Ref: 4

EPA Region 5 Records Ctr.
324737

TSC
TESTING SERVICE CORPORATION
457 East Gundersen Drive, Carol Stream, Illinois 60188

Consultation services
Foundation and site exploration
Testing of soils, concrete and bituminous materials
Groundwater monitoring and hydrogeologic studies

Telephone 312 653-3920

January 25, 1984

JAN 25 '84

WASTE MANAGEMENT, INC.
3003 Butterfield Road
Oak Brook, Illinois 60521

Attention: Mr. Francis Lewis

RE: L - 20,187
KINGERY LANDFILL
Lansing, Illinois

Gentlemen:

We have completed 13 borings and the installation of the gas monitoring probes for the above referenced site. The borings were made according to currently recommended American Society for Testing and Materials procedures. The field work was supervised by TESTING SERVICE CORPORATION geologists.

The boring/probe locations were laid out in the field at locations indicated on a plan supplied by WASTE MANAGEMENT, INC. Ground surface elevations at the boring/probe locations were referenced to a benchmark with an arbitrary datum of 100.0. The rim of a manhole was also shot as a reference point. A Boring/Probe Location Plan is enclosed with this report.

Borings G1 through G5 were made in the actual landfill area. These borings were drilled through the refuse and ranged in depth from 31.5 to 50.5 feet. Split spoon samples were taken as required to determine the bottom of the refuse.

Borings G6 and G7 were drilled out of the refuse area just inside the south fence line. Split spoon samples were taken on 2.5 foot intervals to the bottom of the borings at a depth of 20.0 feet.

Borings GP1 through GP5 were drilled in the street immediately south of the landfill at locations approximately 1.0 foot north of the concrete edge of the south gutter. Boring GP6 was drilled in the same north-south alignment, 2.0 feet east of the east pavement edge of School Street. These borings were drilled to elevations approximately 5.0 feet below the elevation of the refuse as encountered at the corresponding boring drilled in the refuse. The borings ranged in depth from 33.5 to 52.5 feet. Split spoon samples were taken on 2.5 foot intervals for these borings.

The soil samples obtained during this work were returned to our laboratory. Moisture content determinations and pocket penetrometer measurements were performed for applicable samples. The samples have been carefully examined, described and classified with symbols according to the Unified Classification System. The field and laboratory results obtained from the boring work are shown on the enclosed Boring Logs.

Dr. Lawrence A. DuBose, President
Charles C. Luther, Executive Vice-President
Lyle E. Thompson, Vice-President
Noble D. Moran, Vice-President
Bruce Poynor, Engineering Geologist

GAS MONITORING PROBES

A single methane gas liquid level monitoring probe was installed for Borings G1 through G7. A diagram supplied by WASTE MANAGEMENT, INC., referred to as Figure 1, was used in the construction of the probes. Construction consisted of 1" schedule 40 flush joint PVC pipe. The perforated section was manufactured and contained 1/8" diameter holes on 1/2" centers according to design. A slip cap with a 1/4" hole was secured to the bottom of the probe and a size 5½ 1 hole rubber stopper was inserted in the top of the probe covered with a slip cap according to design. Small sized gravel was placed in the annular space around the perforated section followed by a thin layer of clay backfill with the remaining annular space sealed by placement of bentonite pellets. Const ruction was completed by the installation of a 6" diameter steel protective pipe with hinged lid and lock concreted into place. As built dimensions for each probe are shown on the individual Boring Logs.

For Borings GP1 through GP6, a staged methane gas monitoring probe system was installed. A WASTE MANAGEMENT, INC. diagram referred to as Figure 2 was used in the construction of these probes. Construction consisted of 3 individual probes of 1" schedule 40 flush joint PVC pipe with a 1.0' perforated PVC section on the bottom of each probe. Other construction concerning perforations, slip caps and rubber stoppers are as described for the Figure 1 type probes. As built dimensions for the installation of the probes including the placement of the gravel, thin clay layer and bentonite pellet seal are shown on the individual Boring Logs. Construction of the probes was completed by the installation of a 5¼"I.D. valve box with a locking cover (not labled). The valve boxes used in the street were 10" long. A 16" long valve box was used for GP6 for better stability which was installed outside of the pavement section and concreted into place.

At locations GP1 through GP5 an 8" pavement core was made using diamond bit core barrel equipment prior to making the borings. This was done to provide a neat and tight fitting installation for the valve box. The diameter of the cored area was enlarged slightly by hand chiseling to accomodate the valve box. The pavement was softened by heating with a large propane torch and the valve box was pressed into place with the drill rig until flush with the pavement.

