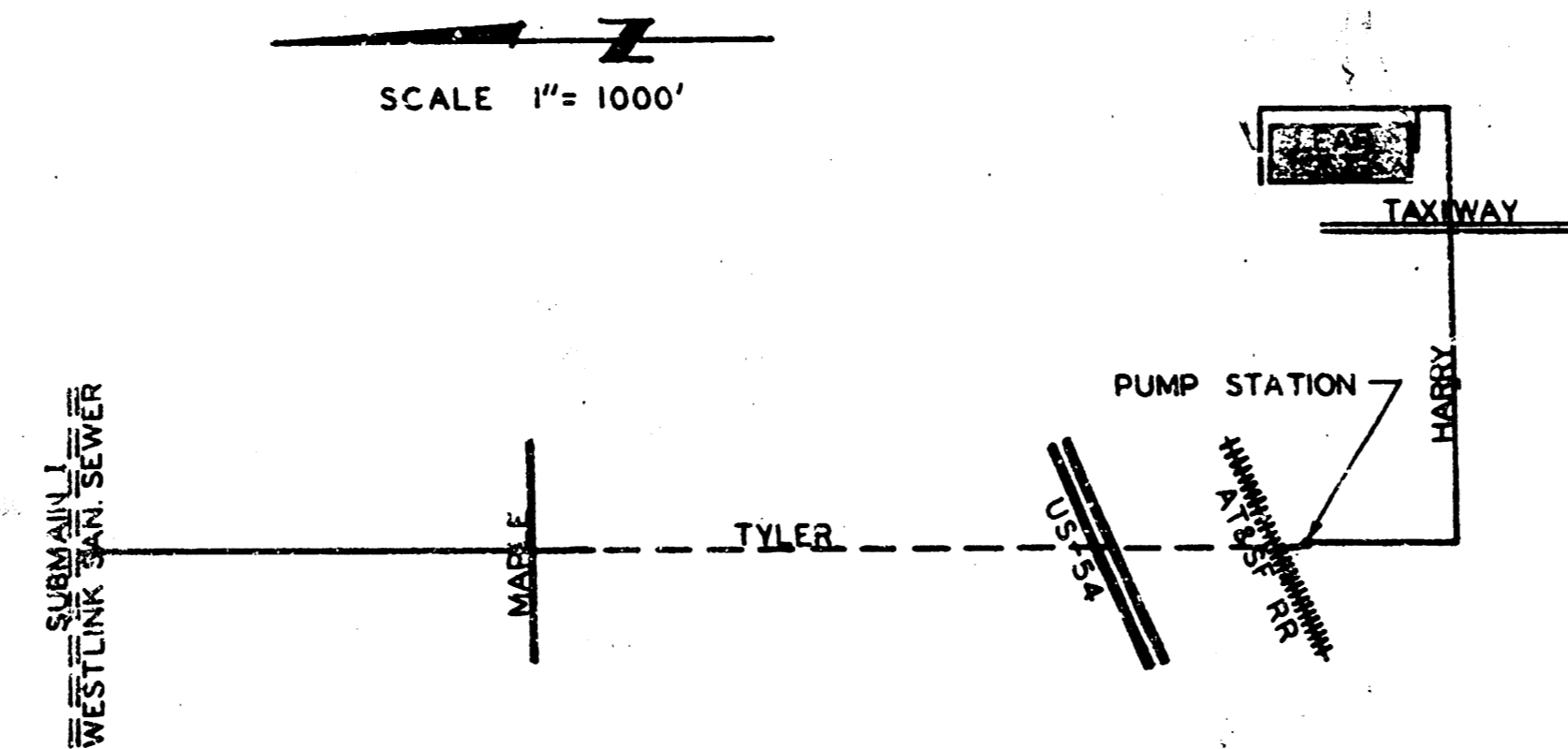


INDEX OF SHEETS:

- 1. TITLE
- 2-10. PLAN & PROFILES
- 11. SEWAGE PUMPING STATION
- 12. SEWAGE PUMPING STATION DETAILS
- 13-14. SPECIFICATIONS
- 15. CROSS SECTIONS

WASTE WATER COLLECTION SYSTEM FOR LEAR JET CORPORATION



LEGEND:

- SANITARY FORCE MAIN
- SANITARY SEWER LINE
- SECTION LINE
- WATER LINE
- GAS LINE
- PROPERTY LINE
- x—x— BARBED WIRE FENCE
- /—/— CHAIN LINK FENCE
- ◆ POWER POLE
- ◆ TELEPHONE POLE
- ▲ GAS METER
- MAIL BOX
- ⊙ MAN HOLE
- ⊕ FIRE HYDRANT
- HIGHWAY SIGN

PROFESSIONAL ENGINEERING CONSULTANTS

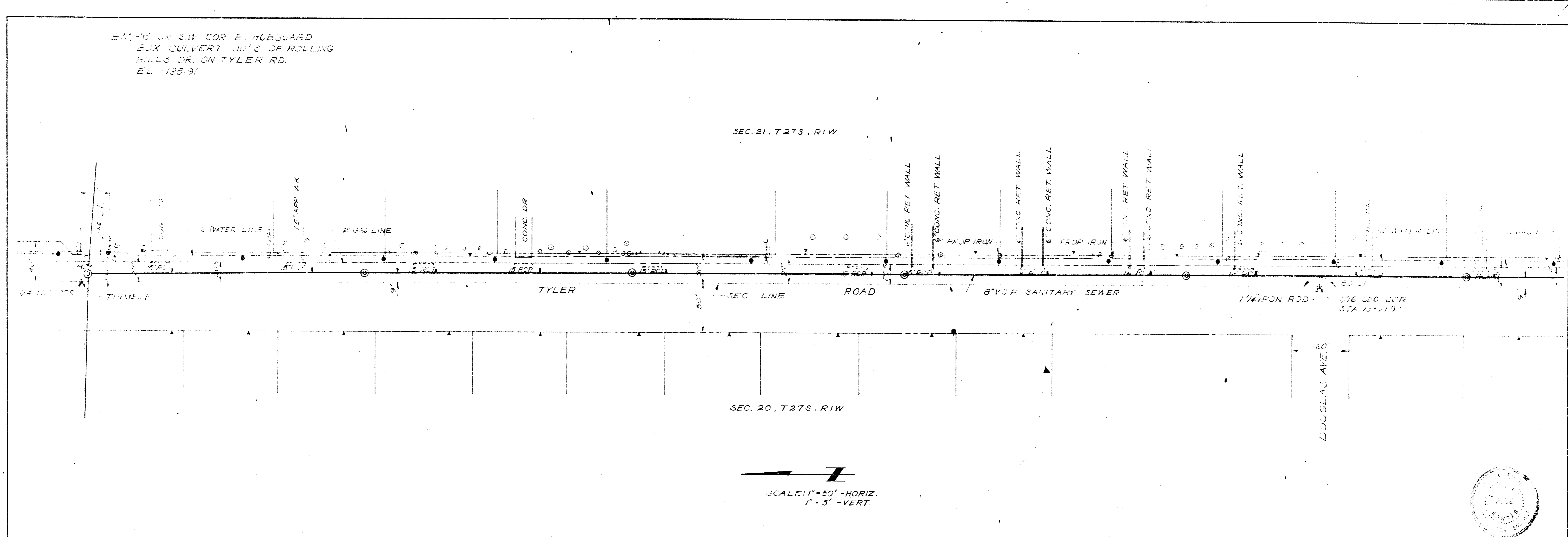
WICHITA KANSAS

1966

BOX CULVERT 100' S. OF ROLLING
HILLS DR. ON TYLER RD.
E.L. 1138.9'

SEC. 21, T27S, R1W

SEC. 20, T27S, R1W



SCALE: 1" = 50' - HORIZ.
1" = 5' - VERT.

