WINNIPEG TRANSIT: GARAGE BUILDING
2016 CENTRAL TRENCH AND ADJACENT SLAB REPAIRS
421 OSBORNE STREET, WINNIPEG, MANITOBA

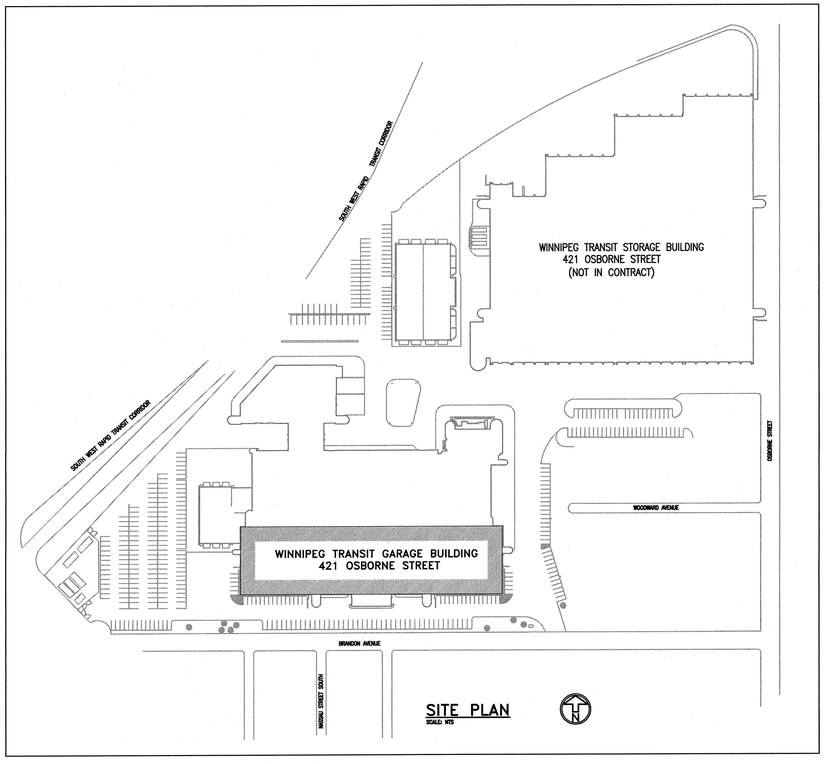
DRAWING INDEX

STRUCTURAL DRAWINGS

S1.0 SITE PLAN AND GENERAL NOTES
S2.1 CONCRETE REPAIR PLAN AND EXTENTS
S4.1 SECTIONS AND DETAILS

PRIME CONSULTANT

Crosier Kilgour & Partners Ltd.



GENERAL NOTES:

GENERAL

1. DRAWINGS ARE PREPARED BASED ON THE BEST AVAILABLE INFORMATION. REVIEW ALL SITE CONDITIONS PRIOR TO PROCEEDING WITH WORK. ADVISE CONTRACT ADMINISTRATOR OF ANY DISCREPANCIES IN EXISTING CONSTRUCTION'S CONFIGURATION, SIZES, LOCATIONS, ETC. WHERE DISCREPANCIES ARE FOUND, DO NOT PROCEED WITHOUT DIRECTION.
2. DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE PRIOR TO CONSTRUCTION. DIMENSIONS SHOWN TRANSCRIBED FROM ORIGINAL DRAWINGS. ONUS REMAINS ON CONTRACTOR TO SITE VERIFY ALL DIMENSION.
3. PROVIDE SUITABLE AND SAFE MEANS OF GAINING ACCESS TO ALL WORK AREAS TO ENABLE THE WORKS DESCRIBED IN THE SPECIFICATIONS AND SHOWN ON THE DRAWINGS TO BE CARRIED OUT AND THE CONTRACT ADMINISTRATOR TO CARRY OUT THE NECESSARY INSPECTIONS.
4. COORDINATE WITH CITY OF WINNIPEG OPERATIONS. DO NOT BLOCK CORRIDORS RESULTING IN NO ACCESS FOR CITY OF WINNIPEG OPERATIONS.
5. ALL NECESSARY MEASURES SHALL BE TAKEN TO PROVIDE PROTECTION TO OTHER TRADES AND CITY OF WINNIPEG OCCUPYING AND WORKING WITHIN THE BUILDING.
6. CONTRACTOR SHALL MAKE GOOD OR RECTIFY ANY DAMAGE CAUSED TO THE STRUCTURE OR ITEMS DESIGNATED TO REMAIN.
7. CONTRACTOR SHALL SET-UP A FULL HOARDING AROUND THE WORK TO PREVENT DUST MIGRATING TO OTHER AREAS OF THE FACILITY.

