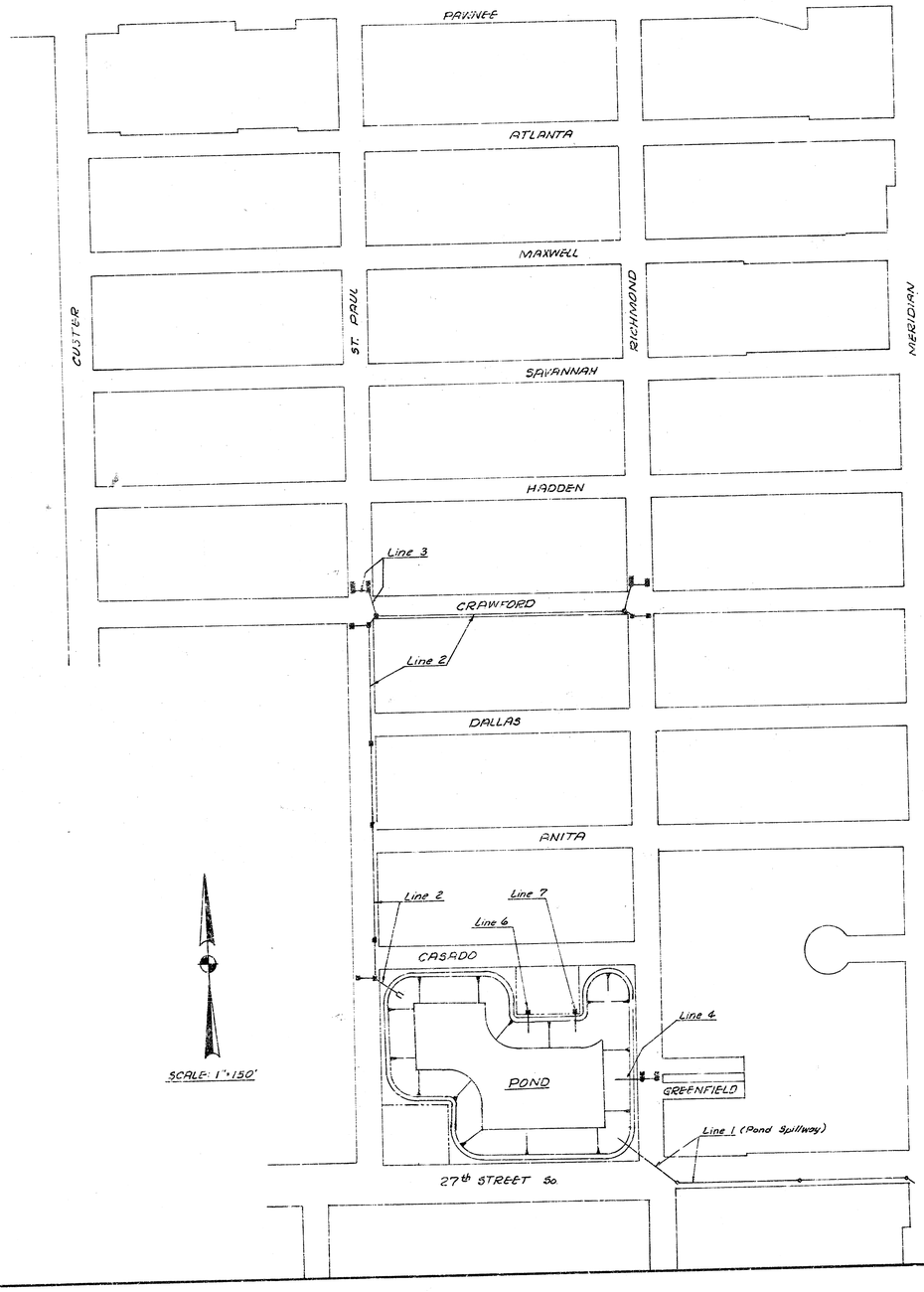
# STORM WATER SEWER NO. 194




GENERAL NOTES

1. ALL TREES, BRUSH, BUILDING, FENCE, UTILITY LINES, AND OTHER EXISTING FACILITIES SHALL BE REMOVED FROM POND SITE BY THE CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE FIELD ENGINEER. THE POND SITE IS THAT AREA BETWEEN E.L. CASADO ST., W.L. 27TH ST. SOUTH, E.L. ST. PAUL ST., AND W.L. RICHMOND ST. EXCEPT FOR THE 105' x 130' PRIVATE PROPERTY SOUTH OF CASADO ST. AND THE 80' x 175' PRIVATE PROPERTY NE OF ST. PAUL ST. AND 27TH ST. SOUTH. COST OF THIS WORK IS PAID FOR AT THE LUMP SUM BID PRICE FOR "CLEARING POND SITE."

2. ALL EARTHWORK SHALL BE PAID FOR AS "EXCAVATION", AND ANY FILL REQUIRED AT THE LEVEE SHALL BE CONSIDERED INCIDENTAL TO EXCAVATION.

3. FLAP GATES ON THIS PROJECT SHALL BE ARMCO MODEL 100 FLAP GATE AND SHALL BE OF THE PROPER SIZE AND TYPE FOR CONNECTION TO SIZE OF CMP AND PIPE. PAYMENT FOR FLAP GATE, ITS INSTALLATION, AND THE 6" CONCRETE SLAB (FOR ENCLOSURE) WITH TOE WALL SHALL BE PAID FOR AT BID PRICE FOR "FLAP GATE (15")" OR "FLAP GATE (21")".

4. ALL CORRUGATED METAL PIPE ON THIS PROJECT SHALL BE FULLY COATED.

5. CURB INLETS ON THIS PROJECT SHALL BE LOCATED BY THE ENGINEER WITH REFERENCE TO THE CONSTRUCTION PLANS. ANY INLET OR PIPE WHICH CONFLICTS WITH EXISTING UTILITIES MAY BE ALTERED IF SUCH ALTERATION IS SATISFACTORY IN THE OPINION OF THE ENGINEER.

6. CONTRACTOR SHALL COORDINATE WORK WITH WATER, ELECTRIC, TRAFFIC CONTROL, GAS, AND OTHER UTILITY COMPANIES SO MINIMUM INCONVENIENCE WILL OCCUR TO GENERAL PUBLIC. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES FOR RELOCATION OF EXISTING SERVICES.

7. ~~ALL IRONS AND THIMBLES DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED BY THE ENGINEER.~~

8. ALL CONCRETE SHALL BE "6-SACK CONCRETE" UNLESS OTHERWISE SPECIFIED.

9. FIELD ENGINEER SHALL DETERMINE ALL REMOVAL LIMITS. REMOVAL OF CONCRETE DRIVES TO BE AT NEAREST JOINT WHERE POSSIBLE. ALL OTHER REMOVAL LIMITS TO BE BY SAW JOINT.

R. W. BRUGGEMAN, DIRECTOR OF ENGINEERING

CITY OF WICHITA, KANSAS

PROJECT NO. 468-76-245-80962-000-000 001

DATE:_____

STORM WATER SEWER #194

SWS #194

Sheet 1 of 14

FILMED FROM THE BEST

BM 99.62 City Std. NE Cor. 27th St & Meridian
42.5' N. & 44.0' E. & both

LINE 1

SCALE: 1"=20'

MERIDIAN

Valley Gutter

Valley Gutter

Concrete to remain

12.5'

5'

Sta. 3+14.09 Start 3-12" CMP
35' Lt. & 27th St. So.

Sta. 3+34, P.I. & Manhole
25.5' Lt. & 27th St. So., Δ= 28°29'
See Sheet 7

Install Triple 12" CMP @ 18" cts.
℄ at 25.5' Lt. of 27th St. So. ℄

Remove & Replace Stepping Stones as required.
Cost included in other bid items.

Remove & Replace Drive as required
Typical all Drives

Foundation

Porch

House

Sta. 8+85.8 P.I. & Manhole
25.5' Lt. & 27th St So., Δ= 61°32'21"
See Sheet 7

Tile Sewer

10" San Sewer

ONONHAM RD

Remove & Replace Mail Box

Remove & Replace Mail Box

Remove & Replace Mail Box

Remove & Replace Mail Box

Sta. 5+85 Manhole, See Sheet 7

Constr. Headwall
See Detail, this sheet

℄ 27th St. So.
(7" Pav't w/ integral curb, 41' 9a)

Remove & Replace 6'6" wide Pav't.

Saw Joint.
Existing Pav't

6'6"
#4 bars @ 18" cts ea. way
2" cl.
4" cl.
12" min.
3-12" CMP @ 18" cts.
12" min.

Saw Joint
Existing Pav't

Drive, if joint is less than 4', omit saw joint & remove concrete to said joint.

SECTION OF SPECIAL ENCASEMENT
SCALE: 1/2"=1'0"

5'0" @ Sta. 10+50.22
4'0" @ Sta. 3+14.09

3'6"

FRONT

8"

All exposed edges to have 1/2" bevel.

1'6"

2'0"

#4 rebars both ways

SECTION

HEADWALL FOR 3-12" CMP
Scale: 1/2"=1'0"

NOTE: Details for Encasement, headwalls and manholes are for 3-12" CMP @ 18" cts. If 3-12" RCP @ 20" cts are used, increase width of these facilities by 6" at no additional cost.

Pav't & Drive Replaced by Spec. Encsmt, to be paid for at bid price for "Special Encasement." Additional drive removed to be paid for at bid price for "Drive Replaced."

3-12" CMP (n=0.013)
$Q_0$ = 4.08 cfs, V=1.73 fps
$H_m$ = 0.09', $K_m$ = 2.00
$H_p$ = 1.04', $K_p$ = 22.30

LINE 1

Sta. 3+14.09 Start DWS 97.00

Sta. 3+34 P.I. Install Manhole

Sta. 5+85 Install Manhole

Sta. 8+85.8 P.I. Install Manhole

Sta. 9+00 Match Line

Top of Curb

Construct Headwall

Existing Conc. slab & toe wall to remain.

100

95

96.00

95.98

96.02

96.09

96.19

96.20

96.39

96.49

96.58

96.55

585.91' @ +0.10%
AH.#1 3-12" RCP @ 20" cts.; AH #2 3-12" CMP @ 18" cts.

