

REQUEST FOR PROPOSALS "RFP" NO. PS20171423  
DESIGN-BUILD REPLACEMENT GAS FLARE STACKS AT THE VANCOUVER LANDFILL

QUESTIONS AND ANSWERS NO. 2

ISSUED ON MARCH 20, 2018

Q1	Section 11400 of the CH2M technical specifications that form the reference concept for this project refers to the HMI. Is an HMI part of the design/builder's scope or is the intent for the current HMI software to be altered to incorporate the new flares? If so, what HMI is to be provided? If not, who will handle the HMI work and how will this be coordinated with the design/builder's flare supplier?
A1	The HMI is part of the Design Builder's scope. The Design Builder will have onsite access to the local HMI (Allen Bradley Factory Talk View Studio). The Design Builder can perform the programming onsite or obtain a copy of the program to work on it offsite. However, the Design Builder should have their own copy of the software for offsite work.
Q2	In the control block diagram on the CH2M drawing E-81, where is the Industrial Ethernet switch located? Is it existing or does this need to be supplied as part of the ControlLogix control panel? If so, what are the required specs for the switch?
A2	The Industrial Ethernet Switch will be supplied as part of the external remote I/O panel. Two Cat5e cables will be going from the internal Controllogix panel to the remote I/O panel switch. There will also be another Cat5e cable going from the remote I/O panel switch to the internal existing SLC500 panel switch. The model that is recommended is: Allen Bradley 1783 - BMS06TGA
Q3	With respect to Section 2.4.4 of the RFP on Automation: a. Should the new Flare 5/6 control panel be designed to eventually control all five flares? b. Should the remote I/O panel have sufficient inputs and outputs for all 5 flares? c. What are the guidelines for which spare cards to provide? d. There is a large selection of ControlLogix processors available with a wide range in costs. What is the criteria for selecting the processor to be used in this project? e. It will be necessary for programming changes to be made to the current flare control panel to allow the necessary integration with the new flares. Who will be responsible for the work in the existing control panel and PLC?
A3	a) Yes the control panel should be designed to eventually control all five flares.

