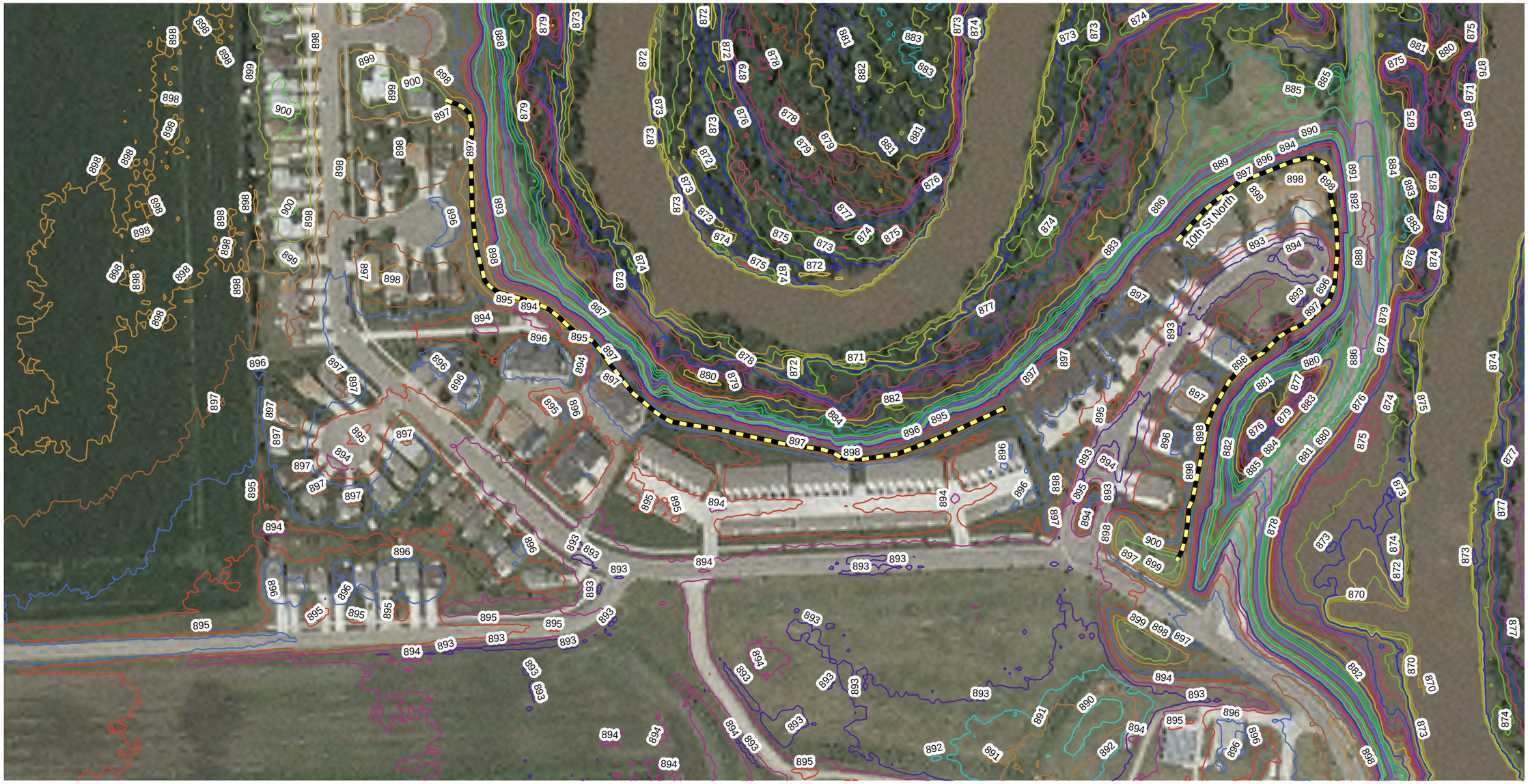
Attachment H-7: 10th Street North Levee Information



St. Paul District
GEOLOGY
GEOTECHNICAL
US Army Corps of Engineers®

FMMFS_P2_geotech_2009-04.mxd
Printed 20 NOV 09

FMMFS: Credit to Existing Levees
10th St. North, 5078-2 (Fargo)

0 100 200 400 600
Feet

WAC MANHOLE
TO BE REMOVED

WATER SERVICES TO
BE KILLED AT CORP.

3731

3729

3727

3725

3733

3735

3737

3723

3721

3719

HOUSE REMOVED AS PER
CHANGE ORDER #3

4" PVC

1" Cu

Cu

EX. 42" RCP ST.S.

EX. 12" RCP ST.S.

10th St. N.

EX. 8" PVC S.S.

EX. 8" PVC W.M.

SS SERVICE GLUED & CAPPED ON SIDE GOING TO MAIN .5' B.O.C., & 8.5' DEEP.

REMOVE FOUNDATION

REMOVE BUILDING & FOUNDATION

REMOVE DRIVEWAY

SERVICES CLOSURES

CITY OF Fargo

ENGINEERING DEPT.

DEMOLITION SITE RESTORATION & INCIDENTALS

IMPROVEMENT DISTRICT 5078-2

DRAWN BY: DRS	SCALE: H.1"=30'
CHECKED BY: MHB	DATE: JAN., 2000
APPROVED BY: MB	SHEET 1 OF 3
FILE NAME: \5078-2\5078-2.dgn	

N

3707 #A-F

A INLET
RIM 892.50
INV. 888.70

75'-10" ST.S.
@ 0.28%

EX INLET
RIM 892.47
INV. 888.47

3711 #A-F

EX. 42" RCP ST.S.

PARK ACCESS

3713 #A-F

NEW DIKE ELEVATION 898.5

EX INLET
RIM 895.03
INV 894.09
REMOVE
EX INLET
& 4" PIPE

3729

3731

3727

3733

3725

3753

63'-10" ST.S.
@ 0.28%

100'-10" ST.S.
@ 0.28%

A INLET
RIM 895.25
INV 892.45

MH ST-1
RIM 895.25
INV 892.27

EX INLET
RIM 895.49
INV 891.99

3723

3735

REVISED LOCATION
OF NEW DIKE AS
PER CHANGE ORDER #1.

10th St. N.

EX. 12" RCP ST.S.

EX. 8" PVC S.S.

EX. 8" PVC W.M.

10'U.E.

3721

3749

3737

REVISED

CITY OF Fargo
ENGINEERING DEPT.

DEMOLITION SITE RESTORATION & INCIDENTALS

IMPROVEMENT DISTRICT 5078-2

DRAWN BY: DRS	SCALE: H.1"=40'
CHECKED BY: MHB	DATE: APRIL., 2000
APPROVED BY: MB	SHEET 2 OF 3
FILE NAME: \5078-2\5078-2m2R	

A INLET
RIM 892.50
INV. 888.70

75' - 10" ST.S.
@ 0.28%

EX INLET
RIM 892.47
INV. 888.47

EX. 42" RCP ST.S.

3711 #A-F

NEW DIKE ELEVATION 898.5

EX. DIKE

3729

3727

3731

3725

3733

3723

3735

3721

3737

3749

3713 #A-F

PARK ACCESS

EX. 42" RCP ST.S.

INV 892.26

EX INLET
RIM 895.03
INV 894.09
REMOVE
EX INLET
& 4" PIPE

A INLET
RIM 895.25
INV 892.45

160' - 10" PVC ST.S.
@ 0.28%

EX INLET
RIM 895.49
INV 891.99

10th St. N.

EX. 12" RCP ST.S.

EX. 8" PVC S.S.

EX. 8" PVC W.M.

EX. 21" RCP ST.S.

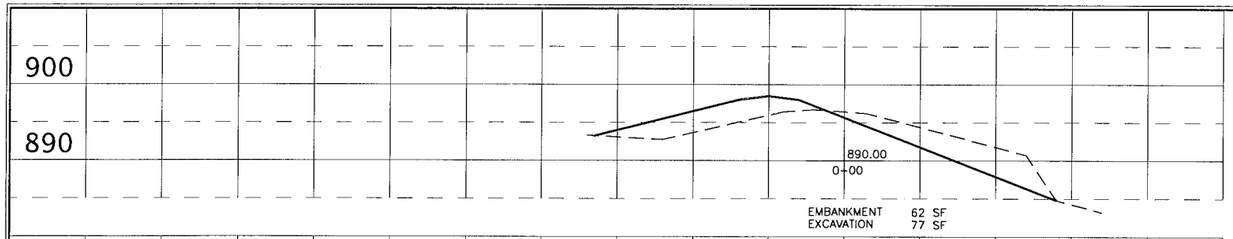
EX. 10" PVC W.M.

CITY OF Fargo
ENGINEERING DEPT.

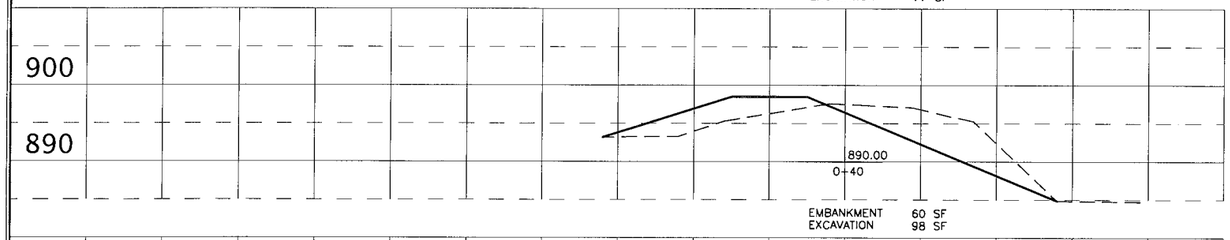
DEMOLITION SITE RESTORATION & INCIDENTALS

IMPROVEMENT DISTRICT 5078 & 2

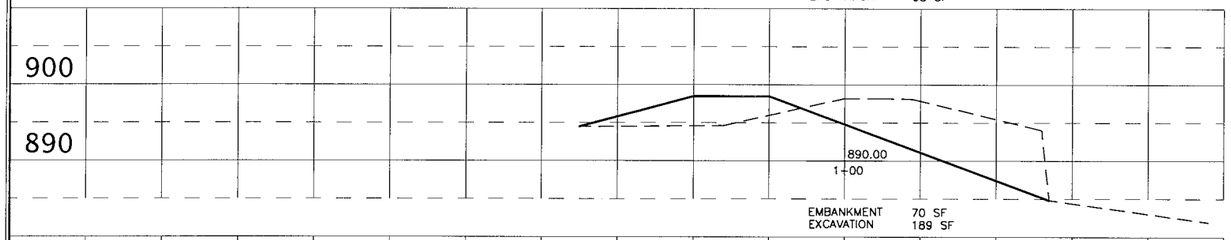
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CHECKED BY: MHB	DATE: FEB., 2000
APPROVED BY: m	SHEET 2 OF 3 SH.
FILE NAME:	5078-2 E5078-2-2



