

GROUND WATER ASSESSMENT UPDATE
FOR RECOVERY OF FREE PRODUCT IN
PLUMES 1 AND 2, NEAR TANKS 4 AND 1,
SOUTH PROJECT AREA,
AT THE
KOCH FUELS, INC., TERMINAL
RIVER ROAD, WILMINGTON, N. C.

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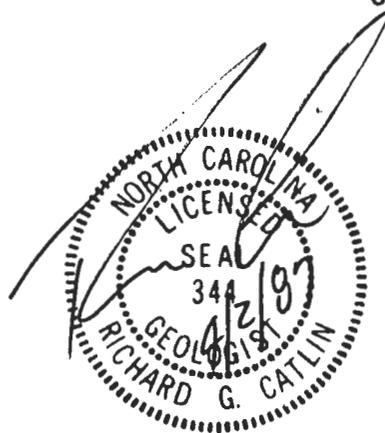
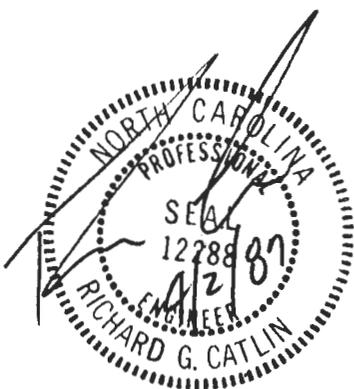
GROUNDWATER SECTION
WILMINGTON REGIONAL OFFICE

MARCH 30, 1987

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GROUND WATER SECTION
RALEIGH, N. C.



PREPARED BY:

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CONSULTING ENGINEERS
AND HYDROGEOLOGISTS

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APPLICATION FOR PERMIT TO CONSTRUCT RECOVERY WELLS

Free Product Plume Summary Map Showing Locations of Proposed Recovery Wells

Recovery Well Detail

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MARCH 30, 1987

I. PURPOSE:

The purpose of this assessment update was to reevaluate the need for, and placement of, recovery points for containment and removal of free floating immiscible product from plumes #1 and #2 near tanks 4 and 1, respectively, at the Koch Terminal in Wilmington, North Carolina. Due to the significant time interval which has passed since our Initial Report of Investigation (June, 1986), this update was necessary to ensure recommendations for design and placement of new recovery wells consistent with existing site conditions.

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Page Two

II. METHODS:

Methods utilized in updating free product distribution and migration near tanks 4 and 1 included remeasurement of water table and product thickness in all pertinent wells using procedures described in Methods of Investigation in the June, 1986, Report of Investigation.

III. DATA EVALUATION PROCEDURES:

Water table and product thickness information was evaluated as follows:

- 1) Monitoring well water level measurements were used to develop a water table contour map (see Figure 1).
- 2) Monitoring well pure compound (free product) accumulations were presented on a free product plume summary map (see Figure 2).
- 3) Revised water table flow and product accumulation information, combined with previously attained data, was used to develop location and design for new recovery wells.

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IV. FINDINGS:

The findings of this assessment update are similar to those outlined in the initial assessment. Based on all information available at present, the following recommendations are made for placement and design of recovery wells:

- 1) Recovery wells, Plumes #1 and #2 - Two 20' deep, 24" diameter recovery wells, of the design shown on the enclosed permit application, should be installed at locations shown on Figure 2.

- 2) Recovery System Design - A two-pump water table depression and product removal system should be utilized in the new wells. Ground water discharge should be piped through a separator/treatment system, while recovered product should be stored in onsite tanks. Treated ground water should be discharged into respective diked areas at upgradient locations. Specific design details will be recommended upon completion of recovery well field testing, with the concurrence of the N. C. Division of Environmental Management.

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V. LIMITATIONS OF INVESTIGATION:

The borings made as part of this investigation only provide isolated data points and may not represent subsurface conditions at every location in the project area. Analysis and conclusions of this report are based on interpolation between data points and may not be completely representative of all subsurface conditions.

Moreover, this investigation does not provide conclusive data on limits of contamination or other interpolations where indicated by question marks, or where otherwise qualified.

Conclusions and recommendations of this investigation and report are based on the best available data in an effort to assist in the understanding, control and/or clean-up of an existing problem. No guarantee is expressed or implied that new or additional data and/or remedial measures will not be required for ultimate solution of the existing contamination problem or project.

