Hughes-Owen
313 1101

REF. or DRAWING No. cover sheet
DETAILS 74012-21

THE CITY OF WINNIPEG

WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

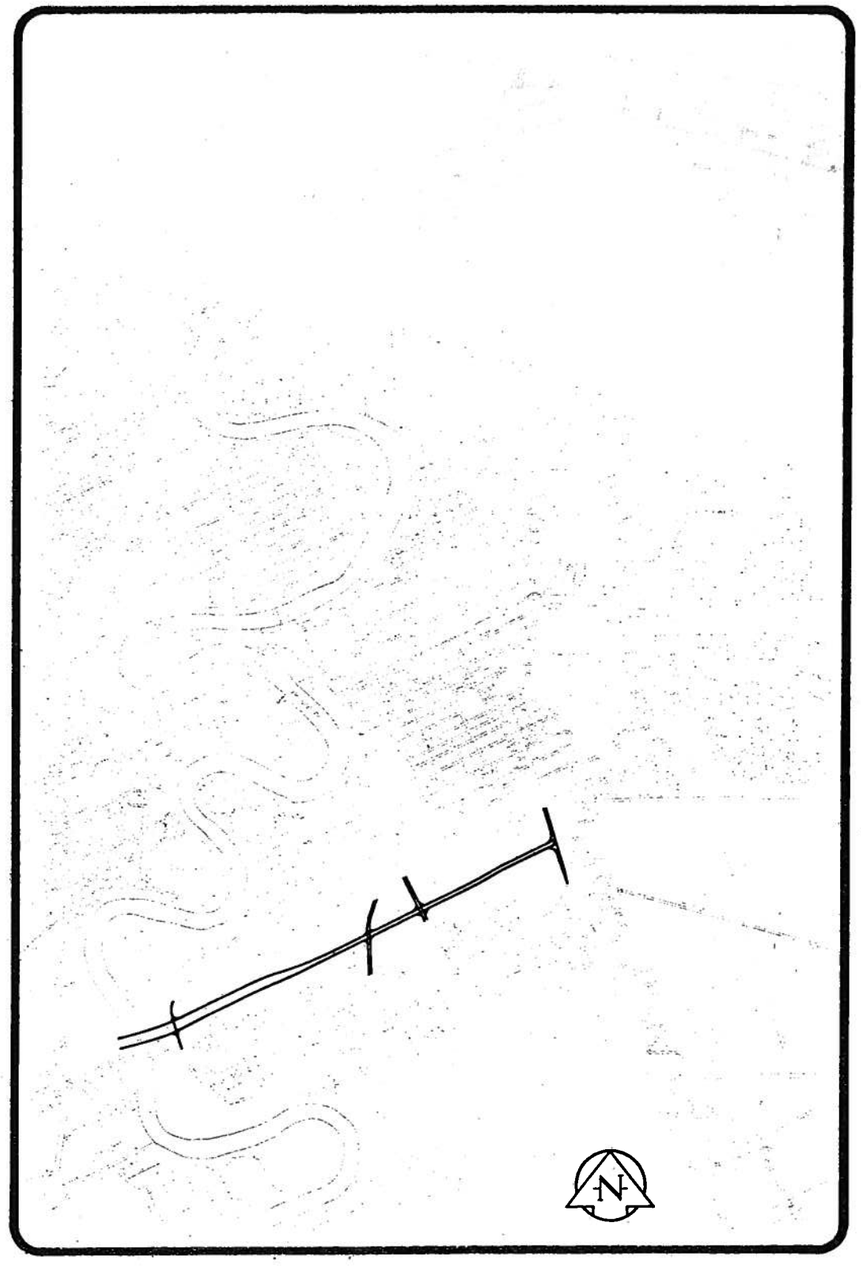
ROUTE 165

FORT GARRY · ST. VITAL CORRIDOR

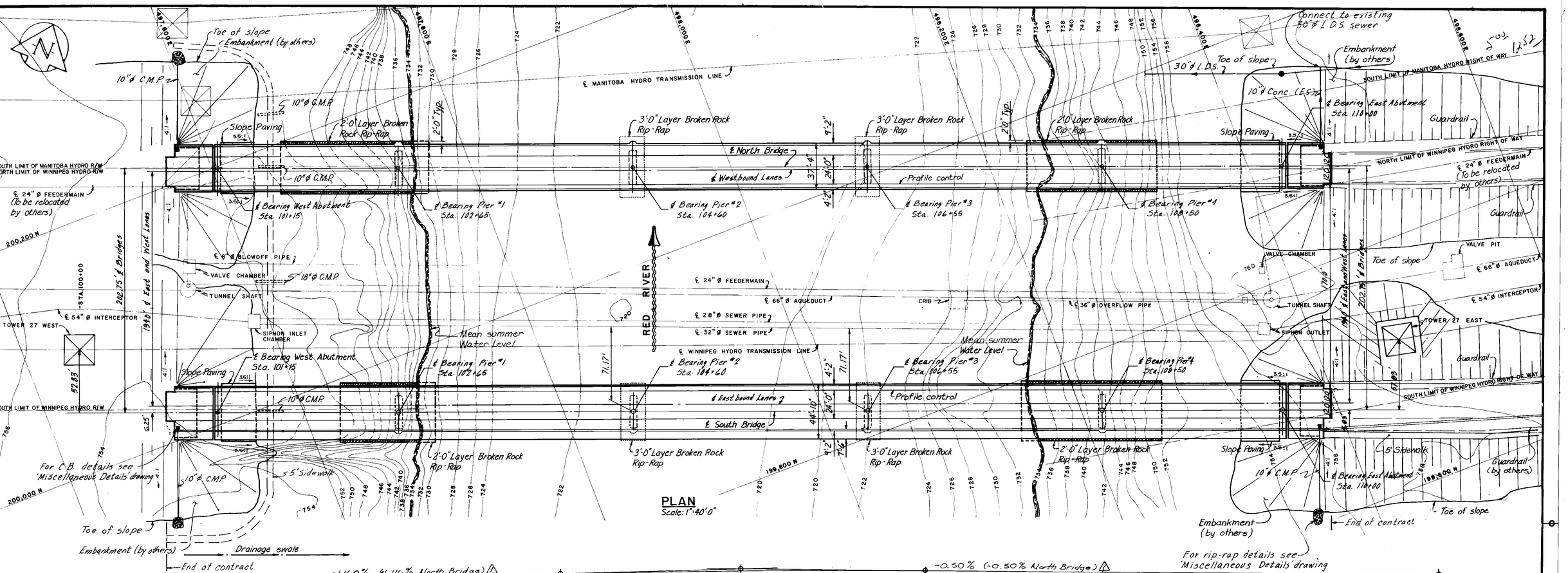
BRIDGE ALTERNATE A

STEEL BOX GIRDER
P.D. NO. 77-23A

AS - BUILT		
DATE	FB. NO.	PAGE
Nov. 14/79		



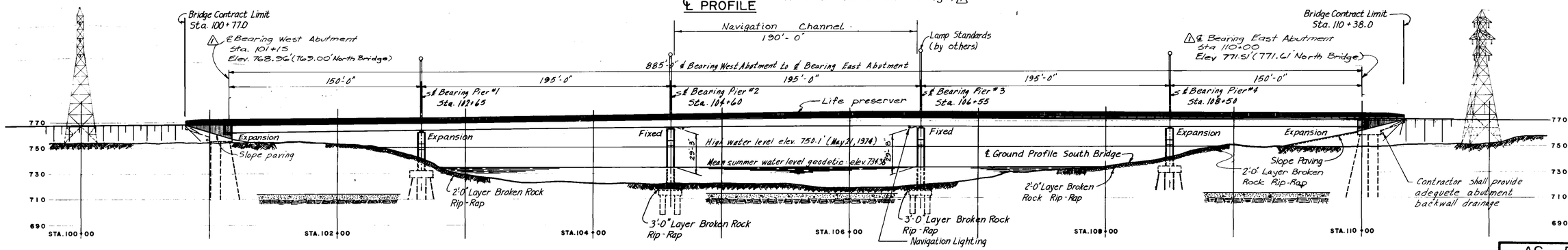
W.L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG THUNDER BAY REGINA BARRIE EDMONTON



PLAN
Scale: 1"=40'-0"

+1.160% (1.116% North Bridge) △
PVI Sta. 94+40 Elev. 761.20'
BVC Sta. 103+92.9 (104+12.5 North Bridge) △ Elev. 772.18' (772.33' North Bridge) △
PVI Sta. 105+35.4 (105+50 North Bridge) △ Elev. 773.84' (773.86 North Bridge) △ L.C. 285' (275' North Bridge) △ M 0.55 (0.554 North Bridge) △
-0.50% (-0.50% North Bridge) △
EVC Sta. 106+77.9 (106+87.5 North Bridge) △ Elev. 773.12' (773.17' North Bridge) △
PVI Sta. 111+30 Elev. 770.69'

℄ PROFILE



ELEVATION - SOUTH BRIDGE
Scale: 1"=40'-0"

AS - BUILT

DATE	F.B. NO.	PAGE
Nov. 14/79		

DEPOSITED IN THE WINNIPEG LAND TITLES OFFICE AS THIS 6th DAY OF July 1977 AT 12:52
AS RAILWAY DEPOSIT NO. 930

DEPUTY DISTRICT REGISTRAR

LOCATIONS OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

LOCATION APPROVED
UNDERGROUND STRUCTURES
MARCH 25/77 Date
L. Martyniw Supervisor

NO	REVISIONS	DATE	BY
△	Adjusted final elevations, as indicated	June 20/78	S.T.K.
3	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA D. L. MILLS Week 24/77 REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG - THUNDER BAY - REGINA - BARRIE - EDMONTON

APPROVED BY: D.L.M. DATE 25 Mar 77

DRAWN BY	J.T.K.	DATE DEC.'76	
PRELIM. CHK.	S.T.K.	DATE JAN.'77	
DESIGN	S.T.K.	DATE DEC.'76	
CHECK	D.L.M.	DATE JAN.'77	

ROUTE 165

GENERAL PLAN AND ELEVATION

SCALE: AS SHOWN

APPROVED BY: Donald R. Campbell MANAGER OF STREETS AND TRAFFIC 25/3/22 DATE

DRAWING NO. B-5092-201 △

W.L.W. NO. 74012-21

GOVERNING SPECIFICATIONS

Design

American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges 1973 edition and Interim Specifications Bridge 1974 & 1975, Canadian Standards Association CSA Standard S6-1974, American Welding Society Structural Welding Code, A.W.S. D1.1 75 and A.W.S. D1.1 - Rev. 1-76.

Construction

Contract Specifications.

Loading

Live Load	AASHTO HS25 and a special overload vehicle weighing 114 tons without impact and restricted to the centre of the bridge. (see Diagram)
Dead Load	Dead load of structure plus total utility load of 500 lbs. per lineal foot.

Design Speed

50 MPH.

Unit Stresses

Steel

Structural Steel	
CSA G 40.21 - 50A	fy = 50,000 psi
Miscellaneous Steel	
CSA G40.21 - 44W	fy = 44,000 psi
Reinforcing Steel	
CSA G30.12 Grade 40	fy = 40,000 psi
CSA G30.12 Grade 60	fy = 60,000 psi

Concrete

Bridge Deck	f'c = 4,500 psi
Barrier Curbs	f'c = 4,000 psi
Abutments	f'c = 3,500 psi
Piers	f'c = 4,000 psi
Caissons	f'c = 4,000 psi
Approach Slabs	f'c = 4,000 psi
Slope Paving	f'c = 3,500 psi

Soils

Subsurface information shown on these drawings was obtained solely for use in establishing design controls for the project. This information is not guaranteed to be accurate or all-inclusive and it is not to be construed as part of the plans governing construction of the project. The Contractor is to satisfy himself as to actual conditions prevailing at the site.

Copies of the foundation investigation reports are available for use by the Contractor. The core samples are available for inspection by the Contractor.

Dimensions

All dimensions given are measured horizontally and at 60° F. (15.6°C).

Utilities

The information shown on these drawings concerning type and location of underground utilities is not guaranteed to be accurate or all-inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.

The Contractor shall advise all utility companies in writing of his proposed work.

The Contractor shall be responsible for the repair, at his own expense, of any damage to utilities caused by the construction.

Bridge Drains and Expansion Joint Devices

Bridge drains and expansion joints shall be fabricated from CSA G40.21 50A steel and shall be galvanized in accordance with ASTM A123.

Foundation Excavation

Construction for footings of abutments and land piers shall be confined within an area not greater than the dimensions of the footing plus five feet.

Excavation pay area shall extend to two feet outside the footing from the original ground level to the bottom of the footing.

Piling

All piling shall be HP12 x 74 driven to bedrock to a bearing capacity of 98 tons. Pile lengths shown are for estimating only. The Contractor may, at his option, and with no extra payment, drive a test pile.

The pile spacing shown is at the bottom of the footing. Piles marked H→ shall be battered in the direction and amount shown.

Caissons

The caissons shall be drilled a minimum of 10 feet into sound rock. A test hole shall be drilled ten feet beyond the bottom of the caisson.

If pumping of the caissons is required, it will be necessary for the Contractor to obtain a Water Rights Licence from the Water Resources Division of the Department of Mines, Resources, and Environmental Management, Province of Manitoba.

Concrete

Concrete Class shall be as follows:

Bridge Deck	Normal	Type 10	air entrained
Barrier Curbs	Normal	Type 10	air entrained
Abutments	Sulphate Resistant	Type 50	air entrained
Piers	Sulphate Resistant	Type 50	air entrained
Caissons	Sulphate Resistant	Type 50	air entrained

All other concrete not specifically identified shall be Normal Type 10 air entrained.

All exposed concrete edges shall be finished with a 3/4" chamfer unless otherwise noted.

The backface of all abutment backwalls and wing walls shall be damproofed with an asphaltic type sealer. Any construction joints shall be protected with an additional coating of damproofing.

Slope Paving

Concrete slope paving shall be placed as slope protection at all abutments.

Rip-rap

Grouted rip-rap shall be placed as riverbank protection from high water level 750.0 to low water level at 725.0. Rip-rap shall consist of a 2'-0" layer of broken rock placed over a 6" layer of pit run gravel.

A three foot layer of broken rock rip-rap will also be placed as scour protection around the river piers.

Reinforcing

All reinforcing shall be deformed billet steel bars conforming to CSA G30.12 Grade 40 and Grade 60.

Reinforcing details shall conform to ACI318-71 with a minimum development length of 30 bar diameters.

The clear distance between reinforcing and face of concrete shall be as follows unless otherwise noted.

Bridge Deck -	wearing surface	2 in.
	other	1
Barrier Curbs		2
Abutments		2
Piers		2
Footings, surfaces cast against ground		3

All bar dimensions are given out to out.

All reinforcing shall be bundled and marked with tags designating its location in the structure. Reinforcing stored at the site shall be protected from contamination.

Structural Steel

The structural steel for webs, flanges, diaphragms and all exposed secondary members shall be CSA G40.21 50A. All other steel shall be CSA G40.21 44W.

All field splices and bolted connections shall be made with 7/8 diameter high strength bolts (ASTM A325 Type 3).

The bolts in the field splices shall be placed with the bolt heads on the outside of girder web and underside of girder flange. Longitudinal stiffeners shall be stopped 1/2" clear of splice plates.

All transverse stiffeners shall be set normal to the top flange plates. All diaphragms shall be set vertical. Horizontal stiffeners shall be placed on the inside of all box girders.

All welds shall be by the submerged arc process.

Shear lugs shall not be placed on splice plates, points of change in flange thickness or in the negative moment area.

The girders shall be fabricated for superstructure dead load camber and adjacent components shall be shop assembled in their final position for reaming of all connection holes. Web plates shall be placed in the girder such that the direction of rolling is parallel to the flanges.

Dead load deflections are shown in decimals of a foot. △T denotes total deflection due to concrete and steel. △C denotes deflection due to concrete only.

Painting

The exterior of the structure will not be painted, instead, all exposed surfaces shall receive a light sand blasting to initiate uniform rusting. All oil, dirt, concrete or other material that may interfere with the uniform rusting of the steel shall be removed.

The interior of the box girder shall be painted with one coat of an organic zinc rich primer.

Bridge Deck and Barrier Curb

The abutment expansion block-outs shall be poured after the entire bridge deck has been placed.

The barrier curb shall be placed after all the segments have been erected. Joints in the curb shall be ½" asphalt impregnated joint filler finished with ½ in. "V" strips and filled with a single component polyurethane joint sealant. The curb shall be finished with a barrier sealant or equivalent.

The barrier curb shall be precast using a broken-fin finish for the exterior surface.

Pouring Sequence

The bridge slab pours shall be made in the sequence shown with particular emphasis on the requirement that the lower numbered pours shall be made prior to any adjacent higher numbered pour. The Contractor may make any arrangement of the pours so long as the sequence and direction of pour are maintained.

Asphalt Wearing Surface

A 2 inch asphalt wearing surface shall be placed on the entire bridge deck after all curbs and expansion joints have been installed. A waterproofing membrane shall be applied to the concrete deck prior to laying of asphalt.

Pedestrian Railing

The pedestrian railing shall be fabricated from CSA G40.21 44W and shall be galvanized in accordance with ASTM A123. No painting will be required.

Traffic Railing

The traffic railing shall be aluminum and the anchor bolt assembly shall be stainless steel. The bottom of posts shall be painted with one coat of zinc chromate primer and a 1/8" preformed asphalt membrane pad shall be located between the bottom of posts and concrete surface.

Bearings

The bridge bearings shall be fabricated from CSA G40.21 38W steel.

Anchor bolts shall be held in alignment during placing by a steel template. Anchor bolts shall be threaded steel rods conforming to CSA G40.21 44W.

The bearing plates and anchor bolts shall be galvanized in accordance with ASTM A123.

The elastomer used in the bearings shall be 100% virgin natural polyisoprene in accordance with ASTM D2240 capable of providing the required rotation at -40° C.

The teflon sliding surface (PTFE) shall be a fabric containing PTFE fibers capable of sustaining an average bearing pressure of 3,500 psi.

The mating sliding surface shall be stainless steel having a minimum Brinell hardness of 125 and a surface finish of less than 20 rms.

Lighting

Supply and installation of lamp standards on the structures is not part of this Contract.

Legend

ef denotes each face
ff denotes far face
nf denotes near face
typ denotes typical

Permits

The Contractor shall be responsible for obtaining all permits required for the construction of the bridge.

Bench Marks

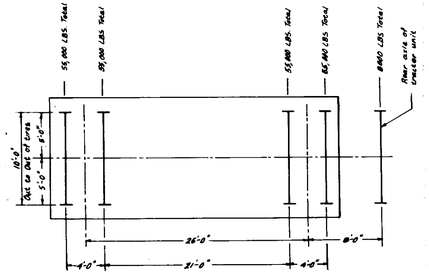
The following City of Winnipeg geodetic bench marks have been used as vertical control for the project.

62-004	74M515 - Tblt. in N. face of garage attached to 2 Storey House, No. 538 St. Anne's Rd., W. of St. Anne's Rd.	232.007m (761.178 ft.)
62-005	366 - Tblt. in 2.3 m Conc. Pile in Median of St. Mary's Rd., 35.7 m N. of Single Hydro Transmission Line N. of Tennyson Ave. & 0.6 m W. of E. edge of Median	232.292m (762.112 ft.)
63-004	River Rd. W. side, S.E. Cor. St. Vital Cemetery 19 mm dia. x 6.1 m I.B. in valve box 1.5 m N. & 1.5 m W. of chain link fence at S.E. Cor. of Cemetery	230.855m (757.398 ft.)

Hydraulics

- The discharge for a 50 year return (2% frequency) supplied by the Province of Manitoba, Department of Mines, Resources and Environmental Management, Water Resources Branch, is 43,000 cubic ft./sec. The velocity at the crossing is 3.2 ft./sec.
- The hydraulic data as modified by the structure is as follows:
  Discharge (50 year return) - 43,000 cfs
  Velocity (50 year return) - 3.7 ft./sec.
- The maximum river stage since the completion of the regulation of the Assiniboine and Red Rivers (1969) is 750.1', measured at St. James Avenue Pumping Station and adjusted to bridge site.

DRAWING LIST



Total Gross Weight of Vehicle = 228,000 LBS.

SPECIAL OVERLOAD VEHICLE

AS - BUILT

DATE	F.B. NO.	PAGE
Nov 16/79		

REVISIONS			BY
		4-4-77	

PROVINCE OF MANITOBA — D.L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 Mar 77

DRAWN BY LMG DATE MAR 77 | DESIGN DLM DATE JAN 77
PRELIM. CHK. ..... DATE ..... | CHECK ..... DATE .....

ROUTE 165

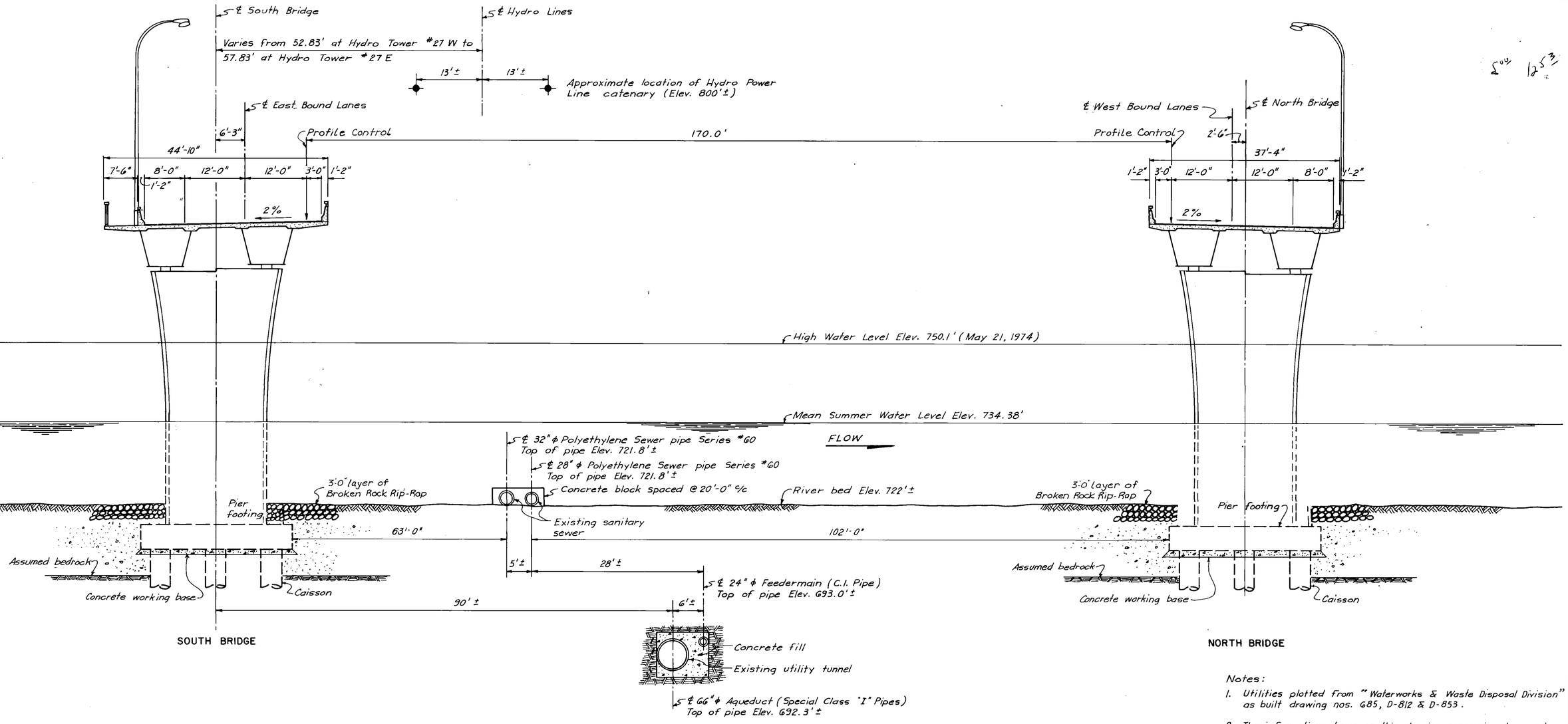
GENERAL NOTES & DRAWING LIST

SCALE:

APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC — DATE 25/3/22

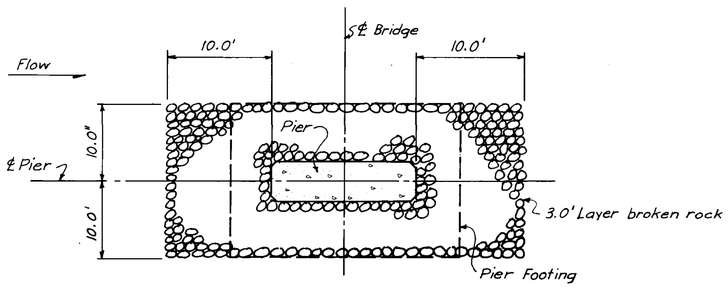
DRAWING NO. B-5092-202

W.L.W. NO. 74C12-21



SOUTH BRIDGE

NORTH BRIDGE



PIER RIP RAP PLAN

TYPICAL SECTION AT RIVER PIERS

DEPOSITED IN THE WINNIPEG LAND TITLES OFFICE AS THIS 6th DAY OF July 1977 AT 12:53
AS RAILWAY DEPOSIT NO. 931

DEPUTY DISTRICT REGISTRAR

Notes:

1. Utilities plotted from "Waterworks & Waste Disposal Division" as built drawing nos. G85, D-812 & D-853.
2. The information shown on this drawing concerning type and location of underground utilities is not guaranteed to be accurate or all-inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.
3. The rip rap at the piers shall consist of a 3.0' layer of broken rock 1 cu. ft. to 2 cu. ft. placed with the top of the layer even with the river bottom.

LOCATIONS OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

LOCATION APPROVED
UNDERGROUND STRUCTURES
MARCH 25/77 (Date) (Supervisor)

AS - BUILT

DATE	FB NO.	PAGE
Nov. 14/79		

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: DATE 25 MAR 77

		DATE			DATE
DRAWN BY	ST	JAN 77	DESIGN	STK	DEC 76
PRELIM CHK	STK	JAN 78	CHECK	DLM	JAN 77

ROUTE 165

GENERAL SECTION AT RIVER PIERS

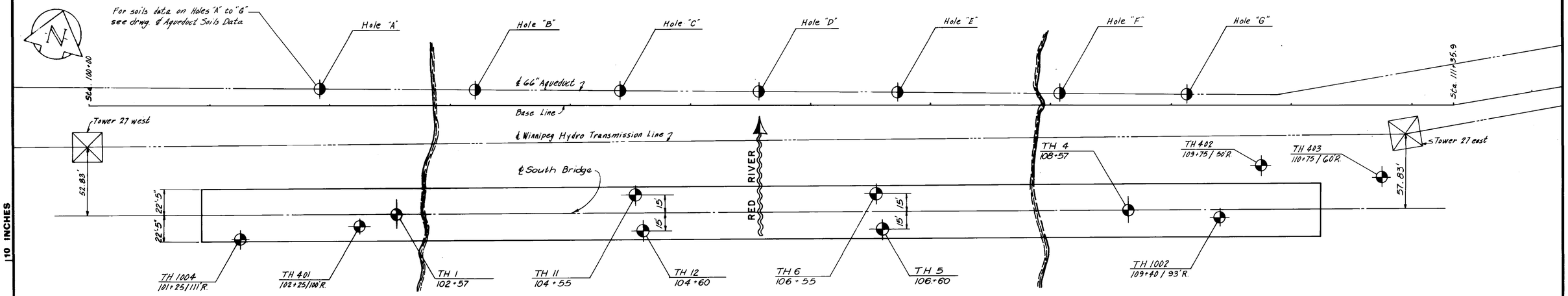
SCALE: 1" = 10'-0"

APPROVED BY: Donald R. Campbell MANAGER OF STREETS AND TRAFFIC 25/3/77 DATE

DRAWING NO. B-5092-203

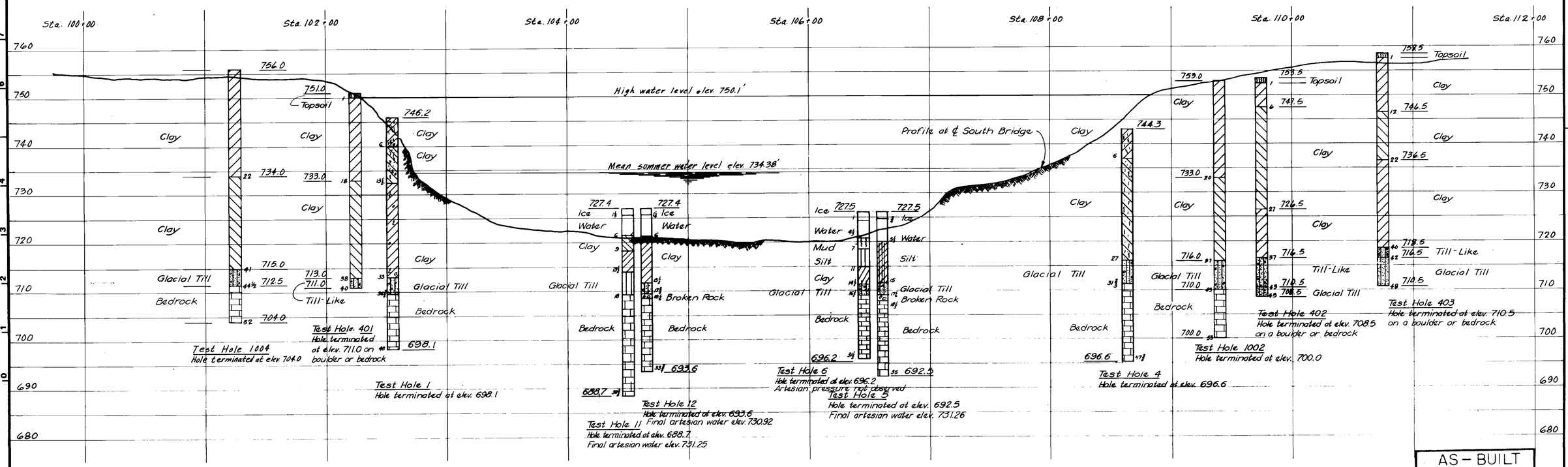
W.L.W. NO. 74012-21

SOUTH BRIDGE
Scale: 1/8" = 1'-0"
℄ Bearing West Abutment
7'-0"
10'-6"
10'-6"
5'-0"
Saw Cut Spacing
1" Saw cut
3" ø Weep Holes
16'-10"
6'-10"
3'-0"
7'-0"
50'-6"
5' Sidwalk
NORTH BRIDGE
Scale: 1/8" = 1'-0"
℄ Bearing East Abutment
Saw cut spacing
14'-6"
43'-6"
7'-0"
3'-0"
4'-6"
1" Saw cut
7'-0"
PARTIAL ELEVATION - SOUTH BRIDGE
Scale: 1/8" = 1'-0"
15'-0"
Drain pipe
5'-0" Sidewalk
Slope 2%
8'-0" Clearance
2'-0" layer of brocken rip-rap
Grouted rip-rap
Existing Ground Profile
3.5
For North & South Bridge at West Abutments only
1" Saw Cut
6×6 - W2.9×W2.9 Welded Wire Fabric
3" ø Weep Hole
6" Granular fill
44 - SP301 @ 12" North Bridge
51 - SP301 @ 12" South Bridge
4 - SP601 North Bridge
4 - SP602 South Bridge
1'-0"
1'-6"
4"
1 SECTION 204
Scale: 1" = 1'-0"
Sikaflex 1A Joint Sealant
Butyl Rod
6×6 - W2.9×W2.9 Welded Wire Fabric
Dowels see 'Abutment Details'
1/2" Flexcell
Face of Abutment
3 SECTION 204
Scale: 3" = 1'-0"
6×6 - W2.9×W2.9 Welded Wire Fabric
6" Granular Fill
3 - SP401 @ 1'-3"
2 SECTION 204
Scale: 1" = 1'-0"
Notes:
1. The welded wire fabric shall be included as part of the concrete price for slope paving.
Nov. 16/73
LOCATION APPROVED
UNDERGROUND STRUCTURES
MARCH 25/77 L. Martynuk
Date Supervisor
LOCATIONS OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.
0 ISSUED FOR TENDER 4-4-77
NO REVISIONS DATE BY
PROVINCE OF MANITOBA D. L. MILLS REGISTERED ENGINEER
THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION
W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG - THUNDER BAY - REGINA - BARRIE - EDMONTON
APPROVED BY: DATE 25 JAN 77
DRAWN BY J.T.K. DATE JAN.77
DESIGN S.T.K. DATE JAN.77
PRELIM. CHK. JAN.77
CHECK JAN.77
ROUTE 165
SLOPE PAVING DETAILS
APPROVED BY: MANAGER OF STREETS AND TRAFFIC
DATE
SCALE: AS SHOWN
DRAWING NO. B-5092-204



TEST HOLE LOCATION PLAN

Scale : 1"=40'-0"



TEST HOLE DATA

Scale : Horiz. 1"=40'-0"
Vert. 1"=10'-0"

Legend:

- Bridge test holes
- Aqueduct test holes for information only, taken from existing data (1960) see aqueduct soils data.

Notes:

1. Subsurface information shown on this drawing was obtained solely for use in establishing design controls for the project. This information is not guaranteed to be accurate or all-inclusive and it is not to be construed as part of the plans governing construction of the project. The Contractor is to satisfy himself as to actual conditions prevailing at the site.
2. Water levels measured at James Avenue Pumping Station.
3. The above drawing should be read in conjunction with Klohn Leonoff Consultants Ltd's Report W-1064.

AS-BUILT
DATE | F.B. NO. | PAGE
Nov. 16/79

REVISIONS

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: D.R. Gunn — DATE 25 May 77
DRAWN BY LMG — DATE
PRELIM. CHK. L.L.S. — DATE Jan 77
DESIGN KWS — DATE NOV. 76
CHECK — DATE Jan. 11

ROUTE 165

SOUTH BRIDGE SOILS DATA

SCALE: AS SHOWN

APPROVED BY: Donald R. Campbell — MANAGER OF STREETS AND TRAFFIC — 25/3/22 DATE

DRAWING NO. B-5092-205

W.L.W. NO. 74012-21

TEST HOLE LOCATION PLAN

Scale: 1" = 40'-0"

AS-BUILT

DATE	FB NO.	PAGE
Nov. 16/77		

TEST HOLE DATA

Scale: Horiz. 1" = 40'-0"
Vert. 1" = 10'-0"

Legend:

- Bridge test holes
- Aqueduct test holes for information only, taken from existing data (1960) see aqueduct soils data.

Notes:

1. Subsurface information shown on this drawing was obtained solely for use in establishing design controls for the project. This information is not guaranteed to be accurate or all-inclusive and it is not to be construed as part of the plans governing construction of the project. The Contractor is to satisfy himself as to actual condition prevailing at the site.
2. Water levels measured at James Avenue Pumping Station.
3. The above drawing should be read in conjunction with Klohn Leonoff Consultant Ltd's Report W-1064.

REVISIONS

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: DATE 23 Mar/77

DRAWN BY LMG DATE
PRELIM. CHK. 4/77
DESIGN KWS DATE NOV 76
CHECK

ROUTE 165

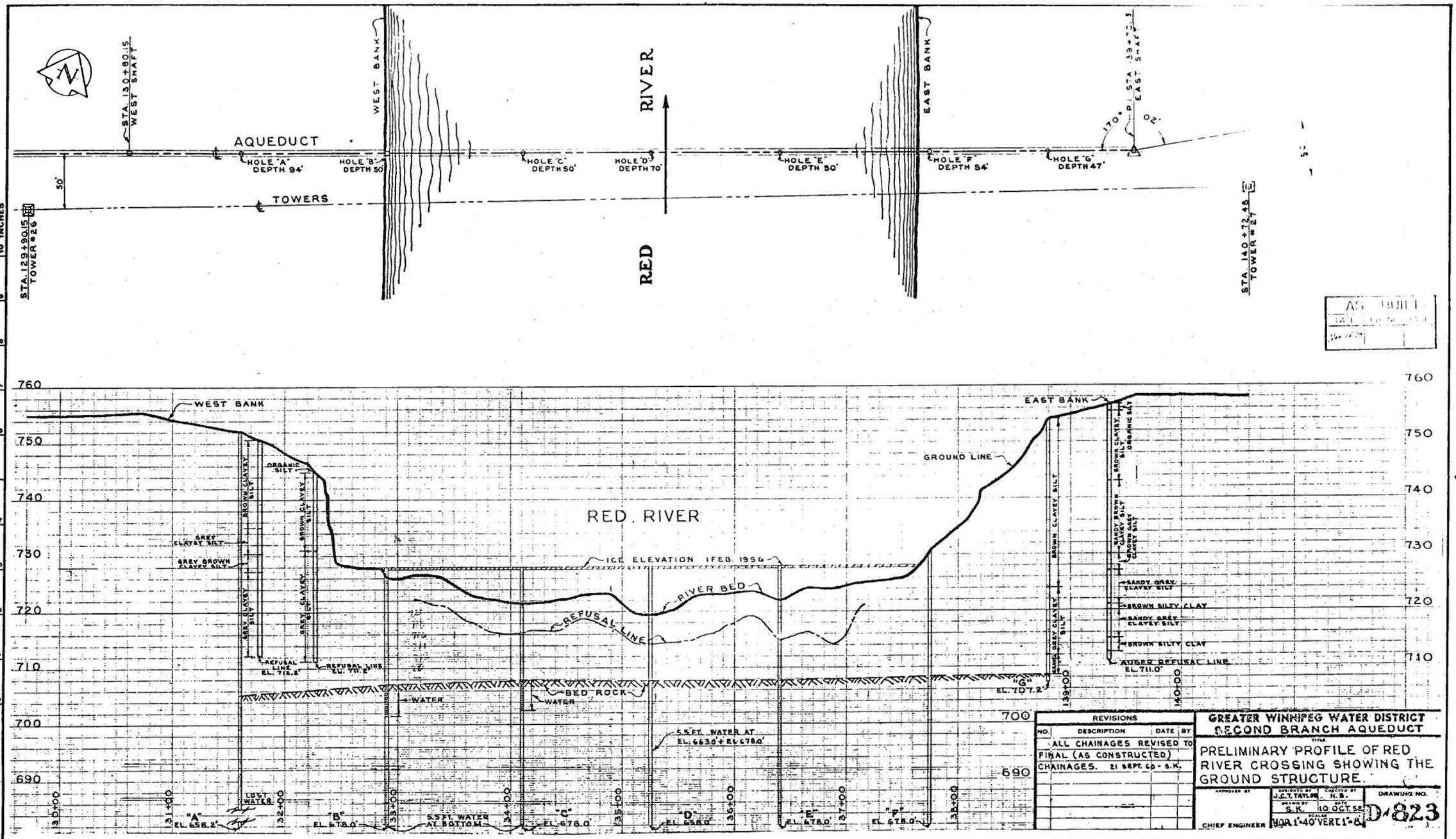
NORTH BRIDGE SOILS DATA

APPROVED BY: MANAGER OF STREETS AND TRAFFIC DATE 25/3/77

SCALE: AS SHOWN

DRAWING NO. B-5092-206

W.L.W. NO. 74012-21



Note:
Subsurface information shown on this drawing was obtained solely for use in establishing design controls for the project. This information is not guaranteed to be accurate or all-inclusive and it is not to be construed as part of the plans governing construction of the project. The Contractor is to satisfy himself as to actual conditions prevailing at the site.

NO.	REVISIONS DESCRIPTION	DATE	BY
	ALL CHAINAGES REVISED TO FINAL (AS CONSTRUCTED) CHAINAGES. 21 SEPT. 60 - S.K.		

GREATER WINNIPEG WATER DISTRICT
SECOND BRANCH AQUEDUCT

TITLE
PRELIMINARY PROFILE OF RED RIVER CROSSING SHOWING THE GROUND STRUCTURE.

APPROVED BY: CHIEF ENGINEER
DESIGNED BY: J.C.T. TAYLOR
DRAWN BY: S.K.
CHECKED BY: H.B.
DATE: 10 OCT. 60
SCALE: HOR. 1"=40' VERT. 1"=8'
DRAWING NO. D-823

0 ISSUED FOR TENDER 1-4-77

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W.L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS

APPROVED BY ..... DATE .....
DRAWN BY LMQ DATE ..... DESIGN ..... DATE .....
PRELIM CHK ..... CHECK .....

ROUTE 165

AQUEDUCT SOILS DATA

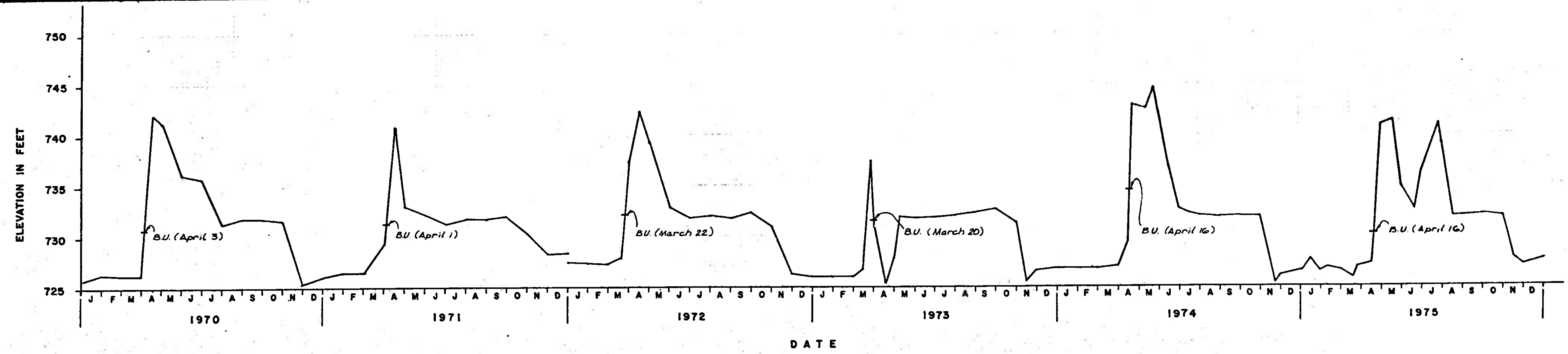
SCALE: AS SHOWN

APPROVED BY: ..... MANAGER OF STREETS AND TRAFFIC
DATE: 25/4/22

DRAWING NO. B-5092-207

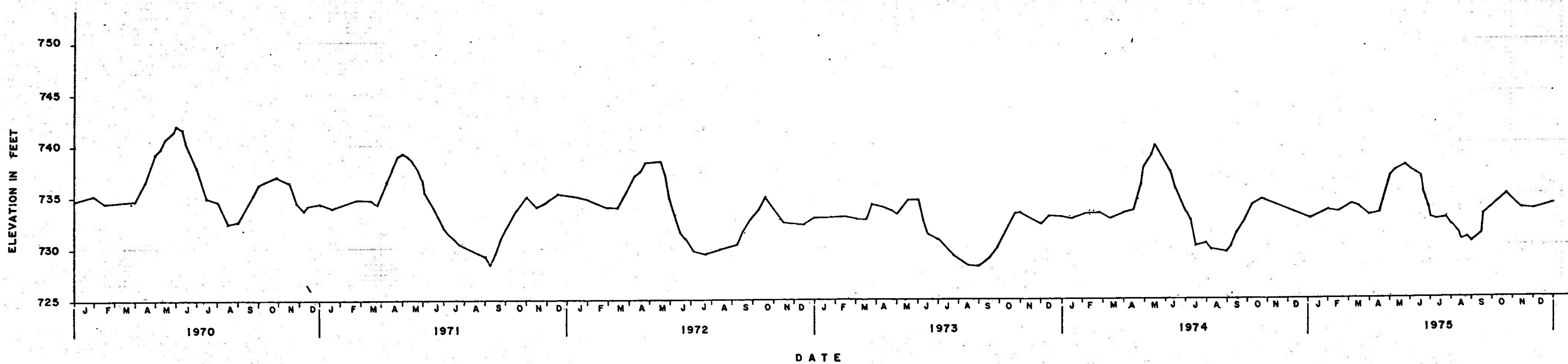
WLW NO 74012 21

DETAILS 74012-21



RED RIVER WATER LEVELS - (1970-1975)

Notes:
1. *Water levels were taken from "Surface Water Data Manitoba" Water Surveys of Canada manuals.*
2. *1970 and 1971 were taken at Winnipeg station no. 050J001.*
3. *1972 to 1975 were taken at James Ave. pumping station no. 050J015.*
4. *Add 2' to all levels to adjust to bridge site.*
5. *B.U. means Break Up.*



GROUNDWATER LEVEL HYDROGRAPH - (1970-1975)

Notes:
1. *Data was taken from Province of Manitoba, Water Resources Branch file no. 10·1·7·1198.*
2. *The data was taken at station 067, 50C-MN5*

Note:
Water levels information shown on this drawing was obtained solely for use in establishing design controls for the project. This information is not guaranteed to be accurate or all-inclusive and it is not to be construed as part of the plans governing construction of the project. The Contractor is to satisfy himself as to actual conditions prevailing at the site.

AS-BUILT		
DATE	FB NO.	PAGE
Nov.16/79		

0	ISSUED FOR TENDER	4·7·77

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS

APPROVED BY: [signature] DATE 25 Mar/77
DRAWN BY W T DATE JAN 77 — DESIGN ...... DATE
PRELIM. CHK. ...... — CHECK ......

ROUTE 165

WATER LEVEL DATA

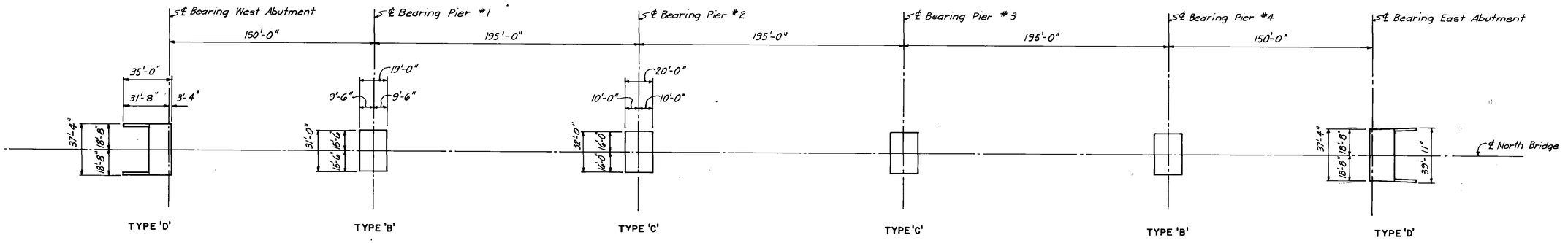
SCALE:

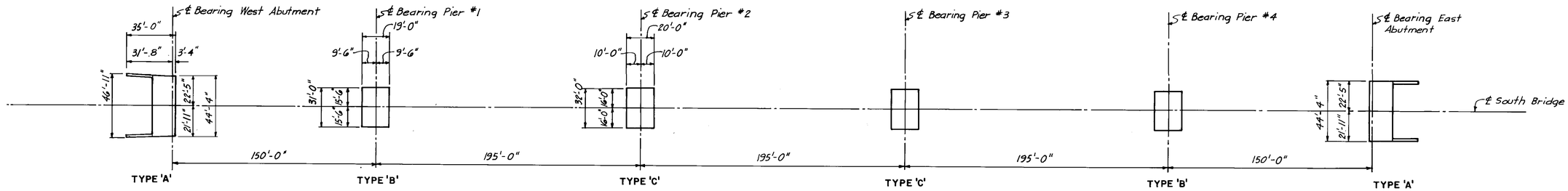
APPROVED BY: [signature] 25/3/22
MANAGER OF STREETS AND TRAFFIC — DATE

DRAWING NO. B-5092-208

W.L.W. NO. 74012-21

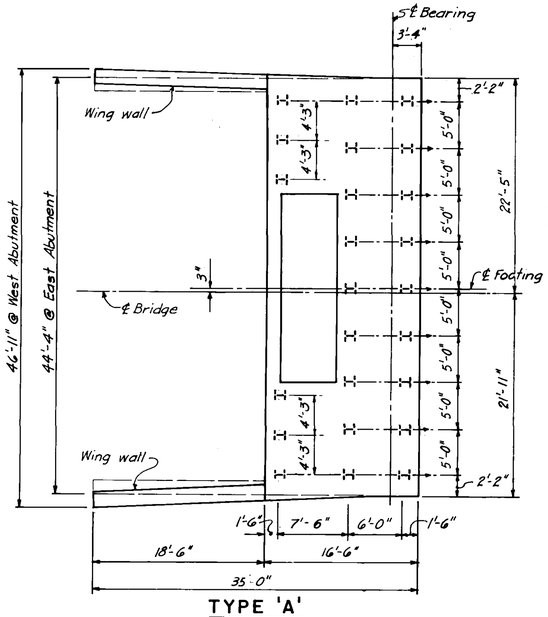
DETAILS 74012-21





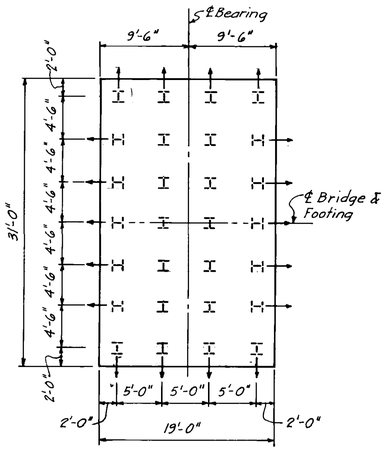
PLAN

Scale: 1" = 40'-0"



TYPE 'A'

Scale: 1/8" = 1'-0"



TYPE 'B'

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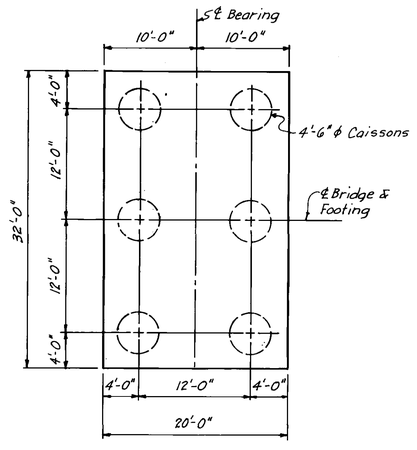

TYPE 'C'

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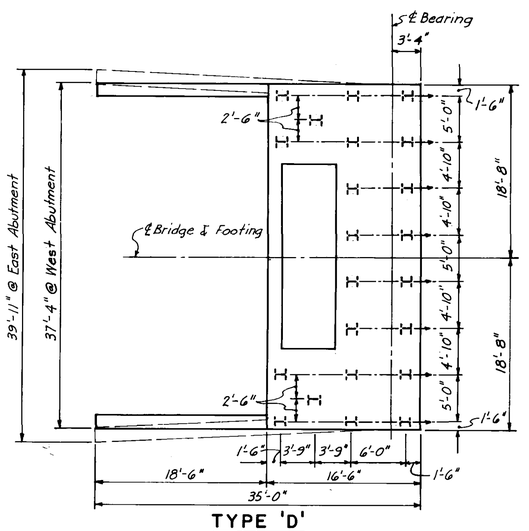


TYPE 'D'

Scale: 1/8" = 1'-0"

SUBSTRUCTURE LOADING			
UNIT	TYPE	LOADS	
		MAX./PILE	MIN./PILE
Abutments	HP 12 × 74	65 Tons	2 Tons
Piers 1 and 4	HP 12 × 74	75 Tons	13 Tons
Piers 2 and 3	Caissons(4'-6")	550 Tons	43 Tons

AS – BUILT

DATE	FB. NO.	PAGE
Nov. 14/79		

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 28 Jun 77

		DATE			DATE
DRAWN BY	S.T.	JAN 77	DESIGN	S.T.K.	DEC. 76
PRELIM. CHK.	S.T.K.	JAN 77	CHECK	D.L.M.	JAN 77

ROUTE 165

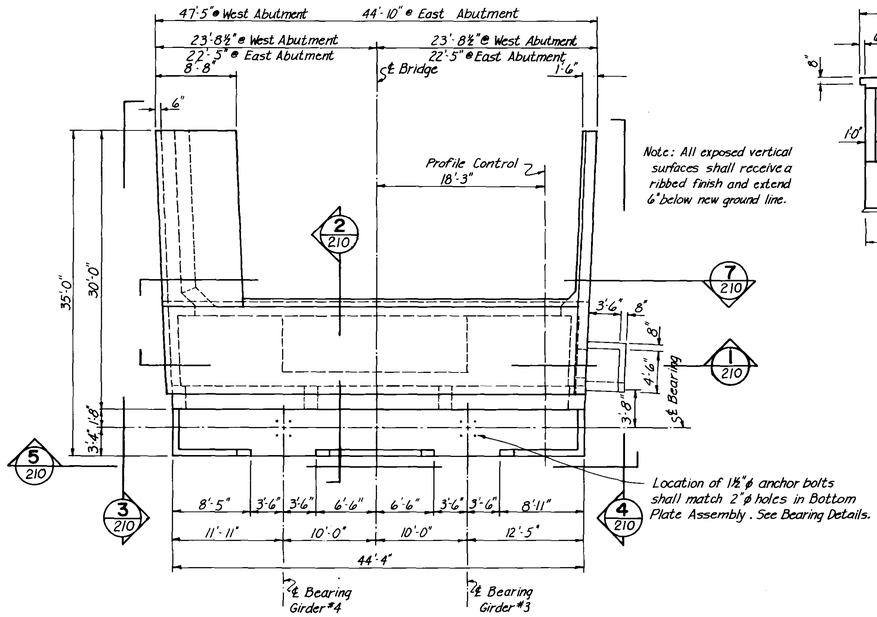
FOUNDATION LAYOUT

SCALE: AS SHOWN

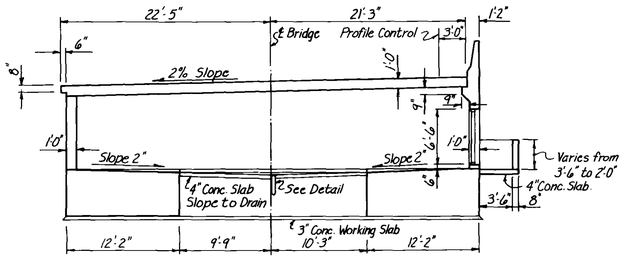
APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC — 25/8/22 DATE

DRAWING NO. B-5092-209

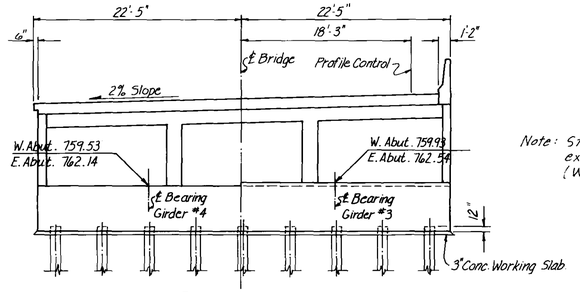
W.L.W. NO. 74012-21



ABUTMENT PLAN
Scale: ⅛"=1'-0"

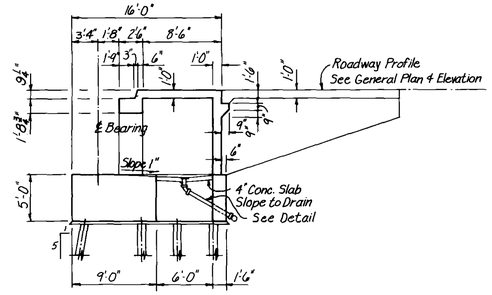


1 / 210 SECTION
Scale: ⅛"=1'-0"

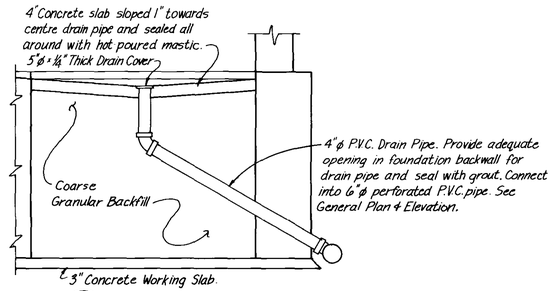


Note: Stepped section extended to backwall (West Abutment only)

5 / 210 ELEVATION
Scale: ⅛"=1'-0"



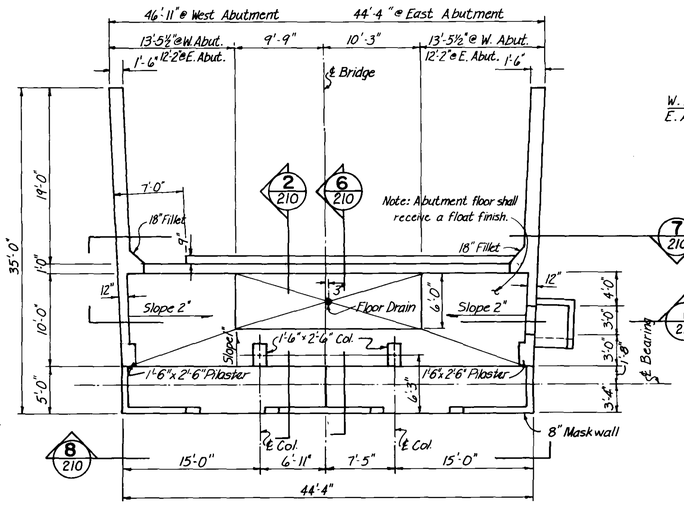
2 / 210 SECTION
Scale: ⅛"=1'-0"



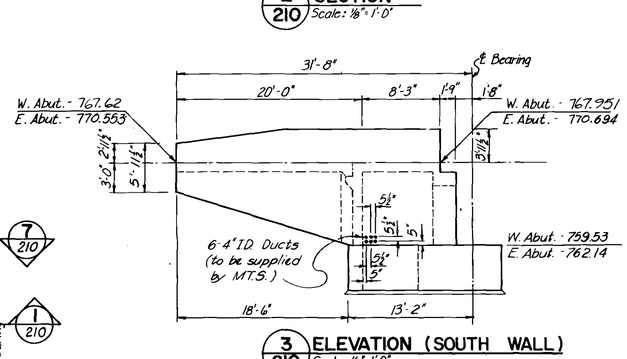
6 / 210 SECTION
Scale: ½"=1'-0"

Notes:

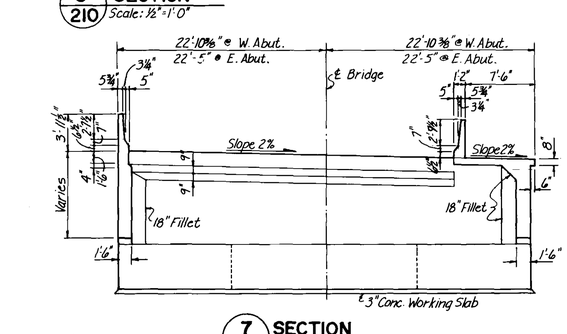
1. All piles shall be H-bearing piles HP12x74. All piles shall be placed vertical except where shown thus ⊢1:5→, indicating direction and amount of batter.
2. Door assembly shall consist of the following items:
   - 3'-0"x6'-6"x1¾" Galvanized Steel Door.
   - 5¾" Galvanized Press-Steel Frame.
   - Weather stripping
   - Aluminum Threshold.
   - 1½ Pair FBB191 C15 Butts 4½x4 (NRP)
   - 1 only 51PD x PLY/MET x 32D x TMS x 005 Lockset
3. Extreme accuracy and care shall be executed to maintain bearing seat levels at elevations shown. At bearing plate locations, surfaces shall be ground absolutely smooth and flat.
4. Elevations shown are taken at top of concrete.
5. See Drawing no. 204, Note 2.
6. Geodetic Bench Mark: brass pin located on the top of the South wingwall, West Abutment.



