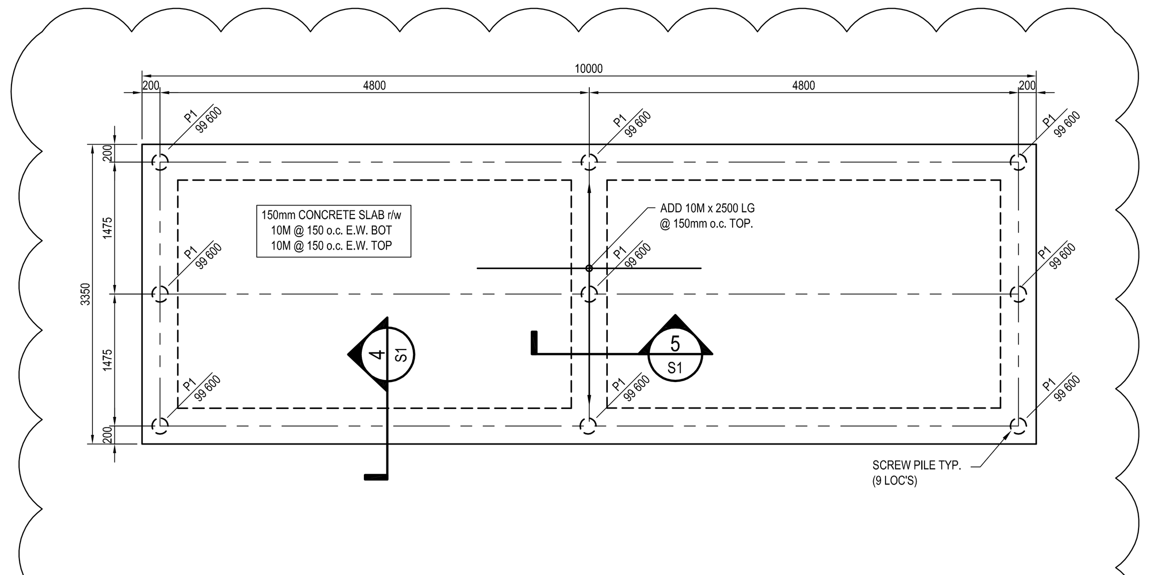
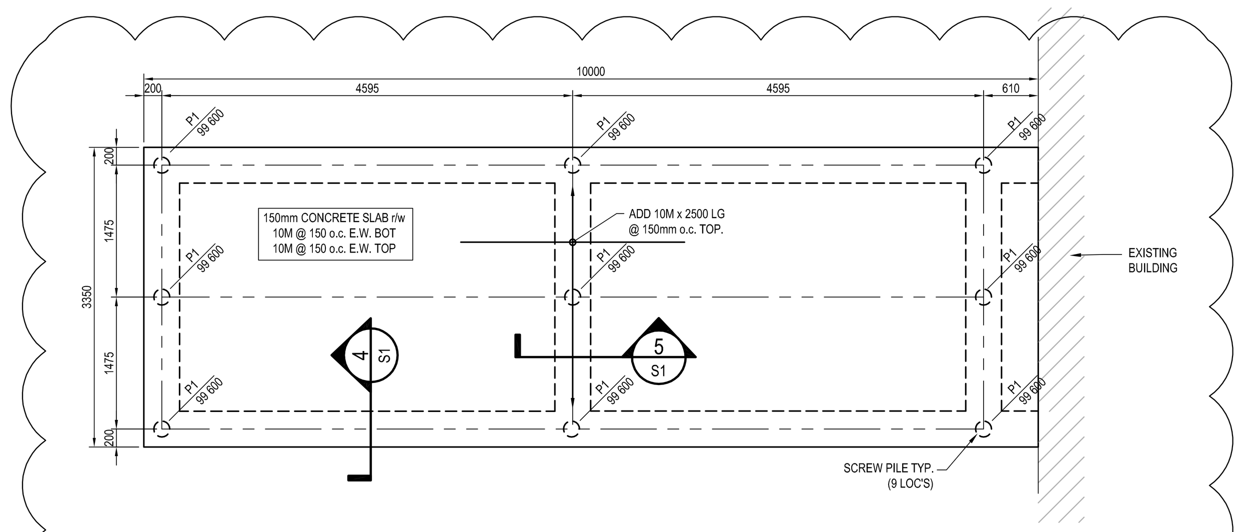
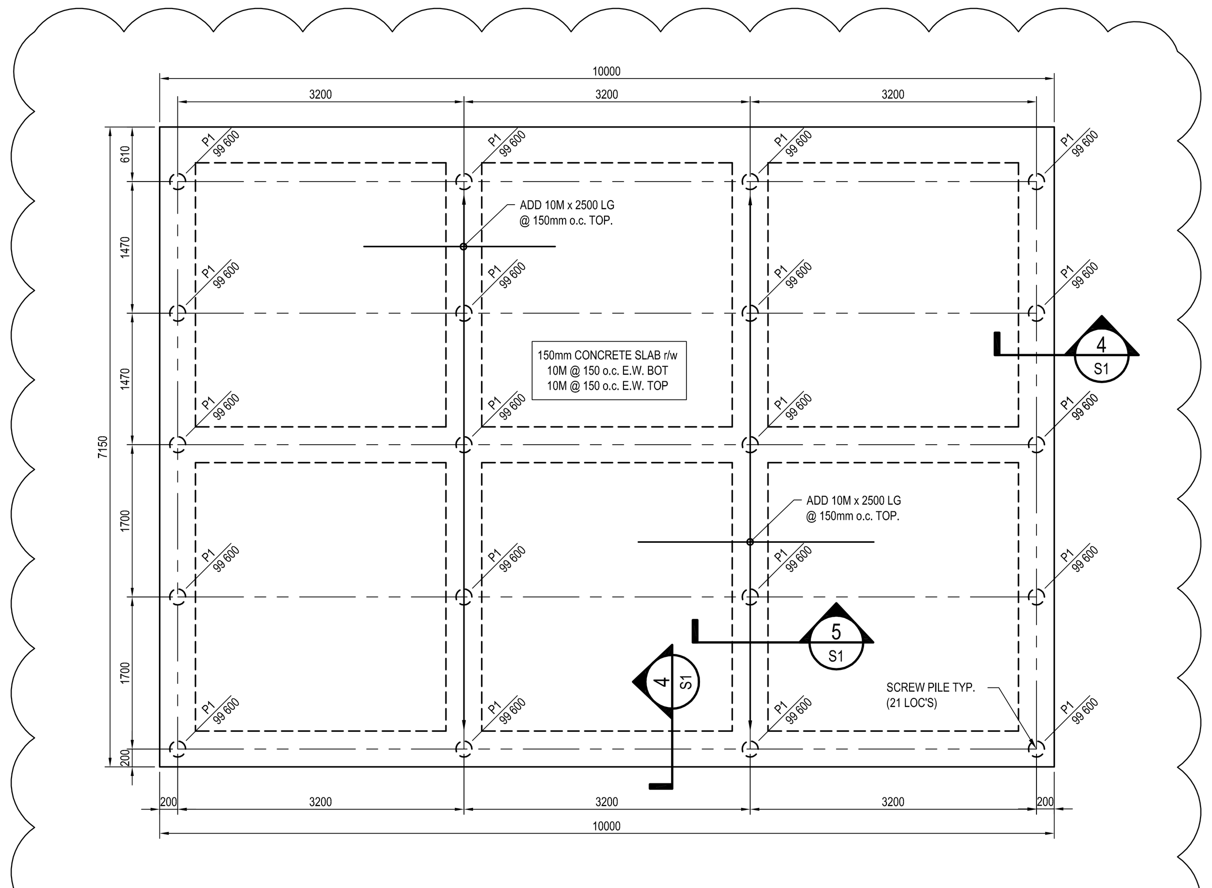
161-11133-00



