

CONSOLIDATED WATER & SEWER IMPROVEMENT DISTRICT NO. 25 PROJECT LAYOUT

CIVIL ENGINEERING LAND PLANNING LAND SURVEYING
SWENSON, HAGEN & CO. P.C.
Consulting Engineers
PO BOX 1135, 909 BASIN AVENUE
BISMARCK, NORTH DAKOTA 58501
701-223-8900

LEGEND	
— W —	WATERMAIN
- - - W - - -	EXISTING WATERMAIN
— S —	SANITARY SEWER
- - - S - - -	EXISTING SANITARY SEWER
○	MANHOLE
○	EXISTING MANHOLE
⊕	HYDRANT
+	GATE VALVE

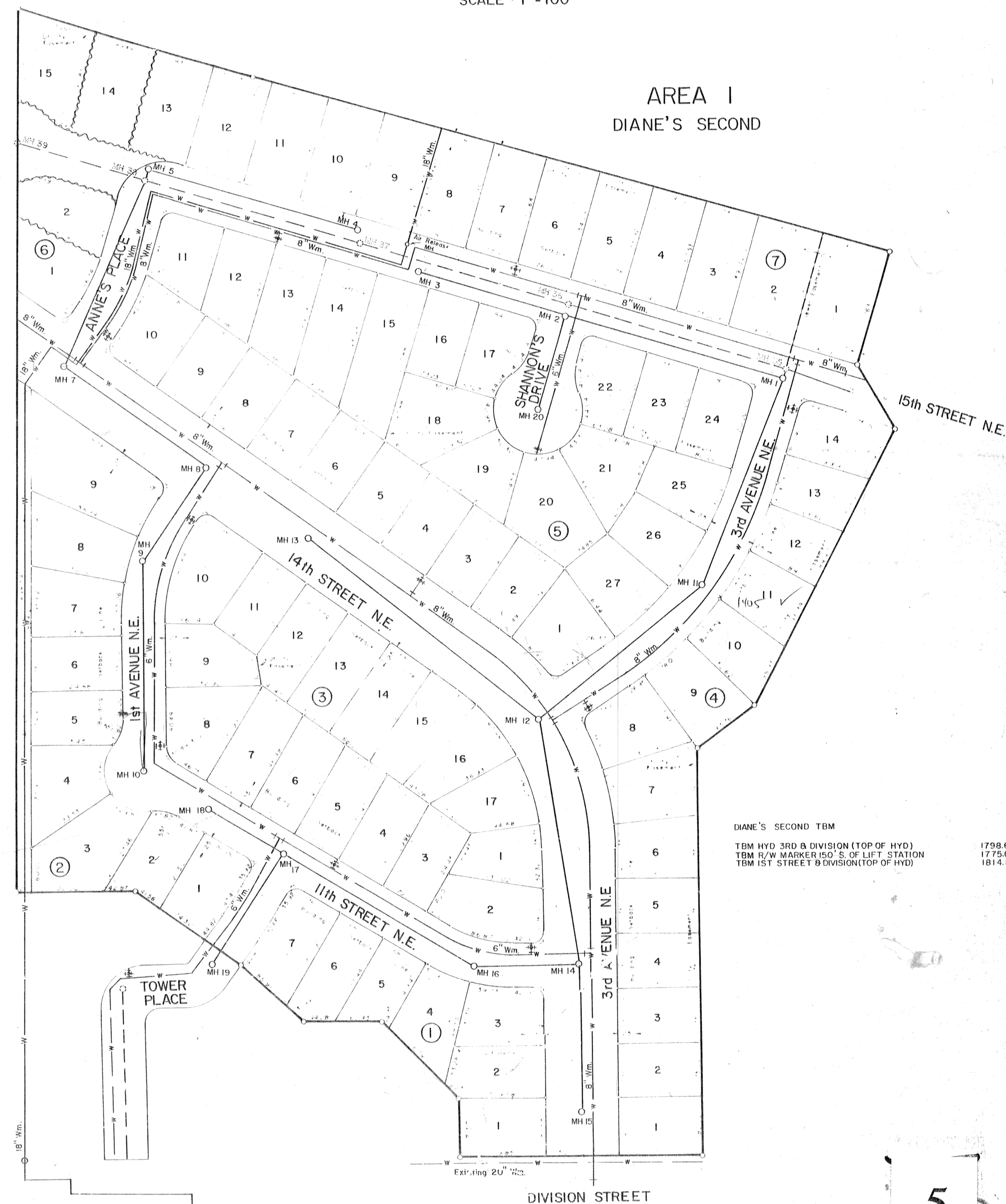
TYPES OF MATERIAL	
WATERMAIN	6" - 8" CERTAINTED (AC)
SEWER	6" - 10" - 12" CERTAINTED (PVC)
	4" - 6" GIFFORD HILL (PVC)
CURB BOX	MUELLER H-10 300, H-10 302, H-10 304
CURB STOP	MUELLER H-15 154, H-15 164
HYDRANT	WATEROUS
GATE VALVES	MUELLER, DRESSER M & H, STOCKHAM

DIANE'S SECOND HYDRANT ELEVATIONS (TOP OF HYDRANT)

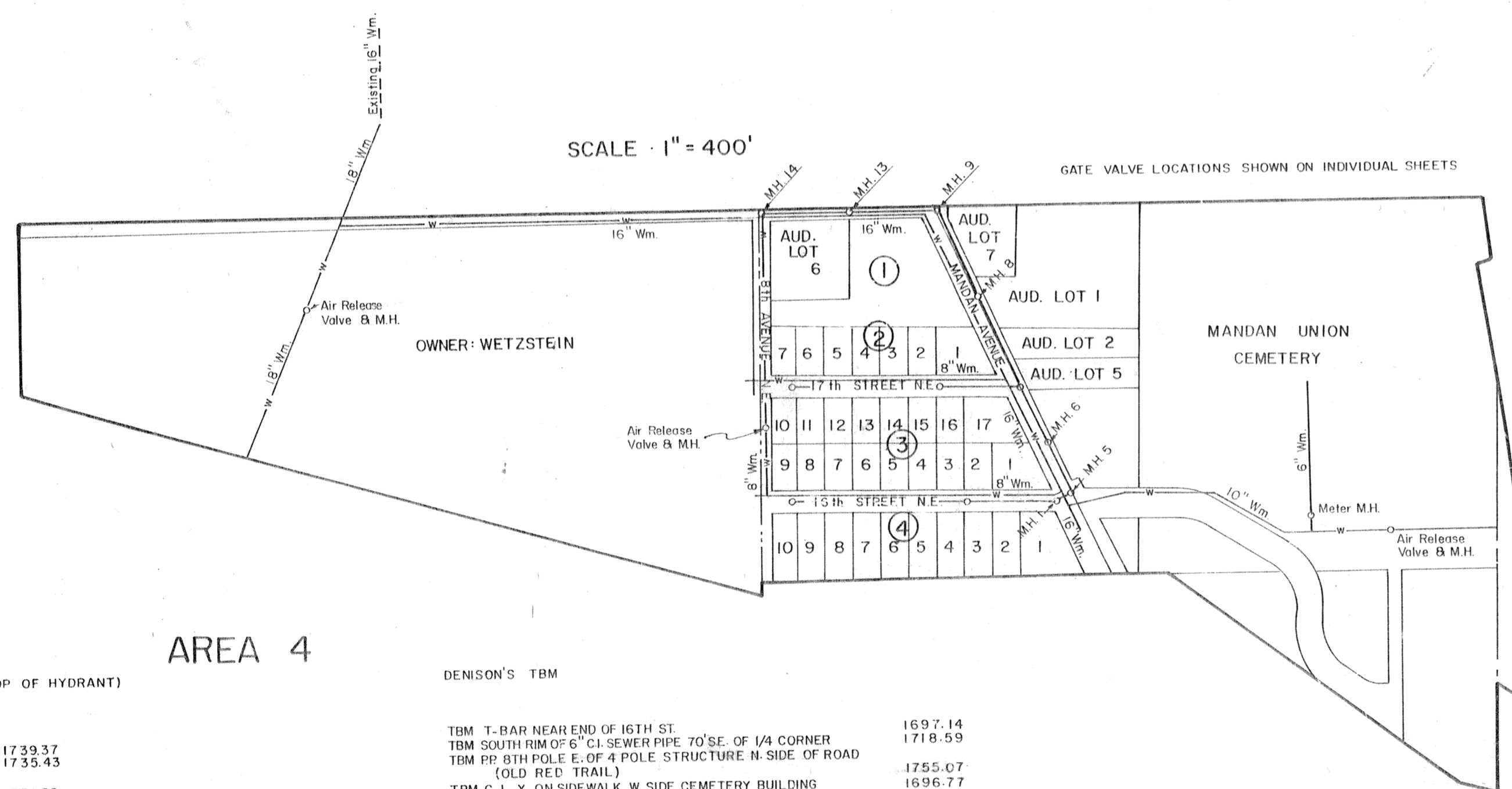
TOWER PLACE	1614.92
LOTS 4-5 BLOCK 3	1791.61
LOT 2 BLOCK 3	1786.06
LOT 8 BLOCK 3	1800.38
LOT 10 BLOCK 3	1778.31
LOT 8 BLOCK 4	1773.45
LOT 8 BLOCK 4	1757.03
LOT 10 BLOCK 5	1770.47
LOTS 12-13 BLOCK 5	1760.67
LOT 20 BLOCK 5	1764.59
LOTS 6-7 BLOCK 7	1764.58

SCALE · 1" = 100'

AREA 1
DIANE'S SECOND



DIANE'S SECOND TBM
TBM HYD 3RD & DIVISION (TOP OF HYD) 1798.61
TBM R/W MARKER 150' S. OF LIFT STATION 1775.06
TBM 1ST STREET @ DIVISION (TOP OF HYD) 1814.19



AREA 4

DENISON'S HYDRANT ELEVATIONS (TOP OF HYDRANT)

ON 8th AVENUE	1739.37
BETWEEN 16th ST & 17th ST	1735.43
1st SOUTH OF OLD RED TRAIL	
ON 16th STREET	1701.20
1st WEST OF MANDAN AVENUE	1704.04
2nd WEST OF MANDAN AVENUE	1718.87
3rd WEST OF MANDAN AVENUE	
ON 17th STREET	1719.09
1st WEST OF MANDAN AVENUE	1737.76
2nd WEST OF MANDAN AVENUE	
ON OLD RED TRAIL	1736.83
1st EAST	1735.05
2nd EAST	1706.94
FARTHEST EAST	
INTERSECTIONS	
MANDAN & 16th	1699.52
MANDAN & 17th	1706.58
OLD RED TRAIL & 8th	1715.40
ON MANDAN AVENUE	
BETWEEN OLD RED TRAIL & 17th	1706.25

DIANE'S TBM

TBM T-BAR NEAR END OF 16TH ST.	1697.14
TBM SOUTH RM OF 6" CI SEWER PIPE 70' SE. OF 1/4 CORNER	1718.59
TBM RP 8TH POLE E. OF A POLE STRUCTURE N-SIDE OF ROAD	
(OLD RED TRAIL)	1755.07
TBM C-1 X ON SIDEWALK W. SIDE CEMETERY BUILDING	1696.77

SEEDING IN WATERMAIN AREAS 16423 SQ. YDS.
SEEDING IN SANITARY SEWER AREAS 3360 SQ. YDS.

COLLIN'S
RESERVOIR

D 25

5

HOOVESTOL SUBDIVISION 21
(Ties to Sewer Services and Curb Boxes)

BLOCK 1	SEWER SERVICE	WATER (CURB BOX)
LOTS 1, 2, 3, 4, 9, 10, 11 Water & Sewer Lines Changed to Accommodate Townhouse Dwelling		
LOT 5	101.4 to Hyd. NE Cor. L. 2 B. 2 182.5 to SW L. Cor. L. 8 B. 1	109.7 to Hyd. NE Cor. L. 2 B. 2 193.2 to SW L. Cor. L. 8 B. 1
LOT 6	117.0 to SW L. Cor. L. 8 B. 1 58.8 to Hyd. NE Cor. L. 2 B. 2	123.5 to SW L. Cor. L. 8 B. 1 59.0 to Hyd. NE Cor. L. 2 B. 2
LOT 7	149.9 to Hyd. NE Cor. L. 2 B. 2 109.6 to SW L. Cor. L. 8 B. 1	78.8 to Hyd. NE Cor. L. 2 B. 2 97.6 to SW L. Cor. L. 8 B. 1
LOT 8	89.2 to SW L. Cor. L. 8 B. 1 148.0 to Hyd. NE Cor. L. 2 B. 2	12.0 to SW L. Cor. L. 8 B. 1 93.4 to Hyd. NE Cor. L. 2 B. 2
LOT 12	257.4 to SW Cor. L. 8 B. 1 94.1 to Hyd. at L. 5 B. 2	249.7 to SW Cor. L. 8 B. 1 99.9 to Hyd. at L. 5 B. 2
LOT 13	58.2 to Hyd. at L. 5 B. 2 330.8 to SW Cor. L. 8 B. 1	59.1 to Hyd. at L. 5 B. 2 320.8 to SW Cor. L. 8 B. 1
LOT 14	33.8 to MH-2 272.0 to Hyd. L. 8 & 9 B. 2	33.3 to MH-2 279.2 to Hyd. L. 8 & 9 B. 2
LOT 15	213.4 to Hyd. L. 8 & 9 B. 2 62.0 to MH-2	202.1 to Hyd. L. 8 & 9 B. 2 72.2 to MH-2
LOT 16	129.0 to MH-2 144.7 to Hyd. L. 8 & 9 B. 2	137.2 to MH-2 136.3 to Hyd. L. 8 & 9 B. 2
LOT 17	68.6 to Hyd. L. 8 & 9 B. 2 220.8 to MH-2	64.7 to Hyd. L. 8 & 9 B. 2 230.8 to MH-2
LOT 18	257.7 to Hyd. L. 20 B. 1 80.0 to Hyd. L. 8 & 9 B. 2	246.3 to Hyd. at L. 20 B. 1 89.6 to Hyd. L. 8 & 9 B. 2
LOT 19	143.7 to Hyd. L. 8 & 9 B. 2 189.3 to Hyd. at L. 20 B. 1	157.7 to Hyd. L. 8 & 9 B. 2 175.7 to Hyd. at L. 20 B. 1
LOT 20		67.0 to Hyd. at L. 20 B. 1 246.6 to Hyd. L. 8 & 9 B. 2

BLOCK 2	SEWER SERVICE	WATER (CURB BOX)
LOT 1	159.2 to Hyd. NE Cor. L. 2 B. 2 116.5 to NW Cor. L. 2 B. 1	165.1 to Hyd. NE Cor. L. 2 B. 2 111.4 to NW Cor. L. 2 B. 1
LOT 2	228.7 to NW Cor. L. 2 B. 1 38.2 to Hyd. NE Cor. L. 2 B. 2	219.4 to NW Cor. L. 2 B. 1 47.7 to Hyd. NE Cor. L. 2 B. 2
LOT 3	142.0 to SW Cor. L. 8 B. 1 208.6 Hyd. at L. 5 & 6 B. 2	130.2 SW Cor. L. 8 B. 1 224.0 Hyd. at L. 5 & 6 B. 2
LOT 4	225.3 to SW Cor. L. 8 B. 1 119.0 Hyd. at L. 5 & 6 B. 2	211.8 to SW Cor. L. 8 B. 1 131.9 Hyd. at L. 5 & 6 B. 2
LOT 5	302.4 SW Cor. L. 8 B. 1 38.5 Hyd. L. 5 & 6 B. 2	292.8 SW Cor. L. 8 B. 1 46.8 Hyd. L. 5 & 6 B. 2
LOT 6	48.5 to MH-2 222.3 Hyd. L. 8 & 9 B. 2	56.7 to MH-2 210.1 to Hyd. L. 8 & 9 B. 2
LOT 7	148.4 to MH-2 114.2 Hyd. L. 8 & 9 B. 2	157.1 to MH-2 105.3 Hyd. L. 8 & 9 B. 2
LOT 8	223.0 to MH-2 37.2 Hyd. L. 8 & 9 B. 2	237.8 to MH-2 24.2 Hyd. L. 8 & 9 B. 2
LOT 9	34.2 Hyd. L. 8 & 9 B. 2 52.3 PT Inside Curve(Property line)	44.4 Hyd. L. 8 & 9 B. 2 42.0 PT Inside Curve(Property line)
LOT 10		67.5 PT Outside Curve(Property line) 98.9 Hyd. SE Cor. L. 20 B. 1
LOT 2	66.0 to MH-3 34.4 to Hyd. L. 2 B. 2	71.0 to MH-3 41.0 to Hyd. L. 2 B. 2

GATE VALVES

1st Street SE & 9th Avenue SE

MH-5 to G.V.	90.6
Hyd. to G.V.	23.0

Hydrants Valves (measured from hydrants)

Lot 8-9 Block 2	6.8
Lot 5-6 Block 2	6.9
Lot 2 Block 2	7.1
NW Cor. 1st Street & 9th Avenue SE	6.2
Lot 20 Block 1	36.3
From MH South of Lot 10 Block 2	41.1

Adobe Trail S.E. & 1st Street S.E.

MH South of Lot 10 Block 2 to G.V.	23.5
Hyd. to G.V.	51.5

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(701) 221-1000

LEGEND	
— W —	WATERMAIN
— W —	EXISTING WATERMAIN
— S —	SANITARY SEWER
- - - S - - -	EXISTING SANITARY SEWER
○	MANHOLE
○	EXISTING MANHOLE
⊕	HYDRANT
⊕	EXISTING HYDRANT
⊕	GATE VALVE

TYPES OF MATERIAL

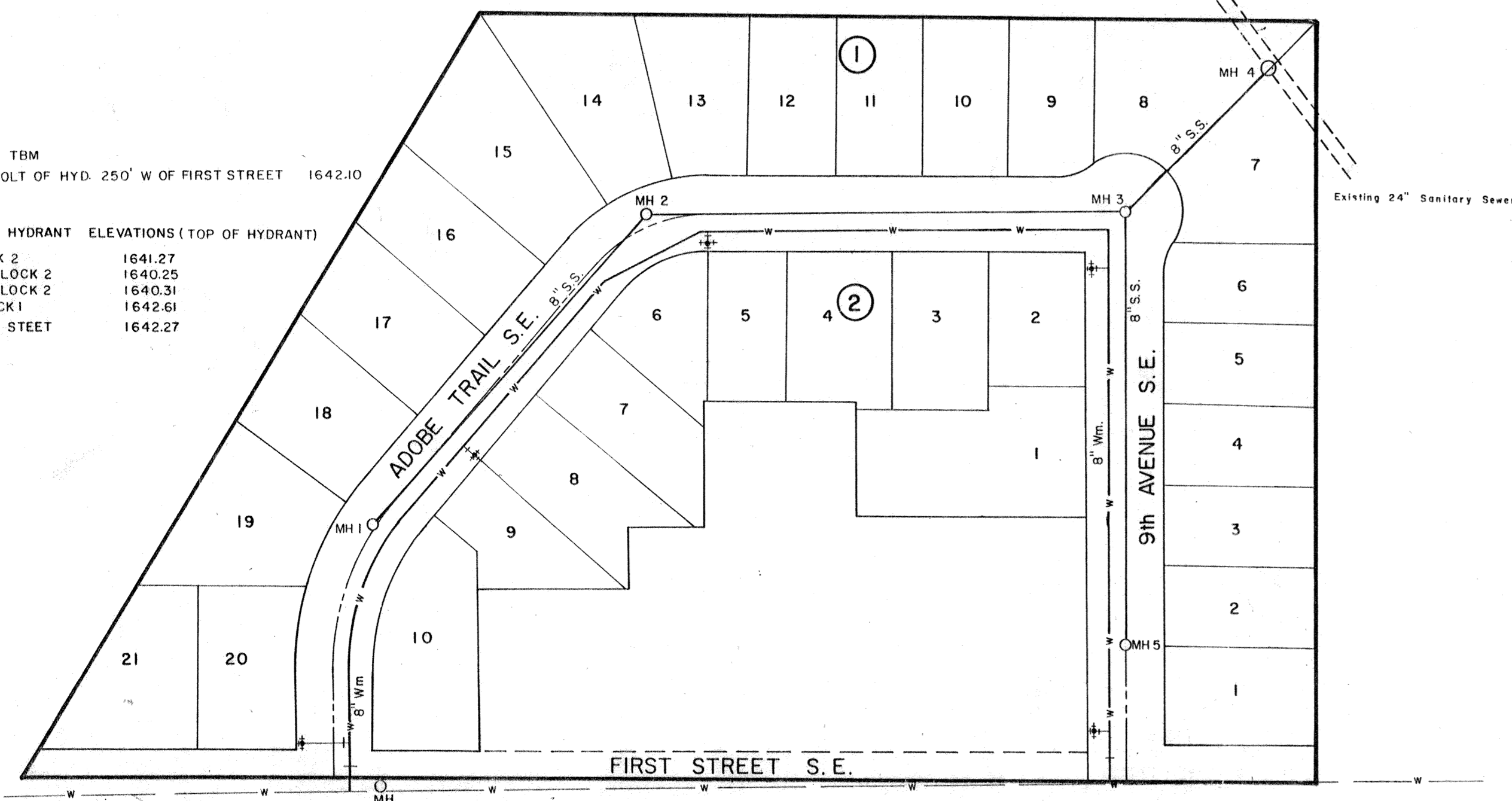
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SEWER	6" - 10" 12" CERTAINTED (PVC)
	4" - 6" GIFFORD HILL (PVC)
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CURB STOP	MUELLER H-15 154, H-15 164
HYDRANT	WATEROUS
GATE VALVES	MUELLER, DRESSER M & H, STOCKHAM

SCALE · 1" = 100'

AREA 2 HOOVESTOL SUBDIVISION

HOOVESTOL TBM
NE FLANGE BOLT OF HYD. 250' W OF FIRST STREET 1642.10

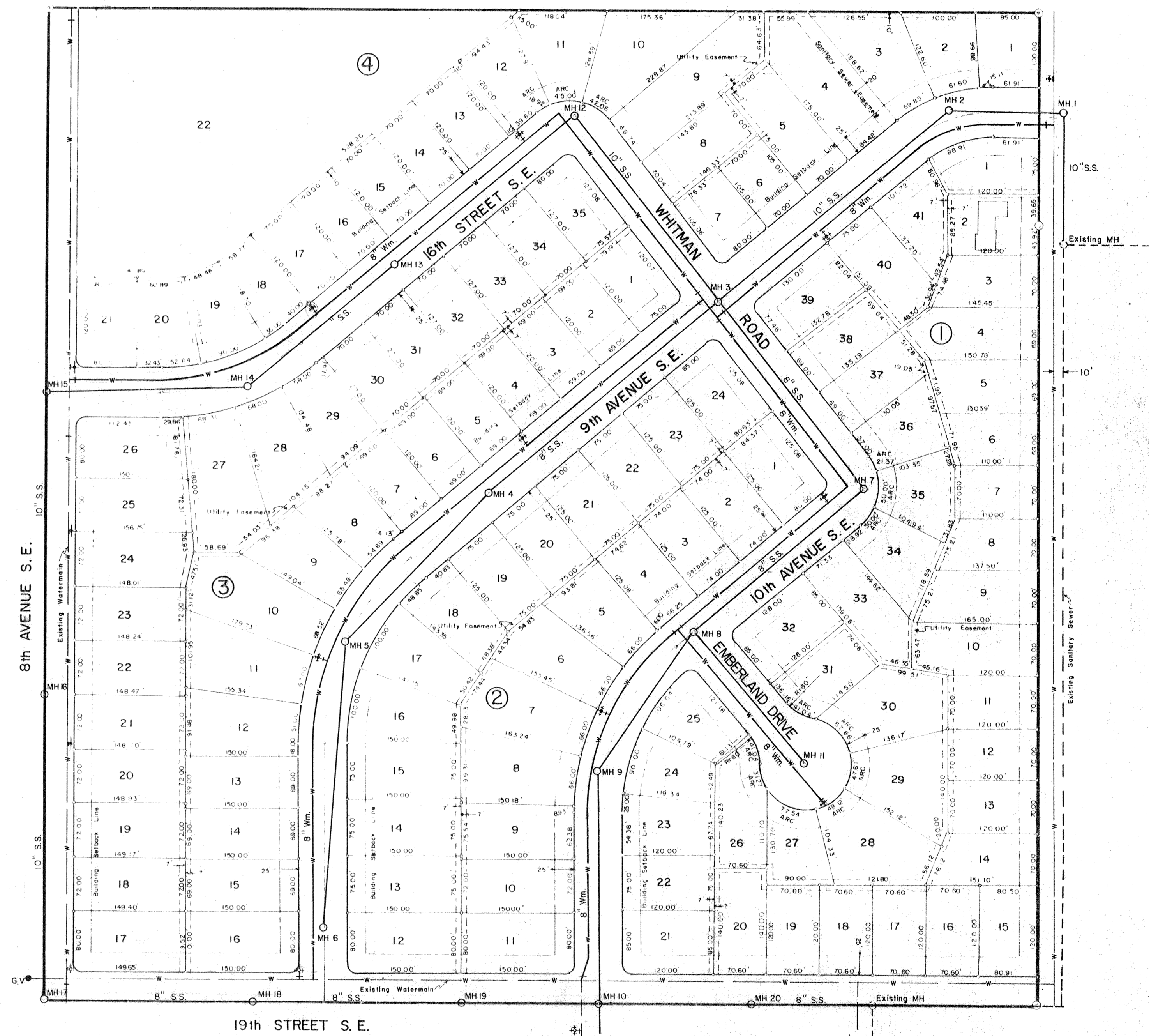
HOOVESTOL HYDRANT ELEVATIONS (TOP OF HYDRANT)
LOT 2 BLOCK 2 1641.27
LOTS 5-6 BLOCK 2 1640.25
LOTS 8-9 BLOCK 2 1640.31
LOT 20 BLOCK 1 1642.61
9th AVE & 1st STREET 1642.27



EMBERLAND WEST HYDRANT ELEVATIONS (TOP OF HYDRANT)
LOT 28 BLOCK 1 1750.00
LOT 40 BLOCK 1 1710.23
LOT 1 BLOCK 2 1729.66
LOTS 6-7 BLOCK 2 1745.15
LOT 5 BLOCK 3 1732.43
LOTS 10-11 BLOCK 3 1744.25
LOT 21 BLOCK 3 1742.55
LOTS 24-25 BLOCK 3 1733.53
LOT 1 BLOCK 4 1705.93
LOT 2 BLOCK 4 1717.58
LOTS 17-18 BLOCK 4 1721.71
LOT 21 BLOCK 4 1717.58
10th AVENUE & 19th STREET 1753.63
9th AVENUE & 19th STREET 1749.82
8th AVENUE & 19th STREET 1745.79

EMBERLAND WEST TBM
TBM 1-E (PC 3' 0" CURVE "D") 1705.58
TBM HYD. 8TH AVE. & 16TH ST. 1722.54
TBM HYD. 18TH ST. & 12TH AVE. 1753.85
TBM HYD. 19TH ST. & 8TH AVE. 1745.84

AREA 3 EMBERLAND WEST ADDITION



CROWN POINT SUBDIVISION

(TIES TO SEWER STOPS AND CURB BOXES)

BLOCK 1	WATER	SEWER
LOT 1	305.0 to MH-4 37.0 to Hyd. L. 1 B. 1	295.5 to MH-4 27.5 to Hyd. L. 1 B. 1
LOT 2	235.0 to MH-4 34.5 to Hyd. L. 1 B. 1	224.0 to MH-4 46.0 to Hyd. L. 1 B. 1
LOT 3	160.0 to MH-4 109.5 to Hyd. L. 1 B. 1	146.5 to MH-4 123.5 to Hyd. L. 1 B. 1
LOT 4	83.5 to MH-4 189.0 to Hyd. L. 1 B. 1	77.5 to MH-4 197.0 to Hyd. L. 1 B. 1
LOT 5	60.9 to MH-6 45.0 to Hyd. L. 6 B. 1	71.5 to MH-6 57.5 to Hyd. L. 6 B. 1
LOT 6	63.5 to MH-6 49.0 to Hyd. L. 6 B. 1	71.0 to MH-6 57.0 to Hyd. L. 6 B. 1
LOT 7	46.5 to MH-8 51.8 to Hyd. L. 8 B. 1	
LOT 8	52.0 to MH-8 9.1 to Hyd. L. 8 B. 1	56.0 to MH-8 16.3 to Hyd. L. 8 B. 1
LOT 9	56.0 to MH-8 29.5 to Hyd. L. 8 B. 1	57.5 to MH-8 43.5 to Hyd. L. 8 B. 1
LOT 10	127.6 to MH-8 160.8 to Hyd. L. 8 B. 1	122.0 to MH-8 157.5 to Hyd. L. 8 B. 1
LOT 11	109.5 to MH-9 51.5 to Hyd. L. 11 B. 1	120.0 to MH-9 62.0 to Hyd. L. 11 B. 1
LOT 12	116.7 to MH-9 113.1 to Hyd. L. 11 B. 1	105.0 to MH-9 101.0 to Hyd. L. 11 B. 1
BLOCK 2	WATER	SEWER
LOT 1		
LOT 2	228.0 to MH-4 69.5 to Hyd. L. 1 B. 1	218.5 to MH-4 77.0 to Hyd. L. 1 B. 1
LOT 3	156.0 to MH-4 125.0 to Hyd. L. 1 B. 1	146.5 to MH-4 135.5 to Hyd. L. 1 B. 1
LOT 4	81.0 to MH-4 196.0 to Hyd. L. 1 B. 1	76.0 to MH-4 205.0 to Hyd. L. 1 B. 1
LOT 5	97.0 to MH-3 150.0 to NW Cor. L. 8 B. 2	106.5 to MH-3 160.5 to NW Cor. L. 8 B. 2
LOT 6	61.5 to MH-3 113.5 to NW Cor. L. 8 B. 2	57.0 to MH-3 107.0 to NW Cor. L. 8 B. 2
LOT 7	47.0 to MH-3 61.5 to NW Cor. L. 8 B. 2	93.0 to MH-3 88.5 to NW Cor. L. 8 B. 2
LOT 8	49.5 to MH-3	85.0 to MH-3
LOT 9		52.0 to MH-3 (No Post)
LOT 10	54.0 to MH-3	59.5 to MH-3
LOT 11	58.0 to MH-6 70.4 to Hyd. L. 5 B. 1	74.0 to MH-6 87.0 to Hyd. L. 5 B. 1
LOT 12	34.5 to MH-6 58.8 to Hyd. L. 5 B. 1	31.0 to MH-6 57.0 to Hyd. L. 5 B. 1
LOT 13	88.0 to MH-6 95.7 to Hyd. L. 5 B. 1	80.5 to MH-6 90.5 to Hyd. L. 5 B. 1
LOT 14	144.8 to MH-6 147.6 to Hyd. L. 5 B. 1	154.0 to MH-6 156.7 to Hyd. L. 5 B. 1
LOT 15	249.2 to MH-9 201.8 to Hyd. L. 11 B. 1	261.7 to MH-9 214.0 to Hyd. L. 11 B. 1
LOT 16	179.0 to MH-9 135.0 to Hyd. L. 11 B. 1	189.5 to MH-9 145.0 to Hyd. L. 11 B. 1
LOT 17	102.2 to MH-9 69.0 to Hyd. L. 11 B. 1	114.0 to MH-9 79.0 to Hyd. L. 11 B. 1
LOT 18	49.5 to MH-9 54.5 to Hyd. L. 11 B. 1	44.0 to MH-9 59.0 to Hyd. L. 11 B. 1

BLOCK 2	WATER
LOT 19	56.9 to MH-9 110.8 to Hyd. L. 11 B. 1
LOT 20	82.2 to MH-9 140.0 to Hyd. L. 11 B. 1
LOT 21	123.5 to MH-9 150.5 to Hyd. L. 11 B. 1

GATE VALVES

Old Highway No. 10 & Crown Point Road

MH-10 to G.V.
Hyd. L. 11 B. 1 to G.V.

26.4
172.5

Crown Point Road & Cul de Sac

MH-7 to SE G.V.
Hyd. L. 5 B. 1 to SE G.V.

15.5
169.5

MH-7 to NW G.V.
Hyd. L. 5 B. 1 to NW G.V.

21.5
177.5

41st Ave. NW Cul de Sac

MH-3 to G.V.
Hyd. L. 8-9 B. 2 to G.V.

29.5
17.0

41st Ave. NW & Crown Point Road

MH-4 to N G.V.
MH-3 to N G.V.

25.3
179.0

MH-4 to W. G.V.
MH-3 to W. G.V.

22.0
172.5

Hydrants

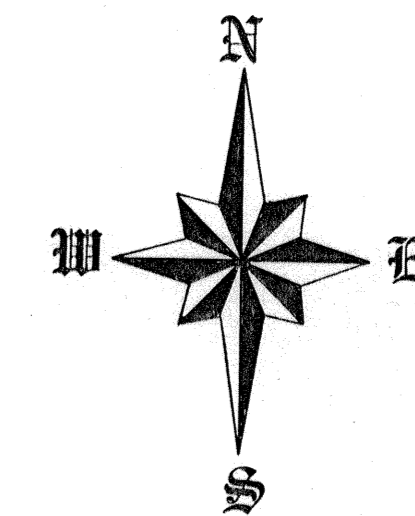
Hyd. L. 11 B. 1 to G.V.
Hyd. L. 5 B. 1 to G.V.
Hyd. L. 8 B. 1 to G.V.
Hyd. L. 1-2 B. 1 to G.V.

7.0
10.1
3.5
10.6

CONSOLIDATED WATER & SEWER IMPROVEMENT DISTRICT NO. 25 PROJECT LAYOUT

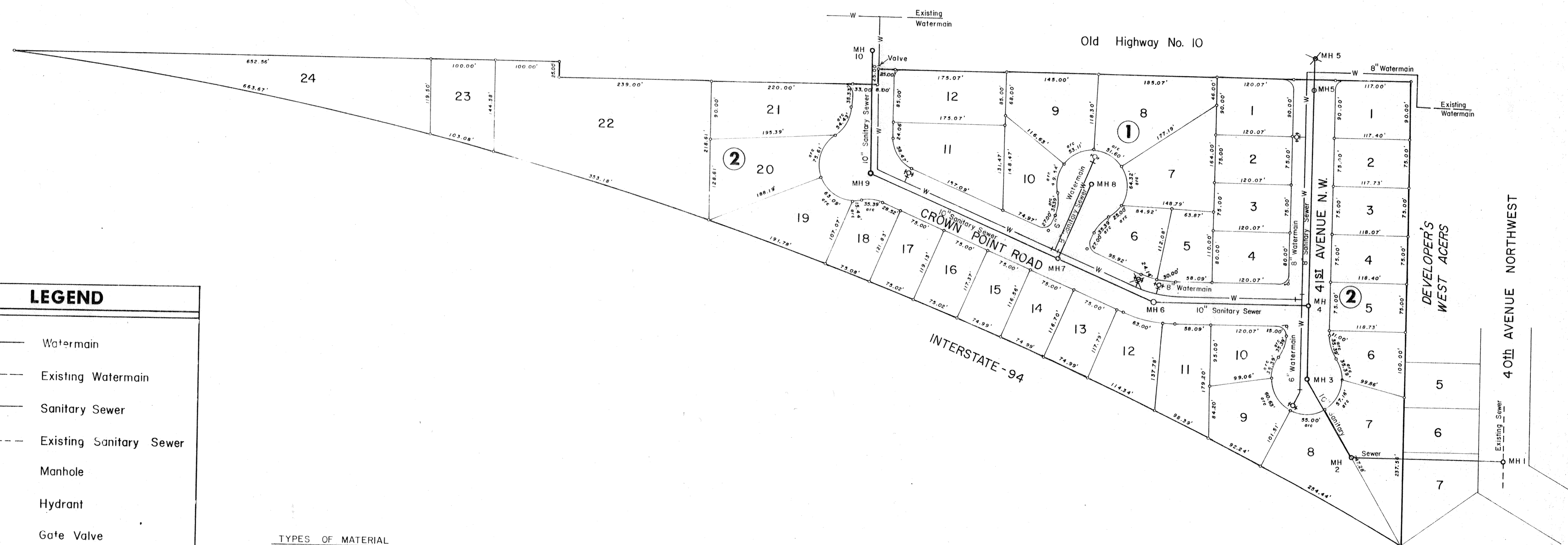
AREA NO. 5

REPLAT OF CROWN POINT SUBDIVISION



CROWN POINT TBM
TBM PIPE FRONT OF LOT 19 & 20 BLOCK 2 1965.60
TBM 2-M 1970.70
TBM NAIL IN FIRST POWER POLE EAST OF CROWN PT. ROAD SOUTH SIDE OF HIGHWAY 1965.54
TBM 1-M 1971.56

Scale - 1" = 100'
December, 1977
AS-BUILT HVC 1/2/79



LEGEND	
—W—	Watermain
- - -W - - -	Existing Watermain
—S—	Sanitary Sewer
- - -S - - -	Existing Sanitary Sewer
○	Manhole
⊕	Hydrant
+	Gate Valve

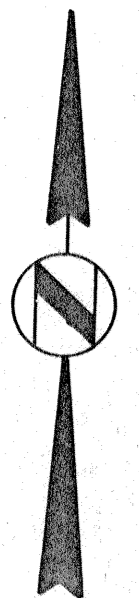
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SEWER	8" - 10" - 12" CERTAINTEEED (PVC)
CURB BOX	4" - 6" GIFFORD HILL (PVC)
CURB STOP	MUELLER H-10 300, H-10 302, H-10 304
HYDRANTS	MUELLER H-15 154, H-15 164
GATE VALVES	MUELLER, DRESSER M & H, STOCKHAM

CROWN POINT HYDRANT ELEVATIONS (TOP OF HYDRANTS)	
LOTS 1-2 BLOCK 1	1959.40
LOT 5 BLOCK 1	1965.90
LOT 8 BLOCK 1	1966.46
LOT 11 BLOCK 1	1966.53
LOTS 8-9 BLOCK 2	1967.42

CIVIL ENGINEERING LAND PLANNING LAND SURVEYING

SWENSON, HAGEN & CO. P.C.
Consulting Engineers

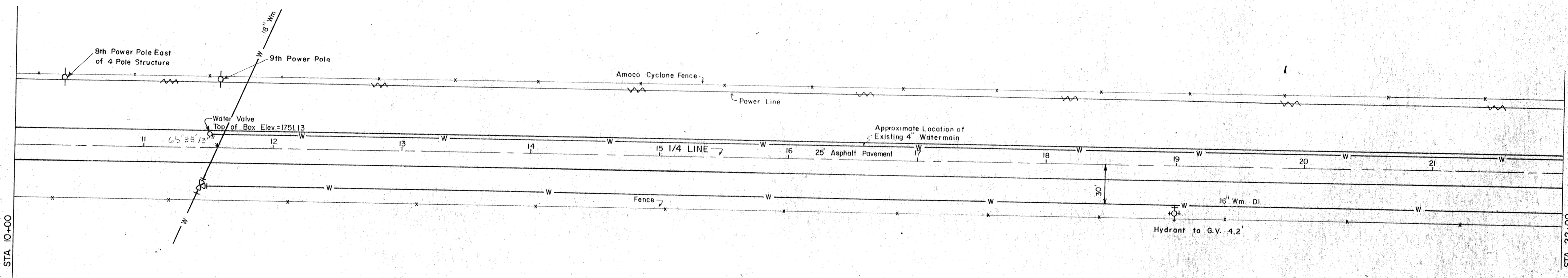
PO BOX 1135, 909 BASIN AVENUE.
BISMARCK, NORTH DAKOTA 58501
701-223-2600



HORIZONTAL SCALE: 1"=50'
 VERTICAL SCALE: 1"=5'
 DATE: JULY, 1977

GATE VALVES LOCATIONS

8TH P.P. to NE G.V.	136.8'
9TH P.P. to NE G.V.	75.5'
8TH P.P. to E G.V.	145.0'
9TH P.P. to E G.V.	83.2'
8TH P.P. to SW G.V.	138.0'
9TH P.P. to SW G.V.	87.0'



NOTES:

1. Backfill shall be Class "F" Backfill.
2. Contractor shall seed all disturbed areas that are not paved. Seeding shall be Class II with fertilizer to be furnished and applied with the seed.

