

CONSTRUCTION BENCH MARKS
P.B.M. 98-253 El. 123.552 City of Detroit Monument
D. Side Jefferson Ave. Bridge @ G.T.W.R.R.
C.B.M. N02 El. 120.76 Arrow on Hydrant
S.E. Corner Larned St. & St. Aubin Ave.
C.B.M. N06 El. 119.74 Arrow on Hydrant
S.E. Corner Larned St. & Biopelle St.

REVISIONS LOCATED BY COORDINATES ON SHEET

| NO. | DESCRIPTION | DATE | BY |
|-----|-------------|------|----|
| | | | |
| | | | |
| | | | |
| | | | |

DESIGNED BY: C.C.L. / R.P.H.
DRAWN BY: RLF
TRACED BY: [Signature]
CHECKED BY: [Signature]

ENGINEER OF EXPRESSWAYS
Edward Bernarducci
ASSISTANT ENGINEER - HIGHWAYS & EXPRESSWAYS
Clyde S. Johnson
CITY ENGINEER

NOTE:
Existing substructure and proposed superstructure are shown.

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERS OFFICE
BUREAU OF HIGHWAYS AND EXPRESSWAYS

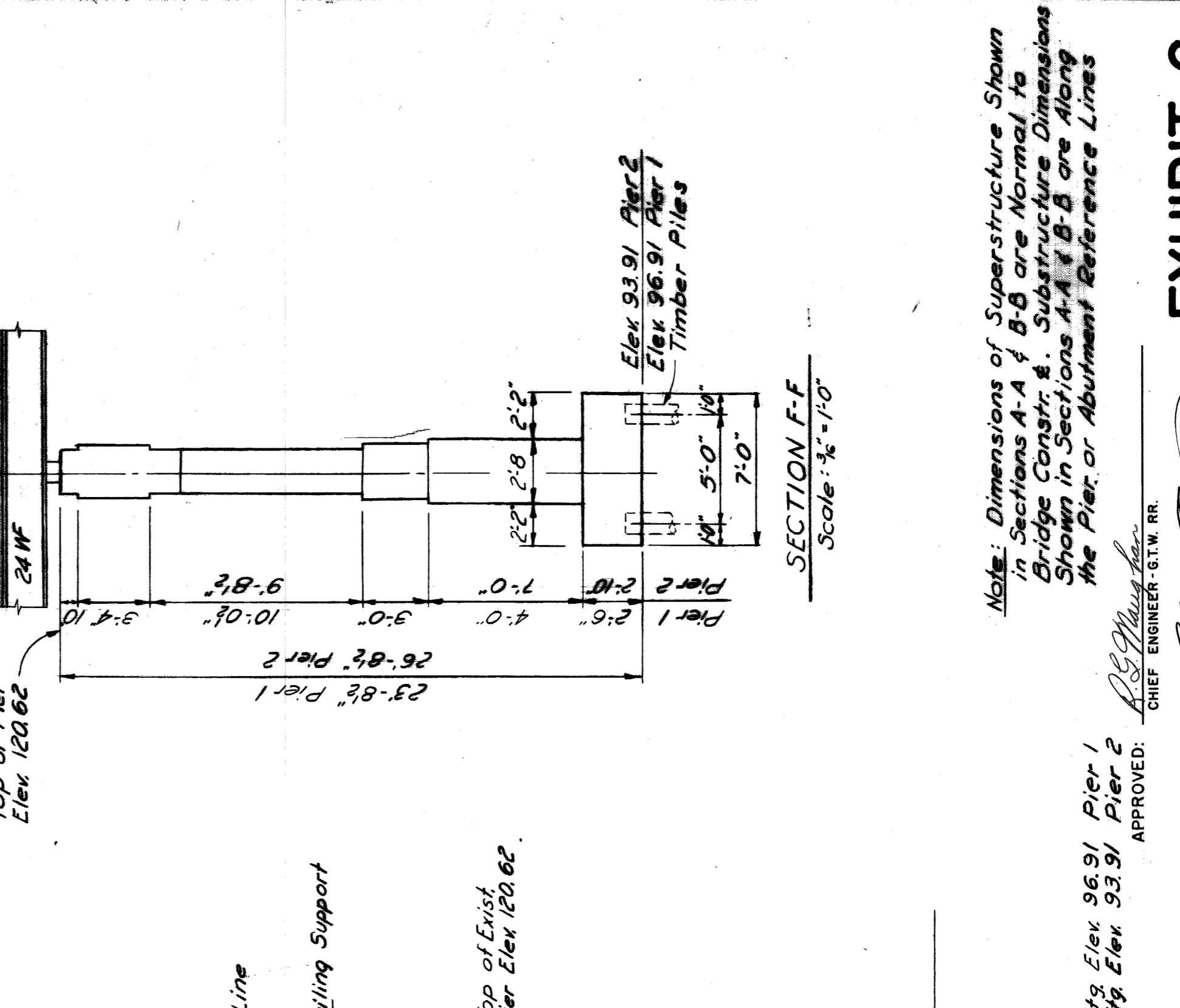
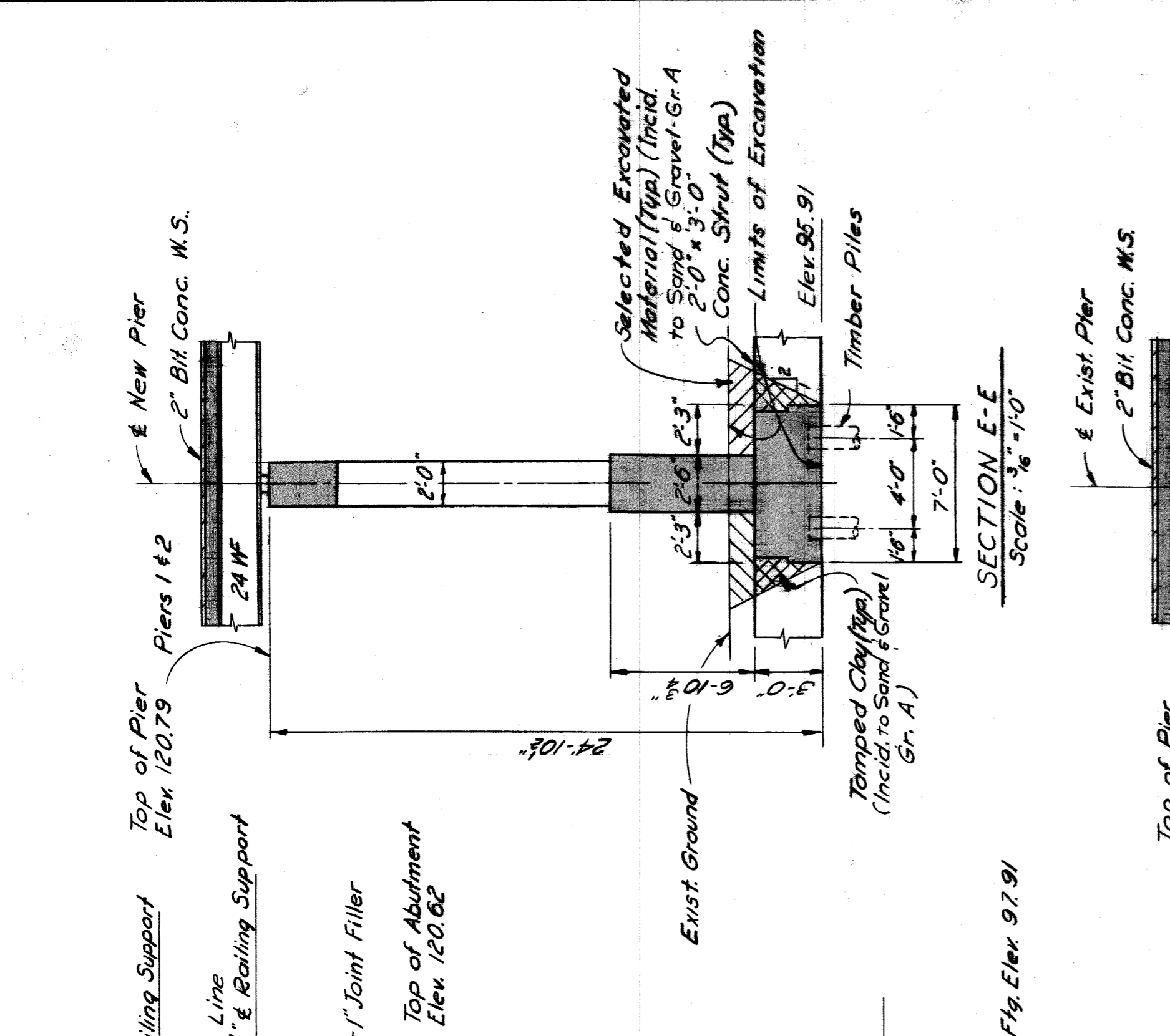
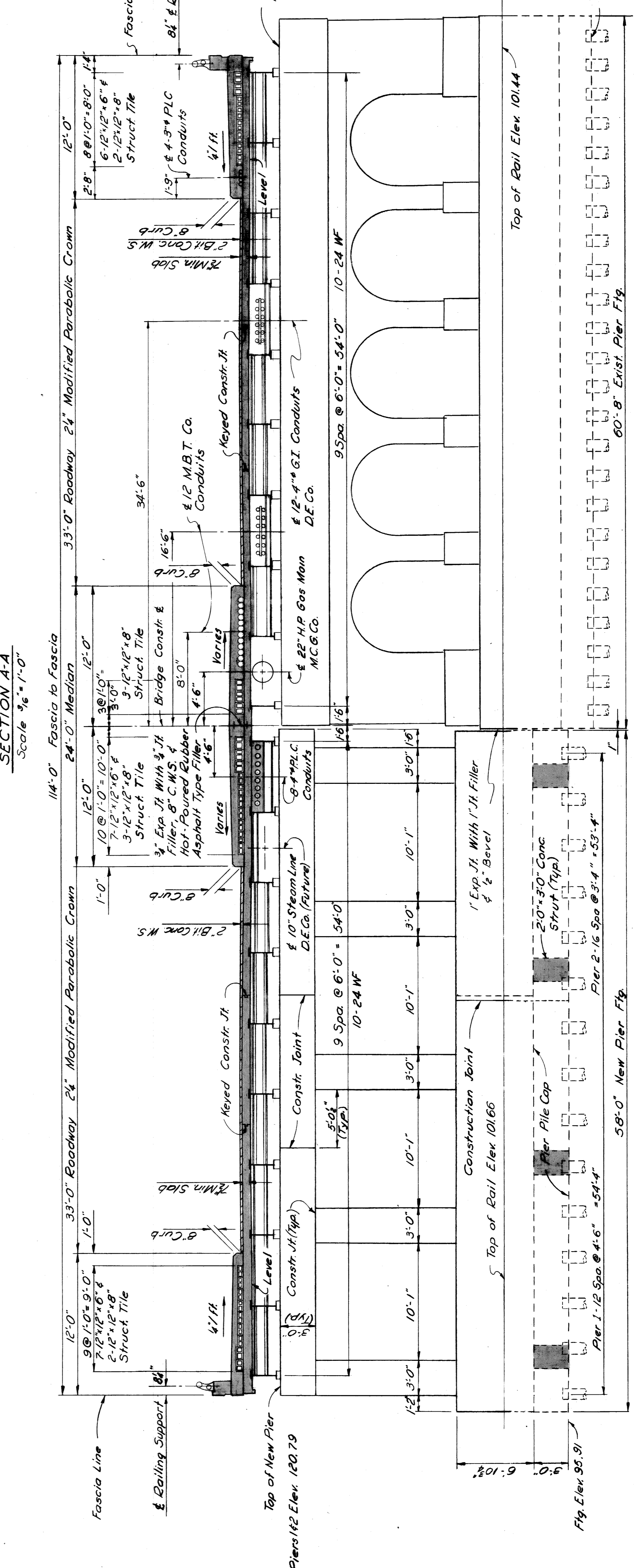
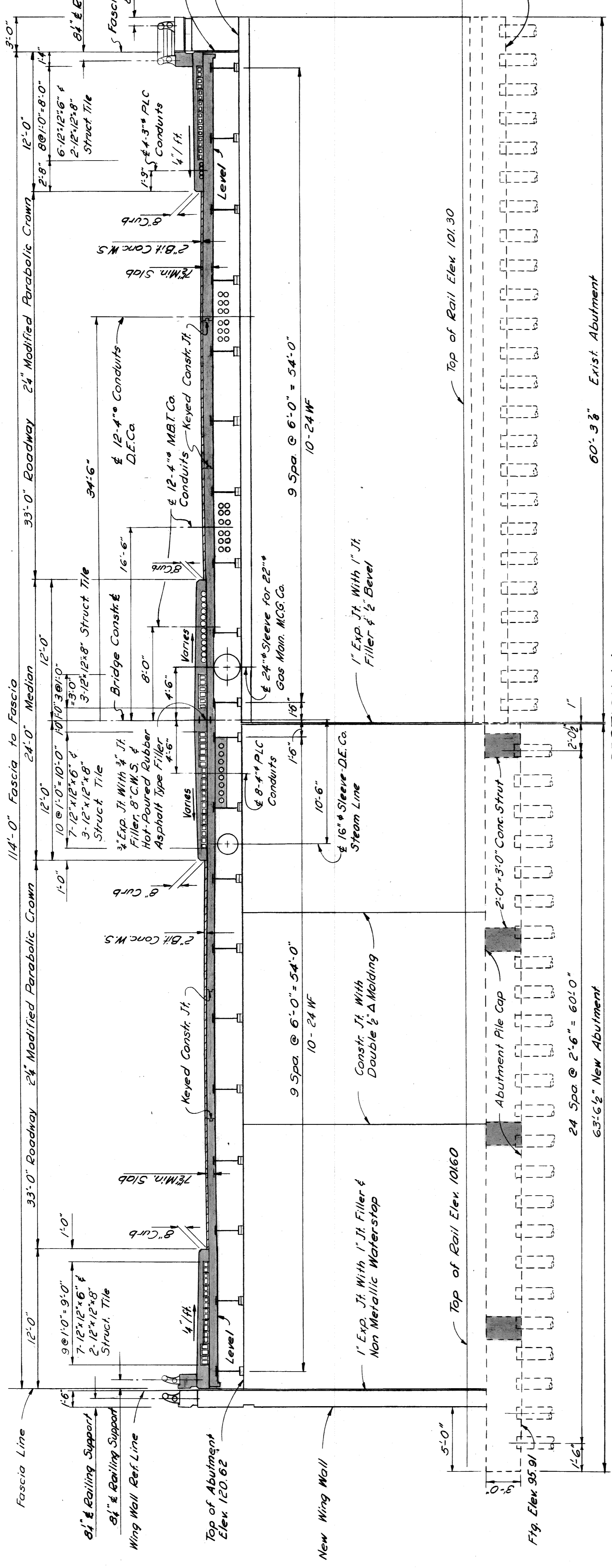
RAILROAD GRADE SEPARATION

LARNED STREET BRIDGE X069
OVER
GRAND TRUNK WESTERN RAILROAD
GENERAL PLAN OF SITE

APPROVED: [Signature] CHIEF ENGINEER - G.T.W. RR.
APPROVED: [Signature] COMMISSIONER OF PUBLIC WORKS

EXHIBIT A

SHEET 1 OF 6 SHEETS
CONTRACT PW 3988
DRWG No. C 101
DATE FEB 1962



Note: Dimensions of Superstructure Shown in Sections A-A & B-B are Normal to Bridge Constr. & Substructure Dimensions Shown in Sections E-E & F-F are Along the Pier or Abutment Reference Lines

APPROVED: *[Signature]*
CHIEF ENGINEER - D.T.W. RR.
COMMISSIONER OF PUBLIC WORKS

EXHIBIT C

| |
|----------------------|
| SHEET 3 OF 6 SHEETS |
| CONTRACT NO. PW 3988 |
| DRWG NO. C-103 |
| DATE FEB 1962 |

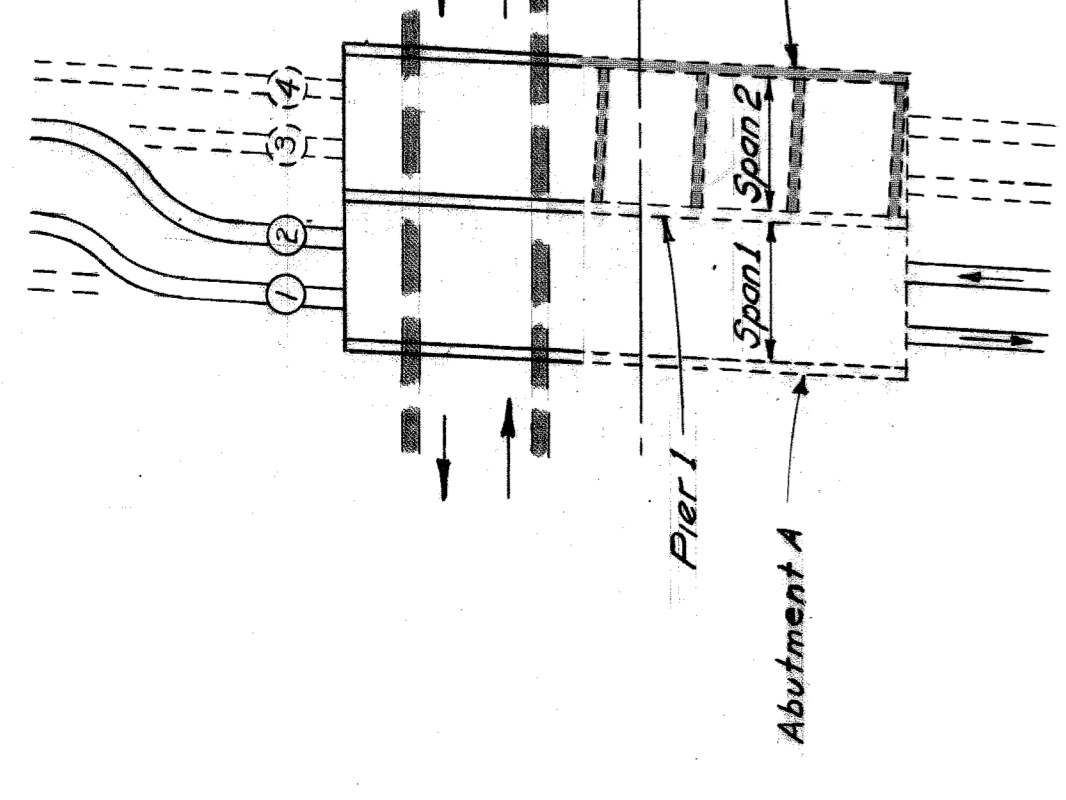
LARNED STREET BRIDGE X069
OVER
GRAND TRUNK WESTERN RAILROAD
GENERAL PLAN OF STRUCTURE

