

PRELIMINARY HYDRAULICS STUDY
FOR
ENVIRONMENTAL IMPACT

TIP NO. R-4045 CLEVELAND COUNTY
US-74



12/11/12

SUNGATE DESIGN GROUP, P.A.
915 Jones Franklin Road
Raleigh, NC 27606

December 3, 2012

HYDRAULIC ASPECTS OF ENVIRONMENTAL IMPACT OF THE PROPOSED US-74 IMPROVEMENTS

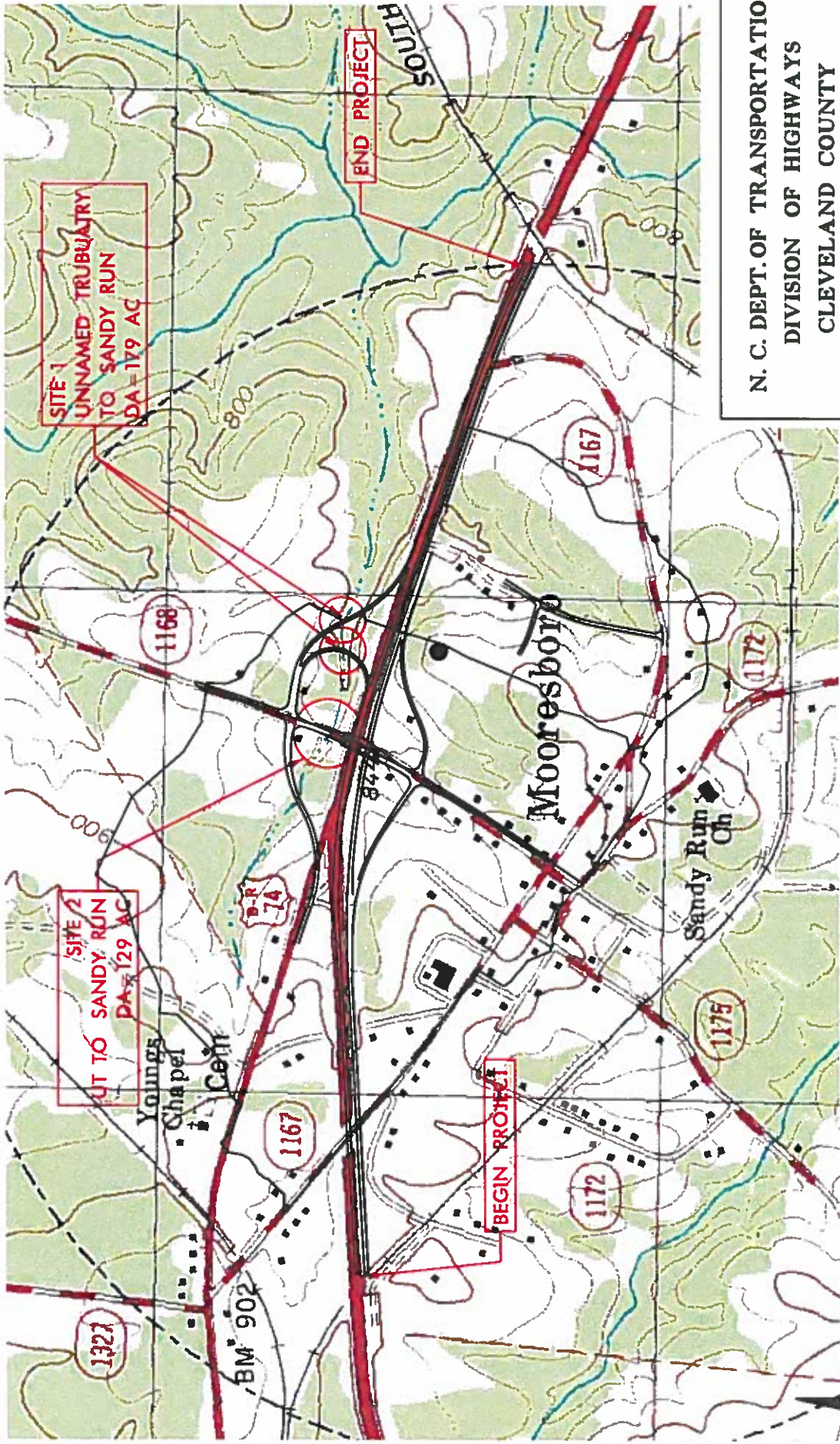
This project involves the analysis of two preferred alternates (1A and 4A) of the US-64 improvements in Cleveland County. The analysis includes two stream crossings with each site labeled on the provided map. The project is located in the Broad River Basin.

Cleveland County is a participant in the National Flood Insurance Program (NFIP). According to North Carolina Floodplain Mapping Program (NCFMP), Sandy Run is located in a Limited Detailed Study area but is just out of the project area. The tributary to Sandy Run which is in the project limits is not included in the study area. Since the project does not impact Sandy Run no involvement with FEMA will be necessary.

Siltation of adjacent areas and streams due to project construction should be kept to a minimum with stringent use and maintenance of the standard erosion control measures and devices. Existing drainage patterns will be maintained to the extent practicable and groundwater resources will not be affected. The proposed project corridors are located within in a Water Supply Watershed, but not within the critical area.

It is anticipated that the construction of the project can be authorized under a United States Army Corps of Engineers (USCOE) Section 404 individual permit. A NCDENR-DWQ Section 401 Water Quality Certification will also be required. The Hydraulic Design group will assist the Project Development and Environmental Analysis Branch in coordinating with the USACOE, NCDENR-DWQ and other governmental regulatory agencies to ensure that all environmental concerns are appropriately addressed.

Field surveys were performed to verify channel geometry. Ground profiles and elevation recommendations are based on available contour data (LIDAR, TIN, and USGS Quad Maps). All elevations are based on vertical datum NAVD 88.



N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 CLEVELAND COUNTY
 PROJECT: 345980.1.1 (R-4045)
 US 74 UPGRADE

SITE MAP

Site 1

TRIBUTARY TO SANDY RUN

QUADRANT A

CHECKLIST FOR PRELIMINARY HYDRAULIC INVESTIGATION

TIP No.: R-4045 Site 1

County: Cleveland

Prepared By: Sungate Design

ITEM No.		OFFICE DATA:
1	<u>X</u>	PROJECT INITATION – research existing files
2	<u>X</u>	PRELIMINARY DESIGN FORM – appendix D of design guidelines
3	<u>X</u>	LOCATION MAP – identify project limits and nearby drainage structures
4	<u>N/A</u>	BMU DATABASE DATA – highly important information (old project #, structures, etc.)
5	<u>N/A</u>	OLD BRIDGE/CULVERT SURVEY REPORTS
6	<u>X</u>	USGS QUAD MAP -Label: quad map name, begin/end project, streams, major drainage structures
7	<u>X</u>	FLOOD MAP -Label: panel no. & date, community name, stream, scale, legend -FIS data (discharges, profiles, etc.) -Request HEC-2 data from COE or FEMA (date ordered: <u>model obtained</u>)
8	<u>X</u>	PRELIMINARY HYDROLOGIC DESIGN -Determine drainage area from gauge records, old structure reports, FEMA studies, or planimeter -Compute and compare discharges with other studies
9	<u>X</u>	PRELIMINARY HYDRAULIC DESIGN -Check with bridge scour group for previous scour studies -Determine replacement and detour structures
10	<u>X</u>	PERMIT -Attach a copy of the environmental sentivity map -Determine if above (<5cfs average daily flow) or (>5cfs adf) headwaters -Check CAMA Jurisdiction
11	<u>X</u>	FIELD DATA: PLAN AND PROFILE VIEWS OF THE SITE -Plan; Label: north arrow, utilities, road name/#, stream name and direction, structures in flood plain -Profile; Label: road direction, high water marks, road and flood plain profiles normal and ordinary high water marks -Conduct site interviews -Investigate alignments of replacement and detour structures
12	<u>X</u>	PHOTOS -Upstream structure face, up and downstream waterways, both roadway approaches, and other significant features