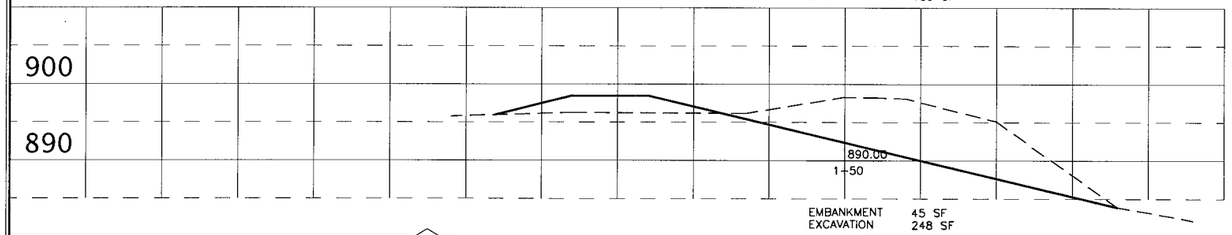
EMBANKMENT 62 SF
EXCAVATION 77 SF



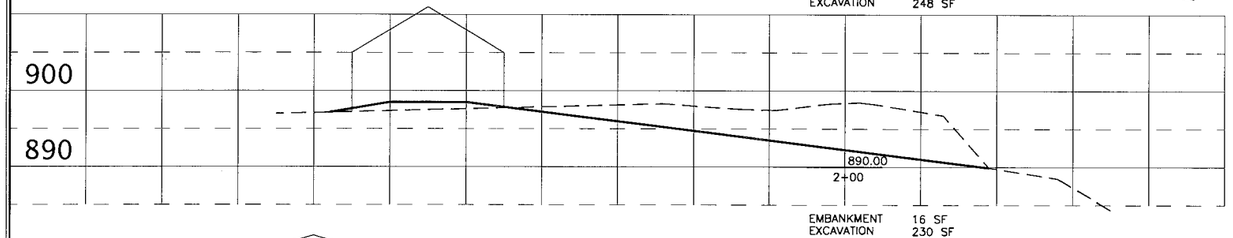
EMBANKMENT 60 SF
EXCAVATION 98 SF



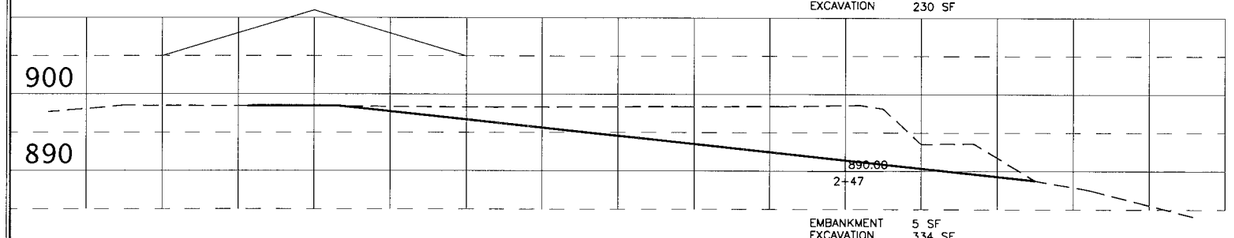
EMBANKMENT 70 SF
EXCAVATION 189 SF



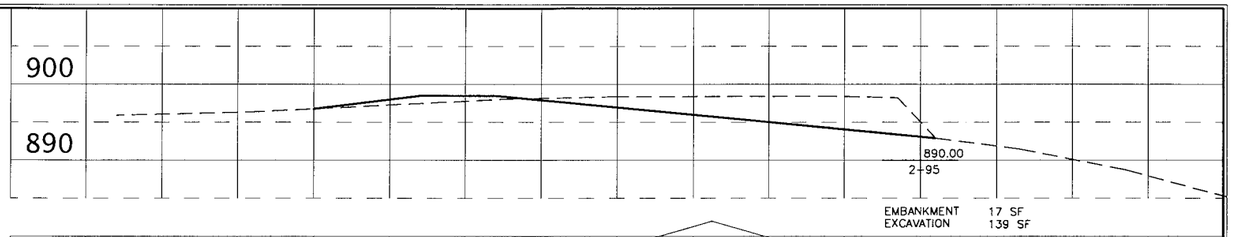
EMBANKMENT 45 SF
EXCAVATION 248 SF



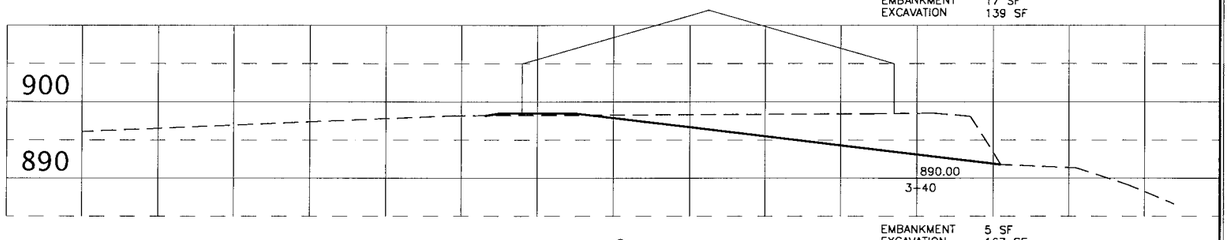
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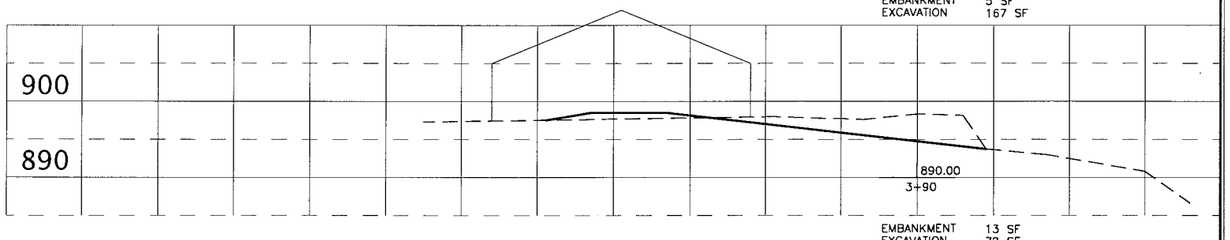
EMBANKMENT 5 SF
EXCAVATION 334 SF



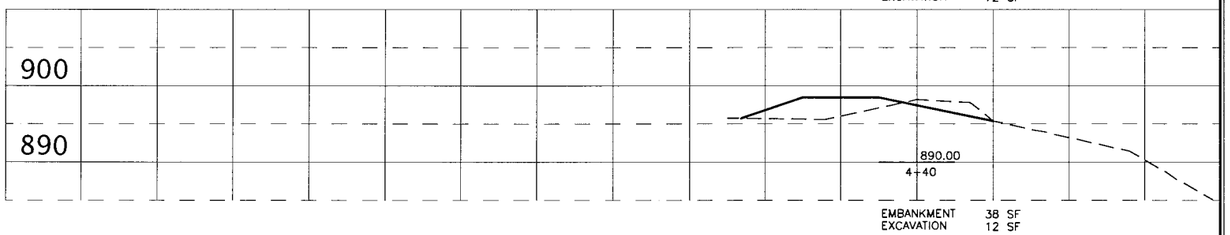
EMBANKMENT 17 SF
EXCAVATION 139 SF



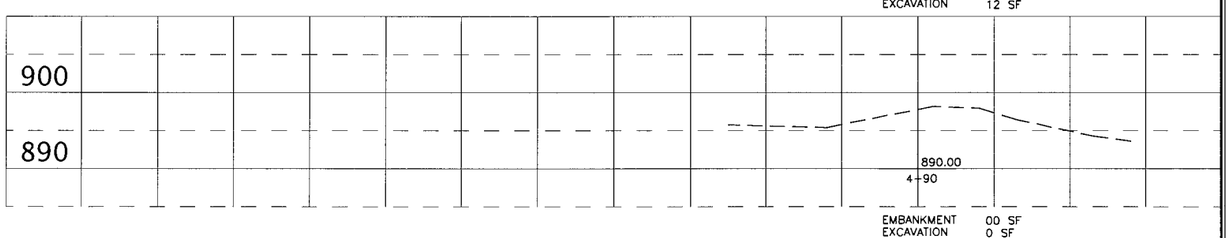
EMBANKMENT 5 SF
EXCAVATION 167 SF



EMBANKMENT 13 SF
EXCAVATION 72 SF



EMBANKMENT 38 SF
EXCAVATION 12 SF



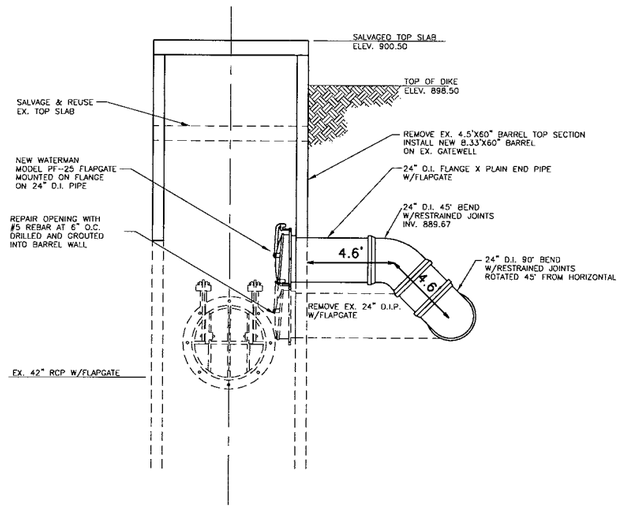
EMBANKMENT 00 SF
EXCAVATION 0 SF

CITY OF Fargo
ENGINEERING DEPT.

DEMOLITION SITE RESTORATION & INCIDENTALS

IMPROVEMENT DISTRICT 5078-2

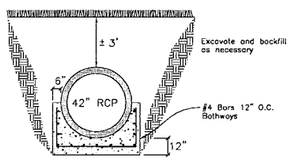
DRAWN BY: DRS	SCALE: H.1"=20'
CHECKED BY: MHB	DATE: FEB., 2000
APPROVED BY: MB	SHEET 3 OF 3
FILE NAME: \5078-2\5078-2-1	



STORM SEWER GATEWELL MODIFICATIONS

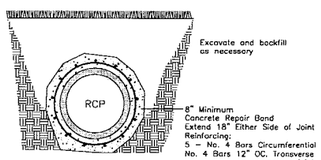
NTS

(CHANGE ORDER NO. 2)



CONCRETE PIPE
CRADLE DETAIL

(CHANGE ORDER #3)



PIPE JOINT REPAIR
BAND DETAIL

(CHANGE ORDER #3)

MASTER REMOVED 64'–42" RCP ST.S. ALL REMOVED PIPE WERE TIED & HAD BANDS POURED AROUND THEM.
MASTER INSTALLED 64'–42" RCP ST.S. ALL INSTALLED WAS POURED IN A CRADLE AS PER SPEC. THE CRADLE EXTENDED 4' ON EACH END OF EX. 42" RCP. A REPAIR BAND WAS ALSO POURED WHERE NEW CONNECTED TO OLD PIPE.

ESTIMATED REPAIR AREA

EX. 42" RCP ST.S.

APPROXIMATE LOCATION OF PIPE SEPARATION. REMOVE & RELAY EXISTING 42" RCP ST. SEWER AS NECESSARY. INSTALL PIPE JOINT REPAIR BAND AT ALL JOINTS IN PIPE RELAYED. INSTALL PIPE CRADLE AREAS DIRECTED BY ENGINEER. TIE ALL RELAID JOINTS.

Locotion of dike as constructed in accordance with Original Plans. The dike was later relocated due to movement of the river bank.

Revised location of dike as per C.O. #2. The dike was never constructed at this location, because the house at 3725 was acquired, allowing the dike to be relocated to its Final As-Built Location.

Final "As-Built" Location of Dike (C.O. #3)
NEW DIKE ELEVATION = 898.5

0+00

0+82

1+29

1+53

2+21

REMOVE EX. INLET

REMOVE 75'-10" ST.S.

EX. 10" ST.S.

"A" INLET
RIM 892.72
INV. 888.72

EX. GATEWELL

REMOVE EX. INLET

90'-10" PVC ST.S.

14'-10" PVC
@ 0.28%

"C" INLET
RIM 894.00±
INV. 888.51

SHEAR LINE

FLOOD WAY LINE

REMOVE & RELOCATE TREES AS DIRECTED BY THE ENGINEER

3729

3727

3725

TOP OF EXISTING DIKE

HOUSE TO BE REMOVED (3725)

DUG UP CORP AND SHUT OFF AT MAIN 8.5' DEEP
PULLED OUT STOP BOX.
DUG SANITARY SERVICE .5' BEHIND CURB 8.5' T.O.P.
GLUED AND CAPPED END GOING TO SS MAIN.

4" PVC

EX. 42" RCP ST.S.

