



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

July 19, 2019

MEMORANDUM TO: Greg S. Davis, PE  
Division 8 Project Engineer

FROM: Dennis G Li, Ph.D., L.G  
GeoEnvironmental Project Manager  
GeoEnvironmental Section  
Geotechnical Engineering Unit

DocuSigned by:  
*Dennis Li*  
3288528EC798426...  
7/19/2019

TIP NO: U-3628  
WBS: 44672.1.2  
COUNTY: MOORE  
DIVISION: 8  
DESCRIPTION: NC 24-27 (MONROE STREET) WEST OF 2 TO US 15 / 501 IN  
CARTHAGE

SUBJECT: **GeoEnvironmental Phase I Report**

The GeoEnvironmental Section of the Geotechnical Engineering Unit performed a Phase I field investigation on July 11, 2019 for the above referenced project to identify geoenvironmental sites of concern. The purpose of this report is to document sites of concern within the project study area that are or may be contaminated. These sites of concern should be included in the environmental planning document in an effort to assist the project stakeholders in reducing or avoiding impacts to these sites. Sites of concern may include, but are not limited to, underground storage tank (UST) sites, dry cleaning facilities, hazardous waste sites, regulated landfills and unregulated dumpsites.

**Findings**

Three (3) sites of concern were identified within the proposed study area. We anticipate low monetary and scheduling impacts resulting from these sites. See the following table and figure for details.

Please note that discovery of additional sites not recorded by regulatory agencies and not reasonably discernible during the project reconnaissance may occur. The GeoEnvironmental Section should be notified immediately after discovery of such sites so their potential impact(s) may be assessed.

Sites of concern identified in this report should be reviewed by the GeoEnvironmental Section once the Final Right of Way plans are complete to determine if Phase II Investigations and Right of Way Recommendations are necessary prior to right of way being acquired.

Mailing Address:  
NC DEPARTMENT OF TRANSPORTATION  
GEOTECHNICAL ENGINEERING UNIT  
1589 MAIL SERVICE CENTER  
RALEIGH, NC 27699-1589

Telephone: (919) 707-6850  
Customer Service: 1-877-368-4968  
Website: [www.ncdot.gov](http://www.ncdot.gov)

Location:  
1020 BIRCH RIDGE DRIVE  
RALEIGH, NC 27610



If there are questions regarding the geoenvironmental issues, please contact me, at (919) 707-6857.

cc:

John Pilipchuk, LG, PE, State Geotechnical Engineer

Stephen R. Morgan, PE, State Hydraulics Engineer

Brian Hanks, PE, State Structures Engineer

Brent Hall, Locations and Surveys

Carl Barclay, PE, State Utilities Manager

Reuben Blakley, PE, Division 8 Construction Engineer

William B Scholl, Division 8 Right of Way Agent

Eric Williams, PE, Geotechnical Regional Manager

Kevin Miller, L.G., Regional Geological Engineer

Pages, Luis E., Division 8&10 Area Negotiator

Heather Fulghum, State Negotiator

[row-notify@ncdot.gov](mailto:row-notify@ncdot.gov)

[roadwaydesign@ncdot.gov](mailto:roadwaydesign@ncdot.gov)

[hydraulics\\_notify@ncdot.gov](mailto:hydraulics_notify@ncdot.gov)

file



**(01) Property Name:**  
CIRCLE K 2723158  
401 MONROE STREET  
CARTHAGE, NC 28327

**Property Owner:**  
CIRCLE K STORES, INC  
PO BOX 52085  
PHOENIX, AZ 85072

**Facility ID:** 00-0-0000036722  
**Incident Type/Number:** 29895

**UST Owner:**  
CIRCLE K STORES INC.  
2550 W. TYVOLA ROAD, SUITE 200  
CHARLOTTE, NC 28217-4579



**Anticipated Impacts:** LOW

This is an active gas station with 3 USTs permitted in use at the site. Multiple monitoring wells and testing holes were observed on and off the property. One record is located in NCDEQ's UST incident database.