3 4 5 6 7 8 Match Line 9

LINE 4
See Sheet 3 for Plan

Sta 0+48.48 Flap Gate
Start Pipe
Permanent Pool 94.74
For SWS 96.74
DWS Pond 100.5

Q=17.2, $H_m$=0.40, $H_p$=0.66'

Sta. 0+82
Levee @ 101.5
Sta. 0+92

Sta. 1+00
Row Line Richmond

Sta. 1+41.82 Curb Inlet
Top 98.5
DWS 97.78

Sta. 1+49.42 Curb Inlet
Top 98.5
DWS 98.32

2" Gas Line

Ground Line

4:1

100

95

90

94.07

96.32

96.57

95.10

20'x8'x4" Conc. Slab

62' of 21" CMP @ +0.40%

37' of SWS @ +1.42%
Alt #1 - 18" RCP
Alt #2 - 18" CMP

1'6" Vert. Toe Wall

Adjust inlet brick wall to conform to 10" San. Sewer @ no additional cost.

1

LINES 6 & 7
See Sheet 3 for Plan

Sta. 0+48.48 Flap Gate
Start Pipe

Sta. 0+82
Levee @ 101.5
Sta. 0+92

1400 Property Line

Sta. 1+02 Field Inlet
Top 98.5

DWS (Pond) 100.5

Ground Line

Permanent Pool 96.74

29'x7'x6" Conc. Slab

Existing Drive Table

4:1

Pond Bottom @ 87.0
Sta. 0+27

97.10

97.50

40' of 15" CMP @ +1%

1'6" Vert. Toe Wall

1

LINE 1
See Sheet 3 for Plan

Match Line

Sta. 9+00

8" Water

4" Gas

Street Surface
Top of Special Encasement.

Existing Ground Line

Top of Levee @ 101.5

DWS 98.13

101+50.22
End

Construct Headwall

DWS @ 100.5

Permanent Pool @ 96.74

10" San. Sewer to remain

96.59

96.69

96.74

150.22' @ +0.10%
AH #1 3-12" RCP @ 20" cts.; Alt. #2 3-12" CMP @ 18" cts.

