STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 24, 2005

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1890
Wilmington, NC 28402-1890

ATTN: Mr. Richard Spencer
NCDOT Coordinator

Subject: **Application for Nationwide Permit 23 and 33.** Randolph County, Intersection Improvements to US 64/NC 49 and NC 42 in Asheboro, North Carolina, Federal Aid Project No. NHF 64(58), State Project No. 8.1572101, Division 8, WBS Element 34935.1.1, TIP Project No. U-3401.

Dear Sir:

Please find enclosed three copies of the Categorical Exclusion (CE) document along with a PCN form, project site map, permit drawings, and roadway design half size plans.

The North Carolina Department of Transportation (NCDOT) proposes to improve the intersection at US 64/NC 49 with NC 42. The cross-section for the new intersection consists of the lengthening and adding of a left turn lane with the addition of a 4 foot concrete island making the foot print of the roadway an 88 foot (F-F) curb and gutter section in the north bound approach to the intersection on US 64/NC 49. In the south bound approach to the intersection on US 64/NC 49 a right turn lane with taper will be added while widening the east side of the roadway to line up with the through lanes of the north bound direction. For NC 42 in the east bound approach to the intersection there will be two right turn lanes added and a through lane in the west bound direction which will end after about 600 feet. On the west bound approach to the intersection on NC 42 we will be adding two left turn lanes and a right turn lane in the west bound direction and then transition back to a two lane section. Traffic will be maintained on existing roadway during construction, with at least one lane open in all directions.

Waters of the U.S. potentially impacted by this project include two unnamed tributaries (UTs) to Vestal Creek. There are no jurisdictional wetlands identified within the proposed project area. Total permanent impacts to Waters of the US include 17 feet of existing channel impacted. Temporary impacts include 0.007 acre of fill in surface waters (Figure 10 of 10).

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH, NC 27604

IMPACTS TO WATERS OF THE UNITED STATES

General Description: Water resources within the proposed project area are located within the Cape Fear River Basin (Hydrological Cataloging Unit 03030003). UT1 & UT2 to Vestal Creek are the only jurisdictional water resources that will be impacted within the project area. Unnamed tributaries receive the same classification as the streams to which they flow. The classification by the Division of Water Quality for Vestal Creek (DEM Index No. 17-22-4) is C. **Neither High Quality Waters (HQW), Water Supplies (WS-I or WS-II), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project area.**

Wetland Impacts: There are no jurisdictional wetlands identified within the proposed project area.

Stream Impacts: Stream impacts will consist of permanent and temporary impacts.

Permanent Impacts

Site 1: No permanent impacts are associated with Site 1.

Site 2: Permanent impacts will consist of approximately 17 linear feet of jurisdictional stream at Site 2 (30+25-Y-RT). Permanent impacts associated with this site will be associated with installation of a 7 x 7 reinforced concrete box culvert (see Figure 6 of 10). See culvert construction phasing below for details.

Temporary Impacts

Site 1: Temporary impacts consist of approximately 0.003 acre of temporary fill at Site 1 (5+36-Y-LT). Impacts associated with construction activities at Site 1 include placing rip-rap on the embankment (see Detail B, Figure 4 of 10). NCDOT will not place any rip-rap in the stream and there will be no fill or dewatering. NCDOT doesn't anticipate any impacts to the stream, but to be conservative NCDOT showed temporary impacts in the work area.

A temporary detour will be established at Lakecrest Road (Figure 4 of 10). The road will have to be closed for construction and it is the only access for adjacent businesses. The temporary detour will run beside -Y1- to maintain traffic to businesses during construction. The temporary detour will be constructed along a paved ditch. If damaged by the temporary detour, the paved ditch will be repaired or replaced (see note, Figure 4 of 10). This temporary detour will not permanently impact any jurisdictional sites.

Site 2: Temporary impacts consist of 0.004 acre of temporary fill at Site 2. Temporary impacts associated with this site will be associated with installation of a 7 x 7 reinforced concrete box culvert including temporary ditches, pipes and stilling basins. See culvert construction phasing below for details.

Utility Impacts: There will be no permanent utility impacts associated with this project.

Culvert Construction Phasing: see attached Figure CS-1 & CS-2 for further details.

Phase I.

1. Construct sediment control devices.
2. Construct the on-site detour and temporary ditch on the left side of -Y-.
3. Install a temporary stilling basin (27 cubic yards min.) on the right side of -Y-.
4. Once traffic has been shifted to the on-site detour, install an 18" minimum corrugated steel temporary diversion pipe with impervious dikes to carry flow from upstream of the work area to an area beyond the construction area.
5. Construct required temporary shoring.
6. Remove 72" corrugated metal pipe 40'$^{+/-}$ of existing 5'x5' box culvert to allow for construction of the proposed southern portion of the culvert, while pumping effluent into stilling basin.
7. While traffic is maintained on the newly constructed on-site detour, construct as much of the proposed southern (downstream) portion of the culvert as possible.
8. Remove Phase I 18" temporary diversion pipe and impervious dikes.

Phase II.

9. Construct proposed roadway right of -Y- over newly constructed culvert with required temporary shoring.
10. Once traffic has been shifted to the newly constructed roadway, install 18" minimum corrugated steel temporary diversion pipes with wye and impervious dikes to carry flow from the existing private system and from the channel upstream of the work area to an area beyond the construction area.
11. Remove temporary pavement, as needed, from the no longer used on-site detour, to construct the proposed ditch on the left side of -Y-. Install 18" minimum corrugated steel temporary diversion pipe with elbow and impervious dike, to carry flow from the ditch to upstream of the temporary diversion pipe. Construct impervious dike for the existing private system.
12. Remove remaining 5'x5' box culvert, 60" concrete pipe, 2 manholes, 54" concrete Open Throat Catch Basin (OTCB), and 12'$^{+/-}$ of 60" concrete from existing private system while pumping effluent into stilling basin.
13. Construct the remaining northern (upstream) portion of the culvert.
14. Remove the temporary pipe that is carrying flow from the upstream channel and construct the proposed junction box and 72" reinforced concrete open-end pipe. After proposed junction box is complete, construct to graded inlet at STA. 29+90-Y- and tie it to the proposed junction box at the culvert inlet. Remove temporary diversion pipe from ditch. Collar and extend 60" concrete from private system to tie it to the proposed junction box.
15. Upon permanent stabilization of all disturbed areas, remove all temporary sediment control devices including temporary ditches, pipes, and stilling basins.

Restoration Plan:

Site 1: NCDOT will not place any rip-rap in the stream and there will be no fill or dewatering. NCDOT doesn't anticipate any permanent impacts to the UT2 to Vestal Creek. The temporary detour will be constructed along a paved ditch. If damaged by the temporary detour, the paved ditch will be repaired or replaced.

Site 2. Should materials be used as temporary fill in the surface waters during the construction, they will be removed. The temporary fill area will be graded back to the

original contours. Re-vegetation will occur with native species (see attached Figure FR-1). Elevations and contours in the vicinity of the proposed construction are available from field survey notes.

Schedule for Construction: It is assumed that the Contractor will begin construction of the proposed improvements of the intersection at US 64/NC 49 and NC 42 shortly after the date of availability for the project. The let date is August 16, 2006 with a date of availability on September 27, 2006.

INDIRECT AND CUMULATIVE IMPACTS

A copy of the Indirect and Cumulative Impact Study has been included in this application for your review (see pp.16-17 in the Community Impact Assessment, Appendix C of the attached CE). Indirect impacts are those impacts that occur because of an event such as the proposed transportation improvements at the intersection of Dixie Drive and NC 42. As the proposed project primarily entails the reconfiguration of and improvements to an existing intersection to improve traffic flow and safety, the project should have minimal indirect and cumulative impacts in the study area.

There are no 303(d) listed streams within one mile of the project area. Furthermore, Vestal Creek and Squirrel Creek are not registered as biologically impaired on the North Carolina Impaired Waters List 303(d) Report (February 2003).

CULTURAL RESOURCES

Archaeological Resources

The State Historic Preservation Office (SHPO) has reviewed the project and is aware of no properties of historic or archeological importance within the proposed project area. Consequently, no archaeological survey was recommended.

Historic Architectural Resources

The State Historic Preservation Office (SHPO) has reviewed the project and is aware of no historic architectural sites within the proposed project area.

AVOIDANCE, MINIMIZATION, AND MITIGATION

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional stages; minimization measures were incorporated as part of the project design.

Site 1: Minimization strategies employed at Site 1 avoided all permanent impacts to UT2 to Vestal Creek.

Site 2: Despite the minimization strategies employed for the proposed project, unavoidable permanent stream impacts will occur at Site 2, UT1 to Vestal Creek.

Although impacts do occur, UT 1 and UT 2 to Vestal Creek do not require mitigation due to both streams being severely degraded as described by Mr. Richard Spencer of the US Army Corps of Engineers. During an April 7, 2005 field visit, Mr. Spencer explained that UT1 and UT 2 to Vestal Creek require no mitigation due to their low aquatic function.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the United States Fish and Wildlife Service (USFWS) lists two federally protected species for Randolph County (Table 1).

Table 1. Federally protected species for Randolph County.

Common Name	Scientific Name	Status	Biological Conclusion
Cape Fear Shiner	Notropis mekistocholas	Endangered	No Effect
Schweinitz's sunflower	Helianthus schweinitzii	Endangered	May Affect, Not Likely to Adversely Affect

E: Endangered species are in danger of extinction throughout all or a significant portion of its range.

A review of the NCNHP database of rare species and unique habitats on April 19, 2005 revealed one element occurrence of Schweinitz's sunflower within one mile of the project area and no record of the Cape Fear shiner. During a September 26, 2004 field survey, approximately 50 plants were observed 0.4 mile outside the project area. In a letter dated February 1, 2005, USFWS concurred with NCDOT's biological conclusions of "May Affect-Not Likely to Adversely Affect" for *Helianthus schweinitzii* and "No Effect" for *Notropis mekistocholas* (see attached letter).

REGULATORY APPROVALS

Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit, but propose to proceed under a Nationwide Permit 23 and a Nationwide Permit 33.

Section 401 Permit: We anticipate 401 General Certification numbers 3403 and 3366 will apply to this project. The NCDOT will adhere to all general conditions of the Water Quality Certification. Therefore, in accordance with 15A NCAC 2H, Section .0500(a) we are providing

two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their review.

A copy of this permit application will be posted on the NCDOT website at: http://www.ncdot.org/planning/pe/naturalunit/Permit.html.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Ms. Cheryl Knepp at cknepp@dot.state.nc.us or (919) 715-1489.

Sincerely,

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

cc:
w/attachment

Mr. John Hennessy, NCDWQ
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Terry Gibson, P.E., Division Engineer
Mr. Jim Rerko, Division Environmental Officer

w/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Franklin, USACE, Wilmington
Ms. Stephanie Caudill, P.E., PDEA Project Planning

Office Use Only: Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☒ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 23/33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☐

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
   Name: NC Department of Transportation
   Mailing Address: 1598 Mail Service Center
   Raleigh, NC 27699-1598
   Telephone Number: 919-715-1500 Fax Number: 919-715-1501
   E-mail Address:

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: N/A
   Company Affiliation:
   Mailing Address:
   Telephone Number: Fax Number:
   E-mail Address:

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Intersection Improvements to US 64/NC 49 and NC 42 in Asheboro, NC.

2. T.I.P. Project Number or State Project Number (NCDOT Only): U-3401

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Randolph Nearest Town: Asheboro
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): Intersection of US 64 and NC 42 in Asheboro, NC.

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 35°41'54.27" N 79°47'15.75" W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Vestal Creek

8. River Basin: Cape Fear
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is comprised of commercial development, residential development, and disturbed land in Randolph County. The project area is located in the Piedmont physiographic province.

10. Describe the overall project in detail, including the type of equipment to be used: The proposed project will consist of improving the intersection at US 64/NC 49 and NC 42. The cross section for the new intersection includes an additional southbound through lane and a northbound left turn lane along US 64/NC 49 as well as a west bound right turn lane with a taper, and an east bound right turn lane along NC 42. Traffic will be maintained during construction with at least one lane open in all directions. Construction equipment will consist of heavy duty trucks, and earth moving equipment.

11. Explain the purpose of the proposed work: The purpose of the proposed project is to allow additional turning movements along US 64/NC 49 and NC 42, thereby removing traffic from through lanes in order to improve capacity, level of service, and more efficient traffic operations at the intersection.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for

wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: The project area contains no jurisdictional wetlands. Stream impacts will consist of permanent and temporary impacts as a result of project construction. Permanent impacts will consist of approximately 17.0 linear ft of jurisdictional stream at Site 2. Temporary stream impacts will consist of approximately 18.0 linear ft of jurisdictional stream at Site 1 and approximately 26.0 linear ft of jurisdictional stream at Site 2.
2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
N/A					
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property: 0 acre

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	UT2 Vestal Creek	Temporary fill	Perennial	3'	18'	0.003
2	UT1 to Vestal	Temporary fill	Perennial	4-5'	26'	0.004
3	UT1 to Vestal	Permanent fill	Perennial	4-5'	17'	0.005
Total Stream Impact (by length and acreage)					61'	0.012

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				
Total Open Water Impact (acres)				

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	0.012
Wetland Impact (acres):	0
Open Water Impact (acres):	
Total Impact to Waters of the U.S. (acres)	0.012
Total Stream Impact (linear feet):	61'

7. Isolated Waters
Do any isolated waters exist on the property? ☐ Yes ☒ No
Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.
N/A

8. Pond Creation
If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A
Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): N/A
Current land use in the vicinity of the pond: N/A
Size of watershed draining to pond: N/A Expected pond surface area: N/A

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

Despite the minimization strategies employed for the proposed project, 0.003 ac. of temporary fill will impact UT 2 to Vestal Creek (Site 1). The proposed permanent and temporary fill impacts to UT1 (Site 2) are 0.005 ac. and 0.004 ac. Although impacts do occur, UT 1 and UT 2 to Vestal Creek do not require mitigation due to both streams being severely impaired as explained by Mr. Richard Spencer of the US Army Corps of Engineers. Mr. Spencer stated, in a April 7, 2005 field visit, that UT 1 and UT 2 are jurisdictional requiring no mitigation because of their low aquatic function. Constructions sequencing and dewatering plans are included in the permit application.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   ACOE representative Mr. Richard Spencer stated, in an April 7, 2005 field visit, that UT 1 and UT 2 are jurisdictional requiring no mitigation due to their low aquatic function.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

Amount of stream mitigation requested (linear feet): 0
Amount of buffer mitigation requested (square feet): 0
Amount of Riparian wetland mitigation requested (acres): 0
Amount of Non-riparian wetland mitigation requested (acres): 0
Amount of Coastal wetland mitigation requested (acres): 0

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes ☒ No ☐

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation. Yes ☒ No ☐

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? Yes ☐ No ☒

2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3 (2 for Catawba)	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level.

N/A

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐ No ☒

Is this an after-the-fact permit application? Yes ☐ No ☒

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒

If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:_____

_____

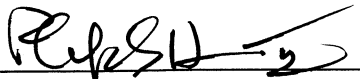
_____

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

_____

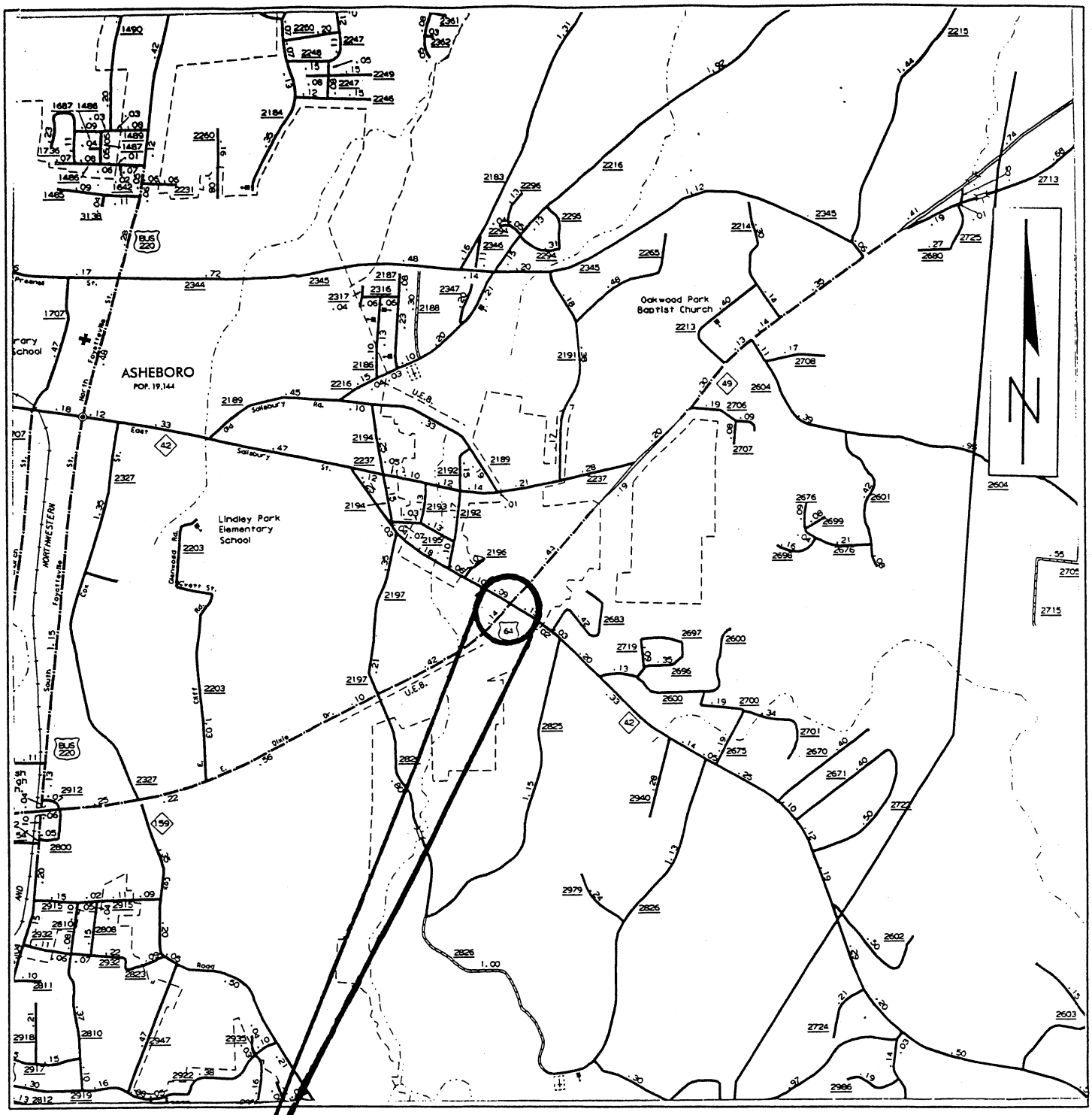
_____



5/24/05

Applicant/Agent's Signature **Date**

(Agent's signature is valid only if an authorization letter from the applicant is provided.)



North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

Randolph County
Asheboro Intersection of US 64
NC 49 And NC 42
U-3401

SCALE: not to scale

Figure 1 of 10

PROPERTY OWNER CONTACT LIST

Parcel #	Last Name	First Name	Address	City/Town	State	Zip Code
17	ALLEN	RUTH	231 INWOOD RD	ASHEBORO	NC	27205
NO PARCEL #	BRAY	RUTH	352 SHERWOOD OAKS #13	ASHEBORO	NC	27205
10	THOMAS	DANIEL	624 S FAYETTEVILLE ST	ASHEBORO	NC	27203

Project # 34935.1.1
Tip # U-3401
Randolph County

Intersection at US 64 and NC 49 and NC 42
in Asheboro

3/10/2005

09/08/05

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

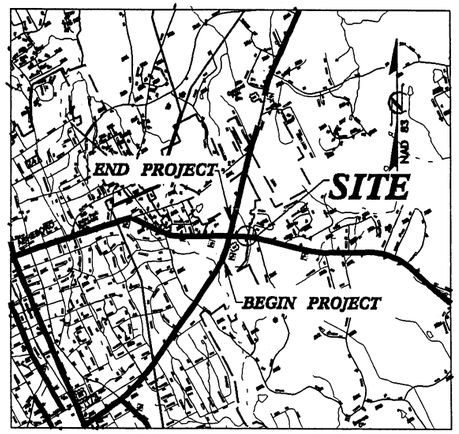
RANDOLPH COUNTY

LOCATION: INTERSECTION AT US 64/NC 49 AND NC 42 IN ASHEBORO

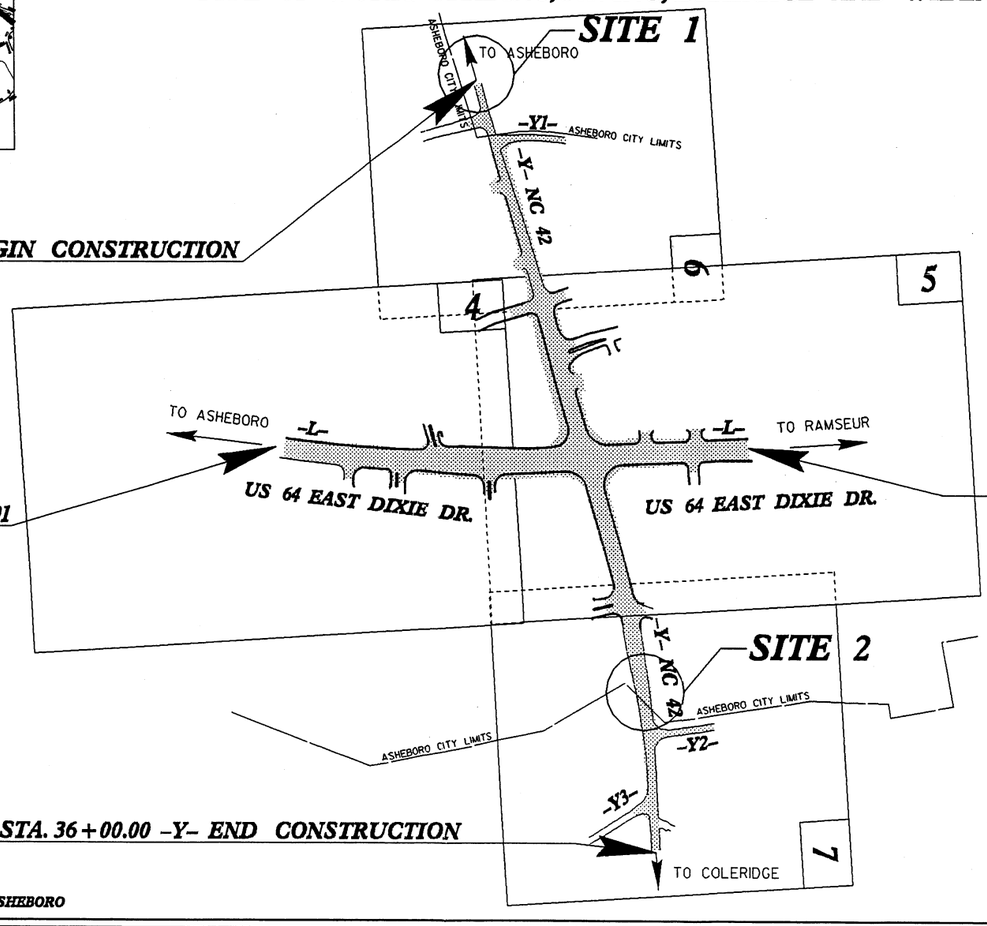
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND WIDENING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3401	Figure 3 of 10	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34935.1.1	NHF-65(58)	PE	

PERMIT DRAWINGS



VICINITY MAP



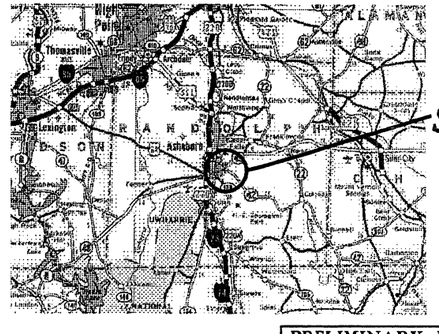
STA. 5+00.00 -Y- BEGIN CONSTRUCTION

STA. 9+00.00 -L- BEGIN TIP PROJECT U-3401

STA. 24+21.00 -L- END TIP PROJECT U-3401

STA. 36+00.00 -Y- END CONSTRUCTION

NAD 83



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ASHEBORO

TIP PROJECT: U-3401

CONTRACT: CONTRACT

11-MAR-2005 09:44
R:\Hydraulics\PERMIT\U3401_VICINITY_MAP.dgn
beanderson AT

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2004 = 18,000
ADT 2025 = 32,900
DHV = 10 %
D = 55 %
T = 10 % *
V = 45 MPH

* TTST 6% DUAL 4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3401 = 0.29 MI
TOTAL LENGTH ROADWAY TIP PROJECT U-3401 = 0.29 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 17, 2004

LETTING DATE: AUGUST 16, 2005

G. E. BREW, PE
PROJECT ENGINEER

W. T. BEST
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER *P.E.*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

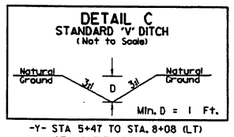
PROJECT REFERENCE NO.	SHEET NO.
U-3401	Figure 4 of 10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

50 0 25 50
SCALE: 1"= 100' HORIZ.

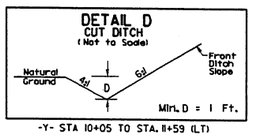
NAD 83

DETAIL C
STANDARD 'V' DITCH
(Not to Scale)



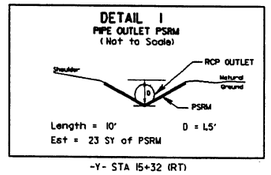
-Y- STA 5+47 TO STA. 8+08 (LT)
-Y- STA 8+51 TO STA. 10+00 (LT)

DETAIL D
CUT DITCH
(Not to Scale)



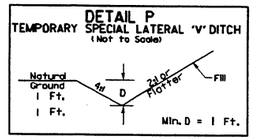
-Y- STA 10+05 TO STA. 11+59 (LT)

DETAIL I
PIPE OUTLET PSRM
(Not to Scale)



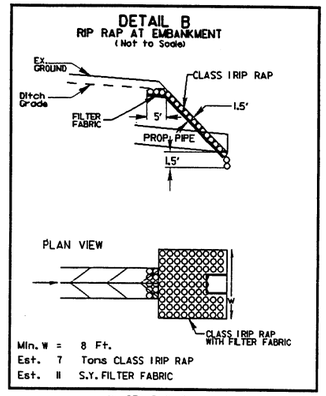
-Y- STA 15+32 (RT)

DETAIL P
TEMPORARY SPECIAL LATERAL 'V' DITCH
(Not to Scale)



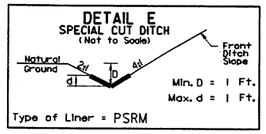
-YIDET- STA. 10+88 TO 12+00 (RT)

DETAIL B
RIP RAP AT EMBANKMENT
(Not to Scale)



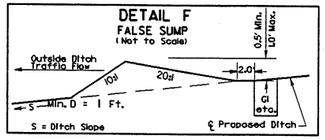
-Y- STA 5+46 (LT)

DETAIL E
SPECIAL CUT DITCH
(Not to Scale)



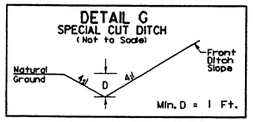
-YI- STA 10+00 TO STA. 11+16 (LT)

DETAIL F
FALSE SUMP
(Not to Scale)



-Y- STA 10+04 (LT)

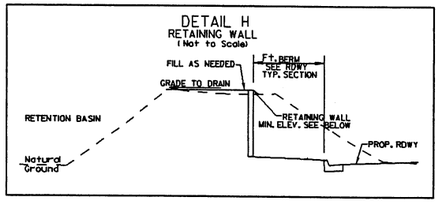
DETAIL G
SPECIAL CUT DITCH
(Not to Scale)



-Y- STA 9+60 TO STA. 15+32 (RT)

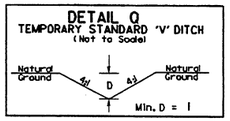
TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

DETAIL H
RETAINING WALL
(Not to Scale)



-Y- STA 12+16 TO STA. 12+92 (LT) MIN ELEV=795.22
-Y- STA 17+16 TO STA. 17+60 (LT) MIN ELEV=799.00
-YI- STA 11+26 TO STA. 11+60 (LT) MIN ELEV=795.22

DETAIL Q
TEMPORARY STANDARD 'V' DITCH
(Not to Scale)



SITE 1

PERENNIAL STREAM

POT Sta. 5+00.00 -Y-
BEGIN CONSTRUCTION

POT Sta. 10+00.00 -YI-
END CONSTRUCTION

NOTE:
REPAIR OR REPLACE PAVED DITCH IF DAMAGED BY TEMP. DETOUR, AS DIRECTED BY THE ENGINEER

REALTY INCOME CORPORATION

HARVON PROPERTIES LTD

SPECIALTY SHOPS ON 42 OWNERS ASSOCIATION
DB 1404 PG 283
PB 48 PG 56

RANDOLPH ELECTRIC MEMBERSHIP CORPORATION

RANDOLPH-ASHEBORO YMCA

BOWLING CENTER INC

CHARLES GREER

MINATURE GOLF COURSE

RUTH BRAY

SHIRLEY LOWRANCE

BURNS SPOON

ASHEBORO CITY LIMITS

LAKECREST ROAD (SR 1257)

S75°21'49"E 408.82'

S60°57'04"E 164.79'

-Y- 16+63.09
MAINLINE SEE SHEET 5

STA. 17+16.17
BEG. RET. WALL

EX. STORMWATER MAIN

SPECIAL CUT DITCH W/PSRM SEE DETAIL E

STA. 10+62.05 -YI- BEG. SUPER TRANSITION

REMOVE 16'+/- COLLAR AND EXTEND

+/- EX. 18" CONC

PSRM AT PIPE OUTLET SEE DETAIL I

DO NOT DISTURB SIGN

SPECIAL CUT DITCH SEE DETAIL G

RIP RAP AT EMBANKMENT SEE DETAIL B

STANDARD 'V' DITCH SEE DETAIL C

FALSE SUMP SEE DETAIL F

CUT DITCH SEE DETAIL D

TEMP. FILL IN SURFACE WATERS

GAP FOR DRAINAGE

R/W REVISION: ADDED NOTE: "DO NOT DISTURB SIGN" FOR PARCEL 3 &13. WTB 3/7/05

REVISIONS

14-MAR-2005 08:42
R:\Hydraulics\PERMIT\U3401_HYD_PERMIT_052404.dgn
jennifer.sorg

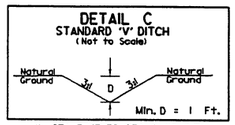
PROJECT REFERENCE NO.	SHEET NO.
U-3401	Figure 5 of 10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

50 0 25 50
SCALE: 1"= 100' HORIZ.

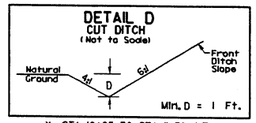
NAD 83

DETAIL C
STANDARD 'V' DITCH
(Not to Scale)



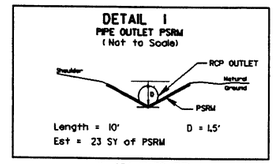
-Y- STA 5+47 TO STA. 8+08 (LT)
-Y- STA 8+51 TO STA. 10+00 (LT)

DETAIL D
CUT DITCH
(Not to Scale)



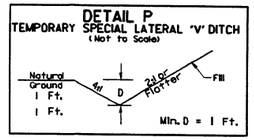
-Y- STA 10+05 TO STA. 11+59 (LT)

DETAIL I
PIPE OUTLET PSRM
(Not to Scale)



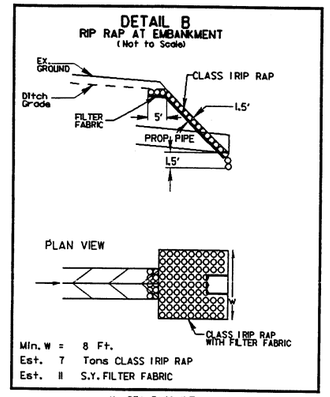
-Y- STA. 15+32 (RT)

DETAIL P
TEMPORARY SPECIAL LATERAL 'V' DITCH
(Not to Scale)



-YIDET- STA. 10+88 TO 12+00 (RT)

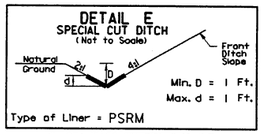
DETAIL B
RIP RAP AT EMBANKMENT
(Not to Scale)



Min. W = 8 Ft.
Est. 7 Tons CLASS I RIP RAP
Est. 11 S.Y. FILTER FABRIC

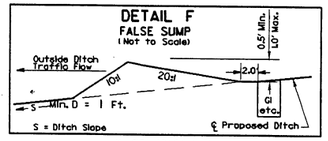
-Y- STA 5+46 (LT)

DETAIL E
SPECIAL CUT DITCH
(Not to Scale)



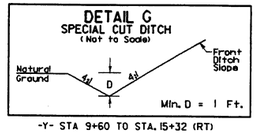
-Y1- STA 10+00 TO STA. 11+16 (LT)

DETAIL F
FALSE SUMP
(Not to Scale)



-Y- STA 10+04 (LT)

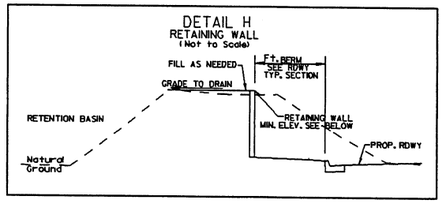
DETAIL G
SPECIAL CUT DITCH
(Not to Scale)



-Y- STA 9+60 TO STA. 15+32 (RT)

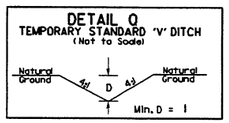
TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

DETAIL H
RETAINING WALL
(Not to Scale)



-Y- STA 12+16 TO STA. 12+92 (LT) MIN ELEV=795.22
-Y- STA 17+16 TO STA. 17+60 (LT) MIN ELEV=799.00
-Y1- STA 11+26 TO STA. 11+60 (LT) MIN ELEV=795.22

DETAIL Q
TEMPORARY STANDARD 'V' DITCH
(Not to Scale)



SITE 1

POT Sta. 5+00.00 -Y-
BEGIN CONSTRUCTION

POT Sta. 10+00.00 -Y1-
END CONSTRUCTION

NOTE:
REPAIR OR REPLACE PAVED DITCH IF DAMAGED BY TEMP. DETOUR, AS DIRECTED BY THE ENGINEER

PERENNIAL STREAM

GAP FOR DRAINAGE

RIP RAP AT EMBANKMENT SEE DETAIL B

TEMP. FILL IN SURFACE WATERS

STANDARD 'V' DITCH SEE DETAIL C

CUT DITCH SEE DETAIL D

FALSE SUMP SEE DETAIL F

SPECIAL CUT DITCH W/PSRM SEE DETAIL E

PSRM AT PIPE OUTLET SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL G

DO NOT DISTURB SIGN

RUTH BRAY

SHIRLEY LOWRANCE

BURNS SPOON

CHARLES GREER

RANDOLPH ELECTRIC MEMBERSHIP CORPORATION

RANDOLPH-ASHEBORO YMCA

BOWLING CENTER INC

MINIATURE GOLF COURSE

REALTY INCOME CORPORATION

HARVON PROPERTIES LTD

SPECIALTY SHOPS ON 42 OWNERS ASSOCIATION
DB 1404 PG 283
PB 48 PG 56

ASHEBORO CITY LIMITS

MACHLINE SEE SHEET 5

-Y- 16+63.09

STA. 17+16.17 BEG. RET. WALL

EX. STORMWATER BASIN

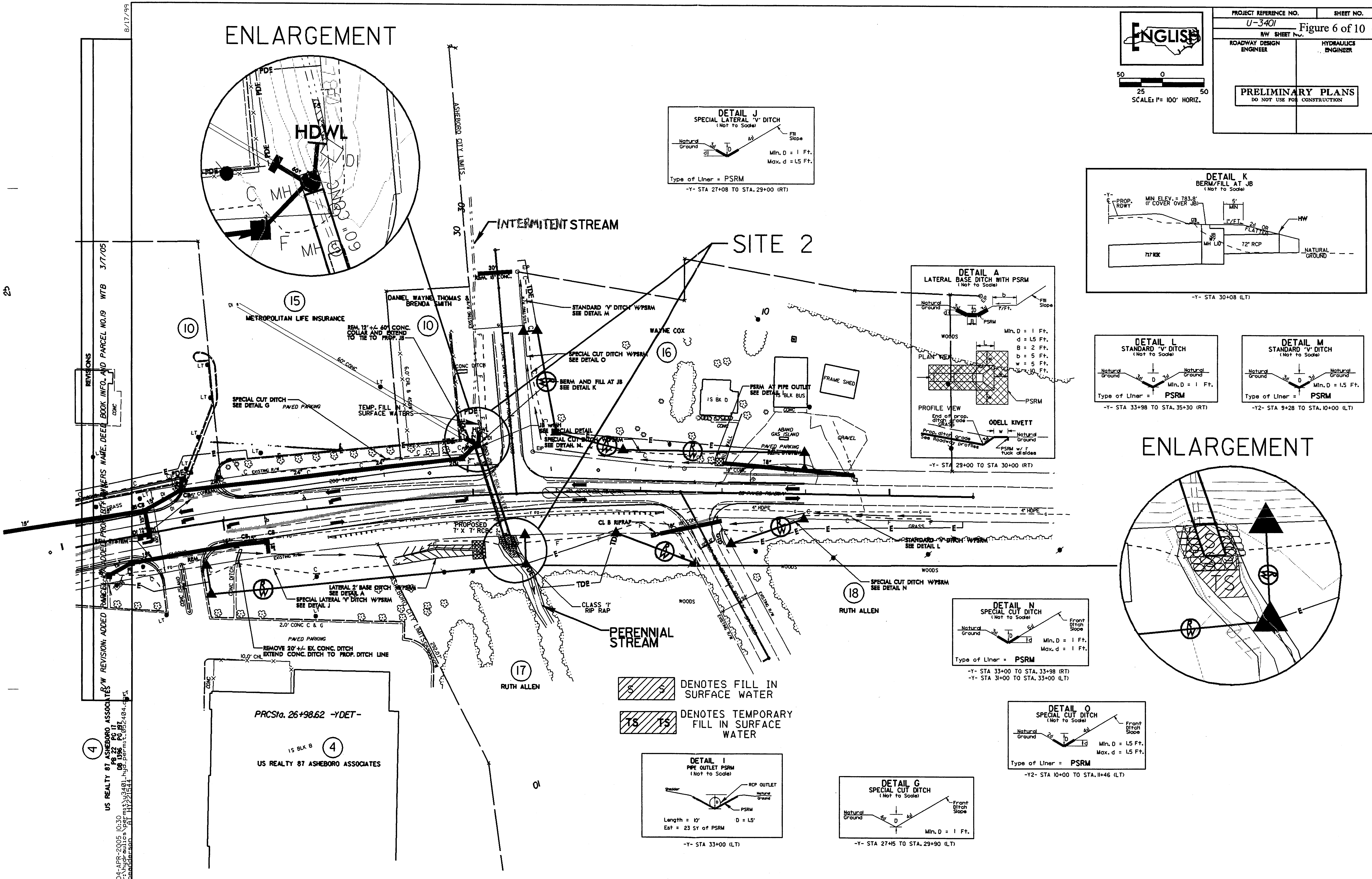
REMOVE 16'+/- COLLAR AND EXTEND

S75°21'49"E 408.82'

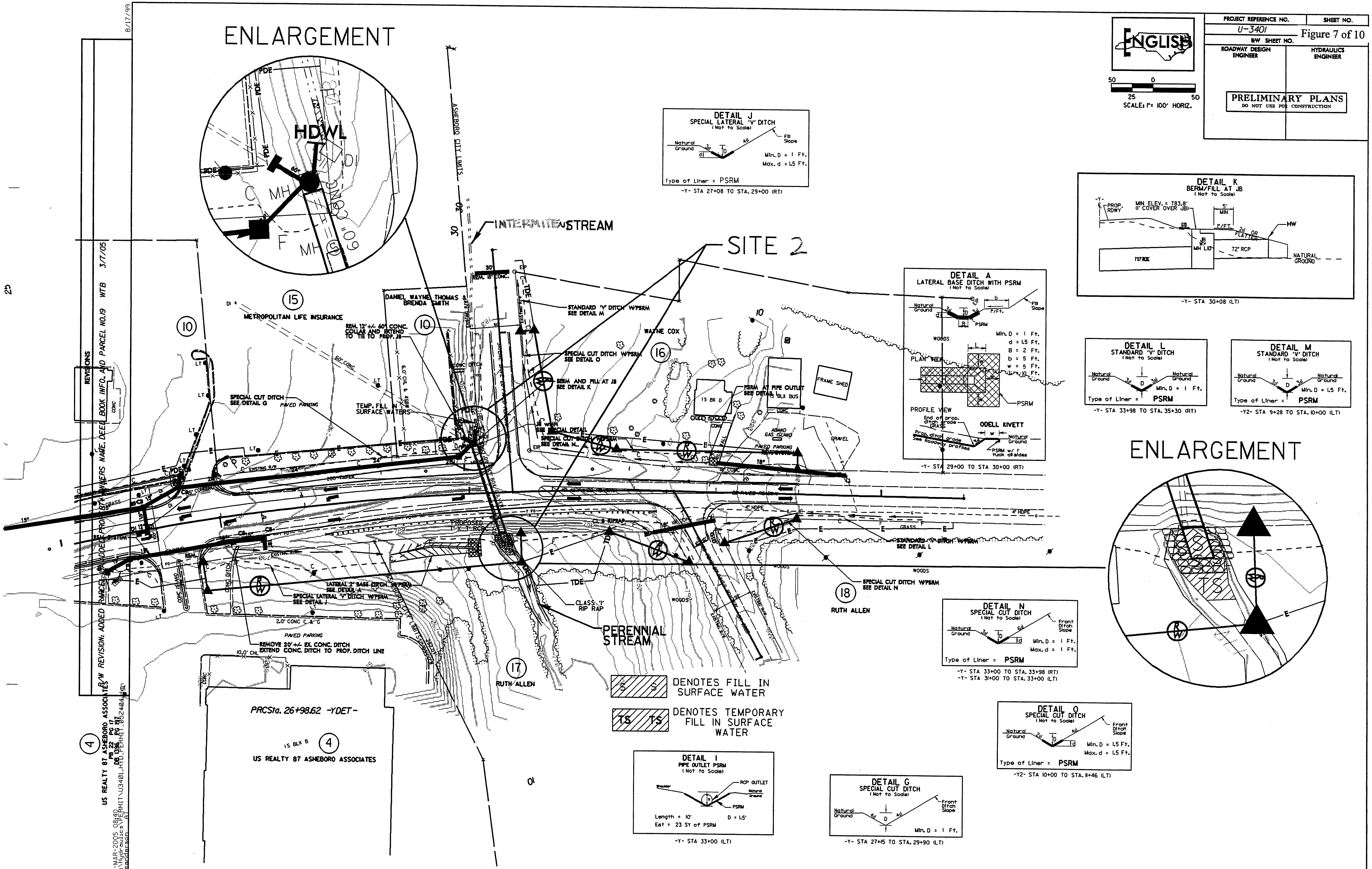
S60°57'04"E 164.79'

R/W REVISION: ADDED NOTE: DO NOT DISTURB SIGN FOR PARCEL 3 &13. WTB 3/7/05

14-MAR-2005 08:41
R:\hydraulics\PERMIT\U3401_HYD_PERMIT_052404.dgn
brandenson



PROJECT REFERENCE NO.
SHEET NO.
U-3401
Figure 6 of 10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
SCALE: 1"= 100' HORIZ.
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENLARGEMENT
HDWL
SITE 2
INTERMITENT STREAM
PERENNIAL STREAM
ASHEBORO CITY LIMITS
METROPOLITAN LIFE INSURANCE
DANIEL WAYNE THOMAS & BRENDA SMITH
WAYNE COX
RUTH ALLEN
US REALTY 87 ASHEBORO ASSOCIATES
PRCSta. 26+98.62 -YDET-
ODELL KIVETT
STANDARD 'V' DITCH W/PSRM SEE DETAIL M
SPECIAL CUT DITCH W/PSRM SEE DETAIL O
BERM AND FILL AT JB SEE DETAIL K
SPECIAL CUT DITCH SEE DETAIL G
TEMP. FILL IN SURFACE WATERS
REM. 12' +/- 60' CONC. COLLAR AND EXTEND TO TIE TO PROP. JB
PSRM AT PIPE OUTLET SEE DETAIL I
PROPOSED 7' X 7' RCBC
CL B RIPRAP
CLASS 'I' RIP RAP
LATERAL 2' BASE DITCH W/PSRM SEE DETAIL A
SPECIAL LATERAL 'V' DITCH W/PSRM SEE DETAIL J
REMOVE 20' +/- EX. CONC. DITCH EXTEND CONC. DITCH TO PROP. DITCH LINE
STANDARD 'V' DITCH W/PSRM SEE DETAIL L
SPECIAL CUT DITCH W/PSRM SEE DETAIL N
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY FILL IN SURFACE WATER
DETAIL J SPECIAL LATERAL 'V' DITCH (Not to Scale)
Min. D = 1 Ft. Max. d = 1.5 Ft.
Type of Liner = PSRM
-Y- STA 27+08 TO STA. 29+00 (RT)
DETAIL K BERM/FILL AT JB (Not to Scale)
MIN ELEV. = 783.8' (1' COVER OVER JB)
72" RCP
NATURAL GROUND
-Y- STA 30+08 (LT)
DETAIL A LATERAL BASE DITCH WITH PSRM (Not to Scale)
Min. D = 1 Ft. d = 1.5 Ft. B = 2 Ft. b = 5 Ft. w = 5 Ft. L = 10 Ft.
PLAN VIEW
PROFILE VIEW
-Y- STA 29+00 TO STA 30+00 (RT)
DETAIL L STANDARD 'V' DITCH (Not to Scale)
Min. D = 1 Ft.
Type of Liner = PSRM
-Y- STA 33+98 TO STA. 35+30 (RT)
DETAIL M STANDARD 'V' DITCH (Not to Scale)
Min. D = 1.5 Ft.
Type of Liner = PSRM
-Y2- STA 9+28 TO STA. 10+00 (LT)
DETAIL N SPECIAL CUT DITCH (Not to Scale)
Min. D = 1 Ft. Max. d = 1 Ft.
Type of Liner = PSRM
-Y- STA 33+00 TO STA. 33+98 (RT)
-Y- STA 31+00 TO STA. 33+00 (LT)
DETAIL O SPECIAL CUT DITCH (Not to Scale)
Min. D = 1.5 Ft. Max. d = 1.5 Ft.
Type of Liner = PSRM
-Y2- STA 10+00 TO STA. 11+46 (LT)
DETAIL I PIPE OUTLET PSRM (Not to Scale)
Length = 10' D = 1.5'
Est = 23 SY of PSRM
-Y- STA 33+00 (LT)
DETAIL G SPECIAL CUT DITCH (Not to Scale)
Min. D = 1 Ft.
-Y- STA 27+15 TO STA. 29+90 (LT)
REVISIONS
R/W REVISION: ADDED PROPERTY OWNERS NAME, DEED BOOK INFO. AND PARCEL NO.19 WTB 3/7/05
04-APR-2005 10:30



PROJECT REFERENCE NO.
SHEET NO.
U-3401
Figure 7 of 10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
SCALE: 1" = 100' HORIZ.
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENLARGEMENT
HDWL
SITE 2
INTERMITTENT STREAM
PERENNIAL STREAM
ASHEBORO CITY LIMITS
DANIEL WAYNE THOMAS
BRENDA SMITH
METROPOLITAN LIFE INSURANCE
WAYNE COX
RUTH ALLEN
US REALTY 87 ASHEBORO ASSOCIATES
ODELL KIVETT
REVISIONS
R/W REVISION: ADDED PARCEL 4, UPDATED PROPERTY OWNERS NAME, DEED BOOK INFO. AND PARCEL NO.19 WTB 3/7/05
STANDARD 'V' DITCH W/PSRM SEE DETAIL M
SPECIAL CUT DITCH W/PSRM SEE DETAIL O
BERM AND FILL AT JB SEE DETAIL K
REM. 12' +/- 60" CONC. COLLAR AND EXTEND TO TIE TO PROP. JB
SPECIAL CUT DITCH SEE DETAIL G
TEMP. FILL IN SURFACE WATERS
PSRM AT PIPE OUTLET SEE DETAIL I
STANDARD 'V' DITCH W/PSRM SEE DETAIL L
SPECIAL CUT DITCH W/PSRM SEE DETAIL N
LATERAL BASE DITCH W/PSRM SEE DETAIL A
SPECIAL LATERAL 'V' DITCH W/PSRM SEE DETAIL J
REMOVE 20' +/- EX. CONC. DITCH EXTEND CONC. DITCH TO PROP. DITCH LINE
CLASS 'I' RIP RAP
PROPOSED 7' X 7' RCBC
PRCSta. 26+98.62 -YDET-
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY FILL IN SURFACE WATER
DETAIL J
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D = 1 Ft.
Max. d = 1.5 Ft.
Type of Liner = PSRM
-Y- STA 27+08 TO STA. 29+00 (RT)
DETAIL K
BERM/FILL AT JB
(Not to Scale)
MIN ELEV. = 783.8' (1' COVER OVER JB)
72" RCP
NATURAL GROUND
-Y- STA 30+08 (LT)
DETAIL A
LATERAL BASE DITCH WITH PSRM
(Not to Scale)
Min. D = 1 Ft.
d = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.
w = 5 Ft.
L = 10 Ft.
PLAN VIEW
PROFILE VIEW
-Y- STA 29+00 TO STA 30+00 (RT)
DETAIL L
STANDARD 'V' DITCH
(Not to Scale)
Min. D = 1 Ft.
Type of Liner = PSRM
-Y- STA 33+98 TO STA. 35+30 (RT)
DETAIL M
STANDARD 'V' DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Type of Liner = PSRM
-Y2- STA 9+28 TO STA. 10+00 (LT)
DETAIL N
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = PSRM
-Y- STA 33+00 TO STA. 33+98 (RT)
-Y- STA 31+00 TO STA. 33+00 (LT)
DETAIL O
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
Type of Liner = PSRM
-Y2- STA 10+00 TO STA. 11+46 (LT)
DETAIL I
PIPE OUTLET PSRM
(Not to Scale)
RCP OUTLET
Length = 10'
D = 1.5'
Est = 23 SY of PSRM
-Y- STA 33+00 (LT)
DETAIL G
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1 Ft.
-Y- STA 27+15 TO STA. 29+90 (LT)
8/17/99

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Figure 8 of 10

ENGLISH

25′ 0 25′
HORIZONTAL SCALE
VERTICAL SCALE
1″ = 10′

100′ LT 50′ LT 0 50′ RT 100′ RT 150′ RT

℄ STA. 30+24.5 -Y-
PROP. 1 @ 7′X7′ RCBC
ELEV. 786.51
SKEW = 75° 00′ 00″

790

PROPOSED JUNCTION BOX

EX. MANHOLE

EX. DITCH

4:1 NORMAL

03

EX. ROADWAY

780

PROP. 72″ PIPE

EX. SYSTEM (TO BE REMOVED)

3:1 NORMAL

EX. 60″ CONC.

EX. 5′ X 5′ RCBC

RIP RAP

770 EX. DITCH (STREAM BED)

EX. 72″ CMP

TB LT.

TB RT.

SLOPE=0.0178 ft./ft.