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERS OFFICE
BUREAU OF HIGHWAYS AND EXPRESSWAYS

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

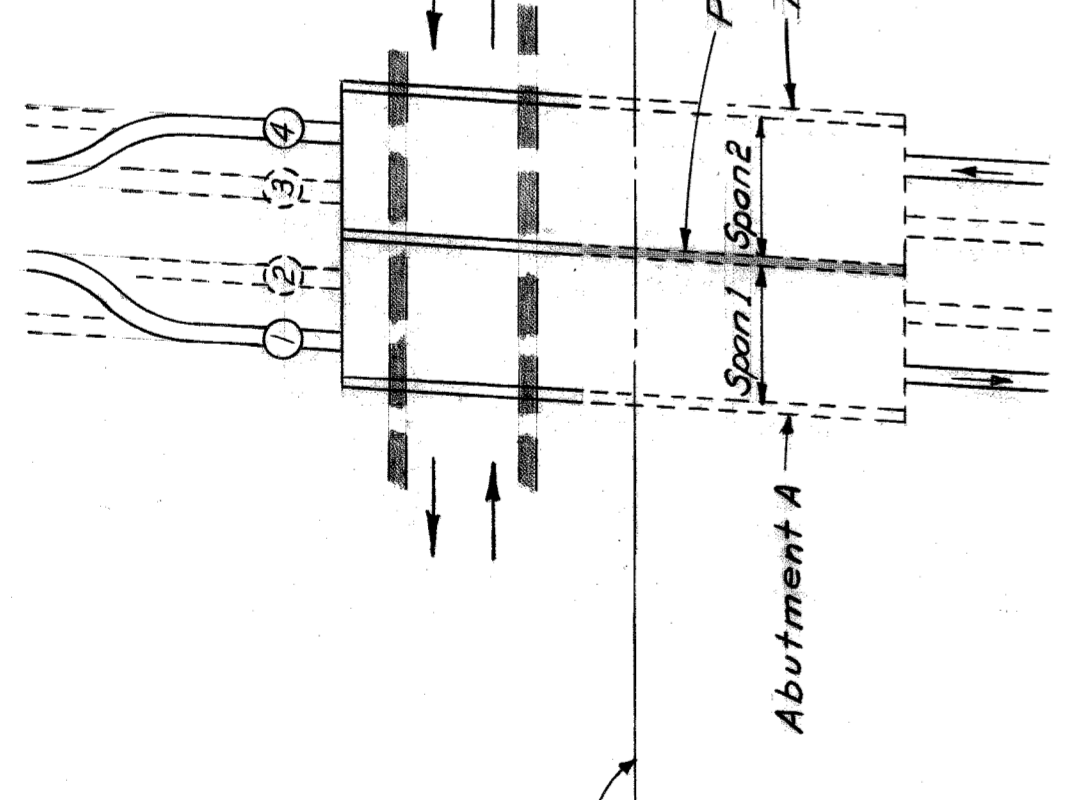
| | |
|---|-----------------|
| DESIGNED BY | C.C.L. / R.R.H. |
| DRAWN BY | T. Baker |
| TRACED BY | |
| CHECKED BY | R. James / J.C. |
| REVISIONS LOCATED BY COORDINATES ON SHEET | |

[Signature]
ENGINEER OF STRUCTURES
ASSISTANT ENGINEER - HIGHWAYS & EXPRESSWAYS
[Signature]
CITY ENGINEER



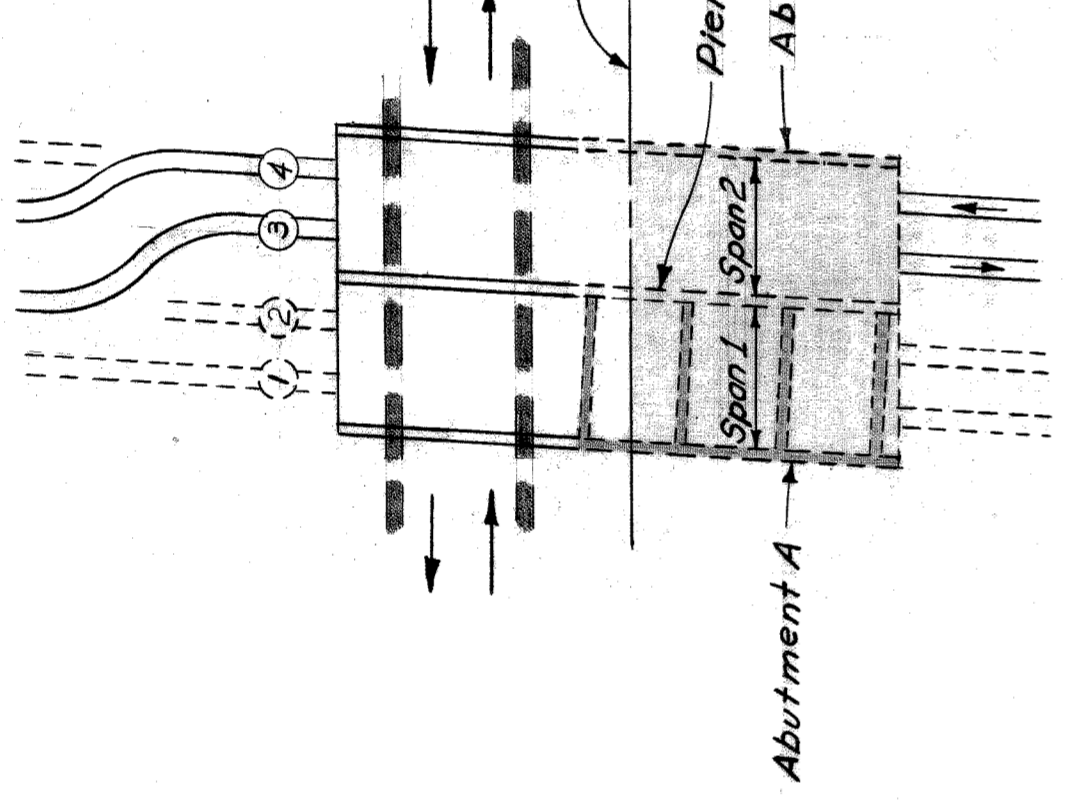
STAGE I

1. Re-route R.R. tracks 3 & 4 to tracks 1 & 2
2. Construct Abutment B
3. Construct struts between abutment B & Pier 1 & replace track 4
4. Vehicular traffic to use existing bridge structure



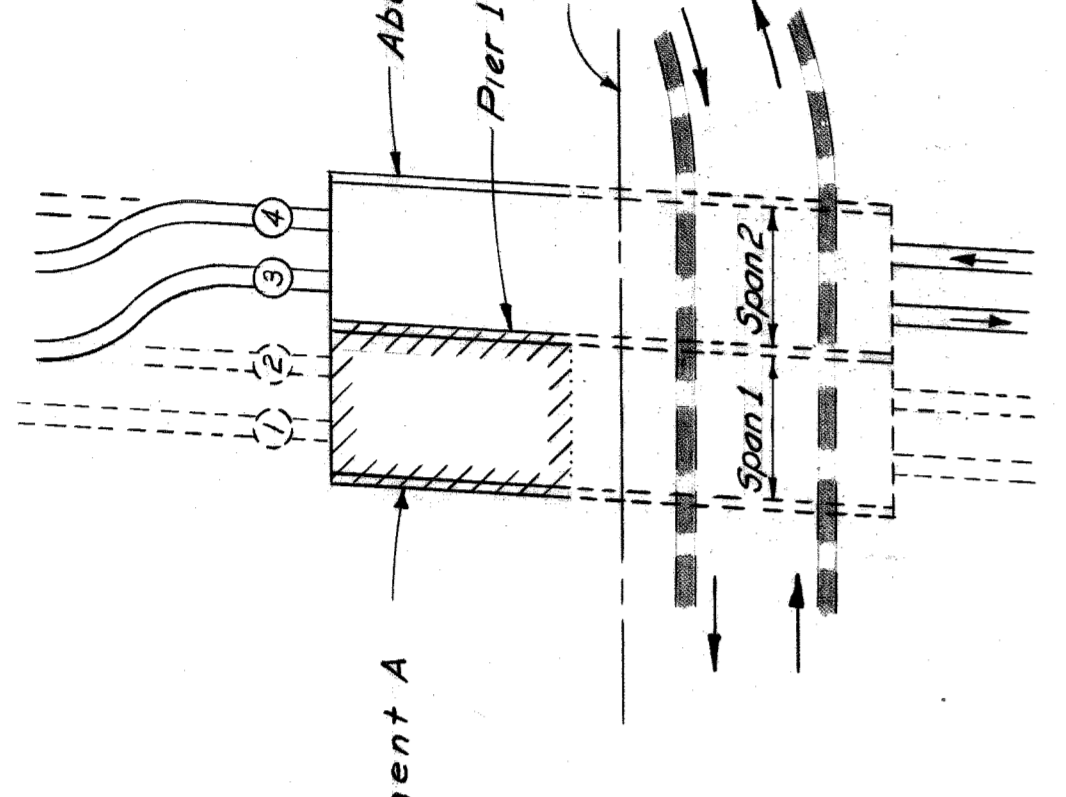
STAGE II

1. Re-route R.R. track 2 to track 4
2. Construct Pier 1
3. Replace track 3



STAGE III

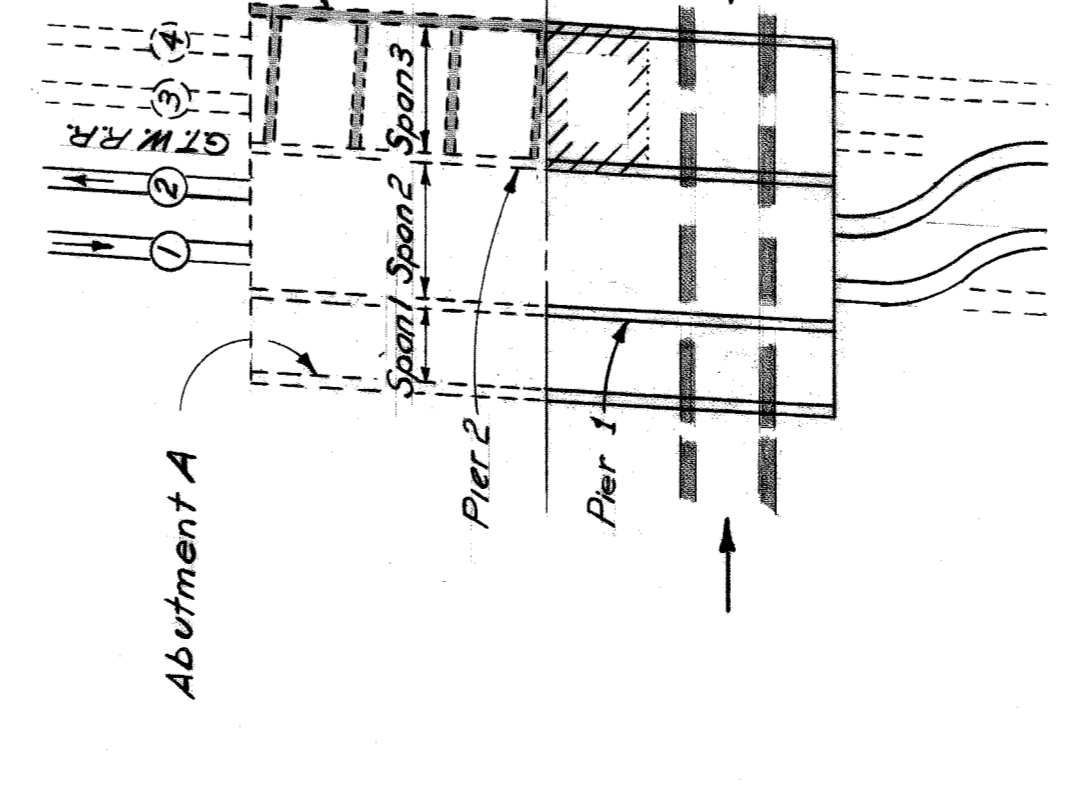
1. Re-route R.R. track 1 to track 3
2. Construct abutment A & struts between abutment A & Pier 1
3. Construct superstructure on South side of Spans 1 & 2 & complete approaches to South side of bridge



STAGE IV

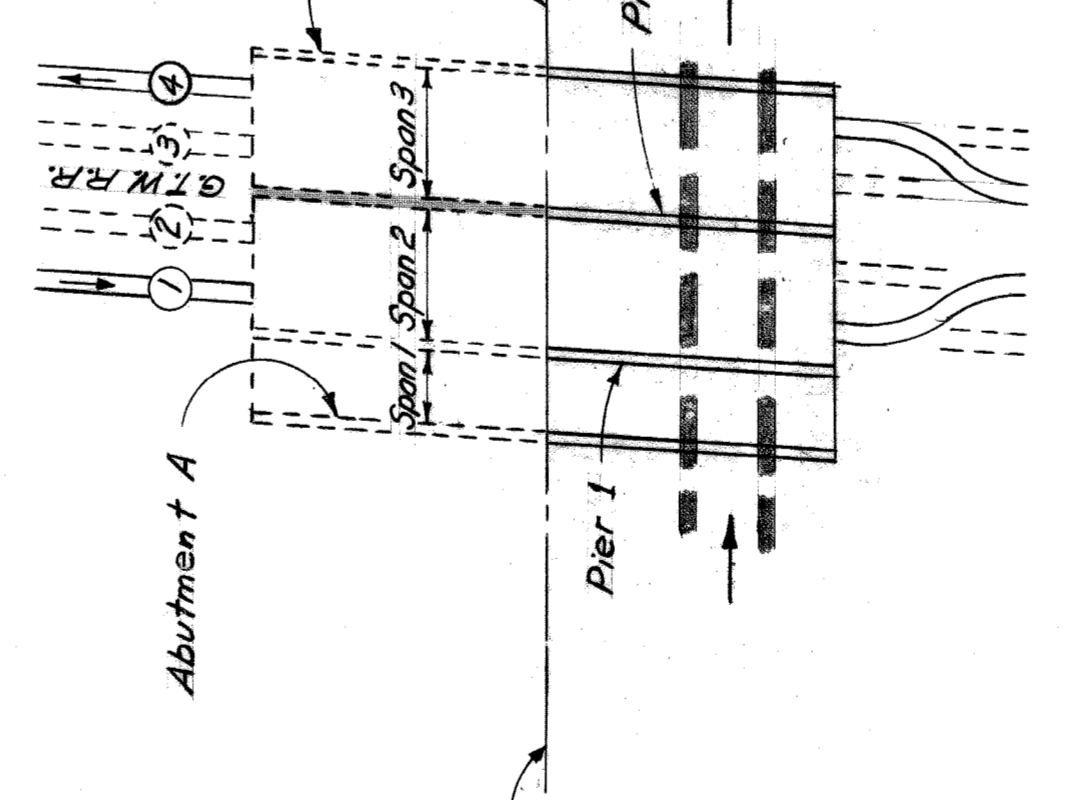
1. Re-route R.R. tracks 3 & 4 to tracks 1 & 2
2. Demolition existing superstructure span 2
3. Complete superstructure spans 1 & 2 & complete bridge approaches
4. Route Veh. traffic to north half of bridge

CONSTRUCTION SEQUENCE OF LAFAYETTE AVE. BRIDGE X072



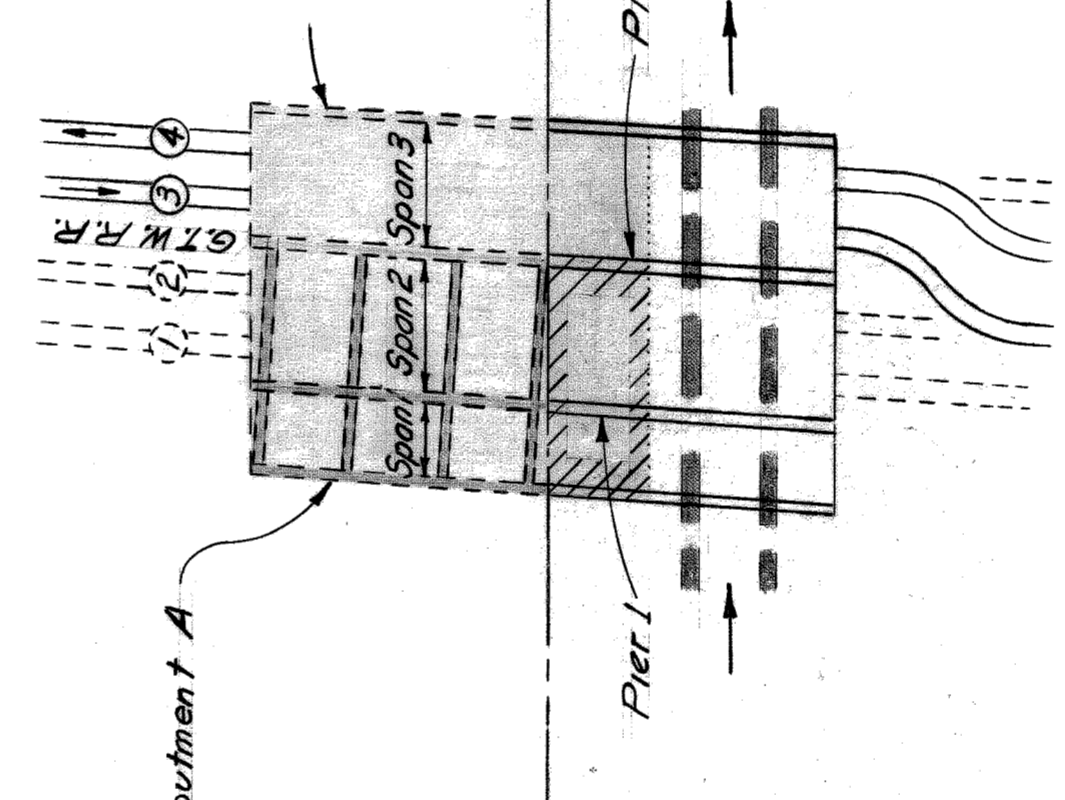
STAGE I

1. Re-route R.R. tracks 3 & 4 to tracks 1 & 2
2. Construct Abutment B
3. Construct struts between Abutment B & Pier 2 & replace track 4
4. Partial demolition Existing Span 3
5. Vehicular traffic to use existing bridge structure