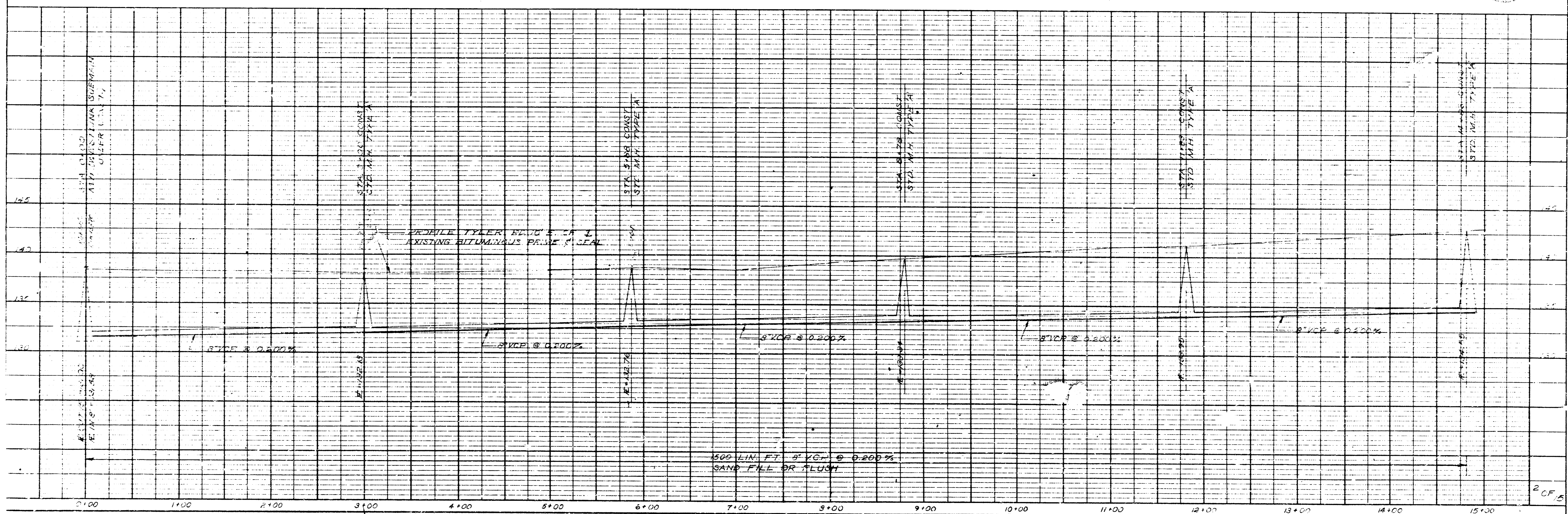
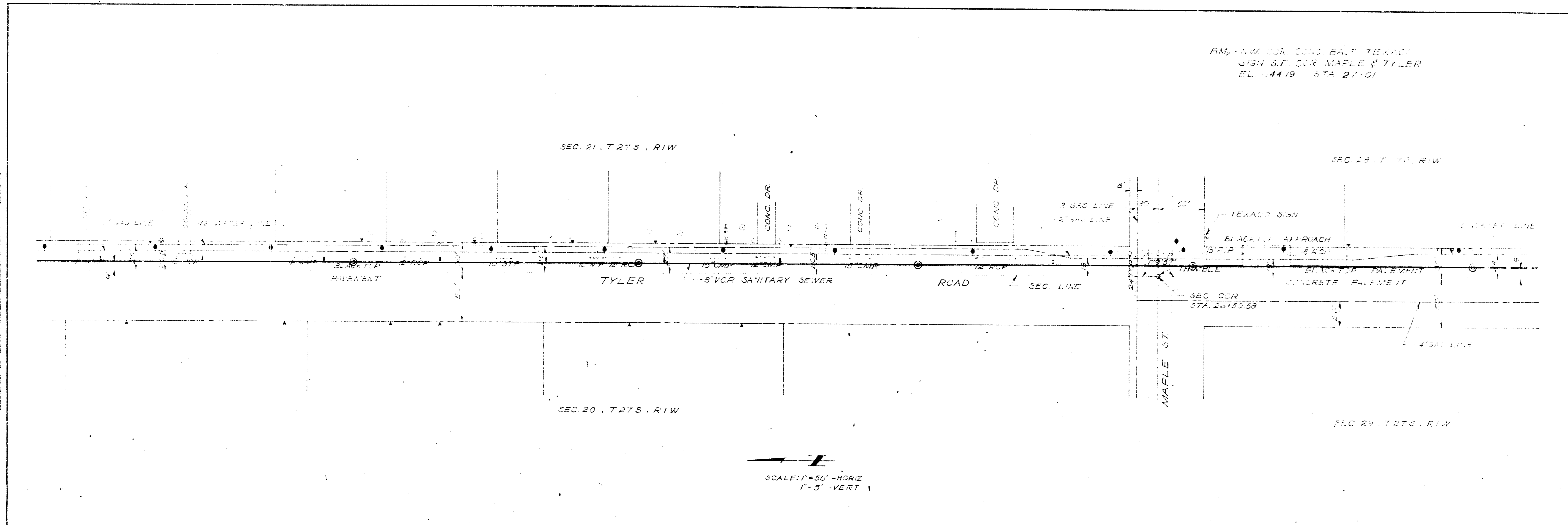


PLATE 1 - PLAN - PROFILE D.P.S. & E. STANDARD
100' APPROX. YELLOW TAPE AND PRINTED IN U.S.A.
EUGENE DIEBOLD CO.

2 OF 5

AM. 1/4" = 1' HORZ. COND. BAL. TEXACO
 1/4" = 1' VERT. COR. MAPLE & TYLER
 E.L. 4419 STA. 27+01



SCALE: 1" = 50' HORZ.
 1" = 5' VERT.