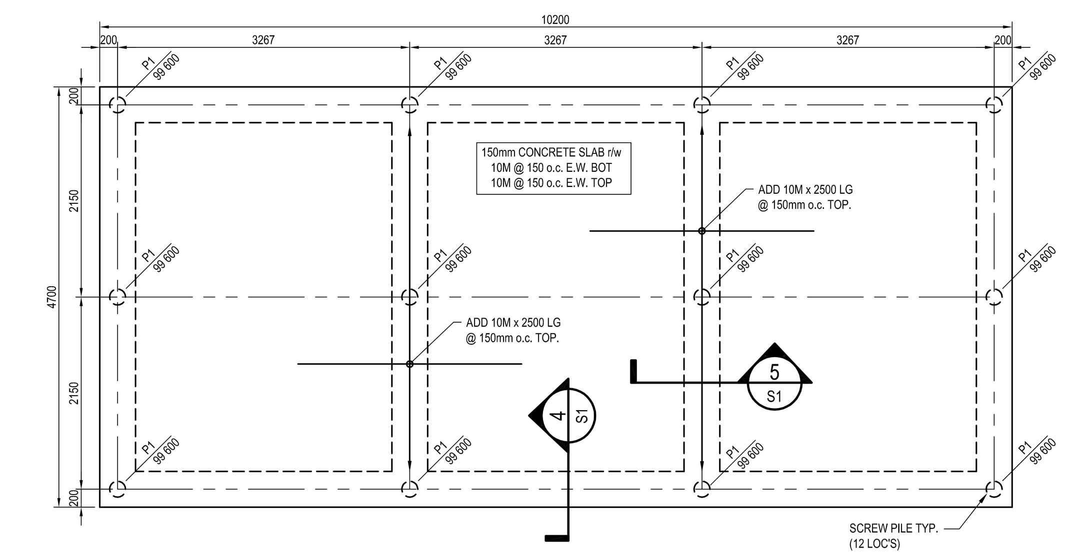
1/S1 PAD 1 (QTY. 4) - E - HOUSE
SCALE: 1:50
NOTE:
1. SEE ELECTRICAL DWGS FOR EXACT LOCATION OF PADS
2. CONFIRM BUILDING SIZES AND LOADING WITH STRUCTURAL CONSULTANT PRIOR TO CONSTRUCTION