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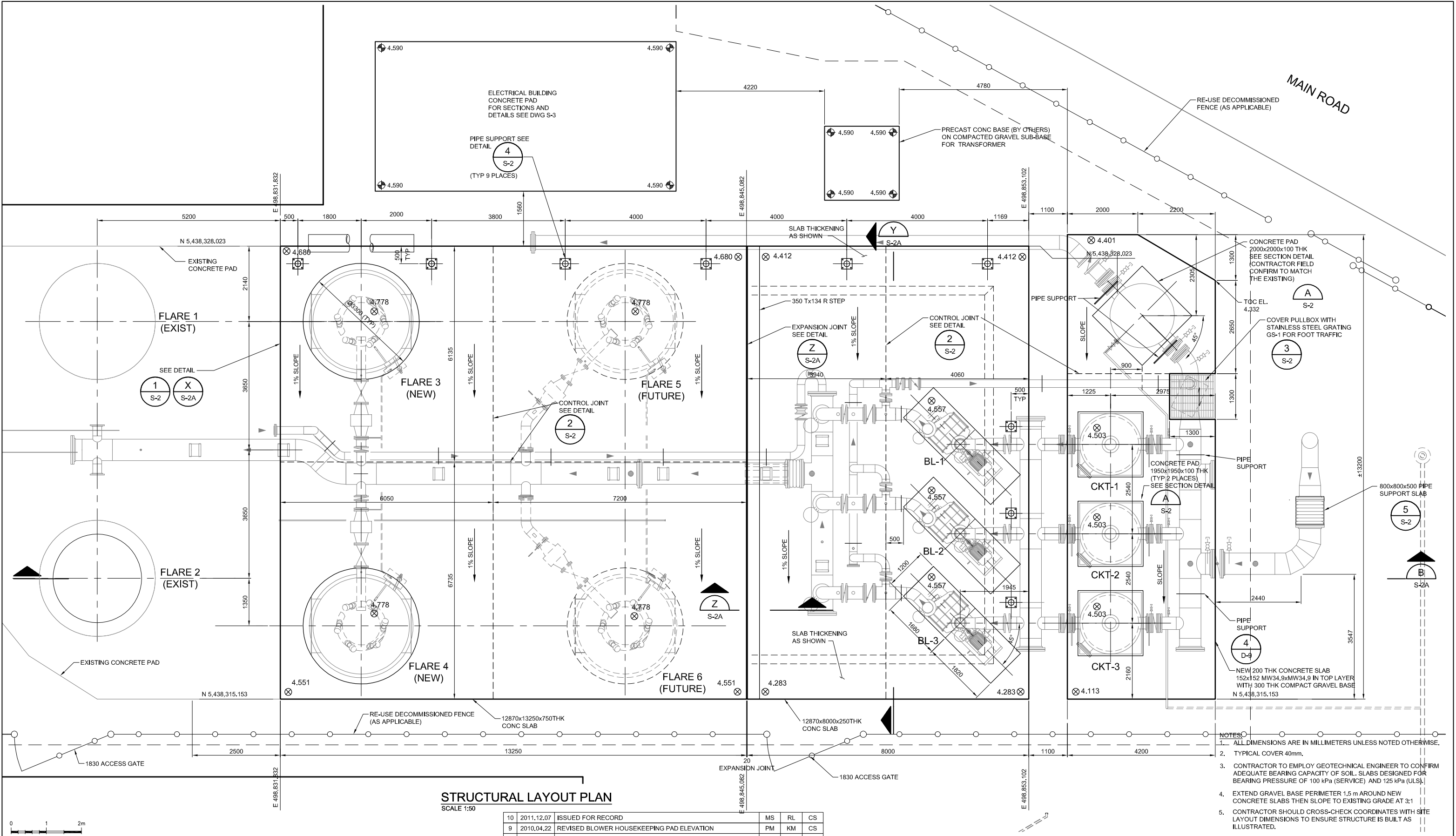
	<p>b) No the remote panel should have sufficient inputs and outputs that pertain to flares 5 and 6 only. With 30% contingency for future inputs and outputs for additional instrumentation for flares 5 and 6</p> <p>c) Guidelines for spares should be to have one of each input and outcard type for flares 5/6</p> <p>d) Criteria for the Controllogix CPU will be memory size, minimum of 2 MB. Recommendation is the L71 CPU</p> <p>e) The Design Builder will be responsible for the integration of the new flares with the old flares. The City's SCADA team can support the Design Builder with the integration.</p>
Q4	Section 3.5 of the RFP (page B-15) indicates that the design-builder shall assume the responsibility to assess the structural suitability and integrity of the existing concrete pad for the pedestals and for the structural design/installation of the pedestals for the Flares 5 and 6 based on the information provided within the RFP and attached reports. Can the City provide the stamped as-built drawing and technical specifications for the existing concrete pad?
A4	Please refer to stamped and sealed City of Vancouver Phase 1 Closure Project Record Drawings S-2A, S-3, S-1, S-2 and Section 03306 Concrete Work (attached).
Q5	It is necessary to strictly follow the specifications of the RFP in order to have a compliant proposal? For example, some of the technical requirements no longer meet industry standards and/or have been replaced with other methods. Our intention is to provide only one proposal with the most up to date CSA code compliant equipment and systems, which may not necessarily strictly follow the specifications. Please confirm that this is acceptable and compliant.
A5	<p>The 30% schematic designs and draft technical specifications prepared by CH2M constitute the Reference Concept. As stated in the RFP, the Reference Concept is provided for information purpose and to communicate a general approach for the LFG flare replacement only, and may not meet all of the City's performance, technical, contractual or regulatory requirements. It is anticipated that the Design-Builder will review the Reference Concept, and using independent professional judgement, refer to the Reference Concept as they see fit, in the preparation of their proposals and in the development of detailed designs and construction packages.</p> <p>It is the responsibility of the Design Builder to ensure that they develop detailed design packages and technical specifications which meet all the most up to date municipal bylaws, design codes, regulations and standards.</p>
Q6	The Proponent would like the City to consider a tentative award date of May 14 2018 in order for the design team to meet a 60% design submission by July 20th 2018 as stated in section 9.0 page b-32 schedule requirements. The 100 % design submission would also need to move to August 30th, 2018. Please advise if this would be acceptable to the city.

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A6	Due to the value of the RFP, the procurement requires Bid Committee and Council approvals. Based on the current project schedule, it is anticipated that the Notice of Award date will be June 6, 2018. Proponent to propose alternative Milestone Schedule dates to be reviewed by the City.
Q7	Due to the spring break vacation period in March that coincides with the closing date of March 29th, we are requesting an extension for the closing date from March 23rd to Tuesday April 10th 2018 at 3:00 PM closing time.
A7	Please see Amendment 1.

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STRUCTURAL LAYOUT PLAN  
SCALE 1:50

10	2011.12.07	ISSUED FOR RECORD	MS	RL	CS
9	2010.04.22	REVISED BLOWER HOUSEKEEPING PAD ELEVATION	PM	KM	CS
8	2010.04.22	REVISED CONCRETE SLAB	PM	KM	CS
7	2009.11.06	REVISED CONCRETE SLAB	PM	KM	CS
6	2009.08.28	ISSUED FOR UPDATING DIMENSIONS	MS	KM	CS
5	2009.08.07	ISSUED FOR UPDATING DIMENSIONS	MS	KM	CS
4	2009.07.22	ISSUED FOR ADDITION OF PIPE SUPPORTS / SLAB ELEVATIONS	MS	KM	CS
3	2009.07.07	ISSUED FOR CHANGE OF CONCRETE SLAB	MS	KM	CS
2	2009.06.02	ISSUED FOR CHANGE OF FLARE 4	MS	KM	CS
1	2009.03.27	ISSUED FOR CONSTRUCTION	MS	KM	CS
NO.	DATE	REVISIONS	BY	CHK'D	APP'D

