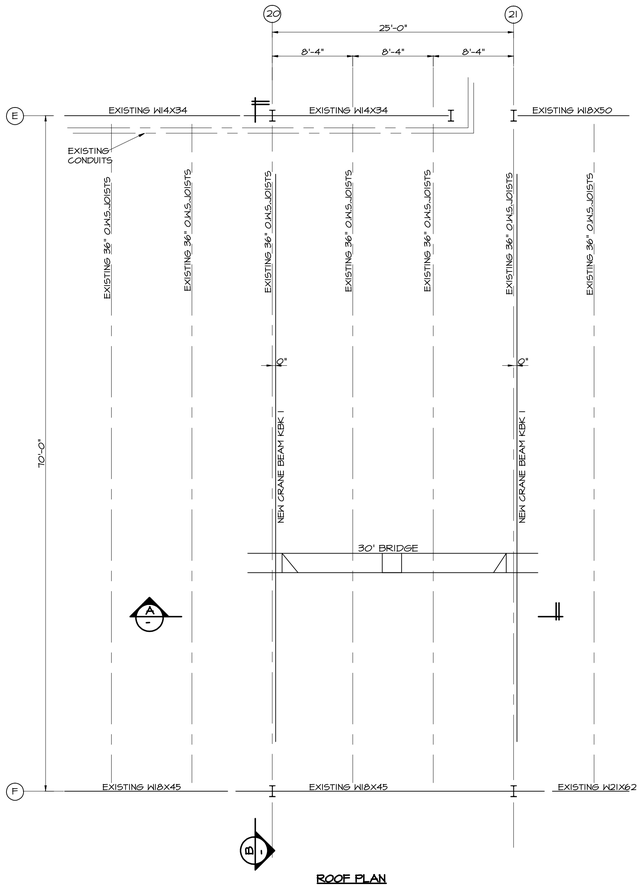
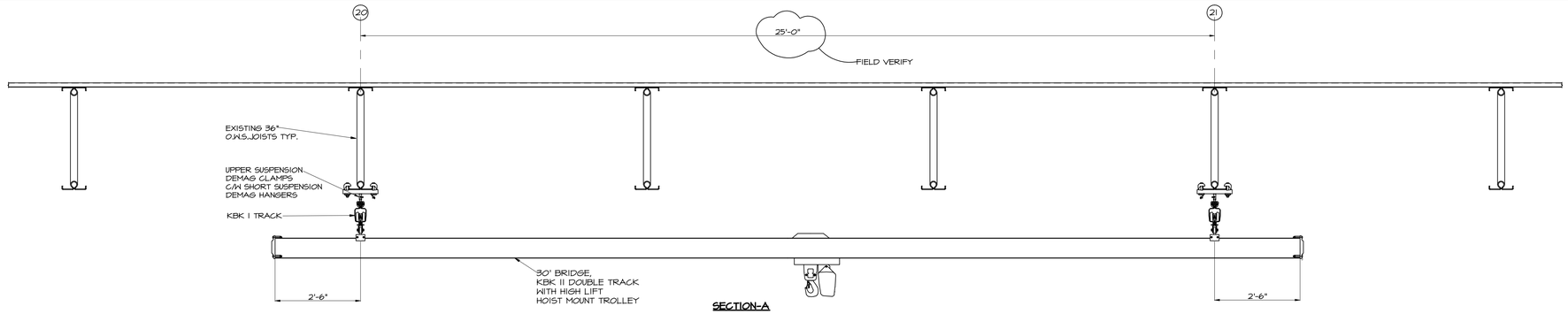
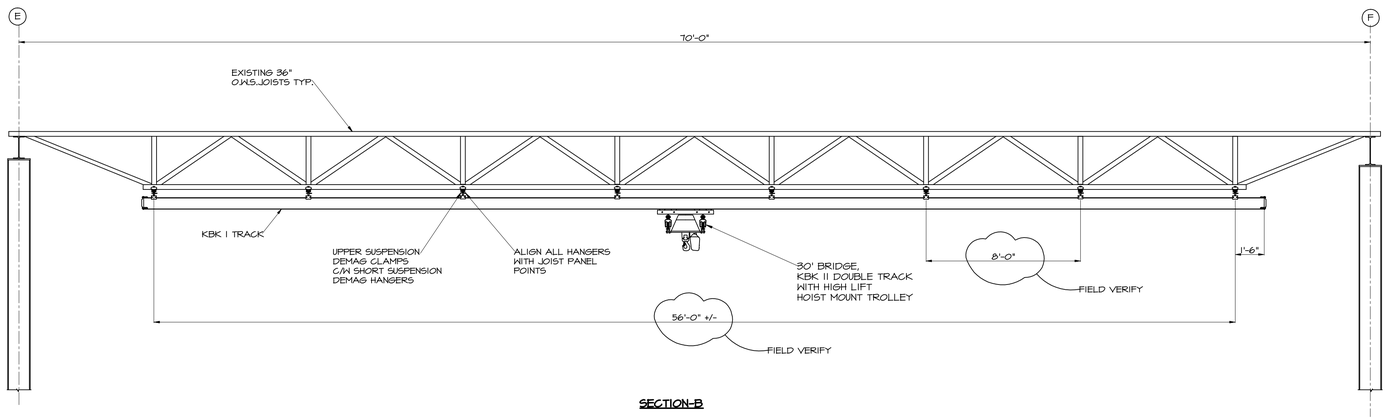


ROOF PLAN



SECTION-A



SECTION-B

Original sealed by F.A. Roberts, P, Eng.