NWS (11/12/04)
ELEV= 777.8

EX. SCOUR HOLE

760

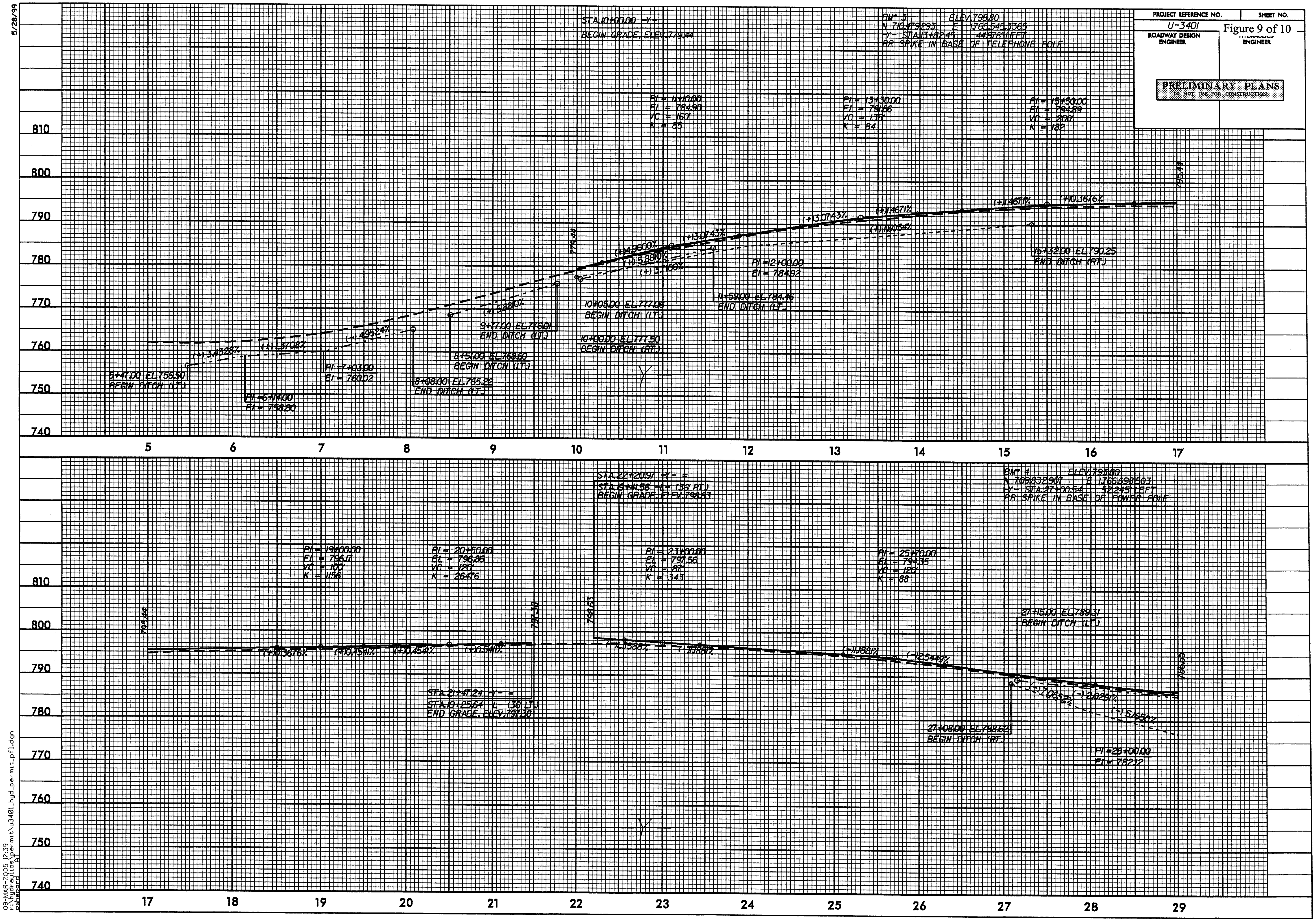
PROP. CURTAIN WALL
MIN. DEPTH 4′

PROP. INV
771.27

PROP. INV
769.29

EX. STREAM BED

09-MAR-2005 11:09
r:\hydraulics_permit\u3401_hyd_permit_pfl.dgn
ashroad



PROJECT REFERENCE NO.
SHEET NO.
U-3401
Figure 9 of 10
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
5/28/99
STA.10+00.00 -Y-
BEGIN GRADE, ELEV.779.44
BM# 3 ELEV.798.80
N 710479.293 E 1765,546.3365
-Y- STA.13+82.45 44.976' LEFT
RR SPIKE IN BASE OF TELEPHONE POLE
PI = 11+10.00
EL = 784.90
VC = 160'
K = 85
PI = 13+30.00
EL = 791.66
VC = 135'
K = 84
PI = 15+50.00
EL = 794.89
VC = 200'
K = 182
PI = 12+00.00
El = 784.92
11+59.00 EL.784.46
END DITCH (LT.)
15+32.00 EL.790.25
END DITCH (RT.)
10+05.00 EL.777.06
BEGIN DITCH (LT.)
10+00.00 EL.777.50
BEGIN DITCH (RT.)
9+77.00 EL.776.01
END DITCH (LT.)
8+51.00 EL.768.60
BEGIN DITCH (LT.)
8+03.00 EL.765.22
END DITCH (LT.)
PI = 7+03.00
El = 760.02
PI = 6+14.00
El = 758.80
5+47.00 EL.755.50
BEGIN DITCH (LT.)
-Y-
STA.22+20.97 -Y- =
STA.19+41.56 -L- (36' RT.)
BEGIN GRADE, ELEV.798.63
BM# 4 ELEV.793.80
N 709,032.907 E 1,766,898.503
-Y- STA.27+00.54 52.245' LEFT
RR SPIKE IN BASE OF POWER POLE
PI = 19+00.00
EL = 796.17
VC = 100'
K = 115.6
PI = 20+50.00
EL = 796.85
VC = 120'
K = 264.76
PI = 23+00.00
EL = 797.56
VC = 87'
K = 34.3
PI = 25+70.00
EL = 794.35
VC = 120'
K = 88
27+15.00 EL.789.31
BEGIN DITCH (LT.)
STA.21+47.24 -Y- =
STA.19+25.64 -L- (36' LT.)
END GRADE, ELEV.797.38
27+08.00 EL.788.62
BEGIN DITCH (RT.)
PI = 28+00.00
El = 782.12
810
800
790
780
770
760
750
740
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
09-MAR-2005 12:39
r:\hydraulics\permit\u3401_hyd_permit_pfl.dgn

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3401	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ST.A 33+50.00 -Y-
END GRADE ELEV.797.68

PI = 30+30.00
EL = 782.64
VC = 4.50'
K = 65

PI = 33+00.00
EL = 794.59
VC = 90'
K = 52

33+00.00 EL792.00
END DITCH (LT.)

29+90.00 EL783.73
END DITCH (LT.)

35+66.00 EL809.51
END DITCH (RT.)

PI = 34+00.00
El = 798.09

31+00.00 EL793.74
BEGIN DITCH (LT.)

33+00.00 EL791.20
BEGIN DITCH (RT.)

30+00.00 EL771.79
END DITCH (RT.)

7'X7' RCBC

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 540 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 780.3 FT
BASE DISCHARGE	= 600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 780.9 FT
OVERTOPPING DISCHARGE	= 970 CFS
OVERTOPPING FREQUENCY	= 500+/-YRS
OVERTOPPING ELEVATION	= 781.1 FT

—Y—

ST.A 10+50.00 BEGIN GRADE
ELEV.799.96

PI = 11+75.00
EL = 787.46
VC = 50'
K = 10

PI = 12+27.43
EL = 784.87'
VC = 20'
K = 3

10+88.0 EL787.52
BEGIN DITCH (RT.)

28+06.24 EL786.76
BEGIN DITCH (LT.)

30+04.05 EL785.10
END DITCH (LT.)

12+00.00 EL784.80
END DITCH (RT.)

ST.A 12+37.43 END GRADE
ELEV.785.12

—Y DETOUR—

—Y1 DETOUR—

ST.A 10+00.00 BEGIN GRADE
ELEV.803.00

PI = 10+40.00
EL = 802.05
VC = 50.00'
K = 10

PI = 11+00.00
EL = 797.68'
VC = 60.00'
K = 6

PI = 11+75.00
EL = 786.42'
VC = 20.00'
K = 1

ST.A 11+98.66 END GRADE
ELEV.787.21

10+00.00 EL801.35
BEGIN DITCH (LT.)

11+60.00 EL793.28
END DITCH (LT.)

—Y1—

ST.A 10+00.00 BEGIN GRADE
ELEV.781.60

ST.A 11+73.4 END GRADE
ELEV.787.42

PI = 10+50.00
EL = 782.43
VC = 80'
K = 28

PI = 11+50.00
EL = 786.95
VC = 40'
K = 16

30' RCP

9+28.00 EL776.88
BEGIN DITCH (LT.)

11+46.00 EL783.74
END DITCH (LT.)

PI = 11+00.00
El = 781.83

—Y2—

ST.A 11+00.00 BEGIN GRADE
ELEV.796.66

PI = 11+85.00
EL = 793.16
VC = 50'
K = 45

18" RCP

—Y3—

09-MAR-2005 12:39
r:\hydraulics\permit\u3401_hyd_permit_pfl.dgn
ashelard

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS					
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Permanent Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Permanent Existing Channel Impacted (ft)	Temporary Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	5+36-Y-LT	RIP RAP	0	0	0	0	0	0	0.003	0	18	0
2	30+25 -Y- RT	7' x 7' RCBC	0	0	0	0	0.005	0	0.004	17	26	0
TOTALS:			0	0	0	0	0.005	0	0.007	17	44	0

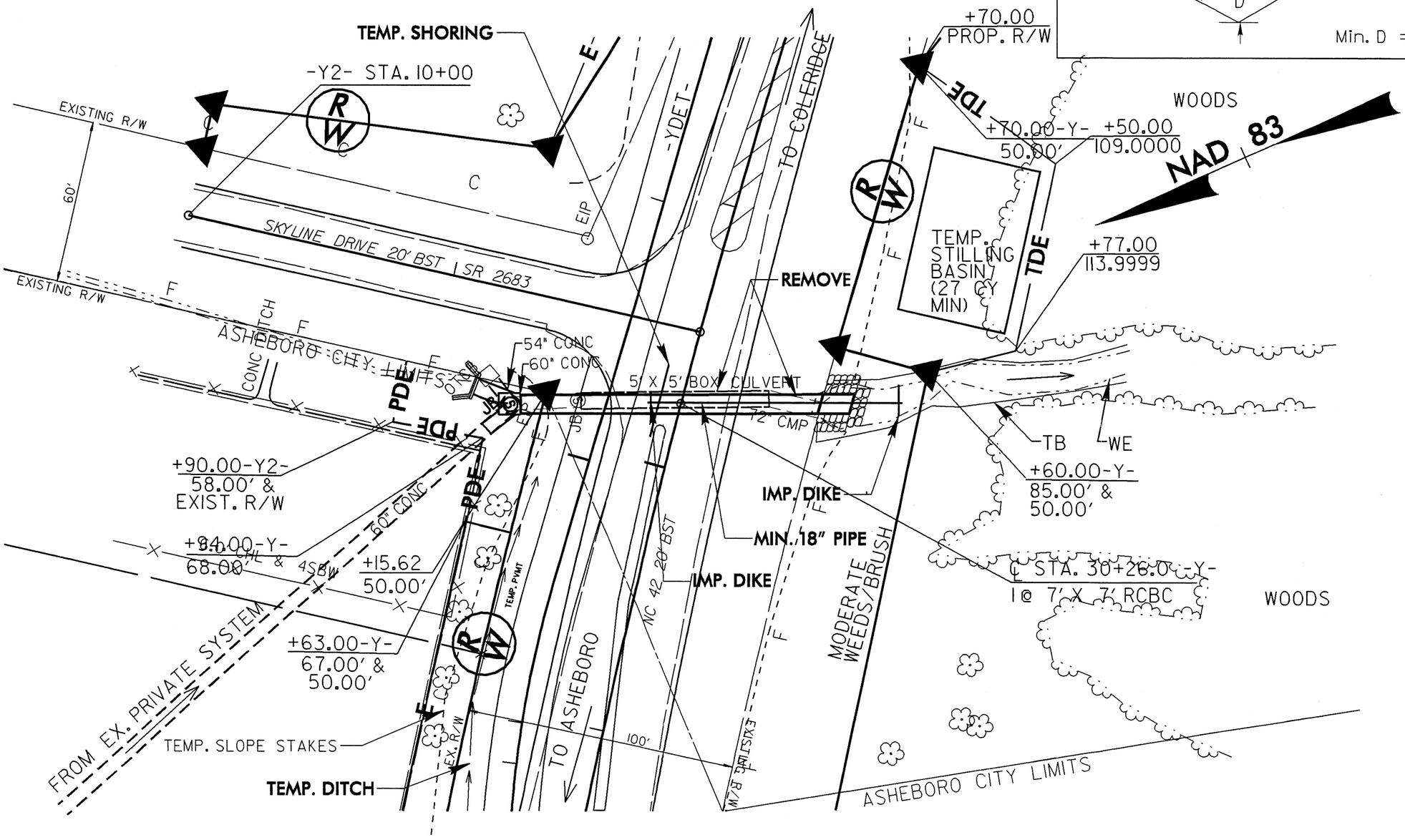
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RANDOLPH COUNTY
PROJECT: 34935.1.1 (U-3401)

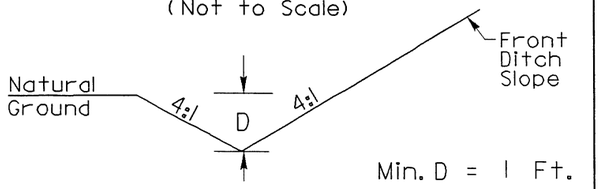
Form Revised 3/22/01

U-3401
RANDOLPH COUNTY
SCALE: 1"=40'

PHASE 1



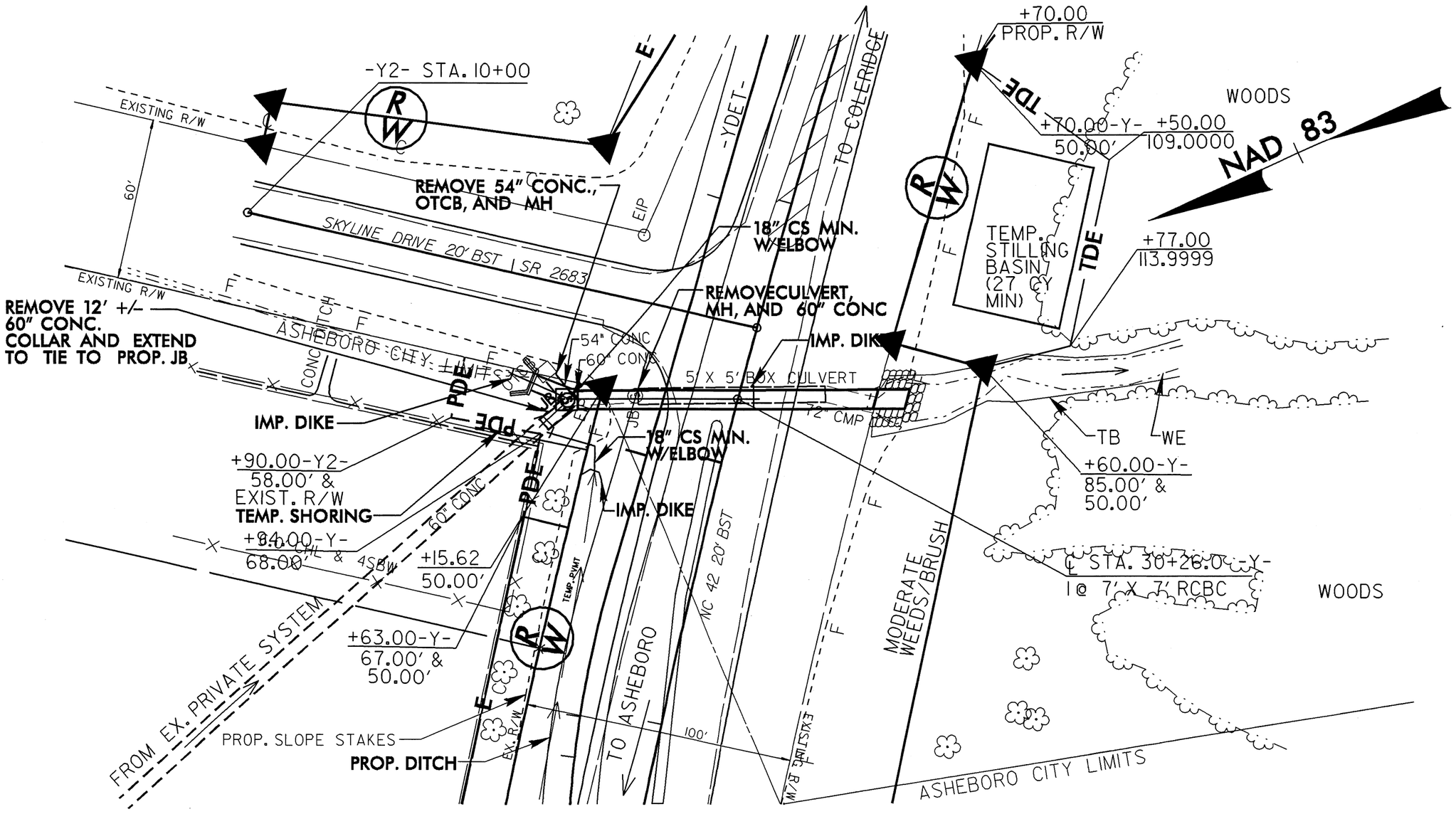
TEMP DIVERSION CHANNEL
(Not to Scale)



CONSTRUCTION SEQUENCE

U-3401
RANDOLPH COUNTY
SCALE: 1"=40'

PHASE II



CONSTRUCTION SEQUENCE

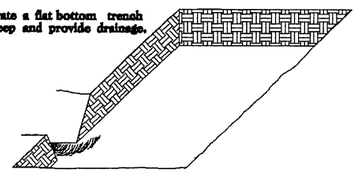
PLANTING DETAILS

SEEDLING / LINER BAREROOT PLANTING DETAIL

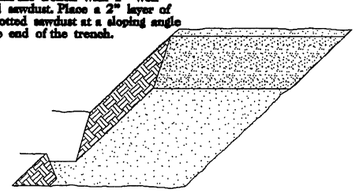
HEALING IN

1. Locate a healing-in site in a shady, well protected area.

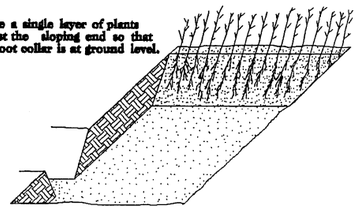
2. Excavate a flat bottom trench 12" deep and provide drainage.



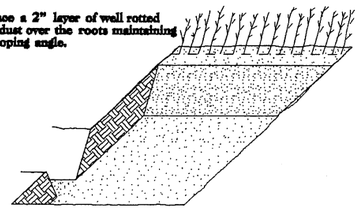
3. Backfill the trench with 2" well rotted sawdust. Place a 2" layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

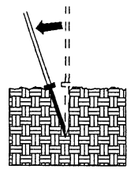


5. Place a 2" layer of well rotted sawdust over the roots maintaining a sloping angle.

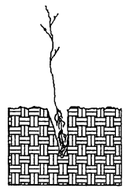


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

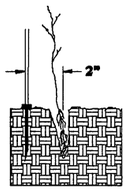
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



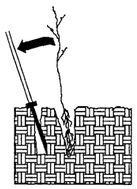
1. Insert planting bar as shown and pull handle toward planter.



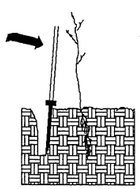
2. Remove planting bar and place seedling at correct depth.



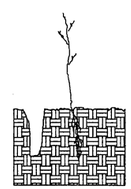
3. Insert planting bar 2" toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12" long, 4" wide and 1" thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches (10") below the root collar.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3401	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

REFORESTATION

TREE REFORESTATION SHALL BE PLANTED 6' TO 10' ON CENTER, RANDOM SPACING, AVERAGING 8' ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	QUERCUS ALBA	WHITE OAK	12" – 18", SEEDLING BR
25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12" – 18", SEEDLING BR
25%	PRUNUS SEROTINA	BLACK CHERRY	12" – 18", SEEDLING BR
25%	BETULA NIGRA	RIVER BIRCH	12" – 18", SEEDLING BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

09/08/99

TIP PROJECT: U-3401

CONTRACT: CONTRACT

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

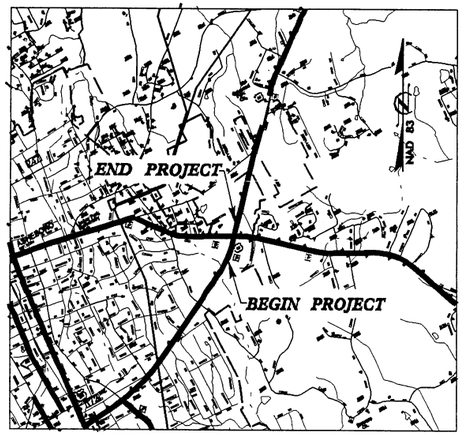
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3401	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34935.1.1	NHF-65(58)	PE	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

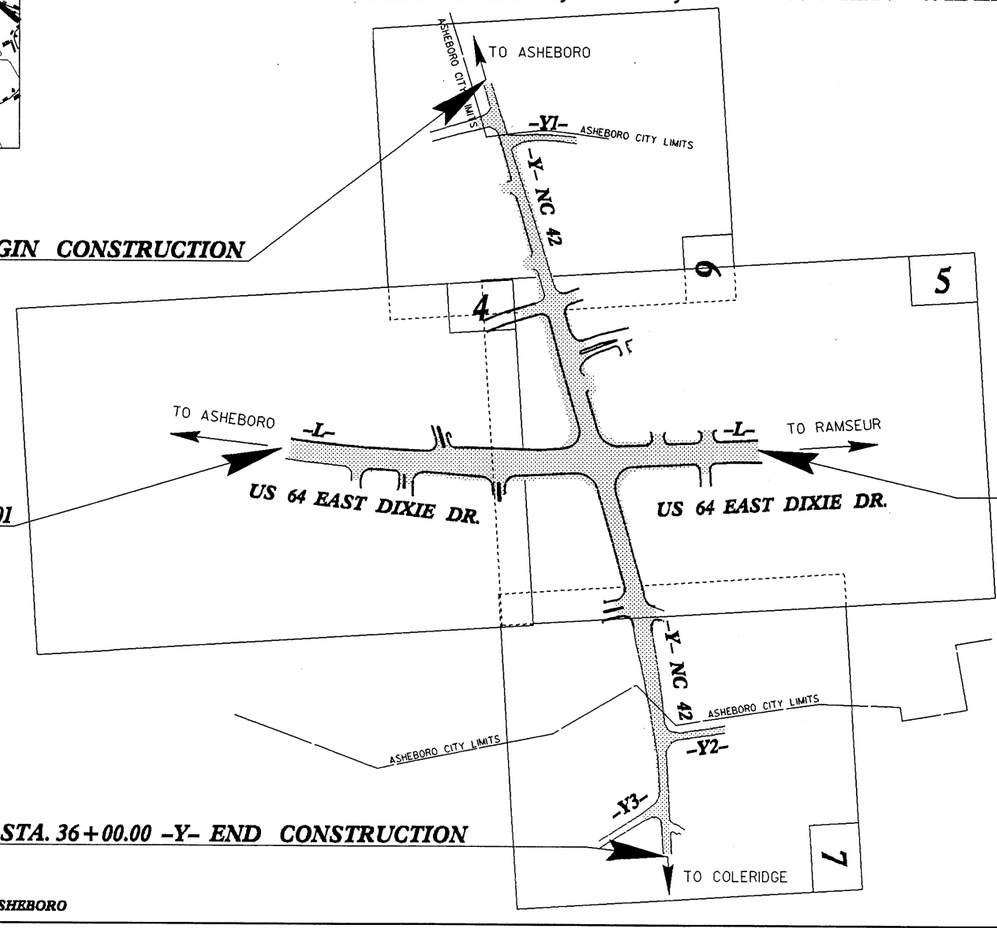
RANDOLPH COUNTY

LOCATION: INTERSECTION AT US 64/NC 49 AND NC 42 IN ASHEBORO

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND WIDENING



VICINITY MAP



STA. 5+00.00 -Y- BEGIN CONSTRUCTION

STA. 9+00.00 -L- BEGIN TIP PROJECT U-3401

STA. 24+21.00 -L- END TIP PROJECT U-3401

STA. 36+00.00 -Y- END CONSTRUCTION

NAD 83

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ASHEBORO

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2004 = 18,000
ADT 2025 = 32,900
DHV = 10 %
D = 55 %
T = 10 % *
V = 45 MPH

* TTST 6% DUAL 4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3401 = 0.29 MI
TOTAL LENGTH ROADWAY TIP PROJECT U-3401 = 0.29 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 17, 2004

LETTING DATE: AUGUST 16, 2005

G. E. BREW, PE
PROJECT ENGINEER

W. T. BEST
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

22-MAR-2005 11:48
r:\roadway\prj\u3401_rdy_tsh.dgn
wBest
AT RD223185

PROJECT REFERENCE NO.	SHEET NO.
U-3401	1-A

ROADWAY DESIGN ENGINEER

5/14/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

22-MAR-2005 11:48
r:\roadway\proj\u3401_rdy_tsh.dgn
\$$$$USERNAME$$$$ AT RD223185

PROJECT REFERENCE NO.	SHEET NO.
U-3401	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary — HQ WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — Flow
- False Sump

RAILROADS:

- Standard Guage — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equaility Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — T
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — PUTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

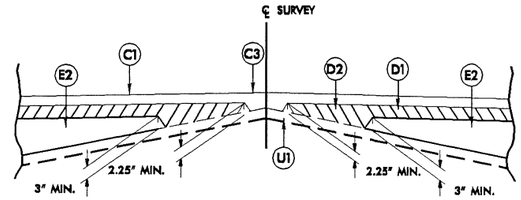
PROJECT REFERENCE NO.	SHEET NO.
U-3401	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

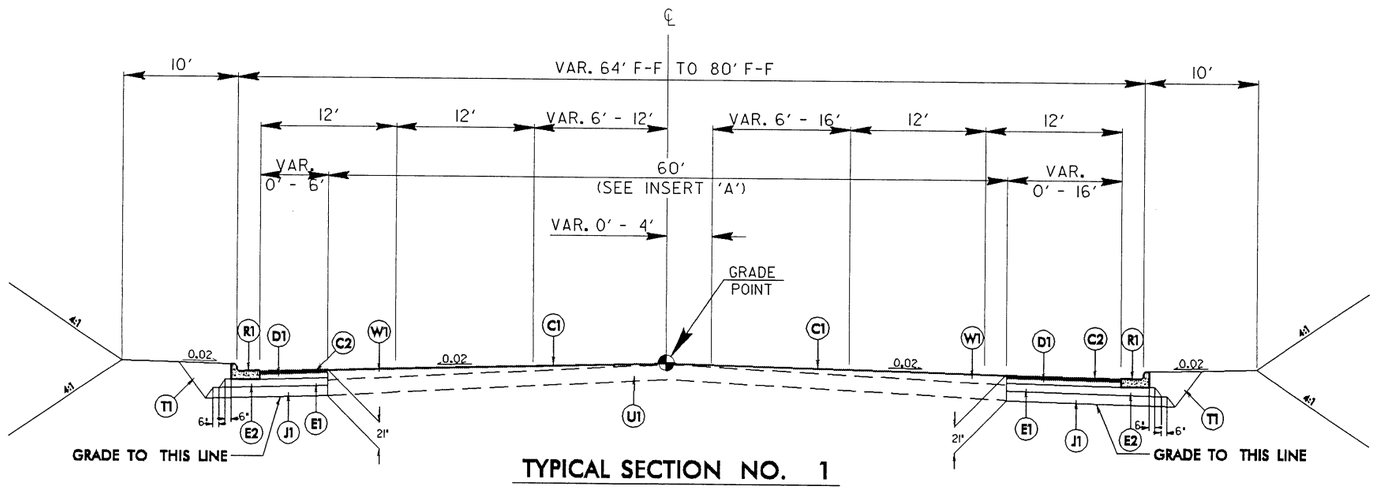
PRELIMINARY PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	J1	PROP. 8" AGGREGATE BASE COURSE
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J2	PROP. 10" AGGREGATE BASE COURSE
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	R1	2'-6" CONCRETE CURB AND GUTTER
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R2	6" MONOLITHIC CONCRETE ISLAND
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T1	EARTH MATERIAL
E1	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U1	EXISTING PAVEMENT
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	W1	VARIABLE DEPTH ASPHALT PAVEMENT

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

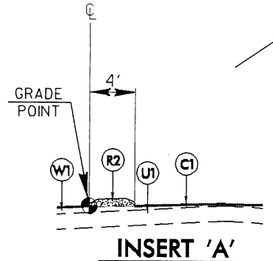


Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- FROM STA. 10+00.00 TO 14+50.00



INSERT 'A'

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1
-L- FROM STA. 14+00.00 TO STA. 14+50.00

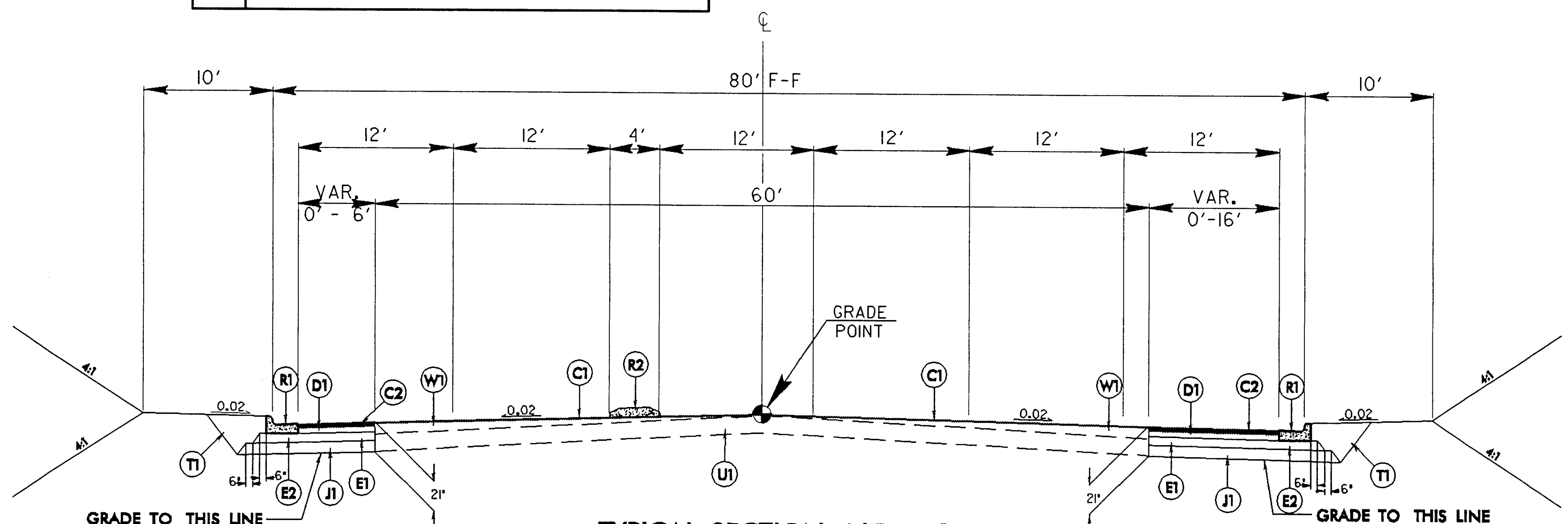
22-MAR-2005 11:48
r:\roadway\proj\u3401_RDY_TYP.dgn
wgest At R0223185

PROJECT REFERENCE NO.	SHEET NO.
U-3401	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

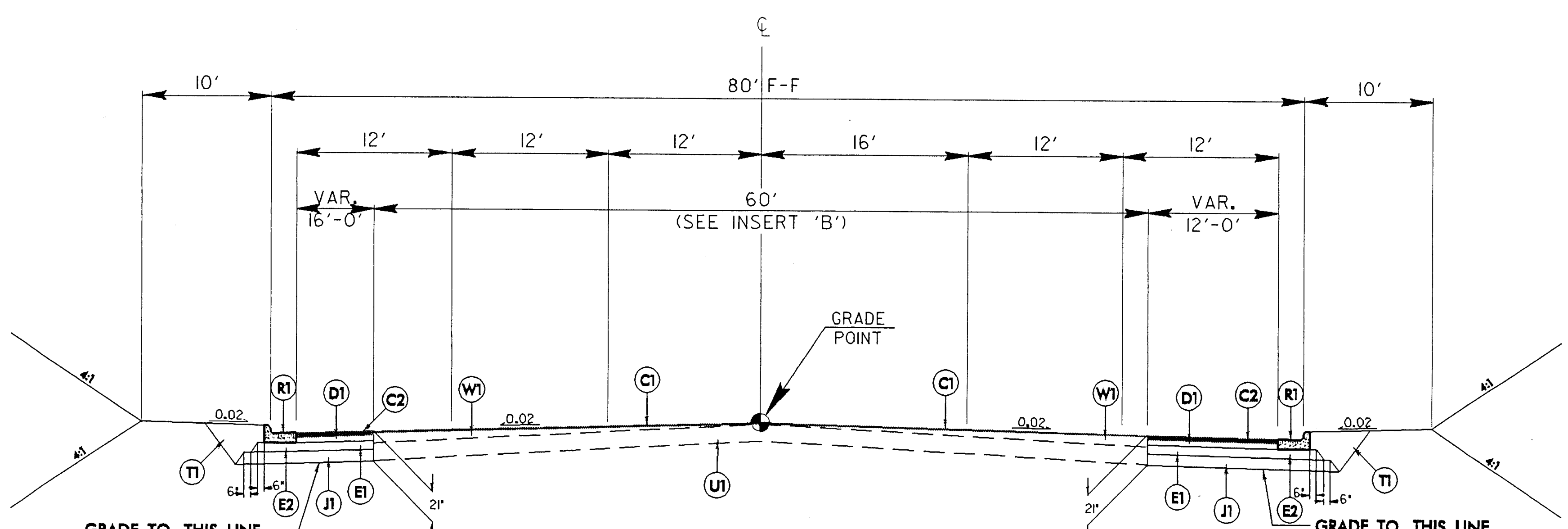
PRELIMINARY PAVEMENT SCHEDULE

C1	1½" TYPE S9.5C	R1	2'-6" CONC. CURB AND GUTTER
C2	3" TYPE S9.5C	R2	5" MONOLITHIC CONC. ISLAND
D1	4" TYPE I19.0C	T1	EARTH MATERIAL
E1	6" TYPE B25.0C	U1	EXISTING PAVEMENT
E2	VAR. DEPTH TYPE B25.0C	W1	VAR. DEPTH ASPHALT PAVEMENT
J1	8" AGGREGATE BASE COURSE		



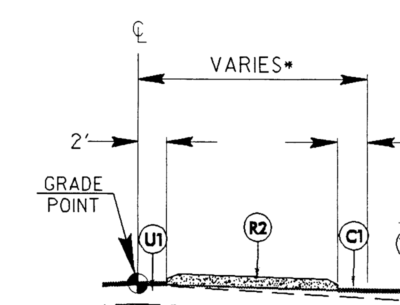
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- FROM STA. 14+50.00 TO 15+42.54, TRANSITION FROM T.S. NO. 1 TO T.S. NO. 2
-L- FROM STA. 15+42.54 TO 18+40.36



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
-L- FROM STA. 18+40.36 TO 20+20.15, TRANSITION FROM T.S. NO. 2 TO T.S. NO. 3
-L- FROM STA. 20+20.15 TO STA. 24+21.00



INSERT 'B'

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 3
-L- FROM STA. 19+80+36 TO STA. 23+70.69
*SEE PLAN SHEET FOR WIDTH AND LOCATION

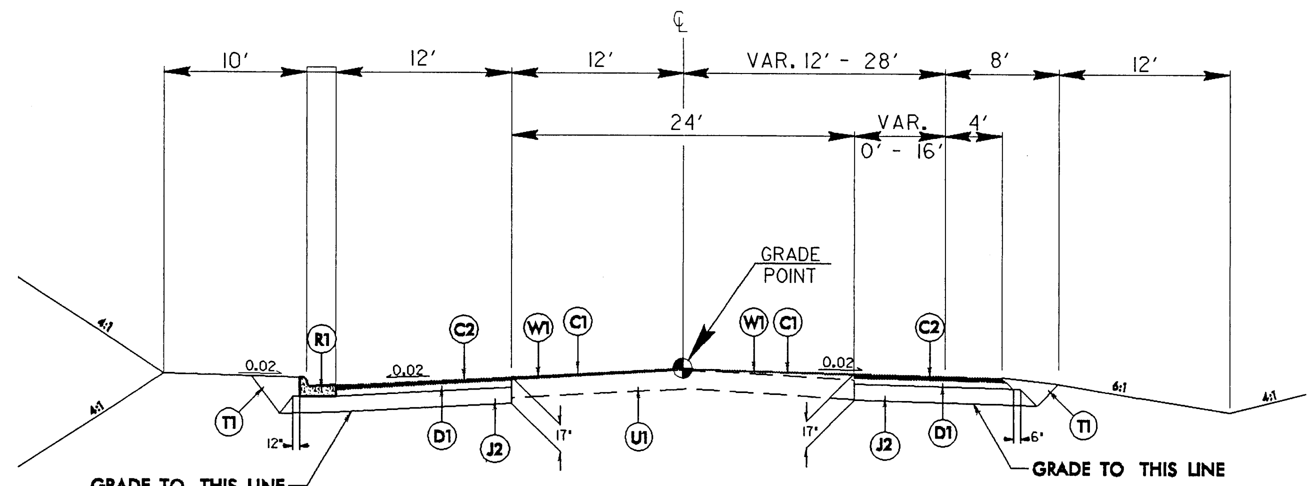
6/2/99
22-MAR-2005 11:48
r:\roadway\proj\U3401_RDY_TYP.dgn
WBest AT R0223185

PROJECT REFERENCE NO.	SHEET NO.
U-3401	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

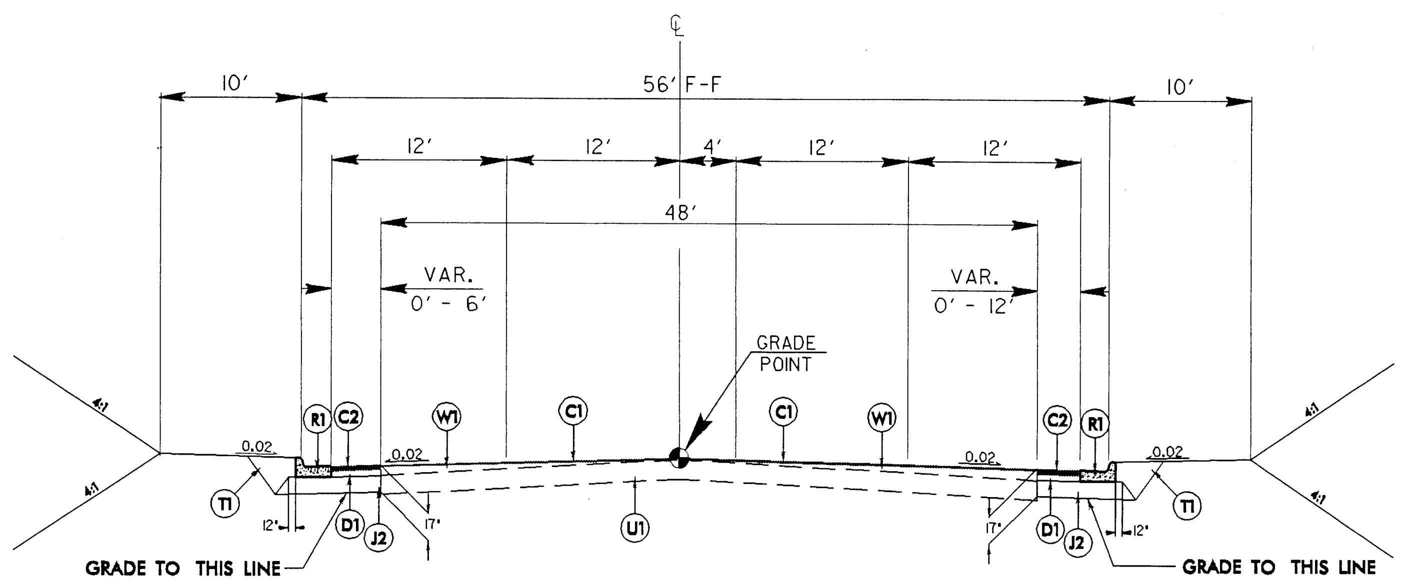
PRELIMINARY PAVEMENT SCHEDULE

C1	1½" TYPE S9.5C	R1	2'-6" CONC. CURB AND GUTTER
C2	3" TYPE S9.5C	T1	EARTH MATERIAL
D1	4" TYPE I19.0C	U1	EXISTING PAVEMENT
J2	10" AGGREGATE BASE COURSE	W1	VAR. DEPTH ASPHALT PAVEMENT



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
-Y- FROM STA. 10+00.00 TO STA. 16+00.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
-Y- FROM STA. 16+00.00 TO STA. 20+54.35

6/2/99

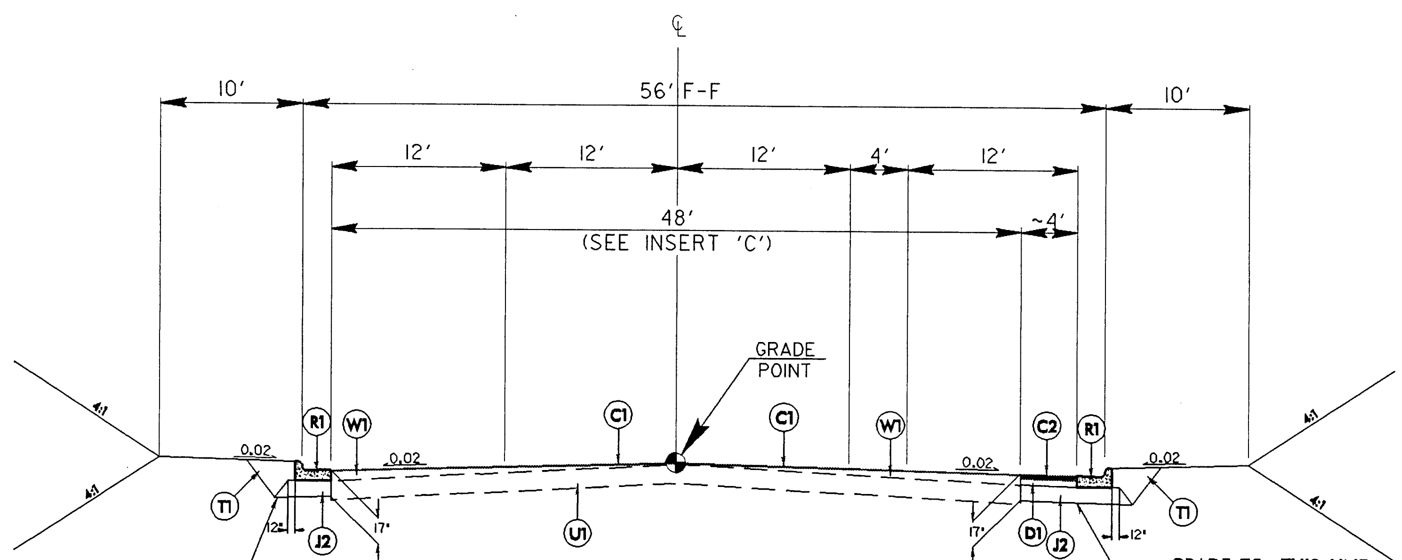
22-MAR-2005 11:48
r:\roadway\proj\U3401_RDY_TYP.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3401	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

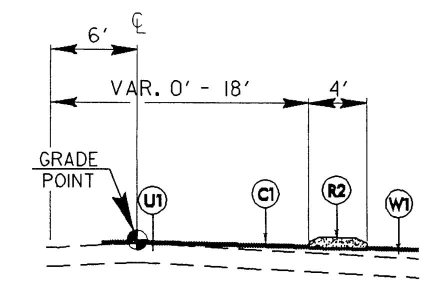
PRELIMINARY PAVEMENT SCHEDULE

C1	1½" TYPE S9.5C	R2	5" MONOLITHIC CONC. ISLAND
C2	3" TYPE S9.5C	T1	EARTH MATERIAL
D1	4" TYPE I19.0C	U1	EXISTING PAVEMENT
J2	10" AGGREGATE BASE COURSE	W1	VAR. DEPTH ASPHALT PAVEMENT
R1	2'-6" CONC. CURB AND GUTTER		



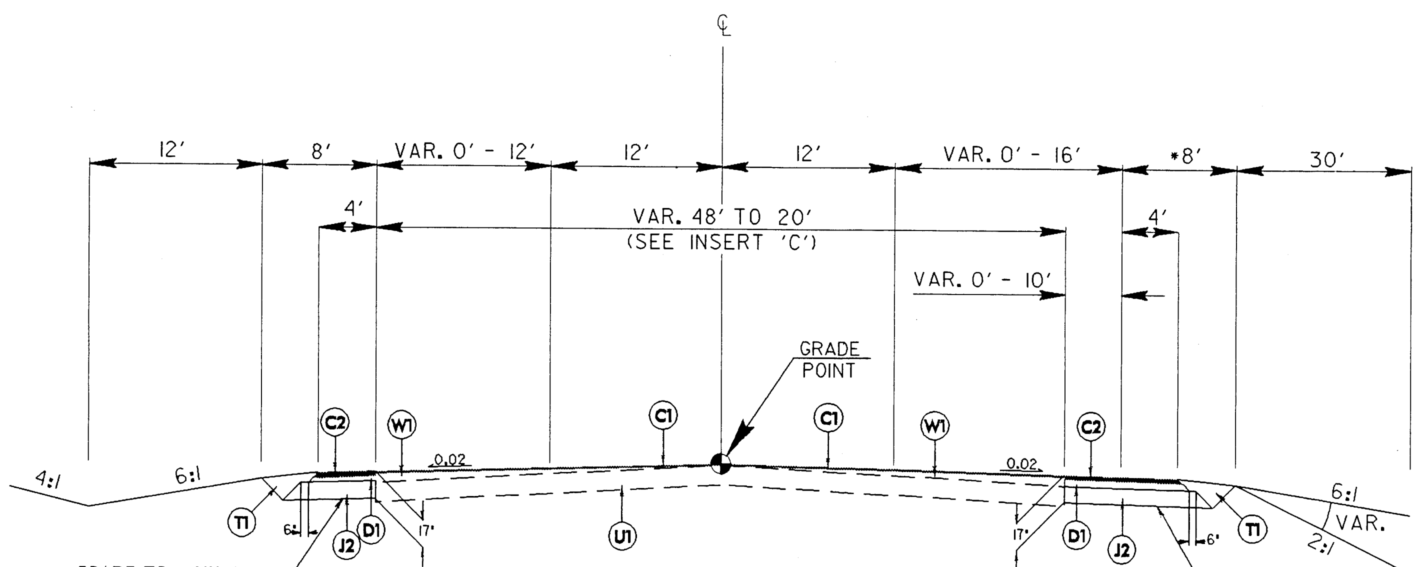
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-Y- FROM STA. 23+13.92 TO STA. 27+48.31



INSERT 'C'

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 6 & 7
-Y- FROM STA. 22+42.34 TO STA. 26+18.70
AND -Y- STA. 27+00.33 TO STA. 30+14.68
*SEE PLAN SHEET FOR LOCATION



TYPICAL SECTION NO. 7

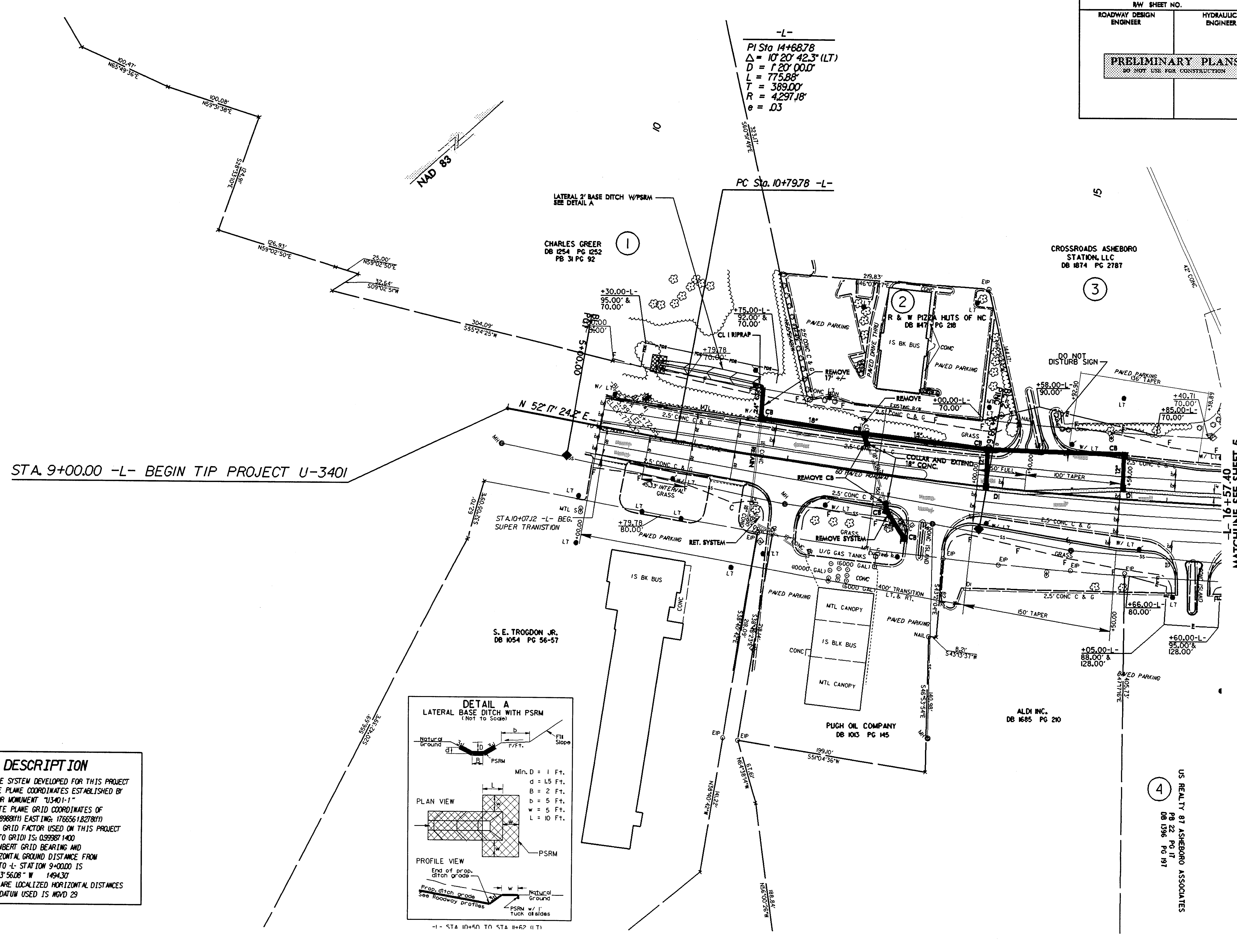
* NOTE: 11' WITH GUARDRAIL

USE TYPICAL SECTION NO. 7
-Y- FROM STA. 27+48.31 TO 33+48.38

22-MAR-2005 11:48
r:\roadway\proj\U3401_RDY_TYP.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3401	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3401-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 710365.8988(ft) EASTING: 1766561.8278(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987 1400
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3401-1" TO -L- STATION 9+00.00 IS
S 47° 23' 56.08" W 1494.30'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

8/17/99

22-MAR-2005 11:48
r:\roadway\proj\u3401_rdy_psh04.dgn
WPest AT RO223185

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3401	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y- 16+63.09
MATCHLINE SEE SHEET 6

PC Sta. 16+82.70 -Y-

RANDOLPH FRINGE LAND LTD
DB 1493 PG 83
PB 27 PG 74

BELKS OF ASHEBORO NC INC
DB 1123 PG 272

-L-
PI Sta 14+68.78
Δ = 10° 20' 42.3" (LT)
D = 1° 20' 00.0"
L = 775.88'
T = 389.00'
R = 4,297.18'
e = .03

