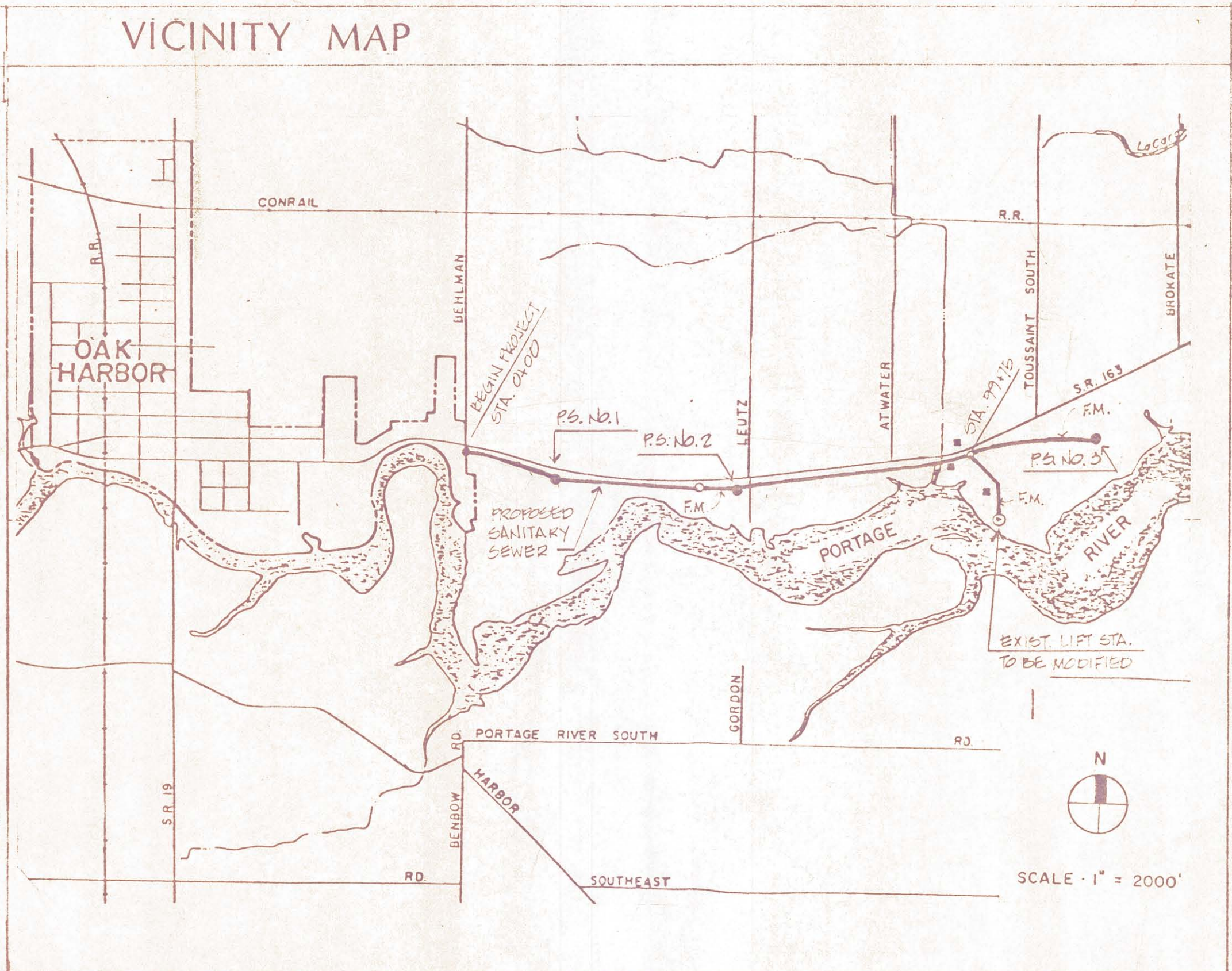




SALEM TOWNSHIP SANITARY SEWER PROJECT

OTTAWA COUNTY, OHIO

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4.	TYPICAL PUMP STATION DETAILS - PUMP STATION NO. 1 AND NO. 2 SITE PLANS
5.	RIVERVIEW NURSING HOME PUMP STATION MODIFICATIONS - FAIR GROUNDS PUMP STATION SITE PLAN
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7.	SEWER CONSTRUCTION PLAN - Sta. 11+00 to 23+00
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12.	SEWER CONSTRUCTION PLAN - Sta. 70+00 to 82+00
13.	SEWER CONSTRUCTION PLAN - Sta. 82+00 to 94+00
14.	SEWER CONSTRUCTION PLAN - Sta. 94+00 to 99+75
15.	FORCE MAIN CONSTRUCTION PLAN - RIVERVIEW NURSING HOME - Sta. 0+00 to 12+00
16.	FORCE MAIN CONSTRUCTION PLAN - RIVERVIEW NURSING HOME - Sta. 12+00 to 14+45 OTTAWA COUNTY FAIR GROUNDS - Sta. 7+00 to 14+20
17.	FORCE MAIN CONSTRUCTION PLAN - OTTAWA COUNTY FAIR GROUNDS - Sta. 0+00 to 7+00



Approved By:

	4/12/91
Steven M. Anndt, Ottawa County Commissioner	Date
	4/23/91
John F. Fritz, Ottawa County Commissioner	Date
	4/23/91
Darrell W. Opfer, Ottawa County Commissioner	Date
	4/23/91
Jere Witt, Ottawa County Administrator	Date
	4/29/91
James K. Frey, Ottawa County Sanitary Engineer	Date

TITLE
SCHEMATIC MAP

PROJECT
SALEM TOWNSHIP SANITARY SEWER PROJECT
FOR THE ATTORNEY GENERAL OF OHIO
516 MADISON ST.
PORT CLARENCE, OHIO 43042

DON C. WAGGONER, P.E., INC.
 CONSULTING ENGINEER
 124 EAST SECOND STREET
 PORTCINCINNATI, OHIO 43152
 419-734-1927

AS-BUILTS

FINAL
FROM "AS-BUILT" MYLARS

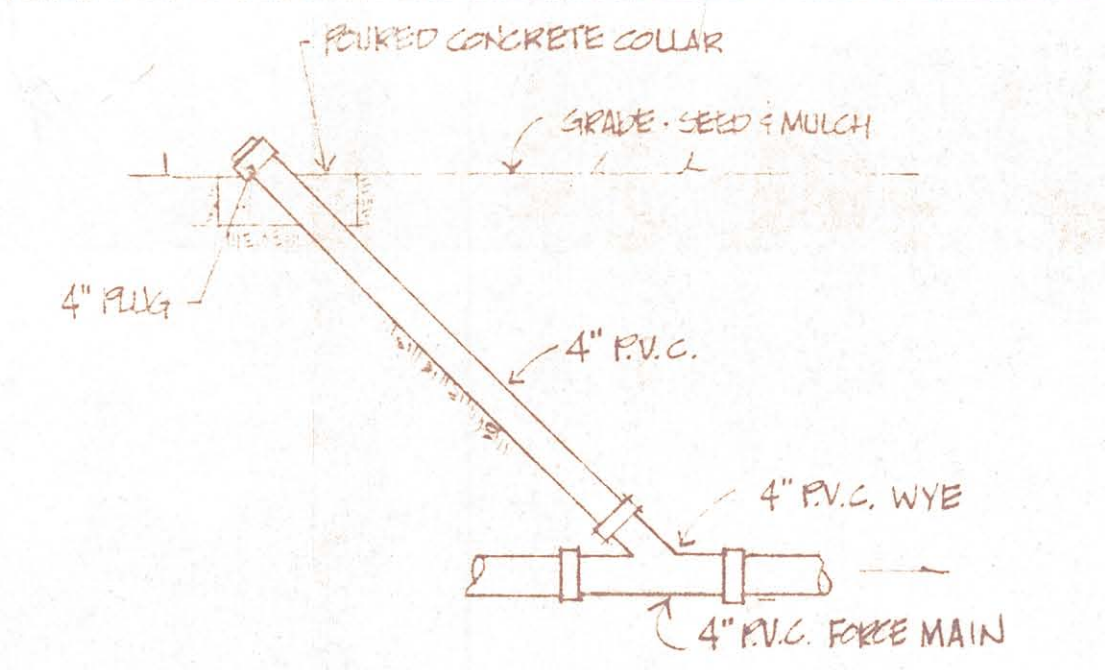
--BEFORE YOU DIG--

CALL - 800-362-2764
OHIO UTILITIES PROTECTION SERVICES

Comm	08-32
Drawn by	T.N.
Checked by	J.M.
Date	APRIL 1991
Sheet	1 of 17

ROADWAY & DRIVEWAY REPAIR SCHEDULE

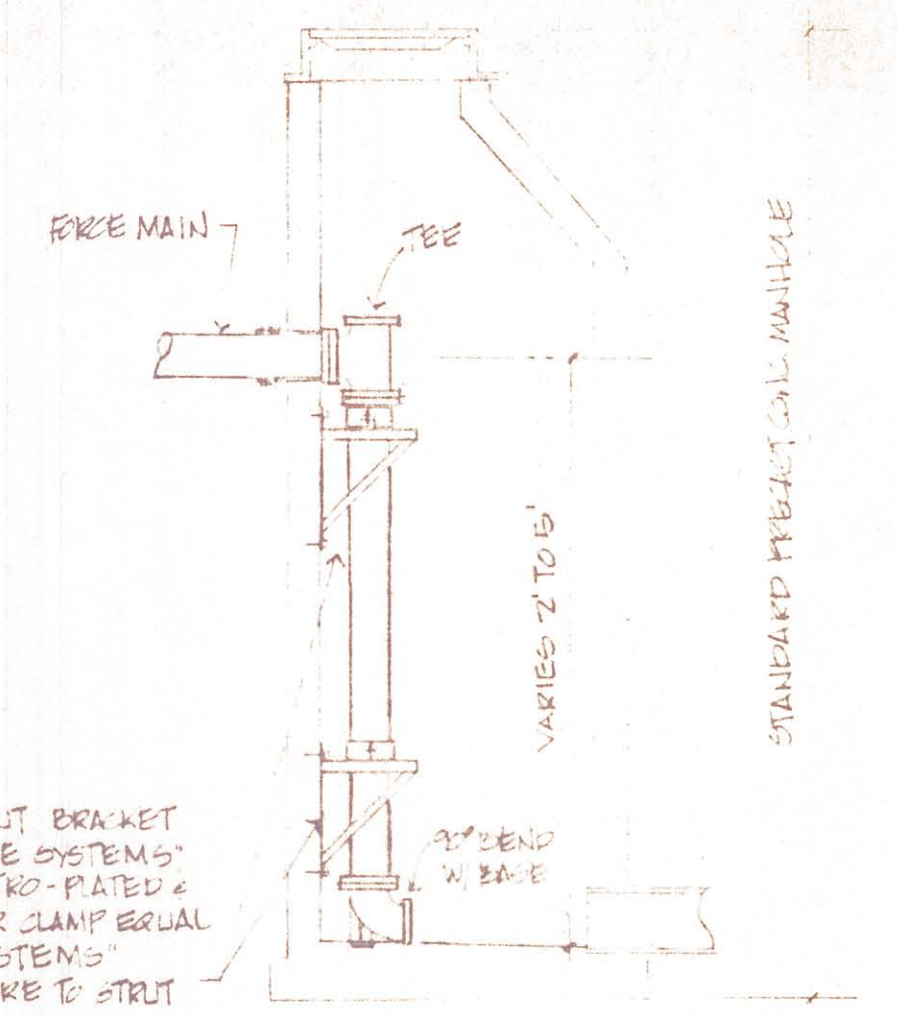
STATION	LENGTH	WIDTH	PAVEMENT	CONC. DRIVE	ASPHALT DRIVE	STONE DRIVE	CONDUIT	DEPTH	REPAIR OR REPLACE	CATCH D.
0+20	40'	6'								
1+40	25'	10'								
2+60	30'	10'								
2+95										
4+90	20'	10'								
4+85	20'	10'								
20+00	25'	15'								
21+00	20'	20'					12"	ST'L	25'	
24+25	30'	10'								
27+10	12'	10'								
28+30	25'	15'								
28+15										
28+20	25'	15'								
29+10										
29+25	20'	10'								
40+90	20'	15'								
44+90							10"	CLAY	5'	
45+20	35'	15'								
41+40	25'	20'					12"	ST'L	25'	
20+00	25'	20'					10"	CONC.	25'	
50+00 LT.	18'	14'					12"	C.M.P.	18'	
51+50 LT.	14'	13'								
51+50	30'	20'					12"	ST'L	30'	
52+60 LT.	20'	18'					12"	C.M.P.	20'	
52+25 LT.	20'	15'								
58+20							8"	CLAY	5'	
58+95							36"	CONC.	5'	
58+20	55'	20'								
56+30	160'	20'								
57+40	15'	20'								
58+90	20'	20'					12"	C.P.P.	20'	
59+45	15'	20'					12"	ST'L	20'	
60+40	20'	20'					12"	ST'L	40'	
60+68							4"	P.V.C.	5'	
61+90	15'	20'					12"	C.P.P.	155'	
62+00	15'	20'					12"	C.M.P.	25'	
62+45	15'	20'					12"	ST'L	20'	
64+45	15'	20'					12"	CONC.	25'	
65+45	15'	20'					12"	ST'L	25'	
66+80	15'	20'					12"	ST'L	25'	
67+45	15'	20'					12"	ST'L	25'	
68+90	20'	20'					12"	ST'L	25'	
69+45	30'	20'					12"	CONC.	70'	
69+95							12"	ST'L	20'	
73+45	30'	20'					12"	(2) CONC. HEADWALLS		
79+10	50'	20'								
79+45							30'	CONC.	5'	
80+60	60'	20'								
81+10							12"	ST'L	35'	
81+40	40'	15'								
84+90	40'	15'								
91+50	65'	15'								
99+00	50'	15'								
FORCE MAIN STATION										
0+40	20'	5'								
11+60	55'	5'								
5+30	15'	5'								



FORCE MAIN CLEAN OUT DETAIL

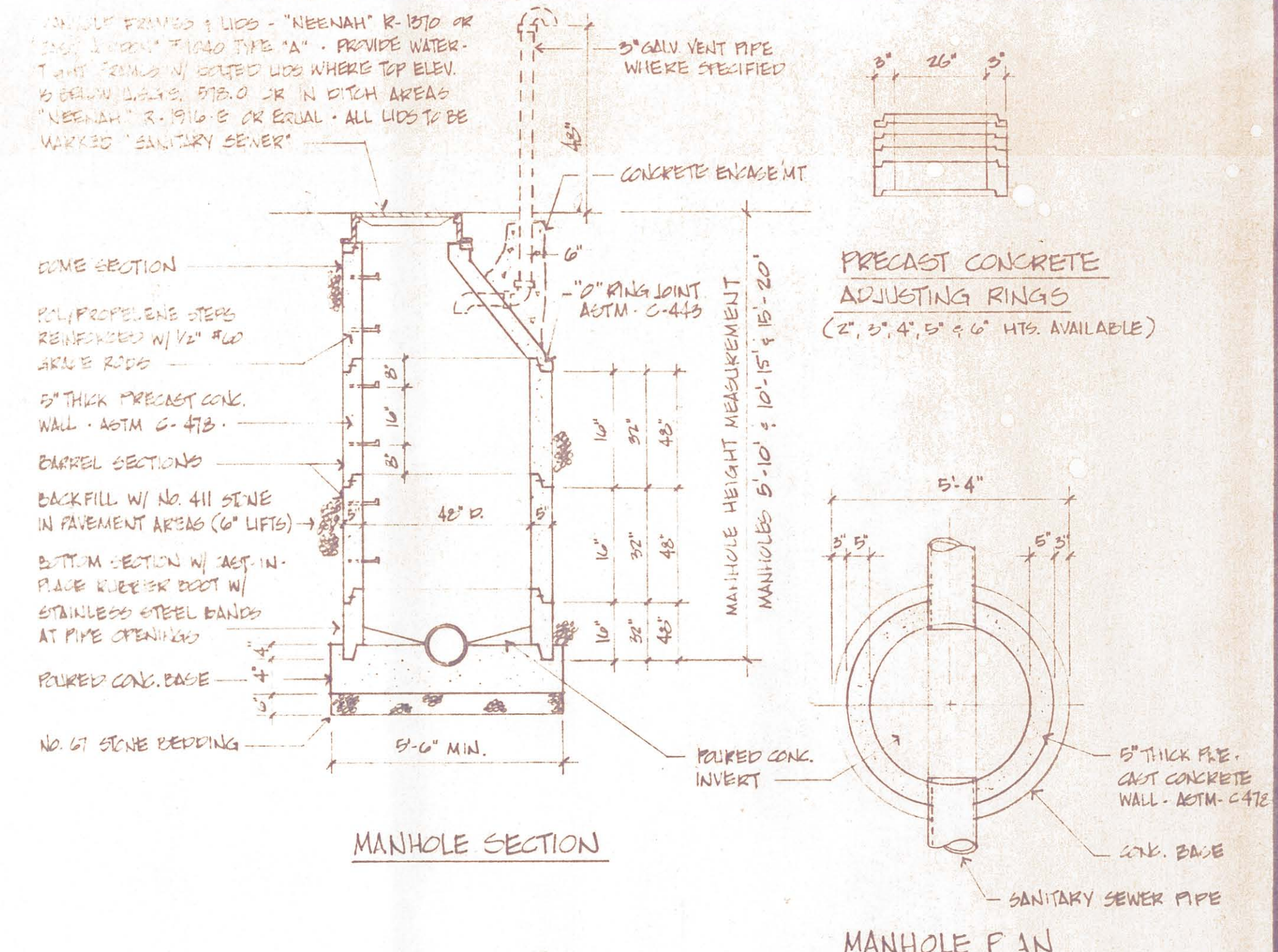
NOTE: FORCE MAIN CLEAN OUT @ STA. 3+50 ON SHEET 15 OF 17 REQUIRES A 45° BEND IN THE END OF A WYE AS PER CLEAN OUT DETAILED @ RIVERVIEW NURSING HOME P.S.