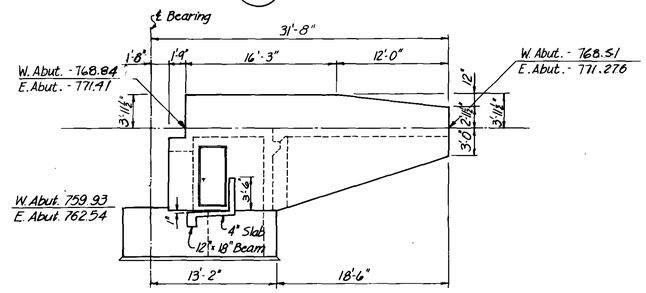
FOUNDATION PLAN
Scale: ⅛"=1'-0"



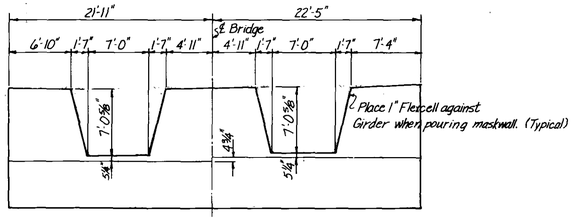
3 / 210 ELEVATION (SOUTH WALL)
Scale: ⅛"=1'-0"



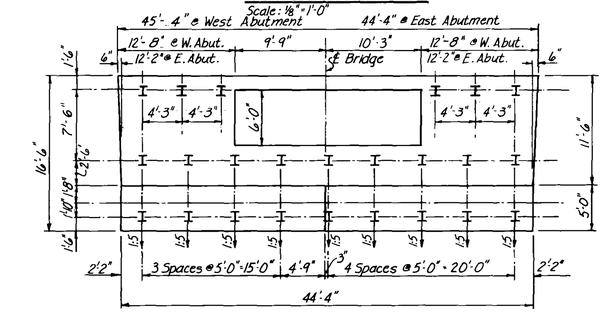
7 / 210 SECTION
Scale: ⅛"=1'-0"



4 / 210 ELEVATION (NORTH WALL)
Scale: ⅛"=1'-0"



8 / 210 ELEVATION-MASKWALL LAYOUT
Scale: ⅛"=1'-0"



PILING PLAN
Scale: ⅛"=1'-0"

NO.	REVISIONS	DATE	BY
1	Adjusted Final elevations, as indicated	June 20/78	STK
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA — B. RUZSICSKA — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY:		DATE 25 Jan/77	
DRAWN BY	J.T.K.	FEB.'77	
PRELIM. CHK.		JAN.'77	
DESIGN	B.J.R.	NOV.'76	
CHECK	J.R.E.	JAN.'77	

ROUTE 165

ABUTMENT DETAILS
SOUTH BRIDGE

SCALE:

APPROVED BY: Lowell R. Campbell — MANAGER OF STREETS AND TRAFFIC — 25/2/77 DATE

DRAWING NO. B-5092-210 ⚠

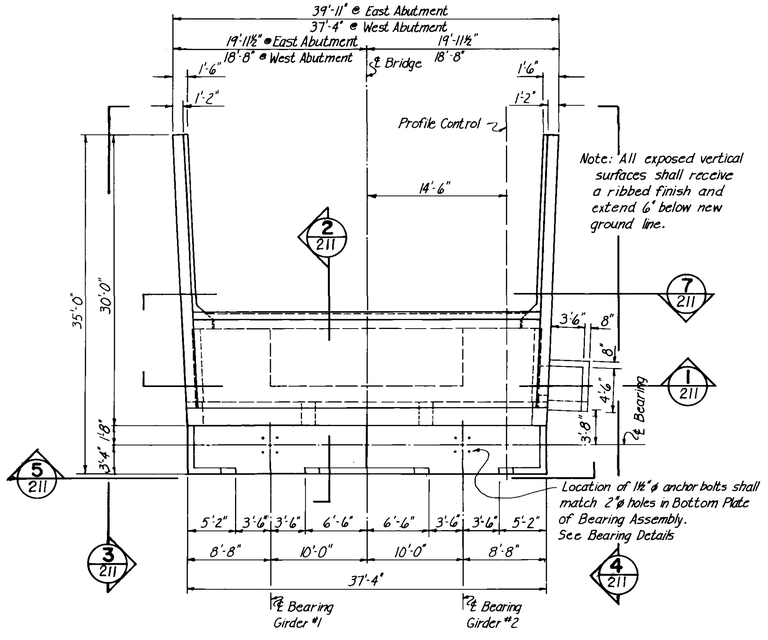
W.L.W. NO. 74012-21

AS - BUILT

DATE	F.B. NO.	PAGE
Nov. 14/79		

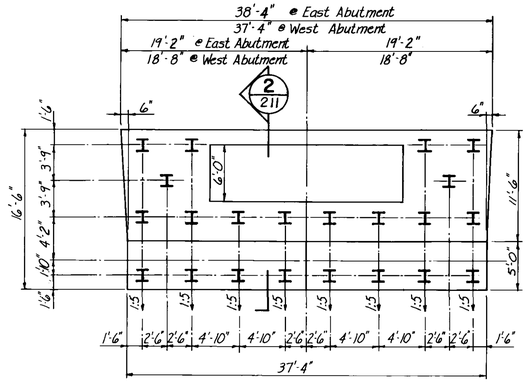
PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER — Nov 14/79

10 INCHES



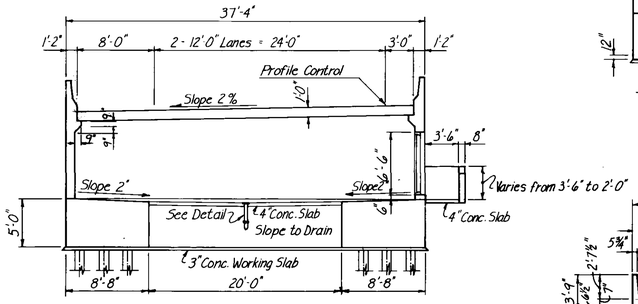
ABUTMENT PLAN

Scale: 1/8"=1'-0"



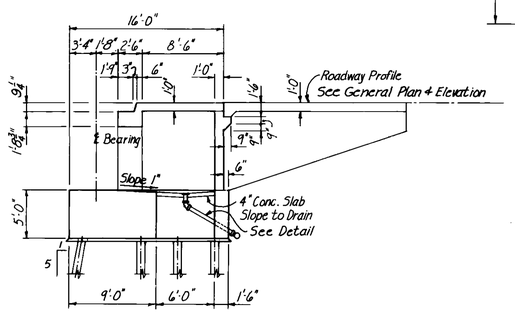
PILING PLAN

Scale: 1/8"=1'-0"



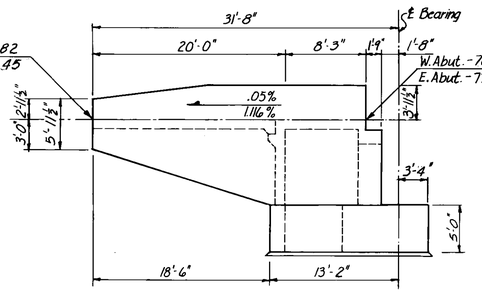
1/211 SECTION

Scale: 1/8"=1'-0"



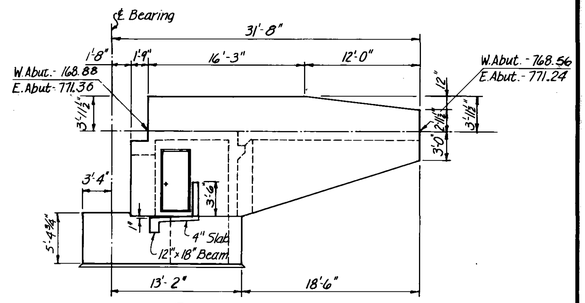
2/211 SECTION

Scale: 1/8"=1'-0"



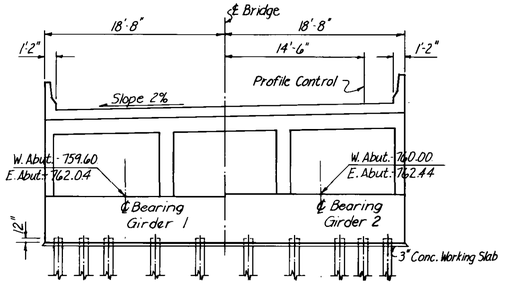
3/211 ELEVATION (NORTH WALL)

Scale: 1/8"=1'-0"



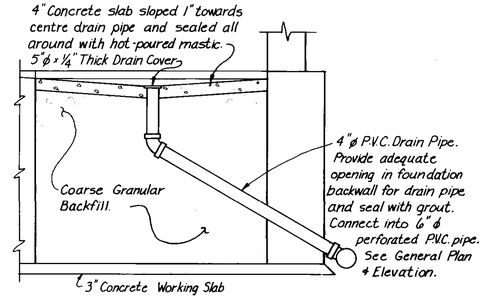
4/211 ELEVATION (SOUTH WALL)

Scale: 1/8"=1'-0"



5/211 ELEVATION

Scale: 1/8"=1'-0"



6/211 SECTION

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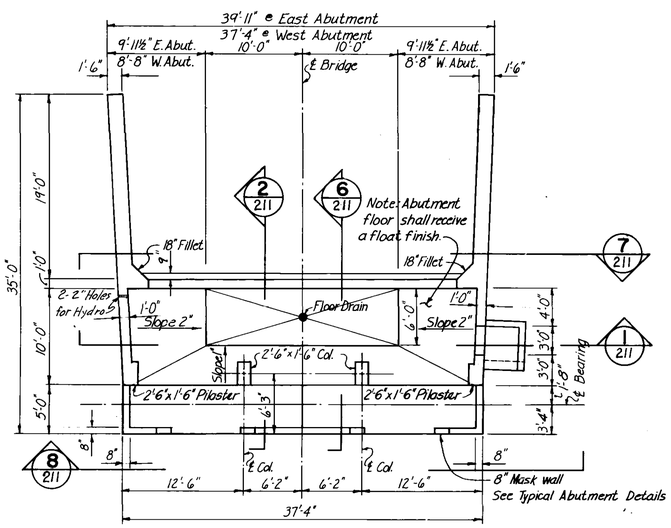
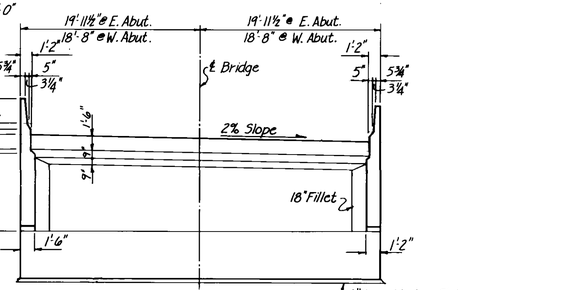


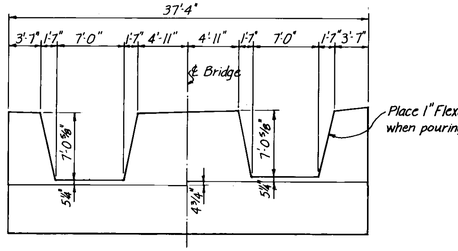
FOUNDATION PLAN

Scale: 1/8"=1'-0"



7/211 SECTION

Scale: 1/8"=1'-0"



8/211 ELEVATION - MASKWALL LAYOUT

Scale: 1/8"=1'-0"

Notes:

1. All piles shall be H-bearing piles HP12x74*. All piles shall be placed vertical except where shown thus ⊢ 1:5, indicating direction and amount of batter.
2. Door assembly shall consist of the following items:
   - 3'-0"x6'-6"x1¾" Galvanized Steel Door.
   - 5¾" Galvanized Press-steel Frame.
   - Weatherstripping
   - Aluminum Threshold
   - 1½ Pair FBB 191 C15 Butts 4½x4 (NRP)
   - 1 only 51PD x PLY/MET x 32D x TMS x 005 Lockset
3. Extreme accuracy and care shall be executed to maintain bearing seat levels at elevations shown. At bearing plate locations, surfaces shall be ground absolutely smooth and flat.
4. Elevations shown are taken at top of concrete.
5. See Drawing no. 204, Note 2
6. Geodetic Bench Mark brass pin located on top of North wingwall, East Abutment.

AS - BUILT		
DATE	F.B. NO.	PAGE
Nov. 16/79		

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA — F. RUZSICSKA — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: ... DATE 25 Nov/77

DRAWN BY	J.T.K.	DATE FEB.77	
PRELIM. CHK.		Nov.77	
DESIGN	B.L.R.	NOV.76	
CHECK	J.R.E.	JAN.77	

ROUTE 165

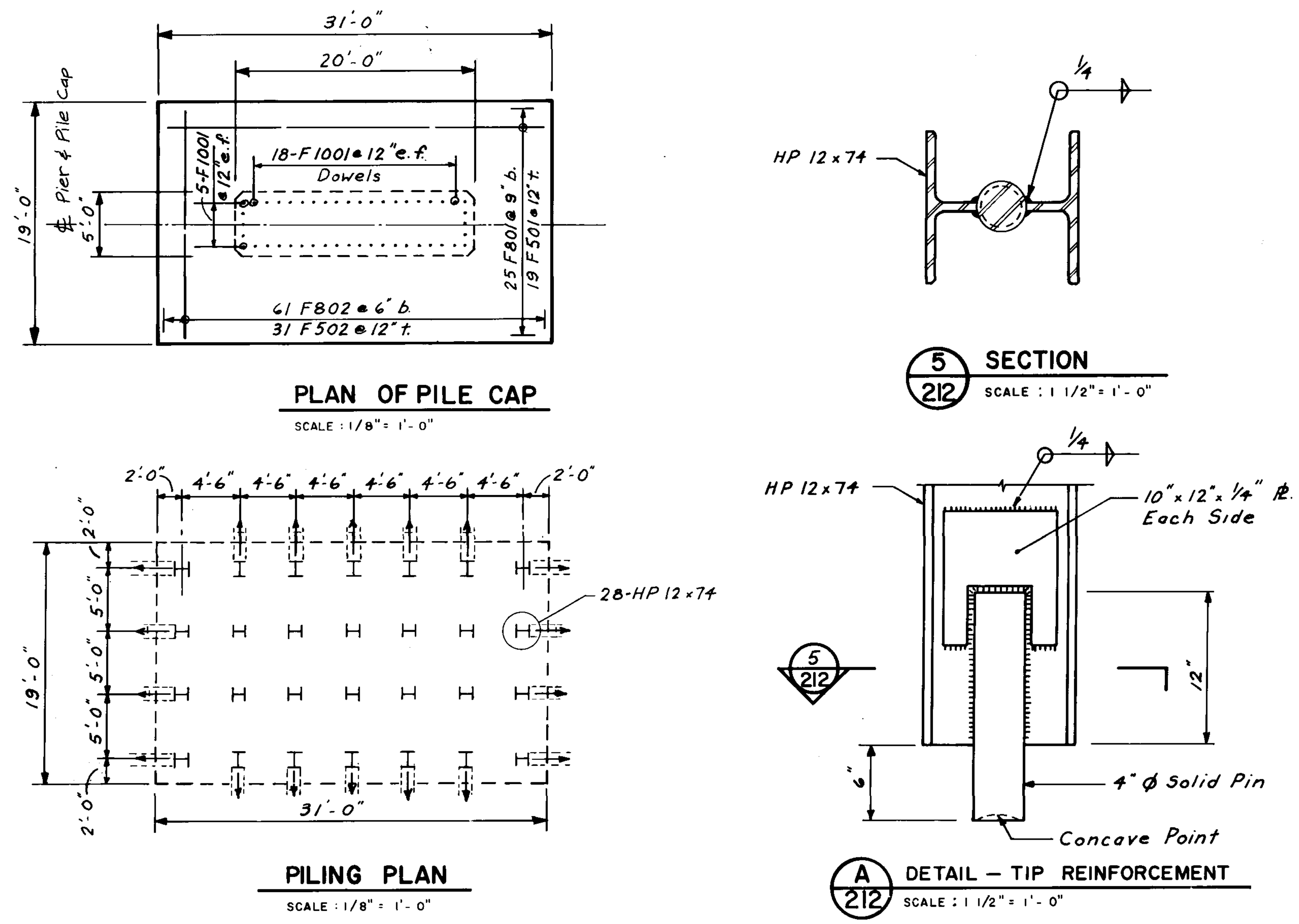
ABUTMENT DETAILS
NORTH BRIDGE

SCALE:

APPROVED BY: ... MANAGER OF STREETS AND TRAFFIC — DATE 25/2/77

DRAWING NO. B-5092-211 ⚠

W.L.W. NO. 7401-2-21



Notes:

1. Concrete seal under pile caps shall be designed by the Contractor to withstand all hydrostatic pressures.
2. Location of any construction joints in piers to be approved by the Engineer.
3. Maximum excavation limits shall not extend more than 2'-6" beyond the footing in any direction. Backfill with granular backfill; see General Section At River Piers for rip-rap details.
4. The clear distance between reinforcing and face of concrete shall be 6".

AS - BUILT

DATE	F.B. NO.	PAGE
Nov. 14/77		

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

PROVINCE OF MANITOBA — B. RUZSICSKA — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

ROUTE 165

PIER NO.'S 1 & 4 DETAILS
NORTH & SOUTH BRIDGES

SCALE: AS SHOWN

DRAWING NO. B-5092-212

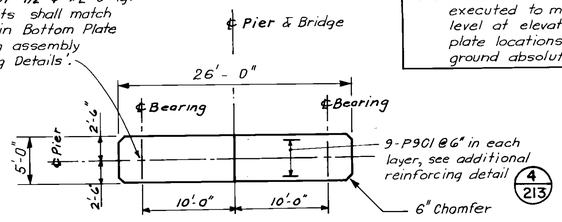
DRAWN BY JRE — DEC. 76; PRELIM. CHK. BJR — JAN. 77; DESIGN BJR — OCT. 76; CHECK — OCT. 76

APPROVED BY: MANAGER OF STREETS AND TRAFFIC — 25/3/77

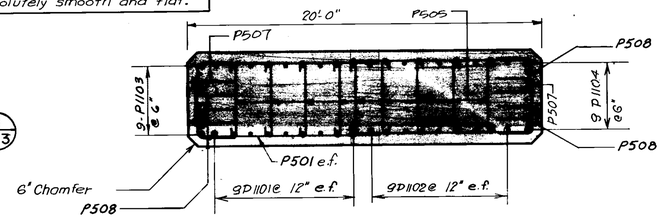
W.L.W. NO. 74012-21

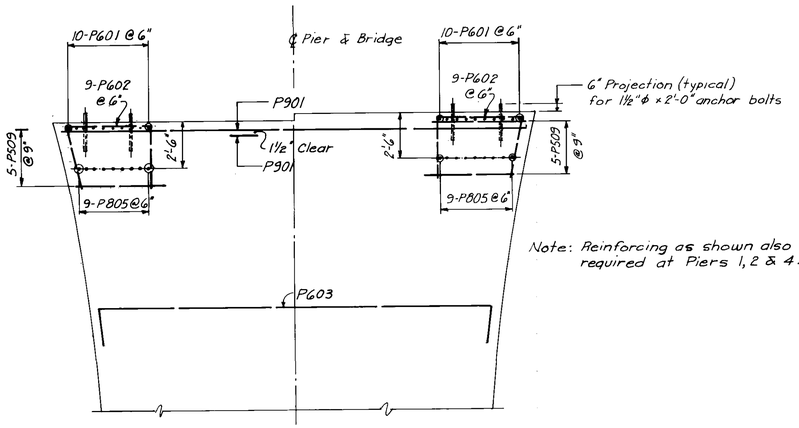
Location of 1½"ϕ x 2'-0" lg. anchor bolts shall match 2"ϕ holes in Bottom Plate of Bearing assembly see 'Bearing Details'.

Note: Extreme accuracy and care shall be executed to maintain bearing seat level at elevations shown. At bearing plate locations, surfaces shall be ground absolutely smooth and flat.



PLAN OF PIER TOP
SCALE 1/8" = 1'- 0"

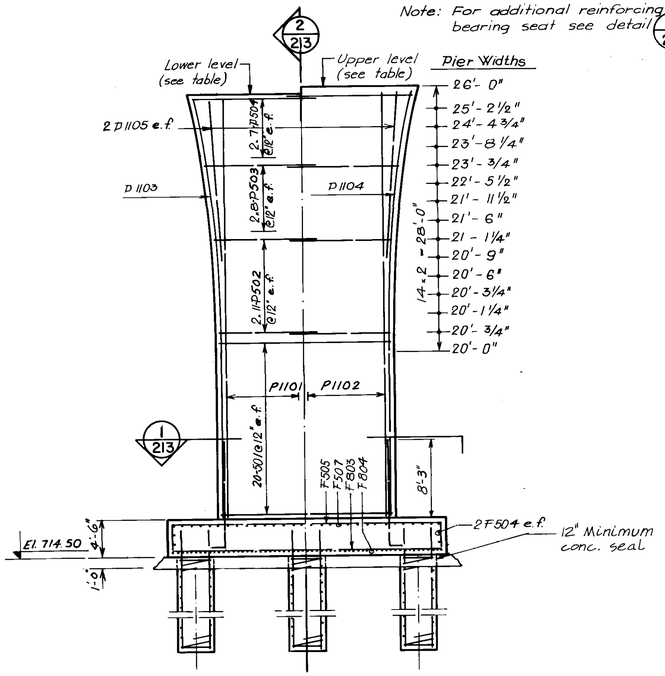




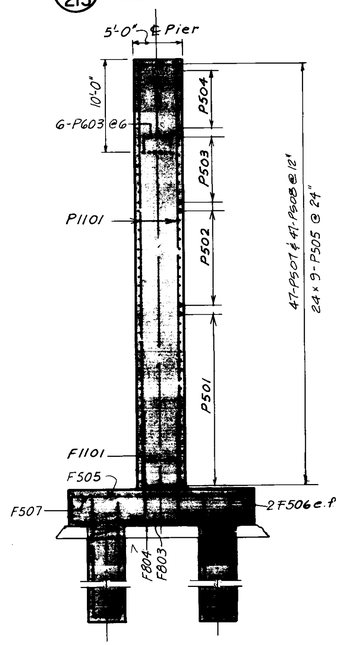
Note: Reinforcing as shown also required at Piers 1, 2 & 4.

4/213 DETAIL
SCALE 1/4" = 1'-0"

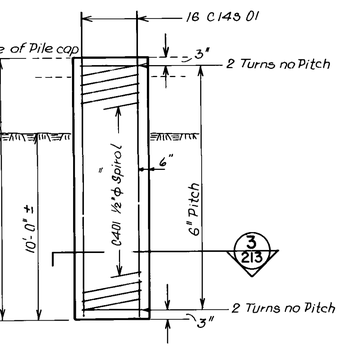
Note: For additional reinforcing at bearing seat see detail 4/213



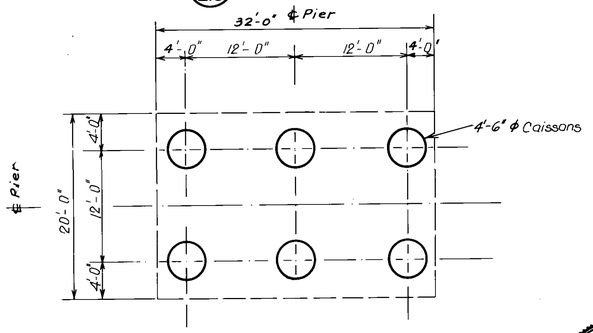
EAST EL.- SOUTH BRIDGE
WEST EL.- NORTH BRIDGE
SCALE 1/8" = 1'- 0"



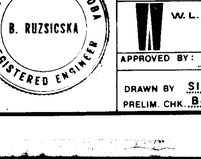
1/213 SECTION
SCALE 1/4" = 1'- 0"



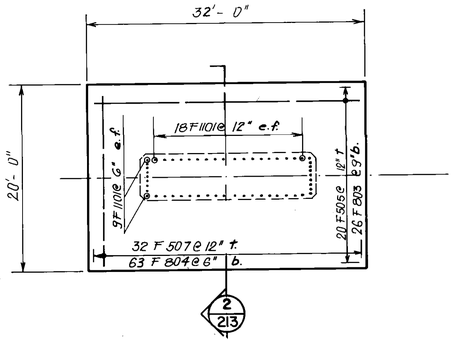
CAISSON ELEVATION
SCALE 1/4" = 1'- 0"



CAISSON LAYOUT
SCALE 1/8" = 1'- 0"



3/213 SECTION
SCALE 1/4" = 1'- 0"



PLAN OF PILE CAP
SCALE 1/8" = 1'- 0"

TOP OF PIER ELEVATIONS				
PIER NO.	SOUTH BRIDGE		NORTH BRIDGE	
	UPPER LEVEL	LOWER LEVEL	UPPER LEVEL	LOWER LEVEL
PIER 2	El. 763.42	El. 763.02	El. 763.50	El. 763.10
PIER 3	El. 763.95	El. 763.55	El. 764.02	El. 763.62
Shaft Height Pier 2	46.42'	46.02'	46.50'	46.10'
Shaft Height Pier 3	46.95'	46.55'	47.02'	46.62'

Notes:
1. Concrete seal under pile caps shall be designed by the Contractor to withstand all hydrostatic pressures.
2. Location of any construction joints in piers to be approved by the Engineer.
3. Maximum excavation limits shall not extend more than 2'-6" beyond the footing in any direction. Backfill with granular backfill; see General Section At River Piers for rip-rap details.
4. The clear distance between reinforcing and face of concrete shall be 6".

AS - BUILT
DATE | FB NO | PAGE
Nov. 14/77

NO	REVISIONS	DATE	BY
		4·4·77	

PROVINCE OF MANITOBA — D. L. MILLS — March 27/77 — REGISTERED ENGINEER

PROVINCE OF MANITOBA — B. RUZSICSKA — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

ROUTE 165

PIER NO.'S 2 & 3 DETAILS
NORTH & SOUTH BRIDGES

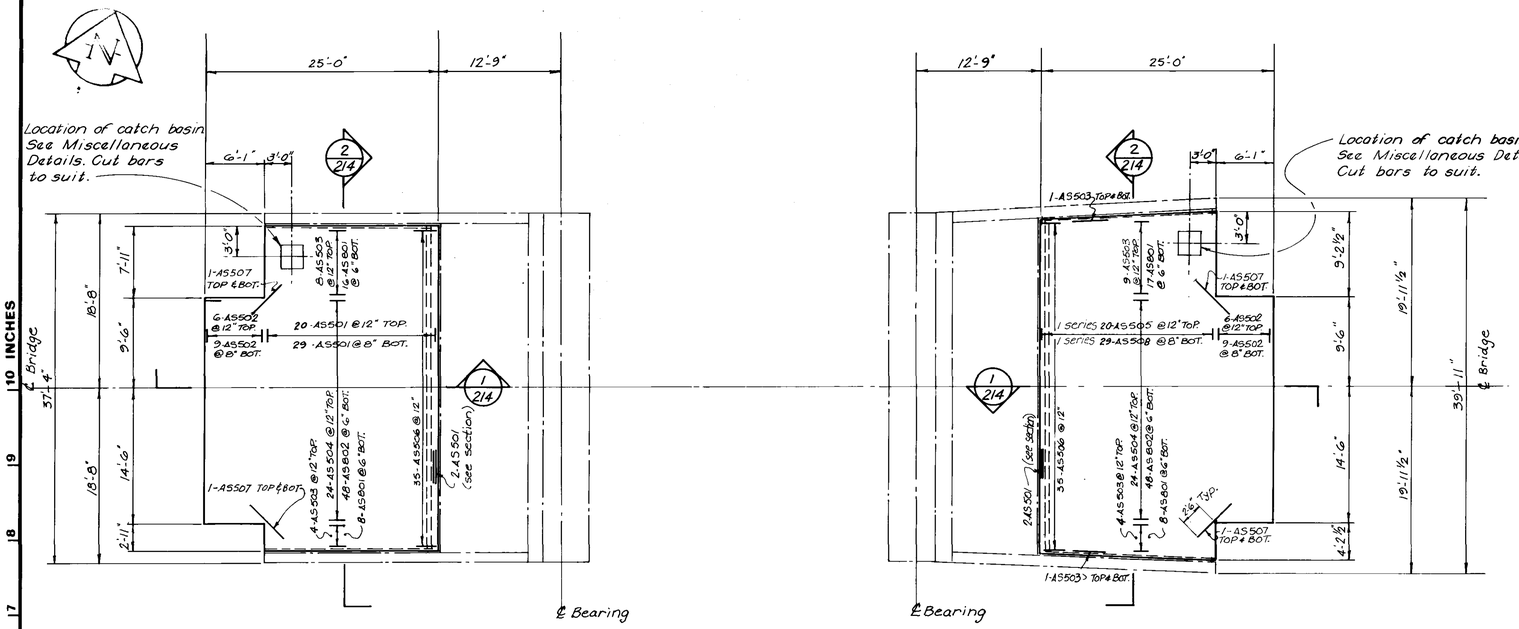
SCALE: AS SHOWN

		DATE		DATE
APPROVED BY:		DATE 25 Mar 77		
DRAWN BY	SIB	NOV/76	DESIGN BJR	NOV/76
PRELIM. CHK	BJR	JAN/77	CHECK	NOV/76

APPROVED BY: Donald R. Campbell — 25/3/22 — MANAGER OF STREETS AND TRAFFIC — DATE

DRAWING NO. B-5092-213

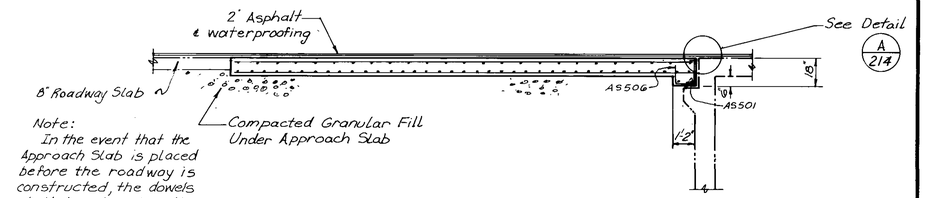
W.L.W. NO. 74012-21



APPROACH SLAB WEST ABUTMENT
Scale 1/8" = 1'-0"

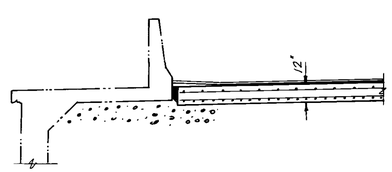
APPROACH SLAB EAST ABUTMENT
Scale 1/8" = 1'-0"

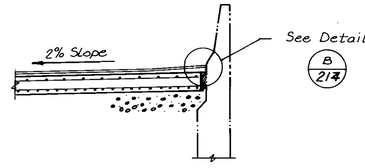
NORTH BRIDGE



Note:
In the event that the Approach Slab is placed before the roadway is constructed, the dowels shall be placed in the Approach Slab. See Roadway Drawings for size and location.

1/214 SECTION
Scale 1/4" = 1'-0"





2/214 SECTION
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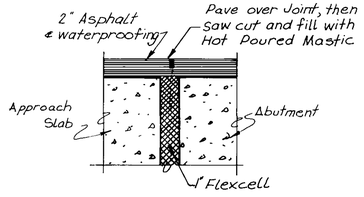
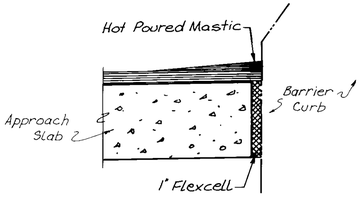
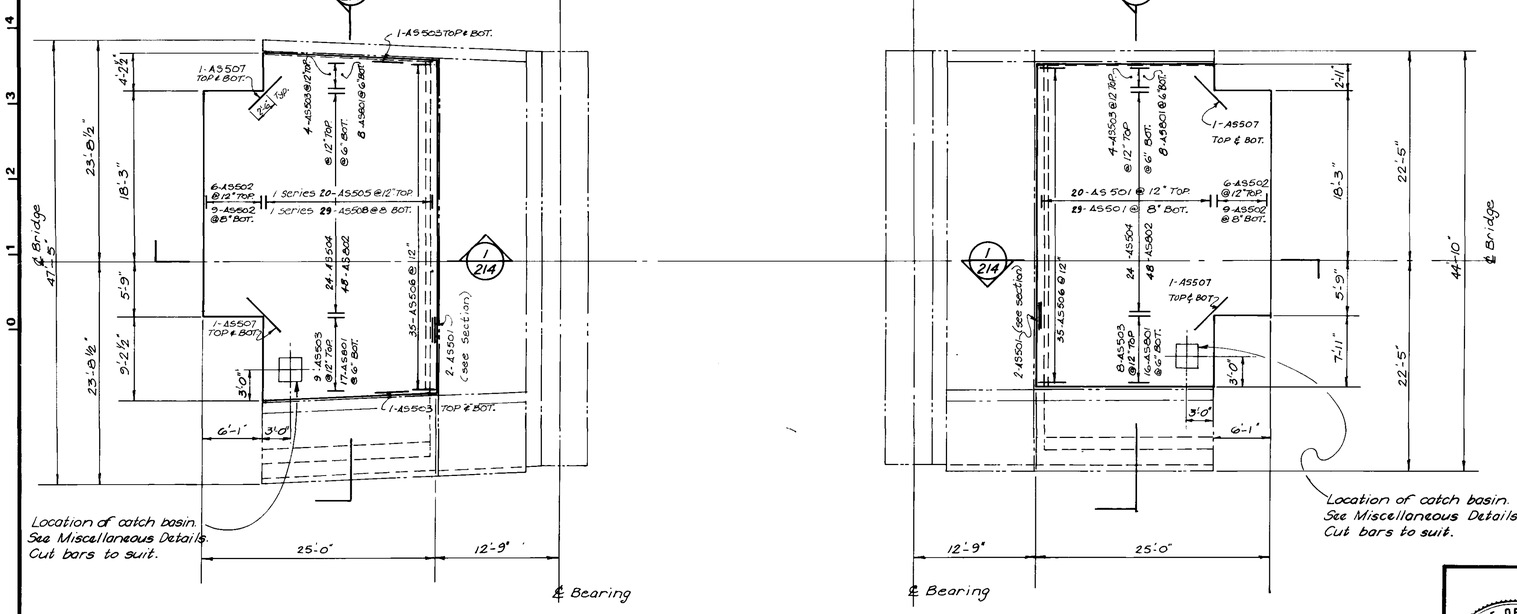


A/214 DETAIL
Scale 3" = 1'-0"



B/214 DETAIL
Scale 1½" = 1'-0"



APPROACH SLAB WEST ABUTMENT
Scale 1/8" = 1'-0"

SOUTH BRIDGE

APPROACH SLAB EAST ABUTMENT
Scale 1/8" = 1'-0"

SOUTH BRIDGE

AS - BUILT

DATE	FB. NO.	PAGE
Nov. 16/79		

PROVINCE OF MANITOBA
D. L. MILLS
REGISTERED ENGINEER

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA
B. RUZSICSKA
REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG - THUNDER BAY - REGINA - BARRIE - EDMONTON

APPROVED BY: D.M.R. DATE 25 Mar/77

		DATE			DATE
DRAWN BY	DAP	MAR.77	DESIGN	BJR	MAR.77
PRELIM. CHK.	STK	MAR.77	CHECK	JRE	MAR.77

ROUTE 165

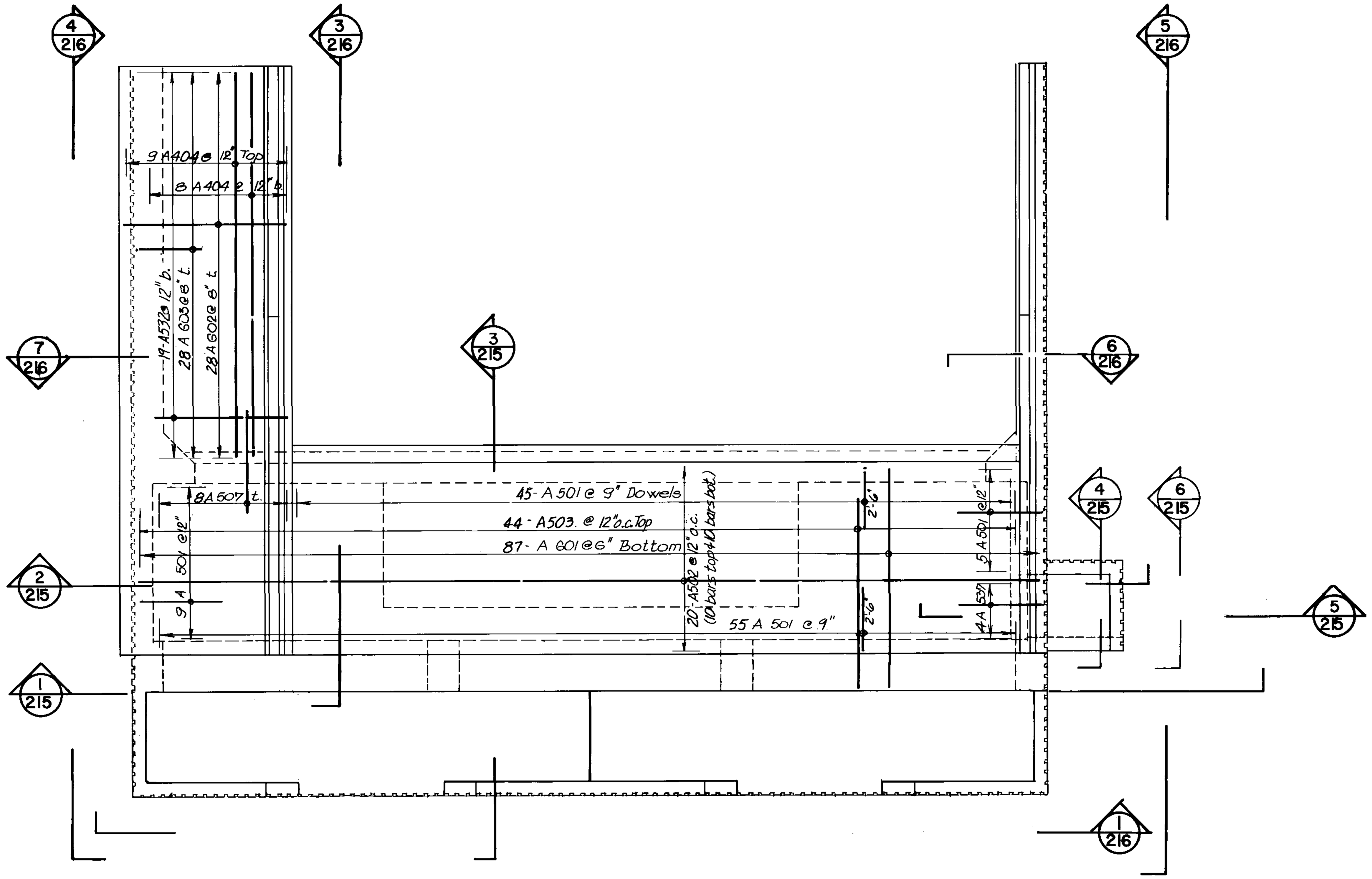
APPROACH SLAB DETAILS

SCALE: AS SHOWN

APPROVED BY: Donald R. Campbell 25/3/77
MANAGER OF STREETS AND TRAFFIC — DATE

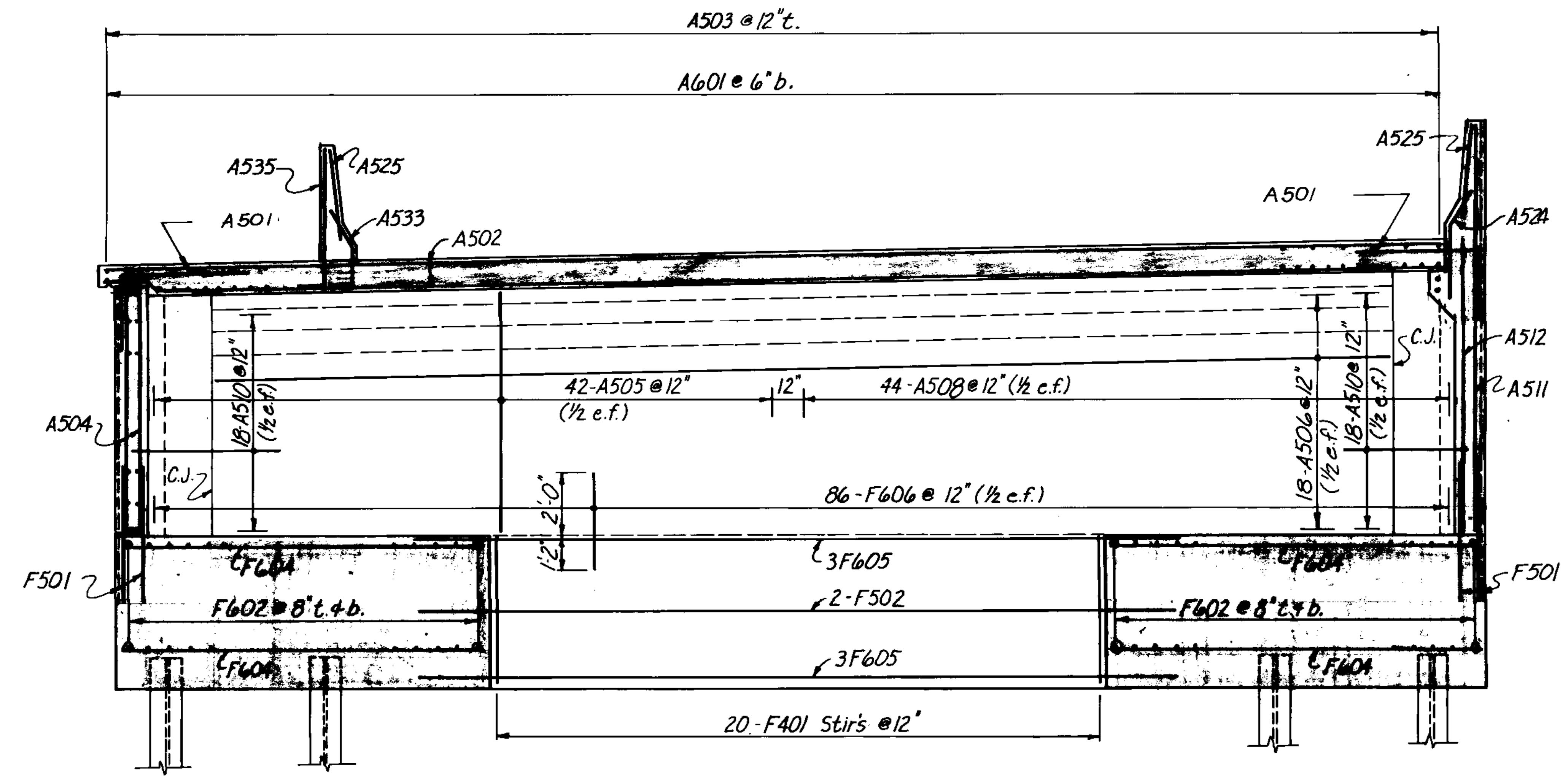
DRAWING NO. B-5092-214

W.L.W. NO. 74012-21

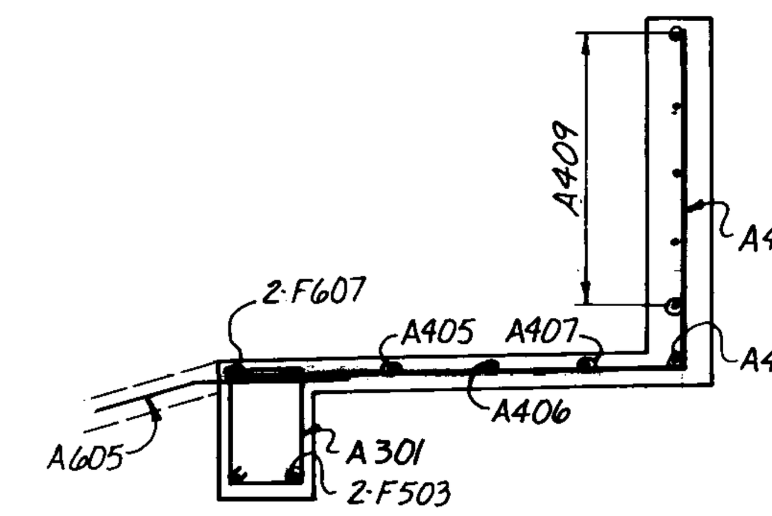


ABUTMENT PLAN

Scale 1/4" = 1'-0"



2/215 SECTION *Scale: 1/4" = 1'-0"*



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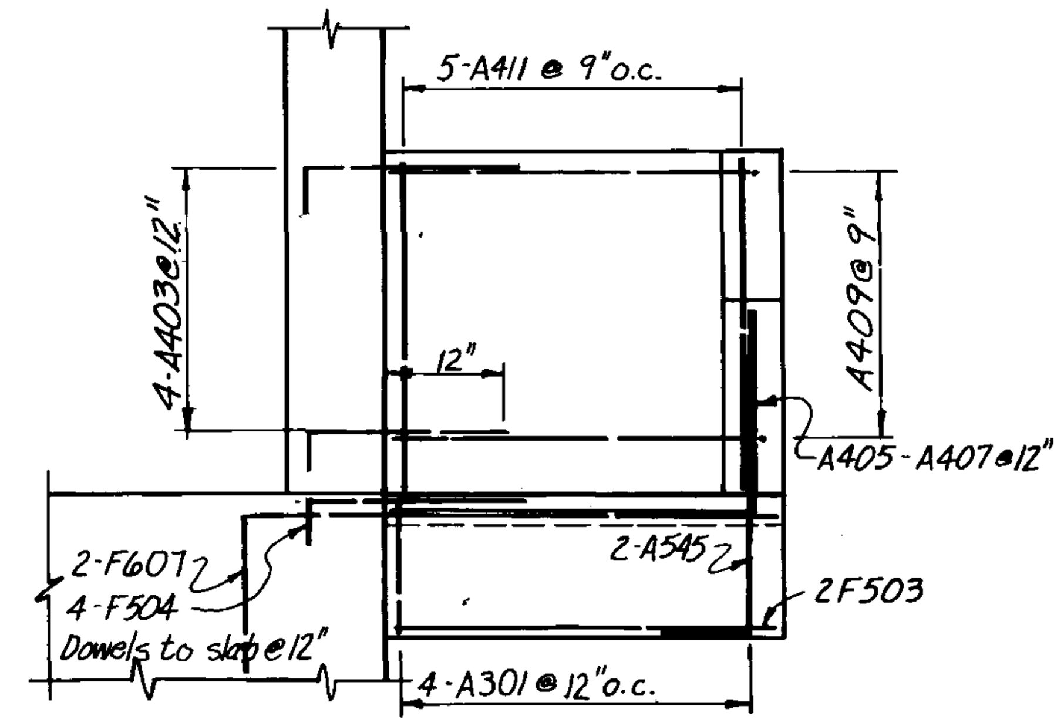

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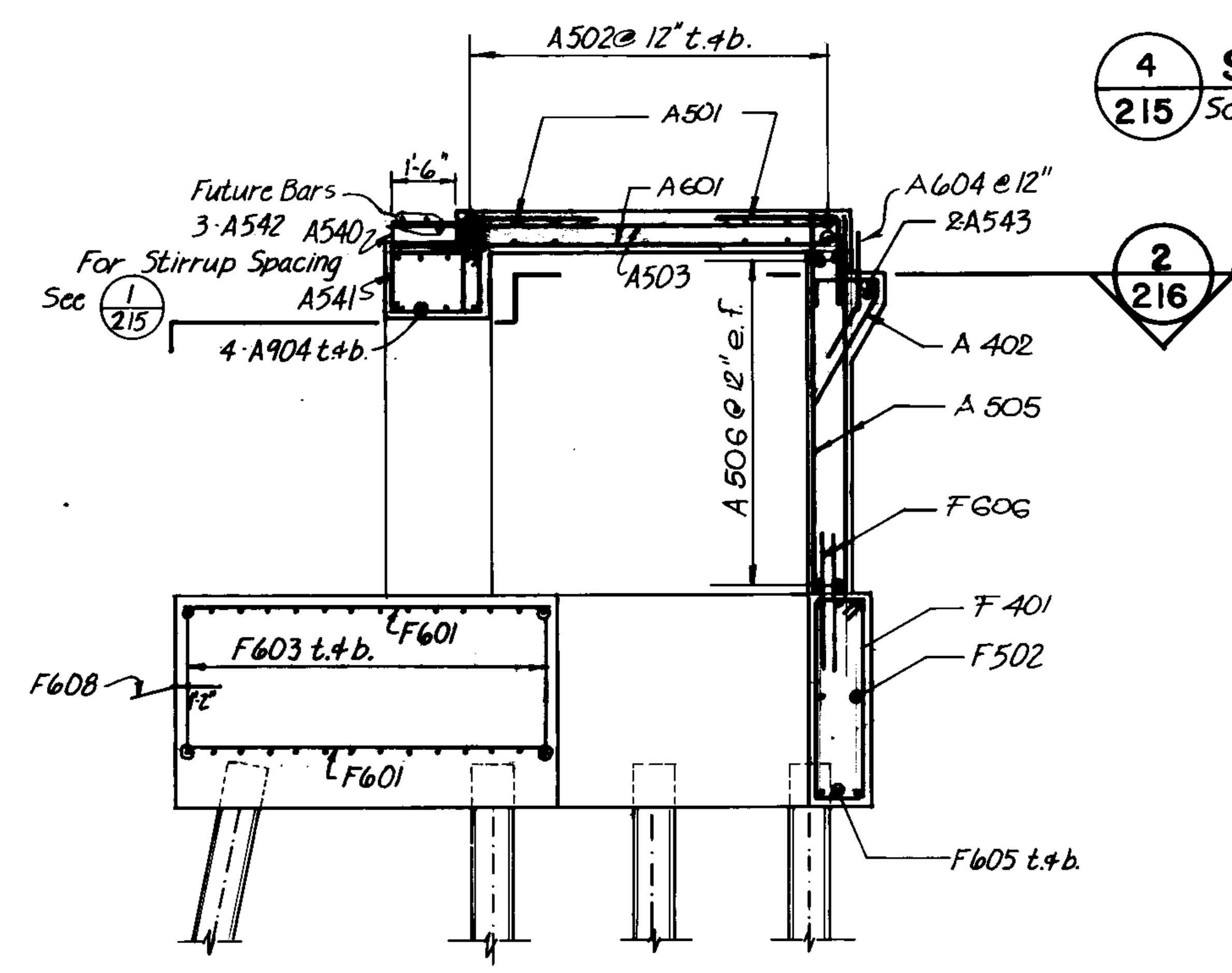
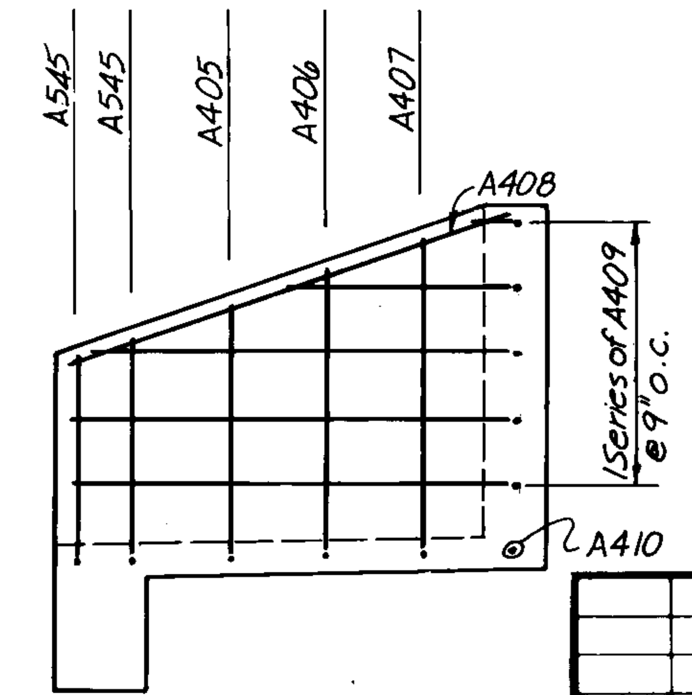
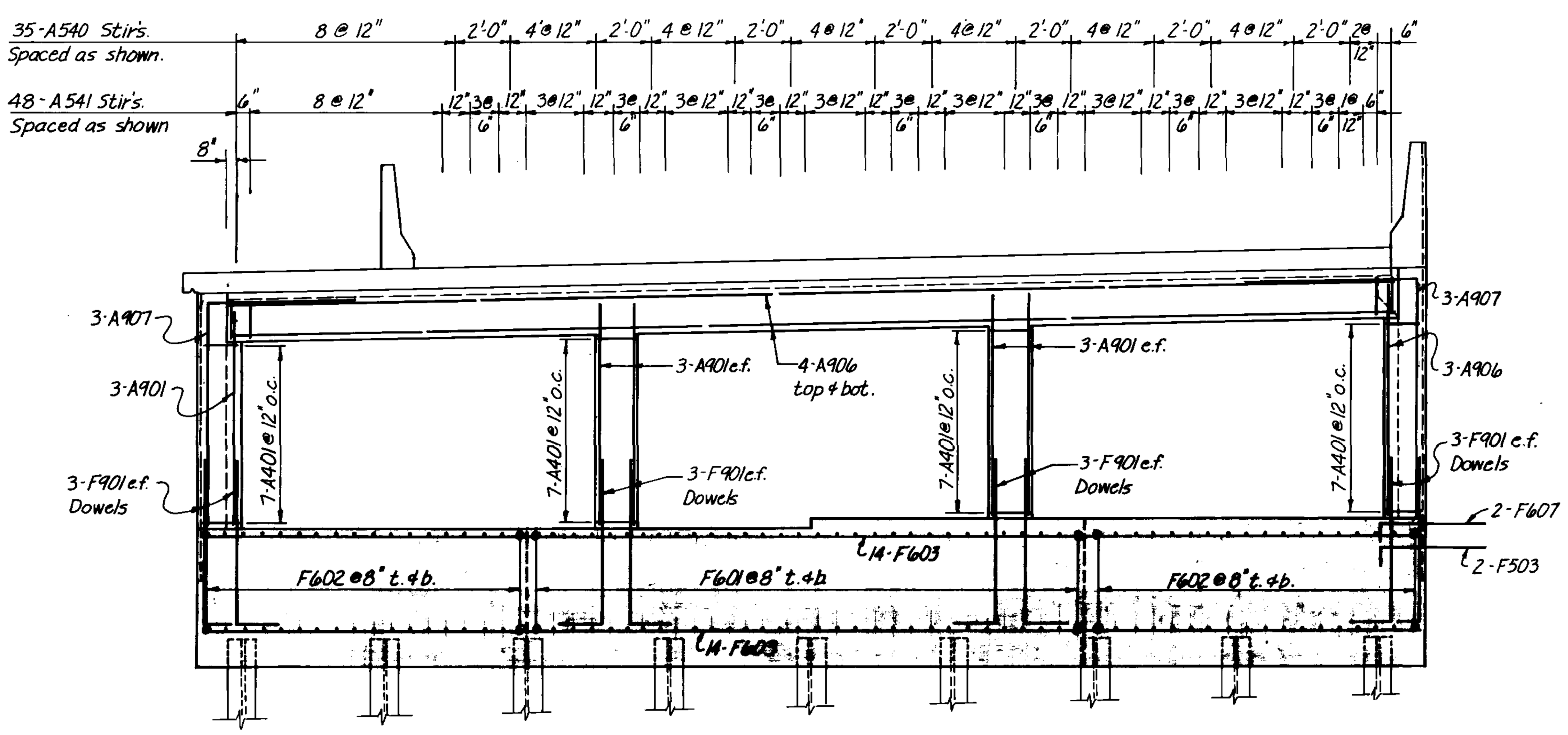