12/13/01

L:\documents\NCDOT\PrelimNCDOT\PrelimHydDesChklist

PRELIMINARY DESIGN AND ASSESSMENT STREAM CROSSING AND ENCROACHMENTS

COUNTY Cleveland PROJECT # R-4045
 STREAM Tributary to Sandy Run ROUTE US-74
 ASSESSMENT PREPARED BY Sungate Design Group DATE December 4,2012

HYDROLOGIC EVALUATIONS

NEAREST GAUGING STATION ON THIS STREAM: _____ (NONE X)

ARE FLOOD STUDIES AVAILABLE ON THIS STREAM: Yes

FLOOD DATA:

Q10 280 cfs EST. BKWTR. _____ FT. Q25 430 cfs EST. BKWTR. _____ FT.
 Q50 490 cfs EST. BKWTR. _____ FT. Q100 560 cfs EST. BKWTR. _____ FT.
 Q500 930 cfs OR OVERTOPPING CFS EST. BKWTR. _____ FT.
 DRAINAGE AREA 179 Acres METHOD USED TO COMPUTE Q USGS Urban Regression

PROPERTY RELATED EVALUATIONS

DAMAGE POTENTIAL: LOW X MODERATE _____ HIGH _____

COULD THIS BE SIGNIFICANTLY INCREASED BY PROPOSED

ENCROACHMENT: YES _____ NO X

EXPLANATION: _____

LIST BUILDINGS IN FLOOD PLAIN None observed. LOCATION N/A

FLOOR ELEVATION: N/A

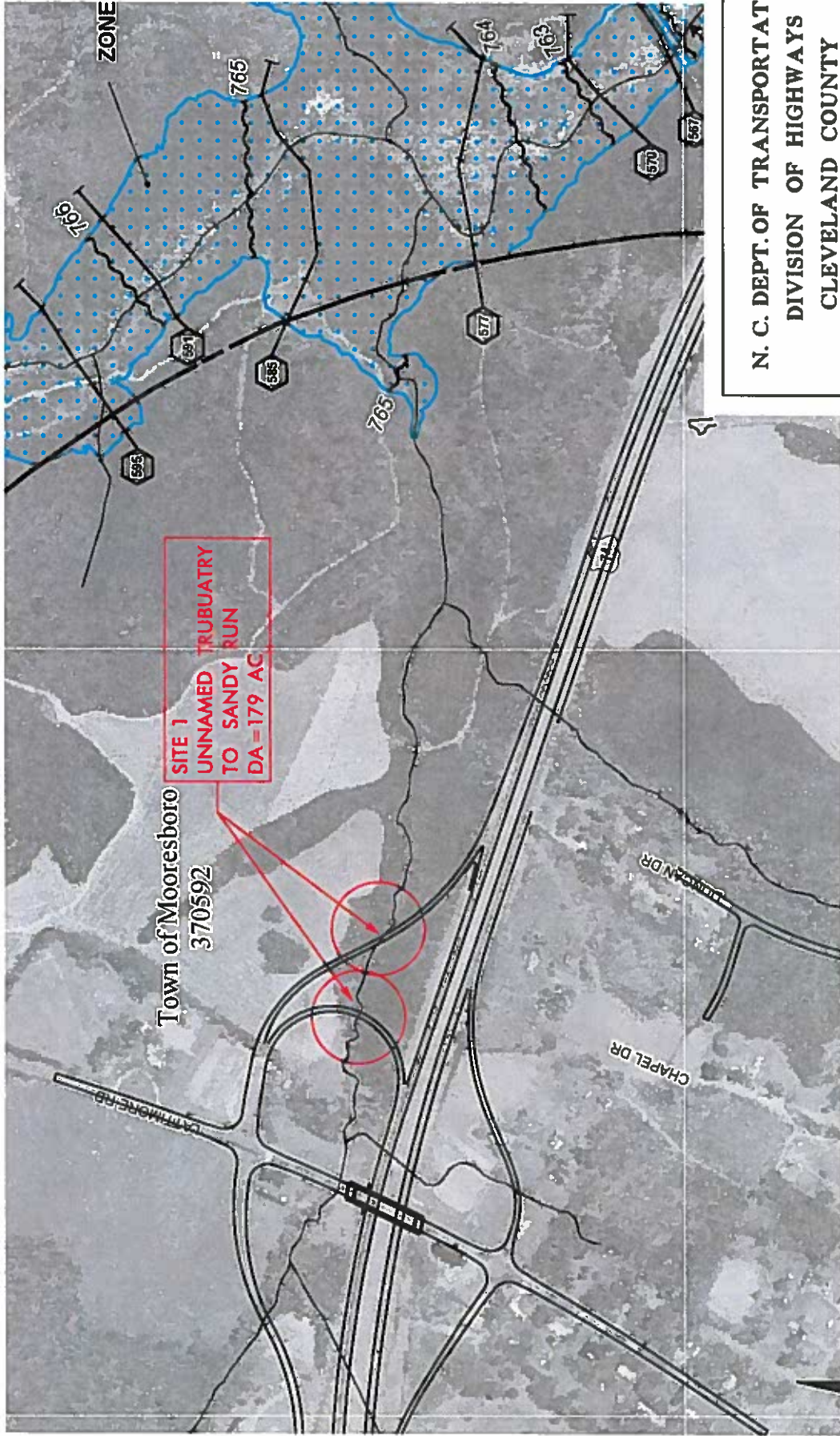
UPSTREAM LAND USE: Rural pasture and woods

ANTICIPATE ANY CHANGE? No

ANY FLOOD ZONE? (FIA STUDIES, ETC.) YES X NO X

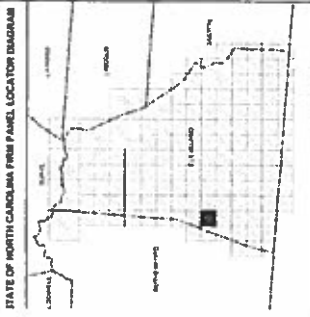
TYPE OF STUDY _____

BASE FLOOD ELEVATION _____ (100 YEAR)



SITE 1 DFIRM MAP

**N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 CLEVELAND COUNTY
 PROJECT: 345980.1.1 (R-4045)
 US 74 UPGRADE**



DATUM INFORMATION

The projections used in the preparation of this map are the North Carolina State Plane (NAD 83) datum. All elevations are mean sea level elevations. All horizontal coordinates are in feet and all distances are in feet. All distances are rounded to the nearest foot. All distances are rounded to the nearest foot.

North Carolina Geographic Society
 Raleigh, NC 27601
 Phone: 919/833-2200
 Fax: 919/833-2200



LEGEND

SPECIAL FLOOD HAZARD AREAS (SPECIAL SUBJECT TO FLOOD INSURANCE PREMIUM CHARGE FLUCTUATION)

Zone 1 - Areas with a 1% annual chance flood depth of 1.0 to 3.0 feet. Areas with a 1% annual chance flood depth of 3.0 to 6.0 feet. Areas with a 1% annual chance flood depth of 6.0 to 10.0 feet. Areas with a 1% annual chance flood depth of 10.0 to 15.0 feet. Areas with a 1% annual chance flood depth of 15.0 to 20.0 feet. Areas with a 1% annual chance flood depth of 20.0 to 25.0 feet. Areas with a 1% annual chance flood depth of 25.0 to 30.0 feet. Areas with a 1% annual chance flood depth of 30.0 to 35.0 feet. Areas with a 1% annual chance flood depth of 35.0 to 40.0 feet. Areas with a 1% annual chance flood depth of 40.0 to 45.0 feet. Areas with a 1% annual chance flood depth of 45.0 to 50.0 feet. Areas with a 1% annual chance flood depth of 50.0 to 55.0 feet. Areas with a 1% annual chance flood depth of 55.0 to 60.0 feet. Areas with a 1% annual chance flood depth of 60.0 to 65.0 feet. Areas with a 1% annual chance flood depth of 65.0 to 70.0 feet. Areas with a 1% annual chance flood depth of 70.0 to 75.0 feet. Areas with a 1% annual chance flood depth of 75.0 to 80.0 feet. Areas with a 1% annual chance flood depth of 80.0 to 85.0 feet. Areas with a 1% annual chance flood depth of 85.0 to 90.0 feet. Areas with a 1% annual chance flood depth of 90.0 to 95.0 feet. Areas with a 1% annual chance flood depth of 95.0 to 100.0 feet.