4:1

Sta. 10+89.14

Bottom @ 87.07

100

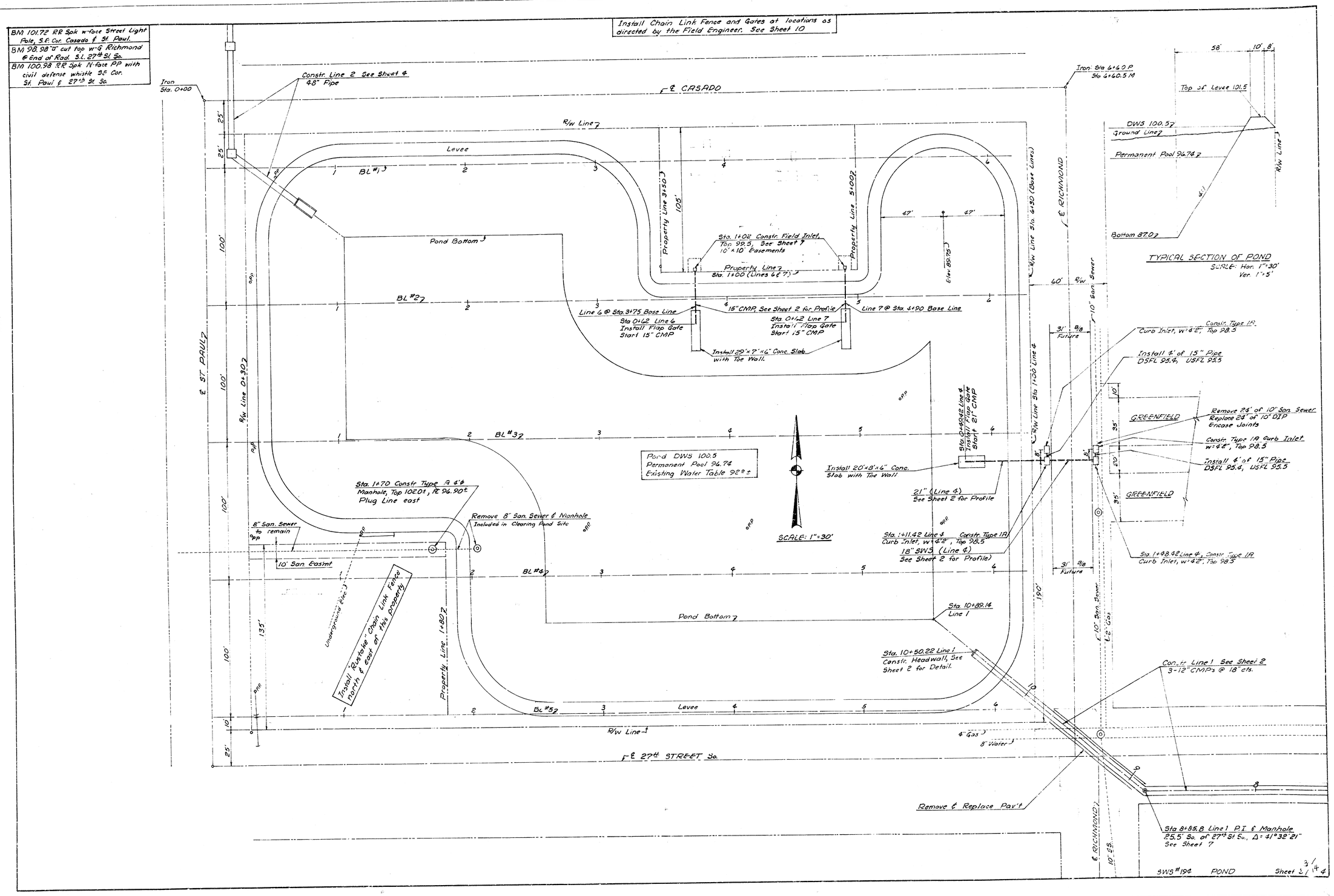
95

90

85

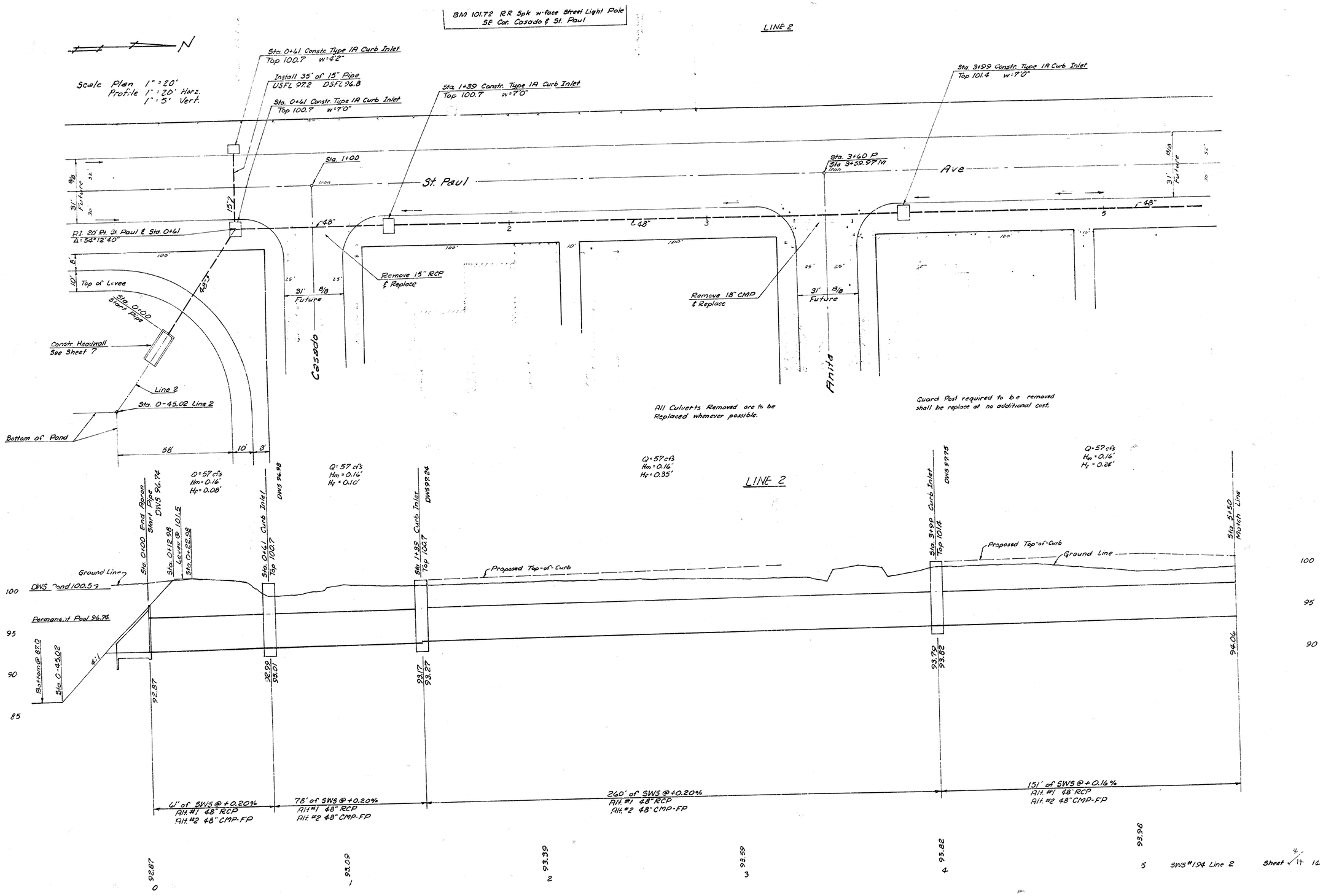
9 10 11

SWS # 194 Line 1 Sheet 2 of 14
Profile Lines 4, 5, 6 & 7



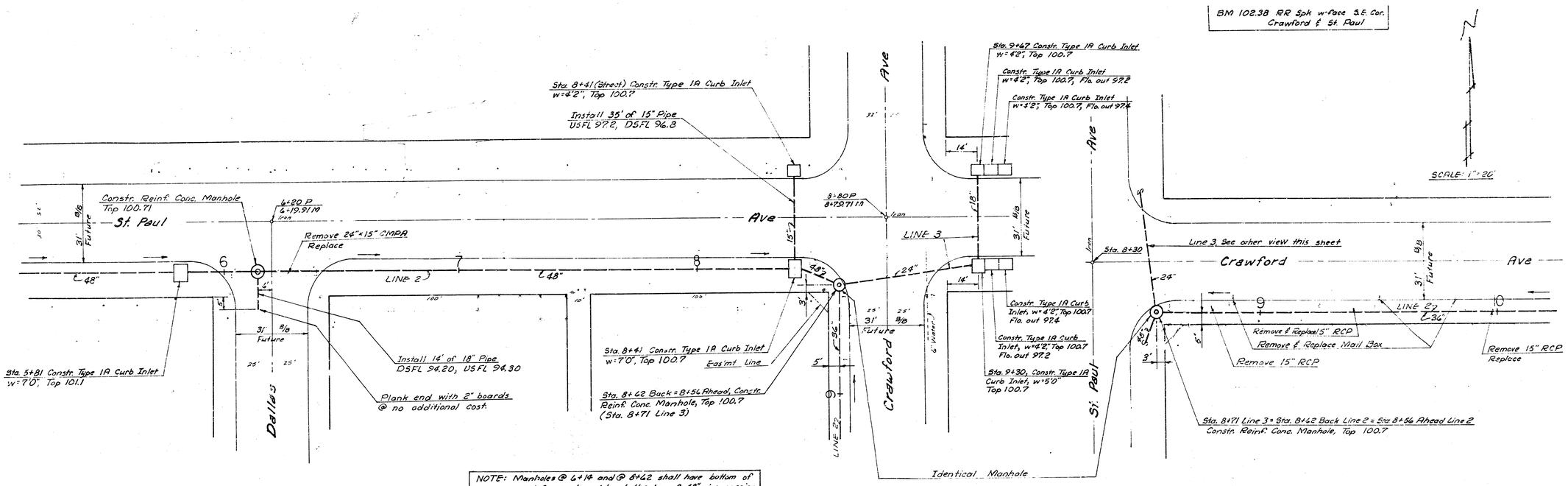
BM 101.72 RR Spk w-face Street Light Pole, S.E. Cor. Casado & St. Paul.
BM 98.98 "□" cut top w-G Richmond @ End of Rad. S.L. 27th St. So.
BM 100.98 RR Spk N-face PP with civil defense whistle S.E. Cor. St. Paul & 27th St. So.
Install Chain Link Fence and Gates at locations as directed by the Field Engineer. See Sheet 10
Iron Sta. 0+00
Constr. Line 2 See Sheet 4 48" Pipe
℄ CASADO
R/W Line
Levee
BL #1
Property Line 3+50
Property Line 5+00
Pond Bottom
Sta. 1+02 Constr. Field Inlet, Top 99.5, See Sheet 7 10'×10' Easements
Property Line Sta. 1+00 (Lines 6 & 7)
Elev. 89.75
BL #2
Line 6 @ Sta. 3+75 Base Line
15" CMP, See Sheet 2 for Profile
Line 7 @ Sta. 4+90 Base Line
Sta. 0+62 Line 6 Install Flap Gate Start 15" CMP
Sta. 0+62 Line 7 Install Flap Gate Start 15" CMP
Install 29'×7'×6" Conc. Slab with Toe Wall.
℄ ST. PAUL
R/W Line 0+30
BL #3
Pond DWS 100.5 Permanent Pool 96.74 Existing Water Table 92.0±
Sta. 0+49.42 Line 4 Install Flap Gate Start 21" CMP
Install 20'×8'×6" Conc. Slab with Toe Wall
21" (Line 4) See Sheet 2 for Profile
SCALE: 1"=30'
Sta. 1+70 Constr. Type A 4'ϕ Manhole, Top 102.0±, Pl. 96.90± Plug Line east
Remove 8" San. Sewer & Manhole Included in Clearing Pond Site
8" San. Sewer to remain
10' San. Easmt.
Underground Elec.
Install "Rustake" Chain Link Fence north & east of this property
Property Line 1+80
BL #4
Pond Bottom
Sta. 10+89.14 Line 1
Sta. 10+50.22 Line 1 Constr. Headwall, See Sheet 2 for Detail.
BL #5
Levee
R/W Line
℄ 27th STREET So.
4" Gas
8" Water
Remove & Replace Pav't
℄ RICHMOND
R/W Line Sta. 6+30 (Base Lines)
R/W Line Sta. 1+00 Line 4
Iron Sta. 6+60 P Sta. 6+60.5 M
℄ RICHMOND
10" San. Sewer
Constr. Type 1A Curb Inlet, w=4'2", Top 98.5
Install 4' of 15" Pipe DSFL 95.4, USFL 95.5
GREENFIELD
Remove 24' of 10" San. Sewer Replace 24' of 10" DIP Encase Joints
Constr. Type 1A Curb Inlet w=4'2", Top 98.5
Install 4' of 15" Pipe DSFL 95.4, USFL 95.5
Sta. 1+11.42 Line 4 Constr. Type 1A Curb Inlet, w=4'2", Top 98.5
18" SWS (Line 4) See Sheet 2 for Profile)
Sta. 1+48.42 Line 4, Constr. Type 1A Curb Inlet, w=4'2", Top 98.5
Constr. Line 1 See Sheet 2 3-12" CMPs @ 18" cts.
Sta. 8+85.8 Line 1 P.I. & Manhole 25.5' So. of 27th St. So., Δ=41°32'21" See Sheet 7
℄ RICHMOND
10" SS.
Top of Levee 101.5
DWS 100.5
Ground Line
Permanent Pool 96.74
Bottom 87.0
TYPICAL SECTION OF POND
SCALE: Hor. 1"=30' Ver. 1"=5'
SWS #194 POND
Sheet 3 of 4


DLK-418
WSK



BM 101.72 RR Spk w-face Street Light Pole
SE Cor. Casado & St. Paul
LINE 2
N
Scale Plan 1" = 20'
Profile 1" = 20' Horz.
1" = 5' Vert.
Sta. 0+61 Constr. Type 1A Curb Inlet
Top 100.7 w=4'2"
Install 35' of 15" Pipe
USFL 97.2 DSFL 96.8
Sta. 0+61 Constr. Type 1A Curb Inlet
Top 100.7 w=7'0"
Sta. 1+39 Constr. Type 1A Curb Inlet
Top 100.7 w=7'0"
Sta. 3+99 Constr. Type 1A Curb Inlet
Top 101.4 w=7'0"
Sta. 1+00
Iron
St. Paul
Ave
Sta. 3+60 P
Sta. 3+59.97 M
Iron
31' B/B Future
P.I. 20' Rt. St. Paul & Sta. 0+61
Δ=54°12'40"
Top of Levee
Sta. 0+00 Start Pipe
Constr. Headwall
See Sheet 7
Line 2
Sta. 0-45.02 Line 2
Bottom of Pond
Casado
Anita
Remove 15" RCP
& Replace
Remove 18" CMP
& Replace
All Culverts Removed are to be
Replaced whenever possible.
Guard Post required to be removed
shall be replace at no additional cost.
58'
10'
8'
Q=57 cfs
Hm=0.16'
Hf=0.08'
Q=57 cfs
Hm=0.16'
Hf=0.10'
Q=57 cfs
Hm=0.16'
Hf=0.35'
Q=57 cfs
Hm=0.16'
Hf=0.24'
LINE 2
Sta. 0+00 End Apron
Start Pipe
DWS 96.74
Sta. 0+12.98
Levee @ 101.5
Sta. 0+22.98
Sta. 0+61 Curb Inlet
Top 100.7
DWS 96.98
Sta. 1+39 Curb Inlet
Top 100.7
DWS 97.24
Sta. 3+99 Curb Inlet
Top 101.4
DWS 97.75
Sta. 5+50
Match Line
Ground Line
DWS Pond 100.57
Permanent Pool 96.74
Proposed Top-of-Curb
Ground Line
Bottom @ 87.0
Sta. 0-45.02
4:1
100
95
90
85
92.87
92.99
93.01
93.17
93.27
93.79
93.82
94.06
61' of SWS @ +0.20%
Alt. #1 48" RCP
Alt. #2 48" CMP-FP
78' of SWS @ +0.20%
Alt. #1 48" RCP
Alt. #2 48" CMP-FP
260' of SWS @ +0.20%
Alt. #1 48" RCP
Alt. #2 48" CMP-FP
151' of SWS @ +0.16%
Alt. #1 48" RCP
Alt. #2 48" CMP-FP
92.87
93.09
93.39
93.59
93.82
93.98
0
1
2
3
4
5
SWS #194 Line 2
Sheet 4/14