ADJUSTABLE STRUT BRACKET EQUAL TO "B-LINE SYSTEMS" # B 3264 ELECTRO-PLATED & STANDARD RIBBER CLAMP EQUAL TO "B-LINE SYSTEMS" # B 3273 - SECURE TO STRUT



FORCE MAIN TERMINATION

NO SCALE

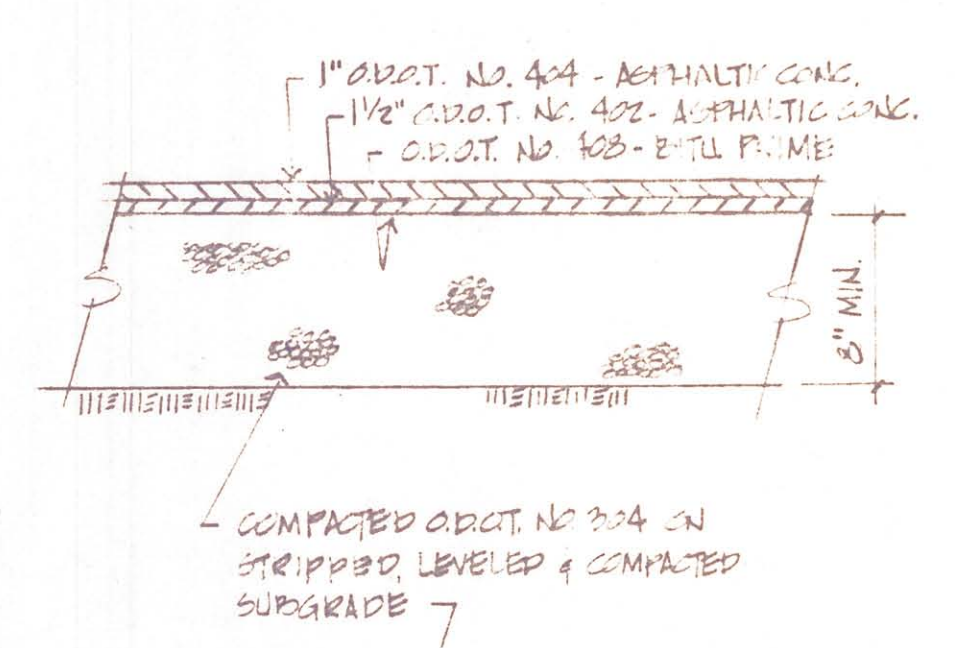


MANHOLE SECTION

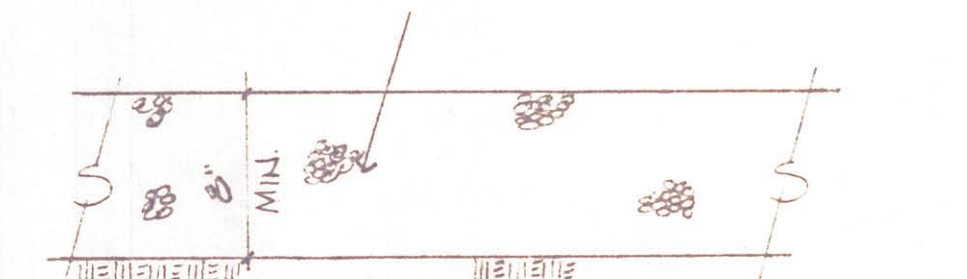
MANHOLE PLAN

PRECAST CONCRETE MANHOLE DETAILS

NO SCALE



ASPHALT DRIVES



STONE BOUND

PUMP STATION SITE SURFACES

NO SCALE

NOTE: MECHANICALLY RESTRAINED JOINTS MAY BE USED IN USES OF CONCRETE TRIPLET BLOCKING

SIZES	1/2 BEND		1/4 BEND		1/4 BEND		TURNS	
	A	B	A	B	A	B	A	B
6"	5'	0'	2'	15"	22"	5'	3'	16'
8"	5'	0'	2'	15"	22"	5'	3'	16'

SANITARY SEWER GENERAL NOTES

The maximum rate of leakage or infiltration for gravity sewers which will be permitted is 200 gallons per inch of diameter per mile of pipe per 24 hrs. This provision shall be strictly adhered to. Should any section of conduit fail to meet the test requirements, it shall be the Contractor's responsibility to provide television inspection and to make the necessary corrections. The cost of all materials, equipment, labor and incidentals necessary for performing the test and making any necessary corrections and replacements shall be included in the price bid for pertinent conduit.

Any drainage tile that are removed during the construction of this project shall be replaced with PVC-ASTM D-3034 plastic sewer pipe or match existing pipe material.

Traffic shall be maintained at all times during construction of this project. All barricades and signs shall be furnished by the Contractor. All pavements must be kept free from mud and debris due to the contractor's operations.

Where sewers pass under future pavement areas, no earth shall be used for backfill purposes. Entire trench depth shall be backfilled with #411 stone or site soil compacted in 6" layers with moisture and density control.

All sanitary sewer individual unit connections shall be constructed at 1/2 grade between the sewer main and the home connection. All sewer connections shall be completed. All service connections shall be properly plugged.

Sewer pipe shall be fitted with premium joints and approved by the Ohio E.P.A. and the Ottawa County Sanitary Engineer.

Sanitary sewers and manholes shall be tested in accordance with the requirements of the Ottawa County Sanitary Engineering Dept.

All work and materials shall be in accordance with the standard and requirements of the Ottawa County Sanitary Engineering Department and shall govern this improvement.

Roof drain, foundation drains, and other clean water connections to the sanitary sewer are prohibited.

Granular materials shall conform to the requirements of the Ohio Department of Transportation.

Sanitary sewer pipe noted to be plastic shall be PVC, ASTM D-3034 (SDR-35) with "O" ring joints conforming to ASTM D-3212.

Plastic sewer pipe shall be tested for deflection. Maximum allowable deflection (reduction in vertical inside diameter) shall be 5%.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

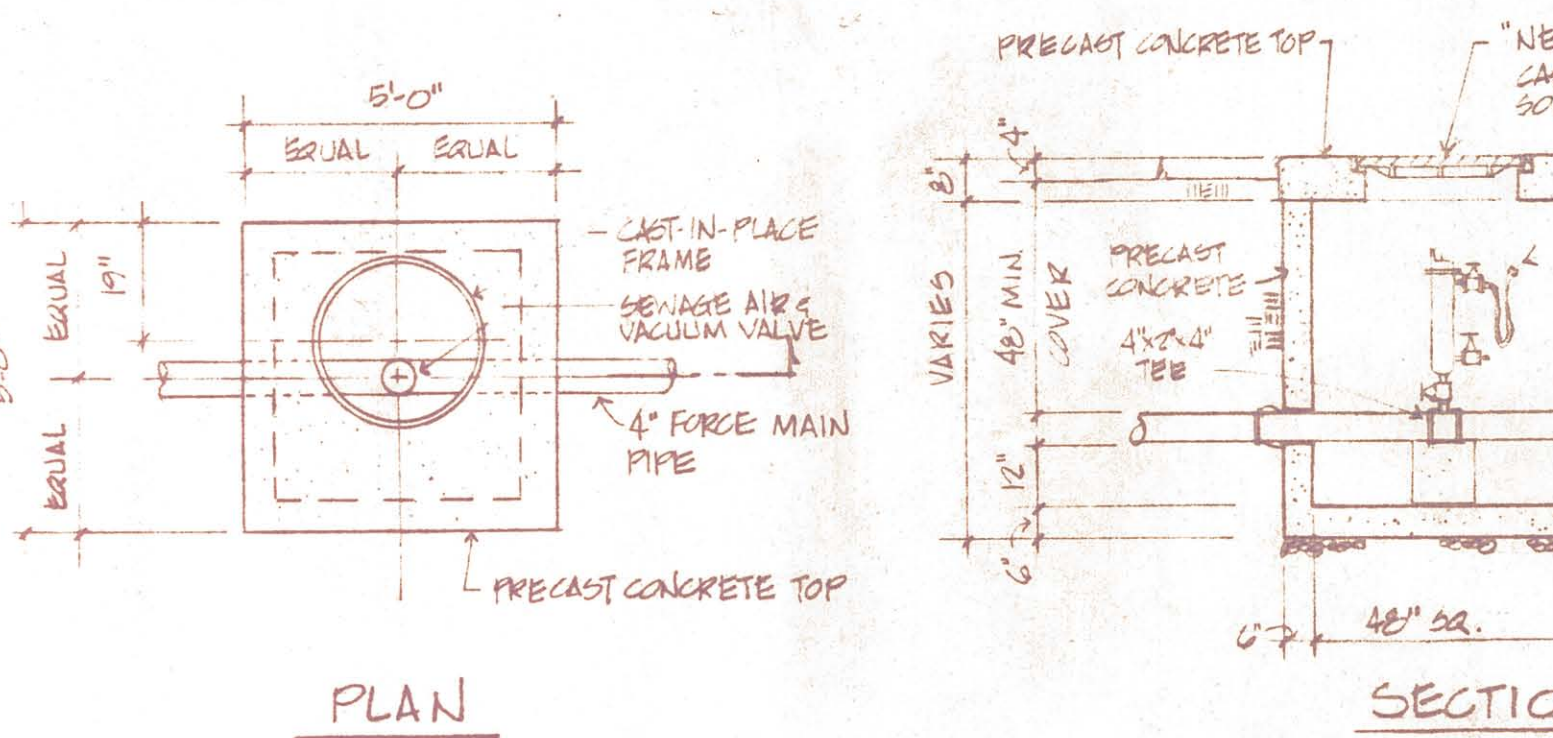
Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

Concrete noted to be Class I shall have a minimum compressive strength of 3750 psi in 28 days. It shall contain not less than six sacks of cement per cubic yard of concrete. Slump may vary from a minimum of 2 inches to a maximum of 5 inches for unvibrated concrete.

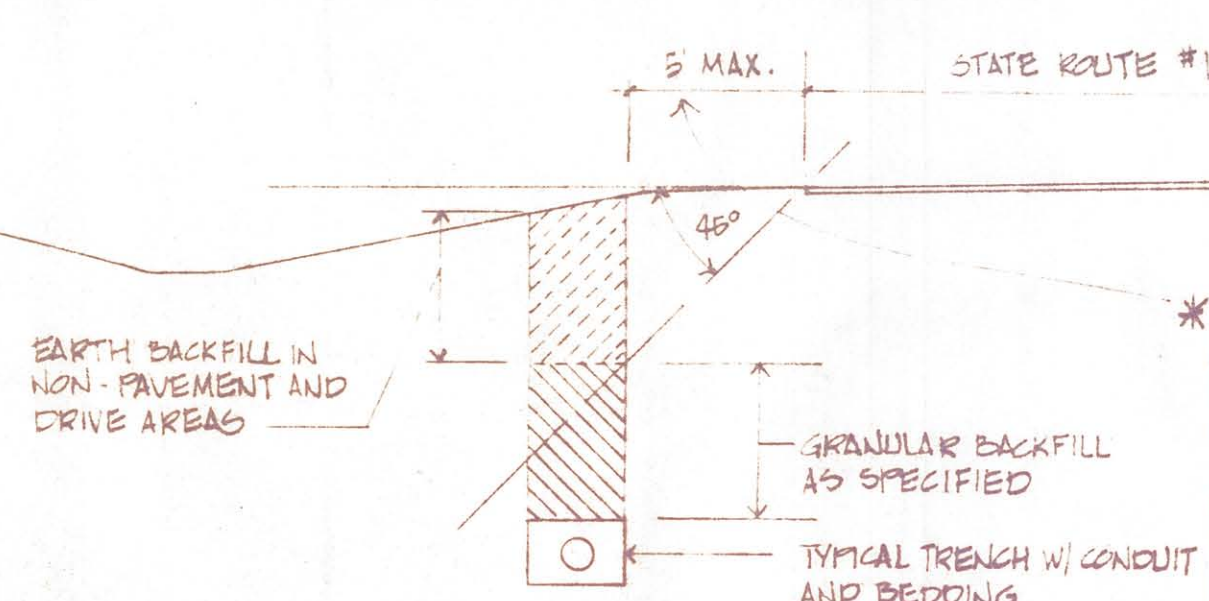


SEWAGE FORCE MAIN AIR AND VACUUM VALVE CHAMBER

NO SCALE

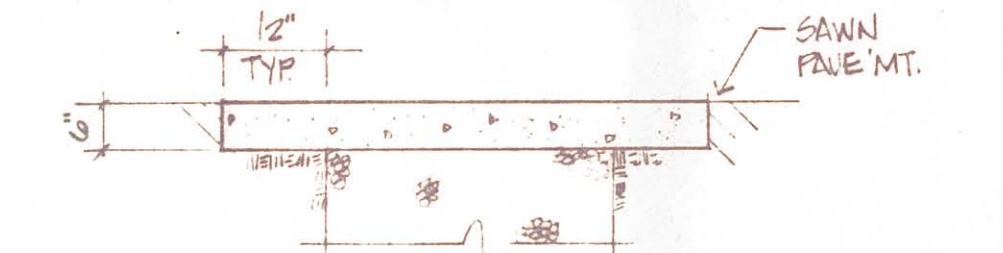
FORCE MAIN THRUST BLOCK DETAILS

NO SCALE

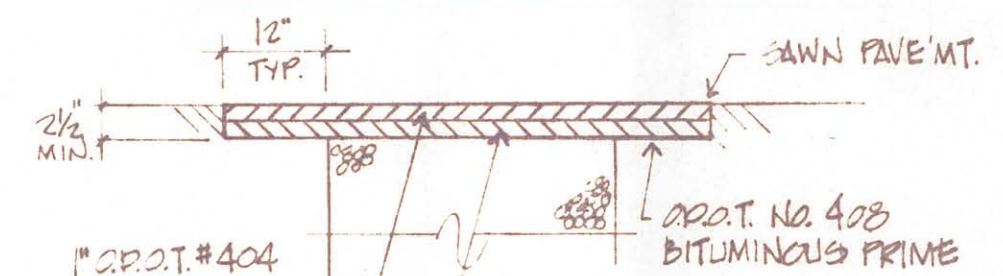


BACKFILL REQUIREMENT ALONG S.R. #163

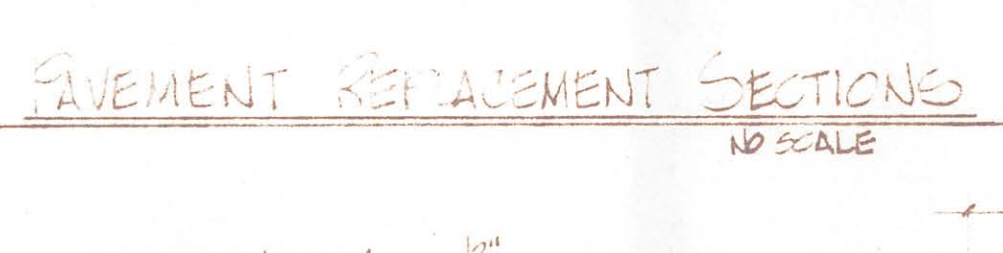
CONCRETE PAVEMENT



CONCRETE DRIVE APPROACH

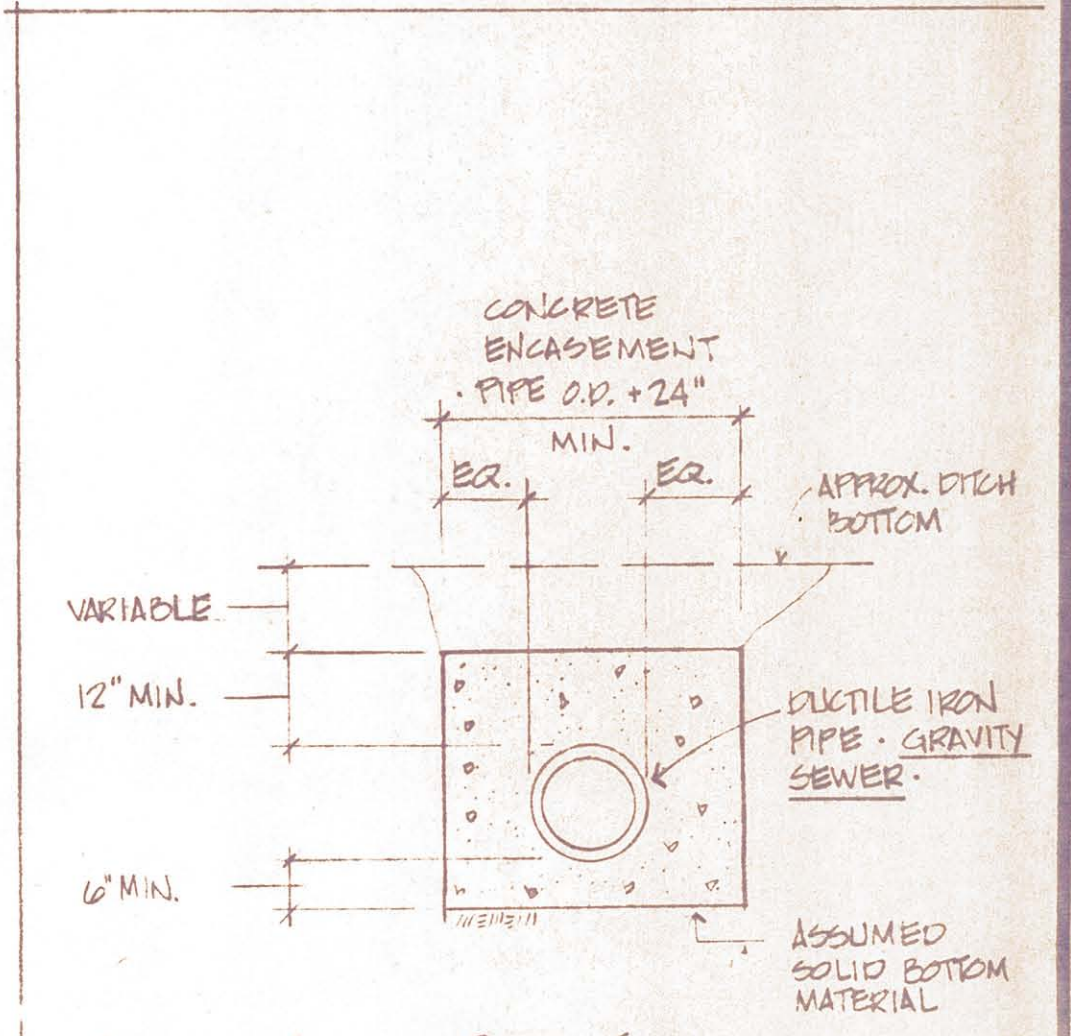


ASPHALTIC CONCRETE DRIVES



PAVEMENT REPLACEMENT SECTIONS

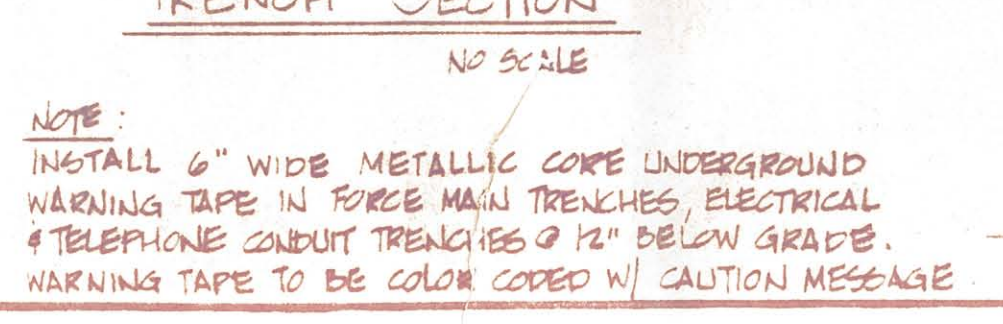
NO SCALE



GRAVITY SEWER PIPE - CONCRETE ENCASUREMENT, STA. 09+00 TO 91+00

ELECTRICAL & TELEPHONE TRENCH SECTION

NO SCALE



TYPICAL CONDUIT TRENCH SECTION

NO SCALE



TITLE
CONSTRUCTION DETAILS
ROADWAY & DRIVE SCHEDULE

PROJECT
SALEM TOWNSHIP SANITARY SEWER PROJECT
FOR THE OTTAWA CO. BR. OF COMMISSIONERS
515 MADISON ST.
PORT CLINTON, OHIO 43462
419-734-1927