PLAN
 SURVEYED BY: _____
 NOTE BOOK No. _____
 ALIGNED CHECKED BY: _____
 REVISIONS: _____

LEGEND	
— W —	WATERMAIN
⊕	TEE
+	VALVE

BEGIN WATERMAIN
 QUANTITIES STA 11+44

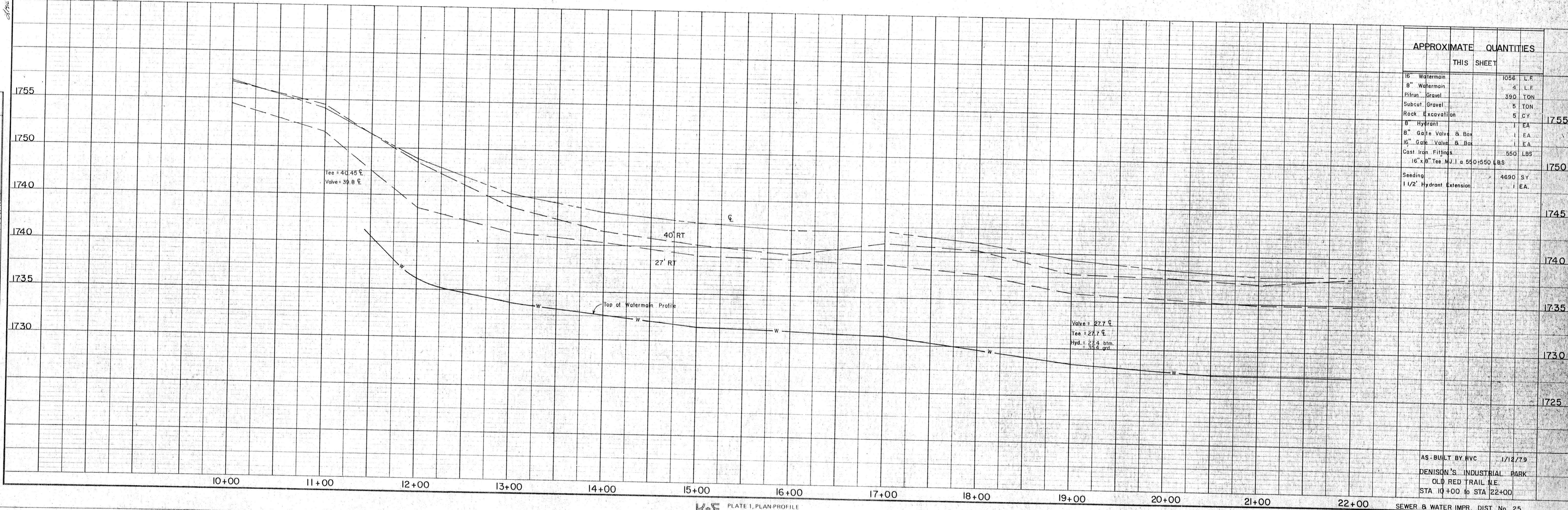
STA 11+44 ±
 (18" x 16" Tee - See Sheet 4-9)
 (16" 1/4 & 1/8 Bend - See Sheet 4-9)

STA 11+50
 16" Gate Valve & Box

STA 19+00
 16" x 8" Tee - All MJ
 8" Gate Valve & Box
 8" Hydrant
 4 LF 8" Watermain
 1 1/2' Extension

END WATERMAIN
 QUANTITIES STA 22+00

PROFILE
 SURVEYED BY: _____
 NOTE BOOK No. _____
 ALIGNED CHECKED BY: _____
 REVISIONS: _____



APPROXIMATE QUANTITIES

THIS SHEET		
16" Watermain	1056	L.F.
8" Watermain	4	L.F.
Pitrun Gravel	390	TON
Subcut Gravel	5	TON
Rock Excavation	5	CY
8" Hydrant	1	EA
8" Gate Valve & Box	1	EA
16" Gate Valve & Box	1	EA
Cast Iron Fittings	350	LBS
16" x 8" Tee M.J. a 550# 550 LBS		
Seeding	4690	S.Y.
1 1/2' Hydrant Extension	1	EA.

AS-BUILT BY HVC 1/12/79
 DENISON'S INDUSTRIAL PARK
 OLD RED TRAIL N.E.
 STA 10+00 to STA 22+00

BEGIN WATERMAIN QUANTITIES STA 0+00

END WATERMAIN QUANTITIES AT STA 5+17.5

STA 0+00
18" x 1/4 Bend

STA 2+25
18" x 1/4 Bend

STA 4+45
18" x 1/4 Bend
18" x 1/32 Bend

STA 4+45
18" x 1/4 Bend
18" x 1/32 Bend

STA 5+17.5

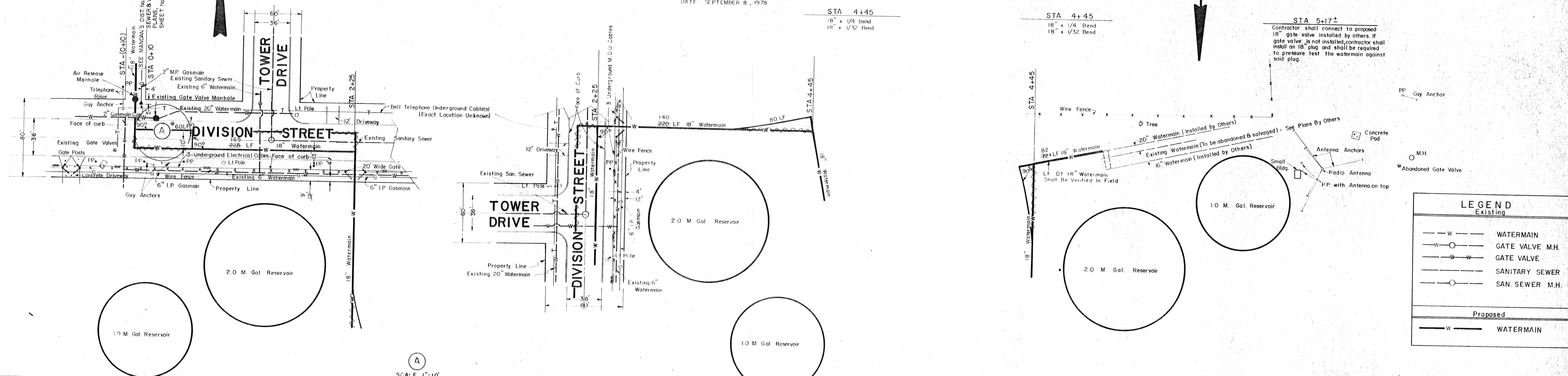
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'
DATE: SEPTEMBER 8, 1978

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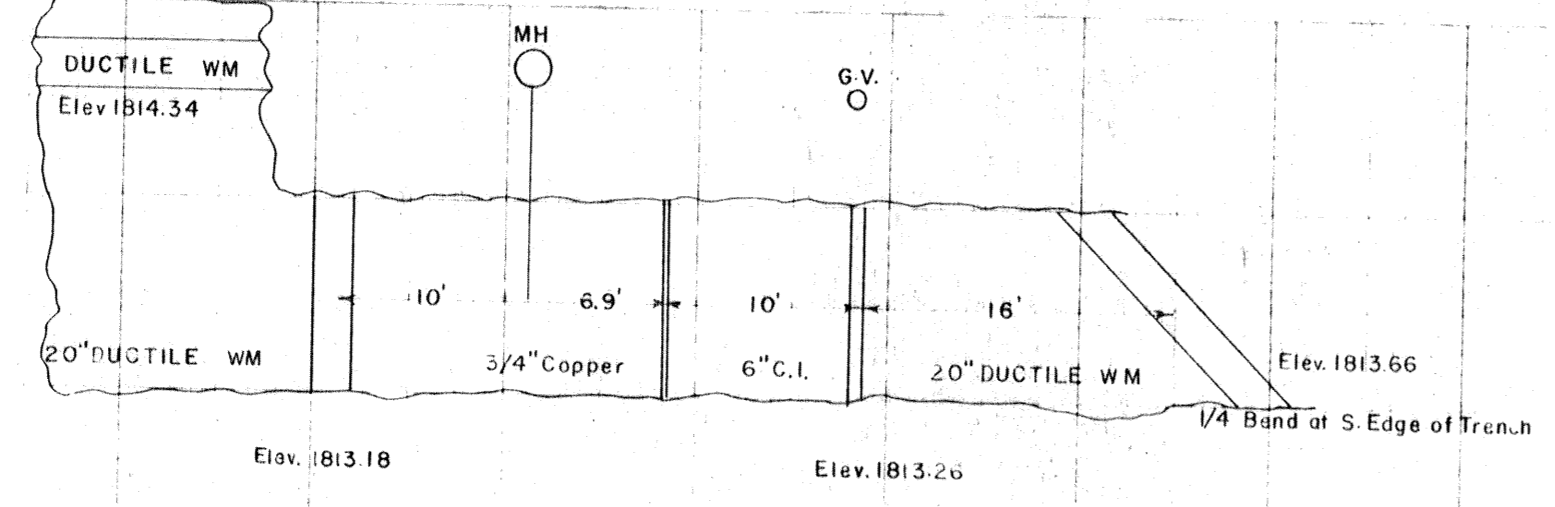
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PLAN

PROFILE



LEGEND	
Existing	
— W —	WATERMAIN
— W — O —	GATE VALVE M.H.
— W —	GATE VALVE
— S —	SANITARY SEWER
— S — O —	SAN SEWER M.H.
Proposed	
— W —	WATERMAIN



NOTE: Contractor Shall Verify Elevations Of Existing Watermains Prior To Placing 18" Watermain Within 100 Feet Of Said Existing Watermain.

APPROXIMATE QUANTITIES 18" WATERMAIN STA 0+00 TO STA 5+17.5	
18" Watermain	517± LF
Pitrun Gravel	204 Ton
Subcut Gravel	5 Ton
Rock Excavation	20 C.Y.
Removal & Replacement Of Asphalt Pavement	600 S.Y.
Removal Of Curb & Gutter	40 LF
Curb & Gutter	40 LF
CAST IRON FITTINGS	1920 lbs.
18" x 1/4 Bend 3/4" of 480 lbs.	1440 lbs.
18" x 1/32 Bend 1/2" of 480 lbs.	480 lbs.

DIANE'S 2nd ADDITION 18" WATERMAIN STA 0+00 TO STA 5+17.5

AS-BUILT BY HVC 1/12/79

DIANE'S 2nd ADDITION MANDAN, NORTH DAKOTA

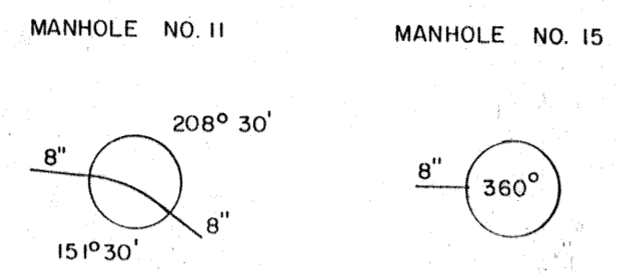
SHEET No. 1-8

PLAN
 NOTE BOOK
 No.

BEGIN SAN SEWER
 QUANTITIES STA 0+00

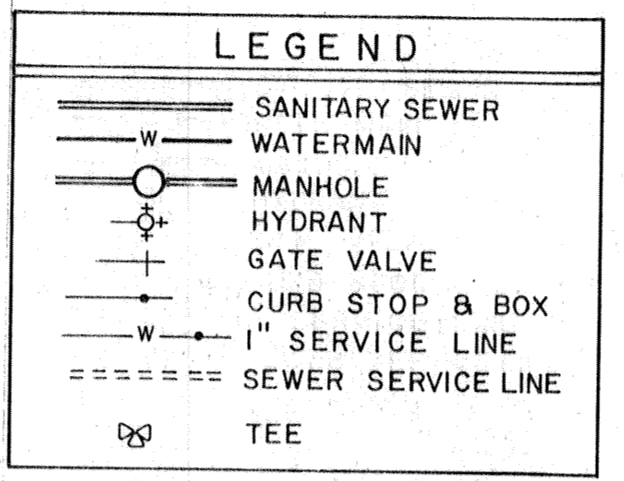
STA 0+15
 MANHOLE NO. 11
 (SEE 15th ST. N.E.)
 STA 0+00 AHD.

HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'
 DATE: JULY, 1977



SAN. SEWER
 WYE LOCATIONS

MH.1 to MH.11
STA 0+55 LEFT
STA 1+30 LEFT
STA 1+86 RIGHT
STA 2+00 LEFT
STA 2+70 LEFT
STA 2+76 RIGHT
MH.11 to MH.12
STA 0+25 LEFT
STA 0+90 RIGHT
STA 0+96 LEFT
STA 1+93 RIGHT
STA 2+06 LEFT
MH.12 to MH.14
STA 1+01 RIGHT
STA 1+15 LEFT
STA 1+81 RIGHT
STA 1+92 LEFT
STA 2+59 RIGHT
STA 2+73 LEFT
MH.14 to MH.15
STA 0+05 LEFT
STA 0+68 LEFT
STA 0+70 RIGHT
STA 1+44 LEFT
STA 1+47 RIGHT
STA 1+96 RIGHT
STA 1+97 LEFT



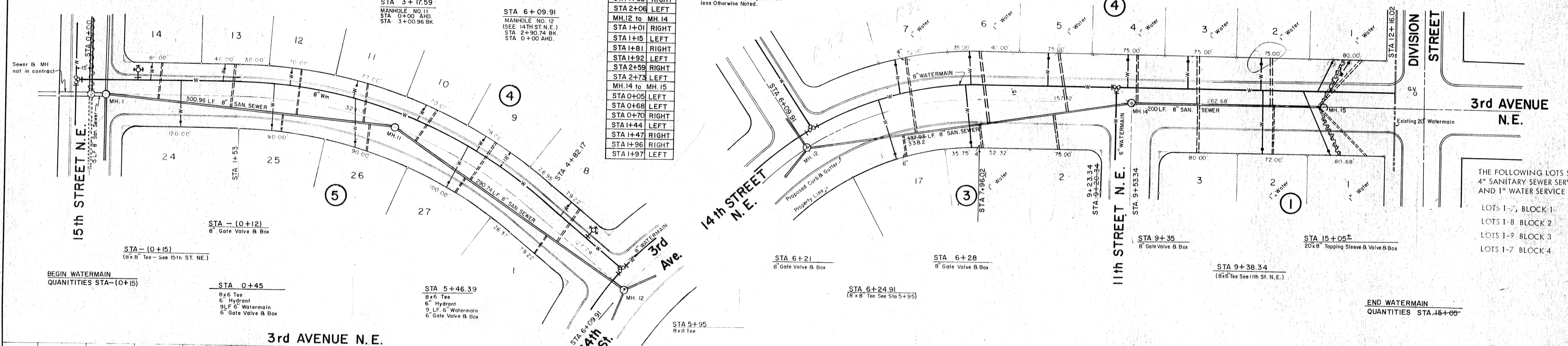
NOTE: Water Service Lines Are To Be Located 10' From Sewer Service Lines At The Property Line Unless Otherwise Noted.

STA 9+53.34
 MANHOLE NO. 14
 STA 0+00 AHD.
 STA 3+37.95 BK.
 (SEE 11th ST. N.E.)

HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'
 DATE: JULY, 1977

STA 11+53.34
 MANHOLE NO. 15
 STA 2+00 BK.

END SAN. SEWER
 QUANTITIES STA 11+75



BEGIN WATERMAIN
 QUANTITIES STA-(0+15)

STA 0+45
 8x6 Tee
 6 Hydrant
 9 LF 6" Watermain
 6 Gate Valve & Box

STA 5+46.39
 8x6 Tee
 6 Hydrant
 9 LF 6" Watermain
 6 Gate Valve & Box

STA 6+21
 8 Gate Valve & Box

STA 6+28
 8 Gate Valve & Box

STA 6+24.91
 (8 x 8 Tee See Sta 5+95)

STA 9+35
 8 Gate Valve & Box

STA 15+05±
 20x8 Tapping Sleeve & Valve & Box

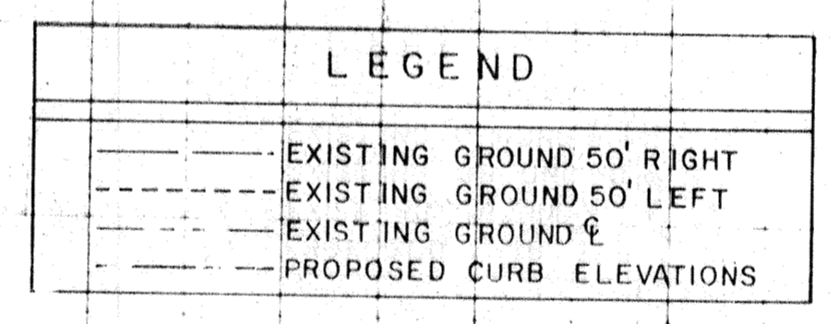
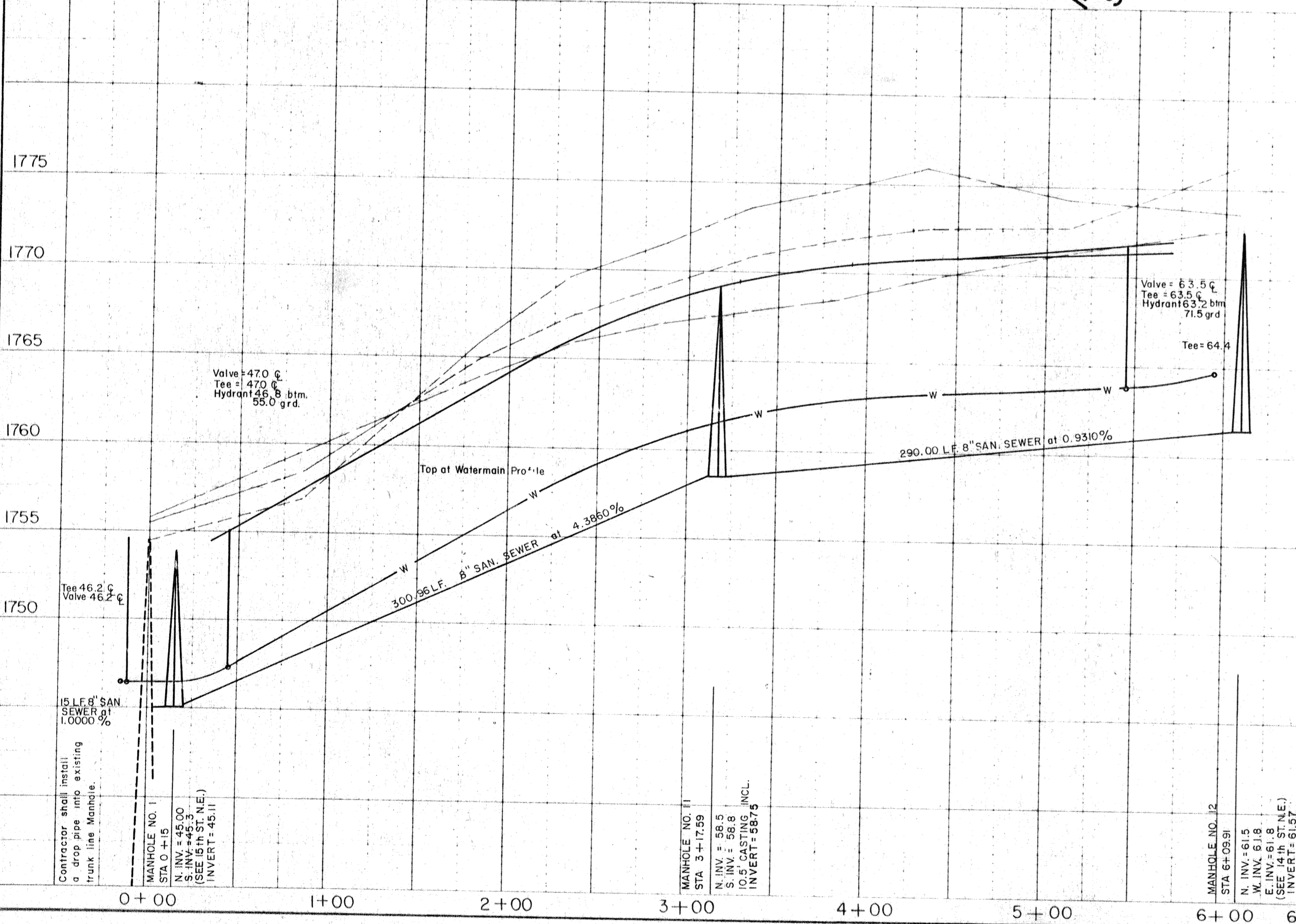
STA 9+38.34
 (8x6 Tee See 11th St. N.E.)

END WATERMAIN
 QUANTITIES STA-15+05

THE FOLLOWING LOTS SHALL HAVE
 4" SANITARY SEWER SERVICE LINES
 AND 1" WATER SERVICE LINES:

LOTS 1-7, BLOCK 1
 LOTS 1-8, BLOCK 2
 LOTS 1-9, BLOCK 3
 LOTS 1-7, BLOCK 4

PROFILE
 NOTE BOOK
 No.



Valve = 63.5 G
 Tee = 63.5 G
 Hydrant = 63.5 G
 71.5 grd

Tees = 64.4

Valve = 47.0 G
 Tee = 47.0 G
 Hydrant = 45.8 blm
 55.0 grd

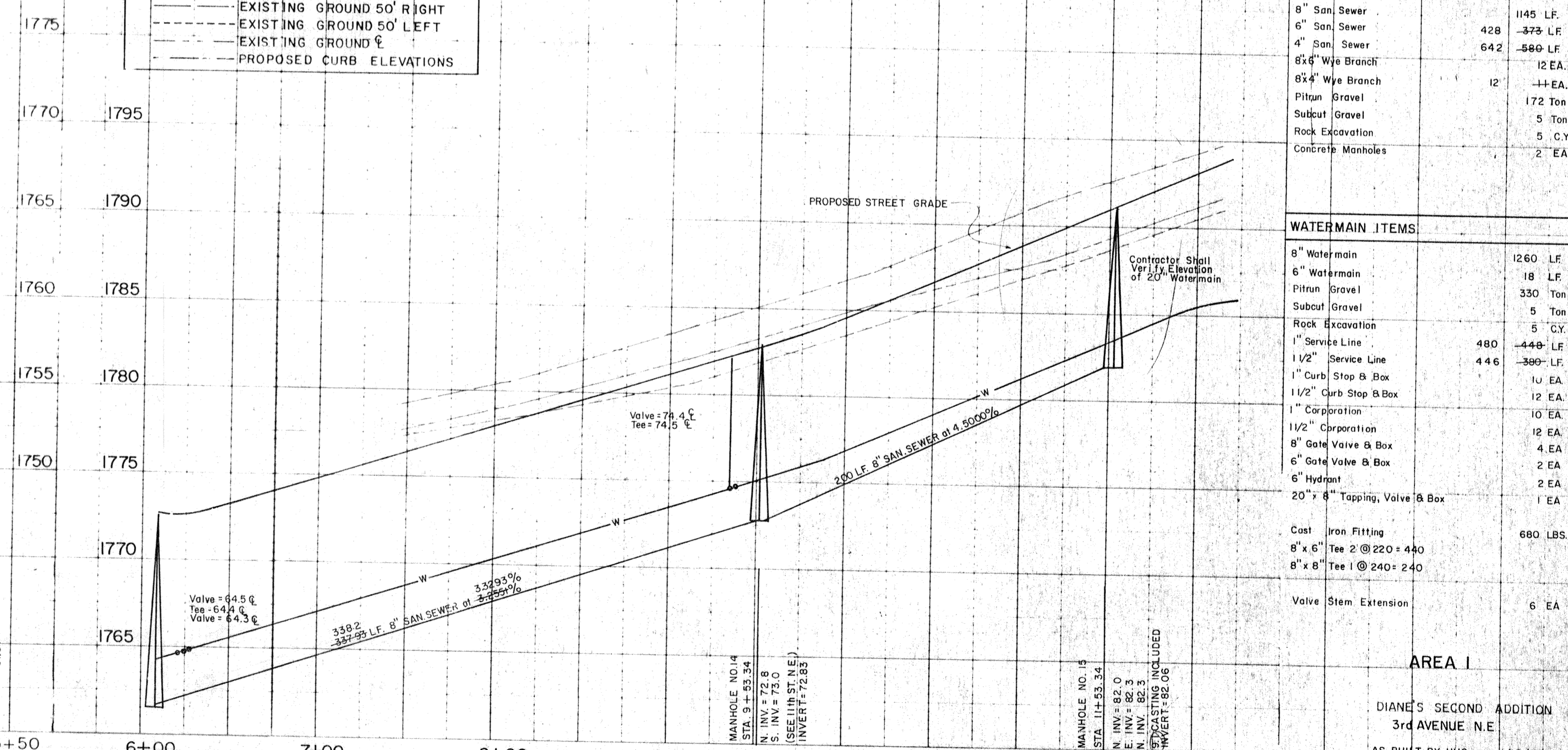
Top of Watermain Profile

290.00 LF 8" SAN. SEWER at 0.9310%

300.96 LF 8" SAN. SEWER at 4.3860%

MANHOLE NO. 11
 STA 3+17.59
 N. INV. = 58.5
 S. INV. = 58.5
 (SEE 15th ST. N.E.)
 INVERT = 58.5

MANHOLE NO. 12
 STA 6+09.91
 N. INV. = 61.5
 S. INV. = 61.5
 (SEE 14th ST. N.E.)
 INVERT = 61.5



PROPOSED STREET GRADE

Valve = 78.4 C
 Tee = 74.5 E

MANHOLE NO. 14
 STA 9+53.34
 N. INV. = 72.8
 S. INV. = 73.0
 (SEE 11th ST. N.E.)
 INVERT = 72.8

MANHOLE NO. 15
 STA 11+53.34
 N. INV. = 80.0
 S. INV. = 80.3
 (SEE 11th ST. N.E.)
 INVERT = 80.0

APPROXIMATE QUANTITIES
 THIS SHEET

SAN. SEWER ITEMS		
8" San Sewer		1145 LF.
6" San Sewer	428	373 LF
4" San Sewer	642	580 LF
6x4" Wye Branch		12 EA.
8x4" Wye Branch	12	14 EA.
Pitrun Gravel		172 Ton
Subcut Gravel		5 Ton
Rock Excavation		5 C.Y.
Concrete Manholes		2 EA.
		1795
WATERMAIN ITEMS		
8" Watermain		1260 LF
6" Watermain		18 LF
Pitrun Gravel		330 Ton
Subcut Gravel		5 Ton
Rock Excavation		5 C.Y.
1" Service Line	480	448 LF
1 1/2" Service Line	446	380 LF
1" Curb Stop & Box		10 EA.
1 1/2" Curb Stop & Box		12 EA.
1" Corporation		10 EA.
1 1/2" Corporation		12 EA.
8" Gate Valve & Box		4 EA.
6" Gate Valve & Box		2 EA.
6" Hydrant		2 EA.
20" x 8" Tapping, Valve & Box		1 EA.
Cost Iron Fitting		680 LBS.
8" x 6" Tee @ 220 = 440		
8" x 8" Tee @ 240 = 240		
Valve Stem Extension		6 EA.
		1770

AREA I

DIANE'S SECOND ADDITION
 3rd AVENUE N.E.

AS-BUILT BY HVC 1/10/79
 SEWER & WATER IMPR. DISTRICT 25
 MANDAN, NORTH DAKOTA

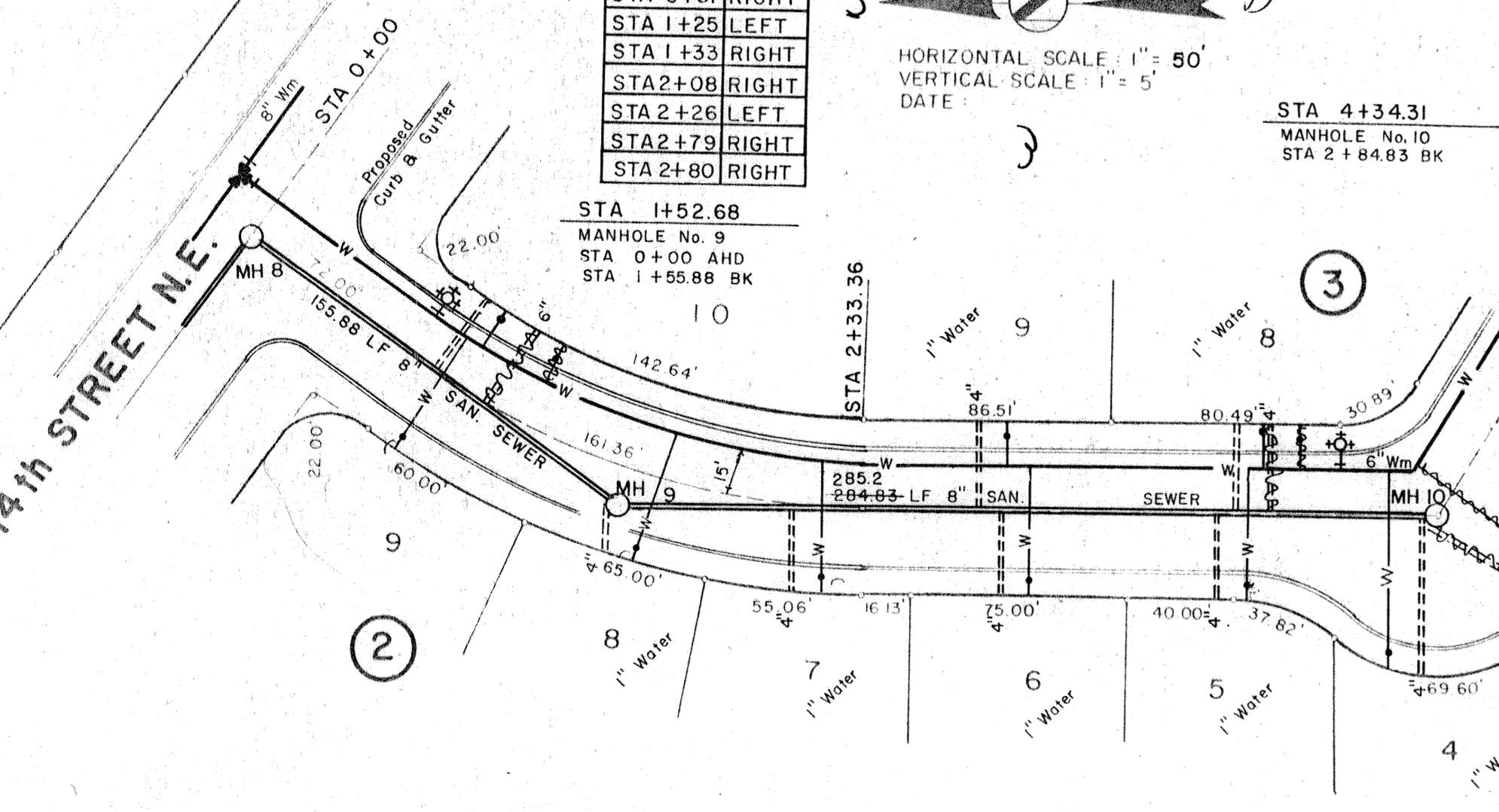
BEGIN SAN SEWER
QUANTITIES STA 0+00

MANHOLE No. 8
STA 0+00 AHD

WYE LOCATIONS

MH 8 to MH 9
STA 0+83 LEFT
STA 1+53 RIGHT
MH 9 to MH 10
STA 0+61 RIGHT
STA 1+25 LEFT
STA 1+33 RIGHT
STA 2+08 RIGHT
STA 2+26 LEFT
STA 2+79 RIGHT
STA 2+80 RIGHT

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'
DATE:



Manhole No. 8
270°
8"

Manhole No. 9
145°
8"

Manhole No. 10
360°
8"

Manhole No. 18
360°
8"

Manhole No. 16
149°
8"

Manhole No. 14
81°
8"

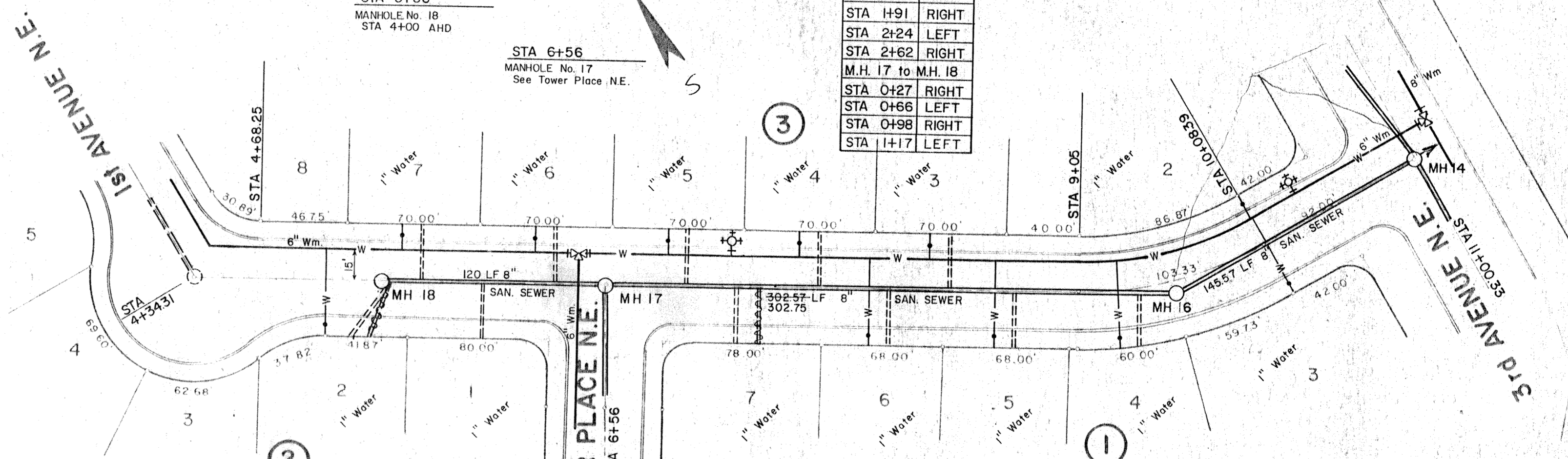
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'
DATE:

WYE LOCATIONS

MH 16 to MH 17
STA 0+20 LEFT
STA 0+87 LEFT
STA 1+22 RIGHT
STA 1+54 LEFT
STA 1+91 RIGHT
STA 2+24 LEFT
STA 2+62 RIGHT
M.H. 17 to M.H. 18
STA 0+27 RIGHT
STA 0+66 LEFT
STA 0+98 RIGHT
STA 1+17 LEFT

STA 9+56.67
MANHOLE No. 16
STA 0+00 BK
STA 1+46.57 AHD

END SAN SEWER
QUANTITIES STA 11+00.33



BEGIN WATERMAIN
QUANTITIES STA -(0+15)

STA -(0+12)
6" Gate Valve & Box

STA 0+72
6" Hydrant
6"x6" Tee
6" Gate Valve & Box
6 LF 6" Watermain

STA 4+00
6" Hydrant
6"x6" Tee
6" Gate Valve & Box
6 LF 6" Watermain

STA 4+08.85
6" 1/8 Bend
6" 1/32 Bend

STA 6+38
6" Gate Valve & Box

STA 6+41
6"x6" Tee

STA 6+44
6" Gate Valve & Box

NOTE: Water Service Lines are to be located 10' from Sewer service lines at the property line unless otherwise noted.

STA 10+35
6" Hydrant
6"x6" Tee
6" Gate Valve & Box
6 LF 6" Watermain

STA 11+15.33
8"x6" Tee

STA 11+12
6" Gate Valve & Box

LEGEND

- SANITARY SEWER
- WATERMAIN
- MANHOLE
- ⊕ HYDRANT
- ⊕ GATE VALVE
- ⊕ CURB STOP & BOX
- 1" SERVICE LINE
- SEWER SERVICE LINE
- ⊕ TEE

1st AVENUE N.E.

11th STREET N.E.

PLAN

DATE: _____

NO. _____

REVISIONS:

1. _____

2. _____

3. _____

DATE: _____

NO. _____

PROFILE

DATE: _____

NO. _____

REVISIONS:

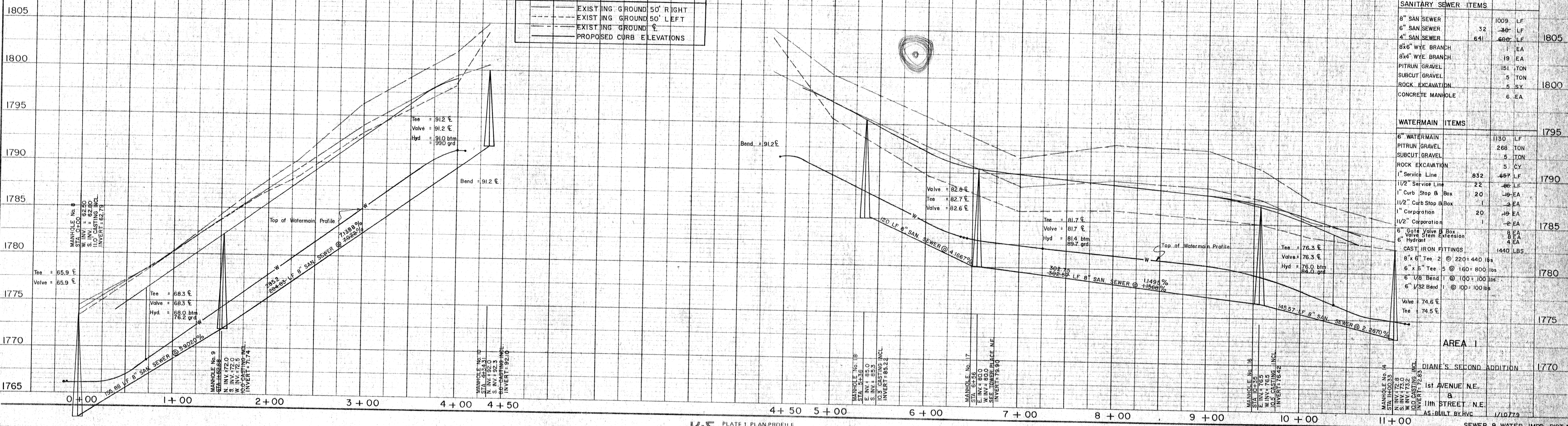
1. _____

2. _____

3. _____

LEGEND

- EXISTING GROUND 50' RIGHT
- EXISTING GROUND 50' LEFT
- EXISTING GROUND
- PROPOSED CURB ELEVATIONS



APPROXIMATE QUANTITIES
THIS SHEET

SANITARY SEWER ITEMS

8" SAN SEWER	1009 LF	1805
6" SAN SEWER	30 LF	
4" SAN SEWER	60 LF	
8x6" WYE BRANCH	1 EA	
8x4" WYE BRANCH	19 EA	
PITRUM GRAVEL	151 TON	
SUBCUT GRAVEL	5 TON	
ROCK EXCAVATION	5 SY	1800
CONCRETE MANHOLE	6 EA	

WATERMAIN ITEMS

6" WATERMAIN	1130 LF	1795
PITRUM GRAVEL	268 TON	
SUBCUT GRAVEL	5 TON	
ROCK EXCAVATION	5 SY	
1" Service Line	832 LF	1790
1/2" Service Line	22 LF	
1" Curb Stop & Box	20	
1/2" Curb Stop & Box	1	
1" Corporation	20	
1/2" Corporation	1	
6" Gate Valve & Box	8 EA	1785
6" Valve Stem Extension	4 EA	
6" Hydrant	4 EA	
CAST IRON FITTINGS	1440 LBS	
8"x6" Tee 2 @ 220 = 440 lbs		
6"x6" Tee 5 @ 160 = 800 lbs		1780
6" 1/8 Bend 1 @ 100 = 100 lbs		
6" 1/32 Bend 1 @ 100 = 100 lbs		
Valve 74.6		1775
Tee 74.5		

AREA I
DIANE'S SECOND ADDITION
1st AVENUE N.E.
8
11th STREET N.E.
AS BUILT BY HVC 1/10/77

DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	

SCALE: 1" = 40' (PLAN)
 1" = 10' (PROFILE)
 408 14th Ave. N.E., Grand Forks, N.D.
 7/10/78
 1:46-77

DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	

DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	

DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	

BEGIN SAN. SEWER
 QUANTITIES STA 0+79.48

STA 0+79.48
 MANHOLE NO. 7
 STA 0+00 AHD

STA 3+17.48
 MANHOLE NO. 8
 (See 1st Ave. N.E.)
 STA 2+38 BK.