DLK-417
WSK

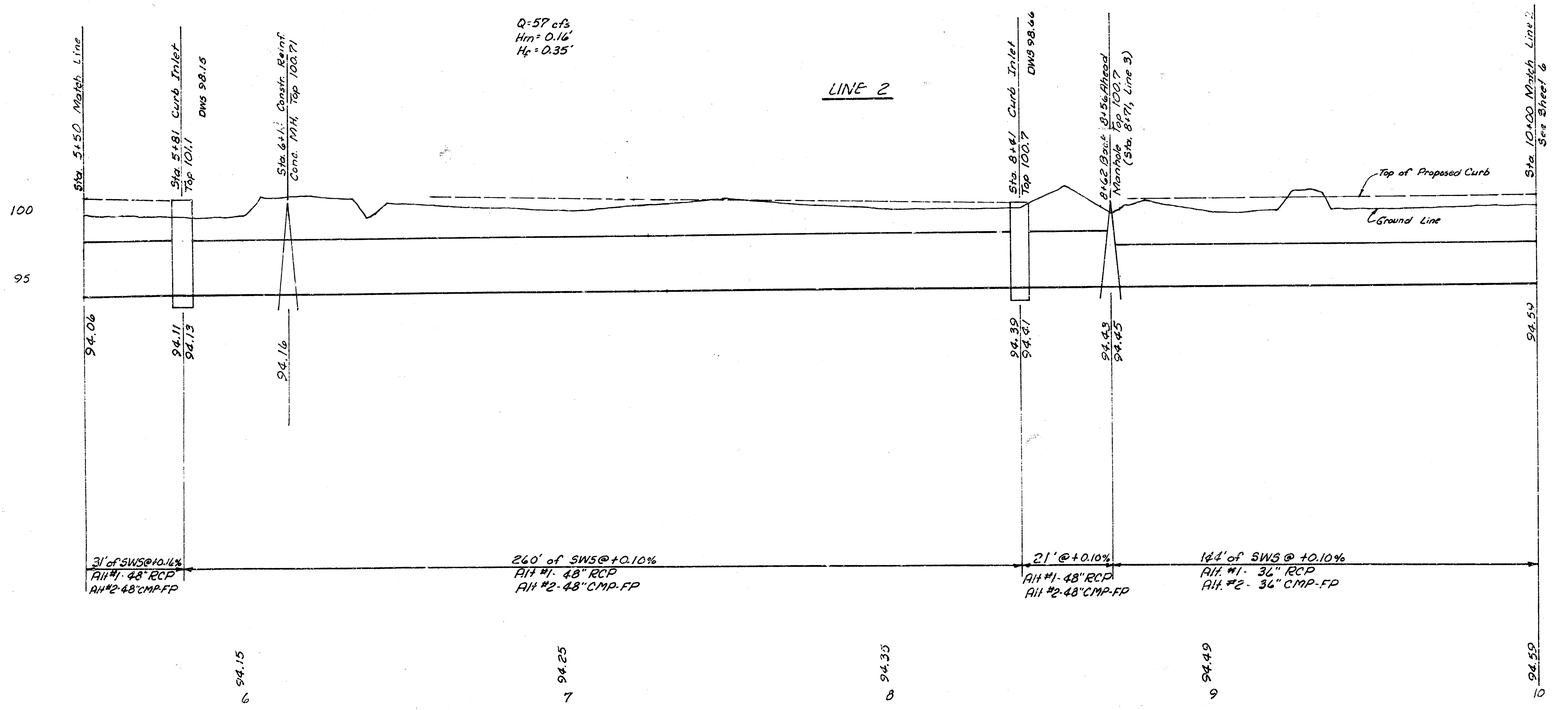


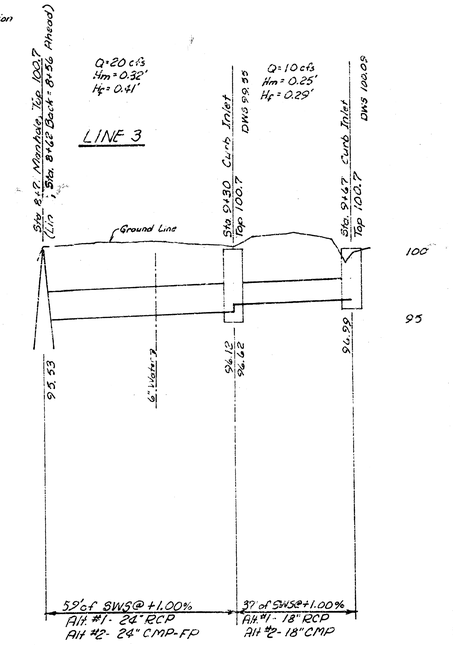

NOTE: Manholes @ 6+14 and @ 8+62 shall have bottom of reinf. conc. top slab at the top of 48" pipe opening.

Scale Plan 1" = 20'
Profile 1" = 20' Horz.
1" = 5' Vert.

Guard Posts required to be removed shall be replaced @ no additional cost.

NOTE: When inlets are shown contiguous, install 1'4" of 21" pipe at "Flo. out" elevation of each inlet so indicated. Cost to be included in price bid for inlet.




Rev. 9-2-82
Rev. 9-3-82

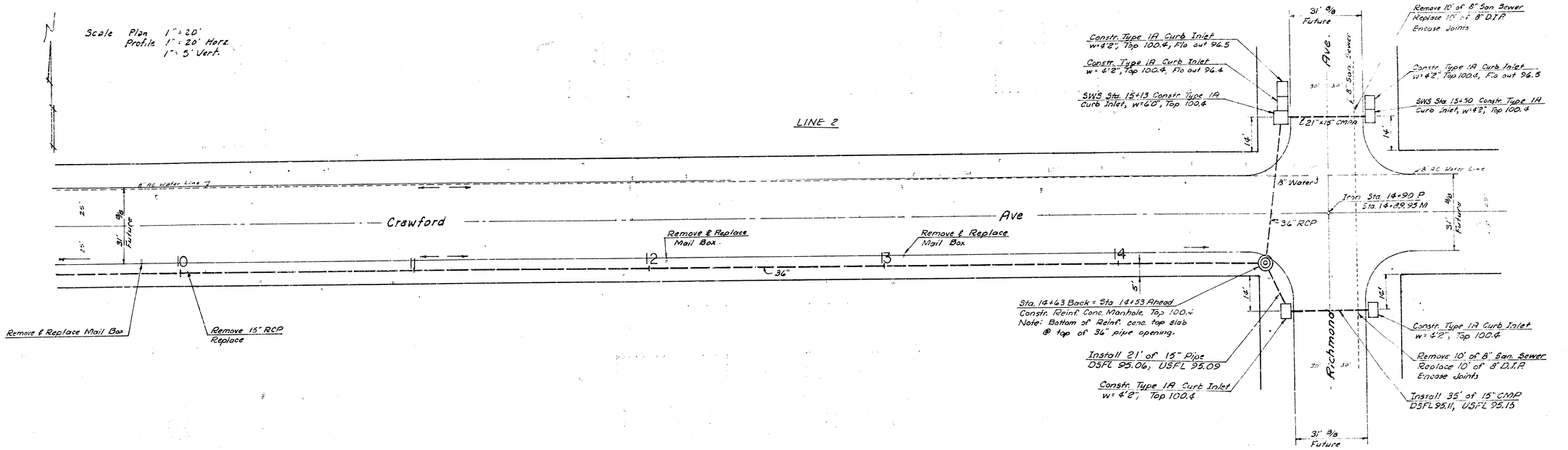
SWS #194, Lines 2 & 3

Sheet 2 5/14 14

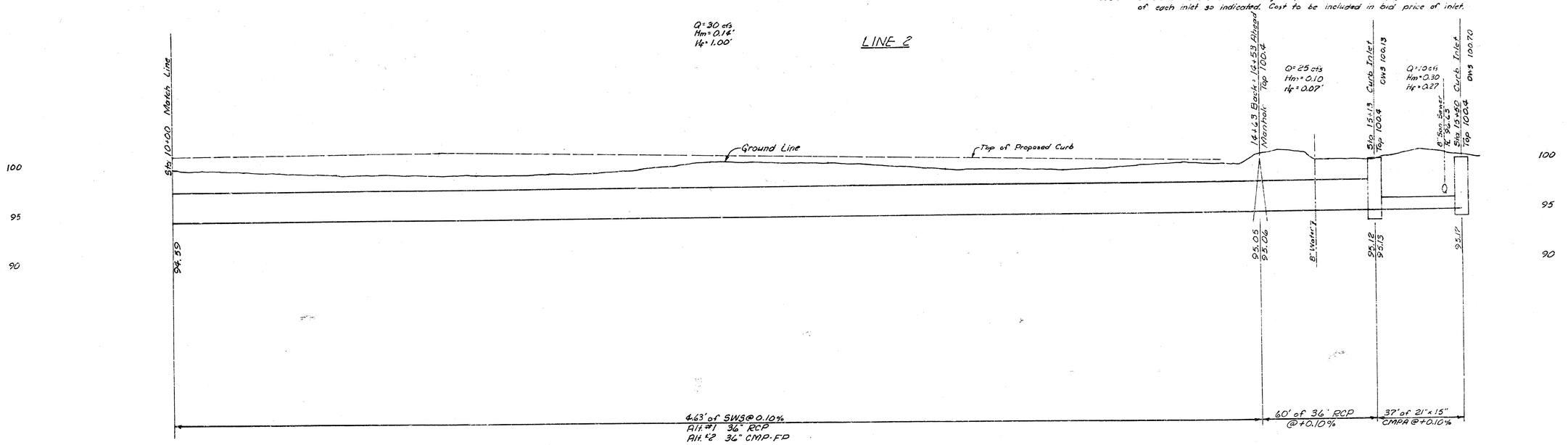
BM 104.49 NW Cor. Conc. Porch 2819 Crawford

BM 104.88 SE Cor. Conc. Porch, 2708 Crawford

Scale Plan 1" = 20'
Profile 1" = 20' Horz.
1" = 5' Vert.



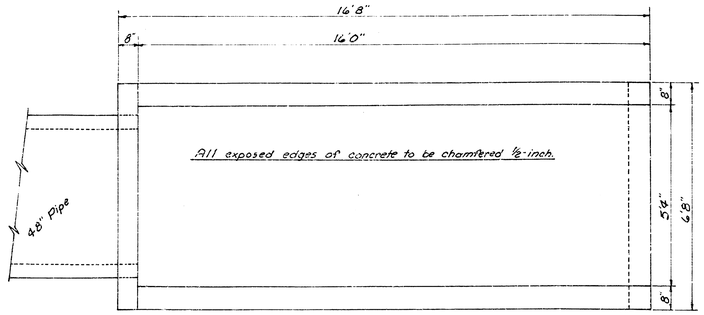

NOTE: When inlets are shown contiguous, install 1'-4" of 21" pipe at "Flo out" elevation of each inlet as indicated. Cost to be included in bid price of inlet.



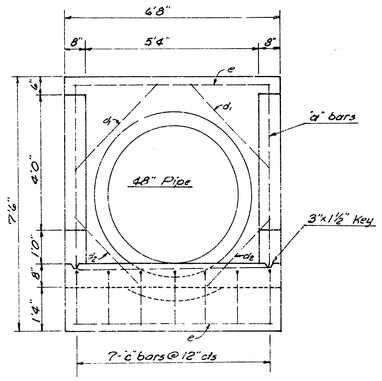

Rev. 9-2-82
Rev. 9-3-82

SWS #194, Line 2

Sheet 16/14 14

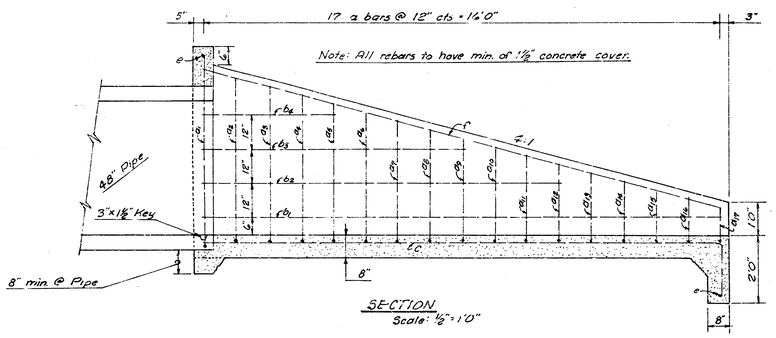



PLAN
Scale: ½"=1'0"




FRONT
Scale: ½"=1'0"

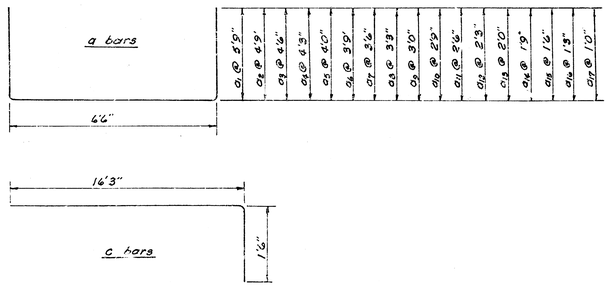
Note: All Conc Reinforcement to be #4 Rebars.