-Y-
PI Sta 17+61.51
Δ = 0° 47' 17.0" (RT)
D = 0° 30' 00.0"
L = 157.61'
T = 78.81'
R = 11,459.16'
e = NC

PI Sta 28+63.71
Δ = 13° 11' 53.2" (RT)
D = 1° 45' 00.0"
L = 754.18'
T = 378.77'
R = 3,274.04'
e = .03

STA. 17+14.17
BEG. RET. WALL

STA. 17+60.00
END RET. WALL

PT Sta. 18+40.31 -Y-

STA. 17+48.00
BEG. RETAIN WALL

STA. 19+50.00
END RETAIN WALL

CROSSROADS ASHEBORO STATION, LLC
DB 1874 PG 2787

RYAN'S FAMILY STEAK HOUSES, INC.
DB 1324 PG 320
PB 27 PG 74

RANDOLPH OIL COMPANY
DB 872 PG 183
DB 1125 PG 452

WACHOVIA BANK AND TRUST COMPANY
DB 1234 PG 1902
PB 27 PG 4

STA. 18+10.33 -L- BEG. SUPER TRANSITION

PT Sta. 19+33.62 -Y-

STA. 23+55.63 -Y- BEG. SUPER TRANSITION

GRADE TO DRAIN AWAY FROM RAISED ISLAND -L- STA. 19+86 TO 22+95

WJB REALTY
DB 1254 PG 2017
PB 22 PG 17

DO NOT DISTURB CONCRETE PAD

DANIEL WAYNE THOMAS & BRENDA SMITH
DB 1801 PG 2332

PC Sta. 24+84.94 -Y-

US REALTY 87 ASHEBORO ASSOCIATES
PB 22 PG 17
DB 1396 PG 197

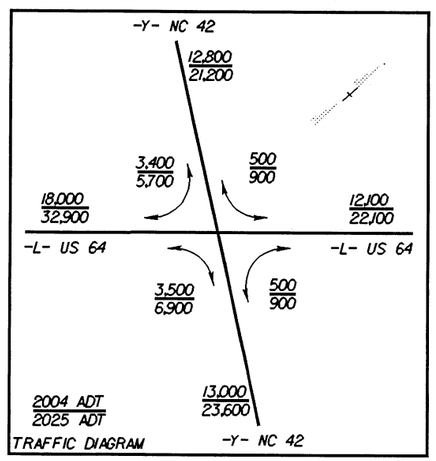
METROPOLITAN LIFE INSURANCE
DB 1234 PG 786
PB 28 PG 18

STA. 24+21.00 -L- END TIP PROJECT U-3401

-L- 16+57.40
MATCHLINE SEE SHEET 4

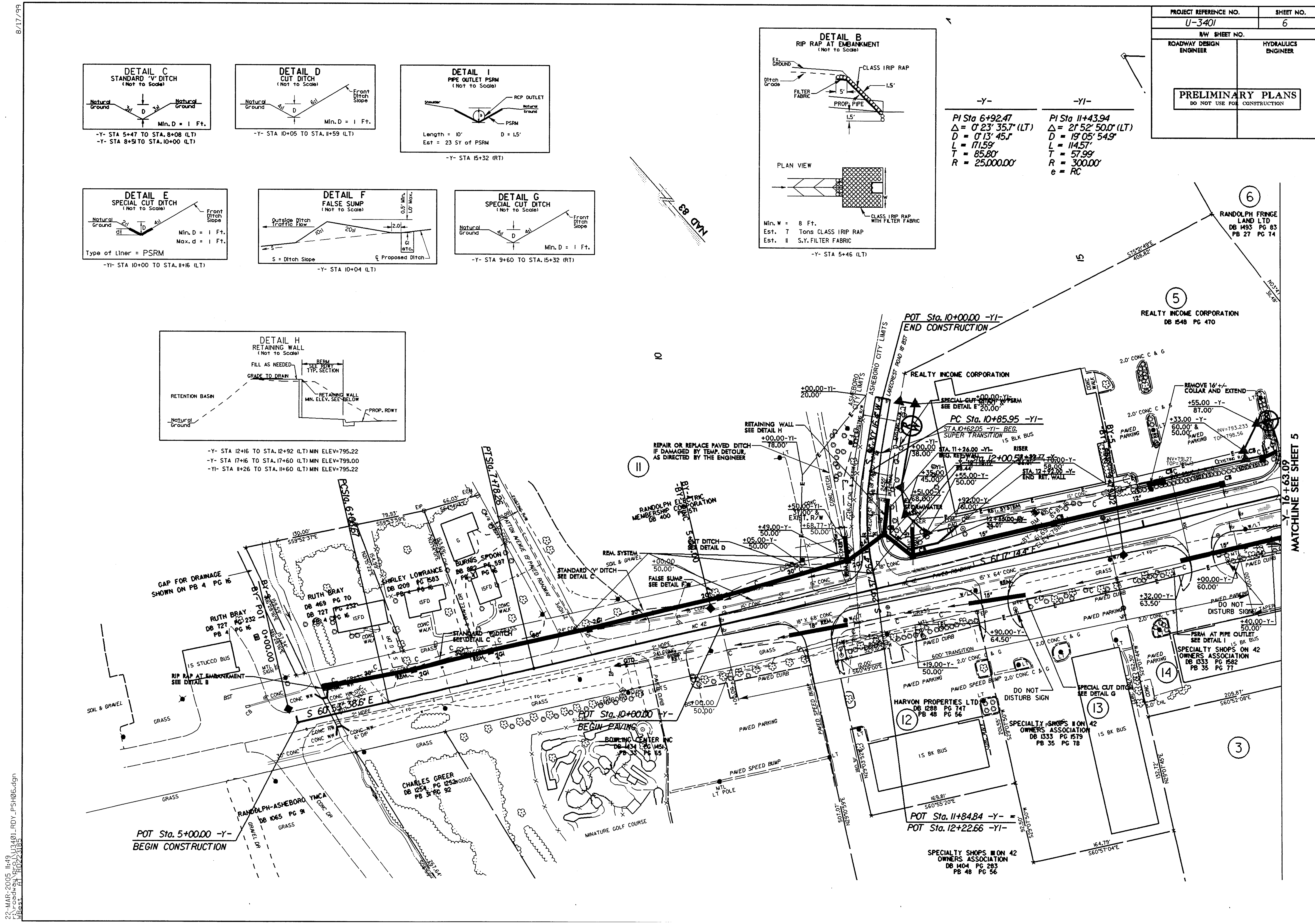
-Y- 26+35.54
MATCHLINE SEE SHEET 7

NAD 83



TRAFFIC DIAGRAM

22-MAR-2005 11:49
F:\roadway\proj\U3401_RDY_PSH05.dgn
West A1 R0223185



PROJECT REFERENCE NO. U-3401
SHEET NO. 6
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
8/17/99
DETAIL C
STANDARD 'V' DITCH
(Not to Scale)
Min. D = 1 Ft.
-Y- STA 5+47 TO STA. 8+08 (LT)
-Y- STA 8+51 TO STA. 10+00 (LT)
DETAIL D
CUT DITCH
(Not to Scale)
Min. D = 1 Ft.
-Y- STA 10+05 TO STA. 11+59 (LT)
DETAIL I
PIPE OUTLET PSRM
(Not to Scale)
Length = 10'
D = 1.5'
Est = 23 SY of PSRM
-Y- STA 15+32 (RT)
DETAIL E
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = PSRM
-Y1- STA 10+00 TO STA. 11+16 (LT)
DETAIL F
FALSE SUMP
(Not to Scale)
S = Ditch Slope
-Y- STA 10+04 (LT)
DETAIL G
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1 Ft.
-Y- STA 9+60 TO STA. 15+32 (RT)
DETAIL H
RETAINING WALL
(Not to Scale)
RETENTION BASIN
-Y- STA 12+16 TO STA. 12+92 (LT) MIN ELEV=795.22
-Y- STA 17+16 TO STA. 17+60 (LT) MIN ELEV=799.00
-Y1- STA 11+26 TO STA. 11+60 (LT) MIN ELEV=795.22
DETAIL B
RIP RAP AT EMBANKMENT
(Not to Scale)
CLASS I RIP RAP
FILTER FABRIC
PROP. PIPE
PLAN VIEW
Min. W = 8 Ft.
Est. 7 Tons CLASS I RIP RAP
Est. 11 S.Y. FILTER FABRIC
-Y- STA 5+46 (LT)
-Y-
PI Sta 6+92.47
Δ = 0° 23' 35.7" (LT)
D = 0° 13' 45.1"
L = 171.59'
T = 85.80'
R = 25,000.00'
-Y1-
PI Sta 11+43.94
Δ = 21° 52' 50.0" (LT)
D = 19° 05' 54.9"
L = 114.57'
T = 57.99'
R = 300.00'
e = RC
NAD 83
POT Sta. 5+00.00 -Y- BEGIN CONSTRUCTION
POT Sta. 10+00.00 -Y- BEGIN PAVING
POT Sta. 10+00.00 -Y1- END CONSTRUCTION
POT Sta. 11+84.84 -Y- = POT Sta. 12+22.66 -Y1-
PC Sta. 10+85.95 -Y1-
-Y- 16+63.09
MATCHLINE SEE SHEET 5
RANDOLPH FRINGE LAND LTD DB 1493 PG 83 PB 27 PG 74
REALTY INCOME CORPORATION DB 1548 PG 470
RANDOLPH ELECTRIC MEMBERSHIP CORPORATION DB 400 PG 571
RUTH BRAY
SHIRLEY LOWRANCE
BURNIS SPOON
CHARLES GREER
RANDOLPH-ASHEBORO YMCA DB 1065 PG 91
BOWLING CENTER INC
HARVON PROPERTIES LTD DB 1288 PG 747 PB 48 PG 56
SPECIALTY SHOPS ON 42 OWNERS ASSOCIATION
MINATURE GOLF COURSE
ASHEBORO CITY LIMITS
NC 42
REM. SYSTEM
GAP FOR DRAINAGE SHOWN ON PB 4 PG 16
RIP RAP AT EMBANKMENT SEE DETAIL B
REPAIR OR REPLACE PAVED DITCH IF DAMAGED BY TEMP. DETOUR, AS DIRECTED BY THE ENGINEER
RETAINING WALL SEE DETAIL H
DO NOT DISTURB SIGN
PSRM AT PIPE OUTLET SEE DETAIL I
REMOVE 16' +/- COLLAR AND EXTEND
22-MAR-2005 11:49

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3401	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y-
PI Sta 28+63.71
Δ = 13° 11' 53.2" (RT)
D = 1° 45' 00.0"
L = 754.18'
T = 378.77'
R = 3,274.04'
e = .03

ASHEBORO CITY LIMITS

POT Sta. 9+00.00 -Y2-
END CONSTRUCTION

POT Sta. 10+00.00 -Y2-
END PAVING

TEMPORARY PAVEMENT

DETAIL J
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, d, 4:1, Fill Slope
Min. D = 1 Ft.
Max. d = 1.5 Ft.
Type of Liner = PSRM
-Y- STA 27+08 TO STA. 29+00 (RT)

NAD 83

DETAIL K
BERM/FILL AT JB
(Not to Scale)
-Y- ℄, PROP. RDWY, MIN ELEV. = 783.8' (1' COVER OVER JB), 5' MIN, 1':1', 2:1 OR FLATTER, HW, JB W/ MH LID, 72" RCP, 7.17' RISE, NATURAL GROUND
-Y- STA 30+08 (LT)

DETAIL L
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground
Type of Liner = PSRM
-Y- STA 33+98 TO STA. 35+30 (RT)

DETAIL M
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground
Min. D = 1.5 Ft.
Type of Liner = PSRM
-Y2- STA 9+28 TO STA. 10+00 (LT)

DETAIL N
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 3:1, D, 6:1, Front Ditch Slope, Min. D = 1 Ft., Max. d = 1 Ft.
Type of Liner = PSRM
-Y- STA 33+00 TO STA. 33+98 (RT)
-Y- STA 31+00 TO STA. 33+00 (LT)

DETAIL O
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2:1, D, 4:1, Front Ditch Slope, Min. D = 1.5 Ft., Max. d = 1.5 Ft.
Type of Liner = PSRM
-Y2- STA 10+00 TO STA. 11+46 (LT)

DETAIL G
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 4:1, D, 4:1, Front Ditch Slope, Min. D = 1 Ft.
-Y- STA 27+15 TO STA. 29+90 (LT)

DETAIL A
LATERAL BASE DITCH WITH PSRM
(Not to Scale)
Natural Ground, 3:1, d, D, 4:1, b, 1':1', Fill Slope, B, PSRM
Min. D = 1 Ft.
d = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.
w = 5 Ft.
L = 10 Ft.
PLAN VIEW
PROFILE VIEW
End of prop. ditch grade
Prop. ditch grade see Roadway profiles
Natural Ground
PSRM w/ 1' tuck at sides
-Y- STA 29+00 TO STA 30+00 (RT)

DETAIL I
PIPE OUTLET PSRM
(Not to Scale)
Roadway, RCP OUTLET, Natural Ground, PSRM
Length = 10' D = 1.5'
Eat = 23 SY of PSRM
-Y- STA 33+00 (LT)

-Y- 26+35.54
MATCHLINE SEE SHEET 5

DANIEL WAYNE THOMAS
BRENDA SMITH
DB 1801 PG 2332

METROPOLITAN LIFE INSURANCE
DB 1234 PG 786
PB 28 PG 18

REM. 12' +/- 60" CONC. COLLAR AND EXTEND TO TIE TO PROP. JB

DANIEL R. LASSITER, JR. &
EVELYN LASSITER
DB 1870 PG 2040
PB 17 PG 78

WAYNE COX
DB 990 PG 465
DB 1015 PG 309
DB 1085 PG 515

STANDARD 'V' DITCH W/PSRM
SEE DETAIL M

POC Sta. 30+52.19 -Y- =
POT Sta. 11+93.73 -Y2-

SPECIAL CUT DITCH W/PSRM
SEE DETAIL O

BERM AND FILL AT JB
SEE DETAIL K

STA.32+06.79 -Y- BEG. SUPER TRANSITION

PSRM AT PIPE OUTLET
SEE DETAIL I

SPECIAL CUT DITCH
SEE DETAIL G

PAVED PARKING

LATERAL 2' BASE DITCH W/PSRM
SEE DETAIL A

SPECIAL LATERAL 'V' DITCH W/PSRM
SEE DETAIL J

REMOVE 20'+/- EX. CONC. DITCH
EXTEND CONC. DITCH TO PROP. DITCH LINE

RT. Sta. 32+39.12 -Y-

CL B RIPRAP

POT Sta. 34+00.00 -Y-

STANDARD 'V' DITCH W/PSRM
SEE DETAIL N

POT Sta. 36+00.00 -Y-
END CONSTRUCTION

POT Sta. 32+48.47 -Y- =
POT Sta. 12+26.07 -Y3-

POT Sta. 10+00.00 -Y3-

POT Sta. 32+18.00 -BY-10-

RUTH ALLEN
DB 650 PG 235

ODELL KIVETT
DB 1087 PG 11

RALPH ALLEN
DB 1068 PG 52

US REALTY 87 ASHEBORO ASSOCIATES
DB 1396 PG 197
PB 22 PG 17

10 | 10A | 15 | 16 | 17 | 18 | 19 | 1S BK D | 1S BLK BUS | 1S BLK B 4

28-MAR-2005 13:47
rmcdowell
WBest-81 R0223105
u-3401_rdy_psh07.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3401	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

TEMP -YI-

PI Sta 10+32.38
Δ = 35° 52′ 52.7″ (RT)
D = 57° 17′ 44.8″
L = 62.62′
T = 32.38′
R = 100.00′

PI Sta 11+02.39
Δ = 43° 22′ 08.9″ (LT)
D = 57° 17′ 44.8″
L = 75.69′
T = 39.76′
R = 100.00′

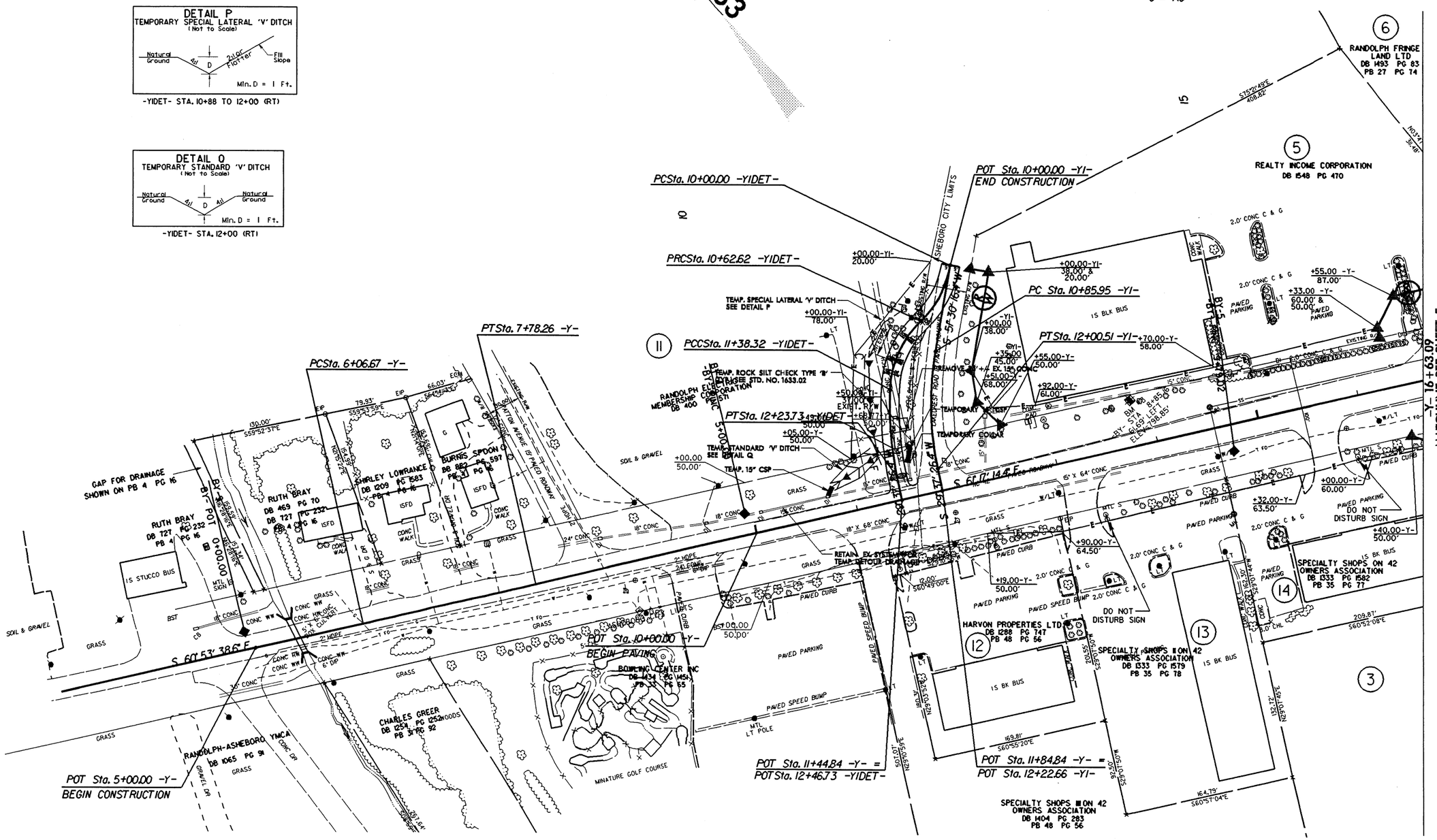
PI Sta 11+81.25
Δ = 14° 23′ 33.8″ (LT)
D = 16° 51′ 06.1″
L = 85.41′
T = 42.93′
R = 340.00′

-Y-

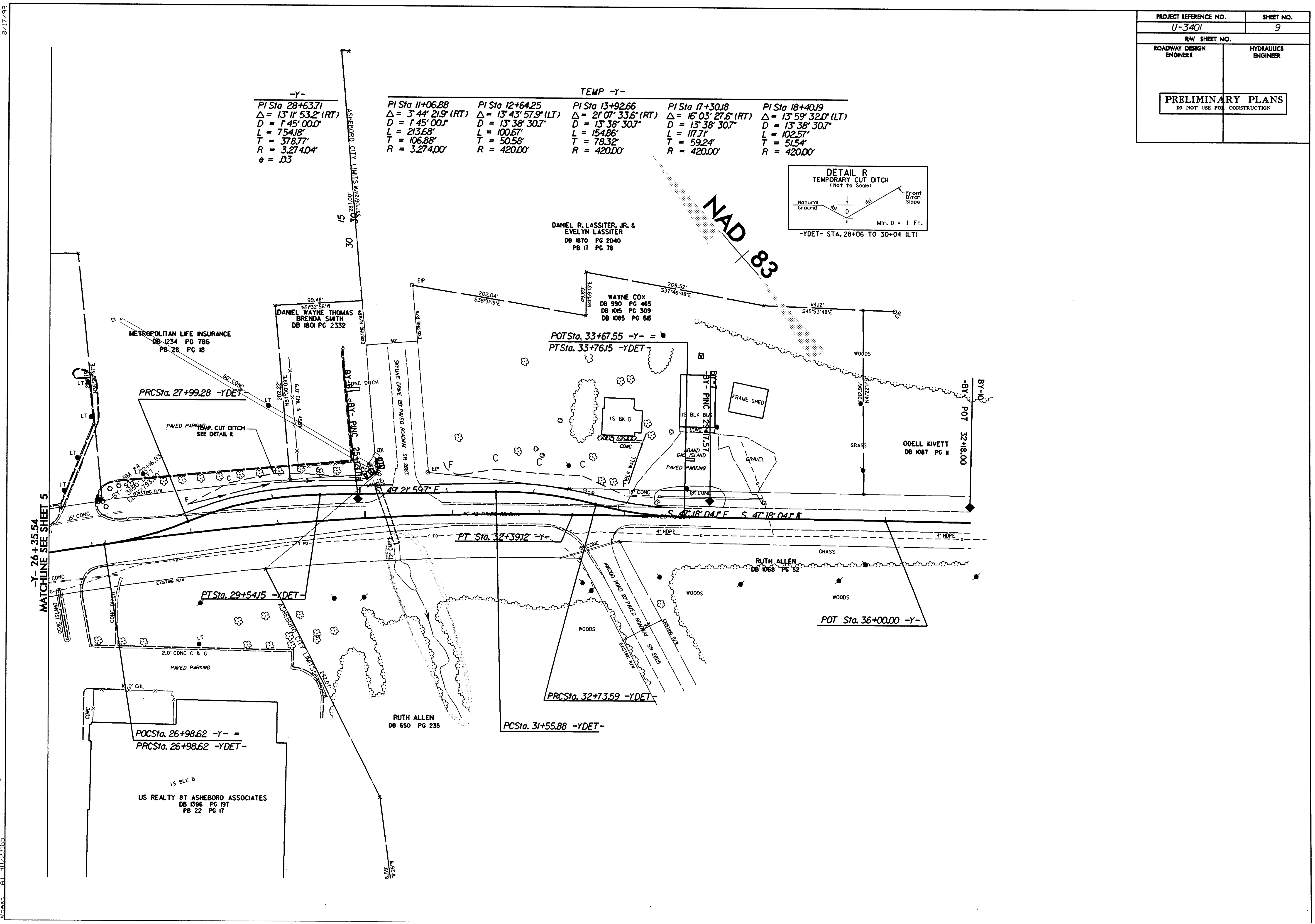
PI Sta 6+92.47
Δ = 0° 23′ 35.7″ (LT)
D = 0° 13′ 45.1″
L = 171.59′
T = 85.80′
R = 25,000.00′

-YI-

PI Sta 11+43.94
Δ = 21° 52′ 50.0″ (LT)
D = 19° 05′ 54.9″
L = 114.57′
T = 57.99′
R = 300.00′
e = RC

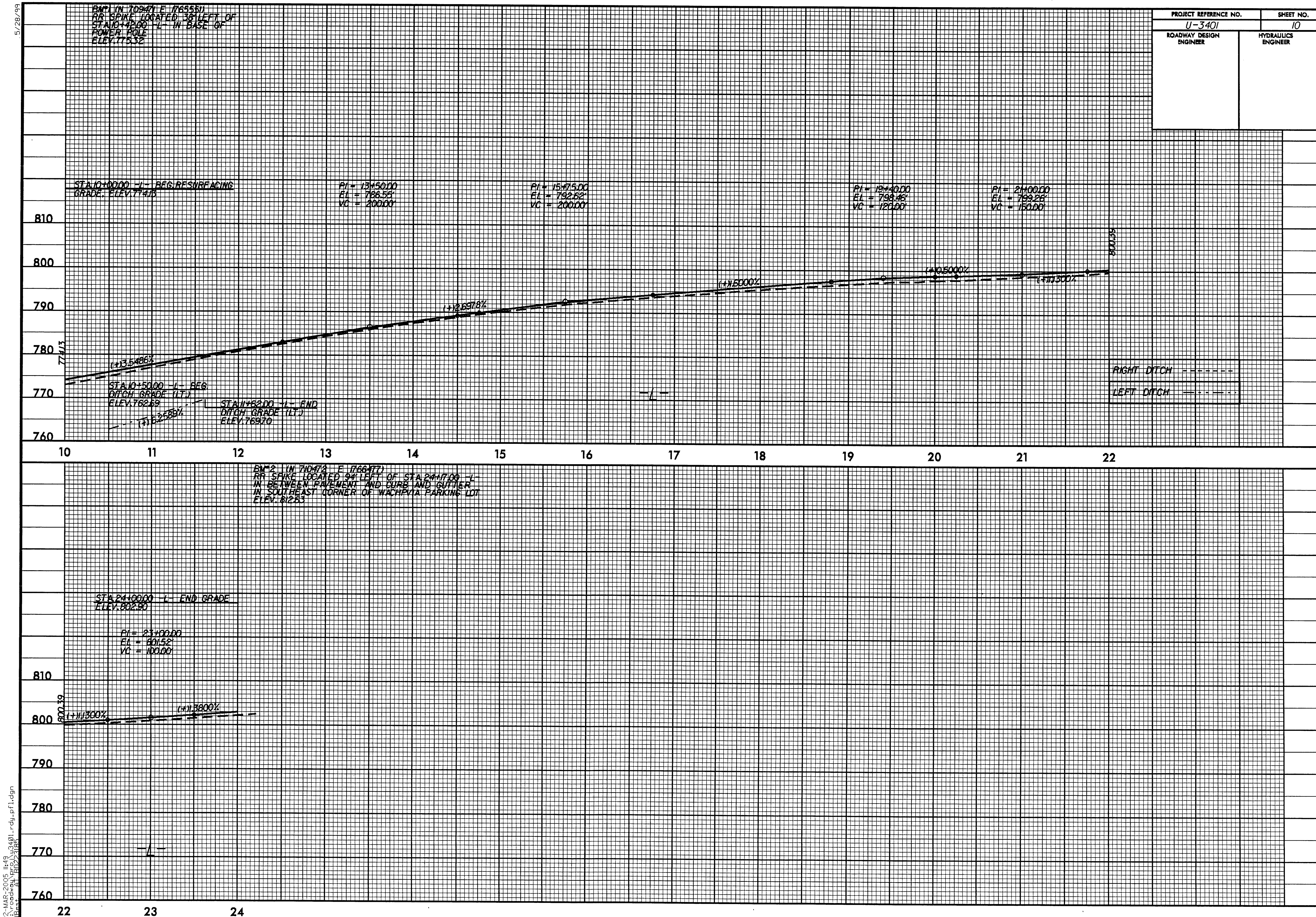


22-MAR-2005 11:49
r:\roadway\proj\U3401_RDY_PSH08.dgn
WBest AT RD223185



PROJECT REFERENCE NO.
SHEET NO.
U-3401
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
8/17/99
-Y-
PI Sta 28+63.71
Δ = 13° 11' 53.2" (RT)
D = 1° 45' 00.0"
L = 754.18'
T = 378.77'
R = 3,274.04'
e = .03
TEMP -Y-
PI Sta 11+06.88
Δ = 3° 44' 21.9" (RT)
D = 1° 45' 00.1"
L = 213.68'
T = 106.88'
R = 3,274.00'
PI Sta 12+64.25
Δ = 13° 43' 57.9" (LT)
D = 13° 38' 30.7"
L = 100.67'
T = 50.58'
R = 420.00'
PI Sta 13+92.66
Δ = 21° 07' 33.6" (RT)
D = 13° 38' 30.7"
L = 154.86'
T = 78.32'
R = 420.00'
PI Sta 17+30.18
Δ = 16° 03' 27.6" (RT)
D = 13° 38' 30.7"
L = 117.71'
T = 59.24'
R = 420.00'
PI Sta 18+40.19
Δ = 13° 59' 32.0" (LT)
D = 13° 38' 30.7"
L = 102.57'
T = 51.54'
R = 420.00'
DETAIL R
TEMPORARY CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
Min. D = 1 Ft.
-YDET- STA. 28+06 TO 30+04 (LT)
NAD 83
ASHEBORO CITY LIMITS
DANIEL R. LASSITER, JR. & EVELYN LASSITER
DB 1870 PG 2040
PB 17 PG 78
WAYNE COX
DB 990 PG 465
DB 1015 PG 309
DB 1085 PG 515
DANIEL WAYNE THOMAS & BRENDA SMITH
DB 1801 PG 2332
METROPOLITAN LIFE INSURANCE
DB 1234 PG 786
PB 28 PG 18
POT Sta. 33+67.55 -Y- =
PT Sta. 33+76.15 -YDET-
PRC Sta. 27+99.28 -YDET-
TEMP. CUT DITCH SEE DETAIL R
PAVED PARKING
SKYLINE DRIVE 20' PAVED ROADWAY SR 1983
1S BK D
1S BLK BUS
FRAME SHED
ABAND GAS ISLAND
GRAVEL
WOODS
GRASS
ODELL KIVETT
DB 1087 PG 11
-BY-10- POT 32+18.00
S 47° 18' 04.1" E
PT Sta. 32+39.12 -Y-
RUTH ALLEN
DB 1068 PG 52
POT Sta. 36+00.00 -Y-
PT Sta. 29+54.15 -YDET-
-Y- 26+35.54
MATCHLINE SEE SHEET 5
2.0' CONC C & G
PAVED PARKING
PRC Sta. 32+73.59 -YDET-
PC Sta. 31+55.88 -YDET-
RUTH ALLEN
DB 650 PG 235
POC Sta. 26+98.62 -Y- =
PRC Sta. 26+98.62 -YDET-
1S BLK B
US REALTY 87 ASHEBORO ASSOCIATES
DB 1396 PG 197
PB 22 PG 17
22-MAR-2005 11:49
r:\roadway\proj\U3401_RDY_PSH09.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3401	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



5/28/99
BM#1 (N 709471 E 1765551)
RR SPIKE LOCATED 38' LEFT OF
STA.10+42.00 -L- IN BASE OF
POWER POLE
ELEV.775.32
STA.10+00.00 -L- BEG.RESURFACING
GRADE. ELEV.774.13
PI = 13+50.00
EL = 786.55'
VC = 200.00'
PI = 15+75.00
EL = 792.62'
VC = 200.00'
PI = 19+40.00
EL = 798.46'
VC = 120.00'
PI = 21+00.00
EL = 799.26'
VC = 150.00'
800.39
(+)0.5000%
(+)1.1300%
(+)1.5000%
(+)2.6978%
(+)3.5486%
774.13
STA.10+50.00 -L- BEG
DITCH GRADE (LT.)
ELEV.762.69
(+)6.2589%
STA.11+62.00 -L- END
DITCH GRADE (LT.)
ELEV.769.70
-L-
RIGHT DITCH
LEFT DITCH
810
800
790
780
770
760
10
11
12
13
14
15
16
17
18
19
20
21
22
BM#2 (N 710472 E 1766477)
RR SPIKE LOCATED 94' LEFT OF STA.24+17.00 -L-
IN BETWEEN PAVEMENT AND CURB AND GUTTER
IN SOUTHEAST CORNER OF WACHOVIA PARKING LOT
ELEV. 812.63
STA.24+00.00 -L- END GRADE
ELEV.802.90
PI = 23+00.00
EL = 801.52'
VC = 100.00'
800.39
(+)1.1300%
(+)1.3800%
-L-
810
800
790
780
770
760
22
23
24
22-MAR-2005 11:49
r:\roadway\pro\u3401_rdy_pfl.dgn

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3401	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BM#3 (N 710479 , E 766545)
RR SPIKE LOCATED 45' LEFT OF
STA.13+82.20 -Y- IN BASE OF
TELEPHONE POLE
ELEV.798.85

STA.10+00.00 -Y- BEG.RESURFACING
GRADE. ELEV.779.44

PI = 11+10.00
EL = 784.90'
VC = 160.00'

PI = 13+30.00
EL = 791.86'
VC = 135.00'

PI = 15+50.00
EL = 794.89'
VC = 200.00'

795.44

(+)0.3616%

(+)1.467(%

(+)1.5074%

(+)4.9600%

(+)4.8052%

(+)6.8816%

(+)4.4952%

(+)3.4528%

(+)1.3708%

RIGHT DITCH - - - - - - - -
LEFT DITCH — · — · —

STA.5+47.00 -Y- BEG. DITCH GRADE (LT.) ELEV.756.50

PI=5+14.000
EI = 758.80

PI=7+03.000
EI = 760.02

STA.8+08.00 -Y- END DITCH GRADE (LT.) ELEV.765.22

STA.8+51.00 -Y- BEG. DITCH GRADE (LT.) ELEV.768.60

STA.9+77.00 -Y- END DITCH GRADE (LT.) ELEV.776.01

STA.10+05.00 -Y- BEG. DITCH GRADE (LT.) ELEV.777.06

STA.11+59.00 -Y- END DITCH GRADE (LT.) ELEV.784.46

-Y-

5 6 7 8 9 10 11 12 13 14 15 16 17

BM#4 (N 709833 , E 766999)
RR SPIKE LOCATED 52' LEFT OF
STA.27+01.00 -Y- IN BASE OF
POWER POLE
ELEV.793.80

STA.21+47.24 -Y- END RESURFACING
GRADE. ELEV.797.38

STA.22+26.97 -Y- BEG.RESURFACING
GRADE. ELEV.798.53

PI = 19+00.00
EL = 796.17'
VC = 100.00'

PI = 20+50.00
EL = 796.86'
VC = 120.00'

PI = 23+00.00
EL = 797.56'
VC = 67.00'

PI = 25+70.00
EL = 794.55'
VC = 120.00'

795.44

(+)0.3676%

(+)0.4541%

(+)0.541(%

(+)0.3588%

(-)1.1188%

(-)2.5449%

(-)2.0294%

(-)1.0652%

(-)5.6502%

786.65

785.56

776.35

RIGHT DITCH - - - - - - - -
LEFT DITCH — · — · —

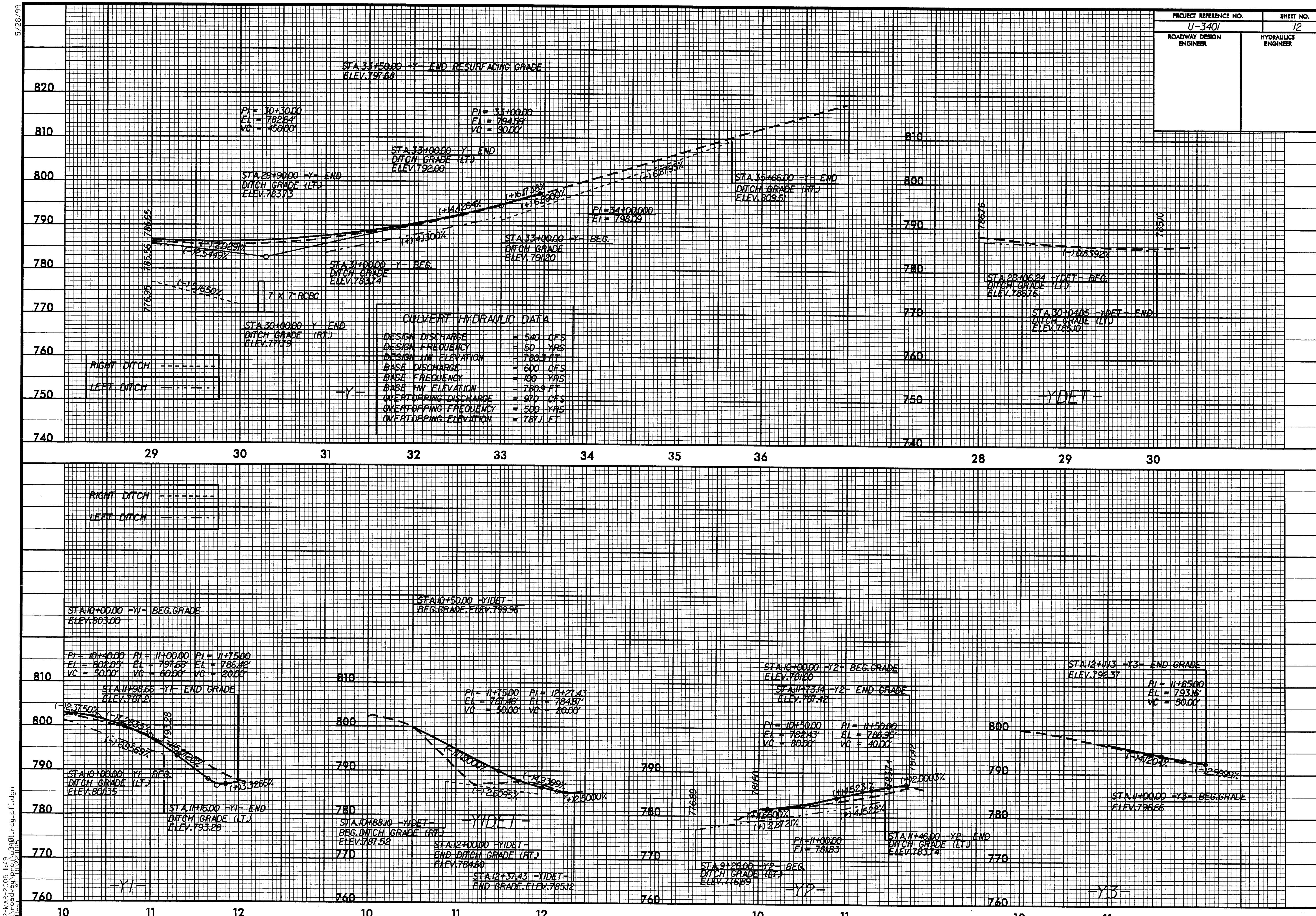
PI =28+00.000 (RT.)
EI = 782.12

-Y-

17 18 19 20 21 22 23 24 25 26 27 28 29

22-MAR-2005 11:49
F:\roadway\projects\u3401_rdy_prf.dgn
Preset

PROJECT REFERENCE NO.	SHEET NO.
U-3401	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 540 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 780.3 FT
BASE DISCHARGE	= 600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 780.9 FT
OVERTOPPING DISCHARGE	= 970 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 787.1 FT

Knepp

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

February 1, 2005

Philip Harris, III, PE
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

This letter is in response to your letter of January 18, 2005 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the proposed intersection improvement at US 64/NC 49 and NC 42 in Randolph County (TIP No. U-3401) may affect, but is not likely to adversely affect the federally endangered Schweinitz's sunflower (*Helianthus schweinitzii*). In addition, NCDOT has determined that the project will have no effect on the federally endangered Cape Fear shiner (*Notropis mekistocholas*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information provided, a plant survey was conducted on September 20, 2004. Several specimens of Schweinitz's sunflower were observed near the intersection of NC 42 and SR 2600. However, these specimens were approximately 0.4 miles outside the project limits. Based on the information provided and other information available, the Service concurs with your determination that the proposed project may affect, but is not likely to adversely affect Schweinitz's sunflower. Also, based on the lack of habitat, the Service concurs with your determination that the project will have no effect on the Cape Fear shiner. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Pete Benjamin
Ecological Services Supervisor

cc: Richard Spencer, USACE, Wilmington, NC
Beth Barnes, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

Randolph County
Intersection
US 64/NC 49 and NC 42
Federal-Aid Project No. NHF-64 (58)
State Project No. 8.1572101
WBS # 34935.1.1
T.I.P. No. U-3401

CATEGORICAL EXCLUSION

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

N.C. DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

Approved:

2/4/04
DATE

for Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

2/18/04
DATE

for John F. Sullivan, III, P.E.
Division Administrator, FHWA

Randolph County
Intersection
US 64/NC 49 and NC 42
Federal-Aid Project No. NHF-64 (58)
State Project No. 8.1572101
WBS #: 34935.1.1
T.I.P. No. U-3401

CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Branch:

February, 2004

Stephanie Ledbetter Caudill, Project Development Engineer
Project Development and Environmental Analysis Branch

Teresa Hart, P.E., Assistant Branch Manager
Project Development and Environmental Analysis Branch

TABLE OF CONTENTS

LIST OF FIGURES

Project Commitments

Randolph County
Intersection
US 64/ NC 49 and NC 42
Federal Aid Project NHF-64(58)
State Project No. 8.1572101
TIP No. U-3401
WBS# : 34935.1.1

Highway Division 8, NCDOT Right of Way Branch, NCDOT Geotechnical Unit

Any unregulated Underground Storage Tanks (UST's) will be identified by the Right of Way Branch during initial contacts and the NCDOT Geotechnical Unit will be notified of their presence prior to acquisition in order to determine if the tanks have leaked.

PD&EA O.N.E, Highway Division 8, NCDOT Geotechnical Unit

Groundwater resources will be evaluated in the final design stage in order to ensure that measures are taken, if necessary, to avoid groundwater contamination.

NCDOT Utilities Branch, Highway Division 8, NCDOT Right of Way Branch

NCDOT Utilities Branch will coordinate with Highway Division 8, and the NCDOT Right of Way Branch concerning any effects to permanent lighting outside existing ROW and belonging to the Asheboro Honda-Mazda dealership.

PD&EA, Highway Division 8

The NC Geodetic Survey will be contacted prior to construction, due to the presence of five Geodetic Markers within the vicinity of the project.

PD&EA, O.N.E.

Complete surveys for both Schweinitz's sunflower and the Cape Fear shiner will be conducted prior to beginning construction activities.

February, 2004

Randolph County
Intersection
US 64/ NC 49 and NC 42
Federal Aid Project NHF-64(58)
State Project No. 8.1572101
WBS#: 34935.1.1
TIP No. U-3401

Prepared by the Project Development and Environmental Analysis Branch
Division of Highways
North Carolina Department of Transportation

SUMMARY

1. Description of Action - The North Carolina Department of Transportation, Division of Highways, proposes making intersection improvements to US 64/ NC 49 and NC 42 in Asheboro (please see figure 1). This project has an estimated cost of $900,000 for right of way acquisition and $825,000 for construction according to the 2004-2010 Transportation Improvement Program (TIP).

2. Project Benefits - The proposed project will have a positive impact to the region by improving the level of service along US 64/NC 49 and NC 42. The intersection of US 64/ NC 49 and NC 42 is a multi-lane section, with NC 42 operating as a basic two lane with turn lanes in the project vicinity. The addition of a southbound right turn lane and a north bound left turn lane along US 64/NC 49 will serve to enhance the traffic safety and operation of the intersection by allowing a higher number of turning movements along US 64/ NC 49. The addition of a west bound right turn lane with taper, and an east bound right turn lane along NC 42 will promote efficiency by removing right turns from through traffic along NC 42. The project proposes a median island that will eliminate two conflicting left turn lane movements, as well as the addition of site distance triangles in the intersection quadrants which will serve to reduce traffic delays.

3. Environmental Effects- The proposed project is not expected to substantially impact the natural environment. No businesses will be relocated as a result of this project; however, some permanent lighting belonging to one business adjacent to the intersection may be temporarily affected. There will be no effect to architectural and historical resources listed in or eligible for the National Register of Historic Places.

Randolph County
Intersection
US 64/ NC 49 and NC 42
Federal Aid Project NHF-64(58)
State Project No. 8.1572101
WBS#: 34935.1.1
TIP No. U-3401

I. PROJECT DESCRIPTION

The North Carolina Department of Transportation, Division of Highways, proposes making intersection improvements to US 64/ NC 49 and NC 42 in Asheboro. Please refer to figure 3 for an aerial view of the project. The Asheboro Southern Bypass project is currently projected for post year build and will be located to the south of the project. The addition of a southbound through lane and a north bound left turn lane along US 64/NC 49 will serve to enhance the traffic safety and operation of the intersection by allowing a higher number of turning movements along US 64/ NC 49. The addition of a west bound right turn lane with taper, and an east bound right turn lane along NC 42 will promote efficiency by removing right turns from through traffic along NC 42. US 64 and NC 49 will be widened to include a southbound through lane and a northbound left turn lane and NC 42 will be widened to include a west bound right turn lane with a taper, and an east bound right turn lane. In addition the project proposes a median island that will eliminate two conflicting left turn lane movements, as well as site distance triangles in the intersection quadrants which will serve to reduce traffic delays. This project has an estimated cost of $1,865,000 including $365,000 for right of way acquisition and $1,500,000 for construction.

The proposed project is included in the 2004-2010 Transportation Improvement Program (TIP) with right of way acquisition scheduled to begin in federal fiscal year 2004 and construction in federal fiscal year 2005. The total estimated cost included in the TIP is $1,725,000. This estimate includes $ 900,000 for right of way and $ 825,000 for construction.

A southbound through lane and a north bound left turn lane along US 64/NC 49 as well as a west bound right turn lane with taper, and an east bound right turn lane along NC 42 are proposed for the intersection (please see figure 4). The dimensions of the improvements include 12 foot turning lanes, with 2.5-foot curb and gutter section and a 4-foot concrete median. The proposed improvements are anticipated to occur predominantly within existing right of way (ROW); however, the project

will require the purchase of approximately 12 feet of additional ROW along NC 42.

II. NEED FOR THE PROPOSED ACTION

A. General

The purpose of the project is to allow additional turning movements along US 64/NC 49 and NC 42, thereby removing traffic from through-lanes in order to improve the capacity, and level of service of the intersection. This will be accomplished by adding a southbound through lane and a north bound left turn lane along US 64/NC 49 as well as a west bound right turn lane with taper, and an east bound right turn lane along NC 42. Additionally, 700 feet of queue length will be added in the eastbound direction as well as 200 feet of queue length in the southbound direction in order to enhance through traffic movement at the intersection. In addition the project proposes a median island that will eliminate two conflicting left turn lane movements, as well as adding site distance triangles in the intersection quadrants which will serve to reduce traffic delays. The completion of the proposed Asheboro Southern Bypass, R-2536B, scheduled for ROW in 2007 and Let in 2009 according to the 2004-2010 Transportation Improvement Program, will further serve to remove traffic from this intersection. Asheboro's Thoroughfare Plan refers to NC 42 as being near or over capacity by 2025 and establishes NC 42 as needing additional lanes. The proposed intersection-widening project is consistent with these transportation system plans, as TIP U-3401 will improve capacity, and Level of Service at this intersection.

B. Transportation Plan

The mutually adopted August, 1998 Asheboro Thoroughfare plan designates both US 64/NC 49 and NC 42 as major thoroughfares. Also, in the project vicinity, the proposed Asheboro Southern Bypass, R-2536, according to the thoroughfare plan will be designated as a Freeway. The proposed project U-3401, along with the adjacent project, TIP No. R-2536, was added to the TIP after the Thoroughfare plan was adopted (see figure 6).

When completed, this project will improve capacity along US 64/NC 49 and will improve the level of service in the vicinity of this intersection. In addition, the proposed improvements associated with

1.0 INTRODUCTION

The following Natural Resources Technical Report is submitted to assist in the preparation of a Categorical Exclusion (CE) for the proposed project. The project is located in the central portion of Randolph County (Figure 1).

1.1 Project Description

The proposed project consists of improvements to the intersection of US 64/NC 49 and NC 42. The proposed intersection improvements involve widening US 64/NC 49 from a five-lane curb and gutter roadway to a seven-lane shoulder facility, and widening NC 42 from a four-lane shoulder facility to a five-lane shoulder facility. The existing right-of-way at the intersection is a variable 60 foot (18.3 m) easement. There are no plans at this time to acquire additional right-of-way for the intersection. In addition, the project also includes widening of NC 42 from a two-lane roadway to 4-lane roadway from Old Salisbury Road (SR 2189) to Crystal Wood Road (SR 2670); approximately 2 miles (3.22 km), with a ROW of 200 ft (60.1 m).

This report covers potential impacts to natural or man-disturbed resources along approximately 800 feet of roadway northeast and 800 feet of roadway southwest on US 64/NC 49 beginning at the center of the intersection. In addition, this report discusses potential impacts along NC 42 from Old Salisbury Road (SR 2189) to Crystal Wood Road (SR 2670).

The purpose and need of this project is to increase the capacity and improve safety along this section of NC 42 and US 64/NC 49. The projected traffic in the design year 2025 is expected to nearly double from 2000.

1.2 Environmental Commitments

At this time, there are not any site specific environmental commitments, except for several stream crossings that will require culvert extensions The NCDOT should use appropriate sediment and erosion control measures to prevent non-point source pollution. All standard guidelines and recommendations apply.

1.3 Purpose

The purpose of this technical report is to inventory, catalog and describe the various natural resources likely to be impacted by the proposed action. This report also attempts to identify and estimate the probable consequences of the anticipated impacts to these resources. Recommendations are made for measures which will minimize resource impacts. **These descriptions and estimates are relevant only in the context of existing preliminary design concepts. If design parameters and criteria change, additional field investigations will need to be conducted.**

1.4 Methodology

Research was conducted prior to field investigations. Information sources used in this pre-field investigation of the study area include: U.S. Geological Survey (USGS) quadrangle maps for Randolph County (Asheboro, NC, 1994), Geographical Information Systems (NC Center for Geographical Information & Analysis), U.S. Fish and Wildlife Service (USFWS),

Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service) soil maps and NCDOT aerial photographs of project area (1"=100'). Water resource information was obtained from publications of the North Carolina Department of Environment, Health and Resources (NCDENR 1996, 2001), NCDENR Internet Page 2001 and from the NC Center for Geographic Information and Analysis (Environmental Sensitivity Base Map of Randolph County, 1995). Information concerning the occurrence of federal and state protected species in the study area was gathered from the USFWS list of protected species and species of concern, and the NC Natural Heritage Program (NCNHP) database of rare species and unique habitats.

General field surveys were conducted along the proposed alignment by NCDOT biologist Matt Haney and NCDOT contract biologist Harold M. Brady on 29 January 2002. Plant communities and their associated wildlife were identified and recorded. Wildlife identification involved using one or more of the following observation techniques: active searching and capture, visual observations (binoculars), and identifying characteristic signs of wildlife (sounds, scat, tracks and burrows). Jurisdictional wetland determinations were performed utilizing delineation criteria prescribed in the "Corps of Engineers Wetland Delineation Manual" (Environmental Laboratory, 1987). Jurisdictional surface water determinations were performed using guidance provided by NC Division of Water Quality [(DWQ), formerly known as the Division of Environmental Management (DEM)],"Field Location of Streams, Ditches, and Ponding" (NCDENR-DWQ, 1997).

1.5 Qualifications of Investigators

1) Investigator: Harold M. Brady, biologist, ARCADIS G&M
   Education: B.S. Natural Resources, NC State University, 1998
   Experience: ARCADIS G&M, January 2000-present

2) Investigator: Matthew M. Haney
   Education: B.S. Natural Resources-Ecosystem Assessment, North Carolina State University, Raleigh, North Carolina
   Experience: NC Dept. of Transportation Oct. 1999-present
   NC Forest Service May 1998-August 1998
   US Forest Service, Center for Forested Wetlands Research May 1997-August 1997

1.6 Definitions

Definitions for aerial descriptions used in this report are as follows: **Project Study Area** denotes the area bounded by proposed construction limits; **Project Vicinity** describes an area extending 0.5 mi (0.8 km) on all sides of the project study area; and **Project Region** is equivalent to an area represented by a 7.5 minute USGS quadrangle map with the project occupying the central position.

