25M T&B CONT. 15M STIRRUPS @600 o/c 15M STIRRUPS @300 o/c 1000mm E.S. GRIDLINE
GB-4	250	685	2-25M T&B CONT. 10M STIRRUPS @600 o/c 10M STIRRUPS @300 o/c IN PAIRS AT GRIDLINES 1&5 BETWEEN G&H, L&K (SEE 1/S1.2)
GB-5	250	685	3-25M T&B CONT. 15M STIRRUPS @300 o/c
GB-6	250	685	2-25M & 1-20M T&B CONT. 15M STIRRUPS @600 o/c
GB-7	250	685	2-25M & 1-20M T&B CONT. 15M STIRRUPS @300 o/c
GB-8	350	685	3-20M T&B CONT. 10M STIRRUPS @600 o/c
GB-9	250	685	3-25M T&B CONT. 15M STIRRUPS @600 o/c
GB-10	250	685	2-25M & 1-15M T&B CONT. 15M STIRRUPS @ 600 o/c
GB-11	250	900	3-25M T&B CONT. 15M STIRRUPS @ 600 o/c
GB-12	200	685	2-25M T&B CONT. 10M STIRRUPS @600 o/c

FOUNDATION PLAN  
SCALE: 1:150



**GENERAL NOTES**

**CONCRETE NOTES**

- CONCRETE STRENGTH  
AT 28 DAYS, FOR GRADE BEAMS SHALL BE: 30 MPA WITH A MAXIMUM WATER/CEMENT RATIO OF 0.55  
MAXIMUM 20mm AGGREGATE OF CEMENT TYPE Gu OR Gub CEMENT AIR CONTENT BETWEEN 4% & 7%  
FOR HEATED BUILDING FLOOR SLABS SHALL BE: 25 MPA WITH A MAXIMUM WATER/CEMENT RATIO OF 0.55  
MAXIMUM 20mm AGGREGATE TYPE Gu OR Gub CEMENT AIR CONTENT BETWEEN 4% & 7%  
FOR OFFICE BUILDING FLOOR SLABS SHALL BE: 25 MPA WITH A MAXIMUM WATER/CEMENT RATIO OF 0.55  
MAXIMUM 20mm AGGREGATE TYPE Gu OR Gub CEMENT AIR CONTENT NATURAL  
FOR UNHEATED BUILDING FLOOR SLABS SHALL BE: 32 MPA WITH A MAXIMUM WATER/CEMENT RATIO OF 0.45  
MAXIMUM 20mm AGGREGATE TYPE Gu OR Gub CEMENT AIR CONTENT BETWEEN 5% & 8%  
AT 56 DAYS, FOR CAST IN PLACE CONCRETE PILES AND PILE CAPS SHALL BE: 32 MPA WITH A MAXIMUM WATER/CEMENT RATIO OF 0.45  
MAXIMUM 20mm AGGREGATE TYPE HS OR HSU CEMENT AIR CONTENT BETWEEN 4% & 7%