STA 4+87.58
 MANHOLE NO. 13
 STA 4+00 AHD

HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'
 DATE: JULY, 1977

MANHOLE NO. 7

MANHOLE NO. 12

STA 8+89.15
 MANHOLE NO. 12
 STA 0+00 AHD
 STA 0+00 BK.

SAN. SEWER
 WYE LOCATIONS

MH 7 to MH 8
STA 1+07 RIGHT
STA 1+59 LEFT
STA 2+22 LEFT
STA 2+25 LEFT
MH 12 to MH 13
STA 0+50 LEFT
STA 1+11 LEFT
STA 1+38 RIGHT
STA 1+88 LEFT
STA 2+08 RIGHT
STA 2+55 LEFT
STA 2+83 RIGHT
STA 3+25 LEFT
STA 3+58 RIGHT
STA 3+96 LEFT
STA 3+97 RIGHT

END SAN. SEWER
 QUANTITIES STA 8+89.15

NOTE: Water Service lines
 are to be located 10' from
 sewer service lines at the
 property line unless other-
 wise noted.

BEGIN WATERMAIN
 QUANTITIES STA-(0+11)

STA-(0+11)
 8" Plug

STA 0+46.76
 18" - 1/4 Bend

STA 0+89
 8" Gate Valve & Box

STA 0+91.48
 18" - 1/4 Bend

STA 0+94.48
 8x8 Tee

STA 0+97
 8" Gate Valve & Box

STA 3+32.48
 (8x6 Tee - See 1st Ave. N.E.)

STA 3+35
 8" Gate Valve & Box

STA 6+47
 8x6 Tee
 6" Hydrant
 6" Gate Valve & Box
 26' LF 6" Watermain

END WATERMAIN
 QUANTITIES 8+89.15

LEGEND

—	SANITARY SEWER
—	WATERMAIN
○	MANHOLE
⊕	HYDRANT
⊕	GATE VALVE
⊕	CURB STOP & BOX
—	1" SERVICE LINE
---	SEWER SERVICE LINE
⊕	TEE

14th STREET N.E.

LEGEND

---	EXISTING GROUND 50' RIGHT
---	EXISTING GROUND 50' LEFT
---	EXISTING GROUND 0'
---	PROPOSED CURB ELEVATIONS

APPROXIMATE QUANTITIES

This Sheet

SANITARY SEWER ITEMS

8" SAN SEWER	638 LF	
6" SAN SEWER	823	260' LF
8x6 WYE BRANCH	15 EA.	1780
PITRUN GRAVEL	98 TON	
SUBCUT GRAVEL	5 TON	
ROCK EXCAVATION	5 C.Y.	1775
CONCRETE MANHOLE	3 EA.	

WATERMAIN ITEMS

18" WATERMAIN D.I.	45 LF	1770
6" WATERMAIN	906 LF	
6" WATERMAIN	26 LF	
PITRUN GRAVEL	255 TON	
SUBCUT GRAVEL	5 TON	
ROCK EXCAVATION	5 C.Y.	1765
1/2" SERVICE LINES	807	1765
1/2" CURB STOP & BOX	16	1765
1/2" CORPORATION	16	1765
8" GATE VALVE & BOX	3 EA.	
6" GATE VALVE & BOX	1 EA.	1760
6" HYDRANT	1 EA.	

CAST IRON FITTING	1746 lbs.
8x6 TEE 1 @ 220 lbs.	
8x8 TEE 1 @ 240 lbs.	
8" PLUG 1 @ 36 lbs.	
18" 1/4 Bend-M-Wj 2 @ 625+1250 lbs	
VALVE STEM EXTENSION	4 EA.

AREA I

DIANE'S SECOND ADDITION
 14th STREET N.E.
 AS-BUILT BY HVC 11/10/78
 SEWER & WATER IMPR. DIST 25
 MANDAN, NORTH DAKOTA

PLAN
 SHEETED BY
 NOTED BY
 DATE
 NO.

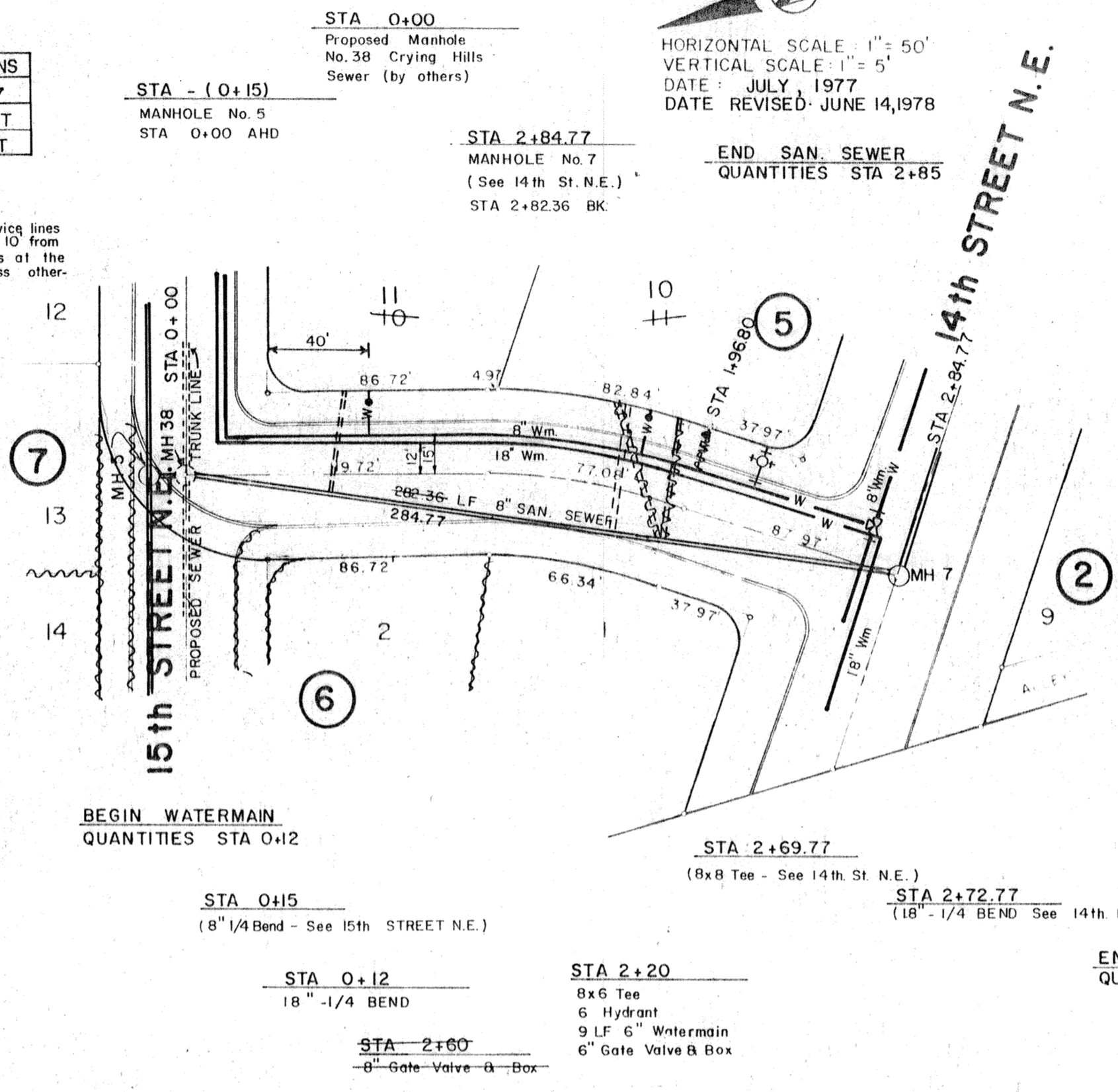
PROFILE
 SHEETED BY
 NOTED BY
 DATE
 NO.

SHANNON'S DRIVE ENGINEERS
 500 South Ave., P.O. Box 118
 Mandan, N.D. 58040
 701-785-2100

BEGIN SAN SEWER
 QUANTITIES STA- (0+15)

SAN SEWER
 WYE LOCATIONS
 MH 38 to MH 7
 STA 0+59 LEFT
 STA 1+90 LEFT
 1+70

NOTE: Water Service lines
 are to be located 10' from
 sewer service lines at the
 property line unless other-
 wise noted.



BEGIN WATERMAIN
 QUANTITIES STA 0+12

STA 0+12
 18" 1/4 BEND
 STA 2+60
 8" Gate Valve & Box

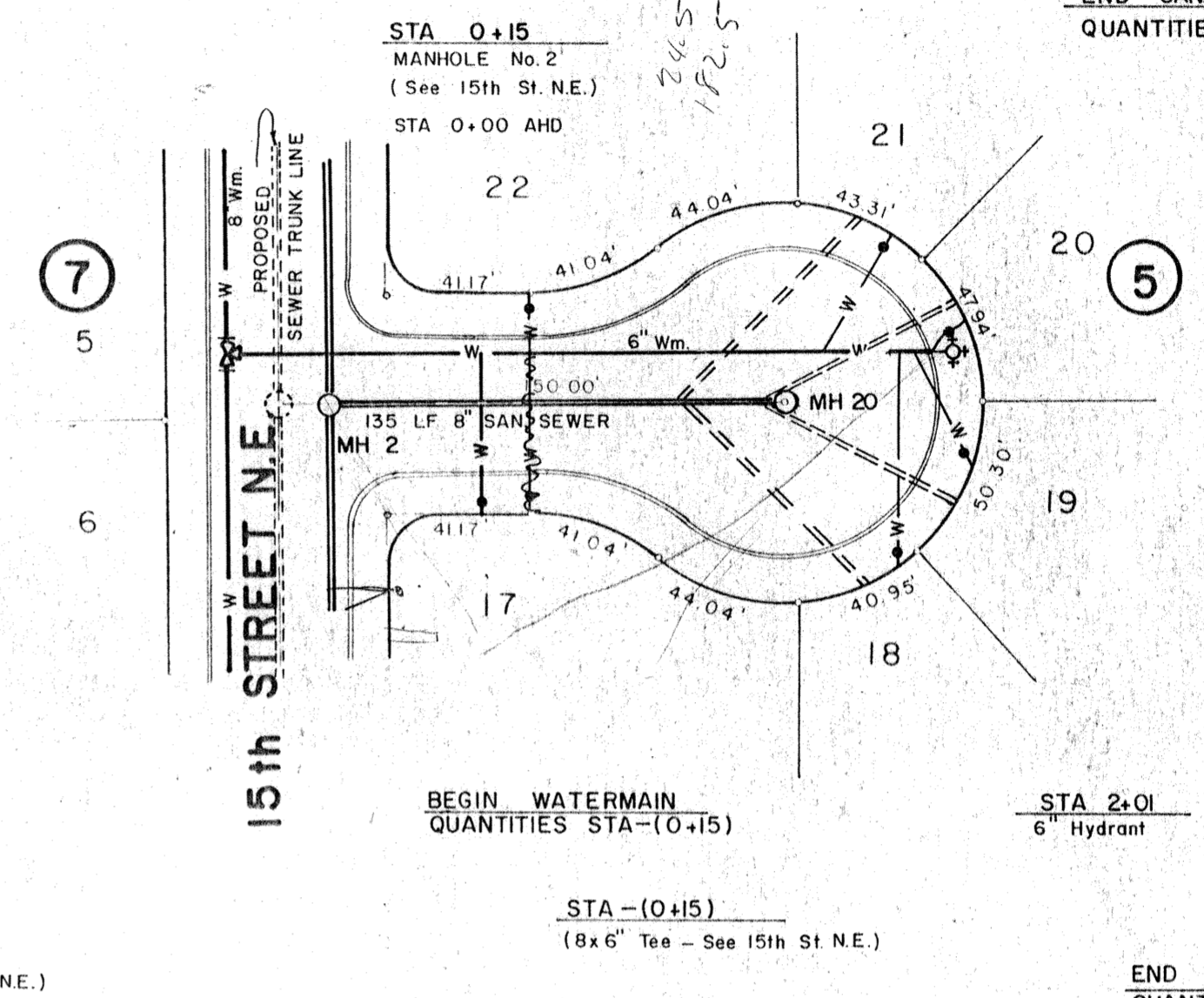
STA 0+15
 8" 1/4 Bend - See 14th St. N.E.)

STA 2+20
 8x6 Tee
 6 Hydrant
 9 LF 6" Watermain
 6" Gate Valve & Box

HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'
 DATE: JULY, 1977
 DATE REVISED: JUNE 14, 1978

END SAN SEWER
 QUANTITIES STA 2+85

BEGIN SAN SEWER
 QUANTITIES STA 0+15



BEGIN WATERMAIN
 QUANTITIES STA-(0+15)

STA -(0+15)
 8x6 Tee - See 15th St. N.E.)

END SAN SEWER
 QUANTITIES STA 2+10

END WATERMAIN
 QUANTITIES STA 2+01

SAN SEWER
 WYE LOCATIONS

MH 2 to MH 20
STA 1+05 LEFT
STA 1+08 RIGHT
STA 1+30 RIGHT
STA 1+31 LEFT

LEGEND

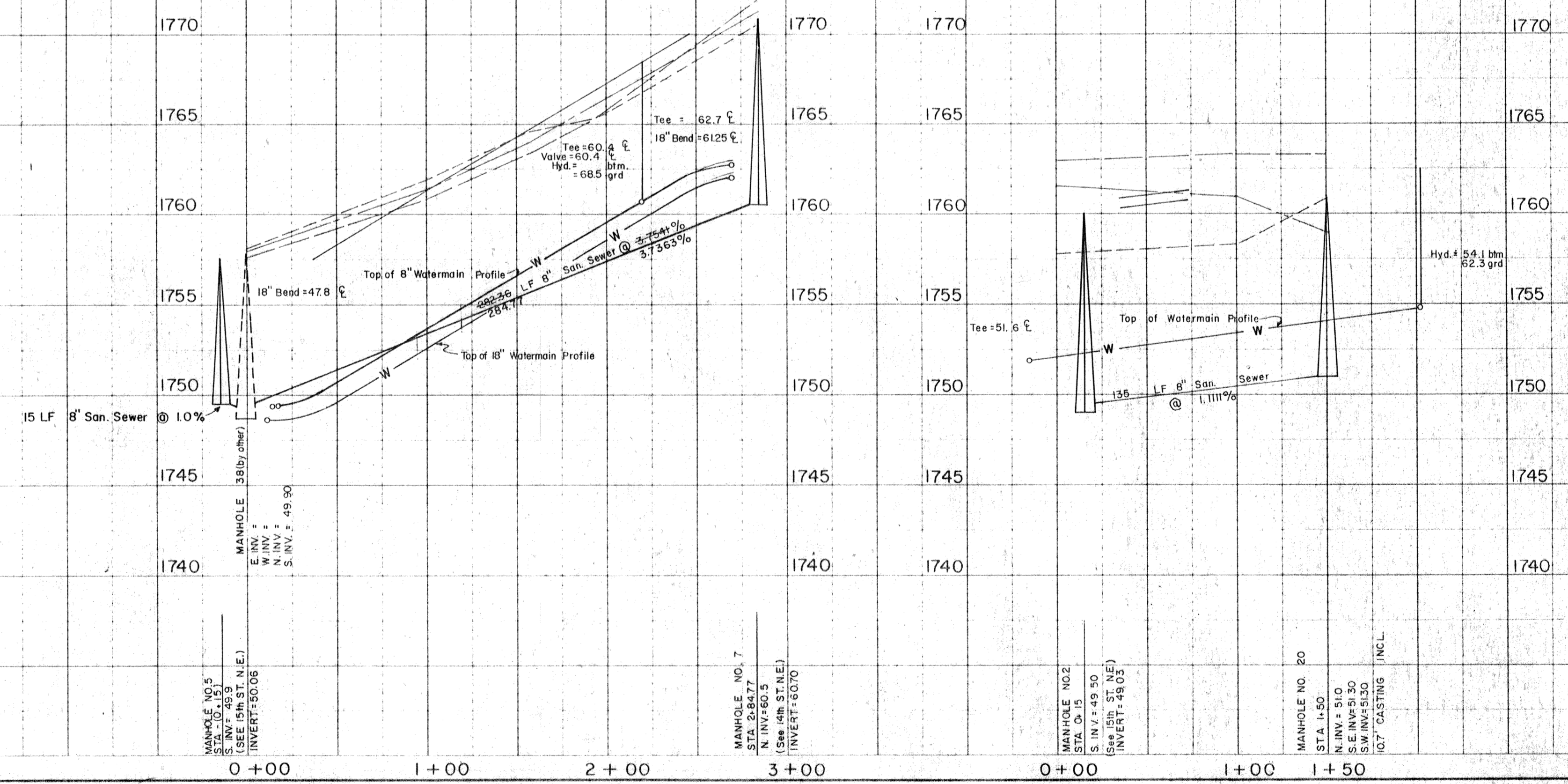
— W —	SANITARY SEWER
— W —	WATERMAIN
○	MANHOLE
+	HYDRANT
+	GATE VALVE
+	CURB STOP & BOX
— W —	1" SERVICE LINE
—	SEWER SERVICE LINE
⊕	TEE

ANN'S PLACE N.E.

SHANNON'S DRIVE N.E.

LEGEND

—	EXISTING GROUND 50' RIGHT
- - -	EXISTING GROUND 50' LEFT
—	EXISTING GROUND
—	PROPOSED CURB ELEVATIONS



APPROXIMATE QUANTITIES
 This Sheet

SANITARY SEWER ITEMS

8" San. Sewer	432 LF
6" San. Sewer	370 LF
8x6 Wye Branch	6 EA.
Pitrun Gravel	55 TON
Subcut Gravel	5 TON
Rock Excavation	5 C.Y.
Concrete Manhole	1 EA.

WATERMAIN ITEMS

18" Watermain	265 LF
8" Watermain	260 LF
6" Watermain	225 LF
Pitrun Gravel	226 TON
Subcut Gravel	5 TON
Rock Excavation	5 C.Y.
1/2" Service Line	282 LF
1/2" Curb Stop & Box	8 EA.
1/2" Coporation	8 EA.
8" Gate Valve & Box	1 EA.
6" Gate Valve & Box	1 EA.
6" Hydrant	2 EA.
CAST IRON Fitting	845 LBS
8x6 Tee @ 220 lb x 220 lbs	1
18" 1/4 Bend MJ - MJ 1 @ 625 = 625 lbs	1
Valve Stem Extension	1 EA.

AREA 1

DIANE'S SECOND ADDITION
 ANN'S PLACE N.E.
 SHANNON'S DRIVE N.E.
 AS-BUILT BY HVC 1/10/79
 SEWER & WATER IMPR. DIST. 2.5

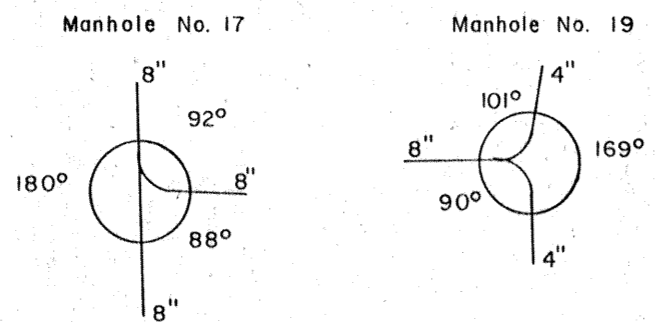
PLAN
 DRAWN BY: []
 CHECKED BY: []
 DATE: []

PROFILE
 DRAWN BY: []
 CHECKED BY: []
 DATE: []

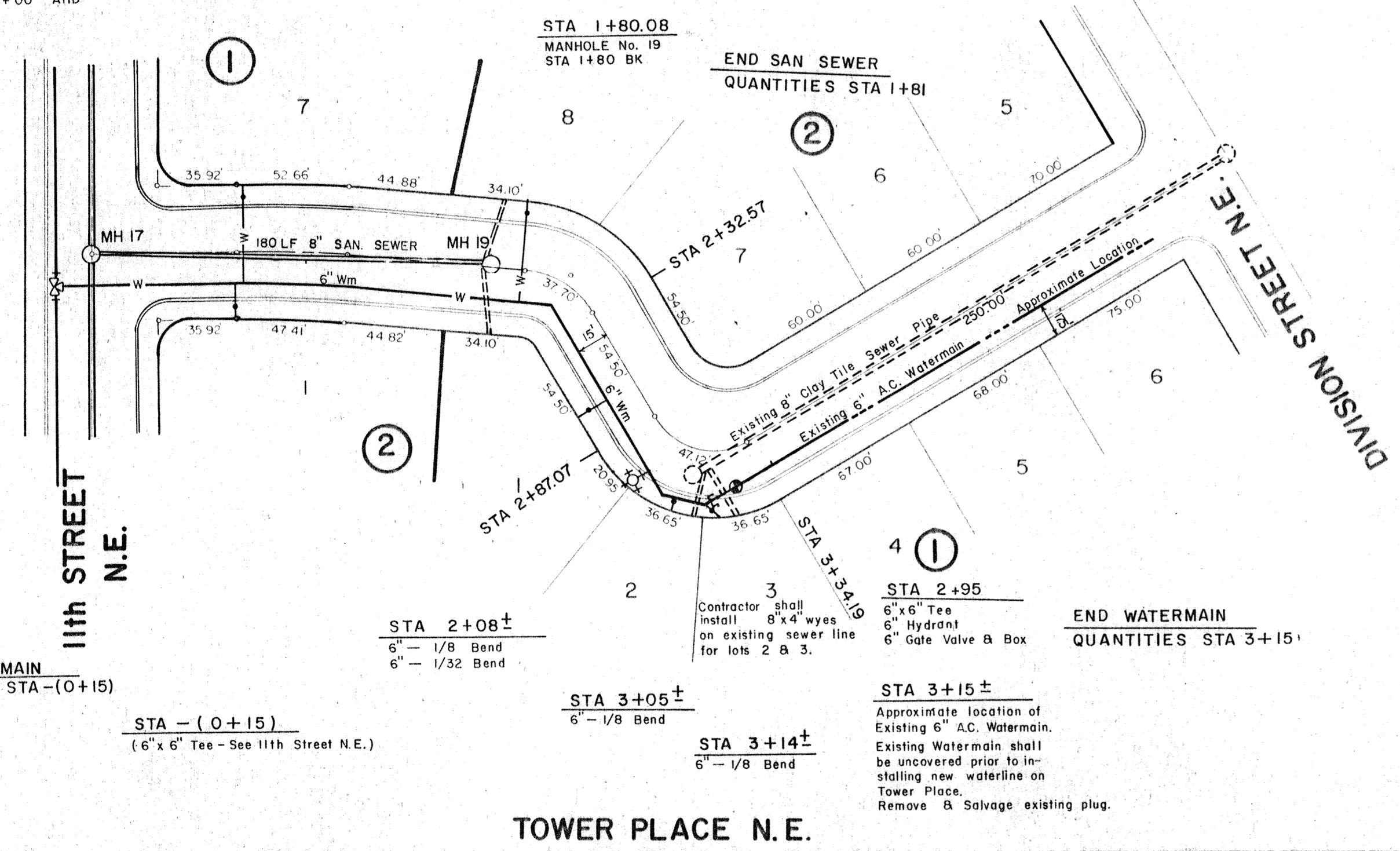
BEGIN SAN SEWER
 QUANTITIES STA 0+00

STA 0+00
 MANHOLE No. 17
 STA 0+00 AHD

HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'
 DATE: JULY, 1977



SAN SEWER
 WYE LOCATIONS
 MH 17 to MH 19
 STA 1+76 LEFT
 STA 1+77 RIGHT



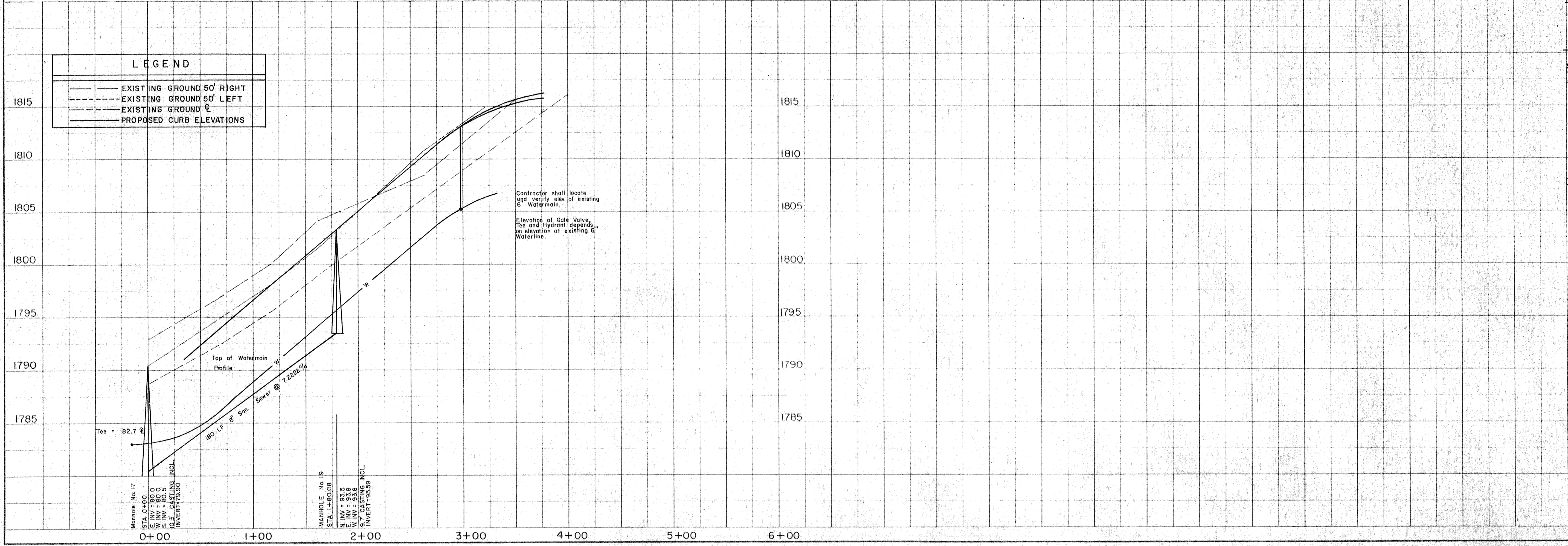
LEGEND

- SANITARY SEWER
- WATERMAIN
- MANHOLE
- ⊕ HYDRANT
- ⊕ GATE VALVE
- ⊕ CURB STOP & BOX
- SERVICE LINE
- SEWER SERVICE LINE
- ⊕ EXISTING GATE VALVE
- ⊕ EXISTING PLUG

TOWER PLACE N.E.

LEGEND

- EXISTING GROUND 50' RIGHT
- EXISTING GROUND 50' LEFT
- EXISTING GROUND
- PROPOSED CURB ELEVATIONS



APPROXIMATE QUANTITIES

SAN. SEWER ITEMS	
6" SAN. SEWER	180 LF
4" SAN. SEWER	117 LF
8" x 4" WYE BRANCH	4 Ea.
PITRUN GRAVEL	27 TON
CONCRETE MANHOLE	2 Ea.

WATERMAIN ITEMS	
6" Watermain	372 LF
PITRUN GRAVEL	88 TON
SUBCUT GRAVEL	5 TON
ROCK EXCAVATION	5 CY
1" Service Line	137 LF
1" Curb Stop & Box	6 Ea.
1" Corporation	6 Ea.
6" Gate Valve & Box	1 Ea.
6" Hydrant	1 Ea.
CAST IRON FITTINGS	560 lbs
6" x 6" Tee 1 @ 160 = 160 lbs	
6" 1/8 Bend 3 @ 100 = 300 lbs	
6" 1/32 Bend 1 @ 100 = 100 lbs	
Valve Stem Extension	1 Ea.

AREA I

DIANE'S SECOND ADDITION
 TOWER PLACE N.E.
 AS-BUILT BY HVC 1/10/79

SEWER & WATER IMPR. DIST. No. 25
 MANDAN, NORTH DAKOTA

BEGIN SAN SEWER
QUANTITIES 1+89.49

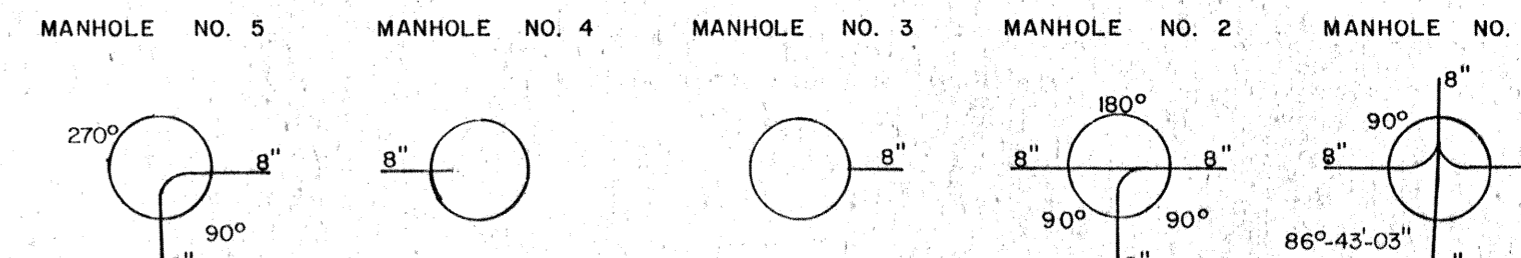
STA 1+89.49
MANHOLE NO. 5
STA 0+00 AHD
STA 0+00 BK

STA 4+89.49
MANHOLE NO. 4
STA 3+00 BK

STA 7+89.72
MANHOLE NO. 2
STA 3+09 AHD
STA 0+00 BK

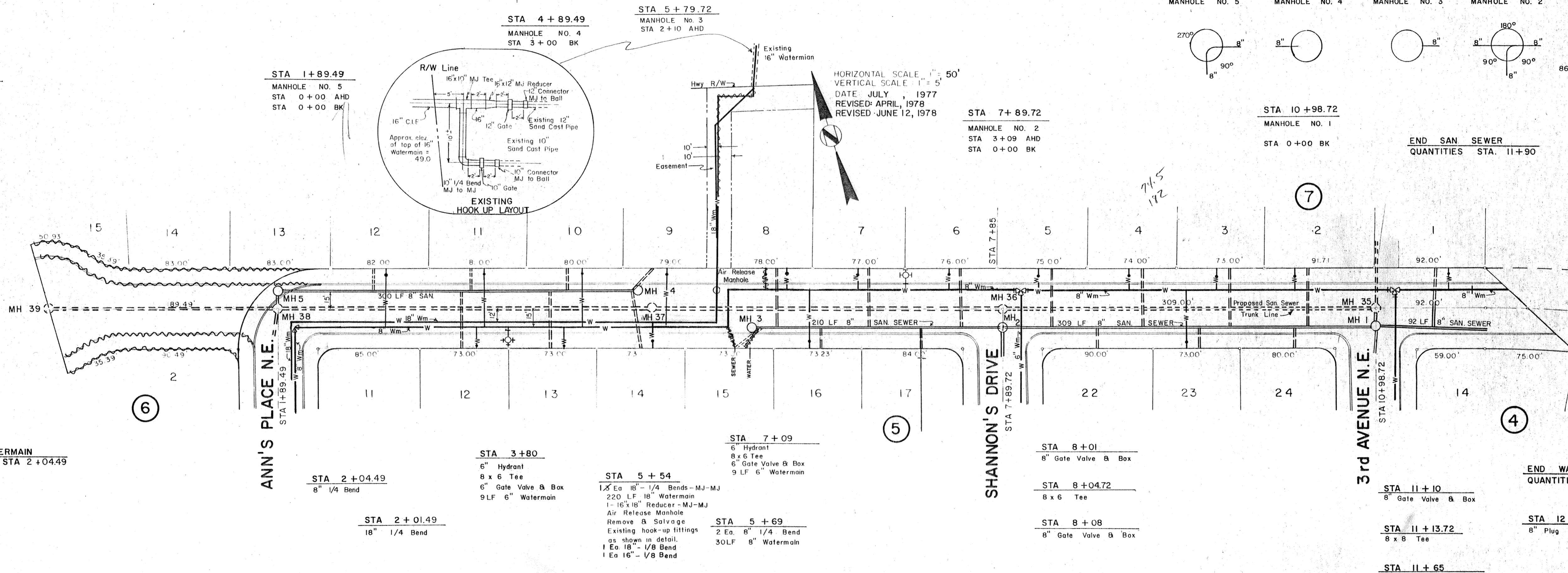
STA 10+98.72
MANHOLE NO. 1
STA 0+00 BK

END SAN SEWER
QUANTITIES STA. 11+90



SAN SEWER	
WYE LOCATIONS	
MH 5 to MH 1	
STA 0+80 LEFT	
STA 1+55 RIGHT	
STA 1+62 LEFT	
STA 2+25 RIGHT	
STA 2+40 LEFT	
STA 2+96 RIGHT	
STA 2+97 LEFT	
MH 2 to MH 3	
STA 0+35 RIGHT	
STA 0+69 LEFT	
STA 1+12 RIGHT	
STA 1+52 LEFT	
STA 1+89 RIGHT	
STA 2+07 LEFT	
MH 1 to MH 2	
STA 0+58 RIGHT	
STA 0+69 LEFT	
STA 1+23 RIGHT	
STA 1+48 LEFT	
STA 1+96 RIGHT	
STA 2+34 LEFT	
STA 2+71 RIGHT	
MH 1 to EAST	
STA 0+50 LEFT	

NOTE: Water Service lines are to be located 10' from Sewer Service lines at the property line unless otherwise noted.



BEGIN WATERMAIN
QUANTITIES STA 2+04.49

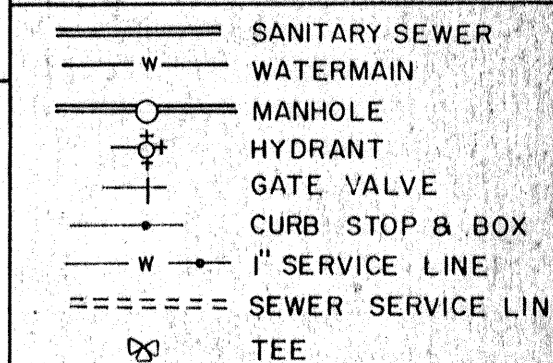
ANN'S PLACE N.E.
STA 1+89.49

SHANNON'S DRIVE
STA 7+89.72

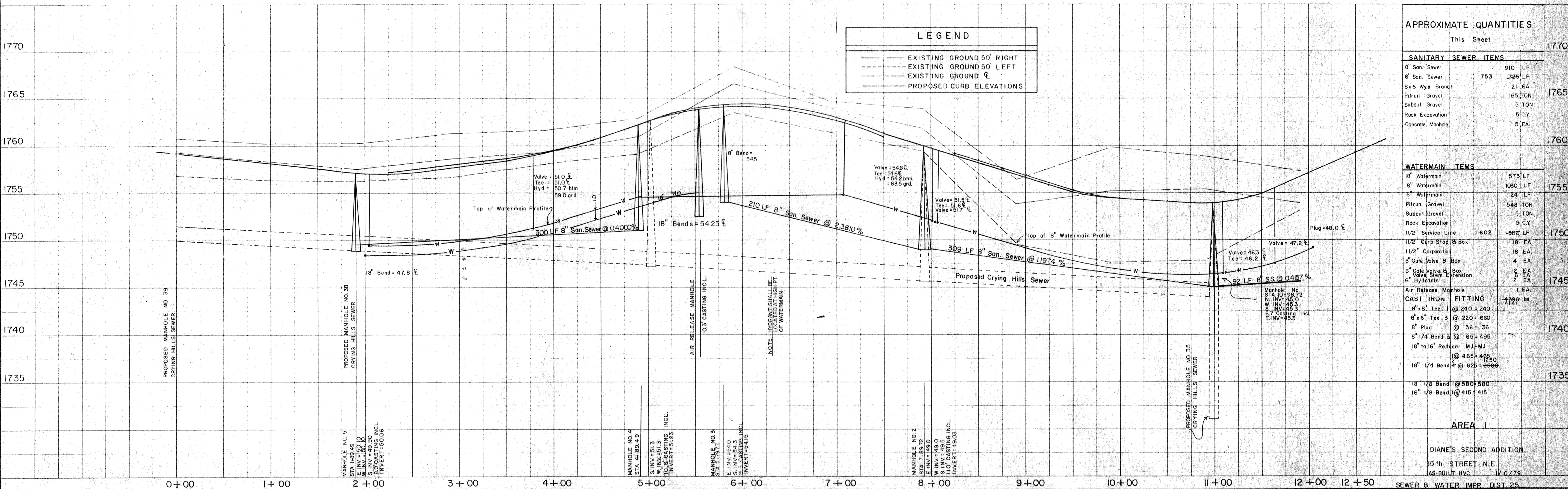
3rd AVENUE N.E.
STA 10+98.72

END WATERMAIN
QUANTITIES STA. 12+05

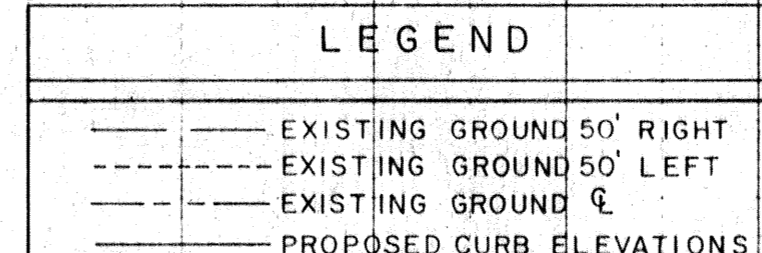
LEGEND



15th STREET N.E.