CONCRETE REPAIRS

1. THE CONTRACTOR WILL BE REQUIRED TO FURNISH ALL MATERIALS, LABOUR, ACCESS, AND EQUIPMENT REQUIRED TO COMPLETE REPAIR WORK IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.
2. THE LOCATION OR EXTENT OF REPAIRS ARE TO BE DETERMINED ON-SITE BY VISUAL AND SOUNDING SURVEY
3. ANY AREAS BROKEN OUT, CORED OR DRILLED FOR THE PURPOSES OF TESTING OR SAMPLING SHALL BE MADE GOOD.
4. THE POWER AND SIZE OF THE EQUIPMENT USED FOR CONCRETE REMOVAL SHALL BE APPROPRIATE TO THE SCALE OF THE INDIVIDUAL REPAIRS AND SHALL BE SUBJECT TO THE APPROVAL OF THE CONTRACT ADMINISTRATOR. PARTICULAR CARE SHALL BE TAKEN THAT DAMAGE IS NOT CAUSED TO CONCRETE SUBSTRATE AND REINFORCING STEEL WHICH IS TO REMAIN IN PLACE.
5. PRIOR TO INSTALLATION OF FORMWORK OBTAIN CONTRACT ADMINISTRATOR'S APPROVAL OF PREPARED SURFACE AND ANY SUPPLEMENTAL REINFORCING STEEL PLACEMENT REQUIRED.
6. UNLESS OTHERWISE NOTED ON DRAWINGS REPAIR AREAS TO MATCH EXISTING PROFILES AND DIMENSION.

CONCRETE DELAMINATION REMOVAL

1. THE PERIMETER OF THE AREAS MARKED AS DELAMINATED ARE TO BE SAWCUT TO A DEPTH OF 1/2'. IF REINFORCING STEEL IS ENCOUNTERED, THE SAW DEPTH MUST BE IMMEDIATELY REDUCED AS REQUIRED TO NOT DAMAGE THE REINFORCEMENT. CHECK DEPTH OF THE CUT REGULARLY.
2. THE ENTIRE AREA WITHIN THE SAWCUT MUST HAVE A MINIMUM OF 2 1/4" OF CONCRETE REMOVED FROM THE TOP SURFACE USING A MAXIMUM 15 LB. ELECTRIC CHIPPING HAMMER.
3. WHERE THE BOND BETWEEN EXISTING CONCRETE AND REINFORCING STEEL OR MESH HAS BEEN DESTROYED (EITHER BY THE CONCRETE'S DETERIORATION OR CORROSION OF THE REINFORCING STEEL) OR IF THE CHIPPING OPERATION HAS CAUSED ONE-THIRD OF THE PERIMETER OF A BAR TO BE EXPOSED FOR A DISTANCE OF 6" OR MORE, THE CONCRETE ADJACENT TO THE BAR SHALL BE REMOVED BY HAND CHIPPING OR WITH THE USE OF SHORT STROKE ELECTRIC CHIPPING HAMMERS PROVIDE A MINIMUM OF 3/4" CLEARANCE ALL AROUND.
4. AFTER ALL DELAMINATED, UNSOUND, OR LOOSE MATERIAL IS REMOVED FROM THE SLAB SURFACE, THE CONTRACTOR SHALL REQUEST AN INSPECTION FROM THE CONTRACT ADMINISTRATOR. THIS INSPECTION IS TO BE DONE IN THE PRESENCE OF THE CONTRACTOR AND IF ANY FURTHER WORK IS REQUIRED, THE CONTRACTOR IS TO COMPLETE IT IMMEDIATELY.

CONCRETE SUBSTRATE PREPARATION

1. WITHIN 24 HOURS PRIOR TO INFILLING, SANDBLAST THE SUBSTRATE TO REMOVE LOOSE AND DETERIORATED CONCRETE, LAITANCE, DUST, DIRT, OIL, AND ANY OTHER MATERIAL THAT COULD INTERFERE WITH THE BOND OF THE NEW CONCRETE. PROVIDE A UNIFORM SURFACE PROFILE OF ICRI-CSP-5 OR BETTER.
2. CLEAN EXPOSED REINFORCING STEEL DESIGNATED TO REMAIN TO NEAR-WHITE METAL VIA BLAST CLEANING. THE REINFORCING STEEL MUST BE FREE OF ALL VISIBLE OIL, GREASE, DUST, DIRT, MILL SCALE, RUST, COATING, OXIDES CORROSION PRODUCTS, AND OTHER FOREIGN MATTER.
3. WATERBLAST SUBSTRATE AT MINIMUM 3,000 PSI TO REMOVE ANY RESIDUAL DUST AND DIRT. MAINTAIN SUBSTRATE IN A SATURATED CONDITION FOR A PERIOD OF NOT LESS THAN FOUR (4) HOURS PRIOR TO CONCRETE PLACEMENT. IF THE CONCRETE SURFACE BECOMES WET AND SUBSEQUENTLY DRIES, THE SURFACE PREPARATION AND CLEANING PROCEDURE MUST BE REPEATED.