CONSULTING ENGINEER
DON C. WAGGONER, P.E., INC.
124 EAST SECOND STREET
PORT CLINTON, OHIO 43462
419-734-1927

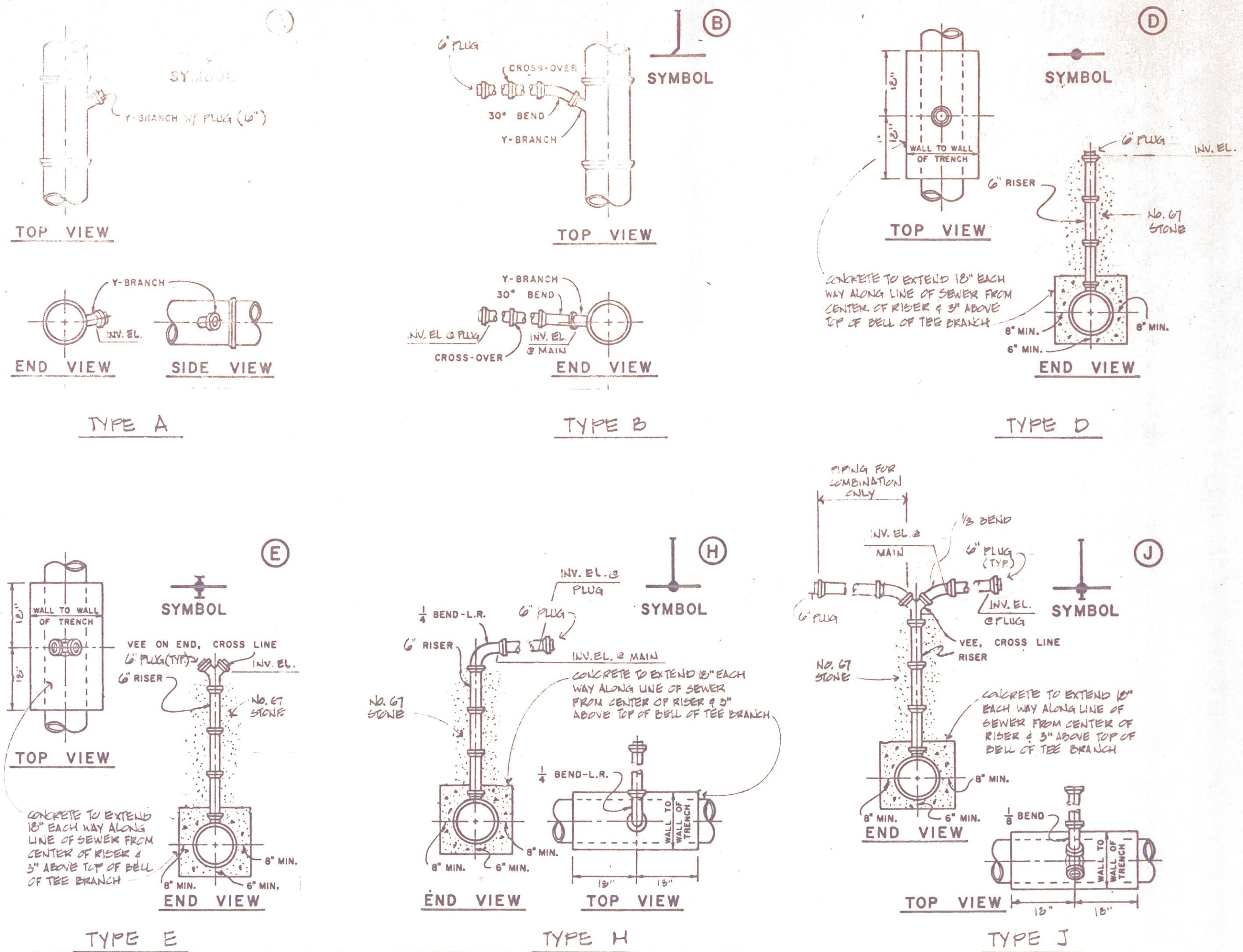
Comm. 20-132
Drawn by T.N.
Checked by [Signature]
Date APRIL 1990
Sheet 2 OF 17

SANITARY SEWER TAP SCHEDULE

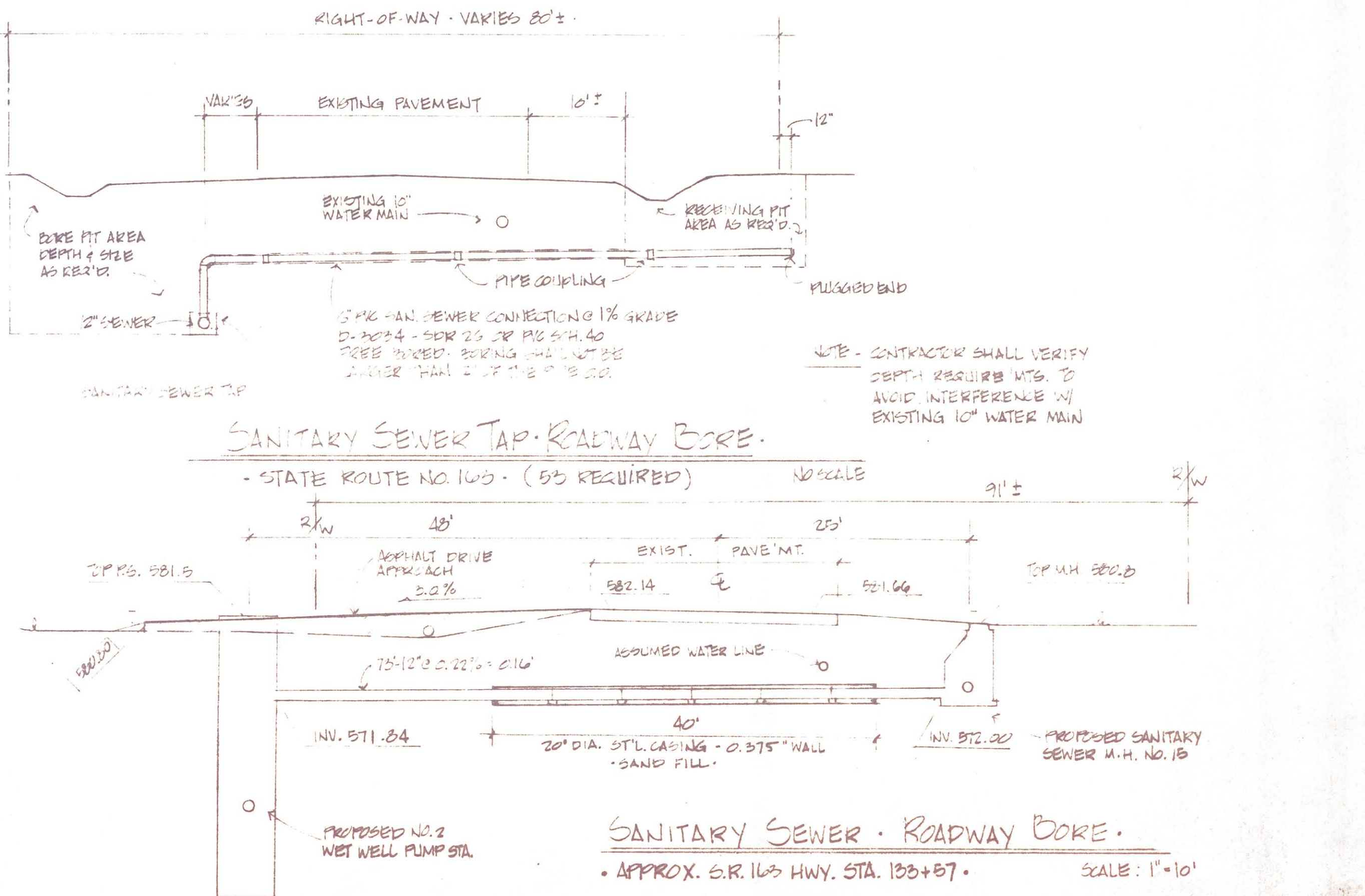
STATION	TAP	CROSS-OVER LENGTH	ROADWAY	INVERT ELEVATIONS
ROADWAY SEWER	TYPE	LEFT RIGHT	TYPE	MAIN PLUG
1+20	H	60'	•	578.50 579.10
1+25	H	— 20'	—	578.50 579.10
3+50	E	—	—	578.00 —
4+00	M.H. 1	—	—	—
4+50	J	70'	•	579.00 579.70
6+00	J	70'	•	578.50 579.20
7+50	J	70'	•	578.50 579.20
8+00	M.H. 2	—	—	—
8+75	J	70'	•	578.50 579.20
10+50	J	70'	•	578.00 578.70
11+00	J	65'	•	578.50 579.15
11+90	J	65'	•	578.50 579.15
12+00	M.H. 3	—	—	—
12+75	J	65'	•	578.50 579.15
13+75	D	—	—	578.00 —
14+75	H	70'	•	578.50 579.20
15+75	B	70'	•	577.20 577.90
	B	15'	•	577.20 577.35
16+00	M.H. 4 - PROVIDE WATERTIGHT LID & FRAME & 3" VENT PIPING	—	—	—
17+00	No. 1 PUMP STATION	—	—	—
17+52	M.H. 5	—	—	—
17+42	H	80'	•	577.50 578.20
18+00	H	70'	•	577.50 578.20
19+00	H	70'	•	577.50 578.20
19+75	J (COMBINATION)	70'	•	577.50 578.65
20+50	H	— 15'	—	577.50 577.65
21+00	M.H. 6	—	—	—
21+20	H	70'	•	577.50 578.20
22+00	H	70'	•	577.00 577.70
23+00	J (COMBINATION)	70'	•	576.00 576.70
24+00	J (COMBINATION)	70'	•	576.00 576.70
25+00	M.H. 7 - PROVIDE WATERTIGHT LID & FRAME	—	—	—
25+25	J	65'	•	576.00 576.65
26+00	J	65'	•	576.50 577.15
27+00	J	65'	•	576.50 577.15
28+00	D	—	—	578.00 —
28+90	J	70'	•	576.50 577.20
28+95	M.H. 8	—	—	—
30+00	J	70'	•	576.50 577.20
31+00	J	75'	•	575.50 576.20
32+00	J	70'	•	575.50 576.20
32+75	D	—	—	578.00 —
32+95	M.H. 9	—	—	—
33+65	A	—	—	574.10 —
33+75	B	70'	•	574.10 574.80
34+75	B	— 25'	—	574.30 574.55
35+00	A	—	—	574.30 —
35+95	A	—	—	574.55 —
36+00	A	—	—	574.55 —
36+85	A	—	—	574.75 —
36+90	A	—	—	574.75 —
37+00	M.H. 10	—	—	—
37+95	A	—	—	575.00 —
38+00	A	—	—	575.00 —
38+75	H	— 20'	—	577.00 577.40
39+00	A	—	—	578.20 —
39+75	H	— 20'	—	577.50 577.70
40+00	M.H. 11	—	—	—
40+25	H	65'	•	578.00 578.65
41+25	H	— 25'	—	578.00 578.25
42+25	D	—	—	579.50 —
43+00	M.H. 12 - PROVIDE WATERTIGHT LID & FRAME	—	—	—
43+25	D	—	—	577.30 —
44+25	A	—	—	576.35 —
44+50	B	— 25'	—	576.40 576.65
46+00	B	65'	•	576.75 577.40
46+00	A	—	—	576.75 —
47+00	M.H. 13 - TERMINATION OF GRAVITY SEWER (RIGHT) PROVIDE WATERTIGHT LID & FRAME & 3" VENT PIPING	—	—	—
47+50	M.H. 13-1 - BEGIN GRAVITY SEWER (LEFT)	—	—	—
47+60	A	—	—	576.16 —
47+25	A	—	—	575.50 —
49+50	M.H. 14	—	—	—
50+50	B	15'	—	575.00 575.15

* NOTE - INVERT ELEVATION @ PLUG = (CROSS-OVER LENGTH x 1.0) - 11.5 FT. @ MAIN

STATION	TAP	CROSS-OVER LENGTH	ROADWAY	INVERT ELEVATIONS
ROADWAY SEWER	TYPE	LEFT RIGHT	TYPE	MAIN PLUG
51+25	B	15'	—	574.25 574.75
52+25	B	18'	—	574.25 574.75
53+40	B	22'	—	573.52 573.77
53+50	M.H. 15	—	—	—
54+00	No. 2 PUMP STATION	—	—	—
54+00	M.H. 16	—	—	—
54+75	H	— 25'	—	574.50 574.75
55+00	H	55'	•	574.50 575.10
56+25	J	— 20'	—	574.50 574.70
57+75	H	— 15'	—	574.50 574.65
57+80	H	65'	•	574.50 575.15
58+00	M.H. 17	—	—	—
58+50	H	— 10'	—	574.50 574.60
58+55	H	65'	•	574.50 575.15
59+75	J	— 10'	—	574.50 574.60
60+00	H	— 10'	—	574.50 575.60
60+85	H	65'	•	574.50 575.15
61+60	H	— 10'	—	574.50 574.60
61+65	H	65'	•	574.50 575.15
62+00	M.H. 18	—	—	—
62+50	H	— 10'	—	574.50 574.60
62+80	H	65'	•	574.50 575.15
63+75	J	— 10'	—	575.00 575.10
64+75	J	— 10'	—	575.00 575.10
65+90	J	— 10'	—	575.00 575.10
66+00	M.H. 19 - PROVIDE WATERTIGHT LID & FRAME	—	—	—
66+90	H	— 15'	—	575.00 575.10
66+95	H	70'	•	575.00 576.20
67+80	J	— 10'	—	575.00 575.10
68+50	J	— 10'	—	575.00 575.10
69+65	J	— 10'	—	575.00 575.10
70+00	M.H. 20 - PROVIDE WATERTIGHT LID & FRAME	—	—	—
70+75	E	—	—	574.50 —
71+60	E	—	—	574.50 —
72+60	J	75'	•	574.50 575.25
73+75	M.H. 21 - PROVIDE WATERTIGHT LID & FRAME	—	—	—
73+85	H	— 20'	—	574.00 574.20
73+90	H	75'	•	574.00 574.75
74+85	J	70'	•	573.50 574.20
76+00	J	65'	•	573.50 574.15
77+00	D	—	—	572.50 —
77+40	H	60'	•	573.00 573.60
77+75	M.H. 22	—	—	—
78+25	H	— 25'	—	572.50 572.75
78+85	H	60'	•	572.50 573.10
80+00	H	60'	•	572.50 573.10
80+85	A	— 20'	—	572.50 572.70
81+00	M.H. 23 - PROVIDE WATERTIGHT LID & FRAME	—	—	—
81+40	H	55'	•	572.50 573.05
82+20	H	55'	•	573.00 573.55
83+10	H	55'	•	573.50 574.05
84+00	H	55'	•	574.00 574.55
84+65	H	60'	•	574.00 574.00
85+00	M.H. 24	—	—	—
85+75	D	—	—	573.00 —
86+50	H	60'	•	574.00 574.60
87+50	H	60'	•	573.50 574.10
88+90	H	65'	•	573.50 574.15
89+00	M.H. 25 - PROVIDE WATERTIGHT LID & FRAME	—	—	—
91+00	M.H. 26 - PROVIDE WATERTIGHT LID & FRAME	—	—	—
92+00	H	50'	•	574.00 574.50
94+00	M.H. 27	—	—	—
94+25	D	—	—	574.00 —
96+25	H	60'	•	574.00 574.60
98+00	M.H. 28 - PROVIDE WATERTIGHT LID & FRAME & 3" VENT PIPING	—	—	—
98+25	D	—	—	573.50 —
99+75	M.H. 29 - PROVIDE WATERTIGHT LID & FRAME & 3" VENT PIPING	—	—	—



TYPICAL SANITARY SEWER TAP DETAILS
 NO SCALE



Rev. 10-26-90
 1-15-91
 2-28-91
 7-16-91



TITLE: SANITARY SEWER TAP SCHEDULE & DETAILS

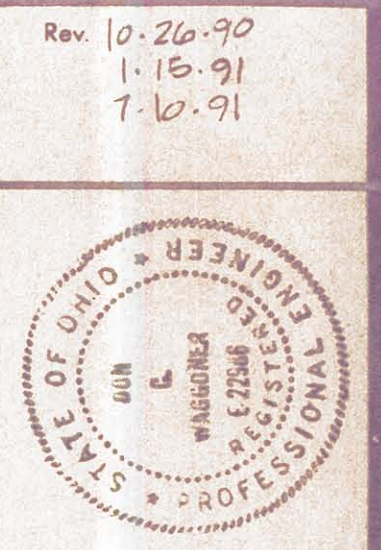
PROJECT: SALEM TOWNSHIP SANITARY SEWER PROJECT
 FOR: THE STATE OF OHIO
 PORT CLEVELAND, OHIO 44122

DON C. WAGGONER, P.E., INC.
 CONSULTING ENGINEER
 124 EAST SECOND STREET
 PORT CLEVELAND, OHIO 44122
 419-734-1927

Comm: 88-132
 Drawn by: T.N.
 Checked by: [Signature]
 Date: JULY 1990
 Sheet: 3 OF 17