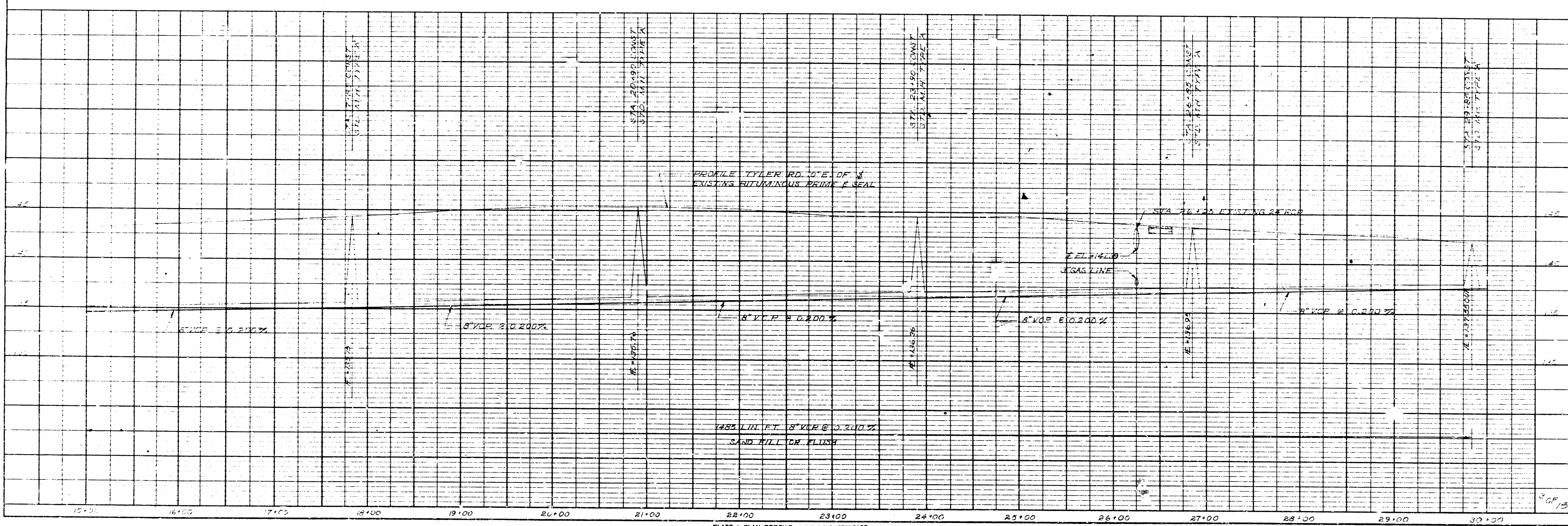


PLATE 1-PLAN-PROFILE © P. & R. E. STANDARDS
 100 ASHBOUR VILLAGE - MADE AND PRINTED IN U.S.A.
 FLORENCE, OREGON 97114

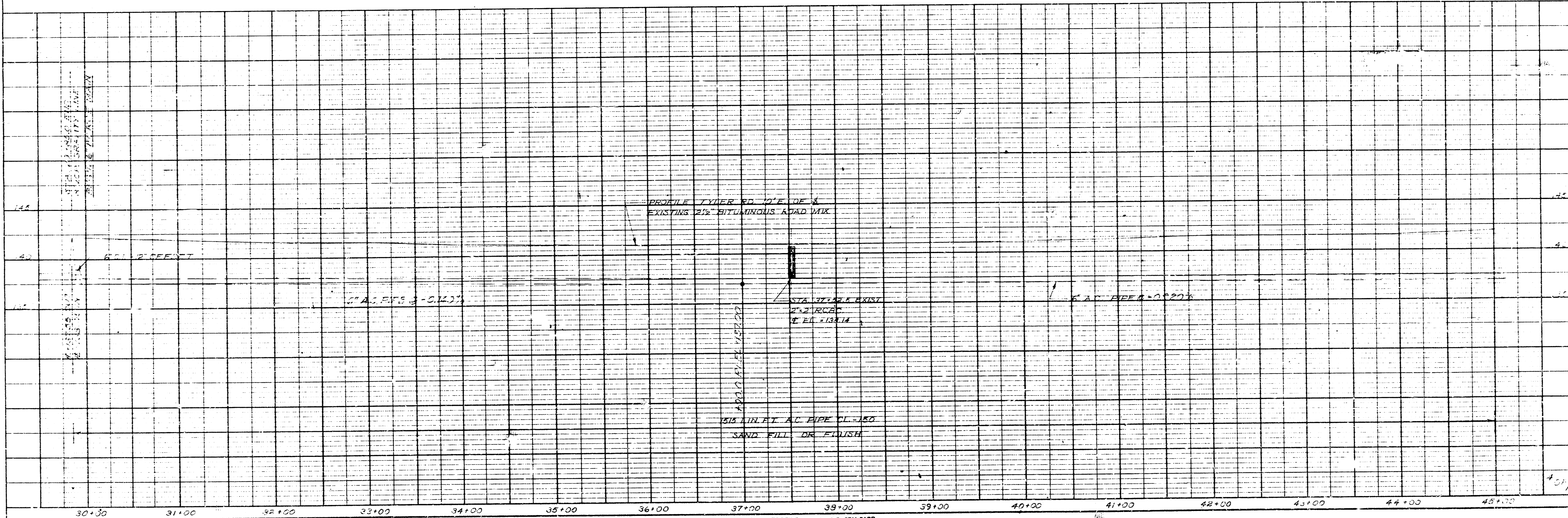
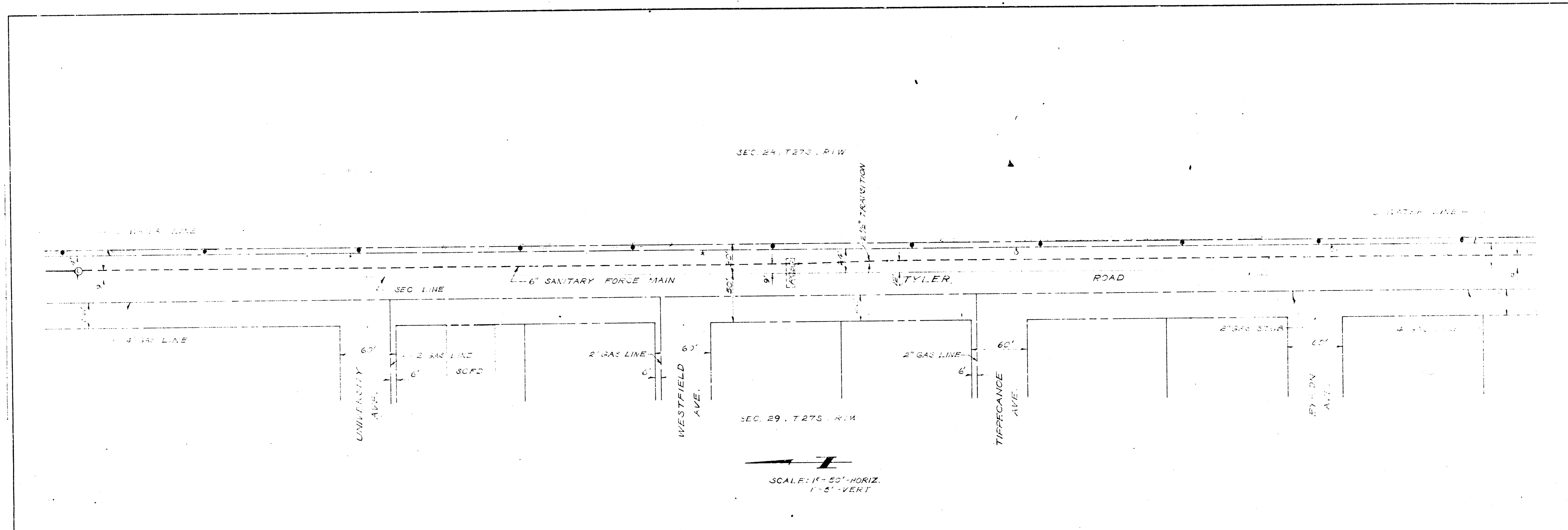
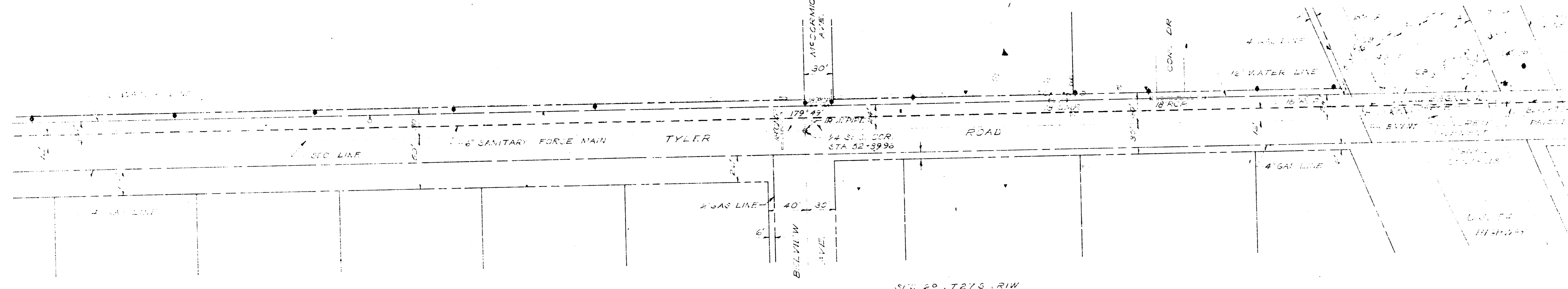


PLATE 1-PLAN-PROFILE D. B. & S. L. STANBARD
DESIGNED BY V. H. HARRIS AND PRINTED BY S. A. S.
EUGENE DESIGN CO.

BM₃ - RR SPIKE IN H.P. N.W. COR
INT. TYLER RD. & BELVIEW
EL. -143.04

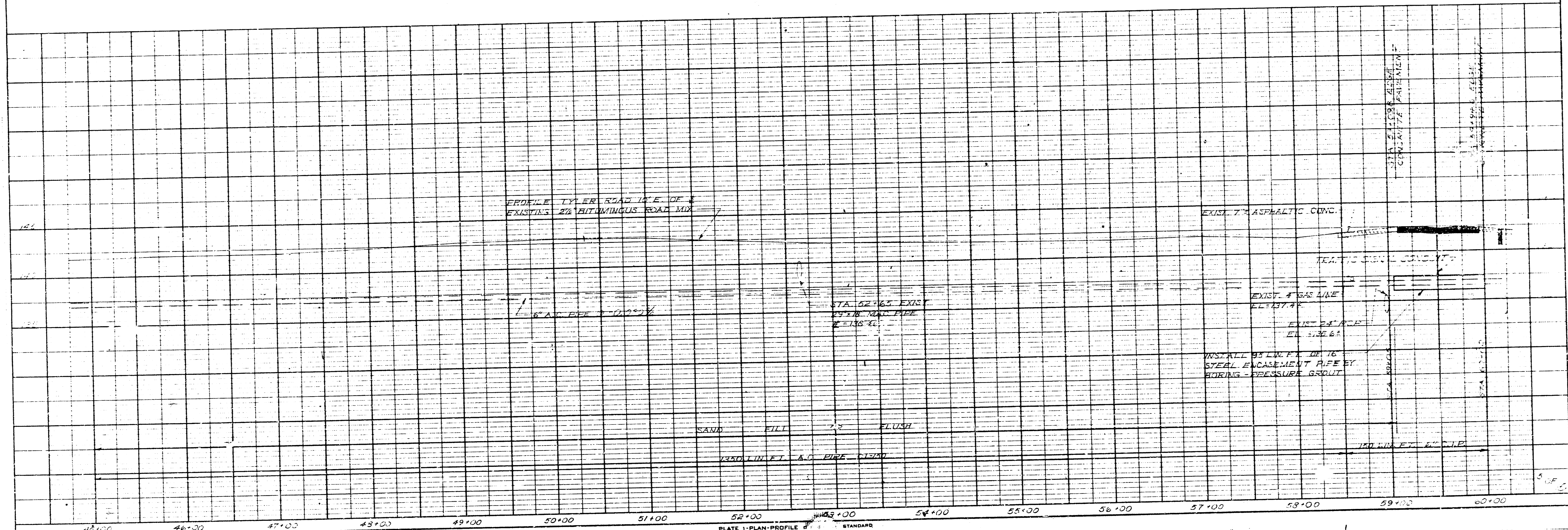
SEC. 25, T27S, R1W

MEADOWS AVE
30'



SEC. 29, T27S, R1W

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.



PROFILE TYLER ROAD FACE OF EXISTING 24" BITUMINOUS ROAD MIX

EXIST. 7" ASPHALTIC CONC.

STA. 52+65 EXIST. 12" GAS PIPE EL. 138.41

EXIST. 4" GAS LINE EL. 137.41

EXIST. 2" GAS EL. 136.61

W/S ALL 24" DIA. 12" STEEL ENCASMENT PIPE BY BORING - PRESSURE GROUT

SAWD FILL 2" FLUSH

LAND LULFT. 4" PIPE FLUSH

12" DUCTILE IRON PIPE

45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00

PLATE 1 PLAN-PROFILE STANDARD
100' UNITS
EUGENE DETROEN CO.