Zone 2 - Areas with a 1% annual chance flood depth of 1.0 to 3.0 feet. Areas with a 1% annual chance flood depth of 3.0 to 6.0 feet. Areas with a 1% annual chance flood depth of 6.0 to 10.0 feet. Areas with a 1% annual chance flood depth of 10.0 to 15.0 feet. Areas with a 1% annual chance flood depth of 15.0 to 20.0 feet. Areas with a 1% annual chance flood depth of 20.0 to 25.0 feet. Areas with a 1% annual chance flood depth of 25.0 to 30.0 feet. Areas with a 1% annual chance flood depth of 30.0 to 35.0 feet. Areas with a 1% annual chance flood depth of 35.0 to 40.0 feet. Areas with a 1% annual chance flood depth of 40.0 to 45.0 feet. Areas with a 1% annual chance flood depth of 45.0 to 50.0 feet. Areas with a 1% annual chance flood depth of 50.0 to 55.0 feet. Areas with a 1% annual chance flood depth of 55.0 to 60.0 feet. Areas with a 1% annual chance flood depth of 60.0 to 65.0 feet. Areas with a 1% annual chance flood depth of 65.0 to 70.0 feet. Areas with a 1% annual chance flood depth of 70.0 to 75.0 feet. Areas with a 1% annual chance flood depth of 75.0 to 80.0 feet. Areas with a 1% annual chance flood depth of 80.0 to 85.0 feet. Areas with a 1% annual chance flood depth of 85.0 to 90.0 feet. Areas with a 1% annual chance flood depth of 90.0 to 95.0 feet. Areas with a 1% annual chance flood depth of 95.0 to 100.0 feet.

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OTHER AREAS

Coastal Barrier Resources System (CBRS)

Other Flood Areas

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MAP SCALE 1" = 500' (1:160,000)

MAP NUMBER

MAP DATE

MAP NUMBER

MAP DATE

FIRM FLOOD INSURANCE RATE MAP NORTH CAROLINA

PANEL 197J

EFFECTIVE DATE

EFFECTIVE DATE

MAP NUMBER

MAP DATE

NOTES TO USERS

1. This map is intended to be used in conjunction with the Flood Insurance Rate Manual (FIRM) published by the Federal Emergency Management Agency (FEMA). The FIRM provides the definitions of flood hazard areas and the procedures for determining flood insurance rates. The FIRM is available for purchase from the National Technical Information Service (NTIS).

2. The flood hazard areas shown on this map are based on the best available data and are subject to change. The flood hazard areas shown on this map are not intended to be used for any purpose other than for general information.

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STATE OF NORTH CAROLINA FIRM PANEL LOCATION DIAGRAM

Map showing the location of the FIRM panel within the state of North Carolina.

DATUM INFORMATION

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FIRM FLOOD INSURANCE RATE MAP NORTH CAROLINA

PANEL 197J

EFFECTIVE DATE

EFFECTIVE DATE

MAP NUMBER

MAP DATE

USGS Urban - Blue Ridge Piedmont

Project: R-4045
County: Cleveland - Quad A

D.A. (Sq. Mi.) = 0.27
Impervious Area (%IA) = 25

Say

$Q_2 = 33.3DA^{0.739}IA^{0.686}$	=	115	120	cfs
$Q_5 = 78.9DA^{0.681}IA^{0.572}$	=	204	210	cfs
$Q_{10} = 122DA^{0.655}IA^{0.515}$	=	272	270	cfs
$Q_{25} = 228DA^{0.611}IA^{0.436}$	=	417	420	cfs
$Q_{50} = 296DA^{0.602}IA^{0.396}$	=	481	480	cfs
$Q_{100} = 374DA^{0.593}IA^{0.358}$	=	545	550	cfs

Site 1

Stream: Tributary to Sandy Run
Alternate: 4A

Alternate 4A crosses the Tributary to Sandy Run Creek on Ramp A and Loop A. The Tributary is located in the Broad River Basin. The drainage area at this location is approximately 175 acres. The drainage basin currently consists of single family homes and some businesses. According to the proposed zoning maps for Cleveland County the area within the watershed is zoned commercial and residential. According to NCDENR, the stream at this location is classified as WS-IV and is included on the 303d list of impaired streams.

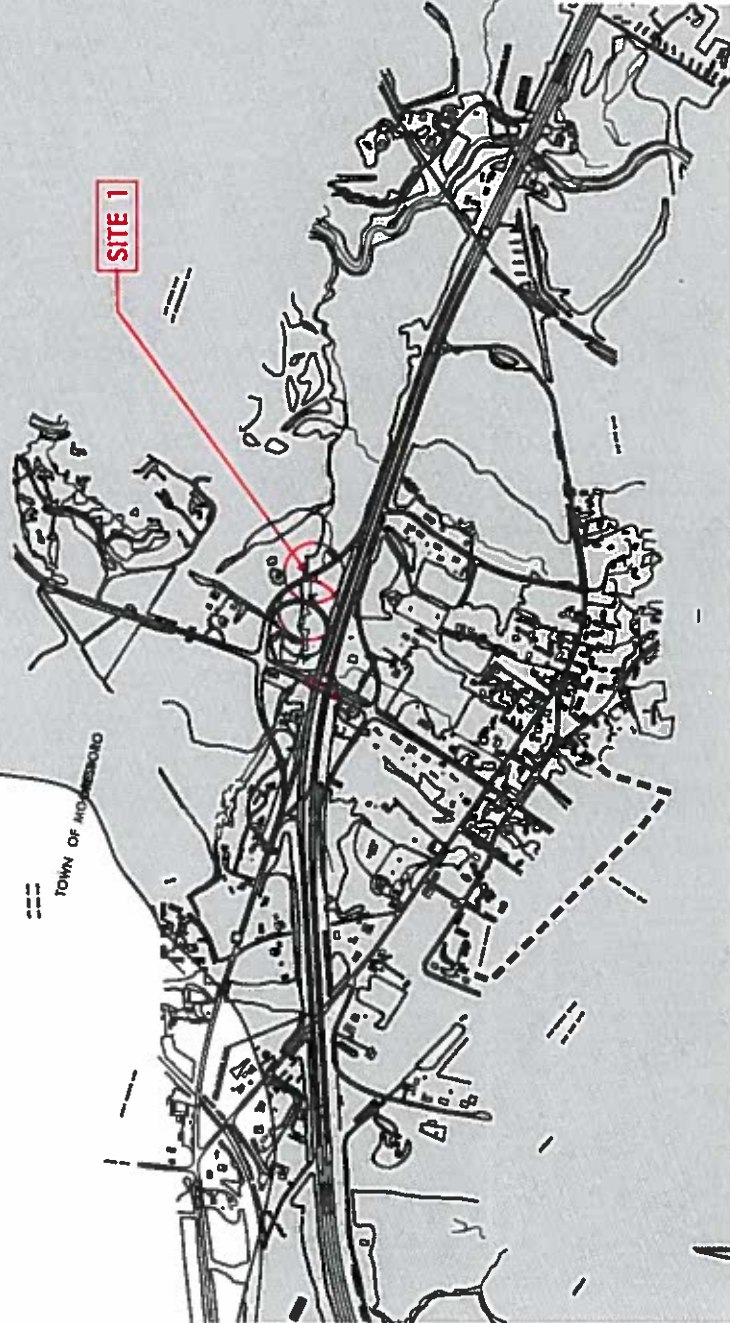
Cleveland County is a participant in the Federal Flood Insurance Program. The proposed crossing is not located within a FEMA Study Area. Therefore, no FEMA involvement will be required.