Figure 1. Vicinity Map

2.0 PHYSICAL RESOURCES

Soil and water resources, which occur in the study area, are discussed below. Soils and availability of water directly influence composition and distribution of flora and fauna in any biotic community.

The project study area lies within the Piedmont physiographic region in the central part of North Carolina. The topography in this section of Randolph County is gently rolling with some steeper inclines throughout. Commercial and residential uses are the major land uses in this area. Project elevation ranges between 730.0 and 890.0 ft (222.5 and 271.3 m) above mean sea level.

2.1 Soils

There are two general soil series mapped by the Randolph County NRCS within the project area, Georgeville and Uwharrie. The two soil series are represented by six distinct soil mapping units. None of these soils are listed as either hydric or containing hydric inclusions. Descriptions of the six individual soil mapping units are presented in Table 1.

Table 1. Descriptions of soil mapping units within the project study area.

Soil mapping unit	Slope	Hazards	Description
Georgeville silty clay loam	2-8%	None	Well-drained eroded soil with moderate permeability, a loamy surface layer, and a clayey subsoil.
Georgeville silty clay loam	8-15%	None	Well-drained eroded soil with moderate permeability, and a low shrink-swell potential.
Georgeville silt loam	2-8%	None	Well-drained soil with moderate permeability and located on gently sloping uplands.
Georgeville-Urban Complex	2-10%	None	The majority of the land within this mapping unit has been disturbed to the extent that a soil type can no longer be recognized.
Uwharrie silt loam, extremely bouldery	15-45%	None	Well-drained soil with moderate permeability, and containing many stones and boulders scattered over the surface.
Uwharrie silt loam, extremely stony	2-15%	None	Well-drained soil with moderate permeability, and containing many stones scattered throughout the surface.

Soil core samples were taken throughout the project area primarily searching for areas containing hydric soils; however, no hydric soils were observed within the project area.

2.2 Water Resources

This section contains information concerning those water resources, if present, likely to be impacted by the project. Water resource information encompasses physical aspects of the

resource, its relationship to major water systems, Best Usage Standards and water quality of the resources. Probable impacts to these water bodies are also discussed, as are means to minimize impacts.

2.2.1 Waters Impacted and Characteristics

Six streams, including Squirrel Creek, three unnamed tributaries (Ut) to Squirrel Creek and two Ut to Vestal Creek, will be directly impacted by the proposed project. Squirrel Creek and Vestal Creek are located in sub-basin 03-06-09 of the Cape Fear River Basin. Table 2 describes the characteristics of the streams located within the project area.

Table 2: Characteristics of Streams Impacted

surface water	water flow classification	water depth	bank height	channel width	flow rate
Ut 1 to Squirrel Creek	intermittent	3.0-6.0in (7.6-15.2cm)	2.0-3.0ft (0.6-0.9m)	3.0-6.0ft (0.9-1.8m)	moderate
Ut 2 to Squirrel Creek	intermittent	3.0-6.0in (7.6-15.2cm)	1.0-2.0ft (0.3-0.9m)	3.0-6.0ft (0.9-1.8m)	slow
Squirrel Creek	perennial	3.0-6.0in (7.6-15.2cm)	1.0-2.0ft (0.3-0.9m)	2.0-4.0ft (0.6-1.2m)	slow
Ut 3 to Squirrel Creek	intermittent	3.0-6.0in (7.6-15.2cm)	2.0-3.0ft (0.6-0.9m)	3.0-6.0ft (0.9-1.8m)	moderate
Ut 1 to Vestal Creek	perennial	4.0-8.0in (10.1-20.3cm)	2.0-3.0ft (0.6-0.9m)	5.0-10.0ft (1.5-3.0m)	moderate
Ut 2 to Vestal Creek	perennial	6.0-12.0in (7.6-30.5cm)	2.0-3.0ft (0.6-0.9m)	2.0-4.0ft (0.6-1.2m)	slow

It should be noted, that heavy rains had occurred in the project region approximately 36-48 hours prior to the site reconnaissance on 29 January 2002. This caused higher than normal water levels in all of the streams within the project area.

Ut 1 to Squirrel Creek is located approximately 1 mile southeast of the US 64/NC 49 and NC 42 intersection. The substrate is composed of sand, gravel, and woody debris. The channel contained strong under-cut banks, had a good riffle/pool sequence, and fair sinuosity. Ut 2 to Squirrel Creek is located approximately 320.0 ft (97.5 m) east of the intersection of NC 42 and Browers Chapel Road (SR 2826). The substrate is composed of sand, gravel, and woody debris. Squirrel Creek is located approximately 950.0 ft (289.6 m) west of the intersection of NC 42 and Browers Chapel Road (SR 2826). The substrate is composed of sand, gravel, and cobble. Ut 3 to Squirrel Creek is located approximately 1050.0 ft (320.0 m) east of the NC 42 and SR 2600 intersection. The substrate is composed of sand, gravel, and cobble, with exposed bedrock in numerous places. Several large rock outcroppings are present within the floodplain, approximately 50 feet (15.2 m) north of Ut 3 to Squirrel Creek. A natural spring was observed at the head of an ephemeral stream feeding the stream on the northern side of NC 42. The spring had a small rock structure built around it and was covered with a small piece of metal. Ut 3 to Squirrel Creek was determined to be ephemeral on the southern side of NC 42.

Utl to Vestal Creek is located approximately 850.0 ft (259.1 m) east of the NC 42 and US 64/NC 49 intersection. The substrate is composed of sand, gravel, and cobble, with rip-rap constituting the substrate of the channel within 30 feet of both sides of NC 42. Ut 1 to Vestal Creek on the southern side of NC 42 has a wide well developed floodplain with good sinuosity; however, the northern side had been straightened and is used as a roadside ditch along SR 2683. An inordinate amount of household and construction debris was observed within the stream on the northern side of NC 42. Ut 2 to Vestal Creek is located approximately 1550.0 ft (320.0 m) west of the NC 42 and US 64/NC 49 intersection. The substrate is composed of silt, sand, gravel, and woody debris. The floodplain surrounding Ut 2 to Vestal Creek has been severely disturbed with development, and the channel appears to have been straightened on both sides of Highway NC 42.

2.2.2 Best Usage Classification

Streams are assigned a best usage classification by the DWQ. The classification of Squirrel Creek [Index no. 17-22-6] and Vestal Creek [Index no. 17-22-4] are C. Class C uses include aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. Unnamed tributaries receive the same best usage classification as the named streams into which they flow. Therefore, the classifications of the six streams within the project area are C. Both Squirrel Creek and Vestal Creek are tributaries of Richland Creek which also maintains a C classification.

Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within 1.0 mile (1.6 km) of project study area.

2.2.3 Water Quality

The DWQ has initiated a basinwide approach to water quality management for the 17 river basins within the state. The basinwide approach allows for more intensive sampling of biological, chemical and physical data that can be used in basinwide assessment and planning. Benthic macroinvertebrates are intensively sampled for specific river basins. Benthic macroinvertebrates have proven to be a good indicator of water quality because they are sensitive to subtle changes in water quality, have a relatively long life cycle, are nonmobile (compared to fish) and are extremely diverse. The overall species richness and presence of indicator organisms help to assess the health of streams and rivers. All basins are reassessed every five years to detect changes in water quality and to facilitate National Pollution Discharge Elimination System (NPDES) permit review. **No biological sampling sites are located within 3.0 mi (4.8 km) of the US 64/NC 49 and NC 42 intersection widening and NC 42 widening project.** The nearest sampling site (B-19) is located approximately 12.0 mi (19.3 km) southeast and downstream from the project area, near the confluence of Richland Creek and the Deep River. This site received a **Good** rating in 1993 and an **Excellent** rating in 1998. There are no sampling sites upstream of the project area.

Point source dischargers located throughout North Carolina are permitted through the NPDES Program. **There are no permitted dischargers within the Richland Creek basin.**

The nearest discharger is the City of Asheboro Waste Water Treatment Plant located approximately 5.0 mi (8.0 km) north of the project area. The waste water treatment facility discharges into Hasketts Creek.

Nonpoint source discharge refers to runoff that enters surface waters through stormwater or snowmelt. Agricultural activities may serve as a source for various forms of nonpoint source pollutants. Land clearing and plowing disturb soils to a degree where they are susceptible to erosion, which can lead to sedimentation in streams. Sediment is the most widespread cause of nonpoint source pollution in North Carolina. Pesticides, chemical fertilizers, and land application of animal wastes can be transported via runoff to receiving streams and may potentially elevate concentrations of toxic compounds and nutrients. Animal wastes can also be a source of bacterial contamination and elevate biochemical oxygen demand. Drainage ditches in poorly drained soils enhances the transportation of stormwater into surface waters (NCDEHNR-DEM, 1993).

3.0 BIOTIC RESOURCES

Biotic resources include aquatic and terrestrial ecosystems. This section describes those ecosystems encountered in the study area, as well as, the relationships between fauna and flora within these ecosystems. Composition and distribution of biotic communities throughout the project area are reflective of topography, hydrologic influences and past and present land uses in the study area. Descriptions of the terrestrial systems are presented in the context of plant community classifications and follow descriptions presented by Schafale and Weakley (1990) where possible. Dominant flora and fauna observed, or likely to occur, in each community are described and discussed.

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Plant taxonomy generally follows Radford, et al. (1968). Animal taxonomy follows Martof, et al. (1980), Menhinick (1991), Potter, et al. (1980) and Webster, et al. (1985). Subsequent references to the same organism will include the common name only. Fauna observed during the site visit are denoted with an asterisk (*). Published range distributions and habitat analysis are used in estimating fauna expected to be present within the project area.

3.1 Biotic Communities

Three communities are found in the project study area: Maintained/Disturbed, Mixed Pine/Hardwood Forest, and Alluvial Forest. Community boundaries within the study areas are often not well defined and include a transition zone between them. Terrestrial faunal species likely to occur within the study area will exploit all communities for shelter and foraging opportunities or as movement corridors.

3.1.1 Maintained/Disturbed Community

This is the most common community type found within the project boundaries, occurring on the shoulder and in the maintained residential, commercial, and agricultural areas adjacent to NC 42 and US 64/NC 49. Significant soil disturbance and compaction, along with frequent mowing or herbicide application, keep this community in an early successional state.

Road shoulders act as buffers between the roadway and surrounding communities by filtering stormwater runoff and reducing runoff velocities. The width of the road shoulder is approximately 5.0 ft (1.5 m), with somewhat wider shoulders near intersections. Vegetation occurring along the road shoulder includes various grasses, clover (*Trifolium* sp.), wild strawberry (*Fragaria virginiana*), fescue (*Festuca* spp.), dandelion (*Taraxacum officinale*), chickweed (*Stellaria* sp.), wild onion (*Allium canadense*), vetch (*Vicia* sp.), thistle (*Carduus* sp.), geranium (*Geranium carolinianum*), goldenrod (*Solidago* sp.), henbit (*Lamium amplexicaule*), and corn salad (*Valerianella radiata*).

Only one agricultural area was observed within the project area, approximately 1 mile southeast of the US 64/NC 49 and NC 42 intersection. The agricultural field has been left fallow for approximately five to ten years. Vegetation within this area includes sweet gum (*Liquidambar styraciflua*), black cherry (*Prunus serotina*), winged elm (*Ulmus alata*), eastern red cedar (*Juniperus virginiana*), red maple (*Acer rubrum*), Chinese privet (*Ligustrum sinense*), juncus (*Juncus* spp.), and foxtail grass (*Setaria* spp.).

Medium to large sized trees within the commercial and residential areas are comprised primarily of northern red oak (*Quercus rubra*), willow oak (*Q. phellos*), white oak (*Q. alba*), red maple, Virginia pine (*Pinus virginiana*), white pine (*P. strobus*), eastern red cedar, yellow poplar (*Liriodendron tulipifera*), bradford pear (*Pyrus calleryana*), crepe myrtle (*Lagerstroemia indica*), southern magnolia (*Magnolia grandiflora*), wax myrtle (*Myrica cerifera*), and flowering dogwood (*Cornus florida*). Smaller vegetation include elderberry (*Sambucus canadensis*), pokeweed (*Phytolacca americana*), boxwoods (*Buxus sempervirens*), tulip (*Tulipa* sp.), daffodil (*Narcissus pseudo-narcissus*), and daylilly (*Hemerocallis* sp.).

3.1.2 Mixed Pine/Hardwood Forest

The Mixed Pine/Hardwood Forest community is interspersed within the maintained residential areas along NC 42. This community includes areas that are steeper and rockier than the other two communities, and range in age from 20 to 60 plus years. The forest understory is relatively open which wildlife can use as corridors between streams within the alluvial forest communities and the grasses and herbaceous plants within the maintained/disturbed communities.

The forest canopy primarily includes white oak, scarlet oak (*Quercus coccinea*), black oak (*Q. velutina*), rock chestnut oak (*Q. prinus*), mockernut hickory (*Carya tomentosa*), loblolly pine (*Pinus taeda*), Virginia pine, red maple, eastern red cedar, white ash (*Fraxinus americana*), sweetgum, black cherry, American holly (*Ilex opaca*), southern magnolia, sourwood (*Oxydendrum arboreum*), and blackgum (*Nyssa sylvatica*). The understory is primarily composed of Chinese privet, flowering dogwood, poison ivy (*Toxicodendron radicans*), multiflora rose (*Rosa multiflora*), blackberry (*Rubus argutus*), and Japanese honeysuckle (*Lonicera japonica*).

Randolph County to the north, with Alamance and Chatham Counties to the east, Moore and Montgomery Counties to the south, and Davidson County to the west. Existing land uses include gas stations/convenience stores, a car dealership and a mixture of strip malls, eating establishments and other commercial land uses.

3. Zoning

Land development surrounding the intersection of US 64/NC 49 and NC 42 is predominantly high-density and urban in nature. Commercial land uses dominate all four quadrants of the intersection and the majority of the study area. According to the approved Asheboro Thoroughfare Plan, the dominant land use is low density residential, which is concentrated mostly in the outlying areas. Commercial development is located predominantly in the central business area and in strip developments along major NC and US routes. Industry land use is located predominantly along Northwestern Railroad to the north and south of the central business district.

A BP gas station is located in the northeast quadrant of the intersection; Asheboro Mazda & Honda is located in the southeast quadrant of the intersection; Blockbuster Video and Papa John's are located in the southwest quadrant of the intersection and the Crossroads Center is located in the northwest quadrant. Curb and gutter exists at all four corners of the intersection and on Dixie Drive, but not on NC 42 past the intersection. In addition, no pedestrian crosswalks or sidewalks, and no bicycle lanes exist at the intersection. Furthermore, these facilities are virtually non-existent throughout the study area.

Although NC 42 consists of four lanes at the intersection, it quickly narrows to two lanes north of Dixie Drive. The businesses north of the project site on NC 42 include a Ryan's Steakhouse, Staples, and Best Western on the east side of the road, and Specialty Shops on 42, The Family Sports Center and the YMCA on the west side of the road. Randolph Mall, located behind Ryan's Steakhouse and Staples, can be accessed from this portion of NC 42 as well.

Klaussner Furniture, the largest employer in Asheboro, owns a 100-acre site on US 64/NC 49 (Dixie Drive) approximately one mile east of NC 42. The City's planning staff believes that this site may eventually be developed as an industrial or retail center; however, it appears that development on the site may be hindered by the presence of soils with

severe limitations for development (as shown on the "Physical Development Limitations" map in the *2020 Land Development Plan).* In addition, a small parcel that was previously owned by Randolph Electric is for sale near Staples and Randolph Mall. This parcel is currently zoned as general commercial, and is proposed to remain commercial in the *2020 Land Development Plan.*

4. Future Land Use

The US 64/NC49 and NC 42 intersection improvement project is located within the City of Asheboro, which has an adopted Thoroughfare Plan, however this Thoroughfare Plan does not adequately address recommendations for future development patterns. The *2020 Land Development Plan* serves as Asheboro's guide in making decisions related to land development and growth. This document presents a vision for growth with policies that will help the City of Asheboro to meet its goals for development over the next two decades. More specifically, the Plan introduces a "toolkit" of land development categories designed to build the "Proposed Land Uses Map" for the City. This resource proposes commercial uses for the area immediately surrounding the intersection of Dixie Drive and NC 42. For a more complete listing of dwelling unit, employment by category, and census tract information, please refer the complete Community Impact Assessment included in the appendix section of this document.

5. Farmland

The Farmland Protection Policy Act (FPPA) is designed to minimize the degree to which federally sponsored programs contribute to the "unnecessary and irreversible conversion of farmland to non-agricultural uses," and ensure that these programs are consistent with state, local and private programs to protect farmland(US Department of Agriculture, "Farmland Protection Policy Act", US Department of Agriculture on-line: Available from http://www.info.usda.gov/nrcs/fpcp/fppa.htm; Internet).

The study area is almost completely urbanized and farming uses are not prevalent in the area; therefore, the proposed improvements should not negatively impact any current commercial agricultural operations.

B. Community and Relocation Impacts

No residences or businesses will be relocated as a result of this project. For a complete Community Impact Assessment (CIA) report, please refer to the appendix of this document.

C. Cultural Resources

1. Archaeological Resources

The State Historic Preservation Office (SHPO) has reviewed the project and is aware of no properties of historic or archeological importance within the proposed project area (See Appendix). No archaeological survey was recommended.

2. Historic Architectural Resources

The State Historic Preservation Office (SHPO) has reviewed the project and is aware of no historic architectural sites within the proposed project area (See Appendix).

D. Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation Act of 1966 specifies that publicly owned land from a public park, recreation area, wildlife and waterfowl refuge, or land of a historic site of national, state, or local significance may be used for federal projects only if: a) there is no feasible and prudent alternative to the use of the land; and b) the project includes all possible planning to minimize harm to 4(f) lands resulting from such use.

No resources within the project area were identified as protected by Section 4(f) of the USDOT Act of 1966, as amended.

E. Natural Resources

Summary

No wetlands have been identified within the project vicinity. There are no High Quality Waters (HQW), water supplies, nor outstanding resource waters occurring within the project area. No biological sampling sites are located within 3.0 miles of the intersection project. In addition, there are no permitted dischargers within the Richland Creek basin.

Minimal impacts are expected to occur during construction activities. Therefore, a Nationwide Permit 14 will apply as well as a NC Division of Water Quality (DWQ) Section 401 Water Quality Certification prior to the issuance of a Section 404 permit. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to Waters of the US.

Soil core samples were taken throughout the project area primarily searching for areas containing hydric soils; however, no hydric soils were observed within the project area.

The project is located within an area of the state known for the presence of an endangered plant species, Schweinitz's Sunflower, as well as an endangered animal species, the Cape Fear shiner. As no endangered species will are likely to be effected by construction within the project area, a finding of "No Adverse Effect" is sufficient for both the Cape Fear shiner and a finding of "No Affect-Not Likely to Adversely Affect" is sufficient for Schweinitz's Sunflower. Surveys will be completed for both species prior to construction. Please see the appendix of this document for a full Natural Resources Technical Report.

F. Highway Traffic Noise Analysis

The project proposes improvements such as the construction of additional turn lanes to the intersection of US 64/NC 49 and NC 42. The project will not increase traffic volumes. Generally, the project's impact on noise will not be significant.

This evaluation completes the assessment requirement for highway traffic noise (Title 23 CFR Part 772). Please refer to the appendix of this document for a complete Noise Analysis report.

G. Air Quality Analysis

The proposed project is located in Randolph County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR, Part 51 is not applicable, because this project is located in an attainment area. This project is not anticipated to create any adverse effect on air quality in this attainment area. If any vegetation is disposed of by burning during construction, the burning

shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520.

H. Hazardous Materials Involvement

Representatives of the NCDOT Geotechnical Unit - Environmental Section performed a field reconnaissance along the project corridor and found three UST (Underground Storage Tank) sites within the project area. The Geotechnical Unit performed a field reconnaissance survey and found three (4) UST sites within the project area. The first of the three UST sites is the BP Shop. This active gas station is located in the northeast quadrant of the US 64/NC 42 intersection. The registry shows that four (4) USTs are currently in use. These tanks are about 130 feet from the edge-of-pavement at US 64, while the pump island is about 51 feet away. No monitoring wells were noted and it does not appear the site is under remediation at this time. **This site will probably have a minimum impact to the project.** The next site, Asheboro Mazda/Honda is an active car dealership and is located in the southeast quadrant of the US 64/NC 42 intersection. The UST Section's registry shows a waste oil UST was removed from the site in 1994. It does not appear that the tank had leaked. The facility still does service work and produces waste fluids that are place in an aboveground storage tank (AST). The waste disposal company routinely pumps out the tank and disposes of the material. The waste oil AST is behind the building and is over 150 feet from NC 42. This appears to be the only remaining potential source of contamination at the site (there are no underground tanks, oil/water separators or in-ground hydraulic lifts. **This site will probably have a minimum impact to our project.** The third site is Tank and Tummy #4 and is an active gas station located on the south side of US 64, approximately 0.1 miles west of NC 42. The UST Section's registry shows that a total of eight (8) USTs (1 diesel, 6 gasoline and 1 kerosene) were removed from the site in 1980. There are currently five (5) USTs in use at the site, in two separate tank fields. The closest UST field is about 97 feet from the edge-of-pavement at US 64, while the closest pump island is approximately 137 feet from US 64. About 12 monitoring wells were noted on the site indicating there has been a release (GWI # 14879). **Given the number of monitoring wells on the property, our project could potentially impact contamination from this site.** The final site is Cox Groceryand is a former gas station located on the west side of NC 42 about 100 feet west of SR 2825 (Inwood Road). The UST Section's registry shows that a total of two (2) gasoline USTs were removed from

the site in 1993. No soil contamination above state action levels was identified during the removal work. The former tank field was about 50 feet from the centerline of NC 42, while the pump island was about 75 feet from NC 42. **This site will probably have a minimum impact to the project.** Should the project limits change, please inform this office as soon as possible. Please note that our evaluation mainly covers regulated (commercial) USTs and that there is still the possibility of unregulated USTs (farm tanks or home heating oil tanks) being impacted by the project. These unregulated USTs should be identified by Right-of-Way during initial contacts and our office should be notified of their presence prior to acquisition so that we can determine if the tanks have leaked.

Based on the field reconnaissance and records search, there should be no other contamination concerns for this project. If any unregulated USTs (or any potential source of contamination) is discovered by Right-of-Way during their initial contacts with impacted property owners, our office should be notified of their presence prior to acquisition. This is so an assessment can be conducted to determine the extent of any contamination. This assessment will also serve to estimate the associated clean up costs and allow us to make right-of-way recommendations. Please see the Appendix for a full Geo-environmental evaluation.

I. Flood Hazard Evaluation and Hydraulic Concerns

Randolph County is currently participating in the National Flood Insurance Regular Program. Of the stream crossings within the project limits, none were found to have flood insurance study (flood hazard) involvement. The intersection of US 64/NC 49 and NC 42 is not located in a section of Randolph County in which flood hazards have been identified. There are no major rivers or creeks within the study area. According to the Division of Water Quality, the entire roadway project is not located within either a critical or protected watershed area. Therefore, no impacts upon watersheds or water supply are anticipated. Existing drainage patterns will be maintained to the best extent practicable. Groundwater resources will be evaluated in the final design to ensure that measures are taken, if necessary, to avoid groundwater contamination.

J. Geodetic Markers

There are five Geodetic markers located within the project's general vicinity (see Appendix). Since it is anticipated that this project will impact

the markers, as at least one marker is located within the project limits, the NC Geodetic Survey will be contacted prior to construction.

VI. AGENCY AND PUBLIC INVOLVEMENT

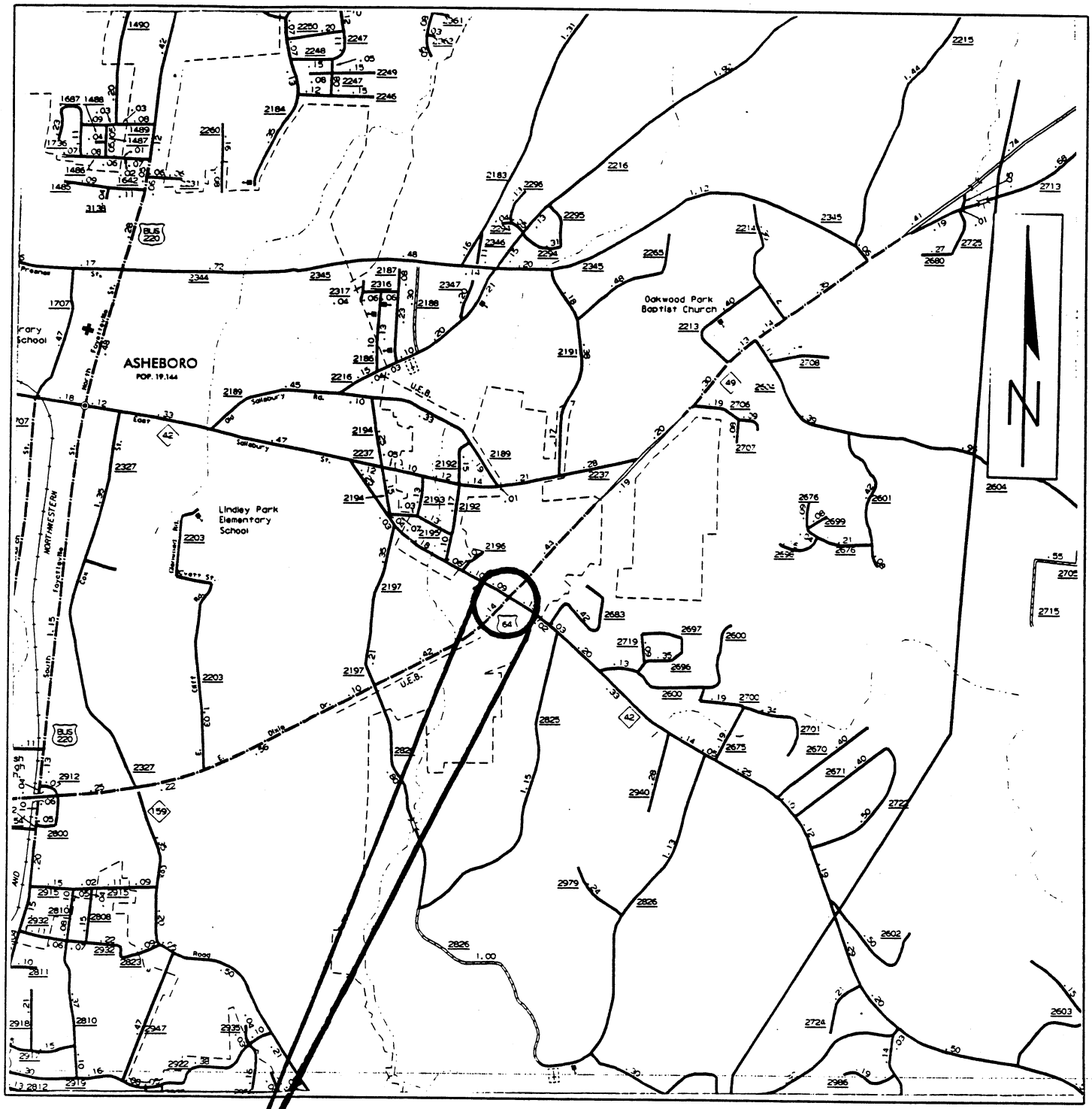
On August 15, 2001 a letter was mailed to the following state and local agencies to solicit suggestions and receive environmental input concerning the proposed project (Note: an asterisk indicates those agencies which responded to this letter):

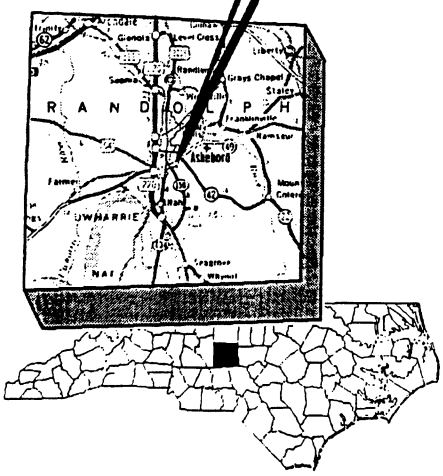
*U. S. Fish and Wildlife Service
*Army Corps of Engineers
*N. C. State Clearinghouse
*N. C. Department of Env. Health and Natural Resources
*NC Division of Water Quality
*N. C. Department of Cultural Resources
*N. C. Wildlife Resources Commission
N. C. Department of Public Instruction

Community comments and concerns have been taken into consideration during the planning stage of this project. Businesses in the project vicinity were sent a newsletter in February of 2002 to inform them of the proposal and a workshop was held February 26, 2002 (see Appendix). The newsletter generated several responses from adjacent businesses concerning driveway access during the construction phase of the project.

A follow up letter will be sent to individual property owners, in place of a public hearing, to allow further public comment on the project once a preliminary design is available.

FIGURES



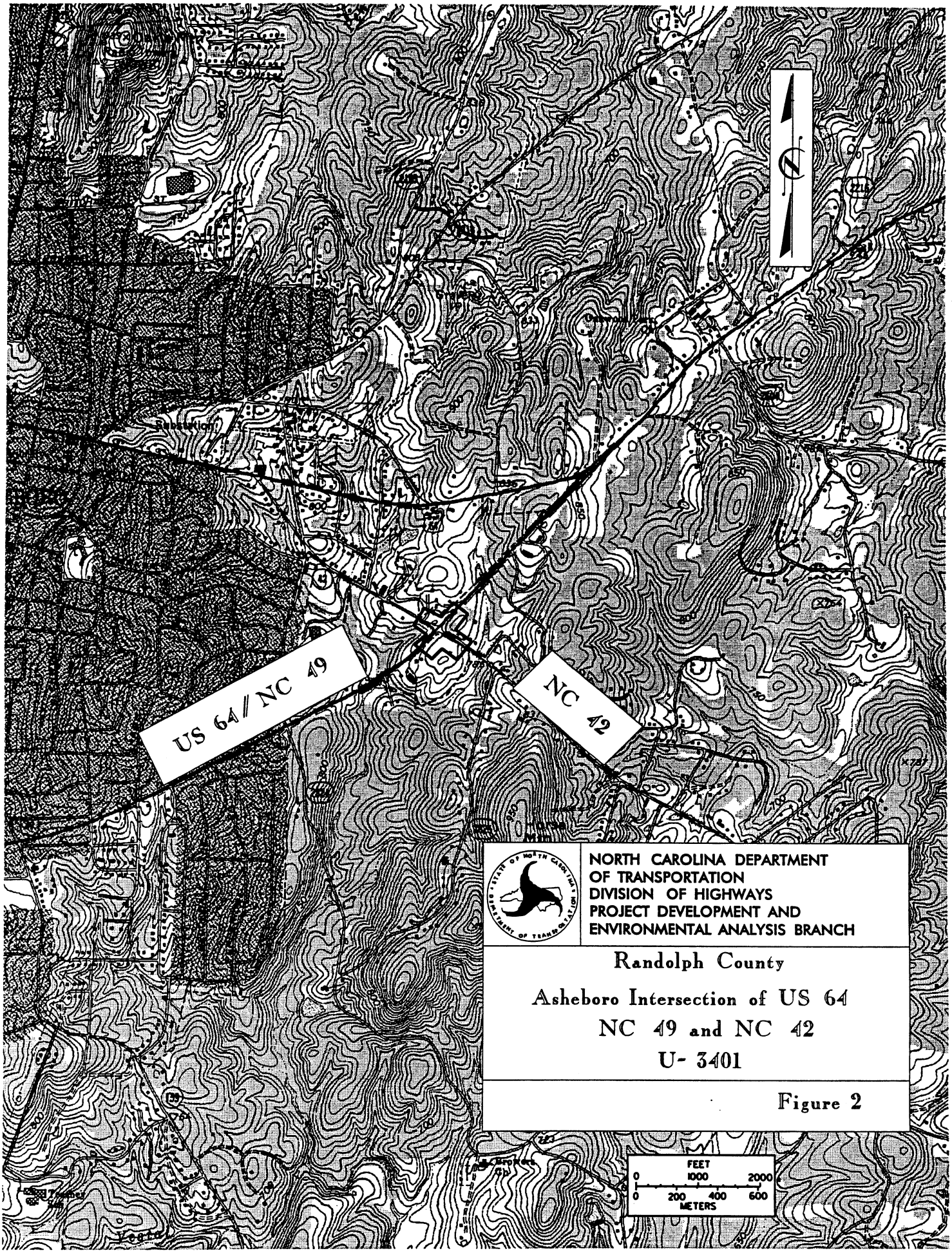


North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

Randolph County
Asheboro Intersection of US 64
NC 49 And NC 42
U-3401

SCALE: not to scale

Figure 1

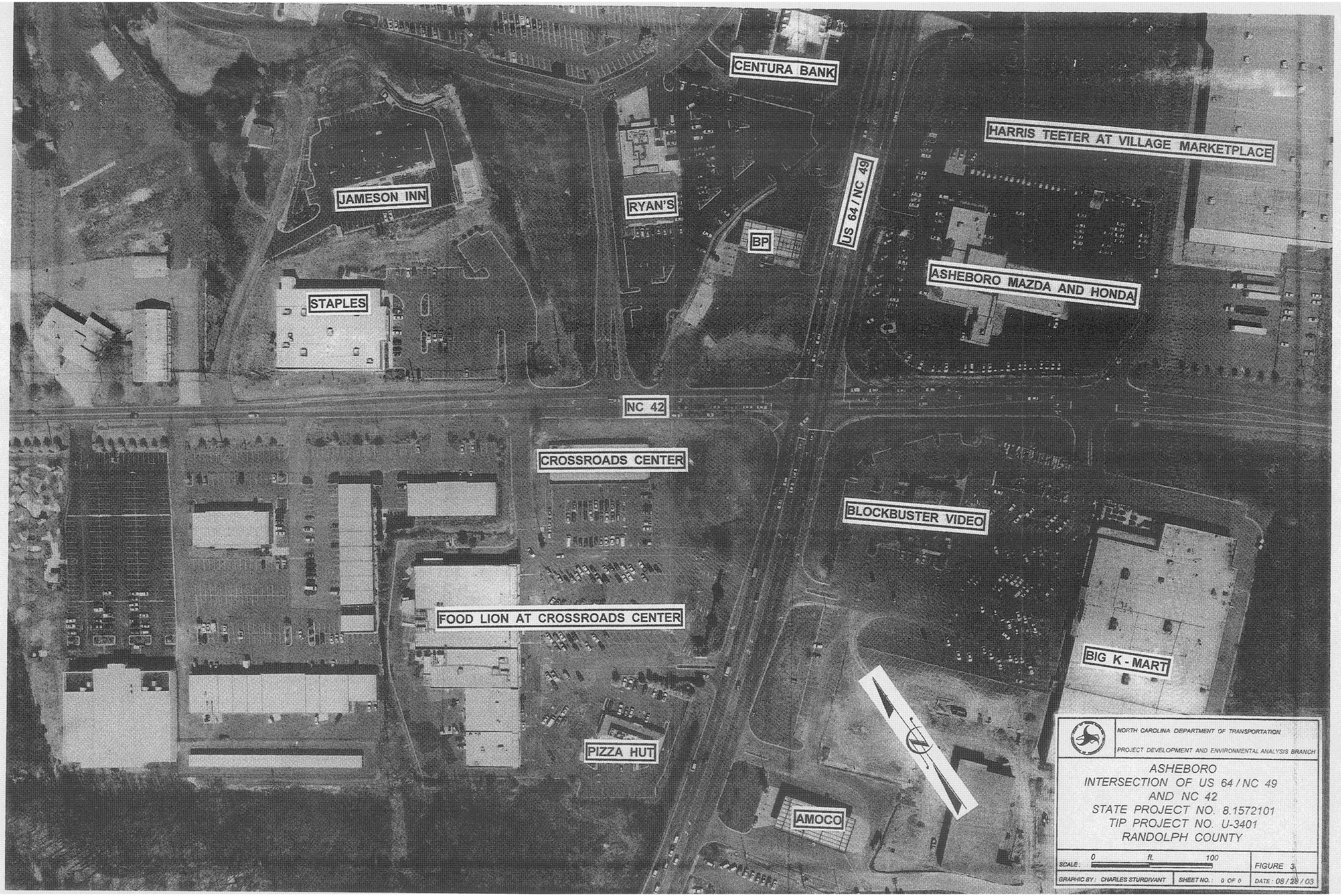


NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

Randolph County

Asheboro Intersection of US 64
NC 49 and NC 42
U- 3401

Figure 2



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

ASHEBORO
INTERSECTION OF US 64 / NC 49
AND NC 42
STATE PROJECT NO. 8.1572101
TIP PROJECT NO. U-3401
RANDOLPH COUNTY

SCALE: 0 ft. 100

FIGURE 3

GRAPHIC BY: CHARLES STURDIVANT | SHEET NO.: 0 OF 0 | DATE: 08/28/03

8/17/99

REVISIONS

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3401	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Figure 4

Scale: 1"=100'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "U3401-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 710365.8988(ft) EASTING: 1766561.8278(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.99987 1400
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"U3401-1" TO -L- STATION 9+00.00 IS
1494.3008 ft AT A BEARING OF S 47° 23' 56.079" W
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

PROJECT REFERENCE NO.	SHEET NO.
U-3401	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI Sta 14+68.78
Δ = 10° 20' 42.3" (LT)
D = 1° 20' 00.0"
L = 775.88'
T = 389.00'
R = 4,297.18'

-Y-

PI Sta 17+61.51
Δ = 0° 47' 17.0" (RT)
D = 0° 30' 00.0"
L = 157.61'
T = 78.81'
R = 11,459.16'

PI Sta 28+63.71
Δ = 13° 11' 53.2" (RT)
D = 1° 45' 00.0"
L = 754.18'
T = 378.77'
R = 3,274.04'

REVISIONS

8/17/99

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3401	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

$$$$SYSTIME$$$$
$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3401	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

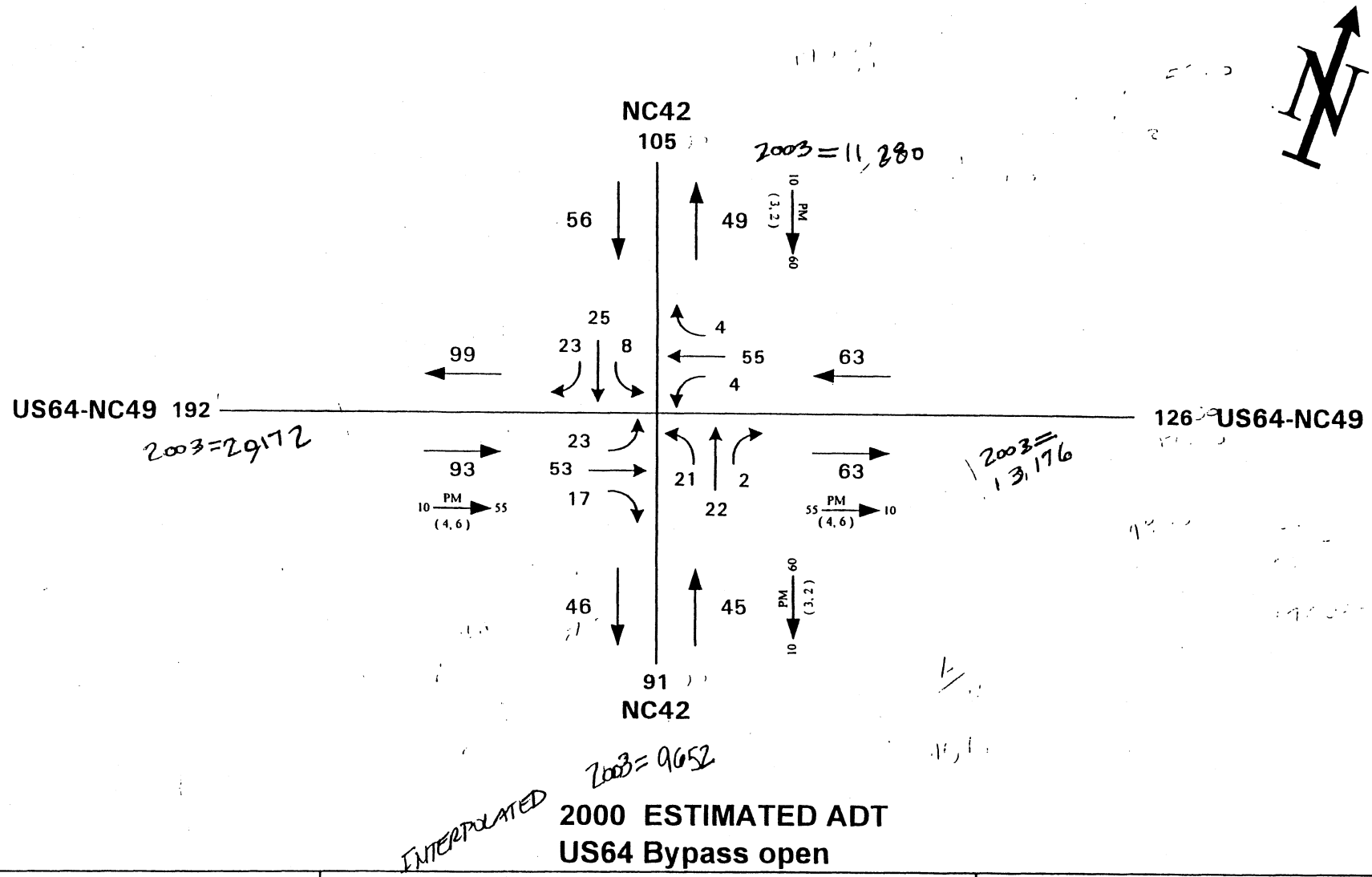
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

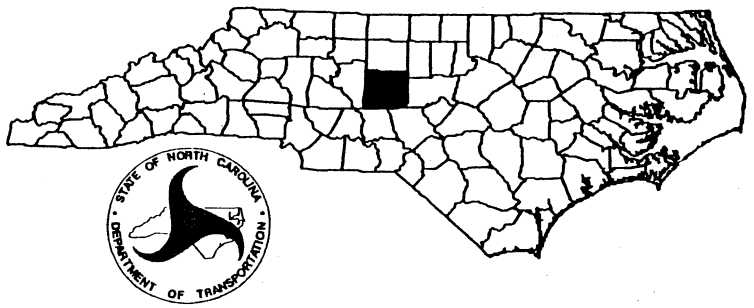
REVISIONS

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$$



LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT
DHV $\xrightarrow[(d,t)]{PM}$ D	
DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
REVERSE FLOW FOR AM PEAK	
(d,t)	DUALS, TT-ST'S (%)



LOCATION:
US64-NC49 and NC42

Figure 5a

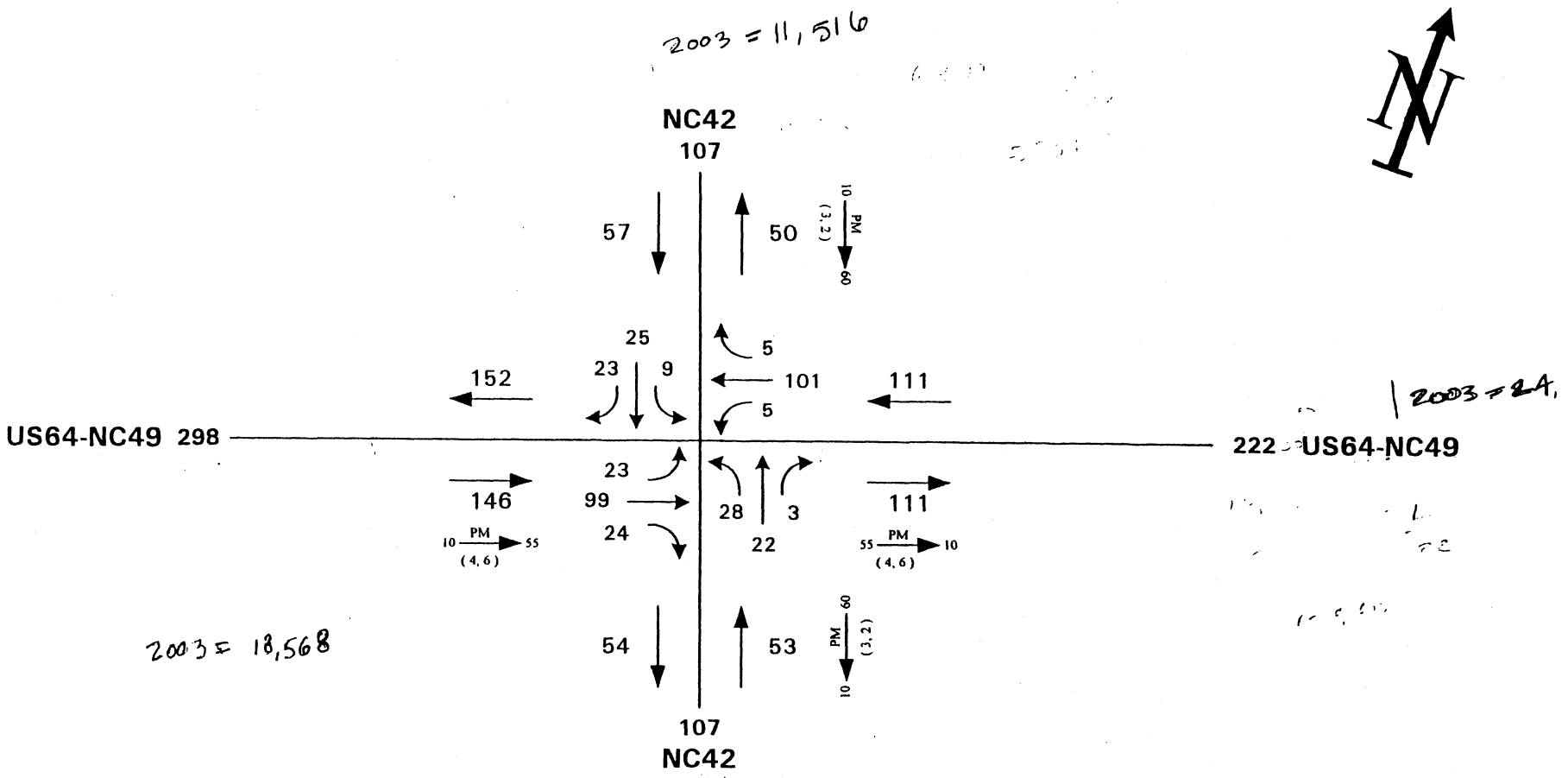
PROJECT:
Intersection improvement

COUNTY: Randolph

DIV.: 8 **DATE:** September, 2000

TIP # U-3401 **W. O. #** n/a

2003 = 11,516



2003 = 24,

2003 = 18,568

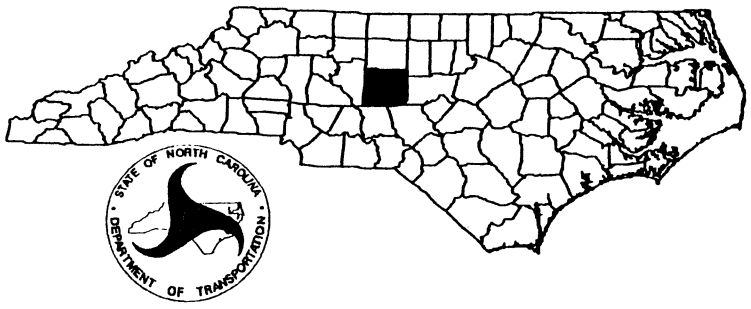
INTERPOLATED 2003 = 11,096

2000 ESTIMATED ADT

US64 Bypass not open

LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT
DHV PM (d, t) D	
DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
	REVERSE FLOW FOR AM PEAK
(d,t)	DUALS, TT-ST'S (%)



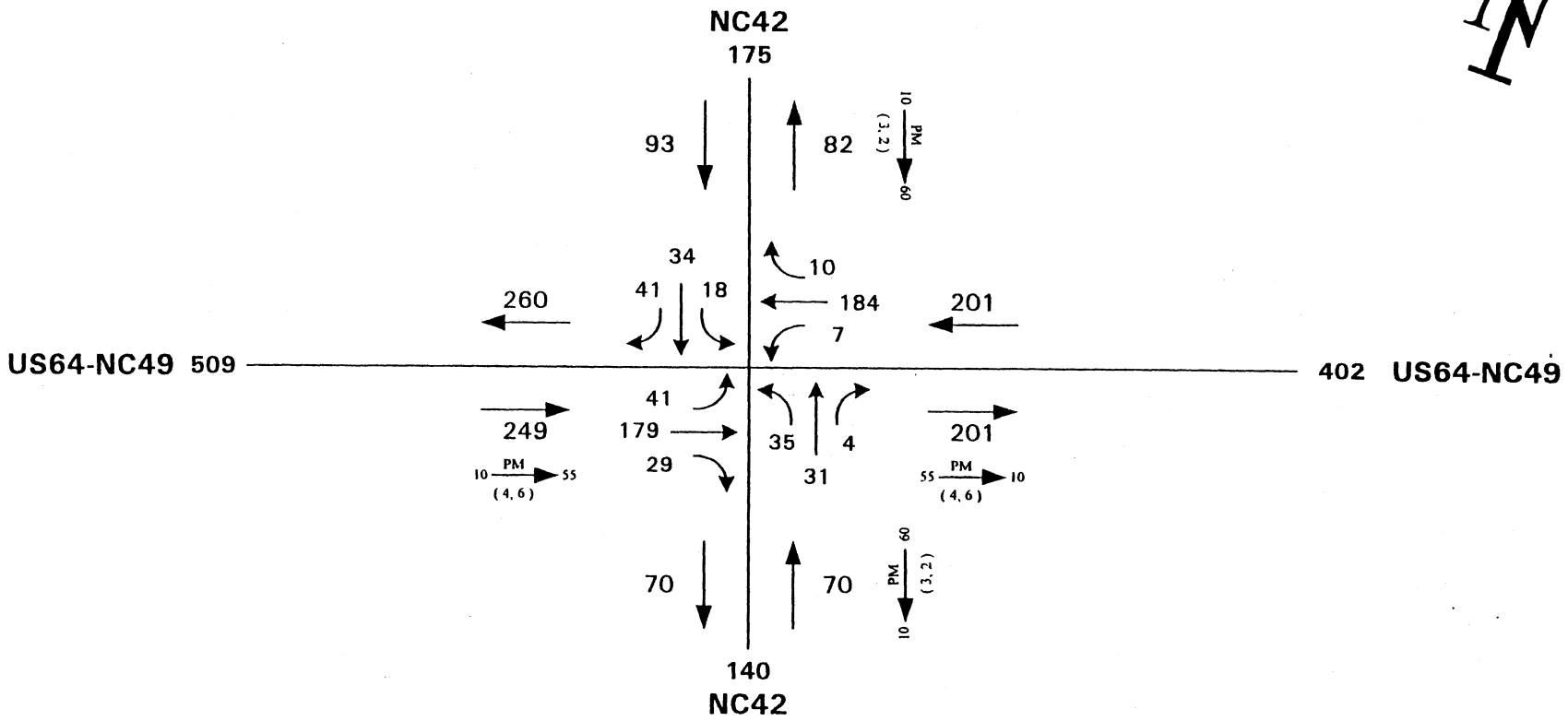
LOCATION:
US64-NC49 and NC42

PROJECT:
Intersection improvement

COUNTY: Randolph

DIV.: 8 **DATE:** September, 2000

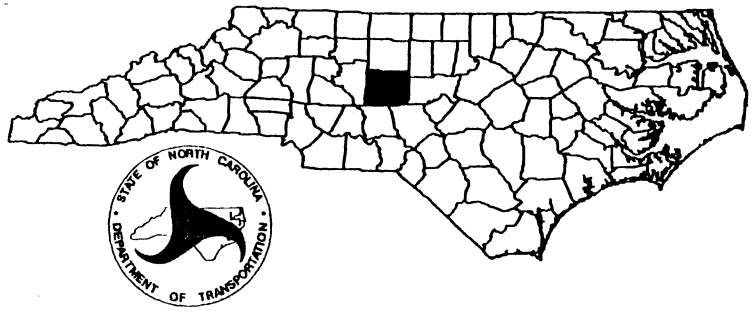
TIP # U-3401 **W. O. #** n/a



2025 ESTIMATED ADT
US64 Bypass not open

LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT
DHV $\xrightarrow[(d,t)]{PM}$ D	
DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
REVERSE FLOW FOR AM PEAK	
(d,t)	DUALS, TT-ST'S (%)