REV. 12/19/91
 REDUCED ASPHALT DRIVE
 APPROACH FLARES AS PER
 2002 REC. MTS. FOR
 PUMP STA. SITES NO. 1 & 2

REV. 1/15/92
 ADDED 20'-8" STUD W/ PLUG
 TO PUMP STA. NO. 2



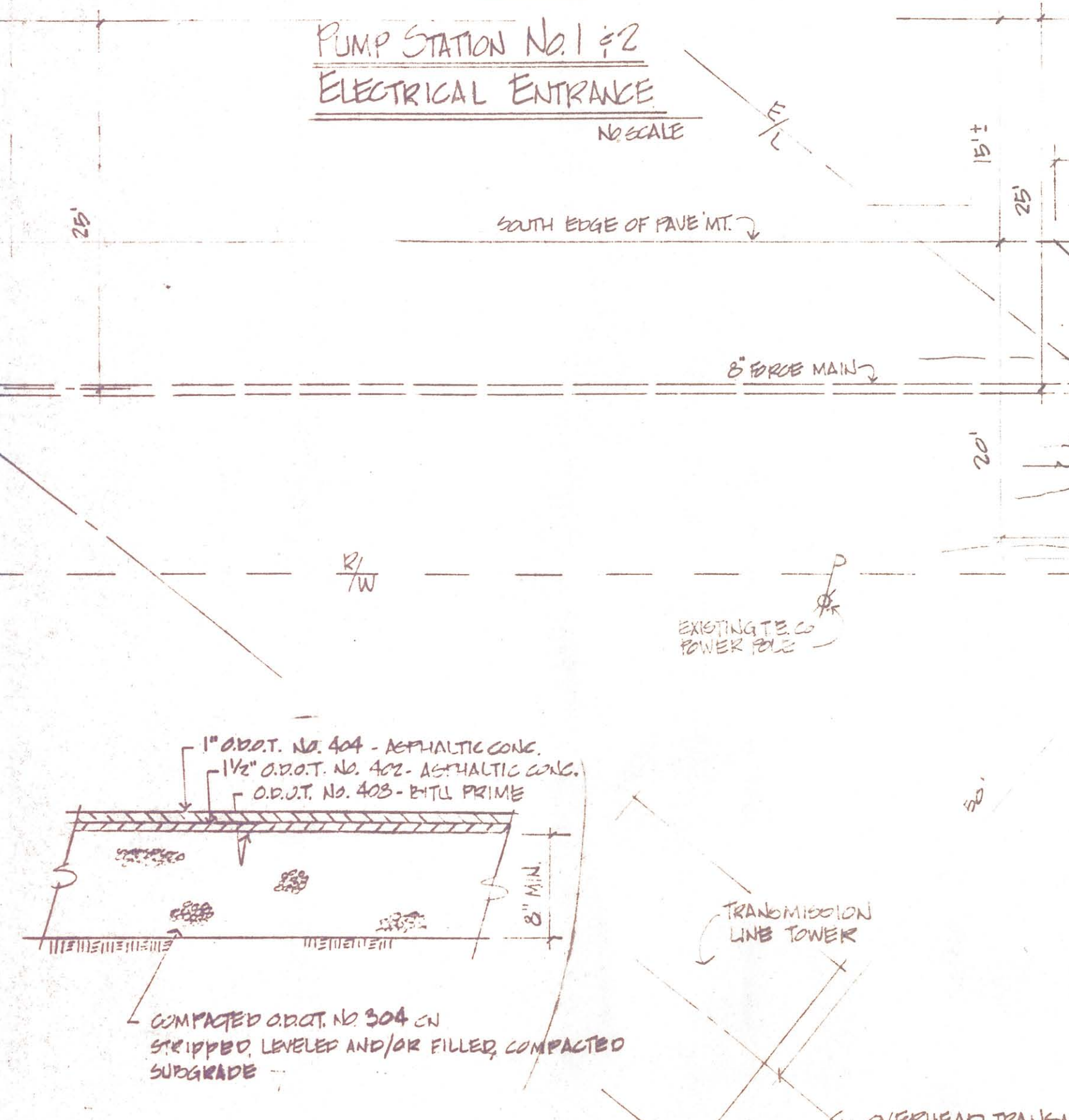
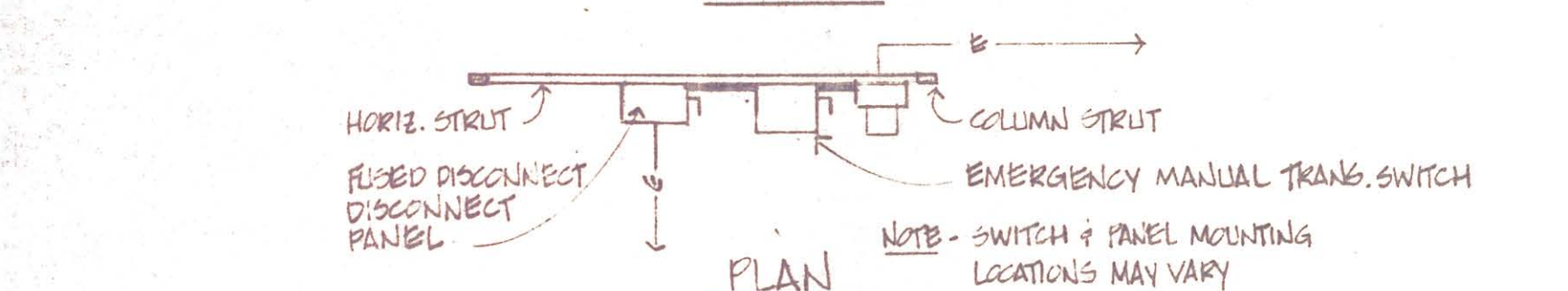
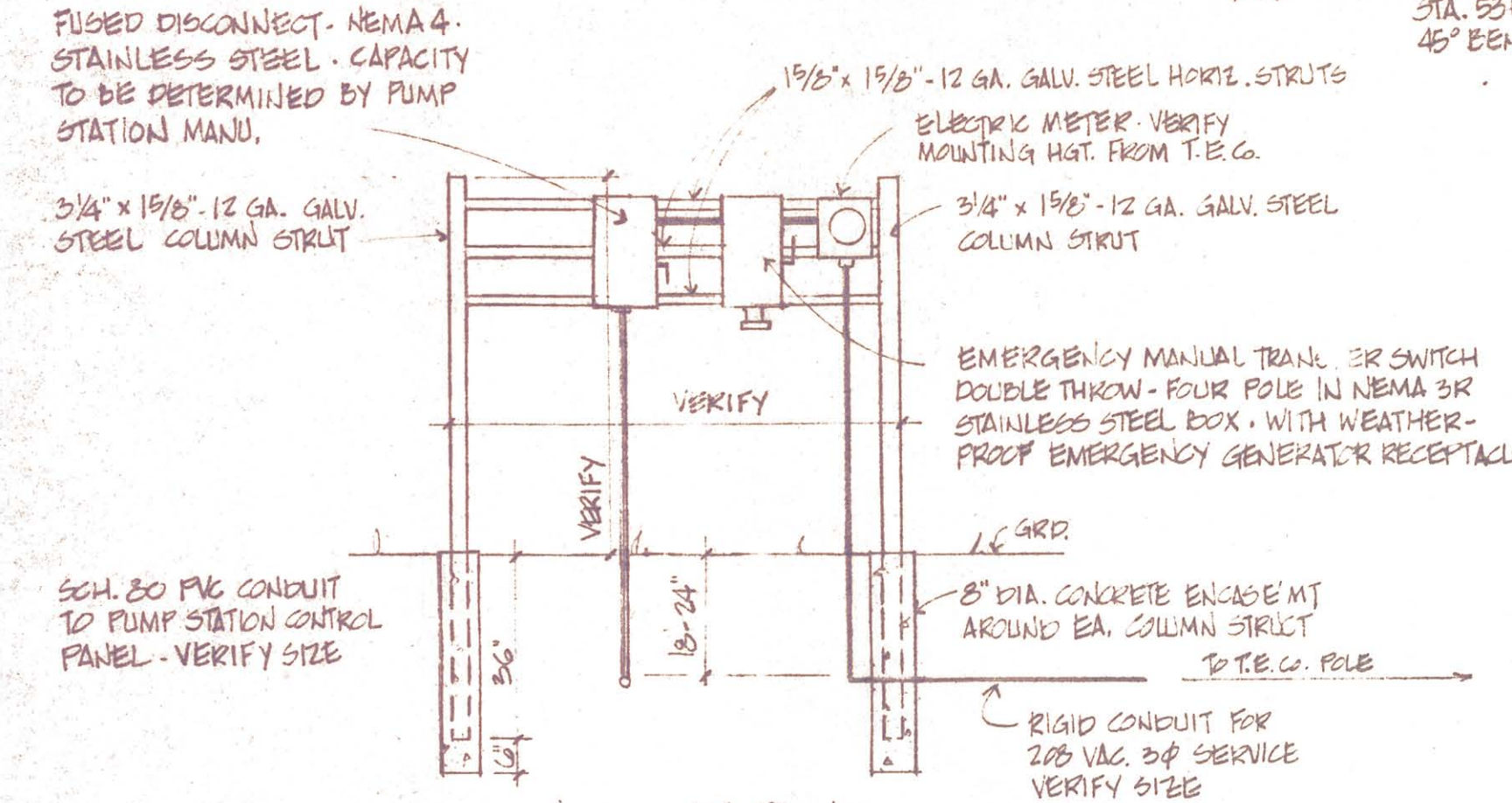
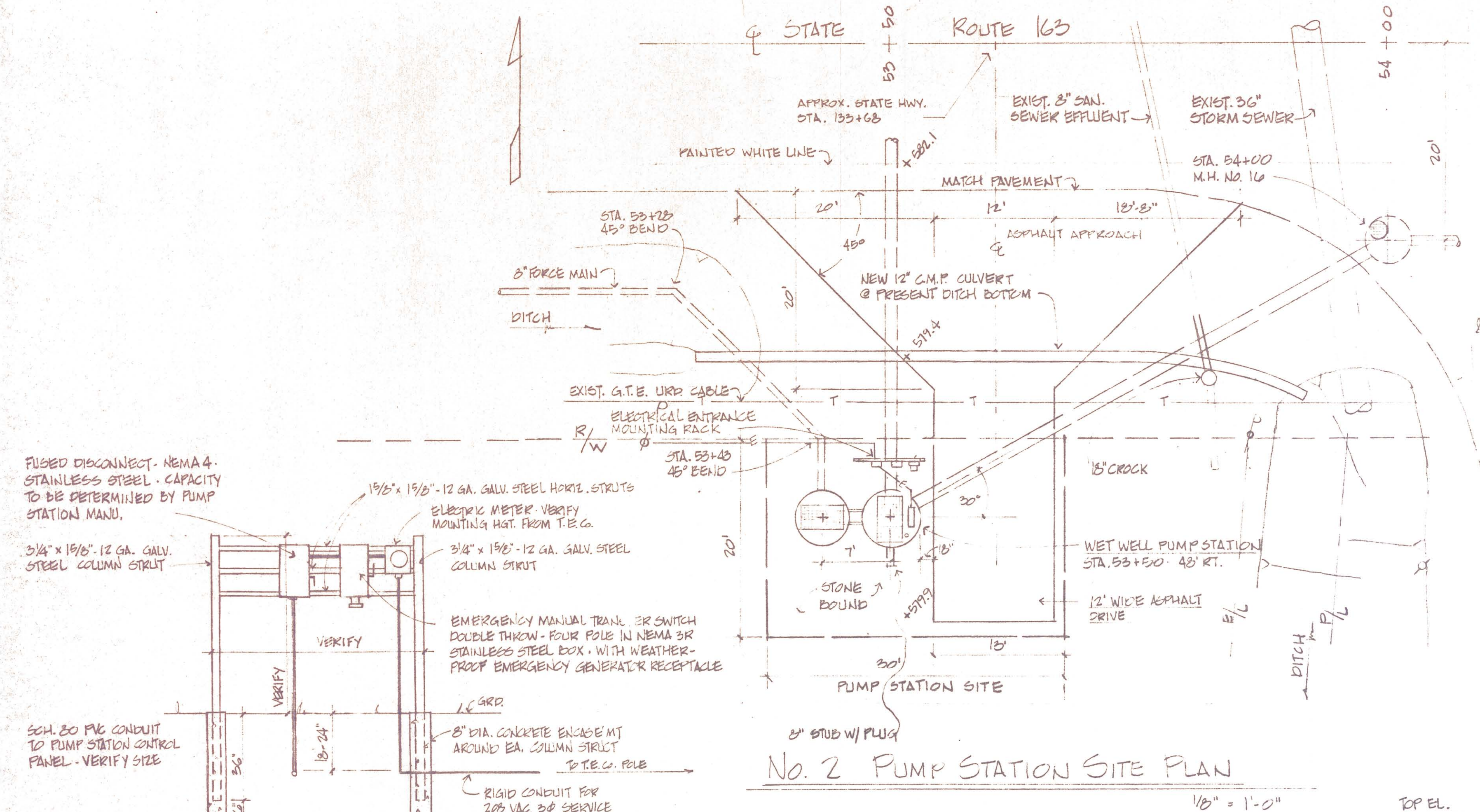
TITLE
 TYPICAL PUMP STATION DETAILS
 NO. 1, NO. 2 & NO. 5
 SITE PLAN

PROJECT
 SALEM TOWNSHIP SANITARY SEWER
 PROJECT
 FOR: THE CITY AND CO. OF COMMISSIONERS
 915 WALPOLE ST.
 P.O. BOX 100
 CLINTON, OHIO 43102
 419-734-1927

124 EAST SECOND STREET
 PORT CLINTON, OHIO 43152
 419-734-1927

DON C. WAGGONER, P.E., INC.
 CONSULTING ENGINEER

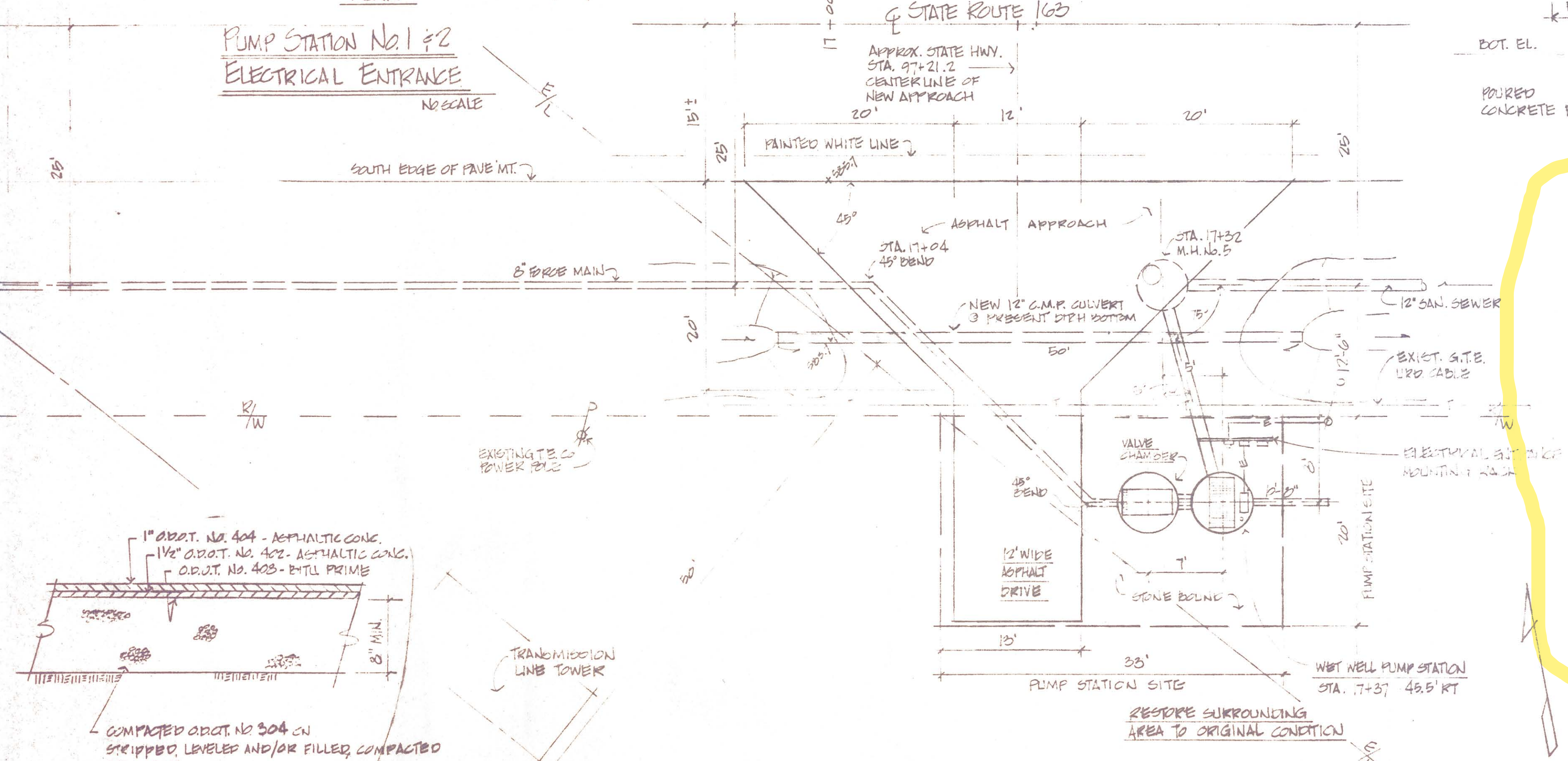
Comm: 88-132
 Drawn by: T.N.
 Checked by: [Signature]
 Date: APRIL 1990
 Sheet: 4 of 11



