

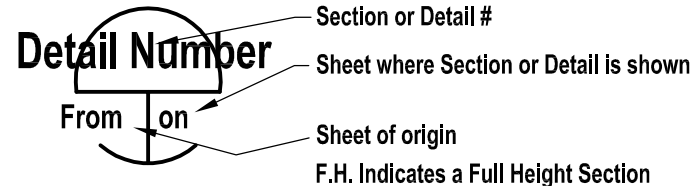
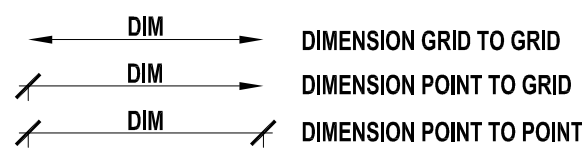
**Excavation/Backfill and Grading for Structures**

**PART 1 - GENERAL**

- 1.1 General Requirements
  - .1 Refer to, General Requirements
  - .2 All Contract documents form an integral part of this section.
- 1.2 Requirements
  - .1 Provide all labour, materials, methods, equipment, and included accessories to complete the excavation/backfill, including but not necessarily limited to the following:
    - .1 Excavation for utilities, grade beams, pits, and pile caps as indicated.
    - .2 Excavation in preparation for concrete floor slabs and pads as indicated.
    - .3 Backfill for utilities, grade beams, pits, pile caps, slabs, pads etc. as indicated.
    - .4 Preparation of all final grades as indicated.
    - .5 Remove all surplus materials from the site.
    - .6 Provide any general demolition and removal as required by the work.
- 1.3 Codes/Standards
  - .1 Obtain all applicable permits and approvals as required by the Work.
- 1.4 Protection of Existing
  - .1 Prior to commencing excavation, verify the location, depths and status of features existing utilities with the appropriate utility authorities. Maintain and protect same for damage during the course of the Work.
- 1.5 Excavation
  - .1 Excavate to elevations and dimensions indicated for installation, construction and inspection of Work indicated.
  - .2 Earth bottoms of excavations to be dry, undisturbed, level, free of loose or organic matter.
- 1.6 Backfilling
  - .1 Areas to be backfilled shall be free from debris, snow, ice, water or frozen ground. Backfill material shall also be free of these properties.
  - .2 Do not backfill against cast-in-place concrete within 2 days of placing, backfill simultaneously each side of walls and beams to equalize soil pressures.
  - .3 Granular shall be as indicated as is.
  - .4 Compact backfill to 98% STD Proctor density in 6" maximum lifts of granular material.
  - .5 The base beneath the concrete slab to be firm and of sufficient density to support dead load on concrete and construction load.
  - .6 Backfill to finished elevations as indicated on the drawings.
- 1.7 Grading
  - .1 Complete the final grading work to levels indicated for the placement of final surface finishes.
  - .2 Grades and slopes shall be installed as indicated to within 5% of design levels.
- 1.8 Materials
  - .1 Apply water proofing membrane as indicated on the details and specified in the general note.
  - .2 Granular fill, clean, natural sand and gravel material, free from silt, clay, loam friable or soluble materials and vegetable matter graded with the following limits:

Sieve Size (Tyler)	Per Cent Passing
1 1/2"	(25) 100
# 4	25-80
# 50	15-40
# 200	7-10

**DIMENSIONS & SYMBOLS**



**Foundation and Underslab**

**PART 1 - GENERAL**

- 1.1 Related Work
  - .1 Excavating, backfilling and grading Section 02315

**PART 2 - PRODUCTS**

- 2.1 Materials
  - .1 Base: Minimum 6" of 3/4" down lime stone crushed to 98% SPD
  - .2 Sub Base: Minimum 12" of 2" down limestone compacted to 98% SPD

**PART 3 - EXECUTION**

- 3.1 Installation
  - .1 Ensure graded sub grade conforms with required pattern before placing granular material compacted sub grade with a Sheepfoot roller to 95% SPD
  - .2 Ensure improper slopes, unstable areas, areas requiring additional compaction or other unsatisfactory conditions are corrected to approval of Contract Administrator.
  - .3 Do not commence subgrade preparation until areas of work have been inspected, pipe and conduit joints tested and approved by Contract Administrator.
  - .4 Prior to placing fill under slabs on grade, compact existing subgrade to obtain required compaction. Remove soft material and fill with approved material.
  - .5 Maintain access roads to prevent accumulation of construction related debris on road.

**PART 4 - TESTING**

- testing
  - .1 Testing of the material and compaction will be carried out by independent agency designated by Contract Administrator paid for by City of Winnipeg.
  - .2 Tests will be conducted on compacted fill to ASTM D-698
  - .3 Frequency of testing:
    - 1. As required by Contract Administrator.
    - 2. Contractor will be advised on schedule and frequency of testing and will be required to advise Contract Administrator 72 hours ahead of test required.