LEGEND



APPROXIMATE QUANTITIES

This Sheet		1770
SANITARY SEWER ITEMS		
8" San. Sewer	910 LF	
6" San. Sewer	753 LF	
8x6 Wye Branch	21 EA	
Pitrun Gravel	165 TON	
Subcut Gravel	5 TON	
Rock Excavation	5 C.Y.	
Concrete Manhole	5 EA	
WATERMAIN ITEMS		
18" Watermain	575 LF	
8" Watermain	1030 LF	
6" Watermain	24 LF	
Pitrun Gravel	548 TON	
Subcut Gravel	5 TON	
Rock Excavation	5 C.Y.	
1 1/2" Service Line	602 LF	
1 1/2" Curb Stop & Box	18 EA	
1 1/2" Corporation	18 EA	
8" Gate Valve & Box	4 EA	
6" Gate Valve & Box	2 EA	
Valve Stem Extension	2 EA	
6" Hydrants	2 EA	
Air Release Manhole	1 EA	
CAST IRON FITTING	4120 lbs	
8"x8" Tee 1 @ 240 = 240		
8"x6" Tee 3 @ 220 = 660		
8" Plug 1 @ 36 = 36		
8" 1/4 Bend 3 @ 165 = 495		
18" to 16" Reducer MJ-MJ @ 465 = 465		
18" 1/4 Bend 4 @ 625 = 2500		
18" 1/8 Bend 1 @ 580 = 580		
16" 1/8 Bend @ 415 = 415		

AREA I

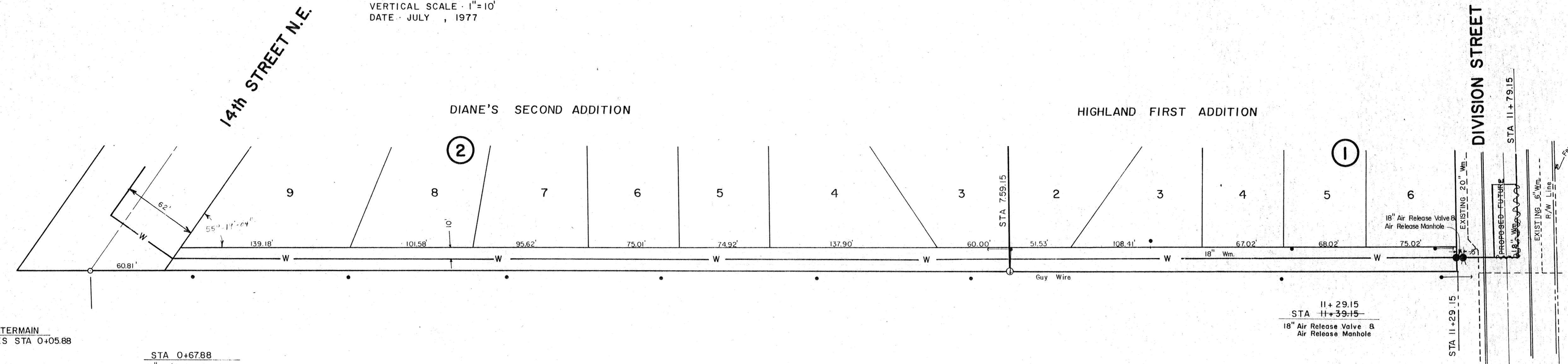
DIANE'S SECOND ADDITION
15th STREET N.E.
AS-BUILT HVC 11/10/79
SEWER & WATER IMPR. DIST. 25
MANDAN, NORTH DAKOTA

PLAN
 NOTE BOOK
 No.

PROFILE
 NOTE BOOK
 No.

- NOTES:
- Contractor shall connect proposed 18" watermain to existing watermain within reservoir area. Connection shall be made according to the City Engineer's direction. Payment shall be by the unit price bid for 18" watermain and cast iron fittings.
 - Contractor shall be responsible for seeding and fertilizing all non-paved areas on this sheet. Seeding shall be Class II.
 - Removal and replacement of fence and guy wire shall be considered incidental to other items.

HORIZONTAL SCALE - 1" = 50'
 VERTICAL SCALE - 1" = 10'
 DATE - JULY, 1977



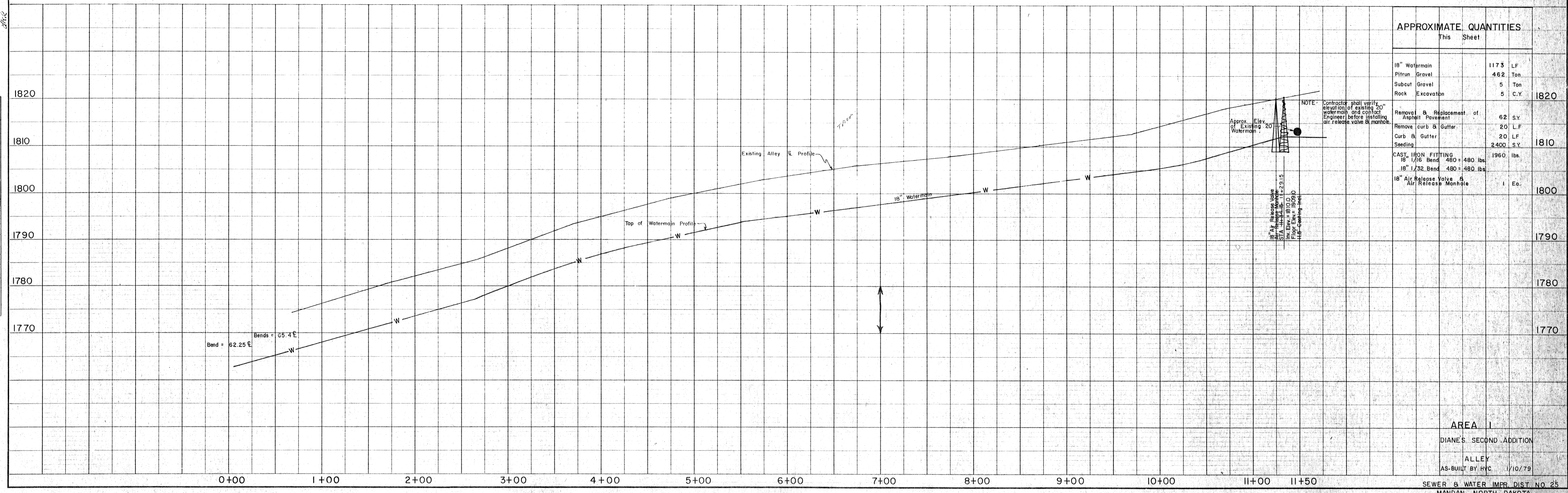
BEGIN WATERMAIN QUANTITIES STA 0+05.88

STA 0+05.88
 (18" - 1/4 Bend - See 14th ST.)

STA 0+67.88
 18" - 1/16 Bend - All MJ
 18" - 1/32 Bend - All MJ

STA 11+29.15
 STA 11+39.15
 18" Air Release Valve & Air Release Manhole

END WATERMAIN QUANTITIES AT STA 11+79.15



APPROXIMATE QUANTITIES

This Sheet		
18" Watermain	1173 LF	
Pitrun Gravel	462 Ton	
Subcut Gravel	5 Ton	
Rock Excavation	5 C.Y.	1820
Removal & Replacement of Asphalt Pavement	62 S.Y.	
Remove curb & Gutter	20 LF	1810
Seeding	2400 S.Y.	
CAST IRON FITTING 18" 1/16 Bend	480 = 480 lbs	1960 lbs
18" 1/32 Bend	480 = 480 lbs	
18" Air Release Valve & Air Release Manhole	1 Ea.	1800

NOTE: Contractor shall verify elevation of existing 20" watermain and contact Engineer before installing air release valve & manhole.

18" Air Release Valve
 Sta 11+39.15
 Int. Elev. = 800.00
 H.P. = 11.50

AREA I
 DIANE'S SECOND ADDITION
 ALLEY
 AS-BUILT BY H.C. 1/10/79

PLAN	DATE
NO.	
BY	
CHECKED	
APPROVED	
DATE	

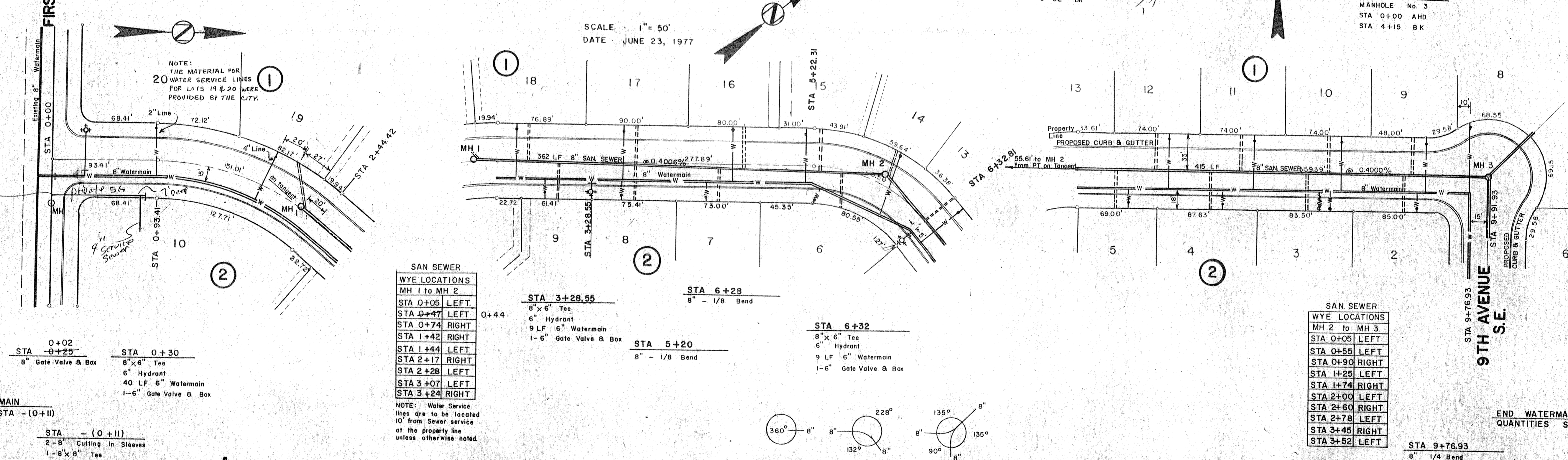
SWENSON, HANSEN & CO., P.C.
CONSULTING ENGINEERS
809 BARRIE AVE., P.O. BOX 1133
BISMARCK, NORTH DAKOTA 58103
PHONE 727-5100
FAX 727-5101
DATE 7-21-77

PROFILE	DATE
NO.	
BY	
CHECKED	
APPROVED	
DATE	

FIRST STREET S.E.

BEGIN SAN SEWER
QUANTITIES STA 1+90

END SAN SEWER
QUANTITIES STA 9+91.93



SAN SEWER

WYE LOCATIONS

MH 1 to MH 2

STA 0+05 LEFT

STA 0+47 LEFT

STA 0+74 RIGHT

STA 1+42 RIGHT

STA 1+44 LEFT

STA 2+17 RIGHT

STA 2+28 LEFT

STA 3+07 LEFT

STA 3+24 RIGHT

SAN SEWER

WYE LOCATIONS

MH 2 to MH 3

STA 0+05 LEFT

STA 0+90 RIGHT

STA 1+25 LEFT

STA 1+74 RIGHT

STA 2+00 LEFT

STA 2+60 RIGHT

STA 2+78 LEFT

STA 3+45 RIGHT

STA 3+52 LEFT

LEGEND

- SANITARY SEWER
- WATERMAIN
- MANHOLE
- HYDRANT
- GATE VALVE
- CURB STOP & BOX
- 1" SERVICE LINE
- SEWER SERVICE LINE

BEGIN WATERMAIN
QUANTITIES STA -(0+11)

STA 0+02
8" Gate Valve & Box

STA 0+25
8" Gate Valve & Box

STA 0+30
8" x 6" Tee
6" Hydrant
40 LF 6" Watermain
1-6" Gate Valve & Box

STA -(0+11)
2-8" Cutting in Sleeves
1-6" x 8" Tee

STA 3+28.55
8" x 6" Tee
6" Hydrant
9 LF 6" Watermain
1-6" Gate Valve & Box

STA 5+20
8" - 1/8 Bend

STA 6+32
8" x 6" Tee
6" Hydrant
9 LF 6" Watermain
1-6" Gate Valve & Box

STA 9+76.93
8" 1/4 Bend

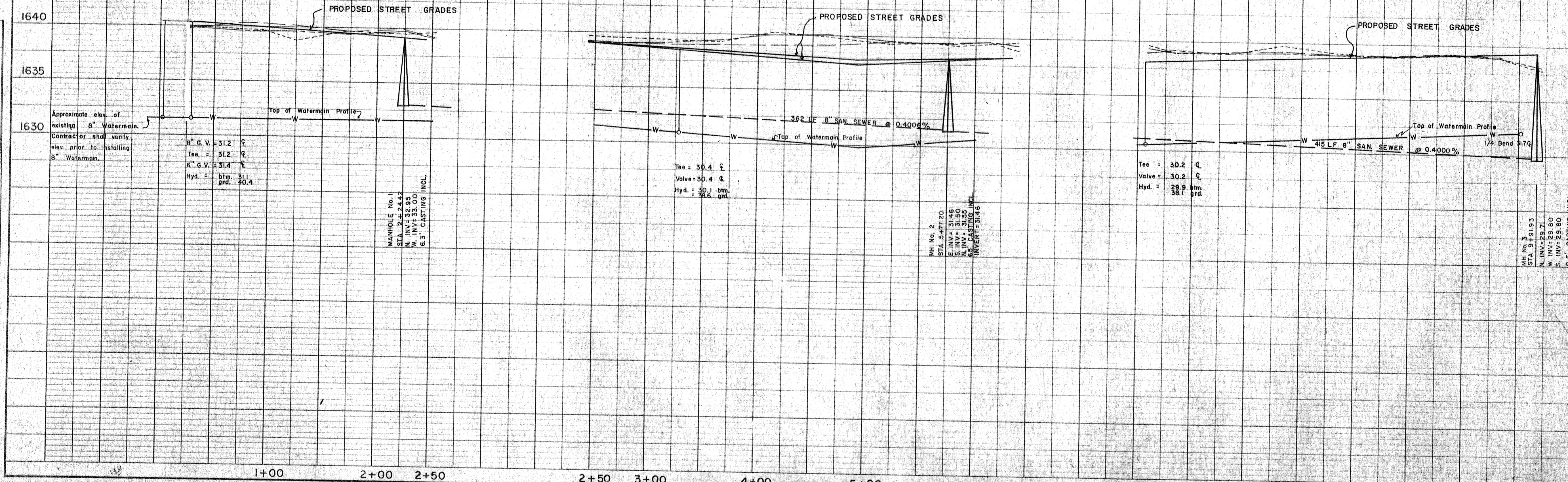
END WATERMAIN
QUANTITIES STA 9+76.93

HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'

ADOBE TRAIL S.E.

ADOBE TRAIL S.E.

ADOBE TRAIL S.E.



APPROXIMATE QUANTITIES
This Sheet

SANITARY SEWER ITEMS	QUANTITIES
6" SAN SEWER PIPE	777 LF
6" SAN SEWER PIPE	630 619' LF
8" x 6" Wye Branch	19 1/4" EA
Pitrun Gravel	296 200 TON
Subcut Gravel	5 TON
Rock Excavation	0 5-CY
Concrete Manhole	3 EA

WATERMAIN ITEMS	QUANTITIES
8" Watermain	970 LF
6" Watermain	58 LF
Pitrun Gravel	400 275 TON
Subcut Gravel	5 TON
Rock Excavation	0 5-CY
1/2" Service Line	700 725 LF
1/2" Curb & Stop Box	19 21 EA
1/2" Corporation	19 21 EA
8" Gate Valve & Box	1 EA
6" Gate Valve & Box	3 EA
6" Hydrant	3 EA
CAST IRON FITTINGS	1575 lbs
8" x 6" Tee - 1 Ea	240 lbs
8" x 6" Tee - 3 Ea	660 lbs
8" Cutting in sleeve	2 Ea = 200 lbs
8" 1/4 Bend - 1 Ea	165 lbs
8" 1/8 Bend - 2 Ea	310 lbs
Removal & Replacement of Asphalt	48 30-SY

AREA 2

HOOVES TOL SUBDIVISION
ADOBE TRAIL S.E.
AS-BUILT BY HVC 1/12/79
SEWER & WATER IMPR. DIST. No. 25
MANDAN, NORTH DAKOTA
SHEET No. 2-1

BEGIN SAN. SEWER
QUANTITIES STA 0+00

END SAN. SEWER
QUANTITIES STA 1+76

BEGIN SAN. SEWER
QUANTITIES STA 9+92

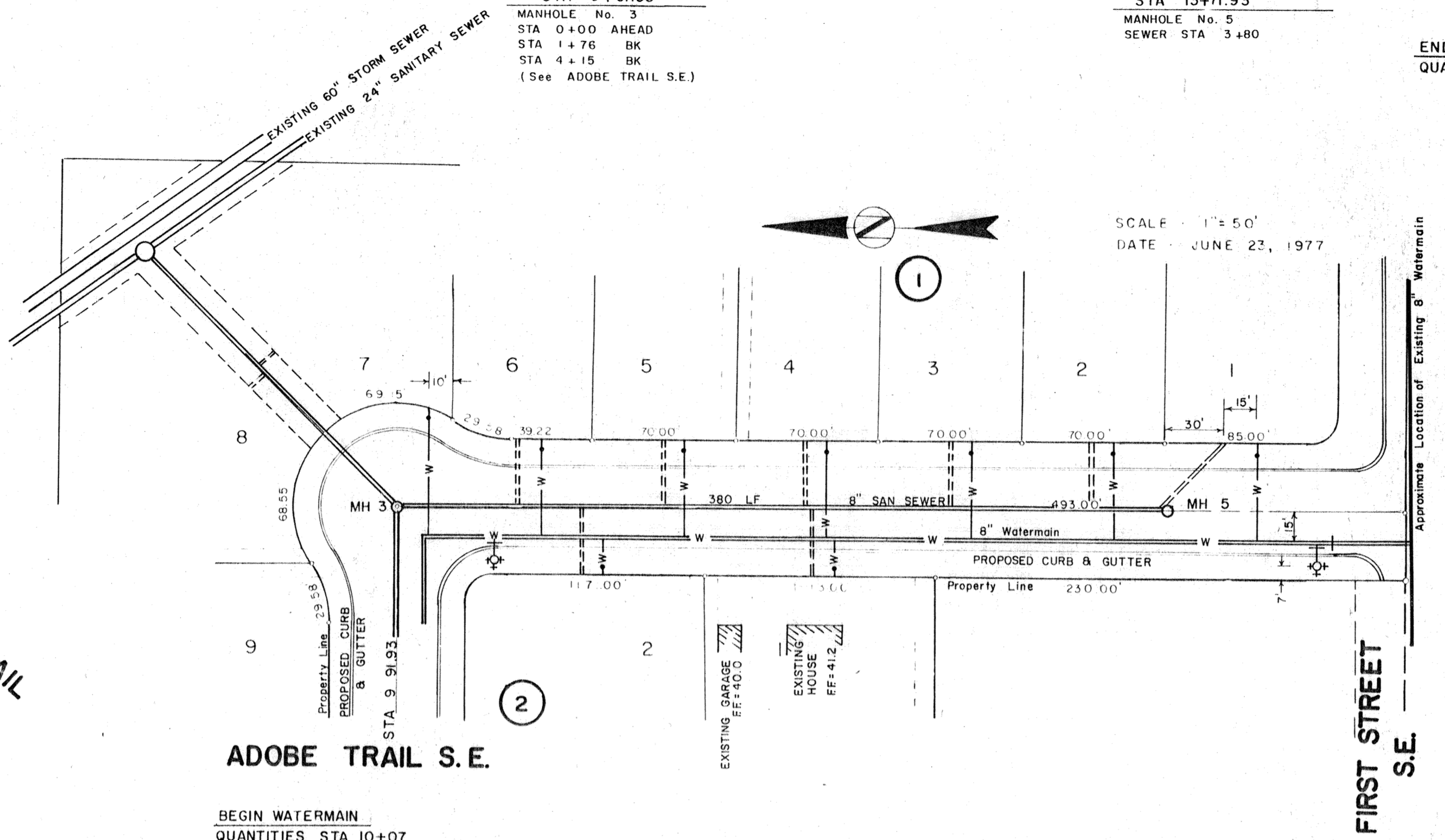
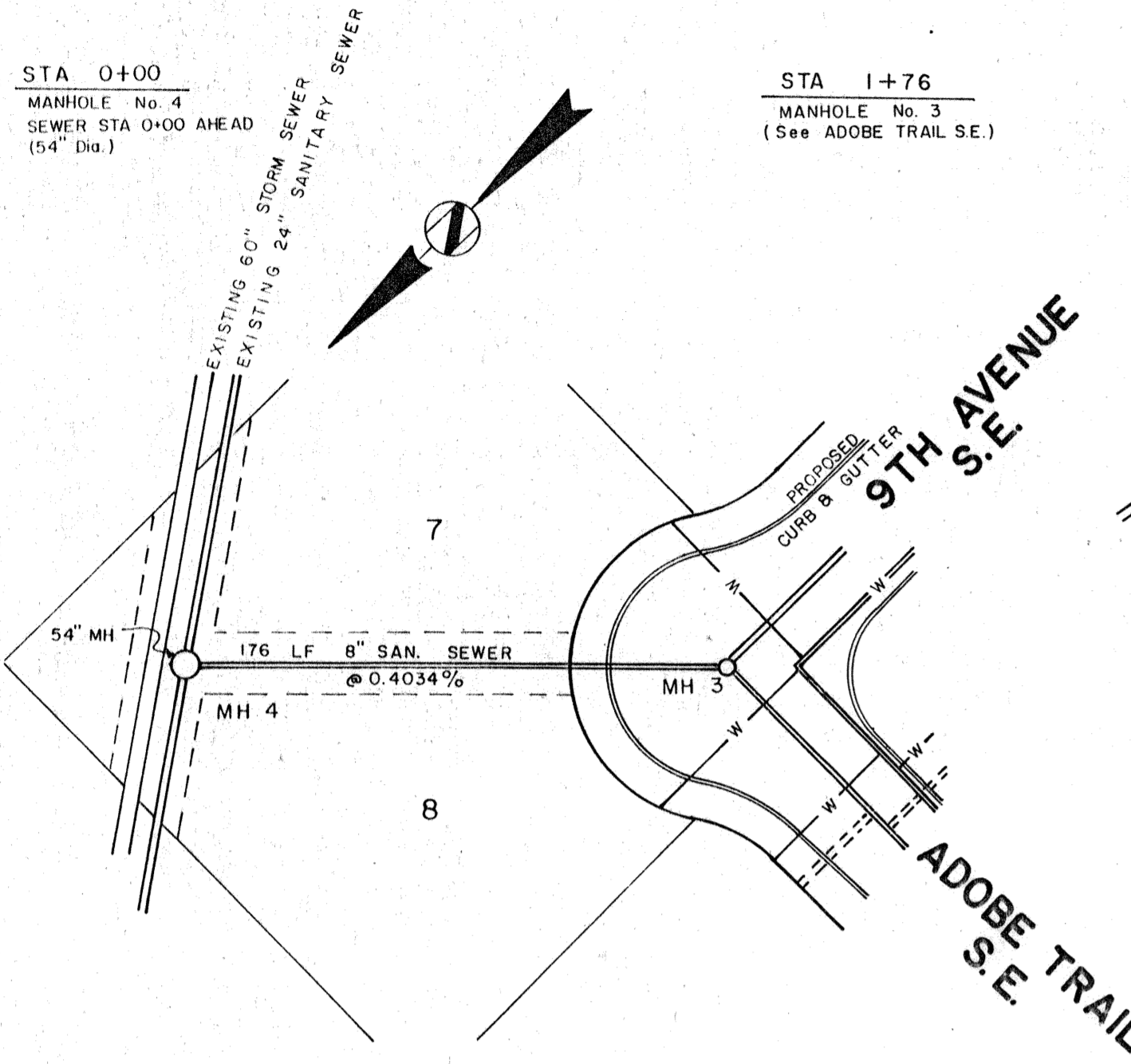
STA 13+71.93
MANHOLE No. 5
SEWER STA 3+80

END SAN. SEWER
QUANTITIES STA 13+97

STA 0+00
MANHOLE No. 4
SEWER STA 0+00 AHEAD
(54" Dia.)

STA 1+76
MANHOLE No. 3
(See ADOBE TRAIL S.E.)

STA 9+91.93
MANHOLE No. 3
STA 0+00 AHEAD
STA 1+76 BK
STA 4+15 BK
(See ADOBE TRAIL S.E.)



LEGEND

- SANITARY SEWER
- WATERMAIN
- MANHOLE
- ⊕ HYDRANT
- ⊕ GATE VALVE
- CURB STOP & BOX
- 1" SERVICE LINE
- ==== SEWER SERVICE LINE

SAN SEWER WYE LOCATIONS

- MH 3 to MH 5
- STA 0+60 LEFT
- STA 0+92 RIGHT
- STA 1+32 LEFT
- STA 2+01 LEFT
- STA 2+05 RIGHT
- STA 2+73 LEFT
- STA 3+43 LEFT
- STA 3+77 LEFT

NOTE: Water Service Lines Are To Be Located 10' From Sewer Service Lines At The Property Line Unless Otherwise Noted.

SAN. SEWER WYE LOCATIONS

- MH 4 to MH 3
- STA 0+80 LEFT
- STA 0+85 RIGHT

BEGIN WATERMAIN
QUANTITIES STA 10+07

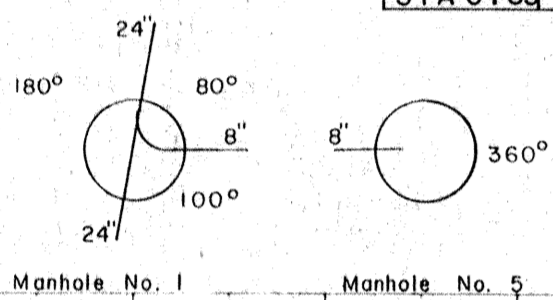
STA 10+40
8" x 6" Tee
6" Hydrant
9 LF 6" Watermain
1-6" Gate Valve & Box

STA 14+40
8" x 6" Tee
6" Hydrant
9 LF 6" Watermain
1-6" Gate Valve & Box

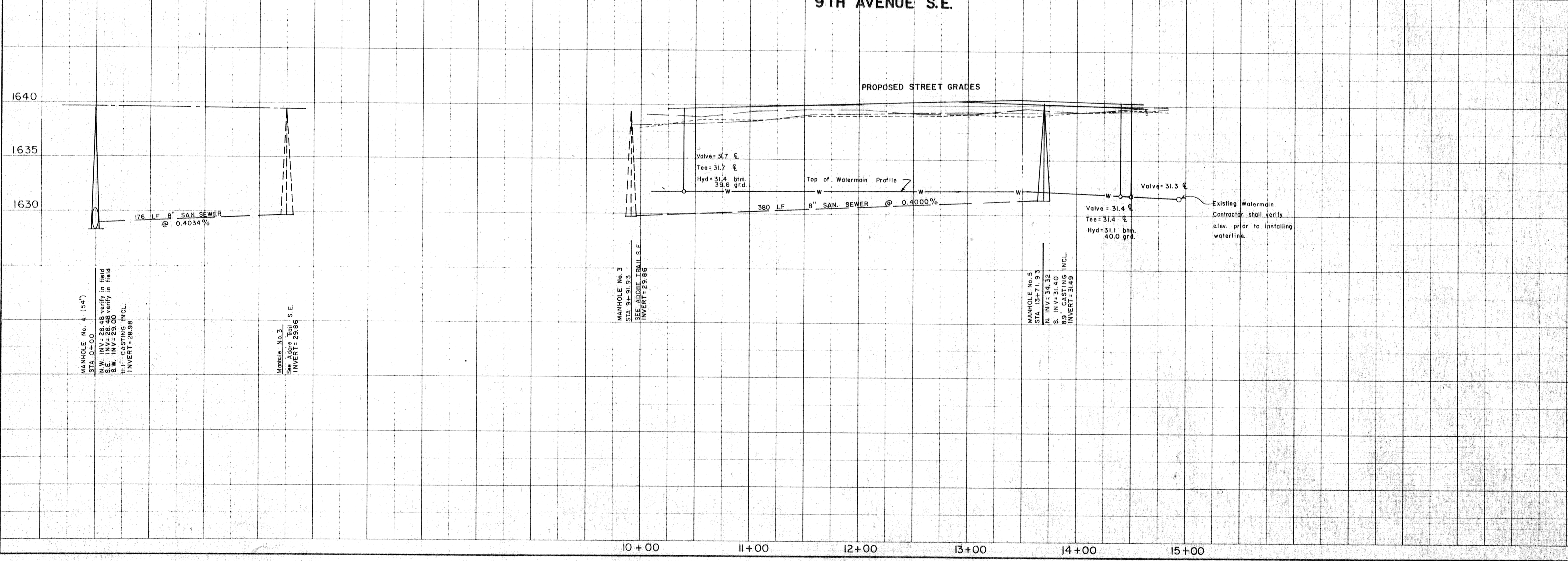
STA 14+50
1-8" Gate Valve & Box

END WATERMAIN
QUANTITIES STA 14+85 ±

STA 14+85 (to be verified in field)
2-8" Cutting in Sleeve
1-8" x 8" Tee



9TH AVENUE S.E.



APPROXIMATE QUANTITIES		
This Sheet		
SANITARY SEWER ITEMS		
8" San. Sewer Pipe	556 LF	
6" San. Sewer Pipe	293.29 LF	
8" x 6" Wye Branch	10 Ea.	
Pitrun Gravel	183.23 TON	1640
Subcut Gravel	5 TON	
Rock Excavation	0.5 CY	
Concrete Manhole (54")	1 Ea.	1635
Concrete Manhole	1 Ea.	
WATERMAIN ITEMS		
8" Watermain	478 LF	
6" Watermain	18 LF	1630
Pitrun Gravel	192.43 TON	
Subcut Gravel	5 TON	
Rock Excavation	0.5 CY	
1 1/2" Service Line	366.37 LF	
1 1/2" Curb & Stop Box	9 Ea.	
8" Gate Valve & Box	1 Ea.	
6" Gate Valve & Box	2 Ea.	
6" Hydrants	2 Ea.	
CAST IRON FITTINGS	300 lbs.	
8" x 8" Tee 1 Ea. at	240 lb. (240 lbs)	
8" x 6" Tee 2 Ea. at	220 lb. (440 lbs)	
8" Cutting in sleeve	2 Ea. at 110 = 220 lbs.	
Removal & Replacement of Asphalt	48.7 SY	
Valve Stem Extension	7 Ea.	

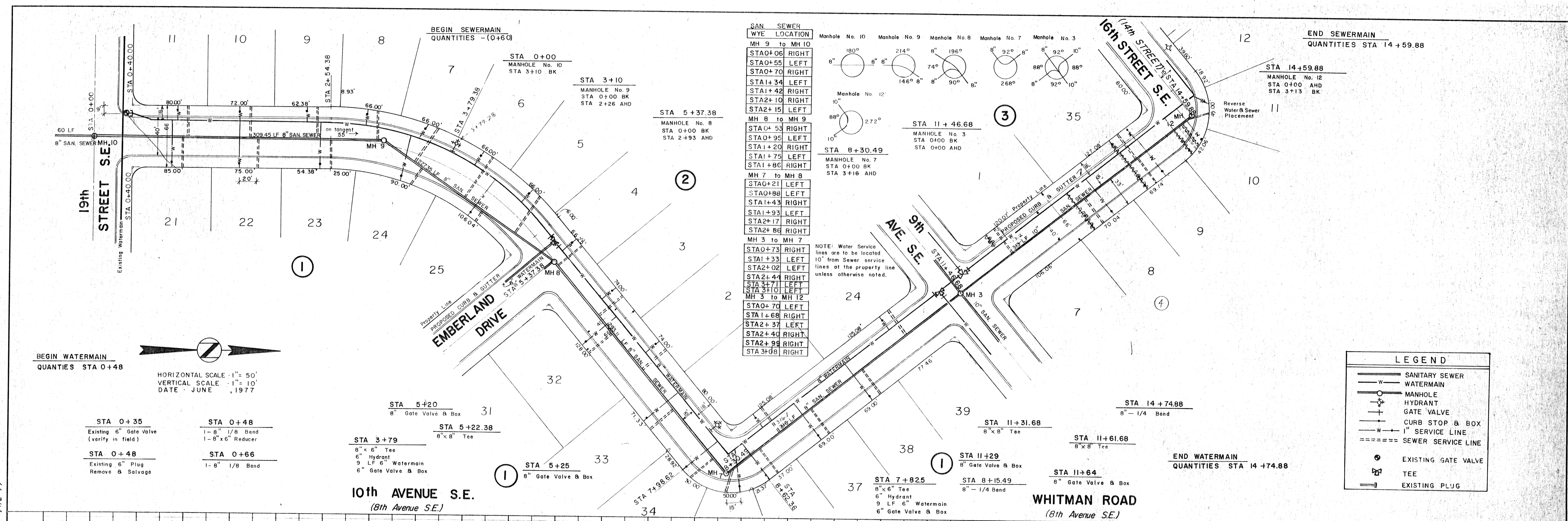
HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'

AREA 2

HOOVESTOL SUBDIVISION
9TH AVENUE S.E.
AS-BUILT BY HVC 1/12/79
SEWER & WATER IMPR. DIST. No. 25
MANDAN, NORTH DAKOTA

DATE: _____
 BY: _____
 CHECKED: _____
 PLAN NOTE BOOK
 NO. _____

DATE: _____
 BY: _____
 CHECKED: _____
 PROFILE NOTE BOOK
 NO. _____

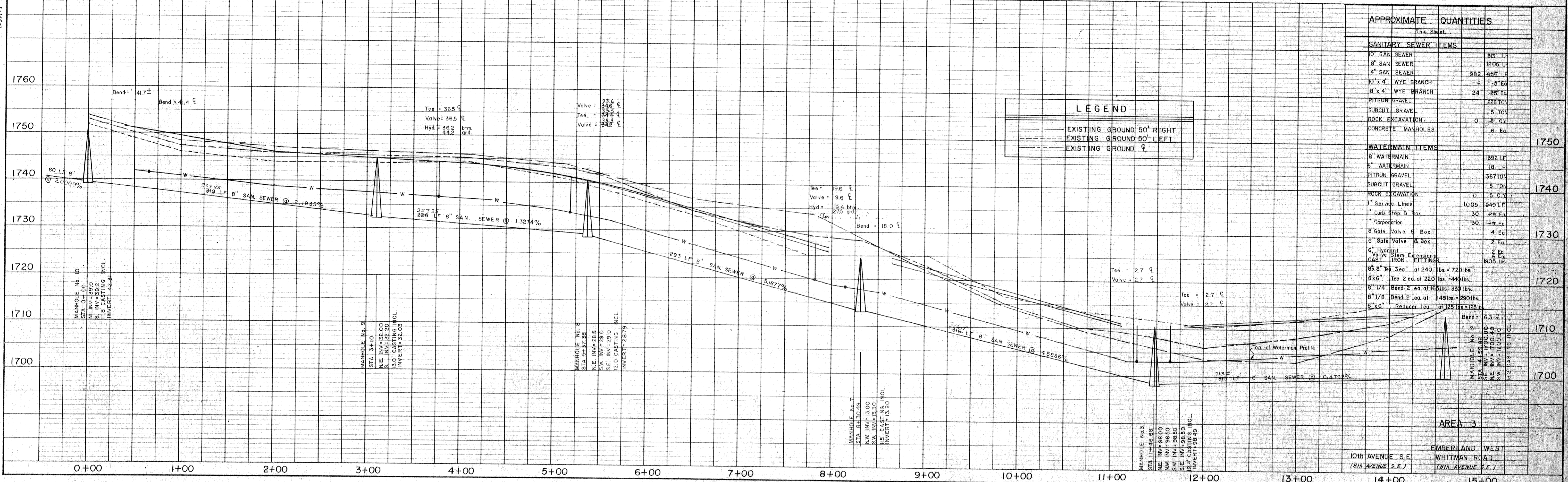


SAN SEWER

WYE LOCATION	MANHOLE No.	MANHOLE No.	MANHOLE No.	MANHOLE No.	MANHOLE No.
MH 9 to MH 10	10	9	8	7	3
STA 0+06 RIGHT					
STA 0+55 LEFT					
STA 0+70 RIGHT					
STA 1+34 LEFT					
STA 1+42 RIGHT					
STA 2+10 RIGHT					
STA 2+15 LEFT					
MH 8 to MH 9					
STA 0+53 RIGHT					
STA 0+95 LEFT					
STA 1+20 RIGHT					
STA 1+75 LEFT					
STA 1+86 RIGHT					
MH 7 to MH 8					
STA 0+21 LEFT					
STA 0+88 LEFT					
STA 1+43 RIGHT					
STA 1+93 LEFT					
STA 2+17 RIGHT					
STA 2+86 RIGHT					
MH 3 to MH 7					
STA 0+73 RIGHT					
STA 1+33 LEFT					
STA 2+02 LEFT					
STA 2+44 RIGHT					
STA 3+11 LEFT					
STA 3+10 LEFT					
MH 3 to MH 12					
STA 0+70 LEFT					
STA 1+68 RIGHT					
STA 2+37 LEFT					
STA 2+40 RIGHT					
STA 2+99 RIGHT					
STA 3+08 RIGHT					

LEGEND

- SANITARY SEWER
- WATERMAIN
- MANHOLE
- ⊕ HYDRANT
- ⊕ GATE VALVE
- ⊕ CURB STOP & BOX
- 1" SERVICE LINE
- SEWER SERVICE LINE
- EXISTING GATE VALVE
- ⊕ TEE
- ⊕ EXISTING PLUG



APPROXIMATE QUANTITIES

This Sheet	
SANITARY SEWER ITEMS	
10" SAN SEWER	315 LF
8" SAN SEWER	1205 LF
4" SAN SEWER	982 LF
10" x 4" WYE BRANCH	6
8" x 4" WYE BRANCH	24
PITRUN GRAVEL	228 TON
SUBCUT GRAVEL	5 TON
ROCK EXCAVATION	0
CONCRETE MANHOLES	6 Ea.
WATERMAIN ITEMS	
8" WATERMAIN	1392 LF
6" WATERMAIN	18 LF
PITRUN GRAVEL	367 TON
SUBCUT GRAVEL	5 TON
ROCK EXCAVATION	0
1" Service Lines	1005
1" Curb Stop & Box	30
1" Corporation	30
8" Gate Valve & Box	4 Ea.
6" Gate Valve & Box	2 Ea.
6" Hydrant	2 Ea.
Valve Stem Extensions	6 Ea.
CAS IRON FITTING	605 Ea.
8" Tee 3 ea. at 240 lbs. = 720 lbs.	
8" Tee 2 ea. at 220 lbs. = 440 lbs.	
8" 1/4 Bend 2 ea. at 165 lbs. = 330 lbs.	
8" 1/8 Bend 2 ea. at 145 lbs. = 290 lbs.	
8" Tee Reducer 1 ea. at 125 lbs. = 125 lbs.	