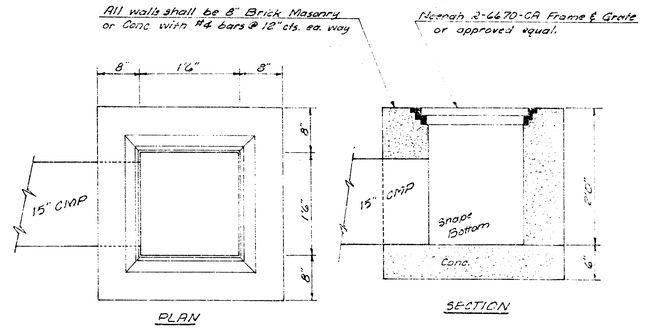

SECTION
Scale: ½"=1'0"

RE-BAR SCHEDULE

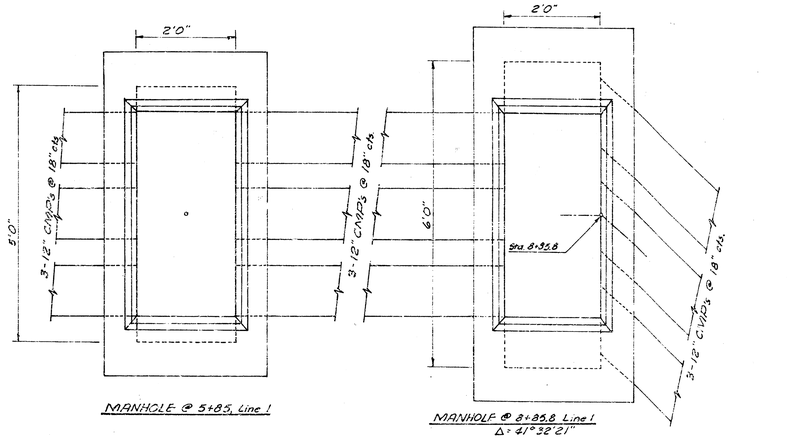
| Bar | Shape | No. & Length | Weight |
|---|---|---|---|
| $a_1$ | | 1 @ 18'0" | 12.0 lbs |
| $a_2$ | | 1 @ 16'0" | 10.6 |
| $a_3$ | | 1 @ 15'6" | 10.4 |
| $a_4$ | | 1 @ 15'0" | 10.0 |
| $a_5$ | | 1 @ 14'6" | 9.7 |
| $a_6$ | | 1 @ 14'0" | 9.4 |
| $a_7$ | | 1 @ 13½" | 9.0 |
| $a_8$ | | 1 @ 13'0" | 8.7 |
| $a_9$ | | 1 @ 12'6" | 8.4 |
| $a_{10}$ | | 1 @ 12'0" | 8.0 |
| $a_{11}$ | | 1 @ 11'6" | 7.7 |
| $a_{12}$ | | 1 @ 11'0" | 7.3 |
| $a_{13}$ | | 1 @ 10'6" | 7.0 |
| $a_{14}$ | | 1 @ 10'0" | 6.7 |
| $a_{15}$ | | 1 @ 9'6" | 6.3 |
| $a_{16}$ | | 1 @ 9'0" | 6.0 |
| $a_{17}$ | | 1 @ 8'6" | 5.7 |
| $b_1$ | | 2 @ 16'3" | 21.7 |
| $b_2$ | | 2 @ 11'3" | 15.0 |
| $b_3$ | | 2 @ 8'3" | 11.0 |
| $b_4$ | | 2 @ 4'3" | 5.7 |
| c | | 7 @ 17'9" | 83.0 |
| $d_1$ | | 2 @ 3'6" | 4.7 |
| $d_2$ | | 2 @ 2'9" | 3.7 |
| e | | 2 @ 6'2" | 8.2 |
| f | | 2 @ 14'5" | 22.4 |
| Total Rebars 319 lbs. Conc. 6¼ C.Y. | | | |




HEADWALL @ STA. 0+00 LINE 2

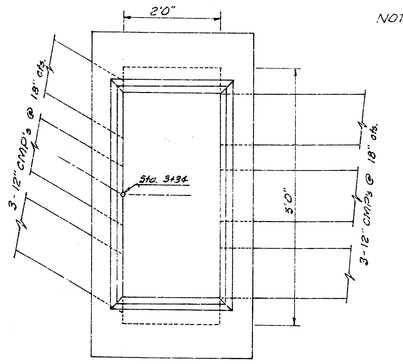



FIELD INLET LINES 6 & 7
Scale: 1"=1'0"



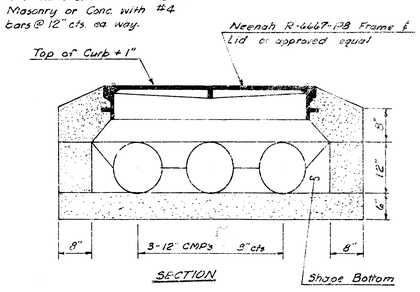

MANHOLE @ 5+85, Line 1

MANHOLE @ 8+85.8 Line 1
Δ = 41°32'21"



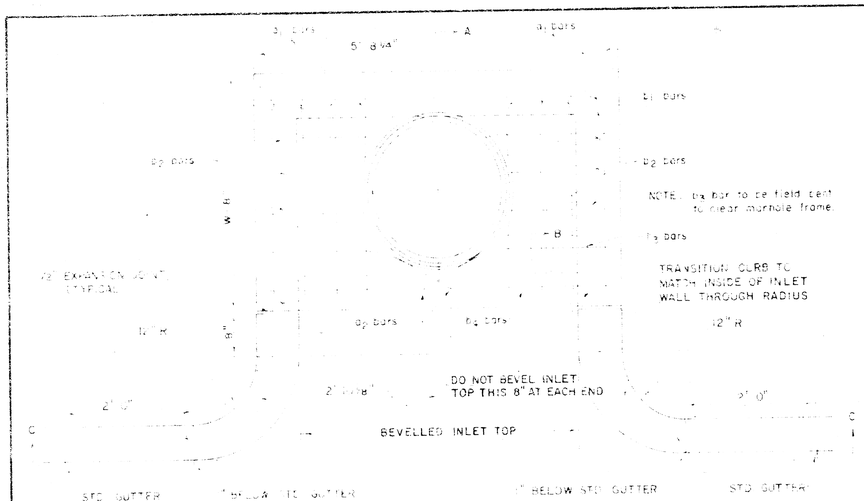

MANHOLE @ 3+36 Line 1
Δ = 28°29'

NOTE: All walls shall be 8" Brick Masonry or Conc. with #4 bars @ 12" cts. ea. way.

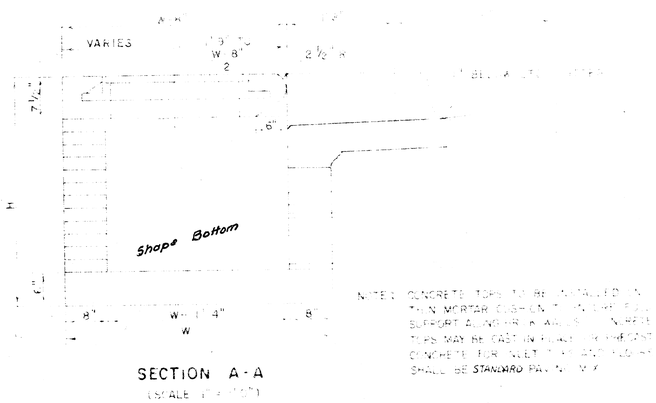



SPECIAL MANHOLE
SCALE: ¾"=1'0"

SWS #194 Sheet 1 of 14

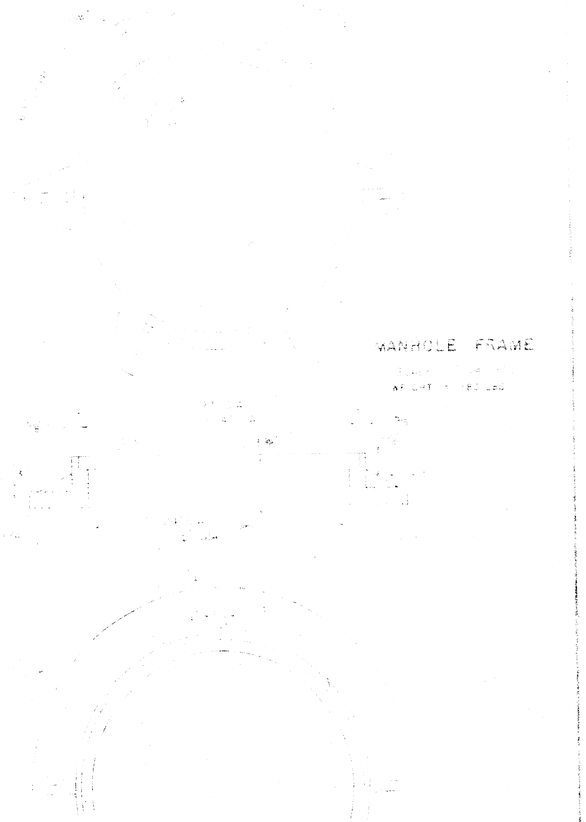


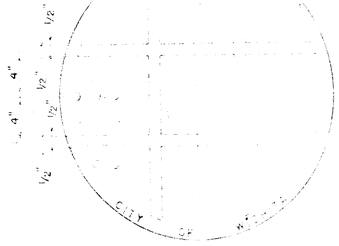

PLAN (SCALE 1" = 1'-0")




SECTION A-A
(SCALE 1" = 1'-0")