The pavement section was thinner than anticipated (generally 12" or less) and it was necessary to modify the design of the shallow probe to permit the migration of gas, if any, from the crushed limestone base into the probe. This was discussed with the WASTE MANAGEMENT Project Engineer. The bottom 3" of the valve box was perforated. Although the bottom of the probe extended below the bottom of the base material, a passageway for migration of gas from the crushed stone into the probe was provided for by way of valve box perforations and gravel backfill. (See enclosed sketch detailing shallow probe installation.)

As mentioned to the WMI Project Manager, drainage along the south curb is poor. During periods of snow melt after installation, standing water was observed over the valve boxes. This resulted in seepage of water into some of the probes.

It was a pleasure to assist you with this project. Please call if there are questions or when we may be of further assistance.

Respectfully submitted,

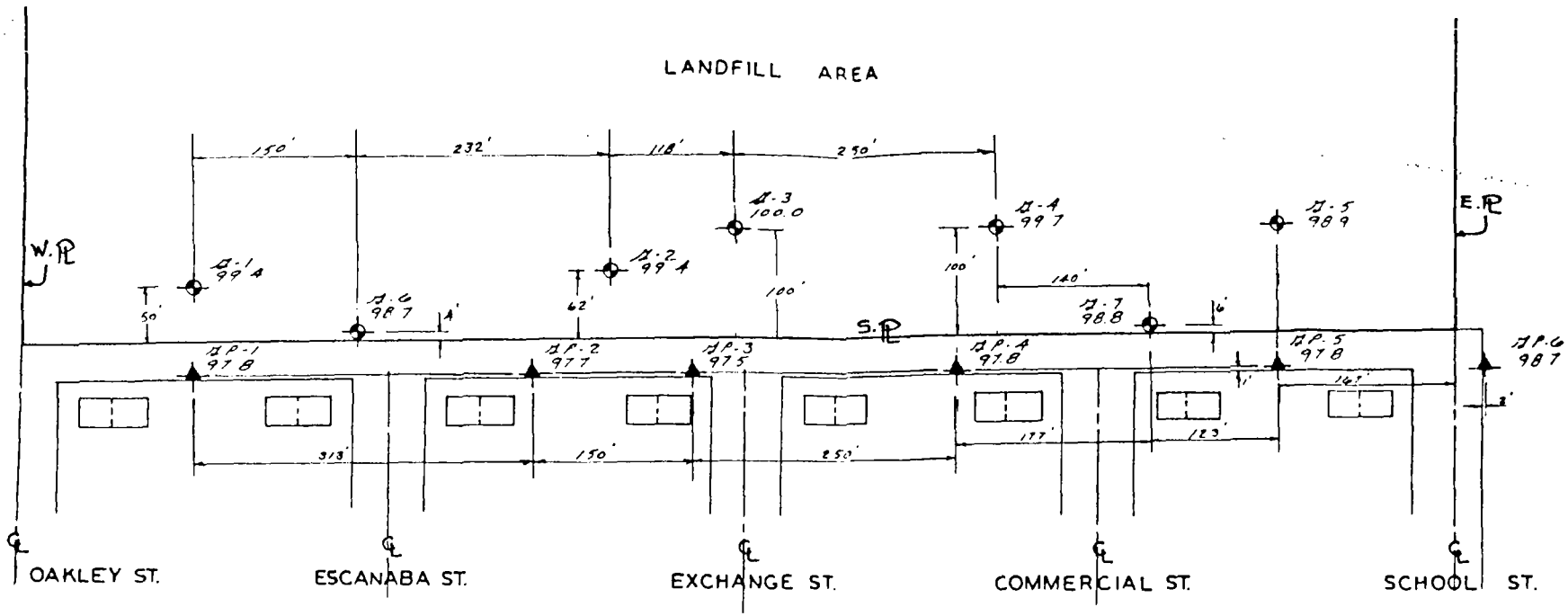
TESTING SERVICE CORPORATION

Lawrence A. DuBose
President

Prepared by:

Bruce Poynor
Engineering Geologist

LAD:BP:sa
Enclosures: Unified Classification Chart
Legend for Boring Logs
Boring Logs
Boring/Probe Location Plan
Shallow Probe Detail



BORING/PROBE LOCATION PLAN
KINGERY SANITARY LANDFILL
LANSING, ILLINOIS

SCALE 1" = 100'