3/215 SECTION *Scale: 1/4" = 1'-0"*



6/215 ELEVATION *Scale: 1/2" = 1'-0"*



1/215 SECTION *Scale: 1/4" = 1'-0"*

AS - BUILT		
DATE	FB. NO.	PAGE
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NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA D.L. MILLS REGISTERED ENGINEER March 24/77

PROVINCE OF MANITOBA B. RUZSICSKA REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: D.L. Greene DATE 25 Mar/77

DRAWN BY SIB DATE JAN.77 DESIGN BJR DATE DEC.76
PRELIM. CHK. BJR JAN.77 CHECK J.R.E. DEC.76

ROUTE 165

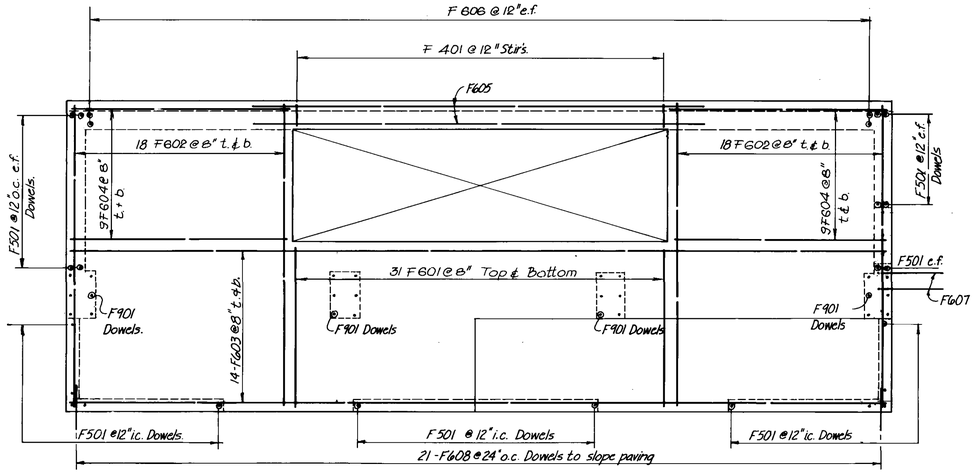
ABUTMENT REINFORCING DETAILS
SOUTH BRIDGE

APPROVED BY: Lowell R Campbell 25/2/22
MANAGER OF STREETS AND TRAFFIC DATE

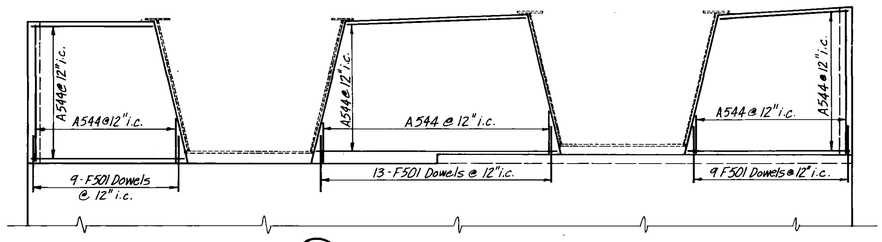
SCALE: AS SHOWN

DRAWING NO. B-5092-215

W.L.W. NO. 74012-21



FOOTING PLAN
Scale: 1/4" = 1'-0"



1 / 216 **ELEVATION**
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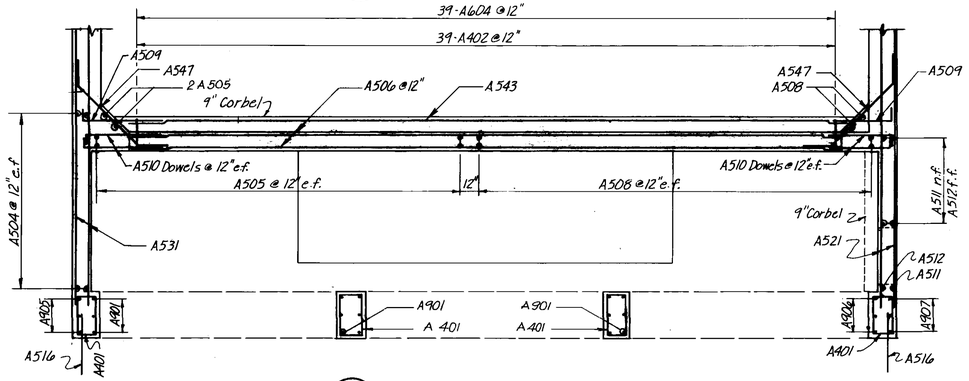

2 / 216 **SECTION**
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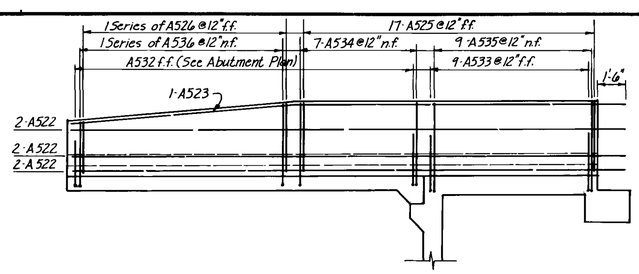

3 / 216 **SECTION**
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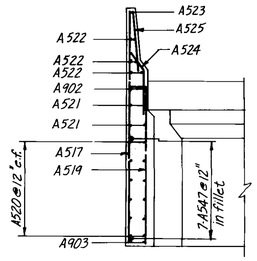
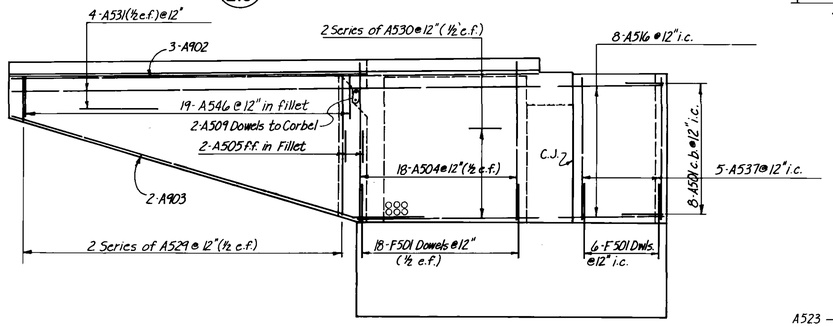


6 / 216 **SECTION**
Scale: 1/4" - 1'-0"



4 / 216 **ELEVATION**
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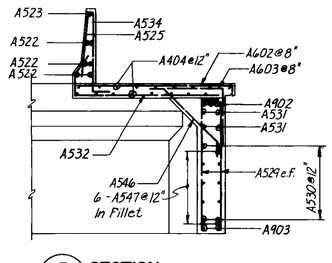
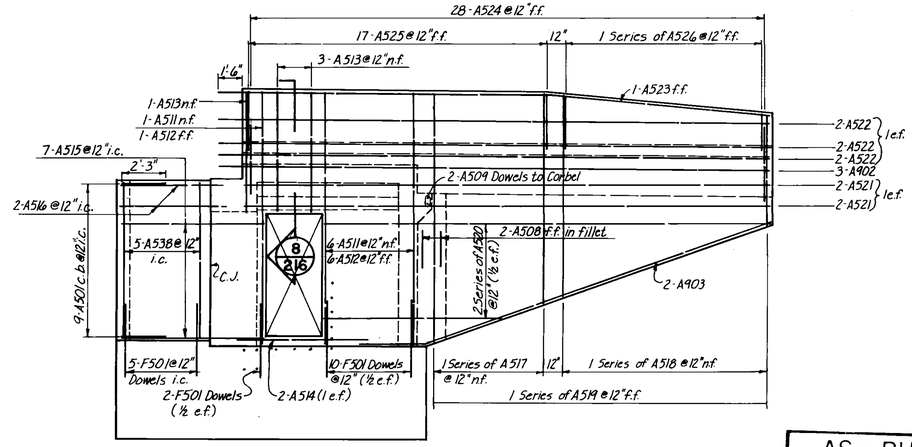
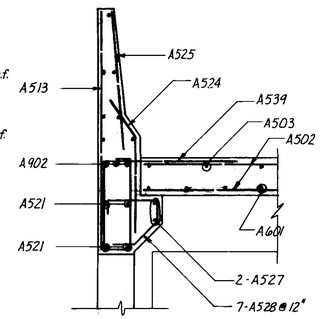


7 / 216 **SECTION**
Scale: 1/4" - 1'-0"



5 / 216 **ELEVATION**
Scale: 1/4" - 1'-0"



8 / 216 **SECTION**
Scale: 1/2" - 1'-0"

AS - BUILT

DATE	FB NO.	PAGE
Nov. 14/79		

PROVINCE OF MANITOBA
D. L. MILLS
March 24/77
REGISTERED ENGINEER

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA
B. RUZSICSKA
REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: D.R.G. DATE 25 MAR/77

DRAWN BY	S.I.B.	DATE JAN.'77	DESIGN B.J.R. DATE DEC.'76
PRELIM. CHK.	B.J.R.	DATE JAN.'77	CHECK D.R.G. DATE DEC.'76

ROUTE 165

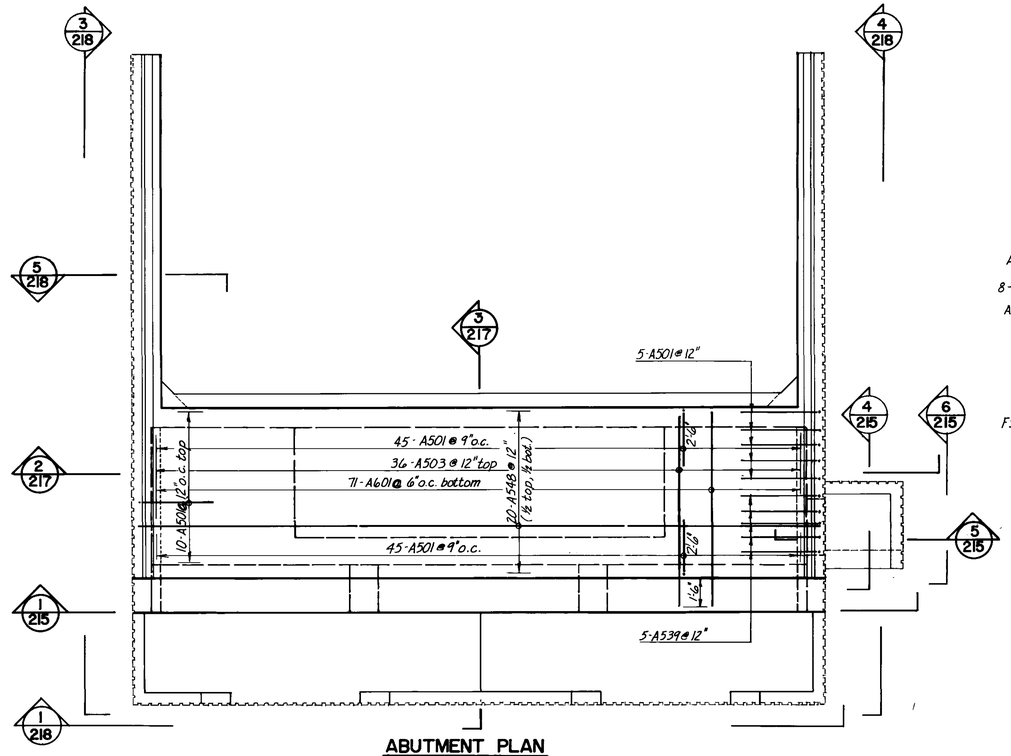
ABUTMENT REINFORCING DETAILS
SOUTH BRIDGE

SCALE: AS SHOWN

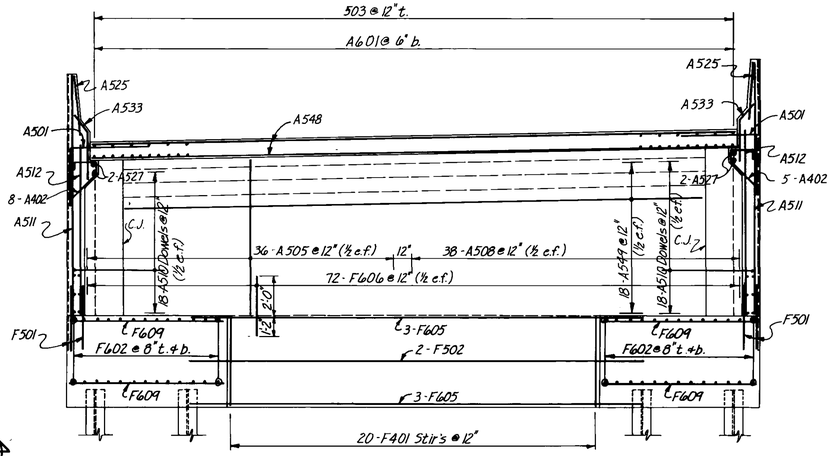
APPROVED BY: Donald R. Campbell 25/3/77
MANAGER OF STREETS AND TRAFFIC DATE

DRAWING NO. B-5092-216

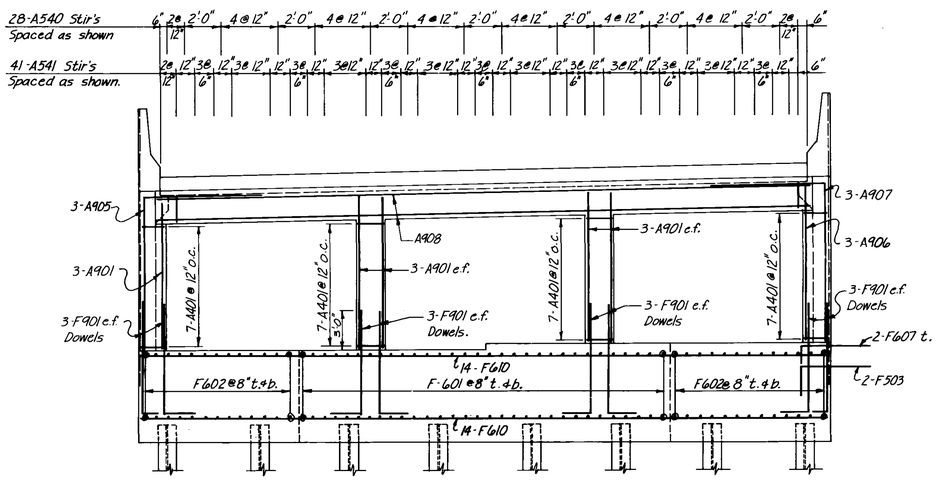
W.L.W. NO. 74012-21



ABUTMENT PLAN
Scale: ¼"=1'-0"



2/217 SECTION
Scale: ¼"=1'-0"



1/217 SECTION
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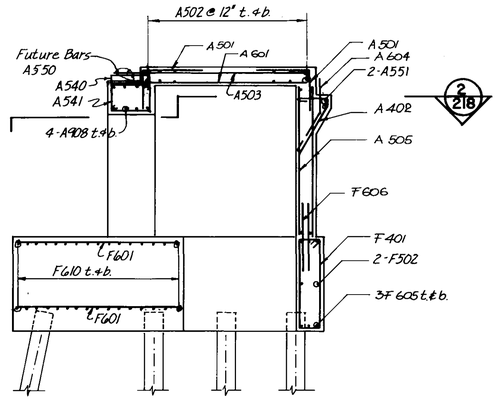


3/217 SECTION
Scale: ¼"=1'-0"

PROVINCE OF MANITOBA
D. L. MILLS
REGISTERED ENGINEER

AS - BUILT
DATE: Nov. 14/79

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA
B. RUZSICSKA
REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: D.L.M. DATE 25 March 77
DRAWN BY SIB DATE JAN. 77
PRELIM. CHK. BJR DATE JAN. 77
DESIGN BJR DATE MAR. 76
CHECK D.L.M. DATE MAR. 76

ROUTE 165

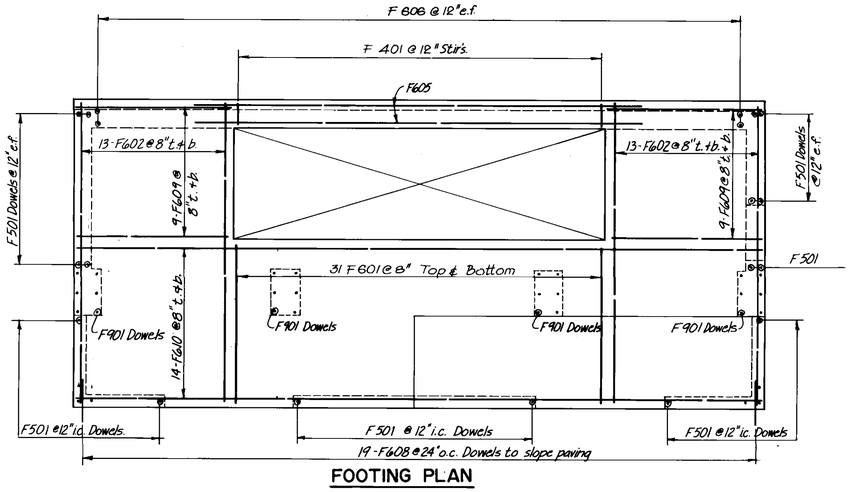
ABUTMENT REINFORCING DETAILS NORTH BRIDGE

APPROVED BY: Lowell R. Campbell MANAGER OF STREETS AND TRAFFIC 25/3/22 DATE

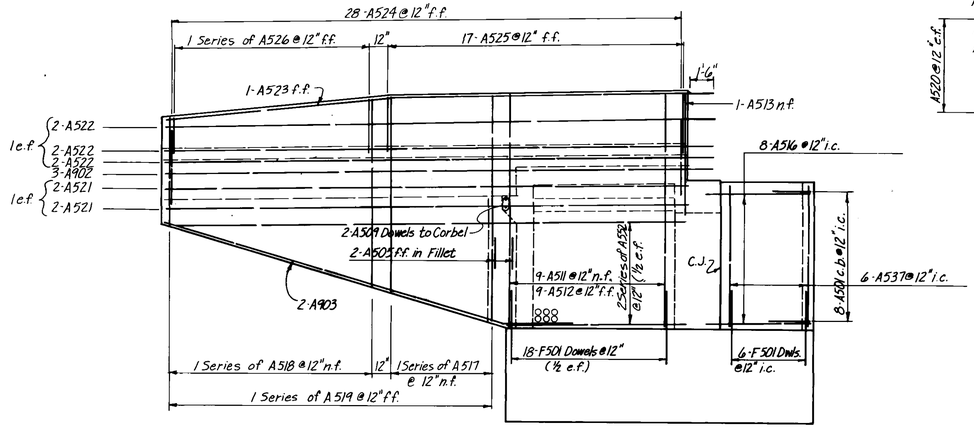
SCALE: AS SHOWN

DRAWING NO. B-5092-217

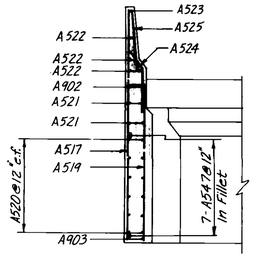
W.L.W. NO. 74012-21



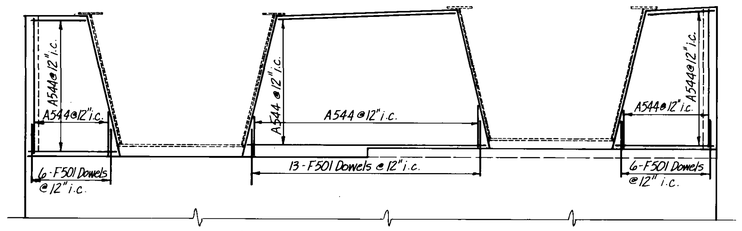
FOOTING PLAN



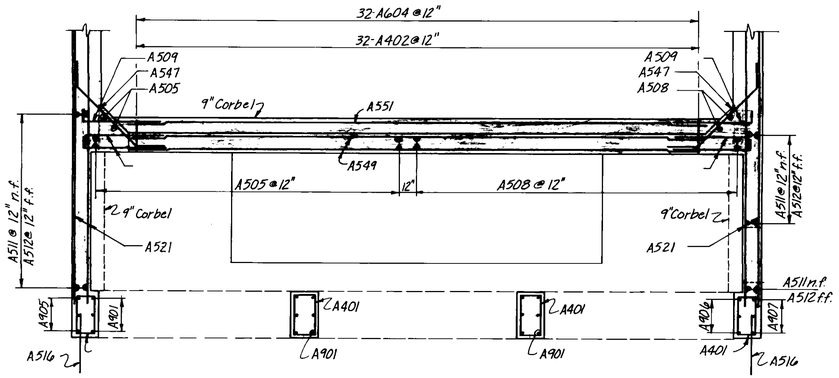
3 / 218 ELEVATION
Scale: 1/4"=1'-0"



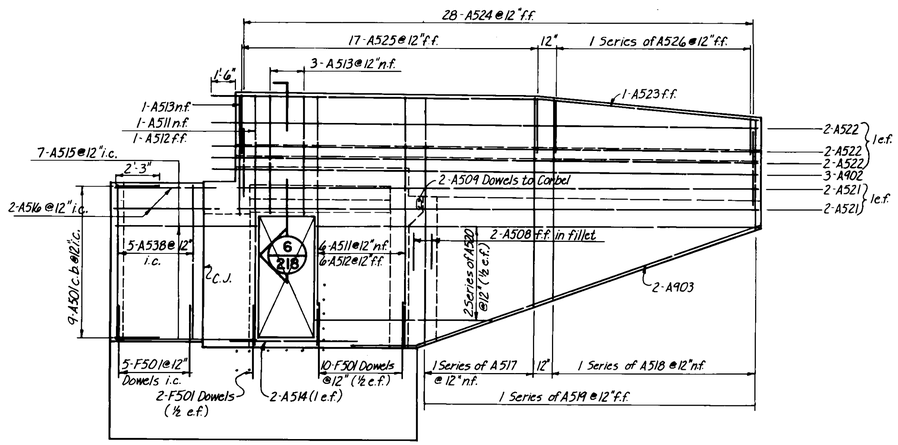
5 / 218 SECTION
Scale: 1/4"=1'-0"



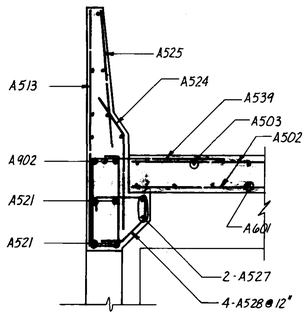
1 / 218 ELEVATION
Scale: 1/4"=1'-0"



2 / 218 SECTION



4 / 218 ELEVATION
Scale: 1/4"=1'-0"



6 / 218 SECTION
Scale: 1/2"=1'-0"

AS-BUILT

DATE	FB. NO.	PAGE
Nov 14/91		

PROVINCE OF MANITOBA — D.L. MILLS — Mad 24/7 — REGISTERED ENGINEER

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA — B. ROSS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: D.R.P. DATE 25 Jan/77

		DATE		
DRAWN BY	S.I.B.	JAN/77	DESIGN B.J.R.	DEC/76
PRELIM. CHK.	B.J.R.	JAN/77	CHECK D.R.P.	DEC/76

ROUTE 165

ABUTMENT REINFORCING DETAILS
SOUTH BRIDGE

SCALE: AS SHOWN

APPROVED BY: Donald R. Penfold — MANAGER OF STREETS AND TRAFFIC — 25/3/77 DATE

DRAWING NO. B-5092-218

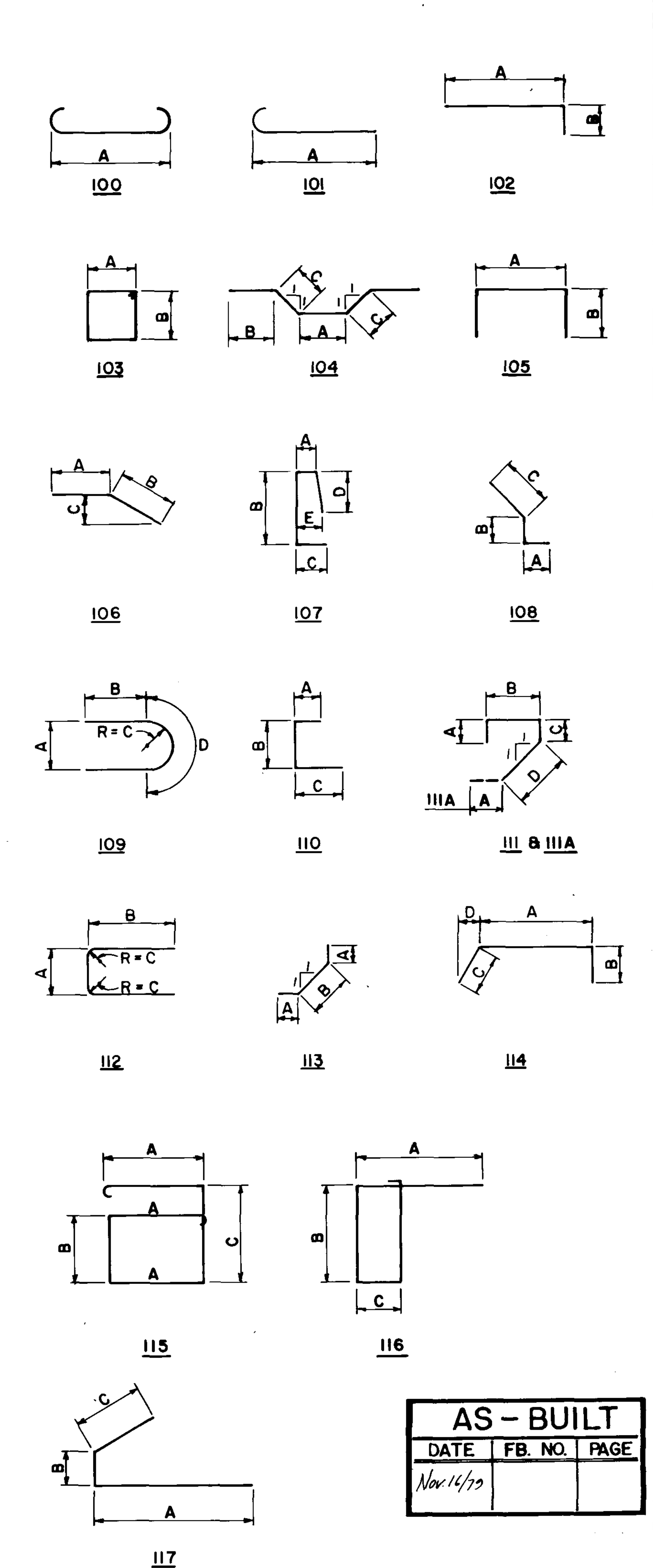
W.L.W. NO. 74012-21

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
SOUTH BRIDGE ABUTMENTS								
* F401	20	12-1	161	103	1-2	4-6		
F501	73	2-7	197	Str				
F502	2	24-0	50	Str				
F503	2	6-2	13	102	5-2	1-0		
F504	4	3-5	14	102	2-7	0-10		
F601	62	8-6	792	Str				
F602	72	16-0	1730	Str				
F603	28	44-0	1850	Str				
F604	36	11-9	635	Str				
F605	6	25-0	225	Str				
F606	86	3-2	409	Str				
F607	2	6-2	19	102	5-2	1-0		
F608	21	2-8	84	106	1-2	1-6	0-4½	
F901	24	8-3	673	102	6-8	1-7		
A301	4	4-8	7	103	0-9	1-3		
* A401	28	7-9	145	103	1-3	2-3		
* A402	39	4-6	118	111	0-6	1-6	0-6	2-0
* A403	4	3-5	9	102	2-7	0-10		
* A404	17	19-6	221	Str				
* A405	1	6-6	4	102	3-10	2-8		
* A406	1	6-10	5	102	3-10	3-0		
* A407	1	7-2	5	102	3-10	3-4		
* A408	1	4-10	3	Str				
* A409	1 series of 5	4-3 to 8-5	21	102	3-9	0-6 to 4-8		
* A410	1	3-9	3	Str				
* A411	5	8-2	27	102	3-6	4-8		
A501	133	4-9	659	102	2-6	2-3		
A502	20	43-0	897	Str				
A503	44	10-6	482	Str				
A504	18	8-6	160	Str				
A505	44	8-6	390	Str				
A506	18	38-2	717	Str				
A507	8	5-0	42	Str				
A508	46	9-2	440	Str				
A509	4	4-7	19	102	3-7	1-0		
A510	36	5-4	200	102	4-4	1-0		
A511	7	13-5	98	Str				
A512	7	9-2	67	Str				
A513	4	6-4	26	Str				
A514	2	5-6	11	Str				
A515	7	9-3	68	Str				
A516	10	7-0	73	Str				
A517	1 series of 7	10-10 to 13-0	87	Str				
A518	1 series of 12	5-10 to 10-4	101	Str				
A519	1 series of 19	3-9 to 10-1	137	Str				
A520	2 series of 6	9-4 to 23-10	208	Str				
A521	4	28-0	117	Str				
A522	12	29-6	369	Str				
A523	2	29-6	62	106	17-6	12-0	1-2	
A524	28	3-8	107	106	1-2	2-6	0-8	
A525	34	3-8	130	Str				
A526	2 series of 12	2-8 to 3-7	158	Str				
A527	2	7-6	16	Str				
A528	7	3-3	24	111A	0-6	1-5	0-6	0-10
A529	2 series of 18	3-3 to 8-5	219	102	2-3 to 7-6	0-11		
A530	2 series of 6	9-8 to 27-0	229	Str				
A531	4	28-2	118	Str				
A532	19	10-9	213	117	7-8	1-0	1-1	
A533	9	3-4	31	117	1-0	1-3	1-1	
A534	7	5-4	39	102	4-4	1-0		
A535	9	5-7	52	102	4-7	1-0		
A536	1 series of 12	4-3 to 5-3	59	113	3-3 to 4-3	1-0		
A537	5	7-9	40	Str				
A538	5	8-5	44	Str				
A539	4	9-7	40	116	3-6	2-6	0-9	
A540	35	9-4	341	103	2-2	2-2		
A541	48	7-10	392	103	2-2	1-5		
A542	3	39-9	124	Str				
A543	2	39-0	81	Str				
A544	10	40-0	417	Str	(cut in field)			

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
A545	2	4-2	9	102	3-4	0-10		
A546	19	6-6	129	113	1-6	3-6		
A547	13	7-6	102	113	1-6	4-6		
A601	87	10-6	1372	Str				
A602	28	8-8	365	102	8-3	0-5		
A603	28	6-0	252	102	3-0	3-0		
A604	39	2-9	161	106	1-3	1-6	1-0	
A605	4	2-8	16	106	1-2	1-6	1-0	
A901	15	7-6	383	Str				
A902	6	27-10	568	Str				
A903	4	24-6	333	106	19-6	5-0	6-4	
A904	8	42-6	1156	Str				
A905	3	11-6	117	102	7-6	4-0		
A906	3	8-1	82	Str				
A907	3	12-1	123	102	8-1	4-0		
TOTAL WEIGHT FOR 1 ABUTMENT 20,209 lbs. (FOR 2 ABUTMENTS 40,418 lbs.)								
NORTH BRIDGE ABUTMENTS								
* F401	20	12-1	161	103	1-2	4-6		
F501	66	2-7	178	Str				
F502	2	24-0	50	Str				
F503	2	6-2	13	102	5-2	1-0		
F504	4	3-5	14	102	2-7	0-10		
F601	62	8-6	792	Str				
F602	52	16-0	1250	Str				
F603 & F604 omitted								
F605	6	25-0	225	Str				
F606	72	3-2	342	Str				
F607	2	6-2	19	102	5-2	1-0		
F608	19	2-8	76	106	1-2	1-6	0-4½	
F609	36	8-4	451	Str				
F610	28	37-0	1556	Str				
F901	24	8-3	673	102				
A301	4	4-8	7	103	0-9	1-3		
* A401	28	7-9	145	103	1-3	2-3		
* A402	48	4-6	144	111	0-6	1-6	0-6	2-0
* A403	4	3-5	9	102	2-7	0-10		
* A404	omitted							
* A405	1	6-6	4	102	3-10	2-8		
* A406	1	6-10	5	102	3-10	3-0		
* A407	1	7-2	5	102	3-10	3-4		
* A408	1	4-10	3	Str				
* A409	1 series of 5	4-3 to 8-5	21	102	3-9	0-6 to 4-8		
* A410	1	3-9	3	Str				
* A411	5	8-2	27	102	3-6	4-8		
A501	122	4-9	604	102	2-6	2-3		
A502	omitted							
A503	36	10-6	394	Str				
A504	omitted							
A505	38	8-6	337	Str				
A506 & A507 omitted								
A508	40	9-2	382	Str				
A509	4	4-7	19	102	3-7	1-0		
A510	36	5-4	200	102	4-4	1-0		
A511	16	13-5	224	Str				
A512	16	9-2	153	Str				
A513	5	6-4	33	Str				
A514	2	5-6	11	Str				
A515	7	9-3	68	Str				
A516	10	7-0	73	Str				
A517	2 series of 7	10-10 to 13-0	174	Str				
A518	2 series of 12	5-10 to 10-4	202	Str				
A519	2 series of 19	3-9 to 10-1	274	Str				
A520	2 series of 6	9-4 to 23-10	208	Str				
A521	8	28-0	234	Str				
A522	12	29-6	369	Str				

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
A523	2	29-6	62	106	17-6	12-0	1-2	
A524	56	3-8	214	106	1-2	2-6	0-8	
A525	34	3-8	130	Str				
A526	2 series of 6	2-8 to 3-7	157	Str				
A527	4	7-6	31	Str				
A528	4	3-3	14	111A	0-6	1-5	0-6	0-10
A529 to A536 omitted								
A537	6	7-9	40	Str				
A538	5	8-5	44	Str				
A539	4	9-7	40	116	3-6	2-6	0-9	
A540	28	9-4	273	103	2-2	2-2		
A541	41	7-10	335	103	2-2	1-5		
A542 & A543 omitted								
A544	10	40-0	417	Str	(cut in field)			
A545	2	4-2	9	102	3-4	0-10		
A546 omitted								
A547	13	7-6	102	113	1-6	4-6		
A548	20	34-10	727	Str				
A549	18	31-4	588	Str				
A550	3	34-8	108	Str				
A551	2	31-0	65	Str				
A552	2 series of 6	13-4 to 28-0	258	Str				
A601	71	10-6	1120	Str				
A602 & A603 omitted								
A604	32	2-9	132	106	1-3	1-6	1-0	
A605	4	2-8	16	106	1-2	1-6	1-0	
A901	18	7-6	459	Str				
A902	6	27-10	568	Str				
A903	4	24-6	333	106	19-6	5-0	6-4	
A904 omitted								
A905	3	11-6	117	102	7-6	4-0		
A906	3	8-1	82	Str				
A907	3	12-1	123	102	8-1	4-0		
A908	8	35-6	966	Str				
TOTAL WEIGHT FOR 1 ABUTMENT 17,714 lbs. (FOR 2 ABUTMENTS 35,428 lbs.)								

BENDING DIAGRAMS



AS-BUILT		
DATE	FB. NO.	PAGE
Nov 16/77		

Notes:
- Reinforcing shall be grade 40 for #4 bar and grade 60 for #5 bar and larger.
- * Denotes grade 40 bar

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

PROVINCE OF MANITOBA — B. ROZSICSKA — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 Mar/77

DRAWN BY S.I.B. DATE FEB.77 — DESIGN B.J.R. DATE NOV.76
PRELIM. CHK. [initials] 25 Mar 77 — CHECK J.R.E. JAN.77

ROUTE 165

REINFORCING LIST NO. 1

SCALE:

APPROVED BY: [signature] 25/3/77 — MANAGER OF STREETS AND TRAFFIC — DATE

DRAWING NO. B-5092-219

W.L.W. NO. 74012-21

PIER NO. 4

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
F501	19	38-0	753	105	30-0	4-0		
F502	31	26-0	841	105	18-0	4-0		
F503	4	30-0	125	Str				
F504	4	18-0	75	Str				
F801	25	30-6	2036	Str				
F802	61	18-6	3013	Str				
F1001	46	12-6	2474	102	11-0	1-6		
P502	40	12-0	501	Str				
P503	32	13-0	434	Str				
P504	28	14-0	409	Str				
P505	117	5-0	610	100	4-0			
P506	104	8-9	949	112	3-3	2-9		
P509	10	17-6	183	103	3-9	4-6		
P601	20	10-4	310	105	3-8	3-4		
P602	18	11-2	302	115	4-6	3-4	0-9	
P603	6	23-5	211	105	21-5	1-0		
P805	18	7-0	336	105	4-0	1-6		
P901	18	25-0	1530	Str				
P1001	18	25-3	1956	Str				
P1002	18	25-9	1994	Str				
P1003	5	25-4	545	Str				
P1004	4	17-0	293	Str				
P1005	5	25-10	556	Str				

TOTAL WEIGHT FOR 1 PIER 20436 LBS. (40872 LBS. FOR 2 PIERS)

PIER NO. 1

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
F501	19	38-0	753	105	30-0	4-0		
F502	31	26-0	841	105	18-0	4-0		
F503	4	30-0	125	Str				
F504	4	18-0	75	Str				
F801	25	30-6	2036	Str				
F802	61	18-6	3013	Str				
F1001	46	12-6	2474	102	11-0	1-6		
P502	40	12-0	501	Str				
P503	32	13-0	434	Str				
P504	28	14-0	409	Str				
P505	126	5-0	657	100	4-0			
P506	104	8-3	895	112	3-3	2-6		
P509	10	17-6	183	103	3-9	4-6		
P601	20	10-4	310	105	3-8	3-4		
P602	18	11-2	302	115	4-6	3-4	0-9	
P603	6	23-5	211	105	21-5	1-0		
P805	18	7-0	336	105	4-0	1-6		
P901	18	25-0	1530	Str				
P1001	18	25-3	1956	Str				
P1002	18	25-9	1994	Str				
P1003	5	25-4	545	Str				
P1004	4	17-0	293	Str				
P1005	5	25-10	556	Str				

TOTAL WEIGHT FOR 1 PIER 20436 LBS. (40872 LBS. FOR 2 PIERS)

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
P1004	4	17-0	293	Str				
P1006	18	25-9	1994	Str				
P1007	18	26-0	2014	Str				
P1008	5	25-10	538	Str				
P1009	5	26-2	563	Str				

TOTAL WEIGHT FOR 1 PIER 20487 LBS. (40974 LBS. FOR 2 PIERS)

PIER NO. 2 (PIER NO. 3 IDENTICAL)

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
C401	6	301-0	1206	Spiral				
C14501	96	16-6	12118	Str				
F507	32	27-0	901	105	19-0	4-0		
F504	4	19-0	79	Str				
F505	20	38-0	793	105	31-0	3-6		
F506	4	31-0	130	Str				
F804	63	19-6	3280	Str				
F803	26	31-0	2152	Str				
F1101	54	13-0	3730	102	11-6	1-6		
P501	40	19-0	793	Str				
P502	44	11-6	528	Str				
P503	32	12-6	417	Str				
P504	28	14-0	409	Str				
P505	216	5-0	1126	100	4-0			
P507	94	7-3	711	112	2-3	2-6		
P508	188	6-9	1324	112	1-9	2-6		
P509	10	17-6	183	103	3-9	4-6		
P601	20	10-4	310	105	3-8	3-4		
P602	18	11-2	302	115	4-6	3-4	0-9	
P603	6	23-5	211	105	21-5	1-0		
P805	18	7-0	336	105	4-0	1-6		
P901	18	25-0	1530	Str				
P1101	18	45-6	4351	Str				
P1102	18	46-0	4399	Str				
P1103	9	45-7	2180	Str				
P1104	9	46-1	2204	Str				
P1105	4	17-0	361	Str				

TOTAL WEIGHT FOR 1 PIER 46064 LBS. (184256 LBS. FOR 4 PIERS)

SLOPE PAVING

SOUTH BRIDGE								
SP301	51	4-6	86.	103	0-8	1-2	0-8	1-2
SP401	3	26-0	52	106	5-9	20-3	5-6	
SP602	4	50-0	300	Str				
TOTAL WEIGHT FOR 1 SLAB 438 LBS. (876 LBS. FOR 2 SLABS)								
NORTH BRIDGE								
SP301	44	4-6	74		0-8	1-2	0-8	1-2
SP401	3	26-0	52	106	5-9	20-3	5-6	
SP601	4	43-0	258	Str				
TOTAL WEIGHT FOR 1 SLAB 384 LBS. (768 LBS. FOR 2 SLABS)								

PRECAST BARRIER - TYPE 'A'

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E
B401	30	6-7	132	107	0-4	2-8½	0-10	2-6	0-6½
B402	30	2-8	54	114	0-10	0-5	1-3½		
B403	7	19-1	89	Str					

TOTAL WEIGHT FOR 1 BARRIER 275 LBS. (45100 LBS. FOR 164 BARRIERS)

PRECAST BARRIER - TYPE 'B'

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E
B401	24	6-7	105	107	0-4	2-8½	0-10	2-6	0-6½
B402	33	2-8	59	114	0-10	0-5	1-3½		
B403	7	19-1	89	Str					
⚠ B405	2	6-10	9	107	0-5 ⚠	2-8½	0-11½	2-6	0-8
⚠ B406	2	7-6	10	107	0-9 ⚠	2-8½	1-3½	2-6	1-0
⚠ B407	4	8-2	22	107	1-1 ⚠	2-8½	1-7½	2-6	1-4
⚠ B408	3	5-5 ⚠	11	104	1-2	0-9	1-4 ⚠		
⚠ B409	3	5-0	10	103	1-1½	1-1½			

TOTAL WEIGHT FOR 1 BARRIER 315 LBS. (2520 LBS. FOR 8 BARRIERS)

PRECAST BARRIER - TYPE 'C'

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E
B401	18	6-7	79	107	0-4	2-8½	0-10	2-6	0-6½
B402	18	2-8	32	114	0-10	0-5	1'-3½		
B404	7	11-6	54	Str					

TOTAL WEIGHT FOR 1 BARRIER 165 LBS. (1320 LBS. FOR 8 BARRIERS)

PRECAST BARRIER - TYPE 'D'

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E
B401	18	6-7	79	107	0-4	2-8½	0-10	2-6	0-6½
B402	18	2-8	32	114	0-10	0-5	1-3½		
B404	7	11-6	54	Str					

TOTAL WEIGHT FOR 1 BARRIER 165 LBS. (1320 LBS. FOR 8 BARRIERS)

APPROACH SLABS

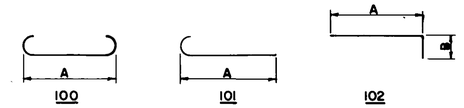
WEST ABUTMENT NORTH BRIDGE & EAST ABUTMENT SOUTH BRIDGE								
AS501	51	34-6	1835	Str				
AS502	15	23-8	370	Str				
AS503	12	18-7	233	Str				
AS504	24	24-8	618	Str				
AS506	35	3-6	128	111	0-6	1-0	0-6	1-6
AS507	4	5-0	21	Str				
AS801	24	18-7	1191					
AS802	48	24-7	3150					

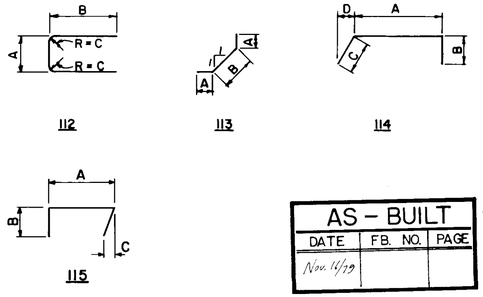
TOTAL WEIGHT FOR 1 SLAB 7546 LBS. (15092 LBS. FOR 2 SLABS)

EAST ABUTMENT NORTH BRIDGE & WEST ABUTMENT SOUTH BRIDGE								
AS501	2	34-6	72	Str				
AS502	15	23-8	370	Str				
AS503	17	18-7	329	Str				
AS504	24	24-8	618	Str				
AS505	SERIES OF 20	36-4 to 37-1	766	Str				
AS506	35	3-6	128	111	0-6	1-0	0-6	1-6
AS507	4	5-0	2	Str				
AS508	SERIES OF 29	36-4 to 37-1	1110	Str				
AS801	24	18-7	1191	Str				
AS802	48	24-7	3150	Str				

TOTAL WEIGHT FOR 1 SLAB 7755 LBS. (15510 LBS. FOR 2 SLABS)

BENDING DIAGRAMS





AS - BUILT

DATE	F.B. NO.	PAGE
Nov. 14/79		

Notes:
- Reinforcing shall be grade 40 for #4 bar and grade 60 for #5 bar and larger.
- * Denotes grade 40 bar.

NO.	REVISIONS	DATE	BY
⚠	Revised bars B405, B406, B407, and B408, added B409	May 1/78	ID
0	ISSUED FOR TENDER		

PROVINCE OF MANITOBA — D.L. MILLS — REGISTERED ENGINEER

PROVINCE OF MANITOBA — B. RUZSICSKA — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 Jan/77

	BY	DATE
DRAWN BY	S.I.D.	Feb/77
PRELIM. CHK.	D.J.R.	Feb/77
DESIGN	B.J.R.	NOV.76
CHECK	J.R.E.	JAN.77

ROUTE 165

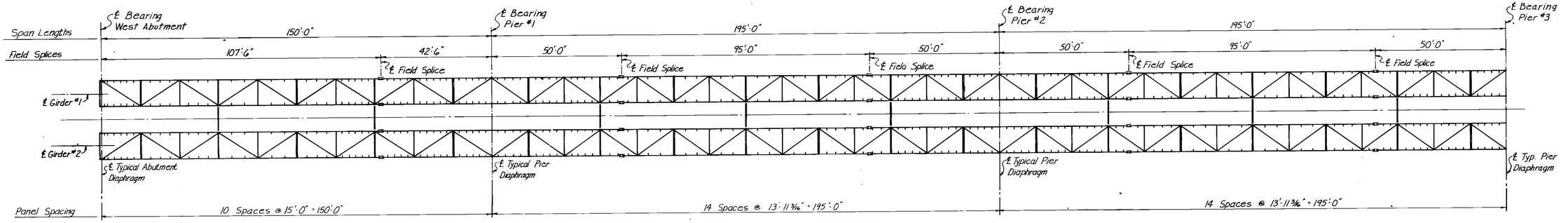
REINFORCING LIST NO. 2

SCALE:

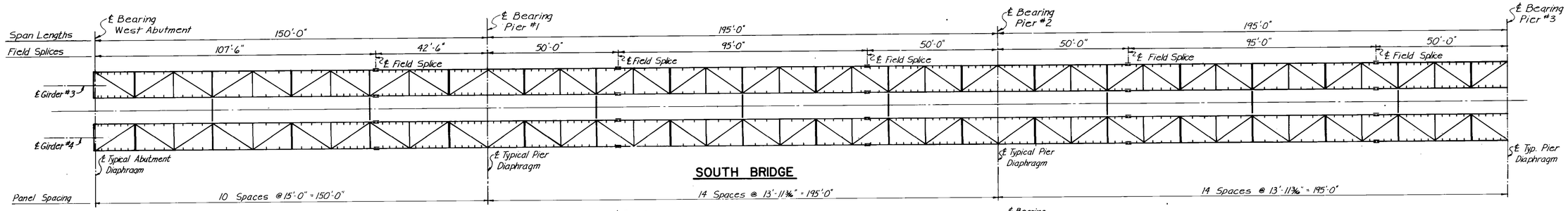
APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC — 25/2/22 DATE

DRAWING NO. B-5092-220 ⚠

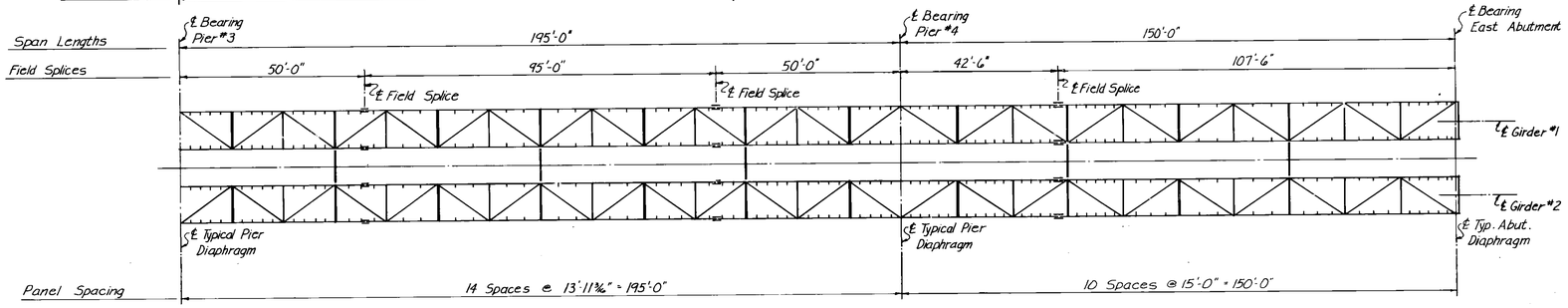
W.L.W. NO. 74012-21



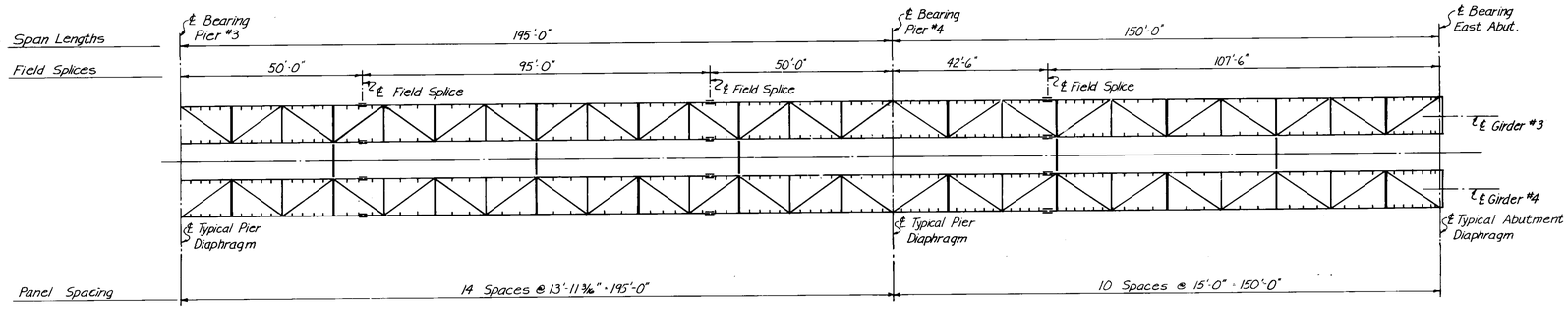
NORTH BRIDGE



SOUTH BRIDGE



NORTH BRIDGE



SOUTH BRIDGE

Notes:
1) The location of welds connecting stiffener and gusset plates to flanges shall be as shown on the "Girder Elevation".