PARK ACCESS

3711

3707

#A-F

#A-F

FINAL PLANS	*CHANGE ORDERS #2 & #3*
CITY OF Fargo	DEMOLITION SITE RESTORATION & INCIDENTALS
	IMPROVEMENT DISTRICT 5078-2
	DRAWN BY: DRS/GZ — SCALE: H.1"=40'
	CHECKED BY: LAB — DATE: AUG.,2001
	APPROVED BY: [illegible] — SHEET 3 OF 1
ENGINEERING DEPT.	FILE NAME: P:\ENGINEER\DRS\5078-2\5078-2-3F

Attachment H-Tab 6
Credit to Existing Levees

CITY OF FARGO
ENGINEERING DEPARTMENT

PLANS

DIKE CONSTRUCTION
& INCIDENTALS

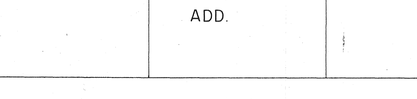
IMPROVEMENT DISTRICT NO. 4129

Final Plans

1990

CONTRACTOR: NORTHERN IMPROVEMENT COMPANY
ENGINEER: MARK BITTNER





TYPICAL DIKE SECTION

ENGINEER'S CERTIFICATE

I, Robert C. Welton, Registered Professional Engineer and Land Surveyor, under the laws of the State of North Dakota, do hereby certify that this elevation survey was prepared under my supervision and is a true and correct representation of the existing topographic conditions in the City of Fargo, described more fully as a part of Section 19, Township 140 North, Range 48 West, of the 5th Principal Meridian, Cass County, North Dakota.

Robert C. Welton
Registered Professional Engineer
& Land Surveyor

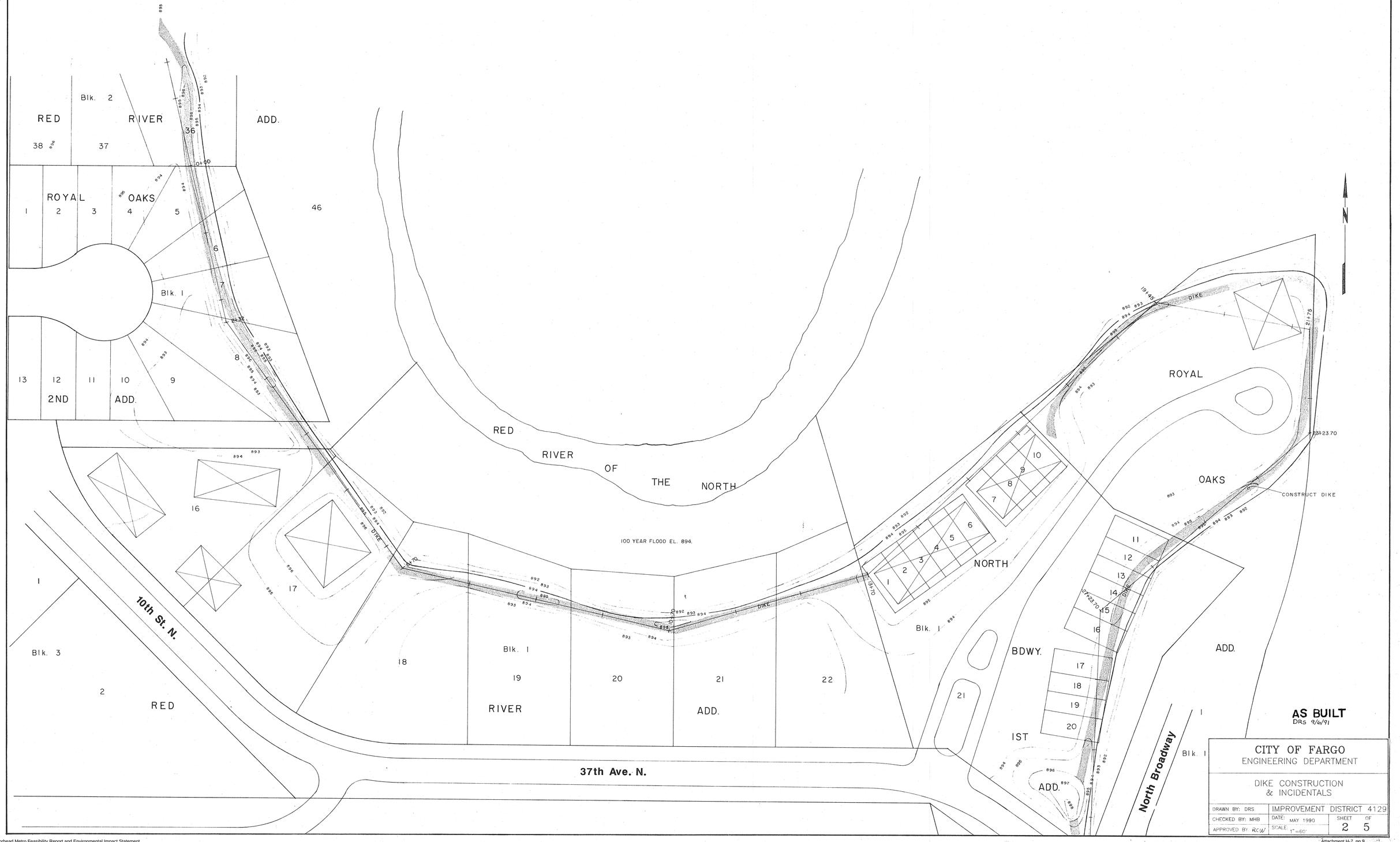
January 29, 1990
Date

AS BUILT
DRS 9/6/91

CITY OF FARGO
ENGINEERING DEPARTMENT

DIKE CONSTRUCTION
& INCIDENTALS

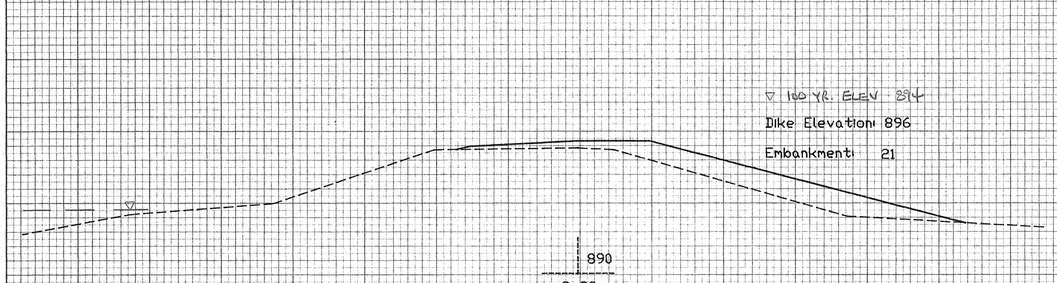
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CHECKED BY: MHB	DATE: MAY 1990	SHEET 1 OF 5
APPROVED BY: RCW	SCALE: 1"=60'	

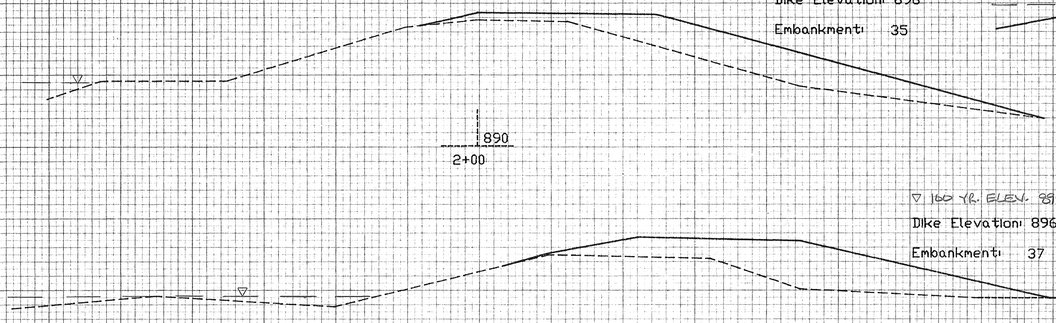


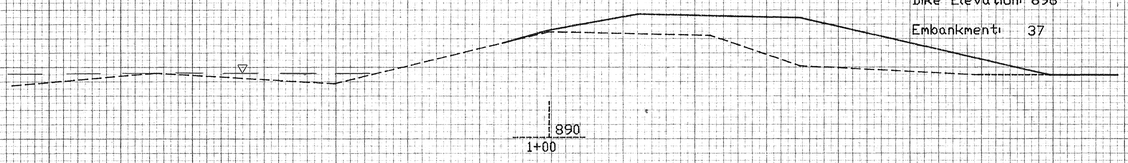
CITY OF FARGO
ENGINEERING DEPARTMENT

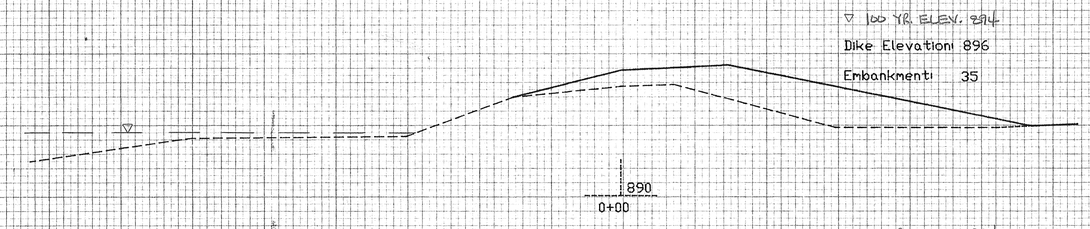
DIKE CONSTRUCTION
& INCIDENTALS

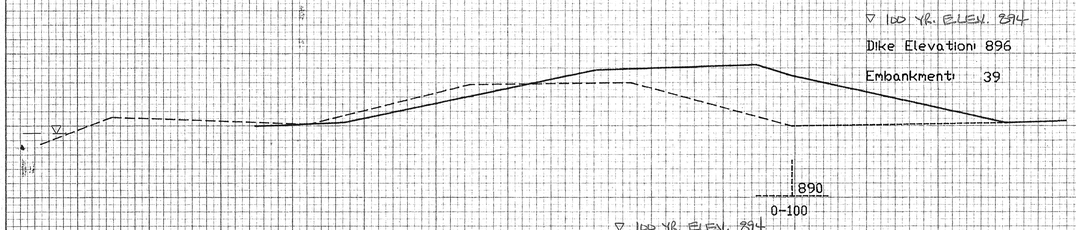
DRAWN BY: DRS	IMPROVEMENT DISTRICT 4129	
CHECKED BY: MHB	DATE: MAY 1990	SHEET 2 OF 5
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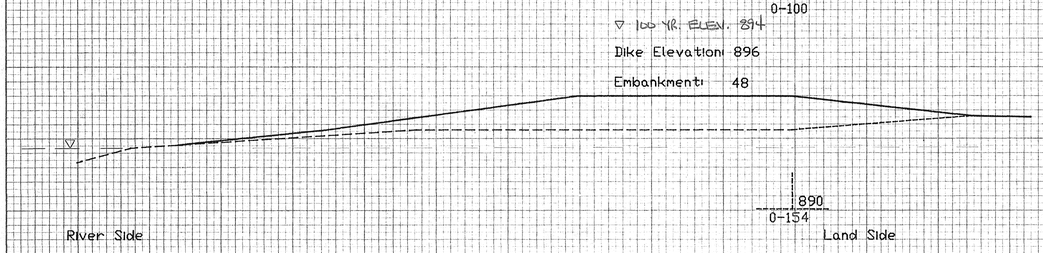