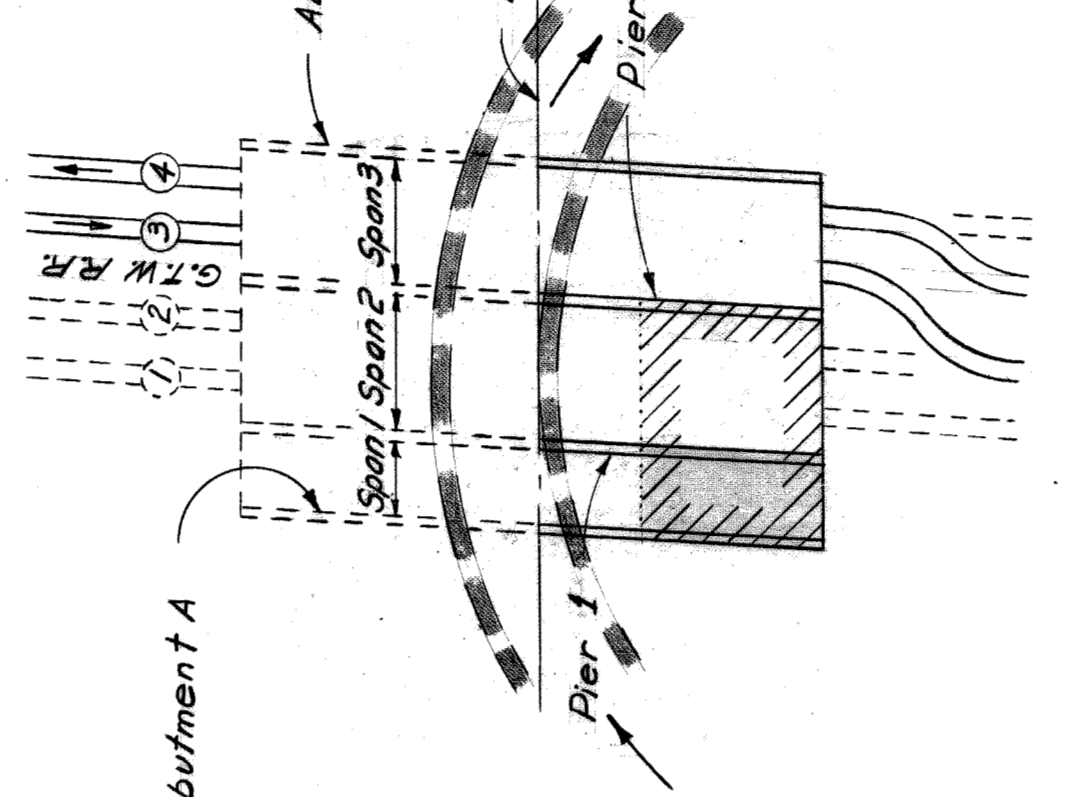
STAGE II

1. Re-route R.R. track 2 to track 4
2. Construct Pier 2
3. Replace R.R. track 3



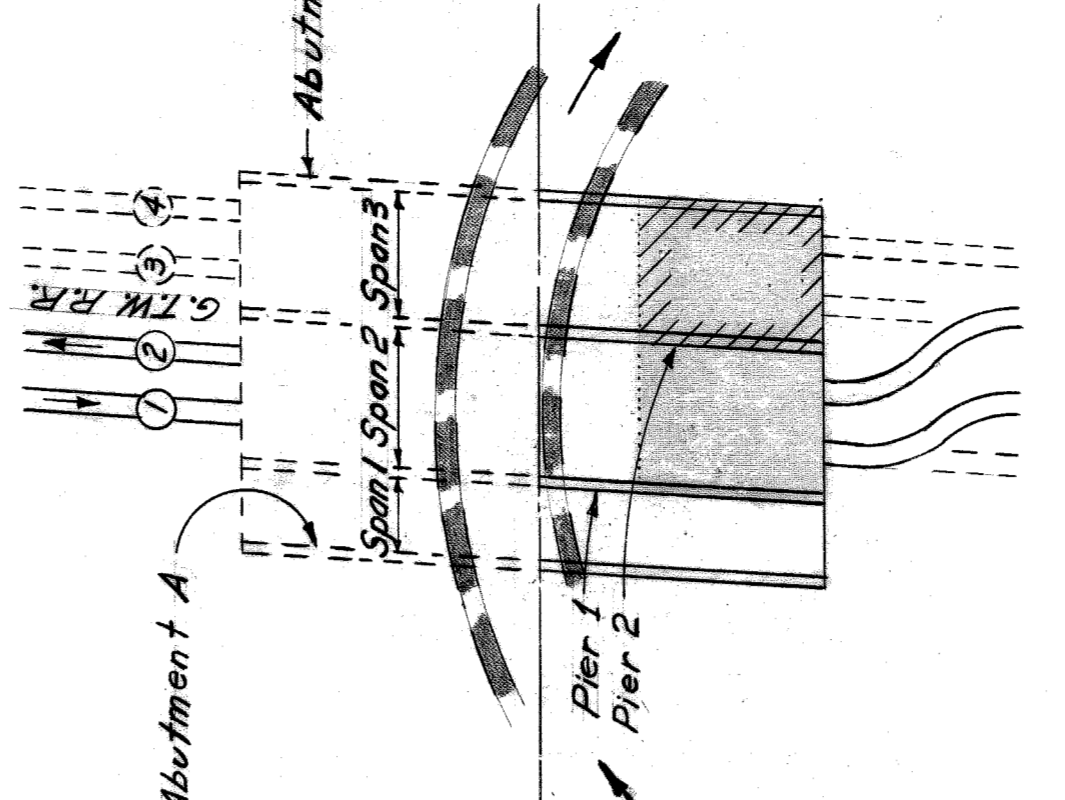
STAGE III

1. Re-route R.R. track 1 to track 3
2. Construct Pier 1 & struts between Pier 2 & Pier 1
3. Construct Abutment A & struts between Abutment A & Pier 1
4. Partial demolition Existing Spans 1 & 2
5. Construct Superstructure on North Side of Spans 1, 2 & 3 & complete approaches to North side of bridge



STAGE IV

6. Re-route vehicular traffic to new North superstr
7. Demolition existing superstructure spans 1 & 2
8. Complete Superstructure on South side of span 1 & complete West side approach



STAGE V

1. Re-route R.R. tracks 3 & 4 to tracks 1 & 2
2. Demolition existing superstructure Span 3
3. Complete Superstructure spans 2 & 3 & complete approach on East of bridge structure
4. Route vehicular traffic back over south half of bridge & erect barricades closing north half.

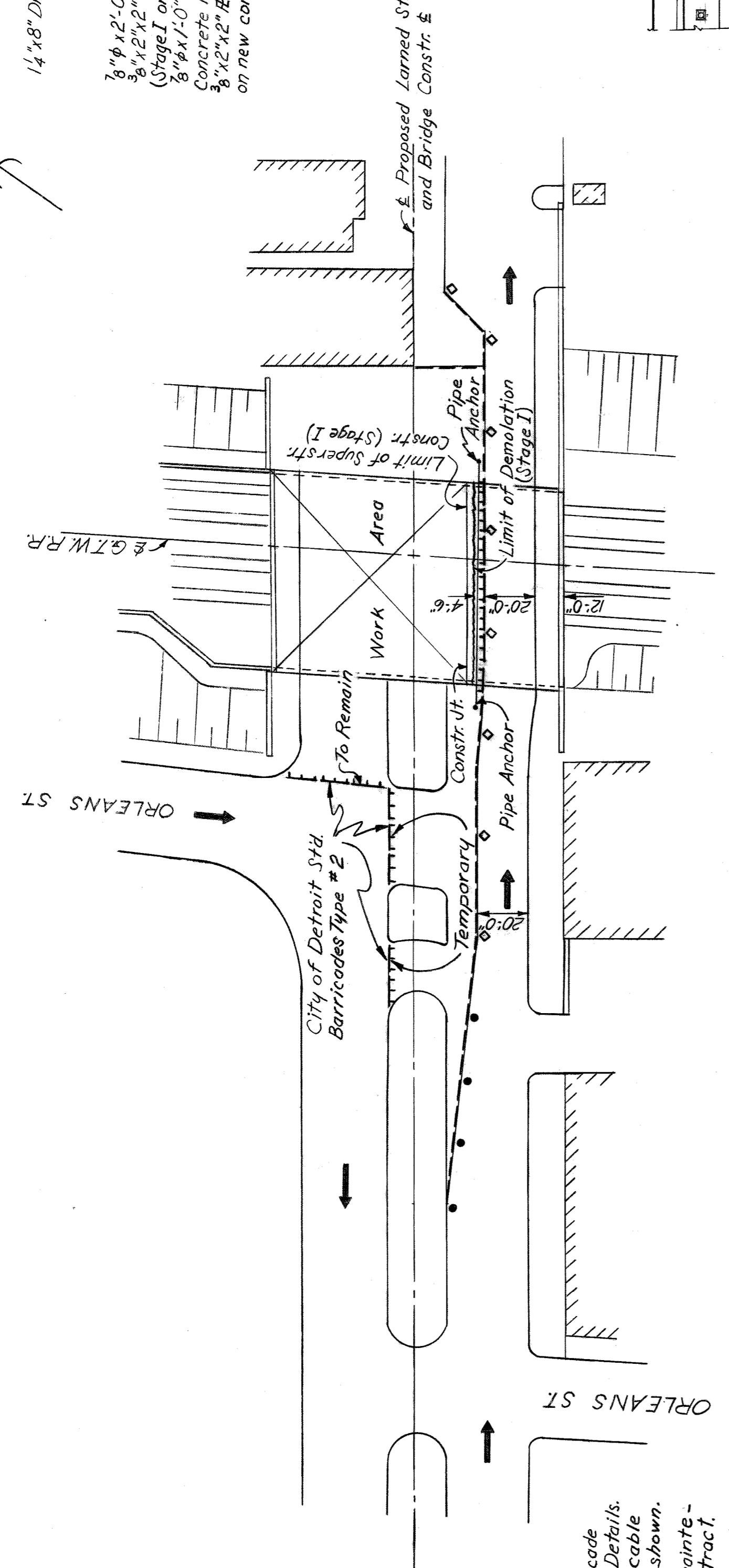
CONSTRUCTION SEQUENCE OF LARNED STREET BRIDGE X069

See sheet C-106 for Barricades & Construction Stages of new Bridge Superstructure.

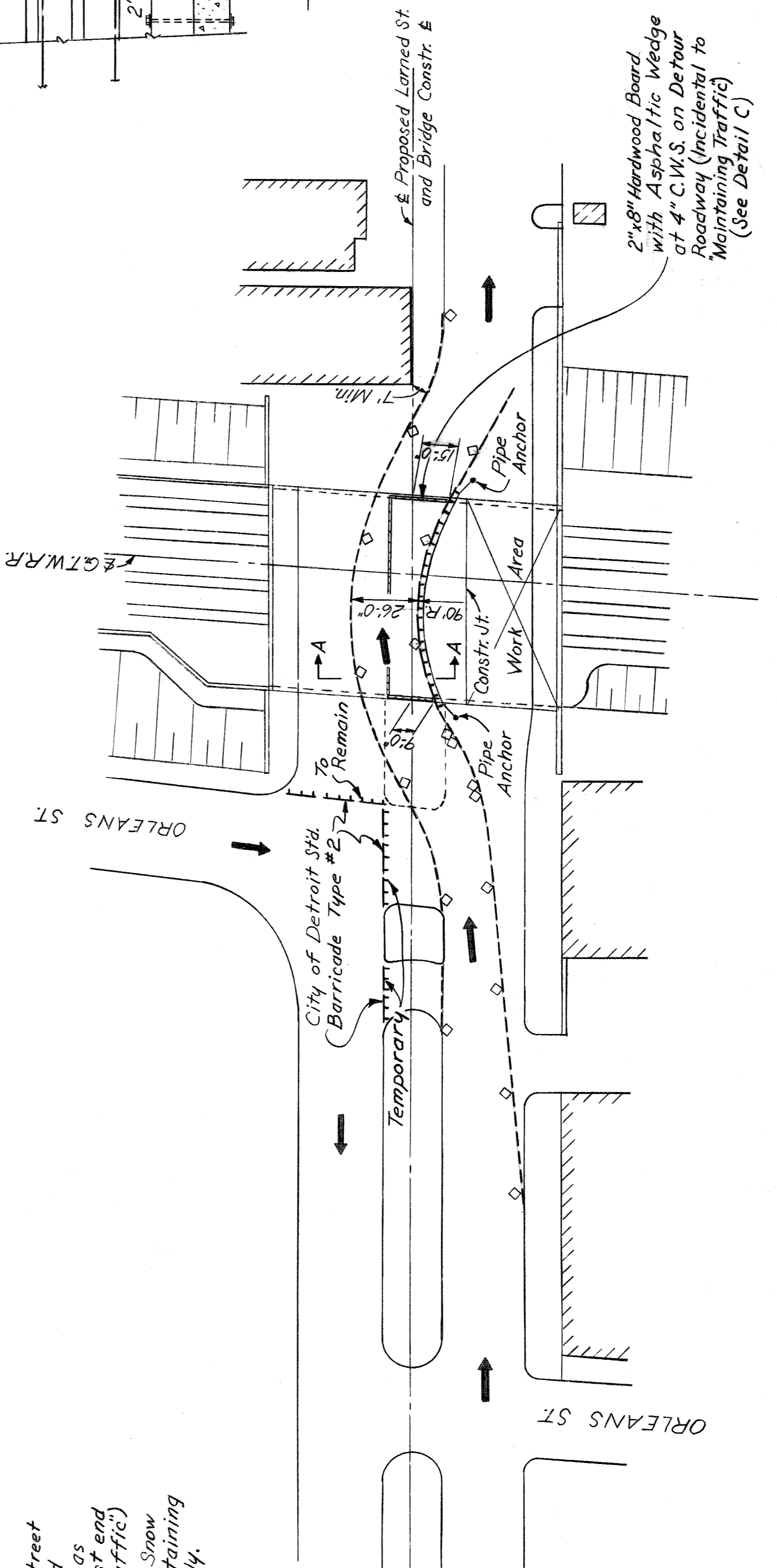
LEGEND

- Substructure Construction
- Superstructure Construction
- Demolition

| | | | |
|---|-------------------------|--|--------------------|
| DESIGNED BY | C.C.L. / R.R.H. | ENGINEER OF EXPANSIONS | <i>[Signature]</i> |
| DRAWN BY | D. F. G. | CITY ENGINEER | <i>[Signature]</i> |
| TRACED BY | | ASSISTANT CITY ENGINEER - HIGHWAYS & EXPRESSWAYS | <i>[Signature]</i> |
| CHECKED BY | J. Covert / A. Freiberg | CITY ENGINEER | <i>[Signature]</i> |
| REFERENCE DRAWINGS | | | |
| DESCRIPTION | | | |
| REVISIONS LOCATED BY COORDINATES ON SHEET | | | |
| LARNED STREET BRIDGE X069 OVER GRAND TRUNK WESTERN RAILROAD | | | |
| CONSTRUCTION SEQUENCE | | | |
| SHEET 6 OF 46 SHEETS | CONTRACT PW 3988 | | DATE MAR 1962 |
| | DRWG No. C 105 | | |



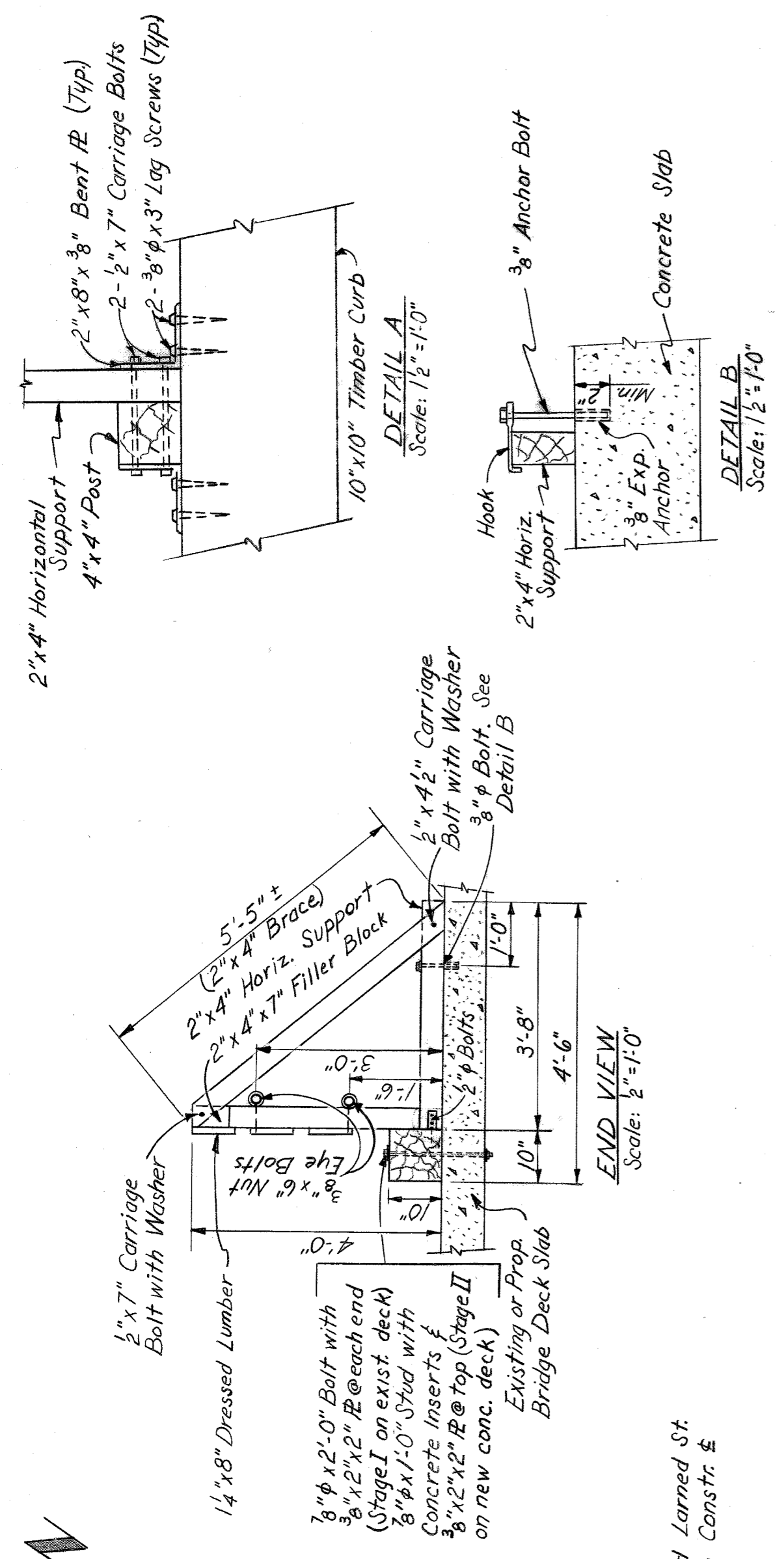
DETOUR STAGE I
Scale: 1"=40'



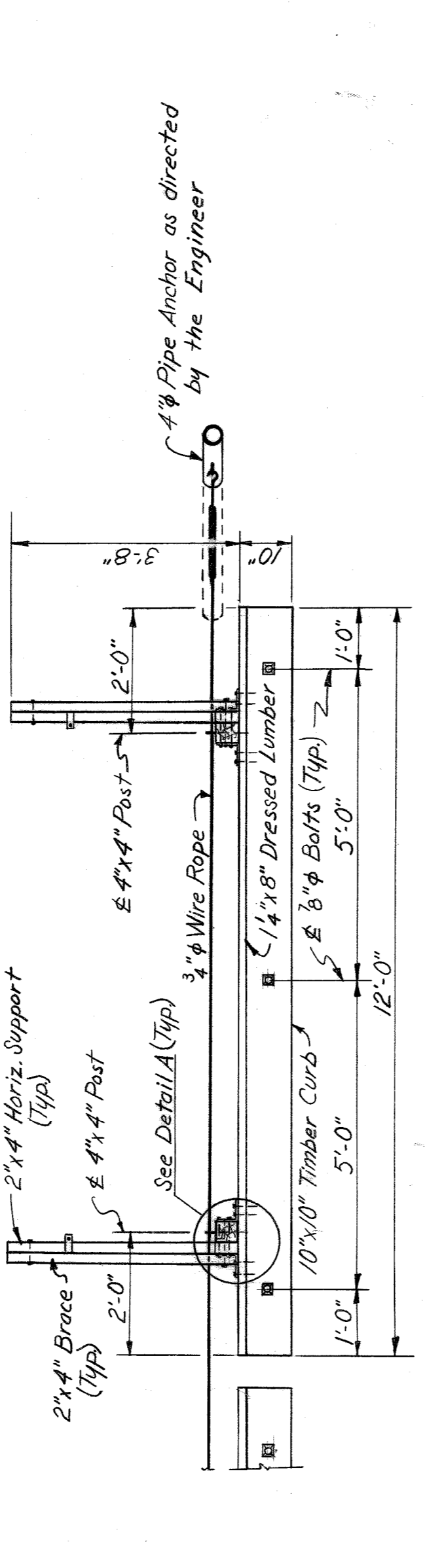
DETOUR STAGE II
Scale: 1"=40'

NOTES:
 The Contractor shall furnish and erect Barricade as shown on the Temporary Barricade Assembly Details. The Contractor shall erect the assembly with cable anchorage and curb anchorage on the Bridge as shown.
 The Contractor shall be responsible for maintenance of Barricades during the life of the Contract.
 Barricades, Timber Curb and Snow Fence are to conform to City of Detroit Standard Barricade Type #2 and Snow Fence with Curb assembled and painted as shown on sheet No P-304.
 Type #2 Barricades to be stabilized as directed by the Engineer.
 The contractor shall move & remove Barricades as indicated on the plans or as directed by Engineer.
 Barricades at the corner of Orleans and Larned Street as shown on Plan are to be left in place and become the property of the City.
 Demolition of the existing Bridge Structure within the limits shown should start after Barricade for Stage I is securely anchored as detailed.
 Permanent Barricade on east end of Fort Street Bridge (See sheet C-100) shall be furnished and erected by contractor and conform as closely as possible to the existing Barricade on the west end of the bridge. (Incidental to Maintaining Traffic)
 All Barricades with Flares, Flashers and Snow Fences as detailed are incidental to "Maintaining Traffic" and will not be paid for separately.