ENGINEER



CH2MHILL

LANDFILL GAS CONTROL SYSTEM

VANCOUVER LANDFILL  
PHASE 1 CLOSURE PROJECT

FLARE STATION  
STRUCTURAL LAYOUT PLAN

DATE	2008.12.01	SCALE	1:50
DRAWN	SES	REV. NO.	1
PROJECT NO.	356215	DRAWING NO.	S-1

RECORD DRAWINGS

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VERIFY SCALES

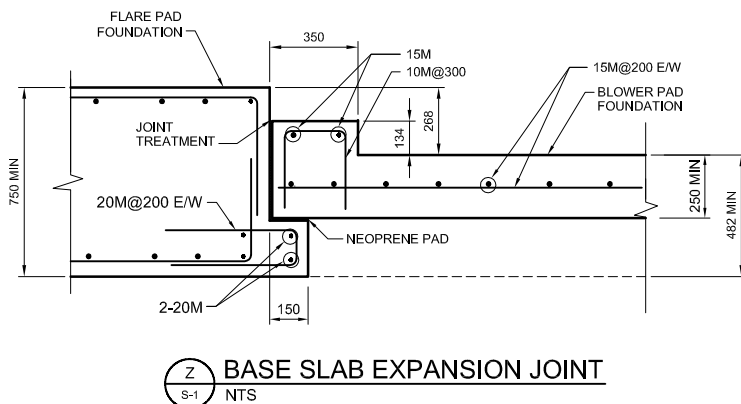
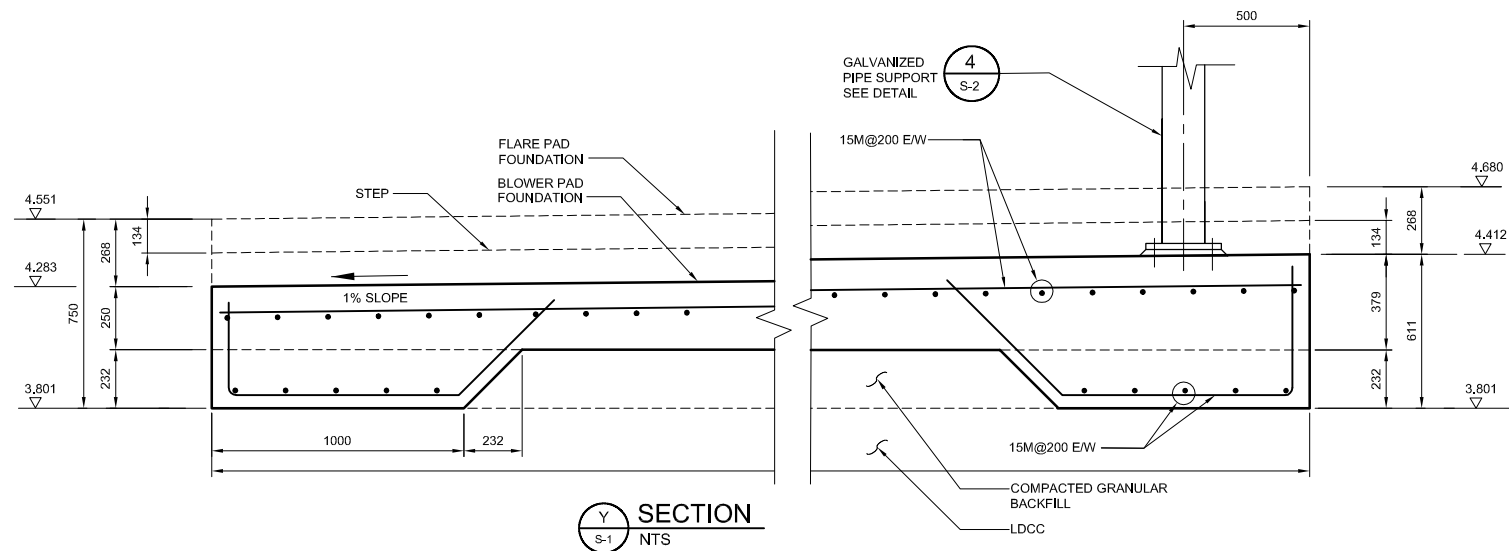
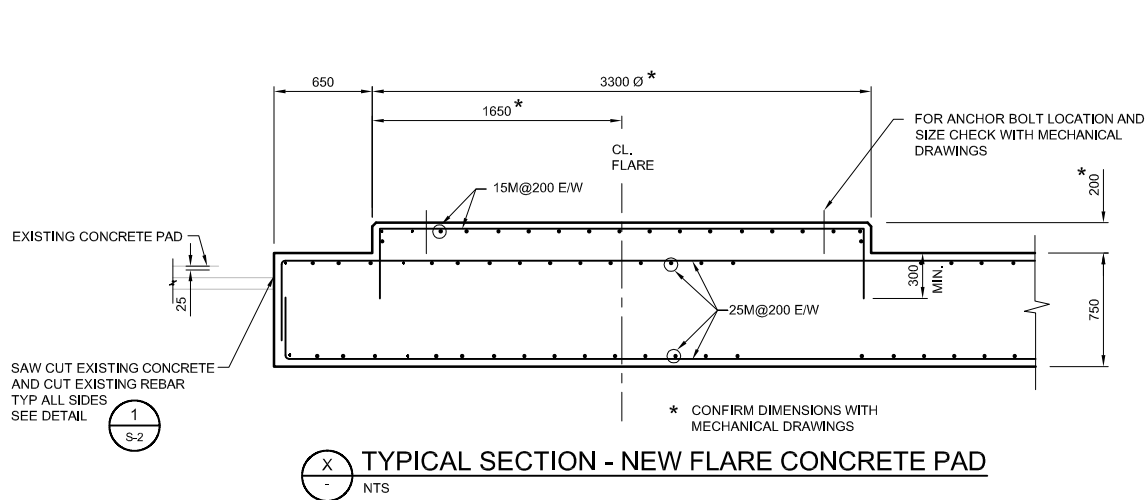
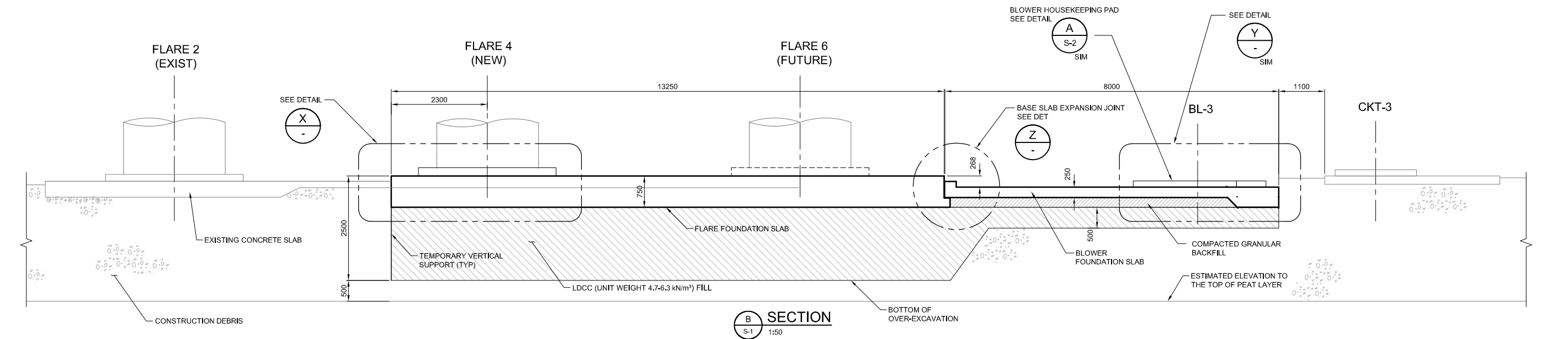
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NOTE:  
EXIST FLARE PAD ELEVATIONS VARY. ELEVATIONS  
FOR NEW FLARE PAD ON S-1 GOVERN.