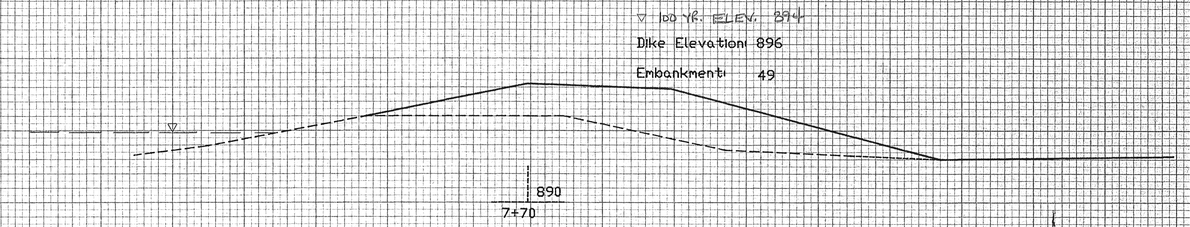


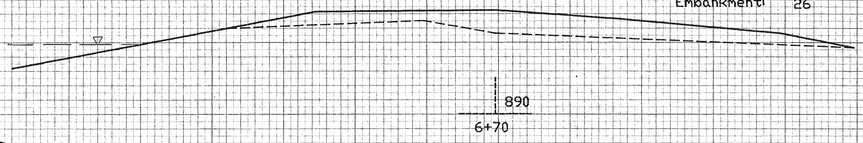


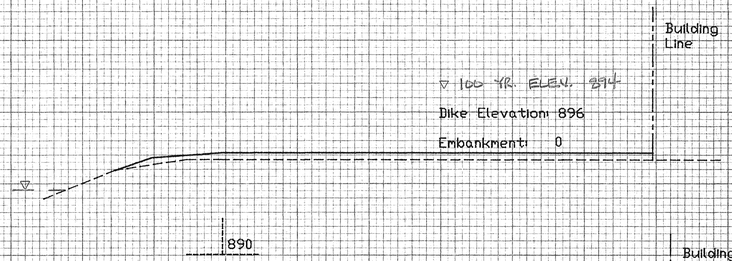


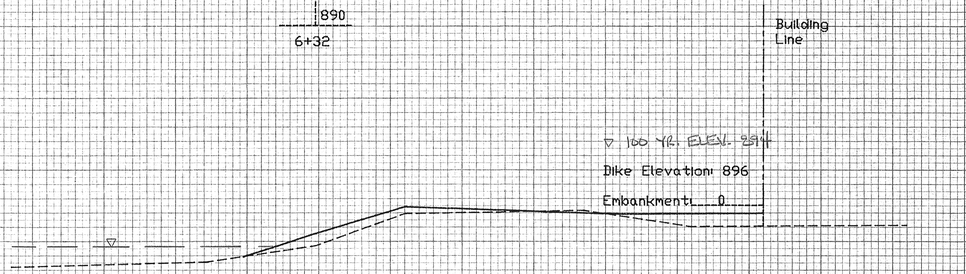


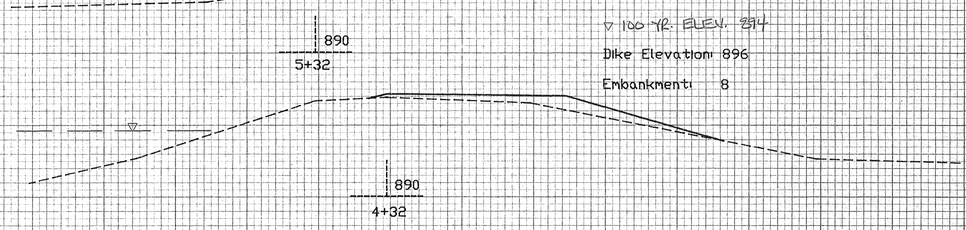


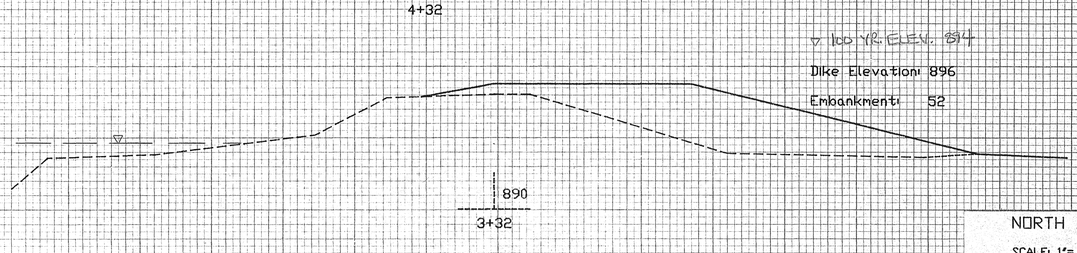












AS BUILT
DRS 9/6/91

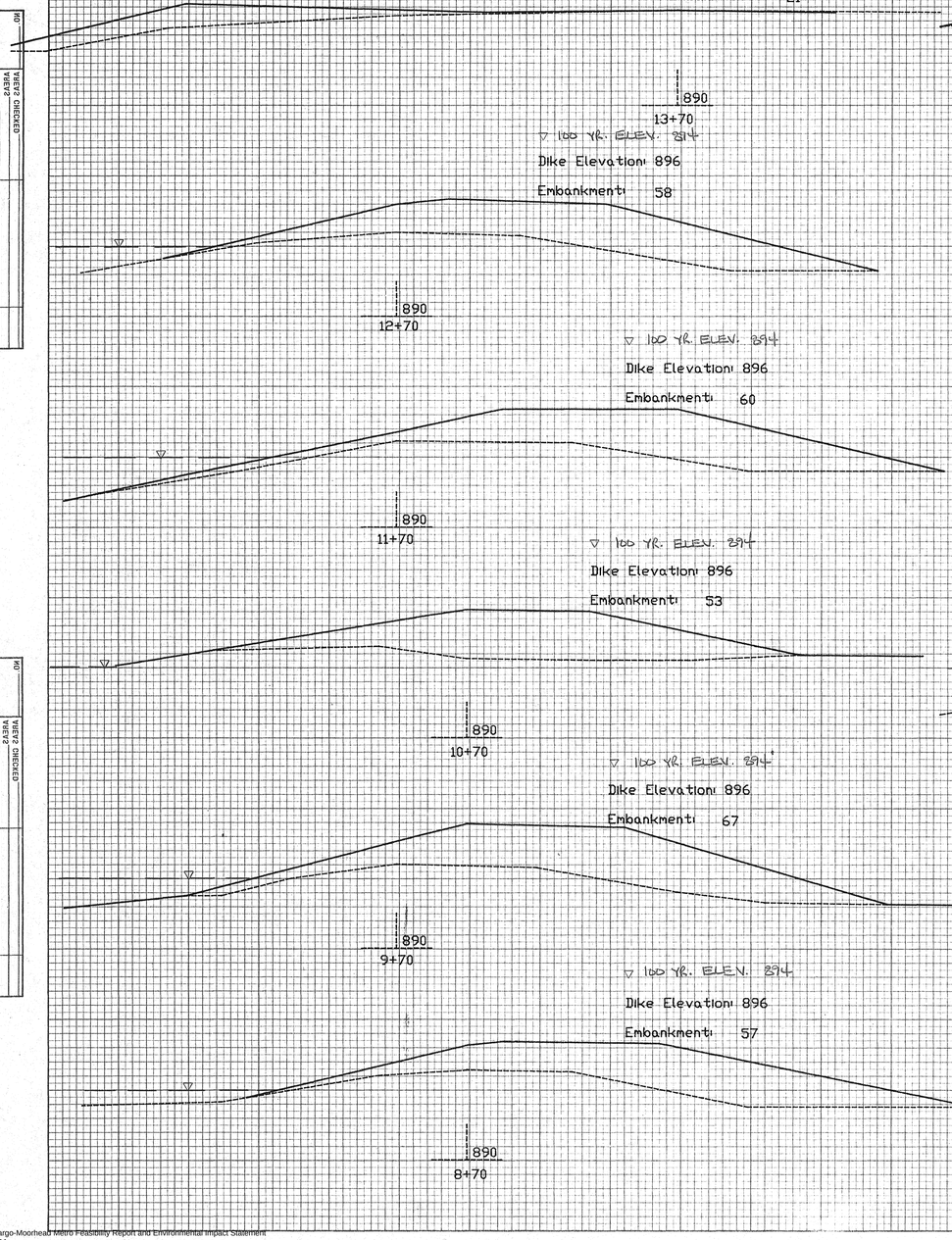
NORTH BROADWAY FLOOD DIKE

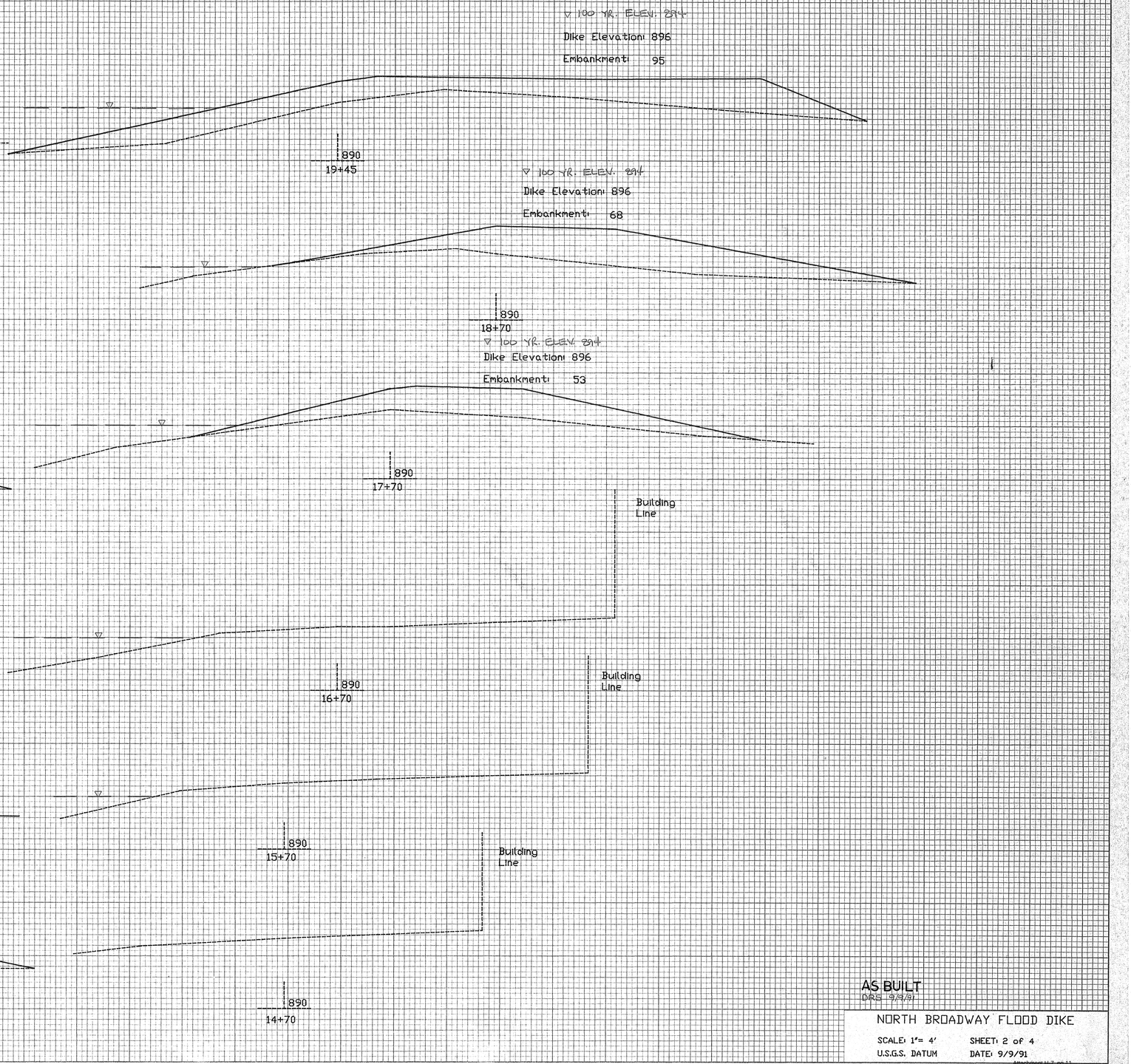
SCALE: 1"= 4' SHEET: 1 of 4
U.S.G.S. DATUM DATE: 9/06/91

NO.	WHEN?	CHECKED		
MADE BOOK PAGE	WHEN?			
LAYOUT	WHEN?			
SURVEYED				
DRAWING	BY			
DATE				

NO.	WHEN?	CHECKED		
MADE BOOK PAGE	WHEN?			
LAYOUT	WHEN?			
SURVEYED				
DRAWING	BY			
DATE				

Kennel & Esser Company PLATE 3. CROSS SECTION STATION Made in U.S.A.