- REINFORCING STEEL SHALL BE NEW BILLET GRADE 400 DEFORMED BARS WITH A MINIMUM YIELD STRENGTH OF 400 MPA FOR SIZE #20 AND LARGER AND GRADE 300 DEFORMED BARS WITH A MINIMUM YIELD STRENGTH OF 300 MPA FOR SIZE #15 AND SMALLER ACCORDING TO THE CURRENT EDITION OF C.S.A. STANDARD G 30.18. ALL REINFORCEMENT SHALL BE FREE OF LOOSE RUST, MUD, OIL OR OTHER COATINGS THAT WOULD REDUCE THE CONCRETE BOND.
- REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE CURRENT EDITION OF C.S.A. STANDARDS A 23.1 AND A 23.2
- SUBGRADE PREPARATION IN OFFICE/SHOP BUILDINGS:  
PRIOR TO PLACING OF GRANULAR MATERIAL IN 150mm LIFTS TO FORM THE UPPER SUBGRADE CARE SHOULD BE TAKEN TO ENSURE THAT NO FROST IS PRESENT IN THE SOIL AND THAT BLACK ORGANIC SOIL IS REMOVED. AFTER PLACING THE GRANULAR SUBGRADE IT MUST BE COMPACTED WITH VIBRATORY COMPACTORS OR SIMILAR EQUIPMENT AND COMPACTION CARRIED OUT UNTIL THE DENSITY OF THE MATERIAL IS 98% OF ITS MAXIMUM DRY DENSITY. REFER TO ENG-TECH GEOTECHNICAL INVESTIGATION REPORT, DATED JANUARY 2011, FOR FURTHER INFORMATION.
- SUBGRADE PREPARATION IN OFFICE/SHOP BUILDINGS:  
PRIOR TO PLACING OF GRANULAR MATERIAL IN 150mm LIFTS TO FORM THE UPPER SUBGRADE CARE SHOULD BE TAKEN TO ENSURE THAT NO FROST IS PRESENT IN THE SOIL AND THAT BLACK ORGANIC SOIL IS REMOVED. AFTER PLACING THE GRANULAR SUBGRADE IT MUST BE COMPACTED WITH VIBRATORY COMPACTORS OR SIMILAR EQUIPMENT AND COMPACTION CARRIED OUT UNTIL THE DENSITY OF THE MATERIAL IS 95% OF ITS MAXIMUM DRY DENSITY. REFER TO ENG-TECH GEOTECHNICAL INVESTIGATION REPORT, DATED JANUARY 2011, FOR FURTHER INFORMATION.
- CONTRACTION JOINTS IN THE SLAB-ON GRADE SHALL BE SAWCUT WITHIN 24 TO 48 HOURS OF THE COMPLETION OF THE SLAB POUR. THE JOINTS SHALL BE 20mm DEEP AND FILLED WITH AN APPROVED JOINT SEALANT. PROVIDE JOINTS AT MAXIMUM 25'0 CENTRES IN EACH DIRECTION. NOTE: CSA STANDARD 23.3 AND THE PROVISIONAL READY MIX CONCRETE ASSOCIATIONS PROVIDE ADDITIONAL INFORMATION REGARDING EXPANSION JOINT SPACING.
- PROVIDE A MINIMUM 24 BAR DIAMETER LAP OF ALL HORIZONTAL REINFORCING BARS AT THE CORNERS OF WALLS AND BEAMS.
- PROVIDE 150mm VOID FORM UNDER ALL WALLS AND BEAMS LESS THAN 1200mm BELOW EXISTING OR FINISHED GRADE.
- SLAB ON GRADE FLOORS AND STRUCTURES SUPPORTED ON SHALLOW FOUNDATIONS MAY EXPERIENCE MOVEMENT AND CRACKING DUE TO SOIL EXPANSION RESULTING FROM THE NATURE OF THE UNDERLYING SOILS, SOIL MOISTURE LEVELS AND THE DEGREE OF SITE VEGETATION. NO LIABILITY CAN BE ACCEPTED BY THE ENGINEER FOR THE MOVEMENT AND CRACKING OF THESE NON-STRUCTURAL ITEMS.

**FOUNDATION - PRECAST CONCRETE DRIVEN PILES**

- PILES SHALL BE 300, 350, AND 400 STANDARD HEXAGONAL PRECAST PRE-STRESSED CONCRETE DRIVEN PILES.
- PILE DESIGN LOADS ARE AS FOLLOWS:  
300 HEX. - 440 KN  
350 HEX. - 620 KN  
400 HEX. - 800 KN  
PILES SHALL BE DRIVEN SO THAT THEY CAN SUPPORT THE DESIGN LOADS, WITH A MINIMUM SAFETY FACTOR OF 2.5.
- PRE-STRESSING STRANDS SHALL BE LEFT PROTRUDING, AFTER PILE CUTOFF, 450 MINIMUM INTO CONCRETE STRUCTURE OVER.
- CONCRETE DESIGN STRENGTH FOR PRECAST PILES 35 MPA AT 28 DAYS. USE SULPHATE RESISTING CEMENT.
- PRE-CAST DRIVEN PILES SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF CSA STANDARD A 23.4.
- PILES SHALL NOT BE MORE THAN 2% OUT OF PLUMB; AND NO MORE THAN 50 OUT OF ALIGNMENT.
- MONITOR TOP OF ALL INSTALLED PILES FOR HEAVE DURING DRIVING OF ADJACENT PILES, AND REDRIVE ANY HEAVED PILES.
- THE PILE DRIVING CONTRACTOR SHALL KEEP A LOG OF BLOW COUNTS FOR THE LAST 1" OF EACH DRIVEN PILE.

**HOLLOWCORE NOTES**

- THE HOLLOWCORE SUPPLIER SHALL SUPPLY ALL ANCHORS, BRACKETS, HANGERS AND BEARING PADS NECESSARY FOR THE ERECTION OF THE HOLLOWCORE.
- HOLLOWCORE SHALL BE FINISHED TO FACILITATE DIRECT APPLICATION OF FLOORING.