NOTE: PROBES G-1 THRU G-7 RELATE TO FIG. 1
PROBES GP-1 THRU GP-6 RELATE TO FIG. 2

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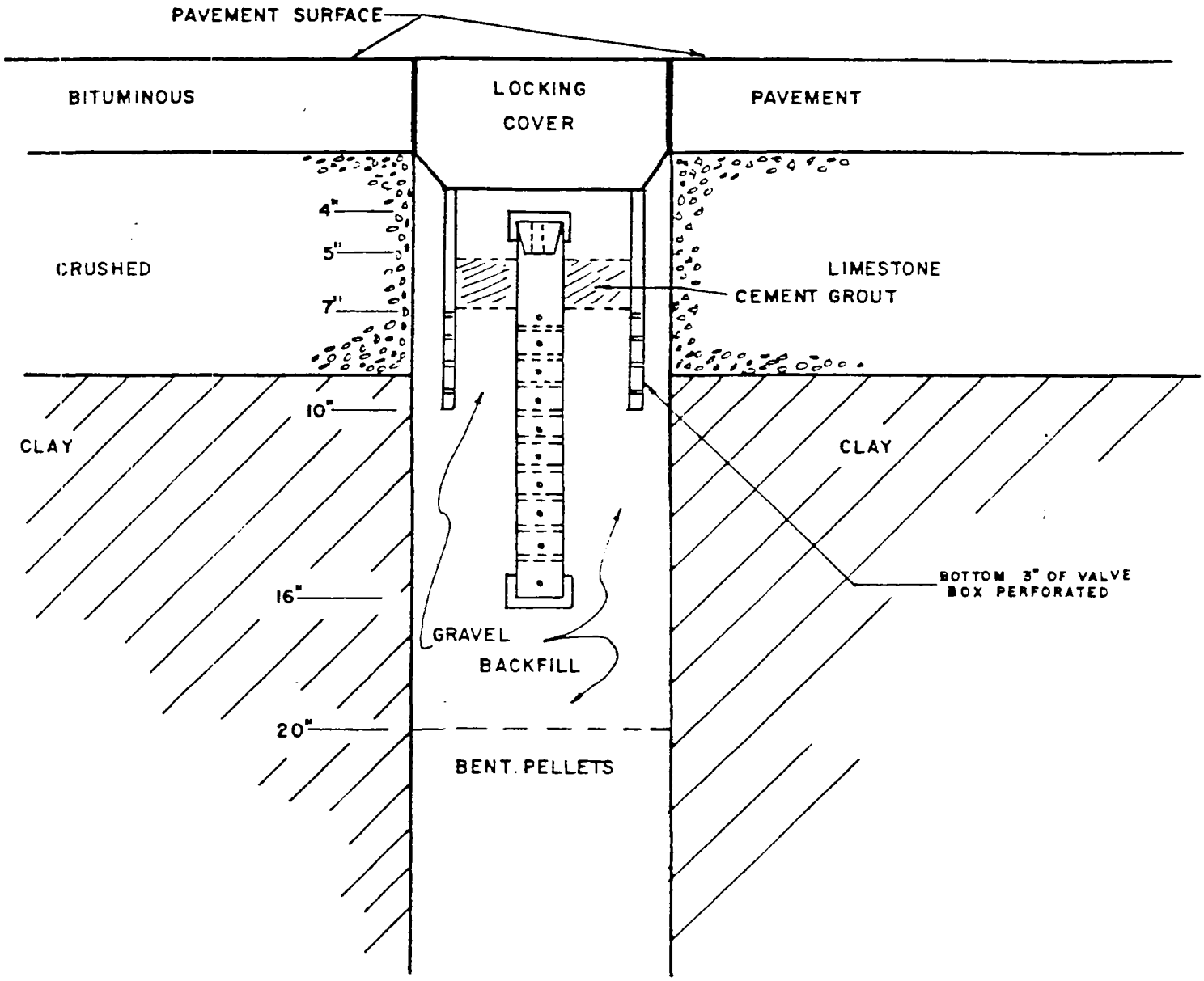