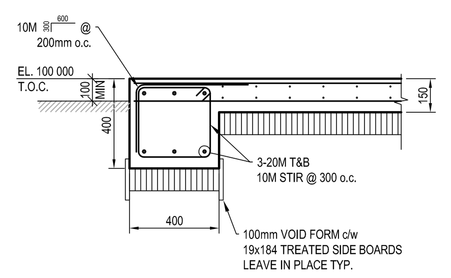
1A/S1 PAD 2 (QTY. 1) - E - HOUSE @ EXISTING
SCALE: 1:50
NOTE:
1. SEE ELECTRICAL DWGS FOR EXACT LOCATION OF PADS
2. CONFIRM BUILDING SIZES AND LOADING WITH STRUCTURAL CONSULTANT PRIOR TO CONSTRUCTION



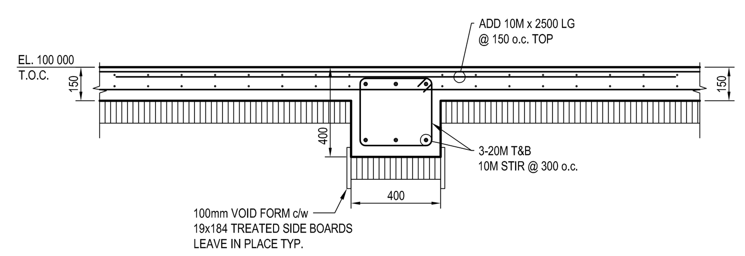
2/S1 PAD 3 (QTY. 1) - GENERATOR FDTN / E - HOUSE
SCALE: 1:50
NOTE:
1. SEE ELECTRICAL DWGS FOR EXACT LOCATION OF PADS
2. CONFIRM BUILDING SIZES AND LOADING WITH STRUCTURAL CONSULTANT PRIOR TO CONSTRUCTION