Current UST permit

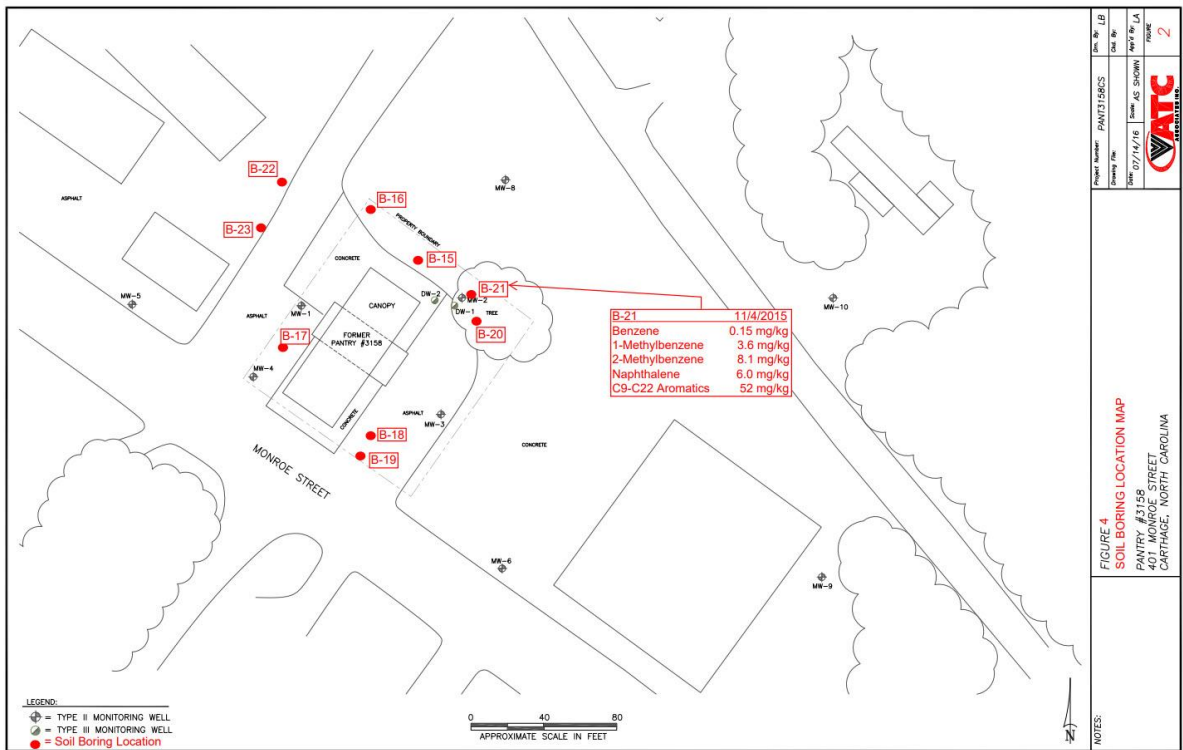


UST area



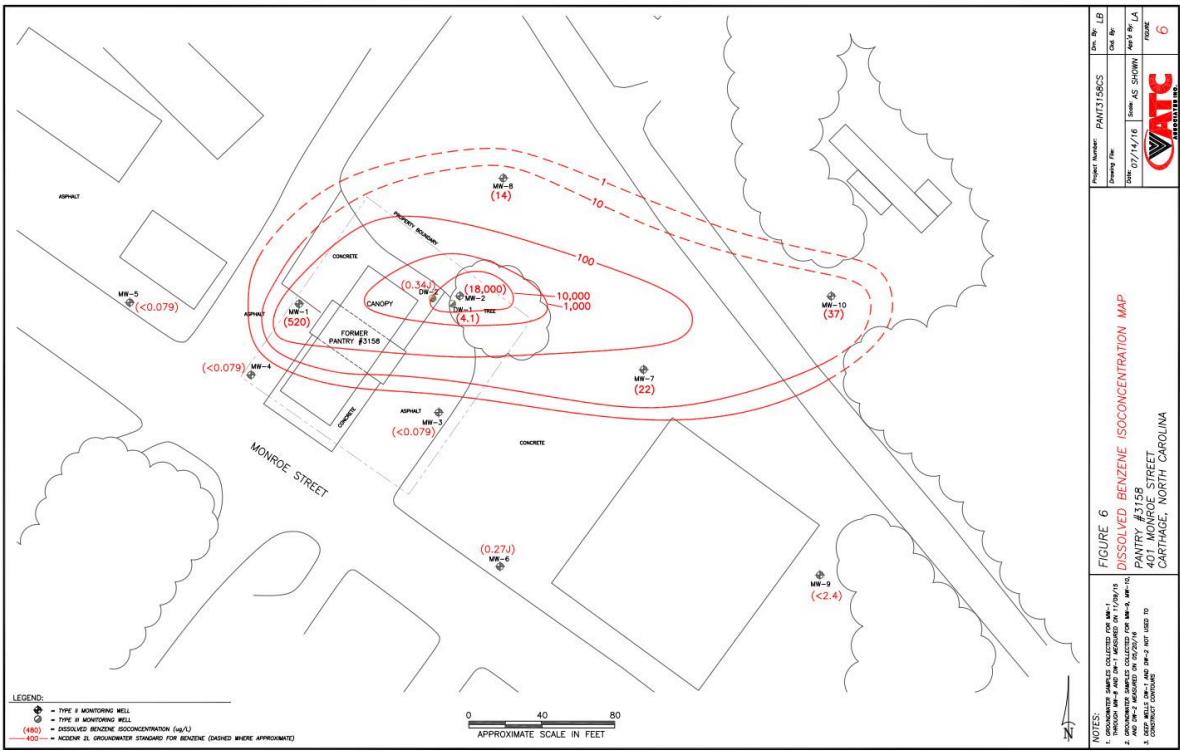


Clustered monitoring wells (Type III and Type II)



Soil testing results-2016





Groundwater testing results-2016



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**(02) Property Name:**

Carthage Detail (former ALEX CADDELL'S  
EXXON)  
701 MONROE STREET  
CARTHAGE, NC 28327

**Property Owner:**

RITTER, BRADLEY KEITH  
389 VERNON RD  
CARTHAGE, NC 28327

**Facility ID:** 00-0-0000020660

**Incident Type/Number:** 11630

**UST Owner:**

McNeill Oil Company, Inc.  
Post Office Box 396  
Aberdeen, NC 28315



**Anticipated Impacts: LOW**

This is a car detail facility and it was the former "Alex Caddell's Exxon" gas station. Multiple monitoring wells (all abandoned) and testing holes were observed on and off the property. One record is located in NCDEQ's UST incident database. Notice of No Further Action was issued in June 2019.



*Abandoned monitoring well and testing hole.*



**LEGEND**

- TYPE II MONITORING WELL
- TYPE III MONITORING WELL
- WELL ABANDONED
- WELL DESTROYED
- PROPERTY LINE
- FENCE
- EXCAVATION AREA BOUNDARY

**Note:**

- This Site Map is based on data from the Moore County GIS of NC.
- This site was not professionally surveyed; site features and utilities are approximate.