BEGIN SEWERMAIN
QUANTITIES STA 6+22.78

STA 7+57.78
MANHOLE N° 4
STA 0+00 BK
STA 4+00 AHD

SAN. SEWER
WYE LOCATIONS

MH3 to MH 4
STA 1+37 RIGHT
STA 1+55 LEFT
STA 2+07 RIGHT
STA 2+30 LEFT
STA 2+76 RIGHT
STA 3+05 LEFT
STA 3+46 RIGHT
STA 3+81 LEFT
MH 4 to MH 5
STA 0+12 RIGHT
STA 0+59 LEFT
STA 0+79 RIGHT
STA 1+34 LEFT

STA 11+57.78
MANHOLE N° 3
STA 0+00 BK
STA 3+98.47 AHD
(See WHITMAN ROAD)

SAN. SEWER
WYE LOCATIONS

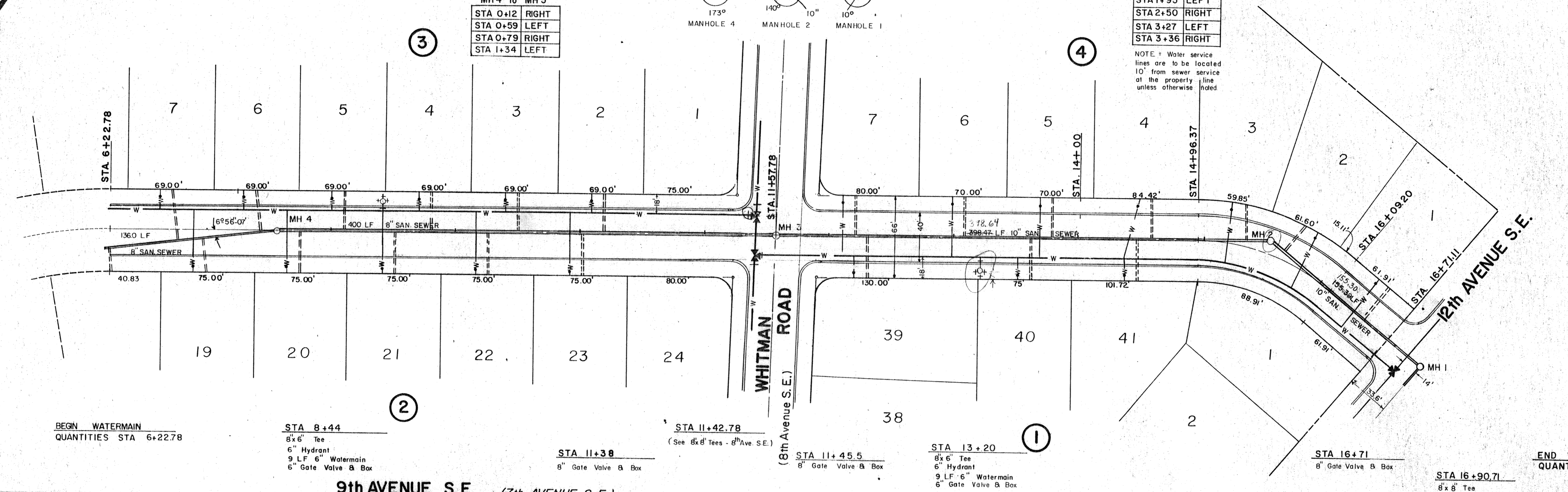
MH 1 to MH 2
STA 0+64 RIGHT
STA 1+47 RIGHT
MH 2 to MH 3
STA 0+24 RIGHT
STA 1+00 RIGHT
STA 1+10 LEFT
STA 1+79 RIGHT
STA 1+95 LEFT
STA 2+50 RIGHT
STA 3+27 LEFT
STA 3+36 RIGHT

STA 15+52.78
MANHOLE N° 2
STA 0+00 BK
STA 1+55.39 AHD

STA 17+04.71
MANHOLE N° 1
STA 0+00 BK

END SEWERMAIN
QUANTITIES STA 17+04.71

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'
DATE: JUNE, 1977



LEGEND

(Symbol)	SANITARY SEWER
(Symbol)	WATERMAIN
(Symbol)	MANHOLE
(Symbol)	HYDRANT
(Symbol)	GATE VALVE
(Symbol)	CURB STOP & BOX
(Symbol)	1" SERVICE LINE
(Symbol)	SEWER SERVICE LINE
(Symbol)	TEE

BEGIN WATERMAIN
QUANTITIES STA 6+22.78

STA 8+44
8" x 6" Tee
6" Hydrant
9" LF 6" Watermain
6" Gate Valve & Box

STA 11+38
8" Gate Valve & Box

STA 11+42.78
(See 8" x 6" Tees - 8th Ave S.E.)

STA 13+20
8" x 6" Tee
6" Hydrant
9" LF 6" Watermain
6" Gate Valve & Box

STA 16+71
8" Gate Valve & Box

STA 16+90.71
8" x 8" Tee

END WATERMAIN
QUANTITIES STA 16+90.71

9th AVENUE S.E. (7th AVENUE S.E.)

PLAN

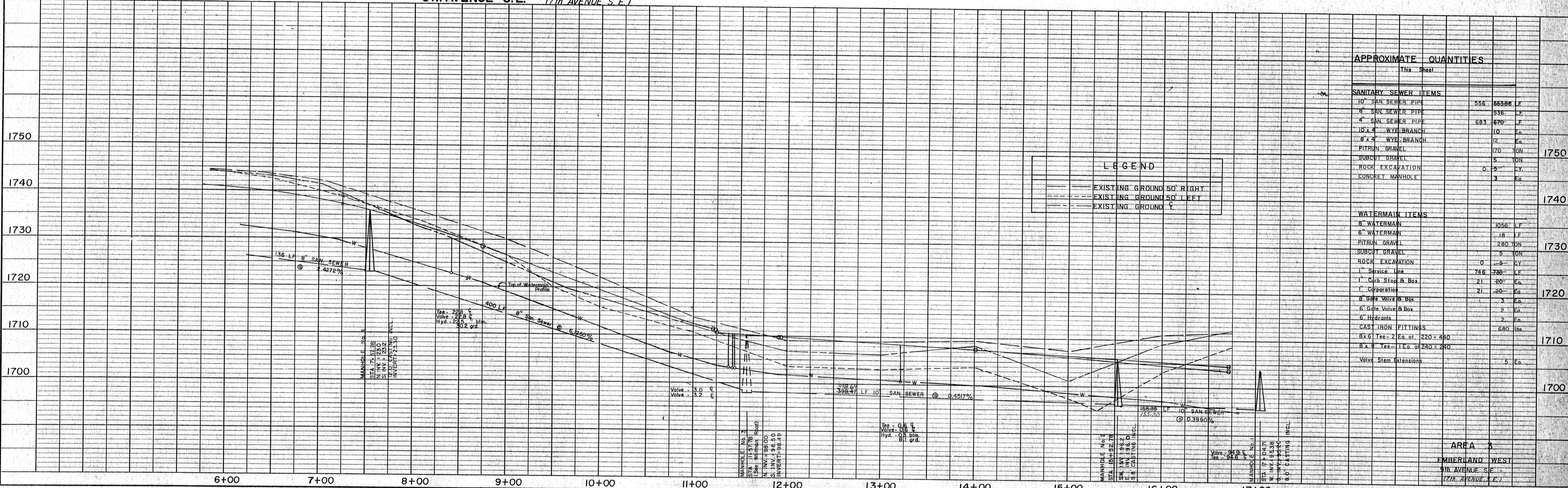
DATE	
BY	
NO.	

PROFILE

DATE	
BY	
NO.	

PROFILE

DATE	
BY	
NO.	



APPROXIMATE QUANTITIES

SANITARY SEWER ITEMS	
10" SAN SEWER PIPE	556 55386 LF
8" SAN SEWER PIPE	735 735 LF
4" SAN SEWER PIPE	683 670 LF
10" x 4" WYE BRANCH	10 Ea
8" x 4" WYE BRANCH	12 Ea
PITRUM GRAVEL	170 TN
SUBCUT GRAVEL	5 TN
ROCK EXCAVATION	0 5 CY
CONCRETE MANHOLE	3 Ea
WATERMAIN ITEMS	
8" WATERMAIN	1056 LF
6" WATERMAIN	18 LF
PITRUM GRAVEL	280 TN
SUBCUT GRAVEL	5 TN
ROCK EXCAVATION	0 5 CY
1" Service Line	748 730 LF
1" Curb Stop & Box	21 20 Ea
1" Copperation	21 20 Ea
8" Gate Valve & Box	3 Ea
6" Gate Valve & Box	2 Ea
6" Hydrants	2 Ea
CAST IRON FITTINGS	680 lbs
8x6 Tee - 2 Ea. at 220 = 440	
8x4 Tee - 1 Ea. at 240 = 240	
Valve Stem Extensions	5 Ea

LEGEND

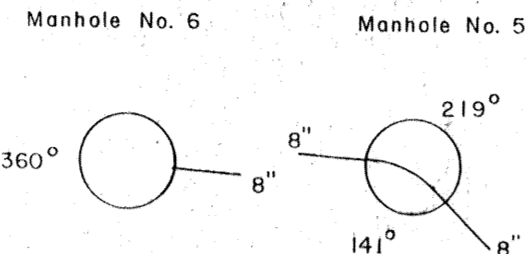
(Symbol)	EXISTING GROUND 50' RIGHT
(Symbol)	EXISTING GROUND 50' LEFT
(Symbol)	EXISTING GROUND

AREA 5
EMBERLAND WEST
9th AVENUE S.E.
(20th AVENUE S.E.)

HORIZONTAL SCALE 1"=50'
 VERTICAL SCALE 1"=10'
 DATE JUNE 1977

BEGIN SEWERMAIN
 QUANTITIES STA 0+90

STA 1+00
 MANHOLE No. 6
 STA 3+72.86 AHD



END SEWERMAIN
 QUANTITIES STA 6+22.78

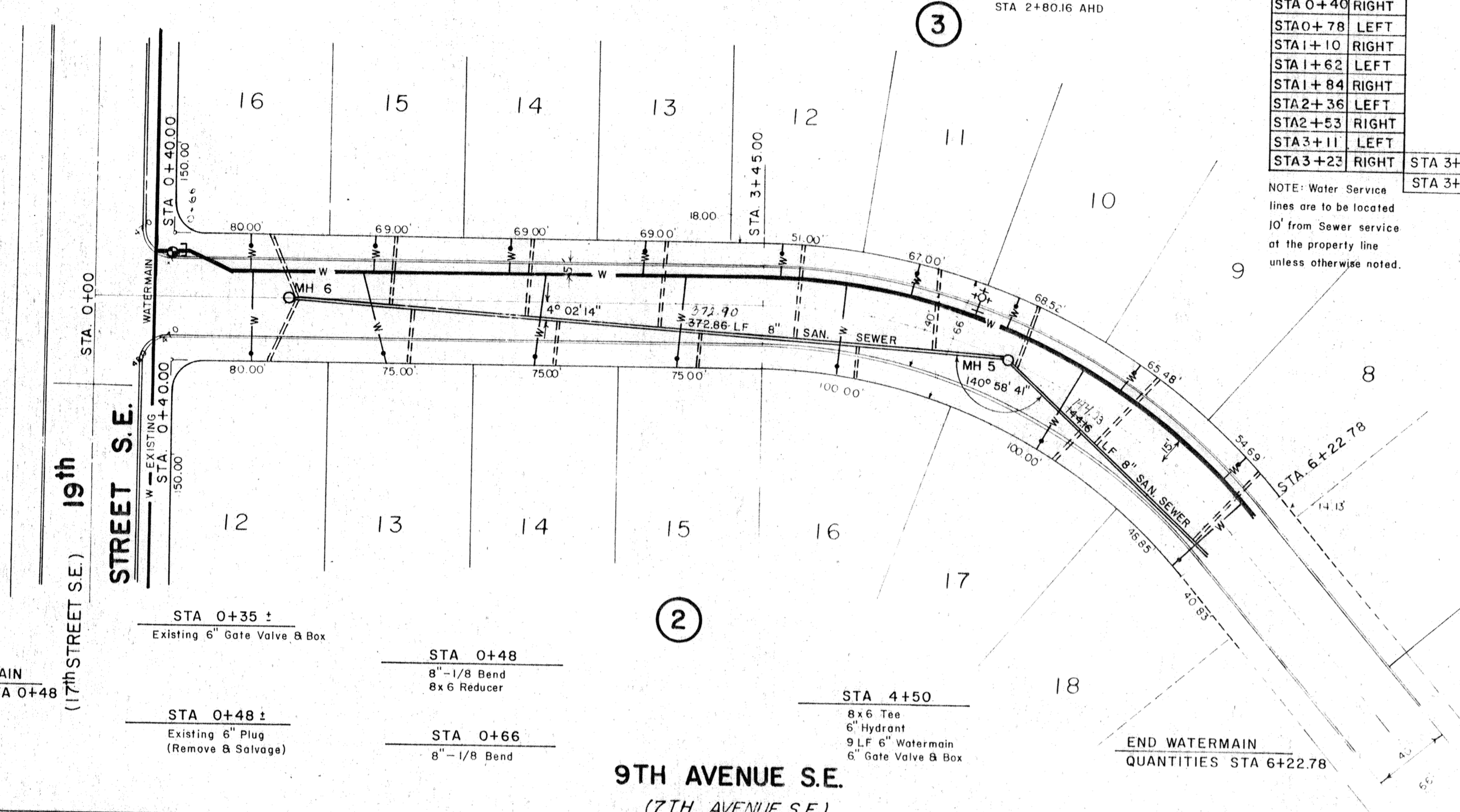
WYE LOCATIONS

MH 4 to MH 5	
(see sheet No. 1)	
STA 1+46	RIGHT
STA 2+16	RIGHT
STA 2+26	LEFT
STA 2+73	RIGHT
MH 5 to MH 6	
STA 0+40	RIGHT
STA 0+78	LEFT
STA 1+10	RIGHT
STA 1+62	LEFT
STA 1+84	RIGHT
STA 2+36	LEFT
STA 2+53	RIGHT
STA 3+11	LEFT
STA 3+23	RIGHT
STA 3+69	LEFT
STA 3+70	RIGHT

NOTE: Water Service lines are to be located 10' from Sewer service at the property line unless otherwise noted.

LEGEND

—	SANITARY SEWER
—	WATERMAIN
○	MANHOLE
⊕	HYDRANT
+	GATE VALVE
⊙	CURB STOP & BOX
—	1" SERVICE LINE
---	SEWER SERVICE LINE
⊕	EXISTING GATE VALVE
⊕	EXISTING PLUG



BEGIN WATERMAIN
 QUANTITIES STA 0+48

STA 0+35 :
 Existing 6" Gate Valve & Box

STA 0+48
 8"-1/8 Bend
 8x6 Reducer

STA 0+48 :
 Existing 6" Plug
 (Remove & Salvage)

STA 0+66
 8"-1/8 Bend

STA 4+50
 8x6 Tee
 6" Hydrant
 9 LF 6" Watermain
 6" Gate Valve & Box

END WATERMAIN
 QUANTITIES STA 6+22.78

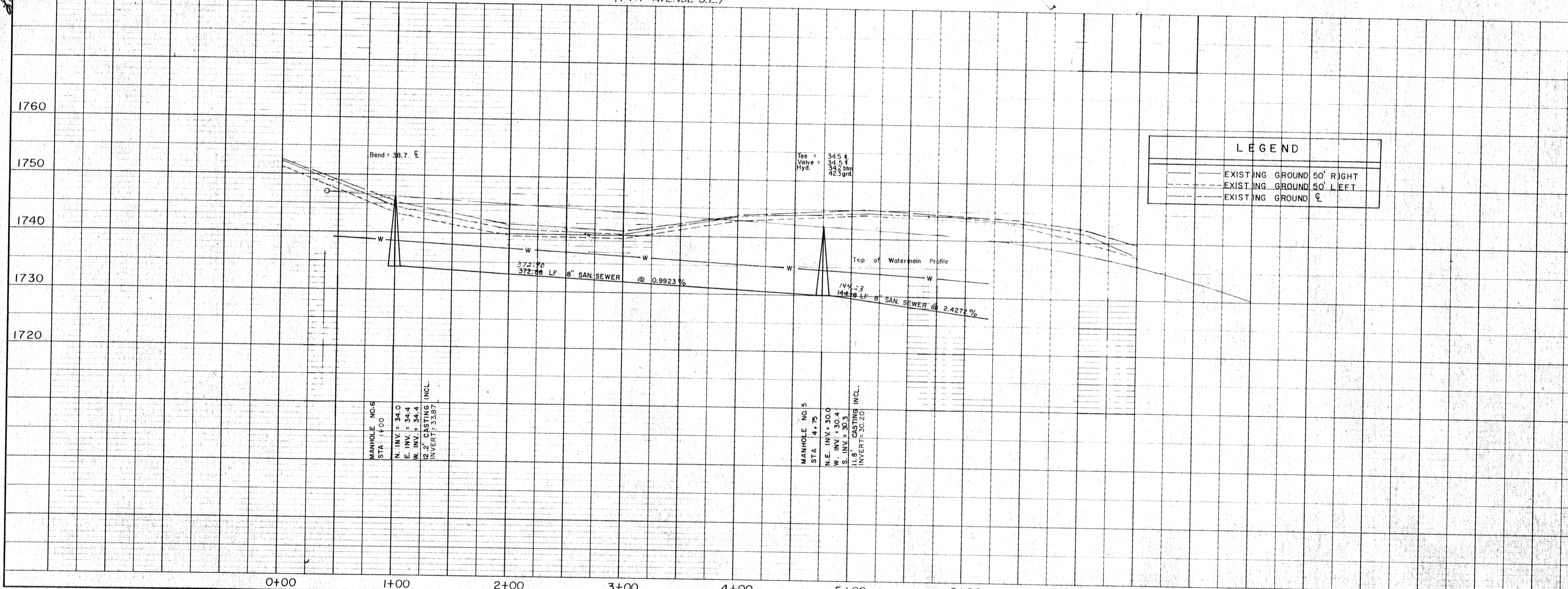
9TH AVENUE S.E.
 (7TH AVENUE S.E.)

PLAN

DATE	
BY	
REVISIONS	
NO.	

PROFILE

DATE	
BY	
REVISIONS	
NO.	

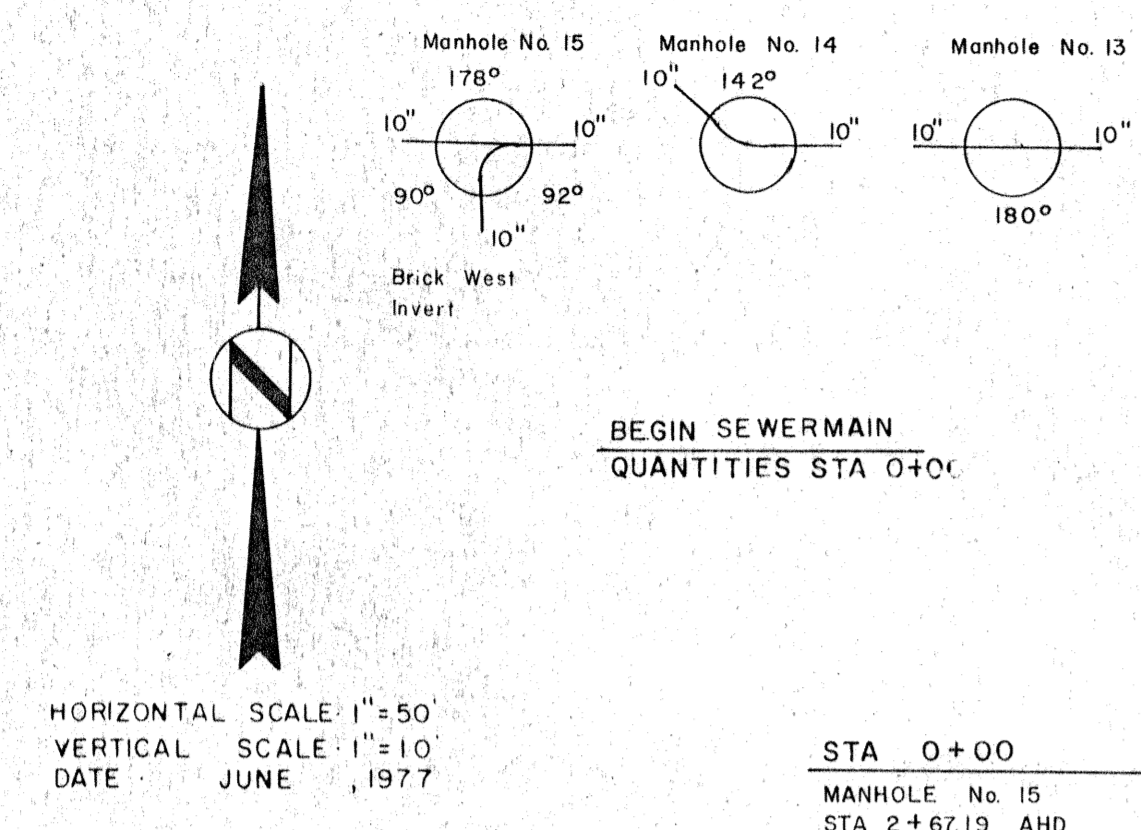


LEGEND

---	EXISTING GROUND 50' RIGHT
---	EXISTING GROUND 50' LEFT
---	EXISTING GROUND

APPROXIMATE QUANTITIES		This Sheet		
SANITARY SEWER	ITEMS			
8" SAN. SEWER	517 LF			1760
4" SAN. SEWER	519 LF			
8"x4" WYE	15 EQ.			
PITRUN GRAVEL	78 TON			1750
SUBCUT GRAVEL	5 TON			
ROCK EXCAVATION	0			
CONCRETE MANHOLE	2 EQ.			
WATERMAIN ITEMS				
8" WATERMAIN	579 LF			1740
6" WATERMAIN	9 LF			
PITRUN GRAVEL	154 TON			1730
SUBCUT GRAVEL	5 TON			
ROCK EXCAVATION	0			
1" Service Line	498 LF			1720
1" Curb Stop & Box	16 EQ.			
1" Corporation	16 EQ.			
6" Gate Valve & Box	1 EQ.			
6" Hydrants	1 EQ.			
CAST IRON FITTINGS	510 lbs.			
8"x6" Tee	1 at 220 = 220			
8" 1/8 Bend	2 at 145 = 290			
Valve Stem Extensions	1 EQ.			

AREA 3
 EMBERLAND WEST
 9TH AVENUE S.E.
 (7TH AVENUE S.E.)



HORIZONTAL SCALE: 1"=50'
 VERTICAL SCALE: 1"=10'
 DATE: JUNE, 1977

SAN SEWER

WYE LOCATIONS

MH 12 to MH 13
 STA 0+35 RIGHT
 STA 1+18 RIGHT
 STA 1+49 LEFT
 STA 1+87 RIGHT
 STA 2+20 LEFT
 STA 2+57 RIGHT
 STA 2+88 LEFT
 MH 13 to MH 14
 STA 0+16 RIGHT
 STA 0+48 LEFT
 STA 0+86 RIGHT
 STA 1+19 LEFT
 STA 1+56 RIGHT
 STA 1+86 LEFT
 STA 2+33 RIGHT
 MH 14 to MH 15
 STA 0+50 LEFT
 STA 1+08 RIGHT
 STA 1+85 LEFT
 STA 1+90 RIGHT

NOTE: Water Service lines are to be located 10' from Sewer Service lines at the property line unless otherwise noted.

STA 5+15.35
 MANHOLE No. 13
 STA 3+11.78 AHD
 STA 0+00 BK

STA 2+60.35
 MANHOLE No. 14
 STA 2+55 AHD
 STA 0+00 BK

MANHOLE No. 14 is located 93' from P.T. on tangent.

BEGIN WATERMAIN
 QUANTITIES STA 0+48

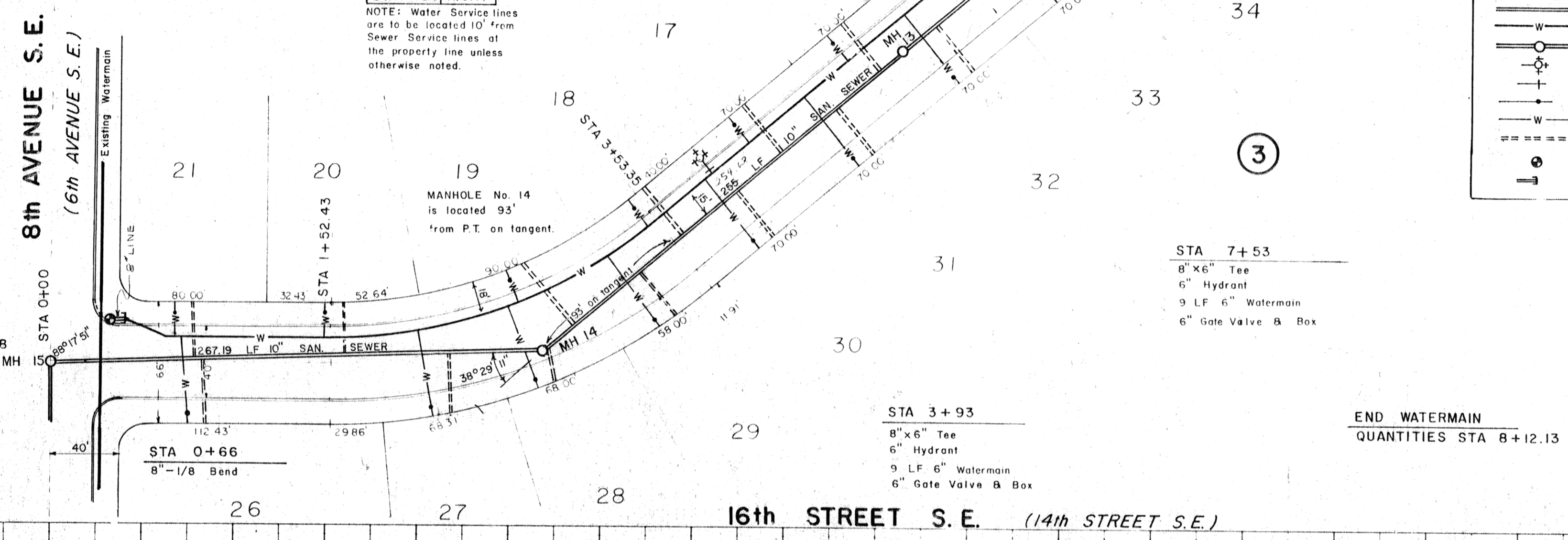
STA 0+48
 Remove & Salvage 8" Plug
 STA 0+48
 8"-1/8 Bend

END WATERMAIN
 QUANTITIES STA 8+12.13

STA 3+93
 8"x6" Tee
 6" Hydrant
 9 LF 6" Watermain
 6" Gate Valve & Box

LEGEND

- SANITARY SEWER
- WATERMAIN
- MANHOLE
- HYDRANT
- GATE VALVE
- CURB STOP & BOX
- 1" SERVICE LINE
- SEWER SERVICE LINE
- EXISTING GATE VALVE
- EXISTING PLUG



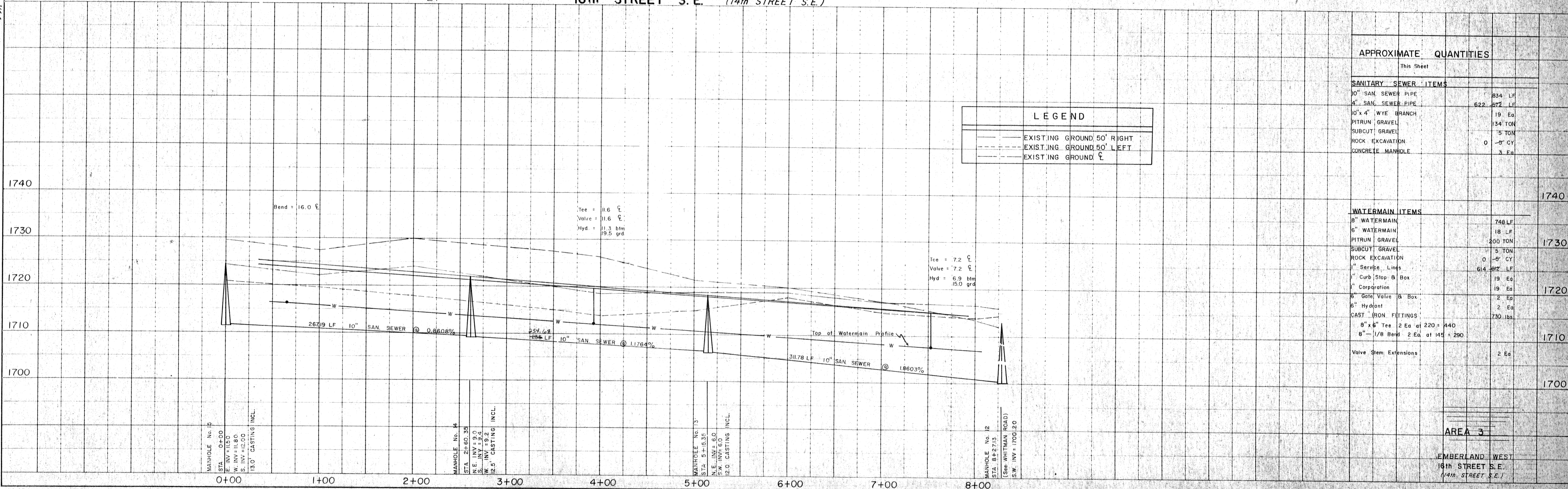
LEGEND

- EXISTING GROUND 50' RIGHT
- EXISTING GROUND 50' LEFT
- EXISTING GROUND ℓ

APPROXIMATE QUANTITIES

This Sheet	
SANITARY SEWER ITEMS	
10" SAN SEWER PIPE	834 LF
4" SAN SEWER PIPE	622 LF
10"x4" WYE BRANCH	19 Ea
PITRUM GRAVEL	134 TON
SUBCUT GRAVEL	5 TON
ROCK EXCAVATION	0 - 5' CY
CONCRETE MANHOLE	3 Ea

WATERMAIN ITEMS	
8" WATERMAIN	748 LF
6" WATERMAIN	18 LF
PITRUM GRAVEL	200 TON
SUBCUT GRAVEL	5 TON
ROCK EXCAVATION	0 - 5' CY
1" Service Lines	614 LF
1" Curb Stop & Box	19 Ea
1" Corporation	19 Ea
6" Gate Valve & Box	2 Ea
6" Hydrant	2 Ea
CAST IRON FITTINGS	730 lbs
8"x6" Tee	2 Ea at 220 = 440
8"-1/8 Bend	2 Ea at 145 = 290
Valve Stem Extensions	2 Ea

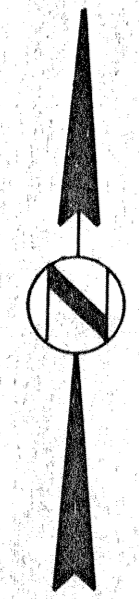


AREA 3
 EMBERLAND WEST
 16th STREET S.E.
 1/4th STREET S.E.

SEWER & WATER IMPR. DIST. No. 25
 MANDAN, NORTH DAKOTA

DATE
BY
DRAWN
CHECKED
NOTED
NO.

DATE
BY
DRAWN
CHECKED
NOTED
NO.



STA 0+00
MANHOLE No. 17
(See 8th AVENUE S.E.)

STA 2+80
MANHOLE No. 18
STA 0+00 AND
STA 2+80 BK

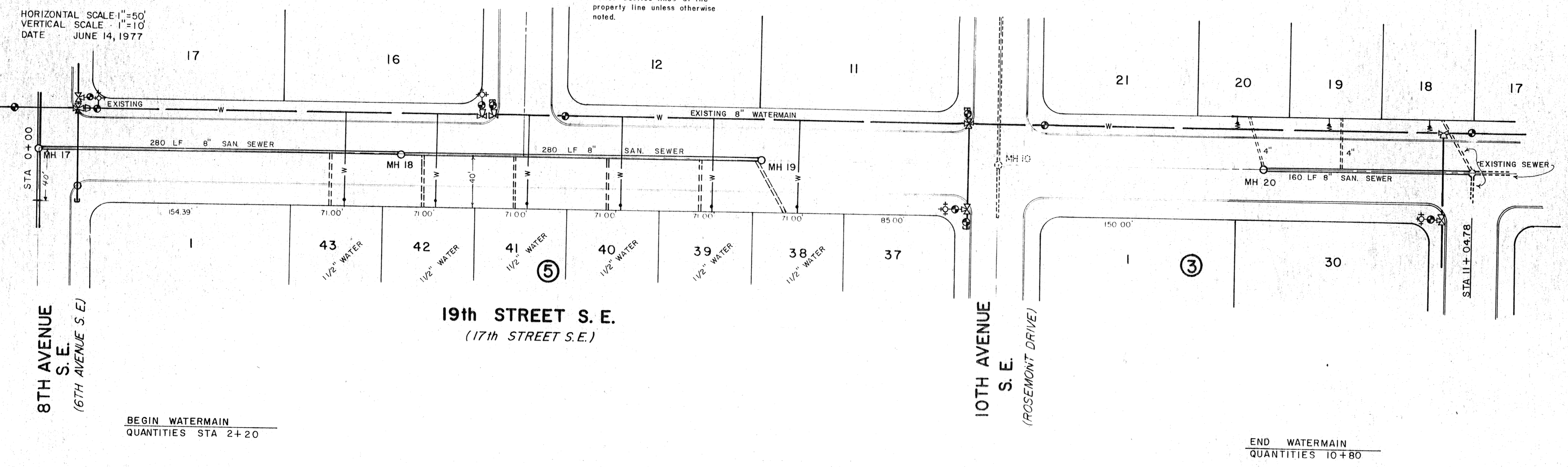
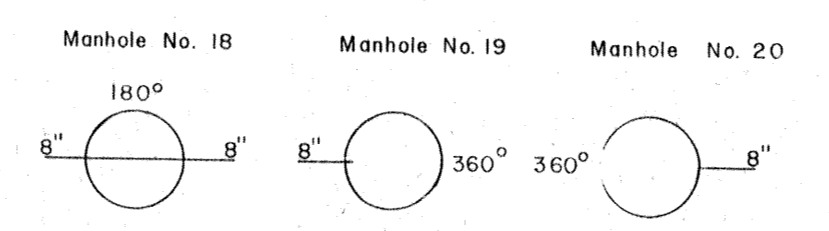
STA 5+60
MANHOLE No. 19
STA 2+80 BK

STA 9+44.78
MANHOLE No. 20
STA 1+60 AHD

STA 11+04.78
EXISTING MANHOLE

SAN SEWER
WYE LOCATIONS
MH 17 to MH 18
STA 2+26 RIGHT
MH 18 to MH 19
STA 0+17 RIGHT
STA 0+88 RIGHT
STA 1+60 RIGHT
STA 2+32 RIGHT STA 2+77 RIGHT
EXISTING MH to MH 20
STA 1+01 RIGHT STA 1+55 RIGHT

NOTE: Water Service Lines are to be located 10' from Sewer Service Lines of the property line unless otherwise noted.



LEGEND

- SANITARY SEWER
- EXISTING WATERMAIN
- MANHOLE
- HYDRANT
- GATE VALVE
- CURB STOP & BOX
- 1" SERVICE LINE
- SEWER SERVICE LINE
- EXISTING GATE VALVE
- TEE
- EXISTING PLUG
- REDUCER

NOTE: Existing Sewer & Water are as shown on the plans for Water & Sewer Improvement No. 23.

BEGIN WATERMAIN
QUANTITIES STA 2+20

END WATERMAIN
QUANTITIES 10+80

LEGEND

- EXISTING GROUND 50' RIGHT
- EXISTING GROUND 50' LEFT
- EXISTING GROUND CL

APPROXIMATE QUANTITIES

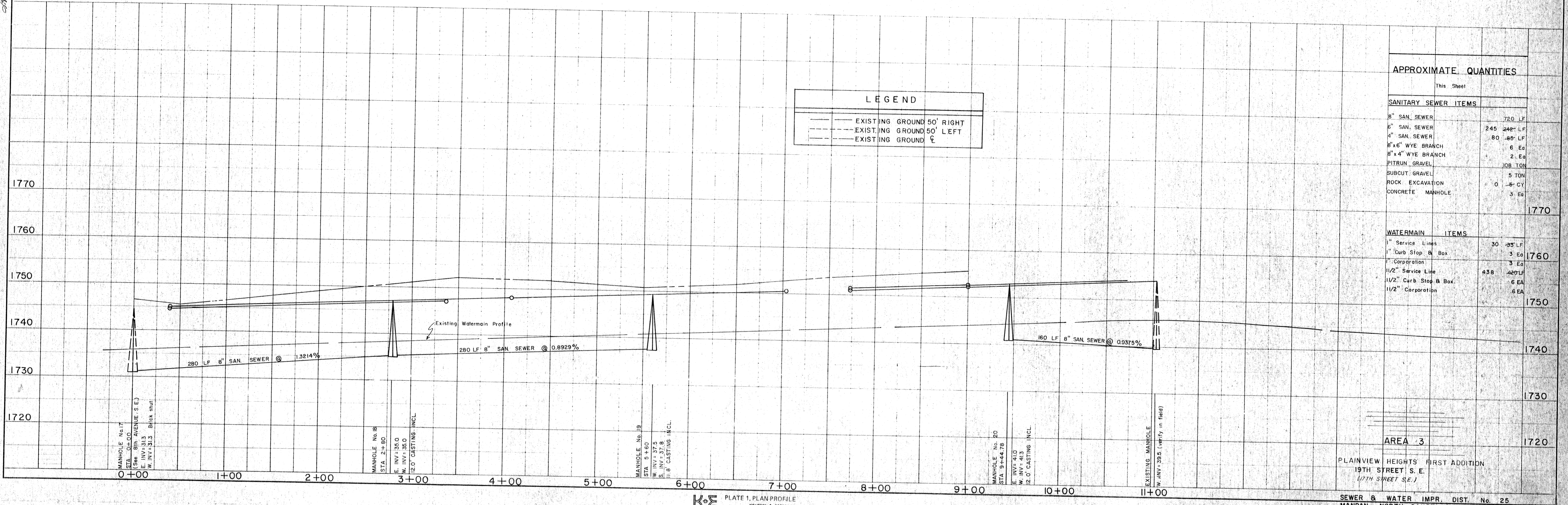
This Sheet

SANITARY SEWER ITEMS

8" SAN. SEWER	720 LF
6" SAN. SEWER	245 242 LF
4" SAN. SEWER	80 85 LF
8"x6" WYE BRANCH	6 EA
8"x4" WYE BRANCH	2 EA
PITRUN GRAVEL	108 TON
SUBCUT GRAVEL	5 TON
ROCK EXCAVATION	0 5 CY
CONCRETE MANHOLE	3 EA

WATERMAIN ITEMS

1" Service Lines	30 25 LF
1" Curb Stop & Box	3 EA
1" Corporation	3 EA
1/2" Service Line	438 420 LF
1/2" Curb Stop & Box	6 EA
1/2" Corporation	6 EA



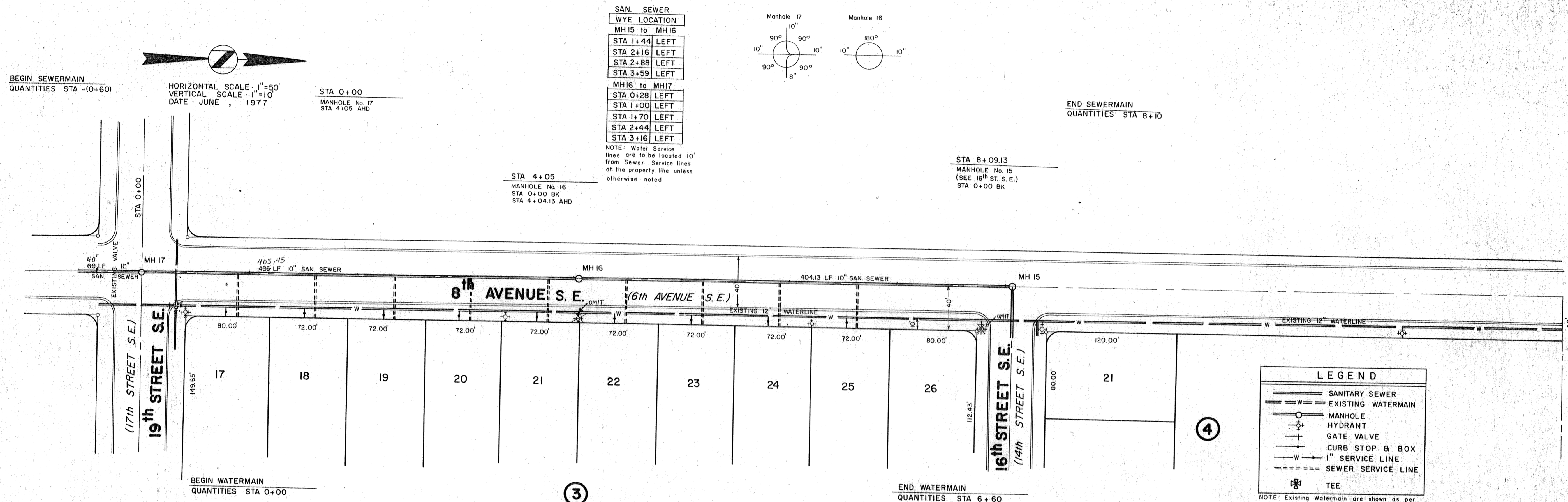
AREA 3
PLAINVIEW HEIGHTS FIRST ADDITION
19TH STREET S.E.
(17TH STREET S.E.)