Discharges for the site were calculated according to USGS Urban Regression Equations based on 25% impervious cover are as follows:

Q10 = 270 cfs
Q50 = 480 cfs
Q100 = 550 cfs
Q500 = 900 cfs

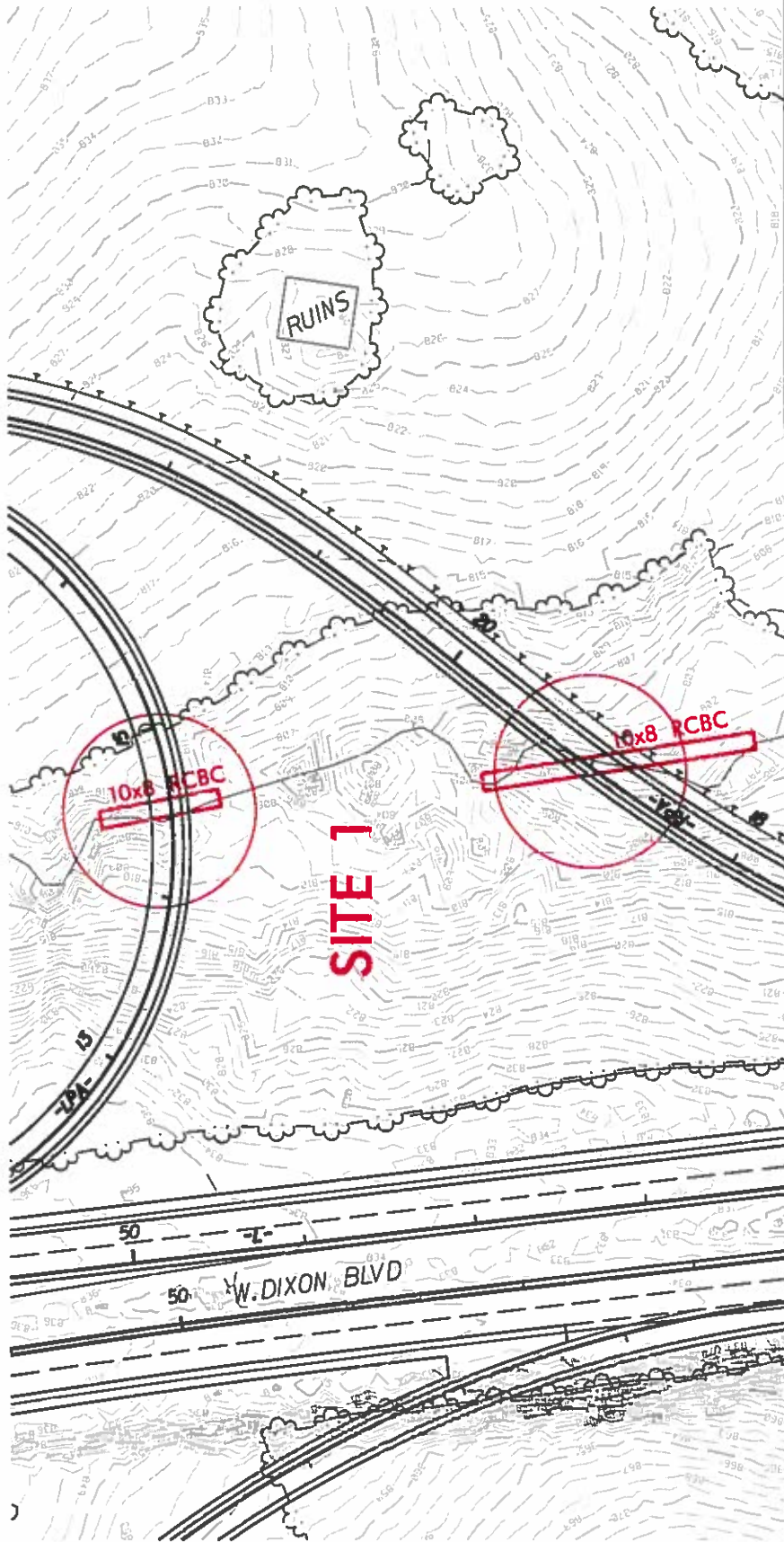
Based on the computed discharges the proposed culvert should be a 10' X 8" RCBC. The culvert should be buried a minimum of one foot below the existing stream bed and have a minimum of 2 feet of cover. The size of the proposed culvert and the recommended roadway elevation may be adjusted (increased or decreased) to accommodate design floods as determined in the final hydrologic study and hydraulic design.

**BROAD RIVER BASIN
WATER SUPPLY WATERSHED**



**N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
CLEVELAND COUNTY
PROJECT: 345980.1.1 (R-4045)
US 74 UPGRADE**

SITE 1 ENV SENSITIVITY MAP



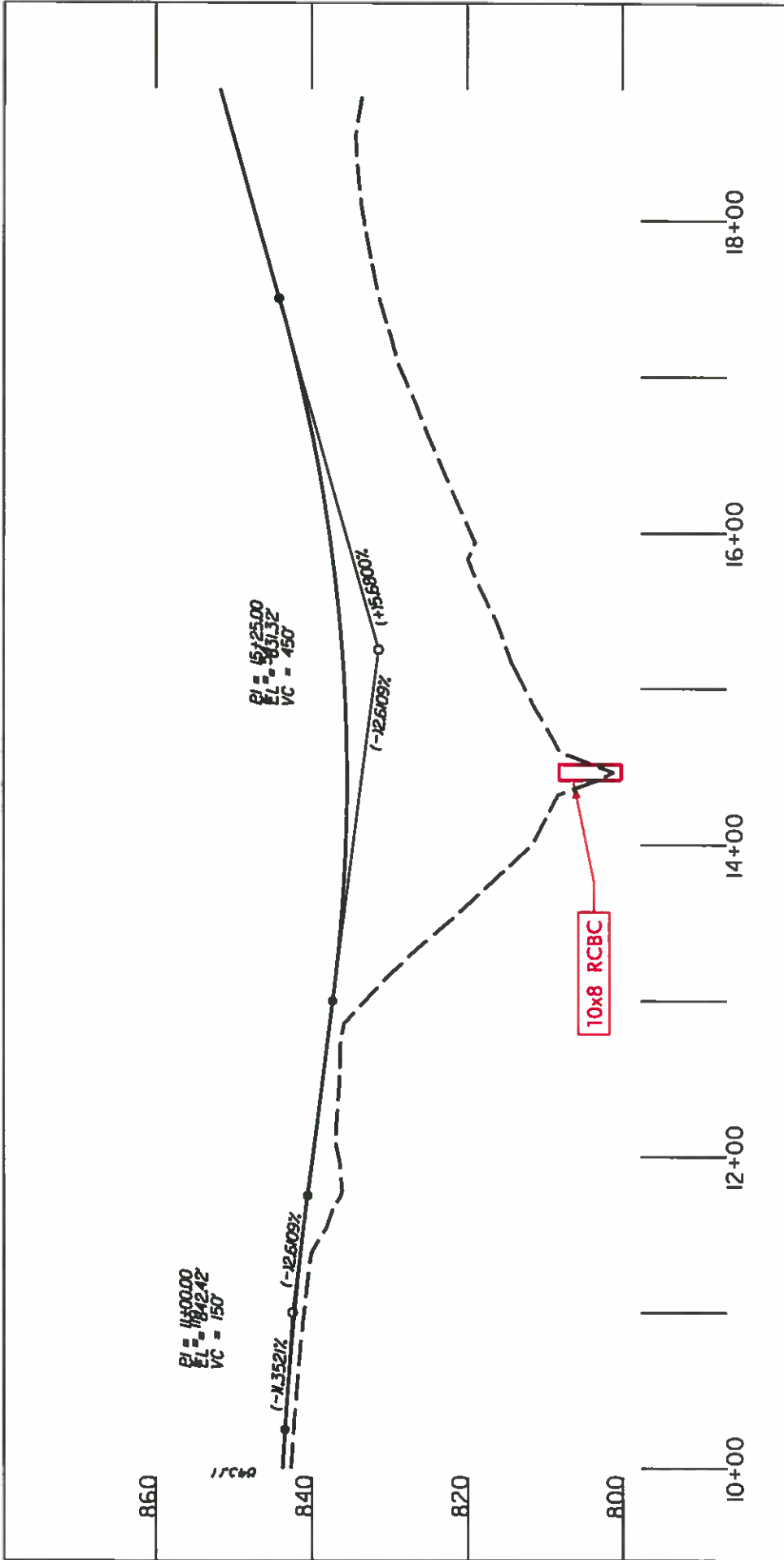
SITE 1

NCDOT
DIVISION OF HIGHWAYS
CLEVELAND COUNTY
PROJECT: 345960.1.1 (R-4046)