AS - BUILT

DATE	FB. NO	PAGE
Nov. 14/79		

NO	REVISIONS	DATE
	ISSUED FOR TENDER	4-4-77

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: ____ DATE 25 Nov/77

DRAWN BY	J.T.K.	DATE NOV. 76	
PRELIM. CHK	S.T.K.	DATE JAN. 77	
DESIGN	S.T.K.	DATE NOV. 76	
CHECK	D.L.M.	DATE JAN. 77	

ROUTE 165

FRAMING PLAN

SCALE: 1" = 20'-0"

APPROVED BY: ____ MANAGER OF STREETS AND TRAFFIC — DATE 25/3/22

DRAWING NO. B-5092-221

W.L.W. NO. 74012-21

NORTH BRIDGE - NORTH BOX LINE 1. NORTH FLANGE. (CHART 1)

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) LESS V.C.	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10. ΔC @ B	11. (8-9) ΔS @ A	12 1.3ΔT-ΔS	13 DESIGN HAUNCH MIN.	14. ACTUAL HAUNCH (2-5)+12	15. EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (13-5)	21. V.C. CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT	
0+00	0.0	768.11	767.295	.073	767.222	767.222	0	0	0	0	0	0	0.922	0.868	0	768.251	1.029	0.107	768.251	1.029		12 3/8	11 1/2		
+15	.1	.28	.605	.073	67.532	.389	0.143	.091	.055	.022	.014	.104		0.852	0.039	.421	0.993	0.071	.525	0.993		11 15/16	11 1/16		
+30	.2	.95	.875	.073	.802	.556	0.246	.166	.100	.041	.025	.191		0.839	0.055	.591	0.980	0.058	.782	0.980		11 3/4	10 7/8		
+46	.3	.62	68.120	.073	68.047	.723	0.324	.213	.128	.052	.033	.244		0.817	0.080	.761	0.958	0.036	69.005	0.958		11 1/2	10 5/8		
+60	.4	.78	.305	.073	.232	.890	0.342	.227	.135	.057	.035	.260		0.808	0.082	.921	0.949	0.027	.181	0.949		11 3/8	10 1/2	-	
+75	.5	.95	.450	.073	.377	68.057	0.320	.208	.123	.053	.032	.238		0.811	0.082	69.091	0.952	0.030	.329	0.952		11 7/16	10 9/16		
+90	.6	69.12	.575	.073	.502	.224	0.278	.163	.096	.043	.024	.188		0.806	0.090	.261	0.947	0.025	.443	0.947		11 3/8	10 1/2		
1+05	.7	.29	.640	.073	.567	.391	0.176	.105	.061	.028	.016	.121		0.844	0.054	.431	0.985	0.063	.552	0.985		11 13/16	10 5/16		
+20	.8	.95	.740	.104	.636	.558	0.078	.050	.027	.013	.010	.055		0.869	0.023	.591	1.010	0.088	.646	1.010		12 1/8	10 7/8		
+35	.9	.62	.925	.188	.737	.725	0.012	.013	.007	.003	.003	.014		0.897	-.002	.761	1.038	0.116	.775	1.038		12 1/2	10 1/4		
+50	1.0	.79	69.080	.188	.892	.892	0	0	0	0	0	0		0.898	0	.931	1.039	0.117	.931	1.039		12 1/2	10 1/4		
+69.5	.1	70.01	.335	.188	69.147	69.100	0.097	.032	.014	.011	.007	.035		0.828	0.012	70.151	1.039	0.117	70.186	1.039		12 1/2	10 1/4		
+89	.2	.28	.545	.104	.441	.308	0.133	.099	.049	.031	.019	.110		0.749	0.023	.421	1.090	0.168	.531	1.090		13 1/8	11 7/8		
2+08.5	.3	.44	.875	.073	.802	.516	0.286	.180	.098	.055	.027	.207		0.845	0.079	.581	0.986	0.064	.788	0.986		11 13/16	10 15/16		
+28	.4	.66	70.195	.073	70.122	.724	0.398	.244	.136	.072	.036	.281		0.819	0.117	.901	0.960	0.038	71.082	0.960		11 1/2	10 3/8		
+47.5	.5	.88	.420	.073	.347	.932	0.415	.268	.150	.078	.040	.308		0.841	0.107	71.021	0.982	0.060	.329	0.982		11 3/4	10 7/8		
+67	.6	71.10	.565	.073	.492	70.140	0.352	.243	.135	.071	.037	.279		0.887	0.073	.241	1.028	0.106	.520	1.028		12 5/16	11 7/16		
+86.5	.7	.31	.605	.073	.532	.348	0.184	.176	.097	.053	.026	.203		0.981	-.013	.451	1.122	0.200	.654	1.122		13 1/2	12 5/8		
3+06	.8	.52	.725	.104	.621	.556	0.065	.096	.048	.030	.018	.107		1.006	-.042	.642	1.198	0.226	.765	1.198		13 3/4	12 1/2		
+25.5	.9	.70	.985	.188	.797	.764	0.033	.030	.013	.010	.007	.032		0.935	0.001	.838	1.093	0.171	.890	1.093		13 1/8	10 7/8		
+45	2.0	.87	71.160	.188	.972	.972	0	0	0	0	0	0		0.898	0	72.033	1.061	0.139	72.033	1.061	0	12 3/4	10 1/2		
+64.5	.1	72.01	.365	.188	71.177	71.020	0.046	.026	.012	.008	.006	.028		0.861	0.038	.185	1.036	0.114	.213	1.036	.091	12 7/16	10 3/16		
+84	.2	.14	.505	.104	.401	.068	0.171	.087	.045	.026	.016	.097		0.836	0.074	.314	1.010	0.088	.411	1.010	.162	12 1/8	10 7/8		
4+03.5	.3	.24	.740	.073	.667	.116	0.335	.164	.092	.047	.025	.188		0.761	0.147	.422	0.943	0.021	.610	0.943	.216	11 5/16	10 7/16		
+23	.4	.32	.925	.073	.852	.164	0.443	.227	.129	.064	.034	.261		0.729	0.182	.507	0.916	-0.006	.768	0.916	.245	11	10 1/8		
+42.5	.5	.39	72.000	.073	.927	.212	0.457	.251	.143	.070	.038	.288		0.751	0.169	.569	0.930	0.008	.857	0.930	.258	11 3/16	10 5/16		
+62	.6	.43	71.985	.073	.912	.260	0.407	.227	.129	.064	.034	.261		0.779	0.146	.610	0.959	0.037	.871	0.959	.295	11 1/2	10 5/8		
+81.5	.7	.45	.885	.073	.812	.308	0.288	.164	.092	.047	.025	.188		0.826	0.100	.627	1.003	0.081	.815	1.003	.216	12 1/16	11 3/16		
5+01	.8	.45	.765	.104	.661	.356	0.138	.087	.045	.026	.016	.097		0.886	0.040	.623	1.059	0.137	.720	1.059	.167	12 11/16	11 7/16		
+20.5	.9	.43	.740	.188	.552	.404	0.057	.026	.012	.008	.006	.028		0.906	0.029	.596	1.072	0.150	.624	1.072	.091	12 7/8	10 5/8		
+40	3.0	.39	.640	.188	.452	71.452	0	0	0	0	0	0		0.938	0	.547	1.095	0.173	.547	1.095	0	13 3/16	10 15/16		
+59.5	.1	.33	.605	.188	.917	.361	0.056	.030	.013	.010	.007	.032		0.945	0.024	.476	1.091	0.169	.508	1.091		13 1/8	10 7/8		
+79	.2	.25	.505	.104	.401	.269	0.132	.096	.048	.030	.018	.107		0.956	0.025	72.391	1.097	0.175	72.498	1.097		13 3/16	11 15/16		
+98.5	.3	.15	.525	.073	.452	.178	0.274	.176	.097	.053	.026	.203		0.901	0.071	.291	1.042	0.120	.494	1.042		12 1/2	11 5/8		
6+18	.4	.06	.505	.073	.432	.086	0.346	.243	.135	.071	.037	.279		0.907	0.067	.201	1.048	0.126	.480	1.048		12 5/8	11 3/4		
+37.5	.5	71.96	.425	.073	.352	70.995	0.357	.268	.150	.078	.040	.308		0.916	0.049	.101	1.057	0.135	.409	1.057		12 5/8	11 3/4		
+57	.6	.86	.290	.073	.217	.903	0.314	.244	.136	.072	.036	.281		0.924	0.033	.001	1.065	0.143	.282	1.065		12 13/16	11 13/16		

NORTH BRIDGE - NORTH BOX LINE 1. NORTH FLANGE (CHART 1)

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) Less V.C.	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10. ΔC @ B	11. (8-9-10) ΔS @ A	12 1.3ΔT-ΔS	13 DESIGN HAUNCH MIN.	14. ACTUAL HAUNCH (4-5)+12	15 EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16 REVISED GRADE 13-6"=2	17 REVISED HAUNCH (16-E)+12	18. HAUNCH SHIM (17-13)	19 SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C. CAMBER	22. REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT (IN INCHES)	
6+76.5	3.7	771.76	771.09	.073	771.017	770.812	0.205	.180	.038	.055	.027	.207	0.922	0.950	-0.002	771.901	1.051	0.167	772.108	1.021		13 1/8	12 1/4		
+96	.8	.67	70.90	.104	70.796	.720	0.076	.099	.043	.031	.019	.110		0.984	-.034	.811	1.125	0.203	71.921	1.125		13 1/2	12 1/4		
7+15.5	.9	.57	.830	.188	.642	.629	0.013	.032	.014	.011	.007	.035		0.963	-.022	.711	1.104	0.182	.746	1.104		13 1/4	11		
+35	4.0	.47	.725	.188	.537	.537	0	0	0	0	0	0		0.933	0	.611	1.074	0.152	.611	1.074		12 7/8	10 5/8		
+50	.1	.40	.695	.188	.507	.461	0.046	.013	.007	.003	.003	.014		0.907	0.032	.541	1.048	0.126	.555	1.048		12 9/16	10 5/16		
+65	.2	.32	.615	.104	.511	.384	0.127	.050	.027	.013	.010	.055		0.864	0.072	.461	1.005	0.083	.516	1.005		12 1/16	10 3/16		
+80	.3	.25	.630	.073	.557	.308	0.249	.105	.061	.028	.016	.121		0.814	0.128	.391	0.955	0.033	.512	0.955		11 1/2	10 5/8		
+95	.4	.17	.645	.073	.572	.231	0.341	.163	.096	.043	.024	.188		0.786	0.153	.311	0.927	0.005	.499	0.927		11 1/8	10 1/4		
8+10	.5	.10	.605	.073	.532	.155	0.377	.208	.123	.053	.032	.238		0.806	0.139	.241	0.947	0.025	.493	0.947		11 3/8	10 1/2		
+25	.6	.02	.550	.073	.477	.078	0.399	.227	.135	.057	.035	.260		0.803	0.139	.161	0.944	0.022	.421	0.944		11 5/16	10 7/16		
+40	.7	70.95	.440	.073	.367	.002	0.365	.213	.128	.052	.033	.244		0.827	0.121	.091	0.968	0.046	.335	0.968		11 5/8	10 3/4		
+55	.8	.87	.275	.073	.202	69.925	0.277	.166	.100	.041	.025	.191		0.859	0.086	.011	1.000	0.078	.202	1.000		12	11 1/8		
+70	.9	.80	.090	.073	.017	.849	.168	.091	.055	.022	.014	.104		0.887	0.064	70.941	1.028	0.106	.045	1.028		12 3/8	11 1/2		
+85	5.0	.72	69.845	.073	69.772	.772	0	0	0	0	0	0		0.948	0	.861	1.089	0.167	70.861	1.089		13 1/16	12 3/16		

NORTH BRIDGE - NORTH BOX LINE 1 SOUTH FLANGE *(CHART 2)*

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) Less V.C	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10. ΔC @ B	11. (8-9-10) ΔS @ A	12 1.3ΔT-ΔS	13 DESIGN HAUNCH MIN.	14. ACTUAL HAUNCH (2-5)+12	15 EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE 13-14+12	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21 V.C. CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-9) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
0+00	0.0	768.31	767.355	.073	767.282	767.282	0	0	0	0	0	0	1.120		0	768.451	1.169	0.049	768.451	1.169		14	13 1/8		
+15	.1	.48	.605	.073	.532	.447	0.085	.091	.055	.022	.014	.104		1.052	− .019	.621	1.193	0.073	.725	1.193		14 5/16	13 7/16		
+30	.2	.65	.890	.073	.817	.611	0.206	.166	.100	.041	.025	.191		1.024	.015	.791	1.165	0.045	.982	1.165		14	13 1/8		
+46	.3	.82	68.130	.073	68.057	.776	0.281	.213	.128	.052	.033	.244		1.007	.037	.961	1.148	0.028	69.205	1.148		13 3/4	12 7/8		
+60	.4	.98	.305	.073	.232	.940	0.292	.227	.135	.057	.035	.260		1.008	.032	69.121	1.149	0.029	.381	1.149		13 3/4	12 7/8		
+75	.5	69.15	.465	.073	.392	68.105	0.287	.208	.123	.053	.032	.238		0.996	.049	.291	1.137	0.017	.529	1.137		13 5/8	12 3/4		
+90	.6	.32	.580	.073	.507	.269	0.238	.163	.096	.043	.024	.188		1.001	.051	.461	1.142	0.022	.645	1.142		13 1/16	12 13/16		
1+05	.7	.49	.655	.073	.582	.435	0.147	.105	.061	.028	.016	.121		1.029	.026	.631	1.170	0.050	.752	1.170		14 1/16	13 3/16		
+20	.8	.65	.750	.104	.646	.598	0.048	.050	.027	.013	.010	.055		1.059	− .007	.731	1.200	0.080	.846	1.200		14 7/16	13 3/16		
+35	.9	.82	.955	.188	.767	.763	0.004	.013	.007	.003	.003	.014		1.067	− .010	.961	1.208	0.088	.975	1.208		14 1/2	12 1/4		
+50	1.0	.99	69.115	.188	.927	.927	0	0	0	0	0	0		1.063	0	70.131	1.204	0.084	70.131	1.204		14 7/16	12 3/16		
+67.5	.1	70.21	.355	.188	69.167	69.134	0.033	.032	.014	.011	.007	.035		1.078	−0.002	.331	1.199	0.079	.366	1.199		14 3/8	12 1/8		
+89	.2	.43	.580	.104	.476	.341	0.135	.099	.049	.031	.019	.110		1.064	0.025	.571	1.205	0.085	.681	1.205		14 1/2	13 1/4		
2+08.5	.3	.64	.895	.073	.822	.548	0.274	.180	.098	.055	.027	.207		1.025	0.067	.781	1.166	0.046	.988	1.166		14	13 1/8		
+28	.4	.86	70.205	.073	70.132	.755	0.377	.244	.136	.072	.036	.281		1.009	0.096	71.001	1.150	0.030	71.282	1.150		13 3/16	12 15/16		
+47.5	.5	71.08	.425	.073	.352	.962	0.390	.268	.150	.078	.040	.308		1.036	0.082	.221	1.177	0.057	.529	1.177		14 1/8	13 1/4		
+67	.6	.30	.560	.073	.487	70.169	0.318	.243	.135	.071	.037	.279		1.092	0.037	.441	1.233	0.113	.720	1.233		14 3/16	13 15/16		
+86.5	.7	.51	.610	.073	.537	.376	0.161	.176	.097	.053	.026	.203		1.176	− .042	.651	1.317	0.197	.854	1.317		15 13/16	14 15/16		
3+06	.8	.72	.735	.104	.631	.583	0.048	.096	.048	.030	.018	.107		1.196	− .059	.862	1.338	0.218	.969	1.338		16 1/16	14 13/16		
+25.5	.9	.90	.990	.188	.802	.790	0.012	.030	.013	.010	.007	.032		1.130	− .020	72.058	1.288	0.168	72.090	1.288		15 1/2	13 1/4		
+45	2.0	72.07	71.185	.188	.997	.997	0	0	0	0	0	0		1.073	0	.233	1.236	0.118	.233	1.236	0	14 13/16	12 3/16		
+64.5	.1	.21	.385	.188	71.197	71.046	0.060	.026	.012	.008	.006	.028		1.041	0.179	.385	1.216	0.096	.413	1.216	-.091	14 5/8	12 3/8		
+84	.2	.34	.510	.104	.406	.095	0.149	.087	.045	.026	.016	.097		1.031	0.408	.514	1.205	0.085	.611	1.205	.162	14 1/2	13 1/4		
4+03.5	.3	.44	.735	.073	.662	.144	0.302	.164	.092	.047	.025	.188		0.966	0.706	.622	1.198	0.028	.810	1.198	.216	13 13/16	12 15/16		
+23	.4	.52	.915	.073	.842	.193	0.404	.227	.129	.064	.034	.261		0.939	0.910	.707	1.126	0.006	.968	1.126	.245	13 1/2	12 5/8		
+42.5	.5	.59	72.010	.073	.937	.242	0.437	.251	.143	.070	.038	.288		0.941	0.983	.769	1.120	0 0	73.057	1.120	.258	13 7/16	12 5/16		
+62	.6	.63	71.995	.073	.922	.291	0.386	.227	.129	.064	.034	.261		0.969	0.892	.810	1.149	0.029	.071	1.149	.245	13 13/16	12 15/16		
+81.5	.7	.65	.915	.073	.842	.340	0.286	.164	.092	.047	.025	.188		0.996	0.690	.827	1.173	0.053	.015	1.173	.216	14 1/16	13 3/16		
5+01	.8	.65	.805	.104	.701	.389	0.145	.087	.045	.026	.016	.097		1.046	0.409	.823	1.219	0.059	72.920	1.219	.167	14 5/8	13 3/8		
+20.5	.9	.63	.765	.188	.577	.438	0.048	.026	.012	.008	.006	.028		1.081	0.167	.796	1.247	0.127	.824	1.247	.091	15	12 3/4		
+40	3.0	.59	.675	.188	.487	71.487	0	0	0	0	0	0		1.103	0	.747	1.260	0.140	.747	1.260	0	15 1/8	12 7/8		
+59.5	.1	.53	.640	.188	.452	.394	0.058	.030	.013	.010	.007	.032		1.110	0.026	.676	1.256	0.136	.708	1.256		15 1/16	12 13/16		
+79	.2	.45	.555	.104	.451	.300	0.151	.096	.048	.030	.018	.107		1.106	0.044	.591	1.247	0.127	.698	1.247		15	13 3/4		
+98.5	.3	.35	.560	.073	.487	.207	0.280	.176	.097	.053	.026	.203		1.066	0.077	.491	1.207	0.087	.694	1.207		14 1/2	13 5/8		
6+18	.4	.26	.530	.073	.457	.113	0.344	.243	.135	.071	.037	.279		1.082	0.065	.401	1.223	0.103	.680	1.223		14 11/16	13 13/16		
+37.5	.5	.16	.450	.073	.377	.020	0.357	.268	.150	.078	.040	.308		1.031	0.049	.301	1.232	0.112	.609	1.232		14 13/16	13 5/16		
+57	.6	.06	.30	.073	.227	70.926	0.301	.244	.136	.072	.036	.281		1.114	0.020	.201	1.255	0.135	.482	1.255		15 1/16	14 3/16		

NORTH BRIDGE - NORTH BOX LINE 1 SOUTH FLANGE (CHART 2)

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) LESS V.C.	CAMBER 8. ΔT ℄ A+B	9. ΔC ℄ A	10 ΔC ℄ B	11. (8-7-9) ΔS ℄ A	12 1.3ΔT-ΔS	13 DESIGN HAUNCH MIN.	14. ACTUAL HAUNCH (2-5)+12	15. EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE ~~13-14=12~~	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (13-5)	21. V.C. CAMBER	22. REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
6+76.5	3.7	771.96	771.12	.073	771.047	70.833	0.214	.180	.058	.055	.027	.207	1.120	1.120	0.007	772.101	1.261	0.191	772.308	1.261		15 1/8	14 1/4	1	
+96	.8	.87	70.910	.104	70.806	.739	0.067	.099	.043	.031	.019	.110		1.174	−0.093	.011	1.315	0.195	.121	1.315		15 13/16	14 9/16		
7+15.5	.9	.77	.840	.188	.652	.646	0.006	.032	.014	.011	.007	.035		1.153	− .029	71 .911	1.294	0.174	71.946	1.294		15 1/2	13 1/4		
+35	4.0	.67	.740	.188	.552	.552	0	0	0	0	0	0		1.118	0	.811	1.259	0.139	.811	1.259		15 1/8	12 7/8		
+50	.1	.60	.705	.188	.517	.481	0.036	.013	.007	.003	.003	.014		1.097	0.022	.791	1.238	0.118	.755	1.238		14 7/8	12 5/8		
+65	.2	.52	.620	.104	.516	.410	0.106	.050	.027	.013	.010	.055		1.059	0.051	.661	1.200	0.080	.716	1.200		14 7/16	13 3/16		
+80	.3	.45	.625	.073	.552	.339	0.213	.105	.061	.028	.016	.121		1.019	0.092	.591	1.160	0.040	.712	1.160		13 15/16	13 1/16		
+95	.4	.37	.630	.073	.557	.268	0.289	.163	.096	.043	.024	.188		1.001	0.101	.511	1.142	0.022	.699	1.142		13 11/16	12 13/16		
8+10	.5	.30	.605	.073	.532	.197	0.335	.208	.123	.053	.032	.238		1.006	0.097	.441	1.147	0.027	.677	1.147		13 3/4	12 7/8		
+25	.6	.22	.535	.073	.462	.126	0.336	.227	.135	.057	.035	.260		1.018	0.076	.361	1.159	0.039	.621	1.159		13 15/16	13 1/16		
+40	.7	.15	.435	.073	.362	.055	0.307	.213	.128	.052	.033	.244		1.032	0.063	.291	1.173	0.053	.535	1.173		14 1/8	13 1/4		
+55	.8	.07	.275	.073	.202	69.384	0.218	.166	.100	.041	.025	.191		1.059	0.027	.411	1.400	0.280	.602	1.400		16 13/16	15 15/16		
+70	.9	.00	.085	.073	.012	.913	0.099	.091	.055	.022	.014	.104		1.022	− .005	.141	1.233	0.113	.245	1.233		14 13/16	13 15/16		
+85	5.0	70.92	69.915	.073	69.842	.842	0	0	0	0	0	0		1.328	0	.061	1.219	0.099	.061	1.219		14 5/8	13 3/4		

NORTH BRIDGE - SOUTH BOX LINE 2 NORTH FLANGE (CHART 3)

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) Less V.C.	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10. ΔC @ B	11. (8-9) ΔS @ A	12 1.3ΔT-ΔS	13 DESIGN HAUNCH MIN.	14. ACTUAL HAUNCH (2-5)+12	15. EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE 13-A"-12	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21 V.C. CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
0+00	0.0	768.51	767.745	.073	767.672	767.672	0	0	0	0	0	0	0.522	1.088	0	768.651	0.979	0.057	768.651	0.979		11 3/4	10 7/8		
+15	.1	.68	68.000	.073	.927	.838	0.083	.091	.055	.022	.014	.104		0.857	-.015	.821	0.998	0.076	.925	0.998		12	11 1/8		
+30	.2	.85	.265	.073	68.192	68.003	0.189	.166	.100	.041	.025	.191		0.849	-.002	.991	0.990	0.068	69.182	0.990		11 7/8	11		
+46	.3	69.02	.490	.073	.417	.169	0.248	.213	.128	.052	.033	.244		0.847	-.004	69.161	0.988	0.066	.405	0.988		11 7/8	11		
+60	.4	.18	.675	.073	.602	.334	0.268	.227	.135	.057	.035	.260		0.838	0.008	.321	0.979	0.057	.581	0.979		11 3/4	10 7/8		
+75	.5	.35	.825	.073	.752	.490	0.262	.208	.123	.053	.032	.238		0.836	0.024	.491	0.977	0.055	.729	0.977		11 3/4	10 7/8		
+90	.6	.52	.940	.073	.867	.665	0.202	.163	.096	.043	.024	.188		0.841	0.019	.661	0.982	0.060	.849	0.982		11 3/4	10 7/8		
1+05	.7	.69	69.020	.073	.947	.831	0.116	.105	.061	.028	.016	.121		0.864	-.005	.831	1.005	0.083	.932	1.005		12 1/16	11 3/16		
+20	.8	.85	.135	.104	69.031	.996	0.035	.050	.027	.013	.010	.055		0.874	-.020	.991	1.015	0.093	70.046	1.015		12 3/16	10 15/16		
+35	.9	70.02	.345	.188	.157	69.162	-.005	.013	.007	.003	.003	.014		0.877	-.015	70.161	1.018	0.096	.175	1.018		12 1/4	10		
+50	1.0	.19	.515	.188	.327	.327	0	0	0	0	0	0		0.863	0	.331	1.004	0.082	.331	1.004		12 1/16	9 13/16		
+69.5	.1	.41	.760	.188	.572	.533	0.039	.032	.014	.011	.007	.035		0.873	0.004	.551	1.014	0.022	.586	1.014		12 3/16	9 15/16		
+89	.2	.63	.970	.104	.866	.739	0.127	.099	.049	.031	.019	.110		0.874	0.017	.771	1.015	0.093	.881	1.015		12 3/16	10 15/16		
2+08.5	.3	.84	70.300	.073	70.227	.945	0.282	.180	.098	.055	.027	.207		0.820	0.073	.781	0.961	0.039	71.188	0.961		11 1/2	10 5/8		
+28	.4	71.06	.615	.073	.542	70.151	0.391	.244	.136	.072	.036	.281		0.799	0.110	71.201	0.940	0.018	.492	0.940		11 5/16	10 7/16		
+47.5	.5	.28	.835	.073	.762	.357	0.905	.268	.150	.078	.040	.308		0.826	0.097	.421	0.967	0.045	.729	0.967		11 5/8	10 3/4		
+67	.6	.50	.970	.073	.897	.563	0.339	.243	.135	.071	.037	.279		0.882	0.055	.641	1.023	0.101	.920	1.023		12 5/16	11 3/16		
+86.5	.7	.71	71.015	.073	.942	.769	0.173	.176	.097	.053	.026	.203		0.971	-.030	.851	1.112	0.190	72.054	1.112		13 3/8	12 1/2		
3+06	.8	.92	.140	.104	71.036	.975	0.061	.096	.048	.030	.018	.107		0.991	-.046	72.062	1.133	0.211	.169	1.133		13 5/8	12 3/8		
+25.5	.9	72.10	.395	.188	.207	71.181	0.026	.030	.013	.010	.007	.032		0.925	-.004	.258	1.083	0.161	.290	1.093		13	11 3/4		
+45	2.0	.27	.575	.188	.387	.387	0	0	0	0	0	0		0.883	0	.433	1.046	0.129	.433	1.046	0	12 9/16	10 5/16		
+64.5	.1	.41	.780	.188	.592	.436	0.065	.026	.012	.008	.006	.028		0.896	0.037	.595	1.021	0.099	.613	1.021	.091	12 1/4	10		
+84	.2	.54	.915	.104	.811	.484	0.165	.087	.045	.026	.016	.097		0.826	0.069	.714	1.000	0.078	.811	1.000	.162	12	10 3/4		
4+03.5	.3	.64	72.115	.073	72.042	.532	0.294	.164	.092	.047	.025	.188		0.786	0.106	.822	0.968	0.046	73.010	0.968	.216	11 5/8	10 3/4		
+23	.4	.72	.310	.073	.237	.581	0.411	.227	.129	.064	.034	.261		0.744	0.150	.907	0.931	0.009	.168	0.931	.245	11 3/16	10 5/16		
+42.5	.5	.79	.395	.073	.322	.630	0.434	.251	.143	.070	.038	.288		0.756	0.146	.969	0.935	0.013	.257	0.935	.258	11 1/4	10 3/8		
+62	.6	.83	.380	.073	.307	.678	0.384	.227	.123	.064	.034	.261		0.784	0.123	73.010	0.964	0.042	.271	0.964	.245	11 1/2	10 5/8		
+81.5	.7	.85	.270	.073	.197	.727	0.254	.164	.092	.047	.025	.188		0.841	0.066	.027	1.018	0.096	.215	1.018	.216	12 1/4	11 3/8		
5+01	.8	.85	.170	.104	.066	.775	0.124	.087	.045	.026	.016	.097		0.681	0.027	.023	1.054	0.132	.120	1.054	.167	12 5/8	11 3/8		
+20.5	.9	.83	.145	.188	71.957	.824	0.042	.026	.012	.008	.006	.028		0.901	0.014	72.998	1.067	0.145	.024	1.067	.091	12 13/16	10 9/16		
+40	3.0	.79	.060	.188	.872	71.872	0	0	0	0	0	0		0.918	0	.947	1.075	0.153	72..947	1.075	0	12 15/16	10 11/16		
+59.5	.1	.73	.035	.188	.847	.784	0.063	.030	.013	.010	.007	.032		0.915	0.031	.876	1.061	0.139	.908	1.061		12 3/4	10 1/2		
+79	.2	.65	71.960	.104	.856	.697	0.159	.096	.048	.030	.018	.107		0.901	0.052	.791	1.042	0.120	.898	1.042		12 1/2	11 1/4		
+98.5	.3	.55	.975	.073	.502	.610	0.292	.176	.097	.053	.026	.203		0.851	0.089	.691	0.992	0.070	.894	0.992		11 15/16	11 1/16		
6+18	.4	.46	.960	.073	.887	.522	0.365	.243	.135	.071	.037	.279		0.852	0.086	.601	0.993	0.071	.880	0.993		11 15/16	11 1/16		
+37.5	.5	.36	.875	.073	.802	.435	0.367	.268	.150	.078	.040	.308		0.866	0.059	.501	1.007	0.085	.809	1.007		12 1/8	11 1/4		
+57	.6	.26	.730	.073	.657	.347	0.310	.244	.136	.072	.036	.281		0.884	0.029	.401	1.025	0.103	.682	1.025		12 5/16	11 7/16		

NORTH BRIDGE – SOUTH BOX LINE 2 NORTH FLANGE *(CHART 3)*

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) Less V.C	CAMBER 8. ΔT ℄ A+B	9. ΔC ℄ A	10. ΔC ℄ B	11. (8->9) ΔS ℄ A	12. 1.3ΔT-ΔS	13 DESIGN HAUNCH MIN	14. ACTUAL HAUNCH (2-5)+12	15. EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE ~~13-AC+12~~	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
6+76.5	3.7	772.16	771.515	.073	771.442	71.260	0.182	.180	.098	.055	.027	.207	0.922	0.925	-0.025	772.301	1.066	0.144	772.508	1.066		12 13/16	11 15/16		
+96	.8	.07	.315	.104	.211	.172	0.039	.099	.043	.031	.019	.110		0.969	-0.071	.211	1.110	0.188	.321	1.110		13 5/16	12 1/16		
7+15.5	.9	71.97	.225	.188	.037	.085	-.048	.032	.014	.011	.007	.035		0.933	-.083	.111	1.109	0.187	.146	1.109		13 3/8	11 1/8		
+35	4.0	.87	.115	.188	70.997	70.997	0	0	0	0	0	0		0.873	0	.011	1.014	0.092	.011	1.014		12 3/16	9 15/16		
+50	.1	.80	.085	.188	.897	.920	-.023	.013	.007	.003	.003	.014		0.917	-.037	71.941	1.058	0.136	71.955	1.058		12 11/16	10 7/16		
+65	.2	.72	.005	.104	.901	.842	.059	.050	.027	.013	.010	.055		0.874	0.004	.861	1.015	0.033	.916	1.015		12 3/16	10 15/16		
+80	.3	.65	.010	.073	.937	.765	.172	.105	.061	.028	.016	.121		0.834	0.051	.791	0.975	0.053	.912	0.975		11 11/16	10 13/16		
+95	.4	.57	.015	.073	.942	.687	.255	.163	.096	.043	.024	.188		0.816	0.067	.711	0.957	0.035	.899	0.957		11 1/2	10 5/8		
8+10	.5	.50	70.990	.073	.917	.610	.307	.208	.123	.053	.032	.238		0.821	0.069	.641	0.962	0.040	.879	0.962		11 9/16	10 1/16		
+25	.6	.42	.920	.073	.847	.532	.315	.227	.135	.057	.035	.260		0.833	0.055	.561	0.974	0.052	.821	0.974		11 11/16	10 3/16		
+40	.7	.35	.805	.073	.732	.455	.277	.213	.128	.052	.033	.244		0.862	0.033	.491	1.003	0.081	.735	1.003		12 1/16	11 3/16		
+55	.8	.27	.645	.073	.572	.377	.195	.166	.100	.041	.025	.191		0.889	0.004	.611	1.230	0.308	.802	1.230		14 3/4	13 3/8		
+70	.9	.20	.450	.073	.377	.300	.077	.091	.055	.022	.014	.104		0.927	-.027	.341	1.068	0.146	.445	1.068		12 15/16	11 15/16		
+85	5.0	.12	.295	.073	.222	.222	0	0	0	0	0	0		1.148	0	.261	1.039	0.117	71.261	1.039		12 1/2	11 3/8		

NORTH BRIDGE - SOUTH BOX LINE 2 SOUTH FLANGE. (CHART 4)

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) Less ½	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10 ΔC @ B	11 (8-7-9) ΔS @ A	12 1.3ΔT-ΔS	13 DESIGN HAUNCH MIN.	14. ACTUAL HAUNCH (2-5)+12	15 EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE 13-14*+2	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C. CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
0+00	0.0	768.71	767.705	.073	767.632	767.632	0	0	0	0	0	0	1.120	1.078	0	768.851	1.219	0.099	768.851	1.219		14 5/8	13 3/4		
+15	.1	.88	.965	.073	.892	.802	.090	.091	.055	.022	.014	.104		1.092	−.014	69.021	1.233	0.113	69.125	1.233		14 13/16	13 15/16		
+30	.2	69.05	68.250	.073	68.177	.971	.206	.166	.100	.041	.025	.191		1.064	−.015	.191	1.205	0.082	.382	1.205		14 1/2	13 5/8		
+46	.3	.22	.485	.073	.412	68.141	.271	.213	.128	.052	.033	.244		1.052	.027	.361	1.193	0.073	.605	1.193		14 5/16	13 7/16		
+60	.4	.38	.685	.073	.612	.310	.302	.227	.135	.057	.035	.260		1.028	.042	.521	1.169	0.049	.781	1.169		14	13 1/8		
+75	.5	.55	.825	.073	.752	.490	.272	.208	.123	.053	.032	.238		1.036	.034	.691	1.177	0.057	.929	1.177		14 1/8	13 1/4		
+90	.6	.72	.940	.073	.867	.650	.217	.163	.096	.043	.024	.188		1.041	.029	.861	1.182	0.062	70.049	1.182		14 3/16	13 5/16		
1+05	.7	.89	69.015	.073	.942	.819	.123	.105	.061	.028	.016	.121		1.069	.002	70.031	1.210	0.090	.152	1.210		14 1/2	13 5/8		
+20	.8	70.05	.135	.104	69.031	.989	.042	.050	.027	.013	.010	.055		1.074	−.013	.191	1.215	0.095	.246	1.215		14 5/8	13 3/8		
+35	.9	.22	.355	.188	.167	69.158	.009	.013	.007	.003	.003	.014		1.067	−.005	.361	1.208	0.088	.375	1.208		14 1/2	12 1/4		
+50	1.0	.39	.515	.188	.327	.327	0	0	0	0	0	0		1.063	0	.531	1.204	0.084	.531	1.204		14 7/16	12 3/16		
+69.5	.1	.61	.790	.188	.602	.533	.069	.032	.014	.011	.007	.035		1.043	.034	.751	1.184	0.064	.786	1.184		14 3/16	11 15/16		
+89	.2	.83	70.015	.104	.911	.738	.173	.099	.049	.031	.019	.110		1.029	.063	.971	1.170	0.050	71.081	1.170		14 1/16	13 13/16		
2+08.5	.3	71.04	.320	.073	70.247	.944	.303	.180	.098	.055	.027	.207		1.000	.096	71.181	1.141	0.021	.388	1.141		13 11/16	12 13/16		
+28	.4	.26	.635	.073	.562	70.149	.413	.244	.136	.072	.036	.281		*0.979	.132	.401	1.120	0	.682	1.120		13 7/16	12 5/16		
+47.5	.5	.48	.865	.073	.792	.355	.437	.268	.150	.078	.040	.308		0.996	.129	.621	1.137	0.017	.929	1.137		13 5/8	12 3/4		
+67	.6	.70	71.005	.073	.932	.560	.372	.243	.135	.071	.037	.279		1.047	.093	.841	1.188	0.068	72.120	1.188		14 1/4	13 3/8		
+86.5	.7	.91	.065	.073	.992	.766	.226	.176	.097	.053	.026	.203		1.121	.023	72.051	1.262	0.142	.254	1.262		15 1/8	14 1/4		
3+06	.8	72.12	.165	.104	71.061	.971	.090	.096	.048	.030	.018	.107		1.166	−.017	.262	1.308	0.188	.369	1.308		15 11/16	14 7/16		
+25.5	.9	.30	.385	.188	.197	71.177	.020	.030	.013	.010	.007	.032		1.135	−.012	.458	1.293	0.173	.490	1.293		15 1/2	13 1/4		
+45	2.0	.47	.570	.188	.382	.382	0	0	0	0	0	0		1.088	0	.637	1.251	0.131	.633	1.251	0	15	12 3/4		
+64.5	.1	.61	.775	.188	.587	.430	.066	.026	.012	.008	.006	.028		1.051	.038	.785	1.226	0.106	.813	1.226	.091	14 3/4	12 1/2		
+84	.2	.74	.935	.104	.831	.477	.192	.087	.045	.026	.016	.097		1.006	.095	.919	1.180	0.060	73.011	1.180	.162	14 1/8	12 7/8		
4+03.5	.3	.84	72.155	.073	72.082	.525	.341	.164	.092	.047	.025	.188		0.946	.153	73.022	1.128	0.008	.210	1.128	.216	13 1/2	12 5/8		
+23	.4	.92	.323	.073	.250	.572	.433	.227	.129	.064	.034	.261		0.931	.172	.107	1.118	−0.002	.368	1.118	.245	13 7/16	12 9/16		
+42.5	.5	.99	.410	.073	.337	.620	.459	.251	.143	.070	.038	.288		0.941	.171	.169	1.120	0	.457	1.120	.258	13 7/16	12 9/16		
+62	.6	73.03	.390	.073	.317	.667	.402	.227	.129	.064	.034	.261		0.974	.144	.210	1.154	0.034	.471	1.154	.295	13 7/8	13		
+81.5	.7	.05	.280	.073	.207	.715	.276	.164	.092	.047	.025	.188		1.031	.088	.227	1.208	0.088	.415	1.208	.216	14 1/2	13 5/8		
5+01	.8	.05	.160	.104	.056	.762	.127	.087	.045	.026	.016	.097		1.091	.030	.223	1.264	0.144	.320	1.264	.167	15 3/16	13 15/16		
+20.5	.9	.03	.130	.188	71.942	.810	.041	.026	.012	.008	.006	.028		1.116	.013	.196	1.282	0.162	.224	1.282	.091	15 3/8	13 1/8		
+40	3.0	72.99	.045	.188	.857	.857	0	0	0	0	0	0		1.133	0	.147	1.290	0.170	.147	1.290	0	15 1/2	13 1/4		
+59.5	.1	.93	.025	.188	.837	.766	0.071	.030	.013	.010	.007	.032		1.125	0.039	.076	1.271	0.151	.108	1.271		15 1/4	13		
+79	.2	.85	71.960	.104	.856	.674	.182	.096	.048	.030	.018	.107		1.101	.075	72.991	1.242	0.122	.098	1.242		14 15/16	13 11/16		
+98.5	.3	.75	.985	.073	.912	.583	.329	.176	.097	.053	.026	.203		1.041	.126	.891	1.182	0.062	.094	1.182		14 3/16	13 5/16		
6+18	.4	.66	.970	.073	.897	.491	.406	.243	.135	.071	.037	.279		1.042	.127	.801	1.183	0.063	.080	1.183		14 3/16	13 5/16		
+37.5	.5	.56	.895	.073	.822	.400	.422	.268	.150	.078	.040	.308		1.046	.114	.701	1.187	0.067	.009	1.187		14 1/4	13 3/8		
+57	.6	.46	.745	.073	.672	.308	.364	.244	.136	.072	.036	.281		1.069	.083	.601	1.210	0.090	72.882	1.210		14 1/2	13 5/8		

NORTH BRIDGE - SOUTH BOX LINE 2 SOUTH FLANGE. *(CHART 4)*

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6)	CAMBER 8. ΔT ℄ A+B	9. ΔC ℄ A	10. ΔC ℄ B	11. (8-9-10) ΔS ℄ A	12. 1.3ΔT-ΔS	13 DESIGN HAUNCH	14. ACTUAL HAUNCH (9-5)+12	15. EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE 13-14*+2	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21 V.C. CAMBER	22 REVISED HAUNCH IN INCHES	SCREED HEIGHT (22-4) IN INCHES	FIELD SCREED HEIGHT IN INCHES	
6+76.5	3.7	772.36	771.530	.073	771.457	71.217	0.240	.180	.038	.055	.027	.207	1.120	1.110	0.033	772.501	1.251	0.131	772.708	1.251		15	13 3/8		
+96	.8	.27	.345	.104	.241	.125	.116	.099	.043	.031	.019	.110		1.139	.006	.411	1.280	0.160	.521	1.280		15 3/8	14 1/8		
7+15.5	.9	.17	.245	.188	.057	.034	.023	.032	.014	.011	.007	.035		1.148	−.012	.311	1.289	0.169	.346	1.289		15 1/2	13 1/4		
+35	4.0	.07	.130	.188	70.942	70.942	0	0	0	0	0	0		1.128	0	.211	1.269	0.149	.211	1.269		15 1/4	13		
+50	.1	.00	.090	.188	.902	.867	0.035	.013	.007	.003	.003	.014		1.112	0.021	.141	1.253	0.133	.155	1.253		15 1/16	12 13/16		
+65	.2	71.92	.015	.104	.911	.791	0.120	.050	.027	.013	.010	.055		1.064	0.065	.061	1.205	0.085	.116	1.205		14 1/2	13 1/4		
+80	.3	.85	.030	.073	.957	.716	0.241	.105	.061	.028	.016	.121		1.014	0.121	71.991	1.155	0.035	.112	1.155		13 7/8	13		
+95	.4	.77	.030	.073	.957	.640	0.317	.163	.096	.043	.024	.188		1.001	0.129	.911	1.142	0.022	.099	1.142		13 11/16	12 13/16		
8+10	.5	.70	70.990	.073	.917	.565	0.352	.208	.123	.053	.032	.238		1.021	0.114	.841	1.162	0.042	.079	1.162		13 15/16	13 1/16		
+25	.6	.62	.915	.073	.842	.489	0.353	.227	.135	.057	.035	.260		1.038	0.093	.761	1.179	0.059	.021	1.179		14 1/8	13 1/4		
+40	.7	.55	.805	.073	.732	.414	0.318	.213	.128	.052	.033	.244		1.062	0.074	.691	1.203	0.083	71.935	1.203		14 7/16	13 5/16		
+55	.8	.67	.655	.073	.582	.338	0.244	.166	.100	.041	.025	.191		1.279	0.053	.811	1.420	0.300	72.002	1.420		17 1/16	16 3/16		
+70	.9	.40	.490	.073	.417	.263	0.154	.091	.055	.022	.014	.104		1.087	0.050	.541	1.228	0.108	71.695	1.228		14 3/4	13 7/8		
+85	5.0	.32	.260	.073	70.187	70.187	0	0	0	0	0	0		1.133	0	.461	1.274	0.154	.461	1.274		15 5/16	14 7/16		

SOUTH BRIDGE - NORTH BOX LINE 3 NORTH FLANGE *(CHART 5)*

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) LESS V.C.	CAMBER 8. ΔT ℄ A+B	9. ΔC ℄ A	10 ΔC ℄ B	11 (8-9-10) ΔS ℄ A	12 1.3ΔT-ΔS	13 DESIGN HAUNCH	14 ACTUAL HAUNCH (1-5)+12	15 EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16 REVISED GRADE 12+8=12	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C. CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
0+00	0.0	768.634	767.625	.073	767.552	767.552	0	0	0	0	0	0	1.120	1.082	0	768.729	1.177	0.057	768.729	1.177		14 1/8	13 1/4		
+15	.1	.804	.900	.073	.827	.718	0.109	.091	.055	.022	.014	.104		1.081	0.005	.903	1.180	0.060	69.007	1.180		14 3/16	13 5/16		
+30	.2	.974	68.140	.073	68.067	.884	0.183	.166	.100	.041	.025	.121		1.098	-0.008	69.077	1.201	0.081	.268	1.201		14 7/16	13 9/16		
+46	.3	69.144	.360	.073	.287	68.050	0.237	.213	.128	.052	.033	.244		1.101	-0.007	.251	1.208	0.088	.495	1.208		14 1/2	13 5/8		
+60	.4	.304	.540	.073	.467	.216	0.251	.227	.135	.057	.035	.260		1.097	-0.009	.425	1.218	0.098	.685	1.218		14 5/8	13 3/4		
+75	.5	.474	.680	.073	.607	.382	0.225	.208	.123	.053	.032	.238		1.105	-0.013	.599	1.230	0.110	.837	1.230		14 3/4	13 7/8		
+90	.6	.644	.795	.073	.722	.548	0.174	.163	.096	.043	.024	.188		1.110	-0.014	.773	1.239	0.119	.961	1.239		14 7/8	14		
1+05	.7	.814	.875	.073	.802	.714	0.088	.105	.061	.028	.016	.121		1.133	-0.033	.947	1.266	0.146	70.068	1.266		15 3/16	14 5/16		
+20	.8	.974	69.000	.104	.896	.880	0.016	.050	.027	.013	.010	.055		1.133	-0.039	70.121	1.280	0.160	.176	1.280		15 3/8	14 1/8		
+35	.9	70.144	.235	.188	69.047	69.046	0.001	.013	.007	.003	.003	.014		1.111	-0.013	.295	1.262	0.142	.309	1.262		15 1/8	12 7/8		
+50	1.0	.314	.400	.188	.212	.212	0	0	0	0	0	0		1.102	0	.469	1.257	0.137	.469	1.257		15 1/16	12 13/16		
+65.5	.1	.534	.670	.188	.482	.422	0.060	.032	.014	.011	.007	.035		1.087	0.025	.695	1.248	0.128	.730	1.248		15	12 3/4		
+89	.2	.754	.905	.104	.801	.632	0.169	.099	.049	.031	.019	.110		1.063	0.059	.921	1.230	0.110	71.031	1.230		14 3/4	13 1/2		
2+08.5	.3	.964	70.240	.073	70.167	.842	0.325	.180	.098	.055	.027	.207		1.004	0.118	71.148	1.188	0.068	.355	1.188		14 1/4	13 3/8		
+28	.4	71.184	.540	.073	.467	70.052	0.415	.244	.136	.072	.036	.281		0.998	0.134	.374	1.188	0.068	.655	1.188		14 1/4	13 3/8		
+47.5	.5	.404	.775	.073	.702	.262	0.440	.268	.150	.078	.040	.308		1.010	0.132	.600	1.206	0.086	.908	1.206		14 1/2	13 5/8		
+67	.6	.624	.920	.073	.847	.472	0.375	.243	.135	.071	.037	.279		1.056	0.096	.826	1.258	0.138	72.105	1.258		15 1/8	14 1/4		
+86.5	.7	.834	.990	.073	.917	.682	0.235	.176	.097	.053	.026	.203		1.120	0.032	72.056	1.342	0.222	.259	1.342	0	16 1/8	15 1/4		
3+06	.8	72.044	71.090	.104	.986	.892	0.091	.096	.048	.030	.018	.107		1.165	-0.016	.261	1.382	0.262	.368	1.382	.003	16 9/16	15 5/16		
+25.5	.9	.224	.330	.188	71.142	71.102	0.034	.030	.013	.010	.007	.032		1.114	0.002	.444	1.334	0.214	.476	1.334	.006	16	13 3/4		
+45	2.0	.394	.500	.188	.312	.312	-0.009	0	0	0	0	0		1.082	-0.009	.605	1.293	0.173	.605	1.293	.009	15 1/2	13 1/4		
+64.5	.1	.534	.695	.188	.507	.351	0.065	.026	.012	.008	.006	.028		1.055	0.037	.744	1.265	0.145	.772	1.265	.091	15 3/16	12 15/16		
+84	.2	.664	.830	.104	.726	.389	0.175	.087	.045	.026	.016	.097		1.035	0.078	.861	1.232	0.112	.958	1.232	.162	14 13/16	13 9/16		
4+03.5	.3	.764	72.030	.073	.957	.428	0.313	.164	.092	.047	.025	.188		0.995	0.125	.966	1.197	0.077	73.154	1.197	.216	14 3/8	13 1/2		
+23	.4	.844	.230	.073	72.157	.466	0.446	.227	.129	.064	.024	.261		0.948	0.185	73.028	1.132	0.012	.289	1.132	.245	13 5/8	12 3/4		
+42.5	.5	.914	.320	.073	.247	.505	0.484	.251	.143	.070	.038	.288		0.955	0.196	.078	1.119	-0.001	.366	1.119	.258	13 7/16	12 9/16		
+62	.6	.954	.290	.073	.217	.543	0.429	.227	.129	.064	.034	.261		0.998	0.168	.106	1.150	0.030	.367	1.150	.245	13 13/16	12 15/16		
+81.5	.7	.974	.185	.073	.112	.582	0.366	.164	.092	.047	.025	.188		1.050	0.178	.113	1.189	0.069	.301	1.189	.216	14 5/16	13 7/16		
5+01	.8	.974	.060	.104	71.956	.620	0.169	.087	.045	.026	.016	.097		1.115	0.072	.097	1.238	0.118	.194	1.238	.167	14 7/8	13 5/8		
+20.5	.9	.954	.005	.188	.817	.659	0.067	.026	.012	.008	.006	.028		1.165	0.039	.058	1.269	0.149	.086	1.269	.091	15 1/4	13		
+40	3.0	.914	71.885	.188	.697	.697	-0.009	0	0	0	0	0		1.217	-0.009	72.998	1.301	0.181	72.998	1.301	.009	15 5/8	13 3/8		
+59.5	.1	.854	.830	.188	.642	.607	0.030	.030	.013	.010	.007	.032		1.244	-0.002	.912	1.302	0.182	.944	1.302	.005	15 5/8	13 3/8		
+79	.2	.774	.750	.104	.646	.516	0.130	.096	.048	.030	.018	.107		1.235	0.023	.816	1.277	0.157	.923	1.277	0	15 5/16	14 1/16		
+98.5	.3	.674	.780	.073	.707	.426	0.281	.176	.097	.053	.026	.203		1.170	0.078	.716	1.212	0.092	.919	1.212		14 9/16	13 11/16		
6+18	.4	.584	.795	.073	.722	.335	0.387	.243	.135	.071	.037	.279		1.141	0.108	.626	1.183	0.063	.905	1.183		14 3/16	13 5/16		
+37.5	.5	.484	.730	.073	.657	.245	0.412	.268	.150	.078	.040	.308		1.135	0.104	.526	1.177	0.057	.834	1.177		14 1/8	13 1/4		
+57	.6	.384	.590	.073	.517	.154	0.363	.244	.136	.072	.036	.281		1.148	0.082	.426	1.190	0.070	.707	1.190		14 5/16	13 7/16		

SOUTH BRIDGE - NORTH BOX : LINE 3 NORTH FLANGE *(CHART 5)*

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6)	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10. ΔC @ B	11. (8-3-4) ΔS @ A	12. 1.3ΔT-ΔS	13 DESIGN HAUNCH	14. ACTUAL HAUNCH (1-5)+12	15. EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE ~~12-14=+12~~	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C. CAMBER	22. REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
6+76.5	3.7	72.284	71.375	.073	71.302	71.064	0.238	.180	.098	.055	.027	.207	1.120	1.189	0.031	72.326	1.231	0.111	72.533	1.231		14 3/4	13 7/8		
+96	.8	.194	.170	.104	.066	70.973	0.093	.099	.049	.031	.019	.110		1.238	-0.017	.226	1.270	0.150	.336	1.270		15 1/4	14		
7+15.5	.9	.094	.090	.188	70.902	.883	0.019	.032	.014	.011	.007	.035		1.227	-0.016	.136	1.269	0.149	.171	1.269		15 1/4	13		
+35	4.0	71.994	70.980	.188	.792	.792	0	0	0	0	0	0		1.202	0	.036	1.244	0.124	.036	1.244		14 15/16	12 11/16		
+50	.1	.924	.940	.188	.752	.717	0.035	.013	.007	.003	.003	.014		1.186	0.021	71.966	1.228	0.108	71.980	1.228		14 3/4	12 1/2		
+65	.2	.844	.860	.104	.756	.641	0.115	.050	.027	.013	.010	.055		1.143	0.060	.886	1.185	0.065	.941	1.185		14 1/4	13		
+80	.3	.774	.860	.073	.787	.566	0.221	.105	.061	.028	.016	.121		1.108	0.100	.816	1.150	0.030	.937	1.150		13 13/16	12 15/16		
+95	.4	.694	.875	.073	.802	.490	0.312	.163	.096	.043	.024	.188		1.080	0.124	.736	1.122	0.002	.924	1.122		13 7/16	12 9/16		
8+10	.5	.624	.840	.073	.767	.415	0.352	.208	.123	.053	.032	.238		1.095	0.114	.666	1.137	0.017	.904	1.137		13 5/8	12 3/4		
+25	.6	.544	.785	.073	.712	.339	0.373	.227	.135	.057	.035	.260		1.092	0.113	.586	1.134	0.014	.846	1.134		13 5/8	12 3/4		
+40	.7	.474	.670	.073	.597	.264	0.333	.213	.128	.052	.033	.244		1.121	0.089	.516	1.163	0.043	.760	1.163		13 15/16	13 1/16		
+55	.8	.394	.510	.073	.437	.188	0.249	.166	.100	.041	.025	.191		1.148	0.058	.436	1.190	0.070	.627	1.190		14 1/4	13 3/8		
+70	.9	.324	.330	.073	.257	.113	0.144	.091	.055	.022	.014	.104		1.171	0.040	.366	1.213	0.093	.470	1.213		14 9/16	13 11/16		
+85	5.0	71.244	70.110	.073	70.037	70.037	0	0	0	0	0	0		1.207	0	.286	1.249	0.129	.286	1.249		15	14 1/8		

SOUTH BRIDGE - NORTH BOX LINE 3 SOUTH FLANGE (CHART 6)

CHAINAGE	1. POINT	2 TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7 FIELD CAMBER (5-6) LESS V.C.	CAMBER 8 ΔT @ A+B	9. ΔC @ A	10 ΔC @ B	11 (8-9) ΔS @ A	12 ΔT-ΔS	13 DESIGN HAUNCH	14 ACTUAL HAUNCH (1-5)+12	15 EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE ~~13+12~~	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C. CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
0+00	0.0	768.434	767.680	.073	767.607	767.607	0	0	0	0	0	0	0.922	0.827	0	768.529	0.922	0.000	768.529	0.922		11 1/16	10 3/16		
+15	.1	.604	.915	.073	.842	.767	0.075	.091	.055	.022	.014	.104		0.866	-0.029	.703	0.965	0.043	.807	0.965		11 9/16	10 11/16		
+30	.2	.774	68.175	.073	68.102	.926	0.176	.166	.100	.041	.025	.121		0.863	-0.015	.877	0.966	0.044	69.068	0.966		11 5/8	10 3/4		
+46	.3	.944	.395	.073	.322	68.086	0.236	.213	.128	.052	.033	.244		0.866	-0.008	69.051	0.973	0.051	.295	0.973		11 11/16	10 13/16		
+60	.4	69.104	.580	.073	.507	.245	0.262	.227	.135	.057	.035	.260		0.857	0.002	.225	0.978	0.056	.485	0.978		11 3/4	10 7/8		
+75	.5	.274	.720	.073	.647	.405	0.242	.208	.123	.053	.032	.238		0.865	0.004	.399	0.990	0.068	.637	0.990		11 7/8	11		
+90	.6	.444	.845	.073	.772	.564	0.208	.163	.096	.043	.024	.188		0.860	0.020	.573	0.989	0.067	.761	0.989		11 7/8	11.		
1+05	.7	.614	.930	.073	.857	.724	0.133	.105	.061	.028	.016	.121		0.878	0.012	.747	1.011	0.089	.868	1.011		12 1/8	11 1/4		
+20	.8	.774	69.030	.104	.926	.883	0.043	.030	.027	.013	.010	.055		0.903	-0.012	.921	1.050	0.128	.976	1.050		12 5/8	11 3/8		
+35	.9	.944	.230	.188	69.042	69.043	-0.001	.013	.007	.003	.003	.014		0.916	-0.015	70.095	1.067	0.145	70.109	1.067		12 13/16	10 9/16		
+50	1.0	70.114	.390	.188	.202	.202	0	0	0	0	0	0		0.912	0	.269	1.067	0 145	.269	1.067		12 13/16	10 9/16		
+69.5	.1	.334	.690	.188	.502	.413	0.089	.032	.014	.011	.007	.035		0.867	0.054	.495	1.028	0.106	.530	1.028		12 5/16	10 1/16		
+89	.2	.554	.940	.104	.836	.624	0.212	.099	.049	.031	.019	.110		0 828	0. 102	.721	0 995	0 073	.831	0.995		11 15/16	10 1/16		
2+08.5	.3	.764	70.280	.073	70.207	.835	0.372	.180	.098	.055	.027	.207		0.764	0. 165	.948	0.948	0.026	71.155	0.948		11 3/8	10 1/2		
+28	.4	.984	.580	.073	.507	70.046	0.461	.244	.136	.072	.036	.281		0.758	0. 180	71.174	0.948	0.026	.455	0.948		11 3/8	10 1/2		
+47.5	.5	71.204	.810	.073	.737	.257	0.480	.268	.150	.078	.040	.308		0.775	0. 172	.400	0. 971	0.049	.708	0.971		11 1/16	11 13/16		
+67	.6	.424	.960	.073	.887	.468	0.419	.243	.135	.071	.037	.279		0.816	0. 140	.626	1. 018	0. 096	.905	1. 018		12 1/4	11 5/8		
+86.5	.7	.634	71.020	.073	.947	.679	0.268	.176	.097	.053	.026	.203		0.890	0 065	.856	1. 112	0 190	72.059	1. 112	0	13 3/8	12 1/2		
3+06	.8	.844	.115	.104	71.011	.890	0.118	.096	.048	.030	.018	.107		0.940	0. 011	72.061	1. 157	0 235	.168	1. 157	.003	13 7/8	12 5/8		
+25.5	.9	72.024	.325	.188	.137	71.101	0. 030	.030	.013	.010	.007	.032		0.919	-0.002	.244	1. 139	0. 217	.276	1. 139	.006	13 11/16	11 7/16		
+45	2.0	.194	.500	.188	.312	.312	-0.009	0	0	C	0	0		0.882	-0.009	.405	1. 093	0. 171	.405	1. 093	.009	13 1/8	10 7/8		
+64.5	.1	.334	.710	.188	.522	.352	0.079	.026	.012	.008	.006	.028		0.840	0. 051	.544	1. 050	0. 128	.572	1. 050	.091	12 5/8	10 3/8		
+84	.2	.464	.820	.104	.716	.392	0. 162	.087	.045	.026	.016	.097		0.845	0. 065	.661	1. 042	0. 120	.758	1. 042	.162	12 1/2	11 1/4		
4+03.5	.3	.564	72.020	.073	.947	.432	0. 299	.164	.092	.047	.025	.188		0.805	0. 111	.766	1. 007	0. 085	.954	1. 007	.216	12 1/16	11 3/16		
+23	.4	.644	.220	.073	72.147	.472	0. 430	.227	.129	.064	.034	.261		0. 758	0. 169	.828	0. 942	0. 020	73.089	0. 942	.245	11 5/16	10 7/16		
+42.5	.5	.714	.300	.073	.227	.512	0. 457	.251	.143	.070	.038	.288		0. 775	0. 169	.878	0. 939	0. 017	.166	0. 939	.258	11 1/4	10 5/8		
+62	.6	.754	.305	.073	.232	.552	0. 435	.227	.123	.064	.034	.261		0. 783	0. 174	.906	0. 935	0. 013	.167	0. 935	.245	11 1/4	10 5/8		
+81.5	.7	.774	.210	.073	.137	.592	0. 329	.164	.092	.047	.025	.188		0. 825	0. 141	.913	0. 964	0. 042	.101	0. 964	.216	11 9/16	10 11/16		
5+01	.8	.774	.065	.104	71.961	.632	0. 162	.087	.045	.026	.016	.097		0. 910	0. 065	.897	1. 033	0. 111	72. 994	1. 033	.167	12 3/8	11 1/8		
+20.5	.9	.754	.005	.188	.817	.672	0. 054	.026	.012	.008	.006	.028		0. 965	0. 026	.858	1. 069	0. 147	.886	1. 069	.091	12 13/16	10 7/16		
+40	3.0	.714	71.900	.188	.712	71.712	-0.009	0	0	0	0	0		1. 002	-0.009	.798	1. 086	0. 164	.798	1. 086	.009	13 1/16	10 13/16		
+59.5	.1	.654	.850	.188	.662	.623	0. 034	.030	.013	.010	.007	.032		1. 024	0. 002	.712	1. 082	0. 160	.744	1. 082	.005	13	10 3/4		
+79	.2	.574	.760	.104	.656	.533	0. 123	.096	.048	.030	.018	.107		1. 025	0. 016	.616	1. 067	0. 145	.723	1. 067	0	12 13/16	11 7/16		
+98.5	.3	.474	.780	.073	.707	.444	0. 263	.176	.097	.053	.026	.203		0. 970	0. 060	.516	1. 012	0. 090	.719	1. 012		12 1/8	11 1/4		
6+18	.4	.384	.790	.073	.717	.354	0. 363	.243	.135	.071	.037	.279		0. 946	0. 084	.426	0. 988	0. 066	.705	0. 988		11 7/8	11		
+37.5	.5	.284	.735	.073	.662	.265	0. 397	.268	.150	.078	.040	.308		0. 930	0. 089	.326	0. 972	0. 050	.634	0. 972		11 11/16	10 13/16		
+57	.6	.184	.595	.073	.522	.175	0. 347	.244	.136	.072	.036	.281		0. 943	0. 066	.226	0. 985	0. 063	.507	0. 985		11 13/16	10 15/16		