BM₃ - RR. SPIKE IN T.P. SE. COR.
INT. TYLER RD. & HARRY
EL. 142.73

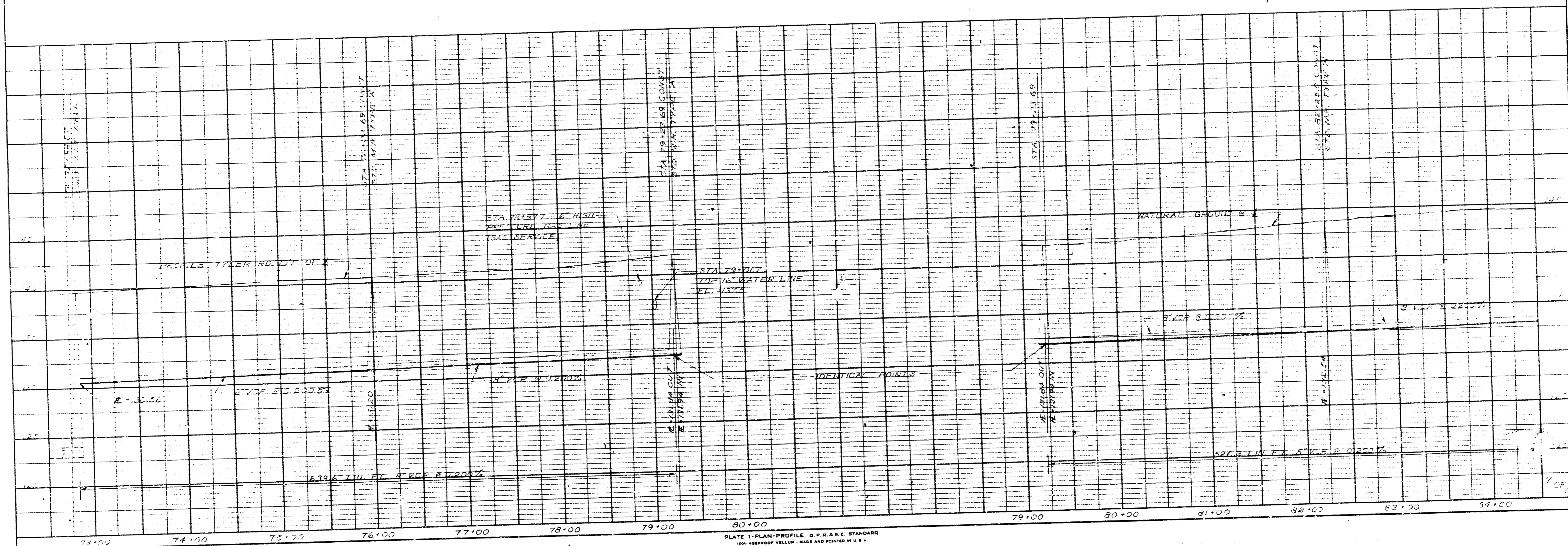