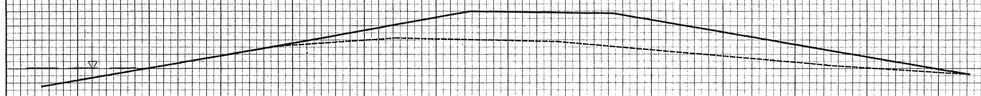
AS BUILT
DRS 9/9/91

NORTH BROADWAY FLOOD DIKE

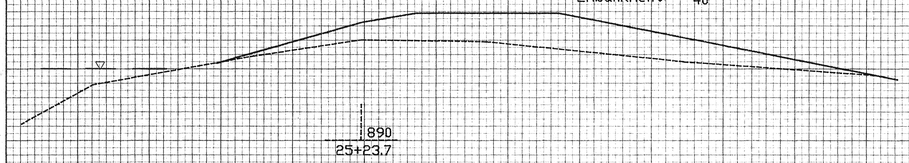
SCALE: 1"= 4'
U.S.G.S. DATUM

SHEET: 2 of 4
DATE: 9/9/91

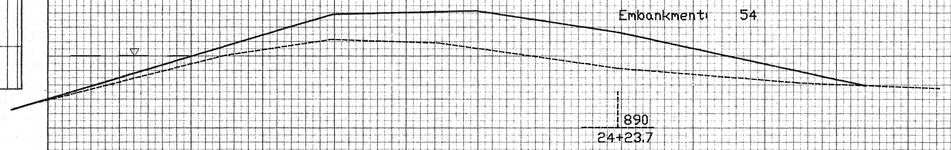
▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 41



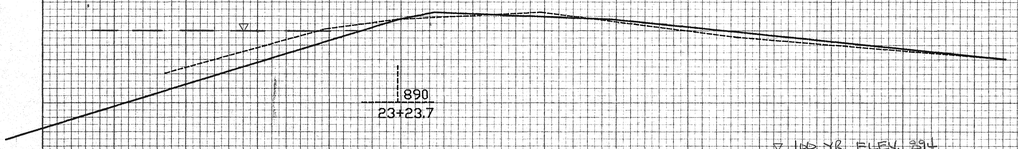
▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 40



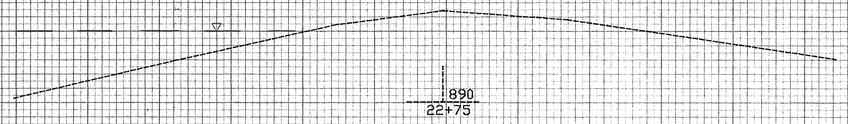
▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 54



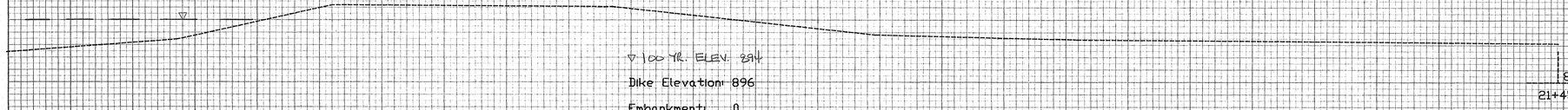
▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 4



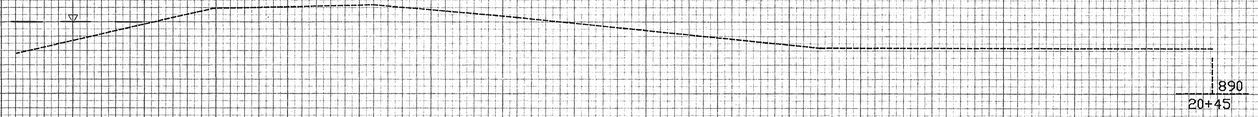
▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 0



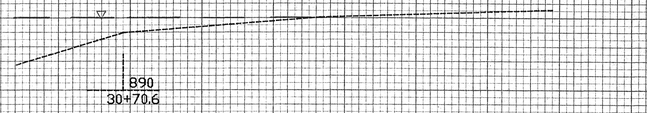
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Dike Elevation: 896
Embankment: 0

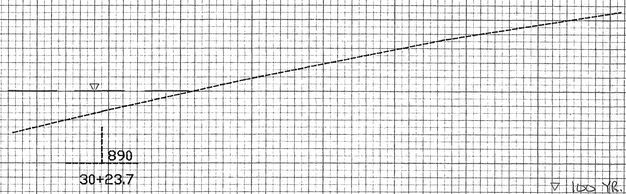


▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 0

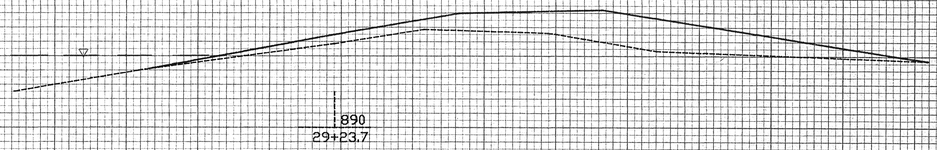


▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 0

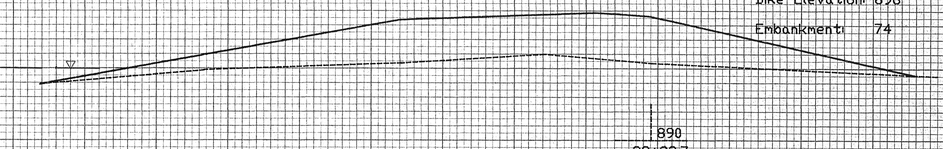




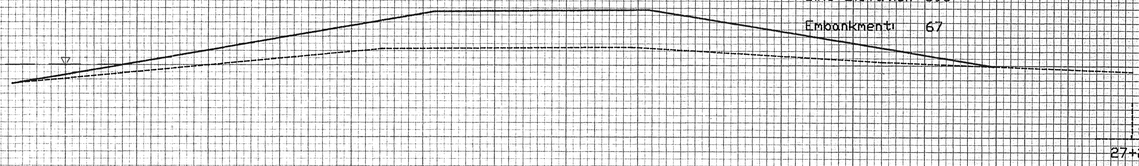
▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 36



▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 74



▽ 100 YR. ELEV. 894
Dike Elevation: 896
Embankment: 67



AS BUILT
DRS 9/9/91

NORTH BROADWAY FLOOD DIKE

SCALE: 1"= 4' SHEET: 3 of 4
U.S.G.S. DATUM DATE: 9/9/91

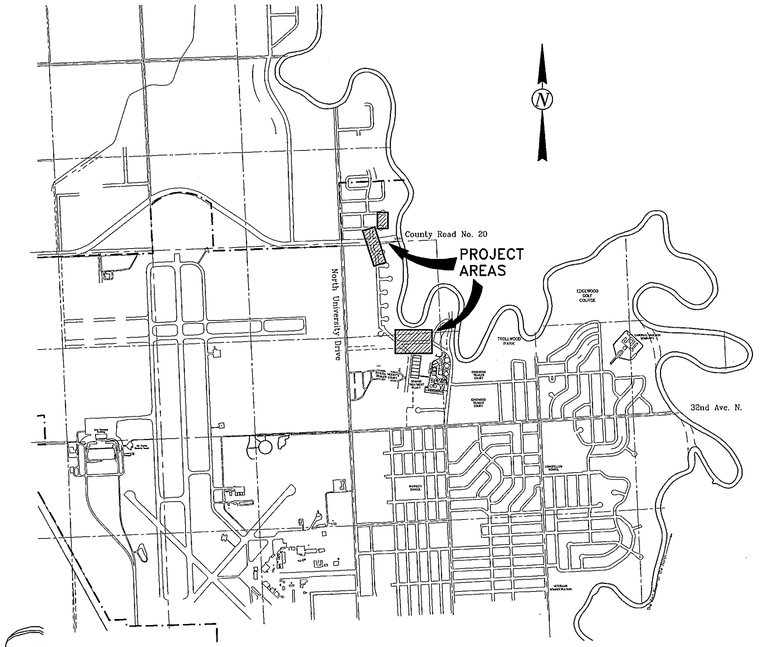
NO	NOTE BOOK	PARTY CHIEF	PARTY CHECKED

PLANS FOR

STORM WATER LIFT STATION & INCIDENTALS

ENGINEERING DEPARTMENT

CITY OF Fargo

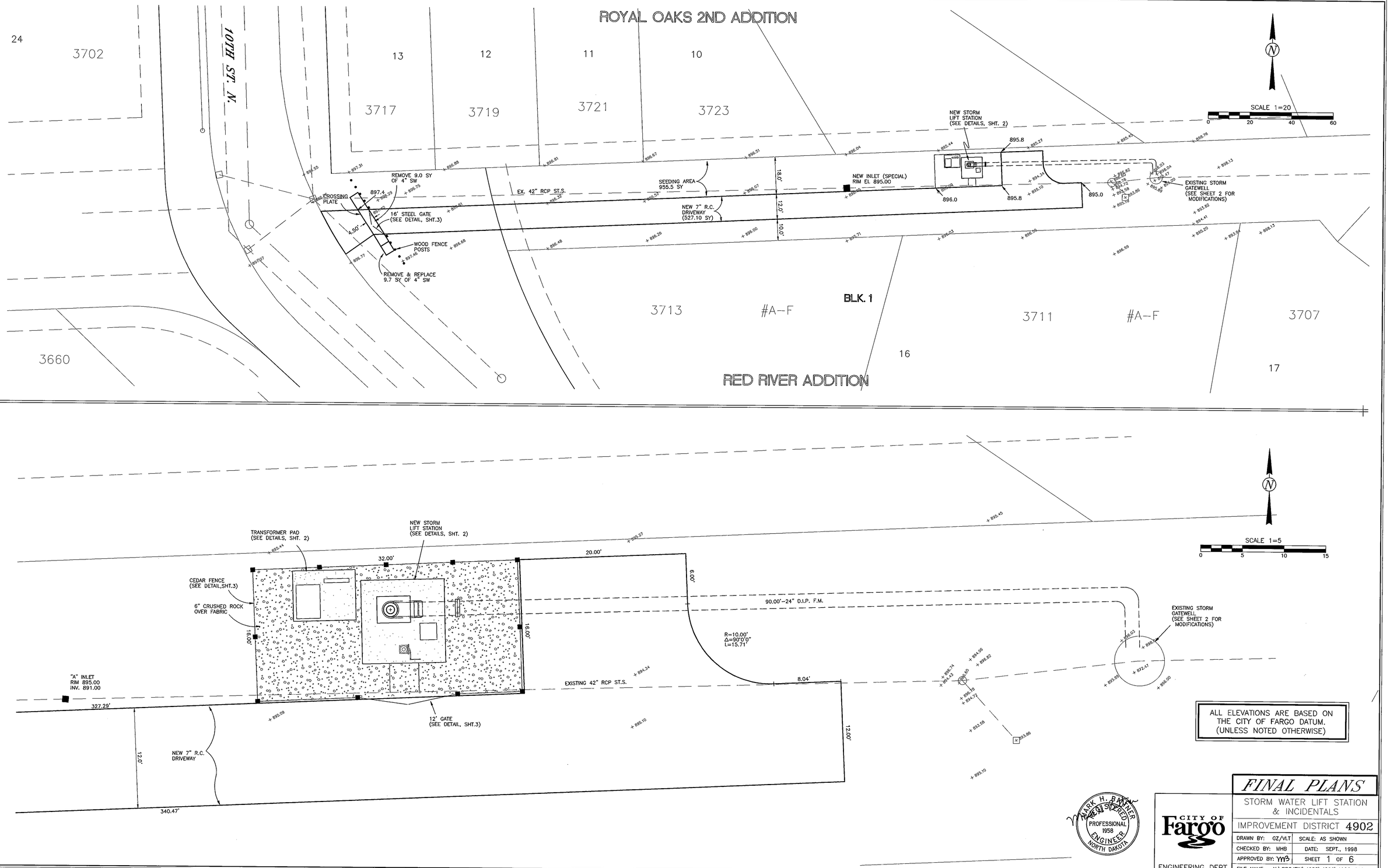


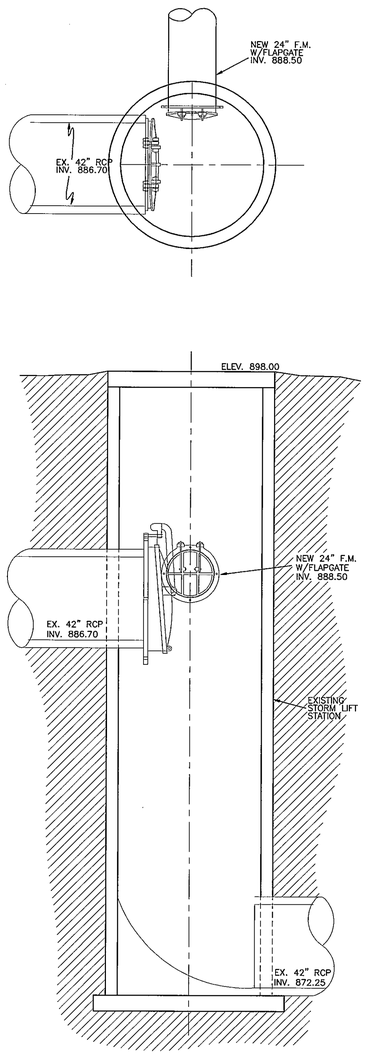
FINAL PLANS

IMPROVEMENT DIST. 4902

1998

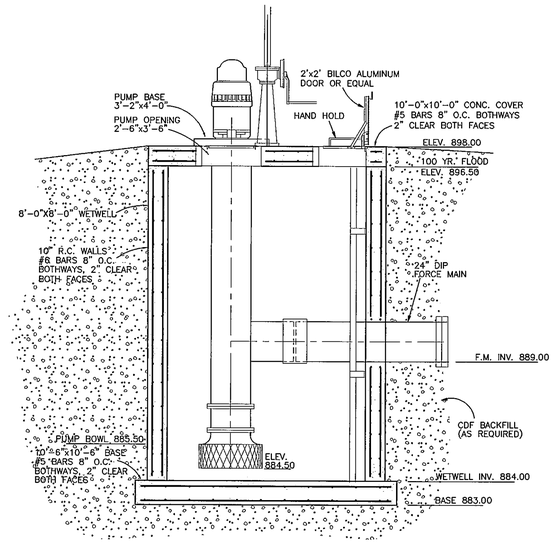
FINAL AMOUNT: $200,730.36
PROJECT ENGINEER: VERN L. TOMANEK
INSPECTOR: DON HILLMAN
CONTRACTOR: MUNICIPAL INDUSTRIAL CONTRACTING, INC.