APEGM

Certificate of Authorization

F.A. Roberts & Associates Ltd.

No. 1191 **Date:March 13, 2012**

DEMOLITION

1. Contractor to disconnect and lock out power to existing bridge crane. Remove power cable from crane runway electrification and stow in a safe manner.
2. Contractor to remove existing Demag crane bridge, hoist and end trucks to a location as directed by City of Winnipeg Transit.
3. Contractor to remove existing crane runways and electrification system between gridlines E and F.
4. Restore any damaged surfaces of the existing open web steel joists.

KBK CRANE SPECIFICATION

The monorail, runway, crane system(s) shall be comprised of modular designed component parts total bolt-together assembly and erection. The modular design shall preclude any welding, tapping, torch-cutting, etc. for initial installation. The modular design shall also enable the system(s) to be disassembled, moved, reassembled, or changed in work flow and design to meet needs as required without need for welding, drilling taping, torch-cutting etc.

The system(s) shall include semi-enclosed, (95%), self–cleaning track, hanger assemblies, curves, crane girders, etc., as required. Hanger assemblies shall pendulate within a 14° to eliminate 90% or more of any horizontal stresses from being transmitted into the overhead structure or roof. This shall meet or exceed the intent of all CSA Codes, Manitoba WSH Regulations and Manitoba Building Code requirements.

Track

1. KBK-1, or equal, cold-rolled A-36 carbon steel
2. Min. yield stress – 36,000 PSI
3. Min. tensile stress – 58,000 PSI
4. Self cleaning track
5. Finish – electrostatic synthetic resin paint – (safety orange)

Trolley

1. Push Travel
2. Four polyamide 6.6 hard nylon wheels
3. Rolling friction not to exceed 2% of live load
4. Max. Contact pressure – 16,500 PSI
5. Modulas of elasticity – 4,000 – 5,000 PSI
6. Permanently lubricated anti-friction ball bearings with transparent inspection covers.
7. Double horizontal roller guides
8. Minimum bearing life rating B-10 5,000 hours

Hanger Assemblies

1. Hangers to fit existing open web steel joists.
2. Hanger pendulation cone - 7° top, 7° bottom, total = 14°
3. Hanger rod material – cold drawn 4140 steel
4. Min. yield stress – 90,000 PSI
5. Min. tensile strength – 102,000 PSI
6. Brinnell Hardness – 223
7. Finish – electro-zinc plated

Splices and Bolts

1. Precise friction connection to eliminate all bumps and impact stress
2. High tensile socket head bolts with self locking nuts
3. Finish – electro-zinc plated

Crane Bridge

1. KBK II – L, double girder, DIN 15018 H1 B3, maximum .bridge deflection L/360.
2. Flexible end truck connections – permits skewing of bridge girder with complete elimination racking and end truck binding

Hoist

1. Demag model DC-Pro 2- 500 1/1 H5 V9, 6/2, 4 or equal.
2. Lifting Speed 31/ 8 ft/min.

Electrical Hookup

1. Contractor to connect new KBK crane system to existing fuse disconnect and switch for crane power.

STEEL GENERAL NOTES:

1) STRUCTURAL STEEL SHALL CONFORM TO CSA G40.21 "STRUCTURAL QUALITY STEELS" AND CSA G40.20 GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEEL.

2) STEEL STRUCTURAL SECTIONS SHALL BE G40.21 GR.350W & PLATES SHALL BE G40.21 GR.300W.

3) CRANE RUNWAYS SHALL BE INSTALLED AND ALIGNED IN ACCORDANCE WITH CMAA SPECIFICATION # 71.

4) FABRICATORS SHALL BE CERTIFIED IN ACCORDANCE WITH CSA W47.1 DIV.1 OR 2.

5) ALL BOLTED CONNECTIONS SHALL USE ASTM A325 HIGH STRENGTH BOLDS (UNLESS OTHERWISE NOTED). MINIMUM CONNECTION SHALL BE 2 BOLTS

6) ALL SHOP CONNECTIONS SHALL BE WELDED OR BOLTED WITH HIGH STRENGTH BOLTS. WELDING DESIGN AND PRACTICE TO CSA STANDARD W59 ELECTRODE CLASSIFICATION E70XX. ALL DIA H.S. BOLTS IN ACCORDANCE WITH ASTM A325 BEARING TYPE UNLESS NOTED OTHERWISE. BOLT TIGHTENING TO S16.1 LATEST EDITION

7) FIELD VERIFY ALL DIMENSIONS & EXISTING CONSTRUCTIONS.

8) PROVIDE SHOP DRAWINGS DETAILING ALL CONNECTIONS TO ENGINEER PRIOR TO FABRICATION.

NO.	REVISIONS	BY	DATE
2	ISSUED FOR TENDER	JC	MARCH 13/2012
1	ISSUED FOR APPROVAL	JC	JAN.24/2012
A	ISSUED FOR APPROVAL	JC	OCT./2011

F.A. Roberts & Associates Ltd.
Engineering Consultants
1304 Border St. | Winnipeg, MB | R3H 0M8 | Ph. (204) 694-4600

CLIENT	WINNIPEG TRANSIT
PROJECT	1000 LB CAPACITY CRANE
LOCATION	WINNIPEG, MANITOBA
DRAWING TITLE	PLAN, SECTIONS & DETAILS

DGN/DWN BY	DATE	DWG NO.	REVISED
JC	SEPT.011	2011173-S1	2
CHECKED BY	FAR	DATE –	