- LEGEND**
- "Bomb" Type Flare
 - Single Flasher
 - ◇ Two Level Flasher
 - TT 4 x 12" Barricade
 - Timber Curb & Snow Fence



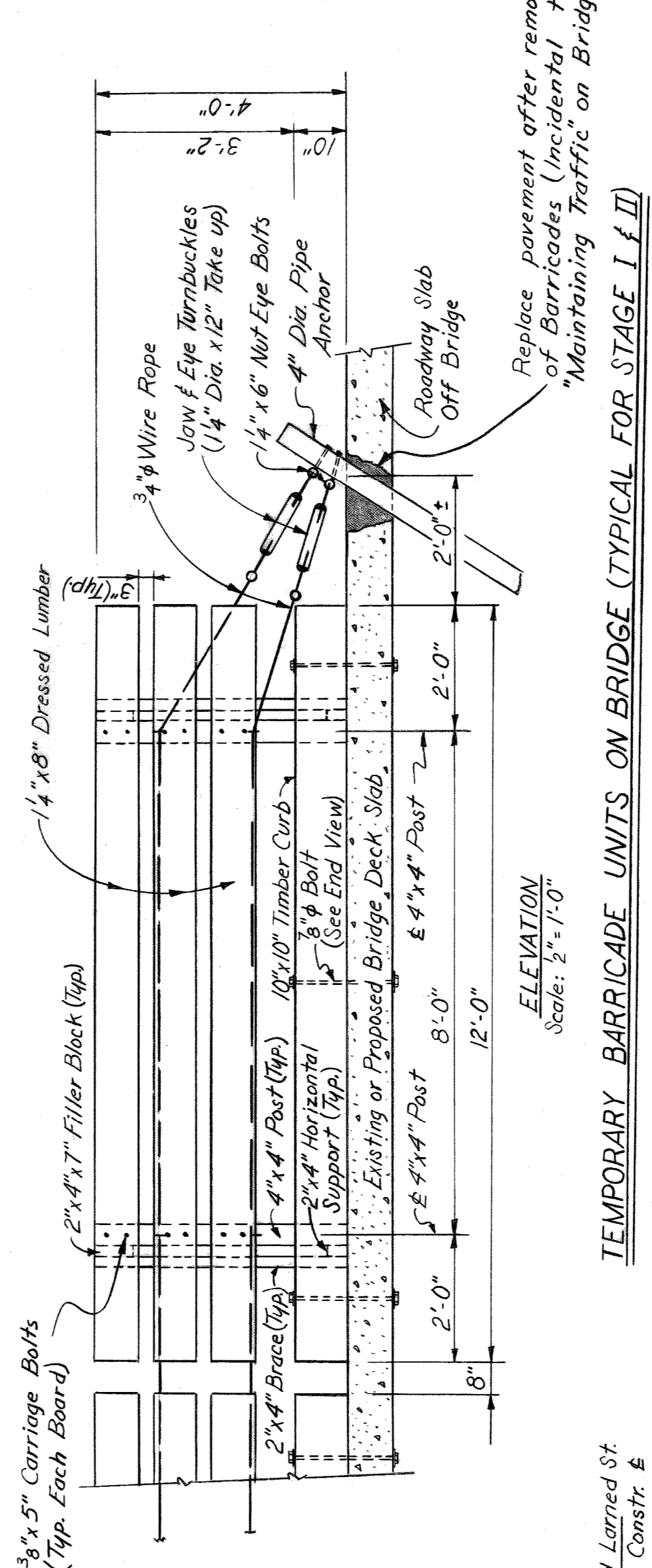
DETAIL A
Scale: 1/2"=1'-0"



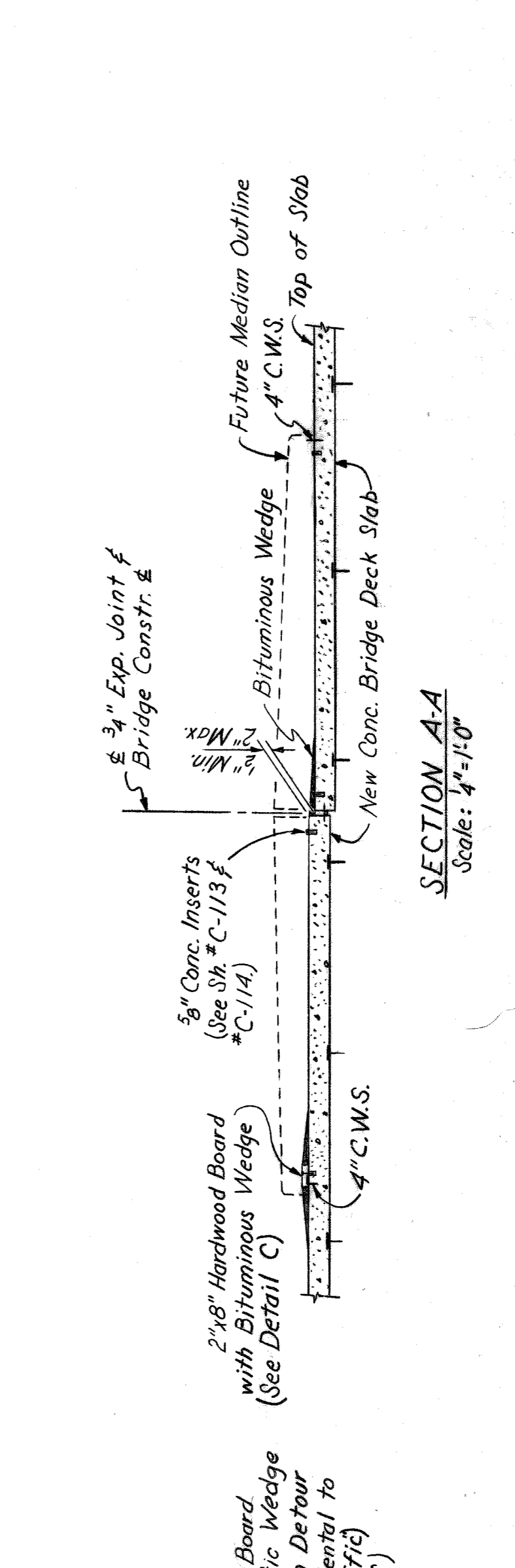
DETAIL B
Scale: 1/2"=1'-0"

NOTE:
 All face boards to be Douglas Fir.
 All other boards & posts to be Fir.
 10"x10" Timber Curb may be used
 Timber in good condition.

PLAN
Scale: 2"=1'-0"



ELEVATION
Scale: 2"=1'-0"

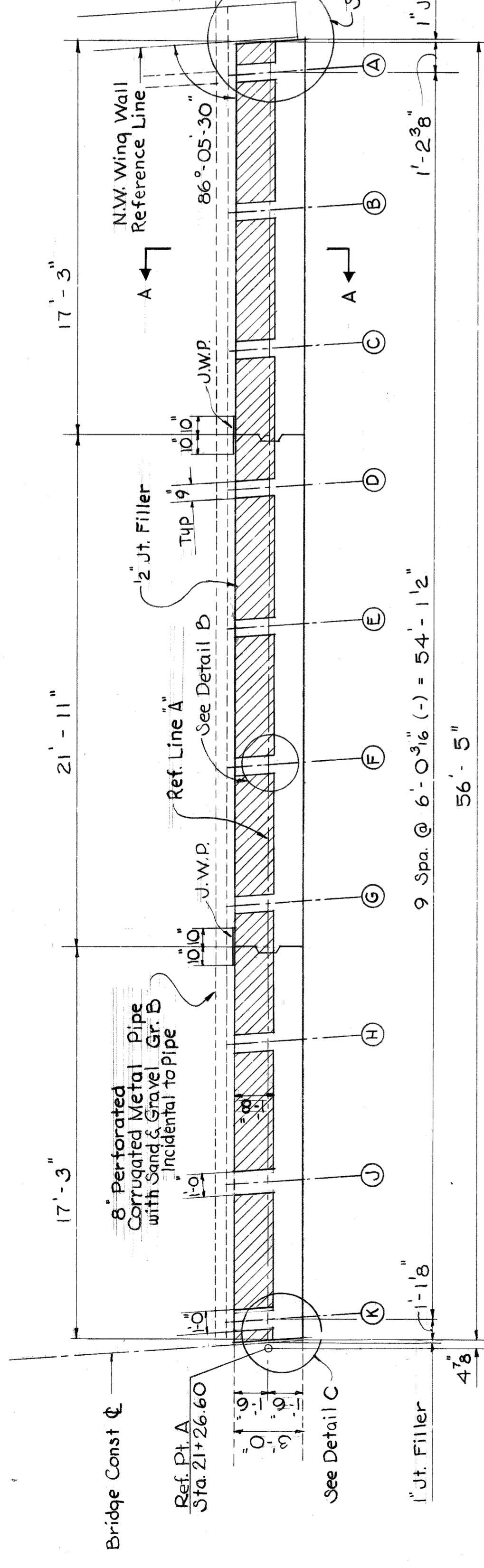


SECTION A-A
Scale: 1/2"=1'-0"

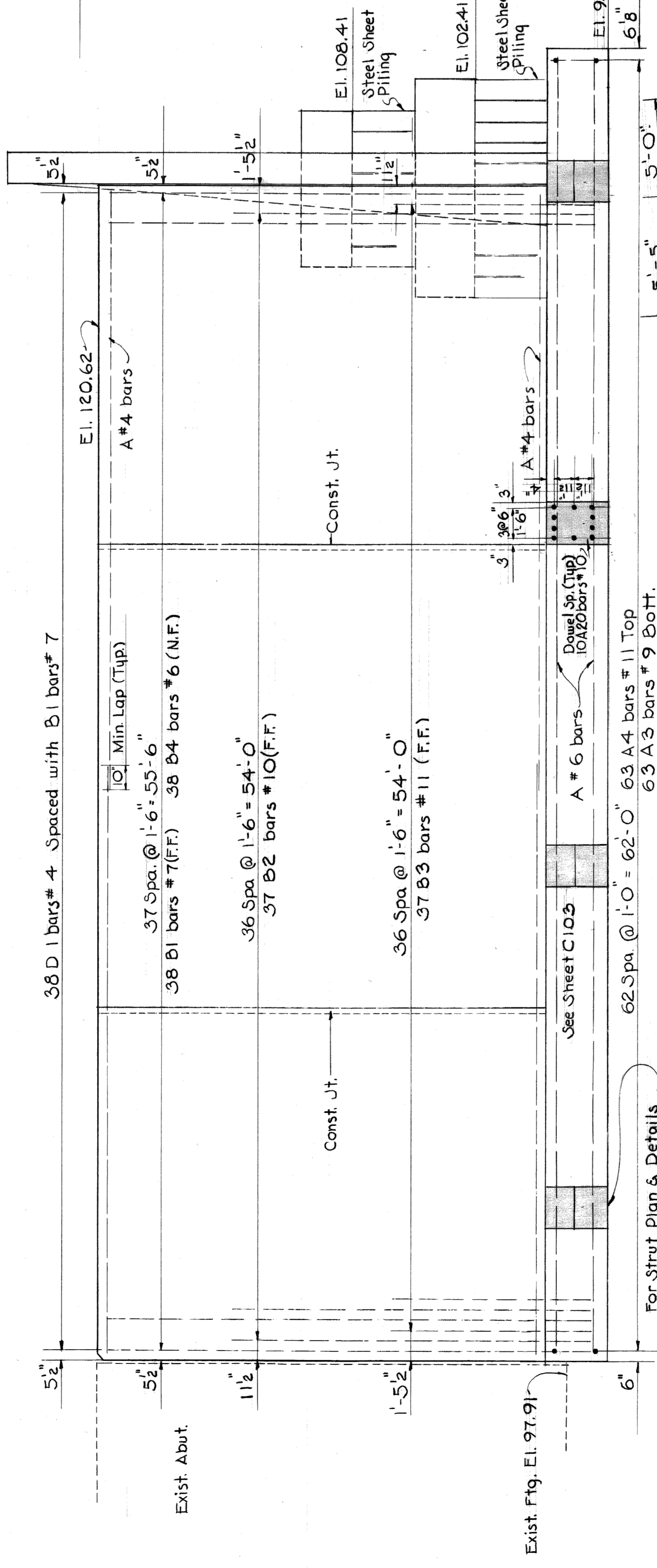
Work this sheet with sheets C-105, C-113 & C-114.

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

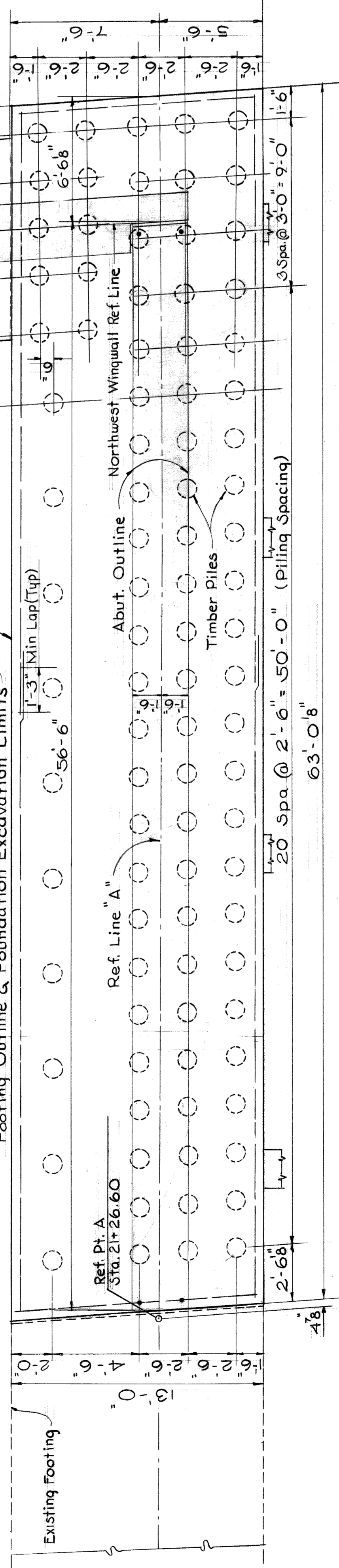
| | | | | | |
|---|--------------------------------|--|--|---|-------------------|
| SHEET 7 OF 46 SHEETS CONTRACT PW 3988 NO. | DRAWN BY D. RAMES | DESIGNED BY C.C.L. / R.R.H. | CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS | LARNED STREET BRIDGE X069 OVER GRAND TRUNK WESTERN RAILROAD | DATE MAR. 1962 |
| DRAWN BY D. RAMES | DESIGNED BY C.C.L. / R.R.H. | CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS | LARNED STREET BRIDGE X069 OVER GRAND TRUNK WESTERN RAILROAD | DRAWN NO. C 106 | DATE MAR. 1962 |
| TRACED BY A. FREIBERG | DESIGNED BY C.C.L. / R.R.H. | CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS | LARNED STREET BRIDGE X069 OVER GRAND TRUNK WESTERN RAILROAD | DRAWN NO. C 106 | DATE MAR. 1962 |
| CHECKED BY A. FREIBERG | DESIGNED BY C.C.L. / R.R.H. | CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS | LARNED STREET BRIDGE X069 OVER GRAND TRUNK WESTERN RAILROAD | DRAWN NO. C 106 | DATE MAR. 1962 |



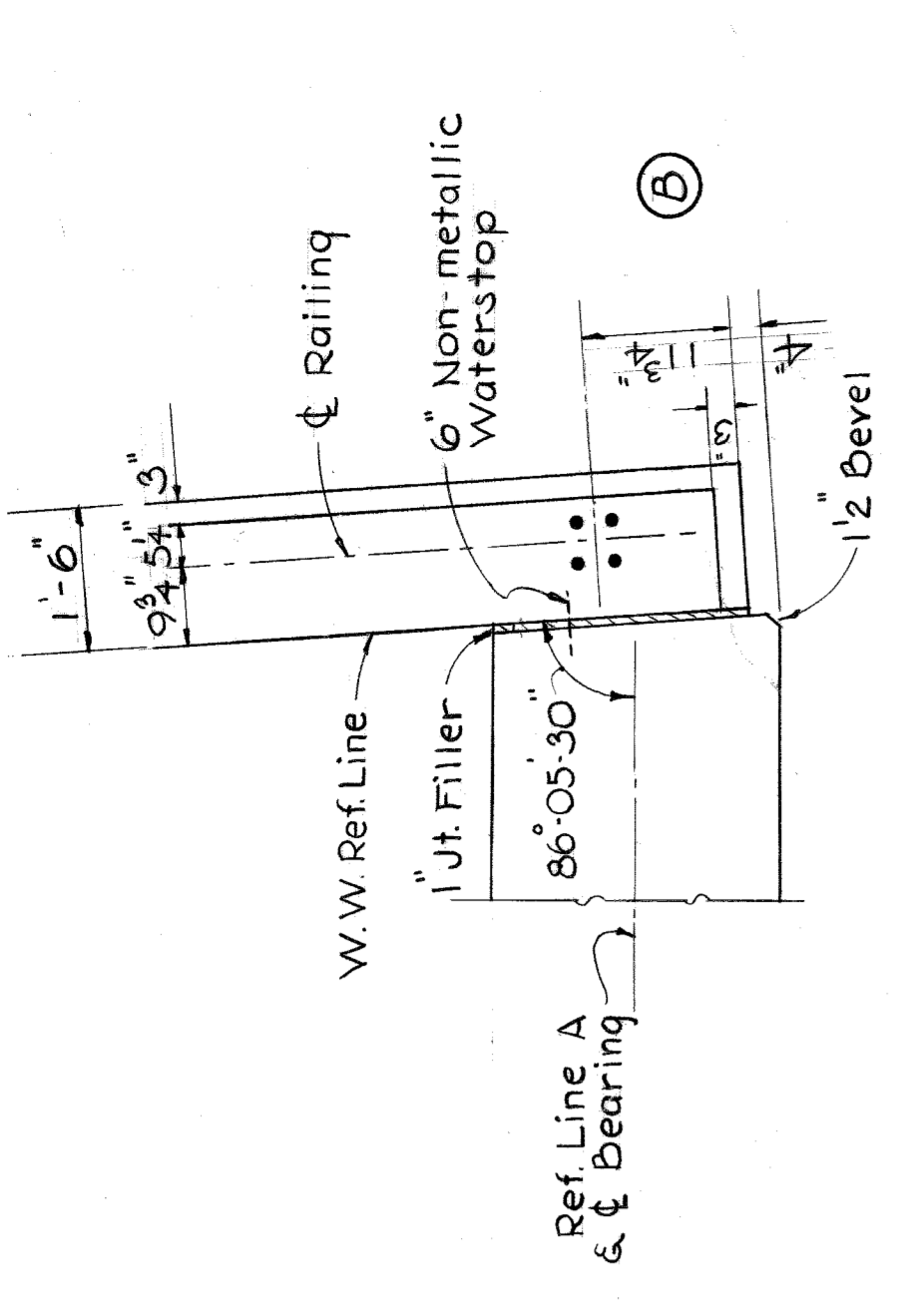
PLAN OF TOP - ABUTMENT A
Scale 1/4" = 1'-0"