SOUTH BRIDGE - NORTH BOX LINE 3 SOUTH FLANGE (CHART 6)

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6)	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10. ΔC @ B	11. (8-7-6) ΔS @ A	12. 1.3ΔT-ΔS	13 DESIGN HAUNCH	14. ACTUAL HAUNCH (1-5)+12	15 EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE ~~13-14+12~~	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21 V.C. CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
6+76.5	3.7	72.084	71.380	.073	71.307	71.086	0.221	.180	.058	.055	.027	.207	0.922	0.984	0.014	72.126	1.026	0.104	72.333	1.026		12 5/16	11 7/16		
+96	.8	71.994	.190	.104	.086	70.996	0.090	.099	.049	.031	.019	.110		1.018	-0.020	.026	1.050	0.128	.136	1.050		12 5/8	11 1/8		
7+15.5	.9	.894	.120	.188	70.932	.907	0.025	.032	.014	.011	.007	.035		0.997	-0.010	71.936	1.039	0.117	71.971	1.039		12 1/2	10 1/4		
+35	4.0	.794	.005	.188	.817	70.817	0	0	0	0	0	0		0.977	0	.836	1.019	0.097	.836	1.019		12 1/4	10		
+50	.1	.724	70.960	.188	.772	.748	0.024	.013	.007	.003	.003	.014		0.966	0.010	.766	1.008	0.086	.780	1.008		12 1/8	9 7/8		
+65	.2	.644	.870	.104	.766	.678	0.088	.050	.027	.013	.010	.055		0.933	0.033	.686	0.975	0.053	.741	0.975		11 11/16	10 7/16		
+80	.3	.574	.870	.073	.797	.609	0.188	.105	.061	.028	.016	.121		0.898	0.067	.616	0.940	0.018	.737	0.940		11 5/16	10 7/16		
+95	.4	.494	.875	.073	.802	.539	0.263	.163	.096	.043	.024	.188		0.880	0.075	.536	0.922	0.000	.724	0.922		11 1/16	10 3/16		
8+10	.5	.424	.850	.073	.777	.470	0.307	.208	.123	.053	.032	.238		0.885	0.069	.466	0.927	0.005	.704	0.927		11 1/8	10 1/4		
+25	.6	.344	.780	.073	.707	.400	0.307	.227	.135	.057	.035	.260		0.897	0.047	.386	0.939	0.017	.646	0.939		11 1/4	10 3/8		
+40	.7	.274	.685	.073	.612	.331	0.281	.213	.128	.052	.033	.244		0.906	0.037	.316	0.948	0.026	.560	0.948		11 3/8	10 1/2		
+55	.8	.194	.530	.073	.457	.261	0.196	.166	.100	.041	.025	.191		0.928	0.005	.236	0.970	0.048	.427	0.970		11 5/8	10 5/8		
+70	.9	.124	.355	.073	.282	.192	0.090	.091	.055	.022	.014	.104		0.946	-0.014	.166	0.988	0.066	.270	0.988		11 7/8	11		
+85	5.0	71.044	70.195	.073	.122	70.122	0	0	0	0	0	0		0.922	0	71.086	0.964	0.042	71.086	0.964		11 9/16	10 11/16		

SOUTH BRIDGE - SOUTH BOX LINE 4 NORTH FLANGE (CHART 7)

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) LESS V.C	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10 ΔC @ B	11 (5-7-.2) ΔS @ A	.2 1.3ΔT-ΔS	13 DESIGN HAUNCH	14 ACTUAL HAUNCH (1-5)+12	15 EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE ~~13-14+12~~	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C. CAMBER	22. REVISED HAUNCH IN INCHES	23. SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
0+00	0.0	768.234	767.265	.073	767.192	767.192	0	0	0	0	0	0	1.120	1.042	0	768.329	1.137	0.017	768.329	1.137		13 5/8	12 3/4		
+15	.1	.404	.520	.073	.447	.355	0.092	.091	.055	.022	.014	.104		1.061	-0.012	.503	1.160	0.040	.607	1.160		13 15/16	13 1/16		
+30	.2	.574	.780	.073	.707	.518	0.189	.166	.100	.041	.025	.191		1.058	-0.002	.677	1.161	0.041	.868	1.161		13 15/16	13 1/16		
+46	.3	.744	68.000	.073	.927	.681	0.246	.213	.128	.052	.033	.244		1.061	0.002	.851	1.168	0.048	69.095	1.168		14	13 1/8		
+60	.4	.904	.185	.073	68.112	.844	0.268	.227	.135	.057	.035	.260		1.052	0.008	69.025	1.173	0.053	.285	1.173		14 1/16	13 3/16		
+75	.5	69.074	.340	.073	.267	68.007	0.260	.208	.123	.053	.032	.238		1.045	0.022	.199	1.170	0.050	.437	1.170		14 1/16	13 3/16		
+90	.6	.244	.455	.073	.382	.170	0.212	.163	.096	.043	.024	.188		1.050	0.024	.373	1.179	0.059	.561	1.179		14 1/8	13 1/4		
1+05	.7	.414	.525	.073	.452	.333	0.119	.105	.061	.028	.016	.121		1.083	-0.002	.547	1.216	0.096	.668	1.216		14 5/8	13 3/4		
+20	.8	.574	.625	.104	.521	.496	0.025	.080	.027	.013	.010	-.055		1.108	-0.030	.721	1.255	0.135	.776	1.255		15 1/16	13 13/16		
+35	.9	.744	.835	.188	.647	.659	-0.012	.013	.007	.003	.003	.014		1.111	-0.026	.895	1.262	0.142	.909	1.262		15 1/8	12 7/8		
+50	1.0	.914	69.010	.188	.822	.822	0	0	0	0	0	0		1.092	0	70.069	1.247	0.127	70.069	1.247		15	12 3/4		
+69.5	.1	70.134	.300	.188	69.112	69.031	0.081	.032	.014	.011	.007	.035		1.057	0.046	.295	1.218	0.098	.330	1.218		14 5/8	12 3/8		
+89	.2	.354	.555	.104	.451	.240	0.211	.099	.049	.031	.019	.110		1.013	0.101	.521	1.180	0.060	.631	1.180		14 3/16	12 15/16		
2+08.5	.3	.564	.905	.073	.832	.449	0.383	.180	.098	.055	.027	.207		0.939	0.176	.748	1.123	0.003	.955	1.123		13 1/2	12 5/8		
+28	.4	.784	70.200	.073	70.127	.658	0.469	.244	.136	.072	.036	.281		0.938	0.188	.974	1.128	0.008	71.255	1.128		13 9/16	12 11/16		
+47.5	.5	71.004	70.410	.073	.337	.867	0.470	.268	.150	.078	.040	.308		0.975	0.162	71.200	1.171	0.051	.508	1.171		14 1/16	13 3/16		
+67	.6	.224	.545	.073	.472	70.076	0.396	.243	.135	.071	.037	.279		1.031	0.117	.426	1.233	0.113	.705	1.233		14 13/16	13 15/16		
+86.5	.7	.434	.600	.073	.527	.285	0.242	.176	.097	.053	.026	.203		1.110	0.039	.656	1.332	0.212	.859	1.332	0	16	15 1/8		
3+06	.8	.644	.695	.104	.591	.494	0.094	.096	.048	.030	.018	.107		1.160	-0.013	.861	1.377	0.257	.968	1.377	.003	16 9/16	15 5/16		
+25.5	.9	.824	.935	.188	.747	.703	0.038	.030	.013	.010	.007	.032		1.109	0.006	72.044	1.329	0.209	72.076	1.329	.006	15 15/16	13 1/16		
+45	2.0	.994	71.100	.188	.912	.912	-0.009	0	0	0	0	0		1.082	-0.009	.205	1.293	0.173	.205	1.293	.009	15 1/2	13 1/4		
+64.5	.1	72.134	.300	.188	71.112	.953	0.068	.026	.012	.008	.006	.028		1.050	0.040	.344	1.260	0.140	.372	1.260	.091	15 1/8	12 7/8		
+84	.2	.264	.445	.104	.341	.994	0.185	.087	.045	.026	.016	.097		1.020	0.080	.461	1.217	0.097	.558	1.217	.162	14 5/8	13 3/8		
4+03.5	.3	.364	.640	.073	.567	71.035	0.316	.164	.092	.047	.025	.188		0.985	0.128	.566	1.187	0.067	.754	1.187	.216	14 1/4	13 3/8		
+23	.4	.444	.820	.073	.747	.076	0.426	.227	.129	.064	.034	.261		0.958	0.165	.628	1.142	0.022	.889	1.142	.245	13 11/16	12 13/16		
+42.5	.5	.514	.890	.073	.817	.117	0.442	.251	.143	.070	.038	.288		0.985	0.154	.678	1.149	0.029	.966	1.149	.258	13 13/16	12 15/16		
+62	.6	.554	.850	.073	.777	.158	0.374	.227	.129	.064	.034	.261		1.038	0.113	.706	1.190	0.070	.967	1.190	.245	14 5/16	13 7/16		
+81.5	.7	.574	.735	.073	.662	.199	0.247	.164	.092	.047	.025	.188		1.100	0.059	.713	1.239	0.119	.901	1.239	.216	14 7/8	14		
5+01	.8	.574	.630	.104	.526	.240	0.119	.087	.045	.026	.016	.097		1.145	0.022	.697	1.268	0.148	.794	1.268	.167	15 1/4	14		
+20.5	.9	.554	.595	.188	.407	.281	0.035	.026	.012	.008	006	.028		1.175	0.007	.658	1.279	0.159	.686	1.279	.091	15 3/8	13 1/8		
+40	3.0	.514	.510	.188	.322	.322	-0.009	0	0	0	0	0		1.192	-0.009	.598	1.276	0.156	.598	1.276	.009	15 5/16	13 1/16		
+59.5	.1	.454	.465	.188	.277	.232	0.040	.030	.013	.010	.007	.032		1.209	0.008	.512	1.267	0.147	.544	1.267	.005	15 3/16	12 15/16		
+79	.2	.374	.375	.104	.271	.141	0.130	.096	.048	.030	.018	.107		1.210	0.023	.416	1.252	0.132	.523	1.252	0	15	13 3/4		
+98.5	.3	.274	.400	.073	.327	.051	0.276	.176	.097	.053	.026	.203		1.150	0.073	.316	1.192	0.072	.519	1.192		14 5/16	13 7/16		
6+18	.4	.184	.410	.073	.337	70.960	0.377	.243	.135	.071	.037	.279		1.126	0.098	.226	1.168	0.048	.505	1.168		14	13 1/8		
+37.5	.5	.084	.360	.073	.287	.870	0.417	.268	.150	.078	.040	.308		1.105	0.109	.126	1.147	0.027	.434	1.147		13 3/4	12 7/8		
+57	.6	71.984	.210	.073	.137	.779	0.358	.244	.136	.072	.036	.281		1.128	0.077	.026	1.170	0.050	.307	1.170		14 1/16	13 3/16		

SOUTH BRIDGE - SOUTH BOX LINE 4 NORTH FLANGE *(CHART 7)*

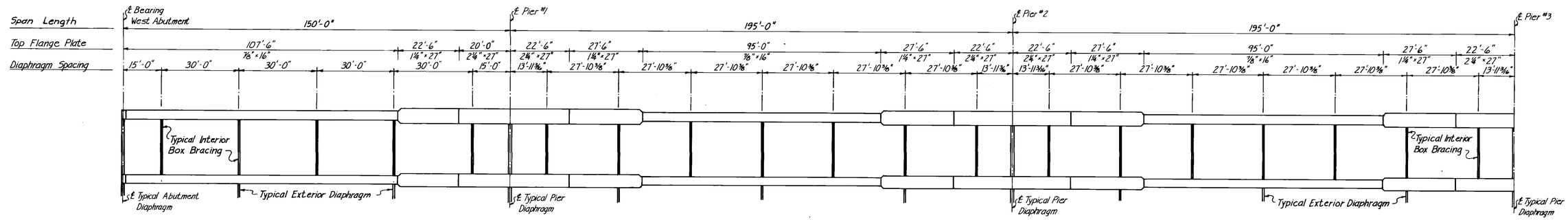
CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6)	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10. ΔC @ B	11. (8-3-9) ΔS @ A	12 1.3ΔT-ΔS	13 DESIGN HAUNCH	14. ACTUAL HAUNCH (1-5)+12	15. EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE ~~12-15+12~~	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C. CAMBER	22. REVISED HAUNCH IN INCHES	SCREED HEIGHT (22-4) IN INCHES	FIELD SCREED HEIGHT IN INCHES	
6+76.5	3.7	71.884	71.000	.073	70.927	70.689	0.238	.180	.028	.055	.027	.207	1.120	1.164	0.031	771.926	1.206	0.086	772.133	1.206		14 1/2	13 5/8		
+90	.8	.794	70.815	.104	.711	.598	0.113	.099	.043	.031	.019	.110		1.193	0.003	.826	1.225	0.105	71.936	1.225		14 11/16	13 7/16		
7+15.5	.9	.694	.730	.188	.542	.508	0.034	.032	.014	.011	.007	.035		1.187	-0.001	.736	1.229	0.109	.771	1.229		14 3/4	12 1/2		
+35	4.0	.594	.605	.188	.417	.417	0	0	0	0	0	0		1.177	0	.636	1.219	0.099	.636	1.219		14 5/8	12 3/8		
+50	.1	.524	.540	.188	.352	.347	0.005	.013	.007	.003	.003	.014		1.186	-0.009	.566	1.228	0.108	.580	1.228		14 3/4	12 1/2		
+65	.2	.444	.430	.104	.326	.276	0.050	.050	.027	.013	.010	.055		1.173	-0.005	.486	1.215	0.095	.541	1.215		14 5/16	13 5/16		
+80	.3	.374	.410	.073	.337	.206	0.131	.105	.061	.028	.016	.121		1.158	0.010	.416	1.200	0.080	.537	1.200		14 7/16	13 3/16		
+95	.4	.294	.455	.073	.382	.135	0.274	.163	.096	.043	.024	.188		1.100	0.086	.336	1.142	0.022	.524	1.142		13 11/16	12 13/16		
8+10	.5	.224	.440	.073	.367	.065	0.302	.208	.123	.053	.032	.238		1.095	0.064	.266	1.137	0.017	.504	1.137		13 5/8	12 3/4		
+25	.6	.144	.390	.073	.317	69.994	0.323	.227	.135	.057	.035	.260		1.087	0.063	.186	1.129	0.009	.446	1.129	-	13 9/16	12 11/16		
+40	.7	.074	.290	.073	.217	.924	0.293	.213	.128	.052	.033	.244		1.101	0.049	.116	1.143	0.023	.360	1.143		13 3/4	12 7/8		
+55	.8	70.994	.140	.073	.067	.853	0.214	.166	.100	.041	.025	.191		1.118	0.023	.036	1.160	0.040	.227	1.160		13 15/16	13 1/16		
+70	.9	.924	69.960	.073	69.887	.783	0.104	.091	.055	.022	.014	.104		1.141	0	70.966	1.183	0.063	.070	1.183		14 3/16	13 5/16		
+85	5.0	70.844	70.785	.073	69.712	69.712	0	0	0	0	0	0		1.132	0	70.886	1.174	0.054	70.886	1.174		14 1/16	13 3/16		

SOUTH BRIDGE - SOUTH BOX LINE 4 SOUTH FLANGE (CHART 8)

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	6. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6)	CAMBER 8 ΔT @ A+B	CAMBER 9. ΔC @ A	CAMBER 10. ΔC @ B	CAMBER 11. (8-3-9) ΔS @ A	CAMBER 12 1.3ΔT-ΔS	13 DESIGN HAUNCH	14. ACTUAL HAUNCH (1-5)+12	15 EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE 12-[illegible]+12	17 REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21 V.C CAMBER	22 REVISED HAUNCH IN INCHES	23 SCREED HEIGHT (22-4) IN INCHES	24 FIELD SCREED HEIGHT IN INCHES	
6+76.5	3.7	71.684	71.010	.073	70.937	70.656	0.281	.180	.058	.055	.027	.207	0.922	0.954	0.074	71.726	0.996	0.074	71.933	0.996		12	11 1/8		
+96	.8	.594	70.805	.104	.701	.566	0.135	.099	.049	.031	.019	.110		1.003	0.026	.626	1.035	0.113	.736	1.035		12 7/16	11 3/16		
7+15.5	.9	.494	.715	.188	.527	.477	0.050	.032	.014	.011	.007	.035		1.002	0.016	.536	1.044	0.122	.571	1.044		12 1/2	10 1/4		
+35	4.0	.394	.575	.188	.387	.387	0	0	0	0	0	0		1.007	0	.436	1.049	0.127	.436	1.049		12 9/16	10 5/16		
+50	.1	.324	.520	.188	.332	.320	0.012	.013	.007	.003	.003	.014		1.006	-0.002	.366	1.048	0.126	.380	1.048		12 9/16	10 5/16		
+65	.2	.244	.415	.104	.311	.253	0.058	.050	.027	.013	.010	.055		0.988	0.009	.286	1.030	0.108	.341	1.030		12 3/8	11 1/8		
+80	.3	.174	.400	.073	.327	.186	0.141	.105	.061	.028	.016	.121		0.968	0.020	.216	1.010	0.088	.337	1.010		12 1/8	11 1/4		
+95	.4	.094	.435	.073	.362	.199	0.163	.163	.096	.043	.024	.188		0.920	-0.025	.136	0.962	0.040	.324	0.962		11 9/16	10 11/16		
8+10	.5	.024	.430	.073	.357	.052	0.305	.208	.123	.053	.032	.238		0.905	0.067	.066	0.947	0.025	.304	0.947		11 3/8	10 1/2		
+25	.6	70.944	.375	.073	.302	69.985	0.317	.227	.135	.057	.035	.260		0.902	0.057	70.986	0.944	0.022	.246	0.944		11 5/16	10 7/16		
+40	.7	.874	.270	.073	.197	.918	0.279	.213	.128	.052	.033	.244		0.921	0.035	.916	0.963	0.041	.160	0.963		11 9/16	10 11/16		
+55	.8	.794	.120	.073	.047	.851	0.196	.166	.100	.041	.025	.191		0.938	0.005	.836	0.980	0.058	.027	0.980		11 3/4	10 3/8		
+70	.9	.724	.950	.073	69.877	.784	0.093	.091	.055	.022	.014	.104		0.951	-0.011	.766	0.993	0.071	70.870	0.993		11 15/16	11 1/16		
+85	5.0	70.644	69.790	.073	.717	.717	0	0	0	0	0	0		0.927	0	.686	0.969	0.047	.686	0.969		11 5/8	10 3/4		

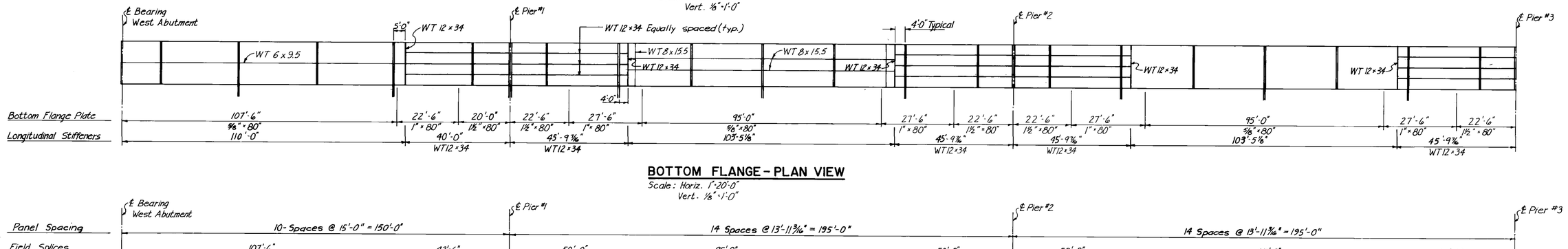
SOUTH BRIDGE - SOUTH BOX LINE 4 SOUTH FLANGE *(CHART 8)*

CHAINAGE	1. POINT	2. TOP OF CONC. ELEV.	3. TOP OF FLANGE ELEV.	4. FLANGE THICK.	5. BOT. OF FLANGE ELEV.	6. CHORD ELEV.	7. FIELD CAMBER (5-6) LESS V.C.	CAMBER 8. ΔT @ A+B	9. ΔC @ A	10. ΔC @ B	11. (8-7)×.4 ΔS @ A	12. 1.3ΔT-ΔS	13. DESIGN HAUNCH	14. ACTUAL HAUNCH (1-5)+12	15. EXTRA CAMBER (7-12)	REVISED HAUNCH AND GRADE 16. REVISED GRADE 12-20=12	17. REVISED HAUNCH (16-5)+12	18. HAUNCH SHIM (17-13)	19. SCREED ELEV. (16+12)	20. HAUNCH CHECK (19-5)	21. V.C. CAMBER	22. REVISED HAUNCH IN INCHES	23. SCREED HEIGHT (22-4) IN INCHES	24. FIELD SCREED HEIGHT IN INCHES	
0+00	0.0	768.034	767.250	.073	767.177	767.177	0	0	0	0	0	0	0.922	0.857	0	768.129	0.952	0.030	768.129	0.952		11 7/16	10 9/16		
+15	.1	.204	.505	.073	.432	.340	0.092	.091	.055	.022	.014	.104		0.876	-0.012	.303	0.975	0.053	.407	0.975		11 11/16	10 13/16		
+30	.2	.374	.750	.073	.677	.502	0.175	.166	.100	.041	.025	.191		0.888	-0.016	.477	0.991	0.069	.668	0.991		11 7/8	11		
+46	.3	.544	.975	.073	.902	.665	0.237	.213	.128	.052	.033	.244		0.886	-0.007	.651	0.993	0.071	.895	0.993		11 15/16	11 1/16		
+60	.4	.704	68.160	.073	68.087	.827	0.260	.227	.135	.057	.035	.260		0.877	0	.825	0.998	0.076	69.085	0.998		12	11 1/8		
+75	.5	.874	.300	.073	.227	.990	0.237	.208	.123	.053	.032	.238		0.885	-0.001	.999	1.010	0.088	.237	1.010	-	12 1/8	11 1/4		
+90	.6	69.044	.415	.073	.342	68.152	0.190	.163	.096	.043	.024	.188		0.890	0.002	69.173	1.019	0.097	.361	1.019		12 1/4	11 3/8		
1+05	.7	.214	.485	.073	.412	.315	0.097	.105	.061	.028	.016	.121		0.923	-0.024	.347	1.056	0.134	.468	1.056		12 11/16	11 13/16		
+20	.8	.374	.600	.104	.496	.477	0.019	.030	.027	.013	.010	.055		0.933	-0.036	.521	1.080	0.158	.576	1.080		13	11 3/4		
+35	.9	.544	.810	.188	.622	.640	-0.018	.013	.007	.003	.003	.014		0.936	-0.032	.695	1.087	0.165	.709	1.087		13 1/16	10 13/16		
+50	1.0	.714	.990	.188	.802	.802	0	0	0	0	0	0		0.912	0	.869	1.067	0.145	.869	1.067		12 13/16	10 9/16		
+69.5	.1	.934	69.270	.188	69.082	69.001	0.081	.032	.014	.011	.007	.035		0.887	0.046	70.095	1.048	0.126	70.130	1.048		12 9/16	10 5/16		
+89	.2	70.154	.500	.104	.396	.217	0.179	.099	.049	.031	.019	.110		0.868	0.069	.321	1.035	0.113	.431	1.035		12 7/16	11 3/16		
2+08.5	.3	.364	.830	.073	.757	.425	0.332	.180	.098	.055	.027	.207		0.814	0.125	.548	0.998	0.076	.755	0.998		12	11 1/8		
+28	.4	.584	70.145	.073	70.072	.632	0.438	.244	.136	.072	.036	.281		0.793	0.157	.774	0.983	0.061	71.055	0.983		11 13/16	10 15/16		
+47.5	.5	.804	.370	.073	.297	.840	0.457	.268	.150	.078	.040	.308		0.815	0.149	71.000	1.011	0.089	.308	1.011		12 1/8	11 1/4		
+67	.6	71.024	.500	.073	.427	70.047	0.380	.243	.135	.071	.037	.279		0.876	0.101	.226	1.078	0.156	.505	1.078		12 5/16	12 1/16		
+86.5	.7	.234	.545	.073	.472	.255	0.217	.176	.097	.053	.026	.203		0.965	0.014	.456	1.187	0.265	.659	1.187	0	14 1/4	13 3/8		
3+06	.8	.444	.655	.104	.551	.462	0.086	.096	.048	.030	.018	.107		1.000	-0.021	.661	1.217	0.295	.768	1.217	.003	14 5/8	13 3/8		
+25.5	.9	.624	.890	.188	.702	.670	0.026	.030	.013	.010	.007	.032		0.954	-0.006	.844	1.174	0.252	.876	1.174	.006	14 1/8	11 7/8		
+45	2.0	.794	71.065	.188	.877	.877	-0.009	0	0	0	0	0		0.917	-0.009	72.005	1.128	0.206	72.005	1.128	.009	13 3/16	11 5/16		
+64.5	.1	.934	.255	.188	71.067	.918	0.058	.026	.012	.008	.006	.028		0.895	0.030	.144	1.105	0.183	.172	1.105	.091	13 1/2	11		
+84	.2	72.064	.400	.104	.296	.958	0.176	.087	.045	.026	.016	.097		0.865	0.079	.261	1.062	0.140	.358	1.062	.162	12 3/4	11 1/2		
4+03.5	.3	.164	.595	.073	.522	.999	0.307	.164	.092	.047	.025	.188		0.830	0.119	.366	1.032	0.110	.554	1.032	.216	12 3/8	11 1/2		
+23	.4	.244	.760	.073	.687	71.039	0.403	.227	.129	.064	.034	.261		0.818	0.142	.428	1.002	0.080	.689	1.002	.245	12	11 1/8		
+42.5	.5	.314	.850	.073	.777	.080	0.439	.251	.143	.070	.038	.288		0.825	0.151	.478	0.989	0.067	.766	0.989	.258	11 7/8	11		
+62	.6	.354	.815	.073	.742	.120	0.377	.227	.129	.064	.034	.261		0.873	0.116	.506	1.025	0.103	.767	1.025	.245	12 5/16	11 7/16		
+81.5	.7	.374	.710	.073	.637	.161	0.260	.164	.092	.047	.025	.188		0.925	0.072	.513	1.064	0.142	.701	1.064	.216	12 3/4	11 7/8		
5+01	.8	.374	.590	.104	.486	.201	0.118	.087	.045	.026	.016	.097		0.985	0.021	.497	1.108	0.186	.594	1.108	.167	13 5/16	12 1/16		
+20.5	.9	.354	.555	.188	.367	.242	0.034	.026	.012	.008	.006	.028		1.015	0.006	.458	1.119	0.197	.486	1.119	.091	13 7/16	11 3/16		
+40	3.0	.314	.470	.188	.282	.282	-0.009	0	0	0	0	0		1.032	-0.009	.398	1.116	0.194	.398	1.116	.009	13 3/8	11 1/8		
+59.5	.1	.254	.435	.188	.247	.193	0.049	.030	.013	.010	.007	.032		1.039	0.017	.312	1.097	0.175	.344	1.097	.005	13 3/16	10 13/16		
+79	.2	.174	.360	.104	.256	.103	0.153	.096	.048	.030	.018	.107		1.025	0.046	.216	1.067	0.145	.323	1.067	0	12 13/16	11 7/16		
+98.5	.3	.074	.390	.073	.317	.014	0.303	.176	.097	.053	.026	.203		0.960	0.100	.116	1.002	0.080	.319	1.002		12	11 1/8		
6+18	.4	71.984	.400	.073	.327	70.924	0.403	.243	.135	.071	.037	.279		0.936	0.124	.026	0.978	0.056	.305	0.978		11 5/8	10 3/4		
+37.5	.5	.884	.330	.073	.257	.835	0.422	.268	.150	.078	.040	.308		0.935	0.114	71.926	0.977	0.055	.234	0.977		11 3/4	10 1/8		
+57	.6	.784	.210	.073	.137	.745	0.392	.244	.136	.072	.036	.281		0.928	0.111	.826	0.970	0.048	.107	0.970		11 5/8	10 3/4		



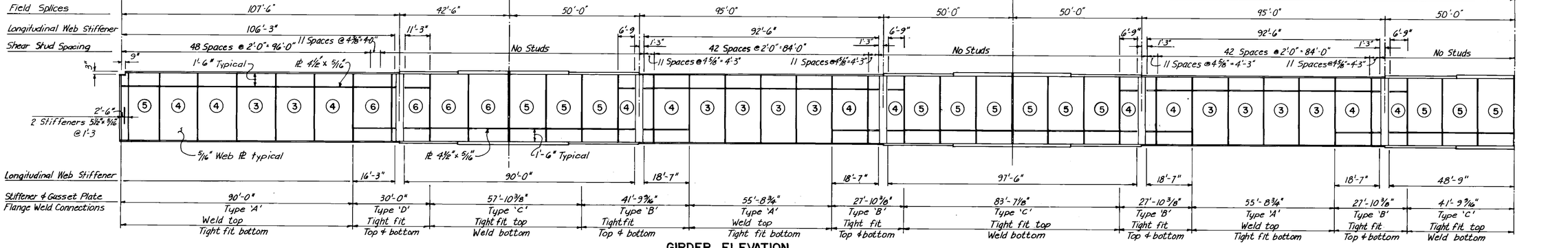
TOP FLANGE – PLAN VIEW

Scale: Horiz. 1"=20'-0"
Vert. 1/8"=1'-0"



BOTTOM FLANGE – PLAN VIEW

Scale: Horiz. 1"=20'-0"
Vert. 1/8"=1'-0"



GIRDER ELEVATION

Scale: Horiz. 1"=20'-0"
Vert. 3/16"=1'-0"

AS – BUILT

DATE	FB NO.	PAGE
Nov. 14/79		

SOUTH BRIDGE DECK ELEVATIONS AND DEAD LOAD DEFLECTIONS (FOR DECK ELEVATIONS SEE ELEVATION CHARTS 1-8)

LOCATION		W. ABUT.	.1	.2	.3	.4	.5	.6	.7	SPLICE	.8	.9	PIER 1	.1	.2	SPLICE	.3	.4	.5	.6	.7	SPLICE	.8	.9	PIER 2	.1	.2	SPLICE	.3	.4	.5	.6	.7	SPLICE	.8	.9	PIER 3
DECK ELEVATION GIRDER 3	FLANGE 'A'	768.67	768.84	769.01	769.18	769.34	769.51	769.68	769.85	769.87	770.01	770.18	770.35	770.57	770.79	770.91	771.00	771.22	771.44	771.66	771.87	771.96	772.08	772.26	772.43	772.57	772.10	772.76	772.80	772.88	772.95	772.99	773.01	773.01	773.01	772.99	772.95
	FLANGE 'B'	768.47	768.64	768.81	768.98	769.14	769.31	769.48	769.65	769.67	769.81	769.98	770.15	770.37	770.59	770.71	770.80	771.02	771.24	771.46	771.67	771.76	771.88	772.06	772.23	772.37	772.50	772.56	772.60	772.68	772.75	772.79	772.81	772.81	772.81	772.79	772.75
GIRDER 3	Δ T	.000	.091	.166	.213	.227	.208	.163	.105	.096	.050	.013	.000	.032	.099	.134	.180	.244	.268	.243	.176	.141	.096	.030	.000	.026	.087	.121	.164	.227	.251	.227	.164	.121	.087	.026	.000
	Δ C	.000	.055	.100	.128	.135	.123	.096	.061	.054	.027	.007	.000	.014	.049	.077	.098	.136	.150	.135	.097	.077	.048	.013	.000	.012	.045	.072	.092	.129	.143	.129	.092	.072	.045	.012	.000
DECK ELEVATION GIRDER 4	FLANGE 'C'	768.27	768.44	768.61	768.78	768.94	769.11	769.28	769.45	769.47	769.61	769.78	769.95	770.17	770.39	770.51	770.60	770.82	771.04	771.26	771.47	771.56	771.68	771.86	772.03	772.17	772.30	772.36	772.40	772.48	772.55	772.59	772.61	772.61	772.61	772.59	772.55
	FLANGE 'D'	768.07	768.24	768.41	768.58	768.74	768.91	769.08	769.25	769.27	769.41	769.58	769.75	769.97	770.19	770.31	770.40	770.62	770.84	771.06	771.27	771.36	771.48	771.66	771.83	771.97	772.10	772.16	772.20	772.28	772.35	772.39	772.41	772.41	772.41	772.39	772.35
GIRDER 4	Δ T	.000	.091	.166	.213	.227	.208	.163	.105	.096	.050	.013	.000	.032	.099	.134	.180	.244	.268	.243	.176	.141	.096	.030	.000	.026	.087	.121	.164	.227	.251	.227	.164	.121	.087	.026	.001
	Δ C	.000	.055	.100	.128	.135	.123	.096	.061	.054	.027	.007	.000	.014	.049	.077	.098	.136	.150	.135	.097	.077	.048	.013	.000	.012	.045	.072	.092	.129	.143	.129	.092	.072	.045	.012	.000

Notes :

1. Dead load deflections are shown in decimals of a foot.
   ΔT denotes total deflection due to concrete, structural steel, & utilities.
   ΔC denotes deflection due to concrete only.
2. (6) Number of equal stiffener spaces per panel.
3. The location of welds connecting stiffener and gusset plates to flanges shall be as shown on the "Girder Elevation."
4. Camber to be 1.3 x ΔT.
5. North Bridge
   a) Deck elevation = South Bridge Deck elevation + 0.075 feet
   b) ΔT & ΔC = South Bridge Deck ΔT & AC

NO	REVISIONS	DATE	BY
2	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25/Mar/77

		DATE			DATE
DRAWN BY	J.T.K.	NOV. 76	DESIGN	S.T.K.	NOV. 76
PRELIM. CHK	S.T.K.	JAN. 77	CHECK	D.L.M.	JAN. 77

ROUTE 165

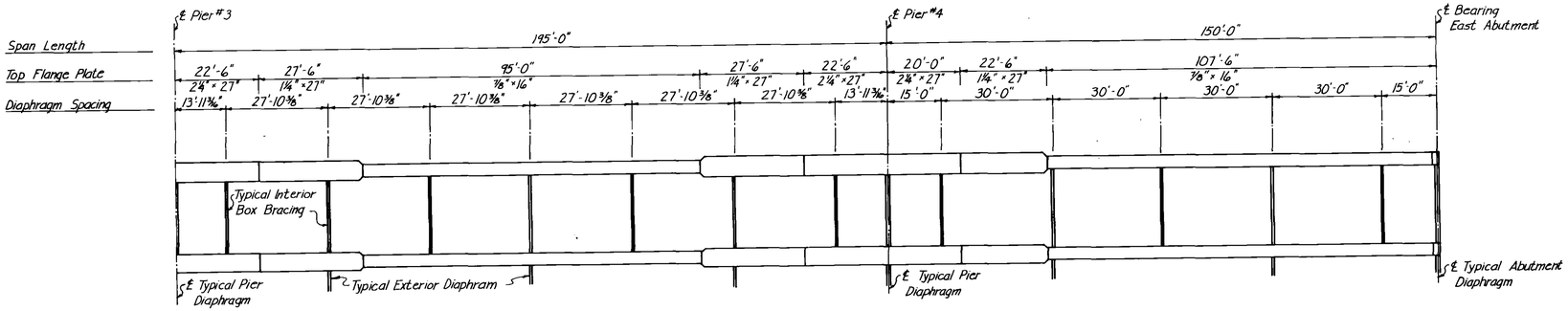
TYPICAL GIRDER DETAILS

SCALE: AS SHOWN

APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC — 25/3/77 DATE

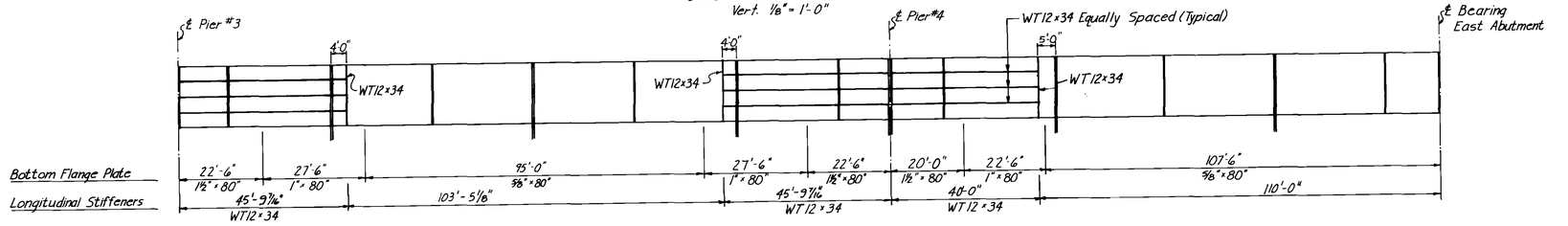
DRAWING NO. B-5092-222

W.L.W. NO. 74012-21



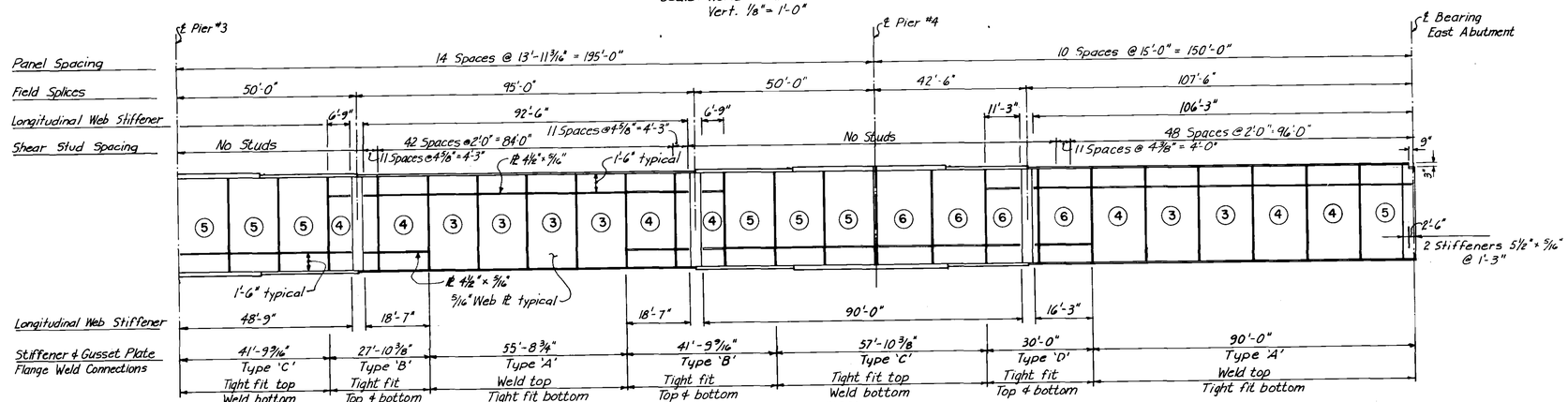
TOP FLANGE – PLAN VIEW

Scale: Horiz. 1" = 20'-0"
Vert. ⅛" = 1'-0"



BOTTOM FLANGE – PLAN VIEW

Scale: Horiz. 1" = 20'-0"
Vert. ⅛" = 1'-0"



GIRDER ELEVATION

Scale: Horiz. 1" = 20'-0"
Vert. ⅜" = 1'-0"

SOUTH BRIDGE DECK ELEVATIONS AND DEAD LOAD DEFLECTIONS (FOR DECK ELEVATIONS SEE ELEVATION CHARTS 1-8)

LOCATION		PIER 3	.1	.2	SPLICE	.3	.4	.5	.6	.7	SPLICE	.8	.9	PIER 4	.1	.2	SPLICE	.3	.4	.5	.6	.7	.8	.9	E. ABUT.
DECK ELEVATION GIRDER 3	FLANGE 'A'	772.95	772.89	772.81	772.76	772.71	772.62	772.52	772.42	772.32	772.29	772.23	772.13	772.03	771.96	771.88	771.82	771.81	771.73	771.66	771.58	771.51	771.43	771.36	771.28
	FLANGE 'B'	772.75	772.69	772.61	772.56	772.51	772.42	772.32	772.22	772.12	772.09	772.03	771.93	771.83	771.76	771.68	771.62	771.61	771.53	771.46	771.38	771.31	771.23	771.16	771.08
GIRDER 3	Δ T	.000	.030	.096	.141	.176	.243	.268	.244	.180	.134	.099	.032	.000	.013	.050	.096	.105	.163	.208	.227	.213	.166	.091	.000
	Δ C	.000	.013	.048	.077	.097	.135	.150	.136	.098	.077	.049	.014	.000	.007	.027	.054	.061	.096	.123	.135	.128	.100	.055	.000
DECK ELEVATION GIRDER 4	FLANGE 'C'	772.55	772.49	772.41	772.36	772.31	772.22	772.12	772.02	771.92	771.89	771.83	771.73	771.63	771.56	771.48	771.42	771.41	771.33	771.26	771.18	771.11	771.03	770.96	770.88
	FLANGE 'D'	772.35	772.29	772.21	772.16	772.11	772.02	771.92	771.82	771.72	771.69	771.63	771.53	771.43	771.36	771.28	771.22	771.21	771.13	771.06	770.98	770.91	770.83	770.76	770.68
GIRDER 4	Δ T	.000	.030	.096	.141	.176	.243	.268	.244	.180	.134	.099	.032	.000	.013	.050	.096	.105	.163	.208	.227	.213	.166	.091	.000
	Δ C	.000	.013	.048	.077	.097	.135	.150	.136	.098	.077	.049	.014	.000	.007	.027	.054	.061	.096	.123	.135	.128	.100	.055	.000

Notes:

1.) Dead load deflections are shown in decimals of a foot.
ΔT denotes total deflection due to concrete, structural steel, & utilities.
ΔC denotes deflection due to concrete only.

2.) (6) - Number of equal stiffener spaces per panel.

3.) The location of welds connecting stiffener & gusset plates to flanges shall be as shown on the "Girder Elevation."

4.) Camber to be 1.3 × ΔT.

5.) North Bridge
a.) Deck elevation = South Bridge Deck elevation + 0.075 feet.
b.) ΔT & ΔC = South Bridge Deck ΔT & ΔC

AS – BUILT

DATE	F.B. NO.	PAGE
Nov. 16/79		

NO	REVISIONS	DATE	BY
		4-4-77	

PROVINCE OF MANITOBA
D. L. MILLS
REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 Mar 77

DRAWN BY J.T.K. DATE NOV. 76
PRELIM. CHK. S.T.K. DATE JAN. 77
DESIGN S.T.K. DATE NOV. 76
CHECK D.L.M. DATE JAN. 77

ROUTE 165

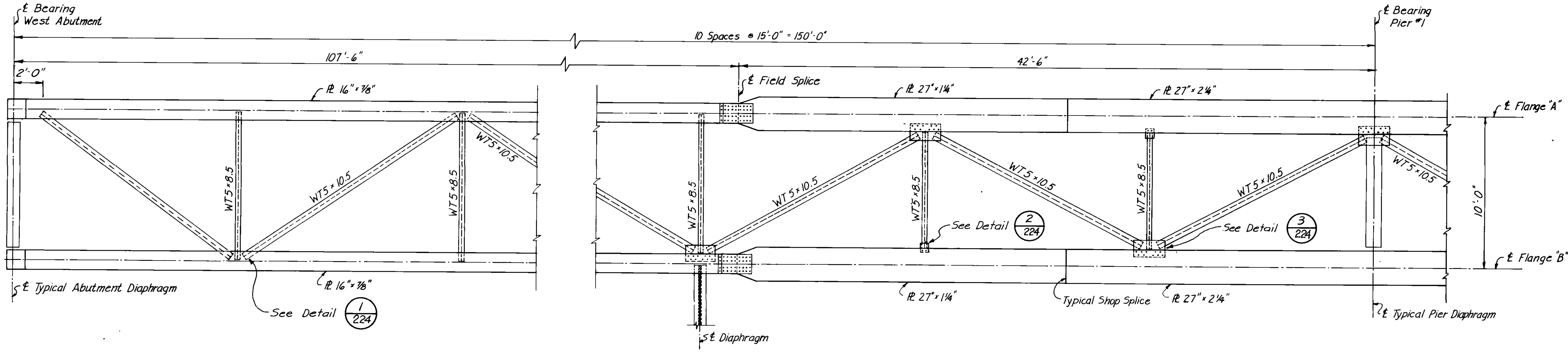
TYPICAL GIRDER DETAILS

SCALE: AS SHOWN

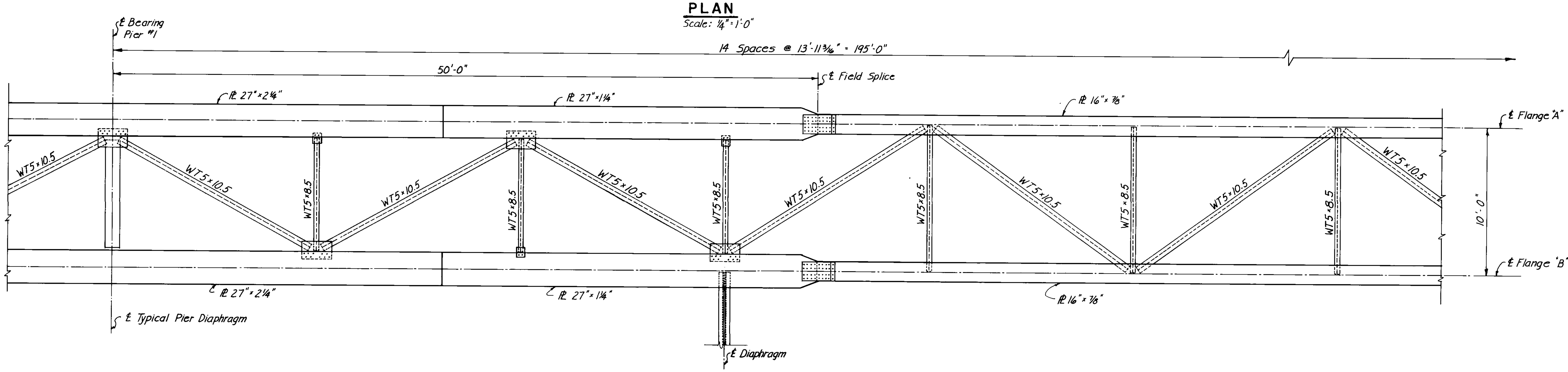
APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC 22/2/22 DATE

DRAWING NO. B-5092-223

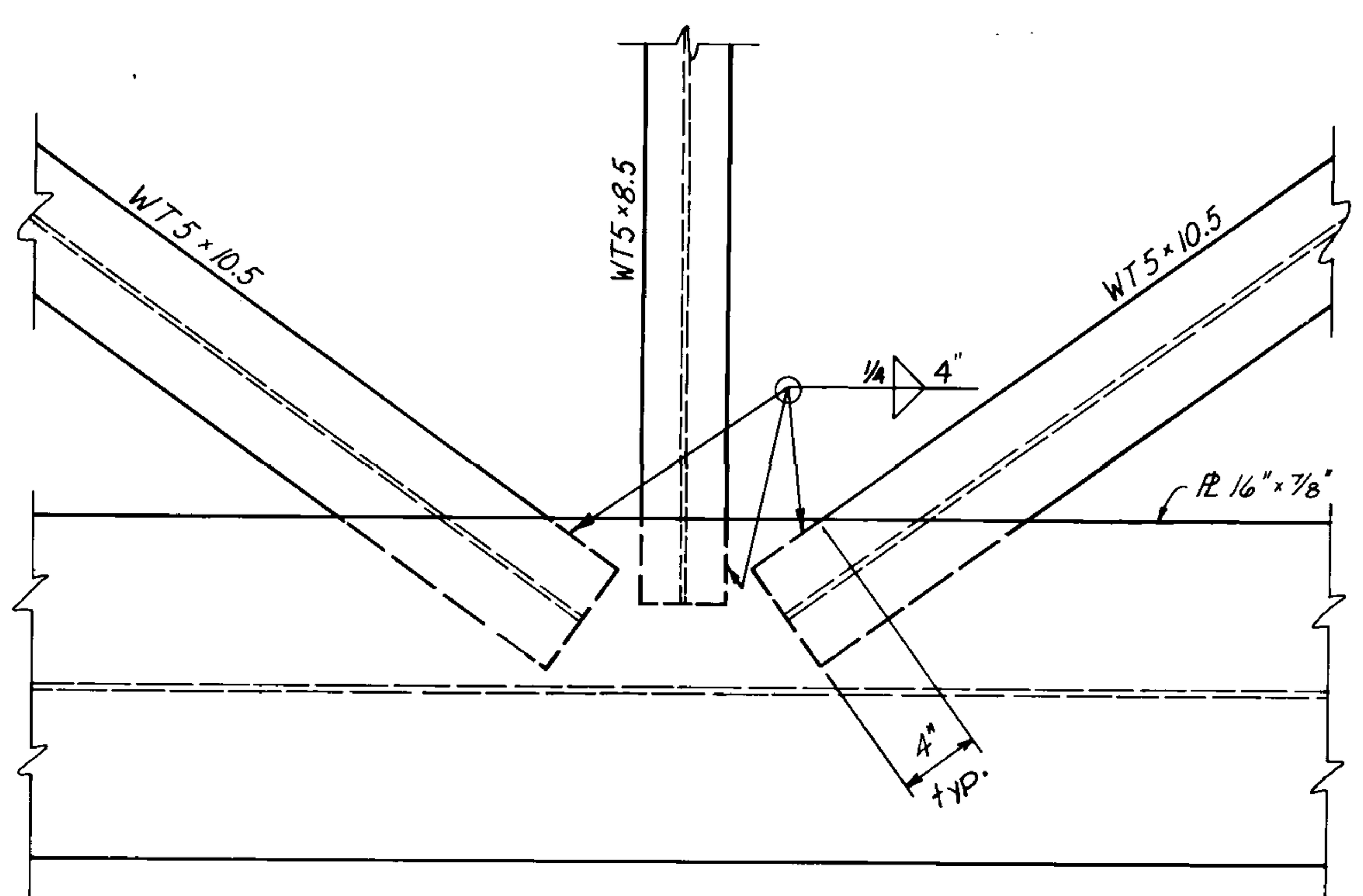
W.L.W. NO. 74012-21



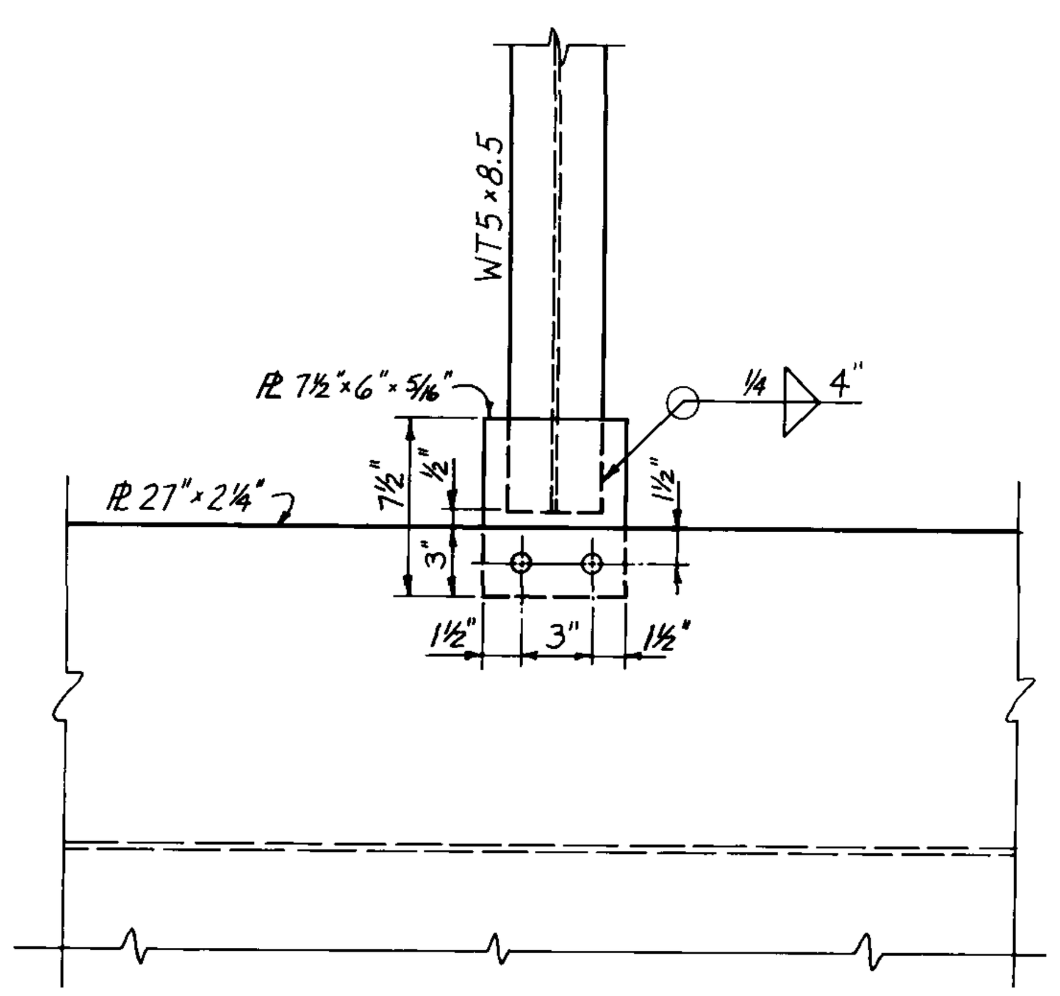
PLAN
Scale: ¼" = 1'-0"



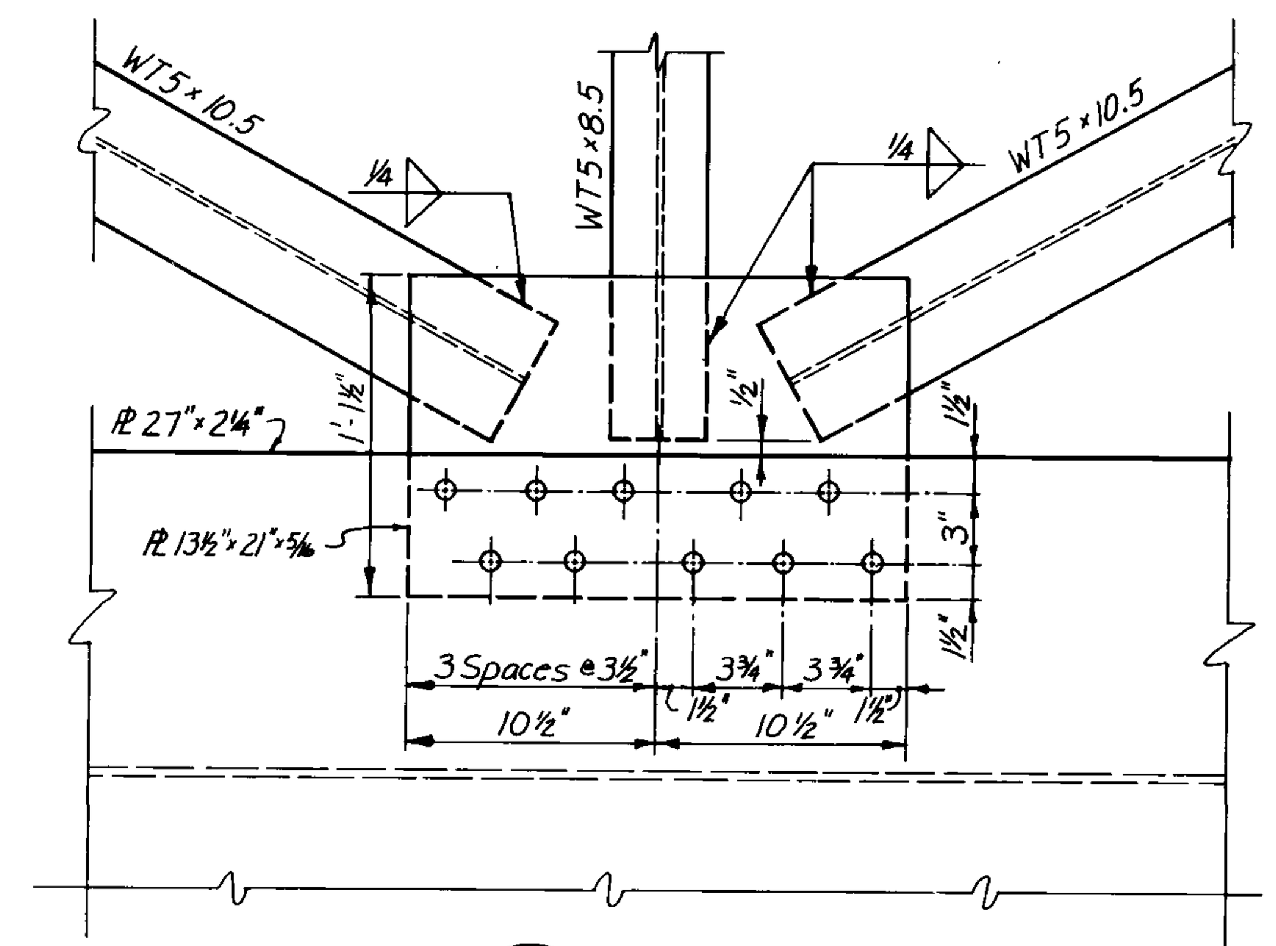
PLAN
Scale: ¼" = 1'-0"