SHALLOW STAGED PROBE DETAIL

NOTE: INTERMEDIATE AND DEEP PROBES NOT SHOWN

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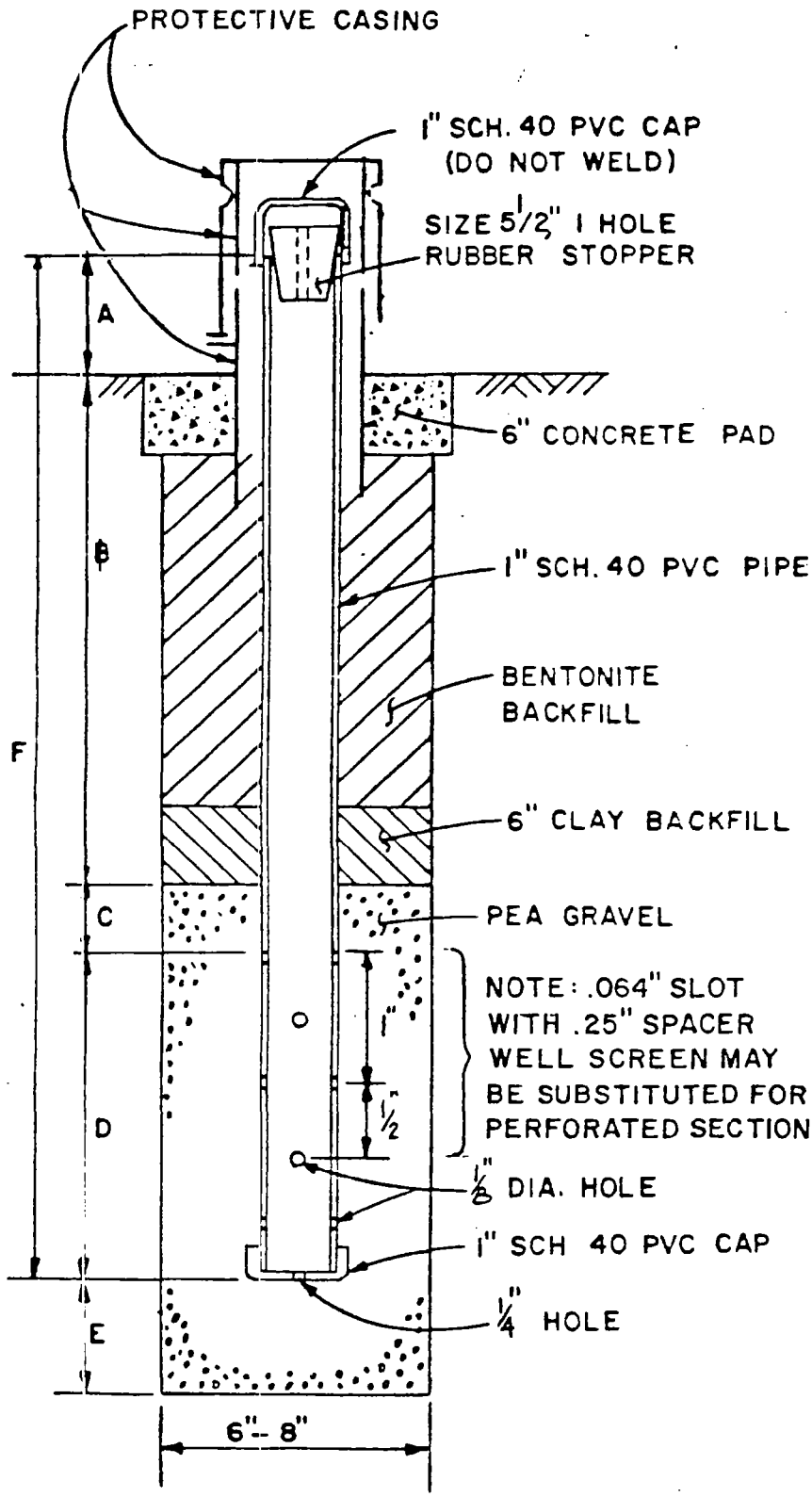
FIGURE I