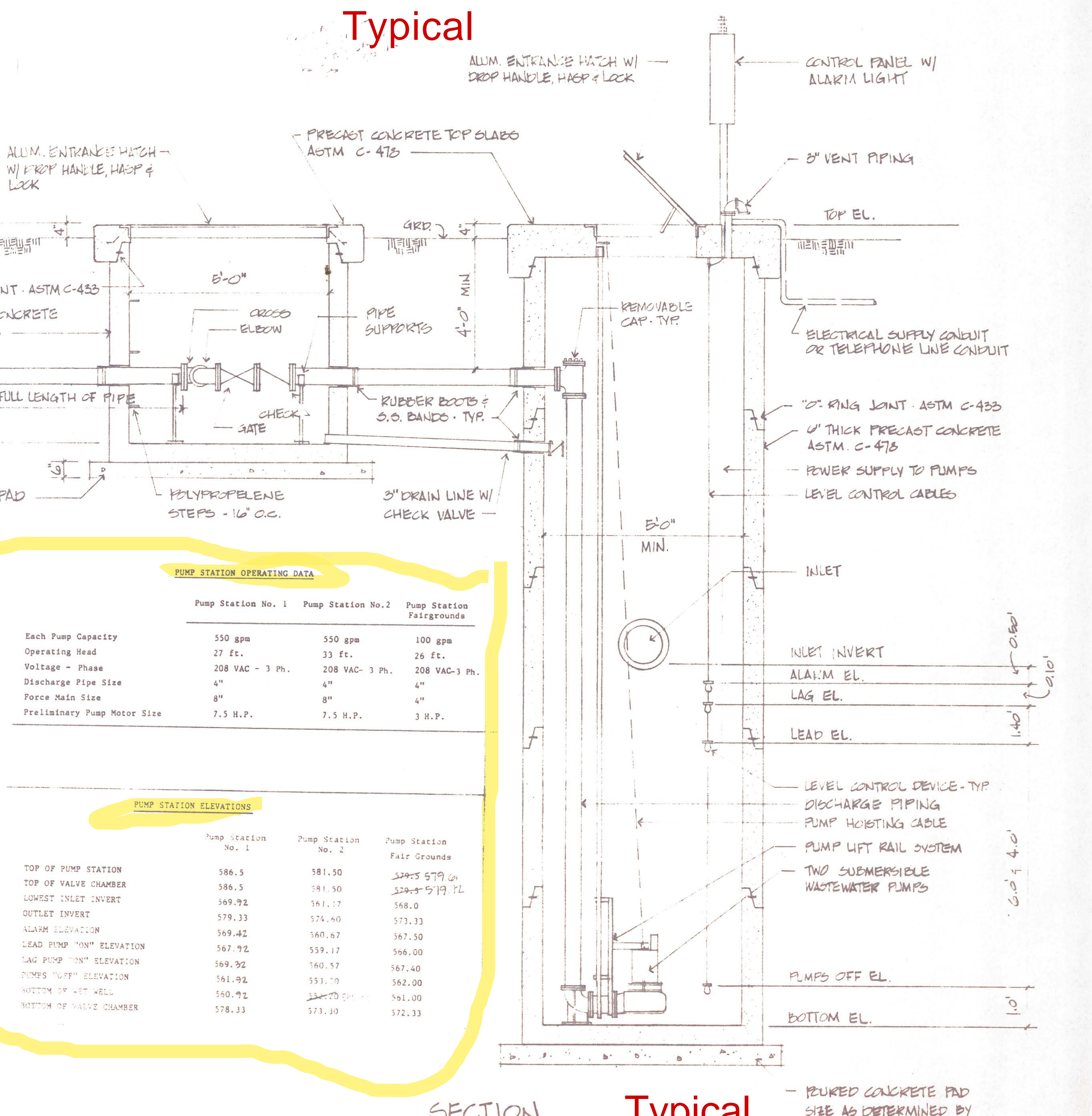
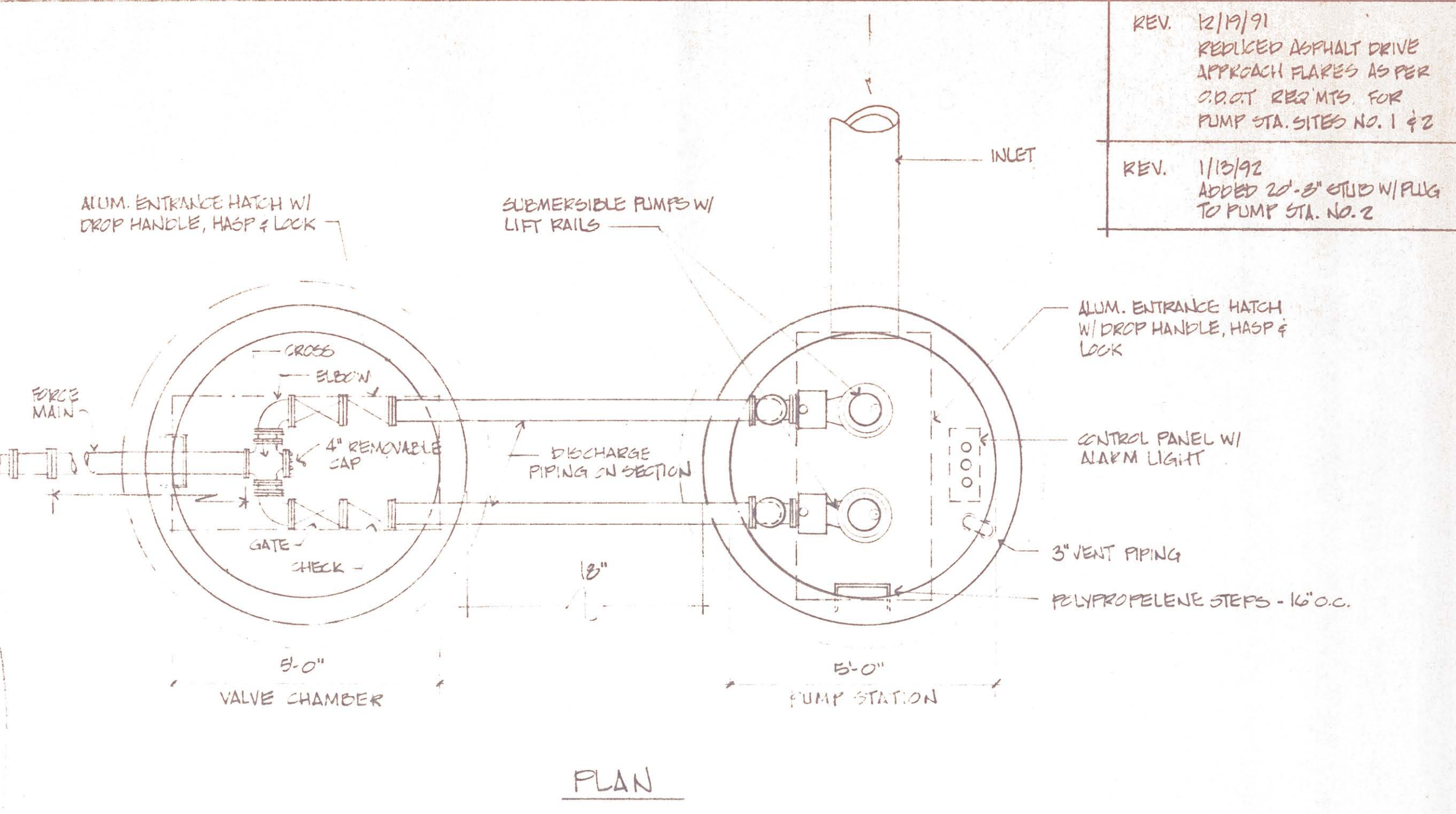
TYPICAL PUMP STATION DRIVE & APPROACH

No. 2 PUMP STATION SITE PLAN
 1/8" = 1'-0"

Anchor PS



No. 1 PUMP STATION SITE PLAN
 Wolfe PS
 1/8" = 1'-0"



SECTION
 Typical
 WET WELL PUMP STATION
 NO SCALE

PUMP STATION OPERATING DATA

	Pump Station No. 1	Pump Station No. 2	Pump Station Fairgrounds
Each Pump Capacity	550 gpm	550 gpm	100 gpm
Operating Head	27 Ft.	33 Ft.	26 Ft.
Voltage - Phase	208 VAC - 3 Ph.	208 VAC - 3 Ph.	208 VAC - 3 Ph.
Discharge Pipe Size	4"	4"	4"
Force Main Size	8"	8"	4"
Preliminary Pump Motor Size	7.5 H.P.	7.5 H.P.	3 H.P.

PUMP STATION ELEVATIONS

	Pump Station No. 1	Pump Station No. 2	Pump Station Fairgrounds
TOP OF PUMP STATION	586.5	581.50	579.21
TOP OF VALVE CHAMBER	586.5	581.50	579.21
LOWEST INLET INVERT	569.92	561.07	568.0
OUTLET INVERT	579.33	574.40	573.33
ALARM ELEVATION	569.42	560.67	567.50
LEAD PUMP "ON" ELEVATION	567.92	559.17	566.00
LAG PUMP "ON" ELEVATION	569.92	560.57	567.40
PUMPS "OFF" ELEVATION	561.92	553.00	562.00
MINIMUM OF WET WELL	560.92	552.00	561.00
BOTTOM OF VALVE CHAMBER	578.33	573.10	572.33

POURED CONCRETE PAD
 SEE AS DETERMINED BY
 STATION FABRICATOR
 ALLOWABLE SOIL BEARING
 PRESSURE = 2800 P.S.F.

BORING LEGEND

Legend:

Symbol: Description

TOPSOIL, 15 INCHES PER FIELD MEASUREMENT

VERY STIFF BROWN-GREY TO GREY SILTY CLAY, TRACE SAND AND GRAVEL

HARD GREY SILTY CLAY, TRACE SAND AND GRAVEL

MEDIUM STIFF TO STIFF BROWN SILTY CLAY, TRACE SAND AND GRAVEL

Standard penetration test logs are grouped 30'

Notes:

- Exploratory borings were drilled on August 16 and 17, 1990, using 4 1/2 inch diameter augers with split spoon sampling.
- Free water was encountered at the time of drilling in some borings. Levels are noted on individual boring logs.
- Boring locations were determined by a representative from Don C. Waggoner, P.E. The elevations and locations noted were extrapolated from site plan provided by same.
- These logs are subject to the limitations, conclusions, and recommendations in this report.
- Results of tests conducted on samples recovered are reported on the logs. Abbreviations used are:

DD = natural dry density (pcf)
 MC = natural moisture content (%)
 UC = unconfined compression (psf)

Notes:
 (1) symbol indicates the depth of caving
 Toledo Testing Laboratory, Inc. Figure Number 4

LOG OF TEST BORING NO. 3
 BORING B-3
 PROJECT: SALEM TOWNSHIP SEWER TTL # DR-11973 DATE: AUG. 16/17, 1990
 BORING NO.: B-3 ELEV.: 582.55, APP.
 BORING LOCATION: STATION 58+00, RIGHT
 DRILL METHOD: SOLID STEM AUGERS W/ SPLIT SPOON DRILLERS: MS/JL
 ENCOUNTERED WATER DEPTH: 8.0 FEET COMPLETION: 10.0 FEET
 DEPTH OF WATER WHEN CHECKED ON: WAS:

DEPTH	SOIL SYMBOL	Description	Moist. %	Density Unconfined pcf	Strength, psf
0-1	TOPSOIL	TOPSOIL, 15 INCHES PER FIELD MEASUREMENT			
1-2		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL AND ROOT FIBERS	22.1		
2-3		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL AND ROOT FIBERS	20.7		
3-4		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL AND ROOT FIBERS	22.2		
4-5		HARD BROWN SILTY CLAY, TRACE SAND AND GRAVEL	15.4		
5-6		VERY STIFF GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	17.4		
6-7		VERY STIFF GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	18.3		
7-8		VERY STIFF GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	15.0		

(1) symbol indicates the depth of caving
 Toledo Testing Laboratory, Inc. Figure Number 4

LOG OF TEST BORING NO. 6
 BORING B-6
 PROJECT: SALEM TOWNSHIP SEWER TTL # DR-11973 DATE: AUG. 16/17, 1990
 BORING NO.: B-6 ELEV.: 581.00, APP.
 BORING LOCATION: STATION 1+20, LEFT
 DRILL METHOD: SOLID STEM AUGERS W/ SPLIT SPOON DRILLERS: MS/JL
 ENCOUNTERED WATER DEPTH: 19.0 FEET COMPLETION: 19.0 FEET
 DEPTH OF WATER WHEN CHECKED ON: WAS:

DEPTH	SOIL SYMBOL	Description	Moist. %	Density Unconfined pcf	Strength, psf
0-1	TOPSOIL	TOPSOIL, 15 INCHES PER FIELD MEASUREMENT	25.2		
1-2		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND	25.6		
2-3		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND	28.5		
3-4		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND	25.7		
4-5		VERY STIFF BROWN-GREY TO GREY SILTY CLAY, TRACE SAND AND GRAVEL	14.5		
5-6		VERY STIFF BROWN-GREY TO GREY SILTY CLAY, TRACE SAND AND GRAVEL	15.9		
6-7		VERY STIFF BROWN-GREY TO GREY SILTY CLAY, TRACE SAND AND GRAVEL	16.0		

(1) symbol indicates the depth of caving
 Toledo Testing Laboratory, Inc. Figure Number 7

LOG OF TEST BORING NO. 1
 BORING B-1
 PROJECT: SALEM TOWNSHIP SEWER TTL # DR-11973 DATE: AUG. 16/17, 1990
 BORING NO.: B-1 ELEV.: 585.75, APP.
 BORING LOCATION: STATION 17+00, RIGHT
 DRILL METHOD: SOLID STEM AUGERS W/ SPLIT SPOON DRILLERS: MS/JL
 ENCOUNTERED WATER DEPTH: NONE COMPLETION: DRY
 DEPTH OF WATER WHEN CHECKED ON: WAS:

DEPTH	SOIL SYMBOL	Description	Moist. %	Density Unconfined pcf	Strength, psf
0-1	TOPSOIL	TOPSOIL, 12 INCHES PER FIELD MEASUREMENT	19.6		
1-2		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL	22.2		
2-3		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL	18.0		
3-4		VERY STIFF BROWN TO GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	16.9		
4-5		VERY STIFF BROWN TO GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	17.0		
5-6		VERY STIFF BROWN TO GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	15.7		
6-7		VERY STIFF BROWN TO GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	8.7		
7-8		VERY STIFF BROWN TO GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	8.3		

MOVED BORING 12.0 FEET NORTH DUE TO UTILITIES
 (1) symbol indicates the depth of caving
 Toledo Testing Laboratory, Inc. Figure Number 2

LOG OF TEST BORING NO. 4
 BORING B-4
 PROJECT: SALEM TOWNSHIP SEWER TTL # DR-11973 DATE: AUG. 16/17, 1990
 BORING NO.: B-4 ELEV.: 583.00, APP.
 BORING LOCATION: STATION 69+00, RIGHT
 DRILL METHOD: SOLID STEM AUGERS W/ SPLIT SPOON DRILLERS: MS/JL
 ENCOUNTERED WATER DEPTH: NONE COMPLETION: DRY
 DEPTH OF WATER WHEN CHECKED ON: WAS:

DEPTH	SOIL SYMBOL	Description	Moist. %	Density Unconfined pcf	Strength, psf
0-1	TOPSOIL	TOPSOIL, 2 INCHES PER FIELD MEASUREMENT	22.8		
1-2		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL	27.0		
2-3		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL	26.7		
3-4		HARD BROWN SILTY CLAY, LITTLE SAND AND GRAVEL	15.1		
4-5		HARD BROWN SILTY CLAY, LITTLE SAND AND GRAVEL	17.0		
5-6		VERY STIFF GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	15.5		

MOVED BORING 15 FEET NORTH DUE TO UTILITIES
 (1) symbol indicates the depth of caving
 Toledo Testing Laboratory, Inc. Figure Number 5

Project No. DR-11973 TOLEDO TESTING LABORATORY, INC.

TABULATION OF TEST DATA

Boring No.	Sample Number	Depth of Sample Top	Elevation of Sample Top	Standard Penetration Test (Blows per Foot)	Natural Moisture Content (%)	In Place Dry Density (Pounds per Cubic Foot)	Unconfined Compressive Strength (psf)	Particle Size Distribution									
								Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt (%)					
B-1	LS-1	1.5	14	19.6													
	LS-2	5.0	10	22.2													
	LS-3	7.5	15	18.0													
	LS-4	10.0	20	16.9													
	LS-5	15.0	15	17.0													
	LS-6	20.0	25	15.7													
	LS-7	25.0	84	8.7													
B-2	LS-1	1.5	9	17.0													
	LS-2	5.0	11	22.0													
	LS-3	7.5	13	21.5													
	LS-4	10.0	30	22.0													
	LS-5	15.0	23	16.9													
	LS-6	20.0	46	13.4													
	LS-7	24.0	50/3"	5.8													
B-3	LS-1	1.5	8	22.1													
	LS-2	5.0	12	22.2													
	LS-3	7.5	12	22.2													
	LS-4	10.0	35	15.4													
	LS-5	15.0	18	17.0													
	LS-6	20.0	20	16.3													
	LS-7	22.0	27	15.8													
B-4	LS-1	2.5	9	22.8													
	LS-2	5.0	9	27.0													
	LS-3	7.5	10	26.7													
	LS-4	10.0	37	15.1													
	LS-5	15.0	18	17.0													
	LS-6	20.0	18	15.5													
	LS-7	25.0															
B-5	LS-1	2.5	7	24.8													
	LS-2	5.0	8	22.6													
	LS-3	7.5	9	22.9													
	LS-4	10.0	22	18.6													
	LS-5	15.0	19	14.5													
	LS-6	20.0	21	15.8													
	LS-7	25.0	25	16.0													
B-6	LS-1	1.5	13	25.2													
	LS-2	5.0	11	25.6													
	LS-3	7.5	12	28.5													
	LS-4	10.0	22	25.7													
	LS-5	15.0	19	14.5													
	LS-6	20.0	21	15.8													
	LS-7	25.0	25	16.0													

LOG OF TEST BORING NO. 2
 BORING B-2
 PROJECT: SALEM TOWNSHIP SEWER TTL # DR-11973 DATE: AUG. 16/17, 1990
 BORING NO.: B-2 ELEV.: 582.00, APP.
 BORING LOCATION: STATION 48+90, RIGHT
 DRILL METHOD: SOLID STEM AUGERS W/ SPLIT SPOON DRILLERS: MS/JL
 ENCOUNTERED WATER DEPTH: WET SEAMS AT 11 & 17 FT
 DEPTH OF WATER WHEN CHECKED ON: WAS:

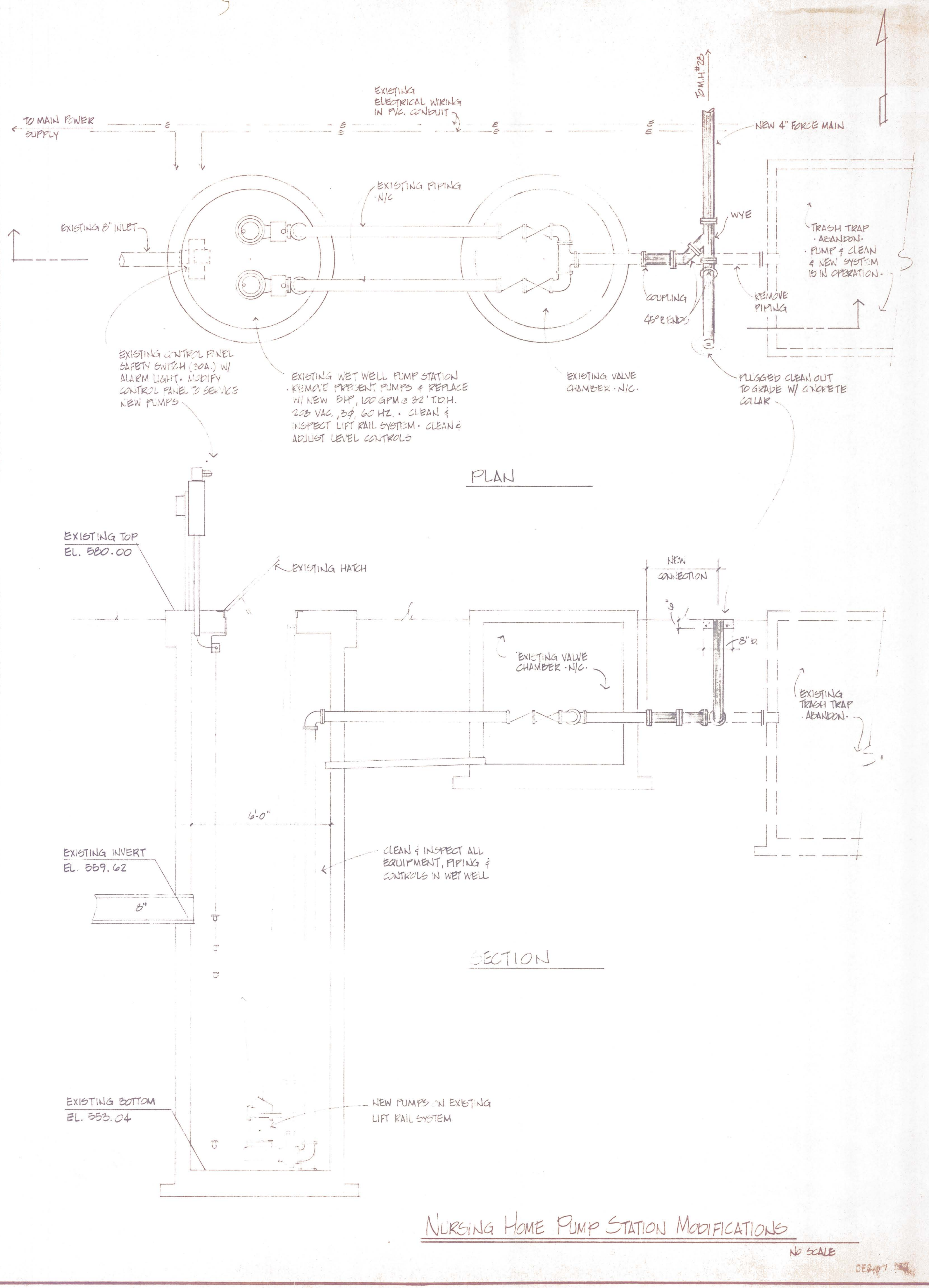
DEPTH	SOIL SYMBOL	Description	Moist. %	Density Unconfined pcf	Strength, psf
0-1	TOPSOIL	TOPSOIL, 18 INCHES PER FIELD MEASUREMENT	17.0		
1-2		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL	22.0		
2-3		STIFF BROWN SILTY CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL	21.5		
3-4		VERY STIFF BROWN-GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	22.0		
4-5		VERY STIFF BROWN-GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	10.9		
5-6		VERY STIFF BROWN-GREY SILTY CLAY, TRACE TO LITTLE SAND AND GRAVEL	13.4		
6-7		HARD TO VERY HARD BROWN CLAY AND GRAVEL	5.8		

MOVED BORING 15 FEET NORTH DUE TO UTILITIES.
 (1) symbol indicates the depth of caving
 Toledo Testing Laboratory, Inc. Figure Number 3

LOG OF TEST BORING NO. 5
 BORING B-5
 PROJECT: SALEM TOWNSHIP SEWER TTL # DR-11973 DATE: AUG. 16/17, 1990
 BORING NO.: B-5 ELEV.: 583.00, APP.
 BORING LOCATION: STATION 78+00, RIGHT
 DRILL METHOD: SOLID STEM AUGERS W/ SPLIT SPOON DRILLERS: MS/JL
 ENCOUNTERED WATER DEPTH: NONE COMPLETION: DRY
 DEPTH OF WATER WHEN CHECKED ON: WAS:

DEPTH	SOIL SYMBOL	Description	Moist. %	Density Unconfined pcf	Strength, psf
0-1	TOPSOIL	TOPSOIL, 12 INCHES PER FIELD MEASUREMENT	24.8		
1-2		MEDIUM STIFF TO STIFF BROWN SILTY CLAY, TRACE SAND AND GRAVEL	22.6		
2-3		MEDIUM STIFF TO STIFF BROWN SILTY CLAY, TRACE SAND AND GRAVEL	22.9		
3-4		VERY STIFF BROWN-GREY TO GREY SILTY CLAY, TRACE SAND AND GRAVEL	18.6		
4-5		VERY STIFF BROWN-GREY TO GREY SILTY CLAY, TRACE SAND AND GRAVEL	15.1		
5-6		HARD GREY SILTY CLAY, TRACE SAND AND GRAVEL	14.5		

BORING MOVED 3 FEET NORTH DUE TO UTILITIES.
 (1) symbol indicates the depth of caving
 Toledo Testing Laboratory, Inc. Figure Number 6

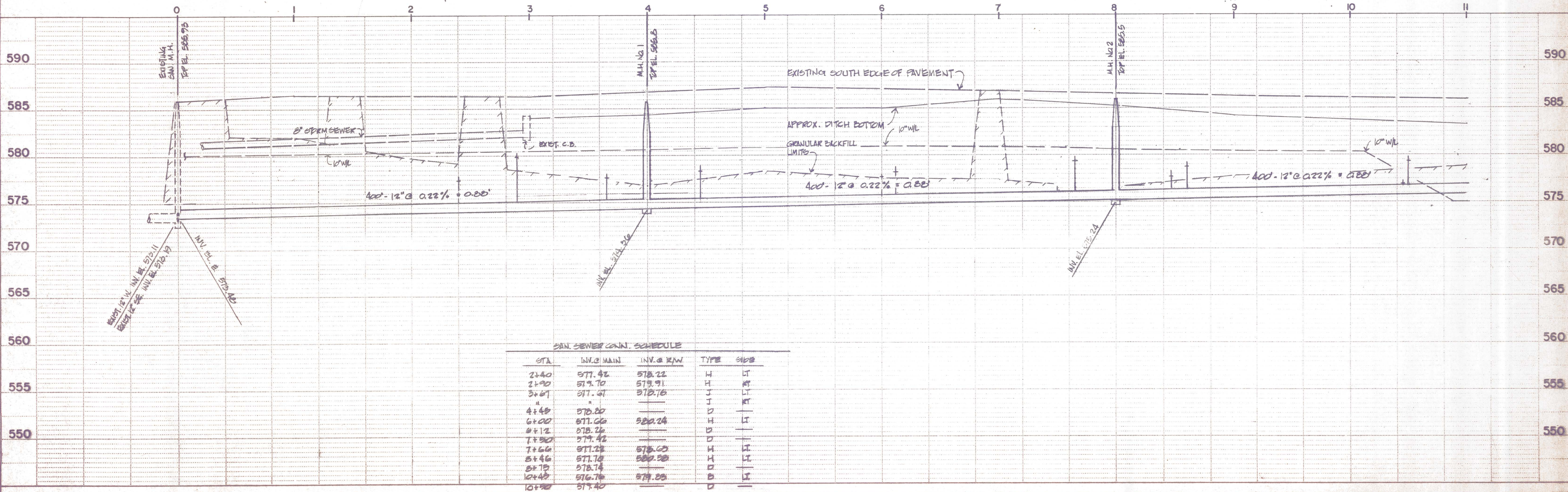
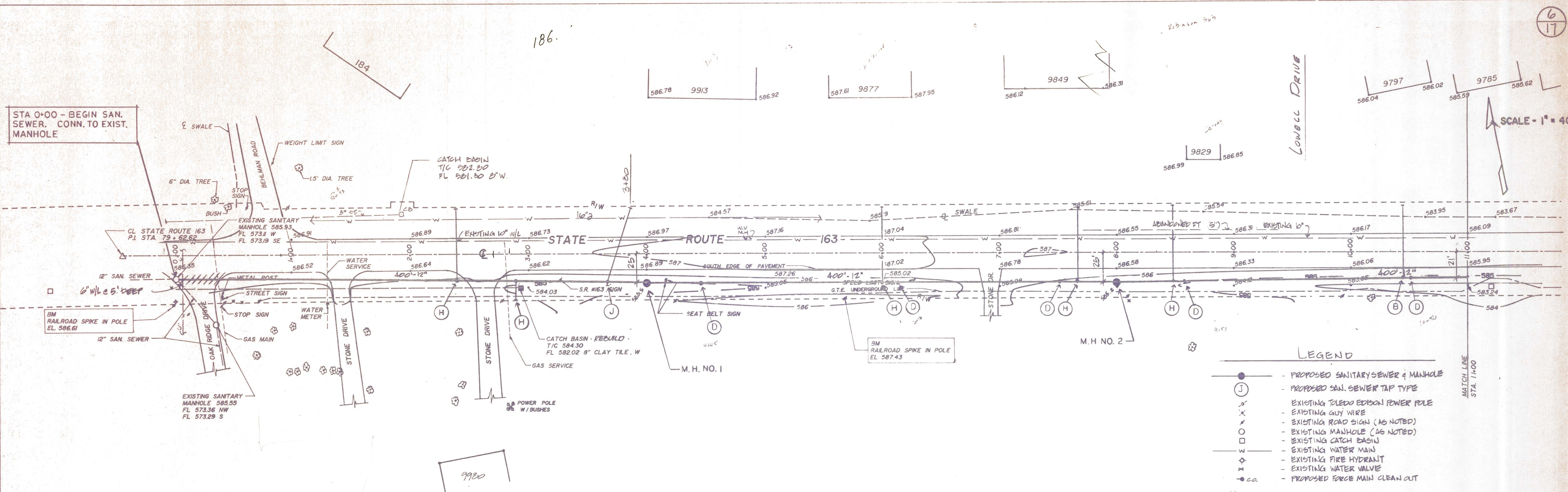


Rev. 10-26-90

PROJECT: SALEM TOWNSHIP SANITARY SEWER
 PROJECT: RIVERVIEW NURSING HOME WASTE WATER PUMP STATION MODIFICATIONS
 SOIL BORING LOGS & DATA

ENGINEER: DON C. WAGGONER, P.E., INC.
 CONSULTING ENGINEER
 124 EAST SECOND STREET
 PORT CLINTON, OHIO 43452
 419-734-1977

Comm. 88-132
 Drawn by T.N.
 Checked by [Signature]
 Date MAY 1990
 Sheet 5 of 11



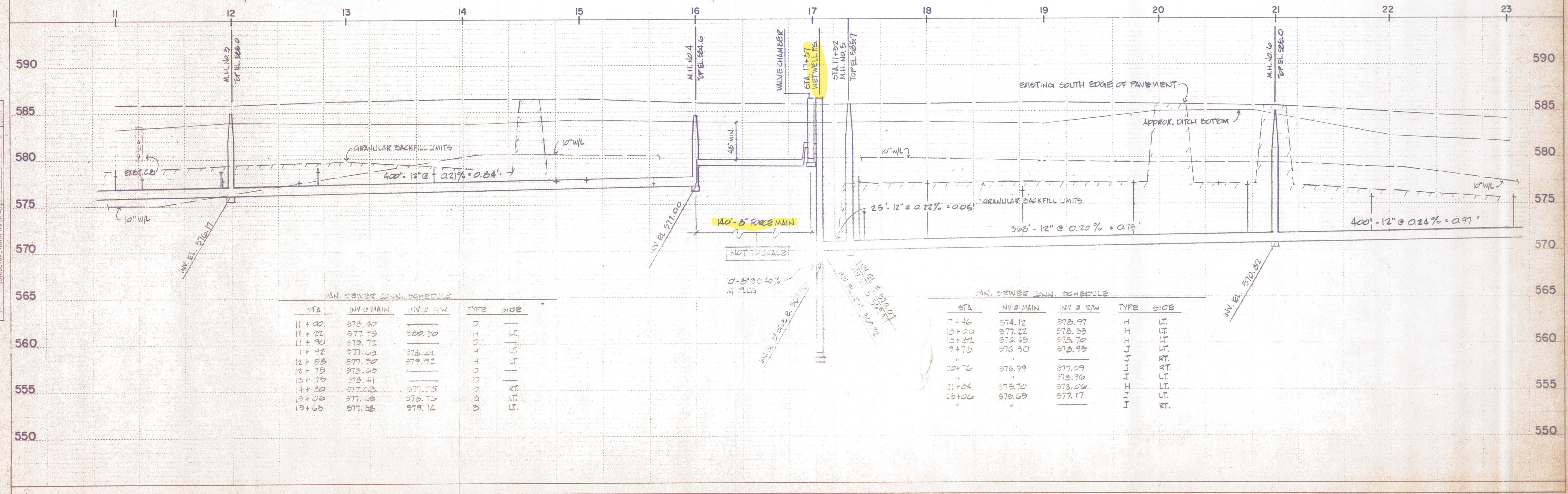
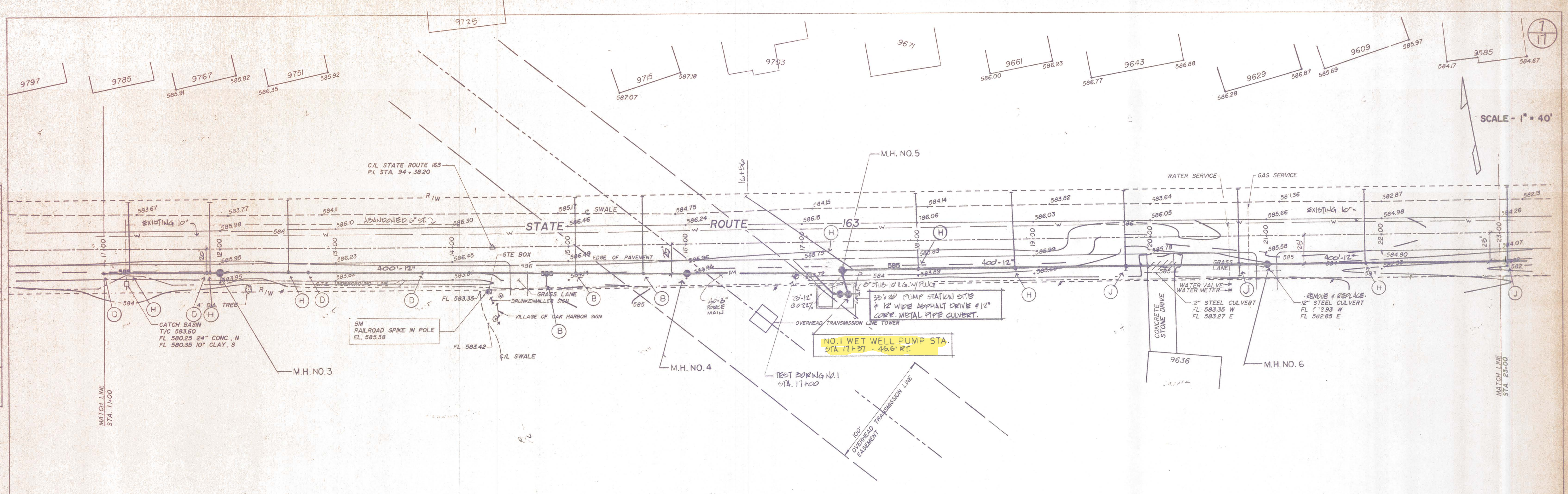
PLAN
SURVEYED
PLOTTED
CHECKED
NOTE BOOK NO.

PROFILE
SURVEYED
PLOTTED
CHECKED
NOTE BOOK NO.
STRUCTURE NOTATIONS CHECKED

SCALE - 1" = 40'

PLAN
 SURVEYED
 PLOTTED
 CHECKED
 BY
 DATE

PROFILE
 SURVEYED
 PLOTTED
 CHECKED
 BY
 DATE



MAN SEWER CONN. SCHEDULE

STA	INV @ MAIN	INV @ RW	TYPE	SIDE
11+00	578.40	580.30	0	
11+22	577.95		1	LT.
11+30	578.71		0	
11+32	577.65	578.01	4	LT.
12+53	577.30	579.92	4	LT.
12+75	578.23		0	
13+75	578.41		0	
14+30	577.63	577.75	0	
13+08	577.08	578.75	0	LT.
13+03	577.38	579.14	0	LT.

MAN SEWER CONN. SCHEDULE

STA	INV @ MAIN	INV @ RW	TYPE	SIDE
17+46	574.12	578.97	1	LT.
13+00	577.22	578.33	1	LT.
13+32	576.45	578.70	1	LT.
14+75	576.30	578.95	4	RT.
"	"	"	4	RT.
12+76	576.99	577.09	4	LT.
"	"	578.96	4	LT.
21+04	578.70	578.06	1	LT.
13+06	576.65	577.17	1	RT.