LOCATION:
US64-NC49 and NC42

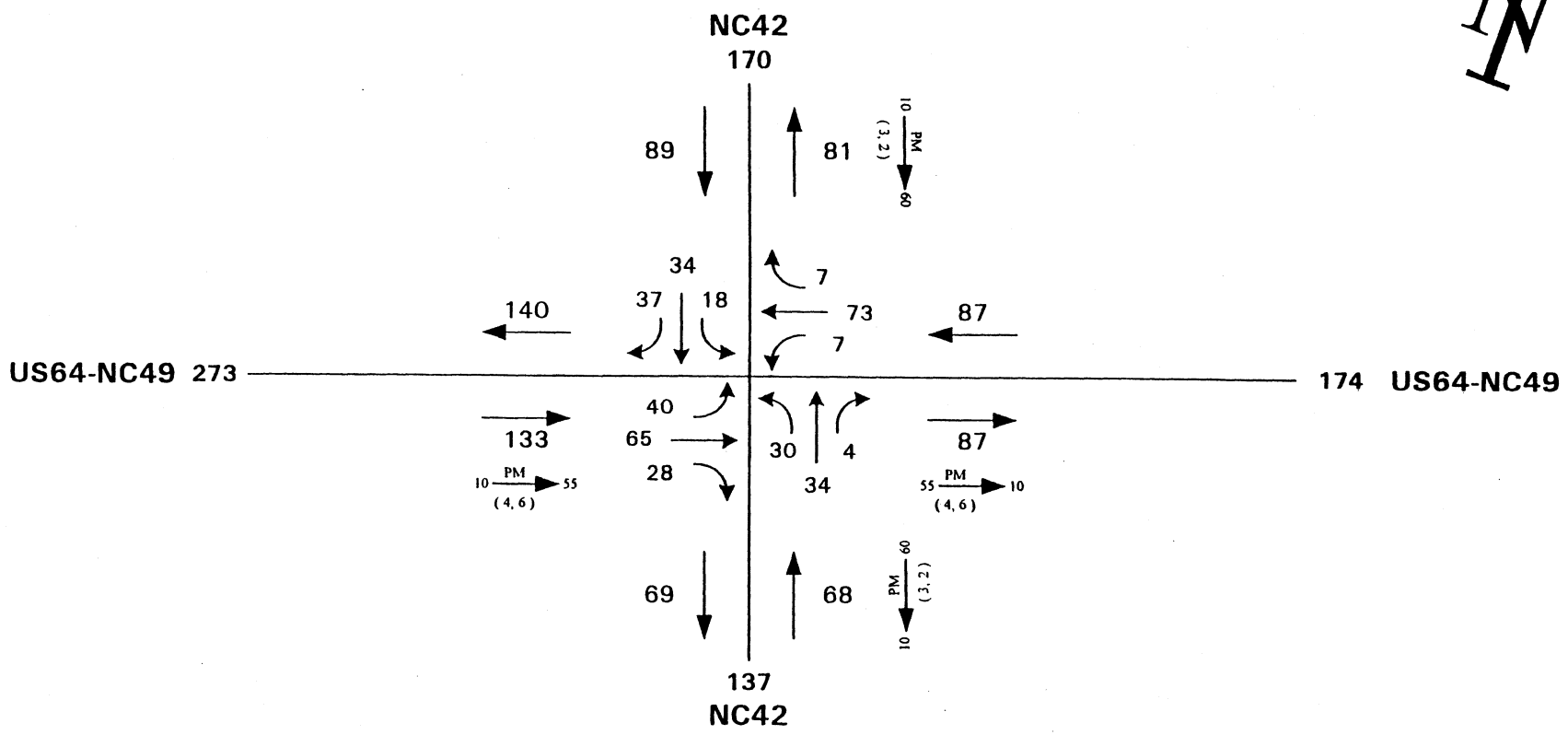
Figure 5b

PROJECT:
Intersection improvement

COUNTY: Randolph

DIV.: 8 **DATE:** September, 2000

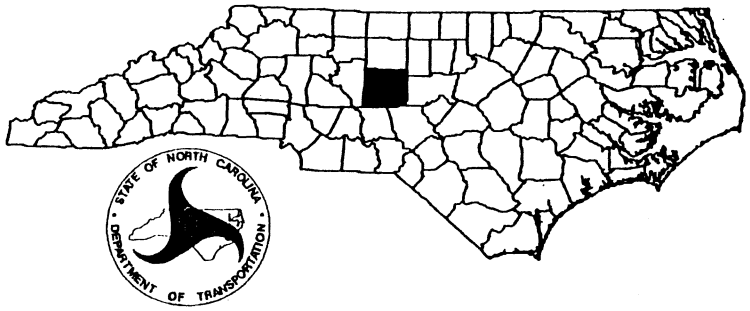
TIP # U-3401 **W. O. #** n/a



2025 ESTIMATED ADT
US64 Bypass open

LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
⟶	ONE-WAY MOVEMENT
DHV $\xrightarrow[(d,t)]{PM}$ D	
DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
⟶	INDICATES DIRECTION OF D
REVERSE FLOW FOR AM PEAK	
(d,t)	DUALS, TT-ST'S (%)



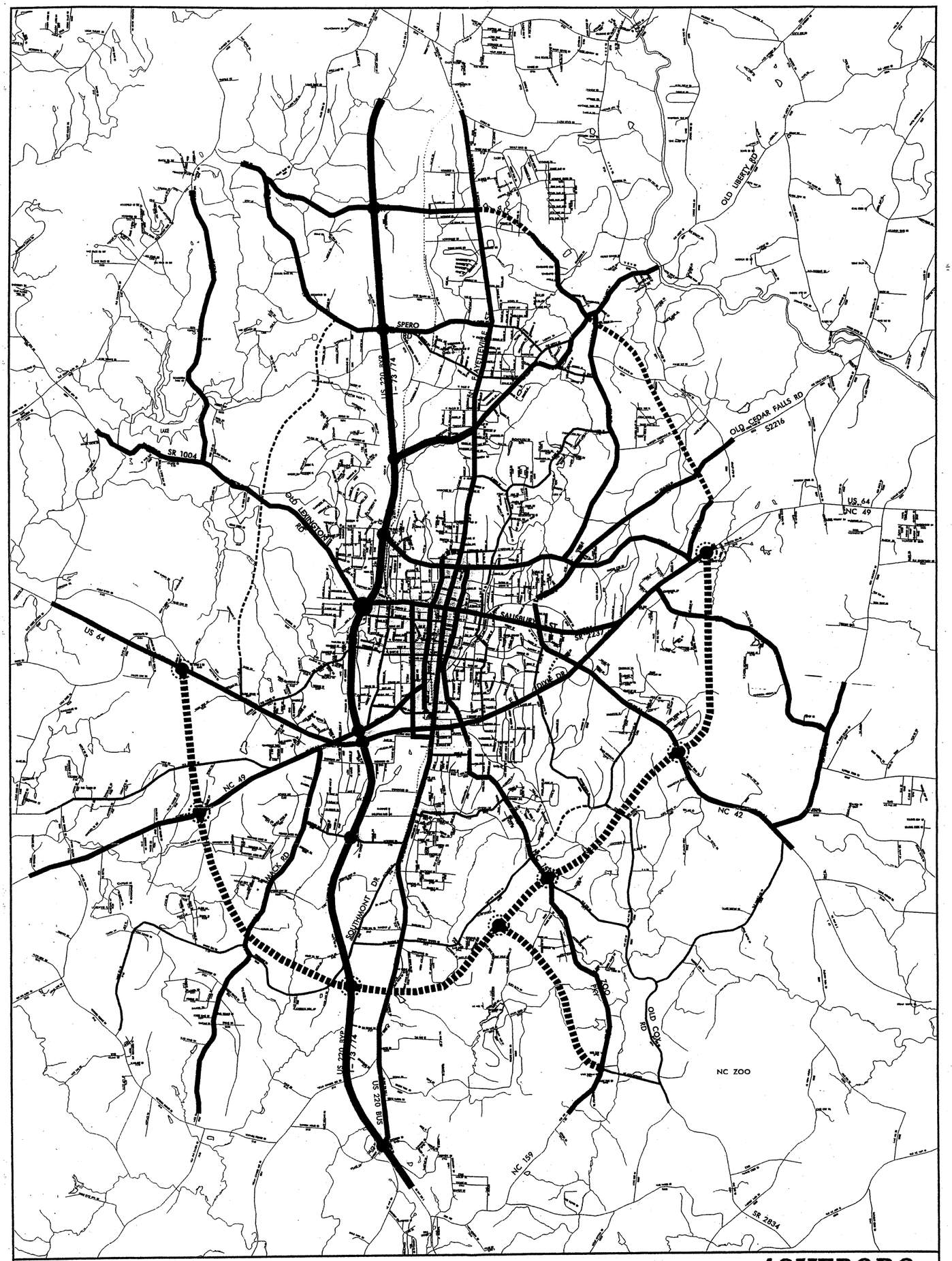
LOCATION:
US64-NC49 and NC42

PROJECT:
Intersection improvement

COUNTY: Randolph

DIV.: 8 **DATE:** September, 2000

TIP # U-3401 **W. O. #** n/a



LEGEND

	Existing	Proposed
Freeway	▬▬	▪▪▪▪
Major Thoroughfare	▬▬	▪▪▪▪
Minor Thoroughfare	——	- - - -
Interchange	●	◉

November 16, 1998

THOROUGHFARE PLAN

ADOPTED BY:	
CITY OF ASHEBORO	January 7, 1999
RECOMMENDED BY STATEWIDE PLANNING	January 15, 1999
N.C. DEPARTMENT OF TRANSPORTATION	March 4, 1999
PUBLIC HEARINGS	December 10, 1998

Figure 6

ASHEBORO

RANDOLPH COUNTY
NORTH CAROLINA

Prepared by the
North Carolina Department of Transportation
Division of Highways–Statewide Planning Branch
With assistance from the Randolph
County Planning Department
and in cooperation with
U.S. Department of Transportation
Federal Highway Administration

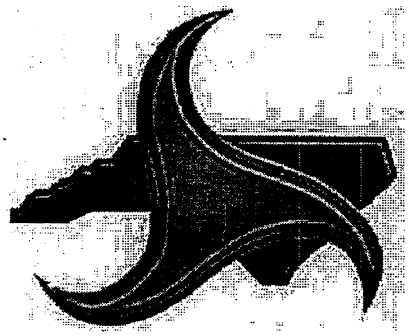
base map date
APRIL 3, 1996

0 500 1000 2000 3000
scale in meters

0 2000 4000 6000 8000 10000
scale in feet

Appendix

HIGHWAY SAFETY ANALYSIS OF TIP PROJECT U-3401
INTERSECTION IMPROVEMENTS ON US 64-NC 49 AND NC 42
ASHEBORO, RANDOLPH COUNTY



Document Prepared By

Safety Planning Section
Traffic Safety Systems Management Unit
Traffic Engineering and Safety Systems Branch
North Carolina Department of Transportation

February 10, 2004

HIGHWAY SAFETY ANALYSIS OF TIP PROJECT U-3401
INTERSECTION IMPROVEMENTS ON US 64-NC 49 AND NC 42
ASHEBORO, RANDOLPH COUNTY

WBS Element 34935.1.1

Document Prepared By

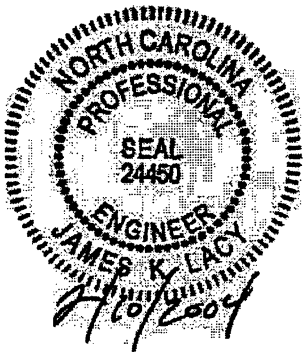
Safety Planning Section
Traffic Safety Systems Management Unit
Traffic Engineering and Safety Systems Branch
North Carolina Department of Transportation

Principal Investigator

Hank Schwab
Traffic Safety Engineer

Project Manager

J. Kevin Lacy, P.E., CPM
Traffic Safety Systems Engineer



Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2000	10	0	1	9
2001	13	0	7	6
2002	8	0	0	8
2003	4	0	1	3
Total	35	0	9	26

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2000	0	2
2001	0	10
2002	0	0
2003	0	1
Total	0	13

Miscellaneous Totals

Year	Property Damage	EPDO Index
2000	$ 29900	17.40
2001	$ 43300	64.80
2002	$ 16000	8.00
2003	$ 15700	11.40
Total	$ 104900	101.60

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road	Angle	Side Swipe	Other
2000	1	0	5	0	2	1	1
2001	1	1	8	0	3	0	0
2002	1	1	3	0	3	0	0
2003	1	0	1	0	1	1	0
Total	4	2	17	0	9	2	1

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	20	3	0	23
Dark	8	3	0	11
Other	1	0	0	1
Total	29	6	0	35

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	6	8.11
PASSENGER CAR	42	56.76
PICKUP	15	20.27
SPORT UTILITY	5	6.76
TRUCK/TRAILER	1	1.35
UNKNOWN	1	1.35
UNKNOWN HEAVY TRUCK	1	1.35
VAN	3	4.05

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	1	2.86
0400-0459	0	0.00
0500-0559	1	2.86
0600-0659	0	0.00
0700-0759	1	2.86
0800-0859	0	0.00
0900-0959	1	2.86
1000-1059	1	2.86
1100-1159	1	2.86
1200-1259	5	14.29
1300-1359	2	5.71
1400-1459	2	5.71
1500-1559	6	17.14
1600-1659	1	2.86
1700-1759	4	11.43
1800-1859	3	8.57
1900-1959	3	8.57
2000-2059	2	5.71
2100-2159	1	2.86
2200-2259	0	0.00
2300-2359	0	0.00

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	3	8.57
Feb	7	20.00
Mar	1	2.86
Apr	0	0.00
May	3	8.57
Jun	4	11.43
Jul	1	2.86
Aug	2	5.71
Sep	3	8.57
Oct	2	5.71
Nov	4	11.43
Dec	5	14.29

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	5	14.29
Tue	6	17.14
Wed	8	22.86
Thu	3	8.57
Fri	3	8.57
Sat	6	17.14
Sun	4	11.43

Miscellaneous Statistics

Severity Index =	2.90
EPDO Crash Index =	101.60
Estimated Property Damage Total = $	104900.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	9	25.71
FIXED OBJECT	1	2.86
LEFT TURN, DIFFERENT ROADWAYS	3	8.57
LEFT TURN, SAME ROADWAY	1	2.86
REAR END, SLOW OR STOP	16	45.71
REAR END, TURN	1	2.86
RIGHT TURN, SAME ROADWAY	2	5.71
SIDESWIPE, SAME DIRECTION	2	5.71

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	13	100.00
Total Non-Fatal Injuries	13	100.00
Total Injuries	13	100.00

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	35	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	9	25.71
Total Injury Crashes	9	25.71
Property Damage Only Crashes	26	74.29
Night Crashes	11	31.43
Wet Crashes	6	17.14
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	35	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	9	25.71
Property Damage Only Crashes	26	74.29

Vehicle Exposure Statistics

Annual ADT = 37500

Total Vehicle Exposure = 41.06 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	85.24
Fatal Crash Rate	0.00
Non Fatal Crash Rate	21.92
Night Crash Rate	26.79
Wet Crash Rate	14.61
EPDO Rate	247.43

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Cl	Dv	Op
33	*100822784*	02/04/2003 15:06	SIDESWIPE, SAME DIRECTION	$ 5300	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 5			*Obj Strk:*								
Unit 2 : 2	*Alchl/Drgs:* 0	*Speed:* 40 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4			*Obj Strk:*								
34	*100837238*	02/24/2003 12:52	LEFT TURN, DIFFERENT ROADWAYS	$ 7200	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 4	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4			*Obj Strk:*								
Unit 2 : 2	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* N	*Veh Mnvr / Ped Actn:* 8			*Obj Strk:*								
Unit 3 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 1			*Obj Strk:*								
35	*100839095*	02/26/2003 14:52	REAR END, SLOW OR STOP	$ 1800	0	0	0	1	2	1	2	1	0		
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 35 MPH	*Dir:* N	*Veh Mnvr / Ped Actn:* 4			*Obj Strk:*								
Unit 2 : 2	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* N	*Veh Mnvr / Ped Actn:* 12			*Obj Strk:*								

Legend for Report Details:

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Cl - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit 1 :1	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* SW	*Veh Mnvr / Ped Actn:* 7				*Obj Strk:*							
Unit 2 :1	*Alchl/Drgs:* 0	*Speed:* 20 MPH	*Dir:* NW	*Veh Mnvr / Ped Actn:* 8				*Obj Strk:*							
25	*100545940*	01/26/2002 18:27	REAR END, SLOW OR STOP	$ 3600	0	0	0	0	1	4	1	1	0		
Unit 1 :2	*Alchl/Drgs:* 0	*Speed:* 20 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 1				*Obj Strk:*							
Unit 2 :1	*Alchl/Drgs:* 0	*Speed:* 20 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
26	*100555918*	02/09/2002 20:27	ANGLE	$ 1200	0	0	0	0	1	4	1	1	0	0	
Unit 1 :2	*Alchl/Drgs:* 0	*Speed:* 25 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
Unit 2 :1	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 8				*Obj Strk:*							
27	*100631002*	05/28/2002 14:15	LEFT TURN, SAME ROADWAY	$ 1000	0	0	0	0	1	1	1	1	0	0	
Unit 1 :2	*Alchl/Drgs:* 0	*Speed:* 30 MPH	*Dir:* NW	*Veh Mnvr / Ped Actn:* 8				*Obj Strk:*							
Unit 2 :5	*Alchl/Drgs:* 0	*Speed:* 35 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
28	*100687602*	08/16/2002 18:12	REAR END, SLOW OR STOP	$ 2500	0	0	0	0	2	1	3	3	0	3	1
Unit 1 :1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 1				*Obj Strk:*							
Unit 2 :1	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
29	*100716060*	09/23/2002 05:26	ANGLE	$ 1000	0	0	0	0	2	4	3	1	0	3	1
Unit 1 :1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
Unit 2 :3	*Alchl/Drgs:* 0	*Speed:* 45 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
30	*100761810*	11/17/2002 19:50	ANGLE	$ 3300	0	0	0	0	1	4	2	1	0	3	1
Unit 1 :5	*Alchl/Drgs:* 0	*Speed:* 20 MPH	*Dir:* N	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
Unit 2 :4	*Alchl/Drgs:* 0	*Speed:* 40 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
31	*100795307*	12/28/2002 15:05	REAR END, SLOW OR STOP	$ 1900	0	0	0	0	1	1	1	1	0	0	1
Unit 1 :4	*Alchl/Drgs:* 0	*Speed:* 45 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 1				*Obj Strk:*							
Unit 2 :1	*Alchl/Drgs:* 0	*Speed:* 45 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 1				*Obj Strk:*							
32	*100820731*	02/01/2003 21:29	ANGLE	$ 1400	0	0	0	0	1	4	1	1	0	3	1
Unit 1 :1	*Alchl/Drgs:* 0	*Speed:* 45 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							
Unit 2 :4	*Alchl/Drgs:* 0	*Speed:* 45 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4				*Obj Strk:*							

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
16	*100357659*	05/16/2001 12:42	LEFT TURN, DIFFERENT ROADWAYS	$ 5500	0	0	0	0	2	1	3	1	0	3	1
Unit 1 : 5	*Alchl/Drgs:* 0	*Speed:* 35 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 35 MPH	*Dir:* N	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
17	*100372163*	06/06/2001 12:57	REAR END, SLOW OR STOP	$ 300	0	0	0	1	1	1	1	3	0	3	1
Unit 1 : 3	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 1	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
18	*100378224*	06/15/2001 11:33	REAR END, SLOW OR STOP	$ 300	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
19	*100422005*	08/20/2001 13:50	REAR END, TURN	$ 800	0	0	0	1	1	1	2	1	0	3	1
Unit 1 : 2	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
Unit 2 : 3	*Alchl/Drgs:* 0	*Speed:* 25 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
20	*100499139*	11/27/2001 15:01	RIGHT TURN, SAME ROADWAY	$ 10000	0	0	0	1	1	1	1	3	0	1	1
Unit 1 : 12	*Alchl/Drgs:* 0	*Speed:* 20 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 7		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 35 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 6		*Obj Strk:*									
21	*100512403*	12/13/2001 17:44	REAR END, SLOW OR STOP	$ 7100	0	0	0	0	2	4	2	1	0	0	
Unit 1 : 3	*Alchl/Drgs:* 0	*Speed:* 35 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
Unit 3 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
22	*100495155*	12/22/2001 15:36	REAR END, SLOW OR STOP	$ 3300	0	0	0	3	1	1	1	1	0	3	1
Unit 1 : 2	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 35 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
23	*100495848*	12/23/2001 10:36	ANGLE	$ 1300	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 4	*Alchl/Drgs:* 0	*Speed:* 20 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 5 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 5		*Obj Strk:*									
24	*100545986*	01/26/2002 18:13	RIGHT TURN, SAME ROADWAY	$ 1500	0	0	0	0	1	4	1	1	0	3	1

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit 3 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 1							*Obj Strk:*				
8	*100240369*	11/27/2000 07:11	LEFT TURN, DIFFERENT ROADWAYS	$ 4100	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 2	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* NW	*Veh Mnvr / Ped Actn:* 8							*Obj Strk:*				
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 40 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4							*Obj Strk:*				
9	*100242468*	11/30/2000 09:17	REAR END, SLOW OR STOP	$ 750	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 3	*Alchl/Drgs:* 0	*Speed:* 4 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 1							*Obj Strk:*				
Unit 2 : 2	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4							*Obj Strk:*				
10	*100258917*	12/21/2000 13:52	ANGLE	$ 1800	0	0	0	0	1	1	1	1	0	1	1
Unit 1 : 2	*Alchl/Drgs:* 0	*Speed:* 30 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4							*Obj Strk:*				
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 8							*Obj Strk:*				
11	*100283412*	01/17/2001 19:29	ANGLE	$ 2600	0	0	0	0	1	4	1	1	0	0	
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 12							*Obj Strk:*				
Unit 2 : 2	*Alchl/Drgs:* 0	*Speed:* 30 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4							*Obj Strk:*				
12	*100289993*	02/07/2001 17:44	ANGLE	$ 7500	0	0	0	1	1	2	1	1	0	3	1
Unit 1 : 2	*Alchl/Drgs:* 0	*Speed:* 40 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4							*Obj Strk:*				
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 20 MPH	*Dir:* N	*Veh Mnvr / Ped Actn:* 8							*Obj Strk:*				
13	*100337958*	02/25/2001 15:30	REAR END, SLOW OR STOP	$ 1000	0	0	0	0	1	1	1	7	0	3	1
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* N	*Veh Mnvr / Ped Actn:* 1							*Obj Strk:*				
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 5 MPH	*Dir:* N	*Veh Mnvr / Ped Actn:* 4							*Obj Strk:*				
14	*100312244*	03/12/2001 19:26	REAR END, SLOW OR STOP	$ 100	0	0	0	1	2	4	2	1	0	3	1
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4							*Obj Strk:*				
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 1							*Obj Strk:*				
15	*100357014*	05/15/2001 16:27	REAR END, SLOW OR STOP	$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 1							*Obj Strk:*				
Unit 2 : 16	*Alchl/Drgs:* 0	*Speed:* 15 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4							*Obj Strk:*				

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Study Criteria Summary

County: RANDOLPH **City:** All and Rural
Date: 05/01/2000 **to** 04/30/2003 **Study:** HNS200312125
Location: US 64 (NC 49/Dixie Drive) and NC 42

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Cl	Dv	Op
1	*100117564*	06/14/2000 03:19	REAR END, SLOW OR STOP	$ 2000	0	0	0	0	1	4	1	3	0	3	1
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
Unit 2 : 2	*Alchl/Drgs:* 0	*Speed:* 45 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
2	*100119230*	06/16/2000 17:56	REAR END, SLOW OR STOP	$ 4500	0	0	0	0	1	1	1	3	0	0	
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 30 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 11		*Obj Strk:*									
3	*100141461*	07/18/2000 15:54	REAR END, SLOW OR STOP	$ 1850	0	0	0	2	1	1	1	1	0	3	1
Unit 1 : 3	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
Unit 3 : 32	*Alchl/Drgs:* 7	*Speed:* 35 MPH	*Dir:* S	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
4	*100176972*	09/06/2000 20:10	FIXED OBJECT	$ 2000	0	0	0	0	1	4	2	1	0	3	
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 47 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 20 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 8		*Obj Strk:*									
5	*100186083*	09/19/2000 12:03	SIDESWIPE, SAME DIRECTION	$ 2700	0	0	0	0	1	1	1	3	0	0	
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 32 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 5		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 35 MPH	*Dir:* W	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
6	*100206392*	10/15/2000 17:39	REAR END, SLOW OR STOP	$ 1700	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 0 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 1		*Obj Strk:*									
Unit 2 : 1	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									
7	*100210052*	10/18/2000 12:55	ANGLE	$ 8500	0	0	0	0	1	1	1	1	0	3	1
Unit 1 : 1	*Alchl/Drgs:* 0	*Speed:* 10 MPH	*Dir:* NE	*Veh Mnvr / Ped Actn:* 5		*Obj Strk:*									
Unit 2 : 2	*Alchl/Drgs:* 0	*Speed:* 30 MPH	*Dir:* E	*Veh Mnvr / Ped Actn:* 4		*Obj Strk:*									

Alchl/Drgs - Driver Alcohol/Drugs Suspected Status Codes

0 = NO
1 = YES - ALCOHOL, IMPAIRMENT SUSPECTED
2 = YES - ALCOHOL, NO IMPAIRMENT DETECTED
3 = YES - OTHER DRUGS, IMPAIRMENT SUSPECTED
4 = YES - OTHER DRUGS, NO IMPAIRMENT DETECTED
5 = YES - ALCOHOL AND OTHER DRUGS, IMPAIRMENT SUSPECTED
6 = YES - ALCOHOL AND OTHER DRUGS, NO IMPAIRMENT DETECTED
7 = UNKNOWN

Obj Strk - Object Struck Codes

14 = PEDESTRIAN
15 = PEDALCYCLIST
17 = ANIMAL
18 = MOVABLE OBJECT
20 = PARKED MOTOR VEHICLE
33 = TREE
34 = UTILITY POLE
35 = LUMINAIRE POLE NON-BREAKAWAY
36 = LUMINAIRE POLE BREAKAWAY
37 = OFFICIAL HIGHWAY SIGN NON-BREAKAWAY
38 = OFFICIAL HIGHWAY SIGN BREAKAWAY
39 = OVERHEAD SIGN SUPPORT
40 = COMMERCIAL SIGN
41 = GUARDRAIL END ON SHOULDER
42 = GUARDRAIL FACE ON SHOULDER
43 = GUARDRAIL END IN MEDIAN
44 = GUARDRAIL FACE IN MEDIAN
45 = SHOULDER BARRIER END
46 = SHOULDER BARRIER FACE
47 = MEDIAN BARRIER END
48 = MEDIAN BARRIER FACE
49 = BRIDGE RAIL END
50 = BRIDGE RAIL FACE
51 = OVERHEAD PART UNDERPASS
52 = PIER ON SHOULDER OF UNDERPASS
53 = PIER IN MEDIAN OF UNDERPASS
54 = ABUTMENT OF UNDERPASS
55 = TRAFFIC ISLAND CURB OR MEDIAN
56 = CATCH BASIN OR CULVERT ON SHOULDER
57 = CATCH BASIN OR CULVERT ON MEDIAN
58 = DITCH
59 = EMBANKMENT
60 = MAILBOX
61 = FENCE OR FENCE POST
62 = CONTRUCTION BARRIER
63 = CRASH CUSHION
64 = OTHER FIXED OBJECT

Unit # - Vehicle Style Codes

1 = PASSENGER CAR
2 = PICKUP
3 = LIGHT TRUCK (MINI-VAN, PANEL)
4 = SPORT UTILITY
5 = VAN
6 = COMMERCIAL BUS
7 = SCHOOL BUS
8 = ACTIVITY BUS
9 = OTHER BUS
10 = SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)
11 = SINGLE UNIT TRUCK (3 OR MORE AXLES)
12 = TRUCK/TRAILER
13 = TRUCK/TRACTOR
14 = TRACTOR/SEMI-TRAILER
15 = TRACTOR/DOULBES
16 = UNKNOWN HEAVY TRUCK
17 = TAXICAB
18 = FARM EQUIPMENT
19 = FARM TRACTOR
20 = MOTORCYCLE
21 = MOPED
22 = MOTOR SCOOTER OR MOTOR BIKE
23 = PEDALCYCLE
24 = PEDESTRIAN
25 = MOTOR HOME/RECREATIONAL VEHICLE
26 = OTHER
27 = ALL TERRAIN VEHICLE (ATV)
28 = FIRETRUCK
29 = EMS VEHICLE, AMBULANCE, RESCUE SQUAD
30 = MILITARY
31 = POLICE
32 = UNKNOWN

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Fiche, Intersection, and Strip Reports Code Index

T - Type of Accident Codes

0 = UNKNOWN
1 = RAN OFF ROAD - RIGHT
2 = RAN OFF ROAD - LEFT
3 = RAN OFF ROAD - STRAIGHT
4 = JACKKNIFE
5 = OVERTURN/ROLLOVER
13 = OTHER NON-COLLISION
14 = PEDESTRIAN
15 = PEDALCYCLIST
16 = RR TRAIN, ENGINE
17 = ANIMAL
18 = MOVABLE OBJECT
19 = FIXED OBJECT
20 = PARKED MOTOR VEHICLE
21 = REAR END, SLOW OR STOP
22 = REAR END, TURN
23 = LEFT TURN, SAME ROADWAY
24 = LEFT TURN, DIFFERENT ROADWAYS
25 = RIGHT TURN, SAME ROADWAY
26 = RIGHT TURN, DIFFERENT ROADWAYS
27 = HEAD ON
28 = SIDESWIPE, SAME DIRECTION
29 = SIDESWIPE, OPPOSITE DIRECTION
30 = ANGLE
31 = BACKING UP
32 = OTHER COLLISION WITH VEHICLE

F - Road Feature Codes

0 = NO SPECIAL FEATURE
1 = BRIDGE
2 = BRIDGE APPROACH
3 = UNDERPASS
4 = DRIVEWAY, PUBLIC
5 = DRIVEWAY, PRIVATE
6 = ALLEY INTERSECTION
7 = FOUR-WAY INTERSECTION
8 = T-INTERSECTION
9 = Y-INTERSECTION
10 = TRAFFIC CIRCLE/ROUNDABOUT
11 = FIVE-POINT, OR MORE
12 = RELATED TO INTERSECTION
13 = NON-INTERSECTION MEDIAN CROSSING
14 = END OR BEGINNING - DIVIDED HIGHWAY
15 = OFF RAMP ENTRY
16 = OFF RAMP PROPER
17 = OFF RAMP TERMINAL ON CROSSROAD
18 = MERGE LANE BETWEEN ON AND OFF RAMP
19 = ON RAMP ENTRY
20 = ON RAMP PROPER
21 = ON RAMP TERMINAL ON CROSSROAD
22 = RAILROAD CROSSING
23 = TUNNEL
24 = SHARED-USE PATHS OR TRAILS
25 = OTHER

C - Road Condition Codes

1 = DRY
2 = WET
3 = WATER (STANDING, MOVING)
4 = ICE
5 = SNOW
6 = SLUSH
7 = SAND, MUD, DIRT, GRAVEL
8 = FUEL, OIL
9 = OTHER
10 = UNKNOWN

Light Cndtn - Light Condition Codes

1 = DAYLIGHT
2 = DUSK
3 = DAWN
4 = DARK - LIGHTED ROADWAY
5 = DARK - ROADWAY NOT LIGHTED
6 = DARK - UNKNOWN LIGHTING
7 = OTHER
8 = UNKNOWN

S - Accident Severity Codes

K = FATAL
A = A-LEVEL INJURY
B = B-LEVEL INJURY
C = C-LEVEL INJURY
O = PROPERTY DAMAGE ONLY

Ped Actn - Pedestrian Action Codes

1 = ENTERING OR CROSSING SPECIFIED LOCATION
2 = WALKING, RIDING, RUNNING/JOGGING WITH TRAFFIC
3 = WALKING, RIDING, RUNNING/JOGGING AGAINST TRAFFIC
4 = WORKING
5 = PUSHING VEHICLE
6 = APPROACHING OR LEAVING VEHICLE
7 = PLAYING
8 = STANDING
9 = OTHER

Veh Mnvr - Vehicle Maneuver Codes

1 = STOPPED IN TRAVEL LANE
2 = PARKED OUT OF TRAVEL LANES
3 = PARKED IN TRAVEL LANES
4 = GOING STRAIGHT AHEAD
5 = CHANGING LANES OR MERGING
6 = PASSING
7 = MAKING RIGHT TURN
8 = MAKING LEFT TURN
9 = MAKING U-TURN
10 = BACKING
11 = SLOWING OR STOPPING
12 = STARTING IN ROADWAY
13 = PARKING
14 = LEAVING PARKED POSITION
15 = AVOIDING OBJECT IN ROAD

APPENDIX A

Revisions

As per proposed design specifications, the following revision was completed February 10, 2004:

"The additions of a southbound through lane and a northbound left turn lane are proposed for US 64-NC 49."

Has been revised to read:

"The addition of a southbound right turn lane and a northbound left turn lane is proposed for US 64-NC 49."

These changes did not change any of our findings or recommendations. There are no further comments or recommendations at this time.

We recommend changing the verbiage in the safety section to reflect the findings of this report.

We recommend that the design of the right turn lanes on NC 42 consider using channelized right turn lanes rather than continuous right turn lanes. This would serve the purpose of removing the turning vehicle from the through lane without increasing the distance that vehicles turning left would have to cross. With the lengths of the segments on NC 42, some motorists will likely use continuous right turn lanes as through lanes or passing lanes. Channelized right turn lanes would reduce this unintended use.

Section Analysis

The section length of NC 42, not including 150 feet on either side of the intersection with US 64, is approximately 0.57 miles (3000 feet). The section length of US 64-NC 49, not including 150 feet on either side of the intersection with NC 42, is approximately 0.27 miles (1400 feet). A crash rate analysis was not conducted on these segments due to the short segment lengths. Short segment lengths tend to inflate crash rates. A crash pattern analysis was conducted instead.

The proposed improvement of adding right turn lanes along NC 42 would be expected to reduce the frequency of rear end crashes where vehicles are slowing down to make a right turn. Within the project limits along NC 42 there were 31 crashes reported during the study period. None of the reports of rear end crashes indicated that the vehicle that was rear-ended had stopped to make a right turn. The reports of rear end crashes typically involved stopped vehicles making a left turn or vehicles that had slowed down for a vehicle turning left across traffic from a driveway. A right turn lane would not be expected to affect these crashes. The project description does not indicate if the turn lanes will be continuous or channelized. The addition of continuous right turn lanes would increase the width of roadway that vehicles turning left would have to cross. This has the potential of increasing the frequency of crashes involving vehicles turning left. There were 14 crashes involving vehicles either turning left out, turning left in, or crossing the street. These crashes were dispersed across the sections with a few small clusters at a couple of driveways on NC 42.

The addition of a southbound right turn lane and a northbound left turn lane is proposed for US 64-NC 49. A median island is also proposed. The section on US 64-NC 49, not including the 150-foot segments on either side of the intersection with NC 42, reported 57 crashes during the study period. There were 30 frontal impact collisions (angle and left turning crashes) that made up nearly 53 percent of the reported crashes. Many of these crashes were reported at driveways with a traffic signal. The median island, depending upon its length and location, could reduce the frequency of these crashes, since some of them involved a vehicle turning left into or out of a minor driveway.

Comments and Recommendations

The proposed improvements for this project will not have a significant impact on the number or types of crashes reported within the project limits. The only exception to this determination would be the construction of the median island if it were located to prohibit left turns into and out of minor driveways along US 64-NC 49. The proposed project is not expected to diminish the overall safety of the intersection or the segments within the project limits. The improved operations created as a result of the proposed improvements could have some small impact on the overall safety of the location, but measurement is unlikely.

Below are our recommendations and considerations for this project.

- We recommend changing the purpose of the project to *improving capacity and congestion mitigation.* The overall safety improvements created, as a result of the proposed project, would be difficult to quantify because the proposed improvements are unlikely to change the outcome of reported crashes. From a safety perspective, the project does not change the traffic patterns and we do not expect there would be significant changes in the reported crash patterns.

The Traffic Safety Systems Management Unit has conducted a safety analysis for TIP Project U-3401, the construction of intersection improvements at the intersection of US 64-NC49 and NC 42 in the city of Asheboro in Randolph County. This safety analysis includes a project level analysis and a pattern analysis review within the project limits. Recommendations are presented to improve the overall safety of the roadway where applicable.

Secondary Route numbers, such as SR 1129, and corresponding street names will be designated for all streets on the state highway system for the remainder of this report. If the street is not on the State Highway System, only the street name will be designated.

Background

The purpose of the project is to increase the level of service by allowing additional turning movements along US 64-NC 49 and NC 42. It is expected that these arterials will receive some relief with the construction of the Asheboro Southern Bypass. However, that project is not funded in the current TIP. Project U-3401 proposes: the addition of a southbound right turn lane and a northbound left turn lane along US 64-NC 49; the addition of an westbound right turn lane with taper along NC 42; and the addition of an eastbound right turn lane along NC 42. The project description is unclear about the length of a proposed concrete median island on US 64-NC 49.

The project limits on US 64 shall extend to approximately 1000 feet south of the intersection to approximately 700 feet north of the intersection. The project limits on NC 42 are approximately 2200 feet west of the intersection to approximately 1100 east of the intersection.

Intersection Safety Analysis

The study period for this report was the three-year period beginning May 1, 2000 through April 30, 2003. All crashes that were reported within 150 feet of the intersection were included in the study. The intersection had a total of 35 reported crashes (9 non-fatal injury crashes and 26 property damage only crashes). The average daily traffic entering the intersection is 37,500 vehicles per day for the median year of the study period. Table (1) shows a summary of reported crashes by crash type. A copy of the crash analysis and corresponding code sheet are provided in Appendix A of this report. Based upon a review of the collision reports, the proposed improvements would not have greatly affected the number or severity of reported crashes at the intersection.

Table 1 Summary of Intersection Crashes by Crash Type

Accident Type	Number of Crashes
Angle	9
Fixed Object	1
Left Turn, Different Roadways	3
Left Turn, Same Roadway	1
Rear End, Slow or Stop	16
Rear End, Turn	1
Right Turn, Same Roadway	2
Sideswipe, Same Direction	2

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
HNS200312125	200312125		U3401	76.8	8.4	37500	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
12/15/2003		919 733 7844		

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
RANDOLPH	75	8	All and Rural		150	05/01/2000	04/30/2003	3.00

Location Text

US 64 (NC 49/Dixie Drive) and NC 42

Requestor

Ms. Stephanie Caudill
NC DOT
Transportation Bldg.
Rm 416

Included Accidents

100337958
100495155
100555918
100839095

Excluded Accidents

100098429

Fiche Roads

Name	Code
US 64	20000064
NC 49	30000049
DIXIE	50008504
NC 42	30000042

Intersection Road Combinations

Name	Code	Code	Name
US 64	20000064	30000042	NC 42
NC 49	30000049	30000042	NC 42
DIXIE	50008504	30000042	NC 42

North Carolina Geodetic Survey
www.ncgs.state.nc.us/

- Digital Control Maps
- Database Search (NCGS & NGS)
- GPS Base Station Files
- County & State Boundary Information
- NC Floodplain Mapping
- EDM Calibration Baseline Data
- Geodetic Toolkit

Division of Land Resources
North Carolina Geodetic Survey

Mailing Address:
NCGS
20323 Mail Service Center
Raleigh, NC 27699-0323

Office Location:
NCGS
Elks Building/121 W. Jones St.
Raleigh, NC 27603-1334

Phone: (919) 733-3836 Fax: (919) 733-4407 Email: gary.thompson@ncmail.net

To: Stephanie

From: Curt Johnson

Number of pages: 7

Fax #: 733-9794

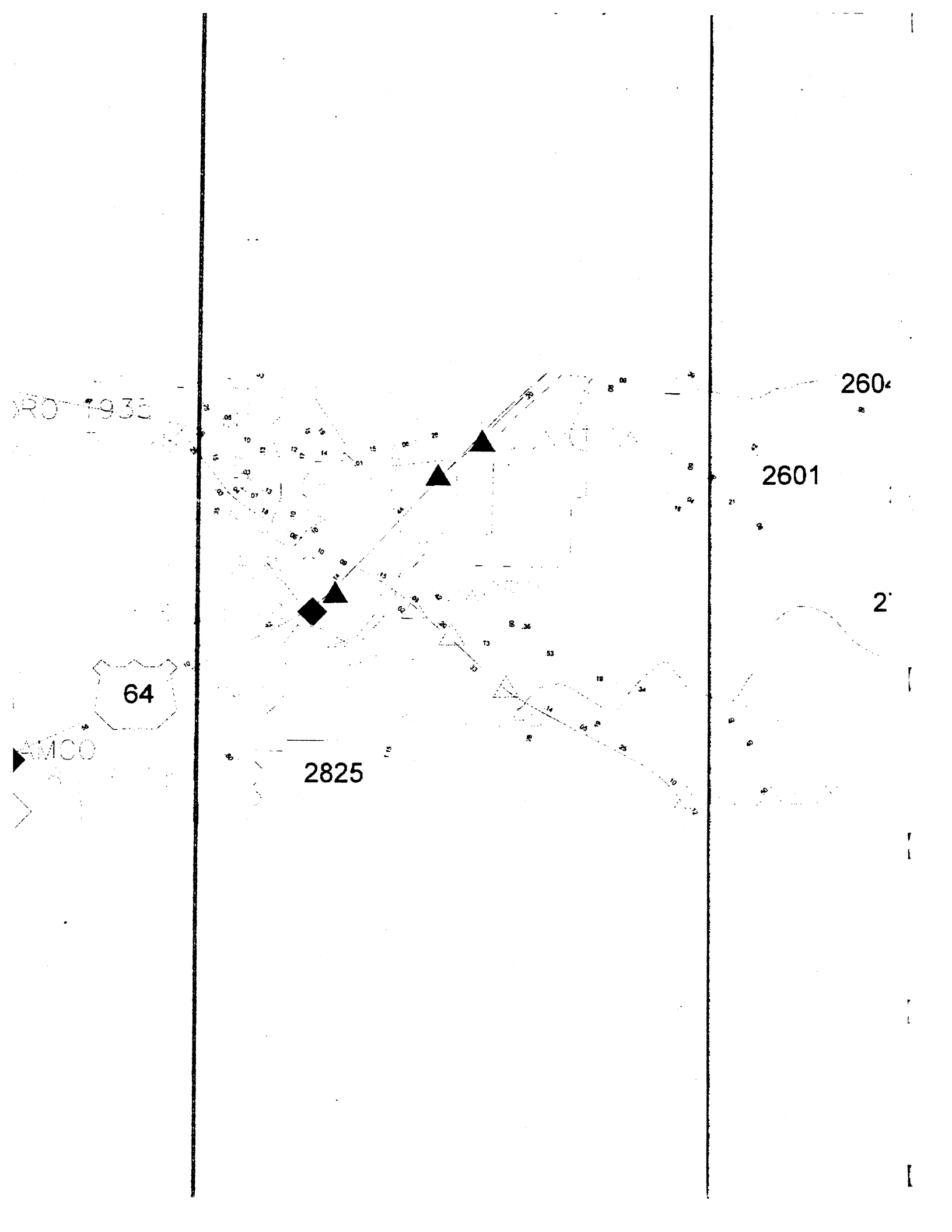
Phone #: -3141

Comments: Randolph County at US 64 + NC 49/NC 42

1) SERVICE
2) PHONE
3) JUNCTION
4) GRANT
5) COXGRO

Download this Internet Explorer compatible plugin, Autodesk Express Viewer, from the following URL:

usa.autodesk.com/adskservlet/index?siteID=123112&id=2404513


2604
2601
2825
64

Searcher results

Station: SERVICE

NAD 83 => LATITUDE = 35 41 49.75165 LONGITUDE = 079 47 18.96106
SPC 83 => NORTHING = 216283.879 Meters EASTING = 538234.944 Meters

NAD 27 => LATITUDE = 35 41 49.25944 LONGITUDE = 79 47 19.84464
SPC 27 => NORTH(Y) = 709522.564 Feet EAST(X) = 1765780.362 Feet

GRID SHIFT (NAD27 - NAD83) NORTH = -68.796 feet EAST = -78.783 feet

NAD83 CONVERGENCE (e) = -0 27 18.56 NAD83 SCALE FACTOR = 0.9999027
ELEVATION (NGVD 29) USE GEOID99 GEOID PROGRAM
240.074 meters (BM) TO COMPUTE GEOID HEIGHT
PID = EZ1655

SERVICE IS LOCATED APPROXIMATELY 1.5 MILES SOUTHEAST OF ASHEBORO. TO REACH STATION PROCEED FROM THE INTERSECTION OF U.S. 64 AND U.S. 220 BUSINESS IN ASHEBORO. GO EAST ON U.S. 64 FOR 1.7 MILES TO STATION ON RIGHT (SOUTH) SIDE OF U.S. 64. 0.15 MILE WEST OF INTERSECTION OF U.S. 64 AND NC 42. IN A TRAFFIC ISLAND. AND AT AN ARCO SERVICE STATION.

STATION MARK IS A STANDARD N. C. BRASS TRAVERSE DISK, STAMPED SERVICE 1971, SET IN THE TOP OF A CONCRETE CYLINDER, THE TOP OF WHICH IS FLUSH WITH THE GROUND.

MARK IS
84.3 FT SE OF C L OF U.S. 64
119.0 FT SW OF ALUMINUM REF. TAG ON PP
69.0 FT W OF NW CORNER OF SERVICE STATION BUILDING
16.9 FT NW OF BASE OF A METAL LAMP POST
40.7 FT ENE OF TOP OF A CATCH BASIN COVER

********** RECOVERY TEXT **********

RECOVERED BY NCDNR in 1975. SERVICE 1971 GOOD

CHANGE--ARCO SERVICE STATION TO EXXON

MARK IS NOW 4 INCHES BELOW THE GROUND INSTEAD OF FLUSH

ADD. REF. 32.4 FT SE OF SE CURB OF HIGHWAY (NE CURB OF ISLAND)
17.0 FT NW OF SE CURB OF ISLAND
34.0 FT S OF HIGHWAY SIGN POST WITH ALUMINUM REF. TAG

********** RECOVERY TEXT **********

Last Recovery: 75 GOOD

tation: PHONE

NAD 83 => LATITUDE = 35 42 9.80262 LONGITUDE = 079 46 58.27398
SPC 83 => NORTHING = 216897.663 Meters EASTING = 538759.842 Meters

NAD 27 => LATITUDE = 35 42 9.31042 LONGITUDE = 79 46 59.15905
SPC 27 => NORTH(Y) = 711536.231 Feet EAST(X) = 1767502.388 Feet

GRID SHIFT (NAD27 - NAD83) NORTH = -68.852 feet EAST = -78.860 feet

NAD83 CONVERGENCE (ø) = -0 27 6.62 NAD83 SCALE FACTOR = 0.9999035
ELEVATION (NGVD 29) USE GEOID99 GEOID PROGRAM
264.838 meters (BM) TO COMPUTE GEOID HEIGHT
PID = EZ1654

PHONE IS LOCATED APPROXIMATELY 1.7 MILES ESE OF ASHEBORO. TO REACH STATION PROCEED FROM THE INTERSECTION OF U.S. 64 AND NC 42 IN ASHEBORO. GO EAST ON U.S. 64 0.4 MILE TO STATION ON LEFT (NORTH) SIDE OF U.S. 64. 0.3 MILE WEST OF INTERSECTION OF U.S. 64 AND SR 2227. AND ACROSS U.S. 64 FROM A TELEPHONE COMPANY BUILDING AND WEEKS CONSTRUCTION BUILDING.

STATION MARK IS A STANDARD N. C. BRASS TRAVERSE DISK, STAMPED PHONE 1971, SET IN THE TOP OF A CONCRETE CYLINDER, THE TOP OF WHICH IS 1 INCH ABOVE THE GROUND.

MARK IS
41.8 FT NW OF C/L OF U.S. 64
10.8 FT E OF ALUMINUM REF. TAG ON 10 INCH PINE TREE
26.7 FT NE OF ALUMINUM REF. TAG ON 10 INCH TWIN PINE
13.8 FT SSW OF ALUMINUM REF. TAG ON 6 INCH OAK TREE
176.6 FT SW OF C/L OF DRIVE TO A RESIDENCE

********** RECOVERY TEXT **********

RECOVERED BY NCDNR in 1975. PHONE 1971 GOOD

ADDITIONAL REFERENCES--25.0 FT NW OF NW CURB OF HIGHWAY

43.3 FT W OF CENTER OF A STORM DRAIN

********** RECOVERY TEXT **********

Last Recovery: 75 GOOD

Station: JUNCTION

NAD 83 => LATITUDE = 35 42 15.59526 LONGITUDE = 079 46 49.50311
SPC 83 => NORTHING = 217074.436 Meters EASTING = 538981.709 Meters

NAD 27 => LATITUDE = 35 42 15.10306 LONGITUDE = 79 46 50.38886
SPC 27 => NORTH(Y) = 712116.176 Feet EAST(X) = 1768230.261 Feet

GRID SHIFT (NAD27 - NAD83) NORTH = -68.869 feet EAST = -78.896 feet

NAD83 CONVERGENCE (ø) = -0 27 1.56 NAD83 SCALE FACTOR = 0.9999037
ELEVATION (NGVD 29) USE GEOID99 GEOID PROGRAM
266.459 meters (BM) TO COMPUTE GEOID HEIGHT
PID = EZ1653

JUNCTION IS LOCATED APPROXIMATELY 1.9 MILES ESE OF ASHEBORO. TO REACH STATION PROCEED FROM THE INTERSECTION OF U.S. 64 AND NC 42 IN ASHEBORO. GO EAST ON U.S. 64 FOR 0.6 MILE TO STATION ON RIGHT (SOUTH) SIDE OF U.S. 64. 0.1 MILE WEST OF INTERSECTION OF U.S. 64 AND SR 2227. AND ON BANK NEAR END OF A HEDGEROW.

STATION MARK IS A STANDARD N. C. BRASS TRAVERSE DISK, STAMPED JUNCTION 1971, SET IN THE TOP OF A CONCRETE CYLINDER, THE TOP OF WHICH IS 3 INCHES ABOVE THE GROUND.

MARK IS
57.9 FT SE OF C L OF E BOUND LANE OF U.S. 64
11.6 FT SW OF ALUMINUM REF. TAG ON TP
13.8 FT SW OF R W MARKER
12.0 FT W OF ALUMINUM REF. TAG ON 6 INCH PINE TREE
31.8 FT N OF ALUMINUM REF. TAG ON 6 INCH PINE TREE
11.9 FT NE OF BASE OF GUY WIRE CABLE FOR TP

Searcher results

Station: GRANT

NAD 83 => LATITUDE = 35 41 42.70374 LONGITUDE = 079 46 55.44646
SPC 83 => NORTHING = 216062.011 Meters EASTING = 538824.335 Meters

NAD 27 => LATITUDE = 35 41 42.21169 LONGITUDE = 79 46 56.33200
SPC 27 => NORTH(Y) = 708794.683 Feet EAST(X) = 1767713.940 Feet

GRID SHIFT (NAD27 - NAD83) NORTH = -68.765 feet EAST = -78.899 feet

NAD83 CONVERGENCE (ø) = -0 27 4.99 NAD83 SCALE FACTOR = 0.9999025
ELEVATION (NGVD 29) USE GEOID99 GEOID PROGRAM
257.6 meters (±0.3 m) TO COMPUTE GEOID HEIGHT
PID = EZ3940

GRANT IS LOCATED APPROXIMATELY 2.0 MILES ESE OF ASHEBORO AND 10.1 MILES WNW OF COLERIDGE. TO REACH STATION FROM THE INTERSECTION OF U.S. 64 WITH NC 42 EAST OF ASHEBORO, PROCEED SOUTHEAST ALONG NC 42 FOR 0.4 MILE TO SR 2600 (E) AND STATION ON LEFT, IN NORTHWESTERNMOST QUADRANT OF T INTERSECTION AT A ROCK OUTCROP.