SEWER & WATER IMPR. DIST. No. 25
MANDAN, NORTH DAKOTA

DATE	
BY	
PLAN	
NOTE BOOK	
No.	

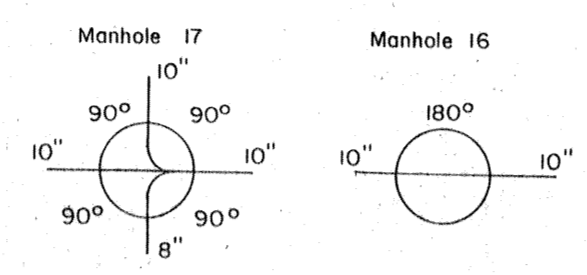
SPENCER HAGEN
CONSULTING ENGINEER
908 Beaman Ave., P.O. Box 1133
Bismarck, North Dakota 58103
Phone 223-2500

DATE	
BY	
PROFILE	
NOTE BOOK	
No.	



SAN SEWER
WYE LOCATION
MH 15 to MH 16
STA 1+44 LEFT
STA 2+16 LEFT
STA 2+88 LEFT
STA 3+59 LEFT

MH 16 to MH 17
STA 0+28 LEFT
STA 1+00 LEFT
STA 1+70 LEFT
STA 2+44 LEFT
STA 3+16 LEFT

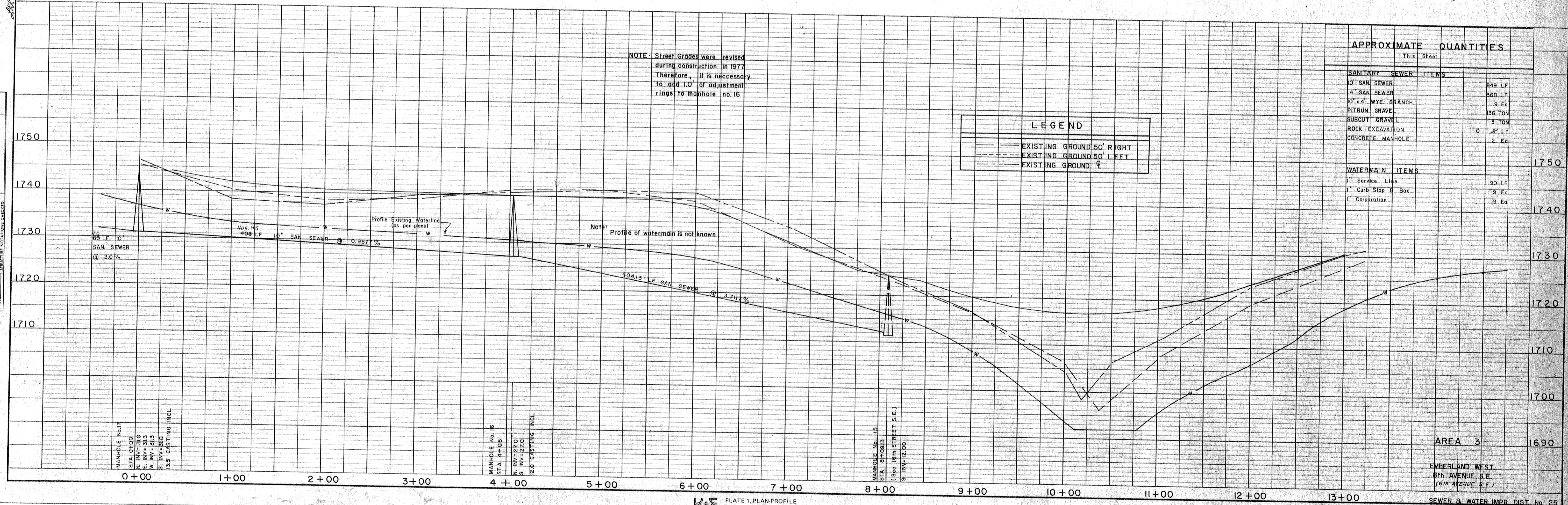


NOTE: Water Service lines are to be located 10' from Sewer Service lines of the property line unless otherwise noted.

LEGEND

- SANITARY SEWER
- EXISTING WATERMAIN
- MANHOLE
- HYDRANT
- GATE VALVE
- CURB STOP & BOX
- 1" SERVICE LINE
- SEWER SERVICE LINE
- TEE

NOTE: Existing Watermain are shown as per plans prepared by TOMAN ENGINEER'S for Water & Sewer Improvement 23.



NOTE: Street Grades were revised during construction in 1977. Therefore, it is necessary to add 1.0' of adjustment rings to manhole no. 16.

LEGEND

- EXISTING GROUND 50' RIGHT
- EXISTING GROUND 50' LEFT
- EXISTING GROUND

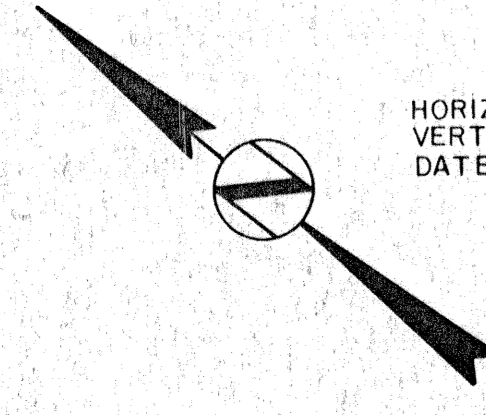
APPROXIMATE QUANTITIES

This Sheet	
SANITARY SEWER ITEMS	
10" SAN SEWER	849 LF
4" SAN SEWER	360 LF
10"x4" WYE BRANCH	9 Ea
PITRUN GRAVEL	136 TON
SUBCUT GRAVEL	5 TON
ROCK EXCAVATION	0 C.Y.
CONCRETE MANHOLE	2 Ea
WATERMAIN ITEMS	
1" Service Line	90 LF
1" Curb Stop & Box	9 Ea
1" Corporation	9 Ea

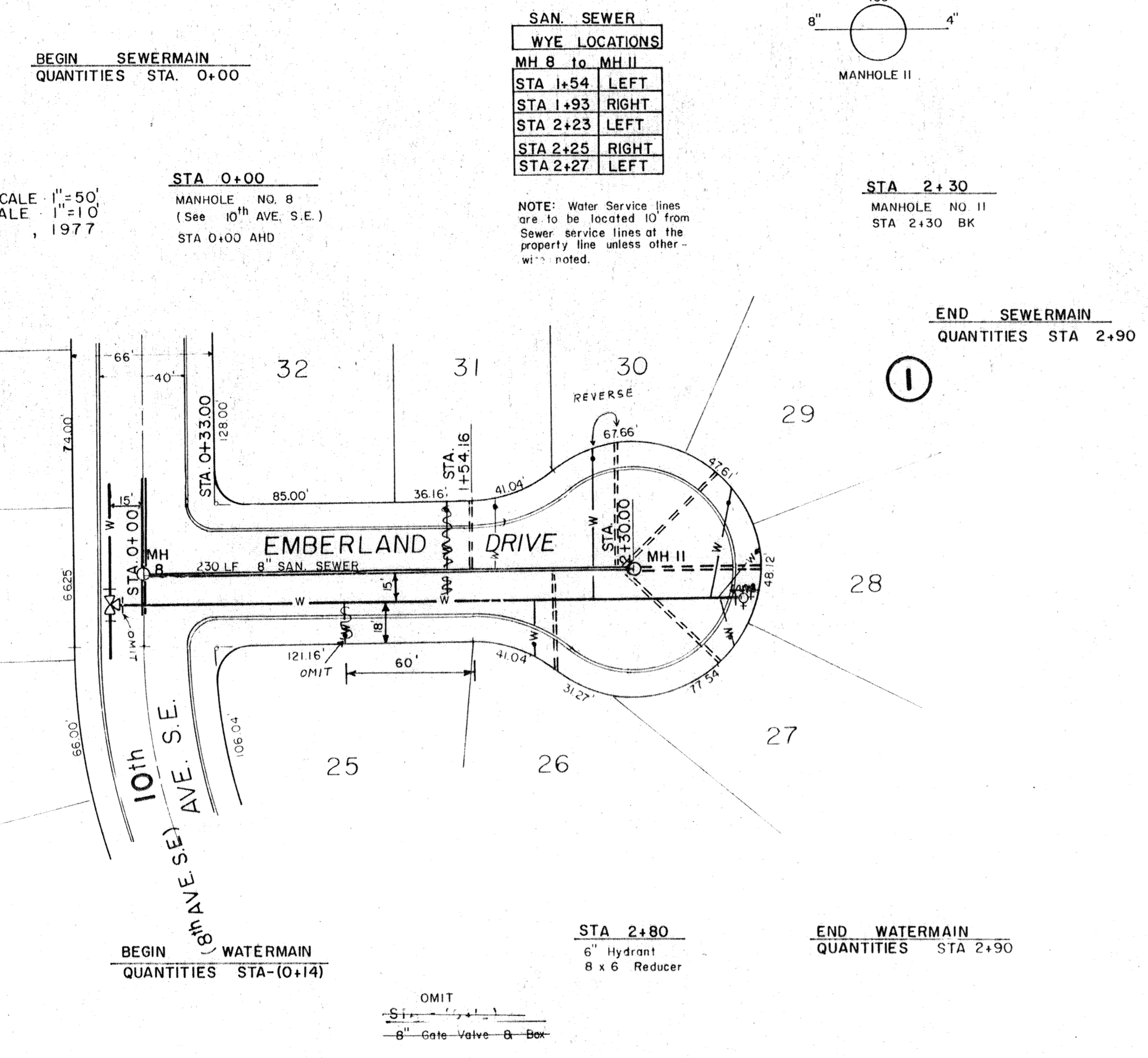
AREA 3
EMERLAND WEST
8th AVENUE S.E.
(6th AVENUE S.E.)

PLAN
 SURVEYED BY
 NOTED BY
 NOTE BOOK NO.
 DATE

PROFILE
 SURVEYED BY
 NOTED BY
 NOTE BOOK NO.
 DATE



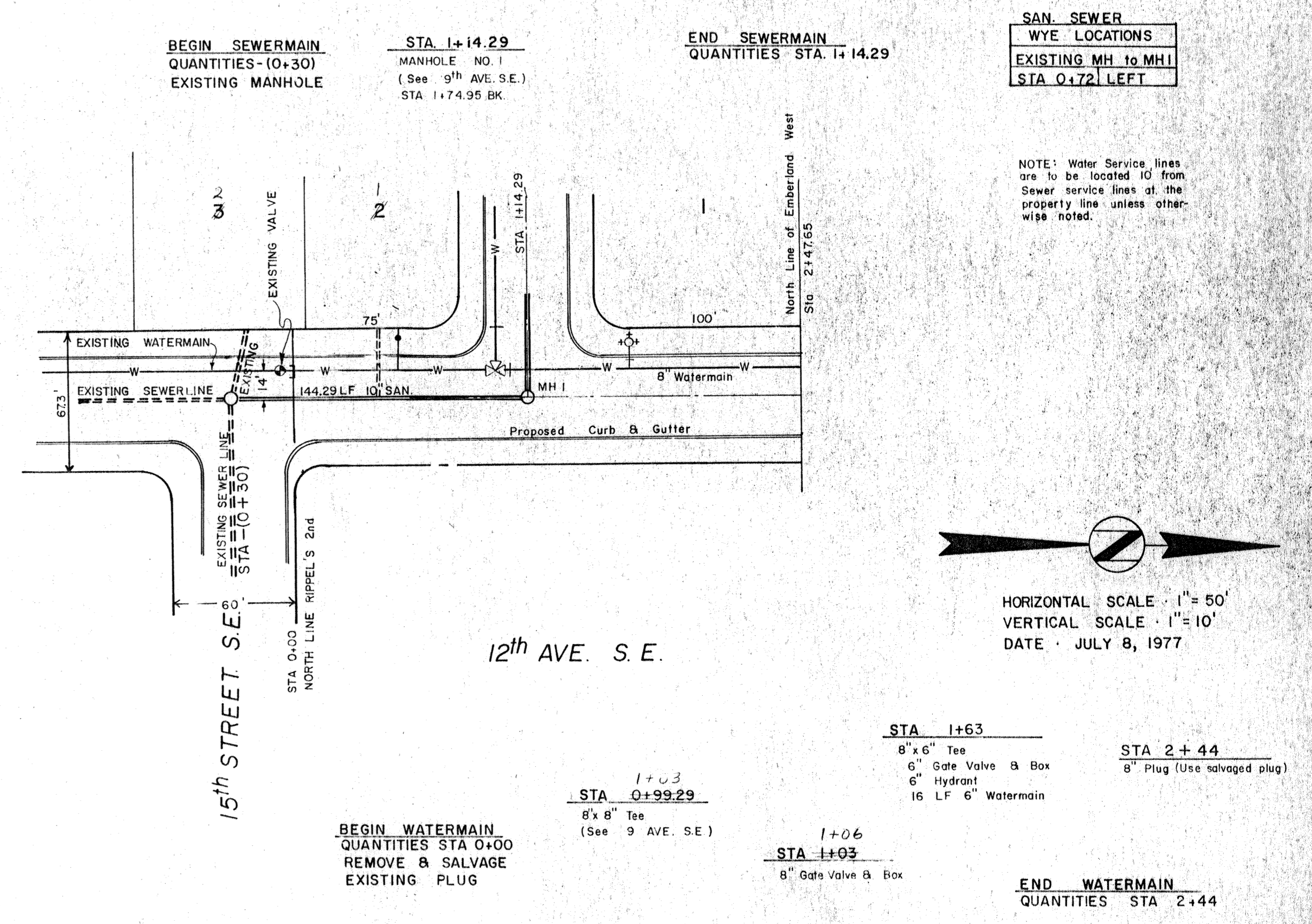
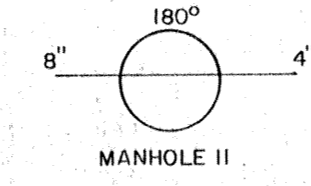
HORIZONTAL SCALE 1"=50'
 VERTICAL SCALE 1"=10'
 DATE JUNE, 1977



SAN. SEWER WYE LOCATIONS

MH 8 to MH II
STA 1+54 LEFT
STA 1+93 RIGHT
STA 2+23 LEFT
STA 2+25 RIGHT
STA 2+27 LEFT

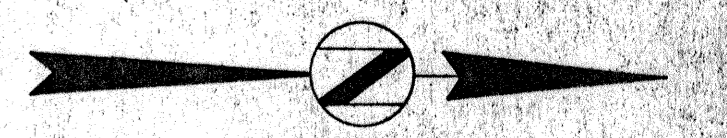
NOTE: Water Service lines are to be located 10' from Sewer service lines of the property line unless otherwise noted.



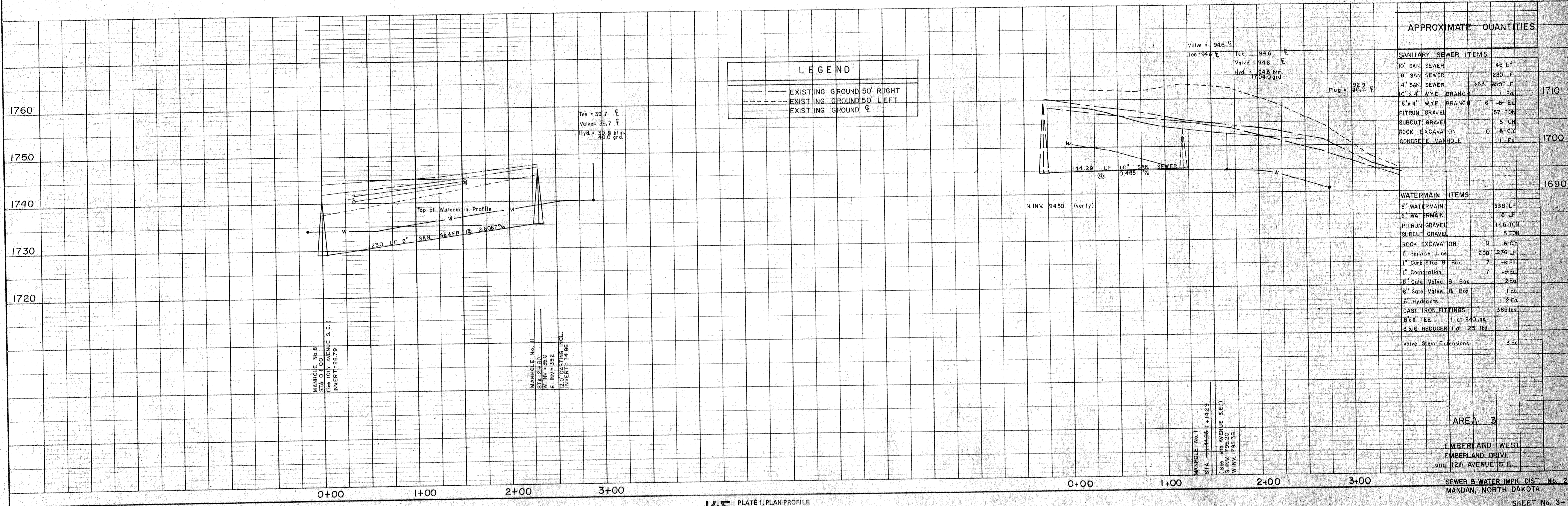
SAN. SEWER WYE LOCATIONS

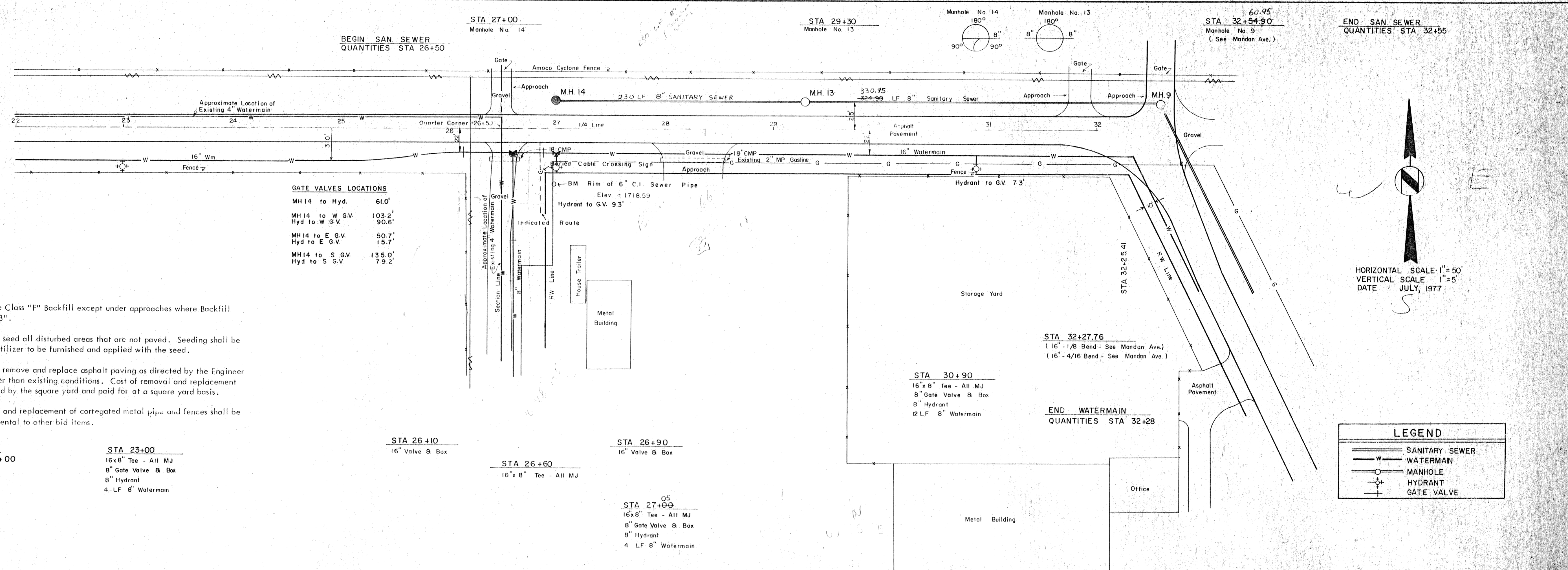
EXISTING MH to MH I
STA 0+72 LEFT

NOTE: Water Service lines are to be located 10' from Sewer service lines of the property line unless otherwise noted.



HORIZONTAL SCALE 1"=50'
 VERTICAL SCALE 1"=10'
 DATE JULY 8, 1977





GATE VALVES LOCATIONS

MH 14 to Hyd.	61.0'
MH 14 to W.G.V.	103.2'
Hyd to W.G.V.	90.6'
MH 14 to E.G.V.	50.7'
Hyd to E.G.V.	15.7'
MH 14 to S.G.V.	135.0'
Hyd to S.G.V.	79.2'

1. Backfill shall be Class "F" Backfill except under approaches where Backfill shall be Class "B".
2. Contractor shall seed all disturbed areas that are not paved. Seeding shall be Class II with fertilizer to be furnished and applied with the seed.
3. Contractor shall remove and replace asphalt paving as directed by the Engineer to equal or better than existing conditions. Cost of removal and replacement shall be measured by the square yard and paid for at a square yard basis.
4. Cost for removal and replacement of corrugated metal pipe and fences shall be considered incidental to other bid items.

BEGIN WATERMAIN
QUANTITIES STA 22+00

STA 23+00
16"x8" Tee - All MJ
8" Gate Valve & Box
8" Hydrant
4 LF 8" Watermain

STA 26+10
16" Valve & Box

STA 26+60
16"x8" Tee - All MJ

STA 26+90
16" Valve & Box

STA 27+00
16"x8" Tee - All MJ
8" Gate Valve & Box
8" Hydrant
4 LF 8" Watermain

STA 32+27.76
(16" - 1/8 Bend - See Mandan Ave.)
(16" - 4/16 Bend - See Mandan Ave.)

STA 30+90
16"x8" Tee - All MJ
8" Gate Valve & Box
8" Hydrant
12 LF 8" Watermain

END WATERMAIN
QUANTITIES STA 32+28

LEGEND

— W —	SANITARY SEWER
— W —	WATERMAIN
○	MANHOLE
⊕	HYDRANT
+	GATE VALVE

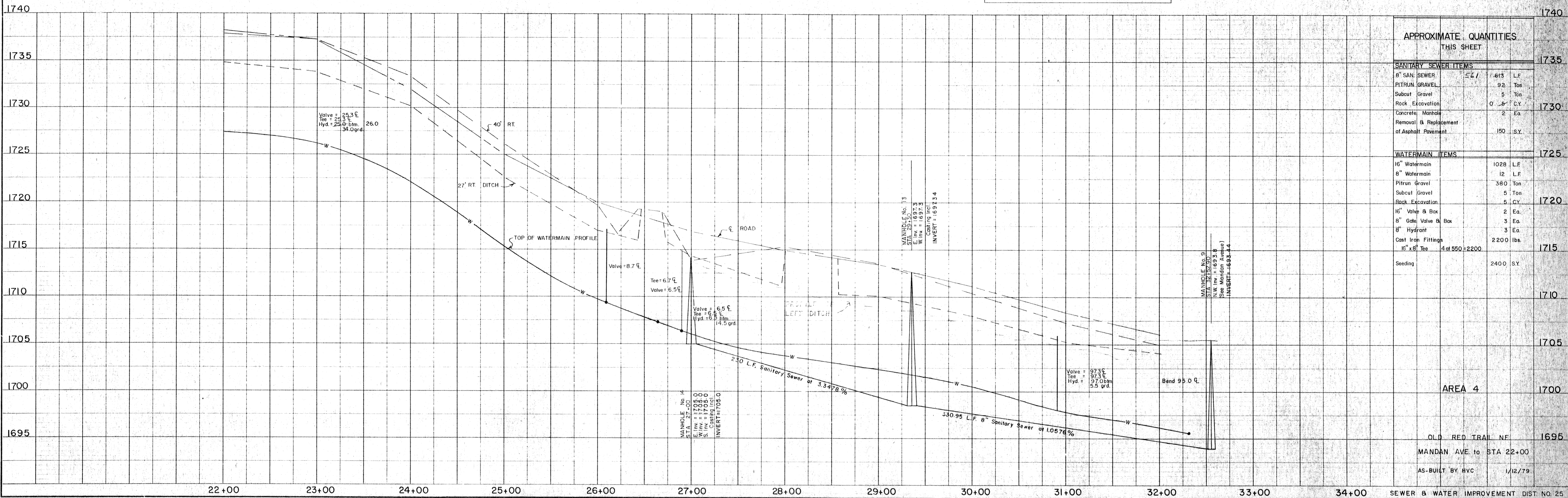
HORIZONTAL SCALE - 1" = 50'
VERTICAL SCALE - 1" = 5'
DATE - JULY, 1977

PLAN

DATE	
BY	
NO.	

PROFILE

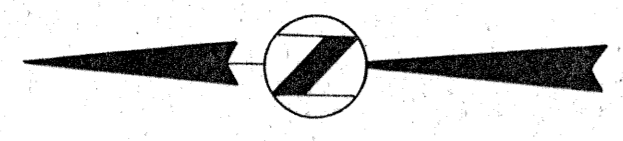
DATE	
BY	
NO.	



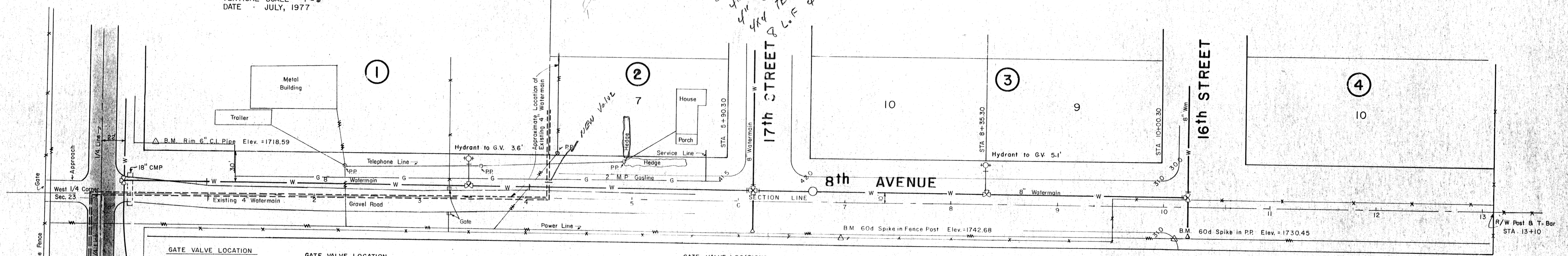
APPROXIMATE QUANTITIES THIS SHEET

SANITARY SEWER ITEMS	
8" SAN. SEWER	521 LF
PITRUN GRAVEL	92 Ton
Subcut Gravel	5 Ton
Rock Excavation	0 LF
Concrete Manhole	2 Ea
Removal & Replacement of Asphalt Paving	150 S.Y.
WATERMAIN ITEMS	
16" Watermain	1028 LF
8" Watermain	12 LF
Pitrun Gravel	380 Ton
Subcut Gravel	5 Ton
Rock Excavation	5 C.Y.
16" Valve & Box	2 Ea.
8" Gate Valve & Box	3 Ea.
8" Hydrant	3 Ea.
Cast Iron Fittings	2200 lbs.
16"x8" Tee	4 at 550 = 2200
Seeding	2400 S.Y.

AREA 4
OLD RED TRAIL NE
MANDAN AVE to STA 22+00
AS-BUILT BY HVC 1/12/79



HORIZONTAL SCALE - 1" = 50'
 VERTICAL SCALE - 1" = 5'
 DATE - JULY, 1977



GATE VALVE LOCATION
 MH 14 to S.G.V. 135.0
 Hyd to S.G.V. 79.2

GATE VALVE LOCATION
 Fence Corner to 4" G.V. 24.5
 Power Pole to 4" G.V. 23.6
 Hydrant to 4" G.V. 102.8
 Fence Corner to 8" G.V. 32.2
 Power Pole to 8" G.V. 32.2
 Hydrant to 8" G.V. 70.4

GATE VALVE LOCATIONS
 MH 12 to N.G.V. 102.2
 Hyd to N.G.V. 124.0
 MH 12 to S.G.V. 100.1
 Hyd to S.G.V. 124.2
 MH 12 to E.G.V. 98.0
 Hyd to E.G.V. 121.0

GATE VALVES LOCATIONS
 MH 4 to E.G.V. 104.1
 Hyd to E.G.V. 189.2
 MH 4 to N.G.V. 111.5
 Hyd to N.G.V. 186.3

NOTE:
 1. Cost for removal and replacement of fences shall be considered incidental to other bid items.

STA 0+22
 (16" x 8" Tee
 (See Old Red Trail)
STA 1+00
 8" Gate Valve & Box
BEGIN WATERMAIN
QUANTITIES STA 0+22

STA 3+25-3+36.1
 8" x 8" Tee
 8" Gate Valve & Box
 8" Hydrant
 21 L.F. 8" Watermain

STA 6+12
 8" Gate Valve & Box

STA 6+15.30
 8" x 8" Cross

STA 6+19
 8" Gate Valve & Box

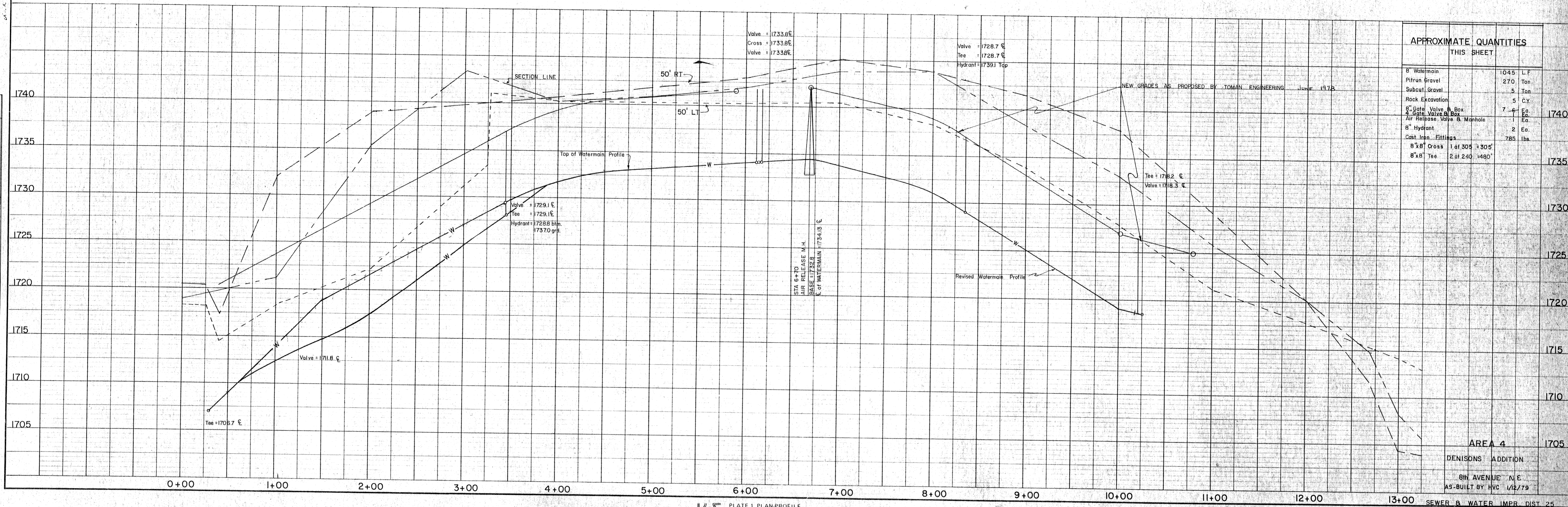
STA 6+70
 Air Release Manhole

STA 8+35.30
 8" x 8" Tee
 8" Gate Valve & Box
 8" Hydrant
 21 L.F. 8" Watermain

STA 10+24
 8" Gate Valve & Box

STA 10+25.30
 (8" x 8" Tee - See 16th Street)

END WATERMAIN
QUANTITIES STA 10+25.30



APPROXIMATE QUANTITIES THIS SHEET

8" Watermain	1045 L.F.	
Pitrun Gravel	270 Ton	
Subcut Gravel	5 Ton	
Rock Excavation	5 C.Y.	
8" Gate Valve & Box	7 Ea.	1740
4" Gate Valve & Box	1 Ea.	
Air Release Valve & Manhole	1 Ea.	
8" Hydrant	2 Ea.	
Cast Iron Fittings	785 lbs	
8" x 8" Cross	1 @ 305 x 305'	
8" x 8" Tee	2 @ 240 x 480'	1735

AREA 4
DENISONS ADDITION
 8th AVENUE N.E.
 AS-BUILT BY HVC 1/2/79

PLAN
 SURVEYED BY: _____
 DATE: _____
 CHECKED BY: _____
 DATE: _____
 NOTE BOOK NO. _____

PROFILE
 SURVEYED BY: _____
 DATE: _____
 CHECKED BY: _____
 DATE: _____
 NOTE BOOK NO. _____

BEGIN SAN SEWER
QUANTITIES STA. -(0+47)

STA. -(0+46.12)
Manhole No 9

STA. 3+45
Manhole No 8

STA. 6+85.24
Manhole No 7

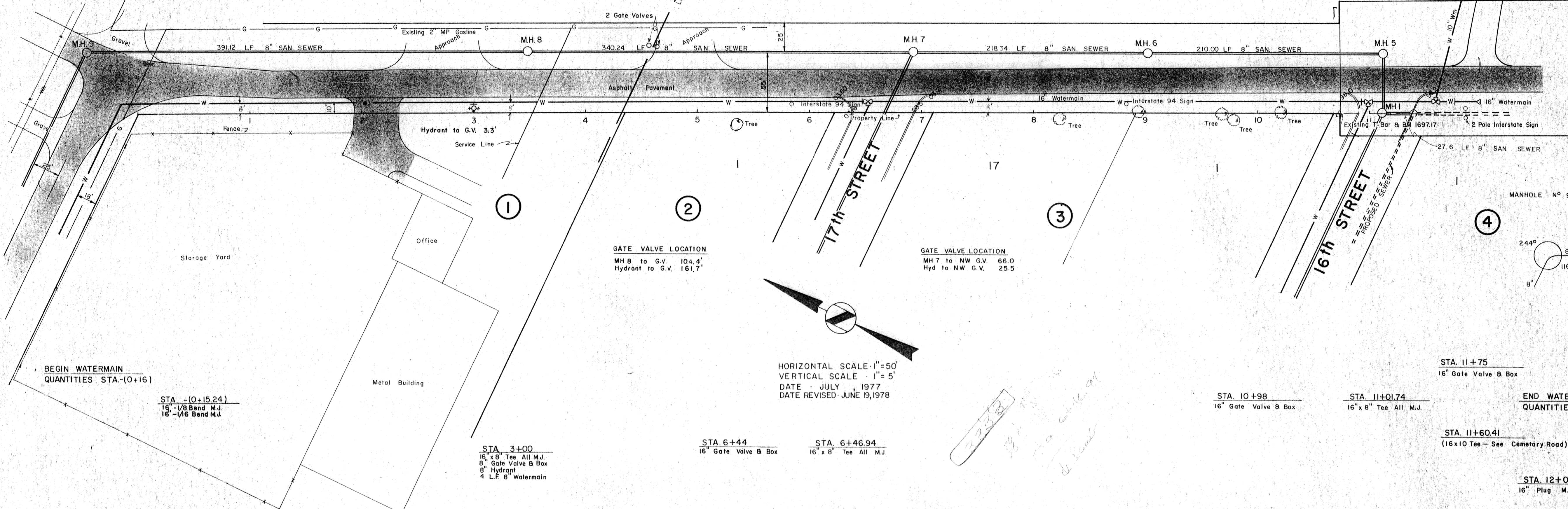
STA. 9+03.58
Manhole No 6

STA. 11+13.58
Manhole No 5

END SAN SEWER
QUANTITIES STA. 11+42

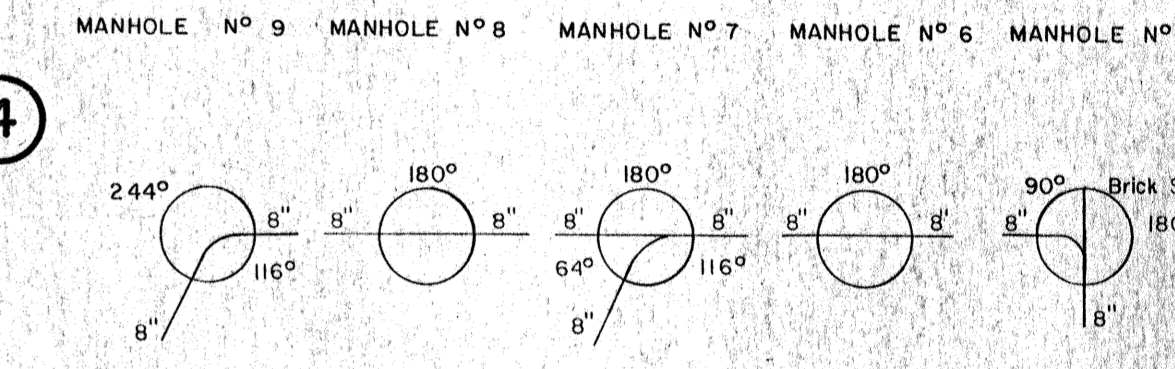
DATE
BY
REVISIONS
NOTED
ALIGNMENT CHECKED
FE. OR WAY CHECKED
No.

PLAN
NOTE BOOK
No.



MANDAN AVE @ 16TH STREET

MHI to W.G.V.	31.3'
Hyd to W.G.V.	18.3'
MHI to NW.G.V.	19.0'
Hyd to NW.G.V.	36.3'
MHI to SE.G.V.	61.2'
Hyd to SE.G.V.	107.2'



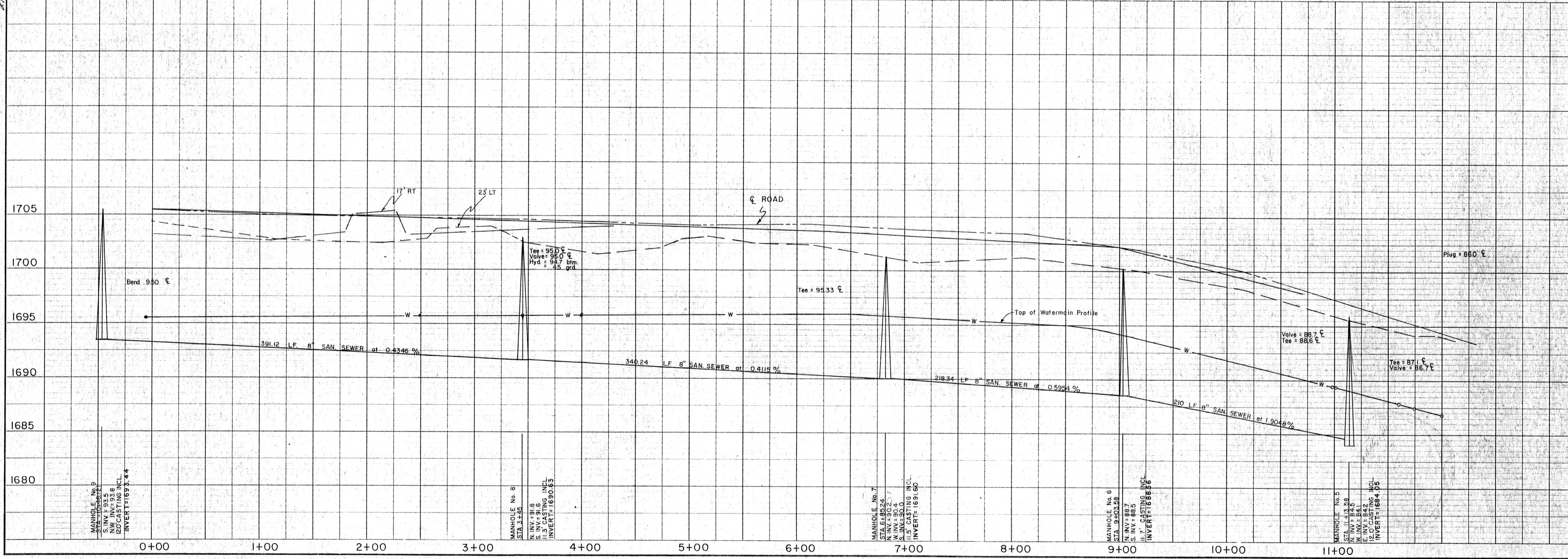
HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'
DATE JULY, 1977
DATE REVISED: JUNE 19, 1978

- Backfill shall be Class "F" Backfill except under approaches.
- Contractor shall seed all disturbed areas that are not paved. Seeding shall be Class II with fertilizer to be furnished and applied with the seed.
- Contractor shall remove and replace asphalt paving as directed by the Engineer to equal or better than existing conditions. Cost of removal and replacement shall be measured by the square yard and paid for on a square yard basis.
- Cost for removal and replacement of signs shall be considered incidental to other bid items.