ROYAL OAKS 2ND ADDITION
24
3702
10TH ST. N.
13
12
11
10
3717
3719
3721
3723
SCALE 1=20
0 20 40 60
NEW STORM LIFT STATION (SEE DETAILS, SHT. 2)
895.8
895.0
896.0
895.8
EXISTING STORM GATEWELL (SEE SHEET 2 FOR MODIFICATIONS)
REMOVE 9.0 SY OF 4" SW
CROSSING PLATE
897.4
16' STEEL GATE (SEE DETAIL, SHT.3)
4.50'
WOOD FENCE POSTS
REMOVE & REPLACE 9.7 SY OF 4" SW
EX. 42" RCP ST.S.
SEEDING AREA 955.5 SY
NEW INLET (SPECIAL) RIM EL 895.00
NEW 7" R.C. DRIVEWAY (527.10 SY)
18.0'
12.0'
10.0'
BLK. 1
3713
#A-F
3711
#A-F
3707
3660
16
17
RED RIVER ADDITION
TRANSFORMER PAD (SEE DETAILS, SHT. 2)
NEW STORM LIFT STATION (SEE DETAILS, SHT. 2)
32.00'
20.00'
6.00'
CEDAR FENCE (SEE DETAIL,SHT.3)
6" CRUSHED ROCK OVER FABRIC
18.00'
16.00'
90.00'-24" D.I.P. F.M.
R=10.00'
Δ=90°0'0"
L=15.71'
EXISTING STORM GATEWELL (SEE SHEET 2 FOR MODIFICATIONS)
"A" INLET RIM 895.00 INV. 891.00
327.29'
EXISTING 42" RCP ST.S.
8.04'
12' GATE (SEE DETAIL, SHT.3)
12.0'
NEW 7" R.C. DRIVEWAY
340.47'
SCALE 1=5
0 5 10 15
ALL ELEVATIONS ARE BASED ON THE CITY OF FARGO DATUM. (UNLESS NOTED OTHERWISE)
MARK H. BRAUER REGISTERED PROFESSIONAL 1958 ENGINEER NORTH DAKOTA
CITY OF Fargo
ENGINEERING DEPT.
FINAL PLANS
STORM WATER LIFT STATION & INCIDENTALS
IMPROVEMENT DISTRICT 4902
DRAWN BY: GZ/VLT
SCALE: AS SHOWN
CHECKED BY: MHB
DATE: SEPT., 1998
APPROVED BY: YYB
SHEET 1 OF 6
FILE NAME: N:\PROJFIN\4900\4902\4902-01f



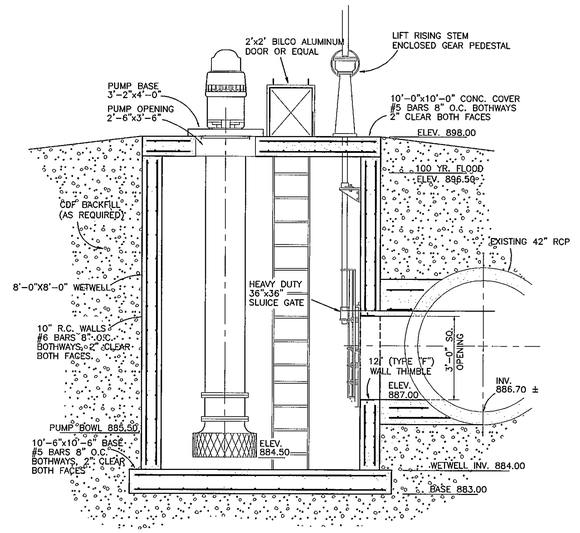
EXISTING LIFT STATION

1"=3'



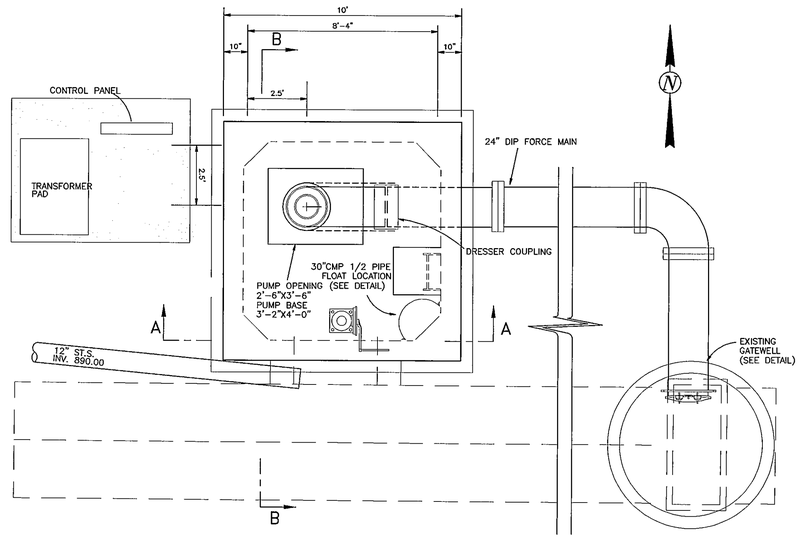
WETWELL – SECTION A–A

1"=3'



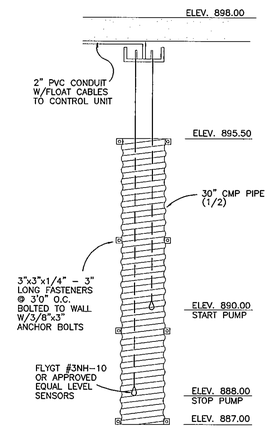
WETWELL – SECTION B–B

1"=3'



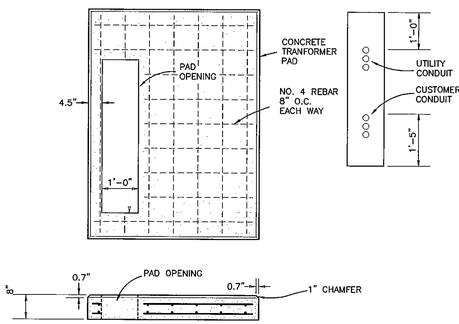
WETWELL – PLAN VIEW

1"=3'



FLOAT GUARD

N.T.S.



TRANSFORMER PAD

1"=2'

ALL ELEVATIONS ARE BASED ON THE CITY OF FARGO DATUM. (UNLESS NOTED OTHERWISE)

CITY OF Fargo

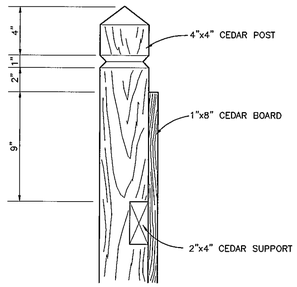
ENGINEERING DEPT.

FINAL PLANS

STORM WATER LIFT STATION & INCIDENTALS

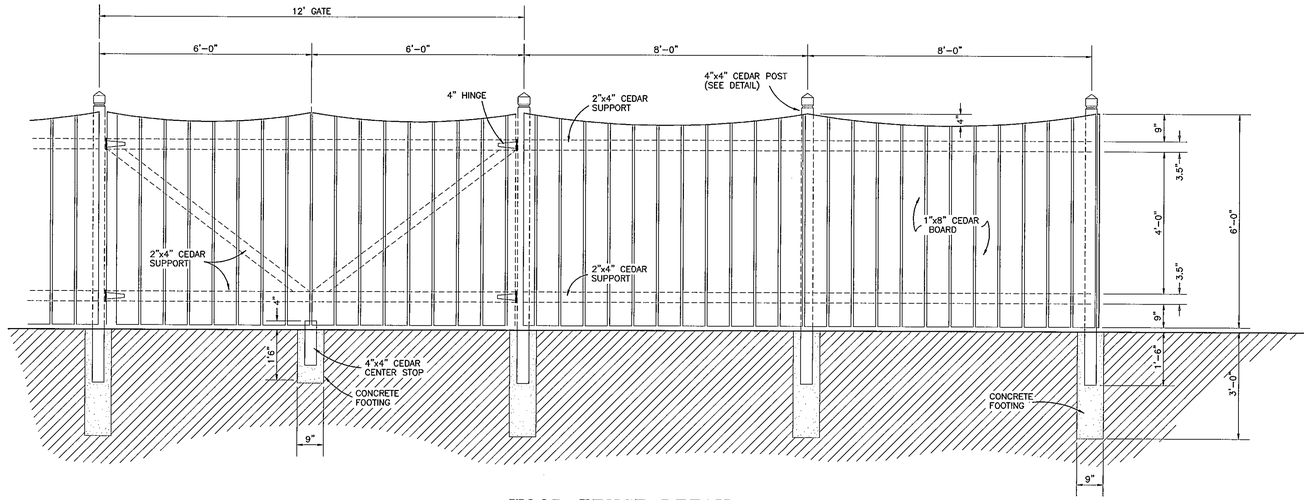
IMPROVEMENT DISTRICT 4902

DRAWN BY: GZ/VLT	SCALE: AS SHOWN
CHECKED BY: MHB	DATE: SEPT., 1998
APPROVED BY: YYB	SHEET 2 OF 6
FILE NAME: N:\PROJFIN\4900\4902\4902-02f	