STATION MARK IS A STANDARD N. C. BRASS TRAVERSE DISK, STAMPED GRANT 1975, SET IN THE TOP OF A CONCRETE CYLINDER, THE TOP OF WHICH IS 1 INCH BELOW THE GROUND, AND ABOUT 20 FEET ABOVE HIGHWAY LEVEL.

MARK IS (SLOPE DIST.) 37.9 FT NE OF C/L OF NC 42
158.7 FT NW OF C/L OF SR 2600
167.7 FT NNW OF C/L OF INTERSECTION OF NC 42 WITH SR 2600 AND DRIVEWAY (S) TO GRANTS BEAUTY SALON
18.6 FT S OF 20 INCH WHITE OAK WITH ALUMINUM REF. TAG
28.6 FT SW OF 4 INCH SHORT LEAF PINE WITH ALUMINUM REF. TAG
63.8 FT WNW OF TRIPLE TRUNK HICKORY WITH ALUMINUM REF. TAG

tation: COXGRO

NAD 83 => LATITUDE = 35 41 47.22677 LONGITUDE = 079 47 3.05475
SPC 83 => NORTHING = 216202.904 Meters EASTING = 538634.177 Meters

NAD 27 => LATITUDE = 35 41 46.73439 LONGITUDE = 79 47 3.93943
SPC 27 => NORTH(Y) = 709256.884 Feet EAST(X) = 1767090.119 Feet

GRID SHIFT (NAD27 - NAD83) NORTH = -68.810 feet EAST = -78.843 feet

NAD83 CONVERGENCE (°) = -0 27 9.38 NAD83 SCALE FACTOR = 0.9999026
ELEVATION (NGVD 29) USE GEOID99 GEOID PROGRAM
245.2 meters (±0.3 m) TO COMPUTE GEOID HEIGHT
PID = EZ3941

COXGRO IS LOCATED APPROXIMATELY 1.8 MILES ESE OF ASHEBORO.
TO REACH STATION FROM INTERSECTION OF U.S. 64 WITH NC 42 EAST
F ASHEBORO, PROCEED SOUTHEAST ALONG NC 42 FOR 0.2 MILE TO SR
825 (S) AND STATION ON THE LEFT, IN SOUTHEAST QUADRANT OF INTERSECTION
N SLOPE OF BANK, AND APPROXIMATELY 125 FEET SOUTH OF AND ACROSS
IGHWAY FROM COX GROCERY AND SERVICE STATION.

STATION MARK IS A STANDARD N. C. BRASS TRAVERSE DISK, STAMPED
OXGRO 1975, SET IN THE TOP OF A CONCRETE CYLINDER, THE TOP
F WHICH IS 4 INCHES BELOW THE GROUND.

MARK IS 45.8 FT SW OF C/L OF NC 42
101.4 FT SE OF C/L OF SR 2825 (INWOOD RD.)
14.1 FT NNE OF 6 INCH MAPLE WITH ALUMINUM REF. TAG
24.3 FT E OF 6 INCH LOBLOLLY PINE WITH ALUMINUM REF. TAG

59.1 FT N OF TP WITH ALUMINUM REF. TAG
43.0 FT NW OF 4 INCH LOBLOLLY PINE WITH ALUMINUM REF. TAG

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 11, 2003

MEMORANDUM TO: Stephanie L. Caudill
Project Development Engineer

FROM: Stephen Walker
Traffic Noise/Air Quality Section

SUBJECT: Intersection Improvements of US 64-NC 49 and NC 42 in Asheboro, Randolph County, State Project # 8.1572101, WBS # 3.4935.1.1, TIP # U-3401

The project is located in Randolph County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR Parts 51 and 93 is not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

The project proposes improvements such as the construction of additional turn lanes to the intersection of US 64-NC 49 and NC 42. The project will not increase traffic volumes and no additional through lanes are planned for the intersection. Based on past project experience, the project's impact on noise and air quality will not be significant.

If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise of Title 23 of the Code of Federal Regulations, Part 772, and for air quality of the 1990 Clean Air Act Amendments and the NEPA process, and no additional reports are necessary.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
OFFICE OF HUMAN ENVIRONMENT
1583 MAIL SERVICE CENTER
RALEIGH NC 27699-1583

TELEPHONE: 919-715-1500
FAX: 919-715-1522

WEBSITE: WWW.NCDOT.ORG

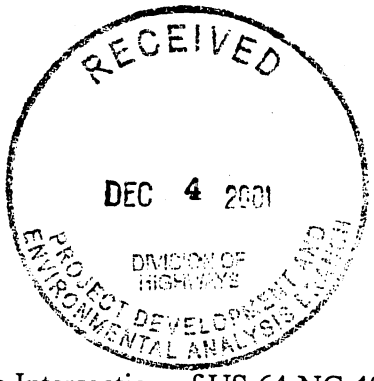
LOCATION:
PARKER LINCOLN BLDG
2728 CAPITA; BLVD
RALEIGH NC

North Carolina
Department of Administration

Michael F. Easley, Governor

Gwynn T. Swinson, Secretary

November 30, 2001



Mr. William Gilmore
N.C. Dept. of Transportation
Project Dev. & Env. Analysis
Transportation Bldg. - 1548 MSC
Raleigh, NC 27699-1548

DEC - 4

Dear Mr. Gilmore:

Re: SCH File # 02-E-4220-0092; Scoping Proposed Improvements to Intersection of US 64-NC 49 and NC 42 in Asheboro, NC; TIP #U-3401

The above referenced project has been reviewed through the State Clearinghouse Intergovernmental Review Process. Attached to this letter are comments made by agencies reviewing this document.

Should you have any questions, please do not hesitate to call me at (919) 807-2425.

Sincerely,

Chrys Baggett

Ms. Chrys Baggett
Environmental Policy Act Coordinator

Attachments

cc: Region G

NCDENR
North Carolina Department of Environment and Natural Resources
Michael F. Easley, Governor
William G. Ross Jr., Secretary

MEMORANDUM

TO: Chrys Baggett
State Clearinghouse

FROM: Melba McGee
Environmental Review Coordinator

SUBJECT: 02-E-0092 Scoping Improvements to Intersection of US 64-NC 49 and NC 42 in Asheboro, Randolph County

DATE: September 20, 2001

The Department of Environment and Natural Resources has reviewed the proposed information. The attached comments are for the applicant's information and consideration.

Thank you for the opportunity to review.

Attachments

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 \ Internet: www.enr.state.nc.us/ENR/

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Melba McGee
Office of Legislative and Intergovernmental Affairs, DENR

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: September 13, 2001

SUBJECT: Request for information from the N. C. Department of Transportation (NCDOT) regarding fish and wildlife concerns for intersection improvements, intersection of US 64-NC 49 and NC 42 in Asheboro, Randolph County, North Carolina. TIP No. U-3401, SCH Project No. 02-E-0092.

This memorandum responds to a request from Mr. William D. Gilmore of the NCDOT for our concerns regarding impacts on fish and wildlife resources resulting from the subject project. Biologists on the staff of the N. C. Wildlife Resources Commission (NCWRC) have reviewed the proposed improvements. Our comments are provided in accordance with certain provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

We have no specific concerns regarding this project. However, to help facilitate document preparation and the review process, our general informational needs are outlined below:

1. Description of fishery and wildlife resources within the project area, including a listing of federally or state designated threatened, endangered, or special concern species. Potential borrow areas to be used for project construction should be included in the inventories. A listing of designated plant species can be developed through consultation with:

   The Natural Heritage Program
   N. C. Division of Parks and Recreation
   1615 Mail Service Center
   Raleigh, N. C. 27699-1615
   (919) 733-7795

and,

NCDA Plant Conservation Program
P. O. Box 27647
Raleigh, N. C. 27611
(919) 733-3610

2. Description of any streams or wetlands affected by the project. The need for channelizing or relocating portions of streams crossed and the extent of such activities.

3. Cover type maps showing wetland acreages impacted by the project. Wetland acreages should include all project-related areas that may undergo hydrologic change as a result of ditching, other drainage, or filling for project construction. Wetland identification may be accomplished through coordination with the U. S. Army Corps of Engineers (COE). If the COE is not consulted, the person delineating wetlands should be identified and criteria listed.

4. Cover type maps showing acreages of upland wildlife habitat impacted by the proposed project. Potential borrow sites should be included.

5. The extent to which the project will result in loss, degradation, or fragmentation of wildlife habitat (wetlands or uplands).

6. Mitigation for avoiding, minimizing or compensating for direct and indirect degradation in habitat quality as well as quantitative losses.

7. A cumulative impact assessment section which analyzes the environmental effects of highway construction and quantifies the contribution of this individual project to environmental degradation.

8. A discussion of the probable impacts on natural resources which will result from secondary development facilitated by the improved road access.

9. If construction of this facility is to be coordinated with other state, municipal, or private development projects, a description of these projects should be included in the environmental document, and all project sponsors should be identified.

Thank you for the opportunity to provide input in the early planning stages for this project. If we can further assist your office, please contact me at (919) 528-9886.

cc: USFWS, Raleigh

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Project Number
H-025-0052
County Randolph

Inter-Agency Project Review Response

Project Name NC DOT - Scoping letter Type of Project Intersection Improvement 1564/NC49 & NC42

☐ The applicant should be advised that plans and specifications or all water system improvements must be approved by the Division of Environmental Health prior to the award of a contract or the initiation of construction (as required by 15A NCAC 18C .0300et. seq.). For information, contact the Public Water Supply Section, (919) 733-2321.

☐ This project will be classified as a non-community public water supply and must comply with state and federal drinking water monitoring requirements. For more information the applicant should contact the Public Water Supply Section, (919) 733-2321.

☐ If this project is constructed as proposed, we will recommend closure of _____ feet of adjacent waters to the harvest of shellfish. For information regarding the shellfish sanitation program, the applicant should contact the Shellfish Sanitation Section at (252) 726-6827.

☐ The soil disposal area(s) proposed for this project may produce a mosquito breeding problem. For information concerning appropriate mosquito control measures, the applicant should contact the Public Health Pest Management Section at (252) 726-8970.

☐ The applicant should be advised that prior to the removal or demolition of dilapidated structures, a extensive rodent control program may be necessary in order to prevent the migration of the rodents to adjacent areas. For information concerning rodent control, contact the local health department or the Public Health Pest Management Section at (919) 733-6407.

☐ The applicant should be advised to contact the local health department regarding their requirements for septic tank installations (as required under 15A NCAC 18A. 1900 et. sep.). For information concerning septic tank and other on-site waste disposal methods, contact the On-Site Wastewater Section at (919) 733-2895.

☐ The applicant should be advised to contact the local health department regarding the sanitary facilities required for this project.

☒ If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Environmental Health, Public Water Supply Section, Technical Services Branch, 1634 Mail Service Center, Raleigh, North Carolina 27699-1634, (919) 733-2321.

☒ For Regional and Central Office comments, see the reverse side of this form.

Jerry Robbins	Public Water Supply	9-11-01
Reviewer	Section/Branch	Date

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Gregory J. Thorpe, Ph.D.
· Acting Director
Division of Water Quality

August 22, 2001

MEMORANDUM

TO: Melba McGee, Environmental Coordinator
NCDENR Office of Legislative and Intergovernmental Affairs

THROUGH: John R. Dorney, NC Division of Water Quality

FROM: Cynthia F. Van Der Wiele, NCDOT Coordinator

SUBJECT: Review of Scoping Sheets for the Intersection of US 64/NC 49 and NC 42, Randolph County, F.A. Project No. NHF-64(58), State Project No. 8.1572101, TIP Project U-3401.

In reply to your correspondence dated June 19, 2001 (received June 25, 2001) in which you requested comments for the referenced project, preliminary analysis of the project reveals no potential for direct impacts to perennial streams or jurisdictional wetlands in the project area. However, in the event that the project scope is amended, the Division of Water Quality requests that NCDOT send notification of any proposed impacts to wetlands and streams with corresponding mapping.

The NCDWQ appreciates the opportunity to provide comments on your project. If you have any questions, please call Cynthia Van Der Wiele at 919.733.5715.

pc: Eric Alsmeyer, USACE Raleigh Field Office
Marcella Buncick, USFWS
MaryEllen Haggard, NCWRC
Central Files
File Copy

North Carolina Division of Water Quality, 401 Wetlands Certification Unit,
1650 Mail Service Center, Raleigh, NC 27699-1650 (Mailing Address)
2321 Crabtree Blvd., Raleigh, NC 27604-2260 (Location)
919-733-1786 (phone), 919-733-6893 (fax), http://h2o.enr.state.nc.us/ncwetlands/

Reviewing Office: _____

NCDENR Department of Environment and Natural Resources Project Number: 02E0092 Due Date: 9,17,0.

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

After review of this project it has been determined that the DENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of this form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (Statutory Time Limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☑	NPDES-permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters. Stormwater	Application 180 days before begin activity. On-site inspection preapplication conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90 - 120 days (N/A)
☐	Water Use Permit	Preapplication technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☑	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Preapplication conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100, 2Q.0300, 2H.0600)	N/A	60 days
☑	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☑	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 2D.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-733-0820.		
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
☑ ④	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) at least 30 days before beginning activity. A fee of $40 for the first acre or any part of an acre.		20 days (30 days)
☐	The Sedimentation Pollution Control Act of 1973 must be addressed with respect to the referenced Local Ordinance.		30 days
☐	Mining Permit	On-site inspection usual. Surety bond filed with DENR. Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division of Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit-22 counties in coastal N.C.. with organic soils.	On-site inspection by N.C. Division of Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90 - 120 days (N/A)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to DENR approved plans. May also require permit under mosquito control program, and a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage or the total project cost will be required upon completion.	30 days (60 days)

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (Statutory Time Limit)
☐	Permit to drill exploratory oil or gas well	File surety bond of $5,000 with DENR running to State of N.C. conditional that any well opened by drill operator shall, upon abandonment, be plugged according to DENR rules and regulations.	10 days (N/A)
☐	Geophysical Exploration Permit	Application filed with DENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days (N/A)
☐	State Lakes Construction Permit	Application fees based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15 - 20 days (N/A)
☑	401 Water Quality Certification	N/A	55 days (130 days)
☐	CAMA Permit for MAJOR development	$250.00 fee must accompany application	60 days (130 days)
☐	CAMA Permit for MINOR development	$50.00 fee must accompany application	22 days (25 days)
☐	Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, N.C. 27611		
☑	Abandonment of any wells, if required must be in accordance with Title 15A. Subchapter 2C.0100.		
☑	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☐	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)

* Other comments (attach additional pages as necessary, being certain to cite comment authority)

1 Cindy Kenton - UST Section 771-4600 - 8/28/01

2 Sherri Knight - GW Section - 9/18/01

3 Larry D. Cobb WQ 9-20-01

4 NCDOT has a delegated sediment and erosion control program ~~Date~~ 9/20/01

5 Myra Clark DAQ 20 Sept 01

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**
59 Woodfin Place
Asheville, N.C. 28801
(828) 251-6208

☐ **Mooresville Regional Office**
919 North Main Street
Mooresville, N.C. 28115
(704) 663-1699

☐ **Wilmington Regional Office**
127 Cardinal Drive Extension
Wilmington, N.C. 28405
(910) 395-3900

☐ **Fayetteville Regional Office**
225 Green Street, Suite 714
Fayetteville, N.C. 28301
(910) 486-1541

☐ **Raleigh Regional Office**
3800 Barrett Drive, P.O. Box 27687
Raleigh, N.C. 27611
(919) 571-4700

☐ **Winston-Salem Regional Office**
585 Waughtown Street
Winston-Salem, N.C. 27107
(336) 771-4600

☐ **Washington Regional Office**
943 Washington Square Mall
Washington, N.C. 27889
(252) 946-6481

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

STATE NUMBER: 02-E-4220-0092 F02
DATE RECEIVED: 08/20/2001
AGENCY RESPONSE: 11/22/2001
REVIEW CLOSED: 11/27/2001

MS RENEE GLEDHILL-EARLEY
CLEARINGHOUSE COORD
DEPT OF CUL RESOURCES
ARCHIVES-HISTORY BLDG - MSC 4617
RALEIGH NC

REVIEW DISTRIBUTION
CC&PS - DEM, NFIP
DENR LEGISLATIVE AFFAIRS
DEPT OF CUL RESOURCES
PIEDMONT TRIAD COG

PROJECT INFORMATION
APPLICANT: N.C. Dept. of Transportation
TYPE: National Environmental Policy Act
ERD: Scoping
DESC: Proposed Improvements to Intersection of US 64-NC 49 and NC 42 in Asheboro, NC; TIP #U-3401

Randolph Co.

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date. If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED:

[X] NO COMMENT

[ ] COMMENTS ATTACHED

(NC) Dolores A Hall
Archaeologist
9/10/01

SIGNED BY: Renee Gledhill-Earley

DATE: 10/19/01

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

December 4, 2001

Mr. William D. Gilmore, P.E., Manager
NCDOT
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Gilmore:

Thank you for your letter of August 15, 2001 requesting information from the U.S. Fish and Wildlife Service (Service) for the purpose of evaluating the potential environmental impacts of the proposed intersection improvements, intersection of Routes 64-NC49 and NC 42, at Asheboro, Randolph County, North Carolina (TIP No. U-3401). This report provides scoping information and is provided in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-667d) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543). This report also serves as initial scoping comments to federal and state resource agencies for use in their permitting and/or certification processes for this project.

The North Carolina Department of Transportation (NCDOT) proposes to add additional lanes at the US 64-NC 49, NC 42 intersection. The following recommendations are provided to assist you in your planning process and to facilitate a thorough and timely review of the project.

Generally, the Service recommends that wetland impacts be avoided and minimized to the maximum extent practical as outlined in Section 404 (b)(1) of the Clean Water Act Amendments of 1977. In regard to avoidance and minimization of impacts, we recommend that proposed highway projects be aligned along or adjacent to existing roadways, utility corridors, or previously developed areas in order to minimize habitat fragmentation and encroachment. Areas exhibiting high biodiversity or ecological value important to the watershed and region should be avoided. Crossings of streams and associated wetland systems should use existing crossings and/or occur on a structure wherever feasible. Where bridging is not feasible, culvert structures that maintain natural water flows and hydraulic regimes without scouring, or impeding fish and wildlife passage, should be employed. Highway shoulder and median widths should be reduced through wetland areas. Roadway embankments and fill areas should be stabilized by using appropriate erosion control devices and techniques. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons.

The National Wetlands Inventory (NWI) map of the Asheboro 7.5 Minute Quadrangle does not indicate the presence of wetland and/or stream resources in the specific work area. However, while the NWI maps are useful for providing an overview of a given area, they should not be relied upon in lieu of a detailed wetland delineation by trained personnel using an acceptable wetland classification methodology.

We reserve the right to review any federal permits that may be required for this project, at the public notice stage. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation.

In addition to the above guidance, we recommend that the environmental documentation for this project include the following in sufficient detail to facilitate a thorough review of the action:

1. A clearly defined and detailed purpose and need for the proposed project, supported by tabular data, if available, and including a discussion of the project's independent utility;

2. A description of the proposed action with an analysis of all alternatives being considered, including the upgrading of existing roads and a "no action" alternative;

3. A description of the fish and wildlife resources, and their habitats, within the project impact area that may be directly or indirectly affected;

4. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory (NWI). Wetland boundaries should be determined by using the 1987 Corps of Engineers Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers (Corps);

5. The anticipated environmental impacts, both temporary and permanent, that would be likely to occur as a direct result of the proposed project. The assessment should also include the extent to which the proposed project would result in secondary impacts to natural resources, and how this and similar projects contribute to cumulative adverse effects;

6. Design features and construction techniques which would be employed to avoid or minimize the fragmentation or direct loss of wildlife habitat value;

7. Design features, construction techniques, or any other mitigation measures which would be employed at wetland crossings and stream channel relocations to avoid or minimize impacts to waters of the United States; and,

8. If unavoidable wetland impacts are proposed, we recommend that every effort be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity, preferably via conservation easement, should be explored at the outset.

The enclosed list identifies the federally-listed endangered and threatened species, and Federal Species of Concern (FSC) that are known to occur in Randolph County. The Service recommends that habitat requirements for these federally-listed species be compared with the available habitat at the project site. If suitable habitat is present within the action area of the project, biological surveys for the listed species should be conducted. Environmental documentation should include survey methodologies and results.

FSC's are those plant and animal species for which the Service remains concerned, but further biological research and field study are needed to resolve the conservation status of these taxa. Although FSC's receive no statutory protection under the ESA, we would encourage the NCDOT to be alert to their potential presence, and to make every reasonable effort to conserve them if found. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

The Service appreciates the opportunity to comment on this project. Please continue to advise us during the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding these comments, please contact Tom McCartney at 919-856-4520, Ext. 32.

Sincerely,

for Dr. Garland B. Pardue
Ecological Services Supervisor

Enclosure

cc: COE, Raleigh, NC (Eric Alsmeyer)
NCDWQ, Raleigh, NC (John Hennessy)
NCDNR, Creedmoor, NC (David Cox)
EPA, Atlanta, GA (Ted Bisterfeld)

FWS/R4:TMcCartney:TM:12/03/01:919/856-4520 extension 32:\U-3401.tip

COMMON NAME	SCIENTIFIC NAME	STATUS
PITT COUNTY		
Vertebrates		
Henslow's sparrow	*Ammodramus henslowii*	FSC
Bald eagle	*Haliaeetus leucocephalus*	Threatened
Southern hognose snake	*Heterodon simus*	FSC*
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Manatee	*Trichechus manatus*	Endangered
Invertebrates		
Tar spinymussel	*Elliptio steinstansana*	Endangered
Atlantic pigtoe	*Fusconaia masoni*	FSC
Yellow lampmussel	*Lampsilis cariosa*	FSC
Tar River crayfish	*Procambarus medialis*	FSC*
Vascular Plants		
Savanna cowbane	*Oxypolis ternata*	FSC
Carolina asphodel	*Tofieldia glabra*	FSC
POLK COUNTY		
Vertebrates		
Cerulean warbler	*Dendroica cerulea*	FSC
Southern Appalachian woodrat	*Neotoma floridana haematoreia*	FSC
Invertebrates		
Wyandot (=grizzled) skipper	*Pyrgus wyandot*	FSC*
Diana fritillary butterfly	*Speyeria diana*	FSC
Vascular Plants		
Dwarf-flowered heartleaf	*Hexastylis naniflora*	Threatened
French Broad heartleaf	*Hexastylis rhombiformis*	FSC
Butternut	*Juglans cinerea*	FSC
Large-flowered Barbara's buttons	*Marshallia grandiflora*	FSC*
Sweet pinesap	*Monotropsis odorata*	FSC*
Bigleaf scurfpea	*Orbexilum macrophyllum*	FSC*
Divided-leaf ragwort	*Senecio millefolium*	FSC
White irisette	*Sisyrinchium dichotomum*	Endangered

RANDOLPH COUNTY

Critical Habitat Designation:

Cape Fear shiner, *Netropis mekistocholas* - Approximately 1.5 miles of Fork Creek, from a point 0.1 river mile upstream of Randolph County Road 2873 Bridge downstream to the Deep River then downstream approximately 4.1 river miles of the Deep River in Randolph and Moore Counties, North Carolina, to a point 2.5 river miles below Moore County Road 1456 Bridge. Constituent elements include clean streams with gravel, cobble, and boulder

substrates with pools, riffles, shallow runs and slackwater areas with large rock outcrops and side channels and pools with water of good quality with relatively low silt loads.

Vertebrates.		
Cape Fear shiner	*Notropis mekistocholas*	Endangered
Invertebrates		
Brook floater	*Alasmidonta varicosa*	FSC
Pee Dee crayfish ostracod	*Dactylocythere peedeensis*	FSC*
Atlantic pigtoe	*Fusconaia masoni*	FSC
Carolina creekshell	*Villosa vaughaniana*	FSC
Vascular Plants		
Schweinitz's sunflower	*Helianthus schweinitzii*	Endangered

RICHMOND COUNTY

Vertebrates		
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered
Bachman's sparrow	*Aimophila aestivalis*	FSC
Rafinesque's big-eared bat	*Corynorhinus (=Plecotus) rafinesquii*	FSC**
Southern hognose snake	*Heterodon simus*	FSC*
Robust redhorse	*Moxostroma robustum*	FSC
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Northern pine snake	*Pituophis melanoleucus melanoleucus*	FSC
Invertebrates		
Arogos skipper	*Atrytone arogos arogos*	FSC**
Vascular Plants		
Georgia indigo-bush	*Amorpha georgiana* var. *georgiana*	FSC*
Sandhills milkvetch	*Astragalus michauxii*	FSC
White wicky	*Kalmia cuneata*	FSC
Sandhills bog lily	*Lilium iridollae*	FSC*
Bog spicebush	*Lindera subcoriacea*	FSC
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	Endangered
Conferva pondweed	*Potamogeton confervoides*	FSC
Michaux's sumac	*Rhus michauxii*	Endangered
Pickering's dawnflower	*Stylisma pickeringii* var. *pickeringii*	FSC
Carolina asphodel	*Tofieldia glabra*	FSC
Roughleaf yellow-eyed grass	*Xyris scabrifolia*	FSC

ROBESON COUNTY

Vertebrates		
Bachman's sparrow	*Aimophila aestivalis*	FSC
American alligator	*Alligator mississippiensis*	T(S/A)
Rafinesque's big-eared bat	*Corynorhinus (=Plecotus) rafinesquii*	FSC

Federal Aid #NHF-64(58) *TIP* # U-3401 *County*: Randolph

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Adding additional turn lanes to the intersection of US 64/NC49 and NC 42, Asheboro, Randolph County

On January 8, 2002 , representatives of the

- [x] North Carolina Department of Transportation (NCDOT)
- [ ] Federal Highway Administration (FHWA)
- [x] North Carolina State Historic Preservation Office (HPO)
- [ ] Other

Reviewed the subject project at

- [ ] Scoping meeting
- [x] Historic architectural resources photograph review session/consultation
- [ ] Other

All parties present agreed

- [x] There are no properties over fifty years old within the project's area of potential effects.
- [x] There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- [ ] There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as **(List Attached)** is considered not eligible for the National Register and no further evaluation of it is necessary.
- [x] There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- [ ] All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- [ ] There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

Representative, NCDOT — Date 1/8/02

FHWA, for the Division Administrator, or other Federal Agency — Date 1/8/02

Representative, HPO — Date 1/8/02

State Historic Preservation Officer BJS — Date 1-23-02

FEASIBILITY STUDY

Asheboro
Intersection Revisions at
US 64/NC 49 and NC 42
Randolph County

U-3401

Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation

David W. Conner
Highway Planning Engineer

David G. Modlin, Jr., Ph.D., P.E.
Head of Feasibility Studies

2/28/96
Date

U-3401

Asheboro
Intersection Revisions at
US 64/ NC 49 and NC 42
Randolph County

I. General Description

This feasibility study describes proposed improvements at the intersection of US 64/NC 49 and NC 42 in Asheboro. The improvements include widening all approaches to add additional lanes. The project location is shown on Figure 1. The existing intersection configuration is shown on Figure 2. The proposed configuration is shown on Figure 3.

Additional right-of-way will be required for this project; however, it is not anticipated that any residences or businesses will be relocated if the acquisition is asymmetrical to the north side of NC 42.

The total project cost, including construction and right-of-way, is estimated to be $ 1,500,000 as follows:

Construction	.....	$ 600,000
Right-of-Way	.....	900,000
Total Cost	.....	$ 1,500,000

This study is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project including costs, and identify potential problems that may require consideration in the planning and design phases.

II. Existing Conditions

The purpose of this project is to increase the traffic carrying capacity and safety of the subject intersection.

In the North Carolina Statewide Functional Classification System, US 64/NC 49 is classified as an Urban Principal Arterial. NC 42 is classified as an Urban Principal Arterial northwest of US 64/NC 49 and as an Urban Minor

Arterial on the southeast side of US 64/NC 49. On the Asheboro Thoroughfare Plan, both roadways are classified as major thoroughfares.

All four quadrants of the intersection are heavily developed commercially. Development includes automobile dealerships, gas stations/convenience marts, shopping centers, and retail outlets.

US 64/NC 49 is a 5-lane, curb-and-gutter roadway with a width of 64 feet (19.5 m) from face-to-face of curbs. At the intersection, the approaches include one left-turn lane, one through lane, one combination right-turn/through lane and two lanes exiting the intersection.

NC 42 is a two-lane roadway. At the intersection, it has been widened to facilitate turning movements. Each approach includes one left-turn lane, one combination right-turn/through lane, and one lane exiting the intersection.

It is estimated that the current (1995) traffic volumes on US 64/NC 49, in the area of the intersection, are in the range of 21,000 to 25,000 vehicles per day (vpd). NC 42 has current volumes ranging from approximately 9,000 to 11,000 vpd. It is also estimated that in the year 2020, the volumes will be only slightly higher than current volumes. This is due to the proposed construction of the Asheboro Southern Loop which is scheduled in the TIP for right-of-way acquisition to begin in 2001. With the Asheboro Southern Loop in place, the estimated 2020 traffic volumes will be approximately 26,400 vpd on US 64-NC 49 and approximately 11,200 vpd on NC 42.

Currently, at the intersection, NC 42 left and right turns are approximately 17% of the intersection entering volume. Assuming that this percent remains constant, the design year (2020) left and right turns from NC 42 will be approximately 550 vehicles during the peak hour. Without the addition of exclusive left-turn and right-turn lanes, the intersection delay will be substantial causing the intersection to operate a low Level of Service (Level D and possibly Level E). It is estimated that the intersection is currently operating at Level of Service D. With the addition of the lanes as proposed, the Level of Service should improve to Level C which should prevail through the design year.

During the period from May 1, 1992, through April 30, 1995, there were 61 accidents reported at this intersection. None of the accidents resulted in fatal injuries: however, 23 of the accidents resulted in 39 non-fatal injuries. The most prevalent type accidents were Rear-End (34%), Left-Turn (26%), and Angle (25%). The proposed improvements should lessen the congestion at this intersection, and reduce the potential for these types of accidents.

III. Recommendations

It is recommended to construct improvements at the intersection of US 64/NC 49 and NC 42 in Asheboro. The improvements should include widening all approaches to add additional lanes. The project location is shown on Figure 1. The existing intersection configuration is shown on Figure 2. The proposed intersection configuration is shown on Figure 3.

Both approaches of US 64/NC 49 should be widened to include one left-turn lane, two through lanes, one right-turn lane, and two lanes exiting the intersection.

Both approaches of NC 42 should be widened to include two left-turn lanes, one through lane, one right-turn lane, and one lane exiting the intersection.

The existing traffic signal will need to be upgraded.

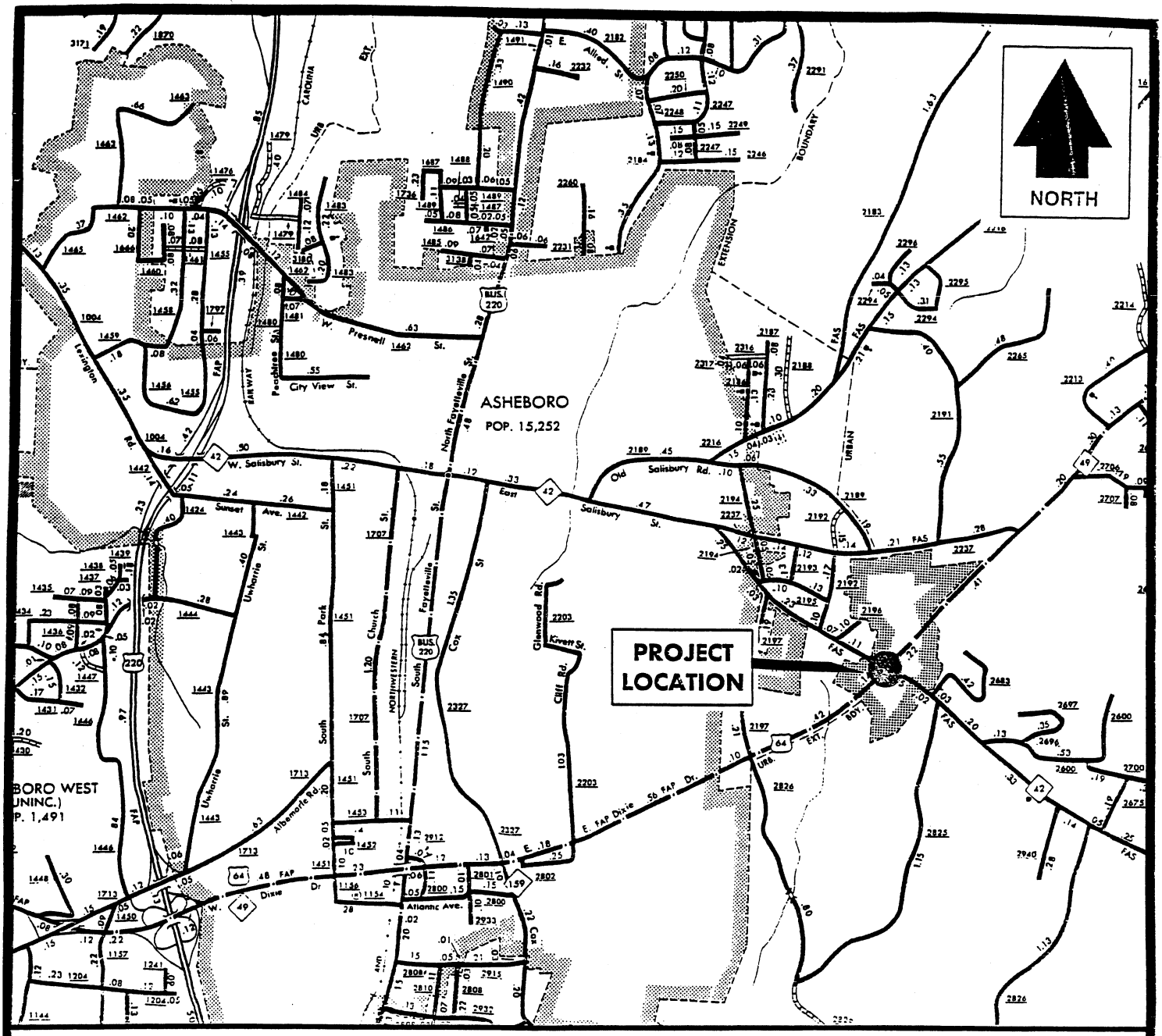
Additional right-of-way will be required for this project; however, it is not anticipated that any residences or businesses will be relocated if the acquisition is asymmetrical to the north side of NC 42.

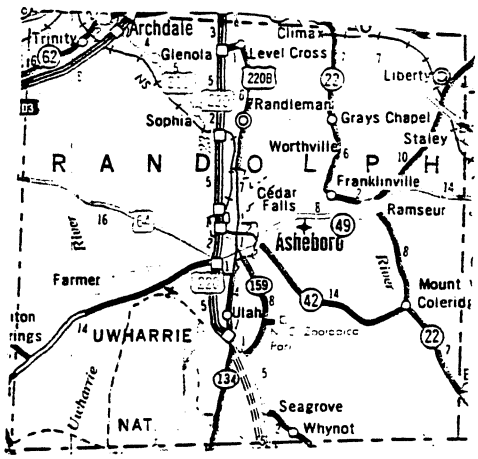
The total project, cost including construction and right-of-way, is estimated to be $ 1,500,000 as follows:

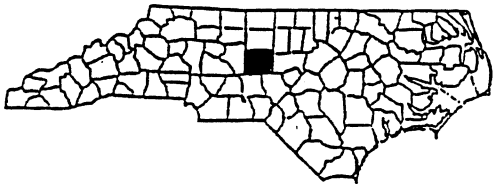
Construction	.....	$ 600,000
Right-of-Way	.....	900,000
Total Cost	.....	$ 1,500,000

IV. Other Comments

An environmental screening was not conducted for this study.







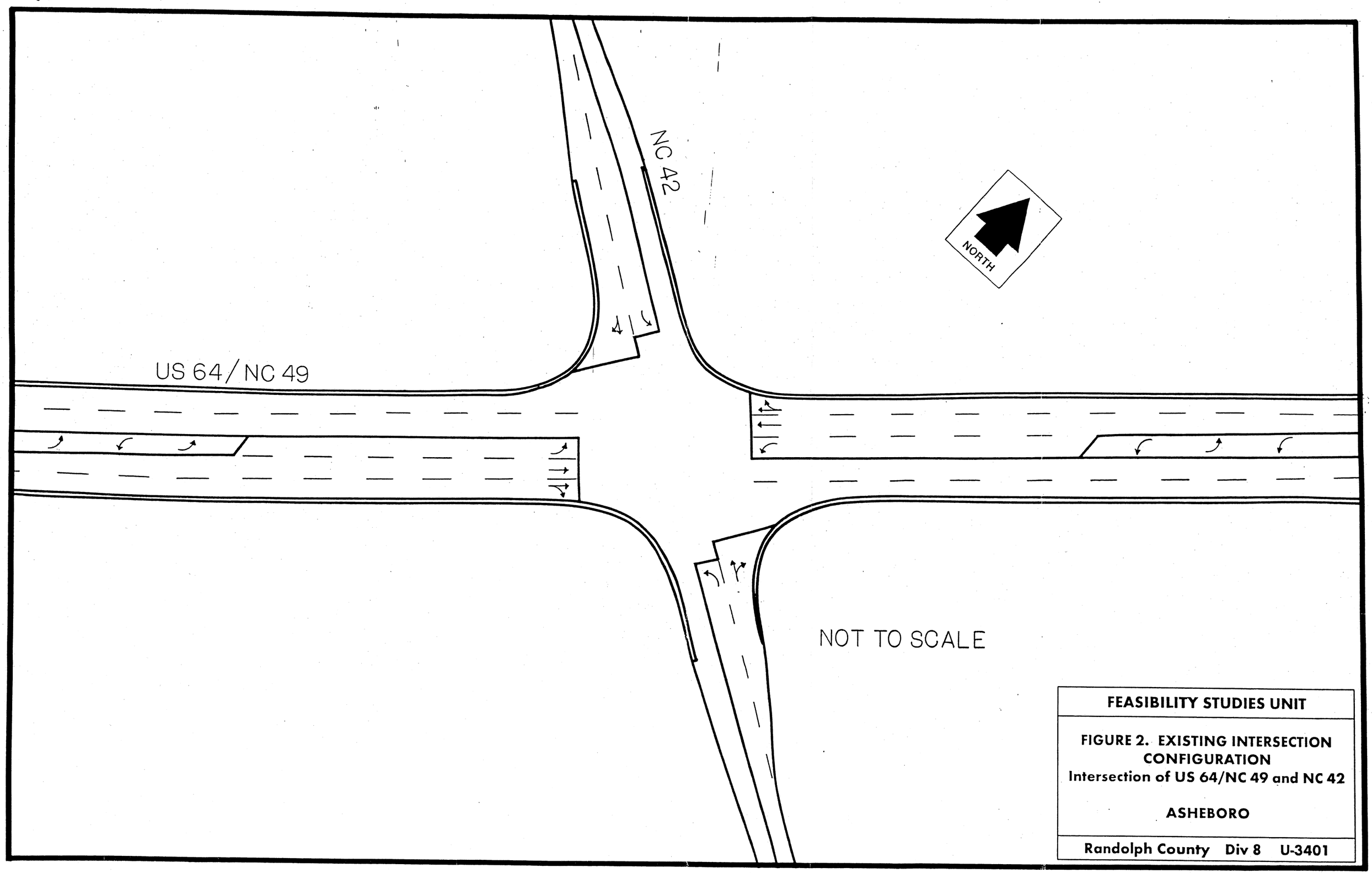
FEASIBILITY STUDIES UNIT

FIGURE 1. PROJECT LOCATION

Intersection of US 64/NC 49 and NC 42

ASHEBORO

Randolph County Div 8 U-3401

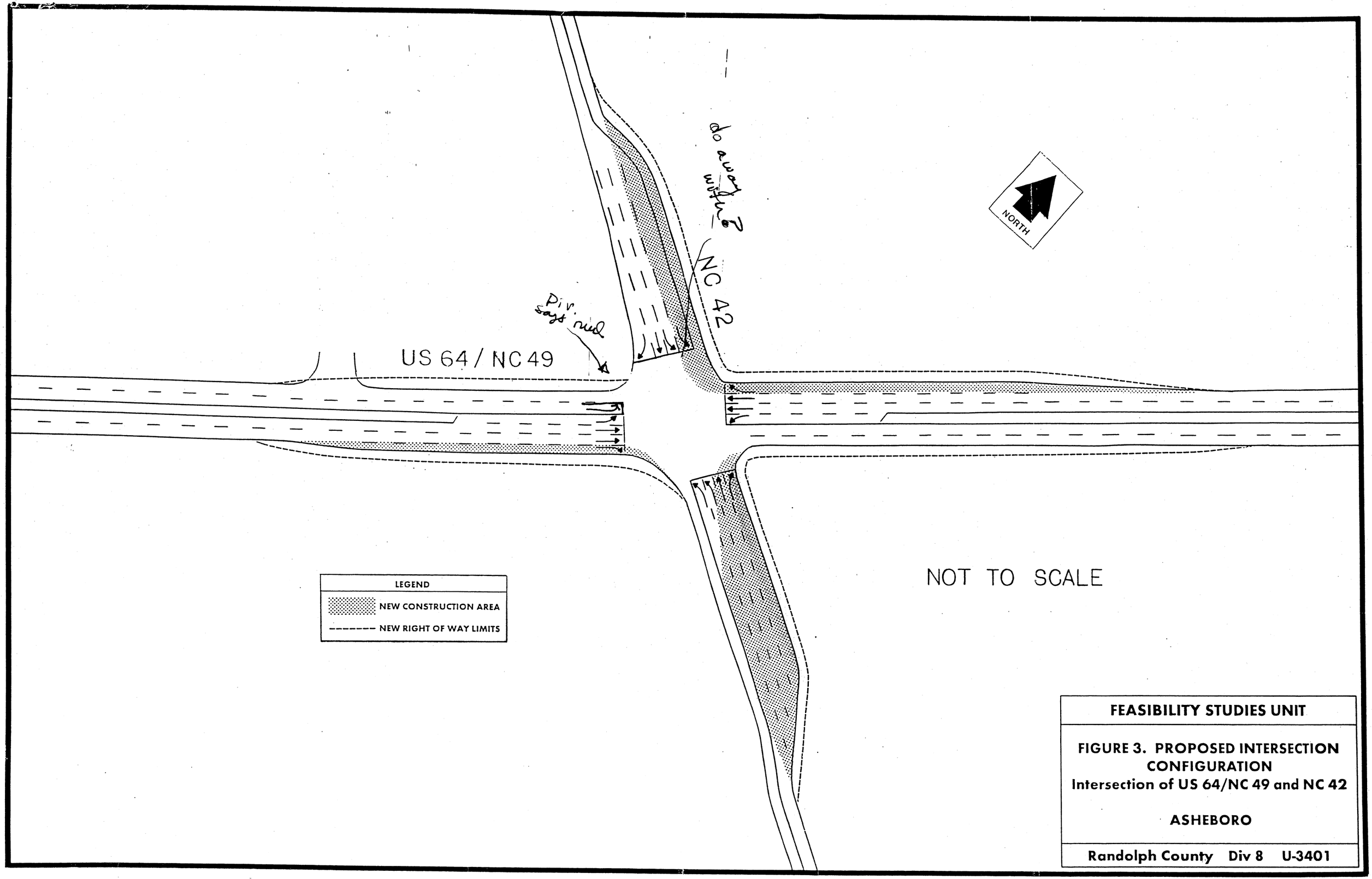


FEASIBILITY STUDIES UNIT

FIGURE 2. EXISTING INTERSECTION CONFIGURATION
Intersection of US 64/NC 49 and NC 42

ASHEBORO

Randolph County Div 8 U-3401



FEASIBILITY STUDIES UNIT

FIGURE 3. PROPOSED INTERSECTION CONFIGURATION
Intersection of US 64/NC 49 and NC 42

ASHEBORO

Randolph County Div 8 U-3401

City of Asheboro

146 North Church Street
P O Box 1106
Asheboro, N. C. 27204-1106

Tel: 336-626-1200
Fax: 336-626-1218

July 27, 2001

Ms. Stephanie Ledbetter
Project Development Engineer
Project Development & Environmental Analysis Branch
NC Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Re: US 64/NC 49 and NC 42 Intersection Improvements

Dear Ms. Ledbetter:

As discussed during our meeting on July 26, 2001, the City of Asheboro would like the NCDOT to proceed with the referenced project using the funds available.

During the preliminary engineering phase of this project, we believe it would be desirable to also evaluate the following alternatives and related projects mentioned at the meeting:

- The East Dixie Drive (US 64) connector to NC 42 as shown on the City of Asheboro Thoroughfare Plan approved by the City of Asheboro and the NCDOT in 1999. (Copy attached)

- Widening NC 42 between East Dixie Drive (US 64) and East Salisbury Street (SR 2237)

- Widening NC 42 in front of the K-Mart entrance

Although the above alternatives are beyond the scope of this project, an evaluation of the capacity and cost benefit will be desirable to coordinate these projects and determine when additional funding should be appropriated.

We appreciate your cooperation.

Sincerely,

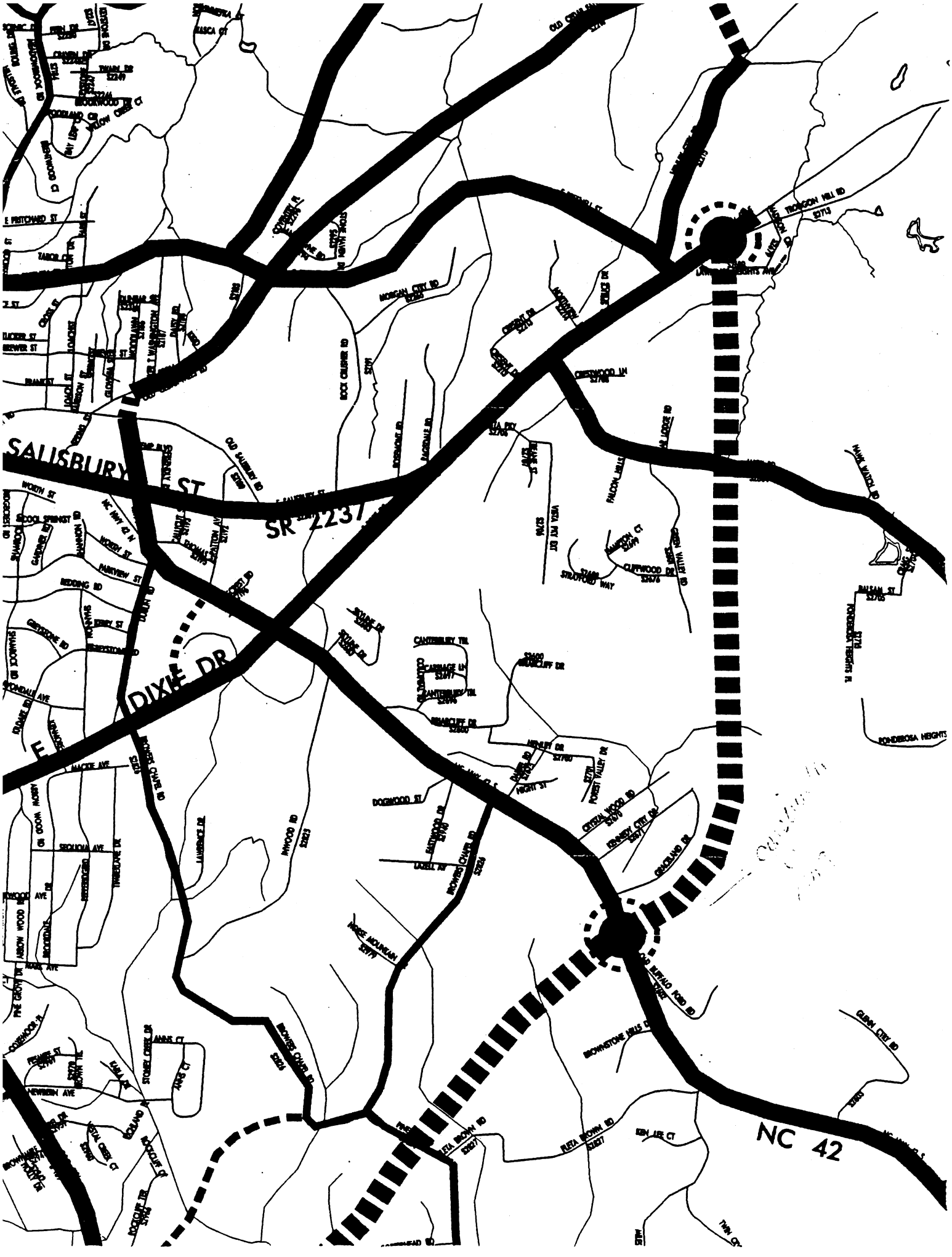
Dumont Bunker

Dumont Bunker, P. E.
City Engineer

DB/ahs

Enclosure

cc w/enc: Will Garner, Jr., P. E., Division Traffic Engineer, NCDOT
Wayne Whorton, NCDOT


SALISBURY ST
SR 2237
DIXIE DR
NC 42

Gregory J. Thorpe, Ph.D.
Attention: Stephanie Caudill
PDEA
Transportation Building
MSC # 1548

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 30, 2003

TIP Project: U-3401
County: Randolph
Description: Improvements at the intersection of US 64/NC 49 and NC 42

MEMORANDUM

TO: W. D. Gilmore, P.E. Manager
Project Development and Environmental Analysis Branch
Attention: Stephanie Caudill, Project Planning Engineer

FROM: Nathan K. Phillips, P.E., Plan Review Engineer
Congestion Management Section

Nathan K. Phillips

SUBJECT: Preliminary Review of TIP Project U-3401

The Plan Review Squad of the Traffic Engineering and Safety Systems Branch has completed a preliminary review of this project. This project involves improvements to the intersection of US 64/NC 49 and NC 42 in Asheboro. As requested, we performed an intersection analysis using the 2002 and 2025 design year traffic projections provided by the Statewide Planning Branch to determine the levels of service (LOS) for this project. These traffic projections included volumes with and without the proposed Asheboro Southern Bypass (TIP R-2536) which is currently projected for post year build. Based on our analysis, we offer the following comments and recommendations that should enhance the traffic safety and operation in this area.

Intersection Analysis

Although this intersection currently operates within a closed-loop signal system including seven other intersections, we were requested to analyze this intersection as an isolated intersection. Based on improvements made to this intersection, it should be noted that the signal timing for the entire closed-loop system may need to be adjusted with this project. It should also be noted that the operations of the other signals in the closed loop system could dictate the cycle length of this intersection as well as influence the phasing order and splits. Therefore, the actual operations may differ somewhat from these presented in this memorandum. The recommended geometry for this intersection is shown in **Figure 1.** Where storage length does not govern, NCDOT's guidelines for left and right-turn lane lengths (including tapers) should be adhered.

US 64/NC 49 & NC 42 - Signalized

Given the existing geometry, this intersection is expected to operate at LOS D in 2002 and LOS F in the 2025 design year. With the proposed improvements, the intersection is expected to operate at LOS F in the 2025 design year with and without the completion of R-2536.