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NO.	DATE	REVISIONS	BY	CHK'D	APP'D

ENGINEER



CITY OF VANCOUVER

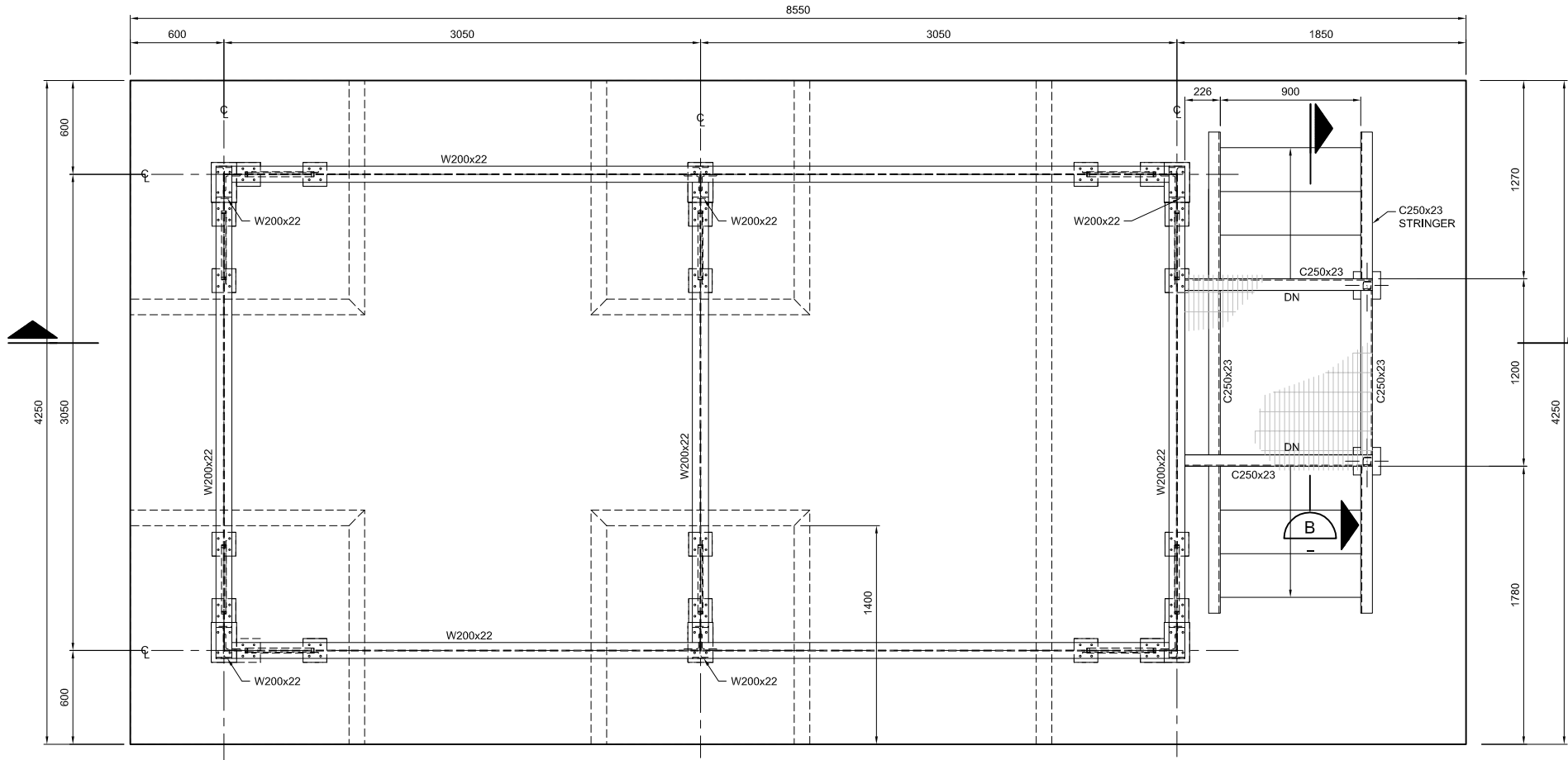
CITY OF VANCOUVER  
PHASE 1 CLOSURE PROJECT