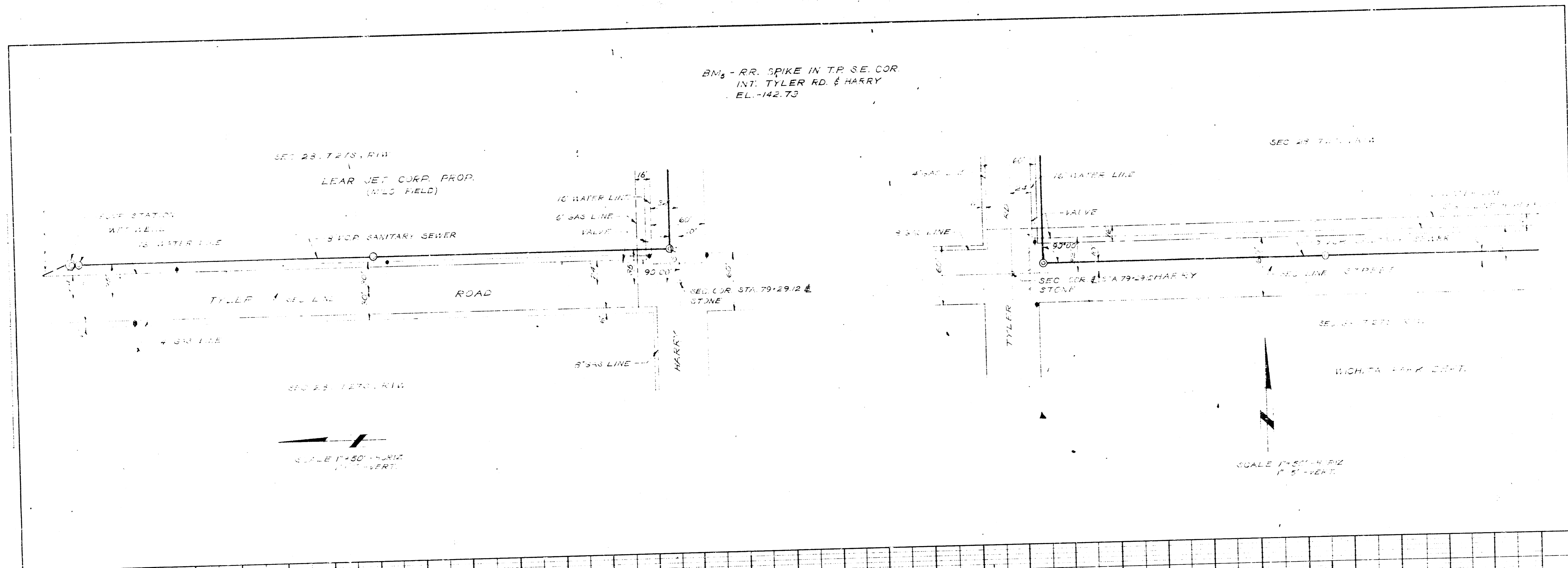
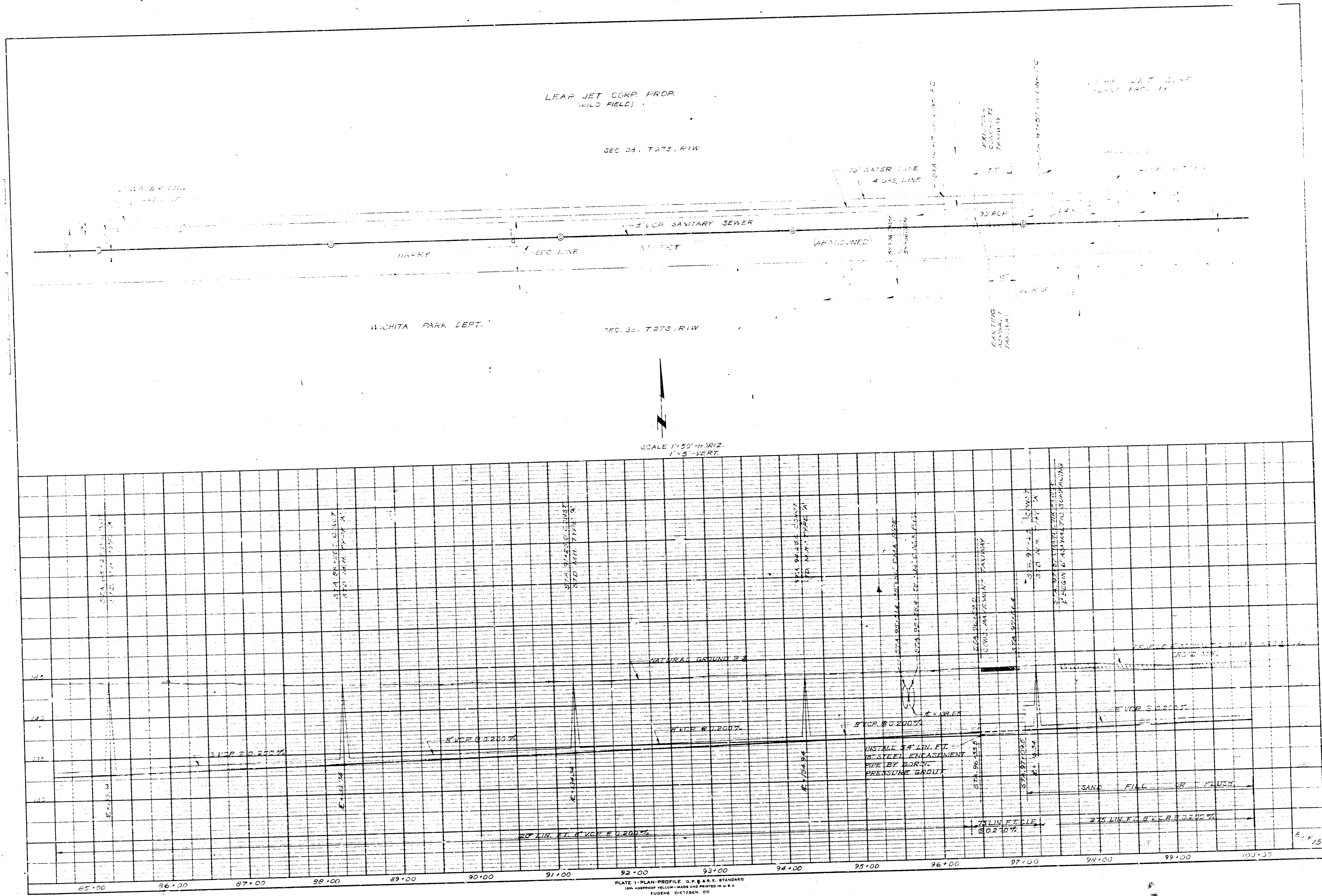
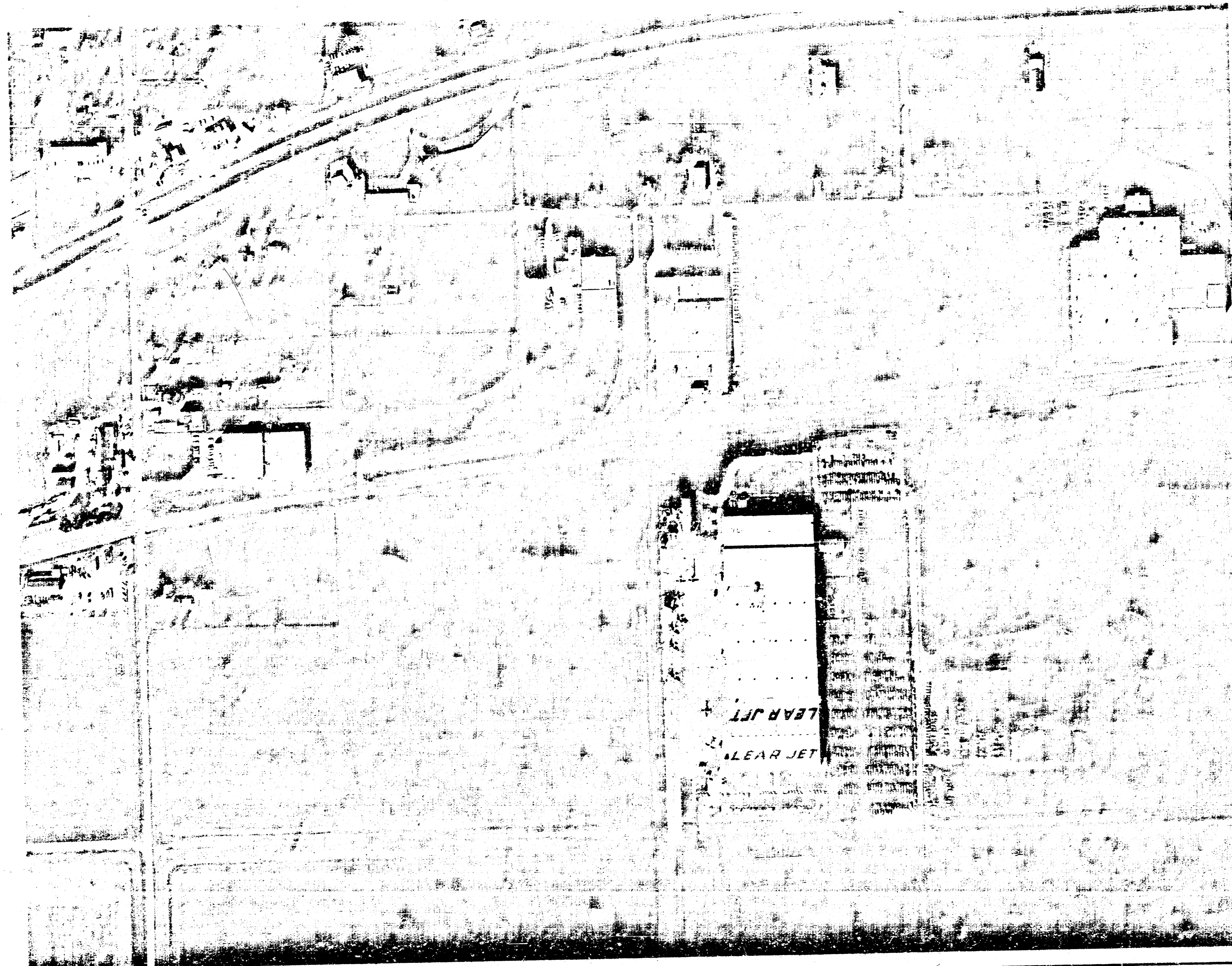