**Drainage Layout**

**PART 1 - GENERAL**

- 1.1 Related Work
  - .1 Excavating, backfilling and grading Section 02315

**PART 2 - PRODUCTS**

- 2.1 Materials
  - .1 Course filter aggregate: to CAN3-A23.1, Table 3, Group 1, 3/4" to 3/16".
  - .2 Refer to mechanical for all pipe and fitting specifications.

**PART 3 - EXECUTION**

- 3.1 Installation
  - .1 Ensure graded sub grade conforms with required pattern before placing filter bed material.
  - .2 Ensure improper slopes, unstable areas, areas requiring additional compaction or other unsatisfactory conditions are corrected to approval of Contract Administrator.
  - .3 Begin installation of foundation drainage after deficiencies have been corrected.
  - .4 Pipe bedding: cut trenches in compacted sub-base and place 4" thickness minimum of course filter aggregate and compact to elevations required to achieve drainage slope.
  - .5 Pipe laying:
    - .1 Ensure pipe interior and coupling surfaces are clean before laying.
    - .2 Lay perforated pipe to minimum slope of 1:100.
    - .3 Do not use shims to establish pipe slope.
    - .4 Use fittings recommended by manufacturer.
    - .5 Install end plugs at ends of collector drain.
    - .6 Protect pipe ends from damage and ingress of foreign material.
    - .7 Connect to existing perimeter foundation drainage system of existing building.
    - .8 Filter bed backfill:
      - 1. Place filter bed backfill after pipe installation is approved by Contract Administrator.
      - 2. Place minimum of 6" thickness course filter aggregate on each side of perforated pipe and minimum of 12" thickness coarse filter aggregate over perforated pipe.
      - 3. Place filter bed by hand in 6" lifts. Avoid crushing flexible pipe during backfill operations. Consolidate by hand tamping lightly. Prevent displacement of pipe tubing.

**Concrete Formwork**

**PART 1 - GENERAL**

- 1.1 Related Work
  - .1 Concrete Reinforcement: Section 03200
- Specified Elsewhere
  - .2 Cast-in-place concrete: Section 03300

**1.2 Reference**

- .1 Do concrete formwork to CAN3-A23-1, except where indicated Standards otherwise.

**1.3 Concrete Work**

- .1 Report any inconsistencies in the concrete work to the Contract Administrator prior to pouring concrete in related areas.

**PART 2 - PRODUCTS**

- 2.1 Materials
  - .1 Formwork lumber: plywood and wood formwork materials to CAN3-A23.1-77.
  - .2 Form release agent: chemically active release agents containing compounds that react with free lime present in concrete to provide water insoluble soaps, preventing set of film of concrete in contact with form.
  - .3 Form ties: removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25mm diameter in concrete surface.

**PART 3 - EXECUTION**

- 3.1-Erection
  - .1 Verify lines, levels before proceeding with formwork and ensure dimensions agree with drawings.
  - .2 Construct forms to produce finished concrete conforming to the shape, dimensions, locations and levels shown on the drawings within the tolerances required by CAN3-A23.1.
  - .3 Obtain Contract Administrator's permission before framing openings in concrete slab not detailed in drawings.
  - .4 Use of earth forms is not permitted.
  - .5 Hand-trim sides and bottoms and remove loose earth from forms before placing concrete.
  - .6 Align form joints and make watertight. Keep form joints to minimum.
  - .7 Form chases, slots, openings, drips, recesses, expansion and control joints as detailed.
  - .8 Leave formwork in place for the following minimum periods of time after placing concrete.
    - .1 Three days for slab.
  - .9 Re-use of formwork subject to requirements of CAN3-A23.1. Clause 11.9.

No.	Description	Date (m/d/y)	Drawn	Checked
1	ISSUED FOR TENDER	12/23/12	AG	JL

THE CONTRACTOR IS TO VERIFY DIMENSIONS AND DATA NOTED ON THE STRUCTURAL DRAWINGS WITH CONDITIONS ON THE SITE. CO-ORDINATE ALL DIMENSIONS WITH THE ARCHITECTURAL DRAWINGS, AND IS HELD RESPONSIBLE FOR REPORTING ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. VARIATIONS AND MODIFICATIONS TO WORK SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE CARRIED OUT WITHOUT WRITTEN PERMISSION FROM THE ENGINEER. THIS DRAWING IS NOT TO BE SCALED.

**Lavergne Draward & Associates Inc.**  
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Client  
**CITY OF WINNIPEG**  
 Project Title  
**KING EDWARD PARK WADING POOL REPLACEMENT**  
 709 MANHATTAN AVE. WINNIPEG, MB.  
 Bid Opportunity Number: 1010-2011



**APEGM**  
 Certificate of Authorization  
 Lavergne Draward & Associates Inc.  
 No. 1912 Date: DEC. 23, 2011

Scale	Date
AS NOTED	DEC. 23, 2011

File Number	Sheet Number
11111	S1.1-R0