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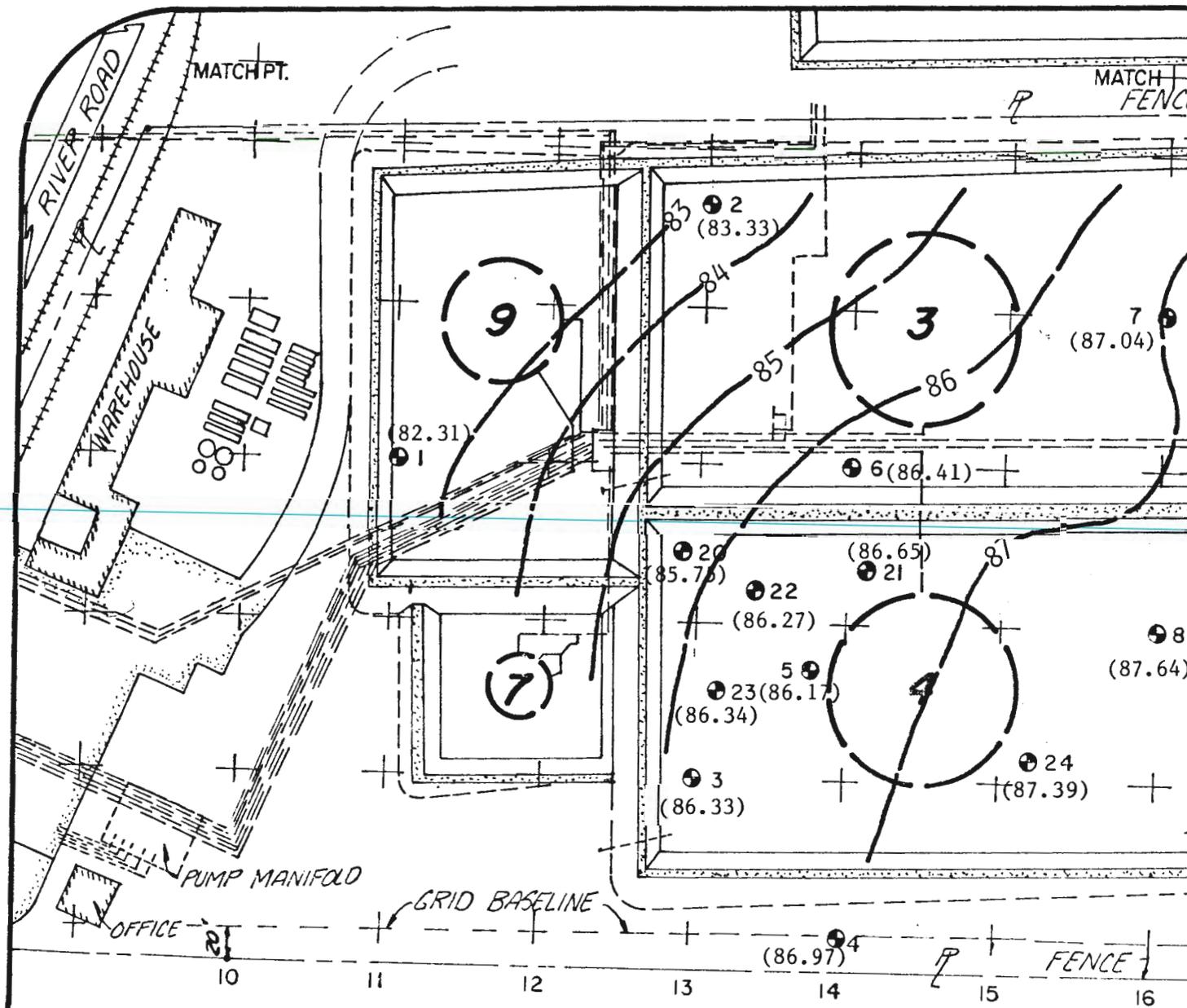