US 74 UPGRADE

SITE 1 PLAN VIEW

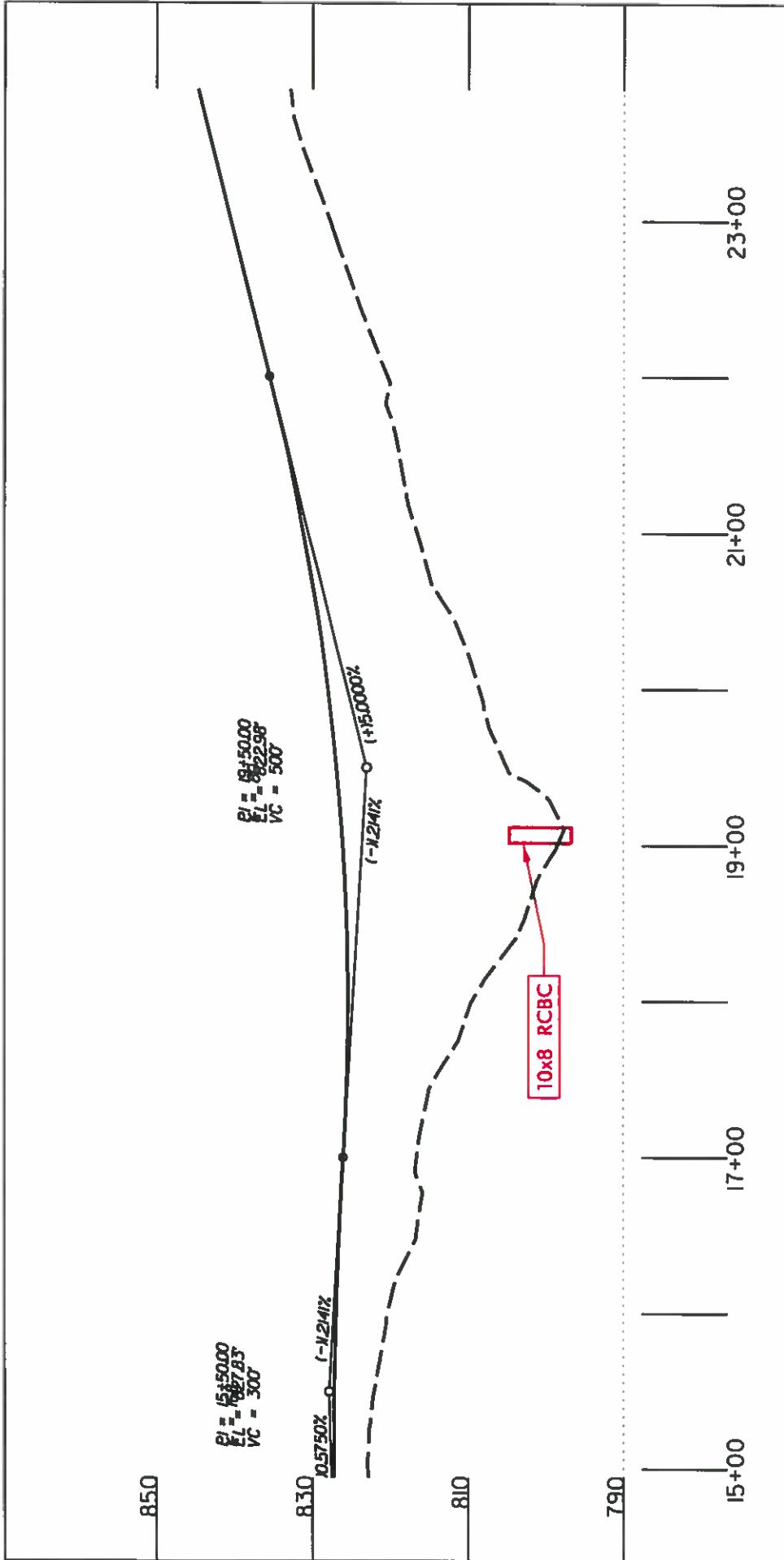




SITE 1 -LPA- PROFILE

NCDOT
 DIVISION OF HIGHWAYS
 CLEVELAND COUNTY
 PROJECT: 345980.1.1 (R-4045)

US 74 UPGRADE



SITE 1 -RPA - PROFILE

NCDOT
 DIVISION OF HIGHWAYS
 CLEVELAND COUNTY
 PROJECT: 345980.1.1 (R-4045)

US 74 UPGRADE

Site 2

TRIBUTARY TO SANDY RUN

SR 1168

CHECKLIST FOR PRELIMINARY HYDRAULIC INVESTIGATION

TIP No.: R-4045 Site 2

County: Transylvania

Prepared By: Sungate Design

ITEM No.	OFFICE DATA:		
1	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center; width: 10%;"><u>X</u></td> <td>PROJECT INITATION – research existing files</td> </tr> </table>	<u>X</u>	PROJECT INITATION – research existing files
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PRELIMINARY DESIGN AND ASSESSMENT STREAM CROSSING AND ENCROACHMENTS

COUNTY Cleveland PROJECT # R-4045
 STREAM Unnamed Tributary to Sandy Run - Site 2 ROUTE US-74
 ASSESSMENT PREPARED BY Sungate Design Group DATE December 4, 2012

HYDROLOGIC EVALUATIONS

NEAREST GAUGING STATION ON THIS STREAM: _____ (NONE X)

ARE FLOOD STUDIES AVAILABLE ON THIS STREAM: Yes

FLOOD DATA:

Q10 <u>220</u> cfs	EST. BKWTR. _____ FT.	Q25 <u>350</u> cfs	EST. BKWTR. _____ FT.
Q50 <u>400</u> cfs	EST. BKWTR. _____ FT.	Q100 <u>460</u> cfs	EST. BKWTR. _____ FT.
Q500 <u>750</u> cfs	OR OVERTOPPING CFS		EST. BKWTR. _____ FT.

DRAINAGE AREA 129 Acres METHOD USED TO COMPUTE Q USGS Urban Regression

PROPERTY RELATED EVALUATIONS

DAMAGE POTENTIAL: LOW X MODERATE _____ HIGH _____

COULD THIS BE SIGNIFICANTLY INCREASED BY PROPOSED

ENCROACHMENT: YES _____ NO X

EXPLANATION: _____

LIST BUILDINGS IN FLOOD PLAIN None observed. LOCATION N/A

FLOOR ELEVATION: N/A

UPSTREAM LAND USE: Rural

ANTICIPATE ANY CHANGE? Yes. Urbanization based on Zoning

ANY FLOOD ZONE? (FIA STUDIES, ETC.) YES _____ NO X

TYPE OF STUDY _____

BASE FLOOD ELEVATION _____ (100 YEAR)

REGULATORY FLOODWAY WIDTH _____ (AS NOTED IN FIA STUDIES)

COMMENTS: _____

TRAFFIC RELATED EVALUATIONS

PRESENT YEAR _____ TRAFFIC COUNT _____ VPD _____ % TRUCKS _____

DESIGN YEAR _____ TRAFFIC COUNT _____ VPD _____ % TRUCKS _____

EMERGENCY ROUTE _____ SCHOOL BUS ROUTE _____ MAIL ROUTE _____

DETOUR AVAILABLE? _____ LENGTH OF DETOUR _____ MILES

DOES THE LEVEL OF TRAFFIC SERVICE OF AN EXISTING CROSSING VARY GREATLY FROM STANDARD DESIGN LEVELS? _____

IS THE TRAFFIC VOLUME, TYPE, USAGE SUCH TO WARRANT CONSIDERATION FOR VARIANCE FROM STANDARDS OR EXISTING LEVEL OR INTERRUPTION? _____

COMMENTS: _____

HIGHWAY AND BRIDGE (CULVERT) RELATED EVALUATIONS

NOTE ANY OUTSIDE FEATURES WHICH MIGHT AFFECT STAGE, DISCHARGE OR FREQUENCY.