STRUCTURAL TYPICAL  
SECTIONS AND DETAILS

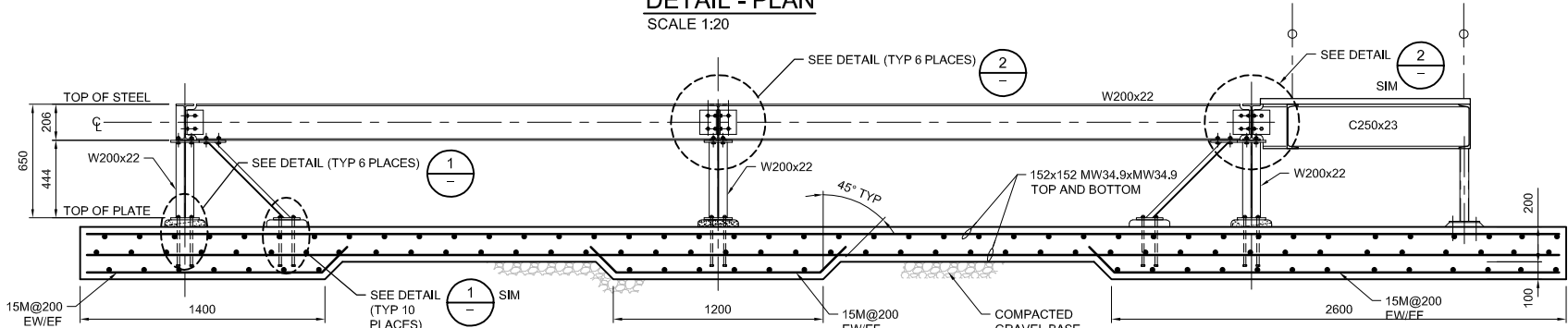
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DRAWN	SES	REV. NO.	8
PROJECT NO.	356215	DRAWING NO.	S-2A

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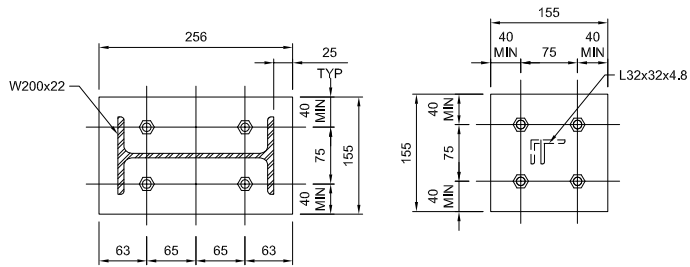
NOTES:  
1. ALL DIMENSIONS ARE MILLIMETERS  
UNLESS NOTED OTHERWISE.