**Site Map Details:**

- Streets:** ISLEY STREET, VAASS ROAD, MONROE STREET / N.C. HWY 24 & 27
- Buildings:** Building, Church, Church Parking Lot, Plant/Landscaping Structure
- Monitoring Wells:** MW-14, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-24, MW-25, MW-26, MW-27, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-34, MW-35, MW-36, MW-37, MW-38, MW-39, MW-40, MW-41, MW-42, MW-43, MW-44, MW-45, MW-46, MW-47, MW-48, MW-49, MW-50, MW-51, MW-52, MW-53, MW-54, MW-55, MW-56, MW-57, MW-58, MW-59, MW-60, MW-61, MW-62, MW-63, MW-64, MW-65, MW-66, MW-67, MW-68, MW-69, MW-70, MW-71, MW-72, MW-73, MW-74, MW-75, MW-76, MW-77, MW-78, MW-79, MW-80, MW-81, MW-82, MW-83, MW-84, MW-85, MW-86, MW-87, MW-88, MW-89, MW-90, MW-91, MW-92, MW-93, MW-94, MW-95, MW-96, MW-97, MW-98, MW-99, MW-100, MW-101, MW-102, MW-103, MW-104, MW-105, MW-106, MW-107, MW-108, MW-109, MW-110, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116, MW-117, MW-118, MW-119, MW-120, MW-121, MW-122, MW-123, MW-124, MW-125, MW-126, MW-127, MW-128, MW-129, MW-130, MW-131, MW-132, MW-133, MW-134, MW-135, MW-136, MW-137, MW-138, MW-139, MW-140, MW-141, MW-142, MW-143, MW-144, MW-145, MW-146, MW-147, MW-148, MW-149, MW-150, MW-151, MW-152, MW-153, MW-154, MW-155, MW-156, MW-157, MW-158, MW-159, MW-160, MW-161, MW-162, MW-163, MW-164, MW-165, MW-166, MW-167, MW-168, MW-169, MW-170, MW-171, MW-172, MW-173, MW-174, MW-175, MW-176, MW-177, MW-178, MW-179, MW-180, MW-181, MW-182, MW-183, MW-184, MW-185, MW-186, MW-187, MW-188, MW-189, MW-190, MW-191, MW-192, MW-193, MW-194, MW-195, MW-196, MW-197, MW-198, MW-199, MW-200, MW-201, MW-202, MW-203, MW-204, MW-205, MW-206, MW-207, MW-208, MW-209, MW-210, MW-211, MW-212, MW-213, MW-214, MW-215, MW-216, MW-217, MW-218, MW-219, MW-220, MW-221, MW-222, MW-223, MW-224, MW-225, MW-226, MW-227, MW-228, MW-229, MW-230, MW-231, MW-232, MW-233, MW-234, MW-235, MW-236, MW-237, MW-238, MW-239, MW-240, MW-241, MW-242, MW-243, MW-244, MW-245, MW-246, MW-247, MW-248, MW-249, MW-250, MW-251, MW-252, MW-253, MW-254, MW-255, MW-256, MW-257, MW-258, MW-259, MW-260, MW-261, MW-262, MW-263, MW-264, MW-265, MW-266, MW-267, MW-268, MW-269, MW-270, MW-271, MW-272, MW-273, MW-274, MW-275, MW-276, MW-277, MW-278, MW-279, MW-280, MW-281, MW-282, MW-283, MW-284, MW-285, MW-286, MW-287, MW-288, MW-289, MW-290, MW-291, MW-292, MW-293, MW-294, MW-295, MW-296, MW-297, MW-298, MW-299, MW-300, MW-301, MW-302, MW-303, MW-304, MW-305, MW-306, MW-307, MW-308, MW-309, MW-310, MW-311, MW-312, MW-313, MW-314, MW-315, MW-316, MW-317, MW-318, MW-319, MW-320, MW-321, MW-322, MW-323, MW-324, MW-325, MW-326, MW-327, MW-328, MW-329, MW-330, MW-331, MW-332, MW-333, MW-334, MW-335, MW-336, MW-337, MW-338, MW-339, MW-340, MW-341, MW-342, MW-343, MW-344, MW-345, MW-346, MW-347, MW-348, MW-349, MW-350, MW-351, MW-352, MW-353, MW-354, MW-355, MW-356, MW-357, MW-358, MW-359, MW-360, MW-361, MW-362, MW-363, MW-364, MW-365, MW-366, MW-367, MW-368, MW-369, MW-370, MW-371, MW-372, MW-373, MW-374, MW-375, MW-376, MW-377, MW-378, MW-379, MW-380, MW-381, MW-382, MW-383, MW-384, MW-385, MW-386, MW-387, MW-388, MW-389, MW-390, MW-391, MW-392, MW-393, MW-394, MW-395, MW-396, MW-397, MW-398, MW-399, MW-400, MW-401, MW-402, MW-403, MW-404, MW-405, MW-406, MW-407, MW-408, MW-409, MW-410, MW-411, MW-412, MW-413, MW-414, MW-415, MW-416, MW-417, MW-418, MW-419, MW-420, MW-421, MW-422, MW-423, MW-424, MW-425, MW-426, MW-427, MW-428, MW-429, MW-430, MW-431, MW-432, MW-433, MW-434, MW-435, MW-436, MW-437, MW-438, MW-439, MW-440, MW-441, MW-442, MW-443, MW-444, MW-445, MW-446, MW-447, MW-448, MW-449, MW-450, MW-451, MW-452, MW-453, MW-454, MW-455, MW-456, MW-457, MW-458, MW-459, MW-460, MW-461, MW-462, MW-463, MW-464, MW-465, MW-466, MW-467, MW-468, MW-469, MW-470, MW-471, MW-472, MW-473, MW-474, MW-475, MW-476, MW-477, MW-478, MW-479, MW-480, MW-481, MW-482, MW-483, MW-484, MW-485, MW-486, MW-487, MW-488, MW-489, MW-490, MW-491, MW-492, MW-493, MW-494, MW-495, MW-496, MW-497, MW-498, MW-499, MW-500, MW-501, MW-502, MW-503, MW-504, MW-505, MW-506, MW-507, MW-508, MW-509, MW-510, MW-511, MW-512, MW-513, MW-514, MW-515, MW-516, MW-517, MW-518, MW-519, MW-520, MW-521, MW-522, MW-523, MW-524, MW-525, MW-526, MW-527, MW-528, MW-529, MW-530, MW-531, MW-532, MW-533, MW-534, MW-535, MW-536, MW-537, MW-538, MW-539, MW-540, MW-541, MW-542, MW-543, MW-544, MW-545, MW-546, MW-547, MW-548, MW-549, MW-550, MW-551, MW-552, MW-553, MW-554, MW-555, MW-556, MW-557, MW-558, MW-559, MW-560, MW-561, MW-562, MW-563, MW-564, MW-565, MW-566, MW-567, MW-568, MW-569, MW-570, MW-571, MW-572, MW-573, MW-574, MW-575, MW-576, MW-577, MW-578, MW-579, MW-580, MW-581, MW-582, MW-583, MW-584, MW-585, MW-586, MW-587, MW-588, MW-589, MW-590, MW-591, MW-592, MW-593, MW-594, MW-595, MW-596, MW-597, MW-598, MW-599, MW-600, MW-601, MW-602, MW-603, MW-604, MW-605, MW-606, MW-607, MW-608, MW-609, MW-610, MW-611, MW-612, MW-613, MW-614, MW-615, MW-616, MW-617, MW-618, MW-619, MW-620, MW-621, MW-622, MW-623, MW-624, MW-625, MW-626, MW-627, MW-628, MW-629, MW-630, MW-631, MW-632, MW-633, MW-634, MW-635, MW-636, MW-637, MW-638, MW-639, MW-640, MW-641, MW-642, MW-643, MW-644, MW-645, MW-646, MW-647, MW-648, MW-649, MW-650, MW-651, MW-652, MW-653, MW-654, MW-655, MW-656, MW-657, MW-658, MW-659, MW-660, MW-661, MW