1/224 **DETAIL**
Scale 1½" = 1'-0"



2/224 **DETAIL**
Scale 1½" = 1'-0"



3/224 **DETAIL**
Scale 1½" = 1'-0"

AS-BUILT		
DATE	FB NO	PAGE
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PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

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APPROVED BY: [signature] DATE 25 Mar/77

DRAWN BY J.T.K. DATE DEC '76 — DESIGN S.T.K. DATE DEC '76
PRELIM. CHK. S.T.K. JAN '76 — CHECK D.L.M. JAN '76

ROUTE 165

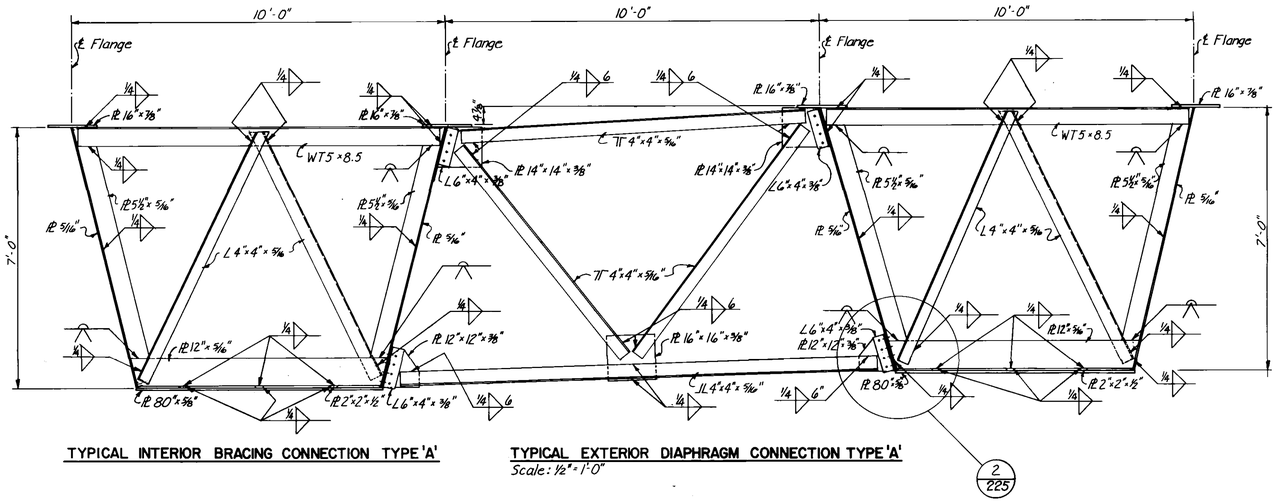
TOP LATERAL BRACING

APPROVED BY: [signature] 25/3/22
MANAGER OF STREETS AND TRAFFIC — DATE

SCALE: AS SHOWN

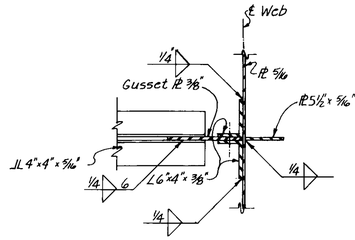
DRAWING NO. B-5092-224

W.L.W. NO. 74012-21

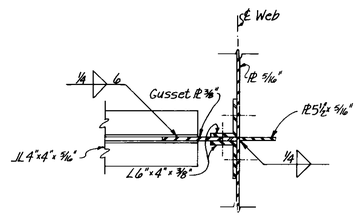


TYPICAL INTERIOR BRACING CONNECTION TYPE 'A'

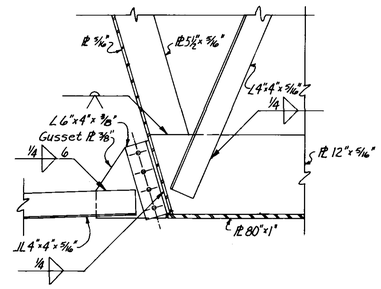
TYPICAL EXTERIOR DIAPHRAGM CONNECTION TYPE 'A'
Scale: ½"=1'-0"



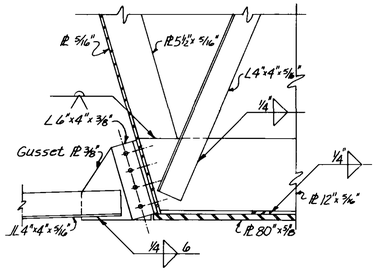
TYPICAL GUSSET CONNECTION TYPE 'A'



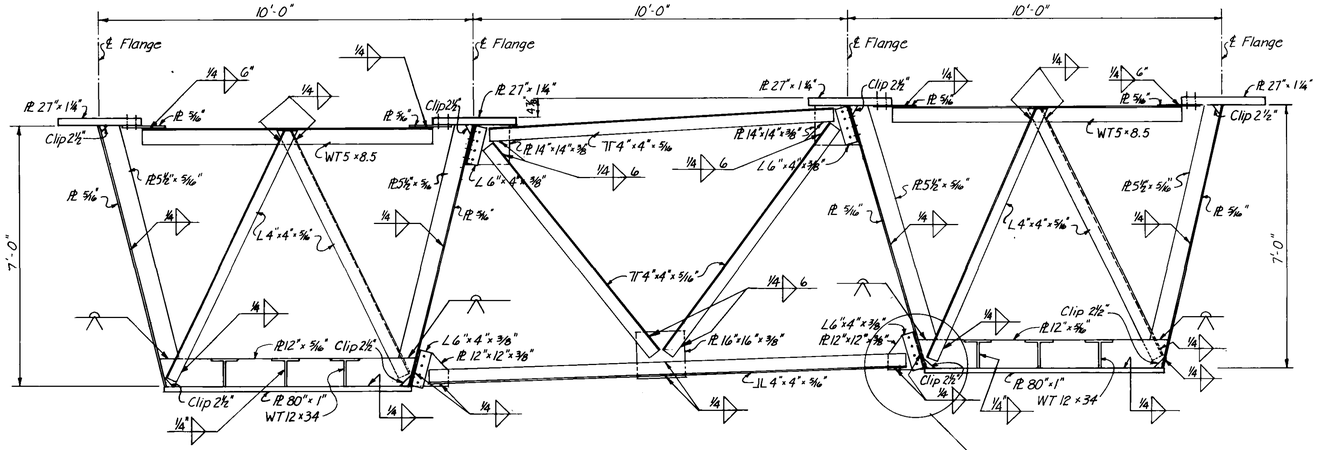
TYPICAL GUSSET CONNECTION TYPE 'B'



1/225 DETAIL
Scale: 1"=1'-0"



2/225 DETAIL
Scale: 1"=1'-0"



TYPICAL INTERIOR BRACING CONNECTION TYPE 'B'

TYPICAL EXTERIOR DIAPHRAGM CONNECTION TYPE 'B'
Scale: ½"=1'-0"

1/225

AS – BUILT

DATE	F.B. NO.	PAGE
Nov. 14/22		

NO.	REVISIONS	DATE	BY
	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — D. L. MILLS — Jan 24/77 — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: D.L.M. DATE 25 Jan 77

		DATE			DATE
DRAWN BY	J.T.K.	JAN.77	DESIGN	S.T.K.	JAN.77
PRELIM. CHK.	S.T.K.	JAN.77	CHECK	D.L.M.	JAN.77

ROUTE 165

DIAPHRAGM DETAILS

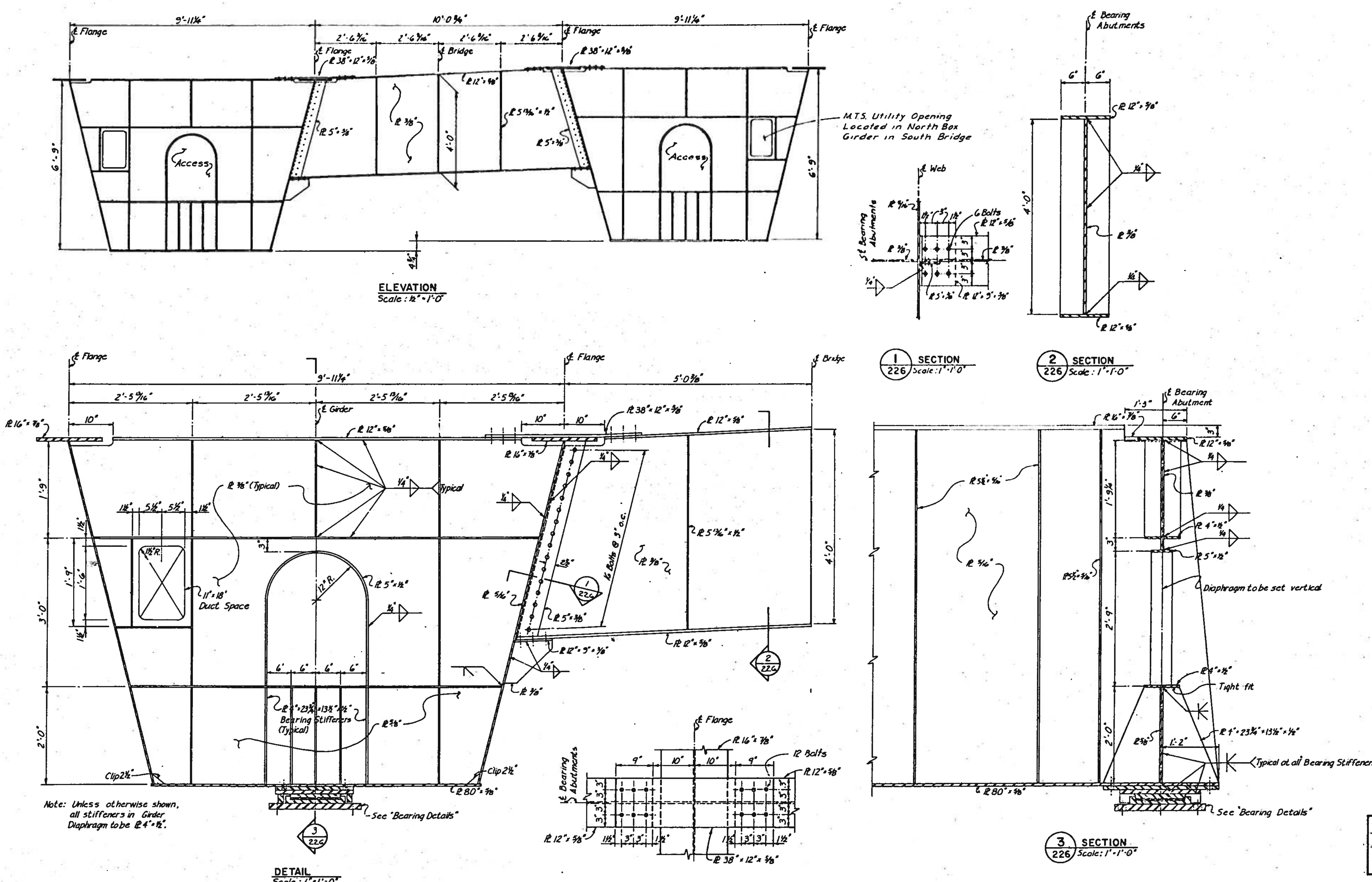
APPROVED BY: Darrell R. Campbell — MANAGER OF STREETS AND TRAFFIC — 25/2/22 DATE

SCALE: AS SHOWN

DRAWING NO. B-5092-225

W.L.W. NO. 74012-21

Ref. or Drawing No. B-5092-226 Rev. 0
Details 74012-21



AS - BUILT		
DATE	F.B. NO.	PAGE
Nov. 11/77		

0	ISSUED FOR TENDER	4-4-77	
NO.	REVISIONS	DATE	BY

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
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APPROVED BY: DATE 25 Jan/77
DRAWN BY J.T.K. DATE DEC. 76 — DESIGN S.T.K. DATE DEC. 76
PRELIM. CHK. S.T.K. JAN. 77 — CHECK D.L.M. JAN. 77

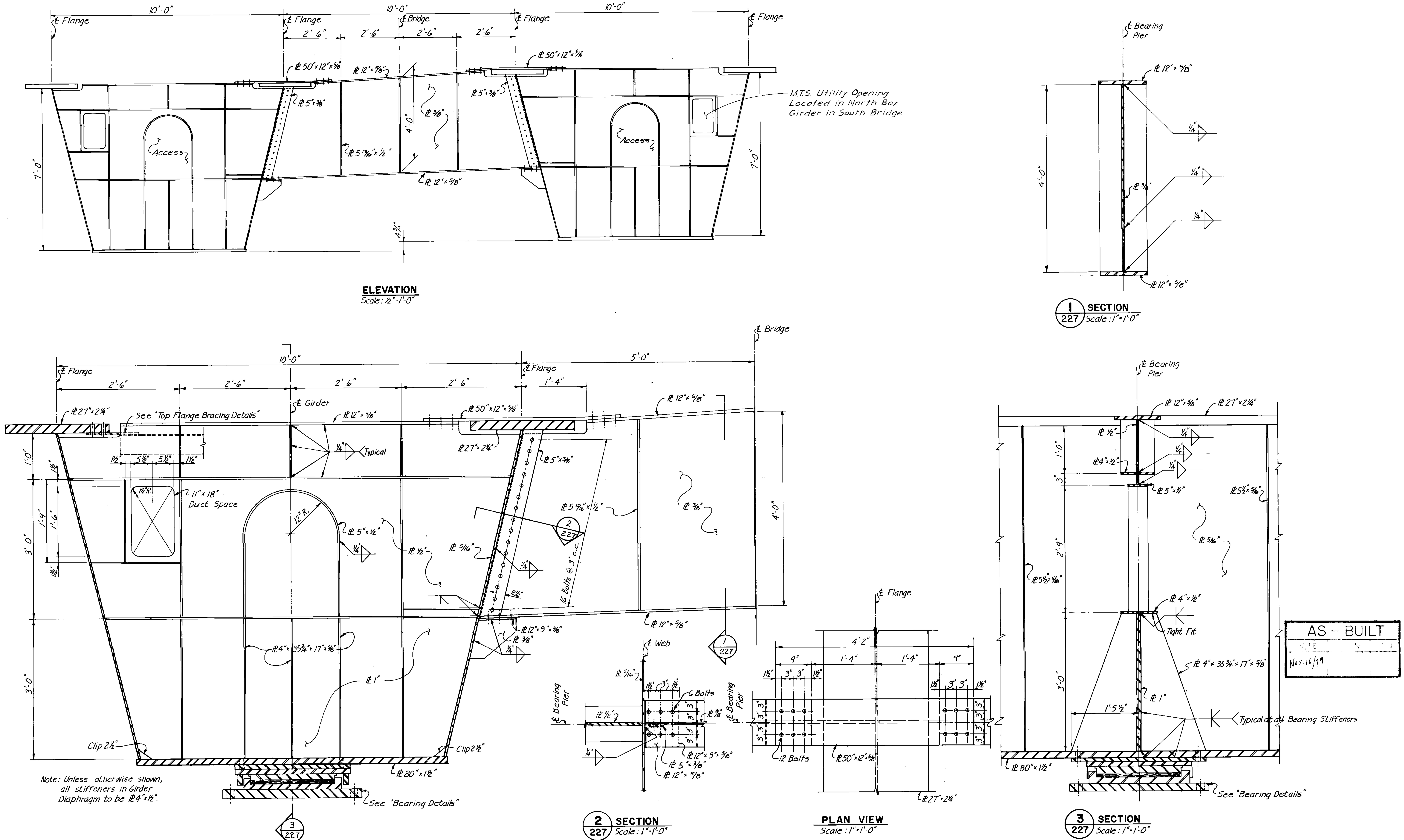
ROUTE 165

ABUTMENT DIAPHRAGM DETAILS

APPROVED BY: 25/3/77
MANAGER OF STREETS AND TRAFFIC

SCALE: AS SHOWN
DRAWING NO. B-5092-226

WLW NO. 74012-21



DETAIL
Scale: 1" = 1'-0"

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA REGISTERED ENGINEER D. L. MILLS

THE CITY OF WINNIPEG
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PRELIM. CHK. S.T.K. JAN.77 — CHECK D.L.M. JAN.77

ROUTE 165

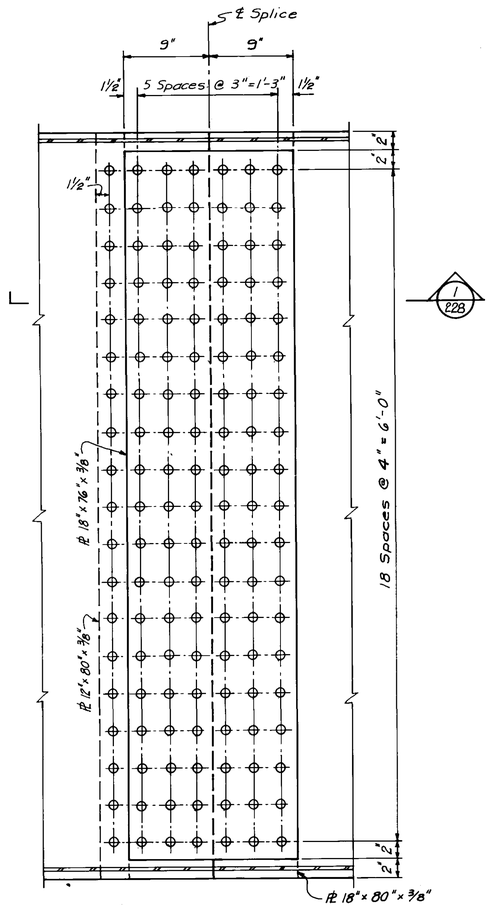
PIER DIAPHRAGM DETAILS

APPROVED BY: MANAGER OF STREETS AND TRAFFIC 25/3/22 DATE

SCALE: AS SHOWN

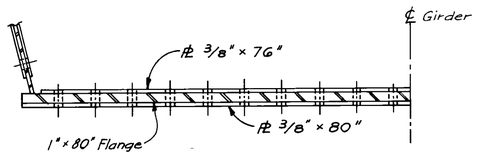
DRAWING NO. B-5092-227

W.L.W. NO. 74012-21

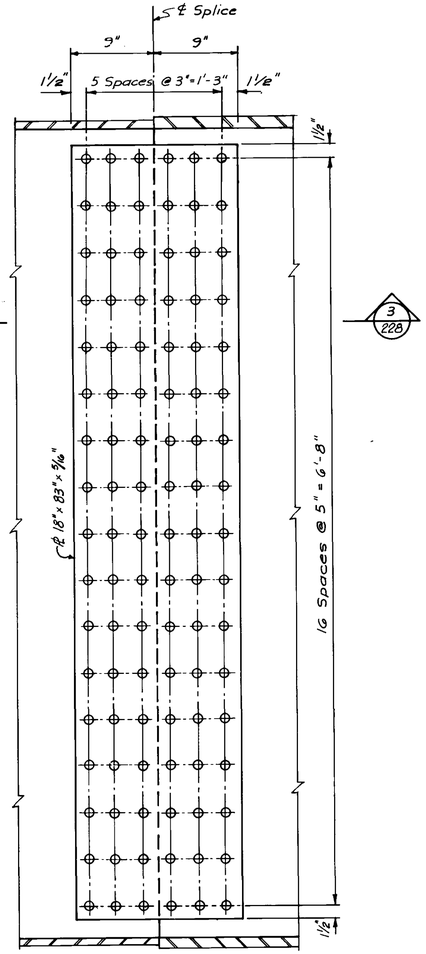


BOTTOM FLANGE SPLICE

1/228 SECTION

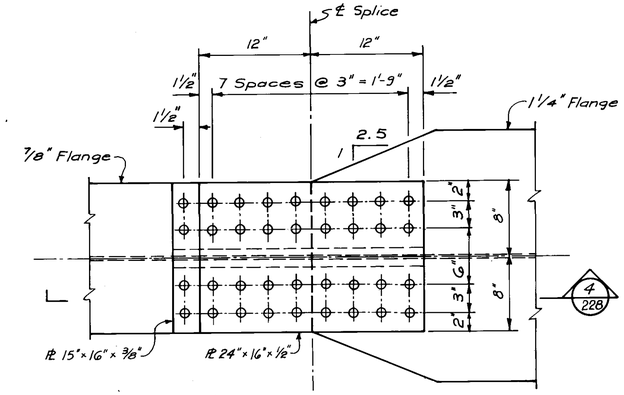


2/228 DETAIL



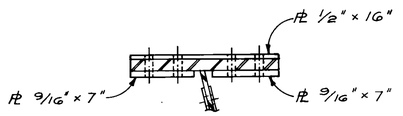
WEB SPLICE

3/228 SECTION

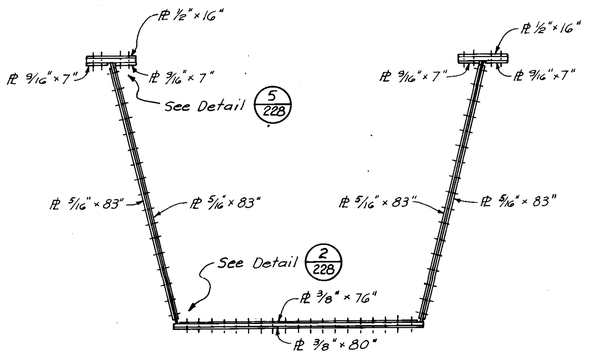


TOP FLANGE SPLICE

4/228 SECTION



5/228 DETAIL



BOX GIRDER SECTION
Scale ½" = 1'-0"

Notes:
1. All bolts shall be ⅞" ϕ ASTM A325 type 3 high strength bolts in 15/16" ϕ holes.
2. Bolts shall be installed with the heads to the outside of web and to bottom of flanges.

AS-BUILT

DATE	FB NO	PAGE
Nov. 14/77		

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2	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
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W. L. WARDROP & ASSOCIATES LTD.
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		DATE			DATE
APPROVED BY:		DATE 25 Nov 77			
DRAWN BY	ST	JAN 77	DESIGN	STK	DEC 76
PRELIM. CHK	STK	JAN 77	CHECK	DLM	JAN 77

ROUTE 165

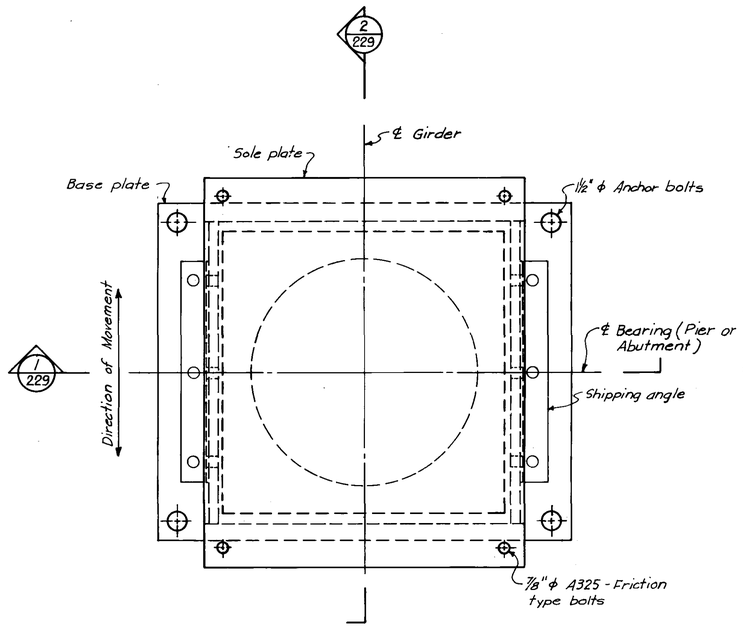
FIELD SPLICES

SCALE: 1½" = 1'-0"

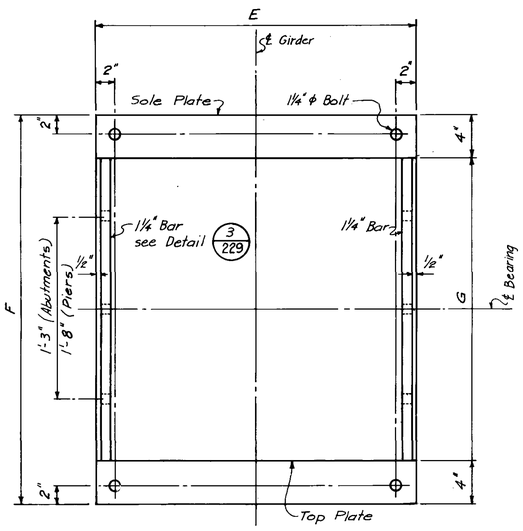
APPROVED BY: Donald R. Campbell — MANAGER OF STREETS AND TRAFFIC — 25/11/77 DATE

DRAWING NO. B-5092-228

W.L.W. NO. 74012-21

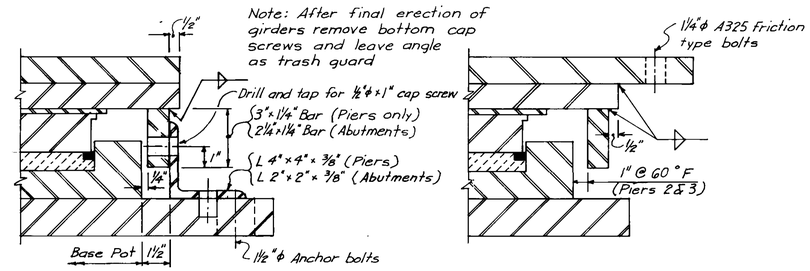


PLAN



TOP PLATE ASSEMBLY
PIERS 1, 4 AND ABUTMENTS (EXPANSION)

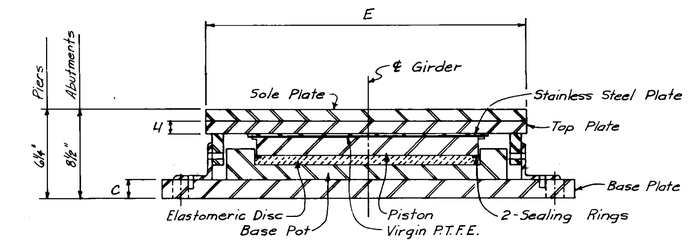
TABLE OF BEARING DETAILS														
TYPE	LOCATION	BASE PLATE			BASE POT		TOP PLATE			SOLE PLATE				LOAD CAPACITY (KIPS)	TOTAL NUMBER REQUIRED
		A	B	C	D	I.D.	E	G	H	E	F	J_1	J_2		
B1	WEST ABUTMENT	1'-10"	1'-10"	1½"	1'-2½"	1'-0"	1'-6½"	1'-8"	1"	1'-6½"	2'-4"	27/32"	1 5/32"	400	4
B2	PIER NO. 1	3'-0"	3'-0"	2"	2'-1¾"	1'-9¾"	2'-5¾"	2'-2¾"	1⅛"	2'-5¾"	2'-10¾"	13/16"	1 3/16"	1300	4
B3	PIER NO. 2	3'-0"	3'-0"	2"	2'-1¾"	1'-9¾"	2'-5¾"	2'-7½"	1⅛"	2'-5¾"	3'-3¼"	13/16"	1 3/16"	1300	4
B3	PIER NO. 3	3'-0"	3'-0"	2"	2'-1¾"	1'-9¾"	2'-5¾"	2'-7¼"	1⅛"	2'-5¾"	3'-3¼"	1"	1"	1300	4
B2	PIER NO. 4	3'-0"	3'-0"	2"	2'-1¾"	1'-9¾"	2'-5¾"	2'-2¾"	1⅛"	2'-5¾"	2'-10¾"	1"	1"	1300	4
B1	EAST ABUTMENT	1'-10"	1'-10"	1½"	1'-2½"	1'-0"	1'-6½"	1'-8"	1"	1'-6½"	2'-4"	27/32"	1 5/32"	400	4



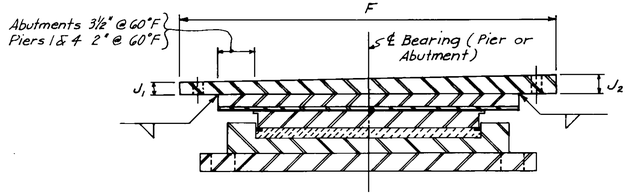
3/229 DETAIL

4/229 SECTION

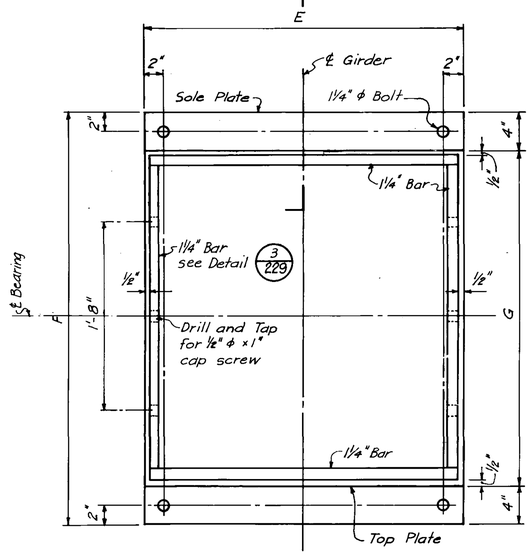
AS - BUILT		
DATE	FB. NO.	PAGE
Nov. 16/79		



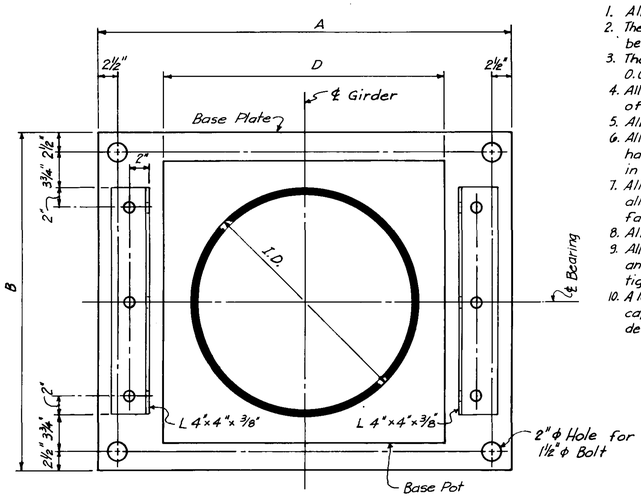
1/229 SECTION



2/229 SECTION



TOP PLATE ASSEMBLY
PIERS 2 AND 3 (FIXED)



PLAN OF BOTTOM PLATE ASSEMBLY

Notes:

1. All steel in the bearings shall conform to C.S.A. G 40.21 - 38W.
2. The minimum compressive strength of the elastomeric disc shall be 3500 psi.
3. The minimum rotation capacity of the elastomeric disc shall be 0.01 radians.
4. All expansion and contraction movements are given for a setting of 60° F (15.6° C).
5. All bolt holes shall be made with a steel template.
6. All bearing surfaces shall be milled. Surface roughness shall have a roughness height rating not exceeding 250 as defined in C.S.A. Standard B.95.
7. All bearing surfaces shall be straight within the tolerances allowed by C.S.A. Standard G 40.1 and shall be measured after fabrication and also prior to erection.
8. All plates shall be galvanized in accordance with A.S.T.M. A123.
9. All bearings shall be secured to the pier by a single nut anchor bolt system. After adjustment the nut shall be tightened and set.
10. A lead sheet plate ⅛" thick shall be placed on the pier and abutment caps and shall over hang the piers by 1'-0" to act as rust deflectors.

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: ..... DATE 25 MAR 77

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PRELIM. CHK	STK	JAN. 77	CHECK	DLM	JAN. 77

ROUTE 165

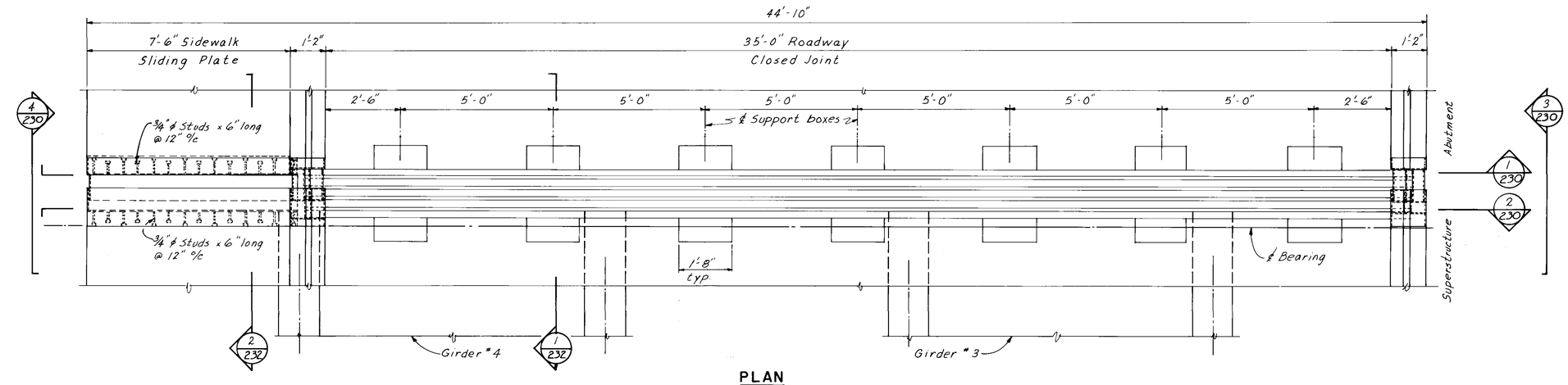
BEARING DETAILS

SCALE: NONE

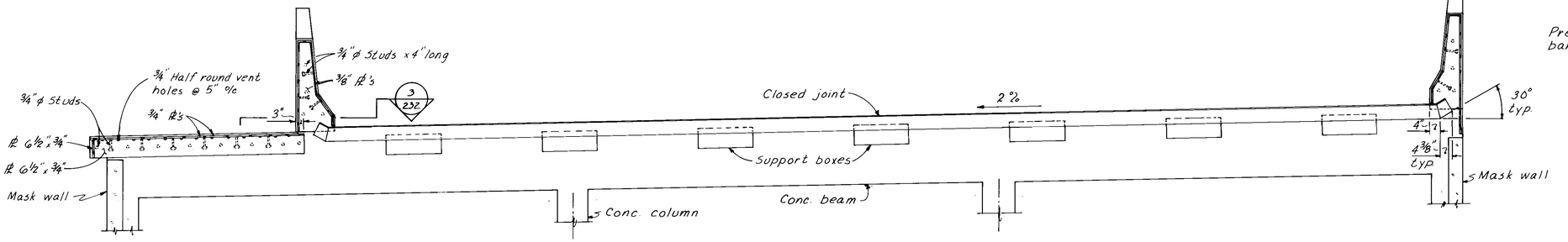
APPROVED BY: ..... MANAGER OF STREETS AND TRAFFIC ..... 25/3/77 DATE

DRAWING NO. B-5092-229

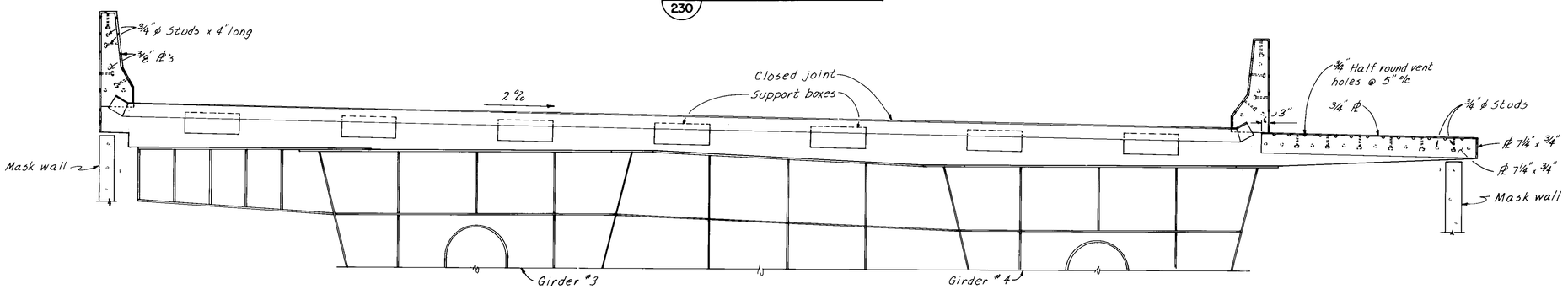
W.L.W. NO. 74012-21



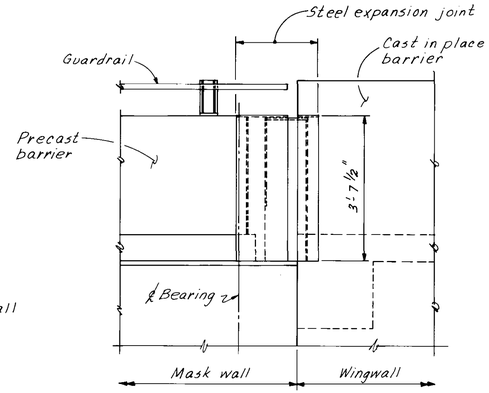
PLAN



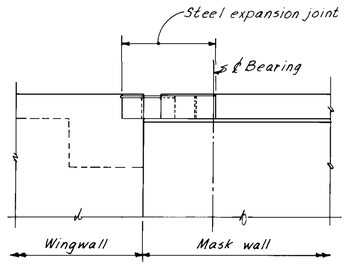
1/230 ELEVATION - ABUTMENT



2/230 ELEVATION - SUPERSTRUCTURE



3/230 ELEVATION - BARRIER CURB



4/230 ELEVATION - SLIDING PLATE

Notes:

1. Roadway expansion joint shall be similiar to the modified Elastmetal Limited Wabo Maurer D-1040 and shall be designed for an HS25 loading and an impact of 60 %.
2. Expansion joint manufacturer shall assist in the supervision of installation.
3. Expansion joint to be made to grade and elevation of bridge deck.
4. Expansion joint to be completely shop assembled in one length.
5. All steel shall be in accordance with CSA specification G40.21 44W or equal.
6. Neoprene seal to the requirements of MTC form 1310.
7. All exposed surfaces of steel to be zinc metallized in accordance to CSA specification G-188 (5 mils thick) after fabrication.
8. Steel extrusion to be in accordance with ASTM specification A-242.
9. Welding to be in accordance with CSA W59.

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PRELIM. CHK		MAY.77	CHECK DATE

ROUTE 165

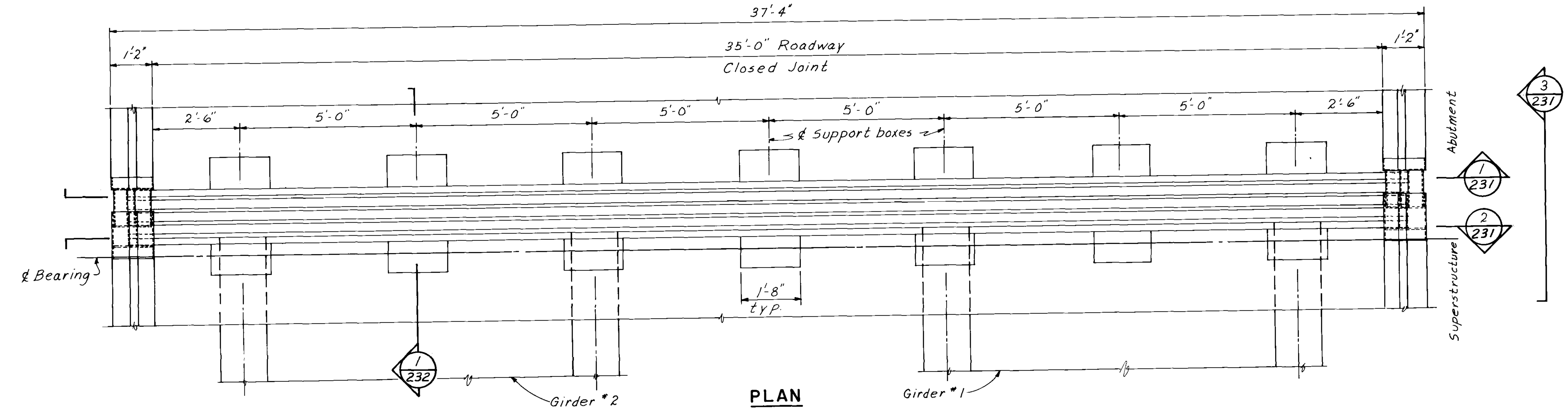
SOUTH BRIDGE
EXPANSION JOINT LAYOUT

SCALE: 1/2" = 1'-0"

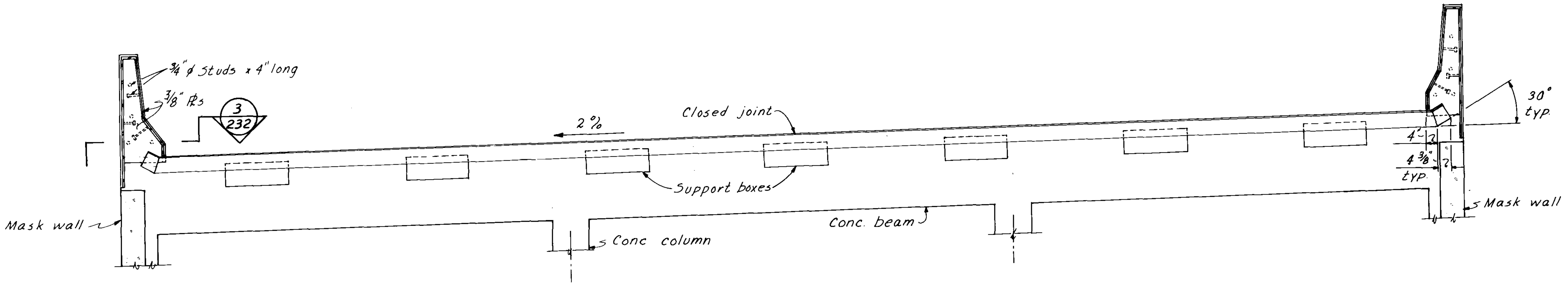
APPROVED BY: ... MANAGER OF STREETS AND TRAFFIC — DATE 25/3/22

DRAWING NO. B-5092-230

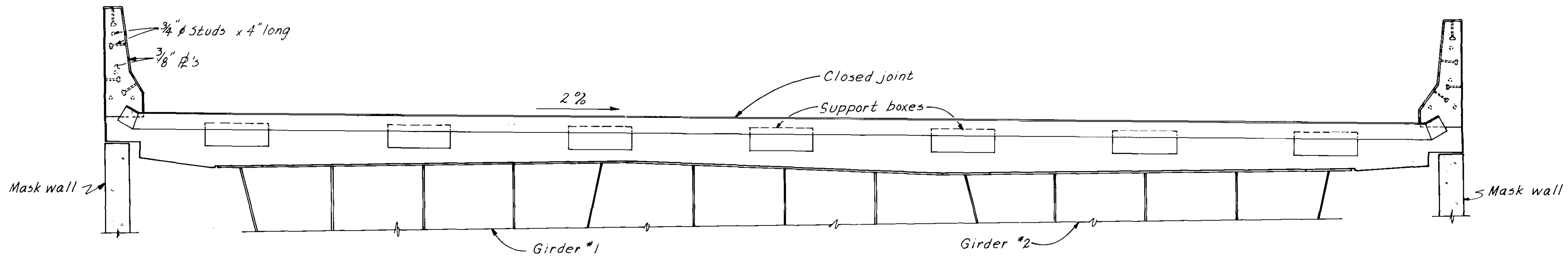
W.L.W. NO. 74012-21



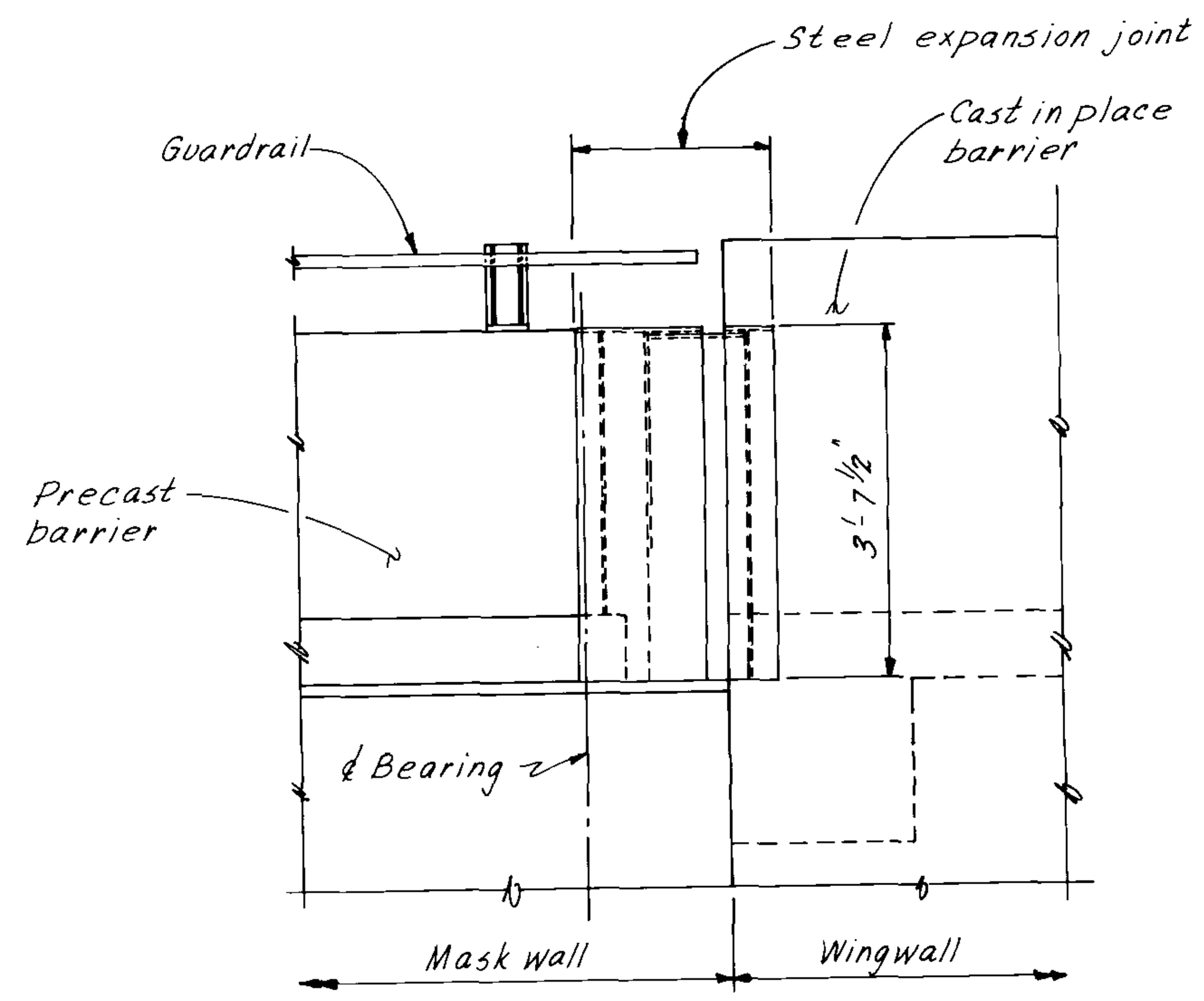
PLAN



1/231 ELEVATION - ABUTMENT



2/231 ELEVATION - SUPERSTRUCTURE



3/231 ELEVATION - BARRIER CURB

AS BUILT
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DRAWN BY LMG MAR. 77
PRELIM. CHK. [initials] Mar. 77
DESIGN STK FEB. 77
CHECK [initials] Mar/77

ROUTE 165

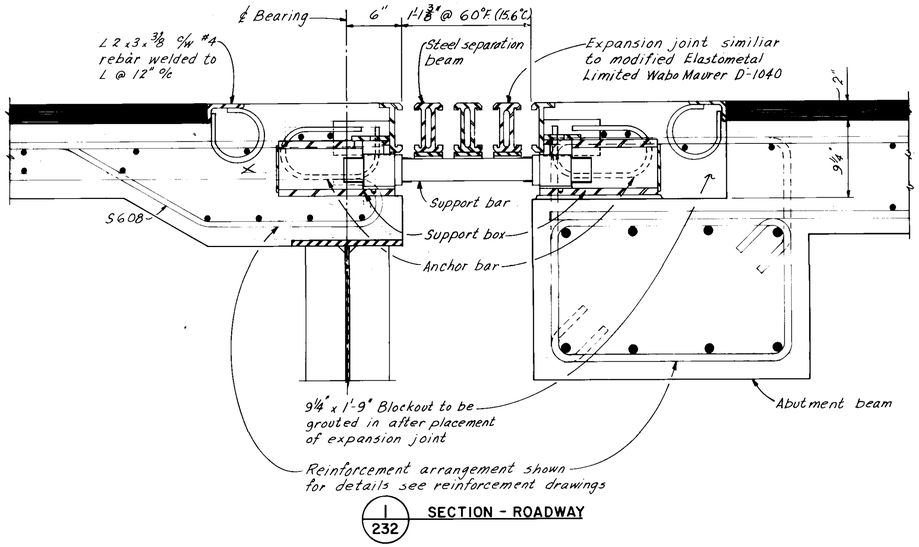
NORTH BRIDGE
EXPANSION JOINT LAYOUT

APPROVED BY: [signature] 25/3/77
MANAGER OF STREETS AND TRAFFIC — DATE

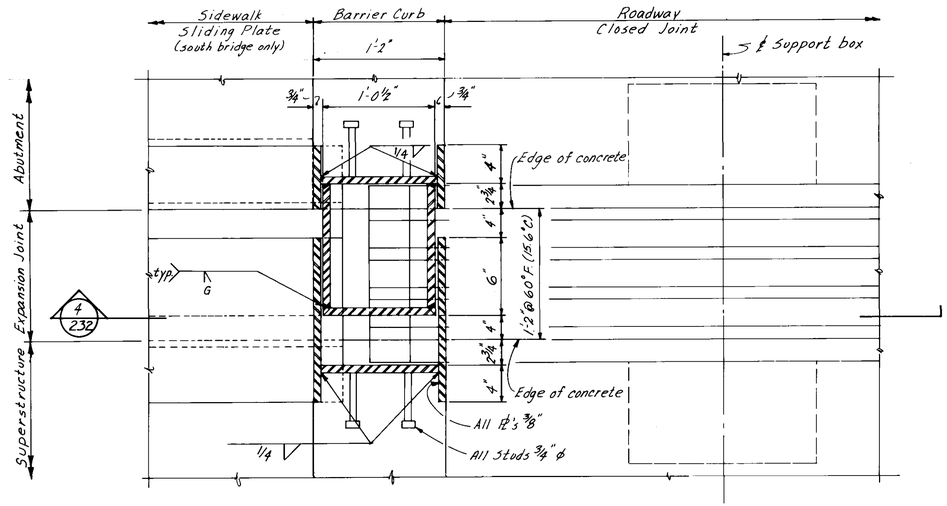
SCALE: 1/2" = 1'-0"

DRAWING NO. B-5092-231

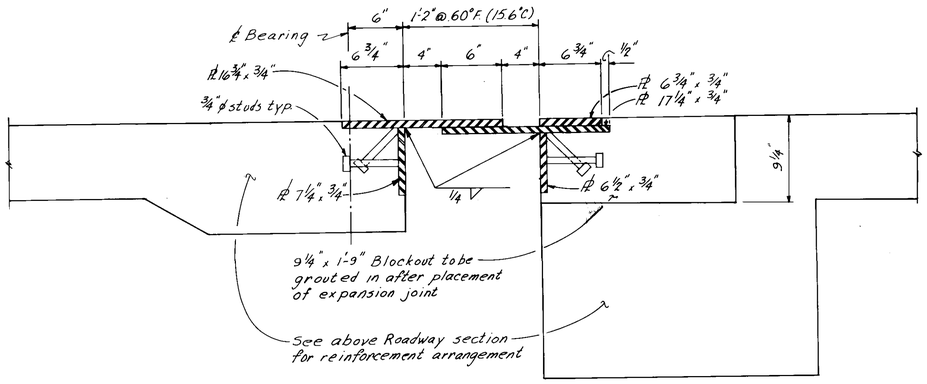
W.L.W. NO. 74012-21



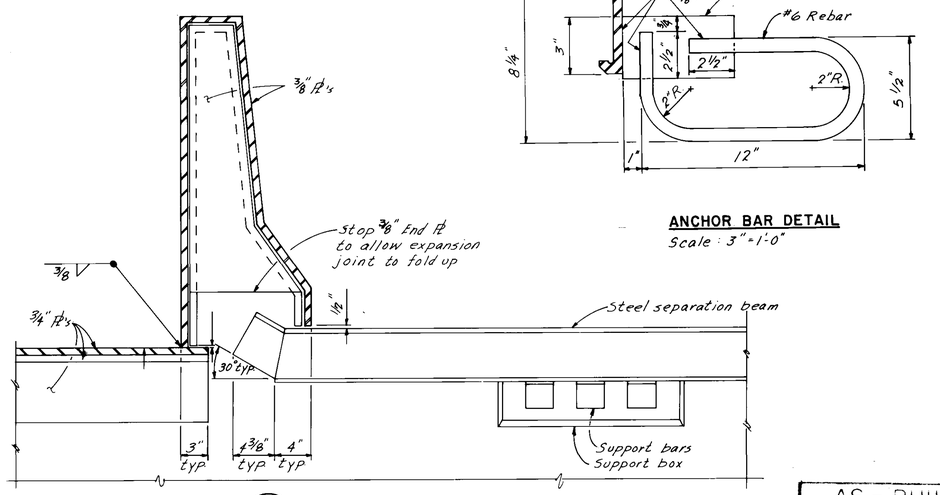
1/232 SECTION - ROADWAY



3/232 PLAN SECTION - BARRIER CURB



2/232 SECTION - SIDEWALK



4/232 SECTION

ANCHOR BAR DETAIL
Scale : 3" = 1'-0"

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ROUTE 165

EXPANSION JOINT DETAILS

SCALE: 1 1/2" = 1'-0"

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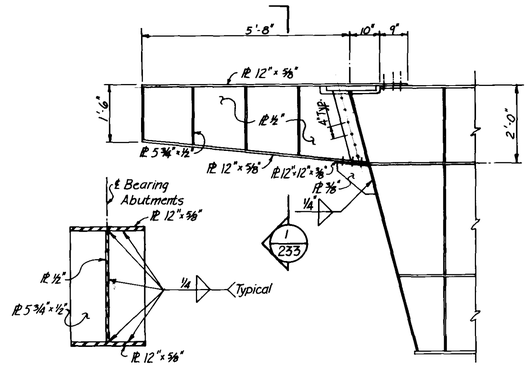
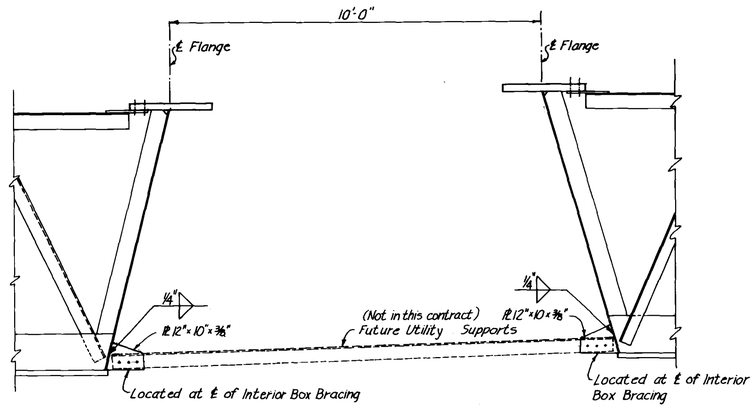