FIGURE 1 - WATER TABLE CONTOURS AS OF 3/30/87

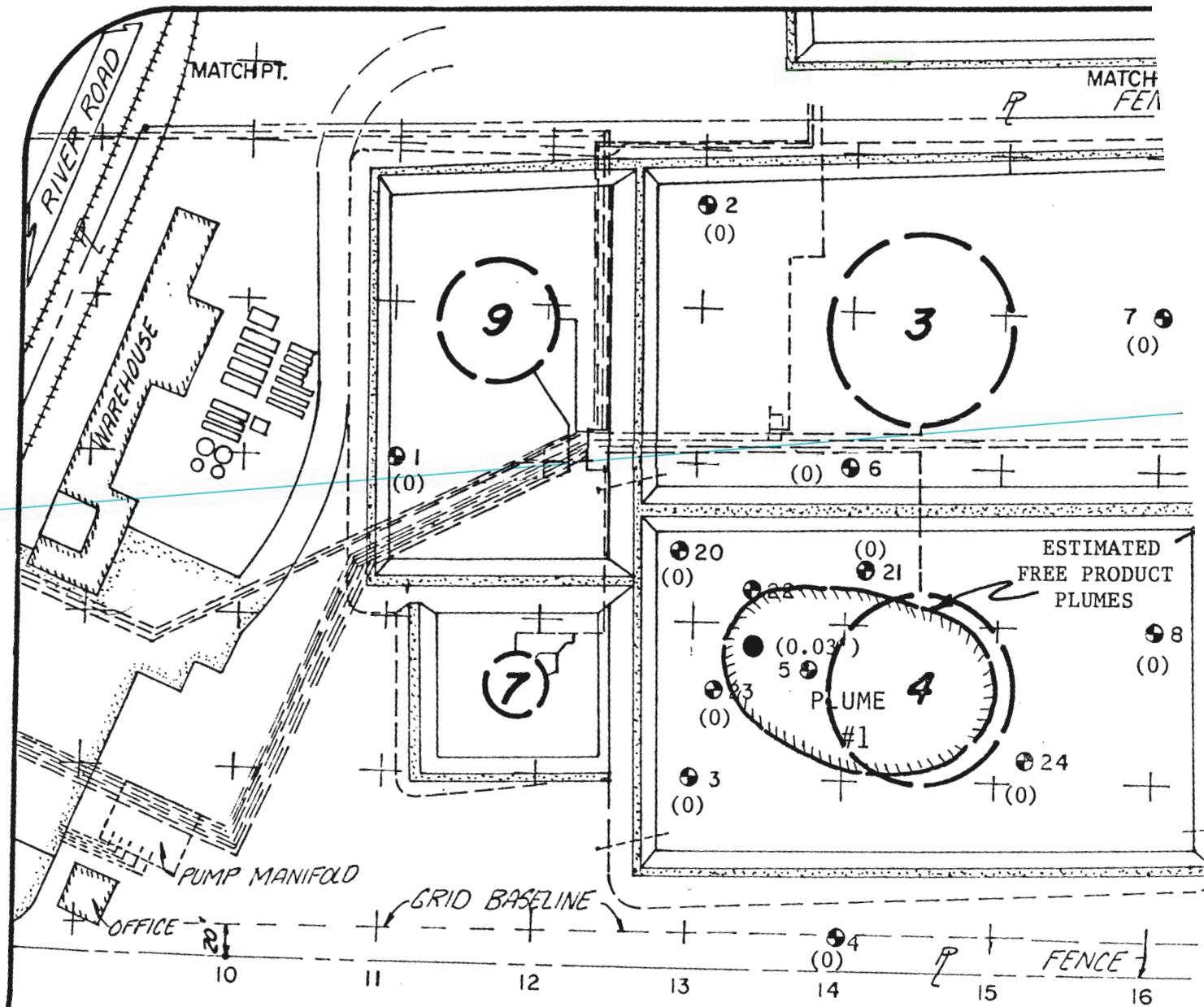


FIGURE 2 - FREE PRODUCT PLUME SUMMARY MAP SHOWING LOCATIONS OF PROPOSED RECOVERY WELLS

● PROPOSED RECOVERY WELLS

NORTH CAROLINA
ENVIRONMENTAL MANAGEMENT COMMISSION
DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
APPLICATION FOR PERMIT TO CONSTRUCT MONITOR/RECOVERY WELL(S)

To: NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION March 31, 19 87

Gentlemen:

In accordance with the provisions of Article 7, Chapter 87, General Statutes of North Carolina, and regulations pursuant thereto, application is hereby made by Koch Fuels, Inc. for a permit to construct a (name of well owner) monitor/recovery well(s) as described below and in the accompanying data submitted as a part of this application.

- (a) Name of property owner: Koch Fuels, Inc.
- (b) Location of property: River Road Wilmington New Hanover
(Road, Industry, Community, etc.) Town County
- (c) Type of facility or site being monitored: Tank Farm

(d) Types of contamination being monitored or recovered: Gasoline

(e) Existing monitor well numbers: See Attached

(f) Existing monitor wells showing contamination (well no.): See Attached

(g) Estimated water-table depth: 6 - 10 feet

(h) Estimated date of construction: Begin 4/7/87 Complete 5/15/87

(i) Drilling constructor: Richard Catlin & Associates, Inc.