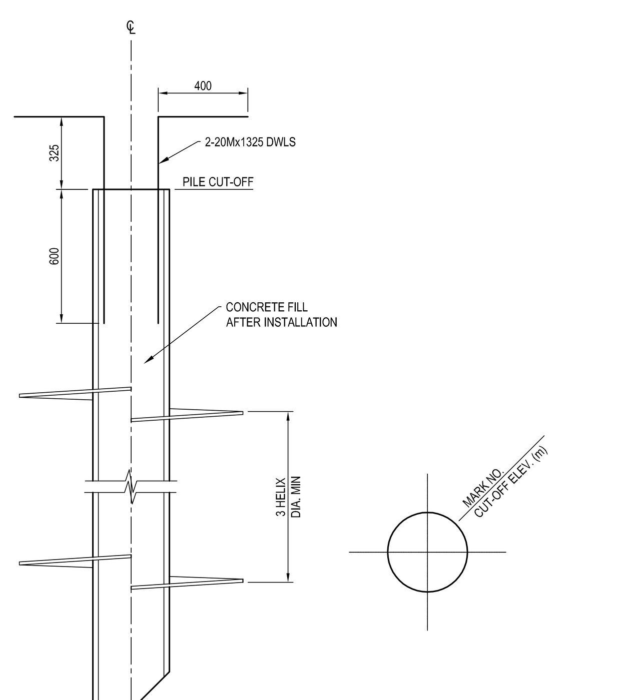
3/S1 PAD 4 (QTY. 1) - GENERATOR FDTN
SCALE: 1:50
NOTE:
1. SEE ELECTRICAL DWGS FOR EXACT LOCATION OF PADS
2. CONFIRM BUILDING SIZES AND LANDING WITH STRUCTURAL CONSULTANT PRIOR TO CONSTRUCTION



4/S1 SECTION
SCALE: 1:20



5/S1 SECTION
SCALE: 1:20



MARK NO.	LENGTH (m)	SHAFT DIA. (mm)	WALL THICKNESS (mm)	HELIX DIA. (mm)	NUMBER OF HELIXES
P1	7.0	178	8.0	610	2

TYPICAL SCREW PILE
1:20

NOTES:
1. MIN PIPE THICKNESS = 8mm
MIN HELIX THICKNESS = 12mm
2. INSTALLATION TORQUE
MIN = 12 000 ft.lbs
MAX = 30 000 ft.lbs

GENERAL

1. THIS IS A METRIC PROJECT. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS AND ALL FORCES ARE IN METRIC UNITS.
2. "WSP-S" REFERS TO WSP CANADA STRUCTURAL CONSULTANT.
3. PRIOR TO CONSTRUCTION, REVIEW STRUCTURAL DRAWINGS IN CONJUNCTION WITH DRAWINGS PROVIDED BY ALL OTHER CONSULTANTS AND EQUIPMENT MANUFACTURERS. CONFIRM ALL DIMENSIONS, ELEVATIONS AND HEADROOM CLEARANCES, AND COORDINATE ALL OPENINGS, SLEEVES AND EMBEDDED ITEMS.
4. REPORT ANY DISCREPANCIES OR CONFLICTS BEFORE PROCEEDING WITH THE WORK.
5. DO NOT CUT OR DRILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT WRITTEN PERMISSION FROM WSP-S.
6. VERIFY EXISTING DIMENSIONS AND CONDITIONS ON SITE PRIOR TO CONSTRUCTION.
7. USE THESE DRAWINGS ONLY FOR THE PURPOSE IDENTIFIED IN THE REVISIONS COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION".
8. DO NOT USE INFORMATION ON THESE DRAWINGS FOR ANY OTHER PROJECT OR WORKS.
9. DO NOT SCALE THESE DRAWINGS.
10. ALL SECTIONS, DETAILS AND STATEMENTS NOTED AS "TYPICAL" APPLY TO LIKE / SIMILAR CONDITIONS IN THE STRUCTURE.
11. DRAWINGS SHOW COMPLETED STRUCTURE ONLY. THEY DO NOT SHOW TEMPORARY WORKS FOR WHICH THE CONTRACTOR IS RESPONSIBLE AND WHICH MAY BE REQUIRED FOR EXECUTION OF THE PROJECT, INCLUDING TEMPORARY SHORING, BRACING, GUYS AND TIE DOWNS. THE CONTRACTOR TO ESTABLISH CONSTRUCTION PROCEDURE AND SEQUENCE TO ENSURE SAFETY OF THE WHOLE STRUCTURE AND ALL ITS COMPONENTS DURING ERECTION.
12. DESIGN OF ALL TEMPORARY WORKS TO BE CARRIED OUT BY A PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED.
13. ANCHOR BOLTS AND OTHER EMBEDDED ITEMS ARE DESIGNED FOR LOADS ACTING ON THE COMPLETED STRUCTURE ONLY AND ARE NOT TO BE USED OR RELIED UPON FOR TEMPORARY SUPPORT OR BRACING DURING ERECTION UNLESS REVIEWED AND APPROVED BY THE CONTRACTOR'S ENGINEER RESPONSIBLE FOR THE ERECTION PROCEDURES.
14. CONSTRUCTION LOADS ON COMPLETED STRUCTURE NOT TO EXCEED DESIGN LOADS INDICATED ON DRAWINGS. FULL DESIGN LOADS MAY ONLY BE APPLIED AFTER THE CONCRETE REACHES ITS DESIGN STRENGTH.
15. MAINTAIN A QUALITY CONTROL PLAN FOR STRUCTURAL WORK, AND MAKE IT AVAILABLE TO THE CONSULTANT UPON REQUEST. AT A MINIMUM, THE PLAN TO INCLUDE:
   1. NAMES OF PERSONNEL RESPONSIBLE FOR EXECUTION OF THE PLAN.
   2. MEANS AND METHODS FOR CONFIRMING MATERIAL COMPLIANCE WITH SPECIFICATIONS AND ASSOCIATED DOCUMENTATION PROCEDURES.
   3. PROGRAM FOR CONFIRMING AND DOCUMENTING COMPLIANCE WITH REQUIRED SUB-TRADE QUALIFICATIONS AND QUALIFICATIONS OF THEIR INDIVIDUAL EMPLOYEES AND SUB-CONTRACTORS.
   4. PROCEDURES FOR REVIEWING FIELD COMPLIANCE WITH CONSTRUCTION DOCUMENTS, INCLUDING DOCUMENTATION OF LOCATIONS REVIEWED, PHOTOGRAPHS TAKEN AND TIMING OF REVIEW. THE CONTRACTOR'S REVIEW TO BE COMPLETED PRIOR TO REVIEW BY THE CONSULTANT.
   5. PROCEDURES FOR RECTIFYING DEFICIENCIES NOTED BY THE CONTRACTOR, SUB-CONTRACTORS, CONSULTANTS AND INDEPENDENT INSPECTION AGENCIES.
16. FOR INSPECTION AND TESTING REQUIREMENTS, REFER TO SPECIFICATIONS.
17. IN CASE OF DISCREPANCY BETWEEN GENERAL NOTES, DRAWINGS AND SPECIFICATIONS, COMPLY WITH THE MOST STRINGENT REQUIREMENTS.