MANDAN AVENUE

DATE
BY
REVISIONS
NOTED
ALIGNMENT CHECKED
FE. OR WAY CHECKED
No.

PROFILE
NOTE BOOK
No.



APPROXIMATE QUANTITIES THIS SHEET	
SANITARY SEWER ITEMS	
8" San Sewer	1160 LF
Pitrun Gravel	174 Ton
Subcut Gravel	5 Ton
Rock Excavation	0 -4- C.Y.
Concrete Manhole	5 EA
Removal & Replacement of asphalt	90 SY
Seeding	4000 SY
WATERMAIN ITEMS	
16" Watermain	1215 LF
8" Watermain	4 LF
Pitrun Gravel	445 Ton
Subcut Gravel	5 Ton
Rock Excavation	5 C.Y.
16" Gate Valve & Box	3 EA
8" Gate Valve & Box	1 EA
8" Hydrant	1 EA
Cast Iron Fittings	2565 LBS.
16" Tee M.J.	3EA 550-1650 LBS.
16" 1/8 Bend	1at 380-380
16" 1/8 Bend	1at 385-385
16" PLUG	1at 150-150 LBS.
Seeding	4000 SY
AREA 4	
MANDAN AVENUE	
1-94 R/W TO OLD RED TRAIL	
AS-BUILT BY HVC 1/12/79	

PLAN
 SURVEYED BY
 NOTED BY
 CHECKED BY
 DATE

PROFILE
 SURVEYED BY
 NOTED BY
 CHECKED BY
 DATE

GATE VALVE LOCATION

MH 12 to N G.V.	102.2'
Hyd to N G.V.	124.0'
MH 12 to S G.V.	100.1'
Hyd to S G.V.	124.2'
MH 12 to E G.V.	98.0'
Hyd to E G.V.	121.0'

GATE VALVE LOCATION

MH 7 to NW G.V.	66.0'
Hyd to NW G.V.	25.5'
MH 7 to W G.V.	77.5'
Hyd to W G.V.	19.6'

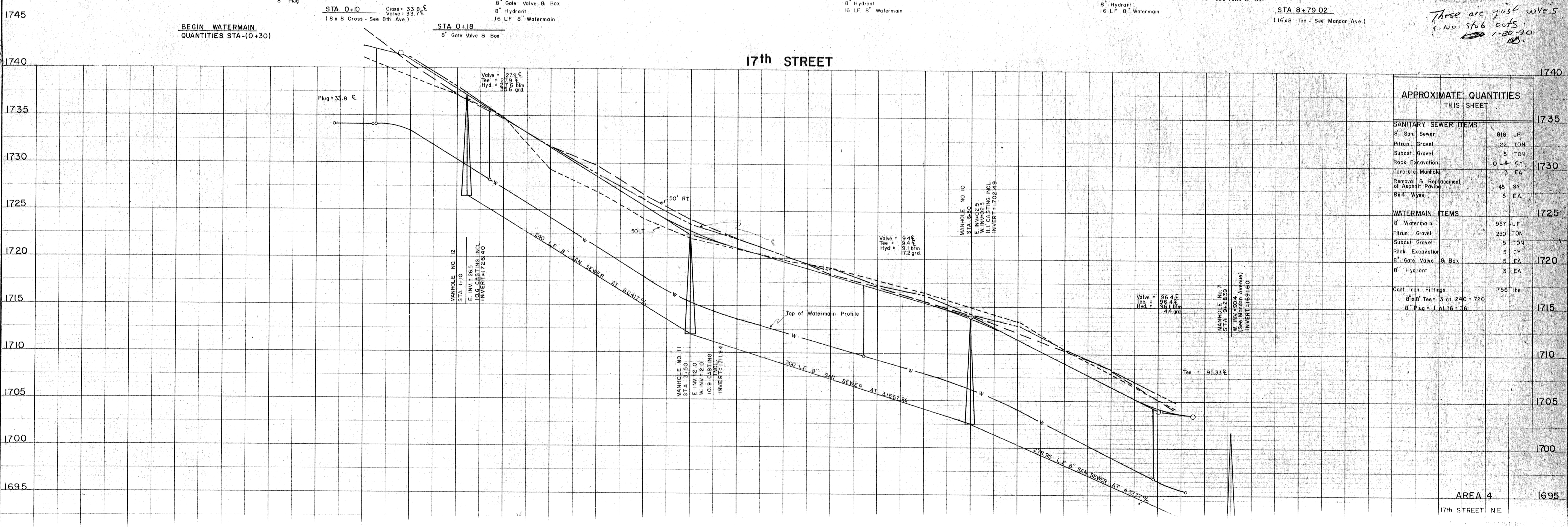
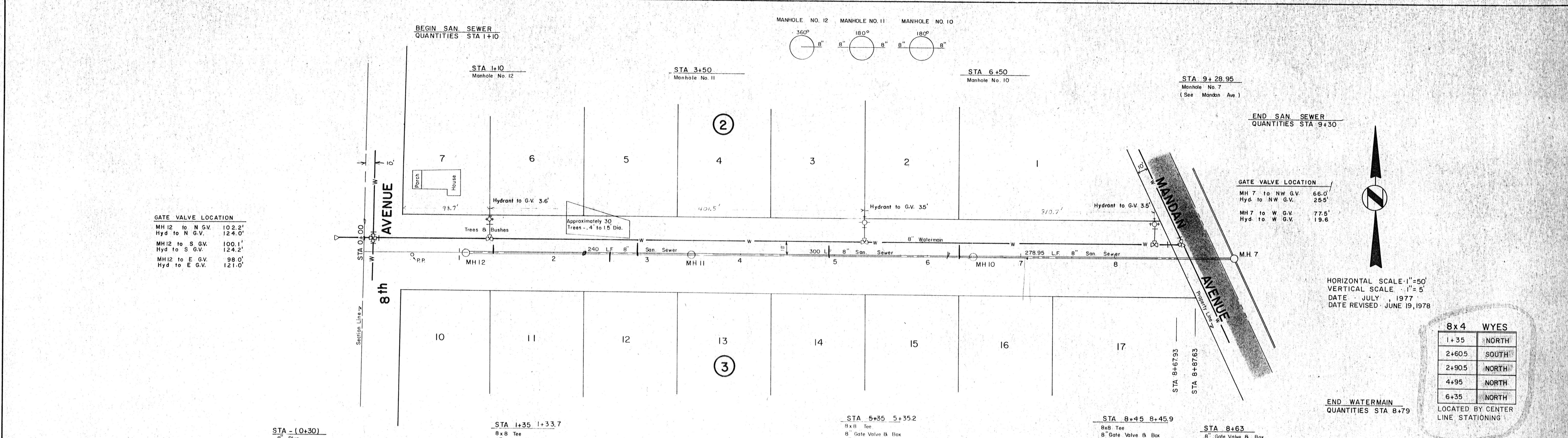
HORIZONTAL SCALE - 1" = 50'
 VERTICAL SCALE - 1" = 5'
 DATE - JULY, 1977
 DATE REVISED - JUNE 19, 1978

8 x 4 WYES

1+35	NORTH
2+60.5	SOUTH
2+90.5	NORTH
4+95	NORTH
6+35	NORTH

LOCATED BY CENTER LINE STATIONING

*These are just wyes
 & no stub outs.
 1-30-90
 RB.*



APPROXIMATE QUANTITIES THIS SHEET

SANITARY SEWER ITEMS	
8" San Sewer	816 LF
Pitrun Gravel	122 TON
Subcut Gravel	5 TON
Rock Excavation	0.8 CY
Concrete Manhole	3 EA
Removal & Replacement of Asphalt Paving	45 SY
8x4 Wyes	5 EA
WATERMAIN ITEMS	
8" Watermain	957 LF
Pitrun Gravel	250 TON
Subcut Gravel	5 TON
Rock Excavation	5 CY
8" Gate Valve & Box	5 EA
8" Hydrant	3 EA
Cast Iron Fittings	756 lbs
8"x8" Tees @ 240 = 720	
8" Plug = 1 @ 1.36 = 36	

AREA 4
 17th STREET N.E.

DATE: _____ BY: _____
 PLAN NOTE BOOK No. _____
 REVISIONS: _____
 CHECKED: _____
 DATE: _____

DATE: _____ BY: _____
 PROFILE NOTE BOOK No. _____
 REVISIONS: _____
 CHECKED: _____
 DATE: _____

HORIZONTAL SCALE: 1"=50'
 VERTICAL SCALE: 1"=10'
 DATE: JULY, 1977
 DATE REVISED: JUNE 19, 1978

GATE VALVE LOCATIONS
 MH 4 to E G.V. 104.1
 Hyd to E G.V. 189.2
 MH 4 to N G.V. 111.5
 Hyd to N G.V. 186.3

BEGIN SAN SEWER
 QUANTITIES STA. 1+20

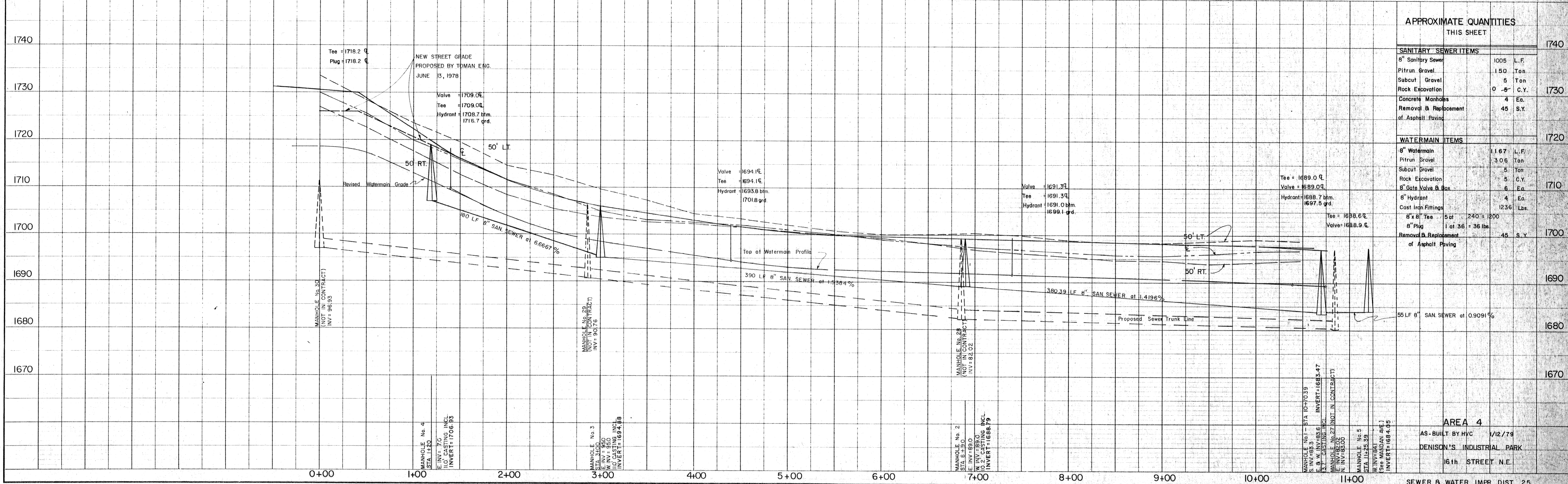
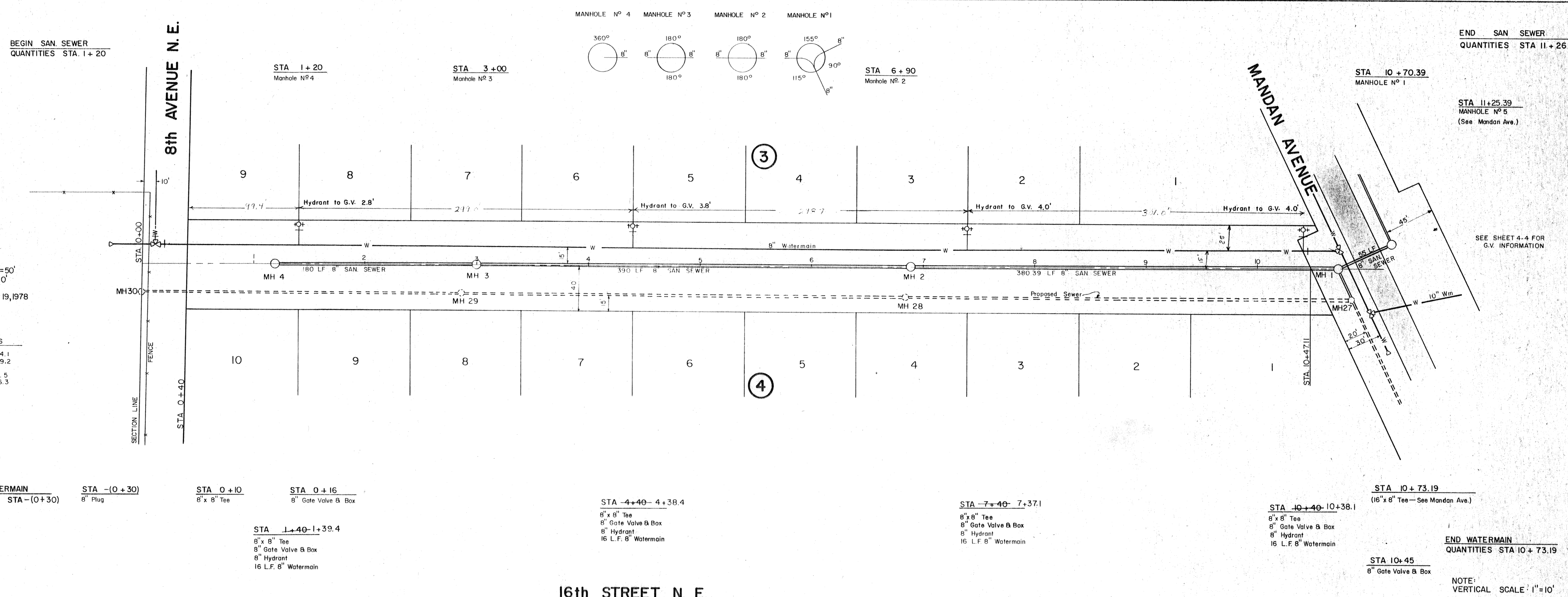
END SAN SEWER
 QUANTITIES STA 11+26

BEGIN WATERMAIN
 QUANTITIES STA -(0+30)

END WATERMAIN
 QUANTITIES STA 10+73.19

STA 10+45
 8" Gate Valve & Box

NOTE:
 VERTICAL SCALE: 1"=10'



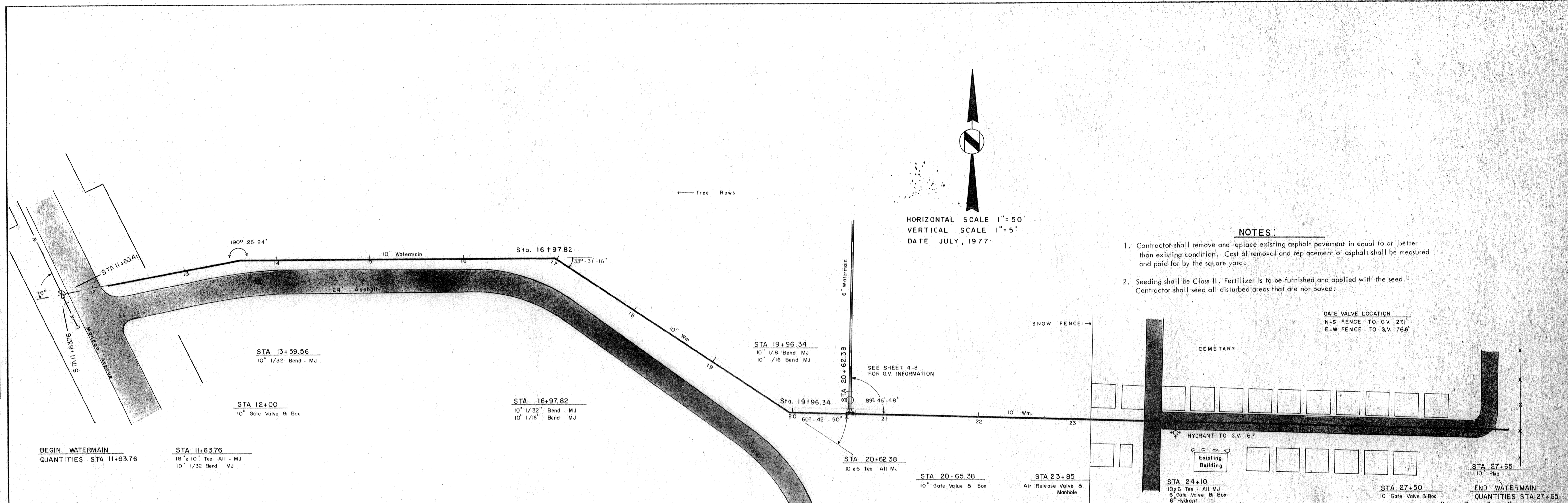
APPROXIMATE QUANTITIES THIS SHEET

SANITARY SEWER ITEMS	
8" Sanitary Sewer	1005 L.F.
Pitrun Gravel	150 Ton
Subcut Gravel	5 Ton
Rock Excavation	0 - 6 C.Y.
Concrete Manholes	4 Ea.
Removal & Replacement of Asphalt Paving	45 S.Y.
WATERMAIN ITEMS	
8" Watermain	1167 L.F.
Pitrun Gravel	306 Ton
Subcut Gravel	5 Ton
Rock Excavation	5 C.Y.
8" Gate Valve & Box	6 Ea.
8" Hydrant	4 Ea.
Cast Iron Fittings	1236 Lbs.
8" x 8" Tee 5 at 240 = 1200	
8" Plug 1 at 36 = 36 lbs.	
Removal & Replacement of Asphalt Paving	45 S.Y.

AREA 4
 AS-BUILT BY HVC 1/12/78
 DENISON'S INDUSTRIAL PARK
 16th STREET N.E.

PLAN
 DRAWN BY: []
 CHECKED BY: []
 DATE: []

PROFILE
 DRAWN BY: []
 CHECKED BY: []
 DATE: []

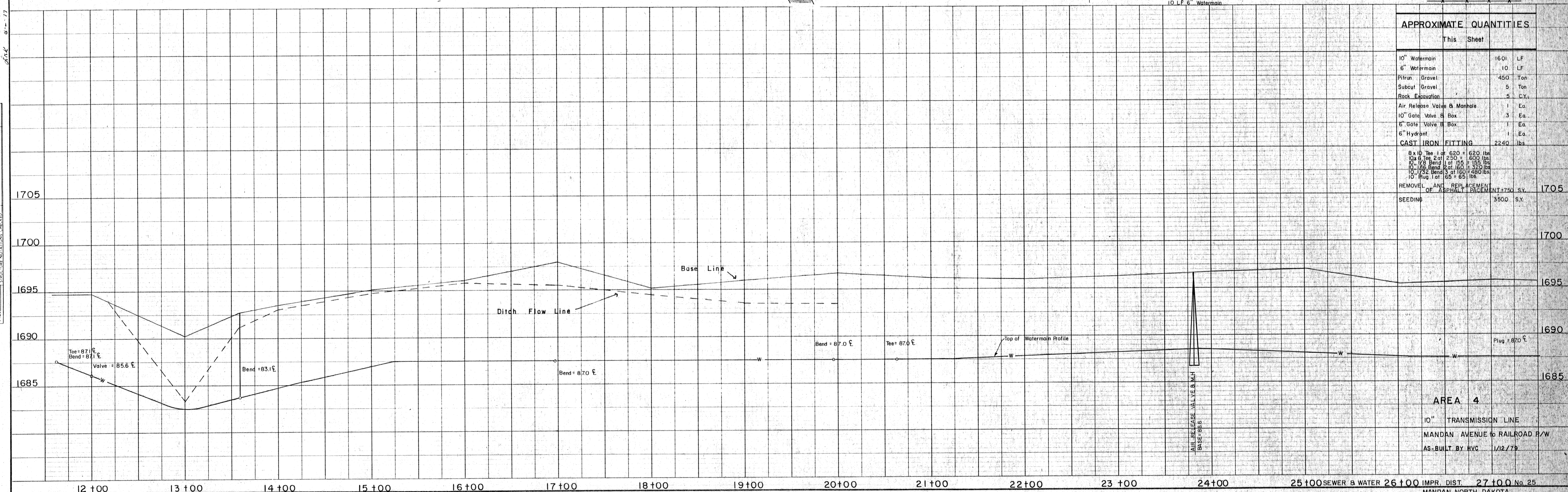


- NOTES:**
- Contractor shall remove and replace existing asphalt pavement in equal to or better than existing condition. Cost of removal and replacement of asphalt shall be measured and paid for by the square yard.
 - Seeding shall be Class II. Fertilizer is to be furnished and applied with the seed. Contractor shall seed all disturbed areas that are not paved.

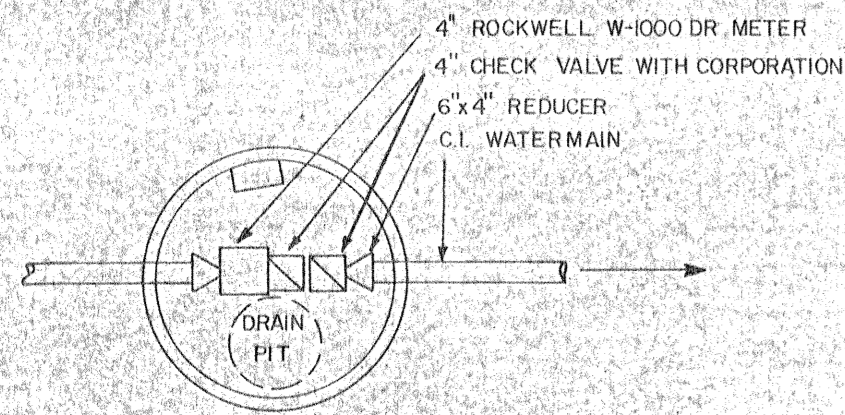
GATE VALVE LOCATION
 N-S FENCE TO G.V. 27.1
 E-W FENCE TO G.V. 76.6

APPROXIMATE QUANTITIES

This Sheet	
10" Watermain	1601 LF
6" Watermain	10 LF
Pitrun Gravel	450 Ton
Subcut Gravel	5 Ton
Block Excavation	5 CY
Air Release Valve & Manhole	1 Ea.
10" Gate Valve & Box	3 Ea.
6" Gate Valve & Box	1 Ea.
6" Hydrant	1 Ea.
CAST IRON FITTING	2240 lbs
8 x 10 Tee 1 of 620 = 620 lbs	
10 x 6 Tee 2 of 230 = 600 lbs	
10 x 1/8 Bend 1 of 155 = 155 lbs	
10 x 1/16 Bend 3 of 160 = 480 lbs	
10 x 1/32 Bend 3 of 160 = 480 lbs	
10" Plug 1 of 65 = 65 lbs	
REMOVAL AND REPLACEMENT OF ASPHALT PAVEMENT	1750 SQ. YD.
SEEDING	3500 SQ. YD.



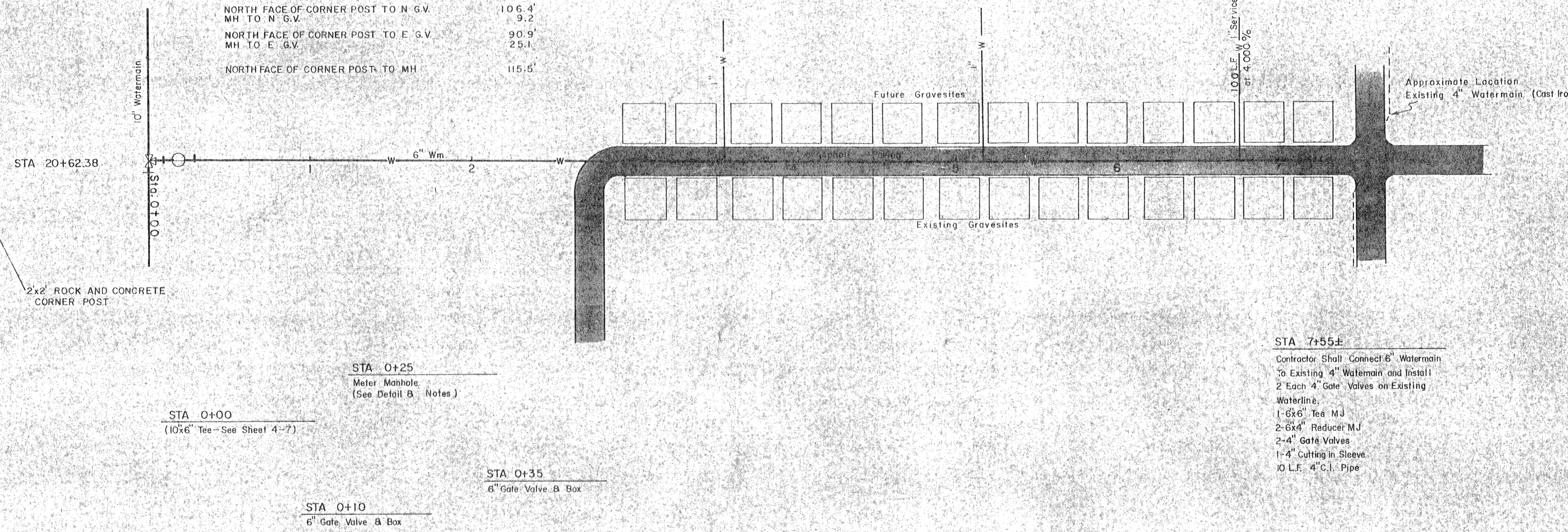
AREA 4
 10" TRANSMISSION LINE
 MANDAN AVENUE TO RAILROAD P/W
 AS-BUILT BY RVC 1/12/79



HORIZONTAL SCALE 1"=50'
 VERTICAL SCALE 1"=5'
 DATE JULY 6, 1977

GATE VALVE LOCATION

NORTH FACE OF CORNER POST TO FARTHEST N.G.V.	123.5'
MH TO FARTHEST N.G.V.	10.2'
NORTH FACE OF CORNER POST TO N.G.V.	106.4'
MH TO N.G.V.	9.2'
NORTH FACE OF CORNER POST TO E.G.V.	90.9'
MH TO E.G.V.	25.1'
NORTH FACE OF CORNER POST TO MH	115.5'



STA 7+55.4
 Contractor Shall Connect 6" Watermain
 to Existing 4" Watermain and Install
 2 Each 4" Gate Valves on Existing
 Watermain:
 1-6x4" Tee M.U.
 2-6x4" Reducer M.U.
 2-4" Gate Valves
 1-4" Cutting in Sleeve
 10 L.F. 4" C.I. Pipe

- NOTE:
- Backfill from Sta. 0+00 to Sta. 2+50 shall be Class "F" Backfill. The remaining area shall be Class "B" Backfill.
 - Contractor shall seed all disturbed areas that are not paved. Seeding shall be Class II with fertilizer to be furnished and applied with the seed.
 - Contractor shall remove and replace asphalt paving as directed by the Engineer to equal or better than existing conditions. Cost of removal and replacement shall be measured by the square yard and paid for at a square yard basis.
 - Contractor shall locate existing 4" Watermain and notify the Engineer of the elevation of said pipe prior to installation of 6" Watermain shown on this sheet. (1691-5)

- METER MANHOLE
- Manhole shall be 72" in diameter and shall conform to notes 1, 4, 5, and 7 of detail 1319 (Air Release Manhole).
 - All fittings within manhole shall be flanged.
 - Contractor shall supply and install two each four (4) foot lengths of 6" cast iron pipe. Said cast iron pipe shall be considered incidental to price bid for Meter Manhole.
 - Meter and check valves shall be supported by a 1'-0" high concrete support.
 - Manhole base shall have a 1'-6" diameter opening with a 3'-0" diameter by 2'-0" deep area of 1 1/2" washed gravel.
 - Both check valves shall be supplied with a 1" corporation topped into the up stream portion of the valve.
 - Reducer located to the north of the check valves shall be supplied with a 3/4" hose bib and valve.
 - Price bid for "Meter Manhole" in place and accepted by the Engineer shall include manhole, manhole base and casting, 1 1/2" washed gravel, insulation, concrete support, check valves as specified, meter, reducers as specified, 2 each four (4) foot lengths of C.I. pipe and all labor necessary to construct meter manhole as shown.

PLAN

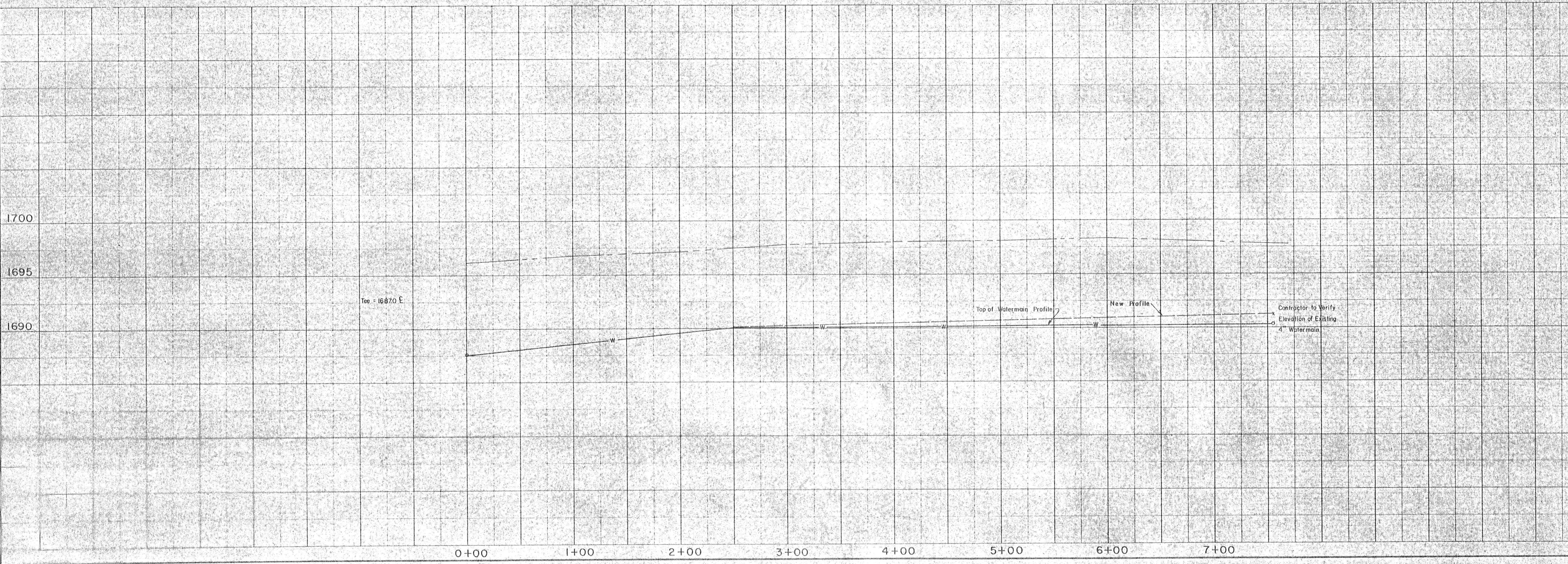
DATE	
BY	
REVISION	
NO.	

PROFILE

DATE	
BY	
REVISION	
NO.	

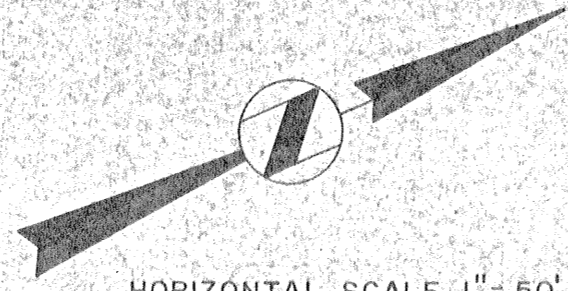
APPROXIMATE QUANTITIES

THIS SHEET	
6" Watermain	745 L.F.
4" Watermain	10 L.F.
Pitrun Gravel	180 Ton
Subcut Gravel	5 Ton
Rock Excavation	5 C.Y.
6" Gate Valve & Box	2 Ea.
4" Gate Valve & Box	2 Ea.
Seeding Class II	500 S.Y.
Asphalt Pavement Removal and Replacement	540 S.Y.
Meter Manhole	1 Ea.
7" Service Line	300 L.F.
1" Corporation	3 Ea.
Cast Iron Fittings	380 lbs.
6x6" Tee	1 at 150 lbs.
6x4" Reducer	2 at 60 lbs.
4" Cutting in Sleeve	1 at 100 lbs.



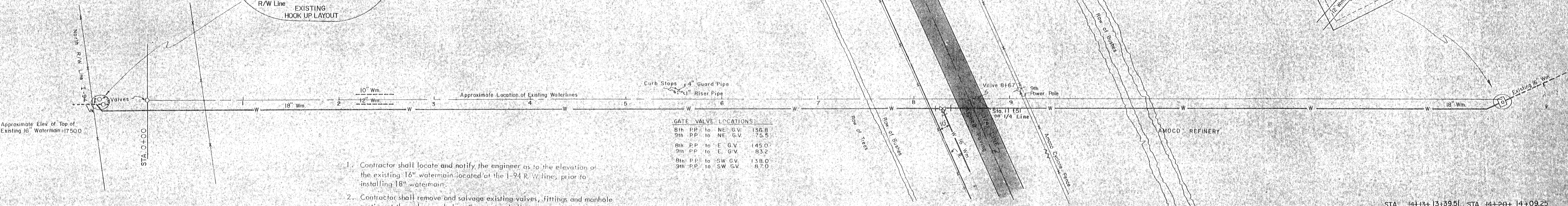
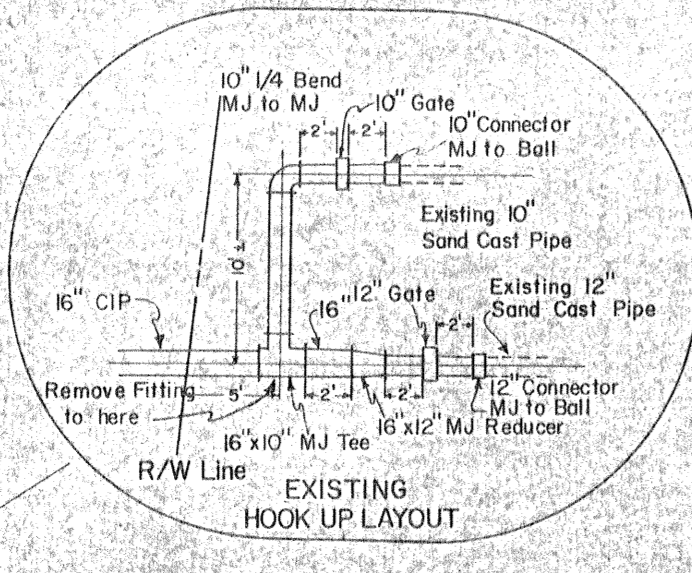
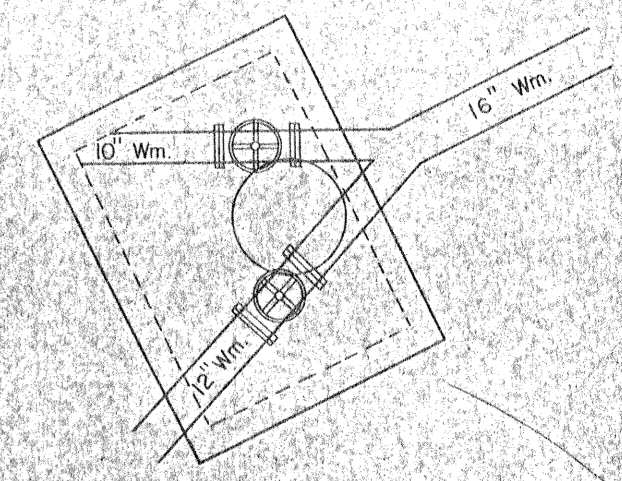
AREA 4
 UNION CEMETARY
 6" WATERLINE
 AS-BUILT BY NYC 1/12/79

SEWER & WATER IMPR. DIST. NO. 25
 MANDAN, NORTH DAKOTA



HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 6'
 DATE: JULY, 1977

EXISTING
 GATE VALVE MANHOLE



GATE VALVE LOCATIONS:

8th P.P. to NE G.V.	136.8
9th P.P. to NE G.V.	75.5
8th P.P. to E G.V.	145.0
9th P.P. to E G.V.	83.2
8th P.P. to SW G.V.	138.0
9th P.P. to SW G.V.	87.0

- Contractor shall locate and notify the engineer as to the elevation of the existing 16" watermain located at the I-94 R/W line, prior to installing 18" watermain.
- Contractor shall remove and salvage existing valves, fittings and manhole casting at the valve manhole. Contractor shall remove and dispose of the manhole. Cost for salvage and/or removal shall be considered incidental to other bid items.
- Backfill from Sta. - (0 + 55) to Sta. 8 + 30 and from Sta. 8 + 90 to Sta. 14 + 20 shall be Class "F" backfill.
- Contractor shall seed from Sta. 8 + 00 to Sta. 14 + 20 except area to be paved. Seeding shall be Class II with fertilizer to be furnished and applied with the seed.
- Contractor shall remove and replace asphalt paving as directed by the engineer to equal or better than existing conditions. Cost of removal and replacement shall be measured by the square yard and paid for at a square yard basis.
- Cost for removal and replacement of fences shall be considered incidental to other bid items.
- Contractor shall remove and dispose of the existing curb stops and guard pipe.

BEGIN WATERMAIN
 I-94 R/W STA-(0+55)±

STA 14+13± 13+39.51 STA 14+20± 14+09.25
 18" 1/8 Bend-MJ 18" 1/8 Reducer-MJ

STA -(0+55)±
 Remove & Salvage Existing Fittings
 Install 18" to 16" Reducer-MJ
 Install 18" 1/8 Bend-MJ
 18" Gate Valve & Box

STA (0+50)
 18" 1/8 Bend-MJ

STA 1+00 ±
 18" x 6" Tee - M.J.
 6" Watermain-16 L.F.