**LEGEND**

TYPE II MONITORING WELL  
 TYPE III MONITORING WELL  
 WELL ABANDONED  
 WELL DESTROYED  
 PROPERTY LINE  
 FENCE  
 EXCAVATION AREA BOUNDARY

**CHEMICALS**

BENZENE  
 TOLUENE  
 ETHYLBENZENE  
 XYLENES  
 MTBE  
 NAPHTHALENE

**CONCENTRATIONS IN µG/L**

<3 LESS THAN THE METHOD DETECTION LIMIT SPECIFIED IN THE LABORATORY REPORT  
 \* ESTIMATED VALUE  
 CONCENTRATIONS IN BOLD FACE TYPE EXCEEDED THE MCL  
 (NS) NOT SAMPLED  
 (PP) FREE PRODUCT

**MONITORING WELLS**

MW-1  
 MW-2  
 MW-3  
 MW-4  
 MW-5  
 MW-6  
 MW-7  
 MW-8  
 MW-9  
 MW-10  
 MW-11  
 MW-12  
 MW-13  
 MW-14  
 MW-15  
 MW-16  
 MW-17  
 MW-18  
 MW-19  
 MW-20  
 MW-21

**CONCENTRATION DATA**

**MW-15**

12,000
10,000
1,000
100
10
1
NS

**MW-16**

12,000
10,000
1,000
100
10
1
NS

**MW-17**

12,000
10,000
1,000
100
10
1
NS

**MW-18**

12,000
10,000
1,000
100
10
1
NS

**MW-19**

12,000
10,000
1,000
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10
1
NS

**MW-20**

12,000
10,000
1,000
100
10
1
NS

**MW-21**

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100
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NS

**MW-22**

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**MW-23**

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10,000
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**MW-24**

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10,000
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10
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NS