**STEEL NOTES**

- STRUCTURAL STEEL SHALL BE G 40.20 AND G 40.21 350W AND SHALL CONFORM WITH C.S.A. STANDARD S16-01
- STRUCTURAL CONTRACTOR SHALL PROVIDE HOLES IN WEBS OF BEAMS AND GIRDERS AS MAY BE CALLED FOR IN MECHANICAL, ARCHITECTURAL AND ELECTRICAL DRAWINGS AND REINFORCE SAME AS NECESSARY IN ACCORDANCE WITH C.S.A. STANDARD S16-01
- STRUCTURAL STEEL DETAILS ARE DIAGRAMMATIC ONLY.

**DESIGN NOTES**

- COLUMN BASE AND CAP PLATES TO BE WELDED TO COLUMN.
- UNLESS OTHERWISE NOTED, STRUCTURAL STEEL SUPPLIER SHALL DESIGN AND PROVIDE ALL NECESSARY HARDWARE FOR CONNECTIONS OF STEEL MEMBERS IN ACCORDANCE WITH C.S.A. STANDARD S16-01
- OPEN WEB STEEL JOISTS TO BE FABRICATED AND INSTALLED IN ACCORDANCE WITH C.S.A. STANDARD S16-01.
- ROOF OPENINGS OVER 450mm ACROSS FLUTES OF STEEL DECK TO BE FRAMED BY STRUCTURAL STEEL CONTRACTOR.
- WHERE DUCTS INTERFERE WITH JOIST BRIDGING, REPLACE WITH HORIZONTAL TOP AND BOTTOM CHORD BRIDGING.
- PROVIDE BRIDGING FOR ALL STEEL JOIST FRAMING IN ACCORDANCE WITH C.S.A. STANDARD S16-01.
- ALL WELDING SHALL BE AS PER LATEST C.S.A. STANDARDS W47.1 AND W59-03 AND SHALL BE PERFORMED BY A CANADIAN WELDING BUREAU CERTIFIED WELDER.
- ADEQUATE CURING OF THE STRUCTURE DURING ERECTION SHALL BE PROVIDED BY THE CONTRACTOR CARRYING OUT THIS WORK.
- THE STEEL FABRICATOR SHALL NOTIFY THE ENGINEER OF ANY PROPOSED MEMBER SUBSTITUTIONS.

DESIGN ROOF SNOW LOAD	1.72 kPa
PLUS BUILD-UP AS SPECIFIED BY NBCC (10) FOR THE WINNIPEG, MB AREA	
TOTAL DESIGN ROOF LOAD	2.88 kPa
DESIGN WIND LOAD	1/50 RETURN WIND AS SPECIFIED BY NBCC (10) FOR THE WINNIPEG, MB AREA
SECOND FLOOR LIVE LOAD (OFFICE AREA)	2.4 kPa
OFFICE AREA PARTITION LOAD	1.0 kPa
TOTAL SECOND FLOOR LOAD (OFFICE AREA)	8.4 kPa
MEZZANINE FLOOR LIVE LOAD (BAYS 24 TO 26)	7.2 kPa
TOTAL MEZZANINE FLOOR LOAD (BAYS 24 TO 26)	13.2 kPa

FOUNDATION & STRUCTURE DESIGNED TO MEET THE REQUIREMENTS OF PART 4, OF THE 2011 MANITOBA BUILDING CODE

REV	DESCRIPTION	DATE	BY
5	ISSUED FOR CONSTRUCTION	4 APR. 2012	CM
4	REISSUED FOR PERMIT	15 MAR. 2012	CM
3	66% DESIGN DWGS.	5 MAR. 2012	CM
2	ISSUED FOR FOUNDATION PERMIT	20 JAN. 2012	CM
1	33% DESIGN DWGS.	6 JAN. 2012	CM

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CLIENT: CITY OF WINNIPEG  
PUBLIC WORKS DEPARTMENT  
PROJECT NUMBER: 1511  
DRAWN BY: CM  
DATE: MAR. 12, 2012  
SCALE: AS NOTED

PROJECT TITLE:  
**CITY OF WINNIPEG  
PUBLIC WORKS EAST YARD COMPLEX  
MAIN OFFICE & GARAGES**  
SHEET TITLE:  
**FOUNDATION PLAN  
GRID A-F, 1-14**

SHEET NUMBER:  
**S1.0**  
REVISION NUMBER:  
5