DESIGN DATA

1. STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE 2015 NATIONAL BUILDING CODE (NBC) SUPPLEMENTED BY THE USER'S GUIDE - NBC 2015 STRUCTURAL COMMENTARIES.
2. CONCRETE ELEMENTS ARE DESIGNED PER CSA A23.3-14 - DESIGN OF CONCRETE STRUCTURES.
3. STEEL ELEMENTS ARE DESIGNED PER CSA S16-14 - LIMIT STATE DESIGN OF STEEL STRUCTURES.
4. THE VALUES FOR CLIMATIC DATA USED IN THE DETERMINATION OF DESIGN LOADS HAVE BEEN OBTAINED FROM THE 2015 NBC FOR THE SPECIFIC LOCATION OF PRINCE ALBERT, SK.
5. BASED ON THE USE AND OCCUPANCY, THE BUILDING IS DESIGNED TO THE REQUIREMENTS OF A NORMAL IMPORTANCE CATEGORY.
6. SELF WEIGHT (SWT) IS DUE TO THE WEIGHT OF THE STRUCTURE ITSELF. IT VARIES WITH THE STRUCTURAL SYSTEM, AND INCLUDES CONCRETE TOPPINGS ON STEEL DECK.
7. SUPERIMPOSED DEAD LOADS (SDL) ARE NON-STRUCTURAL DEAD LOADS DUE TO NON-STRUCTURAL TOPPINGS, FINISHES, PARTITIONS, ROOFING MATERIALS, SUSPENDED EQUIPMENT, PAVERS, SOIL, ETC.
8. DEAD LOAD (DL) IS THE SELF WEIGHT OF THE STRUCTURE PLUS THE SUPERIMPOSED DEAD LOAD.
9. UNLESS OTHERWISE NOTED, DESIGN LOADS SHOWN ON DRAWINGS ARE SPECIFIED (UNFACTORED) LOADS, TO BE USED FOR ULS DESIGN. FOR SLS DESIGN, THESE LOADS CAN BE REDUCED BY MULTIPLYING WITH THE RATIO OF APPROPRIATE IMPORTANCE FACTORS Ix(SLS) / Ix(ULS) GIVEN BELOW.
10. IF ONLY ONE VALUE IS GIVEN FOR A LOAD, CONSIDER IT LIVE LOAD.
11. SNOW:
    Ss = 1.9 kPa   Sr = 0.1 kPa   Is (ULS) = 1.0   Is (SLS) = 0.9
    MINIMUM UNFACTORED SNOW LOAD = 1.62 kPa x Is
12. RAIN:
    24 HOUR RAINFALL = 81 mm
13. WIND:
    q50 = 0.38 kPa   Iw (ULS) = 1.0   Iw (SLS) = 0.75
    BUILDING IS: LOW RISE
    TERRAIN TYPE: OPEN
    Ce = 0.9
    INTERNAL PRESSURE CATEGORY: 2