CAST-IN-PLACE CONCRETE

1. ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF CSA-A23.1-14 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CSA-A23.2-14 "METHOD OF TEST FOR CONCRETE".
2. PROVIDE CERTIFICATION THAT MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF QUALITY, YIELD AND STRENGTH AS SPECIFIED IN CONCRETE MIXES, AND WILL COMPLY WITH CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
3. PROVIDE CERTIFICATION THAT PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH REQUIREMENTS OF CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
4. CONCRETE PROPERTIES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

INTERIOR SLABS-ON-GRADE: 32 MPa MIN. AT 28 DAYS
CLASS OF EXPOSURE: C-2
ENTRAINED AIR/CATEGORY: 1 (5% TO 8%)
MAX W/C RATIO: 0.45
AGGREGATE MAX. 20 mm
CURING TYPE: TYPE 2 – ADDITIONAL

UNLESS INDICATED OTHERWISE THE CONTRACTOR SHALL SPECIFY CONCRETE SLUMP APPROPRIATE WITH PLACEMENT METHODS AND SITE CONDITIONS. THE GENERAL SPECIFIED SLUMP MUST BE SHOWN ON THE CERTIFICATION LETTER AND CONCRETE DELIVERY TICKET.

5. UNLESS NOTED OTHERWISE CONCRETE CURING TO CONFORM TO THE LATEST EDITION OF CSA-A23.1-14 AS FOLLOWS:
   A) TYPE 2 – ADDITIONAL: 7 DAYS ≥ 10°C AND FOR A TIME NECESSARY TO ATTAIN 70% OF THE SPECIFIED STRENGTH.
6. AIR ENTRAINING ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C260/C260M-10a "STANDARD SPECIFICATION FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE". SUPERPLASTICIZING ADMIXTURES SHALL CONFORM TO ASTM C494/C494M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE" OR ASTM C1017/C1017M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR USE IN PRODUCING FLOWING CONCRETE" WHEN FLOWING CONCRETE IS APPLICABLE. AIR ENTRAINED ADMIXTURES TO HAVE A DURABILITY FACTOR GREATER THAN 75, WHEN TESTED TO ASTM STANDARDS C666/C666M PROCEDURE A. SPACING FACTOR FOR ANY AIR ENTRAINING ADMIXTURE MUST BE 0.17mm OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C457 "STANDARD TEST METHOD FOR MICROSCOPICAL DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE".

REINFORCING STEEL

1. ALL REINFORCING STEEL TO BE CSA-G30.18M-09 GRADE 400R DEFORMED BARS EXCEPT COLUMN TIES AND BEAM STIRRUPS WHICH SHALL BE GRADE 400W STEEL. ALL REINFORCING IS TO BE DETAILED IN ACCORDANCE WITH THE LATEST EDITION OF THE REINFORCING STEEL INSTITUTE OF CANADA – MANUAL OF STANDARD PRACTICE, EXCEPT OTHERWISE NOTED.
2. REINFORCING STEEL COVER IS TO CONFORM TO CAN/CSA A23.3-14 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS" AND AS FOLLOWS:

   INTERIOR SLABS-ON-GRADE: 1 1/2 IN. TOP 3/4 IN. BOTTOM

3. ALL REINFORCING TO BE HELD IN PLACE, AND TIED BY THE USE OF PROPER ACCESSORIES, SUCH AS HI-CHAIRS, SPACERS, ETC. TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
4. ALL OPENINGS IN CAST-IN-PLACE CONCRETE FLATWORK TO BE TRIMMED WITH 2-15M ALL AROUND ON BOTH FACES, EXCEPT AS NOTED.

FORMWORK

1. UNLESS NOTED OTHERWISE PROVIDE SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 12 mm 1/2 IN. ASPHALT IMPREGNATED FIBREBOARD.
2. PLACE 10 MIL POLYETHYLENE UNDER ALL SLABS ON FILL AND OVER TOP OF VOIDFORM.

The General Contractor shall check & verify all dimensions and report any errors or omissions to the designers.

No.	Date	Issue/Revision	By
1	2016-04-04	ISSUED FOR CONSTRUCTION	IM

APEGM
Certificate of Authorization
Crosier Kilgour & Partners Ltd.
No. 235 Date: 2016-04-04

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Project
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Sheet Title
SITE PLAN
GENERAL NOTES

File	Date
2016-0063	2016-02-24
Design: IM	Drawn: JHC

Revision	Sheet No.
1	S1.0