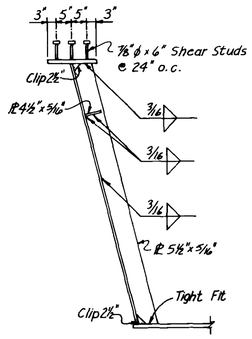
1/233 SECTION
Scale: 1"=1'-0"

PARTIAL ELEVATION
Scale: 1/2"=1'-0"



UTILITY SUPPORT DETAIL
Scale: 1/2"=1'-0"

EXPANSION JOINT BEAM CANTILEVER DETAILS



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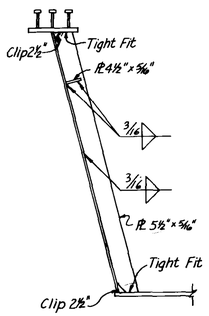

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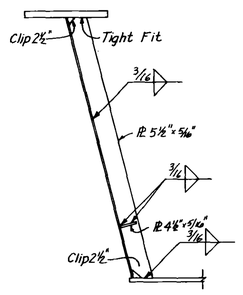

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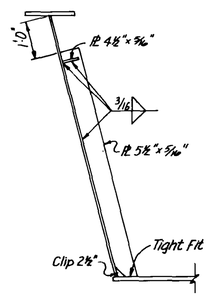

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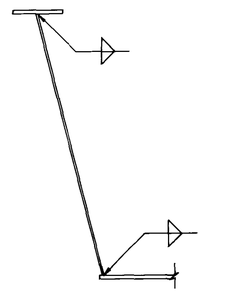
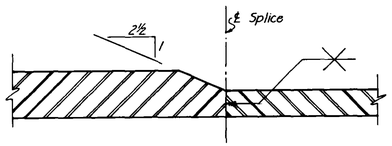
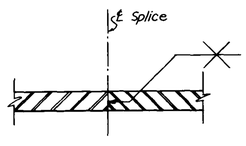


FLANGE TO WEB WELDS

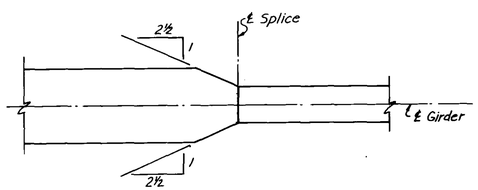
TYPICAL STIFFENER WELDS



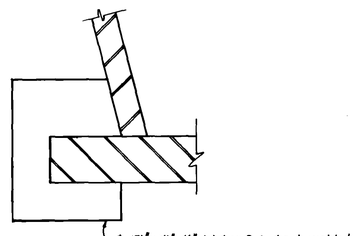
WELDED FLANGE SPLICE



WELDED WEB SPLICE



FLANGE TAPER DETAIL



WATER DRIP DETAIL
Scale: full size

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APPROVED BY: ____ DATE 25 March 77

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J.T.K.	JAN.77	S.T.K.	JAN.77
PRELIM. CHK. S.T.K.	JAN.77	CHECK D.L.M.	JAN.77

ROUTE 165

MISCELLANEOUS STEEL DETAILS

SCALE: AS SHOWN

APPROVED BY: Harold R. Campbell 25/2/22
MANAGER OF STREETS AND TRAFFIC DATE

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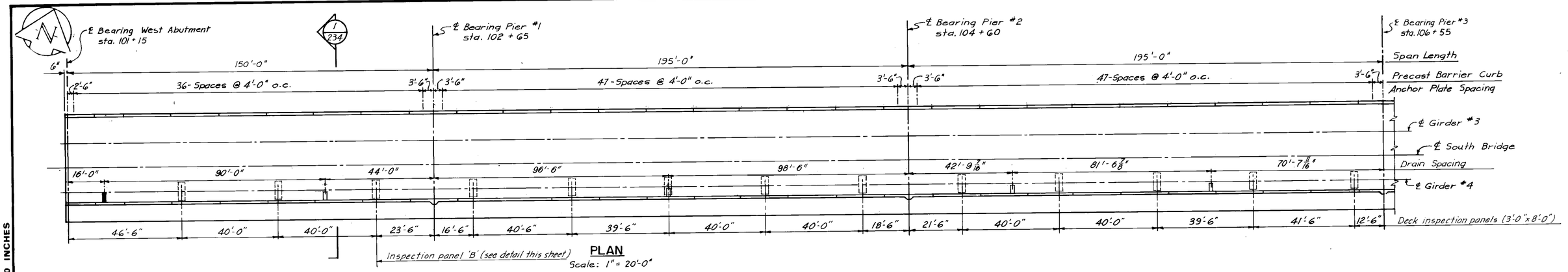
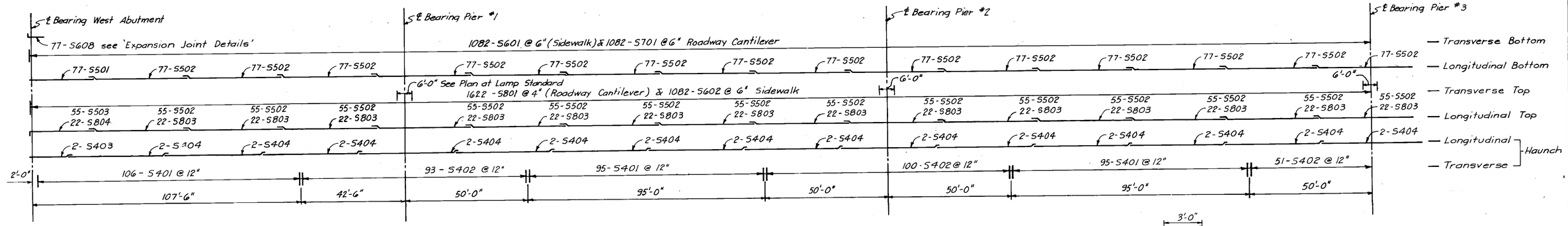
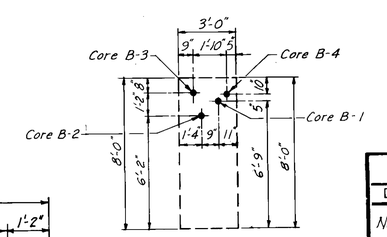
W.L.W. NO. 74012-21



PLAN
Scale: 1" = 20'-0"





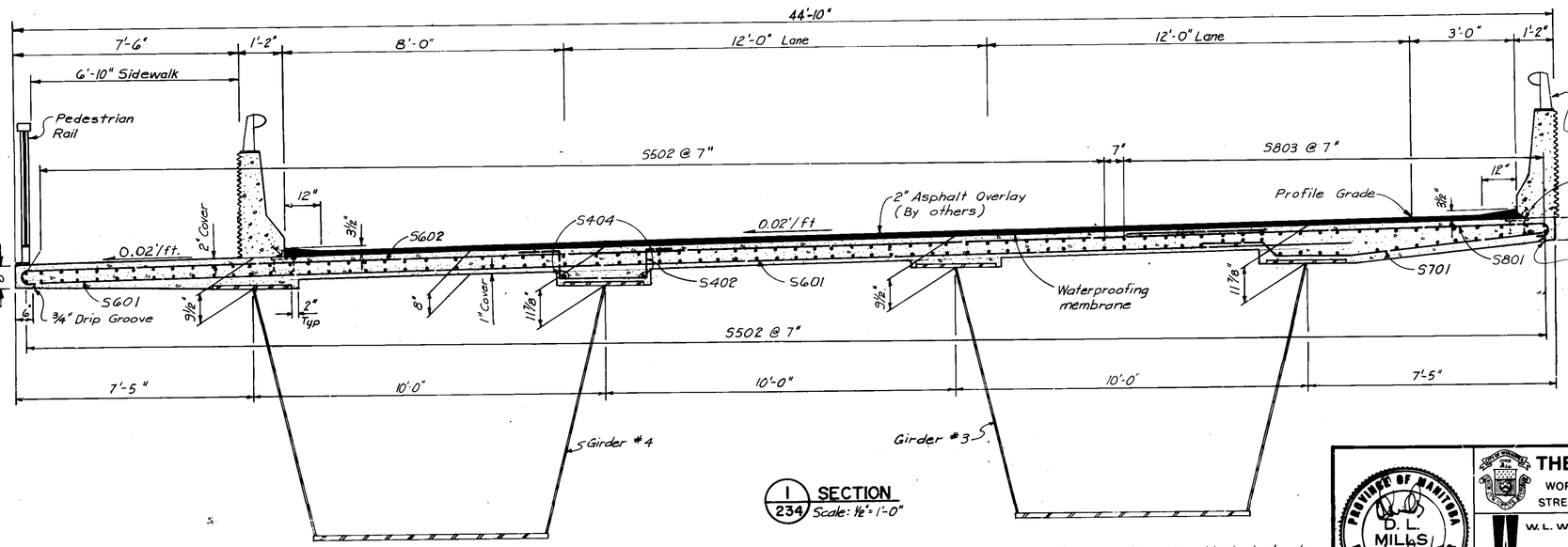
DECK INSPECTION PANEL 'B'

For spacing of longitudinal bars, see Section 1/234

AS-BUILT

DATE	FB. NO.	PAGE
Nov. 15/79		

SLAB REINFORCEMENT SCHEMATIC



SECTION 1/234 Scale: 1/2" = 1'-0"

Note: For haunches see attached sheets.

Notes:
1. Concrete shall have compressive strength of 4500 psi at 28 days.
2. Reinforcing shall be grade 40 for No. 4 bars and grade 60 for No. 5 bars and larger.
3. Splicing of bars shall conform to ACI 318-71 with a minimum developement length of 30 bar diameters.
4. For pouring sequence see 'Slab Plan North Bridge'.

NO	REVISIONS	DATE	BY
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APPROVED BY: [signature] DATE 25 Mar 77

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ROUTE 165

SLAB PLAN
SOUTH BRIDGE

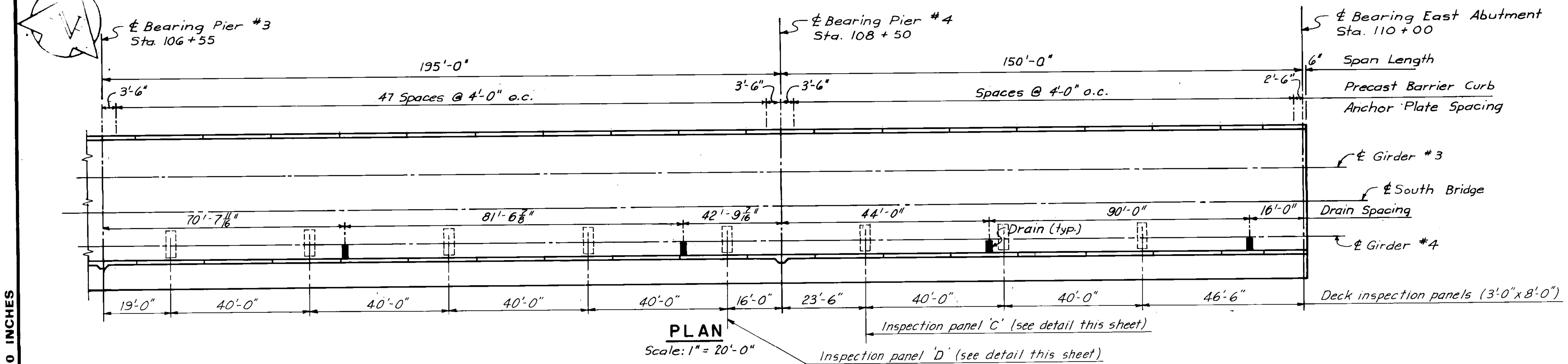
SCALE: AS SHOWN

APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC 25/3/22 DATE

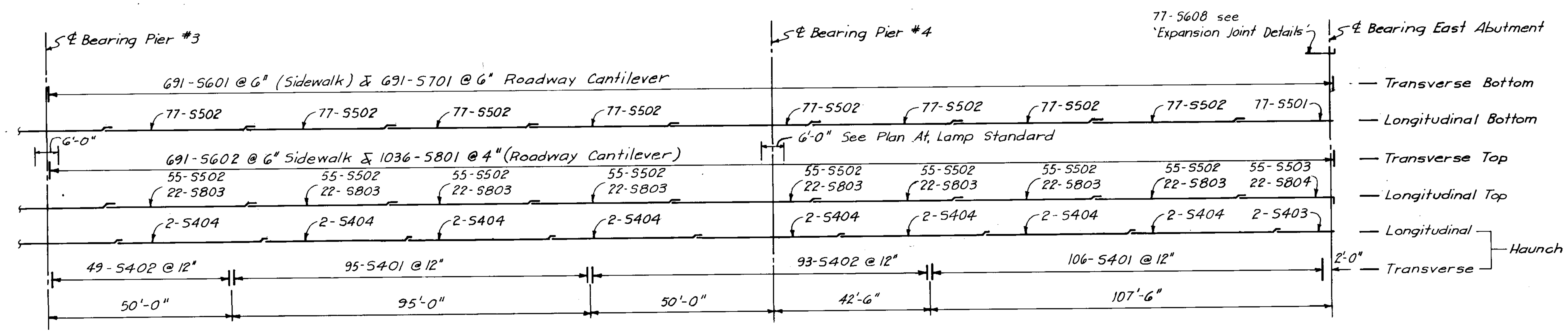
DRAWING NO. B-5092-234

W.L.W. NO. 74012-21

10 INCHES



PLAN
Scale: 1" = 20'-0"



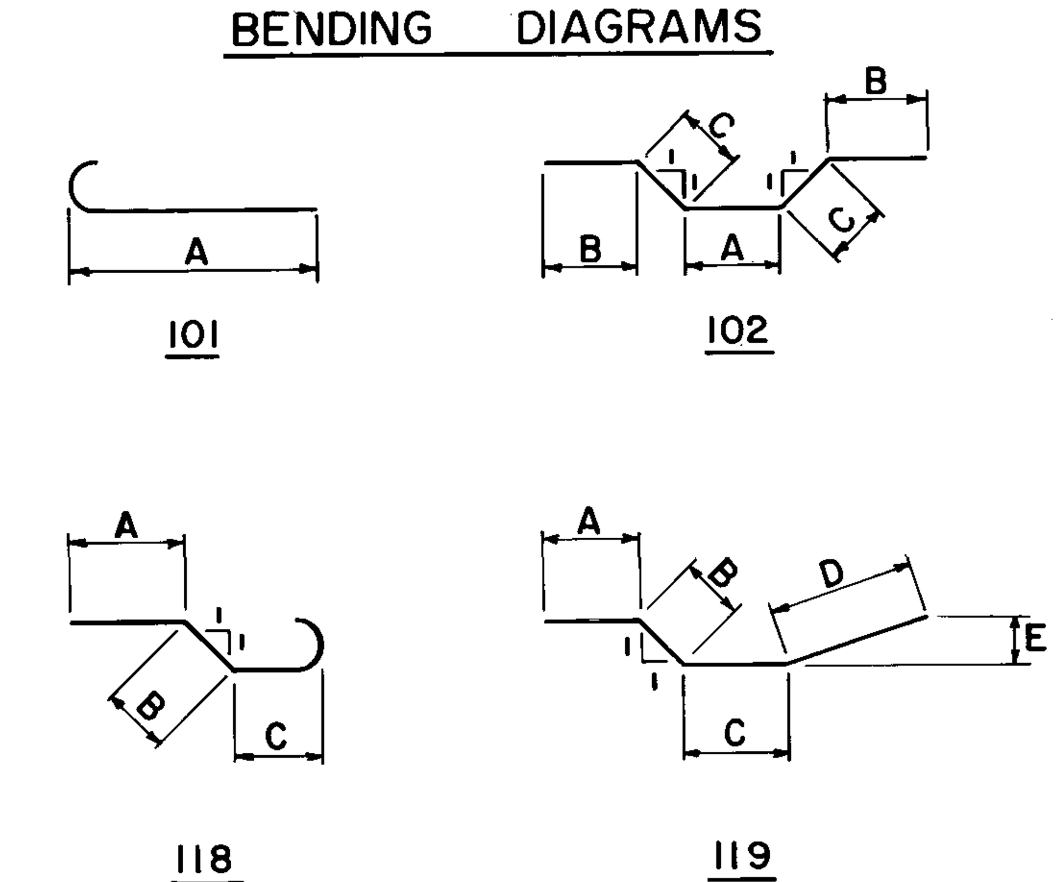
SLAB REINFORCEMENT SCHEMATIC

MARK	NUMBER	LENGTH	WEIGHT (POUNDS)	TYPE	DIMENSIONS A	B	C	D	E
* S401	497	4-6	1494	102	1-6	0-9	0-8½		
* S402	386	5-6	1418	102	2-5	0-9	0-8½		
* S403	4	15-0	40	str					
* S404	44	40-0	1176	str					
S501	154	27-0	4337	str					
S502	2904	40-0	121155	str					
S503	110	27-7	3165	101	27-7				
S601	1773	39-2	104303	str					
S602	1773	41-2	109630	101	40-6				
S607	40	3-0	180	str					
S608	154	5-4	1233	118	2-0	1-1	1-7		
S701	1773	10-3	37146	119	1-9	0-4	2-2	6-0	0-9
S801	2658	12-11	91668	101	12-0				
S802	56	41-5	6194	101	40-6				
S803	484	40-0	51691	str					
S804	44	51-11	6100	101	51-0				

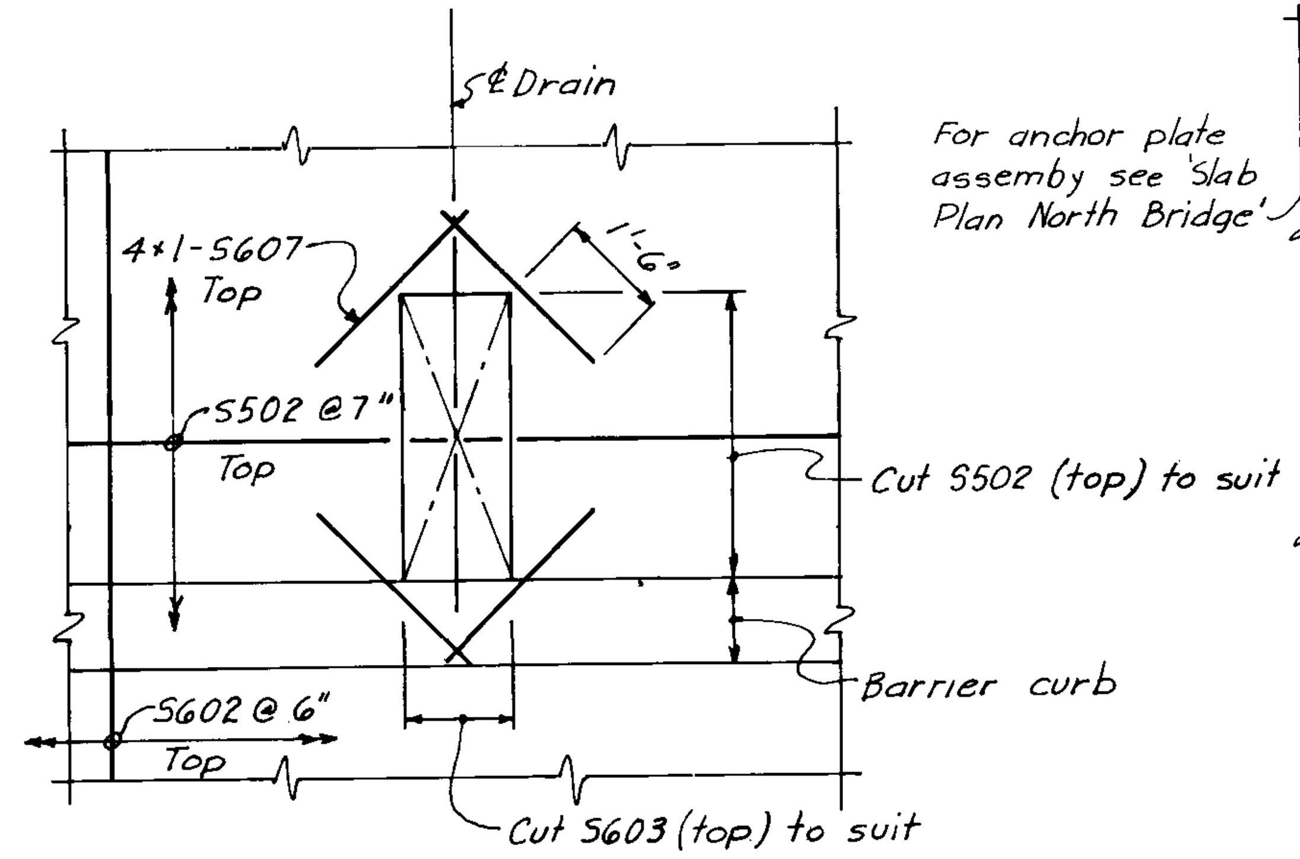
TOTAL WEIGHT FOR SLAB GRADE 40 = 4128 LBS
GRADE 60 = 536802 LBS

* Grade 40

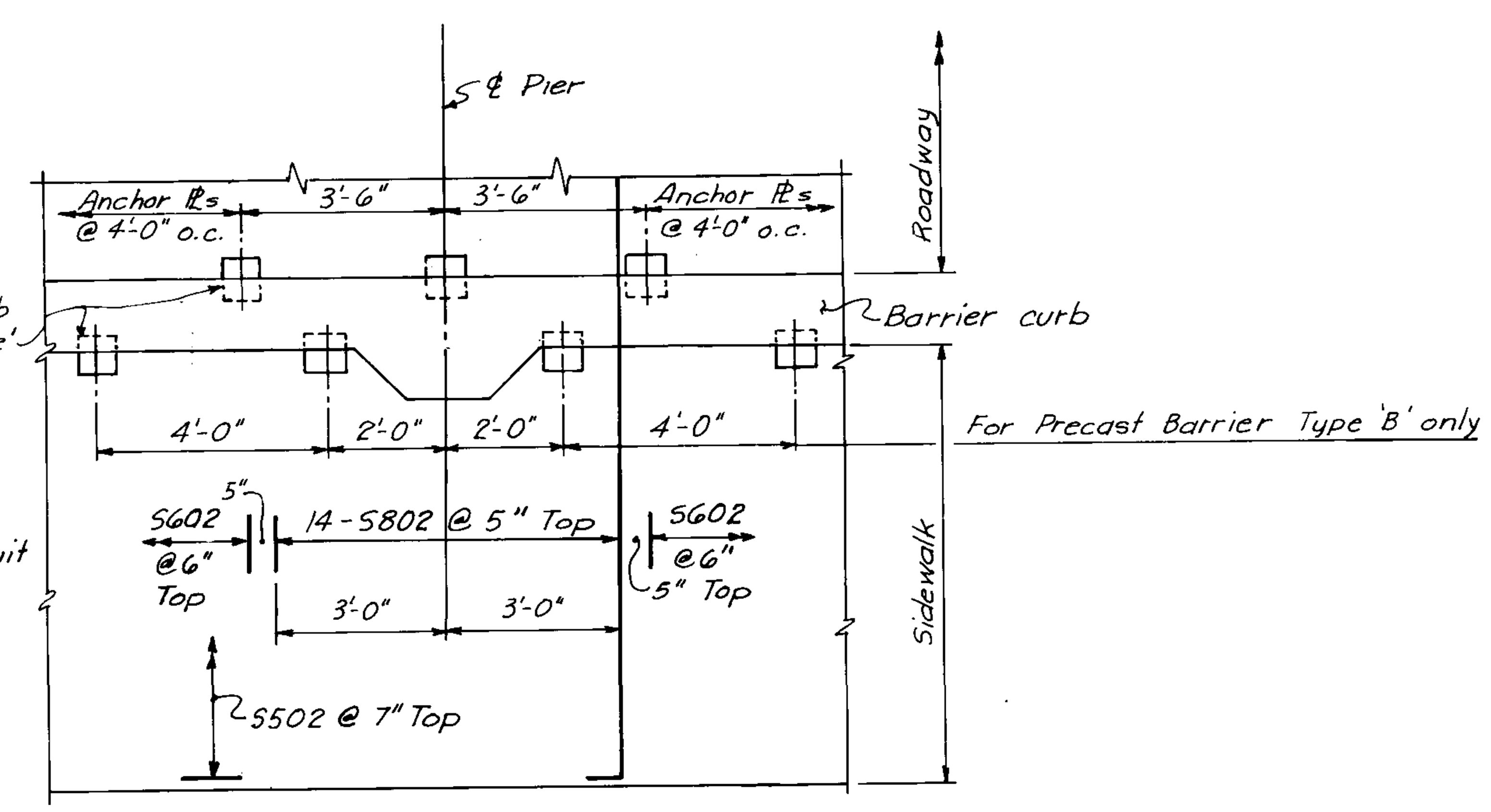
BENDING DIAGRAMS



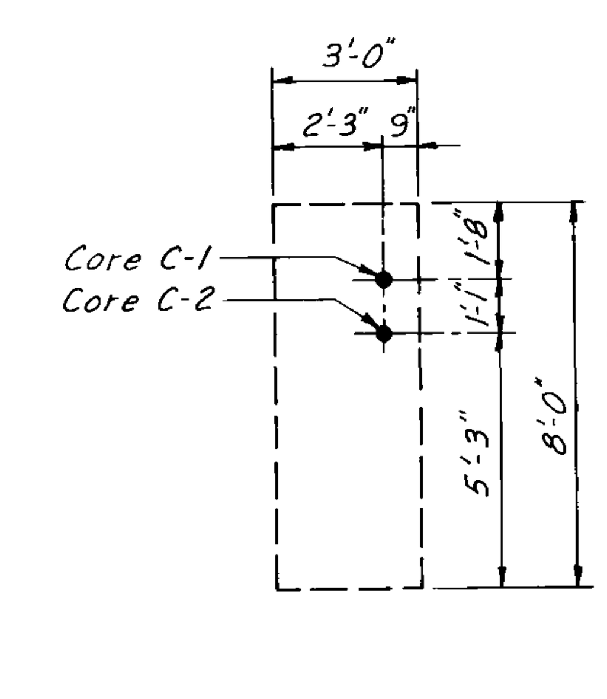
For spacing of longitudinal bars, see Section 1/240



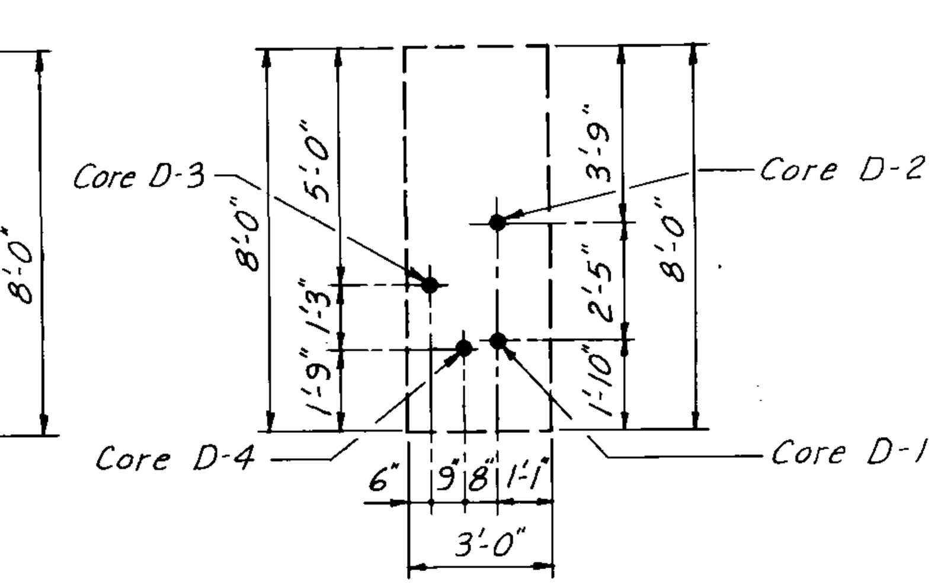
TYPICAL PLAN AT DRAIN
Scale: 3/8" = 1'-0"



PLAN AT LAMP STANDARD
Scale: 3/8" = 1'-0"



DECK INSPECTION PANEL 'C'



DECK INSPECTION PANEL 'D'

AS - BUILT		
DATE	FB. NO.	PAGE
Nov. 14/79		

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG - THUNDER BAY - REGINA - BARRIE - EDMONTON

APPROVED BY: [signature] DATE 25 Mar 77

DRAWN BY ST DATE JAN.77 — DESIGN S.T.K. DATE DEC.76
PRELIM. CHK. S.T.K. JAN.77 — CHECK D.L.M. JAN.77

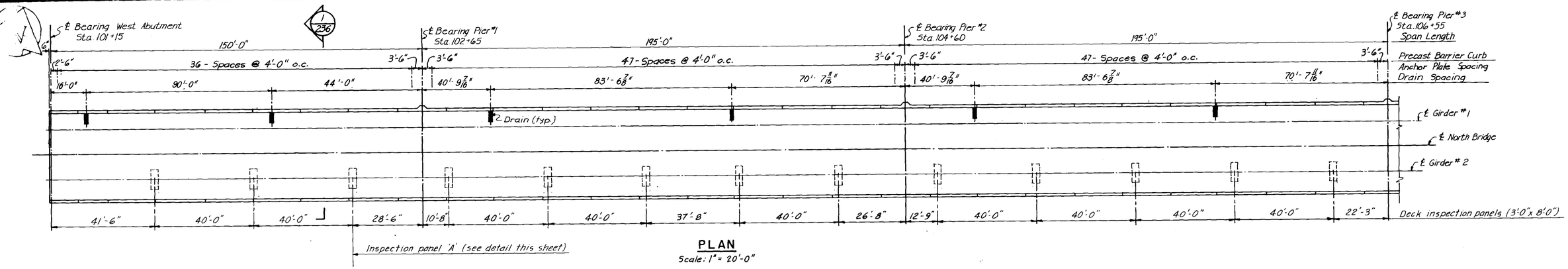
ROUTE 165

SLAB PLAN
SOUTH BRIDGE

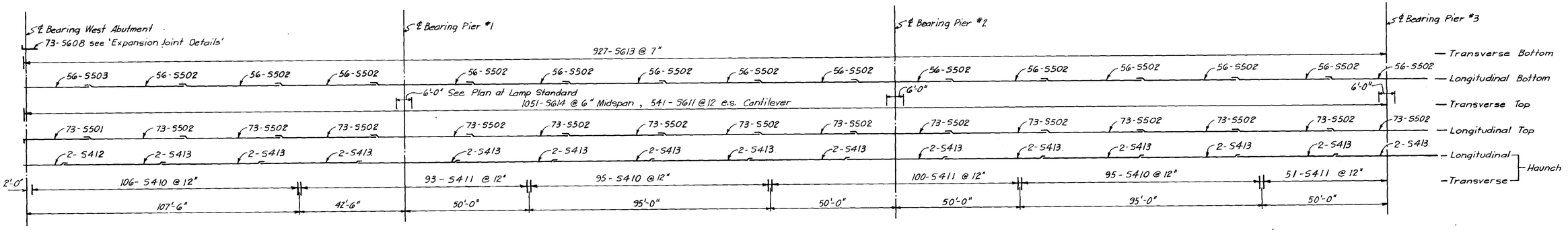
APPROVED BY: [signature] 25/3/77 DATE
MANAGER OF STREETS AND TRAFFIC

SCALE: AS SHOWN
DRAWING NO. B-5092-235

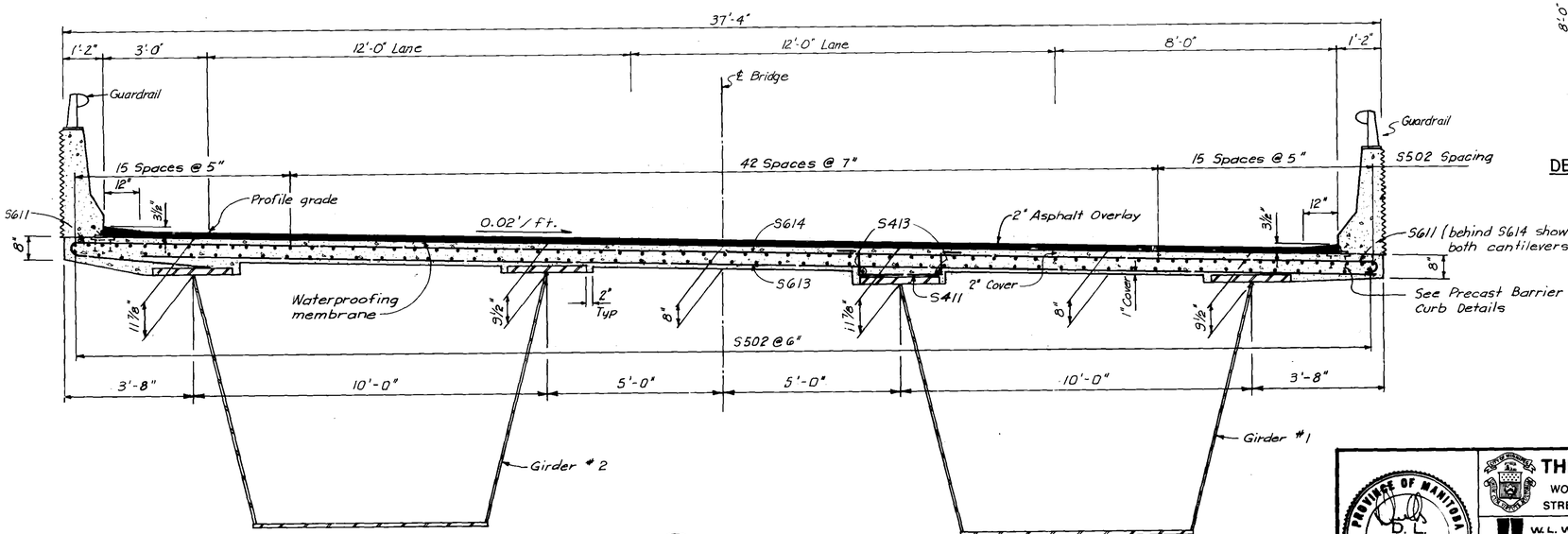
W.L.W. NO. 74012-21



PLAN
Scale: 1" = 20'-0"

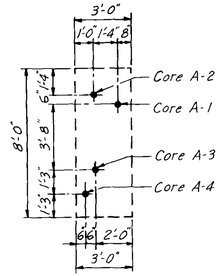


SLAB REINFORCEMENT SCHEMATIC



SECTION
1/236 Scale: ½" = 1'-0"

Note: For haunches see attached sheets.



DECK INSPECTION PANEL 'A'

For spacing of longitudinal bars, see Section 1/236

AS - BUILT

DATE	FB NO	PAGE
Nov. 14/79		

Notes:
1. Concrete shall have a compressive strength of 4500 psi at 28 days.
2. Reinforcing shall be grade 40 for No. 4 bars and grade 60 for No. 5 bars and larger.
3. Splicing of bars shall conform to ACI 318-71 with a minimum developement length of 30 bar diameters.

NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 MAR 77

		DATE			DATE
DRAWN BY	ST	JAN 77	DESIGN	STK	DEC 76
PRELIM. CHK.	STK	JAN 77	CHECK	DLM	JAN 77

ROUTE 165

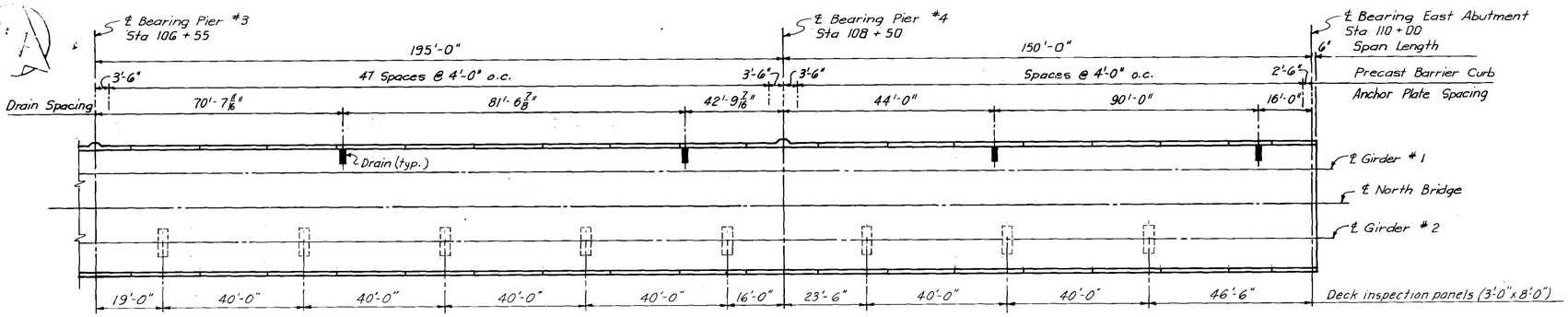
SLAB PLAN
NORTH BRIDGE

SCALE: AS SHOWN

APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC — DATE 25/3/22

DRAWING NO. B-5092-236

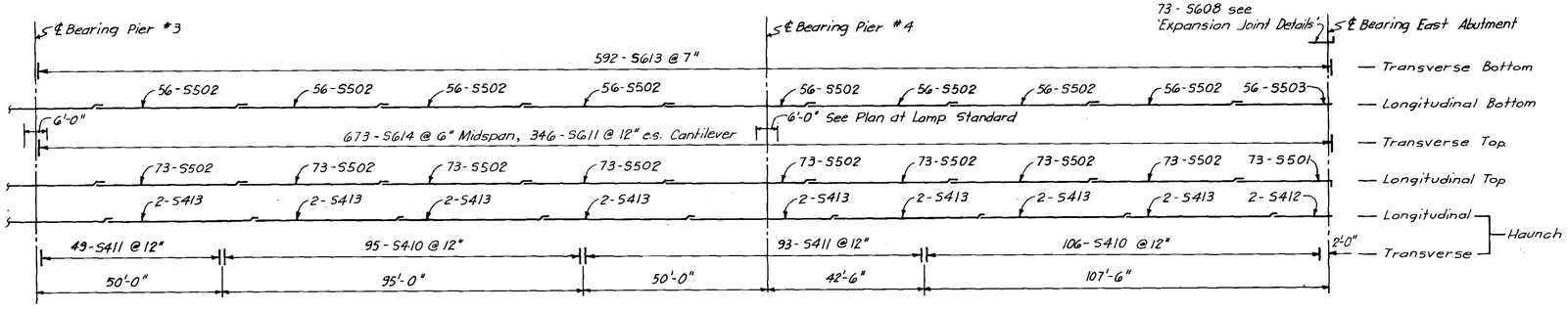
W.L.W. NO. 74012-21



PLAN
Scale: 1" = 20'-0"

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
* 5410	497	3-0	996	102	1-6	0-9	0-8½	
* 5411	386	4-0	1031	102	2-5	0-9	0-8½	
* 5412	4	14-0	40	str				
* 5413	44	40-0	1176	str				
5501	146	27-0	4112	101	26-6			
5502	2838	40-0	118401	str				
5503	112	27-0	3154	str				
5608	146	5-4	1169	118	2-0	1-1	1-7	
5611	1774	7-8	20436	101				
5613	1519	35-0	79854	str				
5614	1724	43-0	111346	103	37-3	4-0	1-0	
5615	40	3-0	180	str				
5810	56	43-0	6429	103	37-3	4-0	1-0	
TOTAL WEIGHT FOR SLAB GRADE 40 = 3243 LBS GRADE 60 = 345081 LBS								

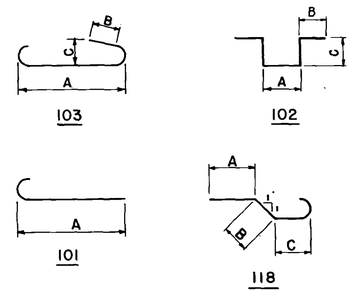
* Grade 40

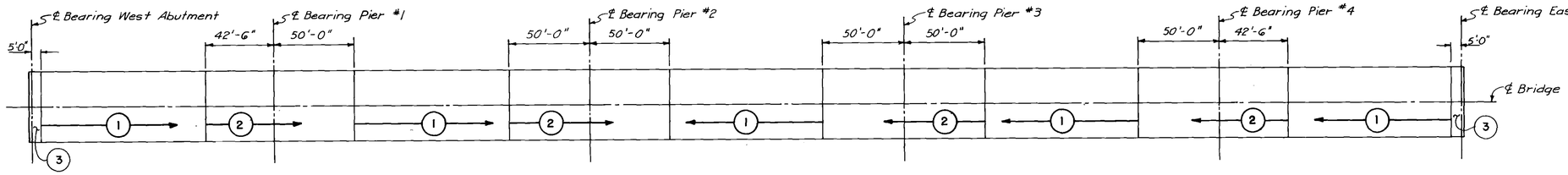


For spacing of longitudinal bars see Section 1/236

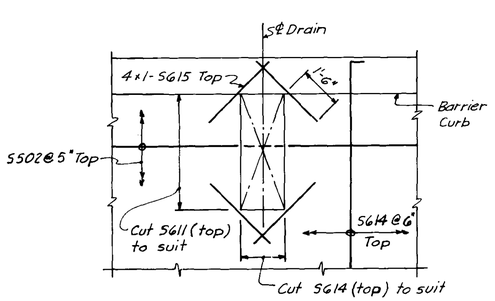
SLAB REINFORCEMENT SCHEMATIC

BENDING DIAGRAMS

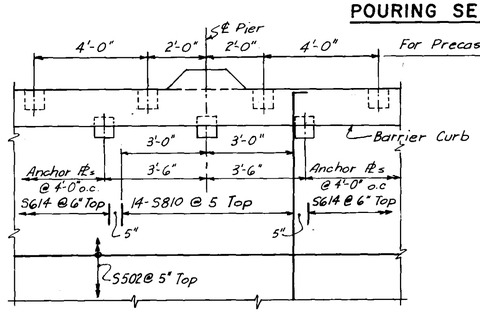




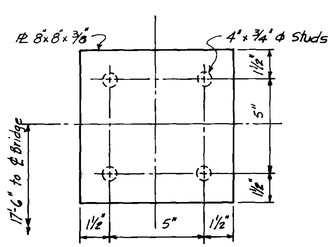
POURING SEQUENCE



TYPICAL PLAN AT DRAIN
Scale: 3/8" = 1'-0"



PLAN AT LAMP STANDARD
Scale: 3/8" = 1'-0"



ANCHOR PLATE ASSEMBLY
Scale: 3" = 1'-0"

AS - BUILT
DATE | B NO. | INIT.
Nov. 14/79

NO	REVISIONS	DATE	BY
	ISSUE FOR TENDER	4.4.77	

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: ____ DATE 25 Jan 77

		DATE			DATE
DRAWN BY	ST	JAN 77	DESIGN	STK	DEC 76
PRELIM. CHK.	STK	JAN 77	CHECK	DLM	JAN 77

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER

ROUTE 165

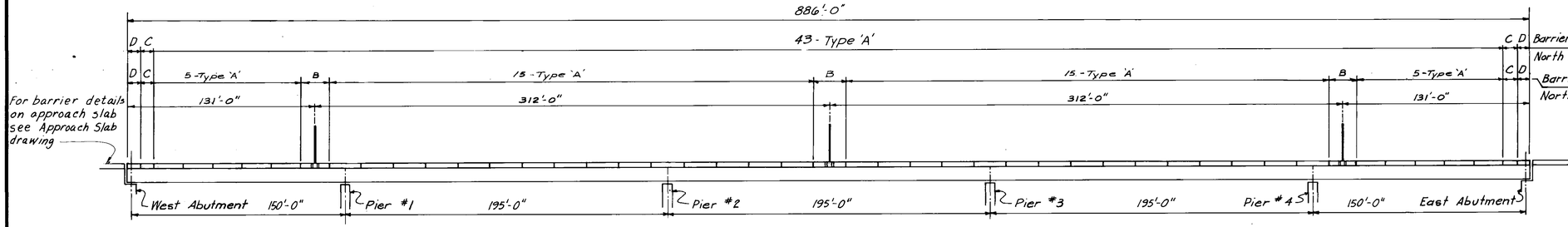
SLAB PLAN
NORTH BRIDGE

APPROVED BY: Donald R. Campbell
MANAGER OF STREETS AND TRAFFIC
25/2/22 DATE

SCALE: AS SHOWN

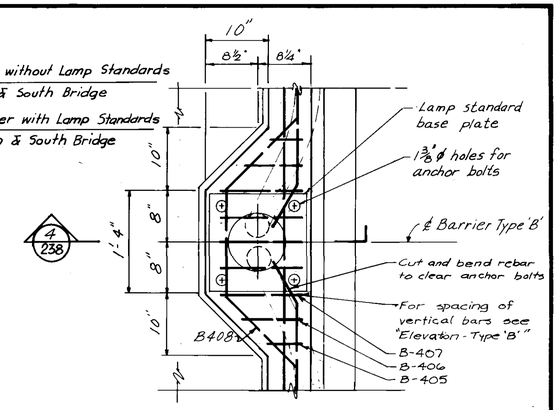
DRAWING NO. B-5092-237

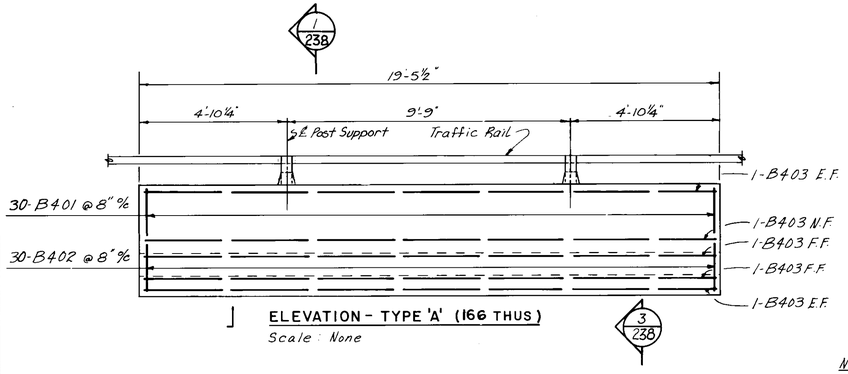
W.L.W. NO. 74012-21



⚠ ELEVATION

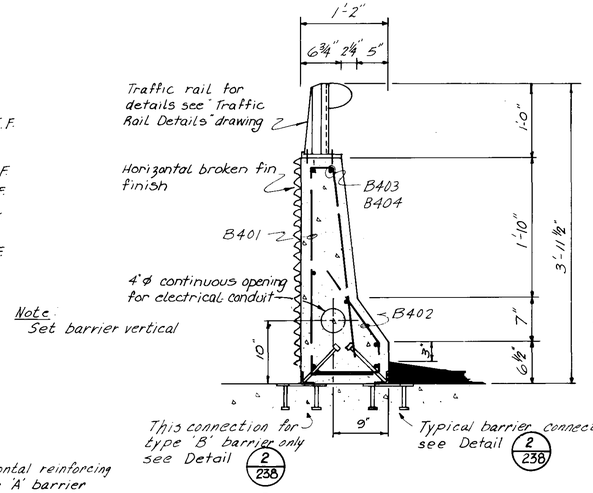
Scale: None





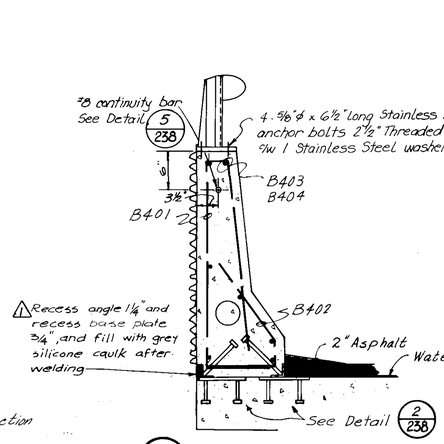
ELEVATION - TYPE 'A' (166 THUS)

Scale: None



1/238 SECTION (SOUTH BRIDGE)

Scale: 1"=1'-0"

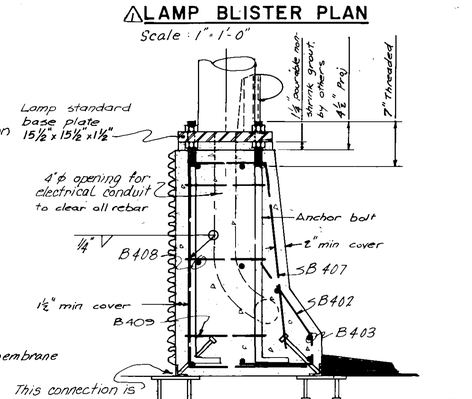


3/238 SECTION (NORTH BRIDGE)

Scale: 1"=1'-0"

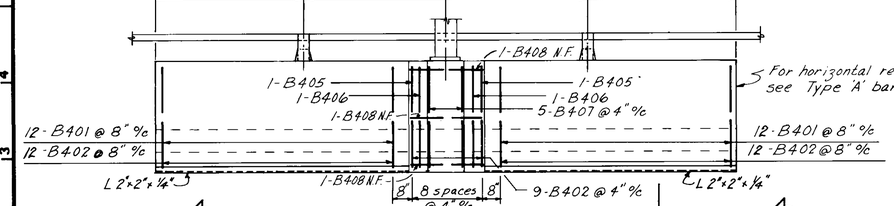
⚠ LAMP BLISTER PLAN

Scale: 1"=1'-0"



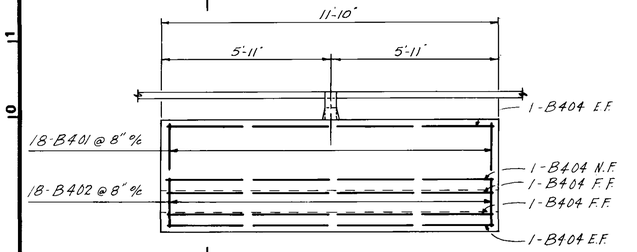
4/238 SECTION

⚠ Scale: 1"=1'-0"



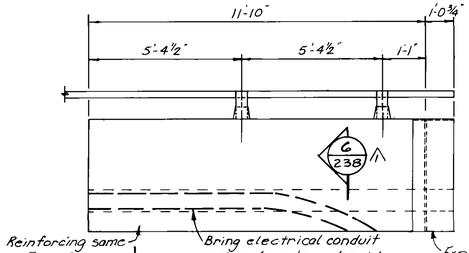
ELEVATION - TYPE 'B' (6 THUS)

Scale: None



ELEVATION - TYPE 'C' (8 THUS)

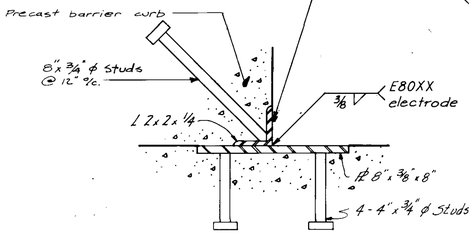
Scale: None



ELEVATION - TYPE 'D' (8 THUS)

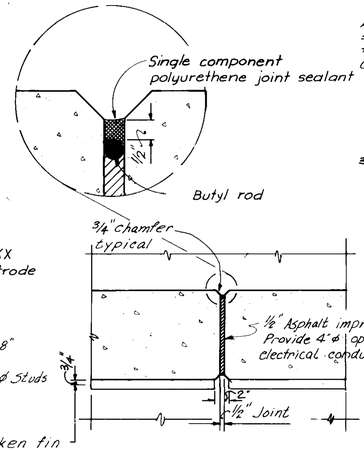
Scale: None

⚠ Anchor components to be hot dipped galvanized. connection on road side to be coated with coal tar epoxy. Connection on exterior of bridge to be countersunk and caulked as shown in section 3/238. Connection exposed on sidewalk side to be painted with Mobil Galva-Kote, or approved equal



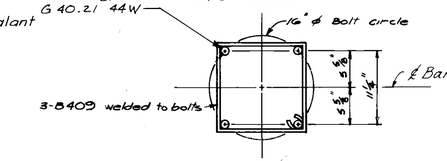
2/238 DETAIL

Scale: 3"=1'-0"



JOINT DETAILS

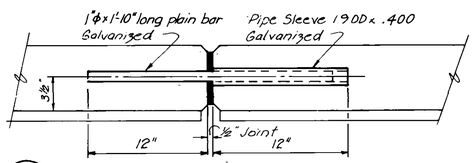
Scale: 1½"=1'-0"



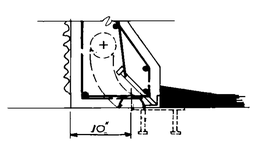
⚠ ANCHOR BOLT ASSEMBLY

Scale: 1"=1'-0"

Notes:
1. The barrier curb shall be set vertical.
2. Location of the lifting points shall be approved by the Engineer.
3. The top and traffic surface of the Barrier Curb shall be painted with a protective coating (see specifications.)
4. Electrical conduit opening in South Barrier for South Bridge and North Barrier for North Bridge.