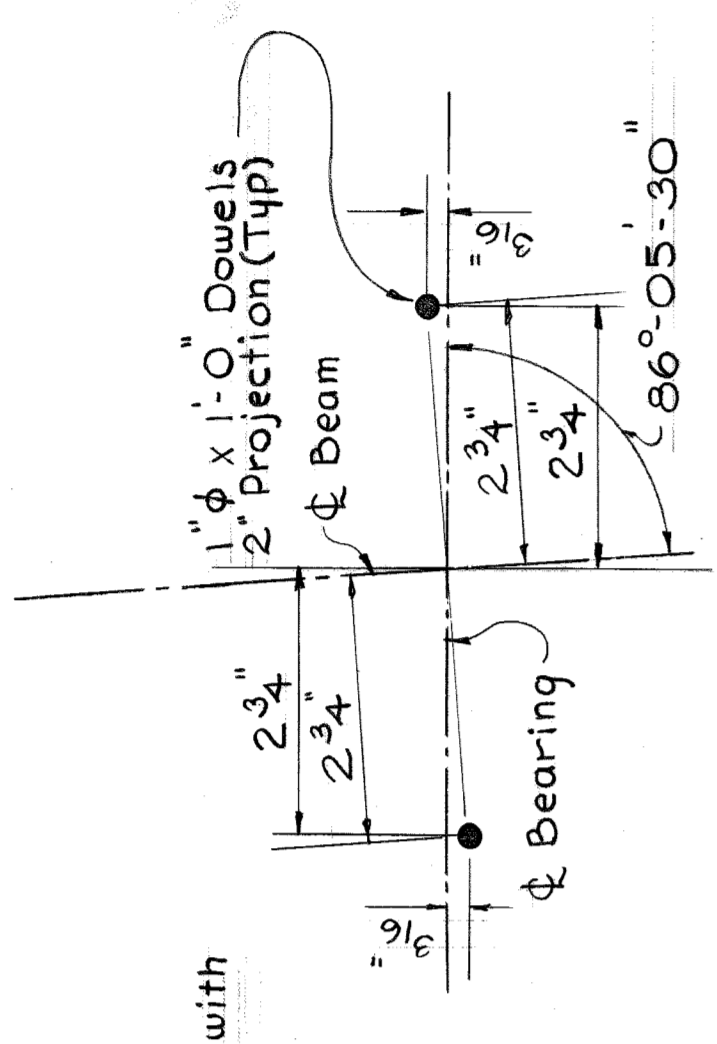
SECTION A-A
Scale 1/2" = 1'-0"



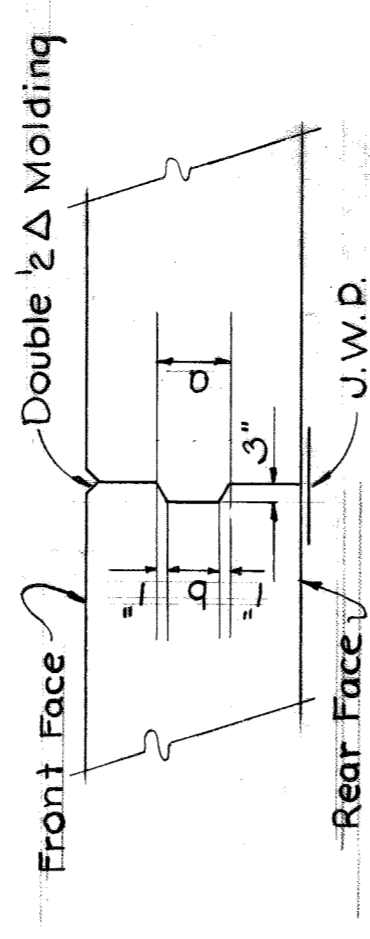
FOOTING PLAN
Scale 1/4" = 1'-0"



DETAIL A
Scale 1/2" = 1'-0"



DETAIL B
Scale 1/2" = 1'-0"



VERTICAL CONSTRUCTION JOINT

| | | |
|--------------------|-----|-----|
| abutment wing wall | a | b |
| | 12" | 10" |
| | 8" | 6" |

| Item | Amount | Unit |
|------------------------------------|--------|----------|
| 6" Non-Metallic Waterstop | 22.0 | Lin. Ft. |
| Joint Waterproofing, 20" Wide | 324.0 | Lin. Ft. |
| 1/2" Joint Filler | 162.0 | Sq. Ft. |
| 1" Joint Filler | 187.5 | Sq. Ft. |
| Sand & Gravel - Grade A | 628.0 | Cu. Yds. |
| 8" Corrugated Metal Pipe | 92.0 | Lin. Ft. |
| Steel Sheet Piling (Left in Place) | 270.0 | Sq. Ft. |
| Dampproofing | 1957.0 | Sq. Ft. |
| Timber Piles, Cut Off | 113.0 | Each |
| Timber Piles, Furnished & Driven | 6780.0 | Lin. Ft. |
| Unclassified Excavation | 475.0 | Cu. Yds. |
| Concrete - Grade A (6AA) | 316.0 | Cu. Yds. |
| Aluminum Railing - 2 Tube | 35.0 | Lin. Ft. |

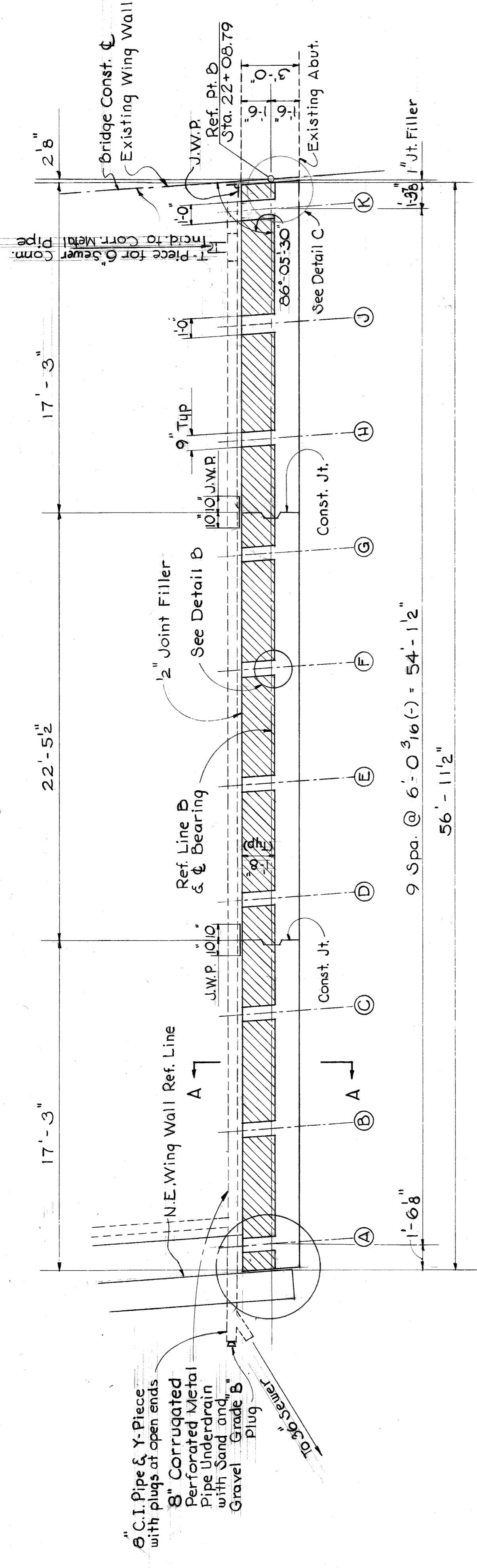
MISCELLANEOUS QUANTITIES - ABUT. A & N.W.W.W.

DETAIL C
Scale 1/2" = 1'-0"

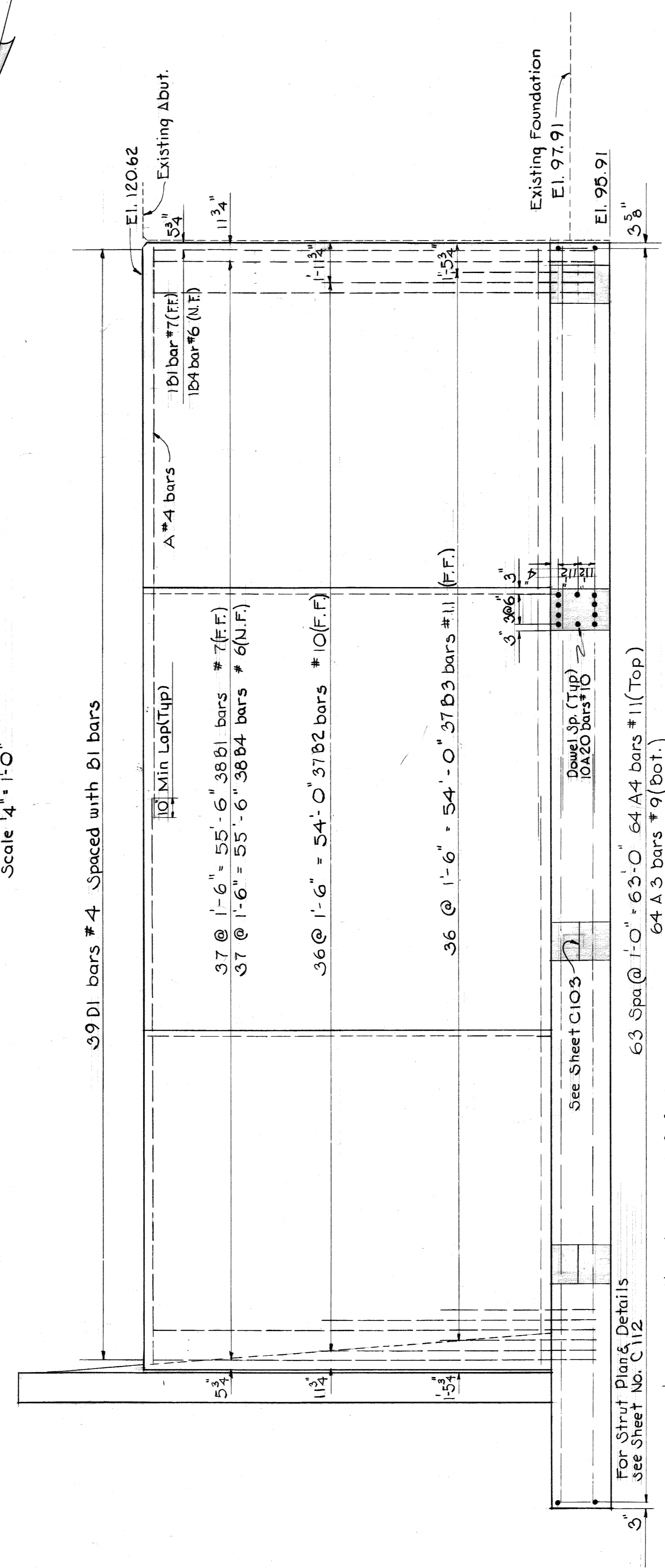
FOOTING PLAN
Scale 1/4" = 1'-0"

Work this sheet with sheets 108 & 109

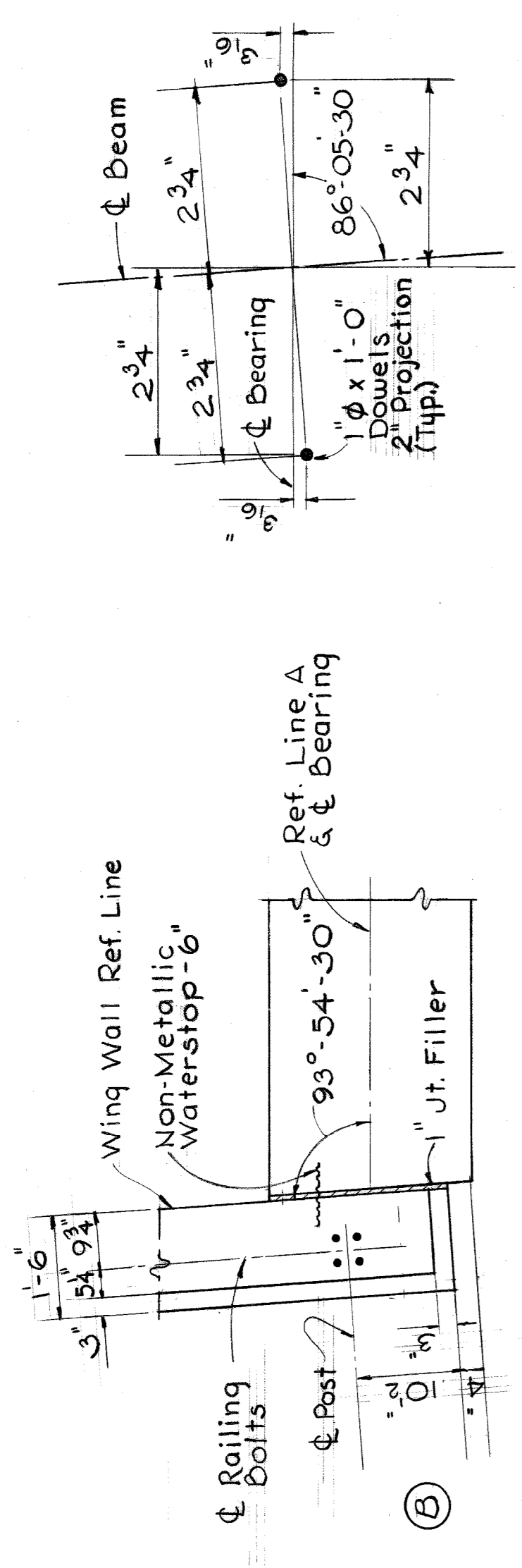
| | | | |
|---|------------------------|---|------------------------|
| DESIGNED BY | C.C.L. / R.R.H. | DESIGNED BY | C.C.L. / R.R.H. |
| DRAWN BY | C. Roberts | DRAWN BY | C. Roberts |
| TRACED BY | | TRACED BY | |
| CHECKED BY | D. Romes / A. Freiberg | CHECKED BY | D. Romes / A. Freiberg |
| REFERENCE DRAWINGS | | REFERENCE DRAWINGS | |
| CONTRACT | PW 3988 | CONTRACT | PW 3988 |
| DRWG No. | C 107 | DRWG No. | C 107 |
| DATE | MAR. 1962 | DATE | MAR. 1962 |
| SHEET 8 OF 46 SHEETS | | SHEET 8 OF 46 SHEETS | |
| CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS BUREAU OF HIGHWAYS AND EXPRESSWAYS | | CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS BUREAU OF HIGHWAYS AND EXPRESSWAYS | |
| RAILROAD GRADE SEPARATION | | RAILROAD GRADE SEPARATION | |
| LARNED STREET BRIDGE X069 GRAND TRUNK WESTERN RAILROAD | | LARNED STREET BRIDGE X069 GRAND TRUNK WESTERN RAILROAD | |
| ABUT. A DETAILS | | ABUT. A DETAILS | |



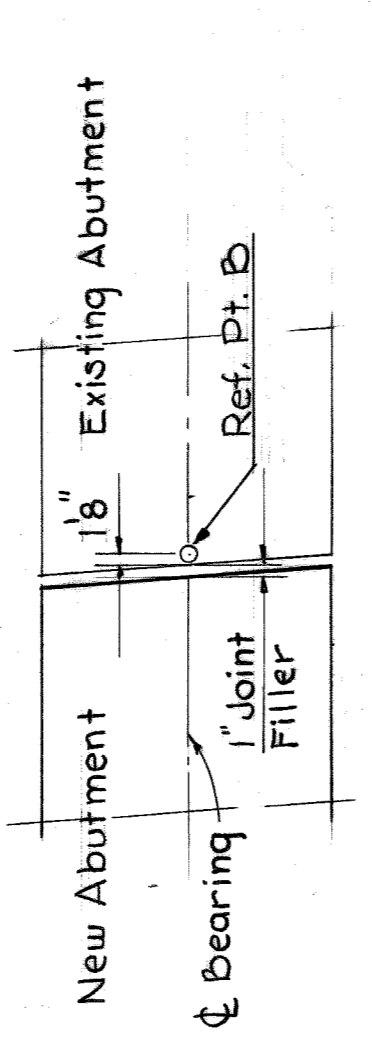
PLAN OF TOP-ABUTMENT B
Scale 1/4" = 1'-0"



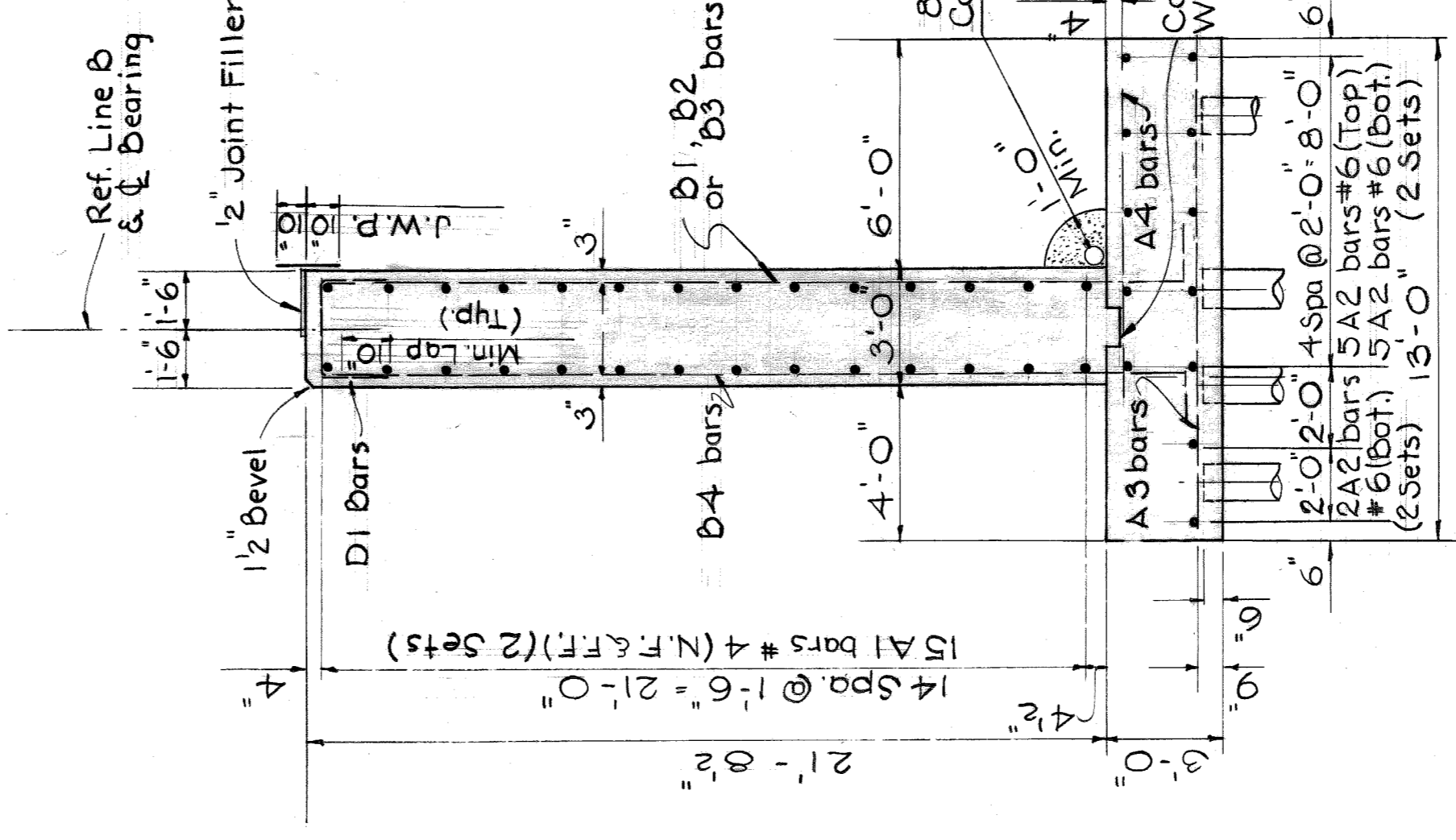
ELEVATION
Scale 1/4" = 1'-0"



DETAIL A
Scale 1/2" = 1'-0"



DETAIL B

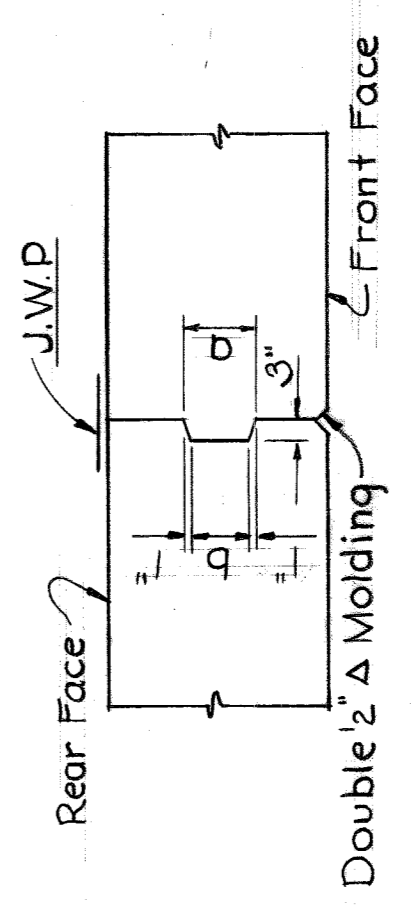


SECTION A-A
Scale 1/4" = 1'-0"