LEVEES _____ AGGRADATION/DEGRADATION _____ RESERVOIRS _____

DIVERSIONS _____ DRAINAGE DISTRICT _____ NAVIGATION _____

BACKWATER FROM ANOTHER SOURCE _____

EXPLANATION: _____

ROADWAY OVERFLOW SECTION (NONE) LENGTH _____ ELEVATION _____

EMBANKMENT: SOIL TYPE _____ TYPE SLOPE COVER _____

COMMENTS: _____

ENVIRONMENTAL CONSIDERATIONS

LIST SPECIAL CONDITIONS OR CONSIDERATIONS WHICH AFFECT HYDRAULIC DESIGN (NONE X)

MISCELLANEOUS COMMENTS

IS THERE UNUSUAL SCOUR POTENTIAL? YES _____ NO X PROTECTION NEEDED NO
 ARE BANKS STABLE? YES PROTECTION NEEDED NO
 DOES STREAM CARRY APPRECIABLE AMOUNT OF LARGE DEBRIS? NO

COMMENTS: _____

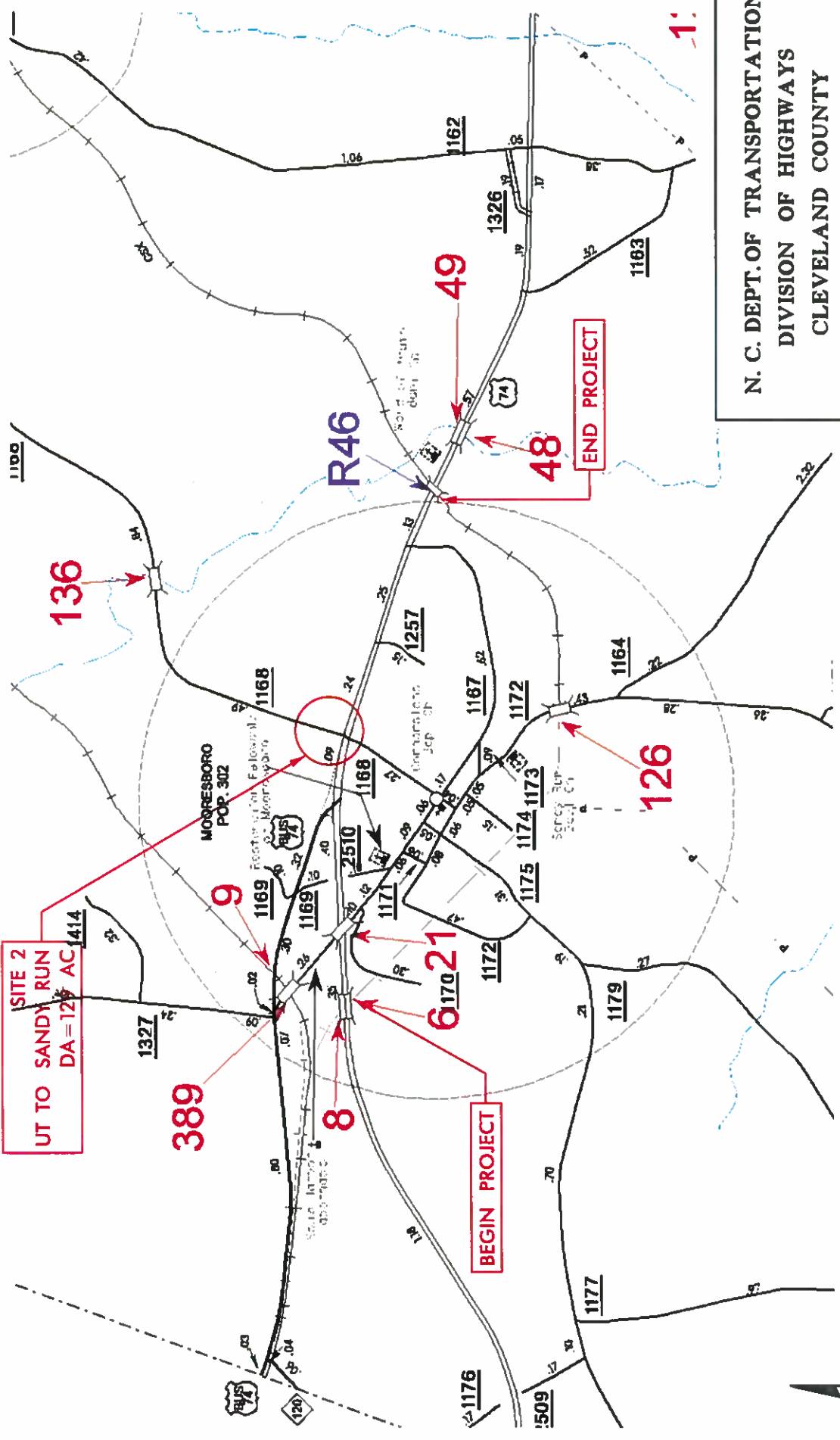
ALTERNATIVES

RECOMMENDED DESIGN Remove and replace existing 2@48" RCP with 10'X7' RCBC
 DETOUR STRUCTURE None Required
 LOW ROADWAY GRADE Match existing or raise grade if necessary DETOUR GRADE N/A
 BRIDGE WATERWAY OPENING N/A CULVERT OPENING 70 sq ft
 WERE OTHER HYDRAULIC ALTERNATES CONSIDERED? YES _____ NO X

DISCUSSION: |

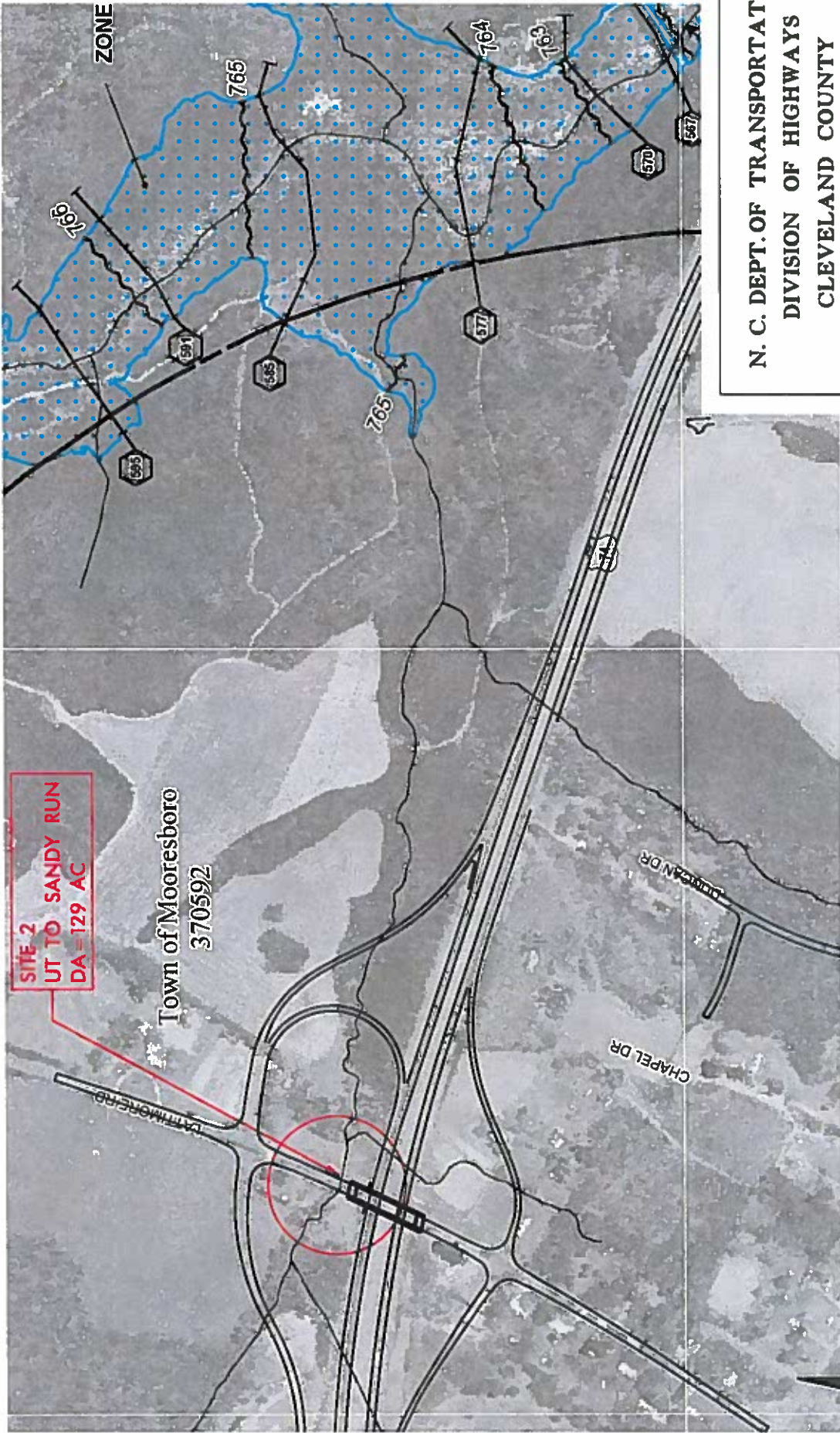
THIS SITE ASSESSMENT INDICATES THE DESIGN SHOULD FOLLOW:

- (1) X NORMAL PROCESS
 - (2) _____ NORMAL PROCESS WITH SPECIAL SPECIFIC CONSIDERATION FOR
 - (3) _____ SPECIFIC DESIGN PROCESS WITH APPROPRIATE RISK/ECONOMIC EVALUATION
- ADDRESSING: _____



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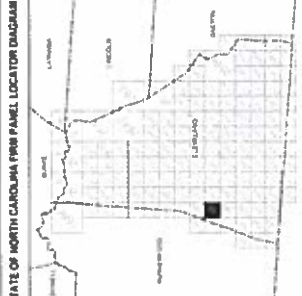
SITE 2 BRIDGE MAP



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SITE 2 DFIRM MAP



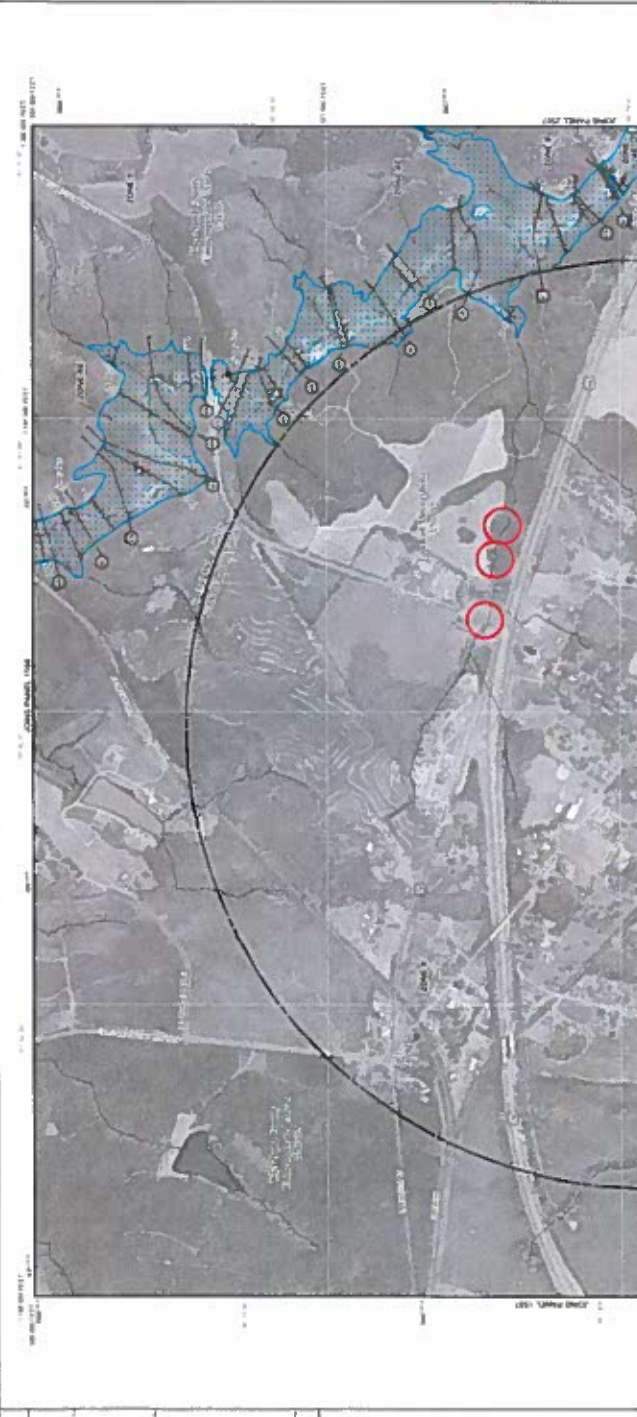
DATUM INFORMATION

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North Carolina Geographic Survey
10000 University City Blvd
Raleigh, NC 27617
919-733-7200
919-733-7200
www.ncgs.gov

LEGEND

- 100 Year Flood Hazard** - Flood hazard areas shown on the map are based on the 100-year return period flood hazard map prepared by the North Carolina Flood Insurance Study. The map shows the 100-year return period flood hazard for the Pamlico River basin in Wayne County, North Carolina. The map is based on a 100-year return period flood hazard map prepared by the North Carolina Flood Insurance Study. The map shows the 100-year return period flood hazard for the Pamlico River basin in Wayne County, North Carolina. The map is based on a 100-year return period flood hazard map prepared by the North Carolina Flood Insurance Study.
- Other Flood Hazard** - Flood hazard areas shown on the map are based on the other flood hazard map prepared by the North Carolina Flood Insurance Study. The map shows the other flood hazard for the Pamlico River basin in Wayne County, North Carolina. The map is based on an other flood hazard map prepared by the North Carolina Flood Insurance Study.
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Scale: 1" = 1,000 Feet
North Arrow

NOTES TO USERS

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FIRM FLOOD INSURANCE RATE MAP

North Carolina
FIRM #1597
Effective Date: February 28, 2008
Map Number: 3710159704J

STATE OF NORTH CAROLINA FIRM PANEL LOCATOR DIAGRAM

www.ncfloodmaps.com

NOTES TO USERS

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The map shows the 100-year return period flood hazard for the Pamlico River basin in Wayne County, North Carolina. The map is based on a 100-year return period flood hazard map prepared by the North Carolina Flood Insurance Study. The map shows the 100-year return period flood hazard for the Pamlico River basin in Wayne County, North Carolina. The map is based on a 100-year return period flood hazard map prepared by the North Carolina Flood Insurance Study.

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USGS Urban - Blue Ridge Piedmont

Project: R-4045
County: Cleveland - SR 1168

D.A. (Sq. Mi.) = 0.2
Impervious Area (%IA) = 25

Say

$Q_2 = 33.3DA^{0.739}IA^{0.686}$	=	92	90	cfs
$Q_5 = 78.9DA^{0.681}IA^{0.572}$	=	166	170	cfs
$Q_{10} = 122DA^{0.655}IA^{0.515}$	=	223	220	cfs
$Q_{25} = 228DA^{0.611}IA^{0.436}$	=	347	350	cfs
$Q_{50} = 296DA^{0.602}IA^{0.396}$	=	402	400	cfs
$Q_{100} = 374DA^{0.593}IA^{0.358}$	=	456	460	cfs

Site 2**Stream: Tributary to Sandy Run****Alternate: 4A**

Alternate 4A crosses the Tributary to Sandy Run Creek on existing SR 1168. The Tributary is located in the Broad River Basin. The drainage area at this location is approximately 129 acres. The drainage basin currently consists of single family homes and some businesses. According to the proposed zoning maps for Cleveland County the area within the watershed is zoned commercial and residential. According to NCDENR, the stream at this location is classified as WS-IV and is included on the 303d list of impaired streams.

Cleveland County is a participant in the Federal Flood Insurance Program. The proposed crossing is not located within a FEMA Study Area. Therefore, no FEMA involvement will be required.