DETAIL - PLAN  
SCALE 1:20

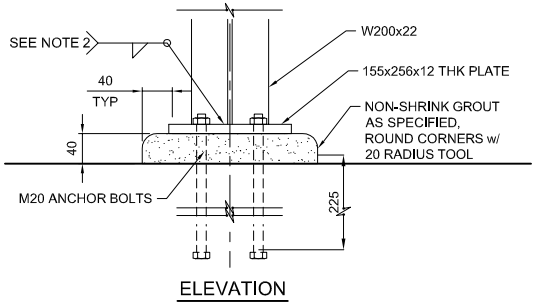


SECTION  
SCALE 1:20



COLUMN PLAN

SUPPORT PLAN



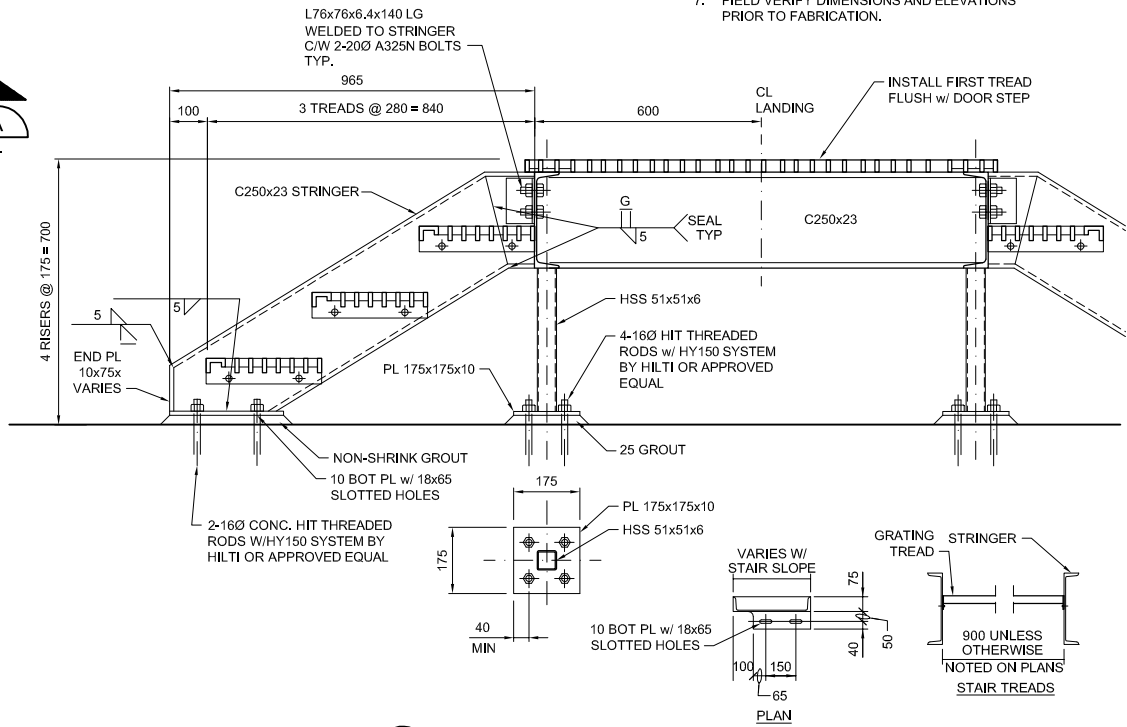
ELEVATION

STEEL COLUMN BASE  
SCALE NTS

STAIRWAY WIDTH	TREAD BEARING BARS STEEL TREAD
685 OR LESS	20mm x 5mm
840 OR LESS	25mm x 5mm
990 OR LESS	30mm x 5mm
1400 OR LESS	40mm x 5mm

STAIR DETAILS - STEEL NOTES:

1. PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE AS SPECIFIED.
2. C250x23 STRINGERS TYPICAL EXCEPT WHERE OTHERWISE NOTED ON PLANS.
3. GALVANIZED STEEL GRATING TREADS UNLESS OTHERWISE NOTED ON PLANS.
4. REMOVABLE STAIR HANDRAIL NOT SHOW.
5. STAIR MANUFACTURER TO COORDINATE BOLTED TREADS AND REMOVABLE HANDRAIL CONNECTIONS.
6. HOT DIP GALVANIZE ALL MEMBERS AND FASTENERS AFTER FABRICATION.
7. FIELD VERIFY DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION.



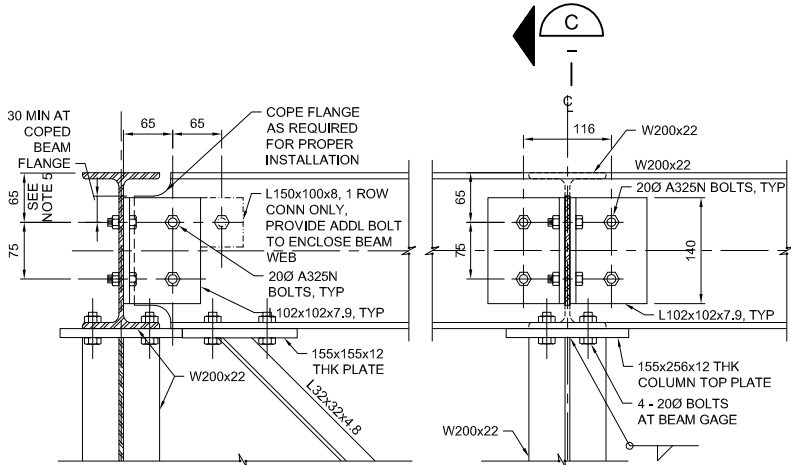
STAIR DETAILS - STEEL  
SCALE NTS

TYPICAL BEAM CONNECTION NOTES:

1. UNLESS NOTED OTHERWISE, NUMBER OF ROWS IS EQUAL TO NUMBER OF BOLTS TO ENCLOSE BEAM WEB.
2. ALL BEAM FRAMING CONNECTIONS SHALL CONFORM TO THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE OR APPROVED IN WRITING BY THE ENGINEER.
3. EXTEND LONG LEG OF DOUBLE ANGLE ALONG BEAM WEB AND PROVIDE ADDITIONAL BOLT TO ENCLOSE BEAM WEB AS SHOWN.
4. PROVIDE ADDITIONAL LENGTH OF 40 TO DOUBLE ANGLE FOR STAGGERED BOLT CONNECTIONS WHERE REQUIRED.
5. DIMENSION SHALL BE 75 UNLESS OTHERWISE REQUIRED FOR PROPER FABRICATION.
6. FOR CORNER CONNECTIONS, ONLY ATTACH L102x102x7.9 TO CORRESPONDING SIDE.