(j) Location of well: Provide a detailed map showing the location of the proposed well(s), and of any wells in an existing monitoring system (if applicable), in relation to the pollution source(s) being monitored and to at least two (2) nearby permanent reference points such as roads, intersections, and streams. Identify roads with State Highway road identification numbers. (Show all existing water supply wells within a radius of 1,000 feet of the proposed well.) (See Attached)

(k) Well construction diagram: Provide a diagram showing proposed construction specifications, including diameter, estimated depth, screens, sand pack, grout, type of materials, etc. (See Attached)

The Applicant hereby agrees the proposed well will be constructed in accordance with approved specifications and conditions of the Well Construction Permit. As regulated under the Well Construction Standards (Title 15 - North Carolina Administrative Code, Subchapter 2C)

Koch Fuels, Inc.,
P. O. Box 3958, Wilmington, NC 28406
(Mailing Address of Well Owner-Required)
Richard Catlin & Assoc., Inc., P.O.Box 557
Wrightsville Beach, NC 28480

(Mailing Address of Agent-if other than above)

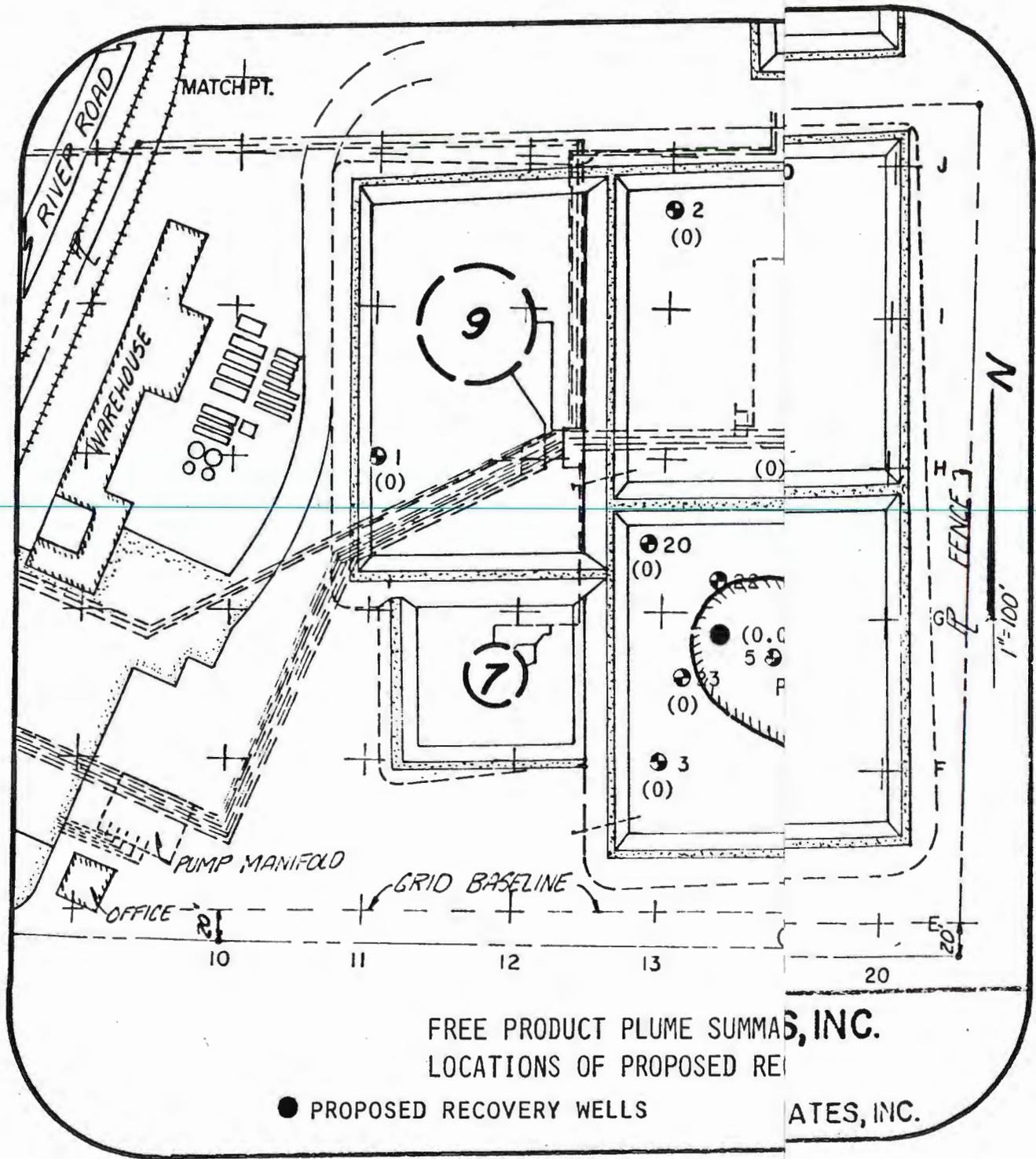
Richard G. Catlin
Signature of Well Owner or Agent

Richard G. Catlin, P.E., P.G., President
Richard Catlin & Associates, Inc.