MISCELLANEOUS QUANTITIES ABUT. B & N.E. W.W.

| Item | Amount | Unit |
|------------------------------------|--------|----------|
| 6" Non-Metallic Waterstop | 220 | Lin. Ft. |
| Joint Waterproofing, 20" Wide | 300.0 | Lin. Ft. |
| 1/2" Joint Filler | 164.0 | Sq. Ft. |
| 1" Joint Filler | 187.5 | Sq. Ft. |
| Sand & Gravel Grade A | 639.0 | Cu. Yds. |
| Steel Sheet Piling (Left in Place) | 78.0 | Lin. Ft. |
| Damp Proofing | 1838.0 | Sq. Ft. |
| Timber Piles, Cut Off | 108.0 | Each. |
| Timber Piles, Furnished & Driven | 6480.0 | Lin. Ft. |
| Unclassified Excavation | 507.0 | Cu. Yds. |
| Concrete - Grade A (GAA) | 273.0 | Cu. Yds. |
| Aluminum Railing - 2 tube | 200 | Lin. Ft. |

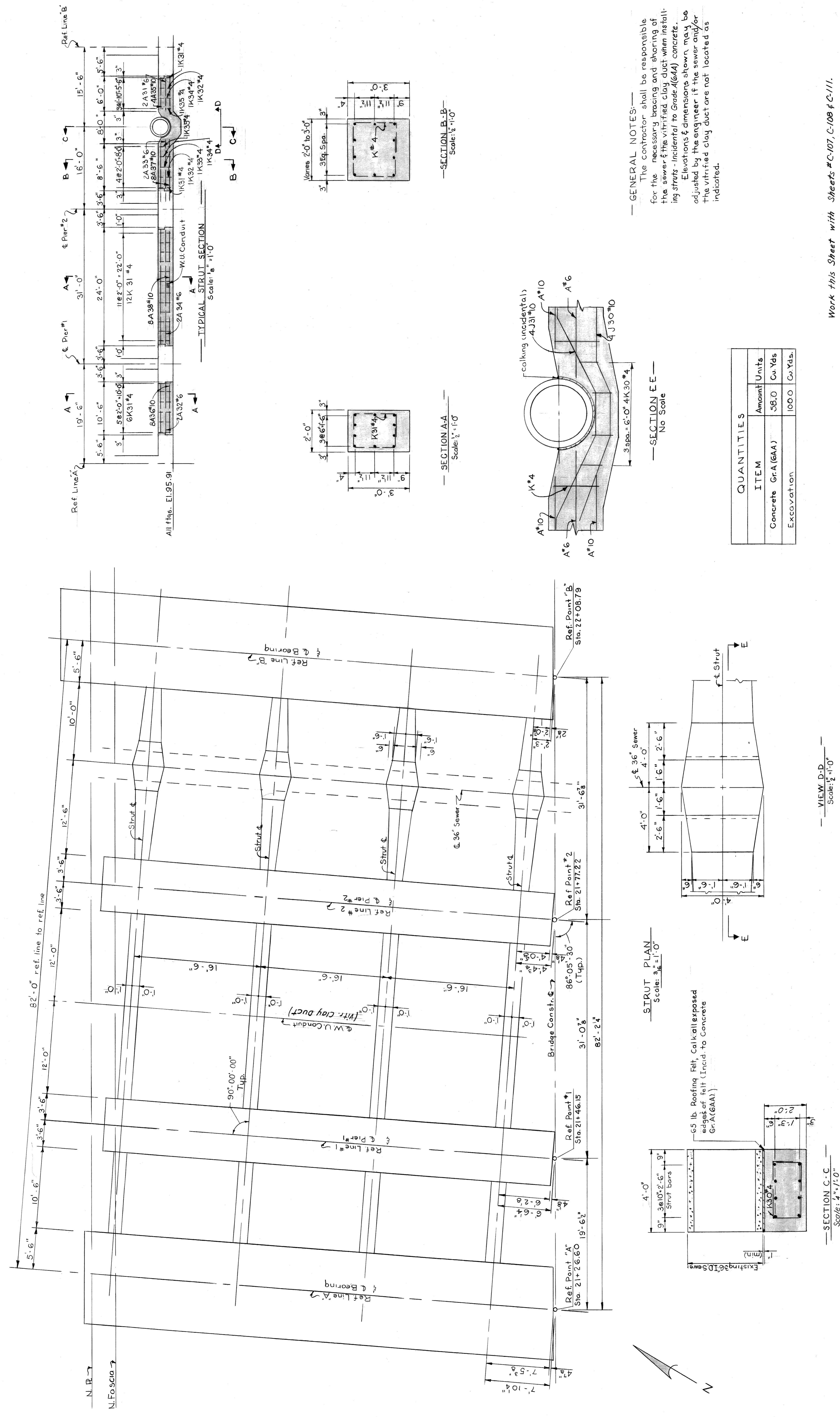
| | a | b |
|-----------|-----|-----|
| Abutment | 12' | 10' |
| Wing Wall | 8' | 6' |



VERTICAL CONSTRUCTION JOINT

Work this sheet with sheets 107 & 109

| | | | | |
|---|----------------------------|--|---------------------------------------|--|
| <p>CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS</p> | | <p>LARNED STREET BRIDGE X069 OVER GRAND TRUNK WESTERN RAILROAD</p> | | <p>SHEET 9 OF 16 SHEETS CONTRACT PW 3988</p> |
| <p>RAILROAD GRADE SEPARATION</p> | | <p>ABUT. B DETAILS</p> | | <p>DRWG No. C108 DATE MAR 1962</p> |
| <p>DESIGNED BY C.C.L./R.R.H.</p> | <p>DRAWN BY C. Roberts</p> | <p>TRACED BY</p> | <p>CHECKED BY D. Romesha/Freiberg</p> | <p>REVISIONS LOCATED BY COORDINATES ON SHEET</p> |
| <p>Changed Rolling Dimension CR 162/1558</p> | <p>DATE 1/10/62</p> | <p>BY</p> | <p>BY</p> | <p>BY</p> |

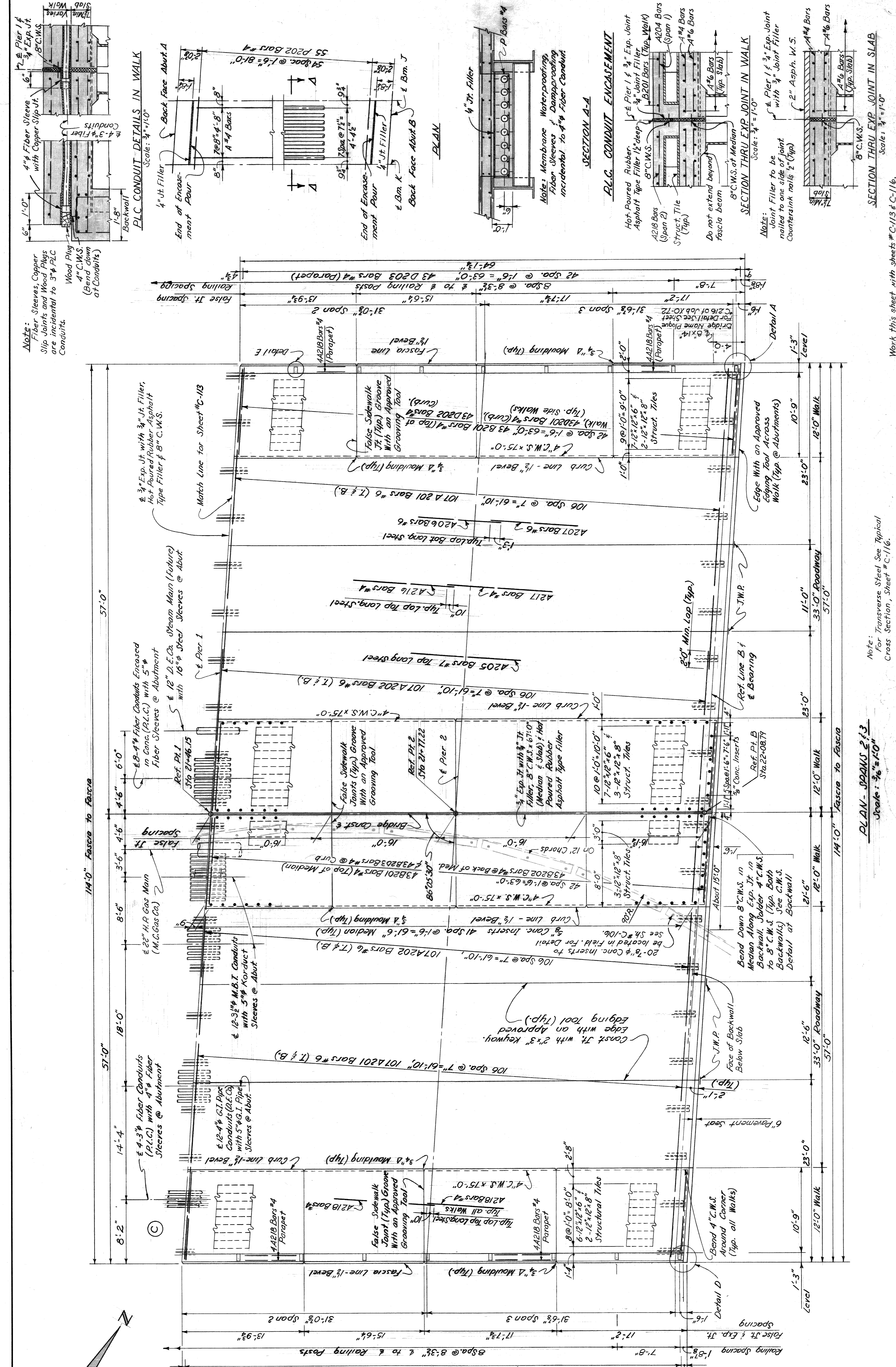


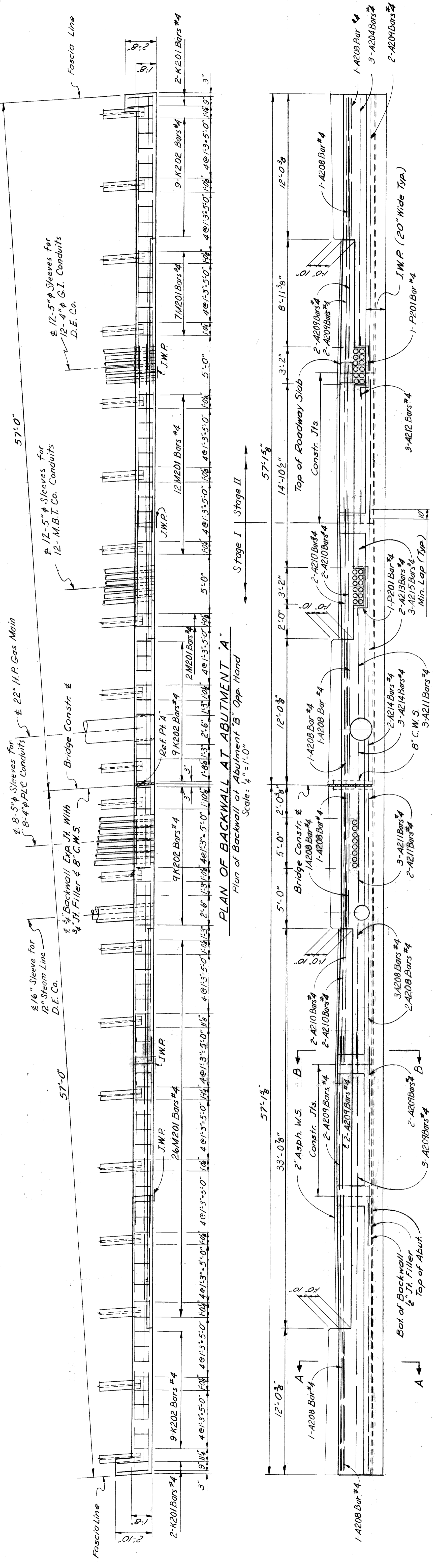
GENERAL NOTES:
The contractor shall be responsible for the necessary bracing and shoring of the sewer & the vitrified clay duct when installing struts - incidental to Grade 4(6AA) concrete. Elevations & dimensions shown may be adjusted by the engineer if the sewer and/or the vitrified clay duct are not located as indicated.

| QUANTITIES | | |
|--------------------|--------|----------|
| ITEM | Amount | Units |
| Concrete Gr.A(6AA) | 58.0 | Cu. Yds |
| Excavation | 100.0 | Cu. Yds. |

Work this Sheet with Sheets #C-107, C-108 & C-111.

| | | | | | | | |
|--------------------------------|---------------------|-----------------------------------|------------------------------------|---|--|---|-------------------------|
| DESIGNED BY C.C.Z. / R.R.H. | DRAWN BY Moseley | TRACED BY R. James A. Freiberg | CHECKED BY R. James A. Freiberg | REFERENCE DRAWINGS | CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERS OFFICE BUREAU OF HIGHWAYS AND EXPRESSWAYS | LARNED STREET BRIDGE X069 OVER GRAND TRUNK WESTERN RAILROAD | SHEET 13 OF 46 SHEETS |
| | | | | REVISIONS LOCATED BY COORDINATES ON SHEET | | | CONTRACT No. PW 3988 |
| | | | | RAILROAD GRADE SEPARATION | | DRAWING No. C.112 | |
| | | | | | | DATE MAR. 1962 | |



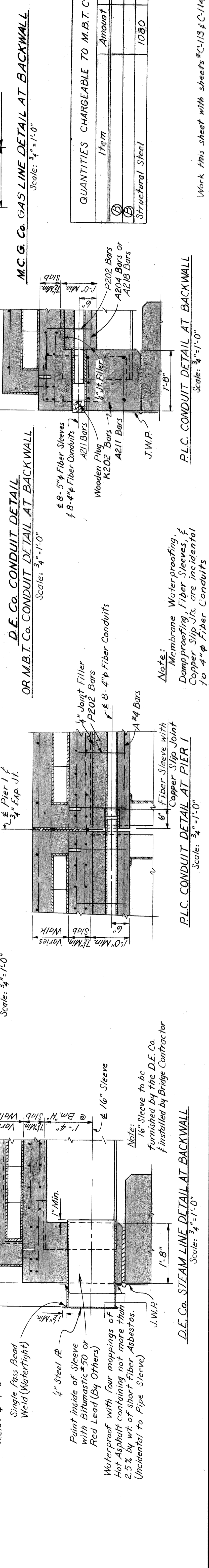
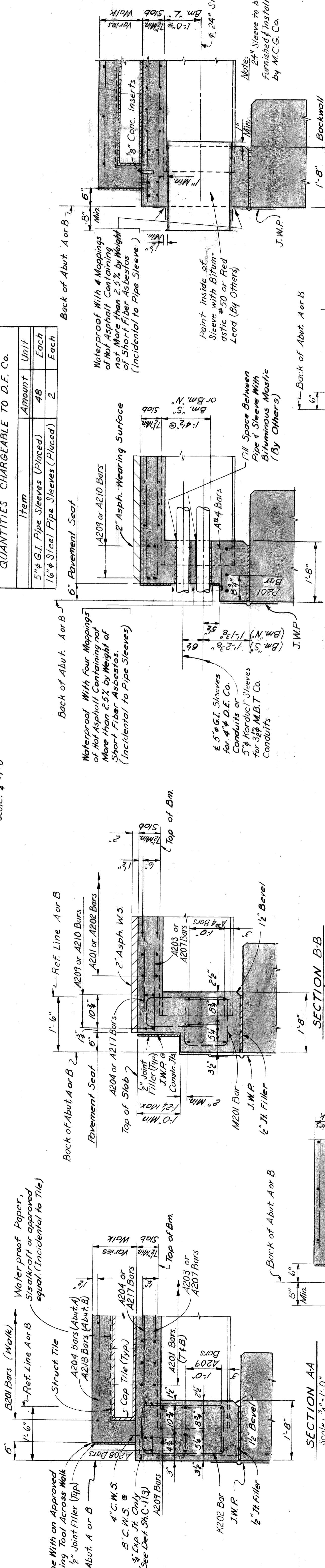


PLAN OF BACKWALL AT ABUTMENT A
Scale: 1/4" = 1'-0"

ELEVATION OF BACKWALL AT ABUTMENT A
Scale: 1/4" = 1'-0"

QUANTITIES CHARGEABLE TO D.E. Co.

| Item | Amount | Unit |
|---------------------------------|--------|------|
| 5" G.I. Pipe Sleeves (Placed) | 48 | Each |
| 16" Steel Pipe Sleeves (Placed) | 2 | Each |



QUANTITIES CHARGEABLE TO M.B.T. Co.

| Item | Amount | Unit |
|------------------|--------|------|
| 8" Conc. Inserts | 1080 | lbs. |

QUANTITIES CHARGEABLE TO M.B.T. Co.

| Item | Amount | Unit |
|------------------|--------|------|
| Structural Steel | 1080 | lbs. |

Work this sheet with sheets C-113 & C-114.