SCALE - 1" = 40'

PLAN

SURVEYED BY _____ DATE _____

PLOTTED BY _____

CHECKED BY _____

NOTE BOOK NO. _____

PROFILE

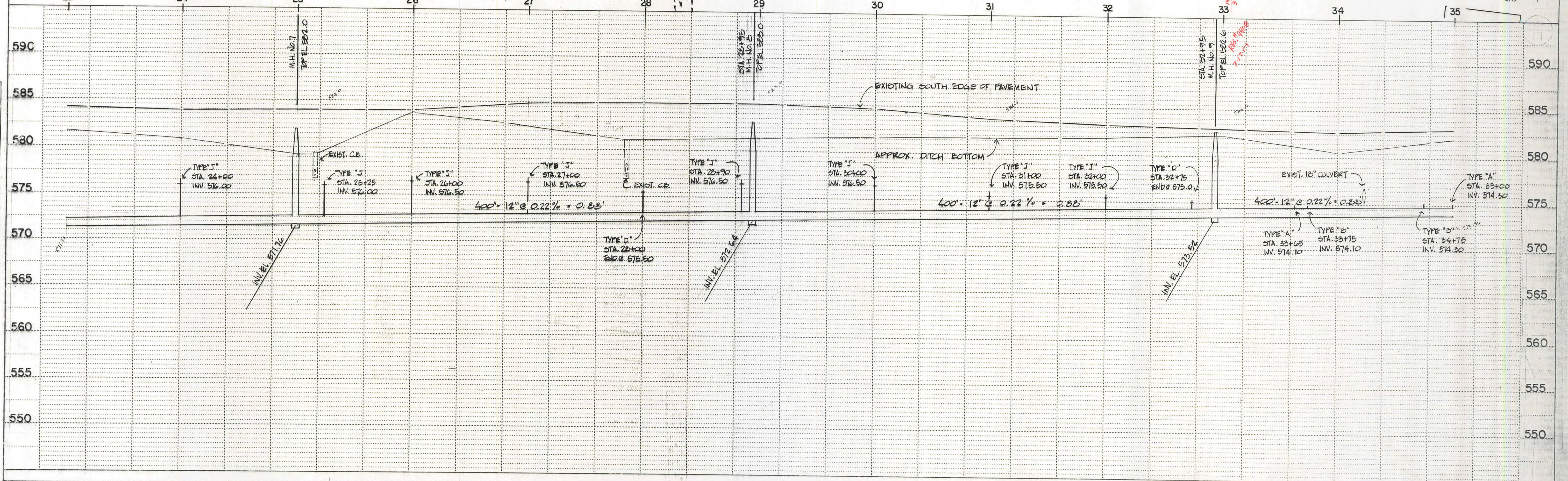
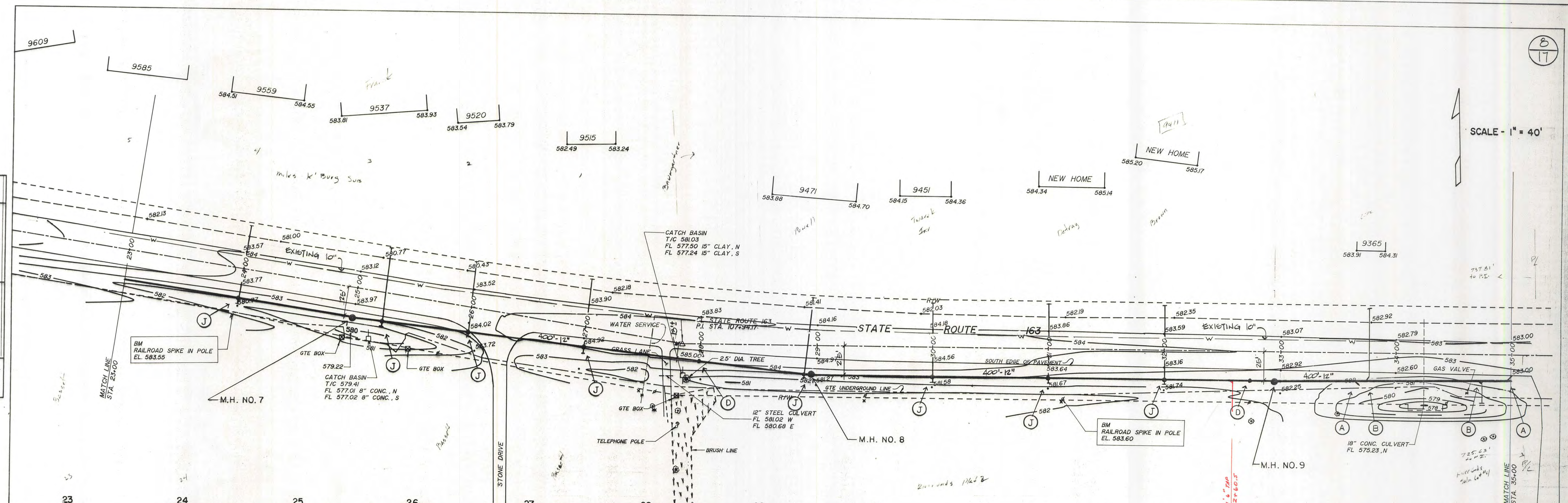
SURVEYED BY _____ DATE _____

PLOTTED BY _____

CHECKED BY _____

NOTE BOOK NO. _____

VERTICAL CURVING BY _____



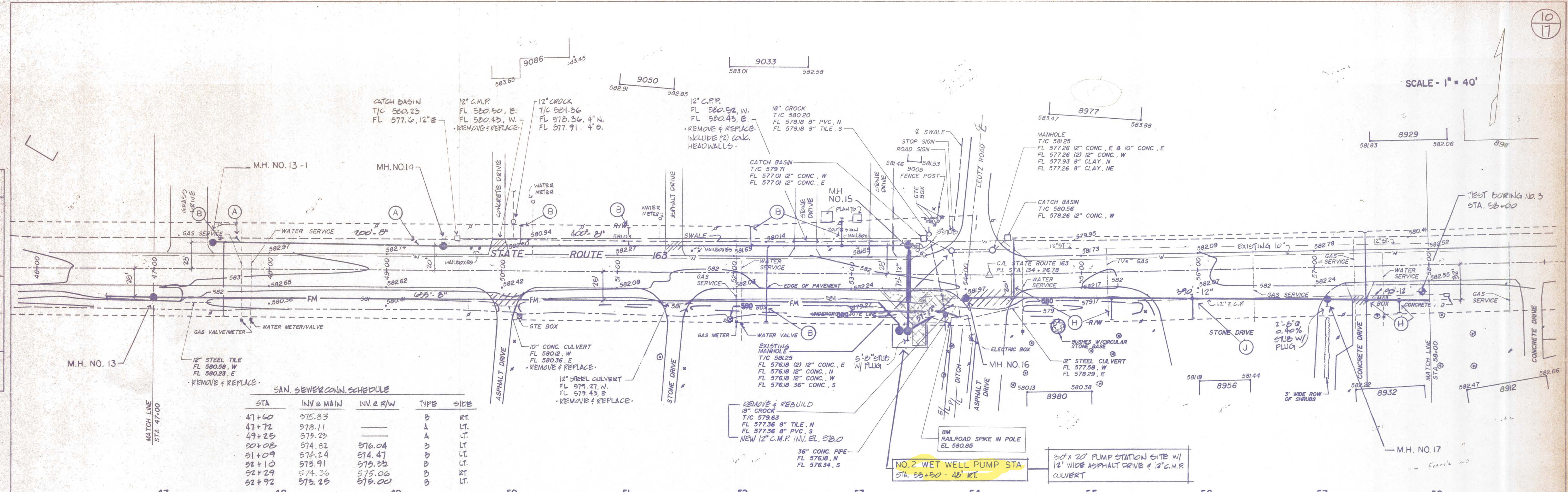
DON C. WAGGONER, P.E., INC. 124 EAST SECOND STREET PORT CLINTON, OH.

SALEM TOWNSHIP SANITARY SEWER PROJECT OTTAWA CO., OHIO

SCALE - 1" = 40'

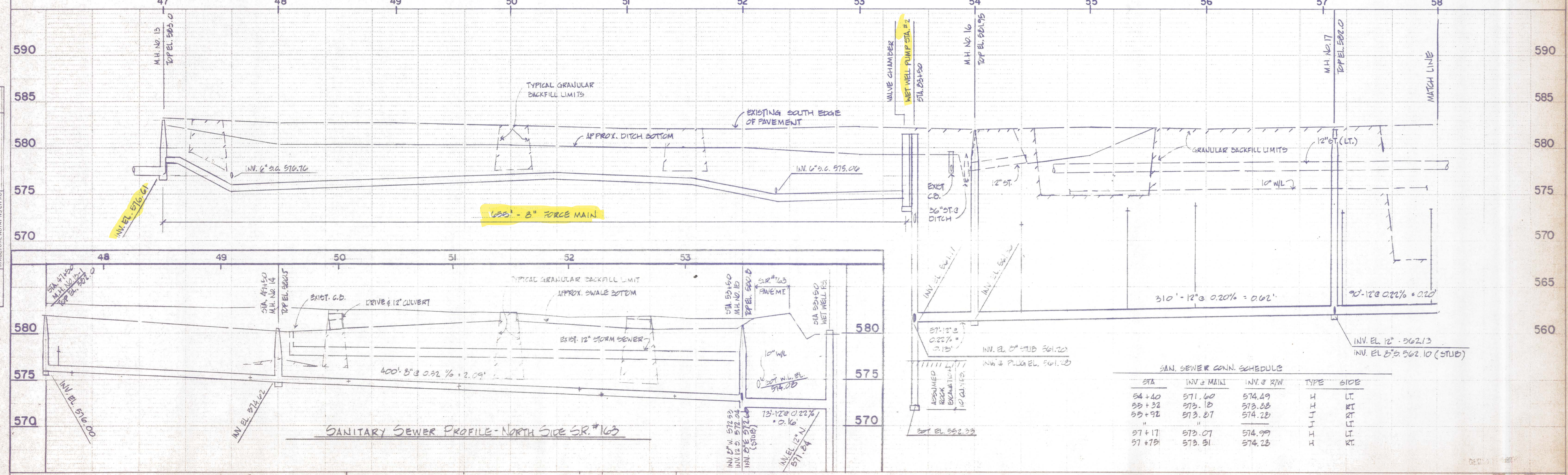
DATE
BY
SUPERSEDED
PLOTTED
ALIGNMENT CHECKED
NOTE BOOK NO.

DATE
BY
SURVEY
PLOTTED
GRADES CHECKED
NOTE BOOK NO.



SAN. SEWER CONN. SCHEDULE

STA	INV. @ MAIN	INV. @ R/W	TYPE	SIDE
47+60	575.83		B	RT.
47+72	578.11		A	LT.
49+25	579.23		A	LT.
50+08	574.82	576.04	B	LT.
51+09	574.24	574.47	B	LT.
52+10	579.91	579.33	B	LT.
52+29	574.36	575.06	B	RT.
52+92	573.25	575.00	B	LT.



SAN. SEWER CONN. SCHEDULE

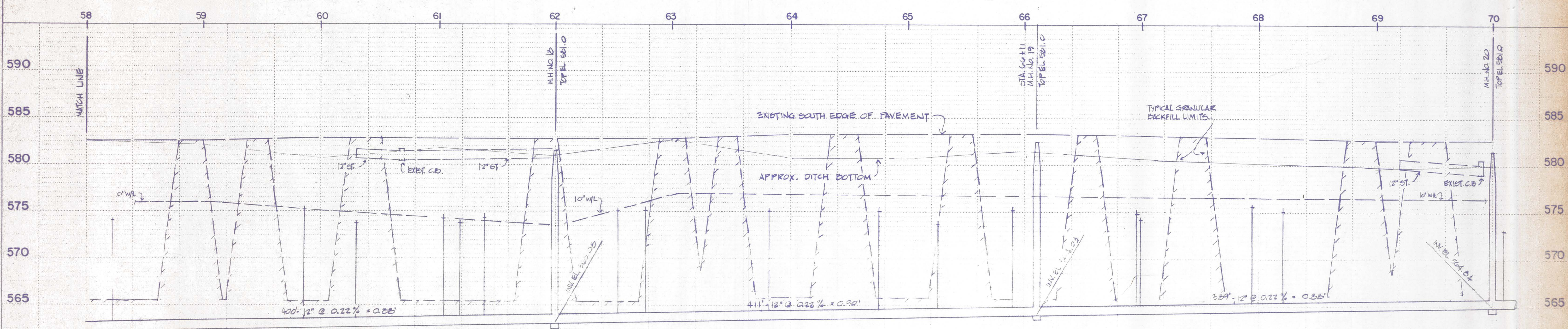
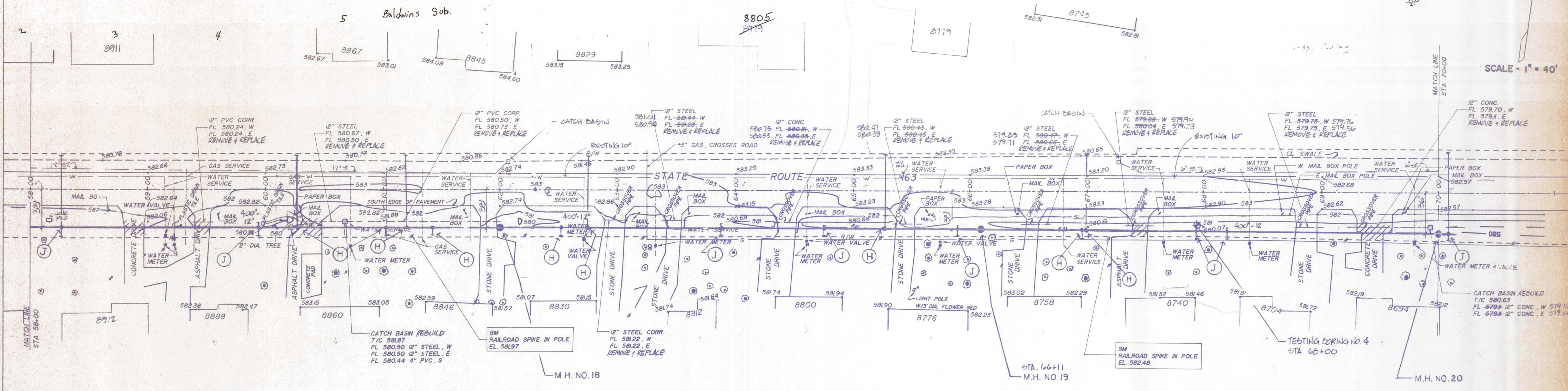
STA	INV. @ MAIN	INV. @ R/W	TYPE	SIDE
54+40	571.60	574.49	H	LT.
55+32	573.18	573.88	H	RT.
55+92	573.87	574.28	H	LT.
57+17	573.07	574.99	H	LT.
57+75	573.51	574.23	H	RT.

2713
JESSI BOLAY

SCALE - 1" = 40'

DATE	
BY	
PROJECT	SALEM TWP. SANITARY SEWER PROJECT
PLANNED	ALIGNED CH. 1-D
NOTE BOOK	RT. OF WAY CH. 1-D
NO.	

DATE	
BY	
PROJECT	SALEM TWP. SANITARY SEWER PROJECT
PLANNED	ALIGNED CH. 1-D
NOTE BOOK	RT. OF WAY CH. 1-D
NO.	



(.490' - 12" - M.H. NO. 17 TO 18)
@ 0.22% = 1.10'

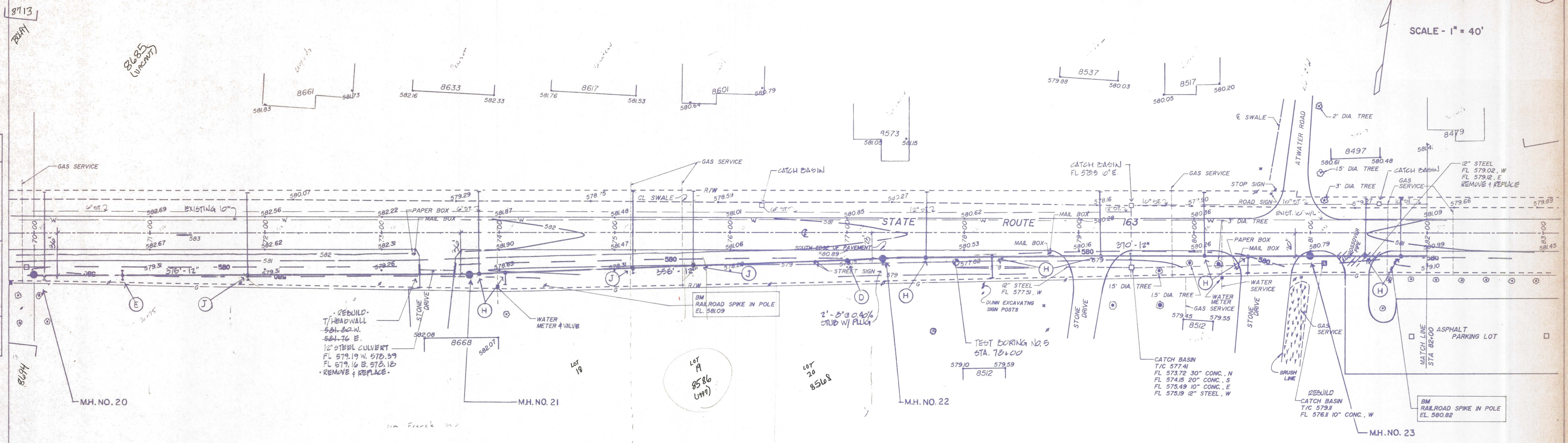
SAN. SEWER CONN. SCHEDULE

STA	INV. @ MAIN	INV. @ R/W	TYPE	SIDE
58+26	574.03	574.33	J	RT.
"	"	574.70	J	LT.
59+25	573.22	573.33	J	RT.
"	"	573.47	J	LT.
60+27	573.75	573.60	J	LT.
61+02	574.35	574.42	J	RT.
61+13	573.88	573.77	J	LT.
61+39	574.43	574.49	J	RT.
62+52	573.11	573.21	J	RT.
62+77	573.11	573.93	J	LT.
63+23	573.09	573.17	J	LT.

SAN. SEWER CONN. SCHEDULE

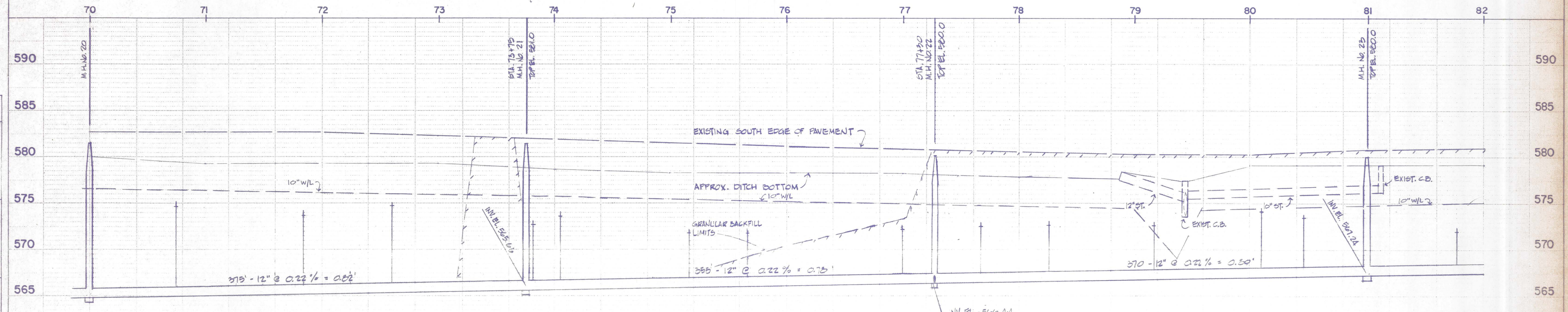
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64+75	573.08	573.20	J	RT.
"	"	573.26	J	LT.
65+26	573.63	574.26	J	LT.
65+30	573.17	573.47	J	RT.
"	"	573.47	J	LT.
66+96	574.20	573.13	J	RT.
66+99	574.13	573.40	J	LT.
67+93	573.62	573.26	J	RT.
"	"	573.26	J	LT.
68+20	573.08	573.24	J	RT.
"	"	573.24	J	LT.
70+03	573.02	573.19	J	RT.
"	"	573.39	J	LT.