PLATE 1 - PLAN - PROFILE D.P.H. & E. STANDARD
100' HORIZONTAL SCALE AND 1" = 10' VERTICAL
EUGENE DISTRICT CO.





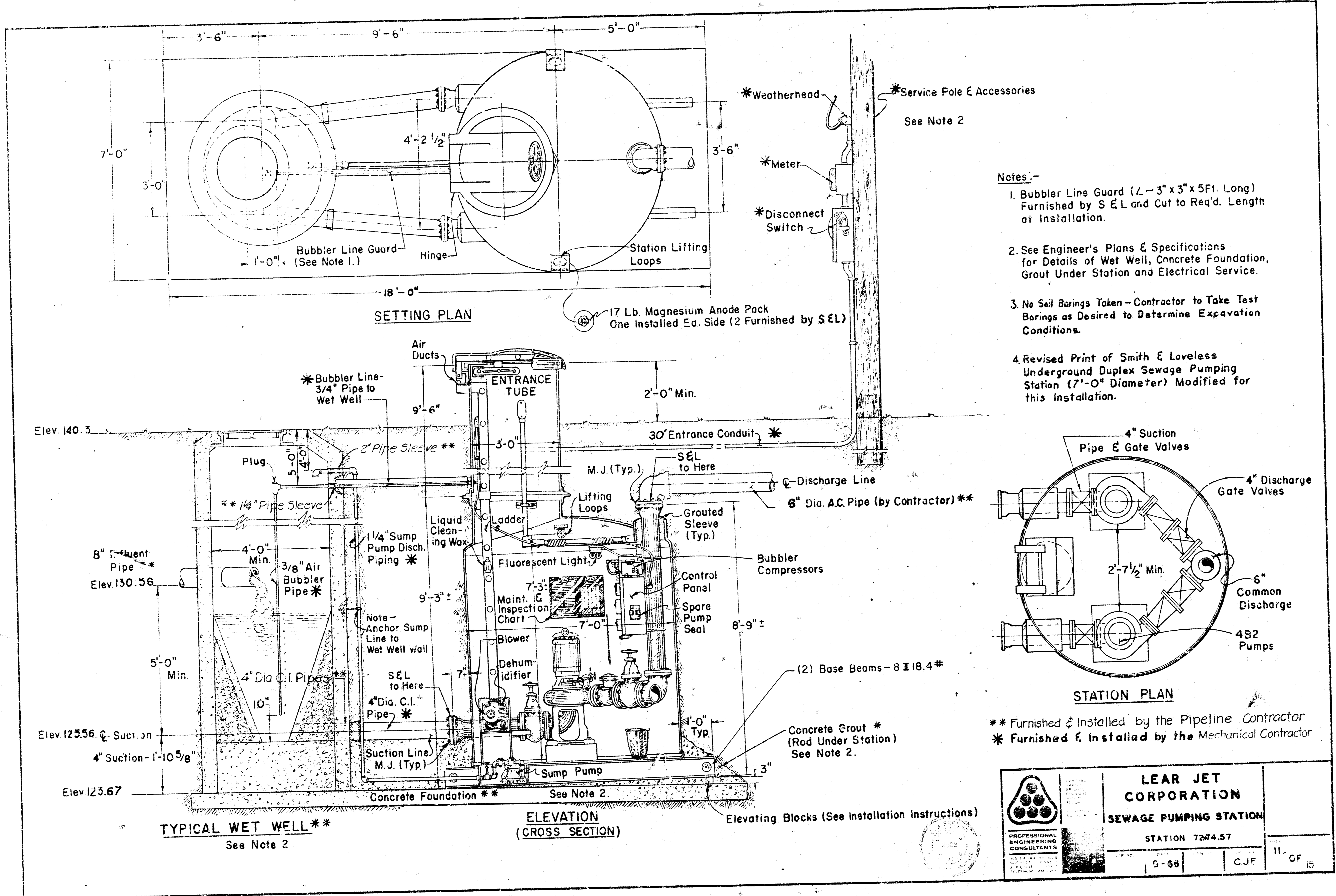
SCALE - 1" = 200 FEET
200 400



DATE: FEB, 1968

WICHITA-SEDGWICK COUNTY METROPOLITAN AREA PLANNING COMMISSION - KG&E,

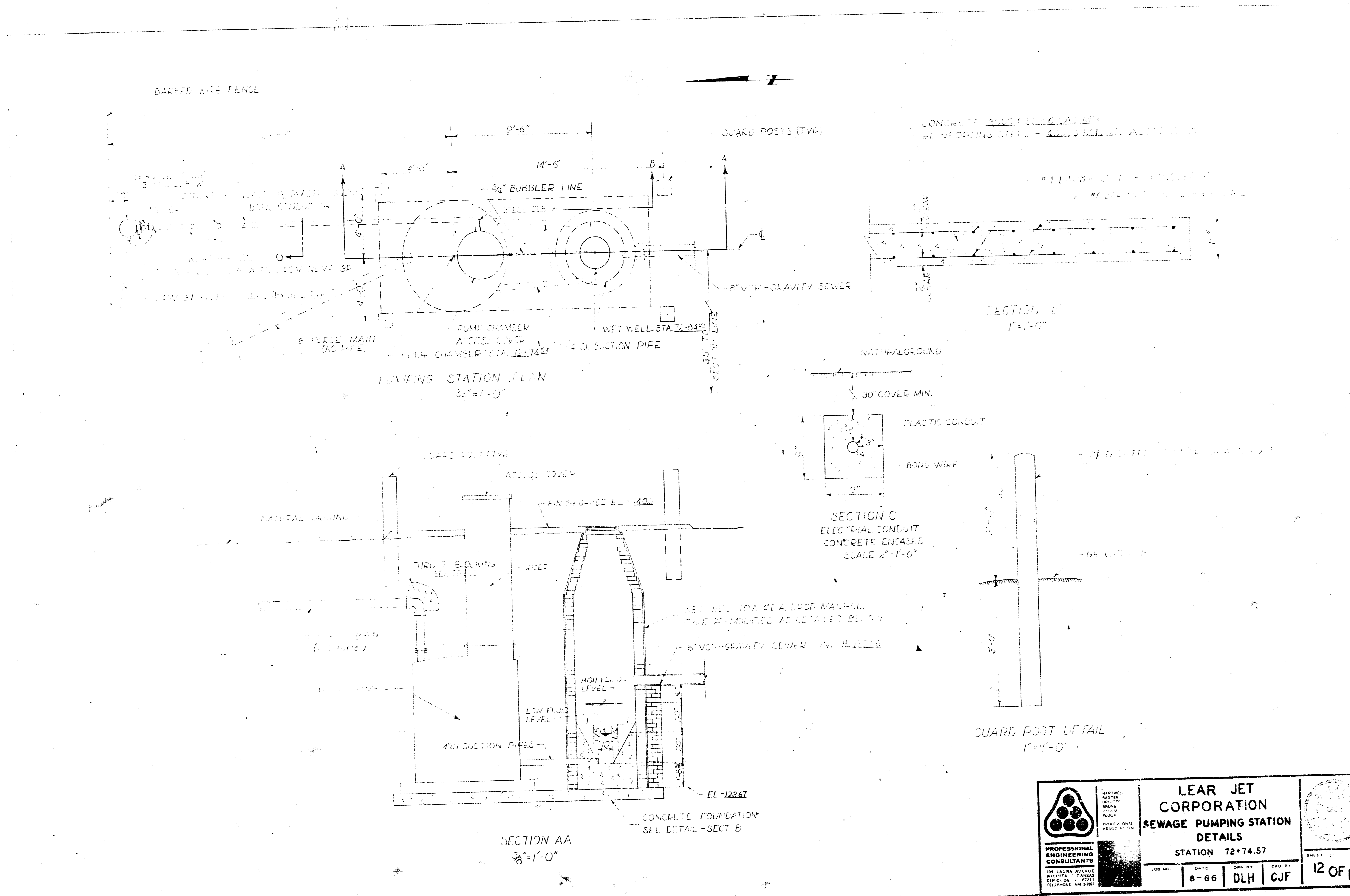
THE PREPARATION OF THIS PHOTO WAS CO-SPONSORED BY THE WSCMAPC AND KG&E, THE ELECTRIC COMPANY





- Notes:-**
1. Bubbler Line Guard (L-3" x 3" x 5 Ft. Long) Furnished by S & L and Cut to Req'd. Length at Installation.
 2. See Engineer's Plans & Specifications for Details of Wet Well, Concrete Foundation, Grout Under Station and Electrical Service.
 3. No Soil Borings Taken - Contractor to Take Test Borings as Desired to Determine Excavation Conditions.
 4. Revised Print of Smith & Loveless Underground Duplex Sewage Pumping Station (7'-0" Diameter) Modified for this installation.

** Furnished & installed by the Pipeline Contractor
 * Furnished & installed by the Mechanical Contractor

	LEAR JET CORPORATION	
	SEWAGE PUMPING STATION	
	STATION 7274.57	
5-68	C.J.F.	11 OF 15



 PROFESSIONAL ENGINEERING CONSULTANTS <small>309 LAURA AVENUE WICHTA, TEXAS ZIP CODE 75711 TELEPHONE (409) 281-1111</small>	LEAR JET CORPORATION SEWAGE PUMPING STATION DETAILS STATION 72+74.57		 SHEET 12 OF 15
	JOB NO. 8-66	DATE DLH	

SANITARY SEWERS

GRAVITY LINES

GENERAL

All excavations, trenching, backfilling, materials concrete, pavement cuts, clay pipe, cast iron pipe, laying of sewers, manholes brick, manholes, and castings shall be furnished and constructed in accordance with the City of Wichita, Kansas, specifications.

STEEL PIPE ENCASUREMENTS

The steel casing pipe shall be installed by boring with auger drills. Boring without the concurrent installation of the casing pipe will be permitted when the material to be bored appears stable.

Casing pipe to be new steel pipe conforming to A.S.T.M. Specification A-139, Grade B and shall have a minimum wall thickness of 0.250 inch.

Conduit as specified shall be installed by attaching two treated wooden skids to the conduit pipe on each side, so as to properly support the conduit pipe concentric within the casing pipe. Skids to be 24" minimum length and attached with wire to strapping at about 20" off bottom center. Extra care will be exercised when passing the conduit through the casing to ensure proper alignment at the joints. After the conduit pipe has been installed, the casing pipe shall be completely filled with grout under pressure and the openings permanently sealed.

NET WELL

The net well shall be a drop manhole - Type "A", with a modified base as shown on the plans.

LEAK TIGHT PROPERTY

All parking lot surfacing, grassed areas, rock gardens, chain link fences, gravel surfaces, etc. to be restored to its original condition or better. Manholes to be constructed around existing sewers so as not to interrupt existing sewage systems until the new installation is ready for operation.

FORCE MAINS

GENERAL

All excavations, trenching, backfilling, concrete, pavement cuts, cast iron pipe, laying of sewers shall be furnished and constructed in accordance with the City of Wichita, Kansas, Specifications, except as hereinafter specified.

PIPE

Asbestos-Cement Pipe shall be made in accordance with ANNA C400-04T or ASTM C206-03T or latest revisions. Cement asbestos pipe shall be Class 150, suited for working pressure of 150 psi.

COUPLINGS

When each length of pipe there shall be furnished one coupling, consisting of an asbestos-cement sleeve and two rubber rings, suitable in size and design for the pipe with which it is to be used. Rubber rings shall consist of a vulcanized rubber compound, free from porosity and of uniform thickness throughout. All surfaces shall be smooth and free from pitting, blisters, air checks and other imperfections.

MANUFACTURE AND TESTING

All pipe furnished shall be manufactured and tested within the continental limits of the United States. The manufacturer shall certify in writing that the pipe and couplings furnished shall comply with Rupture Strength, Flexural Strength and Material Requirements of the above mentioned Specifications.

ADAPTERS

Short lengths of adapters are to be used at each cast iron slip joint or substandard slip joint. Adapter fittings are provided with the necessary profile to ensure a sealed joint. The length of A. C. pipe entering the bell of a fitting shall not exceed 8"-10".

SAND ENCASEMENT

All asbestos-cement pipe shall have a minimum cover of 48 inches and shall be encased with sand from 9 inches below to 9 inches above the pipe O. D.

THRUST BLOCKING

Counter reaction or thrust blocking shall be provided at all bends, offsets, and high points. The amount of thrust blocking to bear against undisturbed or well compacted soil shall be as follows:

- 90° Bends - 9.6 sq. ft. min.
- 45° Bends - 1.5 sq. ft. min.
- 22½° Bends - 1.0 sq. ft. min.

STEEL PIPE ENCASUREMENTS

(See Gravity Sewer Specifications above)

SPECIFICATIONS

FITTINGS

Cast iron fittings shall conform to ANNA C100-55 standard specifications of ANNA C110-52 with bells modified for use with the asbestos-cement design.