DIMENSIONS		
	DESIGN	AS BUILT ①
A	2'-0"	
B	4-0"	
C	1'-0"	
D	* *	
E	1'-0"	
F	* *	

** TO DEPTH OF REFUSE

① NOTE: AS BUILT INFORMATION SHOULD ALSO INCLUDE A GEOLOGIC LOG OF THE BORE HOLE

METHANE GAS LIQUID LEVEL MONITORING PROBE

N. T. S.

PROJECT: KINGERY SANITARY LANDFILL

DATE: 12/83 BY: JAG SHEET 1 OF 1

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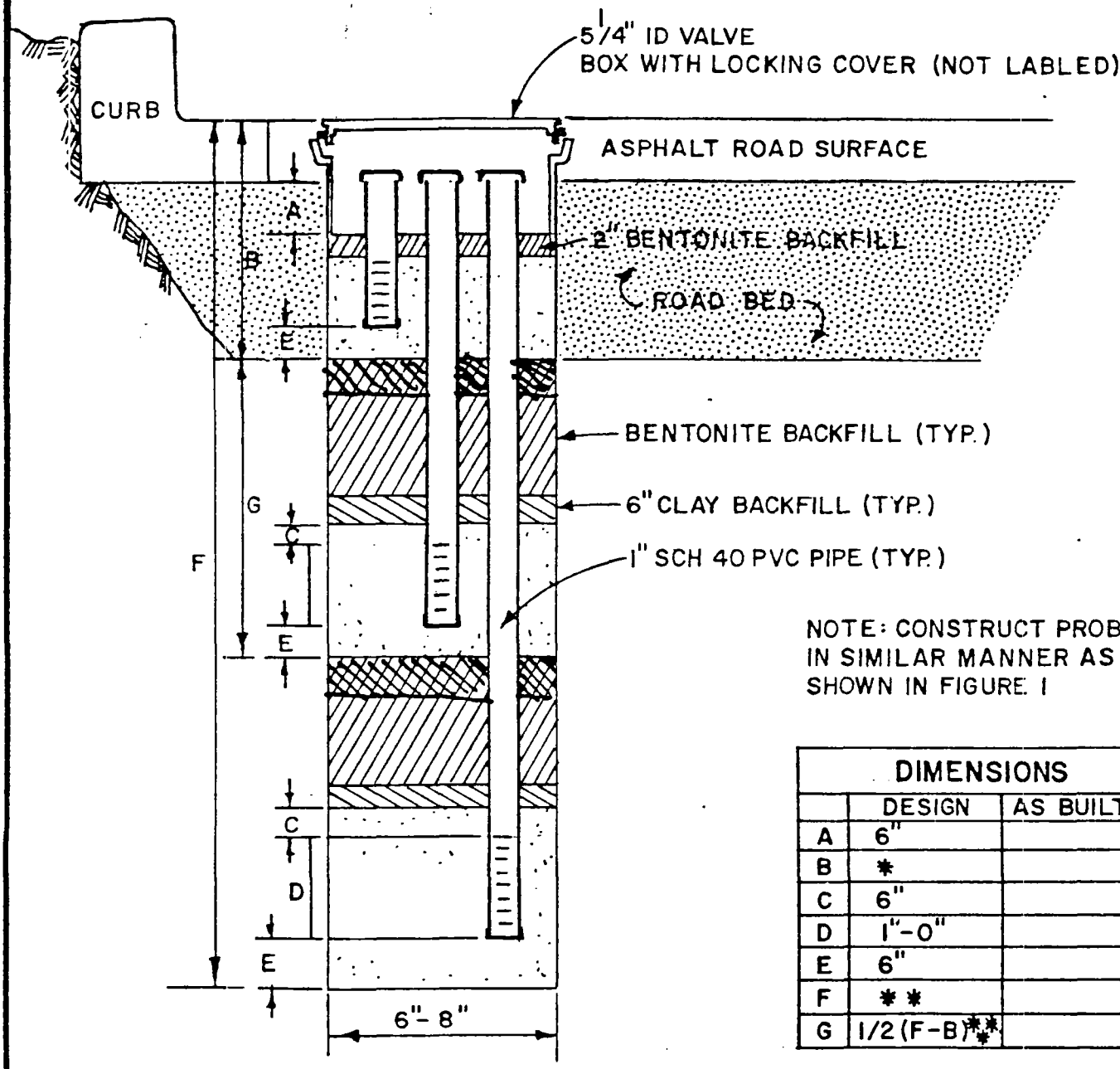
3003 Butterfield Road
Oak Brook, Illinois 60521

FIGURE 2



NOTE: CONSTRUCT PROBES IN SIMILAR MANNER AS SHOWN IN FIGURE 1

DIMENSIONS		
	DESIGN	AS BUILT ①
A	6"	
B	*	
C	6"	
D	1'-0"	
E	6"	
F	* *	
G	1/2 (F-B)**	

* DEPTH OF ROAD BED
** 5' BELOW DEPTH OF REFUSE
** FIELD VERIFY
① NOTE: AS BUILT INFORMATION SHOULD ALSO INCLUDE A GEOLOGIC LOG OF THE BORE HOLE

METHANE GAS MONITORING PROBE

STAGED PROBES - N. T. S.

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PROJECT: KINGERY SANITARY LANDFILL
DATE: 12/83 BY: JAG SHEET 1 OF 1