SCALE - 1" = 40'



PLAN
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BY: []
DATE: []
NOTE BOOK NO. []
HT. OF MAN CHECKED: []

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BY: []
DATE: []
NOTE BOOK NO. []
STRUCTURE INDICATING CHANG.



SAN. SEWER CONN. SCHEDULE

STA.	INV. @ MAIN	INV. @ R/W	TYPE	SIDE
70+75	574.67		E	RT/LT
71+24	573.35	575.49	LT.	
"			RT	
72+60	574.74		J	RT/LT
73+22	572.74	574.45	H	LT.
74+05	573.00	574.10	H	RT
75+15	571.24	573.16	J	LT.
"			J	RT.
75+67	571.28	573.64	J	LT.
"			J	RT.
77+00	572.22		D	

SAN. SEWER CONN. SCHEDULE

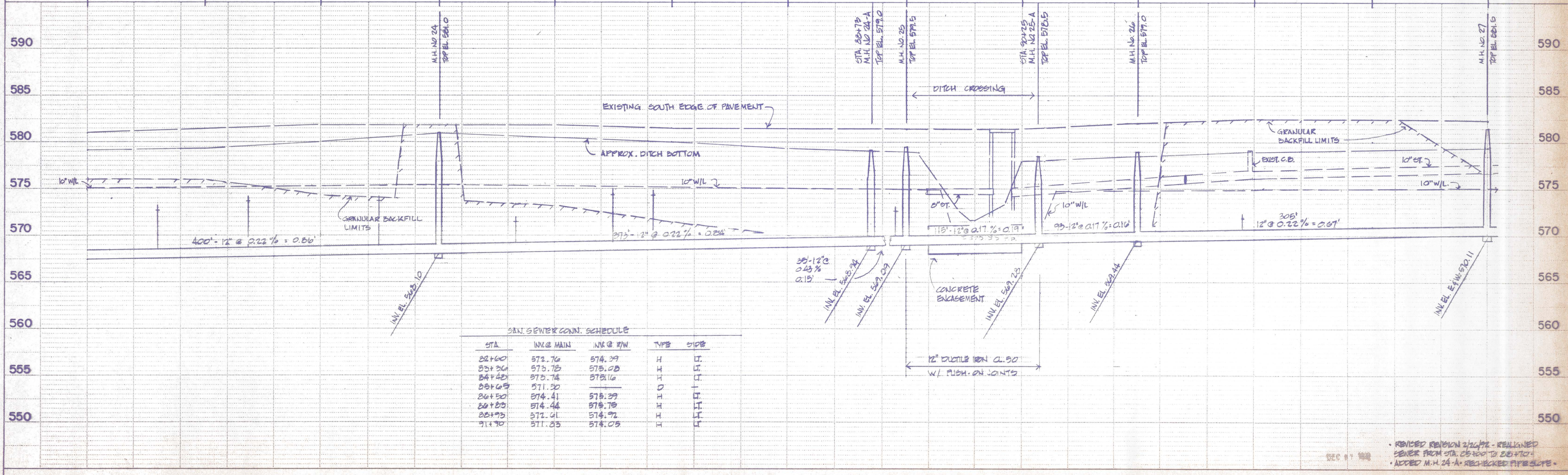
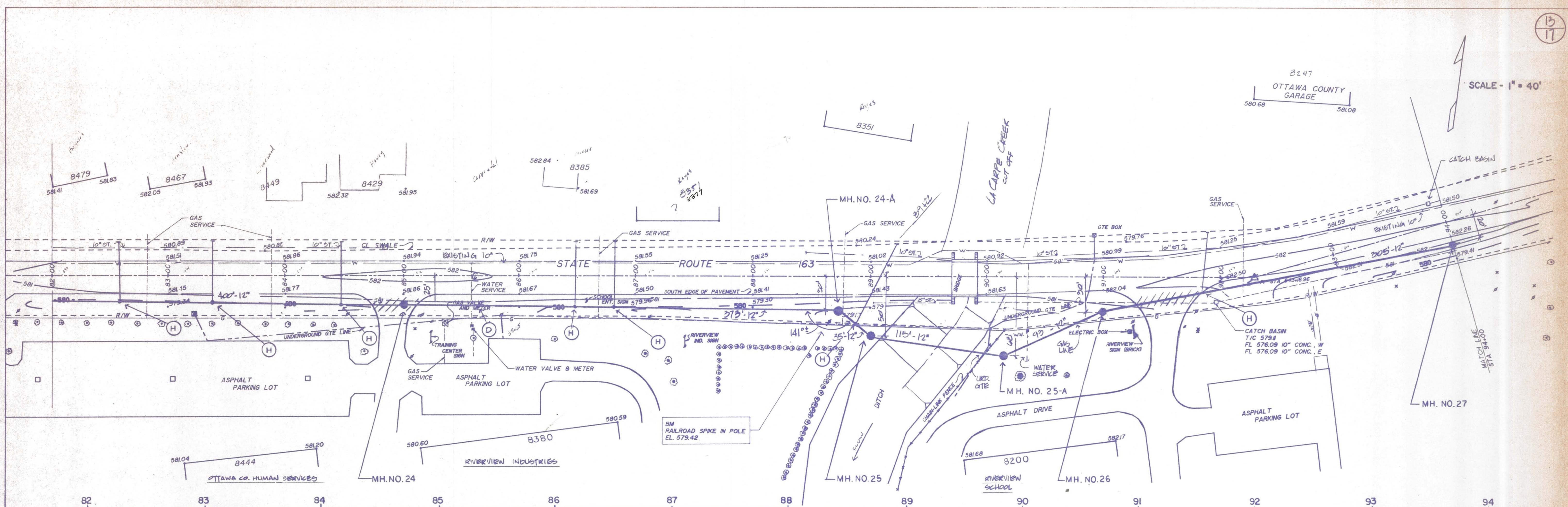
STA.	INV. @ MAIN	INV. @ R/W	TYPE	SIDE
77+67	572.55	573.95	H	LT.
78+23	572.64	572.79	H	RT.
79+13	572.59	573.59	H	LT.
80+10	574.19	574.32	H	LT.
80+46	573.46	573.54	H	RT.
81+47	573.40	574.52	H	LT.
81+76	571.99	574.12	H	LT.

SCALE - 1" = 40'

8147
OTTAWA COUNTY
GARAGE

DATE
BY
SURVEYED
ALIGNED
CHECKED
NOTE BOOK
RT. OF WAY CHECKED

DATE
BY
CHECKED
GRADES CHECKED
NOTE BOOK
S. M. & NOTED
STRUCTURE NOTATIONS CHECKED



SAN. SEWER CONN. SCHEDULE

STA.	INV. @ MAIN	INV. @ R/W	TYPE	PIPE
82+60	572.76	574.29	H	12"
83+26	573.75	575.28	H	12"
84+42	575.74	576.16	H	12"
85+05	571.20		H	12"
86+50	574.41	575.29	H	12"
86+80	574.44	575.78	H	12"
86+95	572.61	574.92	H	12"
91+70	571.83	574.03	H	12"

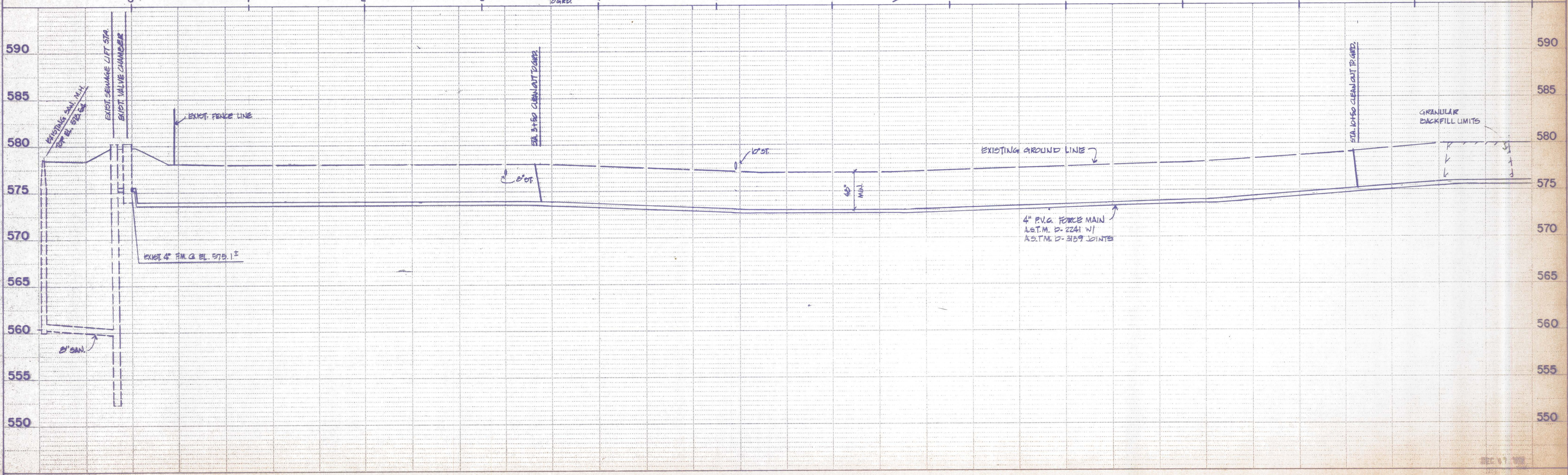
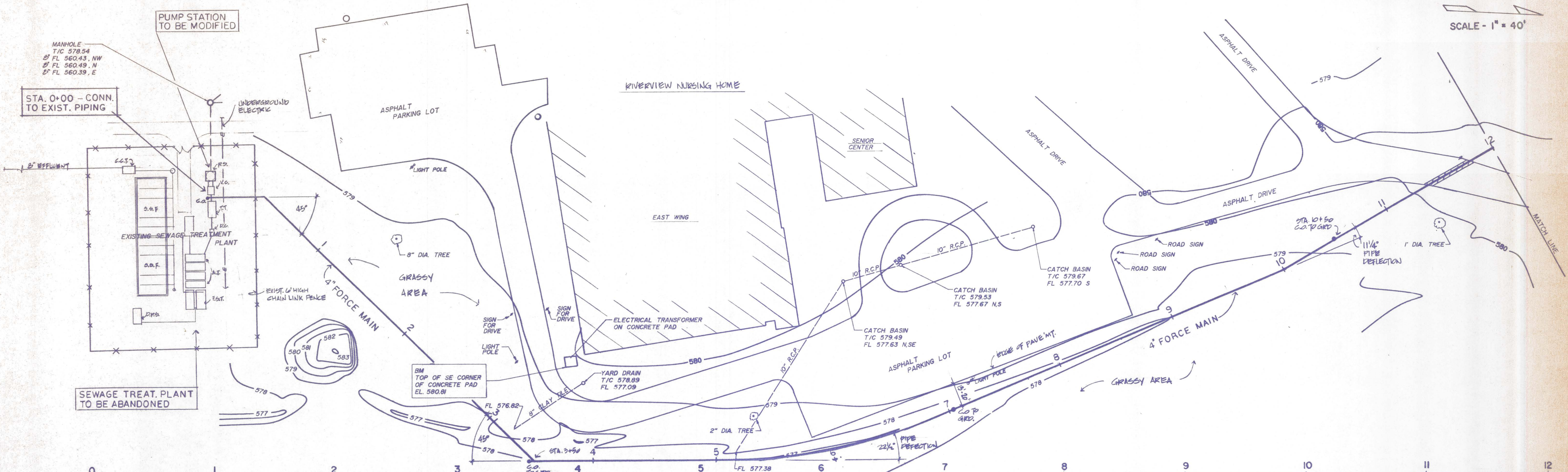
REVISION 2/14/92 - REALIGNED SEWER FROM STA. 25+00 TO 25+70. ADDED M.H. 24-A. RECHECKED PIPE SLOPE.

REV. 2/14/92 - CHANGED SAN. SEWER LOCATION M.H. 24 TO 26. ADDED M.H. 25-A.

SCALE - 1" = 40'

DATE	
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PLANNED	
DESIGNED	
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NOTED	
NO.	

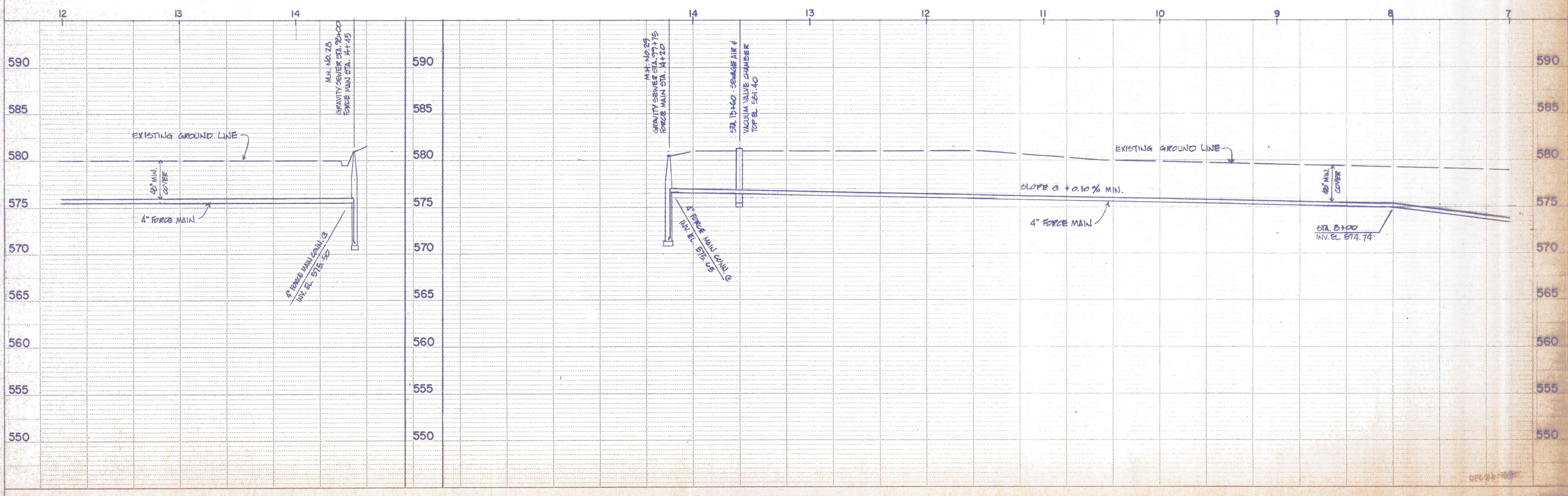
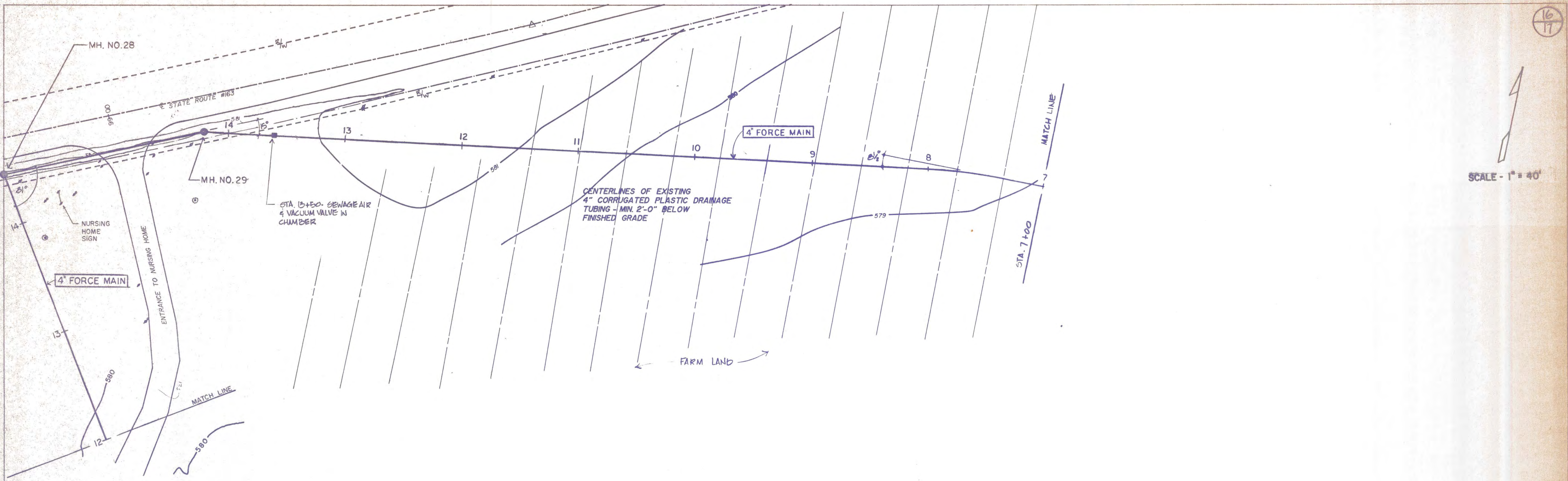
DATE	
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SCALE - 1" = 40'

DATE: _____
BY: _____
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DATE: _____
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NO. _____

DATE: _____
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DATE: _____
BY: _____
NO. _____



DATE	
BY	
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ALIGNMENT CHECKED	
RT. OF WAY CHECKED	
NOTE BOOK NO.	
PLAN	

DATE	
BY	
DESIGNED	
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GRADES CHECKED	
STRUCTURE NOTATIONS CHECKED	
NOTE BOOK NO.	
PROFILE	