STA 5+50
 Air Release Valve & Manhole

STA 8+30 ± 8+26.53
 18" 1/8 Tee - All MJ
 16" 1/4 Bend-MJ
 16" 1/8 Bend-MJ
 16" 1/16 Bend-MJ

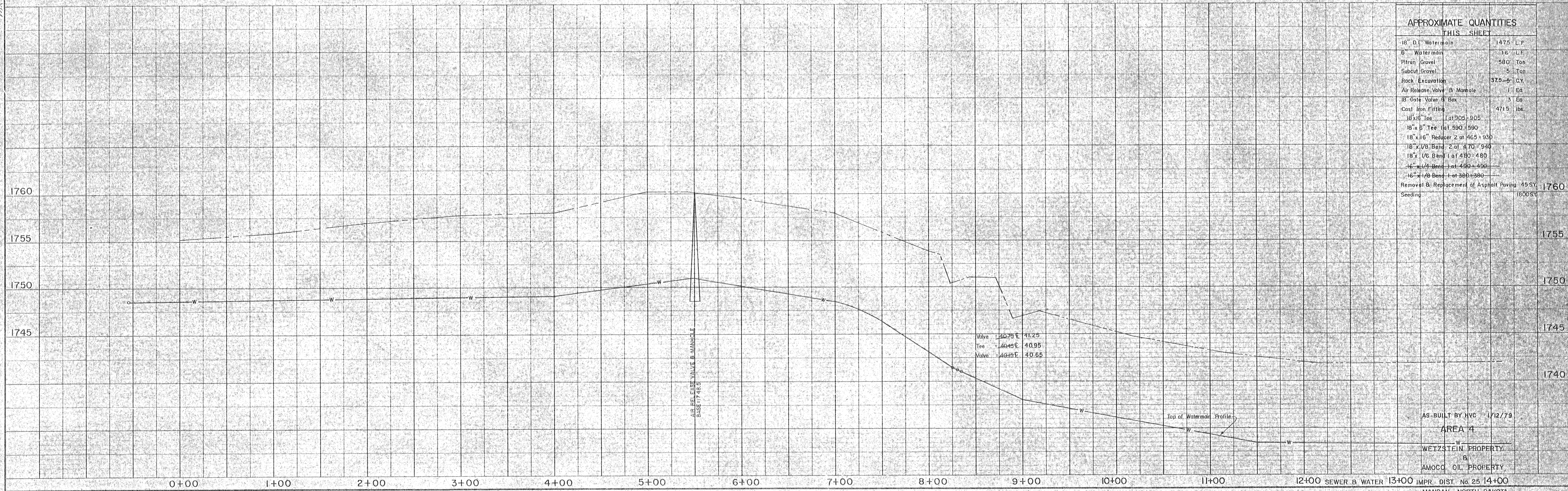
STA 8+25
 18" Gate Valve & Box

STA 8+35
 18" Gate Valve & Box

END WATERMAIN
 QUANTITIES STA 14+20±

APPROXIMATE QUANTITIES
 THIS SHEET

18" D.I. Watermain	1475 L.F.
6" Watermain	16 L.F.
Pitrun Gravel	580 Ton
Subcut Gravel	5 Ton
Rock Excavation	375-5 CY
Air Release Valve & Manhole	1 Ea
18" Gate Valve & Box	3 Ea
Cast Iron Fittings	4715 lbs
18" x 18" Tee	1 at 305-305
18" x 8" Tee	1 at 590-590
18" x 16" Reducer 2 at	465-930
18" x 1/8 Bend 2 at	470-940
18" 1/8 Bend 1 at	480-480
16" x 1/8 Bend 1 at	490-490
16" x 1/8 Bend 1 at	380-380
Removal & Replacement of Asphalt Paving	45 SY
Seeding	1800 SY



AS-BUILT BY HVC 1/12/79
 AREA 4
 WETZSTEIN PROPERTY
 AMOCO OIL PROPERTY
 IMPR. DIST. NO. 25 14+00
 MANDAN, NORTH DAKOTA

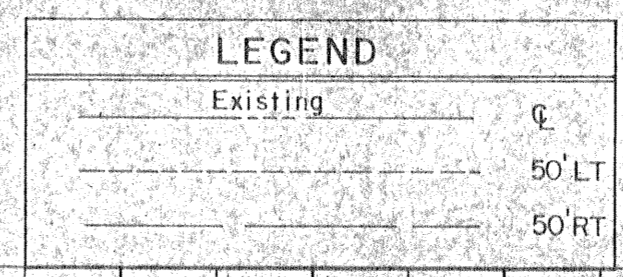
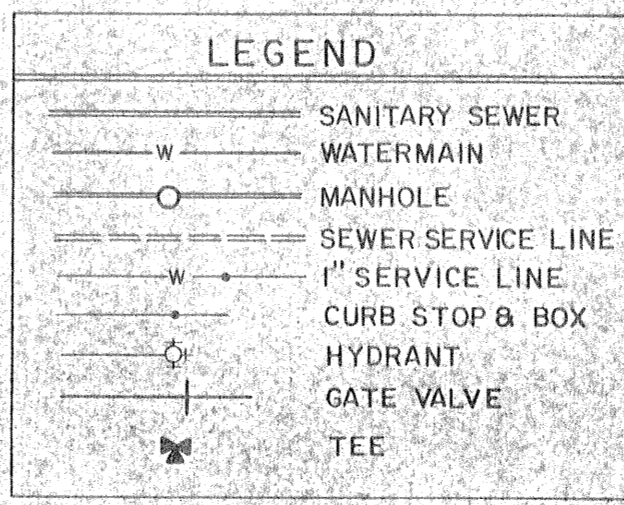
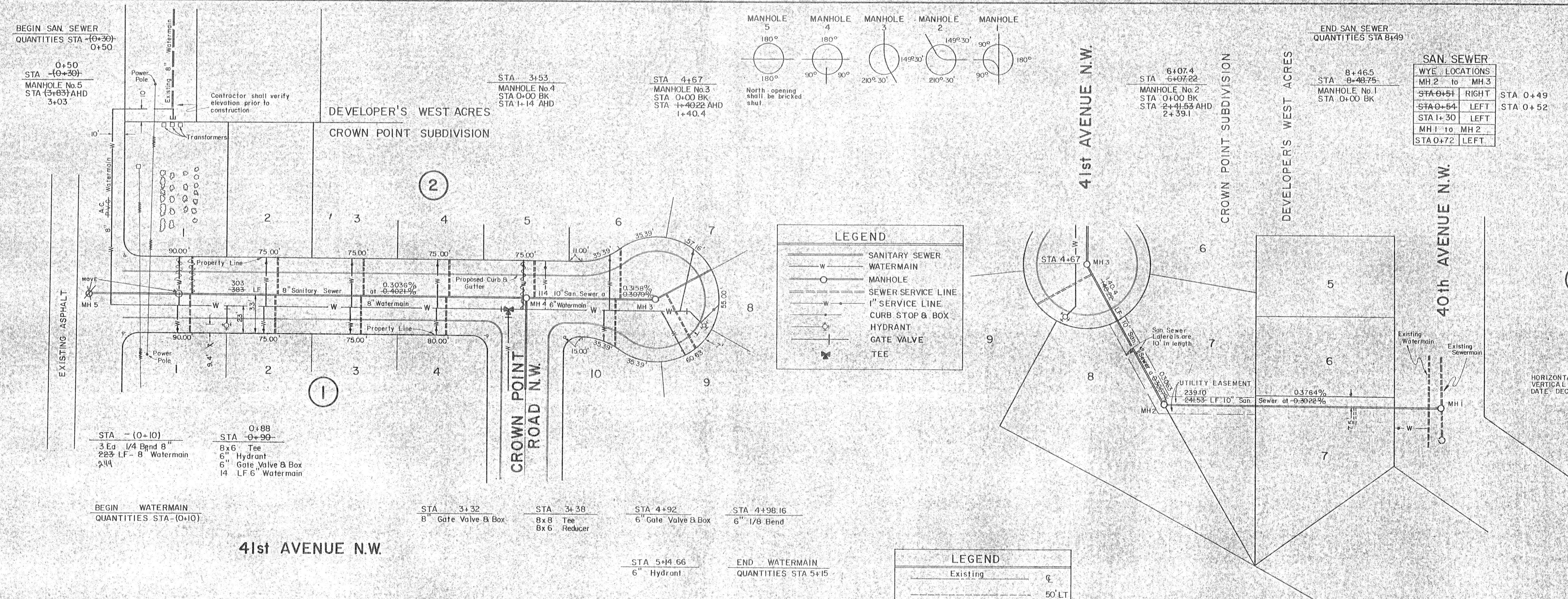
PLAN
 DATE: _____ BY: _____
 CHECKED: _____
 DATE: _____ BY: _____
 NOTE BOOK No. _____

SAN SEWER

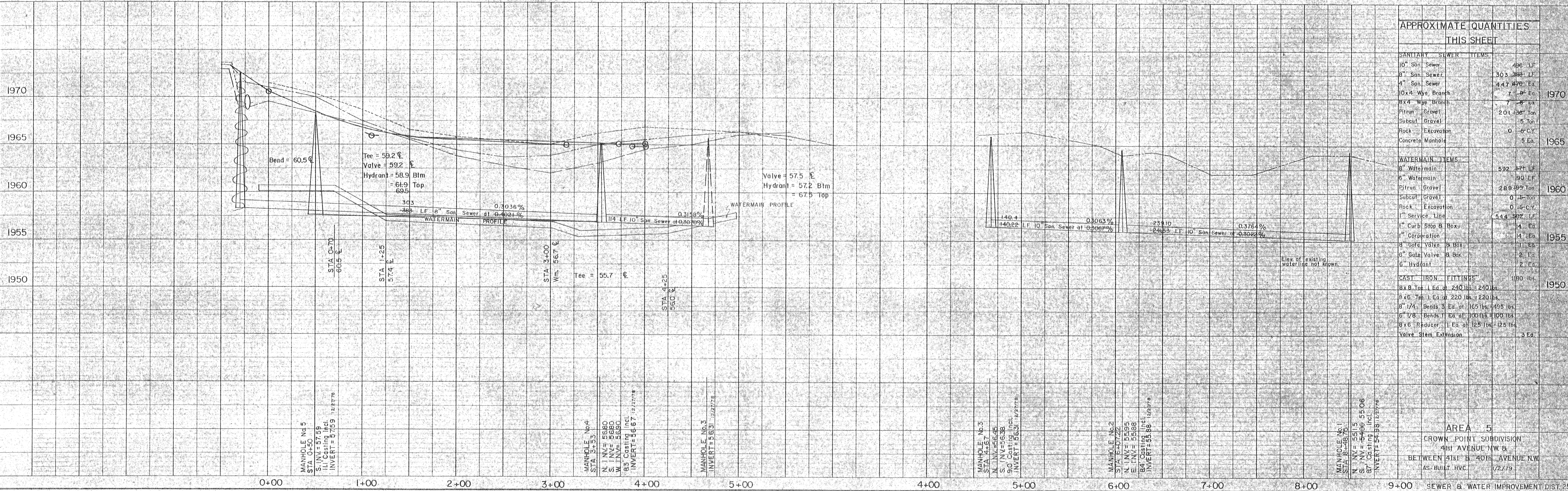
WYE LOCATION	WYE LOCATIONS
MH 3 to MH 4	MH 2 to MH 3
STA 0+30 RIGHT	STA 0+51 RIGHT
STA 0+33 LEFT	STA 0+54 LEFT
STA 1+06 RIGHT	STA 1+30 LEFT
MH 4 to MH 5	MH 1 to MH 2
STA 0+67 RIGHT	STA 0+72 LEFT
STA 0+70 LEFT	
STA 1+42 RIGHT	
STA 1+45 LEFT	
STA 2+17 RIGHT	
STA 2+20 LEFT	
STA 2+92 RIGHT	
STA 2+95 LEFT	

NOTE: Water Service lines are to be located 10' from sewer service lines at the property lines, unless otherwise noted.

HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'
 DATE: DECEMBER, 1977



PROFILE
 DATE: _____ BY: _____
 CHECKED: _____
 DATE: _____ BY: _____
 NOTE BOOK No. _____



APPROXIMATE QUANTITIES THIS SHEET

SANITARY SEWER ITEMS	QUANTITIES
10" San Sewer	486 LF
8" San Sewer	303 LF
4" San Sewer	447 LF
10" Wye Branch	7 LF
8" Wye Branch	7 LF
Fitron Crown	201 Ton
Subsol Gravel	5 Ton
Rock Excavation	0 C.Y.
Concrete Manhole	5 Ea.
WATERMAIN ITEMS	
8" Watermain	582 LF
6" Watermain	180 LF
Fitron Crown	289 Ton
Subsol Gravel	0 Ton
Rock Excavation	0 C.Y.
1" Service Line	444 LF
1" Curb Stop & Box	14 Ea.
1" Corporation	14 Ea.
8" Gate Valve & Box	1 Ea.
6" Gate Valve & Box	2 Ea.
6" Hydrant	2 Ea.
CAST IRON FITTINGS	1180 lbs
8x8 Tee 1 Ea. at 240 lbs = 240 lbs	
6x6 Tee 1 Ea. at 220 lbs = 220 lbs	
6" 1/4" Bends 3 Ea. at 165 lbs = 495 lbs	
6" 1/4" Bends 1 Ea. at 100 lbs = 100 lbs	
8x6 Reducer 1 Ea. at 125 lbs = 125 lbs	
Valve Stem Extension	3 Ea.

AREA 5
 CROWN POINT SUBDIVISION
 41st AVENUE NW &
 BETWEEN 41st & 40th AVENUE NW
 AS-BUILT HVC 1/22/79

PLAN
 DATE: _____
 BY: _____
 CHECKED: _____
 APPROVED: _____
 TITLE: _____
 SHEET NO. _____

PROFILE
 DATE: _____
 BY: _____
 CHECKED: _____
 APPROVED: _____
 TITLE: _____
 SHEET NO. _____

OLD HIGHWAY No. 10

CROWN POINT ROAD N.W.

41st AVENUE N.W.

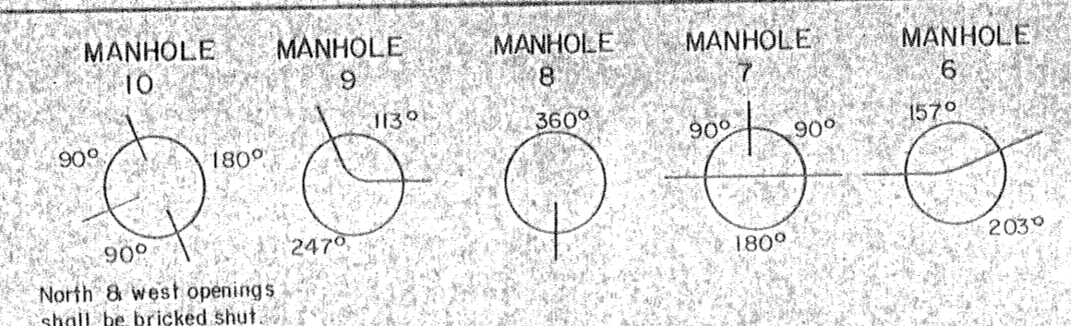
SAN SEWER
 WYE LOCATIONS
 MH 7 to MH 8
 STA 1+09 RIGHT
 STA 1+14 LEFT
 STA 1+22 RIGHT

SAN SEWER

WYE LOCATIONS

MH 4 to MH 6
STA 1+84 LEFT
STA 1+87 RIGHT
MH 6 to MH 7
STA 0+05 LEFT
STA 0+68 RIGHT
STA 0+76 LEFT
STA 1+51 LEFT
MH 7 to MH 9
STA 0+60 LEFT
STA 0+83 RIGHT
STA 1+36 LEFT
STA 2+08 RIGHT
STA 2+11 LEFT
STA 2+85 LEFT
STA 3+00 LEFT
MH 9 to MH 10
STA 0+16 LEFT
STA 0+88 LEFT
STA 1+00 RIGHT

NOTE: Water service lines are to be located 10' from sewer service at property line unless otherwise noted.

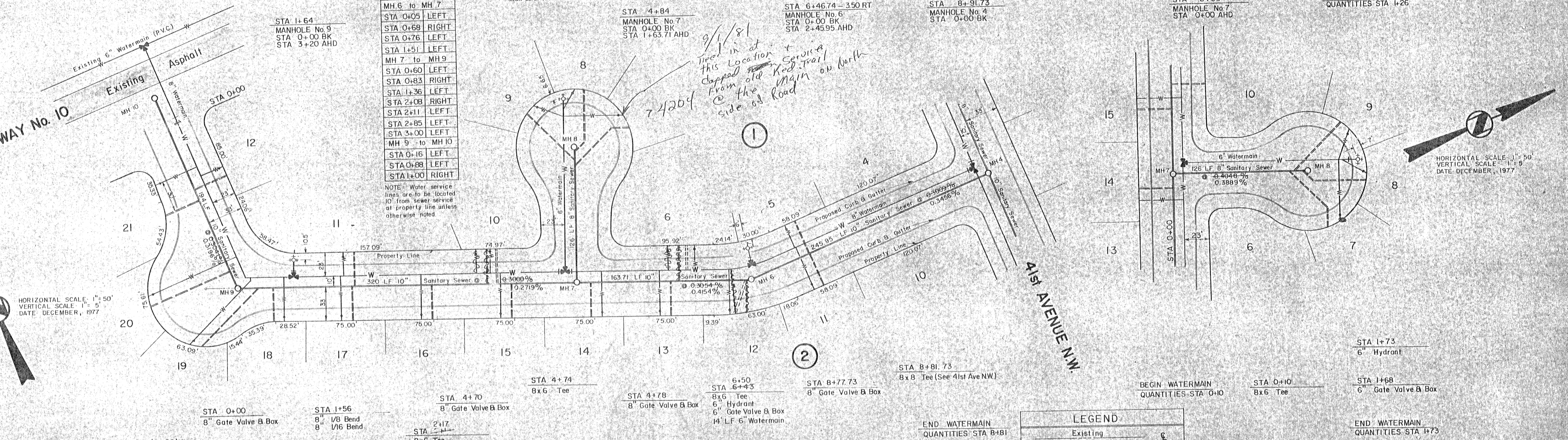


LEGEND

— W —	SANITARY SEWER
— W —	WATERMAIN
○	MANHOLE
— W —	SEWER SERVICE LINE
— W —	1" SERVICE LINE
— W —	CURB STOP & BOX
○	HYDRANT
— W —	GATE VALVE
— W —	TEE

LEGEND

—	Existing
—	50' LT
—	50' RT



BEGIN WATERMAIN
 QUANTITIES STA - (0+60)

STA - (0+80) ±
 1 Ea 6" x 8" Bullhead Tee
 2 Ea 6" Transition Gasket
 PVC to A.C.

STA 0+00
 8" Gate Valve & Box

STA 1+56
 8" 1/8 Bend
 8" 1/6 Bend

STA 4+70
 8" Gate Valve & Box

STA 2+17
 8x6 Tee
 6" Hydrant
 6" Gate Valve & Box
 14 LF 6" Watermain

STA 4+74
 8x6 Tee

STA 4+78
 8" Gate Valve & Box

STA 6+50
 STA 6+43
 8x6 Tee
 6" Hydrant
 6" Gate Valve & Box
 14 LF 6" Watermain

STA 8+77.73
 8" Gate Valve & Box

STA 8+81.73
 8x8 Tee (See 41st Ave NW)

END WATERMAIN
 QUANTITIES STA 8+81

BEGIN WATERMAIN
 QUANTITIES STA 0+10

STA 0+10
 8x6 Tee

STA 1+73
 6" Hydrant

STA 1+68
 6" Gate Valve & Box

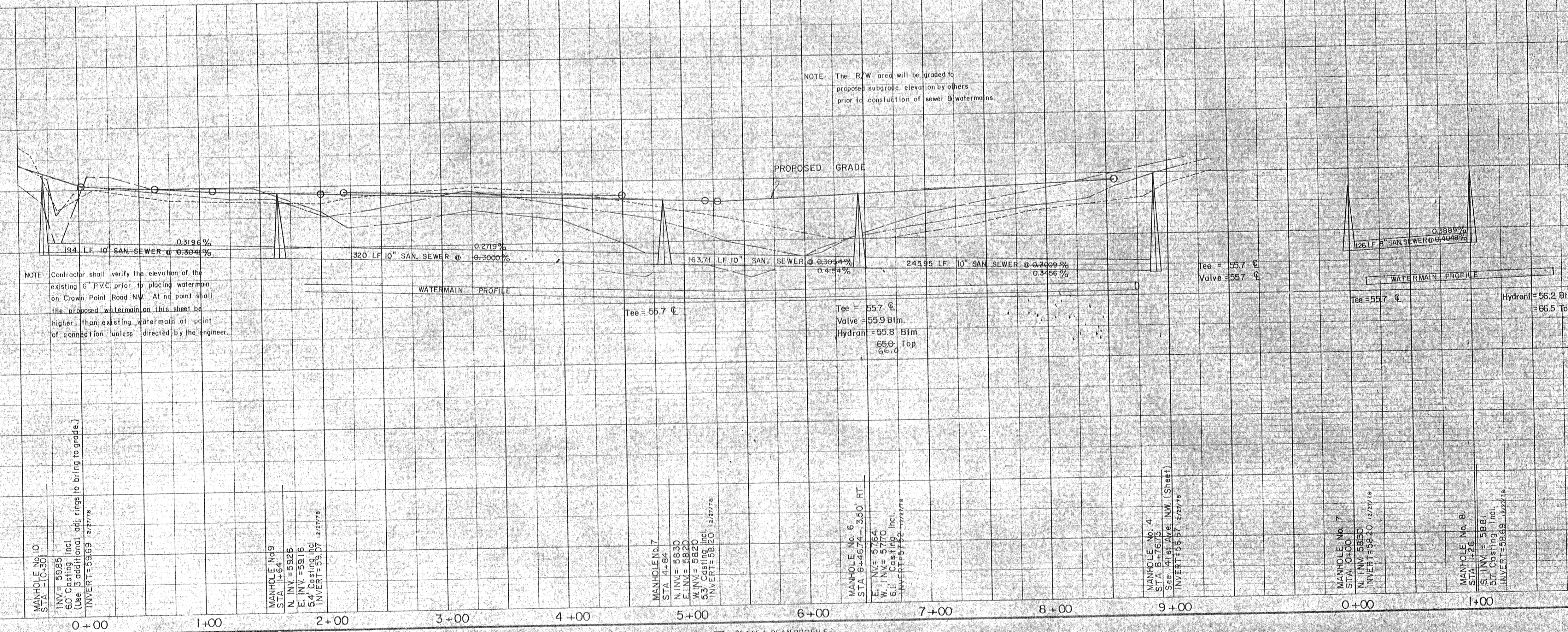
END WATERMAIN
 QUANTITIES STA 1+73

NOTE: Contractor shall verify the elevation of the existing 6" PVC prior to placing watermain on Crown Point Road NW. At no point shall the proposed watermain on this sheet be higher than existing watermain at point of connection unless directed by the engineer.

NOTE: The R/W area will be graded to proposed subgrade elevation by others prior to construction of sewer & watermain.

APPROXIMATE QUANTITIES THIS SHEET

ITEM	QUANTITY	UNIT
SANITARY SEWER		
10" Sanitary Sewer	924	LF
8" Sanitary Sewer	126	LF
4" Sanitary Sewer	802	LF
10" Wye Branch	1	Ea
3 Ea	3	Ea
1/4" Wye Branch	245	LF
1/4" Gravel	5	Ton
Subcut Gravel	0	LF
Rock Excavation	0	LF
Concrete Manhole	4	Ea
WATERMAIN ITEMS		
8" Watermain	342	LF
6" Watermain	188.5	LF
1/4" Gravel	433	Ton
Subcut Gravel	0	LF
Rock Excavation	0	LF
Service Line	651	LF
1" Curb Stop & Box	13	Ea
1" Copulation	19	Ea
8" Gate Valve & Box	4	Ea
6" Gate Valve & Box	3	Ea
6" Hydrant	3	Ea
6" Transition Gasket	2	Ea
CAST IRON FITTINGS		
6x6 Tee	210	Lbs
8x6 Tee	220	Lbs
8" 1/8 Bend	145	Lbs
8" 1/6 Bend	145	Lbs
Removal & Replacement of Asphalt	64	Sq Yd
Valve Stem Extensions	7	Ea



AREA 5
 CROWN POINT SUBDIVISION
 CROWN POINT ROAD
 AS-BUILT HVAC
 1/27/73

SEWER & WATER IMPROVEMENT DIST. 25
 MANDAN, NORTH DAKOTA

SHEET No. 5-2

DIANE'S II SUBDIVISION
(Ties to Curb Boxes and Sewer Services)

BLOCK 1	SEWER SERVICE	CURB BOX	BLOCK 3	SEWER SERVICE	CURB BOX	BLOCK 5	SEWER SERVICE	CURB BOX	BLOCK 7	SEWER SERVICE	CURB BOX	GATE VALVES	
LOT 1	54.7 to MH-15 241.0 to MH-14	38.4 to MH-15 212 to MH-14	LOT 16	215.0 to Hyd. L. 3 & 4 B. 5 62.5 to MH-12	205.0 to Hyd. L. 3 & 4 B. 5 70.0 to MH-12	LOT 17	74.5 to MH-36 182.5 to Hyd. L. 20 B. 5	66.0 to MH-36 148.5 to Hyd. L. 20 B. 5				15th Street NE & 3rd Avenue NE	
LOT 2	75.0 to MH-15 155.0 to MH-14	83.7 to MH-15 144.5 to MH-14	LOT 17	244.0 to MH-14 100.0 to MH-12	253.0 to MH-14 89.0 to MH-12	LOT 18	182.0 to MH-36 73.0 to Hyd. L. 20 B. 5	186.5 to MH-36 62.0 to Hyd. L. 20 B. 5				MH-1 to S G.V. Hyd. L. 14 B. 4 to S G.V. 27.5 56.5	
LOT 3	86.0 to MH-14 116.0 to MH-16	115.0 to MH-14 39.5 to MH-16	BLOCK 4		BLOCK 4		LOT 19	210.0 to MH-36 44.5 to Hyd. L. 20 B. 5	209.0 to MH-36 31.0 to Hyd. L. 20 B. 5				MH-1 to NW G.V. Hyd. L. 14 B. 4 to NW G.V. 30.3 61.5
LOT 4		41.5 to MH-16 184.0 to MH-14	LOT 1	50.8 to MH-15 234.0 to MH-14	46.8 to MH-15 224.0 to MH-14	LOT 20	208.0 to MH-36 20.0 to Hyd. L. 20 B. 5	193.0 to MH-36 10.5 to Hyd. L. 20 B. 5				MH-1 to SE G.V. Hyd. L. 14 B. 4 to E G.V. 84.7 82.0	
LOT 5	215.0 to MH-17 159.0 to Hyd. L. 4 & 5 B. 3	204.0 to MH-17 145.0 to Hyd. L. 4 & 5 B. 3	LOT 2	147.2 to MH-14 82.5 to MH-15	134.7 to MH-14 85.5 to MH-15	LOT 21	180.5 to MH-36 53.0 to Hyd. L. 20 B. 5	181.0 to MH-36 42.5 to Hyd. L. 20 B. 5				Shannon's Drive & 15th Street NE	
LOT 6	101.0 to Hyd. L. 4 & 5 B. 3 154.0 to MH-17	91.5 to Hyd. L. 4 & 5 B. 3 144.0 to MH-17	LOT 3	140.7 to MH-15 83.0 to MH-14	150.3 to MH-15 79.3 to MH-14	LOT 22	84.5 to MH-36 176.0 to Hyd. L. 20 B. 5	83.5 to MH-36 128.0 to Hyd. L. 20 B. 5				MH-2 to NW G.V. Hyd. L. 6-7 B. 7 to NW G.V. 31.0 93.0	
LOT 7	78.0 to MH-17 53.5 to Hyd. L. 4 & 5 B. 3	85.0 to MH-17 106.5 to Hyd. L. 4 & 5 B. 3	LOT 4	50.0 to MH-14 206.0 to MH-15	47.0 to MH-14 212.5 to MH-15	LOT 23	168.0 to MH-36 218.0 to Hyd. L. 20 B. 5	157.0 to MH-36 221.9 to Hyd. L. 20 B. 5				MH-2 to SE G.V. Hyd. L. 6-7 B. 7 to SE G.V. 34.0 101.1	
BLOCK 2			LOT 5	94.0 to MH-14 278.0 to MH-12	100.0 to MH-14 270.0 to MH-12	LOT 24	74.0 to MH-35 283.0 to MH-11	77.0 to Hyd. L. 14 B. 4 213.0 to MH-11				Anne's Place & 14th Street NE	
LOT 1		121.0 to Hyd. L. 4 & 5 B. 3 61.0 to MH-17	LOT 6	197.0 to MH-12 175.0 to MH-14	189.5 to MH-12 179.0 to MH-14	LOT 25	118.0 to MH-11 166.0 to Hyd. L. 14 B. 4	127.0 to MH-11 156.0 to Hyd. L. 14 B. 4				MH-7 to SE G.V. Hyd. L. 10 B. 5 to SE G.V. 28.8 44.5	
LOT 2	31.0 to MH-18 90.3 to MH-10	34.8 to MH-18 82.0 to MH-10	LOT 7	242.0 to MH-14 147.0 to MH-12	248.0 to MH-14 138.0 to MH-12	LOT 26	251.5 to Hyd. L. 14 B. 4 41.5 to MH-11	238.5 to Hyd. L. 14 B. 4 50.0 to MH-11				MH-7 to NW G.V. Hyd. L. 10 B. 5 to NW G.V. 22.5 45.5	
LOT 3	129.4 to MH-18 58.0 to MH-10	134.3 to MH-18 57.0 to MH-10	LOT 8	207.5 to MH-11 100.0 to MH-12	199.0 to MH-11 106.0 to MH-12	LOT 27	93.0 to MH-11 203.0 to MH-12	80.0 to MH-11 215.0 to MH-12				1st Avenue NE & 14th Street NE	
LOT 4	73.1 to MH-10 170.2 to MH-18	75.0 to MH-10 174 to MH-18	LOT 9	203.0 to MH-12 110.0 to MH-11	213.0 to MH-12 99.0 to MH-11	BLOCK 6						MH-8 to SE G.V. 20.7 Hyd. L. 10 B. 3 to SW G.V. 86.5	
LOT 5	69.0 to Hyd. L. 8 B. 3 85.5 to MH-10	61.0 to Hyd. L. 8 B. 3 74.5 to MH-10	LOT 10	57.0 to MH-11 269.0 to MH-12	49.0 to MH-11 278 to MH-12	LOT 1						11th Street NE & Tower Place	
LOT 6	158.0 to MH-10 133.5 to Hyd. L. 8 B. 3	149.0 to MH-10 124.5 to Hyd. L. 8 B. 3	LOT 11	56.0 to MH-11 242.0 to Hyd. L. 14 B. 4	60.5 to MH-11 231.0 to Hyd. L. 14 B. 4	LOT 2						MH-17 to NW G.V. Hyd. L. 5 B. 3 to NW G.V. 25.1 88.0	
LOT 7	233.0 to MH-10 204.0 to Hyd. L. 8 B. 3	223.0 to MH-10 191.0 to Hyd. L. 8 B. 3	LOT 12	169.0 to Hyd. L. 14 B. 4 118.0 to MH-11	159.0 to Hyd. L. 14 B. 4 125.5 to MH-11	BLOCK 7						MH-17 to SE G.V. Hyd. L. 5 B. 3 to SE G.V. 19.4 80.5	
LOT 8	24.5 to MH-9 107.5 to Hyd. L. 10 B. 3	25.5 to MH-9 112.0 to Hyd. L. 10 B. 3	LOT 13	183.0 to MH-11 98.5 to Hyd. L. 14 B. 4	187.0 to MH-11 92.5 to Hyd. L. 14 B. 4	LOT 1	70.0 to MH-35 83.0 to Hyd. Int. 15th & 3rd	78.0 to MH-35 97.0 to Hyd. Int. 15th & 3rd				3rd Avenue NE & Division Street	
LOT 9A	212.3 to MH-8 102.0 to Hyd. L. 10 B. 5	200.2 to MH-8 101.0 to Hyd. L. 10 B. 5	LOT 14	26.0 to Hyd. L. 14 B. 4 251.0 to MH-11	19.0 to Hyd. L. 14 B. 4 256.0 to MH-11	LOT 2	111.5 to Hyd. Int. 15th & 3rd 72.0 to MH-35	116.5 to Hyd. Int. 15th & 3rd 77.0 to MH-35				MH-15 to G.V. 93.0	
LOT 9B		49.0 to Hyd. L. 10 B. 3 68.5 to MH-9	BLOCK 5		BLOCK 5		LOT 3	130.0 to MH-35 193.0 to MH-36	137.5 to MH-35 185.5 to MH-36				3rd Avenue NE & 11th Street NE
BLOCK 3			LOT 1	190.5 to MH-11 107.5 to MH-12	252.5 to MH-11 91.5 to MH-12	LOT 4	198.0 to MH-35 126.0 to MH-36	205.0 to MH-35 114.0 to MH-36				MH-14 to N G.V. Hyd. L. 2 B. 3 to N G.V. 24.0 81.4	
LOT 1	184.0 to MH-12 159.0 to MH-14	174.0 to MH-12 167.5 to MH-14	LOT 2	113.0 to Hyd. L. 3 & 4 B. 5 152.0 to MH-12	103.0 to Hyd. L. 3 & 4 B. 5 160.0 to MH-12	LOT 5	59.0 to MH-36 271.0 to MH-35	50.0 to MH-36 279.0 to MH-35				MH-14 to W G.V. Hyd. L. 2 B. 3 to W G.V. 18.0 77.4	
LOT 2	84.5 to MH-14 118.0 to MH-16	120.0 to MH-14 43.0 to MH-16	LOT 3	206.0 to MH-13 373.0 to MH-8	195.0 to MH-13 364.0 to MH-8	LOT 6	339.5 to MH-35 43.0 to MH-36	351.5 to MH-35 48.0 to MH-35				3rd Avenue NE & 14th Street NE	
LOT 3	181.5 to MH-17 113.0 to Hyd. L. 4 & 5 B. 3	171.5 to MH-17 103.0 to Hyd. L. 4 & 5 B. 3	LOT 4	303.0 to MH-8 141.0 to MH-13	295.0 to MH-8 131.5 to MH-13	LOT 7	192.0 to MH-4 115.5 to MH-3	182.7 to MH-4 106.0 to MH-3				MH-12 to N G.V. Hyd. L. 8 B. 4 to N G.V. 15.0 53.7	
LOT 4	45.0 to Hyd. L. 4 & 5 B. 3 114.5 to MH-17	35.2 to Hyd. L. 4 & 5 B. 3 105.0 to MH-17	LOT 5	76.5 to MH-13 227.0 to MH-8	55.5 to MH-13 217.0 to MH-8	LOT 8	58.0 to MH-3 115.0 to MH-4	57.0 to MH-3 123.5 to MH-4				MH-12 to S G.V. Hyd. L. 8 B. 4 to S G.V. 22.0 51.32	
LOT 5	50.4 to MH-17 27.5 to Hyd. L. 4 & 5 B. 3	48.0 to MH-17 36.0 to Hyd. L. 4 & 5 B. 3	LOT 6	153.0 to MH-8 53.0 to MH-13	160.0 to MH-8 48.8 to MH-13	LOT 9	26.0 to MH-4 91.0 to MH-3	32.5 to MH-4 80.0 to MH-3				Hyd. L. 14 B. 4 to G.V. 2.4 Hyd. L. 20 B. 5 to G.V. (Under Snow)	
LOT 6	91.5 to Hyd. L. 4 & 5 B. 3 40.0 to MH-17	100.7 to Hyd. L. 4 & 5 B. 3 48.0 to MH-17	LOT 7	143.0 to MH-13 68.0 to MH-8	129.0 to MH-13 71.0 to MH-8	LOT 10	80 to Hyd. L. 12 & 13 B. 5 64.8 to MH-4	74.6 to Hyd. L. 12 & 13 B. 5 52.7 to MH-4				Hyd. L. 6-7 B. 7 to G.V. 2.1 Hyd. L. 12-13 B. 5 to G.V. 4.0 Hyd. L. 10 B. 5 to G.V. 2.0 Hyd. L. 3-4 B. 5 to G.V. 3.9 Hyd. L. 10 B. 3 to G.V. 4.0 Hyd. L. 8 B. 3 to G.V. 3.8 Hyd. L. 5 B. 3 to G.V. 5.3 Hyd. L. 2 B. 3 to G.V. 5.2 Hyd. L. 8 B. 4 to G.V. 3.5	
LOT 7	103.0 to MH-17 165.5 to Hyd. L. 4 & 5 B. 3	115.3 to MH-17 177.0 to Hyd. L. 4 & 5 B. 3	LOT 8	58.0 to MH-8 196.0 to MH-13	57.5 to MH-8 202 to MH-13	LOT 11	157.6 to MH-5 70.0 to Hyd. L. 12 & 13 B. 5	167.0 to MH-5 62.5 to Hyd. L. 12 & 13 B. 5					
LOT 8	72.6 to MH-10 35.0 to Hyd. L. 8 B. 3	64.5 to MH-10 25.5 to Hyd. L. 8 B. 3	LOT 9	257.0 to MH-13 98.0 to MH-8	266.0 to MH-13 106.0 to MH-8	LOT 12	82.5 to MH-5 127.5 to Hyd. L. 12 & 13 B. 5	90.8 to MH-5 117.0 to Hyd. L. 12 & 13 B. 5					
LOT 9	130.0 to Hyd. L. 8 B. 3 170.0 to MH-10	120.5 to Hyd. L. 8 B. 3 155.5 to MH-10	LOT 10	187.8 to MH-5 220.0 to Hyd. L. 12 & 13 B. 5	199.4 to MH-5 230.0 to Hyd. L. 12 & 13 B. 5	LOT 13	189.5 to Hyd. L. 12 & 13 B. 5 28.5 to MH-5						
LOT 10	15.0 to Hyd. L. 10 B. 3 86.5 to MH-9	22.0 to Hyd. L. 10 B. 3 77.5 to MH-9	LOT 11	160.0 to Hyd. Loh 12 & 13 B. 5 78.6 to MH-5	166.0 to Hyd. L. 12 & 13 B. 5 88.4 to MH-5	LOT 14							
LOT 11	50.0 to MH-13 191.0 to MH-8	48.0 to MH-13 180.0 to MH-8	LOT 12	156.5 to MH-5 41.0 to Hyd. L. 12 & 13 B. 5	167.0 to MH-5 29.0 to Hyd. L. 12 & 13 B. 5	LOT 15							
LOT 12	94.0 to MH-13 241.0 to MH-8	82.0 to MH-13 231.0 to MH-8	LOT 13	31.0 to Hyd. L. 12 & 13 B. 5 224 to MH-5	42.0 to Hyd. L. 12 & 13 B. 5 235 to MH-5								
LOT 13			LOT 14	76.0 to MH-3 48.0 to MH-4	64.0 to MH-3 48.0 to MH-4								
LOT 14	220.0 to MH-13 379.0 to MH-8	208.0 to MH-13 367 to MH-8	LOT 15	19.0 to MH-3 93.0 to MH-4	19.0 to MH-3 104.5 to MH-4								
LOT 15	112.5 to MH-12 162.0 to Hyd. L. 3 & 4 B. 5	124.5 to MH-12 149.0 to Hyd. L. 3 & 4 B. 5	LOT 16	158.0 to MH-4 65.0 to MH-3	146.5 to MH-4 54.0 to MH-3								

EMBERLAND WEST SUBDIVISION

(Ties to Sewer Stop and Curb Boxes)

Table with columns: BLOCK 1, SEWER SERVICE, WATER (CURB BOX). Rows include lots 1 through 14 with sewer and water service details.

Table with columns: BLOCK 2, SEWER SERVICE, WATER SERVICE. Rows include lots 15 through 23 with sewer and water service details.

Table with columns: BLOCK 3, SEWER SERVICE, WATER SERVICE. Rows include lots 24 through 41 with sewer and water service details.

Table with columns: EMBERLAND GATE VALVES, PLAINVIEW HEIGHTS. Rows include gate valve locations (e.g., 10th Avenue SE & 19th Street SE) and plainview heights for lots 38-43.

Table with columns: BLOCK 1, SEWER SERVICE, WATER (CURB BOX). Rows include lots 18, 19, and 20 with sewer and water service details.