STEEL COLUMN BASE NOTES:

1. UNLESS NOTED OTHERWISE, ANCHOR BOLTS SHALL BE 200 x REQUIRED WITH LEVELING NUTS AND 225 MINIMUM EMBED AND BASEPLATES SHALL BE CENTERED ON COLUMN.
2. WELD SIZE SHALL BE DETERMINED BY THE THICKEST MEMBER JOINED, MINIMUM WELD SIZE SHALL BE 5 FILLET FOR MATERIAL THICKNESS' UP TO AND INCLUDING 15, 6 FILLET FOR THICKNESS' OVER 15 TO 20 AND 8 FILLET FOR MATERIAL THICKNESS' OVER 20. ALL WELDS SHALL BE SINGLE-PASS WELDS.



SECTION

TYPICAL BEAM CONNECTION  
SCALE NTS

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0	2008.12.01	ISSUED FOR TENDER	KS	KM	CS	



CITY OF VANCOUVER

CITY OF VANCOUVER  
PHASE 1 CLOSURE PROJECT

ELECTRICAL BUILDING PAD, STRUCTURAL  
TYPICAL SECTIONS AND DETAILS

DATE 2008.12.01	SCALE NTS
DRAWN SES	REV. NO. 1
PROJECT NO. 356215	DRAWING NO. S-3

**SECTION 03306  
CONCRETE WORK**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Comply with requirements of CSA A23.1, except where noted otherwise in this Specification.
- B. Do not use materials which are toxic in installed condition.

**1.02 REFERENCES**

- A. CSA A5 Portland Cement.
- B. CSA A23.1 Concrete Materials and Methods of Concrete Construction.
- C. CSA A23.2 Methods of Test for Concrete.
- D. CSA A23.5 Supplementary Cementing Materials.
- E. CSA A362 Blended Hydraulic Cement.
- F. CSA A363 Cementitious Hydraulic Slag.
- G. CAN/CSA-G30.18-M Billet-Steel Bars for Concrete Reinforcement.
- H. CAN/CSA-S269.3-M Concrete Formwork.
- I. NLGA-1987 Standard Grading Rules for Canadian Lumber.
- J. ACI 304.2R Placing Concrete by Pumping Methods
- K. ASTM C260 Standard Specification for Air-Entraining Admixtures for Concrete.
- L. ASTM C494-M Standard Specification for Chemical Admixtures for Concrete.
- M. ASTM C1240 Specification for Silica Fume used in cementitious mixtures

**1.03 SYSTEM DESCRIPTION**

- A. Formwork: Comply with requirements of CAN/CSA-S269.3-M.



B. Normal-density concrete 28-day compressive strengths:

1. Type A: 32 MPa.
2. Type B: 15 MPa.

C. Normal density  $2350 \pm 50 \text{ kg/m}^3$

#### 1.04 SUBMITTALS

- A. Submit reinforcing bar placement drawings prepared in accordance with Reinforcement Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.
- B. Submit proposed concrete mixes, aggregate grading curves, and supplier's applicable standard deviations.

#### 1.05 QUALITY CONTROL

- A. Testing of concrete for materials and compression will be done by agencies paid for by the Contractor.
- B. Contractor must provide a minimum 48 hour advance notice to the City & Engineer prior to casting.

#### 1.06 SITE CONDITIONS

- A. Comply with requirements of CSA A23.1, Clause 21.2.3 - Cold-Weather Protection.
- B. Protect freshly placed concrete from damage due to construction operations and from cold, heat, rain, snow, running water, drying winds, and other circumstances which would cause deterioration of concrete quality.
- C. Contractor to verify that concrete has attained specified compressive strength before backfilling or subjecting to service loads.

### **PART 2 PRODUCTS**

#### 2.01 MATERIALS

- A. Lumber for formwork: Grade-marked sawn lumber graded in accordance with NLGA.
- B. Plywood for formwork: CSA A23.1; high density overlay grade plywood.

- C. Form release agent: Flashpoint 40°C minimum; freezing point -15°C maximum; does not leave a residue, discolouration, or stain concrete surface.
- D. Reinforcing bars: CAN/CSA-G30.18-M; Grade 400R.
- E. Welded steel wire fabric: CSA G30.5-M: electrically welded steel wire fabric, flat sheets only.
- F. Portland cement: Type: MSb: CSA A3000
- G. Cementitious Hydraulic Slag: CSA A23.5 meeting requirements of Appendix A, Table A1 and CSA A363.
- H. Aggregates:
  - 1. Coarse aggregate: CSA A23.1; rough and angular gravel or crushed stone.
  - 2. Fine aggregate: CSA A23.1; natural sand.
- I. Admixtures:
  - 1. Compatible with each other and with other concrete materials.
  - 2. Calcium chloride, thiocyanates, or admixtures containing more than 0.05% chloride ions, are not permitted.
  - 3. Air-entraining admixture: ASTM C260; non-detergent type.
  - 4. Chemical admixtures: ASTM C494.
- J. Non-shrink non-ferrous grout:
  - 1. In-Pakt Pre-Mix by C C Chemicals Limited.
  - 2. Masterflow 713 Grout by Master Builders Technologies Ltd.
  - 3. M-Bed Standard by Sika.