Title (if applicable)

FOR OFFICE USE ONLY

PERMIT NO. _____ Issued _____ 19 _____

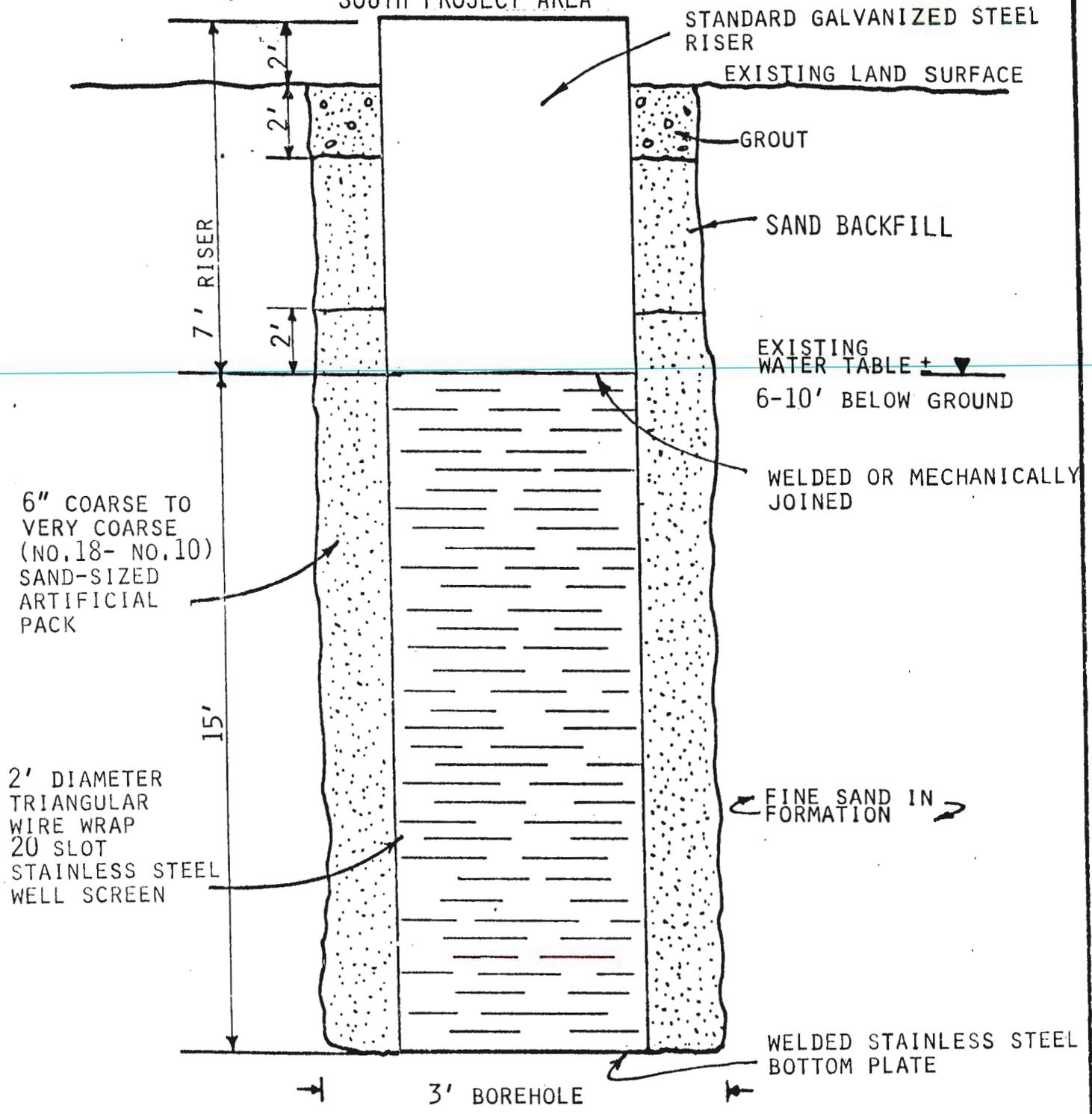


FREE PRODUCT PLUME SUMMARY, INC.
 LOCATIONS OF PROPOSED RECOVERY WELLS

● PROPOSED RECOVERY WELLS

ATES, INC.

KOCH FUELS, INC.
PROPOSED RECOVERY WELLS
SOUTH PROJECT AREA



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