LEAKAGE TESTS

The section of pipe to be tested shall be partially backfilled and tamped as previously specified before any testing is accomplished. Concrete thrust blocking shall have aged a minimum of 30 hours for Type III cement, or 7 days for Type I cement. Each section of pipeline shall be slowly filled with water and all air shall be expelled from the pipeline by means of taps at the high points if necessary. A test pressure of 100 psi shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. The Contractor shall furnish a pump, pipe connection, and all necessary apparatus except gages and tapping for gages and shall furnish all assistance required for conducting the tests.

During the test, all exposed pipe, fittings, and couplings shall be carefully examined and checked for leakage. Any section at which the accumulated leakage exceeds 82 gallons per mile, per day, per inch of pipe diameter shall be repaired as required until the leakage is within the permitted allowance at no expense to the owner. In calculating leakage the Engineer will allow for extra couplings due to short lengths of pipe.

PUMPING STATION

GENERAL

The contractor shall furnish and install one factory-built, automatic pumping station as manufactured by Smith & Loveless, Division - Union Tank Car Company, Lenexa, Kansas. The station shall be complete with all needed equipment factory-installed in a welded steel chamber with welded steel entrance tube and access ladder. The principal items of equipment shall include two vertical, close-coupled, motor-driven, non-clog sewage pumps; valves; internal piping; central control panel with circuit breakers; motor starters and automatic pumping level controls; lighting; sump pump; ventilator; dehumidifier and all internal wiring.

OPERATING CONDITIONS

Each pump shall be capable of delivering 150 GPM of raw, unscreened sewage against a total dynamic head of 30 feet. The maximum allowable speed shall be 1150 RPM. The minimum rated horsepower of each pump motor shall be 5 HP. All openings and passages shall be large enough to permit the passage of a sphere 3" in diameter. The anticipated operating head range is from 25 feet minimum to 30 feet maximum.

PUMP CHAMBER

The pump chamber shall contain all pumps and other equipment and shall be a vertical cylinder of circular cross-section with shell of 1/4" (or heavier) ASTM 203 Grade "C" steel plate, and nominal outside diameter of (7'-0"). The clear height inside from floor to motor lifting loops shall be 7 feet, 3 inches. The bottom of the station shall be 3/8" thick structural grade steel flange flat head with 3" flange to overlap the shell on the outside. The top of the station shall be 1/4" thick structural grade steel flanged and raised head with a 1 1/2" minimum straight flange butt welded to the station shell. The pump chamber floor shall be reinforced with 8" I-beams @ 18" OC.

A 20" diameter by 8" deep sump with walls of 1/4" structural-grade steel plate shall be provided in the position shown on the drawing. Where the cast iron suction and discharge lines pass through the station walls, there shall be provided 1/4" thick steel sleeves, welded to the station walls. The space between the cast iron pipes and the steel sleeves shall be packed tight with Portland cement grout. A lifting loop shall be installed to the ceiling over each pump so a pulley or hoist can be attached for service work.

ENTRANCE TUBE

The entrance tube shall be provided in one or more sections, as required, with ladder and cover. The tube shall be a vertical cylinder, made from 1/4" structural-grade steel plate, rolled to 35" outside diameter.

The cover shall be provided with a handle and a frost-proof lock of the pin-tumbler type which can be opened from the inside without a key. Two additional ladder rungs shall be mounted on the underside of the fiber glass cover to form an extension of the ladder when the cover is latched in the open position. The access ladder of the 36" diameter cover shall have rungs of 1" outside diameter aluminum pipe, spaced on 17" centers from top to bottom.

PROTECTION AGAINST CORROSION

A single heavy inert coating shall be factory applied to all inside and outside surfaces prior to shipment. The dry coating shall contain a minimum of 85% epoxy resin with the balance being pigments and thixotropic agents. A touch-up kit shall be provided for repair of any marks or scratches occurring during installation. This kit shall contain detailed instructions for use and shall be a material which is compatible with the original coating. The 17-pound magnesium anode packs shall be provided for cathodic protection.

A heavy synthetic rubber mat shall be cemented to the floor in the normal walkway area to protect the steel floor from abrasion.

PUMPS

The pumps shall be vertical, close-coupled, "Non-Clog" sewage pumps, especially designed for the use of mechanical seals. Each pump shall be of heavy cast iron construction and shall include a vertical motor with the pump impeller mounted directly on the one-piece motor-pump shaft. The motor shall be attached to the pump volute by a one-piece cast iron adaptor and backhead.

The combination pump and motor shaft shall be of solid, one-piece stainless steel from the top of the motor down through the impeller.

The seal shall be pressurized and lubricated by water taken directly from the pump volute through a filter to the seal housing and introduced between the upper and lower sealing surfaces. The filters shall be of corrosion resistant material and shall screen out all solids larger than 50 microns.

The pump impeller shall be of the enclosed type made of close-grained cast iron and shall be balanced. The impeller shall be keyed and secured to the motor-pump shaft by a stainless steel cap screw equipped with a suitable split-locking device. To prevent the build-up of stringy materials and other foreign particles around the pump shaft, all impellers less than full diameter shall be trimmed inside the impeller shroud.

MOTORS

The pump motors shall be specially built NEMA P base, open drip-proof induction type, suitable for 3 phase, 60 cycle, 240 volt electric current. They shall have normal starting torque and low starting current, as specified for NEMA Design B characteristics. The motors shall not be overloaded at the design condition, nor at any load in the operating range as specified under "Operating Conditions".

Each motor shall have oversized, grease-lubricated ball bearings with the thrust bearing at the bottom locked in position to eliminate shaft end-play.

CONTROL

The control equipment shall be mounted within a NEMA Type 1, dead-front enclosure, fabricated of steel and reinforced as required. The circuit breaker-motor starter section shall be provided with removable covers, complete with suitable latching devices. All circuit breakers, motor-starters reset buttons and pump control switches shall be mounted so that they are operable without opening the high-voltage cabinet. The low voltage, automatic pump control section shall be isolated from the high voltage circuit breaker-motor starter section by a steel barrier and shall be provided with a hinged access door and latch. The blower timer, humidistat and thermostat shall be mounted on the face of the automatic pump control section door. A grounding type convenience outlet shall be provided for operation of 115 volt A. C. devices.

Thermal magnetic air circuit breakers shall be provided for branch disconnect service and over-current protection of all motor, control and auxiliary circuits. Magnetic across-the-line starters with under-voltage release and overload coils for each phase shall be provided for each pump motor to give positive protection against single phasing. Each single phase auxiliary motor shall be equipped with an overcurrent protection device, in addition to its branch circuit breaker, or shall be impedance protected. All switches shall be labeled and a color coded wiring diagram shall be provided.

To control the operation of the pumps with variations of sewage level in the wet well, an air-bubbler system shall be provided, complete with two air compressors, flow indicator, bubbler line to the wet well and a sensitive pressure switch for each pump.

The two air compressors shall be of the close-coupled, oil-less type. Each compressor shall have a minimum capacity of 0.2 cubic feet of free air per minute at 10 p.s.i. It shall incorporate a single phase, 60 cycle, 110 volt, drip-proof, brush-less type, electric motor. The compressors shall be mounted on the top of the low-voltage control cabinet. A motor driven timer shall be provided to automatically alternate the compressors every five minutes.

The pressure switches shall be of the mercury-tube type, with sensitive pressure elements and independent high and low adjustments for each pump capable of a minimum differential of 10" of water.

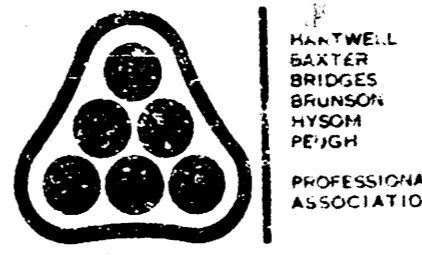
An automatic alternator with manual "On-Off" switch shall be provided to change the sequence of operation of the pumps on the completion of each pumping cycle. Provisions shall also be made for the pumps to operate in parallel, should the level in the wet well continue to rise above the starting level for the low-level pump.

DEHUMIDIFIER AND VENTILATING BLOWER

A dehumidifier assembly with hermetically sealed Freon refrigeration type compressor, expansion coil, fan and condenser-coil shall be furnished to maintain the relative humidity of the air in the pump chamber low enough to keep the electrical equipment dry and to prevent condensation on the walls. The dehumidifier shall handle 200 cubic feet of air per minute.

The minimum capacity rating at 80° F. shall be 15.5 pints per day at 80% relative humidity. The maximum capacity at 80° F. shall be in excess of 3 GPD at 50% humidity. The dehumidifier shall be controlled automatically by an adjustable humidistat and low air temperature cut-out.

A ventilating blower, housed in the dehumidifier enclosure, shall draw air from outside the dehumidifier enclosure 18" above the floor and shall discharge it from the station. The squirrel-cage, high-efficiency type blower shall be controlled by a 10-minute cycle timer with a range of 0 to 100% so as to provide essentially continuous ventilation without exceeding the capabilities of the dehumidifier.