## 2.02 CONCRETE MIXES

- A. Establish proportions of cement, aggregates, water, and admixtures required to produce watertight, durable concrete with strength and other properties specified.
- B. Types of Normal-density Concrete:
  - 1. Type A: Concrete for structures containing reinforcing bars, unless specified otherwise.
  - 2. Type B: Fill concrete, unless specified otherwise.
- C. Mixes for Normal-density Concrete

1. Minimum Content of cementing materials:
  - a. Type A: 330 kg/m<sup>3</sup>.
  - b. Type B: 180 kg/m<sup>3</sup>.
2. Coarse aggregates: Nominal size 20 mm to 5 mm.
3. Water/Cementing Materials Ratio (W/C):
  - a. Type A: 0.45 maximum.
  - b. Type B: As required for strength and workability.
4. Provide slump consistent with placement, consolidation methods equipment and site conditions.
5. Comply with CSA A23.1, Table 10 - Requirements for the air content categories specified in Tables 12 and 14.

## 2.03 FABRICATION

- A. Reinforcing bars: Comply with CSA A23.1 and CSA A23.3.
- B. Reinforcing bar development length: Comply with CSA A23.3 Table 12-1.
- C. Reinforcing Splices:
  1. Splice by lapping reinforcing bars and use Class B minimum lap splice length for continuous reinforcing.

## PART 3 EXECUTION

### 3.01 PREPARATION

- A. Preparation of Surfaces
  1. Remove water, snow, ice, loose soil, laitance, curing compound, wood, leaves, and other debris and clean formwork surfaces before placing concrete.
  2. Clean reinforcing bars of loose rust and dried mortar from previous concrete placements.
  3. Clean reinforcing bars of loose rust, mill scale, dried cement paste, mud, oil, or other coatings that will affect adhesion in accordance with CSA A23.1, Clause 6.1.5 – Surface Conditions of Reinforcement, prior to placing concrete.
  4. Roughen and clean surfaces of previously placed concrete against which subsequent concrete will be placed.

3.02 ERECTION OF FORMWORK

- A. Construct formwork in accordance with CSA A23.1 and CAN/CSA-S269.1, S269.2-M, S269.3-M, so that finished concrete will comply to shape, dimensions, tolerances, and surface finish specified.

3.03 INSTALLATION OF REINFORCING BARS

- A. Provide concrete cover in accordance with requirements of CSA A23.1, Clause 12.6 - Concrete Cover ensuring a minimum of 40mm unless otherwise indicated.
- B. Place reinforcing bars within tolerances specified in CSA A23.1, Clause 12.8 - Tolerances for Location of Reinforcement.

3.04 PLACING CONCRETE

- A. Place concrete on dry and clean substrate.
- B. Do not use concrete after a period of two hours has passed since first mixing of ingredients.
- C. Consolidate the concrete during and immediately after depositing, thoroughly and uniformly in order to obtain dense, watertight, homogeneous concrete well bonded to reinforcing bars.

3.05 TOLERANCES

- A. Comply with CSA A23.1, Clause 10 - Construction Tolerances for Cast-In-Place Concrete.

3.06 REMOVAL OF FORMWORK

- A. Remove formwork as soon as possible after concrete has attained adequate strength to support its own weight and superimposed loads, without cracking or deflecting excessively in order to facilitate effective finishing.

3.07 CONCRETE FINISHING

- A. Concrete finishing effort is directly dependent on forming, concrete placing, and curing techniques. Perform finishing procedures until specified finishes are achieved.
- B. Formed surfaces: Provide smooth-form finish in accordance with CSA A23.1, Clause 24.3.6 - Smooth-Form Finish, unless noted otherwise. Provide sack-rubbed finish on concrete surfaces exposed to view.

- C. Unformed surfaces (slabs): Carry out finishing operations in accordance with CSA A23.1, Clause 22 - Treatment of Unformed Surfaces (Slabs or Floors). After initial finishing and floating, trowel surface with steel hand or power trowel. Leave surface smooth, dense, of fine uniform texture without a swirl and free of blemishes.

3.08 CURING CONCRETE

- A. Wet cure for 10 consecutive days at a minimum temperature of 10°C.
- B. Cover with absorbent material kept continuously saturated as soon as cement will not wash out or finish be damaged.

3.09 FIELD QUALITY CONTROL

- A. Contractor shall be responsible for testing and provide reports to the Engineer.
- B. Slump, air content, and standard strength tests will be made throughout progress of the Work and will be paid for by the Contractor. Tests will be in accordance with CSA A23.1. Contractor to provide labour, concrete and other facilities for making the test specimens.
- C. The Contractor is responsible for removing and replacing, at no cost to the Owner, any concrete that does not conform to this specification.
- D. Measure slab flatness and levelness, as applicable, in accordance with ASTM E1155M.

**END OF SECTION**