**MW-25**

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NS

**MW-26**

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**MW-27**

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NS

**MW-28**

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**MW-29**

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**MW-30**

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**MW-31**

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NS

**MW-32**

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**MW-33**

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NS

**MW-34**

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**MW-35**

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**MW-36**

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**MW-37**

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**MW-38**

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NS

**MW-39**

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100
10
1
NS

**MW-40**

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1,000
100
10
1
NS

**MW-41**

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10,000
1,000
100
10
1
NS

**MW-42**

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100
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1
NS

**MW-43**

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1,000
100
10
1
NS

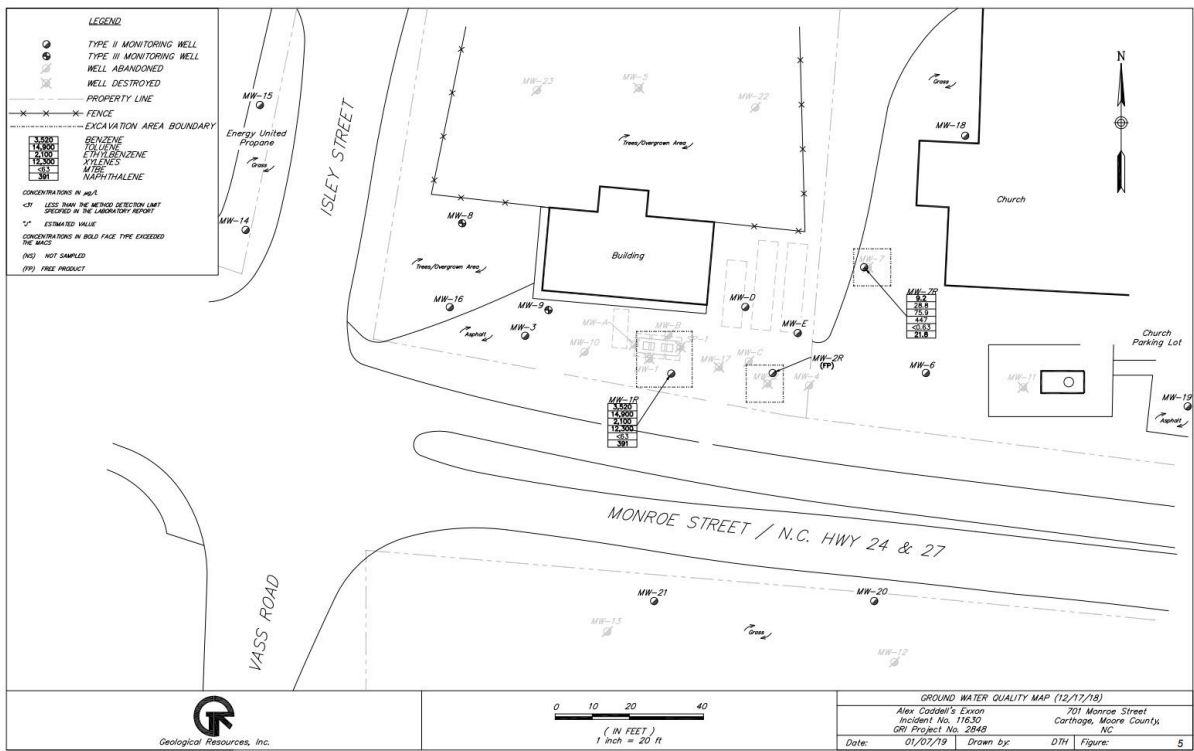
**MW-44**

12,000
10,000
1,000
100
10
1
NS

**MW-4**

### Soil Testing results-2019





Groundwater testing results-2019



Abandoned monitoring well-off site



**(03) Property Name:**

ALCO 24  
950A MONROE STREET  
CARTHAGE, NC 28327

**Property Owner:**

AOC INVESTMENTS, LLC  
PO BOX 1059  
ALBEMARLE, NC 28002-1059

**Facility ID:** 00-0-0000036722

**Incident Type/Number:** N/A

**UST Owner:**

ALBEMARLE OIL COMPANY  
PO BOX 1059  
ALBEMARLE, NC 28002-1059



**Anticipated Impacts: LOW**

This is an active gas station with 3 USTs permitted in use at the site. No monitoring wells were observed on site and no record can be located in NCDEQ's UST incident database.





Current UST permit



UST area



Appendix A  
Location of GeoEnvironmental Sites of Concern