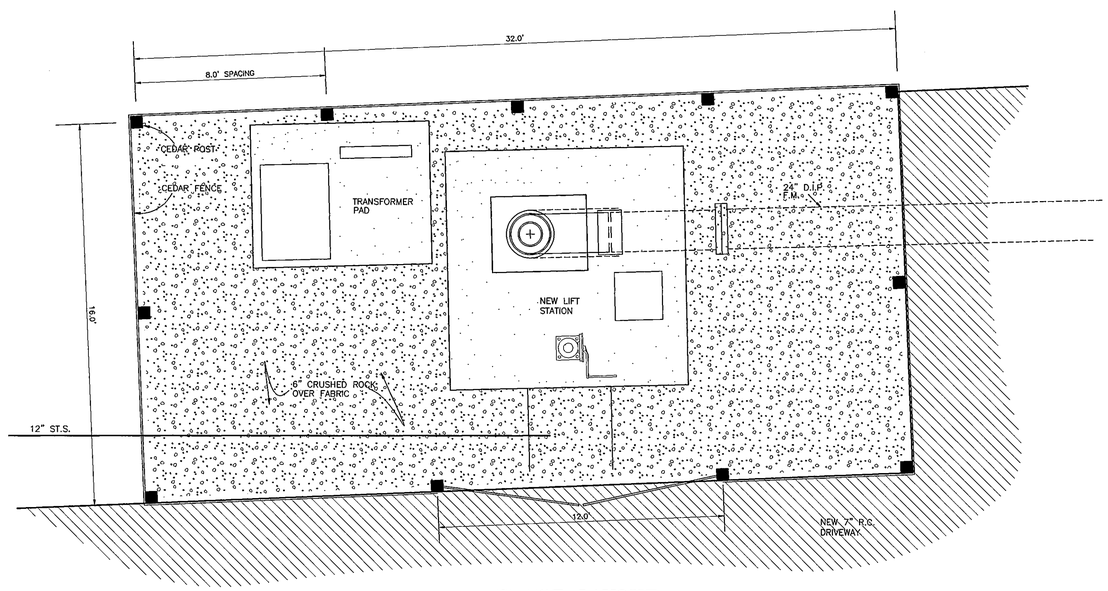
FENCE POST DETAIL

NO SCALE



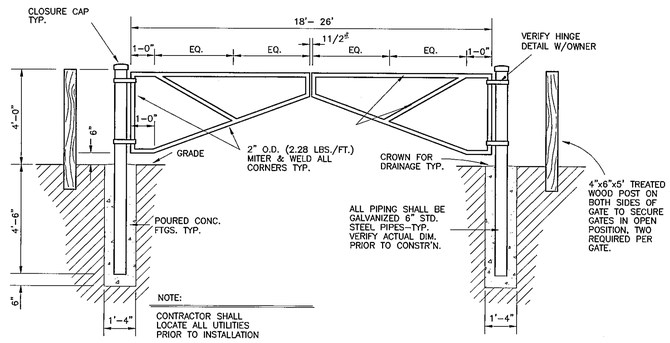
WOOD FENCE DETAIL

1"=2'



FENCE LAYOUT

1"=3'



ENTRANCE GATE DETAIL

1"=3'

MARK H. BUTNER REGISTERED PROFESSIONAL 1958 ENGINEER NORTH DAKOTA

CITY OF Fargo

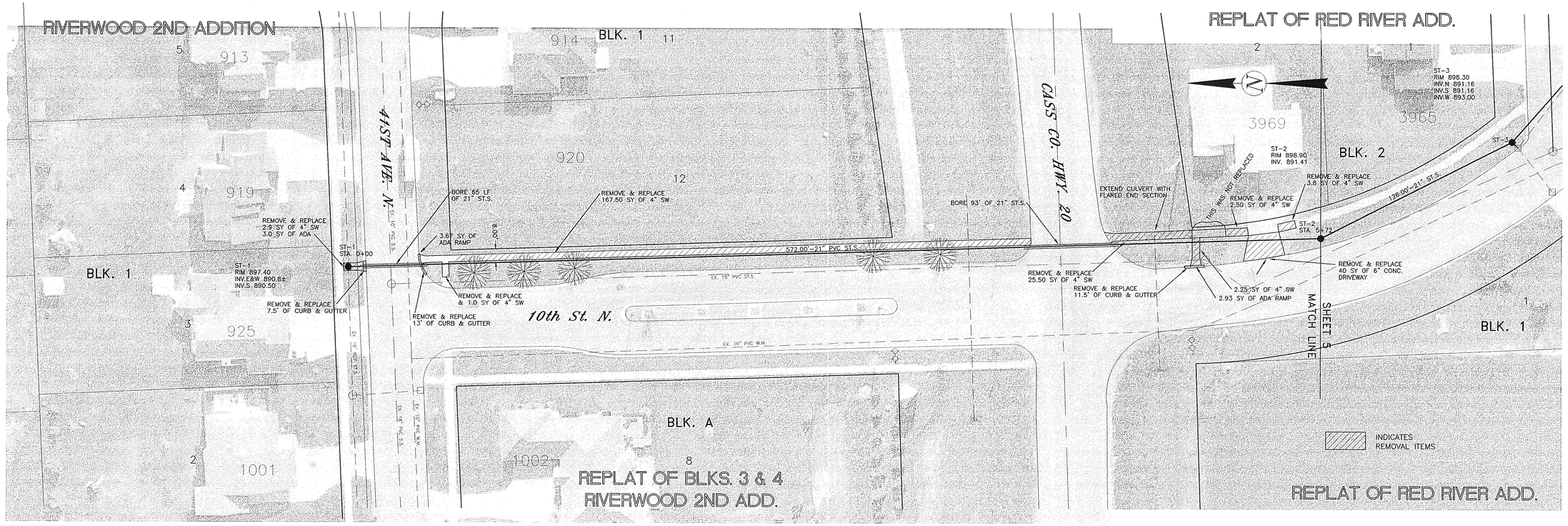
ENGINEERING DEPT.

FINAL PLANS

STORM WATER LIFT STATION & INCIDENTALS

IMPROVEMENT DISTRICT 4902

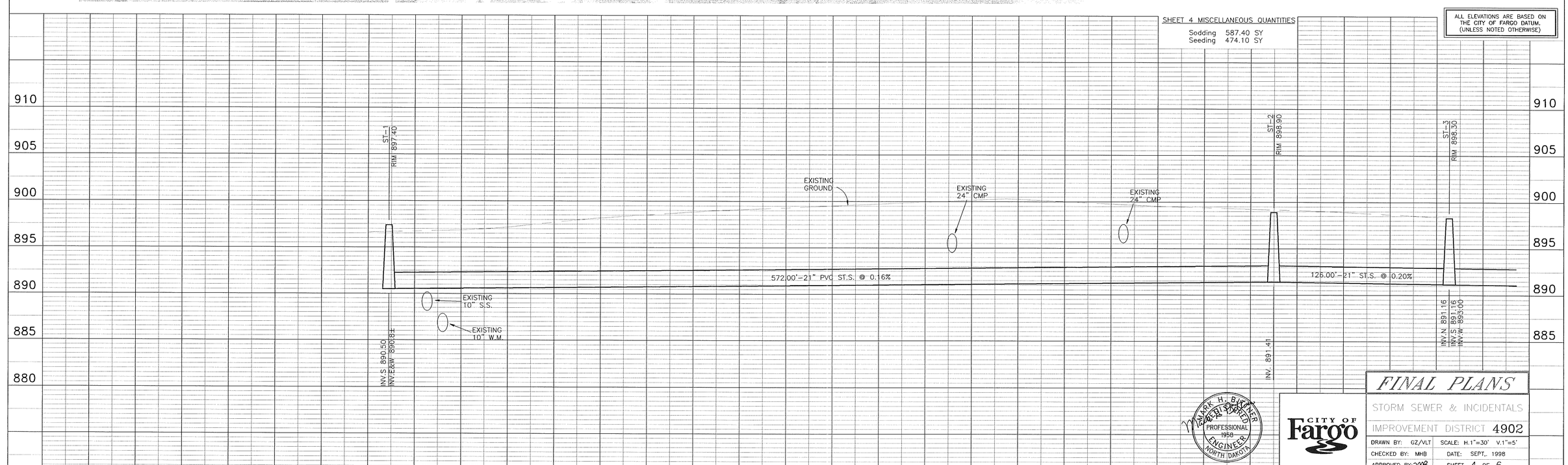
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CHECKED BY: MHB	DATE: SEPT., 1998
APPROVED BY: MHB	SHEET 3 OF 6
FILE NAME: N:\PROJFIN\4900\4902\4902-03f	



SHEET 4 MISCELLANEOUS QUANTITIES

Sodding 587.40 SY
Seeding 474.10 SY

ALL ELEVATIONS ARE BASED ON THE CITY OF FARGO DATUM. (UNLESS NOTED OTHERWISE)



MARK H. BUTNER
REG. NO.
PROFESSIONAL
1958
ENGINEER
NORTH DAKOTA

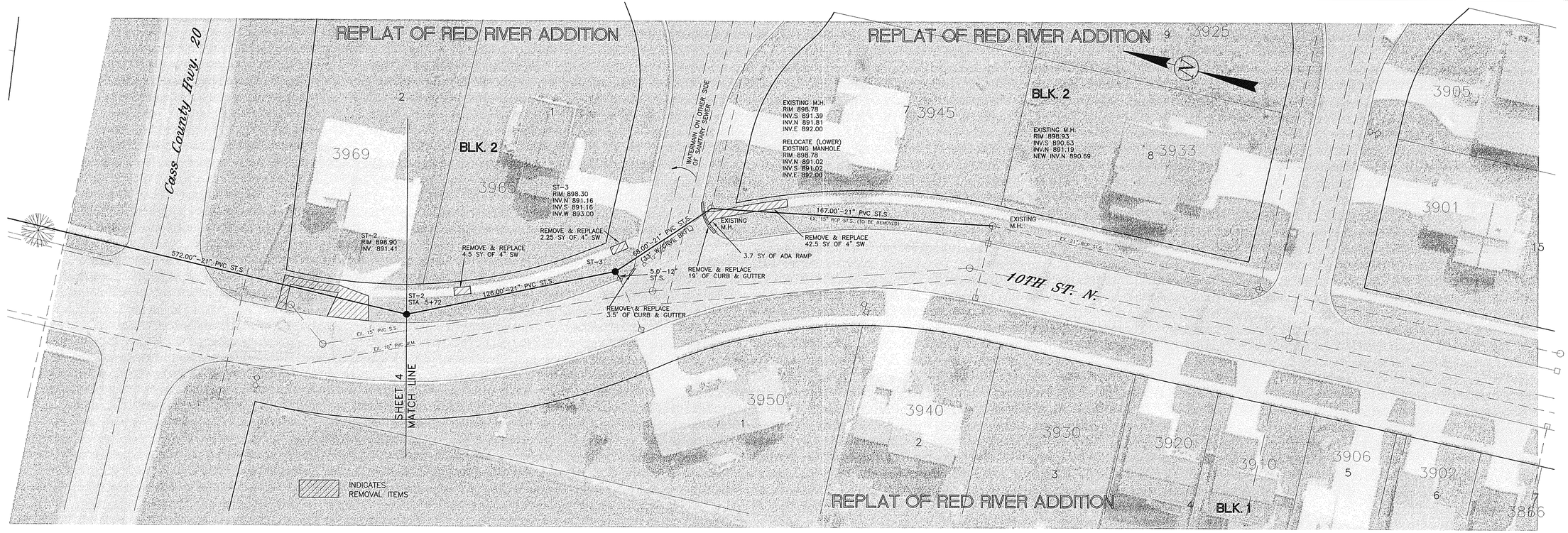
CITY OF Fargo
ENGINEERING DEPT.

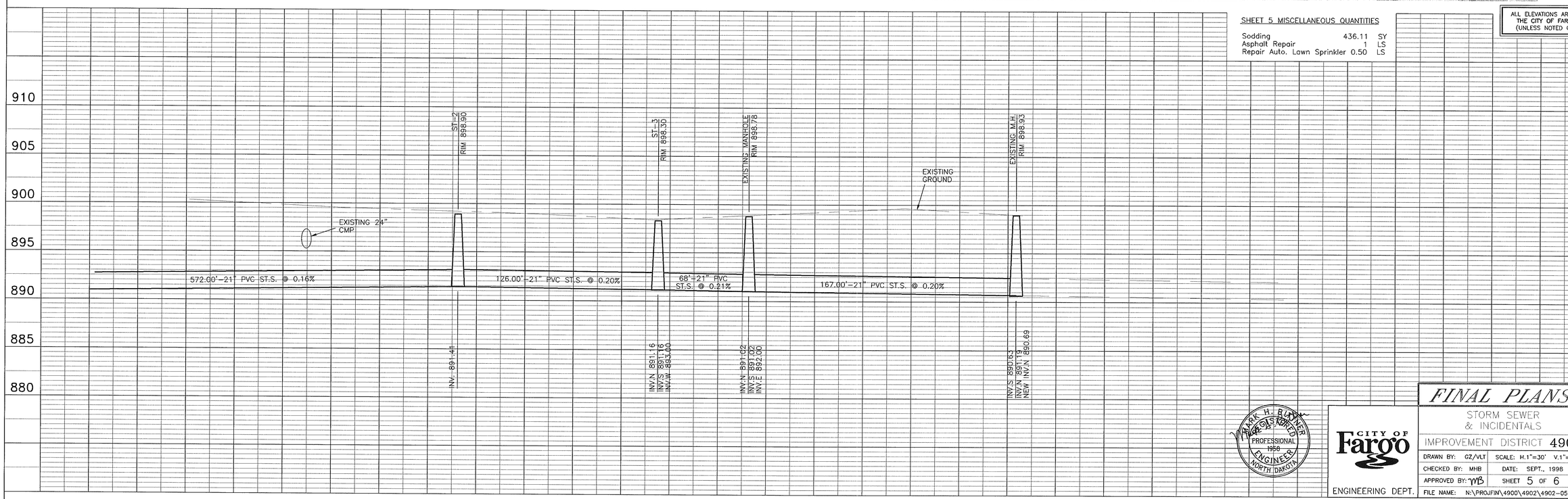
FINAL PLANS

STORM SEWER & INCIDENTALS

IMPROVEMENT DISTRICT 4902

DRAWN BY: GZ/VLT	SCALE: H.1"=30' V.1"=5'
CHECKED BY: MHB	DATE: SEPT., 1998
APPROVED BY: MB	SHEET 4 OF 6
FILE NAME: N:\PROJFIN\4900\4902\4902-04f	