SHOP DRAWINGS

1. SUBMIT SHOP DRAWINGS FOR SCREW PILES, CONCRETE REINFORCING, AND CONCRETE MIX DESIGNS.
2. REVIEW OF SHOP DRAWINGS BY WSP-S IS ON A SAMPLING BASIS, FOR GENERAL CONFORMITY WITH STRUCTURAL CONTRACT DOCUMENTS. IT IS NOT A DETAILED CHECK AND MUST NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR OF HIS RESPONSIBILITY TO MAKE THE WORK ACCURATE AND IN CONFORMITY WITH ALL THE CONTRACT DOCUMENTS, TO REVIEW SHOP DRAWINGS AND TO COORDINATE WORK OF INTERFACING TRADES AND MANUFACTURE OF INTERFACING PRODUCTS.
3. REVIEW OF SHOP DRAWINGS DOES NOT IMPLY ANY CHANGE IN ANY OTHER CONSULTANTS' OR PROFESSIONALS' RESPONSIBILITIES RELATED TO DESIGN OF SPECIFIC ITEMS AS OUTLINED BY THE SPECIFICATIONS.
4. ALLOW A MINIMUM OF 10 WORKING DAYS FOR REVIEW OF EACH SUBMISSION OF SHOP DRAWINGS IN WSP-S OFFICE. ALLOW MORE TIME WHEN LARGE QUANTITIES OF SHOP DRAWINGS ARE SUBMITTED. SUBMIT IN GENERAL CONFORMITY WITH THE SEQUENCE OF CONSTRUCTION INTENDED.
5. AFTER REVIEW, THE DRAWINGS WILL BE STAMPED AND RETURNED. DO NOT COMMENCE FABRICATION UNTIL RETURNED SHOP DRAWINGS HAVE BEEN EXAMINED.
6. SHOP DRAWINGS MARKED 'REVIEWED' CAN BE USED FOR FABRICATION. DO NOT MAKE ANY CHANGES OR ADDITIONS TO THESE DRAWINGS WITHOUT NOTIFYING THE CONSULTANT.
7. SHOP DRAWINGS MARKED 'REVIEWED AS NOTED' CAN BE USED FOR FABRICATION AFTER THE REVISIONS NOTED ARE IMPLEMENTED. DO NOT MAKE ANY FURTHER CHANGES OR ADDITIONS TO THESE DRAWINGS WITHOUT NOTIFYING THE CONSULTANT.
8. SHOP DRAWINGS MARKED 'REVISE AND RESUBMIT' REQUIRE SUBSTANTIAL REVISIONS AND MUST BE RESUBMITTED FOR ADDITIONAL REVIEW PRIOR TO FABRICATION. ALL CHANGES AND ADDITIONS TO THE PREVIOUS SUBMISSION TO BE CLEARLY IDENTIFIED ON THE RESUBMITTED DRAWINGS.
9. SHOP DRAWINGS MARKED 'REVIEWED FOR IMPACT ON BASE STRUCTURE ONLY' SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES BUT AFFECT BEHAVIOUR OF THE BASE STRUCTURE. WSP-S WILL NOT REVIEW DESIGN OF THESE WORKS AND ASSUMES THAT THE INDICATED WEIGHTS AND ALL OTHER LOADS IMPOSED ON THE BASE STRUCTURE ARE CORRECTLY IDENTIFIED BY THE DESIGNER / SUPPLIER OF THESE ELEMENTS.
10. DRAWINGS MARKED 'NOT REVIEWED' SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES AND DO NOT IMPACT THE BASE BUILDING STRUCTURE.