NOTES: CONCRETE TOPS TO BE INSTALLED ON A THIN MORTAR BED ON TOP OF INLET WALLS. SUPPORT ANGLES OR RAILS IN WALLS MAY BE CAST IN PLACE OR GROUTED IN CONCRETE FOR INLET TOPS. REINFORCEMENT SHALL BE STANDARD PAVING WWF




MANHOLE COVER
(SCALE 1" = 6")
WEIGHT = 175 LBS

STEEL SCHEDULE

| MARK | | $b_1$ | $b_2$ | $b_3$ | $b_4$ | | | | | AT |
|---|---|---|---|---|---|---|---|---|---|---|
| NUMBER | | | | | | | | | | |
| SIZE | | | | | | | | | | |
| W=4'2" | 6'5" | 2'4" | 5'5" | – | – | – | – | 1'5" | 5'6" | 5'5" | 60 # |
| W=5'0" | 8'1" | 4'4" | – | 5'5" | – | – | – | 1'5" | 5'6" | 5'5" | 77 # |
| W=6'0" | 10'1" | 5'4" | – | – | 5'5" | – | – | 1'5" | 5'6" | 5'5" | 97 # |
| W=7'0" | 11'1" | 6'4" | – | – | – | 5'5" | – | 1'5" | 5'6" | 5'5" | 111 # |
| W=8'0" | 12'1" | 7'4" | – | – | – | – | 5'5" | 1'5" | 5'6" | 5'5" | 124 # |

* NOTE: $b_2$ BARS TO BE PLACED APPROX 2" BELOW TOP OF INLET COVER

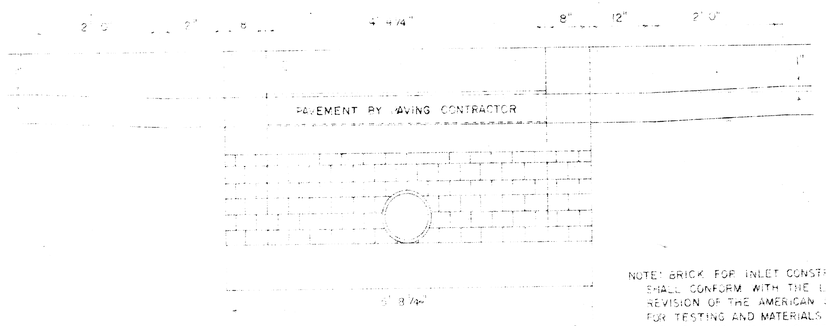
BENDING DIAGRAM




STANDARD CURB INLET PRECAST TOPS

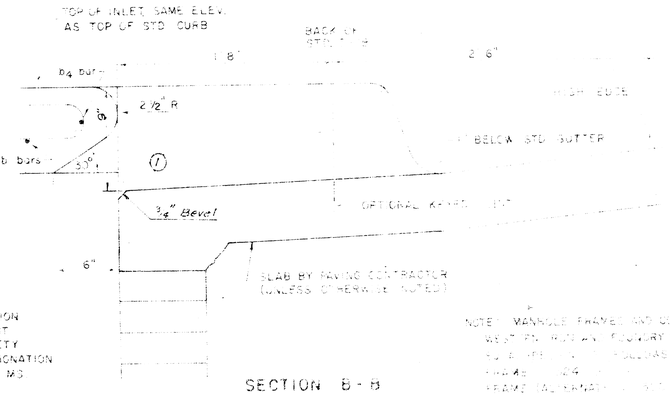
| W | PRECAST TOP SIZE | PIPE SIZE | CU YD. CONC. |
|---|---|---|---|
| 4' 2" | 36"x5'8 1/4"x7 1/2" | 21" & SMALLER | 0.46 * |
| 5' 0" | 44"x5'8 1/4"x7 1/2" | 24" & 30" | 0.57 * |
| 6' 0" | 54"x5'8 1/4"x7 1/2" | 36" & 42" | 0.71 * |
| 7' 0" | 64"x5'8 1/4"x7 1/2" | 48" & 54" | 0.84 * |
| 8' 0" | 74"x5'8 1/4"x7 1/2" | 60" & 66" | 0.97 * |

* GROSS VOLUME



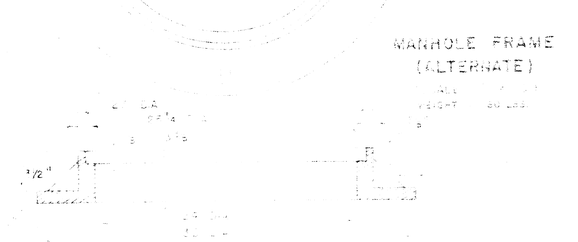

SECTION C-C
SCALE 1" = 1'-0"

NOTE: BRICK FOR INLET CONSTRUCTION SHALL CONFORM WITH THE LATEST REVISION OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS DESIGNATION C32 FOR MANHOLE BRICK GRADE MS




SECTION B-B
SCALE 1" = 1'-0"

NOTE: MANHOLE FRAME AND COVER ARE MEANT TO BE AN EXAMPLE OF SUCH ITEMS AND ARE NOT REQUIRED

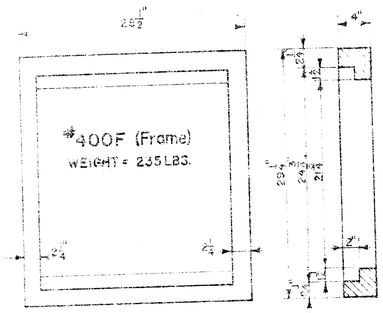


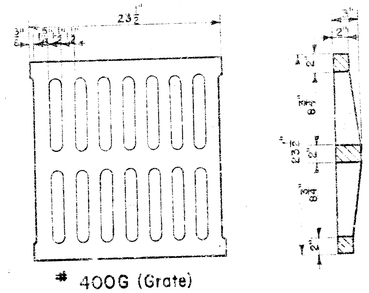

① Rev. 5-18-81

DETAIL STANDARD TYPE IA CURB INLET
CITY OF WICHITA, KANSAS
R.W. BRUGGEMAN, DIRECTOR OF ENGINEERING/ CITY ENGINEER
JUNE, 1981

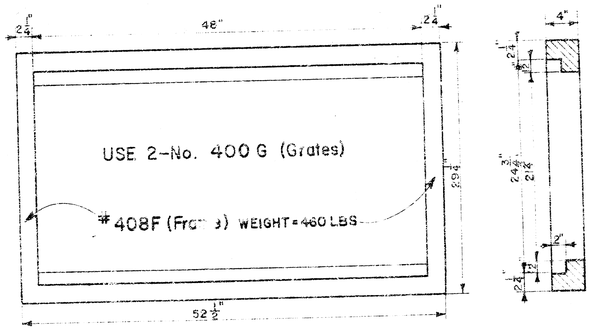
SW5 # 194
Sheet 12 of 14

NOTE: Grates shall be imprinted on the top surface with "CITY OF WICHITA" using letters at least 1" in height. Other marking methods may be used only if approved by the engineer.