 <p>PROFESSIONAL ENGINEERING CONSULTANTS</p>	<p>SANITARY SEWER AND PUMPING STATION DETAILS</p>		<p>SHEET 13 OF 15</p>
	<p>NO. 8-66</p>	<p>DATE DLH</p>	

SPECIFICATIONS

When the entrance cover is raised, the lights and ventilating blower shall be turned on automatically by a spring operated entrance switch mounted just under the cover. A manual switch shall be mounted on the side of the duct just under the spring operated switch for operation of the lights with the cover closed.

LIGHTING
To provide adequate illumination for all areas in the station and the control panel, two 40-watt fluorescent tubes with separate ballasts shall be provided.

SUMP PUMP
A submersible sump pump with close-coupled, vertical motor shall be installed in the sump. It shall have a minimum capacity of 1000 GPM at design head. The design head this pump will operate against is the static head from the sump to 3 feet below grade. A mechanical seal on the shaft shall exclude water from the motor housing. The pump shall be controlled automatically by a float-in float switch capable of operation on a 5" differential. It shall discharge into the wet well through a 1.4" galvanized steel pipe with two check valves and a gate valve within the sump chamber.

PIPING
Pump suction lines shall be 4" Class 150, cast iron pipe with mechanical joint bell outside the pump chamber and 1/2" bronze-fitted, double-disc gate valve inside the chamber. The discharge line from each pump shall be fitted with a bronze-fitted check valve and a 4" bronze-fitted, double-disc gate valve. The check valves shall be of the spring-loaded lever type so that the crapper can be lifted to back flush the pump and suction line. Four-inch, straight-through check valves and increasing check valves up to 8" x 8" shall have stainless steel shafts with double "D" rings and grease fittings at both ends where the shaft passes through the body of the valve. The common discharge pipe and the discharge outlet shall be 6" Class 150 cast iron pipe with a mechanical joint bell just outside the pump chamber.

All steel pipe in contact with the soil or with the sewage shall be field coated with one coat of epoxy resin after installation.

WIRING
The pump station shall be completely wired at the factory, except for the power feeder lines, in accordance with National Electrical Code. All wiring in the pump station shall be color coded as indicated on the wiring diagram. All wiring outside the panel shall be in conduit, except for 110 volt accessory items, and shall terminate in a threaded conduit connection through the side of the entrance tube above ground level. The manufacturer shall provide a transformer for all 120 volt requirements - 240 V. Pri. - 120 V. Sec. - Single Phase.

SPARE PARTS
A complete replacement pump-shaft seal assembly shall be furnished with each lift station. The spare seal shall be securely fastened to the control panel and shall include complete installation instructions. A spare volute gasket shall be provided. A spare filter cone for the seal filter shall also be provided in the same container as the shaft seal.

INSTALLATION AND OPERATING INSTRUCTIONS
Installation of the pump chamber, entrance tube and related appurtenances shall be done in accordance with written instructions provided by the Manufacturer. These instructions shall be securely attached to and readily visible on the outside of the main chamber of the pump station.

A conspicuous Maintenance and Operating Instruction Chart and Daily Maintenance and Inspection Record Chart with ample room for recording daily inspections of the pump station shall be securely mounted on the interior wall of the main pump chamber.

In addition to the Maintenance and Operating Chart, the Manufacturer shall further provide a complete and detailed Operating and Maintenance Manual. This Manual shall cover, in addition to general operating procedures, the operation, maintenance and servicing procedures of the major individual components provided with the pump station.

The Manufacturer shall further provide the services of a factory-trained representative for a maximum period of one day to perform initial start-up of the pump station and to instruct the owner's operating personnel in the operation and maintenance of the equipment provided by them.


The Contractor shall excavate for the pumping station at the location shown on the plans and shall provide such shoring, shoring, and dewatering as may be required for proper construction of the concrete foundation, wet well, setting and grouting of the pump chamber.

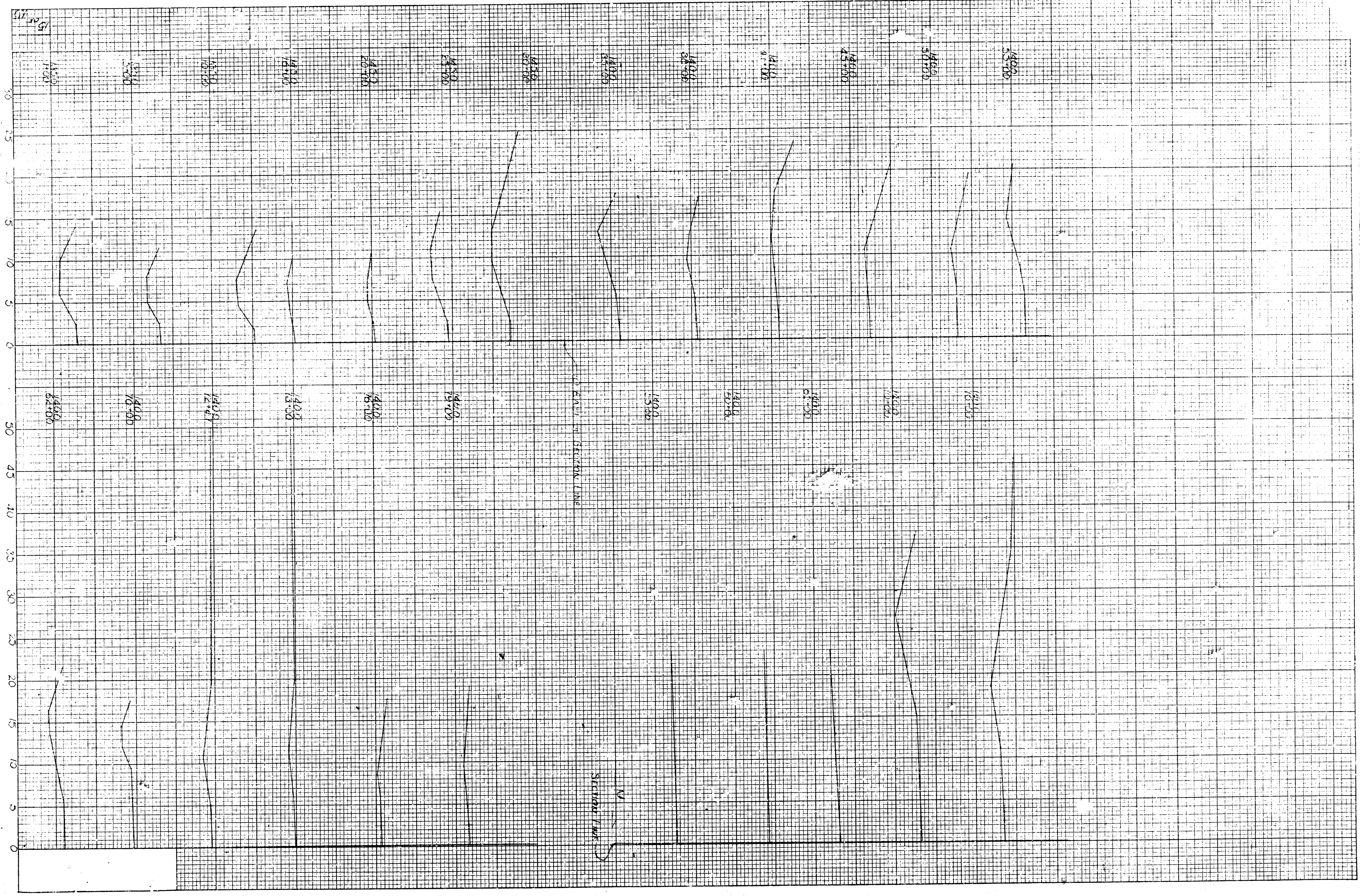
The Contractor shall furnish and install the electrical conduit, bubbler line, sump pump discharge line, service pipe, disconnect switch, meter box, cast iron suction pipes, and guard posts as detailed on the plans.

The Contractor shall exercise care during backfill operations so as not to capture the bubbler line or damage the piping, conduit, and pump station. The Contractor shall install the bubbler line guard furnished so as to ensure proper service life of the bubbler system. The pumping station site shall be compacted and fine graded to the elevation shown. All excess excavated material shall be disposed of as directed by the Engineer at no additional cost to the Owner.

GUARANTEE
The Manufacturer of the lift station shall guarantee for one year from date of shipment that the structure and all equipment will be free from defects in design, material and workmanship.

In the event a component fails to perform as specified or is proven defective in service during the guarantee period, the Manufacturer shall provide a replacement part without cost to the Owner.

 PROFESSIONAL ENGINEERING CONSULTANTS <small>INCORPORATED</small> 1000 AVENUE WASHINGTON, D.C. 20004 TELEPHONE 442-1234	SANITARY SEWER AND PUMPING STATION DETAILS	SHEET 14 OF 15
	JOB NO. DATE DRAWN BY CHECKED BY 8-66 DLH HRB	



PART 2 - CROSS SECTION
 DRAWING NO. 1000
 SCALE: 1" = 100'
 DATE: 10/1/00