FOUNDATIONS

1. STRUCTURAL DESIGN IS BASED ON THE GEOTECHNICAL REPORT PREPARED BY: P. MACHIBRODA ENGINEERING LTD. REPORT NUMBER: S12-8135 DATED: JULY 26, 2012.
2. FOUNDATIONS WILL BE SUPPORTED BY CLAY EXPECTED TO BE FOUND BETWEEN ELEVATIONS 5m AND 10m BELOW EXISTING GRADE. GROUND WATER MAY BE ENCOUNTERED ABOVE THE FOUNDING ELEVATIONS; REFER TO THE GEOTECHNICAL REPORT FOR DETAILED INFORMATION ON GEOTECHNICAL CONDITIONS, FOUNDATION RECOMMENDATIONS, AND FOR ALL EARTHWORK INCLUDING EXCAVATION, BACKFILL AND SUBGRADE PREPARATION.
3. PILES TO BE CONCRETE FILLED HELICAL SCREW PILES AS DETAILED ON DRAWINGS WITH STEEL PIPE MINIMUM YIELD Fy =240 MPa.
4. ASSUMED SLS PILE CAPACITY IN COMPRESSION IS 140 kN.
5. ASSUMED SLS PILE CAPACITY IN TENSION IS 140 kN.
6. PILE TOLERANCES:
   MAXIMUM DEVIATION AT CUT OFF ELEVATION FROM POSITION ON PLAN: 75 (3")
   MAXIMUM DEVIATION FROM CUT OFF ELEVATION: +12 (+1/2"), -50 (-2")
   MAXIMUM DEVIATION FROM PLUMB: 2%
   PROJECTION OVER LEGAL BOUNDARY: ZERO

CAST-IN-PLACE CONCRETE

1. CONCRETE IS SPECIFIED PER ALTERNATIVE 1 - PERFORMANCE SPECIFICATION, AS OUTLINED IN CSA A23.1. THE CONTRACTOR AND THE CONCRETE SUPPLIER TO MEET ALL CERTIFICATION, DOCUMENTATION, AND QUALITY CONTROL REQUIREMENTS.
2. CONTRACTOR AND CONCRETE SUPPLIER TO ENSURE THAT PLASTIC AND HARDENED MIX PROPERTIES MEET SITE REQUIREMENTS FOR PLACING, FINISHING AND THE SPECIFIED PERFORMANCE REQUIREMENTS.
3. CONCRETE SUPPLIER TO BE CERTIFIED BY THE SASKATCHEWAN READY MIXED CONCRETE ASSOCIATION.
4. CEMENT TO BE PORTLAND CEMENT TYPE GU UNLESS NOTED OTHERWISE OR REQUIRED BY EXPOSURE CLASS.
5. CONCRETE TO BE NORMAL DENSITY (MIN. 2300 kg/m3) UNLESS NOTED OTHERWISE.
6. NOMINAL MAXIMUM SIZE OF COARSE AGGREGATE TO BE 20 (3/4") UNLESS NOTED OTHERWISE.
7. UNLESS NOTED OTHERWISE, CONCRETE TO BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

ELEMENT	COMPRESSIVE STRENGTH (MPa) AT 28 DAYS (SEE NOTE #1 BELOW)	EXPOSURE CLASS	SPECIAL REQUIREMENTS & REMARKS
STRUCTURAL SLABS	35	S1	

NOTES:
1. WHERE HVSCM (AS DEFINED IN CSA A23.1) OR ANY CLASS "S" EXPOSURE CONCRETE IS USED, SPECIFIED CONCRETE STRENGTH TO BE ATTAINED AT 56, RATHER THAN AT 28 DAY.