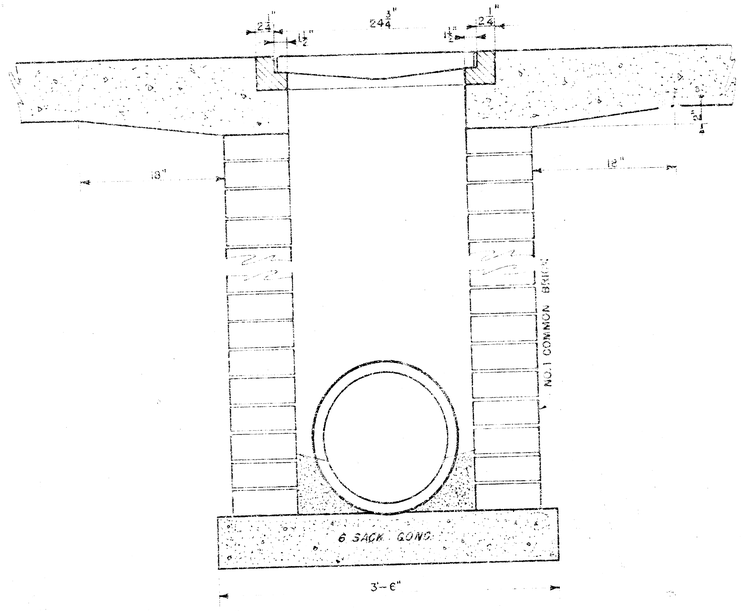


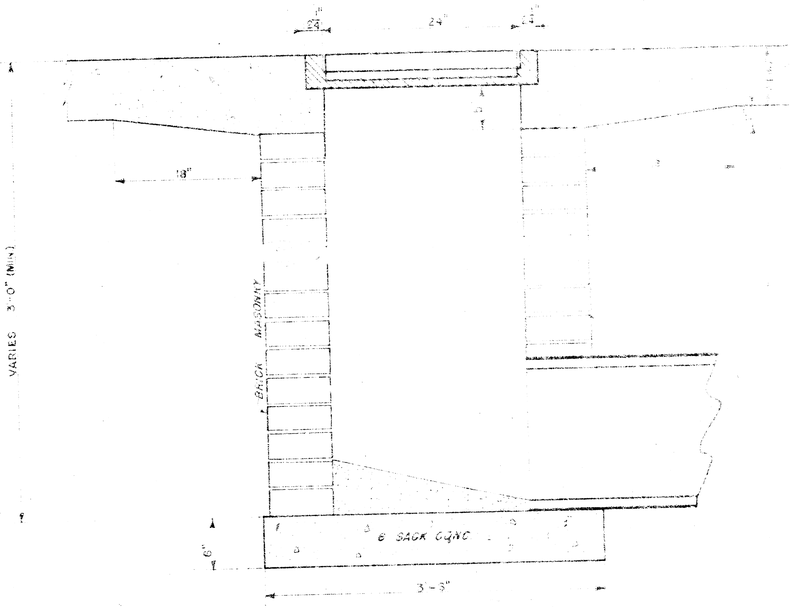



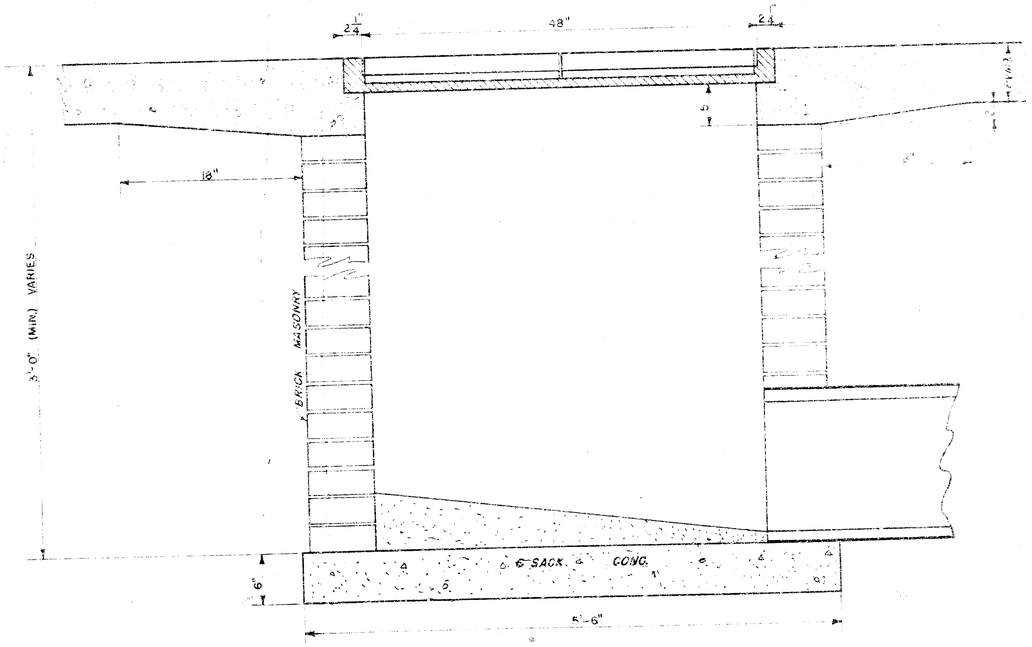

24"x24" Frame & Grate Detail




Double 24"x24" Frame Detail



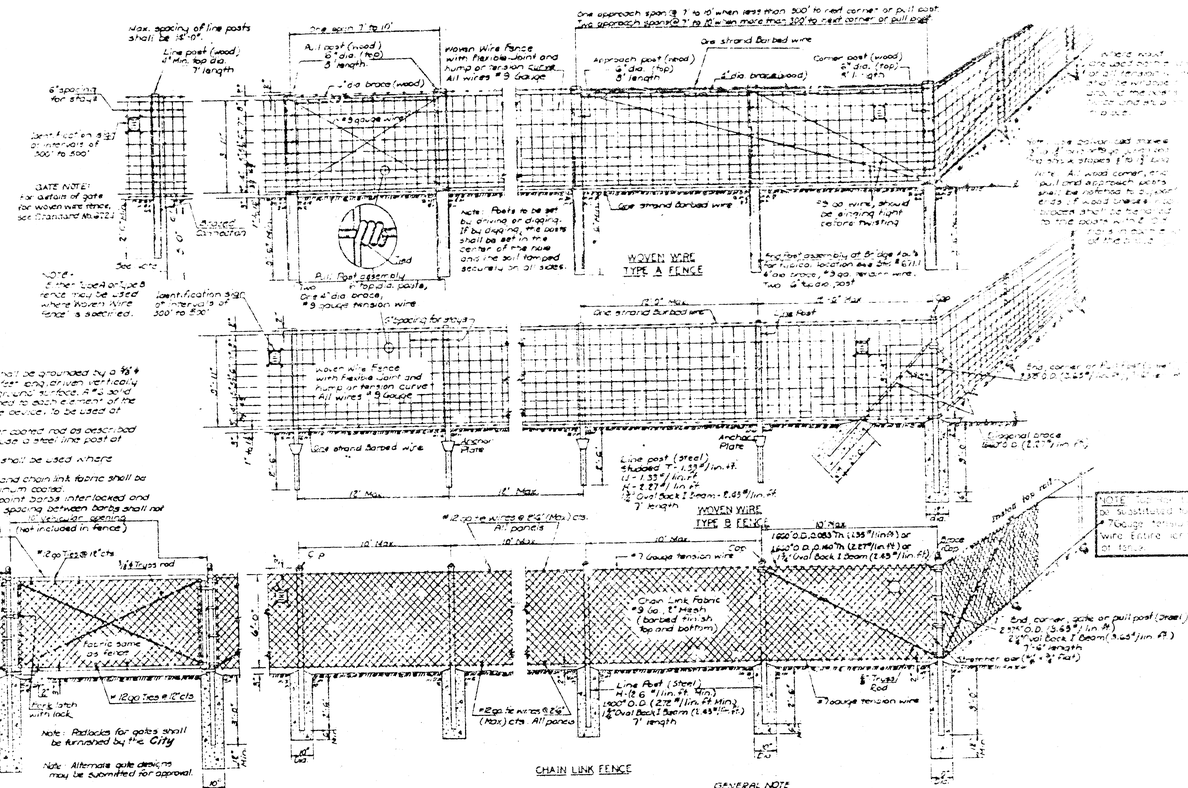




# DROP INLET DETAILS

SWS #194 Sheet 9 of 14

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

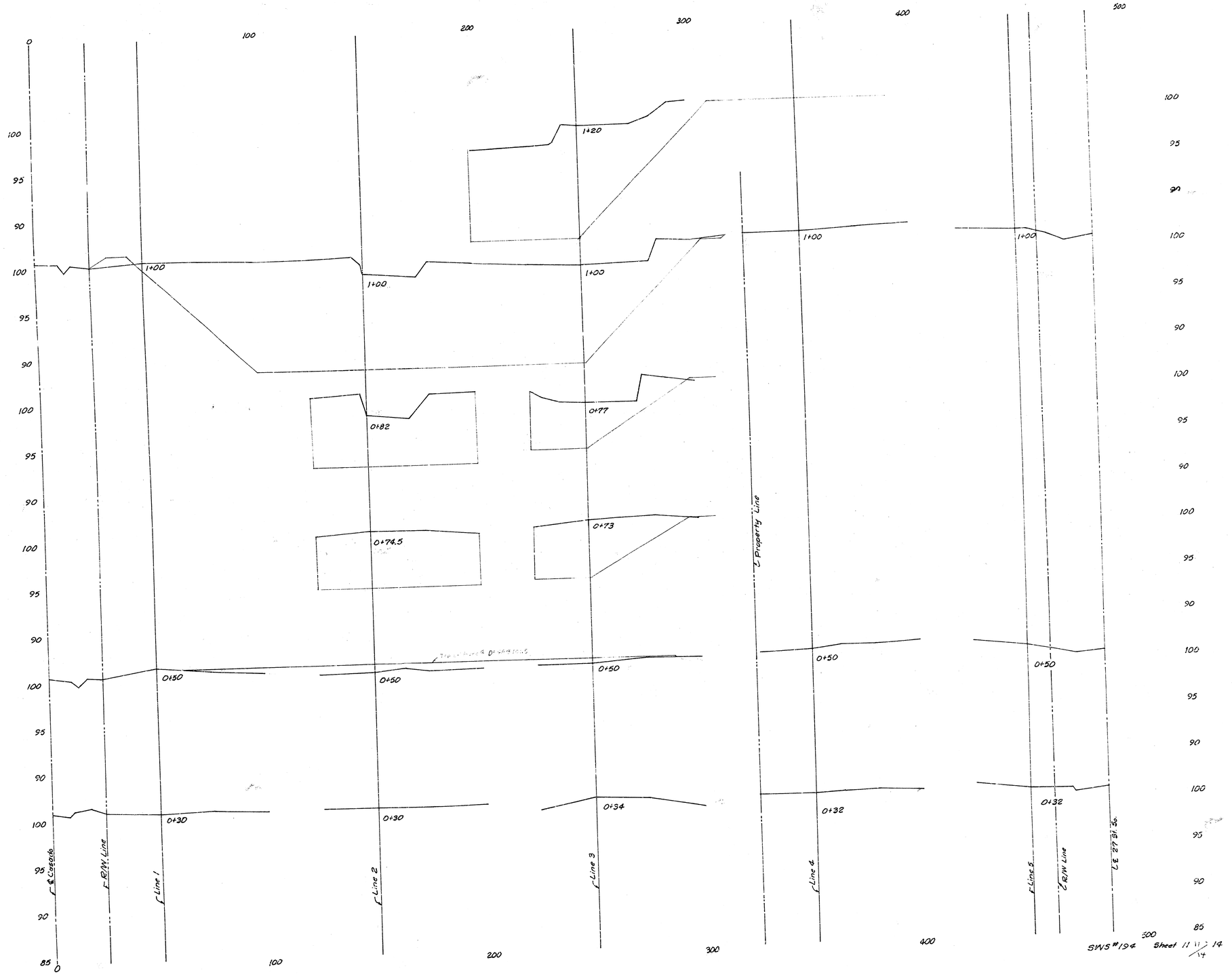



PROJECT DESCRIPTION

SWS # 194

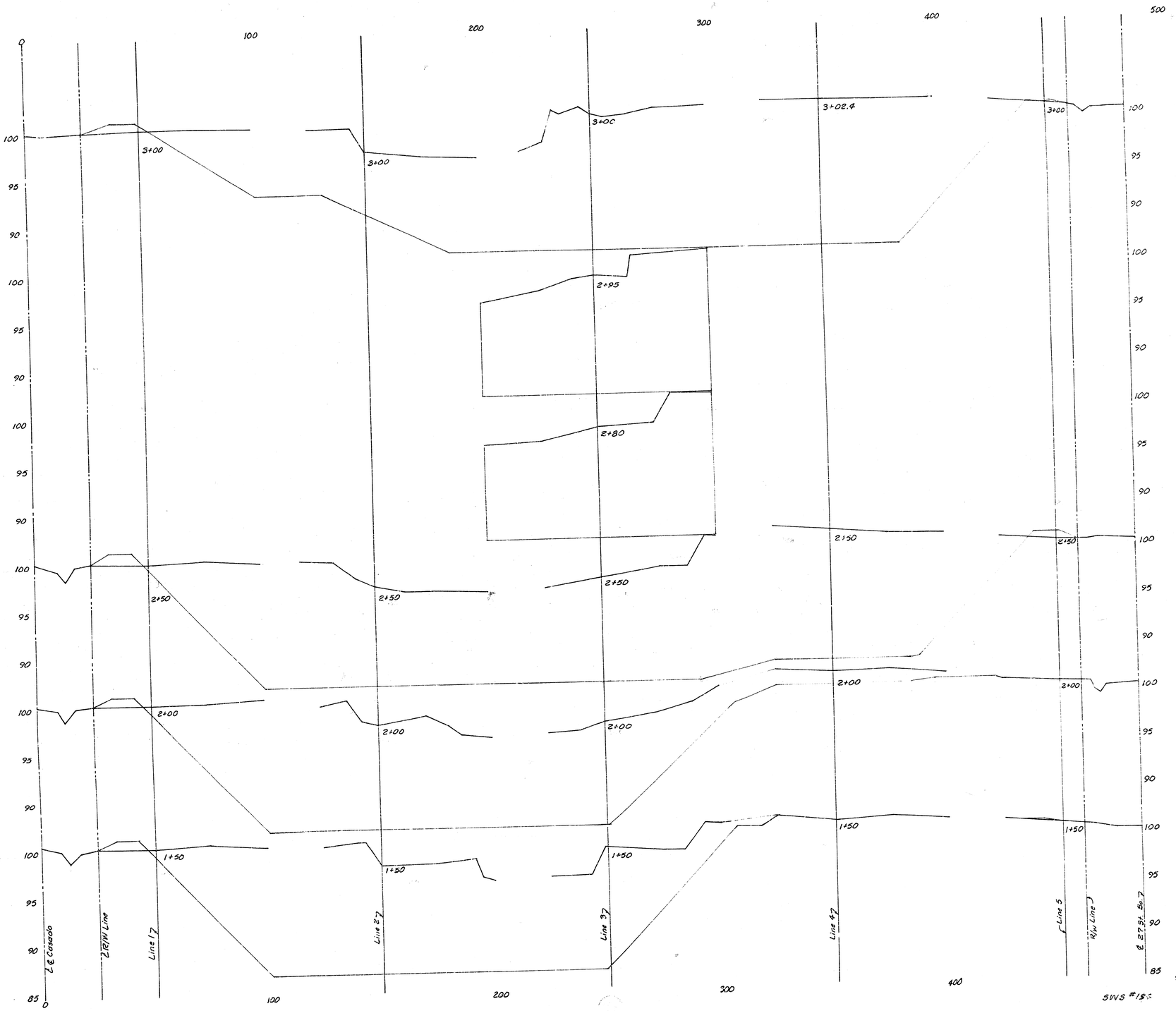