In addition to the proposed improvements, we recommend dual eastbound right-turns and dual left-turn lanes for the northbound approach of US 64/NC 49. In order to accommodate the

MAILING ADDRESS:
TRAFFIC ENGINEERING AND SAFETY SYSTEMS BRANCH
1592 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27599-1592

TELEPHONE: 919-250-4151
FAX: 919-250-4195
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH, NORTH CAROLINA 27610

need to widen NC42
but this is not the project...

northbound dual left-turns, the west leg of NC 42 will need to be widened for a minimum of 900 feet from the intersection to provide appropriate acceleration and taper distances. Based on the recommended geometry shown in **Figure 1**, this intersection is expected to operate at LOS E in the 2025 design year with the completion of R-2536.

Capacity limitations along NC 42 in this area prevent the intersection from operating above LOS E in the design year. NC 42 is a basic two-lane facility with turn lanes in the project area. With design year projections approaching 24,000 vehicles per day, NC 42 will warrant multi-lanes in the future. With an additional through lane along NC 42 and with the completion of R-2536, this intersection should operate at a LOS D with the recommended geometry in the 2025 design year.

We also recommend efforts be taken to protect the integrity of the intersection by removing/limiting access to NC 42 and US 64 in the intersection influence area as much as possible.

If you have any questions, please contact Regina Page, Plan Review Project Engineer, or me at 250-4151.

NKP/rep

cc: W. F. Rosser, P. E. (Attention: W. C. Garner Jr., P.E.)
J. A. Bennett, P.E.
M. Pate Butler
R. E. Mullinax, P.E.
T. M. Hopkins, P.E. (Attention: J. H. Dunlop, P.E.)
C. L. Evans (Attention: Jo Ann Oerter)
J. S. Bourne, P.E.
R. W. King, P.E.

Note: Storage lengths reported in feet. [With R-2536 (Without R-2536)]

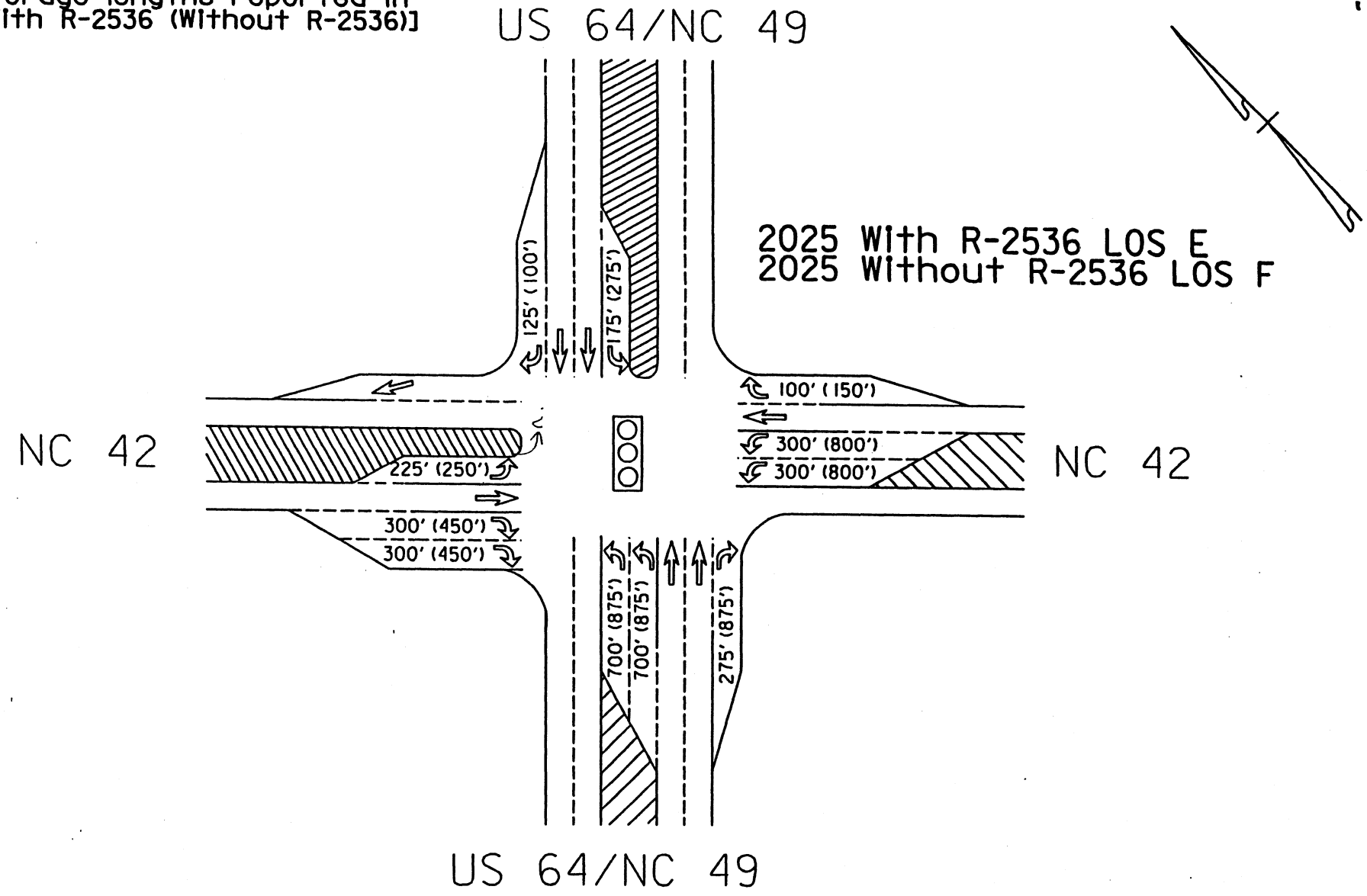


Figure 1: Recommended Intersection Laneage for US 64/NC 49 and NC 42.

U-3401

NOT TO SCALE

...\2003-01-29_figures.dgn 01/30/03 04:53:01 PM

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 1, 2003

Dr. Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Branch
1 South Wilmington St
Raleigh, NC 27611

WBS Element:	34935.1.1
State Project:	8.1572101
TIP #:	U-3401
Federal Project:	NHF-64 (58)
County:	Randolph
Description:	Asheboro, Intersection of US 64/NC 49 and NC 42

Subject: **GeoEnvironmental Impact Evaluation**

Purpose

This report presents the results of a "GeoEnvironmental Impact Evaluation" conducted along the above referenced project. The main purpose of this investigation is to identify properties within the project study area that may contain hazardous materials and result in future environmental liability if acquired. These hazards may include, but are not limited to: USTs, hazardous waste sites, regulated landfills and unregulated dumpsites.

Methodology

A field reconnaissance survey was conducted in the vicinity of the project. In addition to the field survey, a file search of appropriate environmental agencies was conducted to identify any known problem sites along the proposed project alignment. The identified sites are discussed below.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
GEOENVIRONMENTAL SECTION
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
FAX: 919-250-4237

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Underground Storage Tank (UST) Facilities

The Geotechnical Unit performed a field reconnaissance survey and found three (3) UST sites within the project area. Should the project limits change, please inform this office as soon as possible. *Please note that our evaluation mainly covers regulated (commercial) USTs and that there is still the possibility of unregulated USTs (farm tanks or home heating oil tanks) being impacted by the project. These unregulated USTs should be identified by Right-of-Way during initial contacts and our office should be notified of their presence prior to acquisition so that we can determine if the tanks have leaked.*

1)	BP Shop 1407 East Dixie Dr. Asheboro, NC 27203	**Property Owner:** **UST Owner:**	Unknown Randolph Oil Company 1715 S. Fayetteville St. Asheboro, NC 27203

Facility I.D. #: 0-018120

This active gas station is located in the northeast quadrant of the US 64/NC 42 intersection. The registry shows that four (4) USTs are currently in use. These tanks are about 130 feet from the edge-of-pavement at US 64, while the pump island is about 51 feet away. No monitoring wells were noted and it does not appear the site is under remediation at this time. **This site will probably have a minimum impact to our project.**

2)	Asheboro Honda-Mazda 1400 E. Dixie Drive Asheboro, NC 27203	**Property Owner:** **UST Owner:**	Honda Cars of Asheboro Same

Facility I.D. #: 0-026201

This active car dealership is located in the southeast quadrant of the US 64/NC 42 intersection. The UST Section's registry shows a waste oil UST was removed from the site in 1994. It does not appear that the tank had leaked. The facility still does service work and produces waste fluids that are place in an aboveground storage tank (AST). The waste disposal company routinely pumps out the tank and disposes of the material. The waste oil AST is behind the building and is over 150 feet from NC 42. This appears to be the only remaining potential source of contamination at the site (there are no underground tanks, oil/water separators or in-ground hydraulic lifts. **This site will probably have a minimum impact to our project.**

3)	Tank & Tummy #4 1310 E. Dixie Dr. Asheboro, NC 27203	**Property Owner:** **UST Owner:**	Unknown Pugh Oil Company PO Box 4006 Asheboro, NC 27203,

Facility I.D. #: 0-019697

This active gas station is located on the south side of US 64, approximately 0.1 miles west of NC 42. The UST Section's registry shows that a total of eight (8) USTs (1 diesel, 6 gasoline and 1 kerosene) were removed from the site in 1980. There are currently five (5) USTs in use at the site, in two separate tank fields. The closest UST field is about 97 feet from the edge-of-pavement at US 64, while the closest pump island is approximately 137 feet from US 64. About 12 monitoring wells were noted on the site indicating there has been a release (GWI # 14879). **Given the number of monitoring wells on the property, our project could potentially impact contamination from this site.**

4)	Cox Grocery 319 NC 42 South Asheboro, NC 27203	**Property Owner:** **UST Owner:**	Wayne Cox Same Route 10, Box 450 Asheboro, NC 27203

Facility I.D. #: 0-019661

This former gas station is located on the west side NC 42 about 100 feet west of SR 2825 (Inwood Road). The UST Section's registry shows that a total of two (2) gasoline USTs were removed from the site in 1993. No soil contamination above state action levels was identified during the removal work. The former tank field was about 50 feet from the centerline of NC 42, while the pump island was about 75 feet from NC 42. **This site will probably have a minimum impact to our project.**

Landfills and Other Potentially Contaminated Properties

The Geographical Information Service (GIS) was consulted for the project corridor. The research shows that no apparent regulated or unregulated landfills or dumpsites occur within the project limits.

RCRA/CERCLA

Based on the GIS search and the field reconnaissance, no potential RCRA or CERCLA sites were identified within the project limits.

Summary

Based on the field reconnaissance and records search, there should be no other contamination concerns for this project. If any unregulated USTs (or any potential source of contamination) is discovered by Right-of-Way during their initial contacts with impacted property owners, our office should be notified of their presence prior to acquisition. This is so an assessment can be conducted to determine the extent of any contamination. This assessment will also serve to estimate the associated clean up costs and allow us to make right-of-way recommendations.

Sincerely,

Eugene Tarascio
GeoEnvironmental Project Manager
Geotechnical Engineering Unit

Enclosure (Site Location Map)

cc: Greg Brew, PE, Roadway Design
Dean Argenbright, PG, Geotechnical Engineering Unit, Raleigh Area Office
Bill Rosser, PE, Division 8
L.D. Caddell, Division 8 Right-of-Way
File

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 16, 2004

Mr. Gary Jordan
US Fish and Wildlife Service
Raleigh Field Office
P.O. Box 33726
Raleigh, NC 27636-3726

Subject: Biological Conclusion for the Schweinitz's sunflower for the proposed improvements to the intersection of US 64/NC 49 and NC 42 and proposed widening of NC 42, Randolph County, TIP No. U-3401; State Project No. 8.1572101; Federal Aid Project No. NHF-64(58).

Dear Mr. Jordan:

The Natural Heritage Program documented one occurrence of Schweinitz's sunflower within 0.4 mile of the project study area. This occurrence is in Randolph County near the intersection of NC 42 and SR 2600.

A systematic survey of all potentially suitable habitat was conducted on January 29, 2002. Approximately 4 man-hours were spent surveying for Schweinitz's sunflower. No members of the genus *Helianthus* were observed. Therefore, a biological conclusion of "May Affect-Not Likely to Adversely Affect" was given. Since the survey was conducted outside of the flowering season, an additional survey will be conducted during the flowering season.

Given the findings, we are seeking your concurrence with our biological conclusion of *May Affect-Not Likely to Adversely Affect.*

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

This information is being provided to your Agency on behalf of the Federal Highway Administration in order to coordinate Section 7 issues with your agency. Should you have any questions or need additional information, please contact Matt Haney at (919) 715-1428. Thank you for your cooperation.

Sincerely,

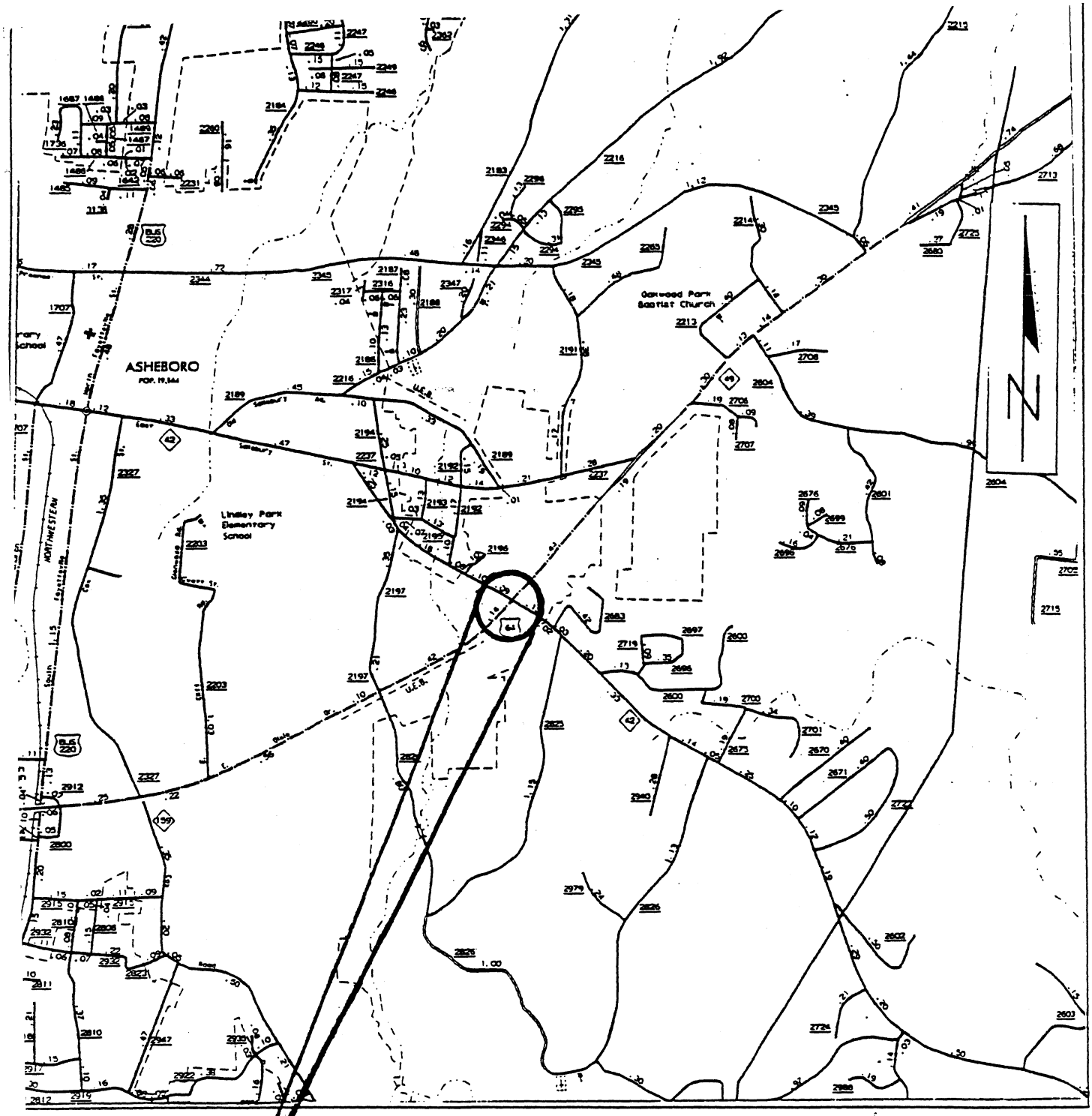
FOR Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch

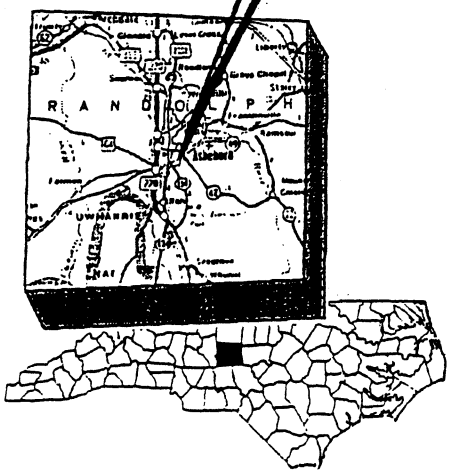
cc: Stephanie Caudill, NCDOT Planning Engineer
File

Qualifications of Investigators

Investigator:	Harold M. Brady, Biologist, Mulkey Engineers and Consultants
Education:	B.S. Natural Resources, NC State University, 1998
Experience:	ARCADIS G&M, January 2000-November 2003

Investigator:	Matthew M. Haney
Education:	B.S. Natural Resources-Ecosystem Assessment, NC State University, 1998
Experience:	NC Dept. of Transportation, October 1999-present





North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

Randolph County
Asheboro Intersection of US 64
NC 49 And NC 42
U-3401

SCALE: not to scale

Figure 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

1501 MAIL SERVICE CENTER, RALEIGH, N.C. 27699-1501

LYNDO TIPPETT
SECRETARY

March 12, 2002
Updated: December 16th 2003 per Matt Haney

MEMORANDUM TO: Stephanie Ledbetter, Project Development Engineer
Project Planning Unit

FROM: Tim Bassette, Natural Systems Specialist
Natural Systems Unit

SUBJECT: Natural Resources Technical Report for the Proposed Improvements to the intersection of US 64/NC 49 and NC 42 and Proposed Widening of NC 42, Randolph County, TIP No. U-3401; State Project No. 8.1572101; Federal Aid No. NHF-64 (58)

The attached Natural Resources Technical Report provides inventories and descriptions of natural resources within the project area, and estimations of impacts likely to occur to these resources as a result of project construction. Pertinent information on Waters of the United States and federally-protected species is also provided.

I would appreciate the opportunity to review the draft Categorical Exclusion for this project. Please contact me if you have any questions, or need this report copied onto disk format (ext. 286).

cc: Randy Turner, Natural Systems Unit Head
File: U-3401

Improvements to the intersection of US 64/NC 49 and NC 42 and widening of NC 42 Asheboro, Randolph County

TIP No. U-3401
Federal Aid Project No. NHF-64 (58)
State Project No. 8.1572101

Natural Resources Technical Report
U-3401

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH
NATURAL SYSTEMS UNIT

Harold M. Brady, A. Lynn Smith
March 5, 2002

TABLE OF CONTENTS

LIST OF TABLES & FIGURES

1.0 INTRODUCTION

The following Natural Resources Technical Report is submitted to assist in the preparation of a Categorical Exclusion (CE) for the proposed project. The project is located in the central portion of Randolph County (Figure 1).

1.1 Project Description

The proposed project consists of improvements to the intersection of US 64/NC 49 and NC 42. The proposed intersection improvements involve widening US 64/NC 49 from a five-lane curb and gutter roadway to a seven-lane shoulder facility, and widening NC 42 from a four-lane shoulder facility to a five-lane shoulder facility. The existing right-of-way at the intersection is a variable 60 foot (18.3 m) easement. There are no plans at this time to acquire additional right-of-way for the intersection. In addition, the project also includes widening of NC 42 from a two-lane roadway to 4-lane roadway from Old Salisbury Road (SR 2189) to Crystal Wood Road (SR 2670); approximately 2 miles (3.22 km), with a ROW of 200 ft (60.1 m).

This report covers potential impacts to natural or man-disturbed resources along approximately 800 feet of roadway northeast and 800 feet of roadway southwest on US 64/NC 49 beginning at the center of the intersection. In addition, this report discusses potential impacts along NC 42 from Old Salisbury Road (SR 2189) to Crystal Wood Road (SR 2670).

The purpose and need of this project is to increase the capacity and improve safety along this section of NC 42 and US 64/NC 49. The projected traffic in the design year 2025 is expected to nearly double from 2000.

1.2 Environmental Commitments

At this time, there are not any site specific environmental commitments, except for several stream crossings that will require culvert extensions The NCDOT should use appropriate sediment and erosion control measures to prevent non-point source pollution. All standard guidelines and recommendations apply.

1.3 Purpose

The purpose of this technical report is to inventory, catalog and describe the various natural resources likely to be impacted by the proposed action. This report also attempts to identify and estimate the probable consequences of the anticipated impacts to these resources. Recommendations are made for measures which will minimize resource impacts. **These descriptions and estimates are relevant only in the context of existing preliminary design concepts. If design parameters and criteria change, additional field investigations will need to be conducted.**

1.4 Methodology

Research was conducted prior to field investigations. Information sources used in this pre-field investigation of the study area include: U.S. Geological Survey (USGS) quadrangle maps for Randolph County (Asheboro, NC, 1994), Geographical Information Systems (NC Center for Geographical Information & Analysis), U.S. Fish and Wildlife Service (USFWS),

Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service) soil maps and NCDOT aerial photographs of project area (1"=100'). Water resource information was obtained from publications of the North Carolina Department of Environment, Health and Resources (NCDENR 1996, 2001), NCDENR Internet Page 2001 and from the NC Center for Geographic Information and Analysis (Environmental Sensitivity Base Map of Randolph County, 1995). Information concerning the occurrence of federal and state protected species in the study area was gathered from the USFWS list of protected species and species of concern, and the NC Natural Heritage Program (NCNHP) database of rare species and unique habitats.

General field surveys were conducted along the proposed alignment by NCDOT biologist Matt Haney and NCDOT contract biologist Harold M. Brady on 29 January 2002. Plant communities and their associated wildlife were identified and recorded. Wildlife identification involved using one or more of the following observation techniques: active searching and capture, visual observations (binoculars), and identifying characteristic signs of wildlife (sounds, scat, tracks and burrows). Jurisdictional wetland determinations were performed utilizing delineation criteria prescribed in the "Corps of Engineers Wetland Delineation Manual" (Environmental Laboratory, 1987). Jurisdictional surface water determinations were performed using guidance provided by NC Division of Water Quality [(DWQ), formerly known as the Division of Environmental Management (DEM)],"Field Location of Streams, Ditches, and Ponding" (NCDENR-DWQ, 1997).

1.5 Qualifications of Investigators

1) Investigator: Harold M. Brady, biologist, ARCADIS G&M
   Education: B.S. Natural Resources, NC State University, 1998
   Experience: ARCADIS G&M, January 2000-present

2) Investigator: Matthew M. Haney
   Education: B.S. Natural Resources-Ecosystem Assessment, North Carolina State University, Raleigh, North Carolina
   Experience: NC Dept. of Transportation Oct. 1999-present
   NC Forest Service May 1998-August 1998
   US Forest Service, Center for Forested Wetlands Research May 1997-August 1997

1.6 Definitions

Definitions for aerial descriptions used in this report are as follows: **Project Study Area** denotes the area bounded by proposed construction limits; **Project Vicinity** describes an area extending 0.5 mi (0.8 km) on all sides of the project study area; and **Project Region** is equivalent to an area represented by a 7.5 minute USGS quadrangle map with the project occupying the central position.

Figure 1. Vicinity Map

2.0 PHYSICAL RESOURCES

Soil and water resources, which occur in the study area, are discussed below. Soils and availability of water directly influence composition and distribution of flora and fauna in any biotic community.

The project study area lies within the Piedmont physiographic region in the central part of North Carolina. The topography in this section of Randolph County is gently rolling with some steeper inclines throughout. Commercial and residential uses are the major land uses in this area. Project elevation ranges between 730.0 and 890.0 ft (222.5 and 271.3 m) above mean sea level.

2.1 Soils

There are two general soil series mapped by the Randolph County NRCS within the project area, Georgeville and Uwharrie. The two soil series are represented by six distinct soil mapping units. None of these soils are listed as either hydric or containing hydric inclusions. Descriptions of the six individual soil mapping units are presented in Table 1.

Table 1. Descriptions of soil mapping units within the project study area.

Soil mapping unit	Slope	Hazards	Description
Georgeville silty clay loam	2-8%	None	Well-drained eroded soil with moderate permeability, a loamy surface layer, and a clayey subsoil.
Georgeville silty clay loam	8-15%	None	Well-drained eroded soil with moderate permeability, and a low shrink-swell potential.
Georgeville silt loam	2-8%	None	Well-drained soil with moderate permeability and located on gently sloping uplands.
Georgeville-Urban Complex	2-10%	None	The majority of the land within this mapping unit has been disturbed to the extent that a soil type can no longer be recognized.
Uwharrie silt loam, extremely bouldery	15-45%	None	Well-drained soil with moderate permeability, and containing many stones and boulders scattered over the surface.
Uwharrie silt loam, extremely stony	2-15%	None	Well-drained soil with moderate permeability, and containing many stones scattered throughout the surface.

Soil core samples were taken throughout the project area primarily searching for areas containing hydric soils; however, no hydric soils were observed within the project area.

2.2 Water Resources

This section contains information concerning those water resources, if present, likely to be impacted by the project. Water resource information encompasses physical aspects of the

resource, its relationship to major water systems, Best Usage Standards and water quality of the resources. Probable impacts to these water bodies are also discussed, as are means to minimize impacts.

2.2.1 Waters Impacted and Characteristics

Six streams, including Squirrel Creek, three unnamed tributaries (Ut) to Squirrel Creek and two Ut to Vestal Creek, will be directly impacted by the proposed project. Squirrel Creek and Vestal Creek are located in sub-basin 03-06-09 of the Cape Fear River Basin. Table 2 describes the characteristics of the streams located within the project area.

Table 2: Characteristics of Streams Impacted

surface water	water flow classification	water depth	bank height	channel width	flow rate
Ut 1 to Squirrel Creek	intermittent	3.0-6.0in (7.6-15.2cm)	2.0-3.0ft (0.6-0.9m)	3.0-6.0ft (0.9-1.8m)	moderate
Ut 2 to Squirrel Creek	intermittent	3.0-6.0in (7.6-15.2cm)	1.0-2.0ft (0.3-0.9m)	3.0-6.0ft (0.9-1.8m)	slow
Squirrel Creek	perennial	3.0-6.0in (7.6-15.2cm)	1.0-2.0ft (0.3-0.9m)	2.0-4.0ft (0.6-1.2m)	slow
Ut 3 to Squirrel Creek	intermittent	3.0-6.0in (7.6-15.2cm)	2.0-3.0ft (0.6-0.9m)	3.0-6.0ft (0.9-1.8m)	moderate
Ut 1 to Vestal Creek	perennial	4.0-8.0in (10.1-20.3cm)	2.0-3.0ft (0.6-0.9m)	5.0-10.0ft (1.5-3.0m)	moderate
Ut 2 to Vestal Creek	perennial	6.0-12.0in (7.6-30.5cm)	2.0-3.0ft (0.6-0.9m)	2.0-4.0ft (0.6-1.2m)	slow

It should be noted, that heavy rains had occurred in the project region approximately 36-48 hours prior to the site reconnaissance on 29 January 2002. This caused higher than normal water levels in all of the streams within the project area.

Ut 1 to Squirrel Creek is located approximately 1 mile southeast of the US 64/NC 49 and NC 42 intersection. The substrate is composed of sand, gravel, and woody debris. The channel contained strong under-cut banks, had a good riffle/pool sequence, and fair sinuosity. Ut 2 to Squirrel Creek is located approximately 320.0 ft (97.5 m) east of the intersection of NC 42 and Browers Chapel Road (SR 2826). The substrate is composed of sand, gravel, and woody debris. Squirrel Creek is located approximately 950.0 ft (289.6 m) west of the intersection of NC 42 and Browers Chapel Road (SR 2826). The substrate is composed of sand, gravel, and cobble. Ut 3 to Squirrel Creek is located approximately 1050.0 ft (320.0 m) east of the NC 42 and SR 2600 intersection. The substrate is composed of sand, gravel, and cobble, with exposed bedrock in numerous places. Several large rock outcroppings are present within the floodplain, approximately 50 feet (15.2 m) north of Ut 3 to Squirrel Creek. A natural spring was observed at the head of an ephemeral stream feeding the stream on the northern side of NC 42. The spring had a small rock structure built around it and was covered with a small piece of metal. Ut 3 to Squirrel Creek was determined to be ephemeral on the southern side of NC 42.

Utl to Vestal Creek is located approximately 850.0 ft (259.1 m) east of the NC 42 and US 64/NC 49 intersection. The substrate is composed of sand, gravel, and cobble, with rip-rap constituting the substrate of the channel within 30 feet of both sides of NC 42. Ut 1 to Vestal Creek on the southern side of NC 42 has a wide well developed floodplain with good sinuosity; however, the northern side had been straightened and is used as a roadside ditch along SR 2683. An inordinate amount of household and construction debris was observed within the stream on the northern side of NC 42. Ut 2 to Vestal Creek is located approximately 1550.0 ft (320.0 m) west of the NC 42 and US 64/NC 49 intersection. The substrate is composed of silt, sand, gravel, and woody debris. The floodplain surrounding Ut 2 to Vestal Creek has been severely disturbed with development, and the channel appears to have been straightened on both sides of Highway NC 42.

2.2.2 Best Usage Classification

Streams are assigned a best usage classification by the DWQ. The classification of Squirrel Creek [Index no. 17-22-6] and Vestal Creek [Index no. 17-22-4] are **C**. Class **C** uses include aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. Unnamed tributaries receive the same best usage classification as the named streams into which they flow. Therefore, the classifications of the six streams within the project area are **C**. Both Squirrel Creek and Vestal Creek are tributaries of Richland Creek which also maintains a **C** classification.

Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within 1.0 mile (1.6 km) of project study area.

2.2.3 Water Quality

The DWQ has initiated a basinwide approach to water quality management for the 17 river basins within the state. The basinwide approach allows for more intensive sampling of biological, chemical and physical data that can be used in basinwide assessment and planning. Benthic macroinvertebrates are intensively sampled for specific river basins. Benthic macroinvertebrates have proven to be a good indicator of water quality because they are sensitive to subtle changes in water quality, have a relatively long life cycle, are nonmobile (compared to fish) and are extremely diverse. The overall species richness and presence of indicator organisms help to assess the health of streams and rivers. All basins are reassessed every five years to detect changes in water quality and to facilitate National Pollution Discharge Elimination System (NPDES) permit review. **No biological sampling sites are located within 3.0 mi (4.8 km) of the US 64/NC 49 and NC 42 intersection widening and NC 42 widening project.** The nearest sampling site (B-19) is located approximately 12.0 mi (19.3 km) southeast and downstream from the project area, near the confluence of Richland Creek and the Deep River. This site received a **Good** rating in 1993 and an **Excellent** rating in 1998. There are no sampling sites upstream of the project area.

Point source dischargers located throughout North Carolina are permitted through the NPDES Program. **There are no permitted dischargers within the Richland Creek basin.**

The nearest discharger is the City of Asheboro Waste Water Treatment Plant located approximately 5.0 mi (8.0 km) north of the project area. The waste water treatment facility discharges into Hasketts Creek.

Nonpoint source discharge refers to runoff that enters surface waters through stormwater or snowmelt. Agricultural activities may serve as a source for various forms of nonpoint source pollutants. Land clearing and plowing disturb soils to a degree where they are susceptible to erosion, which can lead to sedimentation in streams. Sediment is the most widespread cause of nonpoint source pollution in North Carolina. Pesticides, chemical fertilizers, and land application of animal wastes can be transported via runoff to receiving streams and may potentially elevate concentrations of toxic compounds and nutrients. Animal wastes can also be a source of bacterial contamination and elevate biochemical oxygen demand. Drainage ditches in poorly drained soils enhances the transportation of stormwater into surface waters (NCDEHNR-DEM, 1993).

3.0 BIOTIC RESOURCES

Biotic resources include aquatic and terrestrial ecosystems. This section describes those ecosystems encountered in the study area, as well as, the relationships between fauna and flora within these ecosystems. Composition and distribution of biotic communities throughout the project area are reflective of topography, hydrologic influences and past and present land uses in the study area. Descriptions of the terrestrial systems are presented in the context of plant community classifications and follow descriptions presented by Schafale and Weakley (1990) where possible. Dominant flora and fauna observed, or likely to occur, in each community are described and discussed.

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Plant taxonomy generally follows Radford, et al. (1968). Animal taxonomy follows Martof, et al. (1980), Menhinick (1991), Potter, et al. (1980) and Webster, et al. (1985). Subsequent references to the same organism will include the common name only. Fauna observed during the site visit are denoted with an asterisk (*). Published range distributions and habitat analysis are used in estimating fauna expected to be present within the project area.

3.1 Biotic Communities

Three communities are found in the project study area: Maintained/Disturbed, Mixed Pine/Hardwood Forest, and Alluvial Forest. Community boundaries within the study areas are often not well defined and include a transition zone between them. Terrestrial faunal species likely to occur within the study area will exploit all communities for shelter and foraging opportunities or as movement corridors.

3.1.1 Maintained/Disturbed Community

This is the most common community type found within the project boundaries, occurring on the shoulder and in the maintained residential, commercial, and agricultural areas adjacent to NC 42 and US 64/NC 49. Significant soil disturbance and compaction, along with frequent mowing or herbicide application, keep this community in an early successional state.

Road shoulders act as buffers between the roadway and surrounding communities by filtering stormwater runoff and reducing runoff velocities. The width of the road shoulder is approximately 5.0 ft (1.5 m), with somewhat wider shoulders near intersections. Vegetation occurring along the road shoulder includes various grasses, clover (*Trifolium* sp.), wild strawberry (*Fragaria virginiana*), fescue (*Festuca* spp.), dandelion (*Taraxacum officinale*), chickweed (*Stellaria* sp.), wild onion (*Allium canadense*), vetch (*Vicia* sp.), thistle (*Carduus* sp.), geranium (*Geranium carolinianum*), goldenrod (*Solidago* sp.), henbit (*Lamium amplexicaule*), and corn salad (*Valerianella radiata*).

Only one agricultural area was observed within the project area, approximately 1 mile southeast of the US 64/NC 49 and NC 42 intersection. The agricultural field has been left fallow for approximately five to ten years. Vegetation within this area includes sweet gum (*Liquidambar styraciflua*), black cherry (*Prunus serotina*), winged elm (*Ulmus alata*), eastern red cedar (*Juniperus virginiana*), red maple (*Acer rubrum*), Chinese privet (*Ligustrum sinense*), juncus (*Juncus* spp.), and foxtail grass (*Setaria* spp.).

Medium to large sized trees within the commercial and residential areas are comprised primarily of northern red oak (*Quercus rubra*), willow oak (*Q. phellos*), white oak (*Q. alba*), red maple, Virginia pine (*Pinus virginiana*), white pine (*P. strobus*), eastern red cedar, yellow poplar (*Liriodendron tulipifera*), bradford pear (*Pyrus calleryana*), crepe myrtle (*Lagerstroemia indica*), southern magnolia (*Magnolia grandiflora)*, wax myrtle (*Myrica cerifera*), and flowering dogwood (*Cornus florida*). Smaller vegetation include elderberry (*Sambucus canadensis*), pokeweed (*Phytolacca americana*), boxwoods (*Buxus sempervirens*), tulip (*Tulipa* sp.), daffodil (*Narcissus pseudo-narcissus*), and daylilly (*Hemerocallis* sp.).

3.1.2 Mixed Pine/Hardwood Forest

The Mixed Pine/Hardwood Forest community is interspersed within the maintained residential areas along NC 42. This community includes areas that are steeper and rockier than the other two communities, and range in age from 20 to 60 plus years. The forest understory is relatively open which wildlife can use as corridors between streams within the alluvial forest communities and the grasses and herbaceous plants within the maintained/disturbed communities.

The forest canopy primarily includes white oak, scarlet oak (*Quercus coccinea*), black oak (*Q. velutina*), rock chestnut oak (*Q. prinus*), mockernut hickory (*Carya tomentosa*), loblolly pine (*Pinus taeda*), Virginia pine, red maple, eastern red cedar, white ash (*Fraxinus americana*), sweetgum, black cherry, American holly (*Ilex opaca*), southern magnolia, sourwood (*Oxydendrum arboreum*), and blackgum (*Nyssa sylvatica*). The understory is primarily composed of Chinese privet, flowering dogwood, poison ivy (*Toxicodendron radicans*), multiflora rose (*Rosa multiflora*), blackberry (*Rubus argutus*), and Japanese honeysuckle (*Lonicera japonica*).

3.1.3 `Alluvial forest

This community is located along the corridor of all of the streams within the project area, except for Ut 2 to Vestal Creek. Due to its location along floodplains, this community maintains a flatter topography and generally a denser understory. The rich soils and readily available water help make for an abundance of species diversity and richness. As topography increases this community naturally transitions into the mixed pine/hardwood community.

Dominant species in this community include red maple, eastern red cedar, persimmon (*Diospyros virginiana*), flowering dogwood, slippery elm (*Ulmus rubra*), river birch (*Betula nigra*), black cherry, sweet gum, yellow poplar, and tag alder (*Alnus serrulata*). The understory is primarily composed of Chinese privet, American holly, Japanese honeysuckle, Christmas fern (*Polystichum acrostichoides*), greenbrier (*Smilax rotundifolia*), panic grass (*Dicanthelium* sp.), mayapple (*Podophyllum peltatum*), spring beauty (*Claytonia virginica*), foam flower (*Tiarella cordifolia*), bellflower (*Uvularia sessilifolia*), and muscadine grape (*Vitis rotundifolia*).

3.2 Wildlife

Mammal species associated with the communities present within the project vicinity include: eastern mole (*Scalopus aquaticus*), opossum (*Didelphis virginiana*), muskrat (*Ondatra zibethicus*), gray squirrel* (*Sciurus carolinensis*) and raccoon (*Procyon lotor*).

Avian species utilizing the project vicinity include: northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*), red-bellied woodpecker* (*Melanerpes carolinus*) , tufted titmouse* (*Parus bicolor*), American crow (*Corvus brachyrhynchos*), turkey vulture* (*Cathartes aura*), mourning dove* (*Zenaida macroura*) and house finch* (*Carpodacus mexicanus*).

3.3 Summary of Anticipated Impacts

Construction of the subject project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies impacts to the natural resources in terms of area impacted and ecosystems affected. Temporary and permanent impacts are considered here as well.

Calculated impacts to terrestrial resources reflect the relative abundance of the community present within the study area. Project construction will result in clearing and degradation of portions of this community. The project area consists of maintained/disturbed areas including residential and commercial areas as well as paved areas and forested areas. Table 3 summarizes potential quantitative losses to biotic communities, resulting from project construction. Table 4 lists impacts to individual streams within the project limits. Estimated impacts are derived using symmetrical widening for the entire length of the project utilizing a ROW width of 200.0 ft (61.0 m). Estimated impacts associated with improvements to US 64/NC 49 as it intersects NC 42 are based on existing ROW widths of 60.0 ft (18.3 m).

Table 3. Anticipated Impacts to Biotic Communities

Community Type	Study Area Impacts
Maintained/Disturbed	49.0 (19.8)
Mixed Pine/Hardwood Forest	6.3 (2.5)
Alluvial Forest	5.3 (2.1)
Total Community Impacts:	**60.6 (24.5)**

Note: Values cited are in acres (hectares).

Table 4. Anticipated Impacts to Streams

Streams	Classification	Study Area Impacts
Ut 1 to Squirrel Creek	Intermittent	200.0 (61.0)
Ut 2 to Squirrel Creek	Intermittent	200.0 (61.0)
Squirrel Creek	Perennial	200.0 (61.0)
Ut 3 to Squirrel Creek	Intermittent	120.0 (36.6)
Ut 1 to Vestal Creek	Perennial	200.0 (61.0)
Ut 2 to Vestal Creek	Perennial	200.0 (61.0)
Total Stream Impacts:		**620.0 (189.0)**

Note: Values cited are in linear feet (linear meters).

Plant communities found within the proposed project area serve as nesting and sheltering habitat for various wildlife. However, due to the size and scope of this project, it is anticipated that impacts to fauna will be minimal.

Areas modified by construction (but not paved) will become road shoulders and early successional habitat. Reduced habitat will displace some wildlife further from the roadway while attracting other wildlife by the creation of more early successional habitat. Animals temporarily displaced by construction activities will repopulate areas suitable for the species.

4.0 JURISDICTIONAL TOPICS

This section provides descriptions, inventories and impact analysis pertinent to two important issues--Waters of the United States and rare and protected species.

4.1 Waters of the United States

Surface waters and wetlands fall under the broad category of "Waters of the United States," as defined in Section 33 of the Code of Federal Register (CFR) Part 328.3. Wetlands, defined in 33 CFR 328.3, are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions. Any action that proposes to place fill into these areas falls under the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344).

4.1.1 Characteristics of Wetlands and Surface Waters

Potential wetland communities were investigated pursuant to the 1987 "Corps of Engineers Wetland Delineation Manual". The three-parameter approach is used where hydric soils, hydrophytic vegetation and prescribed hydrologic characteristics must **all** be present for an area to be considered a wetland. **No wetlands were identified within the project area.**

Wetland investigations were taken at or near the locations within the project area which appeared to be located at the lowest elevations. Soil core samples taken in these areas revealed soils in the B horizon with Munsell color notations ranging from 7.5YR 5/4 to 2.5Y 5/4. Vegetation in these areas included river birch, black cherry, sweet gum, yellow poplar, tag alder, Chinese privet, American holly, Japanese honeysuckle, Christmas fern, and greenbrier.

Three unnamed tributaries to Squirrel Creek, Squirrel Creek, and two unnamed tributaries to Vestal Creek are jurisdictional surface waters under Section 404 of the Clean Water Act (33 U.S.C. 1344). Discussion of the biological, physical and water quality aspects of these streams are presented in Section 2.2.1 of this report.

4.1.2 Permits

Encroachment into jurisdictional surface water because of project construction is often times inevitable. Factors that determine Section 404 Nationwide Permit (NWP) applicability include hydrology, juxtaposition with a major resource, whether the impacts occur as part of the widening of an existing facility, or as the result of new location construction. Although an individual site may qualify under NWP authorizations, overall, cumulative impacts from a single and complete project may require authorization under an Individual Permit (IP). Due to the scope of this project, minimal impacts are expected to occur. Therefore, a Nationwide Permit 14 will most likely be applicable for the proposed project.

A North Carolina Division of Water Quality (DWQ) Section 401 Water Quality Certification is required prior to the issuance of the Section 404 permit. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to Waters of the U.S.

4.1.3 Mitigation

The COE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy which embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological and physical integrity of Waters of the United States, specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization and compensatory mitigation) must be considered sequentially.

4.1.3.1 Avoidance

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to Waters of the United States. According to a 1990 Memorandum of Agreement

(MOA) between the Environmental Protection Agency (EPA) and the COE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology and logistics in light of overall project purposes. It may not be possible to avoid stream impacts due to the likelihood of culvert extensions along NC 42.

4.1.3.2 Minimization

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to Waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, ROW widths, fill slopes and/or road shoulder widths. Other practical mechanisms to minimize impacts to Waters of the United States crossed by the proposed project include: strict enforcement of sedimentation control BMP's for the protection of surface waters during the entire life of the project; reduction of clearing and grubbing activity; reduction/elimination of direct discharge into streams; reduction of runoff velocity; re-establishment of vegetation on exposed areas, judicious pesticide and herbicide usage; minimization of "in-stream" activity; and litter/debris control. All efforts will be made to minimize environmental impacts.

4.1.3.3 Compensatory Mitigation

Compensatory mitigation is not normally considered until anticipated impacts to Waters of the United States have been avoided **and** minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation and enhancement of Waters of the United States. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site. Due to the minimal impacts associated with this widening project, compensatory mitigation is not likely to be required; however, the final decision lies with the COE.

4.2 Rare and Protected Species

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to coexist with human activities. Federal law (under the provisions of the Endangered Species Act of 1973, as amended requires that any action, likely to adversely affect a species classified as federally-protected, be subject to review by the USFWS. Other species may receive additional protection under separate state laws.

4.2.1 Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 2002, the USFWS lists two federally-protected species for Randolph County (table 5). A brief description of each species' characteristics and habitat follows.

Name: Cape Fear Shiner (*Notropis mekistocholas*)
Family: Cyprinidae
Federal Status: Endangered
Date Listed: September 25, 1987

Characteristics:

The Cape Fear shiner is approximately 2-inches long, spawns in late spring and early summer, and typically associates with schools of other related species (USFWS 1987). The Cape Fear shiner is a highly specialized detritus- and plant-eating species, and does not migrate. This fish typically has a black stripe along the side of the body and side of snout, with black lips, and olive scales outlined in black. The most striking characteristic is the long coiled dark gut visible through the belly wall.

Distribution and Habitat:

The Cape Fear shiner is found only along a 30-mile wide stretch of the Cape Fear River near the Fall Line of the Piedmont and Coastal Plain physiographic provinces. The fish has been reported in the upper reaches of the Cape Fear River and medium to large creeks within the Cape Fear basin. The counties which the fish is known to occur are Moore, Randolph, Chatham, Lee, and Harnett.

The fish prefers water bodies with a moderate gradient and riffles alternating with long deep pools, and substrate a mixture of sand-gravel, rubble, and boulders. It is believed that the Cape Fear Shiner has never occupied a broad range and has never been a common fish.

Threats to Species:

The Cape Fear shiner has undergone a large population decline due primarily to continued dam construction within its small range. Other threats to the Cape Fear shiner include road construction, channel modification, waste-water discharges, increasing development, and other activities which result in heavy sediment loads within the water bodies.

Biological Conclusion: **NO EFFECT**

Suitable habitat consisting of sandy and rocky pools and runs of medium to large creeks within the Cape Fear River basin are present within the project area. Streams within the project vicinity are small to medium sized creeks with primarily sand, gravel, and cobble substrate. A review of the NCNHP database of rare species and unique habitats on 6 February 2002 revealed no record for the presence of the Cape Fear shiner within the project vicinity. However, a survey for the Cape Fear shiner will be conducted prior to beginning construction activities to determine its presence or absence within the project area.

Name: Schweinitz's sunflower (*Helianthus schweinitzii*)
Family: Aster (Asteraceae)
Federal Status: Endangered
Date Listed: May 7, 1991
Best Search Time: late summer through frost (August - November)

Characteristics:

Schweinitz's sunflower is a long-lived perennial, flowering from late August to frost. The yellow disk and ray flowers are formed on small heads (involucre less than 0.6 in (1.5 cm) across). The leaves are rather thick and stiff in texture. The upper leaf surface is scabrous (rough) while the lower surface is covered with distinctive dense, soft white hairs. The leaves are opposite on the lower stem and alternate near the flowers. Lower stem leaves average 3.9 - 7.9 in (10-20 cm) long and 0.6 - 1.0 in (1.5 to 2.5 cm) wide while upper leaves are half this size. The leaves are typically five to ten times as long as wide and sessile to short petiolate. The plants have purple stems that grow to an average height of 6.6 ft (2.0 m) with the top one-third of the stem branching. The stems are at least sparsely strigose or hirsute below the inflorescense. Reproduction is accomplished both sexually (by seed) and asexually (by tuberous rhizome).

Distribution and Habitat:

Schweinitz's sunflower is endemic to the Piedmont physiographic province of North Carolina and South Carolina. Charlotte, NC is considered to be the center of this species' distribution.

It is believed that this species formerly occupied prairie-like habitats or post oak-blackjack oak savannas that were maintained by fire. Current habitats for this species includes roadsides, power line clearings, old pastures, woodland openings and other sunny or semi-sunny situations. Schweinitz's sunflower is known from a variety of soil types but is generally found growing on shallow, poor, clayey and/or rocky soils, especially those derived from mafic rocks. In the few sites where Schweinitz's sunflower occurs in relatively natural vegetation, the natural community would be considered a Xeric Hardpan Forest (Schafale and Weakley 1990).

Threats to Species:

This species is threatened by fire suppression, urbanization such as residential and industrial development, highway construction and roadside and utility right of way maintenance.

Roadside populations:

In 1988 the NC Natural Heritage Program initiated a cooperative effort with NCDOT and the USFWS to prevent the mowing of *H. schweinitzii* populations during the flowering and fruiting period of August through October. Additionally, these populations should not be mowed during any part of the growing season extending from April through October.

Distinctive characteristics:

Purple stem, scabrous upper leaf surface, dense, soft, white hairs on the lower leaf surface, small less than 0.6 in (1.5 cm) flower head (not counting petal width), yellow disk and ray flowers.

Biological Conclusion: MAY AFFECT-NOT LIKELY TO ADVERSLY AFFECT

Suitable habitat for the Schweinitz's sunflower consisting of open woods and roadsides are present within the project area. The project vicinity primarily consists of maintained/disturbed areas, agricultural lands, and forested lands. A review of the NCNHP database of rare species and unique habitats on 6 February 2002 depicts one element occurrence

of Schweinitz's sunflower within the project area, at the intersection of NC 42 and SR 2600. A single dormant plant was observed during site reconnaissance on 29 January 2002. An additional population is mapped by NCNHP along an unnamed tributary of Vestal Creek, approximately 0.62 miles (1.0 km) southwest of the NC 42 and SR 2826 intersection. Due to the appropriate habitat along nearly the entire length of the project and the two element occurrences within the project vicinity a plant-by-plant survey for the Schweinitz's sunflower will be conducted during the flowering season and prior to beginning construction activities.

4.2.2 Federal Species of Concern and State Listed Species

There are five Federal Species of Concern (FSC) listed for Randolph County. Federal Species of Concern are not afforded federal protection under the ESA and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Federal Species of Concern are defined as those species which may or may not be listed in the future. These species were formally candidate species, or species under consideration for listing for which there was insufficient information to support a listing of Endangered, Threatened, Proposed Endangered and Proposed Threatened. Organisms which are listed as Endangered (E), Threatened (T), Significantly Rare (SR) or Special Concern (SC) by the North Carolina Natural Heritage Program (NCNHP) list of rare plant and animal species are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979.

Table 5 lists Federal and State Threatened, Endangered, Proposed Threatened, Proposed Endangered, and Species of Concern. In addition, table 5 lists the potential availability of suitable habitat for each species in the study area. This species list is provided for information purposes as the status of these species may be upgraded in the future.

Table 5. Federal Species of Concern for Randolph County

Scientific Name	Common Name	State Status	Habitat Availability	Habitat
Alasmidonta varicosa	brook floater	T	Yes	Piedmont river systems and Catawba River system.
Fusconaia masoni	Atlantic pigtoe	T	Yes	Lower Piedmont and upper Coastal Plain.
Lampsilis cariosa	yellow lampmussel	T	Yes	Cape Fear north to Roanoke river systems.
Toxolasma pullus	Savannah lilliput	T	Yes	Piedmont and Coastal Plain.
Villosa vaughaniana	Carolina creekshell	SC	No	Pee Dee and Catawba river systems.

"*"------Historic record (Last observed in Randoph County more than twenty years ago.)
"T"----- "Any native or once native species of wild animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).
"C"---- A Candidate species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species

is also either rare throughout its range or disjunct in North Carolina from a main range in a different part of the country or the world.
"SR"---- "Any species which has not been listed by the N.C. Wildlife Resources Commission as an Endangered, Threatened, or Special Concern species, but which exists in the state in small numbers and has been determined by the NC Natural Heritage Program to need monitoring."
"SC"---- "Any species of wild animal native or once native to NC which is determined by WRC to require monitoring but which may be taken under regulations adopted under the provisions of this Article." (Article 25 of Chapter 113 of the General Statutes; 1987).
"(PE)"—Species has been proposed by a Scientific Council as a status (Endangered) that is different from the current status, but the status has not yet been adopted by the WRC and by the General Assembly as law.