PLC CONDUIT DETAIL AT BACKWALL
Scale: 3/4" = 1'-0"

DE. CO. CONDUIT DETAIL
OR M.B.T. Co. CONDUIT DETAIL AT BACKWALL
Scale: 3/4" = 1'-0"

M.C.G. Co. GAS LINE DETAIL AT BACKWALL
Scale: 3/4" = 1'-0"

PLC CONDUIT DETAIL AT PIER I
Scale: 3/4" = 1'-0"

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SECTION

SOLE PLATE THICKNESS TABLE (INCHES)

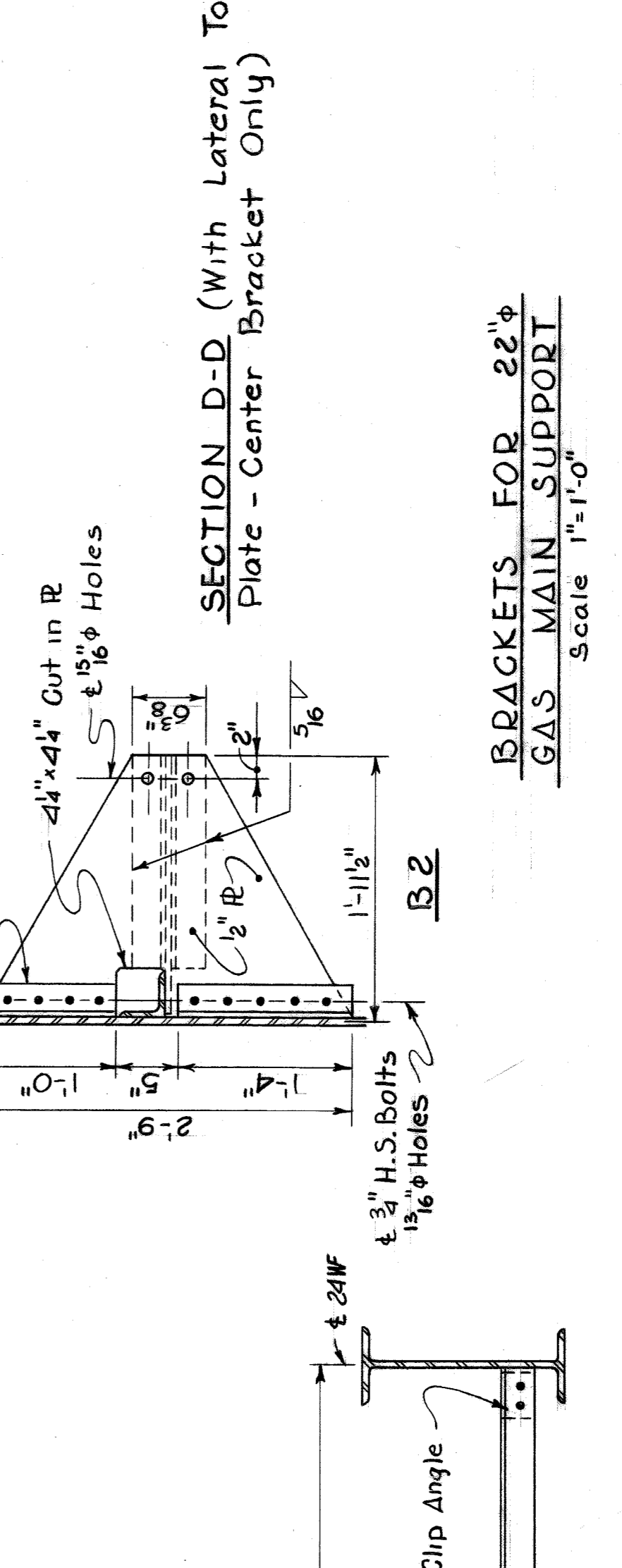
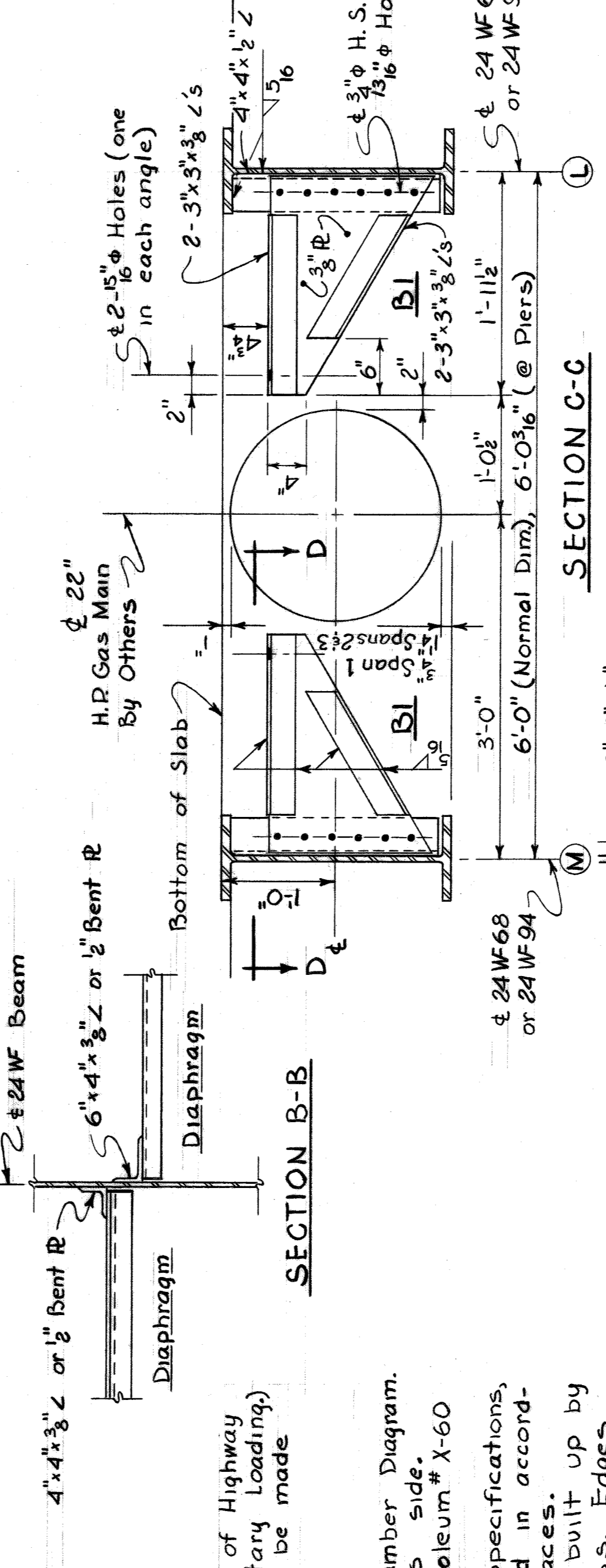
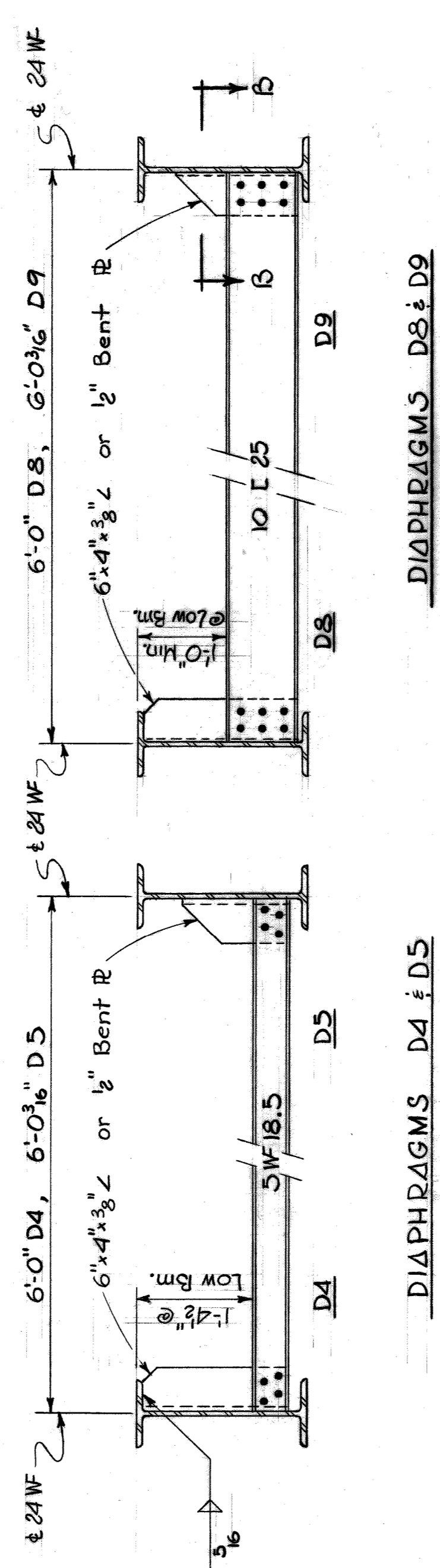
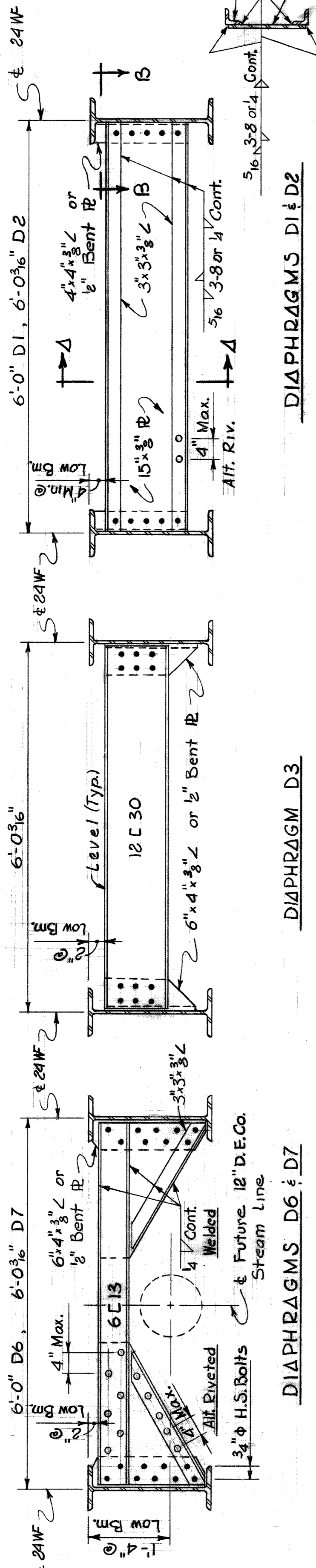
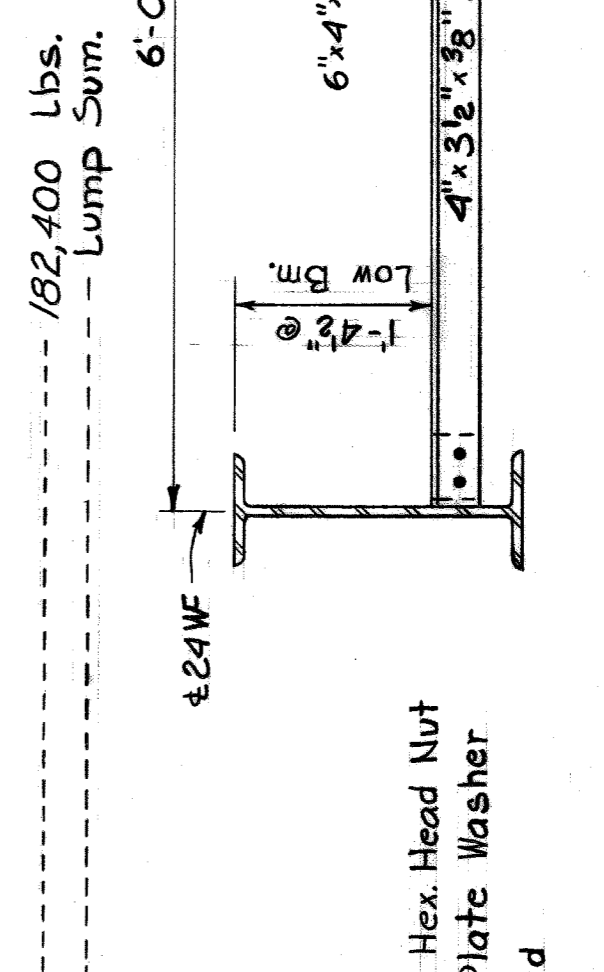
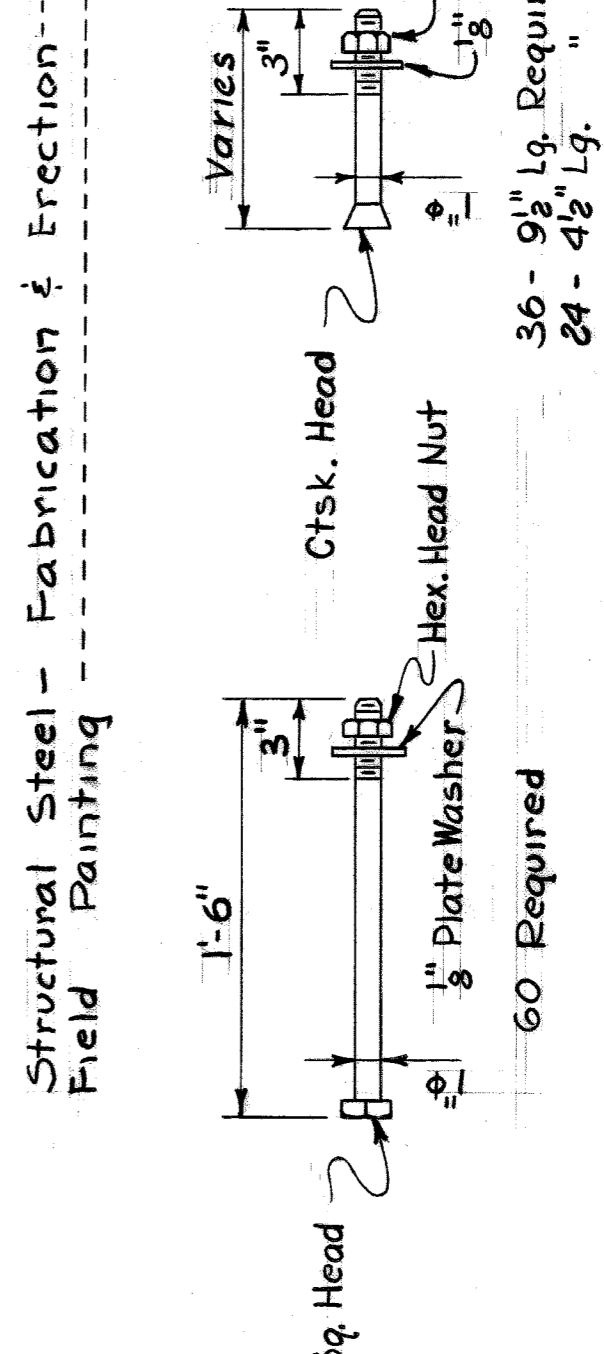
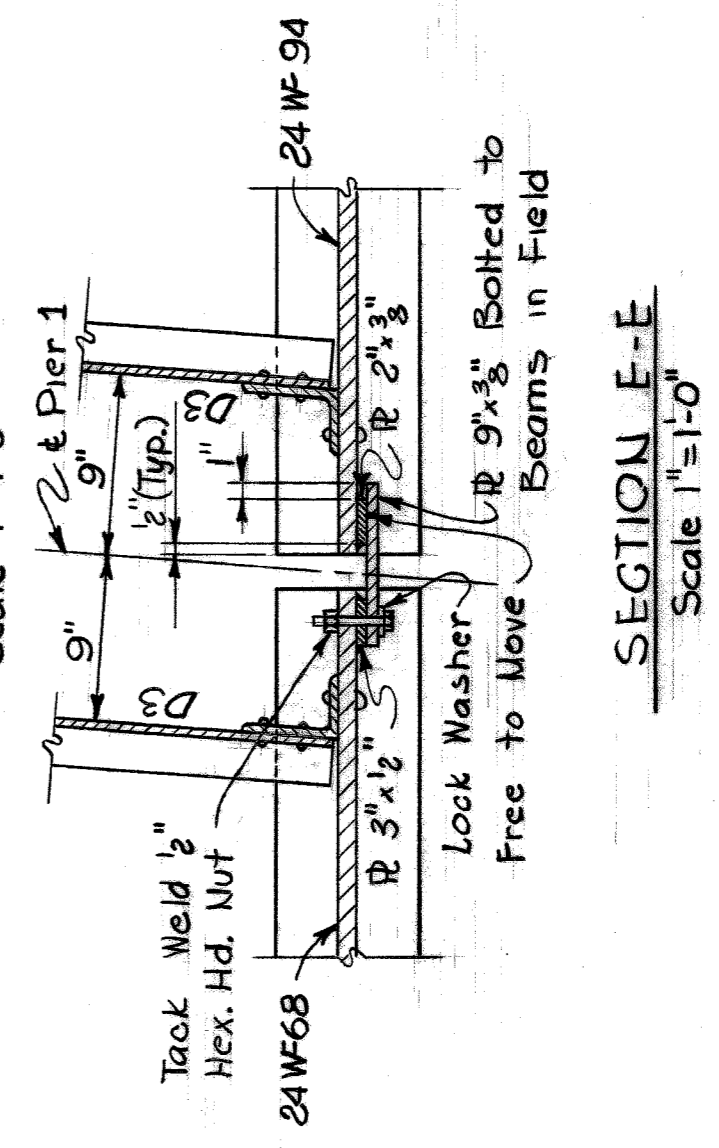
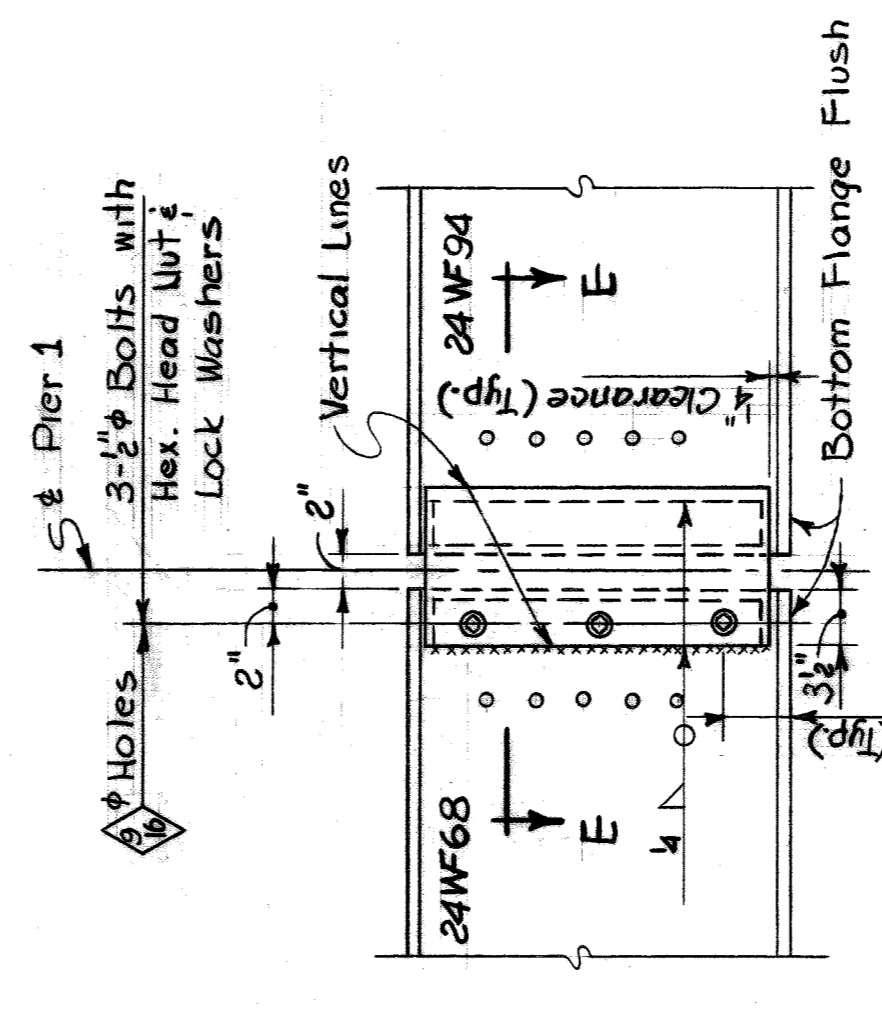
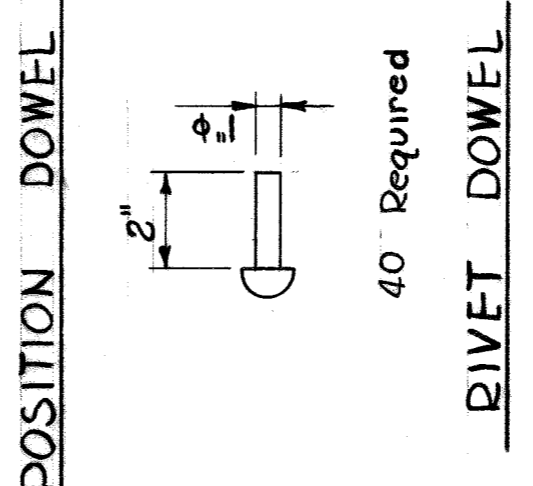
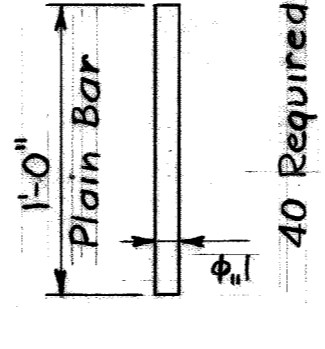
| Beam | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | R | S | T | U | V |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Abutment A | 24 | 24 | 2 1/2 | 3 1/2 | 4 1/2 | 4 1/2 | 3 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 |
| Span 1 | 14 | 14 | 2 | 3 1/2 | 3 1/2 | 2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 |
| Span 2 | 14 | 14 | 1 1/2 | 2 1/2 | 3 1/2 | 3 1/2 | 2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 |
| Abutment B | 1 1/2 | 1 1/2 | 2 1/2 | 3 1/2 | 3 1/2 | 2 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 |

Note: Sole Plate thicknesses are measured @ & Bearing.

Detailer Note: Extend intermediate Diaphragm Connection angle 6"x4"x 3/8" or 1/2" Bent R to bottom of upper flange and weld. Not required for Diaphragms over piers.