SHEET 5 MISCELLANEOUS QUANTITIES

Sodding	436.11	SY
Asphalt Repair	1	LS
Repair Auto. Lawn Sprinkler	0.50	LS

ALL ELEVATIONS ARE BASED ON THE CITY OF FARGO DATUM. (UNLESS NOTED OTHERWISE)

MARK H. BLEHER
PROFESSIONAL ENGINEER
1950
NORTH DAKOTA

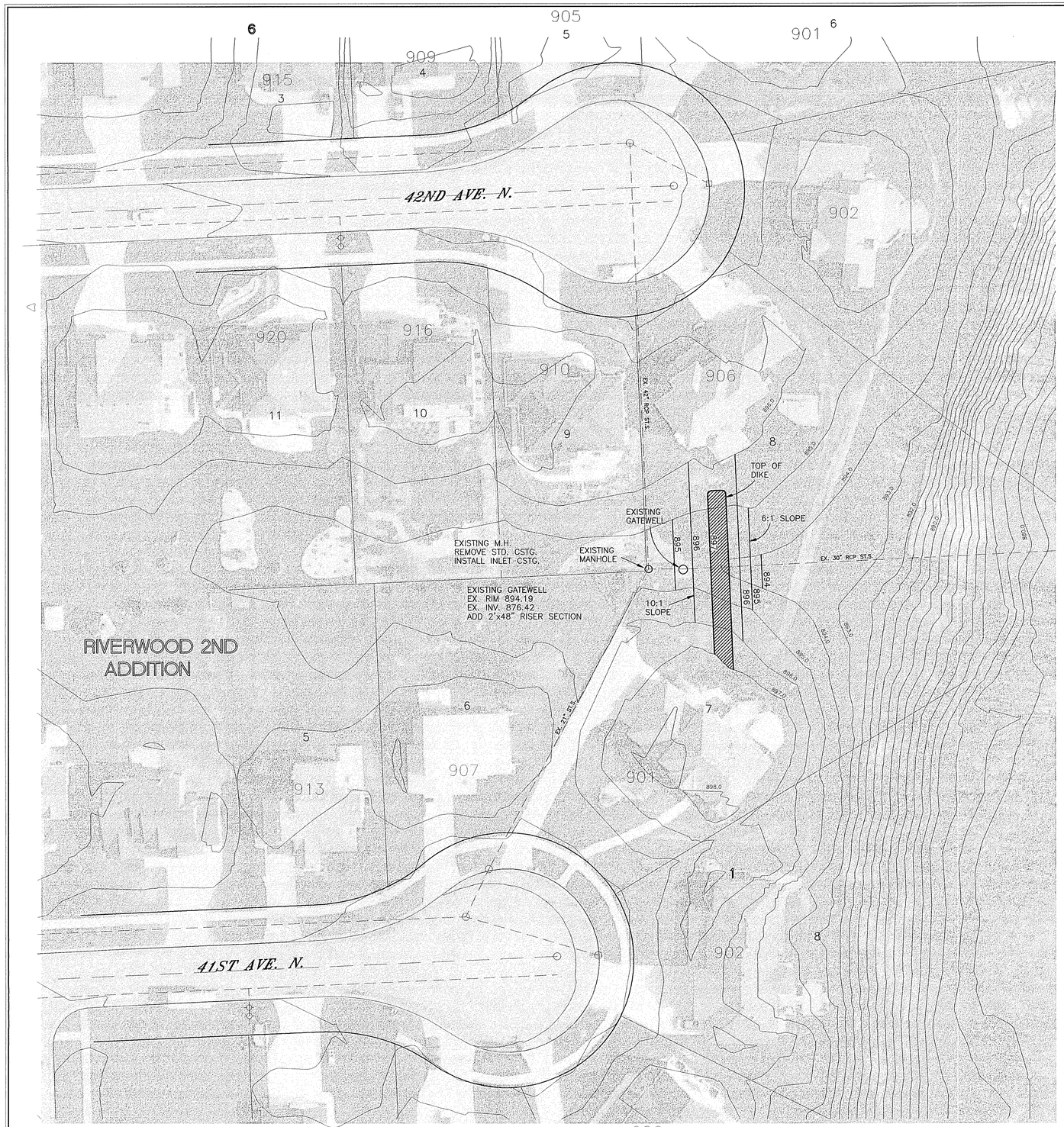
CITY OF Fargo
ENGINEERING DEPT.

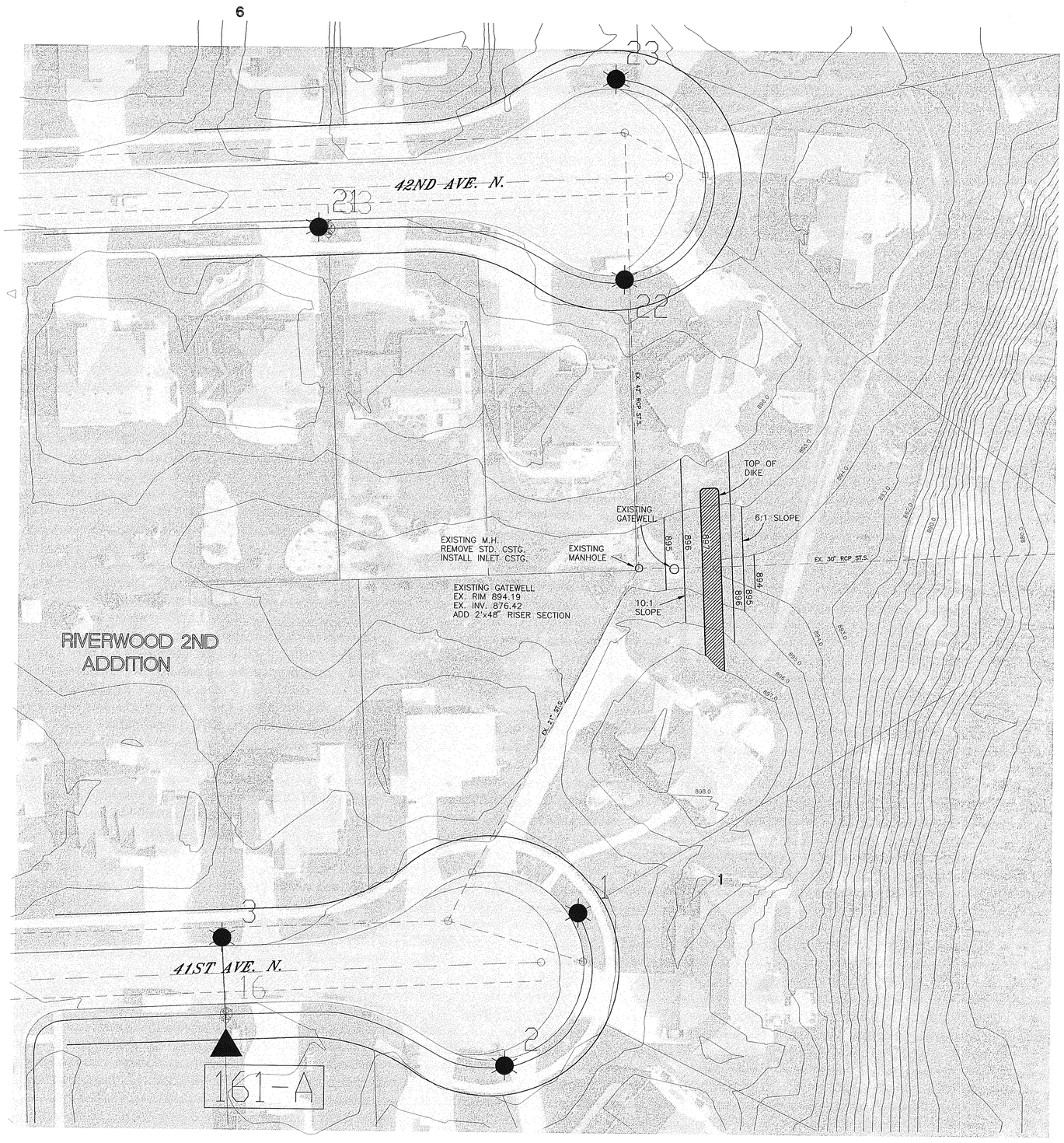
FINAL PLANS

STORM SEWER & INCIDENTALS

IMPROVEMENT DISTRICT 4902

DRAWN BY: GZ/VLT	SCALE: H.1"=30' V.1"=5'
CHECKED BY: MHB	DATE: SEPT., 1998
APPROVED BY: MB	SHEET 5 OF 6
FILE NAME: N:\PROJFIN\4900\4902\4902-05f	

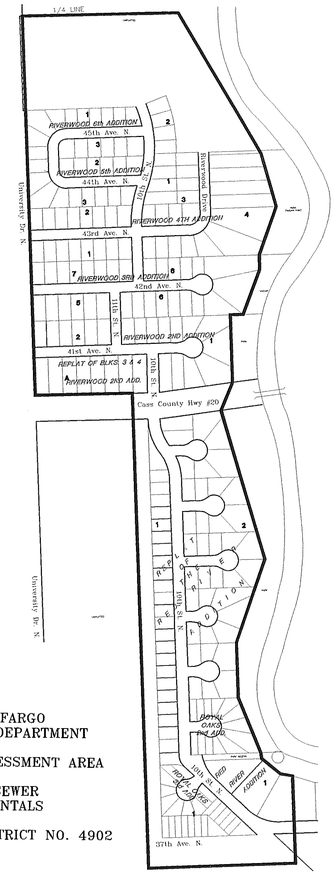

42ND AVE. N.
41ST AVE. N.
RIVERWOOD 2ND ADDITION
EXISTING M.H.
REMOVE STD. CSTG.
INSTALL INLET CSTG.
EXISTING MANHOLE
EXISTING GATEWELL
EX. RIM 894.19
EX. INV. 876.42
ADD 2'x48" RISER SECTION
EXISTING GATEWELL
TOP OF DIKE
6:1 SLOPE
10:1 SLOPE
EX. 30" RCP ST.S
EX. 21" ST.S
EX. 48" RCP ST.S
905
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N

SHEET 6 MISCELLANEOUS QUANTITIES

Site Access Protection	1	LS
Furnish & Install Inlet Casting	1	LS
Embankment	200	CY
Imported Top Soil	189.80	CY
Repair Auto. Lawn Sprinkler	0.50	LS
Sodding	618.90	SY



CITY OF FARGO
ENGINEERING DEPARTMENT

LOCATION & ASSESSMENT AREA

STORM SEWER
& INCIDENTALS

IMPROVEMENT DISTRICT NO. 4902

ALL ELEVATIONS ARE BASED ON THE CITY OF FARGO DATUM. (UNLESS NOTED OTHERWISE)

MARK H. BITTNER REGISTERED PROFESSIONAL ENGINEER 3961 NORTH DAKOTA

CITY OF Fargo ENGINEERING DEPT.

FINAL PLANS

STORM WATER LIFT STATION
EARTHWORK & INCIDENTALS

IMPROVEMENT DISTRICT 4902

DRAWN BY: GZ/VLT	SCALE: 1"=30'
CHECKED BY: MHB	DATE: SEPT., 1998
APPROVED BY: MHB	SHEET 6 OF 6
FILE NAME: N:\PROJFIN\4900\4902\4902-06f	