A review of the NCNHP database of rare species and unique habitats on 06 February 2002 revealed two element occurances of Schweinitz's sunflower within the project vicinity. Surveys for these species were not conducted during the site visit; however, a population of Schweinitz's sunflower mapped by NCNHP was observed. The plants were dormant at the time of the observation. Therefore, a survey during the flowering season will need to be conducted to determine the size and health of the population, and to determine if any additional populations exist within the project study area. No other records of any North Carolina rare and/or protected species are located in or near the project study area.

5.0 REFERENCES

Amoroso, Jame L. 1999. "Natural Heritage Program List of the Rare Plant Species of North Carolina". Raleigh: North Carolina Natural Heritage Program.

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

Godfrey, Michael A., 1997. Field Guide to the Piedmont. Chapel Hill, The University of North Carolina Press.

LeGrand, Jr., H.E., and S. P. Hall. 1999. "Natural Heritage Program List of the Rare Animal Species of North Carolina". Raleigh: North Carolina Natural Heritage Program.

Martof, B.S., W.M. Palmer, J.R. Bailey and J.R. Harrison III. 1980. Amphibians and Reptiles of the Carolinas and Virginia. Chapel Hill, The University of North Carolina Press.

NCDEHNR-DEM. 1993. "Classifications and Water Quality Standards for North Carolina River Basins." Raleigh, Department of Environment, Health and Natural Resources.

NCDENR-DWQ. 1997. "Field location of Streams, Ditches, and Ponding" (Environmental Lab). Raleigh, Department of Environment and Natural Resources.

NCDENR-DWQ. 2000. "Cape Fear River Basinwide Water Quality Plan". Raleigh, Department of Environment and Natural Resources.

NCDENR-DWQ. 2001. Internet Web Pages:
http://h2o.enr.state.nc.us/NPDES/documents.html
http://www.esb.enr.state.nc.us/BAU.html

Potter, E.F., J.F. Parnell and R.P. Teulings. 1980. Birds of the Carolinas. Chapel Hill, The University of North Carolina Press.

Radford, A.E., H.E. Ahles and G.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. Chapel Hill, The University of North Carolina Press.

Rohde, Fred C., R.G. Arndt, D.G. Lindquist, and J.F. Parnell. Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware. Chapel Hill, The University of North Carolina Press.

Page, Lawrence M. and Brooks M. Burr. Peterson Field Guides: Freshwater Fishes. Boston, Houghton Mifflin Company.

Schafale, M.P. and A.S. Weakley. 1990. Classification of The Natural Communities of North Carolina. Third Approximation. North Carolina Natural Heritage Program, Division of Parks and Recreation, NCDEHNR.

U.S. Department of Agriculture, 1960. Soil Survey of Alamance County, Soil Conservation Service. North Carolina Agriculture Experiment Station.

Webster, W.D., J.F. Parnell and W.C. Biggs. 1985. Mammals of the Carolinas, Virginia and Maryland. Chapel Hill, The University of North Carolina Press.

ASHEBORO NEWSLETTER

INTERSECTION OF US-64/ NC-49 & NC-42 RANDOLPH COUNTY, TIP PROJECT U-3401

ISSUE NO. 1 February 2002

The purpose of this newsletter is to inform the local community about additional planning studies that will be performed for Transportation Improvement Program (TIP) Project U-3401 in Randolph County.

Project Description

The 2002-2008 TIP proposes widening all approaches to add additional lanes to the intersection of US-64/NC-49 and NC-42 in Asheboro. The purpose of this project is to alleviate congestion from the ongoing and anticipated development in the area, and improve the Level of Service and safety of this intersection.

A Brief Project History

The 2002-2008 TIP recommends intersection improvements at US 64- NC 49 and NC 42. Construction of the intersection improvements is scheduled for September 2002. The Scoping meeting for this project, held on July 26, 2001, suggests that lanes may need to be added and approaches widened in order to improve capacity, level of service and safety of the intersection. US 64- NC 49 is classified as a Principal Arterial and NC 42 is classified as a Minor Urban Arterial. Land use along both roads is considered to be residential and commercial.

The planning document, a Categorical Exclusion (CE), will be completed in July, 2002. A public informational workshop for this project will be held **February 26, 2002 in the City of Asheboro Municipal Building from 1:30 pm to 3:00 pm.** At the workshop, citizens and businesses are invited to ask questions and get information on this project. The workshop is also an opportunity for the public to share comments of concern or support for the project.

Project Schedule

U-3401 includes widening all approaches to add additional lanes to the intersection of US-64/NC-49 and NC-42. Right-of-way acquisition for this project is scheduled to begin in fiscal year 2004 and construction is scheduled to begin in 2005.

ASHEBORO NEWSLETTER

INTERSECTION OF US-64/ NC-49 & NC-42
RANDOLPH COUNTY, TIP PROJECT U-3401

Questions and Comments

To ask questions, give comments, request additional information, or be added to the mailing list, please write to:

William D. Gilmore, P. E., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
P. O Box 25201
Raleigh, NC 27611
(919) 733-3141, NC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Community Impact Assessment

Randolph County, North Carolina

Intersection Improvement

US 64/NC 49 and NC 42

TIP U-3401

Prepared for

North Carolina Department of Transportation

Office of Human Environment

Prepared by:

HNTB North Carolina, PC

2108 South Boulevard

Suite 108

Charlotte, North Carolina 28203

March 14, 2003

HNTB

Table Of Contents

North Carolina Department of Transportation
Office of Human Environment

Community Impact Assessment
TIP U-3401
Intersection Improvement, US 64/NC 49 and NC 42
Randolph County, North Carolina

I. EXECUTIVE SUMMARY

The North Carolina Department of Transportation (NCDOT) plans to improve the intersection at US 64/NC 49 (Dixie Drive) and NC 42 in Asheboro, North Carolina in order to improve capacity, level of service and safety at this congested intersection. Existing Dixie Drive is a five-lane undivided highway with curb and gutter facilities. Just west of the intersection, the road is six lanes and 72 feet wide from curb to curb. Existing NC 42 is a two-lane highway, except at the intersection of Dixie Drive where it widens to four lanes with a width of 48 feet from curb to curb. The existing right-of-way on both highways is approximately 60 feet; however, there is additional variable right-of-way at the intersection. Level of service information and design plans are not complete at this time. Therefore, the proposed intersection improvements are based on a Feasibility Study that was completed in 1998 (approximately). The proposed improvements based on the Feasibility Study are as follows:

→ A seven-lane shoulder facility for Dixie Drive; approximate 84-foot travel way
→ A five-lane shoulder facility for NC 42; approximate 60-foot travel way

The intersection is located in an urban area, and additional right-of-way may be required. The types and distribution of land uses should not be impacted by TIP U-3401, but those businesses located at the intersection of Dixie Drive and NC 42 may experience changes in access, especially during construction of the project. The following is a brief summary of the findings and conclusions of this report.

Community Profile

- The project site is located in a congested, urban area with predominantly commercial land uses.
- The City of Asheboro experienced a relatively high rate of population growth (32.5%) between 1990 and 2000, as compared to the rate of growth in the State (21.4%). Asheboro also has a relatively high percentage of Hispanics (19.9%) as compared to North Carolina (4.7%).
- The unemployment rates in Asheboro and Randolph County are relatively low, and all major industry sectors in Randolph County experienced growth between 1990 and 2000.

Project Impacts

- TIP U-3401 would not cause a substantial change in land use near the project site.
- Very little vegetation would be removed as a result of the widened highways.
- Businesses located in the immediate vicinity of the project site may be negatively affected by access limitations during the construction phase.
- Pedestrian and bicycle amenities are not included as part of TIP U-3401. The lack of a pedestrian system in the demographic area is detrimental to the entire community.
- TIP U-3401 may cause the relocation of public utilities such as telephone poles and fiber optic lines.
- At the time of this report, no relocations are expected as a result of the proposed improvements. The NCDOT anticipates the acquisition of additional right-of-way at the intersection, but existing commercial structures should not be displaced.

Recommendations

- Planting of decorative trees or landscaping is recommended for inclusion in the TIP proposal.
- Sidewalks, crosswalks and pedestrian signals are recommended for inclusion in final design plans.
- Final design plans should minimize the impact to off-street parking available at the Mazda/Honda Dealership in the southeast quadrant of the intersection.

II. STUDY AREA AND DEMOGRAPHIC AREA DESCRIPTION

The study area encompasses those communities and populations that are most directly affected by the improvements proposed under TIP U-3401. It is identified as a thin green circle in Figure 1, and represents the area within ½-mile of the intersection at Dixie Drive and NC 42.

The larger area, outlined in purple, includes Census Tract 302.01 (Block Groups 1-3), Tract 302.02 (Block Group 1), Tract 303.02 (Block Group 1) and Tract 308.01 (Block Group 1). These Block Groups make up the demographic area, and serve to illustrate the demographic characteristics of the local population. The boundaries of the demographic area are roughly formed by East Pritchard Street, Allred Street, Randolph Tabernacle Road, Henley Country Road and US 64 East in the north, Iron Mountain Road, NC 42 and Old Humble Mill Road in the east, Richland Creek, Vestal Creek, and Zoo Parkway in the south, and Fayetteville Street in the west.

III. METHODOLOGY

The community profile is generally shaped by information gathered during a personal visit to the site and interviews with City of Asheboro staff. Demographic data was collected from the US Census Bureau. Income, poverty and housing figures, and

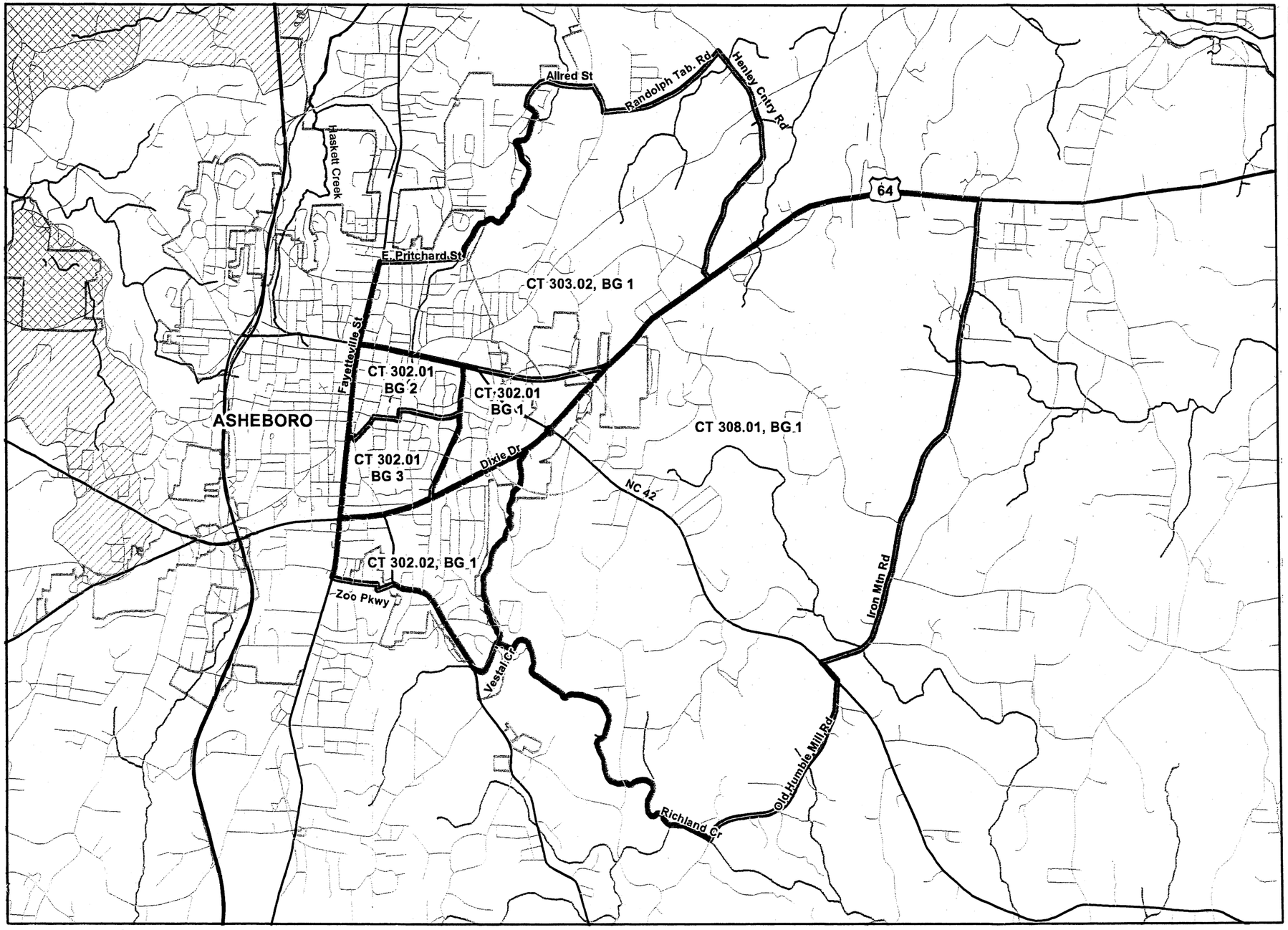


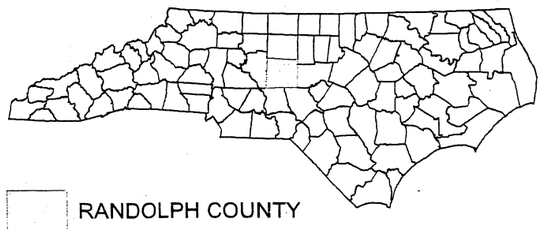
FIGURE 1.
STUDY AREA & DEMOGRAPHIC AREA

- TIP U-3401
- MAJOR ROADS
- MINOR ROADS
- STUDY AREA
- DEMOGRAPHIC AREA
- ASHEBORO
- CRITICAL WATERSHED
- PROTECTED WATERSHED
- RIVERS & STREAMS
- 303-D STREAM

0 0.5 1 2 Miles

MAP SOURCES:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
US CENSUS
ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)

N



RANDOLPH COUNTY

employment/unemployment data were also obtained from the Census Bureau. Information about public facilities and services was obtained from the field visit, the *City of Asheboro 2020 Land Development Plan* and City of Asheboro staff. Information regarding land use was primarily acquired from the *2020 Land Development Plan*, the field visit and aerial photos from the North Carolina Department of Transportation.

In assessing project impacts, it was necessary to use data gathered for the community profile as a basis for evaluating the direct effects of the project on the community in terms of social impacts, physical and visual impacts, land use, economic conditions, mobility, access and safety, public services and displacements. In addition, any indirect or cumulative impacts were addressed. ECONorthwest and Portland State University's report entitled *A Guidebook for Evaluating the Indirect Land Use and Growth Impacts of Highway Improvements*, the Louis Berger Group's *Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina (Volumes I & II)*, and *Community Impact Assessment: A Quick Reference for Transportation*, published by the US Department of Transportation, were helpful guides in assessing indirect and cumulative impacts. In addition, the *Guidebook for Assessing the Social and Economic Effects of Transportation Projects* (National Cooperative Highway Research Program Report 456) was consulted.

IV. COMMUNITY PROFILE

Field Visit

The intersection of Dixie Drive and NC 42 is in a congested and pedestrian-unfriendly area. Commercial land uses dominate all four quadrants of the intersection and the majority of the study area. A BP gas station is located in the northeast quadrant of the intersection; Asheboro Mazda & Honda is located in the southeast quadrant of the intersection; Blockbuster Video and Papa John's are located in the southwest quadrant of the intersection and the Crossroads Center is located in the northwest quadrant. There are curb and gutter facilities at all four corners of the intersection and on Dixie Drive, but not on NC 42 past the intersection. In addition, no pedestrian crosswalks or sidewalks, and no bicycle lanes exist at the intersection. Furthermore, these facilities are virtually non-existent throughout the study area.

Although NC 42 consists of four lanes at the intersection, it quickly narrows to two lanes north of Dixie Drive. The businesses north of the project site on NC 42 include a Ryan's Steakhouse, Staples, and Best Western on the east side of the road, and Specialty Shops on 42, The Family Sports Center and the YMCA on the west side of the road. Randolph Mall, located behind Ryan's Steakhouse and Staples, can be accessed from this portion of NC 42 as well.

There are residential areas on both sides of NC 42, approximately ½-mile from the intersection at Dixie Drive. Just north of the Best Western, on the east side of NC 42, are

some modest single-family homes. These homes are located outside of the Asheboro City limits. The single-family neighborhoods on the west side of NC 42 appear to be affluent and are located within the City limits. In addition, there is a small apartment complex on Coleridge Road just south of East Salisbury Street, and a subsidized housing development (Coleridge Road Apartments) on the north side of East Salisbury Street. The only sidewalks in the study area are located along Coleridge Road north of East Salisbury Street and adjacent to the Coleridge Road Apartments. This is also the only place in the study area where pedestrians were observed.

Centura Bank, Wachovia Bank, Sagebrush Restaurant, Wendy's and Rex Audio/Video are located on the north side of Dixie Drive east of the project site. There are two entrances to Randolph Mall along this stretch of Dixie Drive. The Village Marketplace is located on the south side of Dixie Drive east of the project site (see Figure 2). A Wal-Mart used to anchor this strip center, but most of the units are now vacant. The land slopes steeply from Dixie Drive to the parking lot of the Village Marketplace.

Figure 2. Vacant Outparcels at Village Marketplace

Like the northern portion of NC 42, the road narrows from four lanes at the intersection to two lanes further south. NC 42 south of the project site is primarily middle-income residential with some pastureland. However, it does not appear that there are any active commercial farms along this part of NC 42.

An empty K-Mart building, an Amoco and an Aldi grocery store exist on the south side of Dixie Drive west of the project site. Just past the Amoco on Dixie Drive is another large strip center that houses, among other things, a Wal-Mart Supercenter. On the north side of Dixie Drive is the Crossroads Center, which is anchored by a Food Lion and also includes CiCi's Pizza, Washington Mutual Finance and Pizza Hut.

Geographic/Political Description and Demographics

The intersection of Dixie Drive and NC 42 is located in Asheboro, NC, while the larger demographic area encompasses portions of both the City of Asheboro and the unincorporated area of Randolph County. Asheboro and Randolph County are approximately located in the geographic center of North Carolina with the City of Asheboro being located approximately 25 miles from the second largest Metropolitan Statistical Area in North Carolina (Greensboro/High Point/Winston-Salem). Randolph County shares borders with six other North Carolina Counties. Guilford County borders Randolph County to the north, with Alamance and Chatham Counties to the east, Moore and Montgomery Counties to the south, and Davidson County to the west.

North Carolina and Randolph County experienced population growth rates just over 20% between 1990 and 2000. These rates were higher than the average growth rate that occurred in the United States (13.1%). The City of Asheboro had the highest rate of growth (32.5%) of the four geographies. However, it appears that the demographic area experienced slower population growth than the rest of the City and County. This is most likely due to the commercial nature of Dixie Drive, and the rural nature of the unincorporated portion of the demographic area (see Table 1).

Table 1. Population Growth, 1990-2000

	Population		Growth	
Area	1990	2000	Difference	%
Demographic Area	9,298	10,396	1,098	11.8%
City of Asheboro	16,362	21,672	5,310	32.5%
Randolph County	106,546	130,454	23,908	22.4%
North Carolina	6,628,637	8,049,313	1,420,676	21.4%

Source: US Census Bureau, 1990 & 2000

Based on data from the 2000 Census, only 5.6% of the County's population and 11.8% of the City's population was Black or African American. Although the corresponding percentage of Blacks or African Americans in the demographic area was less than the State (21.4%), the percentage (17.6%) was higher than that of the City and County. The opposite was true for Hispanics. The City of Asheboro and the demographic area had particularly high percentages of Hispanics (19.9% and 12.0% respectively) as compared to North Carolina (4.7%). On the whole, the populations within both the demographic area and the City of Asheboro were more minority-oriented than the County and State (see Table 2).

Table 2. Population by Race, 2000

	Demographic Area		City of Asheboro		Randolph County		North Carolina	
Race	Population	%	Population	%	Population	%	Population	%
White	7,145	68.7%	14,219	65.6%	112,250	86.0%	5,647,155	70.2%
Black or African American	1,826	17.6%	2,564	11.8%	7,259	5.6%	1,723,301	21.4%
American Indian or Alaska Native	22	0.2%	85	0.4%	543	0.4%	95,333	1.2%
Asian	60	0.6%	294	1.4%	807	0.6%	112,416	1.4%
Native Hawaiian and Pacific Islander	0	0.0%	2	0.0%	12	0.0%	3,165	0.0%
Hispanic or Latino	1,251	12.0%	4,319	19.9%	8,646	6.6%	378,963	4.7%
Other Race	11	0.1%	21	0.1%	57	0.0%	9,015	0.1%
Two or More Races	81	0.8%	168	0.8%	880	0.7%	79,965	1.0%
Total	**10,396**	**100.0%**	**21,672**	**100.0%**	**130,454**	**100.0%**	**8,049,313**	**100.0%**

Source: US Census Bureau, 2000

The age distribution in Randolph County was very similar to that of North Carolina. In contrast, the City of Asheboro and the demographic area had a greater percentage of people over the age of 65 and a lower percentage between the ages of 45 and 64. The demographic area also had the lowest percentage of people between the years of 20 and 44 (see Table 3).

Table 3. Population by Age, 2000

	Demographic Area		City of Asheboro		Randolph County		North Carolina	
Age	Population	%	Population	%	Population	%	Population	%
19 years and under	2,852	27.4%	5,783	26.7%	35,585	27.3%	2,193,360	27.2%
20-44 years	3,545	34.1%	8,378	38.7%	48,375	37.1%	3,078,043	38.2%
45-64 years	2,152	20.7%	4,240	19.6%	30,692	23.5%	1,808,862	22.5%
65 or more years	1,847	17.8%	3,271	15.1%	15,802	12.1%	969,048	12.0%
Total	**10,396**	**100.0%**	**21,672**	**100.0%**	**130,454**	**100.0%**	**8,049,313**	**100.0%**

Source: US Census Bureau, 2000

Income, Poverty Status and Unemployment

The median household incomes for Randolph County and the demographic area were higher than the average median household income for North Carolina in both 1989 and 1999. In 1989, the City of Asheboro had a median household income that was approximately $2400-$2900 less than the demographic area and the County. Incomes grew by more than 30% in all four geographies; however, the median household income in the state grew more dramatically than the demographic area, Asheboro and Randolph County (see Table 4).

Table 4. Median Household Income, 1989-1999

Area	Household Income		Change, 89-99	
	1989	1999	Difference	%
Demographic Area	$26,669	$36,584	$9,915	37.2%
City of Asheboro	$24,294	$31,676	$7,382	30.4%
Randolph County	$27,130	$38,348	$11,218	41.3%
North Carolina	$26,647	$39,184	$12,537	47.0%

Source: US Census Bureau, 1990 & 2000

In 1989, the percentage of the population that lived below the poverty level in North Carolina was 13.0%. The demographic area, the City of Asheboro, and Randolph County had lower percentages than the State (12.4%, 12.8% and 8.3% respectively). It is important to note that in 1990, Census Tract 303.02 Block Group 1 had a very high percentage of persons below the poverty level (27.8%)[1]. This Block Group was included in the demographic area. Between 1989 and 1999, poverty levels decreased in both the demographic area and the State, while they increased in the City and County (see Table 5).

Table 5. Population below Poverty Level, 1989-1999

Area	% Below Poverty		Change, 89-99	
	1989	1999	Difference	%
Demographic Area	12.4%	11.7%	-0.7%	-5.6%
City of Asheboro	12.8%	15.8%	3.0%	23.4%
Randolph County	8.3%	9.1%	0.8%	9.6%
North Carolina	13.0%	12.3%	-0.7%	-5.4%

Source: US Census Bureau, 1990 & 2000

The US Census Bureau employs a set of income thresholds that vary by the size and composition of a family to determine poverty status. These thresholds are not based on geographic boundaries but are adjusted for inflation. The thresholds are also based on income before taxes, and do not include any capital gains or non-cash benefits such as public assistance. In addition, those people living in military barracks or institutional group homes are not included in the poverty statistics[2].

While the unemployment rate for North Carolina increased from 4.8% to 5.3% between 1990 and 2000, the unemployment rate remained fairly consistent in the demographic area and Randolph County. The 1990 and 2000 unemployment rates in Randolph County (3.3% and 3.1%), the City of Asheboro (3.9% and 4.8%) and the demographic area (3.5% and 3.4%) were lower than that of North Carolina (see Table 6).

[1] City of Asheboro, *City of Asheboro 2020 Land Development Plan*, 2000, p. 20.
[2] US Census Bureau, "Current Population Reports, Series P60-210", US Census Bureau on-line; Available from http://www.census.gov; Internet; accessed 16 October 2001.

Table 6. Unemployment Rate, 1990-2000

Area	Unemployment Rate		Change, 90-00	
	1990	2000	Difference	%
Demographic Area	3.5%	3.4%	-0.1%	-2.9%
City of Asheboro	3.9%	4.8%	0.9%	23.1%
Randolph County	3.3%	3.1%	-0.2%	-6.1%
North Carolina	4.8%	5.3%	0.5%	10.4%

Source: US Census Bureau, 1990 & 2000

It is also important to note that the boundaries of the City of Asheboro changed slightly between 1990 and 2000. This is most likely a result of annexation. Therefore, the comparison of 1990 and 2000 Census data presented in the tables is somewhat skewed.

Housing Characteristics

Figure 3. Residential Uses on NC 42 north of Dixie Drive

TIP project U-3401 is in an urban area with predominantly commercial uses. There are two apartment complexes north of the project area on Coleridge Road. A non-profit organization or a private company owns one of these apartment complexes, and the units are subsidized. The low-density, single-family homes are concentrated to the west and south of the project site. As seen in Table 7, both the demographic area and the City of Asheboro had homeownership rates below the State average of 69.4% in 2000. In addition, the homeownership rates for all three areas (demographic area, Asheboro and Randolph County) decreased between 1990 and 2000, suggesting a shift in the stability of local communities.

Table 7. Homeownership Rate, 1990-2000

Area	Homeownership Rate		Change, 90-00	
	1990	2000	Difference	%
Demographic Area	67.0%	64.5%	-2.5%	-3.7%
City of Asheboro	57.6%	54.0%	-3.6%	-6.2%
Randolph County	77.0%	76.6%	-0.4%	-0.5%
North Carolina	68.0%	69.4%	1.4%	2.1%

Source: US Census Bureau, 1990 & 2000

Business Activity and Employment Centers

The commercial uses along Dixie Drive and NC 42 in eastern Asheboro generate most of the employment near the project site. The largest employers in Asheboro are Klaussner Furniture with nine plants and 3,200 employees, Energizer Battery with two plants and 1,120 employees and Randolph Hospital with 770 employees[3]. Table 8 shows that although the manufacturing industry did not grow substantially between 1990 and 2000, it still represents the largest employment share of the County. Over half of the 22,566 manufacturing jobs in Randolph County in 2000 were related to textiles or furniture and fixtures. In addition, every one of the employment sectors experienced job growth between 1990 and 2000.

Table 8. Employment by Sector, Randolph County, 1990-2000

	Employment		Change	
Sector	1990	2000	Difference	%
Construction	1,644	2,772	1,128	68.6%
Mining	30	46	16	53.3%
Manufacturing	22,223	22,566	343	1.5%
Transportation/ Public Utilities	976	1,533	557	57.1%
Wholesale Trade	1,203	2,528	1,325	110.1%
Retail Trade	5,276	7,244	1,968	37.3%
FIRE	740	932	192	25.9%
Services	3,937	7,231	3,294	83.7%
Government	4,553	5,887	1,334	29.3%
Total:	**40,582**	**50,739**	**10,157**	**25.0%**

Source: North Carolina Employment Security Commission, 2002

Public Facilities and Services

Public Facilities

Asheboro Senior High School and South Asheboro Middle School are located just outside of the study area and demographic area, but only a few miles west of the project site on Dixie Drive. There does not appear to be any other schools located near the project site, but other community facilities located in study area are The Family Sports Center and the YMCA (both on NC 42), the County Farm Bureau and the Children's Center daycare facility (both on E. Salisbury Street). The United Pentecostal Church (on NC 42), The Rose of Sharon Baptist Church (on E. Salisbury Street), Covenant Christian Church (on E. Salisbury Street) and East Side Baptist Church (on Dixie Drive) are all located within the study area as well.

[3] City of Asheboro, *City of Asheboro 2020 Land Development Plan*, 2000, p. 23.

Public Services

The City of Asheboro provides water and sewer service to citizens within the City Limits, which includes those residences and businesses near the intersection of Dixie Drive and NC 42. The City of Asheboro Fire Department and the Police Department are located in downtown Asheboro. There are no fixed-route transportation services in Asheboro or the demographic area; however, a regional non-profit organization provides on-call services and transportation to several select locations.

Land Use and Development Plans

The *2020 Land Development Plan* serves as Asheboro's guide in making decisions related to land development and growth. This document presents a vision for growth with policies that will help the City of Asheboro meet its goals for development over the next two decades. More specifically, the Plan introduces a "toolkit" of land development categories designed to build the "Proposed Land Uses Map" for the City. This map proposes commercial uses for the area immediately surrounding the intersection of Dixie Drive and NC 42.

Klaussner Furniture, the largest employer in Asheboro, owns a 100-acre site on US 64/NC 49 (Dixie Drive) approximately one mile east of NC 42. The City's planning staff believes that this site may eventually be developed as an industrial or retail center; however, it appears that development on the site may be hindered by the presence of soils with severe limitations for development (as shown on the "Physical Development Limitations" map in the *2020 Land Development Plan)*. In addition, a small parcel that was previously owned by Randolph Electric is for sale near Staples and Randolph Mall. This parcel is currently zoned as general commercial, and is proposed to remain commercial in the *2020 Land Development Plan*.

Community Description

Asheboro is the seat of the Randolph County government, and is located in the rolling hills just north of the Uwharrie National Forest and west of the Deep River. The manufacturing industry (furniture and textiles) dominates the local economy. Asheboro is also home to the North Carolina State Zoological Park, which is the largest pedestrian-oriented, natural-habitat zoo in the country.

The population surrounding the intersection of Dixie Drive and NC 42 has relatively high incomes, low unemployment and low poverty levels. In addition, there is a substantially high percentage of Hispanics and Latinos in the demographic area and the City of Asheboro. This is most likely due to the opportunity for work and job growth in the area.

V. PROJECT IMPACT ASSESSMENT

Social and Psychological Impacts

The addition of turn lanes and the widening of Dixie Drive and NC 42 as proposed under TIP U-3401 may create some social and psychological impacts on the local population. Pedestrian/bicycle facilities do not exist at this intersection and are not currently proposed as part of this TIP project. The number of automobile lanes and high traffic volumes currently make it intimidating for non-vehicular traffic. The addition of turn lanes would further widen the cross-section of this intersection, making it even less pedestrian- and bicycle-friendly. For this reason, the cohesion and interaction of neighborhoods and businesses in the study area would be negatively impacted by the proposed widening project, and this could result in minor social and psychological effects.

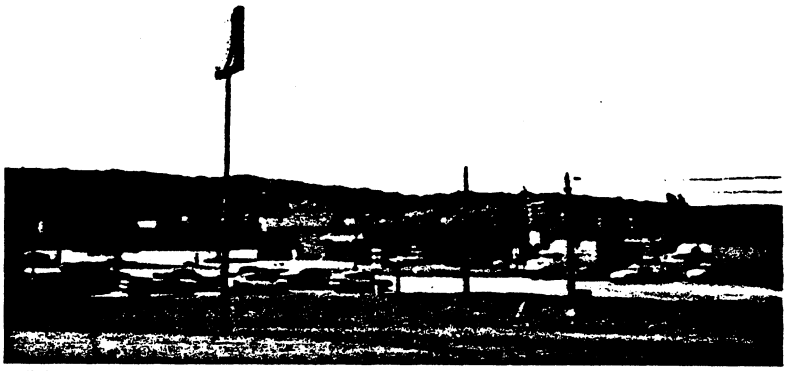


Figure 4. Intersection of Dixie Drive and NC 42 in Asheboro, NC

TIP U-3401 is not expected to generate any redistribution of the local population. There are no residential uses immediately adjacent to the intersection of Dixie Drive and NC 42, and no influx or loss of residential population is anticipated. Businesses in the study area may experience temporary nuisances (such as noise and limited access) during the construction period, but the quality of life should not be impacted in the long-term.

Physical and Visual Impacts

The widening of Dixie Drive and NC 42 and the addition of turning lanes as proposed under TIP U-3401 should not create substantial physical intrusions. Construction activities may generate more noise, vibration and odor, but in the long-term, the effects from this project will be minimal.

At this stage of the design process, it appears that the proposed intersection improvements should not dramatically impact the appearance of the intersection. Vegetation and landscaping is scarce at the project site, and the widening of the highways should not disrupt the existing vegetation. The *2020 Land Development Plan* encourages

the planting of trees and planted medians near commercial uses[4]. While the current NCDOT design plans do not include medians, it is recommended that some decorative trees or vegetation be included alongside the highways in order to make the intersection more aesthetically pleasing.

Land Use Patterns and Compatibility with Local Plans

The *2020 Land Development Plan* promotes a new vision of growth for the City of Asheboro based on four key principles. One of these principles relates to the "move from strip development toward commercial centers." The "strip development" that currently exists at the intersection of Dixie Drive and NC 42 is characteristic of other commercial areas in Asheboro. These developments are typically automobile-oriented, with numerous curb cuts, little connection between uses, visual clutter and poorly functioning thoroughfares. The proposed alternative to "strip development" is the "commercial center," which tends to be more pedestrian friendly, has fewer curb cuts, a mixture of uses that are interconnected, and provides a human scale[5]. The proposed TIP project is not compatible with the aim of this principle. The widening of the intersection at Dixie Drive and NC 42 will not make the surrounding areas more pedestrian-friendly, nor will it create a mixture of uses or a smaller sense of scale.

The other key principles listed in the *2020 Land Development Plan* are:

- Moving from "Unconnected Roads" to a "Road Network"
- Moving from "Separation of Uses" to "Mixed-Use Development"
- Moving from "Conventional Development" to "Cluster Development"

TIP U-3401 is compatible with several of the Transportation System Goals that are listed in the *2020 Land Development Plan*. These goals relate to the provision of a safe and efficient transportation system that promotes economic development and livability, and at the same time reduces traffic congestion and improves accessibility and mobility for people and goods[6]. The proposal to add turn lanes at the intersection of Dixie Drive and NC 42 should improve capacity, level of service and automobile safety at this congested intersection, thus helping to meet the goals set forth in the City's Transportation plan.

Economic Impacts

In the short-term, businesses in the immediate project area will experience a temporary reduction in access and visibility due to construction activities. Those businesses at the four corners of the intersection will be most affected. In particular, customers will have a difficult time accessing the BP gas station, the Mazda & Honda dealership, the Blockbuster and the Crossroads Center during the construction period. Customers

[4] City of Asheboro, *City of Asheboro 2020 Land Development Plan*, 2000, p. 84.
[5] Ibid, p. 91.
[6] City of Asheboro, *City of Asheboro 2020 Land Development Plan*, 2000, p. 77.

visiting other businesses in the area may also experience some delays, and frustration caused by these delays could negatively impact business.
The proposed improvements may provide some additional construction-related jobs in the short-term, but the project will not necessarily encourage businesses to move into or out of the study area. While the additional turn-lanes and wider roads should relieve congestion and improve safety at the intersection, these improvements will not make the intersection more attractive to businesses.

Mobility and Access

Consistency with Thoroughfare Plans

The *City of Asheboro 2020 Land Development Plan* and *1986 Thoroughfare Plan Deficiency Analysis Map* refer to both Dixie Drive and NC 42 as being near or over capacity by 2025, and they establish the project intersection as needing widening improvements. The proposed widening project is consistent with these transportation system thoroughfare plans, as TIP U-3401 should improve capacity, level of service, and automobile safety at this intersection.

Change in Commuting Patterns

Because the proposed improvements are confined to the intersection of Dixie Drive and NC 42, few changes in area-wide commuting are expected. Some shifting of traffic at individual commercial property driveways is anticipated, but system-wide changes are not expected. System-wide changes in commuting patterns tend to occur when large-scale widening projects are made for the length of a particular roadway, or if a facility is constructed at a new location. This TIP improvement does not fit either criterion. However, there are potential long-range plans to improve the US 64 corridor from Raleigh to Charlotte, to construct a "Southern Loop" or US 64 Bypass around Asheboro, and to complete a minor thoroughfare from Executive Way west of the project site to NC 42 north of the project site. The cumulative effects of such projects would impact system-wide commuting patterns.

Neighborhood Access

Existing neighborhoods and the associated local and collector street facilities have access to both NC 42 and Dixie Drive, but residential uses are situated away from the immediate vicinity of the proposed improvements. The turning lane improvements on both roads are expected to have limited impact on the existing access points for residential neighborhoods in the study area.

Commercial Access

Lengthy vehicular queues often block commercial driveway entrances/exits at the intersection of Dixie Drive and NC 42. Intersection improvements that add capacity to critical lanes will likely decrease delays and excessive queuing thus, improving vehicular access to businesses adjacent to the intersection. The improvements are predicted to

help overall intersection operations in the future, but the short-term construction activities will make accessing those businesses near the intersection more difficult.

Effects on Parking Availability
The proposed improvements will not impact on-street parking availability, as this type of parking is not currently permitted, and the proposed improvements are not designed to accommodate this feature. Depending on the final design plans, some parking areas may be disturbed by the improvements. Particular concern has been expressed about the lack of available parking along NC 42 near the Mazda/Honda Dealership. Final design plans should minimize the impact to off-street parking available at the dealership after the completion of TIP U-3401.

Pedestrian and Bicycle Access
No pedestrian or bicycle facilities currently exist at the intersection of Dixie Drive and NC, and TIP U-3401 does not include provisions for bicycle or pedestrian facility improvements since the project is geared toward improving traffic flow at this intersection. Furthermore, this project increases the overall width of the intersection by adding lanes and creating an even more unfavorable condition for pedestrians and bicyclists.

Public Transportation
Currently, there is no fixed-route public transportation service in the TIP study area. According to the Governmental Services website[7] the Randolph Coordinated Agency Transportation System provides pre-scheduled transportation service for residents of Randolph County. This System operates from 6 a.m. to 5 p.m., Monday through Friday. Also, Ridesharing Services and Vanpooling of the Piedmont (RSVP) options are available in this area. RSVP is a coordinated commuter transportation service for the Piedmont triad area. It is predicted the proposed project will have minimal impacts to public transportation services.

Transportation Safety Impacts

The proposed improvements will likely provide safety benefits for both study area drivers and users of the facility from the entire region. The main safety concern in this intersection is the left-turn lane from Dixie Drive onto NC 42. Traffic volumes are too high for the single turn lane, and the addition of another lane should relieve some congestion in this area and heighten capacity and vehicular safety.

The proposed project will not have a beneficial safety impact on non-motorized transportation. TIP U-3401 includes no provision for sidewalks along any part of the new facility, and no additional shoulder or pavement width is proposed to be added for bicycles. There is currently little pedestrian or bicycle activity along this corridor, but the close proximity of residential neighborhoods and retail uses would merit such provisions.

[7] City of Asheboro, *City of Asheboro 2020 Land Development Plan*, 2000, p. 21.

It is recommended that sidewalks, crosswalks and pedestrian signal heads be included in design plans.

Provisions of Public Services

TIP U-3401 should not help nor hinder the function of or service to public facilities in the study area. Because the proposed improvements will not have an impact on population, the impact on public facilities such as schools, recreational facilities and churches will be negligible.

There may be substantial impacts to public utilities. The telephone poles near Asheboro Mazda and Honda will most likely be relocated to allow for the widening of NC 42 and Dixie Drive. There are also fiber optic lines (both above and below ground) on the north side of Dixie Drive. It will be necessary to avoid these lines or relocate them during construction of the proposed improvements.

In addition, the City of Asheboro recently installed clay pipes along Dixie Drive in order to provide water and sewer service to residences and businesses in the area. City staff has expressed concern over the increased costs associated with constructing roads over existing clay pipe, but they do not expect impacts to water and sewer services as a result of the proposed improvements.

Displacements

It is the policy of the NCDOT to provide assistance and counseling to those affected by transportation improvements as required under the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act. Furthermore, the North Carolina Board of Transportation offers programs that address relocation assistance, moving payments and replacement housing payments or rent subsidies for residents and businesses that are impacted by transportation improvements.

At this time, no displacements or relocations of residences or businesses are expected as a result of TIP U-3401; however, the NCDOT anticipates the need to acquire some additional right-of-way at the intersection, but it should not be so much as to displace any existing commercial structures. The field study and minutes from the affected property

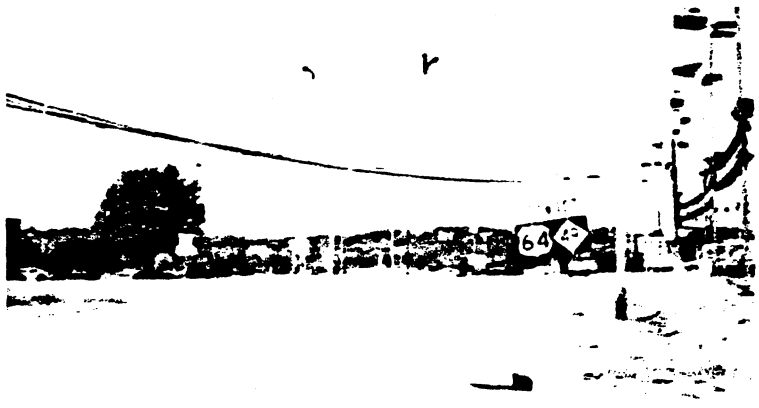


Figure 5. Asheboro Mazda & Honda from NC 42

owners' meeting (held on February 26, 2002) revealed that because there is limited space between the existing roads and the dealership parking lot, Asheboro Mazda & Honda dealership may suffer the greatest impacts from widening Dixie Drive and NC 42.

Indirect and Cumulative Impacts

Indirect impacts are those impacts that may come about because of an event such as the proposed transportation improvements at the intersection of Dixie Drive and NC 42. Indirect impacts tend to occur over a longer period of time and can take place away from the immediate project area. Closely related is the concept of cumulative impacts, which are the collective effects of events such as this project.

A checklist of existing conditions often helps to determine the magnitude of potential indirect and cumulative impacts that could occur as a result of a transportation improvement. *Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina* recommends using the following factors to determine if further indirect and cumulative analysis is warranted:

Conflict with local plan
This project is not in conflict with the *City of Asheboro 2020 Land Development Plan* and the *1986 Thoroughfare Plan.*

Explicit economic development purpose
The purpose of this project is to increase capacity, level of service and safety. The project is not expected to serve specifically as an economic development tool, and should not generate any substantial development momentum.

Planned to serve specific development
TIP U-3401 will not be constructed to meet the needs of any specific planned development at the intersection of Dixie Drive and NC 42.

Likely to stimulate land development having complementary functions
- Distance to major urban area or regional center
- Traffic volume on intersecting roadways
- Presence of frontage road
- Availability of water and sewer

The project site is located in an urban corridor in the City of Asheboro, and is approximately 25 miles from the second largest Metropolitan Statistical Area in North Carolina. Traffic volumes are high, particularly on Dixie Drive, and water and sewer are available in the study area. On the other hand, no frontage roads exist along either Dixie Drive or NC 42, and the current levels of congestion and lack of undeveloped land may make the intersection unattractive to potential tenants.

Likely to influence intraregional land development location decisions
Typically, if the conditions for development are favorable, and a community is undergoing urbanization, transportation improvements influence where development will occur. Because TIP U-3401 includes only intersection improvements, intraregional land development decisions are not expected to be impacted.

Notable feature present in impact area
Notable features may relate to the natural environment, historic and cultural properties, wildlife habitat, etc. Based on the site visit and local plans, it does not appear that there are any historic or cultural properties in the immediate vicinity of the project site. According to NCDOT documentation, Schweinitz's sunflower, an endangered species, is known to be in this part of the State, but it has not been confirmed that this sunflower exists at this project site.

The project will increase the pavement width but is not anticipated to cause a change in the existing land uses, alter traffic circulation patterns or provide new access to adjacent parcels or undeveloped areas. Very little, if any, development should be induced by the proposed TIP U-3401. Therefore, the project is not anticipated to result in substantial indirect and cumulative effects on the existing resources, including downstream water quality.

To further support the assumption that indirect and cumulative impacts are unlikely to occur as a result of TIP U-3401, there is another set of factors included in *A Guidebook for Evaluating the Indirect Land Use and Growth Impacts of Highway Improvements*, written for the Oregon DOT. Analysis of these factors helps to determine the magnitude of indirect and cumulative impacts. The following table offers a type of rating analysis based on those factors:

Table 9. Potential For Land Use Change, 2000-2020

Rating	Change in Accessibility	Presence of Frontage Road	Change in Property Values	Forecasted Growth	Land Supply vs. Land Demand	Water/Sewer Availability	Market For Development	Public Policy
Strong	*Travel time savings greater than 10 mins.*	*Proposed along entire corridor*	*Greater than 50% increase*	*Greater than 3% annual population growth*	*Less than 10-yr supply of available land*	*Available now*	*Strong market*	*No growth management policy; weak enforcement*
•								
•						X		X
•				X	X		X	
•								
•	X	X	X					
Weak	*Travel time savings less than 2 mins.*	*None*	*No change*	*Less than 1% annual growth*	*Greater than 20-yr supply of available land*	*Not available, and difficult to provide*	*Weak market*	*Growth management policy in place; strong enforcement*

In terms of positive indicators, the only factors that rank high for potential land use change are the water/sewer availability and lack of growth management policy. The

infrastructure is in place for some development; however, all of the other indicators have a low to medium ranking with respect to the magnitude of potential land use change. Because the proposed project is an intersection improvement and will serve to improve traffic flow through the intersection, it will not provide new access to land and does not appear to be of sufficient magnitude to change the nature of the land use in the area.

Travel timesavings are not expected to increase substantially, frontage roads are not included in the proposal, property values will remain fairly stable, and the demographic area is experiencing less growth than the City of Asheboro, Randolph County and North Carolina. Additionally, there is a minimal amount of available land immediately adjacent to the intersection of Dixie Drive and NC 42, but there are large tracts of vacant land on US 64 east of the project site. The regional market is about average, and the *2020 Land Development Plan* encourages commercial growth in the study area.

In an effort to counteract the lack of investment and the decline of neighborhoods and commercial areas in some economically depressed center cities, the North Carolina Department of Commerce has created State Development Zones in which economic incentives are used to stimulate investment and jobs in areas with a population over 1,000 and an average poverty rate of over 20%. One such area is Census Tract 303.02, Block Group 1 (part of the demographic area). Companies that invest more than $150 million in real property, equipment or central administrative offices within a State Development Zone would be eligible for certain tax credits. These tax credits may serve to promote growth in the northern portion of the demographic area, and east of the project site on US 64/NC 49.

It is unlikely this area will experience any measurable amount of development as a result of the proposed TIP project. Therefore, it is not necessary to forecast induced development in the demographic area.

Environmental Justice Impacts

Federal programs, under the statutes of Title VI of the Civil Rights Act of 1964, have requirements to protect individuals from discrimination on the basis of race, color, national origin, age, sex, disability, and religion. Furthermore, Executive Order 12898 "directs that programs, policies, and activities not have a disproportionately high and adverse human health and environmental effect on minority and low-income populations"[8].

The northwestern portion of the demographic area has historically had a predominantly minority population and high poverty levels. This particular area is located about a mile north of the Dixie Drive and NC 42 intersection. While the intersection improvements

[8] US Department of Agriculture, "Farmland Protection Policy Act", US Department of Agriculture on-line; Available from http://www.info.usda.gov/nrcs/fpcp/fppa.htm; Internet; accessed 2 October 2001.

proposed under TIP U-3401 are not expected to cause substantial adverse or disproportionate impacts on minority and low-income groups, the lack of a pedestrian system in the area is detrimental to the entire community. The TIP proposal does not currently address the need for a continuous pedestrian/bike network; however, sidewalks, crosswalks and pedestrian signals are recommended for inclusion in final design plans.

Farmland Impacts

The Farmland Protection Policy Act (FPPA) is designed to minimize the degree to which federally sponsored programs contribute to the "unnecessary and irreversible conversion of farmland to non-agricultural uses," and ensure that these programs are consistent with state, local and private programs to protect farmland[9].

The study area is almost completely urbanized and farming uses were not apparent during the site visit; however, the proposed improvements should not negatively impact any current commercial agricultural operations.

Scenic Rivers

The United States government regulates certain selected rivers and their immediate environments because they possess "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values". Legislation dictates that these rivers "shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations"[10]. This TIP project will not encroach on any wild and scenic rivers as designated by the United States government.

Water Supply/Watersheds

Both of Asheboro's water supply reservoirs are located in the northwestern section of the City. The watershed areas for the two reservoirs are several miles away from the TIP project site and are not located within the boundaries of the demographic area or study area; therefore, the watershed regulations imposed by the City of Asheboro will not limit development near the intersection of Dixie Drive and NC 42. Any highway improvements at the intersection are not expected to impact either water supply reservoir.

Vestal Creek, a tributary of Richland Creek, flows south from a location approximately ½-mile west of the project site at Dixie Drive and NC 42. The City of Asheboro allows only 50% of a FEMA 100-year flood zone area (such as Vestal Creek) to be developed.

---

9 US Department of Agriculture, "Farmland Protection Policy Act", US Department of Agriculture on-line: Available from http://www.info.usda.gov/nrcs/fpcp/fppa.htm; Internet, accessed 2 October 2001.

[10] National Park Service, "Wild and Scenic River's Act", National Park Service on-line; Available from http://www.npc.gov/rivers/wsract.html; Internet; accessed 2 October 2001.

The 303-D list is a product of the Clean Water Act, which requires states to identify those waters that do not meet water quality standards or which have impaired uses. If control strategies for point and nonpoint source pollution exist for impaired waters, they may be excluded from the 303-D list. There are no 303-D streams located within the demographic area.

The study area is also part of the Cape Fear River Basin, a Class IV NSW watershed. This class of watershed is typically located in moderately to highly developed areas. This watershed should not be substantially impacted by TIP U-3401 or the limited development that occurs because of this project.

BIBLIOGRAPHY

Asheboro/Randolph Chamber of Commerce. Available from http://chamber.asheboro.com; Internet; accessed 18 June 2002.

City of Asheboro. "2020 Land Development Plan: Final Draft." June 2000.

ECONorthwest and Portland State University for Oregon Department of Transportation and Federal Highway Administration. SPR Project 327. "A Guidebook for Evaluating the Indirect Land Use and Growth Impacts of Highway Improvements." March 2001.

National Cooperative Highway Research Program. Transportation Research Board. National Research Council. "Guidebook for Assessing the Social and Economic Effects of Transportation Projects (NCHRP Report 456)." 2001.

National Park Service. "Wild and Scenic River's Act." Available from http://www.nps.gov/rivers/wsract.html. Internet; accessed 2 October 2001.

Randolph County: North Carolina's Industrial Center on-line. Available from http://www.rcedc.com. Internet; accessed 15 August 2002.

Randolph County on-line. Available from http://www.co.randolph.nc.us. Internet; accessed 18 June 2002.

The Louis Berger Group for State of North Carolina Department of Transportation. Project Number 81777722. "Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina, Volume I: Guidance Policy Report." November 2001.

The Louis Berger Group for State of North Carolina Department of Transportation. Project Number 81777722. "Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina, Volume II: Practitioner's Handbook." November 2001.

United States Census Bureau. Available from http://www.census.gov. Internet; accessed June 2002 and February 2003.

United States Department of Agriculture. "Farmland Protection Policy Act." Available from http://www.info.usda.gov/nrcs/fpcp/fppa.htm; Internet; accessed 2 October 2001.

United States Department of Environment and Natural Resources. Division of Water Quality. "Chapter 9 - Cape Fear River Subbasin 03-06-09." Available from http://h2o.enr.state.nc.us/basinwide/Capefear/capefearindex.htm. Internet; accessed 26 June 2002.