ELEVATION TOP OF STEEL @ & BEARING

| Beam | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | R | S | T | U | V |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Abutment A | 122.83 | 122.83 | 122.86 | 122.95 | 123.01 | 123.01 | 123.01 | 122.95 | 122.86 | 122.83 | 122.83 | 122.88 | 122.88 | 122.90 | 122.99 | 123.05 | 123.05 | 122.99 | 122.90 | 122.88 | 122.88 |
| Pier 1 | 123.92 | 122.96 | 122.96 | 123.07 | 123.13 | 123.13 | 123.07 | 122.98 | 122.96 | 122.96 | 122.96 | 123.09 | 123.09 | 123.12 | 123.20 | 123.26 | 123.26 | 123.20 | 123.09 | 123.05 | 123.09 |
| Pier 2 | 122.99 | 122.99 | 123.02 | 123.10 | 123.17 | 123.17 | 123.10 | 123.02 | 122.99 | 122.99 | 122.99 | 123.16 | 123.16 | 123.18 | 123.27 | 123.33 | 123.33 | 123.27 | 123.18 | 123.16 | 123.16 |
| Abutment B | 122.83 | 122.83 | 122.86 | 122.95 | 123.01 | 123.01 | 122.95 | 122.86 | 122.83 | 122.83 | 122.88 | 122.88 | 122.88 | 122.90 | 122.99 | 123.05 | 123.05 | 122.99 | 122.90 | 122.88 | 122.88 |



STRUCTURAL STEEL NOTES

Design: Michigan State Highway Department Specifications for the Design of Highway Bridges - 1958 edition (H20-S16-44 Loading and alternate Military Loading).

Field Connections: Field connections, unless otherwise noted, shall be made with high-strength bolts.

High-Strength Bolts: 3/4" φ.

Open Hole: 1 1/2" φ unless otherwise noted.

Camber: The beams shall be given a camber as shown on Camber Diagram.

Field Paint: Field paint shall consist of one coat each of Rust-oleum # X-60 Red Primer and # 470 Ready Mixed Aluminum-LO Paint.

Shop Paint: In addition to the Shop Paint provisions of the Specifications, the top surfaces of masonry plates shall be coated in accordance with the requirements for machine-finished surfaces.

Sole Plates: Sole R's 3" or more in thickness may be built up by welding together 1/2" R's not less than 1/2" in thickness. Edges must be beveled 1/4" and welded with continuous weld for the full perimeter. Welds shall be ground flush with faces of R's.

Shop Connections: Shop connections shall be welded or riveted as shown on the plans.

Note: Use the existing 3/4" φ anchor bolts to refasten the existing 1/2" R's to the top of pier.

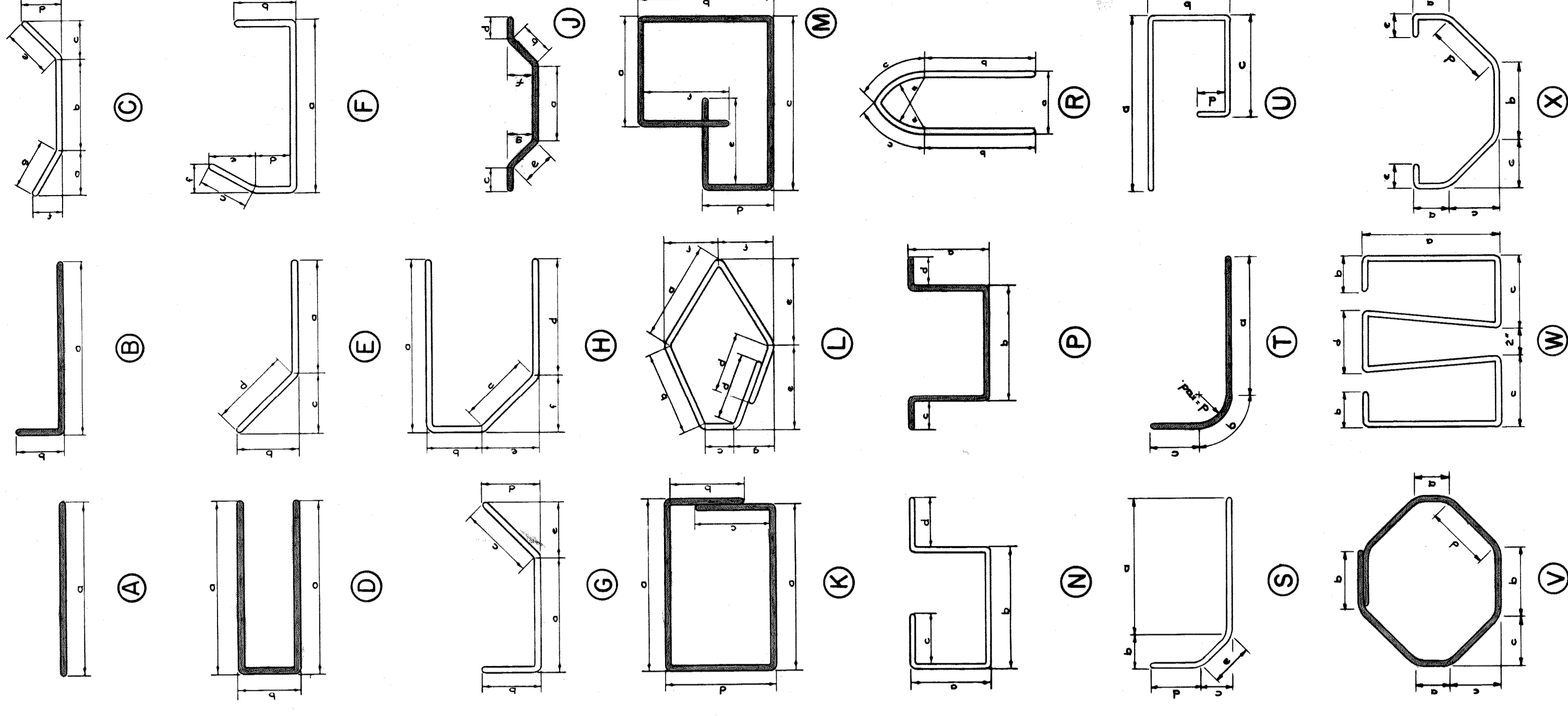
Structural Steel - Fabrication & Erection
Field Painting ----- 182,400 Lbs.
Lump Sum.

BRACKETS FOR 22" φ GAS MAIN SUPPORT
Scale 1"=1'-0"

| | | | |
|----------------------|---------------------------|--|------------------------------------|
| DESIGNED BY | C.C.L./R.R.H. | ENGINEER OF EXPRESSWAYS | A. Freiberger CITY ENGINEER |
| DRAWN BY | E. P. GOLD | E. P. Gold CITY ENGINEER - HIGHWAYS & EXPRESSWAYS | |
| TRACED BY | | | |
| CHECKED BY | A. Freiberger | | |
| DESCRIPTION | RAILROAD GRADE SEPARATION | | |
| REVISIONS LOCATED BY | COORDINATES ON SHEET | | |
| DATE | MAR. 1962 | | |
| DRWG No. | C 118 | | |
| CONTRACT No. | PW 3988 | | |
| SHEET | 19 OF 46 SHEETS | | |

LARNED STREET BRIDGE X069
OVER
GRAND TRUNK WESTERN RAILROAD
STRUCTURAL STEEL DETAILS

BAR BENDING DIAGRAM



| BAR | DIMENSIONS | | | | | | | SIZE | LENGTH REQ'D | NO. REQ'D | TOTAL WT. |
|------|------------|-----------|-----------|-----------|-------|---------|---|------|--------------|-----------|-----------|
| | a | b | c | d | e | f | g | | | | |
| A201 | 37'-6" | | | | | | | #6 | 37'-6" | 560 | 3,154.2 |
| A202 | 21'-3" | | | | | | | #6 | 21'-3" | 560 | 17,874 |
| A203 | 20'-6" | | | | | | | #6 | 20'-6" | 96 | 2,956 |
| A204 | 20'-6" | | | | | | | #4 | 20'-6" | 136 | 1,862 |
| A205 | 14'-0" | | | | | | | #7 | 14'-0" | 114 | 32.62 |
| A206 | 36'-6" | | | | | | | #6 | 36'-6" | 96 | 52.63 |
| A207 | 28'-6" | | | | | | | #6 | 28'-6" | 96 | 4,109 |
| A208 | 11'-6" | | | | | | | #4 | 11'-6" | 26 | 200 |
| A209 | 22'-6" | | | | | | | #4 | 22'-6" | 46 | 691 |
| A210 | 13'-6" | | | | | | | #4 | 13'-6" | 30 | 271 |
| A211 | 9'-0" | | | | | | | #4 | 9'-0" | 16 | 96 |
| A212 | 11'-0" | | | | | | | #4 | 11'-0" | 6 | 44 |
| A213 | 17'-6" | | | | | | | #4 | 17'-6" | 4 | 47 |
| A214 | 3'-0" | | | | | | | #4 | 3'-0" | 10 | 20 |
| A215 | 4'-6" | | | | | | | #4 | 4'-6" | 6 | 18 |
| A216 | 28'-6" | | | | | | | #4 | 28'-6" | 78 | 1,485 |
| A217 | 36'-6" | | | | | | | #4 | 36'-6" | 78 | 1,902 |
| A218 | 32'-3" | | | | | | | #4 | 32'-3" | 120 | 2,585 |
| B201 | 11'-6" | 9'-6" | | | | | | #4 | 12'-3" | 228 | 1,846 |
| B202 | 1'-1" | 5'-2" | | | | | | #4 | 1'-6" | 114 | 114 |
| B203 | 10" | 5'-2" | | | | | | #4 | 1'-3" | 114 | 95 |
| D201 | 1'-0" | 1'-0" | | | | | | #4 | 2'-11" | 114 | 222 |
| D202 | 1'-0" | 1'-3" | | | | | | #4 | 3'-2" | 114 | 241 |
| D203 | 2'-4" | 8" | | | | | | #4 | 5'-3" | 114 | 400 |
| K201 | 2'-4 1/2" | 1'-8" | 1'-8" | 2'-4" | | | | #4 | 10'-4" | 8 | 55 |
| K202 | 2'-4 1/2" | 10'-4" | 10'-4" | 1'-3 1/2" | | | | #4 | 7'-8" | 66 | 338 |
| M201 | 1'-1 1/2" | 1'-3 1/2" | 2'-4 1/2" | 10'-4" | 1'-6" | 11 1/2" | | #4 | 8'-0" | 94 | 502 |
| P201 | 1'-0 1/2" | 4'-6" | 1'-0" | 1'-0" | | | | #4 | 8'-6" | 4 | 23 |
| P202 | 1'-3" | 4'-9 1/2" | 6'-4" | 6'-4" | | | | #4 | 8'-3" | 57 | 314 |

Total Superstructure Reinforcement Steel = 79,397 *

Note :-
 All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.
 All bar numbers shown on this sheet to be prefixed X067.

Grand Total Steel Reinforcement 158,542 *

| BAR | DIMENSIONS | | | | | | | SIZE | LENGTH REQ'D | NO. REQ'D | TOTAL WT. |
|-----|------------|-----------|-------|-----------|-------|-------|-------|------|--------------|-----------|-----------|
| | a | b | c | d | e | f | g | | | | |
| A31 | 7'-9" | | | | | | | #6 | 7'-9" | 8 | 93 |
| A32 | 10'-2" | | | | | | | #6 | 10'-2" | 8 | 122 |
| A33 | 13'-0" | | | | | | | #6 | 13'-0" | 8 | 156 |
| A34 | 23'-8" | | | | | | | #6 | 23'-8" | 8 | 284 |
| A35 | 6'-3" | | | | | | | #10 | 6'-3" | 16 | 417 |
| A36 | 10'-2" | | | | | | | #10 | 10'-2" | 32 | 1,358 |
| A37 | 11'-8" | | | | | | | #10 | 11'-8" | 32 | 1,558 |
| A38 | 23'-8" | | | | | | | #10 | 23'-8" | 32 | 3,160 |
| A50 | 29'-9" | | | | | | | #4 | 29'-9" | 8 | 159 |
| A51 | 29'-3" | | | | | | | #4 | 29'-3" | 48 | 938 |
| A52 | 6'-6" | | | | | | | #6 | 6'-6" | 156 | 1,523 |
| A53 | 9'-3" | | | | | | | #6 | 9'-3" | 156 | 2,167 |
| A54 | 30'-6" | | | | | | | #6 | 30'-6" | 56 | 2,565 |
| A55 | 9'-9" | | | | | | | #9 | 9'-9" | 100 | 3,296 |
| A56 | 14'-9" | | | | | | | #9 | 14'-9" | 94 | 4,686 |
| A57 | 7'-0" | | | | | | | #10 | 7'-0" | 120 | 3,504 |
| A58 | 29'-9" | | | | | | | #10 | 29'-9" | 24 | 2,979 |
| B50 | 24'-6" | 1'-0" | | | | | | #10 | 25'-6" | 8 | 851 |
| D50 | 11" | 2'-0" | | | | | | #4 | 3'-9" | 78 | 195 |
| J30 | 2'-9" | 5'-4" | 0'-0" | 5'-7" | 5'-6" | 1'-6" | 2'-6" | #10 | 18'-2" | 16 | 1213 |
| J31 | 2'-9" | 5'-0" | 2'-0" | 2'-0" | 5'-0" | 2'-3" | 2'-3" | #10 | 16'-9" | 16 | 1,118 |
| K30 | 2'-8" | 7" | 1'-4" | 1'-4" | | | | #4 | 8'-6" | 16 | 91 |
| K31 | 2'-0" | 1'-7" | 9" | 1'-7" | | | | #4 | 7'-10" | 80 | 419 |
| K32 | 2'-0" | 1'-10" | 9" | 1'-10" | | | | #4 | 8'-4" | 8 | 45 |
| K33 | 2'-0" | 2'-1 1/2" | 9" | 2'-1 1/2" | | | | #4 | 8'-10" | 4 | 24 |
| K34 | 2'-0" | 2'-4" | 9" | 2'-4" | | | | #4 | 9'-4" | 8 | 50 |
| K35 | 2'-0" | 2'-7" | 9" | 2'-7" | | | | #4 | 9'-10" | 8 | 53 |
| K50 | 2'-8" | 1'-3" | 1'-3" | 1'-8" | | | | #4 | 9'-5" | 80 | 503 |
| K51 | 2'-8" | 1'-3" | 1'-3" | 1'-8" | | | | #5 | 9'-5" | 84 | 825 |
| T50 | 13'-9" | 1'-7" | 7'-6" | 1'-0" | | | | #9 | 22'-10" | 6 | 463 |
| V50 | 0'-0" | 11" | 10" | 1'-2 3/8" | | | | #4 | 7'-7" | 80 | 405 |

Total Piers & Strut Reinforcement Steel = 35,220 *

| BAR | DIMENSIONS | | | | | | | SIZE | LENGTH REQ'D | NO. REQ'D | TOTAL WT. |
|-----|------------|-----------|---|---|---|---|---|------|--------------|-----------|-----------|
| | a | b | c | d | e | f | g | | | | |
| A1 | 28'-9" | | | | | | | #4 | 28'-9" | 120 | 2,305 |
| A2 | 32'-6" | | | | | | | #6 | 32'-6" | 48 | 2,343 |
| A3 | 12'-6" | | | | | | | #9 | 12'-6" | 127 | 5,366 |
| A4 | 9'-0" | | | | | | | #11 | 9'-0" | 139 | 6,376 |
| A5 | 7'-0" | | | | | | | #8 | 7'-0" | 22 | 411 |
| A6 | 10'-0" | | | | | | | #9 | 10'-0" | 10 | 388 |
| A7 | 12'-3" | | | | | | | #6 | 12'-3" | 13 | 239 |
| A8 | 5'-0" | | | | | | | #6 | 5'-0" | 10 | 75 |
| A9 | 15'-10" | | | | | | | #4 | 15'-10" | 12 | 127 |
| A10 | 8'-0" | | | | | | | #4 | 8'-0" | 4 | 21 |
| A11 | 13'-6" | | | | | | | #10 | 13'-6" | 17 | 957 |
| A12 | 23'-0" | | | | | | | #6 | 23'-0" | 13 | 449 |
| A13 | 19'-0" | | | | | | | #4 | 19'-0" | 20 | 254 |
| A14 | 14'-6" | | | | | | | #6 | 14'-6" | 8 | 174 |
| A15 | 16'-0" | | | | | | | #4 | 16'-0" | 20 | 214 |
| A16 | 13'-0" | | | | | | | #4 | 13'-0" | 10 | 195 |
| A17 | 18'-6" | | | | | | | #4 | 18'-6" | 16 | 198 |
| A18 | 16'-6" | | | | | | | #4 | 16'-6" | 16 | 176 |
| A19 | 5'-6" | | | | | | | #4 | 5'-6" | 4 | 15 |
| A20 | 7'-0" | | | | | | | #10 | 7'-0" | 80 | 2,336 |
| A21 | 2'-5" | | | | | | | #4 | 2'-5" | 8 | 18 |
| A22 | 27'-8" | | | | | | | #4 | 27'-8" | 24 | 443 |
| B1 | 23'-6" | 1'-7" | | | | | | #7 | 25'-0" | 77 | 3,935 |
| B2 | 15'-0" | 1'-7 1/2" | | | | | | #10 | 16'-6" | 74 | 5,094 |
| B3 | 8'-6" | 1'-7 1/2" | | | | | | #11 | 10'-0" | 74 | 3,736 |
| B4 | 23'-6" | 1'-6 3/4" | | | | | | #6 | 25'-0" | 91 | 3,417 |
| B5 | 28'-8" | 1'-7" | | | | | | #7 | 30'-2" | 16 | 987 |
| B6 | 28'-8" | 1'-6 3/4" | | | | | | #6 | 30'-2" | 24 | 1,088 |
| B7 | 17'-0" | 1'-7 1/4" | | | | | | #4 | 18'-6" | 15 | 938 |
| B8 | 10'-6" | 1'-7 1/4" | | | | | | #11 | 12'-0" | 14 | 848 |
| B9 | 13'-0" | 1'-7 1/4" | | | | | | #10 | 14'-6" | 7 | 423 |
| B10 | 15'-3" | 1'-6 3/4" | | | | | | #6 | 16'-9" | 22 | 553 |
| B11 | 5'-3" | 1'-6 3/4" | | | | | | #6 | 6'-9" | 9 | 91 |
| B12 | 7'-6" | 1'-6 3/4" | | | | | | #6 | 9'-0" | 12 | 162 |
| B13 | 3'-10" | 2'-5" | | | | | | #4 | 6'-3" | 6 | 25 |
| B14 | 2'-0" | 1'-8" | | | | | | #4 | 3'-8" | 6 | 14 |
| D1 | 1'-6 1/4" | 2'-6 1/2" | | | | | | #4 | 5'-6" | 77 | 283 |
| D2 | 1'-6 1/4" | 11 1/2" | | | | | | #4 | 3'-11" | 37 | 97 |
| D3 | 4'-6" | 2'-0" | | | | | | #4 | 11'-0" | 6 | 44 |
| D4 | 2'-0" | 8" | | | | | | #4 | 4'-8" | 72 | 225 |

Total Abut & Wingwall Reinforcement Steel = 44,965 *

LARNED STREET BRIDGE X069
OVER
GRAND TRUNK WESTERN RAILROAD

STEEL REINFORCEMENT DETAILS

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERS OFFICE
BUREAU OF HIGHWAYS AND EXPRESSWAYS
RAILROAD GRADE SEPARATION

DESIGNED BY: C.C.L. / R.R.H.
DRAWN BY: D. Romes
TRACED BY: D. Romes
CHECKED BY: R. Roberts (Freiberg)

REFERENCE DRAWINGS: _____
REVISIONS LOCATED BY COORDINATES ON SHEET

SHEET 20 OF 46 SHEETS
CONTRACT No. PW 3988
DRWG No. C 119
DATE MAR. 1962