5/238 BARRIER CURB CONTINUITY DETAIL



⚠ 6/238 ELECTRICAL CONDUIT EXIT DETAIL

AS - BUILT

[illegible] PAGE

Nov. 16/77

⚠ General revision to Lamp blister details, added detail 6, revisions to details 2 and 3 deleted one lamp standard from elevation — May., 1978 DCL

ISSUED FOR TENDER — 4-4-77

REVISIONS — DATE — BY

PROVINCE OF MANITOBA — D. L. MILLS — March 24/77 — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG - THUNDER BAY - REGINA - BARRIE - EDMONTON

APPROVED BY: [illegible] DATE 25 Mar/77

		DATE			DATE
DRAWN BY	ST	JAN 77	DESIGN	KWS	DEC 76
PRELIM. CHK.	STK	JAN 77	CHECK	DLM	JAN 77

ROUTE 165

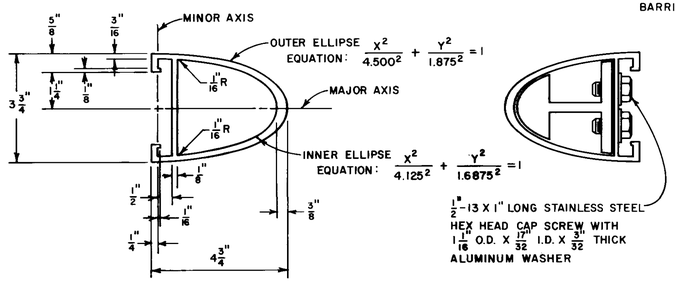
PRECAST BARRIER CURB DETAILS

SCALE: AS SHOWN

APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC — 25/3/22 DATE

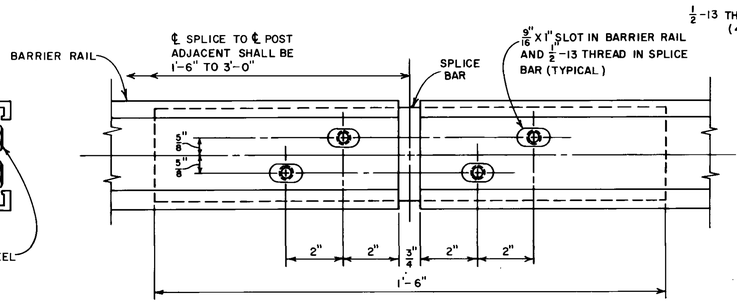
DRAWING NO. B-5092-238 ⚠

W.L.W. NO. 74012-21



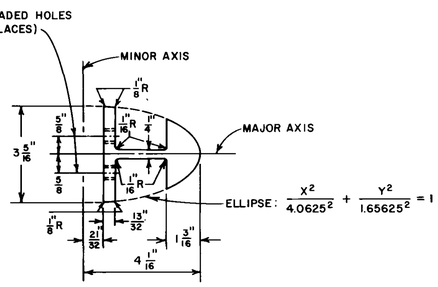
BARRIER RAIL

SCALE 3/8" = 1"



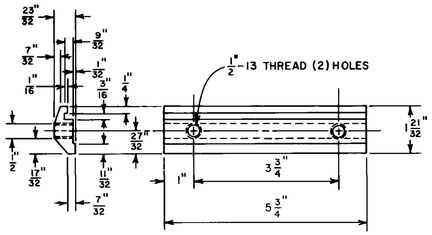
SPLICE DETAIL

SCALE 3/8" = 1"



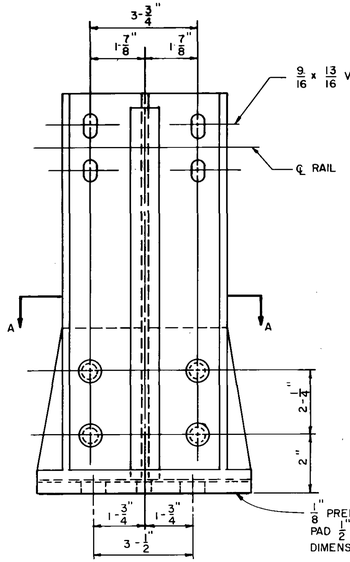
SPLICE BAR

SCALE 3/8" = 1"



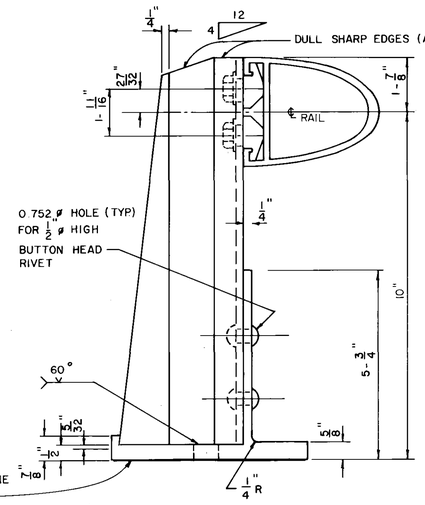
RAIL CLAMP BAR

SCALE 3/8" = 1"



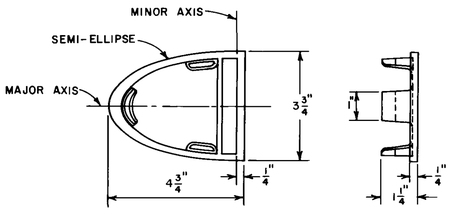
POST FRONT ELEVATION

SCALE 3/8" = 1"



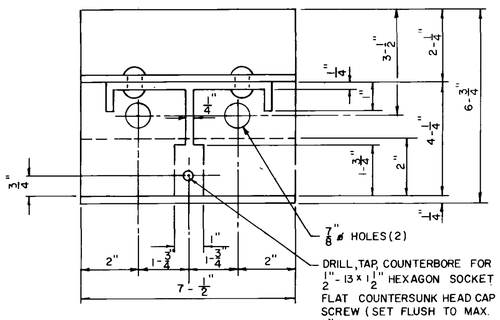
POST SIDE ELEVATION

SCALE 3/8" = 1"



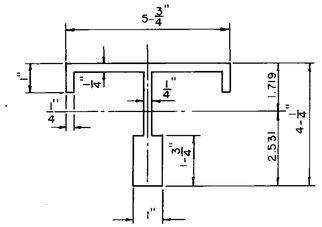
RAIL END CAP

SCALE 3/8" = 1"



SECTION A-A

SCALE 3/8" = 1"



POST DETAIL

SCALE 3/8" = 1"

AS - BUILT

DATE	FB. NO	PAGE
Nov 14/79		

NOTES:

1. ALUMINUM RAILS, POSTS, SPLICE BARS, CLAMP BARS, AND RAIL SPACERS SHALL BE ASTM B221, ALLOY 6061-T6
2. CAP SCREWS AND ANCHOR BOLT ASSEMBLY (STUD, NUT AND WASHER) SHALL CONFORM TO ASTM A276, TYPE 430 STAINLESS STEEL
3. MISCELLANEOUS STEEL AS REQUIRED SHALL CONFORM TO CSA G40.21 38W
4. THE BOTTOM OF POSTS SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 Mar/77

DRAWN BY DAP MAR 77 DESIGN
PRELIM. CHK. CHECK

ROUTE 165

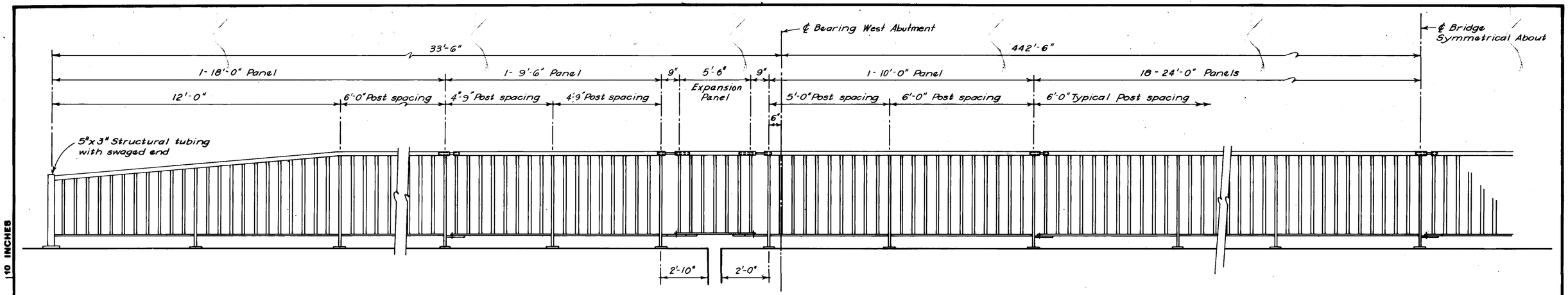
TRAFFIC RAIL DETAILS

SCALE: AS SHOWN

APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC 25/3/77 DATE

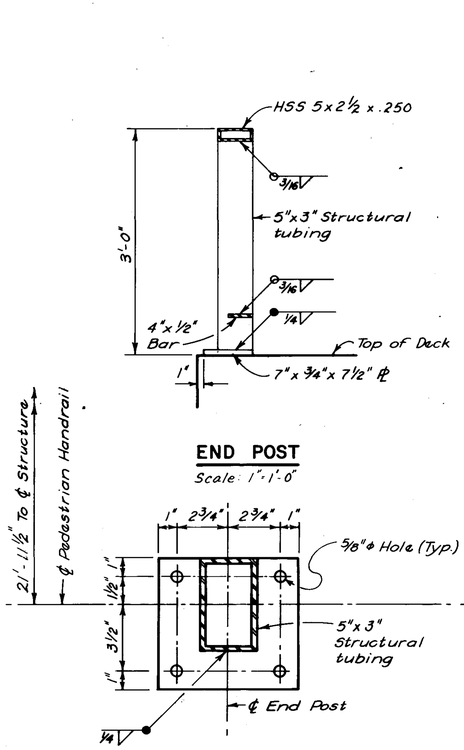
DRAWING NO. B-5092-239

W.L.W. NO. 74012-21



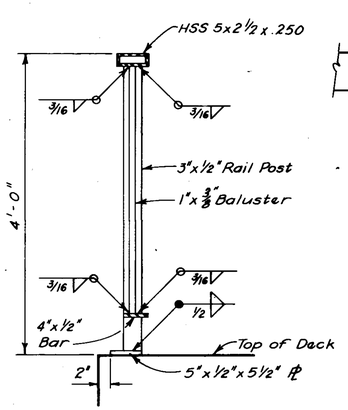
ELEVATION OF PEDESTRIAN HANDRAIL SOUTH BRIDGE

LOOKING DOWNSTREAM
Scale: 1/2"=1'-0"



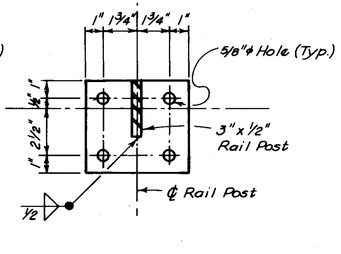
END POST

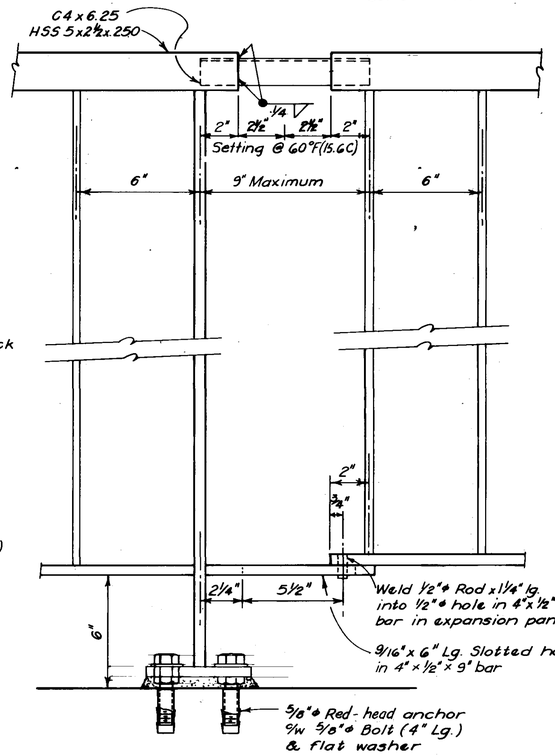
Scale: 1"=1'-0"



TYPICAL RAIL POST

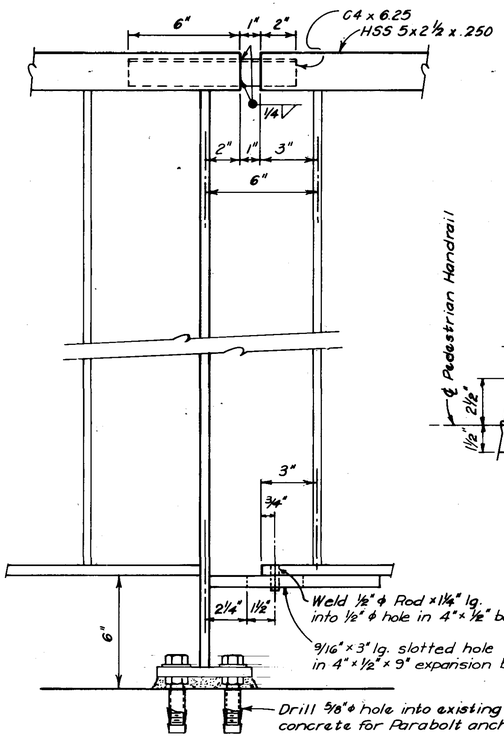
Scale: 1"=1'-0"





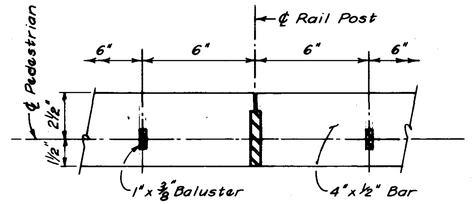
EXPANSION JOINT DETAIL

Scale: 3"=1'-0"



JOINT DETAIL

Scale: 3"=1'-0"



TYPICAL ARRANGEMENT OF BALUSTERS

Scale: 3"=1'-0"

HANDRAIL BASE PLATE DETAILS

Scale: 3"=1'-0"

AS-BUILT

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0	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — D. L. MILLS — REGISTERED ENGINEER — Mar 24

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 JAN 77

DRAWN BY GAM DATE JAN 77 | DESIGN DLM DATE DEC 76
PRELIM. CHK. EWS DATE JAN 77 | CHECK KWS DATE JAN 77

ROUTE 165

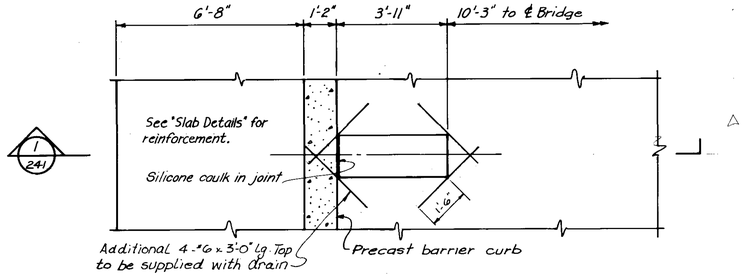
PEDESTRIAN HANDRAIL DETAILS

SCALE: AS SHOWN

APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC — 25/2/22 DATE

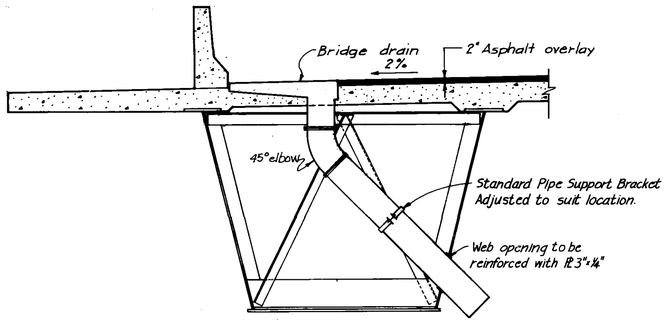
DRAWING NO. B-5092-240

W.L.W. NO. 74012-21

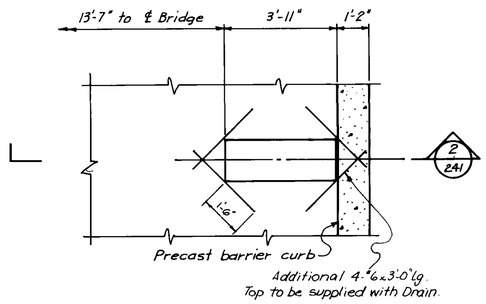


1/241

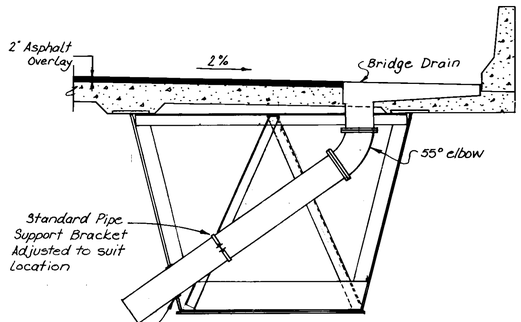
PART PLAN - SOUTH BRIDGE



1/241 SECTION
Scale: 3/8"=1'-0"

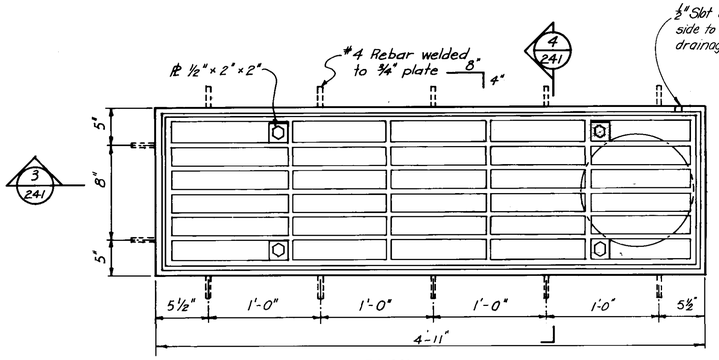


PART PLAN - NORTH BRIDGE

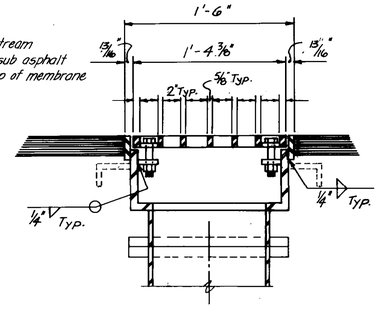


2/241 SECTION
Scale: 3/8"=1'-0"

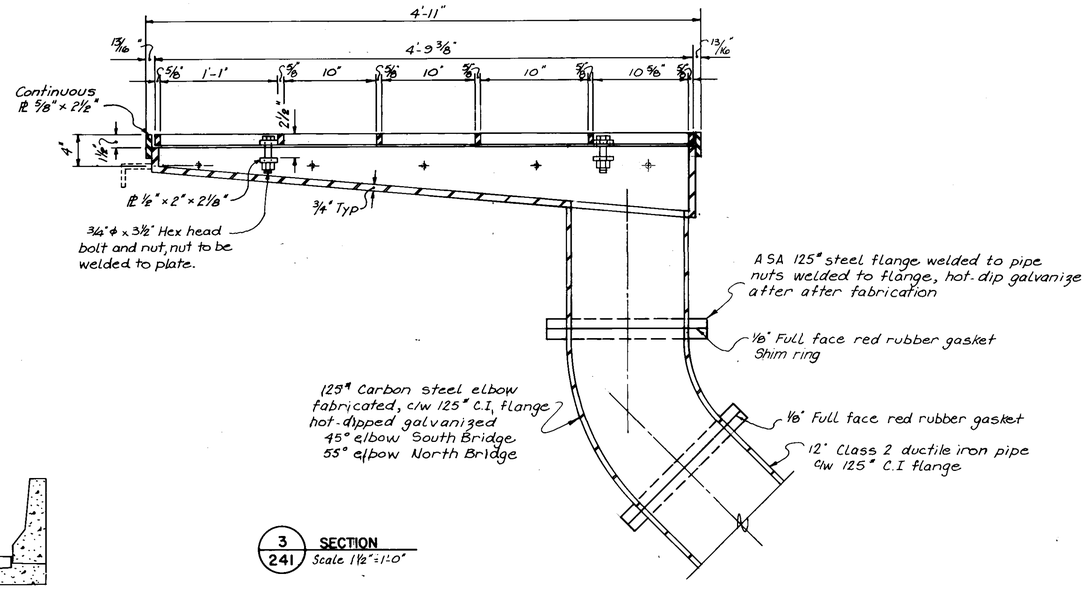
Note:
Cut and replace Slab Top Bars to suit Drain.



PLAN



4/241 SECTION
Scale 1½"=1'-0"



3/241 SECTION
Scale 1½"=1'-0"

AS-BUILT
Nov. 14/79

Notes:
1. Bridge drains shall be fabricated from ASTM A588 or CSA G40.21 50A steel and galvanized in accordance with ASTM A123.

2. Bolts shall be placed in nuts prior to galvanizing to protect threads.

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

PROVINCE OF MANITOBA — B.L. MILLS — March 24/77 — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 March 77

DRAWN BY	J.T.K.	DATE	DEC. 76
PRELIM. CHK.	S.T.K.	DATE	JAN. 77
DESIGN	S.T.K.	DATE	DEC. 76
CHECK	D.L.M.	DATE	JAN. 77

ROUTE 165

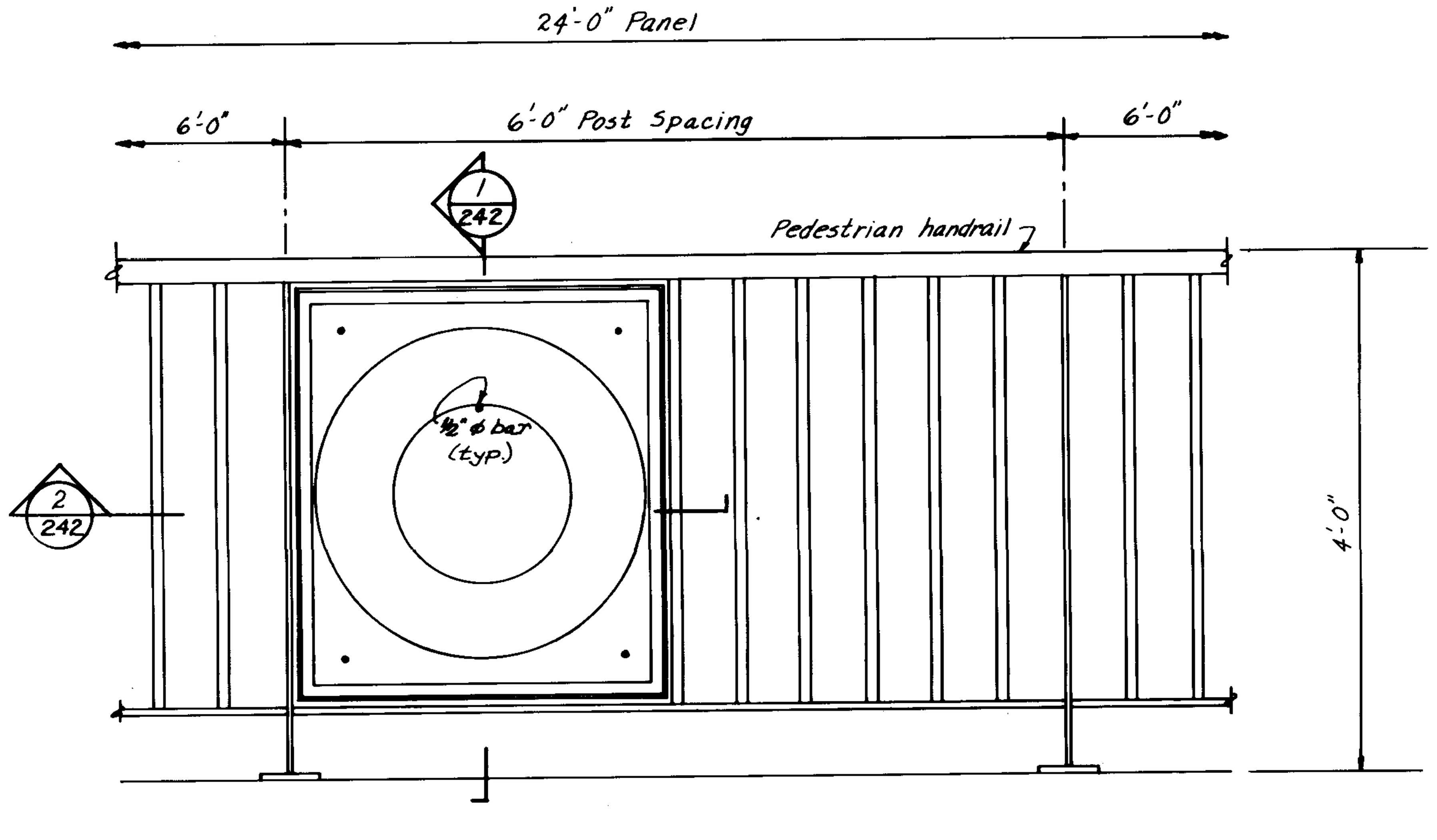
BRIDGE DRAIN DETAILS

SCALE: AS SHOWN

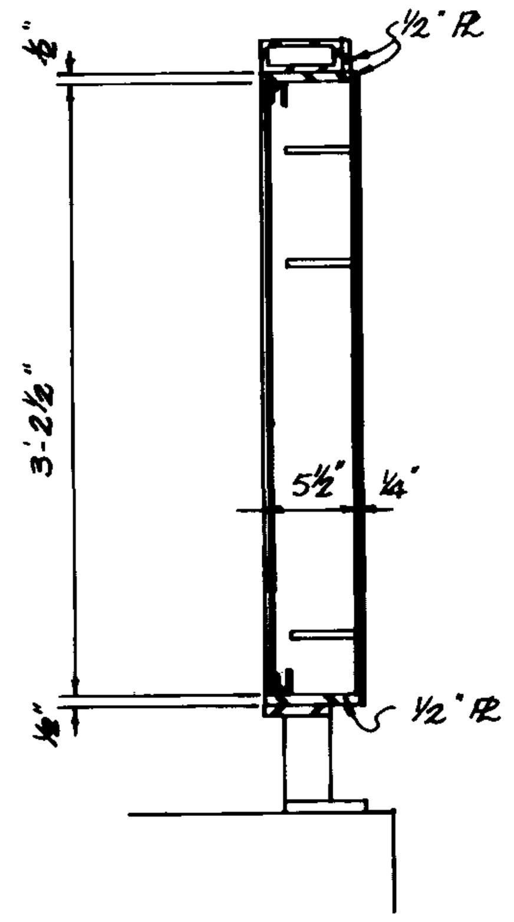
APPROVED BY: [signature] MANAGER OF STREETS AND TRAFFIC 25/3/22 DATE

DRAWING NO. B-5092-241

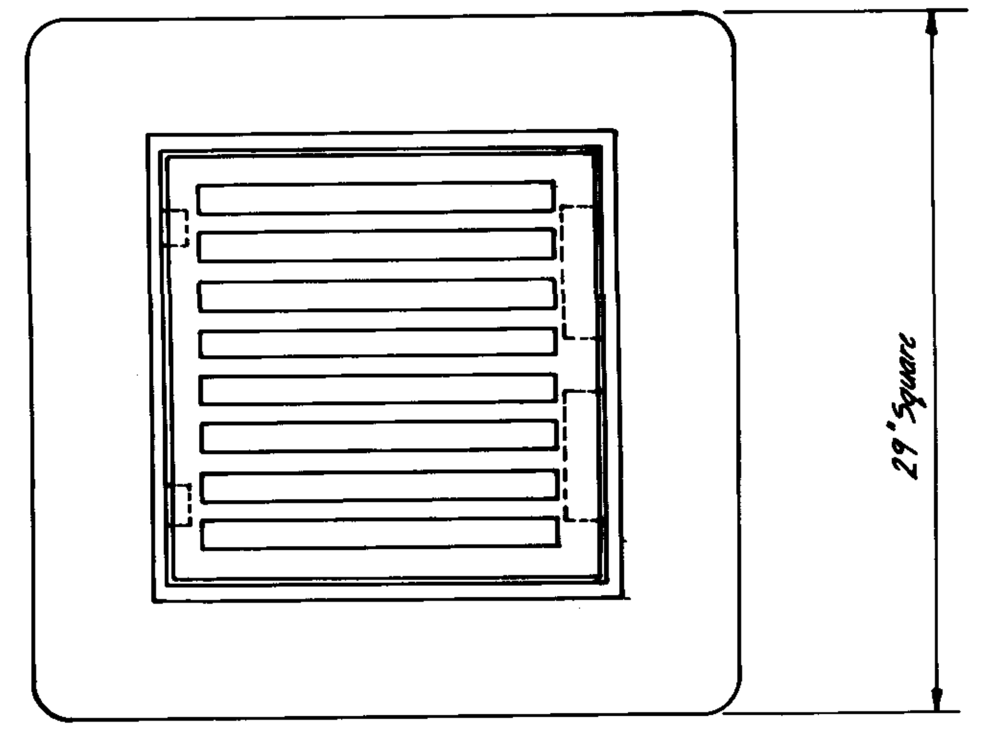
W.L.W. NO. 74012-21

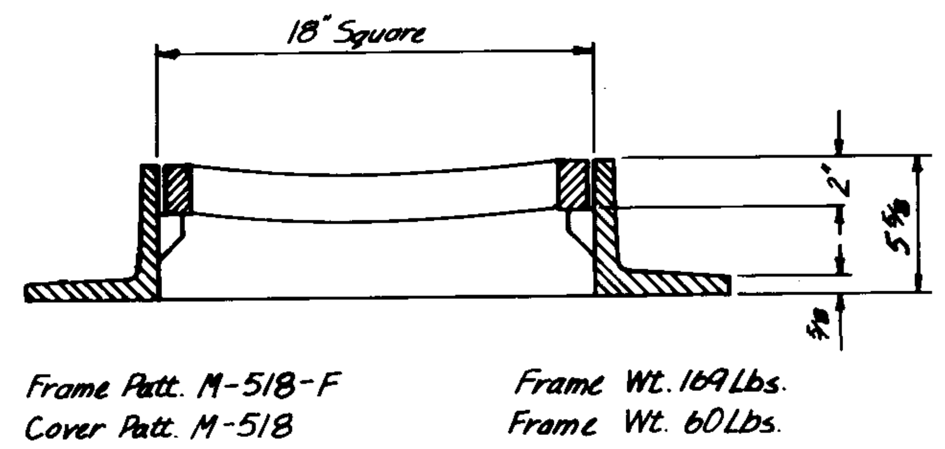


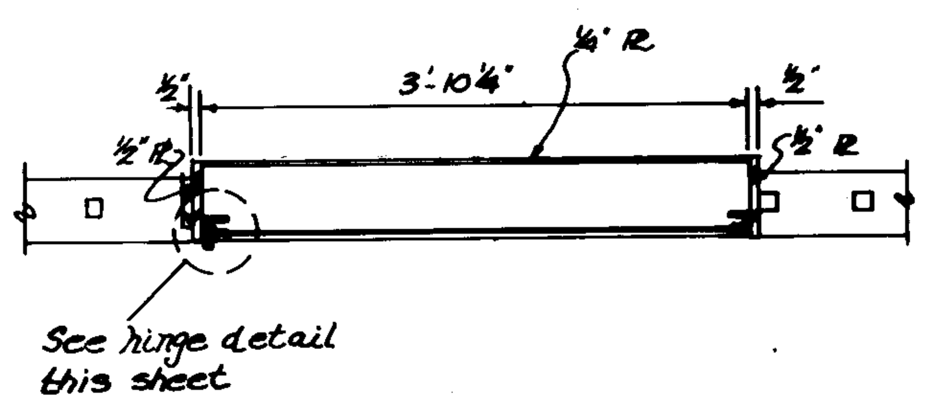
ELEVATION OF LIFE PRESERVER BOX
Scale: 1"=1'-0"



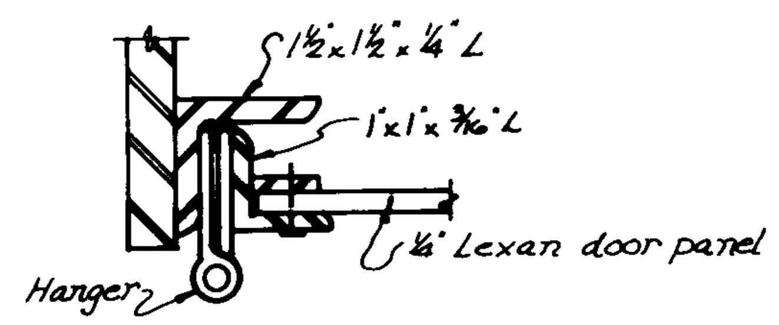
SECTION 1/242
Scale: 1"=1'-0"





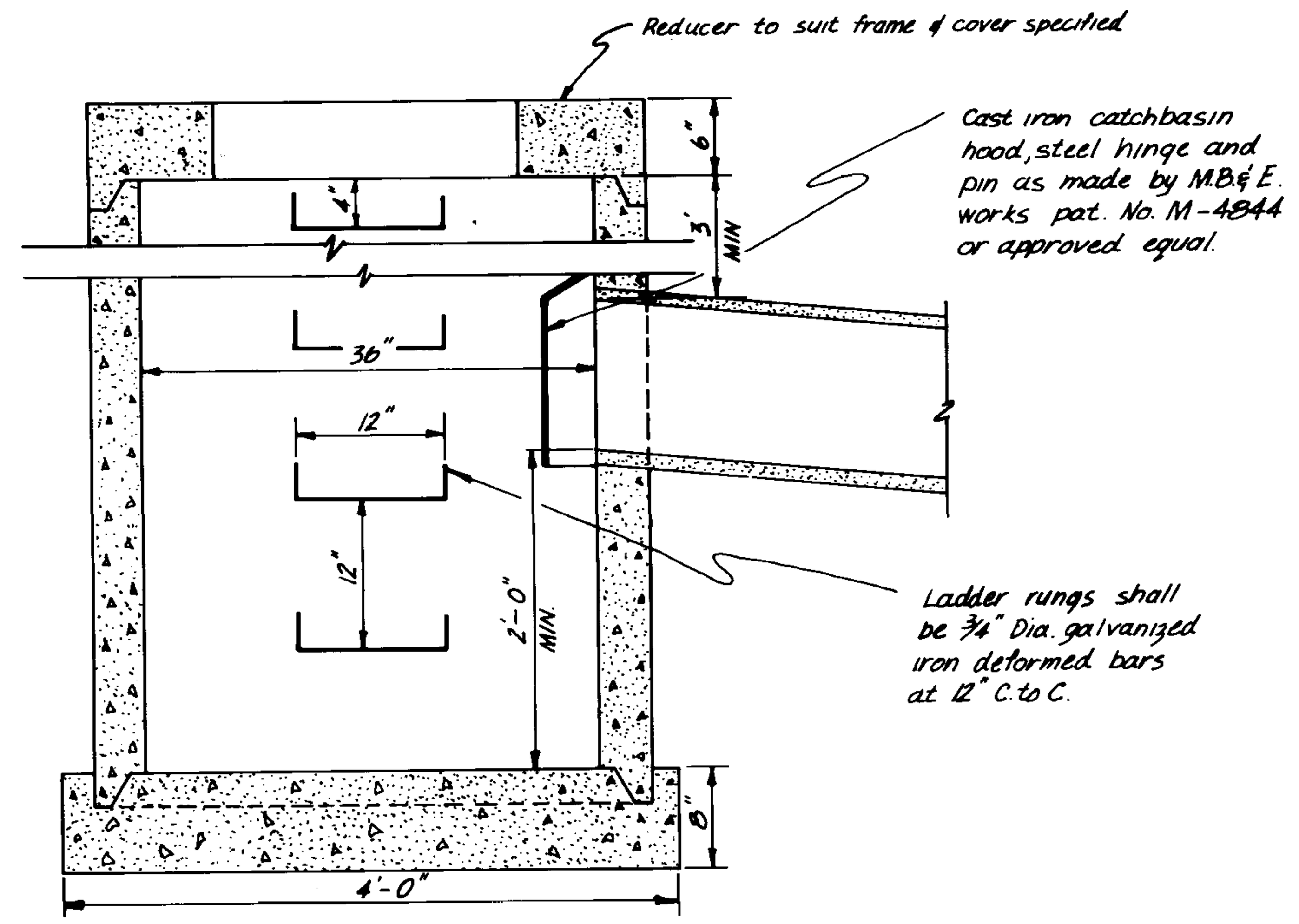


SECTION 2/242
Scale: 1"=1'-0"

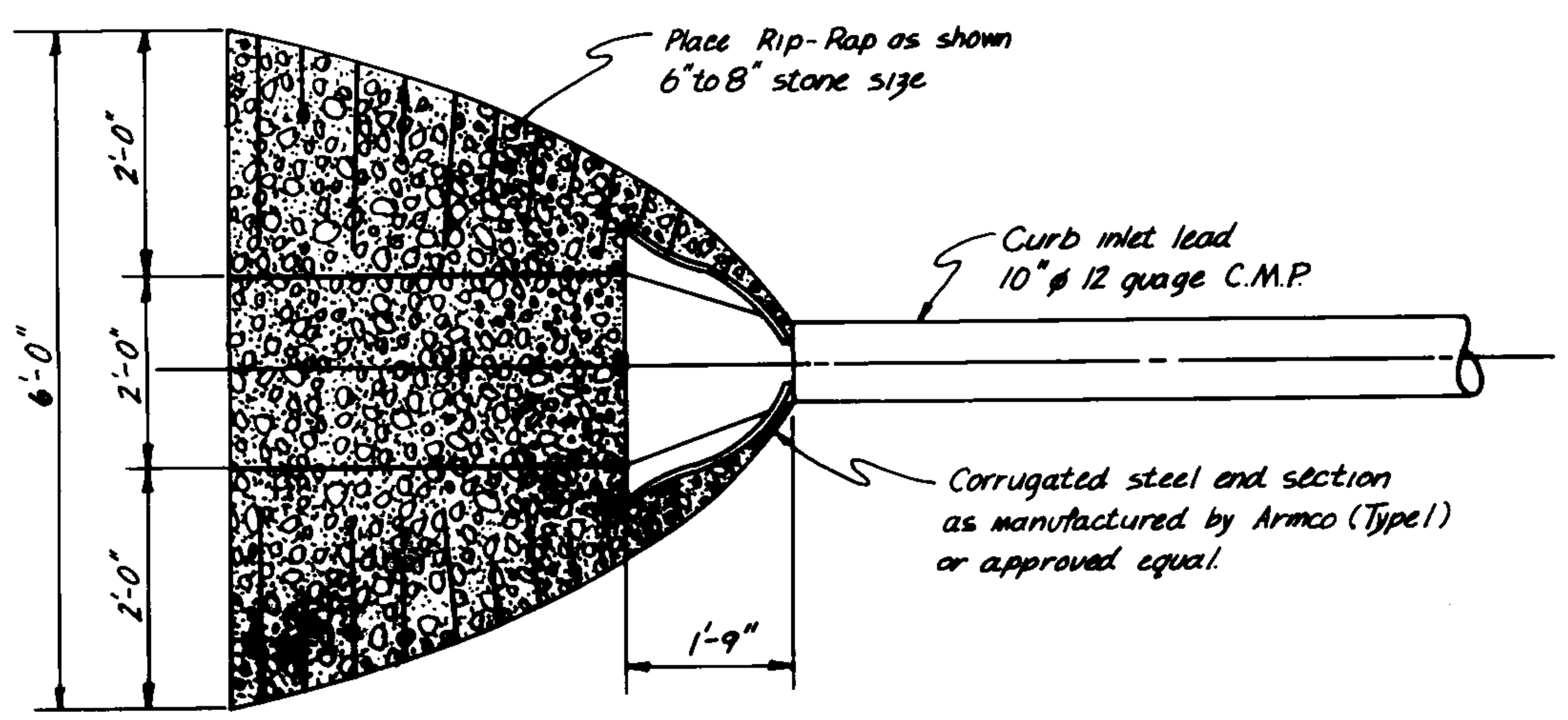


HINGE DETAIL
Scale: Half full size

LIFE PRESERVER BOX DETAILS



CATCHBASIN DETAIL
Scale 1"=1'-0"



PLAN OF RIP-RAP
N.T.S.

AS BUILT		
DATE	FB. NO	PAGE
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NO	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4.4.77	

Province of Manitoba – Registered Engineer – D. L. Mills

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 MAR 77
DRAWN BY DAP DATE JAN 77 — DESIGN D.L.M. DATE DEC 76
PRELIM. CHK. EWS JAN 77 — CHECK EWS JAN 77

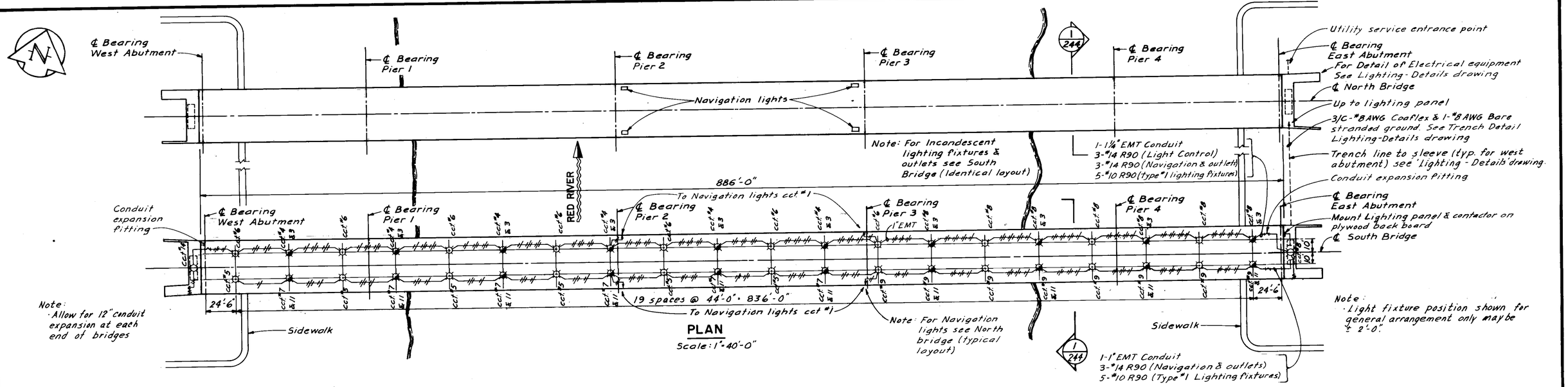
ROUTE 165

MISCELLANEOUS DETAILS

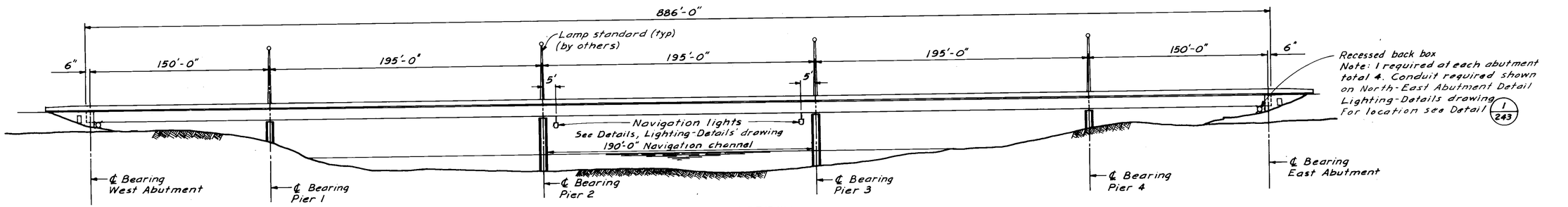
APPROVED BY: [signature] 25/3/77
MANAGER OF STREETS AND TRAFFIC — DATE

SCALE: AS SHOWN
DRAWING NO. B-5092-242

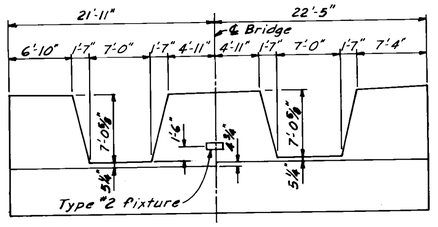
W.L.W. NO. 74012-21



PLAN
Scale: 1"-40'-0"



ELEVATION-NORTH BRIDGE
Scale: 1"=40'-0"



1/243 **DETAIL**
Scale 1/8"=1'-0"

LEGEND
- ¤ Incandescent light fixture
- ¤ Incandescent light fixture & outlet

NOTE: Outlets at every second fixture

$ Lighting control push button station (mount on stricker side of entry door)

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PROVINCE OF MANITOBA — R.S. MORRISON — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: D.K. Grimes DATE 25 MAR 77
DRAWN BY SPB DATE MAR 77
PRELIM. CHK. D.K.G. DATE MAR 77
DESIGN B.S. DATE MAR 77
CHECK D.K.G. DATE MAR 77

ROUTE 165

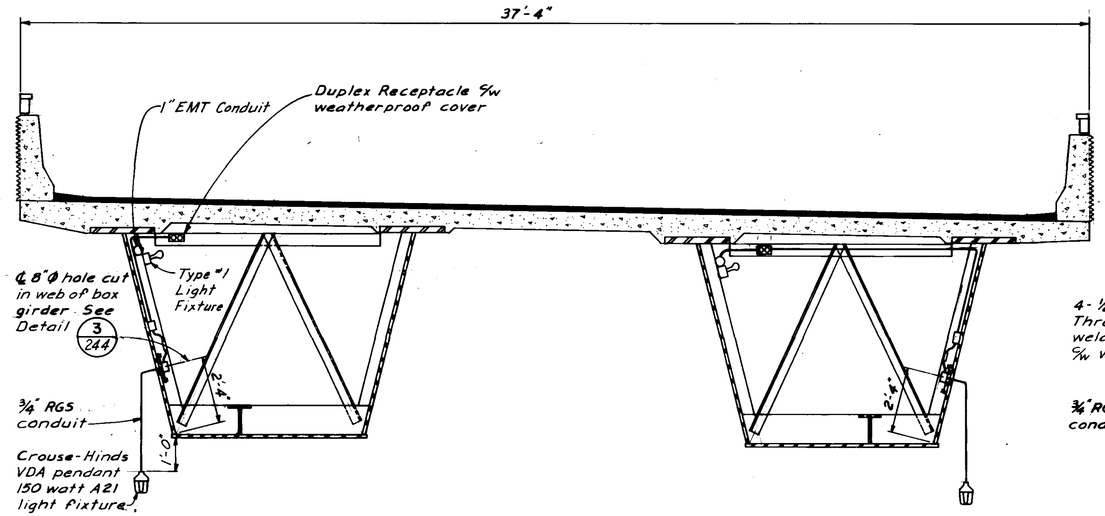
LIGHTING - PLAN AND ELEVATION

SCALE: AS SHOWN

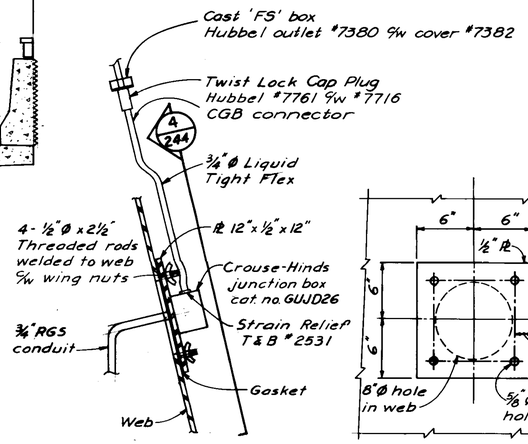
APPROVED BY: Donald R. Campbell MANAGER OF STREETS AND TRAFFIC 25/3/22 DATE

DRAWING NO. B-5092-243

W.L.W. NO. 74012-21

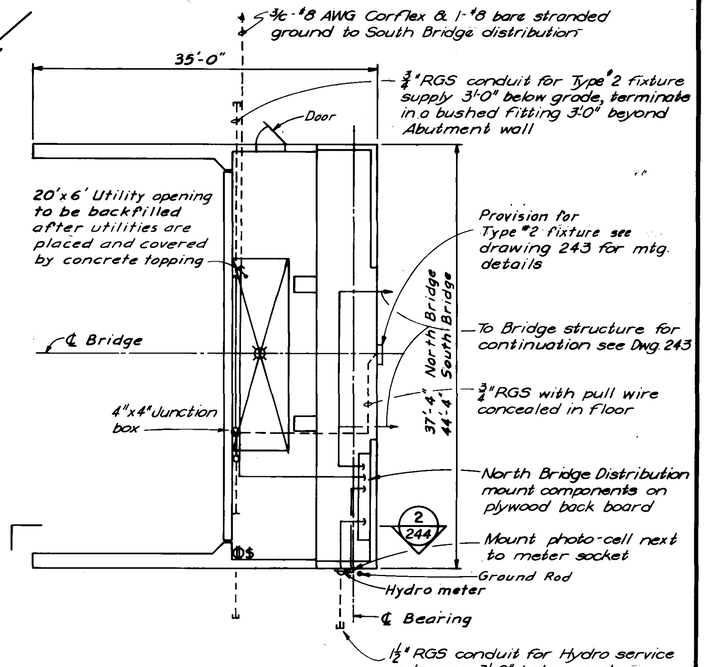


1/244 TYPICAL CROSS-SECTION NORTH BRIDGE
Scale: 3/8"=1'-0"

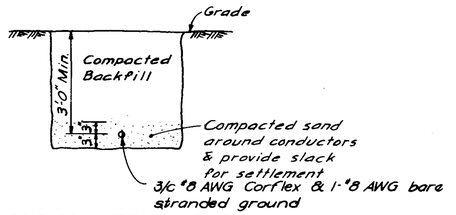


3/244 DETAIL
Scale: 1 1/2"=1'-0"

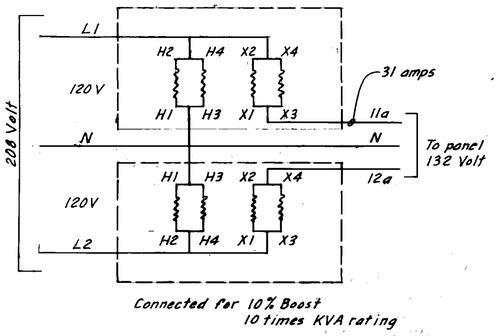
4/244 ELEVATION
Scale: 1 1/2"=1'-0"



ABUTMENT PLAN
Scale: 1/8"=1'-0"

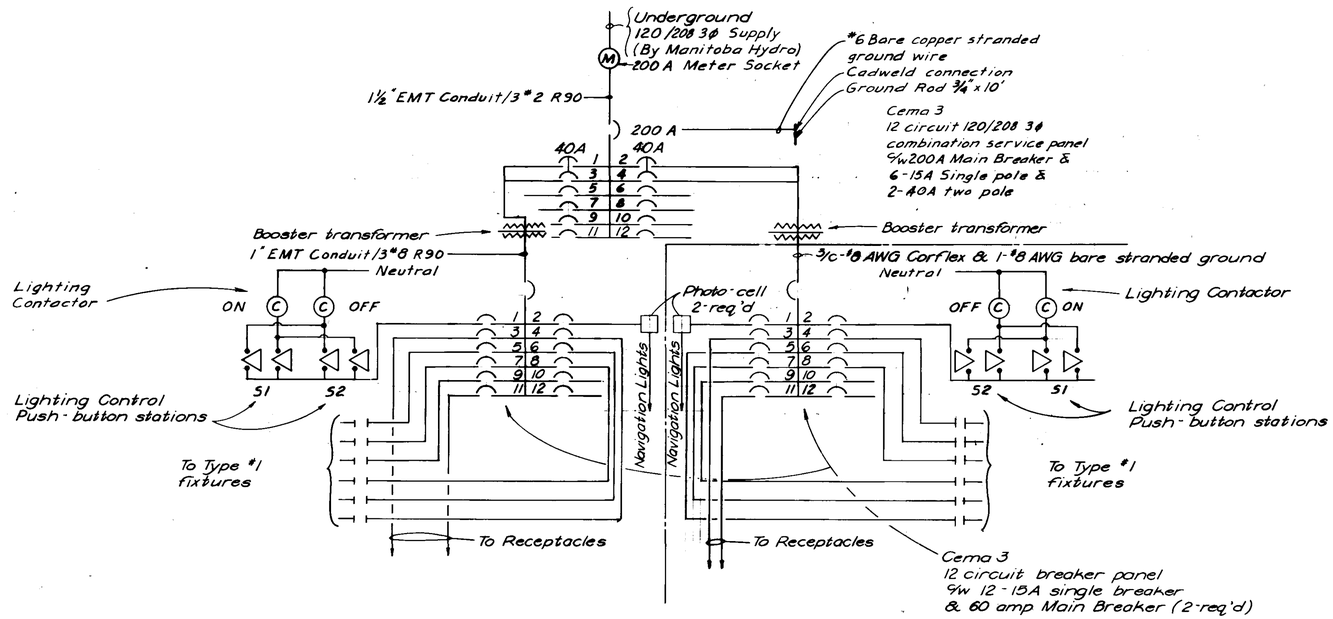


TYPICAL TRENCH DETAIL



Connected for 10% Boost
10 times KVA rating

BRIDGE LIGHTING
BOOSTER TRANSFORMER CONNECTION



NORTH BRIDGE DISTRIBUTION

SOUTH BRIDGE DISTRIBUTION

AS-BUILT

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0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA — R. S. MORRISON — REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: DATE 25 March 77
DRAWN BY SPB DATE MAR 77
PRELIM. CHK. DATE
DESIGN BS DATE MAR 77
CHECK DATE

ROUTE 165

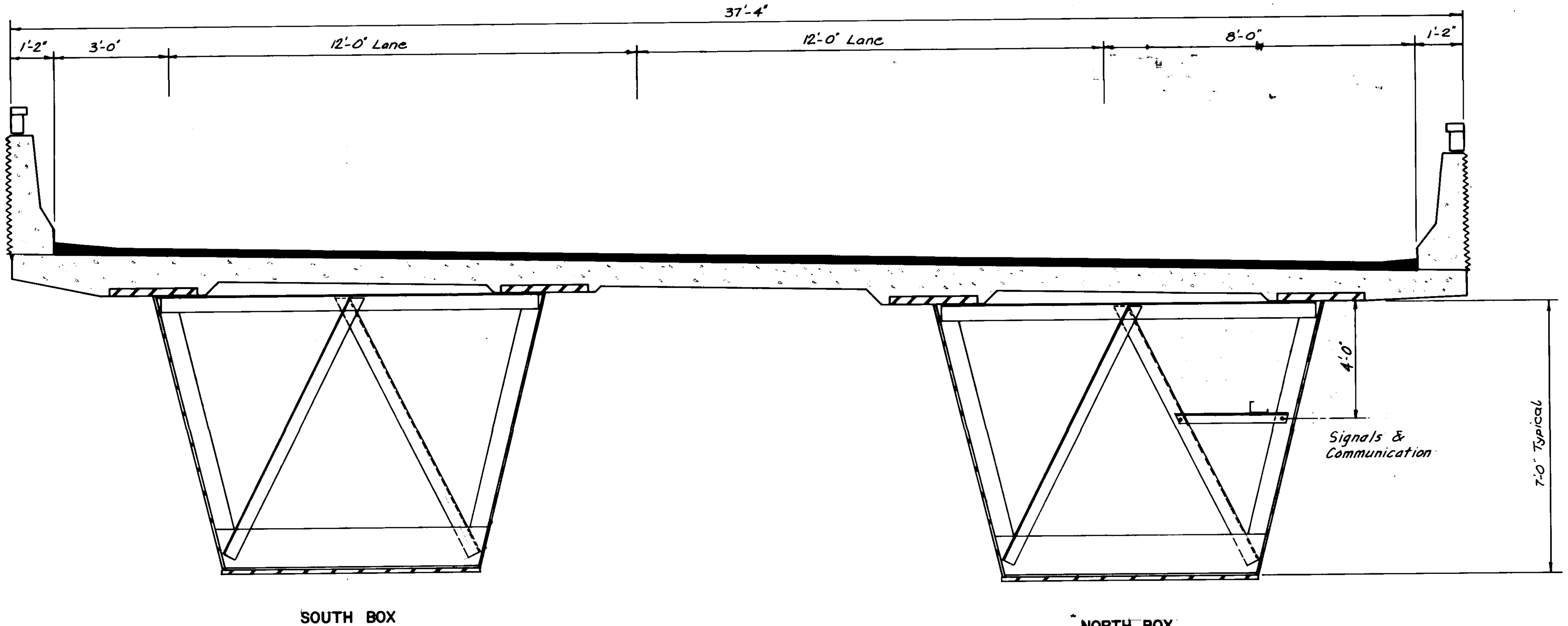
LIGHTING - DETAILS

SCALE: AS SHOWN

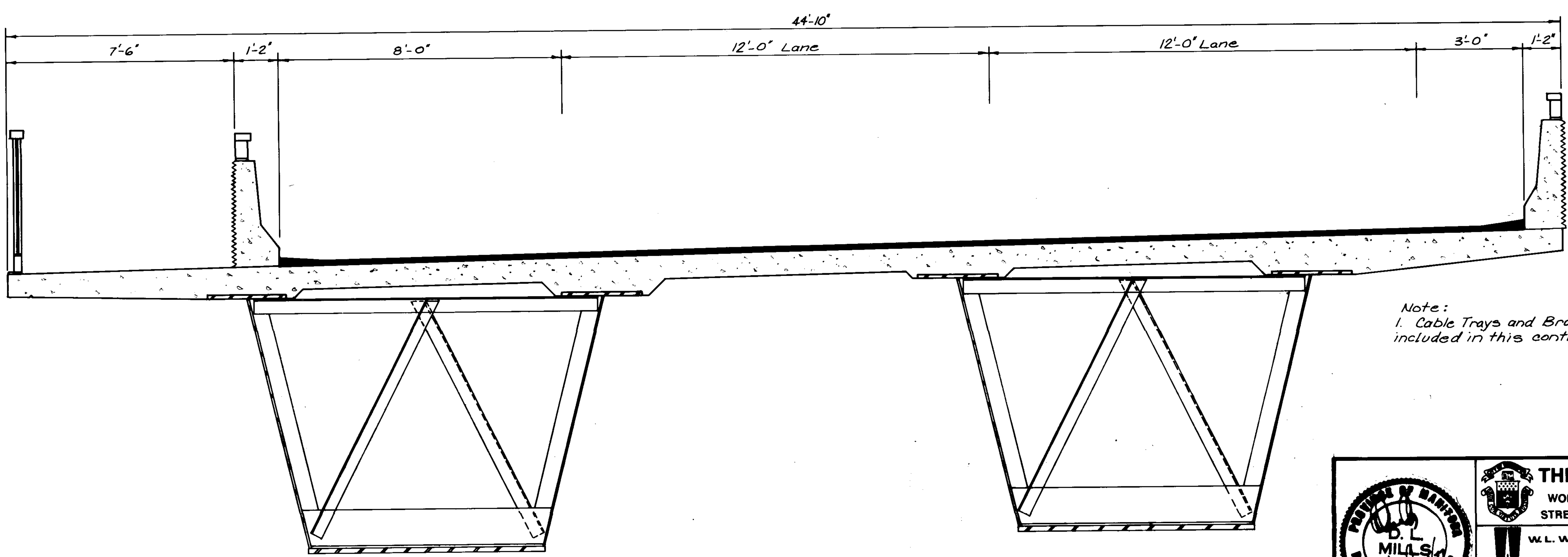
APPROVED BY: MANAGER OF STREETS AND TRAFFIC DATE 25/3/77

DRAWING NO. B-5092-244

W.L.W. NO. 74012-21



NORTH BRIDGE



SOUTH BRIDGE

Note:
1. Cable Trays and Brackets are not included in this contract.

AS - BUILT

DATE	FB. NO.	PAGE

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	4-4-77	

PROVINCE OF MANITOBA D. L. MILLS REGISTERED ENGINEER

THE CITY OF WINNIPEG
WORKS & OPERATIONS DEPARTMENT
STREETS & TRANSPORTATION DIVISION

W. L. WARDROP & ASSOCIATES LTD.
ENGINEERING CONSULTANTS
WINNIPEG · THUNDER BAY · REGINA · BARRIE · EDMONTON

APPROVED BY: [signature] DATE 25 Mar/77

DRAWN BY DAP DATE MAR 77 DESIGN STK DATE MAR 77
PRELIM. CHK. STK MAR 77 CHECK [signature] Mar/77

ROUTE 165

FUTURE UTILITIES

APPROVED BY: [signature] 25/3/22
MANAGER OF STREETS AND TRAFFIC DATE

SCALE: $\frac{1}{2}$" = 1'-0"

DRAWING NO. B-5092-245

W.L.W. NO. 74012·21