Discharges for the site were calculated according to USGS Urban Regression Equations based on 25% impervious cover are as follows:

Q10 = 220 cfs

Q50 = 400 cfs

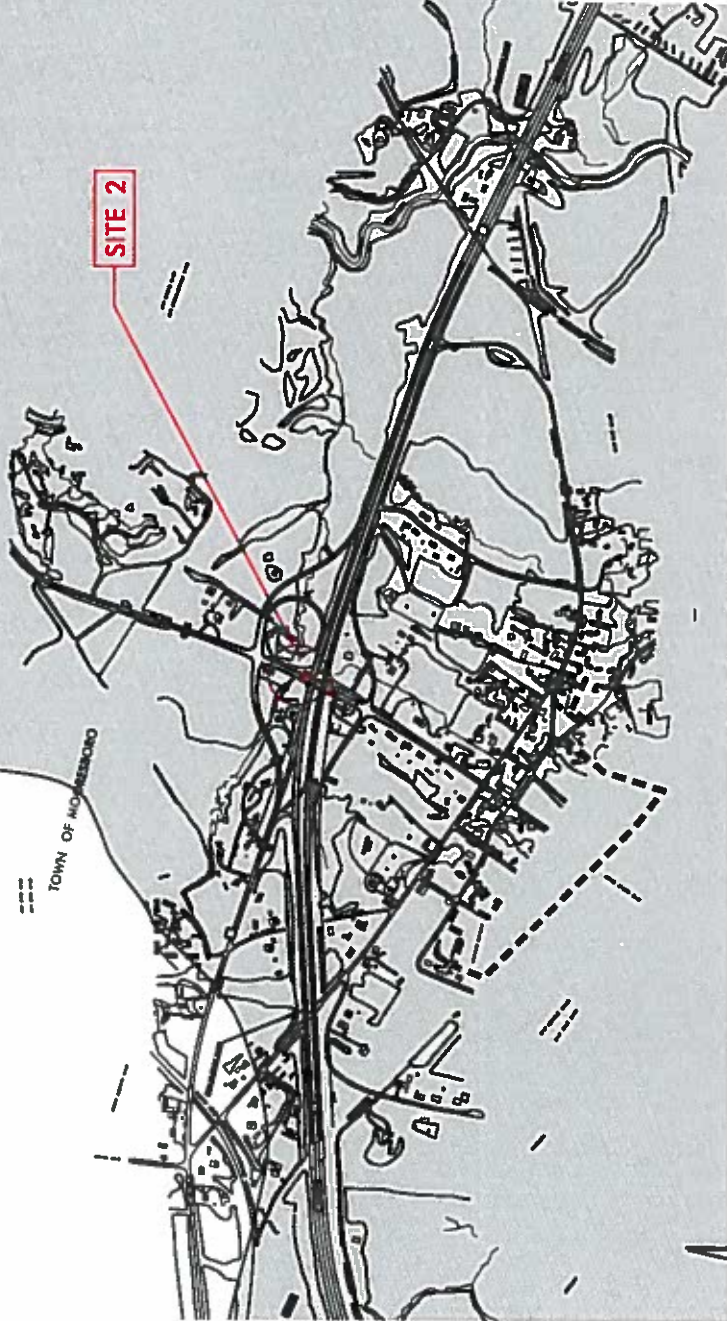
Q100 = 460 cfs

Q500 = 750 cfs

The existing culvert on SR 1168 is 2@ 48" RCP. It has been extended on the outlet end with 2@60" CMP. The stream channel at the inlet and outlet of the culvert is composed of sand and silt and is fairly straight and uniform with herbaceous vegetation on the banks.

Based on the available information, the existing 2 @ 48" RCP and extension should be removed and replaced. The proposed replacement should be a 10' X 7' RCBC with the invert buried a minimum of 1.0' below the existing stream bed. The culvert should have a minimum of two feet of cover. The size of the proposed culvert and the recommended roadway elevation may be adjusted (increased or decreased) to accommodate design floods as determined in the final hydrologic study and hydraulic design.

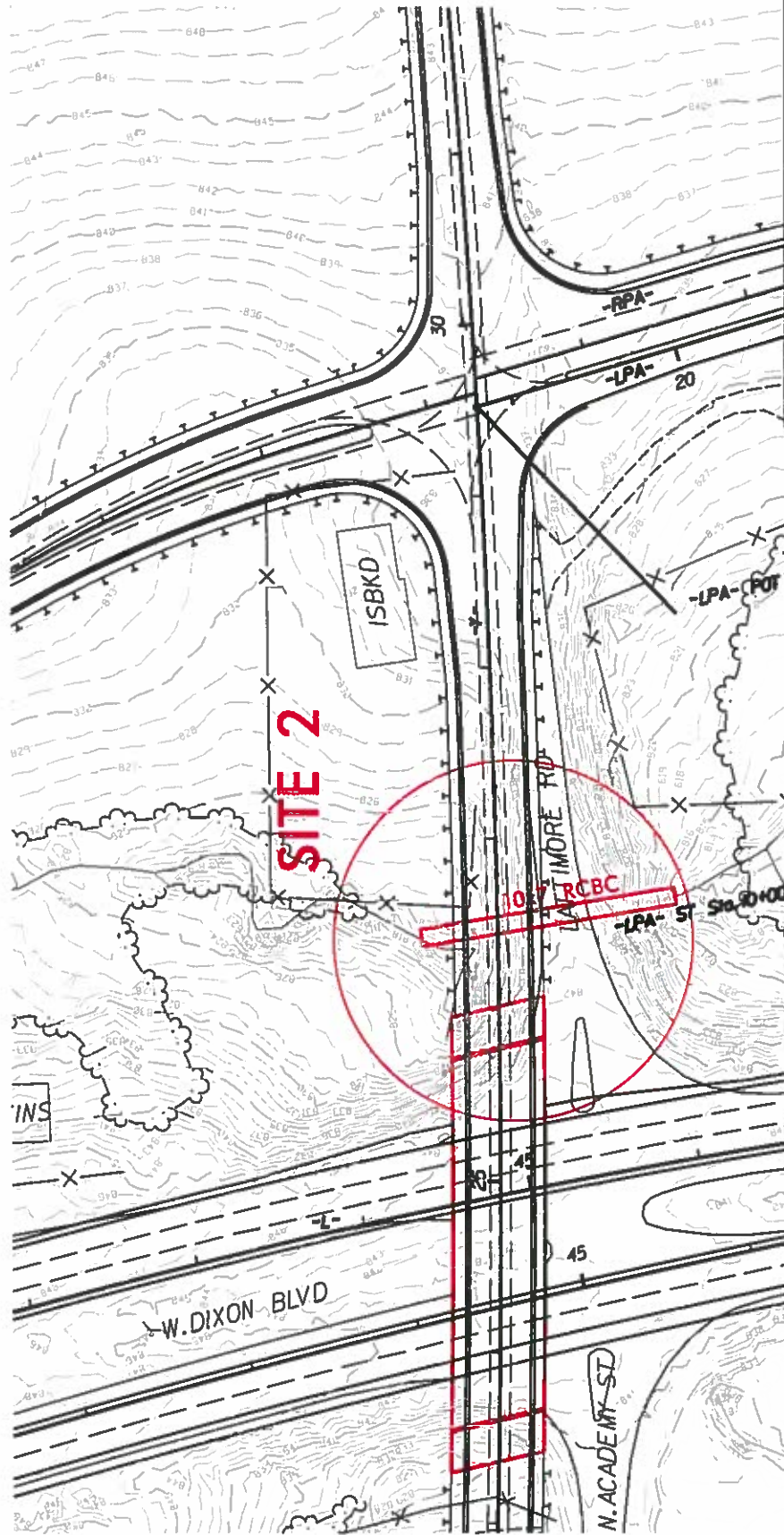
**BROAD RIVER BASIN
WATER SUPPLY WATERSHED**



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
CLEVELAND COUNTY
PROJECT: 345980.1.1 (R-4045)
US 74 UPGRADE

SITE 2 ENV SENSITIVITY MAP





NCDOT

**DIVISION OF HIGHWAYS
CLEVELAND COUNTY
PROJECT: 346980.1.1 (R-4046)**

US 74 UPGRADE

SITE 2 PLAN VIEW

PI = 25+55.00
EL = 874.35'
VC = 740'
K = 170

808

806

804

802

(+1.6817% -12.6719%)

10x7 RCBC

23+00

25+00

27+00

29+00

31+00

SITE 2 PROFILE

NCDOT

DIVISION OF HIGHWAYS
CLEVELAND COUNTY
PROJECT: 345980.1.1 (R-4046)

US 74 UPGRADE