8. REFER TO CSA A23.1 FOR THE MAXIMUM WATER/CEMENT RATIO, MINIMUM COMPRESSIVE STRENGTH, AIR CONTENT, CURING REQUIREMENTS, CHLORIDE ION PENETRABILITY AND ALTERNATE CEMENT TYPES TO MEET THE REQUIREMENTS FOR THE NOTED EXPOSURE CLASS.
9. WHERE REQUIRED BY SPECIFICATIONS, PROVIDE MINIMUM AMOUNT OF SUPPLEMENTAL CEMENTING MATERIALS SPECIFIED FOR THE OVERALL PROJECT.
10. CONVEY CONCRETE FROM TRUCK TO FINAL LOCATION BY METHODS WHICH WILL PREVENT SEPARATION OR LOSS OF MATERIAL. MAXIMUM FREE FALL NOT TO EXCEED 1.5m (5'-0"). CONSOLIDATE CONCRETE USING MECHANICAL VIBRATORS.
11. PLACE CONCRETE AS CLOSE AS POSSIBLE TO FINAL LOCATION TO AVOID SEGREGATION. VIBRATE ALL CONCRETE.
12. PROTECT CONCRETE FROM FREEZING. DO NOT PLACE CONCRETE AGAINST FROZEN GROUND. USE COLD WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1.
13. PROTECT CONCRETE FROM EXCESSIVE HEAT AND DRYING. USE HOT WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1.

CONCRETE REINFORCEMENT

1. REINFORCEMENT TO CONFORM TO THE FOLLOWING STANDARDS:
   DEFORMED BARS - CSA G30.18, GRADE 400R
   ALL REBAR HOOKS TO BE STANDARD LENGTH 90° OR 180° HOOKS. REBAR LENGTHS LISTED ON DRAWINGS DO NOT INCLUDE THE HOOK LENGTH.
2. UNLESS A SPECIFIC STIRRUP SHAPE IS INDICATED ON PLANS OR SCHEDULES, ALL STIRRUPS TO BE CLOSED HOOPS. NUMBER OF STIRRUPS DENOTES THE NUMBER OF FULL STIRRUPS.
3. PROVIDE ADDITIONAL SUPPORT BARS AS REQUIRED TO ADEQUATELY SUPPORT AND SECURE ALL REINFORCEMENT AND PREVENT MOVEMENT WHEN PLACING CONCRETE.
4. PROVIDE SUFFICIENT CHAIRS TO REINFORCING TO MAINTAIN SPECIFIED CONCRETE COVER.
5. ALL REINFORCING TO BE CLEAN, FREE OF LOOSE SCALE, OIL, DIRT, RUST, AND ANY OTHER FOREIGN COATING THAT AFFECT BONDING CAPACITY.
6. MINIMUM CLEAR SPACING BETWEEN ADJACENT BARS TO BE AT LEAST 1.4 TIMES THE BAR DIAMETER OR 1.4 TIMES THE NOMINAL MAXIMUM SIZE OF THE COARSE AGGREGATE, WHICHEVER IS MORE.
7. WHERE PARALLEL REINFORCEMENT IS PLACED IN TWO OR MORE LAYERS, POSITION BARS IN UPPER LAYER DIRECTLY ABOVE THE BARS IN LOWER LAYER, MAINTAINING THE MINIMUM CLEAR SPACING BETWEEN LAYERS AS SPECIFIED ABOVE.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

WSP
203 WELLMAN CRESCENT
SASKATOON SASKATCHEWAN CANADA S7T 0J1
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CERTIFICATE OF AUTHORIZATION WSP Canada Inc.

Revision/Révision	Description/Description	Date/Date
1	ISSUED FOR ADDENDUM	10/04/2018
0	ISSUED FOR TENDER	25/01/2018

Client/client
CORRECTIONAL SERVICE CANADA

Project title/Titre du projet
SASKATCHEWAN PENITENTIARY ELECTRICAL UPGRADES 2017

Approved by/Approuvé par: M.J.W.
Designed by/Concept par: M.J.W.
Drawn by/Dessiné par: A.M.C.
PWGSC Project Manager/Administrateur de Projets TPSGC: -
PWGSC, Architectural and Engineering Resources Manager/Ressources Architectural et de Directeur d'ingénierie, TPSGC: -
Client/client: CORRECTIONAL SERVICE CANADA

Drawing title/Titre du dessin
PACKAGE 0 - STRUCTURAL GENERATOR AND E-HOUSE PAD DETAILS

Project No./No. du projet: R.080653.001
Sheet/Feuille: S1-00-01 OF 1
Revision no./La Révision no.: 1

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