PROJECT NUMBER

468-76-845-80962-000-000-001




SWS #194 Sheet 11 of 14

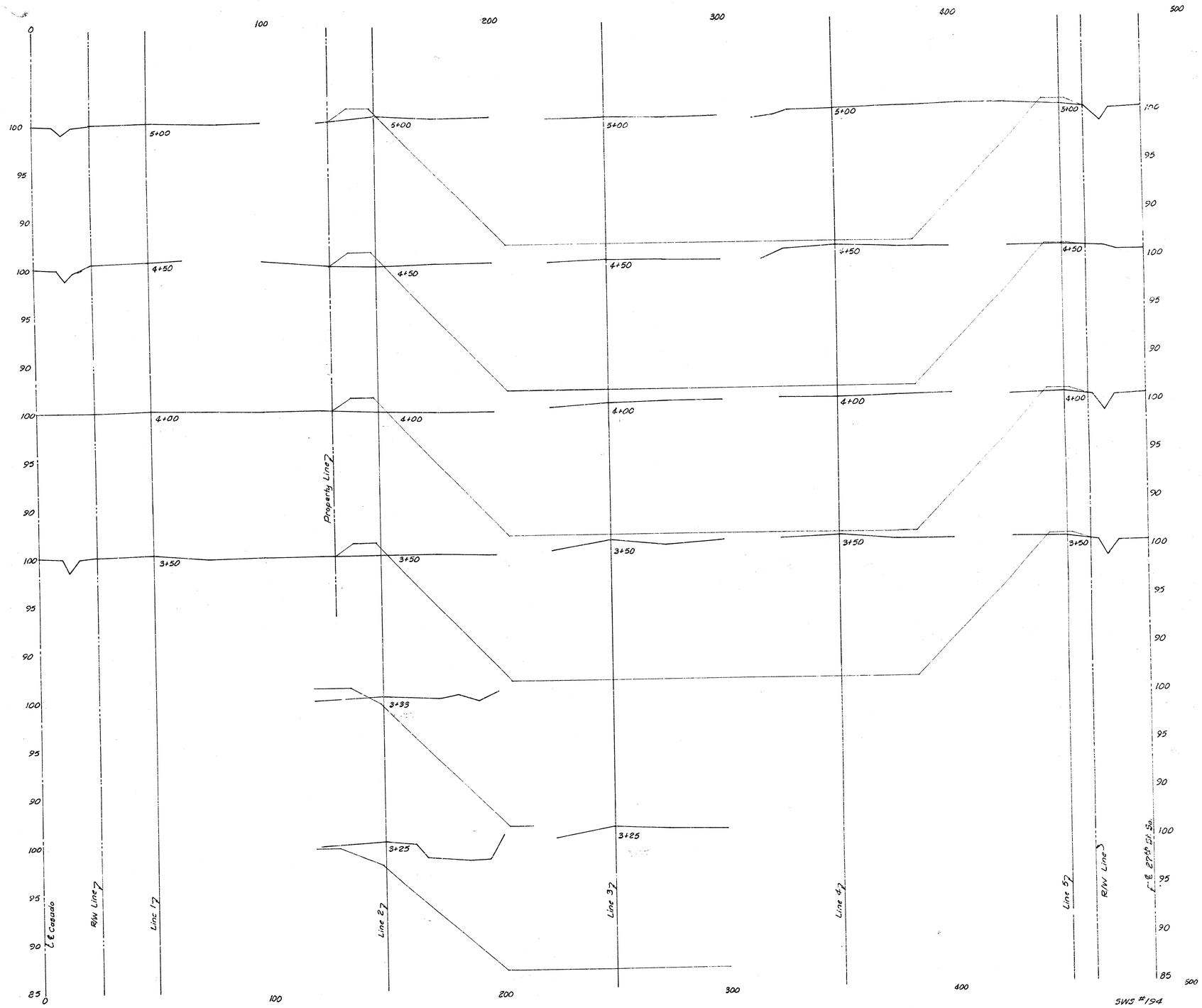
FILMED FROM THE BEST




SWS #15

Sheet 11 of 14

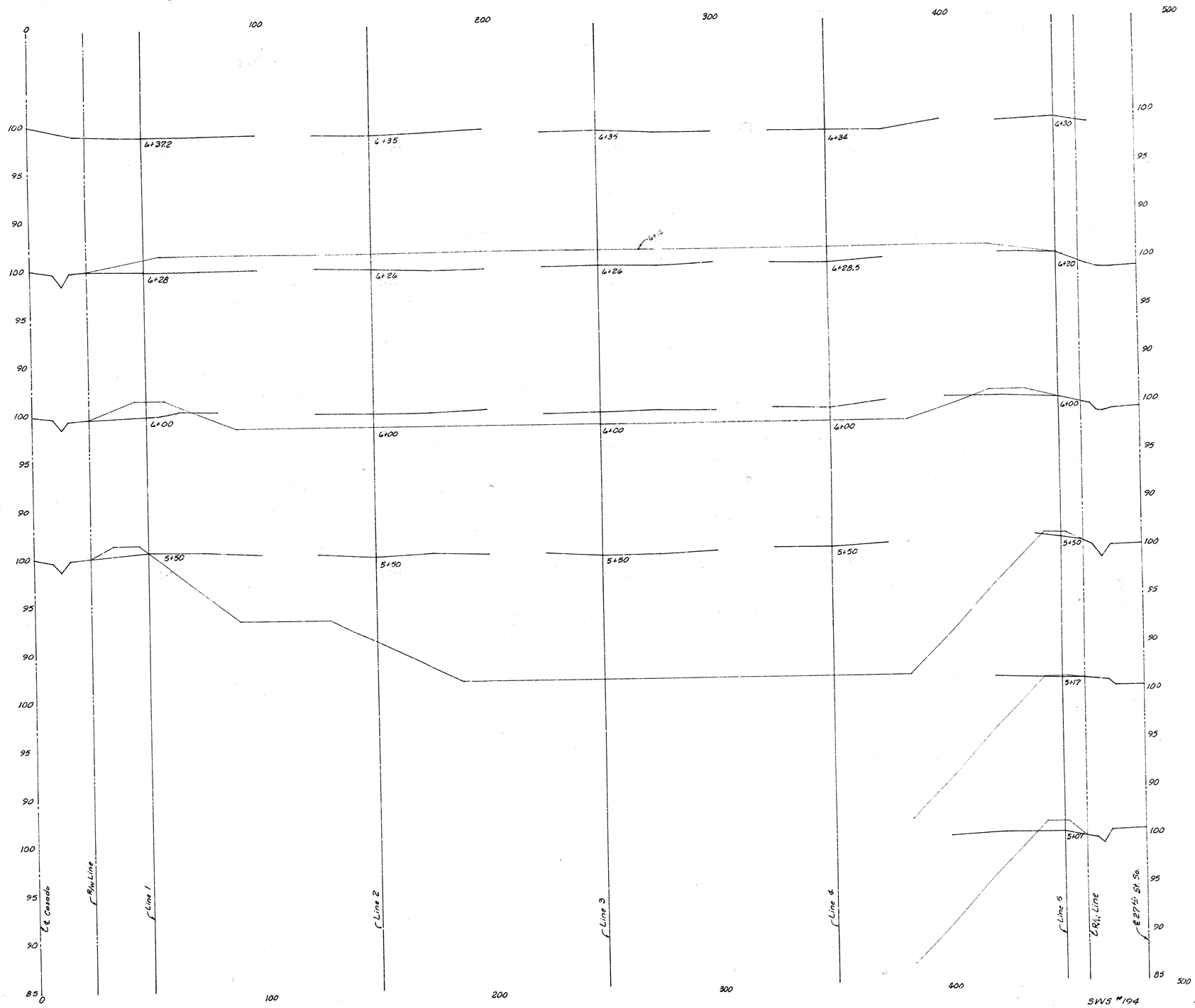
FILMED FROM THE BEST AVAILABLE COPY




SWS #154

Sheet 13/14

FILMED FROM THE BEST




SWS #194

Sheet 14/14 14

Sta 5+00 3105.30 SF

TOTAL THIS SHEET 10,179 CY

TOTAL ALL SHEETS ~~14,110~~ 59,314 CY

FILMED FROM THE BEST